Honoapi'ilani Highway Improvements Project
West Maui: Ukumehame to Launiupoko

Second Final Environmental Impact Statement

Submitted Pursuant to Chapter 343, Hawaii Revised Statutes (HRS)

Hawaii Department of Transportation (HDOT)

Volume 4

Appendix 2
Appendix 3.6
Appendix 3.7
Appendix 3.9

November 2025

Honoapi'ilani Highway Improvements

HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

Appendix 2 – Government Plans

November 2025

Prepared for

Honoapiʻilani Highway Improvements

Contents

Government Plans

Appendix 2 Government Plans

2.1 HAWAI‘I STATE PLANS

2.1.1 Hawai‘i State Plan (Hawai‘i Revised StatutesChapter 226 Hawai‘i State Planning Act)[1]

The Hawai‘i State Plan was set forth by the Hawai‘i State Planning Act, which was signed into law in 1978 and codified under Hawai‘i (HRS) Chapter 226 to “improve the planning process in this state, to increase the effectiveness of government and private actions, to improve coordination among different agencies and levels of government, to provide for wise use of Hawai‘i’s resources and to guide the future development of the state.”

The Honoapi‘ilani Highway is a state-sponsored initiative and is evaluated from the perspective of this long-range plan. The State Plan identifies the long-range goals, objectives, policies, and priorities for the State of Hawai‘i. The plan is divided into three parts:

- Part I identifies the overall theme, goals, objectives, and policies of the State of Hawai‘i.
- Part II establishes a statewide planning system to coordinate and guide all major state and county activities and to implement the overall theme, goals, objectives, policies, and priority guidelines.
- Part III establishes overall priority guidelines to address areas of statewide concern.

TABLE 2.1-1. **The Hawai‘i State Plan**

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-5: Objective and policies for population It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter. To achieve the population objective, it shall be the policy of this State to:		—
Manage population growth statewide in a manner that provides increased opportunities for Hawai‘i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.	Not Applicable	
Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.	Applicable	Promote

[1] https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0226/. Accessed April 2023.

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands.	Applicable	Promote
Encourage research activities and public awareness programs to foster an understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.	Not Applicable	
Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.	Not Applicable	
Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.	Not Applicable	
Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.	Not Applicable	
§226-6: Objectives and policies for the economy--in general Planning for the State's economy in general shall be directed toward achievement of the following objectives: Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited. A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands To achieve the general economic objectives, it shall be the policy of this State to:		
Promote and encourage entrepreneurship within Hawai'i by residents and nonresidents of the State.	Not Applicable	
Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people	Not Applicable	
Transform and maintain Hawai'i as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.	Not Applicable	
Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawai'i.	Not Applicable	
Seek broader outlets for new or expanded Hawai'i business investments.	Not Applicable	
Expand existing markets and penetrate new markets for Hawai'i's products and services.	Not Applicable	
Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.	Not Applicable	
Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.	Applicable	Promote
Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small scale producers, manufacturers, and distributors.	Not Applicable	
Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility	Applicable	Promote
Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawai'i	Not Applicable	
Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities	Not Applicable	
Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems	Applicable	Promote
Maintain acceptable working conditions and standards for Hawai'i's workers	Not Applicable	
Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures	Not Applicable	
Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy, particularly with respect to emerging industries in science and technology	Not Applicable	
Promote and protect intangible resources in Hawai'i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy	Applicable	Promote
Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new or innovative potential growth industries in particular	Not Applicable	
Foster a business climate in Hawai'i--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry	Not Applicable	
§226-7: Objectives and policies for the economy—agriculture Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives: Viability of Hawai'i's sugar and pineapple industries. Growth and development of diversified agriculture throughout the State. An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being. To achieve the agriculture objectives, it shall be the policy of this State to:		
Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy	Not Applicable	
Encourage agriculture by making the best use of natural resources.	Not Applicable	
Provide the governor and the legislature with information and options needed for prudent decision-making for the development of agriculture.	Not Applicable	
Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits	Not Applicable	
Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Seek the enactment and retention of federal and state legislation that benefits Hawai‘i's agricultural industries	Not Applicable	
Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai‘i's food producers and consumers in the State, nation, and world	Applicable	Promote
Support research and development activities that strengthen economic productivity in agriculture, stimulate greater efficiency, and enhance the development of new products and agricultural by-products	Not Applicable	
Enhance agricultural growth by providing public incentives and encouraging private initiatives	Not Applicable	
Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs	Not Applicable	
Increase the attractiveness and opportunities for an agricultural education and livelihood	Not Applicable	
In addition to the State's priority on food, expand Hawai‘i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises	Not Applicable	
Promote economically competitive activities that increase Hawai‘i's agricultural self-sufficiency, including the increased purchase and use of Hawai‘i-grown food and food products by residents, businesses, and governmental bodies as defined under section 103D-104	Not Applicable	
Promote and assist in the establishment of sound financial programs for diversified agriculture	Not Applicable	
Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment	Not Applicable	
Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.	Not Applicable	
Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i‘a, māla, and irrigated lo‘i, and growth of traditional Hawaiian crops, such as kalo, ‘uala, and ‘ulu	Not Applicable	
Increase and develop small-scale farms	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-8: Objective and policies for the economy--visitor industry Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy. To achieve the visitor industry objective, it shall be the policy of this State to:		
Support and assist in the promotion of Hawai'i's visitor attractions and facilities	Applicable	Promote
Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people	Not Applicable	
Improve the quality of existing visitor destination areas by utilizing Hawai'i's strengths in science and technology	Not Applicable	
Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities	Not Applicable	
Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people	Not Applicable	
Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry	Not Applicable	
Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit	Not Applicable	
Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values	Not Applicable	
§226-9: Objective and policies for the economy--federal expenditures Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy. To achieve the federal expenditures objective, it shall be the policy of this State to:		
Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote Hawai‘i's supportive role in national defense, in a manner consistent with Hawai‘i's social, environmental, and cultural goals by building upon dual-use and defense applications to develop thriving ocean engineering, aerospace research and development, and related dual-use technology sectors in Hawai‘i's economy	Not Applicable	
Promote the development of federally supported activities in Hawai‘i that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai‘i's environment	Applicable	Promote
Increase opportunities for entry and advancement of Hawai‘i's people into federal government service	Not Applicable	
Promote federal use of local commodities, services, and facilities available in Hawai‘i	Not Applicable	
Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai‘i	Applicable	Promote
Pursue the return of federally controlled lands in Hawai‘i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties	Not Applicable	
§226-10: Objective and policies for the economy--potential growth and innovative activities Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawai‘i's economic base. To achieve the potential growth and innovative activity objective, it shall be the policy of this State to:		
Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawai‘i's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors	Not Applicable	
Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawai‘i through the export of services or products or substitution of imported services or products	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements	Not Applicable	
Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity	Not Applicable	
Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus	Not Applicable	
Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people	Not Applicable	
Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts	Not Applicable	
Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste	Not Applicable	
Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State	Not Applicable	
Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawai'i's social, economic, physical, and environmental objectives	Not Applicable	
Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research	Not Applicable	
Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i	Not Applicable	
Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawai'i	Not Applicable	
Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Increase research and development of businesses and services in the telecommunications and information industries	Not Applicable	
Foster the research and development of nonfossil fuel and energy efficient modes of transportation	Not Applicable	
Recognize and promote health care and health care information technology as growth industries	Not Applicable	
§226-10.5: Objectives and policies for the economy--information industry Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawai‘i as a leader in broadband and wireless communications and applications in the Pacific Region. To achieve the information industry objective, it shall be the policy of this State to:		
Promote efforts to attain the highest speeds of electronic and wireless communication within Hawai‘i and between Hawai‘i and the world, and make high speed communication available to all residents and businesses in Hawai‘i	Not Applicable	
Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai‘i to accommodate future growth and innovation in Hawai‘i's economy	Not Applicable	
Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawai‘i	Not Applicable	
Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawai‘i, using technology to communicate with their headquarters, offices, or customers located out-of-state	Not Applicable	
Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry	Not Applicable	
Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai‘i's people	Not Applicable	
Provide opportunities for Hawai‘i's people to obtain job training and education that will allow for upward mobility within the information industry	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Foster a recognition of the contribution of the information industry to Hawai'i's economy	Not Applicable	
Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific	Not Applicable	
§226-11: Objectives and policies for the physical environment--land-based, shoreline, and marine resources Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives: Prudent use of Hawai'i's land-based, shoreline, and marine resources Effective protection of Hawai'i's unique and fragile environmental resources To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:		
Exercise an overall conservation ethic in the use of Hawai'i's natural resources	Applicable	Promote
Ensure compatibility between land-based and water-based activities and natural resources and ecological systems	Not Applicable	
Take into account the physical attributes of areas when planning and designing activities and facilities	Applicable	Promote
Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage	Not Applicable	
Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions	Not Applicable	
Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i	Applicable	Promote
Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion	Not Applicable	
Pursue compatible relationships among activities, facilities, and natural resources	Not Applicable	
Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-12: Objective and policies for the physical environment--scenic, natural beauty, and historic resources Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai‘i's scenic assets, natural beauty, and multi-cultural/historical resources. To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:		
Promote the preservation and restoration of significant natural and historic resources	Not Applicable	
Provide incentives to maintain and enhance historic, cultural, and scenic amenities	Applicable	Promote
Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features	Not Applicable	
Protect those special areas, structures, and elements that are an integral and functional part of Hawai‘i's ethnic and cultural heritage	Not Applicable	
Encourage the design of developments and activities that complement the natural beauty of the islands.	Not Applicable	
§226-13: Objectives and policies for the physical environment--land, air, and water quality Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives: Maintenance and pursuit of improved quality in Hawai‘i's land, air, and water resources. Greater public awareness and appreciation of Hawai‘i's environmental resources. To achieve the land, air, and water quality objectives, it shall be the policy of this State to:		
Foster educational activities that promote a better understanding of Hawai‘i's limited environmental resources	Not Applicable	
Promote the proper management of Hawai‘i's land and water resources	Applicable	Promote

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters	Applicable	Promote
Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people	Not Applicable	
Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters	Applicable	Promote
Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities	Applicable	Promote
Encourage urban developments in close proximity to existing services and facilities	Not Applicable	
Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors	Not Applicable	
§226-14: Objective and policies for facility systems--in general Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, sustainable development, climate change adaptation, sea level rise adaptation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives. To achieve the general facility systems objective, it shall be the policy of this State to:		
Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans	Applicable	Promote
Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities	Applicable	Promote
Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user	Not Applicable	
Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems	Applicable	Promote

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Identify existing and planned state facilities that are vulnerable to sea level rise, flooding impacts, and natural hazards	Applicable	Promote
Assess a range of options to mitigate the impacts of sea level rise to existing and planned state facilities	Applicable	Promote
§226-15: Objectives and policies for facility systems--solid and liquid wastes Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives: Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas To achieve solid and liquid waste objectives, it shall be the policy of this State to:		
Encourage the adequate development of sewerage facilities that complement planned growth	Not Applicable	
Promote reuse and recycling to reduce solid and liquid wastes and employ a conservation ethic	Not Applicable	
Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes	Not Applicable	
§226-16: Objective and policies for facility systems—water Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities. To achieve the facility systems water objective, it shall be the policy of this State to:		
Coordinate development of land use activities with existing and potential water supply	Not Applicable	
Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Reclaim and encourage the productive use of runoff water and wastewater discharges	Not Applicable	
Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use	Not Applicable	
Support water supply services to areas experiencing critical water problems	Not Applicable	
Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs	Not Applicable	
§226-17: Objectives and policies for facility systems—transportation Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives: An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State To achieve the transportation objectives, it shall be the policy of this State to:		
Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter	Applicable	Promote
Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives	Not Applicable	
Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties	Not Applicable	
Provide for improved accessibility to shipping, docking, and storage facilities	Applicable	Promote
Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs	Not Applicable	
Encourage transportation systems that serve to accommodate present and future development needs of communities	Applicable	Promote
Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs	Not Applicable	
Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification	Applicable	Promote
Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai‘i's natural environment	Applicable	Promote
Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation	Not Applicable	
Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives	Applicable	Promote
Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-18: Objectives and policies for facility systems—energy Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all: Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawai'i's dependence on imported fuels for electrical generation and ground transportation Greater diversification of energy generation in the face of threats to Hawai'i's energy supplies and systems Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use Utility models that make the social and financial interests of Hawai'i's utility customers a priority To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably priced, and dependable energy services to accommodate demand. To further achieve the energy objectives, it shall be the policy of this State to:		
Support research and development as well as promote the use of renewable energy sources	Not Applicable	
Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth	Not Applicable	
Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote all cost-effective conservation of power and fuel supplies through measures, including: *(A)* Development of cost-effective demand-side management programs; *(B)* Education; *(C)* Adoption of energy-efficient practices and technologies; and *(D)* Increasing energy efficiency and decreasing energy use in public infrastructure	Not Applicable	
Ensure, to the extent that new supply-side resources are needed, that the development or expansion of energy systems uses the least-cost energy supply option and maximizes efficient technologies	Not Applicable	
Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies	Not Applicable	
Promote alternate fuels and transportation energy efficiency	Not Applicable	
Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications	Not Applicable	
Support actions that reduce, avoid, or sequester Hawai‘i's greenhouse gas emissions through agriculture and forestry initiatives	Not Applicable	
Provide priority handling and processing for all state and county permits required for renewable energy projects	Not Applicable	
Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources	Not Applicable	
Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawai‘i	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-18.5: Objectives and policies for facility systems—telecommunications Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people. To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand. To further achieve the telecommunications objective, it shall be the policy of this State to:		
Facilitate research and development of telecommunications systems and resources	Not Applicable	
Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning	Not Applicable	
Promote efficient management and use of existing telecommunications systems and services	Not Applicable	
Facilitate the development of education and training of telecommunications personnel	Not Applicable	
§226-19: Objectives and policies for socio-cultural advancement—housing Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives: Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more rental and for sale affordable housing is made available to extremely low-, very low-, lower-, moderate-, and above moderate-income segments of Hawai'i's population The orderly development of residential areas sensitive to community needs and other land uses The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people To achieve the housing objectives, it shall be the policy of this State to:		

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Effectively accommodate the housing needs of Hawai‘i's people	Not Applicable	
Stimulate and promote feasible approaches that increase affordable rental and for sale housing choices for extremely low-, very low-, lower-, moderate-, and above moderate-income households	Not Applicable	
Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing	Not Applicable	
Promote appropriate improvement, rehabilitation, and maintenance of existing rental and for sale housing units and residential areas	Not Applicable	
Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas	Not Applicable	
Facilitate the use of available vacant, developable, and underutilized urban lands for housing	Not Applicable	
Foster a variety of lifestyles traditional to Hawai‘i through the design and maintenance of neighborhoods that reflect the culture and values of the community	Not Applicable	
Promote research and development of methods to reduce the cost of housing construction in Hawai‘i	Not Applicable	
§226-20: Objectives and policies for socio-cultural advancement—health Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives: Fulfillment of basic individual health needs of the general public Maintenance of sanitary and environmentally healthful conditions in Hawai‘i's communities Elimination of health disparities by identifying and addressing social determinants of health To achieve the health objectives, it shall be the policy of this State to:		
Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State	Not Applicable	
Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs	Not Applicable	
Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures	Not Applicable	
Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions	Not Applicable	
Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement	Not Applicable	
Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.	Not Applicable	
§226-21: Objective and policies for socio-cultural advancement—education Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. To achieve the education objective, it shall be the policy of this State to:		
Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups	Not Applicable	
Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs	Not Applicable	
Provide appropriate educational opportunities for groups with special needs	Not Applicable	
Promote educational programs which enhance understanding of Hawai'i's cultural heritage	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands	Not Applicable	
Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities	Not Applicable	
Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning	Not Applicable	
Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence	Not Applicable	
Support research programs and activities that enhance the education programs of the State	Not Applicable	
§226-22: Objective and policies for socio-cultural advancement--social services Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being. To achieve the social service objective, it shall be the policy of the State to:		
Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities	Not Applicable	
Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society	Not Applicable	
Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities	Not Applicable	
Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations	Not Applicable	
Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Promote programs which assist people in need of family planning services to enable them to meet their needs	Not Applicable	
§226-23: Objective and policies for socio-cultural advancement—leisure Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations. To achieve the leisure objective, it shall be the policy of this State to:		
Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities	Not Applicable	
Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently	Not Applicable	
Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance	Applicable	Promote
Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved	Not Applicable	
Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources	Applicable	Promote
Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs	Not Applicable	
Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai'i's people	Not Applicable	
Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms	Not Applicable	
Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts	Not Applicable	
Assure adequate access to significant natural and cultural resources in public ownership	Applicable	Promote

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-24: Objective and policies for socio-cultural advancement--individual rights and personal well-being Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations. To achieve the individual rights and personal well-being objective, it shall be the policy of this State to:		
Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment	Not Applicable	
Uphold and protect the national and state constitutional rights of every individual	Not Applicable	
Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice	Not Applicable	
Ensure equal opportunities for individual participation in society	Not Applicable	
§226-25: Objective and policies for socio-cultural advancement—culture Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai‘i's people. To achieve the culture objective, it shall be the policy of this State to:		
Foster increased knowledge and understanding of Hawai‘i's ethnic and cultural heritages and the history of Hawai‘i	Not Applicable	
Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai‘i's people and which are sensitive and responsive to family and community needs	Not Applicable	
Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai‘i	Not Applicable	
Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai‘i's people and visitors	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
§226-26: Objectives and policies for socio-cultural advancement--public safety Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives: Assurance of public safety and adequate protection of life and property for all people. Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances. Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people. To achieve the public safety objectives, it shall be the policy of this State to:		
Ensure that public safety programs are effective and responsive to community needs	Applicable	Promote
Encourage increased community awareness and participation in public safety programs	Not Applicable	
To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:		
Support criminal justice programs aimed at preventing and curtailing criminal activities	Not Applicable	
Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies	Not Applicable	
Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community	Not Applicable	
To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:		
Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times	Not Applicable	

PART I: OVERALL THEME, GOALS, OBJECTIVES, AND POLICIES	APPLICABILITY	PROMOTE/ HINDER
Enhance the coordination between emergency management programs throughout the State	Not Applicable	
§226-27: Objectives and policies for socio-cultural advancement—government Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives: Efficient, effective, and responsive government services at all levels in the State Fiscal integrity, responsibility, and efficiency in the state government and county governments To achieve the government objectives, it shall be the policy of this State to:		
Provide for necessary public goods and services not assumed by the private sector	Applicable	Promote
Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response	Applicable	Promote
Minimize the size of government to that necessary to be effective	Not Applicable	
Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i	Not Applicable	
Assure that government attitudes, actions, and services are sensitive to community needs and concerns	Not Applicable	
Provide for a balanced fiscal budget	Not Applicable	
Improve the fiscal budgeting and management system of the State	Not Applicable	
Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible	Not Applicable	

TABLE 2.1-2. **The Hawai'i State Plan (Part III)**

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
§226-103: Economic priority guidelines (a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:		

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises	Not Applicable	
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements	Not Applicable	
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations	Not Applicable	
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable	Not Applicable	
(5) Streamline the processes for building and development permit and review and telecommunication infrastructure installation approval and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where scientific evidence indicates that public health, safety, and welfare would not be adversely affected	Not Applicable	
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawaiʻi's small-scale producers, manufacturers, and distributors	Not Applicable	
(7) Continue to seek legislation to protect Hawaiʻi from transportation interruptions between Hawaiʻi and the continental United States	Not Applicable	
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics: (A) An industry that can take advantage of Hawaiʻi's unique location and available physical and human resources (B) A clean industry that would have minimal adverse effects on Hawaiʻi's environment (C) An industry that is willing to hire and train Hawaiʻi's people to meet the industry's labor needs at all levels of employment (D) An industry that would provide reasonable income and steady employment	Not Applicable	
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawaiʻi business	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(10) Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions: (A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible (B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities (C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired (D) Promote career opportunities in all industries for Hawai'i's people by encouraging firms doing business in the State to hire residents (E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities (F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment	Not Applicable	
(b) Priority guidelines to promote the economic health and quality of the visitor industry:		
(1) Promote visitor satisfaction by fostering an environment which enhances the aloha spirit and minimizes inconveniences to Hawai'i's residents and visitors	Applicable	Promote
(2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access	Not Applicable	
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities	Not Applicable	
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources	Not Applicable	
(5) Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions	Not Applicable	
(6) Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets	Not Applicable	
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter	Not Applicable	
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike	Not Applicable	
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques	Not Applicable	
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:		
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries	Not Applicable	
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops	Not Applicable	
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:		
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands	Not Applicable	
(2) Assist in providing adequate, reasonably priced water for agricultural activities	Not Applicable	
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture	Not Applicable	
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs	Not Applicable	
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community	Not Applicable	
(6) Seek favorable freight rates for Hawai'i's agricultural products from interisland and overseas transportation operators	Not Applicable	
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities	Not Applicable	
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans	Not Applicable	
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions	Not Applicable	
(10) Support the continuation of land currently in use for diversified agriculture	Not Applicable	
(11) Encourage residents and visitors to support Hawai'i's farmers by purchasing locally grown food and food products	Not Applicable	
(e) Priority guidelines for water use and development:		
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate	Not Applicable	
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes	Not Applicable	
(3) Increase the support for research and development of economically feasible alternative water sources	Not Applicable	
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements	Not Applicable	
(f) Priority guidelines for energy use and development:		
(1) Encourage the development, demonstration, and commercialization of renewable energy sources	Not Applicable	
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy	Not Applicable	
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems	Not Applicable	
(g) Priority guidelines to promote the development of the information industry:		
(1) Establish an information network, with an emphasis on broadband and wireless infrastructure and capability, that will serve as the foundation of and catalyst for overall economic growth and diversification in Hawai‘i	Not Applicable	
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center	Not Applicable	
(3) Encourage the development of small businesses in the information field such as software development; the development of new information systems, peripherals, and applications; data conversion and data entry services; and home or cottage services such as computer programming, secretarial, and accounting services	Not Applicable	
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields	Not Applicable	
(5) Encourage research activities, including legal research in the information and telecommunications fields	Not Applicable	
(6) Support promotional activities to market Hawai‘i's information industry services	Not Applicable	
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health, safety, and welfare would not be adversely affected	Not Applicable	
§226-104: Population growth and land resources priority guidelines (a) Priority guidelines to effect desired statewide growth and distribution:		
(1) Encourage planning and resource management to ensure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai‘i's people	Not Applicable	
(2) Manage a growth rate for Hawai‘i's economy that will parallel future employment needs for Hawai‘i's people	Not Applicable	
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State	Not Applicable	
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate	Not Applicable	
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands	Not Applicable	
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands	Not Applicable	
(7) Support the development of high technology parks on the neighbor islands	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(b) Priority guidelines for regional growth distribution and land resource utilization:		
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles	Not Applicable	
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district	Not Applicable	
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area	Not Applicable	
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use	Not Applicable	
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core	Not Applicable	
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces	Not Applicable	
(7) Pursue rehabilitation of appropriate urban areas	Not Applicable	
(8) Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community	Not Applicable	
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized	Not Applicable	
(10) Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources	Not Applicable	
(11) Identify all areas where priority should be given to preserving rural character and lifestyle	Not Applicable	
(12) Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations	Not Applicable	
(13) Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources	Applicable	Promote
§226-105: Crime and criminal justice (a) Priority guidelines in the area of crime and criminal justice:		
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment	Not Applicable	
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities	Not Applicable	
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community	Not Applicable	
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions	Not Applicable	
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization	Not Applicable	
§226-106: Affordable housing (a) Priority guidelines for the provision of affordable housing:		
(1) Seek to use marginal or nonessential agricultural land, urban land, and public land to meet housing needs of extremely low-, very low-, lower-, moderate-, and above moderate-income households	Not Applicable	
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs	Not Applicable	
(3) Improve information and analysis relative to land availability and suitability for housing	Not Applicable	
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawai‘i's extremely low-, very low-, lower-, and moderate-income households and residents with special needs	Not Applicable	
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai‘i's people for the purchase of initial owner-occupied housing	Not Applicable	
(6) Encourage public and private sector cooperation in the development of rental housing alternatives	Not Applicable	
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations	Not Applicable	
(8) Give higher priority to the provision of quality housing that is affordable for Hawai‘i's residents and less priority to development of housing intended primarily for individuals outside of Hawai‘i	Not Applicable	
§226-107: Quality education (a) Priority guidelines to promote quality education:		
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement	Not Applicable	
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs	Not Applicable	
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education workforce	Not Applicable	
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities	Not Applicable	

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for: (A) The electronic exchange of information (B) Statewide electronic mail (C) Access to the Internet (D) Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives	Not Applicable	
(6) Pursue the establishment of Hawai‘i's public and private universities and colleges as research and training centers of the Pacific	Not Applicable	
(7) Develop resources and programs for early childhood education	Not Applicable	
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education	Not Applicable	
(9) Strengthen and expand educational programs and services for students with special needs	Not Applicable	
§226-108: Sustainability (a) Priority guidelines and principles to promote sustainability shall include:		
(1) Encouraging balanced economic, social, community, and environmental priorities	Not Applicable	
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State	Not Applicable	
(3) Promoting a diversified and dynamic economy	Not Applicable	
(4) Encouraging respect for the host culture	Not Applicable	
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations	Applicable	Promote
(6) Considering the principles of the ahupua‘a system	Not Applicable	
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai‘i	Not Applicable	
§226-109: Climate change adaptation priority guidelines (a) Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:		
(1) Ensure that Hawai‘i's people are educated, informed, and aware of the impacts climate change may have on their communities	Not Applicable	
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies	Not Applicable	
(3) Invest in continued monitoring and research of Hawai‘i's climate and the impacts of climate change on the State	Not Applicable	
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change	Not Applicable	
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change	Applicable	Promote

PART III: PRIORITY GUIDELINES	APPLICABILITY	PROMOTE/ HINDER
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments	Applicable	Promote
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options	Applicable	Promote
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities	Applicable	Promote
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans	Not Applicable	
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy	Applicable	Promote

2.1.2 Hawai'i State Land Use Classification[2]

The Hawai'i State Land Use Commission adopted Hawai'i State Land Use Law, HRS Chapter 205, in 1961. The law established a framework of land use management and regulation in which all lands in Hawai'i are classified into one of four land use districts:

- Urban
- Rural
- Agricultural
- Conservation

In the project area, the land classification is uniformly Agricultural other than the coastline, which is mapped as Conservation.

Agricultural classification generally includes activities or uses characterized by the cultivation of crops, orchards, forage, and forestry, farming activities, aquaculture, wind-generated energy production, biofuel production, solar energy facilities, agricultural parks, open area recreational facilities, and other miscellaneous agriculture and energy related uses.[3]

Five distinct subzones are within the Conservation classification:

- Protective
- Limited
- Resource

[2] https://www.capitol.hawaii.gov/hrscurrent/vol04_ch0201-0257/hrs0205/hrs_0205-.htm. Accessed April 2023.
[3] https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0205/HRS_0205-0002.htm. Accessed April 2023.

- General
- Special

The first four subzones are based on the level of sensitivity—from the most environmentally sensitive (Protective) to least sensitive (General)—while the Special subzone would apply to a unique condition. Most of the coastline is mapped as a Limited subzone and much of the Honoapi'ilani Highway right-of-way is within this subzone (except for the inland portion in Olowalu Town). Between Ukumehame Beach Park and Pāpalaua Wayside Park, the coastline, which includes the highway, is mapped within a Resource subzone, reflecting the public use beaches. Ukumehame Firing Range just mauka of the highway is mapped as a General subzone, reflecting the recreational use of the land area.

2.1.3 Coastal Zone Management Act, HRS Chapter 205A

The state Coastal Zone Management Program, as described in HRS Chapter 205A, establishes objectives and policies to "provide for the effective management, beneficial use, protection, and development of the coastal zone."[4]

Honoapi'ilani Highway and portions of the project area generally makai of the highway are located within a Special Management Area. While the program is broadly described here, Chapter 13, Coastal Zone Management, contains an evaluation of the Project with respect to the Coastal Zone Management Act.

2.1.4 Hawai'i 2050 Sustainability Plan (2008)

In 2008, the State Auditor and the Hawai'i 2050 Sustainability Task Force published the Hawai'i 2050 Sustainability Plan,[5] which serves as a long-range plan for Hawai'i to prepare for global warming, climate impact planning, and sustainability planning.

The Hawai'i 2050 Sustainability Plan identified five goals:

- Goal One. A Way of Life – Living sustainably is part of our daily practice in Hawai'i.
- Goal Two. The Economy – Our diversified and globally competitive economy enables us to meaningfully live, work and play in Hawai'i.
- Goal Three. Environment and Natural Resources – Our natural resources are responsibly and respectfully used, replenished and preserved for future generations.
- Goal Four. Community and Social Well-Being – Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need.
- Goal Five. Kanaka Maoli and Island Values – Our Kanaka Maoli and island cultures and values are thriving and perpetuated.

4 https://www.capitol.hawaii.gov/hrscurrent/vol04_ch0201-0257/hrs0205a/hrs_0205a-.htm. Accessed April 2023.
5 https://planning.hawaii.gov/sustainability/hawaii2050/. Accessed April 2023.

As required by Act 8, Special Session Law of Hawai'i 2005, the State of Hawai'i Office of Planning is in the process of updating the Hawai'i 2050 Sustainability Plan, which occurs on a decennial basis. Most recently, a "measurement update" was published in 2018.[6]

2.1.5 Hawai'i State Hazard Mitigation Plan (2023)[7]

As an island community, the State of Hawai'i is vulnerable to a wide range of natural and non-natural hazards that greatly impact lives, property, community lifelines, natural and cultural resources, and the economy. Between 2018 and 2022, Hawai'i has experienced seven major disaster declarations, four emergency management declarations, two fire management assistance declarations, and numerous state declarations. The pace and scale of disasters will continue to increase due to the effects of climate change.

A hazard mitigation plan is a state's plan to reduce damage to life, property, and the environment from future disasters. The Hawai'i Emergency Management Agency (HI-EMA) is responsible for coordinating disaster loss reduction programs, initiatives, and policies throughout the state. HI-EMA serves as the coordinating agency for the four county emergency management agencies and administers the State of Hawai'i's hazard mitigation program, with the State Hazard Mitigation Officer (SHMO) serving as the official point of contact and leading mitigation efforts, including development of the State Hazard Mitigation Plan and implementation of both state and local Hazard Mitigation Plans.

The 2023 State Hazard Mitigation Plan includes 15 natural and non-natural hazards that align with HI-EMA's 2022 Hazards and Vulnerability Overview and Threat and Hazard Identification and Risk Assessment (THIRA).[8] The State of Hawai'i has identified a mitigation strategy to reduce or eliminate long-term vulnerabilities from hazards of concern. The strategy, developed through a multi-stakeholder process, sets the State's mitigation priorities and assists local governments in updating local Hazard Mitigation Plans. The mitigation strategy, which includes 84 mitigation actions, is based on the following goals that reflect the State's current priorities:

- Goal 1: Reduce the long-term vulnerability of Hawai'i's people, property, and jurisdictions, including state-owned or operated buildings, infrastructure, and critical facilities, to natural hazards while conserving Hawai'i's natural, historical, and cultural assets. This includes High Hazard Potential Dams and high-risk properties such as repetitive loss (RL) and severe repetitive loss (SRL) properties.
- Goal 2: Promote actions designed to ensure long-term resiliency to natural hazards and climate change impacts.
- Goal 3: Strengthen partnerships and leverage existing resources and capabilities to identify, assess, and reduce the impact of natural hazards.

[6] https://files.hawaii.gov/dbedt/op/sustainability/2018_hawaii_2050_measurment_update.pdf. Accessed April 2023.
[7] https://dod.hawaii.gov/hiema/files/2023/01/2023_Hawaii_SHMP_Final_Approved_Adopted_508Compliant-10.27.23.pdf . Accessed February 2024.
[8] https://dod.hawaii.gov/hiema/files/2023/01/21-1227-Threat-and-Hazard-Identification-and-Risk-Assessment-1.pdf. Accessed February 2024.

- Goal 4: Utilize state-of-the-art methods and technology and local knowledge to identify and analyze natural hazards and assess state capabilities to reduce the impact of those hazards.
- Goal 5: Promote public awareness of natural hazard risks and public action to reduce long-term risks.
- Goal 6: Provide a framework for robust local hazard mitigation planning and mitigation strategy implementation in alignment with this plan.
- Goal 7: Build capacity and capabilities to increase disaster resiliency among historically underserved populations, individuals with access and functional needs, and in communities disproportionately impacted by disasters and climate change.

Chapter 3.11, Geology, Soils, and Natural Hazards evaluates the Project relative to natural hazards, including earthquakes, tsunami, volcanic hazards, wildfires, hurricanes and tropical storms, and coastal erosion.

2.1.6 Hawai‘i State Historic Preservation

The Hawai‘i Historic Preservation Program,[9] codified by HRS Chapter 6E, is administered by the Hawai‘i State Department of Land and Natural Resources State Historic Preservation Division (DLNR SHPD). The program and DLNR SHPD work to provide leadership in preserving, restoring, and maintaining historic and cultural property. Pursuant to HRS Chapter 6E-08, before commencing any state agency project that may affect historic property, the state agency will allow the DLNR SHPD an opportunity for review of the effect of a proposed project on historic properties, aviation artifacts, or burial sites, especially those listed on the Hawai‘i Register of Historic Places.

While the program is broadly described here, Chapter 6, Archaeological and Historic Resources, contains a detailed evaluation of the Project’s potential to affect archaeological and historic resources, consistent with both HRS Chapter 6E-8 and Section 106 of the National Historic Preservation Act of 1966 (NHPA).

[9] https://www.capitol.hawaii.gov/hrscurrent/vol01_ch0001-0042f/hrs0006e/hrs_0006e-.htm. Accessed April 2023.

2.2 MAUI COUNTY AND LOCAL PLANS

2.2.1 County of Maui 2030 General Plan, Countywide Policy Plan (2010)

The Countywide Policy Plan[10] is the first component of the decennial General Plan update. The Countywide Policy Plan acts as an over-arching values statement and provides a policy framework for the Maui Island Plan and Community Plans. The Countywide Policy Plan provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the county's future. The Countywide Policy Plan is centered around the following core themes:

- Protecting the natural environment
- Preserving local culture and traditions
- Improving education
- Strengthening social and healthcare services
- Expanding housing opportunities for residents
- Strengthening the local economy
- Improving parks and public facilities
- Diversifying transportation options
- Improving physical infrastructure
- Promoting sustainable land use and growth management
- Good governance

2.2.2 The Maui Island Plan (2012)

The Maui Island Plan[11] serves as a blueprint to provide direction for future growth, the economy, and social and environmental decisions across Maui through 2030. Developed subsequent to the Countywide Policy Plan, the Maui Island Plan draws from the core themes identified in the Countywide Policy Plan and expands on them. Specifically, the Maui Island Plan establishes a Directed Growth Strategy, which identifies areas appropriate for future urbanization and revitalization. The Maui Island Plan also identifies and evaluates key environmental, housing, and economic development considerations relevant to Maui's current and future generations. The core values of the Maui Island Plan include the following:

- Adopt responsible stewardship principles by applying sound natural resource management practices.
- Respect and protect Maui's heritage, traditions, and multi-cultural resources;
- Plan and build communities that include diversity of housing.
- Retain and enhance the unique identity and sense of place.
- Preserve rural and agricultural lands and encourage sustainable agriculture.

[10] https://www.mauicounty.gov/420/Countywide-Policy-Plan. Accessed April 2023.
[11] https://www.mauicounty.gov/1503/Maui-Island-Plan. Accessed April 2023.

- Secure necessary infrastructure concurrently with future development.
- Support efforts that contribute to a sustainable and diverse economy for Maui.
- Create a political climate that seeks and responds to citizen input.
- Respect and acknowledge the dignity of those who live on Maui.
- Establish a sustainable transportation system that includes multiple modes, including walking, biking, and mass transit, as well as automobile-based modes.
- Recognize and be sensitive to land ownership issues and work toward resolution.

The Project is located in Subarea 4 of the West Maui Community Plan (see the following section). The Maui Island Plan identifies three urban growth areas within Olowalu (urban growth areas provide orderly development of infill and revitalization with mixed-uses at a higher density). However, this was associated with a proposed development project (the Olowalu Town Master Plan) that could have generated dense development with up to 1,500 residential units and a mix of commercial uses. However, that plan was not approved and the current 34-lot subdivision based on the underlying Agricultural (AG) zoning was established afterward for the development area.

The Maui Island Plan identifies rural growth boundary areas in the vicinity of Olowalu and Ukumehame, reflecting the lower density residential uses. The purpose of a rural growth boundary is to provide a transition between urban areas and small towns, and those areas in need of protection, including agricultural lands. The Maui Island Plan also identifies coastal protected areas between Launipoko and Ukumehame that are categorized as park protected areas.

2.2.3 West Maui Community Plan (2022)

The Maui Island Plan, in conjunction with the Countywide Policy Plan, informs the development of community plans, which are designed to reflect the unique characteristics of each community plan area within Maui. The Project is located within the community plan area referred to as West Maui. The West Maui Community Plan[12] provides a growth framework, and goals, policies, and actions to address challenges and opportunities, and support the community's vision over a 20-year timeframe. As established under Chapter 2.80B of the Maui County Code, the plan outlines the community's vision for its future and the road map to achieve its vision. The West Maui Community Plan's policy framework is organized by five goals:

- Ready and resilient systems
- A complete, balanced, and connected transportation network
- Responsible stewardship or resources, culture, and character
- Economic opportunity through innovation and collaborations
- Safe, healthy, livable communities for all

[12] https://www.mauicounty.gov/2476/West-Maui-Community-Plan-Update-2022. Accessed April 2023.

In the project area, specifically, the West Maui Community Plan identifies that maintenance and preservation of sediment retention basins is one of the key methods to hold back sediment in the near term and identifies the existing detention basin adjacent to the Pāpalaua Wayside Park.

2.2.4 Pali to Puamana Parkway Master Plan

The Pali to Puamana Parkway Master Plan[13] provides a foundation for establishing public policy that encourages responsible development in a coastal area by acknowledging coastal processes, providing for community recreational needs, and supporting sustainable alternative land uses. The Pali to Puamana Parkway Master Plan was developed for the purposes of:

- Recommending a proposed realignment of Honoapi‘ilani Highway from Pāpalaua Park to Puamana Park.
- Recommending proposed open space preserves and to protect the shoreline environment.
- Increasing roadway capacity.
- Protecting public health and safety by relocating Honoapi‘ilani Highway away from the tsunami inundation zone.
- Recommending methods of accommodating new land uses for the area by implementing the West Maui Community Plan.

As part of the Pali to Puamana Parkway Master Plan, Hawai‘i Department of Transportation considered three alternatives to realign Honoapi‘ilani Highway:

- Mauka
- Makai
- Mid-Level

As noted in Chapter 2, Alternatives, these three alignment alternatives were the basis for the Project’s Build Alternatives.

2.2.5 Hele Mai Maui Long-Range Transportation Plan 2040

The Hele Mai Maui Long-Range Transportation Plan 2040[14] (Hele Mai Maui LRTP 2040) is a vision for Maui’s transportation needs and opportunities through 2040. The development of a long-range transportation plan is a federal requirement executed by the Maui Metropolitan Planning Organization. Accordingly, transportation projects must be identified in Hele Mai Maui LRTP 2040 to be eligible to receive federal funding. The Hele Mai Maui LRTP 2040 established five goals that reflect existing and future needs, which were used to prioritize the projects identified in the plan:

- Goal 1: Improve safety and promote health.

13 https://www.mauicounty.gov/DocumentCenter/View/83453/Pali-to-Puamana-Parkway-Master-Plan-Feb-2005?bidId=. Accessed April 2023.
14 https://mauimpo.org/hele-mai-maui-2040. Accessed April 2023.

- Goal 2: Enhance cultural and natural resources, climate resilience, and sustainability.
- Goal 3: Expand mobility choices to reduce traffic congestion.
- Goal 4: Connect and strengthen communities to improve quality of life.
- Goal 5: Maintain assets and invest strategically for economic vitality.

These five goals informed a four-step evaluation process that shaped the Hele Mai Maui LRTP 2040 recommendations. The plan specifically identifies the critical need to realign Honoapi‘ilani Highway inland from the coastal hazard zone:

> The Honoapi‘ilani Highway Realignment Project is a critical project for Maui. Perhaps more than any other corridor, the Honoapi‘ilani Highway is a visible example of the impact of rising sea levels on Maui’s infrastructure, with many sections eroded and routinely overtopped during storms. Reconstruction of this corridor further inland will ensure connectively and resiliency for West Maui and the rest of the island for years to come.

In addition to being one of six “legacy projects” that have been identified as a priority for Maui, the Honoapi‘ilani Highway realignment was identified as project “C10” in the Hele Mai Maui LRTP 2040 and recognized as a priority project that should occur over the course of the next 1 to 5 years.

2.2.6 West Maui Greenway Plan (2022)

The West Maui Greenway Plan[15] is a proposed 25-mile, multi-use trail that would connect Ukumehame to Līpoa Point. The vision for the greenway is to create a safe, comfortable, and joyful greenway path through West Maui that would serve as both a recreational ribbon and a new transportation facility, connecting people to destinations while highlighting the diverse history, landscape, and culture of the region. The West Maui Greenway Plan identifies five primary goals:

- Foster Community – a greenway that helps build community by creating a space for people to connect with each other
- Bring Joy – a greenway that promotes fun, comfort, and general well-being for all users
- Strengthen Community – a greenway that serves as a recreational ribbon and connects people to destinations in West Maui
- Promote Safety and Comfort – a greenway that feels safe and is separated from traffic, serving people of all ages and abilities
- Ensure Feasibility – a greenway that can be feasibly built and reliably maintained

The West Maui Greenway Plan identifies six segments of the proposed West Maui Greenway, the Project would be located roughly adjacent to portions of segments 5 and 6. Due to the proximity of the southern portion of the proposed West Maui Greenway to the project area, the Honoapi‘ilani Highway realignment was identified as a related plan and project within the West Maui Greenway Plan.

15 https://issuu.com/mauimpo/docs/220920_wmg_final_report?fr=sNGIwNTMwNzgwNTg. Accessed April 2023.

HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

Appendix 3.6 – Archaeological and Architectural Historic Properties – Supplemental Information

November 2025

Prepared for

Honoapiʻilani Highway Improvements

Prepared by

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Contents

WSP USA Inc Reconnaissance Level Architectural Historic Resource Survey (RLS)

WSP USA Inc Addendum Report to the Reconnaissance Level Architectural Historic Resource Survey (RLS)

ʻĀina Archaeology, Inc.

Reconnaissance Level Archaeological Historic Resource Survey (RLS)

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Agency Correspondence

Consulting Parties Consultation

Executed Programmatic Agreement

WSP USA Inc
Reconnaissance Level Architectural Historic Resource Survey (RLS)

Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapiʻilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawaiʻi

Prepared for:

Honoapiʻilani Highway Improvements

Prepared by:

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Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapi‘ilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawai‘i

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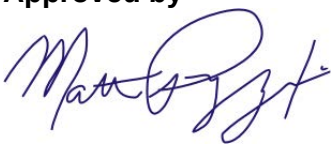

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ABSTRACT

Between April 3 and 7, 2023, at the request of the Hawai‘i Department of Transportation (HDOT), Secretary of the Interior's (SOI) Qualified WSP Environment and Infrastructure architectural historian professionals conducted a Reconnaissance Level Architectural Historic Resource Survey (RLS) for the proposed realignment of Honoapi‘ilani Highway (State Route 30) in Maui County, Hawai‘i (Project). Periodic flooding and coastal erosion threaten the highway, and the proposed Project’s goal is to improve the route by reducing its vulnerability to coastal hazards; thus, providing a reliable transportation facility in West Maui. The Project area, consisting of four proposed alignment corridors, is focused on the segment of Honoapi‘ilani Highway from Ukumehame, at approximately milepost 11, in the vicinity of Pāpalaua Wayside Park to Launiupoko, at milepost 17, which is the existing southern terminus of Lāhainā Bypass.

This survey was conducted to meet the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108) and its implementing regulations (36 C.F.R. Part 800), as well as Hawai‘i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai‘i Administrative Rules (HAR) § 13-275 and guidelines developed by the Hawai‘i State Historic Preservation Division (SHPD) (SHPD 2018).The purpose of the survey was to identify aboveground properties 35 years of age and older located within the Area of Potential Effects (APE); to evaluate these properties relative to their eligibility for listing in the National Register of Historic Places (NRHP) and the State Register of Historic Places (SRHP) individually, as a historic district by applying the Criteria for Evaluation (36 C.F.R. § 60.4 and HAR § 13-275-6). The APE differs from the project area, by taking into consideration a potential viewshed, and thus includes all buildings and structures located within parcels surrounding the four proposed alternatives. The total area surveyed included approximately 970 acres.

A total of forty architectural properties 35 years of age and older were identified within the APE. Of these resources, eight were previously surveyed and evaluated and thirty-two properties were newly identified. The properties previously evaluated were revisited in this survey to reevaluate individual eligibility, as well as possible significance as contributing resources to a proposed or previously identified historic district. The forty revisited and newly identified resources included thirteen residential and commercial buildings, one religious building/cemetery complex, one cemetery, two landings/wharfs, one bridge, two historic freight corridors, two roadway networks, six boundary wall structures, one water tower structure, one well, a series of agricultural push piles, and nine water control structures or series of water control structures. Of these forty properties, three are recommended as individually eligible for listing in the NRHP and SRHP. Moreover, ten properties, while not individually eligible, are identified as contributing resources to this report’s recommendation of proposing an NRHP-eligible Olowalu Sugar Plantation Historic District. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of the previously recorded Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602).

Table of Contents

1.0 INTRODUCTION 1
1.1 Project Background 1
1.2 Regulatory Context 1
1.3 Secretary of the Interior's Professional Qualification Standards 3

2.0 METHODOLOGY 5
2.1 Area of Potential Effects 5
2.2 Setting 5
2.3 Background Research 5
2.4 Field Survey 6

3.0 HISTORICAL OVERVIEW 7
3.1 Early European Settlement and Contact 7
3.2 Olowalu Sugar Company 8
3.3 Pioneer Mill Company 8
3.4 Plantation Community 9
3.5 The End of Sugar 9

4.0 HISTORIC PROPERTY IDENTIFICATION AND EVALUATION 11
4.1 AR 1 (SIHP No. 4758): Awalua Cemetery 20
4.2 AR 2 (SIHP No. 09132): 820 A Olowalu Road (Olowalu Village Road) 24
4.3 AR 3 (SIHP No. 09133): 820 Olowalu Road 28
4.4 AR 4 (SIHP NO. 1602): 807 Olowalu Road 35
4.5 AR 5 (SIHP NO. 1602): 808 Olowalu Road 41
4.6 AR 6 (SIHP NO. 1602): 510 Olowalu Road (Olowalu Plantation House) 46
4.7 AR 7 (SIHP No. 1602): 810 Olowalu Road 50
4.8 AR 8 (SIHP No. 1602): Olowalu Mill Complex, Wharf, and Landing 55
4.9 AR 9 (SIHP No. 09134): Reservoir (814 Honoapiʻilani Highway) 62
4.10 AR 10 (SIHP No. 09135): 832 Olowalu Village Road 67
4.11 AR 11 (SIHP No. 09136): 804 Olowalu Village Road 73
4.12 AR 12 (SIHP No. 09137): 804 A Olowalu Village Road 78
4.13 AR 13 (SIHP No. 09138): 806 A Olowalu Village Road 83
4.14 AR 14 (SIHP No. 09139): 803 Kana Place/Olowalu Village Road 89
4.15 AR 15 (SIHP No. 09140): 837 Olowalu Village Road/4132 Honoapiʻilani Highway 95
4.16 AR 16 (SIHP No. 09141): 802 A Olowalu Village Road 100
4.17 AR 17 (SIHP No. 1603): Lanakila Historic Church (Olowalu Church and Cemetery) 108
4.18 AR 18 (SIHP No. 09142): Wharf 116
4.19 AR 19 (SIHP No. 09143): Water Tower 121
4.20 AR 20 (SIHP No. 09144): Bridge Over Olowalu Stream 125
4.21 AR 21 (SIHP No. 09145): Push Piles (North of Mōpua) 130
4.22 AR 22 (SIHP No. 09146): Irrigation Ditches (North of Mōpua) 137
4.23 AR 23 (SIHP No. 09147): Cane Haul Roads (Southwest of Mōpua) 144
4.24 AR 24 (SIHP No. 09148): Irrigation Flume (East of Mōpua) 149
4.25 AR 25 (SIHP No. 09149) and AR 26 (SIHP No. 09150): Freight Corridor (Kuahulu Place and Beach Access Road) 154
4.26 AR 27 (SIHP No. 04695): Retaining Wall 161
4.27 AR 28 (SIHP No. 04717): Rock Wall 166
4.28 AR 29 (SIHP No. 04719): Rock Wall 172
4.29 AR 30 (SIHP No. 04720): Rock Wall 177
4.30 AR 31 (SIHP No. 09151): Reservoir 182
4.31 AR 32 (SIHP No. 09152): Irrigation Ditches 187
4.32 AR 33 (SIHP No. 09153): Rock Wall 192
4.33 AR 34 (SIHP No. 09154): Irrigation Ditches 197
4.34 AR 35 (SIHP No. 09033): Well 202
4.35 AR 36 (SIHP No. 09155): Sluice Gate 207

4.36 AR 37 (SIHP No. 09156): Irrigation Ditches 211
4.37 AR 38 (SIHP No. 09157): Cane Haul Roads (Ukumehame) 216
4.38 AR 39 (SIHP No. 09158): Irrigation Ditches 220
4.39 AR 40 (SIHP No. 09159): Rock Wall 228
4.40 Olowalu Sugar Plantation Historic District (SIHP 1602 Expansion) 233
5.0 CONCLUSIONS AND RECOMMENDATIONS 238
6.0 REFERENCES CITED 239

FIGURES

Figure 1.1. Project area consisting of proposed Build Alternatives and Reconnaissance Level Architectural Historic Resource Survey APE for the proposed Honoapiʻilani Highway improvements. 4
Figure 4.1. Aerial map showing the APE and the documented historic resource locations in Olowalu. 18
Figure 4.2. Aerial map showing the APE and the documented historic resource locations in Ukumehame. 19
Figure 4.3. Aerial image showing the location of AR 1 (SIHP No. 4758). 22
Figure 4.4. View of AR 1, facing north. 23
Figure 4.5. Overview of upright, basalt markers with inscribed with Japanese characters. 23
Figure 4.6. Aerial image showing the location of AR 2. 26
Figure 4.7. South (front) elevation of AR 2, facing northeast. 27
Figure 4.8. North (rear) elevation of AR 2, facing southwest. 27
Figure 4.9. Aerial image showing the location of AR 3. 31
Figure 4.10. South (front) and east elevations of AR 3, facing northwest. 32
Figure 4.11. West and south (front) elevations of AR 3, facing northeast. 32
Figure 4.12. North (rear) elevation of AR 3, facing west-southwest. 33
Figure 4.13. East and north (rear) elevations of the second addition of AR 3, facing west-southwest. 33
Figure 4.14. East and north (rear) elevations of AR 3, facing southwest. 34
Figure 4.15. Aerial image showing the location of AR 4. 38
Figure 4.16. West (front) and south elevations of AR 4, facing east. 39
Figure 4.17. North and west (front) elevations of AR 4, facing southeast. 39
Figure 4.18. West (front) and south elevations of outbuilding associated with AR 4, facing east. 40
Figure 4.19. Aerial image showing the location of AR 5. 44
Figure 4.20. West (front) elevation of AR 5, facing southeast. 45
Figure 4.21. Aerial image showing the location of AR 6. 48
Figure 4.22. South (front) elevation of AR 6, facing northeast. 49
Figure 4.23. East elevation of AR 6, facing northwest. 49
Figure 4.24. Aerial image showing the location of AR 7. 53
Figure 4.25. Southwest (front) and northwest elevations of AR 7 and associated outbuilding, facing northeast. 54
Figure 4.26 . Aerial image showing the location of AR 8. 57
Figure 4.27 . Building illustrated in vicinity of AR 8 on the 1955 USGS Olowalu, Hawaiʻi, 7.5-minute quadrangle topographic map. 58
Figure 4.28 . 1919 Sanborn Map displaying the Olowalu Landing, Olowalu Co. Sugar Mill, and rail lines. 58
Figure 4.29 . North (front) east and elevations of Olowalu wharf piers, facing southwest. 59
Figure 4.30 . Detail of remnants in area of mud press and centrifugals, facing southwest. 59
Figure 4.31 . Detail of east elevation of extant remains of “Sugar Warehouse,” facing southwest. 60
Figure 4.32 . West elevation of AR 8 (Sugar Mill Complex), facing southeast. 60
Figure 4.33 . Detail of north (front) and east elevations of extant foundation of the “12 Roller Mills” and “Molasses Tanks,” facing southwest. 61
Figure 4.34. Aerial image showing the location of AR 9. 64
Figure 4.35 . Reservoir illustrated in vicinity of AR 9 on the 1955 USGS Olowalu, Hawaiʻi, 7.5-minute quadrangle topographic map 65

Figure 4.36. Southeast, south, and southwest walls of AR 9, facing south. 65
Figure 4.37. Modern impact from the construction of a bike path along the south and east elevation of AR 9, facing east. 66
Figure 4.38. Aerial image showing the location of AR 10 and accessory dwelling. 70
Figure 4.39. Building illustrated in vicinity of AR 10 on the 1975 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 71
Figure 4.40. Southeast (front) elevation of AR 10, facing northwest. 71
Figure 4.41. Northeast elevation of AR 10 and outbuilding, facing south. 72
Figure 4.42. Aerial image showing the location of AR 11. 75
Figure 4.43. Building illustrated in vicinity of AR 11 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 76
Figure 4.44. Southeast (front) elevation of AR 11, facing northwest. 76
Figure 4.45. Southeast (front) and northeast elevations of AR 11 and outbuilding, facing northwest. 77
Figure 4.46. Aerial image showing the location of AR 12. 80
Figure 4.47. Building illustrated in vicinity of AR 12 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 81
Figure 4.48. South (front) and east elevations of AR 12, facing northwest. 81
Figure 4.49. South (front) and west elevations of AR 12 and outbuilding, facing northeast. 82
Figure 4.50. South (front) and east elevations of AR 12 and outbuilding, facing northwest; note the outbuilding beyond the carport. 82
Figure 4.51. Aerial image showing the location of AR 13. 86
Figure 4.52. Building illustrated in vicinity of AR 13 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 87
Figure 4.53. South (front) elevation of AR 13, facing northwest. 87
Figure 4.54. South (front) and west elevations of AR 13 and outbuilding, facing northwest. 88
Figure 4.55. South elevation of outbuilding, facing north. 88
Figure 4.56. Aerial image showing the location of AR 14. 92
Figure 4.57. Building illustrated in vicinity of AR 14 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 93
Figure 4.58. View of detached two-story deck, facing northwest. 93
Figure 4.59. South and east elevations of AR 14, facing north. 94
Figure 4.60. Aerial image showing the location of AR 15. 97
Figure 4.61. Building illustrated in vicinity of AR 15 on the 1983 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 98
Figure 4.62. South (front) elevation of AR 15, facing north. 98
Figure 4.63. East elevation of AR 15, facing west. 99
Figure 4.64. Aerial image showing the location of AR 16. 103
Figure 4.65. The 1939 Pioneer Mill Company map showing the location of AR 16 within the Olowalu Plantation Division land holdings (Courtesy of the Hawai’i Department of Accounting and General Services, Land Survey Division). 104
Figure 4.66. South (front) elevation of AR 16, facing north. 105
Figure 4.67. South (front) and east elevations of AR 16, facing northwest. 105
Figure 4.68. West and south (front) elevations of AR 16, facing northwest. 106
Figure 4.69. North (rear) elevation of AR 16, facing south. 106
Figure 4.70. South elevation of outbuilding, facing north. 107
Figure 4.71. Aerial image showing the location of AR 17. 111
Figure 4.72. Cemetery illustrated in vicinity of AR 17 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 112
Figure 4.73. View of a church in the location of SIHP No. 1603 depicted in Hawai‘i Land Survey Registered Map 776. 112
Figure 4.74. View of AR 17 prior to 1930 cane field fire. 113
Figure 4.75. Overview of AR 17 stone church and cemetery, facing southeast. 113
Figure 4.76. West elevation of stone church, facing southeast. 114
Figure 4.77. View of interior of church, facing north. 114
Figure 4.78. Example of inscribed markers and concrete vaults, facing east. 115
Figure 4.79. Aerial image showing the location of AR 18. 118

Figure 4.80. Hazard illustrated in vicinity of AR 18 on the 1912 AGS Soundings Map of the Hawaiian Islands. 119
Figure 4.81. Deck and west elevation of AR 18, facing southeast. 119
Figure 4.82. Deck and east elevation of AR 18 and outbuilding, facing northwest. 120
Figure 4.83. South elevation of AR 18, facing northwest; note the concrete drainage pipe emptying into the sea. 120
Figure 4.84. Aerial image showing the location of AR 19. 123
Figure 4.85. Water tower associated with AR 19, facing northeast. 124
Figure 4.86. Aerial image showing the location of AR 20. 127
Figure 4.87. Location of AR 20 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 128
Figure 4.88. Deck and west elevation of AR 20, facing southeast. 128
Figure 4.89. Detail of AR 20 wood deck boards and plywood repairs, facing southeast. 129
Figure 4.90. View of AR 20 superstructure and substructure, facing west; note the stream debris and deteriorated pier. 129
Figure 4.91. Aerial image showing the location of AR 21 (AR 21.1 – 21.4). 132
Figure 4.92. AR 21 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 133
Figure 4.93. Modern aerial image showing the early stages of bike path construction. 133
Figure 4.94. View of AR 21 (Push Pile 21.2) facing northeast. 134
Figure 4.95. Detail view of AR 21 (Push Pile 21.2) stone composition, facing west. 134
Figure 4.96. View of AR 21 (Push Pile 21.3), facing southeast. 135
Figure 4.97. View of AR 21 (Push Pile 21.3), facing south; note irrigation ditch in the foreground. 135
Figure 4.98. View of AR 21 (Push Pile 21.4), facing west. 136
Figure 4.99. View of AR 21 (Push Pile 21.4), facing southeast. 136
Figure 4.100. Aerial image showing the location of AR 22. 139
Figure 4.101. Location of portions of AR 22 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 140
Figure 4.102. View of defined north-south aligned ditch, facing north. 140
Figure 4.103. View of typical north-south aligned ditch, facing south. 141
Figure 4.104. View of typical north-south aligned ditch, facing south. 141
Figure 4.105. Example of heavily eroded/disturbed ditch, facing north. 142
Figure 4.106. View of southernmost ditch, facing west. 142
Figure 4.107. View of easternmost ditch, facing northeast. 143
Figure 4.108. Aerial image showing the location of AR 23. 146
Figure 4.109. Location of AR 23 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 147
Figure 4.110. Location of AR 23 on the 1923 USGS Maalaea Quadrangle map. 147
Figure 4.111. View of an unused cane haul road located southwest of Luawai Street, facing south. 148
Figure 4.112. Aerial image showing the location of AR 24. 151
Figure 4.113. View of general location of AR 24 on the 1942 USGS geological map of Maui. 152
Figure 4.114. AR 24 shown on modern aerial overlain with 1939 Pioneer Mill Company Plantation map; note the absence of the feature on the Plantation map. 152
Figure 4.115. View of fire damage along flume floor. 153
Figure 4.116. View of the south extent of AR 24, facing west; note the stone and coral construction. 153
Figure 4.117. Aerial image showing the location of AR 25. 157
Figure 4.118. Aerial image showing the location of AR 26. 158
Figure 4.119. Historic Freight Corridor and rail lines shown on the 1881 Monserrat map of the Olowalu Sugar Plantation. 159
Figure 4.120. View of a segment of AR 25 from Honoapi‘ilani Highway, facing south. 159
Figure 4.121. View of a portion of AR 26, facing east. 160
Figure 4.122. Aerial image showing the location of AR 27 (SIHP No. 04695). 163
Figure 4.123. Roadway illustrated in vicinity of AR 27 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 164
Figure 4.124. 1949 historic aerial image of the general location of AR 27. 164
Figure 4.125. Image of the character and condition of the exceedingly common Plantation era concrete and stone infrastructure found in the region. 165

Figure 4.126. Aerial image showing the location of AR 28. 169
Figure 4.127. Stream, ditch, and roadway illustrated in vicinity of AR 28 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 170
Figure 4.128. Northeast and southeast walls of AR 28, facing northeast. 170
Figure 4.129. View of a segment of AR 28, facing southwest. 171
Figure 4.130. Aerial image showing the location of SIHP No. 04719 (AR 29). 174
Figure 4.131. Roadway illustrated in vicinity of AR 29 on the 1955 USGS Olowalu, HI 7.5-minute quadrangle topographic map. 175
Figure 4.132. 1949 historic aerial image of the general location of AR 29. 175
Figure 4.133. Image of the character and condition of AR-29, an exceedingly common Plantation era concrete and stone infrastructure found in the region. 176
Figure 4.134. Aerial image showing the location of SIHP No. 04720 (AR 30). 179
Figure 4.135. Roadway and ditch illustrated in vicinity of AR 30 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 180
Figure 4.136. Roadway and ditch illustrated in vicinity of AR 30 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 180
Figure 4.137. Image of the character and condition of AR 30, an exceedingly common Plantation era concrete and stone infrastructure found in the region. 181
Figure 4.138. Aerial image showing the location of SIHP No. 09151 (AR 31). 185
Figure 4.139. Reservoir illustrated in vicinity of AR 31 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 186
Figure 4.140. Interior view of AR 31, facing south. 186
Figure 4.141. Aerial image showing the location of AR 32. 189
Figure 4.142. Location of AR 32.1 and 32.2 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map; note the cane haul road. 190
Figure 4.143. Approximate location of AR 32.1 and 32.2 on 1950 aerial image. 190
Figure 4.144. View of ditch (AR 32.1) (on left), running parallel with unimproved road, facing northeast. 191
Figure 4.145. View of iron pipe (AR 32.2), facing southeast. 191
Figure 4.146. Aerial image showing the location of AR 33. 194
Figure 4.147. Vicinity of AR 33 on the 1956 USGS Lahaina, Hawai‘i, 7.5-minute quadrangle topographic map. 195
Figure 4.148. 1965 historic aerial image of the location of AR 33; note the clearing and modification of the area adjacent to AR 33. 195
Figure 4.149. Image of the character and condition of AR 33. an exceedingly common Plantation era stone infrastructure found in the region. 196
Figure 4.150. Aerial image showing the location of AR 34. 199
Figure 4.151. Vicinity of AR 34 on the 1956 USGS Lāhainā, Hawai‘i, 7.5-minute quadrangle topographic map. 200
Figure 4.152. 1960 historic aerial image of the location of AR 33 and AR 34; note the clearing and modification of the adjacent area. 200
Figure 4.153. View of ditches, facing west. 201
Figure 4.154. Aerial image showing the location of AR 35. 204
Figure 4.155. Location of AR 35 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 205
Figure 4.156. View of AR 35; note stacked rock construction. 205
Figure 4.157. View of AR 35, facing north; note cluttered surface surrounding the well. 206
Figure 4.158. Aerial image showing the location of AR 36. 209
Figure 4.159. Location of AR 36 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 210
Figure 4.160. View of AF 36, facing north; note sluice gate and stacked rock exposed where concrete is eroding. 210
Figure 4.161. Aerial image showing the location of AR 37. 213
Figure 4.162. Location of AR 37 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 214
Figure 4.163. Approximate location of AR 37 on modern aerial image. 214

Figure 4.164. View of AR 37, facing northeast. 215
Figure 4.165. Aerial image showing the location of AR 38. 218
Figure 4.166. Location of AR 38.1 and 38.2 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map. 219
Figure 4.167. View of AR 38.1, facing west. 219
Figure 4.168. Aerial image showing the location of AR 39.1 through AR 39.4. 222
Figure 4.169. Aerial image showing the location of AR 39.5 through AR 39.14. 223
Figure 4.170. Aerial image showing the location of AR 39.15 through AR 39.17. 224
Figure 4.171. The irrigation structures associated with AR 39 on a 1977 historic aerial image. 225
Figure 4.172. Approximate location of AR 39 elements (1939 Pioneer Mill Company Olowalu Division Map) overlain on current aerial image. 225
Figure 4.173. View of north extent of AR 39.1, facing north. 226
Figure 4.174. View of AR 39.6, facing west. 226
Figure 4.175. View of AR 39.12, facing south. 227
Figure 4.176. View of north extent of AR 39.14, facing north. 227
Figure 4.177. Aerial image showing the location of AR 40. 230
Figure 4.178. 1950 historic aerial image of the general location of AR 40. 231
Figure 4.179. 1977 historic aerial image of the general location of AR 40. 231
Figure 4.180. View of AR 40, facing southeast. 232
Figure 4.181. View of AR 40, facing south; note northwest edge of gully. 232
Figure 4.182. Contributing Resources to the Olowalu Sugar Plantation Historic District and the four Build Alternatives. 237

TABLES

Table 1.1: Section 106 and 6E Comparison Summary 3
Table 2.1. Previously Surveyed Properties within the APE. 6
Table 4.1. Evaluated Properties in APE and Significance Evaluations 12
Table 4.2. Summary of AR 1 (SIHP No. 4758): Awalua Cemetery 20
Table 4.3. Summary of AR 2 (SIHP No. 09132) 24
Table 4.4. Summary of AR 3 (SIHP No. 09133) 28
Table 4.5. Summary of AR 4 (SIHP NO. 1602) 35
Table 4.6. Summary of AR 5 (SIHP NO. 1602) 41
Table 4.7. Summary of AR 6 (SIHP NO. 1602) 46
Table 4.8. Summary of AR 7(SIHP No. 1602) 50
Table 4.9. Summary of AR 8 (SIHP No. 1602) 55
Table 4.10. Summary of AR 9 (SIHP No. 09134) 62
Table 4.11. Summary of AR 10 (SIHP No. 09135) 67
Table 4.12. Summary of AR 11 (SIHP No. 09136) 73
Table 4.13. Summary of AR 12 (SIHP No. 09137) 78
Table 4.14. Summary of AR 13 (SIHP No. 09138) 83
Table 4.15. Summary of AR 14 (SIHP No. 09139) 89
Table 4.16. Summary of AR 15 (SIHP No. 09140) 95
Table 4.17. Summary of AR 16 (SIHP No. 09141) 100
Table 4.18. Summary of AR 17 (SIHP No. 1603): Lanakila Historic Church (Olowalu Church and Cemetery). 108
Table 4.19. Summary of AR 18 (SIHP No. 09142) 116
Table 4.20. Summary of AR 19 (SIHP No. 09143) 121
Table 4.21. Summary of AR 20 (SIHP No. 09144) 125
Table 4.22. Summary of AR 21 (SIHP No. 09145) 130
Table 4.23. AR 21: Push Piles (North of Mōpua) Approximate Dimensions 131
Table 4.24. Summary of AR 22 (SIHP No. 09146) 137
Table 4.25. Summary of AR 23 (SIHP No. 09147) 144
Table 4.26. Summary of AR 24 (SIHP No. 09148) 149
Table 4.27. Summary of AR 25 (SIHP No. 09149) 154
Table 4.28. Summary of AR 26 (SIHP No. 09150) 155
Table 4.29. Summary of AR 27 (SIHP No. 04695) 161

Table 4.30. Summary of AR 28 (SIHP No. 04717).....166
Table 4.31. AR 28 (SIHP No. 04717): Rock Wall Segment Dimensions.....166
Table 4.32. Summary of AR 29 (SIHP No. 04719).....172
Table 4.33. Summary of AR 30 (SIHP No. 04720).....177
Table 4.34. Summary of AR 31 (SIHP No. 09151).....182
Table 4.35. Summary of AR 32 (SIHP No. 09152).....187
Table 4.36. Summary of AR 33 (SIHP No. 09153).....192
Table 4.37. Summary of AR 34 (SIHP No. 09154).....197
Table 4.38. Summary of AR 35 (SIHP No. 09033).....202
Table 4.39. Summary of AR 36 (SIHP No. 09155).....207
Table 4.40. Summary of AR 37 (SIHP No. 09156).....211
Table 4.41. Summary of AR 38 (SIHP No. 09157).....216
Table 4.42. Summary of AR 39 (SIHP No. 09158).....220
Table 4.43. Summary of AR 40 (SIHP No. 09159).....228
Table 4.44. Olowalu Sugar Plantation Historic District Contributing Properties 235

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1.0 INTRODUCTION

1.1 Project Background

At the request of the State of Hawai‘i Department of Transportation (HDOT), and in coordination with the Federal Highway Administration (FHWA), Secretary of the Interior's Qualified WSP Environment and Infrastructure (WSP) architectural historian professionals conducted a Reconnaissance Level Architectural Historic Resource Survey (RLS) for the proposed realignment of Honoapi‘ilani Highway (State Route 30) in Maui County, Hawai‘i. The primary purpose of the Honoapi‘ilani Highway Improvements Project, West Maui, Ukumehame to Launiupoko (the Project), is to provide a reliable transportation facility in West Maui and improve Honoapi‘ilani Highway’s resilience by reducing its vulnerability to coastal hazards.

The project area, which consists of four proposed build alternatives, is located in West Maui (Maui Konohana) in the area served by the existing Honoapi‘ilani Highway between milepost 11 and milepost 17 (**Figure 1.1**). A viewshed Area of Potential Effects (APE) was established to account for impacts to aboveground historic architectural resources that are within a designated buffer surrounding the four proposed alternative corridors. The proposed southeastern terminus of the Project APE at milepost 11 is in Ukumehame within the vicinity of Pāpalaua Wayside Park and the Pali, and the northwestern terminus of the Project APE is at milepost 17 in Launiupoko, where Honoapi‘ilani Highway intersects the southern terminus of Lāhainā Bypass. The approximately 6-mile-long and 0.75-mile-wide APE is composed predominantly of a coastal plain that includes the ahupua‘a of Ukumehame, Olowalu, and Launiupoko.

The National Environmental Policy Act (NEPA) and Hawai‘i Environmental Policy Act (HEPA) require the evaluation of reasonable alternatives with the goal of selecting a Preferred Alterative based on an understanding of the environmental consequences, including adverse or beneficial effects on cultural resources. The Project has considered a No-Build Alternative as well as four Build Alternatives (**Figure 1.2**).

1.2 Regulatory Context

Because the FHWA plans to fund the Project, it is an undertaking subject to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108) and its implementing regulations (36 C.F.R. Part 800), as well as Hawai‘i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai‘i Administrative Rules (HAR) § 13-275 and guidelines developed by the Hawai‘i State Historic Preservation Division (SHPD) (SHPD 2018).

Research, field investigations, and consultation for Section 106 and HRS § 6E compliance are being conducted concurrently to the extent possible.

1.2.1 Section 106

Under Section 106, historic properties are defined as prehistoric and historic sites, buildings, structures, districts, and objects listed in or eligible for listing in the NRHP, as well as artifacts, records, and remains related to such properties. Section 106 regulations require that the lead federal agency consult with the SHPO, Consulting Parties, and the public during planning and development of a proposed project. The federal ACHP is also invited to participate in the consultation. These agencies, groups, and individuals may participate in developing a Memorandum of Agreement or Programmatic Agreement to avoid, minimize, or mitigate adverse effects as applicable.

As part of the Section 106 process, agency officials apply the NRHP Criteria for Evaluation. A property is eligible for the NRHP if it is significant under one or more of the following criteria defined in 36 CFR Section 60.4 as:

“the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

A: Are associated with events that have made a significant contribution to the broad patterns of our history; or

B: Are associated with the lives of persons significant in our past; or

C: Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or

D: Have yielded, or are likely to yield, information important in prehistory or history."

Built resources are typically evaluated under Criteria A, B, and C; Criterion D applies primarily to archaeological resources. According to guidance in the NRHP bulletin, *How to Apply the National Register Criteria for Evaluation*, different aspects of integrity may be more or less relevant, depending on why a specific historic property was listed in or determined eligible for listing in the NRHP. Generally, only properties that are 50 years or older are identified and evaluated for NRHP eligibility.

Once historic properties have been identified, project effects are assessed by applying the criteria of adverse effect through the process described at 36 CFR Section 800.5. Consultation will continue with SHPO and Consulting Parties to seek ways to avoid, minimize, or mitigate adverse effects and may include development of a project-specific Memorandum of Agreement or Programmatic Agreement to memorialize these decisions and conclude the Section 106 process.

1.2.2 HRS § 6E

The Hawai‘i HRS § 6E requirements are an equivalent, but not identical, compliance process to Section 106. Under the statue's implementing regulations at HAR § 13-275, historic properties are defined as any building, structure, object, district, area, or site, including heiau and underwater site, which is over 50 years old. Significant historic properties are defined as any historic property that meets the criteria of the Hawai‘i Register of Historic Places (HRHP or SRHP) or the criteria enumerated in subsections 13-275-6(b) or 13-284-6(b). Like Section 106, HRS § 6E requires the agency to consult with the SHPD, Consulting Parties, and the public throughout Project planning and development.

To determine whether an identified historic property is a significant historic property, the agency evaluates significance according to the criteria described at HAR § 13-275-6. These criteria are equivalent to those found in federal law, are denoted using lowercase letters, and include one additional criterion specific to Hawaii:

e: Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Once significant historic properties are identified, the agency determines effects to these properties and applies one of two effect determinations.

The summary table below provides a comparison of the federal Section 106 and state HRS § 6E processes and terminology.

Table 1.1: Section 106 and 6E Comparison Summary

Section 106	6E
Initiate the Section 106 Process	Notify the SHPD of the Project
Determine the Area of Potential Effects	Propose a Project Area
Identify Historic Properties/Apply Criteria for Evaluation	Identify and Inventory Historic Properties/Evaluate Significance
Assess Effects	Determine Effects
Resolve Adverse Effects	Propose Mitigation

1.3 Secretary of the Interior's Professional Qualification Standards

WSP's staff maintains the current standards and specifications for architectural assessments, and our principal investigators, archival researchers, and preservation specialists meet or exceed the Secretary of Interior's specifications for architectural historians and historians. The architectural fieldwork was conducted by Mr. Matthew Prybylski, MHP. Mr. Prybylski also served as principal investigator for the historic architectural assessment. Ms. Mekenzie Davis, MA served as preservation specialists, archival researcher, and lead author for the Reconnaissance Level Architectural Historic Resource Survey. Mr. Guy Blanchard, MHP provided quality assurance / quality control (QA/QC) for the deliverables.

Figure 1.1. Project area consisting of proposed Build Alternatives and Reconnaissance Level Architectural Historic Resource Survey APE for the proposed Honoapi‘ilani Highway improvements.

2.0 METHODOLOGY

2.1 Area of Potential Effects

As defined at 36 C.F.R. § 800.16(d), the Area of Potential Effects (APE) is "the geographic area or areas which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist". The APE was developed in coordination with the project team and SOI-qualified professionals who reviewed the APE before submitting it to the State of Hawai'i, SHPD. During three public scoping meetings, including two virtual meetings held on December 14, 2022, and one in-person meeting held on December 15, 2022, Consulting Parties were also given the opportunity to comment on the proposed APE, but no comments were submitted requesting a change. The APE was submitted to SHPD on January 25, 2023, and in a letter dated March 21, 2023, SHPD responded that it had no objections to the proposed APE as it was defined. It should be noted that, since previously documented and/or eligible resources, most particularly the Olowalu Mill Complex Historic District, were located immediately adjacent to the project, the survey includes all buildings and structures located within these parcels. As such, the survey includes a few resources that lay outside the established APE to account for impacts to aboveground historic architectural resources that are adjacent to the project.

2.2 Setting

The APE is located in West Maui (Maui Komohana) in the area served by the existing Honoapi'ilani Highway between milepost 11 and milepost 17. Honoapi'ilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the main access between communities along Maui's west coast and the rest of the island. The proposed southeastern terminus of the Project at milepost 11 is in Ukumehame within the vicinity of Pāpalaua Wayside Park, and the northwestern terminus of the Project is at milepost 17 in Launiupoko, where Honoapi'ilani Highway intersects the southern terminus of Lāhainā Bypass. Realignment of the highway is among the alternatives considered for the Project; therefore, the project study area extends from the mountains to the sea along this corridor, from the base of the West Maui Mountains to the existing highway along the coastline. The approximately 6-mile-long and 0.75-mile-wide project area is composed predominantly of a coastal plain that includes the ahupua'a of Ukumehame, Olowalu, and Launiupoko. The APE consists of a largely rural setting, with small concentrated residential and commercial areas and a few scattered religious buildings and cemeteries among beaches, wooded areas, grasslands, modern biking/walking trails, as well as modern housing and infrastructure development in Olowalu.

2.3 Background Research

2.3.1 Previously Surveyed Properties

The NRHP was reviewed to determine if any resources in the APE were already listed. Site file and database checks for architectural properties were provided by SHPD on February 24, 2023, with information on known and listed resources as well as previously surveyed properties that are located within the APE. A total of nine previously documented architectural properties are within the APE, seven of which were determined NRHP-eligible as part of prior surveys (**Table 3**). The previously recorded architectural properties included a cemetery, a church and cemetery complex, portions of a road, stone walls, a water reservoir, and the ruins of a sugar mill. It should be noted that the reservoir was documented in 2012 by Cultural Surveys Hawaii, Inc, (CSH); however, it has not received a State Inventory of Historic Places designation. Instead, it was designated only by a field site number and is the only property previously unassessed for NRHP eligibility.

Table 2.1. Previously Surveyed Properties within the APE.

SIHP (50-50-08-) Number	Name/Address	Style/Form/Description	NRHP Eligibility
01602	Olowalu Sugar Mill Complex Historic District (Olowalu Landing, houses, and Wharf)/810 Olowalu Road	Agricultural Processing/ Industrial Facility	Eligible (Historic District)
01603	Lanakila Historic Church (Olowalu Church and Cemetery)/801 Olowalu Village Road	Church and Cemetery	Eligible
04695	Retaining Wall	Erosion Control	Eligible
04696	Road/Old Government Road	19th–20th Century Road	Not Eligible
04717	Rock Wall	Boundary Demarcations	Eligible
04719	Rock Wall	Boundary Demarcations	Eligible
04720	Rock Wall	Boundary Demarcations	Eligible
04758	Awalua Cemetery	Cemetery	Eligible
CSH 4	Reservoir	Water Control	Unassessed

Source: State Historic Preservation Division
SIHP = State Inventory of Historic Places; NRHP = National Register of Historic Places; CSH = Cultural Surveys Hawai'i, Inc Field site number

2.3.2 Archival Research

Archival research, which included local histories, historic maps, aerial photographs, Maui County tax assessor records, and other pertinent information, was conducted to identify specifications of existing buildings and to gain a better understanding of the history and development of the project area.

2.4 Field Survey

A qualified architectural historian conducted survey fieldwork April 3 through 7, 2023, in coordination with project archaeologists. Forty architectural resources (AR) 35 years of age or older were identified within the APE. Of these resources, 9 were previously surveyed and evaluated and 31 resources were newly identified (Section 3.6, Archaeological and Architectural Cultural Resources, Table 3.6-4). These resources comprise 13 residential and commercial buildings, 1 cemetery, 1 religious building/cemetery complex, 2 landings/wharfs, 1 bridge, 2 roadways, 6 boundary wall structures, 2 freight corridors, 1 water tower, 1 well, a series of agricultural clearing push piles, and 9 water control structures or series of structures.

3.0 HISTORICAL OVERVIEW

The historical overview for this report is drawn from Munekiyo Hiraga's *Proposed Olowalu Town Master Plan* from October 2015; Lee-Greig et. al. *Consultation Plan for Assessing Potential Cultural Impacts for the Proposed Olowalu Town Master Plan, Olowalu Ahupua'a, Lāhainā District, Island of Maui, TMK: (2) 4-8-003: 84, 98 through 118, and 124* from February 2012; Hawaiian Sugar Planters' Association Plantation Archives historic summary of the Pioneer Mill Company; and other resources. Pre-contact Hawaiian History is discussed in the archaeology documentation prepared for this Project.

3.1 Early European Settlement and Contact

The 19th century brought a multitude of commercial, demographic, social, and religious changes to Hawai'i. In 1810, with the help of guns—and from Englishmen Davis and Young—Kamehameha unified the Hawaiian islands under his leadership. He had already made Lāhainā his capital in 1802. Kamehameha died in 1819, the same year the first whaling ships arrived in Hawaiian waters. Lāhainā Harbor became a primary port of call for provisioning ships in the islands. Kamehameha II ruled from 1819 to 1824.

Closely following the arrival of the first whaling ships, the first Protestant missionaries and their families arrived in Lāhainā in 1823. They soon established Protestant missions in Lāhainā and Olowalu, the latter mission serving as an outstation to the people of Ukumehame. The sugar cane in the environs of Lāhainā in the 1820s would become the basis for a commercial venture that would reshape the landscape along the alluvial plains during the second half of the 19th century.

The whaling trade flourished until the 1860s and gave impetus to the development and growing population of Lāhainā. Between 1824 and 1861, 4,747 whale ship arrivals were recorded for Lāhainā, representing 47% of the total arrivals in all ports of the Hawaiian Islands. Figures from an 1846 census of Lāhainā documents the following changes brought to the area midway through the nineteenth century: 3,445 Hawaiians, 112 foreigners, 600 seamen, 155 adobe houses, 822 grass houses, 59 straw and wooden houses and 529 dogs. With an increasing population of foreigners entering Lāhainā, there was a need to increase the traditional agricultural surplus that fell primarily under the control of the ali'i class, for economic trade.

By the mid-19th century, the Lāhainā area had been infiltrated by a growing community of foreign business entrepreneurs, transient whalers, and Calvinist-minded missionaries; all of whom had personal interests to protect and virtues to impress upon the traditional Hawaiian people. Encouraged by these foreign factions, the division of lands, based on a western model of fee simple land ownership, was instigated during the reign of Kamehameha III (Kauikeaouli). The series of acts to "Organize the Executive Ministry"—known commonly as the Organic Acts of 1845 and 1846—initiated the process of the Māhele, or division of Hawaiian lands, which would introduce private property ownership into Hawaiian society. This process also transformed the governance of the Kingdom from a full monarchy to a constitutional monarchy.

3.1.1 Plantation Era

In 1864, King Kamehameha V joined with Ferdinand W. Hutchison and Rose Ranch owner James Makee in the formation of the West Maui Sugar Association, also called the West Maui Sugar Company. The West Maui Sugar Association planted sugar on crown lands in Olowalu and Ukumehame leased from Kamehameha V. Although the West Maui Sugar Association grew sugar in Olowalu, it sent its harvest to the Lāhainā Sugar Company to be processed in its mill. In 1869, the West Maui Sugar Association took over the Lāhainā Sugar Company mill. The sugar industry slumped in the 1870s. Struggling to survive, the Olowalu venture received a major blow when King Kamehameha V died in 1872. Two years later, the West Maui Sugar Association sold both its plantation and mill to the owners of the Pioneer Mill Plantation, which was founded in 1862.

3.2 Olowalu Sugar Company

In 1875, anticipating that the sugar industry would rebound, businessperson Milton Philip started to acquire land in Olowalu and Ukumehame. In 1875, Hawai‘i signed a reciprocity treaty with the United States. And by 1876, the sugar industry was on its way to recovery. Another Maui resident, Goodale Armstrong, also acquired Olowalu property and together with Philip started the Olowalu Plantation in 1876 utilizing former crown and *kuleana* land. Philip and Armstrong formally organized the Olowalu Sugar Company in 1881 on lands given up by the West Maui Plantation. The sugar venture was originally represented by the agency of McFarlane & Co., with shares in the Olowalu Sugar Company purchased by Theophilus Harris Davies, who became the agent for the enterprise in the late 1880s.

The development of the Olowalu Sugar Company included the construction of a mill, wharf, railroad connection to Lāhainā, and an irrigation system for processing cane from other fields in Olowalu and Ukumehame. The Maunalei Sugar Company, based on Lāna‘i, also shipped cane to Olowalu for processing between 1899 and 1901. During this period, the plantation also began employing Chinese, Japanese, and Puerto Rican laborers. Labor needs attracted many immigrant workers to the islands, with the largest number being from Japan (LOC ND; Maclennan 1995). Japanese immigrants were the largest segment of the Hawaiian population by 1923 (LOC ND). Cemeteries like Awalua Cemetery reflect the influence of the local Japanese population. Originally, the cemetery was considered a traditional Hawaiian burial area with a single Native Hawaiian interment. But during the sugar plantation era, the site was expanded to include predominantly Japanese interments (Fredericksen and Fredericksen 2000; R. M. Towill Corporation 2008).

In May of 1931, Olowalu Company was sold to American Factors, Ltd. (Amfac), owner of the larger adjoining Pioneer Mill Company, established in 1862, which resulted in milling shifting to Lāhainā. The Pioneer Mill Company’s operations spanned between Launiupoko, Olowalu, and Ukumehame.

3.3 Pioneer Mill Company

James Campbell, who had been in the carpentry business in Lāhainā for some ten years, started a sugar plantation there in 1860. The small mill was powered by mules and, together with cane from Campbell's fields, manufactured sugar on shares for small cane growers in the vicinity. One of these small growers was W.Y. Horner, who had a planting agreement with the new plantation for several years circa 1882.

Soon after the establishment of the new plantation, Henry Turton and James Dunbar joined Campbell. Under the name of Campbell & Turton, the company grew cane and manufactured sugar. Dunbar left the company in 1865 and the plantation became known as Pioneer Mill Company. By 1874, Campbell and Turton had added the Lāhainā Sugar Company and the West Maui Sugar Company, a venture of Kamehameha V, to the holdings of Pioneer Mill Company.

In 1885, Pioneer Mill Company was cultivating 600 of the 900 acres owned by the company and by 1910, 8,000 acres were devoted to growing cane. In 1877, James Campbell sold his half interest to partner Henry Turton for $500,000 with agents Hackfeld & Company holding a second mortgage of $250,000. The company's charter was dated in 1882, but by 1885, Mr. Turton declared bankruptcy and sold the property back to James Campbell and to Paul Isenberg, who was associated with Hackfeld & Co. Mr. C. F. Horner was selected to manage the plantation. In 1889, Mr. Campbell sold his interest to Mr. Horner, leaving Horner and Isenberg holding 3,000 shares of Pioneer Mill Company stock worth $600,000. They incorporated Pioneer Mill Company on June 29, 1895. Increasing rapidly in value over the years, Pioneer Mill Company was owned by 1,500 individual stockholders and valued at $5,000,000 by 1916. In 1918, Horner sold his interest to American Factors, formerly Hackfeld & Co., and Pioneer Mill Company became a wholly owned subsidiary of the agent company in 1960.

When Campbell and Turton were starting the plantation, the small sugar mill consisted of three wooden rollers set upright, with mules providing the power to turn the heavy rollers. The cane juice ran into a series of boiling kettles that originally had been used on whaling ships. In 1864, the Pacific Commercial Advertiser reported that Pioneer Mill Company had manufactured about 300 tons of the best sugar during the year. By 1876, the annual production had increased to 1,708 tons of raw sugar and the World's Fair in Philadelphia awarded Pioneer Mill a prize for fine quality sugar that year. In 1882, Honolulu Iron Works

was building an iron three-roller mill for Pioneer Mill's factory and soon there were six boilers generating steam power to drive the machinery. In 1899, a nine-roller mill was erected, followed by a 12-roller mill in 1912, which was housed in a new steel factory building. By 1924, a 15-roller mill helped produce Pioneer Mill's largest sugar crop of 34,980 tons.

Pioneer Mill Company was one of the earliest plantations to use a steam tramway for transporting harvested cane from the fields to the mill. Cane from about 1,000 acres was flumed directly to the mill cane carrier with the rest coming to the mill by rail. In 1937, mechanically harvested cane was bringing so much mud to the factory that Pioneer Mill Company began to design an original cane cleaner. The cleaner was operating satisfactorily by 1939. Between 1948 and 1951, a rock removal program rehabilitated 3,153 acres of Pioneer land to permit mechanical planting, cultivating, and harvesting. This rock removal program often destroyed Native Hawaiian field systems, habitation, and ceremonial sites. The rocks were pushed into large piles (pushpiles), which still dot the landscape. In 1952, the railroad was eliminated and a year later new feeder tables were conveying cane directly from cane trucks into the factory. In 1964, the Silver Ring diffusion process was underway at Pioneer Mill Company.

Irrigation of Pioneer Mill Company's fields, an area approximately ten miles long and one- and one-half miles wide with altitudes between ten and 700 feet, was accomplished with water drawn from wells and water transported from the West Maui Mountains. The McCandless brothers drilled the first well on Maui for Pioneer Mill Company in 1883. By 1935, over $3,000,000 had been spent on water development, including gravity systems and underground supplies. Although rocky, Pioneer fields were favorable to the growth of sugar cane and some of the best fields kept producing cane without replowing or replanting for as long as ten years. Water diverted for cane often decreased the supply for Hawaiian taro lo'i, and changed the traditional irrigation systems that fed the lowland loi'i.

In 1910, there were 1600 laborers employed by Pioneer Mill Company—half were contract laborers and half were day workers. Plantation children attended schools on the plantation and in Lāhainā. The company sponsored a kindergarten for approximately 800 to 1,000 children by 1914. In 1932, the largest number of "old time" Japanese sugar workers in the Hawaiian Islands were employed at Pioneer Mill.

Lāhainā Light and Power Company, Lāhainā Ice Company, the Lāhainā and Puukolii Stores, and the Pioneer Mill Hospital were associated with the plantation, providing services to employees as well to Lāhainā residents. World War II caused a severe labor shortage, forcing Pioneer Mill Company to drop over 1,000 acres from cultivation.

3.4 Plantation Community

As plantation laborers from other countries increased, the proportion of Hawaiians in the community decreased. Although the majority of laborers worked for the plantation and lived in community-provided housing, there were individuals that sought other opportunities. Kintaro and Kise Kawasaki purchased land and operated a truck farm in Olowalu. They also ran a store called the Olowalu *Nihonjin Shokai*, or Olowalu Japanese store. By 1910, a Japanese Language School was started to teach Japanese children the language and culture of their homeland.

A Roman Catholic Church and a Church of Jesus Christ and Latter-day Saints were established in 1916 and 1921, respectively, joining the Olowalu Hawaiian Protestant Church. By the 1930s, a theater and various sports clubs provided diversion, entertainment, and activity for the community at large.

3.5 The End of Sugar

Following World War II, changes in West Maui began to transform its plantation economy and society. One of the first developments came from motorization, which started in the 1930s but accelerated after the war. The gravel Pali Road to Lāhainā began to be paved in 1938 and was then part of the larger Sunset-Skyline Highway construction project that began in 1950 and became the Honoapi'ilani Highway, which included Hawai'i's first highway tunnel.

Road construction and mass motorization signaled a shift away from the plantation economy and society as agricultural lands became residential subdivisions and tourism replaced cash crops as the primary

economic engine of the archipelago. The Pioneer Mill closed in 1999, marking an end of an era. Since then, however, diversified agricultural establishments have taken hold in West Maui to diversify its economy.

4.0 HISTORIC PROPERTY IDENTIFICATION AND EVALUATION

The RLS for the proposed realignment of Hawai‘i State Highway 30 (Honoapi‘ilani Highway) was developed in consultation with the HDOT cultural resources staff and the Hawai‘i SHPD and was based on a review of the density of the setting, the Project’s potential for direct and visual effects upon historic resources, as well as an understanding of the specifications of the proposed undertaking. Within the APE, all parcels were examined (**Figure 4.1** and **Figure 4.2**). A total of 40 resources 35 years of age and older were identified within the APE. Of these resources, eight were previously surveyed and evaluated and 32 were newly identified (**Table 4.1**). The resources previously evaluated were revisited in this survey to reevaluate individual eligibility.

The 40 resources located within the APE included 13 residential and commercial buildings, 1 religious building/cemetery complex, 1 cemetery, 2 landings/wharfs, 1 bridge, 2 historic freight corridors, 2 roadway networks, 6 boundary wall structures, 1 water tower structure, 1 water well, a series of agricultural push piles, and 9 water control structures or series of water control structures. As part of the fieldwork, all resources were documented and individually photographed. SOI-qualified professionals assessed the buildings and structures individually and according to several overarching architectural and historical themes developed and defined by archival research. These themes included the development of the area, including the establishment and operation of the Olowalu Sugar Company and the Pioneer Mill Company, (Criterion A), the association with early settlers and community leaders within Launiupoko, Olowalu, and Ukumehame (Criterion B), and the evaluation of architecture within the region (Criterion C). The historic resources were also assessed collectively to determine if there was potential for a historic district and if further evaluation was warranted.

The Olowalu Sugar Mill Complex Historic District (SIHP 1602), including the wharf, landing, plantation manager house, and other housing, was previously evaluated as a historic district according to information provided by SHPD. During this study, the district was also reevaluated and recommended to be expanded into the Olowalu Sugar Plantation Historic District with a proposed period of significance of 1880 to 1951 to include both the Olowalu Sugar Company (1880-1931) and subsequent Pioneer Mill Company (1931-1951). The historic district was developed according to National Park Service Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, and includes contributing resources that retain sufficient integrity to convey the district’s significance. Of the 39 identified resources within the survey, 10 are recommended as eligible as contributing resources to the proposed Olowalu Sugar Plantation Historic District.

Although architectural historic properties related to the plantation era were identified within Ukumehame and Launiupoko, the area no longer reflects the influence of the local sugar industry in the way the interconnected resources do in Olowalu. Many of the buildings and structures related to the period are no longer extant, and the remaining architectural features hold less historical and architectural significance and have lost integrity of materials, workmanship, design, setting, feeling, association. Therefore, no individually NRHP-eligible historic properties or historic districts were identified for either the Ukumehame or Launiupoko areas.

Table 4.1. Evaluated Properties in APE and Significance Evaluations

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 1 04758	Awalua Cemetery	Olowalu	Cemetery	• Individually eligible (NRHP Criteria A and D; Criteria Consideration D and SRHP Criterion a, d, and e). • Eligible as a contributing resource to a historic district (NRHP Criteria A and D; Criteria Consideration D).
AR 2 09132	820A Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 3 09133	820 Olowalu Road	Olowalu	Commercial	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 4 01602	807 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 5 01602	808 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 6 01602	810 Olowalu Road (Olowalu Plantation House)	Olowalu	Plantation/Bungalow	• Not individually eligible due to a loss of integrity. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 7 01602	810 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 8 01602	Olowalu Sugar Mill Complex Historic District (Olowalu Landing and Wharf)	Olowalu	Agricultural Processing/Industrial Facility	• Properties are not previously individually but were previously recommended eligible as a historic district. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 9 09134	Reservoir	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource due to a lack of historic, architectural, and material integrity.
AR 10 09135	832 Olowalu Village Road	Olowalu	Contractor Modern/ Hawaiian Ranch	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 11 09136	804 Olowalu Village Road	Olowalu	Styled Ranch (Spanish)	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 12 09137	804A Olowalu Village Road	Olowalu	Contractor Modern/ Hawaiian Ranch	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 13 09138	806A Olowalu Village Road	Olowalu	Modified Plantation	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 14 09139	803 Kana Place or Olowalu Village Road	Olowalu	Dutch Colonial Revival	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 15 09140	837 Olowalu Village Road/ 4132 Honoapiʻilani Highway	Olowalu	Contractor Modern/ Hawaiian Ranch	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district due to a lack of historic and architectural significance.
AR 16 09141	802 Olowalu Village Road	Olowalu	Plantation/Bungalow	• Individually eligible (NRHP Criterion A, and SRHP a). • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 17 01603	Lanakila Historic Church (Olowalu Church and Cemetery)	Olowalu	Religious Structure and Cemetery	• Individually eligible (Criteria A and D; Criteria Consideration D and SRHP Criterion a, d, and e). • Not eligible as a contributing resource to a historic district due a lack of association.
AR 18 09142	Small Wharf (Honoapiʻilani Highway, Mile Marker 14)	Olowalu	20th Century Transportation/Shipping	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource to a historic district.
AR 19 09143	Water Tower	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C and D).
AR 20 09144	Bridge	Olowalu	Early 20th century steel stringer/multibeam bridge	• Not individually eligible due to loss of integrity. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C and D).
AR 21 09145	Push Piles	Olowalu	Agricultural Field Clearance	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 22 09146	Irrigation Ditches (‘auwai)	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and lack of architectural significance.
AR 23 09147	Cane Haul Roads	Olowalu	Agricultural Transportation	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 24 09148	Irrigation Flume (‘auwai)	Olowalu	19th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due a lack of association.
AR 25 09149	Kuahulu Place/ Freight Corridor	Olowalu	19th-20th Century Freight Transportation	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 26 09150	Beach Access Road/Freight Corridor	Olowalu	19th-20th Century Freight Transportation	• Not individually eligible due to a lack of historic and architectural significance. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 27 04695	Retaining Wall	Olowalu	Erosion Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 28 04717	Rock Wall	Olowalu	Boundary Demarcations	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 29 04719	Rock Wall	Olowalu	Boundary Demarcations	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 30 04720	Rock Wall	Olowalu	Boundary Demarcations	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource due to a lack of historic and architectural significance and material integrity.
AR 31 09151	Reservoir	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 32 09152	Irrigation Ditches	Pinch point Launiupoko and Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and lack of association.
AR 33 09153	Rock Wall (AA2216-25)	Launiupoko	Boundary Demarcations	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to lack of association.
AR 34 09154	Irrigation ditch	Launiupoko	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and lack of association.
AR 35 09033	Well	Ukumehame	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to lack of association.

AR and SIHP (50-50-08-) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 36 09155	Sluice gate	Pinch Point Olowalu and Ukumehame	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to lack of association.
AR 37 09156	Irrigation ditch	Pinch Point Olowalu and Ukumehame	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and lack of association.
AR 38 (AR 38.1-38.2) 09157	Cane Haul Roads	Ukumehame	Agricultural Transportation	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and a lack of association.
AR 39 (AR 39.1 - 39.17) 09158	Irrigation ditches	Ukumehame	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to loss of integrity and lack of association.
AR 40 09159	Rock Wall	Launiupoko	Boundary Demarcations	• Not individually eligible due to a lack of historic and architectural significance and loss of integrity. • Not eligible as a contributing resource to a historic district due to lack of association.

AR = WSP Aboveground Resource Filed Site; SIHP = State Inventory of Historic Places

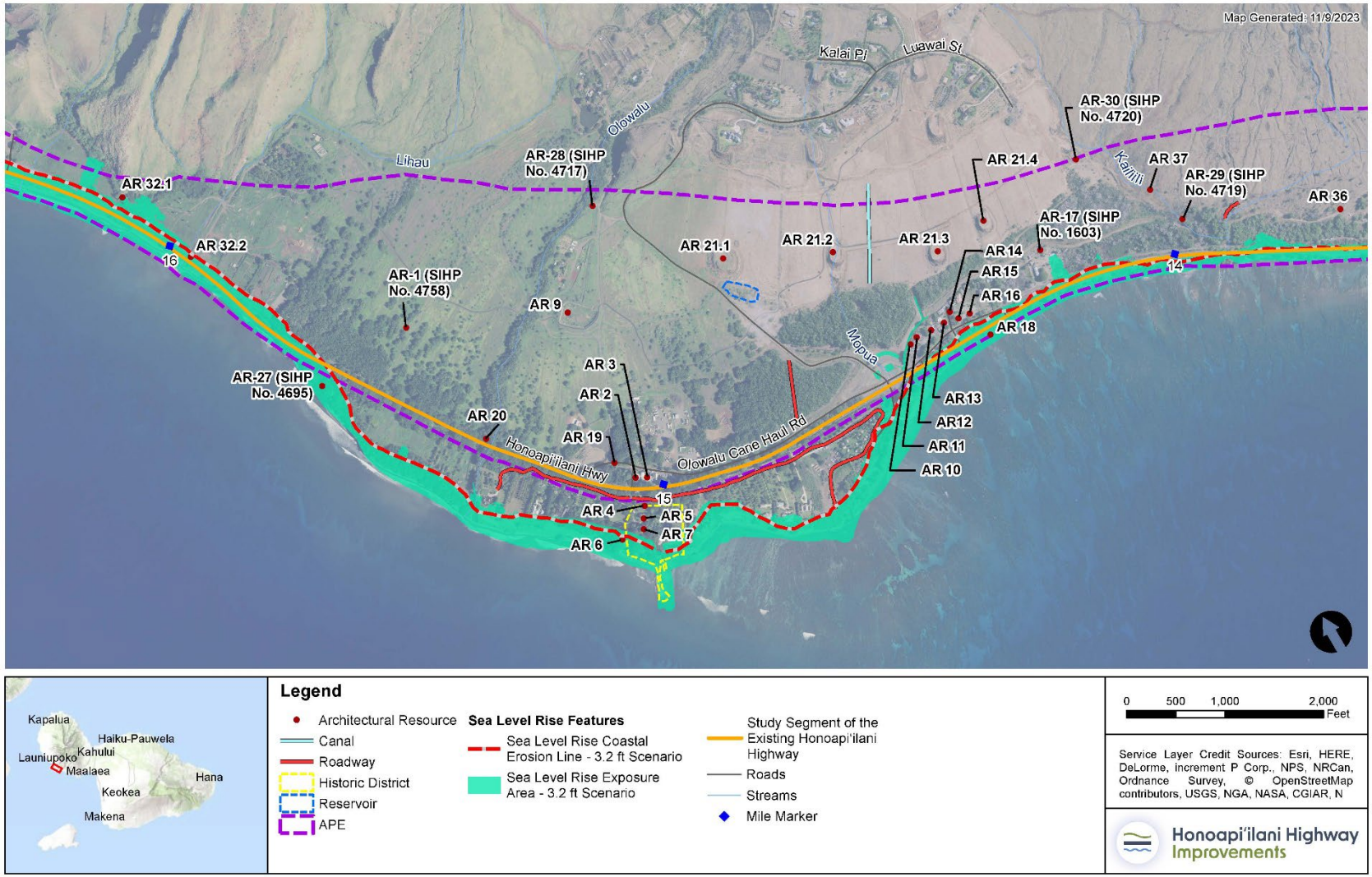


Figure 4.1. Aerial map showing the APE and the documented historic resource locations in Olowalu.

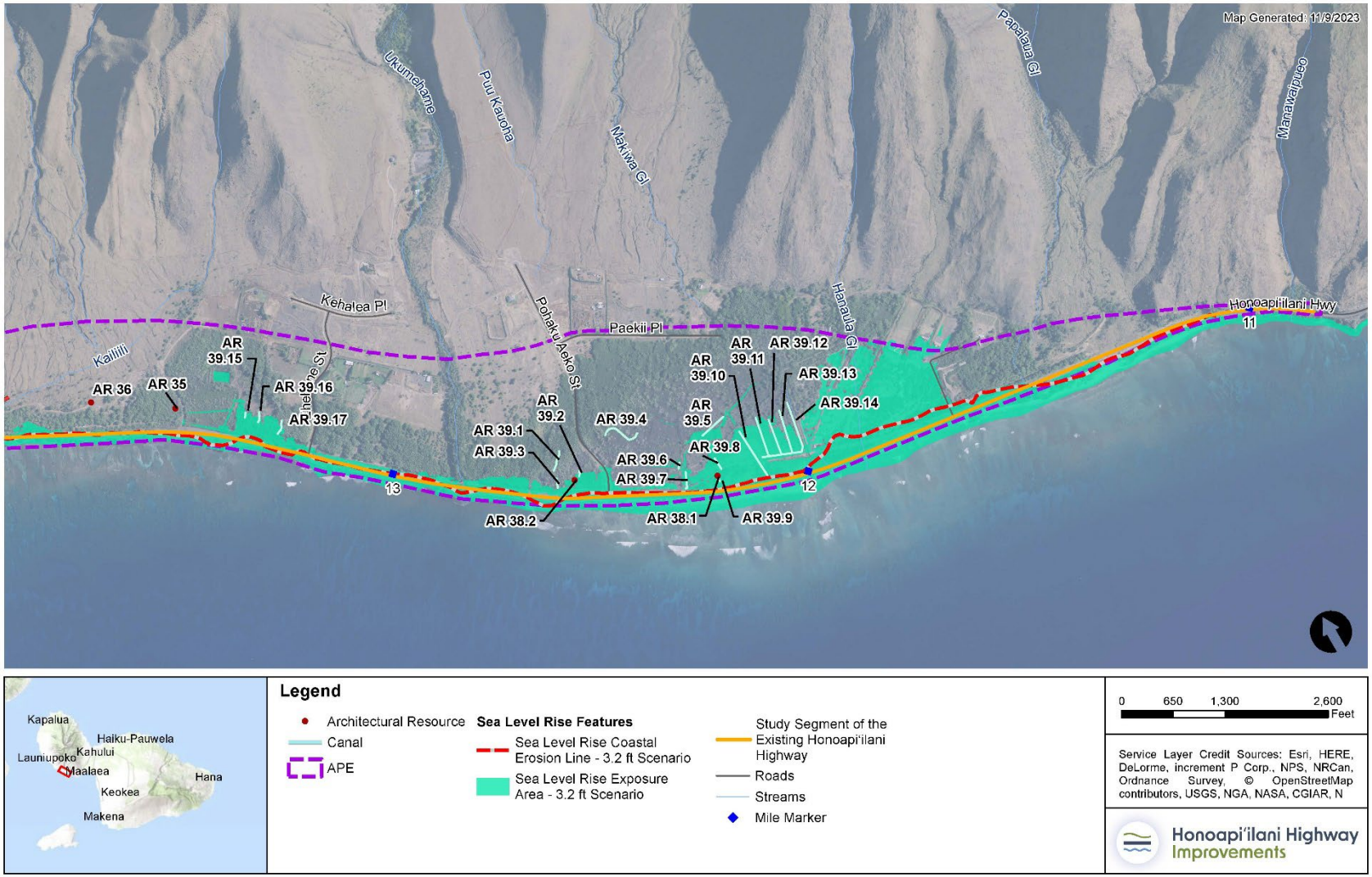


Figure 4.2. Aerial map showing the APE and the documented historic resource locations in Ukumehame.

4.1 AR 1 (SIHP No. 4758): Awalua Cemetery

AR 1, previously recorded as SIHP No. 4758, is the Awalua Cemetery located on the east side of Honoapi‘ilani Highway. The cemetery sits on an open grassy area dotted with trees and enclosed within a metal wire fence (**Table 4.2, Figures4.3** and **4.5**). The site is also known as the “Japanese” Cemetery and also as Puha Cemetery (Lee-Grieg and Hammatt 2012).

According to the County of Maui tax assessor's database, AR 1 sits on 25.211 acres and is currently owned by Olowalu Mauka Lot 30 Condo Master. The cemetery is to the north of a dirt access road that runs along the southern boundary. The cemetery is marked with a metal sign bolted into a concrete base, and the perimeter of the cemetery is marked with metal wire fencing and a metal gate. An informational sign is posted at the gate. The earliest inscribed marker dates to 1938, 70 after the first Japanese immigrants arrived in Hawaii, and approximately 50 years after the influential second wave of Japanese migrants landed in 1885. The cemetery is labeled on the 1955 Olowalu, Hawai‘i topographic map and shown on the 1949 aerial image, which are the earliest images available and corroborate the 1938 establishment date. However, a number of interments are marked with uninscribed markers or use Japanese characters.

Originally, the cemetery was considered a traditional Hawaiian burial area with a single Native Hawaiian interment. But during the sugar plantation era, the site was expanded to include predominantly Japanese interments (Fredericksen and Fredericksen 2000; R. M. Towill Corporation 2008). This suggests that the cemetery was established prior to 1938, likely in the 19th century. The cemetery was further expanded in 2002, following the discovery of fragmented human skeletal remains at SIHP NOS 4820 and 4821, during a survey by Xamanek Researchers and Olowalu Elua Associates LLC (Fredericksen and Fredericksen 1999, 2001; Lee-Grieg and Hammatt 2012; R. M. Towill Corporation 2008).

Table 4.2. Summary of AR 1 (SIHP No. 4758): Awalua Cemetery

Address	Honoapi‘ilani Highway (State Highway 30)
TMK	4-8-003:113
County	Maui County
Date Established	circa 19th Century
Acreage	25.211
Owner	Olowalu Mauka Lot 30 Condo Master
Architectural Type	Cemetery
Number of Interments	Approximately 60 (although additional unmarked interments are possible)
Earliest Interment	Early 19th century
Integrity	AR 1 was in fair to good condition. Retains much of its integrity of location, setting, design, workmanship, association, feeling, and materials.
Section 106 Significance Evaluation	AR 1 is recommended as eligible individually (NRHP Criteria A and D; Criteria Consideration D) and as a contributing resource to the Olowalu Sugar Plantation Historic District (NRHP Criteria A and D).
HRS 6E Significance Evaluation	AR 1 is recommended as eligible individually (SRHP Criteria A, D, and E).

4.1.1 Cemetery Site Description

The cemetery measures approximately 80 by 30 meters with an estimated minimum of 60 interments (Shefcheck and Dega 2007). The interments appear to be mostly within uniform rows, running northeast to southwest, and are identified with southwest-facing markers of a variety of types, including upright wooden posts, upright basalt markers with concrete bases, flat and upright concrete monuments, and stacked stone mounds (**Figures 4.4- 4.5**). The concrete and basalt markers are inscribed with personal information in both English text and Japanese characters (Fredericksen and Fredericksen 2000; R. M. Towill Corporation 2008). Additional unmarked interments may be present. The earliest burial inscribed in English dates to 1938, and the most recent dates to 1940. While the majority of the headstone’s text were in Japanese, surnames observed in English include Kakazu and Fujishiro.

4.1.2 Current Condition and Integrity

At the time of the survey, AR 1 was in fair to good condition. Some markers are displaced, and others exhibit minor signs of fire damage. In 2007, large brush fires impacted the cemetery, causing cracking and spalling of some of the headstones (Lee-Grieg and Hammatt 2012; Shefcheck and Dega 2007). The cemetery appears to have been previously maintained but was overgrown with vegetation at the time of survey. Despite previous fire damage, AR 1 retains its integrity of location, setting, design, workmanship, association, feeling, and materials.

4.1.3 Significance Evaluation

AR 1 was previously recommended as individually eligible for HRS 6E under Criteria d and e. Following the current survey, AR 1 is recommended as individually eligible for listing in the NRHP under Criteria A and D, Criteria Consideration D, along with SRHP Criteria a, d, and e.

AR 1 is recommended as eligible under NRHP Criterion A and SRHP Criterion a. The cemetery is related to the Japanese population in Maui, whose presence in the region is directly related to the labor demands of the sugar plantation industry. Subsequently, the cemetery is also associated with the local sugar plantation industry, the Pioneer Mill Company, and their impact on the development of Olowalu from the late-19th century to the mid-20th century. No connections to individual people of historic significance in relation to AR 1 were identified; therefore, the resource is not considered individually eligible under NRHP Criterion B or SRHP Criterion b.

Under NRHP Criterion C and SRHP Criterion c, the cemetery is not eligible because it has no elements that make it a unique example of its architectural style or form. NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. AR 1 is recommended eligible under NRHP Criterion D and SRHP Criterion d because of its potential to yield information important in history related to the Japanese immigrant population in West Maui and their association with the sugar plantation industry and its impact on the development of the region and Olowalu.

Under NRHP Criteria Consideration D, the cemetery is recommended for its association with the settlement of a particular cultural group, specifically the Japanese population, and its potential to yield important information on individuals such as demography, variations in mortuary practices, or the study of the cause of death correlated with nutrition or diseases. Under SRHP Criterion e, the cemetery is recommended as individually eligible given its close ties to the Japanese people that settled in the area. Moreover, the funerary practices show associations with traditional beliefs and events that are important to the settlers' history and cultural identity.

AR 1 is also recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District. The site is determined as significant for its direct association with the Pioneer Mill Company and the local sugar plantation industry and their impact on the development of Olowalu from the late-19th century to the mid-20th century, under NRHP Criterion A and Criterion D.

Figure 4.3. Aerial image showing the location of AR 1 (SIHP No. 4758).

Figure 4.4. View of AR 1, facing north.

Figure 4.5. Overview of upright, basalt markers with inscribed with Japanese characters.

4.2 AR 2 (SIHP No. 09132): 820 A Olowalu Road (Olowalu Village Road)

AR 2, newly recorded as SIHP No.09132, is a residential property located at 820A Olowalu Road, also known as Olowalu Village Road, (**Table 4.3**; **Figure 4.6**). The building is bounded by commercial properties to the east and west, Honoapi'ilani Highway to the south, and Olowalu Village Road to the north. AR 2 sits on a level, sandy terrain with numerous ornamental plants and several trees. A short rock wall runs along the south boundary of the property with a metal gate and a sidewalk leading to the front entrance. A metal chain-link fence also runs along a section of the east boundary between the house and the adjacent commercial property and along the northern boundary. The house is associated with a small outbuilding.

According to the County of Maui tax assessor's database, AR 2 sits on 0.50 acres, is currently owned by Olowalu Ohana LLC, and was built in 1956.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. All documentation for AR 2 was conducted from the public right-of-way, except for observations made while attempting to contact the Owner of Records.

Table 4.3. Summary of AR 2 (SIHP No. 09132)

Address	820A Olowalu Road
TMK	4-8-003:031
County	Maui County
Date of Construction	By 1956
Square Footage	1,332
Acreage	0.50
Owner	Olowalu Ohana LLC
Architectural Type/Style	Modified Plantation
Integrity	AR 2 is in fair to good condition. AR 2 has undergone alterations resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 2 is not individually eligible and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of architectural and historic significance and loss of integrity.
HRS 6E Significance Evaluation	AR 2 is not individually eligible and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of architectural and historic significance and loss of integrity.

4.2.1 Building Description

The residential building associated with AR 2 is a southwest-facing, one-story, single-family, Modified Plantation house topped with a cascading-hip roof covered with corrugated metal (**Figure 4.7 – 4.8**). The house is clad in Masonite hardboard or pressboard that extends down to grade. An entryway porch adorns the main entrance and features a short, hipped roof overhang covered in matching corrugated metal and supported with slim, metal posts. A small wooden deck with ramp extends out from the entryway porch. A two-car garage is attached to the north (rear) elevation, clad in wood vertical board and topped with a flat roof that extends from the main roofline. The associated outbuilding is located north of the attached garage. A flat roof extends north from the garage to the outbuilding, creating a small carport. The roofing material of the carport and attached garage is also corrugated metal. Aerial images indicate that the attached garage was added to the building between 1950 and 1975.

The south (front) elevation has three wall openings. From west to east, the elevation has a pair of double-hung wood windows, a single door with metal framed screen door, and a second pair of double-hung wood windows. The east elevation has three wall openings, but this elevation was partially obscured from the public right-of-way. On the south end, there is a single double-hung wood window, and on the north end, there is a single door and a pair of double-hung wood windows. The north (rear) elevation has two wall openings along the main block, including a single double-hung wood window and a single wooden door. The north elevation of the attached garage has a row of three wood windows with indeterminate sash operations, which are covered by aluminum framed window screens. The west elevation has four wall openings but is partially obscured by vegetation. From north to south, the elevation

has two corrugated metal overhead garage doors, a single wood panel door, and two double-hung wood windows.

4.2.2 Associated Outbuilding

AR 2 is associated with one outbuilding, a small frame shed, which sits on the northwest corner of the property behind the house. The shed is topped with a corrugated metal, flat roof and has vertical wood board walls. The south (front) elevation has a single wood paneled door and a pair of double-hung wood windows with multi-lights. Aerial images indicate the shed was added to the property between 1950 and 1975.

4.2.3 Current Condition and Integrity

AR 2 is in fair to good condition. The roofing material and wall material of the attached garage exhibit signs of deterioration. The house has also undergone alterations, including the addition of the attached garage and the replacement of roofing material. The shed is in fair condition. The exterior wall and roofing material show signs of deterioration. While the property retains its integrity of location and setting, given the alterations, AR 2 has lost much of its integrity of design, material, workmanship, feeling, and association.

4.2.4 Significance Evaluation

AR 2 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies or depict the early settlement of the township or county. Moreover, while the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association. Although the building is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance.

Under NRHP Criterion B and SRHP Criterion b, AR 2 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, the building is not individually eligible because the resource has no elements that make it a unique example of its architectural style or form, and the house is not the work of an expert builder or craftsperson. In addition, AR 2 has undergone alterations, such as the addition of the large two-car garage, resulting in loss of integrity of materials and design.

HRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 2 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 2 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. Although the residential building was constructed during the period of significance for the historic district, the house shows signs of deterioration and has undergone alterations, resulting in loss of integrity of materials and design.

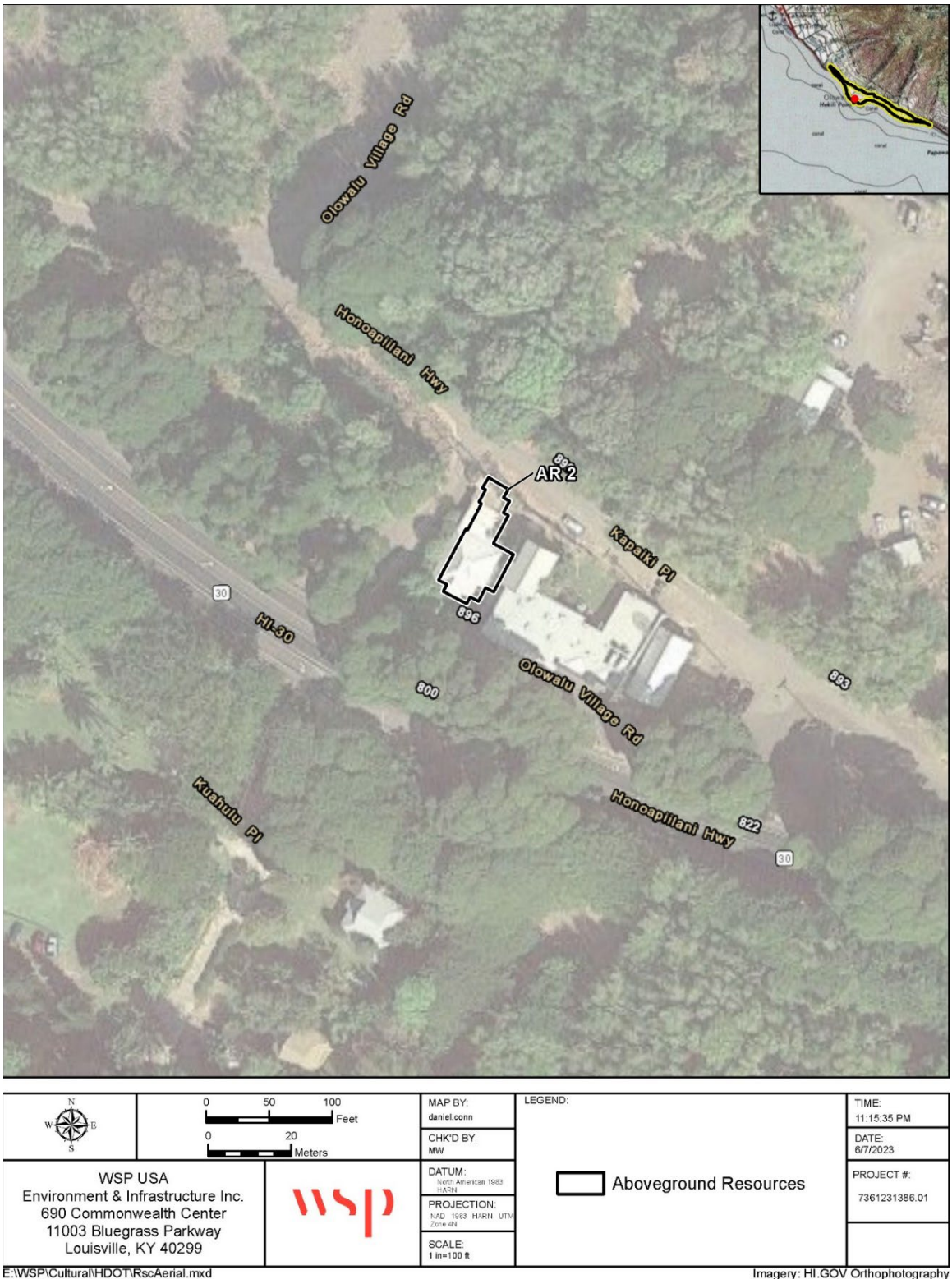


Figure 4.6. Aerial image showing the location of AR 2.

Figure 4.7. South (front) elevation of AR 2, facing northeast.

Figure 4.8. North (rear) elevation of AR 2, facing southwest.

4.3 AR 3 (SIHP No. 09133): 820 Olowalu Road

AR 3, newly recorded as SIHP No.09133, is a commercial property located at 820 Olowalu Road (**Table 4.4; Figure 4.9**). The building is bounded by a parking lot to the east, a residential property (AR 2) to the west, Honoapi‘ilani Highway to the south, and Olowalu Village Road to the north.

According to the County of Maui tax assessor’s database, AR 3 sits on 0.50 acres, is currently owned by Olowalu Ohana LLC, and was built in 1929. But the tax records also show that the building has an effective year-built date of 1940. A review of historic maps and aerials suggests it was built circa 1935. AR 3 sits on a level, sandy terrain with a parking lot along the south and east elevations and a small grassy area to the north of the building. A chain-link fence runs along the northern boundary of the property and along sections of the west boundary between AR 3 and AR 2.

Table 4.4. Summary of AR 3 (SIHP No. 09133)

Address	820 Olowalu Road
TMK	4-8-003:031
County	Maui County
Date of Construction	circa 1935
Square Footage	5,577
Acreage	0.50
Owner	Olowalu Ohana LLC
Architectural Type/Style	Commercial
Integrity	AR 3 is in good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 3 is not individually eligible and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of architectural and historic significance and loss of material integrity.
HRS 6E Significance Evaluation	AR 3 is not individually eligible and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of architectural and historic significance and loss of material integrity.

4.3.1 Building Description

AR 3 is a southwest-facing, one- and two-story, commercial building. Two additions were added to the original block of the building (**Figure 4.10 – 4.14**). The original block is the one-story, flat-roofed, rectangular section on the southwest of the building’s plan, which currently houses the Olowalu General Store. This section has wood vertical board siding and a concrete foundation, and the roof is covered in corrugated metal. A concrete sidewalk runs along the south elevation, which is covered with a flat roof overhang that extends out from the main roof.

The first addition was the one-story, flat roofed, L-shaped section to the east of the original block, which was added to the building between 1960 and 1975. This section is occupied by a restaurant, Leoda’s Kitchen and Pie Shop. The sidewalk along the main block also extends along the south elevation of this addition but is covered with a sloped, corrugated roof overhang that is supported with multiple brackets. A short wooden railing extends along the edge of the sidewalk along sections of this addition. A raised parapet extends along the roofline of the south (front) elevation, supported with exposed brackets. The walls are clad in pressboard designed to look like vertical wood board.

Added during the same period, the second addition is the two-story, front gable section on the northwest corner of the building’s plan. The second level is supported with tall piers of concrete block, leaving the first level an open storage area. The second level is clad in pressboard designed to resemble vertical wood board. The roof has wide eaves and is covered in corrugated metal. AR 3 is also associated with one outbuilding that sits adjacent to the building along the east elevation. A tall concrete wall runs between the two buildings and is attached to the first addition of AR 3.

The south (front) elevation has four wall openings along the original block and eight wall openings along the first addition. From west to east, the south elevation of the main block has a single sliding window, large, fixed windows with transoms, a pair of metal framed glass doors with transoms, and a single metal framed glass door. The first addition has a single two-paneled wood door with multi-lights and multi-light transom, a pair of six-over-one double-hung windows, a row of six-over-one double-hung windows, a single four-over-one double-hung window, a pair of two paneled wood doors with multi-lights, a single four-over-one double-hung window, and two single six-over-one double-hung windows. The second addition was partially obscured, but five wall openings were identified on the second level, including three metal vents, a pair of double-hung windows, and a single fixed window.

The west elevation was also partially obscured. Five wall openings were recorded along the original block, including two metal doors with square transoms and three fixed windows. The first addition has three wall openings, including a row of three windows, a single door with transom, and a single window. The west elevation of the second addition has four wall openings on the second level. From south to north, there is a row of three fixed windows, a single door, a pair of double-hung windows, and single double-hung window. A small balcony with short wooden railing protrudes from this elevation of the second addition.

The north (rear) elevation of the original block is obscured but a pair of double-hung windows, a single large window, a single door, and a row of four windows were recorded. The first addition is also largely obscured but a metal door and two windows were observed on this elevation. The north elevation of the second addition has three wall openings, including two single double-hung windows and a metal vent.

The east elevation of the original block is attached to the first addition, and the first addition has no wall openings on this elevation. The east elevation of the second addition is partially obscured, but a single window, a single door, a single rectangular window, and double-hung window were observed on the second level.

4.3.2 Associated Outbuilding

AR 3 is associated with an outbuilding that sits just to the southeast of the east elevation. A tall concrete block wall runs north and south between the two buildings and a short wooden wall connects the two buildings on the south elevation. The building is a one-story, front gable storage building built prior to 1950 (according to aerial images). The roof has wide eaves with exposed brackets and is covered in corrugated metal. The walls are clad in corrugated metal and plywood. The south (front) elevation has a pair of large wood doors (**Figure 4.14**). The west elevation was not fully viewable, but no wall openings were observed. On the north end of the east elevation, the building has a single wood door with transom and sliding window, and a single corrugated metal, overhead garage door on the north elevation.

4.3.3 Current Condition and Integrity

AR 3 is in good condition, but the building has undergone multiple alterations, such as the two additions and the replacement of roofing and wall material. While the property retains its integrity of location and setting, given that AR 3 has undergone multiple alterations, it has lost its integrity of design, material, workmanship, feeling, and association.

4.3.4 Significance Evaluation

AR 3 is recommended as not individually eligible for listing in the NRHP or HRS § 6E due to a lack of historic and architectural significance and loss of material integrity. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies or depict the early settlement of the township or county. Moreover, while the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association. Although the building is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance.

Under NRHP Criterion B and SRHP Criterion b, AR 3 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance. Under

NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because the building has no elements that make it exemplary of their architectural style or form. AR 3 is not the work of an expert builder or craftsperson and is a type of commercial building found across the region.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 3 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 3 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. Although the resource was extant during the sugar plantation period, the building does not embody the historical significance of the proposed historic district. AR 3 has undergone multiple unsympathetic alterations that have negatively impacted the building's integrity of materials and design.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 3. This type of building is found throughout the region and does not hold architectural or historic significance.

Figure 4.9. Aerial image showing the location of AR 3.

Figure 4.10. South (front) and east elevations of AR 3, facing northwest.

Figure 4.11. West and south (front) elevations of AR 3, facing northeast.

Figure 4.12. North (rear) elevation of AR 3, facing west-southwest.

Figure 4.13. East and north (rear) elevations of the second addition of AR 3, facing west-southwest.

Figure 4.14. East and north (rear) elevations of AR 3, facing southwest.

4.4 AR 4 (SIHP NO. 1602): 807 Olowalu Road

AR 4 (SIHP No. 1602) is a residential property at 807 Olowalu Road (**Table 4.5**; **Figure 4.15**). Along with AR 5, AR 7, and AR16, the property was determined eligible as a contributing resource to the "Olowalu Sugar Mill Comple Historic District" in 1974. The building is bounded by a wooded area to the east, Honoapiʻilani Highway to the north, Olowalu Road to the west, and a residential building to the south. AR 4 sits on a level, grassy terrain with ornamental plants and several trees. The property is surrounded by a wooden fence with a metal gate. The house is associated with an outbuilding.

According to the County of Maui tax assessor's database, AR 4 sits on 28.894 acres, is currently owned by Olowalu Elua Associates LLC, was built in 1923, and has an address of 11493 Honoapiʻilani Highway. However, the building is also shown on an 1881 map of Olowalu along with several other structures in the APE, suggesting that AR 4 may have been constructed by 1881. The house was originally associated with the Olowalu Sugar Company, and later with the Pioneer Mill Company, who operated the first commercial sugar plantation and mill in Lāhainā. According to a 1906 map of the Olowalu Plantation, the residence, along with other homes clustered nearby, served as the home for plantation managers (Hawaiian Sugar Planters' Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021). The house is shown again in a later map of the Pioneer Mill Company holdings.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.5. Summary of AR 4 (SIHP NO. 1602)

Address	807 Olowalu Road (11493 Honoapiʻilani Highway)
TMK	4-8-003:084
County	Maui County
Date of Construction	1923
Square Footage	1,500
Acreage	28.894
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Plantation House/Bungalow
Integrity	AR 4 is in good condition but has undergone multiple alterations resulting in loss of integrity of design, material, and workmanship.
NRHP Significance Evaluation	Recommended as not individually eligible but is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.4.1 Building Description

AR 4 is a northwest-facing, one-story, single-family, bungalow house topped with a hipped roof with wide eaves and covered with asphalt shingles (**Figure 4.16 – 4.18**). The house is clad in redwood/cedar and rests on wood posts. The posts are concealed behind decorative wooden boards. An entryway porch with wooden railings adorns the main entrance on the west (front) elevation that is protected with a short roof overhang covered in matching asphalt shingle and supported with brackets. A second entryway porch with wooden railings and short asphalt shingle roof overhang adorns the south elevation.

The west (front) elevation has four wall openings. From north to south, the elevation has a pair of double-hung vinyl windows, a single wood door with a metal-framed screen door, a row of double-hung vinyl windows, and a large triangular vent. The south elevation was only partially viewable from the public right-of-way, but a single door, a double-hung vinyl window, and a pair of vinyl sliding windows were

observed. The north elevation was also only partially viewable, but a pair of double-hung vinyl windows were recorded. The east elevation was not viewable.

4.4.2 Associated Outbuilding

AR 4 is associated with a frame outbuilding, a garage that sits to the north of the house. The building is topped with a front gable roof covered in corrugated metal and has walls constructed of pressboard designed to resemble vertical wood board. The roof has wide eaves and exposed rafters. The west (front) elevation has a large multi-paneled overhead garage door. The south elevation was partially obscured, but a fixed window, a single door, and a pair of double doors were observed. The north and east elevations were not viewable.

4.4.3 Current Condition and Integrity

AR 4 is in good condition but has undergone some alterations, such as the replacement of windows, wall material, and roofing material. While the property retains its integrity of location, setting, feeling, and association, AR 4 is not individually eligible because it has undergone multiple unsympathetic alterations and lost its integrity of design, material, and workmanship. Despite these alterations, contributing resources have a lower threshold of integrity than individually eligible properties must have. As such, retaining integrity of setting, feeling, and association allows it to still reflect the historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.4.4 Significance Evaluation

AR 4 is recommended as not individually eligible for listing in the NRHP or HRS § 6E. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies. While the resource is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance. While the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

No ties or links were identified between the resource and people of cultural or historic significance; thus, AR 4 is not recommended eligible under NRHP Criterion B or SRHP Criterion b. Under NRHP Criterion C and SRHP Criterion c, the resource is recommended as not individually eligible because it is not exemplary of its architectural style or form and is a common type found across the region. The building is not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 4 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 4 was previously recommended as a contributing resource to the Olowalu Sugar Mill Complex Historic District under NRHP Criteria A and Criteria D. And following this survey, AR 4 is recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under NRHP Criteria A, C, and D. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). The resource is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century. As a result of this association, AR 4 has potential to contribute to further understanding of this history as part of the historic district.

Under Criterion A, AR 4 is recommended as eligible as a contributing resource. The building is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association. Under Criterion B, AR 4 is recommended as not eligible because no ties or links were found between the building and people with cultural or historic significance. Under Criterion C, the building is recommended as eligible as a contributing resource based on its associated with Hawai‘i’s plantation era and the associated architectural developments needed for worker housing, which was integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District. Under Criterion D, as a contributing resource to the Olowalu Sugar Plantation Historic District, AR 4 has the potential to yield additional information regarding its association with the Pioneer Mill Company and the local sugar plantation industry and their impact on the development of Olowalu and the surrounding region.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 4. The outbuilding is a common type found across the region and does not hold architectural or historic significance.

Figure 4.15. Aerial image showing the location of AR 4.

Figure 4.16. West (front) and south elevations of AR 4, facing east.

Figure 4.17. North and west (front) elevations of AR 4, facing southeast.

Figure 4.18. West (front) and south elevations of outbuilding associated with AR 4, facing east.

4.5 AR 5 (SIHP NO. 1602): 808 Olowalu Road

AR 5 (SIHP NO. 1602) is a residential property at 808 Olowalu Road (**Table 4.6**; **Figure 4.19**) that is bounded by a wooded area to the east, a residential building (AR 4) to the north, Olowalu Road to the west, and a residential building to the south. Along with AR 4, AR 6, AR 7, AR 8, and AR16, the property was determined eligible as a contributing resource to the "Olowalu Sugar Mill Comple Historic District" in 1974. AR 5 sits on a level, grassy terrain with several ornamental plants and trees, and a wooden fence encloses the property. The house is associated with an outbuilding.

According to the County of Maui tax assessor's database, AR 5 sits on 10.561 acres, is currently owned by Olowalu Elua Associates LLC, and was built in 1923. However, the building is also shown on an 1881 map of Olowalu along with several other structures in the APE, suggesting that AR 5 may have been constructed as early as 1881. The parcel is also associated with AR 6 and AR 7, which are discussed separately. The house was originally associated with the Olowalu Sugar Company, and later with the Pioneer Mill Company, who operated the first commercial sugar plantation and mill in Lāhainā. According to a 1906 map of the Olowalu Plantation, the residence, along with other homes clustered nearby, served as the home for plantation managers (Hawaiian Sugar Planters' Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021). The house is shown again in a later map of the Pioneer Mill Company holdings.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.6. Summary of AR 5 (SIHP NO. 1602)

Address	808 Olowalu Road
TMK	4-8-003:005
County	Maui County
Date of Construction	1923
Square Footage	1,252
Acreage	10.561
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Plantation House/Bungalow
Integrity	AR 5 is in good condition but has undergone moderate alteration resulting in loss of integrity of design, material, and workmanship.
NRHP Significance Evaluation	Recommended as not individually eligible but is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.5.1 Building Description

AR 5 is a northwest facing, one-story, single-family, bungalow house topped with an asphalt shingle hipped roof with wide eaves (**Figure 4.20**). The house is clad in redwood/cedar and rests on wood posts, which are concealed behind decorative wooden boards. A porch adorns the recessed section of the façade, which is protected by the main roof. The roof overhang is supported with wood posts and has wooden railings. The west (front) elevation has six wall openings. From north to south, the elevation has a pair of two six-over-six double-hung vinyl windows and the remainder of the elevation is recessed with a single wood door with metal storm door and three six-over-six double-hung vinyl windows. A large triangular metal vent sits above the main entrance beneath the roofline. The remaining elevations were not viewable from the public right-of-way.

4.5.2 Associated Outbuilding

AR 5 is associated with an outbuilding, which is a garage that sits just to the southwest of the house. The garage is topped with a low-rise, front gable roof covered in metal siding. The outbuilding is wood frame construction and clad in painted plywood or pressboard siding. The west (front) elevation has a large multi-paneled overhead garage door. The remaining elevations were not viewable from the public right-of-way.

4.5.3 Current Condition and Integrity

AR 5 is in good condition but has undergone some alterations, such as the replacement of windows, wall material, and roofing material. While AR 5 retains its integrity of setting, feeling, and association, it is not individually eligible because it has undergone multiple unsympathetic alterations and lost its integrity of design, material, and workmanship. Despite these alterations, contributing resources have a lower threshold of integrity than individually eligible properties must have. As such, the retaining integrity of location, setting, feeling, and association allows it to still reflect historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.5.4 Significance Evaluation

AR 5 is recommended as not individually eligible for listing in the NRHP or HRS § 6E. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies. While the resource is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance. While the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

Under NRHP Criterion B and SRHP Criterion b, no ties or links were identified between the resource and people of cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, AR 5 is recommended as not individually eligible because it is not exemplary of its architectural style or form, and is a common type found across the region. The building is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 5 is recommended as not individually eligible due to a lack of potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 5 was previously recommended as a contributing resource to the Olowalu Sugar Mill Complex Historic District under NRHP Criteria A and D. The current study concurs with this recommendation but as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under Criteria A, C, and D. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). The resource is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century. As a result of this association, AR 5 has potential to contribute to further understanding of this history as part of the proposed historic district.

Under NRHP Criterion A, AR 5 is recommended as eligible as a contributing resource because the building is associated with the Olowalu Sugar Company, the Pioneer Mill Company, and the sugar plantation industry. The residence was used as a manager's home and is representative of this association. Under NRHP Criterion B, AR 5 is recommended as not eligible as a contributing resource because no ties or links were found between the building and people with cultural or historic significance. Under NRHP Criterion C, AR 5 is recommended as eligible as a contributing resource based on its association with Hawai'i's plantation era and the associated architectural developments needed for

worker housing, which was integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District.

Under NRHP Criterion D, as a contributing resource to the Olowalu Sugar Plantation District, AR 5 has the potential to yield additional information regarding local and regional development or other themes of historical significance. The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 5. The outbuilding is a common type and does not hold architectural or historic significance.

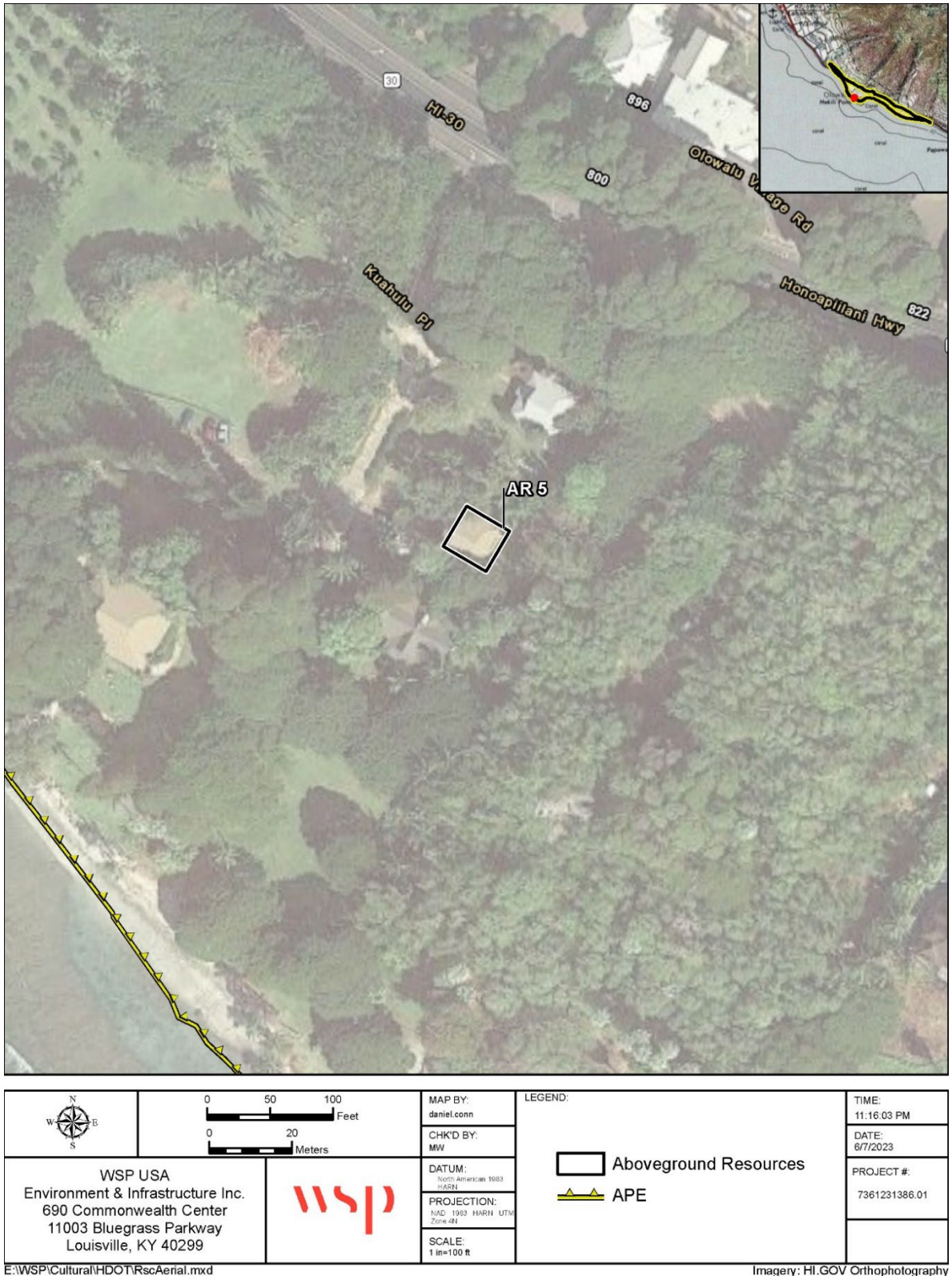


Figure 4.19. Aerial image showing the location of AR 5.

Figure 4.20. West (front) elevation of AR 5, facing southeast.

4.6 AR 6 (SIHP NO. 1602): 510 Olowalu Road (Olowalu Plantation House)

AR 6 (SIHP NO. 1602) is a commercial property at 810 Olowalu Road (**Table 4.7**; **Figure 4.21**). Along with AR 4, AR 5, AR 7, AR 8, and AR16, the property was determined eligible as a contributing resource to the "Olowalu Sugar Mill Comple Historic District" in 1974. The building is bounded by an open grassy area to the north, the beach and ocean to the south, a wooded area to the west, and a residential building to the east. AR 6 sits on a level, manicured lawn with several ornamental plants and trees.

According to the County of Maui tax assessor's database, AR 6 sits on 10.561 acres, is currently owned by Olowalu Elua Associates LLC, and was built in 1923. However, the building is also shown on an 1881 map of Olowalu along with several other structures in the APE, suggesting that AR 6 could have been constructed by 1881. The house was originally associated with the Olowalu Sugar Company, and later with the Pioneer Mill Company, who operated the first commercial sugar plantation and mill in Lāhainā (Hawaiian Sugar Planters' Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021). According to a 1906 map of the Olowalu Plantation, the residence, along with other homes clustered nearby, served as the home for plantation managers. (Hawaiian Sugar Planters' Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021). The house is shown again in a later map of the Pioneer Mill Company holdings. The building is now used as a wedding venue.

Table 4.7. Summary of AR 6 (SIHP NO. 1602)

Address	810 Olowalu Road
TMK	4-8-003:005
County	Maui County
Date of Construction	By 1881
Square Footage	2,776
Acreage	10.561
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Plantation House/Commercial
Integrity	AR 6 is in excellent condition but has undergone multiple alterations resulting in loss of integrity of design, material, and workmanship.
NRHP Significance Evaluation	Recommended as not individually eligible but is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.6.1 Building Description

AR 6 is a southwest facing, one-story, Plantation house topped with an asphalt shingle hipped roof with wide eaves. The house has walls of redwood/cedar, and the building is supported by wood posts. The posts are concealed behind decorative wooden boards. A full-width porch adorns the façade, which is protected by the wide eave of the main roof. The roof overhang is supported with several wooden posts. The porch is accessed via concrete steps, and a wooden railing runs along the outer perimeter of the porch.

The south (front) elevation has seven wall openings (**Figure 4.22**). From west to east, the elevation has a single double-hung vinyl window, a single door inset with four lights, a set of glass double-doors inset with two lights, a pair of six-over-one double-hung windows, a second set of glass double-doors inset with two lights, a single door inset with four lights, and a single six-over-one double-hung window (**Figure 4.23**). The east elevation has three wall openings, including a pair of six-over-one double-hung windows, a single double-hung window, and a second pair of six-over-one double-hung windows. The west and north (rear) elevations were not viewable from the public right-of-way.

4.6.2 Current Condition and Integrity

AR 6 is in excellent condition but has undergone alterations, such as the replacement of windows, doors, wall material, and roofing material. While AR 6 retains its integrity of setting, feeling, and association, it is not individually eligible because it has undergone multiple unsympathetic alterations and lost its integrity

of design, material, and workmanship. Despite these alterations, contributing resources have a lower threshold of integrity than individually eligible properties must have. As such, the retaining integrity of location, setting, feeling, and association allows it to still reflect historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.6.3 Significance Evaluation

AR 6 is recommended as not individually eligible for listing in the NRHP or HRS § 6E. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies. While the resource is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance. While the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

No ties or links were identified between the resource and people of cultural or historic significance; thus, AR 6 is not recommended eligible under NRHP Criterion B and SRHP Criterion b. Under NRHP Criterion C and SRHP Criterion c, the resource is recommended as not individually eligible because it is not exemplary of its architectural style or form, and is a common type found across the region. The building is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 6 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 6 was previously recommended as a contributing resource to the Olowalu Sugar Mill Complex Historic District under NRHP Criteria A and D. The current study concurs with this recommendation but as eligible as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under Criteria A, C, and D. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). The resource is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century. As a result of this association, AR 6 has potential to contribute to further understanding of this history as part of the historic district.

Under NRHP Criterion A, AR 6 is recommended as eligible as a contributing resource because the building is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association. Under NRHP Criterion B, AR 6 is recommended as not eligible as a contributing resource because no ties or links were found between the building and people with cultural or historic significance. Under NRHP Criterion C, the building is recommended as eligible as a contributing resource based on its associated with the Hawai‘i’s plantation era and the associated architectural developments needed for working housing, which were integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District.

Under NRHP Criterion D, as a contributing resource to the Olowalu Sugar Plantation Historic District, AR 6 has the potential to yield additional information regarding its association with the Pioneer Mill Company and the local sugar plantation industry and their impact on the development of Olowalu and the surrounding region.

Figure 4.21. Aerial image showing the location of AR 6.

Figure 4.22. South (front) elevation of AR 6, facing northeast.

Figure 4.23. East elevation of AR 6, facing northwest.

4.7 AR 7 (SIHP No. 1602): 810 Olowalu Road

AR 7 (SIHP No. 1602) is a residential property at 810 Olowalu Road (**Table 4.8**; **Figure 4.24**). Along with AR 4, AR 5, AR 6, AR 8, and AR16, the property was determined eligible as a contributing resource to the "Olowalu Sugar Mill Comple Historic District" in 1974. The building is bounded by a wooded area to the east, residential buildings to the north, a beach access road and the Olowalu Plantation House to the west, and the Olowalu landing and beaches to the south. AR 7 sits on a level, grassy terrain with ornamental plants and several trees. The property contains three historic buildings, three historic outbuildings, and three modern outbuildings. All residences and outbuildings are enclosed by a wooden fence with a metal gate that runs along the property boundaries. The house is associated with one outbuilding, which is accessed by a paved drive extending from the beach access road that terminates at a point along the southeast elevation of the house.

According to the County of Maui tax assessor's database, AR 7 sits on 10.561 acres, is currently owned by Olowalu Elua Associates LLC, and was built in 1923. However, the building is also shown on an 1881 map of Olowalu along with several other structures in the APE, suggesting that AR 7 may have been constructed as early as 1881. The house was originally associated with the Olowalu Sugar Company, and later with the Pioneer Mill Company, who operated the first commercial sugar plantation and mill in Lāhainā. According to a 1906 map of the Olowalu Plantation, the residence, along with other homes clustered nearby, served as the home for plantation managers (Hawaiian Sugar Planters' Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021). The house is shown again in a later map of the Pioneer Mill Company holdings.

Table 4.8. Summary of AR 7(SIHP No. 1602)

Address	810 Olowalu Road (11493 Honoapi'ilani Highway)
TMK	4-8-003:005
County	Maui County
Date of Construction	1923
Square Footage	1,792
Acreage	10.561
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Plantation House/Bungalow
Integrity	AR 7 is in good condition but has undergone significant alterations resulting in loss of integrity of design, material, and workmanship.
NRHP Significance Evaluation	Recommended as not individually eligible but is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.7.1 Building Description

AR 7 is a southwest facing, one-story, single-family, bungalow house topped with an intersecting gable-on-hip roof with wide eaves and covered with composition asphalt shingle (**Figure 4.25**). The house is clad in redwood/cedar. The foundation type is not documented in the tax assessor's database and is not visible from the public right-of-way due to the presence of a full-width porch. The porch features wooden railings and is accessed by a set of five wooden steps, which lead to the main entrance of AR 7 along the southwest (front) elevation. The main entry and additional elements comprising the façade of the house are covered by the substantial overhang of the principal roof, which is supported by six wood columns decorated with arched brackets. While the sections of the façade covered by the intersecting gable-on-hip roofs extending from the northwest and southeast elevations are recessed slightly from the original façade of AR 7, this indicates that the porch deck, eave overhangs, and roof supports are consistent in character with the porch seen along the original construction of the house.

The southwest (front) elevation has at least ten wall openings. From west to east, the elevation has a row of four double-hung wood windows; the main entrance, which consists of two double doors inset with 10 lights, framed on either side by two double-hung wood windows; a pair of double-hung wood windows, and a rectangular vent beneath the gable present along this elevation. The remaining portion of the

elevation, along the gable-on-hip roof projecting from the southwest elevation of the original construction cannot be seen from the public right-of-way. But it is likely that the series of four double-hung wood windows seen on the northwestern portion of the façade is replicated. The northwest elevation was only partially viewable from the public right-of-way, limiting observations to the façade of the house. The northwest elevation of the original construction, covered by the entry porch, features two wood, double-hung windows with a four-over-one light configuration. The southeast and northeast elevations were not visible from the public right-of-way, but it is likely that the wood, double-hung windows seen along the northwest elevation of the original construction is repeated along the southeast elevation.

4.7.2 Associated Outbuilding

AR 7 is associated with one non-historic frame outbuilding, a utility shed that sits to the east of the house (**Figure 4.25**). The building is topped with a front gable roof covered in composite asphalt shingles and has walls constructed of vertical wood board. The roof has wide eaves. The south (front) elevation has a set of two solid wood double doors. The west elevation was partially obscured, but a wood, fixed window was observed. The north and east elevations were not visible from the public right-of-way.

4.7.3 Current Condition and Integrity

AR 7 is in good condition but has undergone significant alterations, such as the construction of an attached garage and additions along the west and east elevations and the replacement of windows, wall material, and roofing material. While AR 7 retains its integrity of location, setting, feeling, and association, it is not individually eligible because it has undergone multiple unsympathetic alterations and has lost its integrity of design, material, workmanship. Despite these alterations, contributing resources have a lower threshold of integrity than individually eligible properties must have. As such, the retaining integrity of location, setting, feeling, and association allows it to still reflect historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.7.4 Significance Evaluation

AR 7 is recommended as not individually eligible for listing in the NRHP or the State Register of Historic Places (SRHP). Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies. While the resource is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance. While the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

Under NRHP Criterion B and SRHP Criterion b, no ties or links were identified between the resource and people of cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, AR 7 is recommended as not individually eligible because it is not exemplary of its architectural style or form, and is a common type found across the region. The building is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 7 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company. Furthermore, AR 7 has undergone unsympathetic alterations, such as the construction of multiple additions and the replacement of windows, roofing material, and wall material, resulting in the loss of integrity of materials and design. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 7 was previously recommended as a contributing resource to the Olowalu Sugar Mill Complex Historic District under Criteria A and D. The current study concurs with this recommendation but as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under Criteria A, C, and D. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). The resource is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from

the late-19th century to the mid-20th century. As a result of this association, AR 7 has the potential to contribute to further understanding of this history as part of the proposed historic district.

Under NRHP Criterion A, AR 7 is recommended as eligible as a contributing resource because the building is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association. Under NRHP Criterion B, AR 7 is recommended as not eligible as a contributing resource because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C, the building is recommended as eligible as a contributing resource based on its association with the Hawai‘i’s plantation era and the associated architectural developments needed for worker housing, which was integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District. Under NRHP Criterion D, as a contributing resource to the Olowalu Sugar Plantation District, AR 7has the potential to yield additional information regarding local and regional development or other themes of historical significance.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 7. The outbuilding is a common type and does not hold architectural or historic significance.

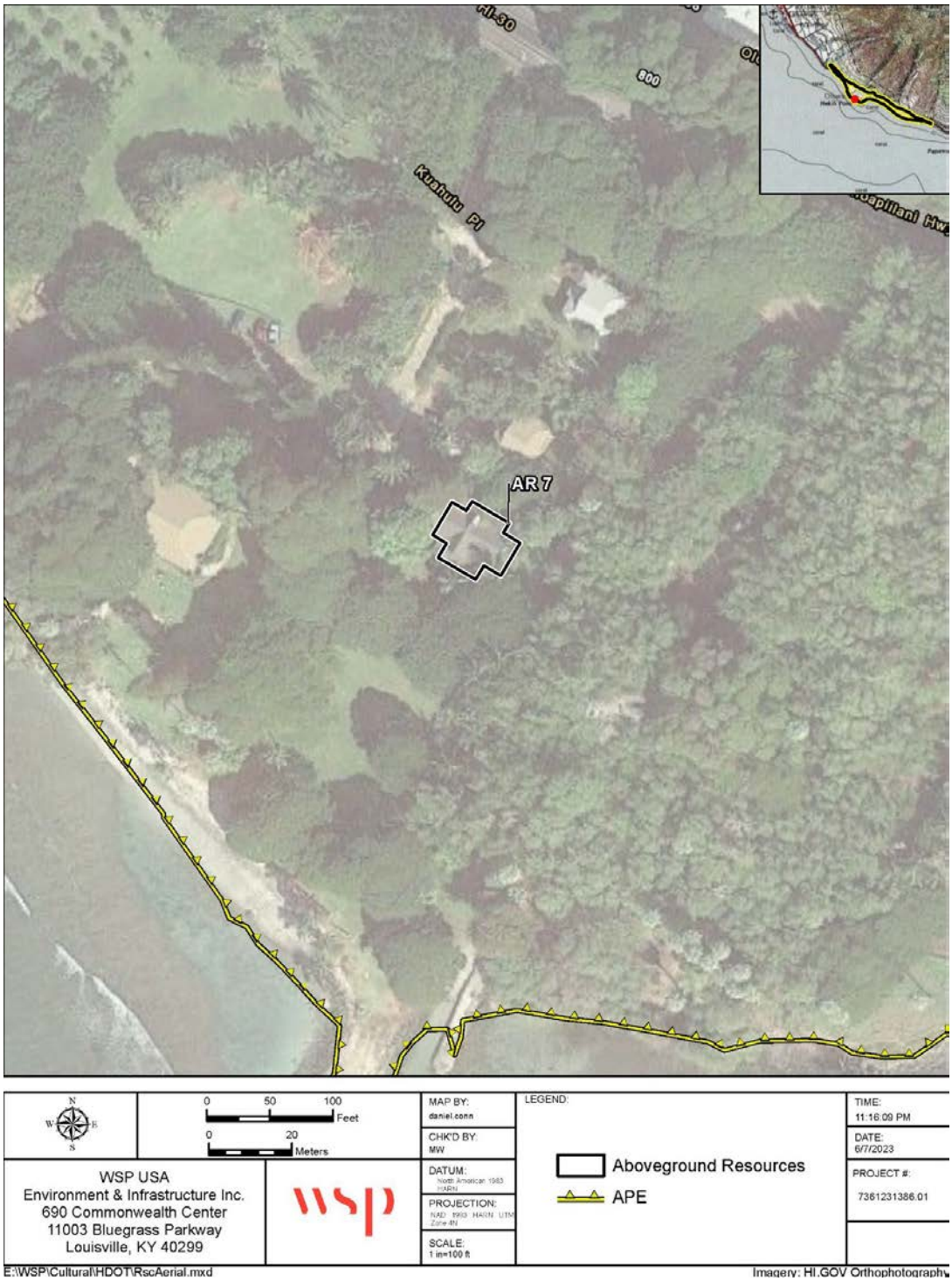


Figure 4.24. Aerial image showing the location of AR 7.

Figure 4.25. Southwest (front) and northwest elevations of AR 7 and associated outbuilding, facing northeast.

4.8 AR 8 (SIHP No. 1602): Olowalu Mill Complex, Wharf, and Landing

AR 8 (SIHP No. 1602) consists of the structural remnants of the Olowalu Mill Complex, wharf, and landing and is located on the south side of Honoapiʻilani Highway (State Highway 30) (**Table 4.9**; **Figure 4.26**). The site is surrounded by mature kiawe trees and low-lying vegetation on the west, north, and east, and by Olowalu beach to the south. AR 8 sits on level terrain dotted with grasses and areas of sandy soil. The site is accessed by an unimproved beach access road extending from Honoapiʻilani Highway. A historic site marker with SIHP No. 1602 is located along the northern extent of the remnants of the mill complex, on the west side of the access road.

According to the County of Maui tax assessor's database, AR 8 sits on 10.561 acres, is currently owned by Olowalu Elua Associates LLC, and was built in 1910 with improvements and expansions to the mill and pier occurring between 1918 and 1919. Topographic maps show a building in the location of AR 8 in 1955 labeled as “Mill (Ruins)” and “Olowalu Wharf,” (**Figure 4.27**). The aerial images show the mill foundations and wharf as early as 1949 (based on the earliest aerial image available). This suggests that AR 8 was built and deconstructed prior to 1949, which corroborates sources listing 1932 as the year that the mill was dismantled and relocated to the Philippines. The mill complex, landing, and wharf was originally associated with the Olowalu Sugar Company, which constructed and operated the first commercial sugar plantation and mill at the site prior to 1884 and (Hawaiian Sugar Planters’ Association 2004; Lahaina News 2010; Lahaina Restoration Foundation ND; Pitzer 2021; Young 2021).

Table 4.9. Summary of AR 8 (SIHP No. 1602)

Address	810 Olowalu Road (809 Olowalu Road)
TMK	4-8-003:005
County	Maui County
Date of Construction	circa 1919
Landscape Area	Approximately 1.58 acres
Acreage	10.561
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Agricultural Processing/Industrial Facility (Ruins)
Integrity	AR 8 is in stable condition and retains its integrity recorded in previous surveys including integrity of location, setting, design, feeling, and association.
NRHP Significance Evaluation	AR 8 is not recommended as individually eligible but is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.8.1 District Description

AR 8 contains the remains of the historic Olowalu Sugar Co. Mill Complex. The primary features include the foundations and ruins of the sugar mill and stable area as well as remnants of two rock piers that extend into the sea, perpendicular to the shoreline (R.M. Towill Corporation 2008). Many of the remaining structures are concrete and rebar construction, but the piers and remains of the molasses tanks display rock and mortar/concrete construction. The complex itself was a northeast-facing early-20th century industrial building that ran on steam and hydroelectric power derived from a plant in the mountains north of the mill. Water was supplied to the complex via extensive irrigation systems featuring 3-inch pipes (Sanborn Map Company 1919). Most of the remains of the sugar mill complex date to 1918, when the Olowalu Sugar company improved existing industrial buildings at the site. Extant features of SIHP No. 1602 include the foundations and remnants of the sugar warehouse, 12 roller mills, a machine shop, and molasses tanks (**Figures 5.28** through **Figure 4.31**. Improvements continued through the early-20th century until 1932, when the mill was dismantled under the Pioneer Mill Company (R.M. Towill Corporation 2008).

Two rock piers extend out to sea from the landing and ruins of the complex. Constructed in 1919 to extend an existing pier, the westernmost pier is significantly longer than the first and terminates 300 feet beyond the shoreline (**Figure 4.32**). Due to the difficulties of loading sugar onto ships at low tide, the pier replaced a 200-foot rock and concrete structure and a wooden-frame derrick. The original structure was one of twelve landings on Maui that served as a regular stop for the Inter-Island Steamship Company.

The extant pier continued to facilitate trade and transport conducted by sea vessels and operated as a terminus for the Olowalu Sugar Co. Railroad until the complex was dismantled following the sale of the mill to the Pioneer Mill Company. The concrete foundations of a structure—likely a derrick or other sea/rail cargo infrastructure—can be seen at the end of the pier (**Figure 4.33**). The easternmost pier, also referred to as the small boat dock, extends approximately 90 feet from the shoreline and was constructed after 1919 as part of the concurrent mill improvements.

4.8.2 Current Condition and Integrity

At the time of the survey, AR 8 was in good condition. The integrity of the site is consistent with previous surveys of the SIHP and the surrounding area. There are no indications of liter or defacement of the historic features, but the area receives moderate foot traffic from patrons accessing the park and shoreline. Given these factors, the properties that make up AR 8 retain their integrity of location, setting, design, material, workmanship, feeling, and association.

4.8.3 Significance Evaluation

AR 8 was previously recommended as a historic district referred to as the Olowalu Sugar Mill Complex Historic District under NRHP Criteria A and D, and the current study concurs with this recommendation. However, given the expanded study of plantation era properties, SOI-qualified professionals also recommend AR 8 as a contributing resource to the proposed Olowalu Sugar Plantation Historic District. It is important to note that the Olowalu Sugar Plantation Historic District is a proposed expansion of Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). AR 8 is directly associated with the sugar plantation industry in Olowalu and the Olowalu Sugar Company, which had a substantial role in the development of the local community and region. The industry's influence on the area spanned from the late-19th century to the mid-20th century. As a result, AR 8 has the potential to contribute to further understanding of this history when assessed as part of the proposed historic district.

Under NRHP Criterion A and SRHP Criterion a, AR 8 is recommended as eligible as a contributing resource because it is directly associated with the sugar plantation industry and is strongly representative of this association. But under NRHP Criterion B and SRHP Criterion b, AR 8 is recommended as not eligible as a contributing resource because no ties or links were found between the resource and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, this cluster of resources is recommended as eligible as a contributing resource based on its association with Hawai‘i's plantation era and the associated architectural developments needed for administration, shipping/transportation, and engineering, which were integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District. Under NRHP Criterion D and SRHP Criterion d, as a contributing resource to the Olowalu Sugar Plantation District, AR 8 has the potential to yield additional information regarding local and regional development or other themes of historical significance. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

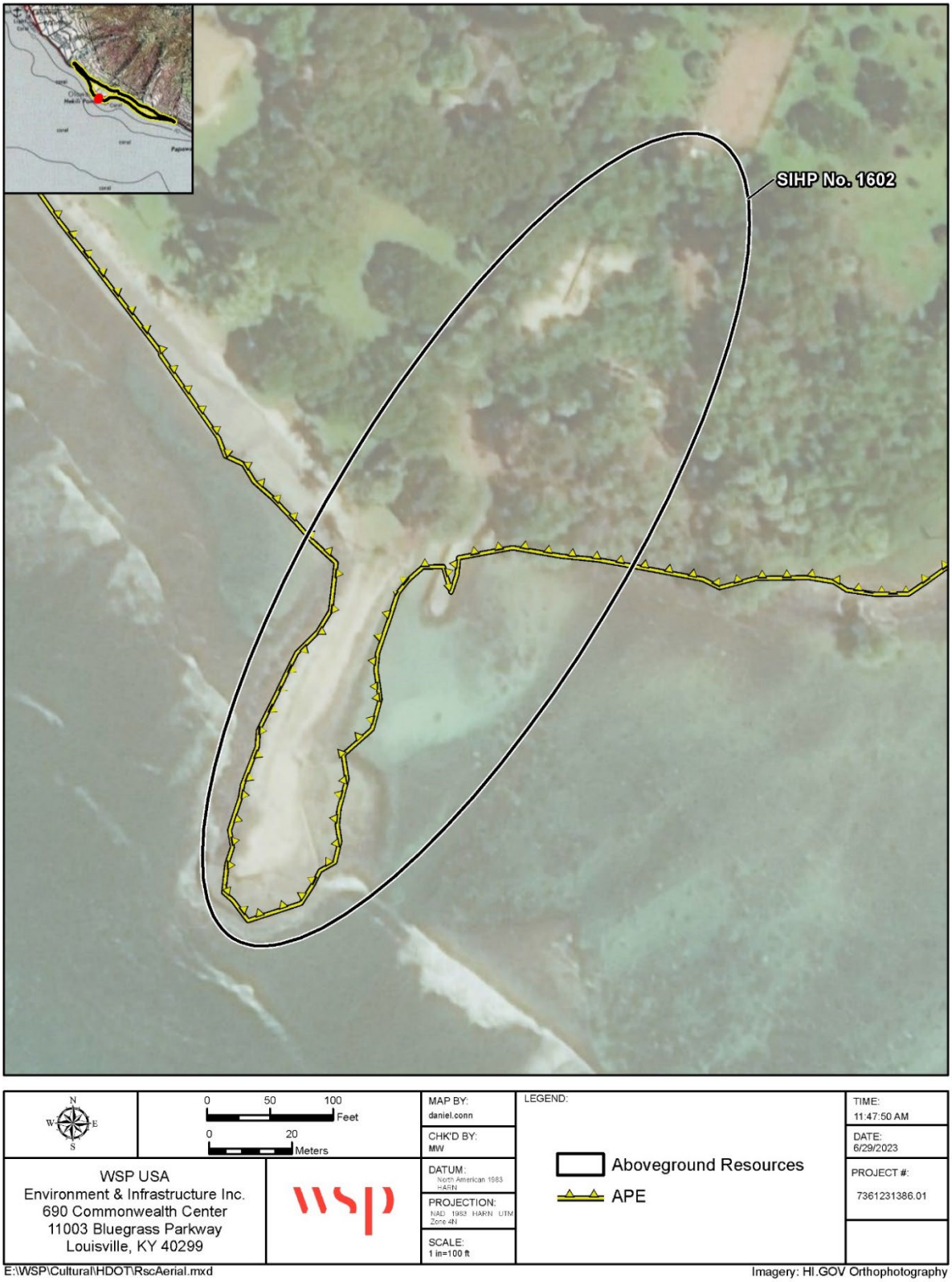


Figure 4.26 . Aerial image showing the location of AR 8.

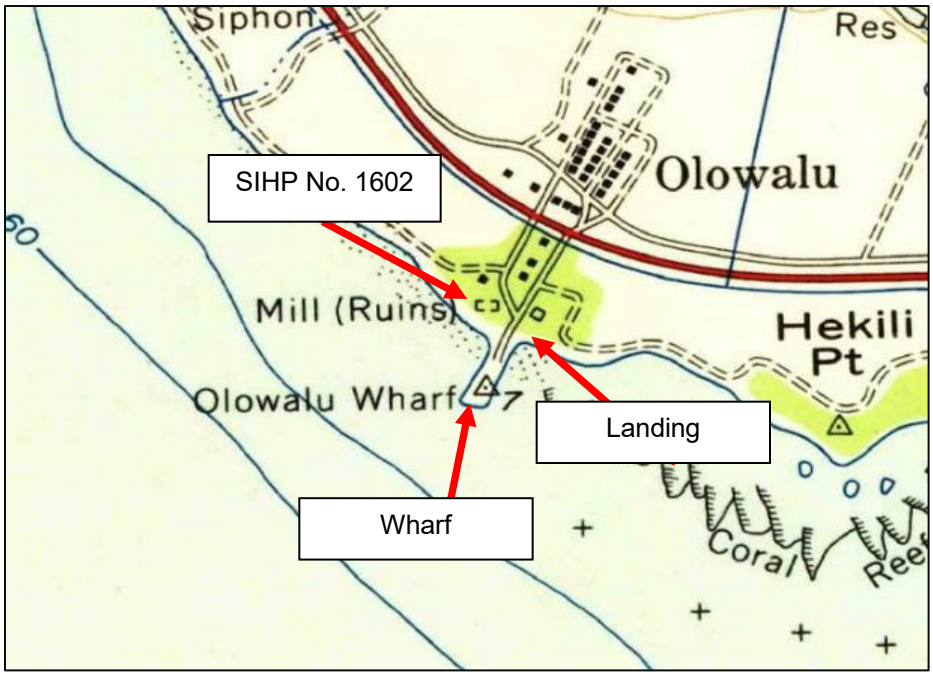


Figure 4.27 . Building illustrated in vicinity of AR 8 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Source: UH eVols repository

Figure 4.28 . 1919 Sanborn Map displaying the Olowalu Landing, Olowalu Co. Sugar Mill, and rail lines.

Figure 4.29 . North (front) east and elevations of Olowalu wharf piers, facing southwest.

Figure 4.30 . Detail of remnants in area of mud press and centrifugals, facing southwest.

Figure 4.31 . Detail of east elevation of extant remains of "Sugar Warehouse," facing southwest.

Figure 4.32 . West elevation of AR 8 (Sugar Mill Complex), facing southeast.

Figure 4.33 . Detail of north (front) and east elevations of extant foundation of the "12 Roller Mills" and "Molasses Tanks," facing southwest.

4.9 AR 9 (SIHP No. 09134): Reservoir (814 Honoapi‘ilani Highway)

AR 9**,** newly recorded as SIHP No.0913**4**, is a reservoir at 814 Honoapi‘ilani Highway (**Table 4.10**; **Figure 4.34**). The structure is bounded by agricultural lands to the east and south, agricultural lands and a residential structure to the north, and Olowalu stream to the west. AR 9 consists of a slight depression in the gently rolling grassy terrain southwest of the Olowalu Cultural Reserve. AR 9 is accessed by a paved asphalt road that branches off from Olowalu Village Road and Honoapi‘ilani Highway.

According to the County of Maui tax assessor’s database, AR 9 sits on 50.301 acres, is currently owned by Olowalu Mauka Lot 21 Condo Master, and has an address of 814 Honoapi‘ilani Highway. A paved asphalt bike path has been constructed around the reservoir. The tax assessor’s database does not list a construction date for the structure, but historic aerial images and primary sources indicate that AR 9 was constructed between 1932 and 1939, when Pioneer Mill Company took over the land of the Olowalu Sugar Company and began making improvements to the existing irrigation system (Maly 2010). The reservoir was originally associated with the Pioneer Mill Company and first appears on a 1939 map of the company’s holdings and improved irrigation system in Olowalu.

Table 4.10. Summary of AR 9 (SIHP No. 09134)

Address	814 Honoapi‘ilani Highway
TMK	4-8-003:104
County	Maui County
Date of Construction	circa 1932
Square Footage	67,495
Acreage	50.301
Owner	Olowalu Mauka Lot 21 Condo Master
Architectural Type/Style	Sugar Plantation Water Control
Integrity	AR 9 is in good condition but shows signs of disuse and impacts from modern construction resulting in loss of integrity of design, material, and workmanship.
NRHP Significance Evaluation	AR 9 is not recommended as individually eligible or as a contributing resource to the Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.9.1 Structure Description

AR 9 is a reservoir or a roughly rectangular depression in the landscape meant to hold water that measures approximately 325 feet by 225 feet at the widest point (**Figure 4.4.34**). The reservoir features stone and concrete walls, and the basin is covered in vegetation consisting of grasses and low-lying shrubbery (**Figures 4.35** through **4.37**). Some exposed areas of the basin floor suggest that the entirety of the reservoir consists of concrete and stone construction. AR 9 features a concrete siphon spillway along its northwestern wall which consists of a beam atop four evenly spaced concrete piers in the crest of the reservoir. An inlet along the northeastern wall is fed by a concrete and stone ditch/conduit that extends up through the nearby mountains.

Although no longer in use, the reservoir was an element of the expansive Pioneer Mill Company irrigation system and was constructed on the lands of the Olowalu Sugar Company, which was purchased by the larger enterprise in 1931. The reservoir was supplied by the Olowalu Intake Pump and Olowalu ditch and was one of twenty-nine storage reservoirs maintained by the Pioneer Mill Company. These reservoirs totaled a storage capacity of approximately 235 million gallons, which was carried through the plantation fields by a network of tunnels, ditches, flumes, and pipes (Maly 2010).

4.9.2 Current Condition and Integrity

AR 9 is in fair condition and shows signs of disuse and degradation due to weathering, age, and the overgrowth of vegetation in the reservoir basin. However, the construction of a modern bike path in 2023 across the entire length of the south and eastern sides. has had a substantial negative impact the reservoir’s integrity. The construction of the bike path included extensive mechanical grading of the reservoir’s earthen walls/burns, which also created structural

fractures within the stone walls. As such, the resource no longer retains integrity of material, workmanship, feeling, and design.

4.9.3 Significance Evaluation

AR 9 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural integrity. Although the reservoir is directly related to the Pioneer Mill Company, the structure, on its own, due to degradation and extreme modern impacts, it no longer embodies the historical and architectural significance of the company and the development of the surrounding community. As a result, AR 9 is recommended as not eligible under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, the structure is recommended as not eligible because no links were found between the reservoir and people of cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, AR 9 is recommended as not eligible because the reservoir is a common structure found throughout the region and is not exemplary of reservoirs of this period. Furthermore, the structure is not the work of an expert builder or craftsperson.

NRHP Criterion D is typically considered when assessing archaeological sites, but buildings may qualify if they have the potential to contribute important information to our understanding of history. As an individual resource, AR 9 is not recommended as eligible Under NRHP Criterion D and SRHP Criterion d. Despite its association with the sugar plantation industry, the structure itself does not have the potential to yield substantial information regarding local and regional development.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 9 is recommended as not eligible for listing in the NRHP as a contributing resource to the Olowalu Sugar Plantation Historic District. While, the reservoir retains its integrity of location and association, the structure's integrity of setting, materials, workmanship, feeling, and design have been diminished with the construction of a bike trail.

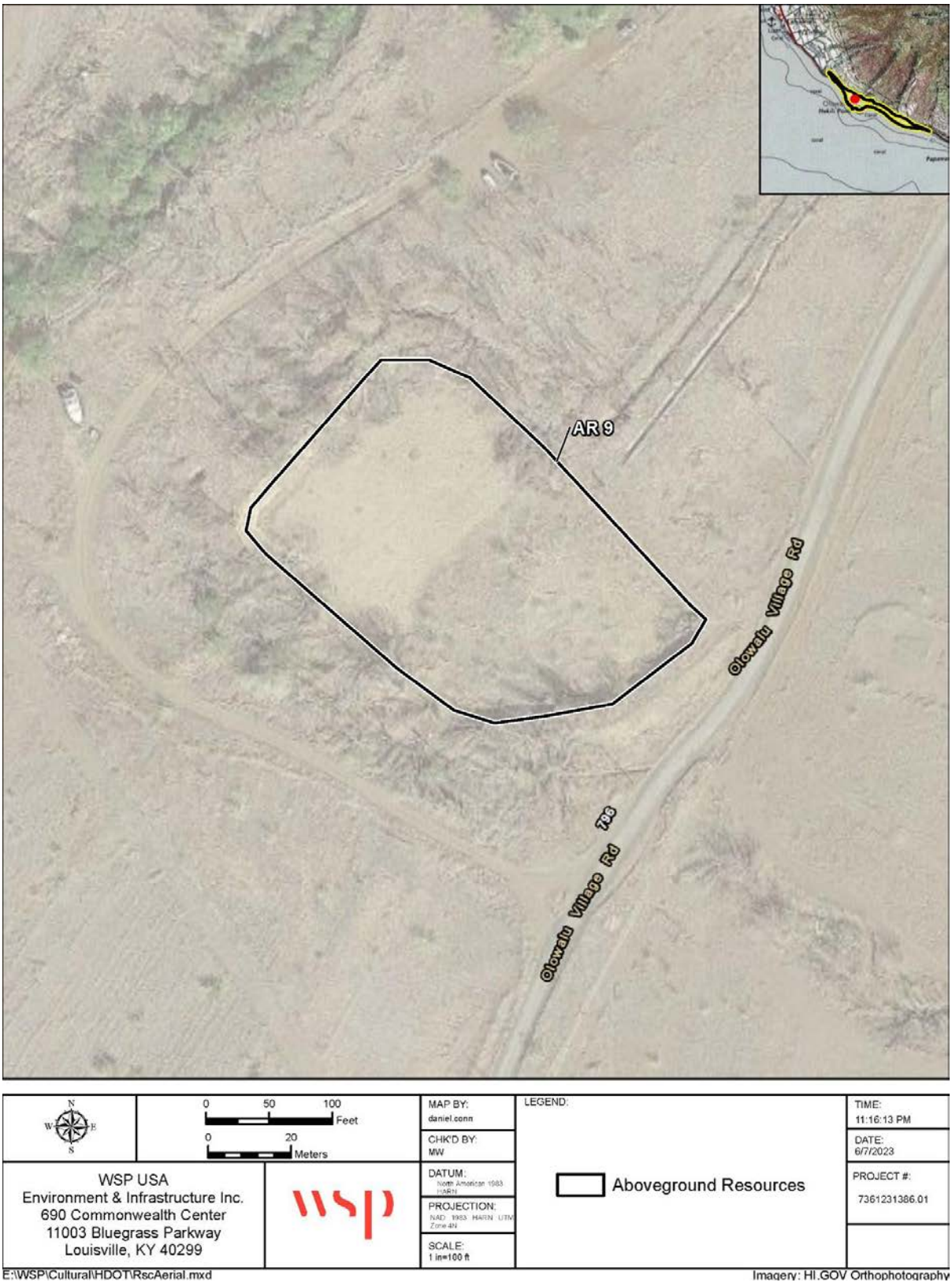


Figure 4.34. Aerial image showing the location of AR 9.

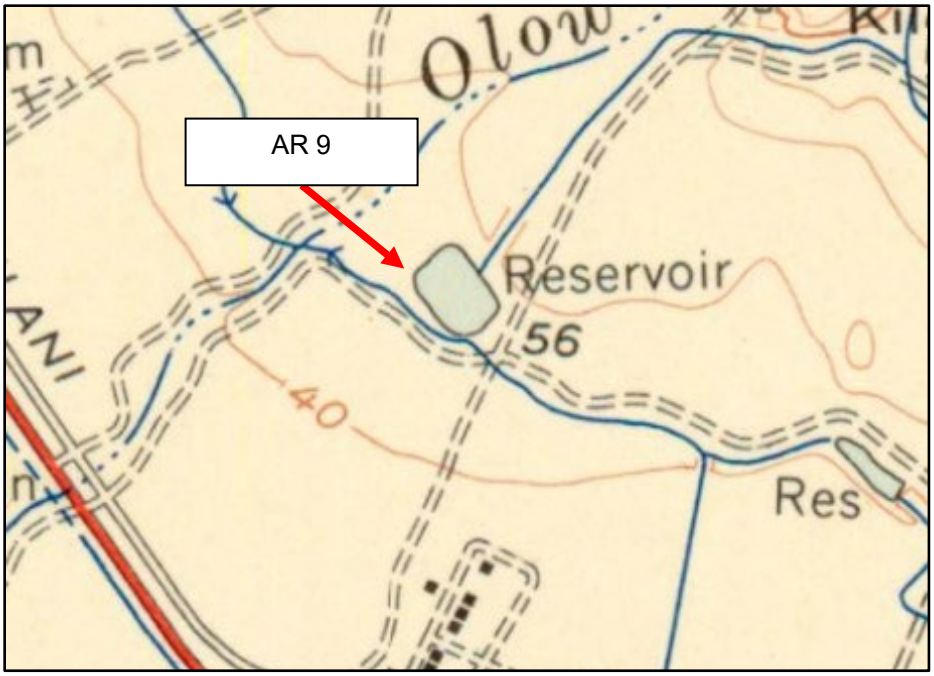


Figure 4.35 . Reservoir illustrated in vicinity of AR 9 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.36. Southeast, south, and southwest walls of AR 9, facing south.

Figure 4.37. Modern impact from the construction of a bike path along the south and east elevation of AR 9, facing east.

4.10 AR 10 (SIHP No. 09135): 832 Olowalu Village Road

AR 10**,** newly recorded as SIHP No.0913**5**, is a residential property at 832 Olowalu Village Road (**Table 4.11**; **Figure 4.38**). The building is bounded by residential properties to the east and west, Olowalu Village Road and Honoapi‘ilani Highway to the south, and undeveloped woods to the north. AR 10 sits on a level, grassy terrain with several trees lining the northeast boundary of the property and a ditch running outside the northwest boundary (**Figure 4.38**). A paved asphalt drive extends from the southeast boundary of the property to a carport along the southeast elevation of AR 10. A wood porch is located adjacent to the northeastern wall of the carport and leads up to the main entrance of the house. A combination asphalt and concrete drive extends along the southwest boundary of the property, from the primary drive to the carport of an accessory dwelling. Segments of wood privacy fencing run along the southwest and northeast boundaries between the house and the adjacent residential properties. The house is associated with one outbuilding: an accessory dwelling that contains 500 square feet of living area.

According to the County of Maui tax assessor's database, AR 10 sits on 0.23 acres, is currently owned by Patrick J. Harnetiaux, and was built in 1964. Topographic maps show a building in the location of AR 10 in 1983, and the structure is not depicted in the 1955 drawing, the next earliest map (**Figure 4.39**). Historic aerial images show AR 10 in its current location as early as 1975. The next earliest aerial dates to 1960 and shows the location of AR 10 before development and some extant surrounding structures. This suggests that AR 10 was built between 1960 and 1975, corroborating the 1964 construction date listed in the tax assessor's database.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 10 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.11. Summary of AR 10 (SIHP No. 09135)

Address	832 Olowalu Village Road
TMK	4-8-004:017
County	Maui County
Date of Construction	1964
Square Footage	1,052
Acreage	0.23
Owner	Patrick J. Harnetiaux
Architectural Type/Style	Contractor Modern/Hawaiian Ranch House
Integrity	AR 10 is in fair to good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 10 is not recommended as individually eligible due to lack of architectural and historic significance and is not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of association and historic significance.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.10.1 Building Description

The residential building associated with AR 10 is a southeast facing, one-story, single-family, Contractor Modern/Hawaiian Ranch House topped with a front gable roof covered with asphalt shingles. The house is clad in redwood/cedar vertical board siding, rests on a wood post foundation. The roof features wide eave overhangs. Along a recessed portion of the main elevation, the eave overhang covers the main entrance and is supported with a slim, metal post. A wooden deck bordered with wooden lattice railing is accessed by a set of two wooden steps and leads to the entryway. The southwest elevation of the deck is adjacent to a partially enclosed carport, which is clad in wood vertical board and is topped with an asphalt shingle, shed roof extending from the principal roof along the main elevation. Aerial images indicate that the carport was constructed by 1975, and the tax assessor's database lists a construction date of 1969 for this property, suggesting the carport may have been added after the initial construction of the main house. The associated outbuilding sits to the northwest of the main house and the combination asphalt

and concrete drive extends out from the primary driveway to a carport along the southwest elevation of the accessory dwelling.

The southeast (front) elevation has eight wall openings (**Figure 4.40**). From west to east, the elevation has a secondary entrance composed of a vinyl, multipaneled door below the carport; a pair of vinyl, double-hung windows; the main entrance comprised of a single panel wood door inset with a long narrow light, and a metal framed storm door; and a second pair of double-hung vinyl windows. The southwest elevation was partially obscured from the public right-of-way, but images of the elevation from 2009 indicate that, from southeast to northwest, there is a series of six fixed, wood windows and an additional entrance, framed on either side by a set of two double-hung wood windows. A partial view of the carport along this elevation, and the character of the visible wall openings, suggest the wood windows along this elevation have likely been replaced with vinyl windows, likely with double-hung or sliding-sash operations (**Figure 4.41**). The northwest elevation was obscured from the public right-of-way by the accessory dwelling. Along the northeast elevation, which was partially obscured by the accessory dwelling and vegetation, wall openings including two sets of double-hung vinyl windows and a set of three double-hung vinyl windows. Additional wall openings may be located further along this elevation.

4.10.2 Associated Outbuilding

AR 10 is associated with one outbuilding, an accessory dwelling that sits along the northwest boundary of the property behind the house (**Figure 4.38**). The dwelling is topped with a standing metal seam, side gable roof and is clad in painted plywood siding. The southeast elevation of the outbuilding cannot be seen from the public right-of-way. The northeast elevation contains two sliding glass doors with vinyl frames, which open to a wood deck featuring wood banisters and two sets of four stairs. The northwest elevation suggests that the outbuilding may be a split-level structure and contains five wall openings. From northwest to southeast, there is one double-casement vinyl window and a second smaller double-casement vinyl window, under which a flat roof supported by slim wood posts extends from the elevation; a set of two fixed vinyl windows; and two or three double-casement vinyl windows.

A carport can be seen extending from the southwest elevation of the outbuilding and a partial view of the elevation suggests that one vinyl, double casement window is located along this elevation beneath the carport. The tax assessor's database indicates that the dwelling was added to the property in 1988. The cascading gable roof in current aerial images suggests that there have been two to three additions, including the carport, along the southwest elevation of the original dwelling.

4.10.3 Current Condition and Integrity

AR 10 is in good condition. The house has also undergone alterations, including the addition of the attached garage and the replacement of siding and roofing material. The accessory dwelling is in good condition but has undergone moderate alterations. These include the replacement of siding material and the construction of several additions along the southwest elevation (for example, the addition of the attached garage). While the property retains its integrity of location and setting, AR 10 has undergone multiple unsympathetic alterations and lost its integrity of design, material, workmanship, feeling, and association.

4.10.4 Significance Evaluation

AR 10 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity.

Under NRHP Criterion A and SRHP Criterion a, AR 10 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation. Likewise, under NRHP Criterion B and SRHP Criterion b, AR 10 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the building is not individually eligible because it has no elements that make it a unique example of its architectural style or form. The house is not the work of an

expert builder or craftsperson. Moreover, Ranch houses were popular throughout the mid- to late-20th century and are found across the region and the country (McAlester 2018).

Further, under NRHP Criterion D and SRHP Criterion d, AR 10 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 10 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. The house was constructed outside the historic district's period of significance and is not associated with the local sugar plantation industry or the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 10. This type of building is found throughout the region and does not hold architectural or historic significance.

Figure 4.38. Aerial image showing the location of AR 10 and accessory dwelling.

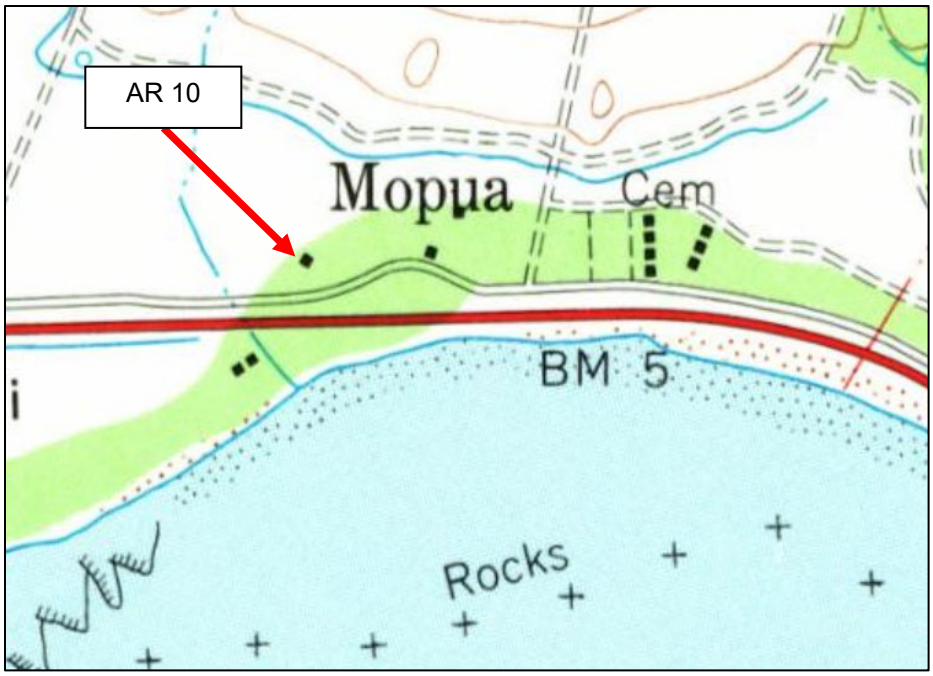


Figure 4.39. Building illustrated in vicinity of AR 10 on the 1975 USGS Olowalu, Hawai'i, 7.5-minute quadrangle topographic map.

Figure 4.40. Southeast (front) elevation of AR 10, facing northwest.

Figure 4.41. Northeast elevation of AR 10 and outbuilding, facing south.

4.11 AR 11 (SIHP No. 09136): 804 Olowalu Village Road

AR 11**,** newly recorded as SIHP No.09136, is a residential property at 804 Olowalu Village Road (**Figure 4.12**; **Figure 4.42**). The building is bounded by a residential property to the west, an open lot to the east, Olowalu Village Road and Honoapi‘ilani Highway to the south, and undeveloped woods to the north. AR 11 sits on level, grassy terrain with several trees, shrubs, and decorative vegetation dotting the property. A ditch runs just outside the northwest boundary (**Figure 4.43**). A gravel drive extends from Olowalu Village Road to a concrete landing, covered by a carport that extends from the southeast elevation of AR 11. The carport extends from the roofline along the main elevation and, along with shrubbery and a trellising structure, obscures wall openings along the front of the house. Solar panels cover a portion of the roof surface.

According to the County of Maui tax assessor's database, AR 11 sits on 0.22 acres, is currently owned by the Robert R Santos Living Trust/Margaret Duclos-Santos and was built in 1984. Topographic maps show a building in the location of AR 11 in 1992, but no structure is shown in the location in the 1983 map (**Figure 4.43**). The aerial images show AR 11 in its current alignment as early as 1988. The next earliest aerial dates to 1975 and shows the location of AR 11 before development as well as some surrounding structures. This suggests that AR 11 was built between 1983 and 1988, corroborating the 1984 construction date listed in the tax assessor's database.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 11 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.12. Summary of AR 11 (SIHP No. 09136)

Address	804 Olowalu Village Road
TMK	4-8-004:009
County	Maui County
Date of Construction	1984
Square Footage	2,308
Acreage	0.22
Owner	Robert R. Santos Living Trust; Margaret Duclos-Santos
Architectural Type/Style	Styled Ranch (Spanish)
Integrity	AR 11 is in fair to good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 11 is not recommended as individually eligible due to lack of architectural and historic significance and is not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of association and historical significance.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.11.1 Building Description

The residential building associated with AR 11 is a southeast facing, one-story, single-family, Styled Ranch (Spanish) house topped with a cross-gable roof covered with wood shake. The house is clad in wood vertical board siding and the roof features wide eave overhangs. The eave overhang along the central block of the house and shed roofs extending from below the cross-gable portions of the main elevation cover the main entrance. This covered area may feature a concrete landing along the main elevation, but details are not visible from the public right-of-way and a layout image from the tax assessor’s database does not include additional information. A carport, comprised of a low-pitch, wood shake, front gable roof supported by six wood posts with brackets extends from the westernmost cross gable portion of the main elevation. Aerial images indicate that the carport was added to the building sometime as recently as 2023.

The southeast (front) elevation has six wall openings (**Figure 4.44**). From southwest to northeast, the elevation has a wood picture window and an entrance featuring a vinyl frame storm door below the

carport; a window of unknown material and sash operation; the main entrance; and two windows of unknown material and sash operation (**Figure 4.45**). The southwest and northwest elevations were not visible from the public right-of-way. Current aerials, however, indicate that a wooden deck extends from the northwest (rear) elevation, suggesting the presence of a rear entry. The northeast elevation was partially obscured from the public right-of-way by vegetation, but three wall openings were visible along this elevation: one wood fixed window, one wood sliding window, and one window of unknown material and unknown sash operation.

4.11.2 Current Condition and Integrity

AR 11 is in good condition. The house has undergone some alterations, including construction of an attached carport and the replacement of windows, siding, and roofing material. While the property retains its integrity of location and setting, given that AR 11 has undergone multiple unsympathetic alterations, it has lost its integrity of design, material, workmanship, feeling, and association.

4.11.3 Significance Evaluation

AR 11 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity.

Under NRHP Criterion A and SRHP Criterion a, AR 11 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation. Likewise, under NRHP Criterion B and SRHP Criterion b, AR 11 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the building is not eligible because it has no elements that make it a unique example of its architectural style or form. The house is not the work of an expert builder or craftsperson. Furthermore, Ranch houses were popular throughout the mid- to late-20th century and are found across the region (McAlester 2018). In addition, under NRHP Criterion D and SRHP Criterion d, AR 11 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 11 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. The house was constructed outside the historic district’s period of significance and is not associated with the local sugar plantation industry or the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century.

Figure 4.42. Aerial image showing the location of AR 11.

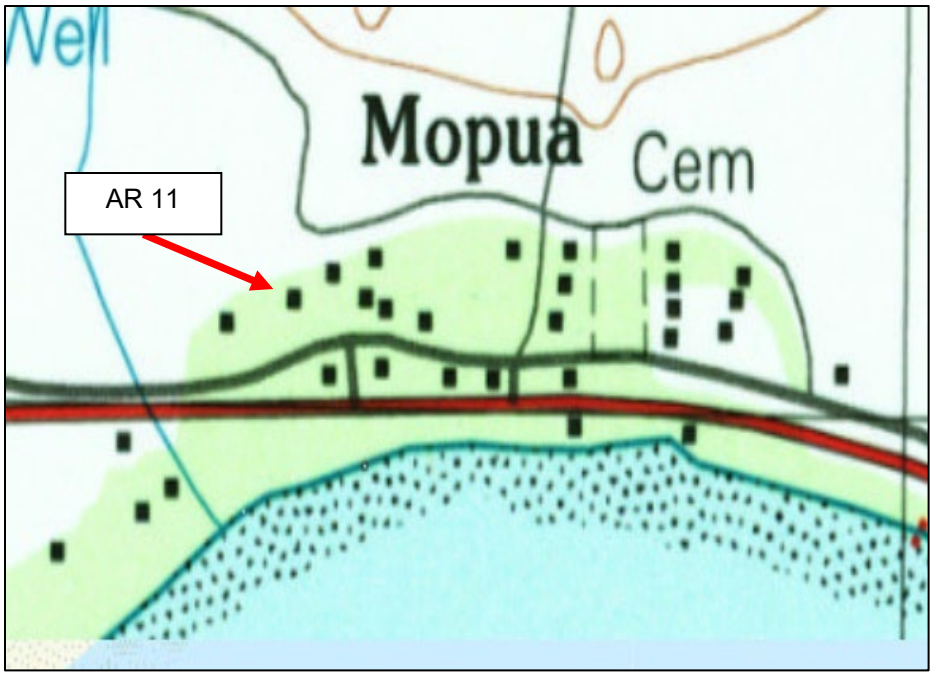


Figure 4.43. Building illustrated in vicinity of AR 11 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.44. Southeast (front) elevation of AR 11, facing northwest.

Figure 4.45. Southeast (front) and northeast elevations of AR 11 and outbuilding, facing northwest.

4.12 AR 12 (SIHP No. 09137): 804 A Olowalu Village Road

AR 12**,** newly recorded as SIHP No.09137, is a residential property at 804A Olowalu Village Road (**Figure 4.13**; **Figure 4.46**). The building is bound by residential properties to the west and east, a wooded area to the north, and Olowalu Village Road and Honoapi‘ilani Highway to the south. AR 12 sits on a level, grassy terrain dotted with several trees. A ditch runs parallel to the north boundary, just beyond the property line (**Figure 4.46**). A gravel drive extends from the south boundary of the property to a concrete landing, which is partially covered by a carport extending from the east elevation of AR 12. A concrete sidewalk extends from the landing along a recessed portion of the south (main) elevation and leads to the main entrance. The principal roof of the house covers this sidewalk to form a partial porch and is supported by two thin wood supports. A chain-link fence runs along the perimeter of the property. The house is associated with one outbuilding: a shed located in the northeast corner of the property.

According to the County of Maui tax assessor's database, AR 12 sits on 0.34 acres, is currently owned by Einar Santos Jr., and was built in 1958. Topographic maps show a building in the location of AR 12 in 1992, but no structure is shown in the location in the 1955 map (**Figure 4.47**). The aerial images show AR 12 in its current alignment as early as 1975. The next earliest aerial dates to 1960; the location of AR 12 is obscured by foliage and the image quality is poor. This suggests that AR 12 was built before 1975, supporting the 1958 construction date listed in the tax assessor's database.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 12 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.13. Summary of AR 12 (SIHP No. 09137)

Address	804A Olowalu Village Road
TMK	4-8-004:008
County	Maui County
Date of Construction	1958
Square Footage	1,108
Acreage	0.34
Owner	Einar Santos Jr.
Architectural Type/Style	Contractor Modern/Hawaiian Ranch House
Integrity	AR 12 is in good condition but has undergone some alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 12 is not recommended as individually eligible due to lack of architectural significance and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of association and historical significance.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.12.1 Building Description

The residential building associated with AR 12 is a south facing, one-story, single-family, Contractor Modern/Hawaiian Ranch house topped with a side gable roof covered with sheets of corrugated metal (**Figure 4.48**). The house is clad in redwood/cedar vertical board siding and rests on a wood post foundation. The roof features wide eave overhangs with exposed rafters. The eave overhang along a recessed portion of the main elevation covers the main entrance and is supported with two slim, wooden supports. The concrete sidewalk/deck of the porch leads to the main entrance from a concrete landing along the east elevation that is partially covered by a semi-enclosed carport. The carport is topped with corrugated metal flat roof with wide eaves and is enclosed along the north and east elevations by vertical wood siding that does not extend to the roofline or to grade. The carport is supported by two wood posts. Aerial images indicate that the carport was constructed between 1975 and 1988. The associated outbuilding sits northwest of the main house and displays siding and roofing material consistent with the carport; however, the siding for this structure does extend from the roofline to grade.

The south (front) elevation has four wall openings (**Figure 4.49**). From west to east, the elevation has two rows of four vinyl, casement windows; the main entrance, which is comprised of a solid panel wood door;

and an additional row of four vinyl, casement windows. The portion of the elevation that displays the last two wall openings is recessed beneath the principal roofline, which is supported by two slim wooden posts that extend to grade and terminate in a poured concrete sidewalk/porch deck. The west elevation features two wall openings: two rows of four vinyl casement windows (**Figure Figure 4.50**). The north elevation could not be seen from the public right-of-way. Current aerials indicate that a shed roof extends from the easternmost portion of this elevation, suggesting that a second entryway and additional wall openings may be present. The east elevation contains no wall openings, but the carport extended from this elevation and may obscure one or more wall openings from the public right-of-way view (**Figure 4.50**).

4.12.2 Associated Outbuilding

AR 12 is associated with one outbuilding: a shed located behind the northeast corner of the house. The outbuilding is topped with a corrugated metal seam, flat roof and is clad in wood vertical board siding. The outbuilding is mostly obscured from the public right-of-way. A partial view of the south and east elevations reveals no wall openings (**Figure 4.50**). Historic aerials indicate that the outbuilding was added after 1988.

4.12.3 Current Condition and Integrity

AR 12 is in good condition. The house has undergone some alterations, including the replacement of windows, siding, and roofing material. While AR 12 retains its integrity of location and setting, it has undergone multiple unsympathetic alterations and lost its integrity of design, material, workmanship, feeling, and association. The outbuilding is in fair condition.

4.12.4 Significance Evaluation

AR 12 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity.

Under NRHP Criterion A and SRHP Criterion a, AR 12 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation. Likewise, under NRHP Criterion B and SRHP Criterion b, AR 12 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the building is not eligible because it has no elements that make it a unique example of its architectural style or form. The house is not the work of an expert builder or craftsperson. Moreover, Ranch houses were popular throughout the mid- to late-20th century and are found across the region (McAlester 2018).

Under NRHP Criterion D and SRHP Criterion d, AR 12 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry and the Pioneer Mill Company. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 12 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. The house was constructed outside the historic district’s period of significance and is not associated with the local sugar plantation industry or the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 12. This type of building is found throughout the region and does not hold architectural or historic significance.

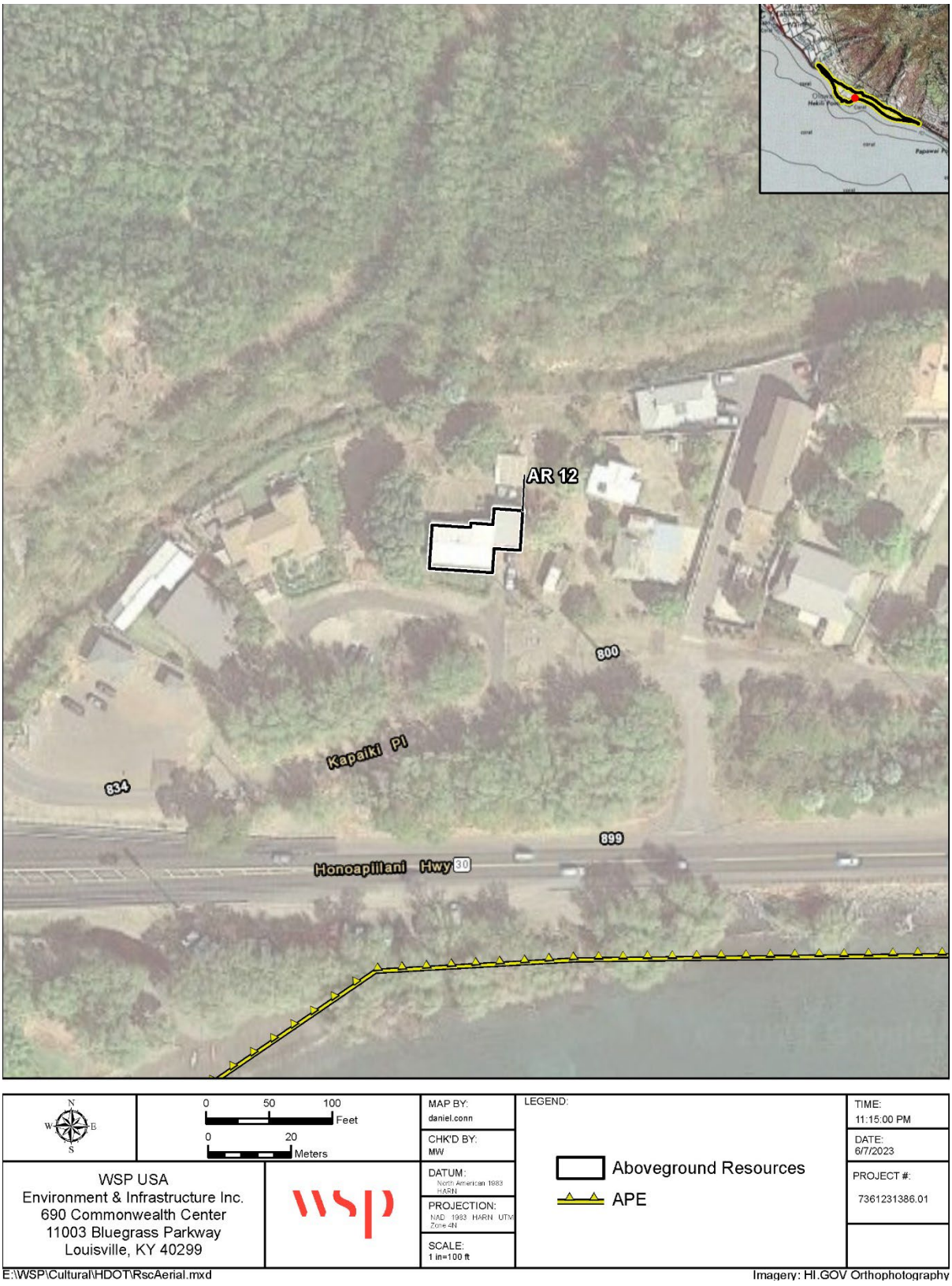


Figure 4.46. Aerial image showing the location of AR 12.

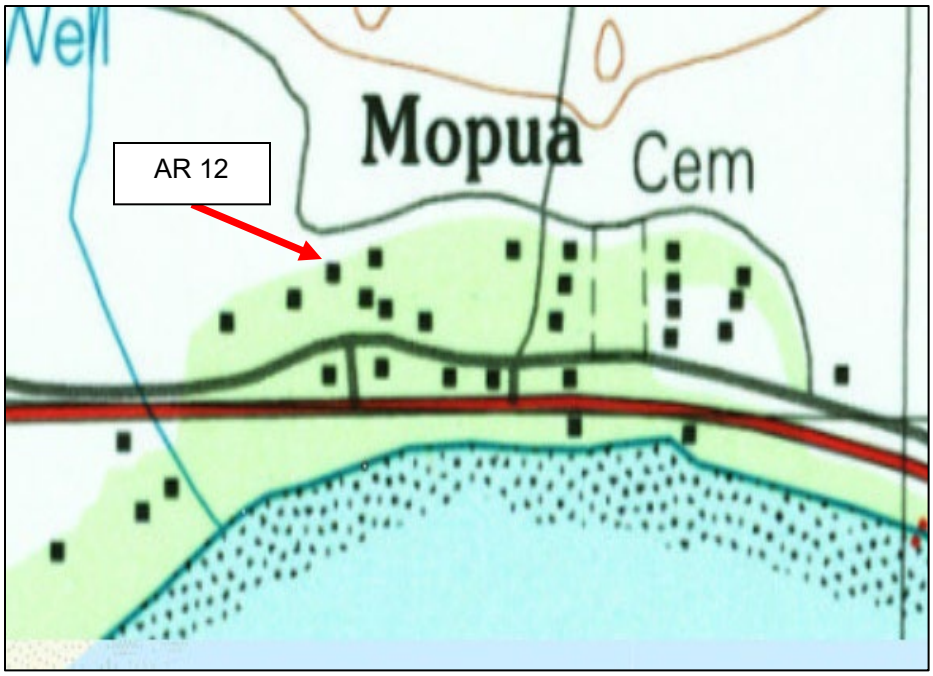


Figure 4.47. Building illustrated in vicinity of AR 12 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.48. South (front) and east elevations of AR 12, facing northwest.

Figure 4.49. South (front) and west elevations of AR 12 and outbuilding, facing northeast.

Figure 4.50. South (front) and east elevations of AR 12 and outbuilding, facing northwest; note the outbuilding beyond the carport.

4.13 AR 13 (SIHP No. 09138): 806 A Olowalu Village Road

AR 13**,** newly recorded as SIHP No.09138, is a residential property at 806A Olowalu Village Road (**Figure 4.14**; **Figure 4.51**). The building is bounded by residential properties to the west and east, Olowalu Village Road and Honoapi‘ilani Highway to the south, and a wooded area to the north. AR 13 sits on a level, grassy terrain dotted with several trees. A structure from the neighboring property is located just north of the property boundary, a corrugated metal shipping container is located at the southwest corner of the property, and a concrete block wall runs along the extent of the north and east boundaries (**Figure 4.52**). A gravel drive extends from Olowalu Village Road to a concrete landing located along the east elevation of AR 13. The concrete landing is adjacent to an addition that has been constructed along the east elevation of the main house. The addition is covered by a secondary flat roof that extends from the eaves of the main house and creates a partial porch covering the main entrance. A second gravel driveway extends from Olowalu Village Road to an outbuilding located northwest of the main house.

According to the County of Maui tax assessor's database, AR 13 sits on 0.34 acres, is currently owned by Jill A. Labram and Jon D. McPherson and was built in 1963. Topographic maps show a building in the location of AR 13 as early as 1955, which is depicted in the earliest topographic map produced for the area (**Figure 4.53**). The earliest historic aerial image available for the area (from 1949) shows AR 13 in its current location and prior to the construction of additions along the north and east elevations. This suggests that AR 13 was built before 1949, supporting the 1936 construction date listed in the tax assessor's database.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 13 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.14. Summary of AR 13 (SIHP No. 09138)

Address	806A Olowalu Village Road
TMK	4-8-004:006
County	Maui County
Date of Construction	1936
Square Footage	573
Acreage	0.34
Owner	Jill A. Labram and Jon D. McPherson
Architectural Type/Style	Modified Plantation House
Integrity	AR 13 is in fair to good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	Recommended not individually eligible and is not recommended as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of architectural and historic significance and loss of material integrity.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.13.1 Building Description

The residential building associated with AR 13 is a south facing, one-story, single-family, Modified Plantation house topped with a gable-on-hip roof covered with composition asphalt shingles (**Figure 4.54**). The main house is clad in aluminum siding and is held above grade by a wooden post foundation, which is not consistent with the foundation of the addition. The roof features wide eave overhangs and exposed rafters. The addition constructed along the east elevation of the original portion of the house features wood vertical board siding and is covered by a secondary flat roof, which is consistent in character to the principal roof. A porch consisting of a significant overhang of this roof, slim wood supports, and a poured concrete deck has been integrated into the façade of the house and covers the main entrance.

Current aerials suggest a rear shed addition has also been constructed along the north elevation. Aerial images indicate that the addition was constructed between 1960 and 1975. The tax assessor’s database records additional construction on the property in 1969, which may suggest that the addition was also

constructed at this time. The accessory building sits to the northwest of the main house and is accessed by a gravel road extending from Olowalu Village Road to the south elevation of the structure. The tax assessor's database and historic aerial images suggest that this structure was added to the property in 1988.

The south (front) elevation has four wall openings (**Figure 4.54**). From west to east, the elevation contains a wood, single hung window; a metal picture window framed on either side by a narrower wood single-hung window; a small, vinyl double casement or sliding window; and a pair of double-hung vinyl windows along a recessed portion of the elevation below the covered entryway. All windows along this elevation are covered by metal framed screens. The west elevation, from south to north, contains two metal picture windows framed on either side by a narrower wood single-hung window covered by metal framed screens and a wood double-hung window covered by a metal framed screen (**Figure 4.55**). The north elevation was unobservable from the public right-of-way, but current aerial images indicate that there is a rear shed roof extending from the original construction of the house, which possibly covers a porch and suggests the presence of a rear entryway. The east elevation contains two principal components: the main house and the addition. The portion of the main house visible along this elevation contains three wall openings: two vinyl sliding windows on either side of the main entrance to the house, which cannot be characterized from the public right-of-way . Along the addition, which is partially obscured by the concrete wall and vegetation, there is one vinyl sliding window covered by a metal framed screen.

4.13.2 Associated Outbuilding

AR 13 is associated with two outbuildings: a two-story accessory dwelling and a utility shed (**Figure 5.55**). The dwelling is located northwest of the main building, topped with a standing metal seam, cross-gable roof with wide eaves, and is clad in wood vertical board siding. The west, north, and east elevations of the outbuilding are obscured from the public right-of-way; however, current aerials show that the cross-gable roofline extends from the north elevation and a shed roof extends from the east elevation. The east elevation, which is partially visible from the public right-of-way, is supported by three slim wood posts with brackets and covers a concrete landing to constitute a one-story porch. The east elevation contains a set of three metal, fixed windows, and a single metal window with unknown sash operation along the second story.

The south elevation contains six wall openings. An entryway comprised of a vinyl, multipaneled door and a pair of double-hung vinyl windows are located along the first story. The entryway is covered by a flat roof supported by two wooden posts. A double-hung vinyl window and a pair of two double-hung vinyl windows are present at the second story. Two large, fixed windows are inset along the roofline. The tax assessor's database indicates that the dwelling was added to the property in 1988 and contains 573 square feet of living area. The utility shed, which was constructed in 1969 according to the tax assessor's database, is located along the north boundary of the property. The structure is obscured from the public right-of-way, but current aerials indicate that it features a low-pitch, front gable roof.

4.13.3 Current Condition and Integrity

AR 13 is in fair to good condition. The house has undergone significant alterations, including construction of an addition resulting in alterations to the façade, and the replacement of windows, siding, and roofing material. The accessory dwelling is in good condition but has undergone some alterations, including the replacement of windows and siding. The shed appeared to be in good condition but was largely obscured from view. While the property retains its integrity of location and setting, given that AR 13 has undergone multiple unsympathetic alterations, it has lost its integrity of design, material, workmanship, feeling, and association.

4.13.4 Significance Evaluation

AR 13 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Under Criterion A and SRHP Criterion a, there is no evidence or archival information that suggests that any historically significant event or pattern of events that shaped the local region occurred at or is associated with the building. The resource does not provide important information on the impact of the local technologies. Although the AR 2 was built during the sugar plantation period, the building does

not embody the historical significance of the sugar plantation industry due to alterations to its form and materials. While the building does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

Under NRHP Criterion B and SRHP Criterion b, AR 13 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, the building is not individually eligible because the resource has no elements that make it a unique example of its architectural style or form, and the house is not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 13 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 13 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. Although the residential building was constructed during the period of significance for the historic district, the house has undergone alterations resulting in loss of integrity of materials and design. As such, the building does not embody the historical significance of the historic district.

The outbuildings are not individually eligible for the NRHP and do not contribute to the overall eligibility of AR 13. These types of buildings are found throughout the region and do not hold architectural or historic significance.

Figure 4.51. Aerial image showing the location of AR 13.

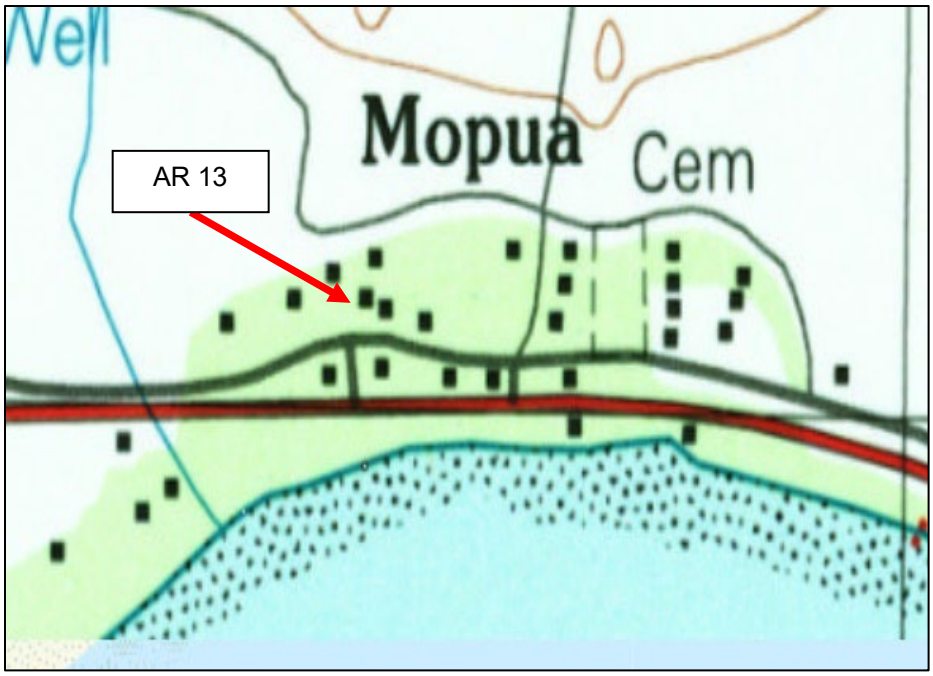


Figure 4.52. Building illustrated in vicinity of AR 13 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.53. South (front) elevation of AR 13, facing northwest.

Figure 4.54. South (front) and west elevations of AR 13 and outbuilding, facing northwest.

Figure 4.55. South elevation of outbuilding, facing north.

4.14 AR 14 (SIHP No. 09139): 803 Kana Place/Olowalu Village Road

AR 14**,** newly recorded as SIHP No.09139, is a residential property located at 803 Kana Place or Olowalu Village Road (**Figure 4.15**; **Figure 4.56**). The building is bound by residential properties to the west and east, Olowalu Village Road and Honoapi‘ilani Highway to the south, and a wooded area to the north. AR 14 sits on level terrain that is covered mostly by concrete and asphalt surfaces but is dotted in areas with a few trees and patches of grass. A detached, two-story deck is located south of the main house and a large, paved area and utility shed are located near the northeast corner of the property (**Figure 4.56**).

According to the County of Maui tax assessor's database, AR 14 sits on 0.37 acres, is currently owned by Elegant M. Tran, and was built in 1978. Topographic maps show a building in the location of AR 14 as early as 1983, but not on the next earliest map which dates to 1955 (**Figure 4.57**). A 1988 historic aerial image shows AR 14 in its current location alongside the associated outbuilding, and neither are present on a 1975 image, which is the next earliest available. This suggests that AR 14 was built between 1975 and 1983, supporting the 1978 construction date listed in the tax assessor's database.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 14 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.15. Summary of AR 14 (SIHP No. 09139)

Address	803 Kana Place or Olowalu Village Road
TMK	4-8-004:005
County	Maui County
Date of Construction	1978
Square Footage	3,848
Acreage	0.37
Owner	Elegant M. Tran
Architectural Type/Style	Dutch Colonial Revival
Integrity	AR 14 is in fair to good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	Recommended not individually eligible due to lack of architectural and historic and is not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of historic significance and association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.14.1 Building Description

The residential building associated with AR 14 is a west facing, two-story, single-family, Dutch Colonial Revival style dwelling topped with a gambrel roof covered with wood shakes (**Figure 4.58**). The main house is clad in wood vertical board siding and the concrete foundation is visible slightly above grade. The roof features wide eave overhangs and exposed beams at the gambrel ends. Decks have also been constructed along the gambrel ends: a concrete structure along the first story of the north elevation and a wood structure along the south elevation. Wide shed dormers are located centrally along the west and east elevations of the roof, contributing to the space and lighting of the second story. A set of two stairs leads to a small stone and concrete landing. The landing leads to the main entrance along the west elevation, features wrought iron railing, and is not covered by a secondary shed extension or the principal roof. A second landing of the same character is present further north along the facade.

South of the building, a two-story detached deck has been constructed and features wood stairs, wood supports, and wood railing (**Figure 4.59**). The tax assessor's database indicates that the first story contributes 2,368 square feet to the total living area, and the second story contributes 1,480 square feet. The utility shed is located to the northwest of the main house and is accessed via the paved asphalt parking area and from a concrete or dirt walkway along the east elevation of the main house. The tax assessor's database and historic aerial images suggest that this structure was added to the property in 1979.

The west (front) elevation has twelve wall openings. From west to east, the first story contains a vinyl sliding window; a double-hung vinyl window; an entryway which is accessed via a set of two steps leading to a concrete and stone deck; another vinyl sliding window; a double-casement vinyl window; and the remaining wall openings follow as the inverse of the preceding pattern. At the second level, the shed dormer features two double-hung vinyl windows. The north elevation is not visible from the public right-of-way, but current aerials indicate that there are six wall openings: two large, vinyl picture windows along the first level and two vinyl sliding windows between two sliding glass doors. The east elevation was unobservable from the public right-of-way, but aerial images indicate that there are multiple wall openings along both levels of the house. The first level contains two entryways and at least six windows of unknown material and sash operation. The second level features six windows of unknown material and sash operation beneath the wide shed dormer. The south elevation contains six wall openings: two large, vinyl picture windows along the first level and two vinyl sliding windows between two sliding glass doors .

4.14.2 Associated Outbuilding

AR 14 is associated with one outbuilding, a utility shed. The shed is located northeast of the main building, topped with a corrugated metal, flat roof, and is likely clad in plywood. It is irregular in shape, nesting into the acute angle of the northeast corner of the property and featuring a possible addition along the south elevation. The outbuilding is not visible from the public right-of-way. However, current aerials show that two shed roofs extend from the west elevation, which features at least two wall openings: an entry and a window with unknown sash operation. The north and east elevations could not be assessed. The tax assessor's database indicates that the shed was added to the property in 1979, which is supported by historic aerial images.

4.14.3 Current Condition and Integrity

AR 14 is in good to fair condition. The house has undergone some alterations, including the replacement of windows, siding, and roofing material. The outbuilding is in fair condition, showing some signs of deterioration, and has undergone some alterations, including the construction of an addition and roof extensions. While the property retains its integrity of location and setting, AR 14 has undergone multiple unsympathetic alterations and lost its integrity of design, material, workmanship, feeling, and association.

4.14.4 Significance Evaluation

AR 14 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity.

Under NRHP Criterion A and SRHP Criterion a, AR 14 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation. Likewise, under NRHP Criterion B and SRHP Criterion b, AR 14 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the building is not eligible because it has no elements that make it a unique example of its architectural style or form. The house is not the work of an expert builder or craftsperson. In addition, Under NRHP Criterion D and SRHP Criterion d, AR 14 does not have the potential to yield additional information regarding local and regional development or other significant historical themes.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 14 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. The house was constructed outside the historic district's period of significance and is not associated with the local sugar plantation industry or the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century.

The outbuilding is not individually eligible for the NRHP and does not contribute to the overall eligibility of AR 14. This type of building is found throughout the region and does not hold architectural or historic significance.

Figure 4.56. Aerial image showing the location of AR 14.

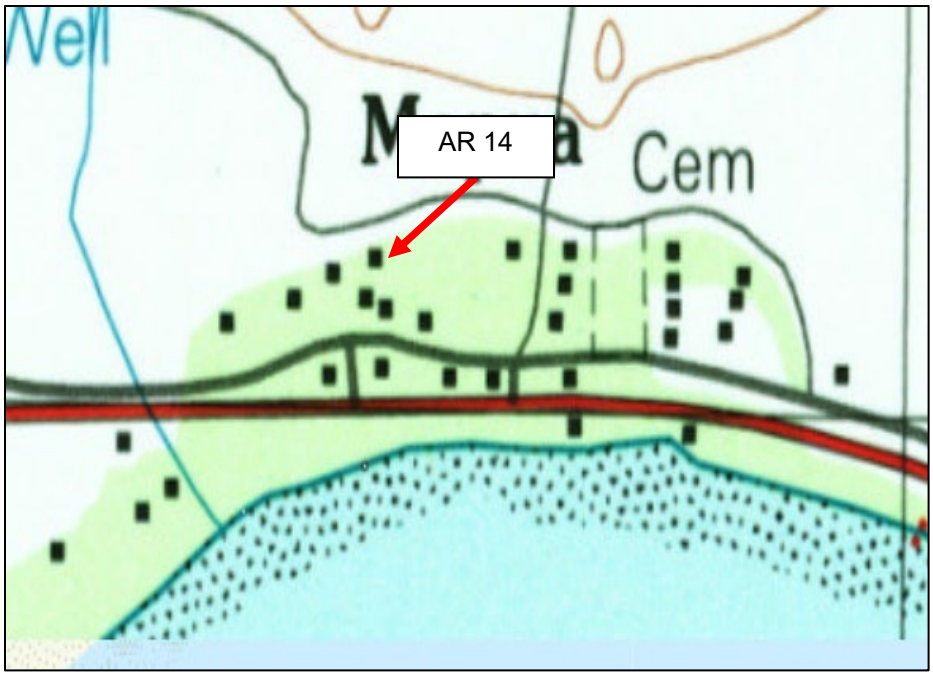


Figure 4.57. Building illustrated in vicinity of AR 14 on the 1992 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.58. View of detached two-story deck, facing northwest.

Figure 4.59. South and east elevations of AR 14, facing north.

4.15 AR 15 (SIHP No. 09140): 837 Olowalu Village Road/4132 Honoapi‘ilani Highway

AR 15**,** newly recorded as SIHP No.09140, is a residential property at 837 Olowalu Village Road or 4132 Honoapi‘ilani Highway (**Table 4.16**; **Figure 4.60**). The building is bound by residential properties to the north, west, and east and by Olowalu Village Road to the south. AR 15 sits on a level, grassy terrain dotted with several trees. A stone and concrete retaining wall outlines the perimeter of the yard along the west, parallel to an adjacent property; to the north, from the northeast corner of AR15; and the east, parallel to an asphalt drive leading to neighboring properties. Most of the northern half of the property is open grassy terrain, and there is a pile of debris at the center of this terrain (**Figure 4.60**).

According to the County of Maui tax assessor’s database, AR 15 sits on 0.39 acres; is currently owned by Adeline K. and Clyde R. Rodrigues and was built in 1967.

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 15 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.16. Summary of AR 15 (SIHP No. 09140)

Address	837 Olowalu Village Rd/4132 Honoapi‘ilani Hwy
TMK	4-8-004:004
County	Maui County
Date of Construction	1967
Square Footage	1,778
Acreage	0.39
Owner	Adeline K. and Clyde R. Rodrigues
Architectural Type/Style	Contractor Modern/Hawaiian Ranch
Integrity	AR 15 is in fair to good condition but has undergone moderate alteration resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	Recommended not individually eligible due to lack of architectural and historic and is not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to lack of historic significance and association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.15.1 Building Description

The residential building associated with AR 15 is a south facing, one-story, single-family, Contractor Modern/Hawaiian Ranch topped with a gable-on-hip roof covered with wood shakes (**Figure 4.61**). The house is masonry construction and rests on a masonry pier foundation. The roof features wide eave overhangs. The main house features masonry exterior walls that are distinct from the concrete blocks used to enclose the carport, suggesting it may have been enclosed after the initial construction of the house. The gables, extending from the west and east hips of the roof, do not appear to be clad in siding and the under-roof insulation can be seen externally. The roof features wide eave overhangs and an enclosed, attached carport along the east elevation is covered by the principal roof of AR 15.

A secondary, flat roof covered with corrugated metal extends from the south elevation of the house and is supported by three concrete block columns, between which there is a wood wall inset with lattice (south) and a wood fence extending from grade to just below the roofline (west). The roof, supports, and a tiled concrete porch deck and the main entrance, partially obscuring the wall openings from the public right-of-way. Along the façade, between the porch and entrance to the carport, there is a brick column that supports the overhang of the principal roof and is covered on one side by stone veneer. Aerial images indicate that the porch was constructed between 1988 and 2000, but there is no additional information available (in aerial imagery or the tax assessor’s database) to narrow this period further.

The south (front) elevation, from west to east, has four wall openings—paired square windows on either side of the main entrance—and the entrance to the attached carport, which dominates a third of the façade (**Figure 4.62**). There are two pairs of wood, fixed windows. Above the stiles and below the exterior sills there is a series of four decorative, rectangular wood panels. The main entrance and the easternmost window were obscured from the public right-of-way by a partially enclosed porch extending from this elevation (**Figure 4.63**).

The east elevation contains two wall openings along the exterior wall of the carport: a metal fixed window and a metal sliding window. The east elevation of the main house, or the interior wall of the enclosed carport contains two wall openings: an entry, covered by a painted wrought iron and glass pane storm door, and a wood window of an unknown sash operation (**Figure 4.63**). The north (rear) elevation was unobservable from the public right-of-way, but current aerial images indicate that there is a rear entrance, and one or two windows present along this elevation. The west elevation contains two pairs of wood casement windows.

4.15.2 Current Condition and Integrity

AR 15 is in good condition. The house has undergone numerous alterations, including the replacement of windows, siding, and roofing material. While the property retains its integrity of location and setting, AR 15 has undergone multiple unsympathetic alterations and lost its integrity of design, material, workmanship, feeling, and association.

4.15.3 Significance Evaluation

AR 15 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity.

Under NRHP Criterion A and SRHP Criterion a, AR 15 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation. Likewise, under NRHP Criterion B and SRHP Criterion b, AR 15 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the building is not eligible because it has no elements that make it a unique example of its architectural style or form. The house is not the work of an expert builder or craftsperson. Furthermore, Ranch houses were popular throughout the mid- to late-20th century and are found across the region (McAlester 2018). In addition, AR 15 has undergone unsympathetic alterations, such as the replacement of windows, siding, and roofing material, resulting in the loss of integrity of materials. Under NRHP Criterion D and SRHP Criterion d, AR 15 does not have the potential to yield additional information regarding local and regional development or other significant historical themes.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 15 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. The house was constructed outside the historic district’s period of significance and is not associated with the local sugar plantation industry or the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century.

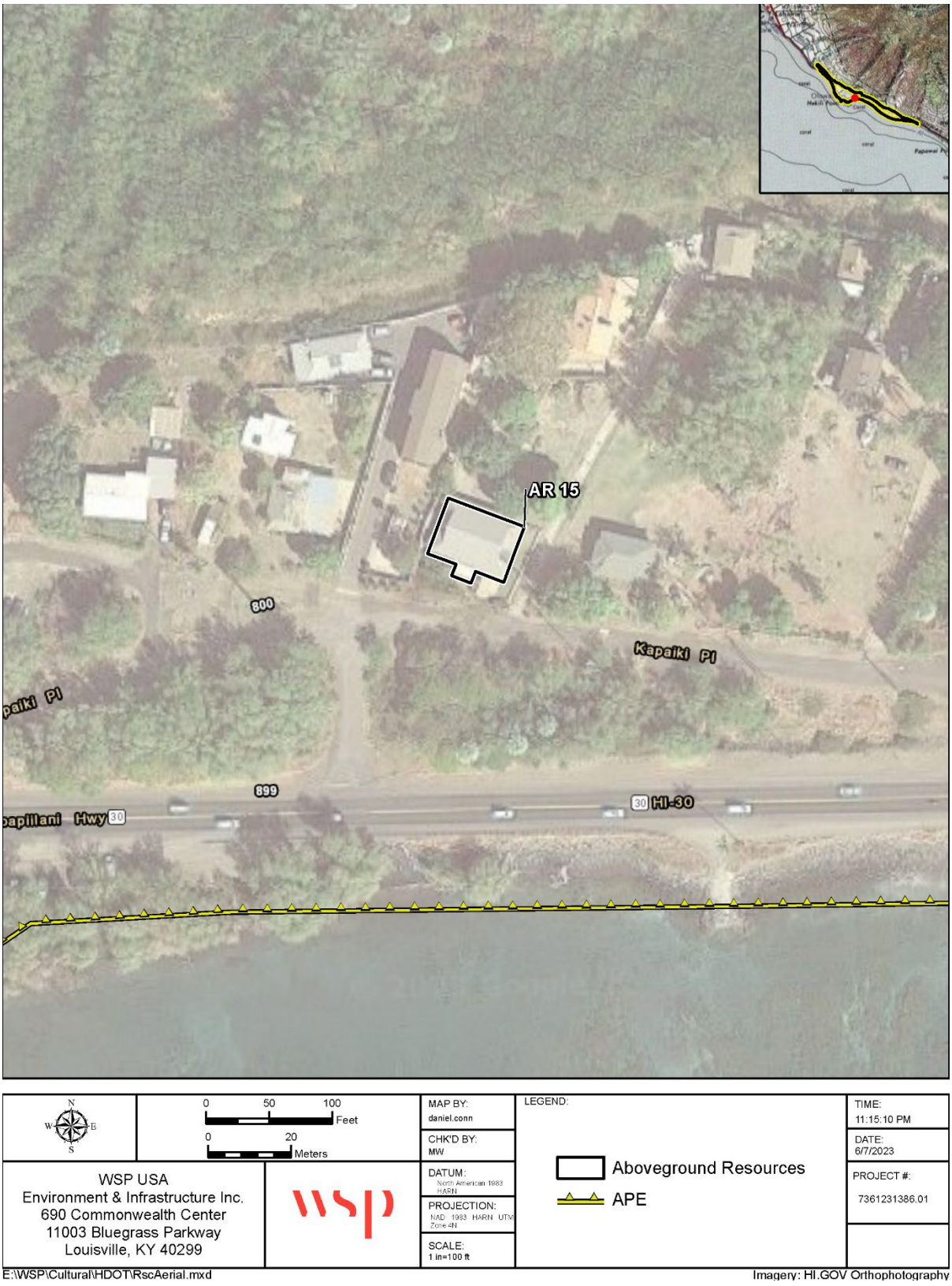


Figure 4.60. Aerial image showing the location of AR 15.

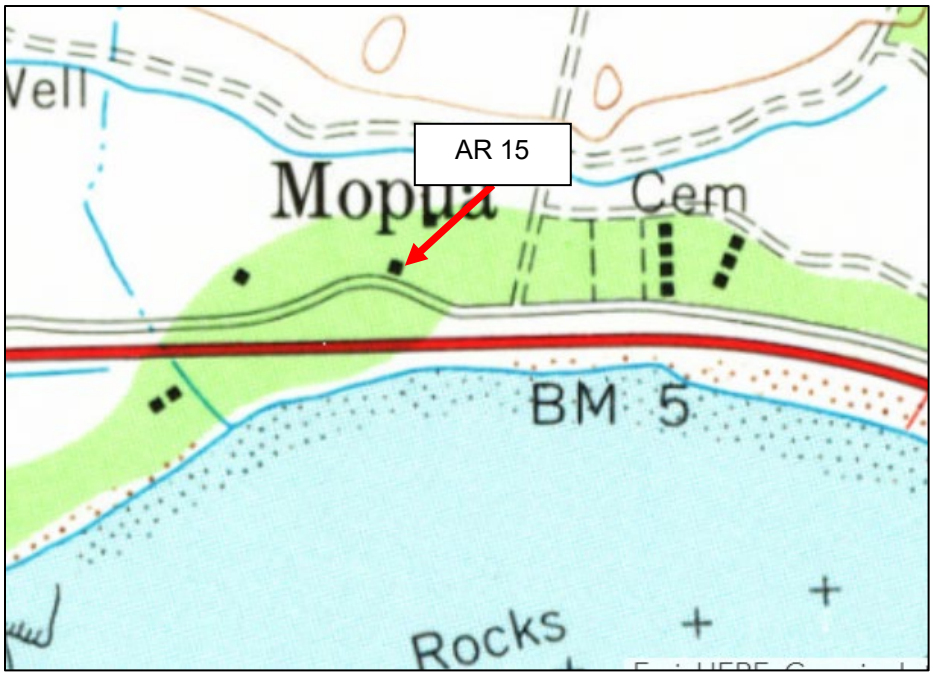


Figure 4.61. Building illustrated in vicinity of AR 15 on the 1983 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.62. South (front) elevation of AR 15, facing north.

Figure 4.63. East elevation of AR 15, facing west.

4.16 AR 16 (SIHP No. 09141): 802 A Olowalu Village Road

AR 16**,** newly recorded as SIHP No.09141, is a residential property at 802 Olowalu Village Road (**Figure 4.17**; **Figure 4.64**). The building is bounded by residential properties to the north, west and east, and by Olowalu Village Road to the south. AR 16 sits on a level, grassy terrain dotted with several trees, and sporadically interrupted by areas of sand. The northern half of the property features a dense cluster of trees that interrupt the visual line of site from AR 16 to the neighboring residence to the north (**Figure 4.64**).

A dirt driveway extends from Olowalu Village Road to a wood ramp, which leads from beyond the southwest corner of AR 16 to an entry porch covering the main entrance. The porch consists of two segments: an original, single bay entry porch featuring a shed roof, and an extension comprised of a more recently constructed flat, corrugated metal roof and a large wooden deck. Both segments of the porch roof rest on slim wood supports. North of the wood ramp, along the east elevation, a concrete landing and a set of three steps framed by low walls lead to a secondary entrance.

According to the County of Maui tax assessor's database, AR 16 sits on 0.94 acres, is currently owned by Thelma P. Kaahui and Kathy L. Kihune and was built in 1941. However, the building is also shown on an 1881 map of Olowalu along with several other structures in the APE, suggesting that AR 16 may have been constructed as early as 1881. It is important to note that, based on extensive archival research, the area known Kapaiki Place, where AR 16 is located, was once part of the Olowalu Plantation Division land holdings and thus associated with the proposed Plantation era historic district. This can most readily be seen on the 1939 Pioneer Mill Company map showing the parcels that were historically owned by the Olowalu Plantation Division (**Figure 4.65**). However, aerial photographs from 1950 also depicts the house as just a few dwellings in the Kapaiki Place area, likely for laborers of the far eastern sugar fields.

Table 4.17. Summary of AR 16 (SIHP No. 09141)

Address	802 Olowalu Village Road
TMK	4-8-004:002
County	Maui County
Date of Construction	By 1941
Square Footage	1,074
Acreage	0.94
Owner	Thelma P. Kaahui and Kathy L. Kihune
Architectural Type/Style	Plantation/Bungalow
Integrity	AR 16 is in fair to good condition but displays some signs of deterioration. However, it continues to retain its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 16 is recommended as individually eligible due to its architectural significance (Criterion C) and is eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	AR 16 is recommended as individually eligible due to its architectural significance (Criterion c) and is eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria a and d).

4.16.1 Building Description

The residential building associated with AR 16 is a south facing, one-story, single-family, Plantation Style house topped with a hip-and-valley roof covered with composition asphalt shingles (**Figure 4.66**). The main house is clad in fir/pine wood vertical board siding and rests above grade on a concrete pier and post foundation. Along the west and south elevations, cascading hips cover projecting sections of the irregular floor plan and, consistent with the principal roof, feature wide eave overhangs with exposed rafters. The exterior foundation posts have been integrated into decorative lattice covering crawl space beneath the house. In some areas, the lattice has been damaged or removed, exposing the crawlspace and foundation elements.

A porch covers the main entrance of the house along the south (front) elevation. An original, single bay entry porch featuring a shed roof covered with composition asphalt shingles has been extended by the construction of a flat corrugated metal roof over a large wooden deck. The shed roof and flat roof

extension rest on slim wood supports, and the wood deck rests on a pier and post foundation covered by lattice. The porch is enclosed with wood banister railing, aside from the portion accessed by the wood ramp. The ramp, which leads from the dirt driveway to the entry porch, features wood railing that is inconsistent with what is in the entry porch. North of the wood ramp, along the east elevation of the house, a concrete landing and a set of three steps framed by low walls lead to a secondary entrance. Historic aerial images indicate that the porch was modified after 1975. The modification could have occurred more recently, but the poor quality of the 1988 aerial image prevents more precise dating. The tax assessor's database records no additional information regarding new construction related to AR 16.

The south (front) elevation has eight wall openings. However, the wall openings located beneath the entry porch—including the main entry and three windows—were partially obscured from the public right-of-way (**Figure 4.67**). From west to east, the elevation contains a wood, double-casement window with eight-light panes; three wood, double-casement windows with eight-light panes in a ribbon—the last of which is partially obscured by the porch; the main entrance and a wood, double casement window with eight-light panes—both of which are beneath the porch and obscured from the public right-of-way (**Figure 4.68**); and two wood, double-casement windows with eight-light panes to the west of the porch, along a section of the elevation that projects outward below a cascading hip roof (**Figure 4.69**).

The west elevation is visually divided into three sections with the central section projecting from the elevation below a cascading hip roof. This section contains two wood casement windows with six lights. The sections on either side each feature a wood, double-casement window with eight-light panes (**Figures Figure 4.70**).

The north elevation, from west to east, contains six wall openings: two wood, double-casement windows with eight-light panes; three wood, double-casement windows with eight-light panes in a ribbon; and a smaller wood, double-casement window with twelve lights. The east elevation contains four wall openings: three windows and an additional entrance. The additional entrance is located at the northern extent of the elevation and features a paneled wood door inset with a fixed one-over-one window. A set of two concrete steps framed on either side by a low concrete wall lead from a concrete landing to the additional entrance. Immediately adjacent to the wood frame of the entrance is a small wood, double-casement window with twelve lights, which is followed by two wood, double-casement windows with eight-light panes. All wall openings visible from the public right-of-way feature simple lintel and sill entablatures.

4.16.2 Current Condition and Integrity

AR 16 is in fair condition with signs of deterioration evident on the wood siding and roof eaves. The house has undergone only minor unsympathetic alteration, retaining its original windows and siding. The original roofing material has been replaced with composite asphalt shingles, and a porch has been added along the south (front elevation). The building displays elements characteristic of this style and retains much of its integrity, making it a good representation of its type. Although the roofing material has been replaced and the porch modified, the house retains much of its original materials and retains its integrity of location, setting, design, workmanship, feeling, and association.

4.16.3 Significance Evaluation

AR 16 is recommended as individually eligible for listing in the under NRHP Criterion A and SRHP Criterion a based on its association with historic events or patterns of events that have impacted the region, state, or nation.

AR 16 was built during the middle of the sugar plantation era, a time when the area was extremely rural, and all construction was specifically for use by the plantation. Moreover, as mentioned above, at the time when the house was built, the original Kapaiki Place parcels were owned by the Olowalu Plantation Division within the period of significance of proposed Plantation era historic district (**Figure 4.65**). As such, the building, as an individual resource, embodies the historical significance of the sugar plantation industry and the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 16 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, AR 16 is recommended as not individually eligible. Although the house displays the classic Hawaiian plantation architecture and retains much of its integrity, the building is not eligible because it has no elements that make it a unique example of its architectural style or form. Furthermore, the house is not the work of an expert builder or craftsperson. Under NRHP Criterion D and SRHP Criterion d, AR 16 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 16 is recommended as a contributing resource to the Olowalu Sugar Plantation Historic District under Criteria A, C, and D. The resource is likely an early worker house, and thus is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the mid-20th century. As a result of this association, AR 16 has potential to contribute to further understanding of this history as part of the proposed historic district.

Under NRHP Criterion A, AR 16 is recommended as eligible as a contributing resource because the building is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association as worker housing. Under NRHP Criterion B, AR 16 is recommended as not eligible as a contributing resource because no ties or links were found between the building and people with cultural or historic significance.

AR 16 is recommended as eligible as a contributing resource Under NRHP Criterion C because the building is an excellent architectural example of an original worker home that was built during the Period of Significance. The building displays elements characteristic of this style and retains much of its integrity, making it a good representation of its type. Under NRHP Criterion D, AR 16, as a contributing resource to the Olowalu Sugar Plantation District, has the potential to yield additional information regarding local and regional development or other themes of historical significance.

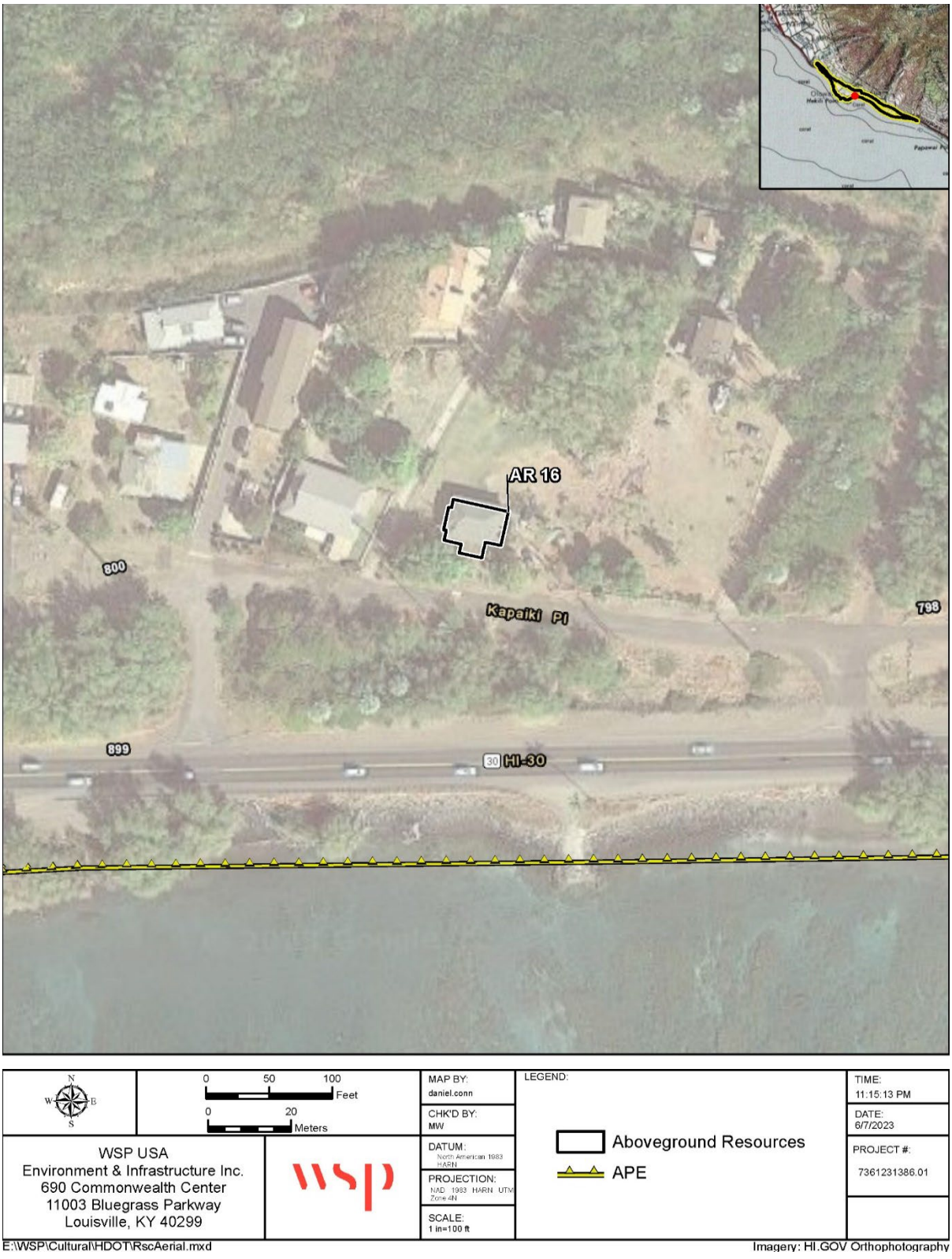


Figure 4.64. Aerial image showing the location of AR 16.

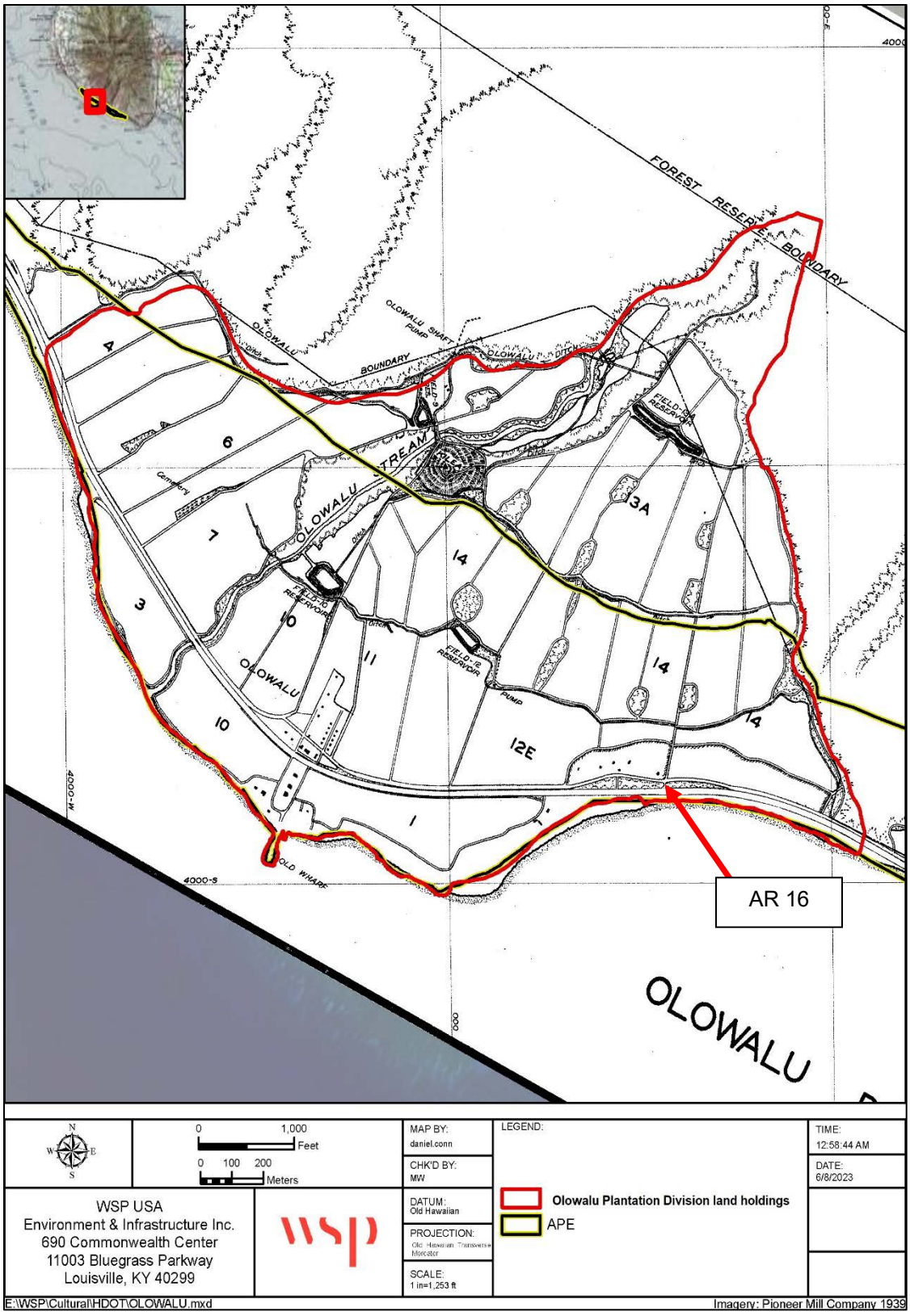


Figure 4.65. The 1939 Pioneer Mill Company map showing the location of AR 16 within the Olowalu Plantation Division land holdings (Courtesy of the Hawai'i Department of Accounting and General Services, Land Survey Division).

Figure 4.66. South (front) elevation of AR 16, facing north.

Figure 4.67. South (front) and east elevations of AR 16, facing northwest.

Figure 4.68. West and south (front) elevations of AR 16, facing northwest.

Figure 4.69. North (rear) elevation of AR 16, facing south.

Figure 4.70. South elevation of outbuilding, facing north.

4.17 AR 17 (SIHP No. 1603): Lanakila Historic Church (Olowalu Church and Cemetery)

AR 17, previously recorded as SIHP No. 1603, consists of the Lanakila Historic Church and associated cemetery (Olowalu Church and Cemetery), a culturally significant site that is located on the north side of Honoapiʻilani Highway (Hawaiʻi 30) (**Figure 4.18**; **Figures Figure 4.71** and **Figure 4.72**). The cemetery itself is also known as the Olowalu Lanakila Hawaiian Church Cemetery (Find a Grave 2023).

According to the County of Maui tax assessor's database, AR 17 sits on 1.998 acres and is currently owned by the Hawaiʻi Conference Foundation. The church and cemetery sit on a parcel of land along with one modern residential structure. A portion of the cemetery containing marked interments is located along the western wall of the church, and a section containing unmarked graves is located slightly to the north and demarcated by large stones (Lee-Greig and Hammatt, 2012). The earliest inscribed marker in the cemetery dates to 1938, but the church is depicted on the 1881 Hawaiʻi Land Survey Registered Map, suggesting unmarked interments or those without headstones may date to the late-19th century or earlier (**Figure 4.73**).

A garden adorns the main elevation of the church, and a stone-lined pathway leads to the interior of the structure. The church and cemetery served the residents of Olowalu during the Plantation era and was established as a branch of the Olowalu Mission of the Lāhainā Station (Olowalu Lanakila Hawaiian Church 2019; Lee-Greig and Hammatt 2012). The plantation era began in the mid-19th century, becoming more industrialized with the development of larger fruit and sugar plantations by the 1890s. Labor needs attracted many immigrant workers to the islands, with the largest number being from Japan (LOC ND; Maclennan 1995). This demographic trend is reflected in the AR 17 by the presence of Japanese surnames on two of the four engraved headstones. The cemetery extends beyond its recognized boundaries and includes unmarked graves dated as early as 1910 that became subsumed by encroaching sugar cane fields (Fredericksen and Fredericksen 1999, 2001; Lee-Grieg and Hammatt 2012; R. M. Towill Corporation 2008).

Table 4.18. Summary of AR 17 (SIHP No. 1603): Lanakila Historic Church (Olowalu Church and Cemetery).

Address	Honoapiʻilani Highway (State Highway 30)
TMK	4-8-003:018
County	Maui County
Date Established	circa 1860
Acreage	1.998
Owner	Hawaiʻi Conference Foundation
Architectural Type	Religious Structure and Cemetery
Number of Interments	10 (although additional unmarked interments are possible)
Earliest Interment	Early 20th century
Integrity	AR 17 is in stable condition and retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 17 is recommended as individually eligible (Criterion A and D, Criteria Consideration D), but not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of association.
HRS 6E Significance Evaluation	AR 17 is recommended as individually eligible (Criterion a and d, and Criteria e), but not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of association.

4.17.1 Site Description

AR 17 consists of a church ruin and an associated cemetery along the west elevation of the main structure. Both sit on an open grassy area dotted with trees that is north of a modern residential building occupied by the cemetery groundskeeper (**Figure 4.74**). An unimproved dirt access road runs through the center of the property to AR18, extending to the north to from the Honoapiʻilani Highway (State Highway 30). The cemetery measures approximately 10 by 10 meters with an estimated minimum of 10 interments, but additional unmarked interments have been identified in the former cane fields nearby (Shefcheck and Dega 2007). The church was constructed in the 1860s when congregation members

formed human chains to supply the stone and coral that comprises the church walls. The original roof of AR 17 was wood and in 1930 it was destroyed—along with the historic records of the church—as a result of nearby cane fires (**Figure 4.75**). Olowalu Sugar Company took partial responsibility for the damage but it was not held liable for repair after it was purchased by the Pioneer Mill Company of Lāhainā (Olowalu Lanakila Hawaiian Church 2019; Lee-Greig and Hammatt 2012).

The west and east elevations of the church feature three openings that formerly featured wood windows of unknown operation; the north elevation contains one wall opening which formerly contained a window; and the south elevation features one wall opening that formerly served as the main entrance (**Figure 4.76** through **4.78**). Inside the structure, along the north elevation, a rock, coral, and mortar retaining wall encloses an elevated earthen landing that is accessed by a set of two rock, coal, and mortar steps. And a wooden cross has been placed at the rear of the landing. Images of the structure prior to the fire depict a set of solid wood double doors at the main entrance, the front gable wood roof, and a centrally located wood steeple topped with a hipped roof (**Figure 4.75**).

The interments that comprise the cemetery are clustered along the northwest wall of the church and appear to be mostly within uniform rows. Four interments are marked by concrete vaults that sit slightly above grade. Three of these burials feature engraved headstones ranging in condition from broken to pristine; the remaining interments feature organized rows of stone and lava rock lining the extent of the grave shaft. Additional unmarked interments have been identified in the nearby area. The earliest inscribed burial dates to 1938, but unmarked interments may date to the late-19th century—the most recent dates to 2003. Surnames observed include Leonui and Fujishiro.

4.17.2 Current Condition and Integrity

At the time of the survey, AR 17 was in fair condition. Some markers show signs of weathering and others exhibit signs of damage (**Figure 4.137**). The cemetery is currently maintained by a groundskeeper residing at the property. Given these factors, the site still retains its integrity of location, setting, design, material, workmanship, feeling, and association.

4.17.3 Significance Evaluation

AR 17 was previously recommended as individually eligible under NRHP Criterion D, SRHP Criterion d, and SRHP Criterion e. The current study concurs with this evaluation and recommends AR 17 as individually eligible for listing in the NRHP under Criteria A and D, Criteria Consideration D, SRHP Criterion d and SRHP Criterion e.

As National Register Bulletin #41 states, “cemeteries and graves are among those properties that ordinarily are not considered eligible for inclusion in the National Register of Historic Places unless they meet special requirements (United States Department of the Interior 1992). To qualify for listing under NRHP Criteria A, B, C, or D a cemetery or grave must meet not only the basic criteria, but also the special requirements of Criteria Considerations C or D, relating to graves and cemeteries” (United States Department of the Interior 1992).

AR 17 is recommended as individually eligible Under NRHP Criterion A, SRHP Criterion a, and SRHP Criterion e due to its association with the Native Hawaiian population in West Maui and the early Protestant missionary efforts in Olowalu during the 19th century.

Under NRHP Criterion B and SRHP Criterion b, the resource is recommended not individually eligible because no connections to a people of historic significance in relation to AR 17 were identified. Under NRHP Criterion C and SRHP Criterion c, the resource is recommended not individually eligible because it does not contain monuments that are of architectural significance, nor does it appear to be a special built historic landscape.

AR 17 is recommended as individually eligible under NRHP Criterion D and SRHP Criterion d because of its potential to yield information important in history related to the Native Hawaiian population in West Maui and the early Protestant missionary efforts in Olowalu during the 19th century. AR 17 is also recommended as individually eligible under NRHP Criteria Consideration D. AR 17 meets the requirements of Criteria Consideration D as it derives its primary significance from distinctive characteristics of the 19th and 20th century Protestant missionary influences on Hawaiian mortuary and

construction practices. Thus, due to its association with the Native Hawaiian population in West Maui and the early Protestant missionary efforts in Olowalu during the 19th century, AR 17 is recommended as individually eligible under Criteria A and D, Criteria Consideration D, and HRS § 6E.

AR 17 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District. Although the church and cemetery were active during the during the period of significance for the historic district, the resource's primary significance is derived from its distinctive characteristics of the 19th- and 20th-century Protestant missionary influences on Native Hawaiian mortuary practices and the early Protestant missionary efforts in Olowalu during the 19th century. Thus, AR 17 does not embody the historical significance of the proposed historic district.

Figure 4.71. Aerial image showing the location of AR 17.

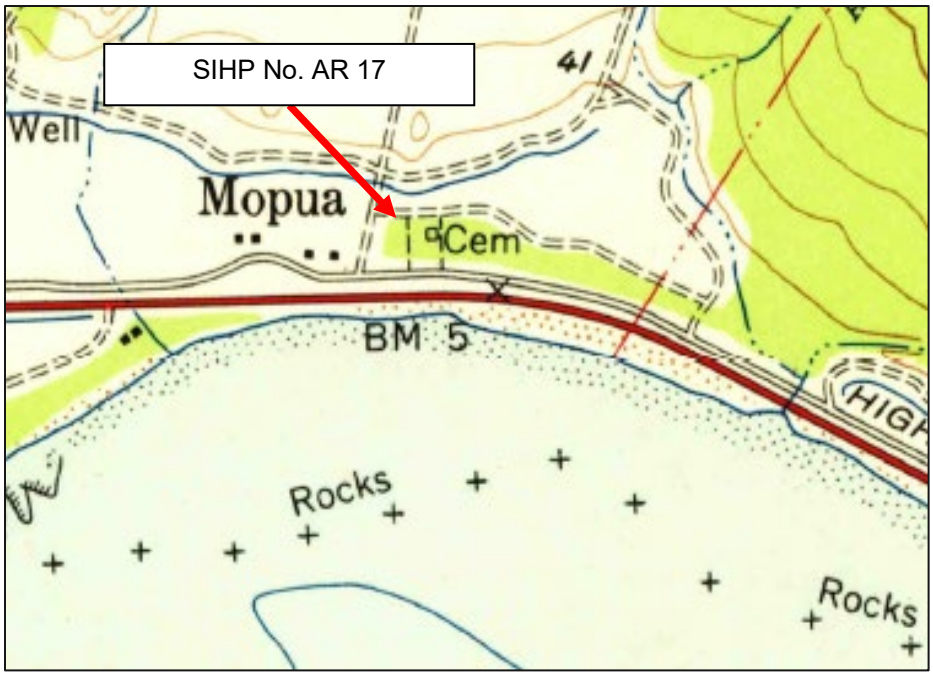
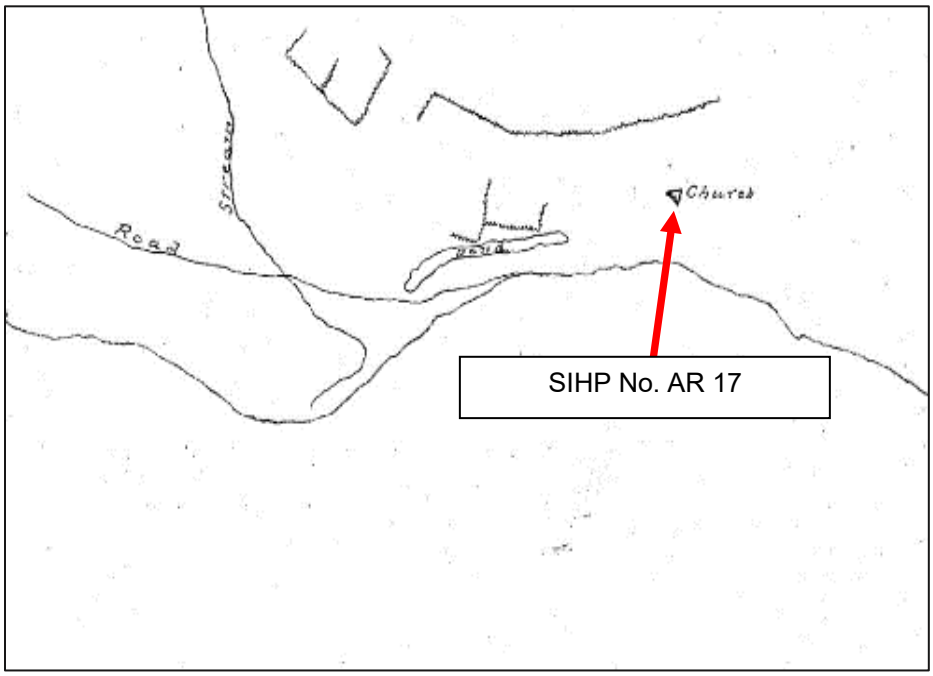


Figure 4.72. Cemetery illustrated in vicinity of AR 17 on the 1955 USGS Olowalu, Hawai'i, 7.5-minute quadrangle topographic map.



Source: Lyons 1881; courtesy of HU eVols Repository

Figure 4.73. View of a church in the location of SIHP No. 1603 depicted in Hawai'i Land Survey Registered Map 776.

Source: Olowalu Lanakila Hawaiian Church

Figure 4.74. View of AR 17 prior to 1930 cane field fire.

Figure 4.75. Overview of AR 17 stone church and cemetery, facing southeast.

Figure 4.76. West elevation of stone church, facing southeast.

Figure 4.77. View of interior of church, facing north.

Figure 4.78. Example of inscribed markers and concrete vaults, facing east.

4.18 AR 18 (SIHP No. 09142): Wharf

AR 18**,** newly recorded as SIHP No.09142, is a small rock and concrete wharf/drainage culvert on Olowalu Beach approximately 0.21 miles west of Honoapiʻilani Highway mile marker 14 (**Figure 4.19**; **Figure 4.79**). The structure is bounded by rocky beach shores to the west and east, Honoapiʻilani Highway to the north, and the Pacific Ocean to the south. AR 18 is accessed via a widened shoulder along the eastbound lanes of Honoapiʻilani Highway.

According to the County of Maui tax assessor's database, AR 18 sits on an 8-acre parcel containing Olowalu Beach and is currently owned by the State of Hawaiʻi. Topographic maps do not depict the structure, but a 1912 AGS Soundings map illustrates a hazard near the Olowalu Landing anchorage, in the general location of AR 18; however, this symbol may also refer to the coral reefs along the Olowalu shoreline (**Figure 4.80**). The earliest historic aerial image available for the area (from 1949) illustrates the area of the shore where AR 18 is located but the quality is poor. AR 18 first appears clearly in the 1975 aerial image. This suggests that AR 18 was built before 1975. The concrete and stone construction of AR 18 is consistent with the nearby Olowalu Landing piers, suggesting it may have been constructed as early as 1930.

Table 4.19. Summary of AR 18 (SIHP No. 09142)

Address	Olowalu Beach (South of Honoapiʻilani Hwy)
TMK	4-8-003:001
County	Maui County
Date of Construction	circa 1930s
Square Footage	Approximately 1,154
Acreage	8.00
Owner	State of Hawaiʻi
Architectural Type/Style	20th Century Transportation/Water Control Structure
Integrity	AR 18 is in fair to good condition but shows some signs of weathering but retains its integrity of location, setting, feeling, and association.
NRHP Significance Evaluation	AR 18 is recommended as not individually eligible due to lack of historic and architectural significance and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.18.1 Structure Description

The structure associated with AR 18 is a concrete culvert and rock wharf (**Figures Figure 4.81** through **Figure 4.83**). The wharf extends approximately 100 feet from the shore and appears to terminate along the north side of Honoapiʻilani Highway (**Figure 4.71**). The mouth of the drainage opening is approximately 35 feet wide. While tax assessor's records, primary sources, and historic aerial images provide no evidence of a clear association between this structure and the local sugar industry or Pioneer Sugar Company, the material of the wharf is consistent with a nearby wharf associated with the Olowalu Sugar Company Mill. As discussed above, the 1975 historic aerial is the first to clearly depict AR 18 in its current alignment. This suggests that the structure was likely constructed as part of the plantation water control and transportation system and was adopted into the drainage system of the Honoapiʻilani Highway.

4.18.2 Current Condition and Integrity

AR 18 is in fair to good condition. The structure displays some signs of weathering and wear along the south elevation and drainage pipe. Given these factors, the property still retains its integrity of location, setting, design, material, workmanship, feeling, and association.

4.18.3 Significance Evaluation

AR 18 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance.

Under NRHP Criterion A and SRHP Criterion a, AR 18 is recommended as not individually eligible. Although the structure was likely built during the sugar plantation period, AR 18, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 18 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structure is not individually eligible because the resource has no elements that make it a unique example of its architectural type and is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 18 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 18 is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District. No association that definitively shows that the structure was part of the sugar plantation industry in Olowalu, and the Pioneer Mill Company was found.

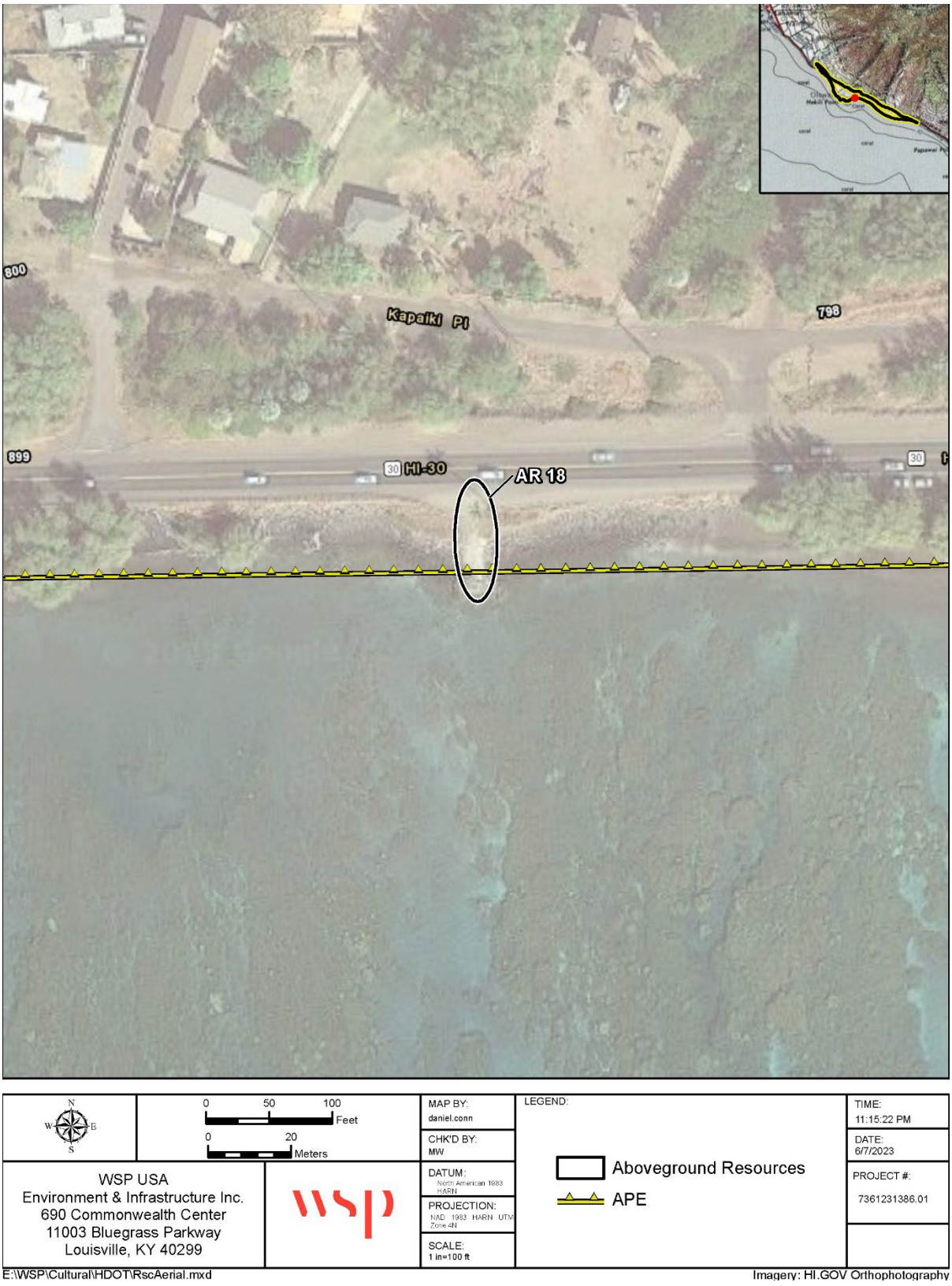
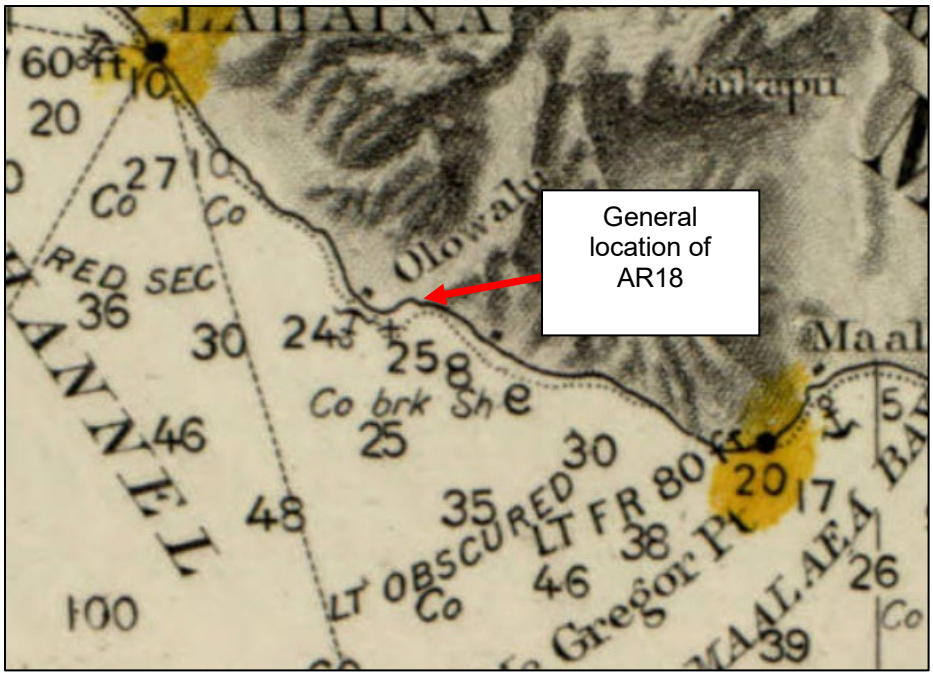


Figure 4.79. Aerial image showing the location of AR 18.



Source: Hawai‘i Department of Accounting and General Services

Figure 4.80. Hazard illustrated in vicinity of AR 18 on the 1912 AGS Soundings Map of the Hawaiian Islands.

Figure 4.81. Deck and west elevation of AR 18, facing southeast.

Figure 4.82. Deck and east elevation of AR 18 and outbuilding, facing northwest.

Figure 4.83. South elevation of AR 18, facing northwest; note the concrete drainage pipe emptying into the sea.

4.19 AR 19 (SIHP No. 09143): Water Tower

AR 19, newly recorded as SIHP No.09143, is a water tower north of Olowalu Village Road (**Figure 4.20**; **Figure 4.84**). The structure is bounded by a wooded area to the east and north, an unnamed road to the west, and Olowalu Village Road to the south. The tower sits on a level, sandy terrain surrounded by thick vegetation (**Figure 4.84**).

According to the County of Maui tax assessor's database, AR 19 sits on 50.301 acres and is currently owned by Olowalu Mauka Lot 21 Condo Master/Margaret Kamala Martin Family Trust et al. Topographic maps do not show AR 19, and vegetation largely obscures the structure on aerials. However, it does appear that a structure with a similar plan is in the location of AR 19 on the 1950 aerial. The earliest aerial image available is dated 1949, but the clarity is poor. This suggests that AR 19 was built prior to 1950. The location near a former rail line and size of the water tower suggests an association with the railroad. During the late-19th century, steam locomotives relied on large quantities of water to generate steam power and most railroads constructed water towers along the tracks near stream crossings and in towns (LOC ND). Rail transportation was in use by the sugar industry from the 1880s until 1953, when truck transportation became preferred (Lahaina Restoration Foundation ND).

While attempts to contact the Owner of Record were made prior to and during fieldwork, consent to enter the property was not obtained. As such, all documentation for AR 19 was conducted from the public right-of-way, except for observations made while attempting to contact the Owners of Record.

Table 4.20. Summary of AR 19 (SIHP No. 09143)

Address	North of Olowalu Village Road
TMK	4-8-003:104
County	Maui County
Date of Construction	circa 1945 (mapping) – late-19th century
Square Footage	N/A
Acreage	50.301
Owner	Olowalu Mauka Lot 21 Condo Master/Margaret Kamala Martin Family Trust et al.
Architectural Type/Style	Water tower
Integrity	AR 19 is in fair to good condition. The property retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 19 is not individually eligible due to lack of architectural and historic significance but is eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and C).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.19.1 Building Description

AR 19 is a small metal water tower located just to the north of Olowalu Village Road near an intersection with an unnamed road. The tower rests on tall metal posts (**Figure 4.85**).

4.19.2 Current Condition and Integrity

AR 19 is in fair condition, showing areas of rust. Given these factors, the property still retains its integrity of location, setting, design, material, workmanship, feeling, and association.

4.19.3 Significance Evaluation

AR 19 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance.

Although AR 19 was erected during the sugar plantation period and utilized in association with rail transportation, the structure, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 19 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structure is not individually eligible because it is a common type with no unique elements and is not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history; however, AR 19, as an individual resource, does not have such potential.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 19 is recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under Criteria A and C. Under NRHP Criterion A, the structure is associated with the sugar plantation industry in Olowalu and the Pioneer Mill Company, which had a substantial role in the development of the local community and region. AR 19 was erected and utilized in association with the industry's rail transportation. The sugar industry's influence on the area spanned from the late-19th century to the mid-20th century, when the company relied heavily on rail for transport. Under NRHP Criterion C, this resource is recommended as eligible as a contributing resource based on its association with the Hawai'i's plantation era and the associated architectural developments needed for water containment, as well as rail shipping, transportation, and engineering, which were integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District.

Under NRHP Criterion D, AR 19 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance related to the Pioneer Mill Company and the local sugar plantation industry.

Figure 4.84. Aerial image showing the location of AR 19.

Figure 4.85. Water tower associated with AR 19, facing northeast.

4.20 AR 20 (SIHP No. 09144): Bridge Over Olowalu Stream

AR 20**,** newly recorded as SIHP No.09144, is a steel stringer/multibeam bridge carrying a cane haul road across Olowalu Stream north of Honoapiʻilani Highway, (**Figure 4.21**; **Figure 4.86**). The structure features a wood deck over two steel I-beam spans that are supported by two wingwall abutments and a solid pier. The abutments are made of concrete and are framed by stone and concrete wingwalls. The central concrete pier features a steel beam supporting the superstructure and a stone and concrete foundation. Wire fencing has been fastened to the superstructure across the southern span, resulting in a buildup of debris.

According to the County of Maui tax assessor's database, AR 20 sits on a 42.71-acre parcel comprised of non-linear strips of land across Olowalu and is currently owned by Olowalu Elua Associates LLC. Topographic maps do not depict the structure, but the 1955 Olowalu USGS Topographic map shows the area where the cane haul road intersects Olowalu Stream (**Figure 4.87**). The earliest historic aerial image available for the area (from 1949) illustrates the bridge in its general current alignment. This suggests that AR 20 was built before 1949. The concrete and stone construction of AR 20 is consistent with nearby Olowalu Landing piers and plantation irrigation structures, suggesting it was likely constructed in the early-20th century. The steel beam and superstructure likely replaced original timber elements, but there are no sources to confirm this.

Table 4.21. Summary of AR 20 (SIHP No. 09144)

Address	Over Olowalu Stream (North of Honoapiʻilani Highway)
TMK	4-8-003:108
County	Maui County
Date of Construction	By 1949
Square Footage	NA
Acreage	42.71
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Early-20th century steel stringer/multibeam bridge
Integrity	AR 20 is in fair condition and shows several signs of weathering, deterioration, and neglect. The superstructure and elements of the substructure have likely been replaced, resulting in diminished integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 20 is recommended as not individually eligible due to lack of historic and architectural significance but is eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.20.1 Structure Description

The structure associated with AR 20 is a steel stringer/multibeam bridge with two spans resting on a concrete pier and concrete and stone wingwall abutments that carries a cane haul road across Olowalu Stream (**Figures Figure 4.88** through **Figure 4. 90**). The bridge has a total length of approximately 100 feet and a clear roadway width of approximately 30 feet (**Figure 4.90**). Tax assessor's records, primary sources, and historic aerial images provide no direct evidence of an association between this structure and the local sugar industry or Pioneer Sugar Company. However, the concrete and stone features of AR 20 are consistent with the piers and irrigation structures associated with the Olowalu Sugar Company Mill and Pioneer Mill Company irrigation structures. The 1949 historic aerial is the earliest image available and depicts AR 20 in its current alignment. This suggest that the structure was likely constructed as part of the plantation transportation system and has since been modified with the addition of steel beam elements to the superstructure and substructure.

4.20.2 Current Condition and Integrity

AR 20 is in fair condition. The structure shows several signs of weathering, deterioration, and neglect. The steel superstructure and elements of the substructure have likely replaced original timber elements. While the property retains its integrity of location and setting, given that AR 20 has undergone multiple unsympathetic alterations, as well as degradation, it has lost its integrity of design, material, workmanship, feeling, and association.

4.20.3 Significance Evaluation

AR 20 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of integrity.

Under NRHP Criterion A and SRHP Criterion a, the bridge is associated with the local sugar plantation industry, though AR 20, individually, is not strongly representative of this association. While the resource is related to the local sugar plantation industry and the Pioneer Mill Company, due to the lack of integrity, the resource does not individually embody this association and its historical significance. While the structure does retain its integrity of location and setting, it has lost its integrity of feeling, design, workmanship, materials and association.

Under NRHP Criterion B and SRHP Criterion b, AR 20 is recommended as not individually eligible because no ties or links were found between the structure and people with cultural or historic significance. The structure is recommended as not individually eligible Under NRHP Criterion C and SRHP Criterion c because it has no elements that make it a unique example of its architectural type. The bridge is not the work of an expert builder or craftsperson and is a common type. Furthermore, AR 20 has undergone multiple alterations.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. Although the bridge is likely associated with the local sugar plantation industry, AR 20 does not have the potential to yield additional information regarding local and regional development or other themes of historical significance due to its diminished integrity.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 20 is recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District under Criteria A and D. Under NRHP Criterion A, the structure is associated with the sugar plantation industry in Olowalu and the Pioneer Mill Company, which had a substantial role in the development of the local community and region. The sugar industry's influence on the area spanned from the late-19th century to the mid-20th century. The material of the abutments is consistent with other Pioneer Mill Company land improvements, such as elements of the irrigation system, and the bridge carries a road formerly used to transport cane from the former cane fields.

Under NRHP Criterion C, this resource is recommended as eligible as a contributing resource based on its associated with the Hawai'i's plantation era and the associated architectural developments needed for rail and truck shipping, transportation, and engineering, which were integral to the physical development and land uses of the Olowalu Sugar Plantation Historic District.

Under NRHP Criterion D, AR 20 has the potential to yield additional information regarding local and regional development or other themes of historical significance related to the Pioneer Mill Company and the local sugar plantation industry.

Figure 4.86. Aerial image showing the location of AR 20.

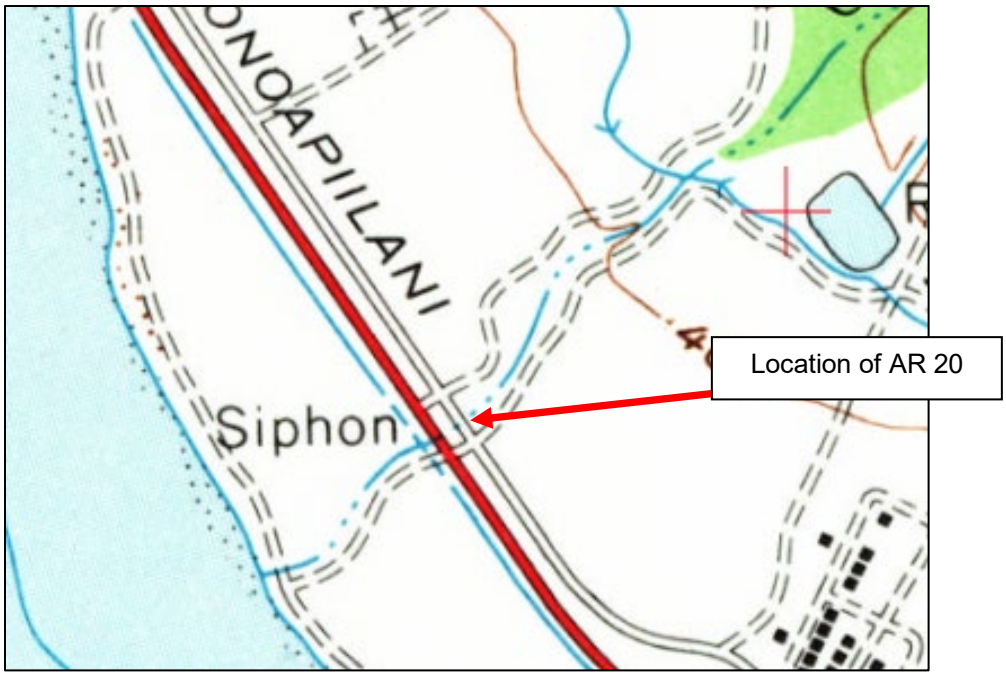


Figure 4.87. Location of AR 20 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.88. Deck and west elevation of AR 20, facing southeast.

Figure 4.89. Detail of AR 20 wood deck boards and plywood repairs, facing southeast.

Figure 4.90. View of AR 20 superstructure and substructure, facing west; note the stream debris and deteriorated pier.

4.21 AR 21 (SIHP No. 09145): Push Piles (North of Mōpua)

AR 21**,** newly recorded as SIHP No.09145, consists of four stone debris piles or push piles spaced along a slight curve, north of residential structures of Mōpua (**Figure 4.22**; **Figure 4.91**). The four elements of AR 21 have been created along a non-linear, east-west path which curves outward to the southwest and measures approximately 0.5 miles from the first to the last pile. From west to east, the first two spaces between the elements measure approximately 850 ft and the third space measures approximately 450 feet.

According to the County of Maui tax assessor's database, AR 21 extends across two parcels of agricultural land totaling 67.8 acres and is currently owned by Olowalu Maka Condo Master. The 1955 Olowalu USGS Topographic map shows the area of AR 21 and illustrates the presence of the four piles as four small areas of elevated land (**Figure 4.92**). The earliest historic aerial image available for the area (from 1949) does not depict AR 21. While the quality of the 1951 historic aerial image is poor, at least two of the piles can be seen (**Figure 4.93**). Along with archival research, these maps suggest that AR 21 was created in 1951.

Table 4.22. Summary of AR 21 (SIHP No. 09145)

Address	North of Mōpua
TMK	4-8-003:100; 105; 107; 118
County	Maui County
Date of Construction	1951
Square Footage	NA
Acreage	67.8
Owner	Olowalu Maka Condo Master
Architectural Type/Style	20th Century Agricultural Field Clearance
Integrity	AR 21 is in good condition and retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 21 is not recommended as individually eligible due to lack of architectural and historic significance. AR 21 is not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.21.1 Structure Description

AR 21 consists of four stone piles spaced along a slight curve in the agricultural fields north of the residential buildings of Mōpua. A bike path has been constructed in the area and weaves through the resource (**Figure 4.94**). The elements of AR 21, numbered 1 through 4 from east to west, are rock push piles that are ovoid in shape, with flattened or slightly sloped surfaces that are flush with the surrounding agricultural landscape along the north elevations. The push piles vary in length and width, with the largest measuring approximately 57,327.42 square feet and the smallest measuring approximately 25,651.67 square feet (**Figure 4.23**; **Figures Figure 4.95** through **Figure 4.99**).

The Pioneer Mill Company purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the Lāhainā-based company's sugar plantation lands, which totaled over 10,000 acres by 1935. At the end of the next decade, Pioneer Mill Company, under the management of John T. Moir Jr., initiated a rock removal program to rehabilitate land for mechanical planting, cultivating, and harvesting. Between 1948 and 1951, the company cleared approximately 3,153 acres, including the fields surrounding AR 21 (Hawaiian Sugar Planters' Association 2004).

Table 4.23. AR 21: Push Piles (North of Mōpua) Approximate Dimensions

No.	Coordinates		Width (ft)	Length (ft)	Area (sq ft)
	X	Y			
1	20.81511	-156.61737	250	283	57,327.42
2	20.81382	-156.61456	148	227	35,878.94
3	20.81252	-156.61205	165	211	40,717.55
4	20.81264	-156.61040	144	193	25,651.67

Though the quality is poor, the 1951 historic aerial image confirms that the lands of the Olowalu Ahupuaʻa were cleared in the final year of this program, which resulted in the creation of AR 21. The Pioneer Mill Company "rehabilitation" of these lands in the post-war period, as well as further development of the expansive irrigation networks, were possibly a response to the Green Revolution, which influenced a dramatic development of agricultural technology in mainland states (Ganzel 2006).

4.21.2 Current Condition and Integrity

AR 21 is in good condition, and all structures have been relatively unchanged since their formation during the Plantation land-clearing events. Based on these observations, the push piles retain their integrity of location, setting, design, material, workmanship, feeling, and association.

4.21.3 Significance Evaluation

AR 21 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance.

Although the push piles were constructed during the sugar plantation period, AR 21, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 21 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structures are not individually eligible because the push piles are not unique structures—features of this type are common in 20th century agricultural landscapes and found throughout the region. Furthermore, the structures are not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history; however, AR 21, as an individual resource, does not have such potential.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 21 is recommended as not a contributing resource to the proposed Olowalu Sugar Plantation Historic District. While the structure is associated with the sugar plantation industry in Olowalu and the Pioneer Mill Company, they do not constitute a substantial role in the development of the local community and region. Moreover, they do not have the potential to yield additional information regarding local and regional development or other themes of historical significance related to the Pioneer Mill Company and the local sugar plantation industry.

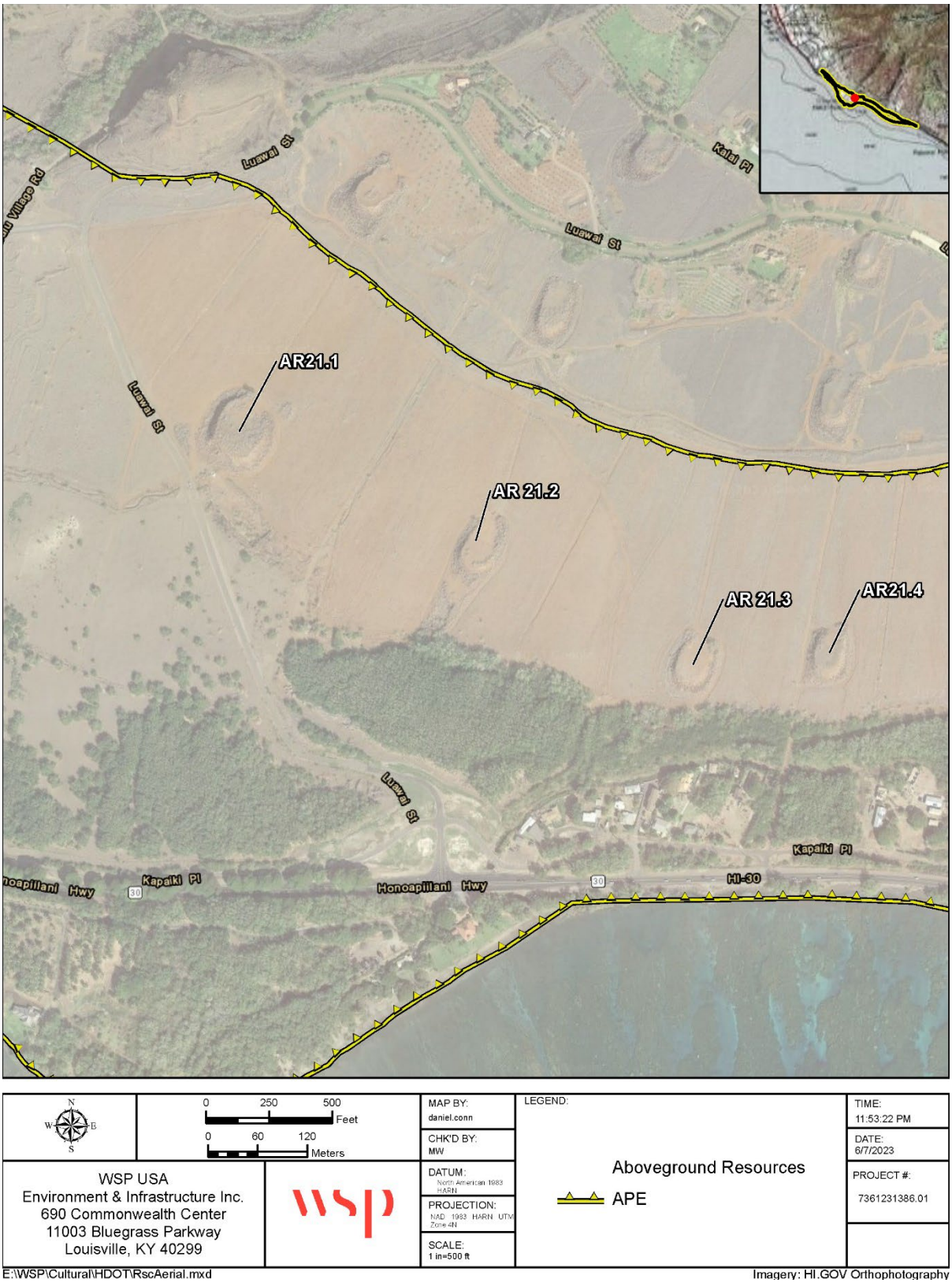


Figure 4.91. Aerial image showing the location of AR 21 (AR 21.1 – 21.4).

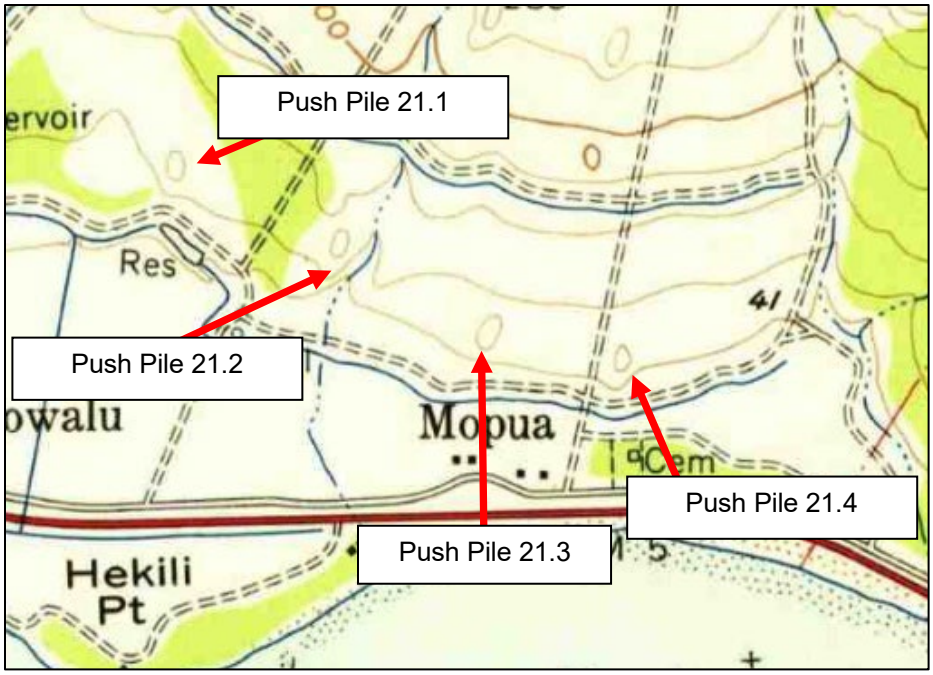


Figure 4.92. AR 21 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.93. Modern aerial image showing the early stages of bike path construction.

Figure 4.94. View of AR 21 (Push Pile 21.2) facing northeast.

Figure 4.95. Detail view of AR 21 (Push Pile 21.2) stone composition, facing west.

Figure 4.96. View of AR 21 (Push Pile 21.3), facing southeast.

Figure 4.97. View of AR 21 (Push Pile 21.3), facing south; note irrigation ditch in the foreground.

Figure 4.98. View of AR 21 (Push Pile 21.4), facing west.

Figure 4.99. View of AR 21 (Push Pile 21.4), facing southeast.

4.22 AR 22 (SIHP No. 09146): Irrigation Ditches (North of Mōpua)

AR 22**,** newly recorded as SIHP No.09146, consists of at least 13 unimproved irrigation ditches in agricultural fields north of the residential structures of Mōpua, (**Figure 4.24**; **Figure 4.100**). The 13 elements of AR 22 are primarily aligned north-south, but the southernmost ditch runs west-east and the easternmost ditch runs northwest-southeast. The spaces between each ditch measure between 200 and 350 feet.

According to the County of Maui tax assessor's database, AR 22 extends across eight parcels of agricultural land and the ditches have been constructed across approximately 106.37 acres. The land occupied by AR 22 is currently owned by at least five different businesses and estates, with Olowalu Mauka Condo Master and Luawai Partners Condo Master owning the most acreage. The 1955 Olowalu USGS Topographic map shows the area of AR 22 and illustrates the presence of minor cane haul roads in the location of AR 22, but the resource is only represented on the map by the southernmost and easternmost ditches (**Figure 4.101**). The earliest available historic aerial image for the area (from 1949) depicts seven of the extant ditches that comprise AR 22 as well as two cane haul roads intersecting the surrounding fields (**Figure 4.101**). The next earliest historic aerial image (from 1950) suggests some changes to field use in the area, but all elements of AR 22 can be seen in a 1960 historic aerial image. These maps, along with archival research, suggest that AR 22 was created in two phases: the first occurred by 1949 and the second between 1950 and 1960.

Table 4.24. Summary of AR 22 (SIHP No. 09146)

Address	North of Mōpua
TMK	4-8-003:098; 099; 100; 105; 106; 107; 118
County	Maui County
Date of Construction	By 1960
Square Footage	NA
Acreage	106.37
Owner	Olowalu Mauka Condo Master and Luawai Partners Condo Master
Architectural Type/Style	20th Century Water Control
Integrity	AR 22 is in poor condition and shows several signs of deterioration, and neglect. The elements of the resource are intersected by modern roads, resulting in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 22 is not individually eligible due to a lack of historic and architectural significance and loss of integrity, and not eligible as a contributing resource to the Olowalu Sugar Plantation Historic District due to a lack of architectural significance and loss of integrity.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.22.1 Structure Description

AR 22 consists of a network of irrigation ditches located in agricultural fields north of the residential structures of Mōpua (**Figures Figure 4.100** and **Figure 4.101**). The features that comprise AR 22 are a series of unimproved irrigation ditches, most displaying linear north-south alignments that appear as slight depressions in the landscape. The ditches vary in length but display a consistent width of approximately 15 ft (**Figures Figure 4.102** through **Figure 4.107**).

The Olowalu Sugar Company owned and managed the fields surrounding AR 22 beginning in the mid-19th century. In 1931, the Pioneer Mill Company of nearby Lāhainā purchased the Olowalu Sugar Company. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company’s sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lahaina since 1883, when the first well was drilled in West Maui for the company. Groundwater and water from the West Maui mountains was drawn through expansive networks of pumps, ditches, flumes, and reservoirs, which the company lined with concrete

and stone to minimize water loss. By the time the company purchased the Olowalu lands, the networks of ditches and reservoirs were fully supplied by electric pumps. In 1936, eight pumping stations were in operation across the company estates. The facility installed along the Olowalu Stream was an Allis-Chalmers pump powered by a 112-kilowat motor and had a capacity of 5 million gallons per day (Hibbard 2009). Between 1948 and 1951, the company cleared approximately 3,153 acres, including the fields surrounding AR 22 (Hawaiian Sugar Planters' Association 2004). The Pioneer Mill Company "rehabilitation" of these lands in the post-war period, and the further development of irrigation networks, were possibly a response to the Green Revolution, which influenced a dramatic development of agricultural technology in mainland states (Ganzel 2006).

4.22.2 Current Condition and Integrity

AR 22 is in poor condition. The ditches display signs of neglect and deterioration and are barely perceptible in the landscape. During field inspection, LiDAR was necessary to confirm the presence of AR 22, and the ditches have been intersected by modern roadways and a bike path. Given these factors, AR 22 is not a strong representation of this association due to its poor condition, which has resulted in a loss of integrity of design, materials, workmanship, setting, and feeling.

4.22.3 Significance Evaluation

AR 22 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to its loss of integrity and lack of architectural and historic significance. The site is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the 20th century. Thus, Under NRHP Criterion A and SRHP Criterion a, the site is recommended as not individually eligible.

Under NRHP Criterion B and SRHP Criterion b, AR 22 is recommended as not individually eligible because no ties or links were found between the structures and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structures are not individually eligible because features of this type are common in 20th century agricultural landscapes and found throughout the region.

Under NRHP Criterion D and SRHP Criterion d, AR 22 not individually eligible because it does not have the potential to yield additional information regarding local and regional development or other themes of historical significance.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 22 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a loss of integrity and lack of architectural and historical significance. Although the structures are associated with the sugar plantation industry and were constructed during the period of significance, AR 22 is in poor condition with a loss of integrity of design, materials, workmanship, setting, and feeling. Furthermore, the irrigation ditches are common features found in agricultural landscapes across the region. As such, AR 22 does not embody the historical significance of the proposed historic district.

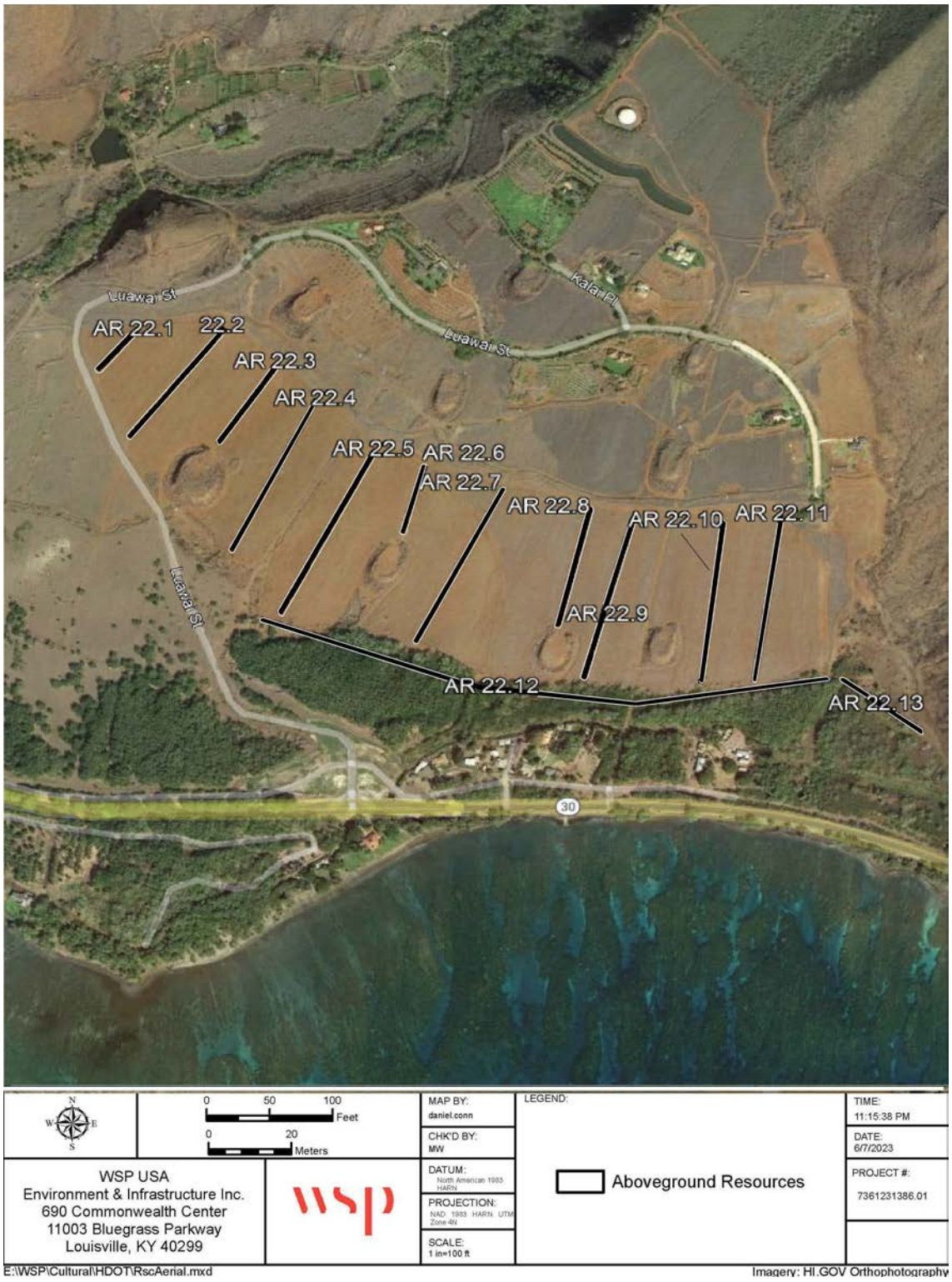


Figure 4.100. Aerial image showing the location of AR 22.

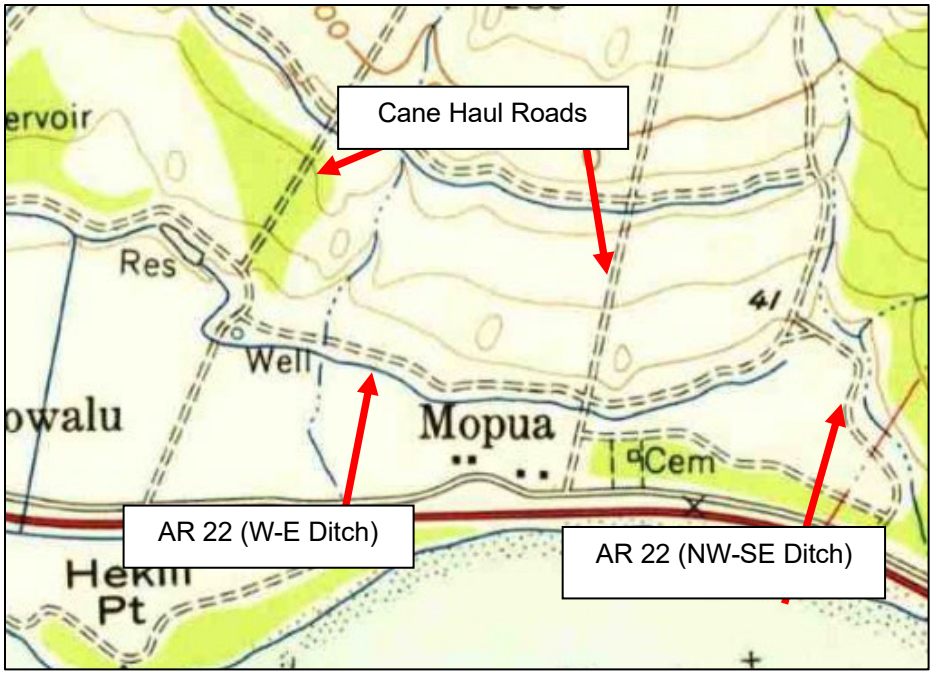


Figure 4.101. Location of portions of AR 22 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.102. View of defined north-south aligned ditch, facing north.

Figure 4.103. View of typical north-south aligned ditch, facing south.

Figure 4.104. View of typical north-south aligned ditch, facing south.

Figure 4.105. Example of heavily eroded/disturbed ditch, facing north.

Figure 4.106. View of southernmost ditch, facing west.

Figure 4.107. View of easternmost ditch, facing northeast.

4.23 AR 23 (SIHP No. 09147): Cane Haul Roads (Southwest of Mōpua)

AR 23**,** newly recorded as SIHP No.09147, consists of an abandoned segment of unimproved cane haul roads, located in a forested area mauka of Hawai'i State Highway 30 (**Figure 4.25**; **Figure 4.108**). AR 23 is aligned northeast-southwest and, according to the County of Maui tax assessor's database, extends across a parcel of agricultural land encompassing approximately 28 acres. The Olowalu Mauka Lot 20 Condo Master currently owns the land occupied by AR 23. The 1955 Olowalu USGS Topographic map shows the area of AR 23 and illustrates the presence of this resource along with other cane haul routes that are no longer extant (**Figure 4.109**).

The earliest historic aerial image available for the area (from 1949) depicts the three extant cane haul roads visible in current aerials along with several additional cane haul roads that are no longer extant due to modern development. The earliest cane haul routes appear on the 1923 USGS Maalaea Quadrangle map, but the majority are not depicted, including AR 23 (**Figure 4.110**). The 1939 Pioneer Mill Company field map depicting the Olowalu Plantation Division shows AR 23. These maps suggest that existing roadways were integrated into a larger system of cane hauls roads under the Pioneer Mill Company following the purchase of the Olowalu Sugar Company holdings in 1931.

Table 4.25. Summary of AR 23 (SIHP No. 09147)

Address	Southwest of Mōpua
TMK	4-8-003:103
County	Maui County
Date of Construction	By 1939
Square Footage	NA
Acreage	Approximately 28
Owner	Olowalu Mauka Lot 20 Condo Master
Architectural Type/Style	20th Century Plantation Agriculture
Integrity	AR 23 is in fair to poor condition and several elements of the resource have been intersected by modern roads, resulting in diminished integrity of design, setting, material, workmanship, feeling, and association; however, some segments remain intact and largely undisturbed.
NRHP Significance Evaluation	AR 23 is recommended as not individually eligible due to a lack of historic and architectural significance. It is also not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District (Criterion A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.23.1 Structure Description

AR 23 consists of an abandoned segment of unimproved cane haul road in a forested area mauka of Hawai'i State Highway 30 that displays a linear north-south alignment and appears as one of several slight depressions in the landscape. Historic maps illustrate the network with a roughly gridded pattern (**Figure 4.111**). The Olowalu Sugar Company owned and managed the fields surrounding AR 23 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lahaina purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935.

Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving fields and irrigation systems across their holdings in the dry climate of Lahaina since 1883, when the first well was drilled in West Maui for the company (Maly & Maly 2007). Between 1948 and 1951, the company cleared approximately 3,153 acres, including the fields surrounding AR 23 in order to improve the rocky soil (Hawaiian Sugar Planters' Association 2004). AR 23 is one feature in the larger network of plantation agriculture and field improvement structures remaining from the modification of the Olowalu landscape by the Pioneer Mill Company during the 20th century.

4.23.2 Current Condition and Integrity

AR 23 is in fair condition, abandoned, and showing signs of deterioration. Many of the original segments of the cane haul network are no longer extant and have been intersected or replaced by modern roadways. While the property retains its integrity of location, setting, feeling, and association, it is not individually eligible because it has lost its integrity of design, material, workmanship.

4.23.3 Significance Evaluation

AR 23 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of integrity. Although AR 23 was constructed during the sugar plantation period, the segment of cane haul roads, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 23 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, AR 23 is not individually eligible because it is a common feature found in agricultural settings throughout the region and is not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 23 does not have such potential as an individual resource.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 23 is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District. Due to an extreme loss of integrity, the resource no longer represents an associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the 20th century.

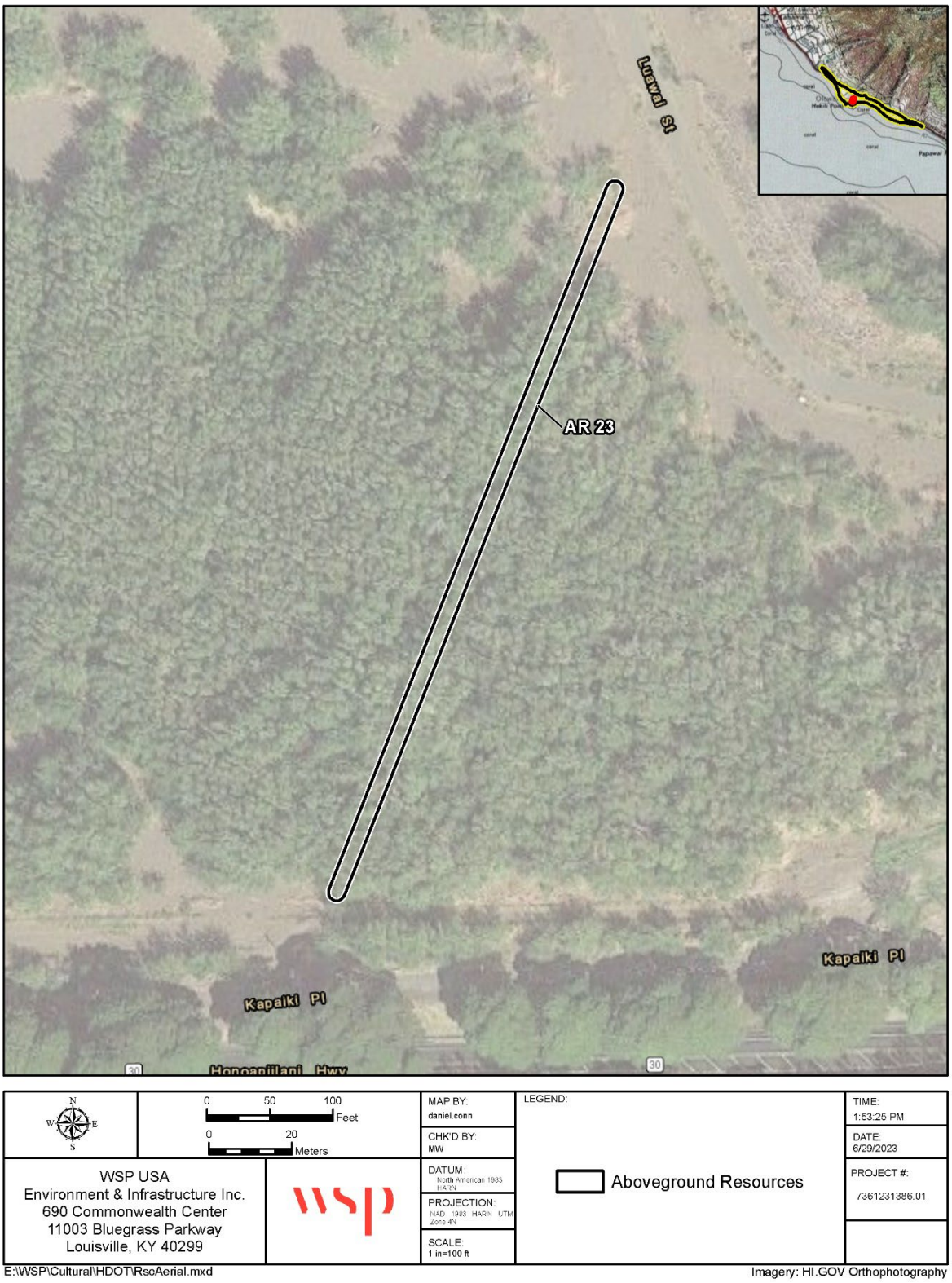


Figure 4.108. Aerial image showing the location of AR 23.

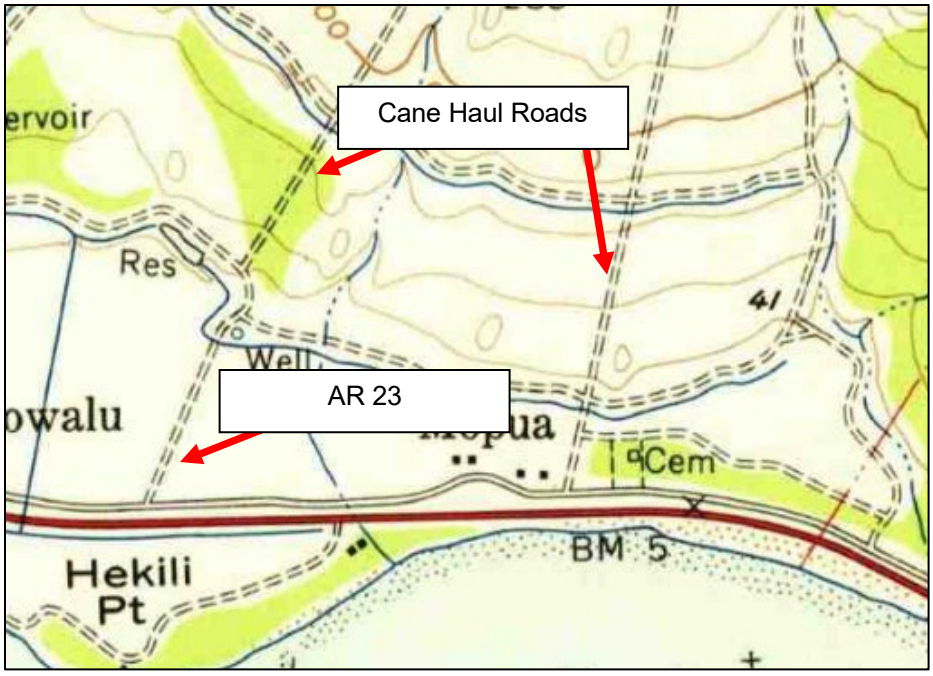


Figure 4.109. Location of AR 23 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

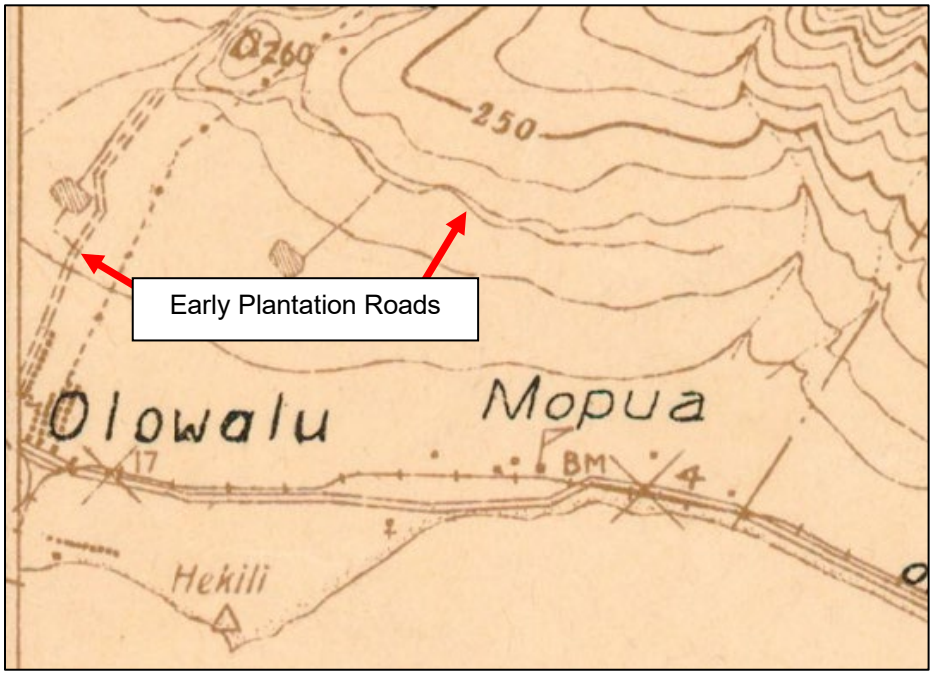


Figure 4.110. Location of AR 23 on the 1923 USGS Maalaea Quadrangle map.

Figure 4.111. View of an unused cane haul road located southwest of Luawai Street, facing south.

4.24 AR 24 (SIHP No. 09148): Irrigation Flume (East of Mōpua)

Located between Olowalu and Ukumehame, AR 24**,** newly recorded as SIHP No.09148, is a large irrigation structure faced with coral and boulders that carries the non-perennial Kaʻiliʻili Stream to the Pacific Ocean (**Figure 4.26**; **Figure 4.112**). AR 24 is roughly aligned northwest-southeast, but approximately 0.35 miles from the shoreline, the orientation becomes southwest-northeast.

According to the County of Maui tax assessor's database, AR 24 is located on a non-taxable parcel extending nearly 400 acres. The land occupied by AR 24 is currently owned by the state of Hawaiʻi.

A 1955 Olowalu USGS topographic map shows a section of the Kaʻiliʻili Stream in the current general alignment of AR 24 (**Figure 4.113**). The earliest available historic aerial image for the area (from 1949) depicts AR 24 in its current alignment but gives no indication that the flume is maintained or in use at that time. AR 24 does not appear on the available maps of Olowalu Sugar Company Plantation lands in 1881 or 1906; however, a trail is shown in the general location of the resource in a USGS geologic and topographic map of the Island of Maui (**Figures 4.114** through **4.116**). A 1939 Pioneer Mill Company field map depicting the Olowalu Plantation Division illustrates ditches and roads in the area west of Ukumehame, but none align with AR 24. These maps, along with archival research, suggest that AR 24 was not created or modified by the Pioneer Mill Company as part of the plantation irrigation network at Olowalu or nearby Ukumehame.

Table 4.26. Summary of AR 24 (SIHP No. 09148)

Address	Olowalu/Ukumehame Boundary
TMK	4-8-002:008
County	Maui County
Date of Construction	19th Century
Square Footage	NA
Acreage	399.90
Owner	State of Hawaiʻi
Architectural Type/Style	19th Century Water Control
Integrity	AR 24 is in is in fair to poor condition. The flume displays signs of deterioration and fire damage resulting in loss of integrity of design, setting, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 24 is recommended as not individually eligible due to a lack of historic and architectural significance and loss of integrity and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a loss of integrity and lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.24.1 Structure Description

AR 24 is a large irrigation flume that was constructed of locally obtained coral and stone cobbles. The flume was used to help direct intermittent waters of Kaʻiliʻili Stream to the Pacific Ocean (**Figures Figure 4.113** and **Figure 4.116**). AR 24 is roughly aligned northwest-southeast, but approximately 0.35 miles from the shoreline, the orientation becomes southwest-northeast. Due to recent wildfires in the area, segments of the resource vary in visual condition.

The Olowalu Sugar Company owned and managed the fields surrounding AR 24 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lahaina purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lāhainā since 1883, when the first well was drilled in West Maui for the company.

The material construction of AR 24 is more akin to the nearby Protestant missionary church (SIHP No. 1603), which was constructed out of a combination of coral and stone by the native Hawaiian residents of Olowalu in the 1860s (Olowalu Lanakila Hawaiian Church 2019; Lee-Greig and Hammatt 2012).

Additionally, a 1939 Pioneer Mill Company field map depicting the Olowalu Plantation Division does not include AR 24 as a segment of the cane field irrigation system at Ukumehame, which featured at least one well (No. 4835-01) by 1934 (Hawai'i Commission on Water Resource Management 2018).

Furthermore, documentation of contemporary Pioneer Mill Company irrigation flumes suggest that structures of this type were semi-circular in shape and constructed of metal, elevated aboveground by cross-braced wood members (Stiber 2002). This suggests that AR 24 may be related to water control activity conducted before the establishment of the Olowalu Sugar Company or the incorporation of Olowalu fields into Pioneer Mill Company holdings and is possibly an element of a traditional 'auwai network or related to mid-19th century Protestant Missionary activity in the area. However, neither of these connections could be established for AR 24 or any nearby structures of similar character.

4.24.2 Current Condition and Integrity

AR 24 is in fair to poor condition. The flume displays signs of deterioration and fire damage and is overgrown by vegetation. Furthermore, AR 24 has undergone alterations. While the property still retains its integrity of location and setting, it no longer retains its integrity of design, material, workmanship, feeling, and association.

4.24.3 Significance Evaluation

AR 24 is recommended as not individually eligible for listing in the NRHP and is not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Under NRHP Criterion A and SRHP Criterion a, AR 24 is recommended as not individually eligible because no association was found to any historic events or patterns of events that have impacted the region, state, or nation.

Under NRHP Criterion B and SRHP Criterion b, AR 24 is recommended as not individually eligible because no ties or links were found between the structure and people with cultural or historic significance.

The structure is recommended as not individually eligible under NRHP Criterion C and SRHP Criterion c because it has no elements that make it a unique example of its architectural form. The resource is not the work of an expert builder or craftsperson and is a common traditional water control feature seen throughout the region.

Under NRHP Criterion D and SRHP Criterion d, AR 24 does not hold the potential to yield additional information regarding local and regional development or other themes of historical significance.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 24 is recommended as a non-contributing resource to the proposed Olowalu Sugar Plantation Historic District due to loss of integrity and a lack of association. The flume is located outside the boundary recommended for the historic district, which is based on the historic archival record. Historic mapping and archival research suggest the resource was not created or modified by the Pioneer Mill Company as part of their plantation irrigation network at Olowalu.

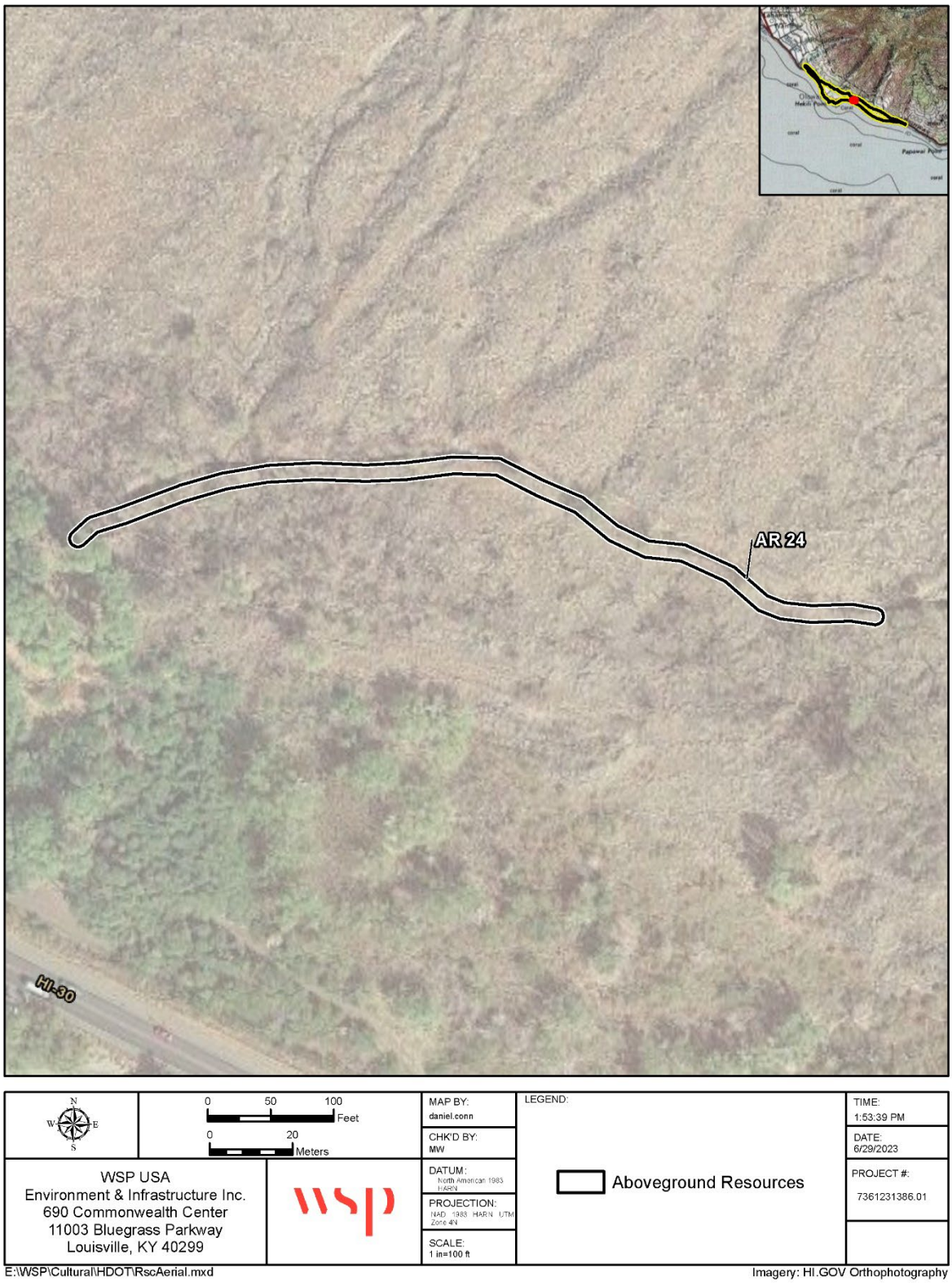


Figure 4.112. Aerial image showing the location of AR 24.

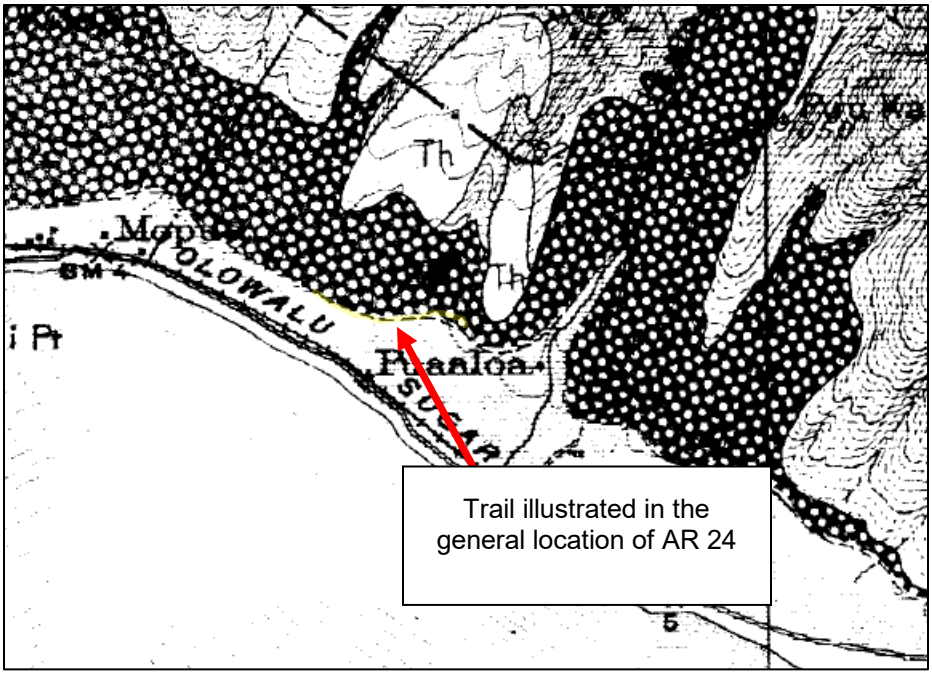


Figure 4.113. View of general location of AR 24 on the 1942 USGS geological map of Maui.

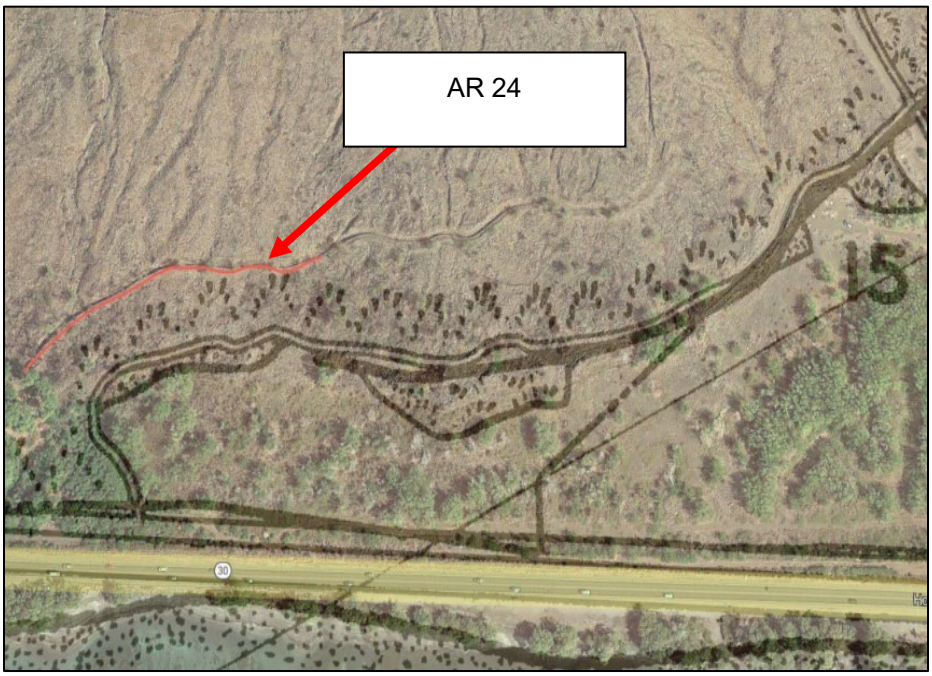


Figure 4.114. AR 24 shown on modern aerial overlain with 1939 Pioneer Mill Company Plantation map; note the absence of the feature on the Plantation map.

Figure 4.115. View of fire damage along flume floor.

Figure 4.116. View of the south extent of AR 24, facing west; note the stone and coral construction.

4.25 AR 25 (SIHP No. 09149) and AR 26 (SIHP No. 09150): Freight Corridor (Kuahulu Place and Beach Access Road)

AR 25 and AR 26, newly recorded as SIHP No.09140 and SIHP No.09150 respectively, consist of two asphalt and concrete thoroughfares makai of Honoapiʻilani Highway (**Figures Figure 4.117** and **Figure 4.118**). AR 25 and AR 26 are primarily aligned west-east and follow the alignments of former rail lines constructed by the Olowalu Sugar Company in the 19th century. Both roads run parallel to Honoapiʻilani Highway. AR 25 extends to the west, and AR 26 extends to the east with a change in alignment (northeast-southwest) approximately 0.5 miles along its length (**Tables Figure 4.27** and **Table 4.28**). These aboveground resources are discussed as a pair due to their shared characteristics, historical treatment and function, and the distinction between the routes as displayed on current and historical maps of the area.

According to the County of Maui tax assessor's database, AR 25 is located on a 10.561-acre plot owned by Olowalu Elua Associates LLC, along with three historic residential structures (AR 5, AR 6, and AR 7). AR 26 is located on a 28.894-acre plot owned by Olowalu Elua Associates LLC, along with a historic residential structure and several outbuildings (AR 4). The 1881 Monsarrat map of the Olowalu Sugar Plantation shows the area of AR 25 and AR 26 and illustrates the presence of rail lines in the general current alignment of Kuahulu Place, which extends farther west, and the Beach Access Road, as well as additional lines north of Honoapiʻilani Highway (**Figure 4.118**).

The earliest historic aerial image available for the area (from 1949) depicts the railroad tracks along the length of both AR 25 and AR 26—though large segments are obscured from view by nearby monkeypod trees, and these routes are paved in the 1960 historic aerial (**Figure 4.119**). These maps and archival research suggest that the former rail lines and freight corridor were established under the Olowalu Sugar Company circa 1880 and utilized by the Pioneer Mill Company—following the purchase of the Olowalu Sugar Company holdings in 1931—until the early 1950s, when they were removed and paved over (Hawaiian Sugar Planters' Association 2004).

Table 4.27. Summary of AR 25 (SIHP No. 09149)

Address	makai of Honoapiʻilani Highway, extending west from the original Sugar Mill site (SIHP No. 1602)
TMK	4-8-003:005
County	Maui County
Date of Construction	circa 1880 (corridor); circa 1950 (roadway)
Square Footage	NA
Acreage	10.561
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	19th – 20th Century Freight Transportation
Integrity	AR 25 is in good condition but no longer retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 25 is recommended as not individually eligible due to a lack of historic and architectural significance and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

Table 4.28. Summary of AR 26 (SIHP No. 09150)

Address	makai of Honoapiʻilani Highway, extending east from the original Sugar Mill site (SIHP No. 1602)
TMK	4-8-003:084
County	Maui County
Date of Construction	circa 1880 (corridor); circa 1950 (roadway)
Square Footage	NA
Acreage	28.894
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	19th – 20th Century Freight Transportation
Integrity	AR 26 is in good condition and retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 26 is recommended as not individually eligible due to a lack of historic and architectural significance and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.25.1 Structure Description

AR 25 and AR 26 consist of two paved roadways and associated transportation corridors (**Figures Figure 4.120** and **Figure 4.121**). AR 25 and AR 26 are primarily aligned west-east and follow the alignments of former rail lines constructed by the Olowalu Sugar Company in the 19th century. Both roads run parallel to Honoapiʻilani Highway, with AR 25 extending to the west, and AR 26 extending to the east. AR 26 changes alignment approximately 0.5 miles along its length to a northeast-southwest orientation. AR 26 is a secondary road known as Kuahulu Place. Secondary routes are approximately 10 to 15 feet wide with gravel, hard-packed earth, or asphalt surfaces. These routes extend from and parallel to Honoapiʻilani Highway to provide access to access roads, residences, and the few commercial buildings in the area.

AR 25 extends approximately 0.28 miles west from its intersection with AR 26, the access road to the Plantation Manager residences (AR 4 through AR 7), and Honoapiʻilani Highway (parallel to the makai lane of the highway). It is framed on either side by monkeypod trees, the highway, and agricultural land, and terminates at the driveway for a modern residential building. Segments of the roadway that are visible from the highway suggest a surface of concrete or stone pavers.

AR 26 is an improved interior beach access road that extends west from its intersection with Kuahulu Place, parallel to Honoapiʻilani Highway for approximately 0.5 miles, and then loops back southeastward for approximately 0.25 miles—terminating alongside an earthen area southeast of the Camp Olowalu campground. For most of the total length, the access road is paved with asphalt and maintains an approximate width of 15 feet. Beyond the Camp Olowalu campgrounds, the surface of the road transitions to packed dirt and reduces in width to 10 feet.

Historic maps, such as the 1881 Olowalu Sugar Plantation Map, show that roads existed prior to the Period of Significance for this project area. But many of the circulation routes in the area were replaced, modified, or abandoned by the Pioneer Mill Company, and thus differentially reflect that association. The Olowalu Sugar Company owned and managed the fields surrounding AR 23 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lāhainā purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935 (Maly & Maly 2007).

A November 1881 area map depicts rail lines in the general alignments of AR 25 and AR 26 as elements of the Olowalu Sugar Plantation (**Figure 4.119**). The 1919 Sanborn Fire Insurance Map of the mill at Olowalu illustrates the extent and complexity of the railroad system that the Olowalu Sugar Company Mill relied upon to process and transport sugar cane (**Figure 4.119**). In 1950, the rail lines in the locations of AR 25 and AR 26 were removed and paved over by the Pioneer Mill Company in response to vehicular freight networks beating out railways as the most cost-effective means of transporting sugar cane. The

roadway as it exists today embodies this association and represents transportation changes within the local sugar industry.

4.25.2 Current Condition and Integrity

AR 25 and AR 26 are in fair condition. AR 25 was partially obscured from the public right-of-way and AR 26 varies in character along its length, suggesting that segments have been heavily modified. As a result, the roadways display a considerable diminish of integrity of material and workmanship, and the alignment and quality of the Historic Freight Corridor no longer maintains its overall integrity of location, setting, design, feeling, and association.

4.25.3 Significance Evaluation

AR 25 and AR 26 are recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance. Although the resources were constructed and utilized during the sugar plantation period, as individual resources they do not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 25 and AR 26 are recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the resources are not individually eligible because they are common features found throughout the region and are not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 25 and AR 26 are recommended as not individually eligible because they do not have potential to contribute important information to our understanding of history.

Under SRHP Criterion e, the properties are recommended as not individually eligible because no ties or links were found between the resources and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 25 and AR 26 are not recommended as eligible for listing as contributing resources to the Olowalu Sugar Plantation Historic District. While the resources may have been originally associated with the local sugar plantation industry and the Pioneer Mill Company, the continued development of Olowalu from the mid-19th century to the 20th century have negatively affected the integrity of the resources. As a result, the association of AR 25 and AR 26 to the Plantation era is no longer readily identifiable.

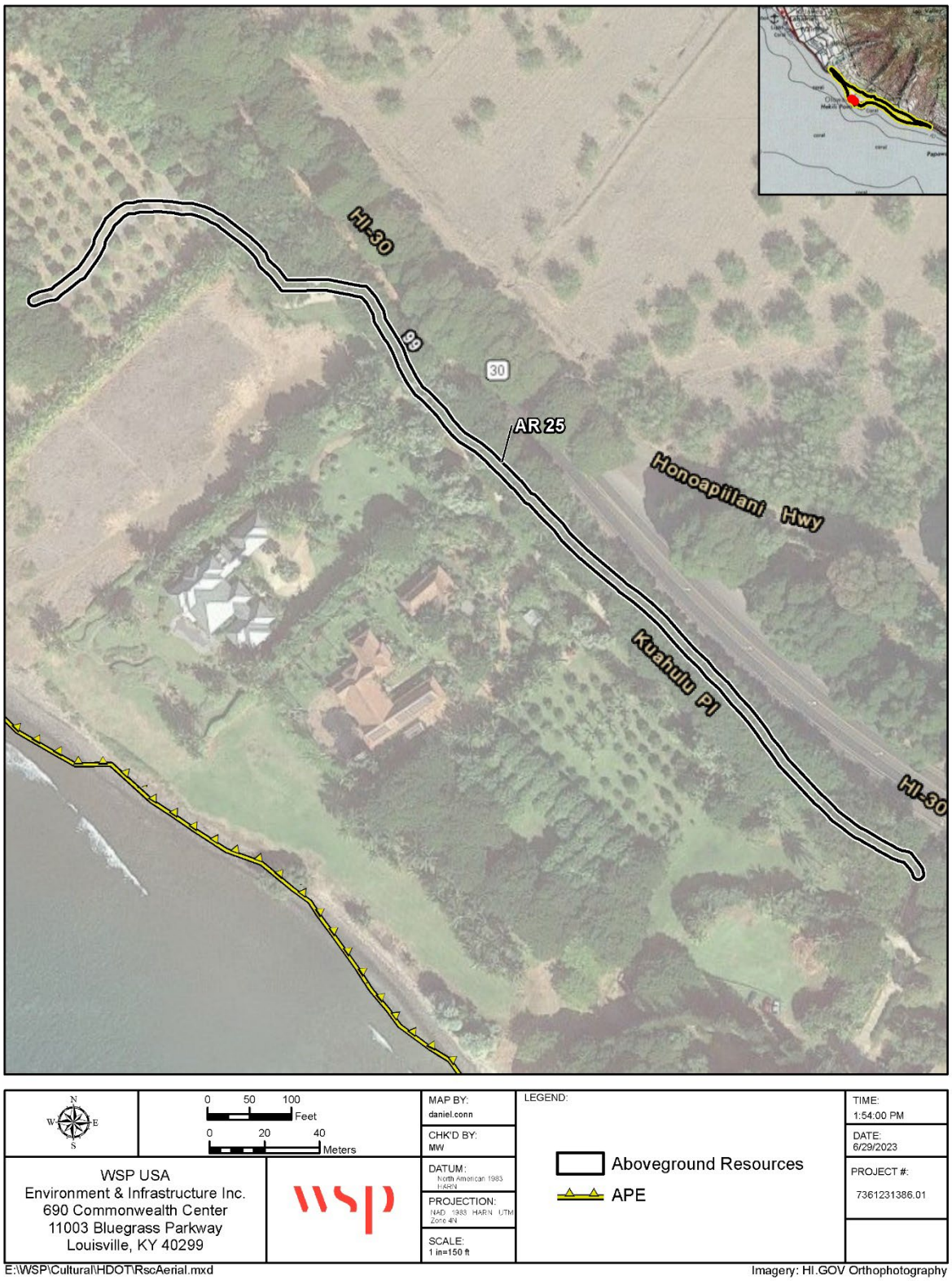


Figure 4.117. Aerial image showing the location of AR 25.

Figure 4.118. Aerial image showing the location of AR 26.

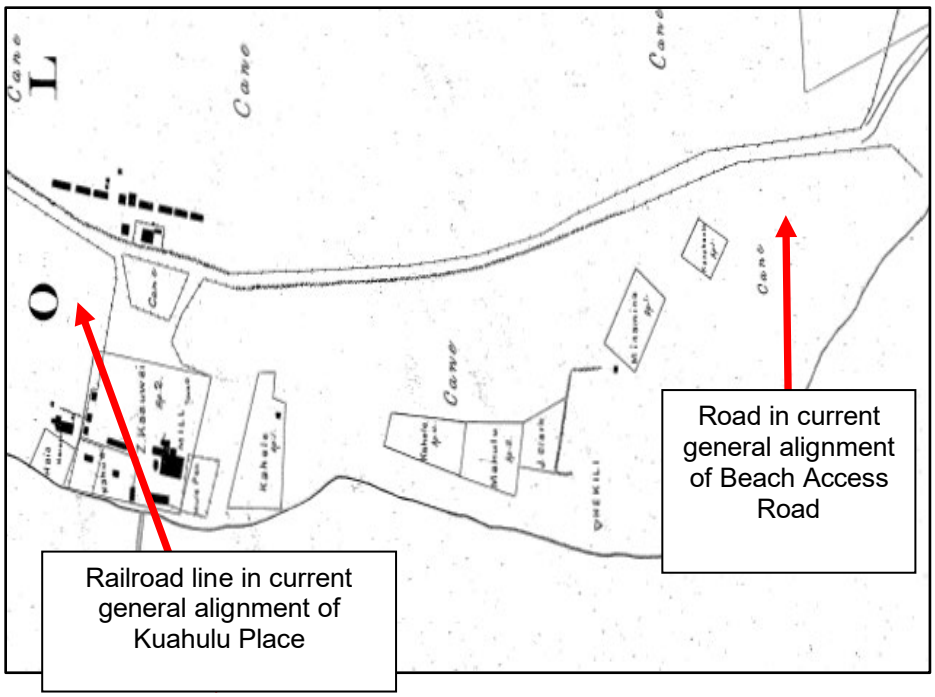


Figure 4.119. Historic Freight Corridor and rail lines shown on the 1881 Monserrat map of the Olowalu Sugar Plantation.

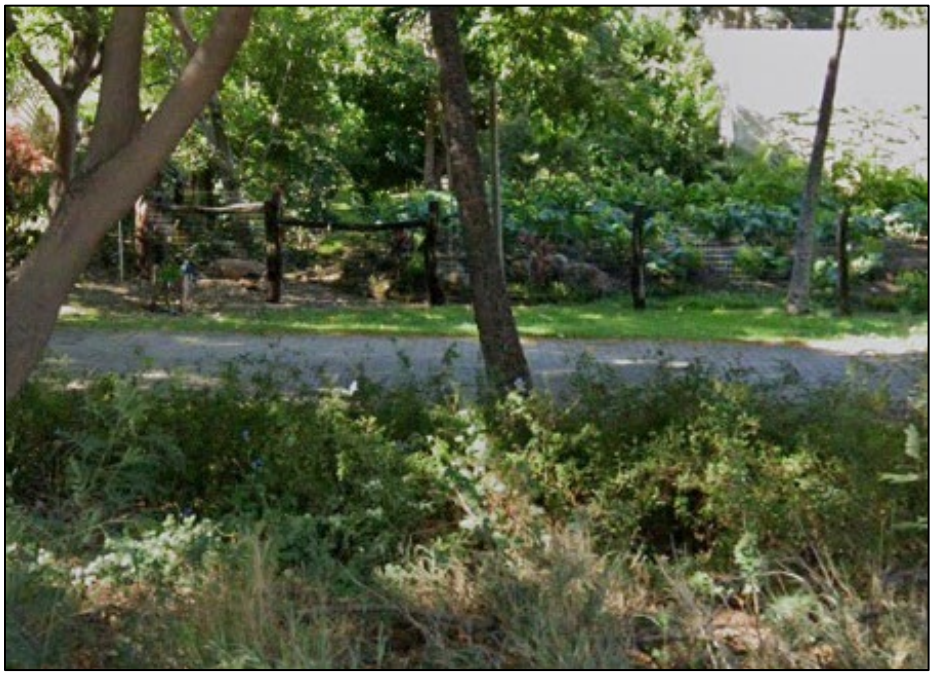


Figure 4.120. View of a segment of AR 25 from Honoapi‘ilani Highway, facing south.

Figure 4.121. View of a portion of AR 26, facing east.

4.26 AR 27 (SIHP No. 04695): Retaining Wall

AR 27 consists of one retaining wall segment located makai of Honoapiʻilani Highway and west of much of Olowalu (**Table 4.29**; **Figure 4.122**). The structure is bounded by wooded areas to the north and south, Honoapiʻilani Highway to the east, and the Hawaiian Islands Humpback Whale National Marine Sanctuary to the west. AR 27 is accessed by an unimproved pull-off area along the eastbound lane of Honoapiʻilani Highway.

According to the County of Maui tax assessor's database, AR 27 sits on 13.802 acres, is currently owned by the State of Hawaiʻi, and has an address of 11777 Honoapiʻilani Highway. Topographic maps do not depict AR 27 (**Figure 4.123**). A 1950 historic aerial image shows a field roughly bounded by a cane haul road in the general location of AR 27 but does not clearly depict the resource (**Figure 4.124**). The tax assessor's database does not list a construction date for the structure, but a 1906 map of Olowalu illustrates a cane haul road in the area. This suggests that AR 27 was constructed by 1906 alongside an access or cane haul road that is no longer extant. These maps and archival research indicate that AR 27 was associated with the Olowalu Sugar Plantation industry and likely served to control erosion along a cane haul road in the plantation fields running parallel to the shoreline.

Table 4.29. Summary of AR 27 (SIHP No. 04695)

Address	11777 Honoapiʻilani Highway
TMK	4-8-003:006
County	Maui County
Date of Construction	circa 1906
Square Footage	NA
Acreage	13.802
Owner	State of Hawaiʻi
Architectural Type/Style	Sugar Plantation Erosion Control
Integrity	AR 27 is in fair condition but shows signs of disuse and disrepair resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 27 AR 25 is recommended as not individually eligible due to a lack of historic and architectural significance and not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.26.1 Structure Description

AR 27 is a retaining wall segment constructed of locally sourced stone and concrete mortar that measures approximately 10 by 4.5 by 1.1 meters (**Figure 4.122 – 4.125**). However, the dimensions of the rock wall vary along its entire length. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

4.26.2 Current Condition and Integrity

AR 27 is in fair condition but shows signs of disuse and disrepair, such as overgrowth of vegetation and missing or loose rocks. While the property retains its integrity of location, setting, feeling, and association, AR 27 is not individually eligible because it has deteriorated in multiple ways and lost its integrity of design, material, workmanship. Despite alterations to AR 27 that have resulted in loss of physical integrity, contributing resources have a lower threshold of integrity than individually eligible properties must have. Therefore, the retained integrity of location, setting, feeling, and association of AR 27 still allows it to reflect the historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.26.3 Significance Evaluation

AR 27 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Although AR 27 was constructed and utilized during the sugar plantation period, as an individual resource, it does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 27 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because it has no elements that make it a unique example of its architectural style or form. The retaining wall is not the work of an expert builder or craftsperson and is a common architectural type found across the region. In addition, AR 27 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under NRHP Criterion D and SRHP Criterion d, AR 27 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 27 is not recommended as eligible for listing as a contributing resource to the Olowalu Sugar Plantation Historic District. While the resource may have been originally associated with the local sugar plantation industry and the Pioneer Mill Company, the continued deterioration of the wall from the mid-19th century to the 20th century has negatively affected the integrity of the resource. As a result, the association of AR 27 to the Plantation era is no longer readily identifiable.

Figure 4.122. Aerial image showing the location of AR 27 (SIHP No. 04695).

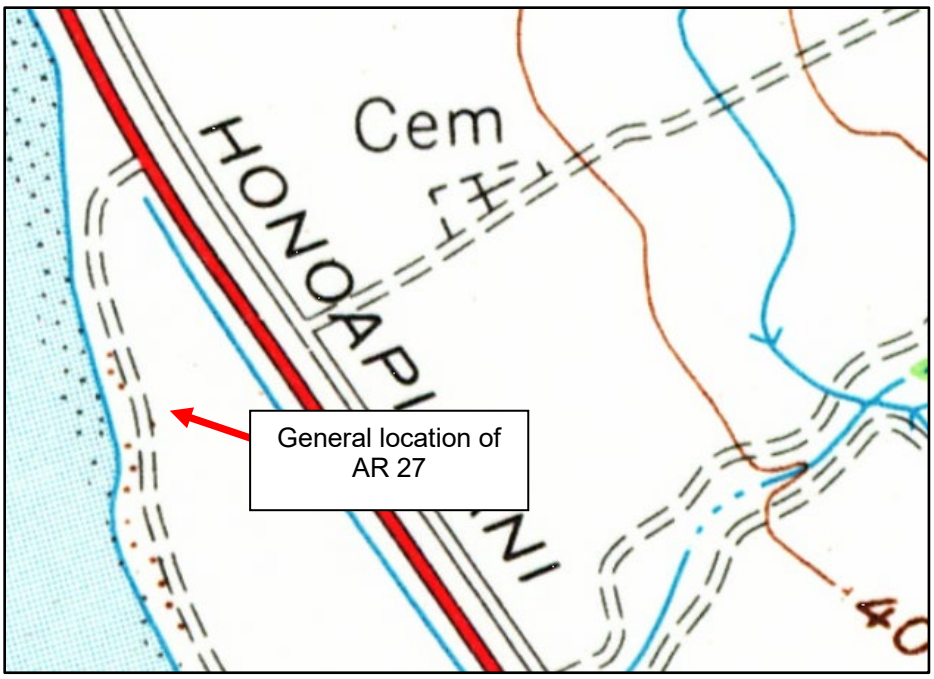


Figure 4.123. Roadway illustrated in vicinity of AR 27 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

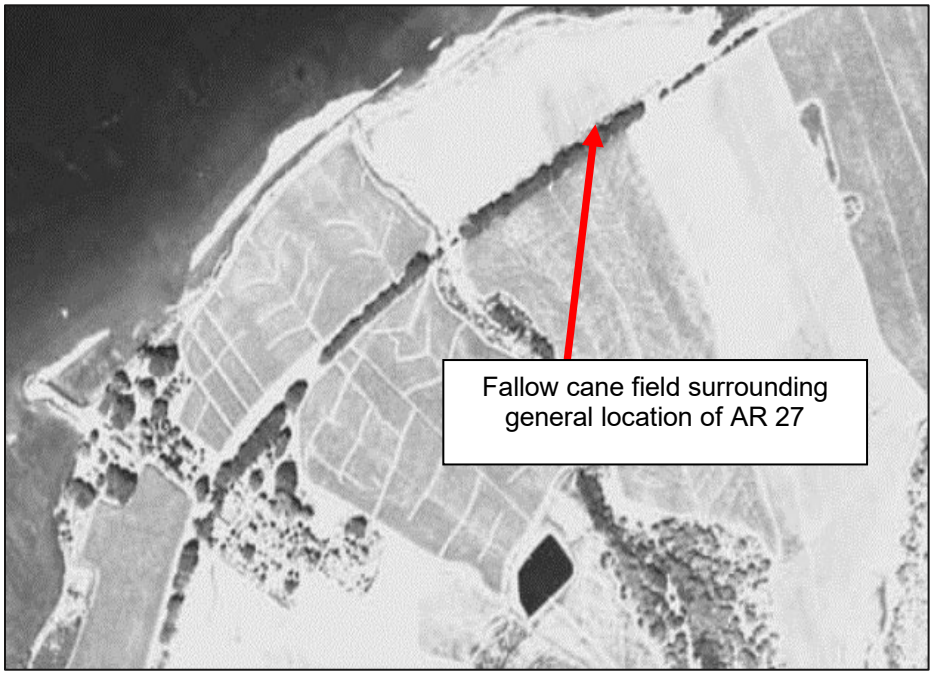


Figure 4.124. 1949 historic aerial image of the general location of AR 27.

Figure 4.125. Image of the character and condition of the exceedingly common Plantation era concrete and stone infrastructure found in the region.

4.27 AR 28 (SIHP No. 04717): Rock Wall

AR 28 consists of five common rock wall segments located south of Olowalu Stream and 0.16 miles northeast of AR 9 (**Figure 4.30**; **Figure 4.126**). The structure is bounded by Olowalu Stream to the north and west, residential properties to the east, and fallow sugar cane fields to the south. AR 28 is accessed by an unimproved access road extending west from the nearby residential structures.

According to the County of Maui tax assessor's database, AR 28 sits on a parcel encompassing 81.045 acres, is currently owned by Olowalu Elua Associates LLC, and has an address of 814 Honoapiʻilani Highway. Topographic maps do not depict AR 28, but the 1955 USGS Olowalu topographic map illustrates a narrow strip of land, between an irrigation ditch and Olowalu stream, in the general location of AR 28 (**Figure 4.127**). A 1950 historic aerial image shows Olowalu Stream, a ditch, and a cane haul road in the general location of AR 28 but does not clearly depict the resource (**Figure 4.128**).

The tax assessor's database does not list a construction date for the structure, and a 1906 map of Olowalu illustrates two roadways, two structures, and a rail line amidst cane fields. This suggests that AR 28 was constructed as early as 1906 alongside an access road or rail line that is no longer extant. These maps and archival research indicate that AR 28 was associated with the Olowalu Sugar Plantation industry and likely served to demarcate boundaries in the plantation fields east of the Olowalu Stream.

Table 4.30. Summary of AR 28 (SIHP No. 04717)

Address	Olowalu (south of Olowalu Stream)
TMK	4-8-003:108
County	Maui County
Date of Construction	circa 1906
Square Footage	NA
Acreage	13.802
Owner	Olowalu Elua Associates LLC
Architectural Type/Style	Sugar Plantation Erosion Control
Integrity	AR 28 is in fair condition but shows signs of disuse and neglect resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 28 is recommended as not individually eligible due to a lack of historic and architectural significance and loss of integrity but is recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District (Criterion A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.27.1 Structure Description

AR 28 is a series of five rock wall segments constructed of stone and concrete mortar (**Figure 4.129**). The measurements of each segment vary, but all elements run alongside the northeast-southwest orientation of the Olowalu Stream (**Table 5.31**). AR 28 is covered in vegetation overgrowth and is characterized as remnant elements of a single, previously maintained element. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

Table 4.31. AR 28 (SIHP No. 04717): Rock Wall Segment Dimensions

No.	Height (m)	Length (m)	Width (m)
A	2.6	15	4
B	2.9	25	2.5
C	0.9	20	2.7
D	1.3	51	3.3
E	1.8	12	—

4.27.2 Current Condition and Integrity

AR 28 is in fair condition but shows signs of disuse and disrepair, such as overgrowth of vegetation and missing or loose rocks. While the property retains its integrity of location, setting, feeling, and association, AR 28 is not individually eligible because it has deteriorated in multiple ways and lost its integrity of design, material, workmanship. Despite alterations to AR 28 that have resulted in loss of physical integrity, contributing resources have a lower threshold of integrity than individually eligible properties must have. Therefore, the retained integrity of location, setting, feeling, and association of AR 27 still allows it to reflect the historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.27.3 Significance Evaluation

AR 28 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Although the resource was constructed and utilized during the sugar plantation period, AR 28, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 28 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, AR 28 is not individually eligible because it has no elements that make it a unique example of its architectural style or form. The rock wall segments are not the work of an expert builder or craftsperson and are a common architectural type found across the region. Furthermore, the segments are in fair condition with signs of deterioration and have become overgrown with vegetation, resulting in loss of integrity of materials. In addition, AR 28 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under NRHP Criterion D and SRHP Criterion d, AR 28 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

However, AR 28 is recommended as eligible as a contributing resource to the Olowalu Sugar Plantation Historic District Under NRHP Criterion A (SRHP Criterion a) and D. The resource is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-19th century to the 20th century. As a result of this association, AR 28 has potential to contribute to further understanding of this history as part of the historic district. Therefore, AR 28 is recommended eligible as a contributing resource Under NRHP Criterion A. The resource is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association as an element of the plantation irrigation network and erosion control. The material of the wall segments is consistent with other Pioneer Mill Company land improvements, such as elements of the irrigation and transportation systems. Furthermore, a feature in the location and general alignment of the resource is shown on the 1939 map of the Pioneer Mill Company holdings in Olowalu.

Under NRHP Criterion B, AR 28 is not recommended as eligible as a contributing resource because no ties or links were found between the structure and people with cultural or historic significance. Under NRHP Criterion C, the structure is not recommended as eligible as a contributing resource because it has no elements that make it a unique example of its architectural style or form. The segments of retaining

wall are not the work of an expert builder or craftsperson and are found across the region. Criterion D is typically considered when assessing archaeological sites, but structures may qualify if they have the potential to contribute important information to our understanding of history. AR 28, as a contributing resource to the Olowalu Sugar Plantation District, has the potential to yield additional information regarding local and regional development or other themes of historical significance. The resource is determined as significant for its association with the Pioneer Mill Company and the local sugar plantation industry, with a potential to yield further information on these local industries.

Figure 4.126. Aerial image showing the location of AR 28.

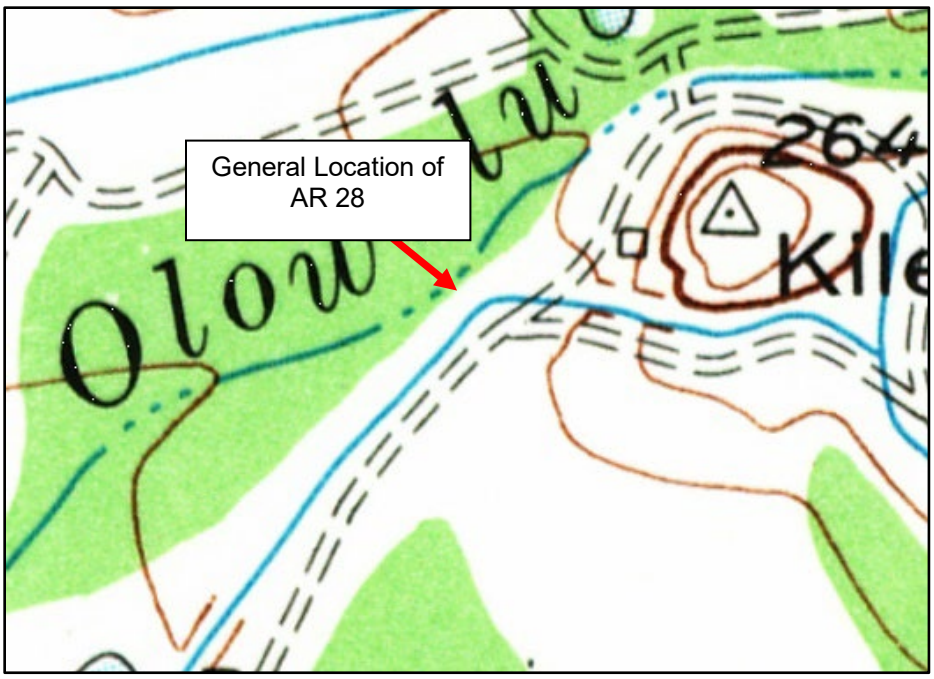


Figure 4.127. Stream, ditch, and roadway illustrated in vicinity of AR 28 on the 1955 USGS Olowalu, Hawai'i, 7.5-minute quadrangle topographic map.

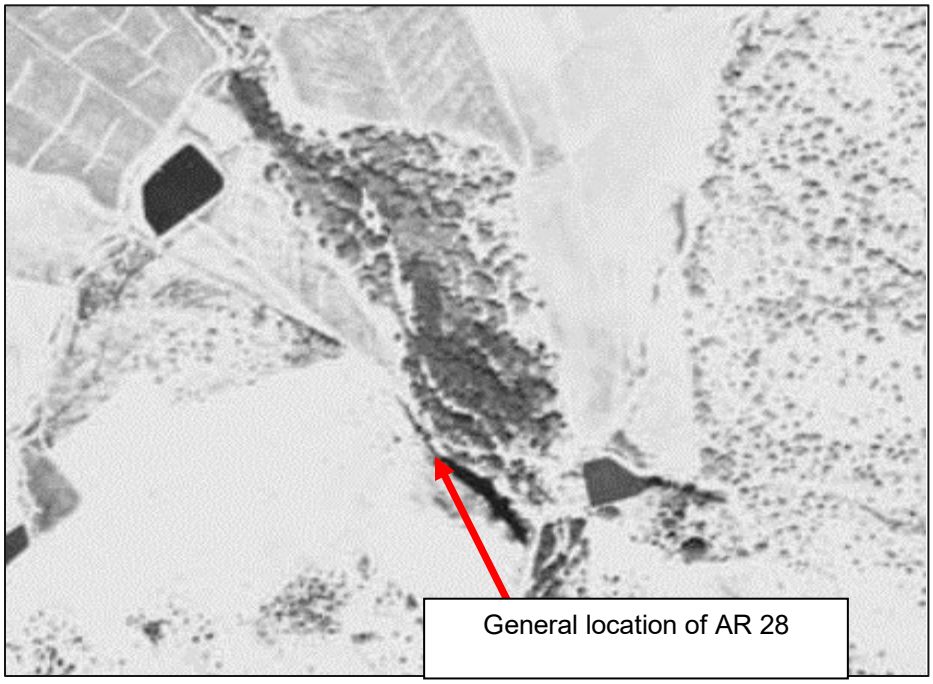


Figure 4.128. Northeast and southeast walls of AR 28, facing northeast.

Figure 4.129. View of a segment of AR 28, facing southwest.

4.28 AR 29 (SIHP No. 04719): Rock Wall

AR 29 consists of one rock wall mauka of Honoapiʻilani Highway and east of much of Olowalu (**Figure 4.32**; **Figure 4.130**). The structure is bounded by foothills to the north and east, Honoapiʻilani Highway to the south, and a wooded area to the west. AR 29 is accessed by an unimproved access road along the westbound lane of Honoapiʻilani Highway.

According to the County of Maui tax assessor's database, AR 29 sits on a parcel encompassing 399.903 acres and is currently owned by the State of Hawaiʻi. Topographic maps do not depict AR 29, but the 1955 USGS Olowalu topographic map illustrates an irrigation ditch and the access road leading to the general location of AR 29 (**Figure 4.131**). A 1950 historic aerial image shows a field roughly bounded by a cane haul road in the general location of AR 29 but does not clearly depict the resource (**Figure 4.132**).

The tax assessor's database does not list a construction date for the structure, but a 1906 map of Olowalu illustrates the ahupuaʻa boundary in the area. The boundary is not present on the 1881 Monserrat map, suggesting that AR 29 was likely constructed by 1906 as part of the boundary demarcation of the Olowalu Sugar Company plantation extent. These maps and archival research indicate that AR 29 was associated with the Olowalu Sugar Plantation industry and likely served as boundary markers for the extent of the plantation holdings or to indicate the boundary between the Olowalu ahupuaʻa and Ukumehame ahupuaʻa.

Table 4.32. Summary of AR 29 (SIHP No. 04719)

Address	Olowalu (mauka of Honoapiʻilani Highway)
TMK	4-8-002:008
County	Maui County
Date of Construction	circa 1906
Square Footage	NA
Acreage	13.802
Owner	State of Hawaiʻi
Architectural Type/Style	Boundary Demarcation
Integrity	AR 29 is in fair condition but shows signs of disuse and disrepair resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 29 is recommended as not individually eligible due to a lack of historic and architectural significance and not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District (Criterion A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.28.1 Structure Description

AR 29 is a rock wall segment constructed of dry-stacked stone and concrete mortar, which measures approximately 8.0 by 0.8 by 0.9 meters (**Figure 4.133**). AR 29 is covered in vegetation consisting of grasses and low-lying shrubbery and surrounded by a concrete overflow ditch. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

4.28.2 Current Condition and Integrity

AR 29 is in fair condition but shows signs of disuse and disrepair, such as overgrowth of vegetation and missing or loose rocks. While the property retains its integrity of location, setting, feeling, and association, given that AR 29 has undergone multiple types of deterioration, it has lost its integrity of design, material, workmanship, to be individually eligible.

4.28.3 Significance Evaluation

AR 29 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Although the resource as constructed and utilized during the sugar plantation period, AR 29, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a. under NRHP Criterion B and SRHP Criterion b, AR 29 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance. Under NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because it has no elements that make it a unique example of its architectural style or form. The rock wall is not the work of an expert builder or craftsperson and is a common architectural type found across the region. In addition, AR 29 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under NRHP Criterion D and SRHP Criterion d, AR 29 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 29 is not recommended as eligible for listing as a contributing resource to the Olowalu Sugar Plantation Historic District. While the resource may have been originally associated with the local sugar plantation industry and the Pioneer Mill Company, the continued deterioration of the wall from the mid-19th century to the 20th century has negatively affected the integrity of the resource. As a result, the association of AR 29 to the Plantation era is no longer readily identifiable.

Figure 4.130. Aerial image showing the location of SIHP No. 04719 (AR 29).

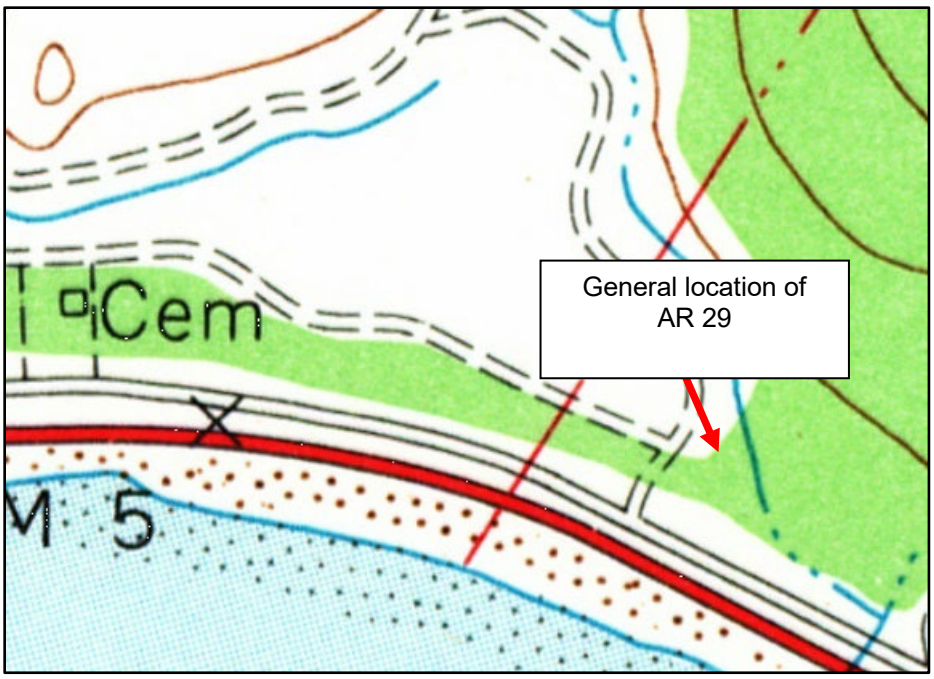


Figure 4.131. Roadway illustrated in vicinity of AR 29 on the 1955 USGS Olowalu, HI 7.5-minute quadrangle topographic map.

Figure 4.132. 1949 historic aerial image of the general location of AR 29.

Figure 4.133. Image of the character and condition of AR-29, an exceedingly common Plantation era concrete and stone infrastructure found in the region.

4.29 AR 30 (SIHP No. 04720): Rock Wall

AR 30 consists of one rock wall segment located along the northeast boundary of the Olowalu ahupua‘a and northwest of SIHP No. 1602, (**Figure 4.33**; **Figure 4.134**). The structure is bounded by wooded areas to the south, foothills to the east, and fallow sugar cane fields to the north and west. AR 30 is accessed by an unimproved access road branching from Luawai Street and extending south.

According to the County of Maui tax assessor's database, AR 30 sits on 29.379 acres, is currently owned by Olowalu Mauka Lot 18 Condo Master, and has the location address of 814 Honoapi‘ilani Highway.

Topographic maps do not depict AR 30, but the 1955 USGS Olowalu topographic map illustrates an irrigation ditch and the access road leading to the general location of AR 29. The 1950 historic aerial image shows a fallow sugar cane field roughly bounded by a cane haul road in the general location of AR 30 but does not clearly depict the resource (**Figure 4.135**). The tax assessor's database does not list a construction date for the structure, but the 1906 map of Olowalu illustrates the ahupua‘a boundary in the area. The boundary is not present on the 1881 Monserrat map, suggesting that AR 30 was likely constructed by 1906 as part of the boundary demarcation of the Olowalu Sugar Company plantation extent (**Figure 4.136**). These maps, along with archival research, indicate that AR 30 was associated with the Olowalu Sugar Plantation industry, and likely served as boundary markers for the extent of the plantation holdings or to indicate the boundary between the Olowalu ahupua‘a and Ukumehame ahupua‘a.

Table 4.33. Summary of AR 30 (SIHP No. 04720)

Address	814 Honoapi‘ilani Highway
TMK	4-8-002:008
County	Maui County
Date of Construction	circa 1906
Square Footage	NA
Acreage	29.379
Owner	Olowalu Mauka Lot 18 Condo Master
Architectural Type/Style	Boundary Demarcation
Integrity	AR 30 is in fair condition but shows signs of disuse and disrepair resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 30 is recommended as not individually eligible due to a lack of historic and architectural significance and not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.29.1 Structure Description

AR 30 is a rock wall segment constructed of stone and concrete mortar (**Figure 4.137**). The dimensions of the rock wall vary along its entire length. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

4.29.2 Current Condition and Integrity

AR 30 is in fair condition but shows signs of disuse and disrepair, such as overgrowth of vegetation and missing or loose rocks. While the property retains its integrity of location, setting, feeling, and association, AR 30 is not individually eligible because it has deteriorated in multiple ways and lost its integrity of design, material, workmanship. Despite alterations to AR 30 that have resulted in loss of physical integrity, contributing resources have a lower threshold of integrity than individually eligible properties must have. Therefore, the retained integrity of location, setting, feeling, and association of AR 30 still

allows it to reflect the historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.29.3 Significance Evaluation

AR 30 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of material integrity. Although the resource as constructed and utilized during the sugar plantation period, AR 30, as an individual resource, does not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 30 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because it has no elements that make it a unique example of its architectural style or form. The rock wall is not the work of an expert builder or craftsperson and is a common architectural type found across the region. AR-30 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under NRHP Criterion D and SRHP Criterion d, AR 30 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 30 is not recommended as eligible for listing as a contributing resource to the Olowalu Sugar Plantation Historic District. While the resource may have been originally associated with the local sugar plantation industry and the Pioneer Mill Company, the continued deterioration of the wall from the mid-19th century to the 20th century has negatively affected the integrity of the resource. As a result, the association of AR 30 to the Plantation era is no longer readily identifiable.

Figure 4.134. Aerial image showing the location of SIHP No. 04720 (AR 30).

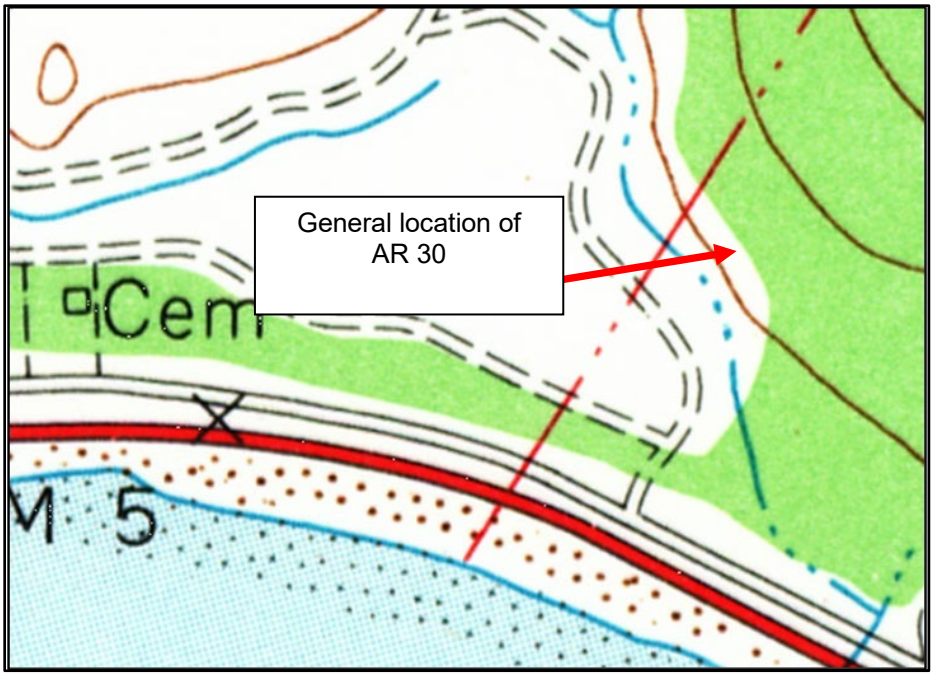


Figure 4.135. Roadway and ditch illustrated in vicinity of AR 30 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

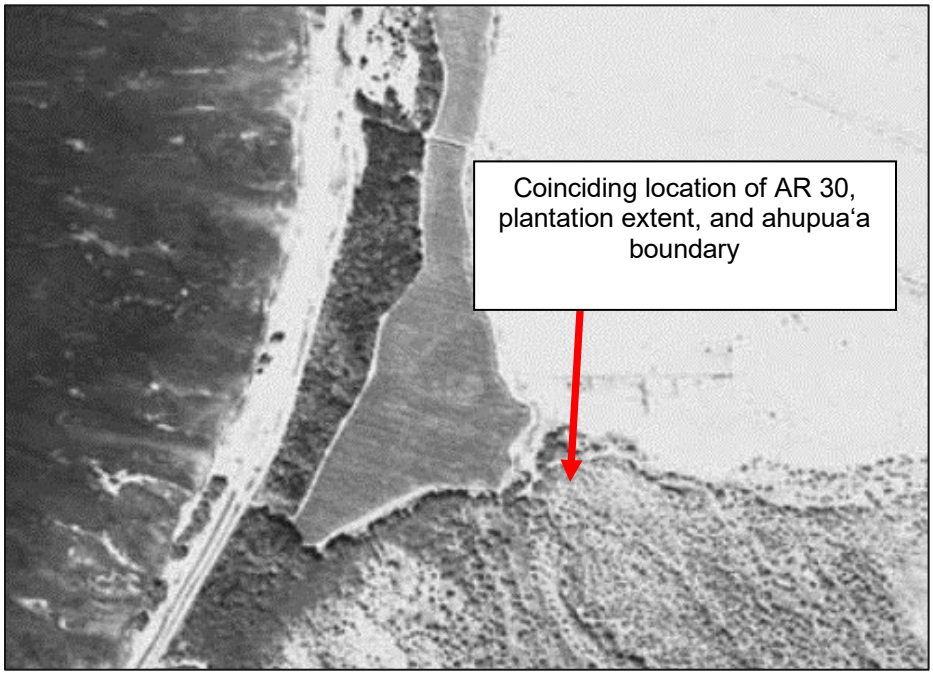


Figure 4.136. Roadway and ditch illustrated in vicinity of AR 30 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.137. Image of the character and condition of AR 30, an exceedingly common Plantation era concrete and stone infrastructure found in the region.

4.30 AR 31 (SIHP No. 09151): Reservoir

AR 31**,** newly recorded as SIHP No.09151, is a reservoir located at 814 Honoapiʻilani Highway (**Table 5.34**; **Figure 4.138**). The structure is bounded by agricultural lands to the east, west, and north, and commercial structures to the south. AR 31 consists of a slight depression in the gently rolling grassy terrain southwest of the Olowalu Cultural Reserve. AR 31 is accessed by a paved asphalt road that branches off from Olowalu Village Road and Honoapiʻilani Highway.

According to the County of Maui tax assessor's database, AR 31 sits on 40.734 acres, is currently owned by Olowalu Mauka Lot 22 Condo Master, and has the location address of 814 Honoapiʻilani Highway. A modern, asphalt secondary road runs near the west extent of AR 31, nearly intersecting the resource at its northwest corner.

Topographic maps show a structure in the location of AR 31 in 1955 and 1983, and no earlier topographic maps were available (**Figure 4.139**). The aerial images show a structure as early as 1949. The tax assessor's database does not list a construction date for the structure, but historic aerial images and primary sources indicate that AR 31 was constructed between 1932 and 1939, when Pioneer Mill Company took over the land of the Olowalu Sugar Company and began making improvements to the existing irrigation system (Maly and Maly 2007). The reservoir was originally associated with the Pioneer Mill Company.

Table 4.34. Summary of AR 31 (SIHP No. 09151)

Address	814 Honoapiʻilani Highway
TMK	4-8-003:105
County	Maui County
Date of Construction	circa 1932
Square Footage	24,008
Acreage	40.734
Owner	Olowalu Mauka Lot 21 Condo Master
Architectural Type/Style	Sugar Plantation Water Control
Integrity	AR 31 is in good condition but shows signs of disuse resulting in loss of integrity of design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 31 is recommended not individually eligible due to a lack of historic and architectural significance but is recommended eligible as a contributing resource to the Olowalu Sugar Plantation Historic District (Criteria A and D).
HRS 6E Significance Evaluation	Recommended as not eligible.

4.30.1 Structure Description

AR 31 is a reservoir consisting of a roughly rectangular depression in the landscape that measures approximately 330 feet by 100 feet at the widest point and is oriented northwest-southeast (**Figure 4.140**). The reservoir features cut basalt brick and mortar along the interior of the basin and large (dry-stacked and mortared) basalt boulders along the southwestern wall. AR 31 is covered in vegetation consisting of grasses and low-lying shrubbery and surrounded by a concrete overflow ditch.

AR 31 is similar in character and condition to AR 9, which is located northwest of this resource and constructed at approximately the same time to serve the same function as elements of the Olowalu plantation irrigation network. Although no longer in use, the reservoir was an element of the expansive Pioneer Mill Company irrigation system and was constructed on the lands of the Olowalu Sugar Company, which was purchased by the larger enterprise in 1931. The reservoir was supplied by the Olowalu Intake Pump and Olowalu ditch and was one of 29 storage reservoirs maintained by the Pioneer Mill Company. These reservoirs had a total storage capacity of approximately 235 million gallons, which was carried through the plantation fields by a network of tunnels, ditches, flumes, and pipes (Maly and Maly 2007).

4.30.2 Current Condition and Integrity

AR 31 is in good condition but shows signs of disuse, such as the overgrowth of vegetation in the reservoir basin. While the property retains its integrity of location, setting, feeling, and association, AR 31 is not individually eligible because it has deteriorated in multiple ways and lost its integrity of design, material, workmanship. Despite alterations to AR 31 that have resulted in loss of physical integrity, contributing resources have a lower threshold of integrity than individually eligible properties must have. Therefore, the retained integrity of location, setting, feeling, and association of AR 31 still allows it to reflect the historic character of a property belonging to the Olowalu Sugar Plantation Historic District.

4.30.3 Significance Evaluation

AR 31 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance. Although the reservoir is directly related to the Pioneer Mill Company, the structure, on its own, does not embody the historical significance of the company and the development of the surrounding community. As a result, AR 31 is recommended as not eligible under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, the structure is recommended as not eligible because no links were found between the reservoir and people of cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, AR 31 is recommended as not eligible because the reservoir is a common structure found throughout the region and is not exemplary of reservoirs of this period. Furthermore, the structure is not the work of an expert builder or craftsperson.

Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. Individually, AR 31, is not recommended as eligible Under NRHP Criterion D and SRHP Criterion d. Despite its association with the sugar plantation industry, as an individual resource, the structure does not have the potential to yield substantial information regarding local and regional development.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

However, AR 31 is recommended as eligible for listing in the NRHP as a contributing resource to the Olowalu Sugar Plantation Historic District under Criteria A, C, and D. The resource is directly associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the mid-19th century to the 20th century. As a result of this association, AR 31 has potential to contribute to further understanding of this history as part of the historic district. Thus, AR 31 is recommended as eligible Under NRHP Criterion A. The resource is directly associated with the Pioneer Mill Company and the sugar plantation industry and is representative of this association as an element of the plantation irrigation network. The materials of the reservoir are consistent with other Pioneer Mill Company land improvements, such as other elements of the irrigation system and a bridge constructed along a cane haul road. Furthermore, the reservoir appears on a 1939 map of the Pioneer Mill Company holdings in Olowalu. The reservoir retains its integrity of location, setting, feeling, and association; the structure's integrity of design has only been minimally diminished with the construction of a bike trail.

Under NRHP Criterion B, AR 31 is recommended as not eligible as a contributing resource because no ties or links were found between the structure and people with cultural or historic significance. Under NRHP Criterion C, this resource is recommended as eligible as a contributing resource based on its associated with the Hawai'i's plantation era and the associated architectural developments needed for water containment, as well as engineering, which were integrally to the physical development and land uses of the Olowalu Sugar Plantation Historic District. Criterion D is typically considered when assessing

archaeological sites, but buildings may qualify if they have the potential to contribute important information to our understanding of history.

AR 31, as a contributing resource to the Olowalu Sugar Plantation Historic District, has the potential to yield additional information regarding local and regional development or other themes of historical significance. The resource is determined as significant for its association with the Pioneer Mill Company and the local sugar plantation industry, with a potential to yield further information on these local industries. Consequently, AR 31 is recommended eligible as a contributing resource under Criteria A and D.

Figure 4.138. Aerial image showing the location of SIHP No. 09151 (AR 31).

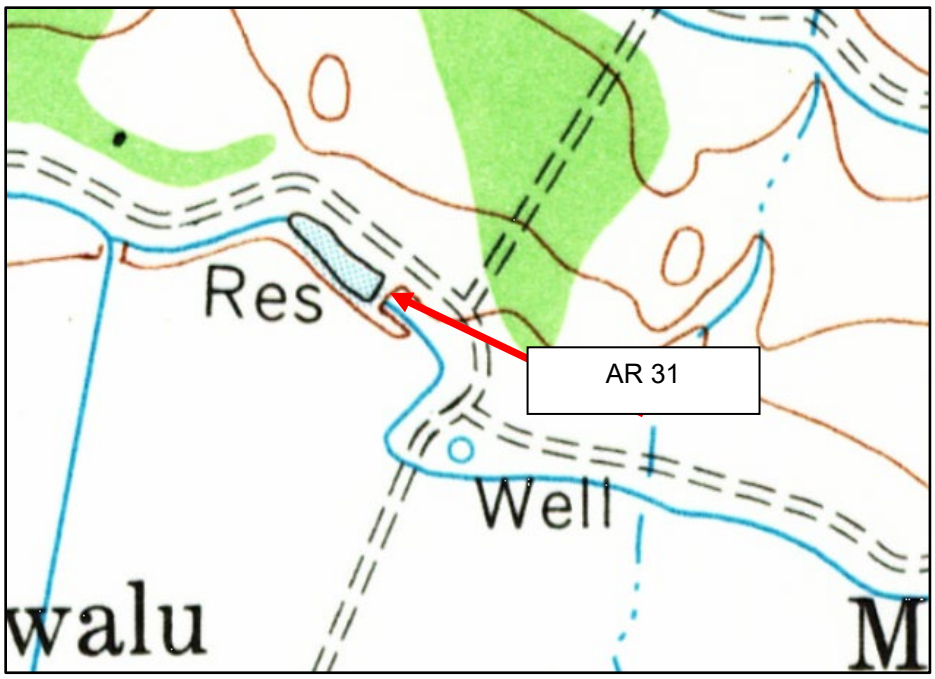


Figure 4.139. Reservoir illustrated in vicinity of AR 31 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.140. Interior view of AR 31, facing south.

4.31 AR 32 (SIHP No. 09152): Irrigation Ditches

AR 32**,** newly recorded as SIHP No.09152, consists of an unimproved irrigation earthen ditch and remnants of a large iron irrigation pipe, designated AR 32.1 and 32.2, respectively, that are located in agricultural fields between Launiupoko and Olowalui (**Table 5.35**; **Figure 4.141**). The ditch is bound by a wooded area to the north and south, foothills to the east, and the Honoapiʻilani Highway and a frontage road to the west. The pipe is bound by a wooded area to the north and south, foothills to the east, and the Honoapiʻilani Highway and frontage road to the west.

According to the County of Maui tax assessor's database, AR 32.1 sits on a parcel encompassing 16.038 acres and is currently owned by the Olowalu Elua Associates LLC. AR 32.2 sits on a parcel encompassing 26.184 acres and is currently owned by the Paakai Holdings LLC. According to aerial images, the area between the two irrigation structures is an agricultural field that was likely planted in sugarcane from the mid- to late-20th century. And the 1955 Olowalu, Hawaiʻi topographic map shows a cane haul road running parallel with the stream that AR 32.2 is located within (**Figure 4.142** and **4.143**).

The Olowalu Sugar Company owned and managed the fields in nearby Olowalu beginning in the mid-19th century and might have owned the area of AR 32 as well. The Pioneer Mill Company of nearby Lāhainā purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lāhainā since 1883, when the first well was drilled in West Maui for the company.

Groundwater and water from the West Maui mountains were drawn through expansive networks of pumps, ditches, flumes, and reservoirs, which the company lined with concrete and stone to minimize water loss. When the Pioneer Mill Company purchased the Olowalu lands, the networks of ditches and reservoirs were fully supplied by electric pumps. And in 1936, eight pumping stations were in operation across the company estates. The facility installed along the Olowalu Stream was an Allis-Chalmers pump that was powered by a 112-kilowatt motor and had a capacity of 5 million gallons per day (Hibbard 2009).

Between 1948 and 1951, the Pioneer Mill Company cleared approximately 3,153 acres, including the fields surrounding AR 32 (Hawaiian Sugar Planters' Association 2004). Therefore, both irrigation structures are likely associated with the sugar plantation industry in the region and may have been owned or leased by the Olowalu Sugar Company and the Pioneer Mill Company at one time.

Table 4.35. Summary of AR 32 (SIHP No. 09152)

Address	Between Launiupoko and Olowalu
TMK	4-8-003:115; 116
County	Maui County
Date of Construction	20th century
Square Footage (Living Area)	N/A
Acreage	AR 32.1: 16.038; AR 32.2:
Owner	AR 32.1: Olowalu Elua Associates LLC; AR 32.2: Paakai Holdings LLC
Architectural Style/Type	20th Century Water Control
Integrity	AR 32 is in poor condition and shows several signs of deterioration and neglect; some elements of the resource have also been intersected by modern roads, which have all contributed to loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 32 is recommended as not individually eligible and is not recommended eligible as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to loss of integrity and lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.31.1 Structure Description

AR 32 consists of two irrigation related structures, an earthen ditch (AR 32.1) and an iron irrigation pipe (AR 32.2) (**Figures Figure 4.144** and **Figure 4.145**). The ditch is oriented southwest to northeast and runs parallel with an unimproved dirt road that is still in use. The ditch crosses beneath the frontage road and Honoapiʻilani Highway via two separate culverts. The iron pipe is only a remnant of the original structure that sits within a small stream bed and is approximately 0.5 meters in diameter.

4.31.2 Current Condition and Integrity

AR 32.1 is in fair condition, showing signs of erosion, and has undergone some alteration and disturbance. AR 32.2 is in poor condition. The structure is only a remnant of the original pipe. While the property retains its integrity of location and setting, given that AR 32 has undergone multiple alterations and degradation, it has lost its integrity of design, material, workmanship, feeling, and association.

4.31.3 Significance Evaluation

AR 32 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance. The resource is associated with the local sugar plantation industry, which is evidenced by the presence of a storm ditch depicted in a similar location as the resource on a 1939 map of the Pioneer Mill Company holdings in Olowalu. However, the structures are not a strong representation of this association due to their poor condition, which has resulted in a loss of integrity of design, materials, workmanship, setting, and feeling. Thus, under NRHP Criterion A and SRHP Criterion a, the site is recommended as not eligible.

Under NRHP Criterion B and SRHP Criterion b, AR 32 is recommended as not eligible because no ties or links were found between the structures and people with cultural or historic significance. Under NRHP Criterion C, the structures are not eligible because they have no elements that make them exemplary of their architectural type, which are common 20th-century agricultural irrigation features within the region. Furthermore, the structures are not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 32 is recommended as not individually eligible because the structures do not have potential to contribute important information to our understanding of history related to the sugar plantation industry or the development of Olowalu and the surrounding region. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

AR 32 is not associated with the proposed Olowalu Sugar Plantation Historic District. Given that the structures are in fair to poor condition, they have lost their integrity of design, materials, workmanship, setting, and feeling. The structures are located outside the proposed boundaries of the historic district.

Figure 4.141. Aerial image showing the location of AR 32.

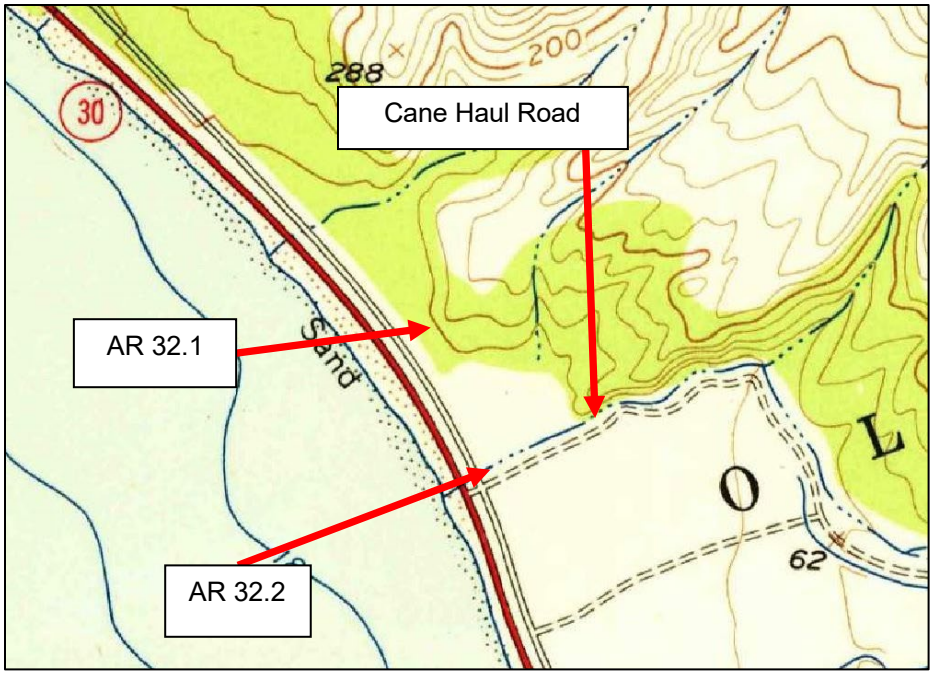


Figure 4.142. Location of AR 32.1 and 32.2 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map; note the cane haul road.

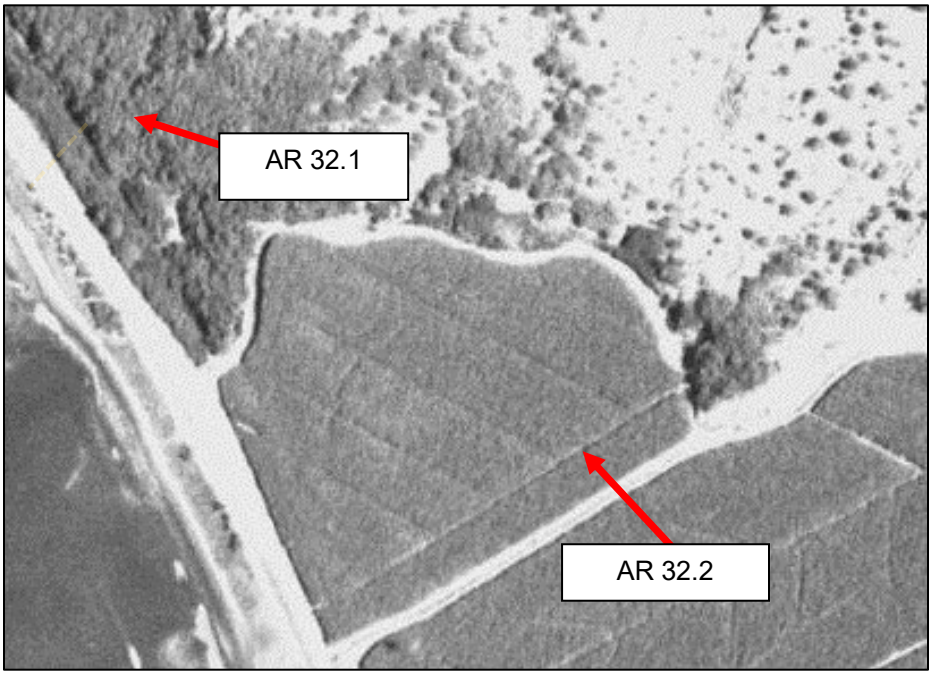


Figure 4.143. Approximate location of AR 32.1 and 32.2 on 1950 aerial image.

Figure 4.144. View of ditch (AR 32.1) (on left), running parallel with unimproved road, facing northeast.

Figure 4.145. View of iron pipe (AR 32.2), facing southeast.

4.32 AR 33 (SIHP No. 09153): Rock Wall

AR 33**,** newly recorded as SIHP No.09153, consists of a rock wall segment located on the mauka side of Honoapiʻilani Highway and west of Olowalu in Launiupoko (**Table 5.36**; **Figure 4.146**). The structures are bounded by foothills to the north, a valley and foothills to the east, Honoapiʻilani Highway to the south, and a valley and wooded area to the west. AR 33 is accessed by an unimproved access road north of Honoapiʻilani Highway.

According to the County of Maui tax assessor's database, AR 33 sits on a parcel encompassing 115.065 acres and is currently owned by the County of Maui. Historic topographic mapping and aerial images suggests AR 33 may be associated with land clearing and modification that occurred in the area between 1950 and 1960 (**Figure 4.217**). While a National Guard Rifle Range is shown in the vicinity of AR 33 in 1949, the range is gone by 1950—although topographic mapping indicates the area is associated with the National Guard Rifle Range in 1956 (**Figure 4.147** and **4.148**).

In 1960, the area is cleared and modified, and the rock wall is first visible, suggesting it was constructed between 1950 and 1960. By 1975, the area to the northwest of the wall appears to be inundated, which may have been the purpose of the clearing and modification. But by 1987, the area is dry and left to become overgrown with vegetation. It is uncertain whether the rock wall is associated with the sugar plantation industry, but the Pioneer Mill Company was active in nearby Olowalu between 1948 and 1951, clearing land to further develop irrigation networks (Hawaiian Sugar Planters' Association 2004).

Table 4.36. Summary of AR 33 (SIHP No. 09153)

Address	Launiupoko (mauka of Honoapiʻilani Highway)
TMK	4-7-001:030
County	Maui County
Date of Construction	circa 1955
Square Footage	NA
Acreage	115.065
Owner	County of Maui
Architectural Type/Style	Boundary Demarcation
Integrity	AR 33 is in fair condition but shows signs of disuse and disrepair as well as heavy modifications. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 33 is not recommended as individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a lack of historic and architectural significance and loss of integrity.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.32.1 Structure Description

AR 33 consists of a single rock wall segment, constructed of dry-stacked rock that was later improved with concrete mortar (**Figure 4.149**). The segment is oriented from southwest to northeast on the mauka side of Honoapiʻilani Highway, and measures approximately 1 meter tall and 0.8 meters wide. However, the dimensions of the rock wall vary along its entire length. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

4.32.2 Current Condition and Integrity

AR 33 is in fair condition but shows signs of disuse and disrepair. The wall segment is partially overgrown with vegetation and some of the rock construction appears eroded with loose and missing rocks. While the property retains its integrity of location and setting, given that AR 32 has undergone multiple alterations and degradation, it has lost its integrity of design, material, workmanship, feeling, and association.

4.32.3 Significance Evaluation

AR 33 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance.

Under NRHP Criterion A and SRHP Criterion a, AR 33 is recommended as not individually eligible because it is not associated with any event or events of historic significance to the region, state, or nation, including themes related to the sugar plantation industry.

Under NRHP Criterion B and SRHP Criterion b, AR 33 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because the wall has no elements that make it exemplary of their architectural style or form. AR 33 is not the work of an expert builder or craftsperson and is a common type of architecture found across the region. AR 33 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under NRHP Criterion D and SRHP Criterion d, AR 33 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

While AR 33 is associated with the sugar plantations and holdings of the Pioneer Mill Company and was built towards the end of the period of significance (or after) for the historic district, the structures are located outside the proposed limits for the historic district that is based on historic map boundaries of the Period of Significance. Furthermore, the structures are in poor condition and thus do not retain enough integrity of material or design to constitute an additional historic district.

Figure 4.146. Aerial image showing the location of AR 33.

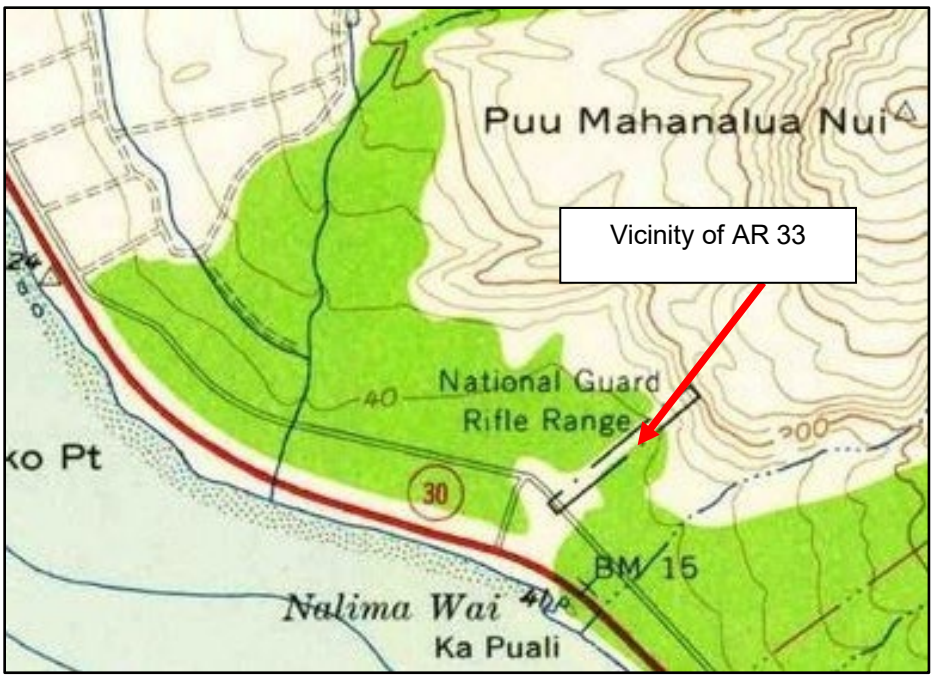


Figure 4.147. Vicinity of AR 33 on the 1956 USGS Lahaina, Hawai‘i, 7.5-minute quadrangle topographic map.

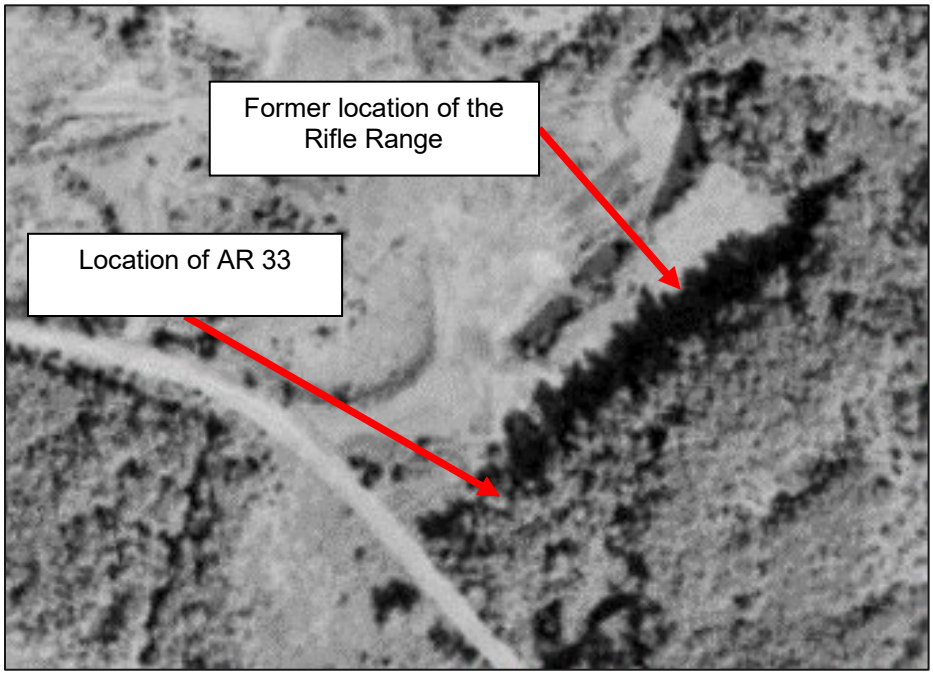


Figure 4.148. 1965 historic aerial image of the location of AR 33; note the clearing and modification of the area adjacent to AR 33.

Figure 4.149. Image of the character and condition of AR 33. an exceedingly common Plantation era stone infrastructure found in the region.

4.33 AR 34 (SIHP No. 09154): Irrigation Ditches

AR 34**,** newly recorded as SIHP No.09154, consists of two unimproved earthen irrigation ditches located in a wooded area in Launiupoko (**Table 5.37**; **Figure 4.150**). The two ditches run parallel to each other, primarily aligned east-west, but are closed off to the east by a large earthen berm. The resource is on the west end of the APE, on the mauka side of the Lāhainā Bypass, and to the northwest of AR 33 within the same parcel.

According to the County of Maui tax assessor's database, AR 34 sits on a parcel encompassing 115.065 acres and is currently owned by the County of Maui. Historic topographic mapping and aerial images suggests AR 34 may be associated with land clearing and modification that occurred in the area between 1950 and 1960 (**Figure 4.151** through **4.152**). A small pond was constructed during this period and may explain the large earthen berm that closes off the ditches on the east side. By 1975, the area appears to be inundated, which may have been the purpose of the clearing and modification. But by 1987, the area was dry and left to become overgrown with vegetation. It is uncertain whether the ditches are associated with the sugar plantation industry, but the Pioneer Mill Company was active in nearby Olowalu between 1948 and 1951, clearing land to further develop irrigation networks (Hawaiian Sugar Planters' Association 2004).

Table 4.37. Summary of AR 34 (SIHP No. 09154)

Address	Launiupoko
TMK	4-7-001:030
County	Maui County
Date of Construction	circa 1955
Square Footage (Living Area)	N/A
Acreage	115.065
Owner	County of Maui
Architectural Style/Type	Mid-20th Century Water Control
Integrity	AR 34 is in poor condition and shows several signs of deterioration and neglect; some elements of the resource have also been intersected by modern roads. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 34 is not individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.33.1 Structure Description

AR 34 consists of two irrigation ditches that run parallel to each other, primarily aligned east-west (**Figures Figure 4.153**). A large earthen berm runs along the east side of the ditches, which prevents water from running downslope into the ditches.

4.33.2 Current Condition and Integrity

AR 34 is in poor condition and displays excessive signs of neglect and deterioration. The ditches are barely perceptible in the landscape due to thick vegetation and erosion. Given the extreme degradation, AR 34 has lost its integrity of setting, design, material, workmanship, feeling, and association.

4.33.3 Significance Evaluation

AR 34 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance. The site is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the mid-19th century to the 20th century. However, AR 34 is not a strong representation of this association due to its poor condition, which has resulted in a loss of integrity of design, materials, workmanship, setting, and feeling. Thus, under NRHP Criterion A and SRHP Criterion a, the site is recommended as not eligible.

Under NRHP Criterion B and SRHP Criterion b, AR 34 is recommended as not eligible because no ties or links were found between the structures and people with cultural or historic significance.

Under NRHP Criterion C, the structures are not eligible because they have no elements that make it a unique example of its architectural style or form. The structures are not the work of an expert builder or craftsperson. Moreover, features of this type are common in 20th century agricultural landscapes and found throughout the region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

While AR 34 is associated with the sugar plantations and holdings of the Pioneer Mill Company, the structures are located outside the proposed limits for the historic district that are based on historic map boundaries of the Period of Significance. Furthermore, the structures are in poor condition and thus do not contain enough integrity of material and design to constitute an additional historic district.

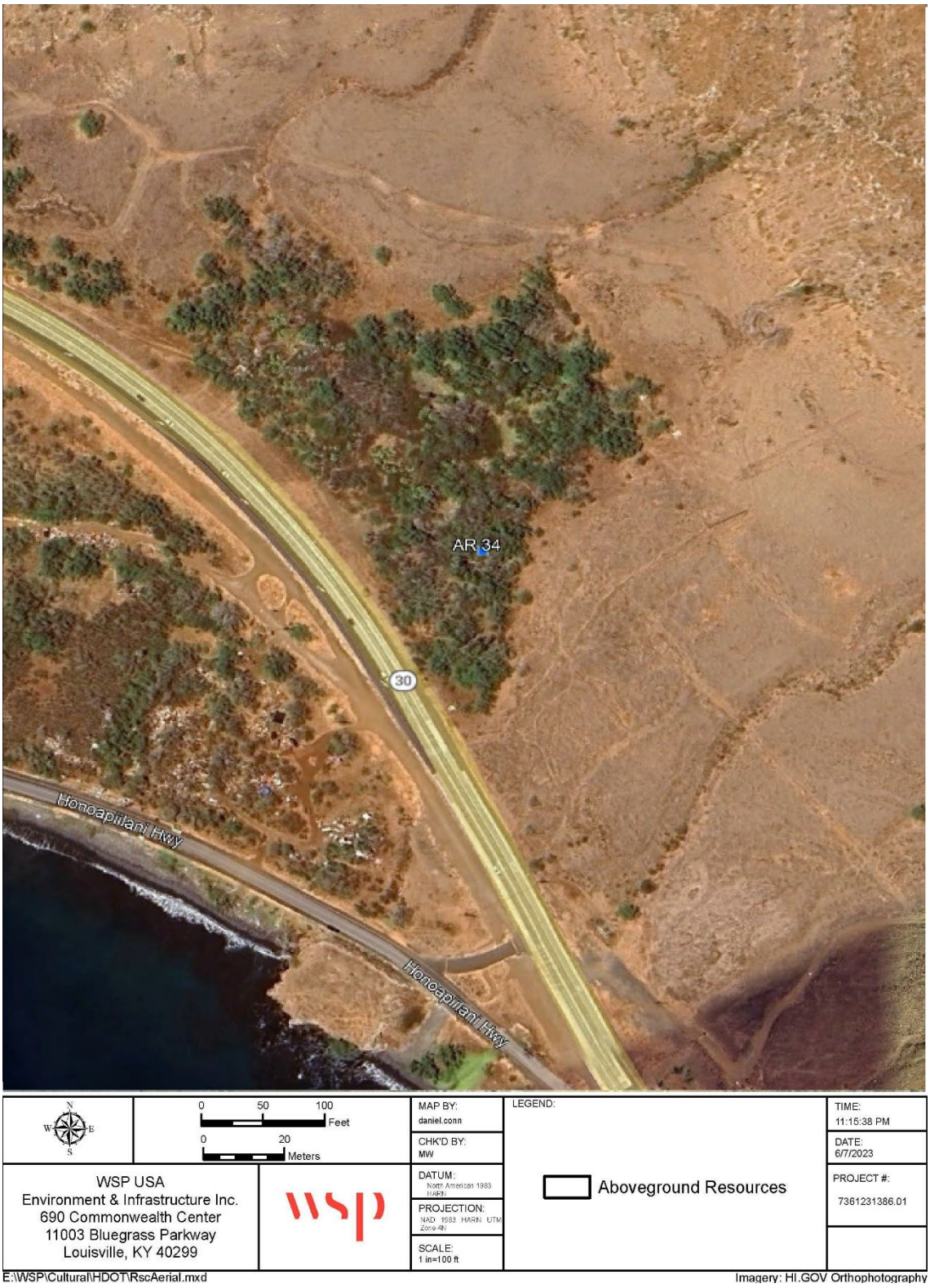


Figure 4.150. Aerial image showing the location of AR 34.

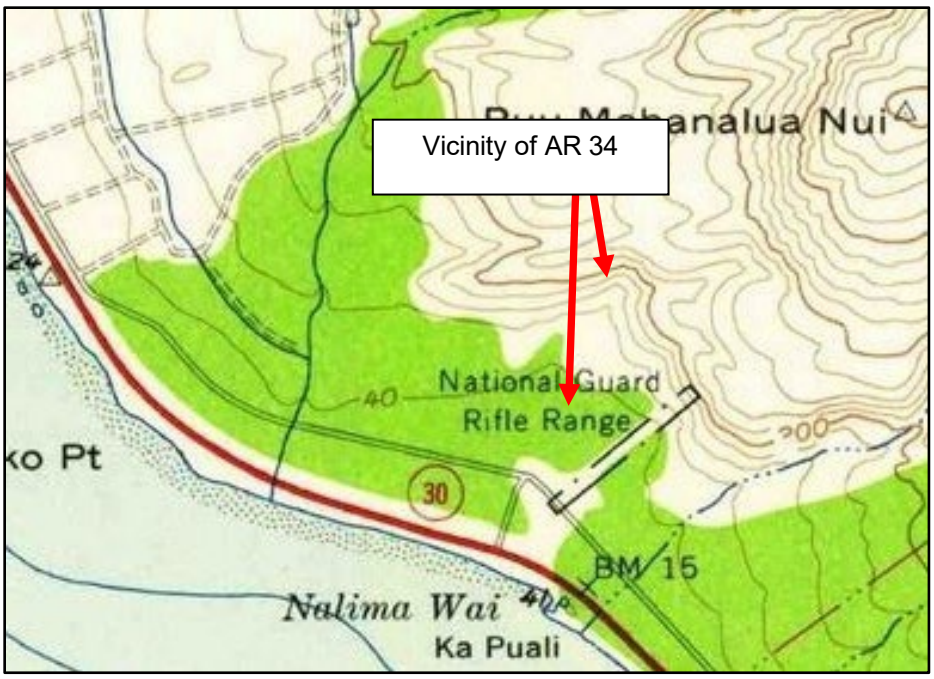


Figure 4.151. Vicinity of AR 34 on the 1956 USGS Lāhainā, Hawai'i, 7.5-minute quadrangle topographic map.

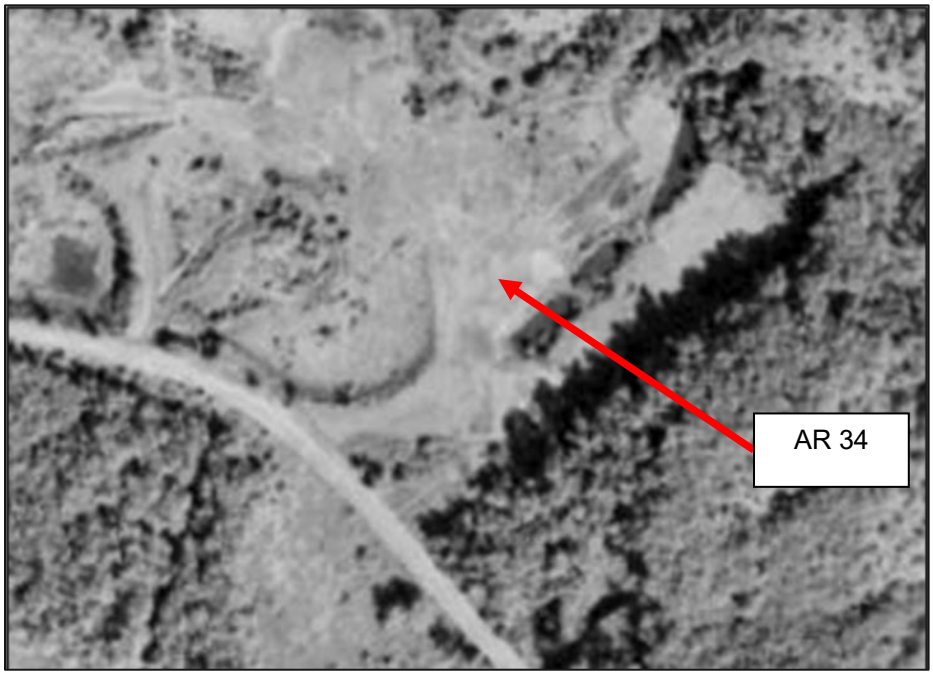


Figure 4.152. 1960 historic aerial image of the location of AR 33 and AR 34; note the clearing and modification of the adjacent area.

Figure 4.153. View of ditches, facing west.

4.34 AR 35 (SIHP No. 09033): Well

AR 35**,** newly recorded as SIHP No.09033, consists of a well located on the mauka side of Honoapiʻilani Highway between Olowalu and Ukumehame (**Table 5.38**; **Figure 4.154**). The resource is bounded by a wooded area to the north, south, and west, and by an unimproved dirt road to the east. At the time of the survey, the area surrounding the well was in use as a displaced encampment.

According to the County of Maui tax assessor's database, AR 35 sits on a parcel encompassing 36.558 acres and is currently owned by the County of Maui. Historic topographic mapping and aerial images do not show AR 35, but the area is adjacent to agricultural fields throughout the mid- to late-20th century (**Figure 4.155**). Throughout this period, an unimproved access road ran north-south along the east side of the well and was likely utilized as a cane haul road.

The regional sugar plantation industry required improved irrigations systems, and the Olowalu Sugar Company had begun to dig wells in West Maui as early as 1883. The company owned property in Ukumehame as well as Olowalu. The Pioneer Mill Company of nearby Lāhainā purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Therefore, AR 35 is likely associated with irrigation strategies of the sugar plantation industry.

Table 4.38. Summary of AR 35 (SIHP No. 09033)

Address	Between Olowalu and Ukumehame
TMK	4-8-002:070
County	Maui County
Date of Construction	Early to mid-20th Century
Square Footage (Living Area)	N/A
Acreage	36.558
Owner	County of Maui
Architectural Style/Type	20th Century Water Control
Integrity	AR 35 is in fair condition and has undergone little alteration. It retains its integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 35 is not individually eligible and is not recommended as contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.34.1 Structure Description

AR 35 is a well located within a wooded area on the mauka side of Honoapiʻilani Highway (**Figures Figure 4.156**). The upper portion of the well was constructed with stacked rocks. The well extends to an approximate depth of 1.5 meter. At the time of the survey, the well was filled with about 10 centimeters of water. The diameter of the well measures approximately 1 meter. The surface surrounding the well is cluttered with several objects, such as buckets, plywood boards, and wooden pallets (**Figures Figure 4.157**).

4.34.2 Current Condition and Integrity

AR 35 is in fair condition, exhibiting some signs of deterioration, but the well has undergone little alteration. While the property retains its integrity of location and setting, AR 35 has lost its integrity of design, material, workmanship, feeling, and association through degradation.

4.34.3 Significance Evaluation

AR 35 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to lack of architectural and historic significance. The well is likely associated with the local sugar plantation industry and its impact on the region, but the resource does not

embody this historical significance. Therefore, AR 35 is not recommended as individually eligible Under NRHP Criterion A.

Under NRHP Criterion B and SRHP Criterion b, AR 35 is recommended as not individually eligible because no ties or links were found between the structure and people with cultural or historic significance.

Under NRHP Criterion C, AR 35 is not individually eligible because it has no elements that make it a unique example of its architectural type, which is found throughout the region. In addition, the well is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 35 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 35 is not associated with the Olowalu Sugar Plantation Historic District. The structure is located outside the proposed boundary for the historic district, and subsequently, is not associated with the district.

Figure 4.154. Aerial image showing the location of AR 35.

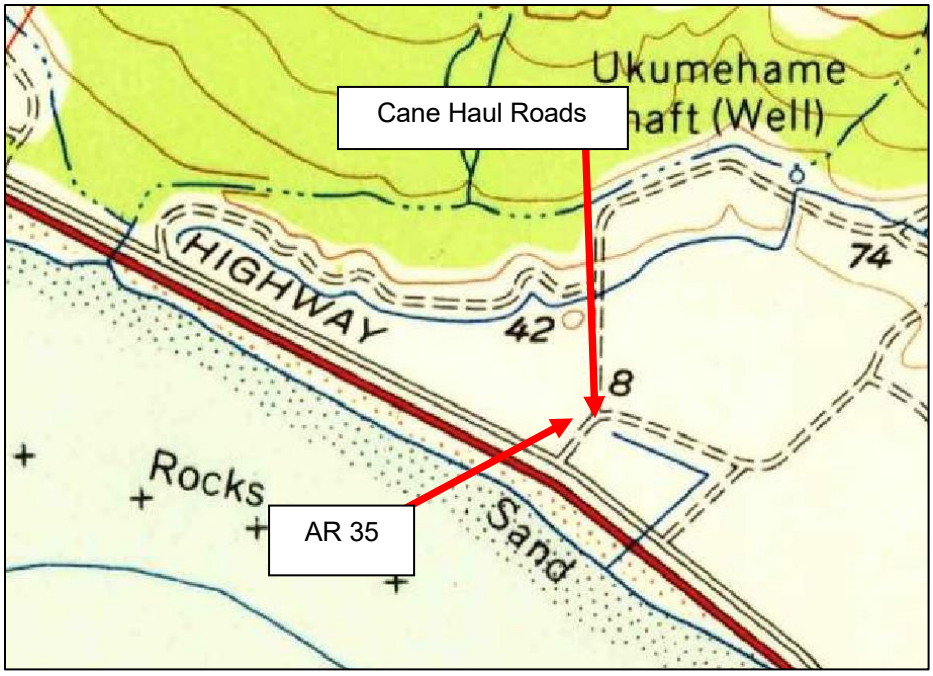


Figure 4.155. Location of AR 35 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.156. View of AR 35; note stacked rock construction.

Figure 4.157. View of AR 35, facing north; note cluttered surface surrounding the well.

4.35 AR 36 (SIHP No. 09155): Sluice Gate

AR 36**,** newly recorded as SIHP No.09155, consists of a sluice gate and canal located between Olowalu and Ukumehame (**Table 5.39**; **Figure 4.158**). The resource is bounded by foothills to the north, Honoapiʻilani Highway to the south, and a wooded area to the east and west.

According to the County of Maui tax assessor's database, AR 36 sits on a parcel encompassing 399.903 acres and is currently owned by the State of Hawaiʻi. Historic topographic mapping and aerial images do not show AR 36, but the resource is located in an area associated with the Olowalu Sugar Company in 1906 (Alexander 1906) (**Figure 4.159**). The Olowalu Sugar Company owned and managed the fields surrounding AR 36 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lahaina purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lāhainā since 1883, when the first well was drilled in West Maui for the company.

Groundwater and water from the West Maui mountains were drawn through expansive networks of pumps, ditches, flumes, and reservoirs, which the company lined with concrete and stone to minimize water loss. By the time the company purchased the Olowalu lands, the networks of ditches and reservoirs were fully supplied by electric pumps. By 1936, eight pumping stations were operating across the company estates. The facility installed along the Olowalu Stream was an Allis-Chalmers pump that was powered by a 112-kilowatt motor and had a capacity of 5 million gallons per day (Hibbard 2009). Between 1948 and 1951, the company cleared approximately 3,153 acres (Hawaiian Sugar Planters' Association 2004). Thus, AR 36 is likely associated with the sugar plantation industry in the region.

Table 4.39. Summary of AR 36 (SIHP No. 09155)

Address	Between Olowalu and Ukumehame
TMK	4-8-002:008
County	Maui County
Date of Construction	Late 19th to mid-20th Century
Square Footage (Living Area)	N/A
Acreage	399.903
Owner	State of Hawaiʻi
Architectural Style/Type	Late 19th to mid-20th Century Water Control
Integrity	AR 36 is in fair condition, exhibiting signs of deterioration due to erosion and exposure, and has undergone alteration. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 36 is not individually eligible and is not recommended as contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.35.1 Structure Description

AR 36 consists of a metal sluice gate and canal constructed with stacked rock that is located on the mauka side of Honoapiʻilani Highway (**Figures Figure 4.160**). The canal has been encased in concrete, but the stacked rock is exposed in areas where the concrete has eroded.

4.35.2 Current Condition and Integrity

AR 36 is in fair condition, exhibiting signs of deterioration due to exposure and erosion. The structure has undergone little alteration. While the property retains its integrity of location and setting, AR 36 has lost its integrity of design, material, workmanship, feeling, and association through extreme degradation.

4.35.3 Significance Evaluation

AR 36 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to lack of architectural and historic significance. The sluice gate and canal are associated with the local sugar plantation industry and its impact on the region, but the structures, as an individual resource, do not embody this historical significance. Therefore, AR 36 is not recommended as individually eligible Under NRHP Criterion A.

Under NRHP Criterion B and SRHP Criterion b, AR 36 is recommended as not individually eligible because no ties or links were found between the structures and people with cultural or historic significance.

Under NRHP Criterion C, AR 36 is not individually eligible because it has no elements that make it a unique example of its architectural type, which is found throughout the region. In addition, the resource is not the work of an expert builder or craftsperson.

Under NRHP Criterion D and SRHP Criterion d, AR 36 is recommended as not individually eligible because the structures do not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the structure and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

While AR 36 may be associated with the sugar plantations, the structure is located outside the proposed limits for the historic district that are based on historic map boundaries of the Period of Significance. Furthermore, the structure is in poor condition and thus does not retain enough integrity of material and design to constitute an additional historic district in Ukumehame.

Figure 4.158. Aerial image showing the location of AR 36.

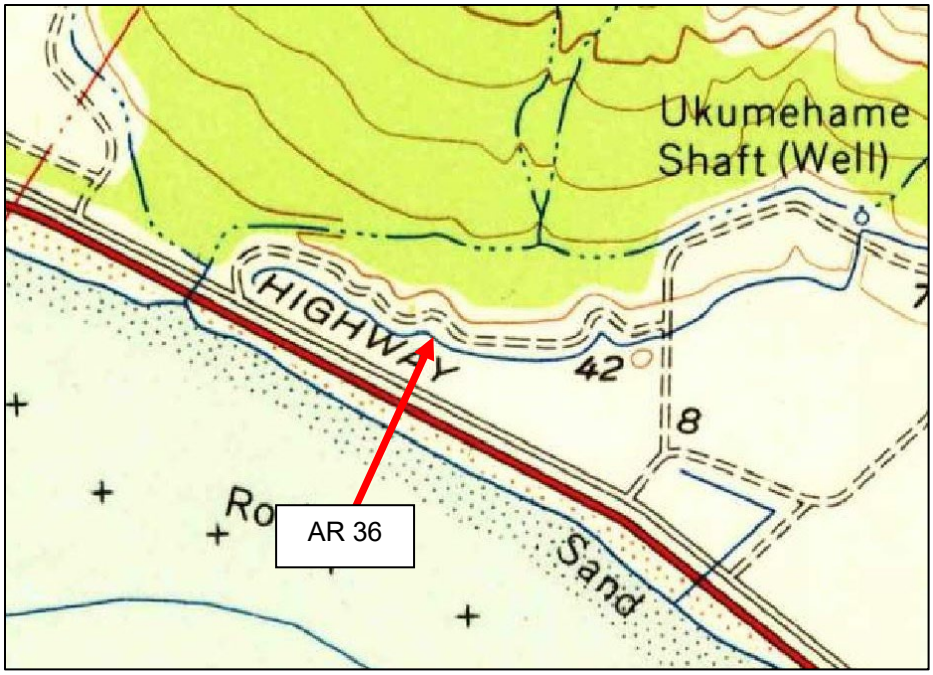


Figure 4.159. Location of AR 36 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.160. View of AF 36, facing north; note sluice gate and stacked rock exposed where concrete is eroding.

4.36 AR 37 (SIHP No. 09156): Irrigation Ditches

AR 37**,** newly recorded as SIHP No.09156, consists of an unimproved irrigation ditch located in agricultural fields between Olowalu and Ukumehame, within Maui, Hawai'i (**Table 5.40**; **Figure 4.161**). The resource is bounded by foothills to the north and east and a wooded area to the south and west.

According to the County of Maui tax assessor's database, AR 37 sits on a parcel encompassing 399.903 acres and is currently owned by the State of Hawai'i. Historic topographic mapping and aerial images do not show AR 37, but the resource is located in an area associated with the Olowalu Sugar Company in 1906 (Alexander 1906). The 1955 Olowalu, Hawai'i topographic map does show a sugar cane haul road in the vicinity of AR 37 (**Figure 4.162 and Figure 4.163**). The Olowalu Sugar Company owned and managed the fields surrounding AR 37 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lahaina purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lāhainā since 1883, when the first well was drilled in West Maui for the company. Groundwater and water from the West Maui mountains were drawn through expansive networks of pumps, ditches, flumes, and reservoirs, which the company lined with concrete and stone to minimize water loss.

By the time the company purchased the Olowalu lands, the networks of ditches and reservoirs were fully supplied by electric pumps. By 1936, eight pumping stations were in operation across the company estates. The facility installed along the Olowalu Stream was an Allis-Chalmers pump powered by a 112-kilowatt motor and had a capacity of 5 million gallons per day (Hibbard 2009). Between 1948 and 1951, the company cleared approximately 3,153 acres (Hawaiian Sugar Planters' Association 2004). Thus, AR 37 is likely associated with the sugar plantation industry in the region, most likely the Pioneer Mill Company's ownership of the property.

Table 4.40. Summary of AR 37 (SIHP No. 09156)

Address	Between Olowalu and Ukumehame
TMK	4-8-002:008
County	Maui County
Date of Construction	Early to mid-20th century
Square Footage (Living Area)	N/A
Acreage	399.903
Owner	State of Hawai'i
Architectural Style/Type	Early to mid-20th Century Water Control
Integrity	AR 37 is in poor condition and shows several signs of deterioration and neglect; some elements of the resource have also been intersected by modern roads. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 37 is not individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to loss of integrity and lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.36.1 Structure Description

AR 37 consists of a segment of a ditch located in a wooded and grassy area, which was once part of a network of irrigation ditches. At some point, the ditch was stabilized with concrete (**Figures Figure 4.164**).

4.36.2 Current Condition and Integrity

AR 37 is in poor condition. The ditches display signs of neglect and deterioration and are barely perceptible in the landscape.

4.36.3 Significance Evaluation

AR 37 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance. The site is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the mid-19th century to the 20th century. However, AR 37 is not a strong representation of this association due to its poor condition, which has resulted in a loss of integrity of design, materials, workmanship, setting, and feeling. Thus, under NRHP Criterion A and SRHP Criterion a, the site is recommended as not eligible.

Under NRHP Criterion B and SRHP Criterion b, AR 37 is recommended as not eligible because no ties or links were found between the structures and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structures are not eligible because they have no elements that make it a unique example of its architectural style or form. The structures are not the work of an expert builder or craftsperson. Moreover, features of this type are common in 20th century agricultural landscapes and found throughout the region.

Under NRHP Criterion D and SRHP Criterion d, AR 37 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry, the Olowalu Sugar Company, or the Pioneer Mill Company. Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

While AR 37 is associated with the sugar plantations and holdings of the Pioneer Mill Company, the structures are located outside the proposed limits for the historic district that are based on historic map boundaries of the Period of Significance. Furthermore, the structures are in poor condition and thus do not retain enough integrity of material and design to constitute an additional historic district in Ukumehame.

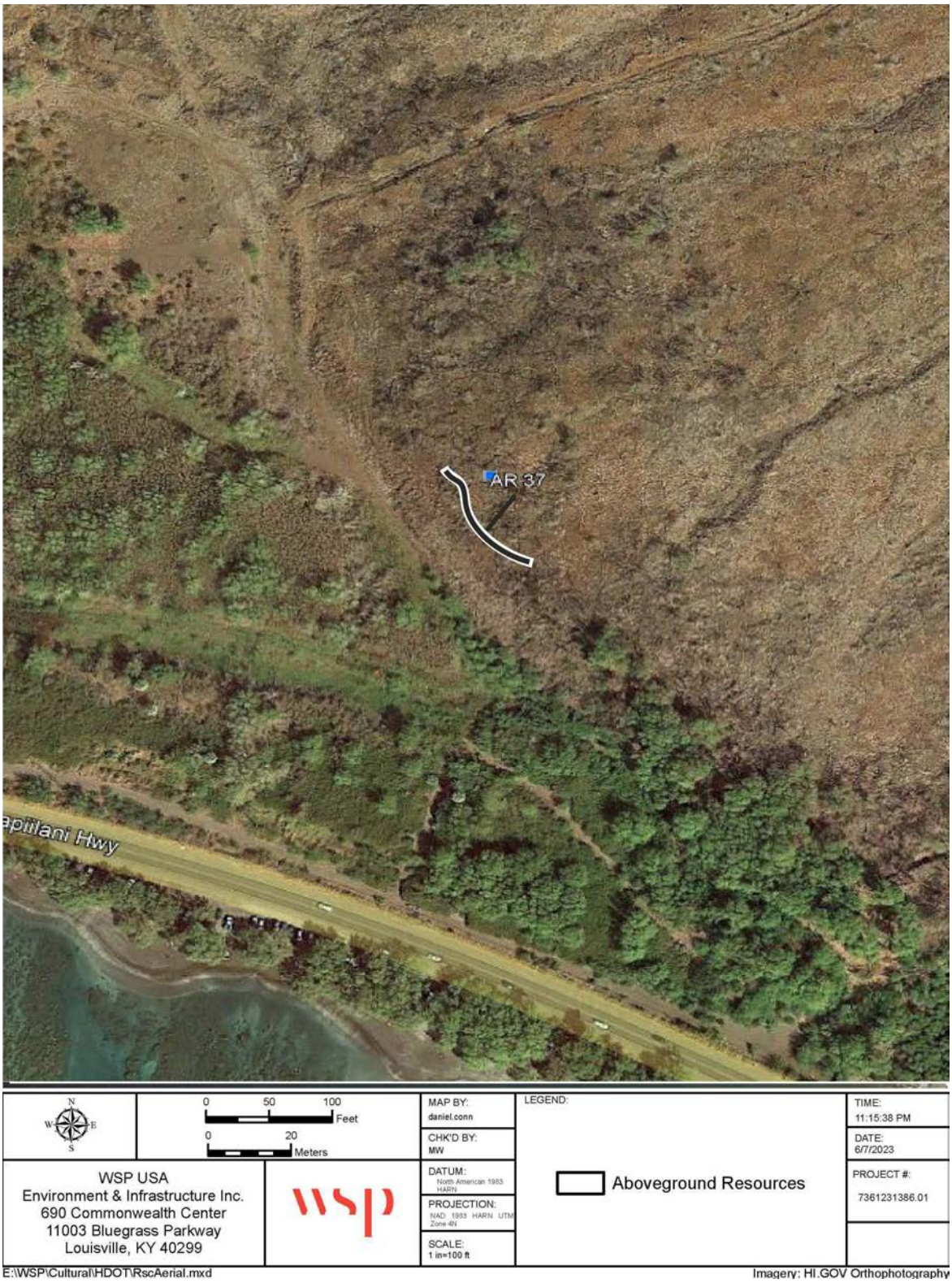


Figure 4.161. Aerial image showing the location of AR 37.

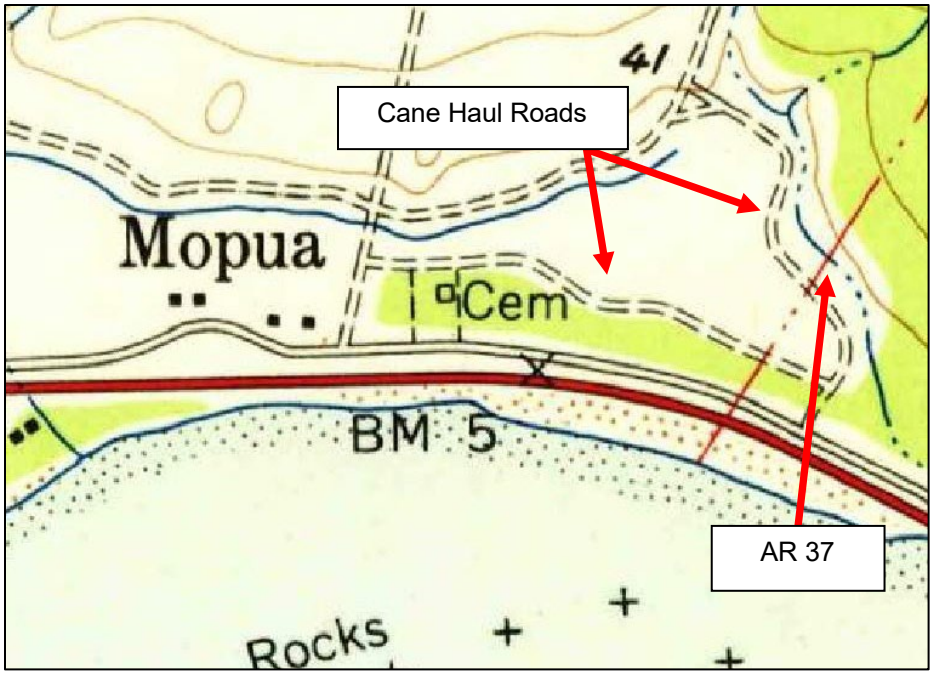


Figure 4.162. Location of AR 37 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

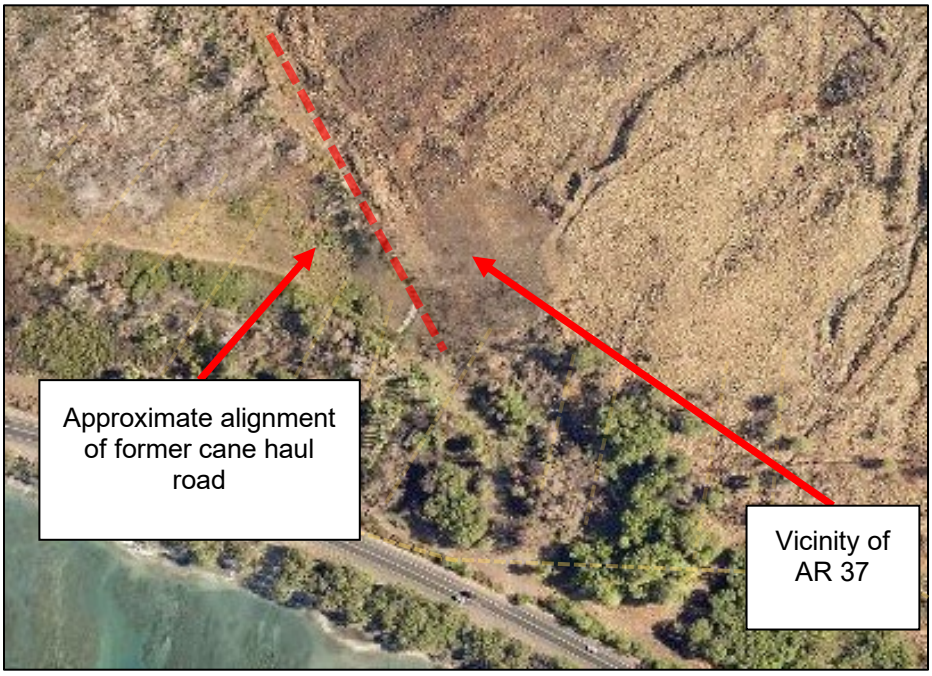


Figure 4.163. Approximate location of AR 37 on modern aerial image.

Figure 4.164. View of AR 37, facing northeast.

4.37 AR 38 (SIHP No. 09157): Cane Haul Roads (Ukumehame)

AR 38**,** newly recorded as SIHP No.09157, consists of two abandoned segments of unimproved cane haul roads (AR 38.1 and 38.2) located in a forested area mauka of Honoapiʻilani Highway (**Table 5.41**; **Figure 4.165**). The resource is bounded by a wooded or grassy area to the north, east, and west, and by the Honoapiʻilani Highway to the south.

According to the County of Maui tax assessor's database, AR 38 sits on a parcel encompassing 188.969 acres and is currently owned by the State of Hawaiʻi. AR 38.2: The 1955 Olowalu, Hawaiʻi topographic map shows the road segments of AR 38 and illustrates the presence of this resource along with other cane haul routes that are no longer fully extant (**Figure 4.166**). The earliest historic aerial image available for the area (from 1949) depicts the segments of cane haul roads along with additional cane haul roads that are no longer extant due to modern development. While the earliest cane haul routes appear on the 1923 USGS Maalaea Quadrangle map, the majority are not depicted (including AR 38) (**Figure 4.167**). These maps suggest that existing roadways were integrated into a larger system of cane hauls roads in relationship with the sugar plantation industry under the Olowalu Sugar Company and the Pioneer Mill Company.

The Olowalu Sugar Company owned and managed the fields surrounding AR 38 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lāhainā purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu and Ukumehame cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving fields and irrigation systems across their holdings in the dry climate of Lāhainā since 1883, when the first well was drilled in West Maui for the company (Maly and Maly 2007). Between 1948 and 1951, the company cleared approximately 3,153 acres—including the fields surrounding AR 38—to improve the rocky soil (Hawaiian Sugar Planters' Association 2004). AR 38 is one feature in the larger network of plantation agriculture and field improvement structures remaining from the modification of the Olowalu landscape by the Pioneer Mill Company during the 20th century.

Table 4.41. Summary of AR 38 (SIHP No. 09157)

Address	Ukumehame
TMK	4-8-002:071
County	Maui County
Date of Construction	By 1949
Acreage	AR 38.1: 188.969; AR 38.2: 29.748
Owner	AR 38.1: State of Hawaiʻi; AR 38.2: County of Maui
Architectural Type/Style	Early to mid-20th Century Plantation Agriculture
Integrity	AR 38 is in fair to poor condition. AR 38.1 shows signs of deterioration but has undergone little alteration. AR 38.2 exhibits signs of severe erosion and disturbance, and has undergone alterations, resulting in a loss of integrity.
NRHP Significance Evaluation	AR 38 is not individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to loss of integrity and lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.37.1 Structure Description

AR 38 consists of two abandoned segments of the former unimproved cane haul road network located in forested and grassy areas on the north side of Honoapiʻilani Highway. The network is illustrated as having a roughly gridded pattern in historic maps (**Figure 4.166**). AR 38.1 is a remnant of a road with an east-west alignment and consists of asphalt intermixed with volcanic cinder and sand (**Figure 4.167**). The road is approximately 5 meters wide with stacked rock berm running along both sides. A rock roadblock is located on the east of the road (**Figure 4.242**). AR 38.2 is a remnant of an unimproved dirt road, which is largely overgrown with vegetation, and difficult to identify (**Figure 4.243**).

4.37.2 Current Condition and Integrity

AR 38 is in fair to poor condition. AR 38.1 shows signs of deterioration but has undergone alterations, such as the loss of the connecting segments of the road network, as well as the addition of a roadblock on the east end. AR 38.2 exhibits signs of severe erosion, disturbance, and has become overgrown with vegetation. The resource has also undergone alterations, like the loss of connecting sections of the road network. Both roads were likely once part of the original segments of the cane haul road network but were abandoned at some point and are no longer in use. The neglect of the roads has resulted in a loss of integrity of materials, design, workmanship, setting, and feeling.

4.37.3 Significance Evaluation

AR 38 is recommended as not individually eligible for listing in the NRHP and not a significant historic property under HAR 13-275-6 due to a lack of historic and architectural significance and loss of integrity. Although the roads were constructed during the sugar plantation period as part of the cane haul road network, the segment of cane haul roads, as an individual resource, do not embody the historical significance of the sugar plantation industry and its impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a.

Under NRHP Criterion B and SRHP Criterion b, AR 38 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C, AR 38 is not individually eligible because it is a common feature found in agricultural settings throughout the region and is not the work of an expert builder or craftsperson.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history; however, AR 38, as an individual resource, does not have such potential.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

While AR 38 is associated with the sugar plantations and holdings of the Pioneer Mill Company, the structures are located outside the proposed limits for the historic district that is based on historic map boundaries of the Period of Significance. Furthermore, the roads are in fair to poor condition and thus do not contain enough integrity of material and design to constitute an additional historic district in Ukumehame.

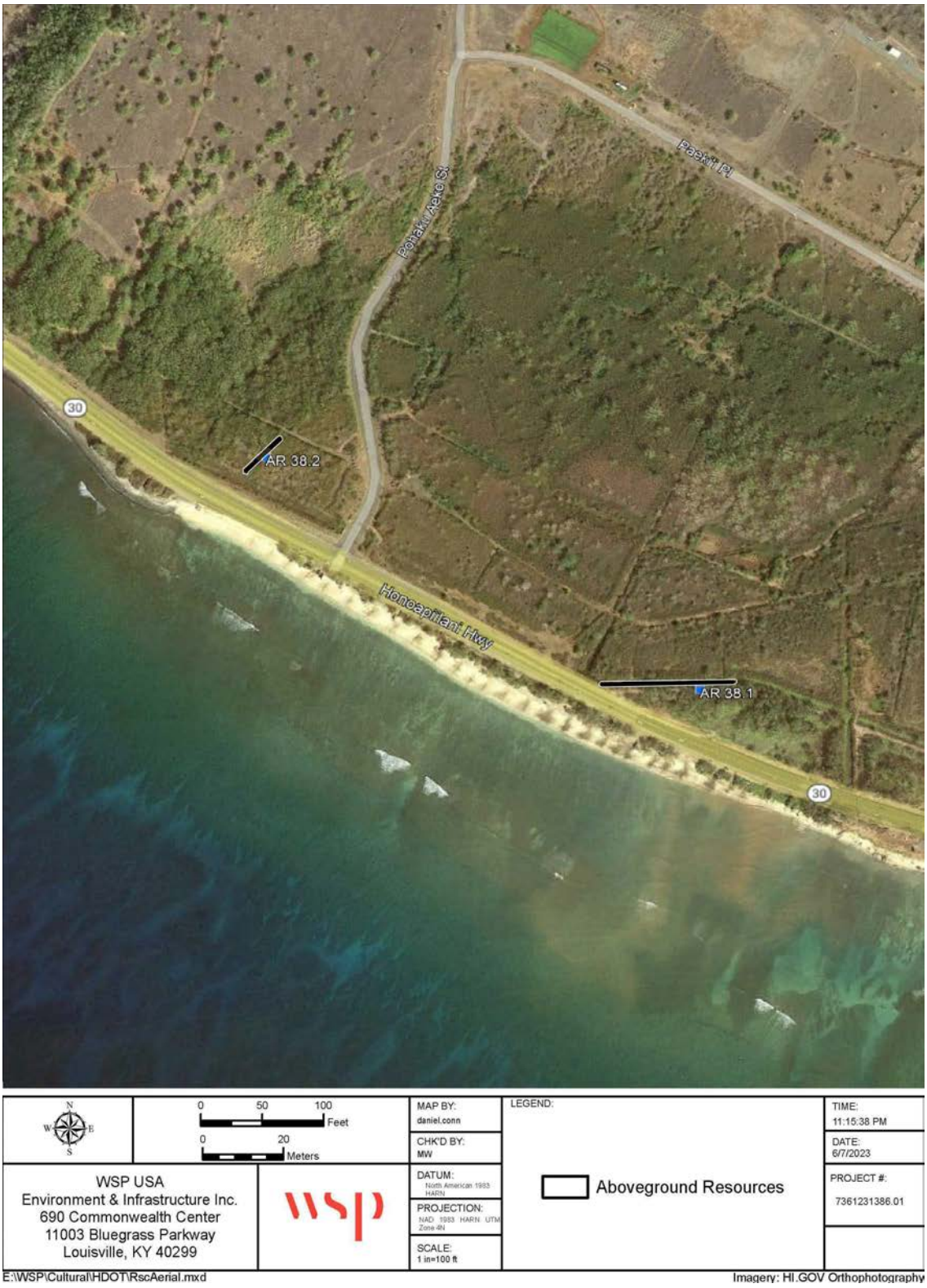


Figure 4.165. Aerial image showing the location of AR 38.

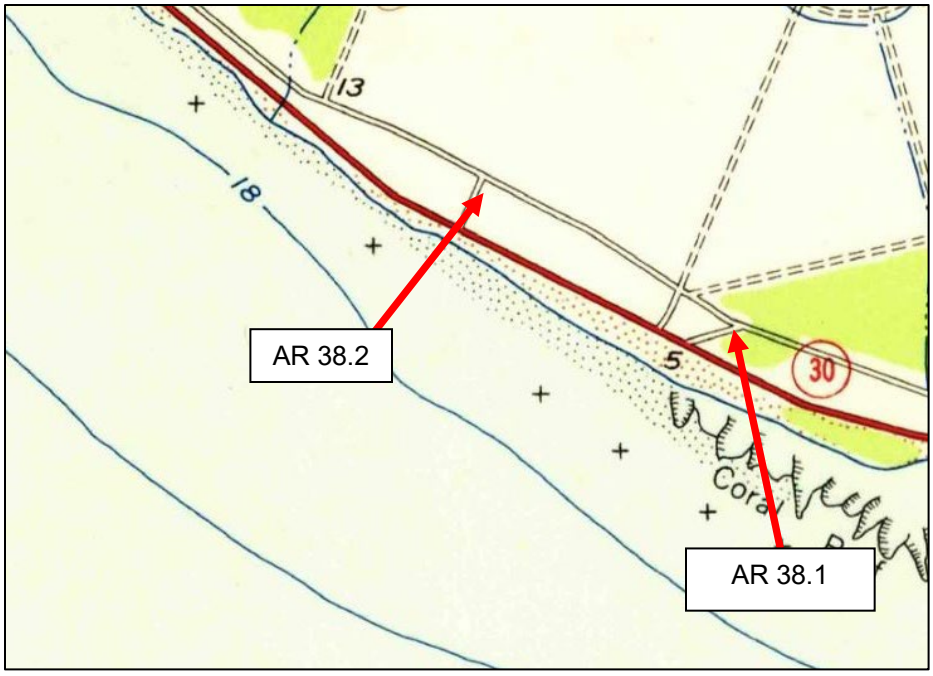


Figure 4.166. Location of AR 38.1 and 38.2 on the 1955 USGS Olowalu, Hawai‘i, 7.5-minute quadrangle topographic map.

Figure 4.167. View of AR 38.1, facing west.

4.38 AR 39 (SIHP No. 09158): Irrigation Ditches

AR 39**,** newly recorded as SIHP No.09158, consists of 17 unimproved irrigation ditches—designated AR 39.1 through AR 39.17—located in grassy and wooded areas throughout Ukumehame (**Table 5.42**; **Figure 4.168 – 4.170**). The ditches were once part of a large network of ditches constructed for the sugar cane industry in the region.

According to the County of Maui tax assessor's database, AR 39 extends across five parcels, and the ditches have been constructed across approximately 279.046 acres. The land occupied by AR 39 is currently owned by the County of Maui, the State of Hawai'i, and Ukumehame Holding LLC. The State owns the most acreage.

Historic topographic mapping does not show AR 39, but the irrigation structures are located in an area associated with the Olowalu Sugar Company in 1906 and can be seen in a 1977 aerial image (**Figure 4.171**). The Olowalu Sugar Company owned and managed the fields surrounding AR 39 beginning in the mid-19th century. The Pioneer Mill Company of nearby Lahaina purchased the Olowalu Sugar Company in 1931. This purchase resulted in the incorporation of approximately 1,200 acres of Olowalu cane fields into the company's sugar plantation lands, which totaled over 10,000 acres by 1935. Prior to the incorporation of these lands, Pioneer Mill Company had been constructing and improving irrigation systems across their holdings in the dry climate of Lahaina since 1883, when the first well was drilled in West Maui for the company.

Groundwater and water from the West Maui mountains were drawn through expansive networks of pumps, ditches, flumes, and reservoirs, which the Pioneer Mill Company lined with concrete and stone to minimize water loss. By the time the company purchased the Ukumehame lands, the networks of ditches and reservoirs were fully supplied by electric pumps. By 1936, eight pumping stations were operating across the company estates. The facility installed along the Olowalu Stream was an Allis-Chalmers pump that was powered by a 112-kilowatt motor and had a capacity of 5 million gallons per day (Hibbard 2009). Between 1948 and 1951, the company cleared approximately 3,153 acres (Hawaiian Sugar Planters' Association 2004). Thus, AR 39 is associated with the sugar plantation industry in the region, and most likely the Pioneer Mill Company's ownership of the property.

Table 4.42. Summary of AR 39 (SIHP No. 09158)

Address	Ukumehame
TMK	4-8-002:002; 070; 071; 114; 115
County	Maui County
Date of Construction	Early to mid-20th century
Square Footage (Living Area)	N/A
Acreage	279.046
Owner	County of Maui, the State of Hawai'i, and the Ukumehame Holding LLC
Architectural Style/Type	20th Century Water Control
Integrity	AR 39 is in poor condition and shows several signs of erosion, deterioration and neglect; some elements of the resource have also been intersected by modern roads. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 39 is not individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to loss of integrity and lack of association.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.38.1 Structure Description

AR 39 consists of a network of irrigation ditches and culverts located in wooded, grassy, and exposed ground areas north of Honoapi'ilani Highway (**Figures 4.168** through **4.170; Figure 4.71** through **4.176**). The features that comprise AR 39 are a series of unimproved irrigation ditches and culverts, which vary in alignment and size and are remnants of a former large irrigation network.

4.38.2 Current Condition and Integrity

AR 39 is in poor condition. The ditches are barely perceptible in the landscape and display signs of neglect, erosion, and deterioration. Moreover, some elements of the resource have also been intersected by modern roads. While the property retains its integrity of location and setting, AR 39 has lost its integrity of design, material, workmanship, feeling, and association through extreme degradation and alterations.

4.38.3 Significance Evaluation

AR 39 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance. The site is associated with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the mid-19th century to the 20th century. However, AR 39 is not a strong representation of this association due to its poor condition, which has resulted in a loss of integrity of design, materials, workmanship, setting, and feeling. Thus, under NRHP Criterion A and SRHP Criterion a, the site is recommended as not eligible.

Under NRHP Criterion B and SRHP Criterion b, AR 39 is recommended as not eligible because no ties or links were found between the structures and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the structures are not eligible because they have no elements that make it a unique example of its architectural style or form. The structures are not the work of an expert builder or craftsperson. Moreover, features of this type are common in 20th century agricultural landscapes and found throughout the region.

Under NRHP Criterion D and SRHP Criterion d, AR 39 does not have the potential to yield additional information regarding local and regional development or other themes related to the sugar plantation industry, the Olowalu Sugar Company, or the Pioneer Mill Company.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group’s history and cultural identity.

While AR 39 is associated with the sugar plantations and holdings of the Pioneer Mill Company, the structures are located outside the proposed limits for the historic district that is based on historic map boundaries of the Period of Significance. Furthermore, the structures are in poor condition and thus do not retain enough integrity of material and design to constitute an additional historic district in Ukumehame.

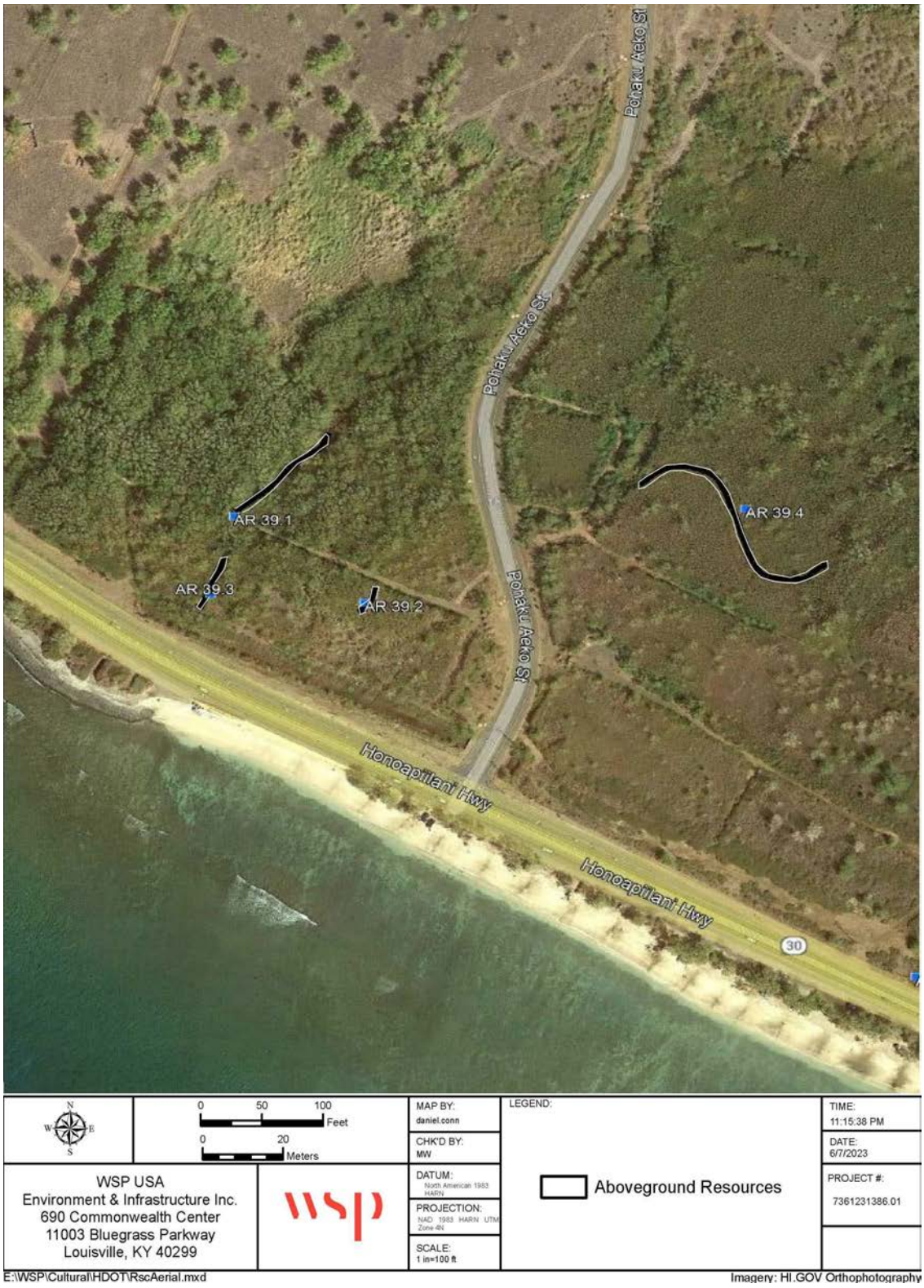


Figure 4.168. Aerial image showing the location of AR 39.1 through AR 39.4.

Figure 4.169. Aerial image showing the location of AR 39.5 through AR 39.14.

Figure 4.170. Aerial image showing the location of AR 39.15 through AR 39.17.

Figure 4.171. The irrigation structures associated with AR 39 on a 1977 historic aerial image.

Figure 4.172. Approximate location of AR 39 elements (1939 Pioneer Mill Company Olowalu Division Map) overlain on current aerial image.

Figure 4.173. View of north extent of AR 39.1, facing north.

Figure 4.174. View of AR 39.6, facing west.

Figure 4.175. View of AR 39.12, facing south.

Figure 4.176. View of north extent of AR 39.14, facing north.

4.39 AR 40 (SIHP No. 09159): Rock Wall

AR 40**,** newly recorded as SIHP No.09159, consists of a rock wall segment on the mauka side of Honoapiʻilani Highway between Launiupoko and Olowalu (**Table 5.43**; **Figure 4.177**). The structure is bounded by foothills to the north, the Olowalu Recycling and Refuse Convenience Center to the east, Honoapiʻilani Highway to the south, and a valley and drainage to the west. AR 40 is accessed by an unimproved access road to the north of Honoapiʻilani Highway. A wide modified gully runs northeastwardly upslope from the wall, and the wall and gully may have once been part of an enclosure associated with ranching. A rock mound sits to the northwest of AR 40, which is likely the remnants of another segment of the same wall.

According to the County of Maui tax assessor's database, AR 40 sits on a parcel encompassing 65.375 acres and is currently owned by the State of Hawaiʻi. The tax assessor's database does not list a construction date for the structure, and historic topographic maps and aerial images do not depict AR 40 or any other structures or buildings in the vicinity, other than the unimproved access road that runs parallel to Honoapiʻilani Highway (**Figure 4.178** and **Figure 4.179**). However, the wall is likely associated with agricultural use or a boundary demarcation. The construction materials and style are similar to other late-19th to mid-20th century rock walls constructed in the region.

Table 4.43. Summary of AR 40 (SIHP No. 09159)

Address	Launiupoko (mauka of Honoapiʻilani Highway)
TMK	4-8-003:039
County	Maui County
Date of Construction	Early to mid-20th century
Square Footage	NA
Acreage	65.375
Owner	State of Hawaiʻi
Architectural Type/Style	Boundary Demarcation
Integrity	AR 40 is in fair condition but shows signs of disuse and disrepair as well as heavy modifications. This has resulted in loss of integrity of location, setting, design, material, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 40 is not recommended as individually eligible and is not recommended as a contributing resource to the proposed Olowalu Sugar Plantation Historic District due to a lack of historic and architectural significance and loss of integrity.
HRS 6E Significance Evaluation	Recommended as not eligible.

4.39.1 Structure Description

AR 40 consists of a single rock wall segment constructed of dry-stacked rock (**Figure 4.180** and **Figure 4.181**). The segment extends southeast and northwest to west towards the unimproved dirt access road, and measures approximately 0.75 meters wide and .80 centimeters tall. However, the dimensions of the rock wall vary along its entire length. The stones are typically large, rounded cobbles that were not shaped or altered by the masons who constructed the wall. Although no longer in use, the wall segments comprised an exceedingly common element of West Maui infrastructure.

4.39.2 Current Condition and Integrity

AR 40 is in fair condition but shows signs of disuse and disrepair. The wall segment is partially overgrown with vegetation and some of the rock construction appears eroded with loose and missing rocks. While the property retains its integrity of location and setting, AR 40 has lost its integrity of design, material, workmanship, feeling, and association through degradation.

4.39.3 Significance Evaluation

AR 40 is recommended as not eligible for listing in the NRHP due to its loss of integrity and lack of architectural and historic significance. under NRHP Criterion A and SRHP Criterion a, AR 40 is

recommended as not individually eligible because it is not associated with any event or events of historic significance to the region, state, or nation, including themes related to the sugar plantation industry.

Under NRHP Criterion B and SRHP Criterion b, AR 40 is recommended as not individually eligible because no ties or links were found between the building and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, the resource is not individually eligible because the wall has no elements that make it exemplary of their architectural style or form. AR 40 is not the work of an expert builder or craftsperson, and is a common type found across the region.

Under NRHP Criterion D and SRHP Criterion d, AR 40 is recommended as not individually eligible because the structure does not have potential to contribute important information to our understanding of history related to the sugar plantation industry and its impact on Olowalu and the surrounding region. AR 40 is one of many features in the larger network of agriculture, property divisions, road and stream demarcations, and field improvement structures remaining from the modification of the region by the local population during the 20th century. These types of low wall, locally sourced structures are widespread throughout Maui, and the Hawaiian Islands in general, making them an exceedingly commonplace element.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the building and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

While AR 40 is associated with the sugar plantations and holdings of the Pioneer Mill Company, the structure is located outside the proposed limits for the historic district that is based on historic map boundaries of the Period of Significance. Furthermore, the collective structures do not retain enough integrity of material and design to constitute an additional historic district in Ukumehame.

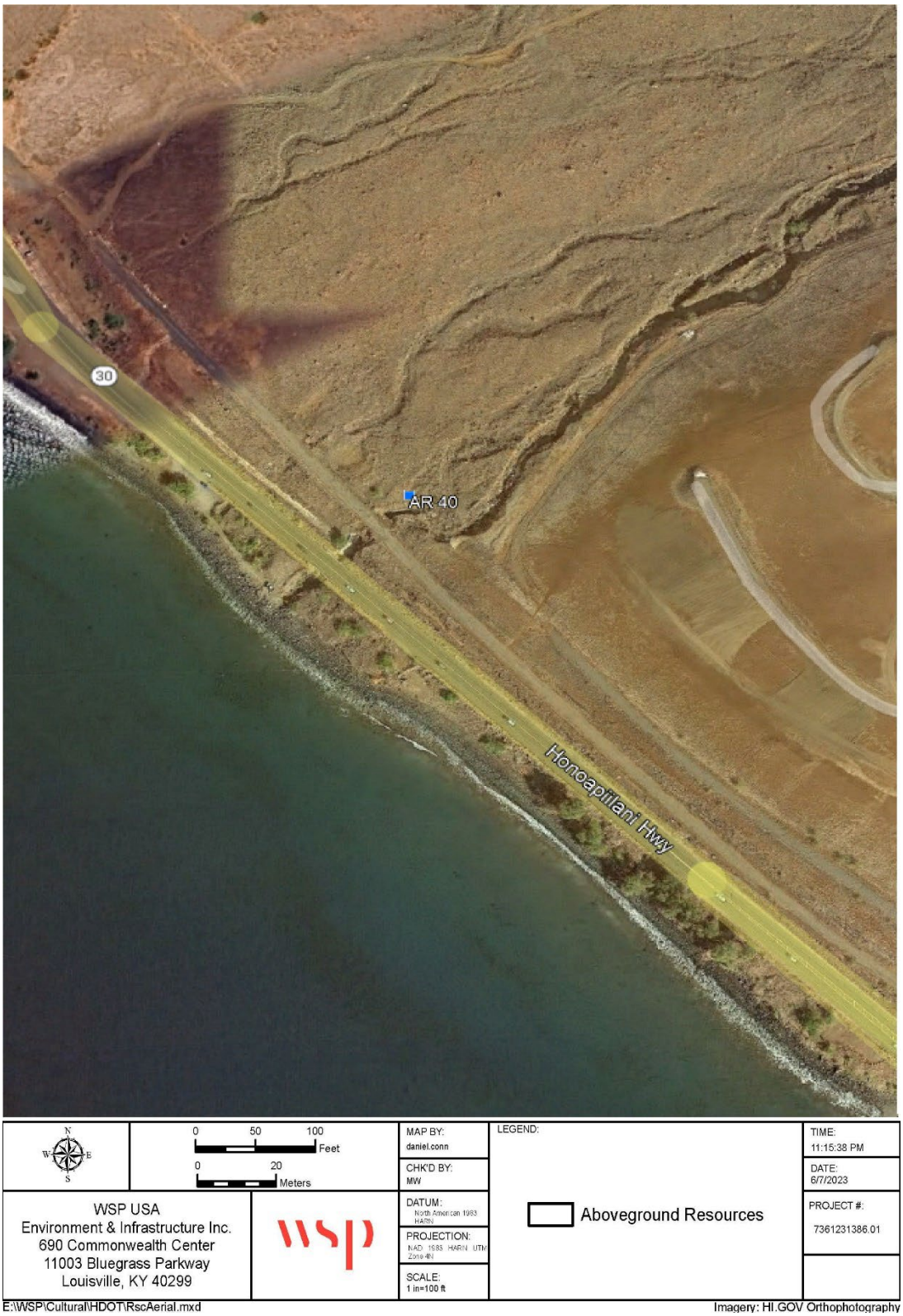


Figure 4.177. Aerial image showing the location of AR 40.

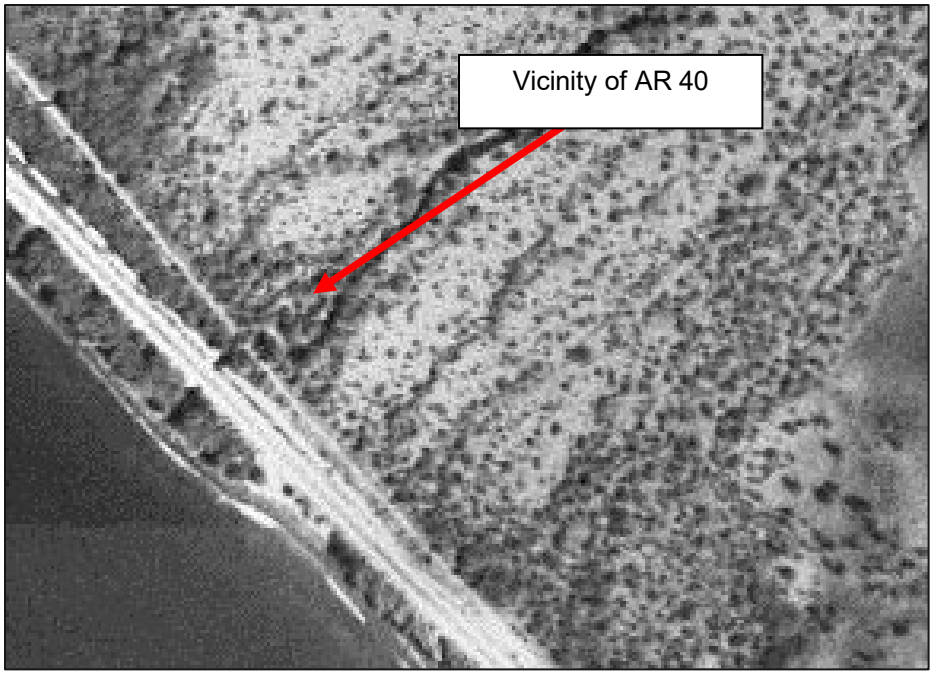


Figure 4.178. 1950 historic aerial image of the general location of AR 40.

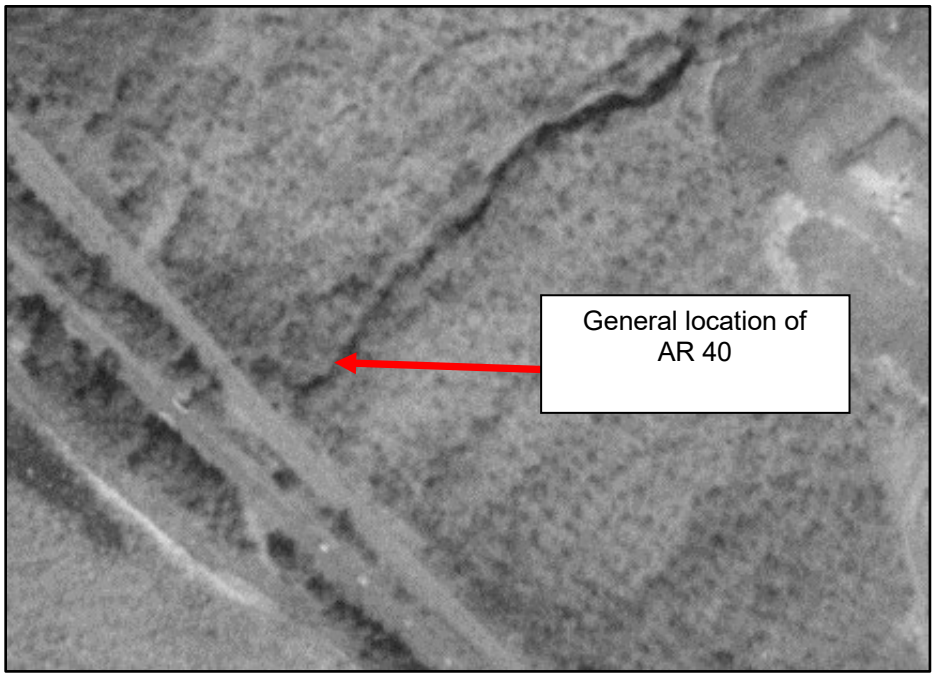


Figure 4.179. 1977 historic aerial image of the general location of AR 40.

Figure 4.180. View of AR 40, facing southeast.

Figure 4.181. View of AR 40, facing south; note northwest edge of gully.

4.40 Olowalu Sugar Plantation Historic District (SIHP 1602 Expansion)

A total of 10 resources identified in the RLS are recommended as contributing to a proposed expansion of the original 1974 Olowalu Sugar Mill Complex Historic District, to be named the Olowalu Sugar Plantation Historic District. These resources represent a single cultural landscape reflective of the influence of the local sugar industry and the Pioneer Mill Company on the development of Olowalu (**Table 4.44**; **Figure 4.182**). Based on their common history and interconnected features, these resources were also evaluated together representing a cohesive association, under the designation of a proposed Olowalu Sugar Plantation Historic District.

The Olowalu Sugar Plantation Historic District was assessed according to the four NRHP criteria for evaluation at 36 CFR § 60.4 and five significance criteria at HRS § 6E for historic significance under a number of themes including Hawai‘i sugar plantations, agricultural field clearance and irrigation practices, locally and regionally significant populations and individuals, and architectural details. Based on research conducted during the aboveground architectural resource study, the proposed expansion of the Olowalu Sugar Plantation Historic District is recommended eligible for listing in the NRHP as a historic district under Criteria A, C, and D. The areas of significance represented in the Olowalu Sugar Plantation Historic District include agriculture, architecture, engineering, and industry.

The proposed Period of Significance for the proposed Olowalu Sugar Plantation Historic District reflects a relatively continuous state of development, which involved land acquisition, infrastructure development, construction, and subsequent use of the landscape to cultivate the sugarcane fields managed by Pioneer Mill Company in Olowalu. The Period of Significance for the proposed Olowalu Sugar Plantation Historic District dates from 1880 to 1951. The 1881 Monsarrat map is the earliest depiction of Olowalu that includes several of the contributing resources to the proposed historic district including the Olowalu Sugar Mill Complex Historic District (SIHP No. 1602) and associated plantation residences (AR 4, AR 7, AR 16).

The Olowalu Sugar Company was the primary influence on the local sugar industry in the late-19th century, shaping the landscape for use in the cultivation, processing, and transportation of the crop (**Figure 4.182**). Throughout this period, the company added roadways and rail lines, laborer and manager’s residences, education and grocery facilities, boat landings and wharfs, and irrigation structures. While the proposed start date recognizes the spatial influence of the Olowalu Sugar Company, the purchase of these holdings by the Pioneer Mill Company in 1931 and subsequent development of the area resulted in the current feeling of the landscape. The proposed terminal date of 1951 coincides with the appearance of the last contributing element in historic aerial images.

The boundary of the proposed Olowalu Sugar Plantation Historic District encompasses approximately over 100 acres and was delineated through the identification of contributing resources, as well as archival research. Based on these factors, the proposed boundary is confined to the grouping of contributing buildings and structures within the Pioneer Mill Company map from 1931.

The boundary of the Olowalu Sugar Plantation Historic District is limited to Olowalu because the architectural historic properties related to the plantation era within Ukumehame and Launiupoko are less prevalent, hold less historical and architectural significance, and have lost their integrity of materials, workmanship, design, setting, feeling, and association. Few buildings are extant, and the landscape overall does not reflect the influence of the local sugar industry. Consequently, a historic district or landscape was not recommended for either area.

4.40.1 Determination of Integrity

A significant span of the Olowalu ahupua‘a history precedes the area’s modification by the Pioneer Mill Company. A breadth of historic features—buildings, structures, roads, boundaries, grave markers, places of religious importance—exist alongside remnant expressions of pre-contact traditional Hawaiian sites, containing clear evidence of the prehistoric and historic continuum of the location. Many of the archaeological resources are largely undisturbed, but the aboveground resources originally associated with the Olowalu Sugar Company and early plantation era have been altered or obliterated by the later development of the Pioneer Mill Company, resulting in a somewhat “layered” landscape. This disturbance can be seen in resources such as SIHP No. 1602—the remnants of the decommissioned mill complex.

Although the area no longer retains its integrity associated with the early-19th century sugar plantation industry, the influence of the Pioneer Mill Company during the Period of Significance has been preserved in the district. The various buildings and structures constructed during the first half of the 20th century are clearly visible and remain largely intact. Changes in the area since 1951 have consisted primarily of residential development to the north of the project APE, the modification or loss of historic resources, and a moderate loss of shoreline due to rising sea levels. However, these changes have not diminished the core tangible and intangible qualities that contribute to the significance of the district and its contributing elements, such that the proposed expansion of the Olowalu Sugar Plantation Historic District retains its integrity of location, setting, feeling, association, design, workmanship, and materials.

4.40.2 Significance Evaluation

Under NRHP Criterion A and SRHP Criterion a, the district is primarily significant for its association with the sugar plantation industry in Olowalu and the Pioneer Mill Company, which had a substantial role in the development of the local community and region from the mid-19th century to the 20th century. From the organization of the Olowalu Sugar Plantation in 1881 to the closure of the Pioneer Mill Company in 1999, the Olowalu landscape has been engraved with the agricultural, demographic, and technological developments of Hawai‘i’s Plantation era.

The proposed Olowalu Sugar Plantation Historic District is not significant Under NRHP Criterion B and SRHP Criterion b due to its lack of association with a historic person. Although the construction of the dam, pump station, and reservoir of monumental constructions, background research suggests they have no direct association with any people of historic or architectural significance that either used the facilities or designed/built them.

Under NRHP Criterion C and SRHP Criterion c, the proposed Olowalu Sugar Plantation Historic District is significant as it embodies distinctive characteristics of Hawai‘i’s plantation era and the associated engineering and architectural developments and trends of the period. Elements of the water storage systems and field clearance structures in the landscape represent 20th century engineering and agricultural developments implemented by the Pioneer Mill Company to meet their water resource and cultivation needs in the arid ecology of West Maui. Additionally, the establishment and alterations to elements of rail, road, and sea shipping and transportation routes (for example, roads, former rail lines, wharfs) reflect the changing needs and trends of the local and regional sugar industries.

Evaluations of significance Under NRHP Criterion D and SRHP Criterion d typically consider archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. Taken together, the contributing resources to the proposed Olowalu Sugar Plantation Historic District have the potential to yield additional information regarding local and regional development associated with the Pioneer Mill Company and the local sugar plantation industry or other themes of historical significance.

While not recorded as aboveground resources, it should be noted that the former agricultural fields associated with the proposed Olowalu Sugar Plantation Historic District are recommended as non-contributing due to the extensive degree of contemporary disturbance including modern road, utility, and residential developments, as well as natural degradation such as soil erosion and vegetation growth. Furthermore, the former agricultural fields no longer represent their original function as sugar-producing sites.

Under SRHP Criterion e, the recommended Olowalu Sugar Plantation Historic District is not significant due to its lack of association with cultural practices once carried out, or still carried out, related to traditional beliefs, event, or oral accounts of the native Hawaiian people or other ethnic group of Hawai‘i. Thus, the proposed Olowalu Sugar Plantation Historic District does not embody an important value to the history and cultural identity of Indigenous people or other ethnic groups.

Table 4.44. Olowalu Sugar Plantation Historic District Contributing Properties

AR (SIHP) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 1 04758	Awalua Cemetery	Olowalu	Cemetery	• Individually eligible (NRHP Criteria A and D; Criteria Consideration D and SRHP Criterion a, d, and e). • Eligible as a contributing resource to a historic district (NRHP Criteria A and D; Criteria Consideration D).
AR 4 01602	807 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 5 01602	808 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 6 01602	810 Olowalu Road (Olowalu Plantation House)	Olowalu	Plantation/Bungalow	• Not individually eligible due to a loss of integrity. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 7 01602	810 Olowalu Road	Olowalu	Plantation/Bungalow	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 8 01602	Olowalu Sugar Mill Complex (Olowalu Landing and Wharf)	Olowalu	Agricultural Processing/Industrial Facility	• Properties are not individually eligible due to a lack of historic and architectural significance but were previously recommended eligible as a Historic District. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 16 09141	802 Olowalu Village Road	Olowalu	Plantation/Bungalow	• Individually eligible (NRHP Criterion C, and SRHP c). • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 19 09143	Water Tower	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).

AR (SIHP) Number	Address/Name	Locality	Style/Form	Significance Evaluation
AR 20 09144	Bridge	Olowalu	Early 20th century steel stringer/multibeam bridge	• Not individually eligible due to loss of integrity. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).
AR 31 09151	Reservoir	Olowalu	20th Century Water Control	• Not individually eligible due to a lack of historic and architectural significance. • Eligible as a contributing resource to a historic district (NRHP Criteria A, C, and D).

AR = WSP Aboveground Resource Filed Site; SIHP = State Inventory of Historic Places;

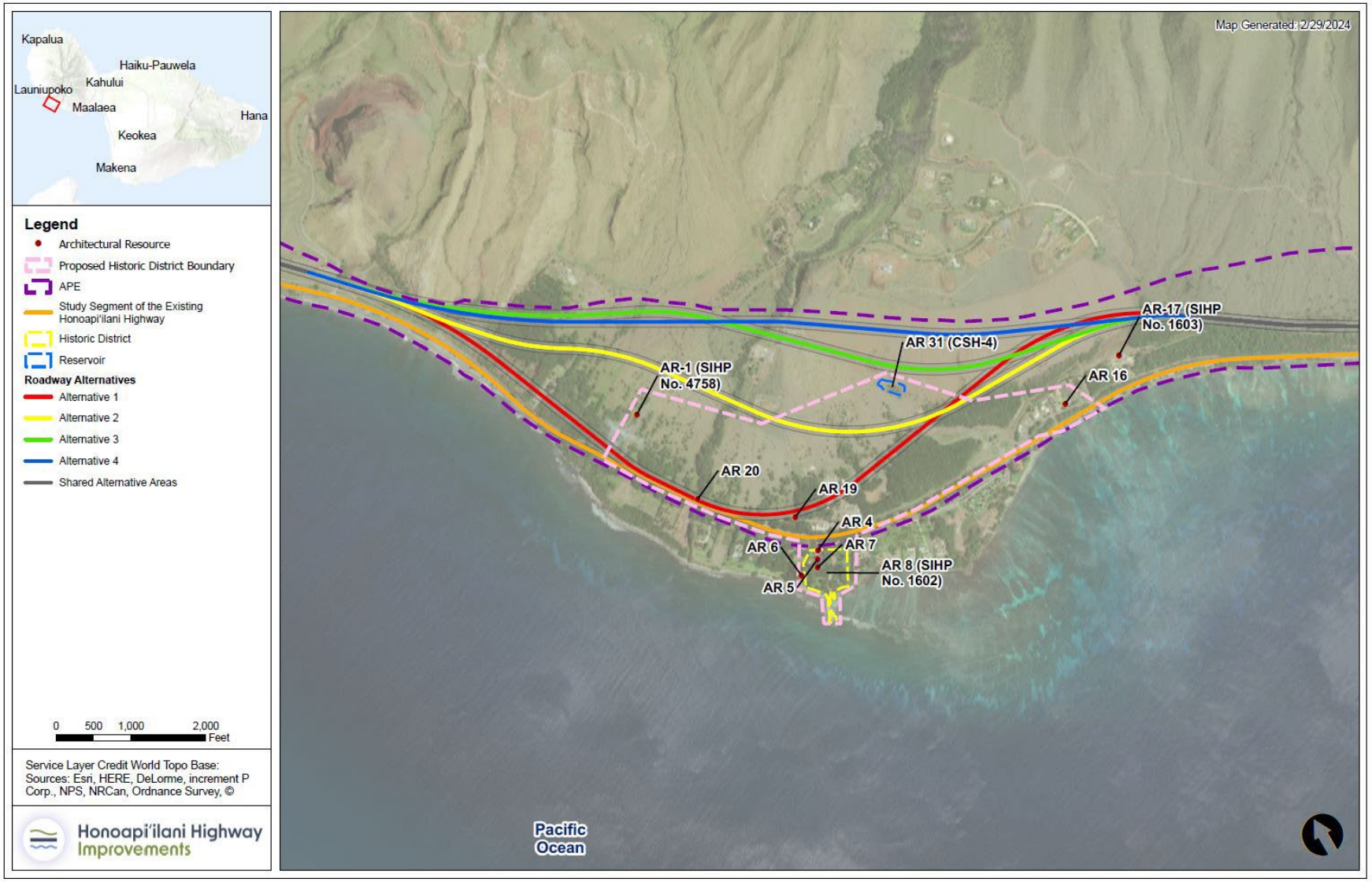


Figure 4.182. Contributing Resources to the Olowalu Sugar Plantation Historic District and the four Build Alternatives.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The architectural RLS fieldwork was conducted on April 3 through 7, 2023, by SOI-qualified professionals. A total of 40 architectural resources (AR) 35 years of age or older were identified within the APE. Of these resources, nine were previously surveyed and evaluated and 31 resources were newly identified.

Following the survey and evaluation, three individually eligible architectural historic properties were identified within the APE: the Awalua Japanese Cemetery, designated AR 1, and previously recorded as SIHP No. 4758, a Plantation style bungalow designated AR 16, and the Lanakila Historic Stone Church and Cemetery (AR 17 and SIHP No. 1603). Further, a previously identified historic district, the Olowalu Sugar Mill Complex Historic District, comprising AR 4 through AR 8 (SIHP 1602), was also documented within the APE and included the wharf, landing, and plantation manager house, was previously recommended as a historic district in 1974. The Olowalu Sugar Mill Complex Historic District was reevaluated along with the newly identified properties.

As a result, it is recommended that the previously identified Olowalu Sugar Mill Complex Historic District be expanded into the Olowalu Sugar Plantation Historic District that includes a total of 10 resources. These resources represent a single historic district that reflects the influence of the local sugar industry and the Pioneer Mill Company on the development of Olowalu with a proposed Period of Significance of 1880 to 1951.

Although architectural historic properties related to the plantation era were identified within Ukumehame and Launiupoko, the landscape no longer reflects the influence of the local sugar industry in the way the interconnected resources do in Olowalu. Many of the buildings and structures related to the period are no longer extant, and the remaining landscape features hold less historical and architectural significance and have lost their integrity of materials, workmanship, design, setting, feeling, and association. Therefore, a historic district or landscape was not recommended for either area under the architectural property assessment.

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WSP USA Inc
Addendum Report to the Reconnaissance Level Architectural Historic Resource Survey (RLS)

Addendum Report to the Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapiʻilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawaiʻi

Prepared for:

Honoapiʻilani Highway Improvements

Prepared by:

wsp

April 24, 2025

Addendum Report for the Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapiʻilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawaiʻi

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The following document is an Addendum Report for the proposed Preferred Alternative as requested by the Hawai‘i Department of Transportation (HDOT) and in coordination with the Federal Highway Administration (FHWA), for the realignment of Honoapi‘ilani Highway (State Route 30) Project (Project). This Addendum Report for the proposed Preferred Alternative is a supplement to *Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapi‘ilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawai‘i* (Daugherty et al. 2023). For full project description, historic context, survey methodology, and additional information, please refer to the above referenced report.

Project Background

In April 2023, at the request of the HDOT, architectural historians who meet the Secretary of the Interior's (SOI) Professional Qualifications Standards conducted a Reconnaissance Level Architectural Historic Resource Survey (RLS) for the proposed realignment of Honoapi‘ilani Highway (State Route 30) in Maui County, Hawai‘i. The Project area, consisting of four proposed alignment corridors, is focused on the segment of Honoapi‘ilani Highway from Ukumehame, at approximately milepost 11, in the vicinity of Pāpalaua Wayside Park to Launiupoko, at milepost 17, which is the existing southern terminus of Lāhainā Bypass.

This survey was conducted to meet the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108) and its implementing regulations (36 C.F.R. Part 800), as well as Hawai‘i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai‘i Administrative Rules (HAR) § 13-275 and guidelines developed by the Hawai‘i State Historic Preservation Division (SHPD) (SHPD 2018).The purpose of the survey was to identify aboveground properties 35 years of age and older located within the Area of Potential Effects (APE); to evaluate these properties relative to their eligibility for listing in the National Register of Historic Places (NRHP) and the State Register of Historic Places (SRHP) individually, and as a historic district by applying the Criteria for Evaluation (36 C.F.R. § 60.4 and HAR § 13-275-6). The total area surveyed included approximately 970 acres.

A total of forty architectural properties were identified within the APE during the initial 2023 survey. Of these forty properties, three were recommended as individually eligible for listing in the NRHP and SRHP. Moreover, ten properties, while not individually eligible, were identified as contributing resources to a proposed NRHP-eligible Olowalu Sugar Plantation Historic District, which was a proposed expansion of the previously recorded Olowalu Sugar Mill Complex Historic District (SIHP NO. 1602). SHPD concurred with these eligibility determinations in a letter dated July 9, 2024.

Supplement Architectural Resource Identification

Since that time, HDOT and FHWA have identified a Preferred Alterative alignment for the proposed realignment of Honoapi‘ilani Highway. During a Phase I Archaeological Reconnaissance Level Survey of the Preferred Alterative in March 2025 as a result of minor shifts and refinements to the Preferred Alternative alignment, archaeologists from ‘Āina Archaeology identified a previously unrecorded aboveground architectural resource within the APE that had not been evaluated as part of the 2023 RLS. Qualified architectural historians reviewed information provided by Aina Archaeology in order to complete an evaluation of the property relative to its eligibility for listing in the National Register of Historic Places (NRHP) and the State Register of Historic Places (SRHP) by applying the Criteria for Evaluation (36 C.F.R. § 60.4) and Significance Criteria (HAR § 13-275-6).

The newly identified resource, consisting of four abandoned segments of a late-nineteenth century road was designated Architectural Resource (AR) 41, as well as SIHP No. TBD (**Figure 1**). In addition to the data provided by ‘Āina Archaeology, architectural historians conducted archival research for road segments within the APE to understand AR 41‘s history and development using local histories, historic maps, aerial images, tax records, and other pertinent information. The description and historic evaluation of AR 41 is located in Section 1.1 of this Addendum Report.

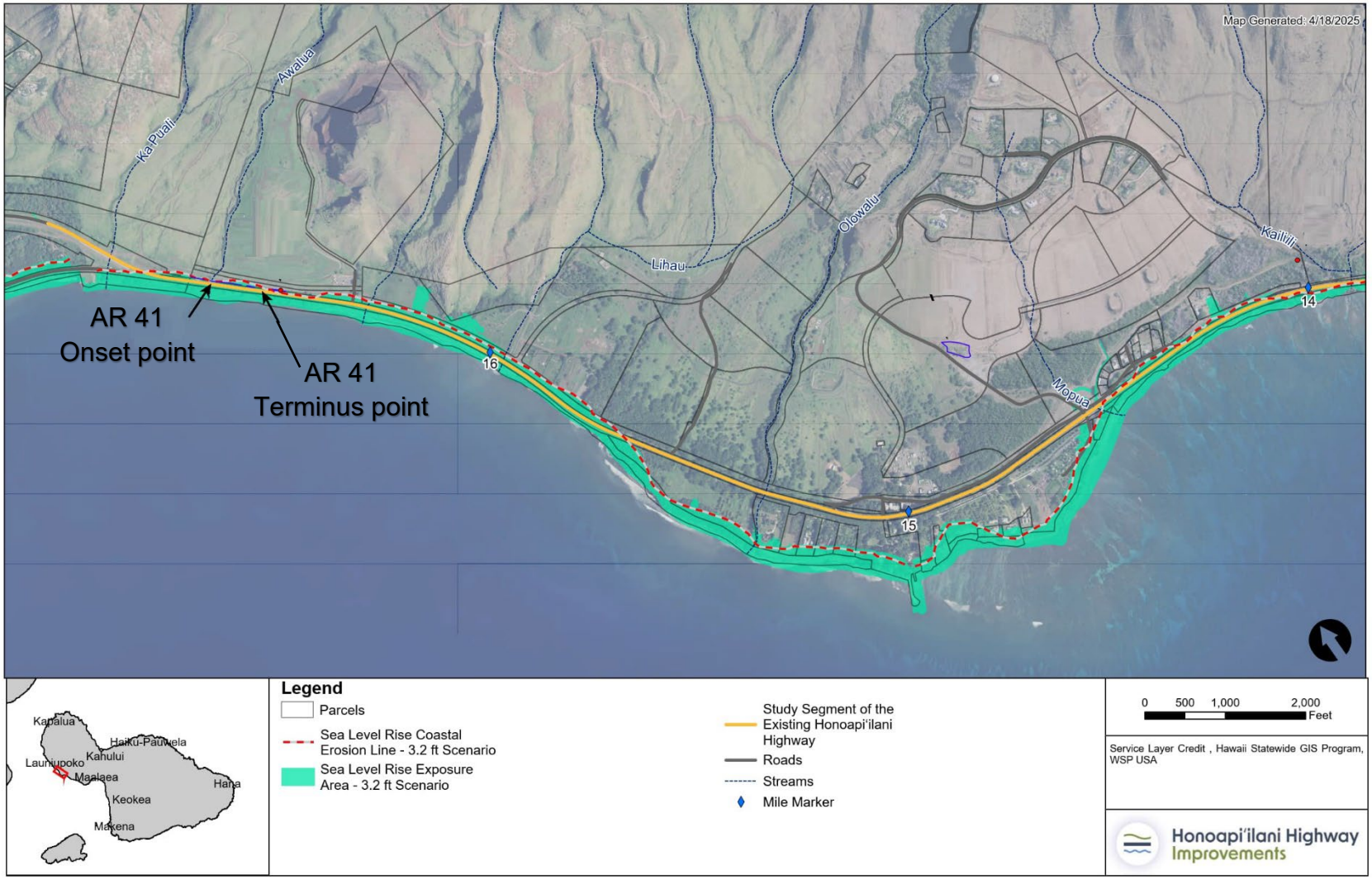

Figure 1, Aerial image showing the location of AR 41 within the Launiupoko study segment of the Honoapi‘ilani Highway (State Route 30).

1.1 AR 41 (SIHP No. TBD): Old Pali Road/Government Road Segment

AR 41, newly recorded as SIHP No. TBD, consists of four abandoned segments of the late-nineteenth century Old Pali Road/Government Road, located between Hawai‘i State Highway 30 and an unnamed access road that extends southeast to northwest from the Olowalu Recycling & Refuse Convenience Center to Hawai‘i State Highway 30 (**Figure 2**). Presently, AR 41 is sparsely covered in buffel grasses and a few trees. The road segments are aligned southeast-northwest, running parallel to Hawai‘i State Highway 30, to the north-northwest of Awalua Beach and southeast of Launiupoko. According to the County of Maui tax assessor's database, AR 41 extends across a parcel currently owned by the State of Hawai‘i’s Division of Forestry & Wildlife – Department of Land and Natural Resources (DLNR) that encompasses approximately 634.17 acres; AR 41 comprises approximately 0.11 acres. The Awalua Stream intersects the abandoned segments of road towards the northwestern terminus of AR 41.

The 1955 Olowalu, Hawai‘i USGS Topographic map shows the original route for Honoapi‘ilani Highway in a similar location as AR 41 (**Figure 3**). The earliest historic aerial image available for the area (1949) depicts a road along a similar route as AR 41, which is likely Honoapi‘ilani Highway. The 1942 Geologic and Topographic Map, Island of Maui, Hawaii also illustrates an unnamed road along a similar route as AR 41 and Honoapi‘ilani Highway (**Figure 4**). A road that travels a similar path as AR 41 is illustrated on the 1929 Map of the Island of Maui, labeled as an unnamed road, and a similar road is shown on the 1885 Maui Hawaiian Islands map (**Figure 5** and **6**). Although the location of AR 41 is not shown, the 1881 Map of Olowalu Sugar Plantation, Maui, illustrates a road extending from Ukumehame through Olowalu and noted as extending to Lāhainā, and the 1906 Olowalu Plantation map shows a road, designated as the Government Road. Both roads follow a similar path as the route shown in the later maps.

The mapping suggests AR 41 is composed of abandoned sections of a late-nineteenth century road that provided access between communities along Maui’s west coast prior to the construction of the existing Honoapi‘ilani Highway and Hawai‘i State Highway 30. This earlier road, known as Pali Road, was first built around the turn of the twentieth century as a one-lane dirt road along the base of the pali (Young 2022). The road largely replaced the Lāhainā Pali Trail as the preferred route for travel. However, the road was challenging with several sharp hairpin curves. Over the years, the road was widened and straightened multiple times, and in 1938, eventually paved. As part of the Sunset-Skyline Highway construction project that began in 1950, the route was greatly improved and renamed Honoapi‘ilani Highway. During this period, AR 41 was likely abandoned. Today, Honoapi‘ilani Highway, which is part of Maui’s Belt Road system, is a two-lane principal arterial highway that provides the main access between communities in West Maui and the rest of the island in conjunction with Hawai‘i State Highway 30.

1.1.1 Structure Description

AR 41 consists of four remnant and abandoned segments of a late-nineteenth to early twentieth century road with a linear north-south alignment (**Table 1**; **Figure 7**). The road segments are located between Hawai‘i State Highway 30 and an unnamed accessed road (**Figure 8**). AR 41 includes a raised berm composed of crushed gravel, branch coral, and waterworn stones with a concrete cap (**Figure 9**). Some sections of an original dry-laid retaining wall associated with the road are still standing (see **Figure 8**).

1.1.1 Current Condition and Integrity

AR 41 is in poor condition, abandoned, and showing signs of deterioration due to erosion and vegetation growth. While the property retains its integrity of location, it is not individually eligible because it has lost its integrity of design, materials, workmanship, setting, feeling, and association.

Table 1. Summary of AR 41 (SIHP No. TBD)

Address	Southeast of Awalua
TMK	4-8-003:008
County	Maui County
Date of Construction	Late 19th Century
Square Footage	N/A
Acreage	Approximately .11 acres (roadway); 634.17 acres (parcel)
Owner	State of Hawai'i's Division of Forestry & Wildlife - DLNR & County of Maui
Architectural Type/Style	Late 19th to Early 20th Century Road
Integrity	AR 41 is in poor condition due to erosion and vegetation growth, resulting in a loss of integrity of design, setting, materials, workmanship, feeling, and association.
NRHP Significance Evaluation	AR 41 is recommended as not individually eligible due to loss of integrity. As a result, AR 41 lacks historic and architectural significance. It is also not recommended as a contributing resource to the Olowalu Sugar Plantation Historic District.
HRS 6E Significance Evaluation	Recommended as not eligible.

1.1.2 Significance Evaluation

AR 41 is recommended as not individually eligible for listing in the NRHP and as not a significant historic property under HAR § 13-275-6 due to a lack of historic and architectural significance and loss of integrity. Although AR 41 was constructed during the sugar plantation period and is associated with early transportation networks across the region, this segment of road, as an individual resource, does not embody the historical significance of the sugar plantation industry or of early transportation networks and their impact on the development of the surrounding community under NRHP Criterion A and SRHP Criterion a. AR 41 no longer possess integrity of setting, feeling, and association.

Under NRHP Criterion B and SRHP Criterion b, AR 41 is recommended as not individually eligible because no ties or links were found between the structure and people with cultural or historic significance.

Under NRHP Criterion C and SRHP Criterion c, AR 41 is not individually eligible because the structure is in poor condition, is unable to convey significance as a late-nineteenth to early twentieth century roadway, and no longer possesses integrity of workmanship, materials, and design.

NRHP Criterion D and SRHP Criterion d are typically considered when assessing archaeological sites, but buildings and structures may qualify if they have the potential to contribute important information to our understanding of history. However, AR 41 does not have such potential as an individual resource.

Under SRHP Criterion e, the property is recommended as not individually eligible because no ties or links were found between the structure and Hawaiian people or to another ethnic group. Moreover, there are no associations with traditional beliefs, events, or oral accounts, which are important to an ethnic group's history and cultural identity.

AR 41 is not recommended as a contributing resource to the Olowalu Sugar Plantation Historic District. Due to a loss of integrity, the resource no longer represents an association with the local sugar plantation industry and the Pioneer Mill Company and their impact on the development of Olowalu from the late-nineteenth century to the twentieth century. The property's abandonment, segmentation, and deterioration has resulted in a loss of integrity of design, materials, workmanship, association, setting, and feeling.

Figure 2, Aerial image showing the location of AR 41.

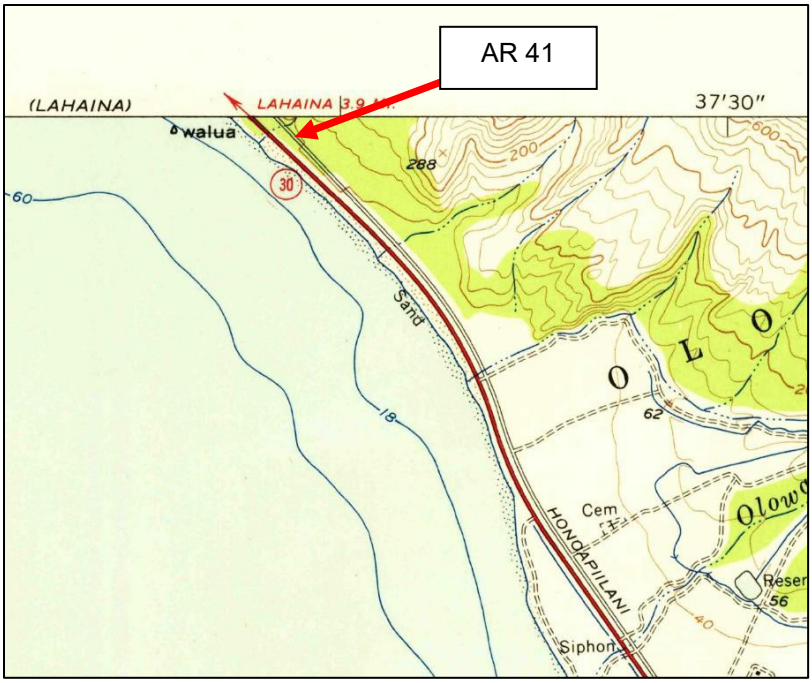

Figure 3. Approximate location of AR 41 on the 1955 USGS Olowalu, Hawai'i, 7.5-minute quadrangle topographic map; note the double line marking the Honoapi'ilani Highway.

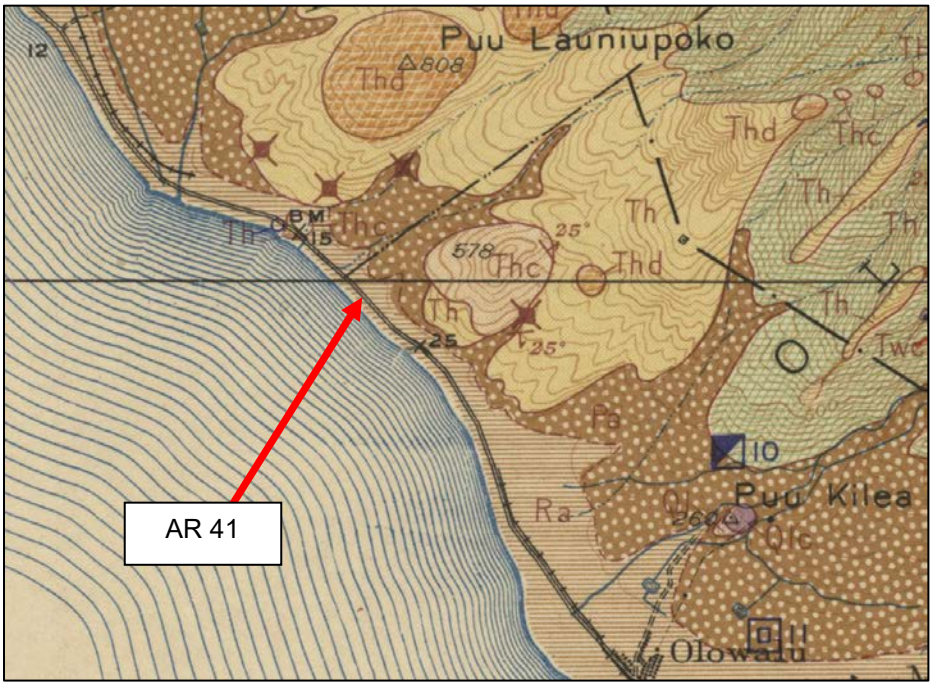

Figure 4. Approximate location of AR 41 on the 1942 Geologic and Topographic Map of the Island of Maui, Hawai'i; note the double line that marks an unnamed road.

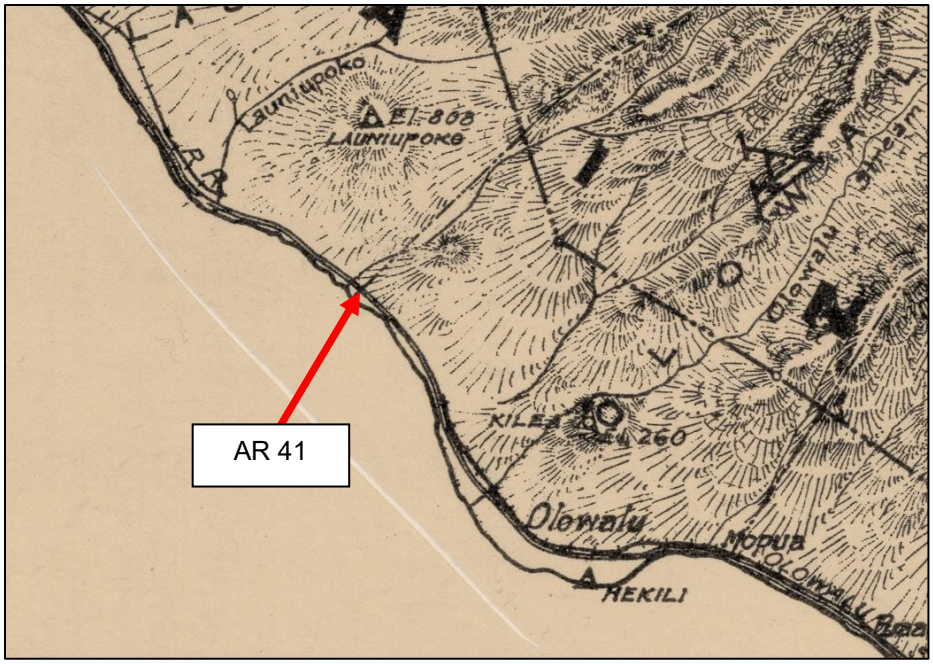

Figure 5. Approximate location of AR 41 on the 1929 Map of the Island of Maui; note the double line that marks an unnamed road.

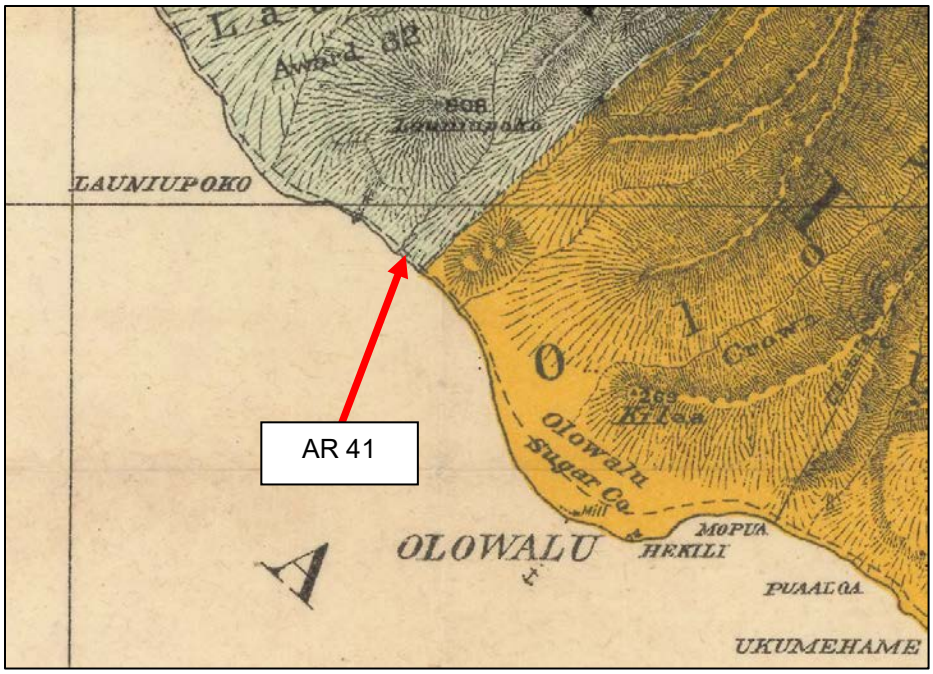

Figure 6. Approximate location of AR 41 on the 1885 Maui Hawaiian Islands map; note the hyphenated line that marks an unnamed road.

Figure 7. View of a road segment associated with AR 41, facing northwest.

Figure 8. View of a road segment associated with AR 41 with retaining wall on southwest side, facing northwest.

Figure 9. Closeup view of a road segment associated with AR 41.

Conclusions

The newly identified resource, consisting of four abandoned segments of the late-nineteenth century road was designated AR 41, as well as SIHP No. TBD. Archival research suggests AR 41 is composed of abandoned sections of a road originally known as Pali Road and later identified as the Government Road. AR 41 is recommended as not individually eligible for listing in the NRHP and as not a significant historic property under HAR § 13-275-6 due to a lack of historic and architectural significance and loss of integrity. AR 41 is in poor condition, abandoned, and deteriorated. While the property retains its integrity of location, it is not individually eligible because it has lost its integrity of design, materials, workmanship, setting, feeling, and association.

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1992 Olowalu, HI 7.5 minute series topographic quadrangle map.

ʻĀina Archaeology, Inc.
Reconnaissance Level Archaeological Historic Resource Survey (RLS)

Cultural Historical Context for the Traditional Hawaiian Settlement of Ukumehame, Olowalu, and Launiupoko Ahupuaʻa

The first major delineation of land boundaries on the island of Maui occurred during the rule of Kakaʻalaneo and was overseen by a kahuna named Kalaihaohiʻa (Beckwith 1970:383). This resulted in the creation of large land divisions called moku (districts), which were further broken down into subdistricts, the primary ones being ahupuaʻa and ʻili, and managed by agents of the ruling chiefs (Beckwith 1970:383). The moku o loko, or moku as it is commonly called, literally means "to cut across, divide, separate" (Lucas 1995a:77). When used as a term of traditional land tenure, a moku is similar to a modern political district. Maui is divided into twelve moku: Hāmākuapoko, Hāmākualoa, Koʻolau, Hāna, Kīpahulu, Kaupō, Kahikinui, Honuaʻula, Kula, Wailuku, Kāʻanapali, and Lāhaina. The current undertaking extends through lands that are collectively situated within Lāhainā Moku, located on the south facing flanks of Kahalawai, or the West Maui Mountains. We understand that boundaries may change over time and be dependent on the ruling aliʻi during a particular era. With this in mind, and although an earlier map shows the extent of Lāhainā Moku ranging from Launiupoko to Makaiwa (Figure 1), thereby approximately placing a large portion the project within the area shaded as Wailuku, the boundary of Lāhainā Moku is currently understood to be consistent with boundary descriptions and land documents of the 1848 Mahele ʻĀina which extends from Ukumehame to Hanakaōʻō (Figure 2).

Within these moku are smaller units of land termed ʻokana, kalana, ahupuaʻa, ʻili, and moʻo. The term kalana literally translates to mean a thing loosened or released – "to loosen" (kala) with the nominal suffix of "na" added at the end (Handy et al. 1991:47). Regarding the traditional Hawaiian land tenure system, there are two land division categories that reference Lāhainā, the first being the overall moku, as described above, and the second being the kalana of Lāhainā. Kalana is a term that is sometimes interchanged or synonymous with the term ʻokana, which is a sub-division of land that is smaller than a moku (W. D. Alexander 1890; Lucas 1995b:47). On Maui Island, W.D. Alexander (1890) observes that there are five ʻokana or sub-districts within Hāna Moku, while Lāhainā, from Pola Nui to Wahikuli, is termed a kalana. Handy and others (1991:47) speculate that the land divisions that were designated as kalana were politically released from the ʻokana or even moku that they had been a part of during the original division of the islands. These land divisions were then given as separate domains to aliʻi of first rank, remaining as autonomous heritages. Curtis J. Lyons, a surveyor during the Māhele, specifically states that the kalana of Lāhainā belonged to no moku (in Handy et al. 1991:47). While the kalana was not formally surveyed, or the boundaries not formally described, it is currently thought that the kalana, which served as the primary seat of the aliʻi when residing in West Maui (Handy et al. 1991) and later as the center of government for the Kingdom of Hawaiʻi, was comprised of a dense collection of ahupuaʻa that extended from Pola Nui to Mala and included the lands immediately surrounding Loko o Mokuhinia which may have been traditionally reserved for the aliʻi and those in service to the aliʻi (Klieger 1998:64-65). While situated within the overall moku of Lāhainā, the lands in which the proposed undertaking intersects is located south of the kalana of Lāhainā and crosses the ahupuaʻa of Ukumehame, Olowalu, and Launiupoko (Figure 3).

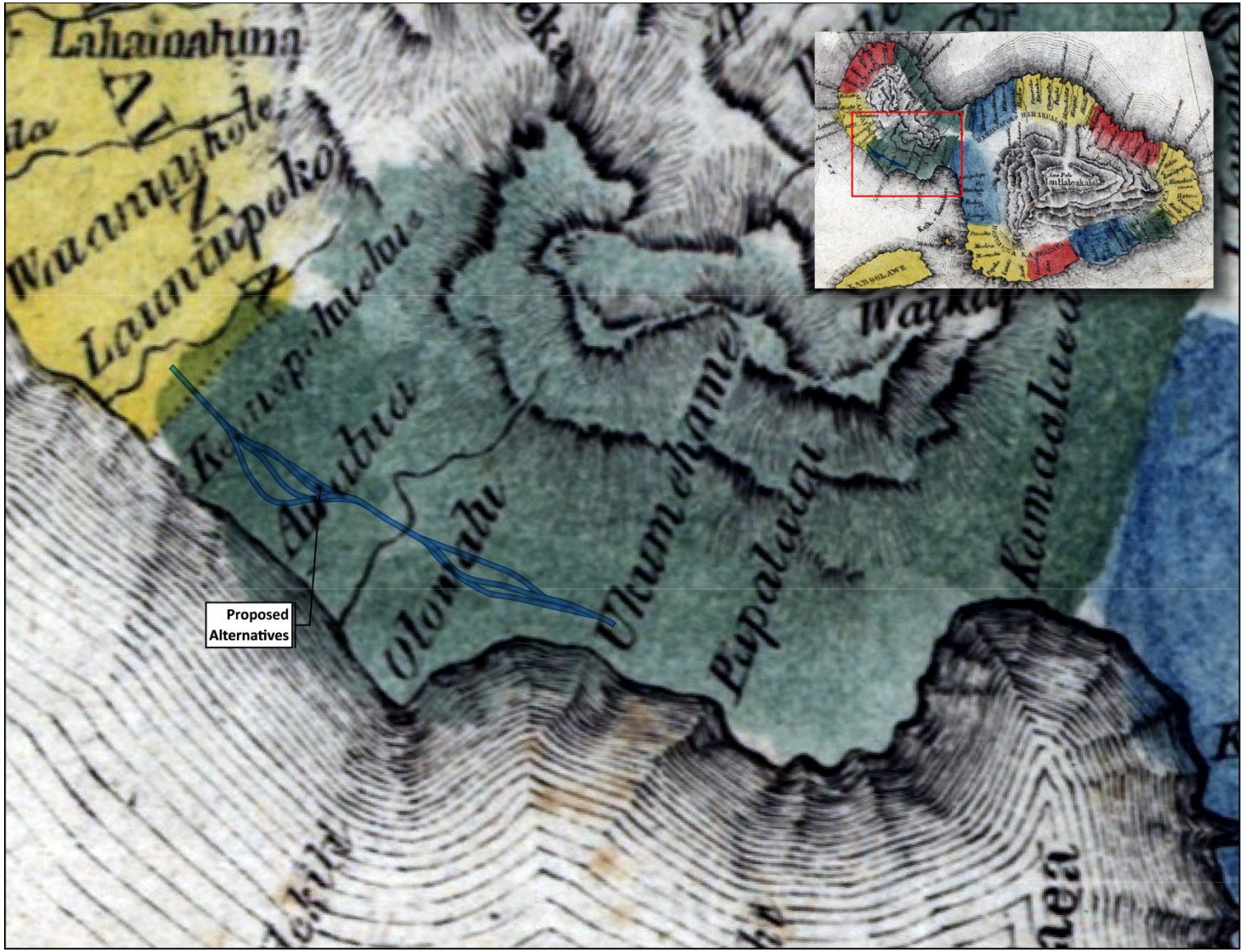


Figure 1. A portion of the 1838 SP Kalama Map showing the proposed alternatives in relation to estimated moku and ahupua‘a extents.

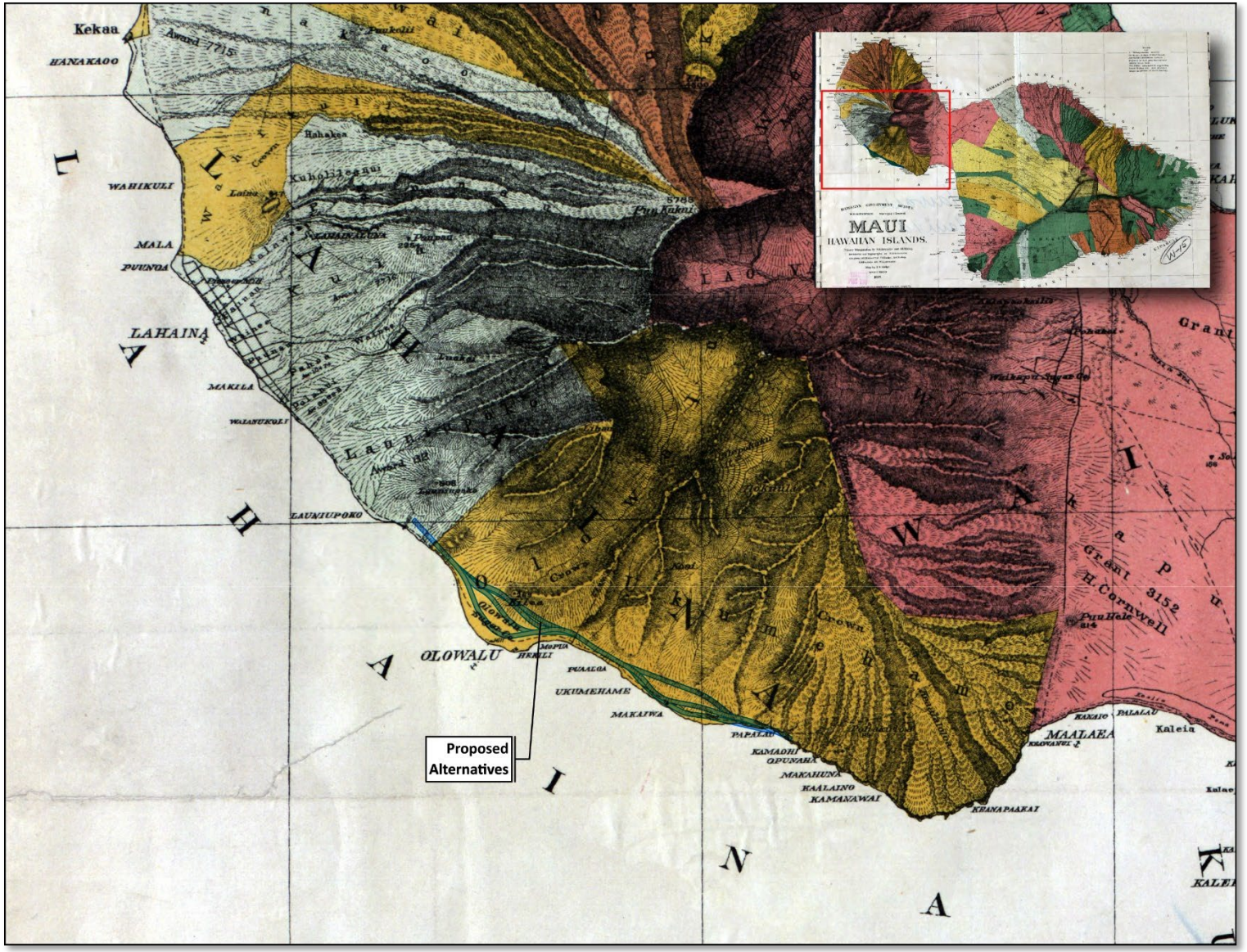


Figure 2. A portion of the Hawaiian Government Survey map of Maui showing the proposed alternatives in relation to the moku of Lāhainā.

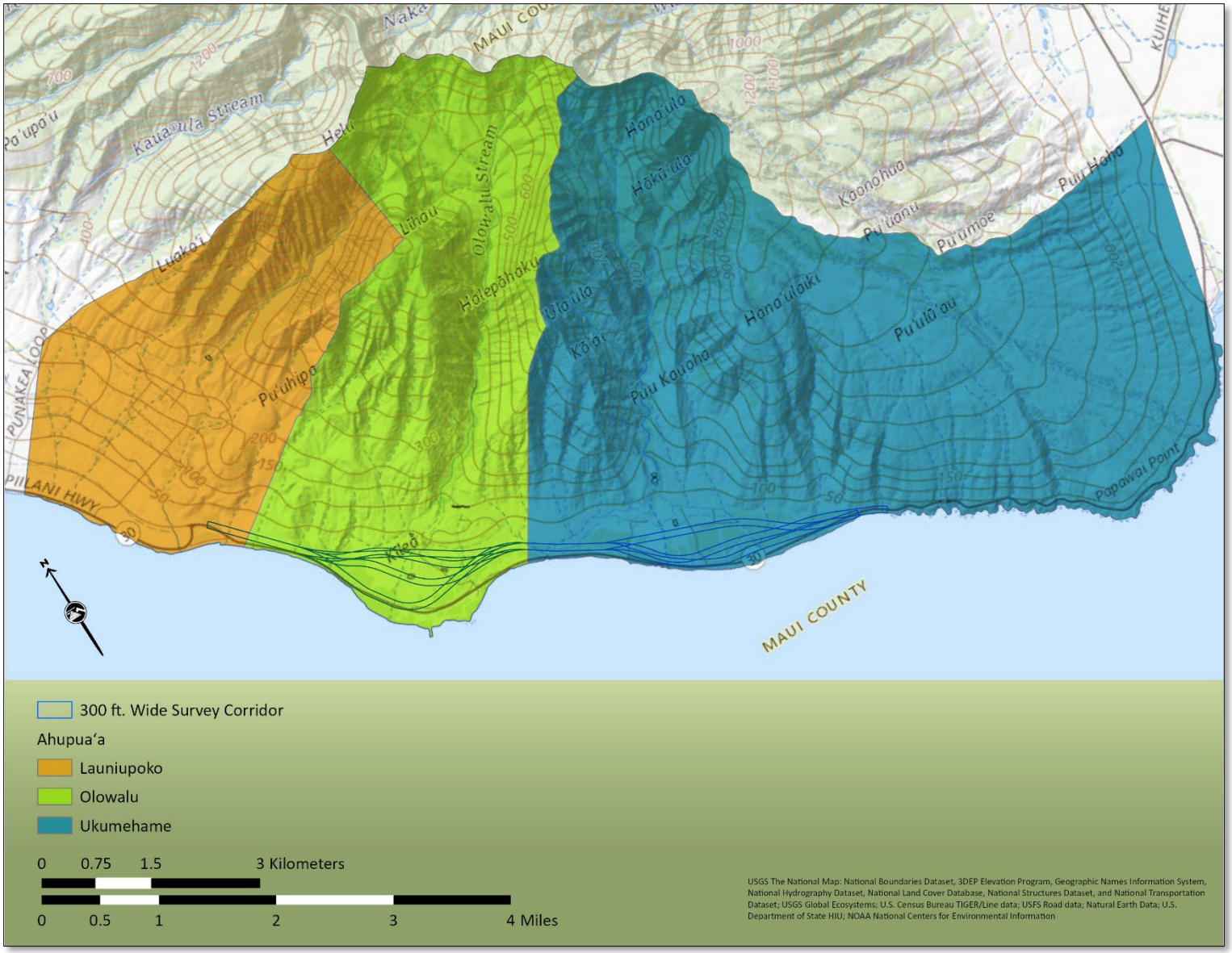


Figure 3. A portion of the USGS National Map (United States Geological Survey 2020) showing the lands of Ukumehame, Olowalu, and Launiupoko Ahupuaʻa in relation to the underlying geomorphology and survey corridors.

An ahupuaʻa, the name of which is derived from the Hawaiian term ahu (altar), which was erected at the point where the boundary of land was intersected by the Alaloa (main road encircling the island) and an altar with a carved image of a puaʻa (hog) along with the tax of food items from that particular land unit as payment to the aliʻi (chief) (W. D. Alexander 1890:4). These taxes would be collected during Makahiki as a part of the akua loa procession and carrying of a long staff with the image of Lono carved at the peak. Typically, the configuration of the ahupuaʻa division would extend from the sea (makai) to the mountain (mauka)so that the aliʻi (chiefs) and makaʻāinana (native tenant) would have access to resources of the wao lāʻau or wao nahele (forested region), the wao ʻamaʻu and wao kanaka (cultivated land), and the kula uka and kula kai (the lower grasslands and shoreline) (W. D. Alexander 1882:4; Mueller-Dombois 2007). While the boundaries of an ahupuaʻa generally followed prominent landforms (i.e. ridge lines, the bottom of a ravine, or defined by a depression) there were times where a stone or rock that was notable from a tradition or sacred use would mark a corner or determine a line (W. D. Alexander 1890:105-106). Along similar lines, the growth of a certain kind of tree, herb or grass, or the habitat of a certain kind of bird would sometimes define a division (W. D. Alexander 1890:105-106). In *Lāʻau Hawaiʻi*, Abbott explains that: "A Hawaiian family belonged not to a village but rather to an ahupuaʻa, a land division usually extending from the mountain heights to the sea... [which] consisted of at least one valley and included the ridges on both sides of the valley as well as the offshore area to the depth of a man's chest or to the reef crest" (1992:11). It should be recognized that there are variations in the configuration of ahupuaʻa depending on either the environment or rights to secure specialized resources that result in lele or discontinuous sections of ahupuaʻa (*Horner v. Kumuliilii* 1895; Maly and Maly 2007:82-83), as well as with land locked ahupuaʻa (W. D. Alexander 1890:5-6; Moffat and Fitzpatrick 1995:72). While the archaeological record, documents of the Mahele ʻĀina, and emerging body of data found in the Hawaiian language newspapers have shown the traditional Hawaiian land tenure system to be highly complex and nuanced, the physical setting at Ukumehame, Olowalu, and Launiupoko in relation to the traditional land management divisions appears to have resulted in the development of the characteristic settlement and land use pattern that is commonly associated with the classic, pie-shaped ahupuaʻa land management model that extended from mauka (mountain) to makai (sea) as a singular land unit (Minerbi 1999; Mueller-Dombois 2007).

Physical Setting

Maui Komohana (West Maui) is deeply dissected by streams that rise into deep amphitheater-headed canyons that radiate from Puʻu Kukui. While the most well known of these canyons is ʻIao, on the koʻolau (windward) side of the mountain range, to the south of ʻIao are the deep gorges that were cut by the perennial streams of Ukumehame, Olowalu, and Launiupoko (Figure 3). The structure of these canyons have been attributed to the character of the rock formations, along with high rainfall in the upper elevations and low rainfall in the lower elevation which induces piracy in the upper parts of the drainage. Plunge pool action and landslides have also contributed to the removal of divides between tributaries and the creation of the characteristic box headed amphiteather (Stearns and MacDonald 1942:147).

Below and adjacent to the deep canyons floors of Ukumehame, Olowalu, and Launiupoko are the flow-slopes and broad alluvial plains that coalesce at the mouths of the canyons with narrow marine plains along the shoreline. In general, the marine plains will sometimes also include the presence of white salt incrustations. At Olowalu, the presence of a larger marine plain than Ukumehame and Launiupoko also characterizes the geomorphology of the region (Stearns and MacDonald 1942:148-149).

Cultural Setting

At the time of European contact in 1778, Hawaiian society, over a period of approximately 1500 years, experienced a dramatic increase in population, developed a varied and complex subsistence economy, and saw the rise of complex chiefly social hiearchy. Much of the anthropological and archaeological research conducted on socio-cultural changes has stressed the importance of the subsistence economy in the development of complex societies and its relationship to political hierarchy, warfare, and religion (Kolb 1994). The traditional Hawaiian subsistence economy has long been viewed and broadly classified into two primary agricultural systems – the wet and the dry. Wet systems are commonly found on the koʻolau (windward) exposures of geologically older landscapes and focused around irrigated loʻi (pond field systems) that utilize a network of ʻauwai, or traditional ditches, which transports water from springs and perennial streams into the fields then back into the stream (Allen 1991; Handy et al. 1991; Kirch 2007). While it is known that there was small scale diversification of the types of food resources grown along the banks of the loʻi (e.g. kō [sugar cane] and ʻuala [potatoes]) and nurtured within the waters of the loʻi (e.g. loko iʻa kalo [taro fishponds]), the loʻi as a system was dedicated to kalo (taro) production. Above, or adjacent to irrigated lands, were kula or dryland, rainfed systems that were planted in potatoes, yams, gourds, and other dryland food crops. These dryland systems have been referred to as colluvial slope systems or colluvial agricultural systems which generally occur on moderate to steeply sloping topography and take advantage of erosional soil deposition (Kirch and McCoy 2023:155). An example of the intensity of such a system in an environment similar that of the project area is found in lower Mākaha Valley on Oʻahu where approximately 1.4 ha of a dryland agricultural zone consisting of numerous mounds, agricultural clearings, stone enclosures, small habitation sites, and delineated field boundaries was studied by the Department of Anthropology, Bernice P. Bishop Museum (Green 1969:156; 1970; Kirch and McCoy 2023; Ladd 1973). Finally, the intensive dryland field systems consist of expansive agricultural fields that, with the exception of the Kalaupapa Peninsula (McCoy 2005), appear to be confined to kona (leeward) exposures of geologically younger landscapes and are almost entirely dependent on rainfall (Kirch 2007; Kirch et al. 2009; Vitousek et al. 2004). The primary crop of the intensive dryland field system is similar to that of the colluvial slope systems and are largely focused on potato and dryland taro production followed by secondary crops like yams and gourds.

The primary subsistence economy of Ukumehame, Olowalu, and Launiupoko in recent memory and oral traditions have focused on the prevalence of loʻi agriculture off of the primary perennial streams of the same name, a factor that is bared out by previous archaeological studies in the region (Figure 4 and Figure 5) (Devereux et al. 1999; Fredericksen and Fredericksen 2000; Olowalu Elua Associates 2002; Robins et al. 1994). However, the current archaeological study has additionally documented relatively extensive colluvial agricultural systems within the survey corridor of the proposed highway realignment. While the loʻi systems of Olowalu and Ukumehame follow the classic network of ʻauwai fed pondfield terraces along the valley edges and floors, the features of the colluvial field systems of Ukumehame, Olowalu, and Launiupoko are varied and conform to the rocky terrain of the flow slopes and alluvial plain, thus presenting a little studied coexistence of both loʻi and colluvial agricultural systems within the boundaries of each ahupuaʻa that is intersected by the proposed highway realignment.

The currently understood and widely accepted traditional Hawaiian residential distribution across three ahupuaʻa followed a common practice of having two residences (Lee-Greig 2012; Lee-Greig et al. 2015). One situated makai to capitalize on marine resources, while the other was mauka to maintain and work loʻi fields. Ukumehame, Olowalu, and Launiupoko Streams provided perennial water, supporting loʻi kalo

farming into the early historic era as indicated by the testimony provided in the native register extending to the coast and likely offering freshwater resources along its lower reaches. Coastal activities primarily revolved around exploiting marine resources, engaging in domestic tasks during hot periods, and tending to home gardens for agricultural purposes. It should be noted that the modern stream alignment at Olowalu and Ukumehame is not consistent with the natural stream alignments as both streambeds had been modified and rerouted at some point between 1879 and 1906 (Figure 6). As a result, some of the features that might be expected along the stream courses (e.g. habitation sites, agricultural plots, irrigation features) would not align with the contemporary stream route. Finally, with the documentation of the extensive colluvial field systems at the boundaries between the three ahupua‘a, it would interesting to note either the presence or absence of longterm habitation features in the margins between the wet and dry field systems, the intensity of possible subsurface deposits that may represent long-term habitation that may have been present along the former stream courses and associated with both systems in the now fallow sugar cane fields, to what would have been a highly complex and productive food and resource system in both the social organization, ceremonial hierarchy, and distribution of resources across all three ahupua‘a. The following sections present the reconnaissance level results of the archaeological pedestrian survey of the proposed alternatives for the Honoapi‘ilani Highway Realignment Project.

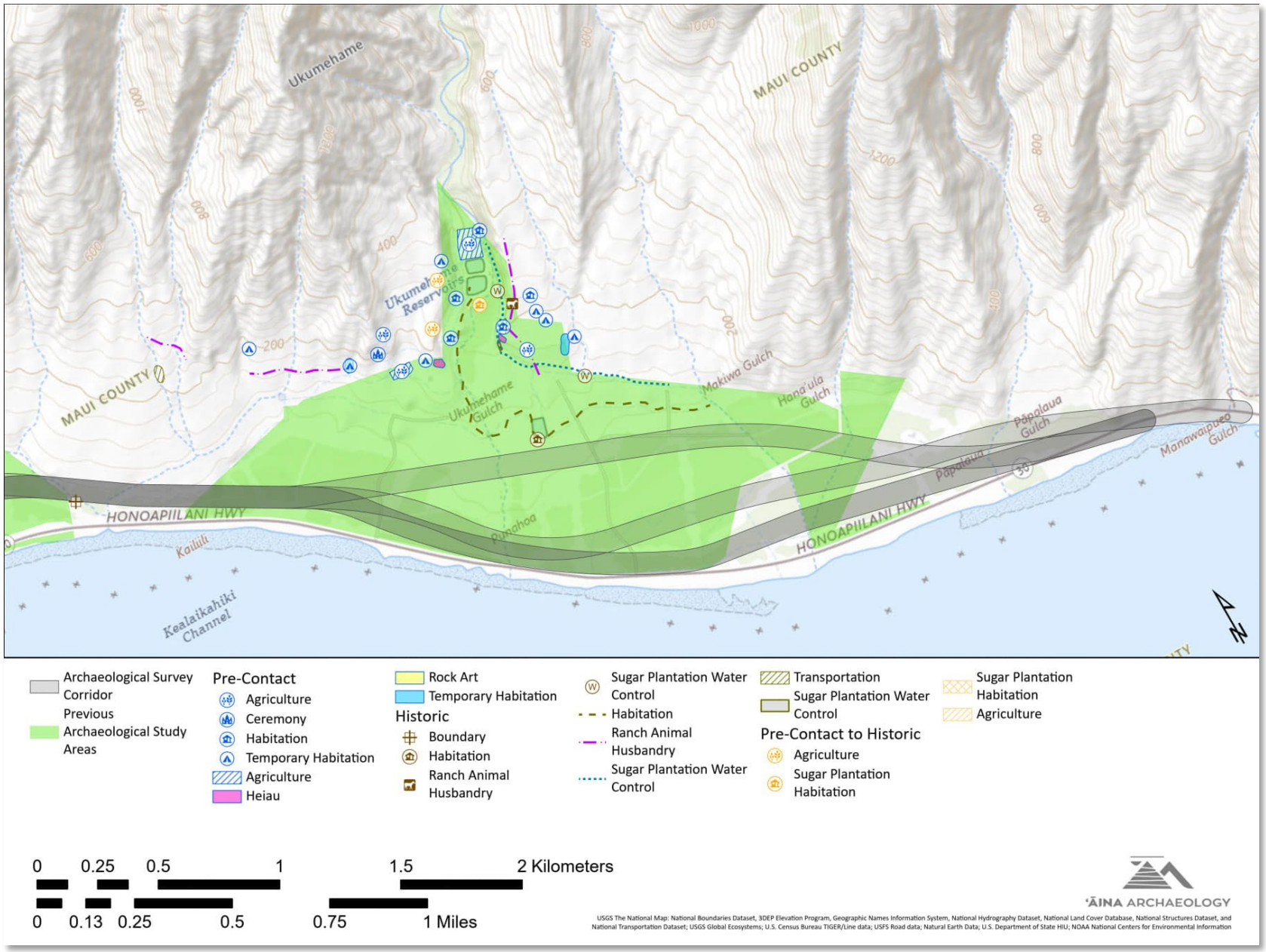


Figure 4. Distribution of previously identified historic properties by age and inferred function within Ukumehame Ahupuaʻa in relation to the extent of prior archaeological studies.

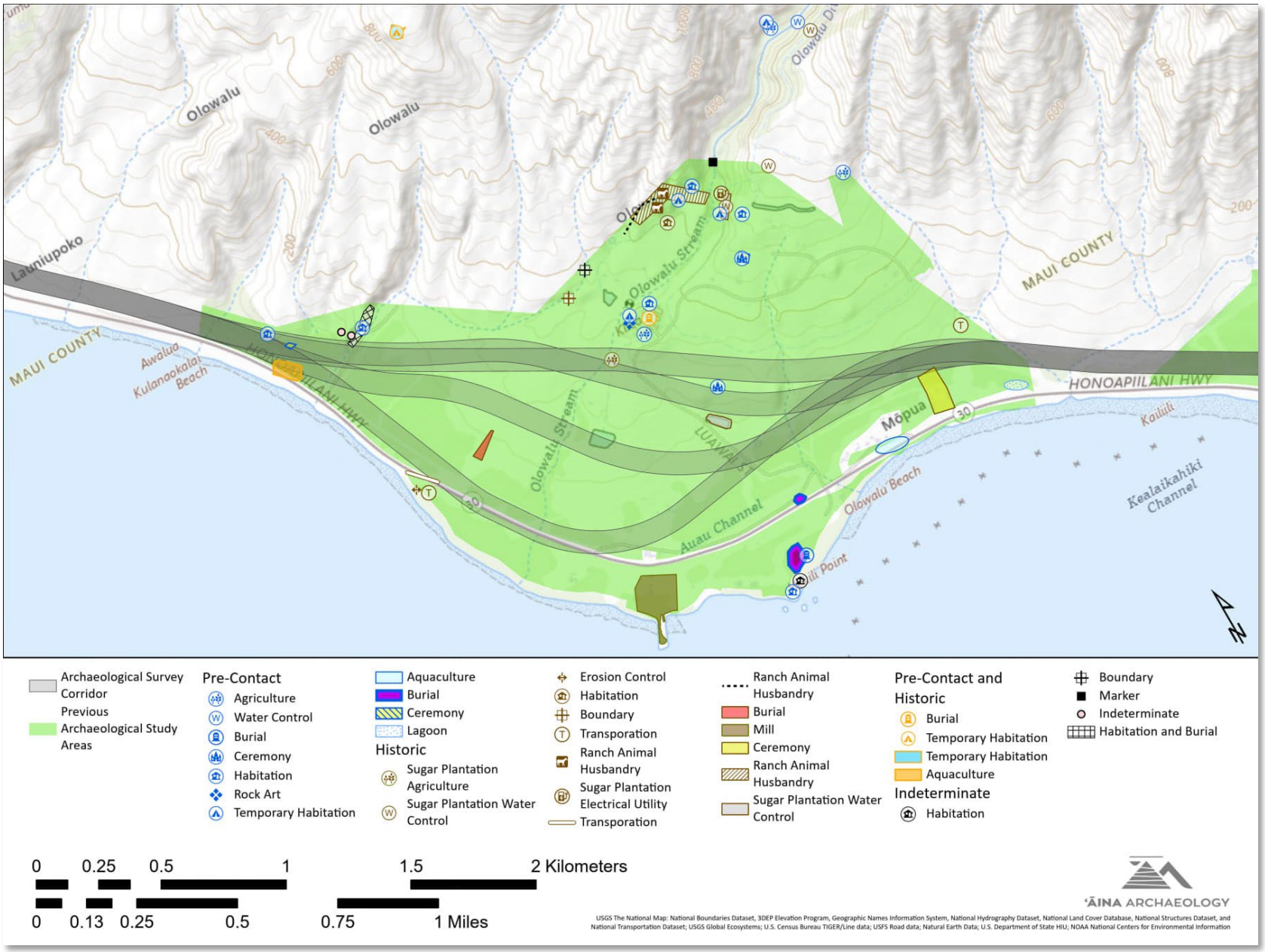


Figure 5. Distribution of previously identified historic properties by age and inferred function within Olowalu Ahupuaʻa in relation to the extent of prior archaeological studies.

Methods

To fulfill the requirements for identifying above ground archaeological sites and features that could be impacted by the proposed undertaking, a systematic survey was completed on lands where a Right-of-Entry (ROE) for parcels within the proposed Build Alternatives was obtained. To allow for adjustments to avoid potentially significant archaeological sites and/or account for possible grading needs beyond the highway itself (e.g. slope easements), the archaeological survey area was defined by a 300-ft.-wide corridor along the centerline of each proposed alternative. This survey area encompassed a total approximate area of 464 acres, the coverage of which included both a pedestrian survey and targeted drone flyovers.

Pedestrian Survey

The pedestrian survey for this study was accomplished through systematic sweeps along survey transects that were spaced 10 m apart in areas of open vegetation and narrowed to 5 m or less in areas of dense vegetation and low visiblity. Archaeological sites and features encountered during the course of this initial survey were documented at a reconnaissance level in the following manner:

- assignment of an alphanumeric temporary site number for each newly identified historic property consisting of the company initials (AA) followed by the company project number and a three-digit sequential number (i.e. AA2216-001);
- where sites identified during fieldwork could be cross-correlated with a previously identified sites that had an SIHP number, that number was utilized as the temporary number for tracking purposes;
- summary description of site and feature formal types;
- initial interpretations of function and interrelationships;
- ground-level high-resolution digital photographs of representative formal types and construction styles within each site and site complex using a Nikon D3500 DSLR camera along with site and/or feature overviews and viewsheds where relevant;
- drawings to scale of representative feature types within multi-component sites where possible using the Leica Power Tracker robotic total station, AutoCAD 2017, and Adobe Illustrator for iPad Pro;
- geographic location information for identified archaeological sites and features was acquired using either a Trimble Juno B GPS with an R2 Antenna or the Trimble Connect Application on an Apple device connected to an R2 Antenna, and;
- all GPS data was subsequently post processed with Trimble GPS Pathfinder Office Version 5.81 or Trimble Connect extension for ArcGIS respectively.

Drone Survey

Where necessary, site extents for large, multi-component archaeological complexes were further determined via high-resolution drone survey utilizing a DJI Matrice 600 Pro, mounted with a Zenmuse X5R Camera. Ground Control Points where placed within high-density site and feature areas and located utilizing the above noted GPS methods for incorporation during processing of the imagery to maximize accuracy of orthomosaic imagery. The post-processed imagery was loaded into ArcGIS Pro 3.2.1 to assists with the delineation of approximate site extents.

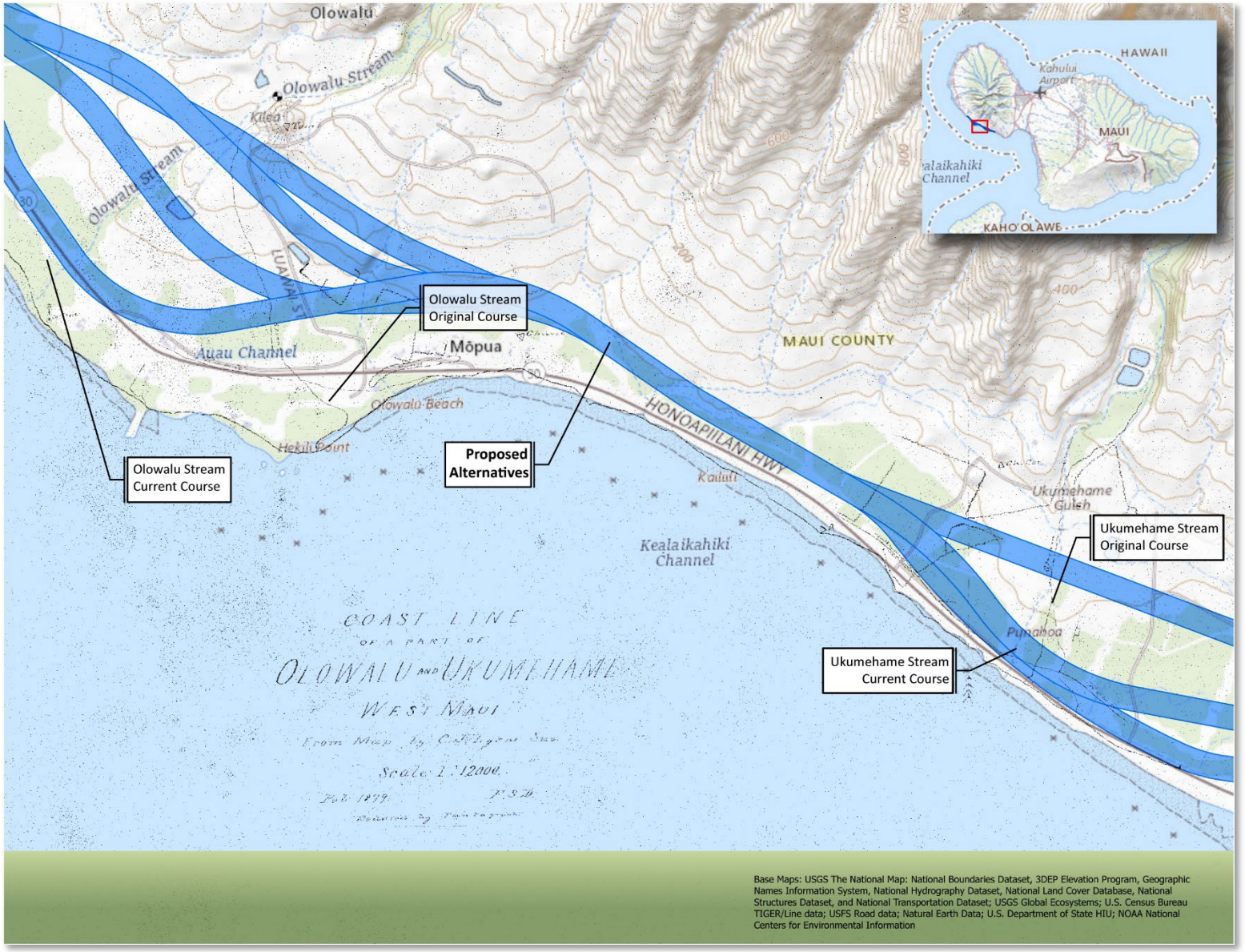


Figure 6. Historic coastline and stream courses of Ukumehame and Olowalu (Dodge 1879) in relation to the contemporary topography and stream course (United States Geological Survey 2020)

Ukumehame Ahupua‘a

A total of 28 historic properties were identified within the Ukumehame section of the proposed realignment alternatives (Table 1, Figure 7 through Figure 9).The following section presents the preliminary site descriptions and recommendations for historic properties identified within the Ukumehame portion of the archaeological survey area.

Table 1. Summary of Above Ground Archaeological Sites Identified within Ukumehame Ahupua‘a[1]

Alternatives Affected	Field No	Possible Age Range	Formal Type	Inferred Function	NRHP/6E Significance Recommendation	Integrity Evaluation
3	AA2216-009	Precontact	Surface Scatter	Habitation	D/d	Location, Materials, Association
3	AA2216-015	Late Precontact - Early Historic	Surface Scatter	Habitation	D/d	Location, Materials, Association
1, 2, 4	AA2216-017	Precontact	Surface Scatter	Tool Production	D/d	Location, Materials, Association
1, 3, 4	AA2216-018	Late Precontact - Early Historic	Surface Scatter	Habitation, Tool Production	D/d	Location, Materials, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-020	Precontact to Early Historic	Surface Scatter	Habitation	D/d	Location, Materials, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-022	Historic	Stone Well	Water Access	D/d	Location, Design, Material, Workmanship, Feeling
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-046	Precontact	Habitation Complex	Habitation Complex	A, D/a, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-050	Precontact	Agricultural and Ceremonial Complex	Agricultural and Ceremonial Complex	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association

[1] Gray shading indicates pinchpoint locations where all proposed alternatives merge

Alternatives Affected	Field No	Possible Age Range	Formal Type	Inferred Function	NRHP/6E Significance Recommendation	Integrity Evaluation
1, 3	AA2216-068	Precontact	C-Shape, Mound, Platform, Surface Scatter, Terrace	Agricultural and Ceremonial Complex	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1, 3	AA2216-070	Precontact	C-Shape, Mound, Terrace	Agriculture and Habitation	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-072	Precontact	Enclosure, Mound, Wall	Agriculture and Habitation	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Feeling, Workmanship, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-073	Precontact	Enclosure and Ahu	Permanent Habitation	A, D/a, d, e	Location, Design, Setting, Materials, Feeling, Workmanship, Association
2-4	AA2216-075	Precontact	Surface Scatter	Habitation	D/d	Location
1, 3	AA2216-088	Precontact	Terrace, Ahu, Modified Outcrop	Ceremonial Complex	D/d, e	Location, Design, Setting, Materials, Feeling
1-4 (Ukumehame Pinch Point)	AA2216-089	Precontact	Enclosure, Modified Outcrop, Terrace	Temporary Habitation with a Ceremonial Component	A, D/a, d, e	Location, Design, Setting, Materials, Feeling
1	AA2216-090	Precontact	Surface Scatter	Habitation	D/d	Location, Materials, Association
1, 3	AA2216-091	Precontact to 19th-20th Century	Surface Scatter	Habitation	D/d	Location, Materials, Association

Alternatives Affected	Field No	Possible Age Range	Formal Type	Inferred Function	NRHP/6E Significance Recommendation	Integrity Evaluation
2, 3	AA2216-092	Precontact to 19th-20th Century	Surface Scatter	Habitation	D/d	Location, Materials, Association
1, 3	AA2216-095	Precontact	Modified Outcrop, Mound, Surface Scatter, Terrace	Habitation and Ceremonial Complex	A, D/a, d, e	Location, Setting, Material, Feeling
1-3 (Ukumehame Pinch Point)	AA2216-096	Precontact	Modified Outcrop, Pavement, Petroglyph, Surface Scatter, Terrace	Habitation and Ceremonial Complex	A, D/a, d, e	Location, Design, Setting Materials
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-097	Historic	Wall	Boundary	D/d	Location, Setting, Materials, Feeling, Association
1-3 (Ukumehame Pinch Point)	AA2216-098	Continuous Occupation	Rock Shelter	Temporary Habitation	D/d, e	Location, Setting, Feeling, Association
3	AA2216-099	Precontact	Modified Outcrop and Surface Scatter	Tool Production	A, D/a, d, e	Location, Setting, Feeling, Association
1-3 (Ukumehame Pinch Point)	AA2216-100	19th-20th Century	Rock shelter	Temporary Habitation	D/d	Location, Setting, Feeling, Association
1-3 (Ukumehame Pinch Point)	AA2216-101	Precontact to Early Historic	Rock shelter	Temporary Habitation	D/d	Location, Setting, Feeling, Association
1-3 (Ukumehame Pinch Point)	AA2216-103	Precontact	Surface Scatter	Tool Production	D/d	Location, Setting, Feeling, Association

Alternatives Affected	Field No	Possible Age Range	Formal Type	Inferred Function	NRHP/6E Significance Recommendation	Integrity Evaluation
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-105	Precontact	Temporary Habitation and Ceremony	Temporary Habitation and Ceremony	A, D/a, d, e	Location, Design, Setting, Materials, Feeling, Workmanship, Association
1-4 (Olowalu/ Ukumehame Pinch Point)	AA2216-108	Precontact	Heiau	Ceremonial	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Feeling, Association

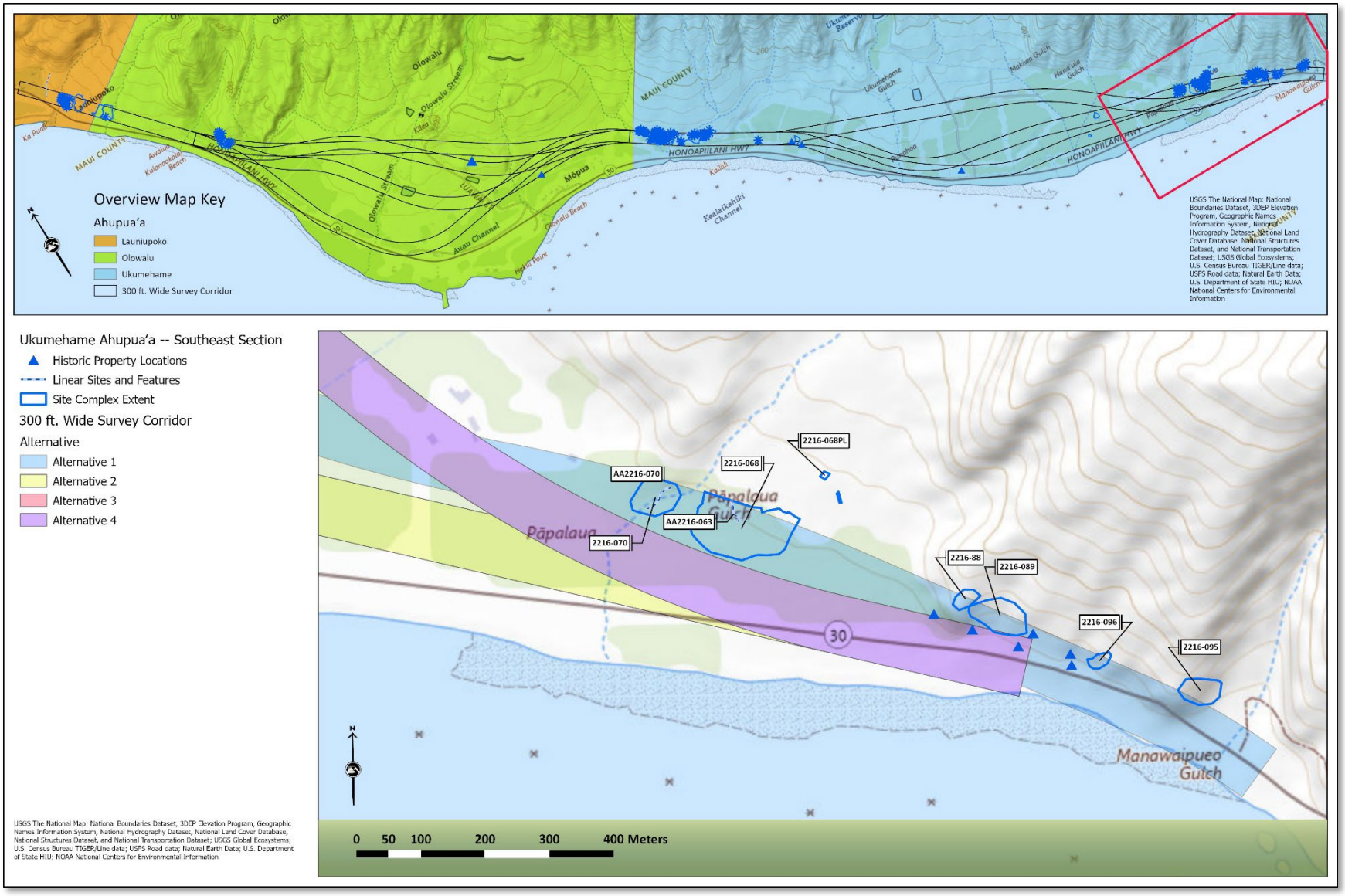


Figure 7. Historic property locations and extents in relation to the survey corridors, Ukumehame Ahupua'a, Southeast Section.

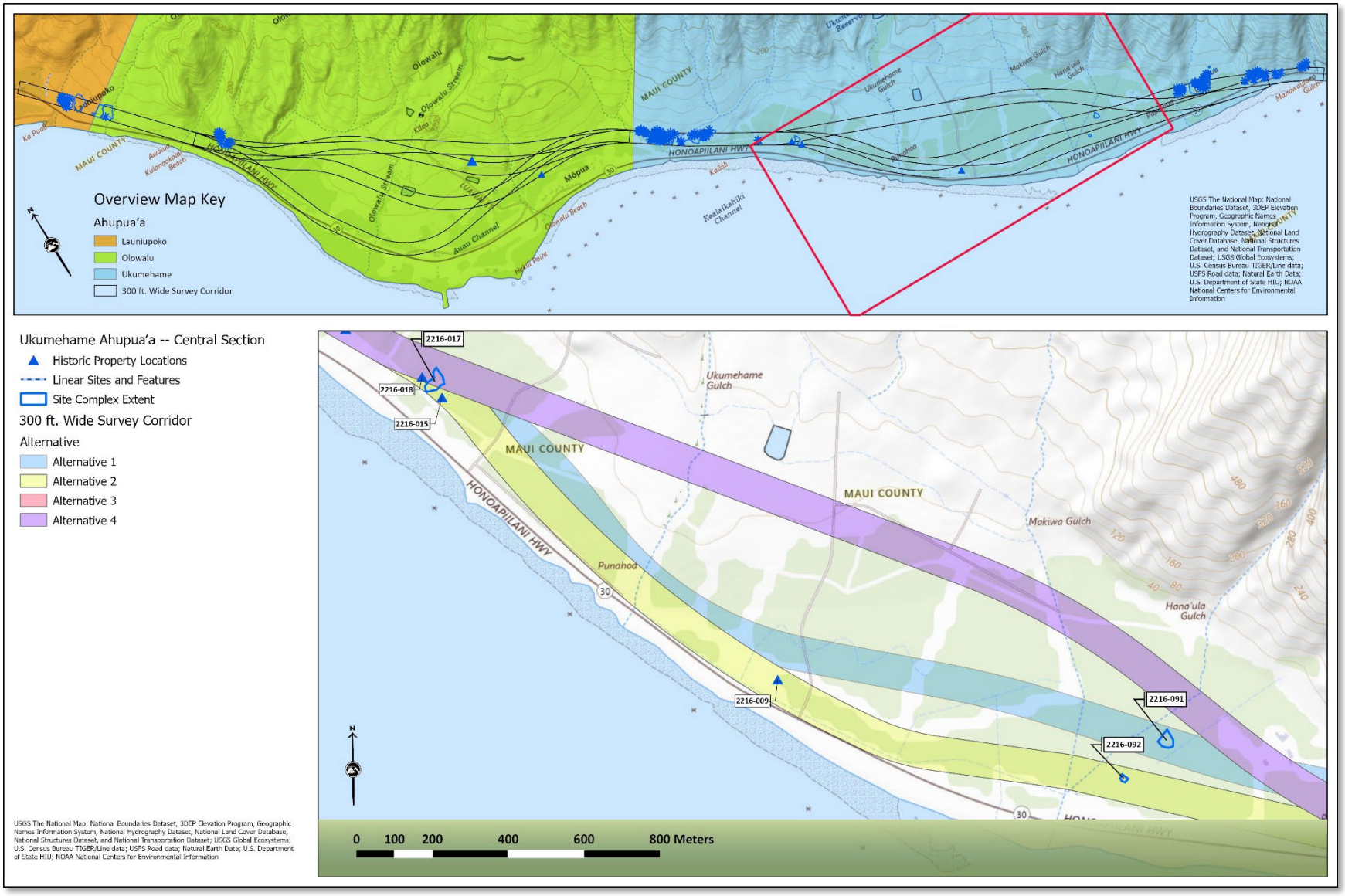


Figure 8. Historic property locations and extents in relation to the survey corridors, Ukumehame Ahupua'a, Central Section.

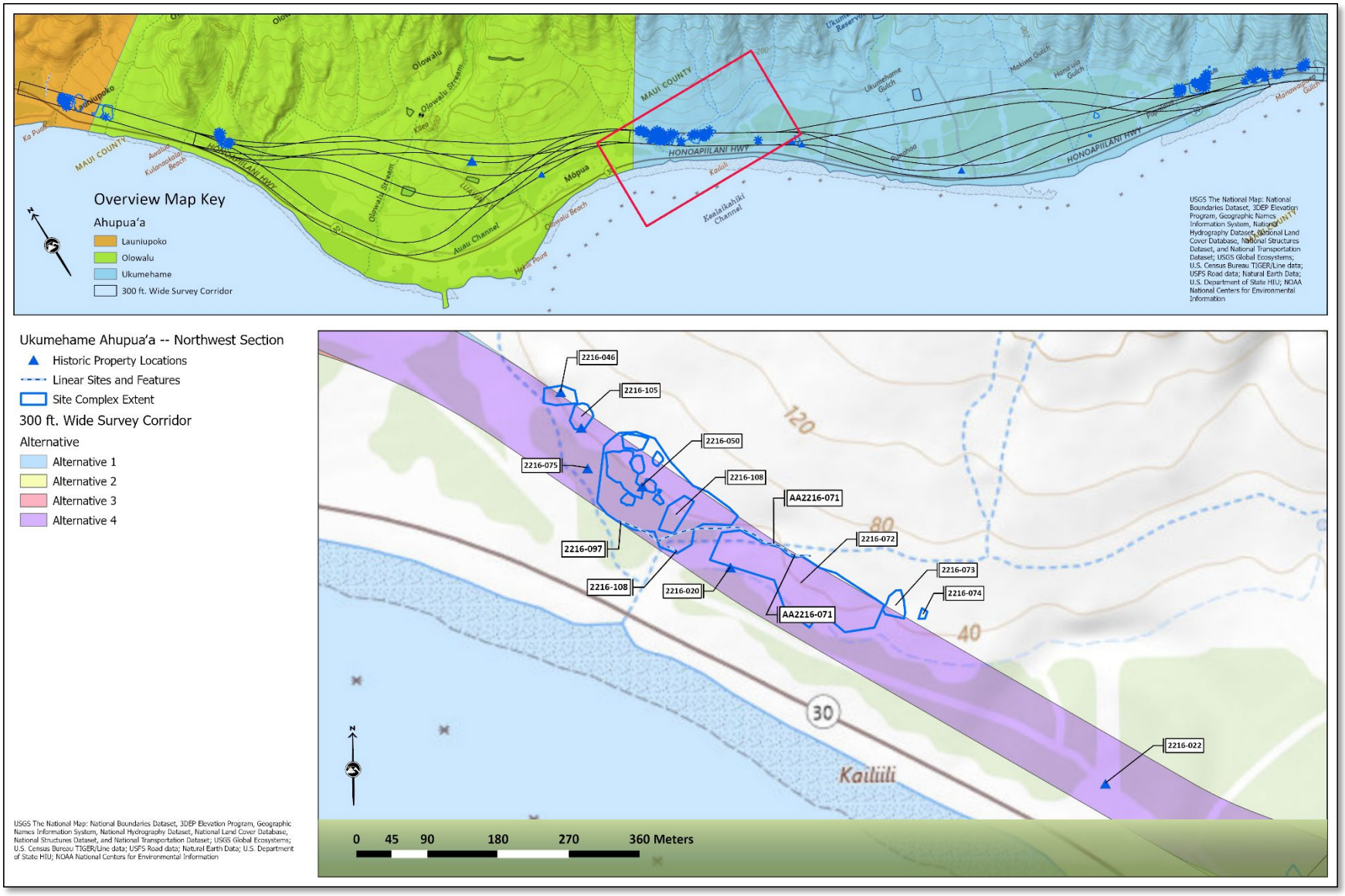


Figure 9. Historic property locations and extents in relation to the survey corridors, Ukumehame Ahupua'a, Northwest Section.

FIELD NO:	AA2216-009	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low Cone shell, cowrie, pipipi
FUNCTION:	Habitation	**ARTIFACT DENSITY:**	Medium Waterworn cobbles, false brain coral, branch coral, and one possible cone shell bead (B-001, collected)
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:

Flat slope densely vegetated with kiawe trees, buffel grasses, and Indian Marsh Fleebain.

HISTORIC PROPERTY DESCRIPTION:

AA2216-009 is a remnant surface scatter located within Alternative 3 west of Pohaku Aeko Street in Ukumehame (Figure 8). The scatter contains a medium density of waterworn cobbles, false brain coral, and branch coral (Plate 2 and Plate 3). A low density of marine shell was also present (Plate 1 and Plate 4), including one potential cone shell bead (B-001, collected). The scatter is characteristic of a habitation site. However, it is in a highly disturbed cane field with drisco pipes and recent sand deposits from coastal storms and tidal surges. The presence of sand suggests that some or all of the material was naturally deposited and may not be cultural. Similar scatters were observed in areas close to the Ukumehame coastline. AA2216-009 did contain a notably higher density of branch coral than other scatters within the area. Due to thick vegetation, cultural material was not counted, and the true extent of the scatter could not be determined.

EVALUATION SUMMARY

AA2216-009 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of traditional and historic era land use. Without archaeological testing it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to industrial sugar cane cultivation for over 100 years (Figure 10). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of traditional and historic era land use along coastal Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-009 is recommended as significant and eligible to the National Register under Criterion D.

Plate 1. Cowrie (Cypraea spp.).

Plate 2. Cultural material example (coral fragments, ‘ili‘ili, marine shell).

Plate 3. Cultural material under overturned tree, view to west.

Plate 4. AA2216-009, overview of east extent near overturned tree, marine shell flagged, view to east.

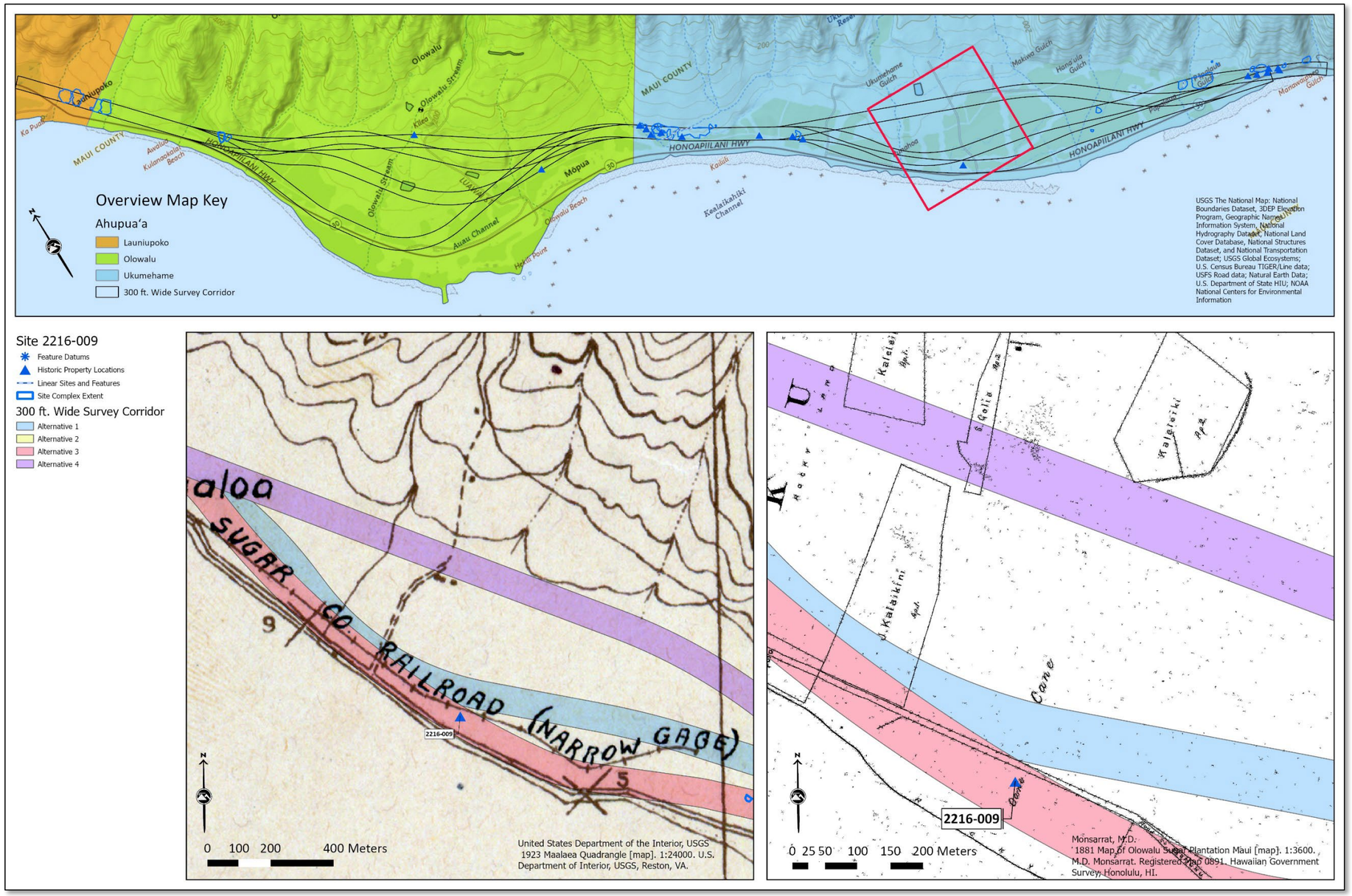


Figure 10. Site 2216-009 in relation to the proposed alternatives (top frame), land commission awards (bottom right frame), and former sugar plantation features (bottom left frame).

FIELD NO:	AA2216-015	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low One cone shell fragment
FUNCTION:	Possible Habitation	**ARTIFACT DENSITY:**	High Two basalt flakes, one potential basalt flake, one ceramic sherd, glass fragments with patina, false brain coral, branch coral, and waterworn cobbles.
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:

Flat slope densely vegetated with kiawe, salt wort (akulikuli-kai), Indian Marsh Fleebain, buffel grass, guamúchil, palmer's ameranth, and haole Koa.

HISTORIC PROPERTY DESCRIPTION:

AA2216-015 is a remnant surface scatter located where Corridors 1 and 3 merge in a graded dirt road west of Ehehene Street in Ukumehame (Plate 5 and Plate 6). The scatter consists of a high density of manuports, including false brain coral, branch coral, and waterworn cobbles. One cone shell, two basalt lithic flakes, one ceramic sherd, and a low density of glass fragments with patina were also present. The material assemblage is characteristic of pre-contact habitation and historic activities likely related to plantation-era sugar cane production. The scatter is in a highly disturbed fallow cane field containing Drisco pipes and chicken nests. The extent of the scatter was not determined due to extending in all directions for up to 30 m.

EVALUATION SUMMARY

AA2216-015 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of traditional and historic era land use. Without archaeological testing it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit related to former structures shown on a portion of the Olowalu Sugar Plantation Map (Monsarrat 1881), or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to industrial sugar cane cultivation for over 100 years (Figure 11). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of stratified subsurface deposits that may provide information on the chronology and distribution of traditional and historic era land use along coastal Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-015 is recommended as significant and eligible to the National Register under Criterion D.

Plate 5. AA2216-015, overview of scatter location, view to southwest.

Plate 6. AA2216-015, coral flagged, west of higher density area of scatter, view to north.

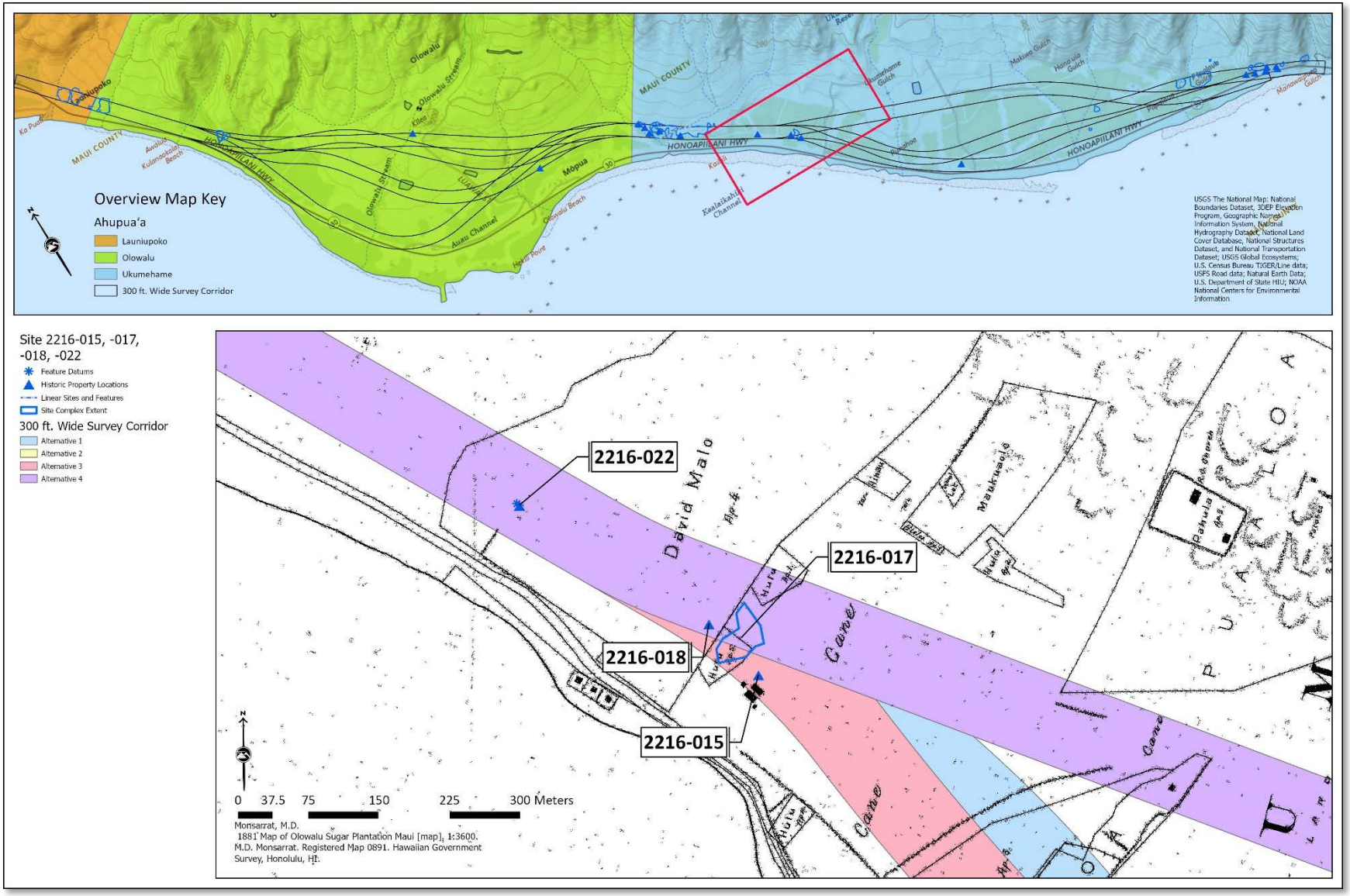


Figure 11. Site 2216-015, -017, -018, and -022 in relation to the proposed alternatives (top frame) and land commission awards and historic structures/landmarks (bottom right frame).

FIELD NO:	AA2216-017	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low Drupe, Cone, Cowrie, Pipipi, Akolea, and Pencil Urchin Spines.
FUNCTION:	Habitation and Tool Production	**ARTIFACT DENSITY:**	Medium Three adze preforms (AP-001 - AP-003), one possible adze (A-001), one modified basalt flake (MBF-001), one volcanic glass flake, fine grained basalt flakes, ceramic sherds, aqua glass fragments, branch coral, false brain coral, and waterworn cobbles.
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Flat slope densely vegetated with kiawe, Indian Marsh Fleebain, Guamúchil, and Palmer Amaranth.

HISTORIC PROPERTY DESCRIPTION:
AA2216-017 is a secondary surface scatter located where Corridors 1 and 3 merge west of Ehehene Street in Ukumehame. The scatter is located on a graded bare surface (Plate 7) within an active base yard containing bulldozers, boats, vehicles, and other landscaping machines. The visible extent of the scatter measures roughly 60 m and extends to the northeast corridor boundary. The scatter extends southwest into a forested area with decreased ground visibility and northwest into an inaccessible area covered in thick fleabane marsh with no surface visibility. The scatter consists of a low density of marine fauna, moderate densities of manuports and basalt lithic artifacts, and a low density of historical artifacts (Plate 8 through Plate 12). Informal surface counts of marine fauna and basalt lithic artifacts estimate areas with good ground visibility to contain one pencil urchin spine, one slate pencil urchin spine, two-plus pipipi shells, 10+ cowrie shells, 10+ cone shells, 30+ akolea shells, 200+ fine-grained basalt lithic flakes, one volcanic glass flake, three adze preforms (AP-001 through AP-003), one possible plow scarred adze (A-001), and one modified basalt flake (MBF-001). Due to being extremely high in density, informal counts were not done for coral or waterworn cobbles and 'ili'ili. Informal counts were also not estimated for historical artifacts, which consisted of a low density of porcelain ceramic sherds and aqua glass.

The area has been graded and plowed in the past, and Drisco pipes can be seen protruding from the surface. Regardless, lithics are more concentrated in a portion of the site. One of the adze preforms (AP-002) was found approximately 1 m in front of a bulldozer bucket containing soils with fragments of coral and small waterworn cobbles.

EVALUATION SUMMARY

AA2216-017 is a remnant cultural material surface scatter reflective of a pre-contact to historic era habitation site site that may provide information on the distribution of traditional and historic era land use and settlement timeline of Ukumehame Ahupua‘a. Without archaeological testing it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit related to pāhale associated with Apana 1 and 5 of L.C.A. 5380 to Hulu that is shown on a portion of the Olowalu Sugar Plantation Map (Monsarrat 1881), or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to industrial sugar cane cultivation for over 100 years (see also Figure 11). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may provide information on the chronology and distribution of traditional and historic era land use along coastal Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-017 is recommended as eligible to the National Register under significance Criterion D.

Plate 7. AA2216-017, west extent with cultural material flagged, view to west.

Plate 8. AA2216-017, slate pencil urchin, plan view.

Plate 9. AA2216-017, AP-002, plan view.

Plate 10. AA2216-017, cowrie and pencil urchin, plan view.

Plate 11. AA2216-017, adze preform, plan view.

Plate 12. AA2216-017, volcanic glass, plan view.

FIELD NO:	AA2216-018	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic,
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low Triton and cone
FUNCTION:	Habitation, Tool Production	**ARTIFACT DENSITY:**	High Basalt flakes (+10), waterworn cobbles, false brain coral, branch coral, ceramic sherds (blue and white porcelain), and the mouth of a glass medicine bottle
CONDITION:	Remnant	**SIGNIFICANCE ASSESSMENT:**	D
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Flat slope densely vegetated with kiawe, Indian Marsh Fleebain, Guamúchil, and Palmer's Ameranth.

HISTORIC PROPERTY DESCRIPTION:
AA2216-018 is a surface scatter located where Corridors 1, 3, and 4 merge west of Ehehene Street in Ukumehame. The scatter is located within a disturbed area containing multiple push piles and extends into a graded road and possible flood plain (Plate 13 and Plate 14). The scatter consists of a low density of marine shell intermixed with a relatively high density of basalt lithic flakes (10+), waterworn cobbles, false brain coral, and branch coral. A low density of blue and white patterned porcelain sherds and the mouth of a glass medicine bottle were also present. The material scatter is characteristic of pre-contact tool production and habitation (Plate 15a-e). Historical artifacts are likely related to plantation-era sugar cane production. The historical artifacts and lithics were found within a 20 m radius of one another.

Due to the site's location within a possible floodplain, coral and waterworn cobbles may have been deposited naturally through storm and tidal surges. Modern marine shell and coral fragments were present within the scatter but were distinguishable from potential cultural deposits. The scatter's extent was not determined due to extending into a densely vegetated area. AA2216-018 is 20 m north of AA2216-017, with a sparse amount of marine shell and lithics noted between the two sites. AA2216-018 could extend further northwest into a densely vegetated area of fleabane marsh where there is currently no ground visibility.

EVALUATION SUMMARY
AA2216-018 is a remnant cultural material surface scatter reflective of a pre-contact to historic era habitation approximately situated within the boundary of Land Commission Award 3702 (5410) to David Malo (see also Figure 11). An important figure in Hawaiian history, David Malo bore witness to the extreme changes that occurred in Hawaii on the heels of European contact and whose writings have provided unparalled insight to traditional Hawaiian culture at either ends of missionary arrival (Malo

2020:1). The land use noted in the native register indicates kalo as the primary use, however, that does not preclude the possibility for the presence of associated residential areas. Without archaeological testing it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit related to residency of David Malo at Ukumehame or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to industrial sugar cane cultivation for over 100 years. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

Although a direct association of this site with David Malo may be considered tenuous, thereby not currently qualifying for significance under Criterion B, additional research and archaeological study may provide further insight into the presence or absence of associated features that may be present in subsurface contexts and possible residency of David Malo at Ukumehame. While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may provide information on the chronology and distribution of traditional and historic era land use along coastal Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-018 is recommended as eligible to the National Register under significance Criterion D.

Plate 13. AA2216-018, overview of location within road/floodplain and pushpile visible (left), view to northwest.

Plate 14. AA2216-018, overview of road where scatter is located with farm equipment visible in background, view to East.

Plate 15 a-e. Cultural material examples a. bottle top, b. lithic flakes, c. marine shell, d. possible coral abrader, e. ceramic, plan views.

FIELD NO:	AA2216-020	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low One cone shell fragment
FUNCTION:	Habitation	**ARTIFACT DENSITY:**	Low One piece of volcanic glass possibly worked, 4 false brain coral fragments, 7 branch coral fragments, and waterworn cobbles
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Flat slope densely vegetated with buffel grasses, kiawe trees, and Haole koa.

HISTORIC PROPERTY DESCRIPTION:
AA2216-020 is a surface scatter located where the corridors merge in Olowalu. The scatter is within a graded fire road in a previously occupied homeless encampment downslope and southeast of the historic flume and an extensive habitation, agricultural, and ceremonial complexes (AA2216-050, -072, and -108) that is situated between the Olowalu and Ukumehame Sections of the Olowalu Sugar Plantation (Figure 12). The scatter consists of one cone shell fragment, one volcanic glass fragment (possibly worked), four false brain coral fragments, seven branch coral fragments, and several waterworn cobbles within a 15 m radius. Coral was observed eroding out of the graded road edge. The material is potentially associated with the complex and overall cultural landscape located upslope and either washed onto the road or a partially exposed subsurface deposit as a result of mechanical disturbances in that area.

EVALUATION SUMMARY
AA2216-020 is a remnant surface scatter reflective of a former late pre-contact to early historic era habitation site that may provide information on the distribution of traditional and historic era land use. As this historic property has been extensively disturbed and is in remnant condition there has been a loss of integrity of design, feeling, setting, and workmanship; however, however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION
While site has been impacted by prior disturbance, the potential for subsurface deposits that may provide information on settlement chronology and extent of traditional land use in the margings between Olowalu and Ukumehame Ahpua‘a remains. Therefore, in consideration of the above description and analysis, AA2216-020 is recommended as significant and eligible to the National Register under Criterion D.

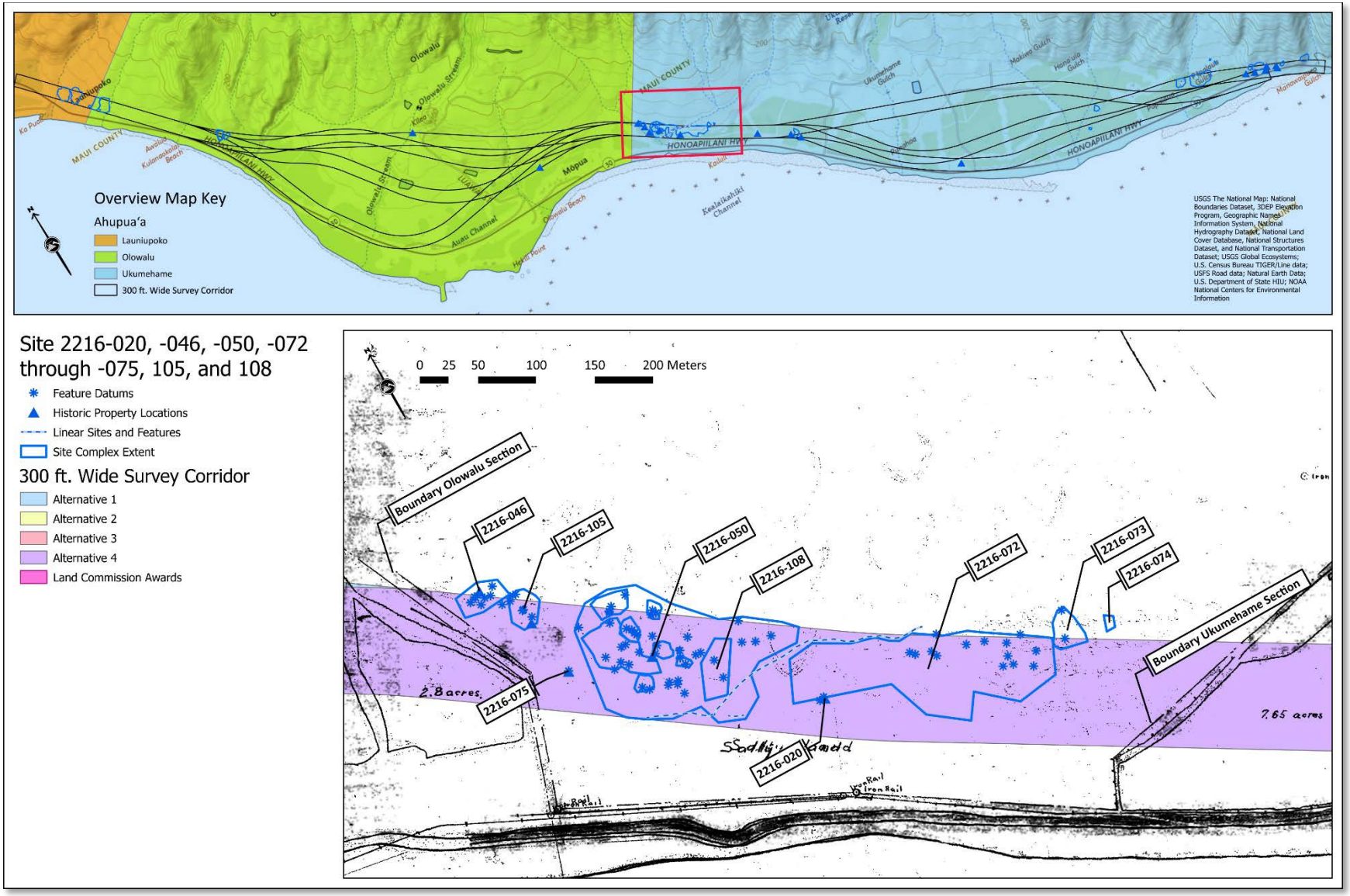


Figure 12. Site 2216-020, -046, -050, -072 through -075, -105,and -108 in relation to the proposed alternatives (top frame) and the boundaries of the Ukumehame (A. C. Alexander 1906b) and Olowalu Sections (A. C. Alexander 1906a) of the Olowalu Sugar Plantation (bottom right frame).

Plate 16. Southeast extent of AA2216-020 surface scatter coral in the foreground, view to northwest.

Plate 17. Branch coral fragments visible in the graded sections of the road.

Plate 18. Volcanic glass nodule and cone shell

FIELD NO:	AA2216-022	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Historic
SITE TYPE:	Well	**MIDDEN DENSITY:**	None
FUNCTION:	Water access	**ARTIFACT DENSITY:**	Medium Waterworns in construction
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Material, Workmanship, Feeling
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Material, Workmanship, Feeling

ENVIRONMENTAL SETTING:
Flat slope densely vegetated with kiawe trees, Haole Koa, buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
Possible historic well located within a heavily utilized modern habitation within a larger homeless encampment (Plate 19). The upper portion of the well is lined with about 2 courses of waterworn cobbles (Plate 20). The well extends an estimated 1.5 m in depth and is filled with roughly 10 cm of water. The overall diameter of the well measures roughly 1 m.

EVALUATION SUMMARY
AA2216-022 is a water well potentially related to historic era habitation. It is notable that this historic property is situated within the boundary of Land Commission Award 3702 and 5410 to David Malo (see Figure 11), a noted Hawaiian scholar who was among the first to attend Lahainaluna Seminary. An important figure in Hawaiian history, David Malo bore witness to the extreme changes that occurred in Hawaii on the heels of European contact and whose writings have provided unparalled insight to traditional Hawaiian culture at either ends of missionary arrival (Malo 2020:1). The land use noted in the native register indicates kalo as the primary use, however, that does not preclude the possibility for the presence of associated residential areas.

While there has been a loss of setting and association due to the land clearing associated with industrial sugar cultivation, the site nonetheless retains integrity of location, design, material, workmanship, and feeling.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION
Although a direct association of this well with the residency of David Malo based on provenience alone may be considered tenuous, thereby not currently qualifying for significance under Criterion B, additional research and archaeological study may provide further insight into the presence or absence of associated features that may be present in subsurface contexts and the possible residency of David Malo at Ukumehame. Due to the construction, engineering, and environmental context of the well itself on the alluvial plain of Ukumehame, which is somewhat removed from the network of historic era water control features associated with the sugar plantation, as well as the potential for future archaeological research into the possible association with the residency of David Malo, AA2216-022 is recommended for significance under Criterion D.

Plate 19. Overview of AA2216-022 in homeless encampment, view to North.

Plate 20. Close up of waterworn cobble stacking visible, plan view.

FIELD NO:	AA2216-046	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Complex: C-Shape, Mound, Surface Scatter, Terrace	**MIDDEN DENSITY:**	Low Drupa and pipipi
FUNCTION:	Ceremonial and Habitation	**ARTIFACT DENSITY:**	High Branch coral, false brain coral, one ceramic bead, and waterworn cobble manuports
CONDITION:	Fair to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Moderately sloping topography vegetated with ‘ilima, ‘uhaloa, opiuma, kiawe trees, and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-046 is a newly identified habitation and ceremonial complex located along a gully on a moderate southwest-facing slope roughly 10 m southeast of site AA2216-105 (habitation complex). The site consists of four features, including a modified knoll (Feature A), a possible ahu shrine (Feature B), a terrace of indeterminate function (Feature C), and a C-shape (Feature D) (Figure 13 and Figure 14). Additionally, two possible remnant semicircular terraces located within the gully below Feature C were not given feature designations due to uncertainty of the interpretation until further investigation.

Features A (modified knoll) and B (ahu) are located northwest of the gully that bisects the site. Features D (C-shape) and C (terrace) are located northeast of Features A and B within the gully between tributary rivulets, which merge at the base of Feature C (Plate 21 throug Plate 25). A dry-stacked rock wall is visible mauka of the site outside the APE. The wall appears intentionally segmented around bisecting gullies/ditches and may be associated with water diversion or ranching. The site's spatial relationship with the gully and wall suggests it may have been reutilized or modified during the plantation or ranching eras. Cultural material observed within the site includes branch and false brain coral, marine shell, waterworn cobbles, and a potentially historic ceramic bead (O-001, located downslope of Feature C).

Overall, AA2216-046 is in fair to remnant condition. Disturbances include erosion, brush fires, thermal rock spalling, and contemporary habitation. Flash flooding of the gully and destabilization of topsoil due to brush fires have accelerated erosion and feature collapse. Heat spalling from solar radiation and fire are also accelerating feature deterioration. Contemporary inhabitants (e.g., hunters, squatters) have left rubbish in Features C and D.

EVALUATION SUMMARY

AA2216-046 is situated just north of the expansive colluvial agricultural field system documented as AA2216-50 and AA2216-072 and has retained its location, design, setting, materials, workmanship, feeling, and association. It is likely that AA2216-046 is associated with complexes directly adjacent to and south of the site extent and thus speaks to what would have been a highly productive ahupua‘a wide agricultural system when combined with the lo‘i systems of both Ukumehame and Olowalu Valleys. The combination of fully developed wet and dry, colluvial agricultural systems appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions. The potential extent of lo‘i, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156).

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-046 on its own may not be considered significant under Criterion A, however, when understood in the context of the broader archaeological landscape and potential association with AA2216-50 and AA2216-072 and the inter-site patterning of features in relation the overall dryland field system, significance under Criterion A applies as it pertains to traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact (see evaluation and recommendation for AA2216-50). Continued archaeological research may help to inform the timeline for agricultural intensification in the region and gain understanding of when the systems may have been developed and subsequently abandoned and how that may relate to the continued use of the established lo‘i systems. Therefore, AA2216-046 is considered additionally significant under Criterion D.

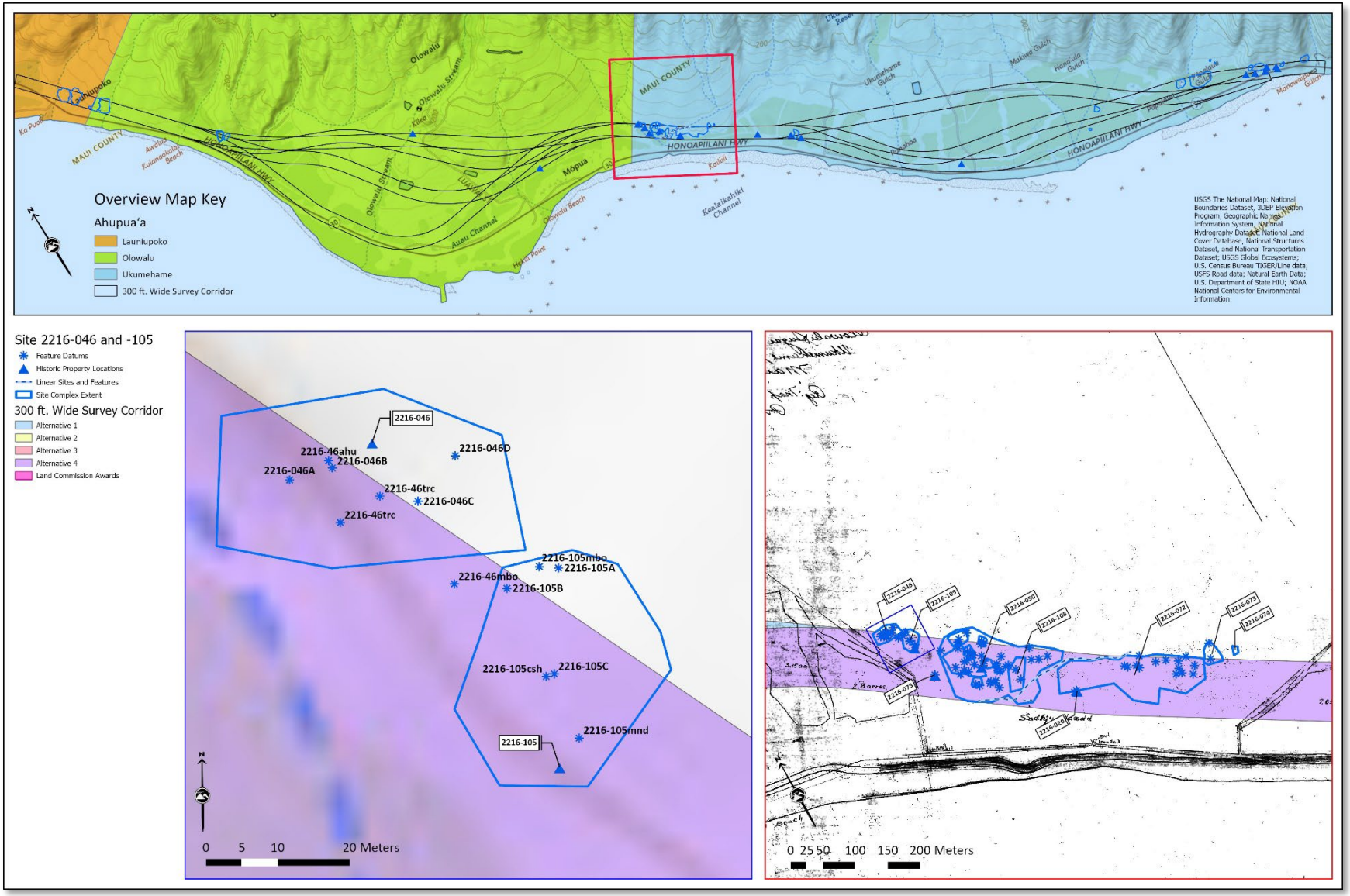


Figure 13. AA2216-046 and -105 in relation to the proposed alternatives (top frame) and inter-site association between the boundaries of the Ukumehame (A. C. Alexander 1906b) and Olowalu Sections (A. C. Alexander 1906a) of the Olowalu Sugar Plantation (bottom right frame); as well as intra-site feature distribution[2] (bottom left frame).

[2] ahu=shrine; trc=terrace, mbo=modified bedrock outcrop, mnd=mound, csh=c-shape

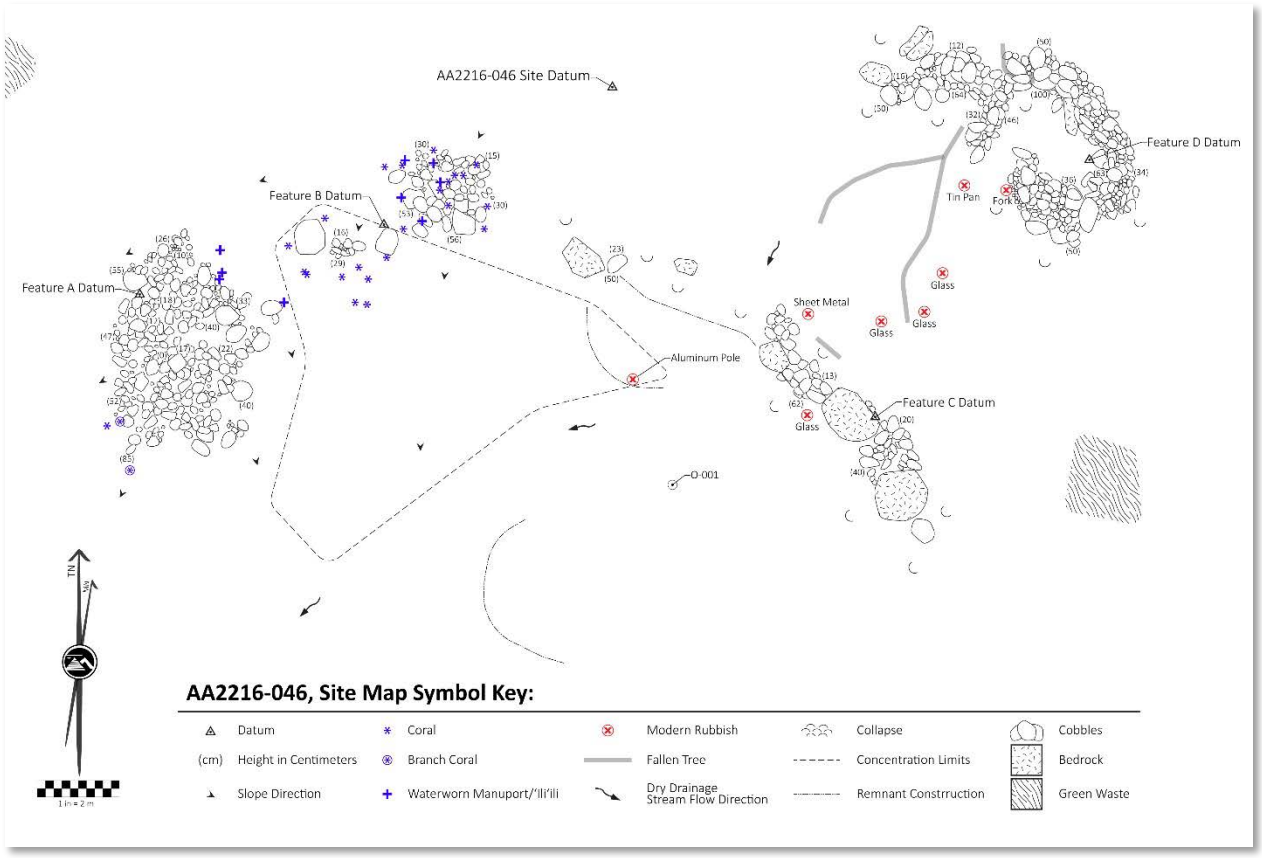


Figure 14. AA2216-046 Features A through D, plan map.

Plate 21. AA2216-046, Feature A in foreground left, Feature B in midground left, Feature C right of frame, Feature D in background, view to east.

Plate 22. Overview of possible C-shapes located below fallen trees, view to south.

Plate 23. AA2216-046, Feature A and B and CMC, overview, cultural material flagged in pink. Feature A in foreground, Feature B visible in midground right, cultural material concentration in midground left, view to south.

Plate 24. Overview of potential ahu constructed from coral and waterworn cobbles, view to north.

Plate 25. AA2216-046, overview, Feature A in far left, Feature B in mid left, Feature C in mid right, Feature D in background right, cultural material is flagged, view to north.

FIELD NO:	AA2216-050	**SIHP NO:**	
N FEATURES:	Minimum of 20	**AGE:**	Late Precontact - Early Historic, Precontact
SITE TYPE:	Complex: Alignment, C-Shape, Enclosure, Modified Outcrop, Mound, Petroglyph, Pit, Platform, Surface Scatter, Terrace	**MIDDEN DENSITY:**	Low Marine shell
FUNCTION:	Agriculture, Ceremonial, Permanent Habitation	**ARTIFACT DENSITY:**	High O-001 (possible coral ulu maika), one false brain coral abrader (AB-001), one modified basalt flake (MBF-001), basalt scraper (SCR-001), branch coral, false brain coral, potential lithics, and one potential fishhook blank (uncollected outside APE)
CONDITION:	Good to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:

Gentle to moderately sloping topography vegetated with buffel grasses, kiawe, haole koa, kiawe trees, and ilima.

HISTORIC PROPERTY DESCRIPTION:

AA2116-050 is a newly documented dryland field system consisting of agricultural, ceremonial, and habitation features situated near the base of a rocky alluvial slope between Olowau and Ukumehame streams (Figure 15). The expansive system covers approximately 3.65 acres within the survey corridor and extends mauka beyond the survey area. The western site extent is bounded by a bulldozed firebreak and historic ditch, the southern extent by the junction of the firebreak and the old cane haul road, and on the east extent by a gully that drains into a historic flume. The northern site boundary is justified by the mauka extent of the survey limits. AA2216-050 is surrounded by several other traditional sites, including AA2216-046 (ceremonial) and AA2216-105 (habitation) to the west along with AA2216-072 and AA2216-073 (hale) to the east. These sites are only superficially separated by intermittent streams and modern disturbance and were likely connected within the broader landscape that remains in the margins between the Olowau and Ukumehame sugar plantation fields.

AA2216-050 is comprised of approximately twenty features (A-T) and seven large modified bedrock outcrops (MBO-001 - MBO-007). Feature A is five agricultural rock mounds (A1-A5), Feature B is eight terraces of indeterminant function (B1-B8), Feature C is 28 agricultural terraces (C1-C28), Feature D is 40 agricultural circles (D1-D40[see above note]), Features E, G, I, and T are C-shaped enclosures, Features F and J are agricultural enclosures, Feature H is a habitation terrace, Feature K is a habitation enclosure, Feature L is a circular agricultural (mulch) enclosure, Feature M is a habitation platform, Feature N was the large heiau situated within the overall complex that has since been assigned a separate site number, Feature O is a large agricultural mound, Feature P is a double enclosure, Feature Q is an indeterminant enclosure, Feature R are adjoining habitation/agricultural enclosures, and Feature S is a stepped ceremonial platform (Figure 16 and Figure 18). MBO-001 through MBO-007 are seven large modified bedrock outcrops (MBO) that comprises much of the northern half of the site. Many of the features and subfeatures in the north half of the site are located within one of these seven modified outcrops. For example, Subfeature C-19, Subfeature D-24, and Feature G are all located within the limits of MBO-006. It should be noted that due to the expansive nature of AA2216-050 and limited time frame for the pedestrian survey, the above noted features are not an exhaustive inventory of the site.

Cultural material, including coral, 'ili'ili/waterworn stones, marine shell, basalt flakes, one volcanic glass flake, and several other types of artifacts occur across the site area. Much of the cultural material is located within two large concentrations (CMC-001 and CMC-002) and around particular features (e.g. Features H, K, S and AA2216-108 [heiau]), providing evidence of their functions. Formal artifacts that have been documented minimally include a false brain coral abrader (AB-001), two hammerstones (H-001, H-002[N]), A modified flake tool (MBF-001), a coral ulu maika (U-001), and a polished waterworn stone (O-001).

AA2216-050 is a variant of a leeward, rain-dependent traditional colluvial agricultural system adapted to a rocky environment with little arable soil. The landscape comprising the site area consists of a lightly incised sloping alluvial plain characterized by fractured ʻaʻa bedrock outcrops divided by gullies and rivulets. The ground surface is strewn with boulders, cobbles, and gravels, which, based on the incised gullies, is consistent with the very rocky subsurface soil matrix. Typical dry land companion crops, such as sweet potato and gourd, would have been planted on and around modified outcrops in small soil-filled terraces (e.g., Feature C) and small container planters comprised of stacked or aligned cobbles and boulders, often as modifications to natural pockets in the fractured bedrock (e.g., Features D, F, J). Crops were likely cultivated in a growing medium of composted vegetation mulch and soil. Intermixed with agricultural features are several habitation features and a high prevalence of ceremonial features and material, which may be indicative of the precarious nature of a rain-dependent agricultural system within a dryer area of the island. Additionally, several habitation features are integrated into the overall agricultural system, some of which appear directly associated with particular growing patches or gardens. A network of pathways winds through and connects the various features.

EVALUATION SUMMARY

AA2216-050 has retained its location, design, setting, materials, feeling, and association due to its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway. It is likely that AA2216-050 is associated with complexes to the northwest and southeast of the site extent, thus speaking to what would have been a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Ukumehame and Olowalu Valleys. This combination of fully developed wet and dry, colluvial agricultural systems within a singular ahupuaʻa

appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in leeward West Maui, and challeging environmental conditions. The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156).

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-050 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural, ceremonial, and habitation features in relation the overall topography that takes advantage of slope direction for soil retention and voids in bedrock outcrops for soil collection and possible mulching techniques, view planes for ceremonial features, and locations of long-term habitation sites, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-050 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland agriculture and loʻi systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established loʻi systems into the modern era. Therefore AA2216-050 is further considered significant under Criterion D.

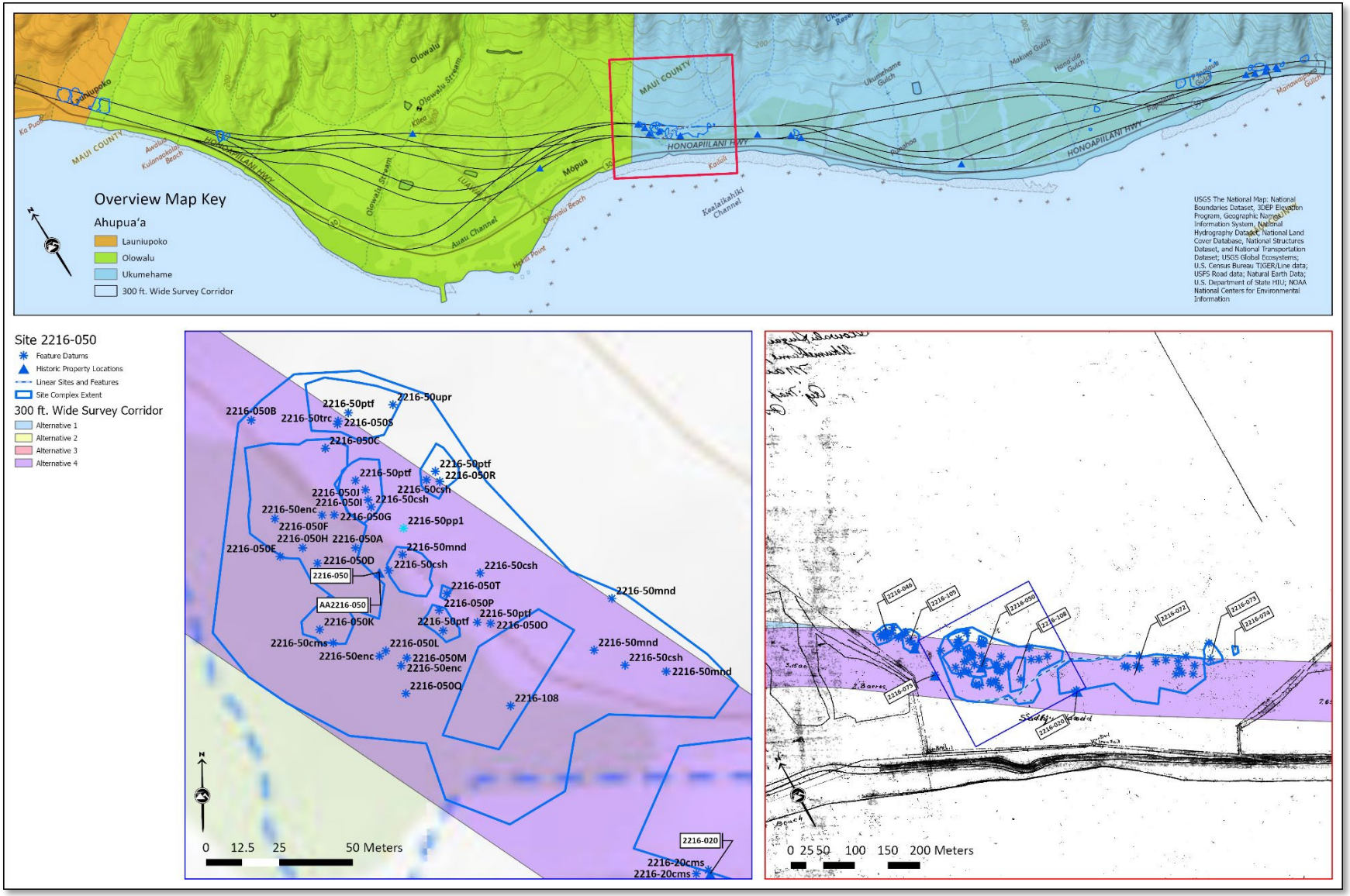


Figure 15. AA2216-050 in relation to the proposed alternatives (top frame) and inter-site association between the boundaries of the Ukumehame (A. C. Alexander 1906b) and Olowalu Sections (A. C. Alexander 1906a) of the Olowalu Sugar Plantation (bottom right frame); as well as intra-site feature distribution[3] (bottom left frame).

[3] trc=terrace, mbo=modified bedrock outcrop, mnd=mound, csh=c-shape, enc=enclosure, pp=planting pit, ptf=platform, upr=upright

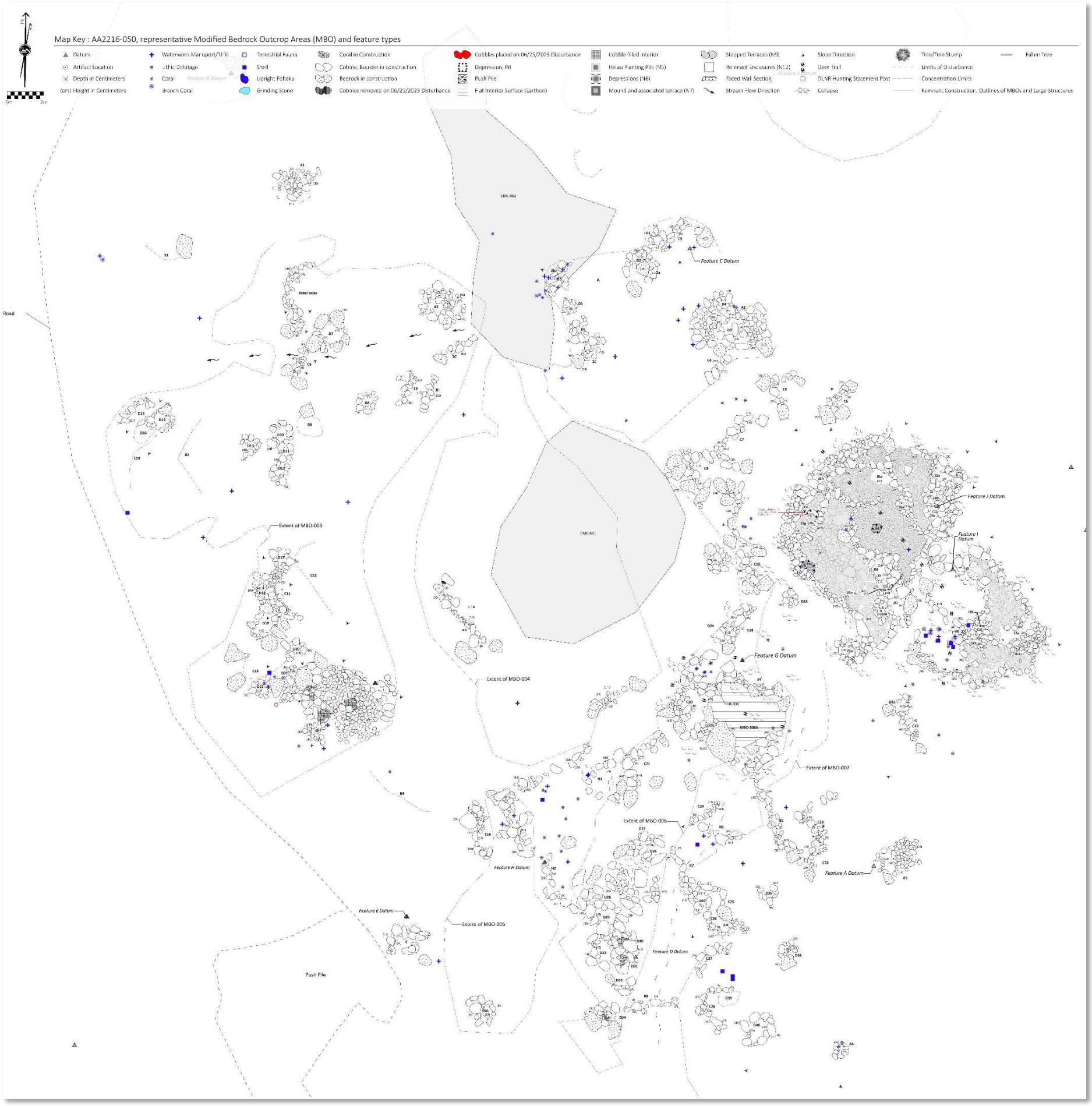


Figure 16. A portion of AA2216-050, highlighting typical intensive modifications to bedrock outcrops (MBO) along with interior feature configurations of Features I and J.

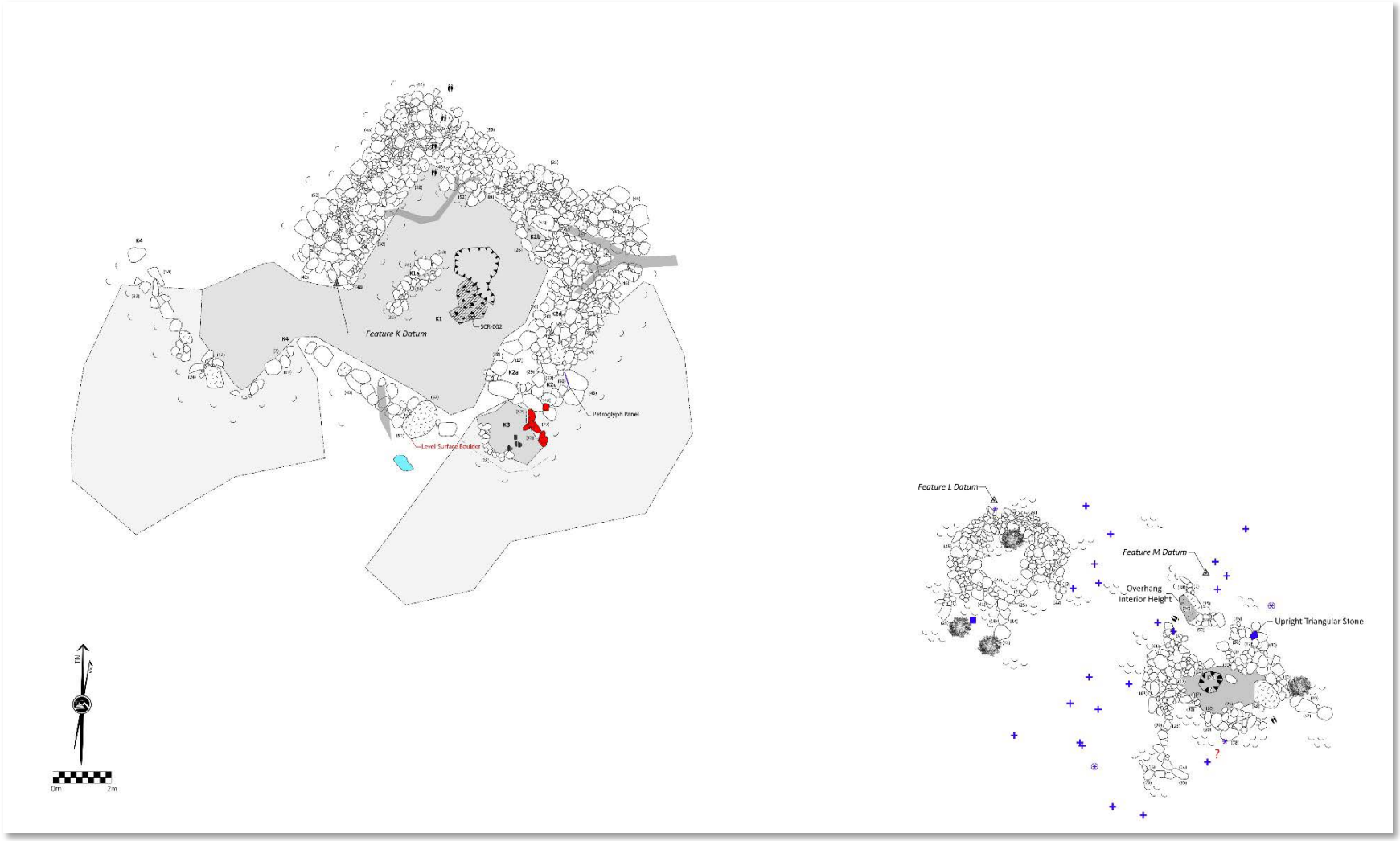
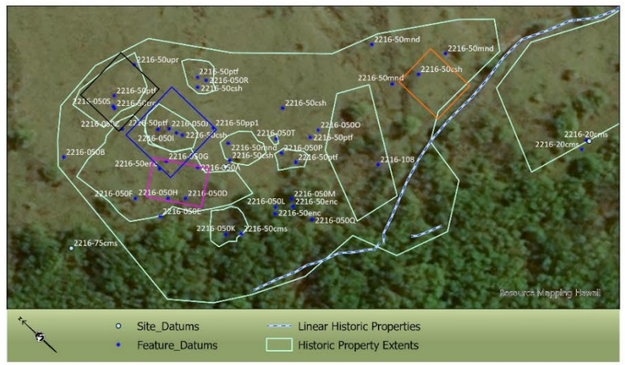
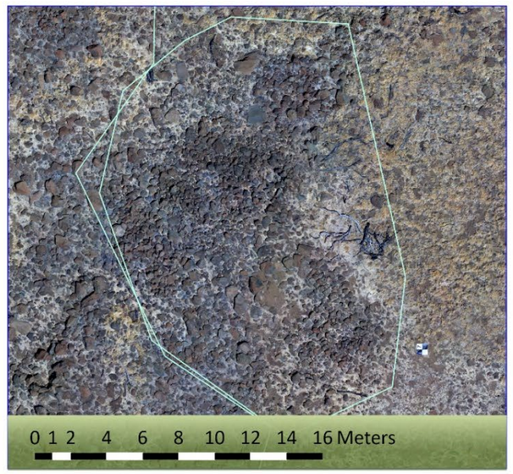


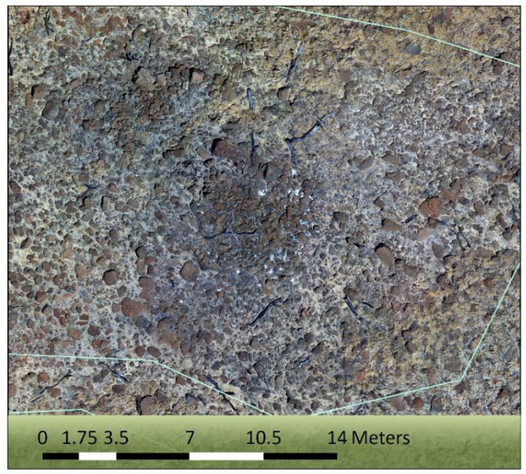
Figure 17. AA2216-050 Features K through M, plan view.



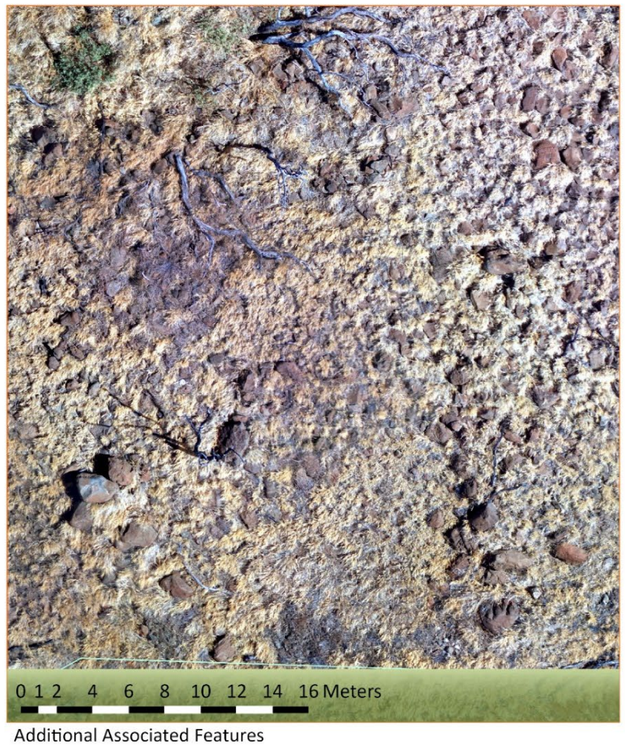
AA2216-050, Drone Imagery, Representative Feature Types



Features I and J



Ceremonial Platform



Additional Associated Features

Intensively Modified Bedrock Outcrop, Typical

Figure 18. AA2216-050, drone imagery of representative feature types and distribution across the overall complex.

FIELD NO:	AA2216-068	**SIHP NO:**	
N FEATURES:	Minimum of 11	**AGE:**	Precontact
SITE TYPE:	C-Shape, Mound, Platform, Surface Scatter, Terrace	**MIDDEN DENSITY:**	Low One Cone shell fragment, indeterminate marine shell fragments
FUNCTION:	Agriculture, Ceremonial, and Habitation Complex	**ARTIFACT DENSITY:**	Medium False brain coral, branch coral, possible flakes, adze preform or blank
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Gentle to moderately sloping topography vegetated with buffel grasses and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:
AA2216-068 is a newly identified agricultural, habitation, and ceremonial complex located east of Pāpalaua Stream on the gently south-sloping rocky plain below the mouth of Pāpalaua Gulch (Figure 19). The site area consists of an intensively built landscape that includes a heiau (outside of APE), C-shapes and irregular habitation enclosures, habitation and agricultural terraces, agricultural circles (planting/mulch pits) and clustered pit gardens (Figure 20), two auwai, an ahu (ceremonial feature), wall sections, alignments, petroglyphs (Plate 26 and Plate 27), and a hoana (whetstone) (Plate 28). The total extent of the site is unknown because features are obscured by dense vegetation and because features extend mauka out of the survey area (including the heiau). The site boundary generally represents the portion of the site that falls within the current survey area and which was cleared of grass and deadwood. The site likely extends to the east and west within the APE from the cleared representative area. The southern extent of the site is bounded by a modern earthen berm associated with the highway below.

AA2216-068 is surrounded by other traditional sites, including AA2216-069 (agricultural and ceremonial complex, outside of APE) to the east and AA2216-070 (habitation and agricultural complex) to the northwest and west. These sites are superficially separated by modern disturbances and overgrown vegetation and were likely connected within the broader cultural landscape, characterized today by the remaining unplowed area between the Olowau and Ukumehame plantation plow zones.

Cultural material within AA2216-068 is concentrated within habitation and agricultural features and is scattered at a lower density across the remainder of the site. Cultural material includes waterworn cobbles and 'ili'ili, basalt lithic flakes, branch and false brain coral, marine shell (cone, cowrie, pipipi, drupe), kukui nut endocarp, and a possible historic gun flint (O-001).

The agricultural, habitation, and ceremonial features identified within and near the AA2216-068 representative site area are consistent with a 'rocky slope' variant of a leeward, rain-dependent traditional agricultural system observed throughout the unplowed sections of the project area. Planting features likely supported sweet potato, dryland taro, and water gourd cultivated in amended soil or mulch. Habitation and ceremonial features are interspersed among agricultural features, often with abutting or integrated architectural components.

The distribution of features within the representative site area can be summarized by general site area and relative location. The western portion of the site is dissected by branching south-flowing stream channels, two of which appear to be auwai, being either modified gullies or constructed canals with surviving sections of cobble/boulder-face sidewalls. The west-most auwai defines the western extent of the representative site area, although this area lies within the kiawe forest and was not cleared. Although obscured by vegetation, several features were identified surrounding the west auwai, including terraces, planting pits, a possible ceremonial mound/wall, wall sections, and a boulder with a kāne petroglyph situated within the waterway. The second auwai is located to the east at the western extent of the cleared area. On the north, this east-most auwai divides a knoll-top cluster of abutting enclosures and terraces on the west from a small ahu on the east. Atop the knoll are at least three irregular enclosures ranging from roughly 1-3 m in diameter, one distinct C-shape, a storage cupboard, and several terraces including two distinct semicircular terraces (~2-3 m in length) and one larger irregular terrace (~7 m in length). Two branch coral fragments, one false brain coral fragment, and an 'ili'ili were observed among the cluster of features. The ahu situated on the east side of the auwai is comprised of a south-opening U-shape (~1.5 m dia.) containing a branch coral concentration. On the downslope side of the ahu is a scatter of coral eroding from the feature and three distinct circular pits or depressions (~0.75 m dia.) that appear as informal excavations.

To the south, along the east bank of the east-most auwai, is a large habitation enclosure containing a dense cultural material scatter. The circular habitation enclosure measures approximately 10 m in diameter. It consists of a stacked boulder and cobble wall measuring up to 1 m in height and 1.7 m in width on the better-preserved upslope north extent. The downslope south and southwest portion of the enclosure wall is mainly collapsed. Cultural material observed within the enclosure includes a remnant 'iil'ili pavement, marine shell (cone, cowrie, drupe, pipipi), branch and false brain coral, kukui endocarp, and a non-basalt flaked lithic, that may be a historic flint (O-001). The feature is likely to have intact subsurface cultural deposits. Several large kiawe are growing from the feature's interior and enclosing wall.

The northeastern portion of the site area contains a high density of features, which continue to the north of the project area. Features situated along the cleared APE boundary include a planting pit garden and two associated C-shapes, a second pit/terrace garden, and a wall. The larger planting pit garden consists of a rocky knoll containing a multitude of small circular or ovate planters bookended by C-shaped enclosures at the east-west extents. Many planting pits share adjoining sidewalls of 1-2 courses of boulders/cobbles, producing a 'honeycomb' of clustered planting spaces averaging roughly 1 m in diameter. Immediately to the east is a second garden consisting of small irregular terraces and planting pits constructed of stacked/aligned boulders along a low north-south ridge. An apparent walkway runs northeast-southwest along the vertically stacked north extent of the modified ridge garden. Several meters to the north of the two gardens lies a northwest-southeast oriented rock wall measuring approximately 10 m in length and approximately 0.6 m in height. The wall, which constists of 1-2 courses

of neatly stacked bouders, is very linear, especially in relation to the more organic, curvilinear feature forms predominant across the rest of the site.

The central portion of the site area contains terraces, C-shapes, and an irregular habitation enclosure. Situated below and southwest of the the previously discussed planting pit garden knoll are 3 distinct C-shapes, to the east of which are series of irregular agricultural terraces contouring the slope. Below the terraces is a larger irregular habitation enclosure and adjacent rectangular terrace. The habitation enclosure contains interior subfeature divisions (possible storage features) and several pieces of coral. Abutting the enclosure to the east is a flat rectangular terrace measuring several meters in length and width.

The more disturbed southeastern portion of site contains a distinct rock-infilled terrace and multiple remnant features. The terrace has a distinct rock-infilled surface and southwest face measuring approximately 16 m in length x 3 m in width and ranging from 0.4-0.8 m in height. The terrace could be interpreted as up to ~6 m in width including the flat soil extending behind the infill. The terrace was originally interpreted as a section of historic road, but no other evidence of a road could be identified among the surrounding topography and features. Surrounding the infilled terrace are more remnant terraces and possible remnant C-shaped enclosures. The ground surface is strewn with fractured rock and several push piles at the perimeter of the site area suggests the area has been affected by bulldozing.

During the course of the survey, features were observed to continue at a high density north and mauka of the survey area. A quick reconnaissance confirmed the presence of a heiau, several C-shapes, petroglyphs, a grinding slick, another possible groundstone, auwai, and probably agricultural pits and terraces. The heiau has a well preserved platform and west wall, but the east extent has been impacted by a bulldozer cut, exposing the profile of a cultural surface laden with coral. The intact west wall contains large amounts of coral and waterworn cobbles, including large branch coral heads that appear to have been harvested live. A modified gully or auwai wraps around the west side of the heiau; another auwai with a historic rock flume is located to the southeast. Two petroglyphs, one of a kane and another of two dogs, observed north of the APE are associated with a cluster of C-shapes.

The site contains many intact and well-preserved features, although the site area has been negatively impacted by modern disturbance on all sides. The east and south extents are disturbed by bulldozing and water diversion features associated with the Honopiilani Highway. The northern portion surrounding the heiau has been affected by bulldozing, possible associated with the construction and maintenance of the overhead transmission lines. The western extent is disturbed by invasive forest and a modern hunting camp. Despite these disturbances, many features within the site, including those ma uka the APE, remain undisturbed or lightly altered and in good-to-fair condition. Other features, particularly those on the east and south margins that have been subjected to mechanical disturbance, may range from poor-to-remnant condition. Considering the density of features and presence of a heiau and auwai, site AA2216-068 should be treated within a landscape framework that considers the entire valley.

EVALUATION SUMMARY

AA2216-068 has retained its location, design, setting, materials, feeling, workmanship, and association due to its location within the far margins of the former sugar plantation boundary, as well as the distance from the current alignment of Honoapi‘ilani Highway and large lot residential development within Ukumehame Ahupua‘a. This intensive modification to the lands outside of Ukumehame Valley and to the far southeast of AA2216-050 further contributes to the breadth of cultivation within Ukumehame and

what would have been a highly productive ahupua‘a wide agricultural system when combined with the lo‘i systems of Ukumehame Valley. The potential extent of lo‘i, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Kirch and McCoy 2023:155-156). This combination of fully developed wet and dry, colluvial agricultural systems within a singular ahupua‘a appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-068 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the overall archaeological landscape of the flow slopes and alluvial plain of West Maui, from Ukumehame to Launiupoko, as well as the intra and inter-site patterning of agricultural, ceremonial, and habitation features in relation the overall topography, it is clear that expansive adaptation into an area that appears to be marginally suited for agriculture speaks to a broader pattern of intensive settlement when taking into account the well-watered flood plain and valley floor of Ukumehame. Like AA2216-050 the archaeological features highlight an adaptive strategy that takes advantage of slope direction for soil retention and voids in bedrock outcrops for soil collection and possible mulching techniques, view planes for ceremonial features, and positioning of long-term and/or recurrent habitation sites within the overall system, therefore Criterion A is applicable as this complex may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-068 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland and lo‘i systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established lo‘i systems into the modern era. Therefore AA2216-068 is further considered significant under Criterion D.

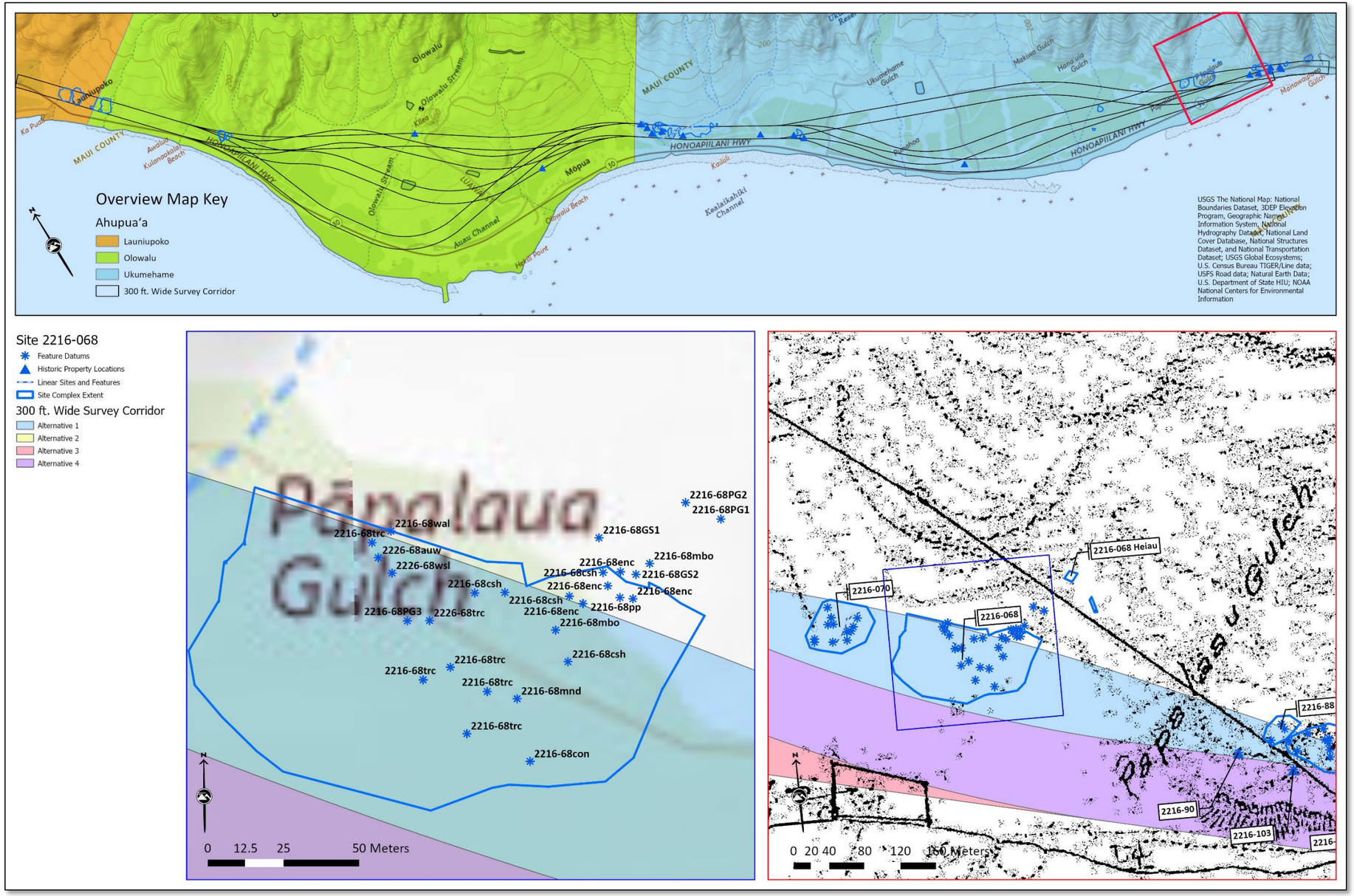
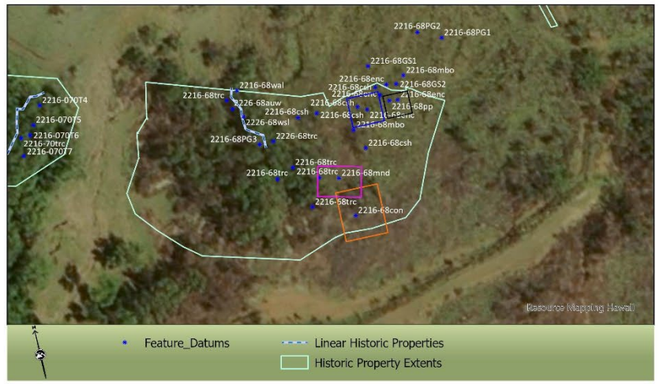
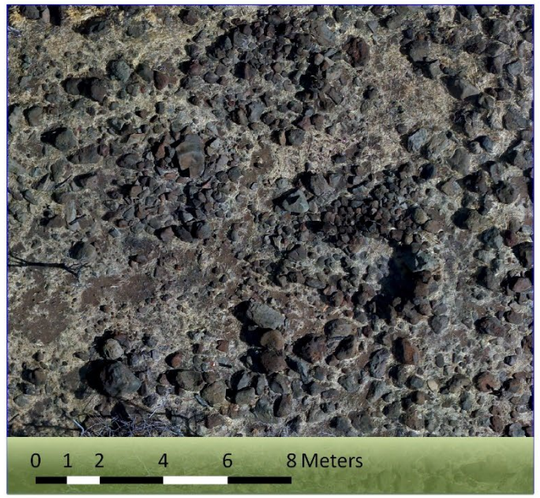


Figure 19. AA2216-068 in relation to the proposed alternatives (top frame), possible inter-site associations in relation to the historic Ukumehame Coastline map (Monsarrat and Kanakanui 1908) (bottom right frame); as well as intra-site feature distribution[4] (bottom left frame).

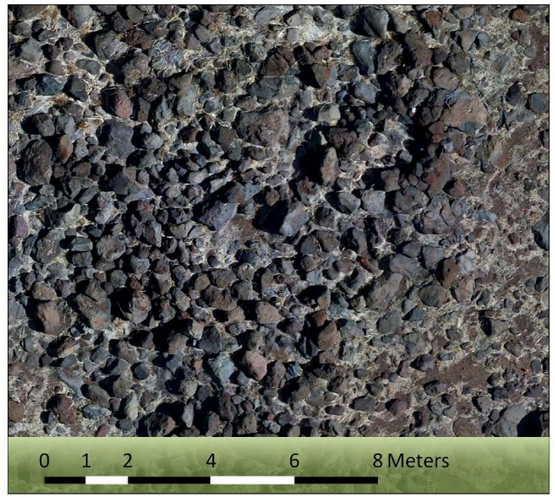
[4] trc=terrace, mbo=modified bedrock outcrop, wal=wall, csh=c-shape, enc=enclosure, PG=petroglyph, con=possible features, GS=ground stone, pp=planting pit



AA2216-068, Drone Imagery, Representative Feature Types

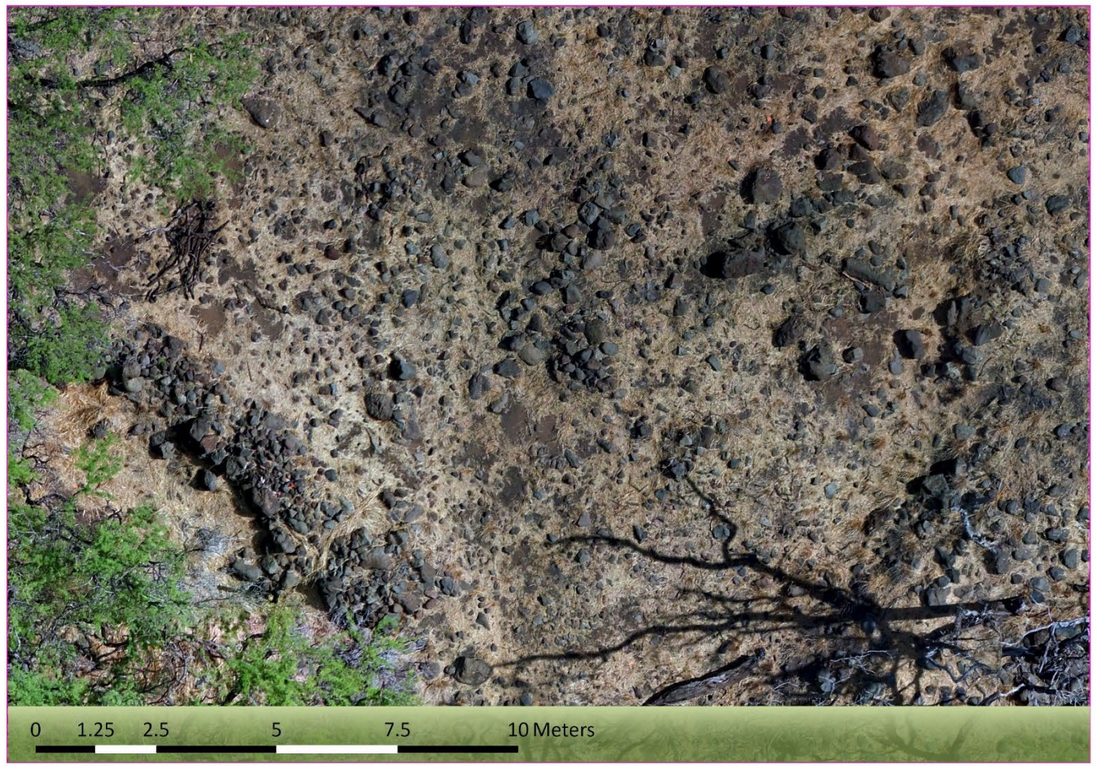


C-Shapes



Planting Pits

Additional Associated Features Requiring Heavy Clearing



Terraces

Figure 20. AA2216-068, drone imagery of representative feature types and distribution across the overall complex.

Plate 26. AA2216-068, overview of possible rock art 3 in possible auwai near hunting camp, view to east.

Plate 27. AA2216-068, close up and overview of rock art 2. North arrow in closeup for scale, not directional orientation.

Plate 28. AA2216-068, possible hoana (whetstone), view to north.

FIELD NO:	AA2216-070	**SIHP NO:**	
N FEATURES:	Minimum of 3	**AGE:**	Precontact
SITE TYPE:	C-Shape,Mound,Terrace	**MIDDEN DENSITY:**	None
FUNCTION:	Agriculture,Habitation	**ARTIFACT DENSITY:**	None
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Gently sloping topography vegetated with kiawe trees, buffel grasses, opiuma, and haole koa.

HISTORIC PROPERTY DESCRIPTION:
AA2216-070 is a habitation and agricultural complex located northwest of another habitation and agricultural complex with an associated heiau situated just outside and mauka of the survey corridor and southeast of the Ukumehame Firing Range in Alternative 1 (Figure 21, Plate 29 through Plate 32). AA2216-070 is likely associated with, and an extension of the same traditional dryland field system as AA2216-068. The features of this complex extends mauka and connects to the ceremonial complex situated outside the APE.

The southeast portion of the site consists of a large terrace oriented east to west and standing up to 5 courses tall (T1). The terrace extends west, obscured by heavy kiawe tree collapse and dense vegetation. A possible enclosure or c-shape covered by dense vegetation is partially visible within the interior space of the terrace (C1). Additionally, segments of dry stacking are visible mauka of the terrace but, due to thick vegetation, cannot be identified. Features continue upslope outside of the APE.

Downslope of the terrace (T1) is a remnant cobble mound (M1). Remnant dry stacked segments and alignments extend downslope of the mound, abutting the Department of Transportation (DOT) flood basin. No features were identified south of the flood basin.

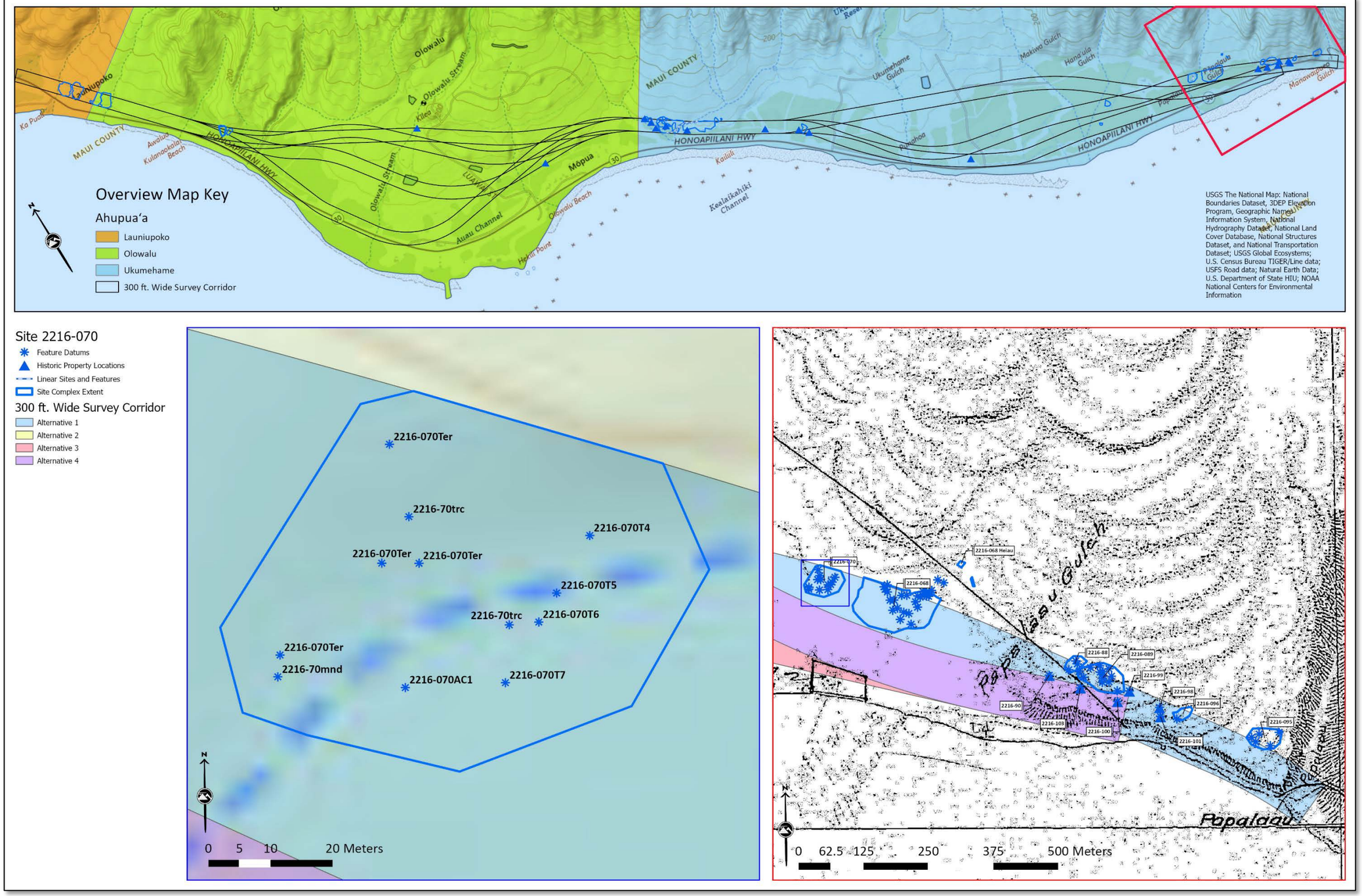
The site continues east of the terrace (T1), extending below dense tree fall where dry stacked construction, including multiple infilled terraces (T2 and T3), are located. Further east is a constructed auwai with multiple remnant features built off of it. Many of the features are covered in thick tree fall and duff and are only partially visible. Multiple alignments and terraces extend off the eastern berm of the auwai (T4-T7) and are visible despite the dense vegetation. Additional terraces were observed within the interior of the auwai. Features extend east before abutting extensive bulldozer disturbance and a large kiawe green waste pile.

EVALUATION SUMMARY
AA2216-070 has retained its location, design, setting, materials, workmanship, feeling, and association due to its location within the far margins of the former sugar plantation boundary, as well as the distance from the current alignment of Honoapi‘ilani Highway and large lot residential development within

Ukumehame Ahupua‘a. This intensive modification to the lands outside of Ukumehame Valley and to the far southeast AA2216-070 further contributes to the breadth of cultivation within Ukumehame and what would have been a highly productive ahupua‘a wide agricultural system when combined with the lo‘i systems of Ukumehame Valley. The potential extent of lo‘i, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Kirch and McCoy 2023:155-156). This combination of fully developed wet and dry, colluvial agricultural systems within a singular ahupua‘a appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While AA2216-070 on its own may not be considered significant under Criteria A and C, when understood in the context of the broader archaeological landscape and potential association with AA2216-068 which contributes to the distinctive characteristics of the overall dryland field system, Criteria A and C may apply. When understood in the context of the overall archaeological landscape of the flow slopes and alluvial plain of West Maui, from Ukumehame to Launiupoko, as well as the intra and inter-site patterning of agricultural, ceremonial, and habitation features in relation the overall topography, it is clear that expansive adaptation into an area that appears to be marginally suited for agriculture speaks to a broader pattern of intensive settlement when taking into account to the well-watered flood plain and valley floor of Ukumehame. Like AA2216-050 and AA2216-068, the archaeological features AA2216-070 highlight an adaptive strategy that takes advantage of slope direction for agricultural cultivation within the overall system, therefore Criterion A is applicable as this complex may contribute toward understanding broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems of the region prior to the Western Contact. Site AA2216-070 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland and lo‘i systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, and how this may relate to the continued use of the established lo‘i systems into the modern era. Therefore AA2216-070 is further considered significant under Criterion D.

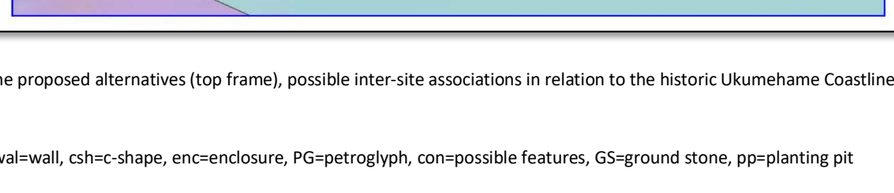


Site 2216-070

- Feature Datums
- Historic Property Locations
- Linear Sites and Features
- Site Complex Extent

300 ft. Wide Survey Corridor

- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4



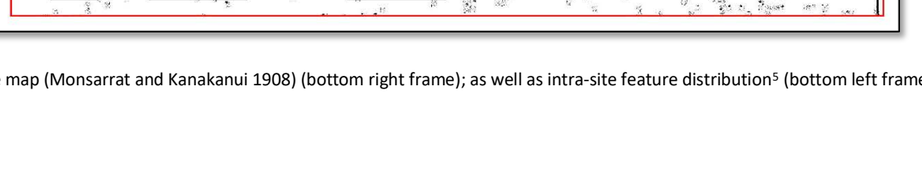


Figure 21. AA2216-070 in relation to the proposed alternatives (top frame), possible inter-site associations in relation to the historic Ukumehame Coastline map (Monsarrat and Kanakanui 1908) (bottom right frame); as well as intra-site feature distribution[5] (bottom left frame).

[5] trc=terrace, mbo=modified bedrock outcrop, wal=wall, csh=c-shape, enc=enclosure, PG=petroglyph, con=possible features, GS=ground stone, pp=planting pit

Plate 29. AA2216-070, habitation and agricultural complex, overview of possible agricultural circle (AC1) within the auwai, view to southwest.

Plate 30. AA2216-070, agricultural and habitation complex, overview of features extending mauka outside of the project area, view to north.

Plate 31. AA2216-070, agricultural and habitation complex, overview of a possible cobble mound (M1) located below the terrace face (T1), view to east.

Plate 32. AA2216-070, agricultural and habitation complex, overview of dry stacked terrace construction (T1), view to northeast.

FIELD NO:	AA2216-072	**SIHP NO:**	
N FEATURES:	Minimum of 7	**AGE:**	Precontact
SITE TYPE:	Enclosure, Mound, Wall	**MIDDEN DENSITY:**	None
FUNCTION:	Agriculture, Habitation	**ARTIFACT DENSITY:**	Low Branch coral, false brain coral, waterworns
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Workmanship, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Workmanship, Association

ENVIRONMENTAL SETTING:
Gently sloping topography vegetated with kiawe trees and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-072 is a newly identified habitation and agricultural complex located between Olowalu and Ukumehame to east of site AA2216-050 (agricultural, habitation, and ceremonial complex) and south of a historic flume. The pedestrian survey identified two boulder concentrations with depressions, a rock wall, at least one C-shape, and several rock mounds. A small amount of branch coral, false brain coral, and waterworn stones were noted in the site area.

The two boulder concentrations, situated 20 m apart on an east-west axis, contain circular pits or depressions and appear to have once functioned as agricultural planting pits similar to those observed in site AA2216-050 and across the project area. The rock wall is linear and oriented on an east-west axis approximately 13 m south of the westernmost boulder concentration. The wall consists of two visible courses of dry-stacked cobbles and small boulders and may be part of a larger enclosure. Removal of grass and deadwood will almost certainly reveal additional features. AA2216-072 and AA2216-050 to the west were likely parts of the same continuous complex prior to being separated by the flume (AA2216-071), cane haul road, and other modern ground disturbances. A section of ranch wire was observed in a push pile below the west-most boulder concentration.

EVALUATION SUMMARY
AA2216-072 has retained its location, design, setting, materials, workmanship, feeling, and association due to its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway. It is likely associated with, and a continuation of, AA2216-050 immediately northwest of the site extent, thus speaking to what would have been a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Ukumehame and Olowalu Valleys. The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution

on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Kirch and McCoy 2023:155-156). This combination of fully developed wet and dry, colluvial agricultural systems within a singular ahupua‘a appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-072 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural, possible ceremonial, and potential habitation features in relation the overall topography, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-072 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland and lo‘i systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established lo‘i systems into the modern era. Therefore AA2216-072 is further considered significant under Criterion D.

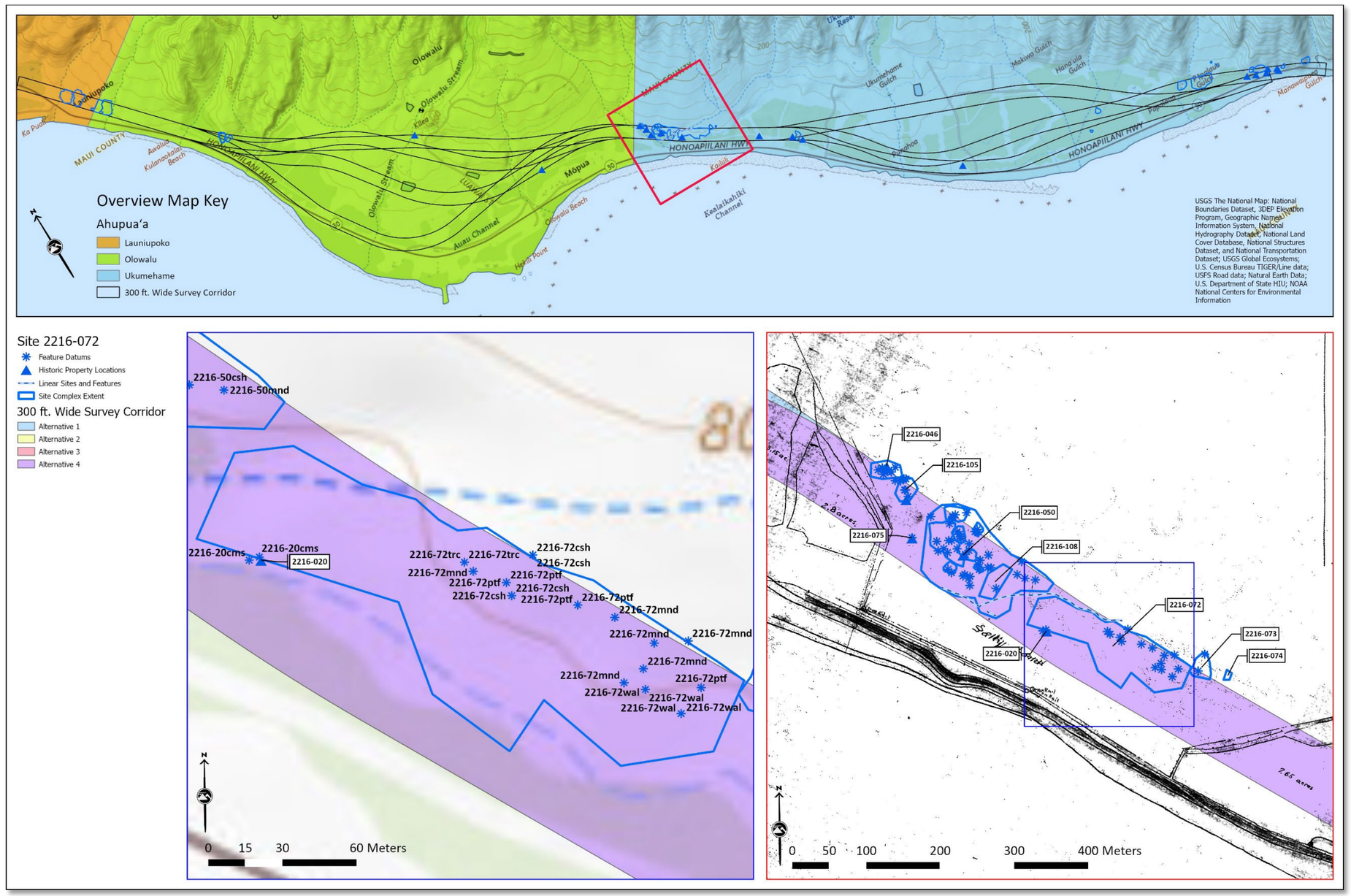
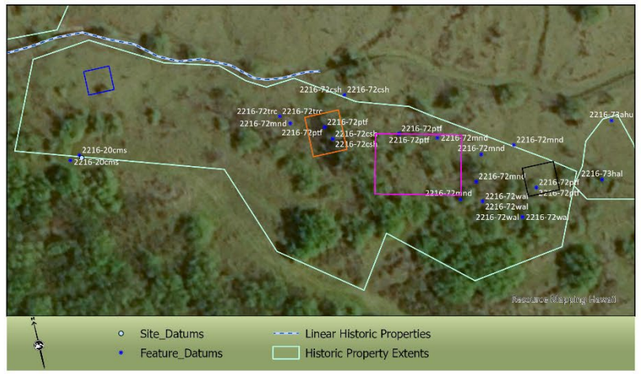
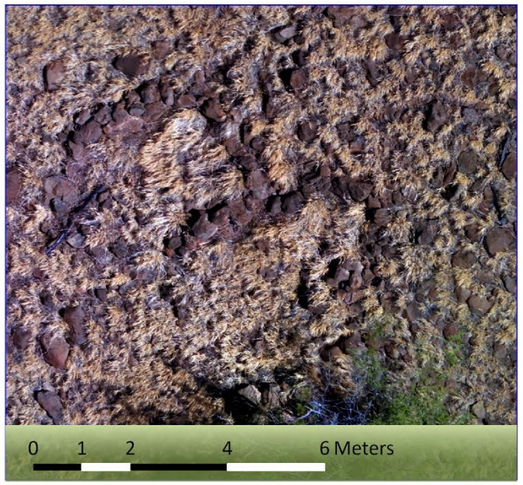


Figure 22. AA2216-072 in relation to the proposed alternatives (top frame) and inter-site association between the boundaries of the Ukumehame (A. C. Alexander 1906b) and Olowalu Sections (A. C. Alexander 1906a) of the Olowalu Sugar Plantation (bottom right frame); as well as intra-site feature distribution[6] (bottom left frame).

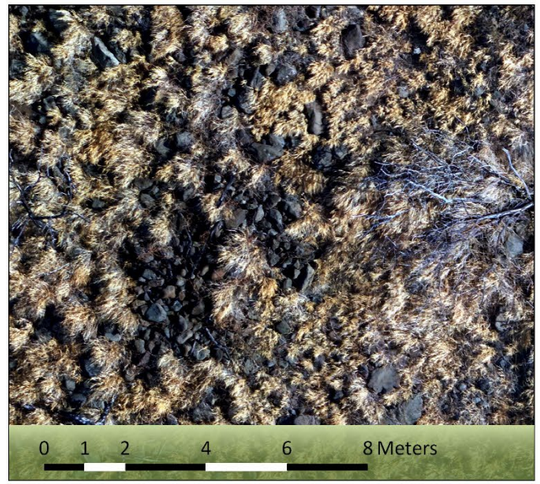
[6] trc=terrace, trc-terrace, mnd=mound, csh=c-shape, enc=enclosure, wal=wall, ptf=platform, cms=cultural material scatter



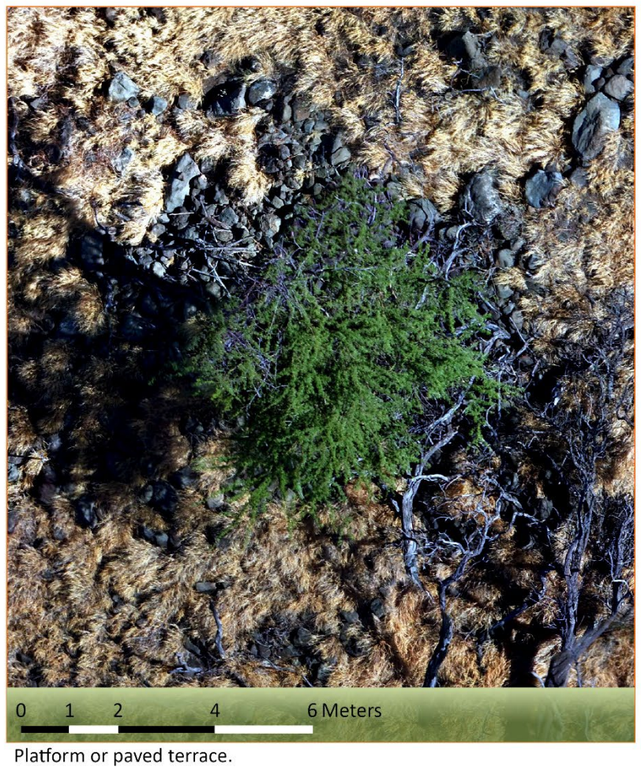
AA2216-072, Drone Imagery, Representative Feature Types



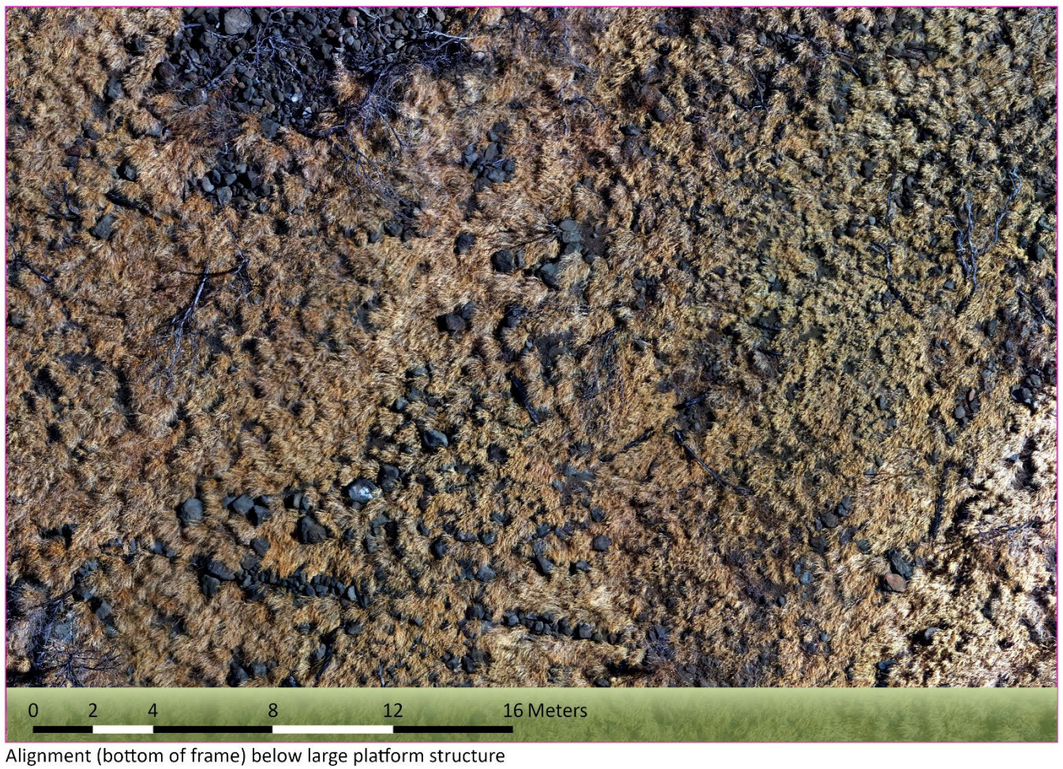
C-Shapes



Platform with interior features



Platform or paved terrace.



Alignment (bottom of frame) below large platform structure

Figure 23. AA2216-072, drone imagery of representative feature types and distribution across the overall complex.

FIELD NO:	AA2216-073	**SIHP NO:**	
N FEATURES:	Minimum of 2	**AGE:**	Precontact
SITE TYPE:	Enclosure and Ahu	**MIDDEN DENSITY:**	High Marine shell
FUNCTION:	Permanent Habitation	**ARTIFACT DENSITY:**	High Branch coral, false brain coral, waterworn cobbles
CONDITION	Good to Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Materials, Workmanship, Setting, Feeling, and Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Materials, Workmanship, Setting, Feeling, and Association

ENVIRONMENTAL SETTING:
Topography is flat with kiawe trees and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
Site AA2216-073 is a large rectangular enclosure located on the upper northern boundary of the merged corridor section (Figure 25). The enclosure is located near the eastern edge of the dryland agricultural field system between the Olowalu and Ukumehame field boundaries of the former Olowalu Sugar Plantation. The enclosure is oriented northwest to southeast and measures roughly 21.5 m by 7 m.

A pathway lined with two courses of stacked basalt cobbles leads to a small entrance to the enclosure on its central, southwestern wall. The walls of the enclosure are core-filled dry stacked subangular and subrounded basalt boulders and cobbles with coral and waterworn cobbles incorporated into the construction (Plate 33 through Plate 35). The walls stand between 3-5 m tall. The upper portions of the wall appear partially collapsed and may have been reconstructed numerous times. A relatively high density of cultural material is present along the interior surface of the enclosure and consists of 'ili'ili, false brain coral, branch coral, and marine shell.

An ahu or stone mound containing a high density of branch coral is located roughly 21 m northwest of the enclosure and has been interpreted as a ceremonial structure (Plate 36). Smaller enclosures and C-shapes were also observed along the southern face of the historic flume wall that is roughly situated between 19-27 m north and northwest of the enclosure. These features are likely part of the same complex as the enclosure but fall outside the corridor boundary.

AA2216-073 is in good condition but shows signs of recent and potential historical modifications. The southeastern wall is fully collapsed, other walls show signs of haphazard restacking, and an abandoned homeless camp is located in the southwest corner of the enclosure. The homeless camp also contains a fire pit made from rocks that appear to have been taken from one of the enclosure walls. Bulldozing likely associated with the construction of the fire road is also located downslope and southeast of the enclosure and destroyed a portion of the pathway and potential terracing fronting the enclosure.

EVALUATION SUMMARY

AA2216-073 has retained its integrity of location, design, setting, materials, workmanship, feeling, and association due to its apparent minimal modification, the location of the complex within the uncultivated margins of the former sugar plantation fields, and distance from the current alignment of Honoapi‘ilani Highway. It is likely associated with, and a continuation of, the large agricultural complexes of AA2216-050 and AA2216-072 to the immediate northwest of the site extent. The probable association of this permanent habitation area, which is situated outside of the well watered valleys and within the rocky topography mauka of the coastline, to the fully developed dryland agricultural field system appears contradictory to the commonly accepted dichotomy of wet and dry agricultural systems and the subsequent settlement patterns.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-073 is recommended as historically significant and eligible to the National Register under Criteria A and D. When understood in the context of the broader archaeological landscape and likely association with the neighboring complexes, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Continued archaeological research would help to inform the timeline for agricultural intensification and settlement in the region and gain understanding of the distribution of permanent vs. temporary habitation and ceremonial spaces within and around the extensive dryland field systems as they developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued traditional Hawaiian settlement into the modern era. Therefore AA2216-073 is further considered significant under Criterion D.

Plate 33. AA2216-073, interior of hale with temporary camp visible in the southwest corner, view to west.

Plate 34. AA2216-073, closeup of wall construction with coral in it, view to northwest.

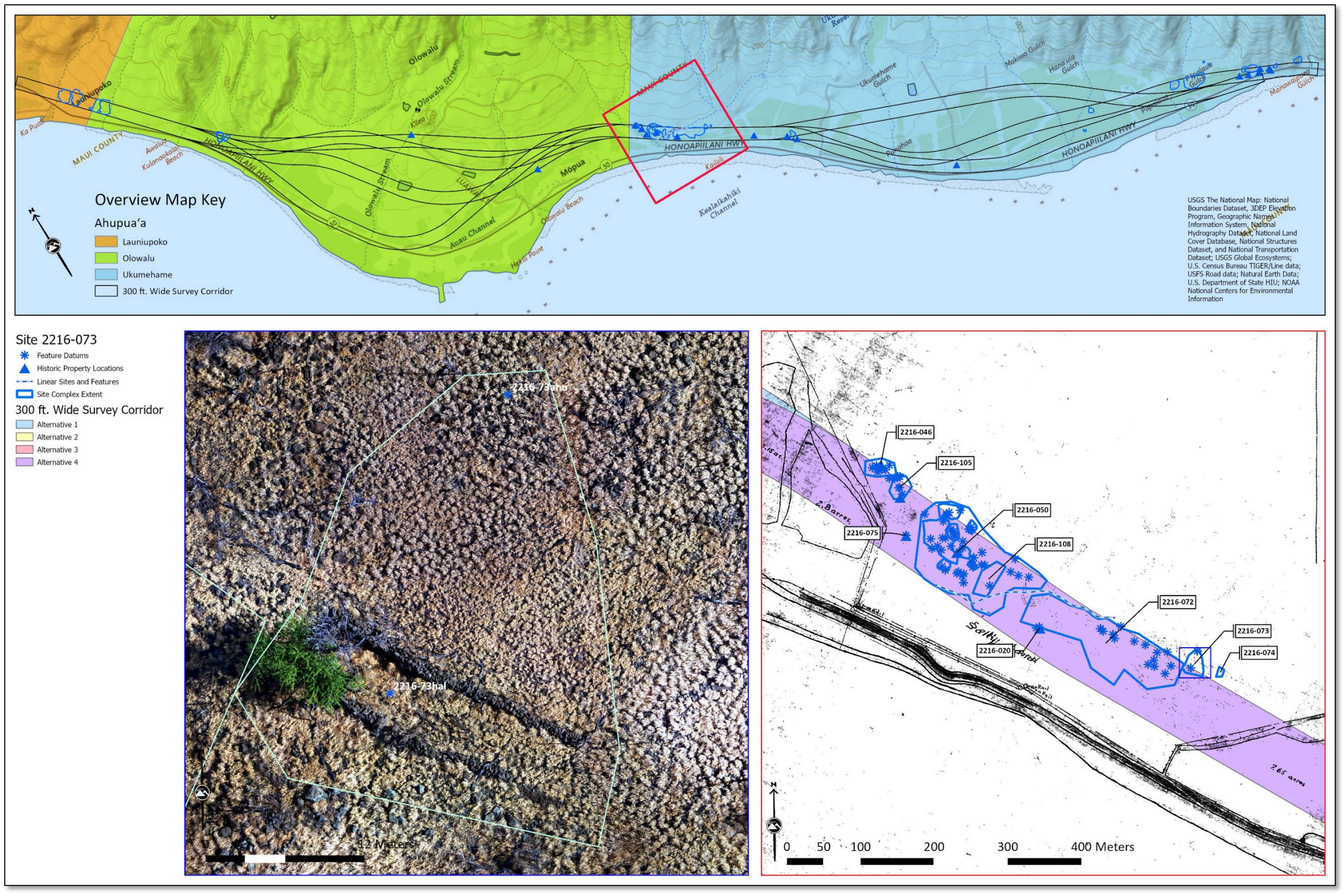


Figure 24. AA2216-073 in relation to the proposed alternatives (top frame) and inter-site association between the boundaries of the Ukumehame (A. C. Alexander 1906b) and Olowalu Sections (A. C. Alexander 1906a) of the Olowalu Sugar Plantation (bottom right frame); as well as a drone overview of the primary features of the complex[7] (bottom left frame).

[7] hal=enclosure, ahu=mound (shrine)

Plate 35. AA2216-073, overview of the enclosure/hale with the entrance and paved pathway visible, view to north.

Plate 36. AA2216-073, examples of branch coral within ahu feature.

FIELD NO:	AA2216-075	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Medium Slate pencil urchin fragment, pipipi shell, cowries, cone shell, and UID marine shell fragments
FUNCTION:	Habitation	**ARTIFACT DENSITY:**	Medium False brain coral and one fine grain basalt flake Barbed wire found in pushpile to the southeast of the site
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Gently sloping topography vegetated with buffel grasses and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:
Site AA2216-075 is a surface scatter located at the base of a west-facing slope below sites AA2216-046 (habitation and agricultural complex), AA2216-105 (habitation and agricultural complex), and AA2216-050 (habitation and agricultural complex) (see Figure 9). The scatter is located in a highly disturbed bulldozed area containing multiple push-piles and overlies a potential wall segment believed to be previously recorded site SIHP-04719 (Historic Wall). The majority of the scatter is covered in thick vegetation. Cultural material visible in less heavily vegetated areas consisted of a slate pencil urchin fragment, a pipipi shell, multiple cowrie shell fragments, a medium density of unidentified marine shell fragments, a medium density of false brain coral fragments, and one fine-grained basalt flake. AA2216-075 is believed to be the disturbed remains of a habitation area that used to connect to sites AA2216-046, AA2216-105, and AA2216-050.

EVALUATION SUMMARY
AA2216-075 is a surface scatter reflective of a former habitation site that could provide information on the spatial relationship of habitation features to the overall dryland field system that spans the margin between the former sugar cane fields of Olowalu and Ukumehame. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, there remains potential for the presence of intact subsurface deposits that may provide information on the chronology and intensity of traditional habitation in relation to the recently documented dryland field system. Therefore, in consideration of the above description and analysis, AA2216-075 is recommended as significant and eligible to the National Register under Criterion D.

Plate 37. AA2216-075, overview of scatter location, view to west.

Plate 38. AA2216-075, overview of scatter location, view to east.

Plate 39. AA2216-075, example of marine shell and coral, plan view.

Plate 40. AA2216-075, example of fine grained basalt flake, plan view.

FIELD NO:	AA2216-088	**SIHP NO:**	
N FEATURES:	Minimum of 2	**AGE:**	Precontact
SITE TYPE:	Terrace	**MIDDEN DENSITY:**	None
FUNCTION:	Ceremonial Complex	**ARTIFACT DENSITY:**	High Branch coral, false brain coral, and waterworn cobbles
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Association

ENVIRONMENTAL SETTING:

Moderate to steeply sloping topography with vegetation consisting of buffel grasses, hairy woodrose, and kiawe tree clusters.

HISTORIC PROPERTY DESCRIPTION:

Site AA2216-088 is a ceremonial complex located on a ridge in the east portion of the project area and in the mauka extent of Corridor 1 (Figure 25). The complex consists of terraces and a modified bedrock outcrop that contour the south and east faces of a steep ridgeline overlooking Pāpālaua Wayside Park. A flag pole with the Hawaiian flag is located on top of the ridge.

The terrace construction consists of dry stacked basalt cobbles and boulders intermixed with a high density of branch coral heads (Plate 41 through Plate 44). North and mauka of the terraces is a steep east-facing modified bedrock outcrop. Modifications to the outcrop include faced sections of dry-stacked basalt cobbles and boulders intermixed with a moderate density of coral. The outcrop has been impacted by severe erosion and rock fall, resulting in construction collapse along its eastern face. The site extends north and mauka outside of the project boundary. Structural features and cultural material also extend downslope and east directly adjacent to site AA2216-089 (habitation and ceremonial complex).

EVALUATION SUMMARY

AA2216-088 has retained its integrity of location, design, setting, materials, feeling, and association. The site retains its original location and design configuration, along with the materials used both in construction and as hoʻokupu (offerings). Though the ridgeline is at the edge of the current alignment of Honoapiʻilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the elevated position of the complex above the highway and maintenance of the viewshed.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-088 is recommended as historically significant and eligible to the National Register under Criteria A and D. When understood in the context of the overall archaeological landscape that has been documented as a result of this study and the potential association with the neighboring complexes, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, settlement

patterns, and complex social systems prior to the Western Contact. Finally, the possibility of understanding and interpreting the chronology of ceremonial development and possible interpretations of the ceremonial function of the site remains in the data that could be gathered as a result of subsurface testing within the features themselves, analysis of the corals for chronological information regarding the initial construction and duration of use of the site, and ethnohistorical research into potential functions such as kilo (oberservation locations) for lawai'a practices, navigation, and overall environmental patterns given the expansive viewshed. Therefore, AA2216-088 is further considered significant under Criterion D.

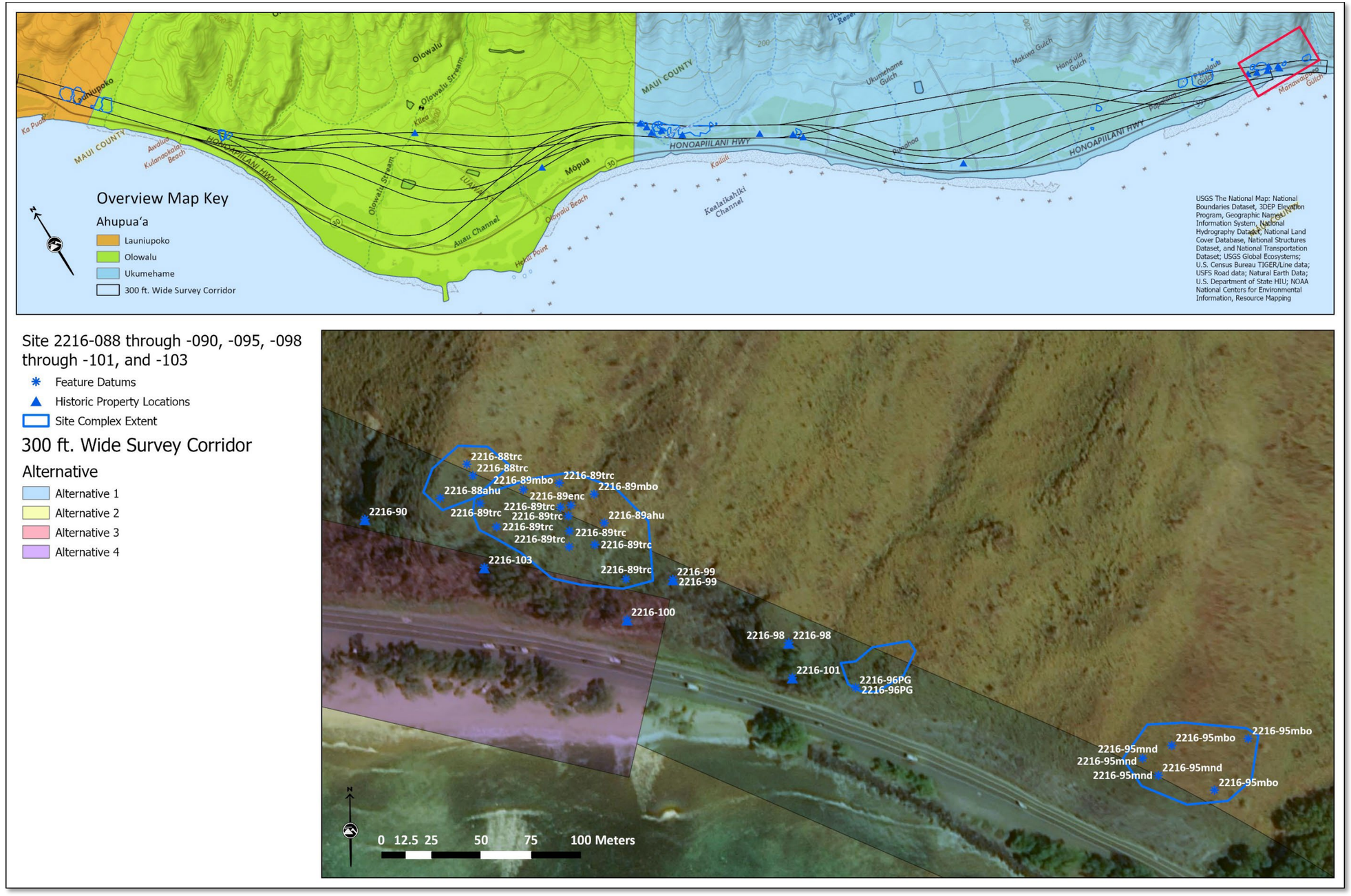


Figure 25. AA2216-088 through -90, -095, -098 through -101, and -103 in relation to the proposed alternatives (top frame), along with inter-site association intra-site feature distribution[8] (bottom frame).

[8] trc=terrace, mbo=modified bedrock outcrop, ahu= ceremonial feature, enc=enclosure, pg=petroglyph,

Plate 41. AA2216-088, close up of branch coral that was harvested live incorporated into terrace construction, view to west.

Plate 42. AA2216-088, representative example of modified outcrop with terrace construction, view to west.

Plate 43. AA2216-088, overview of terrace with coral, view to west.

Plate 44. AA2216-088, overview of terrace and viewshed facing Pāpālaua coastline, Kaho'olawe and Kealaikahiki Channel in the background, view to south.

FIELD NO:	AA2216-089	**SIHP NO:**	
N FEATURES:	Minimum of 3	**AGE:**	Precontact
SITE TYPE:	Complex: Enclosure, Modified Outcrop, Terrace	**MIDDEN DENSITY:**	Low Two cowrie shell fragment beneath overhang, UID shell, pipipi shell
FUNCTION:	Ceremonial and Habitation	**ARTIFACT DENSITY:**	High Branch coral, false brain coral, waterworn cobbles, one lithic scraper (Plate 50)
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Moderately sloping topography with vegetation consisting of buffel grasses, hairy woodrose, and kiawe tree clusters.

HISTORIC PROPERTY DESCRIPTION:
AA2216-089 is a habitation and ceremonial complex located in the east project area where Corridors 1 and 4 merge (see Figure 25). The site is downslope and east of site AA2216-088 (ceremonial complex). AA2216-088 and AA2216-089 were documented separately based on topography but are likely associated with sites and features that extend east across the hillside.

The site consists of multiple habitation and ceremonial features. Notable features within the west extent of the site include a ceremonial terrace retaining a low-density coral scattter, two modified bedrock outcrops, and multiple terraces of indeterminate function. Located 25 m east of the westernmost features is a small circular enclosure. The interior of the enclosure measures 2 m in diameter. It is heavily infilled with large branch coral and false brain coral heads, suggesting it may have functioned as an ahu or other ceremonial feature. (Plate 45 through Plate 49)

Downslope of the enclosure is a series of habitation features, including multiple terraces and a small overhang that contains a low-density scatter of marine shell. Additional habitation features were identified 10 m east of the ceremonial enclosure, including a modified outcrop and multiple terraces. The outcrop and terraces in this area contain a high density of waterworn cobbles and marine shell, suggesting permanent or continuous habitation. Features were followed 20 m north of the project boundary with no break in archaeology found. The site must be revisited and cleared of vegetation to understand the density of features and material present.

EVALUATION SUMMARY

AA2216-089 has remained unaffected by construction activies related to the current Honoapi‘ilani Highway alignment and has retained its integrity of location, design, materials, workmanship, and association. While this complex is situated close to the modern Honoapi‘ilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the elevated position of the complex above the highway.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-089 on its own may not be considered significant under Criterion A, however, when understood in the context of the collective cultural landscape, the potential association with AA2216-088, and inter-site patterning of features in relation the overall topography, significance under Criterion A may apply as it pertains to traditional Hawaiian land use and division of labor given the apparent focus on habitation and ceremony at the top of the ridge versus the agricultural pursuits along the lower slopes and valley bottoms. Continued archaeological research may help to inform the timeline for population growth in the region and provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study, therefore AA2216-089 is further considered significant under Criterion D.

Plate 45. AA2216-089, overview of ceremonial enclosure, view to southwest.

Plate 46. AA2216-089, closeup of ceremonial enclosure, view to west.

Plate 47. AA2216-089, enclosure on right and overhang left, view to northeast.

Plate 48. AA2116-089, modified outcrop with small modified alcove fronting it (where north arrow is located), view to northwest.

Plate 49. AA2216-089, habitation terrace below enclosure and overhang, view to northwest.

Plate 50. SCR-001, basalt scraper, plan view.

FIELD NO:	AA2216-090	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Medium 4 Cowrie, 1 Drupa, 3 Turbine/top, 1 unidentifiable fragment (bivalve?), 2 cone
FUNCTION:	Habitation	**ARTIFACT DENSITY:**	High 5 branch coral, 9 false brain coral
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Material, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Material, Association

ENVIRONMENTAL SETTING:

Moderate to steeply sloping topography with vegetation consisting of primarily of kiawe trees.

HISTORIC PROPERTY DESCRIPTION:

AA2216-090 is a newly identified cultural material scatter situated on a disturbed rocky west-facing slope below AA2216-088 (ceremonial complex) (see Figure 7 and Figure 25). The scatter measures approximately 3 m in diameter and consists of coral and marine shell including 9 false brain coral, 5 branch coral, 4 cowrie, 3 turban, 2 cone, and 1 unidentified marine shell. The slopeside location of the scatter consists of kiawe growing from loose soil and fractured bedrock, which may have been a result of blasting associated with the development of Honopi'ilani Highway. The cultural material does not appear to be eroding down from AA2216-088, which did not contain observable surface midden. However, considering the unstable condition of the slope, it is also possible that the scatter is in a secondary context.

EVALUATION SUMMARY

AA2216-090 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of traditional and historic era land use. Without archaeological testing it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact stratified deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of traditional pre-contact land use along coastal Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-090 is recommended as significant and eligible to the National Register under Criterion D.

FIELD NO:	AA2216-091	**SIHP NO:**	
N FEATURES:	1	**AGE:**	19th-20th Century
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	None
FUNCTION:	Activity Area	**ARTIFACT DENSITY:**	Medium B-001 (clear glass fragmented bottle base), B-002 (brown glass bottle fragment), B-003 (brown glass bottle fragment), B-004 (blue glass bottle base fragment), PC-001 (fragment with blue glaze), PC-002 (porcelain fragment)
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Material, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Material, Association

ENVIRONMENTAL SETTING:
Topography is flat with kiawe trees, flee bane marsh, and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-091 is a disturbed surface scatter situated within Corridor 1 that contains historic glass and porcelain fragments (Plate 51 through Plate 53). This area is in the west extent of Ukumehame firing range that has been abandoned due to Nene nesting. In general, the environment is characteristic of marshy land and contains sand deposits intermixed with coral and marine shell, all of which appear naturally deposited through storm and tidal surges and are not believed to be cultural.

EVALUATION SUMMARY
AA2216-091 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of historic era land use. Without archaeological testing however, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to the development and use of the Ukumehame Firing Range. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION
While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of historic era land use within Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216-091 is recommended as significant and eligible to the National Register under Criterion D.

Plate 51. AA2216-091, overview of scatter, view to east.

Plate 52. AA2216-091, ceramic sherd example, plan view.

Plate 53. AA2216-091, fragmented bottle glass examples, plan view.

FIELD NO:	AA2216-092	**SIHP NO:**	
N FEATURES:	1	**AGE:**	19th-20th Century
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	None
FUNCTION:	Activity Area	**ARTIFACT DENSITY:**	Low CAN-001 (aluminum beer can) PC-001, B-001 (colorless bottle) B-002 (brown glass bottle) B-003 (colorless bottle base fragment) One brown glass fragment, one clear glass fragment, one aqua glass fragment
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Material, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Material, Association

ENVIRONMENTAL SETTING:

Topography is flat with kiawe trees, Indian marsh fleabane, and salt wort.

HISTORIC PROPERTY DESCRIPTION:

AA2216-092 is a disturbed surface scatter containing one historic can, historic glass, and porcelain fragments (Plate 51 through Plate 53); as well as modern green glass. Located in west extent of Ukumehame firing range that has been abandoned due to Nene nesting, this site falls within the survey limits of Alternative 2. In general, the environment is characteristic of marshy land and contains sand deposits intermixed with coral and marine shell, all of which appear naturally deposited through storm and tidal surges and are not believed to be cultural.

EVALUATION SUMMARY

AA2216-092 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of historic era land use. Without archaeological testing however, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to the development and use of the Ukumehame Firing Range. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of historic era land use along within Ukumehame remains. Therefore, in consideration of the above description and analysis, AA2216--092 is recommended as significant and eligible to the National Register under Criterion D.

Figure 26. AA2216-092, overview, view to northeast.

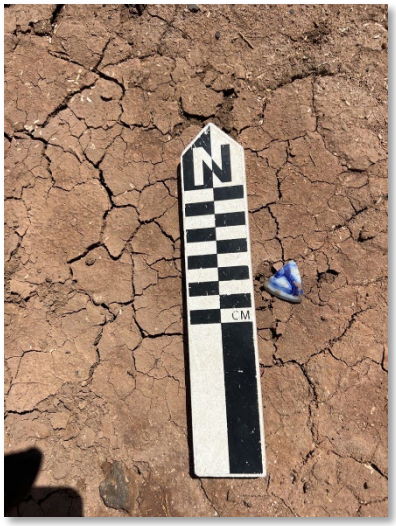


Figure 27. AA2216-092, ceramic sherd, plan view.

Figure 28. AA2216-092, bottle finish, plan view.

Figure 29. AA2216-092, can, plan view.

FIELD NO:	AA2216-095	**SIHP NO:**	
N FEATURES:	Minimum of 5	**AGE:**	Precontact
SITE TYPE:	Complex: Modified Outcrop, Mound, Surface Scatter, Terrace	**MIDDEN DENSITY:**	Low Cowrie, drupa, cone, and UID fragments
FUNCTION:	Ceremonial and Habitation	**ARTIFACT DENSITY:**	Low False brain and branch coral, One historic aqua glass insulator.
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
moderate slope,steep slope buffel grasses and sparse kiawe trees

HISTORIC PROPERTY DESCRIPTION:
AA2216-095 is a newly identified habitation/ceremonial complex located on the southeast-facing slope above the Lahaina Pali Trailhead parking lot and the Honopi'ilani Highway roadcut (see Figure 7 and Figure 25). Five features were identified, including three modified bedrock outcrops (MBO-1, MBO-2, MBO-3) and two rock mounds (MD-1, MD-2) (Plate 54 through Plate 57). With the exception of one rock mound (MD-2), which is situated on the mauka boundary of the proposed highway corridor, the majority of the site lies to the north of the APE. Additional modified outcrops and terraces appear to extend upslope to the north of the identified features.

A considerable amount of coral and marine shell were observed within and surrounding the identified features. MBO-1 contained a large branch coral head, and MBO-2 contained a high density of branch coral. MBO-3, which consists of at least one habitation terrace and an overhang, contains marine shell. Additionally, a high density of coral and marine shell were observed below the modified outcrops on the lower slope. Two cut utility poles with aqua glass insulators are located on the upper slope near the mounds.

EVALUATION SUMMARY
AA2216-095 has remained unaffected by construction activies related to the current Honoapi‘ilani Highway alignment and has retained its integrity of location, design, materials, workmanship, and association. While this complex is situated close to the modern Honoapi‘ilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the elevated position of the complex above the highway.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-095 on its own may not be considered significant under Criterion A, however, when understood in the context of the collective cultural landscape, the potential association with other complexes that have been identified across Kaniakalaau Ridge (Monsarrat and Kanakanui 1908) bordering the western extent of the Ukumehame alluvial plain (AA2216-096, -089, and -088), and inter-site patterning of features in relation the overall topography, significance under Criterion A may apply as it pertains to traditional Hawaiian land use and division of labor given the apparent focus on habitation and ceremony across the ridge vs. the agricultural pursuits along the lower slopes and valley bottoms. Continued archaeological research may help to inform the timeline for population growth in the region and provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study, therefore AA2216-095 is further considered significant under Criterion D.

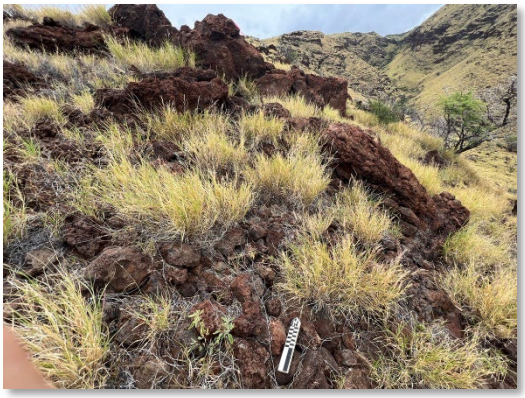


Plate 54. AA2216-095, overview of habitation complex (MBO3), view to north.

Plate 55. AA2216-095, modified overhang (MBO3), view to north.

Plate 56. AA2216-095, historic aqua glass insulator (north arrow for scale, not orientation), plan view.

Plate 57. AA 2216-095, modified bedrock outcrop, branch coral head where north arrow is located, view to west.

FIELD NO:	AA2216-096	**SIHP NO:**	
N FEATURES:	Minimum of 4	**AGE:**	Precontact
SITE TYPE:	Complex: Modified Outcrop, Pavement, Petroglyph, Surface Scatter, Terrace	**MIDDEN DENSITY:**	Medium Opihi, cowries, cone shell, and UID marine shell fragments
FUNCTION:	Ceremonial, Temporary Habitation, and Tool Production	**ARTIFACT DENSITY:**	Medium Basalt lithic flakes, one volcanic glass flake, branch coral, false brain coral, waterworn cobbles, and 'ili'ili
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Moderate to steeply sloping topography with vegetation consisting of buffel grasses, kiawe trees, and hairy woodrose.

HISTORIC PROPERTY DESCRIPTION:
AA2216-096 is a temporary habitation and ceremonial complex (Plate 58) in the east portion of the project area and within Corridor 1 (see Figure 7 and Figure 25). The site is situated within a southwest-northeast oriented outcrop on a moderate slope west of the Lahaina Pali trail parking lot and site AA2216-095 (temporary habitation and ceremonial complex). The southern edge of the site abuts the cliff edge of Honoapi'ilani highway, where rock netting has been secured into the cliff face.

The southernmost feature within the outcrop is a large boulder that contains a southeast-facing petroglyph of a Kane. The boulder is sitting directly on the cliffside and is in danger of falling onto the highway (Plate 62). Upslope of the petroglyph are two moderately sized habitation areas partially enclosed by the outcrop. The habitation areas contain a dense cultural material scatter consisting of lithic debitage (basalt and one volcanic glass flake), marine shell, waterworn cobbles, coral, and ʻiliʻili. Pecking is present on a rock face in the upper habitation area (Plate 60 through Plate 65). However, it is located adjacent to modern pecking depicting unknown initials that may be related to highway work or the placement of old utility lines located on the site.

Bedrock modifications, partially enclosed interior spaces, constructed alcoves, circular storage areas, and surface scatters continue upslope. A possible ahu is also located in the upper portion of the outcrop and consists of a small south-facing terrace containing a dense deposit of branch coral. The site extends roughly 12 m outside of the APE.

EVALUATION SUMMARY

AA2216-096 has remained unaffected by construction activies related to the current Honoapi‘ilani Highway alignment and has retained its integrity of location, design, materials, workmanship, and association. While this complex is situated close to the modern Honoapi‘ilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the elevated position of the complex above the highway.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-096 on its own may not be considered significant under Criterion A, however, when understood in the context of the collective cultural landscape, the potential association with other complexes that have been identified across Kaniakalaau Ridge (Monsarrat and Kanakanui 1908) bordering the western extent of the Ukumehame alluvial plain (AA2216-095, -089, and -088), and inter-site patterning of features in relation the overall topography, significance under Criterion A may apply as it pertains to traditional Hawaiian land use and division of labor given the apparent focus on habitation and ceremony across the ridge vs. the agricultural pursuits along the lower slopes and valley bottoms. Continued archaeological research may help to inform the timeline for population growth in the region, provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study, and understand how and where stone tool quality basalt and volcanic glass resources were acquired and subsequently distributed across West Maui. Therefore, AA2216-095 is further considered significant under Criterion D.

Plate 58. AA2216-096, site overview from mid slope above Petroglyphs 1 and 2, view to northeast.

Plate 59. AA2216-096, close-up and overview of Petroglyph 1 and other pecked areas, north arrow for scale only, view to west.

Plate 60. AA2216-096, overview of partially enclosed circular interior space where Petroglyph 2 is located, view to northwest.

Plate 61. AA2216-096, closeup of probable modern petroglyph (Petroglyph 2), north arrow for scale, view to northwest.

Plate 62. AA2216-096, example of a possible circular storage feature (Stor1), view to southeast.

Plate 63. AA2216-096, overview of Ahu, coral fragments visible in the foreground, view to south.

Plate 64. AA2216-096, example of cultural material scatter of volcanic glass and tool quality basalt within interior of circular enclosure with Petroglyph 2.

Plate 65. AA2216-096, basalt flake.

FIELD NO:	AA2216-097	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Historic
SITE TYPE:	Wall	**MIDDEN DENSITY:**	None
FUNCTION:	Possible Boundary	**ARTIFACT DENSITY:**	None
CONDITION:	Fair to Poor		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Setting, Materials, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Setting, Materials, Feeling, Association

ENVIRONMENTAL SETTING:

Gently sloping topography with buffel grass, kiawe trees, and haole koa trees.

HISTORIC PROPERTY DESCRIPTION:

AA2216-097 is a newly identified dry-stacked stone wall running east-west below site AA2216-050. The wall measures approximately 55 m in length and consists of several courses of stacked cobbles and boulders (Figure 31). The east extent of the wall abuts the west terminus of a historic flume. A large branch coral head is placed on top of the wall near the junction. Additionally, the wall is in line with terrace at the base of the heiau referred to as Mana-Pueo-Iki Heiau (2216-108) to the east, which is separated from the wall by the flume. It is unclear if the wall predates the flume. The eastern portion of the wall is more intact and in fair condition, while the western portion is affected by uprooted trees, and the west-most extent is truncated by a bulldozer push. It is possible that this section of wall is an extension of a historic boundary wall that was previously documented by Xamanek Researches (Figure 30) based on construction style, proximity, and orientation. Fredericksen and Fredericksen (2000:54) describe SIHP 50-50-04-04719 as follows:

> *…a boundary marker, which consists of a short section of dry-laid rock wall, which has been tied into the property corner monument, marking the eastern-most corner of the property. The latter is constructed of rounded rocks, and is mortared together. The wall segment may predate the monument. It was partially buried by a large pile of burned cane, so it was not possible to establish its total length. This pushed cane remains piled on the site at [the time of fieldwork].*

EVALUATION SUMMARY

AA2216-097 is a dry-stacked stone boundary wall that may be an extension of a previously recorded boundary wall that abuts a survey monument. This wall is likely related to the delineation of the former sugar plantation boundary, the age range of which can only be inferred as historic. While this section of wall is in fair condition, and the integrity of workmanship and design specific to the remaining section of dry-stacked stone masonry is retained, the possible historic plantation boundary in its entirety is no longer completely intact with the surviving section of wall adversely affected by bulldozer push. As a result, integrity of workmanship and design for the overall boundary wall no longer remains. The site does however retain limited integrity of location and materials, as well as setting, feeling, and association.

Figure 30. AA2226-097, section of wall showing intact facing, as well as, a section affected by vegetation growth, view to northeast.

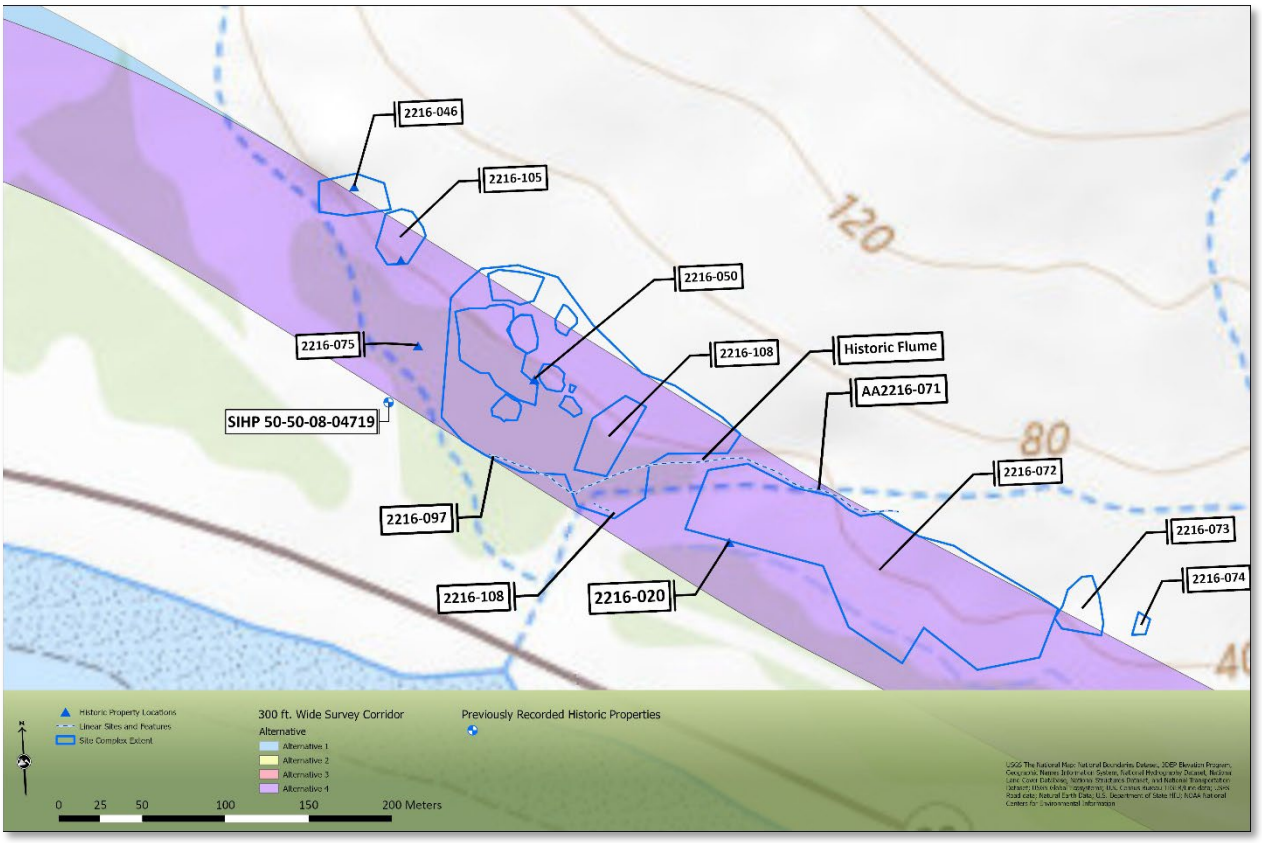


Figure 31. A portion of the USGS National Map (United States Geological Survey 2020) showing the location of SIHP 50-50-08-04719 in relation to the section of boundary wall documented during the current study (AA2216-097).

FIELD NO:	AA2216-098	**SIHP NO:**	
N FEATURES:	Minimum of 4	**AGE:**	Continuous Occupation
SITE TYPE:	Rock Shelter	**MIDDEN DENSITY:**	High Opihi, drupa, cowries, pipipi, nerite, other UID marine shell, UID echinoid body fragments, UID small bone fragments, kukui endocarp
FUNCTION:	Temporary Habitation	**ARTIFACT DENSITY:**	Medium Potential fish netting (organic fibrous material), unknown fibrous materials, Glass fragments: brown and green some may be historic others look modern, waterworn cobbles, 'ili'ili, and coral.
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Setting, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Setting, Feeling, Association

ENVIRONMENTAL SETTING:
Moderately sloping topography with vegetation consisting of kiawe trees and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-098 is a habitation complex consisting of three petroglyph panels (1-3) and four rock shelters (Features A-D) built into the base of a cliff face (Plate 66 through Plate 71). The complex is located in the eastern portion of the project area northeast of Pāpālaua Wayside Park and Honoapiʻilani Highway (see Figure 7 and Figure 25). AA2216-098 is part of a larger complex of rock shelters documented on the same cliffside, including sites AA2216-099, AA2216-100, and AA2216-101.

The complex is characteristic of continuous occupation, possibly from pre-contact to modern times. Historic to modern usage is indicated by an assemblage of historic glass bottle fragments, woven fabrics, square nails, and wood boards. The nails and boards appear to be part of a modern temporary shelter. Other cultural material within and outside the shelters includes marine shell fragments, sea urchin spines, kukui endocarp, waterworn branch coral fragments, and waterworn cobbles. These materials are characteristic of traditional, historic, and modern habitation.

The complex contains three petroglyph panels located next to shelters A and B (Plate 71 through Plate 73). Petroglyph panels 1 and 2 are located southeast of shelter A in the southeastern corner of the complex on a fractured piece of outcrop at the base of the cliff. Panel 1 is on the southwest face of the

outcrop and consists of a large Kane measuring 50 cm in height and 48 cm in width. The date of Panel 1 has yet to be determined. Petroglyph panel 2 is located on the west face of the outcrop and consists of pecked, blocked lettering with remnant pain residue. The legible portion of the petroglyph appears to say "June 13 1905" and below it "Good Bye" with unreadable lettering below it. The last number of the year is faded and could be interpreted as a number other than 5. Regardless, the phrasing of the panel suggests that a person or pet may have been buried in or near shelter A. The panel measures 70 cm in height and 60 cm in width.

Petroglyph panel 3 is on a large piece of bedrock fronting shelter B. The petroglyph is located at the base of the southern face of the boulder and appears to say "Kawipunakoa" in pecked blocked lettering with faded white paint. Just beneath the name is a less prominent pecking with thinner lettering that appears to say "MAX." Right of this is "19--." The 19-- number is written in the same petroglyph style as "Kawipunakoa" and has two additional numbers that are not readable but may say "05" for 1905. Based on the difference in pecking style, it is possible that "MAX" is a later addition to the panel. The total visible pecked area measures 60 cm in length and 20 cm in height. Similarities in pecking style and the written date of Panel 2 and 3 suggest that they are associated.

Overall, AA2216-098 is in good to fair condition. The climate and sheltered nature of the site have resulted in excellent preservation of the material assemblage and the petroglyph panels. Natural erosion from rock fall within the shelters and along the cliff side has caused soil erosion and damage to the exterior of the shelters. Large push piles are also present on the south extent of the site and are associated with the construction of the highway.

EVALUATION SUMMARY

AA2216-098 has remained unaffected by construction activies related to the current Honoapi‘ilani Highway alignment and has retained its integrity of location and association. While this complex is situated relatively close to Honoapi‘ilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the sheltered nature of the environment against the cliffside.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-098 on its own may not be considered significant under Criterion A, however, when understood in the context of the collective cultural landscape and the potential association with other rock shelter complexes in the immediate vicinity (AA2216-099, AA2216-100, and AA2216-101) significance under Criterion A may apply as it pertains to traditional Hawaiian settlement patterns and inter-ahupua‘a transit, as well as continuous occupation and use of the area into the modern era. Continued archaeological research may provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study and contribute to a broader understanding of settlement patterns through time. Therefore, AA2216-095 is further considered significant under Criterion D.

Plate 66. AA2216-098, overview of outcrop with rock shelters, highway visible in background, view to southeast.

Plate 67. AA2216-098, overview of Feature A, view to southeast.

Plate 68. AA2216-098, close up of fiberous material in Feature A.

Plate 69. AA2216-098, overview of Feature B, view to north.

Plate 70. AA2216-098, close up of pencil urchin in cracks out outcrop above Feature B, view to north (north arrow for scale).

Plate 71. AA2216-098, overview of historic petroglyph fronting the cave (panel 3).

Plate 72. AA2216-098, rock shelter complex, overview of southern petroglyphs (panels 1 and 2), view to east.

Plate 73. AA2216-098, rock shelter complex, plan of petroglyph on most Southern end (panel 1).

FIELD NO:	AA2216-099	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Complex: Modified Outcrop, Rock shelter, Surface Scatter	**MIDDEN DENSITY:**	Low Cowrie and opihi
FUNCTION:	Tool Production, Temporary Habitation	**ARTIFACT DENSITY:**	Low Three basalt lithics and one false brain coral fragment
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Setting, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d	**SRHP INTEGRITY ASSESSMENT:**	Location, Setting, Feeling, Association

ENVIRONMENTAL SETTING:
Steeply sloping topography vegetated in kiawe trees and buffel grass.

HISTORIC PROPERTY DESCRIPTION:
AA2216-099 is a small southeast-facing rock shelter located in the eastern portion of the APE, directly mauka of Pāpālaua Wayside Park and within Corridor 1 (see Figure 7 and Figure 25). The shelter is located on an elevated shelf on a steep outcrop face that is accessible by following the base of the southeast-facing outcrop upslope from AA2216-100 (rock shelter) (Plate 74 through Plate 77). The shelter's interior measures 1.4 m in depth, 2.2 m in length, and 1 m in height from the drip line. The interior contained three fine grained basalt flakes (Plate 78) and large cobbles placed along the drip line, likely to help prevent erosion from within. A false brain coral fragment was also observed roughly 10 m east of the coral fragment.

One cowrie shell fragment and several opihi shell fragments were observed downslope of the shelter along the face of the outcrop that connects to AA2216-100. AA2216-099 is in fair condition but is located on a precarious outcrop face with recent rock fall and erosion visible. Care should be taken when revisiting this site.

EVALUATION SUMMARY
AA2216-099 has remained unaffected by construction activies related to the current Honoapiʻilani Highway alignment and has retained its integrity of location and association. While this complex is situated relatively close to Honoapiʻilani Highway, the proximity of the highway does not diminish integrity of setting and feeling due to the sheltered nature of the environment against the cliffside.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION
AA2216-099 on its own may not be considered significant under Criterion A, however, when understood in the context of the broader cultural landscape and the potential association with other rock shelter complexes in the immediate vicinity (AA2216-098, AA2216-100, and AA2216-101) significance under Criterion A may apply as it pertains to the broader traditional Hawaiian settlement patterns and inter-

ahupua‘a transit. Continued archaeological research may provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study contribute to a broader understanding of settlement patterns through time, and gain an understanding as to how and where stone tool quality basalt resources were acquired and subsequently distributed across West Maui. Therefore, AA2216-099 is further considered significant under Criterion D.

Plate 74. AA2216-099, rock shelter, overview looking up towards the shelter from AA2216-100 (rock shelter, not visible in photo), view to northeast.

Plate 75. AA2216-099, rock shelter, viewshed of Pāpālaua Beach from shelter, view to southeast.

Plate 76. AA2216-099, rock shelter, view looking downslope along SE outcrop face from shelter's interior, view to south.

Plate 77. AA2216-099, rock shelter, overview of flakes (left of north arrow) within interior of the shelter, view to north.

Plate 78. A2216-099, rock shelter, close up of basalt lithic flakes.

FIELD NO:	AA2216-100	**SIHP NO:**	
N FEATURES:	1	**AGE:**	19th-20th Century
SITE TYPE:	Rock shelter	**MIDDEN DENSITY:**	Low Opihi and cowrie
FUNCTION:	Temporary Habitation	**ARTIFACT DENSITY:**	Medium Historic cans (8), aqua glass, brown glass bottle rim with patena (BOT-001), clear glasss bottle top fragment with patena (BOT-003), clear glass bottle fragment (BOT-002), one brown glass wine bottle neck (BOT-004), one aqua glass insulator from upslope power
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d	**SRHP INTEGRITY ASSESSMENT:**	Location, Feeling, Association

ENVIRONMENTAL SETTING:
Gently sloping topography with vegetation consisting of kiawe trees and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-0100 is a rock shelter containing historic bottles and cans. The shelter is located downslope of AA2216-099 (rock shelter) in the east extent of the APE, within Corridor 1, and directly mauka of Pāpālaua Wayside Park (see Figure 7 and Figure 25). The south-facing shelter measures 1.7 m in length, 0.55 m in depth, and 0.50 m in height from the drip line. The shelter is too small to have been utilized for habitation but does contain eight historic cans, including seven food cans and one fuel can (Plate 79 through Plate 82). It also contains a relatively high density of glass fragments, including one diagnostic clear glass bottle fragment (BOT-002). Opihi shields were also found at the base of the shelter. The material assemblage indicates that the shelter was likely used as a historic storage area or small activity area.

A sand pile is located south of the shelter. It contains a high density of historical artifacts, including a brown glass bottle rim with patena (BOT-001), a clear glass bottle top fragment with patena (BOT-003), one brown glass wine bottle neck (BOT-004), one aqua glass insulator from powerlines located above the outcrop, and one diagnostic porcelain fragment (PC-001). AA2216-100 is in fair condition. Disturbances include erosion from the weathered outcrop and cave ceiling, as well as extensive bulldozing from highway construction.

EVALUATION SUMMARY

AA2216-100 has been affected by construction activies related to the construction of Honoapi‘ilani Highway, and while the integrity of setting is somewhat diminished, the site has retained its integrity of location and association. Additionally, due to the sheltered nature of the environment against the cliffside, the site has retained integrity of feeling.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-100 on its own may not be considered significant under Criterion A, however, when understood in the context of the broader cultural landscape and the potential association with other rock shelter complexes in the immediate vicinity (AA2216-098, AA2216-099, and AA2216-101) significance under Criterion A may apply as it pertains to the broader traditional Hawaiian settlement patterns and land use into the modern era, as well as, inter-ahupua‘a transit. Continued archaeological research may provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study and contribute to a broader understanding of settlement patterns through time. Therefore, AA2216-100 is further considered significant under Criterion D.

Plate 79. AA2216-100, overview of sand pile (foreground) containing historic artifacts and fronting the cave shelter, view to north.

Plate 80. AA2216-100, bottle finish (BOT-003).

Plate 81. AA2216-100, overview of shelter with B-002 visible and cans visible, view to west.

Plate 82. AA2216-100, bottle finish and neck fragment (BOT-002).

FIELD NO:	AA2216-101	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic
SITE TYPE:	Rock shelter	**MIDDEN DENSITY:**	Medium 3 Cowries shell, one crab claw
FUNCTION:	Temporary Habitation	**ARTIFACT DENSITY:**	High waterworn cobbles
CONDITION:	Poor		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d	**SRHP INTEGRITY ASSESSMENT:**	Location, Feeling, Association

ENVIRONMENTAL SETTING:
Steeply sloping topography with vegetation consisting of kiawe trees, buffel grasses

HISTORIC PROPERTY DESCRIPTION:
AA2216-101 is a small southeast-facing rock shelter located on a low-lying cliff ledge in the east portion of the project area directly upslope from the Honoapi‘ilani highway and northeast of Pāpālaua Wayside Park (see Figure 7 and Figure 25). The shelter measures 2.3 m in length, 0.9 m in depth, and 0.85 m in height at the drip line (Plate 83 and Plate 84). Two waterworn cobbles are located on the interior surface of the shelter. Marine fauna, including crab claw and three cowrie, and additional waterworn cobbles were observed eroding down from the cliff edge. The shelter is in poor condition due to natural erosion and likely disturbances from the adjacent Honopi'ilani Highway berm.

EVALUATION SUMMARY
AA2216-101 has been affected by construction activies related to the construction of Honoapi‘ilani Highway, and while the integrity of setting is somewhat diminished, the site has retained its integrity of location and association. Additionally, due to the sheltered nature of the environment against the cliffside, the site has retained integrity of feeling.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION
AA2216-101 on its own may not be considered significant under Criterion A, however, when understood in the context of the broader cultural landscape and the potential association with other rock shelter complexes in the immediate vicinity (AA2216-098, AA2216-099, and AA2216-100) significance under Criterion A may apply as it pertains to the broader traditional Hawaiian settlement patterns and land use into the modern era, as well as, inter-ahupua‘a transit. Continued archaeological research may provide insight into social organization based on the horizontal distribution of the archaeological complexes identified during this study and contribute to a broader understanding of settlement patterns through time. Therefore, AA2216-101 is further considered significant under Criterion D.

Plate 83. AA2216-101, overview of rock shelter, view to west.

Plate 84. AA2216-101, rock shelter, overview of shelters interior, north arrow located next to waterworn cobbles, view to west.

FIELD NO:	AA2216-103	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	High Cowrie, cone, pipipi, opihi, drupa, echinoid spines
FUNCTION:	Habitation, Tool Production	**ARTIFACT DENSITY:**	Medium Waterworns, false brain coral, and one volcanic glass flake
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Moderately sloping topography with vegetation consisting of kiawe trees and buffel grass.

HISTORIC PROPERTY DESCRIPTION:
AA2216-103 is a secondary surface scatter located in the eastern portion of the APE within Corridor 1 and mauka of Pāpālaua Wayside Park (see Figure 7 and Figure 25). The scatter is densely concentrated and situated below a large bedrock outcrop (Plate 85 through Plate 89). No modifications were observed on the outcrop. However, there is a narrow shelf containing a small overhang and possible cobble alignment above the outcrop. Cultural material was not observed at the base or within several meters of the outcrop, indicating that the scatter may be eroding downslope from another area. Multiple habitation and ceremonial complexes are located on the ridgeline above the outcrop and could be the source of the eroded material.

East of the scatter is an additional large outcrop containing a small west-facing alcove with a single waterworn cobble placed within it. Additional clearing and documentation is needed to interpret the context of the scatter and associated outcrops. Overall, AA2216-103 is in remnant condition due to extensive soil erosion and weathering of the surrounding outcrops.

EVALUATION SUMMARY
AA2216-103 is a remnant cultural material surface scatter reflective of a former temporary habitation site with a possible focus on stone tool manufacture that may provide information on the distribution of traditional Hawaiian land use. Without archaeological testing however, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence of intact subsurface deposits, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

Although the site is in a remnant state, the potential for the presence of intact subsurface deposits that may yield information on the chronology and pattern of traditional Hawaiian land use and stone tool manufacture, as well as the acquisition of tool quality basalt resources and subsequently distribution across West Maui remains. Therefore, in consideration of the above description and analysis, AA2216-103 is recommended as significant and eligible to the National Register under Criterion D.

Plate 85. AA2216-103, outcrop and surface scatter, overview of the small alcove (north arrow placed at its entrance) in relation to the outcrop and scatter (background), view to north.

Plate 86. AA2216-103, outcrop and surface scatter, close-up of the small alcove containing a waterworn cobble manuport, view to east.

Plate 87. AA2216-103, overview looking up towards non modified outcrop, view to northwest.

Plate 88. AA2216-103, volcanic glass flake.

Plate 89. AA2216-103, example of marine fauna/shell assemblage observed on the surface.

FIELD NO:	AA2216-105	**SIHP NO:**	
N FEATURES:	3	**AGE:**	Late Precontact - Early Historic,Precontact
SITE TYPE:	Complex: C-Shape,Modified Outcrop,Surface Scatter,Terrace	**MIDDEN DENSITY:**	Low Marine shell
FUNCTION:	Ceremonial and Habitation	**ARTIFACT DENSITY:**	Medium False brain coral, branch coral, one ili'ili, one complete clear glass "Lahaina Soda Co" bottle
CONDITION:	Fair to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Workmanship, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Workmanship, Association

ENVIRONMENTAL SETTING:

Gentle to moderately sloping topography with vegetation conisisting of 'ilima, 'uhaloa, opiuma, kiawe trees, and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:

AA2216-0105 is a small habitation complex in Olowalu where the proposed highway corridors merge. The complex is directly southeast of site AA2216-046 (habitation and ceremonial complex) on a moderate south and southwest-facing hillside (see Figure 9 and Figure 13). The site is separated from site AA2216-050 (agricultural and habitation complex) to the northwest by a plantation-era agricultural ditch (AA2216-049). AA2216-105 consists of three archaeological features, including a terrace of indeterminate function (Feature A), a modified outcrop (Feature B), and a C-shape (Feature C) (Figure 30). Located downslope of the features and near the southeast edge of the ditch (AA2216-049) is a secondary cultural material scatter (CMS-001) and a cultural material concentration (CMC-001).

CMS-001 measures 29.92 m by 22.04 m. An informal surface count estimated the scatter to contain (excluding CMC-001) 2 branch coral fragments, eight false brain coral fragments, 2 UID marine shell fragments, and one 'ili'ili. CMC-001 is located within the southeast extent of the scatter near the ditch berm. An informal surface count estimated the concentration to contain 11 branch coral fragments, nine false brain coral fragments, six cowrie shell fragments, and one cone shell fragment.

The scatter and concentration are characteristic of a disturbed habitation area with a possible ceremonial component. Other cultural material within the site not directly associated with a feature included six false brain coral fragments on a northwest-facing outcrop above CMS-001 and one branch coral fragment roughly 6 m downslope of Feature C (c-shape).

AA2216-0105 is in fair to remnant condition. The structural features are largely intact and contain minimal disturbances. One historic Lahaina Soda Co. bottle was found in Feature A, indicating possible historic use or foot traffic within the site. The lower scatter is in remnant condition due to colluvial erosion and historic disturbances from the construction of the plantation-era ditch (AA2216-049).

EVALUATION SUMMARY

AA2216-105 is situated just south of the habitation and ceremonial complex documented as AA2216-046 and north of the expansive colluvial agricultural field system documented as AA2216-50 and AA2216-072. The site has retained its location, design, setting, materials, workmanship, feeling, and association. It is likely that AA2216-105 is associated with the above noted complexes which speaks to what would have been a highly productive ahupua'a wide agricultural system when combined with the lo'i systems of both Ukumehame and Olowalu Valleys.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-105 on its own may not be considered significant under Criterion A, however, when understood in the context of the broader archaeological landscape and the potential association with AA2216-046, AA2216-50, and AA2216-072, as well as the inter-site patterning of features in relation the overall dryland field system, Criterion A may apply as it pertains to traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Continued archaeological research may help to inform the timeline for agricultural intensification in the region and gain understanding of when the systems may have been developed and subsequently abandoned and how that may relate to the continued use of the established lo'i systems. Therefore AA2216-105 is considered significant under Criterion D.

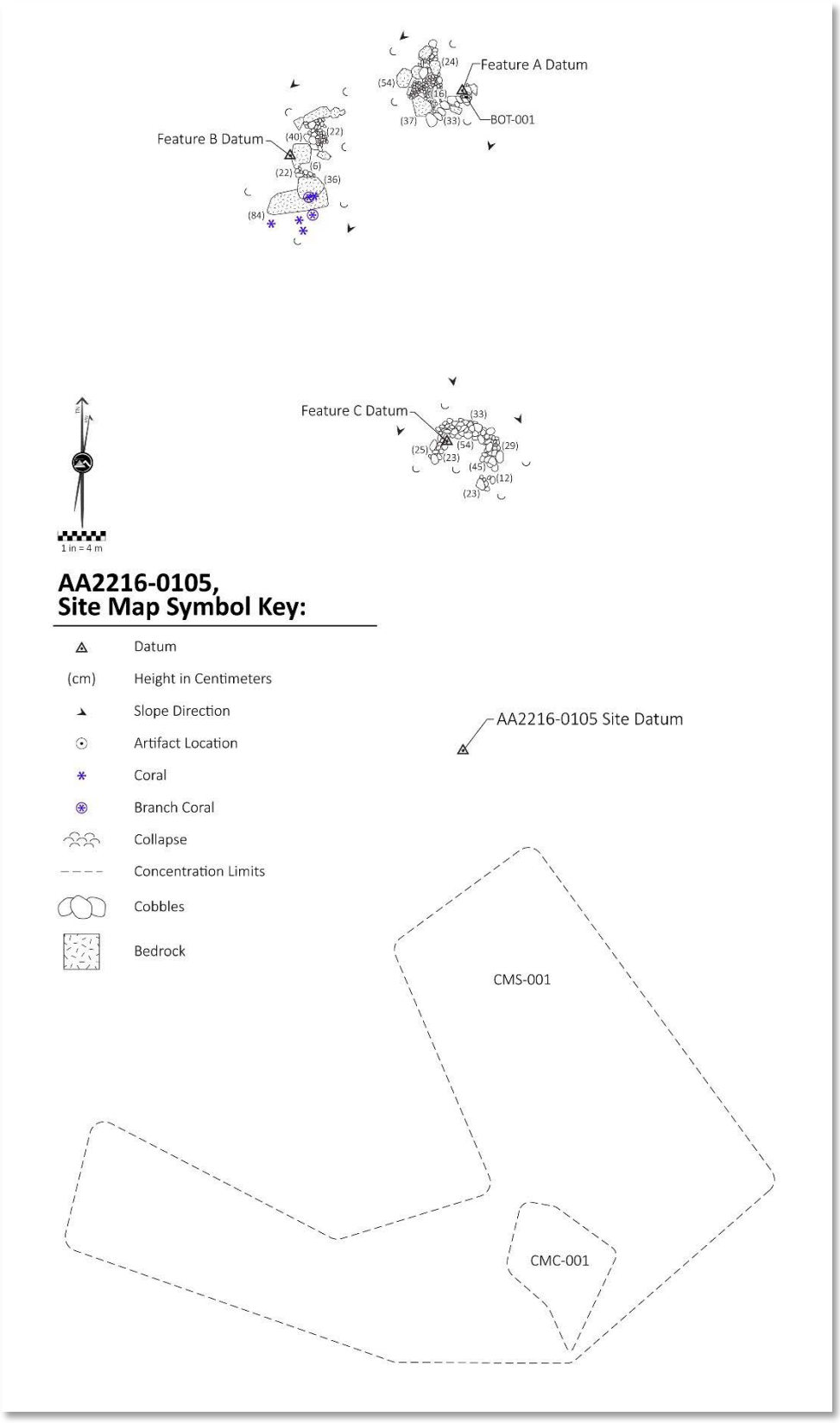


Figure 32. Representative feature types at AA2216-105[9], plan view.

FIELD NO:	AA2216-108	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Late Precontact - Early Historic, Precontact
SITE TYPE:	Heiau	**MIDDEN DENSITY:**	Low Marine shell
FUNCTION:	Ceremonial	**ARTIFACT DENSITY:**	Medium False brain coral, branch coral, one ili'ili, one complete clear glass "Lahaina Soda Co" bottle
CONDITION:	Fair to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Feeling, Association

ENVIRONMENTAL SETTING:
Gentle to moderately sloping topography with vegetation consisting of ʻilima, ʻuhaloa, opiuma, kiawe trees, and buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-108 is a large ceremonial pavement and remnant platform with numerous interior features (Figure 31) that is centrally situated within an extensive colluvial agricultural system (AA22156-050 and -072, see Figure 15). Interpreted as a traditional Hawaiian heiau, the footprint of the site has been partially bisected by a historic flume and potentially affected by fire, firebreak work, and cane roads located within the lower homeless encampment. The upper (northern) portion of the heiau was extensively cleared and fully documented with exploratory clearing downslope of the cleared section. Clearing revealed that the complex continued to the southwest and towards the flume and a dry stacked basalt cobble wall. The upper extent of the heiau is bound by a large ditch and natural gully to the southeast. The southwest extent appears to connect with a culturally modified slope containing large branch coral heads while the modified slope and upper heiau section connects to several surrounding features of AA2216-050.

A large dry stacked terrace fronting the northeast edge of the main fire/cane road, downslope and south of the upper heiau and historic flume, has been identified as the southwest extent of the heiau (Mr. Wilmont Kahaialiʻi, cultural practitioner, personal communication, July 16, 2023), thus indicating that the structure was cut into and bisected when the flume was built.

It is additionally possible that the material from the heiau and surrounding features were likely harvested to construct the flume which may explain remnant deconstructed areas within the overall AA2216-050 complex. Field crew also communicated with a resident of the homeless encampment who said that a high density of boulders and walls were present further southwest of the bulldozed road. The provided location matched accounts provided by Aunty Vicky Palafox (cultural descendant) and Ms. Linda Nahina (cultural descendant) during a community site visit who pointed to this area as the location of the "Pueo Heiau" that they use to care take. During July 16th site visit, Mr. Kahaialiʻi also shared that he was told the name of the heiau was Mana-Pueo-Iki and that it was a Lono heiau dedicated to agriculture. Though Mr.

Kahaialiʻi did not believe that the heiau originally contained burials, he did comment that human remains that had been uncovered during plantation era field clearing were often reinterred within this structure.

The upper portion of the heiau consists of a significantly built up and infilled area that is roughly rectangular in shape. The infill consists of densely piled cobbles and small to large boulders. In some areas stacking extends up to 80 cm below surface. The infilled area is partially enclosed along its upper northern extent and the upper portions of its southeast and northwest borders. Wall construction was likely more substantial and may have wrapped around the majority of the feature prior to rock fall and historic disturbances. The lower southern extent is low lying and connects to additional features that extend downslope within a less densely built up and infilled area.

From the lower southern boundary the Heiau extends upslope through a series of infilled terraces and alignments that interconnect with other internal features including pits, larger depressions, mounds, uprights, and enclosures. In total the upper built-up area contains 79 sub-features, including two enclosures, 44 pits, 15 terraces, 6 depressions, 6 alignments, 1 mound, 1 alignment, and an upright. A remnant wall lines the upper north extent of the Heiau and partially extends along the western and eastern borders of the built-up area. The upper portion of the heiau also appears to contain the highest density of branch coral which is heavily concentrated within an infilled terrace.

EVALUATION SUMMARY

Although integrity of workmanship has been somewhat compromised along the outer limits of the heiau footprint as a result of extensive disturbances related to both historic plantation era and modern fire containment efforts, AA2216-108 has retained its location, design, setting, materials, feeling, and association due to its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway. It is without a doubt that this heiau is associated with the colluvial field system documented as AA2216-050 and AA2216-072, and the ritual aspects of cultivation and harvest. Peter H Buck writes:

> *For every-day communication with his gods, the Hawaiian could conduct his simple ritual with his ʻaumakua at some shrine or wherever it suited. The temple [heiau] was an expansion of the shrine to meet the requirements of larger groups of people with more elaborate ceremony and ritual. Larger temples were built for public ceremonies connected wlth some major event such as war or increase of food supplies. (Buck 1957:513)*

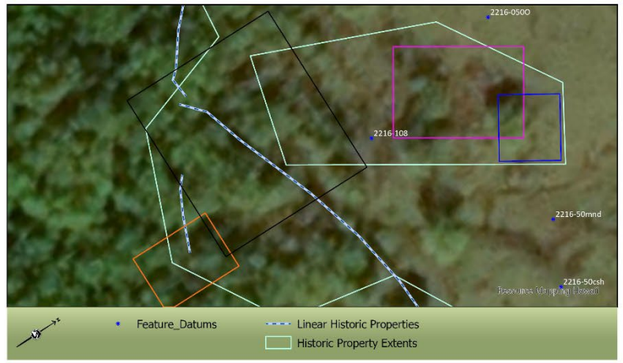
The size of this heiau and complexity of the interior features, as well as its location within a rather expansive agricultural system, is consistent with Mr. Kahaialiʻiʻs testimony as a heiau being of the Lono class and the description provided by Buck. The combination of fully developed wet and dry, colluvial agricultural systems within a singular ahupuaʻa appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challenging environmental conditions. The presence of this heiau in the midst of the broader field system potentially speaks to the importance of the success of this system to the surrounding population with a heightened emphasis on ritual and ceremony.

The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of

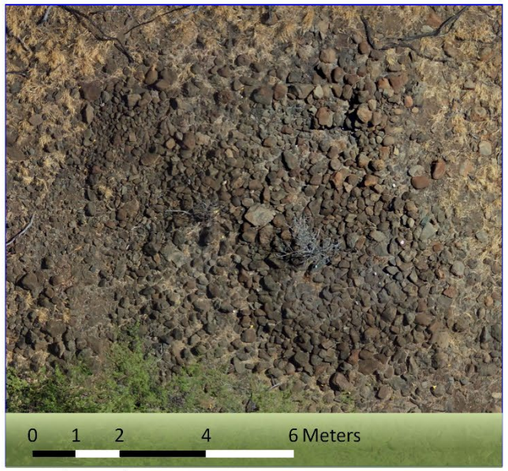
potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of two currently known intact colluvial systems with an associated ritual center within the archipelago (Green 1969, 1970).

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

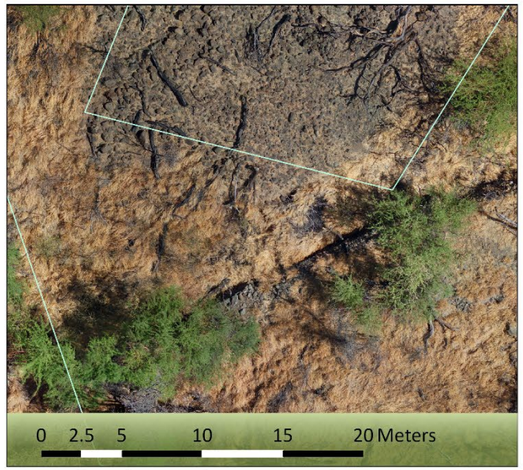
AA2216-108 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the complex internal architecture, Criterion A is applicable as it speaks to broad patterns in traditional Hawaiian adaptations, land uses and related ritual complexities, along with sophisticated social systems prior to the Western Contact. Site AA2216-108 is additionally significant under Criterion C when understood in the context of a complex dryland agricultural system. Continued archaeological research would help to inform the timeline for heiau construction which may be reflective of agricultural intensification, the potential evolution of ritual practices as it relates to the overall field system, and provide cross-comparisons to ritual centers that are found in association with loʻi systems, as well as intensive dryland field systems (Kolb 1994; Mulrooney and Ladefoged 2005). Therefore AA2216-108 is further considered significant under Criterion D.



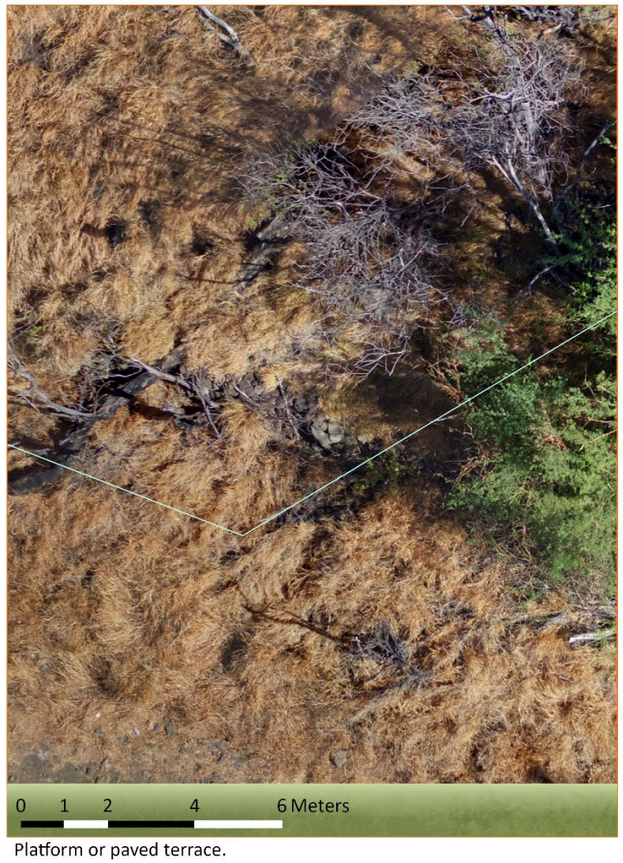
AA2216-108, Drone Imagery, Representative Feature Types



Upper limits of AA2216-108



Historic flume bisecting lower portion of AA2216-108



Platform or paved terrace.

Example of interior features of AA2216-108

Figure 33. AA2216-108, drone imagery of interior feature types and approximate site footprint.

Olowalu Ahupua‘a

A total of seven (7) historic properties were identified within the Olowalu section of the proposed realignment alternatives (Table 2, Figure 32 and Figure 33), two of which (50-50-08-04700 and -04701) were previously recorded (Fredericksen and Fredericksen 2000:42, 46). The following section presents the preliminary site descriptions and recommendations for historic properties identified within the Olowalu portion of the archaeological survey area.

Table 2. Summary of Above Ground Archaeological Sites Identified within Olowalu Ahupua‘a[10]

Alternatives Affected	Field No/ SIHP 50-50-08-	Possible Age Range	Formal Type	Inferred Function	Overall Condition	NRHP/6E Significance Recommendation	Integrity Evaluation
1-4 (Launiupoko Pinch Point)	AA2216-028	Early 20th Century Ranch	Wall, Fenceline	Animal Husbandry – Pasture Delineation	Fair to Remnant	D/d	Location, Material, Setting, Feeling, and Association
1,2	AA2216-036	Precontact	Surface Scatter	Habitation	Remnant	D/d	Location, Materials, Association
1-4 (Launiupoko Pinch Point)	AA2216-106	Precontact	Terraces, Circular Alignments, Small Semi-Circular Terraces, Enclosures	Habitation and Agricultural Complex	Good to Remnant	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1-4 (Launiupoko Pinch Point)	AA2216-107	Precontact to Early Historic	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	Agricultural and Habitation Complex	Good to Remnant	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Association
1-4 (Olowalu/ Launiupoko Merge)	04700	Precontact	Rock Shelters, C-shape, Wall	Habitation Complex	Fair to Poor	D/d	Location, Design, Setting, Materials, Feeling, Association
1-4 (Olowalu/ Launiupoko Merge)	04701	Precontact	Modified Outcrop and Platform	Ceremonial	Fair	A, D/a, d, e	Location, Design, Setting, Materials, Association
3	04718	Precontact	Heiau	Ceremonial	Fair to Poor	A, D/a, d, e	Location, Design, Materials, Association

[10] Gray shading indicates pinchpoint locations where all proposed alternatives merge

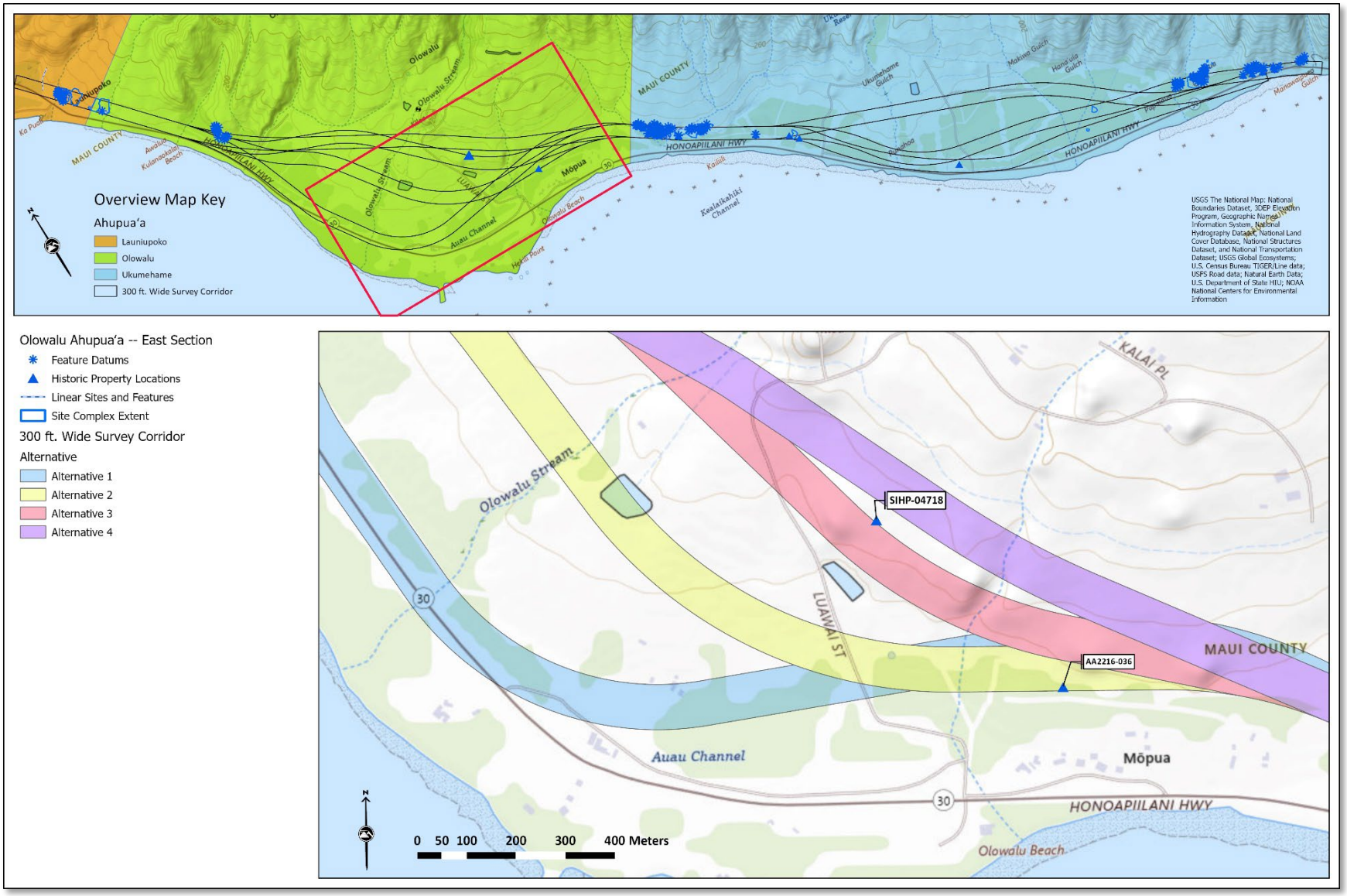


Figure 34. Historic property locations and extents in relation to the survey corridors, Olowalu Ahupua'a, East Section.

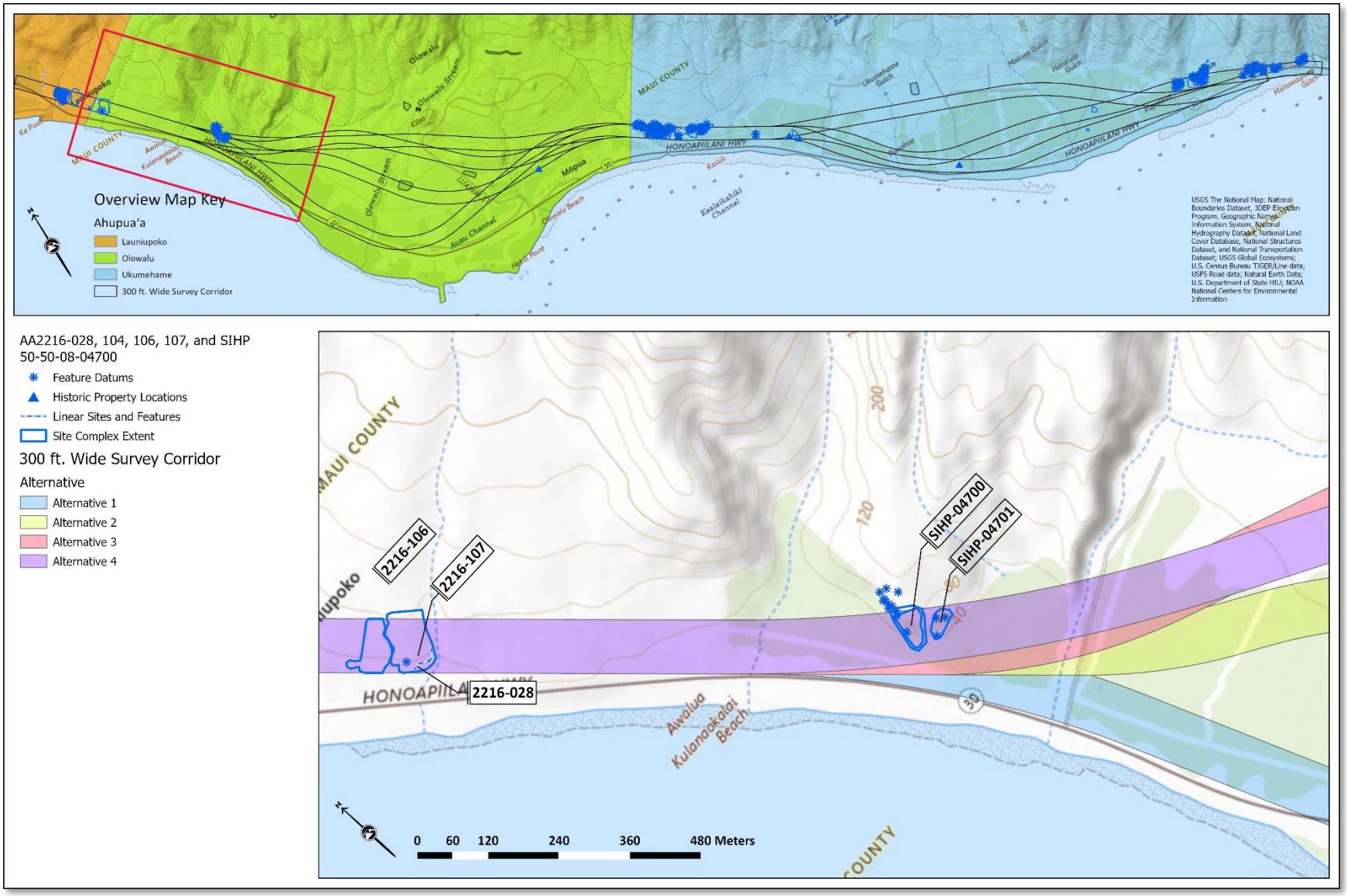


Figure 35. Historic property locations and extents in relation to the survey corridors, Olowalu Ahupua'a, West Section.

FIELD NO:	AA2216-028	**SIHP NO:**	
N FEATURES:	2	**AGE:**	Early 20th Century Ranch
SITE TYPE:	Multi-Component Wall and Barbed Wire Fenceline	**MIDDEN DENSITY:**	None
FUNCTION:	Animal Husbandry, Pasture Delineation	**ARTIFACT DENSITY:**	Low One aqua glass fragment northwest of the modified gully and next to site AA2216-104 (c-shape)
CONDITION:	Fair to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Material, Setting, Feeling, and Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Material, Setting, Feeling, and Association

ENVIRONMENTAL SETTING:
Gently sloping topography with vegetation consisting of buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-028 is a historic ranch wall and barbed wire fenceline located within the northern extent of the study area where the proposed road corridors merge to meet the existing alignment of Honoapi‘ilani Highway (Figure 33). Situated within the extent of the dryland agricultural system documented as AA2216-107, this site consists of a free-standing wall constructed of large subrounded basalt cobbles and small subrounded basalt boulders roughly stacked 3-4 courses high and 2-4 courses wide that roughly extends east-west along the southern boundary. A kiawe post and fallen barbed wire fencing extends north-south to form the western boundary. The average width of the stone wall section ranges between roughly 0.75-0.80 m. This wall appears associated with a wide modified gully that contains slight modifications along the northwest embankment while the southeast bank has been heavily modified with the wall construction. A stone mound is located northwest of the upper modified gully bank that could be a remnant section of wall or disturbed secondary feature.

EVALUATION SUMMARY
AA2216-028 consists of a stone wall section and fallen barbed wire fenceline reflective of historic ranching and pasture delineation. The Pioneer Mill Company, Ltd. (PiMCo) Ranch, a secondary industry of the overall sugar operation that was initiated to support their labor force, was started around 1912 by then manager W. Weinzheimer on lands that were unsuitable for cane growing. The grazing lands extended from Honokōwai Gulch to Olowalu and sea level to 2,000 ft., covering a collective area of 9000 acres of Pili grass, cactus, and Koa Haole (Henke 1929:59). With regard to the current study area, the PiMCo Ranch lands were situated between the Launiupoko and Olowalu cane fields and above the former railroad alignment and current cane haul road corridor (Figure 34). According to maps of the pasture layout, it is clear that pasture delineation in this area consisted of a combination of stone walls and barbed wire fences. Site 2216-028 is a remnant section of that pasture boundary. In this case, the term remnant is

used to describe the last remaining section of a former pasture boundary as a whole rather than the condition of the individual stone wall element itself which is in fair condition. While this remaining section of wall is in fair condition, and the integrity of workmanship specific to the dry-stacked stone masonry is retained, the historic pasture boundary as a whole is no longer intact as the barbed wire fencing that completed the boundary of the pasture has fallen, with missing sections of intact fencing. As a result, there is a an overall loss of workmanship and design. The site does retain integrity of location and materials, as well as setting, feeling, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

The identification of AA2216-028 has led to research into ranching infrastructure, an otherwise little recognized aspect of the overall operation of Pioneer Mill Co. There has been some debate about stone walls that were constructed during the historic era vs. the pre-contact time period and the ability to differentiate between the two (Wong et al. 2020:76-77). Further archaeological research and data recovery of the stone wall section of AA2216-028, focused on construction technique in relation to known traditional dry-stacked stone architecture, would add to the broader archaeological understanding surrounding the construction of these sites. The addition of this information would grow the ability to readily distinguish historic wall construction from traditional pre-contact construction (Sroat et al. 2023:96-100) which would better inform function, chronology, and land use intepretations. Therefore, AA2216-028 is recommended as eligible to the National Register under significance Criterion D.

Plate 90. Overview of wall running SE, view to southeast.

Plate 91. Overview of west extent where the barbed fence component bisects wall, view to west.

Plate 92. AA3316-028, barbed wire fence component, photo taken from end of wall, view to north.

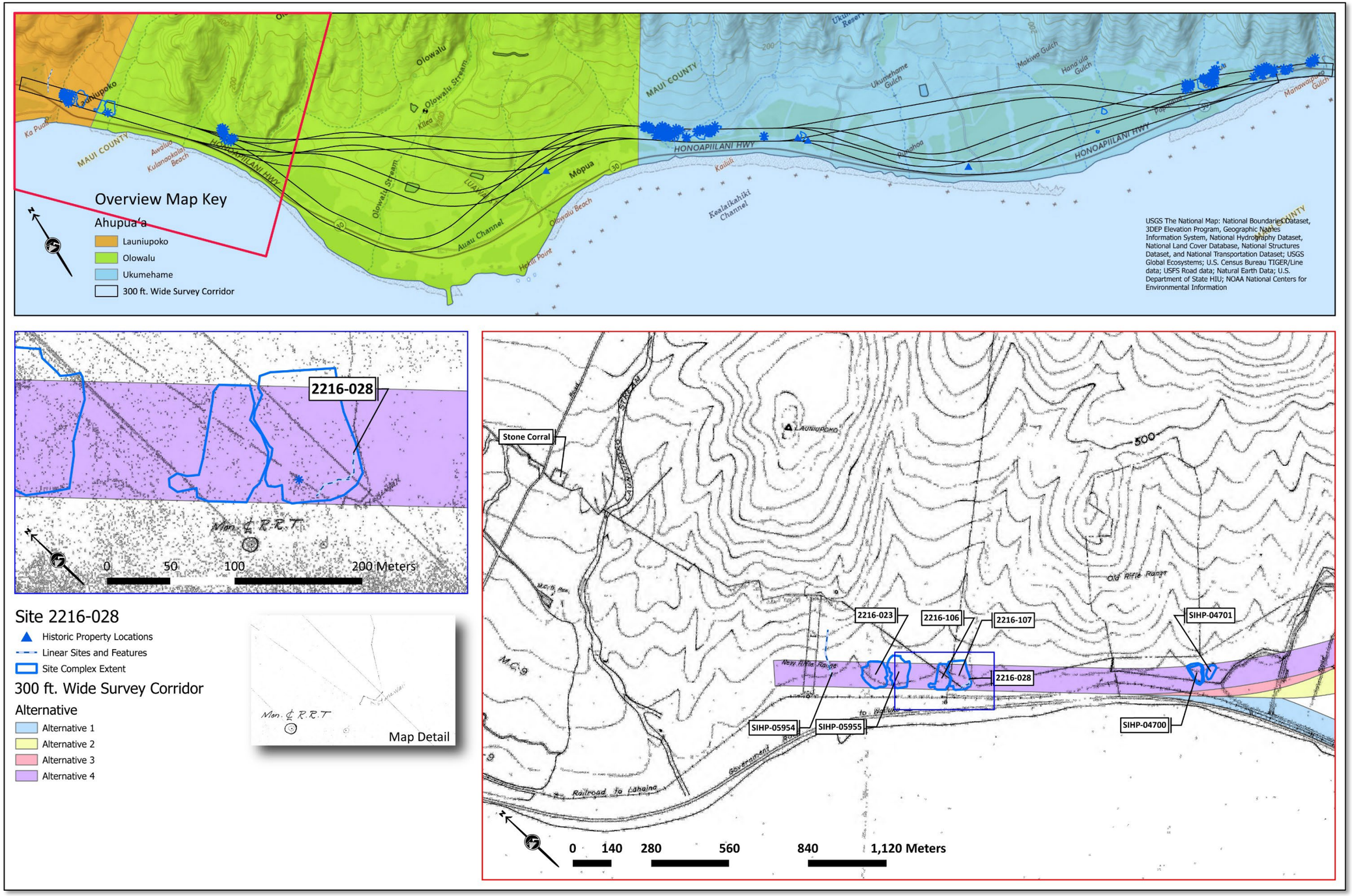


Figure 36. AA2216-028 in relation to the proposed alternatives (top frame) and ranch lands of Pioner Mill Company, Ltd. Ranch (Pioneer Mill Company 1940) (bottom right frame); and close up of AA2216-028 in the 1940 fencing plan and stone wall segment (Pioneer Mill Co. 1940) (bottom left frame).

FIELD NO:	AA2216-036	**SIHP NO:**	
N FEATURES:	1	**AGE:**	Precontact
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	High Marine shell: cone shell, top shell, bivalves, and other indeterminate fragments
FUNCTION:	Habitation	**ARTIFACT DENSITY:**	High Waterworn cobbles, branch coral, false brain coral, and possible basalt flakes
CONDITION:	Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:

Flat to gently sloping topography with vegeation consisting of buffel grasses, kiawe trees, and Guamúchil (Opiuma).

HISTORIC PROPERTY DESCRIPTION:

AA2216-036 is a surface scatter located in a fallow cane field within Corridors 1 and 2 mauka of Olowalu Village Road and east of Luawai Street (Plate 90 through Plate 93, see also Figure 32). The scatter measures roughly 20 m in radius (east to west) and is most densely concentrated within push piles along the field's southern edge. The material assemblage consists of a high density of marine shells, branch coral, false brain coral, waterworn cobbles, and a few potential basalt lithic flakes.

AA2216-036 is approximately 500 m south and downslope of SIHP-50-50-08-04718 (heiau) and is potentially a remnant representation of a cultural landscape that was plowed over for industrial sugarcane agriculture (Figure 34). Cultural material also continues mauka at a relatively low and infrequent occurence past the Olowalu bike path.

EVALUATION SUMMARY

AA2216-036 is a remnant cultural material surface scatter reflective of a pre-contact habitation site. Without archaeological testing however, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit as a result of erosion or redistribution due to ground disturbance activities related to over 100 years of industrial sugarcane cultivation (see also Figure 11). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of intact stratified deposits below the plow zone, the site may retain integrity of location, materials, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact stratified deposits that may provide information on the chronology and distribution of traditional and historic era land use within Olowalu Ahupua‘a remains. Therefore, in consideration of the above description and analysis, AA2216-036 is recommended as eligible to the National Register under significance Criterion D.

Plate 93. AA2216-036, Typical cultural material content consisting of marine shell fragments and ‘ili‘ili.

Plate 94. AA2216-036, Conus shell fragment.

Plate 95. Overview of elongated pushpile at southern edge of bulldozed agricultural and ranching field where material is most densely concentrated, view to west.

Plate 96. Overview of bulldozed field looking upslope towards Kaiwaloa Heiau (SIHP 50-50-08-0004) and an unnamed heiau (SIHP -04718), view to north.

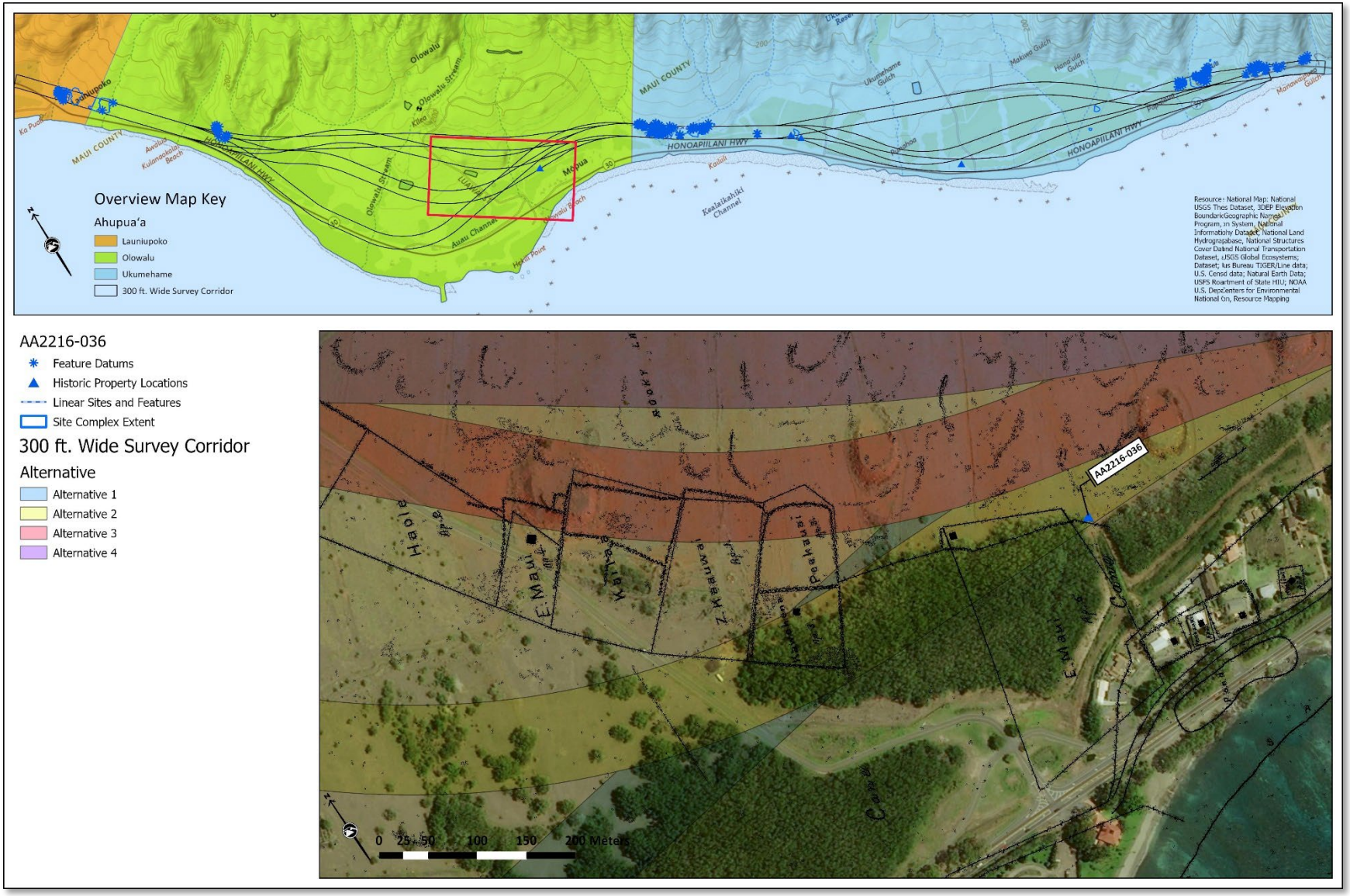


Figure 37. Site 2216-036 in relation to the proposed alternatives (top frame) and land commission awards and historic structures/landmarks overlaid (Monsarrat 1881) on the ESRI World Imagery Base Map (ESRI et al. 2021) (bottom right frame).

FIELD NO:	AA2216-106	**SIHP NO:**	
N FEATURES:	Minimum of 11	**AGE:**	Precontact
SITE TYPE:	Habitation and Agricultural Complex	**MIDDEN DENSITY:**	None
FUNCTION:	Agriculture, Possible Burial, Ceremony, Temporary Habitation	**ARTIFACT DENSITY:**	Low Manuports: Branch coral and false brain coral
CONDITION:	Fair to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Gentle to moderately sloping terrain with vegetation consisting of buffel grass, hairy woodrose, haole koa, and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:
AA2216-106 is a habitation and agricultural complex located at the northwestern end of the survey area where the corridors merge as they approach the Lahaina Bypass (see Figure 33). This site is part of a larger cultural landscape that is reflective of traditional dryland agriculture and includes the neighboring site complexes of AA2216-023, AA2216-104, and AA2216-107. The site is separated from AA2216-104 to the northwest by roughly 80 m of rugged terrain consisting of fragile and highly weathered bedrock. While a large drainage southeast of the site was used as a geographic boundary to separate AA2216-106 from AA2216-107, the sites are likely associated with each other and would have functioned as a singular field system.

Dense vegetation covers the landscape, obscuring most of the cultural material and features within the complex. Due to time constraints, only a portion of the site was cleared of vegetation to provide a generalized summary of the site and define its limits within the survey area. Clearing ended along the exterior of the site when there was a significant break in the presence of features and cultural material. Site limits were also determined based on the natural topography of the landscape and large disturbances. The resulting preliminary site boundary is defined by the survey area boundary to the northeast (mauka), a large drainage to the southeast, the cane haul road and highway to the southwest (makai), and an absence of features to the northwest where decomposing bedrock formations characterize the landscape.

The feature types identified within the site are consistent with neighboring sites and the 'rocky' variant of the leeward rain-dependant agricultural systems that are found across the flow slopes and between the former sugarcane fields of Pioneer Mill Co (Figure 35). These include terraces, circular enclosures, pit features, small C-shapes, alignments, mounds, modified outcroppings, and two depressions (Figure 36). Additional spot clearing to the northwest of the gully revealed several irregular terraces, agricultural

circles, and areas of apparent bedrock modifications. One rectangular terrace to the northwest of the gully with a paved interior consisting of gravel and cobble suggests a function other than agriculture (Plate 100). The paved surface appears disturbed with a faint depression and adjacent soil berm (Figure 36). It is not presently clear if the depression is contemporaneous with the terrace or more recent. Additionally, the western most feature in AA2216-106 is a disturbed southwest-facing terrace with a distinct surface depression characteristic of a possible burial (Plate 99 through Plate 97). Located above the cane haul road, the terrace was cut into by a bulldozer during widening for cane haul trucks thus destroying the northwest extent of the feature. The surviving terrace measures 7.8 m in length and approximately 3.5 m in width. A branch coral head and several fragments are visible on the face and bulldozed northwest extent of the terrace. The retained interior of the terrace contains a soil-filled depression partially outlined in cobbles. The depression measures approximately 1.7 m x 1.5 m, is mainly devoid of rock, and has a spongy rebound compared to the surrounding terrace surface. Considering the size, cobble modifications, soil texture, and presence of coral, the depression may represent a possible burial.

While the features exposed by spot clearing are more degraded than those observed in neighboring sites and are generally in poor condition, it appears that some of the features that are yet to be cleared, particularly the series of circular pits and possible C-shapes along the gully, may be in a better state of preservation. Sources of disturbance include bioturbation from vegetation growth, heat spalling (wildfire and solar), and probable ungulate trampling across the site. The lower extent of the site has been impacted by bulldozing along the cane haul road, including a bulldozer path that runs upslope between the gully-side features and the possible burial terrace.

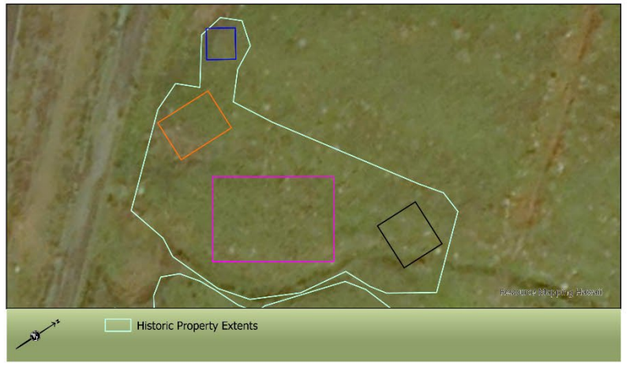
EVALUATION SUMMARY

AA2216-106 has retained its location, design, setting, materials, feeling, workmanship, and association due to its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway (Figure 36). It is likely that AA2216-106 is associated with complexes to the north of the site extent, which speaks to a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Olowalu and presumably Launiupoko Valleys. The combination of fully developed wet and dry, colluvial agricultural systems appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions. The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156).

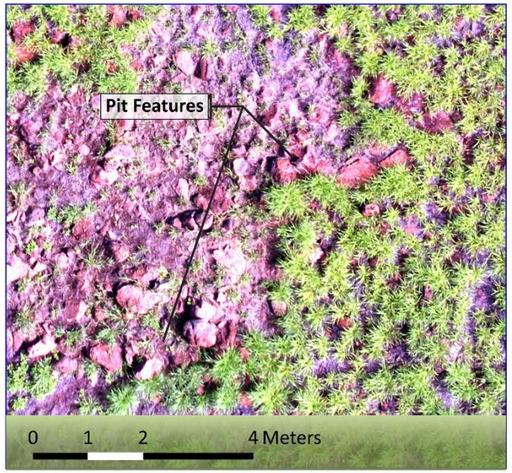
NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

AA2216-106 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural and habitation features in

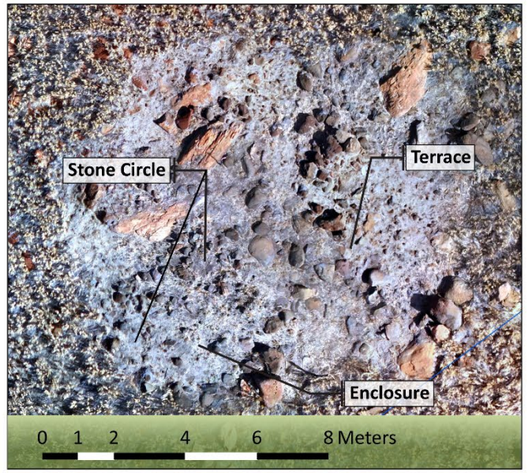
relation the overall topography that takes advantage of slope direction for soil retention, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-106 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland agriculture and loʻi systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established loʻi systems into the modern era, and inform research into contemporary agricultural sustainability. Therefore AA2216-106 is further considered significant under Criterion D.



AA2216-106, Drone Imagery, Representative Feature Types

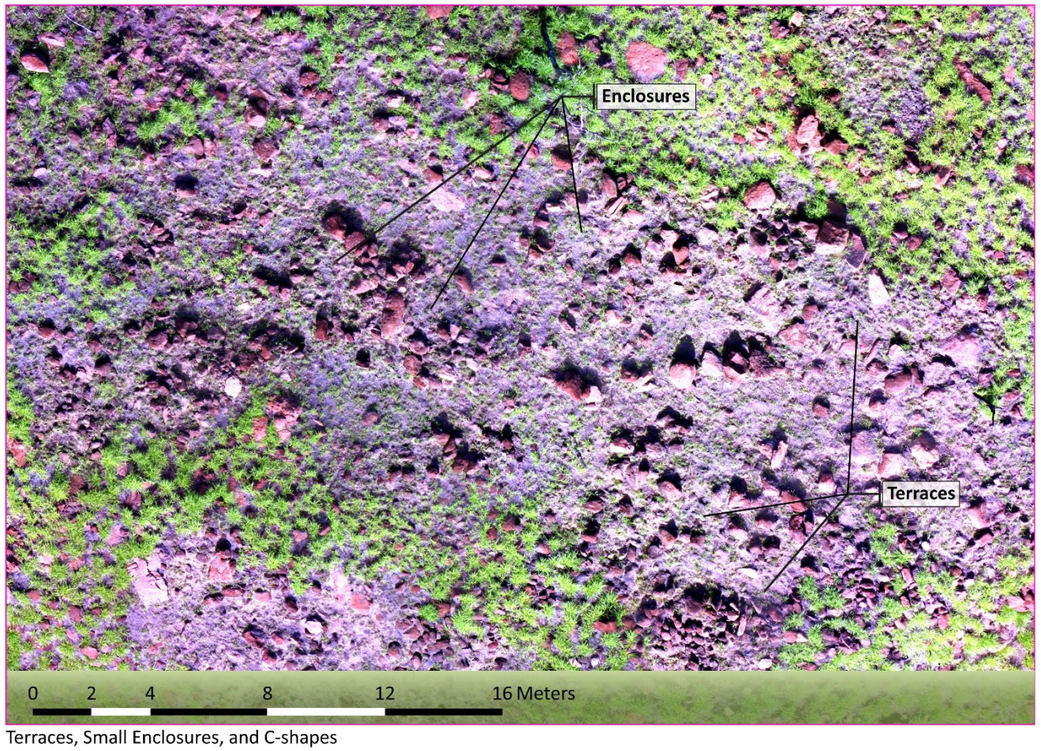


Stone circles and pit features



Irregular Shaped Enclosures and Stone Circles

Modified Bedrock Boulder Outcrop



Terraces, Small Enclosures, and C-shapes

Figure 38. AA2216-106, drone imagery of interior feature types and approximate site footprint.

Plate 97. AA2216-106, interior of rectangular terrace showing cobble paving and depression, view to southwest.

Plate 98. AA2216-106, habitation and agricultural complex, cleared area 1, overview of the NW side of a potential burial terrace, located in the western corner of the site, view to NW.

Plate 99. A2216-106, potential burial terrace, close-up examples of branch coral heads in the western corner of the terrace, view to northeast.

Plate 100. AA2216-106, habitation and agricultural complex, potential burial terrace, close-up of circular depression in southwest corner of terrace behind concentration branch coral (left, foreground), view to northwest.

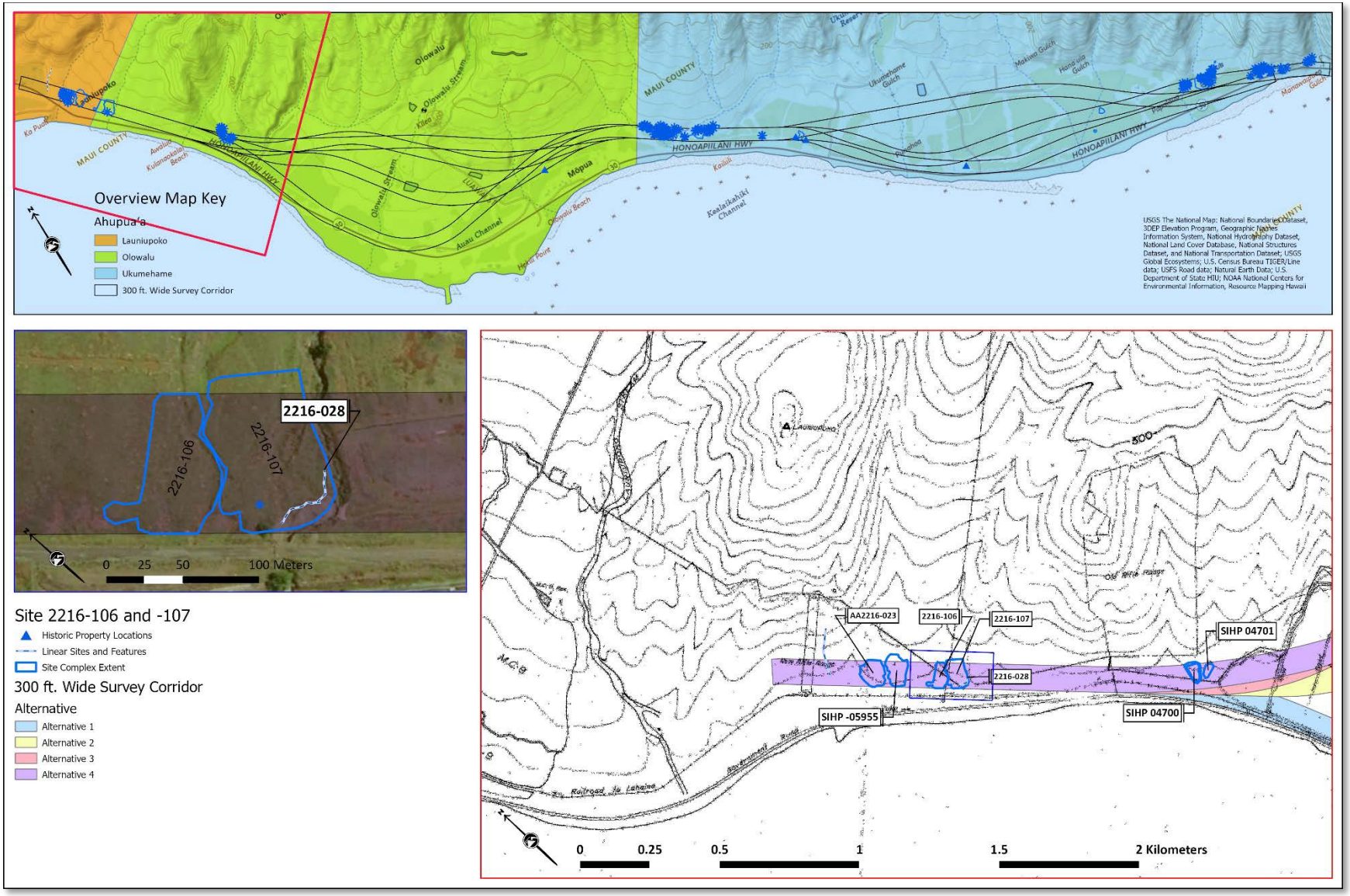


Figure 39. AA2216-106 and -107 in relation to the proposed alternatives (top frame), inter-site association within lands formerly designated as pasture lands between the Launiupoko and Olowalu sugarcane fields of the Pioner Mill Company (Pioneer Mill Company 1940) (bottom right frame), and close up of site extents in relation to the modern environment (ESRI et al. 2021) (bottom left frame).

FIELD NO:	AA2216-107	**SIHP NO:**	
N FEATURES:	Minimum of 5	**AGE:**	Precontact - Early Historic
SITE TYPE:	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	**MIDDEN DENSITY:**	None
FUNCTION:	Agriculture and Habitation	**ARTIFACT DENSITY:**	None
CONDITION:	Good to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Gentle to moderately sloping topography with vegetation consisting of buffel grass, hairy woodrose, haole koa, castor bean, and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:
AA2216-107 is a newly identified agricultural and habitation complex located within the western end of the proposed highway corridor where all proposed alternatives merge to meet the current alignment of Honoapi‘ilani Highway (see Figure 33). This site is situated on a rocky southwest slope descending from the West Maui Mountains to the shoreline between Olowalu and Launiupoko and is part of a larger precontact agricultural landscape that includes sites AA2216-023, AA2216-104, and AA2216-106. A gully on the northwest extent of AA2216-107 serves as a geographic boundary from AA2216-106 for inventory purposes. AA2216-107 and neighboring sites comprise one of the few remaining areas between Ukumehame and Lahaina not plowed for sugarcane (see Figure 38).

As with neighboring sites, the features comprising AA2216-107 are mostly obscured by dense, tall grass and accumulating duff. Due to the labor and time required to clear vegetation from the site, the site was spot cleared to determine the extent of the site and the density of features on the interior. This strategy revealed a highly modified landscape bound on the northwest by the gully bordering AA22216-106, on the northeast by the mauka extent of the APE (features continue outside of APE), on the southeast by a deep water-diversion gully, and on the southwest by bulldozing extending from the cane haul road. The overall topography consists of the gully bank on the northwest extent, a mildly undulating southwest slope spanning the central portion, and branching/braiding gully channels along the southeast extent.

Features exposed by spot clearing are consistent with the 'rocky' variant of the leeward rain-dependant agricultural system observed across the project area, and include features potentially associated with seasonal/intermittent streamflow. Features include terraces, stone circles or pit features, enclosures, C-shapes, alignments, mounds, and modified bedrock boulder outcrops (Figure 38). The greatest density of features occurs in and along the branching gully in the southeast portion of the site and above the frontage road in the makai portion of the site. The streambanks and ridges created by the braided gully are heavily modified with agricultural features, including planting circles and irregular stepped terraces, some of

which are partially enclosed with low rear- or sidewalls. The inter-channel ridges are heavily fortified with rough boulder facings retaining rocky infilled interiors containing rock circles and small circular stepped terraces. Extending northwest from the gully onto the central slope is a large area of stone circles incorporated into a dense central boulder concentration surrounded by small irregular terraces and alignments extending into yet uncleared portions of the slope. Downslope of this area and just above the frontage road and bulldozer push is a C-shape habitation enclosure and several adjoining irregular agricultural terraces. At the northwest extent of the site, spot clearing revealed several remnant terraces running along the back of the gully facing AA2216-106. The uncleared majority portions of the site appear to contain numerous features, particularly the area between the circle garden and C-shape and the broad lower section of the braided gully above the historic wall. No portable cultural material was observed on the surface of the site extent.

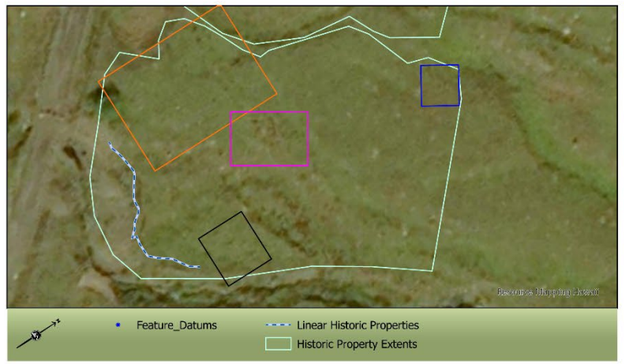
The condition of the visible features, ranges from good to remnant, with condition and state of preservation improving within the southeast and southwest portions of the site. Disturbances affecting the site include bulldozing, which has likely destroyed features; historic or modern water diversion through the gully bounding the southeast site extent leading to downcutting and feature erosion; and likely ungulate trampling as evidenced by ranch fence and wall and the trampled appearance of some features.

EVALUATION SUMMARY

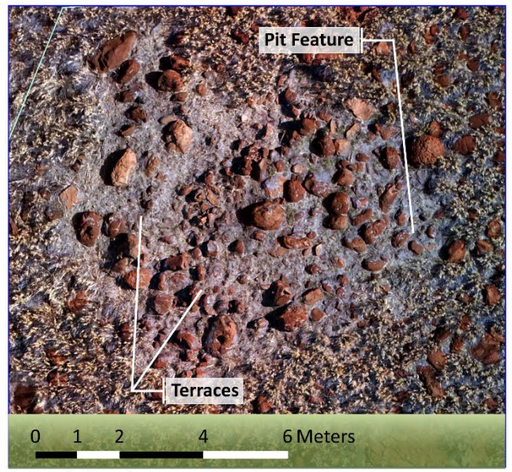
AA2216-107 has retained its location, design, setting, materials, feeling, workmanship, and association as a result of its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway (Figure 36). It is likely that AA2216-107 is associated with complexes to the north of the site extent, which speaks to a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Olowalu and presumably Launiupoko Valleys. The combination of fully developed wet and dry, colluvial agricultural systems appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions. The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows that approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156) which could provide additional insight to and refinement of the agricultural model presented by Kurashima and others (2019) on island ecology and indigenous systems.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

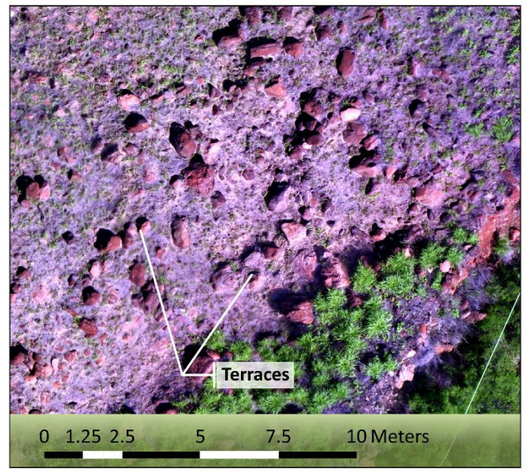
AA2216-107 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural and habitation features in relation the overall topography that takes advantage of slope direction for soil retention, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-107 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland agriculture and loʻi systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established loʻi systems into the modern era, and inform research into contemporary agricultural sustainability. Therefore AA2216-107 is further considered significant under Criterion D.



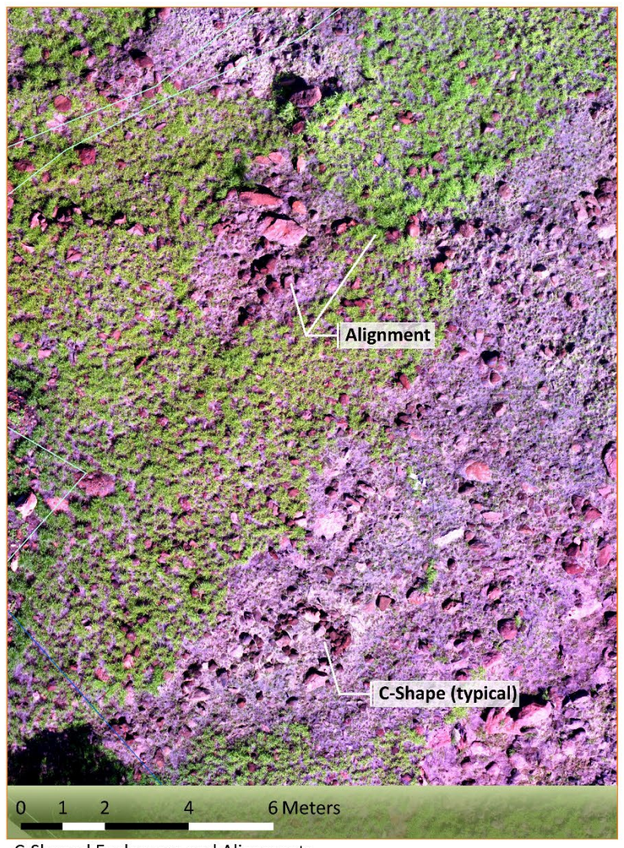
AA2216-107, Drone Imagery, Representative Feature Types



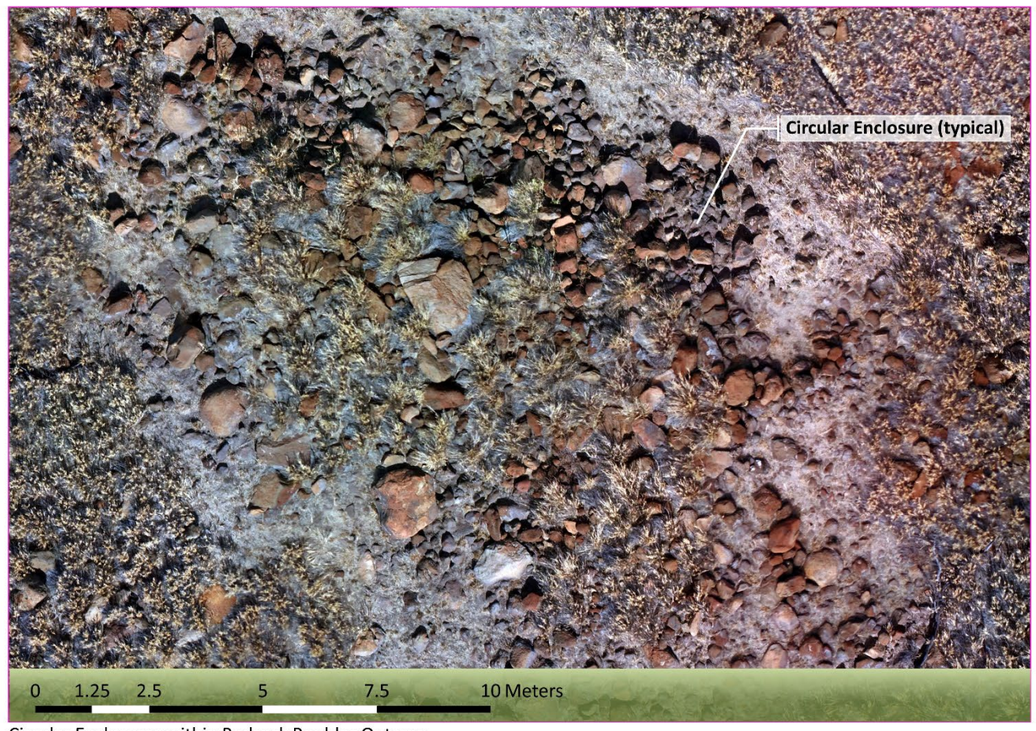
Upper limits of AA2216-107



Terraces



C-Shaped Enclosures and Alignments



Circular Enclosures within Bedrock Boulder Outcrop

Figure 40. AA2216-107, drone imagery of interior feature types and approximate site footprint.

FIELD NO:	SIHP-4700	**SIHP NO 50-50-08-:**	04700
N FEATURES:	11	**AGE:**	Precontact
SITE TYPE:	Habitation Complex	**MIDDEN DENSITY:**	High Marine shell, kukui endocarp
FUNCTION:	Temporary Habitation	**ARTIFACT DENSITY:**	High One hammerstone (H-001), false brain coral, branch coral, waterworns, basalt lithics, volcanic glass lithics
CONDITION:	Fair to Poor		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:

Moderate to steeply sloping topography with vegetation consisting of buffel grasses and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:

SIHP 50-50-08-04700 is a previously documented complex containing eight overhang rock shelters (Features A, C-I), a small C-shape (Feature B), and a wall (Feature J) located among the weathered basalt outcroppings on the west face of a north-south ridge (Fredericksen and Fredericksen 2000:42-46). A 2011 field inspection completed by Cultural Surveys Hawai'i (Lee-Greig and Hammatt 2011:Figure 40), which did not have access to the original feature maps, misidentified the location of Feature J and documented it to the south of the preservation area. All features documented as a part of SIHP -04700 were re-identified during the current survey with the feature identified during the 2011 field inspection included as newly identified Feature K. In addition to Feature K, the extent of secondary cultural material scatter (CMS-001), the origins of which are thought to be associated with the use of the upslope features (Features A-I), was also documented during the current study. Specific to the proposed project, SIHP -04700 Features I and K, as well as CMS-001, are situated within archaeological survey limits of all four (4) alternatives as they begin to merge into the connection to the existing Honoapi'ilani Highway (Figure 33).

The rockshelter documented as Feature I of SIHP -04700 was described by Xamanek Researches as:

> *…2.6 m. long by 2.1 m. deep with a maximum ceiling height of 1.2 m. While there is some soil depoisted on the shelter floor, much of the deposition appears to be rock exfoliaiton and slope wash…. A waterworn cobble was noted outside of the opening. (Fredericksen and Fredericksen 2000:45)*

Feature K (Plate 101), originally thought to be Feature J in a field inspection conducted by CSH, consists of an exposure of crudely stacked bedrock boulders 4-5 courses high.

Finally, CMS-001 is a moderate to low-density cultural material scatter extending from the northern boundary of the study area to nearly the toe of the ridge. The scatter is considerably more dense on the upper west side of the ridgetop nearest the main feature area that extends outside of the study area and becomes increasingly sparse, moving southwest down the east face of the ridge. Cultural material includes waterworn cobbles, 'ili'ili, waterworn and fragmented false brain coral, lesser amounts of branch coral, marine shell midden (e.g. cowrie, cone, drupe, and nerites), some lithic material consisting of basalt flakes and one volcanic glass flake, as well as the previously recorded waterworn cobble hammerstone (H-001) located in a small east-facing alcove overhang on the toe of the ridge (Plate 102 through Plate 106).

EVALUATION SUMMARY

SIHP 50-50-08-04700 is a multi-component complex related to traditional Hawaiian temporary or recurrent habitation prior to Western contact. Overall, the complex as a whole maintains its integrity in terms of location, setting, and feeling due to its elevated position on the ridge above the highway. Additionally, its integrity of design, materials, workmanship, and association are preserved as a result of the undeveloped state of the surrounding environment.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

Previously accepted eligibility recommendations note that SIHP -04700 was considered significant and eligible to the National Register under Criterion D as a site that "has yielded, or may be likely to yield, inforamtion important in prehistory or history." Excavations at Features C, E, and F returned a series of dates that suggested that the shelter features were subject to recurrent use from the mid-15th to the mid-18th centuries (Fredericksen and Fredericksen 2000:66). The authors go on to note that continued archaeological research at Features B and J would add to a refinement of the age and interpretive determinations (Fredericksen and Fredericksen 2000:69). With regard to the current documentation and proposed project, SIHP -04700 continues to be recommended as signficant and eligible to the National Register under Criterion D.

Plate 101. SIHP-04700, overview of Feature K, view to south.

Plate 102. SIHP-04700, CMS-001, overview of ridge and view shed toward Awalua, view to southwest.

Plate 103. SIHP-04700, CMS-001, basalt flake, dorsal view.

Plate 104. SIHP-04700, CMS-001, hammerstone.

Plate 105. SIHP-04700, CMS-001, branch coral fragments.

Plate 106. SIHP-04700, CMS-001, volcanic glass flake.

FIELD NO:	SIHP-4701	**SIHP NO 50-50-08-:**	04701
N FEATURES:	Minimum of 3	**AGE:**	Precontact
SITE TYPE:	Modified Outcrop	**MIDDEN DENSITY:**	High Dense marine shell near shrine
FUNCTION:	Ceremonial	**ARTIFACT DENSITY:**	High Manuports: ʻIliʻili, waterworn cobbles, and coral Artifacts: Possible cone shell beads observed throughout site, few basalt flakes.
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Moderately sloping topography with vegegation consisting of buffel grasses and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:
SIHP 50-50-08-04701 a multi-component ceremonial site consisting of a platform in fair condition (Plate 107 and Plate 108) that was initially documented by Xamanek Researches (Fredericksen and Fredericksen 2000:46), a retaining wall (CSH-1, Plate 109) noted in Lee-Greig and Hammatt (2011:58), and a newly identified modified bedrock outcrop (MBO-001, Plate 110). A moderate density of cultural material, including coral, waterworn cobbles, and lesser lithic flakes, also covers the ridge below the platform. At the time of the current survey, the site area was covered in approximately knee-high dry buffel grass, prohibiting the identification of the true extent of the eroding scatter. The overall approximate extent of the site is interesected by Corridors 2-4 of the study area (see Figure 33) and while the platform and retaining wall components of the site were easily re-identified during the current study, both of which are consistent with the original documentation, the hammerstone included in the orginal description of the site could not be located.

Xamanek Researches documented the platform component of the site as follows:

> *…a single component site that appears to be the remnant of a platform, measuring 33 by 27 m. It is a leveled area, located on a small, broad finger ridge in the western part of the project area, between Sites 4699 and 4700. The primary feature is a roughly rectangular area paved with angular basalt cobbles, intermixed with numerous waterworn pebbles, cobbles and numerous pieces of coral. The eastern part of it has been severely impacted by a bulldozer. Scattered surface portable remains noted included lithic debitage, marine shell, and a single hammerstone. The feature appears*

> *as a leveled area on an undulating ridge. An intermittent streambed lies about 10 meters west of the site. The presence of quantities of branch and waterworn coral suggests that this site may represent a remnant of a possible precontact ceremonial structure. (Fredericksen and Fredericksen 2000:46)*

The retaining wall component was described by Lee-Greig and Hammatt (2011:58-59) as a retaining wall consisting of roughly stacked medium to large subangular and angular bedrock cobbles constructed to reinforce the southern embankment and edge of a wash located approximately 6.5 m to the norht-northwest of the platform feature.

Finally, the newly identified modified bedrock outcrop (MBO-001) consists of a northwest-facing outcrop with ʻiliʻili pavement (Plate 111) located to the west of the platform along the intermittent stream bank near the toe of the ridge. The modified outcrop measures approximately 10 m in length by 5 m in width and characterized by several terrace-like natural flat and level bedrock shelves that had been paved with small ʻili'ili (1-3 cm) and occasional branch and false brain coral of the same size. The material comprising the pavement is of the same type as observed on the platform and scattered on the surface between the platform and MBO-001; however, it is differentiated by small, well-sorted ʻiliʻili.

EVALUATION SUMMARY

SIHP 50-50-08-04701 has retained integrity of location, design, setting, materials, feeling, and association due to its elevated position on the ridge above the highway and undeveloped state of the surrounding environment. While there has been some site degradation due to erosion, workmanship, as reflected in construction methods and form, as well as an overall retention of the architectural footprint is nonetheless maintained.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

Traditional Hawaiian social organization at Ukumehame and Olowalu, and more specifically the role of ritual and ceremony in the context of a community system, may be increasingly understood through the distribution of ceremonial sites that vary in structural form and elevation across the two ahupuaʻa divisions. The number of ceremonial sites and features across the archaeological landscape likely speaks to population growth, increased complexity in socio-economic organization (Kolb 1997; Mulrooney and Ladefoged 2005), and diversity of ceremony and worship (e.g. agricultural productivity, marine productivity, local level institutional control [e.g. overseen by konohiki or managerial], and state level institutional control [i.e. akua loa procession]). While SIHP -04701 on its own may not be considered significant under Criterion A, when understood in the context of the collective archaeological landscape, extending from Ukumehame to Olowalu, and the distribution of ceremonial features (e.g. monumental ceremonial architecture as represented by Kaiwaloa Heiau [Olowalu Ahupuaʻa, SIHP-0004] and Hikiʻi Heiau [Ukumehame Ahupuaʻa, SIHP-0002] vs. smaller ceremonial sites as represented by low platforms at Olowalu Ahupuaʻa [SIHP -04701] and Ukumehame [AA2216-050 Feature S]) in relation the overall topography, ahupuaʻa boundaries, and emerging traditional Hawaiian settlement pattern, significance under Criterion A applies. Continued archaeological research may add granularity to the construction chronology of regional ceremonial features, contribute to the growing body of archaeological information used to define and categorize structural morphology of ceremonial sites as it relates to spatial distribution, and add to the broader understanding of traditional Hawaiian social organization through time. Based on this, SIHP -04701 is further considered significant under Criterion D.

Plate 107. SIHP-04701, platform overview and view shed, SIHP-4700 visible in background to the right of frame, view to west.

Plate 108. SIHP-04701, overview and view shed from northern extent, view to south-southwest.

Plate 109. SIHP-04701, overview of retaining wall component (CSH-1), view to east.

Plate 110. SIHP-04701, overview of potential west extent and modified outcrop component (MBO-001) and overhang in view, view to east.

Plate 111. SIHP-04701, modified outcrop component, interior ʻiliʻili paving, plan view.

FIELD NO:	SIHP-4718	**SIHP NO 50-50-08-:**	04718
N FEATURES:	3	**AGE:**	Precontact
SITE TYPE:	Heiau	**MIDDEN DENSITY:**	None
FUNCTION:	Ceremonial	**ARTIFACT DENSITY:**	None
CONDITION:	Fair to Poor		
NRHP SIGNIFICANCE ASSESSMENT:	A, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Materials, Workmanship, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Materials, Workmanship, Association

ENVIRONMENTAL SETTING:
Gently sloping topography covered in buffel grass.

HISTORIC PROPERTY DESCRIPTION:
SIHP 50-50-08-04718 is a previously documented heiau located east of Luawai St in Olowalu Ahupua'a, the southernmost extent of which is intersected by the survey area for Alternative 3 and approximately 20 m south of the survey extent for Alternative 4 (Figure 39, see also Figure 33). Originally documented by Winslow Walker during his 1930 survey of Maui Island and included in his description of Kaiwaloa Heiau (SIHP 50-50-08-0004), SIHP -04718 was described as follows:

> *Another small heiau is located in the cane lands below the ditch. It measures 40 x 60 feet but all interior structures have been destroyed. No name was learned for this heiau. (W. M. Walker 1931:108)*

The site was revisited by Xamanek Researches in 1998 and 1999 during their survey of former plantation lands above Honoapi'ilani Highway. During their fieldwork, they noted that the heiau was comprised of three features and was described as follows:

> *This site is a complex of 3 features, and is interpreted as the remnant of a heiau. It is located in the middle of a cane field in the central portion of the study area, at c. 80 feet AMSL. The original shape and extent of this site could not be determined accurately, because it has been covered with dirt and field stones from the surrounding cane fields. The probable dimensions of this site are essentially the same as the small heiau that Walker referred to, which measured 40 by 60 feet….at the time of our survey, 3 interior features were identifiable.*
>
> *Feature A consists of an enclosure that measures c. 12 meters in length by c. 6 meters in width, and is c. 0.7 meters high. Although damaged and partially covered, the intact portions are still visible, and are in fair condition. The interior is divided by linear rock alignments, retaining walls with paved and slightly raised areas, and separating pathways. One path leads in from a possible entrance on the southwest side.*
>
> *Features B and C appear to be burials. They are rectangular arrangements of semi-rounded cobbles and boulders, with an inner pavement of smaller cobbles and 'ili'ili*

> *pebbles, and are quite reminiscent of the known burials found on Pu'u Kilea. A concentration of surface cultural materials, including volcanic glass flakes (4), basalt debitage (5), coral pieces (6) and a number of marine shells, occurs between these features. None of these cultural materials were collected and no subsurface testing was undertaken.*
>
> *Informants reported that human remains, disturbed during field plowing operations elsewhere on the property, had been reinterred at the site. The precise location and time of reinterment was not determined. However, a portion of Feature C appeared to have been partially dismantled and reconstructed at some time in the past. (Fredericksen and Fredericksen 2000:54)*

Presently, the heiau is surrounded by preservation fencing and overgrown with buffelgrass.

EVALUATION SUMMARY

SIHP 50-50-08-04718 has retained integrity of location, design, materials, and association as a result of avoidance by agricultural activities related to previous industrial scale sugar cane cultivation. Integrity of setting and feeling has been affected by sugar plantation activities which include realignment of Olowalu Stream and removal of the traditional landscape that would have incorporated SIHP -04718 at this elevation (Figure 40). While there has been some site degradation due to erosion, workmanship, as reflected in construction methods and form, as well as an overall retention of the architectural footprint is nonetheless maintained.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

Traditional Hawaiian social organization at Ukumehame and Olowalu, and more specifically the role of ritual and ceremony in the context of a community system, may be increasingly understood through the distribution of ceremonial sites that vary in structural form and elevation across the two ahupua'a divisions. The number of ceremonial sites and features across the archaeological landscape likely speaks to population growth, increased complexity in socio-economic organization (Kolb 1997; Mulrooney and Ladefoged 2005), and diversity of ceremony and worship (e.g. agricultural productivity, marine productivity, local level institutional control [e.g. overseen by konohiki or managerial], and state level institutional control [i.e. akua loa procession]). While SIHP -04718 on its own may not be considered significant under Criterion A, when understood in the context of the collective archaeological landscape, extending from Ukumehame to Olowalu, and the distribution of ceremonial features (e.g. monumental ceremonial architecture as represented by Kaiwaloa Heiau [Olowalu Ahupua'a, SIHP-0004] and Hiki'i Heiau [Ukumehame Ahupua'a, SIHP-0002] vs. smaller ceremonial sites as represented by low platforms at Olowalu Ahupua'a [SIHP -04701] and Ukumehame [AA2216-050 Feature S]) in relation the overall topography, ahupua'a boundaries, and emerging traditional Hawaiian settlement pattern, significance under Criterion A applies, regardless of the removal of the traditional archaeological sites and features in the immediate area. Continued archaeological research may add granularity to the construction chronology of regional ceremonial features, contribute to the growing body of archaeological information used to define and categorize structural morphology of ceremonial sites as it relates to spatial distribution, and add to the broader understanding of traditional Hawaiian social organization through time. Based on this, SIHP -04718 is further considered significant under Criterion D.

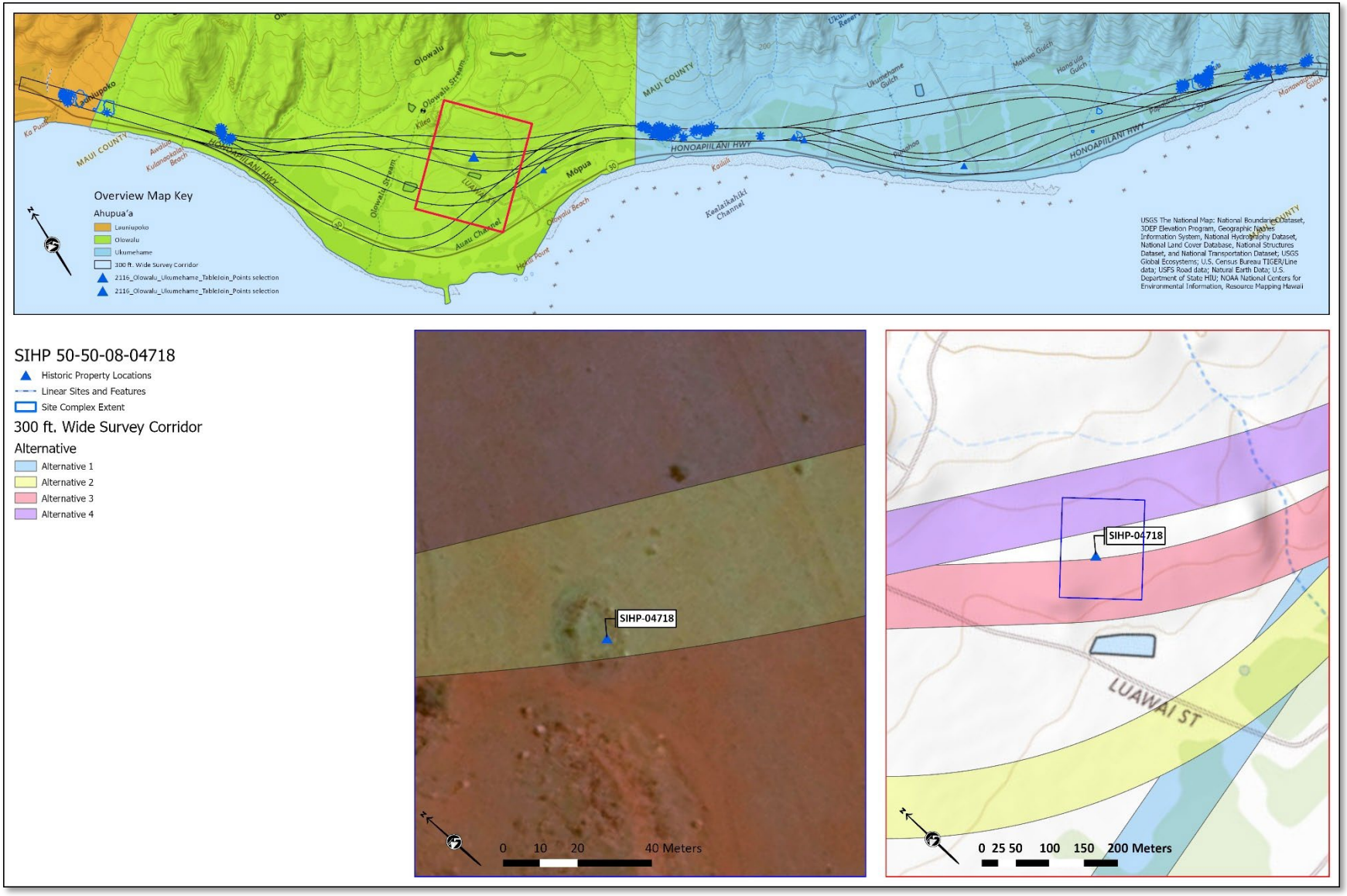


Figure 41. SIHP 50-50-08-04718 in relation to the proposed alternatives (top frame) with closeups showing site location relative to Alternatives 3 and 4 (bottom frames).

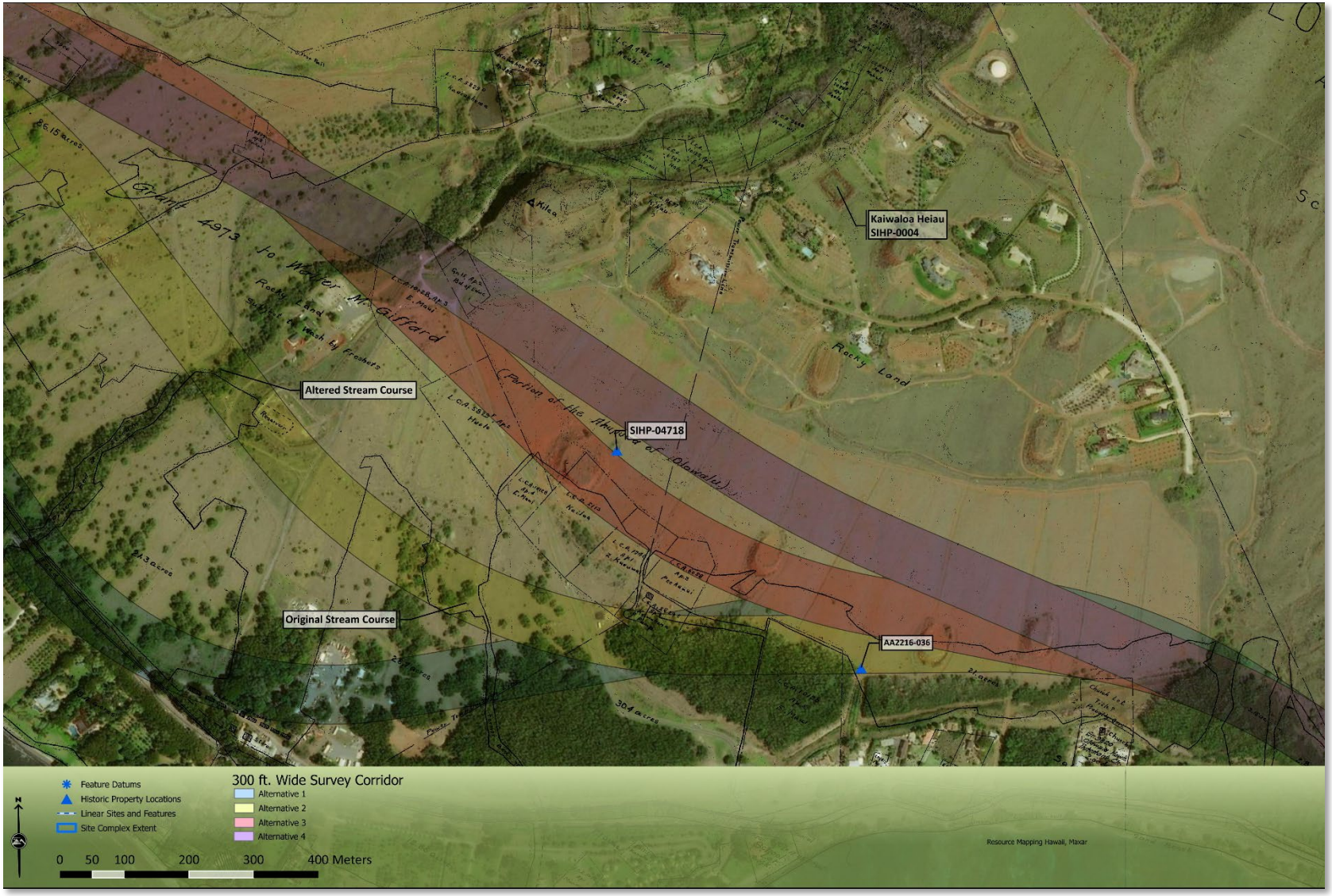


Figure 42. SIHP 50-50-08-04718 and proposed alternatives in relation to the modern environment (ESRI et al. 2021), land commission award distributions, and original alignment of Olowalu Stream (A. C. Alexander 1906a).

Launiupoko Ahupua‘a

A total of three (3) historic properties were identified within the Launiupoko section of the proposed realignment alternatives (Table 3, Figure 41), two of which (50-50-08-05954 and -05955) were previously recorded. The following section presents the preliminary site descriptions and recommendations for historic properties identified within the Launiupoko portion of the archaeological survey area.

Table 3. Summary of Above Ground Archaeological Sites Identified within Launiupoko Ahupua‘a[11]

Alternatives Affected	Field No/ SIHP 50-50-08-	Possible Age Range	Formal Type	Inferred Function	Overall Condition	NRHP/6E Significance Recommendation	Integrity Evaluation
1-4 (Launiupoko Pinch Point)	AA2216-023	Precontact and Possible Historic Military	Alignment, C-Shape, Enclosure, Mound, Terrace	Agricultural Complex, Military Training	Fair	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1-4 (Launiupoko Pinch Point)	05955	Precontact	Terraces, Circular Alignment, Enclosures, Alignments, Mound, Modified Outcrops	Agricultural Complex w/ Ceremonial Component	Good to Remnant	A, C, D/a, c, d, e	Location, Design, Setting, Materials, Workmanship, Feeling, Association
1-4 (Launiupoko Pinch Point)	05954	Early 20th Century Ranch	Wall	Animal Husbandry	Good	D/d	Location, Material, Setting, Feeling, and Association

[11] Gray shading indicates pinchpoint locations where all proposed alternatives merge

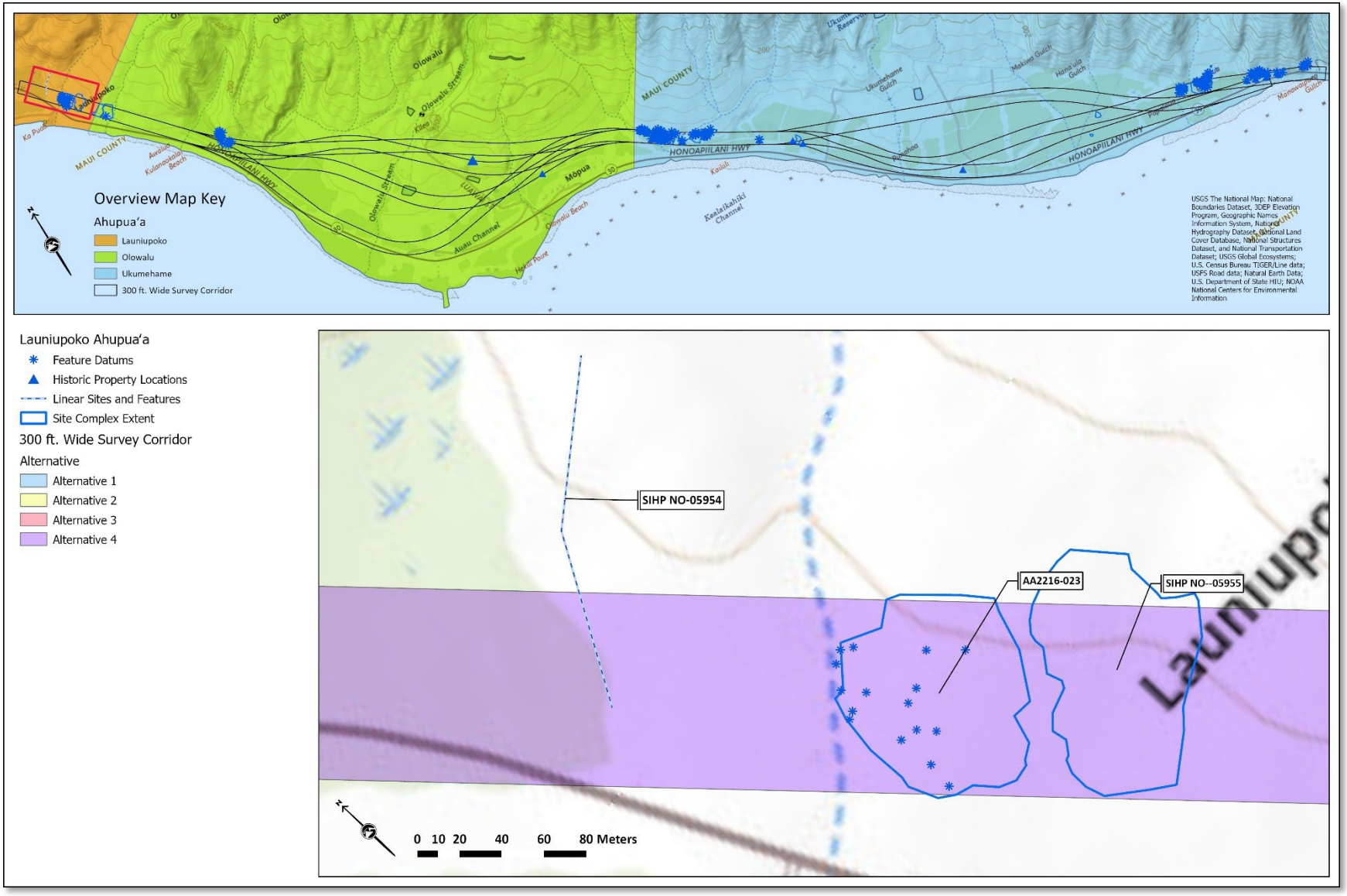


Figure 43. Historic property locations and extents in relation to the survey corridors, Launiupoko Ahupua'a.

FIELD NO:	AA2216-023	**SIHP NO:**	
N FEATURES:	Minimum of 8	**AGE:**	Precontact - Early Historic and Possible Historic Military
SITE TYPE:	Alignment, C-Shape, Enclosure, Mound, Terrace	**MIDDEN DENSITY:**	Low One cowrie shell, few UID marine fragments
FUNCTION:	Agriculture, Ceremonial, Habitation	**ARTIFACT DENSITY:**	Low branch coral, false brain coral, waterworns
CONDITION:	Fair		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:
Gently sloping topography vegetated with buffel grasses.

HISTORIC PROPERTY DESCRIPTION:
AA2216-023 is a newly identified agricultural and habitation complex with a ceremonial component located at the west end of the project area where proposed corridors merge just before Lahaina (see Figure 41). This complex is situated on a rocky, southwest sloping (5-10 degree) plain that descends from the West Maui Mountains to the shoreline between Olowalu and Lahaina. Site topography is characterized by low, rocky ridges separated by branching shallow gully channels with the extent defined on the northwest by a deep gully, on the southwest by the Honoapiilani Highway and cane haul road road, on the southeast by a Jeep road, and on the northeast by the upslope extent of the study area. It should be noted that features of the complex continue mauka and outside of the study corridor. With the exception of a bulldozed path along the northwest extent of the site and another entering the southwest portion, the site area comprises a portion of a continuous colluvial landscape within one of the few remaining areas between Ukumehame and Lahaina not plowed for sugarcane.

Feature types identified within the overall complex includes agricultural terraces and pit features, three sizeable C-shaped habitation enclosures, a habitation terrace, low-lying enclosures of varying forms, alignments, stone mounds, and at least three ceremonial features with coral manuports (Figure 42). The features comprising AA2216-023 are typical of the 'rocky variant' of a leeward rain-dependent agricultural system characterized by the very rocky gentle slopes observed throughout the unplowed portions of the project area. Features types are dominated by agricultural features suitable for sweet potato, dry-land kalo, and water gourd, with expectedly fewer habitation and ceremonial features. These features are generally constructed of 1-3 courses of stacked cobbles and boulders. The large average size of the construction materials (~0.3-1+ m in diameter) permits many features to be constructed from single-course alignments of boulders. The most conspicuous of the features are three large C-shaped habitation

enclosures located in the makai portion of the site. Each of the large C-shapes consists of multiple courses of stacked boulders and measures several meters in diameter. Sparse marine shell was noted near the largest two C-shapes. A fourth habitation feature, a terrace and associated small C-shape, is situated along the south bank of the gully at the northwest site extent. The ridge tops and gully banks throughout the site, particularly on the mauka half, are densely covered with irregular agricultural terraces and agricultural circles. Portions of the highly modified central two ridges contain clustered agricultural circles similar to the 'rock circle gardens' observed across the project area. Interspersed among the identified agricultural and habitation features are numerous alignments and low-lying enclosures of circular and irregular forms, presently of unknown function. Many of these features are likely to be agricultural, although further archaeological investigation may provide evidence of additional or other functions (e.g., habitation). Ceremonial features include an enclosed mound with false brain coral and a remnant C-shape with branch coral heads and false brain coral (both in the lower site area) and a concentration of branch coral placed within stacked cobbles and scattered around an auspicious cobble-lined flat boulder (upper site area). Additionally, several rock mounds were observed across the site, some being small and distinct formal mounds and others appearing remnant portions of otherwise collapsed features.

Multiple features within the limits of the complex as defined by this study appear similar to the World War II era C-shapes identified in the Wailea area (Tome and Dega 2004; A. T. Walker et al. 1985). While independently constructed features such as wind breaks and/or shooting blinds that are built for expedience and associated with military training and the former National Guard Rifle Ranges may be present within the study area (Figure 43, see also Figure 42), modifications of pre-existing pre-contact structures for military training purposes have also been documented (A. T. Walker et al. 1985). In 1930, the Governor of the Territory of Hawai‘i set aside land for a Rifle Range at Olowalu to be under control and management o f the Hawaii Army National Guard (HIARNG) through Executive Order 456 (Hawaii Commission of Public Lands 1932:55). The “new” rifle range consisted of a 200-yard range with four targets to be located on the Lahaina side of Olowalu, on the boundary of Pioneer Mill and Olowalu plantations ("National Guard to Get Rifle Range at Lahaina This Month" 1931). Constructed for Company A, First Battalion, 299th Infantry, the Olowalu Rifle Range was used by the HIARNG for small arms training from 1931 until approximately 1961. According to the JFHQ HI ARNG Installation Action Plan, the Munitions Response Site (MRS) was owned by PiMCo and leased to HIARNG while in operation (U.S. Army Environmental Command 2021:5). While a 1940 PiMCo topo map shows areas designated as “Old Rifle Range” and “New Rifle Range” it is unclear as to whether the “Old Rifle Range” was ever used in that manner.

Cultural material observed within AA2216-023 includes branch and false brain corals (primarily associated with ceremonial features), several waterworn cobbles within or near feature construction, and a small amount of marine shell located near habitation features.

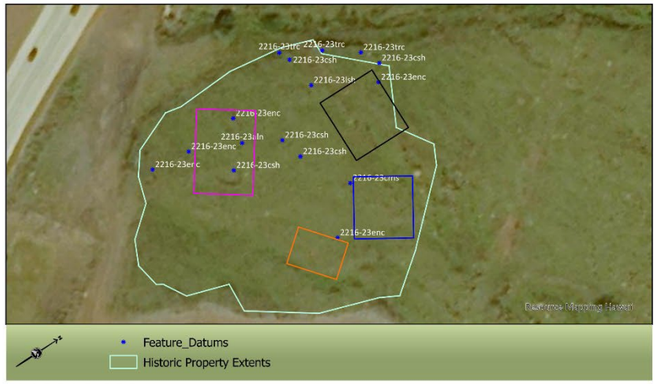
Disturbances affecting the site include invasive vegetation growth, bulldozing, road construction, and wildfire. The site area is overgrown with dense buffel grass, which had to be cleared before many of the features became visible. The dense rootballs of the grass are deforming many of the features throughout the site. Bulldozing on the northwest and southeast extents of the site and road construction on the southwest and northeast extents has destroyed and damaged features. Wildfire, as evidenced by burned kiawe and dense ash pockets, has affected much of stone material within the site, likely advancing the natural spalling and cracking caused by solar radiation.

EVALUATION SUMMARY

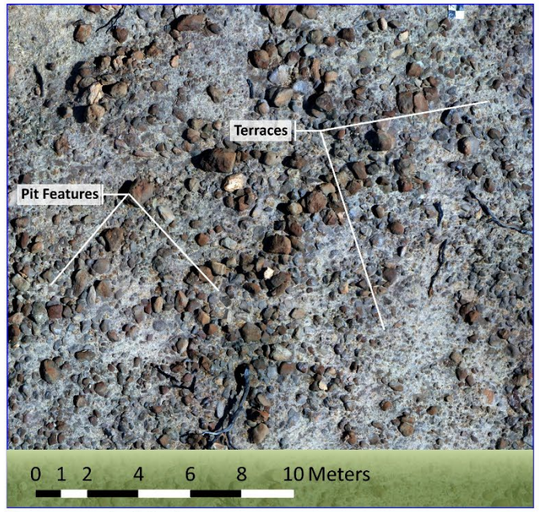
AA2216-023 has retained its location, design, setting, materials, feeling, workmanship, and association as a result of its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway (Figure 44). It is likely that AA2216-023 is associated with the colluvial agricultural complexes to the south of the site extent, which speaks to a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Olowalu and presumably Launiupoko Valleys. The combination of fully developed wet and dry, colluvial agricultural systems appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions. The potential extent of loʻi, colluvial, and intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows that approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156) that could provide additional insight to and refinement of the agricultural model presented by Kurashima and others (2019) on island ecology and indigenous systems.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

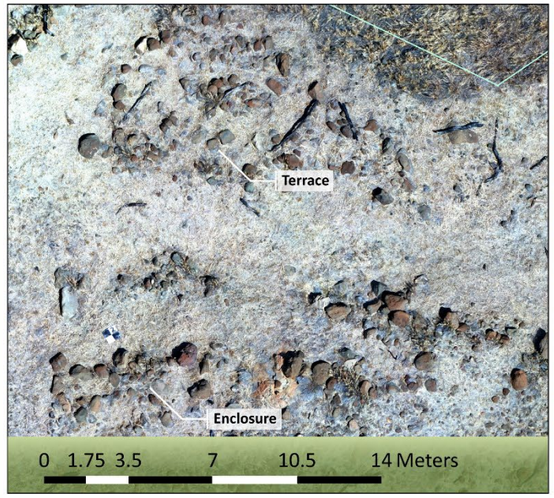
AA2216-023 is recommended as historically significant and eligible to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural and habitation features in relation the overall topography that takes advantage of slope direction for soil retention, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. Site AA2216-023 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland agriculture and loʻi systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established loʻi systems into the modern era, and inform research into contemporary agricultural sustainability. Therefore AA2216-023 is further considered significant under Criterion D.



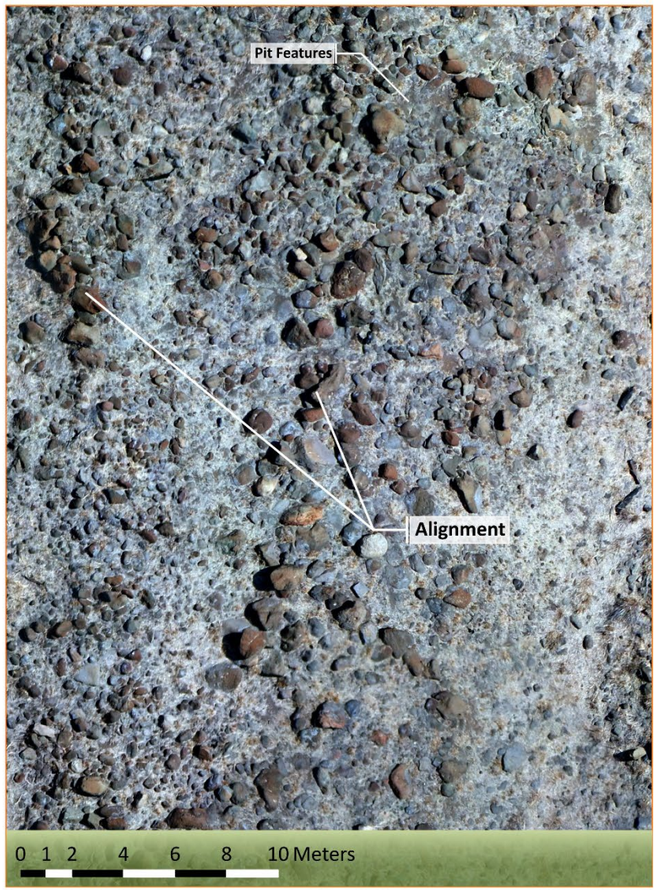
AA2216-023 Drone Imagery, Representative Feature Types



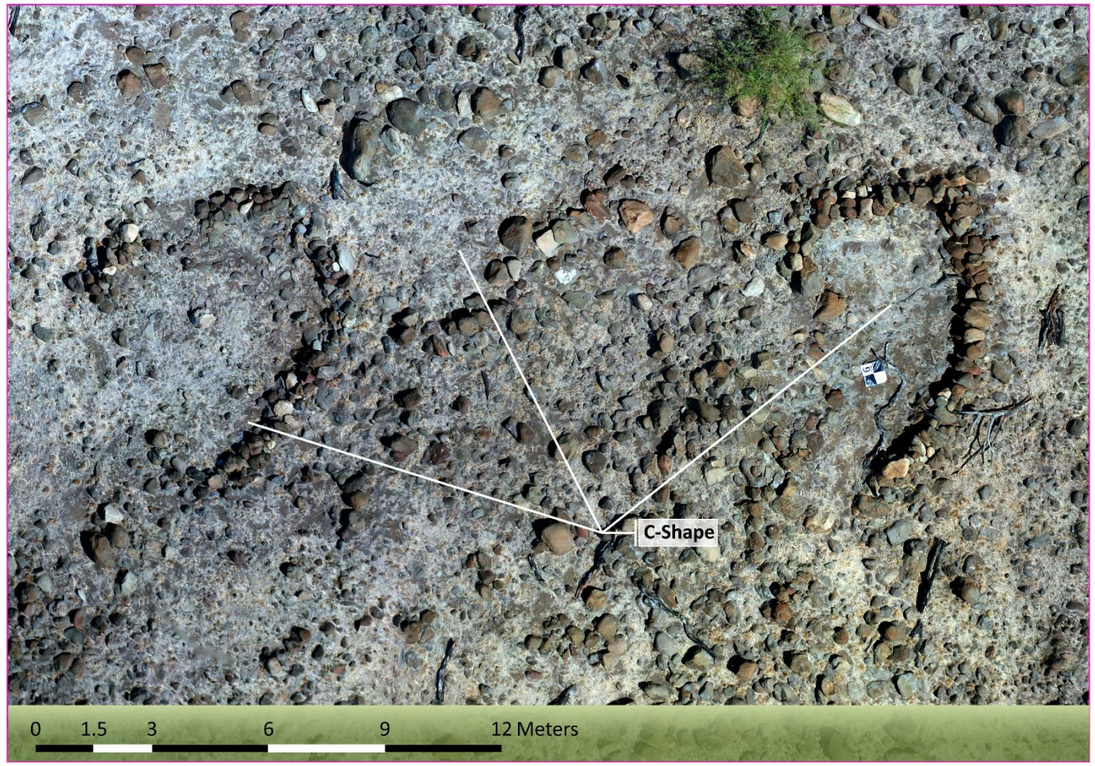
Terraces and pit features



Enclosures and terraces



Alignments and other modifications along the drainage



Historically modified C-shapes

Figure 44. AA2216-023, drone imagery of representative feature types and distribution across the overall complex.

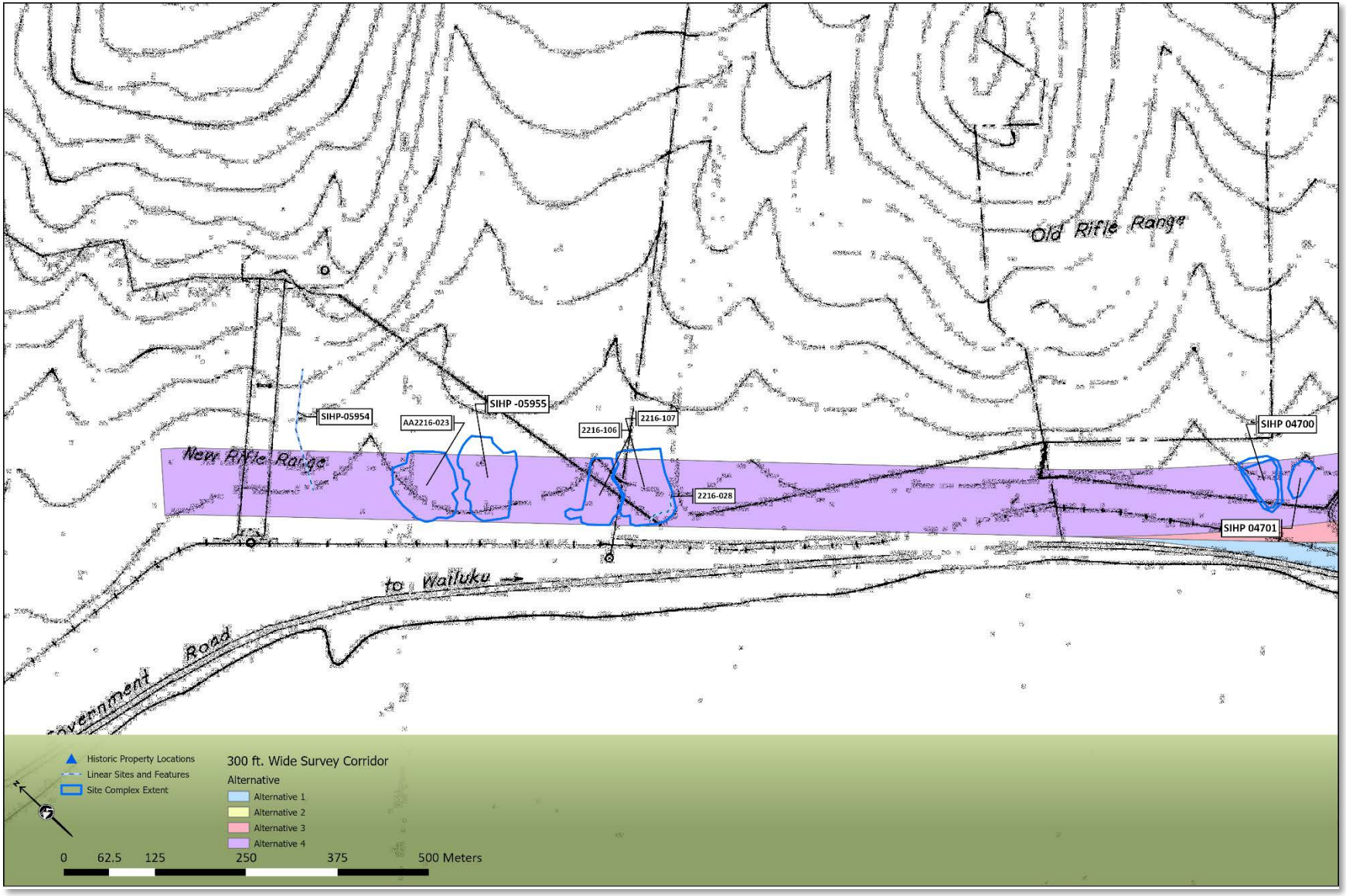


Figure 45. A portion of Pioner Mill Company topo (Pioneer Mill Company 1940) focus on the National Guard Rifle Range extents in relation the study area and site locations.

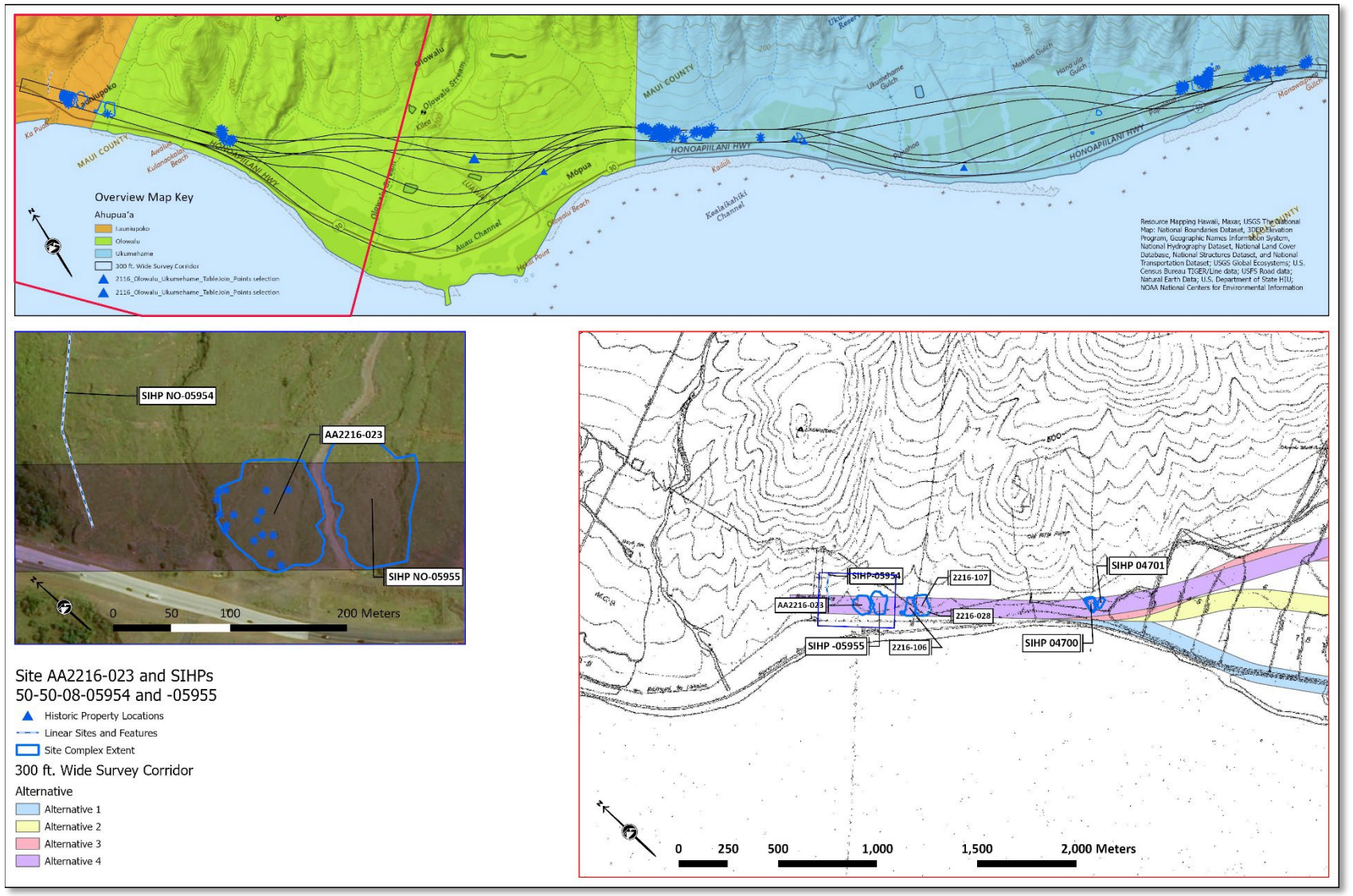


Figure 46. A2216-023 and SIHPs 50-50-08-05954 and -05955 in relation to the proposed alternatives (top frame), inter-site association within lands formerly designated as pasture lands between the Launiupoko and Olowalu sugarcane fields of the Pioner Mill Company (Pioneer Mill Company 1940) (bottom right frame), and close up of site extents in relation to the modern environment (ESRI et al. 2021) (bottom left frame).

FIELD NO:	AA2216-025	**SIHP NO 50-50-08-:**	05954
N FEATURES:	1	**AGE:**	Early 20th Century Ranch
SITE TYPE:	Wall	**MIDDEN DENSITY:**	None
FUNCTION:	Animal Husbandry	**ARTIFACT DENSITY:**	None
CONDITION:	Good		
NRHP SIGNIFICANCE ASSESSMENT:	D	**NRHP INTEGRITY ASSESSMENT:**	Location, Material, Setting, Feeling, and Association
SRHP SIGNIFICANCE ASSESSMENT:	d	**SRHP INTEGRITY ASSESSMENT:**	Location, Material, Setting, Feeling, and Association

HISTORIC PROPERTY DESCRIPTION:

SIHP 50-50-08-05954 is a core-filled, freestanding wall located within the northern limits of the study area where the proposed road corridors merge to meet the existing alignment of Honoapi'ilani Highway (Plate 112, see also Figure 41). Previously documented by Scientific Consultant Services (SCS) as a part of their survey for a 633-acre subdivision, SIHP -05954 was described as follows:

> *This rock wall … is a cattle wall from the ranching era. It extends downslope from near the eastern project boundary through dense grass, shrubbery, and trees, including koa haole. This core-filled wall is constructed of weathered, poor quality, subangular basalt. The wall exterior is composed of cobbles ranging in size from 40 to 90 cm in diameter. The wall stands 2 to 6 courses high and is faced. The cobble filling ranges in size from 10 to 30 cm in diameter. The top of the wall is fairly level. No cultural material was observed in association with this wall. (Paraso and Dega 2006:37)*

Current observations note that the "weathered, poor quality, subangular basalt" that is used in the wall construction also appears fractured and may be sourced from quarrying areas located upslope. The overall quality of stacked construction also lacks the characteristic interlocked mechanics of tightly stacked traditional pre-contact wall construction (Plate 113). Finally, a bulldozed path was observed bi-secting the stone wall, thus dividing what was likely a continuous wall in two (Plate 114).

EVALUATION SUMMARY

SIHP 50-50-08-05954 consists of a stone wall section likely reflective of historic ranching and pasture delineation. The Pioneer Mill Company, Ltd. (PiMCo) Ranch, a secondary industry of the overall sugar operation that was initiated to support their labor force, was started around 1912 by then manager W. Weinzheimer on lands that were unsuitable for cane growing. The grazing lands extended from Honokōwai Gulch to Olowalu and sea level to 2,000 ft., covering a collective area of 9000 acres of Pili grass, cactus, and Koa Haole (Henke 1929:59). While this remaining section of wall is in fair condition, and the integrity of workmanship and design specific to the remaining section of dry-stacked stone masonry is retained, the historic pasture boundary in its entirety is no longer intact with the surviving section of wall adversely affected by a bulldozed path. As a result, integrity of workmanship and design for the overall pasture boundary no longer remains. The site does however retain limited integrity of location and materials, as well as setting, feeling, and association.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

The identification of both 50-50-08-05954 and AA2216-028 within the study corridor has led to research into ranching infrastructure, an otherwise little recognized aspect of the overall operation of Pioneer Mill Co. There has been some debate surrounding stone walls that were constructed during the historic era versus traditional Hawaiian walls constructed prior to Western contact and the ability to differentiate between the two (Wong et al. 2020:76-77). Further archaeological research into the construction of SIHP -05954, focused on dry-stacking methods and technique in relation to known traditional Hawaiian dry-stacked stone architecture, would add to a broader understanding of dry-stacked masonry through time. The addition of this information would build the ability to readily distinguish historic wall construction from traditional pre-contact construction (Sroat et al. 2023:96-100) which would better inform function, chronology, and land use intepretations. Based on this, SIHP -05654 is recommended as eligible to the National Register under significance Criterion D.

Plate 112. SIHP 50-50-08-05954, overview towards highway, view to southwest.

Plate 113. SIHP 50-50-08-05954, close-up of wall face, view to northwest.

Plate 114. SIHP 50-50-08-05954, overview of road bisecting wall, view to east.

FIELD NO:	AA2216-104	**SIHP NO 50-50-08-:**	05955
N FEATURES:	Minimum of 6	**AGE:**	Precontact
SITE TYPE:	Habitation and Agricultural Complex	**MIDDEN DENSITY:**	None
FUNCTION:	Agriculture, Ceremonial, Temporary Habitation	**ARTIFACT DENSITY:**	Medium Branch and false brain coral
CONDITION:	Good to Remnant		
NRHP SIGNIFICANCE ASSESSMENT:	A, C, D	**NRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association
SRHP SIGNIFICANCE ASSESSMENT:	a, c, d, e	**SRHP INTEGRITY ASSESSMENT:**	Location, Design, Setting, Materials, Workmanship, Feeling, Association

ENVIRONMENTAL SETTING:

Gentle to moderately sloping terrain with vegetation consisting of buffel grasses, hairy woodrose, haole koa, and kiawe trees.

HISTORIC PROPERTY DESCRIPTION:

Previously recorded site 50-50-08-05955 is approximately located within a larger site complex of newly identified features, the extent of which was documented as a result of the current study (Figure 45). The overall complex is located in the western portion of the APE where the proposed corridors merge and is situated on the rocky southwest sloping plain descending from the West Maui Mountains to the shoreline between Olowalu and Lahaina. SIHP -05955 is surrounded by multiple agricultural and habitation complexes to the east and west, including AA2216-023, AA2216-106, and AA2216-107. The overall site extent is defined by a Jeep access road to the northwest, to the northeast by the upper study are boundary, to the southeast by the visible extent of contiguous features, and the southwest by the cane haul road and highway. The topography of the site is characterized by a rocky southwest slope dissected by converging gullies on the southeast and an ephemeral gully on the northwest.

As a part of their survey for a 633-acre subdivision, Scientific Consultant Services (SCS) described SIHP --05955 as follows:

> *This site consists of several potentially "modified" rock concentrations occurring on a rocky slope (Figure 21). The site is located downslope from several other amorphous rock concentrations that are outside the project area. Linear mounds resulting from road construction are present to the south and a water channel occurs to the north. Grass, 'ilima, and burnt kiawe provide moderate vegetation coverage. This tri-level rock concentration contains two relatively level areas on its upper slopes. A larger rock deposit with no visible formal construction is located on the lower slopes of the feature where two additional relatively level areas are present. Several large pieces of branch coral and other coral fragments are present to the northwest, downslope of the modified portion of the feature. According to the field crew, the coral fragments appeared to have eroded (water erosion) to this location from the upper portions of*

> *the slope. The crew also noted that coral pieces were common in lower areas, this not surprising considering the proximity of this area to the coastline. The age and function of this feature are indeterminate and may simply be a modest activity area…. (testing) excavations did not show this feature to be more complex than documented from surface characteristics. (Paraso and Dega 2006:37-38)*

During fieldwork in the vicinity of SIHP -05955, a feature dense landscape was noted throughout the area and given an in-field temporary number (AA2216-104) for tracking purposes. Following additional post-fieldwork research, it was determined that the features identified and documented under temporary field number AA2216-104 surrounded and overlapped the location of SIHP -05955 as presented in Paraso and Dega (2006:Figure 6). This resulted in AA2216-104 being incorporated into SIHP -05955 with an overall expansion of the previously documented site limits. Observed features include terraces, agricultural pits, enclosures (including a ceremonial feature), alignments, a mound, and modified outcrops with increased feature occurrence and improved condition in the mauka portions of the site (Figure 46). The identified features appear typical of the leeward rain-dependent agricultural variant characterized by the rocky, gentle slopes observed throughout the unplowed portions of the overall study area.

Most of the features are agricultural and include small, irregular terraces on the rocky slopes and low ridges, larger irregular terraces along the southeastern gully, and agricultural circles (planting/mulch pits) throughout. Notably, a rocky knoll in the eastern quadrant exhibits characteristics of a 'rock circle garden,' likely containing dozens of circular arrangements and small semi-circular terraces. The flat top of the knoll contains larger enclosures that may have served as habitation, although these features are yet to be cleared of vegetation.

Also noteworthy is a ceremonial feature comprised of a concentration of branch coral heads tightly packed into a small enclosure adjacent to the Jeep road in the north corner of the site (Plate 115 and Plate 116). The enclosure is one of several adjoining rectangular and irregular enclosures constructed of aligned boulders. The bulldozed Jeep road cuts through these features, missing the ceremonial coral concentration. Another unique feature is a large mound of unknown function located within the ephemeral gully southeast of the ceremonial feature. The elongated mound, measuring several meters long and roughly 1 m tall, is roughly faced with a single course of boulders with a circular arrangement of boulders atop cobble and soil infill. Much of the uncleared remainder of the site appears to contain additional circles, alignments, and enclosures of varying sizes. Cultural material, apart from the ceremonial feature, is limited to a piece of false brain coral, branch coral, and a large historic chain link (O-001).

EVALUATION SUMMARY

SIHP 50-50-08-05955 has retained its location, design, setting, materials, feeling, workmanship, and association as a result of its location within the margins of the former sugar plantation fields and distance from the current alignment of Honoapiʻilani Highway (Figure 44). It is likely that SIHP -05955 is associated with the colluvial agricultural complexes to the norht and south of the site extent, which speaks to a highly productive ahupuaʻa wide agricultural system when combined with the loʻi systems of both Olowalu and presumably Launiupoko Valleys. The combination of fully developed wet and dry, colluvial agricultural systems appears to be unique to this region, the intensification of which may have been a response to a spike in population, heightened social complexity with regard to land and resource management in the leeward West Maui, and challeging environmental conditions. The potential extent of loʻi, colluvial, and

intensive dryland agricultural systems has been modeled by Kurashima and others (2019) across the archipelago using modern environmental and climatic data compared with archaeological and ethnohistorical data. While their model shows that approximately 34.6% of potential indigenous agricultural lands would be given over to colluvial agriculture, with the distribution on Maui appearing to include small portions of the project area, the authors note that while their model results were generally consistent with available archaeological and ethnohistorical information, there was little information available that was specific to colluvial agricultural systems in the archaeological record. This system represents one of the few currently known intact colluvial systems within the archipelago (Green 1969, 1970; Kirch and McCoy 2023:155-156) that could provide additional insight to and refinement of the agricultural model presented by Kurashima and others (2019) on island ecology and indigenous systems.

NATIONAL REGISTER SIGNFICANCE ASSESSMENT AND RECOMMENDATION

SIHP -05955 was previously recommended as historically significant under Criterion D (Paraso and Dega 2006:48), however, given the expanded site boundary and newly identified density and inter-related diversity of feature types, the significance recommendation is revised to reflect eligibility to the National Register under Criteria A, C, and D. When understood in the context of the broader archaeological landscape and association with the neighboring complexes, as well as the intra-site patterning of agricultural and habitation features in relation the overall topography that takes advantage of slope direction for soil retention, Criterion A is applicable as it may speak to broad patterns in traditional Hawaiian adaptations, land uses, and complex social systems prior to the Western Contact. SIHP -05955 is additionally significant under Criterion C as a complex dryland agricultural system that is unique to the topography of the region. Unlike the typical Kona Field System that is characterized by long linear walls and terraces that define an expansive linear field system, the dryland field system documented during this study is entirely influenced by the rocky topography which resulted in the construction of diverse feature types with varying functions depending on slope and bedrock exposures. Continued archaeological research would help to inform the timeline for agricultural intensification in the region and gain understanding of when and why both extensive dryland agriculture and loʻi systems were developed in this region, when and why the dryland field systems may have been subsequently abandoned, how this may relate to the continued use of the established loʻi systems into the modern era, and inform research into contemporary agricultural sustainability. Therefore SIHP -05955 is further considered significant under Criterion D.

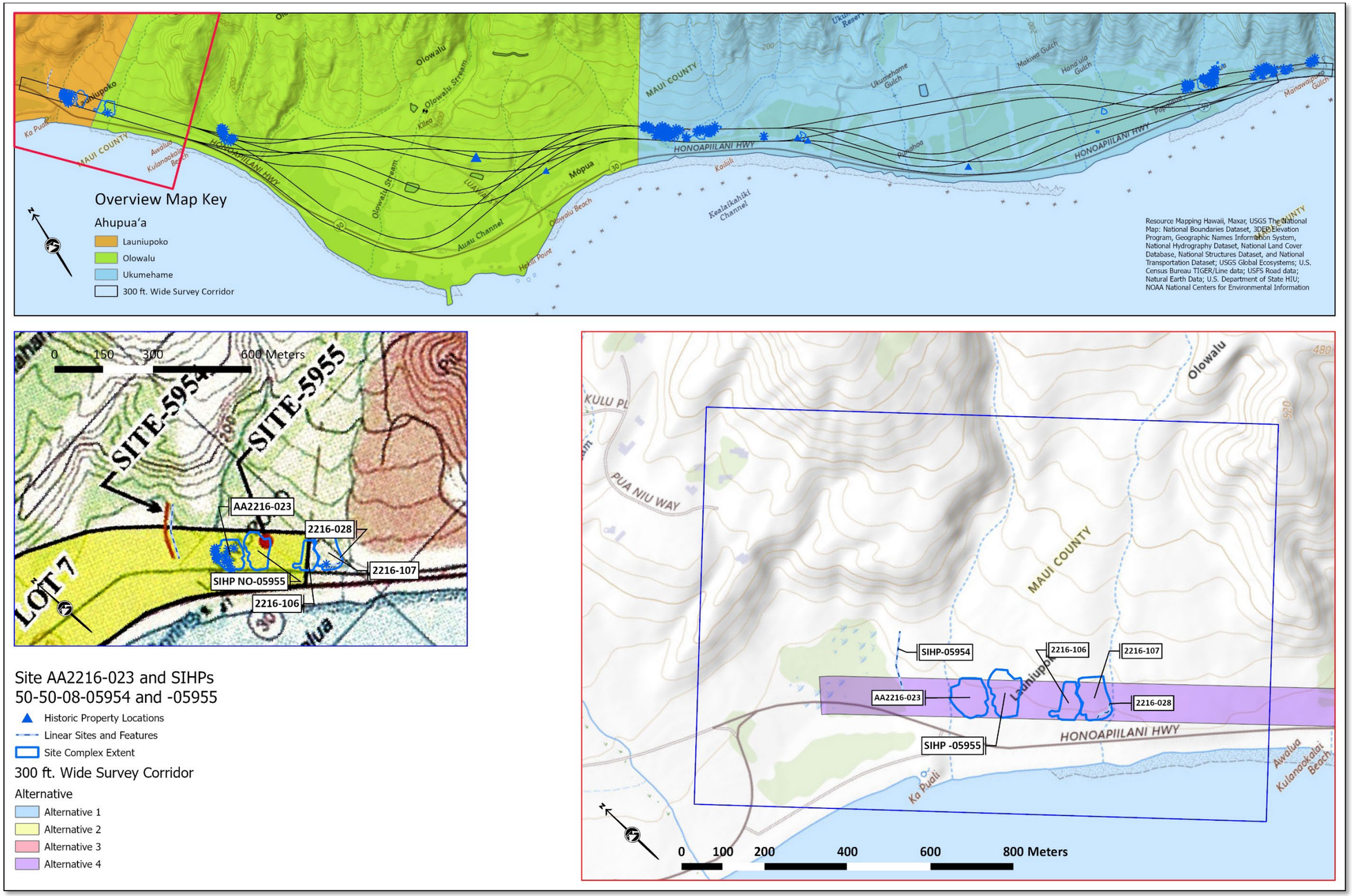
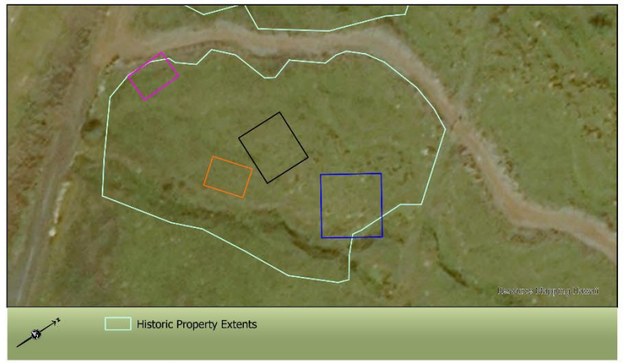
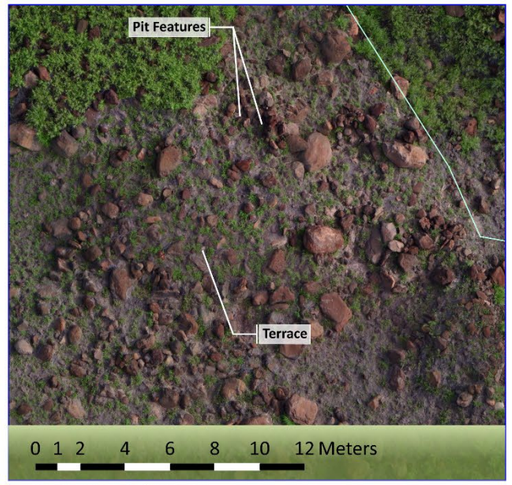


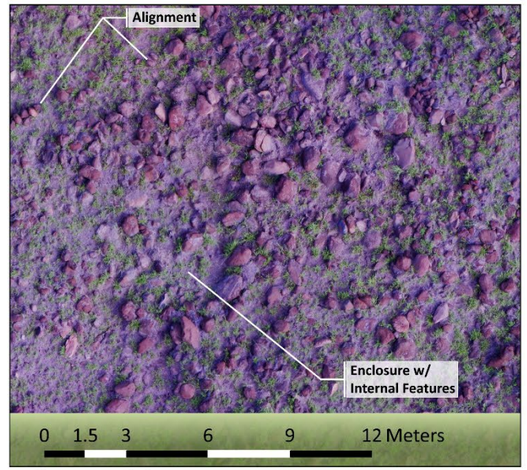
Figure 47. A2216-023 and SIHPs 50-50-08-05954 and -05955 in relation to the proposed alternatives (top frame), close up of site distribution within the Launiupoko pinch point (bottom right frame), and redefined complex extent of previously recorded site 50-50-08-05955 in relation to Paraso and Dega site location and study area (Paraso and Dega 2006:Figure 6)(bottom left frame).



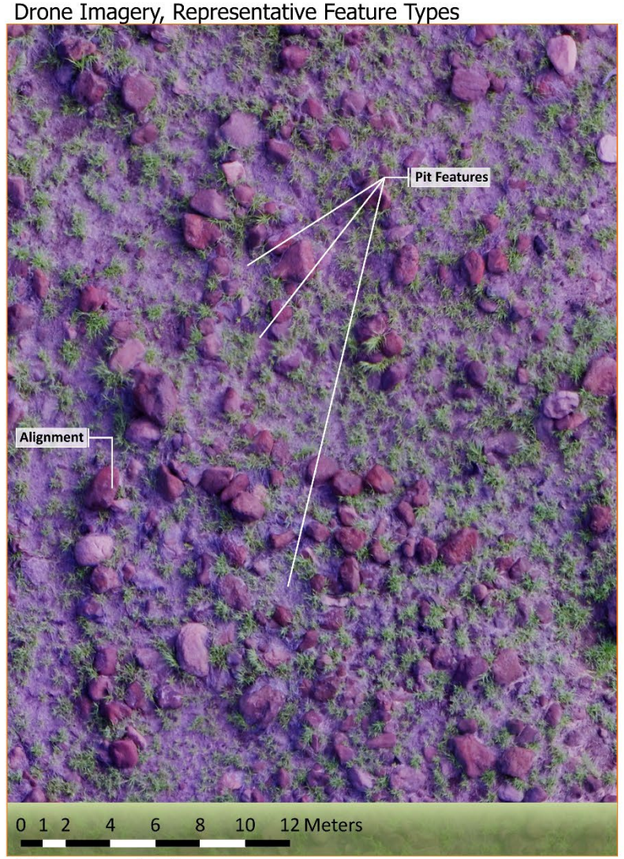
SIHP 50-50-08-05955
Drone Imagery, Representative Feature Types



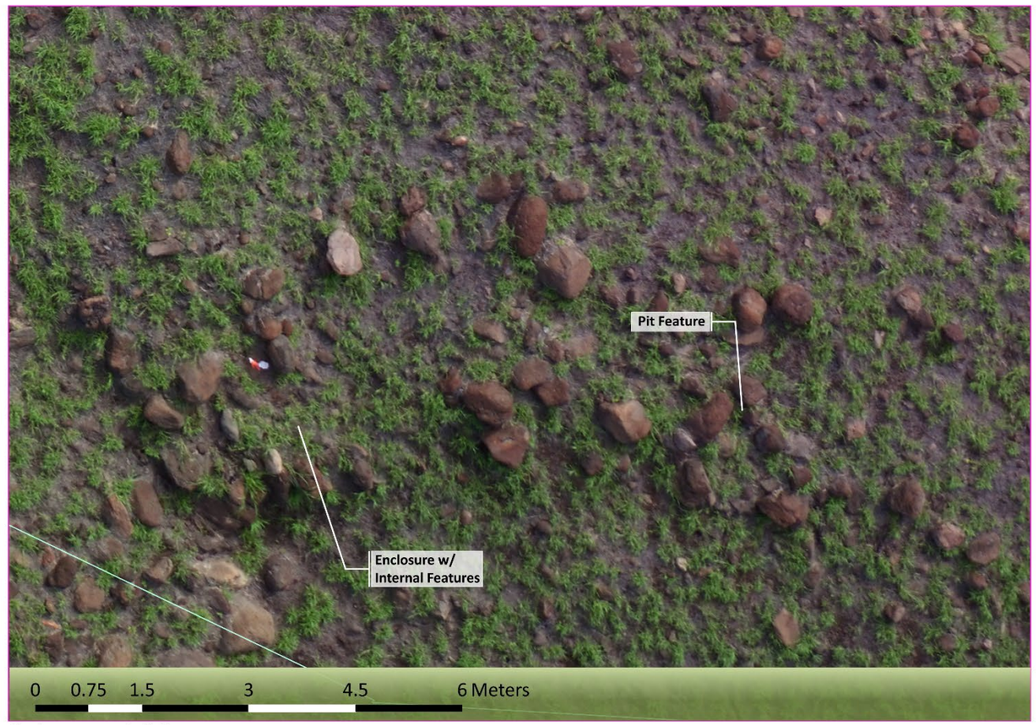
Terraces and pit features



Enclosures and alignments



Alignments and pit features



Enclosures and pit features

Figure 48. SIHP 50-50-08-05955, drone imagery of representative feature types and distribution across the overall complex.

Plate 115. SIHP -05455, habitation and agricultural complex, northernmost ceremonial enclosure with coral cluster at east end, view to northeast.

Plate 116. SIHP -05455, close up of coral cluster and shrine area, view to northeast.

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AA Project No. 2216

Draft

Addendum Archaeological Reconnaissance for the Proposed Honapi‘ilani Highway Realignment Project

Ukumehame, Olowalu, and Launiupoko Ahupua‘a, Lāhainā Moku, Lāhainā Modern Tax District, Maui Island

‘Āina Archaeology

AA Project No. 2216
AA Permit No. 25-31

DRAFT

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Table of Contents

1.0 Introduction 1
2.0 Field Survey and Reconnaissance Recordation Methods 3
2.1 Survey Methods 3
2.2 Disposition of Materials 4
3.0 Field Reconnaissance Results for Additional Survey Associated with the Honoapiʻilani Highway Realignment Preferred Alignment 1
3.1 Archaeological Site Summaries 6
3.1.1 AA2216-111 6
3.1.2 AA2216-115 11
3.1.3 AA2216-116 15
3.2 Isolated Find Summaries 17
3.2.1 AA2216-IF-067 17
3.2.2 AA2216-IF-068 19
3.2.3 AA2216-IF-071 20
3.2.4 AA2216-IF-065 21
3.2.5 AA2216-IF-066 22
3.2.6 AA2216-IF-069 23
3.2.7 AA2216-IF-070 25
4.0 Preliminary Significance and Eligibility Assessments 27
5.0 References Cited 28

List of Figures

Figure 1-1. USGS National Map (2024) showing the added survey areas(shaded in red) in relation to the preferred alignment (outlined in blue) and previously surveyed alternatives (shaded in gray). 2
Figure 3-1. Survey Area 10, Vegetation Exclusion overview, access from the west extent, view to east. 1
Figure 3-2. Survey Area 10, Vegetation Exclusion,closeup view to east 2
Figure 3-3. Survey Area 10, Vegetation Exclusion, access from southwest extent along Honoapiilani blocked by ditch, view to northeast. 2
Figure 3-4. Survey Area 10, Vegetation Exclusion, access from southeast extent blocked by ditch, view to north. 3
Figure 3-5. USGS National Map (2024) showing archaeological site locations in relation to the added survey areas (inset detail) and overall realignment corridor (main frame). 4
Figure 3-6. USGS National Map (2024) showing isolated find (IF) locations in relation to the added survey areas (inset detail) and overall realignment corridor (main frame). 5
Figure 3-7. AA2216-111 overview, view to east 7
Figure 3-8. Basalt lithic flake example, dorsal and ventral 8
Figure 3-9. Transfer print ceramic rim sherd example, front and back. 8
Figure 3-10. Banded refined earthenware sherd, front and back 9
Figure 3-11. Site AA2216-111 in relation to the additional survey areas (top frame) and land commission awards (bottom right frame) 10
Figure 3-12. AA2216-115, overview of concentration surrounding open trench, view to west.. 12
Figure 3-13. AA2216-115, open trench stratigraphy, east wall. 13
Figure 3-14. Site AA2216-115 and -116 in n relation to the additional survey areas (top frame) and historic structures, stone wall alignments, and landmarks (bottom right frame) 14
Figure 3-15. AA2216-116, surface scatter, overview, coral surrounding kiawe tree base, unimproved road in background, view to south. 16
Figure 3-16. AA2216-116, cultural material scatter, large false brain coral, closeup, other coral types shown above. 17
Figure 3-17. AA2216-IF-067, milk glass fragment. 18
Figure 3-18. AA2216-IF-067, cat's eye marble. 18
Figure 3-19. AA2216-IF-067, overview of the surrounding landscape, view to east-northeast. . 18
Figure 3-20. AA2216-IF-068, unidentifiable species of marine shell. 19
Figure 3-21. AA2216-IF-068, overview of the surrounding landscape, view to northwest. 19
Figure 3-22. AA2216-IF-070, overview of the surrounding landscape, coral next to the north arrow, TDS asphalt road in the background, and CMU structure in the middleground, view to north 20
Figure 3-23. AA2216-IF-070, closeup of coral 20
Figure 3-24. AA2216-IF-065, false brain coral fragment. 21

Figure 3-25. AA2216-IF-065, false brain coral in relation to the surrounding landscape, view to northwest. 21
Figure 3-26. AA2216-IF-066, red fire brick. 22
Figure 3-27. AA2216-IF-006, ceramic sherd, whiteware rim. 22
Figure 3-28. AA2216-IF-066, overview of the surrounding landscape, view to northeast. 23
Figure 3-29. AA2216-IF-069, whiteware sherd, interior. 24
Figure 3-30. AA2216-IF-069, whiteware sherd, exterior. 24
Figure 3-31. AA2216-IF-069, representative photo of weathered marine shell fragment. 24
Figure 3-32. AA2216-IF-069, overview of surrounding landscape, Luawai Road in top left corner, view to southeast. 24
Figure 3-33. AA2216-IF-070, ceramic fragment, plain whiteware body sherd. 25
Figure 3-34. AA2216-IF-070, branch coral fragment. 25
Figure 3-35. AA2216-IF-070, overview of the surrounding landscape, view to northwest. 26

List of Tables

Table 4-1. Preliminary Significance Assessments and Integrity Evaluations for Archaeological Sites Identified During Additional Reconnaissance Survey 27

1.0 INTRODUCTION

ʻĀina Archaeology previously conducted a systematic survey of above-ground archaeological resources within the proposed alternatives of the Honoapiʻilani Highway Realignment Project as outlined in the project Draft Environmental Impact Statement (DEIS). Following multiple lines of analysis, the preferred alignment was developed through a combination of segments from the proposed alternative corridors, along with targeted corridor shifts at pinch point locations to minimize and avoid impacts to sensitive resources.

The follow-up archaeological survey presented in this addendum was conducted in areas where the preferred project alignment extended beyond the limits of previously surveyed corridors. A total of 15 areas required additional survey as a result of the above; of these, three areas (Areas 04, 05, and 07) contained newly identified archaeological resources (see Section 3.0). Two additional areas—the Palafox-Kaluna settlement area and a dense stand of impassable Indian Fleabane—were inaccessible and could not be surveyed (see Figure 1-1).

Three archaeological sites were identified within the added survey areas, all of which consist of surface scatters of cultural material. The following sections present the preliminary site descriptions and recommendations for archaeological sites identified within the additional survey areas. The reader is referred to Appendix 3.6 of the DEIS for details on the environmental setting and cultural historical background and context.

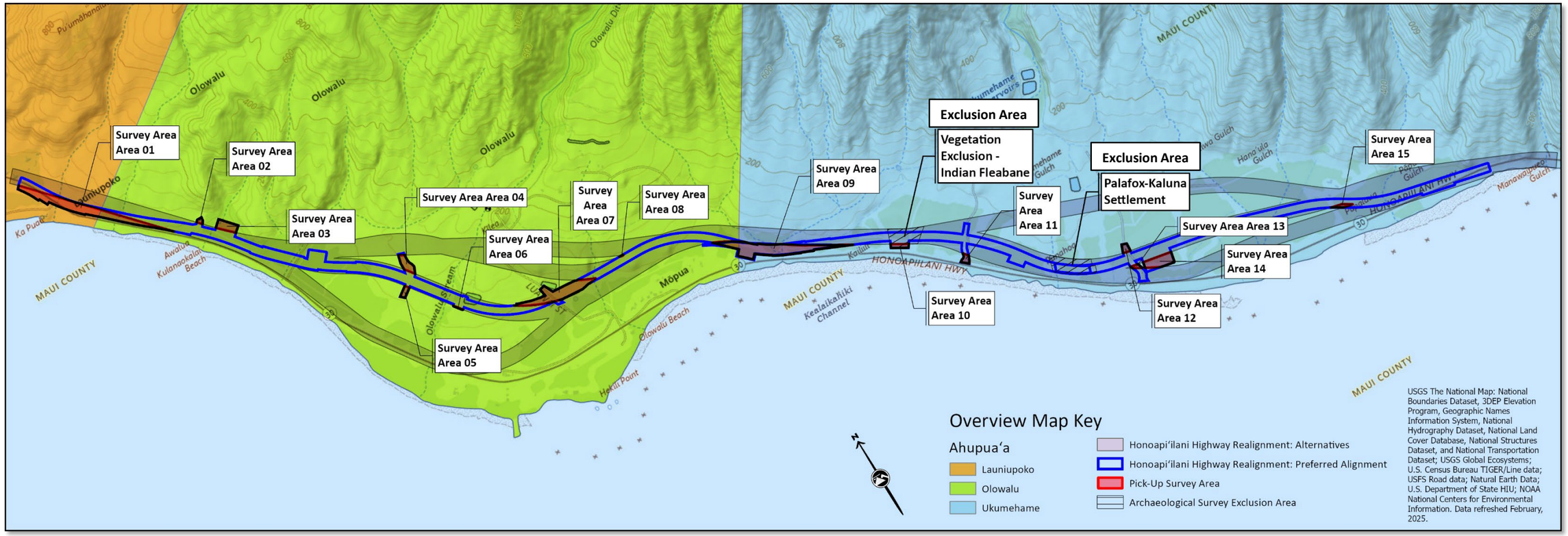

Figure 1-1. USGS National Map (2024) showing the added survey areas(shaded in red) in relation to the preferred alignment (outlined in blue) and previously surveyed alternatives (shaded in gray).

2.0 FIELD SURVEY AND RECONNAISSANCE RECORDATION METHODS

2.1 SURVEY METHODS

Pedestrian survey methods consisted of systematic transect sweeps spaced at 10-meter intervals in areas characterized by open vegetation. In locations with dense vegetation or reduced surface visibility, transect spacing was narrowed to 5 meters or less to ensure adequate ground coverage.

Archaeological sites and isolated features encountered during survey were assigned temporary field numbers using an alphanumeric convention consisting of the ʻĀina project number followed by a three-digit sequential identifier (e.g., AA2216-001), to facilitate field tracking and documentation. Reconnaissance-level documentation conducted for each site included the following:

- Summary descriptions of site and feature formal types.
- Preliminary interpretations of function and interrelationships.
- Digital photographs ranging from site overviews to representative detail or close-ups, where appropriate.
- Locational data was acquired using an EOS Arrow 100 Submeter GNSS Receiver paired with ESRI ArcGIS Field Maps (version 24.3.0).

Isolated finds differ from formal archaeological sites and features. They consist of a singular object on the broader landscape or an ephemeral collection of small quantities of widely scattered objects, including midden occurrences, manuports, or artifacts. The following threshold for recording such occurrences as an isolated find vs. a formalized surface scatter was adopted from the U.S. Department of Interior Bureau of Land Management's Utah Office:

- Less than ten artifacts [or manuports] of a single class (e.g., ten sherds) within a 5-meter radius, except when all pieces appear to originate from a single source (e.g., one ceramic pot, one glass bottle).
- Less than 15 artifacts [or manuports], including at least two artifact types (e.g., ten sherds and five glass fragments) within a 5-meter radius. (U.S. Department of the Interior 2021:20–21)

When isolated finds were encountered, the following conventions were utilized for tracking purposes.

- Assignment of an alphanumeric temporary site number for each newly identified historic property consisting of the company initials (AA) followed by the company project number, in-house lot number, the initials for isolated find (IF), and a three-digit sequential number (i.e., AA2216-IF-001).
- A written description of each finding.
- Digital photographs of each find, which included but were not limited to object overviews and landscape context.

- Geographic location information for each isolated find was acquired using an EOS Arrow 100 Submeter GNSS Receiver in ESRI ArcGIS Field Maps (version 24.3.0).

2.2 DISPOSITION OF MATERIALS

All data generated during this study are currently curated at the Maui office of ʻĀina Archaeology, 1305 North Holopono Street, Suite 6, Kīhei, HI 96753. Documentary data is filed under AA Project Number 2216.

3.0 FIELD RECONNAISSANCE RESULTS FOR ADDITIONAL SURVEY ASSOCIATED WITH THE HONOAPIʻILANI HIGHWAY REALIGNMENT PREFERRED ALIGNMENT

With the exception of Survey Area 10, which contained dense thickets of Indian Fleabane (*Pluchea indica*), rendering it impassable and precluding pedestrian survey in that area (Figure 3-1 through Figure 3-4), ʻĀina Archaeology completed a reconnaissance-level pedestrian survey of 15 areas where shifts in the preferred alignment were necessary to avoid significant cultural resources, and/or expansion of specific areas along the alignments were needed to accommodate drainage infrastructure (see Figure 1-1). The reconnaissance survey was carried out from March 25, 2025, through April 02, 2025, with a field follow-up on April 15, 2025. The survey team consisted of a four-person field crew minimum and, on various days, included Field Director Amanda Ruberti, M.A., Archaeological Field Supervisor Aaron Trumbo, B.A., Crew Chief Quinn Hottendorf, B.A., and Archaeological Field Technicians Daniel F. Moore, B.A., Steven Eminger, B.A., Ryan Robinson, B.A., and Casie Fort, B.A. under the overall supervision of Principal Investigator Tanya L. Lee-Greig, M.A.

Figure 3-1. Survey Area 10, Vegetation Exclusion overview, access from the west extent, view to east.

Figure 3-2. Survey Area 10, Vegetation Exclusion,closeup view to east

Figure 3-3. Survey Area 10, Vegetation Exclusion, access from southwest extent along Honoapiilani blocked by ditch, view to northeast.

Figure 3-4. Survey Area 10, Vegetation Exclusion, access from southeast extent blocked by ditch, view to north.

Of the 14 areas surveyed, only three (Areas 04, 05, and 07) contained newly identified archaeological resources (Figure 3-5), all of which were situated within Olowalu Ahupuaʻa. In addition to the three additional archaeological sites, seven isolated finds (IF), consisting of manuports and isolated artifacts, were also documented (Figure 3-6). The following sections summarize the current reconnaissance level findings for each site and, IF identified.

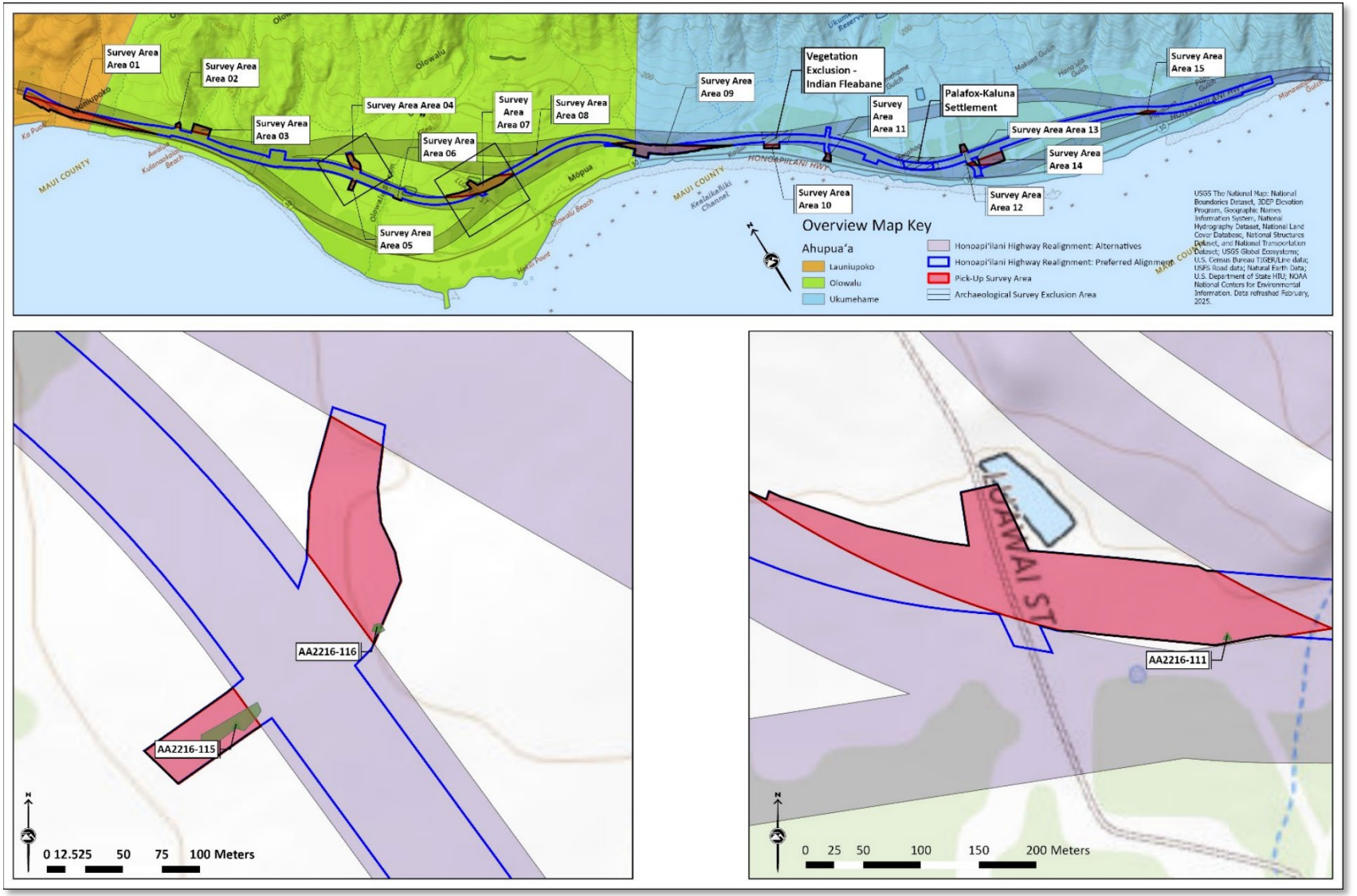

Figure 3-5. USGS National Map (2024) showing archaeological site locations in relation to the added survey areas (inset detail) and overall realignment corridor (main frame).

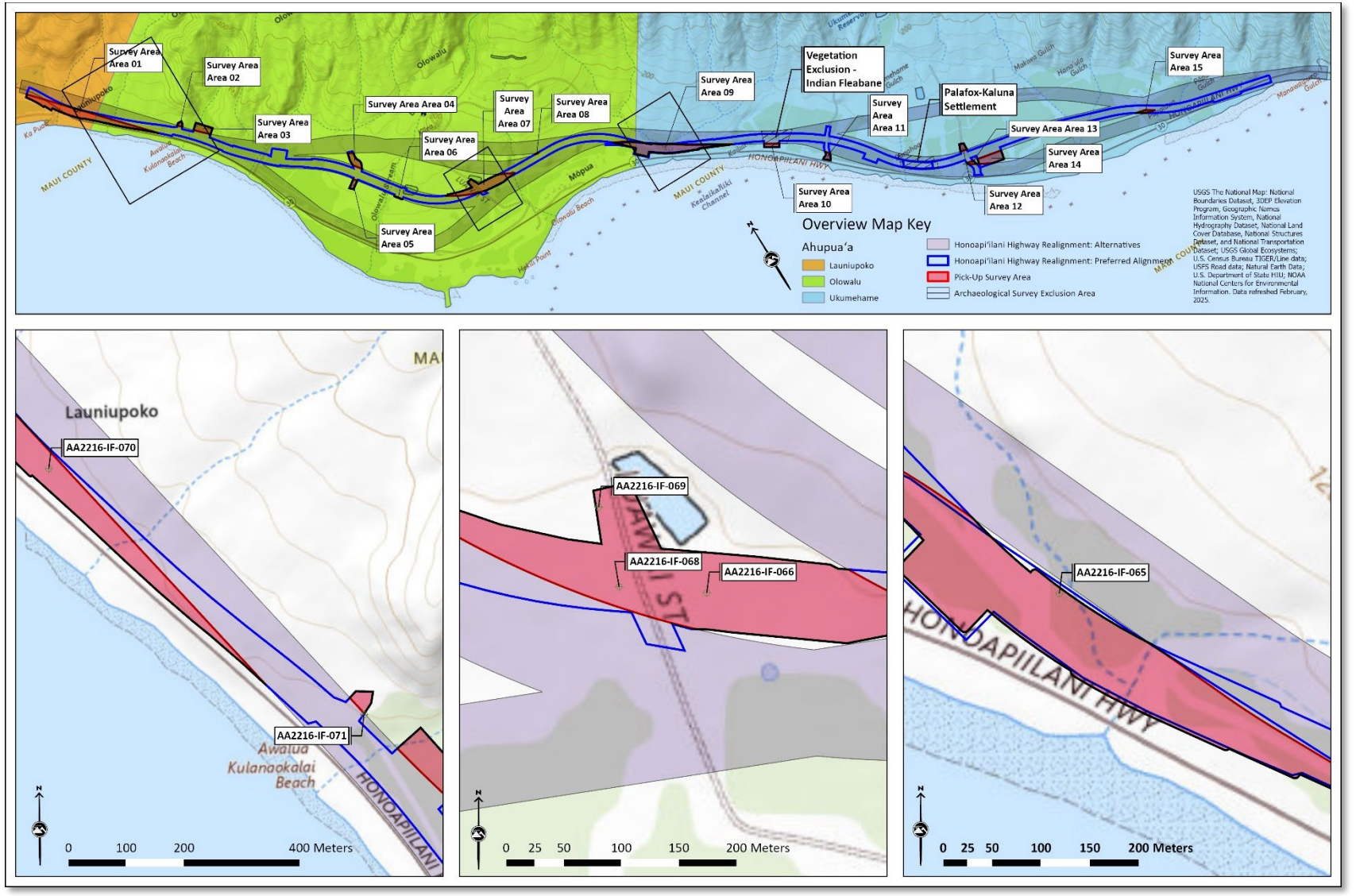

Figure 3-6. USGS National Map (2024) showing isolated find (IF) locations in relation to the added survey areas (inset detail) and overall realignment corridor (main frame).

3.1 ARCHAEOLOGICAL SITE SUMMARIES

3.1.1 AA2216-111

FIELD NO:	AA2216-111	**SIHP NO:**	
N FEATURES:		**AGE:**	Continuous Occupation
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low Cowrie, cone, conch, indeterminate fragments
FUNCTION:	Generic Habitation	**ARTIFACT DENSITY:**	Low Waterworn cobbles, one waterworn cobble hammerstone (H-001), basalt lithic flake, volcanic glass flake, three ceramic sherds, green and colorless bottle glass, false brain coral, branch coral
CONDITION:	Remnant		
POTENTIAL NRHP SIGNIFICANCE ASSESSMENT:	D	**INITIAL NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
POTENTIAL SRHP SIGNIFICANCE ASSESSMENT:	d	**INITIAL SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Gently sloping terrain with buffel grass and kiawe.

HISTORIC PROPERTY DESCRIPTION:
AA2216-111 surface scatter located in a fallow cane field (Figure 3-7) mauka of Olowalu Village Road and east of Luawai Street. The scatter potentially connects to previously documented scatter AA2216-036 to the east. Identified cultural material includes one hammerstone (H-001), two basalt flakes, a volcanic glass flake, with low frequencies of marine shell, waterworn cobbles, and coral, along with three ceramic sherds consisting of a refined earthen ware rim sherd with a polychrome transfer print decoration, a polychrome banded sherd (blue, white black) refined earthenware, and a single yellow ware sherd (Figure 3-8 through Figure 3-10).

NATIONAL REGISTER SIGNIFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of traditional and historic era land use remains. Therefore, in consideration of the above description and preliminary analysis, AA2216-111 is potentially significant under Criterion D.

EVALUATION SUMMARY

AA2216-111 is a remnant cultural material surface scatter reflective of a former activity area or habitation site that may provide information on the distribution of traditional and historic era land use. Without archaeological testing, it is unclear whether the horizontal provenience of the scatter represents a surface expression of an intact subsurface deposit related to the settlement of Land Commission Awards depicted on a portion of the Olowalu Sugar Plantation Map (Figure 3-11), or a tertiary deposit resulting from infill of the former streambed and subsequent disturbance from over a century of plowing associated with industrial sugar cane cultivation. As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association. Additional archaeological investigation is necessary to clarify the archaeological context of this surface scatter and assess its eligibility under Criterion D.

Figure 3-7. AA2216-111 overview, view to east

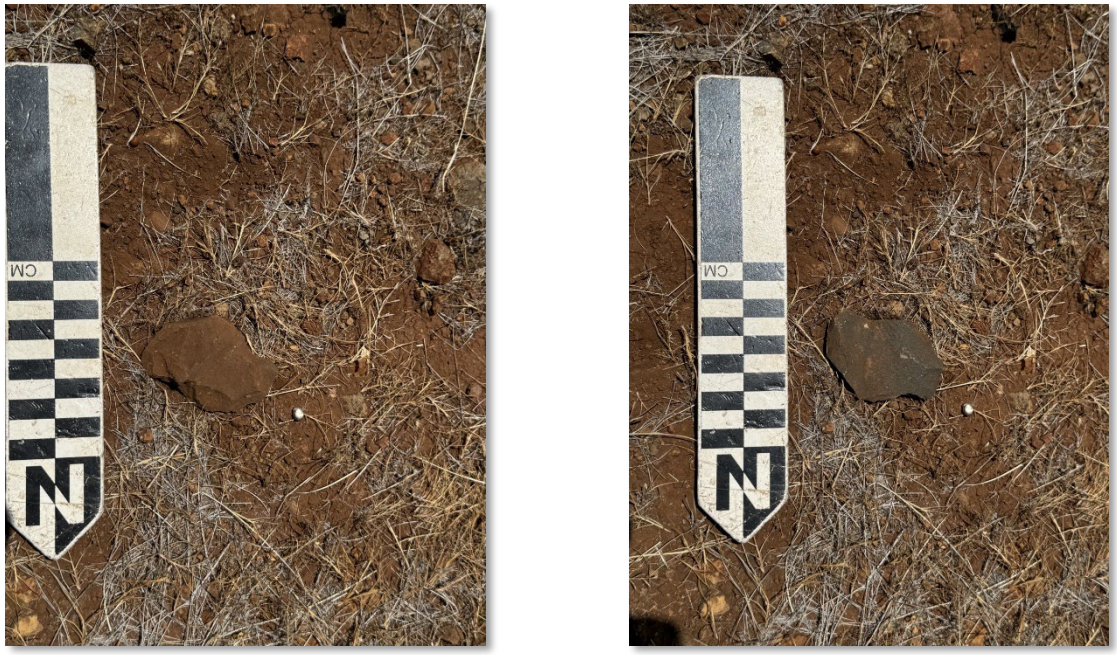

Figure 3-8. Basalt lithic flake example, dorsal and ventral

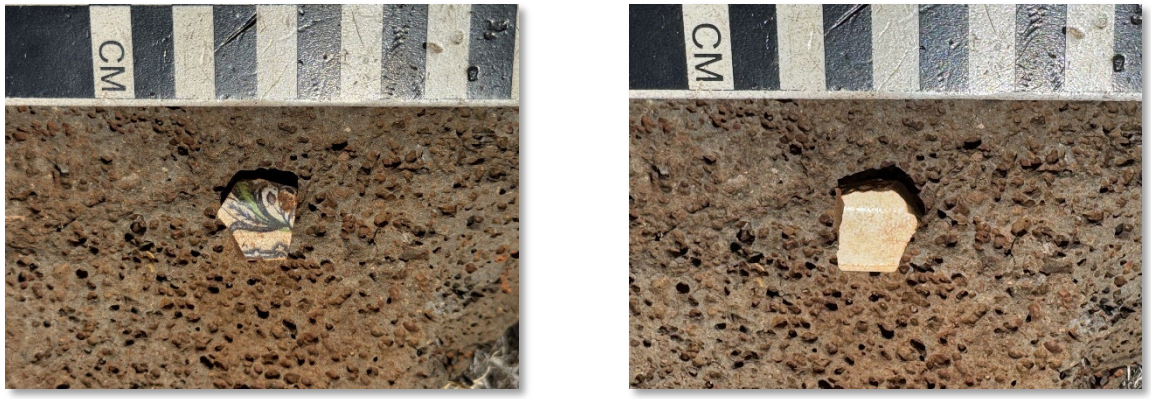

Figure 3-9. Transfer print ceramic rim sherd example, front and back.

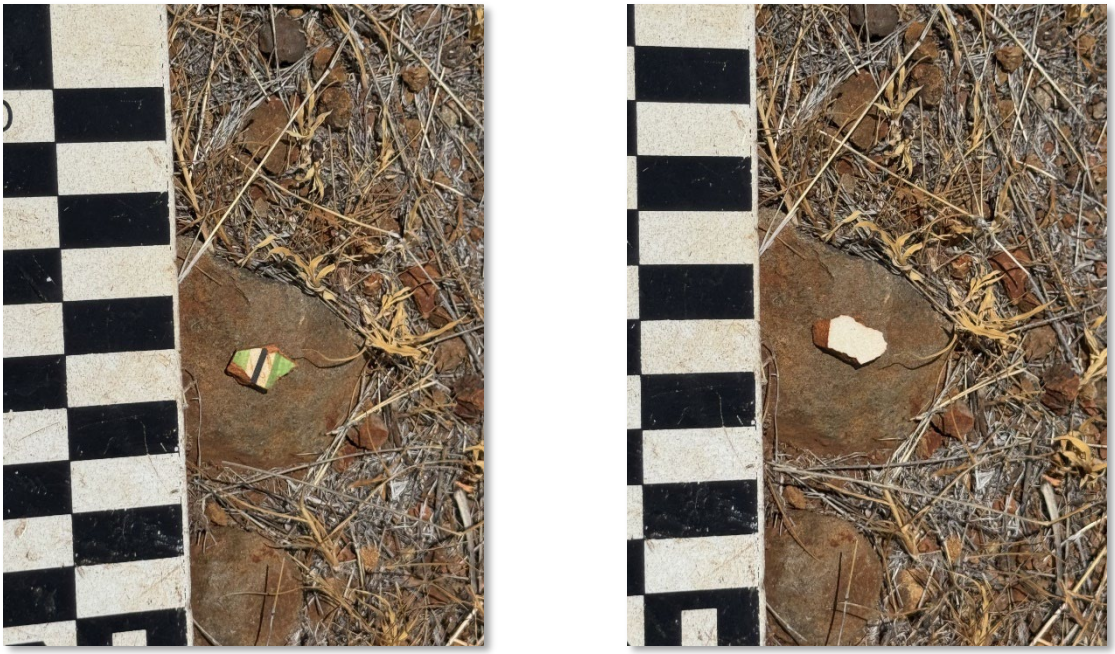

Figure 3-10. Banded refined earthenware sherd, front and back

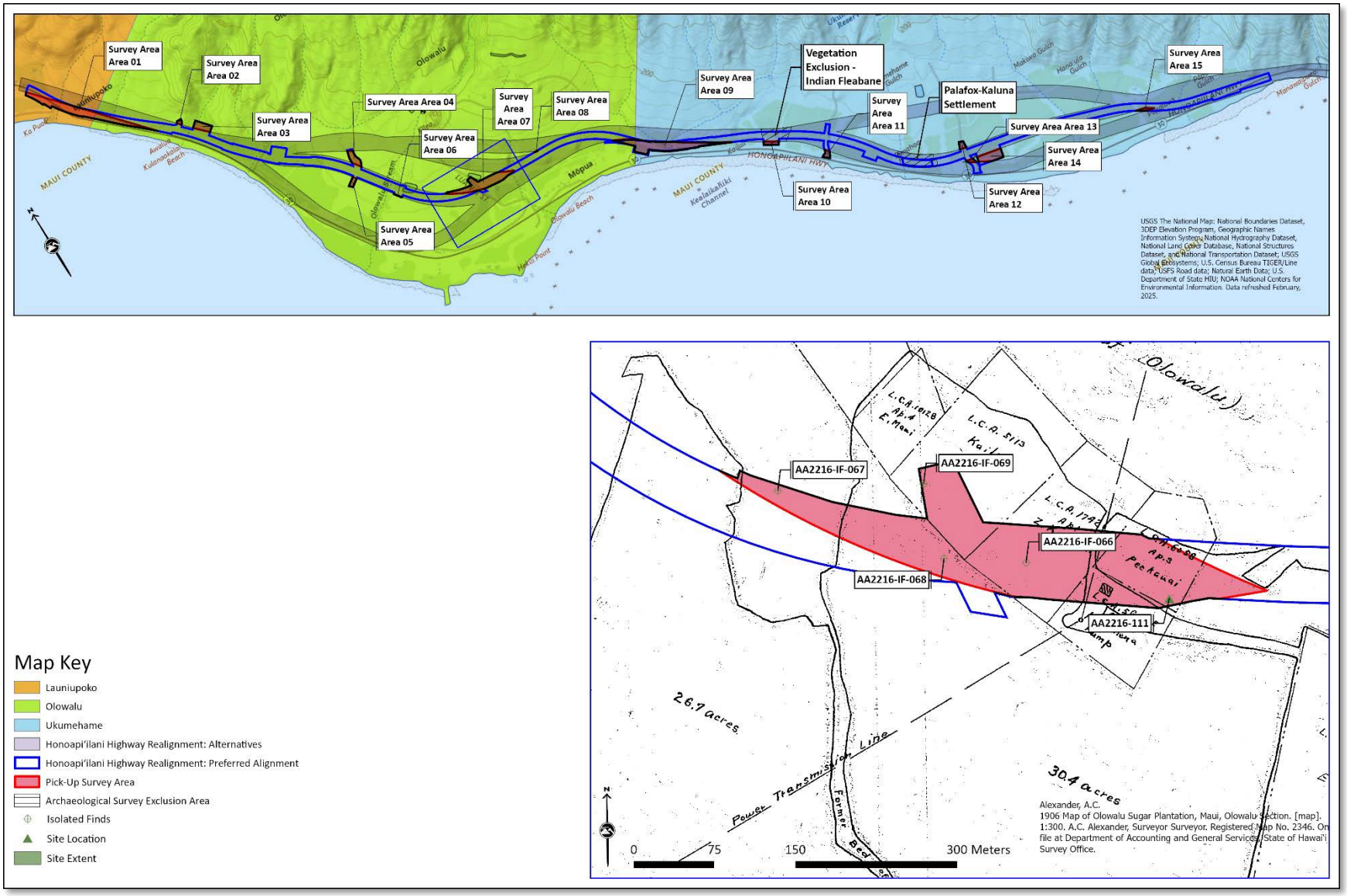

Figure 3-11. Site AA2216-111 in relation to the additional survey areas (top frame) and land commission awards (bottom right frame)

3.1.2 AA2216-115

FIELD NO:	AA2216-115	**SIHP NO:**	
N FEATURES:		**AGE:**	Indeterminate
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	Low Augur shell, Conch shell
FUNCTION:	Indeterminate	**ARTIFACT DENSITY:**	Medium Branch Coral, false brain coral
CONDITION:	Remnant		
POTENTIAL NRHP SIGNIFICANCE ASSESSMENT:	D	**INITIAL NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
POTENTIAL SRHP SIGNIFICANCE ASSESSMENT:	d	**INITIAL SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Level terrain with buffel grass and kiawe

HISTORIC PROPERTY DESCRIPTION:
AA2216-115 presents as a surface scatter of waterworn false brain coral and branch coral. The low-density scatter continues east and outside of the survey area. There is a higher concentration around an open trench about 1.75 m deep, by about 1 meter wide, that has a water pipe within it. There is a high frequency of coral pebbles and cobbles on and within what appears to be the backdirt resulting from the excavation of the trench. The change in layers in the wall of the trench are clearly evident: the lowest layer consists of a silty soil with a high frequency of water worn pebbles and cobbles with a couple of small boulders, the thin transitional layer to the top layer features T-tape (poly tubing irrigation line) remnants, ash and charcoal, then the top layer is a less compact silty soil with a high frequency of pebbles, cobbles, and the previously described coral material. A single chunk of waterworn concrete is also present in this upper layer.

A single piece of auger shell and a single piece of waterworn conch shell are present in the scatter; no other signs of other midden or other cultural material are present in the area.

NATIONAL REGISTER SIGNIFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of traditional and historic era land use remains. Therefore, in consideration of the above description and preliminary analysis, AA2216-115 is potentially significant under Criterion D.

EVALUATION SUMMARY

AA2216-115 is a remnant cultural material surface scatter of an indeterminate function. Without archaeological testing, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit related to former structures shown on a portion of the Olowalu Sugar Plantation Map (Monsarrat 1881), or a secondary deposit as a result of erosion or redistribution due to ground disturbance related to industrial sugar cane cultivation for over 100 years, as well as recent land alteration (Figure 3-14). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association. Additional archaeological investigation is necessary to clarify the archaeological context of this surface scatter and assess its eligibility under Criterion D.

Figure 3-12. AA2216-115, overview of concentration surrounding open trench, view to west.

Figure 3-13. AA2216-115, open trench stratigraphy, east wall.

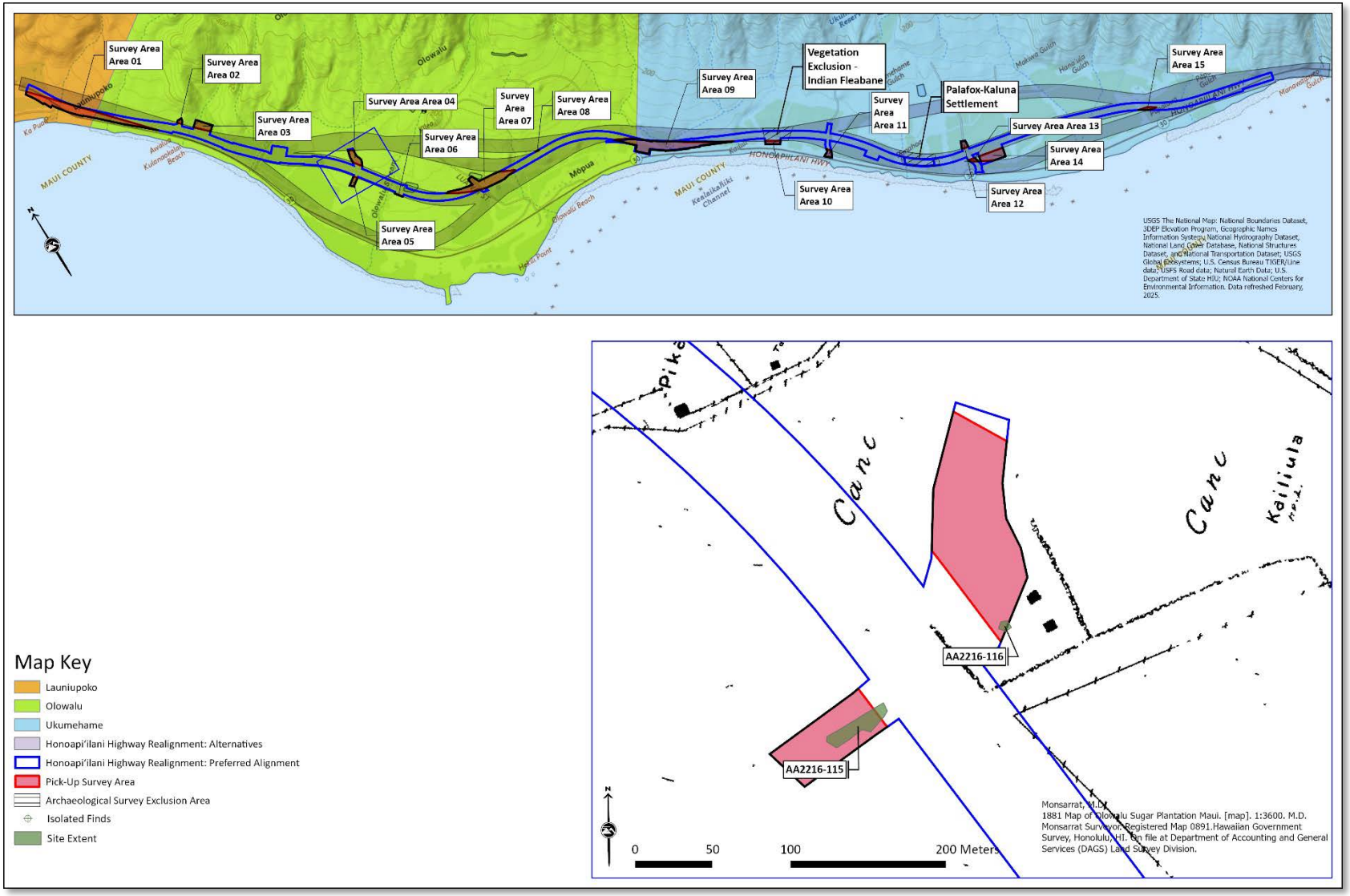

Figure 3-14. Site AA2216-115 and -116 in n relation to the additional survey areas (top frame) and historic structures, stone wall alignments, and landmarks (bottom right frame)

3.1.3 AA2216-116

FIELD NO:	AA2216-116	**SIHP NO:**	
N FEATURES:		**AGE:**	Indeterminate
SITE TYPE:	Surface Scatter	**MIDDEN DENSITY:**	None
FUNCTION:	Indeterminate	**ARTIFACT DENSITY:**	Medium False brain coral, branch coral
CONDITION:	Remnant		
POTENTIAL NRHP SIGNIFICANCE ASSESSMENT:	D	**INITIAL NRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association
POTENTIAL SRHP SIGNIFICANCE ASSESSMENT:	d	**INITIAL SRHP INTEGRITY ASSESSMENT:**	Location, Materials, Association

ENVIRONMENTAL SETTING:
Level terrain with buffel grass and kiawe

HISTORIC PROPERTY DESCRIPTION:
AA2216-116 is a surface scatter of coral observed adjacent to a gravel roadway, situated within an area of tall grasses and partially shaded by a small kiawe (*Prosopis pallida*) tree. The scatter measures approximately 5 m by 5 m and consists primarily of water-rounded false brain coral and branch coral. Identified materials include over 50 small coral pebbles, more than 15 coral cobbles, and a single large water-rounded coral cobble measuring approximately 0.15 m by 0.25 m.

The surrounding area exhibits evidence of prior disturbance. Modern debris observed in association with the coral scatter includes dimensional lumber (2x4s), concrete rubble in low frequency, plastic refuse, and machine-scarred water-rounded cobbles. Despite the presence of these modern intrusions, a substantial portion of the coral remains unmodified and water-rounded.

Due to the disturbed condition of the context and the absence of clearly associated cultural features or diagnostic artifacts, the origin and function of the coral scatter remain uncertain.

NATIONAL REGISTER SIGNIFICANCE ASSESSMENT AND RECOMMENDATION

While the site has been impacted by prior disturbance, the potential for the presence of intact subsurface deposits that may yield information on the chronology and distribution of traditional and historic era land use remains. Therefore, in consideration of the above description and preliminary analysis, AA2216-116 is potentially significant under Criterion D.

EVALUATION SUMMARY

AA2216-116 is a remnant cultural material surface scatter of an indeterminate function. Without archaeological testing, it is unclear whether the horizontal provenience of the scatter is a surface representation of an intact subsurface deposit, or a secondary deposit derived from material associated with former historic structures (Monsarrat 1881), redistributed through erosion, over 100 years of industrial sugar cane cultivation, and more recent land alteration activities (see Figure 3-14). As the site is in remnant condition, there has been a loss of integrity of design, feeling, setting, and workmanship; however, depending on the presence or absence of stratified subsurface deposits, the site may retain integrity of location, materials, and association. Additional archaeological investigation is necessary to clarify the archaeological context of this surface scatter and assess its eligibility under Criterion D.

Figure 3-15. AA2216-116, surface scatter, overview, coral surrounding kiawe tree base, unimproved road in background, view to south.

Figure 3-16. AA2216-116, cultural material scatter, large false brain coral, closeup, other coral types shown above.

3.2 ISOLATED FIND SUMMARIES

3.2.1 AA2216-IF-067

Isolated Find Number	AA2216-IF-067	**Class**	Historic
Date Range	Indeterminate	**Frequency**	Less than 15 artifacts [or manuports], including at least two artifact types
Formal Type	Personnel Effect, Glass Shard	**Collected**	No
Context: Pebbly gray/brown sand with a moderate frequency of waterworn false brain and branch coral cobbles and pebbles. In tall grass in a copse of Opiuma trees. One cat's eye marble and a fragment of milk glass are within 10 m of each other.			

AA2216-IF-067 Photos

Figure 3-17. AA2216-IF-067, milk glass fragment.

Figure 3-18. AA2216-IF-067, cat's eye marble.

Figure 3-19. AA2216-IF-067, overview of the surrounding landscape, view to east-northeast.

3.2.2 AA2216-IF-068

Isolated Find Number	AA2216-IF-068	**Class**	Indigenous
Date Range	Indeterminate	**Frequency**	Less than ten artifacts [or manuports] of a single class within a 5-meter radius
Formal Type	Marine Shell	**Collected**	No

Context:
Observed atop a push pile consisting of a gravelly brown silt loam. Fragments of Driscoll piping for agricultural work present through the berm as well.

A single fragment of an unidentified marine shell.

Photos

Figure 3-20. AA2216-IF-068, unidentifiable species of marine shell.

Figure 3-21. AA2216-IF-068, overview of the surrounding landscape, view to northwest.

3.2.3 AA2216-IF-071

Isolated Find Number	AA2216-IF-071	**Class**	Indigenous
Date Range	Indeterminate	**Frequency**	Less than ten artifacts [or manuports] of a single class within a 5-meter radius
Formal Type	Manuport - Coral	**Collected**	No

Context:
Observed approximately 2m behind the CMU building across from the recycling center, in a very disturbed context. Three fragments of waterworn false brain coral, freshly fractured as indicated by the wear. Among trash, concrete chunks, and other modern rubbish. No indications of other types or classes of cultural material.

Photos

Figure 3-22. AA2216-IF-070, overview of the surrounding landscape, coral next to the north arrow, TDS asphalt road in the background, and CMU structure in the middleground, view to north

Figure 3-23. AA2216-IF-070, closeup of coral

3.2.4 AA2216-IF-065

Isolated Find Number	AA2216-IF-065	**Class**	Indigenous
Date Range	Indeterminate	**Frequency**	Less than ten artifacts [or manuports] of a single class within a 5-meter radius
Formal Type	Manuport - Coral	**Collected**	No

Context:
Atop uprooted brown/gray silt loam soils in an area of extensive tree root and road related ground disturbance. Potentially washed down from mauka site areas or deposited through wave action. Both pieces of coral are situated within 5 m of each other.

One fragment of false brain coral, ~5cm in length, and one waterworn branch coral pebble, ~3cm in length.

Photos

Figure 3-24. AA2216-IF-065, false brain coral fragment.

Figure 3-25. AA2216-IF-065, false brain coral in relation to the surrounding landscape, view to northwest.

3.2.5 AA2216-IF-066

Isolated Find Number	AA2216-IF-066	**Class**	Historic
Date Range	Historic	**Frequency**	Less than 15 artifacts [or manuports], including at least two artifact types within a 5-meter radius.
Formal Type	Brick Fragment, Glass Shard, Ceramic Sherd	**Collected**	No

Context:
Found on the surface in a pebbly gray/brown silt soil and adjacent to a modern asphalt bike trail. Associated with a moderate density of waterworn coral pebbles, the context of coral material is unclear and may have been imported with construction material.

One plain whiteware rim sherd and the corner of one red fire brick were found within 10m of each other, along with an undiagnostic shard of milk glass.

Photos

Figure 3-26. AA2216-IF-066, red fire brick.

Figure 3-27. AA2216-IF-006, ceramic sherd, whiteware rim.

AA2216-IF-066 Photos Continued

Figure 3-28. AA2216-IF-066, overview of the surrounding landscape, view to northeast.

3.2.6 AA2216-IF-069

Isolated Find Number	AA2216-IF-069	**Class**	Historic
Date Range	Historic	**Frequency**	Less than 15 artifacts [or manuports], including at least two artifact types within a 5-meter radius.
Formal Type	Ceramic Sherd, Marine Shell	**Collected**	No

Context:
Surface, atop dry silt loam soil in a previously graded area with a moderate density of waterworn cobbles and brackish water clam shell fragments (commonly found in irrigation ditches and reservoirs) just west of Luawai Road.

A single whiteware sherd and three weathered marine shell fragments. Sherd is refined earthenware, blue on white handpainted exterior and undecorated interior with a slight curvature. Species of shell fragments are unidentifiable, but thicker and more weathered than the brackish water clam shell fragments observed in the area.

AA2216-IF-069 Photos

Figure 3-29. AA2216-IF-069, whiteware sherd, interior.

Figure 3-30. AA2216-IF-069, whiteware sherd, exterior.

Figure 3-31. AA2216-IF-069, representative photo of weathered marine shell fragment.

Figure 3-32. AA2216-IF-069, overview of surrounding landscape, Luawai Road in top left corner, view to southeast.

3.2.7 AA2216-IF-070

Isolated Find Number	AA2216-IF-070	**Class**	Historic
Date Range	Historic	**Frequency**	Less than 15 artifacts [or manuports], including at least two artifact types within a 5-meter radius
Formal Type	Ceramic Sherd, Manuport - Coral	**Collected**	No

Context:
Found on parallel push piles in brown silt loam soil adjacent to a recently paved road to the northeast of Honoapi'ilani. Appears associated with fill that looks similar to an old asphalt road to the southwest.

One plain ceramic whiteware body sherd and one branch coral fragment on two parallel push piles.

Photos

Figure 3-33. AA2216-IF-070, ceramic fragment, plain whiteware body sherd.

Figure 3-34. AA2216-IF-070, branch coral fragment.

AA2216-IF-070 Photos (continued)

Figure 3-35. AA2216-IF-070, overview of the surrounding landscape, view to northwest.

4.0 PRELIMINARY SIGNIFICANCE AND ELIGIBILITY ASSESSMENTS

Three archaeological sites were identified within the additional survey areas (Figure 3-5 and Section 3.1). The following table presents the preliminary assessments of potential significance and integrity in relation to eligibility for listing in the National Register of Historic Places. These assessments are not final; formal significance determinations remain contingent upon the results of additional archaeological testing.

Table 4-1. Preliminary Significance Assessments and Integrity Evaluations for Archaeological Sites Identified During Additional Reconnaissance Survey

Field No/ SIHP 50-50-08-	Possible Age Range	Formal Type	Inferred Function	Overall Condition	Potential NRHP/6E Significance Recommendation	Initial Integrity Evaluation
AA2216-111	Continuous Occupation	Surface Scatter	Generic Habitation	Remnant	D, d	Location, Materials, Association
AA2216-115	Indeterminate	Surface Scatter	Indeterminate	Remnant	D, d	Location, Materials, Association
AA2216-116	Indeterminate	Surface Scatter	Indeterminate	Remnant	D, d	Location, Materials, Association

5.0 REFERENCES CITED

Alexander, A.C.

1906 *Map of Olowalu Sugar Plantation, Maui, Olowalu Section.* [map]. 1:300. A.C. Alexander Surveyor. Registered Map No. 2346. On file at Department of Accounting and General Services, State of Hawai'i Survey Office.

Monsarrat, M.D.

1881 *Map of Olowalu Sugar Plantation Maui.* [map]. 1:3600. M.D. Monsarrat Surveyor. Registered Map 0891.Hawaiian Government Survey, Honolulu, HI. On file at Department of Accounting and General Services (DAGS) Land Survey Division.

U.S. Department of the Interior, Bureau of Land Management Utah State Office

2021 *Cultural Resource Fieldwork Guidelines and Standards BLM Supplement H-8110-Utah*. Third ed. U.S. Department of the Interior, Bureau of Land Management, Salt Lake City, UT.

United States Geological Survey

2024 *USGS The National Map Topo Base Map.* [map]. GIS accessible.USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model.

Agency Correspondence

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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

May 16, 2025

IN REPLY REFER TO:
Project No. 2023PR00135
Doc. No. 2505AM08
Archaeology

Richelle M. Takara, P.E.
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Dear Richelle M. Takara:

SUBJECT: **National Historic Preservation Act (NHPA) Section 106 Review –
Continued Consultation and Request for Concurrence with Determinations of Eligibility
U.S. Department of Transportation Federal Highway Administration
State of Hawai'i Department of Transportation
Honoapi'ilani Highway Improvements Project, West Maui Ukumehame to Launiupoko
FHWA Ref. No. HAD-HI, Federal-Aid Project No. RAEM-030-1(59)
Launiupoko, Olowalu, and Ukumehame Ahupua'a, Lahaina District, Island of Maui
TMK: (2) 4-7-001, (2) 4-8-001, (2) 4-8-002, (2) 4-8-003, (2) 4-8-004 and Honoapiilani Highway Right-of-Way**

This letter provides the State Historic Preservation Division's (SHPD's) review of the U.S. Department of Transportation Federal Highway Administration's (FWHA's) continued consultation and request for concurrence with determinations of eligibility for the Honoapi'ilani Highway Improvements Project, West Maui Ukumehame to Launiupoko. The State Historic Preservation Officer (SHPO) previously reviewed the project in support of the NHPA Section 106 process including the State of Hawai'i's Department of Transportation's (HDOT's) initiation of consultation and request for the SHPO's concurrence with the area of potential effects (APE) on March 21, 2023 (Project No. 2023PR00135, Doc. No. 2303SH16) and the review of an architectural reconnaissance level survey (RLS) report on July 9, 2024 (Project No. 2023PR00135, Doc No. 2407JLP02). Most recently, the SHPO concurred with the FHWA's National Register of Historic Places (NRHP) eligibility determinations for 11 priority archaeological historic properties within the preferred alternative portion of the APE (October 11, 2024; Project No. 2023PR00135, Doc. No. 2410SH08). The FHWA submitted eligibility determinations for an additional 27 archaeological historic properties that occur outside of the preferred alternate on August 30, 2024 (Submission No. 2023PR00135.012). The SHPO's review and concurrence with the eligibility determination for these 27 historic properties is provided below.

The FHWA, in cooperation with the HDOT, is studying alternatives for the Honoapi'ilani Highway (State Route 30) from Ukumehame to Launiupoko on the island of Maui. The project will assess ways to address existing and future erosion and flooding from Ukumehame, at approximately milepost 11, in the vicinity of Papalaua Wayside Park to Lauiopoko, at milepost 17, the existing southern terminus of Lahaina Bypass.

The proposed HDOT project will receive funding from the FHWA and is therefore a federal undertaking as defined in 36 CFR 800.16(y); the FHWA determined the proposed project is subject to compliance with Section 106 of the NHPA. Pursuant to the Programmatic Delegation of Authority (May 2016), the FHWA has delegated the Section 106

consultation to HDOT. The Section 106 consultation process will be carried out under a phased identification approach guided by a Programmatic Agreement (PA), which is currently under development. The project is also subject to historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-8.

‘Āina Archaeology was contracted to conduct an archaeological field survey to identify surface archaeological historic properties within the APE. On August 30, 2024, SHPD received site descriptions and eligibility evaluations for the 11 priority sites within the preferred highway alignment alternative portion of the APE (Submission No. 2023PR00135.011). The SHPO concurred with the FHWA's eligibility determination for these 11 priority sites on October 11, 2024 (Project No. 2023PR00135, Doc. No. 2410SH08). See Attachment 1 below for a full list of these sites.

On August 30, 2024, the SHPD also received eligibility determinations for an additional 27 archaeological historic properties identified within the full APE (Submission No. 2023PR00135.012). Please note that the report includes descriptions and eligibility evaluation for a total of 38 archaeological historic properties, however the SHPO previously concurred with eligibility determinations for 11 of these sites under Submission No. 2023PR00135.011. See Attachments 2, 3, and 4 below for a list of the remaining 27 archaeological historic properties covered under the current review.

The SHPO concurs with the FHWA's determination of eligibility for the remaining 27 archaeological historic properties outlined in Attachments 2, 3, and 4 below. These sites are integral components of a broader NRHP-eligible archaeological historic district, which encompasses a significant traditional cultural place (TCP) and a cultural landscape. <u>These archaeological historic properties may have additional functions and may be found to meet additional eligibility criteria based on the results of subsurface testing.</u>

While the SHPO is providing concurrence on these 27 historic properties to facilitate the FHWA in moving forward with its compliance requirements, it is imperative to emphasize that these sites are crucial to understanding the broader context of an archaeological historic district.

The SHPO requests that FHWA conduct additional identification efforts and thoroughly assesses the presence of a historic district as the Section 106 process develops. A comprehensive evaluation of the features comprising the west Maui cultural landscape is essential to ensure effective preservation, documentation, and stewardship of our shared cultural legacy.

Please note, the two NRHP eligibility evaluations reports received under HICRIS Submission Nos. 2023PR00135.011 and 2023PR00135.012 also include evaluations of significance, pursuant HAR §13-275-6. These evaluations are required to be submitted in an archaeological inventory survey (AIS) report, if the historic properties were found during an inventory survey. HDOT has not initiated the HRS §6E-8 historic preservation review process with SHPD currently. During a phone call on October 10, 2024, between HDOT [Pua Aiu] and SHPD [Stephanie Hacker], HDOT clarified that the full AIS report is forthcoming. SHPD will comment on these evaluations when we are provided with an opportunity to review the full draft AIS report.

SHPD looks forward to HDOT initiating the HRS §6E-8 historic preservation review process and the receipt of a draft AIS report meeting the requirements of HAR §13-276-5 for review and acceptance.

Please also note, HDOT needs to complete the SIHP number request process for the newly identified archaeological historic properties listed in Attachments 1, 2, and 3, and any additional newly identified historic properties prior to the acceptance of the AIS report. This includes consultation with ethnic organizations or members of the ethnic group for whom some of the historic properties may have significance under criterion "e" to seek their views on the significance evaluations. For native Hawaiian properties which may have significance under criterion "e" the Office of Hawaiian Affairs also shall be consulted.

Please submit all forthcoming correspondence related to the subject project and complete the SIHP number application process by responding to our requests under HICRIS Project No. 2023PR00135.

HDOT and FHWA are the offices of record for this undertaking. Please maintain a copy of this letter with your environmental review record for this undertaking.

Contact Susan A. Lebo, Archaeology Branch Chief, at Susan.A.Lebo@hawaii.gov, for any matters regarding archaeological resources or this letter.

Aloha

Dawn N. S. Chang, Esq.
DLNR Chairperson
State Historic Preservation Officer

cc: Pua Aiu, pua.aiu@hawaii.gov
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Attachment 1: The 11 archaeological historic properties located within the preferred alternative highway alignment portion of the APE. FHWA evaluated these sites as eligible for listing in the NRHP in the report received under Submission No. 2023PR00135.011. The SHPO concurred with the FHWA's evaluations for these sites on October 11, 2024 (Project No. 2023PR00135, Doc. No. 2410SH08).

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
AA2216-017	Surface Scatter	Habitation and Tool Production	D	Location, Materials, Association
AA2216-018	Surface Scatter	Habitation and Tool Production	D	Location, Materials, Association
AA2216-022	Well	Water Control	D	Location, Design, Material, Workmanship, Feeling
AA2216-023	Alignment, C-Shape, Enclosure, Mound, Terrace	Agriculture, Ceremonial, Habitation	D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-028	Multi-Component Wall and Barbed Wire Fenceline	Animal Husbandry, Pasture Delineation	D	Location, Material, Setting, Feeling, and Association
AA2216-072	Enclosure, Mound, Wall	Agriculture, Habitation	A, C, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
AA2216-091	Surface Scatter	Activity Area	D	Location, Material, Association

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
AA2216-100	Rock shelter	Temporary Habitation	A, D	Location, Feeling, Association
AA2216-106	Habitation and Agricultural Complex	Agriculture, Possible Burial, Ceremony, Temporary Habitation	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-107	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	Agriculture and Habitation	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
50-50-08-04700	Habitation Complex	Temporary Habitation	D	Location, Design, Setting, Materials, Workmanship, Feeling, Association

Attachment 2: The additional 22 archaeological historic properties located within the Ukumehame section of the APE. The FHWA evaluated these sites as eligible for listing in the NRHP in the report received under Submission No. 2023PR00135.012. The six archaeological sites included in the report received under Submission No. 2023PR00135.011 have been omitted from this list.

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
AA2216-009	Surface Scatter	Habitation	D	Location, Materials, Association
AA2216-015	Surface Scatter	Habitation	D	Location, Materials, Association
AA2216-020	Surface Scatter	Habitation	D	Location, Materials, Association
AA2216-046	Habitation Complex	Habitation Complex	A, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-050	Agricultural and Ceremonial Complex	Agricultural and Ceremonial Complex	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-068	C-Shape, Mound, Platform, Surface Scatter, Terrace	Agricultural and Ceremonial Complex	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-070	C-Shape, Mound, Terrace	Agriculture and Habitation	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
AA2216-073	Enclosure and Ahu	Permanent Habitation	A, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
AA2216-075	Surface Scatter	Habitation	D	Location
AA2216-088	Terrace, Ahu, Modified Outcrop	Ceremonial Complex	D	Location, Design, Setting, Materials, Feeling

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
AA2216-089	Enclosure, Modified Outcrop, Terrace	Temporary Habitation with a Ceremonial Component	A, D	Location, Design, Setting, Materials, Feeling
AA2216-090	Surface Scatter	Habitation	D	Location, Materials, Association
AA2216-092	Surface Scatter	Habitation	D	Location, Materials, Association
AA2216-095	Modified Outcrop, Mound, Surface Scatter, Terrace	Habitation and Ceremonial Complex	A, D	Location, Setting, Material, Feeling
AA2216-096	Modified Outcrop, Pavement, Petroglyph, Surface Scatter, Terrace	Habitation and Ceremonial Complex	A, D	Location, Design, Setting Materials
AA2216-097	Wall	Boundary	D	Location, Setting, Materials, Feeling, Association
AA2216-098	Rock Shelter	Temporary Habitation	D	Location, Setting, Feeling, Association
AA2216-099	Modified Outcrop and Surface Scatter	Tool Production	A, D	Location, Setting, Feeling, Association
AA2216-101	Rock shelter	Temporary Habitation	D	Location, Setting, Feeling, Association
AA2216-103	Surface Scatter	Tool Production	D	Location, Setting, Feeling, Association
AA2216-105	Temporary Habitation and Ceremony	Temporary Habitation and Ceremony	A, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
AA2216-108	Heiau	Ceremonial	A, C, D	Location, Design, Setting, Materials, Feeling, Association

Attachment 3: The additional 3 archaeological historic properties located within the Olowalu section of the APE. The FHWA evaluated these sites as eligible for listing in the NRHP in the report received under Submission No. 2023PR00135.012. The four archaeological sites included in the report received under Submission No. 2023PR00135.011 have been omitted from this list.

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
AA2216-036	Surface Scatter	Habitation	D	Location, Materials, Association
50-50-08-04701	Modified Outcrop and Platform	Ceremonial	A, D	Location, Design, Setting, Materials, Association
50-50-08-04718	Heiau	Ceremonial	A, D	Location, Design, Materials, Association

Attachment 4: The additional 2 archaeological historic properties located within the Launiupoko section of the proposed realignment. The FHWA evaluated these sites as eligible for listing in the NRHP in the report received under Submission No. 2023PR00135.012. One archaeological site included in the report received under Submission No. 2023PR00135.011 has been omitted from this list.

Temporary Site Number / SIHP #	Formal Type	Functional Type	NHPA Eligibility Criteria	Aspects of Integrity
50-50-08-05955	Terraces, Circular Alignment, Enclosures, Alignments, Mound, Modified Outcrops	Agricultural Complex w/ Ceremonial Component	A, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
50-50-08-05954	Wall	Animal Husbandry	A, D	Location, Material, Setting, Feeling, and Association

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

May 21, 2025

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FHWA-Hawaii.Intake@dot.gov

In Reply Refer To:
HDA-HI

Dawn N. S. Chang, Esq.
State Historic Preservation Officer
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

Subject: National Historic Preservation Act Section 106 Consultation,
Honoapiʻilani Highway Improvements Project,
West Maui: Ukumehame to Launiupoko
Ahupuaʻa of Launiupoko, Olowalu, and Ukumehame, Island of Maui, State of Hawaiʻi
Federal-aid Project No. RAEM-030-1(59)
HICRIS Project No. 2023PR00135
TMK: (2) 4-7-001, (2) 4-8-001, (2) 4-8-002, (2) 4-8-003, (2) 4-8-004 and
Honoapiʻilani Highway Right-of-Way

Dear Ms. Chang:

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaiʻi Department of Transportation (HDOT), is studying alternatives for the Honoapiʻilani Highway from Ukumehame to Launiupoko on the island of Maui. Honoapiʻilani Highway (State Route 30) provides the main access between communities along the west coast of Maui and the rest of the island and is subject to periodic flooding and coastal erosion. The primary purpose of the project is to provide a reliable transportation facility in West Maui by reducing the highway's vulnerability to coastal hazards. Specifically, the project will look at ways to address existing and future erosion and flooding from Ukumehame, at approximately milepost 11, in the vicinity of Papalaua Wayside Park to Lauiopoko, at milepost 17, the existing southern terminus of Lahaina Bypass.

Both state and federal funds will be used for the project. A National Environmental Policy Act (NEPA) Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on November 22, 2022. Because this project employs federal funding, it is subject to review under Section 106 of the National Historic Preservation Act of 1966, as amended (54 United States Code 300101 et seq.) and its implementing regulations (36 Code of Federal Regulations [CFR] Part 800), *Protection of Historic Properties*.

In accordance with Section 106, the HDOT, on behalf of the FHWA, initiated consultation with the State Historic Preservation Division (SHPD), and asked for concurrence on the Area of Potential Effect (APE) on January 23, 2023. The letter also included the list of proposed Section

106 consulting parties and asked SHPD for any available information on other potential consulting parties. In a letter dated March 21, 2023, SHPD responded with no objection to the APE as defined and recommended potential consulting parties for the project. On March 25, 2024, FHWA provided SHPD with a Reconnaissance Level Architectural Historic Resource Survey (RLS); SHPD concurred with the determinations of eligibility in that report in a letter dated July 9, 2024. In addition, FHWA provided SHPD with a Reconnaissance Level Archaeological Complex Site Descriptions and Significance Evaluations report on August 27, 2024. SHPD concurred with eleven eligibility determinations in a letter dated October 11, 2024, and provided concurrence on the remaining 27 archaeological historic properties in a letter dated May 16, 2025. These reports and SHPD responses from 2024 were included in Appendix 3.6 of the project's Draft Environmental Impact Statement (DEIS), which identified a Preferred Alternative and was published in December 2024.

Since that time, refinements to the Preferred Alternative resulted in additional areas requiring survey beyond the previously identified survey corridors. During an archaeological reconnaissance-level survey of the Preferred Alterative in March 2025, archaeologists from ʻĀina Archaeology identified 1 architectural and 3 archaeological properties that required further evaluation. The enclosed reports provide a National Register of Historic Places (NRHP) determination of eligibility for the architectural property and preliminary findings for the 3 archaeological properties pending further investigations that will occur as part of the Archaeological Inventory Survey.

A determination of project effects has yet to be made. FHWA requests the State Historic Preservation Officer's review of the enclosed reports. If you agree with the adequacy of the reports to identify architectural and archaeological historic properties in the additional survey areas and the eligibility determination within the architecture report, please inform us within 30 days of receipt of this letter of your concurrence.

If you have any questions, please feel free to contact Meesa Otani, Transportation Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

Meesa T. Otani

Digitally signed by
MEESA T. OTANI
Date: 2025.05.21
12:03:05 -10'00'

for Richelle M. Takara, P.E.
Division Administrator

Enclosures

cc: Pua Aiu, HDOT
Ken Tatsuguchi, HDOT

U.S. Department of Transportation
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Hawaii Federal-Aid Division

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August 8, 2025

In Reply Refer To:
HDA-HI

Ms. Dawn N.S. Chang, Esq.
Chairperson and State Historic Preservation Officer
Department of Land and Natural Resources
601 Kamokila Boulevard, Suite 555
Kapolei, Hawaii 96707

Subject: National Historic Preservation Act Section 106 Consultation
Honoapiʻilani Highway Improvements Project,
West Maui: Ukumehame to Launiupoko
Ahupuaʻa of Launiupoko, Olowalu, and Ukumehame, Island of Maui, State of Hawaii
Federal-aid Project No. RAEM-030-1(59)
HICRIS Project No. 2023PR00135
TMK: (2) 4-7-001, (2) 4-8-001, (2) 4-8-002, (2) 4-8-003, (2) 4-8-004 and
Honoapiʻilani Highway Right-of-Way

Dear Ms. Chang:

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaiʻi Department of Transportation (HDOT), is nearing completion of the Final Environmental Statement (FEIS) for the Honoapiʻilani Highway Improvements Project ("the Project") from Ukumehame to Launiupoko on the island of Maui.

Consultation Background

In accordance with Section 106, the HDOT, on behalf of the FHWA, initiated consultation with the State Historic Preservation Officer (SHPO) and asked for concurrence on the Area of Potential Effects (APE) on January 23, 2023. The letter also included the list of proposed Section 106 consulting parties and asked SHPO for any available information on other potential consulting parties. In a letter dated March 21, 2023, SHPO responded with no objection to the APE as defined and recommended potential consulting parties for the project. On March 25, 2024, FHWA provided SHPO with a Reconnaissance Level Architectural Historic Resource Survey (RLS); SHPO concurred with the determinations of eligibility in that report in a letter dated July 9, 2024.

The report and SHPO response were included in Appendix 3.6 of the project's Draft Environmental Impact Statement (DEIS), which identified a Preferred Alternative and was published in December 2024. Since that time, refinements to the Preferred Alternative resulted in

additional areas requiring survey beyond the previously identified survey corridors. One additional architectural property was identified, documented in an addendum report and submitted to SHPO via HICRIS on June 3, 2025. A Programmatic Agreement was executed for the Project in July 2025.

Architectural Historic Properties within the APE

The RLS and the addendum report identified a total of 41 architectural properties within the APE. Of these, three were determined to be individually eligible for listing in the National Register of Historic Places (NRHP) and ten were determined to be contributing resources to the NRHP-eligible Olowalu Sugar Plantation Historic District, which is an expansion of the previously identified Olowalu Sugar Mill Complex. Identified historic properties are included in the tables below.

Table 1. Identified Eligible Architectural Historic Properties within the APE

SIHP Number 50-50-08- (Survey ID)	Address/Name	Locality	Style/Form	NRHP Status
04758 (AR 1)	Awalua Cemetery[1]	Olowalu	Cemetery	Eligible (Criteria A and D; Criteria Consideration D)
09141 (AR 16)	802 Olowalu Village Road[2]	Olowalu	Plantation/Bungalow	Eligible (Criteria A)
01603 (AR 17)	Lanakila Historic Church (Olowalu Church and Cemetery)	Olowalu	Religious Structure and Cemetery	Eligible (Criteria A and D; Criteria Consideration D)
01602 (AR 8, Expanded)	Olowalu Sugar Plantation Historic District	Olowalu	Sugar Plantation Infrastructure	Eligible (Criteria A, C, and D)

Table 2. Contributing Resources within the Olowalu Sugar Plantation Historic District (AR 8, Expanded)

SIHP Number 50-50-08- (Survey ID)	Address/Name	Locality	Style/Form
04758 (AR 1)	Awalua Cemetery	Olowalu	Cemetery
01602 (AR 4)	807 Olowalu Road	Olowalu	Plantation/Bungalow
01602 (AR 5)	808 Olowalu Road	Olowalu	Plantation/Bungalow
01602 (AR 6)	810 Olowalu Road (Olowalu Plantation House)	Olowalu	Plantation/Bungalow
01602 (AR 7)	810 Olowalu Road	Olowalu	Plantation/Bungalow

[1] Individually eligible and contributing resource to Olowalu Sugar Plantation Historic District.
[2] Individually eligible and contributing resource to Olowalu Sugar Plantation Historic District.

SIHP Number 50-50-08- (Survey ID)	Address/Name	Locality	Style/Form
01602 (AR 8)	Olowalu Sugar Mill Complex Historic District (Olowalu Landing and Wharf)	Olowalu	Agricultural Processing/Industrial Facility
09141 (AR 16)	802 Olowalu Village Road	Olowalu	Plantation/Bungalow
09143 (AR 19)	Water Tower	Olowalu	20th Century Water Control
09144 (AR 20)	Bridge	Olowalu	Early 20th century steel stringer/multibeam bridge
09151 (AR 31)	Reservoir	Olowalu	20th Century Water Control

Effects Assessment for Architectural Historic Properties

The project's preferred alternative is located mauka and away from the majority of identified historic properties. It would avoid direct, physical effects to individual historic properties within the APE as well as all contributing resources within the Olowalu Sugar Plantation Historic District (See enclosed map). Within the historic district, the preferred alternative is located mauka of the majority of contributing resources and in areas identified in the RLS as non-contributing due to the extensive degree of contemporary disturbance including modern road, utility, and residential developments, as well as natural degradation such as soil erosion and vegetation growth. Near AR 31, the reservoir, the preferred alternative alignment follows an existing bicycle path. While the project results in changes to the existing setting, these changes are not adverse in light of development that has occurred in and around the Olowalu Sugar Plantation Historic District. The project will not alter any of the characteristics that qualify the historic district or individual historic properties for inclusion in the NRHP in a manner that would diminish the integrity of the properties' location, design, setting, materials, workmanship, feeling, or association. As a result, the project will have no adverse effect on the historic district and no effect on the individual historic properties.

Table 3. Effects Assessments for Architectural Historic Properties

SIHP Number 50-50-08- (Survey ID)	Address/Name	Locality	Effect Finding
04758 (AR 1)	Awalua Cemetery	Olowalu	No Effect
01602 (AR 4)	807 Olowalu Road	Olowalu	No Effect
01602 (AR 5)	808 Olowalu Road	Olowalu	No Effect
01602 (AR 6)	810 Olowalu Road (Olowalu Plantation House)	Olowalu	No Effect
01602 (AR 7)	810 Olowalu Road	Olowalu	No Effect

SIHP Number 50-50-08- (Survey ID)	Address/Name	Locality	Effect Finding
01602 (AR 8)	Olowalu Sugar Mill Complex Historic District (Olowalu Landing and Wharf)[3]	Olowalu	No Effect
01602 (AR 8, Expanded)	Olowalu Sugar Plantation Historic District[4]	Olowalu	No Adverse Effect
09141 (AR 16)	802 Olowalu Village Road	Olowalu	No Effect
01603 (AR 17)	Lanakila Historic Church (Olowalu Church and Cemetery)	Olowalu	No Effect
09143 (AR 19)	Water Tower	Olowalu	No Effect
09144 (AR 20)	Bridge	Olowalu	No Effect
09151 (AR 31)	Reservoir	Olowalu	No Effect

Section 4(f) of the U.S. Department of Transportation Act of 1966

Section 4(f) of the U.S. Department of Transportation Act of 1966 established the requirement for the consideration of historic sites and publicly owned parks, recreational areas, and wildlife and waterfowl refuges. The law, now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by the FHWA through 23 CFR 774.

Section 4(f) stipulates that the FHWA and other U.S. DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

- There is no feasible and prudent avoidance alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from such use;

or

- The Administration determines that the use of the property will have a *de minimis* impact.

A *de minimis* impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in either:

1. A Section 106 finding of no adverse effect or no historic properties affected on a historic property; or
2. A determination that the project would not adversely affect the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

[3] Refer to page 55-61 of Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapi‘ilani Highway Improvements, October 2024.

[4] Olowalu Sugar Plantation Historic District (AR 8, Expanded) is an expanded district, which includes Olowalu Sugar Mill Complex Historic District (AR 8) as a contributing resource. Refer to page 233-237 of the RLS.

FHWA intends to make a *de minimis* impact determination based on SHPO's concurrence with the No Adverse Effect determination for the Olowalu Sugar Plantation Historic District.

Effect Determination for Architectural Historic Properties

At this time, the FHWA has applied the criteria of adverse effect at 36 C.F.R. § 800.5(a) and determined in accordance with 36 C.F.R. § 800.5(b) that the Project will have No Adverse Effect on architectural historic properties. FHWA is requesting your concurrence with the No Adverse Effect determination for architectural historic properties for the Honoapi'ilani Highway Improvements Project. If the SHPO disagrees with FHWA's finding, please notify us within 30 days of receipt of this letter. In the absence of a SHPO response by this date, the FHWA will assume the SHPO concurs with this determination.

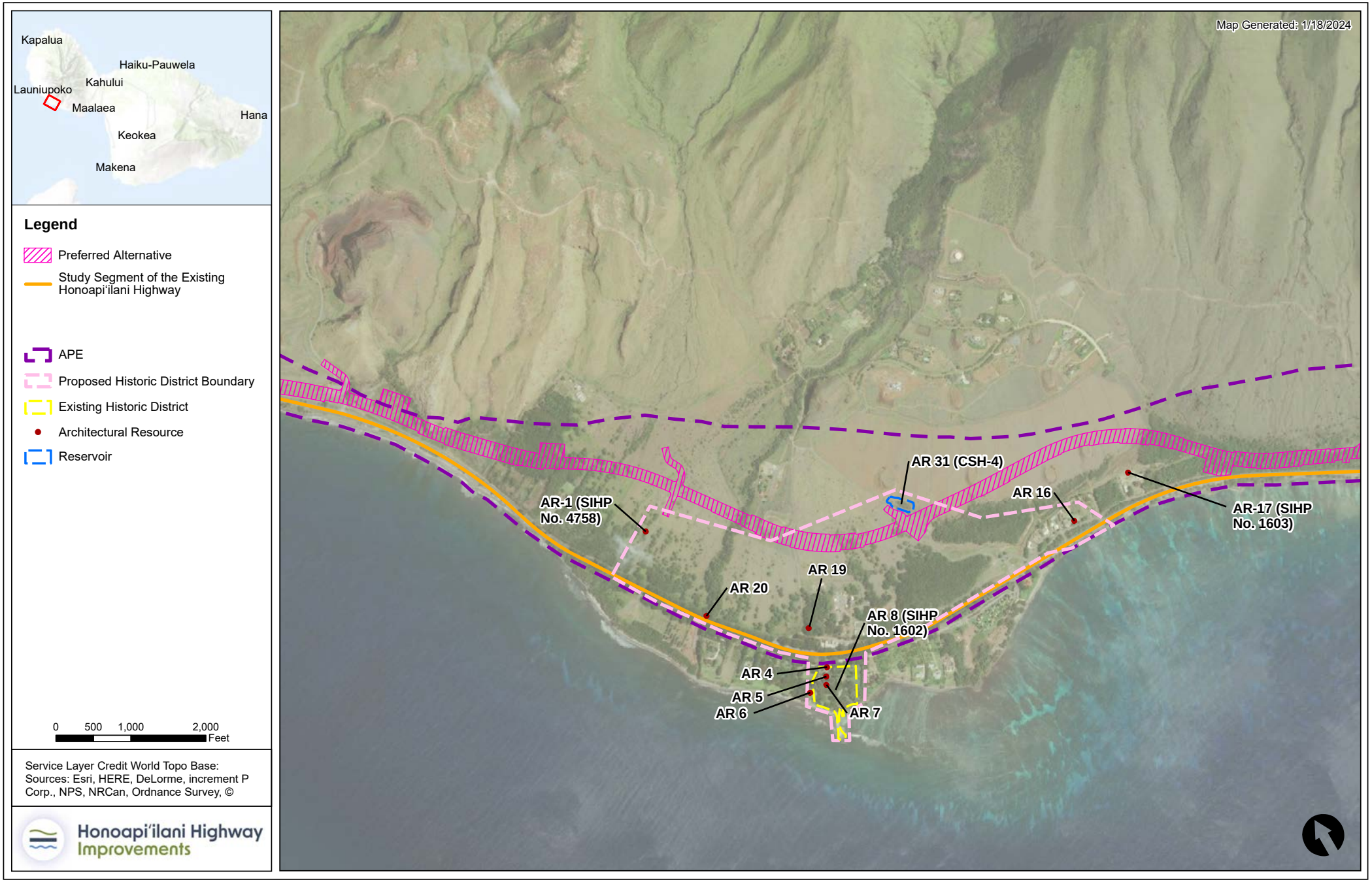
If you have any questions, please feel free to contact Meesa Otani, Transportation Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

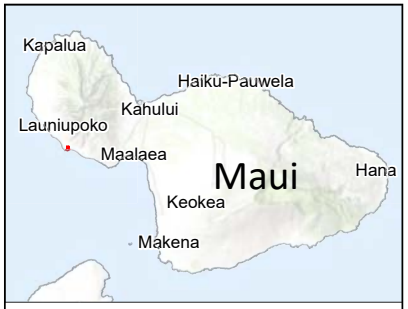
Sincerely,

for Richelle M. Takara, P.E.
Division Administrator, FHWA

Enclosures

cc: Pua Aiu, HDOT
Ken Tatsuguchi, HDOT


Kapalua
Haiku-Pauwela
Kahului
Launiupoko
Maalaea
Hana
Keokea
Makena
Legend
Preferred Alternative
Study Segment of the Existing Honoapi'ilani Highway
APE
Proposed Historic District Boundary
Existing Historic District
Architectural Resource
Reservoir
0 500 1,000 2,000
Feet
Service Layer Credit World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, ©
Honoapi'ilani Highway Improvements
Map Generated: 1/18/2024
AR-1 (SIHP No. 4758)
AR 31 (CSH-4)
AR 16
AR-17 (SIHP No. 1603)
AR 19
AR 20
AR 8 (SIHP No. 1602)
AR 4
AR 5
AR 6
AR 7



Legend

- Preferred Alignment
- Proposed Historic District Boundary
- Reservoir

Service Layer Credit World Imagery: Resource Mapping Hawaii
World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Hawaii Statewide GIS Program, WSP USA

0 35 70 140 Feet

Honoapi'ilani Highway Improvements

Map Generated: 8/6/2025

AR31 (SCH-4)

LUAWAI STREET

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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FIRST DEPUTY

CIARA W.K. KAHAHANE
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AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 13, 2025

IN REPLY REFER TO:
Project No.: 2023PR00135
Document No.: 2508JLP01

Richelle M. Takara, PE
U.S. Department of Transportation
Federal Highway Administration
300 Ala Moana Blvd, Rm 3-229
Box 50206
Honolulu, HI 96850
c/o FHWA-Hawaii.Intake@dot.gov

Dear Richelle M. Takara, PE,

RE: National Historic Preservation Act Section 106 Consultation
Agency: Federal Highway Administration (FHWA)
Honoapiilani Highway Improvement Project, Federal-Aid Project No. RAEM-030-1(59)
West Maui, Ukumehame to Launiupoko
Ahupuaa of Launiopoko, Olowalu, and Ukumehame, island of Maui, State of Hawaii
TMK: (2) 4-7-001, (2) 4-8-001, (2) 4-8-002, (2) 4-8-003, (2) 4-8-004 and Honoapiilani Highway Right-of-_Way

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Thank you for the opportunity to comment on this request from the Federal Highways Administration (FHWA) for consultation and concurrence with the determination of **no adverse effect** for the proposed Honoapiilani Highway Improvement Project. FHWA has determined that this project is an undertaking, as defined in 36 CFR § 800.16(y) and has previously consulted with the Hawaii State Historic Preservation Officer (SHPO) on the Area of Potential Effect (APE) and identification of historic properties.

Based on the information provided, the Hawaii State Historic Preservation Officer (SHPO) has reviewed the undertaking, pursuant to 36 CFR § 800.5(c), and the SHPO **concurs** with the determination of FHWA that the effects of the preferred alternative of the proposed undertaking's alignment will result in **no adverse effect** to architectural historic properties. Should the project scope of work or the preferred

alternative of the project alignment change, the SHPO's concurrence may be rescinded as there are historic architectural resources adjacent to the current proposed alignment that could be affected by a change to the project.

FHWA is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record. If you have any questions about this undertaking or if there is a change to the scope of work, please contact Jessica Puff, SHPD Administrator, at (808) 692-8015 or by email at Jessica.puff@hawaii.gov.

Sincerely,

Dawn Chang
State Historic Preservation Officer
Chairperson, Department of Land and Natural Resources

CC: Meesa Otani, FHWA
Pua Aiu, HDOT
Ken Tatsuguchi, HDOT

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-229
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
FHWA-Hawaii.Intake@dot.gov

August 14, 2025

In Reply Refer To:
HDA-HI

Mr. Reid Nelson
Executive Director
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington, DC 20001

Subject: National Historic Preservation Act Section 106 Programmatic Agreement
Honoapiʻilani Highway Improvements Project, West Maui: Ukumehame to Launiupoko
Federal-aid Project No. RAEM-030-1(59)
ACHP Case No. 020521

Dear Mr. Nelson:

The Federal Highway Administration (FHWA), in cooperation with the Hawaii Department of Transportation (HDOT), executed the Programmatic Agreement for the Honoapiʻilani Highway Improvements Project, West Maui: Ukumehame to Launiupoko.

Pursuant to 36 CFR § 800.6(b)(1)(iv), the FHWA is providing a copy of the executed Programmatic Agreement for your records.

If you have any questions, please feel free to contact Meesa Otani, Transportation Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

for Richelle M. Takara, P.E.
Division Administrator

Enclosure

cc: Pua Aiu, HDOT, HWY-P

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

WHEREAS, the United States Department of Transportation, Federal Highway Administration (FHWA) plans to fund the Honoapiʻilani Highway Improvements Project (Undertaking), which would realign Honoapiʻilani Highway between Ukumehame and Launiupoko in Maui Komohana (West Maui); and

WHEREAS, the State of Hawaiʻi Department of Transportation (HDOT) is the sponsor of the Undertaking, and the FHWA has invited HDOT to become an Invited Signatory to this Programmatic Agreement (PA); and

WHEREAS, the FHWA's action requires review under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) and is considered an Undertaking as defined by 36 C.F.R. § 800.16(y) and is subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. § 306108) and its implementing regulations, 36 C.F.R. Part 800, *Protection of Historic Properties*, as amended; and

WHEREAS, the Undertaking is intended to address existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise, as delineated by the Hawaiʻi Climate Change Mitigation and Adaptation Commission's (HCCC's) Sea Level Rise Exposure Area (SLR-XA); and

WHEREAS, the FHWA has coordinated NHPA Section 106 compliance with the NEPA process and is preparing an Environmental Impact Statement (EIS); and

WHEREAS, the FHWA, in consultation with the Hawaiʻi State Historic Preservation Officer (SHPO), is entering into this Section 106 PA in accordance with 36 C.F.R. § 800.14(b)(1)(ii) because the Undertaking's effects on historic properties cannot be fully determined prior to approval of the Record of Decision; and

WHEREAS, the FHWA in coordination with HDOT, and in consultation with the SHPO, established an Area of Potential Effects (APE) (**Appendix 2**) in accordance with 36 C.F.R. § 800.4(a)(1) to consider potential direct and indirect effects associated with each of the Undertaking's alternatives evaluated in the Draft EIS; and

WHEREAS, due to the size of the APE, limited access, and number of alternatives under consideration, the FHWA and HDOT, in consultation with the SHPO, agreed to phased identification, pursuant to 36 C.F.R. § 800.4(b)(2), as provided in this PA; and

WHEREAS, HDOT intends to use the historic properties identification efforts and documentation prepared for this Undertaking and as described in this PA (Stipulation III) to comply with Hawai'i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai'i Administrative Rules (HAR) § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*, as described in **Appendix 1.** The State Historic Preservation Division (SHPD) therefore has the authority to determine whether or not any report generated under HRS § 6E and its administrative rules is adequate; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP), was invited to participate in the Section 106 consultation and the development of this PA and has declined to participate; and

WHEREAS, the FHWA in coordination with HDOT has consulted with Native Hawaiian Organizations (NHOs) for which the Ahupua'a of Launiupoko, Olowalu, and/or Ukumehame have religious and/or cultural significance, individuals and organizations with a demonstrated interest in the Undertaking, and the public, and has invited the NHOs, individuals, and organizations included in **Appendix 3** to participate as Consulting Parties; and

WHEREAS, the FHWA in coordination with HDOT and pursuant to 36 C.F.R. § 800.2(c) held multiple Consulting Party meetings (listed in **Appendix 4**), has consulted with the Consulting Parties, including the NHOs, individuals, and organizations listed in **Appendix 3**, regarding the effects of the Undertaking on historic properties and has invited them to sign this PA as Concurring Parties; and

WHEREAS, historic properties were found during an archaeological reconnaissance surface survey located within the State of Hawaii, Department of Land and Natural Resources (DLNR) Lands, and the FHWA has invited DLNR to be an Invited Signatory to this PA.

NOW, **THEREFORE**, the FHWA, HDOT, SHPO, and DLNR agree that the Undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The FHWA, in coordination with HDOT, shall ensure that the following measures are carried out.

I. Roles and Responsibilities

A. The FHWA is the agency official legally responsible for all Section 106 findings and determinations and shall ensure that the terms of this PA are carried out to complete the Section 106 process. The FHWA shall continue consultation with the NHOs, individuals, and organizations included in Appendix 3 and as described in this PA.

B. HDOT, as the Undertaking sponsor, will assist the FHWA in the implementation of this PA, including the coordination, management, and oversight of the implementation of the SHPO-approved plans and reports including the Archaeological Inventory Survey Plan (AISP) and any necessary mitigation plans (for example, archaeological monitoring plan, burial treatment plan) required by this PA for continuing archaeological investigations of the Preferred

Alternative through final design and construction of the Undertaking with the assistance of individuals meeting the requirements of Stipulation II.

C. The DLNR, as having jurisdiction over land within and adjacent to the Undertaking's alignment, shall respond to requests for permission to access areas identified by HDOT that require investigations pursuant to this PA, and shall provide comments and/or reviews of documentation prepared by HDOT or its staff in fulfillment of this PA.

D. The SHPO, individually or through staff at the SHPD, shall advise the FHWA in carrying out Section 106 responsibilities for the Undertaking. Based on information provided by the FHWA or by HDOT, on behalf of the FHWA, the SHPO, individually or through staff at the SHPD, shall respond to requests for comments and/or review and approval within the specified review periods regarding the FHWA's National Register of Historic Places (NRHP) eligibility evaluations and proposed measures to avoid, minimize, or mitigate any adverse effects on historic properties that may be identified.

II. Qualifications

All investigations carried out pursuant to this PA shall be conducted by or under the supervision of an individual meeting the Secretary of the Interior's (SOI's) Professional Qualifications Standards for Archaeology or Architectural History, as applicable, pursuant to 36 CFR Part 61, Appendix A, and pursuant to HAR § 13-281, "Rules Governing Professional Qualifications," and HAR § 13-282, "Rules Governing Permits for Archaeological Work" in the State of Hawai'i.

III. Identification and Evaluation of Historic Properties

A. The FHWA, in coordination with HDOT, will ensure all historic properties (both above ground and below ground) identified within the APE are assessed for NRHP eligibility in accordance with 36 C.F.R. § 800.4(c). The FHWA will consider information provided by an individual or organization included in Appendix 3 who attaches religious and/or cultural significance to a property within the APE in making determinations of eligibility.

B. HDOT, in coordination with the FHWA, completed the identification and evaluation of architectural historic properties pursuant to 36 C.F.R. § 800.4(b) and (c). A Reconnaissance Level Architectural Inventory Survey (RLS) was completed that identified and assessed 40 architectural properties within the APE. Three architectural properties were determined to be individually eligible for listing in the NRHP and 10 were determined to be contributing resources to a NRHP-eligible historic district, referred to in the RLS as the Olowalu Sugar Plantation Historic District. The SHPO concurred with the RLS eligibility determinations in a letter dated July 9, 2024.

C. HDOT, in coordination with the FHWA, has completed the identification and initial evaluation of archaeological properties pursuant to 36 C.F.R. § 800.4(b) and (c). This identification and evaluation effort involved an archaeological reconnaissance surface survey comprising each of the four proposed alternatives within the APE. The archaeological survey area was defined by a 300-foot-wide corridor along the centerline of each proposed alternative. The archaeological survey area totaled approximately 493 acres and included both pedestrian survey and targeted drone flyovers unless limited by access or vegetation issues. Access to TMKs (2) 4-8-002-068 and

(2) 4-8-002-057 was not provided by the occupant and will be pursued during the Archaeological Inventory Survey (AIS) if part of the Preferred Alternative.

D. The results of the archaeological reconnaissance surface survey were provided in a document titled *Honoapi'ilani Archaeological Complex Site Descriptions and Significance Evaluations*. Twenty-eight (28) archaeological historic properties were identified and evaluated within Ukumehame Ahupua'a, seven (7) in Olowalu Ahupua'a, and three (3) in Launiupoko Ahupua'a..

E. HDOT's archaeologist, on behalf of HDOT and the FHWA, evaluated 38 archaeological historic properties as individually eligible for listing in the NRHP. The SHPO concurred with eleven (11) of these eligibility determinations in a letter dated October 11, 2024, and provided concurrence on the remaining twenty-seven (27) archaeological historic properties in a letter dated May 16, 2025. HDOT's lead archaeologist also noted that the sites in each ahupua'a extended beyond the archaeological survey boundaries. Because the horizontal and vertical extents of a potential historic district could not be determined based on a reconnaissance survey, no historic district has been identified by the FHWA at this time.

F. HDOT, in coordination with the FHWA, will complete an AIS for any areas not previously surveyed within the Preferred Alternative. Additionally, subsurface archaeological testing will proceed through the design of the Preferred Alternative as locations become accessible.

G. HDOT, in coordination with the FHWA, will ensure an AIS Plan (AISP) is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to 36 C.F.R. § 800.4(b) and (c).

H. HDOT intends to use the identification and documentation of historic properties prepared for this Undertaking to meet the requirement of HRS § 6E-8. The SHPD shall have authority to determine the adequacy of the AISP pursuant to HAR § 13-275 and HAR § 13-276. The SHPO's written approval will be provided to all Signatories, Concurring and Consulting Parties.

IV. Archaeological Inventory Survey (Subsurface Testing Component)

The area of investigation for the subsurface testing component of the AIS is defined as the Undertaking's Preferred Alternative and includes the proposed roadway right-of-way (ROW) and areas designated for utility installation, excavation, grading, connector roads, or construction access and laydown areas.

A. Subsurface Testing Component of the AISP

1. The subsurface testing methodology for the AISP will be developed by HDOT's lead archaeologist in consultation with the Engineering Design Team, as well as Signatories, Concurring and Consulting Parties within one year of execution of the NEPA Record of Decision.

2. HDOT will provide the initial draft of the AISP to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments on the AISP will be shared with the SHPO for consideration in preparing the SHPD's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. HDOT will share the SHPO's comments with Signatories, Concurring and Consulting Parties. The comments may be posted to the project website at https://www.honoapiilanihwyimprovements.com.

5. If the SHPO does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPO's concurrence and move forward accordingly. HDOT, in coordination with the FHWA, will implement the AISP.

6. If the SHPO responds with comments within the 45-day comment period, HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked Final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

7. Subsurface survey fieldwork shall be completed to the extent practicable prior to final design so that any identified subsurface historic properties (that is, archaeological sites or human burials) may be considered in final design and measures be incorporated to avoid and/or minimize potential effects on historic properties and/or human burials.

8. HDOT, in coordination with the FHWA, will provide a written status update to the SHPO, Signatories, Concurring and Consulting Parties of the status of archaeological investigations on a quarterly basis via e-mail and, when requested, via meeting. All status reports will be uploaded to HICRIS Project Number 2023PR00135. Once HDOT's archaeologist sends an end-of-fieldwork letter report to the SHPO, these reports will stop.

B. Archaeological Inventory Survey Report

1. The AIS report will meet the requirements of the SOI's Standards and Guidelines for Archaeological Documentation at 48 Fed. Reg. 44,734 (September 29, 1983), will be submitted to the SHPO for their concurrence on adequacy, and will contain the results of the aboveground archaeological reconnaissance surface survey of the Preferred Alternative and subsurface survey.

2. The draft of the AIS report will be provided to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The report may be posted to the project website at https://www.honoapiilanihwyimprovements.com.

3. The written comments received on the draft AIS report will be shared with the SHPO for consideration in preparing the SHPO's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (45-calendar days total) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. If the SHPO does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPO's approval and move forward accordingly.

5. If the SHPO responds with comments within the 45-day comment period, HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked Final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

C. Curation

All collections, consisting of artifacts, notes, and other materials associated with archaeological and architectural investigations, will be curated in accordance with 36 C.F.R. Part 79 *Curation of Federally Owned and Administered Archaeological Collections* and in accordance with applicable State laws, including HAR § 13-275, -276, -277, -278, and -279. HDOT shall consult with public and private institutions to pursue opportunities to provide public access to the recovered materials.

V. Application of the Criteria of Adverse Effect for Historic Properties

A. The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, will apply the criteria of adverse effect (36 C.F.R. § 800.5(a)(1)) to historic properties within the APE, and document its findings.

B. If, as a result of this analysis, the FHWA determines that the Undertaking may have an adverse effect on any historic property, the FHWA, in coordination with HDOT, will consult with the SHPO, Signatories, and Concurring and Consulting Parties to avoid, minimize, or mitigate adverse effects.

VI. Treatments to Resolve Adverse Effects to Historic Properties

The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, has determined that the following treatment measures, either singularly or in

combination, may be applied to resolve adverse effects to historic properties if adverse effects occur following analysis described in Stipulation V.

Treatment measures listed below may be selected by FHWA in coordination with HDOT and presented to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The SHPO shall have an additional 15-calendar-day review period (total 45 calendar days) upon receipt of all written comments provided in writing by FHWA and HDOT from Signatories and Concurring and Consulting Parties to take comments provided in writing into consideration in preparing the SHPO's written review comments. If the SHPO does not respond within the 45-calendar day review period, HDOT, in coordination with the FHWA, may assume the SHPO's concurrence with the proposed treatment measure and move forward accordingly following written notification to the SHPO, Signatories, Concurring and Consulting Parties.

A. Educational Interpretation. This educational interpretation may include displays, markers, educational pamphlets, brochures or booklets, posters, websites, audio recordings or presentations, or other similar accessible information to educate members of the public on one or more architectural and/or archaeological historic property within the APE. The interpretive element may use images and maps to the extent feasible to convey information to the public.

B. Photogrammetry. HDOT may hire a consultant to conduct historic property documentation through the use of photogrammetry, which requires taking high-resolution digital images to construct 3-D models of aboveground resources including individual structures and buildings or landscape features. Using a high-resolution camera affixed to a drone, digital images will be taken at multiple angles and aligned to extract spatial and visual data to create a digital 3-D model. Data will be extracted from the model, including precise measurements and dimensions, colors, textures, and close-up historic details of the historic property. The model will then be made available for public viewing, if appropriate. A corresponding written or audio recording component will be developed to allow for interpretation and use of the 3-D model. This model may be made available to schools, libraries, or other institutions. In consultation with the NHOs, a final location for the model and agreement with the location will be completed before work on the model is started. If this cannot be accomplished, then only a digital model will be created. If HDOT is required to make contact with a proposed location, two attempts at making contact will be deemed sufficient, after which only a digital model will be created. HDOT, the FHWA, the SHPO, Concurring and Consulting Parties will come to agreement on the parameters for the model before work starts. If there is disagreement, HDOT and the FHWA will make the final decisions.

C. Recordation of Architectural Historic Property. Prior to any substantial alteration or demolition of an individual aboveground architectural historic property, documentation may be undertaken to record the adversely affected property through a National Register of Historic Places registration form, digital photography package, or Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) Level III recordation (68 Fed. Reg. 43,159), as appropriate.

D. Recordation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual aboveground archaeological historic property, documentation may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, acquiring and recording oral information regarding traditional practices, and narrative descriptions meeting the Documentation required in HAR § 13-275-8 for Historical Data Recovery [HAR 13-275-8 (D)] and Ethnographic Documentation [HAR § 13-275-8 (E)].

E. Archaeological Data Recovery. Data recovery excavations may be considered in consultation among the FHWA, HDOT, SHPO, Signatories, Concurring and Consulting Parties. If it is determined by the FHWA through consultation that archaeological data recovery is an appropriate treatment, HDOT will ensure that its archaeologist prepares an archaeological data recovery plan (DRP) that meets the requirements of HAR § 13-278-3 and includes each affected archaeological historic property.

1. If possible, a single DRP will be prepared for the Undertaking and include a section on timing for report completion.

2. HDOT will provide the initial draft of the DRP to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments received will be shared with the SHPO for consideration in preparing the SHPD's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (45-calendar days total), upon receipt of all written comments received by the FHWA and HDOT from Signatories and Concurring and Consulting Parties, to take comments provided in writing by other Consulting Parties into consideration in preparing the SHPO's written review comments.

4. If the SHPO does not respond in writing within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPD's concurrence with the DRP and move forward accordingly following written notification to the SHPD, Signatories, Concurring and Consulting Parties.

5. HDOT, in coordination with the FHWA, shall ensure the archaeological data recovery fieldwork efforts are carried out in accordance with the DRP.

6. Following receipt of comments, HDOT, in coordination with the FHWA and in consultation with the SHPO, Signatories, Concurring and Consulting Parties listed in Appendix 3, will finalize the DRP. HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

VII. Native Hawaiian and Consulting Parties Section 106 Consultation

A. The FHWA, in coordination with HDOT, shall continue to carry out Section 106 consultation with the Maui Lāna'i Islands Burial Council (MLIBC), Signatories, Concurring and Consulting Parties for the identification, evaluation, and any required mitigation of historic properties identified according to the terms of this PA.

B. The FHWA, in coordination with HDOT, shall carry out consultation with the MLIBC, recognized descendants and NHOs, Signatories, Concurring and Consulting Parties for any unanticipated discoveries. The consultation will include identification, evaluation as to whether a discovery meets the definition of a historic property, and consideration of measures to avoid, minimize, or mitigate adverse effects.

VIII. Applicability of this PA to Changes in Undertaking Scope

This PA satisfies the FHWA's responsibilities under Section 106 and is based on information about this Undertaking as defined in the Final EIS. It is the FHWA's responsibility to notify the SHPO, Signatories, Concurring and Consulting Parties of any changes to the Undertaking's design, scope, or footprint and, through consultation, to determine whether any changes to the design, scope, or footprint invalidate the environmental commitments made in the Final EIS and Record of Decision, including those made in this PA. If the FHWA chooses to reopen Section 106 consultation for this Undertaking, the FHWA shall implement the following measures:

A. If the change is within the current APE, then the FHWA shall notify the SHPO in writing of any changes to design or scope in writing. The SHPO shall respond within 30 calendar days of receipt of the e-mail or letter. Date of receipt is the date received in HICRIS Project No. 2023PR00135.

B. If the change is outside the current APE, the FHWA, in coordination with HDOT and in consultation with the SHPO, shall assess and revise the APE as necessary to incorporate any additional areas not previously considered under this PA.

C. The FHWA shall consult the Signatories to this PA to determine if the provisions of this PA should be applied to the additional areas and, if this PA should be applied, whether this PA needs to be amended in accordance with Stipulation XIII to include those areas.

IX. Post-AIS Discoveries

A. In accordance with 36 C.F.R. § 800.13(b)(3), the FHWA, in coordination with HDOT and in consultation with the SHPO, will apply the NRHP Criteria for Evaluation (36 C.F.R. § 60.4) to evaluate any newly identified historic properties and consider measures to avoid, minimize or mitigate adverse effects on historic properties. Additionally, the FHWA, in coordination with HDOT, will consult pursuant to Stipulation III.

B. The FHWA shall forward their evaluation of the newly identified historic properties, finding of effect on newly identified historic properties found during project construction, or unanticipated effects on identified historic properties to the SHPO for review and concurrence.

C. If the SHPO does not respond in writing within the 30-calendar-day review period, the FHWA may assume the SHPO's concurrence with the eligibility determinations.

D. If evidence of burials, human remains, or potential human remains are encountered during construction, HDOT shall suspend all work within 100 feet and protect the remains from further disturbance. The discovery shall be immediately reported to the FHWA, the SHPO, the DLNR, the Maui County medical examiner or coroner, and the Maui Police Department pursuant to HAR § 13-300-40. The DLNR maintains jurisdiction over any inadvertent discovery of human skeletal remains and is responsible for notifications to the MLIBC chair and the Office of Hawaiian Affairs. Contact information is provided in Appendix 5. HDOT is responsible for updating the contact list. If contact information changes, it is the individual party's responsibility to notify the HDOT contact person identified in Appendix 6.

E. HDOT's initial notification may be via phone but must be followed by written notification via e-mail to SHPO and SHPD staff within 24 hours providing written details include date, time, and identification of all parties who were notified and include a brief description of the find and its location. In addition to e-mail, HDOT's notification to the SHPO will be uploaded to HICRIS Project No. 2023PR00135.

F. Identification, documentation, and treatment of all burials, human remains, or potential human remains encountered during construction will be carried out in accordance with HRS § 6E-43.6 and HAR 13-300 (Appendix 1).

X. Confidentiality

Sensitive information concerning the location, character, or ownership of archaeological resources and properties on which burials, human remains, or potential human remains are identified may be withheld from public disclosure in accordance with Section 304 of the NHPA (54 U.S.C. § 307103).

XI. Monitoring and Reporting

Each year following the execution of this PA until it expires or is terminated, HDOT will submit a written status of each PA stipulation to the FHWA.

The FHWA, in coordination with HDOT, shall provide all parties to this PA a written annual summary report detailing work undertaken pursuant to its terms and associated findings. Such report shall include any scheduling changes proposed or implemented, any issues encountered relating to historic or cultural sites, and any disputes and objections received during the FHWA's efforts to carry out the terms of this PA. Additionally, the annual summary report shall include the status of the PA stipulations provided by HDOT to the FHWA and uploaded to HICRIS Project Number 2023RP00135.

HDOT will provide written notification to the FHWA for concurrence once all stipulations have been completed. Upon the FHWA's concurrence and notification therein to all parties to this PA, the Section 106 process will be deemed completed.

XII. Dispute Resolution

Should any Signatory or Concurring Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the FHWA shall notify all parties and initiate consultation to resolve the objection. If the FHWA determines that such objection cannot be resolved, the FHWA will:

A. Forward all documentation relevant to the dispute, including the resolution proposed by the FHWA, to the ACHP. The ACHP shall provide the FHWA in writing with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from ACHP, Signatories, and Concurring Parties and provide them with a copy of this written response. The FHWA will then proceed according to the final decision.

B. If the ACHP does not provide its advice in writing regarding the dispute within the 30-calendar-day review period, the FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to this PA and provide them and the ACHP with a copy of such written response.

C. The responsibilities of the FHWA to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XIII. Amendments

This PA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all Signatories is filed with the ACHP.

XIV. Termination

If any Signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation XIII. If an amendment cannot be reached within 30 calendar days, any Signatory may terminate the PA upon written notification to the other Signatories.

Once the PA is terminated, and prior to work continuing on the Undertaking, the FHWA must either (a) execute an agreement pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. The FHWA shall notify the Signatories as to the course of action they will pursue.

XV. Duration

This PA will be null and void if its terms are not carried out within fifteen (15) years from the date of its execution. Prior to such time, the FHWA may consult with the other Signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XIII.

Execution of this agreement by the FHWA, HDOT, DLNR, and SHPO, and the implementation of its terms is evidence that the FHWA has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP an opportunity to comment.

508
509

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Hawaii State Historic Preservation Officer

By: _____ Date: Jul 9, 2025

Dawn N. S. Chang, Esq.
State Historic Preservation Officer

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Federal Highway Administration

By: _____ Date: 7/10/2025
Richelle M. Takara, PE
Division Administrator

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Transportation

By: _____ Date: 07/10/2025

Edwin Sniffen, Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources (DLNR)

By: _____ Date: Jul 9, 2025

Dawn N. S. Chang, Esq.
Chairperson

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

CONCURRING PARTY

Ka`ahui-Rodrigues `Ohana

Hinano Rodrigues 07/09/2025

By: _____ Date: _____
Hinano Rodrigues]
Ohana Alaka`i

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAI'I DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAI'I STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPI'ILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAI'I

CONCURRING PARTY

Historic Hawaii Foundation

By: Kiersten Faulkner Date: 8/7/2025
Kiersten Faulkner
Executive Director

Appendix 1. HDOT's Hawai'i Revised Statutes (HRS) § 6E Compliance

Memorandum

To: All Signatories, Concurring and Consulting Parties, and the Public

From: State of Hawai‘i Department of Transportation (HDOT)

Re: Hawai‘i Revised Statutes (HRS) § 6E Compliance

The Programmatic Agreement (PA) for this project incorporates references to both federal and State laws and regulations to allow these review processes to work in tandem to the extent possible. Should compliance issues arise under federal or State law, HDOT and the FHWA are committed to resolving disputes through the Dispute Resolution stipulation provided in the PA (Stipulation XII).

In a letter dated January 23, 2023, HDOT initiated consultation with the SHPO under Section 106 of the NHPA of 1966 and its implementing regulations at 36 C.F.R. Part 800. In addition, HDOT initiated Hawai‘i Revised Statutes (HRS) § 6E and Hawai‘i Administrative Rules (HAR) § 13-275 historic preservation review with the State Historic Preservation Division (SHPD) for the proposed project. Although the Federal Highway Administration (FHWA) retains approval authority over Section 106, HDOT has jurisdiction over determining the project’s effects under HRS § 6E-8 and its administrative provisions in HAR § 13-275.

To reduce redundancy, HDOT intends to combine Section 106 and HRS § 6E-8 compliance where possible. HDOT is solely responsible and liable for compliance and implementation of this memorandum.

Roles and Responsibilities

HDOT, as project sponsor, in coordination with the FHWA, will be responsible for the management and development of the SHPD-approved plans and reports, including the Archaeological Inventory Survey Plan (AISP) and any necessary mitigation plans (for example, archaeological monitoring plan, burial treatment plan), required for continuing archaeological investigations of the Preferred Alternative through final design and construction of the project with the assistance of individuals meeting the requirements of Stipulation II.

The SHPD shall advise HDOT and the FHWA in carrying out its State Historic Preservation Review responsibilities for the project. Based on information provided by HDOT, the SHPD shall respond to requests for comments and/or concurrence within the specified review periods.

The SHPD shall review and accept the reports and plans as required by HRS § 6E and its implementing regulations within the timeframes provided by this PA.

Qualifications

All historic properties investigations and documentation carried out pursuant to this memorandum shall be conducted by or under the supervision of an individual meeting the HAR § 13-281, *Rules Governing Professional Qualifications*, in their respective professional discipline. Historic properties investigations and documentation shall meet the requirements of HAR § 13-275 and the appropriate HAR for specific

types of studies. Archaeologists will have a permit to do archaeological work in Hawaii per HAR § 13-282-3. HDOT, through its contractors, will identify an osteologist who can be available on an as-needed basis in the event the ethnicity of a burial is needed, or if bone fragments cannot be positively identified as human by the on-site archaeologist. The osteologist will follow the standards for analysis and reporting as defined in HAR § 13-283.

Project Area

The HRS § 6E-8 Project Area will coincide with the Preferred Alternative, once selected (see Appendix 2).

Consultation

Consultation for this project will follow the requirements and timetables within this PA. HDOT, with the FHWA, will develop a continued community dialogue plan to address the need for continued community consultation through planning, design, and construction of this project. The plan is in Appendix 6 and addresses communication protocols regarding:

1. Inadvertent effects to known historic properties within the Project Area

In the event there are inadvertent effects to known historic properties, other than burials (see Stipulation IX of this PA and Section 6 below) within the Project Area, the contractor shall contact HDOT immediately. HDOT shall contact the FHWA, Signatories, Concurring and Consulting Parties listed in Appendix 3 within 72 hours and provide:

A. Information about the site affected including site number, site location, and a map of the site and its location including where damage was done and the nature of the damage;

B. Why protections were not enforced, if known;

C. Proposed mitigation and/or protections for the site; and

D. Plans for in-person consultation, if necessary.

2. Identification and Evaluation of Historic Properties

HDOT and the FHWA intend to use the investigations and documentation of historic properties prepared for this project and as described in the PA (Stipulation III) to comply with HRS § 6E and its administrative provisions in HAR § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*. HDOT will evaluate potential historic properties for integrity and significance in accordance with HAR § 13-275-6.

A. Phased Archaeological Inventory Survey

i. HDOT, in coordination with the FHWA, intends to conduct a phased identification and evaluation of archaeological historic properties for this project. The first phase, consisting of an aboveground archaeological reconnaissance surface survey, is described in Stipulation III of the PA, as mentioned above. For the second phase, an AISP will be

developed and implemented as described in the PA, Stipulation IV. HDOT will ensure the AISP is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to HAR § 13-275-5(c) and 5(d) and HAR § 13-276.

ii. A final AIS report will be prepared that includes the results of the archaeological reconnaissance surface survey, the archaeological subsurface survey, and other requirements, as required by HAR § 13-276. The report will be provided to the SHPD for review and acceptance. The report will also be provided to Signatories, Concurring and Consulting Parties listed in Appendix 3 for review and comment as provided in Stipulation IV.B of the PA.

B. Archaeological Monitoring

Per HAR § 13-279-3, Archaeological monitoring may be used as an identification, mitigation, or post-mitigation measure. For this project, on-site archaeological monitoring will be used as an identification measure during construction.

Following completion of the AIS, HDOT, through its contractors, shall oversee the development of an Archaeological Monitoring Plan (AMP) for the SHPD's review prior to project construction. The AMP will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the PA's Signatories, including the SHPD, Concurring and Consulting Parties and submitted for a 30-calendar-day review and comment period. The SHPD shall have an additional 15 calendar days to review the comments of the other parties and take them into account in their own comments.

i. Archaeological monitoring during construction will be implemented by HDOT and under the supervision of an archaeologist meeting the qualifications stated above in the Qualifications section.

ii. HDOT shall contract with an on-call osteologist who can be in the field within 24 hours should additional expertise be needed to identify skeletal remains found in the Project Area. HDOT's lead archaeologist, in consultation with the SHPD, will decide whether an osteologist is needed on-site.

C. Cultural Monitoring

Although not yet required by State or federal law, cultural monitoring is increasingly used in Hawai'i to address Native Hawaiian concerns that archaeologists and developers do not adequately value or protect Native Hawaiians' irreplaceable cultural heritage and iwi kūpuna *(see Bolante, 2007; Cachola Abad and Ayau, 1999; Kawelu 2013).* HDOT and the FHWA are committed to ensuring Native Hawaiian culture is valued and are including cultural monitors as an integral part of the monitoring program for this project.

i. HDOT, through its contractor, will develop a Cultural Monitoring Plan (CMP) that references and utilizes HAR § 13-279, *Rules Governing Standards for Archaeological*

Monitoring Studies and Reports as a guiding framework. The CMP will be completed prior to construction.

ii. Consulting Parties and the NHOs listed on Appendix 3 shall have 30 days to review and comment on the CMP. The SHPD shall be provided the CMP at the same time as the Consulting Parties and NHOs. The SHPD shall have a total of 45 days to review the document and provide recommendations for acceptance, including time to incorporate any comments received from the NHOs and Consulting Parties.

iii. HDOT, through its contractor, will hire cultural monitors to be on site whenever construction activities meet any of the following conditions:

   a. Are within 100 feet of an archaeological site to be preserved or avoided.

   b. Subsurface excavation is occurring, in which case, one Cultural Monitor will be assigned per machine.

   c. Additional duties as specified in the CMP will include but may not be limited to:
      1. Provide independent interpretations where appropriate should traditional cultural resources be encountered in the HRS § 6E Project Area. Such resources may include but not be limited to iwi kūpuna, archaeological finds, or traditional cultural places.
      2. Implement culturally appropriate protocols for access to cultural resources that may include but not be limited to entering traditional cultural spaces, the discovery, care, and handling of iwi kūpuna, and opening and closing protocols where appropriate.
      3. Collection of culturally significant information, where appropriate, during the course of the project.
      4. Coordinate with HDOT and the FHWA to address any cultural protocol or communication matters involving recognized cultural or lineal descendants and/or the NHOs.
      5. Support the maintenance of a culturally sensitive workplace through training and awareness building that ensures that the archaeological crew, construction crew, and project leadership are informed of the traditional significance of the Project Area and community concerns regarding cultural sites.

iv. Cultural monitors will not have the authority to stop work. They will consult and coordinate with the archaeologist on site, who will have the authority to stop work. Conditions for stopping work will be addressed in the AMP and CMP.

v. Cultural monitors will, at a minimum, meet the following:

   a. Have knowledge of cultural practices along the project corridor, including appropriate chants and mele for the area.

   b. Have knowledge of cultural resources along the project corridor.

c. Have an understanding of the Section 106 and HRS § 6E processes and how they apply to this project.

vi. The Cultural and Archaeological Monitoring are independent but coordinated efforts. The content of the archaeological monitoring report will include a section that summarizes cultural monitoring findings and activities and shall either be written by the Cultural monitors or compiled in close collaboration with them in a manner that ensures their perspectives are represented without duplicating archaeological content.

vii. The relationship between the construction crew and the archaeological and cultural monitors will be defined in the AMP and CMP. For example, if iwi kūpuna are found or a historic site is breached, or a newly identified archaeological site is encountered, work will stop within 100 feet of the find. These procedures will be described in both the CMP and the AMP.

3. Determining Effects to Historic Properties

HDOT, in coordination with the FHWA, will determine the effects to significant historic properties within the Preferred Alternative consistent with HAR § 13-275-7. One of the following effect determinations will be made:

A. No historic properties affected. The project will have no effect on significant historic properties;

B. Effect, with proposed mitigation commitments. The project will affect one or more significant historic properties, and the effects will be potentially harmful. However, the agency has proposed mitigation commitments involving one or more forms of mitigation to reasonably and acceptably mitigate the harmful effects.

The effect determination shall be sent to the SHPD for review and concurrence and posted on https://www.honoapiilanihwyimprovements.com with notification to Signatories, Concurring and Consulting Parties of the PA for their comments. After 30 calendar days, HDOT shall send all comments received to the SHPD. The SHPD shall provide its concurrence, or non-concurrence with HDOT's project effect determination pursuant to HAR § 13-275-7, within 45 calendar days of receipt of an HDOT request for agreement on its effect determinations. Receipt date shall be the date a letter is received in HICRIS Project No. 2023PR00135.

4. Mitigation Options for Effects to Significant Historic Properties

HAR § 13-275-8(2) requires that, for properties evaluated as significant under criterion "e," the agency must consult with ethnic organizations or members of the ethnic group for whom the properties have significance. For this project, all sites significant under criterion "e" are significant to Native Hawaiians. HDOT has consulted with the SHPD, Signatories, Concurring and Consulting Parties listed in Appendix 3 and will continue to seek their views on proposed forms of mitigation as outlined in this PA in the event adverse effects cannot be fully avoided.

A. *Preservation.* If appropriate, as determined through consultation, mitigation of effects on significant historic properties may include preservation per HAR § 13-275-8. This includes

avoidance and protection (conservation), stabilization, rehabilitation, restoration, reconstruction, interpretation, or appropriate cultural use of the significant historic property. Application of this mitigation measure will be made following the SHPD's acceptance of a preservation plan meeting the requirements of HAR § 13-277.

B. *Data Recovery.* In the event that effects cannot be avoided, mitigation is provided in HAR § 13-275-8. Mitigation in the form of data recovery excavations shall occur in accordance with an SHPD-approved Data Recovery Plan (DRP) as defined in HAR § 13-278-3.

C. *Alternative Mitigation*. The FHWA and HDOT, in consultation with the SHPD and NHOs, will continue consultation to determine if alternate mitigation under HAR § 13-275-8(2) is appropriate.

D. *Access and Stewardship.*

i. *DLNR Involvement.* Most of the archaeological sites are located on Department of Land and Natural Resources (DLNR) property. HDOT has invited the DLNR to be an Invited Signatory to this agreement and for the DLNR to develop a stewardship agreement with interested NHOs. Failure to finalize an agreement prior to signing a stewardship agreement will not affect implementation of the PA or this memorandum.

ii. *Permanent access*. HDOT will work with the DLNR to ensure that the NHOs have access to the sites that they would like to steward and are on DLNR properties. HDOT has identified a 10,000-square-foot site and may provide graded, graveled access to the site from the highway. Failure to come to agreement will not affect implementation or completion of this agreement. If no agreement is reached by the time construction is complete, HDOT and the FHWA may be considered to have fulfilled this item. The NHOs and the DLNR may continue to work on a stewardship agreement, but HDOT and the FHWA's commitments will be considered complete.

iii. *Removal of pohaku*. The timing and removal of the pohaku will be a part of the DRP. Removal of pohaku will be overseen by HDOT's lead archaeologist and a cultural monitor and may involve the use of construction equipment, such as a backhoe or excavator. The NHOs will provide HDOT with point-of-contact (POC) information to coordinate this activity. The cultural monitor and archaeologist will consult with the NHOs listed in Appendix 3 regarding the removal of the rocks as a part of the DRP.

5. Pre-Construction Training

A. Prior to construction activities, HDOT, through its contractors, and in coordination with the FHWA, will conduct pre-construction, on-site archaeological and cultural awareness training led by HDOT's lead archaeologist, archaeological monitors, and cultural monitors for anyone with access to the construction site, including all laborers, skilled construction workers, vehicle operators, management, and visitors. The training will explain the cultural significance of the areas in which work is being performed, HDOT's approach to HRS § 6E-8 compliance, conditions and requirements set forth in this PA, procedures to follow if archaeological or cultural remains are found, and roles and responsibilities of HDOT's archaeological and cultural monitors. The training will be repeated when new staff or new

visitors are on site. A training log of everyone who took the training will be maintained in the contractor's field office. HDOT's lead archaeologist and a cultural monitor will sign off on the log. Additional details may be provided in the Archaeological and Cultural Monitoring Plans.

B. HDOT, through its contractors, shall ensure that the cultural and archaeological monitors receive standard safety training provided for all persons accessing a construction site and working in proximity to heavy equipment.

C. HDOT, through its contractors, will provide training participants with contact information for those required to receive discovery and safety incidence notifications. The AMP and CMP will be provided to all parties and a copy will be maintained on site throughout the duration of construction.

6. Burials and Iwi Kūpuna

A. Previously Identified Burial Sites

"Previously identified" is defined at HAR § 13-300-2.

The Maui/Lāna'i Island Burial Council (MLIBC) has the authority to determine treatment and jurisdiction over all requests to preserve or relocate previously identified Native Hawaiian burial sites.

If a previously identified Native Hawaiian burial site will be affected by the project, HDOT, through its contractor, shall follow HAR § 13-300-33, *Request for council determination to preserve or relocate Native Hawaiian Burial sites.*

If a previously identified non-Hawaiian burial site will be affected by the project, HDOT, through its contractor, shall follow HAR § 13-300-34, *Request for department determination to preserve or relocate non-Native Hawaiian burials sites.*

B. Inadvertent Discovery of Human Remains

"Inadvertent discovery" is defined at HAR § 13-300-2.

The SHPD has jurisdiction over any inadvertent discovery of human skeletal remains and any burial good over 50 years old regardless of ethnicity.

If human skeletal remains are newly identified following the acceptance of the AIS, and not previously identified, HDOT, through its contractor, shall follow HAR § 13-300-40, *Inadvertent discovery of human remains*.

C. Cultural Monitors

During working hours, at least one cultural monitor shall remain at the site where burials or iwi kūpuna are found until they are either removed or reburied. Cultural monitors shall have the authority to pause work if protocols need to be observed. Cultural monitors will be

expected to record information that is relevant to their position. In coordination with the on-site archaeologist, they may pause work at the site to gather any necessary information.

Cultural monitors will assist HDOT in contacting the NHOs and any known lineal or cultural descendants provided by the MLIBC or the SHPD. Cultural monitors will assist HDOT in developing meeting agendas and materials for consultation on the treatment of iwi kūpuna.

D. Relocation and Reburial

If avoidance is not possible, and the MLIBC or SHPD determines the burial must be relocated, HDOT shall provide a burial relocation site, if necessary, to be chosen in consultation with the MLIBC, the NHOs in Appendix 3, and recognized descendants. If it is necessary for iwi kūpuna to be moved out of the Project Area, the MLIBC and recognized descendants will work with HDOT on the design, materials, and construction of up to three burial sites, one per ahupua'a. If the land chosen belongs to the DLNR, HDOT will facilitate agreements regarding access and use of the land. The DLNR will have long-term management of the site.

Statement on the Existing Honoapi'ilani Highway

Upon the successful completion of the project, the existing Honoapi'ilani Highway that will be replaced will be transferred to the County of Maui. Consulting Parties have raised concerns that plans for the existing Honoapi'ilani Highway will affect their traditional and cultural gathering rights. Acknowledging these concerns, HDOT took the following actions:

1. The FHWA and HDOT are working with The Nature Conservancy, who is developing a conceptual plan for incorporating nature-based solutions into plans for the existing Honoapi'ilani Highway entitled, "Olowalu, the Road to Resilience." HDOT has shared NHO concerns with The Nature Conservancy. Periodic updates will be provided by HDOT in their annual report to the SHPD, Signatories, Concurring and Consulting Parties.

2. HDOT has notified and consulted with the SHPD regarding the concerns raised by the NHOs identified in Appendix 3 regarding NHO access to the shoreline and ocean along the existing Honoapi'ilani Highway.

REFERENCES

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1999 He Pane Hoʻomālamalama: Setting the Record Straight and a Second Call for Partnership. Hawaiian Archaeology, 7, 73–81.

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2014 In Their Own Voices: Contemporary Native Hawaiian and Archaeological Narratives about Hawaiian Archaeology. The Contemporary Pacific, Vol. 26, no. 1.

Appendix 2. Area of Potential Effects Map and Project Area Map

Area of Potential Effects Map
(Section 106)

Map Generated: 5/29/2025
Launiupoko
Wailua Pl
Awalua
Lihau
Ka Puali
Olowalu
Luawai St
Nopua
North Road
Olowalu Cane Haul Rd
Honoapiilani Highway
Kailiili
Ehehene St
Ukumehame
Puu Kauoha
Makiwa Gl
Paekii Pl
Pohaku Aeko St
Hanaula Gl
Papalaua Gl
11
12
13
14
15
16
Legend
Area of Potential Effects
Study Segment of the Existing Honoapi'ilani Highway
Roads
Streams
Mile Marker
0 1,000 2,000 4,000
Feet
Service Layer Credit World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat,
Honoapi'ilani Highway
Improvements

Project Area Map
(HRS § 6E)

Map Generated: 5/28/2025
Launiupoko
Awalua
Lihau
Ka Puali
Olowalu
Mopua
Kailiili
Ukumehame
Puu Kaaoha
Makiwa Gl
Hanaula Gl
Papalaua Gl
16
15
14
13
12
11
Legend
Project Area
Study Segment of the Existing Honoapi'ilani Highway
Roads
Streams
Mile Marker
0 1,000 2,000 4,000
Feet
Service Layer Credit World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat,
Honoapi'ilani Highway
Improvements

Appendix 3: List of Consulting Parties

Consulting Parties

First Name	Last Name	Organization
Jordan	Calpito	SHPD
Connie	Applegate	Ohana Kaahui
DeSilva	Lance	DLNR-DOFAW
Donora	Kahaialii	Ohana Kahaialii
Earl	Kukahiko	Lahaina Kupuna Council
Felimon	Sedang	Lahaina Kupuna Council
Fretz	Scott	DLNR-DOFAW
Glenn	Gazmen	
hmkingdomofhawaii@gmail.com		Ohana Kaluna Palafox
Houie and Kathy	Kihune	Ohana Kaahui
Jonette	Kaahui Knight	Ohana Kaahui
Kamakana	Ferreira	OHA
Kaweni	Ibarra	OHA
Kawika	Farm	Maui County CRC
Kiersten	Faulkner	Historic Hawaii Foundation
Lanny	Sinkin	Ohana Kaluna Palafox
Susan	Lebo	SHPD
Chris	Nakahashi	SHPD
Daniel L	Ornellas	DLNR-LD
Andrew K.	Philips	SHPD
Pomaikaʻi	Kaniaupio-Crozier	Mauna Halawai Watershed
Puanani	Felicilda	
Jessica	Puff	SHPD
Rina	Sampson	Lahaina Kupuna Council
Hinano	Rodrigues	Ohana Kaahui
Thelma P.	Kaahui	Ohana Kaahui
Tiana	Lewis	Kipuka Olowalu
Ekolu	Lindsey	Kipuka Olowalu/Ohana Lindsey
Foster	Ampong	Ohana Kekahuna and Keaweiwi
George Tosh	Fujita	Ohana Kaluna Palafox
Jessica	Nahoʻoikaika	Ohana Nahoʻoikaika
Jezelyn		
Kai	Nishiki	Community Advocate
Kaulu	Nahoʻoikaika	Ohana Nahoʻoikaika
Nathan	Nahoʻoikaika	Ohana Nahoʻoikaika
Keeaumoku	Kapu	Ohana Kapu

Kaipo	Kekona	Aha Moku o Maui – Kāʻanapali Moku
Ui	Kapu	Ohana Kapu
Leona	Nahoʻoikaika	Ohana Nahoʻoikaika
Linda	Magalianes	Ohana Nahoʻoikaika
Malihini Keahi	Heath	Ohana Haia
Fay	Mcfarlane	Nā ʻAikāne o Maui, Inc. – Kakoʻo Technical
Tiare	Lawrence	Ohana Nahoʻoikaika
Victoria	Kaluna-Palafox	Ohana Kaluna Palafox
Wilmont	Kahaialii	Ohana Kahaialii
Tamara	Farnsworth	The Nature Conservancy, Maui
Kaponoʻai	Molitau	County of Maui Department of ʻŌiwi Resources
Kekai	Robinson	County of Maui Department of ʻŌiwi Resources
Janet	Six	County of Maui Department of ʻŌiwi Resources
April	Greenburg	SHPD
Samantha	Gehrman	SHPD
Leinoa	Wong	SHPD

Appendix 4: List of Section 106 and HRS § 6E Consulting Party Meetings and Dates

Consulting Party Meeting Dates

April 7, 2022, In-person with NHOs from the area, set up by Keeaumoku Kapu
April 7 and 8, 2022, Hinano Rodrigues
April 8, Ekolu Lindsey, Kipuka Olowalu/Olowalu Cultural Reserve
March 29 and 30, 2023, Virtual
May 31, 2023, NHO, FHWA Field Visit
June 1, 2023, Presentation to Maui Cultural Resources Commission
July 27, 2023, Virtual Consulting Party Meeting: Archaeology/Cultural
August 2, 2023, Virtual Consulting Party Meeting: Architecture
November 2, 2023, SHPD, FHWA, HDOT
November 18, 2023, NHO Field Visit
November 20, 2023, Virtual Consulting Party Meeting: Archaeology/Cultural
March 28, 2024, SHPD Field Visit
September 22, 2024, Presentation to Na Kupuna o Lahaina Advisory Board, NHOs, Consulting Parties: Archaeology and Programmatic Agreement
September 26, 2024, NHOs and other Consulting Parties, Virtual: Archaeology and Programmatic Agreement
February 12, 2025, NHOs and other Consulting Parties: Programmatic Agreement
April 4, 2025, NHOs and other Consulting Parties: Programmatic Agreement
May 22, 2025, SHPD and FHWA: Programmatic Agreement
May 28, 2025, SHPD and FHWA: Programmatic Agreement
June 4, 2025, SHPD and FHWA: Programmatic Agreement

Appendix 5: Call Chart and Contact List for Inadvertent Discoveries

If discovery is of suspected human remains

- Osteologist or Physical Anthropologist confirms remains are human.
- Remains covered with unbleached muslin and a minimum 100 ft. protective perimeter from the location of the remains is set.

Archaeological Principal Investigator Contacts
FHWA and HDOT

Archaeological Principal Investigator Contacts
Maui Police Department Non-Emergency Line
(808) 244-6400
Maui Police Department Medical Examiner
(808) 463-3833

HDOT Contacts:
SHPD Burial Sites Specialist for Maui Island
SHPD Maui Archaeologist
MLIBC Lāhainā Representative
County of Maui Department of ʻŌiwi Resources
County of Maui Archaeologist

- See contact list for phone and email contact information.
- No further excavation or investigation unless otherwise directed by SHPD.
- Work may continue outside of the protective buffer with the presence of an archaeological and cultural monitor.

If discovery is of a non-burial related archaeological site

- A minimum 100 ft. protective perimeter from the known extent of the site is set.

Archaeological Principal Investigator Contacts
FHWA and HDOT

Archaeological Principal Investigator Contacts
SHPD Maui Archaeologists
SHPD Archaeology Branch Chief
County of Maui Archaeologist

- See contact list for phone and email contact information.
- Any additional archaeological data recovery and data recovery methods will be determined in consultation with SHPD
- Work may continue outside of the protective buffer with the presence of an archaeological and cultural monitor.

Below is a list of individuals to be notified if an inadvertent discovery occurs. Notification information (names, phone numbers, and e-mails) will be continuously updated during project implementation and may be requested from HDOT.

Agency/Position
FHWA
HDOT
Maui Police Department
Maui Police Department Medical Examiner
SHPD Burial Sites Specialist
SHPD Burial Sites Specialist
MLIBC Council Chair
MLIBC Lahaina Representative
SHPD Maui Lead Archaeologist
SHPD Maui Island Archaeologist
SHPD Archaeology Branch Chief
County of Maui Department of ʻŌiwi Resources Director
County of Maui Department of ʻŌiwi Resources Deputy Director
County of Maui Department of ʻŌiwi Resources Principal Archaeologist

Appendix 6: Continued Community Dialogue Plan

Continued Community Dialogue Plan

1. HDOT will provide the name of the HDOT contact during the planning, design, and construction phases of the project before the design-build contract starts.

At least once per month, on or before the last day of the month, HDOT shall provide both the NHOs listed in Appendix 3 and the SHPD with a project update. The project updates for the SHPD shall be sent to HICRIS Project Number 2023PR00135.

2. The project update shall include activities that occurred in the previous month including:

    - Status of the Design Build Contract, including percent of the phase of project that has been completed, and, if applicable, construction locations.
    - Each phase of the archaeological study is addressed in the PA and includes review times for Consulting Parties. The status of review, major comments on the reviews and the HDOT response, will be included in any monthly reports.
    - Status of Construction Mobilization, including hiring and introducing the Archaeological and Cultural Monitors and regular reports on where construction is located.
    - Status of Archaeological and Cultural Monitoring
    - End of Fieldwork and End of Construction
    - Notification when each of the archaeological reports became (or are) available on the project website.
3. If there is nothing new to report, the update will say, “no new information since last month.”
4. If sites are found during subsurface archaeological surveys, HDOT will consult on the identification and evaluation of the historic properties found. HDOT may hold in person or video meetings to discuss the finds, providing the following information:

    - Location of the find (provide a map, if appropriate)
    - Type and function of site, if known
    - If no map is provided, a written description of the relationship of the site to Project Area
    - HDOT effect determination

5. If burials or subsurface archaeology is found during the subsurface inventory survey, the NHOs in Appendix 3 shall be notified per the requirements in the PA. Burials finds and notification shall be noted in the monthly report.
6. In the event there are inadvertent effects to known historic properties within the Project Area, HDOT shall contact the Consulting Parties within 72 hours and provide:

    - Information about the site affected including site number, site location, and a map of the site and its location including where damage was done;
    - Why protections were not enforced, if known;
    - Proposed mitigation and / or protections for the site; and
    - Plans for in-person consultation, if necessary;
    - NHOs may request a site visit, which HDOT will consider. If a site visit is denied, HDOT will provide clear reasons why the site visit is denied.

7. HDOT shall consult with NHOs on mitigation for subsurface and inadvertently discovered archaeological or archaeological sites. Mitigation options are listed in the PA and Appendix 1. Meetings may be on-line or in person.

8. Either HDOT or the NHOs can ask for a meeting to discuss any archaeological or cultural (burials) finds. The meeting may be on-line or in-person.

9. Any NHO may ask for HDOT to hold an in-person meeting rather than an on-line meeting.

10. NHOs may send questions or concerns about the project to the HDOT contact. Provided that there are five days or more before the end of the month, HDOT shall respond in the monthly report. If HDOT cannot respond in the monthly report, then HDOT will note the question in the monthly report, and that it will respond in the next monthly report. At the request of any NHO, HDOT may respond to the question or concern sooner than the monthly report. If this is the case, HDOT will note in the monthly report the response to the question or concern and the date it was provided.

11. Any NHO may ask for a meeting on a subject or concern not raised by HDOT in their monthly reports, provided they have notified HDOT of the issue per item 7 above.

12. If any of the items in #2 above are provided to the general public, HDOT can reference the general public notice site.

13. Review of reports shall follow the schedule provided in the PA.

14. At the completion of the project HDOT shall provide an end of project report to the NHOs.

15. Individual items that may require more than once monthly meetings to resolve shall schedule meetings as necessary and at the convenience of the majority of participants. Progress shall be reported monthly through this protocol.

Consulting Parties Consultation

HONOAPI'ILANI HIGHWAY IMPROVEMENTS SECTION 106 CP/NHO COMMENT SUMMARY

Summary of Topics During Consultation

- Cultural practices are occurring in and around the project area which should be considered in the project analysis.
- There are known burial sites in the project area. Various Native Hawaiian residents indicated areas within the project area where these sites are located.
- There are heiau and pre-contact agricultural sites throughout the project area, inlcuding one associated with the Olowalu City of Refuge.
- There are significant concerns about the effect of the project on the Olowalu Cultural Reserve, including the petroglyphs and Pu'u Kilea. Generally, concerns centered on preserving the serenity of the area and on not creating easy access that would endanger the site(s). Graffiti has already been an issue.
- Kapaiki Village, including Olowalu Church, was also raised as a historic area that should be avoided by the project.
- Two former fishponds were noted: one just makai of Kapaiki Village and another near Launiupoko.
- Stream restoration is occurring along Ukumehame Stream. The practitioners consider this a traditional cultural practice.
- The view plane to and from Kahoolawe was identified as a key viewshed for cultural practices.
- Kealaleloa trail head is near the project area and access to the trail should be preserved.
- Historic sites should be evaluated both as individual sites and as a part of any historic landscape that is present.
- Special care should be used in the areas of walls and heiau structures, as burials as often associated with these structures.
- Many expressed and interest to balance the new with the old and to allow for continued learning from the past.
- Night Marchers are known to travel in the area of Olowalu Stream
- Suggestions for the Programmatic Agreement for the project:
    - Cultural Descendent and Lineal descendent should be clearly defined.
    - Concerns under 6E should be handled in the PA
    - Protocol and practice for dealing with Iwi Kapuna is very important and should be included as a concern in the PA
    - Pokaku should not be relocated out of the project area where they are found
    - Known sites should be delineated with signage to avoid damage during and after construction

Honoapiilani List of Early Consultation/ Pre-NEPA Meetings

1. **Public Meetings**

   The two meetings provided the same presentation and opportunity to ask questions and provide input. Two separate meetings were held at different times of the day, one in the evening and one during mid-day, to allow for those with varying schedules to have an opportunity to attend one or the other.

   1. February 22, 12pm – 2 pm (46 Attendees); and
   2. February 24, 2022, 6pm – 8 pm (43 Attendees).

   Information received during these meetings was used to shape the Purpose and Need statement and begin to frame the draft EIS. Since the NOI and EISPN had not yet been submitted, these meetings were not held under NEPA regulations, but rather in preparation for the NEPA/HEPA process. The purpose of this meeting was to gather input on the Purpose and Need Statement; inform participants of the project development process; initiate discussions of potential alternatives; receive input on resource concerns, and gain input on criteria for design and selecting a preferred alternative.

2. **Native Hawaiian Organizations and Lineal Descendants**

   a. Hinano Rodrigues – Lineal Descendant of Ukumehame and Olowalu, and Maui SHPD
      i. Date: April 7, 2022 (Morning)
      ii. Location: Maui District Office
      iii. Attendees: Hinano Rodrigues, Pua Aiu, Robin Shishido, Annette Matsuda, Lisa Powell, Rachel Adams
      iv. Meeting Notes by FHWA and HDOT in file, Hinano asked to Mark-Up Existing Alignments
   b. Keeaumoku Kapu, Lineal Descendants, and NHOs
      i. Date: April 7, 2022 (Evening)
      ii. Location: Na'aikane O Maui Cultural Center
      iii. Attendees: See Sign-In Sheet
      iv. Meeting Notes by FHWA and HDOT in file, NHOs asked to Mark-up Existing Alignments
   c. Tour of Ukumehame and Olowalu with Hinano Rodrigues
      i. Date: April 8, 2022 (Morning)
      ii. Locations: See Notes
      iii. Attendees: Hinano Rodrigues, Pua Aiu, Robin Shishido, Annette Matsuda, Lisa Powell, Rachel Adams
      iv. Meeting Notes by FHWA and HDOT in file
   d. Olowalu Cultural Reserve – Ekolu Lindsay
      i. Date: April 8, 2022 Mid-Morning

ii. Location: Olowalu Cultural Reserve
iii. Attendees: Ekolu Lindsay, Pua Aiu, Robin Shishido, Annette Matsuda, Lisa Powell, Rachel Adams
iv. Meeting Notes by FHWA and HDOT in file

3. **Maui County Department of Parks and Recreation**

    a. Date: April 25, 2022, 8:30 am
    b. Location: MS Teams
    c. Attendees: David Yamashita (COM Planner – David.Yamashita@co.maui.hi.us); Karla Peters (Karla.Peters@co.maui.hi.us); Samual Marvel (Samual.Marvel@c.maui.hi.us); Genevieve Sullivan, Pua Aiu, Ken Tatsuguchi, Robin Shishido, Brian Tyau, Dexter Eji, Matt Small

4. **Olowalu Developers**

    a. Date: May 25, 2022, 10:30 am
    b. Location: MS Teams
    c. Attendees: Heidi Bigelow (Heidi@westmauiland.com, Mark Matsuda (mark@hopebuildershawaii.com), Dave Ward, Glenn Tremble, Genevieve Sullivan, Pua Aiu, Robin Shishido, Dexter Eji
    d. See RA Meeting Notes in File

5. **Maui County Department of Public Works**
    a. Date: June 2, 2022, 3:30 pm
    b. Location: Blue Jeans
    c. Attendees: Chico Rabara (Chico.rabara@co.maui.hi.us); Gary Ambrose (Gary.Ambrose@co.maui.hi.us); John Smith (John.Smith@co.maui.hi.us); Jordan k. Molina (Jordan.k.Molina@co.maui.hi.us); Ty Takeno (ty.takeno@co.maui.hi.us) Genevieve Sullivan, Pua Aiu, Robin Shishido, Rachel Adams
6. **State Historic Preservation Division** (Note that this was with the Archaeologist)
    a. Date: June 30, 2022, 8:00 am
    b. Location: MS Teams
    c. Attendees: Pua Aiu, Genevieve Sullivan, Tanya Lee-Greig, Andrew McCallister
7. **Maui County Planning**
    a. Date: July 8, 2022, 10:30 am
    b. Location: MS Teams
    c. Attendees: Pua Aiu, Genevieve Sullivan, Robin Shishido, Jennifer Maydan (Jennifer.maydan@co.maui.hi.us), Jeffrey Dack (Jeffrey.dack@co.maui.hi.us), James Buika (James.buika@co.maui.hi.us)
8. **ACOE**
    a. Date: July 29, 2022, 11:00 am
    b. Location: MS Teams
    c. Attendees: Pua Aiu, Genevieve Sullivan, Robin Shishido, Meesa Otani, Lisa Powell, Frank Winter (Frank.J.Winter@usace.army.mil), Jan Reichelderfer

9. OCCL and DLNR-DAR

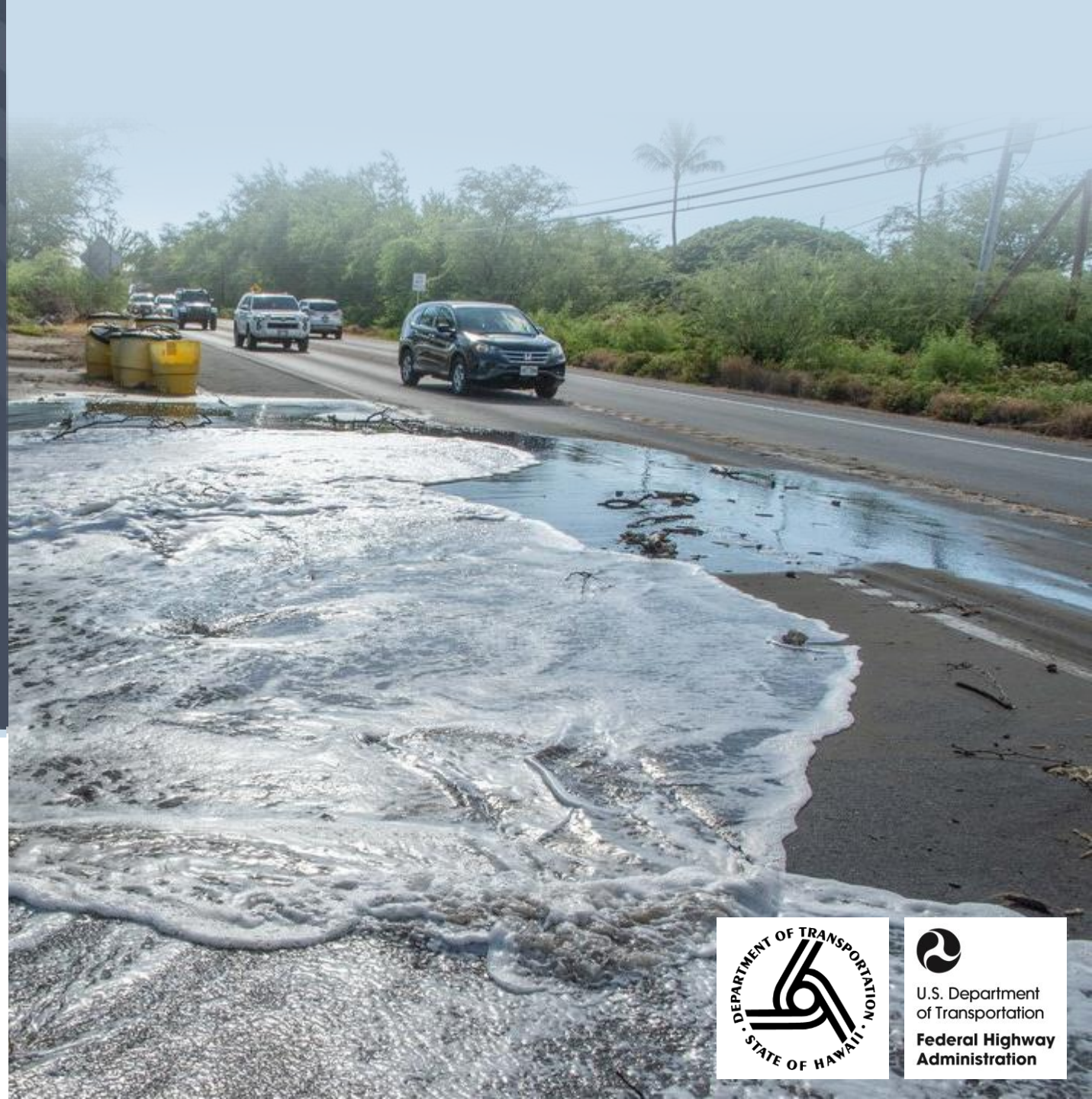
a. Date: September 29, 2022, 11:00 am
b. Location: MS Teams
c. Attendees: Pua Aiu, Genevieve Sullivan, Kendall Tucker, Michael Cain, Wayne Yoshioka, Peter Liebowitz, Rachel Adams

General Public Meetings

February 22 & 24, 2022

Honoapiilani Highway Improvements

West Maui, Ukumehame
to Launiupoko



Community Open House

February 22, 2022 & February 24, 2022

www.HonoapiilaniHwyImprovements.com

DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

Agenda

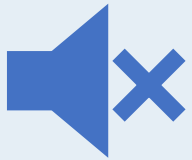
- Ground Rules
- How to Participate/Zoom Tools
- Project Overview
- Planning Process
- Scoping – where we are
- Purpose and Need (NEPA)
- **Question and Answer Session**

Ground Rules

Meeting will be actively facilitated and recorded

Participation is welcomed and encouraged

Treat everyone with kindness and respect



When not speaking, please mute yourself

Telephone callers dial *9 to raise/lower hand

For technical assistance, use the Q&A function

If you are experiencing technical issues, leave the meeting and rejoin

We Want Your Ideas and Feedback

- Are there other **Transportation-related Issues** that the Project's Purpose and Need Should Address?
- Are there **Potential Community Partners** that HDOT and FHWA should engage?
- Relevant Goals of **Land Use** and Future Plans that the Project Must Consider?
- Input on Procedures the Project Should Follow
- **Environmental and Cultural Resource** Information
- Possible **Alternatives** that Address an Identified Project Purpose and Need

How to Submit a Comment

- Provide Comments at this Meeting
- Comment form on the project website: **www.HonoapiilaniHwyImprovements.com**
- By Mail:

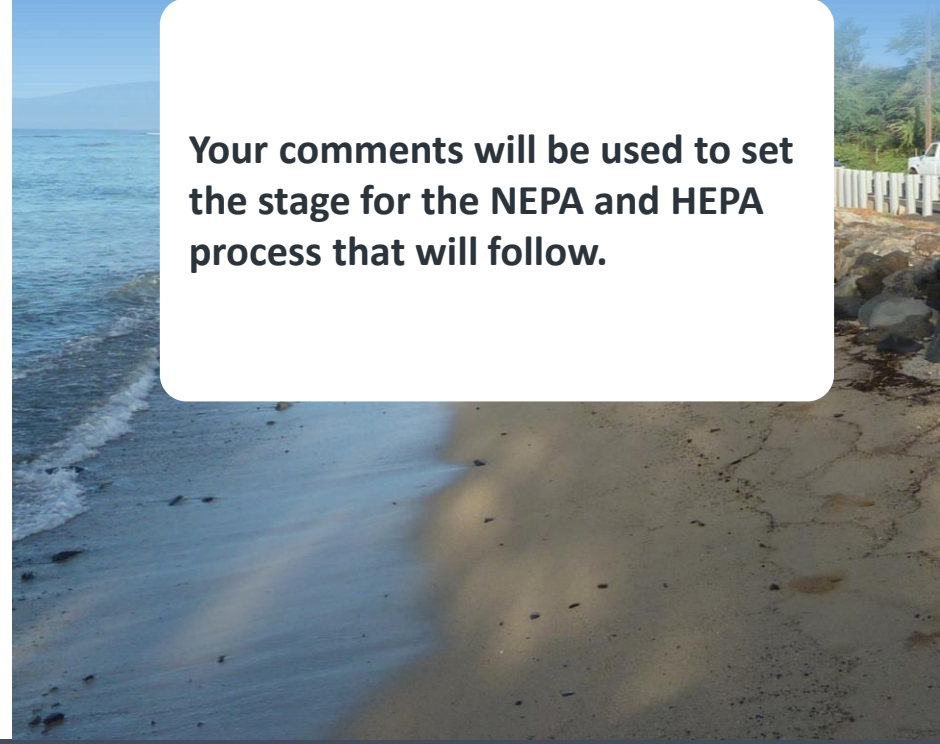
  869 Punchbowl Street, 3rd Floor
  Honolulu, Hawaii 96813-5907

- Opportunities for public input will be provided throughout the project.

- **Early Scoping Comment Deadline: March 25, 2022**

This is a pre-NEPA meeting.

Your comments will be used to set the stage for the NEPA and HEPA process that will follow.



Project Team

Ed Sniffen
Deputy Director of Highways, HDOT

Genevieve Sullivan
Project Manager, HDOT

Robin Shishido
Maui District Engineer, HDOT

Dean Matsui
Preliminary Engineering, HDOT

Ken Tatsuguchi
Planning Program Manager, HDOT

Pua Aiu
Cultural Resource Specialist, HDOT

Brian Tyau
Preliminary Engineering, HDOT

Richelle Takara
Division Administrator, FHWA

Lisa Powell
Project Manager, FHWA

Rachel Adams
Project Manager, WSP

Dexter Eji
Civil Lead, WSP

Matthew Small
Environmental Planner, WSP

Scott Keillor
Meeting Facilitator, WSP

Melissa Uland
Meeting Support, WSP

Nick Fazio
Meeting Technical Support, WSP

Kevin Alvarado
Meeting Technical Support, WSP

Honoapiilani Highway

From Papalua Beach Park to Launiupoko, the Highway is located close to mean sea level and susceptible to coastal erosion and flooding.

This project will look at service reliability, resiliency, and safety for roughly 6 miles from Ukumehame to the Lahaina Bypass.

Current Hazards: Sea Level Rise and Storm Surge

Current Hazards: Flooding and Erosion

Past Efforts

Emergency Repairs:

- Over the past 10 years, this stretch of highway has been repaired three times after storms and high waves damaged the highway.
- A fourth project is currently in development to address erosion (efforts to shift the Highway inland MP 12.97 to MP 14 - near Olowalu)

Planning:

- In 2007 a Notice of Intent to prepare an EIS (Environmental Impact Statement) was published. This looked at 11 miles for capacity, but an EIS was not completed.
- Current project area will focus on the most critical 6 miles for coastal hazards.

Climate Hazards

HDOT Vulnerability Assessment Findings:

2019 *Statewide Coastal Highway Program Report* ranks Honoapiilani Highway at Olowalu (#2) and Ukumehame (#12) as most critical out of 300 sites for ocean hazard vulnerability.

2021 Climate Adaptation Action Plan Exposure Assessments:

- 3.2-foot Sea Level Rise Exposure from Ukumehame to Launiupoko (exception of the stretch at Olowalu).
- Vulnerability to hurricane-related storm surge was identified for areas from Ukumehame to Olowalu.
- Hypothetical tsunami scenario identified the Highway as inundated from Ukumehame to Launiupoko.
- Moderate Rockfall and Landslide Susceptibility at Launiupoko.

HAWAIʻI DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

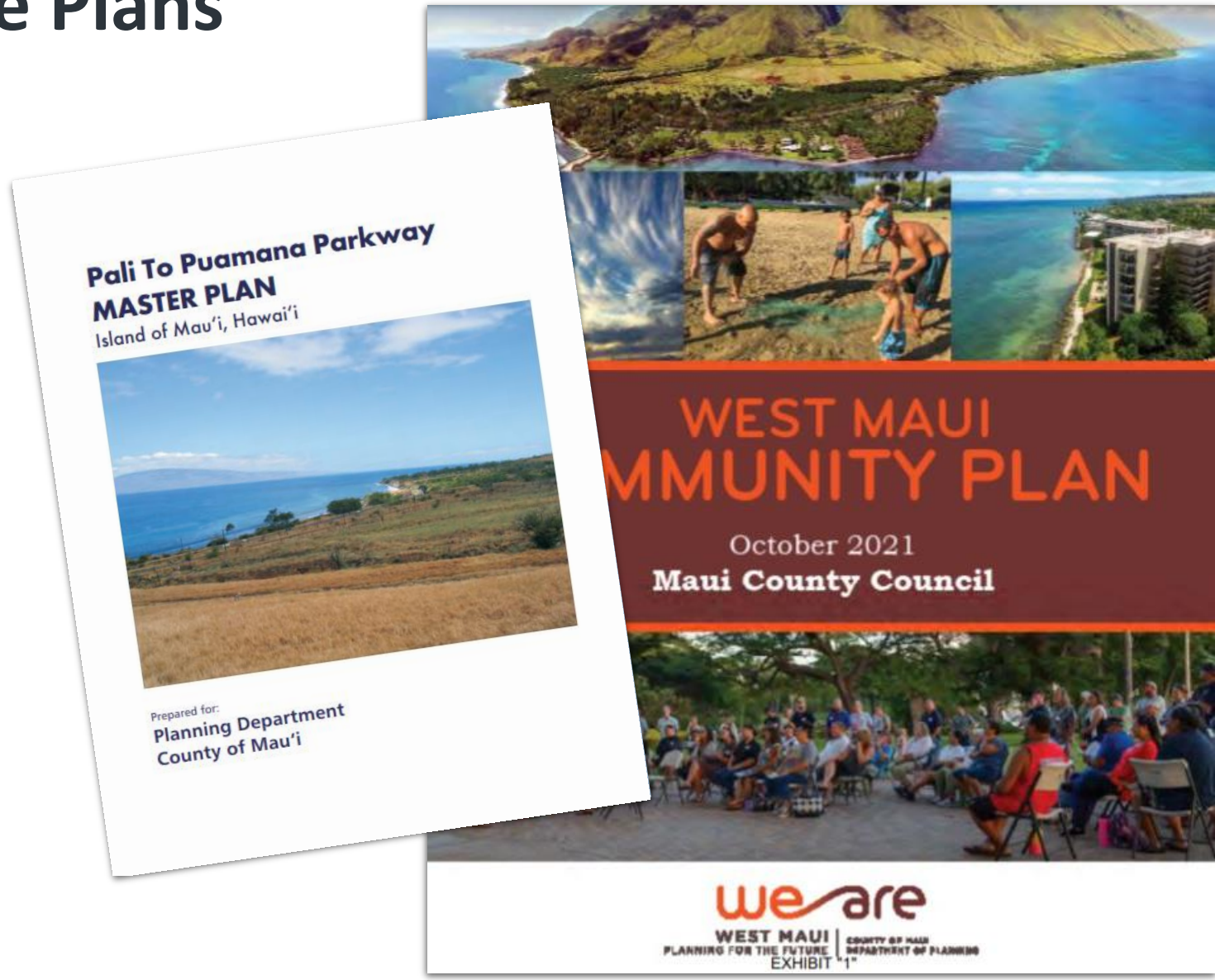
Maui County Land Use Plans

West Maui Community Plan

- Improve resilience of the transportation system to climate change-related hazards such as sea level rise, flooding, and wildfires. (2021)

Pali to Puamana Parkway Master Plan

- Recommends realignment of Honoapiilani Highway from Papalaua Park to Puamana Park to accommodate open space and protect the shoreline environment. (2005)



Transportation Plans

Hele Mai Maui Long Range Transportation Plan

- Spotlights realigning Honoapiilani Highway. It reinforces the Pali to Puamana Parkway Master Plan vision of “safe recreational access to a living shoreline where beaches can migrate inland with sea level rise” (2040).

Maui Transportation Improvement Program

- Improvements to Honoapiilani Highway Vicinity of Mopua, and Vicinity of Ukumehame and Puamana Beach as part of the shoreline protection and mitigation program (2022-2025).

Project Delivery Process

Advanced Plan
5 - 15 Years

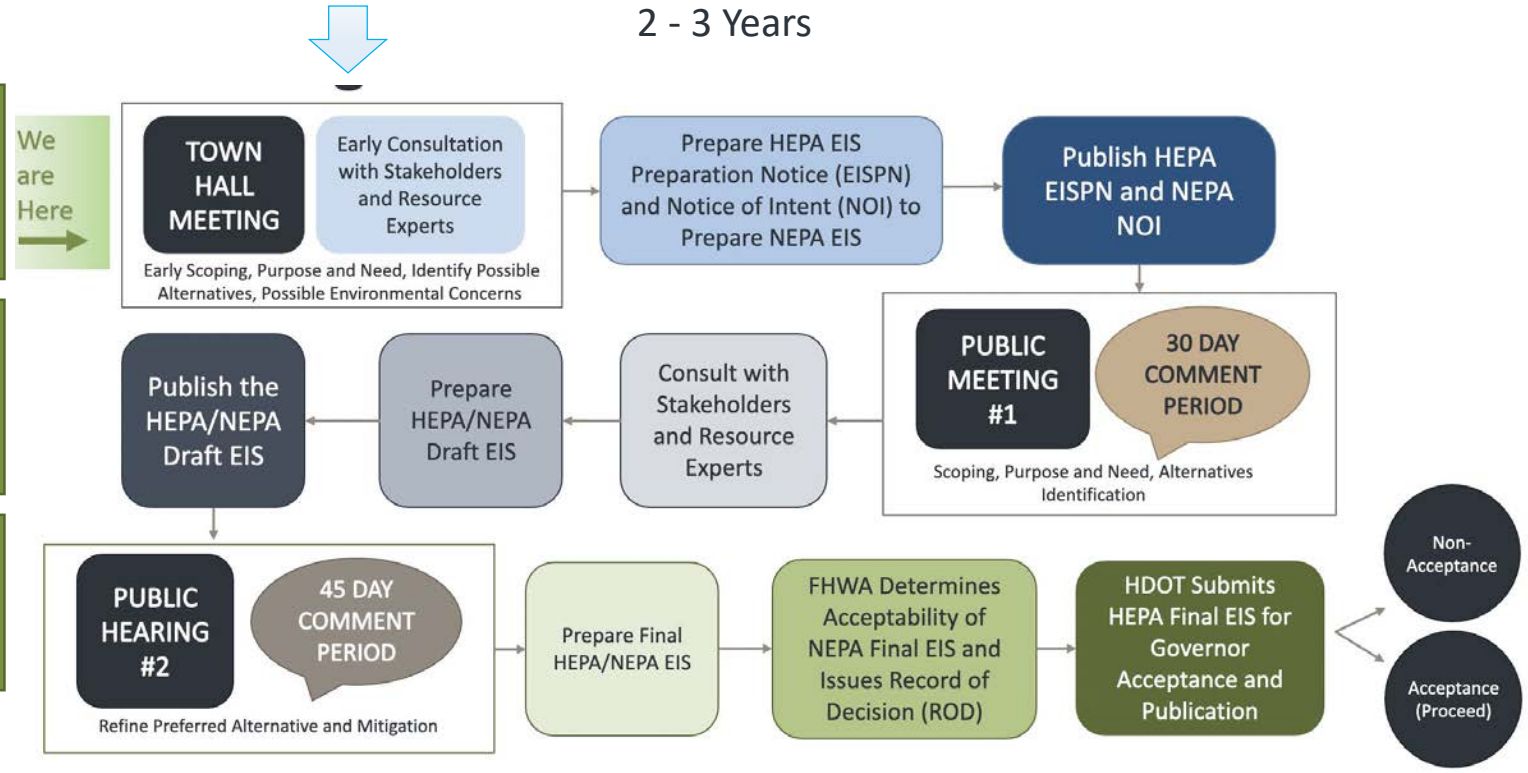
Planning & Environmental Review & Preliminary Design
2 - 3 Years

Final Design & Construction
4 - 6 Years

Hele Mai Maui Long Range Transportation Plan

West Maui Community Plan

Bike Plan Hawaii



Plans

Specifications

Right-of-Way

Construction

Why This Project and Why Now?

Honoapiilani Highway requires a long-term solution to address coastal erosion and ocean hazards that threaten to disrupt Highway services. HDOT has secured a federal grant that provides $22 Million in project costs.

Planning Process

We are Here

TOWN HALL MEETING

Early Consultation with Stakeholders and Resource Experts

Early Scoping, Purpose and Need, Identify Possible Alternatives, Possible Environmental Concerns

Prepare HEPA EIS Preparation Notice (EISPN) and Notice of Intent (NOI) to Prepare NEPA EIS

Publish HEPA EISPN and NEPA NOI

PUBLIC MEETING #1

30 DAY COMMENT PERIOD

Scoping, Purpose and Need, Alternatives Identification

Consult with Stakeholders and Resource Experts

Prepare HEPA/NEPA Draft EIS

Publish the HEPA/NEPA Draft EIS

PUBLIC HEARING #2

45 DAY COMMENT PERIOD

Refine Preferred Alternative and Mitigation

Prepare Final HEPA/NEPA EIS

FHWA Determines Acceptability of NEPA Final EIS and Issues Record of Decision (ROD)

HDOT Submits HEPA Final EIS for Governor Acceptance and Publication

Non-Acceptance

Acceptance (Proceed)

What is Early Scoping?

Gathering of information that will help HDOT and FHWA with project decisions:

- Identifies Potential Community Partners
- Discusses Transportation Issues or Needs
- Describes Environmental and Cultural Resources
- Identifies Relevant Goals of Land Use and Future Plans
- Recommendations on Project Procedures

Photograph By B. Anthony Stewart, Source: national geographic.org, Image of Cast-Net Fishing

What is Purpose and Need?

- Purpose and need of a project is developed early in the planning process.
- Identifies the transportation purposes and needs that are at issue.
- Identifies what the project stakeholders want the project to do once it is complete.
- Designed to identify the purpose and need that FHWA/ HDOT is responding to in proposing alternatives, including the proposed action.
- Assists in the development of a range of alternatives.

Purpose and Need for this project:

- **Improve Roadway Reliability**
- **Address Existing and Future Vulnerability to Ocean Hazards**
- **Provide Consistent Roadway System Connections**
- **Improve Public Safety**
- **Additional Needs?**

Question & Answer

How to participate

- Raise your virtual hand
- Type a question in the Q&A box
- For telephone callers, the last 4 digits of your phone number will be called upon
- Questions will be selected at random, and we will do our best to reach everyone

For more information:

www.HonoapiilaniHwyImprovements.com

- **Comment form**
- **Project updates**
- **Open house announcements**
- **Join our mailing list!**

Next Steps

- Analyze scoping input
- Develop and finalize project objectives, including purpose and need
- Alternatives Development: a “No Build” alternative will be included in the EIS as a baseline reference
- EIS Preparation Notice (State) and NEPA Notice of Intent to Prepare EIS (Federal)
- Draft EIS
- Final EIS/NEPA Record of Decision
- Future meeting dates to coincide with release of the EIS Preparation Notice and Draft EIS

Honoapiilani Highway Improvements

Mahalo!

Questions or Comments?

Contact: Genevieve Sullivan, Project Manager, HDOT
genevieve.h.sullivan@hawaii.gov

www.HonoapiilaniHwyImprovements.com

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Federal Highway Administration

Public Meeting Notes

Honoapiilani Highway Improvements Project

February 22, 2022, 6 PM HST

The following comments and questions were received from meeting attendees regarding the Honoapiilani Highway Improvement project after a project presentation by Robin Shishido, HDOT Highways' Maui District Engineer. See Exhibit A for the presentation and Exhibit B for a list of attendees.

COMMENTS/QUESTIONS

Cara Flores (caraflores@gmail.com) **Are there any plans to put a bike path with a median to keep it away from the road?** Robin: We are collecting information. That's something that we can consider.

Cara Flores (caraflores@gmail.com) **Is there a plan to have multiple access roads eventually?** Yes. We'll look into connector roads.

Leonard Nakoa III **Have you worked with the MPO – Someone from the County was working on a Bike path. Have you talked story with them?** Robin – Yes. We have been in contact with Lauren Armstrong and the MPO group.

Hinano Rodrigues (olowalu@aol.com) **How will this project affect the current residents at Kapaiki?** Robin – The existing highway will remain. Depending on the alternative/solution selected, there will be appropriate connectors coming down.

Miranda (Mirandamcastel@gmail.com) **How far inland from the coast can we move the roadway from Papalaua to Olowalu and then maintain a greenway along the coast. And use more ecologically based planning methods along that area.** Robin – As far as how far inland, we'll definitely look at sea level rise and its impacts. As far as what happens to the existing highway, when we get into the alternatives planning those things will be considered. **Follow up question, the planning methods that are used, will they be more ecologically based, thinking about boosting the economy with eco developments or preservation. The greenway could be a key local resource.** Rachel – Depending on the types of objectives that are voiced in meetings, HDOT is focused on the transportation facilities. This provides an opportunity to look at the connection between the transportation facilities and the surrounding land uses. If there are specific ecological priorities that we should be looking at, please let us know (in addition to the Greenway).

Keaumoku Kapu **Mahalo for the ASL interpreter. There are lots of Olelo speakers who need translation. What is the methodology for doing this work? Moving the highway, revetment? There are historic properties in the area. Is this another band-aid or the long-term fix? Just coming into Olowalu, Mile marker 14, Ukumehame has some bad erosion areas.** Robin – Looking at the 4.5 – 6 mile stretch. We are also looking at short term needs, but this project is looking at long-term solutions. **County has archaeologist who is working on a cultural overlay. State has made mistakes in historic properties identification. Need to talk to the right people. I will be a part of the consultation process.** Robin – We'll definitely be reaching out.

Johann Lall (lalljp@gmail.com) **Have you looked at divided highway vs undivided highway safety? Head on collisions are very likely to be fatal or serious injury crashes. The existing Lahaina bypass is**

undivided even though there's plenty of room for a median. Robin – When we develop the project, we can consider the separation between traffic.

Kalei (kaleifish@gmail.com) **Is the proposed realignment going to go through privately owned property at the Ukumehame Sub-Division? A preliminary figure published reflects it going through private property.** Robin – We don't have any alignments determined yet. We'll be looking at several options including private and government lands.

Marcy – **Pre-covid traffic is back. It's slow moving. The highway can be moved back far from the beach and it could improve beach access for the whole area. It could be four lanes with a longer merge and maybe eliminate the zipper and make a longer merge.** Robin – We are looking at moving the highway inward.

Are we looking at more than a realignment? Robin: The project is to address coastal hazards. We are currently doing some smaller fixes – shifting the roadway within the right-of-way. Rachel – Now is a good opportunity for the public to let us know about future plans for certain parcels, parks, coastal access methods. We are in the process of understanding access issues in the area. When HDOT is creating the plan, we want to incorporate those plans.

Pam Eaton, Maui Planning Department (pam.eaton@co.maui.hi.us) **Hi, I'd like to share information related to West Maui land use and the recently adopted West Maui Community Plan. Adopted in January. www.wearemaui.org. P177 has the land use map for this area. Included a webmap viewer where you can look at the plan and future land use designations.**

Saman – Chair for Maui Bicycling League. **This is an opportunity to make sure that as the highway is moved mauka, creating opportunity for the greenway and then connecting back. MPO is working on a master plan. Want to make sure that everyone is talking to each other. Multi-modal options should be available. Schatz said "It is the dept of transportation, not the dept. of Cars"** Genevieve – We have been talking with Lauren Armstrong and coordinating with the MPO. Please let us know if there are additional groups to coordinate with.

How will the project collaborate with HECO to provide EV charge stations along the corridor? If not in the most critical area for climate mitigation, but part of the larger conversation? https://www.hawaiianelectric.com/hawaiian-electric-seeks-major-expansion-of-public-ev-charging-network-to-answer-demand-speed-growth - Robin- New transportation bill added lots of funds for EV charging infrastructure. Hawaii will be receiving money in the next five years for projects in Hawaii. HDOT is working on a statewide EV plan.

Karen C (kcomcowich@yahoo.com) **Adding support for the creation of a separated bike path and pedestrian access. 2 questions: can the old road be repurposed as a bike path? For the design of the new road will it allow/ encourage pedestrian access and slower speeds? We don't need an interstate.** Robin – We can consider these concerns.

Miranda – **Long-term what about moving from Papalaua. Transfer coastal area into a greenway.** Robin – looking at sea level rise and erosion predictions. **What planning methods are being considered – Ecologically based, preservation, economic development?** Rachel – HDOT is focused on the transportation system, working with adjacent uses. Tonight is intended to initiate conversations about how HDOT will approach developing solutions. We want to hear from you about these issues.

Genevieve – I think Robin might have clarified this issue, but tonight's discussion is material to moving the highway permanently, and not material to the emergency fixes. We will look at a variety of alternatives. In the NEPA process, we will look at a variety of alternatives including a no-build scenario.

Miranda (Mirandamcastel@gmail.com) **Will parts of the alignment be an elevated highway?** Elevated will likely be one of the alternatives.

Cara Flores (caraflores@gmail.com) **Does the county already own the lands or have access to the mauka lands needed? Will there need to be any major demolition or grading planned. Are there multiple routes being considered? Will the road still likely be two lanes with no median? Would like to see the two directions separated to avoid deadly head on collisions. Would like to see greenspace along coast and safe bike routes with highway further inland.** Robin – There are multiple mauka landowners. We'll have multiple alternatives. Design considerations will be brought in later in the process.

Miranda (Mirandamcastel@gmail.com) **In order to move the highway far enough away from the coast will any of the realignments require a tunnel?** Robin – We don't think a tunnel will be needed, but that is not yet known for sure.

Will we remove the old road to restore the beach? (While establishing an elevated greenway to continue a flow of low footprint transportation like bikes walking skating etc). Robin – Right now we are looking at the realignment of the highway itself. Rachel - That will be part of the project process to collaboration with the County of Maui. Genevieve - HDOT is working with Nature Conservancy on nature based solutions.

Cara Flores (caraflores@gmail.com) **Will eminent domain be used if a route is selected through private land?** Robin – If private land is needed, HDOT begins with a discussion with landowners. Ideally, HDOT would like to work together with landowners and use a friendlier process.

Aha Moku O Maui (AhaMokuOMaui@gmail.com) **Can you eliminate blasting methods?** Robin – Can be considered.

Miranda (Mirandamcastel@gmail.com) **Since NEPA considers the aesthetics of proposed projects are there any ideas that involve designing the realignment to blend in with the natural landscape? (Biophilic design)** Robin - When we look at the design of the project we'll consider views and try to follow the topography as much as possible. Gen – We are looking for what those specific concerns are.

Miranda (Mirandamcastel@gmail.com) **If speeds increase how will the noise impacts be addressed? Perhaps surrounding parts of the highway near residential areas can be designed with greenery to reduce noise pollution.** Robin - We will do a noise study to determine what's needed. Berms, greenways.

For intersections, will roundabouts be considered? Robin - We can look at roundabouts as a possibility.

Feb 24, 2022 Public Meeting Notes

Honoapiilani Improvement Project

12 PM HST

NOTES

ZAC Appleton (appleton.zac@epa.gov) I just wanted to announce myself, Zac Appleton from USEPA Region 9 is participating in today's public meeting on this highway project. Thanks.

COMMENTS/QUESTIONS

Robert Santos (santosro@hawaii.edu) **Is the 22 million strictly for the bypass and not for the fixing of the existing highway? And if not, is there a budget for fixing the existing highway?** Ed - $22 million is specifically for a project that addresses resiliency in this area. It could be relocating the highway, that's one alternative. It could be improving the highway where it's at. All of the improvements must ensure the resiliency of the transportation network in this area. There are funds on the maintenance side to ensure the safety of the existing highway.

Rob Ayers (rob.ayers@dot.gov) **Please describe the process that will be followed to fully incorporate cultural concerns.** Rachel – Relying on local experts (the folks who know best) to identify cultural and historic concerns. Our role is to connect archaeological and cultural experts with local experts with good communication. Knowledgeable folks can identify themselves with Genevieve Sullivan – project manager. The earlier we know who to talk to and have those conversations the better we can avoid, minimize, and mitigate impacts to resources. It's a discovery process. Section 106 and Chapter 343 requirements need to be fulfilled.

We currently have six miles of beach access, will this be preserved? Ed. Yes, but it may be in the form that access is now. The Lahaina bypass that was already constructed is an example. Maintained the existing roadway for access, but restricted it so it doesn't become a speedway. HDOT will maintain beach access.

Donna Clayton (donnajclayton@hawaii.rr.com) **Will you be able to coordinate with the West Maui Greenway planning by the Alta group and MPO? Thanks Donna Clayton West Maui Greenway Alliance.** Ed – Absolutely. This is why we're reaching out now – to know who to talk to so we can consider all the plans that went before and so we can tie this project into those plans. Gen – HDOT has already reached out to Lauren Johnson from the MPO and will continue to partner with them.

Will the current overtopping of water at Papalaua seawall be addressed? Ed – Yes. But the solution depends on what alternative becomes the project.

Mark Deakos – **Appreciate outreach and the priority. 25 year resident in West Maui. We know the risk involved in the current two-lane artery. Safe passage. Combined with other efforts – storm water mitigation, reef sediment mitigation, greenway initiatives. Opportunity to make design changes to deal with water/pollution issues. Fire mitigation with the right vegetation. Ecosystem restoration.** Ed

– HDOT always considers community needs, more than just traditional infrastructure. HDOT wants projects that improve more than just the road and bridges on the system. We will see how these synergies tie together not just for cars, but for bikes and pedestrians too. Gen – It is a guiding principle to support the community land-use plans and associated concerns.

Howie Kihune (hkihunejr@aol.com) **What is the current plan of alignment for this segment? Is it mauka Olowalu Church and Olowalu Town?** Ed- We don't have a planned alternative at this time. We're kicking this off now to understand the objectives. There are different alternatives that may be considered.

The County of Maui has acquired land at Ukumehame for a park will the highway be aligned mauka of the parkland to create a beach park of significant size? Ed – Again, no alignment yet. It's always a consideration what land would be involved. Want to take as little private property as possible – low impact to residents' properties. We'd like to enhance other public properties if possible. Wouldn't want to take park land. Combining public parcels for public use would definitely be considered.

Noah Howins (howins@hawaii.edu) **How will DOT balance continued shoreline access for the community and remediation / restoration of the current roadway to allow for potential natural landward migration of the beach which is currently inhibited by the roadway? Meaningful action is needed to ensure the community has a coast to enjoy, will there be funds available to enhance the area for shoreline users?** Ed – Funds are available for the purpose and need. If actions are necessary to complete the purpose and need, they will be available. If those portions are outside of the purpose and need, funds would not be available. Please give input on the purpose and need. If it becomes a realignment, we can look at clearing the space so the shoreline can move.

Bob Pure – **Excited about the road being constructed and moving south and that the funding was secured. Will prevent water coming over the road which is incredibly dangerous and also a great access to those coming in and out of West Maui. This project seems to be an extension of the Lahaina bypass, but it is not called "bypass." Is it connecting to the Lahaina Bypass?** Ed – Moving forward, HDOT can no pre-suppose any option for the community (the purpose and need for the project). We can assume that there will be a connection to the existing bypass to go further south. We are still at the early stage of the project, so we can assume the outcomes yet.

What is the planning timeframe being assumed for sea level rise, and how does it relate to the expected life of the highway structure. Ed- Looking at State's projection: the year 2100 where a 3.2 feet of sea level rise is considered. Gen - Climate adaptation action plan uses 3.2 ft. Also following the West Maui Community Plan which has a viewer.

The existing roadway will function as a hardened shoreline when erosion reaches it, resulting in negative impacts such as beach loss. The EIS should discuss alternatives to mitigate this, including removal of the existing roadway. Ed – This should be part of the consideration. Gen – We are in conversation with the Nature Conservancy who is working on nature based solutions. They are still in the early stages, but HDOT will continue to work with them and other groups to include these types of considerations.

Rob Ayers (rob.ayers@dot.gov) - **Ed and others have continually stressed the importance of the project Purpose and Need (the problems that the project is intended to address). This is a great time for folks**

to share what problems they think are associated with the current road. Are there traffic congestion problems? Are there safety concerns (vehicles, bike, walking)? Are there potholes? Maybe if there's a lull in the Q&A we can go back to the slide that had the list of 4 or so problems that are already on HDOT's radar. Then folks can agree/disagree with this draft list, and offer suggestions to the list. Ed – You see this every day. There are Jersey barriers. We are already seeing more extreme events, more often. You're seeing erosion.

Rob Ayres – **HDOT has identified four problems: Reliability, future vulnerability, system connections, and public safety. These are all likely to feed into the purpose and need. This is a chance for everyone to let us know what else is out there that might also feed into the purpose and need. Is this list of four bullets accurate. Are there other problems that you are aware of that aren't on this list?**

Donna Clayton (donnajclayton@hawaii.rr.com) **Thank you for making Hawaiian interpretation available. I would love to have a Hawaiian interpretation to the thought of building roads going forward that make alternative transportation a priority rather than encouraging more cars. ~**

If sea level rise predictions change from 3.2 feet by 2100, how will they be incorporated? Ed – We are going to design for the 3.2. If it's less then we lucked out and we'll be great. HDOT increases the need to ensure that the system can handle more than just the rise alone – extra freeboard. At this time is all about looking at the potential risks. When we look at the alternatives, there will be varied risks.

Can the wall be lowered or removed and replaced with something better in the process. Ed- The wall being referred to might be the one on the lower road. If that's the case, it will be considered depending on the alternatives considered.

Donna Clayton (donnajclayton@hawaii.rr.com) **West Maui Greenway project – Bike / pedestrian access/use is currently very dangerous. We do see people that love to ride bikes. They comes from all over the world. Getting to the beach is a problem. There are so many people who are new, visiting. We need a greenway.** Ed – We are looking at that as part of the project.

It would be great to eliminate the ocean flowing mauka on the highway at Ukumehame that causes rust to all vehicles. The wall also cuts off views to the ocean for 1500 feet due to its height. Ed – That will be part of the project as we move forward. This comment will be one that is considered as we move forward.

The EIS should consider ways to coordinate with mauka land managers to minimize the amount of drainage and sediment that fills up DOT stormwater/sediment facilities.

Will this project preclude funding for the next phase of the bypass going north around Kaanapali. Ed – No. Funding for this phase won't cut off funding for other area projects. This piece safeguards connectivity access to West Maui. Then we can look at capacity issues in the future.

Rob Ayers (rob.ayers@dot.gov) - **I want to reinforce something Ed said. Folks have asked about alternatives and design features. Ed replied that we don't have alternatives identified yet (such as a realignment). This is because we haven't finalized the purpose and need yet. An alternative must meet the purpose and need in order to receive further consideration. So we need to get the purpose and need "right" before we can then identify alternatives that successfully address the purpose and**

need. Ed – This is not the only time to get your comments in. There will be more opportunities. We would like to make that March 25 deadline in order to move the project forward to the next milestone.

Dot does a great job today and is planning for the future which is great. This project is greatly needed to insure access for West Maui.

Albert Perez – **Coordination with mauka land managers to minimize drainage and sediment. One of the purposes should be to make the environment better than it was before when the project began. Many of the sediment basins has been filled up. HDOT maintenance couldn't address this concern directly. The drainage comes from mauka lands. It makes sense to get to sediment near source. One of the purposes should be that the new project should help to mitigate the existing environmental issues that are occurring.** Ed- Thanks for the input.

Donna Clayton (donnajclayton@hawaii.rr.com) **Maui residents would like to reduce the number of rental cars. Should be transportation that would be simple and easy for transit service. Is it possible to add a bus lane or something similar solution? There are wide shoulders on the existing roadway.** Ed – That will definitely be a consideration. HDOT has been working the County on transit, but have not gotten to this area yet.

Howie Kihune (hkihunejr@aol.com) **I would request that HDOT focus on, prioritize & develop the realignment first to move traffic away from the coastline to protect environmental and cultural assets/resources which is a priority. With its completion, the realignment will afford better opportunities to protect the coastline with little or no traffic along with creating much needed areas for community utilization.** Ed – Great comment. This issue will be considered when selecting a preferred alternative.

It would be nice for the alignment to preserve views to the ocean and the mountains. Can this be a priority since it's a goal of our SMA rules. Ed – Good comment.

Mark Deakos (deakos@hawaii.edu) **Additional needs could be: 1) greatly reducing traffic (solutions of moving people more effectively - mass transit or alternative modes of transportation); 2) making our state roads multipurpose (moving people safely but also a tool to address ecological concerns like stormwater and sediment impacting the reef, firebreaks with appropriate fire-resistant vegetation, heat-island effect with greater vegetation to provide shade and ecosystem restoration).** Ed – Multi-modal approach is required for HDOT projects. The ecological management piece is important to HDOT as well.

Saman – **Chair for Maui Bicycling League – Advocate for multi-modal access. After the highway is moved, who will end up maintaining the old roadway.** Ed – If we locate the roadway, the old road would typically be managed by County. We don't want to presuppose that. We need to talk to the County first. **Please consider the old roadway for multi-modal use/greenway/bicycle-pedestrian path and a good transition for the maintenance for that.** Ed – There are multiple layers of decisions to this. 1 -Will the roadway be realigned. 2- If yes, will the lower road be kept in place. There are lots of different discussions that need to be had to understand all those pieces.

Robert Santos (santosro@hawaii.edu) **If the decision is to build a bypass from the pali to the existing bypass, would the 22 million be enough to complete it?** Ed – No. Going from the Pali, the last cost evaluation was something like $600 – 800 million. This project is piece of the larger initiative.

Mark Deakos (deakos@hawaii.edu) **One more need: Protect and preserve the 8 miles of publicly accessible natural beaches and shoreline from Puamana to the Pali.** Ed – Good comment.

Rob Ayers (rob.ayers@dot.gov) **(clarification) the purpose and need for a transportation project (such as this one) should focus on solving transportation problems (congestion, resiliency, multi-modal, etc,). Other important values (views, protecting shoreline, other resources, etc.) are best addressed during the development and evaluation of alternatives). These other values/resources can be called "other project goals" or something similar, but shouldn't be in the purpose and need.** Ed – I get there's a difference, but we want to hear everything at this point that might be a concern or issue that the project can consider. Some comments won't be related to transportation issues and may not be a part of the purpose and need, but the project can still take those issues into account. Keep in mind the March 25th deadline for the input on the purpose and need for the project.

Mark Deakos (deakos@hawaii.edu) **Very much appreciate HDOT working together with our communities and stakeholders! Thanks for continuing to engage!**

Native Hawaiian Organization Meetings

April 7 & 8, 2022

4/7/22 1st meeting Hinano Rodrigues-Lineal descendent of area and SHPD Maui
Project Staff: Genevieve Sullivan (HDOT), Pua Aiu (HDOT), Lisa Powell (FHWA), Rachel Adams (WSP)
Attendees: Hinano Rodrigues

Hinano provided a brief history of the area including cultural practices, historical sites, and plantation era activities. Hinano shared important historic sites known by his family, the Puha/Hoʻoikaika family. Hinano noted that bicycle facilities should not be co-located with the new highway, since it involves tourists/commercial tours. Hinano suggested naming the bypass after a local person. He suggested that some mitigation may be needed if the road crosses the cultural preserve and that access to taro patches is a concern.

- Water has been coming on the highway for 60 years-when he was growing up.
- There may be wetlands near Ukumehame Beach Park (used to be called Pākoʻa).
- His mom said the road used to be more inland.
- The plantation-built canals to drain water in 50s.
- The blue alternative 5 [purple alignment] is the one he has seen before.
- He likes purple alignment the best.
- He thinks military bombed the coral so now erosion is more of an issue since coral doesn't break waves.
- At station 250+00 the state raised the road in 1952. This caused the fishpond of their family to dry out. The culverts get blocked with sand and then floods his parents' house.
- He has taro patches in Ukumehame.
- At sta 300+00 there are irrigation ditches and a rock wall.
- He questions what happens to existing road if rerouted-Gen says goes to County. He thinks OK to shut down old road.
- Olowalu church: behind church is where burials are, starting in 1900.
- His mom did not want to sell her land-wants ocean to eventually claim it.
- Station 250+00 to sta 200+00-move more inland.
- His mom's two requests-don't touch the church/graveyard and fishpond (might be bigger than shown on map).
- His family is the only lineal descendants of the area. (Pua's note: This is also what the DLNR Aha Moku says). Hinano says the Puhas are also lineal descendants. The Hoʻoikaikas married into the Puha family.
- He would like the road as far from their place as possible (although this puts it closer to petroglyphs).
- Doesn't want their stories recorded. Their family stories, so the stories will die with them.
- Olowalu massacre-200 people killed-Someone staying close came to ask his mom about a bunch of kids looking in their window (spirits from massacre). The Burial site for the massacre is makai of the road on the little cape of land where there are houses.
- Showed us old plantation roads on map
- According to his mom road being raised destroyed their fishpond-then plantation put rocks and trees in it (saw at site visit)
- Look at getting rid of road and providing access road on old plantation road-drew on map, I think?
- Locals would rather not have bicyclists on existing road if relocated (they are concerned about tourists riding by their places and picking their fruit or being mahaʻoe about their yards or houses. They are also concerned that the bike path will attract commercial bike tours.
- Bypass should be named after someone from the Ahupuaʻa

- Pua received a phone message on Friday from Hinano: “My only comment regarding Kipuka Olowalu is that there be some kind of mitigation with respect to the fact that the new road will bifurcate the preserve (because the preserve has an easement that runs all the way to the ocean).
- Firing range-MM12 (possible 4(f)): Depends on if it is on public land (yes) and open to the public (part of the time). HDOT will check more into this with COH.
- He said access to taro lands will be an issue.

4/7/22 Evening meeting with NHOs at Na'aikane o Maui Cultural Center
Project Staff: Genevieve Sullivan (HDOT), Pua Aiu (HDOT), Annette Matsuda (HDOT), Lisa Powell (FHWA), Rachel Adams (WSP), Tanya Lee-Greig (‘Āina Archaeology)
Attendees: Ke‘eaumoku & Ui Kapu, Noelani Ania, Nameaaea Hoshino, Jaelyn Fujita, Fay McFarlane, George Tosh K. Fujita, Ka‘ulu Nahooikaika, Tiare Lawrance, Malihine Keahi Heath, Kahikilani Niles

- Keeaumoku asked where the beginning and end of the road will be. He noted that Lahaina Bypass had to acquire lands. They also put in a tunnel for NHO access to their taro lands, because the bypass crossed a government road. Access is something this group is concerned about. Several people noted that they use the cane haul road for access to their kuleana lands.
- Olowalu Town Report-Tanya said it has further tasks in the back of the report for archeology
- HDOT/WSP asked everyone take information to anyone who would be interested in the community and get comments back to us by May 1st. There will be further opportunities to comment – the project is still very early in the process right now.
- Tiare asked for map that isn't cut off.
- Part of the problem is when connectors are private roads-these should be public.
- Left turns are problem due to constant stream of traffic-may need traffic lights.
- Roundabout was planned at some point-would help with turns. The roundabout was supposed to be by the General Store.65923+/*
- Put the bike path on the realignment because they don't want it down by their houses. They are concerned the greenway will mean segues and scooters
- Would prefer bike path go on new road alignment
- Frustrated that the different agencies for different projects (including greenway) on different timelines and not working together.
- They are concerned that building this road would change zoning or make it easier to change the zoning-don't want housing built and have been fighting this. Wanted to know if there is a bigger plan. They think that Peter Martin would like the road to further his development goals.
- Concerned with left turns being difficult.
- Most of sites they are concerned with burials down by existing road so areas that are not affected by realignment.
- Tosh/Palafox live on site by the river. Upset that there are options on other side but not on their side (WSP thought this property was county land-will check into this). They have driveway they want maintained and road as close to existing alignment as possible. They take care of the water and live off the water and have permits and rights. They marked up map on what their preferred alignment would be. They don't want it on the other side of the lot. Possible generations have lived there. They have house there.
- 2 bridges at that crossing (Ukumehame Stream). One bridge is for the current road, and one is on the plantation road. They use the plantation road bridge, but it gets clogged, which is problematic, because fish (o’opu and hihiwai) cannot swim upstream to spawn

- Concern that building more roads just encourages more growth-endless cycle. It has changed too much-Gen-land use and roads go hand in hand
- Tanya confirmed she will be doing the cultural impact assessment.
- The Haia boy (brown shirt, sat on the left side of front table (us) said to stick to the cane haul road. Prefer not to move the road mauka. Would like land to remain in Ag.
- Aunty Malihini, who is a Haia, also noted that there are graves at the pier. These are below the existing Honoapiilani Highway.

4/8 Site visit with Hinano
Project Staff: Genevieve Sullivan (HDOT), Pua Aiu (HDOT), Lisa Powell (FHWA), Rachel Adams (WSP), Tanya Lee-Greig
Attendees: Hinano Rodrigues

- Took us first to the rifle range and noted how flat the land is. However, he said that the area by the Rifle range does not usually get flooded. He said that place would be the first access point for Ukumehame.
- Next went to another site along the road, where you could clearly see the old government/plantation road. Also, in back of the government road, their appeared to be a wetland. Wetland restoration to bring back the birds might be a mitigation option. This was the second access point.
- The third access point was along an existing road that let up to a fabulous view of the area, including Kahoolawe straight ahead, below a heiau and above a house. In the valley below, you could see the Fujishiro house, where his grandparents used to live. A cousin lives there now. Hinano had taro patches in the back of the valley. He told us a red star lines up between two of the peaks and when it lines up, you have 30 days to get to Tahiti. The viewpoints to Kealaikahiki on Kaho'olawe, with Maui arcing to the right, and Molokai (?) to the left. If a double hulled sailing canoe leaves from Kealaikahiki, it takes only two weeks to get to Tahiti. We need to be sure that the view plane is not obstructed for celestial navigation.
- Next stop, Kapāiki, where his family lives.
- He would like to see the fishpond restored. Robin will check to see if the current "shift" project is affecting the fishpond. He showed us a picture of the fishpond, which didn't have walls or a makahā.
- Gen-not planning on removing any of the existing road-give to County. Maui MPO and NWF have greenway plans with bike path
- He also showed us the family church, the visible graveyard, and the graveyard area behind the church.
- He also showed us pictures of the fishpond in relation to his grandfather's house, which is still standing.
- He reiterated that before his mother died, she mentioned that she did not want the graveyard disturbed, and no further disturbance of the fishpond. Hinano would like it restored.
- Their preference is for the road to go behind them.
- He showed us one of the culverts that is used to carry water from his area out the sea, but it was broken and there was standing water in the area. Robin took picture and will report it to Annette. The road is raised in this area.

Cultural Reserve-Mr. Ekolu Lindsay

Project Staff: Genevieve Sullivan (HDOT), Pua Aiu (HDOT), Lisa Powell (FHWA), Rachel Adams (WSP), Tanya Lee-Greig
Attendees: Ekolu Lindsay

- Set up as part of the development mitigation. But development maybe never went through. Still owned by Peter Mills? The culture reserve has a 70-acre easement which includes the lands we saw and the stream bed down to the ocean. This ensures a more "ahupua'a" view of the resources accessible to the Kipuka.
- Petroglyphs-graffiti they have to clean up, up on top are very important burials (1st navigators?). This was also mentioned by Hinano at our first meeting, and by several people at the second meeting. The mountain is called Kilea(?).
- He gave ideas of landscaping to use along the road.
- He indicated other people the project should talk with.
- Descendants should have most say. He mentioned the Ho'oikaika family.
- Archeao-acoustics - they have a grant to restore the sounds of the area, so they are cutting down large non-native trees and restoring natives because they speak differently (different sounds)
- Taro ponds, vermiculture, native plant restoration, education, volunteer work
- They need the water off the stream
- He thinks DOT should do some volunteer work up at the reserve.
- He is very active in ecology-is concerned with the sediment reaching the ocean and destroying the reef. The wetland used to provide this, he would like to see this restored, so sediment doesn't reach ocean. Wants to help restore groundwater table that used to feed this wetland
- One water tank takes water from a well. It's located near the stream. Owned by a private water company. The company wants another well, but they will fight it because will mean more houses can go in. Also, the wells lower the groundwater table.
- Tank runs on a well
- He prefers red alignment furthest from reserve (most makai)

Honoapiilani Highway Improvements Project
Sign-In Sheet

Thursday, April 7, 2022
5 p.m.
Na'aikane o Maui Cultural Center

Name	Address	Email	Phone
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Honoapiilani Highway Improvements Project
Sign-In Sheet

Thursday, April 7, 2022
5 p.m.
Na'aikane o Maui Cultural Center

Name	Address	Email	Phone
Tiare Lawerance		otaheitehawaii@gmail.com	
Malihini Kaahu Hekk	25 W Aipuni Pl, Lahaina	hinanokaraa@gmail.com	808 264-5113
Kahikilani Niles	Kahoma Valley	Kahikilani.Niles@gmail	808-264-6588

HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

March 29 & 30, 2023 Section 106 Consulting Party Meetings Summary

DRAFT

MAY 2023

Prepared for

Honoapiʻilani Highway Improvements

Prepared by

wsp

Honoapiilani Highway Improvements Project

Section 106 Consulting Party Meetings – March 29 & 30, 2023

National Historic Preservation Act Consulting Parties Meetings

The Federal Highway Administration (FHWA) and the State of Hawai'i Department of Transportation (HDOT) held virtual meetings for National Historic Preservation Act Section 106 compliance for Honoapi'ilani Highway Improvements pursuant to 36 CFR § 800.2. This set of two meetings were held on March 29 & 30, 2023. The meetings included a presentation and an opportunity for attendees to ask questions and provide input.

The Meeting Agenda

- Introductions
- Project Overview
- Known Historic and Cultural Sites
- What is a Programmatic Agreement?
- Project Timeline
- Attendee Input

The same presentation was given at both meetings. The slide deck is attached.

March 29 Meeting, 6 pm

Project Staff in Attendance

- HDOT: Robin Shishido, Pua Aiu, Genevieve Sullivan, Brian Tyau
- FHWA: Richelle Takara, Meesa Otani, Lisa Powell
- WSP: Wayne Yoshioka, Peter Liebowitz, Wren Barulich, Nick Fazio, Gerald Andrade, Matt Small, Valentin Bueno, Matt Prybylski, Stephanie Doan
- 'Āina Archaeology: Tanya Lee-Greig
- Language Services Hawaii (Olelo Hawaii): Hinaleimoana Wong-Kalu

Attendees

- Kiersten Faulkner
- LNR - Hinano Rodrigues
- Victoria Kaluna-Palafox

Commnent (Victoria Kaluna-Palafax): *According to the map, the alignments will impact their property. There are heiau and cultural practices. Would like to schedule a time to talk.*

Response: Pua will reach out and meet to talk.

March 30 Meeting, 12 pm

Project Staff in Attendance

- HDOT: Robin Shishido, Annette Matsuda, Pua Aiu, Genevieve Sullivan,
- FHWA: Richelle Takara, Meesa Otani, David Clarke
- WSP: Wayne Yoshioka, Peter Liebowitz, Wren Barulich, Nick Fazio, Gerald Andrade, Matt Small, Matt Prybylski
- ʻĀina Archaeology: Tanya Lee-Greig
- Language Services Hawaii (Olelo Hawaii): Kaliko Trapp

Attendees

- Janet Six
- Richelle Takara
- Kawika-LRD
- Hinano Rodrigues

No Comments were made during this meeting.

Post Meeting Follow Up

Some of the attendees requested additional meetings to discuss the project and to share their knowledge of the project area. A field visit is being planned with the parties listed below for the purposes of hearing concerns and input regarding important historic and cultural sites and features. The project engaged with the following parties to follow up on the March meetings:

- Tiare Lawrence – Lineal descendant with information about mauka resources
- Keʻeaumoku Kapu
- Uilani Kapu
- Malihini Keahi Heath
- Tosh Fujita
- Victoria Kaluna-Palafax
- Roxanne Nahooikaika
- Kaulu Nahooikaika
- Fay McFarlane
- Cansuelo Apolo-Gonsalves
- Suzette Montalvo
- Kaipo Kekona
- Archie Kalepa
- Kai Nishiki
- Manny Kulololo – has information about area landforms used as fishing references for navigation

Honoapi'ilani Highway Improvements

West Maui, Ukumehame to Launiupoko

Section 106 Consulting Party Meeting

March 29 & 30, 2023

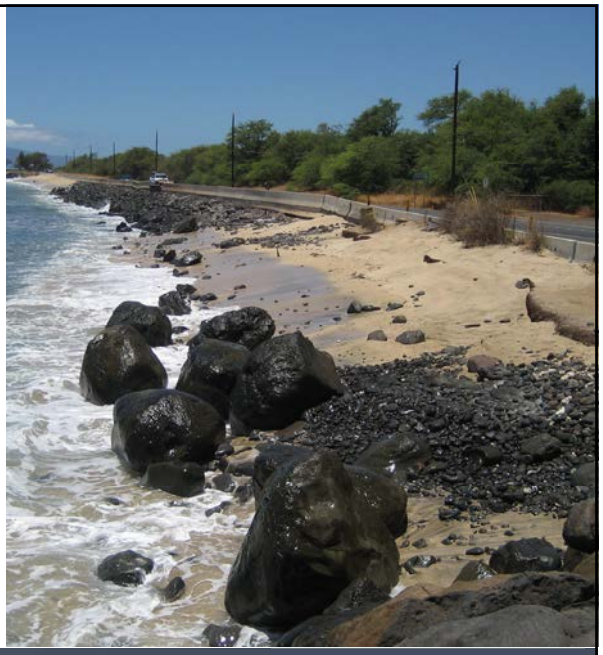
www.HonoapiilaniHwyImprovements.com

U.S. Department of Transportation
Federal Highway Administration

1

Agenda

- Introductions
- Project Overview
- Known Historic and Cultural Sites
- What is a Programmatic Agreement?
- Project Timeline
- Your Input



Honoapi'ilani Highway Improvements

2

Meeting Procedures

- Help us reduce background noise
- Please be respectful and courteous
- We want to hear your input and answer your questions.
- We will take comments and questions in order and get to as many as possible in the allotted time frame.

Meeting will be actively facilitated and recorded

Participation is welcomed and encouraged

Treat everyone with kindness and respect

Please minimize background noise

For technical assistance, use the Q&A function

If you are experiencing technical issues, leave the meeting and rejoin

Telephone caller dial *9 to raise/lower hand

Honoapi'ilani Highway Improvements

3

Project Team

HDOT

Ed Sniffen
Director, HDOT

Ken Tatsuguchi
Planning Program Manager, HDOT

Robin Shishido
Deputy Director of Highways, HDOT

Pua Aiu
Cultural Resource Specialist, HDOT

Annette Matsuda
Maui District Engineer, HDOT

Brian Tyau
Preliminary Engineering, HDOT

Genevieve Sullivan
Project Manager, HDOT

Dean Matsui
Preliminary Engineering, HDOT

FHWA

Richelle Takara
Division Administrator, FHWA

Lisa Powell
Project Manager, FHWA

Meesa Otani
Environmental Specialist, FHWA

David Clarke
Federal Preservation Officer, FHWA

WSP

Wayne Yoshioka
Project Manager, WSP

Matthew Small
Planner, WSP

Peter Liebowitz
EIS Lead, WSP

Stephanie Doan
Planner, WSP

Guy Blanchard
Architectural Historian, WSP

ʻĀina
Archaeology

Matt Prybylski
Architectural Historian, WSP

Tanya Lee-Greig
Lead Archaeologist, ʻĀina Archaeology

Honoapi'ilani Highway Improvements

4

Why this project?

Emergency Repairs:

- Over the past 10 years, this stretch of highway has been repaired three times after storms and high waves.
- A fourth project is currently in development to address erosion - near Olowalu.

HDOT Vulnerability Assessment Findings:

- 2019 Statewide Coastal Highway Report ranks Honoapi'ilani Highway at Olowalu (#2) and Ukumehame (#12) as most critical out of 300 sites for ocean hazard vulnerability.
- 2021 HDOT Climate Adaptation Action Report Exposure Assessments found 3.2-foot Sea Level Rise Exposure; Vulnerability to hurricane-related storm surge; And Hypothetical tsunami scenario identified in the project area.

Funding Opportunities:

- HDOT has secured a $22 million federal RAISE grant with the help of our Congressional Delegation, Visitor Industry, FHWA, and Maui County
- Sen. Schatz helped to secure a $23 million earmark in the 2022 OMNIBUS Bill

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5

Honoapi'ilani Highway

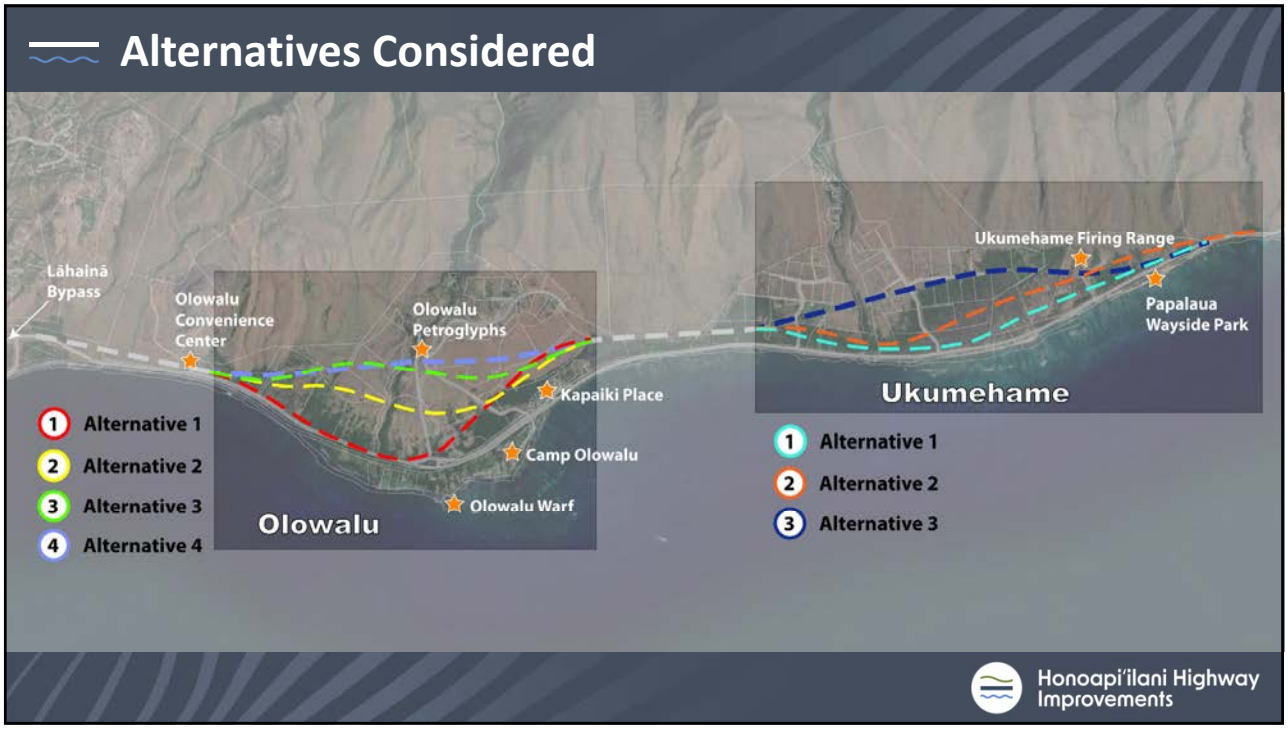
This project will look at service reliability, resiliency, and safety for roughly 6 miles from Launiupoko to Ukumehame

Project website:

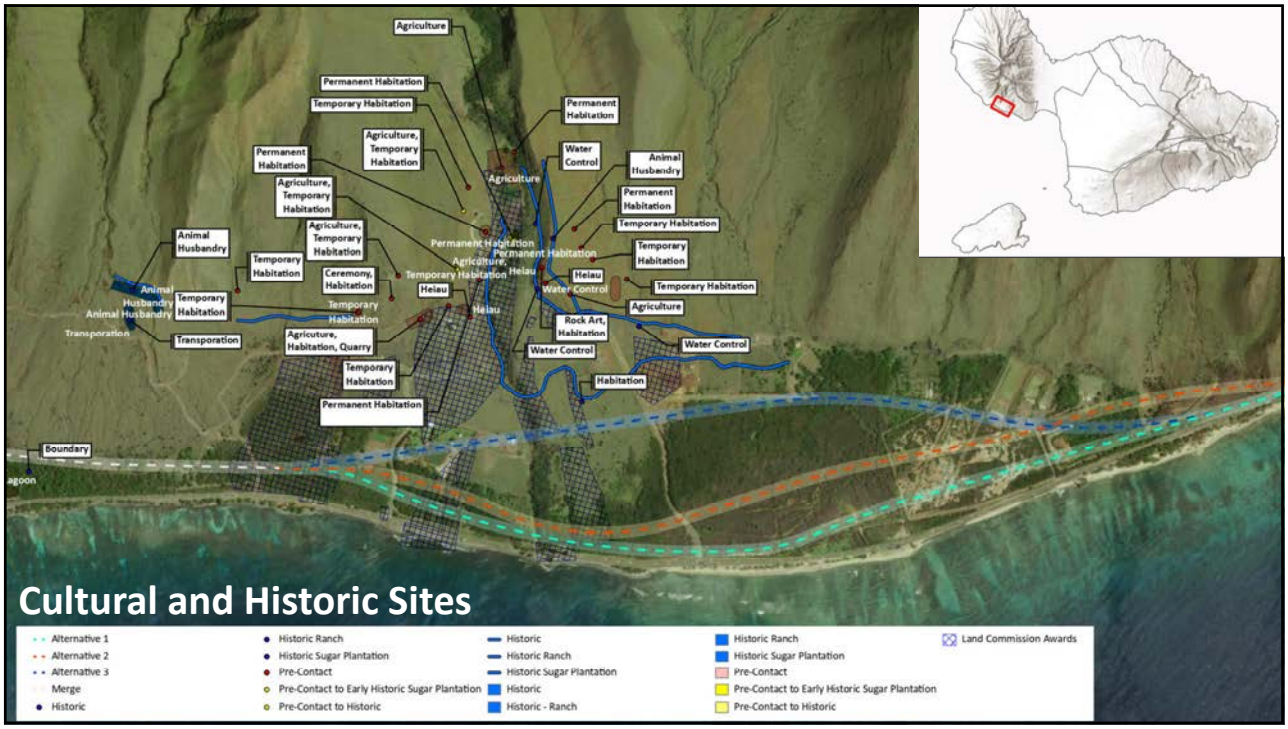
honoapiilanihwyimprovements.com

Honoapi'ilani Highway Improvements

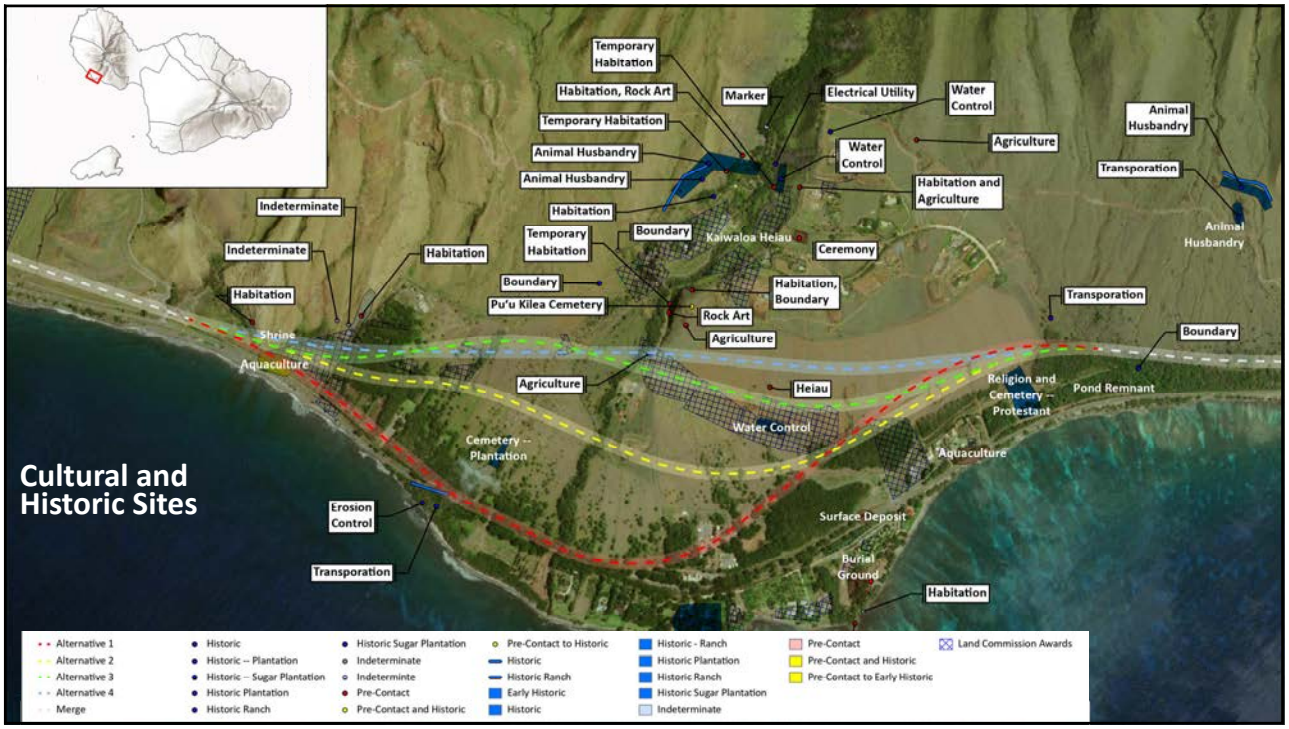
6


Alternatives Considered
Lāhainā Bypass
Olowalu Convenience Center
Olowalu Petroglyphs
Kapaiki Place
Camp Olowalu
Olowalu Warf
Olowalu
1 Alternative 1
2 Alternative 2
3 Alternative 3
4 Alternative 4
Ukumehame Firing Range
Papalaua Wayside Park
Ukumehame
1 Alternative 1
2 Alternative 2
3 Alternative 3
Honoapi'ilani Highway Improvements

7

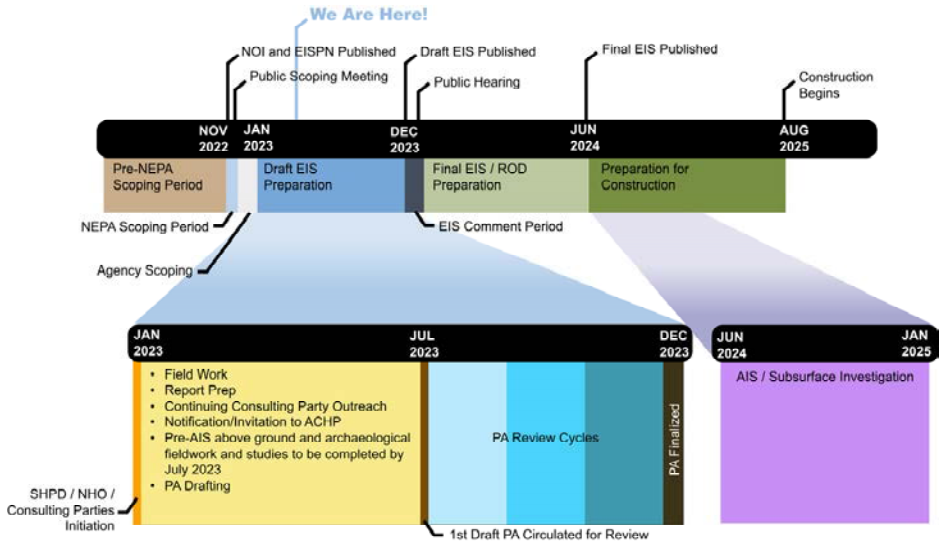

Cultural and Historic Sites
Alternative 1
Alternative 2
Alternative 3
Merge
Historic
Historic Ranch
Historic Sugar Plantation
Pre-Contact
Pre-Contact to Early Historic Sugar Plantation
Pre-Contact to Historic
Historic
Historic Ranch
Historic Sugar Plantation
Historic
Historic - Ranch
Historic Ranch
Historic Sugar Plantation
Pre-Contact
Pre-Contact to Early Historic Sugar Plantation
Pre-Contact to Historic
Land Commission Awards

8



9

Project Timeline



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10

What is a Section 106 Programmatic Agreement?

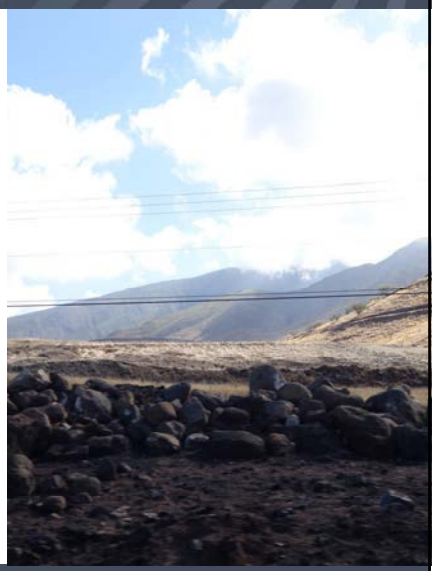
- The most common situation where a project Section 106 Programmatic Agreement (PA) may be appropriate is when the agency cannot fully determine how a particular undertaking may affect historic properties or the location of historic properties and their significance and character prior to approving a project.
- This is a design-build project
- This PA will include an appendix that will cover Chapter 6E compliance
- A full Archaeological Inventory Survey (AIS) will be completed for the full preferred alignment before construction begins

Honoapi'ilani Highway Improvements

11

Project Studies

- <u>Studies being conducted for all alignments of this project:</u>
  - Archaeological Literature Study
  - Above ground field survey
  - Cultural Impact Study
  - Ethnographic Study
- <u>Studies conducted on preferred alignment only:</u>
  - Archaeological Inventory Survey



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12

Project Structure and Need for a Programmatic Agreement (PA)

1. We are integrating 106 and NEPA, which requires 106 documentation to be completed concurrently with NEPA documentation. So a preferred alternative will be selected before subsurface archaeology can be done.
2. This is a design-build project, which means that the final design and therefore potential effect on historic resources may not be known when the Record of Decision (ROD) is published.
3. A completed PA needs to be in the Final EIS in order to be able to issue a ROD on time. Since an Archaeological Inventory Survey will only be done on the preferred alternative, the PA will put in writing the process that will be used to address cultural and historic sites, if subsurface resources are found.
   a) Cultural layers, with or without burials.
   b) Burials without an associated cultural layer
   c) Buried historic properties (i.e.-plantation infrastructure)
   d) Subsurface artifacts.

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13

What will a PA look like?

- A lot like an MOA
  - Whereas Clauses
  - Stipulations
  - Standard Language
- Difference
  - Stipulations will be process oriented.
  - Mitigation will the result of process pathways.

Consulting parties are critical to developing these process pathways with FHWA and HDOT.

FHWA and HDOT have consulted with SHPD and ACHP on the use of a PA for this project.

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14

Working together to protect Historic and Cultural Resources

- Mana‘o related to potential Cultural and Historic sites in the project area
- Traditional and customary practices which may be impacted by the project
- Participate in the development of the Programmatic Agreement

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15

Questions?

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16

Mahalo!

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Questions or Comments?
Contact: Pua Aiu, Cultural Resources Manager, HDOT
pua.aiu@hawaii.gov

www.HonoapiilaniHwyImprovements.com

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Federal Highway Administration

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17

HONOAPI'ILANI HIGHWAY IMPROVEMENTS SECTION 106 PROGRAMMATIC AGREEMENT MEETING MINUTES - DRAFT

DATE	27 July 2023
VENUE	Zoom
PURPOSE	Present and discuss the Section 106 Programmatic Agreement and updated archeological findings with Section 106 Consulting Parties
STAFF	**FHWA:** Meesa Otani **HDOT:** Genevieve Sullivan, Pua Aiu **WSP:** Wayne Yoshioka, Gerald Andrade, Matthew Small, Amber Weiss **ʻĀina :** Tanya Lee-Greig, Amanda Ruberti **Olelo Hawaiʻi Interpreter:** Kaliko Trapp
ATTENDEES	Kiersten Faulkner Hinano Rodrigues Jessica Puff Foster Ampong Kawika Freitas

Start Time: 6:00 PM

1. Project Presentation
    a. Introductions
    b. Project Overview
        i. Project Area
        ii. Purpose and Need
        iii. Project website
        iv. Timeline
    c. Programmatic Agreement (PA) Overview
        i. Elements of a PA
            - HDOT (Pua) explained consultation will continue after the NEPA process is complete.
        ii. Example Whereas Clauses
        iii. Example Stipulations
    d. Review of archaeology results
        i. ʻĀina (Tanya) presented updated images, maps, and videos of the archaeological features and described areas that were uncovered after vegetation clearing.

e. Discussion of access to cultural sites – Upper Olowalu Access Road
    i. WSP (Wayne) described how the alternatives were designed to avoid impacting the road.

2. Comments, Questions, & Discussion
    - Hinano Rodrigues requests an invitation to the Wednesday, August 2 Meeting.
    - **Jessica Puff** – Have you been able to make a historic properties assessment in terms of eligibility for the National Register? Have you started to look into avoiding the features?
        - ʻĀina (Tanya) explained these features are being looked at in terms of a traditional cultural landscape and are still being evaluated but expects eligibility under D and 6E criteria E.
        - HDOT (Pua) confirmed avoidance options are being worked on but mentioned it is not clear if all resources are avoidable.
    - **Jessica Puff** – Would like to know more about architectural assessment.
        - HDOT (Pua) confirmed the architectural assessment is complete and will be covered in a meeting on 8/2/2023.
    - **Hinano Rodrigues** – Suggested the PA provide the definition of Cultural and Lineal Descendants. Specific lineal descendants are not known until remains are found and when a discovery occurs on a project, you seek the lineal and cultural decedents.
        - HDOT (Pua) agreed that it should be defined.
    - **Foster Ampong** – Will defer to Hinano because he is from that area and has relations with people in this area.
    - **Jessica Puff** – Interested to hear from other NHOs and OHA to see what their concerns are. The data that is being presented shows a pretty fantastic archeological setting, which requires really thinking about how to protect and preserve. Need to encourage NHOs to provide feedback that can go into the PA. SHPD would like to see any feedback given.
    - **Kiersten Faulkner** – Thanks to Tanya for the presentation. The important consideration is which alignment has the least impact to the various sites. Need a very robust discussion about mitigation. What other outreach is the project conducting? Can you summarize feedback you have gotten in those interactions?
        - HDOT (Pua) mentioned consulting parties have been taken out for site visits prior to the grass clearing and have had one-on-one meetings. Feedback included recognizing LCAs and avoiding them as much as possible, a preference to meet in-person, and that the PA is very complicated. NHOs have not really discussed mitigation yet as it is a lot to process and recognized one site did not leave much room to go lower. HDOT is preparing for another site visit for those interested.
    - **Kawika Freitas** – Cultural Advisor for the Luau and Leoda's Pie Shop. Kealaleloa trail extends to Piilani in Hana. Should the road be moved up, we want to be sure the existing road is recognized as the trail and marked. Alternatives 2, 3, and 4 were the better options as Alternative 1 doesn't achieve the goal of moving it out of high water. It is known to cause traffic when the surf is up.

End time: 7:10 PM

HONOAPI'ILANI HIGHWAY IMPROVEMENTS SECTION 106 PROGRAMMATIC AGREEMENT MEETING MINUTES - DRAFT

DATE	02 August 2023
VENUE	Zoom
PURPOSE	Present and discuss the Section 106 Programmatic Agreement and updated archeological findings with Section 106 Consulting Parties
STAFF	**FHWA:** Lisa Powell, David Clarke, Meesa Otani **HDOT :** Genevieve Sullivan, Pua Aiu **WSP :** Wayne Yoshioka, Gerald Andrade, Matthew Small, Amber Weiss, Peter Liebowitz, Wren Barulich, Guy Blanchard, Val Bueno, **ʻĀina :** Tanya Lee-Greig
ATTENDEES	Virginia Murison (HHF) Jessica Puff (SHPD)

Start Time: 12:03 PM

1. Project Presentation
    - Introductions
    - Project Overview
        i. Purpose and Need
        ii. Project Area
        iii. Project website
        iv. Project Alternatives
        v. Project Studies
    - Review of project architectural survey
        i. Architectural study covered the whole APE
        ii. Sites identified in previous studies
        iii. Review of Architectural resources identified in the study
        iv. 3 individual properties identified as eligible for the register.
        v. Recommending an expansion of the current Mill district to a wider landscape
        vi. Period of significance – 1880 (state of sugar production) – 1951 (date of last known eligible resource)
        vii. Boundary generally follows the pioneer mills holdings boundary
        viii. An irrigation flume has been identified outside of this area that is still being evaluated including whether it is part of the above mentioned historic landscape
    - Possible project impacts to architectural sites and features

i. Push-piles may be effected by Yellow and Green routes
ii. Can look at adjustments to avoid them
iii. AR-9 has already been impacted by a bicycle path that was constructed through the reservoir.
iv.

- Project Timeline
    i. We have tight project timeline

2. Comments, Questions, & Discussion
    - Virginia – Will HHF get a copy of the report?
        i. A copy can be provided. The architectural information will be a part of a larger report, combined with archaeological information.
        ii. A management summary of the architectural information can be provided ahead of the completed report. We can also share the data sheets with HHF.
    - HHF is concerned that individually eligible sites because they were not a part of the historic landscape.
        i. The study considers a historic landscape, but there is awareness of individual properties and will nominate using the term district (per NPS guidance).
        ii. No sites were identified in the Ukumehame area
    - Are there historic bridges in the APE?
        i. AR-20 is a bridge that was recorded – steel stringer multi-beam bridge from the 1920s.
        ii. No trestles or other bridges. The rail route was converted to a vehicular route, so not much remains.
    - What is the plan for the products to comply with both Sec 106 and 6E? Combined products or separate efforts?
        i. The goal is to have a single document that covers both Federal and State regulations
        ii. Recommendations will account for all requirements
    - Report will use both State and Federal references?
        i. Correct.
    - Will final report include master maps of all properties defining above and below ground resources? (including alignments to understand which alignments are most impactful)
        i. Yes with the caveat that the current studies are only looking at above ground resources. Below ground studies will be done on the preferred alternatives.
    - Will the format match SHPD RLS format?
        i. There will need to be clarity about who did what survey work. Architects versus archaeologists. Also, be clear about regs for surveys under 6E and Sec 106.
    - The PA discussion has already started. Will there be regular meetings to discuss the PA and advance things. Can start monthly talks with SHPD. HDOT will setup a meeting with SHPD to continue discussing.
    - Provide map with alignments to start to look at impacts.

End time:

HONOAPI'ILANI HIGHWAY IMPROVEMENTS EIS GRAPHICS MEETING NOTES

DATE	02 November 2023
	11:00 am
VENUE	Teams (Virtual)
PURPOSE	Section 106 Monthly Progress Meeting with SHPD
ATTENDEES	**HDOT:** Robin Shishido, Annette Matsuda, Pua Aiu (Organizer), Genevieve Sullivan **FHWA:** Meesa Otani, Lisa Powell, David Clarke **SHPD:** Susan Lebo, Alan Downer, Andrew McCallister, ʻIolani Kauhane **WSP:** Matthew Small, Guy Blanchard ʻĀina : Tanya Lee-Greig

NOTES

Presentation by Robin (PowerPoint)

- Introductions
- Purpose and Need (SLR – Erosion)
- Project funding with RAISE Grant and congressional earmark
- Project location
- Alignments
- Project timeline
- Public outreach efforts
- PA process

Questions / Comments

- Who are the SHPD points of contact? Susan is the overall point of contact. Andrew will be the Maui contact. Who does HDOT contact for things like SIHP numbers, process questions. Susan will be the point of contact and will coordinate the other staff.
- The APE consultation have already happened – including SHPD input and consulting parties
- HiCRIS # for the project: 2023PR00135
- SHPD: What is the priority of this project (on the HDOT high-priority list)? HDOT: The RAISE grant makes this a high priority project. HDOT will provide that in writing to SHPD. Also, HDOT needs to tell SHPD what projects get bumped down the list of priorities.
- ACHP is already involved. They have seen the PA but have not commented on it.
- What is the proposed timeline for the PA? Complete in June 2024. Consultation with NHOs has is still in progress.

- What chance will SHPD have to comment on the AIS? The PA will be finalized before the subsurface work is completed. All above groundwork is completed. Subsurface work will be done on the preferred alternative. The testing strategy will be prescribed in the PA. above ground identification allows FHWA to proceed with 4(f).
- How will 6E identification be completed? 6E identification does not include phasing (by policy).
- The finding will be an adverse impact. The PA will spell out the process of negotiating the mitigation at a later date.
- 6E can not be done in phases. You can do phasing under federal law, but not under State law.
- Funds obligation needs to happen by June 2024.
- The RFP will be for a design-build contract.
- Construction will start in August 2025, after subsurface testing is completed.
- The timeframe for the project (the EIS) does not allow for the regular Section 106 process. David: It depends on the NEPA class of project.
- Assigning SIHP numbers, based on the evaluations, will take time. There will be approximately 8 months between. Data recovery (if required) will need to be completed before construction including an approved data recovery.
- SHPD: The project should assume that data recovery will be required.
- If data recovery is needed, HDOT will have to build that time into the schedule.
- Data recovery will likely take more time that would be allowed in the timelines as shown. Much of the time is the time for the archaeologist to do their work, not SHPD review time.
- When can SHPD see the GIS / above groundwork data? Aina is expecting to have most of that data ready this week.
- When will SHPD get a letter requesting review of surface identification? This is important for SHPD staffing. That will start the SHPD timeline. The latest would be February. 100% pedestrian survey is complete.
- Surface scatters – primarily marine shell scatter, midden, lithics. Likely recommend shovel testing. It's popping up in previously graded areas.
- SHPD will share the review timing once HDOT sets a review date.
- Who is reviewing the PA (in SHPD)? It was submitted in February. The PA is just a draft with place holders. It's not where SHPD needs to be focused at this time.

HONOAPI'ILANI HIGHWAY IMPROVEMENTS SECTION 106/CHAPTER 6E SITE VISIT NOTES

DATE	18 November 2023
VENUE	Honoapi'ilani Project Site
PURPOSE	Section 106 / Chapter 6E Consultation
ATTENDEES	**HDOT:** Genevieve Sullivan, Pua Aiu **FHWA:** Lisa Sullivan **WSP:** Wayne Yoshioka, Gerald Andrade, Matthew Small **ʻĀina:** Tanya Lee-Greig **Consulting Parties:** Uʻi Kapu, Victoria Kaluna-Palafox, Keeaumoku Kapu, Naulu Nahooikaika(?)

Start Time: 7:30 am

Project overview given by Tanya, Geneveive, and Pua

Sites Visited:

- Launiupoko
- Olowalu-Ukumehame pinchpoint
- Pāpalaua

Input received:

New Ahupuaa signs along the highway would be helpful

The community wants to balance the new with the old. Teach kids the story of the place/land.

Elevated structure on drilled shafts may be needed where structures cross wetlands or sensitive areas. The geology study is not complete yet, but that study will determine what size of foundations are needed and how deep the foundations need to be.

If iwi kapuna is found, the protocol is really important (Consultation of cultural practices will be needed).

The wall was used as a traditional storage structure. Kanaka Maoli would seasonally store items in the walls.

The highway is opening up the land.

Pohaku (rock) should not be relocated off of the site. Would be preferable to reuse the Pohaku in the form of dry-stack walls within the same area, possibly as a way to buffer/protect the portions of sites that are preserved.

It is understood that complete avoidance may not be possible but the project should try to avoid impact to the greatest extent possible.

Heiau is a key part of the old city of refuge in Olowalu.

Heiau should be preserved with a buffer. Buffer may be small.

The project should speak to Uncle Paul who lives in Kihei

Night marchers travel east west (not Mauka-Makai)

Aunty Vicky has a map with Heiau and kapu spaces

Watch out for walls - especially corners. Iwi Kapuna will likely be encountered in those places.

The traditional practice was to put the spirits of the departed into rocks to be remembered

Concern for underground water related to drilled shafts was expressed.

Aunty Vicky wants access out of their property on the Ukumehame side (heading toward Pohaku Aeko Street.

Sites within the Ukumehame sediment basin should be protected with delineation of some kind so that maintenance activities do not risk futher disturbance of what remains. Preference in this area is to avoid the sites by starting the departure from the existing highway further away from the Pali.

Section 106 Coord Meeting

Honoapi‘ilani Highway Improvements Project

November 20, 2023

Attendees:

HDOT: Pua Aiu, Genevieve Sullivan

FHWA: Lisa Powell, Meesa Otani

WSP: Wayne Yoshioka, Matthew Small, Gerald Andrade

‘Āina: Tanya Lee-Grieg

SHPD: ‘Iolani Kauhane, Noah Gomes

Consulting Parties: Archie Kalepa, Victoria Kaluna-Palafox, Linda Mahina Magalianes, Ekolu Lindsey, Fay McFarlan, Suzette Felicilda

NOTES

There will a recording distributed later with the Site descriptions.

Introductions

Project Overview – APE, Website

Section 106 and 6E process –

- Now at the identifying resources part of Sec 106 process

The site visit on Saturday visited 3 sites/complexes.

Area on the alluvial planes tend to be previously disturbed.

There were cultural scatters largely in the areas of the LCAs.

The larger sites were in the pinch points were the alternatives merge into one due to hills close to the coast.

At Launiupoko:

- Three large areas that were likely once a single complex
- The RAISE grant means that there is a limited timeline, so the challenge is to complete this 106/6E process in that limited time
- Flew a high-res drone to help with the evaluation
- Dry stacked wall previously identified as a ranching feature – boundary wall
- Dryland agricultural complex
- Total area is around 9 acres
- Sites are better preserved the more mauka the location

- Some structures have evidence of recent modification on top of historic features, evident by the laying style of the stones

Near Awalua Beach

- Two previously identified site
- On the slope, modified outcrop features
- They are located where Olowalu alternatives converge
- The smaller site on the Olowalu side was interpreted as a ceremonial feature (Ko‘a feature) with terraces and stone alignments

Olowalu Pinchpoint

- Most challenging pinchpoint
- Dryland agricultural system, with ceremonial features including a Heiau
- Not previously recorded by others like Uncle Paul knew of this site
- Possibly named Manapueoiki Heiau
- Cleared so that the features could be seen and categorized
- There are a series of pit features
- Intentional circular features that are being interpreted as planting pits
- Ceremonial features indicated by coral
- Large linear platform feature – Heiau –
- There is a flume that cuts through the lower part of the Heiau
- The sites/features are very low, so they are easily obscured by even low grass
- The features in the lower reaches of the complex are disturbed – bulldozing, people moving stones. Condition of individual sites and features are increasingly better the more mauka they are
- Were any remnant found of agricultural activities? Existing plants? Tanya: None were found
- Testing might indicated what types of crops were grown in the past
- Is there are Tamarind or Mango tree?
- Linda: Clarify the location? Location shown
- Linda: Why can’t the original road be used through Olowalu? Pua: The erosion line is close to coast through the pinch point. Gen: The red alignment uses a portion of the current highway. Monkey pod trees and watermain would need to be removed/relocated. The project input said to move the road behind Kapaiki place. There are sensitive areas in the undeveloped area. No one is listening. Wayne: We can prepare a map to show why we have to go behind the Olowalu Town Center.
- Suzette Felicilda: Is bridging being considered? Yes. The project is considering elevating the roadway to raise the new road above the inundation zone. It is anticipated that areas makai of the erosion line will become vulnerable. The purpose and need of the project is to move the highway back to account of the sea level rise. What is the timeline? The road seems to be largely okay, except the area near Teen Challenge. I don’t see why the rest of the road needs to be adjusted. Other stuff being done is killing the reef. I think this is being done to accommodate people who want to be accommodated. Such a drastic change is not needed. This would damage other areas that the community is trying to protect. There is an old road that could be utilized.

Save our money for other needs. Gen: Maintenance needs have been increasing and impacts to the road increasing. This area was identified as a vulnerable roadway. Suzette: How big are the structures in the wetland? Isn't that creating a problem in a sensitive area.

Pāpalaua

- There is a structure closer to Heiau size than Koʻa size
- These sites are not previously recorded.
- There are rock structures/forms in the area
- The sites increase in quality and intactness as you go mauka
- With grass clearing, crews were able to get a good sense of the structures in the area
- There is a pohaku with a petroglyph
- ʻAha Moku o Maui: Why are there so many sites in this area? There is often ceremonial structures associated with Makahiki site. The viewplane from the ridge tops is ideal for views of the channel.

Ekolu: Thank you to Tanya. How can these site be saved. We have destroyed too many cultural/historic sites. Elevation might be a good part of the solution. Perhaps something can be done to preserve the coastline. Other indigeonous people have found solutions, we can just copy what they did.

Iolani: Echo Ekolu in saying thank you for the work being done. There are a lot of issues in the pinchpoints. Can the alignment be moved at all? Can alternatives be combined/mix and match? Pua: can mix and match. Gen: The alignment can be tweeked and elevated portions can be considered.

If you have manaʻo on the sites that would help understand them, please share them.

Place ontop of the mountain, that's where the Akualele come ashore. Aunty Rosemarie has stories about that.

Close: 7:37 pm

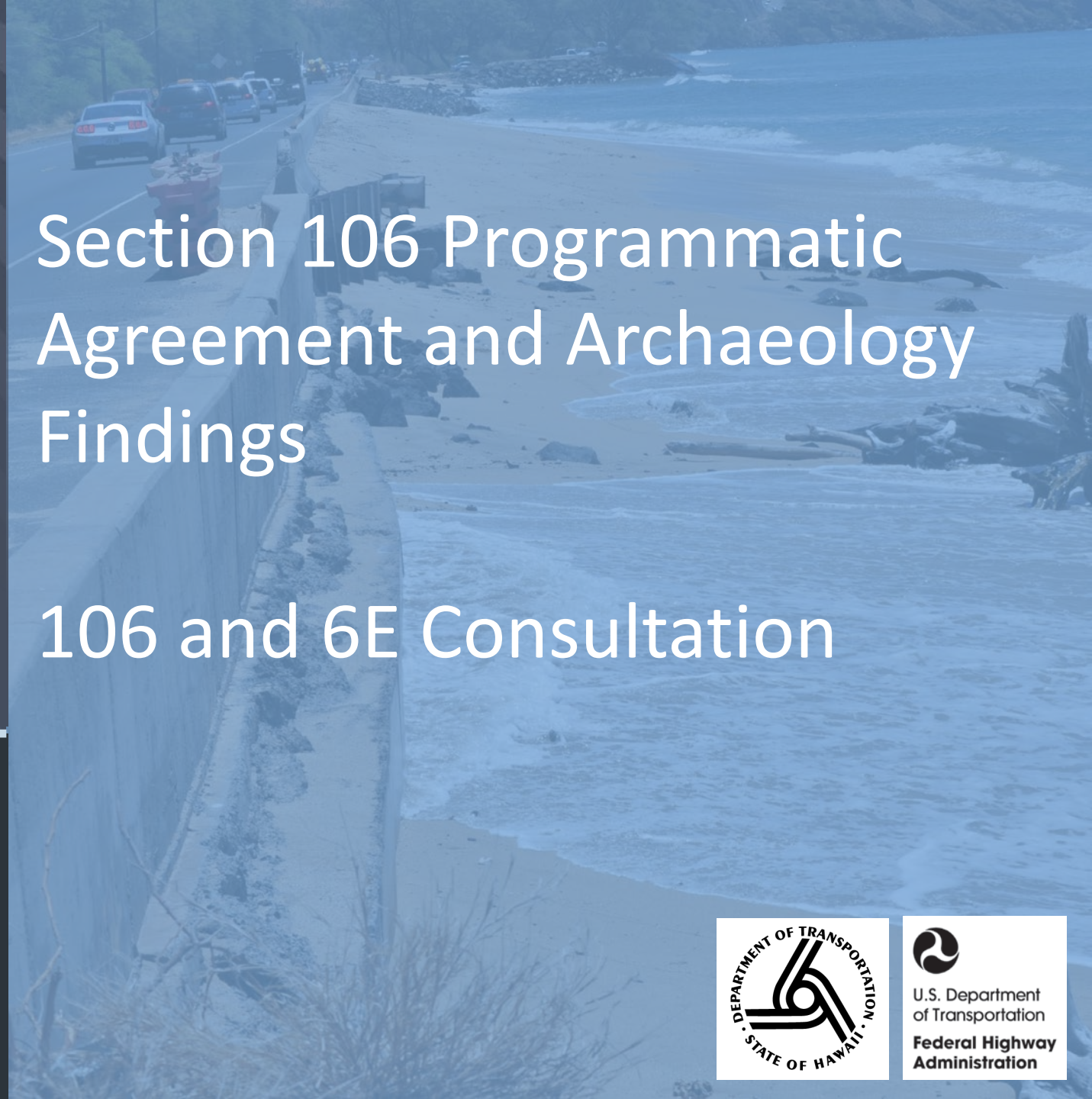
Honoapi'ilani Highway Improvements

West Maui, Ukumehame to Launiupoko

Section 106 Programmatic Agreement and Archaeology Findings

106 and 6E Consultation

September 22, 2024



DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

Presentation Overview

- Introductions
- Project Background
- Section 106 Programmatic Agreement
- Archaeology

Project Team

HDOT

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Architectural Historian, WSP

Matthew Small
Planner, WSP

Gerald Andrade
Engineer, WSP

ʻĀina
Archaeology

Tanya Lee-Greig
Lead Archaeologist, ʻĀina Archaeology

Honoapi‘ilani Highway

This project will look at service reliability, resiliency, and safety for roughly 6 miles from Launiupoko to Ukumehame

Project website:

honoapiilanihwyimprovements.com

Honoapi‘ilani Highway Improvements

Why this project?

Emergency Repairs:

- Over the past 10 years, this stretch of highway has been repaired three times after storms and high waves.
- A fourth project is currently in development to address erosion - near Olowalu.

HDOT Vulnerability Assessment Findings:

- 2019 Statewide Coastal Highway Report ranks Honoapiʻilani Highway at Olowalu (#2) and Ukumehame (#12) as most critical out of 300 sites for ocean hazard vulnerability.
- 2021 HDOT Climate Adaptation Action Report Exposure Assessments found 3.2-foot Sea Level Rise Exposure; Vulnerability to hurricane-related storm surge; And Hypothetical tsunami scenario identified in the project area.

Funding Opportunities:

- HDOT has secured a $22 million federal RAISE grant with the help of our Congressional Delegation, Visitor Industry, FHWA, and Maui County
- Sen. Schatz helped to secure a $23 million earmark in the 2022 OMNIBUS Bill

Project Website

EVENTS

Project Updates

The Draft EIS publication is planned for release in Fall 2024. This will initiate a public comment process, followed by the Final EIS and Record of Decision planned for mid-2025.

Look forward to public meetings kicking off the Fall, in addition to the following project updates:

- Environmental analyses are being reviewed by Hawaii Department of Transportation (HDOT) and the Federal Highway Administration (FHWA).
- The Lahaina wildfire did not physically affect the highway project area, however it did result in delays and updated environmental analyses.
- An extensive assessment of cultural resources is underway -HDOT and FHWA continue to consult with the State Historic Preservation Division (SHPD), local residents and cultural practitioners.
- Evaluations of wetlands, waterways and threatened and endangered species continue.
- The RAISE grant deadline for funding construction has been extended.

We Want to Hear from You

Submit your comments and questions using the form at the bottom of the page.
Your comments are valuable in determining what we study and how alternatives are developed and finalized.

Project Details

Review Project Documents

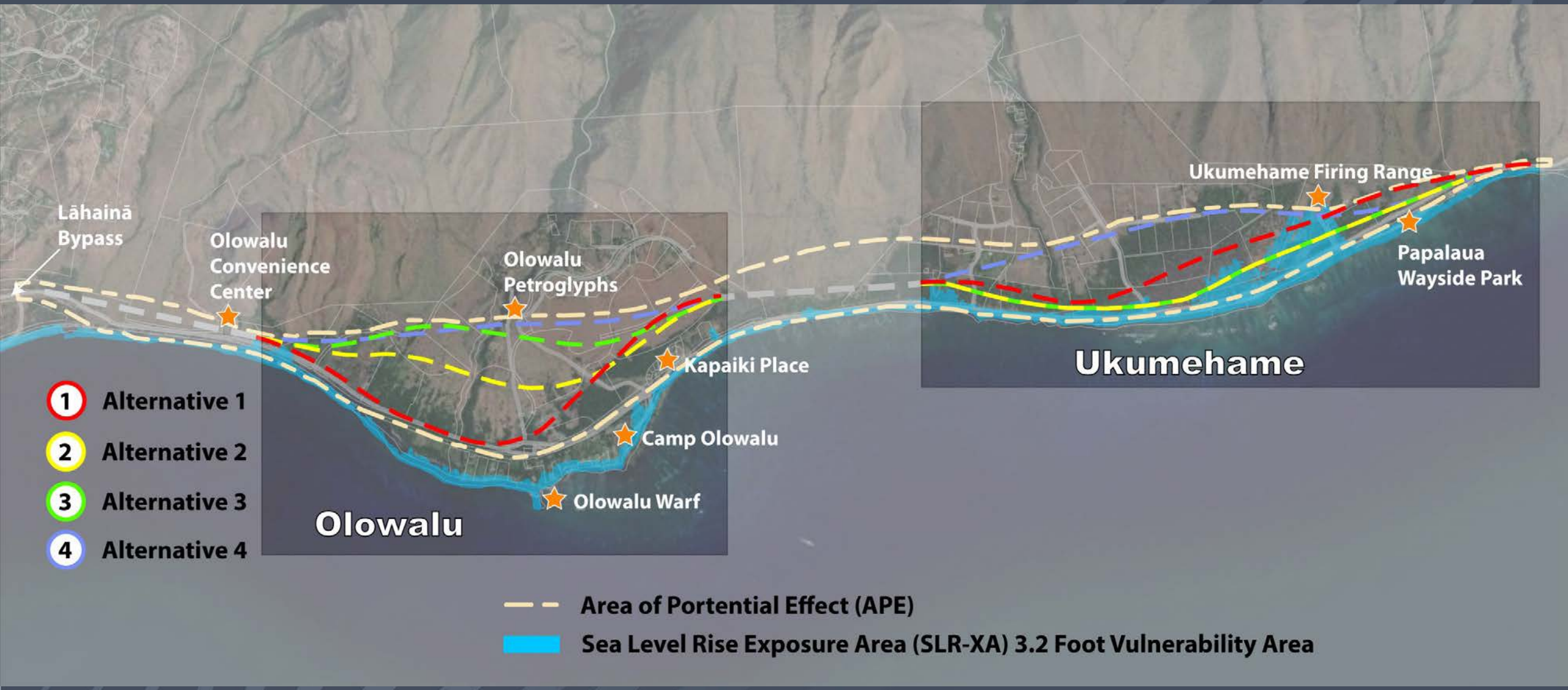
Scoping Report Documents

Section 106: Meeting Details and Presentation

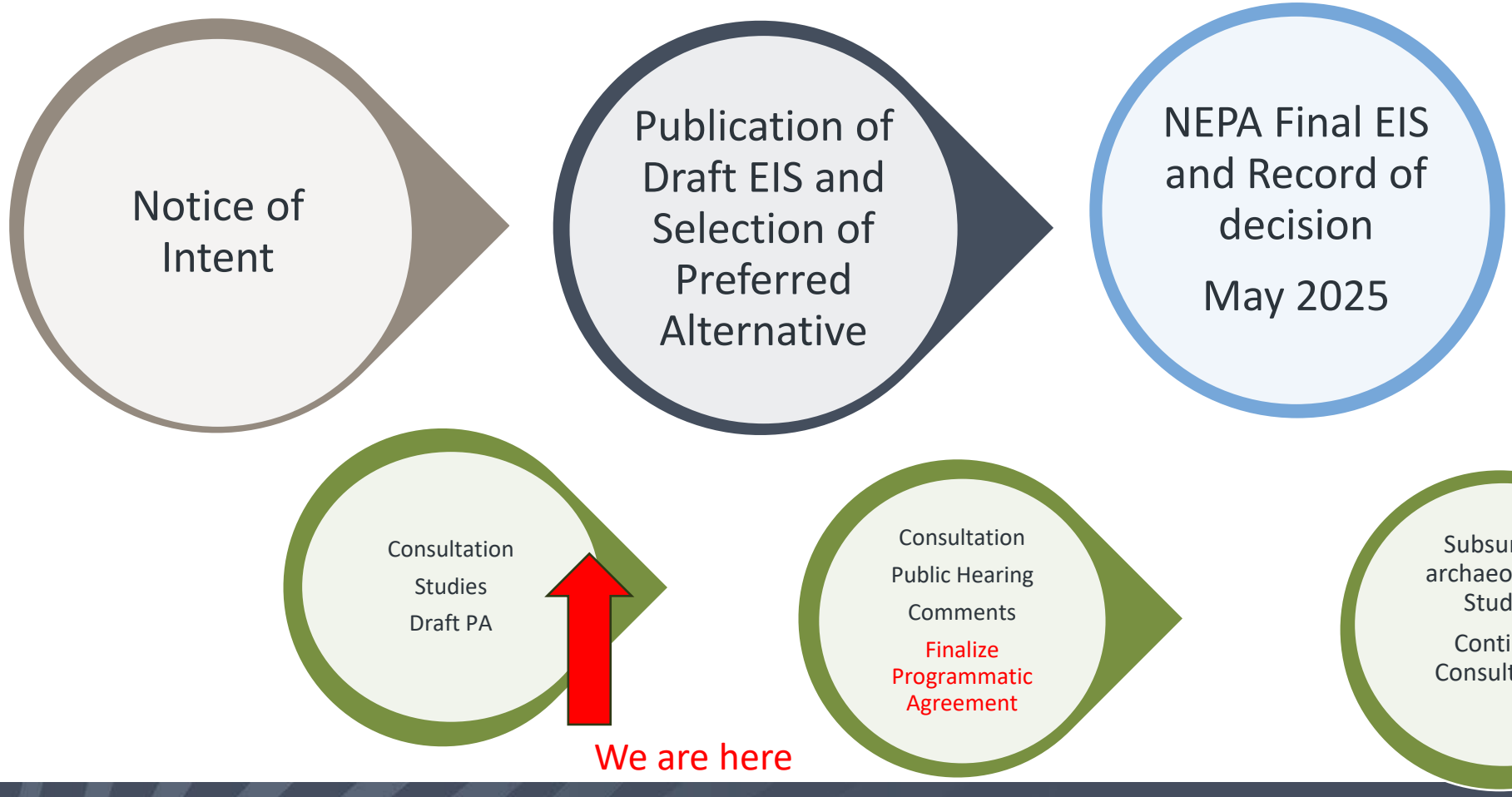
Pre-Site Visit Meeting Presentation

LEARN MORE ABOUT SECTION 106

Alternatives Considered



NEPA EIS and Section 106 Process for this project.

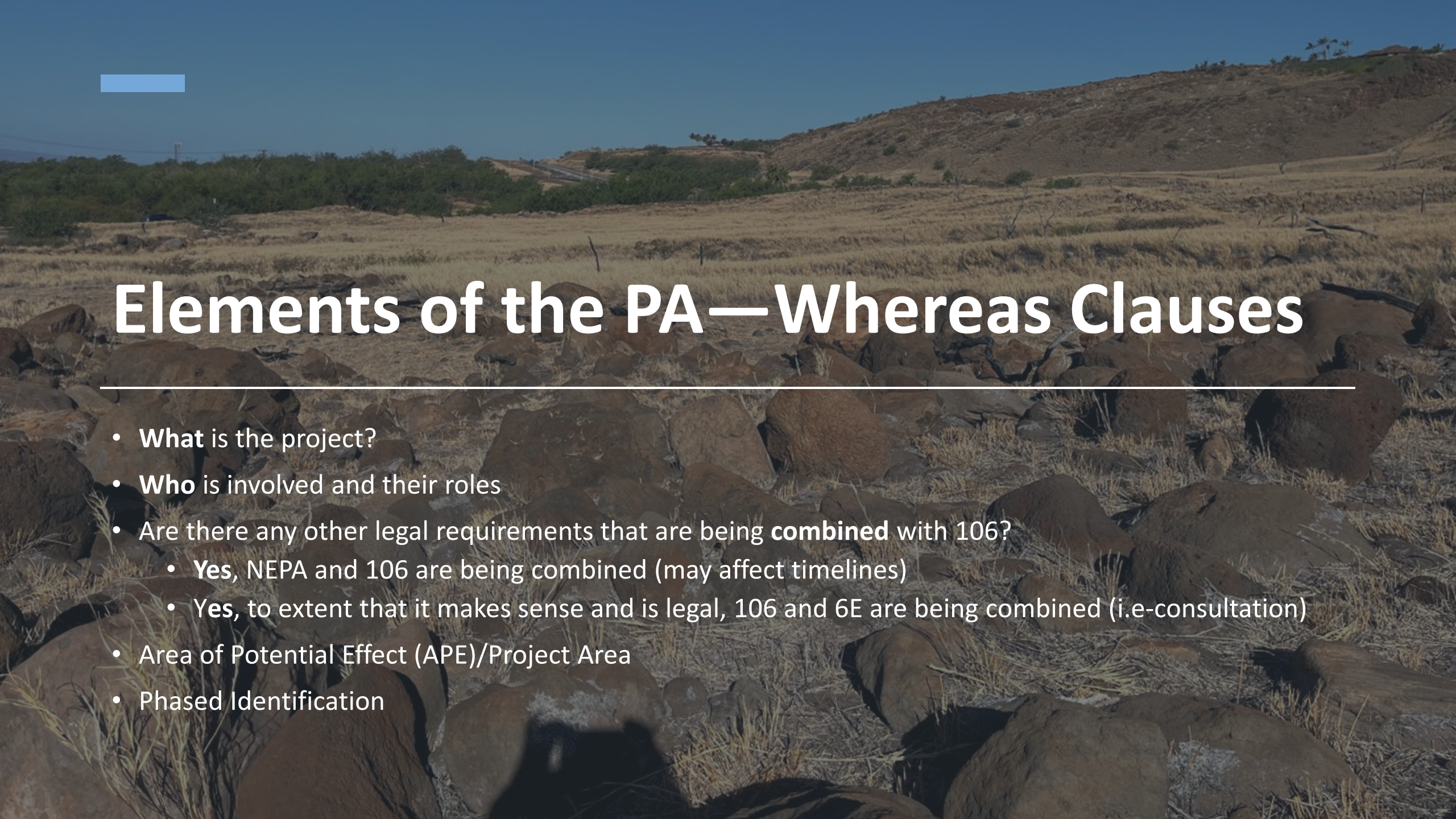


Section 106 Programmatic Agreement

The PA you have today is a DRAFT

Moving Forward when all effects are not known.

106—Programmatic Agreement	6E- 2-Step Verification
Develop and agree on **work** to be done under this agreement (Identification, evaluation, applying criteria of adverse effect)	Verification and Completion of detailed mitigation Plan (Usually a data recovery or preservation in place plan) – But, if construction needs to proceed , the agency can ask for a 2-step verification
Develop and agree on **who is responsible to do the work**	Step 1: submit verification that data recovery fieldwork or interim protection measures for properties to be preserved has been completed
Develop and agree **on on-going consultation process**	SHPD writes a letter that construction can proceed
Agree on **Treatments to Resolve adverse effects**	Agency submits complete report for data recovery or preservation. SHPD responds that it is acceptable, or not acceptable.
Agree to **who are the parties** to this agreement	

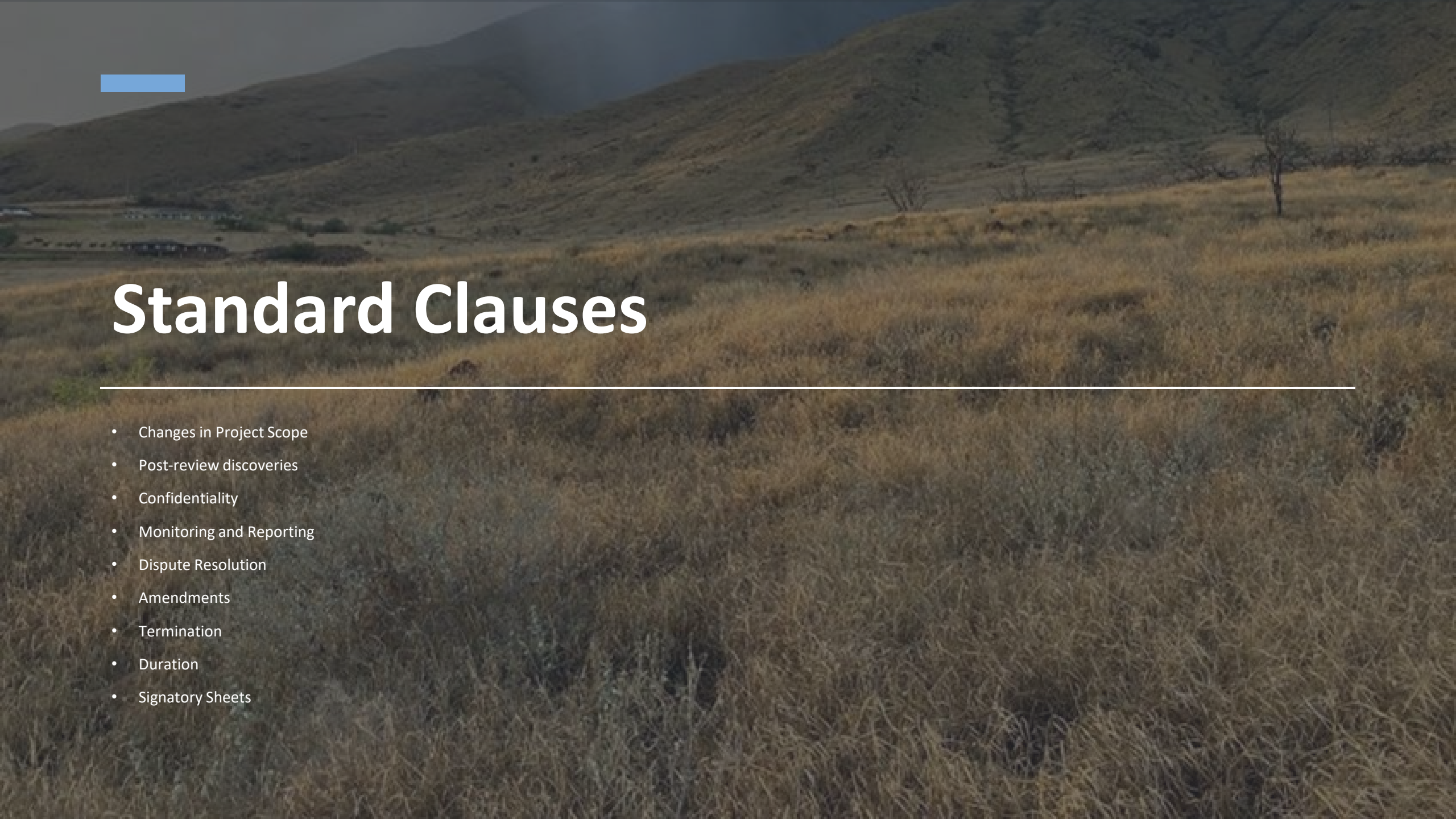


Elements of the PA—Whereas Clauses

- **What** is the project?
- **Who** is involved and their roles
- Are there any other legal requirements that are being **combined** with 106?
  - **Yes**, NEPA and 106 are being combined (may affect timelines)
  - **Yes**, to extent that it makes sense and is legal, 106 and 6E are being combined (i.e-consultation)
- Area of Potential Effect (APE)/Project Area
- Phased Identification

Stipulations: What will be done and who will do it?

- Roles and responsibilities
- Qualifications
- Who does what work
- Mitigation
  - Treatments to resolve adverse effects pp 4-5 (FHWA)
    - Data Recovery
    - Educational Interpretation
    - Photogrammetry
    - Recordation



Standard Clauses

- Changes in Project Scope
- Post-review discoveries
- Confidentiality
- Monitoring and Reporting
- Dispute Resolution
- Amendments
- Termination
- Duration
- Signatory Sheets

6E Memorandum

- Meets 6E requirements
- States what will be combined
- Qualifications
- Monitoring
- Pre-construction training

Mitigation in the 6E Memorandum pp 15-17

- Data recovery
- Continued consultation for better options
- Consultation on burial re-location sites
- Curation
- Access (p. 16)
  - Safe parking
- Stewardship (p.16)
  - Rock removal
  - Use of rocks in design
- Burial Relocation site (p.16)
- Post Review Discoveries and Human Remains

Traditional Cultural Historical Context

MAUI
HAWAIIAN ISLANDS.
Moku
Proposed Alternatives
LAHAINA
LAUNIUPOKO
OLOWALU
WAHIKULI
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PUUNOA
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300 ft. Wide Survey Corridor

Ahupua‘a

Launiupoko

Olowalu

Ukumehame

Ahupua‘a

- Launiupoko
- Olowalu
- Ukumehame

Traditional Settlement

- The currently understood and widely accepted traditional Hawaiian residential distribution across three ahupua‘a followed a common practice of having a mauka and makai residence
- Primary settlement of Ukumehame, Olowalu, and Launiupoko in recent memory and oral traditions focused on the prevalence of lo‘i agriculture off primary perennial streams of the same name
- Current archaeological study has additionally documented colluvial agricultural systems within the survey corridor of the proposed highway realignment which are varied and conform to the rocky terrain of the flow slopes and alluvial plain
- These newly documented complexes allow for a window into little studied coexistence of both lo‘i and colluvial agricultural systems within the boundaries of each ahupua‘a that are intersected by the proposed highway realignment

Archaeological Reconnaissance Methods

Pedestrian Survey

- 10 m transects in areas of open vegetation narrowed to 5 m or less in areas of dense vegetation and low visibility
- Summary description of site and feature formal types
- Initial interpretations of function and interrelationships
- Digital photographs of representative formal types and construction styles within each site and site complex using a Nikon D3500 DSLR camera along with site and/or feature overviews and viewsheds where relevant
- Drawings to scale of representative feature types within multi-component sites where possible using the Leica Power Tracker robotic total station, AutoCAD 2017, and Adobe Illustrator for iPad Pro
- geographic location via Trimble Juno B GPS with an R2 Antenna or the Trimble Connect Application on an Apple device connected to an R2 Antenna

Drone Survey

- DJI Matrice 600 Pro, mounted with a Zenmuse X5R Camera
- Ground Control Points where placed within high-density site and feature
- Post-processed imagery was loaded into ArcGIS Pro 3.2.1 to assists with the delineation of approximate site extents.

Archaeological Reconnaissance Findings

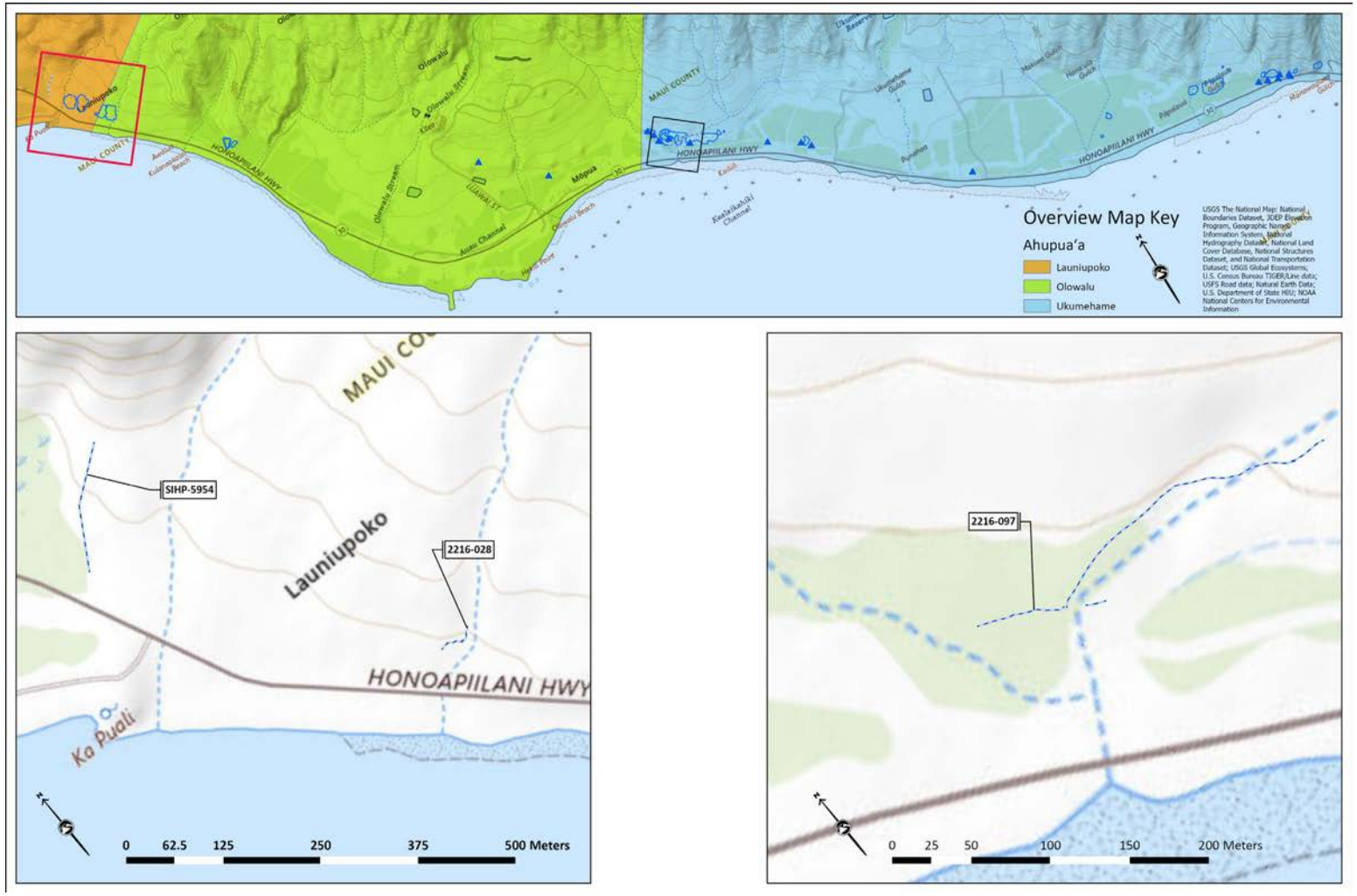
Significance Criteria

- National Register
  - Criterion A: recognizes properties associated with single events, such as the founding of a town, or with a pattern of events, repeated activities, or historic trends
  - Criterion B: recognizes properties associated with individuals whose specific contributions to history can be identified and documented
  - Criterion C: properties significant for their physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork
  - Criterion D: encompasses the properties that have the potential to answer, in whole or in part, important research ques tions about human history can only be answered by the actual physical material of cultural resources.

Significance Criteria

- State Register
  - Criteria A-D are similar or parallel to that of the National Register
  - Criterion “e”: Have an important value to the native Hawaiian people or another ethnic group of the state due to associations with cultural practices once carried our, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts – these associations being important to the group’s history and cultural identity.

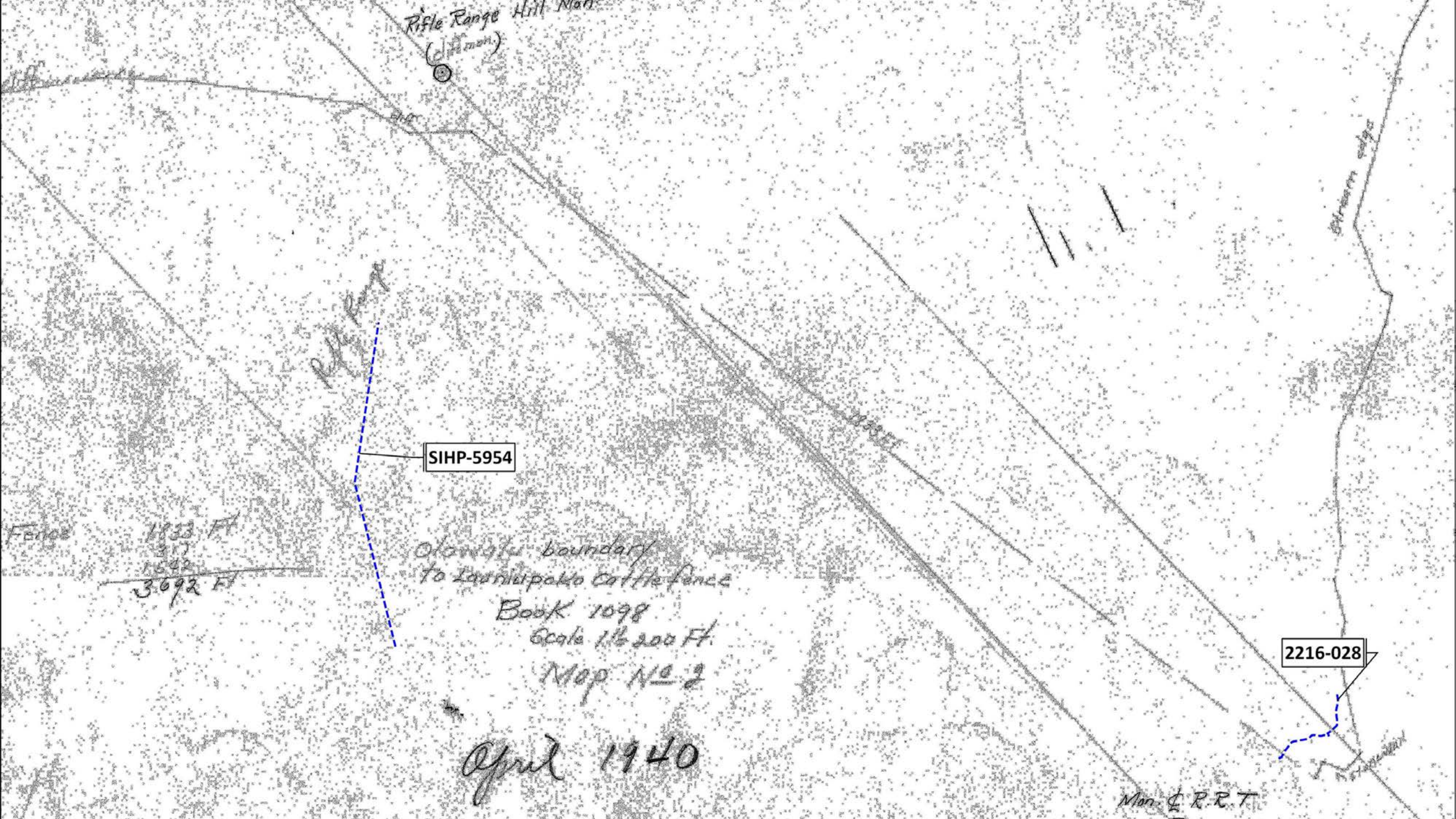
Historic Era Walls



SIHP 50-50-08-05954

AA2216-028

Honoapiilani Highway Improvements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SIHP-5954
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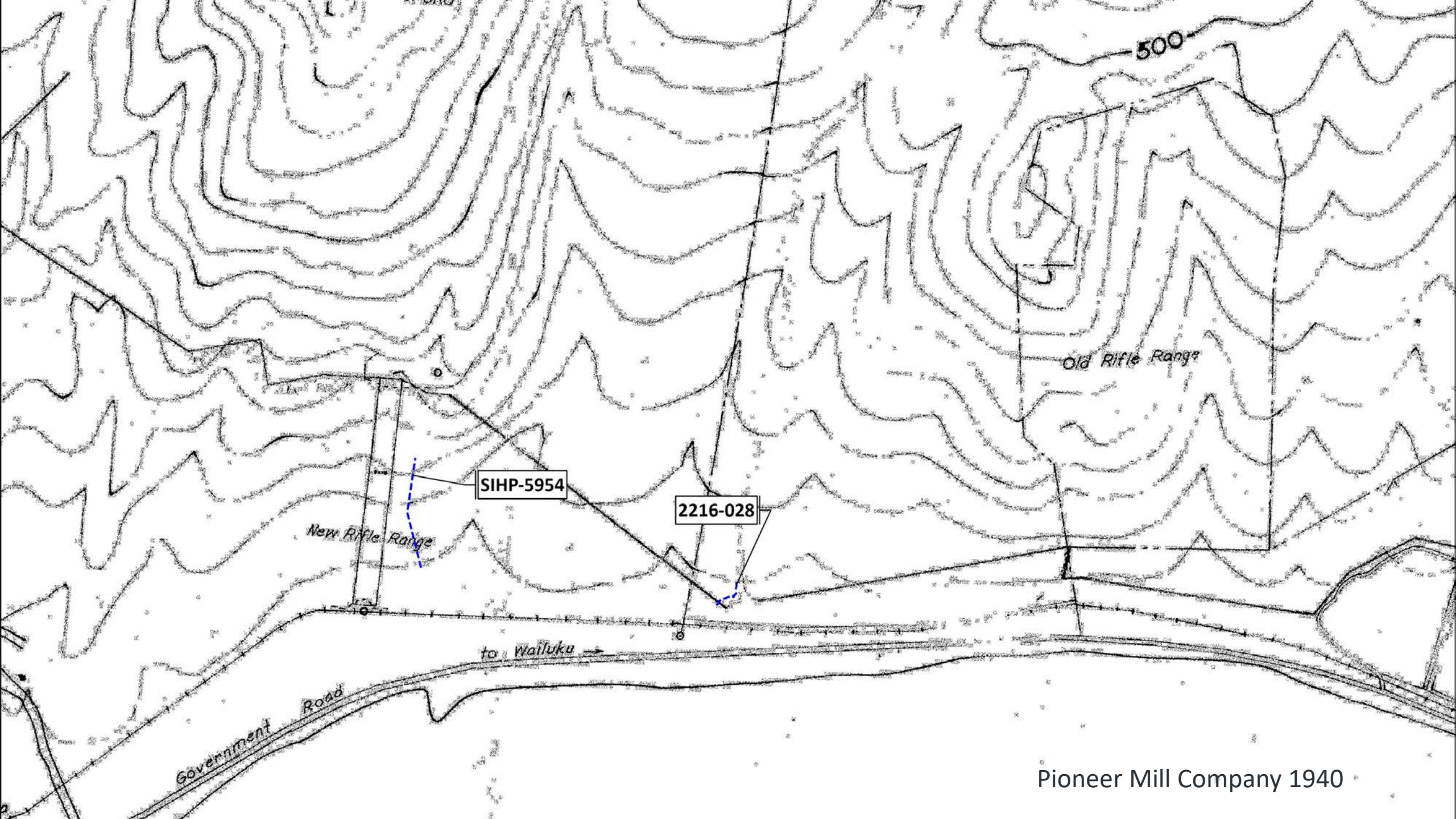
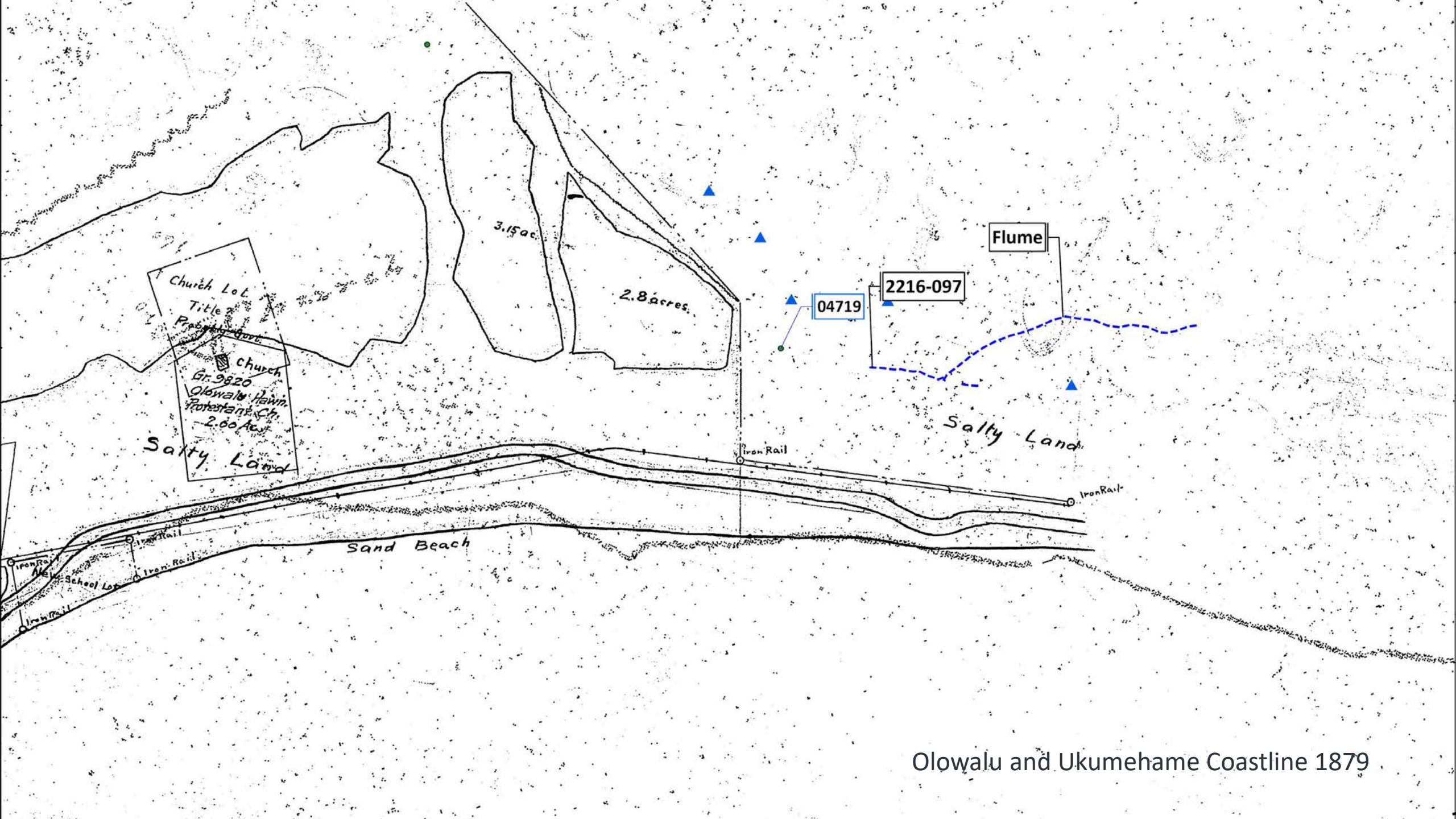
Olowalu boundary
to Launiupoko cattle fence
Book 1098
Scale 1" = 200 Ft.
Map No 2
April 1940
2216-028
Mon. & R.R.T.

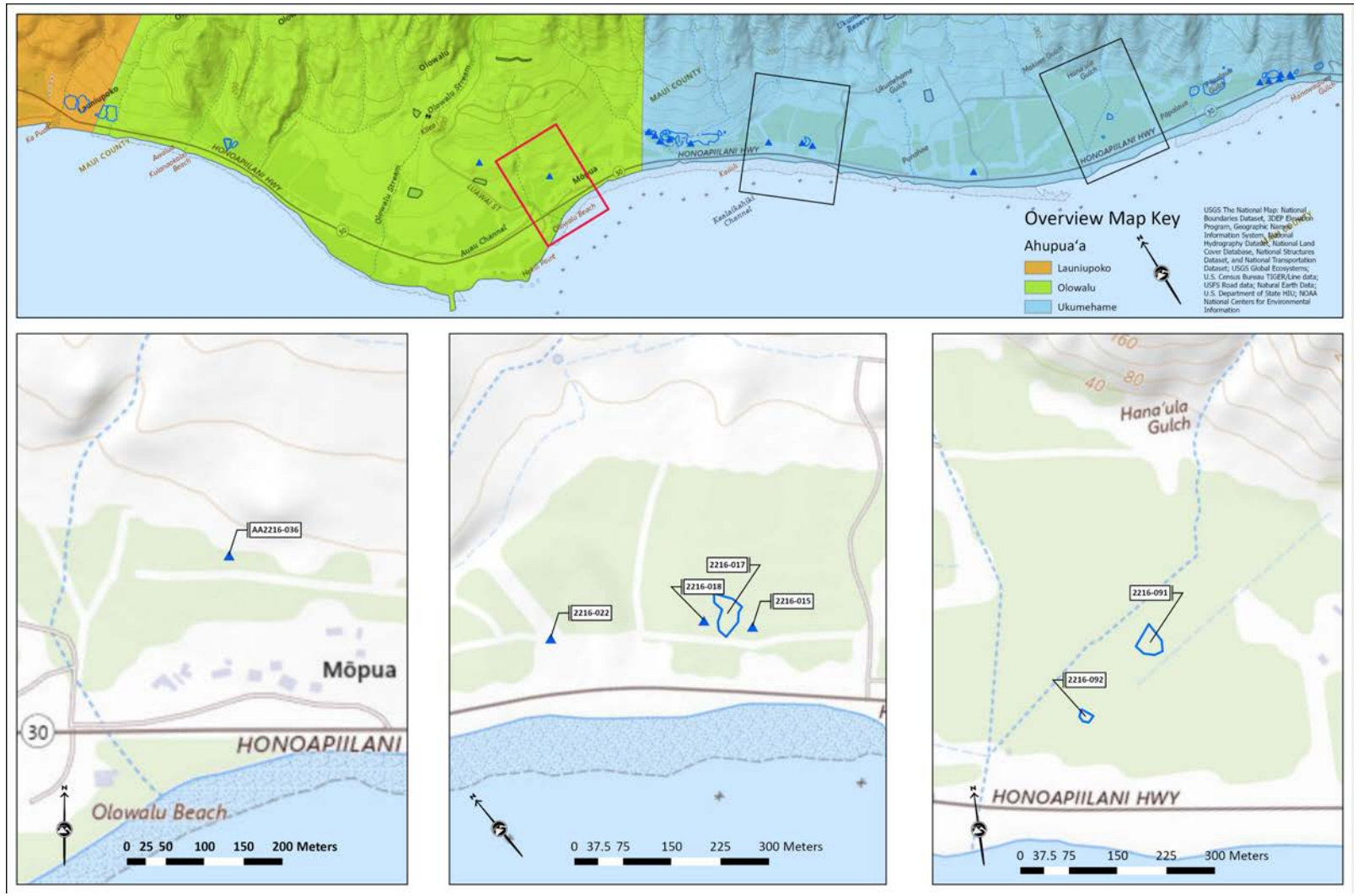


Pioneer Mill Company 1940



Olowalu and Ukumehame Coastline 1879

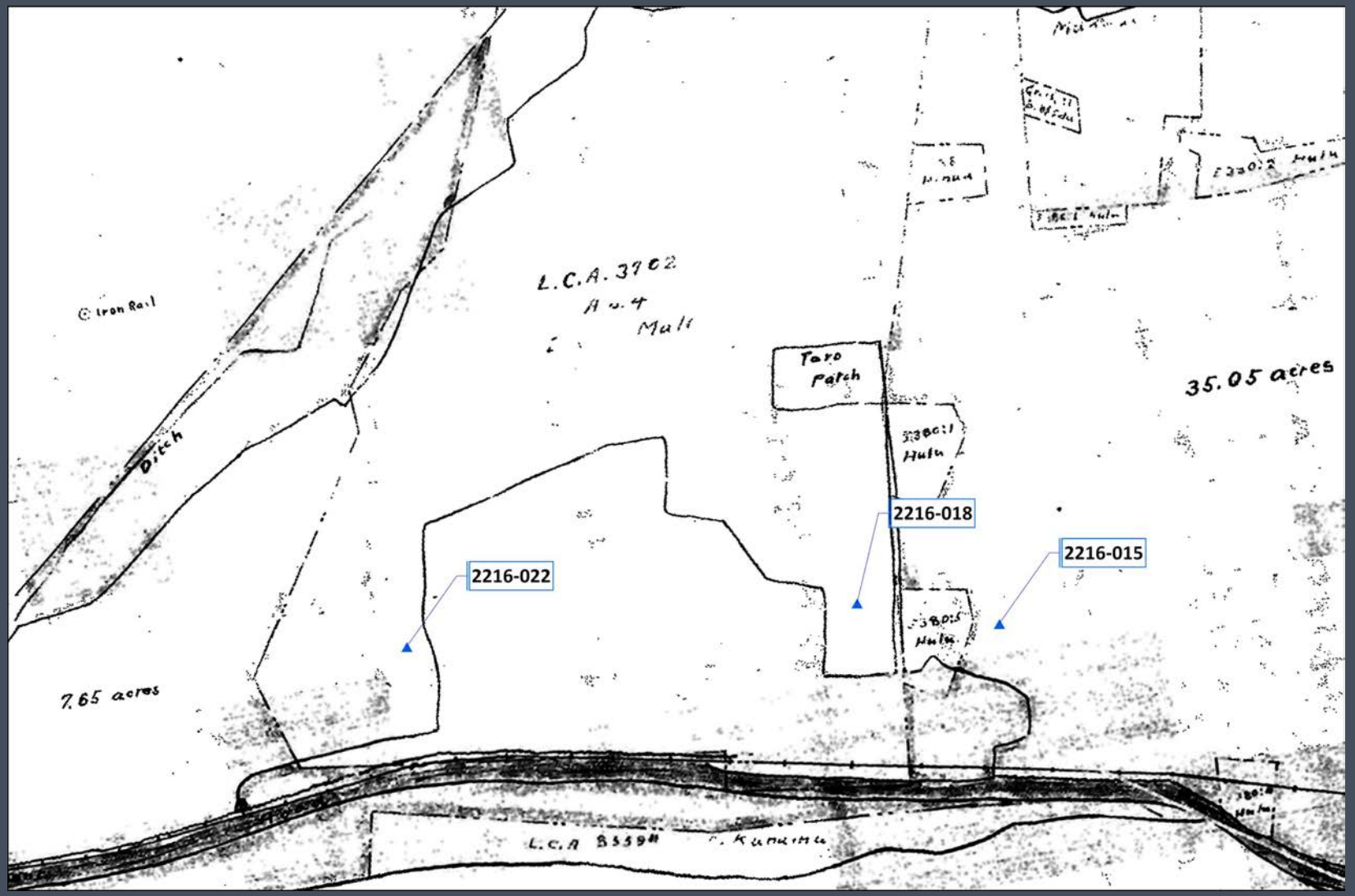
Isolated Properties and Surface Scatters



Traditional Hawaiian Materials

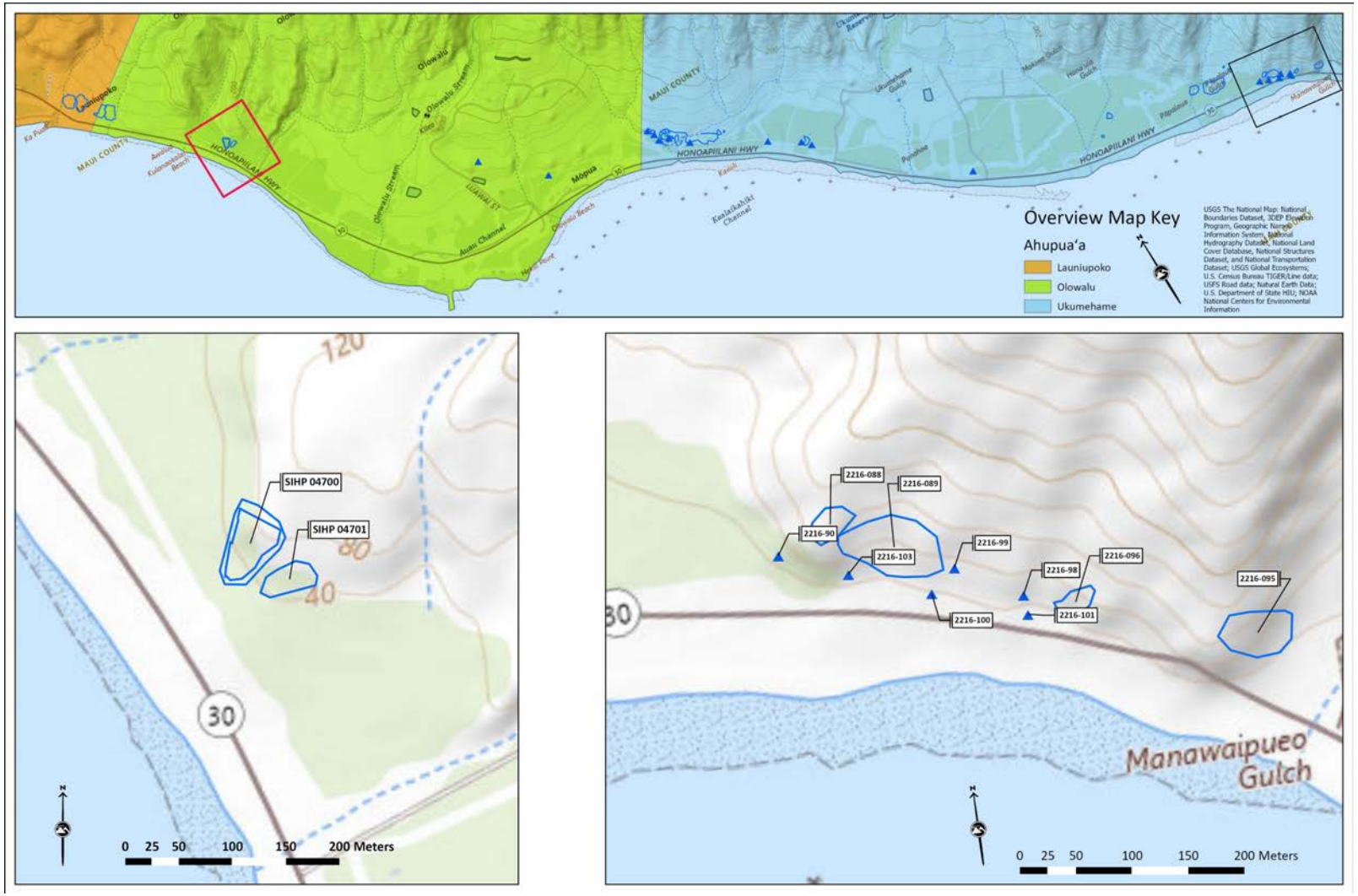
Historic Imported Materials

Honoapi'ilani Highway Improvements

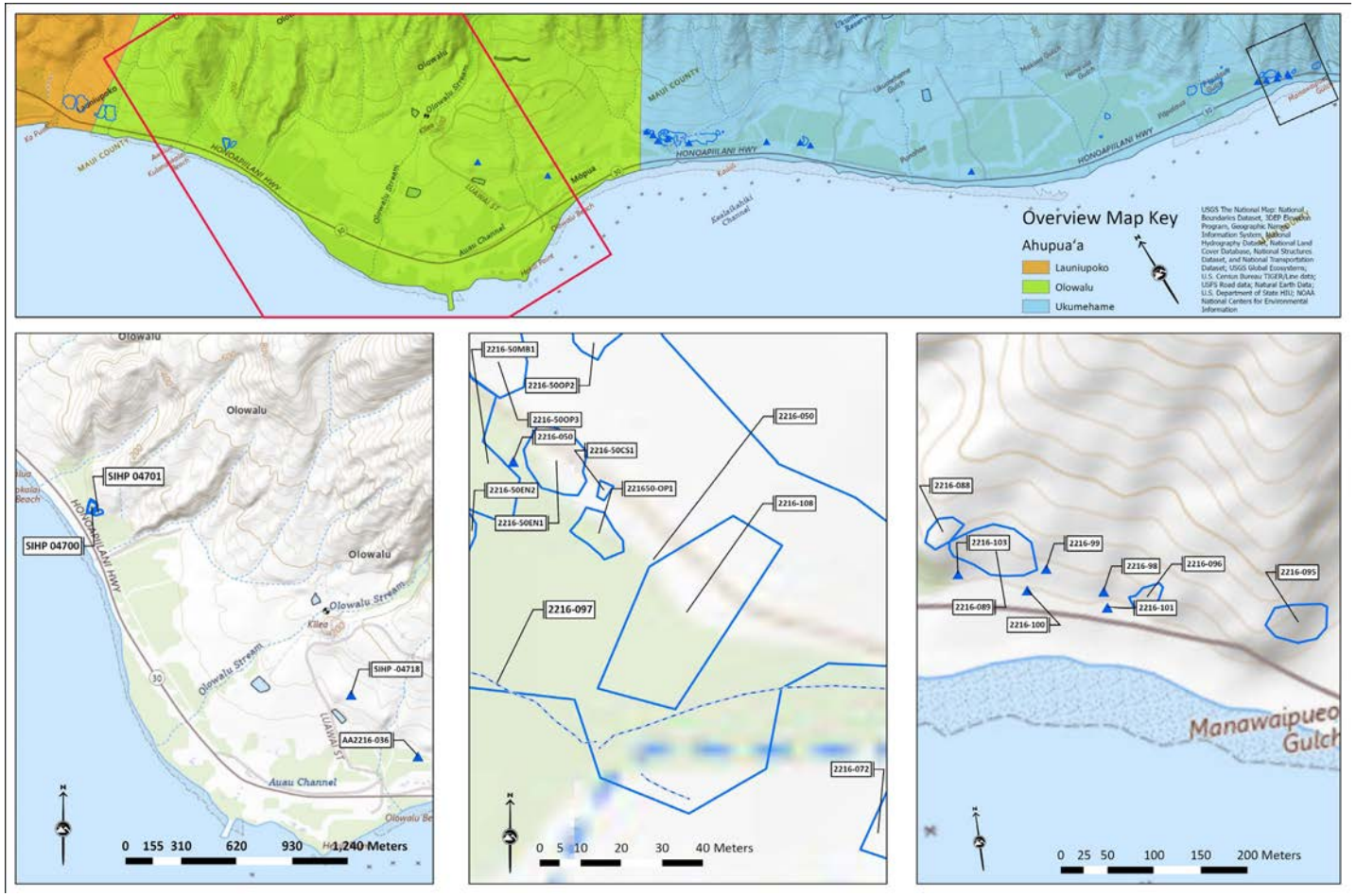


Honoapi'ilani Highway Improvements

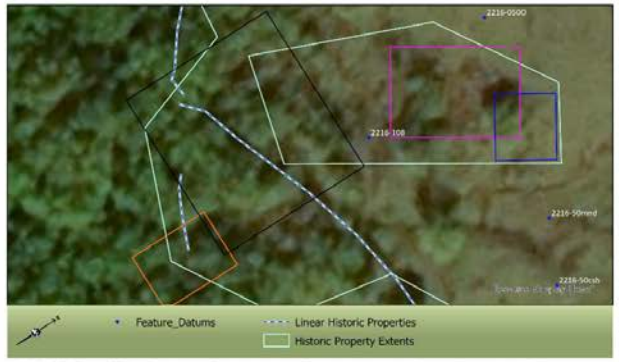
Rock Shelters



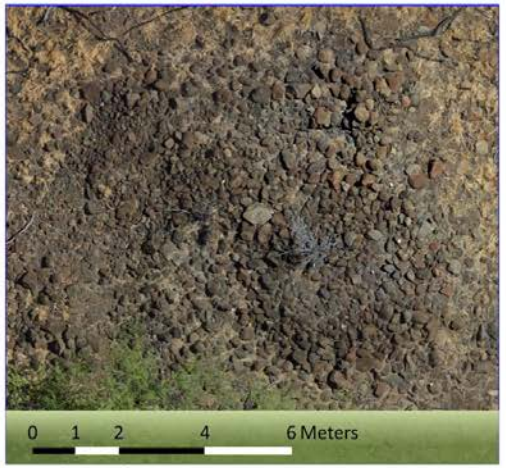
Ceremonial Sites



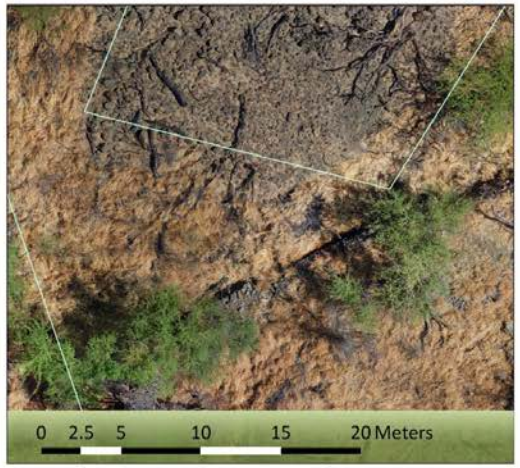
SIHP-04701
Platform Component



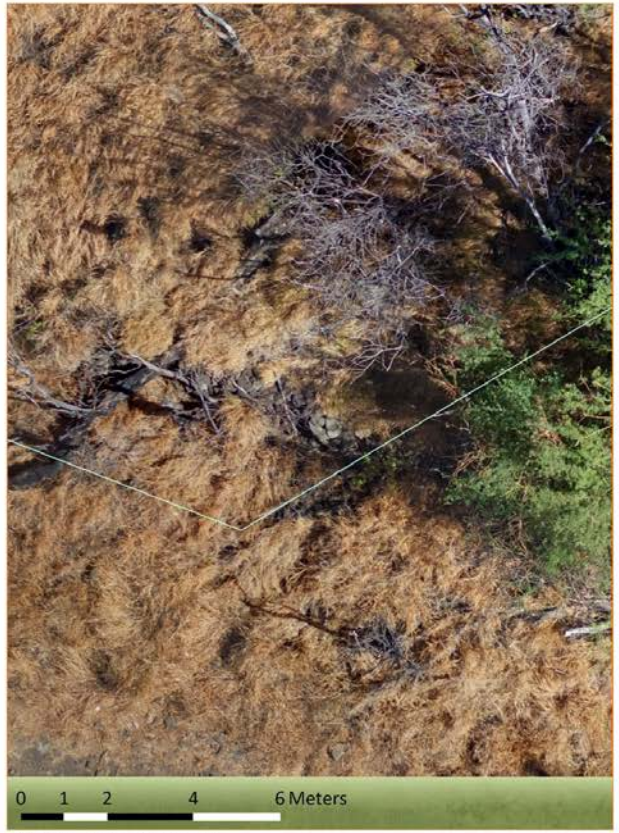
AA2216-108, Drone Imagery, Representative Feature Types



Upper limits of AA2216-108



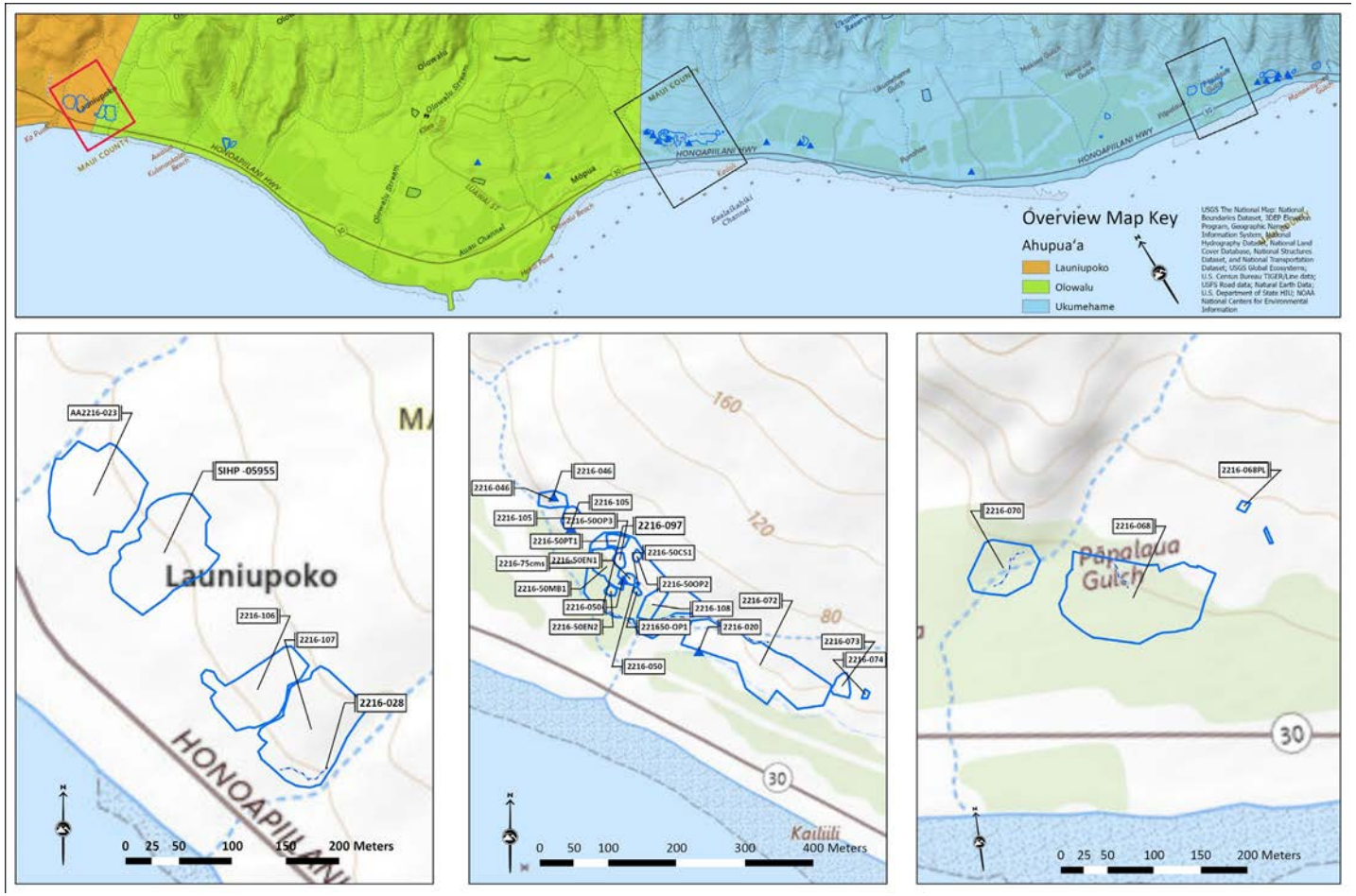
Historic flume bisecting lower portion of AA2216-108

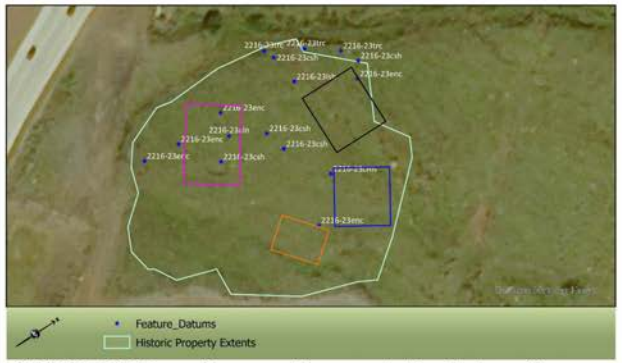


Platform or paved terrace.

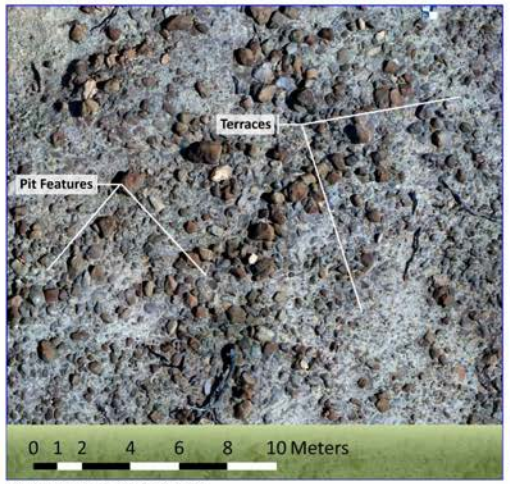
Example of interior features of AA2216-108

Agricultural Field Systems

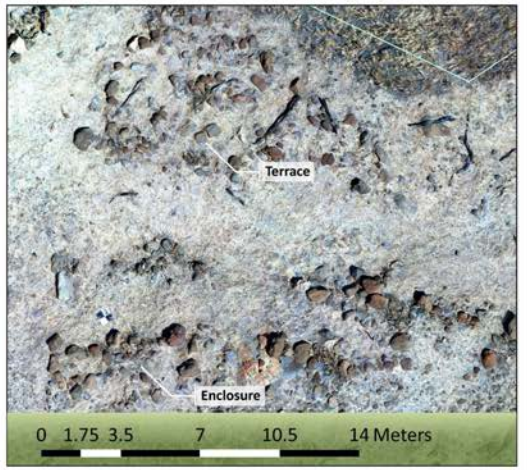




AA2216-023 Drone Imagery, Representative Feature Types



Terraces and pit features

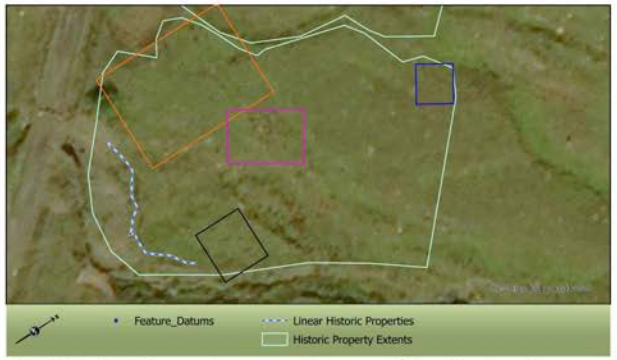


Enclosures and terraces

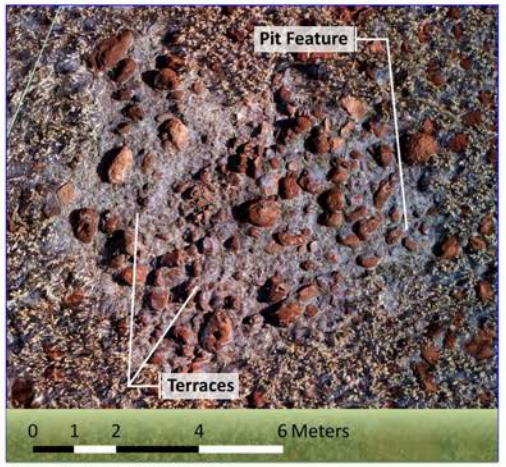
Alignments and other modifications along the drainage

Historically modified C-shapes

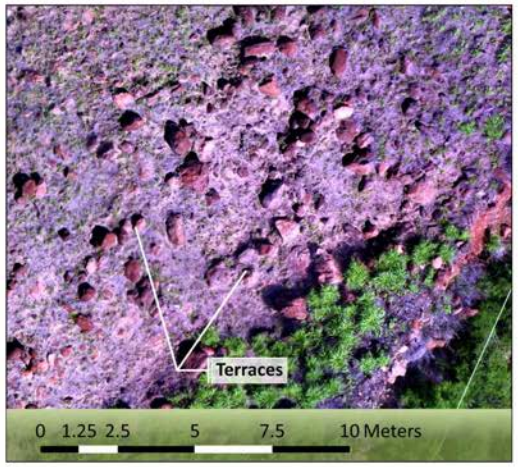
Honoapi'ilani Highway Improvements



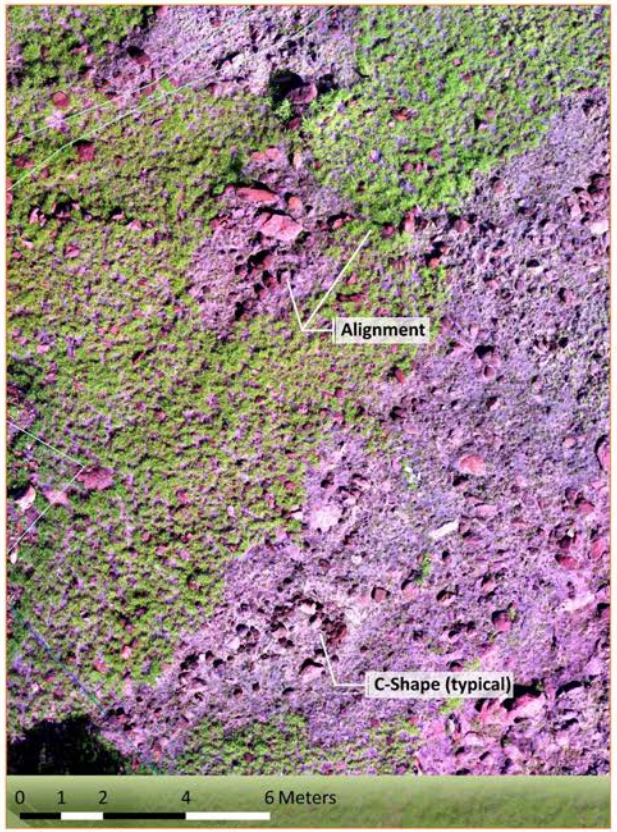
AA2216-107, Drone Imagery, Representative Feature Types



Upper limits of AA2216-107

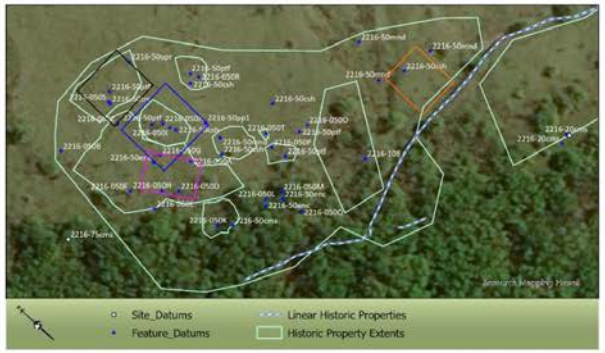


Terraces

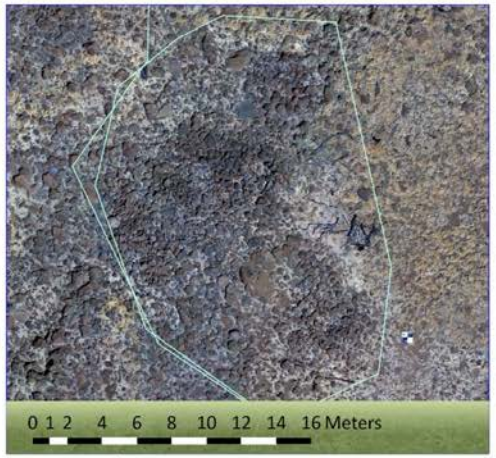


C-Shaped Enclosures and Alignments

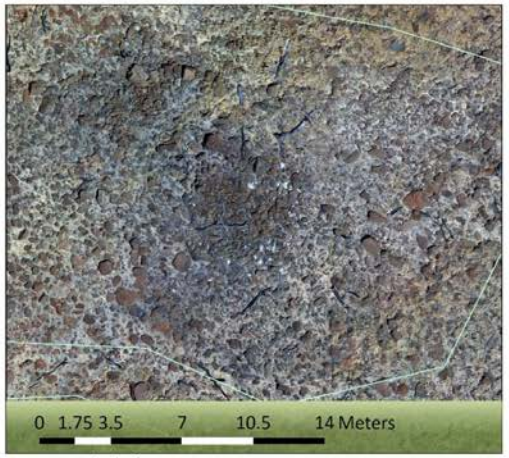
Circular Enclosures within Bedrock Boulder Outcrop



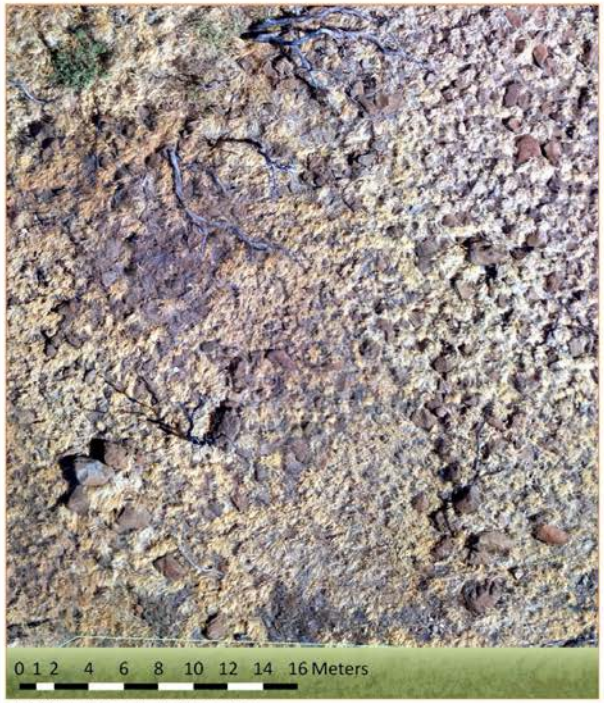
AA2216-050, Drone Imagery, Representative Feature Types



Features I and J



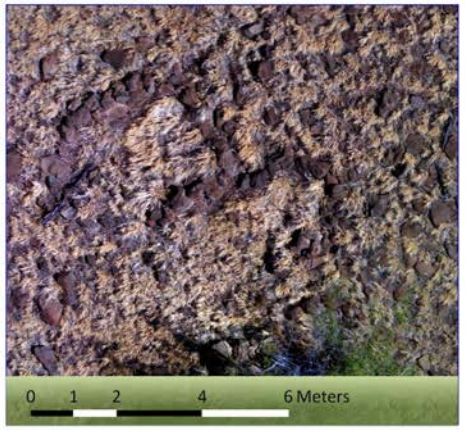
Ceremonial Platform



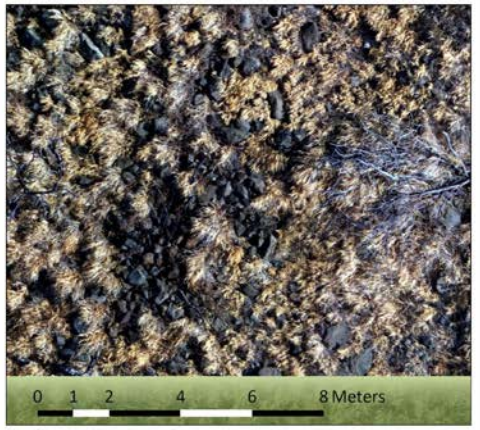
Additional Associated Features

Intensively Modified Bedrock Outcrop, Typical

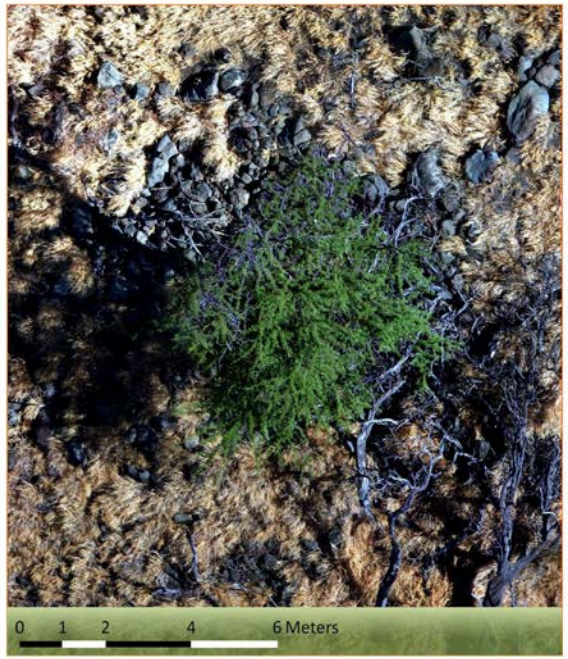
AA2216-072, Drone Imagery, Representative Feature Types



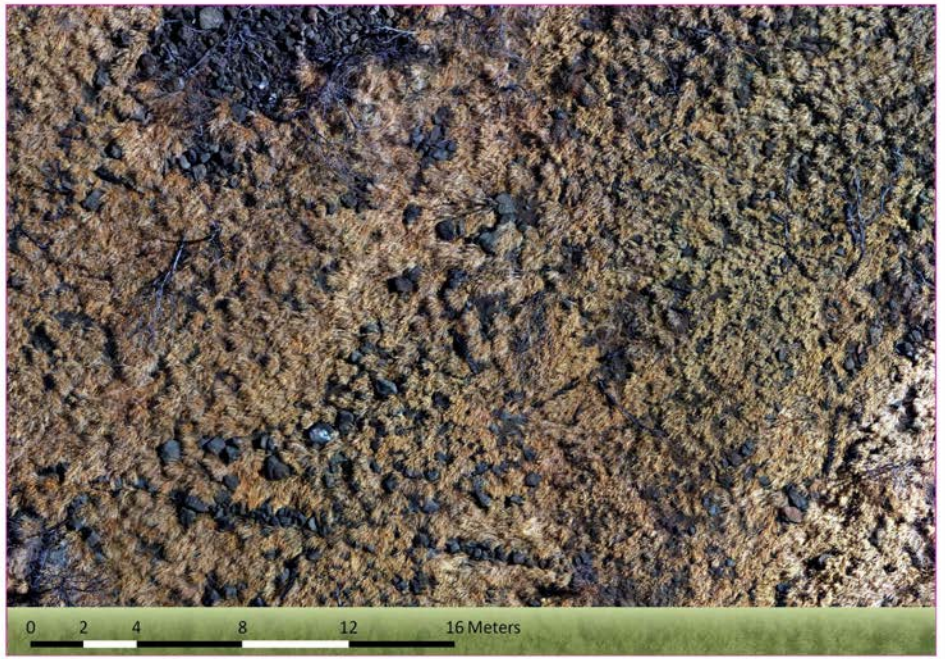
C-Shapes



Platform with interior features



Platform or paved terrace.



Alignment (bottom of frame) below large platform structure

Discussion

Honoapi‘ilani Highway Improvements

Section 106 and Chapter 6E Consulting Parties Meeting
Sunday, September 22, 2024 5-7pm
County of Maui Office of Recovery-West Maui
Lahaina Gateway
325 Keawe Street, Suite B102, Lahaina

See attached attendee list and sign-in sheet

NOTES

5:05 Start

Pule

This meeting is being held to discuss the Section 106 programmatic agreement.

The goal of the meeting is to discuss Section 106 and Chapter 6E concerns

Introductions

Purpose and Need

- Resilience
- Safety

When the Draft EIS is published, there will be at least one public meeting.

The PA needs to be in the Final EIS

The PA allows the project to keep consulting throughout the project’s development.

For now, the PA is a draft (not final).

We just got comments from SHPD that are not yet incorporated into the PA.

The PA will allow the project to proceed even when not all the sites are known yet..

Chapter 6E and Section 106 proceed a little differently.

There are three parts to the PA:

- Whereas Clauses
    - Roles
    - Responsibilities
    - The consulting party list currently in the PA is broader than the final version will be. The final list will include those that participate and help produce the final PA.
    - Includes the APE (Section 106) and the project area (Chapter 6E)
- Mitigation – Treatments to avoid impacts
    - Surface survey is being done first, subsurface work will occur later.
- Standard Clauses
    - Changes in scope

- A 6E memorandum will be included as an appendix to the PA.

Review of Archaeology Survey Review

- Study occurred in the Moku of Lāhainā, in ahupa'a of Launiupoko, Olowalu, and Ukumehame.
- It is understood that this area has had a lot of disturbance from plantation activities.
- There are still quite a lot of sites and features that remain.
- The area had traditional mauka to makai land management.
- There have been many discoveries particularly in the margins between the former plantation fields.
- The field reconnaissance process for the archaeological survey included:
    - 4-5 people walking approximately 10m apart through the corridors.
    - Closer together in denser areas
    - Also surveyed with a drone
    - Cleared grass to find limits of sites.
- There are four significance criteria under Section 106:
    - A – Events / patterns of events
    - B – Association with individuals important to the community
    - C – Physical design / engineering
    - D – Useful information
- Chapter 6E has criteria similar to the four from Section 106 plus one more: e – associated with traditional cultural practices
- Features found in the project area can be generally put into categories:
    - Several walls were found
        - In 1940, a rifle range was developed in the area including one of the walls
        - There is a flume in Olowalu connected with the heiau wall
    - There are a few surface-scatters
        - Mainly in areas within the plantation field system
        - Remnants left behind after demolition/ destruction of some previous site or feature.
        - Includes shell, Ko'i (adz stone), shards, etc.
        - Surface scatters may be places where subsurface features exist
    - Rock Shelters
        - Rock structures used to fortify shallow caves.
        - These caves are likely significant under Criterion D, but also under e.
    - Ceremonial Sites
        - Coral incorporated into the construction is an indicator of ceremonial use/purpose.
        - The view plane from these sites also is an indicator of the use of the site.
        - Terraces that surround the platform is an indicator that these sites were developed over time into larger uses.
        - These features were not previously archaeologically recorded.
        - In addition to the information gained by any one site, there is information to be gained from the placement and pattern of the various ceremonial sites throughout the area. This means the sites are also significant under Criterion A for patterns of events. Also significant under e.

- Agricultural Field Systems
  - There are Loʻi (taro) systems.
  - There are also dry land ag systems that makes use of the rocky terrain.
  - C-shape structures
  - Terraces
  - Circular pits
  - These features are repeated in a large pattern.
  - There was a wide system of various food production.
  - These ag features are likely significant under A, C, D, and also e (6E)

Participant Questions:

Is the cemetery included? (referring to Awalua Cemetery?)

- Yes. The cemetery has a site number (50-50-08-4758)

Is this field system unique?

- This dry land technique is very rare and this system is in some ways unique

How will these sites be protected?

- The PA is intended to identify how adverse effects will be avoided, minimized, or mitigated.
- Engineers are working on avoiding and minimizing effects to sites.

Has use of the current highway been considered?

- Yes. But due to its coastal location, continued use of the existing highway doesn't meet the purpose and need for the project.

Can the existing roadway be raised up (rather than moved)?

- Raising the roadway is an option, but not in the existing location.
- Some areas are expected to have extensive inundation in the future
- Viaduct is very expensive
- There are other design factors that make it infeasible to use the current location and still meet the purpose and need of the project.
- The Nature Conservancy is working with the County on Nature-based solutions for the existing highway

Where is the funding coming from?

- The project funds are a mix of Federal and State funds

What will be done with the archaeology findings?

- That's what the PA will help to determine
- Most of the key sites are on existing State land (DLNR)

What are the alternatives?

- What is the distance between the alternatives?

- The alternatives for the project are similar to the alternatives included in the Pali to Puamana plan (2005) and also included in the West Maui Plan (2022)
- The alternative at the central pinch point is about 250ft from existing highway

Where does the water impact the road in Olowalu?

- Kapaiki – comment was made that Kapaiki is not Olowalu

Where is the cane haul road on the map?

- The cane haul road is not shown on the map

The white lines shown on the map are not an alternative, they show the extent of the project area (APE)

Reconnaissance sheets will be included in the DEIS

Subsurface work will occur later after FEIS/ROD is published

Tanya was asked to show the location of the field systems on the map. They are located largely at the pinch points.

The project cannot discuss the preferred alternative until it's published in the DEIS. Engineers are still looking at ways to avoid and minimize impacts.

Are you building four lanes or two lanes?

- The project is proposing a two-lane highway with room to expand to four lanes later.
- Expanding to four lanes would require further environmental study

A big mahalo to Tanya and her team for all the work they have done!

Ekolu Lyndsey: How do we protect our cultural sites? The community needs to add to the story that Tanya is discovering. There have been coral reef surveys where water quality is being looked at. The importance of these sites is shown by the names of the sites. The community also needs to protect their stories. Get permission from families to share important stories.

The preferred alternative will be included in the DEIS (which is anticipated to be published in December). The preferred will be selected based on findings in the DEIS.

The alternatives were brought in from the Pali to Puamana Plan.

Based on the data from the various project studies and analysis, one alternative in Olowalu and one in Ukumehame will be selected.

The ROW will be 140 ft (big enough for four lanes) but will only have two lanes

Property will be acquired as needed (bought)

Olowalu is one of the last areas that remains undeveloped. The Area is too overdeveloped as it is. We need to preserve the land for the kids. The project should viaduct over the whole area. This place has too much importance. I'iwi (Hawaiian honeycreeper bird) will be found throughout the area.

A viaduct will be a big impact on the land. The footings are deep and must be pounded in. We don't want this area to look like Singapore.

Pua: HDOT, FHWA, and the project team can talk about effects once the preferred alternative is known (after publication of the DEIS).

Why is it necessary to move the roadway?

- Ocean overtopping of the road from sea level rise means closing the road.
- Overtopping is predicted to get worse over time

Can a deflector be used to reduce or avoid overtopping? A stainless-steel half barrel would work. This type of structure was used in the past in Lahaina.

- The community has expressed that they don't want seawalls in the area.
- We need to work with requirements of County of Maui (COM) and Office of Conservation and Coastal Lands (OCCL) who also don't want to allow seawalls or coastal hardening

The project should build out the bridges to accommodate four lanes so that later on there aren't construction impacts twice.

Meeting Close: 6:56

Attendees

Name	Address	Phone #	Email
Ke‘eaumoku Kapu	PO Box 11524 Lahaina, HI 96761	808-298-5639	kapukapuakea@gmail.com
Felimon Sedang	913 Kana Place Lahaina 96761	808-870-6164	Felimon.kalawaia@hotmail.com
Rina Sampson	12 Maluniu Place	808-280-1656	rinalei@aol.com
Malihini Keahi-Heath	25 W. Aipuni Pl Lahaina, HI 96761	808-264-5113	hinanobna@gamil.com (?)
Glenn Gazmen	744 Ho’okahua Pl Lahaina HI 96761	808-357-7947	ggazmen@aol.com
Donora Kahialii	109 Waiehu Beach Road	808-264-8517	donorak@gmail.com
Puanani Felicilda	PO Box 12814 Lahaina	808-298-4087	pnpfelicilda@gmail.com
Uilani Kapu	PO Box 11524 Lahaina	808-250-1479	kukuahu@gmail.com
Houie (Kaanui) & Kathy Kihune	2173 Auina Pl	808-357-1096	katkihune@gmail.com
Connie Applegate (Kaahui)	34 West Aupuni Place, Lahaina	808-269-1608	lanakila.applegate@gmail.com
Florencio Lawrence Cabanilla	Lahaina Maui	808-281-0905	
Carolyn Kam	Lahaina	808-856-1124	
Jonette Kaahui Knight	805 Olowalu Vlg Rd	808-384-5145	jonetteknight@gmail.com
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Ekolu Lindsay			EkoluMCL@outlook.com

Project Staff in Attendance

Name	Agency / Company
Paul La Farga	FHWA
Meesa Otani	FHWA
Genevieve Sullivan	HDOT
Pua Aiu	HDOT
Annette Matsuda	HDOT
Tanya Lee-Greig	‘Āina Archaeology
Gerald Andrade	WSP
Matthew Small	WSP

Honoapi‘ilani Highway Improvements

Section 106 and Chapter 6E Consulting Parties Meeting
Thursday, September 26, 2024 6-8pm
Virtual Meeting via Zoom

NOTES

Meeting Start: 6:10 pm

Introductions (see attached attendee list)

Meeting Agenda:

Purpose and Need for the project –

- Serviceability, reliability, and resiliency
- This segment of the highway is on the list of the most vulnerable roadways in the State related to climate change.
- There are funding opportunities that allow the project to move forward.

The website has been updated.

The draft Programmatic Agreement will be put on the website after it incorporates changes from consulting parties and SHPD.

Alternatives

- The alternatives can be mixed and match in the two areas: Olowalu and Ukumehame

NEPA EIS and Section 106 process chart

- Notice of intent
- Consultation starts, studies, draft PA
- Publish the DEIS
- Consultation, public hearing, comments
- NEPA Final EIS and ROW in May 2025
- After FEIS is published, subsurface archaeology studies, continue consultation
- Construction May 2027-Sep 2029

Question: Can you talk about the selection of the preferred alternative? Will the preferred alternative be a combination of different build alternatives?

Answer: Not until the publication of the DEIS. The preferred alternative may combine Build Alternative options at Olowalu and Ukumehame.

The draft PA was provided to consulting parties. It’s still draft and everyone can comment on it.

The PA is used to move ahead when all the effects from the project are not yet known

For 6E, you can't construct the project without knowing all the effects from the project on archaeological and architectural resources. In the state 6E process, this is accomplished under a two-step verification.

The PA allows the consultation process to keep going through out the project development process.

The PA is an agreement of the process, treatments to resolve adverse effects.

The PA specifies who and what roles everyone in the process has.

Elements of a PA (It can be thought of as having three sections):

1. Whereas Clauses: What is the project, who is involved, specifies that 106 and 6E are being combined, APE, Phase identification.
    a. DLNR has been invited to participate as the landowner of much of the land
2. Stipulations: What will be done and who will do it? Who is responsible for what? What are mitigations to resolve adverse effects?
3. Standard Clauses

Mitigation in the 6E memorandum which will be included as an attachment to the PA. The memorandum is changing as more coordination is done and any additional comments from you will be incorporated.

<u>Review of Archaeology</u>

The project is in Moku of Lahaina, Ahupuaa of Launiupoko, Olowalu, Ukumehame

The landscape and ahupuaa division in the area are a bit more complicated in the Kaanapali area. However, these three ahupuaa follow the more classic mountain to makai configuration.

In precontact days, many area residents had both a mauka and a makai hale.

Prevalence of loʻi agriculture using the perennial streams.

In addition to the loʻi system on the edges of the plantation field system are also dry land agricultural features where dense concentrations of feature sites were located and documented

Reconnaissance methods:

- 10m transects in open areas narrowed to 5m or less in dense vegetation and low visibility
- Summarized sites and features into types
- Initial interpretations of the patters of features
- Digital photos of representative types
- GPS
- In areas with features, clearing was done to reveal the sites
- Drones were used to map the larger complexes

Reconnaissance findings:

- Sites were categorized by type
- Significance criteria:

    - National Register of Historic Places Criteria
        - A – Association with events or patterns of events
        - B – Association with individuals
        - C – Engineering: Physical design or construction
        - D - Potential to provide information
    - State Register
        - A – D similar to National Register of Historic Places
        - E – association with traditional cultural practices important to cultural identity
- Historic Walls
    - Dry stack stone walls that are associated with the plantation era and activities (2 – 1 in Olowalu and one is Launiupoko
    - SIHP 50-50-08-05954 at boundary of Launiupoko
    - SIHP 5954 – small segment of cattle wall to delineate pastures. This wall might be associated with rifle range that was constructed in the area
    - 2216-097 – (on 1879 historic map) there is a flume associated with boundary wall. A flume is an above ground water channel used to transport the cane from fields to the mill
- Isolated properties and Surface scatters
    - Surface scatters are remnant artifacts from structures that are no longer extant (largely in areas that were previously plowed as a part of plantation activities
    - Scatters are a mixture of traditional materials: like seashells, glass, ceramic shards, mixed with koʻi and other traditional artifacts
    - Surface scatters can be an indication that subsurface artifacts may be present
    - Isolated site: situated in the middle of an encampment
        - Stone lined well.
        - Not sure yet if the well is historically significant
        - Overlayed location over historic land commission maps
        - Locations seem consistent with a residential use, possibly associated with David Malo
- Rock Shelters
    - Shallow cave features used for temporary dwelling
    - There are outer fortifications of the cave with interior modifications as well
    - Marine shell materials, opihi fragment, leho show habitation
    - National Register: Fits under D, State Register: D, E
- Ceremonial sites
    - Several types of ceremonial sites were found
    - SIHP-04701 ceremonial platform site
        - Branching coral is integrated into the structure indicating ceremonial use
        - The viewplane looks across the channel which is significant
    - Several Heiau were recorded
        - Site 108 – large platform Heiau near boundary of Olowalu and Ukumehame. This site is impacted by the previously mentioned flume
    - National Register: because there is a pattern of sites throughout the project area, the ceremonial features are being recommended under criteria A for a pattern of events (how the land was developed and used), also D. State: E
- Agricultural Field Systems

- These dryland systems are different than the loʻi systems and also different than that Kona field system.
- System uses the topography with terraces and pit features to retain soil in order to cultivate.
- Area between Olowalu and Ukumehame – stony bedrock outcrops where there isn't much soil. Modified extensively for agricultural features.
- There is a ceremonial site integrated into larger agricultural system
- Recommended for criteria A, C, D. State: E

Discussion:

Can you talk about the selection of the preferred alternative?

We are still working on the preferred alternative. The project is not allowed to disclose the preferred alternative until the publication of the DEIS.

What considerations are used to determine the preferred?

There are many environmental impacts that are considered compared to each other as well as the no-build alternative. The DEIS will disclose the laws considered and the impacts under those regulations. The alternatives must meet the purpose and need of the project. Alternatives that don't meet the purpose and need won't make the cut.

Maybe a prefix should be added to the term "preferred alternative" like "HDOT's preferred alternative". The term "preferred alternative" sounds subjective.

"Preferred Alternative" is a legal term that is being used, but this input is useful to know for when we introduce the idea in future discussions.

Thank you to Tanya. No sites were mentioned under Criterion B. Can you talk more about association with historic people?

The stone well that was found is in a heavily modified encampment area falls in an LCA associated with David Malo, who is a significant Hawaiian leader and person. However, it is difficult at this time to make the link. It could also be related to water development associated with plantation uses. Further study is needed. This might be an area for further mitigation due to the importance of David Malo.

Were there other associations with individuals?

Not at this time.

There is some controversy about David Malo's residency in Ukumehame. There needs to be a lot more discussion about David Malo's tenure in Ukumehame.

At transition precontact period, there were many aliʻi that lived in Ukumehame.

Kalolawas not in Kapaiki for that long of a period.

Mopua agricultural features: Do you know the dates for those features?

No. Subsurface work would be needed to date the features. **It may have been used by Japanese or Korean plantation workers for food production.**

What about the wetlands in Ukumehame? Will it be discussed in the DEIS?

The project looked at the wetlands and the DEIS will discuss the wetlands. There are others that are studying the restoration of the wetlands.

On the alternatives, there are areas were all the alternatives are located together. Is that were the heiau is located?

Yes. Engineers are looking at avoidance and minimization of effects to these sites.

What is the goal of the study looking at wetlands?

DOFAW got a grant to do the wetland study. More information is available on the DOFAW website.

Do we go more mauka to save the heiau and ag features? Or go more makai?

The sites are generally better preserved the more mauka. The sites closer to the existing roadway have had a lot more disturbance. Mauka sites are more intact and better preserved.

Are there more important sites Makai, even if they are not as well preserved?

That would need to be studied more.

What is the land ownership near Heiau?

Mostly DLNR. **Is there any protections set up for those sites currently?** No. those sites were not known. The West Maui Forest preserve was expended to the ocean in those areas. The project is working with DLNR on what a management plan might be.

Will there be a formal report with these findings? [Referring to the Archaeological findings presented by Tanya]

Yes. But it's not completed yet.

It's important for the community to see what's in the Mauka section. Is it possible to see that before the DEIS?

No. It's a lot of work that would occur after the decision is made. All of the alternative alignments were studied for archaeological and architectural resources (300 ft swaths). So it's not everything in the APE, but it covers much of the area. **Is that information in the DEIS?** Yes. **We don't know what's in the mauka part of the APE. It's hard to have a meaningful discussion about what alternative to select.** In the area of Mopuna, it's a pinch point with a common alignment. The preferred alternative can be modified to avoid or minimize. If the alternatives move mauka they may move into the heiau.

This conversation is more about legal processes. The cultural aspects are being diluted. Hinano is asking for more field work and that should be considered.

ʻĀina studied 300 ft corridors around each of the alternatives. The anticipated ROW will be 140 ft so the study corridors allow for movement of the alternatives within the study corridors if needed. There is a lot of design work going on to avoid or minimize effects to wetlands and historic features.

The pinch points just have one alignment. The topography limits the options in the pinch points but there is still wiggle room within the 300 ft study corridor.

If the alignment was moved more mauka, would you save the heiau?

The Heiau extends mauka. Meaning the alignment is on the makai boundary of the site. It's important to save features that we don't know what they are. The heiau is large. The engineers are working to avoid the sites. Elevation is an option that is being considered.

What is the distance between the gray line and the very top of the APE?

Not sure. The survey corridors are 300 ft wide, and the APE extends further mauka than the most mauka study corridor. The survey did not cover the entire APE.

Can the slides be provided to participants?

Yes. It will be put on the website.

Draft EIS is going to be published in December with the preferred alternative.

Additional meetings like this will be scheduled soon to discuss potential mitigation or if things like burials are encountered during construction.

The draft PA is a good PA.

The comment period is 45-day period. Request to extend the comment period since it's over the holiday period.

Hopefully there will be another talk story for the Kupuna.

Meeting Close: 8:12 pm

Attendees

Name
Fay McFarlane
Bill & Leimomi Ka'ahui
Foster Ampong
Hinano Rodrigues
Kai Nishiki
Karen Comcowich
Kiersten Faulkner
Lauryn Rego
Olowalu Ohana
U'ilani Kapu

Project Staff in Attendance

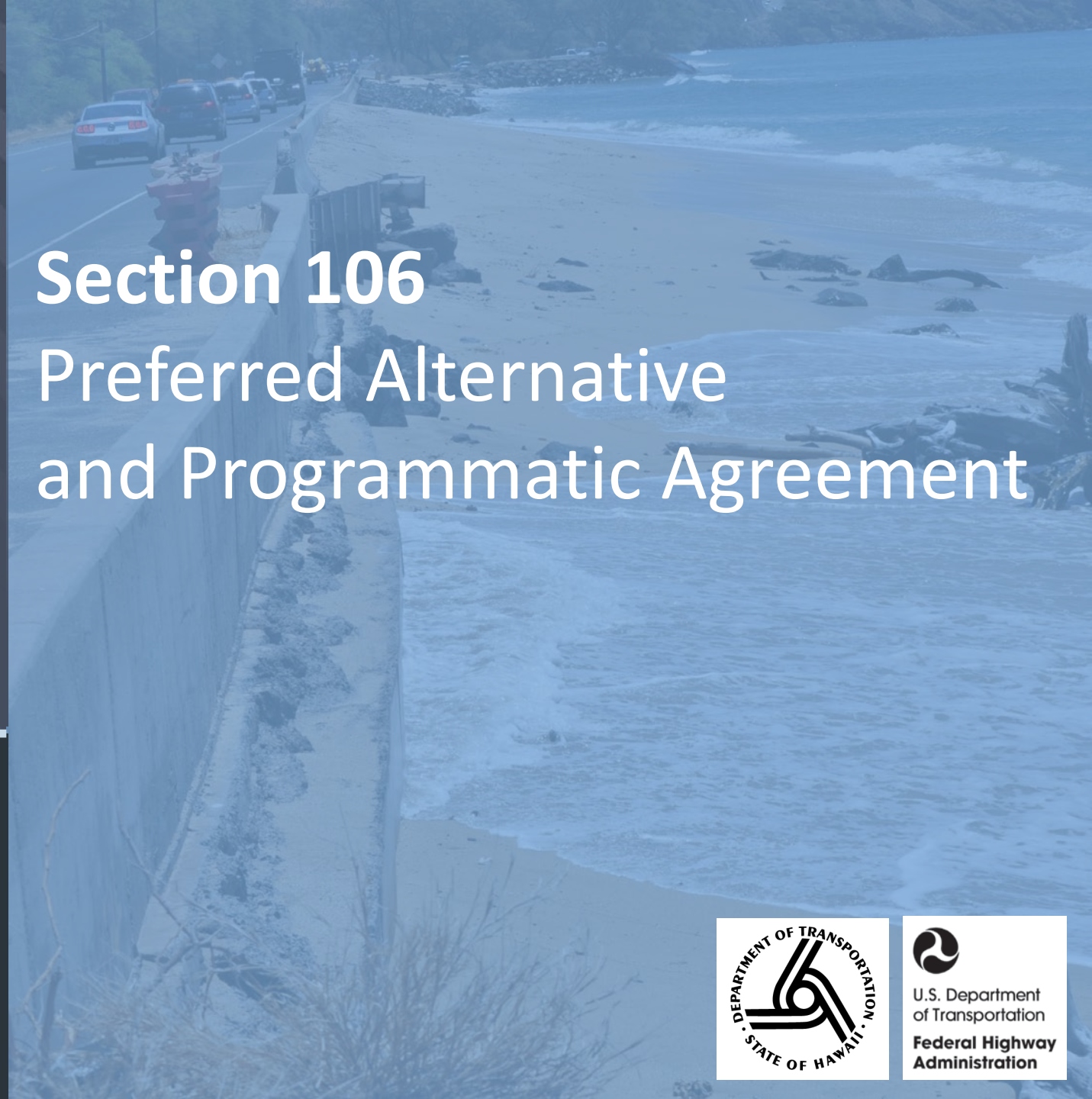
Name	Agency / Company
Paul La Farga	FHWA
Meesa Otani	FHWA
Genevieve Sullivan	HDOT
Pua Aiu	HDOT
Annette Matsuda	HDOT
Lawrence Laus	HDOT
Tanya lee-Greig	ʻĀina Archaeology
Jamie Bents	WSP
Gerald Andrade	WSP
Matthew Small	WSP
MJ Jackson	WSP
Nichole Sherbert	WSP

Honoapi'ilani Highway Improvements

West Maui, Ukumehame to Launiupoko

Section 106
Preferred Alternative and Programmatic Agreement

Consulting Parties Meeting
February 12, 2025



DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

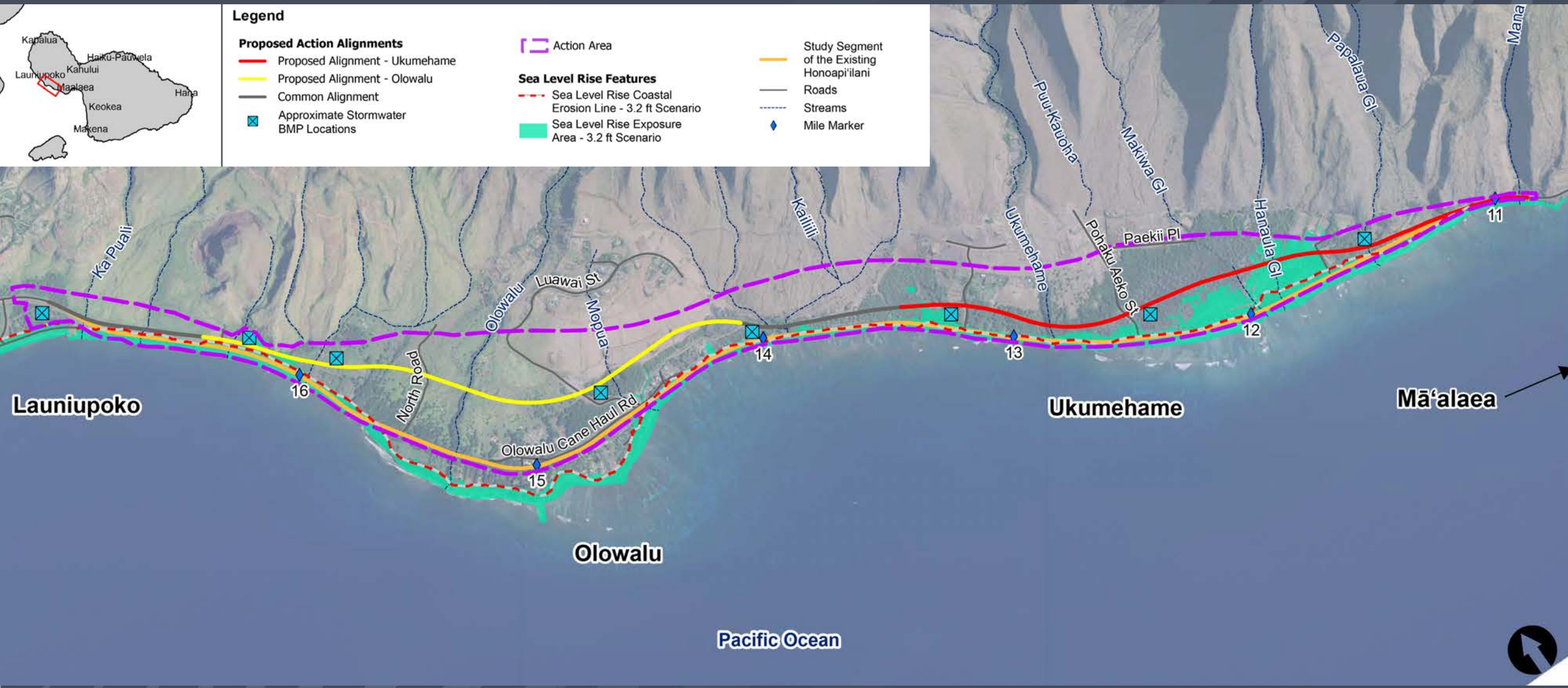
Presentation Overview

- Introductions
- Preferred Alternative
- Review of Programmatic Agreement Stipulations
- Discussion/Comments

Meeting Goals:

- *Understand Preferred Alternative*
- *Consider Potential Mitigation Options*
- *Finalize Programmatic Agreement*

Preferred Alternative



Honoapi'ilani Highway Improvements

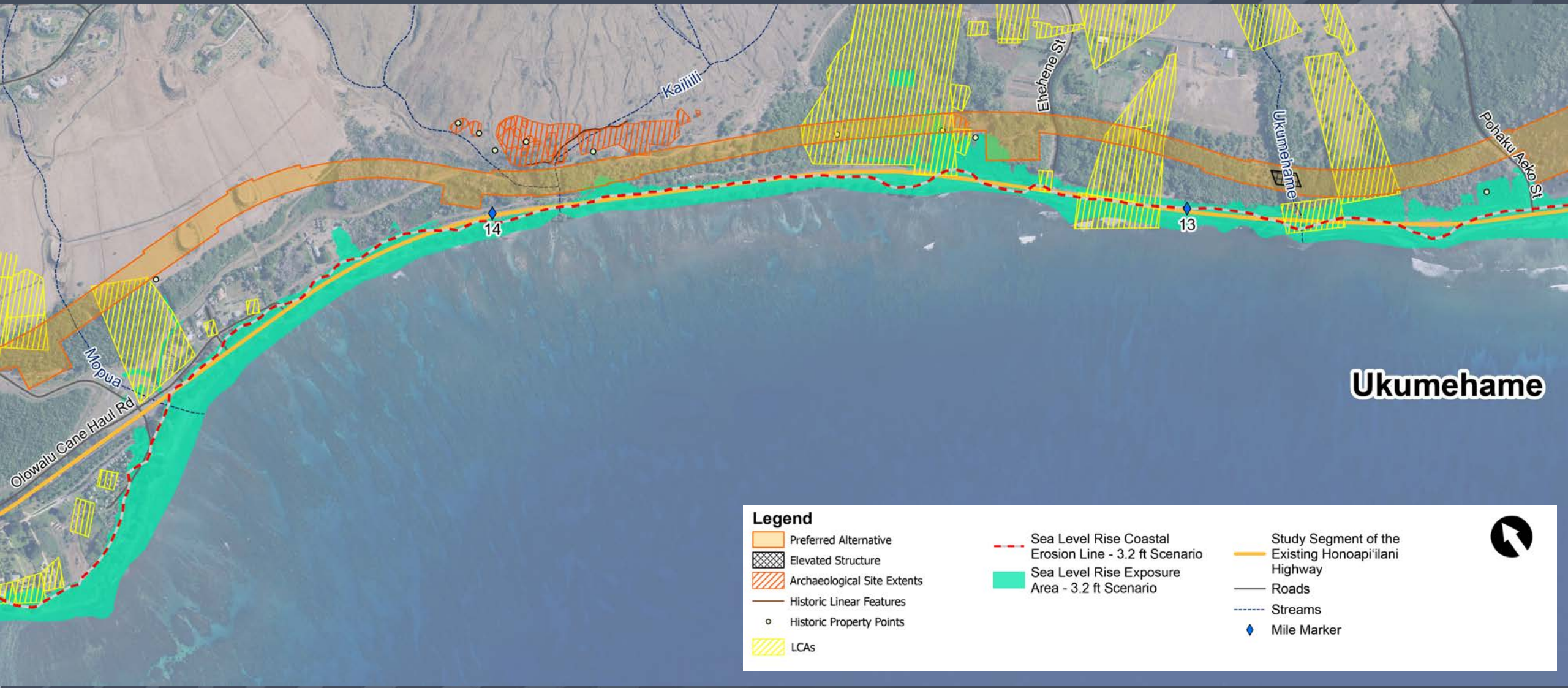
- Preferred Alternative Intersects 11 of 37 Archaeological Sites Documented During Reconnaissance

Ahupua'a	Field No	Possible Age Range	Inferred Function	Formal Type	Overall Condition	NRHP Significance Recommendation	NRHP Integrity Evaluation
Launiupoko	AA2216-023	Precontact and Possible Historic Military	Agricultural Complex, Military Training	Alignment, C-Shape, Enclosure, Mound, Terrace	Fair	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-106	Precontact	Habitation and Agricultural Complex	Terraces, Circular Alignments, Small Semi-Circular Terraces, Enclosures	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-107	Precontact to Early Historic	Agricultural and Habitation Complex	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Association
Olowalu	AA2216-028	Early 20th Century Ranch	Animal Husbandry – Pasture Delineation	Wall, Fenceline	Fair to Remnant	D	Location, Material, Setting, Feeling, and Association
Olowalu	SIHP-04700 CMS-001	Precontact	Habitation Complex	Surface Scatter	Remnant	D	Location, Design, Setting, Materials, Feeling, Association
Olowalu	SIHP-04700 Overall	Precontact	Habitation Complex	Rock Shelters, C-shape, Wall	Fair to Poor	D	Location, Design, Setting, Materials, Feeling, Association
Ukumehame	AA2216-017	Precontact	Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-018	Late Precontact - Early Historic	Habitation, Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-022	Historic	Water Access	Stone Well	Fair	D	Location, Design, Material, Workmanship, Feeling
Ukumehame	AA2216-072	Precontact	Agriculture and Habitation	Enclosure, Mound, Wall	Fair	A, C, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
Ukumehame	AA2216-091	Precontact to 19th-20th Century	Habitation	Surface Scatter	Remnant	D	Location, Materials, Association

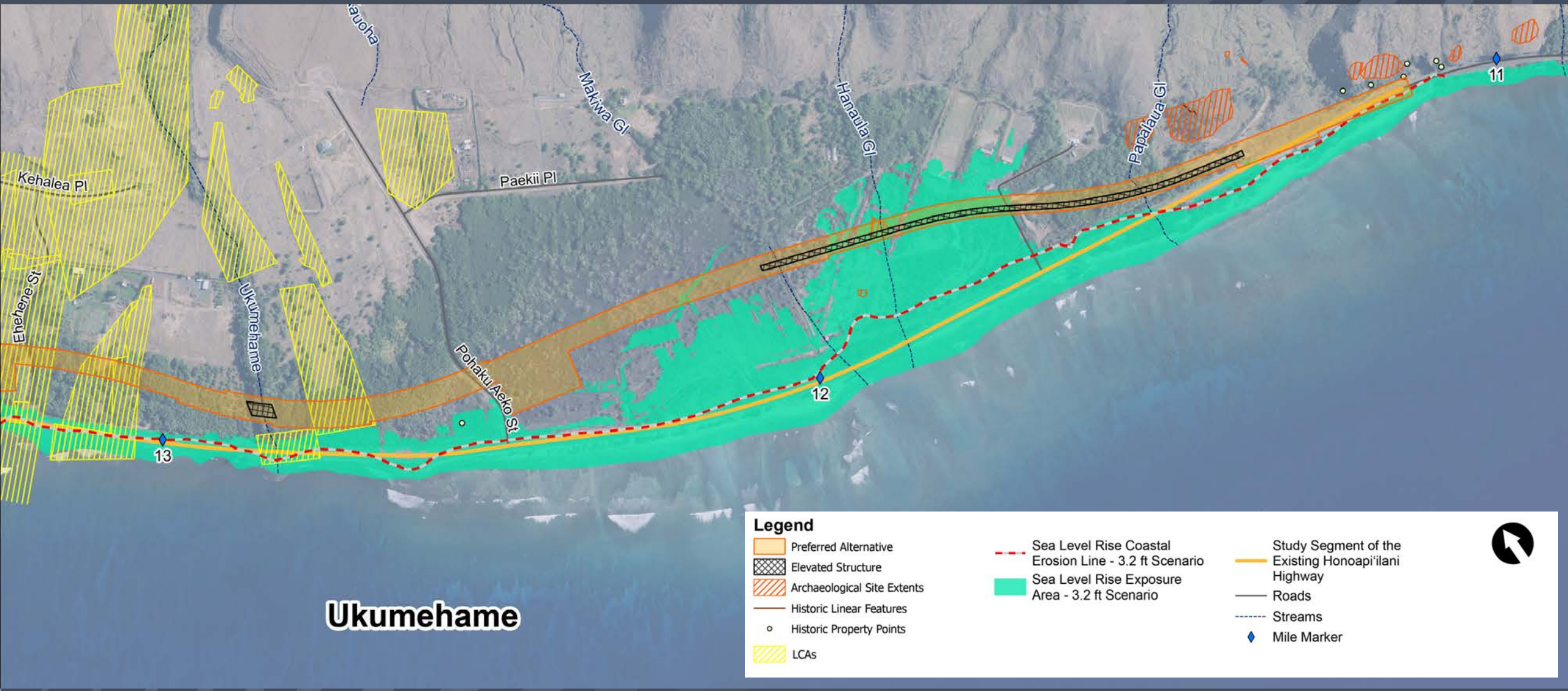
A - associated with events that have made a significant contribution to the broad patterns of our history;
C - embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that **represent a significant and distinguishable entity whose components may lack individual distinction**;
D - have yielded, or may belikely to yield, information important in prehistory or history

Preferred Alternative – Launiupoko, Awalua, & Olowalu

Preferred Alternative – Kapaiki to Ukumehame



Preferred Alternative - Ukumehame



Section 106 Programmatic Agreement

NEPA EIS/Section 106 Process for this Project

NEPA EIS Notice of Intent

- Area of Potential Effects submitted to SHPD
- Consulting Party Outreach
- Reconnaissance Level Survey (Architecture) of entire APE submitted to SHPD for review and concurrence. SHPD concurred with the eligibility determinations.
- Reconnaissance Level Survey (Archaeology) for Project Alternatives submitted to SHPD for review and concurrence with eligibility determinations.

NEPA Draft EIS *(Alternatives Analysis and Selection of Preferred Alternative)*

- Continued Consultation
- Develop Programmatic Agreement
- Develop plan for subsurface archaeology survey

NEPA Final EIS and Record of Decision

- Execute Programmatic Agreement (prior to Final EIS and Record of Decision)
- Continued Consultation

Post Final EIS

- Continued Consultation
- Implement Programmatic Agreement: Continued Investigations (AIS) and Archaeological Monitoring
- **Assessment of Effects**
- Resolution of Adverse Effects as prescribed by Programmatic Agreement

Continued Consulting Party Outreach

The PA specifically requires consulting party outreach for the following items:

- Development of the Archaeological Inventory Subsurface Survey Plan (AISSP) (Stipulation IV.A, page 4, line 179)
- Review of the Archaeological Inventory Survey Report (AISR) that includes formal documentation of archaeological sites that fall within the ROW of the Preferred Alignment as well as the results of the subsurface survey (Stipulation IV.B, page 5, line 215)
- Effects determinations (Stipulation V.A, page 5, line 231)
- Proposed treatments to resolve adverse effects (mitigation) including data recovery plan development and the data recovery report (Stipulation VI.A, page 6, line 246)
- Discovery of burials or human remains (Stipulation IX.D, page 9, line 370)

The PA also includes a general consultation requirement at Stipulation VII (pages 7-8, line 321)

Outreach on these items is anticipated to begin in late-2025.

Effects Determinations

- No formal effects determinations have been made at this time.
- As presented in DEIS, effects are currently preliminary.
- Effects will be finalized in consultation with consulting parties and SHPD, pursuant to the Programmatic Agreement.

Proposed Mitigation Measures

"…the following treatment measures, either singularly or in combination, may be applied to resolve adverse effects…"

Proposed Section 106 (Federal) Mitigation

Located at Stipulation VI, page 6:

- Educational Interpretation
- Photogrammetry
- Recordation
- Data Recovery

Proposed 6E (State) Mitigation

Located at Appendix 1, page 18:

- Archaeological and Cultural Monitoring
- Data Recovery
  - Access
  - Stewardship
  - Rock gathering, storage, and reuse

- Bring up PA to share with Consulting Parties

Mahalo!

Next Steps:

Submit comments on Draft PA and DEIS
Project Team revises PA
Project Team circulates revised PA
Execute PA
Final EIS/Record of Decision
Continue Consultation

Honoapi'ilani Highway Improvements

Section 106 Programmatic Agreement Consulting Parties Meeting

Lahainaluna High School Cafeteria

February 12, 2025, 5 - 7 pm

Question	Response	Color Code:
How long do we have to respond?	We will need comments by April if we are going to finalize the PA by June. But we will have more meetings between now and then.	Green (both dark and light) - comment also addressed in the PA
What will happen to 'iwi?	PA says that we can have up to 3 reburials sites, one per ahupua'a, if 'iwi are found. We will also provide a stroage unit for each ahupua'a, if needed.	Blue--Tanya/ Archaeology Comment
But what about temporary storage, it should be like Lahaina.	See above.	Yellow -- Gerald, Engineerng comment
What is the distance between the old road and the new road at the pinch points?	Gerald answered detailing how we narrowed the median and moved the road slightly makai. In Launiupoko the highway is shifted approximately 150 feet mauka of the existing highway. At the pinch point between Olowalu and Ukumehame the centerline of the new highway is approximately 200 feet mauka of the centerline of the exiting highway. In Ukumehame, we narrowed the road by eliminating the 20 foot grassed median which is typically used for infiltration and safety and replaced it with a median barrier with narrow median shoulders. We then shifted the proposed alignment further makai and started the connection to the original proposed aligments later to avoid sites.	
How do we know that the bridges will not affect stream life in Ukumehame and Olowalu S	Gerald answered that all bridges will be built outside of the ordinary high water mark, so there will be no bridge structures in the water.	
Can you avoid archaeological sites?	Tanya explained that most to the sites that will be affected are surface scatters. Tanya also showed a table of the 11 sites that will be "intersected" by the projedt. Subsurface surveys will be done to see if there are more intact features below the surface. Gerald explained how the medians were narrowed at the pinchpoints to avoid most of the large sites.	
What happens to the old road? 1) will we still have access to the resources at the ocean? Will it become like cut mountain? Not in favor of the greenway, because it will cut off access for us? Don't trust the county.	The old road will be given to the county, who plans to develop it into a greenway. HDOT has given a grant to TNC to develop a plan for Nature Based solutions for the old road.	
Would like something in the PA to address the old road and concerns about the old road.	Pua said that could be possible if as long as any stipulations are tied to cultural practices.	
Can you explain the AIS process?	Tanya explained the AIS process, starting with test pits that are hand dug. Expansion of testing areas will be determined based upon what is found. Trenching will be systematic and will primarily focus on areas where thare anticipated finds and deep excavations for construction. As digging becomes more complex, machinery may be used with flat blades to maximize the ability to spot things and minimize damage.	
Comment was made that when subsurface finds are discovered that would be a time when NHO's would want to have more input.	FHWA noted that the consultation process is outlined in the PA, starting on page 7.	
Comment was made that continued consultation during design should be done.	Gerald noted that this condition will be added to the RFP package.	
Question - in Ukumehame were any archaeological sites found in the wetland areas?	No.	
Can we get prints of the slides	**Yes. Copies sent on 2/13/2025. Suggest printing maps the next time and bringing them**	
Where is the surfing spot?	Tanya pointed on the maps to where the surfing spot is located..	
What is the light blue on the map	Ocean innundation area	
Will they be able to see plans before work happens	**Suggested future meeting topic to go over consultation of the desgn plans for the streams and bridges.**	
Will they cover for all four lanes for for two lanes	The archaeology is for four lanes, but only two built out now. At some point, if traffic increases, 2 additional lanes will be added in the median area.	
When Tanya does subsurface and does burials,will consulting parties have a say in what to do with the remains?	Yes, within the terms of the Programmatic Agreement.	
What is the physical process of exporing	Tanya responded.	
Is there enough rise for sea level rise?	Yes, although no alternative totally avoided the inundation areas.	
How many feet from where the original, between the current and proposed highway for the preferred route, particularly Kapaiki to Ukumehame.	Gerald answered. In the pinch point between Kapaiki and Ukumehame the closest point is 200 feet from centerline to centerline. The very closest point between old and new is near the Olowalu landfill where the shift is approximately 150 feet.	
How large is the footprint?	the ROW is 150 ft. The archaeological area is 300 ft.	
Trenching, later this year, how far on that for the archaeological sites? For their family (Ka'ahui)on their kuleana parcel, might be relatives kuleana. There are four apana and one used as kula land. Probably not there anymore.	Tanya responded. The subsurface survey will be done after Jun 2025 and before August 2027. Will use machines. Tanya will follow up on the Kuleana to Kealo'i.	
Regarding the Church, thinks the state drew the boundary wrong, area flooded, was on the Wailuku side, they put one their (of the burials?) on the church property.	This question is about where the wetlands are on the map. Hinano believes that the wetlands are more toward Ukumehame, where the area floods, and not on the church property.	
Can we assume the preferred alternative will go throught to final?	Yes, with modifications.	
What would happen is there was something that would significantly alter the preferred route? Asking because he likes the preferred route.	If there is a significant change to the preferred, that may trigger the need for a supplemental EIS. Right now, any changes requiring movement or expansion of the highway is being done on the makai side, with the archaeological site providing a hard stop.	
Likes the preferred because looking at archaeological features and need to look at other things. The people at Kapaiki prefer that the route goes mauka to maintin rural lifestyle. They have been there for thousands of years, others for the last 20.	Comment noted. The preferred route will actually go slightly further mauka, above the pushpiles and avoiding some historic water features that were noted in the public meeting.	
Preferred is a good compromise.	Thank you for comment.	
How will they maintain current highway below for residents there for generations?	Please see comment 12 above.	
Comments regarding TNC project (Greenway)		
Thought it was scary, just want to make one big park and hike through.		
Would land ever be sold to private owners?	Privatization is not in the plan. Have raised this concern with TNC.	
Afraid land would be sold to private owners and then sold off	See above. Added language to PA for TNC and SHPD follow-up.	
Is there a way to put in this plan that the land under the old road cannot be sold off?	**Generally, the state does not put conditions on roads given to the county.**	done
The current road between Ukumehame and Olu camp, that road is going to become a beach soon.	Yes, the projected SLR-XA of 3.2 feet will mean that much of the existing Honoapiilani Highway will be under water, thus the need to move mauka.	
That whole 1/2 mile will turn into a beach	Comment noted and see above.	
NHOs want to see a provision in the PA to the effect that the state to try to the greatest extent to make the county of Maui keep the old highway as public land. **This was a big point at the meeting.**	Comment noted. **Concerns noted in PA.**	
How many miles is project area?		6
Which part of the highway would construction begin with first ? Are there any recommendations so that the family in Kapaiki can minimize disruption to their lives when construction is happening above them?	The construction sequence will depend upon the Contractor and what portions of the project they can design and permit first. Much like the Lahaina Bypass we anticipate that the contractor will make the final connections to the old highway last. The contractor will be required to notify property owners of their schedule on a regular basis.	

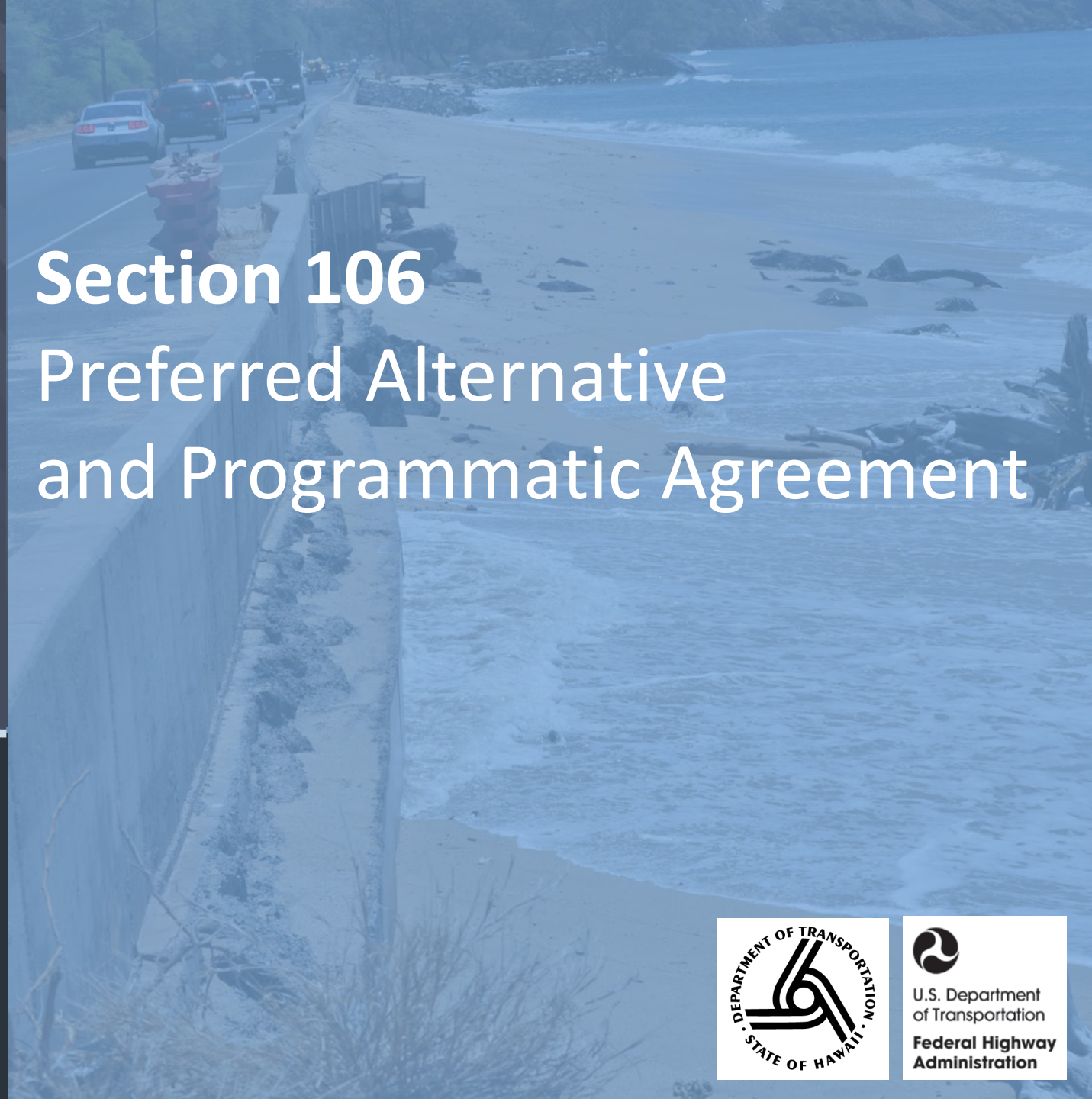
What happens if they do find iwi kupuna not claimed prior to construction, or prior to work done? Does it go to the state office, or is there a plan to keep them in the ahupua'a until reburial?	**We can commit to have a storage unit in each ahupua'a.**
People might want to keep the kupuna in the area they were found.	See above.
Want to see a stipulation about keeping the iwi kupuna in the area they were found, and I keeping the old road public.	The PA states that the iwi kupuna will be kept in the ahupua'a in which they were found.
Have any preservation in place methods been discussed/shared? It there a range the alignment could shift mauka/makai if necessary? Would the alignment be elevated if necessary? What are the preferred treatment standards, such as capping?	**Avoidance is our first option, If viable, we can discuss specifics of preserving in place.**
I thought I heard vaults in each ahupua'a mentioned as a possibility? Can you share more on this? Will this be a requirement of the D/B RFP and what standards if any have been discussed. I would say most, if not all contractors have no idea how to price this type of mitigation and grossly inflate their bids	Yes, you heard correctly. Building the vaults, if necessary, will be a part of the design build. Thank you for the heads up on bid inflation. We will work with consulting parties regarding design and perhaps they can suggest contractors.
Regarding notification procedures for "post-review discoveries", what is the expectation on responses from consulting parties? Has any discussion on this occurred?	**We are looking at five days, and still need to develop a protocol on who to contact, when and what their responsibilities, if any, will be.**
48/72 hours to make a determination for "post-review discoveries" may not be enough time, has HDOT considered extending this time in the PA?	5 days are allotted in the PA .
Will there be cultural orientation/sensitivity training for the contractor? Is this something that has been discussed or brought up in consultation meetings?	Yes, required by the PA, to be done by the Aina Archaeology team.
Has aquifers been identified in parts of the alignment that's proposed to be elevated? If no, how was this confirmed? If yes, what is the maximum depth of foundations needed for this section and how will spillage/seepage be controlled to not impact these aquifers?	Ukumehame has a ground water aquifer system with a sustainable yield of 2 million gallons per day. It is within the Lahaina Aquifer Sector which has been designated a ground water management area by the Commission on Water Resource Management. There does not appear to be a high level basal aquifer inthe Ukumehame sector. The Commission on Water Resource Management has commented on the project, recommending the use of Best Management Practices to control storm water run-off and that approvals for the project be conditioned upon a review the State Department of Health and the HDOT's acceptance of any resulting requirements related to water quality. We are working with clean water branch of the State Department of Health to get any necessary permits.

Attendees

Kawika Farm
Kathy Kihune
Connie Applegate
William Kaahui
Ed Kaahui
Jennie Kaahui
Clyde Rodrigues
Hinano Rodrigues
Rina Sampson
Nalei Sampson
Thelma Kaahui
Howard Kihune Jr.
Luelle Haia

Honoapi'ilani Highway Improvements

West Maui, Ukumehame
to Launiupoko



Section 106
Preferred Alternative and Programmatic Agreement

Maui Lāna'i Islands Burial Council Meeting
February 19, 2025

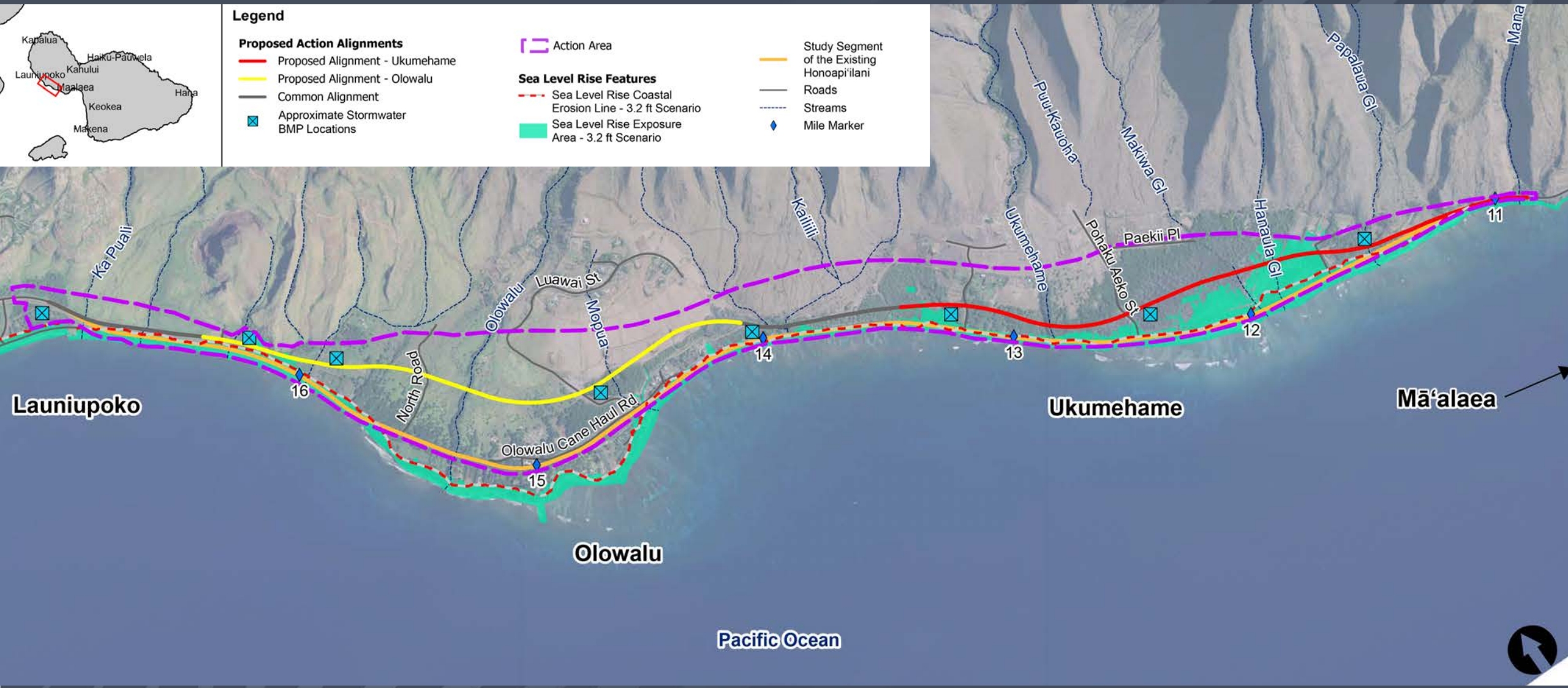
DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

Presentation Overview

- Preferred Alternative/Archaeology
- Role of MLIBC in Programmatic Agreement
- Discussion/Comments

Preferred Alternative



Honoapi'ilani Highway Improvements

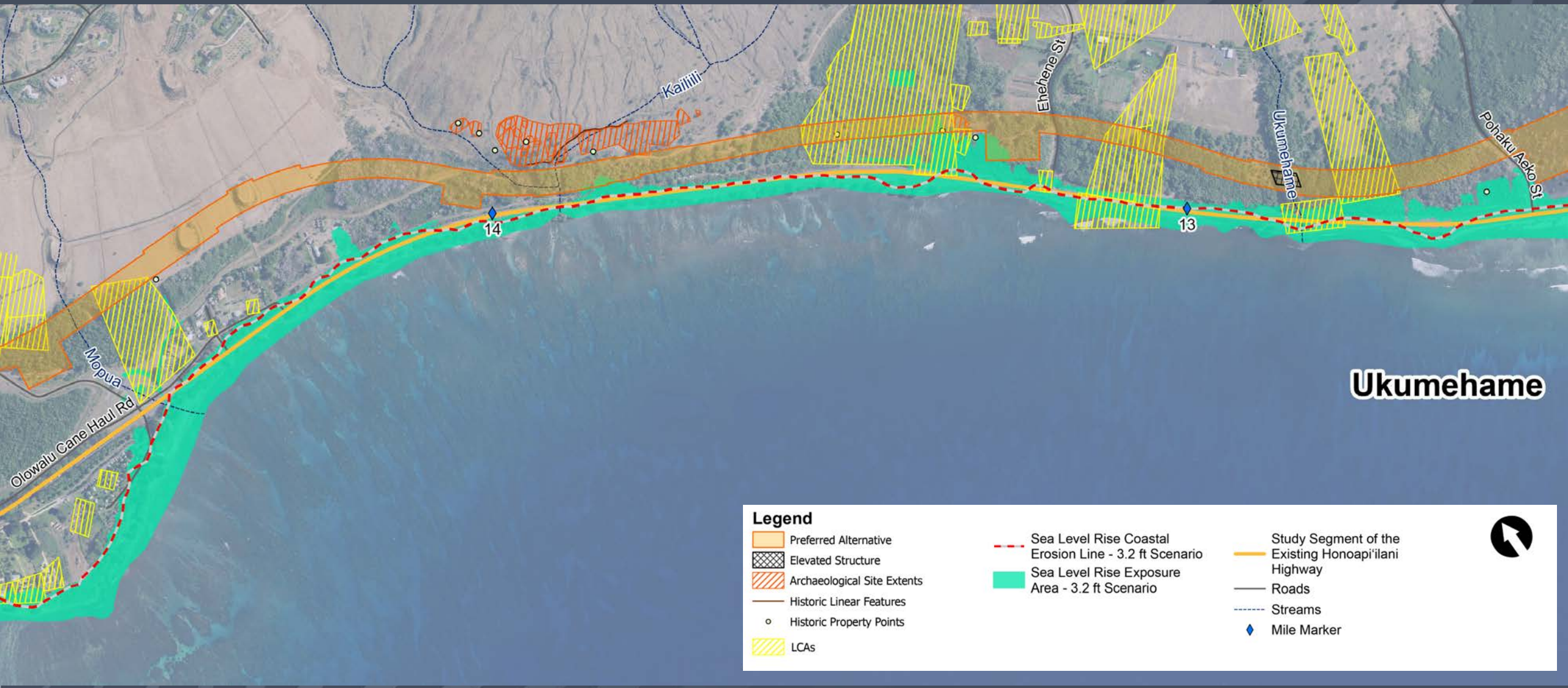
- Preferred Alternative Intersects 11 of 37 Archaeological Sites Documented During Reconnaissance

Ahupua'a	Field No	Possible Age Range	Inferred Function	Formal Type	Overall Condition	NRHP Significance Recommendation	NRHP Integrity Evaluation
Launiupoko	AA2216-023	Precontact and Possible Historic Military	Agricultural Complex, Military Training	Alignment, C-Shape, Enclosure, Mound, Terrace	Fair	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-106	Precontact	Habitation and Agricultural Complex	Terraces, Circular Alignments, Small Semi-Circular Terraces, Enclosures	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-107	Precontact to Early Historic	Agricultural and Habitation Complex	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Association
Olowalu	AA2216-028	Early 20th Century Ranch	Animal Husbandry – Pasture Delineation	Wall, Fenceline	Fair to Remnant	D	Location, Material, Setting, Feeling, and Association
Olowalu	SIHP-04700 CMS-001	Precontact	Habitation Complex	Surface Scatter	Remnant	D	Location, Design, Setting, Materials, Feeling, Association
Olowalu	SIHP-04700 Overall	Precontact	Habitation Complex	Rock Shelters, C-shape, Wall	Fair to Poor	D	Location, Design, Setting, Materials, Feeling, Association
Ukumehame	AA2216-017	Precontact	Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-018	Late Precontact - Early Historic	Habitation, Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-022	Historic	Water Access	Stone Well	Fair	D	Location, Design, Material, Workmanship, Feeling
Ukumehame	AA2216-072	Precontact	Agriculture and Habitation	Enclosure, Mound, Wall	Fair	A, C, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
Ukumehame	AA2216-091	Precontact to 19th-20th Century	Habitation	Surface Scatter	Remnant	D	Location, Materials, Association

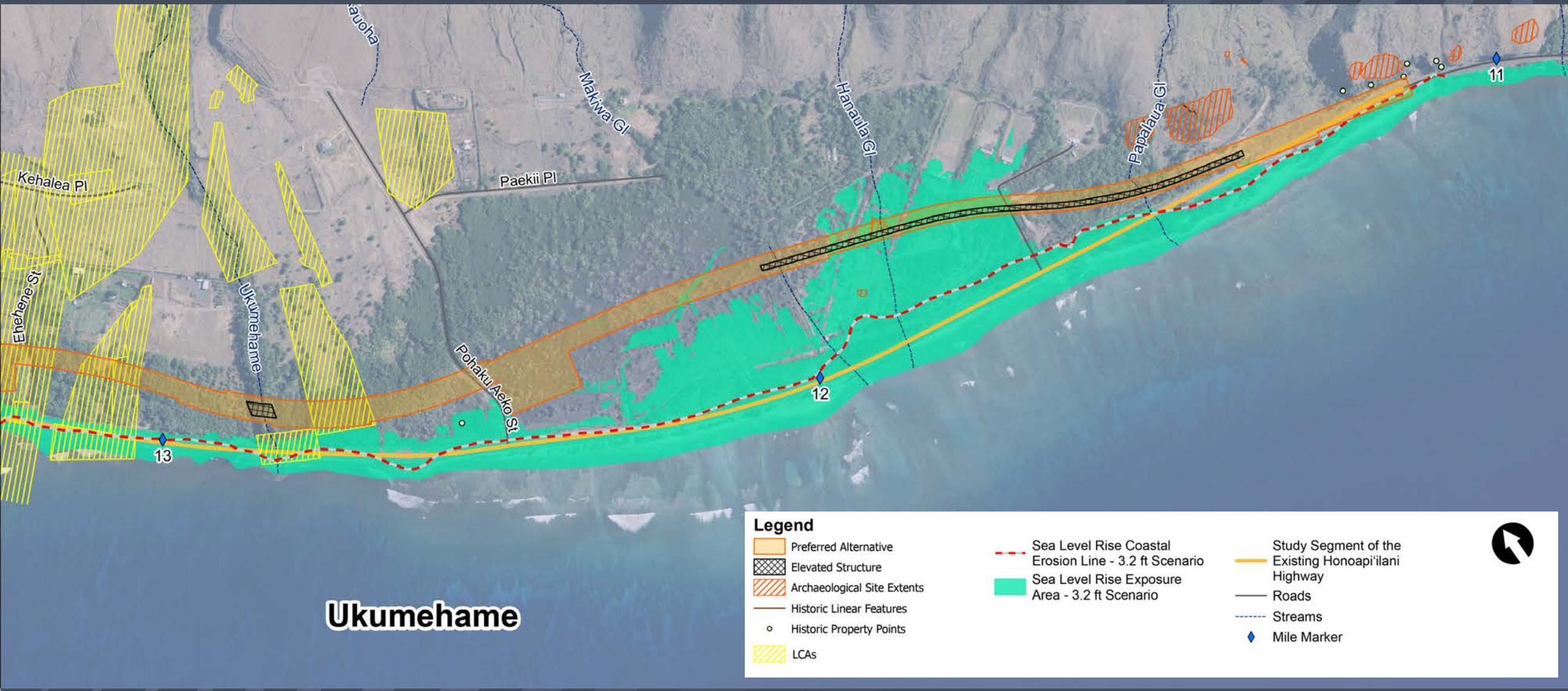
A - associated with events that have made a significant contribution to the broad patterns of our history;
C - embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that **represent a significant and distinguishable entity whose components may lack individual distinction**;
D - have yielded, or may belikely to yield, information important in prehistory or history

Preferred Alternative – Launiupoko, Awalua, & Olowalu

Preferred Alternative – Kapaiki to Ukumehame



Preferred Alternative - Ukumehame



Section 106 Programmatic Agreement

MLIBC Role in Programmatic Agreement

- MLIBC is a consulting party under the Programmatic Agreement (PA) and will be invited to sign as a concurring party.

- MLIBC will be notified if evidence of burials, human remains, or potential human remains is encountered during construction (Stipulation IX.D, p. 9, line 370; Appendix 1, p. 22, line 775).

- HDOT will consult with MLIBC pursuant to HAR § 13-300 to determine appropriate treatment and reinterment (Appendix 1, p. 20, line 709) as well as burial location (Appendix 1, p. 21, line 749).

Continued Consulting Party Outreach

The PA specifically requires consulting party outreach for the following items:

- Development of the Archaeological Inventory Subsurface Survey Plan (AISSP) (Stipulation IV.A, page 4, line 179)
- Review of the Archaeological Inventory Survey Report (AISR) that includes formal documentation of archaeological sites that fall within the ROW of the Preferred Alignment as well as the results of the subsurface survey (Stipulation IV.B, page 5, line 215)
- Effects determinations (Stipulation V.A, page 5, line 231)
- Proposed treatments to resolve adverse effects (mitigation) including data recovery plan development and the data recovery report (Stipulation VI.A, page 6, line 246)
- Discovery of burials or human remains (Stipulation IX.D, page 9, line 370)

The PA also includes a general consultation requirement at Stipulation VII (pages 7-8, line 321)

Outreach on these items is anticipated to begin in late-2025.

Effects Determinations

- No formal effects determinations have been made at this time.
- As presented in DEIS, effects are currently preliminary.
- Effects will be finalized in consultation with consulting parties and SHPD, pursuant to the Programmatic Agreement.

Proposed Mitigation Measures

"…the following treatment measures, either singularly or in combination, may be applied to resolve adverse effects…"

Proposed Section 106 (Federal) Mitigation

Located at Stipulation VI, page 6:

- Educational Interpretation
- Photogrammetry
- Recordation
- Data Recovery

Proposed 6E (State) Mitigation

Located at Appendix 1, page 18:

- Archaeological and Cultural Monitoring
- Data Recovery
  - Access
  - Stewardship
  - Rock gathering, storage, and reuse

- Bring up PA to share with MLIBC

Mahalo!

Next Steps:

Submit comments on Draft PA and DEIS
Project Team revises PA
Project Team circulates revised PA
Execute PA
Final EIS/Record of Decision
Continue Consultation

NEPA EIS/Section 106 Process for this Project

NEPA EIS Notice of Intent

- Area of Potential Effects submitted to SHPD
- Consulting Party Outreach
- Reconnaissance Level Survey (Architecture) of entire APE submitted to SHPD for review and concurrence. SHPD concurred with the eligibility determinations.
- Reconnaissance Level Survey (Archaeology) for Project Alternatives submitted to SHPD for review and concurrence with eligibility determinations.

NEPA Draft EIS *(Alternatives Analysis and Selection of Preferred Alternative)*

- Continued Consultation
- **Develop Programmatic Agreement**
- Develop plan for subsurface archaeology survey

NEPA Final EIS and Record of Decision

- Execute Programmatic Agreement (prior to Final EIS and Record of Decision)
- Continued Consultation

Post Final EIS

- Continued Consultation
- Implement Programmatic Agreement: Continued Investigations (AIS) and Archaeological Monitoring
- **Assessment of Effects**
- Resolution of Adverse Effects as prescribed by Programmatic Agreement

Section 106 Programmatic Agreement Overview

- Section 106 requires federal agencies to take into account the effect of its actions on historic properties. It is a standalone law while also one component of the NEPA environmental review process.
- A project Section 106 Programmatic Agreement (PA) is a tool that an agency can use to advance through the NEPA process even when all effects to historic properties are unknown and investigations not fully complete.
- A PA enables continued consultation with Section 106 consulting parties even after the NEPA process is complete.
- A PA is a binding legal agreement.

Honoapi'ilani Highway Improvements

PA Appendix 1/HRS § 6E Compliance

- Building from the PA, HDOT intends to combine Section 106 and HRS § 6E-8 compliance where possible. This will also reduce redundancies.
- Properties will be evaluated by applying the National Register Criteria for Evaluation (36 C.F.R. § 60.4) and the *Evaluation of Significance* (HAR § 13-275-6), including for the Archaeological Inventory Survey (AIS) that will be completed for the preferred alternative, once selected.
- Project effects will be assessed by applying the Criteria of Adverse Effect (36 C.F.R. 800.5(a)(1)) and *Determining Effects to Significant Historic Properties* (HAR § 13-275-7).
- An Archaeological and Cultural Monitoring Plan will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the NHOs.
- NHOs will be allowed to continue stewardship of sites and remove rocks affected by project construction.
- If encountered, burials will be relocated in consultation with MLIBC.

Project Website

Honoapi'ilani Highway Improvements

Overview | Info + Docs | FAQs | Videos | Section 106 | Submit Comment

EVENTS

Project Updates

The **Draft Environmental Impact Statement (DEIS)** for the Honoapi'ilani Highway Improvements project was signed by Federal Highway Administration (FHWA) and Hawai'i Department of Transportation (HDOT), and is now available for review. It will be published in **The Environmental Notice** on January 8, 2025 and the **Federal Register** on January 10, 2025.

VIEW THE DEIS

- Lahaina wildfires did not physically affect the project area but did result in delays to environmental analyses.
- An extensive assessment of cultural resources is underway - HDOT and FHWA continue to consult with State Historic Preservation Division, local residents, and cultural practitioners.
- Evaluations of wetlands, waterways, and threatened and endangered species are nearly complete.
- RAISE grant deadline for construction funding is extended for the various studies and EIS document.

Upcoming Events

In-Person Public Hearing
Thursday, January 23, 2025, 5 p.m. to 8 p.m.

Virtual Public Hearing
Tuesday, January 28, 2025, 5 pm to 8 pm

Thank you for attending. For those that couldn't attend, Meeting Materials will be available soon!

Olowalu: The Road to Resilience – Community Meetings
Thursday, January 30, 2025, 5:30 pm to 7:30 pm
The University of Hawaii Manoa and The Nature Conservancy are completing a separate study to rethink, redesign, and restore the shoreline from Ukumehame to Launiupoko, including the existing Honoapi'ilani Highway. Public meetings are scheduled in late January – early February. **Join to learn more about the project and share your thoughts. Learn more about Olowalu Project**

DEIS Open Comment Period

HDOT and FHWA welcome your comments on this important project.

Submit your feedback using the form at the bottom of the page. Alternatively, submit comments to the HDOT project manager at ken.tatsuguchi@hawaii.gov.
Comment period is open through February 24, 2025.

SUBMIT COMMENT

SUBMIT A COMMENT

Please use the form to submit a general question or to comment on the Environmental Process.

If you'd like to mail your comment, you're welcome to use this form.

Thank you for being a part of the process!

** (required)*

First Name

Last Name

Email Address

Comment

Join Mailing List

SUBMIT RESET

To request language interpretation, an auxiliary aid, or special services (e.g. sign language interpreter, materials in alternate format), please contact Mr. Ken Tatsuguchi: ken.tatsuguchi@hawaii.gov.
Please submit requests one week in advance of the meeting or event.

TO PROVIDE COMMENT SCAN HERE

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

WHEREAS, the United States Department of Transportation, Federal Highway Administration (FHWA) plans to fund the Honoapiʻilani Highway Improvements Project (Undertaking), pursuant to Pub.L. 116-260, FY 2021 Appropriations Act, known as the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants and through an earmark in the 2022 Infrastructure Investment and Jobs Act (Pub.L. 117-58), which would realign Honoapiʻilani Highway between Ukumehame and Launiupoko in Maui Komohana (West Maui); and

WHEREAS, the State of Hawaiʻi Department of Transportation (HDOT) is the sponsor of the Undertaking, and the FHWA has invited HDOT to become an invited signatory to this Programmatic Agreement (PA); and

WHEREAS, the FHWA's action requires review under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) and is considered an Undertaking as defined by 36 C.F.R. 800.16(y) and is subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. § 306108) and its implementing regulations, 36 C.F.R. Part 800, *Protection of Historic Properties*, as amended; and

WHEREAS, the Undertaking is intended to address existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise, as delineated by the Hawaiʻi Climate Change Mitigation and Adaptation Commission (HCCC)'s Sea Level Rise Exposure Area (SLR-XA); and

WHEREAS, the FHWA has coordinated NHPA Section 106 compliance with the NEPA process and is preparing an Environmental Impact Statement (EIS); and

WHEREAS, the FHWA, in consultation with the Hawaiʻi State Historic Preservation Officer (SHPO), is entering into this Section 106 PA in accordance with 36 C.F.R. § 800.14(b)(1)(ii) because the Undertaking's effects on historic properties cannot be fully determined prior to approval of the Record of Decision; and

WHEREAS, the FHWA in coordination with HDOT, and in consultation with the SHPO, established an Area of Potential Effects (APE) (**Appendix 2**) in accordance with 36 C.F.R. § 800.4(a)(1) to consider potential direct and indirect effects associated with each of the Undertaking's alternatives evaluated in the Draft EIS; and

WHEREAS, due to the size of the APE, limited access, and number of alternatives under consideration, the FHWA and HDOT, in consultation with the SHPO, agreed to phased identification, pursuant to 36 C.F.R. § 800.4(b)(2), as provided in this PA; and

WHEREAS, HDOT intends to use the historic properties identification efforts and documentation prepared for this Undertaking and as described in this PA (Stipulation III) to comply with Hawai'i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai'i Administrative Rules (HAR) § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*, as described in **Appendix 1.** The State Historic Preservation Division (SHPD) therefore has the authority to determine whether or not any report generated under HRS § 6E and its administrative rules is adequate; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP), was invited to participate in the Section 106 consultation and the development of this PA and has declined to participate; and

WHEREAS, the FHWA in coordination with HDOT has consulted with Native Hawaiian Organizations (NHOs) listed in **Appendix 3**, for which the Ahupua'a of Launiupoko, Olowalu, and/or Ukumehame have religious and/or cultural significance and has invited them to be Concurring Parties to this PA; and

WHEREAS, the FHWA in coordination with HDOT held multiple Consulting Party meetings (listed in **Appendix 4**), has consulted with Consulting Parties, including NHOs, listed in **Appendix 3** regarding the effects of the Undertaking on historic properties and has invited them to sign this PA as Concurring Parties; and

WHEREAS, historic properties were found during an archaeological reconnaissance study located within the Department of Land and Natural Resources (DLNR) Lands, and the FHWA has invited DLNR to be an invited signatory to this PA.

NOW, THEREFORE, the FHWA, HDOT, SHPO, agree that the Undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The FHWA, in coordination with HDOT, shall ensure that the following measures are carried out.

I. Roles and Responsibilities

A. The FHWA is the agency official legally responsible for all Section 106 findings and determinations and shall ensure that the terms of this PA are carried out to complete the Section 106 process. The FHWA shall continue consultation with the NHOs, individuals and organizations included in Appendix 3 and as described in this PA.

B. HDOT, as the Undertaking sponsor, will assist the FHWA in the implementation of this PA, including the coordination, management, and overseeing of the implementation of the SHPD-approved plans and reports including the Archaeological Inventory Subsurface Survey Plan (AISSP) and any necessary mitigation plans (e.g., archaeological monitoring plan, burial treatment plan) required by this PA for continuing archaeological investigations of the preferred

Commented [KF1]: The 'okina in ahupua'a is backwards and should be corrected throughout the document

Commented [KF2]: Add another WHEREAS to describe the consulting parties in addition to NHOss in accordance with other sections of 36 CFR 800.2 (c) - i.e. agency official, state historic preservation officer, local government, applicants for federal assistant, individuals and organizations with a demonstrated interest in the undertaking due to the nature of their legal or economic relation to the undertaking or affected parties or their concern with the undertaking's effect on historic properties.
.

alternative through final design and construction of the Undertaking with the assistance of individuals meeting the requirements of Stipulation II.

C. The SHPO, individually or through staff at SHPD, shall advise the FHWA in carrying out Section 106 responsibilities for the Undertaking. Based on information provided by the FHWA or by HDOT, on behalf of the FHWA, the SHPO, individually or through staff at the SHPD, shall respond to requests for comments and/or concurrence within the specified review periods regarding the FHWA's National Register of Historic Places (NRHP) eligibility evaluations and proposed measures to avoid, minimize, or mitigate any adverse effects on archaeological historic properties that may be identified.

II. Qualifications

All investigations carried out pursuant to this PA shall be conducted by or under the supervision of an individual meeting the Secretary of the Interior's (SOI) Professional Qualifications Standards for Archaeology or Architectural History, as applicable, pursuant to 36 CFR Part 61, Appendix A, and pursuant to HAR § 13-281, "Rules Governing Professional Qualifications," and HAR § 13-282, "Rules Governing Permits for Archaeological Work" in the State of Hawai'i.

III. Identification and Evaluation of Historic Properties

A. The FHWA, in coordination with HDOT, will ensure all historic properties (both above ground and below ground) identified within the APE are assessed for NRHP eligibility in accordance with 36 C.F.R. § 800.4(c). The FHWA will consider information provided by an individual or organization included in Appendix 3 who attaches religious and/or cultural significance to a property within the APE in making determinations of eligibility.

B. HDOT, in coordination with the FHWA, completed the identification and evaluation of architectural historic properties pursuant to 36 C.F.R. § 800.4(b) and (c). A Reconnaissance Level Architectural Inventory Survey (RLS) report was completed that identified and assessed 40 architectural properties within the APE. Three architectural properties were determined to be individually eligible for listing in the NRHP and ten were determined to be contributing resources to a NRHP-eligible historic district, referred to in the RLS as the Olowalu Sugar Plantation Historic District. SHPD concurred with these eligibility determinations in a letter dated July 9, 2024.

C. HDOT, in coordination with the FHWA, has completed the identification and initial evaluation of archaeological properties pursuant to 36 C.F.R. § 800.4(b) and (c). This identification and evaluation effort involved an archaeological reconnaissance surface survey comprising each of the four proposed alternatives within the APE. The archaeological survey area was defined by a 300-foot-wide corridor along the centerline of each proposed alternative. The archaeological survey area totaled approximately 464 acres and included both 100% pedestrian survey and targeted drone flyovers. The results of the archaeological survey were provided in a document titled *Honoapi'ilani Archaeological Complex Site Descriptions and Significance Evaluations*. Twenty-eight (28) archaeological historic properties were identified and evaluated within Ukumehame Ahupua'a, seven (7) in Olowalu Ahupua'a, and three (3) in Launiupoko Ahupua'a.

D. HDOT's archaeologist, on behalf of HDOT and the FHWA, evaluated all 38 archaeological historic properties as individually eligible for listing in the National Register of Historic Places. SHPD concurred with eleven (11) of these eligibility determinations in a letter dated October 11, 2024, and provided no response on the remaining twenty-seven (27) archaeological historic properties. HDOT's archaeologist also noted that the sites in each ahupua'a extended beyond the archaeological survey boundaries. Because the horizontal and vertical extents of a potential historic district could not be determined based on a reconnaissance survey, no historic district has been identified by the FHWA at this time, pending additional investigations as described in this PA.

Commented [KF3]: ahupua'a

E. HDOT, in coordination with the FHWA, will complete an archaeological inventory survey (AIS) for any areas not previously surveyed within the preferred alternative. Additionally, subsurface archaeological testing will proceed through the design of the preferred alternative as locations become accessible.

F. HDOT, in coordination with the FHWA, will ensure an AISSP is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to 36 C.F.R. § 800.4(b) and (c) and HAR § 13-276.

G. HDOT intends to use the identification and documentation of historic properties prepared for this Undertaking to meet the requirement of HRS § 6E-8. SHPD shall have authority to determine the adequacy of the AISSP pursuant to HAR § 13-275 and HAR § 13-276. SHPD's written approval will be provided to all Signatories, Concurring and Consulting Parties.

IV. Archaeological Inventory Subsurface Survey

The area for subsurface archaeological survey is defined as the Undertaking's preferred alternative and includes the proposed roadway right-of-way (ROW) and areas designated for utility installation, excavation, grading, connector roads, or construction access and laydown areas.

A. Archaeological Inventory Subsurface Survey Plan

1. The AISSP will be developed by HDOT's archaeologist in consultation with the Engineering Design Team, as well as Signatories, Concurring and Consulting Parties.

2. HDOT will provide the initial draft of the AISSP to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments on the AISSP will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. HDOT will share SHPD's comments with Signatories, Concurring and Consulting Parties. The comments may be posted to the Honoapiilanihighway.com website.

5. If SHPD does not respond within any 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence and move forward accordingly. HDOT, in coordination with the FHWA, will implement the AISSP.

6. Subsurface survey fieldwork shall be completed to the extent practicable prior to final design so that any unanticipated discoveries (i.e., archaeological sites or human burials) may be considered in final design and measures incorporated to avoid and/or minimize potential effects on historic properties and/or human burials.

7. HDOT, in coordination with the FHWA, will provide a status update to the Signatories, Concurring and Consulting Parties of the status of archaeological investigations on a quarterly basis via email and, when requested, via meeting. Once HDOT's archaeologist sends an end-of-fieldwork notice to SHPD, these reports will stop.

B. Archaeological Inventory Survey Report

1. The AIS report will be submitted to SHPD for their concurrence on adequacy will contain results of the above ground pedestrian survey of the preferred alternative and subsurface survey.

2. The initial draft of the AIS report will be provided to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The reports may be posted to Honoapiilanihighway.com.

3. The written comments received on the draft AIS report will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. If SHPD does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence and move forward accordingly.

V. Application of the Criteria of Adverse Effect for Historic Properties

A. The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, will apply the criteria of adverse effect (36 C.F.R. § 800.5(a)(1)) to historic properties within the APE, and document its findings.

B. If, as a result of this analysis, the FHWA determines that the Undertaking may have an adverse effect on any historic property, the FHWA, in coordination with HDOT, will consult with the SHPO, Signatories, and Concurring and Consulting Parties to avoid, minimize, or mitigate adverse effects.

Commented [KF4]: How will the treatment and/or resolution of effects be institutionalized? Will there be a tiered MOA off this PA or other legally binding agreement? Describe how the resolution of effects, additional mitigation measures, responsibilities, timelines, etc. will be documented and implemented.

C. The FHWA, in coordination with HDOT, will implement any of the Undertaking's scope or design modifications or conditions in order to avoid, minimize or mitigate adverse effects, as agreed upon through consultation.

VI. Treatments to Resolve Adverse Effects to Historic Properties

The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, has determined that the following treatment measures, either singularly or in combination, may be applied to resolve adverse effects to historic properties:

A. Educational Interpretation. This educational interpretation may include displays, markers, educational pamphlets, brochures or booklets, posters, websites, or other similar accessible information to educate members of the public on one or more architectural and/or archaeological historic property within the APE. The interpretive element will use images and maps to the extent feasible to convey information to the public.

B. Photogrammetry. HDOT may hire a consultant to conduct historic property documentation through the use of photogrammetry, which requires taking high-resolution digital images to construct 3-D models of above ground resources including individual structures and buildings or landscape features. Using a high-resolution camera affixed to a drone, digital images will be taken at multiple angles and aligned to extract spatial and visual data to create a digital 3-D model. Data will be extracted from the model, including precise measurements and dimensions, colors, textures, and close-up historic details of the historic property. The model will then be made available for public viewing, if appropriate.

C. Recordation of Architectural Historic Property. Prior to any substantial alteration or demolition of an individual above ground architectural historic property, documentation may be undertaken to record the adversely affected property through a digital photography package or Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) Level III recordation (68 Fed. Reg. 43159), as appropriate.

D. Recordation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual above ground archaeological historic property, documentation may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, and narrative descriptions meeting the archaeological documentation specified in HAR § 13-276 pertaining to AIS investigations.

E. Archaeological Data Recovery. Data recovery excavations may be considered in consultation among the FHWA, HDOT, SHPO, Signatories, Concurring and Consulting Parties. If it is determined by the FHWA through consultation that archaeological data recovery is an appropriate treatment, HDOT will ensure that HDOT's archaeologist prepares an archaeological data recovery plan (Archaeological DRP) that includes each affected archaeological historic property.

Commented [KF5]: How will the treatment and/or resolution of effects be institutionalized? Will there be a tiered MOA off this PA or other legally binding agreement? Describe how the resolution of effects, additional mitigation measures, responsibilities, timelines, etc. will be documented and implemented.

Commented [KF6]: Are the following items the only treatment measures that would be considered during consultation?
Need to add: preservation in place/avoidance of the resource or feature; and treatment (restoration, rehabilitation, preservation and/or reconstruction) in accordance with the SOI Standards as acceptable options.

Commented [KF7]: In addition to HHH, recordation could include nominating the property to be listed in the National Register of Historic Places, especially for the historic district to add the newly identified contributing features and resources.

1. If possible, a single Archaeological DRP will be prepared for the Undertaking.

2. HDOT will provide the initial draft of the Archaeological DRP to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

4. If SHPD does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence with the Archaeological DRP, and move forward accordingly following written notification to SHPD, Signatories, Concurring and Consulting Parties.

5. HDOT, in coordination with the FHWA, shall ensure the archaeological data recovery excavations are carried out in accordance with the approved Archaeological DRP and all data recovery fieldwork is completed prior to initiation of construction.

6. HDOT's Archaeologist will prepare an Archaeological Data Recovery Report summarizing the archaeological data recovery results.

7. HDOT will provide the Archaeological Data Recovery Report to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

8. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days), to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

9. Following receipt of comments, HDOT, in coordination with the FHWA and in consultation with SHPD, Signatories, and Concurring and Consulting Parties, will finalize and approve the Archaeological Data Recovery Report.

VII. Native Hawaiian and Consulting Parties Section 106 Consultation

A. The FHWA, in coordination with HDOT, shall continue to carry out Section 106 consultation with the Maui Lāna'i Islands Burial Council (MLIBC), Signatories, Concurring and Consulting Parties for the identification and evaluation of historic properties identified according to the terms of this PA.

B. The FHWA, in coordination with HDOT, shall carry out consultation with MLIBC, recognized descendants and NHOs, Signatories, Concurring and Consulting Parties for any unanticipated discoveries. The consultation will include identification, evaluation as to whether a discovery meets the definition of a historic property, and consideration of measures to avoid, minimize, or mitigate adverse effects.

VIII. Applicability of this PA to Changes in Undertaking Scope

This PA satisfies the FHWA's responsibilities under Section 106 and is based on information about this Undertaking as defined in the EIS. It is the FHWA's responsibility to notify the SHPO, Signatories, Concurring and Consulting Parties of any changes to the Undertaking's design, scope, or footprint and, through consultation, to determine whether any changes to the design, scope, or footprint invalidate both the environmental commitments made in the Final EIS and Record of Decision, including those made in this PA. In the event the FHWA chooses to re-open Section 106 consultation for this Undertaking, the FHWA shall implement the following measures:

A. If the change is within the current APE, then the FHWA shall notify the SHPD of any changes to design or scope in writing. The SHPD shall respond within 30 calendar days of receipt of the e-mail or letter. Receipt is the date of the e-mail or the date received in HICRIS.

B. If the change is outside the current APE, the FHWA, in coordination with HDOT and in consultation with the SHPO, shall assess and revise the APE as necessary to incorporate any additional areas not previously considered under this PA.

C. The FHWA shall consult the Signatories to this PA to determine if the provisions of this PA should be applied to the additional areas, and if this PA should be applied, whether this PA needs to be amended in accordance with Stipulation XIII to include those areas.

IX. Post-Review Discoveries

A. In accordance with 36 C.F.R. § 800.13(b)(3), the FHWA, in coordination with HDOT and in consultation with the SHPO, will apply the NRHP Criteria for Evaluation (36 C.F.R. § 60.4) to evaluate any newly identified historic properties or unanticipated effects on historic properties are found during project construction and consider measures to avoid, minimize or mitigate adverse effects on historic properties. Additionally, the FHWA, in coordination with HDOT, will consult pursuant to Stipulation III.

B. The FHWA shall forward their evaluation of the newly identified historic properties or unanticipated effects on identified historic properties are found during project construction to the SHPO for review and concurrence.

C. If SHPD does not respond within the 30-calendar day review period, the FHWA may assume SHPD's concurrence with the eligibility determinations.

D. If evidence of burials, human remains, or potential human remains is encountered during construction, HDOT shall suspend all work in the immediate vicinity, protect the remains from further disturbance, and immediately contact the SHPO, the FHWA, , MLIBC, Maui Police Departments, Signatories, Concurring and Consulting Parties.

Commented [KF8]: Add a stipulation for post-agreement adverse effects, whether due to previously unknown historic properties being discovered or due to damage during construction from carelessness or emergency.

Commented [KF9]: This needs to include evaluation of both eligibility and effect. There may be a previously unknown historic property that is not affected by the undertaking. Or there may be a previously known historic property that is adversely affected in a new way (especially during construction). Or both.

E. HDOT's initial notification may be via phone but must be followed by written notification via email. In addition to email, HDOT's notification to the SHPO must include written notification to HICRIS Project No. 2023PR00135 and include date, time, and identification of all parties who were notified.

F. Identification, documentation, and treatment of all burials, human remains, or potential human remains encountered during construction will be carried out in accordance with State laws (Appendix 1).

X. Confidentiality

Sensitive information concerning the location, character, or ownership of archaeological resources and properties on which burials, human remains, or potential human remains are identified may be withheld from public disclosure in accordance with Section 304 of the NHPA (54 U.S.C. § 307103).

XI. Monitoring and Reporting

Each year following the execution of this PA until it expires or is terminated, HDOT will submit to the FHWA a written status of each PA stipulation.

The FHWA, in coordination with HDOT, shall provide all parties to this PA a written annual summary report detailing work undertaken pursuant to its terms and associated findings. Such report shall include any scheduling changes proposed or implemented, any issues encountered relating to historic or cultural sites, any disputes and objections received in the FHWA's efforts to carry out the terms of this PA. Additionally, the annual summary report shall include the status of the PA stipulations provided by HDOT to the FHWA.

HDOT will provide written notification to the FHWA for concurrence once all stipulations have been completed. Upon the FHWA's concurrence and the FHWA's notification therein to all parties to this PA, the Section 106 process will be deemed completed.

XII. Dispute Resolution

Should any Signatory, Concurring or Consulting Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the FHWA shall notify all parties and initiate consultation to resolve the objection. If the FHWA determines that such objection cannot be resolved, the FHWA will:

A. Forward all documentation relevant to the dispute, including the resolution proposed by the FHWA, to the ACHP. The ACHP shall provide the FHWA with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from ACHP, Signatories, and Concurring Parties and provide them with a copy of this written response. The FHWA will then proceed according to the final decision.

B. If the ACHP does not provide its advice regarding the dispute within the 30-calendar-day review period, the FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to this PA and provide them and the ACHP with a copy of such written response.

C. The responsibilities of the FHWA to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XIII. Amendments

This PA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all signatories is filed with the ACHP.

XIV. Termination

If any signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation XIII. If an amendment cannot be reached within 30 calendar days, any Signatory may terminate the PA upon written notification to the other Signatories.

Once the PA is terminated, and prior to work continuing on the Undertaking, the FHWA must either (a) execute an agreement pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. The FHWA shall notify the Signatories as to the course of action they will pursue.

XV. Duration

This PA will be null and void if its terms are not carried out within fifteen (15) years from the date of its execution. Prior to such time, the FHWA may consult with the other Signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XIII.

Execution of this agreement by the FHWA, SHPO, and HDOT, and implementation of its terms is evidence that the FHWA has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP an opportunity to comment.

PROGRAMMATIC CAGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources (DLNR)

By: _____ Date: _____
Dawn N. S. Chang, Esq.
DLNR Chairperson
State Historic Preservation Officer

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Federal Highway Administration

By: _____ Date: _____
Richelle M. Takara, PE
Division Administrator

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Transportation

By: _____ Date: _____
Edwin Sniffen, Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources

By: _____ Date: _____
Dawn Chang
Chairperson

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

CONCURRING PARTY

[Name/Organization]

By: _____ Date: _____
[Name]
[Title]

550

551 **Appendix 1. HDOT's Hawai'i Revised Statutes (HRS) § 6E Compliance**

552

Memorandum

To: All Signatories, Concurring and Consulting Parties, and the Public

From: State of Hawai'i Department of Transportation (HDOT)

Re: Hawai'i Revised Statutes (HRS) § 6E Compliance

The Programmatic Agreement (PA) for this project incorporates references to both Federal and State laws and regulations to allow these review processes to work in tandem to the extent possible. Should compliance issues arise under Federal or State law, HDOT and FHWA are committed to resolving disputes through the Dispute Resolution stipulation provided in the PA (Stipulation XII).

In a letter dated January 23, 2023, HDOT initiated consultation with the State Historic Preservation Officer (SHPO) under Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations at 36 C.F.R. Part 800. In addition, HDOT initiated Hawai'i Revised Statutes (HRS) § 6E and Hawai'i Administrative Rules (HAR) § 13-275 historic preservation review with the State Historic Preservation Division (SHPD) for the proposed project. Although the Federal Highway Administration (FHWA) retains approval authority over Section 106, HDOT has jurisdiction over determining the project's effects under HRS § 6E-8 and its administrative provisions in HAR § 13-275.

To reduce redundancy, HDOT intends to combine Section 106 and HRS § 6E-8 compliance where possible.

Roles and Responsibilities

HDOT, as project sponsor, in coordination with the FHWA, will be responsible for the management and development of the SHPD-approved plans and reports including the Archaeological Inventory Subsurface Survey Plan (AISSP) and any necessary mitigation plans (e.g., archaeological monitoring plan, burial treatment plan) required for continuing archaeological investigations of the preferred alternative through final design and construction of the project with the assistance of individuals meeting the requirements of Stipulation II.

The SHPD shall advise HDOT in carrying out its State Historic Preservation Review responsibilities for the project. Based on information provided by HDOT, the SHPD shall respond to requests for comments and/or concurrence within the specified review periods.

Qualifications

All historic properties investigations and documentation carried out pursuant to this Memorandum shall be conducted by or under the supervision of an individual meeting the HAR § 13-281, *Rules Governing Professional Qualifications*, in their respective professional discipline. Historic properties investigations and documentation shall meet the requirements of HAR § 13-275 and the appropriate HAR for specific types of studies. Archaeologists will have a permit to do archaeological work in Hawaii per HAR § 13-282. HDOT will identify an osteologist who can be available on an as-needed basis in the event the ethnicity of a burial is needed, or bone fragments cannot be positively identified as human by the on-site archaeologist.

Project Area

The HRS § 6E-8 Project Area will coincide with the Preferred Alternative, once selected.

Identification and Evaluation of Historic Properties

HDOT intends to use the investigations and documentation of historic properties prepared for this project and as described in the PA (Stipulation III) to comply with HRS § 6E and its administrative provisions in HAR § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*. HDOT will evaluate potential historic properties for integrity and significance in accordance with HAR § 13-275-6.

Phased Archaeological Inventory Survey and Archaeological Subsurface Survey Plan

HDOT, in coordination with FHWA, intends to conduct a phased identification and evaluation of archaeological historic properties for this project. The first phase, consisting of an above-ground archaeological reconnaissance survey, is described in Stipulation III of the PA, as mentioned above. For the second phase, an AISSP will be developed and implemented as described in the PA, Stipulation IV. A final AIS report will be prepared that includes the results of the archaeological surface reconnaissance survey and the archaeological subsurface survey and provided to SHPD for concurrence on adequacy.

Determining Effects to Historic Properties

HDOT, in coordination with FHWA, will determine the effects to significant historic properties within the preferred alternative consistent with HAR § 13-275-7. One of the following effect determinations will be made for each significant historic property or group of significant historic properties:

1. No historic properties affected.

2. Effect with proposed mitigation commitments.

The effect determinations shall be sent to SHPD for review and concurrence and posted on honoapiilanihighway.com with notification to Signatories, Concurring and Consulting Parties of the PA for their comments. After 30 calendar days, HDOT shall send all comments received to SHPD. SHPD shall provide its approval, or non-approval with comments, within 45 calendar days of receipt of an HDOT request for agreement on its effect determinations. Receipt date shall be the date a letter is received in HICRIS.

Mitigation Measures

Following SHPD's written acceptance of the AIS report and effect determinations, HDOT will provide mitigation measures to SHPD pursuant to HAR § 13-275, 277, -278, and -279.

Archaeological and Cultural Monitoring

Per HAR § 13-279-3, Archaeological monitoring may be a mitigation measure.

Following completion of the AIS, HDOT shall oversee the development of an Archaeological and Cultural Monitoring Plan (Monitoring Plan) for implementation prior to the initiation of project construction. The Monitoring Plan will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the PA's Signatories, Concurring and Consulting Parties and submitted for a 30-calendar-day review and comment period.

1. Archaeological monitoring during construction will be conducted by HDOT and under the supervision of an Archaeologist meeting the qualifications stated above in the Qualifications Section.

2. HDOT, through its archaeologist, may hire cultural monitors at the request of NHOs listed in Appendix 3. Cultural monitor responsibilities will be defined in the Monitoring Plan.

3. The relationship between the construction crew and the cultural monitors will be defined in the monitoring plan. For example, if bones are found or a historic site is breached, the cultural monitor will have the authority to stop all work within 100 feet of the find.

4. HDOT shall contract with an on-call osteologist who can be in the field within 24 hours should additional expertise be needed to identify bones found in the Project Area. The Lead Archaeologist, in consultation with SHPD, will make the call as to whether an osteologist is needed on-site.

Pre-Construction Training

1. Prior to construction activities, HDOT, in coordination with the FHWA, will conduct pre-construction on-site archaeological and cultural awareness training led by HDOT's archaeological monitor and cultural monitors. The training will explain HDOT's approach to HRS § 6E-8 compliance, conditions and requirements set forth in this PA, procedures to follow if archaeological or cultural remains are found, and roles and responsibilities of HDOT's archaeological and cultural monitors.

2. HDOT will provide meeting participants with contact information for those required to receive discovery notifications.

3. This Memorandum will be an addendum to the construction contract.

Data Recovery

In the event that adverse effects cannot be avoided, data recovery is the only mitigation option provided in HAR § 13-275-8. Data recovery of sites will follow HAR § 13-278.

HAR § 13-275-8(2) requires that for properties evaluated as significant under criterion "e" the agency must consult with ethnic organizations or members of the ethnic group for whom the properties have significance. For this project, all sites significant under criterion "e" are significant to Native Hawaiians, and HDOT has consulted with NHOs listed in Appendix 3 to seek their views on proposed forms of mitigation in the event adverse effects cannot be fully avoided and data recovery is considered insufficient.

1. HDOT in consultation with the SHPD and NHOs, will continue consultation to determine if alternate mitigation under HAR § 13-275-8(2) is appropriate.

2. With respect to unmarked Native Hawaiian burials, the development of burial treatment plans will be consistent with HAR § 13-300, *Rules of Practice and Procedure Relating to Burial Sites and Human Remains*. If MLIBC determines that a burial is to be relocated, HDOT will consult with MLIBC to determine appropriate reinterment, which may include relocation to project property in the vicinity of the discovery as appropriate and as determined through consultation.

3. *Curation*. HDOT, in coordination with SHPD, will curate recovered materials in accordance with applicable laws, including HAR § 13-278, *Rules Governing Standards for Archaeological Data Recovery Studies*. HDOT shall consult with public and private institutions to pursue opportunities to provide public access to the recovered materials.

4. *Access*. HDOT will ensure NHOs have access to sites they wish to steward. Access will include safe parking areas for up to ten vehicles, areas to store rocks or tools, and an area to gather before or after accessing the site. Access does not presume any improvements to access sites.

5. *Stewardship*. HDOT will ensure that NHOs have an opportunity to remove the rocks from sites that will be impacted by construction of the Project. This will include allowing adequate time to gather the rocks and providing a location to store the rocks. NHOs will provide HDOT with point-of-contact (POC) information to coordinate this activity.

6. Most of the Archaeological sites are located on Department of Land and Natural Resources (DLNR), Land Division Lands and will be transferred to the DLNR Division of Forestry sometime after the relocated highway is built. HDOT has invited DLNR to be an invited signatory to this agreement and to develop a stewardship agreement with interested NHOs. Failure to finalize an agreement prior to signing this document will not affect implementation of the final document.

7. The design team will work with NHOs to use rocks affected by the construction of the project, in retaining walls or other parts of the project, where appropriate. NHOs will provide HDOT with POC information to coordinate these activities.

8. *Burials*. HDOT shall provide a burial relocation site, to be chosen in consultation with the MLIBC and recognized descendants, in each of the three (3) ahupua'a affected by the project. MLIBC and recognized descendants will work with HDOT on the design, materials, and construction of each burial site. If the land chosen belongs to another state agency, HDOT will facilitate agreements regarding access and use of the land. DLNR-SHPD will have long-term management of the site, including decisions on whether additional burials from other projects will be allowed to be interred at these sites.

Post-Review Discoveries

Commented [KF10]: Add section to address Architectural properties for completeness and parity.

Archaeology

1. If new archaeological properties are discovered or unanticipated effects to significant archaeological historic properties are identified during construction, and there is no archaeologist present at the discovery location to conduct monitoring as described in Stipulation IV.B, HAR § 13-280, *Rules Governing General Procedures for Inadvertent Discoveries of Historic Properties During a Project Covered by the Historic Preservation Review Process*, shall apply.

2. HDOT will consult with the SHPD, Signatories, Concurring and Consulting Parties regarding the need to expand the areas identified for archaeological monitoring during construction to include locations where the project would involve excavation within 150 feet of identified artifacts.

Human Remains

1. If evidence of burials, human remains, or potential human remains is encountered during construction, HDOT shall suspend all work within 20 feet of the remains, protect the remains from further disturbance, and immediately use the contact protocols in Appendix 5. HDOT will implement the procedures at HAR § 13-300, *Rules of Practice and Procedure Relating to Burial Sites and Human Remains*, for inadvertent discoveries of human remains. Construction activities in the location of the discovery will be suspended pending notification to and consultation among the SHPD, HDOT, MLIBC, and parties included in Appendix 4, in accordance with these procedures. Notification will be by e-mail, unless an alternative method is specifically requested.

2. HDOT will consult with the parties included in Appendix 3 regarding the need to expand the areas identified for archaeological monitoring during construction to include locations where the project would involve excavation within 150 feet of the unanticipated discovery of human remains.

775 **Appendix 2. Area of Potential Effects Map**
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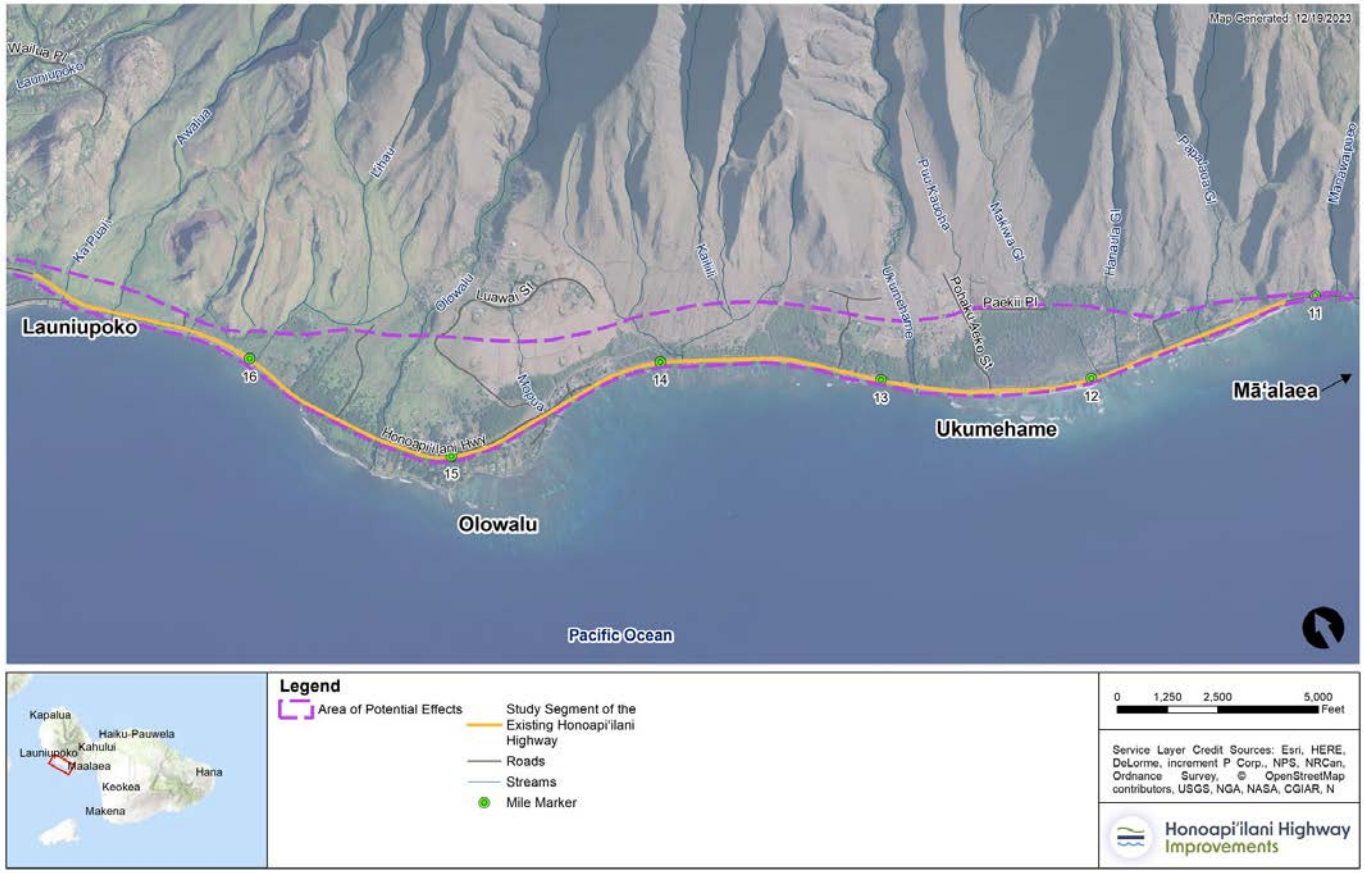
Map Generated: 12/19/2023
Launiupoko
Olowalu
Ukumehame
Māʻalaea
Pacific Ocean
Honoapiʻilani Hwy
Olowalu
Luawai St
Kaniili
Pauʻkaaoha
Nakwa Gl
Hanaulani Gl
Papaloloa Gl
Manawaiopuo
Paekii Pl
Pohaku Aeko St
Ukumehame
Mogoa
Ka Piahi
Awalua
Launiupoko
Wailua Pl
11
12
13
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16
Legend
Area of Potential Effects
Study Segment of the Existing Honoapiʻilani Highway
Roads
Streams
Mile Marker
Kapalua
Haiku-Pauwela
Kahului
Launiupoko
Maalaea
Hana
Keokea
Makena
0 1,250 2,500 5,000 Feet
Service Layer Credit Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N
Honoapiʻilani Highway Improvements

Appendix 3: List of Consulting Parties

Prefix	First	Middle	Last	Title	Organization/Agency
Ms.	Dawn		Chang	State Historic Preservation Officer and Chairperson	State of Hawai'i, Department of Land and Natural Resources
Dr.	Susan		Lebo	SHPD	State of Hawai'i, Department of Land and Natural Resources
Ms.	Leimana		DaMate	Executive Director	State of Hawai'i, Department of Land and Natural Resources, 'Aha Moku
Mr.	Ikaika	J.	Anderson	Chair	State of Hawai'i, Department of Hawaiian Homelands
Dr.	Sylvia		Hussey	CEO	State of Hawai'i, Office of Hawaiian Affairs
Mr.	Kamakana	C.	Ferreira	Lead Compliance Specialist	State of Hawai'i, Office of Hawaiian Affairs
Ms.	Lauren		Morawksi		State of Hawai'i, Office of Hawaiian Affairs
Ms.	Leslie		Iaukea	SHPD, Culture and History Branch Chief	State of Hawai'i, Department of Land and Natural Resources
Mr.	Chris		Nakahashi	SHPD Cultural Historian	State of Hawai'i Department of Land and Natural Resources
Ms.	Yvette		Celiz	Lāhainā Representative	Maui County Cultural Resources Commission
Dr.	Janet		Six	Principal Archaeologist	Maui County
Mr.	Andrew		McCallister	SHPD Maui Archaeologist	State of Hawaii, Department of Land and Natural Resources
Mr.	Hinano	R.	Rodrigues		NHO
Ms.	Anela		Jackson	President	'Aha Mālama, Corp.
Mr.	Ke`eaumoku		Kapu	Chief Executive Officer	'Aha Moku O Maui Inc.
Mr.	Felimon		Sadang		'Aha Moku O Maui Inc.
Mr.	Kamaka		Bancaco		'Aha Moku O Maui Inc.
Mr.	Hailama		Farden	President	Association of Hawaiian Civic Clubs
					Lahaina Hawaiian Civic Club
Ms.	Blossom		Feiteira	President	Association of Hawaiians for Homestead Lands
Mr.	Samson	L.	Brown	President	Au Puni O Hawai'i
Mr.	Joseph	Kuhio	Lewis	Chief Executive Officer	Council for Native Hawaiian Advancement
Ms.	Chelsie		Evans	Executive Director	Hawaiian Community Assets, Inc.
Ms.	Kiersten		Faulkner	Executive Director	Historic Hawai'i Foundation
Ms	Kaipo		Kincaid		Hui Kako'o 'Āina Ho'opulapula
Ms.	Amy	Hanaialii	Gilliom	President	Hui O Wa'a Kaulua
Ms.	Lori		Sablas	Cultural Advisor	Kaanapali Beach Hotel

Mr.	Kimokeo		Kapahulehua	President	Kimokeo Foundation
Mr.	Manny		Kuloloio	Makuakāne	Kuloloi'a Lineage - I ke Kai 'o Kuloloi'a
Mr.	Theo		Morrison	Executive Director	Lahaina Restoration Foundation
Mr.	Ekolu		Lindsey III	President	Maui Cultural Lands, Inc/ descendant -- Ukumehame
Ms.	Nicole		McMullan		Maui Historical Society, Bailey House Museum
Mr.	Kaipo		Kekona	Po'o -- Kā'anapali Moku	Aha Moku O Maui Inc.
Ms.	Uilani		Kapu	Treasurer	Na Aikane `O Maui Inc
Kumu	Kapono`ai		Molitau		Nā Hanona Kūlike 'o Pi'ilani
Ms.	Patty		Nishiyama		Na Kupuna o Maui
Ms.	Maraea	K.	Nekaifes		Nekaifes Ohana
Mr.	Clifford		Naeole	Hawaiian Cultural Advisor	The Ritz-Carlton Kapalua
					Queen Lili'uokalani Children's Center
Ms.	Dana	Naone	Hall		
Mr.	Kainoa		Horcajo	Founder	Kipuka Olowalu
Ms.	Karin		Osuga		Kipuka Olowalu
Ms.	Lois		Reiswig	President	Maui Arts League
Mr.	Pomaikai		Benevedes		
Ms.	Velma		Mariano		
Ms.	Noelani		Ahia		
Mr.	Nameaaea		Hoshino		NHO
Ms.	Jaclyn		Fujjita		
Ms	Fay		McFarlane		
Mr.	George	Tosh K.	Fujita		NHO-Kaluna Palafox Ohana
	Kaulu		Nahooikaika		NHO-Kaho'oikaika Ohana
Ms.	Tiare		Lawrence		NHO- Kaho'oikaika Ohana
Ms.	Malihini	Keahi	Heath		NHO- Haia Ohana
Ms.	Kahikilani		Niles		
Mr.	Brian	Kaniela Naeole	Naauao		Naeole/Naauao Ohana
Mr.	Foster		Ampong		NHO
Ms.	Linda		Nahina Magalianes		Nahina Ohana
Ms	Victoria		Kaluna-Palafox		NHO-Kaluna-Palafox Ohana
			Saffrey Ohana		NHO Saffrey Ohana
Mr.	Al		Lagunero		Olowalu Cultural Reserve -- Precursor to Kipuka Olowalu
Ms.	Davianna		McGregor		Protect Kaho'olawe Ohana
Mr.	Michael		Naho'opi'i	Executive Director	Kaho'olawe Island Reserve Commission
Ms.	Beth		Mantalvo	Executive Director	Hui O Wa'a Kaulua

Mr.	Nainoa		Thompson	President & Master Navigator	Polynesian Voyaging Society
Mr.	Kawika		Farm	Planner Supervisor	Cultural Resources Commission, Maui County
Mr.	Steve	L	Phillip		
Ms.	Jessica		Puff	SHPD Architectural Historian	SHPD, Hawaii Department of Land and Natural Resources
Mr.	Stanley		Solamillo	Architect	Maui County Planning Dept
Ms.	Michele		Hoopii		Pili Koko
Mr.	Archie		Kalepa		NHO

Appendix 4: List of Section 106 and 6E Consulting Party Meetings and Dates

Consulting Party Meeting Dates

April 7, 2022, In-person with NHOs from the area, set up by Keeaumoku Kapu
April 7 and 8, 2022, Hinano Rodrigues
April 8, Ekolu Lindsay, Kipuka Olowalu/Olowalu Cultural Reserve
March 29 & 30, 2023, Virtual
May 31, 2023, NHO, FHWA Field Visit
June 1, 2023, Presentation to Maui Cultural Resources Commission
July 27, 2023, Virtual: Archaeology/Cultural
August 2, 2023, Virtual: Architecture
November 2, 2023, SHPD, FHWA, HDOT
November 18, 2023, NHO Field Visit
November 20, 2023, Virtual: Archaeology/Cultural
March 28, 2024, SHPD Field Visit
September 22, 2024, Presentation to Na Kupuna o Lahaina Advisory Board, NHOs, Consulting Parties: Archaeology and Programmatic Agreement
September 26, 2024, NHOs and other Consulting Parties, Virtual: Archaeology and Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

WHEREAS, the United States Department of Transportation, Federal Highway Administration (FHWA) plans to fund the Honoapiʻilani Highway Improvements Project (Undertaking), pursuant to Pub.L. 116-260, FY 2021 Appropriations Act, known as the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants and through an earmark in the 2022 Infrastructure Investment and Jobs Act (Pub.L. 117-58), which would realign Honoapiʻilani Highway between Ukumehame and Launiupoko in Maui Komohana (West Maui); and

WHEREAS, the State of Hawaiʻi Department of Transportation (HDOT) is the sponsor of the Undertaking, and the FHWA has invited HDOT to become an invited signatory to this Programmatic Agreement (PA); and

WHEREAS, the FHWA's action requires review under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) and is considered an Undertaking as defined by 36 C.F.R. 800.16(y) and is subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. § 306108) and its implementing regulations, 36 C.F.R. Part 800, *Protection of Historic Properties*, as amended; and

WHEREAS, the Undertaking is intended to address existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise, as delineated by the Hawaiʻi Climate Change Mitigation and Adaptation Commission (HCCC)'s Sea Level Rise Exposure Area (SLR-XA); and

WHEREAS, the FHWA has coordinated NHPA Section 106 compliance with the NEPA process and is preparing an Environmental Impact Statement (EIS); and

WHEREAS, the FHWA, in consultation with the Hawaiʻi State Historic Preservation Officer (SHPO), is entering into this Section 106 PA in accordance with 36 C.F.R. § 800.14(b)(1)(ii) because the Undertaking's effects on historic properties cannot be fully determined prior to approval of the Record of Decision; and

WHEREAS, the FHWA in coordination with HDOT, and in consultation with the SHPO, established an Area of Potential Effects (APE) (**Appendix 2**) in accordance with 36 C.F.R. § 800.4(a)(1) to consider potential direct and indirect effects associated with each of the Undertaking's alternatives evaluated in the Draft EIS; and

Summary of comments on Programmatic_Agreement_Consulting_Party_Review

Page: 1

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WHEREAS, due to the size of the APE, limited access, and number of alternatives under consideration, the FHWA and HDOT, in consultation with the SHPO, agreed to phased identification, pursuant to 36 C.F.R. § 800.4(b)(2), as provided in this PA; and

WHEREAS, HDOT intends to use the historic properties identification efforts and documentation prepared for this Undertaking and as described in this PA (Stipulation III) to comply with Hawai'i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai'i Administrative Rules (HAR) § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*, as described in **Appendix 1.** The State Historic Preservation Division (SHPD) therefore has the authority to determine whether or not any report generated under HRS § 6E and its administrative rules is adequate; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP), was invited to participate in the Section 106 consultation and the development of this PA and has declined to participate; and

WHEREAS, the FHWA in coordination with HDOT has consulted with Native Hawaiian Organizations (NHOs) listed in **Appendix 3**, for which the Ahupua'a of Launiupoko, Olowalu, and/or Ukumehame have religious and/or cultural significance and has invited them to be Concurring Parties to this PA; and

WHEREAS, the FHWA in coordination with HDOT held multiple Consulting Party meetings (listed in **Appendix 4**), has consulted with Consulting Parties, including NHOs, listed in **Appendix 3** regarding the effects of the Undertaking on historic properties and has invited them to sign this PA as Concurring Parties; and

WHEREAS, historic properties were found during an archaeological reconnaissance study located within the Department of Land and Natural Resources (DLNR) Lands, and the FHWA has invited DLNR to be an invited signatory to this PA.

NOW, THEREFORE, the FHWA, HDOT, SHPO, agree that the Undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The FHWA, in coordination with HDOT, shall ensure that the following measures are carried out.

I. Roles and Responsibilities

A. The FHWA is the agency official legally responsible for all Section 106 findings and determinations and shall ensure that the terms of this PA are carried out to complete the Section 106 process. The FHWA shall continue consultation with the NHOs, individuals and organizations included in Appendix 3 and as described in this PA.

B. HDOT, as the Undertaking sponsor, will assist the FHWA in the implementation of this PA, including the coordination, management, and overseeing of the implementation of the SHPD-approved plans and reports including the Archaeological Inventory Subsurface Survey Plan (AISSP) and any necessary mitigation plans (e.g., archaeological monitoring plan, burial treatment plan) required by this PA for continuing archaeological investigations of the preferred

Page: 2

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do not create a new report type. change to Archaeological Inventory Survey Plan (AISP); use language specified in HRS 6E - AISP

alternative through final design and construction of the Undertaking with the assistance of individuals meeting the requirements of Stipulation II.

C. DLNR, as having jurisdiction over land within and adjacent to the Undertaking's alignment, shall respond to requests for permission to access areas identified by HDOT that require investigations pursuant to this PA, and shall provide comments and/or reviews of documentation prepared by HDOT or its staff in fulfillment of this PA.

D. The SHPO, individually or through staff at SHPD, shall advise the FHWA in carrying out Section 106 responsibilities for the Undertaking. Based on information provided by the FHWA or by HDOT, on behalf of the FHWA, the SHPO, individually or through staff at the SHPD, shall respond to requests for comments and/or concurrence within the specified review periods regarding the FHWA's National Register of Historic Places (NRHP) eligibility evaluations and proposed measures to avoid, minimize, or mitigate any adverse effects on archaeological historic properties that may be identified.

II. Qualifications

All investigations carried out pursuant to this PA shall be conducted by or under the supervision of an individual meeting the Secretary of the Interior's (SOI) Professional Qualifications Standards for Archaeology or Architectural History, as applicable, pursuant to 36 CFR Part 61, Appendix A, and pursuant to HAR § 13-281, "Rules Governing Professional Qualifications," and HAR § 13-282, "Rules Governing Permits for Archaeological Work" in the State of Hawai'i.

III. Identification and Evaluation of Historic Properties

A. The FHWA, in coordination with HDOT, will ensure all historic properties (both above ground and below ground) identified within the APE are assessed for NRHP eligibility in accordance with 36 C.F.R. § 800.4(c). The FHWA will consider information provided by an individual or organization included in Appendix 3 who attaches religious and/or cultural significance to a property within the APE in making determinations of eligibility.

B. HDOT, in coordination with the FHWA, completed the identification and evaluation of architectural historic properties pursuant to 36 C.F.R. § 800.4(b) and (c). A Reconnaissance Level Architectural Inventory Survey (RLS) report was completed that identified and assessed 40 architectural properties within the APE. Three architectural properties were determined to be individually eligible for listing in the NRHP and ten were determined to be contributing resources to a NRHP-eligible historic district, referred to in the RLS as the Olowalu Sugar Plantation Historic District. SHPD concurred with these eligibility determinations in a letter dated July 9, 2024.

C. HDOT, in coordination with the FHWA, has completed the identification and initial evaluation of archaeological properties pursuant to 36 C.F.R. § 800.4(b) and (c). This identification and evaluation effort involved an archaeological reconnaissance surface survey comprising each of the four proposed alternatives within the APE. The archaeological survey area was defined by a 300-foot-wide corridor along the centerline of each proposed alternative. The archaeological survey area totaled approximately 464 acres and included both 100% pedestrian survey and

Page: 3

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targeted drone flyovers. The results of the archaeological survey were provided in a document titled *Honoapi'ilani Archaeological Complex Site Descriptions and Significance Evaluations*. Twenty-eight (28) archaeological historic properties were identified and evaluated within Ukumehame Ahupua'a, seven (7) in Olowalu Ahupua'a, and three (3) in Launiupoko Ahupua'a.

D. HDOT's archaeologist, on behalf of HDOT and the FHWA, evaluated all 38 archaeological historic properties as individually eligible for listing in the National Register of Historic Places. SHPD concurred with eleven (11) of these eligibility determinations in a letter dated October 11, 2024, and provided no response on the remaining twenty-seven (27) archaeological historic properties. HDOT's archaeologist also noted that the sites in each ahupua'a extended beyond the archaeological survey boundaries. Because the horizontal and vertical extents of a potential historic district could not be determined based on a reconnaissance survey, no historic district has been identified by the FHWA at this time, pending additional investigations as described in this PA.

E. HDOT, in coordination with the FHWA, will complete an archaeological inventory survey (AIS) for any areas not previously surveyed within the preferred alternative. Additionally, subsurface archaeological testing will proceed through the design of the preferred alternative as locations become accessible.

F. HDOT, in coordination with the FHWA, will ensure an AISSP is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to 36 C.F.R. § 800.4(b) and (c) and HAR § 13-276.

G. HDOT intends to use the identification and documentation of historic properties prepared for this Undertaking to meet the requirement of HRS § 6E-8. SHPD shall have authority to determine the adequacy of the AISSP pursuant to HAR § 13-275 and HAR § 13-276. SHPD's written approval will be provided to all Signatories, Concurring and Consulting Parties.

IV. Archaeological Inventory Subsurface Survey

The area for subsurface archaeological survey is defined as the Undertaking's preferred alternative and includes the proposed roadway right-of-way (ROW) and areas designated for utility installation, excavation, grading, connector roads, or construction access and laydown areas.

A. Archaeological Inventory Subsurface Survey Plan

1. The AISSP will be developed by HDOT's archaeologist in consultation with the Engineering Design Team, as well as Signatories, Concurring and Consulting Parties within one (1) year of execution of the NEPA Record of Decision.

2. HDOT will provide the initial draft of the AISSP to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments on the AISSP will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all

Page: 4

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SHPD will provide a response

Page: 4

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change to AISP to match language in HRS 6E

Page: 4

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, and HAR §13-275-5(c) and (d),

Page: 4

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AISP; HAR §13-275-5(c) and (d)

Page: 4

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AISP

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AISP

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AISP

written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. HDOT will share SHPD's comments with Signatories, Concurring and Consulting Parties. The comments may be posted to the Honoapiilanihighway.com website.

5. If SHPD does not respond within any 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence and move forward accordingly. HDOT, in coordination with the FHWA, will implement the AISSP.

6. Subsurface survey fieldwork shall be completed to the extent practicable prior to final design so that any unanticipated discoveries (i.e., archaeological sites or human burials) may be considered in final design and measures incorporated to avoid and/or minimize potential effects on historic properties and/or human burials.

7. HDOT, in coordination with the FHWA, will provide a status update to the Signatories, Concurring and Consulting Parties of the status of archaeological investigations on a quarterly basis via email and, when requested, via meeting. Once HDOT's archaeologist sends an end-of-fieldwork notice to SHPD, these reports will stop.

B. Archaeological Inventory Survey Report

1. The AIS report will be submitted to SHPD for their concurrence on adequacy and will contain results of the above ground pedestrian survey of the preferred alternative and subsurface survey.

2. The initial draft of the AIS report will be provided to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The reports may be posted to Honoapiilanihighway.com.

3. The written comments received on the draft AIS report will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. If SHPD does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence and move forward accordingly.

V. Application of the Criteria of Adverse Effect for Historic Properties

A. The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, will apply the criteria of adverse effect (36 C.F.R. § 800.5(a)(1)) to historic properties within the APE, and document its findings.

Page: 5

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AISP

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change to any identified subsurface historic properties

Page: 5

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change from notice to letter report; the purpose is to provide documentation / confirmation that the stipulations of the AISP have been carried out

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insert "archaeological" as it will not include the architectural survey info

Page: 5

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Page: 5

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Indicate the AIS report will meet the minimum requirements of HAR §
13-276-5 and the Secretary of the Interior's Standards for Archaeological Documentation

B. If, as a result of this analysis, the FHWA determines that the Undertaking may have an adverse effect on any historic property, the FHWA, in coordination with HDOT, will consult with the SHPO, Signatories, and Concurring and Consulting Parties to avoid, minimize, or mitigate adverse effects.

C. The FHWA, in coordination with HDOT, will implement any of the Undertaking's scope or design modifications or conditions in order to avoid, minimize or mitigate adverse effects, as agreed upon through consultation.

VI. Treatments to Resolve Adverse Effects to Historic Properties

The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, has determined that the following treatment measures, either singularly or in combination, may be applied to resolve adverse effects to historic properties.

A. Educational Interpretation. This educational interpretation may include displays, markers, educational pamphlets, brochures or booklets, posters, websites, or other similar accessible information to educate members of the public on one or more architectural and/or archaeological historic property within the APE. The interpretive element will use images and maps to the extent feasible to convey information to the public.

B. Photogrammetry. HDOT may hire a consultant to conduct historic property documentation through the use of photogrammetry, which requires taking high-resolution digital images to construct 3-D models of above ground resources including individual structures and buildings or landscape features. Using a high-resolution camera affixed to a drone, digital images will be taken at multiple angles and aligned to extract spatial and visual data to create a digital 3-D model. Data will be extracted from the model, including precise measurements and dimensions, colors, textures, and close-up historic details of the historic property. The model will then be made available for public viewing, if appropriate.

C. Recordation of Architectural Historic Property. Prior to any substantial alteration or demolition of an individual above ground architectural historic property, documentation may be undertaken to record the adversely affected property through a digital photography package or Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) Level III recordation (68 Fed. Reg. 43159), as appropriate.

D. Recordation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual above ground archaeological historic property, documentation may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, and narrative descriptions meeting the archaeological documentation specified in HAR § 13-276 pertaining to AIS investigati

Page: 6

Page: 6

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add also potential audio presentation to reflect traditional Hawaiian culture and sharing of knowledge

Page: 6

Type: Highlight Text Author: clebosa Subject: Comment on Text Date: 2/24/2025, 7:43:52 PM

If a model is created, indicate there will also be an audio and/or written component that will assist in conveying the results to the public and their ability to use the model; also indicate how the model might be made available to schools, libraries or other venues for educational and/or curricular or community uses.

Page: 6

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Expand to indicate documentation may include acquiring and recording oral information regarding traditional construction methods, etc.

Page: 6

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allow for additional treatment options to occur based on AIS, Data Recovery or other project findings; Also describe the process for selection, discussion of how treatment will be carried, schedule, review of draft deliverables and review times and roles, etc.

Page: 6

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This particular treatment option needs to be expanded to avoid issue that arose with model developed for Queen K regarding what the model would include, who would provide input, how it would be used or made accessible, be evaluated as meeting the stipulation purpose, etc.

Page: 6

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this list should also include archaeological monitoring. This is separate from archaeological data recovery excavations. Monitoring will be needed to document any historic properties newly identified or further exposed during construction. This would involve an archaeological monitoring plan (AMP) and an archaeological monitoring report (AMR)

Page: 6

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please also add where possible will salvage pohaku for use in community-based restoration projects

Page: 6

Type: Sticky Note Author: cpuffjl Subject: Sticky Note Date: 3/4/2025, 1:32:29 AM

This part of the stipulation is confusing, not sure what you're trying to say that "The FHWA, in coordination with HDOT, will adopt and implement any feasible design modifications or conditions in order to avoid, minimize, or mitigate adverse effects caused by the undertaking as agreed upon through consultation"?

Page: 6

Type: Sticky Note Author: cpuffjl Subject: Sticky Note Date: 3/7/2025, 12:47:48 PM

Please include language that identifies how mitigation measures will be selected from the list below. Who will FHWA/HDOT consult with, how will the mitigation selection be documented within the administrative record, what will the time frame for providing comments or the format for consultation look like (comments within 30 days, scheduled meeting to decide, etc.?)

Should also include a process for reviewing. submitting, accepting deliverables (assigned to each mitigation measure or same process for all?)

B. If, as a result of this analysis, the FHWA determines that the Undertaking may have an adverse effect on any historic property, the FHWA, in coordination with HDOT, will consult with the SHPO, Signatories, and Concurring and Consulting Parties to avoid, minimize, or mitigate adverse effects.

C. The FHWA, in coordination with HDOT, will implement any of the Undertaking's scope or design modifications or conditions in order to avoid, minimize or mitigate adverse effects, as agreed upon through consultation.

VI. Treatments to Resolve Adverse Effects to Historic Properties

The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, has determined that the following treatment measures, either singularly or in combination, may be applied to resolve adverse effects to historic properties.

A. Educational Interpretation. This educational interpretation may include displays, markers, educational pamphlets, brochures or booklets, posters, websites, or other similar accessible information to educate members of the public on one or more architectural and/or archaeological historic property within the APE. The interpretive element will use images and maps to the extent feasible to convey information to the public.

B. Photogrammetry. HDOT may hire a consultant to conduct historic property documentation through the use of photogrammetry, which requires taking high-resolution digital images to construct 3-D models of above ground resources including individual structures and buildings or landscape features. Using a high-resolution camera affixed to a drone, digital images will be taken at multiple angles and aligned to extract spatial and visual data to create a digital 3-D model. Data will be extracted from the model, including precise measurements and dimensions, colors, textures, and close-up historic details of the historic property. The model will then be made available for public viewing, if appropriate.

C. Recordation of Architectural Historic Property. Prior to any substantial alteration or demolition of an individual above ground architectural historic property, documentation may be undertaken to record the adversely affected property through a digital photography package or Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) Level III recordation (68 Fed. Reg. 43159), as appropriate.

D. Recordation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual above ground archaeological historic property, documentation may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, and narrative descriptions meeting the archaeological documentation specified in HAR § 13-276 pertaining to AIS investigati

Also, it would be good to include a National Register nomination for a traditional cultural landscape for the archaeological resources.

E. Archaeological Data Recovery. Data recovery excavations may be considered in consultation among the FHWA, HDOT, SHPO, Signatories, Concurring and Consulting Parties. If it is determined by the FHWA through consultation that archaeological data recovery is an appropriate treatment, HDOT will ensure that HDOT's archaeologist prepares an archaeological data recovery plan (Archaeological DRP) that includes each affected archaeological historic property.

1. If possible, a single Archaeological DRP will be prepared for the undertaking.

2. HDOT will provide the initial draft of the Archaeological DRP to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

4. If SHPD does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence with the Archaeological DRP and move forward accordingly following written notification to SHPD, Signatories, Concurring and Consulting Parties.

5. HDOT, in coordination with the FHWA, shall ensure the archaeological data recovery excavations are carried out in accordance with the approved Archaeological DRP and all data recovery fieldwork is completed prior to initiation of construction.

6. HDOT's Archaeologist will prepare an Archaeological Data Recovery Report summarizing the archaeological data recovery results.

7. HDOT will provide the Archaeological Data Recovery Report to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

8. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

9. Following receipt of comments, HDOT, in coordination with the FHWA and in consultation with SHPD, Signatories, and Concurring and Consulting Parties, will finalize and approve the Archaeological Data Recovery Report.

VII. Native Hawaiian and Consulting Parties Section 106 Consultation

Page: 7

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:46:03 PM

change to DRP to match HAR language

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:46:32 PM

same comment; use DRP to match HAR language

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:47:31 PM

meets the requirements of HAR §
13-278-3

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:48:06 PM

DRP

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:50:23 PM

upon receipt of all written comments received by FHWA and HDOT from Signatories, and Concurring and Consulting Parties...

Page: 7

Type: Highlight Text Author: clebosa Subject: Comment on Text Date: 2/26/2025, 10:50:43 PM

in writing

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:51:05 PM

change to DRP

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:51:57 PM

change to DRP

Page: 7

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/26/2025, 10:52:42 PM

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:57:29 PM

change Archaeologist to archaeologist to match elsewhere. It is critical to indicate when the DRR needs to be completed and accepted. Per HRS 6E it must be accepted prior to initiation of construction. Several options exist, (1) before construction per HRS 6E; (2) prepare an End-of-Fieldwork DRR and request a 2-step verification process per HAR 13-275-9 and complete full DRR during construction, (3) establish a process within PA for timing of report completion

Page: 7

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/26/2025, 10:56:09 PM

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:58:03 PM

upon receipt of all written comments received by FHWA and HDOT....

Page: 7

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 10:58:10 PM

DRR

E. Archaeological Data Recovery. Data recovery excavations may be considered in consultation among the FHWA, HDOT, SHPO, Signatories, Concurring and Consulting Parties. If it is determined by the FHWA through consultation that archaeological data recovery is an appropriate treatment, HDOT will ensure that HDOT's archaeologist prepares an archaeological data recovery plan (Archaeological DRP) that includes each affected archaeological historic property.

1. If possible, a single Archaeological DRP will be prepared for the undertaking.

2. HDOT will provide the initial draft of the Archaeological DRP to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

4. If SHPD does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume SHPD's concurrence with the Archaeological DRP and move forward accordingly following written notification to SHPD, Signatories, Concurring and Consulting Parties.

5. HDOT, in coordination with the FHWA, shall ensure the archaeological data recovery excavations are carried out in accordance with the approved Archaeological DRP and all data recovery fieldwork is completed prior to initiation of construction.

6. HDOT's Archaeologist will prepare an Archaeological Data Recovery Report summarizing the archaeological data recovery results.

7. HDOT will provide the Archaeological Data Recovery Report to SHPD, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

8. The written comments received will be shared with SHPD for consideration in preparing SHPD's review comments to HDOT and the FHWA. SHPD shall have an additional 15-calendar-day review period (total 45-calendar days) to take comments provided in writing by other Consulting Parties into consideration in preparing SHPD's written review comments.

9. Following receipt of comments, HDOT, in coordination with the FHWA and in consultation with SHPD, Signatories, and Concurring and Consulting Parties, will finalize and approve the Archaeological Data Recovery Report.

VII. Native Hawaiian and Consulting Parties Section 106 Consultation

Page: 7

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DRR

Page: 7

Type: Highlight Text Author: clebosa Subject: Comment on Text Date: 2/26/2025, 11:52:58 PM

and report

A. The FHWA, in coordination with HDOT, shall continue to carry out Section 106 consultation with the Maui Lāna'i Islands Burial Council (MLIBC), Signatories, Concurring and Consulting Parties for the identification and evaluation of historic properties identified according to the terms of this PA.

B. The FHWA, in coordination with HDOT, shall carry out consultation with MLIBC, recognized descendants and NHOs, Signatories, Concurring and Consulting Parties for any unanticipated discoveries. The consultation will include identification, evaluation as to whether a discovery meets the definition of a historic property, and consideration of measures to avoid, minimize, or mitigate adverse effects.

VIII. Applicability of this PA to Changes in Undertaking Scope

This PA satisfies the FHWA's responsibilities under Section 106 and is based on information about this Undertaking as defined in the EIS. It is the FHWA's responsibility to notify the SHPO, Signatories, Concurring and Consulting Parties of any changes to the Undertaking's design, scope, or footprint and, through consultation, to determine whether any changes to the design, scope, or footprint invalidate both the environmental commitments made in the Final EIS and Record of Decision, including those made in this PA. In the event the FHWA chooses to re-open Section 106 consultation for this Undertaking, the FHWA shall implement the following measures:

A. If the change is within the current APE, then the FHWA shall notify the SHPD of any changes to design or scope in writing. The SHPD shall respond within 30 calendar days of receipt of the e-mail or letter. Receipt is the date of the e-mail or the date received in HICRIS.

B. If the change is outside the current APE, the FHWA, in coordination with HDOT and in consultation with the SHPO, shall assess and revise the APE as necessary to incorporate any additional areas not previously considered under this PA.

C. The FHWA shall consult the Signatories to this PA to determine if the provisions of this PA should be applied to the additional areas, and if this PA should be applied, whether this PA needs to be amended in accordance with Stipulation XIII to include those areas.

IX. Post-Review Discoveries

A. In accordance with 36 C.F.R. § 800.13(b)(3), the FHWA, in coordination with HDOT and in consultation with the SHPO, will apply the NRHP Criteria for Evaluation (36 C.F.R. § 60.4) to evaluate any newly identified historic properties and consider measures to avoid, minimize or mitigate adverse effects on historic properties. Additionally, the FHWA, in coordination with HDOT, will consult pursuant to Stipulation III.

B. The FHWA shall forward their evaluation of the newly identified historic properties to the SHPO for review and concurrence.

C. If SHPD does not respond within the 30-calendar day review period, the FHWA may assume SHPD's concurrence with the eligibility determinations.

Page: 8

Page: 8

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 3/4/2025, 1:38:35 AM

...evaluation and mitigation

Page: 8

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:06:43 PM

change to SHPO

Page: 8

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:07:46 PM

why not invalidate either or both?

Page: 8

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:08:17 PM

in writing

Page: 8

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:09:48 PM

Project No. 2023PR00135

D. If evidence of burials, human remains, or potential human remains is encountered during construction, HDOT shall suspend all work in the immediate vicinity, protect the remains from further disturbance, and immediately contact the SHPO, the FHWA, OHA, ILIBC, Maui Police Departments, Signatories, Concurring and Consulting Parties.

E. HDOT's initial notification may be via phone but must be followed by written notification via email. In addition to email, HDOT's notification to the SHPO must include written notification to HICRIS Project No. 2023PR00135 and include date, time, and identification of all parties who were notified.

F. Identification, documentation, and treatment of all burials, human remains, or potential human remains encountered during construction will be carried out in accordance with State laws (Appendix 1).

X. Confidentiality

Sensitive information concerning the location, character, or ownership of archaeological resources and properties on which burials, human remains, or potential human remains are identified may be withheld from public disclosure in accordance with Section 304 of the NHPA (54 U.S.C. § 307103).

XI. Monitoring and Reporting

Each year following the execution of this PA until it expires or is terminated, HDOT will submit to the FHWA a written status of each PA stipulation.

The FHWA, in coordination with HDOT, shall provide all parties to this PA a written annual summary report detailing work undertaken pursuant to its terms and associated findings. Such report shall include any scheduling changes proposed or implemented, any issues encountered relating to historic or cultural sites, any disputes and objections received in the FHWA's efforts to carry out the terms of this PA. Additionally, the annual summary report shall include the status of the PA stipulations provided by HDOT to the FHWA.

HDOT will provide written notification to the FHWA for concurrence once all stipulations have been completed. Upon the FHWA's concurrence and the FHWA's notification therein to all parties to this PA, the Section 106 process will be deemed completed.

XII. Dispute Resolution

Should any Signatory, Concurring or Consulting Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the FHWA shall notify all parties and initiate consultation to resolve the objection. If the FHWA determines that such objection cannot be resolved, the FHWA will:

A. Forward all documentation relevant to the dispute, including the resolution proposed by the FHWA, to the ACHP. The ACHP shall provide the FHWA with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from ACHP, Signatories, and Concurring

Page: 9

Page: 9

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:09:10 PM

remove extra period.

Page: 9

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recommend a set date, e.g., January 31 or __ to match end of federal fiscal year

Page: 9

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same comment; establish a date for report; also include commitment to have an annual meeting or to provide an annual meeting if requested by any Signatory, Concurring or Consulting Party, within 30-calendar day period following distribution of report; have a process for parties to provide written comments or concerns and for them to be addressed

Page: 9

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:14:33 PM

in writing

Parties and provide them with a copy of this written response. The FHWA will then proceed according to the final decision.

B. If the ACHP does not provide its advice regarding the dispute within the 30-calendar-day review period, the FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to this PA and provide them and the ACHP with a copy of such written response.

C. The responsibilities of the FHWA to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XIII. Amendments

This PA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all signatories is filed with the ACHP.

XIV. Termination

If any signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation XIII. If an amendment cannot be reached within 30 calendar days, any Signatory may terminate the PA upon written notification to the other Signatories.

Once the PA is terminated, and prior to work continuing on the Undertaking, the FHWA must either (a) execute an agreement pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. The FHWA shall notify the Signatories as to the course of action they will pursue.

XV. Duration

This PA will be null and void if its terms are not carried out within fifteen (15) years from the date of its execution. Prior to such time, the FHWA may consult with the other Signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XIII.

Execution of this agreement by the FHWA, SHPO, and HDOT, and implementation of its terms is evidence that the FHWA has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP an opportunity to comment.

Page: 10

Page: 10

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:15:31 PM

in writing

Page: 10

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change to Signatories

PROGRAMMATIC CAGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources (DLNR)

By: _____ Date: _____
Dawn N. S. Chang, Esq.
DLNR Chairperson
State Historic Preservation Officer

Page: 11

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PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Federal Highway Administration

By: _____ Date: _____
Richelle M. Takara, PE
Division Administrator

Page: 12

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PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Transportation

By: _____ Date: _____
Edwin Sniffen, Director

Page: 13

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PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources

By: _____ Date: _____
Dawn Chang
Chairperson

Page: 14

Page: 14

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:01:53 AM

listed here as DLNR Land Division and subsequently DLNR DOFAW will be land holder

Page: 14

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/26/2025, 11:18:38 PM

Page: 14

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/27/2025, 10:01:53 AM

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

CONCURRING PARTY

[Name/Organization]

By: _____ Date: _____
[Name]
[Title]

Page: 15

This page does not contain annotations.

560

561 **Appendix 1. HDOT's Hawai'i Revised Statutes (HRS) § 6E Compliance**
562

Page: 16

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Memorandum

To: All Signatories, Concurring and Consulting Parties, and the Public

From: State of Hawai'i Department of Transportation (HDOT)

Re: Hawai'i Revised Statutes (HRS) § 6E Compliance

The Programmatic Agreement (PA) for this project incorporates references to both Federal and State laws and regulations to allow these review processes to work in tandem to the extent possible. Should compliance issues arise under Federal or State law, HDOT and FHWA are committed to resolving disputes through the Dispute Resolution stipulation provided in the PA (Stipulation XII).

In a letter dated January 23, 2023, HDOT initiated consultation with the State Historic Preservation Officer (SHPO) under Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations at 36 C.F.R. Part 800. In addition, HDOT initiated Hawai'i Revised Statutes (HRS) § 6E and Hawai'i Administrative Rules (HAR) § 13-275 historic preservation review with the State Historic Preservation Division (SHPD) for the proposed project. Although the Federal Highway Administration (FHWA) retains approval authority over Section 106, HDOT has jurisdiction over determining the project's effects under HRS § 6E-8 and its administrative provisions in HAR § 13-275.

To reduce redundancy, HDOT intends to combine Section 106 and HRS § 6E-8 compliance where possible.

Roles and Responsibilities

HDOT, as project sponsor, in coordination with the FHWA, will be responsible for the management and development of the SHPD-approved plans and reports including the Archaeological Inventory Subsurface Survey Plan (AISSP) and any necessary mitigation plans (e.g., archaeological monitoring plan, burial treatment plan) required for continuing archaeological investigations of the preferred alternative through final design and construction of the project with the assistance of individuals meeting the requirements of Stipulation II.

The SHPD shall advise HDOT in carrying out its State Historic Preservation Review responsibilities for the project. Based on information provided by HDOT, the SHPD shall respond to requests for comments and/or concurrence within the specified review periods.

Qualifications

All historic properties investigations and documentation carried out pursuant to this Memorandum shall be conducted by or under the supervision of an individual meeting the HAR § 13-281, *Rules Governing Professional Qualifications*, in their respective professional discipline. Historic properties investigations and documentation shall meet the requirements of HAR § 13-275 and the appropriate HAR for specific types of studies. Archaeologists will have a permit to do archaeological work in Hawaii per HAR § 13-28. HDOT will identify an osteologist who can be available on an as-needed basis in the event the ethnicity of a burial is needed, or bone fragments cannot be positively identified as human by the on-site archaeologist.

Page: 17

Page: 17

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:20:27 PM

use HAR language which is AISP not AAISP

Page: 17

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:22:19 PM

13-282-3

Page: 17

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:23:11 PM

indicate they must be qualified as specified in 13-282-___ for osteology

Project Area

The HRS § 6E-8 Project Area will coincide with the Preferred Alternative, once selected.

Identification and Evaluation of Historic Properties

HDOT intends to use the investigations and documentation of historic properties prepared for this project and as described in the PA (Stipulation III) to comply with HRS § 6E and its administrative provisions in HAR § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*. HDOT will evaluate potential historic properties for integrity and significance in accordance with HAR § 13-275-6.

Phased Archaeological Inventory Survey and Archaeological Subsurface Survey Plan

HDOT, in coordination with FHWA, intends to conduct a phased identification and evaluation of archaeological historic properties for this project. The first phase, consisting of an above-ground archaeological reconnaissance survey, is described in Stipulation III of the PA, as mentioned above. For the second phase, an AISSP will be developed and implemented as described in the PA, Stipulation IV. A final AIS report will be prepared that includes the results of the archaeological surface reconnaissance survey and the archaeological subsurface survey and provided to SHPD for concurrence on adequacy.

Determining Effects to Historic Properties

HDOT, in coordination with FHWA, will determine the effects to significant historic properties within the preferred alternative consistent with HAR § 13-275-7. One of the following effect determinations will be made for each significant historic property or group of significant historic properties:

1. No historic properties affected.

2. Effect with proposed mitigation commitments.

The effect determination shall be sent to SHPD for review and concurrence and posted on honoapiilanihighway.com with notification to Signatories, Concurring and Consulting Parties of the PA for their comments. After 30 calendar days, HDOT shall send all comments received to SHPD. SHPD shall provide its approval, or non-approval with comments, within 45 calendar days of receipt of an HDOT request for agreement on its effect determinations. Receipt date shall be the date a letter is received in HICRIS.

Mitigation Measures

Following SHPD's written acceptance of the AIS report and effect determination, HDOT will provide mitigation measures to SHPD pursuant to HAR § 13-275, 277, -278, and -279.

Archaeological and Cultural Monitoring

Per HAR § 13-279-3, Archaeological monitoring may be a mitigation measure.

Page: 18

Page: 18

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AISP

Page: 18

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Page: 18

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:25:58 PM

what does this mean? It should say for SHPD's review and acceptance pursuant to HAR § 13-276-5. SHPD's role is not to concur on "adequacy" but to review and accept

Page: 18

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:27:19 PM

No. This does not follow the HRS 6E process which is to make a determination of effect at the scale of PROJECT not at the scale of individual or groups of historic properties

Page: 18

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correct punctuation is Effect, with....

Page: 18

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:28:46 PM

change to the project effect determination [one determination for project]

Page: 18

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:29:02 PM

HICRIS Project No. 2023PR00135

Page: 18

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:30:24 PM

single effect determination; The mitigation measures must be determined and provided in the AIS before it is accepted in accordance with HAR 13-275

Following completion of the AIS, HDOT shall oversee the development of an Archaeological and Cultural Monitoring Plan (Monitoring Plan) for implementation prior to the initiation of project construction. The Monitoring Plan will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the PA's Signatories, Concurring and Consulting Parties and submitted for a 30-calendar-day review and comment period.

1. Archaeological monitoring during construction will be conducted by HDOT and under the supervision of an Archaeologist meeting the qualifications stated above in the Qualifications Section.

2. HDOT, through its archaeologist, may hire cultural monitors at the request of NHOs listed in Appendix 3. Cultural monitor responsibilities will be defined in the Monitoring Plan.

3. The relationship between the construction crew and the cultural monitors will be defined in the monitoring plan. For example, if bones are found or a historic site is breached, the cultural monitor will have the authority to stop all work within 100 feet of the find.

4. HDOT shall contract with an on-call osteologist who can be in the field within 24 hours should additional expertise be needed to identify bones found in the Project Area. The Lead Archaeologist, in consultation with SHPD, will make the call as to whether an osteologist is needed on-site.

Pre-Construction Training

1. Prior to construction activities, HDOT, in coordination with the FHWA, will conduct pre-construction on-site archaeological and cultural awareness and safety training led by HDOT's archaeological monitors and cultural monitors. The training will explain HDOT's approach to HRS § 6E-8 compliance, conditions and requirements set forth in this PA, procedures to follow if archaeological or cultural remains are found, and roles and responsibilities of HDOT's archaeological and cultural monitors.

2. HDOT will provide meeting participants with contact information for those required to receive discovery notification.

3. This Memorandum will be an addendum to the construction contract.

Data Recovery

In the event that adverse effects cannot be avoided, data recovery is the only mitigation option provided in HAR § 13-275-8. Data recovery of sites will follow HAR § 13-278.

HAR § 13-275-8(2) requires that for properties evaluated as significant under criterion "e" the agency must consult with ethnic organizations or members of the ethnic group for whom the properties have significance. For this project, all sites significant under criterion "e" are significant to Native Hawaiians, and HDOT has consulted with NHOs listed in Appendix 3 to seek their views on proposed forms of mitigation in the event adverse effects cannot be fully avoided and data recovery is considered insufficient.

Page: 19

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:31:14 PM

for SHPD's review and acceptance prior to ...

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:33:10 PM

this should be clarified to indicate qualified archaeologists will carry out the work; they can be HDOT contractors but key is they are archaeologists

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:33:48 PM

be consistent throughout - Archaeologist vs. archaeologist

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:34:07 PM

Monitoring Plan

Page: 19

Type: Highlight Text Author: clebosa Subject: Comment on Text Date: 2/26/2025, 11:45:13 PM

what is the relationship of the archaeological crew? There have to be full time archaeological monitors not just the one archaeological PI to do identification and documentation. There needs to be at least 1 archaeological monitor and 1 cultural monitor per moving piece of equipment. Construction crew are not qualified archaeological monitors.

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:45:41 PM

recommend HDOT hire the archaeological firm and the cultural monitors separately.

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/26/2025, 11:46:43 PM

SHPD recommends that one of the crew be a qualified osteologists so they can respond immediately

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:36:21 AM

qualified archaeological monitors, 1 per piece of moving equipment is the standard, their responsibilities also wll be defined in the Montoring Plan

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:37:35 AM

the standard is to apply HAR 13-280 and for SHPD to be notified of all post-review discoveries and consulted

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:38:44 AM

the archaeologists also should have the authority to stop work within 100 feet

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:41:59 AM

there also needs to be qualifications for the archaeological monitoring crew, stipulation that the archaeological monitors have the authority to stop all working within 100 feet of any potential historic property find and will notify SHPD per HAR 13-280, regarding non-burial historic properites, and consult about identification and appropriate documentation for post-review discoveries

Following completion of the AIS, HDOT shall oversee the development of an Archaeological and Cultural Monitoring Plan (Monitoring Plan) for implementation prior to the initiation of project construction. The Monitoring Plan will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the PA's Signatories, Concurring and Consulting Parties and submitted for a 30-calendar-day review and comment period.

1. Archaeological monitoring during construction will be conducted by HDOT and under the supervision of an Archaeologist meeting the qualifications stated above in the Qualifications Section.

2. HDOT, through its archaeologist, may hire cultural monitors at the request of NHOs listed in Appendix 3. Cultural monitor responsibilities will be defined in the Monitoring Plan.

3. The relationship between the construction crew and the cultural monitors will be defined in the monitoring plan. For example, if bones are found or a historic site is breached, the cultural monitor will have the authority to stop all work within 100 feet of the find.

4. HDOT shall contract with an on-call osteologist who can be in the field within 24 hours should additional expertise be needed to identify bones found in the Project Area. The Lead Archaeologist, in consultation with SHPD, will make the call as to whether an osteologist is needed on-site.

Pre-Construction Training

1. Prior to construction activities, HDOT, in coordination with the FHWA, will conduct pre-construction on-site archaeological and cultural awareness and safety training led by HDOT's archaeological monitors and cultural monitors. The training will explain HDOT's approach to HRS § 6E-8 compliance, conditions and requirements set forth in this PA, procedures to follow if archaeological or cultural remains are found, and roles and responsibilities of HDOT's archaeological and cultural monitors.

2. HDOT will provide meeting participants with contact information for those required to receive discovery notification.

3. This Memorandum will be an addendum to the construction contract.

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In the event that adverse effects cannot be avoided, data recovery is the only mitigation option provided in HAR § 13-275-8. Data recovery of sites will follow HAR § 13-278.

HAR § 13-275-8(2) requires that for properties evaluated as significant under criterion "e" the agency must consult with ethnic organizations or members of the ethnic group for whom the properties have significance. For this project, all sites significant under criterion "e" are significant to Native Hawaiians, and HDOT has consulted with NHOs listed in Appendix 3 to seek their views on proposed forms of mitigation in the event adverse effects cannot be fully avoided and data recovery is considered insufficient.

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:43:19 AM

monitors w/a archaeological PI

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:47:22 AM

HDOT to provide a copy of the Monitoring Plan to all parties, ensure a copy is maintained on site throughout duration of construction

Page: 19

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:57:33 AM

much of this section belongs elsewhere at it applies to either the entirety of the project (AIS, DR, etc.) or isn't a data recovery activity. Burials need to be discussed under AIS, DR, and Monitoring as process differs between AIS and DR/Monitoring. Curation applies to project and not limited to HAR 13 -278, etc.

1. HDOT in consultation with the SHPD and NHOs, will continue consultation to determine if alternate mitigation under HAR § 13-275-8(2) is appropriate.

2. With respect to unmarked Native Hawaiian burials, the development of burial treatment plans will be consistent with HAR § 13-300, *Rules of Practice and Procedure Relating to Burial Sites and Human Remains*. If MLIBC determines that a burial is to be relocated, HDOT will consult with MLIBC to determine appropriate reinterment, which may include relocation to project property in the vicinity of the discovery as appropriate and as determined through consultation.

3. *Curation*. HDOT, in coordination with SHPD, will curate recovered materials in accordance with applicable laws, including HAR § 13-278, *Rules Governing Standards for Archaeological Data Recovery Studies*. HDOT shall consult with public and private institutions to pursue opportunities to provide public access to the recovered materials.

4. *Access*. HDOT will ensure NHOs have access to sites they wish to steward. Access will include safe parking areas for up to ten vehicles, areas to store rocks or tools, and an area to gather before or after accessing the site. Access does not presume any improvements to access sites. NHOs wishing to access sites must undergo safety training included as part of the Pre-Construction Training conducted by HDOT's archaeological monitor and cultural monitors. Access to these sites will continue following Project construction.

5. *Stewardship*. HDOT will ensure that NHOs have an opportunity to remove the rocks from sites that will be impacted by construction of the Project. This will include allowing adequate time to gather the rocks and providing a location to store the rocks; rock gathering will occur prior to construction at the specific site. NHOs will provide HDOT with point-of-contact (POC) information to coordinate this activity because construction may be occurring at many locations simultaneously and not all areas may be safe or accessible for rock gathering. Those wishing to steward rocks must complete the Pre-Construction Training.

6. Most of the Archaeological sites are located on Department of Land and Natural Resources (DLNR), Land Division Lands and will be transferred to the DLNR Division of Forestry after the relocated highway is built. HDOT has invited DLNR to be an invited signatory to this agreement and to develop a stewardship agreement with interested NHOs. Failure to finalize an agreement prior to signing this document will not affect implementation of the final document.

7. The design team will work with NHOs to use rocks affected by the construction of the project, in other parts of the project, where appropriate and feasible. NHOs will provide HDOT with POC information to coordinate these activities. Because of engineering logistics, decisions how and where to use these rocks will be made by HDOT in consultation with NHOs.

Page: 20

Page: 20

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:50:33 AM

this needs to be reworked to have one section regarding burials mentioned in the AIS work and a second in the data recovery and archaeological monitoring sections. If burials are encountered during AIS, they are defined as previously identified and go to the MLIBC. If they are newly identified during data recovery, they are defined as inadvertent finds and treatment is under HAR 13-300-40 and the determination is made by SHPD; If identified during archaeological monitoring they are defined as inadvertent finds and treatment is per HAR 13-300-40 and SHPD makes the decsion preserve in place or relocate

Page: 20

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:53:12 AM

curation has to apply to entirety of project, and should not be under "data Recovery" section. Collections made during AIS, Data Recovery, and during Monitoring all should be treated the same. Curation must comply with requirements per HAR 13-275, 276, etc. not just 13-278.

Page: 20

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:55:18 AM

archaeological monitors (plural)

Page: 20

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 9:58:20 AM

correct name is Division of Forestry and Wildlife (DOFAW)

8. *Burials*. HDOT shall provide a burial relocation site, to be chosen in consultation with the MLIBC and recognized descendants, in each of the three (3) ahupua'a affected by the project. MLIBC and recognized descendants will work with HDOT on the design, materials, and construction of each burial site. If the land chosen belongs to another state agency, HDOT will facilitate agreements regarding access and use of the land. DLNR-SHPD will have long-term management of the site, including decisions on whether additional burials from other projects will be allowed to be interred at these sites.

Post-Review Discoveries

Archaeology

1. If new archaeological properties are discovered or unanticipated effects to significant archaeological historic properties are identified during construction, and there is no archaeologist present at the discovery location to conduct monitoring as described in Stipulation IV.B, HAR § 13-280, *Rules Governing General Procedures for Inadvertent Discoveries of Historic Properties During a Project Covered by the Historic Preservation Review Process*, shall apply.

2. HDOT will consult with the SHPD, Signatories, Concurring and Consulting Parties regarding the need to expand the areas identified for archaeological monitoring during construction to include locations where the project would involve excavation within 150 feet of identified artifact

Human Remains

1. If evidence of burials, human remains, or potential human remains is encountered during construction, HDOT shall suspend all work within 20 feet of the remains, protect the remains from further disturbance, and immediately use the contact protocols in Appendix 5. HDOT will implement the procedures at HAR § 13-300, *Rules of Practice and Procedure Relating to Burial Sites and Human Remains*, for inadvertent discoveries of human remains. Construction activities in the location of the discovery will be suspended pending notification to and consultation among the SHPD, HDOT, MLIBC, and parties included in Appendix 4, in accordance with these procedures. Notification will be by e-mail, unless an alternative method is specifically requested

2. HDOT will consult with the parties included in Appendix 3 regarding the need to expand the areas identified for archaeological monitoring during construction to include locations where the project would involve excavation within 150 feet of the unanticipated discovery of human remains.

Page: 21

Page: 21

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/27/2025, 10:03:42 AM

Page: 21

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:05:33 AM

please revise to include County of Mau as potential land holders and long term management may include the Oiwi Division for management in partnership with SHPD

Page: 21

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:07:59 AM

150 feet of possible historic properties, including but not limited to archaeological cultural deposits, features, and artifacts. All apply, not just finding artifacts

Page: 21

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:09:58 AM

notification to SHPD also will include uploading a writtent notification to HICRIS Project No. 2023PR00135.

Appendix 2. Area of Potential Effects Map

Page: 22

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Map Generated: 12/19/2023
Launiupoko
Ukumehame
Olowalu
Mā'alaea
Pacific Ocean
16
15
14
13
12
11
Legend
Area of Potential Effects
Study Segment of the Existing Honoapi'ilani Highway
Roads
Streams
Mile Marker
0 1,250 2,500 5,000 Feet
Service Layer Credit Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N
Honoapi'ilani Highway Improvements
Kapalua
Haiku-Pauwela
Kahului
Launiupoko
Maalaea
Hana
Keokea
Makena

Page: 23

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Appendix 3: List of Consulting Parties

Page: 24

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Consulting Parties

Prefix	First	Middle	Last	Title	Organization/Agency
Ms.	Dawn		Chang	State Historic Preservation Officer and Chairperson	State of Hawai'i, Department of Land and Natural Resources
Dr.	Susan		Lebo	SHPD	State of Hawai'i, Department of Land and Natural Resources
Ms.	Leimana		DaMate	Executive Director	State of Hawai'i, Department of Land and Natural Resources, 'Aha Moku
Mr.	Ikaika	J.	Anderson	Chair	State of Hawai'i, Department of Hawaiian Homelands
Dr.	Sylvia		Hussey	CEO	State of Hawai'i, Office of Hawaiian Affairs
Mr.	Kamakana	C.	Ferreira	Lead Compliance Specialist	State of Hawai'i, Office of Hawaiian Affairs
Ms.	Lauren		Morawksi		State of Hawai'i, Office of Hawaiian Affairs
Ms.	Leslie		Iaukea	SHPD, Culture and History Branch Chief	State of Hawai'i, Department of Land and Natural Resources
Mr.	Chris		Nakahashi	SHPD Cultural Historian	State of Hawai'i Department of Land and Natural Resources
Ms.	Yvette		Celiz	Lāhainā Representative	Maui County Cultural Resources Commission
Dr.	Janet		Six	Principal Archaeologist	Maui County
Mr.	Andrew		McCallister	SHPD Maui Archaeologist	State of Hawaii, Department of Land and Natural Resources
Mr.	Hinano	R.	Rodrigues		NHO
Ms.	Anela		Jackson	President	'Aha Mālama, Corp.
Mr.	Ke`eaumoku		Kapu	Chief Executive Officer	'Aha Moku O Maui Inc.
Mr.	Felimon		Sadang		'Aha Moku O Maui Inc.
Mr.	Kamaka		Bancaco		'Aha Moku O Maui Inc.
Mr.	Hailama		Farden	President	Association of Hawaiian Civic Clubs
					Lahaina Hawaiian Civic Club
Ms.	Blossom		Feiteira	President	Association of Hawaiians for Homestead Lands
Mr.	Samson	L.	Brown	President	Au Puni O Hawai'i
Mr.	Joseph	Kuhio	Lewis	Chief Executive Officer	Council for Native Hawaiian Advancement
Ms.	Chelsie		Evans	Executive Director	Hawaiian Community Assets, Inc.
Ms.	Kiersten		Faulkner	Executive Director	Historic Hawai'i Foundation
Ms	Kaipo		Kincaid		Hui Kako'o 'Āina Ho'opulapula

Page: 25

Page: 25

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Archaeology Branch Chief

Page: 25

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Page: 25

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Page: 25

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:14:26 AM

revise to Oahu Burial Sites Specialist; she was never Branch Chief

Page: 25

Type: Highlight Text Author: clebosa Subject: Comment on Text Date: 2/27/2025, 10:15:23 AM

revise to former

Ms.	Amy	Hanaialii	Gilliom	President	Hui O Waʻa Kaulua
Ms.	Lori		Sablas	Cultural Advisor	Kaanapali Beach Hotel
Mr.	Kimokeo		Kapahulehua	President	Kimokeo Foundation
Mr.	Manny		Kululoio	Makuakāne	Kululoiʻa Lineage - I ke Kai ʻo Kululoiʻa
Mr.	Theo		Morrison	Executive Director	Lahaina Restoration Foundation
Mr.	Ekolu		Lindsey III	President	Maui Cultural Lands, Inc/ descendant -- Ukumehame
Ms.	Nicole		McMullan		Maui Historical Society, Bailey House Museum
Mr.	Kaipo		Kekona	Poʻo -- Kāʻanapali Moku	Aha Moku O Maui Inc.
Ms.	Uilani		Kapu	Treasurer	Na Aikane `O Maui Inc
Kumu	Kapono`ai		Molitau		Nā Hanona Kūlike ʻo Piʻilani
Ms.	Patty		Nishiyama		Na Kupuna o Maui
Ms.	Maraea	K.	Nekaifes		Nekaifes Ohana
Mr.	Clifford		Naeole	Hawaiian Cultural Advisor	The Ritz-Carlton Kapalua
					Queen Liliʻuokalani Children's Center
Ms.	Dana	Naone	Hall		
Mr.	Kainoa		Horcajo	Founder	Kipuka Olowalu
Ms.	Karin		Osuga		Kipuka Olowalu
Ms.	Lois		Reiswig	President	Maui Arts League
Mr.	Pomaikai		Benevedes		
Ms.	Velma		Mariano		
Ms.	Noelani		Ahia		
Mr.	Nameaaea		Hoshino		NHO
Ms.	Jaclyn		Fujjita		
Ms	Fay		McFarlane		
Mr.	George	Tosh K.	Fujita		NHO-Kaluna Palafox Ohana
	Kaulu		Nahooikaika		NHO-Kaho'oikaika Ohana
Ms.	Tiare		Lawrence		NHO- Kaho'oikaika Ohana
Ms.	Malihini	Keahi	Heath		NHO- Haia Ohana
Ms.	Kahikilani		Niles		
Mr.	Brian	Kaniela Naeole	Naauao		Naeole/Naauao Ohana
Mr.	Foster		Ampong		NHO
Ms.	Linda		Nahina Magalianes		Nahina Ohana
Ms	Victoria		Kaluna-Palafox		NHO-Kaluna-Palafox Ohana
			Saffrey Ohana		NHO Saffrey Ohana
Mr.	Al		Lagunero		Olowalu Cultural Reserve -- Precursor to Kipuka Olowalu
Ms.	Davianna		McGregor		Protect Kaho'olawe Ohana
Mr.	Michael		Nahoʻopiʻi	Executive Director	Kahoʻolawe Island Reserve Commission

Page: 26

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Ms.	Beth		Mantalvo	Executive Director	Hui O Wa'a Kaulua
Mr.	Nainoa		Thompson	President & Master Navigator	Polynesian Voyaging Society
Mr.	Kawika		Farm	Planner Supervisor	Cultural Resources Commission, Maui County
Mr.	Steve	L	Phillip		
Ms.	Jessica		Puff	SHPD Architectural Historian	SHPD, Hawaii Department of Land and Natural Resources
Mr.	Stanley		Solamillo	Architect	Maui County Planning Dept
Ms.	Michele		Hoopii		Pili Koko
Mr.	Archie		Kalepa		NHO

Page: 27

Page: 27

Type: Highlight Text Author: clebosa Subject: Highlight Date: 2/27/2025, 10:11:40 AM

Page: 27

Type: Sticky Note Author: clebosa Subject: Sticky Note Date: 2/27/2025, 10:12:08 AM

revise to Administor, SHPD, and Deputy SHPO

Appendix 4: List of Section 106 and 6E Consulting Party Meetings and Dates

Page: 28

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Consulting Party Meeting Dates

April 7, 2022, In-person with NHOs from the area, set up by Keeaumoku Kapu
April 7 and 8, 2022, Hinano Rodrigues
April 8, Ekolu Lindsay, Kipuka Olowalu/Olowalu Cultural Reserve
March 29 & 30, 2023, Virtual
May 31, 2023, NHO, FHWA Field Visit
June 1, 2023, Presentation to Maui Cultural Resources Commission
July 27, 2023, Virtual: Archaeology/Cultural
August 2, 2023, Virtual: Architecture
November 2, 2023, SHPD, FHWA, HDOT
November 18, 2023, NHO Field Visit
November 20, 2023, Virtual: Archaeology/Cultural
March 28, 2024, SHPD Field Visit
September 22, 2024, Presentation to Na Kupuna o Lahaina Advisory Board, NHOs, Consulting Parties: Archaeology and Programmatic Agreement
September 26, 2024, NHOs and other Consulting Parties, Virtual: Archaeology and Programmatic Agreement

Page: 29

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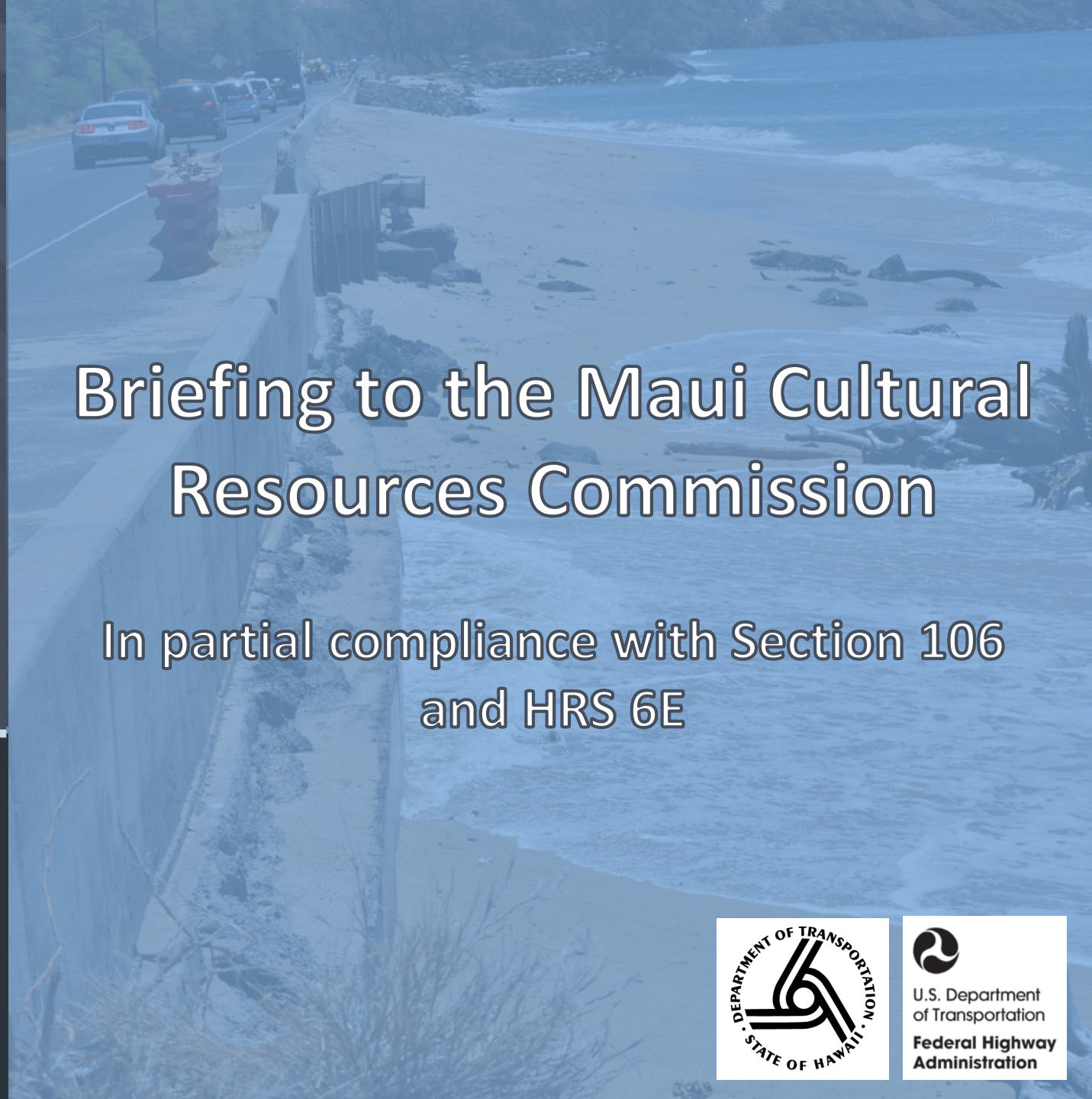
Honoapi'ilani Highway Improvements

West Maui, Ukumehame
to Launiupoko

Maui County Cultural Resources Commission
March 6, 2025



Briefing to the Maui Cultural Resources Commission

In partial compliance with Section 106 and HRS 6E

DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

Presentation Overview

- Why: Seeking comments from the Commission
- Project Background
  - At the last meeting (5/4/23)
    - Showed you that most of the known sites are mauka of the project area
    - A timeline that proved unrealistic
- Preferred Alternative
  - Preliminary Effects
- Status of Section 106 Programmatic Agreement

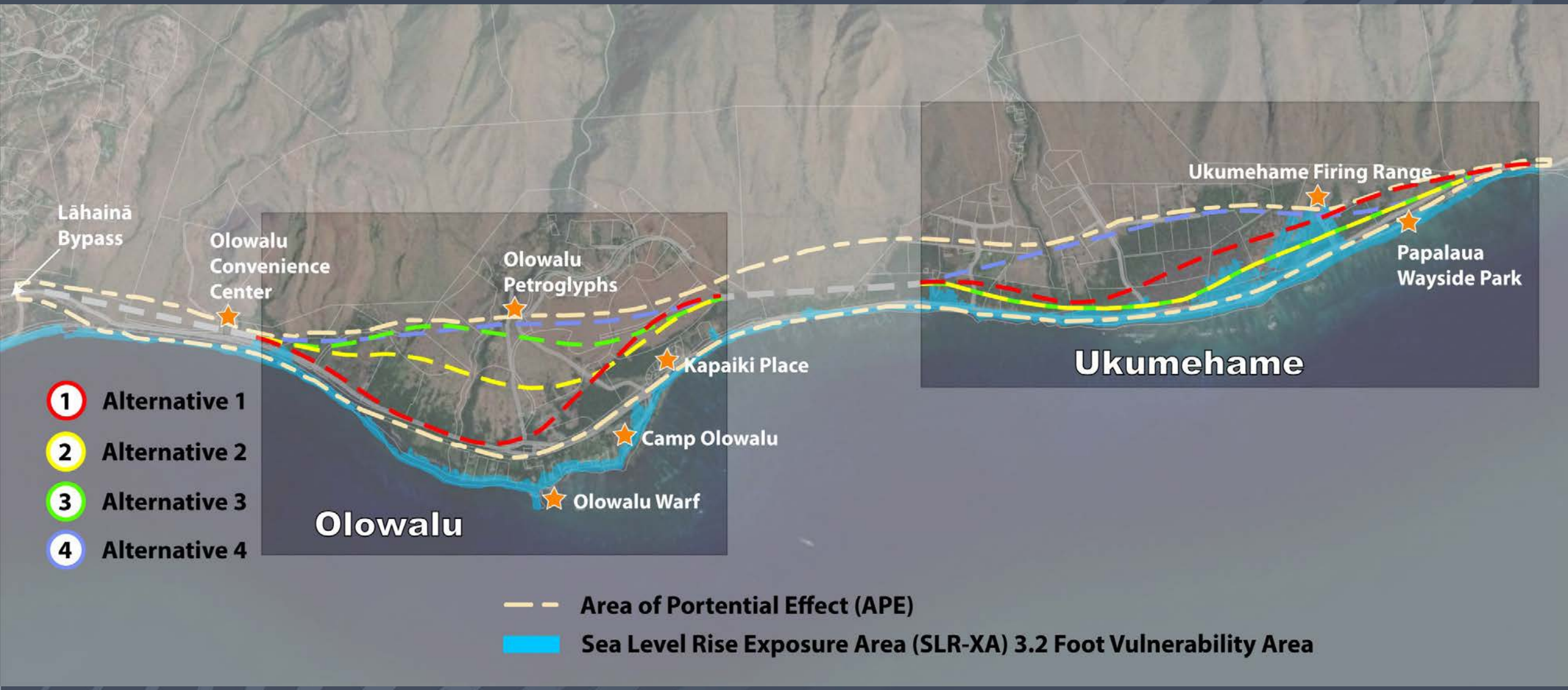
honoapiilanihwyimprovements.com

Honoapi‘ilani Highway Improvements

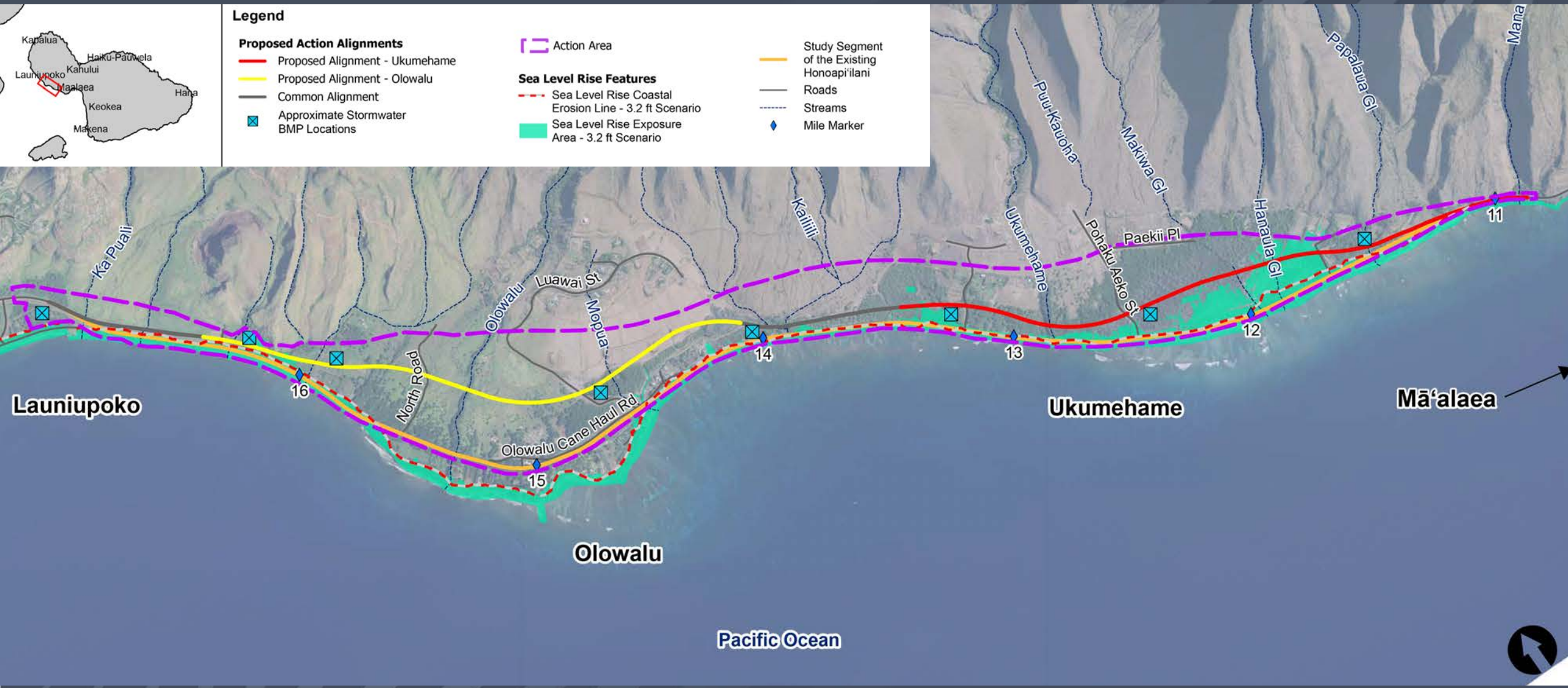
Purpose and Need for the Project

- To address flooding of the roadway cause by increasing sea level rise.
- To ensure a safe and reliable transportation facility.
- To ensure emergency vehicles have access between facilities in Central Maui and populations in West Maui.

Alternatives Considered

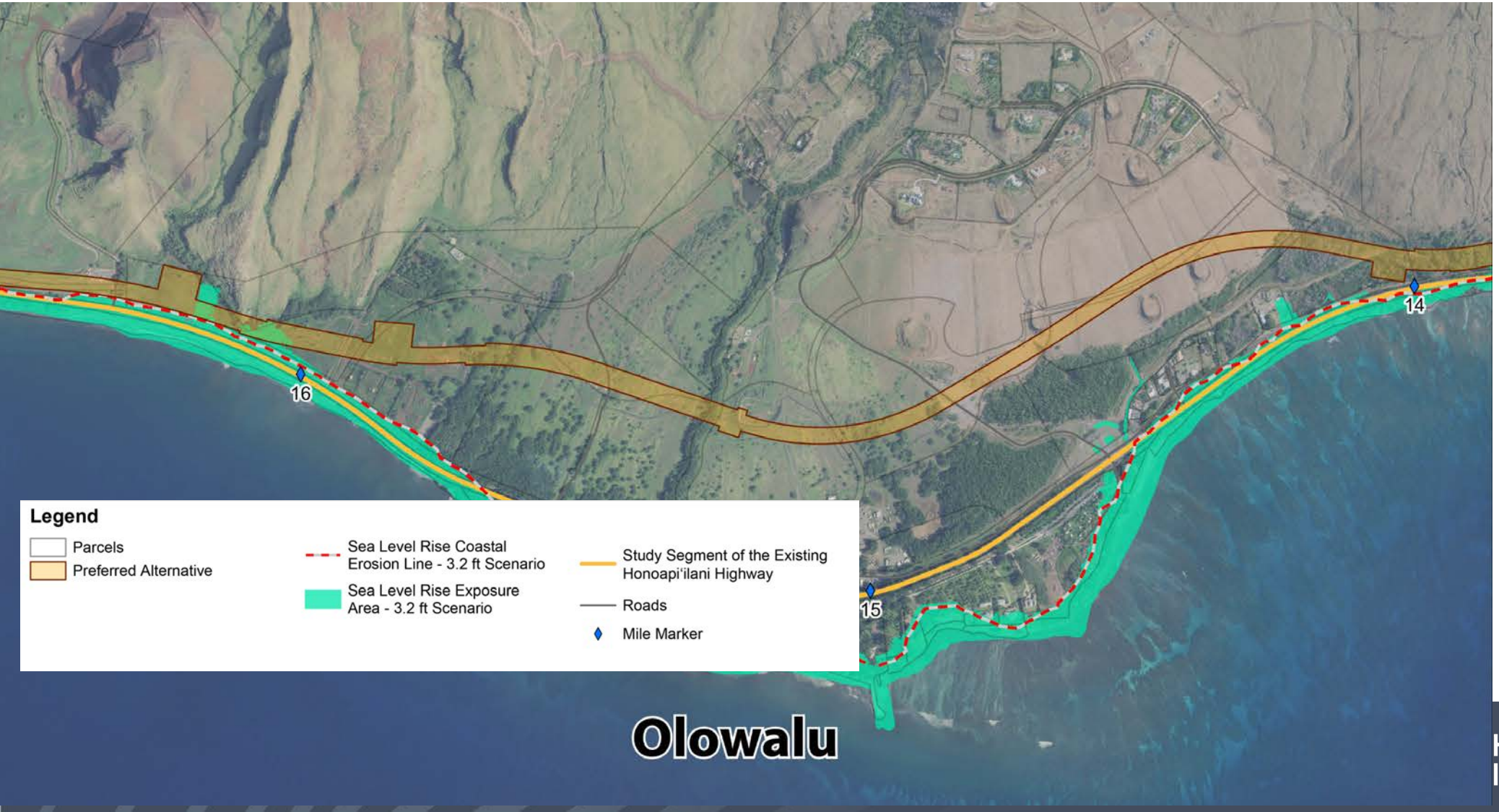


Preferred Alternative

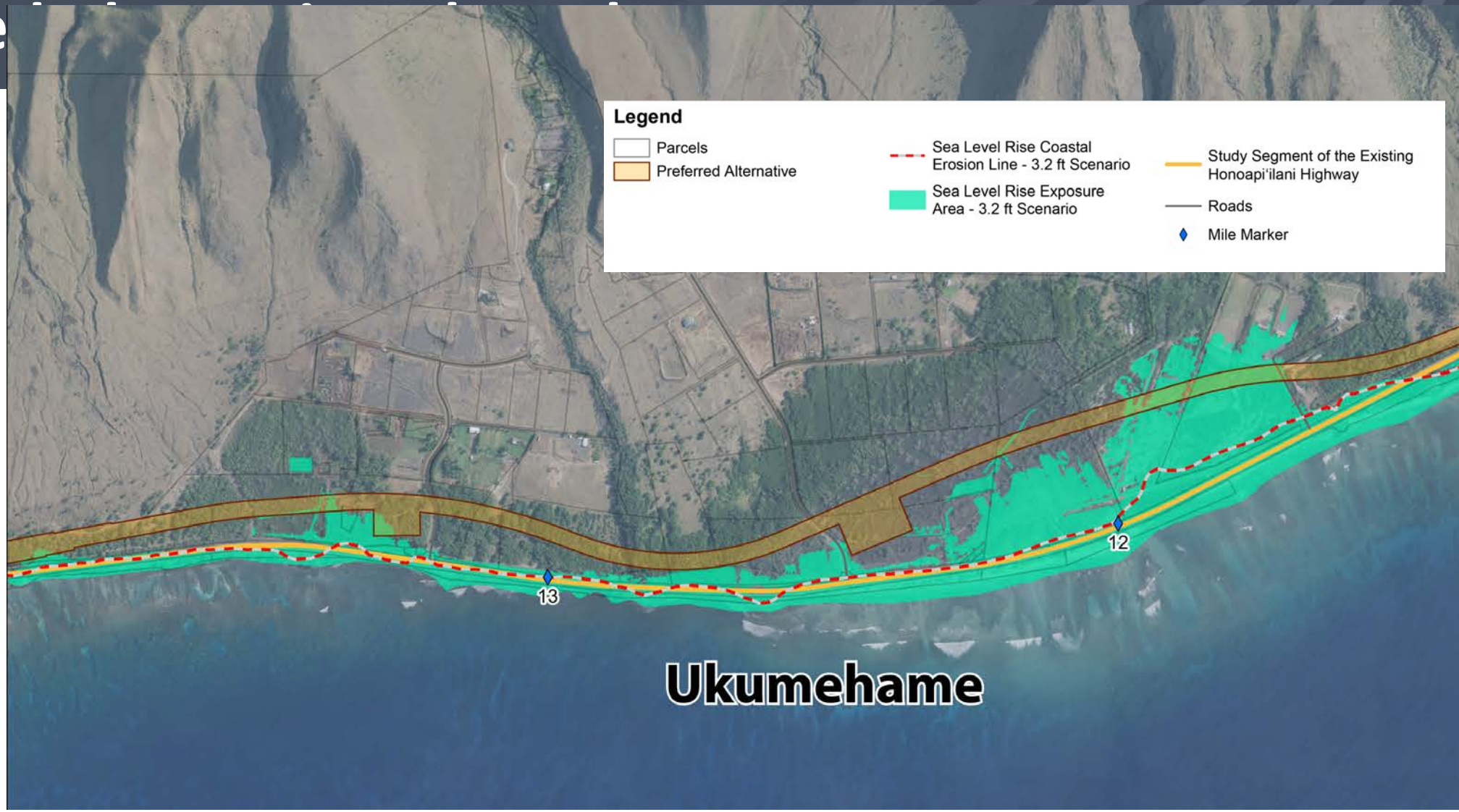


Honoapi'ilani Highway Improvements

Preferred Alternative - Olowalu



Preferre


Legend
Parcels
Preferred Alternative
Sea Level Rise Coastal Erosion Line - 3.2 ft Scenario
Sea Level Rise Exposure Area - 3.2 ft Scenario
Study Segment of the Existing Honoapi'ilani Highway
Roads
Mile Marker
13
12
Ukumehame

NEPA EIS/Section 106 Process for this Project

NEPA EIS Notice of Intent

- Area of Potential Effects submitted to SHPD
- Consulting Party Outreach
- Reconnaissance Level Survey (Architecture) of entire APE submitted to SHPD for review and concurrence. SHPD concurred with the eligibility determinations.
- Reconnaissance Level Survey (Archaeology) for Project Alternatives submitted to SHPD for review and concurrence with eligibility determinations.

NEPA Draft EIS *(Alternatives Analysis and Selection of Preferred Alternative)*

- Continued Consultation
- Develop Programmatic Agreement
- Develop plan for subsurface archaeology survey

NEPA Final EIS and Record of Decision

- Execute Programmatic Agreement (prior to Final EIS and Record of Decision)
- Continued Consultation

Post Final EIS

- Continued Consultation
- Implement Programmatic Agreement: Continued Investigations (AIS) and Archaeological Monitoring
- **Assessment of Effects**
- Resolution of Adverse Effects as prescribed by Programmatic Agreement

Project Draft EIS Comment Period Ended 2/24

197 unique issues

I am writing to express strong support for the integration of the West Maui Greenway (WMG) into the Honoapi‘ilani Highway realignment project. The WMG, as part of the Hele Mai Maui Legacy Projects, presents a significant opportunity to foster sustainable, multimodal transportation that strengthens resilience and community connectivity in West Maui.

When you build the new highway, please ensure there is ample beach access routes periodically along the shoreline...DOT has recently cut off several of our traditional beach accesses from the McGregor's point to Olowalu and we don't appreciate losing our ability to fish and gather.

83 commenters

Archaeology, Architecture and Cultural Impacts

SURVEY FINDINGS

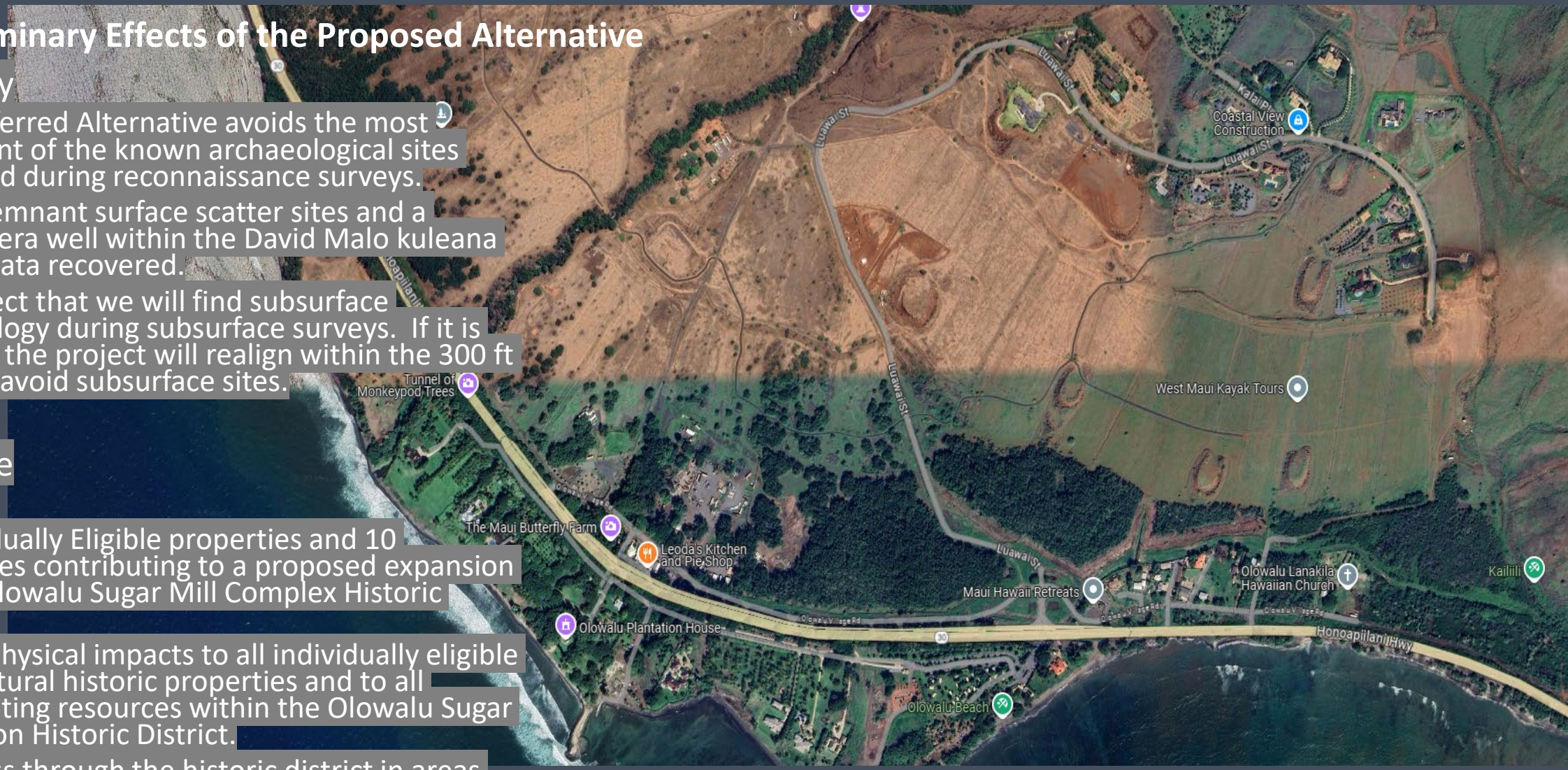
Through reconnaissance survey, 38 individually eligible archaeological sites were identified within the 300-foot-wide corridors for each proposed alternative.

40 architectural properties were evaluated

Due to NPS confidentiality rules, the locations of archaeological sites cannot be publicly disclosed.

Preliminary Effects of the Proposed Alternative

- Archaeology
  - The Preferred Alternative avoids the most significant of the known archaeological sites identified during reconnaissance surveys.
  - Small, remnant surface scatter sites and a historic-era well within the David Malo kuleana will be data recovered.
  - We expect that we will find subsurface archaeology during subsurface surveys. If it is possible the project will realign within the 300 ft ROW to avoid subsurface sites.
- Architecture
  - 3 Individually Eligible properties and 10 properties contributing to a proposed expansion of the Olowalu Sugar Mill Complex Historic District
  - Avoids physical impacts to all individually eligible architectural historic properties and to all contributing resources within the Olowalu Sugar Plantation Historic District.
  - Will cross through the historic district in areas already improved with a modern roadway and bicycle path.



- Preferred Alternative Intersects 11 of 37 Archaeological Sites Documented During Reconnaissance

Ahupua'a	Field No	Possible Age Range	Inferred Function	Formal Type	Overall Condition	NRHP Significance Recommendation	NRHP Integrity Evaluation
Launiupoko	AA2216-023	Precontact and Possible Historic Military	Agricultural Complex, Military Training	Alignment, C-Shape, Enclosure, Mound, Terrace	Fair	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-106	Precontact	Habitation and Agricultural Complex	Terraces, Circular Alignments, Small Semi-Circular Terraces, Enclosures	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Workmanship, Feeling, Association
Launiupoko	AA2216-107	Precontact to Early Historic	Agricultural and Habitation Complex	Alignment, C-Shape, Enclosure, Modified Outcrop, Terrace	Good to Remnant	A, C, D	Location, Design, Setting, Materials, Association
Olowalu	AA2216-028	Early 20th Century Ranch	Animal Husbandry – Pasture Delineation	Wall, Fenceline	Fair to Remnant	D	Location, Material, Setting, Feeling, and Association
Olowalu	SIHP-04700 CMS-001	Precontact	Habitation Complex	Surface Scatter	Remnant	D	Location, Design, Setting, Materials, Feeling, Association
Olowalu	SIHP-04700 Overall	Precontact	Habitation Complex	Rock Shelters, C-shape, Wall	Fair to Poor	D	Location, Design, Setting, Materials, Feeling, Association
Ukumehame	AA2216-017	Precontact	Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-018	Late Precontact - Early Historic	Habitation, Tool Production	Surface Scatter	Remnant	D	Location, Materials, Association
Ukumehame	AA2216-022	Historic	Water Access	Stone Well	Fair	D	Location, Design, Material, Workmanship, Feeling
Ukumehame	AA2216-072	Precontact	Agriculture and Habitation	Enclosure, Mound, Wall	Fair	A, C, D	Location, Design, Setting, Materials, Feeling, Workmanship, Association
Ukumehame	AA2216-091	Precontact to 19th-20th Century	Habitation	Surface Scatter	Remnant	D	Location, Materials, Association

A - associated with events that have made a significant contribution to the broad patterns of our history;
C - embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that **represent a significant and distinguishable entity whose components may lack individual distinction**;
D - have yielded, or may belikely to yield, information important in prehistory or history

Cultural Impact Assessment

Participants expressed concerns about:

Potential extinguishing of gathering rights

- Difficulty accessing the ocean
- West Maui Greenway could make ocean access more difficult
- Mauka areas may be disturbed or more difficult to access
- More difficult to gather certain kinds of plants
- May significantly decrease ability to grow their own food

Potential effects to atmospheric conditions

- Wind
- Rain

Concern about freshwater species, especially during construction

Status of Section 106 Consultations

4 meetings

Average of 12 people per meeting

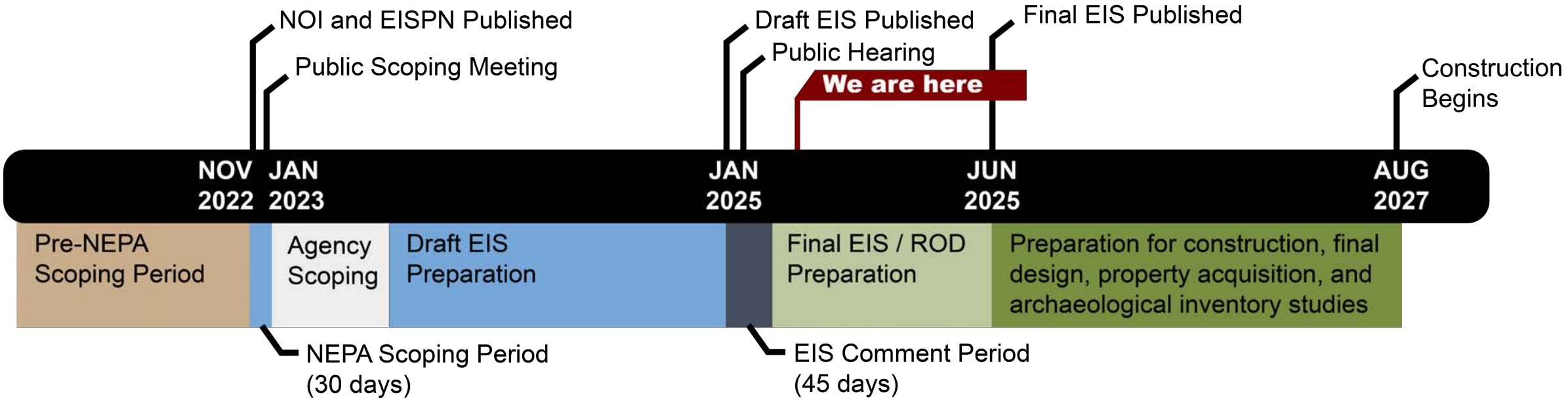
Next meeting in early April

Major Programmatic Agreement stipulations:

- **Federal**
  - Avoidance, if possible
  - Data Recovery
  - Continued consultation as investigations continue
- **State**
  - Archeological and Cultural monitoring
  - Avoidance, if possible
  - Maintain access to the larger sites
  - If burials are found, land for an ahu
  - Continued consultation as investigations continue

Schedule and Next Steps

- Public Comment on Draft EIS ends on February 24, 2025
- Final EIS/Record of Decision expected June 2025



Mahalo

Subject: RE: [EXTERNAL] Re: Next meeting to discuss Honoapiilani Programmatic Agreement
To: Aiu, Pua

From: Hinano Rodrigues <rodrigueshinano@gmail.com>
Sent: Monday, March 10, 2025 6:51 PM
To: Aiu, Pua <Pua.Aiu@hawaii.gov>
Subject: [EXTERNAL] Re: Next meeting to discuss Honoapiilani Programmatic Agreement

Aloha kaua:

I'm not sure if the Ka'ahui-Rodrigues 'ohana will choose to attend the next meeting since it looks as though we are pretty much satisfied with the the preferred alternative, except for the minor comments below.

1. In looking at the maps, more specifically with the SLR map overlay, it looks like there is a location between Olowalu and Ukumehame where the preferred alternative is at its lowest point. This lowest point looks as though the proposed new route is immediately adjacent to the anticipated sea level. We find this in contradiction to the main purpose of the realignment, but perhaps I'm interpreting the map incorrectly.

2. The 'ohana brought up concerns regarding the use of the current highway once the realignment occur. Our concern is that as the sea erodes at the existing highway, all that toxic asphalt material will eventually find itself in the ocean. We believe that the those portions or remnants should be removed. To that end, at the meeting our 'ohana discussed the possibility of some kind of language in the 106 P.A. that the HDOT encourage the County of Maui (eventual recipient of the old highway) to make every effort, to the greatest extent possible, to remove the blacktop or paved areas. We acknowledge that were talking about separate political subdivisions and that one doesn't now have absolute authority over the other. The 'ohana believes that the toxic material affects our ability to safely consume marine life, at least little of what is left. Perhaps with the realignment, what can be gathered will improve. Right now its he'e, 'a'ama, limited limu, and reef fish, depending upon the season.

3. In the above conversation, there was some talk about the possibility of the County of Maui selling the replaced highway, once it is conveyed to them by the State. We don't see this as a meaningful issue since due to sea level rise, there won't be anything to sell, much less anything to buy. Isn't sea level rise the guiding cause of the realignment. Also the County purchased the strip of property from Papalaua to Olowalu for purposes of creating a contiguous beach park. It wouldn't make sense to now create an access barrier to the ocean by selling the land.

With the above said, it looks as though we're all good on the Rodrigues part. I'll review the draft P.A. again in the next few days and provide comments if necessary. But I did review it before and was fine with it.

Hinano

On Thu, Mar 6, 2025 at 4:49 PM Aiu, Pua <Pua.Aiu@hawaii.gov> wrote:

> Aloha kakou,
>
> We have a date and a space to have a hopefully very robust discussion on the Honoapiilani Programmatic Agreement mitigation.
>
> Date: Thursday, April 3, 5-7 PM
>
> Where: Kako'o Maui Resource Room
> 325 Keawe Street, Lahaina HI 96761
>
> What: Honoapiilani Programmatic Agreement Discussion

This will be the last opportunity to discuss mitigation for this project before we need to execute the PA.

Consultation will be on-going, but we need to finalize the mitigation options at this meeting. So, we will be discussing mitigation. Please see pages

I've attached the PA and we will bring copies. Would appreciate it if you can let me know if you will be able to attend or not. If you cannot attend, please send comments anyway.

Mahalo,

Pua Aiu
808-753-2338

From: Aiu, Pua
To: Blanchard, Guy
Cc: Tanya Lee-Greig
Subject: FW: [EXTERNAL] Re: Honoapiilani Highway
Date: Monday, June 23, 2025 5:07:49 PM

Also this one, from the Kaahui Ohana.

pua

From: Hinano Rodrigues <rodrigueshinano@gmail.com>
Sent: Wednesday, March 19, 2025 4:34 PM
To: Aiu, Pua <Pua.Aiu@hawaii.gov>
Subject: [EXTERNAL] Re: Honoapiilani Highway

Came up during Tanya's presentation. I think Tanya mentioned about seeking info on the kuleanas that are directly affected by the preferred alternative.

So I responded that based on what I could see (I think I mentioned I wasn't sure because the kuleanas were not identified by name) on the map, the proposed route might be going through one of Kealo'i's kuleanas. Kealo'i is our ggggrandfather, married to the daughter of one of Ukumehame's Konohiki named Chief Kamakehau. I think she said they wanted to be more thorough in locations that may have significance, and since this Kuleana belonged to the son in law of a chief, perhaps it might warrant sensitivity like is being applied to David Malo's property. But there is local controversy regarding David Malo in Ukumehame. He was a roving school teacher assigned to many places, but claimed land wherever he taught.

Lastly, I mentioned kula lands because i understand my ggggrandfather maintained his lo'i kalo more ma uka, close to where I am. The apana in question was kula lands where he grew wauke and uala.

Sent from my iPhone

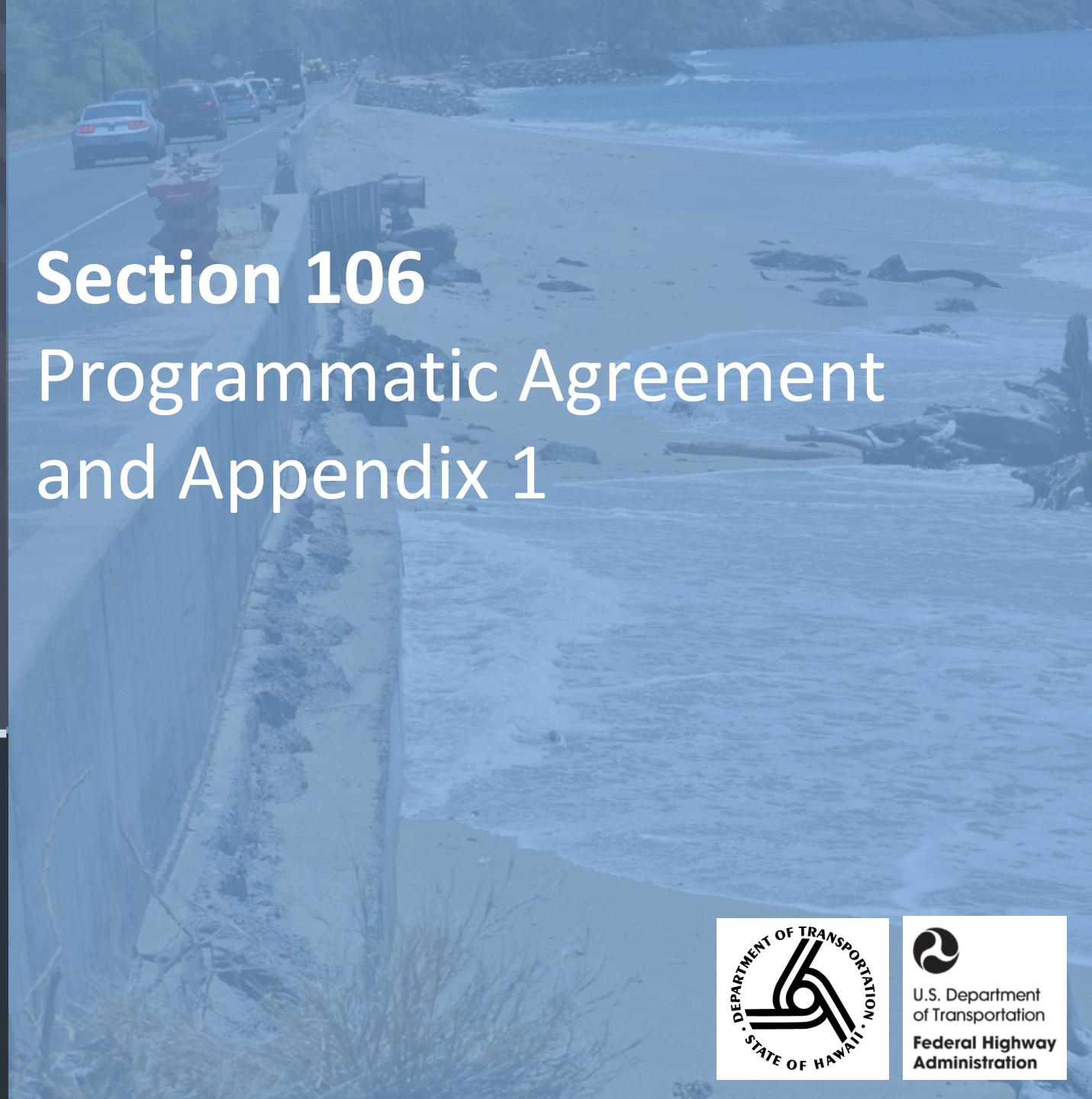
> On Mar 19, 2025, at 4:10 PM, Aiu, Pua <Pua.Aiu@hawaii.gov> wrote:
>
> The following comment was raised at the 106 meeting. I am not sure what it means. Can you shed some light?
>
> For their family (Ka'ahui)on their kuleana parcel, might be relatives kuleana. There are four apana and one used as kula land. Probably not there anymore.

Honoapi'ilani Highway Improvements

West Maui, Ukumehame
to Launiupoko

Section 106
Programmatic Agreement and Appendix 1

Consulting Parties Meeting
April 3, 2025



DEPARTMENT OF TRANSPORTATION · STATE OF HAWAII ·

U.S. Department of Transportation
Federal Highway Administration

Presentation Overview

- Introductions
- Review of Programmatic Agreement Stipulations
- Review of Appendix 1
- Discussion/Comments

Meeting Goal: Continue Consultation with NHOs

Section 106 Programmatic Agreement and Appendix 1

Stipulation V: Application of the Criteria of Adverse Effect for Historic Properties

(p. 5, line 229)

-FHWA will apply the criteria of adverse effect
-FHWA will determine if the project will have an adverse effect on historic properties
-FHWA will seek ways to avoid or minimize adverse effects
-If adverse effects cannot be avoided, then FHWA will mitigate the adverse effect through selection of one of the options in Stipulation VI.
-FHWA/HDOT will continue to consult

At this time, FHWA has not made any effects determinations for this project.

If FHWA determines the project will result in an adverse effect that cannot be avoided or minimized, FHWA may implement one or more of the following treatments:

Stipulation VI: Treatments to Resolve Adverse Effects to Historic Properties

(p. 6, line 244)

A. Educational Interpretation
B. Photogrammetry
C. Recordation of Architectural Historic Property
D. Recordation of Archaeological Historic Property
E. Archaeological Data Recovery

What if something is found later on or during construction?

Stipulation IX: Post-Review Discoveries

(p. 8, line 356)

-FHWA will apply the National Register Criteria for Evaluation to the identified property to determine if it is significant
-FHWA will seek ways to avoid, minimize, or mitigate adverse effects to historic properties
-FHWA/HDOT will continue to consult
-If the discovery is a burial:
    -Suspend work within 100 feet
    -Contact MLIBC, FHWA, SHPD, and Descendants within 5 days
    -Follow protocols at HAR 13-300 and Appendix 1

How will I know what is going on with the project?

In addition to the consultation and outreach requirements for the previous stipulations…

Stipulation XI: Monitoring and Reporting

(p. 9, line 390)

-Yearly reporting on this PA to consulting parties
-Summary of actions taken under the PA
-If a party disputes the way the PA is being implemented, they should contact HDOT

STATE – HRS 6E

What about State requirements?

Pages 1-2)
Appendix 1 includes a memorandum to keep Section 106 (federal) requirements in sync with HRS 6E (state) requirements. (p. 17, line 564)

Under HRS 6E, a project results in:

1. No historic properties affected, *or*
2. Effect, with proposed mitigation commitments

The Appendix 1 memorandum includes several **proposed** mitigation commitments. (p. 2, line 96) Some commitments run parallel with previously described Section 106 potential treatment measures (e.g., data recovery, burials).

Who is responsible for protecting and identifying sites during construction?

STATE – HRS 6E

Proposed Mitigation Commitments under 6E

Archaeological and Cultural Monitoring (page 3 line 102)

-Development of a plan in consultation with consulting parties

-At request of NHOs, cultural monitors may be hired by HDOT's contractor

-Plan will include process when burials and non-burial sites are found

Pre-Construction Training (page 3, line 132)

-HDOT will implement on-site archaeological and cultural awareness and safety training

-Monitoring plan will be provided to all and copy will be on-site during duration of construction

What happens to significant historic sites found as part of this project?

Proposed Mitigation Commitments under 6E (cont.)

STATE – HRS 6E

Burials (page 4 line 152)
-Follow HAR § 13-300
-3 burial relocation sites, one in each ahupua‘a
-Location, design, materials, construction to be decided in consultation with NHOs and descendants
-Long-term management by SHPD or SHPD and Maui County Department of ‘Ōiwi Resources

Data Recovery (page 4, line 174)
-Follow HAR § 13-278
-Curation

Preservation Plan
-Follow HAR § 13-277
-Plan to avoid significant historic properties

Are these additional proposed mitigation commitments appropriate?

Proposed Mitigation Commitments under 6E (cont.)

STATE – HRS 6E

(page 4, line 186)

Access

-HDOT will ensure access to sites NHOs wish to steward

Stewardship

-HDOT will ensure NHOs have opportunity to remove pohaku that may be impacted by the project

-HDOT design team will work with NHOs to use the pohaku in other parts of the project where appropriate and feasible

-HDOT will coordinate these activities

Existing Honoapiʻilani Highway

-HDOT's current plans

Post Review Discoveries

- Archaeological, Cultural & Architectural (page 5 line 229)
  - Follow HAR 13-280 and Stipulation IV.B in the PA
  - Consult
- Human Remains
  - Follow HAR 13-300
  - Consult on whether or not to expand areas identified for archaeological monitoring
- Existing Honoapiilani Highway
  - Added language on page 6 line 264

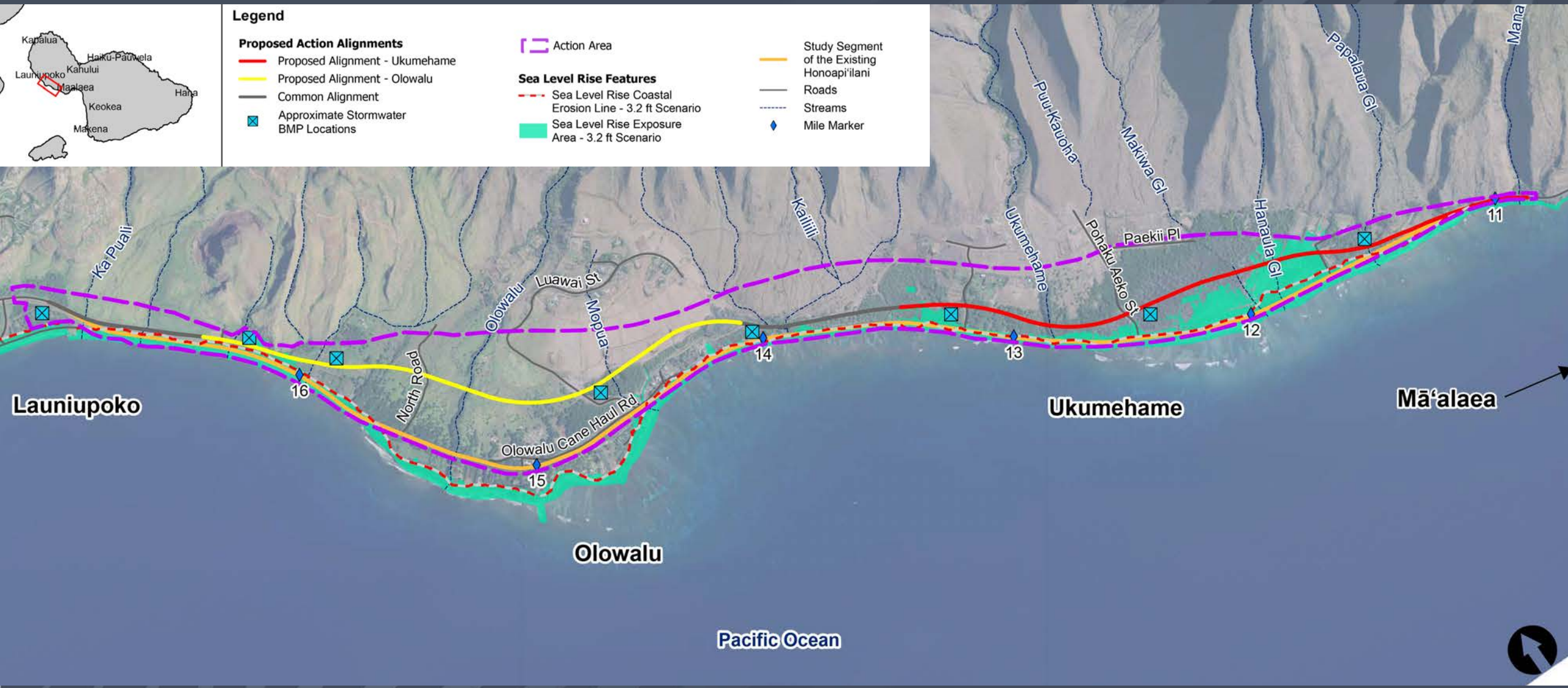
Mahalo!

Next Steps:

Submit comments on Draft PA
Project Team revises PA
Project Team circulates revised PA
Execute PA
Final EIS/Record of Decision
Continue Consultation

Preferred Alternative

Preferred Alternative



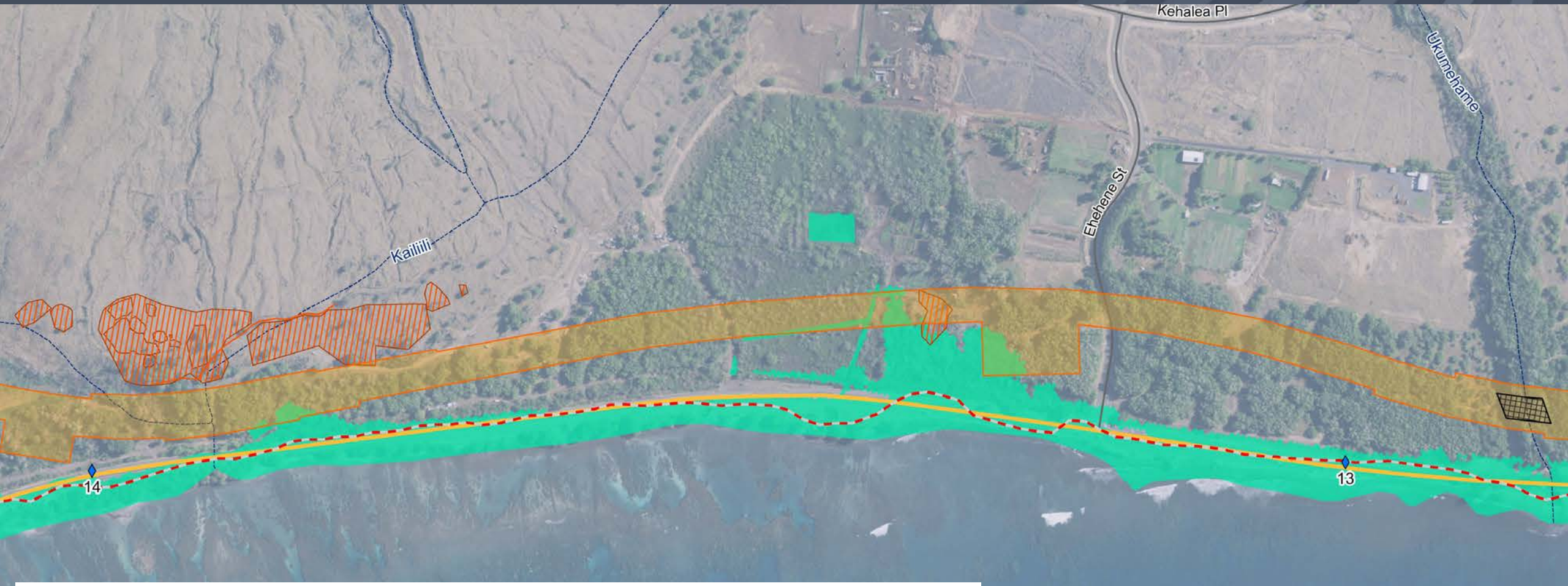
Honoapi'ilani Highway Improvements

Preferred Alternative - Olowalu

Honoapiʻilani Highway Improvements

Preferred Alternative - Launiupoko

Preferred Alternative - Middle Pinch Point

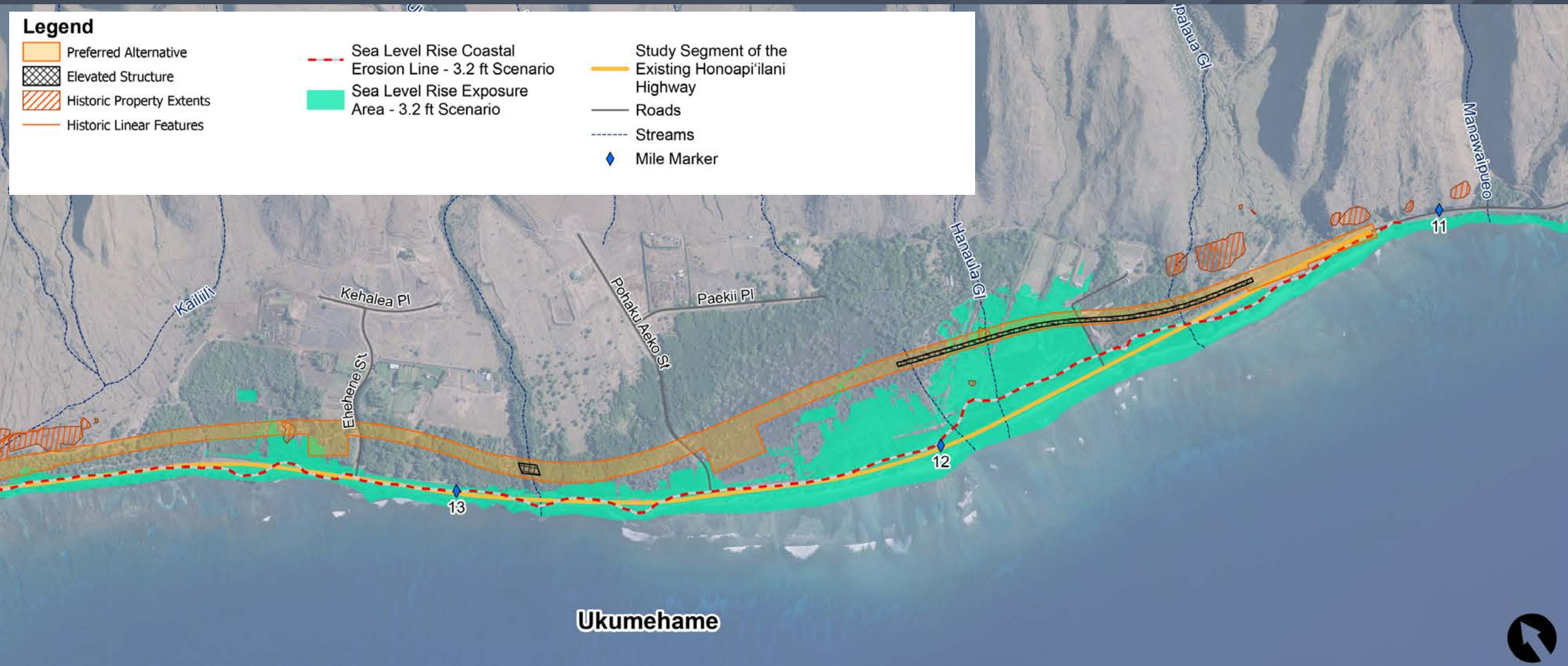


Legend

- Preferred Alternative
- Elevated Structure
- Historic Property Extents
- Historic Linear Features
- Sea Level Rise Coastal Erosion Line - 3.2 ft Scenario
- Sea Level Rise Exposure Area - 3.2 ft Scenario
- Study Segment of the Existing Honoapi'ilani Highway
- Roads
- Streams
- Mile Marker

Honoapi'ilani Highway Improvements

Preferred Alternative - Ukumehame



Project Environmental Timeline

NEPA EIS/Section 106 Process for this Project

NEPA EIS Notice of Intent

- Area of Potential Effects submitted to SHPD
- Consulting Party Outreach
- Reconnaissance Level Survey (Architecture) of entire APE submitted to SHPD for review and concurrence. SHPD concurred with the eligibility determinations.
- Reconnaissance Level Survey (Archaeology) for Project Alternatives submitted to SHPD for review and concurrence with eligibility determinations.

NEPA Draft EIS *(Alternatives Analysis and Selection of Preferred Alternative)*

- Continued Consultation
- Develop Programmatic Agreement
- Develop plan for subsurface archaeology survey

NEPA Final EIS and Record of Decision

- Execute Programmatic Agreement (prior to Final EIS and Record of Decision)
- Continued Consultation

Post Final EIS

- Continued Consultation
- Implement Programmatic Agreement: Continued Investigations (AIS) and Archaeological Monitoring
- Assessment of Effects
- Resolution of Adverse Effects as prescribed by Programmatic Agreement

Honoapiʻilani Highway Improvements

Consulting Parties PA Meeting
April 3, 2025, 5 – 7 pm
Kako'o Maui Resource Center (Lāhainā)

Attendees:

HDOT: Pua Aiu, Ken Tatsuguchi

ʻĀina Archaeology: Tanya Lee-Greig

WSP: Gerald Andrade, Matthew Small
Consulting Parties:

Kaulu Ho'oikaka

Nat Naho'oikaika

Linda Magalianes

Edward Magalianes

TNC- Tamara Farnsworth

NOTES:

The map of the preferred alternative with archaeological sites was laid on the table so everyone could see it. The consulting parties opened the meeting by asking about the preferred alternative, voicing their concerns about the preferred, and suggesting alternatives, such as using the cane haul road or putting the existing road on a berm.

Tanya pointed out where Kaiwaloa Heiau, Pu'u Kilea and Awalua Cemetery are located.

Is the existing road going to stay open?

Yes, the County will be responsible for the existing highway once the new highway is built.

Once the mauka road is opened, will the makai lands be sold by the county, as that was the plan at one time.

Response: Erosion is occurring, so likely much of the makai land is at risk of being lost to the ocean. Likely it has minimal value so will not be sold. Pua pointed out that HDOT is funding TNC to look at green options to preserve the old highway. Tamara spoke a little about her project and passed out fliers.

Nate Naho'oikaika asked if HDOT is prepared to find burials. Both Pua and Tanya said "yes." Tanya responded that surface scatter sites were found on the Ukumehame side of the middle pinch point. Likely remnants left after plowing activities. ʻĀina will do subsurface work to verify if anything exists below ground under scatters. ʻAina will also be doing a subsurface survey of areas of the preferred that suggest there may be subsurface finds, such as kuleana lands. She said that if Nate has information to share, that would be very helpful.

Linda Magalianes and her husband said that their families used to have gatherings in the area around the wharf. Peter Martin blocked the access to the landing. Families used to camp there, but now there is a sign saying, “no camping”. The sign doesn’t have any reference to a county ordinance. Hawaiians are being blocked from the area. So, this is a larger concern for the new project. Will more land be transferred such that further access is blocked?

Response: The new highway provides several access points to the old highway, which will remain the main access to the beach. Additionally, the old highway will be reconnected at Cut Mountain (Launiupoko) where the existing highway was terminated when the Lahaina By-Pass was built. Pua showed them the connection on the map.

There are lots of accidents on Keawe Street, which means it was not a good solution.

The old road will eventually not be accessible due to Sea Level Rise, so how will the ocean be accessed?

Traffic is increasing and will probably increase more as new houses are built. Will this be a two or four lane highway?

Response:This project is not a capacity project, it is initially being built as a two-lane highway, but the right of way is wide enough so two additional lanes can be built later, if necessary similar to the Lahaina By-Pass

The more roads you build, the more houses they will build. Pua pointed out that most of the subdivisions in the area are already permitted.

Pua noted that the purpose of this meeting is to talk about the PA:

- Tanya still has to do the subsurface work.
- Pua started with a discussion of the whereas clauses, who, what, where of things.
- Consulting parties listed in appendix are those that will have say in the process as the PA is executed.
- If sites need a steward, the process for determining the steward is in the PA
- Several sites of interest are on DLNR land
- Stipulations are the things that parties are agreeing to
- Involved parties include: FHWA, SHPD, HDOT, Consulting parties who agree to PA
- SHPO refers to Dawn Chang (head of DLNR), SHPD refers to staff at SHPD including Jessica Puff (Administrator), Susan Lebo (archaeology) and other SHPD staff such as Maui SHPD staff.
- Identification of historic properties. Aina has already done a surface survey – got a handle on the number and extent of sites in corridors of alternatives
- Aina staff walked a 300-ft path around each of the NOI alternatives.
- The surface information was used to select a preferred alignment that did the best job of avoiding impacts, not just archaeology, but also other things like wetlands.
- It would be helpful to have information from those on the land about where subsurface work should be conducted. It’s not possible to test the whole area, so testing will be sampling along the preferred.
- The design should use fill above the existing grade. It improves the view and limits potential impacts. Filling is better than digging.

- The deeper excavation would be related to structures like bridge foundations and the viaduct (over the wetlands in Ukumehame). The new roadway otherwise would largely be on fill.
- An architecture study was conducted. No architectural sites would be impacted, but an expanded historic district is being proposed.
- SHPD has concurred with the archaeological findings for 11 sites, and we are waiting on their concurrence for the rest of the sites.
- There will be a subsurface plan. CPs will have a say in the plan and will be consulted on the findings.
- The PA ensures that CPs can have say on future findings and site treatment.
- 100% testing is not possible, so we want to focus the subsurface work on any areas of specific interest. It's best to find out about sites before excavation occurs.
- There are family sites around where the gun range is.
- If the project would have an adverse effect (which is not known yet), the PA process would tell us what happens next (consult on what to do).
- The alignment has already been adjusted to avoid identified sites.
- There are five treatment types (page 6, line 250):
    - Photogrammetry is like making a 3D model of a site or feature
    - Archaeology recordation will be part of the AIS
    - Also, data recovery, which is a complete study of a site (like where each rock is mapped and various testing of soil and pollen). It tells a more complete story of the site.
- Section 7 talks about what happens if the project has a major change (which changes the impacts). CPs are involved in these types of changes.
- Post-Review discoveries: If anything is discovered during construction.
    - If it's a burial, there is a process with roles and timeframes
    - The project will follow protocols in State Law
- Item E talks about burials
- An annual report will be provided to consulting parties every year. If anyone disagrees, there is a correction process
- No. 13 talks about how to do amendments: which require consultation with consulting parties.
- State appendix:
    - Page 3, line 102 – Archaeological and cultural monitoring.
    - Proposed mitigation options:
        - Arch monitoring
        - Cultural monitors are similar to cultural observers used in Lahaina wildfire recovery efforts.
        - The archaeological and cultural monitors would be hired by contractor. Cultural monitors and archaeological monitors would be separate.
        - What if consulting parties do not trust the monitors? That information would be in the monitoring plan. There needs to be a way the monitors can be changed if CPs don't trust them.
        - CPs asked to think about who the archaeologist would be.
        - Monitors would be hired at the request of NHOs

        - If burials are found, the archaeologist must work in coordination with the cultural monitors
        - Need to add section on preservation plan.
- We have committed to three burial relocation sites (one in each Ahupua‘a)
- The first option is avoidance (not have to relocate burials). Make sure this is included in the PA language
- Sometimes dating can be done on charcoal near a burial, but not always.
- There were burials in the area of camp Olowalu that were affected by plantation activities. No re-internment was done.
- We have previously discussed stewardship of sites
- We have to move some of the pohaku
- Language was added about the existing Honoapiilani Highway, based on input from last meeting
    - SHPD has to sign off in order to use land (or if the County wants to sell lands currently used for the roadway
- Need to identify emergency route in case of road closures during an emergency.

Wanted to have input on the new name for the Highway. Pua noted that in an earlier conversation Hinano thought it should be names for one of the Queens who lived in the area, rather than focusing on Kings.

From:	Aiu, Pua
To:	Calpito, Jordan V; Connie (Kaahui) Applegate; DeSilva, Lance K; Donora Kahaialii; Earl Kukahiko; Felimon Sedang; Fretz, Scott; Glenn Gazmen; Greene, John J; hmkingdomofhawaii@gmail.com; Houie and Kathy Kihune; Janet Six; Jonette Kaahui Knight; Kamakana Ferreira; Kaweni Ibarra; Farm, Kawika; HISTORICHAWAII-Kiersten; Kong, Leinoa M; lannysinkin@gmail.com; Lebo, Susan A; Nakahashi, Chris; Ornellas, Daniel L; Phillips, Andrew K.; Pomaikai Kaniaupio-Crozier; Puanani Felicilda; Puff, Jessica L; Rina Sampson; RodriquesHinano@gmail.com; Thelma P. Kaahui; Tiana Lewis; Agcaoili, Lawrence E; Choy, Andrew W; Daguio, Jean B; Won, Barrett; Kumabe, Russell P; Lau, Stephen; Loos, Lila; Mertens, Jaye D; Murakami, Andrea D; Oyasato, Norine H; Powers, Michael; Redulla, Jason K; Soares, Stephen D; Zhang, Huiyun; zzz_Lee, Randolph M; zzz_Yim, zzz_Alyson; archie@olukai.com; Ekolu Lindsey; Ekolusiphone@gmail.com; Foster Ampong; gtkfujita007@gmail.com; Jessica Nahooikaika; jezelyn40@hotmail.com; kai.nishiki@gmail.com; kamaunu@gmail.com; Kaulu Nahooikaika; Keeaumoku Kapu; Kekona83@gmail.com; Kukiiahu@gmail.com; Leona Nahooikaika; Linda Magalianes; Malihini Keahi Heath; mauifay@me.com; Nathan Nahooikaika; Suzette Felicilda; tiare4maui@gmail.com; Victoria Kaluna-Palafox
Cc:	Tatsuguchi, Ken; Bents, Jamie; Blanchard, Guy; Otani, Meesa (FHWA); La Farga, Paul (FHWA); Liebowitz, Peter; Small, Matthew
Subject:	Honoapiilani Draft Final Programmatic Agreement
Date:	Friday, June 6, 2025 4:18:28 AM
Attachments:	2025 honoapiilani-draftpa-APRIL.pdf 20250605_Honoapiilani Highway FINAL DRAFT PA JUNE.pdf Honoapiilani PA Changes from April for Distrib to CPs.pdf Honoapiilani PA Changes from April for Distrib to CPs.xlsx

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Aloha Kakou apau,

I am attaching the draft Final Honoapiilani Highway Improvements Programmatic Agreement (PA) for your review (PA JUNE). Because of our very tight timelines, and we apologize, we are asking for you to complete your review and return your comments to us, preferably via e-mail, by June 27. In order to make it a little easier to do the review, I have attached the PA that we reviewed in April, which is the same that was put into the DEIS (draftpa-APRIL). I have also attached a table that tracks the changes from the April document to the June document (PA Changes for Distib). There have been some significant changes, so please review carefully, in particular, the 6E memo has been revised significantly, so take a good look at it. I apologize in advance for any mistakes in my table. I am also attaching the Excel version of the table. If you'd like to put your comments directly in the table next to the relevant changes, that would be very helpful, but we will take your comments in any format.

Please let me know if you have any questions or concerns. As always, mahalo nui for your involvement in this project and for your precious time.

Mahalo,

Pua Aiu
808-271-1605

Major Changes in June 2025 PA as compared to PA presented at meeting on April 4

Page	Line	April Version	Page	Line	June Version	Reason
3		**III. Identification and Evaluation of Historic Properties**	**3**		**III. Identification andd Evaluation of Historic Properties**	
3	136	Archaeological Survey totaled **464** acres	3	141	Archaeological Survey totaled **493** acres (pick-up surveys)	Pick-up survey of 30 acres to address adjustments in the preferred alternative that were not surveyed during the Draft EIS.
3	136	100% pedestrian survey	3	141	pedestrian survey	there was not a 100% survey as access to TMKs [2] 4-8-002-068 and -057 was not provided.
			4	146-149	Added Item D, references Honoapiilani Archaeological Complex Site Descriptions and Significance Evaluations	Clarity
4	166	**IV. Archaeological Inventory Subsurface Survey**	4	173	**IV. Archaeological Inventory Survey (Subsurface Testing Component)**	SHPD request
4	171	A. Archaeological Inventory Subsurface Survey Plan	4	179	A. Subsurface Testing Component of the AISP	SHPD request
			5	203-209	6. Added Second 15-day opportunity for SHPD to comment	SHPD request
5	192	# 6 unanticipated discoveries	5	212	#7 identified subsurface historic properties	This is pre-construction, so too early for unanticipated discoveries.
5	202	B. Archaeological Inventory Survey Report	5	223	B. Archaeological Inventory Survey Report	
5	204-206	1. The AIS report will be submitted to SHPD for their concurrence on adequacy and will contain results of the above ground pedestrian survey of the preferred alternative and subsurace survey.	5 - 6	225-229	1. 1.The AIS report will meet the requirements of the SOI's Standards and Guidelines for Archaeological Documentation at 48 Fed. Reg. 44,734 (September 29, 1983), will be submitted to the SHPO for their concurrence on adequacy, and will contain the results of the aboveground archaeological reconnaissance surface survey of the Preferred Alternative and subsurface survey.	consistent with changes above, clarity and SHPD request
5			6	245-251	5. If the SHPO responds with comments within the 45-day comment period, HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked Final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.	Added 2nd 15 day review for SHPD.
5			6	253-260	Added C. Curation	SHPD request
5	222	**V. Application of Criteria of Adverse Effect for Historic Properties**	**6**		**V. Application of Criteria of Adverse Effect for Historic Properties**	
6	233-235	C. The FHWA, in coordination with HDOT, will implement any of the Undertaking's scope or design modifications or conditions in order to avoid, minimize or mitigate adverse effects, as agreed upon through consultation	7	261	Removed	repetitive (similar to B)
6	237	**VI. Treatments to Resolve Adverse Effects to Historic Properties**	7		**VI. Treatments to Resolve Adverse Effects to Historic Properties**	
6	243	A. Educational Interpretation	7	291	A. . . . added "audio recordings or presentations"	SHPD request
6	249	Item B. Photogrammetry	7	296-312	B. Photogrametry - added more detail re: model	SHPD request and need for more specifications
6	265-269	D. Recodation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual above ground archaeological historic property, documentation may may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, and narrative descriptions *meeting the archaeological documentation specified in HAR 13-276 pertaining to AIS investigations* .	8	333-334	meeting the Documentation required in HAR 13-275-8 for Historical Data Recovery (HAR 13-75-8 (D) and Ethnographic Documentation {HAR 13-275-8 (E)	Corrected citations.
7	283-287	E. 3. The written comments. . .	8	342-347	E. 3. The written comments . . .	Edited for clarity and specificity
7			8	357-364	Added E. 6: - 2nd review timing for SHPD	SHPD request
7		NOTE: Items 2 and 7 and 3 and 8 are duplicates	8		Duplicate items removed	
7	314	**VII. Native Hawaiian and Consulting Parties Section 106 Consultation**	9		**VII. Native Hawaiian and Consulting Parties Section 106 Consultation**	
8	**327**	**VIII. Applicability of this PA to Changes in Undertaking Scope**	9		**VIII. Applicability of this PA to Changes in Undertaking Scope**	
8	349	**IX. Post-Review Discoveries**	9	401	**IX. Post-AIS Discoveries**	SHPD request and clarity
8	357-358	B. The FHWA shall forward their evaluation of the newly identified historic properties to the SHPO for review and concurrance.	10	409-411	B.The FHWA shall forward their evaluation of the newly identified historic properties, finding of effect on newly identified historic properties found during project construction, or unanticipated effects on identified historic properties to the SHPO for review and concurrence.	SHPD request, edited for clarity
9	363-366	D. If evidence of burials, human remains for potential human remains is encountered during construction, HDOT shall suspend all work in the immediate vicinity, protect the remains from further disturbance, and immediately contact the SHPD , the FHWA, MLIBC, Maui Police Departments, Signatories, Concurring and Consulting Parties.	10	416-424	D. Added citations and more detail about jurisdiction over human skeletal remains and responsibilities regarding notification.	
9	368-371	E. HDOT's initial notification may be via phone but must be followed by written notification via e-mail. In addition to e-mai, HDOT's notification to the SHPo must include written notification to HICRIS . . . and include date, time and identification of all parties who were notified.	10	426-430	E. HDOT's initial notification may be via phone but must be followed by written notification via e-mail to SHPO and SHPD staff within 24 hours providing written details include date, time, and identification of all parties who were notified and include a brief description of the find and its location. In addition to e-mail, HDOT's notification to the SHPO will be uploaded to HICRIS Project No. 2023PR00135	added more specifics per SHPD request
9	**377**	**X. Confidentiality**	10		**X. Confidentiality**	
9	**383**	**XI. Monitoring and Reporting**	10		**XI. Monitoring and Reporting**	
9	**399**	**XII. Dispute Resolution**	10		**XII. Dispute Resolution**	
9	401	Should any Signatory, Concurring or Consulting Party . . .	11	460	Removed Consulting Parties.	Generally, consulting parties (those who have **not** signed the PA) cannot dispute.
10		**XIII. Amendments**	11		**XIII. Amendments**	
10		**XIV. Termination**	12		**XIV. Termination**	
10		**XV. Duration**	12		**XV. Duration**	
Appen	2				Added 6E Project area Map	SHPD Request
Appen	3				Added additional consuting parties	SHPD Request
Appen	4				Added additional consutation meetings	SHPD Request
Appen	5				removed names and numbers (only agency & positions)	FHWA request

Appen	6				Added Continued Community Dialogue Plan	FHWA request

From:	Aiu, Pua
To:	Kapono"ai Molitau
Cc:	Kekai Robinson; Tatsuguchi, Ken; Blanchard, Guy; Bents, Jamie
Subject:	Honoapiilani 106 consultation
Date:	Friday, June 6, 2025 5:08:59 AM
Attachments:	2025 honoapiilani-draftpa-APRIL.pdf 20250605_Honoapiilani Highway FINAL DRAFT PA JUNE.pdf Honoapiilani PA Changes from April for Distrib to CPs.pdf 20250212-Sec106_PA_CP_MtgNotes Final.xlsx 20250403-NHOMeetingNotes-CLN.docx 2024-09-22_Honoapiilani-PAMeetingNotes_Drft.docx 2024-09-26_Honoapiilani-PAMeetingNotes-MTS-Draft (2).docx

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Aloha Kapono'ai 'olua o Kekai,

SHPD notified us that you wanted to be a part of the consultation for the Honoapiilani Highway Improvements project. Attached are:

1. A letter inviting you to participate in consultation, and where we are in the consultation.
2. The draft final Programmatic Agreement (PA)-June version. This was sent out to the other consulting parties about half an hour ago. We would appreciate comments on this PA by June 27, preferably by e-mail.
3. The April version of the PA, for comparison.
4. A matrix of changes between the 2 versions.
5. Notes for meetings held in 2024 and 2025

Please let me know if you have any questions, comments or concerns.

Pua Aiu
808-271-1605

Subject: RE: [EXTERNAL] Re: Honoapiilani Draft Final Programmatic Agreement
To: Aiu, Pua

From: Wikolia Kaluna-Palafox <vkalunapalafox1@gmail.com>
Sent: Sunday, June 15, 2025 8:38 AM
To: Aiu, Pua <Pua.Aiu@hawaii.gov>
Subject: [EXTERNAL] Re: Honoapiilani Draft Final Programmatic Agreement

Aloha Pua,
These are the things that the STATE wants not we the people. I understand, the wants of corporations. But you all again are not listening to the peoples opinions. The tourism is making the congestion and this subject matter has not been brought up. During the Pandemic we saw traffic was not a problem, why?
Ukumehame has a different type of water except for just papalaua. Olowalu has a different kind of lands also so deterioration of shore line isn't an issue. But commerce cannot continue and it also includes plans to build more. Can Lahaina handle all that No.
The highway bigger roads to accommodate new home buyers, new businesses. We understand but the alignment of aina is not. These accommodations puts the generational families in having to give up their lifestyle choices to be taken advantage of. We suffer to allow commerce. Better planning needs to continue. These planning Assessments should be a win win so for both sides. The Pali through Ukumehame and Olowalu.
Tamara I see her but she is an entity that receives money from the government. She helps you. E Kala mai nice girl but how come not someone or from those Ahupua'a.
I my family stands on our Kanawai not US, and will not commit treason to our Kingdom which you know is in continuity. Continuity, continues to exist. These kind of decisions cannot put time lines on.
Laws protect our Kapu and precipitates there is a story and families of those stories still noho there.
I understand your duty to the STATE and allegiance to the United States of America.
They have done nothing for the Kanaka Maoli, but take.
Maha oe, again this PA is your wants, I am talking about the needs of our people. And that is to sustain ourselves, our children, grandchildren and great grandchildren and for those yet to come. We cannot afford the homes you build that you say for us. No way.
To protect what we have is more important.
With situations that America is in at this time. We need our lands to grow food we can eat, we cannot eat asphalt and cement. So my depot do what I have to do is crucial for our survival. The predator the United States is whom you protect and fulfill their wants in commerce and not life sustaining.
I am a kanaka maoli belonging and sworn to my Kingdom in whatever capacity as long as it focuses on we the people. Nou Ke Akua Ke Aupuni o Hawaii. Akua gifted us these land to live our lives in peace and harmony. Not on deception or puniala, meg shift promises and no respect. I know you understand what I am saying, I don't need to write a 44 plus pages of PA.
You know the kanaka maoli, family first.
Thank you for this time, I am not an American Citizen by choice. This is another example of illegal occupation.
Victoria N. Kaluna-Palafox - Ukumehame a me Olowalu Kuleana Ohana

On Fri, Jun 13, 2025 at 11:14 AM Aiu, Pua <Pua.Aiu@hawaii.gov> wrote:

> Aloha Kakou,
>
> I just wanted to note that in the June version of the PA we have added a Statement on the Existing Honoapiilani Highway, which is not in the April version. This was done at the request of consulting parties. It is on page 26. I forgot to note this change in my table of changes.
>
> I was testing to see if any of you were reviewing 😊. Remember, comments due by June 27. Mahalo.

Pua

From: Aiu, Pua
Sent: Thursday, June 5, 2025 10:16 PM
To: Calpito, Jordan V <Jordan.v.calpito@hawaii.gov>; Connie (Kaahui) Applegate <lanakila.applegate@gmail.com>; DeSilva, Lance K <lance.k.desilva@hawaii.gov>; Donora Kahaialii <donorak@gmail.com>; Earl Kukahiko <earle.kukahiko@gmail.com>; Felimon Sedang <Felimon.kalawaia@hotmail.com>; Fretz, Scott <scott.fretz@hawaii.gov>; Glenn Gazmen <ggazmen@aol.com>; Greene, John J <john.j.greene@hawaii.gov>; hmkingdomofhawaii@gmail.com; Houie and Kathy Kihune <katkihune@gmail.com>; Janet Six <janet.six@co.maui.hi.us>; Jonette Kaahui Knight <jonetteknight@gmail.com>; kamakanaf@oha.org; Kaweni Ibarra <kawenii@oha.org>; Kawika Farm <Kawika.K.Farm@co.maui.hi.us>; Kiersten@historichawaii.org; Kong, Leinoa M <leinoa.kong@hawaii.gov>; lannysinkin@gmail.com; Lebo, Susan A <susan.a.lebo@hawaii.gov>; Nakahashi, Chris <chris.nakahashi@hawaii.gov>; Ornellas, Daniel L <daniel.l.ornellas@hawaii.gov>; Phillips, Andrew K. <andrew.k.phillips@hawaii.gov>; Pomaikai Kaniaupio-Crozier <maunahalawai2@gmail.com>; Puanani Felicilda <pnpfelicilda@gmail.com>; Puff, Jessica L <jessica.puff@hawaii.gov>; Rina Sampson <rinalei@aol.com>; RodriguesHinano@gmail.com; Thelma P. Kaahui <Thelmakahunui808@gmail.com>; Tiana Lewis <tiana@kipukaolowalu.com>; Agcaoili, Lawrence E <lawrence.e.agcaoili@hawaii.gov>; Choy, Andrew W <andrew.w.choy@hawaii.gov>; Daguio, Jean B <jean.b.daguio@hawaii.gov>; Kanenaka, Brian K <brian.k.kanenaka@hawaii.gov>; Kumabe, Russell P <russell.p.kumabe@hawaii.gov>; Lau, Stephen <stephen.t.lau@hawaii.gov>; Loos, Lila <Lila.Loos@hawaii.gov>; Mertens, Jaye D <jaye.d.mertens@hawaii.gov>; Murakami, Andrea D <andrea.d.murakami@hawaii.gov>; Oyasato, Norine H <norine.h.oyasato@hawaii.gov>; Powers, Michael <michael.powers@hawaii.gov>; Redulla, Jason K <jason.k.redulla@hawaii.gov>; Soares, Stephen D <stephen.d.soares@hawaii.gov>; Zhang, Huiyun <huiyun.zhang@hawaii.gov>; zzz_Lee, Randolph M <randolph.m.lee@hawaii.gov>; zzz_Yim, zzz_Alyson <zzz_alyson.k.yim@hawaii.gov>; archie@olukai.com; Ekolu Lindsey <EkoluMCL@outlook.com>; Ekolusiphone@gmail.com; Foster Ampong <Kekahunakeaweiwi@yahoo.com>; gtkfujita007@gmail.com; Jessica Nahooikaika <jnahooikaika@gmail.com>; jezelyn40@hotmail.com; kai.nishiki@gmail.com; kamaunu@gmail.com; Kaulu Nahooikaika <kumuulu19@gmail.com>; Keeaumoku Kapu <kapukapuakea@gmail.com>; Kekona83@gmail.com; Kukiiahu@gmail.com; Leona Nahooikaika <onanahooikaika@gmail.com>; Linda Magalianes <lmagalianes@hotmail.com>; Malihini Keahi Heath <hinanobora@gmail.com>; mauifay@me.com; Nathan Nahooikaika <Nahooikaikanathan@gmail.com>; Suzette Felicilda <suzettezumba@gmail.com>; tiare4maui@gmail.com; Victoria Kaluna-Palafox <vkalunapalafox1@gmail.com>
Cc: Tatsuguchi, Ken <ken.tatsuguchi@hawaii.gov>; Bents, Jamie <Jamie.Bents@wsp.com>; Blanchard, Guy <guy.blanchard@wsp.com>; Otani, Meesa (FHWA) <meesa.otani@dot.gov>; La Farga, Paul (FHWA) <paul.lafarga@dot.gov>; Liebowitz, Peter <peter.liebowitz@wsp.com>; Small, Matthew T. <Matthew.Small@wsp.com>
Subject: Honoapiilani Draft Final Programmatic Agreement

Aloha Kakou apau,

I am attaching the draft Final Honoapiilani Highway Improvements Programmatic Agreement (PA) for your review (PA JUNE). Because of our very tight timelines, and we apologize, we are asking for you to complete your review and return your comments to us, preferably via e-mail, by June 27. In order to make it a little easier to do the review, I have attached the PA that we reviewed in April, which is the same that was put into the DEIS (draftpa-APRIL). I have also attached a table that tracks the changes from the April document to the June document (PA Changes for Distib). There have been some significant changes, so please review carefully, in particular, the 6E memo has been revised significantly, so take a good look at it. I apologize in advance for any mistakes in my table.

I am also attaching the Excel version of the table. If you'd like to put your comments directly in the table next to the relevant changes, that would be very helpful, but we will take your comments in any format.

Please let me know if you have any questions or concerns. As always, mahalo nui for your involvement in this project and for your precious time.

Mahalo,

Pua Aiu
808-271-1605

CONSULTING PARTY COMMENTS ON FINAL DRAFT PA

VKP	Victoria Kaluna-Palafox, on behalf of herself and her family	TMK (2) 4-8-002:068	6/15/25 by e-mail
VKP	These are things that the STATE wants not we the people		
VKP	I understand, the wants of corporations.		
VKP	But you all again are not listening the the peoples opinions		
VKP	The tourism is making the congestion and this subject matter has not been brought up.		
VKP	During the pandemic we saw traffic was not a problem, why?		
VKP			
VKP	Ukumehame has a different type of water except for just Papalaua		
VKP	Olowalu has a different kind of lands also of deterioration fo shore line isn't an issue.		
VKP	But commerce cannot continue and it also includes plans to build more. Can Lahaina handle all that NO.		
VKP	The highway bigger roads to accommodate new home buyers, new businesses.		
VKP	We understand but the alignment of aina is not.		
VKP	The accomodations puts the generational families in having to give up their lifestyle choices to be taken advantage of.		
VKP	We suffer to allow commerce		
VKP	Better planning needs to continue.		
VKP	These planning Assessments should be a win-win for both sides.		
VKP	The Pali through Ukumehame and Olowalu.		
VKP	Tamara I see her but she is an entity that receives money from the government. She helps you.		
VKP			
VKP	E kala mai nice girl but how come not someone from those Ahupua'a.		
VKP	I my family stands on our Kanawai not US, and will not commit treason to our Kingdom which you know is in continuity. Continuity, continues to exist. These kind of decisions cannot put time lines on.		
VKP	Laws protect our Kapu and precipitates that there is a story and familes of those stories still noho there.		
VKP	I understand your duty to the STATE and allegiance to the United States of America.		
VKP	They have done nothing for the Kanaka Maoli, but take.		
VKP	Maha oe, again this PA is your wants, I am talking about the needs of our people.		
VKP	And that is to sustain ourselves, our children, grandchildren and great grandchildren and for those yet to come.		
VKP	We cannot afford the homes that you build that you say for us. No Way.		
VKP	To protect what we have is more important.		
VKP	With situations that America is in at this time. We need ourlands to grow food we can eat, we cannot eat asphalt and cement. So my depot do what I have to do is crucial forour survival. The predator the United States is whom you protect and fulfill their wants in commerce and not life sustaining		

VKP	I am a kanaka maoli belonging and sworn to my Kingdom in whatever capacity as long as it focuses on we the people. Nou Ke Akua Ke Aupuni o Hawaii. Akua gifted us these land to live our lives in peace and harmony. Not on decepetion or puniala, meg shift promises and no respect. I know you understand what I am saying, I don't need to write a 44 plus pages of PA		
VKP	You know the kanaka maoli, family first.		
VKP	Thank you for this time, I am not an American Citizen by choice.		
VKP	This is another example of illegal occupation.		
VKP	Victoria N. Kaluna-Palafox - Ukumehame a me Olowalu Kuleana Ohana		
HR	Hinano Rodrigues on behalf of self and the Ka‘ahui Ohana	Kapaiki Village	6/24/25 by e-mail
HR	I am fine with the draft PA		
HR	Thank you for being so clear as it relates to the role of SHPD, and the applicable rules.		
HR	I've reviewed many PA in the past and have observed so much confusiont and chaos regarding archaeology, but this one is very clear.	Susan Lebo at SHPD gets the credit.	
HR	My 85 year old Uncle and I have promised Tamara to work with her and the Nature Conservancy regarding our native Hawaiian rights as residents and descendants of those who once lived in Ukumehame and Olowalu.		

From: Aiu, Pua
To: Blanchard, Guy
Subject: FW: [EXTERNAL] Re: Comments on PA due by next Friday, June 27
Date: Tuesday, July 1, 2025 4:44:25 PM

From: Hinano Rodrigues <rodrigueshinano@gmail.com>
Sent: Tuesday, June 24, 2025 6:24 PM
To: Aiu, Pua <Pua.Aiu@hawaii.gov>
Cc: Calpito, Jordan V <jordan.v.calpito@hawaii.gov>; Connie Applegate <lanakila.applegate@gmail.com>; DeSilva, Lance K <lance.k.desilva@hawaii.gov>; Donora Kahaialii <donorak@gmail.com>; Earl Kukahiko <earle.kukahiko@gmail.com>; Farm, Kawika <kawika.k.farm@co.maui.hi.us>; Felimon Sedang <Felimon.kalawaia@hotmail.com>; Fretz, Scott <scott.fretz@hawaii.gov>; Gazmen Glenn <ggazmen@aol.com>; Greene, John J <john.j.greene@hawaii.gov>; HISTORICHAWAII-Kiersten <kiersten@historichawaii.org>; hmkingdomofhawaii@gmail.com; Houie and Kathy Kihune <katkihune@gmail.com>; Janet Six <janet.six@co.maui.hi.us>; Jonette Kaahui Knight <jonetteknight@gmail.com>; Kamakana Ferreira <kamakanaf@oha.org>; Kapono'ai Molitau <Oiwi@mauicounty.gov>; Kaweni Ibarra <kawenii@oha.org>; Kekai Robinson <kekai.robinson@co.maui.hi.us>; Kong, Leinoa M <leinoa.kong@hawaii.gov>; lannysinkin@gmail.com; Lebo, Susan A <susan.a.lebo@hawaii.gov>; Nakahashi, Chris <chris.nakahashi@hawaii.gov>; Ornellas, Daniel L <daniel.l.ornellas@hawaii.gov>; Phillips, Andrew K. <andrew.k.phillips@hawaii.gov>; Pomaikai Kaniaupio-Crozier <maunahalawai2@gmail.com>; Puanani Felicilda <pnpfelicilda@gmail.com>; Puff, Jessica L <jessica.puff@hawaii.gov>; Rina Sampson <rinalei@aol.com>; Thelma P. Kaahui <Thelmakahunui808@gmail.com>; Tiana Lewis <tiana@kipukaolowalu.com>; Agcaoili, Lawrence E <lawrence.e.agcaoili@hawaii.gov>; Andrew W Choy <andrew.w.choy@hawaii.gov>; Daguio, Jean B <jean.b.daguio@hawaii.gov>; Won, Barrett <barrett.won@hawaii.gov>; Kumabe, Russell P <russell.p.kumabe@hawaii.gov>; Stephen Lau <stephen.t.lau@hawaii.gov>; Loos, Lila <Lila.Loos@hawaii.gov>; Mertens, Jaye D <jaye.d.mertens@hawaii.gov>; Andrea D Murakami <andrea.d.murakami@hawaii.gov>; Oyasato, Norine H <norine.h.oyasato@hawaii.gov>; Michael Powers <michael.powers@hawaii.gov>; Redulla, Jason K <jason.k.redulla@hawaii.gov>; Stephen D Soares <stephen.d.soares@hawaii.gov>; Huiyun Zhang <huiyun.zhang@hawaii.gov>; zzz_Lee, Randolph M <randolph.m.lee@hawaii.gov>; zzz_Yim, zzz_Alyson <zzz_alyson.k.yim@hawaii.gov>; archie <archie@olukai.com>; Ekolu Lindsey <EkoluMCL@outlook.com>; Ekolusiphone@gmail.com; Ampong Foster <kekahunakeaweiwi@yahoo.com>; gtkfujita007@gmail.com; Jessica Nahooikaika <jnahooikaika@gmail.com>; jezelyn40@hotmail.com; kai.nishiki@gmail.com; Kamaunu@gmail.com; Kaulu Nahooikaika <kumuulu19@gmail.com>; Keeaumoku Kapu <kapukapuakea@gmail.com>; Kekona83@gmail.com; kukiiahu@gmail.com; Leona Nahooikaika <onanahooikaika@gmail.com>; Linda Magalianes <lmagalianes@hotmail.com>; Malihini Keahi Heath <hinanobora@gmail.com>; mauifay@me.com; Nathan Nahooikaika <Nahooikaikanathan@gmail.com>; Suzette Felicilda <suzettezumba@gmail.com>; tiare4maui@gmail.com; Victoria Kaluna-Palafox <vkalunapalafox1@gmail.com>; Tatsuguchi, Ken <ken.tatsuguchi@hawaii.gov>; Jamie Bents <Jamie.Bents@wsp.com>; Humphreys, Guy T <guy.t.humphreys@hawaii.gov>
Subject: [EXTERNAL] Re: Comments on PA due by next Friday, June 27

Aloha mai nei no:

Sorry for the delay, just got back from Vegas.

I'm fine with the draft PA. Thank you for being so clear as it relates to the role of SHPD, and the applicable rules. I've reviewed many PA in the past and have observed so much confusion and chaos regarding archaeology, but this one is very clear.

My 85 year old Uncle and I have promised Tamara to work with her and the Nature Conservancy (and it's UH consultants regarding our native Hawaiian rights as residents and descendants of those who once lived in Ukumehame and Olowalu. I told my family that if you're not seated at the table, you're probably on the table. Lol. Only my uncle caught that.

Hinano

Sent from my iPhone

On Jun 20, 2025, at 1:00 PM, Aiu, Pua <Pua.Aiu@hawaii.gov> wrote:

> Aloha everyone. Just a reminder that comments on the Honoapiilani PA are due by next Friday. I am re-attaching all documents, so you don't have to look for them again.
>
> Let me know if you have any questions. If you have no comments, thank you for participating.
>
> pua
> <2025 honoapiilani-draftpa-APRIL.pdf>
> <20250605_Honoapiilani Highway FINAL DRAFT PA JUNE.pdf>
> <Honoapiilani PA Changes from April for Distrib to CPs.pdf>
> <Honoapiilani PA Changes from April for Distrib to CPs.xlsx>

From: Aiu, Pua
To: Lebo, Susan A
Cc: Puff, Jessica L; Blanchard, Guy
Subject: Honoapiilani highway Programmatic Agreement for signature
Date: Wednesday, July 2, 2025 4:32:13 PM
Attachments: 20250605_Honoapiilani Highway Programmatic Agreement_for signature.docx
20250605_Honoapiilani Highway Programmatic Agreement_for signature.pdf
CP comments on final draft PA 061525.xlsx

Aloha Susan and Jessica,

Attached is the Honoapiilani Higway Programmatic Agreement for signature. The sooner we can get this signed the better. Please let us know if there are any issues. All 3 documents are also loaded to HICRIS

I'm not sure how your process goes. You can send us back just a signature page, if that is easier. Or you can send an e-mail back saying you are ready for signature and we can send through e-sign, provided you guys have already notified the chair. If you choose this route and there is a memo to the chair re: okay to sign, please also send that to us.

I have included the comments from the CPs who responded to this last 30-day review of the PA. There were no substantive comments on the PA that required wording changes. The comments will be included in an Appendix of the FEIS. We are working on responses to Aunty Vicky, where a response is appropriate, but most of her comments are EIS comments, rather than PA comments. The comment on line 31 does address the PA.

Let me know if you have any questions.

Thanks,
Pua

From: Kasey Miller <kmiller@achp.gov>
Sent: Monday, August 25, 2025 11:33 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Aiu, Pua <pua.aiu@hawaii.gov>; ken.tatsuguchi <ken.tatsuguchi@hawaii.gov>; La Farga, Paul (FHWA) <paul.lafarga@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Yedlin, Rebecca (FHWA) <Rebecca.Yedlin@dot.gov>; Liebowitz, Peter <Peter.Liebowitz@wsp.com>; Bents, Jamie <Jamie.Bents@wsp.com>; jessica.puff@hawaii.gov; Blanchard, Guy <Guy.Blanchard@wsp.com>
Subject: Honoapiilani Highway Improvements Project, Maui County, Hawaii

Ref: *Honoapiilani Highway Improvements Project*
Maui County, Hawaii
ACHP Project Number: 020521

Dear Ms. Otani,

On August 14, 2025, the Advisory Council on Historic Preservation (ACHP) received a copy of the executed Section 106 agreement document (Agreement) for the referenced undertaking. In accordance with 36 CFR § 800.6(b)(1)(iv), the ACHP acknowledges receipt of the Agreement. The filing of the Agreement and implementation of its terms fulfills the requirements of Section 106 of the National Historic Preservation Act and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800).

We appreciate receiving a copy of this Agreement for our records. Please ensure that all consulting parties are provided a copy of the executed Agreement in accordance with 36 CFR § 800.6(c)(9). If you have any questions or require additional assistance, please contact me at (202) 517-6389 or by e-mail at kmiller@achp.gov and reference the ACHP Project Number above.

Sincerely,
Kasey Miller
Program Analyst and FHWA Liaison
Advisory Council on Historic Preservation
kmiller@achp.gov
(202) 517-6389

Hello,

Attached is the executed Programmatic Agreement for the Honoapiilani Highway Improvements project on the Island of Maui.

Please let me know if you have any questions.

Thank you!

Meesa Otani
Transportation Engineer
Federal Highway Administration, Hawaii Division Office
300 Ala Moana Blvd. Rm. 3-229, Box 50206
Honolulu, Hawaii 96850
(808) 541-2316 | meesa.otani@dot.gov
Call me on Teams
Chat with me on Teams

Executed Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

WHEREAS, the United States Department of Transportation, Federal Highway Administration (FHWA) plans to fund the Honoapiʻilani Highway Improvements Project (Undertaking), which would realign Honoapiʻilani Highway between Ukumehame and Launiupoko in Maui Komohana (West Maui); and

WHEREAS, the State of Hawaiʻi Department of Transportation (HDOT) is the sponsor of the Undertaking, and the FHWA has invited HDOT to become an Invited Signatory to this Programmatic Agreement (PA); and

WHEREAS, the FHWA's action requires review under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) and is considered an Undertaking as defined by 36 C.F.R. § 800.16(y) and is subject to review under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. § 306108) and its implementing regulations, 36 C.F.R. Part 800, *Protection of Historic Properties*, as amended; and

WHEREAS, the Undertaking is intended to address existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise, as delineated by the Hawaiʻi Climate Change Mitigation and Adaptation Commission's (HCCC's) Sea Level Rise Exposure Area (SLR-XA); and

WHEREAS, the FHWA has coordinated NHPA Section 106 compliance with the NEPA process and is preparing an Environmental Impact Statement (EIS); and

WHEREAS, the FHWA, in consultation with the Hawaiʻi State Historic Preservation Officer (SHPO), is entering into this Section 106 PA in accordance with 36 C.F.R. § 800.14(b)(1)(ii) because the Undertaking's effects on historic properties cannot be fully determined prior to approval of the Record of Decision; and

WHEREAS, the FHWA in coordination with HDOT, and in consultation with the SHPO, established an Area of Potential Effects (APE) (**Appendix 2**) in accordance with 36 C.F.R. § 800.4(a)(1) to consider potential direct and indirect effects associated with each of the Undertaking's alternatives evaluated in the Draft EIS; and

WHEREAS, due to the size of the APE, limited access, and number of alternatives under consideration, the FHWA and HDOT, in consultation with the SHPO, agreed to phased identification, pursuant to 36 C.F.R. § 800.4(b)(2), as provided in this PA; and

WHEREAS, HDOT intends to use the historic properties identification efforts and documentation prepared for this Undertaking and as described in this PA (Stipulation III) to comply with Hawai'i Revised Statutes (HRS) § 6E and its administrative provisions at Hawai'i Administrative Rules (HAR) § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*, as described in **Appendix 1.** The State Historic Preservation Division (SHPD) therefore has the authority to determine whether or not any report generated under HRS § 6E and its administrative rules is adequate; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP), was invited to participate in the Section 106 consultation and the development of this PA and has declined to participate; and

WHEREAS, the FHWA in coordination with HDOT has consulted with Native Hawaiian Organizations (NHOs) for which the Ahupua'a of Launiupoko, Olowalu, and/or Ukumehame have religious and/or cultural significance, individuals and organizations with a demonstrated interest in the Undertaking, and the public, and has invited the NHOs, individuals, and organizations included in **Appendix 3** to participate as Consulting Parties; and

WHEREAS, the FHWA in coordination with HDOT and pursuant to 36 C.F.R. § 800.2(c) held multiple Consulting Party meetings (listed in **Appendix 4**), has consulted with the Consulting Parties, including the NHOs, individuals, and organizations listed in **Appendix 3**, regarding the effects of the Undertaking on historic properties and has invited them to sign this PA as Concurring Parties; and

WHEREAS, historic properties were found during an archaeological reconnaissance surface survey located within the State of Hawaii, Department of Land and Natural Resources (DLNR) Lands, and the FHWA has invited DLNR to be an Invited Signatory to this PA.

NOW, **THEREFORE**, the FHWA, HDOT, SHPO, and DLNR agree that the Undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The FHWA, in coordination with HDOT, shall ensure that the following measures are carried out.

I. Roles and Responsibilities

A. The FHWA is the agency official legally responsible for all Section 106 findings and determinations and shall ensure that the terms of this PA are carried out to complete the Section 106 process. The FHWA shall continue consultation with the NHOs, individuals, and organizations included in Appendix 3 and as described in this PA.

B. HDOT, as the Undertaking sponsor, will assist the FHWA in the implementation of this PA, including the coordination, management, and oversight of the implementation of the SHPO-approved plans and reports including the Archaeological Inventory Survey Plan (AISP) and any necessary mitigation plans (for example, archaeological monitoring plan, burial treatment plan) required by this PA for continuing archaeological investigations of the Preferred

Alternative through final design and construction of the Undertaking with the assistance of individuals meeting the requirements of Stipulation II.

C. The DLNR, as having jurisdiction over land within and adjacent to the Undertaking's alignment, shall respond to requests for permission to access areas identified by HDOT that require investigations pursuant to this PA, and shall provide comments and/or reviews of documentation prepared by HDOT or its staff in fulfillment of this PA.

D. The SHPO, individually or through staff at the SHPD, shall advise the FHWA in carrying out Section 106 responsibilities for the Undertaking. Based on information provided by the FHWA or by HDOT, on behalf of the FHWA, the SHPO, individually or through staff at the SHPD, shall respond to requests for comments and/or review and approval within the specified review periods regarding the FHWA's National Register of Historic Places (NRHP) eligibility evaluations and proposed measures to avoid, minimize, or mitigate any adverse effects on historic properties that may be identified.

II. Qualifications

All investigations carried out pursuant to this PA shall be conducted by or under the supervision of an individual meeting the Secretary of the Interior's (SOI's) Professional Qualifications Standards for Archaeology or Architectural History, as applicable, pursuant to 36 CFR Part 61, Appendix A, and pursuant to HAR § 13-281, "Rules Governing Professional Qualifications," and HAR § 13-282, "Rules Governing Permits for Archaeological Work" in the State of Hawai'i.

III. Identification and Evaluation of Historic Properties

A. The FHWA, in coordination with HDOT, will ensure all historic properties (both above ground and below ground) identified within the APE are assessed for NRHP eligibility in accordance with 36 C.F.R. § 800.4(c). The FHWA will consider information provided by an individual or organization included in Appendix 3 who attaches religious and/or cultural significance to a property within the APE in making determinations of eligibility.

B. HDOT, in coordination with the FHWA, completed the identification and evaluation of architectural historic properties pursuant to 36 C.F.R. § 800.4(b) and (c). A Reconnaissance Level Architectural Inventory Survey (RLS) was completed that identified and assessed 40 architectural properties within the APE. Three architectural properties were determined to be individually eligible for listing in the NRHP and 10 were determined to be contributing resources to a NRHP-eligible historic district, referred to in the RLS as the Olowalu Sugar Plantation Historic District. The SHPO concurred with the RLS eligibility determinations in a letter dated July 9, 2024.

C. HDOT, in coordination with the FHWA, has completed the identification and initial evaluation of archaeological properties pursuant to 36 C.F.R. § 800.4(b) and (c). This identification and evaluation effort involved an archaeological reconnaissance surface survey comprising each of the four proposed alternatives within the APE. The archaeological survey area was defined by a 300-foot-wide corridor along the centerline of each proposed alternative. The archaeological survey area totaled approximately 493 acres and included both pedestrian survey and targeted drone flyovers unless limited by access or vegetation issues. Access to TMKs (2) 4-8-002-068 and

(2) 4-8-002-057 was not provided by the occupant and will be pursued during the Archaeological Inventory Survey (AIS) if part of the Preferred Alternative.

D. The results of the archaeological reconnaissance surface survey were provided in a document titled *Honoapi'ilani Archaeological Complex Site Descriptions and Significance Evaluations*. Twenty-eight (28) archaeological historic properties were identified and evaluated within Ukumehame Ahupua'a, seven (7) in Olowalu Ahupua'a, and three (3) in Launiupoko Ahupua'a..

E. HDOT's archaeologist, on behalf of HDOT and the FHWA, evaluated 38 archaeological historic properties as individually eligible for listing in the NRHP. The SHPO concurred with eleven (11) of these eligibility determinations in a letter dated October 11, 2024, and provided concurrence on the remaining twenty-seven (27) archaeological historic properties in a letter dated May 16, 2025. HDOT's lead archaeologist also noted that the sites in each ahupua'a extended beyond the archaeological survey boundaries. Because the horizontal and vertical extents of a potential historic district could not be determined based on a reconnaissance survey, no historic district has been identified by the FHWA at this time.

F. HDOT, in coordination with the FHWA, will complete an AIS for any areas not previously surveyed within the Preferred Alternative. Additionally, subsurface archaeological testing will proceed through the design of the Preferred Alternative as locations become accessible.

G. HDOT, in coordination with the FHWA, will ensure an AIS Plan (AISP) is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to 36 C.F.R. § 800.4(b) and (c).

H. HDOT intends to use the identification and documentation of historic properties prepared for this Undertaking to meet the requirement of HRS § 6E-8. The SHPD shall have authority to determine the adequacy of the AISP pursuant to HAR § 13-275 and HAR § 13-276. The SHPO's written approval will be provided to all Signatories, Concurring and Consulting Parties.

IV. Archaeological Inventory Survey (Subsurface Testing Component)

The area of investigation for the subsurface testing component of the AIS is defined as the Undertaking's Preferred Alternative and includes the proposed roadway right-of-way (ROW) and areas designated for utility installation, excavation, grading, connector roads, or construction access and laydown areas.

A. Subsurface Testing Component of the AISP

1. The subsurface testing methodology for the AISP will be developed by HDOT's lead archaeologist in consultation with the Engineering Design Team, as well as Signatories, Concurring and Consulting Parties within one year of execution of the NEPA Record of Decision.

2. HDOT will provide the initial draft of the AISP to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments on the AISP will be shared with the SHPO for consideration in preparing the SHPD's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (total 45-calendar days) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. HDOT will share the SHPO's comments with Signatories, Concurring and Consulting Parties. The comments may be posted to the project website at https://www.honoapiilanihwyimprovements.com.

5. If the SHPO does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPO's concurrence and move forward accordingly. HDOT, in coordination with the FHWA, will implement the AISP.

6. If the SHPO responds with comments within the 45-day comment period, HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked Final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

7. Subsurface survey fieldwork shall be completed to the extent practicable prior to final design so that any identified subsurface historic properties (that is, archaeological sites or human burials) may be considered in final design and measures be incorporated to avoid and/or minimize potential effects on historic properties and/or human burials.

8. HDOT, in coordination with the FHWA, will provide a written status update to the SHPO, Signatories, Concurring and Consulting Parties of the status of archaeological investigations on a quarterly basis via e-mail and, when requested, via meeting. All status reports will be uploaded to HICRIS Project Number 2023PR00135. Once HDOT's archaeologist sends an end-of-fieldwork letter report to the SHPO, these reports will stop.

B. Archaeological Inventory Survey Report

1. The AIS report will meet the requirements of the SOI's Standards and Guidelines for Archaeological Documentation at 48 Fed. Reg. 44,734 (September 29, 1983), will be submitted to the SHPO for their concurrence on adequacy, and will contain the results of the aboveground archaeological reconnaissance surface survey of the Preferred Alternative and subsurface survey.

2. The draft of the AIS report will be provided to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The report may be posted to the project website at https://www.honoapiilanihwyimprovements.com.

3. The written comments received on the draft AIS report will be shared with the SHPO for consideration in preparing the SHPO's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (45-calendar days total) upon receipt of all written comments received by HDOT and the FHWA from Signatories, Concurring and Consulting Parties.

4. If the SHPO does not respond within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPO's approval and move forward accordingly.

5. If the SHPO responds with comments within the 45-day comment period, HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked Final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

C. Curation

All collections, consisting of artifacts, notes, and other materials associated with archaeological and architectural investigations, will be curated in accordance with 36 C.F.R. Part 79 *Curation of Federally Owned and Administered Archaeological Collections* and in accordance with applicable State laws, including HAR § 13-275, -276, -277, -278, and -279. HDOT shall consult with public and private institutions to pursue opportunities to provide public access to the recovered materials.

V. Application of the Criteria of Adverse Effect for Historic Properties

A. The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, will apply the criteria of adverse effect (36 C.F.R. § 800.5(a)(1)) to historic properties within the APE, and document its findings.

B. If, as a result of this analysis, the FHWA determines that the Undertaking may have an adverse effect on any historic property, the FHWA, in coordination with HDOT, will consult with the SHPO, Signatories, and Concurring and Consulting Parties to avoid, minimize, or mitigate adverse effects.

VI. Treatments to Resolve Adverse Effects to Historic Properties

The FHWA, in coordination with HDOT and in consultation with the SHPO, Signatories, and Concurring and Consulting Parties, has determined that the following treatment measures, either singularly or in

combination, may be applied to resolve adverse effects to historic properties if adverse effects occur following analysis described in Stipulation V.

Treatment measures listed below may be selected by FHWA in coordination with HDOT and presented to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period. The SHPO shall have an additional 15-calendar-day review period (total 45 calendar days) upon receipt of all written comments provided in writing by FHWA and HDOT from Signatories and Concurring and Consulting Parties to take comments provided in writing into consideration in preparing the SHPO's written review comments. If the SHPO does not respond within the 45-calendar day review period, HDOT, in coordination with the FHWA, may assume the SHPO's concurrence with the proposed treatment measure and move forward accordingly following written notification to the SHPO, Signatories, Concurring and Consulting Parties.

A. Educational Interpretation. This educational interpretation may include displays, markers, educational pamphlets, brochures or booklets, posters, websites, audio recordings or presentations, or other similar accessible information to educate members of the public on one or more architectural and/or archaeological historic property within the APE. The interpretive element may use images and maps to the extent feasible to convey information to the public.

B. Photogrammetry. HDOT may hire a consultant to conduct historic property documentation through the use of photogrammetry, which requires taking high-resolution digital images to construct 3-D models of aboveground resources including individual structures and buildings or landscape features. Using a high-resolution camera affixed to a drone, digital images will be taken at multiple angles and aligned to extract spatial and visual data to create a digital 3-D model. Data will be extracted from the model, including precise measurements and dimensions, colors, textures, and close-up historic details of the historic property. The model will then be made available for public viewing, if appropriate. A corresponding written or audio recording component will be developed to allow for interpretation and use of the 3-D model. This model may be made available to schools, libraries, or other institutions. In consultation with the NHOs, a final location for the model and agreement with the location will be completed before work on the model is started. If this cannot be accomplished, then only a digital model will be created. If HDOT is required to make contact with a proposed location, two attempts at making contact will be deemed sufficient, after which only a digital model will be created. HDOT, the FHWA, the SHPO, Concurring and Consulting Parties will come to agreement on the parameters for the model before work starts. If there is disagreement, HDOT and the FHWA will make the final decisions.

C. Recordation of Architectural Historic Property. Prior to any substantial alteration or demolition of an individual aboveground architectural historic property, documentation may be undertaken to record the adversely affected property through a National Register of Historic Places registration form, digital photography package, or Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscapes Survey (HALS) Level III recordation (68 Fed. Reg. 43,159), as appropriate.

D. Recordation of Archaeological Historic Property without Data Recovery. Prior to any substantial alteration or demolition of an individual aboveground archaeological historic property, documentation may be undertaken to record the adversely affected property through digital photography, scaled plan view, profile drawings, acquiring and recording oral information regarding traditional practices, and narrative descriptions meeting the Documentation required in HAR § 13-275-8 for Historical Data Recovery [HAR 13-275-8 (D)] and Ethnographic Documentation [HAR § 13-275-8 (E)].

E. Archaeological Data Recovery. Data recovery excavations may be considered in consultation among the FHWA, HDOT, SHPO, Signatories, Concurring and Consulting Parties. If it is determined by the FHWA through consultation that archaeological data recovery is an appropriate treatment, HDOT will ensure that its archaeologist prepares an archaeological data recovery plan (DRP) that meets the requirements of HAR § 13-278-3 and includes each affected archaeological historic property.

1. If possible, a single DRP will be prepared for the Undertaking and include a section on timing for report completion.

2. HDOT will provide the initial draft of the DRP to the SHPO, Signatories, Concurring and Consulting Parties for a 30-calendar-day review and comment period.

3. The written comments received will be shared with the SHPO for consideration in preparing the SHPD's review comments to HDOT and the FHWA. The SHPO shall have an additional 15-calendar-day review period (45-calendar days total), upon receipt of all written comments received by the FHWA and HDOT from Signatories and Concurring and Consulting Parties, to take comments provided in writing by other Consulting Parties into consideration in preparing the SHPO's written review comments.

4. If the SHPO does not respond in writing within the 45-calendar-day review period, HDOT, in coordination with the FHWA, may assume the SHPD's concurrence with the DRP and move forward accordingly following written notification to the SHPD, Signatories, Concurring and Consulting Parties.

5. HDOT, in coordination with the FHWA, shall ensure the archaeological data recovery fieldwork efforts are carried out in accordance with the DRP.

6. Following receipt of comments, HDOT, in coordination with the FHWA and in consultation with the SHPO, Signatories, Concurring and Consulting Parties listed in Appendix 3, will finalize the DRP. HDOT will incorporate the changes as appropriate and submit a copy marked Final to SHPO, via HICRIS Project Number 2023PR00135, for a 15-day review. If SHPO requests changes within the 15 days, HDOT shall incorporate the changes and provide a second copy marked final to SHPO, via HICRIS, with a new date, and the review process will be complete. If SHPO does not request changes within 15 days, then the review will be complete.

VII. Native Hawaiian and Consulting Parties Section 106 Consultation

A. The FHWA, in coordination with HDOT, shall continue to carry out Section 106 consultation with the Maui Lāna'i Islands Burial Council (MLIBC), Signatories, Concurring and Consulting Parties for the identification, evaluation, and any required mitigation of historic properties identified according to the terms of this PA.

B. The FHWA, in coordination with HDOT, shall carry out consultation with the MLIBC, recognized descendants and NHOs, Signatories, Concurring and Consulting Parties for any unanticipated discoveries. The consultation will include identification, evaluation as to whether a discovery meets the definition of a historic property, and consideration of measures to avoid, minimize, or mitigate adverse effects.

VIII. Applicability of this PA to Changes in Undertaking Scope

This PA satisfies the FHWA's responsibilities under Section 106 and is based on information about this Undertaking as defined in the Final EIS. It is the FHWA's responsibility to notify the SHPO, Signatories, Concurring and Consulting Parties of any changes to the Undertaking's design, scope, or footprint and, through consultation, to determine whether any changes to the design, scope, or footprint invalidate the environmental commitments made in the Final EIS and Record of Decision, including those made in this PA. If the FHWA chooses to reopen Section 106 consultation for this Undertaking, the FHWA shall implement the following measures:

A. If the change is within the current APE, then the FHWA shall notify the SHPO in writing of any changes to design or scope in writing. The SHPO shall respond within 30 calendar days of receipt of the e-mail or letter. Date of receipt is the date received in HICRIS Project No. 2023PR00135.

B. If the change is outside the current APE, the FHWA, in coordination with HDOT and in consultation with the SHPO, shall assess and revise the APE as necessary to incorporate any additional areas not previously considered under this PA.

C. The FHWA shall consult the Signatories to this PA to determine if the provisions of this PA should be applied to the additional areas and, if this PA should be applied, whether this PA needs to be amended in accordance with Stipulation XIII to include those areas.

IX. Post-AIS Discoveries

A. In accordance with 36 C.F.R. § 800.13(b)(3), the FHWA, in coordination with HDOT and in consultation with the SHPO, will apply the NRHP Criteria for Evaluation (36 C.F.R. § 60.4) to evaluate any newly identified historic properties and consider measures to avoid, minimize or mitigate adverse effects on historic properties. Additionally, the FHWA, in coordination with HDOT, will consult pursuant to Stipulation III.

B. The FHWA shall forward their evaluation of the newly identified historic properties, finding of effect on newly identified historic properties found during project construction, or unanticipated effects on identified historic properties to the SHPO for review and concurrence.

C. If the SHPO does not respond in writing within the 30-calendar-day review period, the FHWA may assume the SHPO's concurrence with the eligibility determinations.

D. If evidence of burials, human remains, or potential human remains are encountered during construction, HDOT shall suspend all work within 100 feet and protect the remains from further disturbance. The discovery shall be immediately reported to the FHWA, the SHPO, the DLNR, the Maui County medical examiner or coroner, and the Maui Police Department pursuant to HAR § 13-300-40. The DLNR maintains jurisdiction over any inadvertent discovery of human skeletal remains and is responsible for notifications to the MLIBC chair and the Office of Hawaiian Affairs. Contact information is provided in Appendix 5. HDOT is responsible for updating the contact list. If contact information changes, it is the individual party's responsibility to notify the HDOT contact person identified in Appendix 6.

E. HDOT's initial notification may be via phone but must be followed by written notification via e-mail to SHPO and SHPD staff within 24 hours providing written details include date, time, and identification of all parties who were notified and include a brief description of the find and its location. In addition to e-mail, HDOT's notification to the SHPO will be uploaded to HICRIS Project No. 2023PR00135.

F. Identification, documentation, and treatment of all burials, human remains, or potential human remains encountered during construction will be carried out in accordance with HRS § 6E-43.6 and HAR 13-300 (Appendix 1).

X. Confidentiality

Sensitive information concerning the location, character, or ownership of archaeological resources and properties on which burials, human remains, or potential human remains are identified may be withheld from public disclosure in accordance with Section 304 of the NHPA (54 U.S.C. § 307103).

XI. Monitoring and Reporting

Each year following the execution of this PA until it expires or is terminated, HDOT will submit a written status of each PA stipulation to the FHWA.

The FHWA, in coordination with HDOT, shall provide all parties to this PA a written annual summary report detailing work undertaken pursuant to its terms and associated findings. Such report shall include any scheduling changes proposed or implemented, any issues encountered relating to historic or cultural sites, and any disputes and objections received during the FHWA's efforts to carry out the terms of this PA. Additionally, the annual summary report shall include the status of the PA stipulations provided by HDOT to the FHWA and uploaded to HICRIS Project Number 2023RP00135.

HDOT will provide written notification to the FHWA for concurrence once all stipulations have been completed. Upon the FHWA's concurrence and notification therein to all parties to this PA, the Section 106 process will be deemed completed.

XII. Dispute Resolution

Should any Signatory or Concurring Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the FHWA shall notify all parties and initiate consultation to resolve the objection. If the FHWA determines that such objection cannot be resolved, the FHWA will:

A. Forward all documentation relevant to the dispute, including the resolution proposed by the FHWA, to the ACHP. The ACHP shall provide the FHWA in writing with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from ACHP, Signatories, and Concurring Parties and provide them with a copy of this written response. The FHWA will then proceed according to the final decision.

B. If the ACHP does not provide its advice in writing regarding the dispute within the 30-calendar-day review period, the FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to this PA and provide them and the ACHP with a copy of such written response.

C. The responsibilities of the FHWA to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XIII. Amendments

This PA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy signed by all Signatories is filed with the ACHP.

XIV. Termination

If any Signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation XIII. If an amendment cannot be reached within 30 calendar days, any Signatory may terminate the PA upon written notification to the other Signatories.

Once the PA is terminated, and prior to work continuing on the Undertaking, the FHWA must either (a) execute an agreement pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. The FHWA shall notify the Signatories as to the course of action they will pursue.

XV. Duration

This PA will be null and void if its terms are not carried out within fifteen (15) years from the date of its execution. Prior to such time, the FHWA may consult with the other Signatories to reconsider the terms of the PA and amend it in accordance with Stipulation XIII.

Execution of this agreement by the FHWA, HDOT, DLNR, and SHPO, and the implementation of its terms is evidence that the FHWA has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP an opportunity to comment.

508
509

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Hawaii State Historic Preservation Officer

By: _____ Date: Jul 9, 2025

Dawn N. S. Chang, Esq.
State Historic Preservation Officer

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

SIGNATORY

Federal Highway Administration

By: _____ Date: 7/10/2025
Richelle M. Takara, PE
Division Administrator

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Transportation

By: _____ Date: 07/10/2025

Edwin Sniffen, Director

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

INVITED SIGNATORY

State of Hawaiʻi Department of Land and Natural Resources (DLNR)

By: _____ Date: Jul 9, 2025

Dawn N. S. Chang, Esq.
Chairperson

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

CONCURRING PARTY

Ka`ahui-Rodrigues `Ohana

Hinano Rodrigues 07/09/2025

By: _____ Date: _____
Hinano Rodrigues]
Ohana Alaka`i

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE STATE OF HAWAIʻI DEPARTMENT OF TRANSPORTATION,
THE STATE OF HAWAIʻI DEPARTMENT OF LAND AND NATURAL RESOURCES,
AND THE
THE HAWAIʻI STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
HONOAPIʻILANI HIGHWAY IMPROVEMENTS,
MAUI KOMOHANA, MAUI COUNTY, HAWAIʻI

CONCURRING PARTY

Historic Hawaii Foundation

By: _____ Date: _____
Kiersten Faulkner
Executive Director

Appendix 1. HDOT's Hawai'i Revised Statutes (HRS) § 6E Compliance

Memorandum

To: All Signatories, Concurring and Consulting Parties, and the Public

From: State of Hawai‘i Department of Transportation (HDOT)

Re: Hawai‘i Revised Statutes (HRS) § 6E Compliance

The Programmatic Agreement (PA) for this project incorporates references to both federal and State laws and regulations to allow these review processes to work in tandem to the extent possible. Should compliance issues arise under federal or State law, HDOT and the FHWA are committed to resolving disputes through the Dispute Resolution stipulation provided in the PA (Stipulation XII).

In a letter dated January 23, 2023, HDOT initiated consultation with the SHPO under Section 106 of the NHPA of 1966 and its implementing regulations at 36 C.F.R. Part 800. In addition, HDOT initiated Hawai‘i Revised Statutes (HRS) § 6E and Hawai‘i Administrative Rules (HAR) § 13-275 historic preservation review with the State Historic Preservation Division (SHPD) for the proposed project. Although the Federal Highway Administration (FHWA) retains approval authority over Section 106, HDOT has jurisdiction over determining the project’s effects under HRS § 6E-8 and its administrative provisions in HAR § 13-275.

To reduce redundancy, HDOT intends to combine Section 106 and HRS § 6E-8 compliance where possible. HDOT is solely responsible and liable for compliance and implementation of this memorandum.

Roles and Responsibilities

HDOT, as project sponsor, in coordination with the FHWA, will be responsible for the management and development of the SHPD-approved plans and reports, including the Archaeological Inventory Survey Plan (AISP) and any necessary mitigation plans (for example, archaeological monitoring plan, burial treatment plan), required for continuing archaeological investigations of the Preferred Alternative through final design and construction of the project with the assistance of individuals meeting the requirements of Stipulation II.

The SHPD shall advise HDOT and the FHWA in carrying out its State Historic Preservation Review responsibilities for the project. Based on information provided by HDOT, the SHPD shall respond to requests for comments and/or concurrence within the specified review periods.

The SHPD shall review and accept the reports and plans as required by HRS § 6E and its implementing regulations within the timeframes provided by this PA.

Qualifications

All historic properties investigations and documentation carried out pursuant to this memorandum shall be conducted by or under the supervision of an individual meeting the HAR § 13-281, *Rules Governing Professional Qualifications*, in their respective professional discipline. Historic properties investigations and documentation shall meet the requirements of HAR § 13-275 and the appropriate HAR for specific

types of studies. Archaeologists will have a permit to do archaeological work in Hawaii per HAR § 13-282-3. HDOT, through its contractors, will identify an osteologist who can be available on an as-needed basis in the event the ethnicity of a burial is needed, or if bone fragments cannot be positively identified as human by the on-site archaeologist. The osteologist will follow the standards for analysis and reporting as defined in HAR § 13-283.

Project Area

The HRS § 6E-8 Project Area will coincide with the Preferred Alternative, once selected (see Appendix 2).

Consultation

Consultation for this project will follow the requirements and timetables within this PA. HDOT, with the FHWA, will develop a continued community dialogue plan to address the need for continued community consultation through planning, design, and construction of this project. The plan is in Appendix 6 and addresses communication protocols regarding:

1. Inadvertent effects to known historic properties within the Project Area

In the event there are inadvertent effects to known historic properties, other than burials (see Stipulation IX of this PA and Section 6 below) within the Project Area, the contractor shall contact HDOT immediately. HDOT shall contact the FHWA, Signatories, Concurring and Consulting Parties listed in Appendix 3 within 72 hours and provide:

A. Information about the site affected including site number, site location, and a map of the site and its location including where damage was done and the nature of the damage;

B. Why protections were not enforced, if known;

C. Proposed mitigation and/or protections for the site; and

D. Plans for in-person consultation, if necessary.

2. Identification and Evaluation of Historic Properties

HDOT and the FHWA intend to use the investigations and documentation of historic properties prepared for this project and as described in the PA (Stipulation III) to comply with HRS § 6E and its administrative provisions in HAR § 13-275, *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS*. HDOT will evaluate potential historic properties for integrity and significance in accordance with HAR § 13-275-6.

A. Phased Archaeological Inventory Survey

i. HDOT, in coordination with the FHWA, intends to conduct a phased identification and evaluation of archaeological historic properties for this project. The first phase, consisting of an aboveground archaeological reconnaissance surface survey, is described in Stipulation III of the PA, as mentioned above. For the second phase, an AISP will be

developed and implemented as described in the PA, Stipulation IV. HDOT will ensure the AISP is prepared and implemented as part of the identification and evaluation of archaeological historic properties pursuant to HAR § 13-275-5(c) and 5(d) and HAR § 13-276.

ii. A final AIS report will be prepared that includes the results of the archaeological reconnaissance surface survey, the archaeological subsurface survey, and other requirements, as required by HAR § 13-276. The report will be provided to the SHPD for review and acceptance. The report will also be provided to Signatories, Concurring and Consulting Parties listed in Appendix 3 for review and comment as provided in Stipulation IV.B of the PA.

B. Archaeological Monitoring

Per HAR § 13-279-3, Archaeological monitoring may be used as an identification, mitigation, or post-mitigation measure. For this project, on-site archaeological monitoring will be used as an identification measure during construction.

Following completion of the AIS, HDOT, through its contractors, shall oversee the development of an Archaeological Monitoring Plan (AMP) for the SHPD's review prior to project construction. The AMP will be developed pursuant to HAR § 13-279, *Rules Governing Standards for Archaeological Monitoring Studies and Reports*, in consultation with the PA's Signatories, including the SHPD, Concurring and Consulting Parties and submitted for a 30-calendar-day review and comment period. The SHPD shall have an additional 15 calendar days to review the comments of the other parties and take them into account in their own comments.

i. Archaeological monitoring during construction will be implemented by HDOT and under the supervision of an archaeologist meeting the qualifications stated above in the Qualifications section.

ii. HDOT shall contract with an on-call osteologist who can be in the field within 24 hours should additional expertise be needed to identify skeletal remains found in the Project Area. HDOT's lead archaeologist, in consultation with the SHPD, will decide whether an osteologist is needed on-site.

C. Cultural Monitoring

Although not yet required by State or federal law, cultural monitoring is increasingly used in Hawai'i to address Native Hawaiian concerns that archaeologists and developers do not adequately value or protect Native Hawaiians' irreplaceable cultural heritage and iwi kūpuna *(see Bolante, 2007; Cachola Abad and Ayau, 1999; Kawelu 2013).* HDOT and the FHWA are committed to ensuring Native Hawaiian culture is valued and are including cultural monitors as an integral part of the monitoring program for this project.

i. HDOT, through its contractor, will develop a Cultural Monitoring Plan (CMP) that references and utilizes HAR § 13-279, *Rules Governing Standards for Archaeological*

Monitoring Studies and Reports as a guiding framework. The CMP will be completed prior to construction.

ii. Consulting Parties and the NHOs listed on Appendix 3 shall have 30 days to review and comment on the CMP. The SHPD shall be provided the CMP at the same time as the Consulting Parties and NHOs. The SHPD shall have a total of 45 days to review the document and provide recommendations for acceptance, including time to incorporate any comments received from the NHOs and Consulting Parties.

iii. HDOT, through its contractor, will hire cultural monitors to be on site whenever construction activities meet any of the following conditions:

   a. Are within 100 feet of an archaeological site to be preserved or avoided.

   b. Subsurface excavation is occurring, in which case, one Cultural Monitor will be assigned per machine.

   c. Additional duties as specified in the CMP will include but may not be limited to:
      1. Provide independent interpretations where appropriate should traditional cultural resources be encountered in the HRS § 6E Project Area. Such resources may include but not be limited to iwi kūpuna, archaeological finds, or traditional cultural places.
      2. Implement culturally appropriate protocols for access to cultural resources that may include but not be limited to entering traditional cultural spaces, the discovery, care, and handling of iwi kūpuna, and opening and closing protocols where appropriate.
      3. Collection of culturally significant information, where appropriate, during the course of the project.
      4. Coordinate with HDOT and the FHWA to address any cultural protocol or communication matters involving recognized cultural or lineal descendants and/or the NHOs.
      5. Support the maintenance of a culturally sensitive workplace through training and awareness building that ensures that the archaeological crew, construction crew, and project leadership are informed of the traditional significance of the Project Area and community concerns regarding cultural sites.

iv. Cultural monitors will not have the authority to stop work. They will consult and coordinate with the archaeologist on site, who will have the authority to stop work. Conditions for stopping work will be addressed in the AMP and CMP.

v. Cultural monitors will, at a minimum, meet the following:

   a. Have knowledge of cultural practices along the project corridor, including appropriate chants and mele for the area.

   b. Have knowledge of cultural resources along the project corridor.

c. Have an understanding of the Section 106 and HRS § 6E processes and how they apply to this project.

vi. The Cultural and Archaeological Monitoring are independent but coordinated efforts. The content of the archaeological monitoring report will include a section that summarizes cultural monitoring findings and activities and shall either be written by the Cultural monitors or compiled in close collaboration with them in a manner that ensures their perspectives are represented without duplicating archaeological content.

vii. The relationship between the construction crew and the archaeological and cultural monitors will be defined in the AMP and CMP. For example, if iwi kūpuna are found or a historic site is breached, or a newly identified archaeological site is encountered, work will stop within 100 feet of the find. These procedures will be described in both the CMP and the AMP.

3. Determining Effects to Historic Properties

HDOT, in coordination with the FHWA, will determine the effects to significant historic properties within the Preferred Alternative consistent with HAR § 13-275-7. One of the following effect determinations will be made:

A. No historic properties affected. The project will have no effect on significant historic properties;

B. Effect, with proposed mitigation commitments. The project will affect one or more significant historic properties, and the effects will be potentially harmful. However, the agency has proposed mitigation commitments involving one or more forms of mitigation to reasonably and acceptably mitigate the harmful effects.

The effect determination shall be sent to the SHPD for review and concurrence and posted on https://www.honoapiilanihwyimprovements.com with notification to Signatories, Concurring and Consulting Parties of the PA for their comments. After 30 calendar days, HDOT shall send all comments received to the SHPD. The SHPD shall provide its concurrence, or non-concurrence with HDOT's project effect determination pursuant to HAR § 13-275-7, within 45 calendar days of receipt of an HDOT request for agreement on its effect determinations. Receipt date shall be the date a letter is received in HICRIS Project No. 2023PR00135.

4. Mitigation Options for Effects to Significant Historic Properties

HAR § 13-275-8(2) requires that, for properties evaluated as significant under criterion "e," the agency must consult with ethnic organizations or members of the ethnic group for whom the properties have significance. For this project, all sites significant under criterion "e" are significant to Native Hawaiians. HDOT has consulted with the SHPD, Signatories, Concurring and Consulting Parties listed in Appendix 3 and will continue to seek their views on proposed forms of mitigation as outlined in this PA in the event adverse effects cannot be fully avoided.

A. *Preservation.* If appropriate, as determined through consultation, mitigation of effects on significant historic properties may include preservation per HAR § 13-275-8. This includes

avoidance and protection (conservation), stabilization, rehabilitation, restoration, reconstruction, interpretation, or appropriate cultural use of the significant historic property. Application of this mitigation measure will be made following the SHPD's acceptance of a preservation plan meeting the requirements of HAR § 13-277.

B. *Data Recovery.* In the event that effects cannot be avoided, mitigation is provided in HAR § 13-275-8. Mitigation in the form of data recovery excavations shall occur in accordance with an SHPD-approved Data Recovery Plan (DRP) as defined in HAR § 13-278-3.

C. *Alternative Mitigation*. The FHWA and HDOT, in consultation with the SHPD and NHOs, will continue consultation to determine if alternate mitigation under HAR § 13-275-8(2) is appropriate.

D. *Access and Stewardship.*

i. *DLNR Involvement.* Most of the archaeological sites are located on Department of Land and Natural Resources (DLNR) property. HDOT has invited the DLNR to be an Invited Signatory to this agreement and for the DLNR to develop a stewardship agreement with interested NHOs. Failure to finalize an agreement prior to signing a stewardship agreement will not affect implementation of the PA or this memorandum.

ii. *Permanent access*. HDOT will work with the DLNR to ensure that the NHOs have access to the sites that they would like to steward and are on DLNR properties. HDOT has identified a 10,000-square-foot site and may provide graded, graveled access to the site from the highway. Failure to come to agreement will not affect implementation or completion of this agreement. If no agreement is reached by the time construction is complete, HDOT and the FHWA may be considered to have fulfilled this item. The NHOs and the DLNR may continue to work on a stewardship agreement, but HDOT and the FHWA's commitments will be considered complete.

iii. *Removal of pohaku*. The timing and removal of the pohaku will be a part of the DRP. Removal of pohaku will be overseen by HDOT's lead archaeologist and a cultural monitor and may involve the use of construction equipment, such as a backhoe or excavator. The NHOs will provide HDOT with point-of-contact (POC) information to coordinate this activity. The cultural monitor and archaeologist will consult with the NHOs listed in Appendix 3 regarding the removal of the rocks as a part of the DRP.

5. Pre-Construction Training

A. Prior to construction activities, HDOT, through its contractors, and in coordination with the FHWA, will conduct pre-construction, on-site archaeological and cultural awareness training led by HDOT's lead archaeologist, archaeological monitors, and cultural monitors for anyone with access to the construction site, including all laborers, skilled construction workers, vehicle operators, management, and visitors. The training will explain the cultural significance of the areas in which work is being performed, HDOT's approach to HRS § 6E-8 compliance, conditions and requirements set forth in this PA, procedures to follow if archaeological or cultural remains are found, and roles and responsibilities of HDOT's archaeological and cultural monitors. The training will be repeated when new staff or new

visitors are on site. A training log of everyone who took the training will be maintained in the contractor's field office. HDOT's lead archaeologist and a cultural monitor will sign off on the log. Additional details may be provided in the Archaeological and Cultural Monitoring Plans.

B. HDOT, through its contractors, shall ensure that the cultural and archaeological monitors receive standard safety training provided for all persons accessing a construction site and working in proximity to heavy equipment.

C. HDOT, through its contractors, will provide training participants with contact information for those required to receive discovery and safety incidence notifications. The AMP and CMP will be provided to all parties and a copy will be maintained on site throughout the duration of construction.

6. Burials and Iwi Kūpuna

A. Previously Identified Burial Sites

"Previously identified" is defined at HAR § 13-300-2.

The Maui/Lāna'i Island Burial Council (MLIBC) has the authority to determine treatment and jurisdiction over all requests to preserve or relocate previously identified Native Hawaiian burial sites.

If a previously identified Native Hawaiian burial site will be affected by the project, HDOT, through its contractor, shall follow HAR § 13-300-33, *Request for council determination to preserve or relocate Native Hawaiian Burial sites.*

If a previously identified non-Hawaiian burial site will be affected by the project, HDOT, through its contractor, shall follow HAR § 13-300-34, *Request for department determination to preserve or relocate non-Native Hawaiian burials sites.*

B. Inadvertent Discovery of Human Remains

"Inadvertent discovery" is defined at HAR § 13-300-2.

The SHPD has jurisdiction over any inadvertent discovery of human skeletal remains and any burial good over 50 years old regardless of ethnicity.

If human skeletal remains are newly identified following the acceptance of the AIS, and not previously identified, HDOT, through its contractor, shall follow HAR § 13-300-40, *Inadvertent discovery of human remains*.

C. Cultural Monitors

During working hours, at least one cultural monitor shall remain at the site where burials or iwi kūpuna are found until they are either removed or reburied. Cultural monitors shall have the authority to pause work if protocols need to be observed. Cultural monitors will be

expected to record information that is relevant to their position. In coordination with the on-site archaeologist, they may pause work at the site to gather any necessary information.

Cultural monitors will assist HDOT in contacting the NHOs and any known lineal or cultural descendants provided by the MLIBC or the SHPD. Cultural monitors will assist HDOT in developing meeting agendas and materials for consultation on the treatment of iwi kūpuna.

D. Relocation and Reburial

If avoidance is not possible, and the MLIBC or SHPD determines the burial must be relocated, HDOT shall provide a burial relocation site, if necessary, to be chosen in consultation with the MLIBC, the NHOs in Appendix 3, and recognized descendants. If it is necessary for iwi kūpuna to be moved out of the Project Area, the MLIBC and recognized descendants will work with HDOT on the design, materials, and construction of up to three burial sites, one per ahupua'a. If the land chosen belongs to the DLNR, HDOT will facilitate agreements regarding access and use of the land. The DLNR will have long-term management of the site.

Statement on the Existing Honoapi'ilani Highway

Upon the successful completion of the project, the existing Honoapi'ilani Highway that will be replaced will be transferred to the County of Maui. Consulting Parties have raised concerns that plans for the existing Honoapi'ilani Highway will affect their traditional and cultural gathering rights. Acknowledging these concerns, HDOT took the following actions:

1. The FHWA and HDOT are working with The Nature Conservancy, who is developing a conceptual plan for incorporating nature-based solutions into plans for the existing Honoapi'ilani Highway entitled, "Olowalu, the Road to Resilience." HDOT has shared NHO concerns with The Nature Conservancy. Periodic updates will be provided by HDOT in their annual report to the SHPD, Signatories, Concurring and Consulting Parties.

2. HDOT has notified and consulted with the SHPD regarding the concerns raised by the NHOs identified in Appendix 3 regarding NHO access to the shoreline and ocean along the existing Honoapi'ilani Highway.

REFERENCES

Bolante, Ronna

2007 Bones of Contention. Honolulu Magazine, November 2007. Electronic document, http://www.honolulumagazine.com/Honolulu-Magazine/November-2007/Bonesof-Contention/index.php?cparticle=1&siarticle=0#artanc

Cachola-Abad, Kehaunani and Edward K. Ayau

1999 He Pane Hoʻomālamalama: Setting the Record Straight and a Second Call for Partnership. Hawaiian Archaeology, 7, 73–81.

Kawelu, Kathleen

2014 In Their Own Voices: Contemporary Native Hawaiian and Archaeological Narratives about Hawaiian Archaeology. The Contemporary Pacific, Vol. 26, no. 1.

Appendix 2. Area of Potential Effects Map and Project Area Map

Area of Potential Effects Map
(Section 106)

Map Generated: 5/29/2025
Launiupoko
Wailua Pl
Awalua
Lihau
Ka Puali
Olowalu
Luawai St
Nopua
North Road
Olowalu Cane Haul Rd
Honoapiilani Highway
Kailiili
Ehehene St
Ukumehame
Puu Kauoha
Makiwa Gl
Paekii Pl
Pohaku Aeko St
Hanaula Gl
Papalaua Gl
11
12
13
14
15
16
Legend
Area of Potential Effects
Study Segment of the Existing Honoapi'ilani Highway
Roads
Streams
Mile Marker
0 1,000 2,000 4,000
Feet
Service Layer Credit World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat,
Honoapi'ilani Highway
Improvements

Project Area Map
(HRS § 6E)

Map Generated: 5/28/2025
Launiupoko
Awalua
Lihau
Ka Puali
Olowalu
Mopua
Kailiili
Ukumehame
Puu Kaaoha
Makiwa Gl
Hanaula Gl
Papalaua Gl
16
15
14
13
12
11
Legend
Project Area
Study Segment of the Existing Honoapi'ilani Highway
Roads
Streams
Mile Marker
0 1,000 2,000 4,000
Feet
Service Layer Credit World Topo Base: Sources: Esri, HERE, DeLorme, increment P Corp., NPS, NRCan, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat,
Honoapi'ilani Highway
Improvements

Appendix 3: List of Consulting Parties

Consulting Parties

First Name	Last Name	Organization
Jordan	Calpito	SHPD
Connie	Applegate	Ohana Kaahui
DeSilva	Lance	DLNR-DOFAW
Donora	Kahaialii	Ohana Kahaialii
Earl	Kukahiko	Lahaina Kupuna Council
Felimon	Sedang	Lahaina Kupuna Council
Fretz	Scott	DLNR-DOFAW
Glenn	Gazmen	
hmkingdomofhawaii@gmail.com		Ohana Kaluna Palafox
Houie and Kathy	Kihune	Ohana Kaahui
Jonette	Kaahui Knight	Ohana Kaahui
Kamakana	Ferreira	OHA
Kaweni	Ibarra	OHA
Kawika	Farm	Maui County CRC
Kiersten	Faulkner	Historic Hawaii Foundation
Lanny	Sinkin	Ohana Kaluna Palafox
Susan	Lebo	SHPD
Chris	Nakahashi	SHPD
Daniel L	Ornellas	DLNR-LD
Andrew K.	Philips	SHPD
Pomaikaʻi	Kaniaupio-Crozier	Mauna Halawai Watershed
Puanani	Felicilda	
Jessica	Puff	SHPD
Rina	Sampson	Lahaina Kupuna Council
Hinano	Rodrigues	Ohana Kaahui
Thelma P.	Kaahui	Ohana Kaahui
Tiana	Lewis	Kipuka Olowalu
Ekolu	Lindsey	Kipuka Olowalu/Ohana Lindsey
Foster	Ampong	Ohana Kekahuna and Keaweiwi
George Tosh	Fujita	Ohana Kaluna Palafox
Jessica	Nahoʻoikaika	Ohana Nahoʻoikaika
Jezelyn		
Kai	Nishiki	Community Advocate
Kaulu	Nahoʻoikaika	Ohana Nahoʻoikaika
Nathan	Nahoʻoikaika	Ohana Nahoʻoikaika
Keeaumoku	Kapu	Ohana Kapu

Kaipo	Kekona	Aha Moku o Maui – Kāʻanapali Moku
Ui	Kapu	Ohana Kapu
Leona	Nahoʻoikaika	Ohana Nahoʻoikaika
Linda	Magalianes	Ohana Nahoʻoikaika
Malihini Keahi	Heath	Ohana Haia
Fay	Mcfarlane	Nā ʻAikāne o Maui, Inc. – Kakoʻo Technical
Tiare	Lawrence	Ohana Nahoʻoikaika
Victoria	Kaluna-Palafox	Ohana Kaluna Palafox
Wilmont	Kahaialii	Ohana Kahaialii
Tamara	Farnsworth	The Nature Conservancy, Maui
Kaponoʻai	Molitau	County of Maui Department of ʻŌiwi Resources
Kekai	Robinson	County of Maui Department of ʻŌiwi Resources
Janet	Six	County of Maui Department of ʻŌiwi Resources
April	Greenburg	SHPD
Samantha	Gehrman	SHPD
Leinoa	Wong	SHPD

Appendix 4: List of Section 106 and HRS § 6E Consulting Party Meetings and Dates

Consulting Party Meeting Dates

April 7, 2022, In-person with NHOs from the area, set up by Keeaumoku Kapu
April 7 and 8, 2022, Hinano Rodrigues
April 8, Ekolu Lindsey, Kipuka Olowalu/Olowalu Cultural Reserve
March 29 and 30, 2023, Virtual
May 31, 2023, NHO, FHWA Field Visit
June 1, 2023, Presentation to Maui Cultural Resources Commission
July 27, 2023, Virtual Consulting Party Meeting: Archaeology/Cultural
August 2, 2023, Virtual Consulting Party Meeting: Architecture
November 2, 2023, SHPD, FHWA, HDOT
November 18, 2023, NHO Field Visit
November 20, 2023, Virtual Consulting Party Meeting: Archaeology/Cultural
March 28, 2024, SHPD Field Visit
September 22, 2024, Presentation to Na Kupuna o Lahaina Advisory Board, NHOs, Consulting Parties: Archaeology and Programmatic Agreement
September 26, 2024, NHOs and other Consulting Parties, Virtual: Archaeology and Programmatic Agreement
February 12, 2025, NHOs and other Consulting Parties: Programmatic Agreement
April 4, 2025, NHOs and other Consulting Parties: Programmatic Agreement
May 22, 2025, SHPD and FHWA: Programmatic Agreement
May 28, 2025, SHPD and FHWA: Programmatic Agreement
June 4, 2025, SHPD and FHWA: Programmatic Agreement

Appendix 5: Call Chart and Contact List for Inadvertent Discoveries

If discovery is of suspected human remains

- Osteologist or Physical Anthropologist confirms remains are human.
- Remains covered with unbleached muslin and a minimum 100 ft. protective perimeter from the location of the remains is set.

Archaeological Principal Investigator Contacts
FHWA and HDOT

Archaeological Principal Investigator Contacts
Maui Police Department Non-Emergency Line
(808) 244-6400
Maui Police Department Medical Examiner
(808) 463-3833

HDOT Contacts:
SHPD Burial Sites Specialist for Maui Island
SHPD Maui Archaeologist
MLIBC Lāhainā Representative
County of Maui Department of ʻŌiwi Resources
County of Maui Archaeologist

- See contact list for phone and email contact information.
- No further excavation or investigation unless otherwise directed by SHPD.
- Work may continue outside of the protective buffer with the presence of an archaeological and cultural monitor.

If discovery is of a non-burial related archaeological site

- A minimum 100 ft. protective perimeter from the known extent of the site is set.

Archaeological Principal Investigator Contacts
FHWA and HDOT

Archaeological Principal Investigator Contacts
SHPD Maui Archaeologists
SHPD Archaeology Branch Chief
County of Maui Archaeologist

- See contact list for phone and email contact information.
- Any additional archaeological data recovery and data recovery methods will be determined in consultation with SHPD
- Work may continue outside of the protective buffer with the presence of an archaeological and cultural monitor.

Below is a list of individuals to be notified if an inadvertent discovery occurs. Notification information (names, phone numbers, and e-mails) will be continuously updated during project implementation and may be requested from HDOT.

Agency/Position
FHWA
HDOT
Maui Police Department
Maui Police Department Medical Examiner
SHPD Burial Sites Specialist
SHPD Burial Sites Specialist
MLIBC Council Chair
MLIBC Lahaina Representative
SHPD Maui Lead Archaeologist
SHPD Maui Island Archaeologist
SHPD Archaeology Branch Chief
County of Maui Department of ʻŌiwi Resources Director
County of Maui Department of ʻŌiwi Resources Deputy Director
County of Maui Department of ʻŌiwi Resources Principal Archaeologist

Appendix 6: Continued Community Dialogue Plan

Continued Community Dialogue Plan

1. HDOT will provide the name of the HDOT contact during the planning, design, and construction phases of the project before the design-build contract starts.

At least once per month, on or before the last day of the month, HDOT shall provide both the NHOs listed in Appendix 3 and the SHPD with a project update. The project updates for the SHPD shall be sent to HICRIS Project Number 2023PR00135.

2. The project update shall include activities that occurred in the previous month including:

    - Status of the Design Build Contract, including percent of the phase of project that has been completed, and, if applicable, construction locations.
    - Each phase of the archaeological study is addressed in the PA and includes review times for Consulting Parties. The status of review, major comments on the reviews and the HDOT response, will be included in any monthly reports.
    - Status of Construction Mobilization, including hiring and introducing the Archaeological and Cultural Monitors and regular reports on where construction is located.
    - Status of Archaeological and Cultural Monitoring
    - End of Fieldwork and End of Construction
    - Notification when each of the archaeological reports became (or are) available on the project website.
3. If there is nothing new to report, the update will say, “no new information since last month.”
4. If sites are found during subsurface archaeological surveys, HDOT will consult on the identification and evaluation of the historic properties found. HDOT may hold in person or video meetings to discuss the finds, providing the following information:

    - Location of the find (provide a map, if appropriate)
    - Type and function of site, if known
    - If no map is provided, a written description of the relationship of the site to Project Area
    - HDOT effect determination

5. If burials or subsurface archaeology is found during the subsurface inventory survey, the NHOs in Appendix 3 shall be notified per the requirements in the PA. Burials finds and notification shall be noted in the monthly report.
6. In the event there are inadvertent effects to known historic properties within the Project Area, HDOT shall contact the Consulting Parties within 72 hours and provide:

    - Information about the site affected including site number, site location, and a map of the site and its location including where damage was done;
    - Why protections were not enforced, if known;
    - Proposed mitigation and / or protections for the site; and
    - Plans for in-person consultation, if necessary;
    - NHOs may request a site visit, which HDOT will consider. If a site visit is denied, HDOT will provide clear reasons why the site visit is denied.

7. HDOT shall consult with NHOs on mitigation for subsurface and inadvertently discovered archaeological or archaeological sites. Mitigation options are listed in the PA and Appendix 1. Meetings may be on-line or in person.

8. Either HDOT or the NHOs can ask for a meeting to discuss any archaeological or cultural (burials) finds. The meeting may be on-line or in-person.

9. Any NHO may ask for HDOT to hold an in-person meeting rather than an on-line meeting.

10. NHOs may send questions or concerns about the project to the HDOT contact. Provided that there are five days or more before the end of the month, HDOT shall respond in the monthly report. If HDOT cannot respond in the monthly report, then HDOT will note the question in the monthly report, and that it will respond in the next monthly report. At the request of any NHO, HDOT may respond to the question or concern sooner than the monthly report. If this is the case, HDOT will note in the monthly report the response to the question or concern and the date it was provided.

11. Any NHO may ask for a meeting on a subject or concern not raised by HDOT in their monthly reports, provided they have notified HDOT of the issue per item 7 above.

12. If any of the items in #2 above are provided to the general public, HDOT can reference the general public notice site.

13. Review of reports shall follow the schedule provided in the PA.

14. At the completion of the project HDOT shall provide an end of project report to the NHOs.

15. Individual items that may require more than once monthly meetings to resolve shall schedule meetings as necessary and at the convenience of the majority of participants. Progress shall be reported monthly through this protocol.

HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

Appendix 3.7 – Cultural Resources – Supplemental Information

November 2025

Prepared for

Honoapiʻilani Highway Improvements

Prepared by

wsp

Contents

ʻĀina Archaeology, Inc Cultural Impact Assessment (CIA) Report

ʻĀina Archaeology, Inc
Cultural Impact Assessment (CIA) Report

AA PROJECT NO. 2216

DRAFT

CULTURAL IMPACT ASSESSMENT AND ETHNOGRAPHIC SURVEY FOR THE HONOAPIʻILANI HIGHWAY REALIGNMENT PROJECT

Federal-Aid Project No.: RAEM-030-1(59)

Ukumehame, Olowalu, and Launiupoko Ahupuaʻa, Lahaina Moku, Lahaina Modern Tax District, Maui Island

Portions of TMK Plats (2) 4-7-001, 4-8-001, 002, 003, 004, and Honoapiʻilani Highway Rights-of-Way

ʻĀINA ARCHAEOLOGY

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Table of Contents

1.0 Introduction 5
1.1 Project Description and Background 5
1.2 Project Area 5
2.0 Environmental Setting 7
2.1 Natural Environment 7
2.2 Built Environment 10
3.0 Cultural Historical Background 11
3.1 He Moʻolelo no Olowalu a me Ukumehame i ka Wa Kahiko – Traditions of the Olowalu and Ukumehame Regions Prior to Western Arrival 11
3.1.1 Wahi Inoa (Place Names) 11
3.1.2 ʻŌlelo Noʻeau, Winds, and Rains Associated with Olowalu and Ukumehame 15
3.1.3 The Mythical Era 19
3.1.3.1 Puʻulaina, ʻEʻeke, and Līhau – Mountainous Moʻolelo 19
3.1.3.2 Drought and the Lesson of Hua 20
3.1.4 Traditional Hawaiian Settlement of Olowalu and Ukumehame 21
3.1.4.1 Ka ʻOihana Mahiʻai no Olowalu a me Ukumehame 21
3.1.4.2 Ka ʻOihana Lawaiʻa no Olowalu a me Ukumehame 25
3.1.4.3 Politics and Warfare 27
3.1.4.3.1 The Battles of Kamehameha-nui and Kahekili 27
3.1.4.3.2 The Olowalu Massacre 29
3.1.4.4 Heiau and Religious Sites 30
3.1.4.5 Puʻu Kīlea Olowalu Petroglyphs 31
3.2 Western Contact and 19th Century Culture Change 32
3.2.1 Foreign Transient Trade 33
3.2.2 Christian Missions & Missionaries 33
3.2.3 The Great Māhele (1840-1851) 34
3.2.4 Beginnings of the Sugar Industry in Lāhainā Moku 55
3.2.4.1 Olowalu Sugar Company 56
3.2.4.2 Pioneer Mill Company 57

3.3 Olowalu and Ukumehame Ahupuaʻa in the 20th Century 58
3.3.1 1900-1950 – Early 20th Century and World War II 58
3.3.2 Mid-20th Century to the Modern Era 59
4.0 Consultation Methods and Results 61
4.1 Scoping and Community Outreach 61
4.2 Formal Interviews 64
4.2.1 Formal Interview with Robert Richard Santos 64
4.2.2 Formal Interview with Elmer Kailikole Kaai, Jr. 65
4.2.3 Formal Interview with Margaret Santos 66
4.3 Community Outreach Results and Informal Interviews 67
4.3.1 Ekolu Lindsey via Phone on March 14 67
4.3.2 Tiare Lawrence 68
4.3.3 Group Outreach with Tosh Fujita, Vicki Palafox, and Ulu Nahooikaika 68
4.3.4 Kaponoʻai Molitau – Email In Entirety from 3/15 69
4.4 Hawaiian and Local Community Organizations 70
4.4.1 The Nature Conservancy 70
5.0 Traditional Cultural Practices 71
5.1 Mauka Resources 71
5.2 Makai Resources 72
5.3 Traditional Access and Trails 75
5.4 Traditional Hawaiian Sites 75
5.5 Traditional Hawaiian Burials and Historic Cemeteries 76
5.6 Traditional Hawaiian Spirituality and Ceremony 77
6.0 Analysis and Recommendations 78
6.1 Potential Project Effect and Recommendations **Error! Bookmark not defined.**
6.2 Potential Indirect Effects **Error! Bookmark not defined.**
6.3 Recommendations 87
7.0 References Cited 90

List of Figures

Figure 1-1: A map showing the four build alternatives and associated Area of Potential Effect as indicated by the Federal Highway Administration (Federal Highway Administration 2022a: Section 106). 6
Figure 3-1: Native Register Claim by Lupe for Helu 3811, highlighting for emphasis of the 28 kuleana loʻi and 3 pūhala lei resources [Native Register, Reel 3, Volume 6, Image 01287 (Office of Hawaiian Affairs 2011)]..... 22
Figure 3-2: Native Register Claim by Pikao for Helu 3877. Highlighting for emphasis of the loko claimed in Olowalu. [Native Register, Reel 3, Volume 6, Image 01293 (Office of Hawaiian Affairs 2011)]..... 26
Figure 3-3: Māhele Award to Keahi for Helu 4376 showing the loko next to Apana 1. [Māhele ʻĀina Index, Reel 10, Volume 8, Image 00124 (Office of Hawaiian Affairs 2011)]. 27
Figure 3-4: Original route of Olowalu Stream as surveyed by Lyons (Dodge 1879)..... 37
Figure 3-5: Map showing location of both loko in the project area. 38

List of Tables

Table 2-1: Native Plant Species of Olowalu 9
Table 3-1 Wahi Inoa - Place Names 12
Table 3-2. Māhele ʻĀina Claims for Olowalu..... 39
Table 3-3. Māhele ʻĀina Claims for Ukumehame 49
Table 4-1: Outreach Summary 63

1.0 INTRODUCTION

At the request of the State of Hawai‘i Department of Transportation (HDOT), and under contract to WSP, ‘Āina Archaeology has prepared a review of current and traditional cultural practices and land use within the ahupua‘a of Ukumehame, Olowalu, and Launiupoko which may be impacted by the planned realignment of the Honoapi‘ilani Highway (State Route No. 30). The location of the proposed project is in West Maui, along a six mile stretch of the current highway, predominantly on the coastal plains of the ahupua‘a of Ukumehame, Olowalu, and Launiupoko (Portions of TMK Plats (2) 4-7-001, 4-8-001, 002, 003, 004, and Honoapi‘ilani Highway Rights-of-Way).

1.1 PROJECT DESCRIPTION AND BACKGROUND

As part of the Federally funded Honoapi‘ilani Highway Improvements, the West Maui Ukumehame to Launiupoko project purpose is to provide reliable and resilient transportation for users of Maui’s belt road system which operates as a two-lane principal arterial on the National Highway System (NHS) and Freight Network System (FNS) (Federal Highway Administration 2023:3). Further, the project proposes to reduce the highway’s vulnerability to coastal hazards including erosion, inundation, and sea level rise while providing a regional transportation system that supports the safe movement of people and goods in a way that conforms to regional land use and transportation plans (Federal Highway Administration 2023:3, 5).

Currently, the segment between Ukumehame and Launiupoko of the existing Honoapi‘ilani Highway is an undivided road with two 12-foot wide travel lanes with 4-foot to 8-foot shoulders (Federal Highway Administration 2022a: Project Overview). As the main travel artery for people and goods between West Maui and the rest of the island, any adverse impacts to this roadway cause severe consequences to island residents and the economy. The project proposes four alternative realignment builds as well as a “no-build” option (Federal Highway Administration 2022b:12). Should the highway be realigned, the intention is for the old roadway to be transferred to the County of Maui with local access would continuing for existing homes and businesses (Federal Highway Administration 2022a: FAQs).

1.2 PROJECT AREA

The proposed project area is located in West Maui between mile marker 11, at the southeastern terminus in Ukumehame near Papalaua Beach Park, and mile marker 17, at the northwestern terminus in Launiupoko (Federal Highway Administration 2022b:1). The current alignment is within the projected Sea Level Rise Exposure Area (SLR-XA) and alternatives have been proposed to mitigate and address negative impacts associated with the coastal location of the arterial road. Among the potential alternatives is moving the highway more inland (mauka) which calls for an extension of the project study area to reach from mauka (mountains) to makai (sea) alongside the six mile stretch running through the ahupua‘a of Ukumehame, Olowalu, and Lauiniupoko.

The areas of potential direct effect (see Figure 1-1) will be bounded by the Pacific Ocean on the makai side except for the portion of the highway that moves inland at the south near Kapaiki Place and at the north past Olowalu Surfing Beach. It will encompass areas mauka from the pinch point at the Olowalu Transfer Dump to east of the Olowalu Petroglyphs and the Ukumehame Firing Range to the southern pinch point near the beginning of the pali (cliff) road.

For this cultural impact assessment, the ahupuaʻa of Olowalu, Ukumehame, and Launiupoko are considered the overall "study areas" while the alternatives and their footprints are considered the "project area." The purpose of this document is to gain an understanding of traditional cultural practices within the study area and identify any potential effects on these practices that may occur during, or as a result of, the implementation of the proposed project.

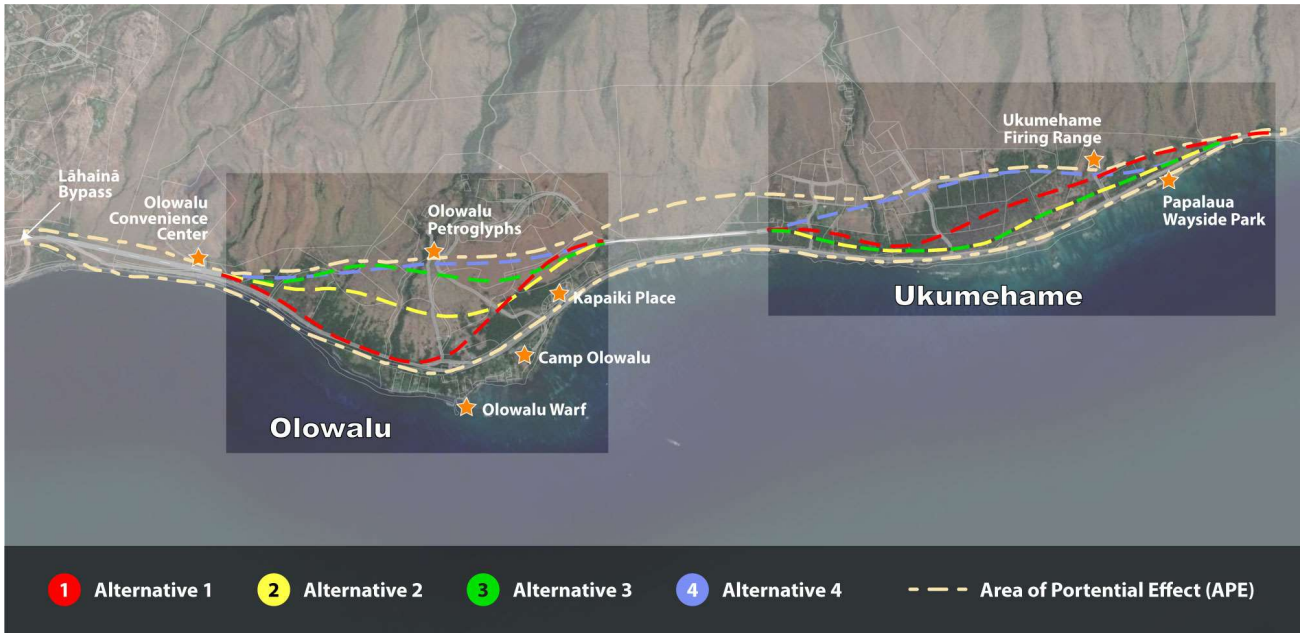


Figure 1-1: A map showing the four build alternatives and associated Area of Potential Effect as indicated by the Federal Highway Administration (Federal Highway Administration 2022a: Section 106).

2.0 ENVIRONMENTAL SETTING

At approximately 728 square miles, Maui is the second largest island within the Hawaiian Island chain (Stearns and MacDonald 1942). The island consists of two major shield volcanoes, the younger East Maui Volcano, referred to as Haleakalā, rises to an altitude of 10,023 feet, and the older West Maui Volcano, referenced throughout the historical and research literature as the West Maui Mountains, Mauna Kahalawai, and Mauna ʻEʻeka, which rises to 5,788 feet at Puʻu Kukui (Juvik 1998:308). The Honoapiʻilani Highway Improvement Realignment proposed project areas are located within Lāhainā moku (district). This unique stretch of land includes Olowalu Stream, Ukumehame Stream, a nearly 1000-acre coral reef system, deep valleys, and lands that have been traditionally and commercially cultivated.

2.1 NATURAL ENVIRONMENT

The climate of Maui is uniformly mild in temperatures with a cool Northeasterly wind, referred to as tradewinds, persisting. The moist, warm tradewinds are orographically forced up the windward slopes of West Maui which creates continual rainfall at Puʻu Kukui (C. L. Cheng 2014:5) which is the highest point of Mauna Kahalawai. The leeward slopes are dry throughout the majority of the year, however, during the winter months when Southerly winds bring low-pressure systems, the coastal leeward areas get much of their annual rainfall (Oki et al. 2010:7).

The ahupuaʻa of Olowalu and Ukumehame are framed by steep valleys and ridges on the southwest flank of Mauna Kahalawai which was formed by the older of the two shield volcanoes that created the island of Maui. The land is then further divided by the Olowalu and Ukumehame Streams and their smaller tributaries and resultant gulches.

In Olowalu, the wide alluvial plain of the ahupuaʻa is compromised of various soils, but predominantly the Pulehu Soil Series is found (Lee-Greig et al. 2015:5), consisting of "well-drained soils on alluvial fans and stream terraces and in basins... developed in alluvium washed from basic igneous rock" (Foote et al. 1972:115). Of that soil series, the Pulehu Cobbly Clay Loam, 0 to 3 percent slopes (PtA) dominates the project area (Lee-Greig et al. 2015:5). According to Foote and others (1972:116) PtA soils have a surface layer of dark-brown clay loam that measures 21 inches thick above stratified dark-brown, dark grayish-brown, and brown, massive and single grain, loam, loamy sand, fine sandy loam, and silt loam that is approximately 39 inches in thickness and is cobbly. The soil has moderate to low permeablility which can result in rapid runoff, poor drainage, and result in low areas being subject to flooding and severe erosion hazards (CWRM 2017:11; Foote et al. 1972:116). Along with PtA soils the other Pulehu Series Soils are Pulehu Clay Loam, 0 to 3 percent slopes (PsA), Pulehu Silt Loam 0 to 3 percent slopes (PpA), and Pulehu Cobbly Clay Loam 3 to 7 percent slopes (PtB) (Lee-Greig et al. 2015:6). Remaining soils in the project area in Olowalu are Beaches (BS), Ewa Silty Clay Loam (EeA), Jaucas

Sand (JaC), Kealia Silt Loam (KMW), Wainee Extremely Stony Silty Clay (WyC), and Stony Alluvial Land (rSM).

As a hydrological unit, Olowalu covers an area of 8.317 square miles from the coast to 5,210 feet in elevation with the longest path of freshwater flow being 6.04 miles in length along a southwesterly direction (CWRM 2017:1). According to the Commission on Water Resource Management's interim instream flow standard (IIFS) report, "Olowalu Stream is composed of one main stem and two ephemeral tributaries, that flow only intermittently in the upper sections in response to rainfall-runoff" (2017:1). Rainfall in the area has an annual average of 56.1 inches with the majority occurring during the winter months between December and January (CWRM 2017:13).

The flora of the Olowalu area consists mainly of scrub and forested areas with over half of the hydrological unit covered in alien forest, grassland, or shrubland with sparse native vegetation like ʻōhiʻa (*Metrosideros polymorpha*) spread through the upper slopes within the West Maui Forest Reserve (CWRM 2017:16). The current highway is lined with large monkeypod trees and kiawe, both are non-native. In the lower, cultivated areas of Olowalu residents grow tropical flowers, dryland and wetland kalo (taro, *Colocasia esculenta*), maiʻa (banana, *Musa paradisiaca*), ʻuala (sweet potato, *Ipomoea batatas*), and papaya (*Carica papaya*) while attempting to remove invasive species so that native ones can thrive including ʻūlei (*Osteomeles anthyllidifolia*), naupaka kahakai (*Scaevola taccada*), akia (*Wikstroemia spp.*), lauaʻe (*Microsorum scolopendria*), and hala (*Pandanus odorifer*) (CWRM 2017:16).

Similarly, the Ukumehame hydrological unit, also situated on the southwest flank of Mauna Kahalawai, covers 8.20 square miles from the sea to 4,610 feet elevation with a slope greater than 30 percent (CWRM 2018:2). Ukumehame Stream is made up of two channels that are fed by many other ephemeral tributaries with intermittent flow responding to rainfall-runoff (ibid). Mean annual precipitation is 76.4 inches at the basin (ibid) and rainfall is variable throughout the entire Ukumehame ahupuaʻa, swinging from a high mean annual of 116 inches at 4173 feet elevation to a low of 13 inches near the coast at 75 feet elevation (Giambelluca et al. 2011). Like Olowalu, Pulehu Soils are prevalent in Ukumehame. Other soils that are known in the area are Rock Outcrop (rRO) and Rock Land (rRK), where rocks cover 25 to 90 percent of the surface with very shallow soil and the land is nearly level to very steep occurring near the pali (Foote et al. 1972:119); Kealia silt loam (KMW) which drains poorly and can pond during heavy rain fall afterwards drying and presenting salt crystals in low lying areas where the brackish water table is at depth of 12 to 40 inches (Foote et al. 1972:67); Jaucas (JaC) near the coast, laying close to the current roadway; and Beaches (BS) made up of sand and often washed by the ocean.

Having been heavily utilized by sugarcane cultivation from the early historic period to modern times, the landscape and watershed of the entire study area has been extremely modified away from native plants and animals. A survey conducted by Robert Hobdy found a total of 114 plant species in Olowalu. Of those, only three were endemic, including nehe (*Melanthera lavarum*), alena (*Boerhavia herbstii*), and wiliwili (*Erythrina sandwicensis*), with a further 15 indigenous

species (see Table 2-1) (2010:4). The Olowalu non-native vegetation includes buffelgrass (*Cenchrus ciliaris L.*), ʻopiuma (*Pithecellobium dulce*), kiawe (*Prosopis pallida*), klu (*Acacia farnesiana*), koa haole (*Leucaena leucocephala*), australian salt bush (*Atriplex semibaccata*), and pickleweed (*Batis maritime*) (Hobdy 2010:7-10; Lee-Greig et al. 2015:8). With the vegetation in the Ukumehame area being mostly introduced, non-native species like buffelgrass and kiawe, with the alien scrub and grassland make up a combined 46.2 percent of the entire vegetative land cover (CWRM 2018:18).

Table 2-1: Native Plant Species of Olowalu

Common Name	Scientific Name	Status
kalo (taro)	*Colocasia esculenta*	Polynesian
kō (sugar cane)	*Saccharum officinarum*	Polynesian
kukui	*Aleurites moluccana*	Polynesian
niu (coconut)	*Cocos nucifera*	Polynesian
alena	*Boerhavia herbstii*	Endemic
nehe	*Melanthera lavarum*	Endemic
wiliwili	*Erythrina sandwicensis*	Endemic
no common name	*Cyperus polystachyos*	Indigenous
ʻaʻaliʻi	*Dodonaea viscosa*	Indigenous
ākulikuli	*Sesuvium portulacastrum*	Indigenous
hau	*Talipariti tileaceum*	Indigenous
ʻilieʻe	*Plumbago zeylanica*	Indigenous
ʻilima	*Sida fallax*	Indigenous
kipukai	*Heliotropium curassavicum*	Indigenous
koali awahia	*Ipomoea indica*	Indigenous
kou	*Cordia subcordata*	Indigenous
milo	*Thespesia populnea*	Indigenous
naupaka kahakai	*Scaevola taccada*	Indigenous
pili	*Heteropogon contortus*	Indigenous
pōhuehue	*Ipomoea pes-caprae*	Indigenous
pōpolo	*Solanum americanum*	Indigenous
ʻuhaloa	*Waltheria indica*	Indigenous

The known native fauna in the Ukumehame area are the endemic Hawaiian Nēnē Goose (*Branta sandwicensis*), which is also present in Olowalu which has also been host to the migratory ʻUlili (Wandering Tattler, *Heteroscelus incanus*) (Hobdy 2010:13), however, for both ahupuaʻa, the Hawaiian Petrel (*Pterodroma sandwichensis*), threatened Newell's Shearwater (*Puffinus auricularisnewelli*), and the endangered Hawaiian Hoary Bat (*Lasiurus cinereussemotus*) should be considered as possible faunal inhabitants or visitors of the project areas. Also, both Olowalu Stream and Ukumehame Stream support a "high diversity of native and introduced insect biota in all reaches including native dragonflies (*Anax junius*) and native damselflies (*Megalagrion spp.*) (CWRM 2018:40), but the diversions in Olowalu make it uninhabitable for the snails, ʻoʻopu (goby,

Sicyopterus stimpsoni, Eleotris sandwicensis, Awaous guamensis, and *Lentipes concolor*), and ʻopae (shrimp, *Atyoida bisulcata*) that live in Ukumehame (CWRM 2017:39; 2018:40).

The coastal region of the ahupua'a boasts a vibrant marine ecosystem centered around a mother reef system. This ecosystem supports a diverse array of life, serving as vital spawning grounds and habitats for coral and fish. It also functions as critical nurseries for species such as manō (sharks), honu (turtles), and hīhīmanu (stingrays). Additionally, it serves as a rich gathering ground abundant various species of seaweed, making it a valuable biocultural resource. In 2017, the Olowalu reef was the first Hawaiian location designated as a Hope Spot by the ocean protection non-profit, Mission Blue, identifying it as critical to the overall health of the oceans (Mission Blue 2023).

2.2 BUILT ENVIRONMENT

The main feature of the modern built environment in the project area is Honoapiʻilani Highway. Other elements are residential homes on both mauka and makai sides of the highway and their related infrastructure, Camp Olowalu, the Olowalu General Store, the unimproved cane haul access roads, multiple beach parks, and the Ukumehame Firing Range.

3.0 CULTURAL HISTORICAL BACKGROUND

3.1 HE MOʻOLELO NO OLOWALU A ME UKUMEHAME I KA WA KAHIKO – TRADITIONS OF THE OLOWALU AND UKUMEHAME REGIONS PRIOR TO WESTERN ARRIVAL

The island of Maui has been known by several names throughout history and across the pae ʻāina. The ancient name of Ihikapalaumaewa, after the child of Wakea and Papa who is the ancestral origin of the people of Maui, was once attributed to the island of Maui. Maui has also been referred to as Kulua for the two prominent volcanoes that comprise the island, Nā Hono-a-Piʻilani for Piʻilani, the great 16th Century chief of Maui, and Maui Nui a Kama for Kamalalawalu the grandson of Piʻilani (Kapiikauinamoku 1956; Sterling 1998:126). An origin story of the Hawaiian people speaks to the creation of their islands as being born to the gods Papa and Wakea. In the ancient oli (chant) that tells this origin story, Hawaiʻi Island is first to be born, followed by Maui, and then the rest:

Hanau o Maui he moku, he aina, *Na kama o Kamalawalu e noho.*	Maui was born an island, a land, A dwelling place for the children of Kamalalawalu. (Fornander 1916:2-3)

In this chant, Maui is called "a dwelling place for the children of Kamalalawalu," who was the grandson of Piʻilani, a 16th century mōʻī (paramount ruler) of Maui and founder of one of its greatest dynasties (Barrere 1975:1). Thus, the traditional poetic name for Maui as Maui-a-Kama, named after Kamalalawalu, whose children are the people of Maui. It is because of them that we know the historical names, moʻolelo (traditional stories), cultural sites and practices of the Olowalu and Ukumehame areas (Kozub 2018).

The present study area includes the entire ahupuaʻa of Olowalu and Ukumehame, land divisions which abutt one another on the leeward slopes of Mauna Kahalawai in the moku of Lāhainā. Olowalu's mauka boundaries follow the ridge separating the headwall of ʻĪao Valley from Olowalu Valley, extending makai toward Helu and Līhau, ending at Awalua on the Launiupoko side and Pākala on the Ukumehame side. The mauka border of Ukumehame ahupuaʻa, stretches across the ridgeline toward Waikapu with the coastal border marked at Maʻalaea.

3.1.1 Wahi Inoa (Place Names)

In Hawaiʻi, names were given to virtually everything. In the preface of *Place Names of Hawaii*, Samuel Elbert states that:

> Hawaiians named taro patches, rocks and trees that represented deities and ancestors, sites of houses and heiau, canoe landings, fishing stations in the sea, resting places in the forests, and the tiniest spots where miraculous or interesting events are believed to have taken place.

> Place names are far from static … names are constantly being given to new houses and buildings, land holdings, airstrips, streets, and towns and old names are replaced by new ones … it is all the more essential, then to record the names and the lore associated with them (the ancient names) now (Pukui et al. 1974:x).

Lyons also notes that as a consequence of the long tenancy of the people on land, "every piece of land had its name, as individual and characteristic as that of its cultivation"(Lyons 1903:23). Intrinsic to our knowledge of place names is their ability to tell the story or keep the record of an area's resources or characteristics prior to European contact. Naming conventions were very much an indicator of place, whether it was describing the landscape or the sounds or the smells of the area, the native Hawaiian creation of inoa (names) held a deep descriptive connection to the natural environment. Consideration of the place name meanings for the study area may yield some insight into the stories, patterns of life, and land use within the ahupuaʻa of Olowalu and Ukumehame. The place names listed below are for areas, divisions, and features of the land and sea that comprise these ahupuaʻa and areas of interest around them, as identified through research of the historic and modern maps of Olowalu and Ukumehame, Māhele ʻĀina documents, Hawaiian language newspapers, and other available historic literary resources. Unless indicated otherwise, the spelling and orthography presented below are taken from Pukui and others (1974).

Table 3-1 Wahi Inoa - Place Names

NAME (INOA)	DESCRIPTION AND TRANSLATION
ʻAwalua	Place at the shore; boundary between Launiupoko and Olowalu; *Lit.,* double harbor.
ʻĀweoweoluna (ʻili)	ʻIli kū in Ukumehame Returned by Kekauonohi at the Māhele, retained by Crown. LCAw 7779 to Kaleleiki: "...ma ka ili o Makenewa a me Aweoweoluna... Ap. 4. He pahale a me ke kula..." 7.19 acres (Soehren 2002-2019). *Lit.,* high red fish.
Hāʻai (ʻili)	ʻIli in Ukumehame. *Lit.,* edible taro stalks.
Halepohaku	Puʻu noted on Olowalu qd., Maui on USGS 1956 at elevation of approximately 3,400 ft. *Lit.,* stone house.
Hanaʻula	Mountain (4,616 feet high) and gulch near Ukumehame. A priest, Hua, quarreled with his prophet Lua-hoʻomoe and burned his house down. The priest died or was killed and a drought followed in which the chief died (see 3.1.3.2). *Lit.*, red bay.
Hanaʻulaiki (puʻu)	Puʻu in Ukumehame at 2,956 elevation. *Lit.,* small Hanaʻula.
Hawaiikekee (ʻili)	An ʻili of Olowalu associated with LCA 5829-E to Kawehena: "Apana 1,2. He pahale a me ka pauku aina kalo e moe like ana i kahi hookahi..." 1.79 acres (Soehren 2002-2019). No translation available, however, according to Pukui keke'e means to be distorted, crooked, or twisted (1986).
Hekili Point	Point along the shore line, Olowalu wd., Maui. *Lit.,* thunder.

NAME (INOA)	DESCRIPTION AND TRANSLATION
Hīkiʻi/Hekiʻi (heiau)	"Walker Site 2... On the east side of Ukumehame Gulch... at an elevation of about 200 feet... just above the cane lands and the modern ditch crosses one corner of it. A good sized heiau of rough blocks of red basalt... 130 feet long and 81 feet wide... Graves of recent date fill the interior." [The elevation of the ditch is closer to 100 feet in the probable location.] (Soehren 2002-2019). *Lit.,* binding, tying.
Hōkūʻula (puʻu)	Puʻu in Ukumehame, purported to be part of celestial navigation (Ashdown 1971:10). *Lit.,* red star.
Kalokoiʻaokapāʻiki (loko)	A fish pond located near the coast in Olowalu where Honoapiʻilani Hwy now traverses.
Kaluaaha (ʻili)	An ʻili of Olowalu associated with LCA 1742 to Z. Kaauwai: "Apana 2. Pahale ma Kaluaaha..." 3.39 acres. Also LCA 5620 to Kahele, 1.31 acres; 5829-H to Nahue, 0.825 acre. Misspelt "Kaluaha" in Indices (Soehren 2002-2019). *Lit.,* the gathering pit.
Kaluakanaka (ʻili)	And ʻili of Olowalu, the house site claimed and awarded to John Clark through LCA 240; "the man hole"- land section in Lahaina, Maui (Lorrin Andrews 1922). *Lit.,* oven-baking man.
Kamani (ʻili)	An ʻili of Olowalu associated with LCA 1742 to Z. Kaauwai, 2.98 acres. Also LCA 5113 to Kailaa, 5829-E to Kawehena, 5829-F to Haole, 6058 to Peekauai, 6547 to Hale, 6728 to Mahulu, 8573 to Kailiula, 8657 to Kikau, 8668 to Kaiwi, 8817 to Kanakaole, 10128 to E. Maui, 10592 to Paia, 10714 to Pohakunui (Soehren 2002-2019). *Lit.,* a large tree whose wood was made into calabashes (*Calophyllum inophyllum*).
Kamaohi Gulch	Stream in Ukumehame that rises to about 1,600 feet elevation and flows to sea (Soehren 2002-2019). *Lit.,* young child.
Kapāʻiki	Translated as "the small enclosure" and presented as a moʻo (small land section) of aliʻi lands in Olowalu Ahupuaʻa (Mr. Hinano Rodrigues in Lee-Greig and Hammatt 2006).
Kaʻulu (ʻili)	ʻIli in Ukumehame. *Lit.,* the breadfruit.
Kaunukukahi (ʻili)	An ʻili of Olowalu associated with LCA 6728 to Mahulu: "Apana 2. Pahale ma Kaunukukahi..." 0.91 acre. Also LCA 4376 & 4454 to Keahi, 5620:4 to Kahele, 5952 to Minamina, 6058:1 to Peekauai, 8817:2,3 to Kanakaole (Soehren 2002-2019). No translation available.
Kawaialoa (heiau)	"Walker Site 4. Location: On the rising ground south of Kilea Hill above the ditch... A large walled heiau in good condition. It measures 156 x 110 feet. The walls range in thickness from 8-1/2 feet on the west to 12 feet on the south and east..." Coordinates uncertain. Cf. Kaiwaloa heiau (Soehren 2002-2019)
Keahuakamalii (puʻu)	Puʻu and boundary point between Olowalu Valley and Kauaʻula Valley at 5,200 elevation; no translation available (Soehren 2002-2019).
Kekenui/Keekeenui (ʻili)	ʻIli in Ukumehame. *Lit.,* perhaps kēkēnui meaning very big belly or big kēkē (kind of fish).
Kīlea (puʻu)	Small cinder hill (269 feet elevation), Olowalu qd., Maui. Cemetery. *Lit*., small but conspicuous hill.
Kuekue (ʻili)	An ʻili of Olowalu associated with LCA 8573, Apana 2 to Kailiula for .525 acres. *Lit.,* sound of tapping, tap, as of a mallet on a tapa anvil.

NAME (INOA)	DESCRIPTION AND TRANSLATION
Lāhainā (moku)	District, quadrangle, town, roadstead, West Maui, formerly the gathering place for whalers, and the capital of the Islands from 1820 to 1845. Surfing sites on both sides of the harbor are known as Lahaina Lefts and Lahaina Rights. *Lit.,* cruel sun (said to be named for droughts).
Līhau (puʻu)	Boundary point between Launiopoko and Olowalu (Soehren 2002-2019). Mountain (4,197 feet), Lahaina qd., Maui, *Lit.,* gentle cool rain (considered lucky for fishermen). Also associated with the moʻolelo of Puʻulāina (see 3.1.3.1).
Makahuna Gulch	Stream that rises at 1,800 feet elevation and flows to the sea (Soehren 2002-2019). *Lit.,* hidden point or hidden eyes.
Makaīwa/Makiwa Gulch	Stream in Ukumehame that rises to 1,600 feet elevation, flows to the sea. Misspelt "Makiwa" on USGS 1955 (Soehren 2002-2019). *Lit.,* mother of pearl eyes (asn in an image).
Makenewa (ʻili)	ʻIli in Ukumehame associated with LCAw 6408 to Kalaikini: "Ap. 1. He mau moo kula eha i Makenewa... 9.11 eka. Ap. 2. He mau loi kalo eha... 0.2 eka." Also LCAw 6758 to S. Golia, 2.45 acres; LCAw 7779 to Kaleleiki, 13.18 acres (Soehren 2002-2019). No translation available.
Manawainui (gulch)	Boundary point and stream in Ukumehame. Stream rises to 3,400 feet elevation and flows to the sea, creates boundary between Lāhainā and Wailuku districts (Soehren 2002-2019). *Lit.,* large water branch.
Manawaipueo (gulch)	Boundary point and stream in Ukumehame. Stream rises to 2,500 feet elevation and flows to the sea (Soehren 2002-2019). *Lit.,* owl stream branch.
Maomao (ʻili)	An ʻili of Olowalu associated with LCA 5620 to Kahele: "Apana 2. Aina kalo ma ka ili o Maomao..." 0.53 acre. Also LCA 7719 to Haia, 5207-B to Kalaipaihala (Soehren 2002-2019). *Lit.,* type of fish or far, calm, clear.
Mōpua	Village, Olowalu qd., Maui. *Lit.*, melodious (said to be the name of a legendary character).
Mokumana (gulch)	Boundary point and stream in Ukumehame. Stream rises to 2,120 feet elevation and flows to the sea (Soehren 2002-2019). *Lit.,* divided island or divided district.
Nalowale (heiau)	On the west side of Ukumehame Gulch at about 180 ft. elevation on USGS 1955; *Lit.,* forgotten (Soehren 2002-2019).
ʻŌhiʻa (ʻili)	ʻIli in Olowalu associated with LCAw 6058 to Peekauai: "Apana 1. Aina kalo i Ohia..." 0.31 acre (Soehren 2002-2019). *Lit.*, the ʻōhiʻa tree.
Olowalu/Oloalu (ahupuaʻa)	Quadrangle, village, canyon, land division, shaft (well), ditch, stream, and wharf, West Maui. More than a hundred Hawaiians were treacherously killed here and many wounded on orders from Captain Simon Metcalfe in 1790. Many petroglyphs are seen on a cliff face here. *Lit.,* many hills. Also by Pukui and others: simultaneous sounds; din of many voices, sounds, as of horns or roosters; to rush or attack in concert (Pukui and Elbert 1986).
Ōpūnahā (gulch)	Boundary point and stream that rises to 1,420 feet elevation and flows to the sea (Soehren 2002-2019). *Lit.,* broken cluster.
Pākalā	Place located between Mōpua and Kapaʻiki. *Lit.,* sun shines.
Paapa (ʻili)	An ʻili of Olowalu associated with LCA 9906 to Pikao. No translation available.

NAME (INOA)	DESCRIPTION AND TRANSLATION
Pāpalaua (gulch)	Boundary point and stream in Ukumehame; stream rises at about 3,100 feet elevation and flows to the sea (Soehren 2002-2019). Beach park also known as "Thousand Peaks" (Clark 2002). Coastal area and gulch, Māʻalaea qd., Maui. *Lit.*, rain fog.
Paumaumau (ʻili)	An ʻili of Olowalu associated with LCA 9906 to Piako "Apana 1. He pahale a me na loi kalo i Paumaumau..." 2.70 acres. Also LCA 8546 to Kaawili (Soehren 2002-2019). No translation available.
Polanui	Place in Ukumehame on USGS 1954 at 3,000 feet elevation. *Lit.,* large Pola (flap, as of a malo).
Puaaloa (ʻili)	An ʻili of Ukumehame retained by C. Kanaina at the Māhele, LCA 8559:4 (Soehren 2002-2019). *Lit.,* long pig.
Puolaia (ʻili)	An ʻili of Olowalu associated with LCA 5732 to Kawaaiki and LCA 10128 to Maui with loʻi. No translation available.
Puʻu Kauoha (puʻu)	Puʻu in Ukumehame at 1,100 feet elevation, but not a clearly defined peak (Soehren 2002-2019). No translation available.
Puukoleohilo (ʻili)	ʻIli in Olowalu associated with multiple Māhele ʻĀina claims, most prominently, LCA 4376 to Keahi with a loko situated next to Apana 1 (see Figure 3-3). No translation available.
Puʻu Lūʻau (puʻu)	Puʻu in Ukumehame at elevation of 2336 feet on USGS 1954. *Lit.,* taro tops hill.
Ukumehame (ahupuaʻa)	Land division, canyon, gulch, stream, reservoirs, and shaft (well), Olowalu qd., Maui. *Lit*., paid mehame wood.
Ulaula (puʻu)	Puʻu located at 3078 ft elevation on Lahaina qd., Maui, USGS 1956. *Lit.,* red.
Uwai (ʻili)	ʻIli in Ukumehame associated with LCA 10206 to Mauikuaole: "Pahale, 11 loi, kula ma ka ili o Uwai..." 4.5 acres. Also LCA 310 to Pikanele, 5380 to Hulu, 6480 to Keawe (Soehren 2002-2019). *Lit.,* variant of uai meaning to move, push aside, to move from place to place as a tethered animal.
Wailoa (ʻili)	ʻIli in Olowalu associated with LCA 5429-F to Haole: "Apana 4. Aina kalo a me ke kula i Wailoa..." 4.5 acres. Also LCA 10128:1,3,4 to E. Maui, 9.44 acres (Soehren 2002-2019). *Lit.,* long water.

3.1.2 ʻŌlelo Noʻeau, Winds, and Rains Associated with Olowalu and Ukumehame

MacCaughey highlights in "Nature Themes in Ancient Hawaiian Poetry" that most indigenous people source their songs and myths from nature themes and "find[s] them plentiful in old Hawaiian verse, which was rich in nature-imagery and local allusion" (1917:205). The connection of Hawaiians to the natural environment is especially prevalent in the many moʻolelo which center around the lyrical portrayals of the elemental traits of the ʻāina (land) and its people.

Handy and others (1991) further encapsulate the relationship between Hawaiians and their natural surroundings best in the subsequent excerpts:

> The sky, sea, and earth, and all in and on them are alive with meaning indelibly impressed upon every fiber of the unconscious as well as the conscious psyche.

> Hawaiian poetry and folklore reveal this intimate rapport with the elements, (E. S. C. Handy et al. 1991:23-24)
>
> (T)he relationship which existed from very early times between the Hawaiian people … is abundantly exemplified in traditional mele (songs), in pule (prayer chants), and in genealogical records which associate the ancestors, primordial and more recent, with their individual homelands, celebrating always the outstanding qualities and features of those lands. (E. S. C. Handy et al. 1991:42)

Along with the aforementioned creations, Hawaiian proverbs and poetical sayings, referred to as ʻōlelo noʻeau, have been passed down through oral traditions. Many ʻōlelo noʻeau have been collected and published in Hawaiian language newspapers and other primary and secondary sources. They often have both a literal and metaphorical meaning, referred to as kaona, which is given where applicable and when available. ʻŌlelo noʻeau can help us to understand natural phenomenon, land use, and the history of a place. Although there were no ʻōlelo noʻeau that mentioned Ukumehame, various were found for Olowalu:

> **Olowalu ka moa.**
> Roosters all crowing. Much talk.
> (Pukui 1983, #2503)
>
> **Konohiki lua ka lā i Olowalu.**
> The heat of the sun rules in Olowalu.
> Said of one who permits the heat of anger to possess him. Olowalu, Maui is known for its warm climate.
> (Pukui 1983, #1848)
>
> **Na lehua o Līhau i pehia e ka noe.**
> The lehua blossoms of Līhau, weighted by the mist.
> Līhau, a mountain of Maui, was noted for its beautiful lehua blossoms.
> (Pukui 1983, #2250)

Līhau is a picturesque mountain located in Olowalu toward the back of the valley. The lehua blossoms of Līhau are also featured prominently in a mele inoa (name chant) for Queen Kapiʻolani, the wife and consort of King David Kalākaua who ruled from 1874 - 1891. The mele inoa entitled "*He lei no ka Moi Wahine Kapiolani*" (A Wreath for Queen Kapiolani) was composed by those in her retinue for the queen at her coronationin 1883 (Stillman 1996:121). Another mele attributed to Mrs. Pa-upa-u, "*Aia i Līhau kō Lei Nani*," which may have been one paukū (verse) of a longer lei chant for Kapiʻolani (N. K. Lum and Lum 2019) became the mele for Maui:

Aia i Lihau ko lei nani	At Lihau is your beautiful lei,
O ka ao lehua i poe i ka manu	Made of the full blown lehua loved by birds.
Ke haku a mai la e ka lau makani	It is braided together by the wind's deft fingers
Na hono o Lele ua lai lua	On the calm and peaceful realm of Pi'ilani.

Luana i Hauola kahi manao	Two thoughts enter the mind With
I ka lai huli lua o ka Maaa	the conflicting blowing of the Maaa.
Hanohano ka opua i ka malie	Proudly appear the clouds in the calm
I ke kau a ke ao i Maunalei	As they gather on Maunalei.
He lei hoi no ua lai nei	The lei is to be worn by you on a calm day
No ka nalu haihai maka a Uo	On the rolling surf of Uo.
Ke noho nei no au i ka lulu	The sea dwells there before the calm
Me na lai elua a ka manu	Beside the pleasant haunts of birds.
Alia oe la e Haleakala	Wait there, Haleakala,
E alai nei ia Kauiki	Before you hide Ka'uiki from view.
Ua maikai ke alo o Piiholo	Beautiful is the face of Pi'iholo
I ka noho a ka ua ulalena	For there dwells the 'ulalena rain.
Haina ka wahine nona ka lei	This is in praise of the chiefess whose lei chant this is,
O Kapiolani i ka iu o ka moku	Kapi'olani, so high above.
	(Stillman 1996:145-146, translated by Mary Kawena Pukui)

Referring back to ʻōlelo noʻeau, descriptions of the harsh winds of Olowalu can be found in the following:

> **ʻAʻohe umu moʻa i ka makani.**
> No umu can be made to cook anything by the wind.
> (Talk will not get the umu lighted and the food cooked. This saying originated in Olowalu, Maui, where it was very windy and hard to light an umu.)
> (Pukui 1983, #215)
>
> **Ka makani haʻihaʻi lau hau o Olowalu.**
> The hau-leaf tearing wind of Olowalu.
> (A gusty wind.)
> (Pukui 1983, #1457)
>
> **Olowalu ihu pāpaʻa.**
> Crusty nosed Olowalu.
> (Disparaging expression for the people of Olowalu, Maui, where the wind is said to blow into the nostrils, drying the mucus into crust.)
> (Pukui 1983, #2502)

Another valuable repository of Hawaiian wind names is a book called *The Wind Gourd of Laʻamaomao*, which is a translation of a traditional legend, compiled by Moses Kuaea Nakuina in 1902 from various references including Fornander (1918b). The titular wind gourd was believed to contain all the winds of Hawaiʻi, which could be summoned by chanting their names. Winds on different islands could share the same name because they had shared attributes or were

located at similar places on the various islands, such as the famous Kona winds of the leeward sides of the islands. Olowalu's house shaking wind and Kilihau, defined by Andrews as "to fall gently, as a soft shower" (Lorrin Andrews et al. 2004), along with Ukumehame's wind, Olaukoa, are mentioned specifically:

> Olaukoa i Ukumehame,
> Makani wāwahi hale i Olowalu,
> Kilihau iho nō i laila,
> (M. Nakuina 1992:54-55)

This "makani wāwahi hale," or house shaking wind, is a nature theme that has pervaded the written accounts of the area. In the nūpepa (newspaper), *Ka Makaainana*, an article entitled "Ko Olowalu mau Anoai" from February 19, 1894 illustrated the sustained and devastating winds of Olowalu:

> E oluolu mai, ma ko oe poli aku au, a nau ia e hoomahana iho i na anoai o kahi i haiia maluna ae.
> He mau la makani heleululu keia o na aina nei a na Alii i aloha ai o ke au i hala aku. He mau makahiki i hala ae nei, akahi no a wehe hou mai ke Kuahiwi o Lihau i na kikiao makani ikaika e naka ai na hale me ka haalulu, me he la ua eehia i keia mea hou i loaa ia lakou.
> Hoomanao ae la kou mea kakau i ke mele a ke keiki o ka Malu Ulu o Lele, i mioia ai ka pilialo e ka oiopapio i ke Kula o Kamaomao:
> "Olowalu ka leo a ka makani ia Ukumehame,
> Pohapoha ka ihu o ka waa i na ale a ke Kaumuku,
> Huleilua i na nalu o Launiupoko,
> Keikei Lahaina, i ka Ua Paupili."
> Ua pa ikaika iho iloko o na la eono e hoomaka ana i ka Poakolu, Jan. 31, a e hoomaha ana i ke ahiahi o ka Poakahi, Feb. 5. Ua lilo na kumulaau kiawe i mea ole i kona ikaika hoonee, o na pou uweaolelo, ua unuaia iho a ahua mokaki ilalo, mawaena o Olowalu a me Lahaina.
> A no ia ino huhu ua hiki ole i ka mokuahi

> Please be patient, in your embrace I find warmth to comfort the chill of the place spoken of.
> These are days of restless winds across these lands loved by the chiefs of yore. Many years have passed, only now has Mount Lihau opened again, its strong gusts shaking homes with a familiar hum, like a day recalled by those who dwell here.
> Your writer recalls the song of childhood "Ka Malu Ulu o Lele," capturing the longing amidst the mist of Kula o Kamaomao:
> "Olowalu, the voice of the wind at Ukumehame,
> The spray upon the canoe's prow at Kaumuku,
> The dance of waves at Launiupoko,
> Exalted Lahaina, in the Paupili Rain."
> We endured through six days starting Wednesday, Jan. 31,
> resting on the evening of Monday,
> Feb. 5. The kiawe trees, once a symbol of steadfastness, now bend and break, strewn between Olowalu and Lahaina.
> Such wrath could not be contained as the Malulani ship failed to anchor at the

Malulani ke ku ae i ke awa o Kamaalaea i ka po o ka Poalima, Feb. 2 nei, a ua hiu loa aku oia no na Kona i ka pohu maokioki.	mouth of Kamaalaea on the night of Friday, Feb. 2, carried far by the furious waves. (Kalei 1894)

The various rains of Hawaiʻi were also given names. Some were named after people, others after their particular traits or the way they interacted with the area and local vegetation. Similar to wind names, rains from different parts of the islands often share the same name. The book *Hānau Ka Ua Hawaiian Rain Names* contains many of the rain names that were recorded in newspapers from the 1800s and other primary source materials. The specific rain associated with Olowalu is Papawai according to Pukui and Elbert (1986:319), along with the previously mentioned Kilihau showers. Although there is no rain specifically associated with Ukumehame, Papawai may be assumed as the area rain, as well, when considering the proximity of the ʻāina of Papawai further southeast along the pali.

3.1.3 The Mythical Era

Preserved in the moʻolelo created by kūpuna are tales about a period in Hawaiʻi before kānaka (humans), when gods and deities inhabited the islands, often bringing about the creation of lands and resources. Olowalu is known as a wahi pana (storied place) and moʻolelo center around it being a puʻuhonua, or place of refuge, of Maui since ancient times (Ladana 1858). Furthermore, moʻolelo around these areas were created to anthropomorphize the characteristics of the area and ensure notable descriptions are passed down through generations.

Inez Ashdown interprets the name Lāhainā as "land of prophecy," attributed to the presence of ancient aliʻi prophets who made predictions there (as cited in Graves and Goodfellow 1991:A1). Mythology recounts that Pele's initial arrival on Maui occurred at Lāhainā, where she left her footprint on the hill of Laina (Ashdown 1971:10). The various mountain peaks and ridges of Lāhainā are associated with Lāina's mother, Līhau (Mauna Līhau), his father (ʻEʻeke), and Līhau's sister (Puʻuwaiohina). Additionally, the two ridges shaping Ukumehame valley are linked with celestial bodies. Hokuʻula, the highest mountain ridge on the west side of Ukumehame, translates to "sacred star," while Hoku Waiki, a smaller ridge traversing the center of Ukumehame valley, derives its name from the smaller stars within the Taurus constellation (Ashdown, 1970: 10). Below are excerpts of moʻolelo set specifically in Olowalu and Ukumehame, as well as passages that speak more generally of the moku of Lāhainā.

3.1.3.1 Puʻulaina, ʻEʻeke, and Līhau – Mountainous Moʻolelo

The origins of the previously mentioned prominent mountain peak, Līhau, (see Section 3.1.2) located at the back of Olowalu ahupuaʻa, can be found in the story of Puʻulaina, a hill located in the ahupuaʻa of Wahikuli. The moʻolelo also connects Līhau to the formation of Puʻu ʻEʻeke and the islet of Molokini in the ʻAlalākeiki Channel.

The story, relayed by Fornander (1919b:532-536) involves Līhau and her adulterous husband, ʻEʻeke, who had a son they named Lāina. Angry at her husband for cheating with her sister,

Puʻuwaiohina, Līhau attempts to strangle her son and free herself to also be adulterous, but she fails to kill the child. ʻEʻeke takes the boy to live with his mother, Maunahoʻomaha, where he is well cared for and grows to be a handsome young man. Upon the delivery of the boy to his grandmother, the god of ʻEʻeke and Līhau, Hinaikauluau, forbids the couple to live together and to engage in sexual relations with any others. Unable to abide by this rule, ʻEʻeke once again lays with Puʻuwaiohina, and the punishment for this infraction was immediately meted out; ʻEʻeke was turned into a mountain and Puʻuwaiohina was transformed into a ridge at Kauaʻula. After the punishment of her husband and sister, Līhau felt an upwelling of fondness for her son and asked her mother-in-law to once again see her child. Līhau and Lāina were reunited and soon he was married to the beautiful Molokini. At the same time, Pele was making her way through the island chain along with her sisters, one of whom saw how handsome Lāina was and asked Molokini to have him, to which the reply was no. For her refusal, Molokini was changed into the little islet that remains in the channel between Kahoʻolawe and Maui, and her beloved Lāina was made the husband of Pele's sister. Līhau greatly grieved her daughter-in-law and consulted Pele on the matter, at which point the goddess changed the woman into the hill we see at Olowalu and even though her sister begged for Lāina to be spared, Pele angrily turned him into a hill where he, too, remains to this day.

3.1.3.2 Drought and the Lesson of Hua

Fornander offers another moʻolelo with the mountains of Olowalu as the backdrop. The uaʻu (Hawaiian Petrel, *Pterodroma sandwicensis*) that nest there are also central to the story regarding a Lāhainā aliʻi who, having forsaken his kahuna (priest), Luahoʻomoe, caused a drought that impacted the entire island chain. The following is an excerpt from the story:

> There lived here in Lahaina a chief named Hua ... he desired to get some uaʻu squabs to eat; he sent some men up to the mountains above Oloalu [sic] to get some uaʻu squabs to satisfy his desire. He did not wish for birds from the beach. When the birds were obtained, they were to be taken to the priest for him to ascertain where the birds came from; if he should give out the same information as the men had given to the chief as to the source of the birds, then he would be safe; if he should give a contrary answer, he would be killed. The name of this priest was Luahoomoe and he also had children. When the men went up, they could not find any mountain birds at all, so they decided to get some shore birds. When they caught some, they daubed the feathers red with dirt so that the chief would think the birds came from the mountain. When they returned and handed the birds to the chief, he was exceedingly glad because he thought the birds came from the mountain. The chief told the men to take them to the priest for his inspection. The priest perceived, however, that the birds came from the seashore. Then the chief said to the priest: "You shall not live, for you have guessed wrongly. I can very well see that these are mountain birds." Then and there an imu was prepared in which to bake the priest. Before he was placed in the imu, however he said to his children: "You two wait until the imu is lighted, and when the smoke ascends, should it break for the Oloalu mountains, that indicates the path; move along; and where the smoke becomes stationary, that indicates where you are to reside ... Then the priest was cast into the oven and the opening closed up tightly. The smoke arose and darkened the sky ... after the priest had been in the imu for two days, he

> reappeared and sat by the edge of the imu unknown to any one; the chief thinking all the time that he was dead; but it was not so. When the smoke ascended and leaned towards the Oloalu mountains, the two sons went off in that direction; the cloud pointed towards Hanaula, and there it stood still, so the two sons ascended to the place and resided there… Then the whole of Maui became dry; no rain, not even a cloud in the sky, and people died from lack of water. The smoke that hung over Hanaula became a cloud, and rain fell there. Hua, the chief, lived on, and because of the lack of water and food he sailed for Hawaii, the home of his elder brother; but because Hawaii also suffered from lack of water and food he came back and lived at Wailuku. Wailuku also did not have any water, and that caused the chief to be crazed, so he leaned against the edge of the precipice and died, and that was the origin of the saying "The bones of Hua rattle in the sun." (Fornander 1919a:514-516)

Fornander additionally observes that the phrase, "The bones of Hua rattle in the sun," symbolizes the fate of a chief whose malevolent actions provoked the ire of his community. As a final act of disdain, they left his remains exposed to the elements, allowing his bones to bleach under the sun and rustle in the wind. This proverb serves as a cautionary tale, urging others not to emulate Hua's destructive deeds, which led to the suffering of Luaho'omoe and inflicted great harm upon the people of Hawai'i, culminating in the ultimate disrespect of his remains by his own people.

3.1.4 Traditional Hawaiian Settlement of Olowalu and Ukumehame

The mythical era's oral traditions lay the framework for the record of early Hawaiian settlement of Olowalu and Ukumehame as a captivating testament to the coexistence between nature and culture. The region's biocultural landscape intimately connected the people of the area to a substainable, subsistence living through an intricate web of extensive cultivation, knowledgeable fishing practices, and resourceful craftsmanship.

3.1.4.1 Ka ʻOihana Mahiʻai no Olowalu a me Ukumehame

Handy and others (1991) underscore, in the subsequent overview, that the allure of the Lāhainā district for both the aliʻi (chiefs) and makaʻāinana (common people) stemmed from its abundant natural resources and strategic geographic location.:

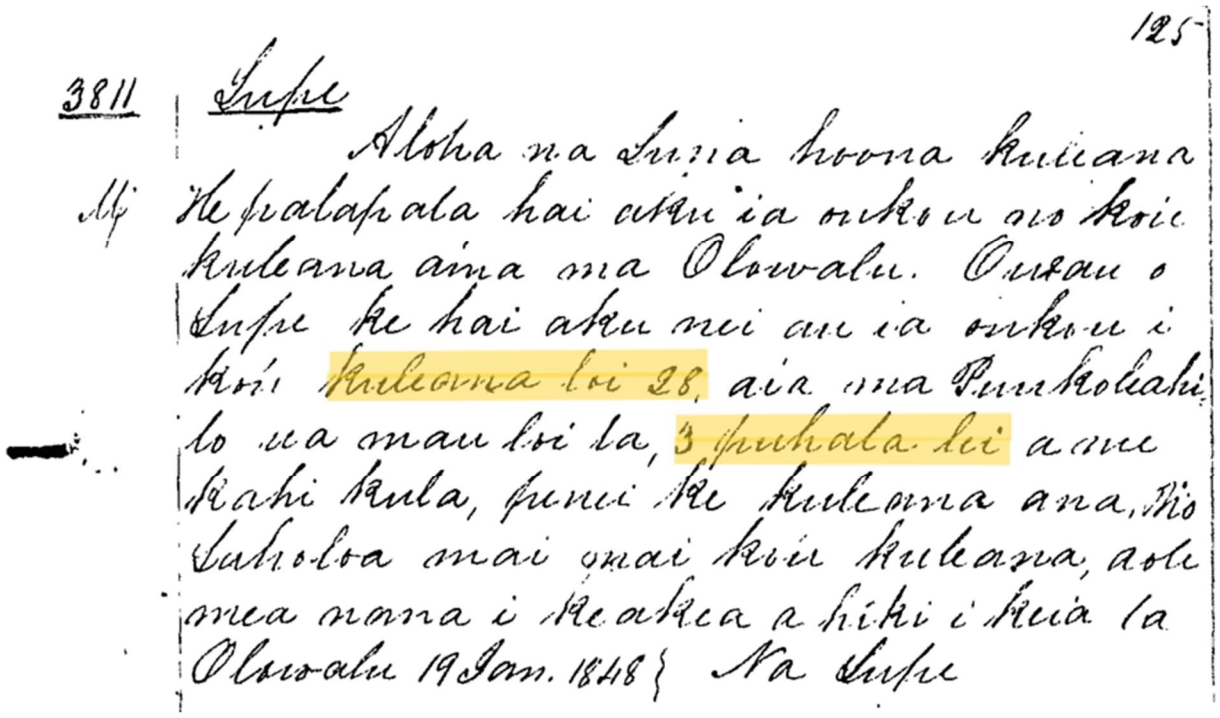
> Lāhainā District was a favorable place for the high chiefs of Maui and their entourage for a number of reasons: the abundance of food from both land and sea; its equable climate and its attractiveness as a place of residence; it had probably the largest concentration of population, with its adjoining areas of habitation; easy communication with the other heavily populated areas of eastern and northeastern West Maui, 'The Four Streams,' and with the people living on the western, southwestern and southern slopes of Haleakala; and its propinquity to Lanai and Molokai. (E. S. C. Handy et al. 1991:492)

Handy also suggests that Olowalu Stream, along with Ukumehame, Launiupoko, and Kauaʻula, three other primary watercourses in the Lāhainā District, offered a fertile leeward setting conducive to cultivating a diverse array of agricultural products:

> Southeastward along the coast from the aliʻi settlement (the kalana of Lāhainā) were a number of areas where dispersed populations grew taro, sweet potato, breadfruit

> and coconut on slopes below and in the sides of valleys which had streams with constant flow. All this area, like that around and above Lāhainā, is now sugar-cane land ... Olowalu, the largest and deepest valley on southwest Maui, had ... extensive loʻi lands both in the valley and below. Just at the mouth of the valley we found in 1934 a little settlement of five kauhale (family homes) surrounded by their flourishing loʻi. There are said to be abandoned loʻi far up in the valley. (E. S. C. Handy et al. 1991:492)

Land claims to traditional resources and agricultural lands during the Māhele period also shed light on the customary subsistence methods employed in the Olowalu Ahupuaʻa before Western contact. Claims included resources such as kalo maloʻo (dry land taro), loʻi kalo (wetland or pond field taro patches) (see Figure 3-1), maiʻa (banana), ʻuala (sweet potato), ʻulu (breadfruit), and wauke (paper mulberry). Other land types and garden areas were also found in the claims (e.g. kula, moʻo, pā, laʻau, mala, mahina), as well as explicit claims presented to the Land Commission for hala or pūhala (Screwpine), hau, niu (coconut), kou, and kukui (candlenut). Of particular interest are kuleana claims for pūhala, which were directly associated with specific uses such as pūhala lei for lei making or pūhala (also lauhala) moena for the manufacturing of sleeping mats (Helu [Claim Number] 3726 to Malaea, 3772 to Alapaʻi, 3811 to Lupe [see Figure 3-1], 3877 to Pikao, 3934 to Niʻau, and 4376 to Keahi), distinguishing preferred locations for hala that was grown for specific products and tasks.



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3811 Lupe

Aloha na Iuria kona kuleana
Me pualapala hai aku ia oukou no koie
kuleana aina ma Olowalu. Owau o
Lupe ke hai aku nei au ia oukou i
koʻu kuleana loi 28, aia ma Punakaliai
lo ua mau loi la, 3 puhala lei a me
kahi kula, penei ke kuleana ana, Mo
kakoloa mai omai koia kuleana, aole
mea nana i kealaea a kiki i koia la
Olowalu 19 Jan. 1848 Na Lupe

Figure 3-1: Native Register Claim by Lupe for Helu 3811, highlighting for emphasis of the 28 kuleana loʻi and 3 pūhala lei resources [Native Register, Reel 3, Volume 6, Image 01287 (Office of Hawaiian Affairs 2011)].

Ukumehame was once a natural marshy area, plentiful with paʻakai (sea salt) and a regular place for visiting aliʻi to stop their large fleets, to come ashore, and be welcomed in a bountiful environment. It was also a place for nesting koaʻe (*Phaethon lepturus dorotheae*) in the high cliffs that line the pali. An article entitled "*Paakai*" from the newspaper, *Ka Hae Hawaii*, recounts this salt rich area where seabirds frequented:

> Salt.
>
> O *Hae Hawaii*,
>
> Aloha oe:–Please spread the word about this new thing at Ukumehame, that being Salt. This Salt is in the uplands of Papalaau; it is among the high cliffs, as if man gathered it in heaps.
>
> The nature of this Salt: it is hard and expansive like the Salt of Alia at Moanalua on Oahu. The reason that this Salt spread among the cliffs is from water that trickled over the rocks and dirt and became salt.
>
> The reason that the Salt was known of and found, was because men saw some Koae (tropic birds) entering caves in those cliffs; then the two men went to probe for the Koae. As they were making the climb, the two men came across the Salt piled at the Cave. As the[y] looked, there was a lot of Salt in piles here and there.
>
> The Salt was taken to Lahaina and I saw it first hand; I was not the only one who saw it, but there were many who saw the Salt.
>
> This is amazing Salt from the cliffs where the Koae soar. Who piled this Salt among the cliffs? It was the one who made the heavens and the earth, the great things and the tiny. That being eternal Jehovah. With aloha,
>
> J. W. KUHELEMAI,
>
> Lahaina, Maui, May 24, 1858.
>
> (Kuhelemai 1858, translated by nupepa-hawaii.com)

Along with the rocky cliff areas adjacent to the pali, there were green and verdant areas closer to the river where freshwater spring systems allowed large communities to live and thrive. The loʻi complex that existed in this area was an example of the balance of natural and built environmental systems. The mahiʻai (farmers) of the time utilized the existing stream structures to efficiently create self-watering food production parcels that were connected through a series of dug, irrigation trenches, or ʻauwai, as detailed below:

> In the ahupuaʻa, Hawaiian farmers created extensive gravity irrigation schemes using ʻauwai irrigation ditches that took fresh stream water to all parts of the valley basin. The current concrete ditch, built by twentieth-century sugar planters, runs down the northern edge of the Olowalu kula and dumps into deep water north of Hekili Point. This ditch follows the same course as the main ʻauwai used by pre-contact Hawaiian planters. The difference is that concrete contains all the water, unlike mud channels, which allowed water to percolate into the aquifer. The Hawaiian's complex cooperative system of irrigation and fresh water conservation is a practical model for water conservation today. (Smith 2011:9)

These hospitable, agricultural areas were accessible to both upland and coastal resources which made it favorable to the ruling elite of Maui as noted by Smith, “High Chiefess Kalola Pupukahonokawailani was ruling in 1786. After her time, two famous konohiki in Olowalu were Aliʻi Makakehau and Aliʻi Naʼehu” (2011:8).

A network of overland trails facilitated pedestrian passage from Lāhainā to the north coast of West Maui and into the higher forests for activities such as bird-catching and gathering wild plants. According to Handy and others (1991:490), the trail extended mauka in Olowalu Valley to the highest point of the West Maui summit at Puʻu Kukui, then descended to Waiehu on the northern side (E. S. C. Handy et al. 1991:490; Sterling 1998:26).

Kealaloloa, situated within the confines of Ukumehame ahupuaʻa, constitutes a broad ridge on the southeast flank of West Maui, rising mauka from a traditional Hawaiian coastal settlement (Walker 1931:43). Proceeding along the ridge mauka, it offers a direct and easily navigable route, to the West Maui summit region, where the headwaters of Pohakea Stream on the east and Ukumehame Stream on the west converge. It is conjectured that from this juncture, known as Hanaʻula, the trail likely continued along the summit ridge to intersect with the inland Olowalu-Puʻu Kukui-Waiehu "overland" trail (C. E. S. Handy and Handy 1972:490). Beyond its utility in traversing the West Maui Mountain range, Folk and Hammatt (H. H. Hammatt 1991:17) propose that Kealaloloa may have granted access to more humid upland environments conducive to agriculture. Mauka to makai trails have been observed on adjacent ridges of Kealaloloa (Robins et al. 1994); however, it appears that the more accessible portions of the Kealaloloa trail itself have been obliterated by modern usage.

The cultivation of loʻi within the irrigated regions of Olowalu Ahupuaʻa, along with the addition of dry land crop staples from the kula areas and coastal resources, would undoubtedly have sustained a considerable population. The 1832 missionary census shows the total population of Maui as 35,062, and gives the following population counts: Lāhainā, 4028; Ukumehame, 573; and Olowalu, 832 (Schmitt 1973). When aggregated, these three figures encompass 15 percent of Maui's total population. Considering potential distortions post-contact (such as diseases and population shifts driven by commerce), the population totals of 1832, along with the aforementioned assertions regarding arable agricultural plots, imply that this area of Maui probably housed a significant portion of the island's population before Western contact.

Further evidence of agriculture and habitation lies in the findings from one of Maui Island's initial archaeological surveys, led by Winslow Walker of the Bishop Museum, highlighting the widespread existence of loʻi (taro patches) and ancient dwellings throughout the Olowalu Ahupuaʻa. This study enhances our understanding of traditional agriculture and settlement by pinpointing the physical remnants of terraces and residential areas within the valley, as detailed in the subsequent account (Walker 1931):

> “Terraces for the cultivation of taro were seen on West Maui in the vicinity of... Lāhainā, Olowalu, and Ukumehame.” (71)

> Above Mrs. Nahoʻoikaika's house (at Olowalu), old taro patches and house sites, old auwai (traditional Hawaiian irrigation ditches) were used for sugarcane ditches...at the edge of a house platform (15 by 28 feet) there is a large red stone used as a papamu for konane. (77)

Additionally, a moʻolelo about Kalaepuni, a strong, mischiveous man who vowed to kill all the high-ranking aliʻi of Hawaiʻi, underscores the significance of Ukumehame as a vital agricultural trade hub that extended beyond the shores of the mokupuni of Maui. Kalaepuni fights a group of sharks from Kauhola on Hawaiʻi Island across the ʻAlenuihāhā Channel to Kahoʻolawe where he meets an old couple living at Keanapou and the following exchange occurs:

> Kalaepuni then asked the old people: "Have you any food?" The old people said: "No, there is no food in this place. The only food that you can get in this place is what is brought here in canoes. When any one comes from Honuaula or Ukumehame, then we get food. The only food that grows here is the kupala." (Fornander 1918a:202, underlining for emphasis)

3.1.4.2 Ka ʻOihana Lawaiʻa no Olowalu a me Ukumehame

The greatest treasure trove of descriptions regarding native fishing traditions was compiled by the Hon. Daniel Kahāʻulelio, born in Lāhainā at Wailehua in 1835, for *Ka Nupepa Kuokoa* and ran as a series for five months in 1902. Kahāʻulelio, having graduated from local schools and finally, from Lahainaluna College in 1855, was a teacher, legislator, and judge, but is most well known for his descriptive accounts of fishing practices through his own experiences and knowledge (Kahāʻulelio 2006:XI).

As a native son of Lāhainā, the majority of Kahāʻulelio's traditions have an intimate relationship with that place. One such tradition describes the communal, cooperative pakū (curtain) net fishing that was practiced at Unahi in Olowalu to catch akule (*Selar crumenophthalmus*). Although they are usually known as deep sea fish, akule occasionally came close to shore in Unahi at Olowalu and could be seen from shore, making the waters red. It was at this time that those who were not skilled at akule fishing could be successful at catching them. The skilled lawaiʻa (fishermen) of Olowalu are described in the following:

> When the fishermen who are well-supplied with papa (bag) and pākū (curtain) nets see the fish, they call for their canoes, or boards today, and go out to surround the fish with the nets. Two canoes would go ahead and they carried the curtain nets. The head fisherman watches from the shore and when he sees that they have reached the right places, he makes signs by waving his hands. The curtain nets are lowered and every effort is made to draw them shoreward. If the fish are surrounded in this time that the net is lowered, then the bag net is quickly set in place, for the fish are excited then. At this time, no one is allowed to speak nor to make a noise on the canoe until the space in the net begins to decrease. (Kahāʻulelio 2006:201)

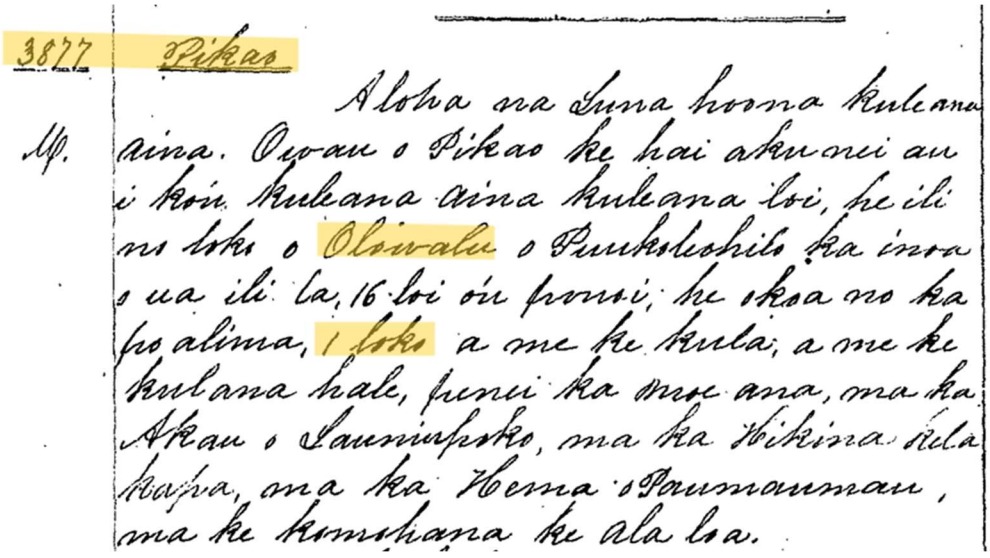
Kahāʻulelio attested to further fishing traditions in the Olowalu area where the ocean from Lāhainā to Maʻalaea was referred to as Kai-o-Haui (Sterling 1998:5), noting the people were also known for mamali ʻōʻio fishing along the reefs and shorelines stretching from Māʻalaea to

Kūnounou in search of ʻōʻio *(Albula glossodonta*). They used hooks for this type of fishing unlike other places where nets were used to catch ʻōʻio (Kahāʻulelio 2006:141). Aku (*Katsuwonus pelamis*) fishing for those of Ukumehame, Olowalu, and all of Lāhainā, prior to the arrival of the missionaries, was carried out five to seven miles from the coast with the pā hook and a bait carrier (malau) filled with *ʻiao* (*Pranesus insularum*) (Kahāʻulelio 2006:25).

Fishing koʻa and triangulation points based on landmarks that fishermen could see while on the ocean were extremely important to the success of a catch. Kahāʻulelio explains about one such expedition using these points that he took off the coast of Olowalu:

> "Where are we?" asked Kauka Wilder. "Almost there." "If so point it out to me." I told him, "Watch until this point on Lanai and Kalaau point seem to kiss each other and when the place where yonder man stands by the stream of Launiupoko seem to be by the side of Olowalu, then tell the man to let down the stone anchor." Ten minutes after I had showed Kauka Wilder the land marks, we heard him call out to let down the stone anchor. Alapaki asked in English, "How do you know the mark?" "Myself... When the anchor reached the bottom I let down my line. The current drew toward the cape of Kealaikahiki, I said to Alapaki, "There is lot of fish below." "How do you know?" "I know this is the current that brings fish to this ground." There is Kawaawaa which is about seven miles from Lahaina. (Maly and Maly 2003:123)

Fishponds, or loko iʻa, were also important parts of the subsistence of Olowalu. Ka Loko Iʻa o Kapāʻiki was an aquaculture resource that was meant for the aliʻi. The location of the fishpond is mentioned by Smith: "Remains of an inland fishpond... rest near Olowalu shoreline" (2011:9). "The land where Kalola's kauhale stood in Olowalu is on Saffery land, near the Loko o Kapaiki" (2011:12). Fishponds and other types of fisheries like the oʻopu fishery in Helu 10128, provided further sustainable sources of fish protein for the aliʻi and people of the Olowalu area (see Figure 3-2 and Figure 3-3).


3877 Pikao

Aloha na Luna hoona kuleana
Mp. aina. Owau o Pikao ke hai aku nei au
i kou kuleana aina kuleana loi, he ili
ma loko o Olowalu o Punakeakahi ka inoa
o ua ili la, 16 loi ou pono; he ikoa no ka
po alima, i loko a me ke kula; a me ke
kuhana hale, punui ka moe ana, ma ka
Akau o Launiupoko, ma ka Hikina kula
kapa, ma ka Hema o Paumaumau,
ma ke komohana ke ala loa.

Figure 3-2: Native Register Claim by Pikao for Helu 3877. Highlighting for emphasis of the loko claimed in Olowalu. [Native Register, Reel 3, Volume 6, Image 01293 (Office of Hawaiian Affairs 2011)].

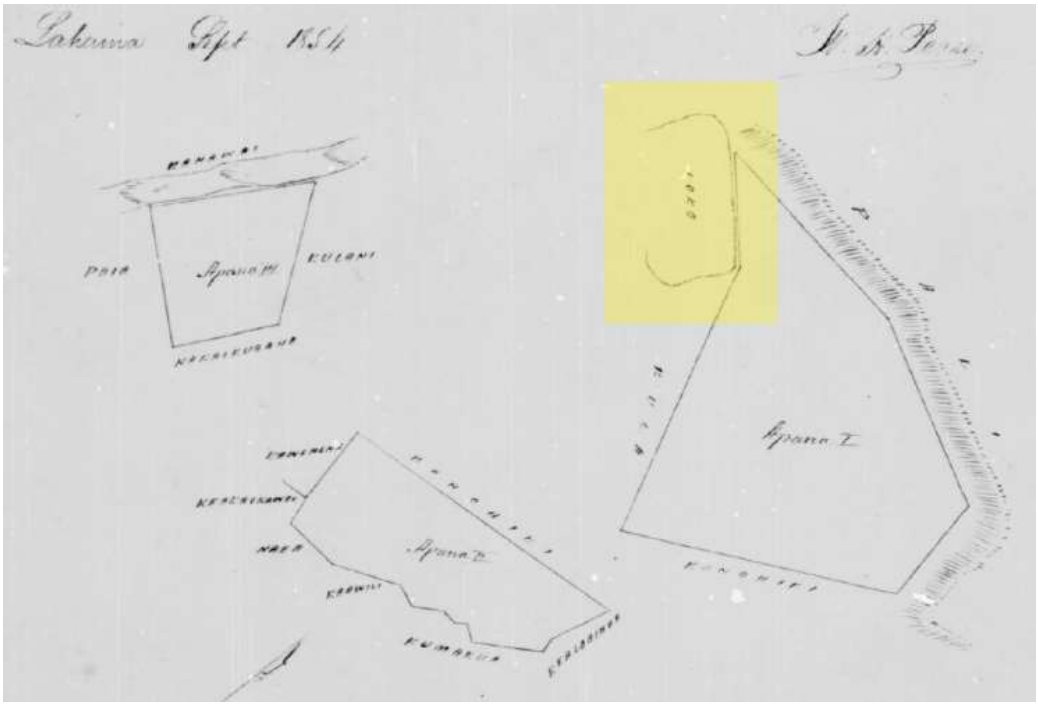


Figure 3-3: Māhele Award to Keahi for Helu 4376 showing the loko next to Apana 1. [Māhele ʻĀina Index, Reel 10, Volume 8, Image 00124 (Office of Hawaiian Affairs 2011)].

3.1.4.3 Politics and Warfare

Revolution, rebellion, and usurpation is a theme throughout the stories of chiefly lines in the Hawaiian Islands. Tales of wars and the many battles that ensued, sometimes stretching across vast geographical areas and over many years, extend the breadth of histories that have been transmitted through the ages. Frequently told, retold, and then documented by historians and scholars like Samuel Kamakau, these moʻolelo about the forging of power, chiefdoms, and geneaologies open another perspective into the biocultural landscape.

As the island second in landmass in the Hawaiian archipelago, Mokupuni o Maui played a pivotal role as a major hub for political advancements during the pre-contact and early historic eras (Patrick V. Kirch 1985:135). Numerous battles occurred between the polities of Maui Island and Hawaiʻi Island, with the earliest conflicts predominantly concentrated on Maui's east coast. There was a period of relative peace under the reign of King Kekaulike, however, following his death in the early 18th century, tensions resurfaced between the chiefs of Maui and Hawaiʻi. These tensions lead to conflicts that brought long, bloody battles closer to the present study area.

3.1.4.3.1 The Battles of Kamehameha-nui and Kahekili

The lands of Lāhainā, stretching from Ukumehame to Māla became the backdrop of one such war when after the death of their father, Kekaulike, Kauhiʻaimokuakama, the brother of the Maui heir, Kamehameha-nui, attempted to usurp his brotherʻs rule. After an initial defeat, Kamehameha-nui turns to his uncle, Alapaʻi, ruler of Hawaiʻi Island, to form an alliance to win back Maui. The preparations take more than a year, but when the war is again taken up on Maui,

we find Kauhiʻaimokuakama hunkered down in Lāhainā. Kamakau writes about remarkable seige tactic employed by Alapaʻi:

> What was the war like? It employed the unusual method in warfare of drying up the streams of Kauaʻula, Kanaha, and Mahoma [Kahoma] (which is the stream near Lāhaināluna). The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapa'i's men kept close watch over the brooks Olowalu, Ukumehame, Wailuku, and Honokowai. (1961:74, underling for emphasis)

Bloody battles were fought throughout the lands of Lāhainā moku and the war ended at the fiercest encounter at Puʻunēnē near Mailepai in Kāʻanapali. Alapaʻi and Peleioholani, the Oʻahu ally of Kauhiʻaimokuakama whom Alapaʻi had defeated once before, both having lost many men to the slaughter, agreed to peace. After this immense bloodshed, Kamehamehanui became the ruling chief of Maui, and unlike his brother, he was not overly ambitious, nor a lover of war, heralding a time of peace during his reign.

Following his rule, however, Kahekili, a powerful and ambitious chief of Maui, once again took up the bloody mantle of war. By 1786, Kahekili ruled Maui, Oʻahu, Molokaʻi, and Lānaʻi (Kamakau 1961:159). Two battles are noteworthy for their significance to the entirety of Maui, as well as the following impacts of unification, and their connections with the study areas. The first great battle was "Ahulau ka piipii i Kanikanilua," also referred to as Kakanilua, fought on the sand dunes of Kalua in Wailuku where the famous Hawaiʻi Island regiment, the Alapa, consisting of highly trained, artisocratic warriors, was defeated by the soldiers of Kahekili (E. M. Nakuina 1904:59). Nakuina states that of the 800 warriors that were sent to Wailuku, only two were spared by Kahekili to act as tale-tellers to Kalaniopuʻu (E. M. Nakuina 1904:60).Upon this great defeat, Kalaniopuʻu sent his great warrior, Kamehameha, who would later unite the Hawaiian Islands under a single ruler, to the puʻuhonua of Olowalu where the sister of Kahekili and the wife of Kalaniopuʻu, Kalola Pupukahonokawailani, resided (Kamakau 1961:85-88; Smith 2011:11). Joseph Mokuhai Poepoe (in Sterling 1998:24) relays this story about Kamehameha and the other Hawaiʻi chiefs at Olowalu:

> Four days after the battle of Kakanilua the chiefs of Hawaii received a kind of welcome from King Kahekili of Maui. Kahekili told the Hawaii chiefs to pause awhile on Maui and rest. The land which Kahekili gave them is the place where they stayed. It was Puuokapolei at Olowalu. Their division of land reached as far as Lahaina.

Many years later, after the death of Kalaniopuʻu and the ascension of Kamehameha to ruler of Hawaiʻi Island, the ambitious chief returned to Wailuku with thousands of warriors to further the conquest of the islands and avenge the death of the Alapa (E. M. Nakuina 1904:60). With the aged Kahekili on Oʻahu and thereby unable to lead his warriors, the soldiers of Kamehameha, armed with cannon, cornered the Maui island defenses in the narrow pass of Īao where they were slaughtered (Kamakau 1961:148). This battle is known as Kepaniwai (the damned waters) because the many bodies of the slain Maui warriors and commoners dammed the river of Īao

Valley (Kamakau 1961:149; E. M. Nakuina 1904:60). Smith further relays details that connect Kepaniwai with Olowalu:

> Kalola watched the great Battle of Kepaniwai from a panoramic flat area in the back of ʻĪao Valley called Manienie. Kamehameha stormed Maui with over twenty thousand men, and after several battles Maui troops retreated to ʻĪao Valley. ʻĪao was not only a geographic stronghold; it was the burial place of Maui's ancient rulers, from twelfth century Kapawa to Kalanikuihonikamoku, who died in 1736. When the sacred valley was penetrated by Hawaiʻi warriors, Kalola, her family and seven high chiefs of Maui escaped through the pass to Olowalu, where they boarded canoes for Molokaʻi and Oʻahu. (2011:12)

Among those that escaped from the battle through the overland pass to Olowalu was the young granddaughter of Kalola, Keōpūolani, who would later become the most sacred wife of Kamehameha and birth his ruling heirs, Liholiho (Kamehameha II) and Kauikeaouli (Kamehamemeha III). Keōpūolani would prove instrumental to the end of the ʻai kapu (eating taboo) and was one of the first converts and native evangelists of Christianity (Richards 1825). A differing account of her escape to Olowalu from the one offered above by Smith is relayed in Fornander:

> Kalanikupule, his brother Koalaukani, Kamohomoho, and some other chiefs escaped over the mountain and made their way to Oahu. Kalaniakua, Kekuiapoiwa Liliha, and her daughter Keopuolani, crossed over to Olowalu, where they joined their mother, Kalola, and after a hurried preparation they all left for Molokai, and took up their residence with Kekuelikenui at Kalamaula. (Fornander 1880:237, underlining for emphasis)

3.1.4.3.2 The Olowalu Massacre

During the five-year span from Cook's arrival in Hawaiʻi to the event precipitating the Olowalu Massacre, the waters surrounding the islands bustled with foreign ships, including those deemed "friendly" and others with intentions described as "bent on destroying men and governments" (Kamakau 1961:144). The *Eleanora* arrived from Liverpool, England in February 1790, and found anchorage off the shore of Honuaʻula (Kamakau 1961:145). Kalola, now remarried to Kaʻopuiki after the death of Kalaniopuʻu, was staying at Honuaʻula when the *Eleanora* and her captain, Simon Metcalfe, arrived and these precipitous events occurred:

> Ka-ʻopu-iki was glad to go on board to trade for iron, muskets, and red cloth; but muskets were the objects he most desired. The people brought in exchange hogs, chickens, potatoes, bananas, and taro. Night fell before they had finished their bargaining, and the next day Ka-ʻopu-iki and others went out again to trade further; but the strangers were unfriendly and beat them off with ropes. When Ka-ʻopu-iki heard from the people of Honuaʻula about the small boat which it was customary to keep tied to the back of the ship, he determined to steal the boat at night. At midnight when the guard on the skiff and the men of the ship were sound asleep, Ka-ʻopu-iki and his men cut the rope without being seen from the ship. As they were towing it along, the guard awoke and called out to those on board the ship, but he was too far away to be heard; he was killed and his body thrown into the sea. The boat was taken

> to Olowalu and broken up, and the iron taken for fishhooks, adzes, drills, daggers, and spear points.
>
> The next morning when the men on the ship awoke and found both skiff and watchman missing and realized that the boat had been stolen and the watchman killed, they shot off the cannon upon Honuaʻula and killed some men, among them a peddler from Wailuku, named Ke-aloha, who had come to Honuaʻula to peddle his wares. Two men were held on board the ship, one from Honuaʻula and one from Olowalu, perhaps because these men had given information about the theft or perhaps because the foreigners suspected that Ka-opuiki and the others … were from Olowalu, [and] were responsible for the theft. That evening they sailed to Olowalu, and in the morning Ka-lola declared a tabu restricting canoes from going out to the ship on pain of being burned to death of they disobeyed. "Withered grass" (Mauʻuae) was the name of this law…on the fourth the tabu was ended, and canoes in great numbers went out to trade with the foreigners … Little did they suspect the terrible carnage that was to follow, a carnage without any effort to apprehend and punish the offenders or any pity for the innocent. So these Christians murdered the Hawaiian people... the captain was pretending to trade, and the people were busily eyeing the objects they desired, just as Aka-kane and another man had climbed upon the deck, the ship opened fire and shot the people down without mercy... Even those that swam away were shot down. At noon that day the *Eleanor* sailed, and the people went out and brought the dead ashore … and the dead were heaped on the sands at Olowalu. Because the brains of many were oozing out where they had been shot in the head, this battle with the ship *Eleanor* and her captain was called "The spilled brains" (Kalolopahu). It was a sickening sight… (Kamakau 1961:145-146)

The arrival of the *Eleanora* holds great significance in Hawaiian history, not only due to the tragic event of the Olowalu Massacre but also because of the presence of John Young aboard the ship. Alongside Isaac Davis, Young would rise to prominence as an aikāne punahele (favorite companion) of Kamehameha I, both playing pivotal roles as leaders in the wars of unification that ultimately brought all the islands under a single ruler. Both Young and Davis manned the cannon that slaughtered the Maui warriors at the battle of Kepaniwai (see 3.1.4.3.1). This drive for unity resulted in a shift from the traditional sociopolitical system of various complex chiefdoms to a monarchy under the Kamehameha lineage, paving the way for rapid transformations throughout the islands.

3.1.4.4 Heiau and Religious Sites

As alluded to in previous sections (see Section 3.1.3), Olowalu was considered a puʻuhonua for all of Maui and, in the case of Kamehameha after the battle of Kakanilua (see Section 3.1.4.3.1), for visiting chiefs, as well. As defined by Pukui and others, a puʻuhonua is a "place of refuge, sanctuary, asylum, place of peace and safety" (1986:358). According to ethnohistorian Marion Kelly, puʻuhonua inherited their power of asylum and protection from the high chief associated with it and were often overseen by priests who could call out the name of the aliʻi and invoke the spiritual, sacredness of that individual, protecting those within (1986:148-150). Aliʻi, themselves, could be considered puʻuhonua, protecting people who made themselves prostrate before them (Bryan et al. 1986:148). The puʻuhonua of Olowalu is mentioned, along with many others

including Lahaina, as a place where people could escape (pakele) and enter freely (ke komo) (Pogue 1858:21). Kelly states that "in Hawaiʻi the institution of the puʻuhonua was much more fully developed than in any other area in Polynesia, with the one possible exception of Tonga" (1986:150).

Olowalu and Ukumehame are also home to several different types of religious sites, including heiau. Kaiwaloa (also referred to as Kawaialoa) heiau is located at Olowalu and measures 51 x 32 meters and has been understood as a site where significant religious ceremonies took place, often attended by high priests and ruling aliʻi from the Lāhainā moku region (Smith 2011:10). In a presentation given to the Maui County Cultural Resources Commission, Kaiwaloa is determined to be a luakini (the highest and largest class of heiau often associated with human sacrifice) based on the design and size of the structure (Planning 2012:16). According to Smith, a system of terraces and loʻi close to Olowalu Stream in the upper valley has been interpreted as a rare "Hale o Papa" or women's heiau (2011:10) which was traditionally positioned in alignment with Kaiwaloa that, as a luakini, would have been the ceremonial kuleana (responsibility) of the kāne (men) of high-rank (Planning 2012:16). Only the highest ranking men and women of the area would have been allowed into their respective heiau to observe the rituals and ceremonies within.

Ukumehame has two documented heiau, one which is unnamed with many graves inside of it, and the other, Hikiʻi (sometimes Hekiʻi) heiau, named after Chief Hikii (Thomas G. Thrum 1917:128). According to Thrum's 1917 informant, Kaahui, Hikiʻi is located:

> On a knoll east side of the stream about a mile from the sea and 200 feet elevation. Northwest and northeast walls changed and interior used for grave-yard. Two remaining walls would indicate a sixe of 55 feet square. (Thomas G. Thrum 1917:128)

3.1.4.5 Puʻu Kīlea Olowalu Petroglyphs

Located nearly a mile inland of the Olowalu coastline, Puʻu Kilea is a hill derived from a fissure eruption of fine-grained volcanic rock (Powers 1920:270). On a cliff face just below the hill, on Olowalu gulch's east side are shallow human, dog, and sail figures pecked into the rock surface (P.V. Kirch and Babineau 1996:64).

The Olowalu petroglyphs are similar to others found on Maui with the ancient cliff site exposed to moisture that creates a patina on the surface of the rocks that can be "bruised" to knock away the surface layer, "which tends to produce broad, unformalized, rough-edged images" (Cox and Stasack 1970:10). The compact surface of the cliff side results in the bruised images showing up as discolorations as the moisture created patina continues to darken the shallow images.

Cox and Stasack presented a thorough study of Hawaiian petroglyphs that attempted to explain the function and meaning of the rock pictures, positing they could have been for:

> (1) Recording of trips and communication concerning other events, on trails and at boundaries; (2) A concern for insuring long life and personal well being; and (3) The commemoration of events and legends. (Cox and Stasack 1970:13)

> "The petroglyphs reflect a population factor, most of the sites being near the shore on the trails between the habitation sites"(Cox and Stasack 1970:24).

Further in the study, Cox and Stasack also suggested that the original cultural context of petroglyphs may have evolved as the creation and use of them continued. They state:

> After the first one or two pictures were made by passing travelers, others might have been made simply from the stimulation of the existing example-by suggestion. In time the making of the petroglyphs at the rest riste could have become a custom or even a magic action, required for luck, well-being, or safety. In this view the reasons for creating the first petroglyphs at the site may be immaterial; rather, the meanings and reasons grew out of or became attached to the continued activity. (Cox and Stasack 1970:25)

3.2 Western Contact and 19th Century Culture Change

Although there are no written accounts of contact with the expeditionary forces of Captain James Cook in West Maui, it is documented that the English ships were encountered in the waters of Haaluea off of Wailuanui in East Maui at the time of Kalaniopu'u's campaign against Kahekili (*Ka Moolelo Hawaii* 1838:9). Later, the H.M.S. Discovery under Captain George Vancouver landed in Lāhainā in 1793 whereby Archibald Menzies, the ship surgeon and naturalist, took detailed notes of his time spent collecting plants and admiring the agriculture he described as "cultivated and watered with great neatness and industry" (Menzies 1920:105).

In an 1846 census of Lāhainā, several demographic and societal changes are documented, reflecting the transformations occurring in the area during the mid-nineteenth century. The census recorded 3,445 Hawaiians, 112 foreigners, and 600 seamen, alongside 155 adobe houses, 822 grass houses, 59 straw and wooden houses, and 529 dogs. This data illustrates a notable presence of both indigenous and non-indigenous inhabitants in the region. With an influx of foreigners into Lāhainā, there emerged a necessity to augment the traditional agricultural surplus, primarily overseen by the ali'i class, to meet the demands of economic trade.

An article in the Pacific Commercial Advertiser dated February 12, 1857, highlights the growing Western influence in the area:

> The anchorage being an open roadstead, vessels can always approach or leave it with any wind that blows. Vessels generally approach through the channel between Maui and Molokai... To whale ships no port at the islands offers better facilities for all their business (with the exception of heavy repairs) than does Lahaina. S it is on this island, and but a short distance that the extensive potato fields are located that have furnished an almost inexhaustible supply for many years and also the large sugar plantations from which the best sugar and molasses are procured, and fine herds of cattle which dress up better than any beef slaughtered for market...
>
> ...Fruits are generally abundant. The grape seems to luxuriate in the rich soil, and the sunny, clear weather of Lahaina, as it is, *par excellence*, the fruit of this place or Islands. Figs, bananas and melson are produced in abundance, and pumpkins enough for all

> New England to make pies for a general Thanksgiving. All other supplies needed by merchant or whale ships can always be procured at this port. (Advertiser 1857:2)

In 1865, an article written in *Ka Nupepa Kuokoa* regarding the view of Lāhainā from the ocean, referred to the area as a "dense large forest" with coconut, kou, banana and other trees (A. U. i. T. Lum and Rivera 2020:29), belying the cultural and economic shifts that had occurred and would continue to occur throughout the nineteenth century.

3.2.1 Foreign Transient Trade

During the reign of Kamehameha I the right to harvest ʻiliahi (sandalwood, *Santalum spp*.) was delegated to the aliʻi, who, recognizing the fragrant wood as a highly sought after commodity in China, began to change the relationship between makaʻāinana (the common people reliant on subsistent agriculture) and ʻāina (Isabella Aiona Abbott 1992:132; C. H. Hammatt 1999). Olowalu took part in the provisioning of the trans-Pacific sandalwood trade in the late eigtheenth century (C. H. Hammatt 1999). According to Smith, "When the Olowalu hills were cleared of sandalwood and hardwoods in the early 1800s, Olowalu Valley became much dryer, from mountains to shore" (2011:7-8).

Lāhainā witnessed the greatest influx of transient foreign trade with the 1819 discovery (Starbuck 1878:96) of Japanese waters rich with sperm whales to supply the immense need for whale oil during the early nineteenth century (Wong 1987:122). Japan was still operating under Sakoku (closed country), which restricted commerce and foreign relations outside of its own borders (Totman 2007). This made Hawaiʻi the closest, accessible safe harbor for American, British, and other international whaling vessels in the Pacific (Wong 1987:122). The first American whaler, the *Balena*, to find port in Lāhainā on October 1, 1819, would herald the next 40 years of whaling in Hawaiʻi. By 1822 there were at least thirty sperm whalers from America cruising the waters of Hawaiʻi, using the anchorage of Honolulu and Lāhainā to hunt the many Pacific whale species (Starbuck 1878:96; Wong 1987:122). At the peak of whaling the total number of ships in Lāhainā numbered 429 (Speakman 1978:98), creating an impact that was in direct opposition to the other foreign incursion occuring at the same time: the missionaries.

3.2.2 Christian Missions & Missionaries

According to *Memoirs of Henry Obookiah* (ʻŌpūkahaʻia), ʻŌpūkahaʻia was a young Hawaiian born in 1792 who, after the tragic death of his family, was taken aboard a ship under Captain Britnell The ship was bound for New England in America and ʻŌpūkahaʻia became one of the earliest converts to Christianity (Dwight 1819). Although ʻŌpūkahaʻia died in Cornwall, Connecticut in 1818, well before the missions he inspired made their way to his homeland, his zeal was seen as the driving force behind the American Board of Commissioners for Foreign Missions' (ABCFM) journey to Hawaiʻi. In 1820 the first mission landed on Hawaiʻi Island, and by 1823 they had established a mission in Lāhainā. With the baptism of the high chiefess, Queen Keōpūolani, heralding the acceptance of the Christian faith, the mission soon began to extend pass Lāhainā town.

The Reverend William Richards, the lead missionary of Lāhainā, having traveled with Queen Keōpūolani to Maui in 1823, established the Olowalu Mission around 1829, providing Christian meetings for the possible converts of the area. In a letter dated October 2, 1830, authored by Rev. Richards and Jonathan S. Green, an evaluation of the state of public worship on the Sabbath was documented as follows:

> In every considerable village from one end of the island to the other, the people have erected a house for the worship of God … At Olualu [sic], a village eight miles distant from Lāhainā, we have preached during the season, nearly thirty sermons to a congregation of five to six hundred. This and a single Sabbath at Kanepale, a village equally distant from Lāhainā in another direction, is all that we have been able to do for the people on this side of the island … The congregation at Olualu [sic] listen with seriousness to the preaching of the gospel. A few teachers of schools there have formed themselves into a Bible class, who have been instructed in the interval between the services of the Sabbath. (Richards and Green 1831)

In a report to the American Board of Commissioners for Foreign Missions in 1837, an assessment of meeting-house construction in the Hawaiian Islands included a remark on the advancement in Olowalu, "A doby meeting-house, or one the walls of which are of clay hardened in the sun … has been built at Oloalu [sic], on Maui" (American Board of Commissioners for Foreign Missions 1837).

3.2.3 The Great Māhele (1840-1851)

In 1848, King Kamehameha III and 245 aliʻi (royalty) and konohiki (landlord) came together to divide the lands of the kingdom into three classifications. The Crown and the aliʻi received their land titles and awards for whole ahupuaʻa, as well as individual parcels within an ahupuaʻa, which were then subsequently formally granted in 1850 (Alexander 1890:114). The lands given to the aliʻi and konohiki were referred to as Konohiki Lands and lands retained by the King as Crown Lands. The distinction of Crown land is important and defined as:

> ... private lands of His Majesty Kamehameha III., to have and to hold for himself, his heirs and successors forever; and said lands shall be regulated and disposed of according to his royal will and pleasure subject only to the rights of tenants. (Kingdom of Hawaii 1848)

At the death of Kamehameha IV and with lack of a clear heir some confusion as to the inheritance of Crown lands and whether or not it followed the family line or the throne. It was decided by the Supreme Court that under the confirmatory Act of June 7th, 1848, "the inheritance is limited to the *successors* to the *throne*," "the wearers of the crown which the conqueror had won," and that at the same time "each successive possessor may regulate and dispose of the same according to his will and pleasure as private property, in the manner as was done by Kamehameha III" (Alexander 1890:121).

The third classification of lands partitioned out was termed Government lands that were defined and set aside for management in the following manner:

> ... those lands to be set apart as the lands of the Hawaiian Government, subject always to the rights of tenants. And we do hereby appoint the Minister of the Interior and his successors in office, to direct, superintend, and dispose of said lands, as provided in the Act ... (p)rovided, however, that the Minister ... shall have the power, upon the approval of the King in Privy Council, to dispose of the government lands to Hawaiian subject, upon such other terms and conditions as to him and the King in Privy Council, may seem best for the promotion of agriculture, and the best interests for the Hawaiian Kingdom ...(Kingdom of Hawaii 1848)

In 1850, most of the chiefs ceded a third of their lands to Kamehameha III in order to obtain an allodial title for the remainder. The majority of these lands were then placed into the Government land base (Alexander 1890:114). The designation of lands to be set aside as Government lands, paved the way for land sales to foreigners and in 1850 the legislature granted resident aliens the right to acquire fee simple land rights (Moffat and Fitzpatrick 1995:41-51).

In designations of lands as either Crown or Government, and through all awards of whole ahupuaʻa, ʻili, and later land sales to foreigners classified as Land Grants, the rights of the native tenants were expressly reserved, "Koe na Kuleana o Kanaka" (Reserving the Rights of Native Tenants) (Alexander 1890:114). In an Act ratified on August 6th, 1850, the gathering rights of the common people for personal use, which included the gathering of both terrestrial and marine resources, in addition to the right to water and the right of way on the lands of the Konohiki, were guaranteed and embodied in Section 10477 of the Civil Code (Alexander 1890:114-115). By this same Act, resolutions passed by the Privy Council granted fee simple titles, free of all commutation, with the exception of awards granted within the towns of Honolulu, Lāhainā, and Hilo, to all native tenants for their cultivated lands and house lots (hereafter referred to as kuleana land) (Alexander 1890:115). Claims of the native tenants, or kuleana land claims, were presented to and heard by the Land Commission whose duty was to:

> ...ascertain the nature and extent to each claimant's rights in land, and to issue an Award for the same which is prima facie evidence of title "and shall furnish as good and sufficient a ground upon which to maintain an action for trespass, ejectment or other real action against any other person or persons whatsoever, as if the claimant, his heirs or assigns had received a Royal Patent for the same." (Alexander 1890:110)

Testimonies regarding kuleana lands often encompassed claims for multiple ʻili or apana, situated both mauka and makai. These claims were cataloged under a single helu, or case number, and presented to the Land Commission for review. Kuleana land grants, known as kuleana claims, endorsed by the Land Commission, were bestowed upon occupants of the land, comprising native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-standing resident foreigners who could demonstrate residency on the parcels before 1845 (hereafter referred to as Land Commission Awards [LCA]). Despite endeavors to allocate lands to the makaʻāinana, a significant portion of these lands would eventually be acquired by foreigners as compensation for services rendered to the Hawaiian Kingdom.

Although the greater part of Olowalu Ahupuaʻa was maintained by Kamehameha III as Crown Lands, there was a school lot allocated within the ahupuaʻa, and individual kuleana claims were considered with successful issuance of subsequent awards. Observing the distribution of lands awarded during the Māhele period it becomes clear that inland occupation and agricultural pursuits were widespread along the major stream gulches and upper alluvial plains. Furthermore, in Olowalu, the majority of individual kuleana claims were clustered in the upper valley, following the original path of Olowalu Stream (see Figure 3-4), and along the southeastern coastline near the mouth of the original stream location. The kuleana parcels in Olowalu claimed primary usage for agricultural pursuits, including 974 loʻi kalo, 19 mala ʻuala, 57 kauhale, as well as a paʻakai production area. In Ukumehame there were 33 awarded parcels that included 508 loʻi kalo, 10 mala ʻuala, and 18 kauhale in the adjacent valley. These land claim testimonies further affirm that loʻi were cultivated in the wetter gulch basins adjacent to streams and kula crops, or kihapai, presumably along the dryer, upper alluvial plains growing sweet potatoes, wauke, and dryland taro.

The coastal areas' claims mainly comprised house sites with home gardens, along with one notable claim for “he wahi kaka paʻakai” or a place for pounding salt (Helu 10128, E. Maui). References to adjunct poalima, or agricultural lands tended for the aliʻi, and konohiki lands are also included in the claims or testimonies summarized in Table 3-2 and Table 3-3 (Helu 3772, Alapai; Helu 8867, Kapaakea).

Two mentions of loko (ponds) within the Olowalu region were documented: Helu 3877 claimed by Pikao (see Figure 3-2) and Helu 4376 awarded to Keahi. There is the community acknowledged presence of Kalokoiʻaokapāiki on the Ukumehame side of the ahupuaʻa, however, it seems that there was an additional inland pond situated on the Launiupoko side of the ahupuaʻa boundary. Both ponds are clearly depicted on a 1906 map of the Olowalu Sugar Plantation by Alexander (see Figure). This additional pond is also found on the metes and bounds map of Helu 4376, Apana 1 to Keahi (see Figure 3-3).

As mentioned previously, despite efforts to allocate lands to the makaʻāinana, aliʻi control of the majority of lands persisted, and, as future developments would show, much of these lands would ultimately be acquired by foreigners for sugarcane enterprises. For Olowalu a total of 91 claims were presented to the Land Commission. Only 13 claims were fully awarded, 17 were partially awarded, and the remaining 61 were not awarded at all.

The following Māhele ʻĀina tables summarize the land claims that could be found for the ahupuaʻa of Olowalu and Ukumehame. The tables list, when available, the acreage, resources present, and whether the claims were awarded.

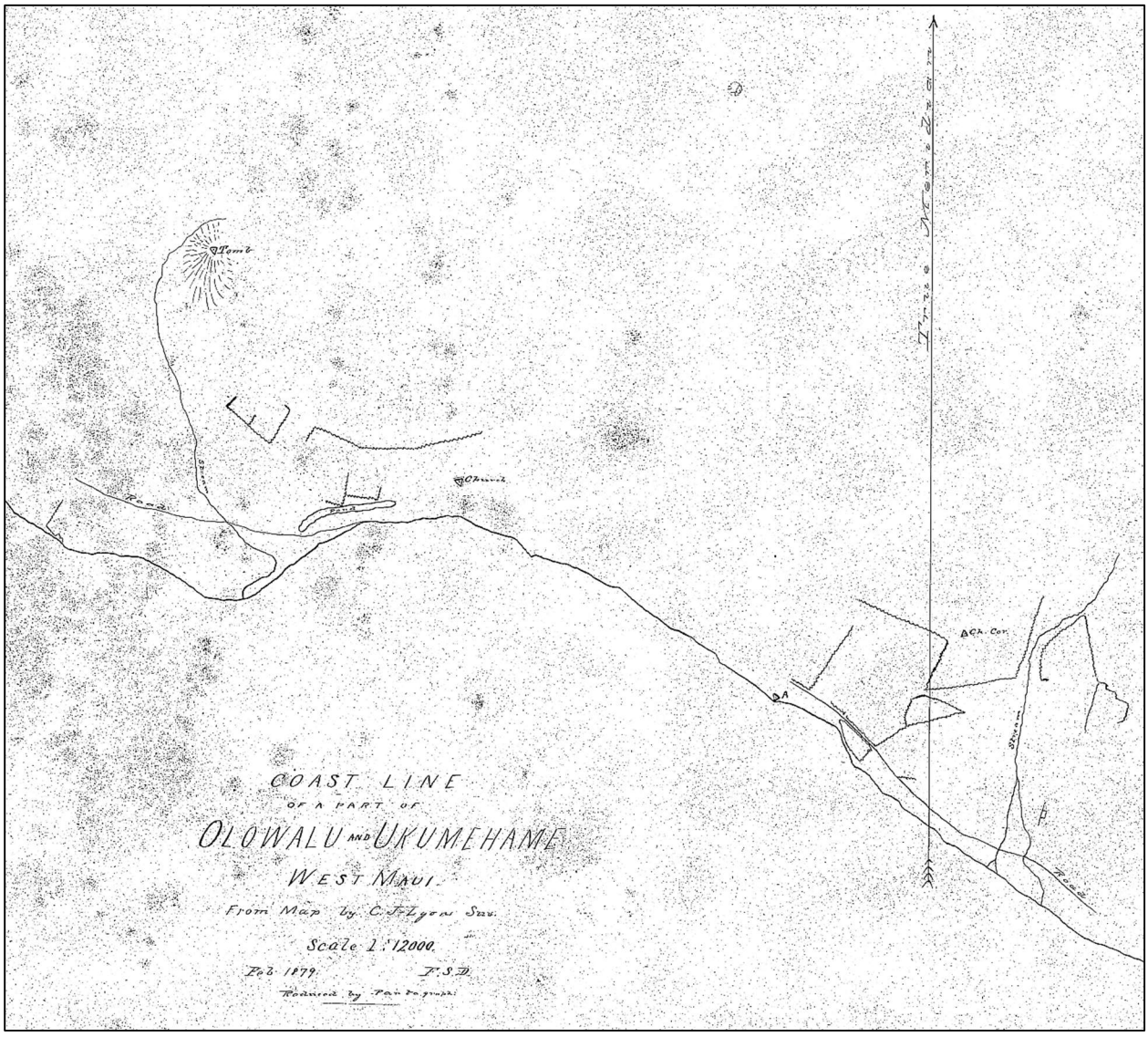


Figure 3-4: Original route of Olowalu Stream as surveyed by Lyons (Dodge 1879).

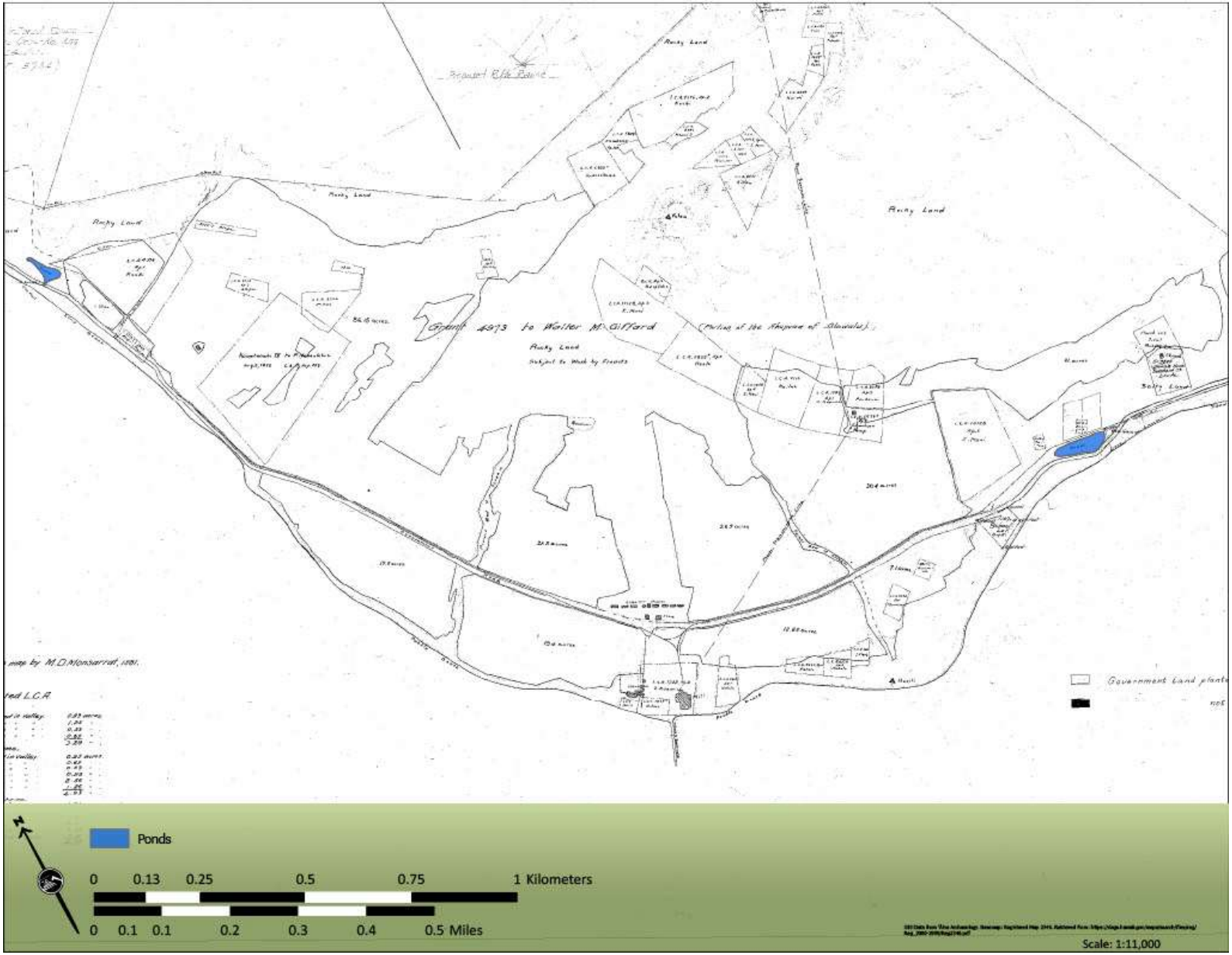


Figure 3-5: Map showing location of both loko in the project area.

Table 3-2. Māhele ʻĀina Claims for Olowalu

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
240		John Clark	Olowalu	Honuaula, Kaluakanaka	**LCA**: permission from Kekauluohi **FT**: House lot built in 1845, provided to J. Clark because it was barren unfarmed land	Yes	survey done by J. Metcalf says area is 721 fathoms - 28 feet; Apana 1: .595 Ac 28 ft
342		Kaauwai, Z.	Olowalu	Kamani/Keawanui/Wailoa/Kaluaaha	**NT**: 3 lots received in 1843 in different ili of Olowalu (Kamani, Keawanui/Wailoa)	No	
358		Kawehena	Olowalu		refer to 5829E	No	
386		Kaweawea	Olowalu	Honokowaikukui	**NT**: pahale, 1 hoi pa	Yes	Apana 1: 26 rods; Apana 2: 1 rood 34 rods
475		Mu & Paahana	Lahaina	Puako	**NT**: 15 loi in Wailoa mauka, 1 pahale (may be shared and claiming 1/2 for each family) **FT**: house lot,	No	
479		Peekauai	Olowalu		**NT**: reference to second plot (5829C or 6058)	No	
495		Kauahuliwaa	Olowalu	Kamani 2	**FT**: 5 pieces of land, #1 is kalo land in Kamani 2, #2 is a house lot in Kamani, #3 is kula land Kamani 3, #4 is kula lani in Kamani 3	No	
603	1724	Hoonaulu	Lahaina		**NR**: pahale in Waiahao, **FT**: disputed land in Lahaina that was heard on Oahu as well as Maui.	Yes	Apana 1: .12 acre
1742		Kaauwai, Z	Olowalu	Wailoaiki Wailoanui	**NT**: 2 ili aina of his wife (Lale) **FT**: land was two ilis belonging to his wife who received the land from her first husband Hauhani, #1 is kalo land with kula land with a poalima loi within, #2 is kula land, #3 is kula land up mauka	Yes	Apana 1: 2 Eka, 3 Ruda, 36 Roda Apana 2: 3 Eka, 1 Ruda, 22 Roda
3288		Mu	Olowalu		**FT**: also a part of helu 475, 15 loi in Haleu (?)	No	
3300		A. Moku	Olowalu		**NT**: Apana 1: Ili of Paehala no house, Apana 2: Ili of Kamaneo **FT**: relinquished this claim for claim 4878 part 34,	No	
3726		Malaea	Olowalu	Puukoleohilo	**NR**: 24 loi in Puukoleohilo, 2 puhalalei, 1 kahuahale **FT**: piece of kalo land	No	
3742		Waa/ Kauahuliwaa	Olowalu	Kamani 3	**NR**: 24 loi, 5 uala, 1 pahale, **FT**: #1 is a house lot, #2 is a kalo land, #3 is kula land, #4 is kalo land, #5 is kula land	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
3772	6285	Alapai	Olowalu	Puukoliolio	**NT**:4 apana in the ili of Puukokohilo and 1 apana in Keomokua in Olowalu. Received land from parents. #1 pauhale mauka alanui Aupuni, #2 Kula land mauka Paahao, #3 Kula land mauka Paahao, #4 Kalo land mauka poalima, #5 Kalo land in Keomakua mauka Keahi mā **NR**: 1 loi, 3 uala, 1 kauhale in Puukoleaohilo, 4 puhala moena, 1 puhala **FT**: In the ili of Puukoleohilo, #1 is a house lot in Puukoleohilo, #2 is kula land in the same ili, #3 is additional kula land in the same ili, #4 is kalo land in Puukoleohilo, and #5 is kalo land in Keamekua	Yes	Apana 1: not specifically listed Apana 2: 3 Ruda, 27 Roda Apana 3: 2 Ruda, 22 Roda
3811		Lupe	Olowalu	Puuheleohilo (?) Puukoleahi	**NT**: 28 loi, 3 puhala, **FT**: #1 is a pauka of kalo land, #2 is a pauka of kalo land	No	
3858		W. Piiku	Olowalu	Kamani 3	**NT**: #1 is pauku kalo, #2 is also kalo **FT**: #1 is a section of kalo land, #2 is a section of kula land	No	
3877		Pikao	Olowalu	Puukoleohilo	**NR**: 16 loi, 1 hale, 1 loko **FT**: claim already heard under his heir, (4376 - Keahi)	No	
3888	6620	Paniooi	Olowalu	Kuekue	**NT**: 3 Apana, #1 kalo land in Kuekue, #2 1 Pauhale mauka alanui aupuni, #3 kula land **NR**: 13 loi in Kuekue, 2 uala **FT**: kalo land in Kuekue, house lot in Puukoliohilo, and kula land in Paapa (?)	Yes	Apana 1: 1 Ruda, 11 Roda
3935		Napoelua	Olowalu	Paumaomao	**NR**: 8 loi **FT**: kula land received by Pikao in 1834	No	
4453		Kaaihue	Olowalu	Puukoleohilo	**NT**: 3 apana, #1 is kalo land in Puukoleohilo, #2 kalo land, #3 is kula land in Papaa **NR**: 8 loi **FT**: 3 sections of land, #1 is section of loi, #2 is a section of loi, #3 is kula land in Paapaa, received from his father	No	
4459		Keaumakalani	Olowalu	Kuekue, Paapaa	**NR**: 19 loi in Kuekue, kula land **FT**: 2 sections of land, #1 is section of kalo land, #2 is kalo land	No	
4462		Kauhena	Olowalu	Kamani 3	**NR**: 1 apana with 3 kuleana loi mauka in Kamani 3 from Kaumuloa **FT**: 3 loi in Kamani 3, received land from Kaumuloa in 1843	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
5005		Kalaipaihala	Olowalu	Maomao	no documentation outside of papakilo listing	No	
5113	3776	Kailaa, W.	Olowalu	Kamaunu	**FT**: kula land in Kamani 1	Yes	Apana 1: 4 Eka, 1 Ruda, 14 Roda
5229		Kamana	Olowalu		**NR**: 21 loi **FT**: a woman called Kamana, stated she had no claim	No	
5620	5477	Kahele	Olowalu	Maomao	**NT**: #1: kalo land, #2 kalo land, #3 kula land, #4 2 loi in Wailoa, #5 is pahale in Kaunukukahi, #6 pahale in Kaluaaha **FT**: #1 is kalo land, #2 is kalo land, #3 is kula land, #4 is 2 loi in Wailoa, #5 is a house lot in Kaunukukahi and #6 is another house lot in Kaluaaha	Yes	Apana 1: 1 Eka, 1 Ruda, 10 Roda (pahale in Kaluaaha) Apana 2: 2 Ruda, 5 Roda (aina kalo in Maomao) Apana 3: 2 Ruda, 19 Roda (aina kalo) Apana 4: 3 Ruda, 21 Roda (pahale in Kaunukukahi)
5732		Kawaaiki	Olowalu	Puolaia, Kaluaha	**NT**: #1 is kalo land mauka of Honokawaikukui, #2 is pahale **FT**: land lot in Puolaia, house lot in Kaluaaha received lands from Naea in 1834	No	
5737		Keakaikawai	Olowalu	Hawaiikokeo	**NT**: #1 is pahale, #2 is paukukalo, #3 is kula land **NR**: 14 loi **FT**: 3 sections, one a house lot, a section of kalo land and section of kula land	No	
5740		Kawehena	Olowalu		refer to 5829E		
5757		Kamakahiki / Kamukahiki	Olowalu	Kaunakukahi	**NT**: #1 is kalo land in Kaunukukahi, #2 is kalo land in Kaunukukahi, #3 is a pahale in Kaunukukahi, #4 is kula land in Kamani 1, #5 is 1 loi in Kamani 1, #6 is kula land in Kamani 1, #7 is 1 loi #8 is pahale and kula land in Wailoa, #9 is 1 loi in Hawaiikeokeo **FT**: #1 is kalo land in Kaunukukahi, #2 is kalo land in Kaunukukahi, #3 is a house lot in same ili, #4 is kula land in Kamani 3, #5 is one loi in Kamani 1, #6 is one section of kula land in Kamani 1, #7 is 1 loi in Wailoa, #8 is a house lot and kula land in Wailoa, #9 is is 1 loi in Hawaiikeokeo, received land from Laaluli in 1829	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
5834		Kaweawea	Olowalu	Honokowaikukui	**NR**:2 pahale, 1 loi in Polapola, 23 loi, moo uala, moo pu, 6 moo kahuahale, 2 dry loi **FT**: kula land with house lot and 23 kalo patches with 2 dry patches. claimant is deceased but represented by his wife, Kamakana, house lot in Lahaina, lands in Olowalu, received in 1836 by Kahaona, also lists kalo patch in Bolabola	No	
5952	5181	Minamina	Olowalu	Kaunukukahi	**NT**: 13 loi in Kumukumukahi, **FT**: #1 is a house lot, #2 is a section of kalo land, received land from his grandfather Kekahi	Yes	Apana 1: 3 Ruda, 6.7 Roda Apana 2: 1 Ruda, 21 Roda
6058	5468	Peekauai, J.	Olowalu	Ohia Kamani Kaunukukahi	**NT**: Aina kalo, 10 loi in Ohia, 9 loi in Kanukukahi, 1 in Kamani, 2 kou trees **FT**: #1 is kalo land, #2 is kalo land, #3 is 1 loi, #4 is section of loi, received land from his parents without dispute	Yes	Apana 1: 1 Ruda, 10 Roda (aina kalo in Ohia) Apana 2: 1 Eka, 3 Ruda, 10 Roda (aina kula ma Kamani) Apana 3: 1 Eka, 3 Ruda, 10 Roda (aina kalo ma Kaunukukahi) Apana 4: 36 Roda (Pahale)
6075		Haole	Olowalu	Kamani 1/ Kumukukahi	**NR**: hale	No	
6186		Pipipi	Olowalu	Kamani 1&2 Honokowaikukui	**NR**: kula uala **FT**: 4 plots, #1 is 8 loi in Kamani 2, #2 is potato field partly fenced in by stone wall in Kamani 1, #3 is house lot in Kamani 1, #4 is is 3 loi in Honokowaikukui, received plots 1 by Maui in 1840, lot 2 and 3 by Makaeli, lot 4 by Hale in 1829	No	
6187		Opunui	Olowalu/ Ukumehame	Kamani 3/ Makenewa	**NR**: #1 is pahale, #2 is aina kalo, #3 is kula land with uala **FT**: #1 is a house lot, #2 is kalo land, #3 is kula land. Lands are disputed except for 3 loi which are claimed by Kaluuna ? (claimant 4462)	No	
6188		Kamakahiki, Z.	Ukumehame	Makenewa	**FT**: 2 pieces, #1 is 4 loi of kalo and kula land, #2 is section of kalo land received from Pikomele (?) in 1837	No	
6189		Puniia	Olowalu		**NT/FT**: claim heard under his son (6187 - Opunui)	No	
6190		Kahauli/ Kahaule	Olowalu	Kaluaaha	**NT**: #1 is kula land, #2 is paukukalo **FT**: 2 sections, #1 is kula land and #2 is kalo land	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
6457		Kauaua (w.)	Olowalu	Kamani 3	**NR**: 1 hale, 2 wahi loi kalo **FT**: 2 pieces, the claimant is deceased and Kauahuliwa is her heir, her husband is Kanakuhaole	No	
6544		Huihui	Olowalu	Pua	**NR**: 18 loi, 1 kulanakauhale, 1 puhala **FT**: #1 is a section of loi, #2 is kula land	No	
6547		Hale	Olowalu	Kamani 1	**NR**: 21 loi, 1 kula land, 1 hale in Kamani 1 **FT**: one piece of both kula and kalo land in Kamani, received from Maui in 1840	Yes	Apana 1: 2 Ruda, 14 Roda
6728	4952	Mahulu	Olowalu	Haauwai	**NR**: 20 loi, house lot **FT**: #1 section of kalo in Kamani 3, Olowalu, #2 is a house lot and kula in Kaunakukahi	Yes	Apana 1: 3 ruda, 5 roda Apana 2: 3 Ruda, 26 Roda
6852		Punahele	Olowalu	Pua	**NR**: pahale, loi, **FT**: 2 sectons, #1 is kula land, #2 is kalo land (70 loi?)	No	
7719	7209	Haia	Olowalu	Maomao	**NT**: 3 Apana: #1 is a house lot, #2 is kula land, #3 is kalo land **NR**: 15 loi **FT**: #1 is a house lot, #2 is kula land, #3 is kalo land	Yes	Apana 1: 1 Ruda, 20 Roda
8062		N. Hue	Olowalu	Paumaumau	**NR**: loko wauke o Mimilapalapa **NT**: received from Pikao in 1833	No	
8238		Ihu	Olowalu		**NR**: 21 loi **FT**: This claim is included in 3811 (Lupe) as the claimant is deceased and Lupe is the heir	No	
8545		Kaiehu/ Kaihu	Olowalu	Puukoleohilo	**NR**: 1 pahale, 9 loi, 3 puhala in Puukoleohilo **FT**: #1 is a house lot, #2 is a section of kalo land received by Pikao in 1834	No	
8546	3353	Kaawili	Olowalu	Paumaumau	**NT**: 16 loi kalo, pahale, mala wauke in Pualaia (?), mala maia in Pahoa, 11 loi in Puukoleaohilo **FT**: kalo land,	Yes	Apana 1: 2 Ruda, 33 Roda
8573	3810	Kailiula	Olowalu	Kuekue (?)	**NR**: 6 loi in Kuekue, 1 loi in Paumaumau, 1 hale mauka ma Kamani, **FT**: #1 is a house lot, #2 is kula land, #3 is kalo loi	Yes	Apana 1: 30.8 Roda Apana 2: 2 Ruda, 4 Roda (kalo/kula land)
8585		Kealoha	Olowalu	Puukoleohilo/ Honokowaikukui	**NT**: #1 is kula land, #2 is kalo land **NR**: 1 pahale, 4 puhala, 1 hau, #1 kula land, #2 kalo land	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
8651		Kealoaihue	Olowalu	Ohia/Kamani 3	**NR**: 2 wauke in Pualaia Lalaiole o Wahaikamoku **FT**: 4 pieces, #1 is kalo land in Ohia, #2 is kula land in Pulaia (?), #3 is kula land in Kamani 3, #4 is kalo land in Kamani 3 received land from Pupuka in 1839 but now wants it back	No	
8656		Kamakaokalani	Olowalu	Puukoleohilo	**NR**: 12 loi **FT**: #1 is one section of kalo land, #2 is 2 loi of kalo, received from Pikao in 1835	No	
8657	6881	Kikau/ Kekau	Olowalu	Kamani 2	**NT**: Apana 1: loi in Kamani 1, Apana 2: kalo land **NR**: 15 loi **FT**: piece in Kamani 1 and another in Hinaa (?) #1 is house lot and kula land, #2 is section of kalo land, received from Paawaa in1838	Yes	Apana 1: 3 Eka, 1 Ruda, 33 Roda
8668	3344/ 3811	Kaiwi	Olowalu	Kawahaohi Olelohoaka	**NT**: 26 loi, 3 wauke patches, 1 kauhale (Apana 1: loi, Apana 2: kula land up mauka, Apana 3: Kauhale mauka **FT**: #1 section of kalo land in Kamani 2, #2 is kula land in Kamani 2, #3 is a house lot in Kamani 3	Yes	Apana 1: 2 Eka, 10 Ruda Apana 2: 10 Ruda
8817	7572	Kanakaole	Olowalu	Kaunukukahi/ Kamani 1	**NT**: #1 is pahale, #2 is kula land, #3 is kalo land, #4 is 1 loi **NR**: 1 pahale, 10 loi **FT**: two pieces in Kaunukukahi and two pieces in Kamani 1. #1 is a house lot, #2 is kula land, #3 is kalo land #4 is 1 loi received from Kamakahiki in 1826	Yes	Apana 1: 1 Ruda, 24 Roda Apana 2: 7.5 Roda Apana 3: 27 Roda
8828		Kauhiokalani	Olowalu	Honokowaikukui/Puukoleohilo	**NT**: #1 is 1 pahale, #2 is 3 moo kula, #3 is a pauku kalo **NR**: 28 loi, 1 moo uala, 7 puhala, **FT**: 3 sections: #1 is a house lot, #2 is 3 moors of kula land, #3 is a section of kalo land	No	
8829		Mohaa	Olowalu	Honokowaikukui	**NT/FT**: joint owner of 8828 with Kauhiokalani **NR**: 10 loi and 3 puhala	No	
8886		H. Kuewa	Olowalu	Upai (?)/ Kuekue	**NR**: 18 loi in Kaumukahi, 18 loi in Kuekue, 2 loi in Naupaipai, 3 loi and 1 kulahale **FT**: #1 is kalo land, #2 is a kalo land, #3 is kula land and house lot and kalo land, #4 is 2 lois of kalo land	No	
8887		Kaikuaana	Olowalu	Kaulukukahi	**NR**: 21 loi on kula land, 2 poho wauke ma Kamani, 1 mahina uala, 1 kulanakauhale **FT**: #1 is kalo land in Kaulukukahi, #2 is kula land, #3 is kula land in Kamani, #4 is kula land in Kamani 3. land received by Kekaha	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
9004		Kahalelaau	Olowalu	Puukoleohilo	**NT**: 2 Apana, #1 is kalo land, #2 is a pahale and Kula land **NR**: 24 loi, 3 puhala **FT**: #1 is kalo land in Puukoleohilo, #2 is a house lot and kula land in Paapaa received from his father, Moku	No	
9006		Kahananui	Olowalu	Kakio (?)	**NT**: 22 loi, 2 puhala, 1 kauhale **FT**: a house lot with lois received from Pikao in 1834	No	
9821		Kaleiopu	Makila		**FT**: 1 kalo land and 1 kula land	Yes	Apana 2: 1.5 Eka, 19 Roda
9906	6946	Pikao	Olowalu	Paumaumau	**NT**: Apana 1: pahale and kalo, Apana 2: kula land **FT**: #1 is a house lot and numerous loi in Paumaumau #2 is two moo of kula land in Paapa, received land from his namesake in 1837	Yes	Apana 1: 2 Eka, 2 Ruda, 32.7 Roda
9907		Kailimoku	Olowalu	Polaia, Kamani, Honokawai kukui	**NT**: #1: pauku kalo, uala in kula land #2: 2 loi mauka, #3: 1 loi mauka **NR**: 15 loi, 1 uala **FT**: #1 is a section of kalo and kula land, #2 is 1 loi in Honokawaikukui, #3 is 2 loi in Kamani received from Pikao in 1837	No	
10127		Makanialoha (w)	Olowalu	Ohia	**NT**: 1 hale and 1 apana kalo land in Ohia **NR**:14 loi, 1 Kumu Ulu, 1 niu, 2 puhala **FT**: 1 section of kalo land she received from Naea in 1834	No	
10128	4041	Maui E.	Olowalu	Wailoa Puolaia Kamani 3 Kaluaaha	**NT**: Apana 1: Kula land in Wailoa, Apana 2: Aina kalo ma Kamani, Apana 3: Kula me Kalo ma Wailoa, Apana 4: Kula ma Wailoa, Apana 5: Pahale me Kula ma Kamani **FT**: #1 is 2 loi in Puolaia, #2 is 1 loi in Puolaia, #3 is 3 loi in Kamani 1, #4 is a house lot in Kamani 3, #5 is a small piece of salt land in Kamani 3	Yes	Apana 1: 1 Eka, 1 Ruda Apana 2: 2 Ruda, 20 Roda Apana 3: 7 Eka Apana 4: 1 Eka, 30 Roda Apana 5: 8 Eka, 2 Ruda, 22 Roda
10427		Naea	Olowalu	Kamani	**FT**: has a house lot in Wailuku, has one lot in Kamani Olowalu, one lot in Makila Lahaina, one house lot in Kahana Kaanapali and one house lot in Kahua Lahaina. Olowalu lot received by Kaeo from his mother Kaaimalalo NR: Claim at Kamani, Olowalu	Yes	Unknown

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
10592	5187	Paia	Olowalu	Kamani 3	**NT**: 19 loi kalo, 1 uala patch in kula land, 1 pahale **FT**: #1 is a house lot and kula land in Kamani 1, received land from Kamalolo (his wife) before 1826,	Yes	Apana 1: 1 Eka, 2 Ruda, 39 Roda (relinquished ownership) Apana 2: 1 Ruda, 33 Roda (Pauku aina kalo - kamani 3)
10673		Puhilaolao	Olowalu		**FT/NT**: "no such person can be found in Olowalu or Ukumehame"	No	
10714	6611	Pohakunui	Olowalu	Kamani 2	**NR**: 24 loi in kahi kula, 1 kauhale in Kamani 2 received by E. Maui **FT**: kula and kalo land in one piece, received from Maui in 1848	Yes	Apana 1: 3 Ruda, 18 Roda
10806		Kamehameha III	Olowalu	Uwai/ Ohia	Helu 72 (Apana 18) : 2 loi in Ohia, Helu 73 (Apana 19): 2 loi in Uwai, Helu 74 (Apana 20): 1 loi in Uwai	Yes	Unknown
10807		Napuone	Olowalu	Ohia, Kamani 1	**FT**: 2 sections of land, one in Ohia and the other in Kamani 1 received from Naea in or around 1834	No	
10827		Puuone	Olowalu	Kaluanui	**NT**: 2 apana, one in Ohia and one in Kamani 3 **NR**: 27 loi **FT**: contains kalo and kula land, received from parents	No	
10932		Ulili	Olowalu	Niupaipai	**NR**: 15 loi in Niupaipai, 1 loi in Waiakamalii, 2 hoi moo **NT**: 1 apana from Pikao in 1834	No	
3934B		Niau	Olowalu	Paumaumau	**FT**: section of kalo land in Paumaomao	No	
4376/ 4454	6267	Keahi	Olowalu	Puukoleohilo	**NT**: 10 apana in Puukoleohilo, #1: 28 mea kula, #2: 17 ? + 5 loi mauka kula, #3: mauka #4: 1 loi, #5: 3 loi mauka kula, #6, 7 loi, #7: 1 loi, #8: 2 loi, #9: pauka kalo? #10: pauku kula **NR**: 38 loi, 5 puhala lei, 1 lauhala moena, kauhale, 3 kihapai wauke, 1 kihapai wauke in Pualaia, 2 kihapai kalo, RPG: Apana 1: kula land in Puukoliohilo, Apana 2: kalo patch mauka in Puukeleohilo, Apana 3: kalo ma Kaunakakahi **FT**: 10 sections of land: #1 is kula land, #2 is kula land with 5 loi, #3 is kalo land, #4 is 1 loi, #5 is 5 loi, #6 is 7 loi, #7 is 1 loi, #8 is 2 loi, #9 is pauku of kalo land, #10 is kula and mountain land given to him by his ancestors	Yes	Apana 1: (near pali and loko iʻa) 7 Eka, 2 Ruda Apana 2: 6 Eka, 2 Ruda Apana 3: 2 Ruda, 1 Roda
486B		Lani Lata	Olowalu		**NT**: 2 pahale mauka of the alanui aupuni, 2 kula land mauka, **FT**: house lot in Lahaina, claimants listed as Maikai and Kaluapakohana	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
4878KK		Kelea	Olowalu	Puehuehuiki	**FT**: house lot, kula land and kalo land in Makila, Lahaina.	Yes	Apana 1: 12 rods
4878MM		Makanui/ A. Moku	Olowalu	Puehuehunui	**FT**: house lot, kula land, kalo land and another small parcel of kula land	Yes	Apana 3: 8.69 Eka
4878NN		Kapuhi	Olowalu	Makila	**FT**: house lot and kula land in one piece, located in Makila	Yes	Apana 1: .17 Eka
5207B	5660	Kalaipaihala	Olowalu	Maomao Kaluaokahui	**NT**: Apana 1: aina kalo, above a kahawai **FT**: House lot and 6 loi kalo	Yes	Apana 1: 3 Ruda, 30 Roda
5829C		Kamaua/Kanana/Kauaua (diff spelling)	Olowalu	Wailoa/Kamani 3	**NT**: #1 is kula land in Wailoa, #2 is Kalo land in Kamani 3, #3 is pahale in Kamani 3 **FT**: #1 is kula land in Wailoa 1, #2 is kula land in Kamani 3, #3 is a house lot in Kamani 2, received land from parents	No	
5829D	7102	Kaaoaohema	Olowalu	Hawaiikeokeo	**NT**: #1: 1 pahale, #2: 3 loi #3: 1 loi, #4: 1 loi **FT**: #1 is a house lot in the ili of Hawaiikekeo, #2 is a section of loi in Hawaiikekeo, #3 is one loi in same ili, #4 is one loi in Hawaiikekeo	Yes	Apana 1, 2, 3: 3 Eka, 10 Roda
5829E	7989	Kawehena Malaloiho	Olowalu	Hawaiikekeo Kamani	**NT**: 17 loi, 1 kula lot, 1 house near ka pa o Peekuuai **FT**: #1: kula and kalo land as well as house land, #2 is kalo kand in hawaiikekeo, #3 is a kula lot in Kamani 2	Yes	Apana 1&2: 1 Eka, 3 Ruda, 7 Roda Apana 3: 1 Eka, 2 Ruda, 24.8 Roda
5829F	5183	Haole	Olowalu	Kaunakukahi	**NT/NR**: 1 loi in Kamani 3, 4 loi in Kumukukahi, 1 loi in Wailoa **FT**: #1 2 loi in Kaunakukahi, #2 is 2 additional loi, #3 is 1 loi in the ili of Kamani 3, #4 has 11 loi and kula land in Wailoaiki	Yes	Apana 3: 2 Ruda, 13 Roda Apana 4: 4.5Eka
5829G		Pipipi	Olowalu	Kaunakukahi	**NT**: 1 loi in Kaunukukahi, #2 is 3 loi in Honokowaikukui, #3 is 1 loi in Kamani 1, #4 is kula land in Kamani 3 **FT**: #1 is 1 loi in Kaunukukahi, #2 is 3 loi in Honokowaikukui, #3 is 8 loi in Kamani 1, #4 is kula land in Kamani 3	No	
5829H	4840	Nahue	Olowalu	Kaluaaha	**NT**: #1 is loi kalo, #2 is kalo, #3 is pahale **FT**: #1 is a section of kalo land in Kaluaaha, #2 is kalo land, #3 is House lot in Kaluaaha	Yes	Apana 1: 3 Ruda, 12 Roda

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
5829I		Tabita W.	Olowalu	Kaunakukahi/ Puaolaia	**NT**: #1 is pahale and kula land in Puaolaia, #2 is loi in Kaunakukahi received land from Kanikoa in 1832 **FT**: piece of kalo land and house in Puaolaia, and 1 loi in Kaunakukahi	No	
5829K		Kaanui Naheana	Olowalu	Paapaa/ Honokowaikukui	**NT**: #1 is kalo patch in Honokowaikukui, #2 is kula land in Papaa **FT**: N#1 is a kalo land in Honokowaikukui, #2 is a house lot and kula in Paapaa	No	
5829L		Amama	Olowalu	Kahanauwahea	**FT**: sent in a claim but is a great wanderer living without fixed residence	No	
5829 M		Kaleleiki	Olowalu		**NT**: 3 lots, #1: kalo in Kamani 3 (?), #2 is kula land, #3 is 2 loi in Honokowaikukui (?), #4 is a pahale	No	
6727B	2440	Pahaula/Pahula	Ukumehame	Puaaloa, Makenewaehiku, Kahananui Kaninanai (?)	**NR**: Pahaula ?Claimant: 3 Apana Puaaloa: 29 loi(?) and 2 hoi kula (dryland bitter yam [Dioscorea sativa] areas) Makenewa ehiku: 9 loi (near kulanakauhale kekahi) Kahananui: 5 loi, 2 papohaku wauke Kaninanai (?): 2 loi ma O'hia, 2 loi ma hau **FT**: 3 pieces in "Pualoa", Ukumehame. #1 is a section of kalo land, #2 is a section of kalo and kula land, #3 is a house lot. The claimant received them from his father in the days of Kamehameha 1 and his title has never had dispute to this day. MA: Apana 1, 2 & 3	Yes	Apana 1: 1 Ruda, 10 Roda Apana 2: 3 Ruda, 29 Roda Apana 3: 1 Eka, 1 Rude, 38 Roda
8656B		A. Kekona	Olowalu	Puukoleohilo	**NR**: 19 loi and 1 pahale **FT**: #1 is house lot/kalo land and #2 is kula land	No	
8656C		Kahooikaika	Olowalu	Kamani 2/ Kaunukukahi	**NR**: 19 loi in Kamani 2	No	
8657/ 8657B		Amama	Olowalu	Kamani	**NT**: 1 pahale, 11 loi, 3 puhala included in part of Maui‘s land.	No	

Table 3-3. Māhele ʻĀina Claims for Ukumehame

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
309M		D. Malo	Ukumehame		**NT**: pahale o David Malo in Ukumehame **NR**: references one of many pa belonging in Ukumehame	Yes	
328		Kamakini	Ukumehame		**NR**: 1 pahale	No	
473		Pikanele	Ukumehame		**NT**: 16 loi, 7 loi ma, 1 pahale	No	
522		Ladana	Ukumehame		**NR**: 9 loi hoolenialima (hooilina?) for ka Moʻi	No	
720		Kamakine/ Kamakini	Ukumehame		**FT**: references 3 pieces but only one in Ukumehame (a house lot) which was received by Kapena (the luna) in 1842, His heir is Hiamoe (his son by his first wife through which he got all his property)	No	
2959		Hika	Ukumehame		**FT**: 1 piece of kula land in Ukumehame received from Wiwi in 1833 (the rest is not in that ili: 1 piece kalo land in Nohoana, a house lot in Maalaea, a house lot in Olohe, Waikapu)	No	
5380	2506	Hulu	Ukumehame	Ohianui/ Uwai/ Kaulu	**NR**: 12 loi and 1 pa kulanakauhale **NT/FT**: #1 is kalo land in Kaulu 1, #2 is kalo land in Uwai, #3 is a house lot in Uwai, #4 is a house lot in Ohianui received from Wiwi (?) in 1835	Yes	Apana 1: 1 Ruda, 35 Roda Apana 2: 2 Ruda, 1 Roda Apana 3: 20 Roda Apana 4: 1 Ruda (1/4 acre) Apana 5: 2 Ruda, 3 Roda
5387	3356	Hinau	Ukumehame	Ohiaiki	**FT**: large loi in Ukumehame received from Moo (a teacher) via his widow Kahaiaohe, David Malo may not claim this loi in his capacity as Kahukula	Yes	Apana 1: 1 Ruda, 6 Roda
5829		Kamaua (w.)	Ukumehame		**NT**: 1 apana kalo in Ohiaiki from David Malo in 1837 **FT/NR**: are for a different claimant (Kanehokipuu in Kaneohe)	No	
6187		Opunui	Ukumehame	Makenewa 3	**NR**: moo aina iloko o Makenewa	No	
6188		Kamakahiki	Ukumehame	Makenewa	**FT**: 2 pieces in Makenewa, #1 is 4 loi kalo and kula land, #2 is kalo iuka land received from Pikanele in 1837	No	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
6423		Konanui	Ukumehame	Kaulu/Kahananui/ Aweoweo-luna	**NT**: 3 pieces received from Pikaonele in 1829, #1 is kalo land in Kaulu, #2 is kalo land in Kahananui, #3 is kula in Aweoweoluna **NR**: 15 loi in Kaulu, 10 loi in Palihau, kula land in Kahananui with 5 loi, poho wauke, 4 waiolona, 1 loi in Puaaloa **FT**: 3 pieces, #1 is kalo and kula land in Kaulu, #2 is kalo in Kahananui, #3 is ? (cut off record)	No	
6480	2442	Keawe	Ukumehame	Uwai/ Pualoa	**NT**: #1 is a pauku of kalo land, #2 is 1 loi **NR**: 7 loi in Auwai, 3 loi in Puaaloa **FT**: 1 piece of kalo land in Uwai and one loi in Pualoa received from J. Kapuna (konohiki) in 1843	Yes	1/4 Acre
6483		Kamakaeha/ Kamaka	Ukumehame	Pinanai/ Piinanai	**NR**: kula and kalo land in Piinanai, Ukumehame **NT/FT**: 4 pieces in ukumehame, #1 is kula land, #2 is kula land, #3 is kalo land with 5 loi, #4 is kalo land with 3 loi received from Hoapilikane in 1837	No	
6591		Pumaiwaa	Ukumehame	Puaaloa/ Makenewa/ Kahananui	**NT**: #1 is kalo land in Puaaloa, #2 is a pahale and kula land in Punahua (?), #3 is kula land in Kahananui, #4 is a pahale in Makenewa 3 **NR**: 28 loi, 1 kula land, 1 kulanakauhale, 2 loi in Ohia, 2 poho wauke in Kahananui **FT**: 4 pieces: #1 is section of kalo land, #2 is a house lot and kula land, #3 is a kula in Kahananui, #4 is house lot in Makenewa 3	No	
6751	2441	Aloi	Ukumehame	Puaaloa	**NT**: #1 is kalo land mauka, #2 is kalo land mauka Uwai, #3 is kula land **NR**: 38 loi, 1 piece kula land **FT**: #1 is a section of kalo land, #2 is a section of kalo land, #3 is a section of kula land received land from Kamakakekau who received it from Kalako in 1836	Yes	Apana 1: 1 Ruda, 28 Roda Apana 2: 1 Ruda, 12 Roda Apana 3: 4 Eka, 1 Ruda, 26 Roda
6758	4989	Golia, S.	Ukumehame	Makenewa	**NR**: 20 loi, 2 moo uala, 2 Opu Lauhala **FT**: #1 a section of kalo land, #2 a section of kalo and kula land received from his wife in 1843 who received it from Pikanele in 1835	Yes	Apana 1: 2 Ruda, 27 Roda Apana 2: 1 Eka, 3 Ruda, 5 Roda

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
7779	7017	Kaleleiki	Ukumehame	Makenewa/ Kaweoweo-luna	**NR**: 15 loi, 3 kula **FT**: #1 is a section of kalo land in Makenewa 3, #2 is a section of kula land in Makenewa 3, #3 is 2 loi in Makenewa 4, #4 is a house lot and kula land in Kaweoweoluna received from Jonah Kapena in 1843	Yes	Apana 1/2/3: 5 Eka, 3 Ruda, 39 Roda Apana 4: 7 Eka, 30 Roda
8191	7907	Hilo	Ukumehame	Kekenui	**NT**: #1 is 1 loi in Ohia, #2 is 1 loi in Uwai, #3 is kula land in Ohianui **NR**: 5 loi in Ohia, 1 mauwai, kula land in Punanai **FT**: 3 loi on one piece kalo land in Paiki, one piece kalo land in Uwai received lands as "waste kula lands" before he worked on them	Yes	Apana 1: 25 Roda
8559	4497	Kanaina, C.	Ukumehame	Puaaloa	**RPG/NR**: No sketch or description **FT**: 4 lots but only apana 4 is located in Ukumehame and was received by Kamehameha III	Yes	
8623	2443	Kamakakeha u	Ukumehame	Kaulunui/Pua aloa	**NR**: 38 loi in Kaulunui, 1 uala patch on kula land, 22 loi and 1 house in Puaaloa **LCA**: Apana 2 is aina kalo in Puaaloa **NT/FT**: 4 pieces of land, #1 is kalo land in Kaulunui, #2 is kula land in Puaaloa, #3 is a house lot in Aweoweoluna, #4 is kula land in Aweoweoluna received from Pikanele in 1839	Yes	Apana 2: 1 Eka, 2 Ruda, 22 Roda
8625		Kalama	Ukumehame	Kaulu	**NR**: 3 loi in Kauluiki, 3 loi in Uai, 30 loi in Puaaloa, kula land in Punahoa with a mahi uala **NT**: 3 loi in Uwai, 1 kula land in Punaloa, 1 kula and kalo land in Kiloia, 1 section of kalo land in Pinawai, one section of kalo land in Kahananui (all in Ukumehame) received lands from his father **FT**: one piece of kalo land with 9 loi received in 1837	No	Apana 1: 3 Ruda, 35 Roda

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
8625		Kalama	Ukumehame	Kaulu/ Puaaloa/ Uwai	**NT**: 5 apana in Uwai with 3 loi, 1 moo kula in Puaaloa, pauku kalo ma kula in Pinawai (?), pauku kalo in Kahananui, #2 is 3 loi in Uwai, #3 is kula land in Puaaloa, #4 is kalo and kula land, #5 is kalo in Pinawai and #6 is kalo land in Kahananui **NR**: Kauluiki has 3 loi, Uwai has 3 loi, Puaaloa has 30 loi, 1 mahi uala on kula land in Punahoa **FT**: kalo land in Kaulu with 9 loi received from Wiwi in 1837 **FT2**: 3 loi in Uwai, 1 kula land in Puaaloa, 1 kalo and kula land in Keloia, and one section of kalo land in Pinawai, one section of kalo land in Kahananui, received all lands from his father	No	
8795	2439	Kulou	Ukumehame	Puaaloa	**NR**: 6 loi in Mauai, 15 loi in Puaaloa, 2 loi in Makenewa, 1 kauhale **NT/FT**: one piece of kula and kalo land received land from Halakea the luna of Puaaloa in 1844	Yes	Apana 1: 3 Ruda, 38 Roda
8867		Kapaakea	Ukumehame	Kaulu/Makenewa	**FT**: 2 ili of land in Kaulu (2 poalima loi) and Makenewa (2 poalima loi) , received from Nahienaena and held til his death in 1848, then his mother Kaunahi inherited it	No	
9035		Kalua	Ukumehame	Pualoa	**NT**: 24 apana in Puaaloa **FT**: 24 distinct pieces, #1 is 3 loi, #2 is 4 loi, #3 is 1 loi, #4 is 1 loi, #5 is 4 loi, #6 is 3 loi, #7 is 1 loi, #8 is 1 loi, #9 is 1 loi, #10 is 1 loi, #11 is 3 loi, #12 is 1 loi, #13 is 1 loi, #14 is 2 loi, #15 is 1 loi, #16 is 3 loi, #17 is 1 loi, #18 is 1 loi, #19 is 1 loi, #20 is 2 loi, #21 is 1 loi, #22 is 1 loi, #23 is 1 loi, #24 is 1 loi (total: 40 loi)	No	
10206	4917	Mauikuaole	Ukumehame	Kahananui/ Uwai	**NT**: #1 has 11 loi, kula land and pahale, #2 is aina kalo, #3 is 2 moo kula **NR**: 31 loi, kula land, 1 wauke patch, 1 kauhale **FT**: #1 : 1 house lot with kula land and 11 loi, #2: 10 loi in Kahananui #3: 2 kihapai of kula	Yes	Apana 1: 4 Eka, 1 Ruda, 5 Roda Apana 2: 35 Roda
10225		D. Malo	Ukumehame		**NR**: referencing Apana 1 in Molokai **NT/FT**: included in claim 3702	No	
10806		Kamehameha III/Piikoi	Ukumehame	Makenewa/ Puaaloa	**NT**: Helu 71 (Apana 17) 4 loi ona, Helu 78 (Apana 22) Pahale ma Makenewa **NR**: Helu 71: Na Mahina i Ukumehame a me Halaula (mau kahuahale ma Maui), 75: (Makenewa)	Yes	

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
310/10667	6862/1729	Pikanele	Ukumehame	Kaulu/ Uwai	**LCA**: #1 is kalo land in Kaulu, #2 is kalo land in Uwai **FT**: counter claim to Makakehau	Yes	Apana 1: 2 Eka, 2 Ruda, 13 Roda Apana 2: 1 Eka, 1 Ruda, 33 Roda
3702/5410	6338	Davida Malo	Ukumehame	Ohiaiki/ Keekeenui	**LCA**: #2 is aina kalo in Ohiaiki, #3 is 2 loi in Ohiaiki, #4 is aina kalo and kula land in Keekeenui and Ohiaiki **NR**: 2 loi **FT**: Malo received these lands from his wife, and his wife from the wife of Pikanele in 1832	Yes	Apana 2: 2 Ruda, 20 Roda (kalo land in Ohiaiki) Apana 3: 7 Roda (2 loi) Apana 4: 31 Eka, 2 Ruda, 20 Roda
5462/5462B		Kamanuwai	Ukumehame	Aweoweo-luna	**NT**: 1 apana in Aweoweoluna received in 1835 **NR**: 6 loi	No	
5829B		Kamaua (w.)	Ukumehame	Makenewa/Punalua/Ohianui/Aweoweo-lalo	**NT**: #1 is kalo land in Makenewa 3 , #2 is kalo land in Makenewa 3, #3 is kula land in Punalua, #4 is kula land in Makenewa 4, #5 is kalo land in Makenewa, #6 is kalo land in Ohianui, #7 is kula land in Aweoweolalo **FT**: one parcel in Ohiaiki received from David Malo in 1837	No	
5829BB		Keauwai	Ukumehame		**FT**: same 7 parcels as listed in 5829B but says was received from Pikaonele in 1829	No	
5829M		Keleliki	Ukumehame	Makenewa	**NT**: #1 is kalo in Makenewa 3 , #2 is kula land in Makenewa 3, #3 is 2 loi in Makenewa 4, #4 is a pahale	No	
6408/5124	1723	J. Kalaikini	Ukumehame	Kumuniu	**NR**: 4 loi and 4 moo kanu uala in Puaaloa, 2 hoi moo, (house located in Kailua, not in Ukumehame) **LCA**: Apana 1 is 4 moo kula in Makenewa, Apana 2 is 4 loi kalo **FT**: received land from 4 ridges of dry land together (Ahupuaa Moos) and 4 kalo patches received by keeping cattle for Lot Kamehameha in 1825	Yes	Apana 1: 9 Eka, 17 Roda Apana 2: 32 Roda
6709/6609	7775	Popolo	Ukumehame	Haai	**NR/LCA**: pauku of kalo, kula land with uala and pahale **FT**: land received by Makaiki before 1839	Yes	Apana 1: 2.25 Acres

Helu	RP	Claimant	Ahupuaa	Ili	Land Claim	Awarded	Acreage
6727/ 6727 B	2440	Pahula	Ukumehame	Puaaloa	**NR**: 9 loi in Makenewa ehiku, 1 kulanakauhale, 5 loi in Kahananui, 2 papohaku wauke, 2 loi in Paninanai, 2 loi in Ohia, **NT**: #1 is kalo land, #2 is kalo and kula land, #3 is kula land **FT**: 3 pieces in Pualoa, #1 is section of kalo land, #2 is section of kalo and kula land, #3 is house lot received lot in 1844 from Konohiki - Kalepa(?)	Yes	Apana 1: 1 Ruda, 10 Roda Apana 2: 3 Ruda, 29 Roda Apana 3: 1 Eka, 1 Ruda, 38 Roda
8807/ 8867		Kapaakea	Ukumehame	Makenewa/ Kaulu	**NT**: 2 pieces, received from Nahienaena in 1848, one was kula land	No	
9035 B		Kalaipaka	Ukumehame	Kuekue	**NT/FT**: #1 is kula and kalo land, #2 is kula land, he held these lands til 1848 when he passed and then his widow, Olea, received them	No	

3.2.4 Beginnings of the Sugar Industry in Lāhainā Moku

Kō, or sugar cane (*Saccharum officinarum*), made its first appearance in Hawai'i during the initial settlement by Polynesians. The highly adaptable cane evolved multiple variations as it traveled and thrived throughout the Pacific Islands for generations (E. S. C. Handy et al. 1991:183). In Hawaiian wet-taro farming, kō was found along embankments separating flooded terraces, while in dry-taro and sweet-potato farming the kō was planted as hedges or a windbreak (E. S. C. Handy et al. 1991:186). Sugar cane was a "lifesaver" at times of famine, a treat in times of abundance, an easement for unpalatable medicine, and possibly a hygienic tool to clean teeth (Isabella Aiona Abbott 1992:41; E. S. C. Handy et al. 1991:186). Kō was also planted for its colorful aesthetic (Isabella Aiona Abbott 1992:40). Leaves of the plant were sometimes used as wall coverings, the stalk as a dart in games, and the skin for plaiting braids (E. S. C. Handy et al. 1991:187).

Lāhainā moku holds historical significance as one of the earliest locations for commercial sugarcane ventures in Hawai'i. The earliest mention of sugar cultivation in the Lāhainā area is attributed to G. W. Wilfong, the manager of the Hāna Plantation in 1851. In his 1882 writings, Wilfong documented the establishment of various sugar enterprises on Maui during his initial exploration of the island in 1849, providing insights into the early sugar operations in Lāhainā. He observed that cane trash proved inefficient as fuel for the boiling down of juice extract into syrup, necessitating the cutting down of a substantial supply of indigo (*Indigofera suffruticosa*) for firewood in Lāhainā. "The area cleared by this means was subsequently used for the first planting of a supply of seed brought by Captain Edwards, of the whale ship George Washington. This cane was called Lāhainā" (Wilfong 1882).

The beginning of the industrial sugar boom in the Islands occurred when Captain Pardon Edwards brought a "bundle of choice" sugarcane from the Marquesas Islands to Kaua'i in 1854, making a pit stop in Lāhainā and dropping some off with Consul Chase and F.A. Oudinot. This new "Tahitian" cane outperformed the previous "Cuban" variety in growth rate, healthier rooting, sweetness, and hardiness against pests (Dorrance and Morgan 2000:177). It quickly became known as "Lāhainā Cane," the preferred variety that catalyzed the sugar mill industry (Davies 1884; Royal Gardens Kew 1894:418-419). The first Lāhainā mill was operated by Judge A.W. Parsons in 1849. This mill, along with 1000 acres of land, was later auctioned to O.H. Gulick. The Lāhainā Sugar Company was established in 1859 "on the principle of buying the cane from small cultivators among the natives, and taking pay for grinding in sugar" (Auchincloss 1864:350), under the leadership of Henry Dickenson. Three primary sugarcane enterprises emerged between the lands of Lāhainā and Mā'alaea during the mid to late 1800s: Pioneer Mill Company (PMCo), Olowalu Sugar Company, and Hawaiian Commercial and Sugar Company (HC&S).

> The sugar industry came early to Olowalu. In 1864 King Kamehameha V, then ruler of the Hawaiian Kingdom, invested in the newly-formed West Maui Sugar Company. He was only one of many subsequent owners of the plantation, later called the Olowalu Sugar Company. The company boomed, requiring the hiring of Chinese workers, followed by Portuguese, South Sea Islanders, Germans and Japanese. (Ainsworth 2005)

3.2.4.1 Olowalu Sugar Company

As a result of the increased interest and lucrativeness of sugar due to the reciprocity treaty with the United State of America in 1876, Milton Philip, a Lāhainā businessman, began to purchase leases in Olowalu and Ukumeheme. With another resident, Goodale Armstrong, who acquired other Olowalu properties, Philip formed the Olowalu Plantation (Ainsworth 2011). They began to grow sugar in 1876 and formally established the Olowalu Sugar Company in 1881, formed on lands relinquished by the West Maui Plantation (Dorrance and Morgan 2000:64). Approximately 6,025 acres of Crown Lands was leased to the Olowalu Sugar Company at $800 per year with a lease contract dated October 5, 1875 that was set to expire on July 1, 1908 (Governor of the Territory of Hawaii 1904:52). The Ukumehame section consisted of approximately 11,000 acres of land originally leased to C. Brewer & Co. in a contract dated March 1, 1892 that was set to expire on November 1, 1906 for $250 per year (Governor of the Territory of Hawaii 1904:53). Initially, the sugar enterprise was managed by McFarlane & Co., but later on, shares in the plantation were acquired by Theophilus Harris Davies (founder of Theo H. Davies & Company which became one of the "Big Five" mercantile houses of Hawaiʻi alongside the likes of Alexander & Baldwin, American Factors, and others), who assumed the role of agent for the operation in the late 1880s.

History of the company includes construction of a mill and railroad at Olowalu which assisted in processing and transport of the sugarcane harvests. The earliest mention of a railroad at Olowalu Plantation for transporting cane to the mill dates back to the *Planter's Monthly* issue of April 1882. Historian Jesse "Jay" Conde interpreted the presence of a "Fowler Railroad Plant" at the Olowalu plantation to signify that the track had been laid, and the cane cars were operational using "mule power" until the plantation could afford to acquire a locomotive (Condé and Best 1973:263). By November 1882, as reported in the *Hawaiian Gazette*, the Olowalu railroad had completed a two-mile section of track to Ukumehame, extending the total length of fixed track to three miles (ibid). A Baldwin locomotive was ordered in 1889 and arrived in Olowalu around the turn of the century. in 1905, a second engine was ordered and by 1918 new steel rails with a 2-foot gauge track was laid along the same specifications as the HC&S railroad tracks in Kahului.

Other integral parts of the company's infrastrucutre were the wharf, which was vital to servicing the contract to process cane harvested on the island of Lānaʻi at Maunalei Sugar Company from 1899 to 1901 (Condé and Best 1973:206), and the water wells and ditches that irrigated the fields. The Olowalu Sugar Company's lands, being situated on the leeward side of Mauna Kahalawai, where rainfall is sparse, depended on the streams running through the plantation which extended back to the mountain crests which were primarily fed by trade-wind rainfall. During years of low rainfall, heavy kona rains help to bolster the water supply. The first well drilled at Olowalu for irrigation purposes was completed in 1905. This well featured a single shaft with 670 feet of lateral tunnels, designed to extract 3 million gallons of fresh irrigation water daily from sources beneath the Olowalu plains. It was drilled vertically to a depth of approximately 20 feet through the Wailuku basalts, situated at an elevation of 20 feet (Stearns and MacDonald

1942:216). Around 1908, a second well was drilled in Ukumehame, comprising a pit five feet deep with a 6-inch drilled well at a depth of 12 feet. This setup was capable of pumping 1.25 million gallons per day (Stearns and MacDonald 1942:217).

3.2.4.2 Pioneer Mill Company

James Campbell, a Lāhāina carpenter, began a small sugar mill in 1860 and was soon joined by Henry Turton and James Dunbar (Wilcox 1996:19, 126) under the company name Campbell & Turton (HSPA Plantation Archives 2004). In 1862, the plantation became known as the Pioneer Mill Company (PMCo), (The Pacific Commercial Advertiser 1864) and ten years later acquired the West Maui Sugar Company (The Pacific Commercial Advertiser 1874). For years Campbell was known locally as "Ona Milliona," the millionaire of West Maui (The Hawaiian Gazette 1900). In 1877, Campbell turned over his company share to Turton (McCandless 1936:65; The Honolulu Advertiser 1935). By 1882, PMCo had obtained permission to build a railroad across plantation property, the haul harvested cane between Kāʻanapali and Lāhainā (Orr 2005:54). This rail line expanded under Alexander Isenberg in 1901 and would be in use until the end of World War II with the introduction of hauler trucks. In the 60 years of operation, the train hauled tons of raw sugar from Kāʻanapali to the mill at Lāhainā for processing (Orr 2005:55, 57). In 1885, Hackfeld & Co. (later known as American Factors and modern-day Amfac/JMB) purchased controlling shares of the Mill (Jones and Osgood 2015:160; Wilcox 1996:126) and acquired additional land tracts controlled by Bernice Pauahi Bishop Estate that included important water sources vital to plantation expansion (Lee-Greig et al. 2008:31).

Another narrative places Benjamin Pittman as the founder of the Pioneer Mill in 1862 (Jones and Osgood 2015:160). Pittman then entered into a mortgage deed with Campbell and Turton in 1867 (Maly and Maly 2007:984). A separate account places this same sale in 1876 (The Honolulu Advertiser 1935), but this is likely a transposition of the year, since a court case between Campbell and Turton and a neighboring cane field places the plantation ownership pre-1871 (The Hawaiian Gazette 1871). It is possible that Campbell and Turton began the Mill in the early 1860s on land belonging to Pittman, but based on numerous sources it seems that Campbell and Turton were likely the founders of the Pioneer Mill Company.

Utilizing gravity-fed water from mountain streams, PMCo manufactured 500 tons of sugar in 1866. By 1872, production had doubled to 1,000 tons annually, and the enterprise's sustainability was cemented with the appointment of H. Hackfeld & Co. (which would later become American Factors or AmFac) in 1877. As of the turn of the century, the Pioneer Mill Company's sugar output had surged to over 10,000 tons per year (Thomas G. Thrum 1902). By 1885 H. Hackfeld & Co. bought Pioneer Mill and began further developing water resources and infrastructure that would divert water from natural waterways to their reservoirs and fields in order to increase production of their commercial crops.

As Pioneer Mill expanded into the 20th century, major change was also occurring across the Hawaiian Islands. Queen Liliʻuokalani had worked determinedly to restore power to the

monarchy after the death of King Kalākaua in 1891, but was illegally overthrown and imprisoned in her own home two years later. At the same time, the U.S. had entered war with Spain. With the threat of losing both a strategic military position and economic hub in the Pacific, U.S. President William McKinley signed an annexation resolution in July 1898, at the protest of native Hawaiians and the Queen herself, making the Hawaiian Islands a Territory of the United States (Daws 1968:284-290). This act largely benefited industrious foreign businessmen on the Islands, and was directly in opposition to the desires of over half the population of native Hawaiians (Schamel and Schamel 1999).

3.3 OLOWALU AND UKUMEHAME AHUPUAʻA IN THE 20TH CENTURY

3.3.1 1900-1950 – Early 20th Century and World War II

The Pioneer Mill Company underwent substantial reorganization around the turn of the 20th century. One immediate outcome of this restructuring was the construction of approximately "twenty miles" of new railroad tracks. These replaced old lines and spanned the entire length of the plantation, with additional branches extending mauka into the higher elevations of the cane fields (Condé and Best 1973:253). Commencing with the construction of the Honokohau Ditch in 1904, PMCo progressively developed a network of irrigation systems. By the late 1920s, this complex included flumes designed to transport water to the fields and cane to railroad "car loading stations" (Condé and Best 1973:254).

Pioneer Mill Company Ranch and Dairy was started in 1912 by then manager, Mr. Louis Weinzheimer, using lands deemed unsuitable for cane cultivation between Honokowai Gulch to Olowalu and stretching to the end of Lāhainā moku (Henke 1929:59). Spanning over 9,000 acres at elevations between sea level and 2,000 feet, the ranch had a total of 700 beef cattle reported in 1929 (Henke:59). The dairy was started to supply mill employees with milk soon after the cattle ranch began operating. By 1925 a modern dairy was built to house the dairy herd of 90 cows (Henke 1929:60). According to Herbert Kinores, ranch foreman for Pioneer Mill Company, ranching infrastructure such as walls, fences, and wooden and stone-walled corrals were erected in the Launiupoko region above the cultivated cane fields (Graves and Goodfellow 1991:7).

To further support the growing sugarcane industry and supply the needed workforce the new groups of immigrant residents needed more plantation infrastructure and many new buildings were erected in Olowalu:

> The multi-cultural residents of Olowalu shopped at the Olowalu Nihonjin Shokai (Olowalu Japanese Store) and C. Sam Lung & Company, a general store and coffee saloon. Students attended the one-room Olowalu School, and the Olowalu Japanese Language School taught Japanese children the culture of their homeland. The sea provided the primary contact with the outside world. For decades, the Inter-Island Steamship Company picked up and delivered mail, freight and passengers at Olowalu Landing. The world also entered the Olowalu community through regular showings at the Olowalu Theater. The 1930s brought more change to Olowalu. In 1931 Pioneer Mill Company purchased Olowalu Sugar Company; Olowalu School closed, requiring

> children to travel to Kamehameha III School in Lahaina; and M. Ichiki Store replaced the C. Sam Lung Store. (Ainsworth 2005)

As noted above by Ainsworth, in May of 1931, Pioneer Mill Company expanded its cane operations to Ukumehame to the east by acquiring Olowalu Sugar Company. This expansion was anticipated to yield an additional 3,000 tons of sugar annually (Pioneer Mill Company 1932:15). Subsequent to the acquisition, Pioneer Mill Company made investments in enhancing the two small and relatively primitive water systems. Concurrently, during this period, less profitable cane fields, particularly those in upper Launiupoko, were largely abandoned due to labor shortages resulting from World War II (Graves and Goodfellow 1991:5).

This change in educational locale along with the acquisition of Olowalu Sugar Company by Pioneer Mill, changed the Olowalu community lifestyle. The school-aged residents had to travel miles to Lāhainā to attend school, and although the sugar production quantities remained relatively unchanged, the method for transportation of the crops evolved.

In 1946, Pioneer Mill underwent a significant technological transformation in cane production, transitioning from the use of railroad carts to trucks for transporting harvested cane, a change driven by cost efficiency. According to a Pioneer Mill Co. annual report, by 1953, the railroad system at Pioneer Mill Company had been completely phased out (Condé and Best 1973:255). Following an exhaustive study conducted by the combined staffs of Pioneer Mill Company and AmFac's Plantation Division, operational changes were implemented, leading to the abandonment of the railroad system altogether. Henceforth, all sugarcane would be transported by trucks, capable of hauling 45-65 tons per load on a shift basis.

According to Ainsworth, however, the community of Olowalu continued much as it had before the changes took place:

> Despite many changes over the years, the community remained close. Workers lived in small camps with names such as Filipino Camp, Beach Camp, and Makimoto Camp. Much of the community was sports-crazy, children and adults alike. Plantation families worked hard and lived a frugal life, many of them growing vegetables and fruit trees, raising chickens and fishing. Everyone knew each other; neighbors shared and took care of those in need. (Ainsworth 2005)

3.3.2 Mid-20th Century to the Modern Era

In the 1970s, Maui Electric installed a power line stretching from Māʻalaea to the town of Lāhainā. This existing power line traverses elevations ranging roughly from 600 to 2600 feet above mean sea level. Towards the conclusion of the Sugar Era in Lāhainā, during the late 1900s, there were still scattered residential lots present within the Ukumehame and Olowalu stream areas, and along the shoreline at Olowalu. These isolated house lots, known as kuleana (Robins et al. 1994), likely delineated original land claims established during the Māhele period.

The extensive sugarcane cultivation overseen by Pioneer Mill persisted from Ukumehame to Launiupoko until 1998. Following the final harvest and closure of Pioneer Mill in 1999 (Kubota

1999), lands previously dedicated to sugarcane cultivation either lay fallow, were converted into pastureland, or were subdivided from larger landholdings for the development of agricultural estates. The water systems that existed to irrigate the vast cane fields were purchased by West Maui Land Company, Inc in 2002 and now supply water to the housing estates that have been built between Launiupoko to Olowalu.

Also lying between Olowalu and Launiupoko is a puʻu, commonly known as "Cut Mountain," which was formerly utilized as a quarry or "borrow pit." Immediately west of the puʻu lies an old landfill site. The Olowalu transfer station currently collects household and green waste from West Maui residents for storage until it can be trucked to the main waste center in Central Maui.

Olowalu Village transformed, once again, and is now a roadside hub for farmer's markets, the renovated General Store, Leoda's Bakery (which replaced an older establishment called Chez Paul), and still acts as the gateway to the cultural and agricultural endeavors in the valley. Camp PECUSA, established in 1955, located at the shoreline of Olowalu, changed ownership from the Protestant Episcopal Church to Olowalu Elua Associates in 1998, also changing its name to Camp Olowalu in 2006 (Bluegraphics 2023). Ukumehame remains virtually untouched by any development or changes other than the building of the firing range in 1990, shoreline hardening along the coast, and the prospect of entitled housing developments in the area. However, the changes further along Lāhainā and Kāʻanapali moku have drastically impacted the road use of Honoapiʻilani Highway that passes through these areas as noted in the update to the West Maui Community Plan:

> The population of West Maui increased from just over 22,000 in 2010 to nearly 25,000 in 2017 (ESRI, 2017). The estimated 2020 population is 24,302, a slight decrease from 2017 (ESRI, 2021). Population growth during the 2010 to 2017 period occurred at a faster rate in West Maui than the rest of Maui County and the State (ESRI, 2017). From 2004 to 2016, 59 percent of Maui County's population growth came from natural increase (local births minus deaths), 35 percent from international migration, and 6 percent from domestic migration (DBEDT, 2017). West Maui is also a popular visitor destination and one of the largest employment centers on Maui, drawing an estimated average daytime population of 63,706 persons. This includes about 10,287 residents who remain in West Maui during the day, 19,868 workers from West Maui and elsewhere who commute to West Maui, and 33,551 visitors (ESRI, 2017; DBEDT, 2017). (County of Maui Planning Department 2022:23)

4.0 CONSULTATION METHODS AND RESULTS

4.1 SCOPING AND COMMUNITY OUTREACH

In order to identify individuals with knowledge of the traditional cultural practices within and adjacent to the proposed project as it relates to this study, contact was initiated with government agencies, advisory councils, local community organizations, and traditional cultural practitioners, along kamaʻāina and kūpuna with generational ties to the proposed project area. Follow up attempts were then made to all contacts on the initial mailing list in a good-faith effort to make contact. Letters and project area maps showing the location of the proposed Olowalu/Ukumehame project area were mailed out with one of the two following accompanying texts:

> Aloha e ____,
>
> I am reaching out to see if you have any mana'o you would like to share regarding the Olowalu/Ukumehame area of the proposed Honoapi'ilani Highway realignment project. More specifically regarding the subject of cultural resources or navigational-related elements and importance in this specified area. (Any mana'o I can add into the report (with your permission) will allow me to conduct further research based on your feedback.
>
> Mahalo nui, Leah

> Subject: Ethnographic Survey for Olowalu/Ukumehame regarding the Honoapi'ilani Highway Re-alignment Project, Olowalu and Ukumehame Ahupua'a, Lahaina District, Island of Maui
>
> Aloha e _____,
>
> ʻĀina Archaeology is conducting an ethnographic survey for the proposed Honoapi'ilani Highway Realignment project. Together with this roadway, the area of potential effect (APE), hereafter referred to as the "project area", includes several acres from MM 12.5 to MM17 in the ahupua'a of Olowalu and Ukumehame. The *ahupuaʻa* from Olowalu to Ukumehame will be considered the "study area" for this CIA. The Honoapi'ilani Highway Realignment area will replace the existing Honoapi'ilani Highway located makai.
>
> The Guidelines for Assessing Cultural Impacts adopted on November 19, 1997 by the Environmental Council, State of Hawaiʻi states:
>
> *(For) the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place (proposed project area). This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment…. An ahupuaʻa is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed*

action, particularly if it includes all of the types of cultural practices associated with the project area. (State of Hawaii Office of Environmental Quality Control 2012:11)

Statement of study purpose:

For this cultural impact assessment and ethnographic survey, the *ahupuaʻa* of Olowalu and Ukumehame are considered the overall "study area" while the footprint of the proposed project is identified as the "project area." The purpose of the cultural impact assessment is to evaluate potential impacts to traditional cultural practices as a result of the proposed project.

I am seeking your *kōkua* or help and guidance regarding the following aspects of our study:

- **General history and present and past land use of the project area.**
- **Knowledge of cultural resources which may be impacted by Honoapi'ilani Highway Realignment - for example, traditional plant gathering sites, historic sites, archaeological sites, and burials.**
- **Knowledge of traditional gathering practices in Olowalu/Ukumehame– both past and ongoing.**
- **Cultural associations of the Olowalu/Ukumehame project area, such as legends and traditional uses.**
- **Referrals of *kūpuna* or elders who might be willing to share their cultural knowledge of the project area and the surrounding *ahupuaʻa* lands.**
- **Any other cultural concerns the community might have related to Hawaiian or cultural practices within or in the vicinity of the proposed Olowalu/Ukumehame area.**

I have provided a map of the area to show the proposed conceptual plan for the project, showing the location of the proposed project in relation to the landscape for your information. I invite you to contact me, Leah Santos, at 1-808-214-4261. You may also contact me by e-mail at leah@ainaarch.com, if you have any questions about the project or *manaʻo* or concerns that you would like to share.

Me ka haʻahaʻa,
Leah Santos
ʻĀina Archaeology

Table 4-1, below, presents the community consultation effort conducted with *kamaʻāina*, Hawaiian cultural advisors and Hawaiian organizations. Individuals who expressed personal knowledge of the study area and gave their consent to share their *manaʻo* for this study, are presented in subsequent sections.

Table 4-1: Outreach Summary

Name	Affiliation	Contacted	Personal Knowledge (Y/N)	Comments
Rose Marie Duey	Family from Area	Y	Y	No Response
Wallace Fujii	Previous Store Owner	Y	Y	No Response
Tosh Fujita	Ukumehame Resident	Y	Y	Group Consultation, see Section 4.3
Malihini Keahi Heath	Family from Area (ʻOhana Nahooikaika), Cultural Advisor	Y	Y	Call
Jackie Kaahui	Olowalu Resident	Y	Y	No Response
Edward Kaahui	Olowalu Resident	Y	Y	No Response
Elmer Kaai	Family from Area	Y	Y	Interviewed, see Section 4.2
Janelle Kanekoa	Family from Area	Y	Y	No Response
Keeaumoku Kapu	Heiau Steward	Y	Y	No Response
Manny Kululoio	Cultural Fishing Practitioner	Y	Y	Left Message/ No Response
Tiare Lawrence	Family in Area-Nahooikaika	Y	Y	Informally Interviewed, see Section 4.3
Ashley Awakea Lindsey	Family from Area	Y	Y	Interview Rescheduled
Ekolu Lindsey	Cultural Reserve	Y	Y	Call, see Section 4.3
Kapono‘ai Molitau	Family from Area, Cultural Advisor	Y	Y	Email Response, see Section 4.3
Vicki Palafox	Ukumehame Resident	Y	Y	Group Consultation, see Section 4.3
Bernadette Rodrigues	Family from Area	Y	Y	No Response
Hinano Rodrigues	Past Olowalu Resident	Y	Y	Left Message/ No Response
Eugene Saffrey	Resident	Y	Y	No Response
Nalei Sampson	Maui Marine Project Coordinator	Y	N	Informal Discussion, see Section 4.4
Margaret Santos	Past Resident	Y	Y	Interviewed, see Section 4.2
Nani Santos	Past Resident	Y	Y	No Response
Robert Santos	Olowalu Resident	Y	Y	Interviewed, see Section 4.2
Kala Baybayan Tanaka	Navigator	Y	N	Informally Interviewed, see Section 4.3

4.2 FORMAL INTERVIEWS

4.2.1 Formal Interview with Robert Richard Santos

Early Life in Olowalu

Robert "Bobby" Santos provides insights into his early life in Olowalu, Maui. Born at Pioneer Mill Hospital, he lived in Kāʻanapali at Puʻu Kekaʻa until the age of four where his father was a supervisor at the Pioneer Mill Cattle Ranch. When the hotels began construction, the plantation relocated the cattle ranch to Olowalu. Mr. Santosʻ father moved the family to Olowalu to be close to the new operation and to set up a pig and cattle farm. The initial tranquility of the family farm was disrupted as it expanded with more pigs, a milking cow, and chickens, leading to complaints from nearby residents. Faced with this challenge, Mr. Santos recalls his father's decision to relocate the family pig and cattle operations to land at the back of Pioneer Mill Cattle Ranch.

Sugar Plantations and Childhood Memories

Mr. Santos remembers the dynamic era of the sugar plantation, where sugarcane fields surrounded his family property, and confirmed that cane fields were located both mauka and makai of the road. The interview delves into his father's role as a ranch supervisor, touching on practices like using pineapple waste for cattle feed and the labor and water-intensive nature of growing sugarcane and tending to the cattle across the extensive ranch lands that stretched through the mountain areas from Ukumehame to Nāpili. Mr. Santos reminisced about childhood memories, from school bus routes through Olowalu to recreational activities like fishing and diving at the beach. Other childhood memories include the 24-hour transportation of cane along the cane haul road to the mill in Lāhainā, the minimal traffic to Lāhainā and Wailuku/Kahului (only seeing 20 – 30 cars a day on the road), and the feeling of isolation living in Olowalu.

Impact of Flooding and Environmental Changes

A notable theme throughout the interview is the continuous presence of water in the area, influencing the location of cattle pens, the draining of wetlands, and the creation of ditches, furrows, and pumps for cane field operations. The interview also underscores the impact of flooding. Mr. Santos emphasized a significant change from his childhood in Olowalu: the proximity of the water to the road. He notes that it used to be 150 feet away. Mr. Santos attributes this shift in the shoreline to the construction of a large culvert in the early 1960s, a response to flooding in the Olowalu area. This alteration transformed the coastline from a pleasant sandy beach to one dominated by rock and concrete, impacting the waves as well. Notably, the concrete and boulder fishing pier in the vicinity serves as the point where the water from the culvert enters the ocean. Mr. Santos also highlighted that flooding occurred due to the road being higher than the land and the inadequacy of the old culvert, which had been too small to effectively manage the water flow.

He notes the impact of development on the environment, expressing sadness over negative consequences. The interview also touches on the presence of introduced species like deer, birds,

tropical fire ants, and changes in vegetation with encroaching weeds and elephant grass. He does note the return of nēnē now as opposed to their absence during his youth but also notes that the red-headed mud hens he saw in the wetlands are gone now. He has been told that his house lot was the site of a lower aliʻi's palace and that it was used to grow pumpkins and other food for the area. He stated that the large rock and earth push piles were already present when his family moved into the area but new rocks were unearthed and placed on the piles when fields were plowed after harvests. In regards to the climate, Mr. Santos advised that temperature, wind, and rain have stayed constant. Santos emphasizes the need for awareness regarding environmental impacts during development.

Cultural Insights

Mr. Santos mentioned his father finding poi pounders and Hawaiian rolling stones (ulumaika) in the area and his own finds of Asian ceramics along with sea shells, sea urchin spines, and yellow sandy soil when digging near his house lot. He also relayed stories that have been told about the presence of night marchers and unexplainable Hawaiian music in the area but has not experienced any of these phenomena himself.

Olowalu's Evolution and Conclusions

The interview concludes with Santos reflecting on Olowalu's evolution, including the closure of the plantation ranch in the 1970s, his family's relocation to Hawaiʻi Island, and his eventual return to Olowalu in 1978. Changes in ownership, the disappearance of the plantation village and Camp Pecusa (run by the Episcopal Church), and questions surrounding the graveyard and dump area are highlighted. Santos acknowledges both positive and negative aspects of development, expressing concern about the road realignment and potential impacts on the community, particularly regarding homeless encampments and the road being too close to the homes. He emphasized the economics of the road realignment and needing to use the shortest route while also recognizing and respecting the topography and the challenges that will it present. The interview closes with Santos sharing how his feelings about Olowalu have changed from his childhood sense of isolation to the current sense of connection fostered by increased communication and technology.

4.2.2 Formal Interview with Elmer Kailikole Kaai, Jr.

Elmer Kailikole Kaai, Jr. was born on the island of Oʻahu and resides in Nuʻuanu Valley. His interview about the Olowalu area provides a narrative of the profound connection his family holds with this land, tracing back to his genealogy and rediscovery of the family home in 1980. Mr. Kaai passionately expressed his kuleana, a sense of responsibility, to protect the Olowalu area—particularly the lands once stewarded by his ʻohana. He describes the geographical layout of his family's land, recounting the loss of a loʻi (taro patch) to the construction of the road and the frustration of encountering private property signs that deny access to these ancestral lands.

The interview delves into the transformation of the Olowalu area, highlighting the impact of tourism and the devastation, caused by Pioneer Mill, to a sustainable, agricultural life where the families raised pigs, chickens, and fished. Mr. Kaai shared that his Uncle John and Auntie Elena would tell him stories about the agricultural responsibilities of living in the river, taking care of the loʻi, iʻa (fish), and lāʻi (ti leaf) to ensure everyone could share their resources throughout the ahupuaʻa. Mr. Kaai's reflections on the changes in traffic and the emergence of Olowalu as a tourist destination underscore the broader challenges faced by traditional communities in the face of evolving landscapes. Additionally, the imminent construction of a bypass and the Honoapiilani Highway realignment raises concerns for Mr. Kaai, who fears its potential to disrupt the valley and the mauka to makai connectivity of it as a functioning ahupuaʻa, overshadowing cultural and natural values. He feels the traffic has already greatly impacted the area and the difference in use of the highway has changed significantly since the 1980s.

A central theme in the interview is the importance of preserving the cultural and environmental integrity of Olowalu. He advocates for a “true survey” of the area, expressing the necessity to understand the land's history to safeguard it from exploitative exploration. Mr. Kaai emphasizes the significance of water as a treasure and a strength in Olowalu, calling for a thorough environmental survey of the cultural landscape and ahupuaʻa to better inform the people who remain in the area and those who wish to reconnect to the land. He relayed how his aunties would tell him stories about how fertile Olowalu was and not how dry and barren people perceive it to be now. Throughout his interview, Mr. Kaai advocates for community engagement, education, and the reconnection of families with Olowalu, emphasizing the need to protect spiritual elements and cultural sites from exploitation and overuse.

In conclusion, Elmer Kaai's interview offers a vivid picture of Olowalu's past, present, and potential future challenges. His impassioned plea for responsible development, cultural preservation, and community engagement serves as a reminder of the delicate balance needed to protect ancestral lands while navigating the evolving dynamics of infrastructure improvements, modernization, and commercialization.

4.2.3 Formal Interview with Margaret Santos

Margaret Santos, originally from Boston, Massachusetts, moved to Olowalu in November 1978 with her then-husband, Robert “Bobby” Santos. They had been living on Oʻahu before making the move. In the 1970s and 1980s, Mrs. Santos described Olowalu as idyllic with much less traffic and less busy roads compared to today. The shoreline was covered in dense kiawe and other vegetation making it difficult to traverse from the road to the ocean. Over the years, there has been noticeable erosion of coastal vegetation, and water inundation at the shoreline has increased in the last 5 to 10 years. Mrs. Santos recollected that when she and her husband visited Olowalu before moving, she was enthralled by the whale song she could hear in the water. The environment has changed, with windier conditions that easily damage plant life. She stated that the area is consistently windy and when the plantation used to burn and harvest cane close to their home, they were impacted by the ash and dust.

In the past, about 10 families lived in Olowalu. The Santos ʻohana raised goats among the kiawe and haole koa. However, much of the vegetation has disappeared, except for areas up mauka. The coastline transformation has been significant, with the disappearance of the majority of trees, and push piles becoming more visible due to the decline of cane. Mrs. Santos recollected a place at the shore they called Jump Off Beach where they would jump from a kiawe tree straight into deep water, near where the culvert is. She reminisces about a vibrant marine life close to shore, with abundant fish and a coral reef much closer to the shore than it is today. However, she notes a rapid diminishing of the sea and significant changes in the beach landscape.

The biggest changes cited by Mrs. Santos are ocean inundation, land development, and a hotter climate, possibly due to the decrease in trees. She advocates for relocating the highway due to ocean inundation and stresses the importance of sustaining the road for long-term community access. She emphasizes the need to consider cultural sites, like the Olowalu petroglyphs, when planning development.

Mrs. Santos proposes protecting Olowalu as an untouched historic landmark, maintaining its history and cultural significance. She calls for better maintenance of specific sites, such as the petroglyphs, and advocates for protecting the coral reef by monitoring runoff to prevent silt and dirt.

She describes a spiritual connection to Olowalu, citing an incident during the sugar cane times where she felt a warning during a big fire in the middle of the night. She spoke about Olowalu's unique wind sound having a spiritual and powerful nature.

In conclusion, Mrs. Santos fondly remembers the happiest times when her children were little, playing on the beach with no one else around. However, she expresses concern for the current state of Olowalu, with increased exposure of family homes, ongoing development, roadways, ocean changes, and coral reef destruction. Her plea is to protect the reef, mountainside, and culturally significant areas for future generations.

4.3 COMMUNITY OUTREACH RESULTS AND INFORMAL INTERVIEWS

4.3.1 Ekolu Lindsey via Phone on March 14

Edwin "Ekolu" Lindsey III was born and raised in Lāhainā and is on the board of Kipuka Olowalu, a cultural reserve located in Olowalu Valley. During an informal phone discussion, Ekolu stated that the focus should be on the importance of Olowalu Community input, emphasizing the impact on petroglyphs and access to the valley. He stressed the need to address the influx of homelessness, considering historical areas affected by camping. He remembers an old wall where the homeless are camping near the Olowalu area now. He would like to address the construction impact and stream runoff affecting the ocean and reef as well as continued local access to the ocean and fishing resources. He highlighted key concerns such as the need to preserve the view plane for navigation, respect traditional land markers, and minimize light and noise pollution for wildlife safety, including sea birds and nēnē up mauka.

4.3.2 Tiare Lawrence

Tiare Lawrence states that her family ties are to the Nahooikaika ʻohana and the kuleana land that is located behind the store. Discussion revolved around thoughts on the project; it was stated that the road realignment should not be close to Puʻu Kilea and heiau because there were such well-known villages in that mauka stream area, as well as in Kapaiki. Going through any of those mahele parcels should be off-limits. Ms. Lawrence suggests utilizing old cane haul road areas and Pioneer Mill parcels that are now owned by Peter Martin as primary roadway access points since the statistics of finding iwi and artifacts is lower in those already disturbed land areas.

She is worried about construction runoff from the building of a highway in the mauka areas of Olowalu and Ukumehame, because of the previous sediment runoff from the makai construction of the large homes onto the reefs which caused destruction to the fragile ecosystem. She wants to mitigate that type of potential damage.

She also expressed concern over the overarching plan and how the highway realignment will connect to the Pali and the Lahaina bypass in the long term. She prefers that the alignment not interfere with any kuleana land parcels (especially those that are currently in litigation or will be litigated in the future). She suggests having the highway go above Kapaiki Village (due to sea level rise and to provide reprieve for the roadway and ocean in that area).

She mentioned the degradation of the reef system in Olowalu; how vibrant and colorful the reef system used to be and the changes that have occurred that have negatively impacted it. She stated that her ʻohana were fishermen and shoreline gatherers and they continue to fish there, however, she could not recollect gathering mauka resources, as those areas were inundated with sugarcane. Further impacts from Pioneer Mill, during the sugarcane industry, was the disappearance of functioning loʻi and kalo production. Ms. Lawrence professed that people are utilizing the valley for food production in both Olowalu and Ukumehame now and she would like those areas to be preserved so those agricultural practices can continue.

She described going up to the heiau areas recently and how they are adjacent to large estates which impairs the visual and cultural experience for Hawaiians. She expressed how sad it is to see the shift in usage at that once-storied and special place.

Lastly, she strongly suggests including the land title disputes for the LCAs in the project area.

4.3.3 Group Outreach with Tosh Fujita, Vicki Palafox, and Ulu Nahooikaika

In a group consultation held in November of 2022, residents of Olowalu and Ukumehame, Tosh Fujita, Vicky Palafox, and Ulu Nahooikaika presented insight into the project and the implications of the realignment on the area they stated was the once-green Olowalu heiau and agricultural complex.

Ms. Palafox offered information regarding the pillars and cornerstones of the heiau being places of human sacrifice. She also advised that the hale (building) on top of the heiau's four corners were also the location of sacrifices. She also mentioned that the rivers are connected to the heiau

and that it acted as the division between Olowalu and Ukumehame. There was concern regarding the potential vibrations from pylon driving affecting the project areas.

Mr. Nahooikaika mentioned that the mauka-makai access was only relevant to the people who lived in the Olowalu subdivision while Ms. Palafox's comment regarding access was about maintaining a way through Pohaku Road.

Mr. Fujita advised there was a waterfall and a hot spring at one of the Land Commission Awards that belonged to [David] Malo. He raised concerns about land being taken and did not want anyone to encroach on his māla (garden). It was stated that the group was aware that it does appear that the road alignment would be outside of the main cultural sites as well as the current house sites, however, concerns about the zero buffer was brought up and the recommendation for a sound barrier to be made of displaced and recovered pōhaku from sites within the area was presented.

4.3.4 Kapono'ai Molitau – Email In Entirety from 3/15

Mahalo nui for your email. I have been thinking about how I might be able to offer my thoughts about this significant area of 'Ukumehame and Olowalu. My thoughts are from items shared and taught by my Kumu Hula and Makua Hānai, John Keola Lake. His 'ohana comes from both 'Ukumehame and Olowalu. 'Ukumehame has many significant meanings to Kumu Lake and his 'ohana as there are many significant sites and chants that are associated with places that their 'ohana have acknowledged.

Oli Wahi Pana: Kū Kahi Kanānā 'Ukumehame. This chant speaks of their 'ohana that resided in the valley of 'Ukumehame. His name was Papa John Kini that was kanaka mahi'ai kalo that tended over 35 taro patches and over saw 3.5 acres in the valley. His 'āina was located just below the naturally carved out manu that is on the Lahaina side of the valley cliff face. The manu would come alive every morning as the sun would come over Hana'ula and cast its rays over 'Ukumehame waking this manu daily. Kumu John Keola Lake wrote this mele Kū Kahi Kanānā 'Ukumehame and speaks of the amazing wind known to the kupa'āina as Makani Kū'ehulepo that would make the telephone lines move like "jump rope" as it winds blew from mauka to makai and would carry its lepo (dust, dirt) out toward Lele. This mele also speaks about looking from their 'āna [sic] and observing the 'ilikai from Lāna'i to Ke'ānapa'akai. This observation allowed for the kupa'āina to witness proper harvesting of limu, certain i'a, he'e, and other delicacies from their vantage point in 'Ukumehame. This vantage point still exist today but will surely be impacted with the build of this bypass.

Currently there is the valley walls of Manawainui and the valley of 'Ukumehame that have many accounts of night marchers that pass through from mauka of Olowalu as well as mauka of 'Ukumehame. The area today is the old Camp Pecusa area with the Lakes original family home on the shoreline area nearest the camp. Kumu Lake's [sic] has shared many experiences of night marchers and his own first account experience of when he was a young child playing hide and seek in the fields. Once [sic] particular evening he was playing with his cousins and he went hiding,

he was then tossed from behind across the field and landed face down. He was unable to get up but he shared that he observed footsteps and observed light made of torches passing above him with chanters in the background. He called out to his ʻohana names and was released shortly after and he ran back to his family home. He told his experiences with his tūtū and he was told that his ʻohana was the one that held him down to make sure that he was spared. This house on the shorline of of [sic] Olowalu continues to be there but has been sold many time over because of where the current home is built upon, upon family burial sites.

Currently these are some of the stories and experiences that I am comfortable in sharing. There are more and many have been impacted with current development of these areas. Looking at where the proposed build of the bypass, Iʻm sure there will be other sites and storied moʻolelo that may be impacted in the future.

Mahalo nui-
Kaponoʻai

4.4 HAWAIIAN AND LOCAL COMMUNITY ORGANIZATIONS

4.4.1 The Nature Conservancy

Nalei Sampson, Maui Marine Project Coordinator with The Nature Conservancy, advised on a year-long snapshot project that she is coordinating in the area (running from September 2022 to September 2023). Her infographic will include data on wildfire and sediment runoff, water stations and well locations, the 939 acres of mother reef, and cesspool locations, as well as watershed information and rainfall metrics, all of which will inform mitigation and protection. She stated that an ecological study on groundwater and rainwater will be included on a map to visually explain the data; the map will be a stand-alone document. One of the most impactful issues she identified was the sediment runoff in the wetland areas and surrounding shorelines, more specifically at Manawaipueo Gulch, which is the reason why The Nature Conservancy expanded their research area to include Papalaua and Ukumehame.

During discussions with the community, Ms. Sampson advised individuals expressed they recognized many changes in the land due to fire, land use, and homeless encampments. She advised that members of the community are becoming more engaged with the management of the area as the resources are valuable and under threat. Although she is aware that the state Department of Transportation will be conducting an Environmental Impact Study (EIS), The Nature Conservancy is unsure of the scope of that EIS and will therefore be conducting their own wetland study for Maui, including the potentially impacted areas of the realignment.

5.0 TRADITIONAL CULTURAL PRACTICES

The typical arrangement of a Hawaiian ahupuaʻa extended from the upland forested areas to several fathoms out in the ocean, encompassing cultural and agricultural resources to be cultivated, stewarded, and shared by those within the district. In *Lāʻau Hawaiʻi*, Abbott explains further that: "A Hawaiian family belonged not to a village but rather to an ahupuaʻa, a land division usually extending from the mountain heights to the sea... [which] consisted of at least one valley and included the ridges on both sides of the valley as well as the offshore area to the depth of a man's chest or to the reef crest" (1992:11). Within this mauka to makai context, a wide variety of cultural practices and rights along with their associated resources could be found. Examples of those practices, rights, and resources have been gathered during the background research, as well as through the moʻolelo and information documented through consulation, as presented above. Although heavily impacted by historical events, development, and the commodification of the biocultural landscape, these traditional customary practices continue today. Further discussion regarding specific aspects and resources identified through the consultation process is presented below focusing on the traditional and customary practices that may potentially be affected by the proposed project.

5.1 MAUKA RESOURCES

In the interviews above, Olowalu was perceived as a fertile, agricultural area and traditional flora mauka resources that were mentioned were kalo (*Colocasia esculenta*) and lāʻī (*Cordyline fruticosa*). As in most of the Hawaiian Islands, kalo is extremely prevalent and important to the people and biocultural landscape of Olowalu and Ukumehame. Kalo is a marsh plant and a canoe plant, a staple food crop brought with the original people who migrated across the Pacific to settle in Hawaiʻi. Meant to be grown in wet areas, kalo initially prescribed the locations where those early Polynesians established their villages and also lent to the architectural and technological advances that came along with growing human populations (Krauss 1993:6). Beyond being a food crop, however, kalo is also considered an ancestor to the Hawaiian people. In one moʻolelo regarding the connection between kalo and humankind, Wākea and his daughter by Papa, Hoʻohōkūkalani, have a stillborn child they name Hāloanakalaukapalili, who they bury near their home and from where the first kalo plant grew. Another child was born to the couple and this boy, named Hāloa, became the ancestor to all humans, connecting the kalo, his older brother, to the Hawaiian people, his descendants (Beckwith 1970:297-298; Krauss 1993:5).

Lāʻī, mentioned by Mr. Kaʻai as a resource his family grew in Olowalu stream, also called tī or kī, is an sparingly branched shrub that can reach three to ten feet in height with glossy, oblong leaf clusters that spiral from the slender branched stems which are marked with leaf scars (Krauss 1993:186). Lāʻī is one of the most utlized plants in Hawaiian culture as illustrated through its many uses including clothing, dishes, fishing, house thatching, in healing practices and religious

ceremonies, and perhaps more well known in cooking and lei making (Isabella Aiona Abbott 1992). Although more frequently recognized in cooking as a way to wrap food parcels using the leaf of the lāʻī, the stems of the plant were also baked in large imu (underground ovens), while purported to be a fallback food during times of famine by Handy and Handy (1972:224), Abbott proposes its use more regularly, remembering the molasses sugar taste of it from childhood (1992:42).

Mr. Lindsey mentioned protecting seabirds and nēnē known to frequent the area. Historical research documented above (see Sections 3.1.3.2 and 3.1.4.1) also found the project areas were inhabited by various bird species including the koaʻe (Tropicbird, *Phaethon lepturus*), ʻuaʻa (Hawaiian Petrel, *Pterodroma sandwichensis*), and the ʻiwa (Great Frigatebird, *Fregata minor*) that Kaʻiwaloa Heiau is named for.

5.2 MAKAI RESOURCES

Use of shoreline resources and preference for residency along the coastline from before Western contact to the present is evident in moʻolelo, archaeological findings (Barrera 1989; Griffin et al. 1976), and the continuous use of fishing traditions practiced by the contemporary community as advised by Ms. Lawrence (see Section 4.3). Traditionally, nearly all members of the Hawaiian population regularly participated in some form of fishing (Kahāʻulelio 2006:2). Marine fishing practices like diving, pole fishing, spear fishing, basket trapping, laying net, hukilau, limu gathering, ʻopihi picking, crab hunting, and more have been occurring for generations in the coastal regions of the project areas (Kahāʻulelio 2006). Freshwater fishing along streams and in mountain pools was mainly the task of women using their hands, sticks, and small nets (Titcomb 1972:4). Various aquatic resources are identified as being present, harvested, and valued in shoreline, intertidal, and the nearshore environments of the Olowalu and Ukumehame. These ocean resources, paired with agriculture cultivation made up the primary food source for native Hawaiians who lived in and frequented the area.

Mr. Kaʻai, in his reflection on the ʻohana taking care of the stream, mentioned the iʻa in the stream, the importance of mauka to makai connectivity, and water as a treasure. It is necessary, therefore, to highlight the ways in which freshwater technologies were traditionally utilized by Hawaiians to ensure mauka to makai (upland to seaward) connectivity that allowed resources, like iʻa, both in the streams and in the ocean, to thrive. In Hawaiian culture, water was more than just a resource, it was the very essence of life. Its flow from its source in the mountains, down to the kula (plains) which were watered through intricate ʻauwai (irrigation systems) that diverted and then returned the water to continue its flow down to estruaries or fishponds, defined not only agriculture, but even society itself. Words like *waiwai* for wealth and *kānāwai* for law echoed the undeniable truth: water was, and continues to be, the lifeblood of the Hawaiian world (C. E. S. Handy and Handy 1972:57).

In the mountain streams as previously noted (see Section 2.1), freshwater fish and shrimp species are known to inhabit both Olowalu and Ukumehame Streams. Kamakau explains that ʻōpae (shrimp) and ʻoʻopu (freshwater gobies) were sometimes found in loʻi kalo, which would function as fishponds not unlike the loko kuapā (shoreline ponds) and loko puʻuone (sand dune pond) that were stocked with fish from the ocean to ensure a constant supply of food (Kamakau 1976:49-50). Further, Ms. Kanoelani Steward of the Nature Conservancy, during public testimony stated:

> In Olowalu, in the middle region of Olowalu, we saw a lot of nākea and nōpili. And in the upper Olowalu, we saw the same species, nōpili and nākea, as well... And then Ukumehame was exciting because there was a lot of old hīhīwai eggs in the middle region, as well as nōpili and nākea. And then we got to the top, more towards the top of the valley, we actually saw hīhīwai and ʻōpae kuahiwi, and nōpili, nākea, and ʻoʻopu ʻalamoʻo. (Commission on Water Resource Management 2018:7)

An additional marine resource noted by Mr. Molitau through the chant given to him by his Kumu, John Lake, is limu (seaweed, algae), which can be a food source for fish and a garnish to eat with prepared fish. The Hawaiians categorized the fresh and salt water forms of limu as fish which is illustrated in the two ʻōlelo noʻeau below (Pukui 1983):

> Ka iʻa lauoho loloa o ke kai.
> The long-haired fish of the sea.
> Limu, or seaweed.
> (ʻŌlelo Noʻeau 1362:148)

> Ka iʻa māewa i ke kai.
> The fish that sways in the sea.
> The *limu* (seaweed), which sways with the movement of the sea.
> (ʻŌlelo Noʻeau 1368:149)

As presented by Abbott (1974), limu was important to a nutritionally balanced diet for Hawaiians along with iʻa (fish or meat) and poi (cooked and pounded kalo which is thinned with water), supplying not only relish and variety, but necessary vitamins and minerals. Although many of the names of the various limu have been lost to time, the limu that have been categorized have descriptive names based on their characteristics like color, what fish eat them, and their habitat. One of the most prolific types of seaweed is limu kala (*Sargassum echinocarpum*). Although normally utilized by consumption, this type of limu was also used medicinally as a poultice for open coral cuts. During times of family strife, the leaves were given to each member of a family during hoʻoponopono (putting right) and eaten after everything had been forgiven which gave the seaweed its name of kala or to forgive (Isabella Aiona Abbott and Williamson 1974). Malo also reported that kahuna used the limu kala in two rituals, one for cleansing that included sea water and turmeric (1898:132-133), and the other as another medicinal treatment paired with akua worship (1898:145).

Mr. Santos did mention that whilst traversing the land he found sea shells and urchin spines. Focusing on the spined sea urchins, collectively known as wana, there are actually three different long-spined sea urchins in Hawaiian waters. The longest spined is *Diadema paucispinum* and is found in more protected and deeper areas of the reef while the other two *Echinothrix diadema* and *Echinothrix calamaris* are found on reef flats and tidepools. Collection of these sea urchins usually involved using a stick to knock their long spines off and to turn them over to expose the shorter spines that do not cause deep puncture wounds when gathering them by hand (Titcomb et al. 1978:370-371). Wana are a seasonal delicacy because they are not edible without gonads. The timing of wana harvesting was indicated by its land based plant counterpart, the hala (pandanus) (ibid). Many Hawaiian resources were linked to each other through observed and correlated activities that gave indications between connected species, for example, the following Hawaiian proverb indicates the relationship between sea urchins and hala:

> Pala ka hala. Momona ka hāʻukeʻuke.
> When the hala flowers are ripe, the sea-eggs are fat.
> (Judd 1930:9, Proverb #24)

Another such correlative proverb linking marine and land resources is:

> Pua ke kō, ku mai ka heʻe.
> When the sugar cane is in bloom, the squids are plentiful.
> Sugarcane bloom is the sign of the time to go squidding.
> (Judd 1930:8, Proverb #15)

According to Titcomb et al (1978:371-372) there are various ways to prepare and eat wana as detailed in the following:

> To prepare wana for eating, the spines are removed, usually by knocking them off or rubbing them against stones. They are opened by crushing part of the test, or by putting salt on the mouth of the urchin and leaving it thus overnight, then making a little crack all around the mouth area and lifting it off. The five orange-colored tongues of gonads (elelo) clinging to the test may then be scooped out. This is the choice "meat" sought for, but the fluid, kai, is well liked too. It is always drained from the body cavity and the mouth parts. The kai and elelo combined make a relish that is well liked with poi or sweet potatoes. A little salt is added to the relish and it is ready to eat when the salt is dissolved. In large wana, the elelo are about 2 inches across and as thick as a child's tongue. The combination of crayfish and wana was a favorite; wana was also combined with raw fish or ʻopihi, and, in modern times, with salt salmon.

The importance of the extensive, mother coral reef of Olowalu is conveyed above through habitat, shelter, and as a food source for marine fish, invertebrates, and limu. Further to that, coral reefs have been proven to protect the shoreline from wave energy and erosion (Pacific Coastal and Marine Science Center 2022). Coral reefs have also been an embattled field regarding

whether they are a source or sink for CO_2 (Fagan and Mackenzie 2007) and how their current bleaching due to climate change may impact the ecosystems they are a part of (Bahr et al. 2017).

5.3 TRADITIONAL ACCESS AND TRAILS

Traditional access and trails through the valley are historically significant and definitely need to be maintained and preserved in perpetuity. Up mauka, the traditional access to the Olowalu area was through the ʻĪao Valley bypass starting near Manienie and ending in the Olowalu Valley where Kipuka Olowalu exists today, and the presence of large and eclectic petroglyphs near Puʻu Kilea mark those interactions over time. Another access route was along the ocean, named Ke Alaloa O Maui (Piilani trail) was the only ancient pathway to encircle any Hawaiian island and existed along the makai coast, where the current Honoapiilani Highway sits currently. During the proposed highway realignment more mauka, recognition of the Alaloa path should be seen along the makai route with proper signage and preservation plans in place.

Trails and ceremonial access to the heiau // Elmerʻs concerns about tourists and exploitation. are also important elements to notate to avoid desecration of these spiritually significant connections from heiau to heiau as well as heiau to major water sources like the ocean and the rivers, as both fresh and salt water were necessary for the ceremonial activities done in these significant structures. Kahu and aliʻi traversed on foot from the heiau areas to the ocean for hiʻuwai (A ceremony of ablution or religious purification directed by a high priest. One part of the ceremonial consisted in bathing in streams to which virtue had been previously imparted by the priest on the evening of Hoaka which was one of the ancient tabu days.- wehewehe.org) or cleansing rituals both before and after major ceremonies and fresh water was necessary for Hale O Papa and other traditional and spiritual practices.

Proposed plans should also take into account trails and traditional pathways for night marchers and other spiritual entities familiar with the area. These trails have been said to connect from heiau to heiau in a direct line parallel to the coastline and from heiau to the major water sources in the area both ocean, stream and to underground freshwater springs.

5.4 TRADITIONAL HAWAIIAN SITES

Heiau and spiritual connection is also a very large and integral part of the Olowalu and Ukumehame areas. Olowalu has Kaiwaloa Heiau, a large platform heiau used for human sacrifice along with a smaller agricultural heiau dedicated to Lono and Ukumehame has the Hikii heiau which has disputed usage but is known to have many burials on site. Each was used generationally to honor ancestors and akua and should be left alone and preserved with a pretty wide berth for the area to be possibly reconstructed and utilized into the future.

> “In addition to many marked Hawaiian burial sites, Olowalu Cultural Reserve has several heiau. Ka’iwaloa (Kawaialoa) measures 51 by 32 meters and is interpreted as a site for major religious ceremonies involving high priests and ruling chiefs from the

> entire Lāhainā moku, from Ukumehame to Kekaʻa. **The ʻiwa bird frequented Olowalu, and Kaʻiwaloa heiau is translated "the great ʻiwa." The ʻiwa is an aid to Polynesian navigators and is often pictured at the center of the navigators' sky compass. Kaʻiwaloa heiau faces south-southwest toward Kahoʻolawe and Ke Ala i Kahiki navigation lane to Tahiti.** Another large heiau in Ukumehame is interpreted as an astronomy school for navigators. Ali'i Nui Hoapili was the last to be trained there. A smaller, unnamed heiau has been encroached by a modern rock berm lower down on the kula, southwest of Puʻu Kilea. In the upper valley, a third system of terraces and loʻi close to Olowalu Stream has been interpreted as a rare hale o papa women's heiau. In addition to these features, a koʻa (fishing heiau,) a hillside lookout, and several personal shrines associated with ancient habitation sites are also preserved." Puuhonua: The Legacy of Olowalu, pg 10

We also want to notate a special designation for the luakini heiau which would have been used for human sacrifice to honor the god Kū during times of war. This designation of a heiau is very specialized in nature as it is said to include a Hale o Papa, women's meeting house (which is a rare occurrence) as well as stories of visuals of fireballs rising up from the heiau itself when it was used for war exchange, is powerful and very unique in nature. Not many Maui or Hawaii heiau have reference to a Hale o Papa and most notably, these Hale o Papa needed access to freshwater in order to perform certain ceremonial rituals. Women were utilized to open and close the ceremony since they are the human embodiment of having a connection to both birth and death, ao and po. This designation makes them powerful beings who were often kept in their own hale on the ceremonial grounds.

There are also moʻolelo about underwater heiau, directly makai from the Kaiwaloa heiau for reverence of mano (sharks). These ocean heiau were constructed to pay homage to Kanaloa and shark gods that existed in that area. Its other primary purpose was to be a physical indicator of this known shark breeding ground for black tipped reef sharks.

5.5 TRADITIONAL HAWAIIAN BURIALS AND HISTORIC CEMETERIES

Because this was a very populated place for generations, there have been a number of burials in the area from a multitude of time periods and ethnicities who have resided within this stretch of land. We also see more traditional burial areas or cemeteries listed on the archaeological sites map up near Puʻu Kilea, near the church grounds on Olowalu Village Road and behind the church boundaries into the sugar cane cultivation area.

We also have records of Japanese cemeteries that exist closer to the old Ishiki store which are still there (although some remains have been interred and moved to other cemetery locations around Maui in more recent history).

In Ukumehame, there are burials on familial kuleana land, as well as in heiau type structures.

We also know that there were large scale burials in the Olowalu makai area, that were a direct result of the Olowalu Massacre and the death of over 100 Olowalu inhabitants who chose to

trade with the Eleanora when Simon Metcalfe decided to get revenge for his slain deckhand and lost skiff.

As the highway approaches the area around the current Camp Olowalu parcel, proposed plans should be very mindful of iwi that could be in the ground near any archaeological site or condensed living areas, as well as near the ocean in the sandy shoreline where bones were traditionally placed. Caution should be taken when deciding to disrupt any areas that were part of kuleana parcels that were awarded in the Mahele records, as those would have shown inhabitants boundaries and house sites and may be a good indicator of artifact placements.

5.6 TRADITIONAL HAWAIIAN SPIRITUALITY AND CEREMONY

Navigation and wayfinding is also a traditional practice that harkens back to the time of native Hawaiian rule when they traveled from other islands to Maui frequently. It is said that the valley topography which can be seen out at sea, allowed for a pathway and navigational view plane which could be followed. We know that navigational practitioners reference Hokuʻula as an important navigational star used to align with Ukumehame, and similarly they expect Olowalu to have a navigational marker that also helps to align with their shoreline, heiau, underwater heiau, etc.

We also see tales of iwa birds frequenting the area, which were beacons for canoe vessels and due to the welcoming coastline in these areas, canoe could come ashore and launch quite easily from these sandy coastal areas.

> The ʻiwa bird frequented Olowalu, and Kaʻiwaloa heiau is translated “the great ʻiwa.” The ʻiwa is an aid to Polynesian navigators and is often pictured at the center of the navigators' sky compass. Kaʻiwaloa heiau faces south-southwest toward Kaho’olawe and Ke Ala i Kahiki navigation lane to Tahiti. (puuhonua, pg 10)

Speaking with Kala Baybayan Tanaka, a traditional celestial navigator, she speaks of the definite presence and need for navigational markers for steering a canoe to its shoreline destination and how these historically significant places had specific stars and topographic markers to guide by. She referenced Hokuʻula in Ukumehame and said that with a dedicated navigator conducting kilo in those areas, we could define those markers that were traditionally used.

6.0 ANALYSIS AND RECOMMENDATIONS

The State of Hawaiʻi has a constitutional and statutory obligation to protect native Hawaiian customary and traditional gathering rights. We offer this introductory section to explain the basis and substance of the state's obligations, as well as the impact of this protection upon traditional western private property rights and the role of private landowners in the necessary research and analysis of traditional and customary practices. To provide the appropriate historical context for such traditional and customary practices, an authoritative treatise on this subject state:

> *At the time of Western contact in 1778, Native Hawaiians "lived in a highly organized, self-sufficient, subsistent social system based on communal land tenure with a sophisticated language, culture, and religion." Access from one area to another—along the shore, between adjacent ahupuaʻa (land divisions [usually extending from the mountains to the sea along rational lines, such as ridges or other natural characteristics]), to the mountains and the sea, and to small plots of land cultivated or harvested by native tenants—was a necessary part of early Hawaiian life. Gathering activities supplemented everyday food and medicinal supplies, while cultural and religious practices sustained the people in a variety of ways.*
> *Prior to 1839, ancient Hawaiian custom and usage governed the islands. To ensure the political existence of the kingdom in the face of expanding foreign influence, Kamehameha III developed a system of codified laws that incorporated protections for ancient tradition, custom, and usage. In other words, the laws in force at the time of the Māhele in the mid-1800s and for some time thereafter recognized the importance of traditional and customary practices to the native people. Many of these laws survived later political transformations and continue to apply as background principles of private property law in the State of Hawaiʻi. (MacKenzie et al. 2015:1082).*

With respect to "laws [that] survived later political transformations", the present-day obligation of the State to protect native Hawaiian traditional and customary practices is based, first, upon the State Constitution and, in addition, upon the legislature's acts as codified in the Hawaiʻi Revised Statutes and the judiciary's interpretation of the state constitution and state statutes through case law. These authoritative sources of law, in essence, describe how the state seeks to integrate and protect native Hawaiian traditional and customary practices in a western system of private property ownership

Article XII, section 7 of the Hawaiʻi Constitution provides:

> *The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupuaʻa tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.*

Delegates to the 1978 Hawaiʻi Constitutional Convention explained:

> *The proposed new section reaffirms all rights customarily and traditionally held by ancient Hawaiians. . . . [B]esides fishing rights, other rights for sustenance, cultural and religious purposes exist. Hunting, gathering, access and water rights, while not provided for in the State Constitution, were nevertheless an integral part of the ancient Hawaiian civilization and are retained by its descendants." Hawaiian Affairs Comm., Standing Comm. Rep. No. 57, reprinted in 1 Proceedings of the Constitutional Convention of Hawaiʻi of 1978, at 637, 640 (1980).*

With respect to legislative acts, Section 7-1 of the HRS specifically protects the right to gather, although that right is limited in scope to the enumerated items that are primarily used for constructing a house or starting a fire. Section 1-1 of the HRS offers broader protection for the exercise of traditional and customary rights. By codifying "Hawaiian usage" as an exception to the common law of the state, this statutory provision provides "a vehicle for the continued existence of those customary rights which continued to be practiced" after November 25, 1892. *Kalipi v. Hawaiian Trust Co.,* 66 Haw. 1, 10, 656 P.2d 745, 750–51 (1982).

In a series of landmark cases beginning with *Kalipi*, the Hawaiʻi Supreme Court reaffirmed the customary and traditional gathering rights of *ahupuaʻa* tenants, particularly under article XII, section 7 of the Hawaiʻi Constitution *See Kalipi,* 66 Haw. at 10–12, 656 P.2d at 750–52; *Pele Defense Fund v. Paty*, 73 Haw. 578, 837 P.2d 1247 (1992), *cert. denied*, 507 U.S. 918 (1993); *Public Access Shoreline Haw. v. Haw. Cnty. Planning Comm'n*, 79 Hawaiʻi 425, 903 P.2d 1246 (1995), cert. denied, 517 U.S. 1163 (1996) (commonly known as "*PASH*"); *Ka Paʻakai O Ka ʻĀina v. Land Use Com'n, State of Hawaiʻi*, 94 Hawaiʻi 31, 7P.3d 1068 (2000). Through this line of cases, the Supreme Court established the manner in which state agencies must apply constitutional protections of native Hawaiian gathering rights in the development of private real property.

In *Kalipi*, the Hawaiʻi Supreme Court ruled that "any argument for the extinguishing of traditional rights based simply upon the possible inconsistency of purported native rights with our modern system of land tenure must fail.". *Kalipi,* 66 Haw. at 4, 656 P.2d at 748. *In Pele Defense Fund v. Paty*, the Court held that "native Hawaiian rights protected by article XII, section 7 may extend beyond the *ahupuaʻa* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner." *Pele Defense Fund v. Paty*, 73 Haw. at 620, 837 P.2d 1272. In the PASH case, the Court stated that "legitimate customary and traditional practices must be protected to the extent feasible in accordance with article XII, section 7." *PASH*, 79 Hawaiʻi at 451, 903 P.2d at 1272

The Court in PASH stated that the "State retains the ability to reconcile competing interests under article XII, section 7". *PASH*, 79 Hawaiʻi at 447, 903 P.2d at 1268. As part of this balance of interests, the Court stated: (a) "[although access is only guaranteed in connection with undeveloped lands, and article XII, section 7 does not require the preservation of such lands, the State does not have the unfettered discretion to regulate the rights of ahupua'a tenants out of existence", *id.* at 451, 903 P.2d at 1272, and (b) "the balance of interests and harms clearly favors a right of exclusion for private property owners as against persons pursuing non-traditional practices or exercising otherwise valid

customary rights in an unreasonable manner", although, "[o]n the other hand, the reasonable exercise of ancient Hawaiian usage is entitled to protection under article XII, section 7", *id.* at 442, 903 P.2d at 1272.

In Ka Paʻakai O Ka ʻĀina, the Supreme Court provided further direction on the constitutional and statutory responsibility of state agencies to preserve and protect the rights of native Hawaiians to carry-out their traditional and customary practices to the extent feasible and, in so doing, "the Court introduced an analytical framework that governmental agencies must specifically consider when balancing their obligations to protect traditional and customary practices against private property (as well as competing public) interests." (MacKenzie et al. 2015:1109).

In *Ka Paʻakai O Ka ʻĀina*, 94 Haw. at 35, 7 P.3d at 1072, the Court held that the State Land Use Commission (LUC) failed to satisfy its constitutional and statutory obligations to preserve and protect customary and traditional rights of native Hawaiians (Belatti 2003). At issue was the LUC's grant of a petition to reclassify over 1,000 acres of land in the *ahupuaʻa* of Kaʻupulehu on Hawaiʻi Island from the State Land Use "Conservation District" to the State Land Use "Urban District" in order to allow the development of a new resort. The Court acknowledged a variety of traditional and customary rights asserted by the petitioners, who were comprised of a coalition of Native Hawaiian community organizations. These rights included "fishing [and] gathering salt, ʻopihi, limu, kūpeʻe (edible marine snails whose shells are used for ornaments; the rare ones by chiefs), Pele's Tears (tear drops made from pahoehoe lava), and hāʻukeʻuke (edible sea urchins)." *Ka Paʻakai O Ka ʻĀina*, 94 Haw. at 43 and nn.19-21, 7 P.3d at 1080 and nn. 19-21. The Court also recognized the "special religious significance" of an 1800-1801 lava flow to gather salt for subsistence and religious purposes. *Id.*

The petitioners further asserted that "the petition area is associated with important personages and events in Hawaiian history, contains well-known physical entities (such as the shoreline, Ka Lae Mano and the 1800-1801 lava flow) and remnants of the native tenants' lateral shoreline and mauka-makai trail system, living areas and burials." *Id*. at 43, 7 P.3d at 1080. Agreeing with the petitioners that their interests as native Hawaiians and as tenants of the *ahupuaʻa* of Kaʻupulehu would be impaired by the proposed development in relation to the use of ancient trails and the shoreline area to practice traditional and customary gathering rights, the Court held the LUC had failed to develop a proper record on such rights and consider and analyze the extent of Native Hawaiian practitioners' exercise of traditional and customary rights in the affected area. The Court stated that the LUC, as the reviewing state agency, must consider and make express findings of fact and conclusions of law regarding the cultural, historical, and natural resources of a subject property as they relate to Native Hawaiian rights when determining what restrictions should be placed on land use. *Ka Paʻakai O Ka ʻĀina* , 94 Haw. at 35, 7 P.3d at 1072.

The Court further held that the LUC, by directing the developer to work independently to protect cultural rights, impermissibly delegated the LUC's constitutional and statutory responsibility, as a State agency, to protect and preserve cultural resources and native Hawaiian rights. The Court vacated the LUC's grant of the developer's application for a land use boundary reclassification and remanded the case to the LUC to make findings of fact and conclusions of law relating to:

> *(1) the identity and scope of "valued cultural, historical, or natural resources" in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;*
> *(2) the extent to which those resources - including traditional and customary native Hawaiian rights - will be affected or impaired by the proposed action; and,*
> *(3) the feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist. Ka Paʻakai O Ka ʻĀina, 94 Haw. at 35, 7 P.3d at 1072.*

The Court's framework seeks "to effectuate the State's obligation to protect native Hawaiian customary and traditional practices while reasonably accommodating competing private [property] interests". *Id*. at 46-47, 7 P.3d at 1083-84. Beyond the directives to the LUC in this specific case, this three-part framework provides specific direction to state and county agencies when considering land use and development projects on previously undeveloped land and should provide guidance to developers with respect to the record that must be prepared for a discretionary land use authorization or permit.

In attempting to comply with the *PASH* and *Ka Paʻakai O Ka ʻĀina* cases, the LUC had to address the issue of who has the responsibility to identify (and place on the record) any pre-existing native Hawaiian gathering rights. In subsequent boundary amendment proceedings, the LUC directed the petitioner to consult with the Office of Hawaiian Affairs (OHA) and with *kūpuna* in the area regarding past and present practices. The Office of Planning (OP) also consults with OHA. The LUC does not do any independent investigation, rather relies on the record made by the petitioner and OP (and any intervenor) and determines whether that record is sufficient.

Once the rights have been identified and the impacts assessed, the LUC is faced with the difficult problem of reconciling the private property rights, particularly the right of exclusion, with the gathering rights of native Hawaiians, which of themselves can require a certain amount of privacy and seclusion. Following the Supreme Court's remand in *Ka Paʻakai O Ka ʻĀina* and in another case, *In the Matter of the Petition of Destination Villages Kauai*, Docket No. A00731 (2001) in which native Hawaiian gathering rights were shown to exist, the LUC put conditions on its approval of reclassification of property that in each case required the formation of a committee made of up a developer's representative and a representative from the local native Hawaiian community to develop a plan to ensure that the gathering rights are protected. The plans are subject to LUC approval; any controversy arising from the plan is to be resolved by the committee. In the event the committee members cannot agree, they must agree on a third person who then will break the tie.

The LUC chose the committee approach because it did not believe it had sufficient information on resource conservation and management for the area in either of the two cases to make the final decision and, as a practical matter, would not be able to create such a record within the statutorily-mandated (365-day) time frame for making a decision. Because the Supreme Court has forbidden the LUC to delegate its decision-making power over balancing the private property rights and native Hawaiian gathering rights, forming a committee with each party having an equal vote in the outcome and requiring that any plans be approved by the LUC ensured that both sides would have their

interests adequately represented and that the LUC would be the final arbiter that the balance reached meets the requirements of the law.

For purposes of the present project, the following sections provide an analysis of potential effects to currently known traditional and customary practices within and adjacent to the proposed project footprint. Recommendations for managing potential impacts to on-going practices or protecting the integrity of traditional cultural resources that may be present within and adjacent to the project area should traditional cultural practices that were once carried out in the area be re-established.

6.1 ANALYSIS OF EFFECT TO TRADITIONAL AND CUSTOMARY PRACTICES

6.1.1 Traditional Hawaiian Agricultural Practices

The prosperity of each ahupuaʻa (traditional land division) in this region is closely tied to access to freshwater, with participants in this study recounting the historical continuity of water presence in the area. Mr. Elmer Kaai underscored the value of water as both a vital resource and a source of strength in Olowalu, with oral traditions passed down to him describing the area's former fertility—a stark contrast to the dry, barren landscape commonly observed today (see Section 4.2.2). Participants' observations highlighted a marked decline in water availability, attributed to what is believed to be intentional wetland drainage, stream water diversion into ditches and furrows, and reduced water flow due to cane field operations employing water pumps (see Section 4.2.1).

The maintenance and quality of water, spanning from mauka (mountains) to makai (sea), remain vital for sustaining resources, supporting land connectivity and prosperity, and preserving the traditional use of this culturally significant wahi pana (storied place) in line with ancestral values. Participants further noted that disruptions to traditional agricultural systems—specifically the loss of loʻi (taro pond fields) and diminished water supply—were likely due to the impacts of historic sugar cane plantation practices (see Section 4.3.2), historic road construction (see Section 4.2.2), and recent development (see Section 4.2.2).

Regarding the potential for direct adverse effects to traditional agricultural practices within the study area as result of the proposed project, a portion of the land where Mr. Tosh Fujita and his mother, Ms. Vicki Palafox, currently reside—and which includes areas of subsistence farming—would be directly affected by the proposed alternative alignments, as each alternative would cross their parcel. While Mr. Fujita understood the purpose and need of the proposed realignment, he expressed a strong stance against any encroachment on his māla (garden) by the project, as well as opposition to any alternative alignment that would run mauka of his māla and potentially affect the streamflow that is necessary for his māla to thrive.

Like Mr. Fujita, others who were consulted for the study raised concerns about the potential impact of the proposed project on culturally significant freshwater resources and, in turn, on traditional agricultural practices that depend on these resources. Specifically, participants highlighted potential issues related to access, as well as runoff management and its possible

effects on water quality during both the construction phase and the project's operational lifespan (see Sections 4.2.1 and 4.3.2). Potential disruptions to water access for agricultural purposes may also depend on the elevation of the stream crossings. Crossings located further mauka (upland) have a higher likelihood of disrupting downstream agricultural practices that rely on streamflow as opposed to a makai crossing below the primary agricultural areas within the Olowalu Reserve and ohana lands of Ms. Palafox and Mr. Fujita. During construction, such factors include temporary water diversions or reduced in-stream flow to facilitate construction activities. Long-term or recurrent disruptions over time may also depend on the crossing's structural design—such as a culvert or bridge—with culverts being particularly susceptible to constricted blockages during heavy rains and the subsequent risk of flooding depending on size (Rigby et al. 2002) (see Section 4.2.1).

With regard to runoff, the concern for maintaining or ensuring good stream water quality during and following the construction of the proposed project is heightened. Potential adverse effects during construction would revolve around the possibility for increased sediment input into the stream system due to dust (which is airborne) and sediment runoff because of increased areas of unprotected soils during rains. Potential long-term effects as a result both construction and the operational lifespan of the proposed project include the possibility of introducing pollutants such as heavy metals, oils, other substances, debris from construction traffic, regular vehicular traffic, and spillage into the streams and ground water (https://archive.epa.gov/water/archive/web/html/road_runoff.html). Pesticides and fertilizers used along roadway rights-of-way, if utilized for vegetation control during the project lifespan could also introduce pollutants into the stream system or groundwater. In addition to the adverse effects of runoff on traditional agricultural practices, similar concerns extend to the shoreline and marine resources that those consulted have historically relied upon.

Finally, concerns regarding the disruption of physical access to agricultural lands, such as loʻi systems within Olowalu Valley were also raised (see Section 4.3.1).

6.1.2 Traditional Hawaiian Fishing and Marine Resource Gathering

As detailed in Section 5.2, shoreline resource use and coastal residency prior to 1778 and into the present is well-documented in moʻolelo, archaeological studies, and the ongoing fishing traditions practiced by the contemporary community. Marine fishing techniques such as diving, pole fishing, spear fishing, basket trapping, laying nets, hukilau, limu gathering, ʻopihi collecting, crab hunting, and others have been practiced for generations in the coastal regions within the project area (Kahāʻulelio 2006). Mrs. Santos (Section 4.2.3) has observed, however, that in her lifetime, the coastline transformation has been significant, with the disappearance of the majority of trees, and push piles becoming more visible due to the decline of cane. While fishing practices have managed to continue over time, participants in this study have referred to degradation in the fringing reef system at Olowalu and expressed concerns about potential impacts to the coastal waters, reef systems, and marine life. Ms. Tiare Lawrence (Section 4.3.2) and Ms. Margaret Santos (Section 4.2.3) both recalled the vibrancy of life and the colors of the

reefs, noting that the abundance and vibrancy has degraded over time, a factor that Ms. Lawrence attributes to runoff into the ocean from the makai construction of large homes.

With regard to the potential for project related effects to the marine resources, study participants cited concerns about project associated runoff affecting the ocean life and reef (Section 4.3.1, 4.3.2, and 4.2.3). Traditional Hawaiian fishing and marine resource-gathering practices—and, by extension, the well-being of the kupa ʻāina (those with genealogical ties to the land)—rely on the toxin and contaminant free condition of these resources. Concerns about potential sediment input from construction activities, along with the introduction of contaminants through stormwater runoff and groundwater infiltration noted previously in relation to freshwater resources and stream flow, similarly apply to ocean outflow, posing risks to the marine environment and its resources. These factors could negatively impact the marine ecosystem and traditional Hawaiian food systems.

6.1.3 View Planes, Kilo (Observation) Traditions, and Wayfinding

Hawaiians were deeply engaged in observing their environment, documenting in mele (chants) and moʻolelo (stories) the sea's conditions and colors as seen from land, the positions of landmarks from the sea, and the configurations and cycles of stars and planets in the night sky. Relevant to the project area and proposed project, Kumu Kaponoʻai Molitau shared a mele passed down to him by his kumu (teacher) and makua hānai (adoptive parent), Kumu Hula John Keola Lake, describing the view from their ʻāina and observing the ʻilikai (sea surface) from Lānaʻi to Keʻānapaʻakai. This perspective enabled the kupaʻāina (native people with ties to the land) of ʻUkumehame to identify the proper times for harvesting limu (seaweed), certain iʻa (fish), heʻe (squid), and other marine resources, which, as Mr. Molitau noted in his correspondence for this study, are still present today.

Viewsheds from sea to land have traditionally aided wayfinding for both inter-island and inter-Pacific navigation and served as triangulation points for fisheries. Kahāʻulelio recorded specific triangulation points that included landmarks on Lānaʻi, Launiupoko, and Olowalu, along with knowledge of ocean currents to determine the optimal moment to let down the fishing line. At Ukumehame, the pinnacle or puʻu of Hōkūʻūla has been identified as a navigational landmark (Ashdown 1971:10). Ms. Kala Babayan Tanaka, a master navigator, also refers to Hōkūʻūla at Ukumehame as a navigational landmark where a dedicated navigator conducting kilo in those areas could identify those markers, both land and sky, that were traditionally used.

Concerns regarding either the physical removal of the landbound observation areas, where Mr. Molitau notes the possibility of crossing through the areas shared by Kumu Molitau (see Section 4.3.4), or obstruction of the view plane and therefore landmarks from the sea (see Section 4.3.1) as a result of the project have been raised. Light pollution, as an obstruction to star and planet observation, has been noted as an additional concern (see Section 4.3.1).

6.1.4 Traditional Settlement as Reflected in Archaeological Resources and Land Documents of the Mahele ʻĀina

In addition to previously identified archaeological resources related to traditional Hawaiian settlement, land use, and spirituality, land documents of the Mahele ʻĀina have also outlined traditional land use through native testimony and the survey of kuleana lots as a part of a land commission award (see Section 3.2.3). Some note their personal experience with the presence of artifacts below the surface, such as Mr. Santos who shared that he has encountered traditional Hawaiian artifacts (e.g. poi pounders and ulumaika) along with historically introduced objects (e.g. Asian ceramics) and marine shell when working the land around his house lot (Section 4.2.1). Several participants refer to the presence of known heiau at Ukumehame and Olowalu as well as the burial ground at Puʻu Kilea, the petroglyphs below the puʻu, and the archaeological complexes that were identified during the project related archaeological reconnaissance of the proposed alternatives (DEIS Appendix 3.6, see Sections 4.3.2, 4.2.3, and 4.3.3). Ms. Tiare Lawrence referred to her family ties to the Nahoʻoikaika ʻohana who retain and reside on their kuleana lands behind the Olowalu Store, thus illustrating continuous generational ties to a specific area.

Those who participated in this study expressed concerns surrounding maintenance and protection of archaeological sites (Section 4.2.3 and 4.3.3) in relation to impacts from the construction of the proposed project, both physical removal due to construction as well as site degradation as a result of construction related vibration output (e.g. pile driving for structural supports). While there is recognition that construction of the proposed project would seek to avoid wholesale removal of the historically significant sites, concerns regarding proximity of the proposed project, both during construction and the lifespan of the project, and the potential for adverse effects to the soundscape via noise pollution or visual effects of highway to the setting and feel to the archaeological complexes and ceremonial sites were expressed (see Section 4.3.2 and 4.3.3).

Finally, Ms. Tiare Lawrence (Section 4.3.2) expressed specific concerns regarding the proposed alternatives in relation to kuleana parcels, particularly those with a cloud on the title. Her preference was for avoidance of all kuleana parcels and the area of Kapaiki Village.

6.1.5 Aloha ʻĀina, Traditional Knowledge, and Environmental Shifts – Concerns Regarding Indirect Effects of the Proposed Project on the Hawaiian Sense of Place and Wellbeing

The value of Aloha ʻĀina transcends its literal meaning of “love of land,” encompassing the cultural and collective connection of the kupaʻāina to the island ecosystem and the reciprocal relationship between kanaka and land that creates a kuleana to care for the ecosystem so it, in turn, can care for the people. It is also a kuleana to give a voice to the current and past residents and their familial lineages and their reverence for these intact and water rich ahupuaʻa in both Olowalu and Ukumehame. To create a tangible description of the characteristics of this place and to communicate the deep naʻau whispering winds and calming presence that this valley creates for those who live there. Olowalu and Ukumehame are one of the few streams on Maui that still

have continuous mauka to makai streamflow and seeing the resurgence to the reef and the return of native plants and animals during the pandemic, shows us that this functioning connection of resources is resilient and will return in the absence of high traffic and tourism inundation. In this spirit, while the following project-related concerns may not align with tangible traditional practices like agriculture, fishing, or access required to maintain them, they are presented within the Hawaiian worldview of Aloha ʻĀina.

Inherent in the need to realign the current road away from the shoreline is the relocation of the Honoapiʻilani Highway alignment mauka. This realignment further mauka would alter the mauka to makai topography by introducing a road that would cut into the mountainside, thus subdividing the mauna (mountain) in a new way. Rooted in generational knowledge, this change has raised concerns among study participants regarding the impact on natural phenomena and wildlife across the study area.

In observing natural weather patterns and phenomena, some study participants mentioned the strong winds characteristic of Olowalu and Ukumehame. Kumu Kaponoʻai Molitau referenced a mele written by his makua hānai titled Kū Kahi Kanānā ʻUkumehame (Section 4.3.4). This mele speaks of the powerful wind, known to the kupaʻāina as Makani Kūʻehulepo, which would make the telephone lines sway like "jump rope" as it blew from mauka to makai, carrying lepo (dust, dirt) out toward Lele (Lahaina). Mrs. Margaret Santos described how these winds could damage plant life and noted the dust and ash affecting residents during sugar plantation operations and cane burning at Olowalu (Section 4.2.3). She also shared that the sound of these persistent winds conveyed a sense of spirituality and power. The strength of these winds have been recorded in 19th Century newspaper articles and oral traditions that have been handed down for generations (see also Section 3.1.2 ʻŌlelo Noʻeau, Winds, and Rains Associated with Olowalu and Ukumehame.) with one such destructive wind lasting for six days. Depending on the alignment chosen, and based on the concerns shared during consultation for this study, the question of a shift in airflow and effects on air quality arises, particularly at Olowalu where moving the road mauka bisects the residential areas and away from kiawe tree clusters mauka of the road and the large monkeypod trees that line the current alignment at Olowalu. Though unclear whether those monkey pod trees were planted as an intentional mitigation measure, nonetheless, both the kiawe and monkey pod trees may be that these stands may have also played a role in mitigating near road air quality (https://www.epa.gov/air-research/research-near-roadway-and-other-near-source-air-pollution and https://www.epa.gov/sciencematters/living-close-roadways-health-concerns-and-mitigation-strategies.)

With regard to atmospheric impacts, concerns have been expressed about the disappearance of tree cover and the effects that may have resulted in drier conditions in the area (Section 4.2.3) and how road construction may contribute with the removal of tree cover further mauka. Historically, there has been some argument that clearing of the uplands for cattle grazing, agricultural field expansion, and mass harvesting of sandalwood (L. Cheng 2022; Cottrell 2002)

contributed to deforestation which may have cumulatively influenced a decline in rainfall for these areas (Meher-Homji 1991).

Historical research as also found that the overall study area was inhabited by various bird species including the koaʻe (Tropicbird, *Phaethon lepturus*), ʻuaʻu (Hawaiian Petrel, *Pterodroma sandwichensis*), and the ʻiwa (Great Frigatebird, *Fregata minor*) that Kaʻiwaloa Heiau is named, as well as nēnē (*Branta sandvicensis*), the official state bird. Study participants have raised concerns regarding direct effects to nēnē in the mauka regions and the effects that roadside lighting may have on the migratory sea birds, like ʻuaʻu, and potential for bird fallout (see Section 4.3.1.)

Finally, community members are concerned about the new visual access of the valley now that the road will be placed more mauka. This would allow many eyes to view the spaces that were not previously accessed or known by the wider public. Similar to the Lahaina Bypass, travelers will be looking at both mauka and makai which may open up the valley to curious visitors or people seeking to traverse into this difficult terrain and create challenges for land stewards, like Kipuka Olowalu, state agencies with a conservation mandate, or large landowners to have to potentially address issues of trespassing or new calls to open up spaces into fragile areas for public hiking as hiking trails get closed off in other areas (Associated Press 2021; Hawaii News Now 2021; Riker 2022).

6.2 RECOMMENDATIONS FOR THE PROPOSED PROJECT

The above analysis was based on both the academic research into the cultural background of the APE and study area, as well as the results of consultation specific to the proposed project. To clarify, individuals actively engaged in traditional subsistence practices or kilo traditions are often hesitant to disclose exact locations of resources or triangulation markers due to concerns that sharing such specifics could lead to overharvesting and exploitation of these areas. Therefore, those who participated often spoke in generalities regarding the location of a resource or landmark. Ongoing consultation with both kupaʻāina and kamaʻāina of the area, who have access to generational datasets rooted in moʻolelo and oral traditions, is strongly encouraged. These individuals may be more willing to identify specific locations once the alignment is determined. The following recommendations are provided to address these concerns and should be included as part of the continual community consultation process.

To address potential mauka-to-makai access and safety issues, it is recommended to identify suitable locations for connector roads in consultation with study participants and Native Hawaiian Organizations involved in the NHPA Section 106 process. Such access routes should take into consideration hiuwai and night marcher pathways as well. Specific to coastal access, as the current alignment and right-of-way are transferred to the county, partnerships should be considered to monitor unattended coastal areas to improve safety and mitigate environmental concerns. Instances of encroachment, such as junk cars, debris, and increased encampments of the unhoused, have been noted since the opening of the Lahaina Bypass at Launiupoko,

particularly in areas between the current Bypass alignment and the shoreline and under culvert crossings.

Construction activities and project-related requirements, such as staging areas within or adjacent to rivers, should include clearly defined Best Management Practices (BMP) plans. These should include notifications to local communities who depend on stream water and marine resources at the muliwai (stream mouth) regarding the onset and status of construction activities. Furthermore, continuous monitoring of downstream water quality during construction is strongly recommended.

To address noise, air, and runoff in general, implementation of designs and features consistent with Low Impact Development (LID) and green infrastructure systems would leverage natural landscape features and processes to slow, detain, or filter stormwater contaminants. Examples include bioretention facilities, buffer strips, planted areas, grassed waterways, maintained wetlands, and permeable pavements. LID-preserved natural areas also support habitats, flood protection, and access to open spaces (United States Environmental Protection Agency 2013). Use of low-land native vegetation adapted to the coastal and midland zones is further recommended as a vegetation solution in LID planning as such plants, once established may prove to be low maintenance with lower needs for continuous irrigation.

While vegetation barriers have been proven to dampen noise pollution mitigation measures in relation to noise and visual effects of road construction around ceremonial features would require added protective barriers. These could include the construction of noise walls where the realigned right-of-way potential abuts the archaeological complexes and ceremonial features. For Mr. Fujita, such walls could include stones recovered from archaeolgical sites and features that could not be avoided and repurposed to contributed to the protection of archaeological sites and features that could be avoided.

To address concerns about light pollution impacting kilo practices dependent on night sky visibility and shorebird populations, it is recommended to implement lighting systems designed to minimize light pollution. These systems should reduce sea bird fallout caused by disorientation from artificial lighting (as outlined by DLNR's guidance on seabird fallout season: https://dlnr.hawaii.gov/wildlife/seabird-fallout-season/) while also preserving the visibility of the night sky for cultural practices.

To address the traditional Hawaiian archaeology of the current project area, it is recommended that consultation be undertaken with study participants and Native Hawaiian Organizations (NHOs) involved in the Section 106 consultation process. This consultation should aim to explore how the moʻolelo of the land can be preserved and shared, either through the physical preservation of identified historic properties or through interpretation and education to maintain a sense of place.

Educational initiatives that perpetuate a sense of place are critical for fostering the continuous and vibrant presence of Native Hawaiians across the lands of their kūpuna. Equally important is ensuring that individuals involved in project construction receive culturally appropriate training on the history of the lands and the traditional cultural significance of the spaces the project will traverse. To this end, it is recommended that all construction-related staff complete a culturally focused training program prior to fieldwork, in addition to any standard safety or project-related training.

While archaeological monitoring during construction may already be planned, such monitoring typically focuses on a single discipline. As demonstrated in this report, traditional Hawaiian cultural resources extend beyond archaeology to include natural resources and their surrounding environments. Therefore, the implementation of a cultural monitoring program is recommended. This program would involve cultural observers knowledgeable about both resources and traditional Hawaiian protocols, providing guidance in the event of an inadvertent archaeological discovery or other impacts on cultural resources.

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HONOAPI‘ILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

Appendix 3.9 – Water Resources, Wetlands, and Floodplains - Supplemental Information

November 2025

Prepared for

Honoapi‘ilani Highway Improvements

Prepared by

wsp

November 2025

Contents

HT Harvey & Associates Preliminary Identification of Waters of the United States - Technical Report

HT Harvey & Associates Results of the Wetland Delineation in the Project's 2025 Biological Study Area

HT Harvey & Associates Update to Wetland Field Studies Conducted in 2023, 2024, and 2025

Agency Correspondence

HT Harvey & Associates Preliminary Identification of Waters of the United States - Technical Report

November 2025

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Honoapiilani Highway Improvement Project
Preliminary Identification of Waters of the United States
Technical Report

Project # 4692-02

Prepared for:

WSP USA
1001 Bishop Street, Suite 2400
Honolulu, HI 96813

Prepared by:

H. T. Harvey & Associates

December 2023

Executive Summary

During 23 visits from January-September 2023, H. T. Harvey & Associates wetland ecologists performed a delineation of wetlands and other waters in support of the Honoapiilani Highway Improvement Project located in West Maui. The Project Area overlaps three watersheds in West Maui: Ukumehame, Olowalu, and Launiupoko. Approximately 902 acres within the Project's study area, which was defined to encompass the project's temporary and permanent impact areas, were surveyed for jurisdictional waters (wetlands and other waters) that may be subject to regulation under Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers. This area (902 acres) included a 300 feet swath centered around each of the four proposed Build Alternatives and an additional 37 acres outside of these Build Alternatives. Because the study spanned from January to September, it allowed for observations and consideration of both wet and dry seasons when sampling. The results are based on the observation of conditions present across these multiple surveys. In total, 9.130 acres of jurisdictional wetlands and other waters were mapped in the wetland delineation study area. When estimated separately for each Build Alternative this includes: 0.228 and 1.337 acres of jurisdictional wetlands and other waters respectively in Build Alternative 1; 4.365 and 2.255 acres of jurisdictional wetlands and other waters respectively in Build Alternative 2; 4.365 and 2.280 acres of jurisdictional wetlands and other waters in Build Alternative 3; and zero jurisdictional wetlands and 1.777 acres of jurisdictional other waters in Build Alternative 4. Additionally, 16.709 acres of potentially isolated non-jurisdictional wetlands and other waters were identified within the study area If determined to be waters of the U.S., these features would be regulated under Section 401 of the Clean Water Act.

Habitat Type	Area (acres)	Notes
Total Jurisdictional Wetlands	***4.593***	
Wetland 1	*4.131*	*Surface connection to the Pacific Ocean via Ditch 7 and the Hanaula Gulch culvert under the existing highway*
Wetland 3	*0.228*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Wetland 4	*0.234*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Total Potentially Isolated Non-Jurisdictional Wetlands	***16.672***	
Wetland 2	*0.442*	*No surface connection to the ocean*
Wetland 5	*0.910*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*
Wetland 6	*0.949*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*

Habitat Type	Area (acres)	Notes
Wetland 7	*0.811*	*No surface connection to ocean*
Wetland 8	*4.792*	*No surface connection to ocean*
Wetland 9	*0.153*	*No surface connection to ocean*
Wetland 10	*8.575*	*No surface connection to ocean*
Wetland 11	*0.040*	*No surface connection to ocean*
Total Jurisdictional Other Waters	***4.537***	
Manawaipueo Gulch	*0.140*	*Connection to Pacific Ocean via culvert under the existing highway*
Papalaua Gulch	*1.670*	*Connection to Pacific Ocean via culvert under the existing highway*
Hanaula Gulch	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 1	*0.041*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 2	*0.040*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 3	*0.037*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 4	*0.049*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 5	*0.018*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 6	*0.186*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 7	*0.226*	*Connection to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 8	*0.380*	*Vicinity of Pohaku Aeko Street. Connection to Pacific Ocean via culvert under the existing highway*
Ukumehame Stream	*0.330*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 9	*0.370*	*Vicinity of Ehehene Street. Connection to Pacific Ocean via culvert under the existing highway*
Mopua Stream	*0.200*	*Connection to Pacific Ocean via culvert under the existing highway*
Olowalu Stream	*0.260*	*Connection to Pacific Ocean via culvert under the existing highway*
Lihau Stream	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Awalua Stream	*0.150*	*Connection to Pacific Ocean via culvert under the existing highway*
Ka Puali Stream	*0.120*	*Connection to Pacific Ocean via culvert under the existing highway*

Habitat Type	Area (acres)	Notes
Total Potentially Isolated Non-Jurisdictional Other Waters	**0.037**	
Ditch 10	*0.007*	*No surface connection to another ditch or stream or ocean.*
Ditch 11	*0.009*	*No surface connection to another ditch or stream or ocean.*
Ditch 12	*0.021*	*No surface connection to another ditch or stream or ocean.*
Total Potential Waters of the U.S.	**9.130**	
Total Potentially Isolated Non-Jurisdictional Waters of the U.S.	**16.709**	
Total Non-Jurisdictional Upland Areas	**876.161**	
Wetland Delineation Study Area Total	**902.000**	

Table of Contents

Executive Summary i

Section 1.0 Project Introduction and Purpose 1
1.1 Project Description 1
1.1.1 Project Alternatives 1
1.2 Survey Scope and Purpose 4
1.3 Site Description 4

Section 2.0 Survey Methods 10
2.1 Identification of Jurisdictional Waters 10
2.1.1 Regulatory Regime 11
2.1.2 Identification of Section 404 Jurisdictional Wetlands (Special Aquatic Sites) 17
2.1.3 Identification of Other Waters 19

Section 3.0 Survey Results and Discussion 21
3.1 Assumption and Background Information 24
3.2 Site Conditions and Observations 24
3.3 Identification of Potential Section 404 Wetlands 26
3.3.1 Vegetation 26
3.3.2 Soils 27
3.3.3 Hydrology 27
3.3.4 Rationale for Sample Point Choice 28
3.3.5 Photo Points for Section 404 Wetland 30
3.4 Identification of Section 404 Other Waters 31
3.4.1 Manawaipueo Stream 31
3.4.2 Papalaua Gulch 32
3.4.3 Hanaula Gulch and Associated Ditches 1 to 7 32
3.4.4 Ditch 8 – Vicinity of Pohaku Aeko Street 33
3.4.5 Ukumehame Stream 33
3.4.6 Ditch 9-Vicinity of Ehehene Street 33
3.4.7 Mopua Stream 34
3.4.8 Olowalu Stream 34
3.4.9 Lihau Stream 35
3.4.10 Awalua Stream 35
3.4.11 Ka Puali Stream 35
3.4.12 Ditches 10, 11, and 12 35
3.5 Areas Not Meeting the Regulatory Definition of WoUS 36

Section 4.0 Conclusion 37

Section 5.0 References 38

Tables

Table 1. Soil Type, Texture, Drainage Classification, and Hydric Status for the Soil Types Occurring in the Honoapiilani Wetland Study Area 5
Table 2. Wetland Indicator Status Categories for Vascular Plants 18
Table 3. Summary of Jurisdictional Wetlands and Other Waters, and Potentially Isolated Non-Jurisdictional Wetlands and Waters Delineated Within the Honoapiilani Project's Wetland Delineation Study Area 21

Table 4. Summary of Jurisdictional Wetlands and Waters, and Potentially Isolated Non-Jurisdictional Wetlands and Waters Delineated Within Each of the Four Build Alternatives in the Honoapiilani Project's Wetland Delineation Study Area 23
Table 5. Summary of Sample Point (SP) Locations and Results 28
Table 6. Coordinates and Rationale for Photo Points (PP) 30

Figures

Figure 1. Project Vicinity 2
Figure 2. Wetland Delineation Study Area 3
Figure 3. Topographic Map 7
Figure 4. Soils Map 8
Figure 5. National Wetlands Inventory Map 9
Figure 6. Habitat/Vegetation Types 12
Figure 7. Preliminary Identification of Jurisdictional Wetlands, Potentially Isolated Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Papalaua and Ukumehame Portions of the Wetland Delineation Study Area 13
Figure 8. Preliminary Identification of Jurisdictional Other Waters in the Ukumehame Portion of the Wetland Delineation Study Area 14
Figure 9. Preliminary Identification of Jurisdictional Other Waters in the Olowalu and Launiupoko Portions of the Wetland Delineation Study Area 15
Figure 10. Preliminary Identification of Jurisdictional and Potentially Isolated Non-Jurisdictional Other Waters in the Olowalu and Launiupoko Portions of the Wetland Delineation Study Area 16

Appendices

Appendix A. Plants Observed in the Wetland Delineation Study Area A1
Appendix B. Natural Resources Conservation Service Custom Soil Report for the Project Area B1
Appendix C. Wetland Determination Data Form – Hawaii and Pacific Islands Region and Photo Documentation C1
Appendix D. USACE Ordinary High Water Mark Delineation Datasheets and Photo Documentation D1

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Section 1.0 Project Introduction and Purpose

1.1 Project Description

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning the Honoapiilani Highway Improvements Project. The proposed project is in West Maui, in the areas served by the existing Honoapiilani Highway between milepost 11 and milepost 17 (Figure 1). Honoapiilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the sole access between communities along the west coast of Maui and the rest of the island. The proposed southeastern terminus at milepost 11 is in Ukumehame, in the vicinity of Papalaua Wayside Park, and the northwestern terminus of the project is at milepost 17 in Launiupoko, where Honoapiilani Highway currently intersects the southern terminus of the Lahaina Bypass. This approximately six-mile-long and 3/4-mile-wide Project Area is composed predominantly of a coastal plain that includes the ahupuaa of Ukumehame, Olowalu, and Launiupoko. Offshore, the Olowalu reef area, which extends from Ukumehame to Launiupoko, hosts about 1,000 acres of some of the healthiest and oldest living corals within the main Hawaiian Islands. The proposed project does not include work on the existing highway except where the new project joins the existing highway at the northern and southern connection points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Additionally, there is no in-stream work planned for this project.

1.1.1 Project Alternatives

A Preferred Alternative has not yet been identified. Four draft "Build Alternatives" have been identified (Figure 2) and are being evaluated in the Draft Environmental Impact Statement currently underway. Each alternative involves the construction of a new highway, which is mainly along a new alignment, further inland from the ocean. Build Alternative 1 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 coastal or makai concept. This alignment has been "modified" to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and avoid cultural resources. This alternative is just mauka (mountain side or inland) of most inundation areas in Launiupoko and Olowalu, and maximizes use of the existing right-of-way. Build Alternative 2 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "middle" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. Build Alternative 3 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 mauka concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. Build Alternative 4 was also adapted from the County of Maui's Pali to Puamana Parkway 2005 mauka concept. The alignment has been "corrected" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. The route through Olowalu town, which distinguishes this alignment, is based on landowner input provided in 2007. This alignment meets the 55 miles per hour (mph) design speed (with speed signs to be posted at 45 mph), while minimizing curves. The alignments converge at several points and there are two distinct areas where the alignments all differ from one

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Figure 1. Project Vicinity
Honoapiilani Highway (4692)
September 2023

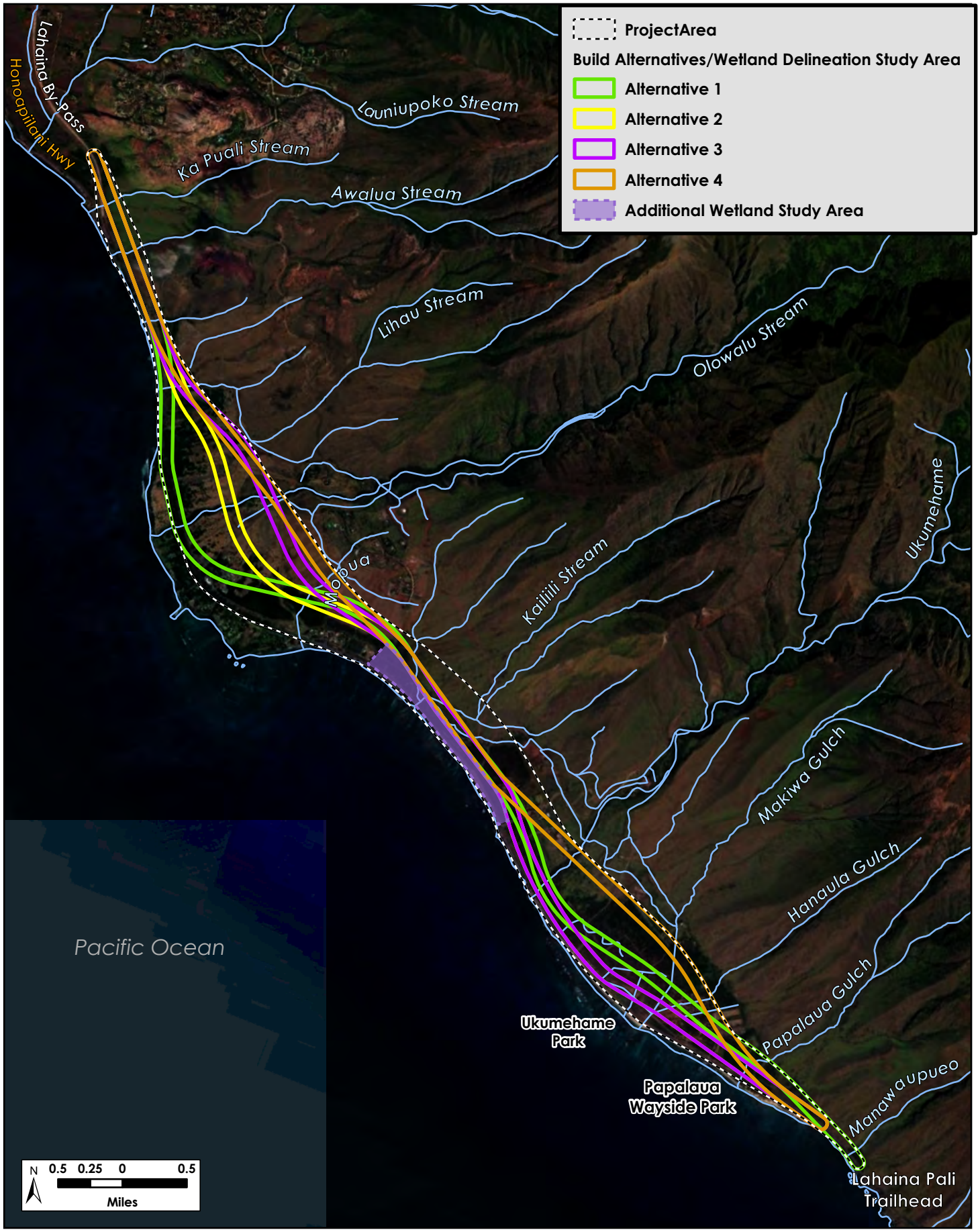

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Figure 2. Wetland Delineation Study Area
Honoapiilani Highway (4692)
September 2023

another: one in Olowalu and the other in Ukumehame. The preferred alternative may be selected from two proposed alternatives, one in each of the two differing areas.

None of the Build Alternatives discussed below involves work in the ocean. Additionally, there is no in-stream work planned for this Project. The bridges over the streams will be built outside of the ordinary high water mark (OHWM). All Project alternatives will incorporate Best Management Practices as prescribed by FHWA, U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and other agencies participating in the review and approval of the proposed Project. It is also noted that no night work is anticipated during construction, and construction duration is anticipated to be no longer than two years. However, should night work be required, additional coordination will be conducted with USFWS and the Hawaii Department of Land and Natural Resources (DLNR) to agree upon any other appropriate conservation measures.

1.2 Survey Scope and Purpose

The U.S. Army Corps of Engineers (USACE) regulates placement of dredged and/or fill material within wetlands (a type of special aquatic site) and other "waters of the United States" (WoUS) under provisions of Section 404 of the Clean Water Act (CWA, formerly Federal Water Pollution Control Act) and Section 10 of the Rivers and Harbors Act of 1899. Under Section 404 of the CWA, dredged and fill material may not be discharged into WoUS (including wetlands) without a permit. Project activities described above in Section 1.1 may result in the discharge of materials in WoUS that might occur in the Project Area. The purpose of this study was to identify the extent and distribution of potential Section 404 waters including any associated wetlands (special aquatic sites) that might be impacted by proposed Project activities within the Project's wetland delineation study area. This wetland delineation study area was composed of a 300-foot wide swath centered on each proposed Build Alternative, extending the entire project length, plus an additional approximately 37 acres outside and west of the overlapping Build Alternatives between Olowalu and Ukumehame (Figure 2). H. T. Harvey & Associates examined the study area for features that may meet the physical criteria and regulatory definition of Section 404 wetlands and other waters.

1.3 Site Description

The Project Area generally consists of undeveloped land, historic agricultural uses, open space, rural residential, and state conservation land uses. The town of Lahaina is about 4 miles north of the northern end of the Project Area. Toward Lahaina to the north and west of the Project Area, the land use is more residential along and mauka (inland) of Lahaina Bypass. To the south and east, no developed land uses are along Honoapiilani Highway until the central Maui community of Maalaea. The Project Area is rural in character and contains mostly open lands along with historic settlements in Olowalu and newer low-density residential development inland of the existing highway corridor at the base of the mountains. Olowalu and Ukumehame areas were heavily influenced by the development of large-scale plantation agriculture that dramatically changed and still influences much of the existing landscape in the Project Area. Mauka (inland) of the Project Area there are

limited residential uses, cultural sites, and reserve areas, and sparse residential uses. Elevation within the study area ranges from a couple feet above sea level to about 50 feet above mean sea level (Figure 3). In the mountains, land use is predominantly undeveloped open space as part of the West Maui Nature Reserve and the recently approved DLNR Wildlife Reserve.

The entire study area is situated at the foot of the west Maui Mountain and overlaps three watersheds: Ukumehame, Olowalu, and Launiupoko. Ukumehame is the perennial stream that intersects the Project Area and drains this 4.3 square mile (sq mile) watershed. Similarly, Olowalu is a perennial stream that intersects all four Build Alternatives in the Olowalu peninsula and drains a 4.8 sq mile area. The study area partially overlaps the Launiupoko watershed and the main perennial Launiupoko stream, which drains a 3.4 sq mile area outside of the study area. The ocean-side or western-most Build Alternatives are situated in the west Maui coastal floodplain; one of the primary reasons to address existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise.

The climate at the Project Area is typical of leeward West Maui – warm subtropical with average temperatures (°F) over a given year ranging from the low 60s to upper 80s. Situated on the leeward lowlands of West Maui, the entire Project Area is very dry and according to Giambelluca et al. (2013), receiving mean annual rainfall levels of approximately 30 inches with most of the annual precipitation occurring during the winter months from November through March and the least amount of precipitation during the summer. Typically, the predominant trade winds blow from east to west; this pattern changes during the winter months when meteorological conditions shift in response to approaching North Pacific cold fronts, causing winds to become more westerly ("kona winds") and delivering increased precipitation to leeward areas. Severe storms have historically been infrequent in this region of Maui.

Eleven soil units are mapped by the Natural Resources Conservation Service (NRCS) within the study area (Figure 4). Table 1 summarizes the associated texture, drainage classification, landform setting, and hydric soil status (NRCS 2023a) for these soil types found within the study area.

Table 1. Soil Type, Texture, Drainage Classification, and Hydric Status for the Soil Types Occurring in the Honoapiilani Wetland Study Area

Soil Symbol	Soil Name	Soil Texture	Drainage Classification	Landform	Hydric Status
EaA	Ewa Silty Clay Loam	Silty clay loam	Well drained	Alluvial fans, stream terraces, mountain slopes	No
JaC	Juacas Sand	Sand	Excessively drained	Beaches	No
KMW	Kealia Silty Loam	Silt loam, loam	Poorly drained	Tidal flats, salt marshes	Yes
PpA	Pulehu Clay Loam	Silt loam, silty clay loam	Well drained	Alluvial fans	No

Soil Symbol	Soil Name	Soil Texture	Drainage Classification	Landform	Hydric Status
PtA (0-3% slopes)	Pulehu Cobbly Clay Loam	Cobbly clay PtBloam, slitly clay laom	Well drained	Alluvial fans	No
PtB (3-7% slopes)	Pulehu Cobbly Clay Loam	Cobbly clay PtBloam, slitly clay laom	Well drained	Alluvial fans	No
PpA	Pulehu Silt Loam	Silt loam, silty clay loam	Well drained	Alluvial fans	No
rRK	Rock Land	Silty clay loam, silty clay, bedrock	Well drained	Lava flows	No
rSM	Stony Alluvial Land	Extremely stony clay loam, boulder silty clay loam	Well drained	Alluvial fans	No
WyC	Wainee Extremely Stony Silty Clay	Extremely stony silty clay loam	Well drained	Slopes, alluvial fans	No
W	Water	n/a	n/a	n/a	n/a

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map of the Project Area is depicted in Figure 5 (NWI 2023). The NWI identifies 20 aquatic features within the Project Area which fall into the following three classifications:

- Sixteen streams and tributaries intersect the study area and are mapped as Riverine, Intermittent, Streambed, Temporarily Flooded.
- Three features—two in the Olowalu peninsula and the HDOT sedimentation basin in Ukumehame are mapped as Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded.
- One feature at the northern end of the Project Area at the Lahaina Bypass end is mapped as Palustrine, Emergent, Persistent, Seasonally Flooded.

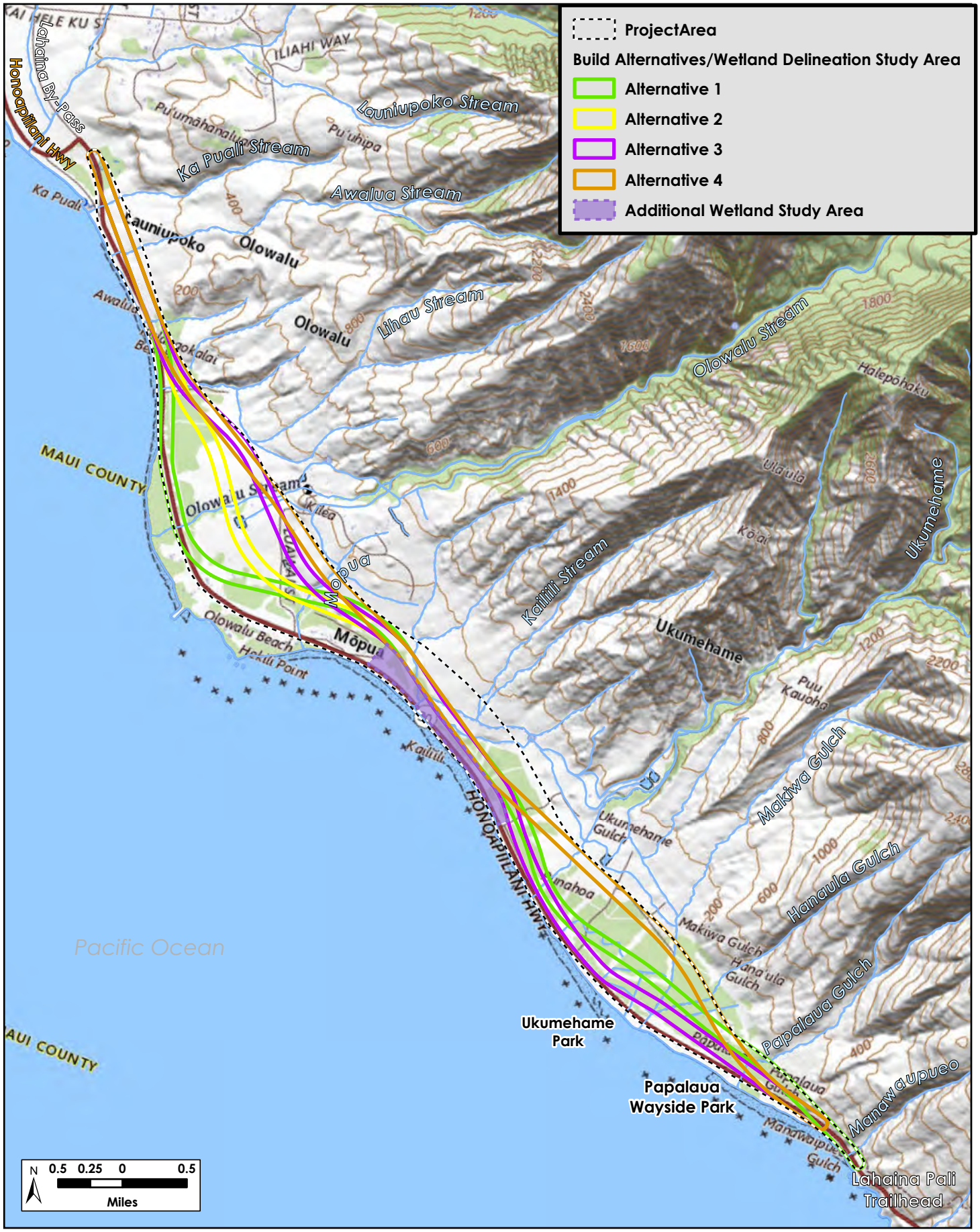

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Figure 3. Topographic Map
Honoapiilani Highway (4692)
September 2023

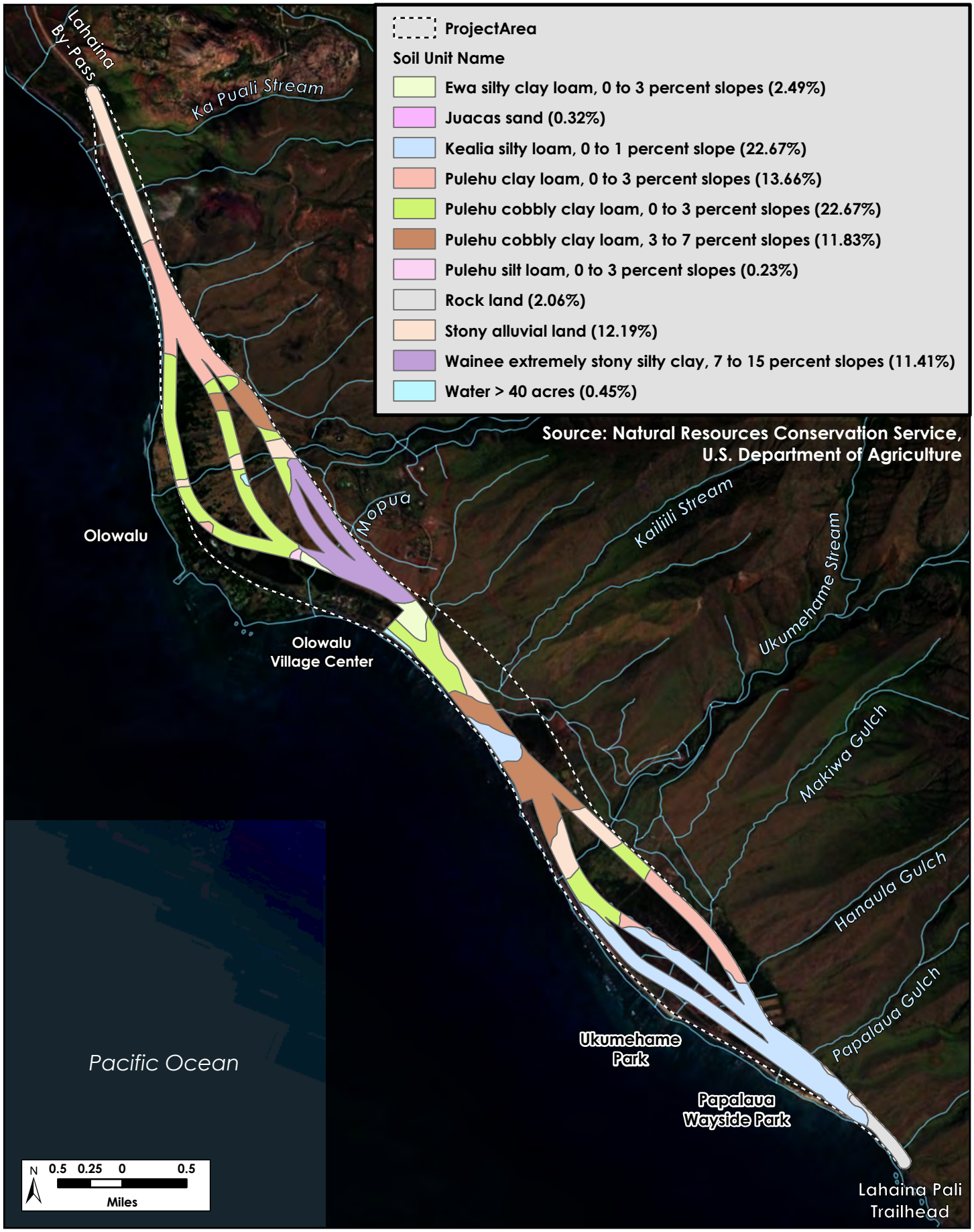

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Figure 4. Soils Map
Honoapiilani Highway (4692)
September 2023

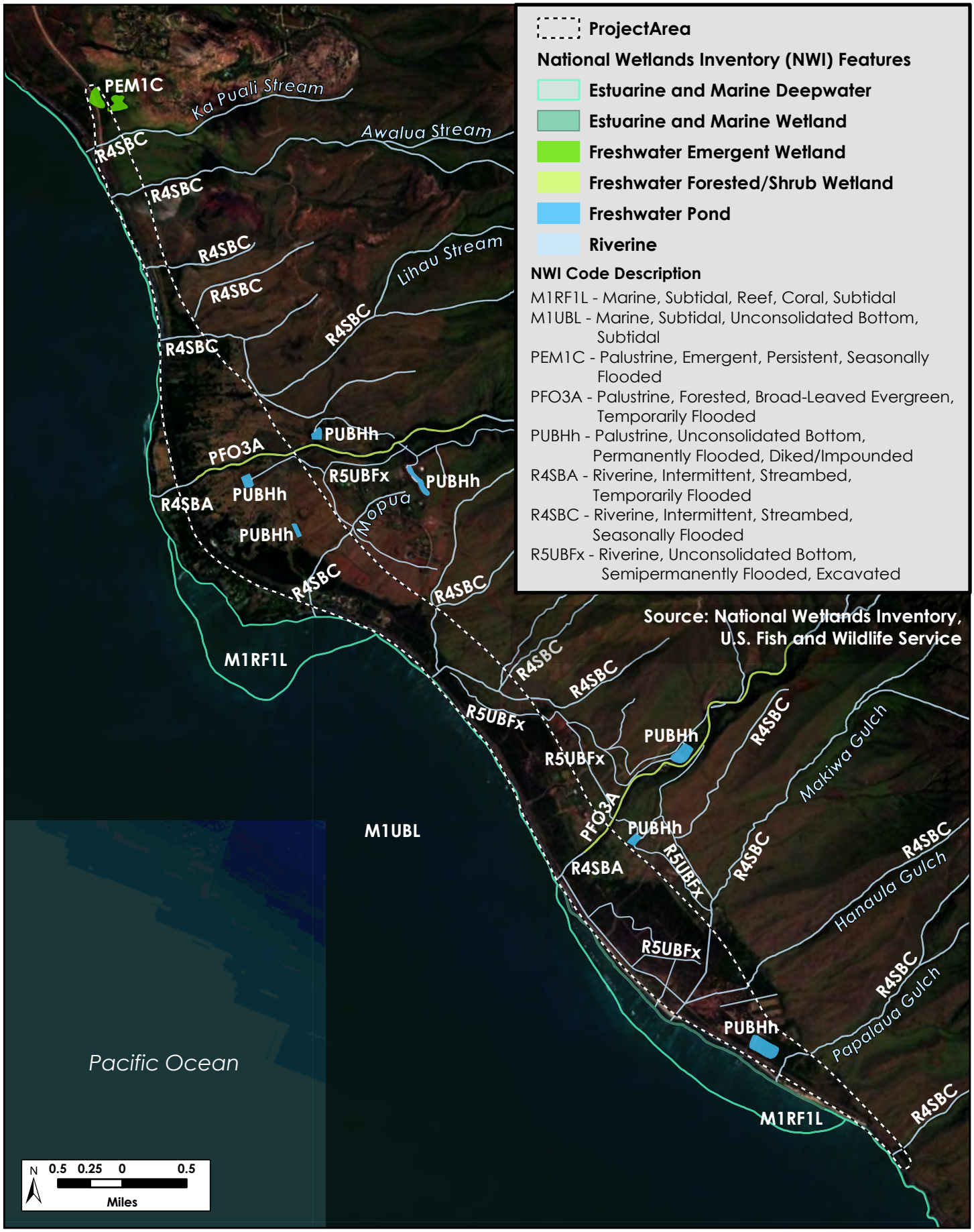

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Figure 5. National Wetlands Inventory Map
Honoapiilani Highway (4692)
September 2023

Section 2.0 Survey Methods

Before the survey was conducted, H. T. Harvey & Associates reviewed topographic maps and current and historical aerial photos of the Project Area. These sources included the U.S. Geological Survey topographic map, NWI, Google Earth software (Google Inc. 2023), NRCS Soil Survey (NRCS 2023a, b), Hawaii Watershed Atlas (Parham et al. 2008), and State of Hawaii Geographic Information System (GIS) data for streams (Office of Planning 2017). With background information gleaned from these sources, H. T. Harvey & Associates' certified wetland ecologists, Shahin Ansari and Terrell Erickson, performed a technical determination and delineation of Section 404 wetland and other waters in the study area between January and September 2023.

The technical determination was performed in accordance with the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory 1987). In addition, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawaii and Pacific Region (Version 2.0)* (Regional Supplement) (USACE 2012) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. H. T. Harvey & Associates wetland ecologists performed preliminary mapping of the extent and distribution of wetlands and other WoUS that may be subject to regulation under Section 404 of the CWA. The following sections present descriptions of the methods used to identify Section 404 jurisdictional waters (wetlands and other waters).

2.1 Identification of Jurisdictional Waters

The "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the Corps Manual (Environmental Laboratory 1987), and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Hawaii and Pacific Islands Region (USACE 2012) were used to examine the vegetation, soils, and hydrology on site. This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

In addition to applying these survey methods, we compiled this report in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016). This document lists the information that must be submitted as part of a request for a jurisdictional determination, including:

- Vicinity map (Figure 1)
- Project Area and wetland study area map (Figure 2)
- U.S. Geological Survey topographic map (Figure 3)
- NRCS Soils map (Figure 4)
- NWI map (Figure 5)

- Habitat map (Figure 6)
- Preliminary identification of waters maps (Figures 7, 8, 9, and 10)
- Plant species observed (Appendix A)
- Current Soil Survey Report (Appendix B)
- Wetland delineation data forms and photo documentation (Appendix C)
- Photo point locations (same as sample point locations, and numbered according to sample points on Figures 7, 8, and 9; additional photo points only on Figure 7). Photo points correspond to photos in Appendix C.
- OHWM delineation data forms and photo documentation (Appendix D)
- Written rationale for sample point choice (Section 3.3.1 Rational for Sample Points and OHWM datasheets that include rationale for OHWM transects)

During the survey, the study area was examined for topographic features, drainages, alterations to site hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included digging of soil pits in the study area (also see "Hydric Soils" under Section 2.1.1), observing the vegetation growing near the soil sample points, and characterizing the current surface and subsurface hydrologic features present near the sample points through both observation of indicators and direct observation of hydrology. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field using a sub-meter Global Positioning System (GPS) unit.

2.1.1 Regulatory Regime

On December 30, 2022, the U.S. Environmental Protection Agency and Department of the Army (the agencies) announced a final "Revised Definition of 'Waters of the United States'" rule founded upon the pre-2015 definition of "waters of the United States." This rule was formally adopted in January 2023. To determine jurisdiction for tributaries, adjacent wetlands, and additional waters, the January 2023 rule relies on the longstanding approach of applying two standards. Certain types of waters are jurisdictional under the final rule if they meet either the relatively permanent standard or significant nexus standard. This report has been prepared consistent with the January 2023 rule but does not attempt to formally determine jurisdictional WoUS status in light of the May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* due to the lack of detailed guidance on that implementation at the time of the drafting. However, substantial consideration has been made in this report to describe surface connection of various features to the Pacific Ocean, to support the USACE determinations on which features constitute regulated WoUS under the current regulatory regime.

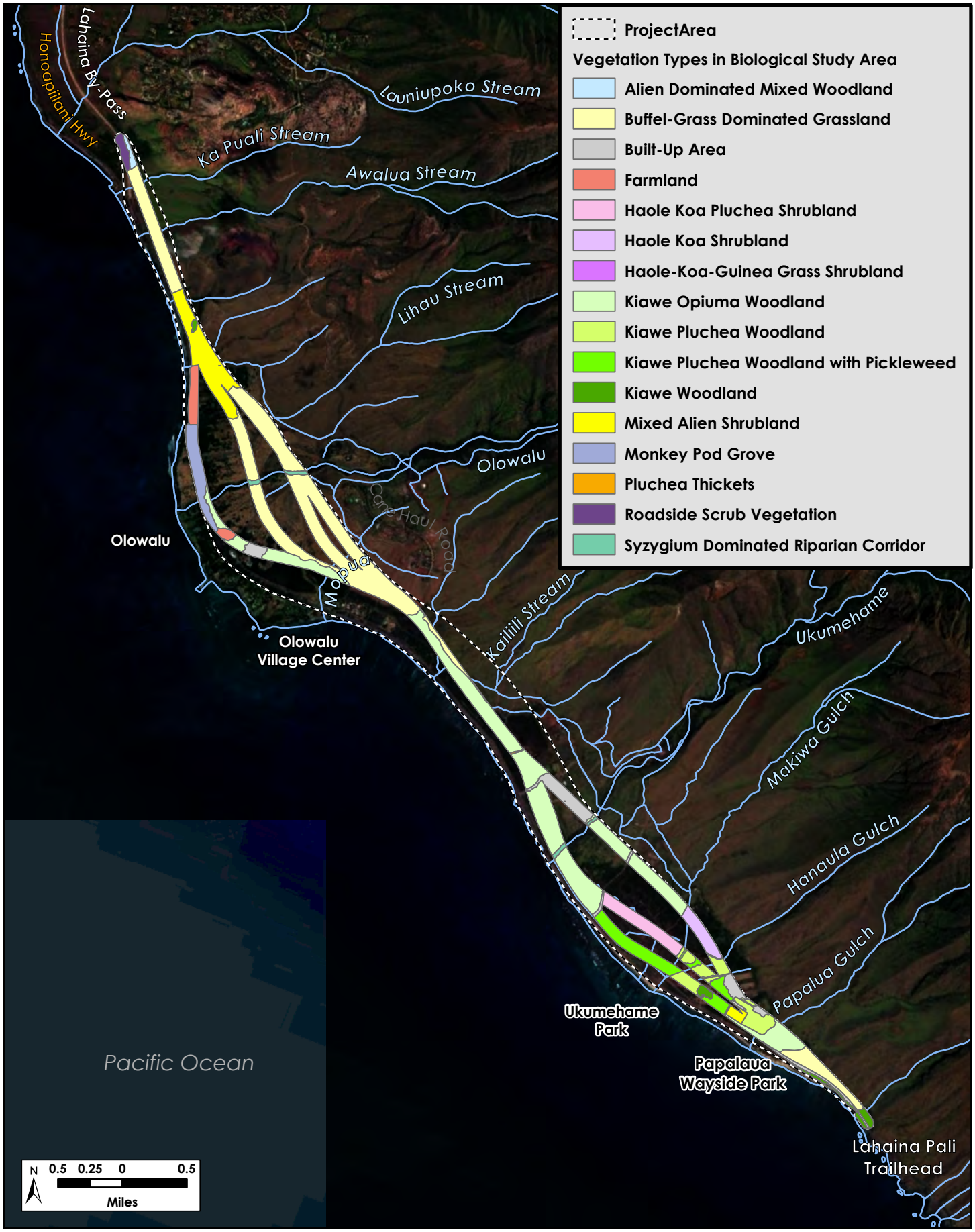

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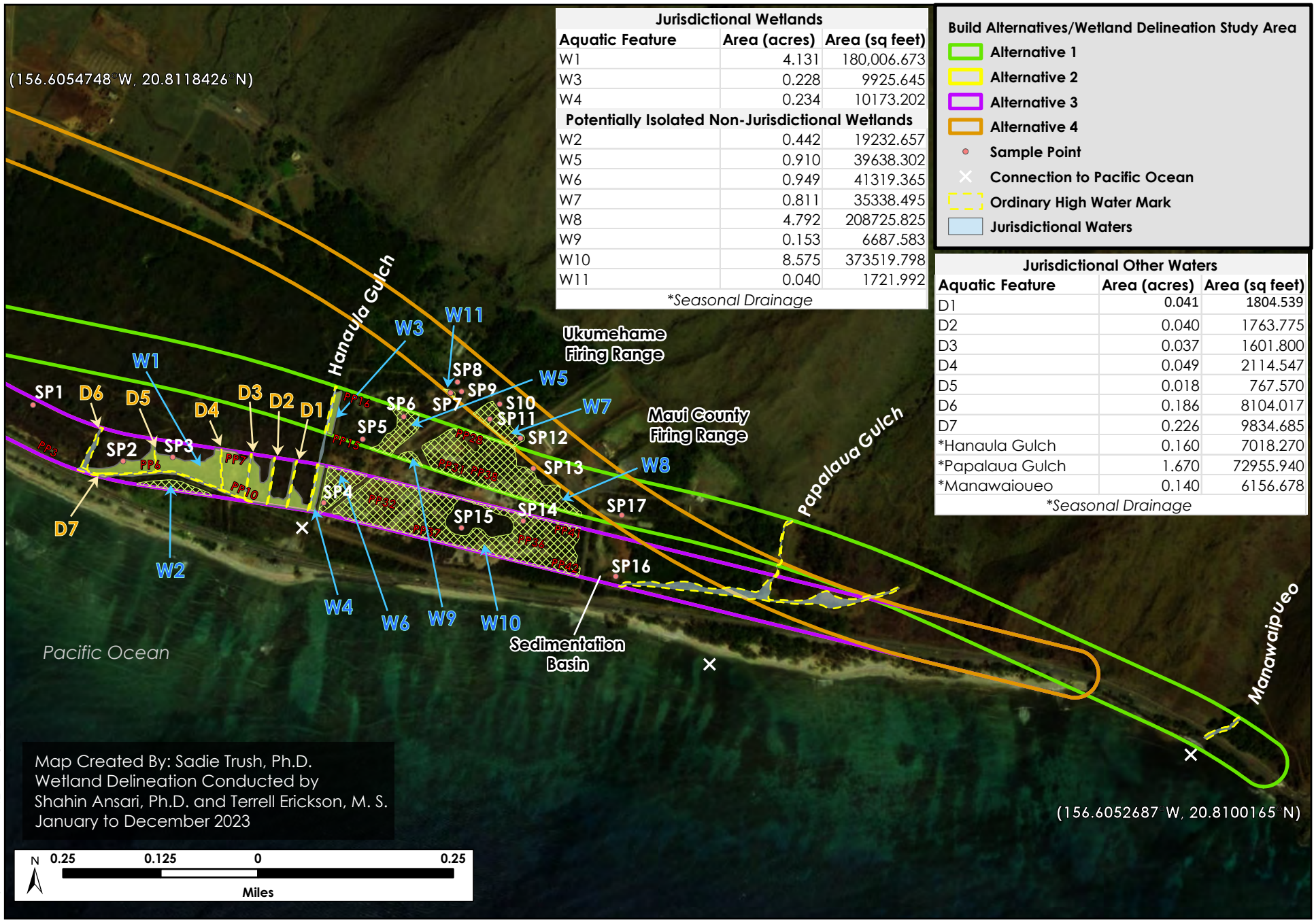
Figure 6. Habitat/Vegetation Types
Honoapiilani Highway (4692)
September 2023



Jurisdictional Wetlands		
Aquatic Feature	**Area (acres)**	**Area (sq feet)**
W1	4.131	180,006.673
W3	0.228	9925.645
W4	0.234	10173.202
Potentially Isolated Non-Jurisdictional Wetlands		
W2	0.442	19232.657
W5	0.910	39638.302
W6	0.949	41319.365
W7	0.811	35338.495
W8	4.792	208725.825
W9	0.153	6687.583
W10	8.575	373519.798
W11	0.040	1721.992
*Seasonal Drainage		

Build Alternatives/Wetland Delineation Study Area
- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4
- Sample Point
- Connection to Pacific Ocean
- Ordinary High Water Mark
- Jurisdictional Waters

Jurisdictional Other Waters		
Aquatic Feature	**Area (acres)**	**Area (sq feet)**
D1	0.041	1804.539
D2	0.040	1763.775
D3	0.037	1601.800
D4	0.049	2114.547
D5	0.018	767.570
D6	0.186	8104.017
D7	0.226	9834.685
*Hanaula Gulch	0.160	7018.270
*Papalaua Gulch	1.670	72955.940
*Manawaioueo	0.140	6156.678
*Seasonal Drainage		

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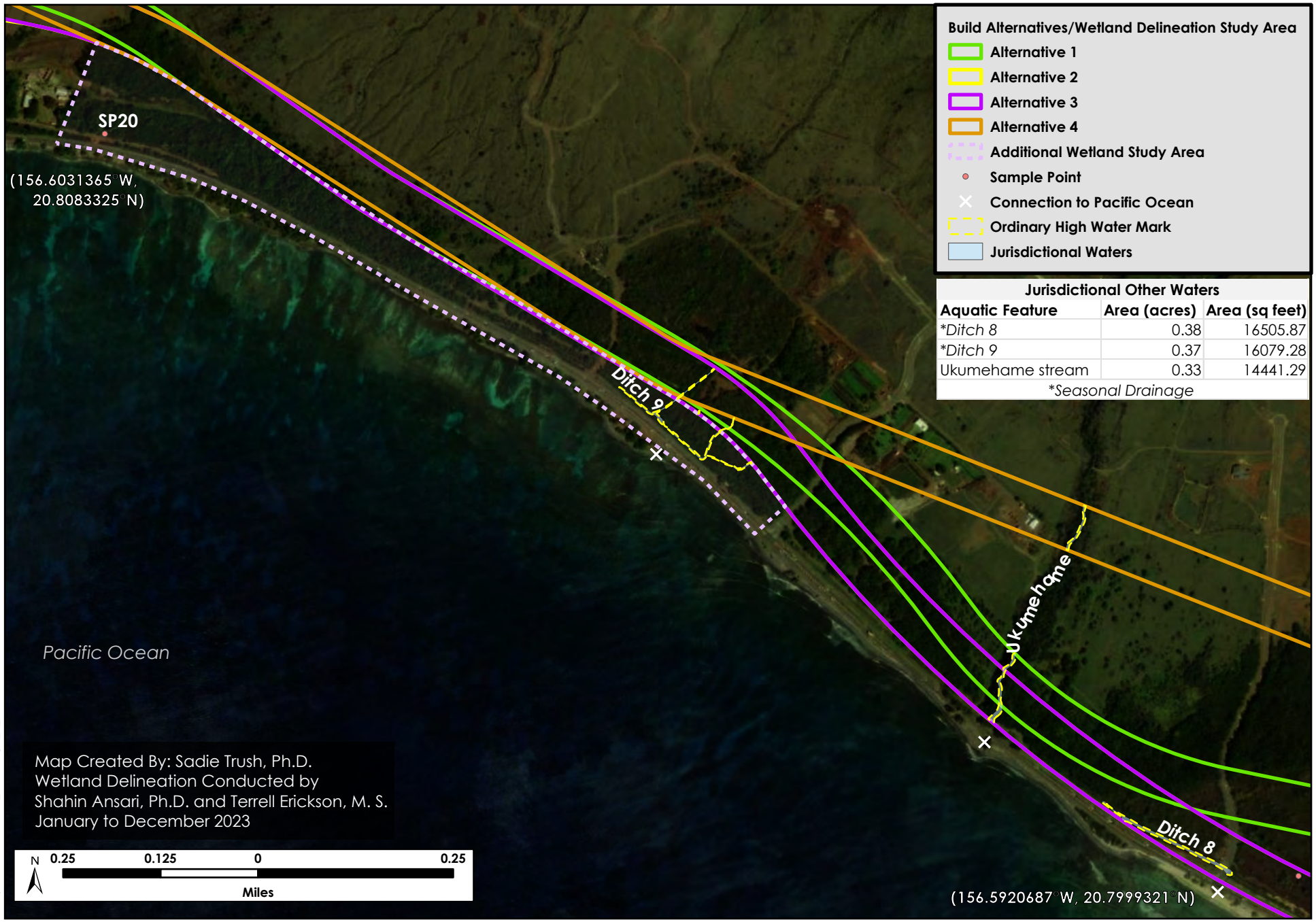
Figure 7. Preliminary Identification of Jurisdictional Wetlands, Potentially Isolated Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Palalaua and Ukumehame Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



Jurisdictional Other Waters		
Aquatic Feature	Area (acres)	Area (sq feet)
Ditch 8	0.38	16505.87
Ditch 9	0.37	16079.28
Ukumehame stream	0.33	14441.29
Seasonal Drainage		

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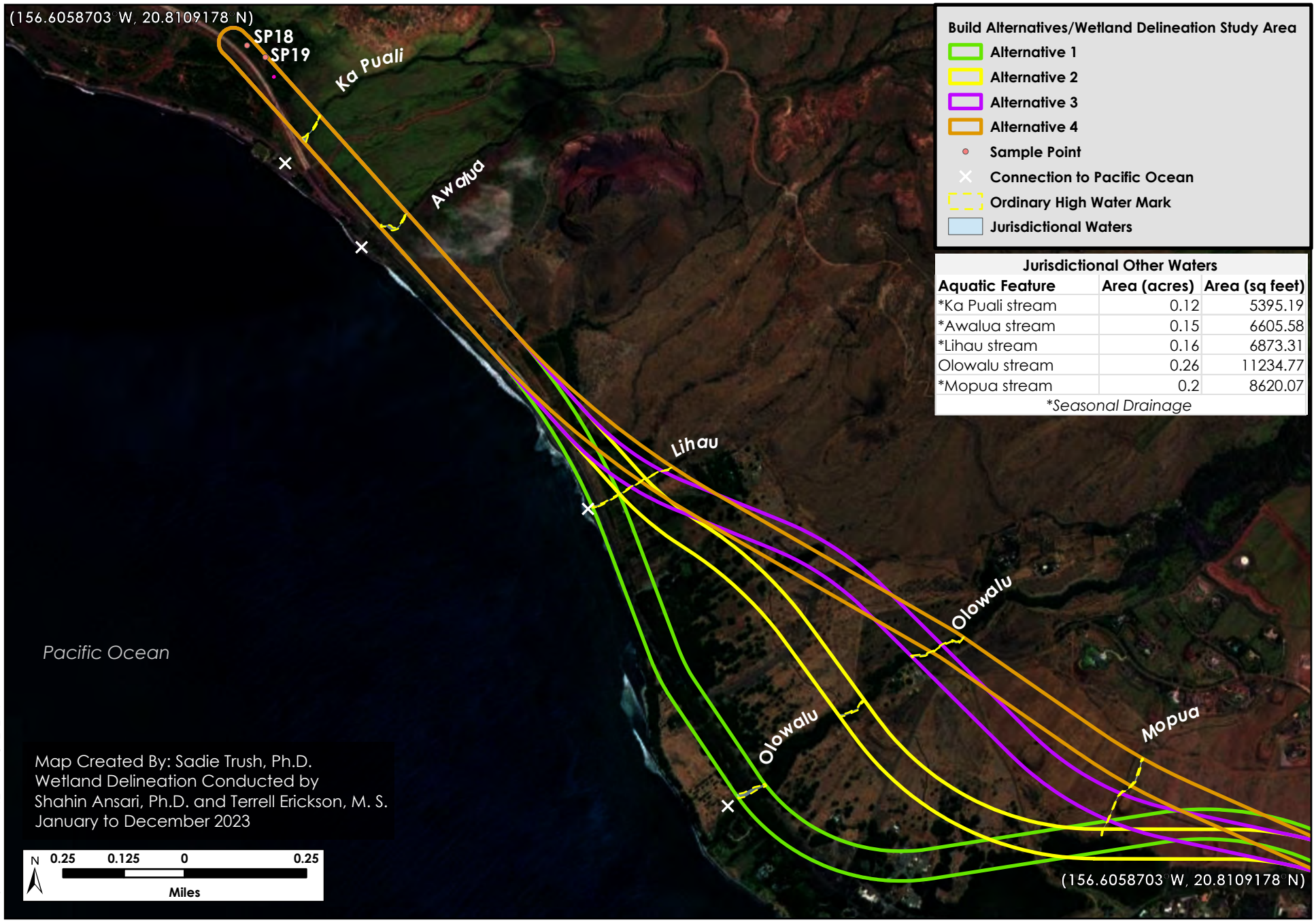
Figure 8. Preliminary Identification of Jurisdictional Other Waters in the Ukumehame Portion of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



Jurisdictional Other Waters

Aquatic Feature	Area (acres)	Area (sq feet)
*Ka Puali stream	0.12	5395.19
*Awalua stream	0.15	6605.58
*Lihau stream	0.16	6873.31
Olowalu stream	0.26	11234.77
*Mopua stream	0.2	8620.07

**Seasonal Drainage*

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Figure 9. Preliminary Identification of Jurisdictional Other Waters in the Olowalu and Launiupoko Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

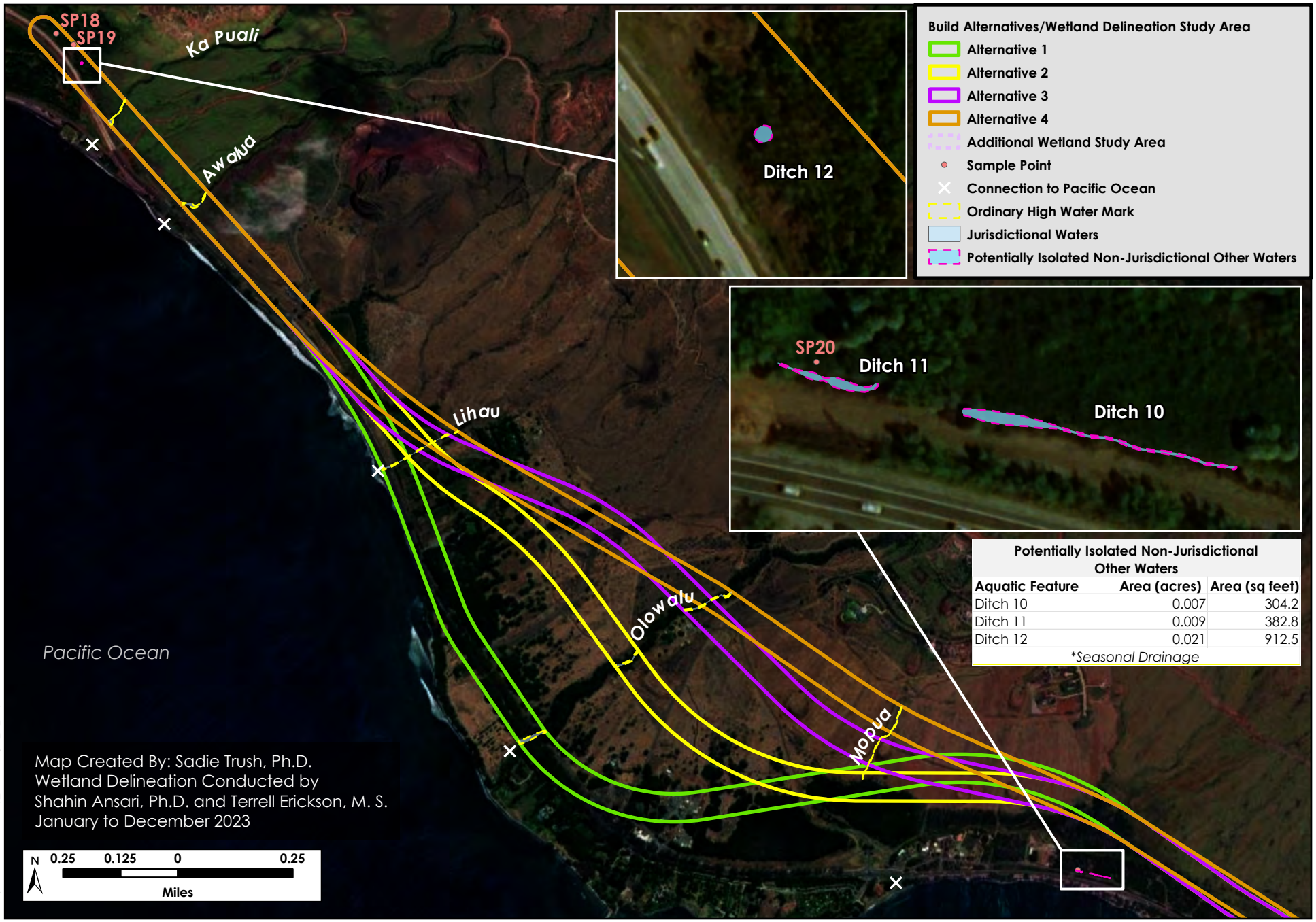

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Figure 10. Preliminary Identification of Jurisdictional and Potentially Isolated Non-Jurisdictional Other Waters in the Olowalu and Launiupoko Areas of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

The agencies' definition of "waters of the United States" does not affect the longstanding activity-based permitting exemptions provided to the agricultural community by the CWA. Additionally, the final rule codifies eight exclusions from the definition of "waters of the United States" in the regulatory text to provide clarity, consistency, and certainty to a broad range of stakeholders. The exclusions are:

- Prior converted cropland, adopting the U.S. Department of Agriculture's definition and generally excluding wetlands that were converted to cropland prior to December 23, 1985.
- Waste treatment systems, including treatment ponds or lagoons that are designed to meet the requirements of the CWA.
- Ditches (including roadside ditches), excavated wholly in and draining only dry land, and that do not carry a relatively permanent flow of water.
- Artificially irrigated areas that would revert to dry land if the irrigation ceased.
- Artificial lakes or ponds, created by excavating or diking dry land that are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing.
- Artificial reflecting pools or swimming pools, and other small ornamental bodies of water created by excavating or diking dry land.
- Waterfilled depressions, created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction operation is abandoned and the resulting body of water meets the definition of "waters of the United States."
- Swales and erosional features (e.g., gullies, small washes), that are characterized by low volume, infrequent, or short duration flow.

2.1.2 Identification of Section 404 Jurisdictional Wetlands (Special Aquatic Sites)

Where wetland field characteristics were present, the biologists examined vegetation, soils, and hydrology using the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987) and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Hawaii and Pacific Region Supplement (USACE 2012).

2.1.2.1 Hydrophytic Vegetation

Plants that can grow in soils that are saturated or inundated for long periods of time, which contain little or no oxygen when wetted, are considered adapted to those soils and are called hydrophytic. There are different levels of adaptation, as summarized in Table 2. Some plants can only grow in soils saturated with water (and depleted of oxygen), some are mostly found in this condition, and some are found equally in wet soils and in dry soils. Plants observed at each of the sample sites were identified to species, where possible, using the *Manual of Flowering Plants of Hawaii Revised Edition* (Wagner et al. 1999) and the *Hawaiian Vascular Plants Checklist February 2019 Update* (Imada 2019). The wetland indicator status of each species was obtained from the Hawaii and

Pacific Islands Regional Wetland Plant List (Lichvar et al. 2020). Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67 to 99% in wetlands is designated a facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the frequencies of occurrence of species within wetlands, provided as a percentage, are shown in Table 2.

Table 2. Wetland Indicator Status Categories for Vascular Plants

Indicator Category	Symbol	Frequency (%) of Occurrence in Wetlands[1]
Obligate	OBL	>99 (Almost always is a hydrophyte, rarely in uplands)
Facultative wetland	FACW	67 – 99 (Usually a hydrophyte but occasionally found in uplands)
Facultative	FAC	34 – 66 (Commonly occurs as either a hydrophyte or non-hydrophyte)
Facultative upland	FACU	1 – 33 (Occasionally is a hydrophyte, but usually occurs in uplands)
Upland	UPL	<1% (Rarely is a hydrophyte, almost always in uplands)
Not Listed	NI	Considered to be an upland species

[1] Based on information contained in the Corps Manual (Environmental Laboratory 1987). Plant species that are not listed in the Hawaii and Pacific Islands Regional Wetland Plant List (Lichvar et al. 2020) are considered Upland species in Appendix A – Plants Observed in the Project Area.

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicators when found growing in hydric soils that experience periodic saturation. Plant species that are not on the regional list of wetland indicator species are considered upland species. A complete list of the vascular plants observed within the study area, including their current indicator statuses, has been provided in Appendix A.

2.1.2.2 Hydric Soils

Given that the Project Area contained soils with low to high levels of lead contamination, only visual/color indicators for hydric soils were examined with limited assessment of soil texture. The National Technical Committee for Hydric Soils defines a hydric soil as one formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of soil (NRCS 2018). Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. In general, evidence of a hydric soil includes characteristics such as reducing soil conditions, soils with bright mottles and/or low matrix chroma, and soils listed as hydric by the U.S. Department of Agriculture on the National Hydric Soils List (NRCS 2023b). Reducing soil conditions can also include circumstances where there is evidence of frequent ponding for long or very long duration. A long duration is defined as a period of inundation for a single event that ranges from 7 days to a month, and very long is greater than one month (Environmental Laboratory 1987).

Munsell Soil Notations (Munsell 2021) were recorded for the soil matrix of each soil sample. The Munsell color system is based on three color dimensions: hue, value, and chroma. A brief description of each component of the system is described below, in the order they are used in describing soil color (i.e., hue/value/chroma):

1. **Hue—**The Munsell Soil Color Chart is divided into five principal hues: yellow (Y), green (G), purple (P), blue (B), and red (R), along with intermediate hues such as yellow-red (YR) and green-yellow (GY). Examples of commonly encountered hue numbers include 2.5YR, 10YR, and 5Y.
2. **Value—**Refers to lightness, ranging from white to grey to black. Common numerical values for value in the Munsell Soil Color Chart range from 2 for saturated soils to 8 for faded or light colors. Hydric soils often show low-value colors when soils have accumulated sufficient organic material to indicate development under wetland conditions but can show high-value colors when iron depletion has occurred, removing color value from the soil matrix. Value numbers are commonly reported as 8/, 2.5/, and 6/.
3. **Chroma—**Describes the purity of the color, from "true" or "pure" colors to "pastel" or "washed out" colors. Chromas commonly range from 1 to 8, but can be higher for gleys. Soil matrix chroma values that are 1 or less, or 2 or less when mottling is present, are typical of soils that have developed under anaerobic conditions. Chroma numbers are listed, for example, as /1, /5, and /8.

The NRCS Web Soil Survey (NRCS 2023a) was consulted to determine which soil types have been mapped in the study area (Table 1, Figure 4). Detailed descriptions of these soil types are provided in Appendix B.

2.1.2.3 Hydrology

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology indicators provide evidence that the site has a continuing wetland hydrologic regime. Primary indicators might include visual observation of surface water (A1), high water table (A2), water marks (B1), and hydrogen sulfide odor (C1). Secondary indicators might include a passing score for the FAC-neutral test (D5), stunted or stressed plants (D1) and saturation visible on aerial imagery (C9). Each of the sample points was examined for positive field indicators (primary and secondary) of wetland hydrology, following the guidance provided in the Regional Supplement.

Appendix C contains the wetland delineation datasheets used to document the three-parameter approach described above as well as the associated photos.

2.1.3 Identification of Other Waters

Surveys were also conducted within the Project Area for "other waters", which includes lakes, streams, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal waters, the USACE Section 404 jurisdiction extends to the OHWM which is defined

in 33 CFR Part 328.3 as "*the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.*" "Other waters" extend to the OHWM on opposing channel banks in non-tidal drainage channels. In tidal waters, Section 404 jurisdiction extends to the landward extent of wetland vegetation of the high tide line (HTL). This can either be identified in the field from direct observations of the HTL via highest extent of wrack, or highest extent of shelving along undeveloped soil banks. Outside of direct observation HTL can be estimated using tidal gauge and elevation data. In tidal waters, Section 10 waters include open water, mud flats, and adjacent special aquatic sites up to the limit of the mean high water (MHW) line in areas currently exposed to fully tidal or muted-tidal action.

In concert with USACE's efforts to revise the wetland delineation manuals and make them more specific to different geographic regions of the United States, as described above, efforts have been initiated by USACE to develop an OHWM delineation manual. In particular, two relatively recent publications have attempted to further refine the definition of OHWM:

- Regulatory Guidance Letter No. 05-05 (USACE 2005) deals specifically with the topic of OHWM identification, and lists the following physical characteristics that should be considered when making an OHWM determination: (1) natural line impressed on the bank; (2) shelving; (3) changes in the character of the soil; (4) destruction of terrestrial vegetation; (5) wracking; (6) vegetation matted down, bent, or absent; (7) sediment sorting; (8) leaf litter disturbed or washed away; (9) scour; (10) deposition; (11) multiple observed flow events; (12) bed and banks; (13) water staining; and (14) and change in plant community.
- National OHWM Field Delineation Manual for Rivers and Streams: Interim Version (David et al. 2022), provides consistent science-based method for delineating OHWM in streams. This manual provides guidance to observe, evaluate, and select appropriate field indicators to identify the OHWM elevation that can be applied to any type of stream system. It also introduces a (new) two-page data sheet to record these observations.

For all the aquatic features-streams, tributaries, and ditches, we investigated the stream bed and banks and the surrounding area and gathered various geomorphic, vegetation, sediment, and ancillary indicators from both banks per USACE (2005) guidance and the interim National OHWM Manual (David et al. 2022) to delineate jurisdictional waters. To better characterize the streams and help with delineating the OHWM level, we established four OHWM transects perpendicular to the stream bed at representative different locations along the stretch of the channel in the Project Area. Appendix D contains the OHWM data forms for transects including representative pictures taken at these transects. We placed flags at the OHWM indicators on the left and right banks of each transect. GPS data was collected in the field using a Trimble GeoXT™ GPS unit capable of submeter accuracy. We also took a set of photographs (left bank and right bank; viewing downstream) of the observed OHWM indicators on each transect (Appendix D). After the survey, the GPS data was processed using ARC GIS to map the extent of Section 404 other waters.

Section 3.0 Survey Results and Discussion

As illustrated in Figure 6, fifteen habitat or vegetation types were identified within the study area. Twenty sample points (SPs) and 25 OHWM transects were examined to identify potentially jurisdictional features (Figures 7, 8, 9, and 10) (Appendices C and D). About 4.6 acres of jurisdictional wetlands, 16.7 acres of potentially isolated non-jurisdictional wetlands, 4.5 acres of jurisdictional other waters, and 0.04 acres of potentially isolated non-jurisdictional other waters were identified in the study area (Tables 3 and 4). The results of the delineation are described below.

Table 3. Summary of Jurisdictional Wetlands and Other Waters, and Potentially Isolated Non-Jurisdictional Wetlands and Waters Delineated Within the Honoapiilani Project's Wetland Delineation Study Area

Habitat Type	Area (acres)	Notes
Total Jurisdictional Wetlands	***4.593***	
Wetland 1	*4.131*	*Surface connection to the Pacific Ocean via Ditch 7 and the Hanaula Gulch culvert under the existing highway*
Wetland 3	*0.228*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Wetland 4	*0.234*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Total Potentially Isolated Non-Jurisdictional Wetlands	***16.672***	
Wetland 2	*0.442*	*No surface connection to the ocean*
Wetland 5	*0.910*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*
Wetland 6	*0.949*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*
Wetland 7	*0.811*	*No surface connection to ocean*
Wetland 8	*4.792*	*No surface connection to ocean*
Wetland 9	*0.153*	*No surface connection to ocean*
Wetland 10	*8.575*	*No surface connection to ocean*
Wetland 11	*0.040*	*No surface connection to ocean*
Total Jurisdictional Other Waters	***4.537***	
Manawaipueo Gulch	*0.140*	*Connection to Pacific Ocean via culvert under the existing highway*

Habitat Type	Area (acres)	Notes
Papalaua Gulch	*1.670*	*Connection to Pacific Ocean via culvert under the existing highway*
Hanaula Gulch	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 1	*0.041*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 2	*0.040*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 3	*0.037*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 4	*0.049*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 5	*0.018*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 6	*0.186*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 7	*0.226*	*Connection to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 8	*0.380*	*Vicinity of Pohaku Aeko Street. Connection to Pacific Ocean via culvert under the existing highway*
Ukumehame Stream	*0.330*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 9	*0.370*	*Vicinity of Ehehene Street. Connection to Pacific Ocean via culvert under the existing highway*
Mopua Stream	*0.200*	*Connection to Pacific Ocean via culvert under the existing highway*
Olowalu Stream	*0.260*	*Connection to Pacific Ocean via culvert under the existing highway*
Lihau Stream	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Awalua Stream	*0.150*	*Connection to Pacific Ocean via culvert under the existing highway*
Ka Puali Stream	*0.120*	*Connection to Pacific Ocean via culvert under the existing highway*
Total Potentially Isolated Non-Jurisdictional Other Waters	**0.037**	
Ditch 10	*0.007*	*No surface connection to another ditch or stream or ocean.*
Ditch 11	*0.009*	*No surface connection to another ditch or stream or ocean.*
Ditch 12	*0.021*	*No surface connection to another ditch or stream or ocean.*
Total Potential Waters of the U.S.	**9.130**	

Habitat Type	Area (acres)	Notes
Total Potentially Isolated Non-Jurisdictional Waters of the U.S.	**16.709**	
Total Non-Jurisdictional Upland Areas	**876.161**	
Wetland Delineation Study Area Total	**902.000**	

Table 4. Summary of Jurisdictional Wetlands and Waters, and Potentially Isolated Non-Jurisdictional Wetlands and Waters Delineated Within Each of the Four Build Alternatives in the Honoapiilani Project's Wetland Delineation Study Area

Habitat Type	Area (acres)
Jurisdictional Wetlands	
Build Alternative 1	*0.228*
Build Alternative 2	*4.365*
Build Alternative 3	*4.365*
Build Alternative 4	*0*
Potentially Isolated Non-Jurisdictional Wetlands	
Build Alternative 1	*5.855*
Build Alternative 2	*9.965*
Build Alternative 3	*9.965*
Build Alternative 4	*0.851*
Jurisdictional Other Waters	
Build Alternative 1	*1.337*
Build Alternative 2	*2.255*
Build Alternative 3	*2.280*
Build Alternative 4	*1.777*
Potentially Isolated Non-Jurisdictional Other Waters	
Build Alternative 1	*0.007*
Build Alternative 2	*1.049*
Build Alternative 3	*1.049*
Build Alternative 4	*0.050*

Information assembled during this investigation and pertinent to the identification of jurisdictional Section 404 waters is further discussed below and presented in the five appendices of this report.

- Appendix A—Plants Observed in the study area

- Appendix B—Custom Soil Report for the study area
- Appendix C—USACE wetland delineation data forms with photo documentation
- Appendix D— USACE OHWM delineation data forms with photo documentation

The sections below describe the site conditions observed during this delineation survey, along with pertinent background information, assumptions, and rationale.

3.1 Assumption and Background Information

The preliminary delineation assumes that relatively normal circumstances prevailed at the time of this study from January to September 2023, and results are based upon the conditions present at the time of the survey. The survey was performed using the "Routine Method of Determination" using three parameters, as outlined in the Regional Supplement for wetlands and the method described to identify OHWM level for streams in the National Manual. The study overlapped the winter rainy season as well as the hot summer months and therefore allowed for observations during both the wet and dry season. Rainfall data from the rain gauge at the National Weather Service (NWS) Location ID: Maalaea Bay [P36] which is about three miles to the south of the study area indicates in 2022 this area experienced drier than normal conditions. In 2022, the year-to-date (YTD) rainfall (5.52 inches) was 42% of the average (13.22 inches) for this annual duration (NWS 2023). However, during the study period from January to August 2023 this area received near average rainfall with the YTD rainfall for the duration of the study from January to September 2023, being 8.46 inches; about 110% of the average (7.99 inches) for this period (NWS 2023). The stream flows in general had ordinary low flow conditions at the time of the survey. Specific observed flow condition for each water feature is included in the OHWM datasheets included in Appendix D and discussed below in Section 3.4 Identification of Other Waters. The study area did not experience any recent extreme flood or drought events.

3.2 Site Conditions and Observations

The study area is a stretch of about six miles from the Lahaina Bypass in the north to the Pali, near the Lahaina Pali Trailhead in the south. The main access to the locations within the study area is from the existing Honoapiilani Highway. The southern one-third portion of the study area, from the Pali to Pohaku Aeko Street in Ukumehame, is largely undeveloped land other than for some infrastructure associated with the County of Maui firing range and the State Department of Defense's Ukumehame Firing Range. Several different types of vegetation or habitat types occur here: Kiawe Woodland, Kiawe-Opiuma Woodland, Kiawe-Pluchea Woodland, Kiawe-Pluchea Woodland with Pickleweed, Haole Koa Shrubland, Haole Koa-Pluchea Shrubland. and Buffel Grass Dominated Grassland (Figure 6). The dominant canopy species in the woodland habitat types were kiawe (*Prosopis pallida*) and opiuma (*Pithecellobium dulce*); while *Pluchea* species and haole koa (*Leucaena leucocephala*) were the most dominant shrubs. The ground cover was mostly composed of a mix of several alien grasses and herbaceous weeds although the native ilima (*Sida fallax*) and uhaloa (*Waltheria indica*) were also common in this southern portion of the study area. Most of the study area here is next to the Pacific Ocean, separated only by the existing Highway, and it receives considerable salt spray. Four streams/gulches --

Manawaipueo, Papalaua, Hanaula, and Makiwa -- drain the watershed here and form a coastal flood plain in the western most portion of the study area against the existing Honoapiilani Highway. A sedimentation basin built by HDOT in 1972 is situated in Ukumehame just south of the firing ranges. This was built specially to funnel the sediment-heavy waters from the streams in Papalaua Gulch before they enter the Pacific Ocean.

In the central portion of the study area, from Pohaku Aeko Street in Ukumehame to the southern end of the Olowalu peninsula, the Build Alternatives overlap for the most part and run parallel to the existing Honoapiilani Highway. This stretch of the study area is also undeveloped land and is composed of two main habitat or vegetation types: Kiawe-Opiuma Woodland and Buffel Grass Dominated Grassland (Figure 6). Kiawe and opiuma were the dominant tree species with buffel grass (*Cenchrus ciliaris*) dominating the grassland habitats. Although there is no major development here, this stretch of the study area was highly disturbed with several homeless encampments and the area being used as a dumpsite for scrap cars. In addition, there is ongoing construction of new residential lots near the eastern portion of the study area. Ukumehame is a major perennial stream that intersects this portion of the study area. There are also several tributaries of Kailiili Stream that appear to intersect the study area here (NWI 2023), but no indicators of these aquatic features were found during the investigations of this study (Figures 2 and 8, Table 3, Section 3.5 Areas Not Meeting the Regulatory Definition of WoUS).

The northern one third of the study area runs from the Olowalu Peninsula in the south to the Lahaina Bypass at the north end (Figure 2). This stretch overlaps some small-scale businesses and residences in the Olowalu Village Center, farmland, Olowalu cultural areas, and the Olowalu Residential Recycling and Refuse Center. Compared to the northern and southern portions of the study area, the Build Alternatives in this central Olowalu Peninsula for the most part are more inland from the Pacific Ocean. In the northern part of the study area here toward the Lahaina Bypass, the Build Alternatives overlap again and pass through undeveloped areas near the Pacific Ocean. The vegetation in the western portion of the Olowalu peninsula is composed of mostly large monkey pod (*Samanea saman*) as avenue trees along the existing highway, kiawe, and opiuma, while the inner/eastern portion is dominated by a monotonous expanse of Buffel Grass Dominated Grassland (Figure 6). Cultivated farmlands with vegetable crops and ornamental species were seen cultivated here mostly in the vicinity of Olowalu Village Center. Vegetation toward the Lahaina Bypass end is composed of either Mix Shrubland or Buffel-Grass Dominated Grassland over undeveloped lands. Olowalu is the main perennial stream that bisects the Olowalu peninsula. Four additional streams/gulches -- Mopua, Lihau, Awalua, and Ka Puali -- also intersect this northern one-third portion of the study area (Figure 9).

The study spanned both the wet (January to March) and dry seasons (April to September) and therefore surveys considered the overall and annual hydrology in the study area. In addition, before starting the delineation investigations, we visited the study area on December 20 and 21, 2022 after the area received heavy rainfall, to better understand the hydrology in the study area and document surface flow in some nonperennial streams that intersect the study area. During these visits, vast areas in the vicinity of Ukumehame and the Maui County Firing ranges ponded water. Nonperennial streams in the study area were flowing and carried "brown water" with heavy sediment loads. The banks of the many streams and tributaries were heavily vegetated as well.

Detailed findings of the delineation study are discussed below in Sections 3.3 Identification of Potential Section 404 Wetlands and Section 3.4 Identification of Section 404 waters. Appendices C and D contain the wetland and OHWM datasheets and the associated photographic documentation.

3.3 Identification of Potential Section 404 Wetlands

Areas that were wetlands were dominated by hydrophytes, possessed hydric soil characters, and demonstrated evidence of wetland hydrology. All wetlands are situated in a floodplain that experience seasonal flooding during the winter/rainy season. Out of the eleven wetland areas (Figure 7, W1 to W11) mapped in the study area, Wetlands 1, 3, and 4 have a direct surface connection to the Pacific Ocean via the Hanaula Gulch culvert and are identified here as jurisdictional wetlands. Wetland 2, and Wetlands 5 to 11 do not have an obvious surface connection to the ocean and are identified here as potentially isolated non-jurisdictional wetlands.Approximately 4.6 acres of potential USACE jurisdictional wetlands and 16.7 acres of potentially isolated non-jurisdictional wetlands were identified within the study area (Figure 7 and Table 3). These wetlands were only found in this southern portion of the study area in the Ukumehame region. The largest area of wetlands are in the overlapping Build Alternatives 2 and 3, followed by Build Alternative 1, and the most inland Build Alternative 4 had no wetlands. In general, the wetland areas are situated around the Ukumehame and County Firing Ranges and the interconnected ditch system associated with the Hanaula Gulch (Figure 7). Details of the vegetation, soil, and hydrology characteristics that define the mapped wetlands are discussed below.

3.3.1 Vegetation

Pickleweed (*Batis maritima*) (OBL) was the dominant obligate plant species found in the mapped wetlands in the study area. Sample points SP2, SP4, and SP12 are representative of these wetland habitat types where the ground cover is mostly dominated by pickleweed (Appendix C). The canopy species in these wetland habitats were FACU kiawe trees that for the most part appeared to be under stress based on having no leaves and were either dead or dying. These pickleweed-dominated wetlands were largely associated with the Hanaula Gulch and associated ditches (also see Section 3.3.3. Hydrology) that are remnant from the sugarcane plantation time on Maui and still received water from streams in the west Maui mountains. This vegetation/habitat "signature"—semi-open, dominated with pickleweed in the understory, with stressed almost dead of dying kiawe trees -- was used to delineate the wetlands in the northern half of Build Alternatives 1 and 2 overlapping the Ukumehame Firing Range and areas around the ditches to the north of the Ukumehame Firing Range. A shift from this wetland "signature" to one with a mix of *Pluchea* spp. (FAC) and buffel grass (FACU) with live (not stressed) kiawe and haole koa trees, for the most part, marked the boundary between wetland and upland habitats. It should be noted that large areas to the north of the ditches (represented by SP1) contained stands of dead haole koa trees with mostly *Pluchea* spp. in the understory. This area did not meet the three parameter wetland criteria (Appendix A. Photos 1-2). In fact, pockets of dead haole koa (UPL) trees were also found in other upland areas, but the cause of these localized dead stands was not obvious in the field.

Many areas with very little vegetation also met the three parameter wetland criteria. These areas usually had a prominent salt crust and/or showed evidence of recent ponding with prominent soil cracks, and the soil surface showing red or black deposits/coloration. The few scattering of plants in such areas were mostly prostrate herbs of saltbush (*Atriplex semibaccata*) (FAC) and scattering of grasses such as finger grass (*Chloris* spp.) (FACU). Vegetation at SP3 (Appendix C, Photos 8-10), SP6, (Appendix C, Photos 17-18), and SP7 (Appendix C, Photos 19-20) are representative of such wetland habitats, mostly in Ukumehame Firing Range and areas between here and the access road to the Maui County Firing range.

The third vegetation community that met the three parameter wetland criteria was generally dominated by a mix of facultative *Pluchea* spp. and saltbush, along with FACU species of finger grass. There was also a mix scattered live and dead kiawe trees (FACU) that formed an open canopy. These areas were generally also showed prominent signs of hydrology such as salt crust and soil surface cracks. SP11 (Appendix C, Photos 29-32), SP14 (Appendix C, Photos 34-38), and the areas around the upland "island" (represented by SP 15) contained this wetland habitat type (Figure 7).

Kiawe (FACU), opiuma (FAC), haole koa (UPL), and buffel grass (FACU) were some of the most abundant species in the vast majority of the uplands in the study area. Some upland habitats were also dominated by facultative *Pluchea* spp. (e.g., SP1 and SP8) but did not have either the hydrology or the hydric soil conditions to meet the criteria of a three-parameter wetland.

3.3.2 Soils

Hydric soil indicators observed in several soil pits include distinct redoximorphic concentrations throughout most of the soil profile which had a dark surface layer with soil colors commonly in the range of 5YR3/2 and 7.5YR 2.5/3. The redox concentrations were soft masses with distinct to prominent contrast with the soil surface and colors in the range of 2.5YR4/6 and 5YR4/6 and concentrations ranging from 2 to 20 percent. This corresponds to the F6 – *Redox dark surface,* hydric soil indicator. Dark soil surfaces in some sample pits also tested positive for the effervesce test with 3% hydrogen peroxide (e.g., SP6). The soil types identified in the sampled pits were silty clay, silty loam, and silty clay loams. The soils in the delineated wetlands are mapped as Kealia Silty Loam, 0 to 1 percent slopes and are listed on the National Hydric Soils List as hydric soils (NRCS 2023b). Kealia Silty Loams are common in tidal flat and salt marshes on Maui, are prone to frequent ponding, and are strongly saline.

3.3.3 Hydrology

As described above in Section 3.2, in December 2022, extensive flooding was observed at various locations in the southern portion of the study area overlapping Ukumehame region, particularly overlapping the Build Alternatives 1 and 2. In general, surface water from streams in West Maui mountains is the primary source of hydrology supporting the wetlands in the study area (also see Section 3.4 Identification of Section 404 Other Waters). The surface water that enters the coastal plain, backs up against natural features such as the beach berm or developed infrastructure such as roads creating flooded conditions for varied periods of times during

the wet rainy season and following heavy rains. The wetland is also heavily influenced by salt water from the neighboring Pacific Ocean.

Several primary and secondary hydrology indicators were observed during the study period. As expected, sampling locations in January, at the peak of the wet season, showed more evidence of the primary indicator of surface water and saturation than locations that were sampled between March and September 2023, nonetheless, Drainage Patterns (B10) were obvious during these latter drier months. Water Marks (B1), Saturation (A3), Algal Mat or Crust (B4), and Oxidized Rhizospheres on Living Roots (C3) were the primary hydrology indicators observed at the sampled locations in the study area. Surface Water Cracks (B6) was the most prominent secondary hydrology indicator as the system had recently drained and/or dried after ponding. Salt Deposits (C5) was also a common secondary hydrology indicator. Deposition of salt from saline ocean spray as well as through the capillary action of saline ground water had resulted in salt deposits across large unvegetated areas. Sparsely Vegetated Concave Surface (B6) and stunted or stressed plants (D1) were other secondary hydrology indicators at the sampled locations. Lack of hydrology indicator was the main parameter distinguishing wetland from upland areas.

3.3.4 Rationale for Sample Point Choice

Twenty sample points were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Figure 7). Rationale and findings for wetland sample point (Appendix C: SP 1-20) locations are summarized in Table 5. Location of sample points are depicted in Figures 7 and 8. Photos associated with sample points have the same rationale and depiction as sample points and are included in Table 5.

Table 5. Summary of Sample Point (SP) Locations and Results

Name	Sampling Rationale	Hydrophytic Vegetation	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP1 (Photos 1-2)	Placed to investigate the prevalence of facultative *Pluchea* spp.	No	No	No	This area does meet the three parameter wetland criteria.
SP2 (Photos 4 -5)	Placed to investigate area dominated by obligate pickleweed species.	Yes	Yes	Yes	This area (Wetland 1) meets three parameter wetland criteria.
SP3 (Photo 8-9)	Placed to investigate area with salt crust and with very little vegetation. Lack of vegetation appears to be due to seasonal ponding.	-	Yes	Yes	This area (Wetland 1) is a two-parameter wetland.
SP4 (Photos 11-12)	Placed to investigate if wetland conditions continue in (fenced in) Ukumehame firing range adjacent to wetland but south of the ditch.	Yes	Yes	Yes	This area (Wetland 6) meets three parameter wetland criteria.

Name	Sampling Rationale	Hydrophytic Vegetation	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP5 (Photos 13-14)	Placed to investigate a large swath of elevated area in the northeastern part of Ukumehame Firing Range with predominantly buffel grass in understory.	No	No	No	This area does not meet the three parameter wetland criteria.
SP6 (Photos 17-18)	Placed to investigate large, sparsely vegetated area with moist platy soils and surface soil cracks.	Yes	Yes	Yes	This area (Wetland 5 meets the three parameter wetland criteria.
SP7 (Photos 19-20)	Placed to investigate large sparsely vegetated area with platy moist soil with dark black and bright red deposits/coloration on surface.	Yes	Yes	Yes	This area (Wetland 11) meets the three parameter wetland criteria.
SP8 (Photos 21-22)	Placed on slightly higher ground adjacent to wetland to investigate thicket of facultative *Pluchea* species under kiawe canopy.	No	No	No	This area does not meet the three parameter wetland criteria.
SP9 (Photos 24-25)	Placed to investigate the unvegetated firebreak dirt road that runs between upland and wetland area.	No	No	No	This area does not meet the three parameter wetland criteria.
SP10 (Photos 26-27)	Placed to investigate the built-up (~ 6 feet) berm (#1 from east) artificially created in the Ukumehame Firing Range. Soils hydric from historic conditions before being placed as a berm.	No	Yes	No	This area does not meet the three parameter wetland criteria.
Sp11 (Photos 29-30)	Placed to investigate the low-lying areas between the built-up berms 1 and 2 at the that had predominantly saltbush in understory and surrounded by unvegetated areas with surface crack soils and salt crust.	Yes	Yes	Yes	This area (Wetland 7) meets three parameter wetland criteria.
SP12	Placed in pickleweed thicket `between firing range berm and the County firing range parking lot.	Yes	Yes	Yes	This area (Wetland 7) meets three parameter wetland criteria.
SP13 (Photo 33)	Placed on edge between County parking lot to the east and wetland to the west to investigate the edge of wetland. Soil disturbance from construction might have led to artificial piling of hydric soils here.	No	Yes	No	This area does not meet the three-parameter wetland criteria.

Name	Sampling Rationale	Hydrophytic Vegetation	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP14 (Photo 34-35)	Placed to investigate typical representative habitat seen in the general area south of Ukumehame Firing Range: Areas with salt crust on soil and patches of FACU kiawe trees with predominantly facultative *Pluchea* sp. and saltbush in the understory.	Yes	Yes	Yes	This area (Wetland 10) meets three parameter wetland criteria.
SP15 (Photos 39-40)	Placed to investigate a large "island" area within the wetland that appeared to be slightly (~ on feet) higher with thickets of buffel grass in understory and did not show signs of being flooded.	No	No	No	This area did not meet the three parameter wetland criteria.
SP16 (Photo 43)	Placed to investigate the HDOT artificially created sedimentation basin	No	No	Yes	This area does not meet the three parameter wetland criteria.
SP17 (Photo 44)	Placed to investigate a patch of pickleweed east of the spillway bordering eastern side of the sedimentation basin	No	No	No	This area does not meet the three parameter wetland criteria.
SP18 (Photos 45-46)	Placed to investigate NWI feature of PEM1C	No	No	No	This area does not meet the three parameter wetland criteria.
SP19 (Photos 47-48)	Placed to investigate the eastern edge of the NWI feature	No	No	No	This area does not meet the three parameter wetland criteria.
SP20 (Photos 49-50)	Placed to investigate area next to an isolated ditch.	No	No	No	This area does not meet the three parameter wetland criteria.

3.3.5 Photo Points for Section 404 Wetland

Photo point labels and rationales for photo documentation outside of the sample point locations (Table 5) are presented in Table 6. Photos are depicted on figures 7 and 8 and included in Appendix C.

Table 6. Coordinates and Rationale for Photo Points (PP)

Label (As on Figure 7, 8 and 9)	Depiction
PP3	Between SP1 and the existing highway. View to south. Taken to document observed upland conditions like SP1 area.

Label (As on Figure 7, 8 and 9)	Depiction
PP6	Between SP2 and SP3 to show area that was included wetland due to habitat conditions similar to that at SP2
PP7	Shows transition between wetland habitats dominated with pickleweed and dead kiawe and upland habitats with live kiawe and no pickleweed.
PP10	Area south of SP3 to show habitat included as wetlands based on observed similarity with habitat conditions observe at SP3
PP15	View to east toward an area identified as upland based on habitat type, slope, and hydrology conditions observed at SP5.
PP16	Area northeast of SP5 excluded as upland based on similarities in habitat type, slope, and hydrology with SP5.
PP23	The eastern portion of Ukumehame Firing Range on slightly higher ground and identified as upland based on being dominated with upland haole koa species.
PP28	View to south, photo of second berm (from east) excluded as upland based on similarities in habitat type, slope, and hydrology conditions observed at the investigated SP10 location.
PP31	View to west at the low-lying area between berms 2 and 3. Included as wetland based on similarities in habitat type, slope, and hydrology observed at SP11.
PP32	View to west at the low-lying area west of berm 3. Included as wetland due to similarities in habitat type, slope, and hydrology observed at SP11.
PP36	Representative wetland habitat to west of the upland area identified by SP15. View to South.
PP37	Representative wetland habitat to north of the upland area identified by SP15. View to North.
PP38	Representative wetland habitat to east of the upland area identified by SP15. View to East.
PP41	The area northeast of road leading to County firing range and dominated with obligate pickleweed. Included as wetland habitat based on similarities in habitat type with SP12.
PP42	The area northwest of road leading to County firing range and dominated with obligate pickleweed. Included as wetland habitat based on similarities in habitat type with SP12.

3.4 Identification of Section 404 Other Waters

Approximately 5.54 acres of potential other WoUS were identified in the wetland delineation study area. Appendix D contains the OHWM datasheets that describe site conditions at the time of delineation, observed OHWM indicators, rationale for placement of the data gathering transects, and associated photos for the aquatic features mapped during this study. Described below are additional background and relevant details for these mapped and potentially jurisdictional waters.

3.4.1 Manawaipueo Stream

Manawaipueo Stream is a seasonal drainage. On December 20, 2022, and on January 3, January 2023, there was standing water in the gulch overlapping the study area (Appendix D, Figures 51; DLNR 2022). Later, on March

21, construction crew were seen using excavators to clear the culvert. This made it evident that the standing water in the gulch over December and January was due to the water being backed up against the blocked and sedimented-in culvert. Also, for this reason, no OHWM indicators were seen at the lowermost 10 to 15 feet of the stream where sediment excavation was in progress. Other than for this disturbance, clear indicators were seen to map the OHWM level of the stream. There is an old (historic?) and broken concrete bridge at the upper (eastern) part of the gulch (Appendix D, Figure 52). At the time of survey, on March 21, 2023, the soil was saturated, mucky, and slippery with small puddles of water limited to the rocky stream bed in the upper/eastern end. Sediment staining on rocks and concrete at the OHWM level together with shelving of debris above the OHWM here were used to map the OHWM elevation here (Appendix D, Figures 51-54). In the lower stretch of the stream the presence of mud cracks were also used to identify the OHWM level.

3.4.2 Papalaua Gulch

The HDOT's sedimentation basin is situated at the base of the Papalaua Gulch. It was constructed in 1971 to mitigate sediment heavy flows from two unnamed seasonal drainages entering the ocean (Figure 7). These two seasonal drainages provide intermittent and large flows to the sedimentation basin following heavy rains. The first is a narrow (3 to 5 feet wide) nonperennial stream that enters the basin at the southern boundary, turns along the southwestern corner, and flows parallel to the western berm of the basin for about 600 feet; after which the flow fans out into an alluvial flood plain. In the narrow stretch of this stream, before it forms the alluvial fan, heavily sedimented and unvegetated bed to vegetated banks marked the OHWM level here (Appendix D, Photo 55). The second wider stream (10 to 20 feet) enters the sedimentation basin from the southeast, about 800 feet west of the first stream (Figure 7). Transition from unvegetated beds with boulders to vegetated banks with sediment were the clear indicators of OHWM level at this stream (Appendix D, Photo 59). This second stream also fans out into an alluvial plain and the water from both streams is funneled north along a 20 to 60 feet wide unvegetated to partially vegetated flood plain leading into the main central portion of the sediment basin (Appendix D, Photos 55 to 60). There are two large culverts built into the sediment basin that carry the waters from the basin into the Pacific Ocean under the existing Honoapiilani Highway.

3.4.3 Hanaula Gulch and Associated Ditches 1 to 7

Immediately to the north of the Ukumehame Firing Range, there are a series of ditches (Figure 7, Ditches 1 to 7), remnant from when these lands were under sugar plantation, that are interconnected (Figure 7, Appendix D, Photos 61-64). Hanaula Gulch supports the hydrology of this ditch system and the associated wetlands described above in Section 3.3. Hanaula is a seasonal drainage (DLNR 2022) and during the winter rains or following a heavy rain event, this 20-feet wide gulch with high banks, that runs parallel to the northern fence line of the Ukumehame Firing Range (Appendix D, Photo 62) carries water through a culvert under the existing Honoapiilani Road into the Pacific Ocean (Figure 7). At the western end, this ditch is connected to another ditch (D7) via a three-feet plastic culvert and stretches for about 0.25 miles in a north-south direction (perpendicular to the stream flow) (Appendix D, Photo 63). Six additional ditches run parallel to each other and are connected to this long ditch (D7) that runs in the north-south direction. Ditches 1 to 5 were relatively narrow, about six feet across. At the time of the survey there was little to no water in these ditches, but the

beds were saturated. The bed and banks of all the ditches were heavily vegetated with obligate pickleweed. Break in slope, observed above the OHWM level was the main feature to identify these otherwise heavily vegetated ditches. Some ditches that recently conveyed water had a clear line of dead vegetation in the center of the bed, while others had prominent surface soil cracks. Together these were used as OHWM indicators for the ditches. The northern most ditch mapped in this area was the widest, at about 35 feet. Although there was no culvert at this ditch it is connected to the ocean via the 0.25-mile long ditch (running in the north-south direction), which in turn connects to the east-west running Hanaula Gulch (next to the firing range fence) that flows into the Pacific Ocean (Figure 7).

3.4.4 Ditch 8 – Vicinity of Pohaku Aeko Street

One linear ditch, about 700 feet in length was mapped at the intersection of Pohaku Aeko Street and the existing Honoapiilani highway (Figure 7). This feature has concrete culverts and is fenced in on either side of Pohaku Aeko Street (Appendix D, Photos 65-68). The ditch starts at about 50 feet to the south of this Street, and at the time of survey had open standing water in it that appeared to be deep. The concrete edge and the edge of facultative *Pluchea* spp. defined the OHWM level of this feature. The ditch runs under the Street for about 60 feet, daylights, and continues to run northward parallel to the existing Highway for about 680 feet before it abruptly dries and ends. This long stretch of the ditch had water in it that was barely visible because it was so heavily vegetated. The central channel of the ditch was blanketed with obligate pickleweed, and the banks were covered with facultative *Pluchea* shrubs (Appendix D, Photo 67-68). The change in vegetation type was used as the strongest indicator to identify the OHWM level of this aquatic feature. There was no apparent connection of this ditch to the ocean at Pohaku Aeko Street however, the ditch continues underground and daylights at the Ukumehame Stream Bridge. There was evidence of fill in the vicinity of where the ditch abruptly ends.

3.4.5 Ukumehame Stream

Ukumehame is a perennial stream. Ukumehame Stream Bridge on the existing Honoapiilani Highway crosses the stream at the lowermost reach right before it enters the Pacific Ocean. There is also a concrete stream ford at the lower end, east of the bridge. The lower part of the stream overlapping Build Alternatives 1-3 were surveyed on March 23, 2023, and the uppermost reach of the stream in the study area overlapping Build Alternative 4 was surveyed on September 26, 2023. On both the survey dates, ordinary low flow conditions were observed and several OHWM indicators were clearly visible at, below, and above the OHWM elevation. These included sorting of sediment from boulders to fine sediment and exposed roots below the OHWM elevation; wracking of debris above, and scour mark on concrete at the OHWM elevation (Appendix D, Photos 69-73). The average width of the channel between the mapped OHWM levels are 14.25 feet, 20 feet, and 39.75 feet at the upper, middle, and the lower reaches respectively.

3.4.6 Ditch 9-Vicinity of Ehehene Street

There were a few interconnected ditches in the "additional wetland delineation study area" between the existing Honoapiilani Highway and the study area where all the Build Alternative overlap (Figure 8). There is a ditch about 682-foot long that runs parallel to the existing Honoapiilani Highway. It starts about 600 feet north of

Ehehene Street and abruptly terminates about 200 feet south of dirt road leading inland from the Highway (Figure 8). Dense impenetrable thickets of haole koa and *Pluchea* shrubs made it difficult to access and investigate this ditch. The water appeared to be low and stagnant, and patches of floating duckweed (*Lemna* sp.) were seen at multiple locations in the ditch (Appendix D, Photos 74-77). Two other ditches, running in the east-west direction and about 400 feet apart feed into this north-south running ditch. Dense vegetation and deep water in these ditches also made it difficult to access and investigate the banks. These aquatic features, however, were relatively clear on the aerial imagery and combination of imagery and field observations were used to map them. There were also a couple of smaller ditches just east of the southern east-west running ditch that appeared to be isolated in the field but could be connected to the main ditch based on aerial imagery. There is also a large water pump, remnant from the sugar cane plantation time where the northern of the two east-west running ditch meets the north-south running ditch. Opposite this feature, on the other side of the Highway is a culvert and the ditches drain from under the Highway via this culvert into the Pacific Ocean.

3.4.7 Mopua Stream

Mopua is a seasonal drainage (DLNR 2022) that intersects all four Build Alternatives in the southern part of the Olowalu Peninsula. At the time of the OHWM study, the stream was dry and did not appear to have channeled surface flows in the recent past. The stream bed for the most part was very shallow (<1 foot), the bed and banks were dominated with dead buffel grass, and overall, there were very weak OHWM indicators (Appendix D, Figures 78-81). Sediment sorting from boulders to smaller rocks and finer sediment was a key indicator in many places. Undercut bank and matted vegetation in few places also helped identify the OHWM level on this stream (Appendix D, Photos 79-81). These OHWM indicators became weaker, and the stream channel could no longer be identified after a stretch of about 890 feet.

Mopua Stream passes through undeveloped private lots with several stone and gravel foundation pads for building and irrigated areas with ornamental and native outplantings. Even though the stream in the study area was dry there was evidence that it flows underground. At multiple places near the course of the stream there were small water pumps, including a water pressure gauge at the easternmost end of the channel in the study area with water being pumped for irrigation. Furthermore, in its lower most reach (outside of the study area) the stream daylights and flows under existing Highway through a concrete culvert, into a ditch that runs parallel to the Highway, and then flows into the Pacific Ocean.

3.4.8 Olowalu Stream

Olowalu is a perennial stream (DLNR 2022) that bisects the Olowalu Peninsula in the study area through undeveloped lands. There was a recent fire in this area that made identification of the OHWM level challenging due to confounding effects of wind and soil erosion as well as the deposition and shifting of debris caused by fires. The stream had normal low flows at the time of the survey which allowed for identifying several below-OHWM-level indicators such as cut in bank and accumulation of debris in between the exposed roots caused by water (Appendix D, 82-87). The stream had runs, riffles, and pools and sharp bends in the middle portion of the stream reach in the study area. The westernmost stretch below the Olowalu Stream Bridge did not burn

and was densely vegetated. Sediment marks on concrete and debris accumulation under the bridge helped identify the OHWM level here. Olowalu Stream flows to the Pacific Ocean.

3.4.9 Lihau Stream

Lihau is a seasonal drainage (DLNR 2022) that flows through the northern end of the Olowalu Peninsula and overlaps with all four Build Alternatives. There is a farm at the eastern end of the stream that had irrigation lines leading into and out of the stream. Water was observed in the stream during a reconnaissance visit to the site in March 2023. Given the moist stream bed the stream channel was obvious with green/live vegetation which predominantly composed of haole koa and castor bean shrubs. The stream bed and bank were dry when surveyed in September 2023. (Appendix D, Photos 88-91). OHWM indicators were weak and break in slope, washed away and matted down debris, were some of the few indicators used to identify the OHWM level in this stream. Lihau stream has a clear surface connection to the Pacific Ocean; it flows below the existing Honoapiilani Highway through a concrete culvert, before reaching the ocean.

3.4.10 Awalua Stream

Awalua is a seasonal drainage (DLNR 2022) in the Launiupoko Watershed. At the time of the survey in September 2023, the bed and banks were dry. The stream flows through undeveloped buffel grass grassland in a deep (~20 feet) and wide (~40 feet) gulch with heavily eroded banks that made it challenging in places to determine the OHWM elevation (Appendix D, Photos 92-95). There is a spillway that runs in the north-south direction to divert flows into the grassland to the south. The edge of the spillway together with the undercut banks (from stream flow) were used to distinguish between OHWM and erosional features at the lower/western end of the stream. At the upper eastern end of the stream, the transition from vegetated bed to unvegetated bank slopes with undercut banks marked the OHWM level. Awalua flows through a large concrete culvert under the existing Honoapiilani Highway before entering the Pacific Ocean.

3.4.11 Ka Puali Stream

Ka Puali is the northernmost seasonal drainage (DLNR 2022) in the study area which also overlaps all four Build Alternatives. At the time of the survey in March 2023, small puddles of water were seen in the densely vegetated bed and banks of the stream (Appendix D, Photos 96-99). The density of grasses and shrubs made it challenging to determine the OHWM level in the stream. The moist stream bed supported more shrubs and trees than the banks and this change in vegetation together with the break in slope, and imbedded rocks in the lower banks helped determine the OHWM level for this stream (Appendix D. Photos 96-99). Ka Puali Stream flows through a concrete culvert under the existing Honoapiilani Highway before entering the Pacific Ocean.

3.4.12 Ditches 10, 11, and 12

There were three isolated aquatic features that are identified as potentially isolated non-jurisdictional other waters (Figure 10). These include two ditches (D11 and D12) in the "additional wetland delineation study area" toward the northern end where all the Build Alternative overlap between Ukumehame and the Olowalu peninsula (Figure 10). Both ditches had standing water and no hydrophytic vegetation. They did not appear to

have a surface water connection to any other ditch, stream, or culvert. It is possible that they have an underground connection with the mapped Ditch 9 (Figure 8). Both these ditches were next to an inner road that runs parallel to the existing highway and next to a private residential/agricultural parcel. There were no associated wetlands with these features (Figure 9, SP 20). The third isolated aquatic feature identified as was a sunken hole (lava tube?) about 20 feet in diameter and 20 feet deep. Stagnant water was observed at a depth of about 20 feet, however, there was no obvious connection to any water source. This feature was surrounded by thickets of haole koa (UPL) and kiawe (FACU) shrubs and trees with no signs of hydrology and therefore was identified as potentially isolated non-jurisdictional other water.

3.5 Areas Not Meeting the Regulatory Definition of WoUS

The remainder of the study area does not meet the regulatory definition of Section 404 wetlands or other waters. Wetlands were mapped in two out of the observed fifteen vegetation types: Kiawe Pluchea Woodland and Kiawe Pluchea Woodland with Pickleweed. Non-jurisdictional uplands include the remaining thirteen vegetation types observed in the study area. While facultative *Pluchea* species dominated many of the upland habitats; areas mapped as wetlands differed in that they were associated with perennial or nonperennial streams and ditches, had prominent hydrology indicators, were co-dominated by obligate pickleweed and vast areas of salt crusted unvegetated areas occurred in these habitats, and had clear hydric soil indicators as well.

Section 4.0 Conclusion

In conclusion, H. T. Harvey & Associates' delineation of Section 404 WoUS in the Project's study area is based upon our best professional judgement. Federal jurisdiction is solely dependent on the determination and confirmation by USACE. Acceptance may require a site visit by a USACE representative to confirm the delineation data points gathered in the surveyed area. This delineation is not official until HDOT receives a Jurisdictional Determination letter from USACE.

The County of Maui (the County) has a new law, Ordinance 5421, to protect and restore wetlands in the County (County of Maui 2023a). Wetlands that meet any two parameters used to identify Section 404 jurisdictional WoUS, are protected under this ordinance. As such, wetlands and waters delineated in this study are likely to meet the County's Ordinance 5421 criteria. The County is in the process of mapping wetlands on Maui to create a Wetlands Overlay Map (Count of Maui 2023b). Implementation of Ordinance 5421 is expected to start after completion of this Wetlands Overlay Map. H. T. Harvey & Associates recommends that HDOT consult with the County of Maui Planning Department to discuss potential impacts to wetlands that meet the criteria under Ordinance 5421.

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Appendix A. Plants Observed in the Wetland Delineation Study Area

Plant Species Observed in the Honoapiʻilani Highway Improvement Wetland Study Area

Family	Scientific Name	Common Name	Status[1]	Relative Abundance[2]	Wetland Indicator Status[3]
Malvaceae	*Abutilon incanum* (Link) Sweet	Hoary abutilon	Alien	Uncommon	UPL
Malvaceae	*Abutilon grandifolium* (Willd.) Sweet	Hairy abutilon	Native	Rare	UPL
Poaceae	*Cenchrus ciliaris* L.	Buffel grass	Alien	Abundant	FACU
Fabaceae	*Prosopis pallida* (Humb. & Bonpl. Ex Willd.)	Kiawe	Alien	Abundant	FACU
Fabaceae	*Leucaena leucocephala* (Lam.) de Wit	Haole koa	Alien	Abundant	UPL
Malvaceae	*Sida fallax*	ilima	Native	Uncommon	UPL
Santalaceae	*Santalum ellipticum*	Sandalwood	Native	Rare	UPL
Sapindaceae	*Dodonaea viscosa*	aalii	Native	Rare	FACU
Areceaea	*Washingtonia robusta* H. Wendl.	Mexican fan palm	Alien	Uncommon	FAC
Fabaceae	*Pithecellobium dulce*(Roxb.) Benth.	Opiuma	Alien	Abundant	FAC
Asteraceae	*Pluchea indica* (L.) Less.	Indian fleabane	Alien	Abundant	FAC
Asteraceae	*Pluchea x fosbergii* Cooperr. & Galang	Marsh fleabane	Alien	Abundant	[4]FAC
Poaceae	*Megathyrsus maximus*	Guinea grass	Alien	Abundant	FAC
Asteraceae	*Xanthium strumarium*	cocklebur	Alien	Common	FACU
Bataceae	*Batis maritima*	Pickleweed	Alien	Abundant	OBL
Aizoaceae	*Sesuvium portulacastrum*	Akuiluli	Native	Common	FAC
Amaranthaceae	*Chenopodium murale*	Nettleleaf goosefoot	Alien	Uncommon	FACU
Fabaceae	*Chamaecrista nictitans*	Partridge pea	Alien	Uncommon	FACU
Nyctaginaceae	*Boerhavia sp.*	Alena	Alien	Uncommon	FAC
Fabaceae	*Crotalaria pallida*	Smooth rattlepod	Alien	Uncommon	FAC
Poaceae	*Cenchrus echinatus*	Sandbur	Alien	Rare	FACU
Cyeraceae	*Cyperus rotundus*	Purple nutsedge	Alien	Uncommon	FACU
Asteraceae	*Bidens alba*	Florida beggartick	Alien	Uncommon	UPL

Family	Scientific Name	Common Name	Status[1]	Relative Abundance[2]	Wetland Indicator Status[3]
Fabaceae	*Desmanthus pernambucanus*	Slender mimosa	Alien	Uncommon	FACU
Portulacaceae	*Portulaca oleracea*	pigweed	Alien	Rare	FACU
Poaceae	*Eragrostis amabilis*	lovegrass	Alien	Common	FAC
Convolvulaceae	*Ipomoea triloba* L.	Little bell	Alien	Uncommon	FAC
Zygophyllaceae	*Tribulus terrestris* L.	Puncture vine	Alien	Uncommon	UPL
Poaceae	*Cynodon dactylon* (L.) Pers.	Bermuda grass	Alien	Common	FACU
Poaceae	*Digitaria abyssinica* (Hochst. Ex. A.Rich.) Stapf	Finger grass	Alien	Common	UPL
Malvaceae	*Waltheria indica* L.	Uhaloa	Native	Common	FACU
Euphorbiaceae	*Ricinus communis* L.	Castor bean	Alien	Common	FACU
Fabaceae	*Samanea saman* (Jacq.) Merr.	Monkey pod	Alien	Common	UPL
Fabaceae	*Macroptilium atropurpureum* (DC.) Urb.	Vining cow pea	Alien	Common	FAC
Musaceae	*Musa* sp.	Banana	Pol	Uncommon	FACU
Bromeliaceae	*Ananas comosus* L. Merr	Pineapple	Alien	Rare	UPL
Arecaceae	*Cocos nucifera* L.	Coconut	Pol	Uncommon	FACU
Moraceae	*Artocarpus altilis* (Parkinson ex Z) Fozberg	Breadfruit	Pol	Rare	UPL
Nyctaginaceae	*Bougainvillea spectabilis* Willd.	Bougainvillea	Alien	Uncommon	UPL
Anacardiaceae	*Mangifera indica* L.	Mango	Alien	Rare	FACU
Malvaceae	*Abutilon incanum* (Link) Sweet	Hoary abutilon	Alien	Uncommon	UPL
Cucurbitaceae	*Momordica charantia* L.	Bitter melon vine	Alien	Common	FAC
Convolvulaceae	*Merremia tuberosa* (L.) Rendle	Woodrose	Alien	Common	UPL
Euphorbiaceae	*Euphorbia hirta* L.	Hairy spurge	Alien	Uncommon	FACU
Asteraceae	*Tridax procumbens* L.	Coat buttons	Alien	Uncommon	FAC
Amaranthaceae	*Amaranthus viridis* L.	Slender amaranth	Alien	Common	FACU
Heliotropiaceae	*Heliotropium amplexicaule* Vahl	Heliotrope	Alien	Uncommon	UPL

Family	Scientific Name	Common Name	Status[1]	Relative Abundance[2]	Wetland Indicator Status[3]
Fabaceae	*Peltophorum pterocarpum* (DC.) K.Heyne	Copper pod	Alien	Rare	UPL
Malvaceae	*Sida rhombifolia* L.	Cuban jute	Alien	Rare	FACU
Goodeniaceae	*Scaevola taccada* (Gaertn.) Roxb.	Naupaka	Native	Rare	UPL
Lamiaceae	*Leonotis nepetifolia* (L.) R.Br.	Lion's ear	Alien	Uncommon	FACU
Poaceae	*Chloris gayana* Kunth	Rhodes grass	Alien	Abundant	FACU
Cucurbitaceae	*Cucumis dipsaceus* Ehrenb. Ex Spach	Wild cucumber	Alien	Uncommon	UPL
Passifloraceae	*Passiflora foetida* L.	Love in a mist	Alien	Uncommon	FACU
Myrtaceae	*Syzygium cumini* (L.) Skeels	Java plum	Alien	Common	FAC
Asteraceae	*Zinnia peruviana* (L.) L.	Zinnia	Alien	Rare	UPL
Malvaceae	*Thespesia populnea* (L.) Sol. Ex Corrêa	Milo	Native	Rare	FAC

[1] **Status Notes:** alien = introduced or alien (all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact [i.e., Cook's arrival in the islands in 1778]). Native = species that occur naturally in the Hawaiian Islands including indigenous species that have a wider distribution outside of Hawaii.

[2] **Qualitative Relative Abundance of Observed Species in Study Area:** A = abundant forming a major part of the vegetation in the Biological Study Area. C = common—widely scattered throughout the Biological Study Area or locally abundant in a portion of it. U = uncommon scattered sparsely throughout the Biological Study Area or occurring in a few small patches. R = rare—only a few isolated individuals in the Biological Study Area.

[3] **Wetland Indicator Status Source:** USACE 2023. Hawaii and Pacific Islands 2020 Regional Wetland Plant List. Available at: https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/home/home.html

[4] Pluchea x fosbergii, not listed in the Lichvar et al, 2020 plant list is a hybrid of the two facultative *Pluchea inidica* and *Plucheal carolinensis* and is therefore treated here as a facultative species.

Appendix B. Natural Resources Conservation Service Custom Soil Report for the Project Area

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Island of Maui, Hawaii

October 3, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Island of Maui, Hawaii.....14
BS—Beaches.....14
EaA—Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158.....15
JaC—Jaucas sand, 0 to 15 percent slopes, MLRA 163.....16
KMW—Kealia silt loam, frequent ponding, 0 to 1 percent slopes, MLRA 163.....17
PpA—Pulehu silt loam, 0 to 3 percent slopes.....18
PsA—Pulehu clay loam, 0 to 3 percent slopes , MLRA 163.....19
PtA—Pulehu cobbly clay loam, 0 to 3 percent slopes.....20
PtB—Pulehu cobbly clay loam, 3 to 7 percent slopes.....21
rCl—Cinder land.....22
rRK—Rock land.....23
rRO—Rock outcrop.....24
rRS—Rough broken and stony land.....25
rSM—Stony alluvial land.....26
W—Water > 40 acres.....27
WyC—Wainee extremely stony silty clay, 7 to 15 percent slopes, MLRA 158.....27
References.....29

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 21, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BS	Beaches	34.3	1.7%
EaA	Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158	25.9	1.3%
JaC	Jaucas sand, 0 to 15 percent slopes, MLRA 163	23.3	1.1%
KMW	Kealia silt loam, frequent ponding, 0 to 1 percent slopes, MLRA 163	190.7	9.2%
PpA	Pulehu silt loam, 0 to 3 percent slopes	49.8	2.4%
PsA	Pulehu clay loam, 0 to 3 percent slopes , MLRA 163	203.0	9.8%
PtA	Pulehu cobbly clay loam, 0 to 3 percent slopes	294.4	14.2%
PtB	Pulehu cobbly clay loam, 3 to 7 percent slopes	137.3	6.6%
rCl	Cinder land	26.5	1.3%
rRK	Rock land	334.1	16.1%
rRO	Rock outcrop	2.1	0.1%
rRS	Rough broken and stony land	10.0	0.5%
rSM	Stony alluvial land	385.7	18.6%
W	Water > 40 acres	2.4	0.1%
WyC	Wainee extremely stony silty clay, 7 to 15 percent slopes, MLRA 158	226.6	10.9%
Totals for Area of Interest		**2,071.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made

up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Island of Maui, Hawaii

BS—Beaches

Map Unit Setting

National map unit symbol: hq7b
Elevation: 0 to 10 feet
Mean annual precipitation: 10 to 75 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Beaches: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beaches

Setting

Landform: Beaches
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coral, sea shells, basalt and olivine

Typical profile

H1 - 0 to 6 inches: coarse sand
H2 - 6 to 60 inches: coarse sand

Properties and qualities

Slope: 1 to 5 percent
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 72 inches
Frequency of flooding: Frequent
Calcium carbonate, maximum content: 99 percent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: No

EaA—Ewa silty clay loam, 0 to 3 percent slopes, MLRA 158

Map Unit Setting

National map unit symbol: 2yyrq
Elevation: 0 to 240 feet
Mean annual precipitation: 16 to 23 inches
Mean annual air temperature: 79 to 81 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ewa and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ewa

Setting

Landform: Alluvial fans, stream terraces, mountain slopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountainbase, lower third of mountainflank, tread
Down-slope shape: Linear, convex
Across-slope shape: Concave, convex
Parent material: Alluvium derived from basalt

Typical profile

Ap1 - 0 to 13 inches: silty clay loam
Ap2 - 13 to 18 inches: silty clay loam
Bw1 - 18 to 45 inches: silty clay loam
Bw2 - 45 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R158XY002HI - Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

JaC—Jaucas sand, 0 to 15 percent slopes, MLRA 163

Map Unit Setting

National map unit symbol: 2w02z
Elevation: 0 to 1,140 feet
Mean annual precipitation: 13 to 77 inches
Mean annual air temperature: 73 to 77 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Jaucas and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jaucas

Setting

Landform: Beaches
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Sand sized coral and sea shells sandy marine deposits derived from sedimentary rock

Typical profile

AC - 0 to 13 inches: sand
C1 - 13 to 22 inches: sand
C2 - 22 to 60 inches: sand

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 99 percent
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): 7s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

KMW—Kealia silt loam, frequent ponding, 0 to 1 percent slopes, MLRA 163

Map Unit Setting

National map unit symbol: 2w035
Elevation: 0 to 260 feet
Mean annual precipitation: 10 to 41 inches
Mean annual air temperature: 73 to 77 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Kealia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kealia

Setting

Landform: Tidal flats, salt marshes
Landform position (three-dimensional): Talf, dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Parent material: Alluvium over beach sand

Typical profile

Az - 0 to 3 inches: silt loam
Bz1 - 3 to 8 inches: loam
Bz2 - 8 to 19 inches: loam
Bz3 - 19 to 27 inches: loam
Czg - 27 to 35 inches: fine sandy loam
2Czg - 35 to 64 inches: fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 5.95 in/hr)
Depth to water table: About 12 to 42 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Hydric soil rating: Yes

Minor Components

Kealia, deep water table

Percent of map unit: 10 percent
Landform: Tidal flats, salt marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Salt flats

Percent of map unit: 5 percent
Landform: Tidal marshes
Hydric soil rating: Yes

PpA—Pulehu silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hqbh
Elevation: 0 to 300 feet
Mean annual precipitation: 10 to 35 inches
Mean annual air temperature: 73 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pulehu and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pulehu

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium

Typical profile

H1 - 0 to 21 inches: silt loam
H2 - 21 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups
Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R158XY002HI - Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

PsA—Pulehu clay loam, 0 to 3 percent slopes , MLRA 163

Map Unit Setting
National map unit symbol: 2x1vv
Elevation: 0 to 300 feet
Mean annual precipitation: 10 to 50 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Pulehu and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pulehu

Setting
Landform: Flood plains, stream terraces, alluvial fans
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, tread, rise
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, concave
Parent material: Alluvium derived from igneous rock

Typical profile
Ap - 0 to 21 inches: clay loam
2C1 - 21 to 33 inches: loam
3C2 - 33 to 37 inches: loamy sand
4C3 - 37 to 47 inches: fine sandy loam
5C4 - 47 to 60 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R158XY002HI - Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

Minor Components

Mala

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Ewa

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Waialua

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

PtA—Pulehu cobbly clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hqbn
Elevation: 0 to 300 feet
Mean annual precipitation: 10 to 35 inches
Mean annual air temperature: 73 to 75 degrees F
Frost-free period: 365 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pulehu and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pulehu

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium

Typical profile

H1 - 0 to 21 inches: cobbly clay loam
H2 - 21 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R158XY002HI - Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

PtB—Pulehu cobbly clay loam, 3 to 7 percent slopes

Map Unit Setting

National map unit symbol: hqbp
Elevation: 0 to 300 feet
Mean annual precipitation: 10 to 35 inches
Mean annual air temperature: 73 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pulehu and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pulehu

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium

Typical profile

H1 - 0 to 21 inches: cobbly clay loam
H2 - 21 to 60 inches: silty clay loam

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R158XY002HI - Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

rCl—Cinder land

Map Unit Setting

National map unit symbol: hqck
Elevation: 8,000 to 10,000 feet
Mean annual precipitation: 20 to 100 inches
Mean annual air temperature: 43 to 73 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Cinder land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cinder Land

Setting

Landform: Cinder cones
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Convex

Typical profile
H1 - 0 to 60 inches: paragravel

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

rRK—Rock land

Map Unit Setting
National map unit symbol: hqcq
Elevation: 0 to 6,000 feet
Mean annual precipitation: 15 to 60 inches
Mean annual air temperature: 57 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Rock land and similar soils: 55 percent
Rock outcrop: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Land

Setting
Landform: Pahoehoe lava flows
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope, riser, rise
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Basalt

Typical profile
H1 - 0 to 4 inches: silty clay loam
H2 - 4 to 8 inches: silty clay
H3 - 8 to 20 inches: bedrock

Properties and qualities
Slope: 0 to 70 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: bedrock

Properties and qualities

Slope: 10 to 70 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

rRO—Rock outcrop

Map Unit Setting

National map unit symbol: hqcr
Elevation: 0 to 10,000 feet
Mean annual precipitation: 10 to 175 inches
Mean annual air temperature: 45 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: bedrock

Properties and qualities

Slope: 5 to 99 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

Hydric soil rating: No

rRS—Rough broken and stony land

Map Unit Setting

National map unit symbol: hqct
Elevation: 0 to 4,000 feet
Mean annual precipitation: 20 to 200 inches
Mean annual air temperature: 61 to 73 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Rough broken and stony land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rough Broken And Stony Land

Setting

Landform: Gulches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium & colluvium

Typical profile

H1 - 0 to 8 inches: very stony silty clay
H2 - 8 to 18 inches: silty clay
H3 - 18 to 60 inches: bedrock

Properties and qualities

Slope: 40 to 70 percent
Depth to restrictive feature: 12 to 55 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: No

rSM—Stony alluvial land

Map Unit Setting

National map unit symbol: hqcw
Elevation: 0 to 1,000 feet
Mean annual precipitation: 10 to 50 inches
Mean annual air temperature: 72 to 75 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Stony alluvial land and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stony Alluvial Land

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Rise
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium

Typical profile

H1 - 0 to 10 inches: extremely stony clay loam
H2 - 10 to 60 inches: bouldery silty clay loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Hydric soil rating: No

W—Water > 40 acres

Map Unit Composition

Water > 40 acres: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WyC—Wainee extremely stony silty clay, 7 to 15 percent slopes, MLRA 158

Map Unit Setting

National map unit symbol: 2xn17
Elevation: 60 to 610 feet
Mean annual precipitation: 15 to 24 inches
Mean annual air temperature: 61 to 77 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Wainee, extremely stony, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wainee, Extremely Stony

Setting

Landform: Mountain slopes, alluvial fans
Landform position (two-dimensional): Footslope, shoulder
Landform position (three-dimensional): Mountainbase, side slope, rise
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium derived from volcanic rock

Typical profile

Ap - 0 to 12 inches: extremely stony silty clay
Bw1 - 12 to 26 inches: very stony silty clay
Bw2 - 26 to 36 inches: extremely stony silty clay
CBk - 36 to 60 inches: extremely stony silty clay

Properties and qualities

Slope: 7 to 15 percent
Surface area covered with cobbles, stones or boulders: 8.5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: R158XY004HI - Rocky Isohyperthermic Torric Naturalized Grassland
Hydric soil rating: No

Minor Components

Wahikuli, very stony

Percent of map unit: 10 percent
Landform: Mountain slopes, alluvial fans
Landform position (two-dimensional): Footslope, shoulder
Landform position (three-dimensional): Mountainbase, side slope, rise
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

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Appendix C. Wetland Determination Data Form – Hawaii and Pacific Islands Region and Photo Documentation

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 3/23/23 Time: 10:55 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP1

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): None

Lat: 156.582423°W Long: 20.797866°N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam, frequent ponding NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Leucaena leucocephala	50	Y	UPL
2. Prosopis pallida	5	N	UPL
3.			
4.			
5.			
	55	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea indica	70	Y	FAC
2.			
3.			
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Cenchrus ciliaris	25	Y	UPL
2. Atriplex semibaccata	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Coarse litter
2-12	5YR 3/3						Silty Loam	Some white sand, ~20%
12-15	5yr 2.5/2						Loam	No grittiness

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sand, rubble, cobbles on surface probably from previous disturbance.

Photo 1. At SP1 Facing South; Area Dominated with *Pluchea* spp. (FAC) and Buffel Grass (FACU)

Photo 2. At SP1 Facing West; Representative of Uplands in this Area

Photo 3. Area West of SP1 between Existing Highway and SP1; Representative of Upland Conditions Observed at SP1 with Mix of *Pluchea* spp. (FAC) and Buffel Grass (FACU) and Showing no Signs of Hydrology

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 3.24.23 Time: 11:17

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: _____ Sampling Point: SP2

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): _____

Lat: 156.578085°W Long: 20.798105°N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silty Loam NWI classification: Area includes "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes Y No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No _____ Hydric Soil Present? Yes X No _____ Wetland Hydrology Present? Yes X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 sq feet)			
1. Pluchea indica	5%	Y	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 15 sq feet)			
1. Batis maritima	90%	T	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** _____

Remarks:

SOIL

Sampling Point: SP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 3/4						Silty Clay	Mn mottles (Prominent)
7-16	2.5YR 6/2	98	7.5YR 4/6	2	C	Matrix/Interior	Sandy Clay Loam	Organic staining line. Jaucus sands?

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches):

Water Table Present? Yes ____ No ____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 4. At SP2 Facing East; Area Dominated by Obligate Pickleweed (*Batis maritima*) Species

Photo 5. Soil Pit at SP2 with Obligate Pickleweed (*Batis maritima*) Species

Photo 6. Representative Area between SP2 and SP3 Included in Wetland as Similar to SP2 in Observed Vegetation, Slope, and Hydrology Characteristics

Photo 7. Area South of SP3 Showing Transition (White Dash Line) between Wetland—Right Side with Pickleweed (*Batis maritima*) [OBL] and Dead Kiawe (*Prosopis pallida*) (FACU) Trees and Upland—Upper Left Side with Live Kiawe Trees and No Pickleweed in Understory

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 3.24.23 Time: 11:17

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: _____ Sampling Point: SP3

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): _____

Lat: 156.582016°W Long: 20.796921°N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silty Loam NWI classification: Area includes "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes Y No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

No vegetation. Salt crusted bare ground. Because SP3 is surrounded by obligate and salt tolerant Batis maritima species spreading toward SP3, it strongly suggests that this area would be eventually covered with this obligate species.

SOIL

Sampling Point: SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-04								salt crust
0.04-8	5YR 3/2	90	7.5YR 4/6	10	C	Matrix/ Interior	Silty loam	Prominent
8-16	7.5YR 3/2	>95	7.5Yr 5/6	<5	C	Matrix/ Interior	Silty loam	Prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1) Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** ___

Remarks:

Salt crust on bare ground; no vegetation. Bright orange mottles. Oxidized root channels.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches):

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 8. At SP3 - Salt Crusted Bare Ground Devoid of Vegetation

Photo 9. At SP3 - Oxidized Root Channels Observed in Hydric Soils

Photo 10. Representative Area South of SP3 Showing Habitat Conditions Similar to that Observed at SP2 and Therefore Included as Wetland

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 1.5.23 Time: 2:30 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP4

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel:

Landform (hillslope, coastal plain, etc.): Coastal plain Local relief (concave, convex, none): none

Lat: 156.579819°W Long: 20.796367°N Datum: Slope (%):

Soil Map Unit Name: Kealia Silty Loam NWI classification: "Riverine" features border the area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes Y No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	10	Y	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Batis maritima	55	Y	OBL
2. Atriplex semibaccata	10	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 55	x 1 = 55
FACW species 0	x 2 = 0
FAC species 10	x 3 = 30
FACU species 10	x 4 = 40
UPL species	x 5 =
Column Totals: 75 (A)	125 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

- __ 1 - Rapid Test for Hydrophytic Vegetation
- __ 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- __ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes Y No

Remarks:

Triangular area between firebreak dirt road and main access (dirt) road.

SOIL

Sampling Point: SP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	5YR 3/3						Silt loam	Salt crust present
1-16	7.5YR 2.5/2	90	5YR 4/6	10	C	Matrix/ Interior	Silty loam	(Fe mottles) Prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No**

Remarks:

Salt crust on top. Fine roots top 5 inches.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Much evidence of ponding.

Photo 11. At SP4 - Wetland Habitat with Kiawe (*Prosopis pallida*) Overstory and Ground Vegetation Dominated with Obligate Pickleweed (*Batis maritima*)

Photo 12. At SP4 - Saturated Hydric Soil Conditions

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 1/7/23 Time: 2:50 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP5

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): convex area

Lat: 156.577686°W Long: 20.797315°N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam, frequent ponding NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	20	Y	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cenchrus ciliaris	80	Y	FACU
2. Atriplex semibaccata	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	130 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

SOIL

Sampling Point: SP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.4								Litter
0.4-6	5YR 3/4						Clay loam	Roots
6-12	5YR 3/4						Clay loam	Roots
12-16	5YR 3/3						Clay loam	Roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

Roots throughout profile.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This kiawe (Prosopis pallida) stand is slightly on higher elevation and did not show hydrology indicators in spite of being surrounded by areas that appeared to have recently ponded.

Photo 13.At SP5 - Slightly Elevated Area with Upland Habitat Conditions Similar to that at SP5. Live Kiawe (*Prosopis pallida*) with Predominantly Buffel Grass (*Cenchrus ciliaris*) in Understory

Photo 14. Southeast of SP5 - Habitat Conditions Representative of Similar Uplands Observed at SP5

Photo 15. Looking East at Large Kiawe (*Prosopis pallida*) Buffel Grass (*Cenchrus ciliaris*) Area (Red Oval) Excluded as Upland

Photo 16. Close Up of Upland Representative Area in the Northeastern Part of Ukumehame Firing Range and Excluded as Upland

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 3.24.23 Time: 11:17

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: _____ Sampling Point: SP6

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Concave

Lat: 156.577376°W Long: 20.798293°N Datum: _____ Slope (%): 1-2%

Soil Map Unit Name: Kealia Silty Loam NWI classification: Area includes "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea indica	5	Y	FAC
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Atriplex semibaccata	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Open area, mostly bare ground with fluffly cracked surface, appears to be recently ponded.

SOIL

Sampling Point: SP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	5YR 3/3	80	5G 2.5/1	20	C	Exterior	Silty Clay Loam	Prominent, large, platy
2-12	5YR 3/3	78	5YR 4/6 (Fe)	<2	C	Matrix/Interior	Silty loam	Distinct
			5GY 2.5/1	2-20	C	Matrix/ Interior	Silty loam	Prominent
12-16	5YR 3/3	50	5YR 4/6 (Fe)	25	C	Matrix/Interior	Silty loam	Distinct
			5GY 2.5/1	25	C	Matrix/Interior	Silty loam	Prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [X] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Muck Presence (A8)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Dark Surface (S7)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- [ ] Stratified Layers (A5)
- [ ] Sandy Mucky Mineral (S1) Red Parent Material (F21)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes [X] **No** [ ]

Remarks:

Crack, platy soil surface with dark/black patches on soil surface that appears to be dried mucky organic material. Prominent redox features of iron and manganese.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [X] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [X] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Tilapia Nests (B17)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres on Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [X] Surface Soil Cracks (B6)
- [X] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [X] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes [X] No _____ Depth (inches):

Wetland Hydrology Present? Yes [X] **No** [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area recently flooded.

Photo 17. At SP6—View to East; Large Sparsely Vegetated Wetland with Prominent Surface soil Cracks

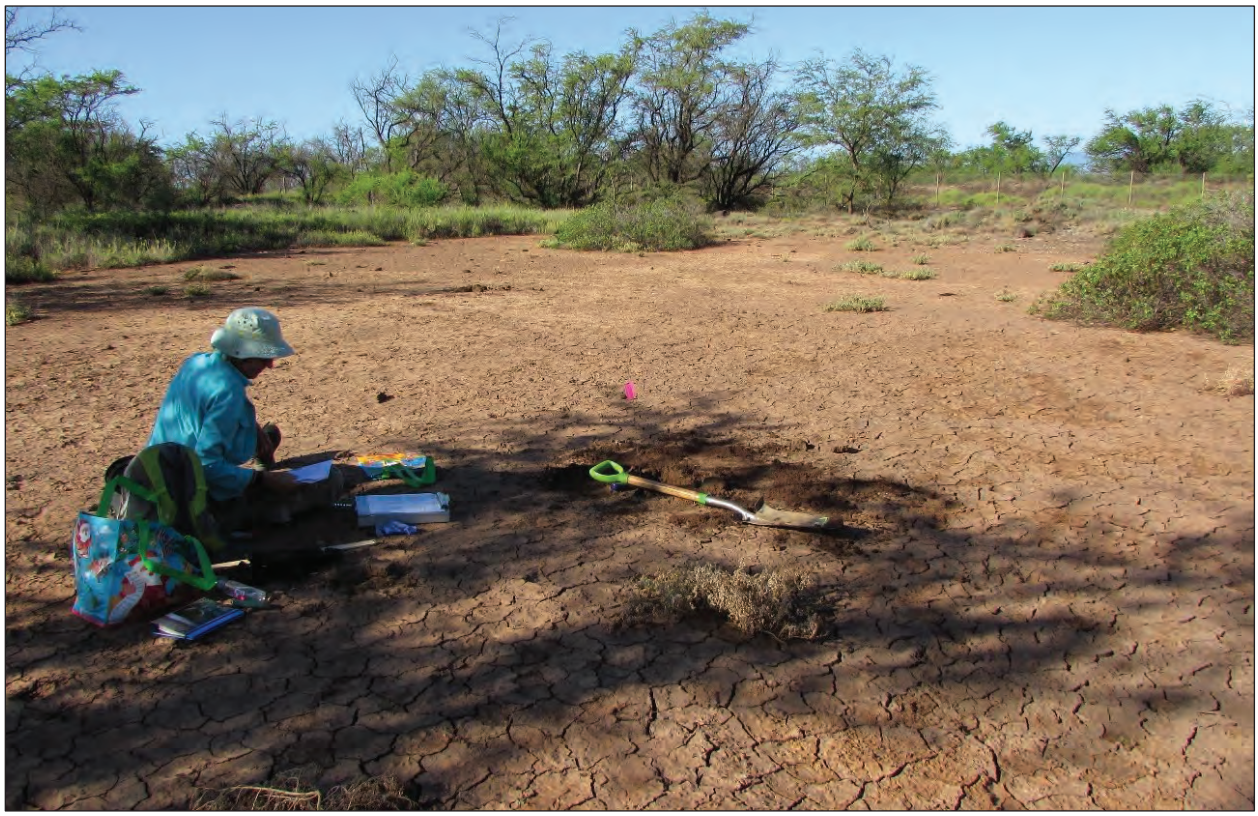

Photo 18. At SP6—View to North. Sparsely Vegetated Wetland Area (Foreground) with Buffel Grass Dominated Upland Area in the Background

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 1.7.23 Time: 1:50 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Sampling Point: SP7

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel:

Landform (hillslope, coastal plain, etc.): Local relief (concave, convex, none): Concave

Lat: 156.577336°W Long: 20.798374°N Datum: Slope (%): 1-2%

Soil Map Unit Name: Kealia Silty Loam NWI classification: Area includes "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20 sq feet)			
1. Pluchea sp.	5	Y	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 20 sq feet)			
1. Atriplex semibaccata	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks:

Open area, mostly bare ground with platy damp red soils with bright red and black coloration on soil surface, appears to be recently ponded.

SOIL

Sampling Point: SP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.02			10YR 3/1	75		Exterior	Silty clay	Dark soil surface (Mn)
			5R 4/4	25		Exterior	Silty clay	Red soil surfave (Fe)
0.02-10	5YR 2.5/2	44	5R 4/6	10		Matrix/Interior	Silty clay	Prominent contrast
			5R 2.5/1	44		Matrix/Interior	Silty clay	Faint contrast
			10YR 3/1	<2		Matrix/Interior	Silty clay	Prominent contrast

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** ___

Remarks:

Crack, platy soil surface stained with dark, black (Mn) and red (Fe) patches on surface. Redox features of iron and manganese in matrix as well.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches):

Wetland Hydrology Present? Yes X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area recently flooded.

Photo 19. At SP7 - Placed in Sparsely Vegetated Area to Investigate Platy Moist Soils that Had Both Bright Red and Black Soil Surface Colors

Photo 20. At SP7 - Soil Showed Redox Features of Iron and Manganese on Surface As Well As Mottles in the Matrix

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 1/5/23 Time: 9:30

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP8

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Convex

Lat: 156.579807W Long: 20.798389N Datum: _____ Slope (%): 2

Soil Map Unit Name: Kealia Silt Loam, frequent ponding NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X Hydric Soil Present? Yes _____ No X Wetland Hydrology Present? Yes _____ No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	75	Y	FACU
2.			
3.			
4.			
5.			
	75 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea indica	80	Y	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Cenchrus ciliaris	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks:

Thicket of P. pallida and P. indica. The thicket is on slightly (~one feet) higher elevation than the surrounded area that appeared to have recently ponded. No signs of ponding in this thicket.

SOIL

Sampling Point: SP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								Organic litter
1-16	7.5YR 2.5/3						Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Live roots in entire soil profile. Some pebbles present.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area is on slightly (~one feet) higher elevation than the surrounded area that appeared to have recently ponded. No signs of ponding in this thicket.

Photo 21. At SP8 - Looking North into Thicket of *Pluchea* spp. with Kiawe (*Prosopis pallida*) As Canopy Species

Photo 22. Area around SP8 - Mapped as Uplands Based on Similar Habitat Conditions Observed at SP8

Photo 23. Upland Areas Identified Toward the Eastern End of Build Alternative 1 in Ukumehame Firing Range Based on Habitat, Slope, and Hydrology Similarities with SP8

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project City: Ukumehame Sampling Date: 1/5/23 Time: 9:30

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP9

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Concave

Lat: 156.57863W Long: 20.79791N Datum: _____ Slope (%): 2

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 3 sq feet)			
1. Pluchea indica	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

This sample point is on the dirt road (fire break) next to thicket of Pluchea indica.

SOIL

Sampling Point: SP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	5YR 2.5/2						Silty loam	
1-16	5YR 2.5/2						Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Salt deposition on crack soil surface.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** X **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This sample point is next to vegetation but on bare dirt road that is a fire break on the firing range.

Photo 24. SP 9 in Ukumehame Firing Range, on Firebreak Dirt Road Separating an Upland Area to the Left and Wetland Area to the Right

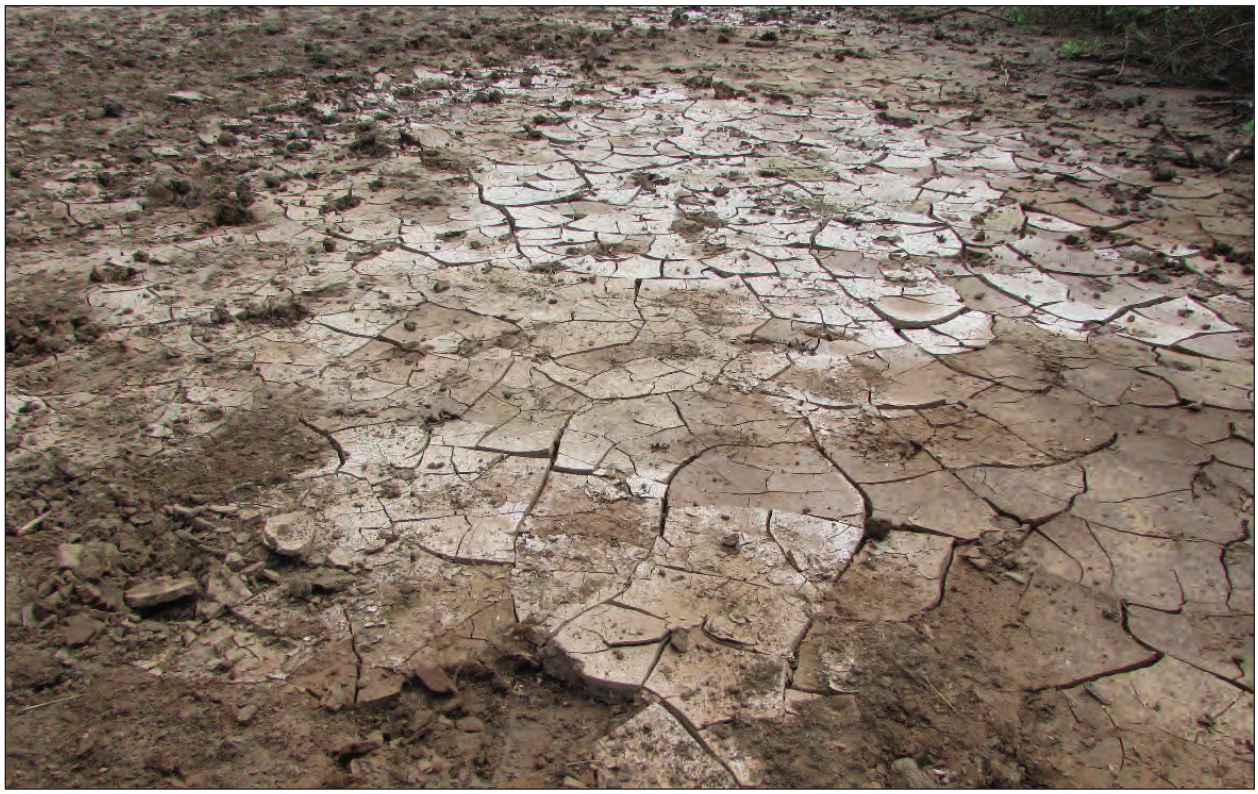

Photo 25. At SP9, Platy and Crack Surface Soils that were Not Hydric and Area Excluded as Wetland as It Did Not Meet the Three Parameter Wetland Criteria

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Ukumehame Firing Range City: Ukumehame Sampling Date: 9/27/23 Time: 11am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP10

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Convex

Lat: 156.57863W Long: 20.79791N Datum: _____ Slope (%): 30

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 200 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	15	Y	FACU
2.			
3.			
4.			
5.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 200 sq feet)			
1. Atriplex semibaccata	60	Y	FAC
2. Cenchrus ciliaris	25	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

This sample point is on the high berm built on the firing range. Read vegetation cover over entire rectangular berm.

SOIL

Sampling Point: SP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR 2.5/4							No litter
6-18	2.5YR 2.5/4	95	2.5YR 4/8	5	C	Matrix/Interior	Silty clay loam	Prominent (Fe)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1) Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No**

Remarks:

No litter. Some bright red Fe concentrations lower in the matrix.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This sample point is on the built up berm in the firing range, approximately 6 feet higher than the surrounding area.

Photo 26. At SP10 - View to South, Artificially Built Up Berm in Ukumehame Firing Range

Photo 27. At SP10 - Close Up of Sample Pit with No Signs of Hydrology and FAC saltbush (*Atriplex semibaccata*) mixed with FACU Buffel Grass (*Cenchrus ciliaris*)

Photo 28. View to South, Photo of Second Berm (From East) that was Excluded as Upland Based on Similarities in Habitat, Slope, and Hydrology Observed at the SP10 Berm Site

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Ukumehame Firing Range City: Ukumehame Sampling Date: 9/27/23 Time: 11:40 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP11

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Concave

Lat: 156.57735W Long: 20.79679 Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	50	Y	FACU
2.			
3.			
4.			
5.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea sp.	25	Y	FAC
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 200 sq feet)			
1. Atriplex semibaccata	50	Y	FAC
2. Chloris radiata	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

This sample point is representative of the area between berms. Area was observed to have been flooded in January 2023.

SOIL

Sampling Point: SP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5								Litter
0.5-18	7.5YR 2.5/1	80	2.5YR 4/8	20	C	Matrix/Interior	Silty loam	Prominent

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Some bright red Fe streaks and spots.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- X Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches):

Water Table Present? Yes ___ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches):

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This sample point is representative of area between the berms. Ponding was observed here in January 2023.

Photo 29. At SP11 - Between Berms 1 and 2; Kiawe (*Prosopis pallida*), with Predominanlty Facultative Saltbush (*Atriplex semibaccata*) in Understory

Photo 30. Around SP11 - View to East. Wetland Habitat with Surface Crack Soils and Salt Crust

Photo 31. View to West from Top of Berm 2 into the Low-Lying Area Between Berms 2 and 3; Area Included as Wetland Based on Similar Habitat, Slope, and Hydrology Observed at SP11 Between Berms 1 and 2

Photo 32. View to West from Top Berm 3 into the Low-Lying Area Between Berms 3 and the Western Fence of Ukumehame Firing Range; Area Included as Wetland Based on Similar Habitat, Slope, and Hydrology Conditions Observed at SP11

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - East of County Firing Range City: Ukumehame Sampling Date: 5/1/23 Time: 10:30 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP12

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): _____

Lat: 156.57761W Long: 20.795880N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 200 sq feet)			
1. Batis maritima	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	5	x 4 =	20
UPL species	_____	x 5 =	_____
Column Totals:	105 (A)		120 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/2						Clay	Many fine roots
6-18	5YR 3/3	80-98	2.5YR 4/6	2-20			Clay	Prominent contrast

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Black concentrations were charcoal and not Mn.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches):

Water Table Present? Yes ____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches):

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

P. pallida trees appeared stunted and and almost dead in this B. maritima dominated patch. Area next to this patch is open parking for County firing range which showed signs of ponding.

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Ukumehame Firing Range City: Ukumehame Sampling Date: 9/26/23 Time: 4:20 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP13

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Convex

Lat: 156.57735W Long: 20.79679 Datum: _____ Slope (%): 2%

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	20	Y	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea sp.	75	Y	FAC
2.			
3.			
4.			
5.			
	75 = Total Cover		
Herb Stratum (Plot size: 200 sq feet)			
1. Atriplex semibaccata	15	Y	FAC
2. Chloris radiata	10	Y	FACU
3. Cenchrus ciliaris	15	Y	UPL
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

This sample point is representative of the push piles between the parking area of the county firing range to the east and what appears to be wetland to the east.

SOIL

Sampling Point: SP13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR 2.5/3						Silty clay	
6-10	2.5YR 2.5/3	75	2.5YR 4/6	25	C	Matrix/Interior	Silty clay	Distinct
10-18	2.5YR 2.5/2	75	2.5YR 4/6	25	C		Silty clay	Distinct

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X **No** ____

Remarks:

Area slightly elevated as on a push pile between parking lot and what appears to be a wetland.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches):

Water Table Present? Yes ____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches):

Wetland Hydrology Present? Yes ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Very faint and shallow surface cracks.

Photo 33. At SP13 – View to East; This Upland Area in the Disturbed Swath Next to the County Firing Range Parking Lot Defined the Edge of the Wetland to the West

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - West of County Firing Range City: Ukumehame Sampling Date: 9/26/23 Time: 4:20 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP14

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel:

Landform (hillslope, coastal plain, etc.): Local relief (concave, convex, none): Concave

Lat: 156.57738W Long: 20.79645N Datum: Slope (%): 2%

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	50	Y	FACU
2.			
3.			
4.			
5.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 sq feet)			
1. Pluchea sp.	80	Y	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 10 sq feet)			
1. Atriplex semibaccata	40	Y	FAC
2. Chloris radiata	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 2.5/3						Silty Clay	many roots
5-14	7.5YR 2.5/3	95	2.5YR 4/6	5	C	Matrix/Interior	Silty Clay	Fe. Prominent contrast
14-16	7.5YR 2.5/3	90	10YR 2/1	5	C	Matrix/Interior	Silty Clay	Mn Distinct contrast
			2.5YR 4/6	5	C	Matrix/Interior		Fe Prominent contrast

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- _ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches):

Water Table Present? Yes ___ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches):

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Oxidized root channels. Moist soil below 10 inches.

Photo 34. At SP14 - Wetland Area with Salt Crust and Dominated with Facultative Species of Pluchea sp. and Saltbush (Atriplex semibaccata) in Understory

Photo 35. Salt Crust on Soil in Unvegetated Area Next to SP14 (Seen Here in the Background)

Photo 36. View to South - Representative Wetland Habitat Mapped to South of the Upland Area (As Identified by SP15)

Photo 37. View to North - Representative Wetland Habitat Mapped to the West of Upland Area (as Identified by SP15)

Photo 38. View to East - Representative Wetland Habitat Mapped to the East of the Upland Area (as Identified by SP15)

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Ukumehame Firing Range City: Ukumehame Sampling Date: 9/26/23 Time: 4:20 pm

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP15

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Convex

Lat: 156.57608W Long: 20.79407N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	60	Y	FACU
2.			
3.			
4.			
5.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 30 sq feet)			
1. Cenchrus ciliaris	100	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Sample point is in a kiawe (P. pallida) thicket that is slightly (~on feet) higher in elevation. Does not appear to have ponded like the surrounding area.

SOIL

Sampling Point: SP15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5								Organic grass litter
0.5-18	7.5YR 3/3							Many grass roots in top 6 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Area slightly elevated about one feet and does not appear to have ponded like the surrounding area.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sample point is in a kiawe (P. pallida) thicket that is slightly (~on feet) higher in elevation. Does not appear to have ponded like the surrounding area.

Photo 39. Border of Wetland (to the Left) and Upland Area to the Right as Identified by SP15

Photo 40. At SP15 - Upland Area Dominated FACU Kiawe (*Prosopis pallida*) and UPL Buffel Grass (*Cenchrus ciliaris*) in the Understory

Photo 41. Area Northeast of the Road Leading to the Maui County Firing Range; Included as Wetland Based on Similarity with Habitat Characteristics to SP2, SP4, and SP12

Photo 42. Area Northwest of Road Leading to the Maui County Firing Range; Included as Wetland as Similar in Habitat Characteristics to SP2, SP4, and SP12

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Sedimentation Basin City: Ukumehame Sampling Date: 5/14/23 Time: 9:40 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP16

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Concave

Lat: 156.57608W Long: 20.79387N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: PUBHh

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 sq feet)			
1. Xanthium strumarium	80	Y	FACU
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 10 sq feet)			
1. Cyanadon dactylon	5	Y	FACU
2. Chloris barbata	5	Y	FACU
3. Cenchrus ciliaris	5	Y	FACU
4.			
5.			
6.			
7.			
8.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Sample pit is in HDOT's sedimentation basin

SOIL

Sampling Point: SP16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5			7.5YR 2/5/1				Silty Clay Loam	Evidence of Mn, top ponded surface
0.5-14	5YR 3/3						Silty clay loam	
14-16	5YR 3/3						Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

Sample point is is in artificially engineered sedimentation basin. Ponds every year in rainy/winter season or during periods of heavy rain. Some evidence of Mn on soil surface as dark

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The sedimentation basin is fed by two streams that enter from the southern border.

Photo 43. The Sedimentation Basin where SP16 was Placed; Looking West

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Sedimentation Basin City: Ukumehame Sampling Date: 5/14/23 Time: 9:40 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP17

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): _____

Lat: 156.57609W Long: 20.79377N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	10	Y	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 sq feet)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10 sq feet)			
1. Batis maritima	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	10	x 4 =	40
UPL species	_____	x 5 =	_____
Column Totals:	110 (A)		140 (B)

Prevalence Index = B/A = 1.27

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Sample pit is next (east) to HDOT's sedimentation basin in a patch dominated by B. maritima.

SOIL

Sampling Point: SP17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 3/3						Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Roots to 10 inches. Bits of sand and rock in ped.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 44. SP17 Next to Road to the East of the Spill Way on the Eastern Side of the Sedimentation Basin

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Lahaina Bypass End City: Launiapoko Sampling Date: 1/4/23 Time: 10:55 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP18

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel:

Landform (hillslope, coastal plain, etc.): Local relief (concave, convex, none): Concave

Lat: 156.63060W Long: 20.83285N Datum: Slope (%): 2%

Soil Map Unit Name: Kealia Silt Loam NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 sq feetsq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15 sq feet)			
1. Cenchrus ciliaris	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

Compacted soils in relatively open ponded area.

SOIL

Sampling Point: SP-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.05								Black algal layer
0.05-12	7.5YR 2.5/3						Silty clay loam	
12-14	7.5YR 2.5/2						Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 45. SP19 Placed in the Low Point of the Area Identified as a National Wetland Inventory Feature (PEM1C) in the Northernmost Part of the Study Area

Photo 46. Lahaina Bypass End of Study Area – The General Vicinity of SP19 that Overlaps the National Wetland Inventory Feature

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Lahaina Bypass End City: Launiapoko Sampling Date: 1/4/23 Time: 10:55 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP19

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel:

Landform (hillslope, coastal plain, etc.): Local relief (concave, convex, none): Concave

Lat: 156.63708W Long: 20.83545N Datum: Slope (%): 2%

Soil Map Unit Name: Kealia Silt Loam NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 sq feetsq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Washingtonia robusta	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. Pluchea sp.	80	Y	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 15 sq feet)			
1. Chloris radiata	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: SP-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5								organic/litter mat
0.5-8	10YR 2/1						Silty clay loam	
8-16	10YR 2/2						Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Some charcoal present.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 47. SP19 Representative of National Wetland Inventory Feature (PEM1C) Seen Here Dominated by Facultative Species of Pluchea spp. and Mexican Fan Palms (*Washingtonia robusta);* Looking East

Photo 48. SP19 Soil Pit that Did Not Show Any Evidence of Hydric Soil Indicators

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - Lahaina Bypass End City: Launiapoko Sampling Date: 9/27/23 Time: 11am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP20

Investigator(s): Shahin Ansari TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): Convex

Lat: 156.60846W Long: 20.80945N Datum: _____ Slope (%): 2%

Soil Map Unit Name: Kealia Silt Loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15 sq feetsq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Pluchea sp.	80	Y	FAC
2.			
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 15 sq feet)			
1. Chloris radiata			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Next to ditch to investigate if wetland.

SOIL

Sampling Point: SP-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5								organic/litter mat
0.5-17	5YR 2.5/2						Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Sandy Mucky Mineral (S1)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Root hairs in full profile.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Photo 49. Placed to Investigate Edge of the Ditch

Photo 50. Dominated by Facultative Pluchea sp. but Did Not Meet Three Parameter Wetland Criteria

Appendix D. USACE Ordinary High Water Mark Delineation Datasheets and Photo Documentation

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Honoapiilani Improvement	Site Name: Manawaipueo Gulch	Date and Time: March 20, 2022
Location (lat/long): 20.79218N, 156.56343W	Investigator(s): Shahin Ansari and Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Manawaipueo gulch is in the Papalaua watershed in west Maui. The stream is ephemeral and known to only flow during high rain events. No recent drought or flood events were recorded around March 20, 2023 when the OHWM delineation was conducted. In January 2023, the gulch was observed to be flowing and holding water after heavy rains. No flows were observed at the time of the survey. This stream feature is located at the start of the Lahaina Pali Trailhead.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There was construction crew excavating sediment from the lowermost end of the stream. The blockage of this culvert had caused the stream to back up and pond in Dec 2022-Jan 2023. The stream bed was saturated and slippery due to the heavy sediment deposits.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [ ] *on the bank:*
  - [x] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [x] **Shelving:** a
  - [x] *shelf at top of bank:* a
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [x] *other berms:* _____
- [x] **Channel bar:** b
  - [ ] *shelving (berms) on bar:*
  - [x] *unvegetated:* b
  - [ ] *vegetation transition (go to veg. indicators)*
  - [x] *sediment transition (go to sed. indicators)* b
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [x] **Mudcracks:** b
- [ ] **Changes in particle-sized distribution:**
  - [x] *transition from* boulder to fine sedi
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [x] *vegetation absent to:* graminoids
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** a
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [x] **Water staining:** x
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani Improvement

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed toward the upstream end just below the remnant broken concrete bridge. Sediment or water staining on the rocks along and matted down vegetation were used to mark the OHWM elevation followed by wracking on debris above the OHWM. The second transect was placed at the lower reach of the stream where indicators such as destruction of vegetation were used to identify the OHWM elevation.

Additional observations or notes

The banks were vegetated with predominantly kiawe (Prosopis pallida) trees and guinea grass (Megathyrsus maximus). The width of the stream channel at the upstream end was about 22 feet wide and about 47.5 feet wide at the downstream end.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
51-54	See attached Photos and description.

Photo 51. Ponded and Backed Up Stream on December 20, 2022 Following Heavy Rains

Photo 52. Remnant of an Old Concrete Bridge at the Upper (Eastern) End of the Stream in the Study Area. [Water and sediment staining used to identify the OHWM level here.]

Photo 53. Location of Transect 1; Sediment/Water Staining on the Rocks at the OHWM and Wracking of Debris Above the OHWM were Used to Mark the OHWM Level Here

Photo 54. Location of Transect 2; Placed Where Indicators Such as Vegetation Destruction were Selected to Mark the OHWM Level

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Honoapiilani Highway	Site Name: Papalaua Gulch	Date and Time: 1/3 and 4/28, 2023
Location (lat/long): (20.79608N, 156.57601W)	Investigator(s): Shahin Ansari and Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] climatic data
- [ ] aerial photos
- [ ] LiDAR
- [x] satellite imagery
- [x] topographic maps
- [ ] geologic maps
- [ ] land use maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Two unnamed streams in the Papalaua Gulch flow into the HDOT sedimentation basin. There were little to no flows in the Unnamed Streams of the Papalaua Gulch. No recent extreme floods or drought were recorded.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Two streams in the Papalua Gulch converge and flow into the sedimentation basin that was constructed in 1971 by HDOT to mitigate sediment heavy flows from reaching the Pacific Ocean.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [ ] *on the bank:*
  - [x] *undercut bank:* a
  - [x] *valley bottom:* x
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [x] **Secondary channels:** x

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:**
  - [x] *transition from* boulder to sediment
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [x] *vegetation absent to:* graminoids
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:** x
- [x] **Exposed roots below intact soil layer:** b

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

The entire system is situated in a flood plain.

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed on the stream that enters from the south. Transition from absence of vegetation in the heavily sedimented bed to dense grasses on the bank was a major indicator of the OHWM level here. Transect 2 was placed on the stream that enters from the east. Break in bank, transition from absence of vegetation to grasses, and sediment sorting from boulders to sediment were clear indicators of the OHWM elevation for this stream. Transect 3 was placed in the alluvial fan leading to the sedimentation basin. Here too, heavily sedimented channel and transition from no vegetation to grasses was the main indicator defining the OHWM elevation.

Additional observations or notes

Buffel grass (Cenchrus ciliaris) dominated the banks of the southern stream. A mix of herbs and forbs dominated the banks of the second stream entering from the east. The floodplain along the berm of the sedimentation basin was dominated by kiawe (Prosopis pallida), thickets of haole koa (Leuceana leucocephala), Pluchea spp., and guinea grass (Megathyrsus maximus).

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
55 to 60	See attached photos and descriptions.

Figure 55. Papalaua Gulch – Location of Transect 1 on Southern Unnamed Stream; Stream Flow Here is in the East West Direction Before it Turns North Along the Raised Berm of the Sedimentation Basin

Figure 56. Papalaua Gulch Southern Unnamed Stream; Stream Flow Here is in the North South Direction Parallel to the Raised Berm of the Sedimentation Basin (Break in Bank was Much Above the OHWM Elevation as Indicated by Sediment Sorting)

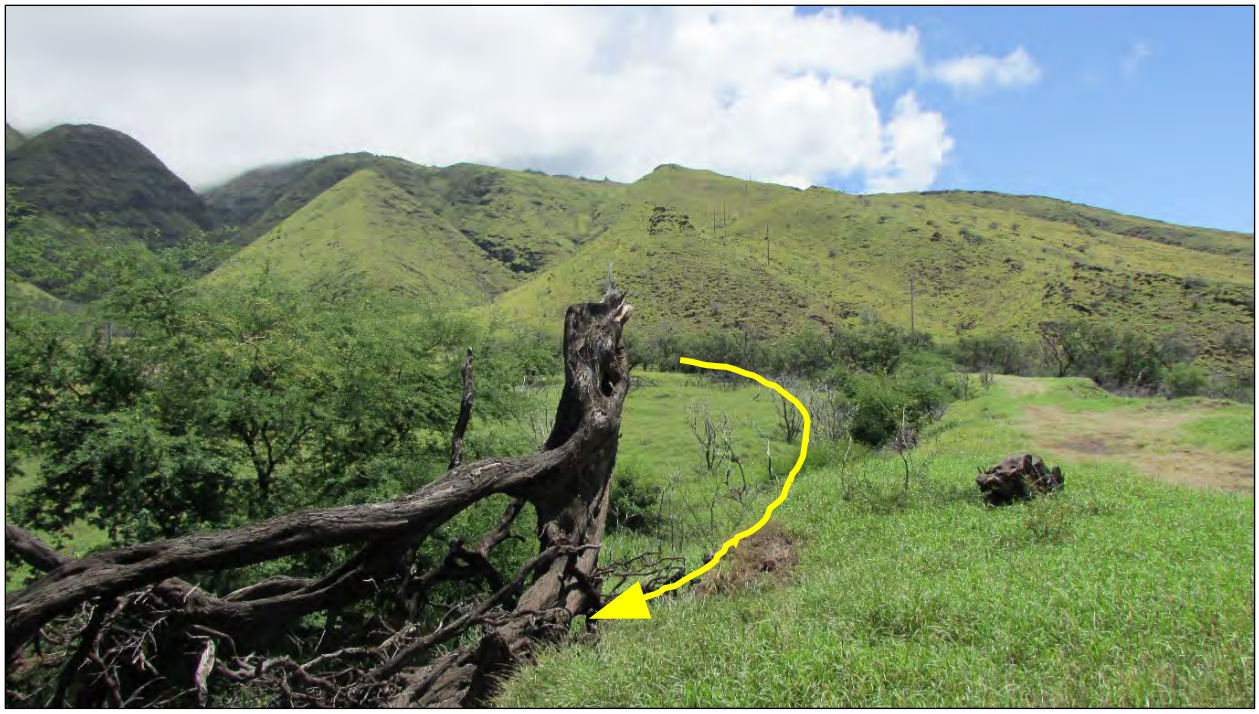

Figure 57. General Direction of Flow of the Papalaua Gulch Unnamed Southern Stream

Figure 58. Alluvial/Sediment Fan Created by the Papalaua Gulch Unnamed Southern Stream

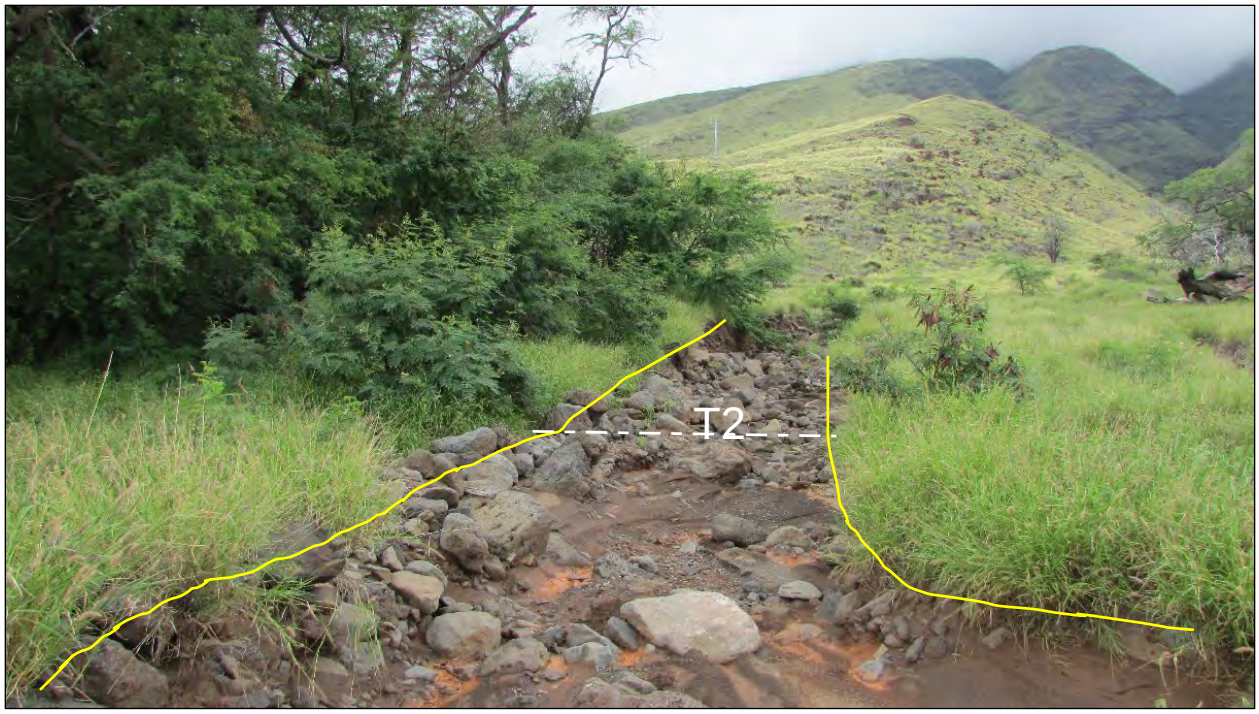

Figure 59. Papalaua Gulch – Location of Transect 2 on Unnamed Stream Entering from the East; Alluvial/Sediment Fan Created by the Papalaua Gulch Unnamed Southern Stream

Figure 60. Papalaua Gulch – Location of Transect 3; Unvegetated Alluvial Fan Leading to the Sediment Basin (Looking south, the Northward Flow Runs Parallel to the Western Berm of the Sedimentation Basin [not seen here])

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

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Project ID #: Honoapiilani Highway	Site Name: Hanaula Gulch & associated ditches	Date and Time: 3/21 to 3/23, 2023
Location (lat/long):	Investigator(s): Shahin Ansari and Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [X] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [X] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
The Hanaula Gulch/Stream is an intermittent stream. It is the main source of water to the ditch system next to the Ukumehame firing range. There was little to no water in the ditches which is expected at this time of the year for an intermittent stream system. There were no recent flood or drought events at the time of the survey.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

The ditches are remnant from the time when the land here was under sugarcane plantation. There is also an old abandoned road that runs parallel tothe

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [X] **Break in slope:** a
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [X] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [ ] **Change in vegetation type and/or density:**

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - [ ] *vegetation absent to:*
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Dense growth of pickleweed in the ditches made it challenging to identify the OHWM level. Some ditches that recently carried water had a clean line of dead vegetation in the center of the bed. In some other ditches where the pickleweed was not very dense, prominent mud cracks were visible. These indicators were use to place the OHWM elevation at the ditches.

Additional observations or notes

All the ditches had a dense cover of obligate pickleweed (*Batis maritima*) species. The southernmost ditch that runs parallel to the Ukumehame Firing Range fencline is connected to the Pacific Ocean via an underground culvert that runs below the existing Honoapiilani Highway.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
61 to 64	See attached photos and description.

Photo 61. Google Earth Imagery - Hanaula Gulch (Blue Arrow) and Associated Ditches. D1 to D7 (While Outline) [Landscape View of Hanaula Stream Flow into the Ditch (Blue Arrow) that Runs Parallel to the Northern Boundary of Ukumehame Firing Range]

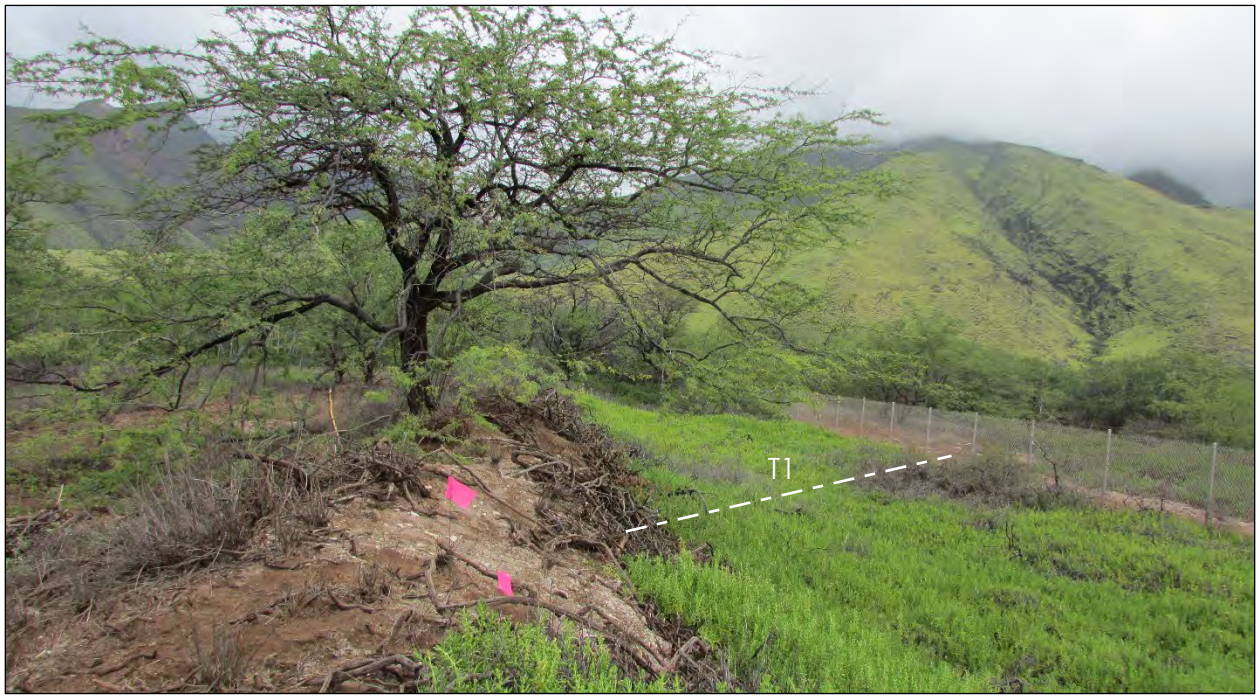

Photo 62. Hanaula Gulch and Ditch Next to Ukumehame Firing Range Fence in the Study Area. Location of Transect 1 to Identify the OHWM Line

Photo 63. Culvert Connecting the North-South Ditch 7 (White Arrow) to the Hanaula Gulch (Blue Arrow)

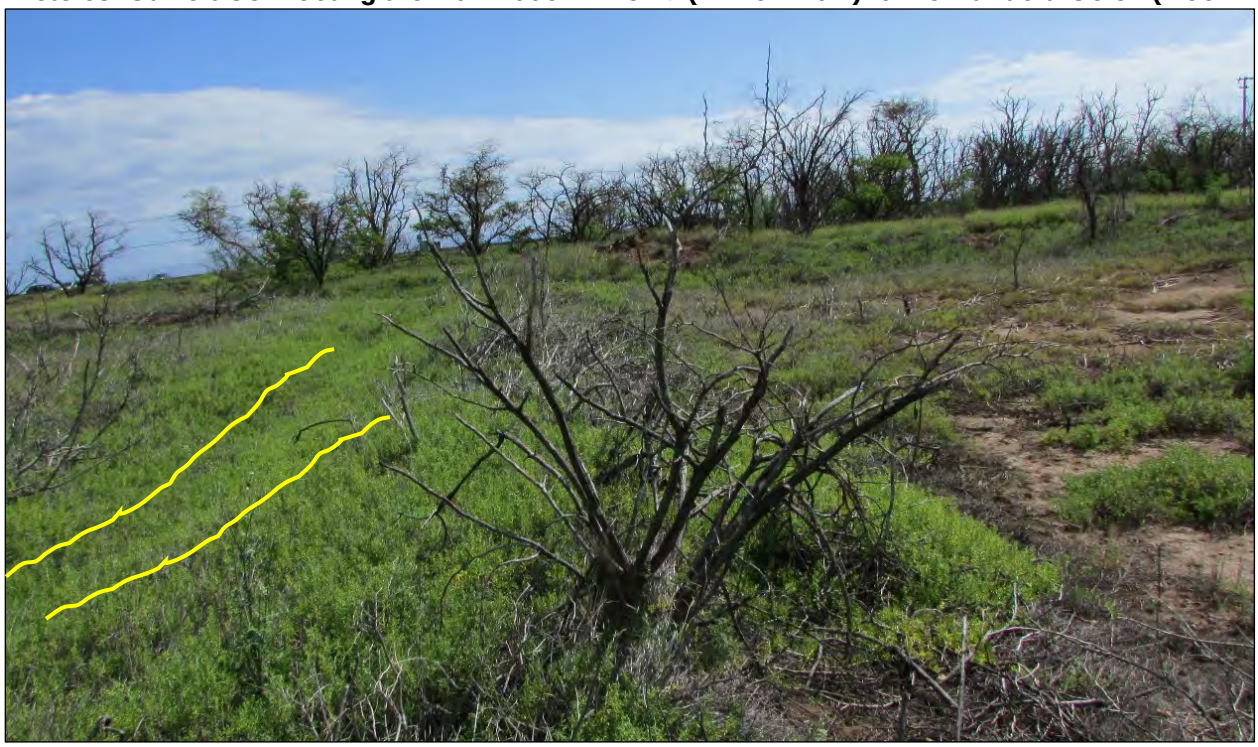

Photo 64. Dense Growth of Pickleweed Made it Challenging to Identify the OHWM Level. [Break in slope was a weak indicator of the OHWM in many places.]

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Project ID #: Honoapiilani Highway	Site Name: Ditch 1 (at Pohaku Aeko Street)	Date and Time: March 22, 2023
Location (lat/long): 20.79815N, 156.78156W	Investigator(s): Shahin Ansari and Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [ ] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?
Ditch 1 is a culverted ditch that runs parallel to the existing Honoapiilani Highway. There was standing water in this feature. No recent extreme drought or flood events were recorded.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

The ditch was heavily vegetated which probably impacted flow.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [ ] **Break in slope:**
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [x] **Channel bar:** x
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [x] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [ ] *vegetation absent to:*
  - [ ] *moss to:*
  - [x] *forbs to:* woody shrubs
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

The bed of the ditch was covered with obligate picklweed and transitioned to thickets of woody Pluchea species on the ditch banks.

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☒ Yes ☐ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed at the culvert to the south of Pohaku Aeko Street. The edge of the culvert and the edge of facultative Pluchea spp. thickets was used to delineated the OHWM at this feature. Transect 2 was placed on the longer stretch of the ditch north of Pohaku Aeko Street. The transition from obligate pickleweed plants that covered the standing water in the ditch to the woody Pluchea spp. on the bank indicated the OHWM elevation at this location.

Additional observations or notes

The heavily vegetated ditch was hard to access. Other than for change in vegetation, and a weak break in bank, very few OHWM indicators were seen here. A combination of aerial imagery and field observations were used to determine the OHWM elevation for this feature.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
65-68	See attached photos and descriptions.

Photo 65. Ditch 8 at Pohaku Aeko Street. [Ditches on Either Side of Pohaku Aeko Street Are Connected Via a Concrete Culvert. Also, the Ditch to the South [Right] of the Road Flows Under the Existing Highway into the Pacific Ocean.]

Photo 66. Fence Lining the Concrete Culvert at Pohaku Aeko Street – View to the South. [Location of Transect 1 Where the Edge of Culvert was Used to Identify the OHWM Elevation at this Aquatic Feature]

Photo 67. Fenced in Culvert and Ditch 8 at Pohaku Aeko Street – View to the North

Photo 68. Location of Transect 2; Placed Where Change in Vegetation from Obligate to Facultative was Used to Mark the OHWM Level

U.S. Army Corps of Engineers (USACE)

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Project ID #: Honoapiilani Highway	Site Name: Ukumehame Stream	Date and Time: 3/23/23 and 9/22/23
Location (lat/long):	Investigator(s): Shahin Ansari, Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [x] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)? Ukumehame is a perennial stream. Stream channel in the study area largely runs through undeveloped lands. There were ordinary low flows in the stream at the time of the survey. No recent extreme flood or drought events have been recorded.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There is a concrete ford, concrete bridge, and culvert at the lowermost (western) end of the stream reach. Other than this the stream has natural bed and banks.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [x] *valley bottom:* b
  - [ ] Other: _____
- [x] **Shelving:** x
  - [x] *shelf at top of bank:* x
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [x] **Soil development:** b
- [ ] **Changes in character of soil:** b
- [ ] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [x] *transition from* boulder to sediment
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** b

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [x] *vegetation absent to:* absent
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:** x
- [x] **Exposed roots below intact soil layer:** b

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [x] **Presence of large wood:** x
- [x] **Leaf litter disturbed or washed away:** b
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 is representative of the uppermost reach of the stream. OHWM level selected at elevation clearly showing the undercut banks with exposed roots and shelving on top of bank. Transect 2 is representative of the middle reach of the stream where sediment sorting from boulders to finer sediment and wracking were used to identify OHWM elevation. Transect 3 is representative of the lowermost reach of the stream where the width of the bridge and the water staining on the concrete were used to identify the OHWM elevation.

Additional observations or notes

The stream has riffles, runs, and pools. Boulders and cobbles present but there is not much embeddedness. Java plum (Syygium cumini) is the dominant tree species. Guinea grass (Megathyrsus maximus) is abundant in the ground cover.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
	See attached for photos 51-55 and descriptions.

Photo 69. Location of Transect 1; In the Upper Reach of Ukumehame Stream Overlapping Build Alternative 4

Photo 70. OHWM Level Indicators at Transect 1; OHWM Level Selected at the Elevation of Undercut Bank, Exposed Roots Below this Level, and Shelving of Debris Above the Level

Photo 71. Location of Transect 2 in Middle Reach of Stream; Transect Placed Where Clear Lining on the Bank was Visible at the OHWM Level Along with Sediment Sorting from Boulders to Sediment

Photo 72. Sediment Sorting at Transect 2; Sorting of Sediment from Boulders to Finer Sediment Below the OHWM and Wracking at the OHWM were Main Indicators at this Transect

Photo 73. Location of Transect 3 at Lowermost Reach of Stream; Ukumehame Stream Bridge and the Concrete Ford at the Lowermost Reach (The Bridge Footing and Water Staining on the Concrete Defined the OHWM Level for this Lower Reach)

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
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AGENCY DISCLOSURE NOTICE

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Project ID #: Honoapiilani	Site Name: Ditch 2-Vicinity of Ehehene Street	Date and Time: September 20, 2023
Location (lat/long): 20.80456N, 156.59900W	Investigator(s):	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☐ LiDAR
- ☐ geologic maps
- ☐ climatic data
- ☒ satellite imagery
- ☐ land use maps
- ☒ aerial photos
- ☐ topographic maps
- ☐ Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Based on imagery over multiple years, it appears that Ditch 2 (system) is perennial and has a clear connection to the ocean. Normal low flows occurred at the time of the survey. No extreme recent flood or drought event occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Dense impenetrable thickets of vegetation surround the ditches that made it challenging to find OHWM indicators here.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☐ **Break in slope:**
  - ☐ *on the bank:*
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: _____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* _____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☐ **Instream bedforms and other bedload transport evidence:**
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
- ☐ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☐ **Changes in particle-sized distribution:**
  - ☐ *transition from* _____ to _____
  - ☐ *upper limit of sand-sized particles*
  - ☐ *silt deposits:*

Vegetation Indicators

- ☒ **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - ☒ *vegetation absent to:* woody shrubs
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☒ **Vegetation matted down and/or bent:** x
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☐ **Wracking/presence of organic litter:**
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect was placed at a location where OHWM indicator could be investigated from amongst the dense vegetation on the bank. Change in vegetation from either lack of it or from floating masses of duckweed to thickets of Pluchea shrubs along with break in slope were used to estimate the OHWM level.

Additional observations or notes

There is an old and large water pump, remnant of the sugar plantation time in the northern of the two east-west running ditches.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
74-77	See attached photos and descriptions.

Photo 74. Imagery the Ditch (System) 9 in the Vicinity of Ehehene Street; Yellow Arrows Showing Two East-West Running Ditches that Meet the North South Running Ditch and the Connection of the Northern Ditch with the Pacific Ocean

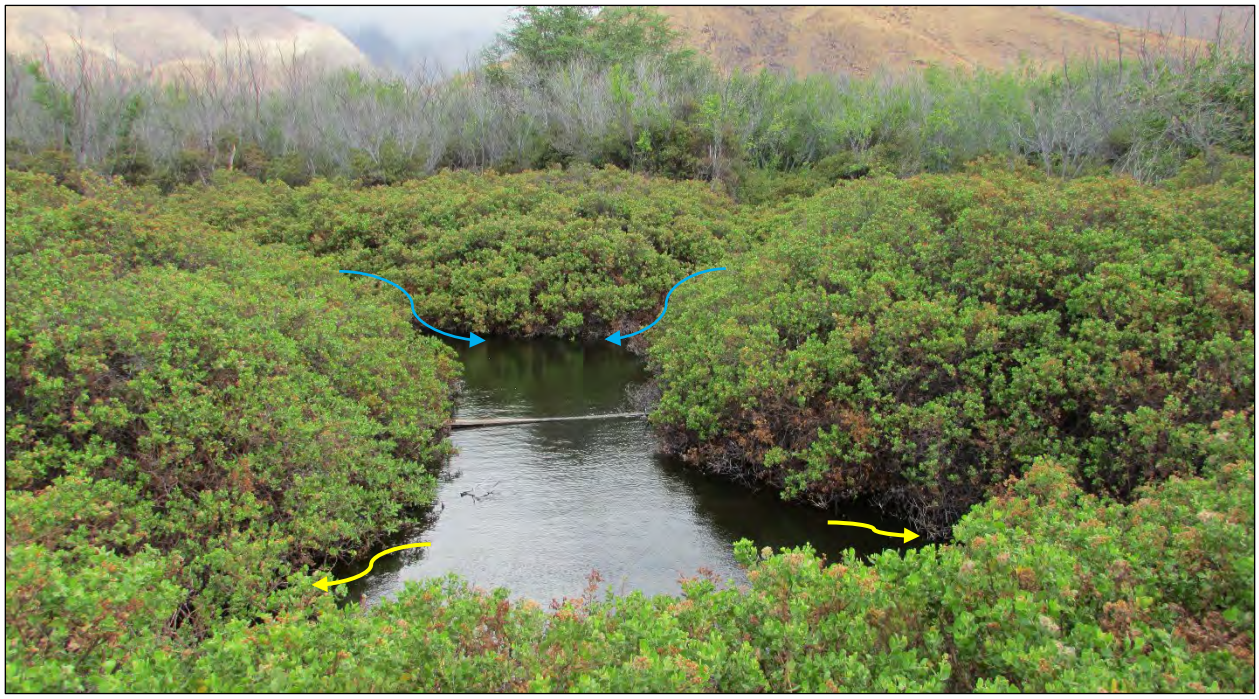

Photo 75. The Southern of the Two East-West Running Ditches in the Vicinity of Ehehene Street; Ditch is Surrounded by Thickets of Pluchea Shrubs (the Blue Arrows Indicate Smaller Ditches that Fed into this Main East-West Ditch, the Yellow Arrows Show the Connection to the North-South Ditch that Runs Parallel to the Existing Highway)

Photo 76. The Northern of the Two East-West Running Ditches in the Vicinity of Ehehene Street; Large Water Pump Remnant from the Sugar Plantation Time

Photo 77. North-South Running Ditch in the Vicinity of Ehehene Street; Location of Transect 1, OHWM was Mostly Indicated by the Break in Bank (Water in the Ditch, Seen Here, is Covered with Duckweek [Lemna sp.])

U.S. Army Corps of Engineers (USACE)

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Project ID #: Honoapiilani	Site Name: Mapua Stream	Date and Time: September 26, 2023
Location (lat/long): 20.81345N, 156.61381W	Investigator(s): Shahin Ansari and Sadie Trush	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Mopua stream passes through undeveloped residential lots in Olowalu Peninsula. The stream bed and banks were dry. No recent extreme flood or drought occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

The stream appears to be flowing undergrond in the stretch that was investigated. There are several water pump, a water meter, and irrigation pipes near the stream channel.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** x
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:**
  - [x] *transition from* boulder to sediment
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [ ] **Change in vegetation type and/or density:**

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [ ] *vegetation absent to:*
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:** b
- [x] **Exposed roots below intact soil layer:** b

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

The OHWM indicators become weaker and the dry stream abruptly ends after about 890 feet.

Project ID #: Honoapiilani

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed where break in bank and sorting of sediment were the strongest indicators of the OHWM level.

Additional observations or notes

The stream flows under the existing Highway alignment via a black plastic pipe and into a ditch before it enters the ocean.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
79-81	See attached photos and descriptions.

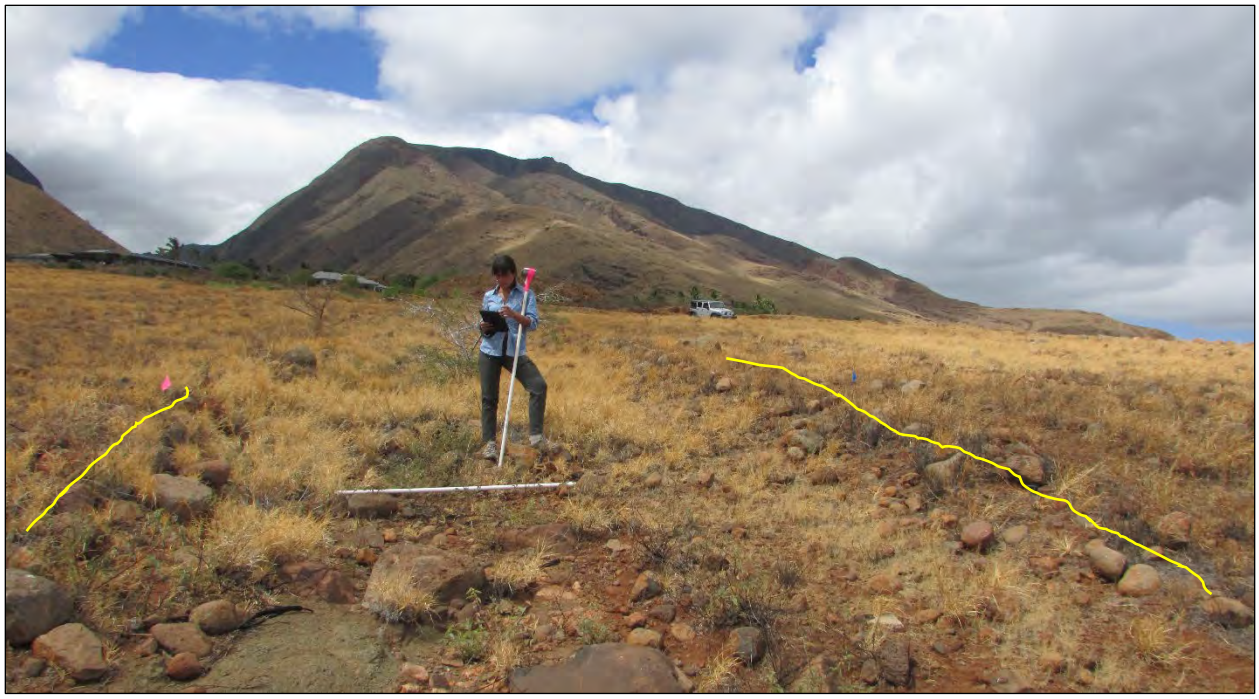

Photo 78. Mapua Stream – Shallow and Dry Stream Channel in September 2023; Break in Bank and Sediment Sorting from Boulders and Rocks to Sediment on Bank were Strong Indicators of OHWM in this System

Photo 79. Mapua Stream, Transect 1 Location; Somewhat Undercut Bank and Sorting of Sediment from Boulders to Finer Sediment

Photo 80. Culverts, Water Pumps, and Water Meter Suggest Mopua Stream Runs Undergound

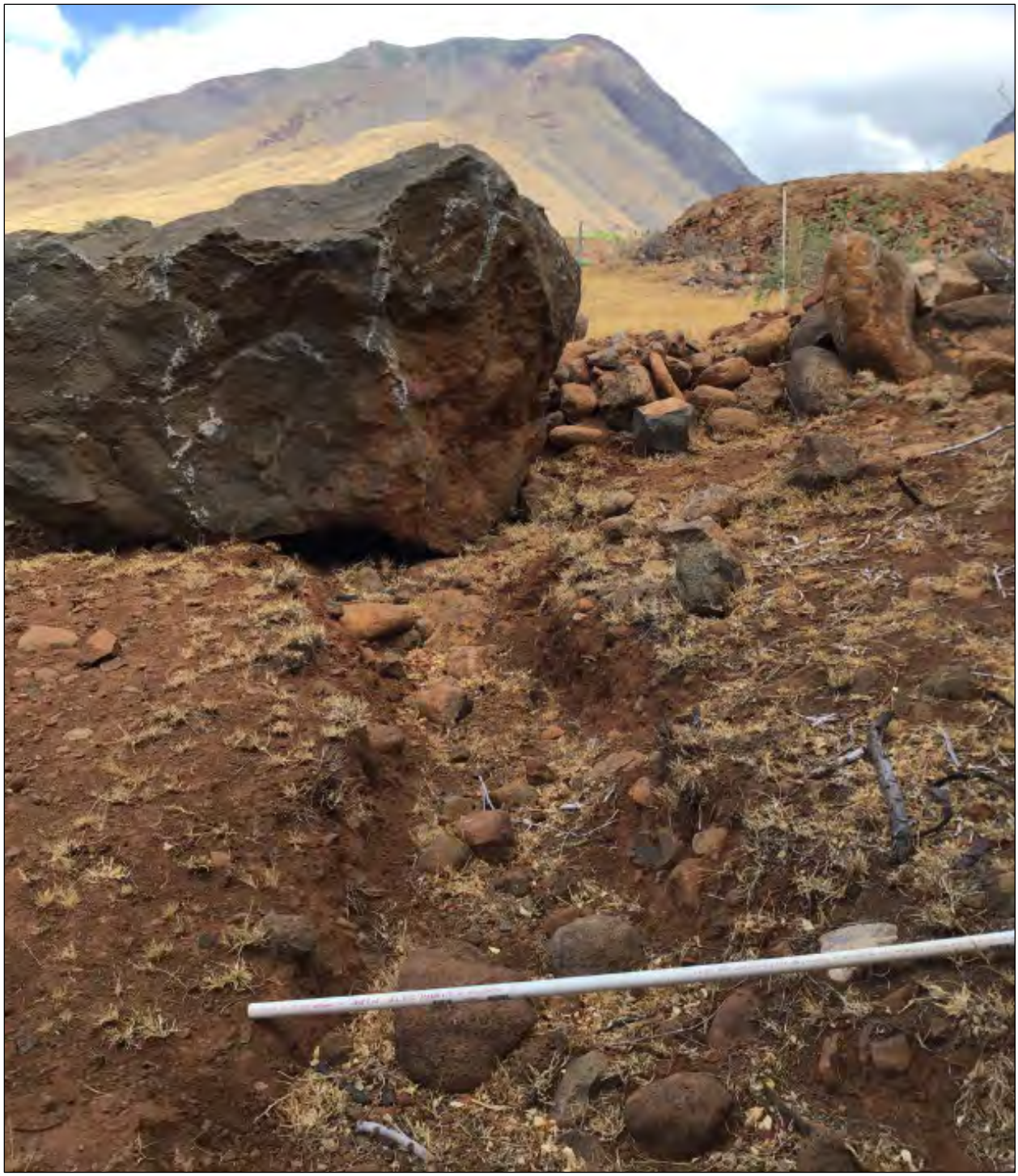

Photo 81. Portion of Mapua Stream Channel before it Abruptly Ends in the Study Area

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

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Project ID #: Honoapiilani Highway	Site Name: Olowalu Stream	Date and Time: July 18, 2023
Location (lat/long): 20.81360N, 156.62095W	Investigator(s): Shahin Ansari and Sadie Trush	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?
Olowalu is a perennial stream that bisects the Olowalu Peninsula. It runs through mostly undeveloped There were normal low flows in the stream at the time of the survey. No recent extreme drought or flood was recorded.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

This general area had recently burned and in many places identification of OHWM was confounded by wind and soil erosion and shifting of debris caused by fire.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [ ] *on the bank:*
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [x] **Shelving:**
  - [x] *shelf at top of bank:* a
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [x] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:* b
  - [x] *vegetation transition (go to veg. indicators)* b
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [x] *bedforms (e.g., pools, riffles, steps, etc.):* b
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [ ] **Changes in particle-sized distribution:**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - [x] *vegetation absent to:*
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:** b
- [x] **Exposed roots below intact soil layer:** b

Ancillary indicators

- [x] **Wracking/presence of organic litter:** a
- [x] **Presence of large wood:** a
- [x] **Leaf litter disturbed or washed away:** b
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Vegetation absent to evergreen trees of Java plum (Syzygium cumini)

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transects 1 representative of the upper reach of the stream in the study area and placed where undercut banks with exposed roots and wracking and shelving of debris caused by water were more evident as OHWM level indicator. Transects 2 representative of the middle reach of the stream in the study area and placed where the stream takes a sharp turn and where exposed roots were a stronger indicator of OHWM level compared to erosion caused by wind and soil. Transects 3 representative of the lower reach of the stream in the study area and placed neat the Olowalu Stream Bridge where sediment staining on the concrete and accumulation of debris under the bridge helped identify the OHWM in this area.

Additional observations or notes

Java plum (Syzygium cumini) was the most dominant tree species along the stream bank. Guinea grass dominated the banks in the lower reach of the stream.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
82-87	See attached photos and decriptions.

Photo 82. Location of Transect 1; Representative of the Portion of the Stream with Runs Overlapping the Innermost Build Alternative 4 (Burned Trees from the Fires in June-July 2023 Visible on the North (Left) Bank

Photo 83. Indicator of Accumulation of Large Debris at the OHWM Level in the Up Stream Section of the Study Area

Photo 84. Location of Transect 2 Representative of the Middle Reach of the Stream in the Study Area at Bend in Stream; Blue Arrow Indicates the Bend in Stream

Photo 85. OHWM Level in the Middle Reach of the Stream in Study Area Below the Soil Erosion Seen on Top of the Bank

Photo 86. Location of Transect 3 At the Olowalu Stream Bridge; Sediment Staining on the Concrete Bridge Contributed to Determining the OHWM Level in this Area

Photo 87. Undercut Banks with Exposed Roots Was Key in Separating Impacts from Confounding Soil and Wind Erosion Caused Due to Recent Fire

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

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Project ID #: Honoapiilani Highway	Site Name: Lihau Stream	Date and Time: September 22, 2023
Location (lat/long): 20.82433N, 156.62118W	Investigator(s): Shahin Ansari and Sadie Trush	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] climatic data
- [x] aerial photos
- [ ] LiDAR
- [x] satellite imagery
- [ ] topographic maps
- [ ] geologic maps
- [ ] land use maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Lihau is an intermittent stream. The stream flows through undevelope agricultural land. No flows but puddles were seen in March 2023 and the stream bed was dry in September 2023. No recent extreme floods or droughts occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There is a farm at the eastern end of the study area and irrigation pipes from the farm were seen leading into the stream.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:**
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: _____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* _____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [ ] **Instream bedforms and other bedload transport evidence:**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
- [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:**
  - [x] *transition from* rocks to sediment
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:**

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - [x] *vegetation absent to:* graminoids
  - [ ] *moss to:*
  - [ ] *forbs to:*
  - [ ] *graminoids to:*
  - [ ] *woody shrubs to:*
  - [ ] *deciduous trees to:*
  - [ ] *coniferous trees to:*
- [x] **Vegetation matted down and/or bent:** b
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [ ] **Wracking/presence of organic litter:**
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Because of moist soil bed in the lower reach of the stream, presence of live green vegetation in the stream was helpful in defining the stream channel and the OHWM level here.

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1. was placed in the upper reach of he stream where cut in bank slope and destruction of vegetation below the OHWM level indicated the OHWM level. here. Transect 2 was placed in the lower reach of the stream. The bed was moist and the presence of green/live vegetation to dead grass on the bank helped identify the OHWM level in addition to the break in slope.

Additional observations or notes

The bed and banks were heavily vegetated with species such as haole koa (Leuceana leucocephala) and castor bean (Ricinus communis) shrubs and buffel grass (Cenchrus ciliaris) dominated the banks of he stream. Lihau Stream flows into the Pacific Ocean in the western most part of the study area.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
88-91	See attached photos and descriptions.

Photo 88. Location of Transect 1; Representative of the Uppermost Reach of the Stream in the Study Area (Break in Slope and Washed of Debris Were Used as Indicators of OHWM)

Photo 89. Break in Bank as OHWM Indicator in the Upper Reaches of LIhau Stream in Study Area

Photo 90. Location of Transect 2 at the Lower/Western Reach of LIhau Stream in the Study Area; Heavily Vegetated Moist Bed Compared to the Upper Drier Banks and Break in Bank Slope Used as OHWM Indicators

Photo 91. Lihau Stream Entering the Pacific Ocean in the Western Most Portion of the Study Area

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Honoapiilani Highway	Site Name: Awalua Stream	Date and Time: September 26, 2023
Location (lat/long): 20.82910N, 156.63419W	Investigator(s): Shahin Ansari and Sadie Trush	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☐ climatic data
- ☒ aerial photos
- ☐ LiDAR
- ☒ satellite imagery
- ☐ topographic maps
- ☐ geologic maps
- ☐ land use maps
- ☐ Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Awalua Stream is an intermittent stream that runs through undeveloped buffel grass grassland. The stream was dry at the time of the survey. No recent extreme flood or drought events occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There is an inner road that runs parallel to the main Honapiilani Highway that has a culvert for the Awalua stream flow. Just east of the road there is also a spillway that allows for flows to spill in the north-south direction before entering this culvert.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☒ **Break in slope:** a
  - ☐ *on the bank:*
  - ☒ *undercut bank:* b
  - ☒ *valley bottom:* x
  - ☐ Other: _____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* _____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☐ **Instream bedforms and other bedload transport evidence:**
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☐ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☐ **Changes in particle-sized distribution:**
  - ☐ *transition from* _____ to _____
  - ☐ *upper limit of sand-sized particles*
  - ☐ *silt deposits:*

Vegetation Indicators

- ☒ **Change in vegetation type and/or density:** x

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - ☐ *vegetation absent to:*
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☒ *graminoids to:* absent
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☒ **Vegetation matted down and/or bent:** x
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☐ **Wracking/presence of organic litter:**
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed near the spillway in the lower/western portion of the stream. Spillway elevation together with the change in vegetation indicated the OHWM level here. The second transect was placed upstream from here where undercut banks, change in vegetation, and deposition of woody debris helped determine the OHWM level here.

Additional observations or notes

Dead buffel grass dominated the bed and banks of Awalua Stream. This stream flows under the Honoapiilani Highway through concrete culvert before entering the Pacific Ocean.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
92-95	See attached photos and derscriptions.

Photo 92. Awalua Stream – East View

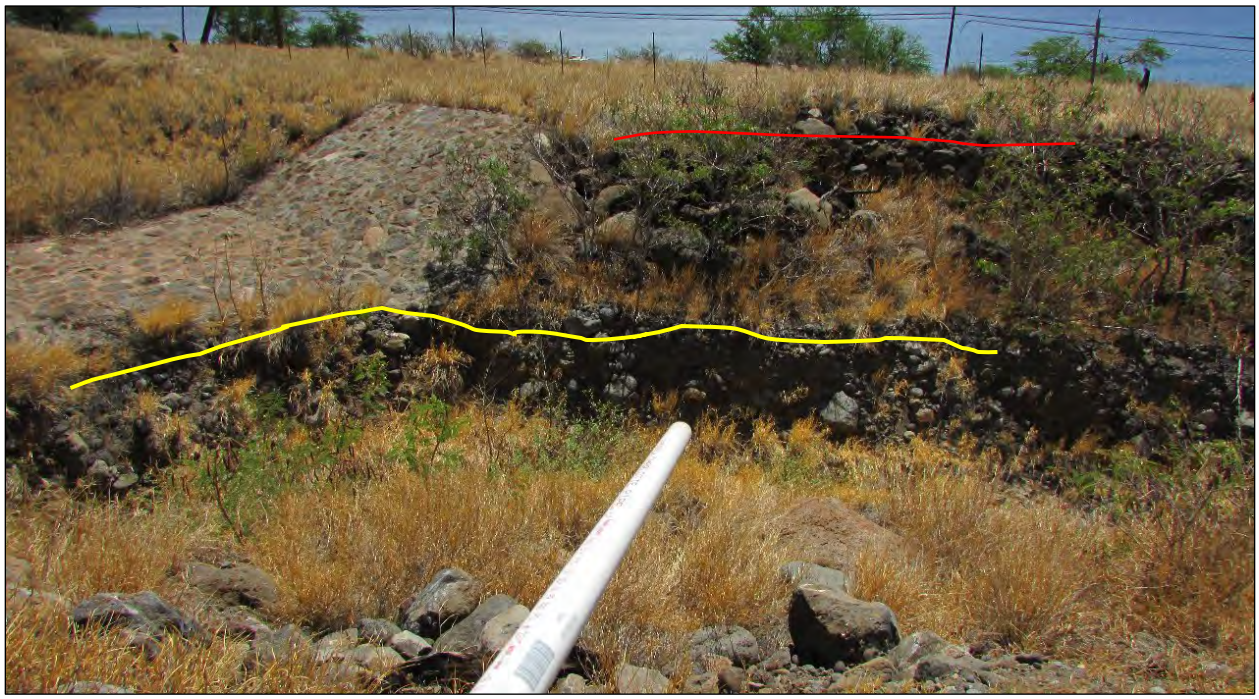

Photo 93. Awalua Stream Location of Transect 1 at Spillway; Spillway in Awalua Stream Allowing for High Flows to Spill Over in the North-South Direction Before Entering the Culvert and Ocean (this Structure Guided the Placement of OHWM Below the Eroded Bank Break Seen Above in Red Line)

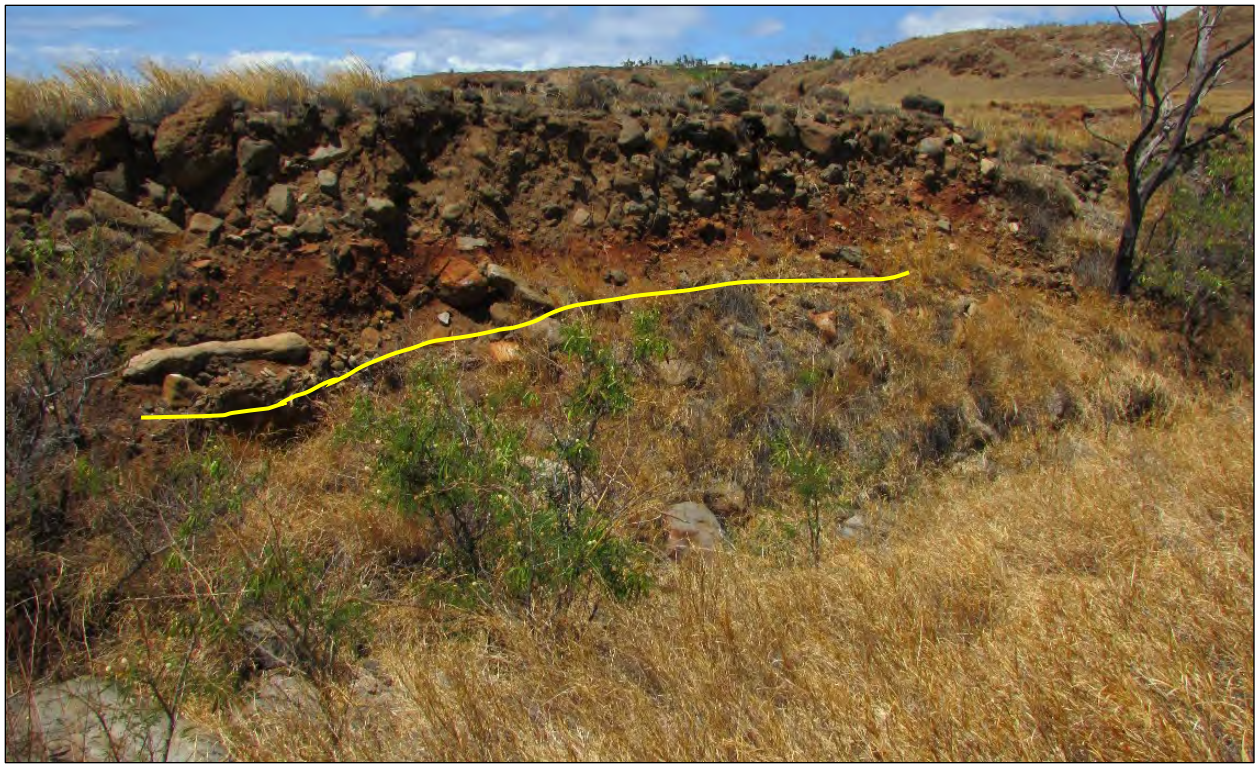

Photo 94. Awalua Stream Location of Transect 2 in the Upper/Eastern Reach of Stream in Study Area; the Dry Vegetation in the Bed was Indicative of Moisture Levels that Supported Plant Growth in the Bed and Helped Distinguish Between Erosional Features and OHWM Level

Photo 95. Awalua Stream Undercut Bank; Vegetation Line Together with Undercut Bank Allowed for Identifying OHWM Level Here

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
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Project ID #: Honoapiilani Highway	Site Name: Ka Puali Stream	Date and Time: March 25, 2023
Location (lat/long): 20.83233N, 156.63898W	Investigator(s): Shahin Ansari and Terrell Erickson	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☐ climatic data
- ☒ aerial photos
- ☐ LiDAR
- ☒ satellite imagery
- ☐ topographic maps
- ☐ geologic maps
- ☐ land use maps
- ☐ Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Ka Puali is an ephemeral stream that flows from the West Maui Mountains, through undeveloped grassland, and into the Pacific Ocean. No stream flow was seen at time of survey. No extreme flood or drought events occurred before survey.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

It was dry with no stream flow. The bed and banks were heavily vegetated making it challenging to identify OHWM features.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☒ **Break in slope:**
  - ☒ *on the bank:* b
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: _____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* _____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☐ **Instream bedforms and other bedload transport evidence:**
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
- ☐ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☒ **Changes in particle-sized distribution:** b
  - ☒ *transition from* rocks to sediment
  - ☐ *upper limit of sand-sized particles*
  - ☐ *silt deposits:*

Vegetation Indicators

- ☒ **Change in vegetation type and/or density:**

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - ☐ *vegetation absent to:*
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☒ *woody shrubs to:* graminoids
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☒ **Vegetation matted down and/or bent:** x
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☐ **Wracking/presence of organic litter:**
- ☐ **Presence of large wood:**
- ☒ **Leaf litter disturbed or washed away:** x
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Honoapiilani Highway

Step 4 Is additional information needed to support this determination? ☐ Yes ☒ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Transect 1 was placed at the lower or western end of the stream right before the concrete culvert. Embedded rocks on lower bank and presence of shrubs and trees here helped estimate the OHWM level in this heavily vegetated stream. Transect 2 was placed upstream where some matted down vegetation, break in slope, change in vegetation together helped identify the OHWM level.

Additional observations or notes

Kiawe (Prosopis pallida) and haole koa (Leuceana leucocephala) shrubs dominated the bed, while the banks were most composed of dense cover of buffel grass.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
96-99	See attached photos and descriptions.

Photo 96. Ka Puali Stream – West View with Concrete Culvert; Location of Transect 1 (Heavily Vegetated Bed with Shrubs and Bank with Grasses)

Photo 97. Ka Puali Stream – Eas View; Heavily Vegetated Bed with Shrubs and Bank with Grasses

Photo 98. Ka Puali Stream Bed; Location of Transect 2 (Change in Vegetation from a Combination of Shrubs, Trees, and Grasses to Only Grasses on the Bank and Presence of Rocks and Boulders Helped Determine the OHWM for this Stream)

Photo 99. Ka Puali Stream Culvert

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Memorandum

Project# 4692-02

August 13, 2024

To: **Genevieve Sullivan, Project Manager, Hawaii Department of Transportation**

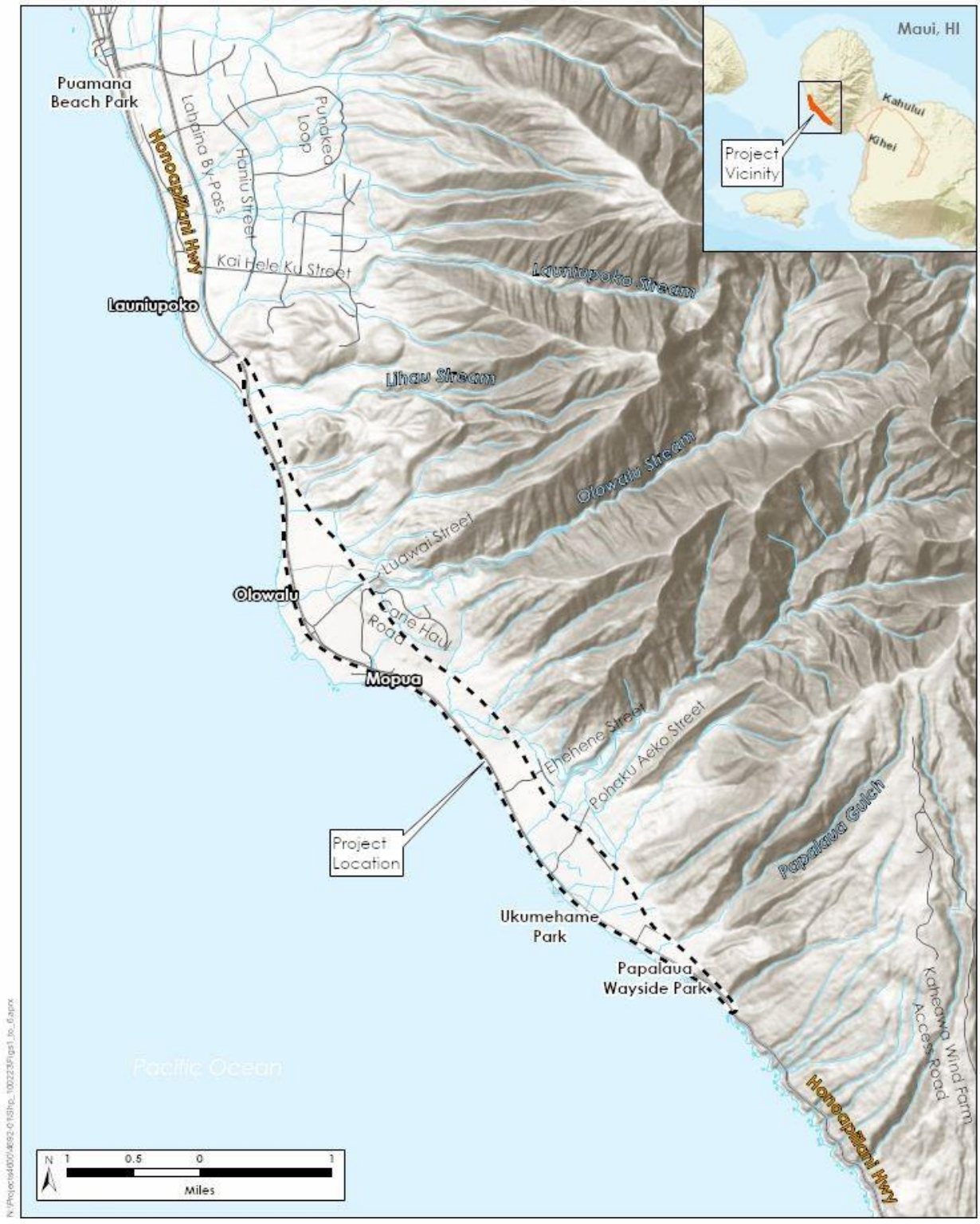
From: **Shahin Ansari, Senior Ecologist, H. T. Harvey & Associates**

CC: **Kelly Hardwicke, Principal in Charge, H. T. Harvey & Associates;**
James Sullivan, Associate Environmental Planner, WSP USA

Subject: Honoapiilani Highway Improvement Project – Field Investigations About Surface Connections of Potentially Non-Jurisdictional and Jurisdictional Wetlands to Waters of the U. S.

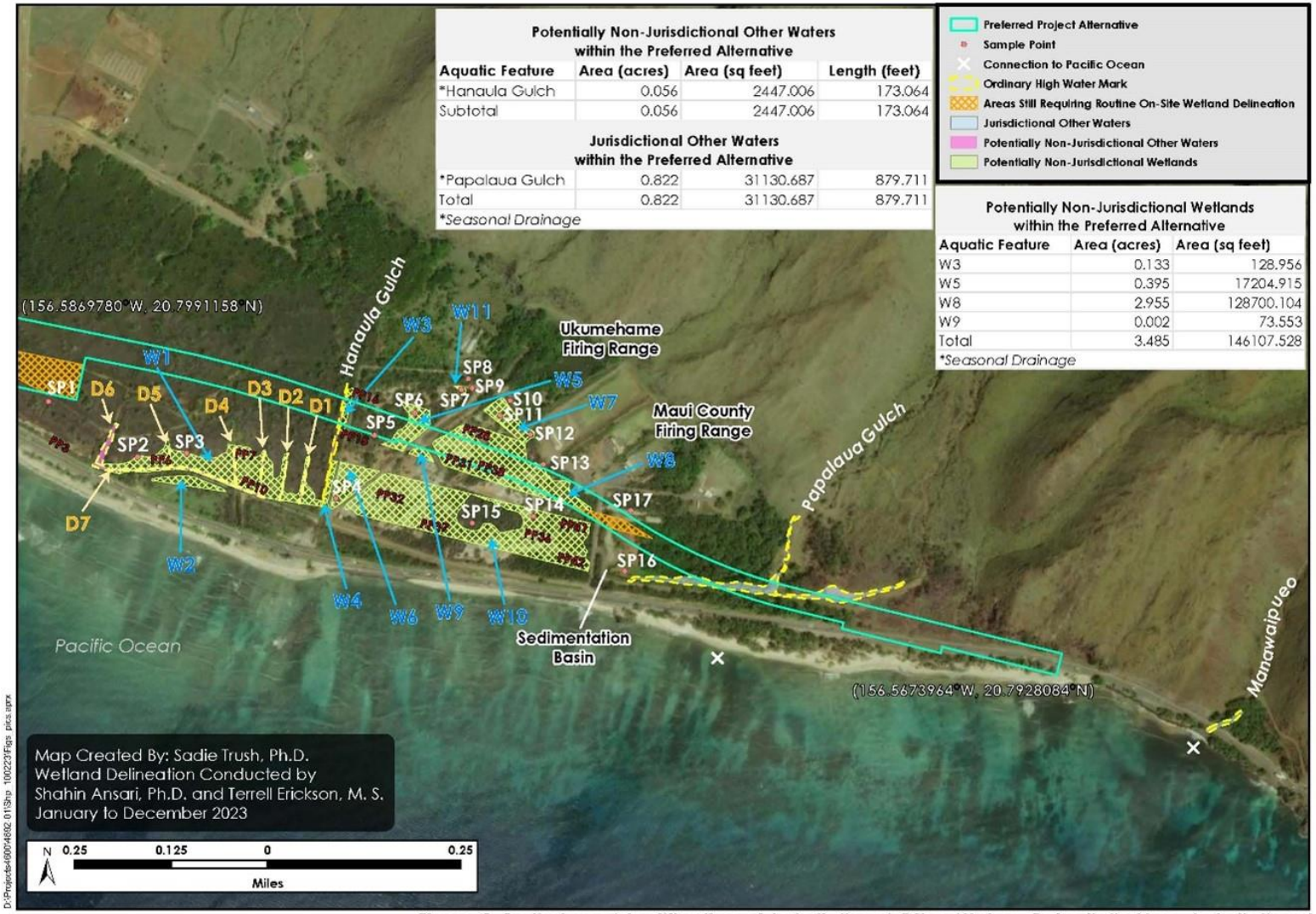
The Federal Highway Administration, in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning the Honoapiilani Highway Improvements Project (the Project). The proposed Project comprises a 6-mile-long alignment in West Maui, in the areas served by the existing Honoapiilani Highway between milepost 11 and milepost 17 (Figure 1). H. T. Harvey & Associates conducted a wetland delineation for this Project during 2023, the findings of which were detailed in a technical report submitted to the U. S. Army Corps of Engineers (USACE) Honolulu District in December 2023. Upon review of this report, the USACE, in an email (POH-2022-00114) to the HDOT expressed that the Project's proposed potentially non-jurisdictional wetlands might be connected to the Pacific Ocean (ocean) via an underground culvert and requested further evidence clarifying surface connections of these wetlands to the ocean under the Clean Water Act conforming rule of September 2023. On May 2, 2024, members of the Project team [Ms. Genevieve Sullivan (HDOT Project Manager), Mr. Kevin Kasamoto (HDOT Hydraulics Design Engineer), Mr. Gerald Andrade (WSP USA, Project Engineer), Mr. Mathew Small (Project Engineer, WSP USA), and Dr. Shahin Ansari (Senior Ecologist, H. T. Harvey & Associates)] visited the Project site to investigate potential surface connection of the proposed jurisdictional and the potentially non-jurisdictional wetlands to the ocean. This memo details the findings of this field investigation.

Figure 1: Project Vicinity



The Project's proposed jurisdictional and potentially non-jurisdictional wetlands are illustrated in Figure 2. Field investigations on May 2, 2024, focused on nine different locations within five separate areas (Locations 1a, 1b, 2a, 2b, 3, 4a, 4b, 5a, and 5b) to determine if the Project wetlands (W1 through W11*) illustrated in this figure have "continuous surface connections" to the ocean under the conforming rule. It is our understanding that an active, working culvert can constitute a continuous surface connection, but that subsurface flows and seeps cannot. Detailed below are the findings from each of these nine locations and our assessment of the surface connectivity among these delineated wetlands and to the ocean. The location numbers, depicted in green, in Figures 3 and 4 correspond to the numbered locations in the discussion below.

Figure 2: Preliminary Identification of Jurisdictional Wetlands, Potentially Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Papalaua and Ukumehame Portions of the Wetlands Delineation Study Area



H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2. Preliminary Identification of Jurisdictional Other Waters, Potentially Non- Jurisdictional Wetlands, and Potentially Non-Jurisdictional Other Waters in the Palalaua and Ukumehame Portions of the Wetland Delineation Study Area

Figure 3: Aerial View of All Locations

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Ecological Consultants

Figure 3. Aerial View of All Locations Investigated on May 2, 2024
Honoapiilani Highway Improvement Project (4692-02)
Field Investigations About Surface Connections of Potentially Non-Jurisdictional and Potentially Jurisdictional Wetlands to Waters of the U.S.
May 2, 2024

Figure 4: Aerial View of Locations 1a, 1b, 2a, and 2b with Key Takeaways

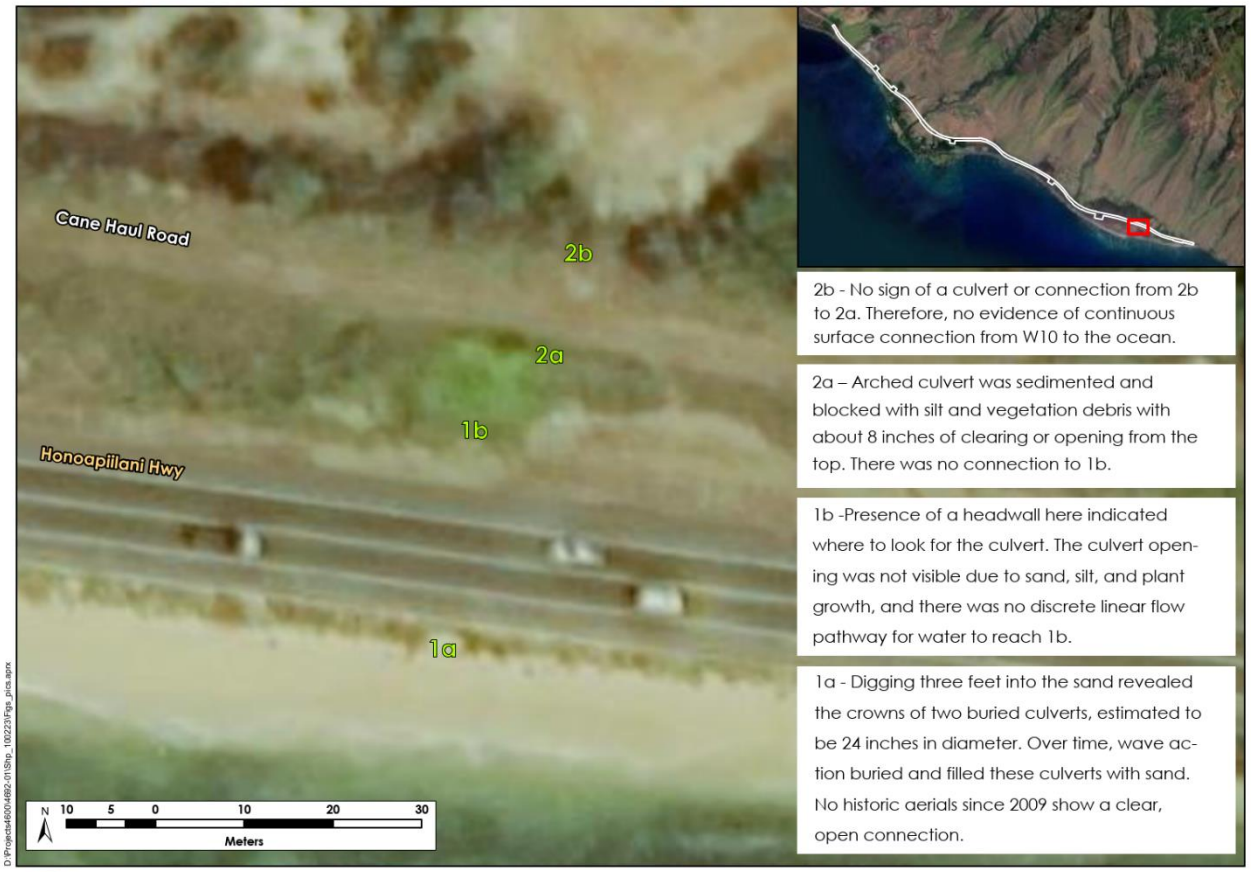


Figure 4. Aerial View of Locations 1a, 1b, 2a and 2b with Key Takeaways
Honoapiilani Highway Improvement Project (4692-02)
Field Investigations About Surface Connections of Potentially Non-Jurisdictional and Potentially Jurisdictional Wetlands to Waters of the U.S.
May 2, 2024

Location 1a

Location 1a is on the west side (ocean side) of the existing Honoapiilani Highway (Figure 3). Aerial imagery indicated the presence of a potential culvert at this location. In particular, the "C" shaped arrangement of rocks on the beach pointed to the exact location of a potential culvert (Figure 4). A culvert at this location could connect W10 to the ocean via the potential connection with Location 1b and a potential culvert between Locations 2a and 2b discussed below (Figure 2, Figure 4). At first, no culvert was obvious at this location in the field. However, digging in the sand to a depth of about three feet revealed the crowns of the end of two buried culverts. Based on the exposed top portion of these buried culverts, they are estimated to be 24 inches in diameter. No headwall to support the ends of the culverts was observed. Over time, wave action had caused these culverts to be completely buried and filled with sand. No historic aerials available for this location showed

a clear and open culvert connection dating back to 2009 (Google Earth 2024[1]). There was no direct evidence observed of seep through the accumulated sand and silt in this blocked culvert from inland towards the ocean (also see notes on Location 1b). Although the culvert is entirely blocked by sand, the presence of water in a freshly dug pit on the beach indicated that, at least during high tides, there is some small amount of subsurface movement of water from the ocean towards the buried culvert and the land (Figure 5). However, this amount of flow is insufficient to conclude a functioning continuous surface connection via the culvert. While subsurface seep from inland rain and stormwater is not impossible, it is highly improbable that any consequential flow would traverse the roughly 60 feet through the existing sand block from Location 1b to Location 1a, which was buried approximately three feet deep during the May 2024 investigation, particularly given the regular wave action. Observations at Location 1a evidenced an insufficient flow to constitute a continuous surface connection to the Pacific Ocean.

Figure 5: Photos of Location 1a

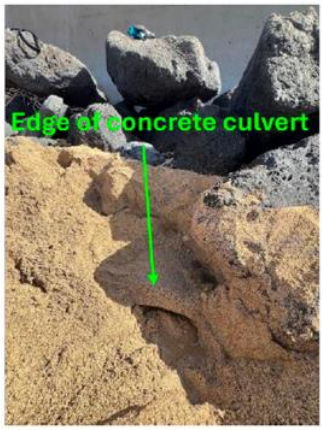


Photo depicting the sand blocking the culvert at Location 1a.

Photo depicting water ponding on the ocean side of the culvert at the existing Honoapiilani Highway.

[1] Google. 2024. Google Maps. <http://maps.google.com>. Accessed June 10, 2024.

Location 1b

Location 1b corresponds with the east side (land side) of the same culvert 1 (discussed in 1a) and is located opposite of Location 1a on the land side of the existing Honoapiilani Highway (Figure 4). The presence of a headwall here indicated where exactly to look for the culvert. The culvert opening was not visible as the area downslope was saturated and densely covered with pickleweed (*Batis maritima*), a wetland plant species with an obligate indicator status (Figure 6). A shovel placed downward along the headwall revealed that the depth of the pickleweed vegetation was at least four to five feet indicating that the top of the culvert was below five feet. The wet shovel blade and saturated soils indicate that even if the culvert (the inside of which was not visible) is mostly blocked with sand and/or silt it allows for subsurface seepage of water landward as well as seaward. Historic aerials show no open culvert in this area, and the amount of vegetation cover and silt and sand blocking the culvert indicate that it has not been maintained/cleared of sediment for quite some time. The ground was progressively drier inland from Location 1b toward Location 2a (discussed below), and there was no discrete linear flow pathway (such as a ditch or swale) for water to reach Location 1b. These observations indicate that water could be ponding at Location 1b, but that it is unlikely that the surface water is flowing from Location 2a and W10. See discussion on Locations 2a and 2b for more details.

Figure 6: Photos of Location 1b

Dense growth of pickleweed (*Batis maritima*) located within saturated soils in front of the culvert blocked visibility.

Presence of a concrete culvert headwall on the land side of the existing Honoapiilani Highway. This culvert appears to be buried in historic imagery from 2009 and 2019 obtained from Google Maps.

Location 2a

Location 2a is on the ocean side of an inland and abandoned road, named Cane Haul Road, running somewhat parallel to the existing Honoapiilani Highway and providing access to the Ukumehame Firing Range (Figures 3 and 4). Location 2a is in line with Locations 1a and 1b. The culvert at this location could connect W10 to the ocean via Location 2b and culvert between Locations 1a and 1b (Figure 2, Figure 4), if all connections were open and functioning. From Location 1b, the pickleweed growth toward Location 2a was less dense but continuous up to the edge of Cane Haul Road. Also, unlike the wider surrounding area, pickleweed growth was mostly limited to the saturated soils between Locations 1b and 2a. Clearing vegetation around the ocean side edge of Cane Haul Road revealed the presence of an arched culvert (Figure 7) under this road. This culvert was sedimented and blocked with silt and vegetation debris with about 8 inches of clearing or opening from the top. A shovel placed in this opening was able to go all the way in, indicating that the culvert was partially open for at least five to six feet. Although, unlike at Location 1b, there was no sign of standing water or saturated soils at Location 2a (Figure 7). There was no evidence of flow from Location 2b and W10 reaching Location

2a and subsequently continuing into Location 1b and 1a. In summary, there was no observed surface connection to the Pacific Ocean from Location 2a via these culvert locations.

Figure 7: Photos of Location 2a

Pickleweed and saturated soils between Locations 1b and 2a.

Arched culvert on the ocean side of the inner Cane Haul Road that was mostly buried and blocked with sediment.

Green shovel depicted in the center of the photograph within the culvert. Ruler on the right indicated an 8 inch measurement

Location 2b

Location 2b corresponds with the land side of the same culvert 2 (discussed in 2a) and is located opposite of location 2a on the land side edge of the Cane Haul Road, in line with locations 2a, 1a, and 1b (Figures 3 and 4). Location 2b neighbors wetland W10 (Figure 2), one of the proposed "potentially non-jurisdictional" wetlands illustrated on Figure 2. There was no sign of a culvert visible at Location 2b. In fact, inland of Location 2b, towards W10, there is about five feet of sediment build-up against the edge of Cane Haul Road (Figure 8). Furthermore, unlike on the ocean side of Cane Haul Road, the vegetation at this location is mostly composed of dense growth of buffel grass (*Cenchrus ciliaris*) which has a facultative upland indicator status. Digging to a depth of approximately 2-3 feet did not reveal any signs of a culvert indicating that if a culvert is present, it is completely blocked and buried at this location (Figure 8). It appears that during heavy rains the silt and debris flowing in the east to west direction (toward the ocean) across the low-lying wetland W10 have piled up over time along the eastern (land side) edge of Cane Haul Road. Such debris and silt movement has completely blocked and buried any potential culvert opening that may be present and cuts off all surface connectivity between W10 with the ocean. It should be noted that Cane Haul Road, where Locations 2a and 2b are, is not under HDOT's jurisdiction. This road does not appear to be maintained by either the County of Maui or the State's Department of Defense. The County of Maui maintains a separate, paved, and direct road leading from

Honoapiilani Highway to the County's Ukumehame Firing Range. It is unclear when this Cane Haul Road was last serviced or maintained and for how long the culvert below this road has been blocked. Field observations indicated that there is no evidence of continuous surface connection from W10 to the ocean.

Figure 8: Photos of Location 2b

No sign of a culvert was visible on the land side of Cane Haul Road at Location 2b.

Figure 9: Aerial View of Locations 3, 4a, and 4b with Key Takeaways

Location 3

Location 3 was investigated for surface connections between delineated wetlands W3 on the north and W4 south side of Hanaula Gulch to delineated wetlands W5 and W6 located to the east (Figure 2, Figure 9). It should be noted that the field investigation on this day observed a completely silted in culvert from Hanaula Gulch to the ocean (see discussion on Location 4a below). As there were no signs of a culvert at Location 4a, both W3 and W4 are now considered potentially non-jurisdictional wetlands.

Hanaula Gulch varies in depth; it is shallower inland along wetland W3 and is deeper along W4, with the bottom at about 10 feet below grade in some places. As noted in the wetland delineation report, W4 is separated from W6 via a fenced-in dirt road that runs between wetlands W3 and W4 on the north and W6 to the south and demarcates a boundary between the two complexes (Figure 2, Figure 10 -Photo 10a). Observations made during the field visit did not note a discrete flow pathway between W4 and W6, though the uni-directional (southern)

movement of water from W4 to W6 is possible during rare heavy rain and storm events as documented by community members during a heavy rain event in January 2023. Pictures taken by the Ukumehame Firing Range manager during the heavy rains of January 2023, show water breaching the fence and road (in the southern direction) and flowing across the upland area next to W5 (Figure 10- Photos 10b and 10c). Debris build up on the gulch (southern) side of the fence, and water marks from the fence toward W6 indicate that water can overtop the southern bank of the Gulch (towards W4) and flow through the fence, across the dirt road, and into W6 during storm events. An aerial image from January 2023 shows that there probably is a non-wetland surface connection without an ordinary high water mark among all delineated wetlands (W1 through W11) in the north-south direction during heavy rain events (Figure 10).

Figure 10: Photos of Location 3

Photo 10a. Depicting the wetlands on either side of Hanaula Gulch.

Photo 10b. The dirt road along the fenceline adjacent to Hanaula Gulch containing water marks, a hydrologic indicator that water is traveling from the Gulch to W6.

Photo 10c. Water breaching Hanaula Gulch and flowing (south) across uplands towards W6 during a storm event. Photos from January 2023, courtesy of Mike Ecsedy, Repairs & Maintenance Assistant, Ukumehame Firing Range

Location 4a

Location 4a is on the ocean side of the the Honoapiilani Highway (Figures 3 and 11) and was investigated to determine the condition of the opening of the Hanaula Gulch culvert on the ocean side of the Highway. The potential culvert at this location would connect W1, W3, and W4 to the ocean via the Hanaula Gulch (Figure 2). Despite digging at the land side of this ditch (behind the guard rail) to a depth of about three feet, there was no sign of a culvert opening. It appears that the Hanaula Gulch culvert is completely buried and sedimented with sand, silt and debris on the ocean side of the Honoapiilani Highway. Similar to the culvert discussed for Locations 1a and 1b above, no historic aerials show an open culvert in this location. At this location there is a linear depression that stretches from behind the Highway guard rail toward the beach. It is shallower at the two

ends and deeper toward the center. It is heavily vegetated with a mix of weedy species, mostly buffel grass, toward the Highway (land side) end but otherwise surrounded and dominated by pickleweed thickets (a wetland plant species – see Figure 11) that is assumed to be supported via subsurface seepage that could occur during heavy rain events. The soil in the depression was dry with no saturation or signs of recent ponding.

Figure 11: Photos of Location 4a

Photos depicting that there is no sign of a culvert along the ocean side edge of Honoapiilani Highway in line with the Hanaula Gulch and Location 4b.

Location 4b

Location 4b corresponds with 4a; it is located opposite of Location 4a and is the land side opening of the same culvert discussed above in 4a. This location was investigated to confirm if Hanaula Gulch, as stated in the wetland delineation report, has a surface connection to the ocean on the land side of the existing Honoapiilani Highway. The culvert opening on the land side of the Highway appears to be open and somewhat functioning. The mouth of the culvert was not blocked. However, as it was investigated further, silt and sediment blocked the culvert completely towards the ocean side (where Location 4a is situated). The invert of this culvert is about 15 feet below grade of the Highway (Figure 12). With field observations indicating no functioning connection between Location 4a and 4b, there is no evidence of continuous surface connection from Hanaula Gulch to the ocean. Therefore, there is no continuous surface connection between wetlands W1, W3, and W4 to the ocean, as well as no continuous surface connection between Ditches 1-7 (D1-D-7) to the ocean (Figure 2). These features can all be considered potentially non-jurisdictional in light of the May 2nd field visit.

Figure 12: Photos of Location 4b

Land side of the culvert under the existing Honoapiilani Highway at Hanaula Gulch is open only at the mouth but progressively blocked under the highway and toward the ocean side end.

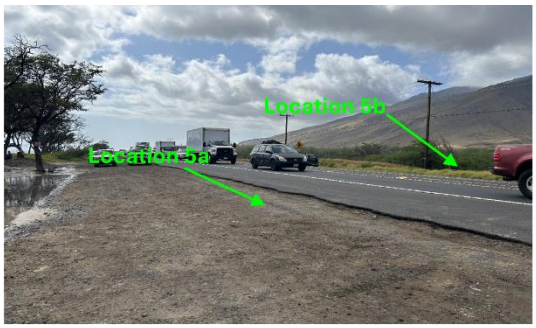
Figure 13: Aerial View of Locations 5a and 5b with Key Takeaways

Figure 13. Aerial View of Locations 5a and 5b.
Honoapiilani Highway Improvement Project (4692-02)
Field Investigations About Surface Connections of Potentially Isolated Non-Jurisdictional and Jurisdictional Wetlands to Waters of the U.S.
May 2, 2024

Location 5a

Location 5a is on the ocean side of the Honoapiilani Highway (Figures 3 and 13) located directly in-line with Location 5b (discussed below). The field visit confirmed the absence of a culvert at Location 5a (Figure 15). There is no evidence of flow from Ditch 6 towards the ocean.

Figure 14: Photos of Locations 5a, 5b, and Ditch 6



There is no culvert visible on the land side of the existing Honoapiilani Highway at Location 5b in line with Ditch 6.

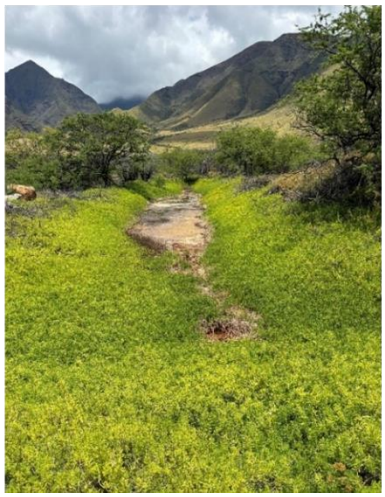


Photo depicting Ditch 6 at Location 5b, land side view.

Dense pickleweed with no obvious culvert blocked, at Location 5b, ocean side view.

Location 5b

Location 5b is located at Ditch 6 (D6, Figures 2 and 14), the northernmost end of the delineated wetlands W1 and W2. This location was investigated when field studies conducted earlier in the day indicated that the culvert connecting Hanaula Gulch to the ocean at Locations 4a and 4b was in fact blocked and no longer functional as an open culvert connection. D6 is perpendicular to and terminates at the Honoapiilani Highway. There is a steep drop from the land side edge of the roadway into this ditch, the bottom of which is about 5-8 feet below grade of the Honoapiilani Highway (Figure 14). There are dense thickets of pickleweed down this steep slope and on both banks of the ditch. Searching in the pickleweed thicket on the slope did not reveal any signs of a culvert at this location. Water from D6 runs parallel to the Highway via D7 through the various ditches (D1-D5) toward Hanaula Gulch and does not flow into the ocean at this location (Figure 2). Field observations confirmed that there is no functional surface connection between Location 5b and 5a (Figure 15). This finding

reinforces the conclusion that there is no evidence of continuous surface connection from W1, W3, W4 to the ocean, and that these wetlands are therefore potentially non-jurisdictional.

Figure 15: Photo Evidence of No Culvert at Locations 5a and 5b

There is no culvert under the existing Honoapiilani Highway at the ocean side at this location

Conclusions

The site visit on May 2, 2024, revealed the following conclusions, as compared to the original delineation report:

- In an email on March 11, 2024, the USACE expressed concern that the Project's proposed potentially non-jurisdictional wetlands might be connected to the ocean via underground culverts at Locations 1 and 2. The site visit revealed that findings of original delineation report are still accurate to assume no continuous surface connection (There was no evidence of flow from Location 2b and W10 reaching Location 2a and subsequently continuing into Location 1b and 1a.). With field observations showing that the potential connections between Location 2b and 1a are either not functioning or nonexistent, and there is insufficient flow to conclude a functioning continuous surface connection at Location 1a, there is no evidence of continuous surface connection from W10 to the ocean. Therefore, W10 is still considered potentially non-jurisdictional wetlands.
- Location 4 was investigated to confirm that Hanaula Gulch, as stated in the wetland delineation report, has a continuous surface connection to the ocean via a culvert between 4a and 4b. However, this site visit revealed that the ocean side of this culvert (Location 4a) is completely blocked and does not allow for a continuous surface water connection from Hanaula Gulch, W1, W3, W4, and ditches D1-D7 to the ocean.

Therefore, Hanaula Gulch, W1, W3, W4, and D1-D7 are all now considered potentially non-jurisdictional features.

- The wetland delineation report submitted to the USACE in December 2023 for this Project (POH-2022-00114) concluded that wetlands W1, W3, and W4 are potentially jurisdictional wetlands. This conclusion was mostly based on the culvert opening at the mouth Hanaula Gulch (Location 4b). However, this site visit revealed that the ocean side of this culvert (4a) in fact is completely blocked and does not allow for surface water connections from the wetlands W1, W3, and W4 to the ocean. Therefore, W1, W3, and W4 are now considered potentially non-jurisdictional wetlands.
- The wetland delineation report submitted to the USACE in December 2023 for this Project (POH-2022-00114) concluded that the Hanaula Gulch and ditches D1, D2, D3, D4, D5, D6, and D7 are potentially jurisdictional Other Waters of the United States. This conclusion was mostly based on the culvert opening at the mouth Hanaula Gulch (Location 4b). However, this site visit revealed that the ocean side of this culvert (4a) in fact is completely blocked and does not allow for surface water connections from the wetlands to the ocean. Therefore, Hanaula Gulch and ditches D1, D2, D3, D4, D5, D6, and D7 are now considered potentially non-jurisdictional Other Waters of the United States.
- Only during high rainfall and rainstorm events do surface water flows in the north-south direction (parallel to the Honoapiilani Highway) connect the potentially non-jurisdictional mosaic of wetlands situated on the landside (east) of the Honoapiilani Highway. There is no evidence of continuous surface connection from these wetlands to the ocean.
- Because all the delineated wetlands (W1 to W11), under normal circumstances (i.e., outside of king tides and high rainfall events) are not connected via continuous surface flows, these features, under the existing Clean Water Act conforming rule adopted in September 2023, can be regarded as potentially non-jurisdictional wetlands.
- Given the results of the May 2, 2024, field visit, the Project is not anticipated to affect greater than 0.1 acre of Waters of the United States. A linear viaduct structure in Ukumehame will span over the Papaula Gulch, avoiding effect to the jurisdictional feature in that area. For this reason, the Project could pursue a Nationwide Permit, or series of Nationwide Permits, as previously discussed with Jason Brewer (USACE), on June 19, 2023.

HT Harvey & Associates Results of the Wetland Delineation in the Project's 2025 Biological Study Area

November 2025

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Memorandum

Project No. 4692-02

April 29, 2025

To: **James Sullivan, Environmental Planner, WSP USA**

From: **Shahin Ansari, Senior Ecologist, H. T. Harvey & Associates**

CC: **Kelly Hardwicke, Principal in Charge, H. T. Harvey & Associates**
Jamie Bents, Project Manager, WSP USA

Subject: **Honoapiilani Highway Improvements Project – Results of the Wetland Delineation in the Project's 2025 Biological Study Area**

Introduction

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii, Department of Transportation (HDOT), is proposing the Honoapiilani Highway Improvements Project (Project). This Project is situated in West Maui, Hawaii, in the area served by the existing Honoapiilani Highway between milepost 11 and milepost 17 and generally overlaps the ahupuaa of Ukumehame and Olowalu (Appendix A, Figure 1). Honoapiilani Highway is the primary transportation route for people and goods between West Maui and the rest of the island. Climate change and sea level rise are already contributing to damage along this coastal stretch of the Highway and the Highway has been repaired several times over the past decade due to coastal flooding. The purpose of the Project is to reduce the highway's exposure to sea level rise, where feasible, and provide a reliable transportation facility in West Maui that can serve the community with increased reliability and safety to withstand coastal hazards.

A draft environmental impact statement (DEIS) for the Project was published in December 2024 (USDOT, FHWA and HDOT 2024). In 2023, H. T. Harvey & Associates completed a comprehensive delineation of Section 404 waters in support of the environmental planning for the Project, the results of which are published in the DEIS (H. T. Harvey & Associates 2023). The 2023 Biological Study Area (BSA) encompassed an area of about 902 acres overlapping the four proposed Highway alignments that were evaluated for the DEIS (Appendis A, Figure 2). These alternatives were further refined as the DEIS was prepared, leading to the selection of a preferred alternative. While the vast majority of the BSA surveyed in 2023 overlaps the preferred alternative, there are a few scattered parcels along the current preferred alternative that were not part of the 2023 field studies. These unsurveyed parcels are illustrated in Appendix A, Figure 2 and collectively referred to

here as the 2025 BSA. This memorandum describes the methods and results of the wetland delineation study conducted in the 2025 BSA.

Wetland Study Scope and Objective

The purpose of this study was to identify the extent and distribution of potential Section 404 waters of the U.S. including any associated wetlands (special aquatic sites) that might be impacted by proposed Project activities within the Project's 2025 BSA parcels. The geographic scope of this study was limited to the 13 disjointed parcels along the Project's preferred alignment that constitute the 2025 BSA. We examined each parcel for features that may meet the physical criteria and regulatory definition of Section 404 wetlands and other waters.

Methods

The field studies completed in 2023 documented the habitat types found in the BSA overlapping the four proposed alignments. The 2025 BSA parcels are next to the 2023 BSA and the habitats in the 13 parcels generally are a continuum of those already surveyed and therefore are expected to have similar characteristics. Prior to the survey, we reviewed the wetland technical report of findings completed for the 2023 surveys which provided a good indication of what we might expect in the 2025 BSA parcels. We also reviewed following information: topographic maps and current and historical aerial photos of the Project Area, U.S. Geological Survey topographic map, National Wetland Inventory map, Google Earth software (Google Inc. 2025), Natural Resource Conservation Services Soil Survey (NRCS 2025a, b), Hawaii Watershed Atlas (Parham et al. 2008), and State of Hawaii Geographic Information System (GIS) data for streams (Office of Planning 2017). With background information gleaned from these sources, H. T. Harvey & Associates' certified wetland ecologists Shahin Ansari and Racine Robinson performed a technical determination and delineation of Section 404 wetland and other waters in the 2025 BSA on March 19 and 25 and April 2 and 3, 2025.

The technical determination was performed in accordance with the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory 1987). In addition, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Hawaii and Pacific Region (Version 2.0)* (Regional Supplement) (USACE 2012) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. We performed preliminary mapping of the extent and distribution of wetlands and other Waters of the U.S. (WoUS) that may be subject to regulation under Section 404 of the Clean Water Act (CWA). The "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the Corps Manual (Environmental Laboratory 1987), and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Hawaii and Pacific Islands Region (USACE 2012) were used to examine the vegetation, soils, and hydrology on site. This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

During the survey, we examined the 2025 BSA for topographic features, drainages, alterations to site hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included digging of soil pits in the study area, observing the vegetation growing near the soil sample points, and characterizing the current surface and subsurface hydrologic features present near the sample points through both observation of indicators and direct observation of hydrology. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field using a sub-meter Global Positioning System (GPS) unit.

Surveys were also conducted within the 2025 BSA for "other waters", which includes lakes, streams, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds. Such areas are identified by the (long-running seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal waters, the USACE Section 404 jurisdiction extends to the Ordinary High Water Mark (OHWM) which is defined in 33 CFR Part 328.3 as "*the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.*" "Other waters" extend to the OHWM on opposing channel banks in perennial or intermittent non-tidal drainage channels. For all the aquatic features-streams, tributaries, and ditches, we investigated the stream bed and banks and the surrounding area and gathered various geomorphic, vegetation, sediment, and ancillary indicators from both banks per USACE (2005) guidance and the interim National OHWM Manual (David et al. 2022) to delineate jurisdictional waters. We are also operating under the assumption that ephemeral streams are no longer considered waters of the U.S., despite the presence of OHWMs, due to not being considered "relatively permanent waters" under the current waters of the U.S. rule (2023).

In accordance with the September 2023 Conforming Rule defining waters of the U.S., wetlands and other waters were not considered likely to be jurisdictional Section 404 waters if they did not exhibit a clear *continuous surface connection* (EPA 2025) to navigable waters of the U.S. or their tributaries. Blocked and buried culverts located under the Highway prevent a continuous connection of several features located to the north and east of the Highway to the Pacific Ocean located to the south and west. Such wetlands and other waters were considered "isolated" in project maps.

GPS data was collected in the field using a Trimble GeoXT™ GPS unit capable of submeter accuracy. After the survey, the GPS data was processed using ARC GIS to map the extent of Section 404 other waters. We also took a set of photographs of observed wetland and OHWM features.

In addition to applying these survey methods, we compiled this report in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016). This memo lists the information that must be submitted as part of a request for a jurisdictional determination, including:

- Vicinity map (Appendix A, Figure 1)
- Project Area and wetland study area map (Appendix A, Figure 2)
- U.S. Geological Survey topographic map (Appendix A, Figure 3)
- NRCS Soils map (Appendix A, Figure 4)
- NWI map (Appendix A, Figure 5)
- Habitat map (Appendix A, Figure 6)
- Preliminary identification of waters maps (Appendix A, Figures 7, 8, 9, and 10)
- Wetland delineation data forms and photo documentation (Appendix B)
- OHWM delineation data forms and photo documentation (Appendix C)
- Written rationale for sample point choice is in the Results section Table 2 and rationale for OHWM transects is on the datasheets OHWM in Appendix C.
- The plant species observed in the 2025 BSA are the same as those observed and reported in the 2023 wetland delineation report (H. T. Harvey & Associates 2023) and are also discussed in the Results section below when describing the various features.

Regulatory Regime

This memo is prepared consistent with the March 12, 2025, the U.S. Environmental Protection Agency Department of the Army (the agencies) guidance to field staff on implementation of "continuous surface connection" (EPA 2025) and restricting jurisdiction to "relatively permanent waters" consistent with the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency* and the September 2023 Conforming Rule.

Results

As illustrated in Appendix A, Figure 6, six different habitat or vegetation types were identified within the 2025 BSA. Two points (SP21 and SP22) and seven OHWM transects were examined to identify potentially jurisdictional features (Appendix A, Figures 7 to 10). About 0.138 acres of isolated non-jurisdictional wetlands, 0.004 acres of jurisdictional waters, 0.109 acres of non-jurisdictional other waters were identified in the study area (Table 1). Results of the delineation are described below.

Table 1. Summary of Jurisdictional Wetlands and Waters, and Isolated Non-Jurisdictional Wetlands and Other Waters Delineated Within the Honoapiilani Project's 2025 Biological Study Area

Habitat Type	Area (acres)	Notes
Total Isolated Non-Jurisdictional Wetlands	***0.138***	
Wetland W12	*0.138*	*In parcel 1 in the Ukumehame region. It does not have a continuous surface connection to the ocean.*
Total Jurisdictional Waters	***0.004***	

Habitat Type	Area (acres)	Notes
Ditch D14	*0.004*	*Perennial waterbody (year-round flow) in parcel 6, in the Ukumehame region. Connected to Ditch 7 that was previously delineated as jurisdictional other water in the 2023 BSA. This feature has a continuous surface connection to the ocean via Ditch 7.*
Total Not Relatively Permanent Non-Jurisdictional Other Waters	***0.119***	
Culvert – Awalua Stream	*0.039*	*Awalua stream is not a relatively permanent stream in parcel 13, in the Launiupoko watershed. The concrete culvert carries Awalua Stream waters below an inner paved road and the Honoapiilani Highway and has a continuous surface connection to the ocean.*
Culvert Ka Puali Stream	*0.080*	*Ka Puali stream is not a relatively permanent stream in parcel 13, in the Launiupoko watershed. The culvert carries Ka Puali Stream waters under the existing Honoapiilani Highway and has a continuous surface connection to the ocean.*
Total Isolated Non-Jurisdictional Other Waters	***0.109***	
Ditch D13	*0.051*	*Not a relatively permanent waterbody in parcel 2. No continuous surface connection to the Pacific Ocean.*
Culvert Ehehene Street	*0.035*	*Not a relatively permanent water body in parcel 5, in the Ukumehame region. Runs parallel to the Pacific Ocean and the existing Honoapiilani Highway with no continuous surface connection to the ocean*
Ditch D15	*0.016*	*Not a relatively permanentl waterbody in parcel 7, in vicinity of Olowalu village. No continuous surface connection to the ocean.*
Culvert – Vicinity of Lahaina Bypass	*0.007*	*Not a relatively permanent waterbody in parcel 1. No continuous surface connection to the ocean.*
Total Section 404 Waters	**0.004**	
Total Non-Jurisdictional Waters	**0.366**	
Total Non-Jurisdictional Upland Areas	**30.96**	
Wetland Delineation Study Area Total	**31.33**	

Assumptions, Site Conditions, and Observations

The preliminary delineation assumes that relatively normal circumstances prevailed at the time (March-April 2025) of this study. The study area did not experience any recent extreme flood or drought events. The survey was performed using the "Routine Method of Determination" using three parameters, as outlined in the

Regional Supplement for wetlands and the method described to identify OHWM level for streams in the National Manual. The 13 parcels that make up the 2025 BSA encompass 31.3 acres and are scattered along the full length of the preferred alignment from HDOT's sedimentation basin in the south to the Lahaina Bypass in the north. The main access to each of the 13 parcels is from the existing Honoapiilani Highway. Five out of the 13 parcels in the BSA overlap an existing paved road—the County Road leading to the firing range in parcel 1, Pohaku Aeko Street in parcel 5, Ehehene Street in parcel 6, Luawai Street and an unnamed adjacent paved road in parcel 8, and the existing Honoapiilani Highway in parcel 13. The remaining parcels largely overlap undeveloped areas. Buffel Grass Grassland, Kiawe Opiuma Woodland, Pluchea Thickets, and Kiawe Pluchea Woodland with Pickleweed were the major habitat types observed across the 2025 BSA parcels. Kiawe (*Prosopis pallida*) and opiuma (*Pithecellobium dulce*) were the most abundant tree canopy species, and haole koa (*Leucaena leucocephala*), *Pluchea* spp. (*Pluchea indica* and *Pluchea x fosbergii*) were common shrubs. Overall buffel grass (*Cenchrus ciliaris*) was the most abundant understory species across 2025 BSA. Two ephemeral streams—Ka Puali and Awalua intersect the 2025 BSA in the northernmost parcel 13 (Appendix A, Figure 2). Specific findings of the delineation study are discussed below under *Identification of Potential Section 404 Wetlands* and *Identification of Section 404 Waters*. Appendices B contains wetland and OHWM datasheets and the associated photographic documentation.

Identification of Potential Section 404 Wetlands

Only the southernmost parcel in the Ukumehame region contained an area identified as wetland. It was dominated by hydrophytic vegetation, possessed hydric soil characters, and demonstrated evidence of wetland hydrology. This wetland identified as W12 is part of the larger Ukumehame wetlands delineated in 2023. W12 is a triangular shaped area that is situated between the Projects proposed alignments (Appendix B, Figure 7). It is continuous with wetlands W8 to the east and W10 to the west but was not mapped in the 2023 report as it fell outside of the 2023 BSA (Appendix B, Photo 1). Sample point SP12 taken in 2023 is representative of the W12 wetland habitat type where the ground cover is mostly dominated by obligate pickleweed (*Batis maritima*) species and the canopy species is FACU (facultative upland) kiawe trees, which mostly appeared to be under stress based on having no leaves and were either dead or dying. For these reasons, no sample point was taken at W12 during the 2025 study. Wetland delineation datasheet for SP12 completed in 2023 is included again for reference as part of Appendix B of this memo. Photos 2 and 3 in Appendix B show the similar habitat observed during this 2025 study.

Hydric soil indicator observed at SP12 in 2023 that is representative of wetland W12 had "Redox Depressions (F8)" with the redox features showing prominent contrast and the soil texture was clay. In general, the delineated wetland that W12 is part of has Kealia Silty Loam, 0 to 1 percent slopes and is listed on the National Hydric Soils List as hydric soils (NRCS 2025b). Kealia Silty Loams are common in tidal flat and salt marshes on Maui, are prone to frequent ponding, and are strongly saline.

Similar to the surrounding wetlands, W12 is situated in the Ukumehame floodplain that experiences seasonal flooding during the winter/rainy season. Secondary hydrology indicators of drainage patterns (B10) and stunted and stressed plants (D1) were observed in W12. In general, surface water from streams in West Maui mountains

is the primary source of hydrology supporting the wetlands in the Project's BSA. The surface water that enters the coastal plain, backs up against natural features such as the beach berm or developed infrastructure such as the existing Honoapiilani Road at this site, creating flooded conditions for varied periods of times during the wet rainy season and following heavy rains. Hanaula Gulch, part of the West Maui mountains, is the closest surface water that supports the Ukumehame wetlands including W12. W12 is also heavily influenced by salt water from the neighboring Pacific Ocean which is about 570 feet to the west. Despite its proximity to the ocean, the May 2024 field investigations found that a culvert leading from the larger Ukumehame wetlands under an old cane haul road and then under the existing Honoapiilani Road to the Pacific Ocean was blocked and did not have a continuous surface connection to the ocean (H. T. Harvey & Associated 2024). Furthermore, the culvert connecting the Hanaula Gulch to the Pacific Ocean was also blocked and did not have a continuous surface connection to the ocean (H. T. Harvey & Associates 2024). These findings contributed to making a determination that W12 is an isolated non-jurisdictional wetland.

Rationale for Sample Point Choice—Two sample points were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Appendix A, Figure 8). Rationale and findings for wetland sample points locations SP21 and SP22 are summarized in Table 2. Location of sample points are depicted in Appendix B, Figure 8. Photos associated with sample points are included along with the wetland datasheets in Appendix B with rationale in the photo captions.

Table 2. Summary of Sample Points Locations and Results for the 2025 Biological Study Area

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soils?	Wetland Hydrology?	Overall Wetland Assessment
SP21 (Photos 4-6)	Placed to investigate a 100 percent dense cover of facultative *Pluchea* spp. thickets next to a jurisdictional feature (D9, delineated in 2023) that had standing water in it. SP21 was placed in a slightly concave depression leading away from the east bank of the jurisdictional ditch.	Yes	No	Yes	This area does not meet the three parameter wetland criteria.
SP22 (Photos 7-9)	Placed to investigate a 100 percent dense cover of facultative *Pluchea* spp. shrubs next to a ditch that had standing water in it. SP22 was placed in a slightly concave depression leading away from the east bank of the jurisdictional ditch.	Yes	No	Yes	This area does not meet the three parameter wetland criteria.

Identification of Potential Section 404 Waters

A total of 0.004 acres of Section 404 other waters were mapped in the 2025 BSA. Appendix D contains the OHWM datasheets that describe site conditions at the time of delineation, observed OHWM indicators, rationale for placement of the data gathering transects, and associated photos for these aquatic features mapped

during this study. Described below are additional background and relevant details for these mapped jurisdictional and non-jurisdictional features.

Ditch 13—Ditch 13 in parcel 2 is part of the agricultural ditch system in the Ukumehame flood plain (Appendix A, Figure 7) that is remnant from the sugarcane plantation time on Maui. It enters parcel 2 from the southwestern border, runs north for 106 feet and abruptly ends (Appendix C, Photos 10, 11, and 12). Ditch 13 does not have a continuous surface connection to the ocean. It appears to derive its hydrology from the Hanaula Gulch and its associated ditches (D1 to D7 delineated in 2023) which are about 400 feet to the south of Ditch 13 and which also do not have a continuous surface connection to the ocean. Ditch 13 had a clear bed and bank and break in slope, observed above the OHWM level as the main indicator for this feature. The ditch had recently conveyed water as the bed was saturated with some scattered facultative species such as *Atriplex semibaccata*. Dead and dying matted down vegetation was an indicator below the OHWM level in this feature. The ditch was deeper (about 5 feet) at the southern end where it enters parcel 2, gets shallower toward the north and appeared to be filled at the northern end where it abruptly ends.

Culvert – Ehehene Street—This is a concrete culvert situated in parcel 5 (Appendix A, Figures 2 and 8). It runs in the north south direction below Ehehene Street, right where the street connects with the existing Honoapiilani Highway (Appendix C, Photos 13, 14, and 15). The culvert is about 150 feet from the Pacific Ocean and runs parallel to the ocean and the existing Honoapiilani Highway. It does not have a continuous surface connection to the ocean and conveys water in the north south direction amongst the remnant agricultural ditch system east of the existing Highway. It appears to derive its hydrology via surface flows (during and after rains) from Ukumehame Stream about 0.3 miles to the south and perennial ditch system (D9 and D14) about 350 feet to the north. The culvert was dry at the time of the survey and heavily overgrown with mostly upland plant species such as haole koa and buffel grass. The top beam of the concrete and the wings of the culvert that lead down to the ditch were used to identify the OHWM level here. Observations made and photos taken during the 2023 wetland delineation survey when the vegetation around this culvert was mowed (H. T. Harvey & Associates 2023) were also used to guide the OHWM delineation for this feature.

Ditch 14—This feature is located in parcel 6 of the 2025 BSA (Appendix A, Figures 2 and 8). It enters the parcel at the northwestern corner, bends to the west and abruptly ends (Appendix C, Photos 16-19). The ditch was heavily overgrown with dense thickets of facultative *Pluchea* spp. shrubs that made access and observations of OHWM features challenging. At one corner standing water was seen with break in bank and water-stained leaves along the top of the bank as OHWM indicators. As seen on the aerial imagery and based on field observations, Ditch 14 is connected to Ditch 9 that was delineated during the 2023 wetland study and has a continuous surface connection to the Pacific Ocean (H. T. Harvey & Associates 2023). Ditches D7 and D14 have year-long flows and probably deriving from hydrology from Ukumehame Stream (Appendix C, Photos 16-19). The dense cover of vegetation perhaps also helps retain water year-round in the ditches outside of rain events.

Ditch 15—Ditch 15 is in the southwestern corner of parcel 7 in the vicinity of Olowalu village (Appendix A, Figures 2 and 8). It appears to be an isolated ditch remnant of the old sugarcane plantations here. Ditch 15 is in the vicinity of the isolated ditches D11 and D12 that were delineated in 2023 and may have an underground connection to these features. The ditch did not have a continuous surface connection to the ocean. Break in slope with clear bed and bank were the OHWM indicators used to delineate this ditch which was heavily overgrown with the facultative *Pluchea spp*. shrubs (Appendix C, Photos 20-22). The ditch was barely visible under the dense vegetation. Lack of rooted plants in the bed also was used as an indicator to identify the OHWM level in this shallow and hard to see ditch. The southern end of the ditch had some water but for the most part the bed was saturated with no standing water.

Culvert – Awalua Stream—The Awalua Stream Culvert is situated in the northernmost parcel 13 of the 2025 BSA on the east side of the existing Honoapiilani Highway (Appendix A, Figures 2 and 10). This culvert carries Awaula, an ephemeral stream, under an inner road that runs parallel to and on the east side of the existing Honoapiilani Highway (Appendix C, Photos 23 and 24). This is a large concrete culvert that is continuous with the Awalua Stream delineated during the 2023 wetland study. Awalua Stream and this culvert have a continuous surface connection to the ocean. The northern side of this culvert is a concrete wall while the southern side is a rockwall with both, concrete bed and rock bed, that runs between the inner road and the existing Honoapiilani Highway. These features were used to identify the OHWM level in the field. No signs of water were observed during the survey. The Vegetation surrounding this culvert is composed of mostly upland plant species of kiawe, buffle grass, uhaloa (*Waltheria indica*), haole koa.

Culvert – Ka Puali Stream—The Ka Puali Stream Culvert is in the northernmost parcel 13 of the 2025 BSA. This culvert carries Ka Puali, an ephemeral stream, under the existing Honoapiilani Highway and has a continuous surface connection to the ocean. The entire stretch of the culvert in parcel 13 is under the existing Highway, was not visible from above ground and was mapped based on aerial imagery (Appendix A, Figure 10).

Culvert – Vicinity of Lahaina Bypass—This feature is in parcel 13 in the northernmost section of the BSA in the vicinity of the Lahaina Bypass (Appendix A, Figures 2 and 10). The beam of the concrete culvert and the wings of the culvert were used to identify the OHWM level at this feature. Large rocks were placed in the spillway and the culvert opening under the Highway did not appear to be blocked (Appendix C, Photo 25). But dense vegetation of mostly upland plant species such as kiawe, buffel grass, and ilima (*Sida fallax*) surrounded the culvert and the rocks. No continuous surface connection to the ocean was found. Ditch 12, a perennial but isolated (no continuous surface connection to the ocean) feature delineated in 2023 and situated on the opposite and east side of the existing Honoapiilani Highway, possibly has an underground hydrological connection to this culvert.

Areas Not Meeting the Regulatory Definition of WoUS

The remainder of the 2025 BSA does not meet the regulatory definition of Section 404 wetlands or other waters. Wetland W12 was mapped in the Kiawe Pluchea Woodland with Pickleweed, and non-jurisdictional

uplands occur in the remaining five habitat types observed in the BSA. The most abundant ground cover in upland habitats across the 2025 BSA was buffel grass. The most common canopy tree species include kiawe [UPL (Upland)] and opiuma [FAC (facultative)]; and the most common shrub species include haole koa [UPL] and *Pluchea* spp. [FAC (facultative)]. While upland species such as kiawe were found in wetlands, they often appeared to be stressed with little to no leaves on branches. While facultative *Pluchea* species dominated many of the upland habitats; the areas mapped as wetland differed in that it was associated with ephemeral or perennial water bodies, had prominent hydrology indicators, were co-dominated by obligate pickleweed and had clear hydric soil indicators as well.

Conclusion

In conclusion, H. T. Harvey & Associates' delineation of Section 404 WoUS in the Project's 2025 BSA is based upon our best professional judgement. Federal jurisdiction is solely dependent on the determination and confirmation by USACE. Acceptance may require a site visit by a USACE representative to confirm the delineation data points gathered in the surveyed area. This delineation is not official until HDOT and FHWA receive a Jurisdictional Determination letter from USACE.

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Attachments

Appendix A – Wetland Delineation Figures 2025 Biological Study Area
Appendix B – Wetland Delineation Datasheets with Photos
Appendix C – Ordinary High Water Mark Delineation Datasheets with Photos

Appendix A. Wetland Delineation Figures 2025 Biological Study Area

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Figure 1. Project Vicinity
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

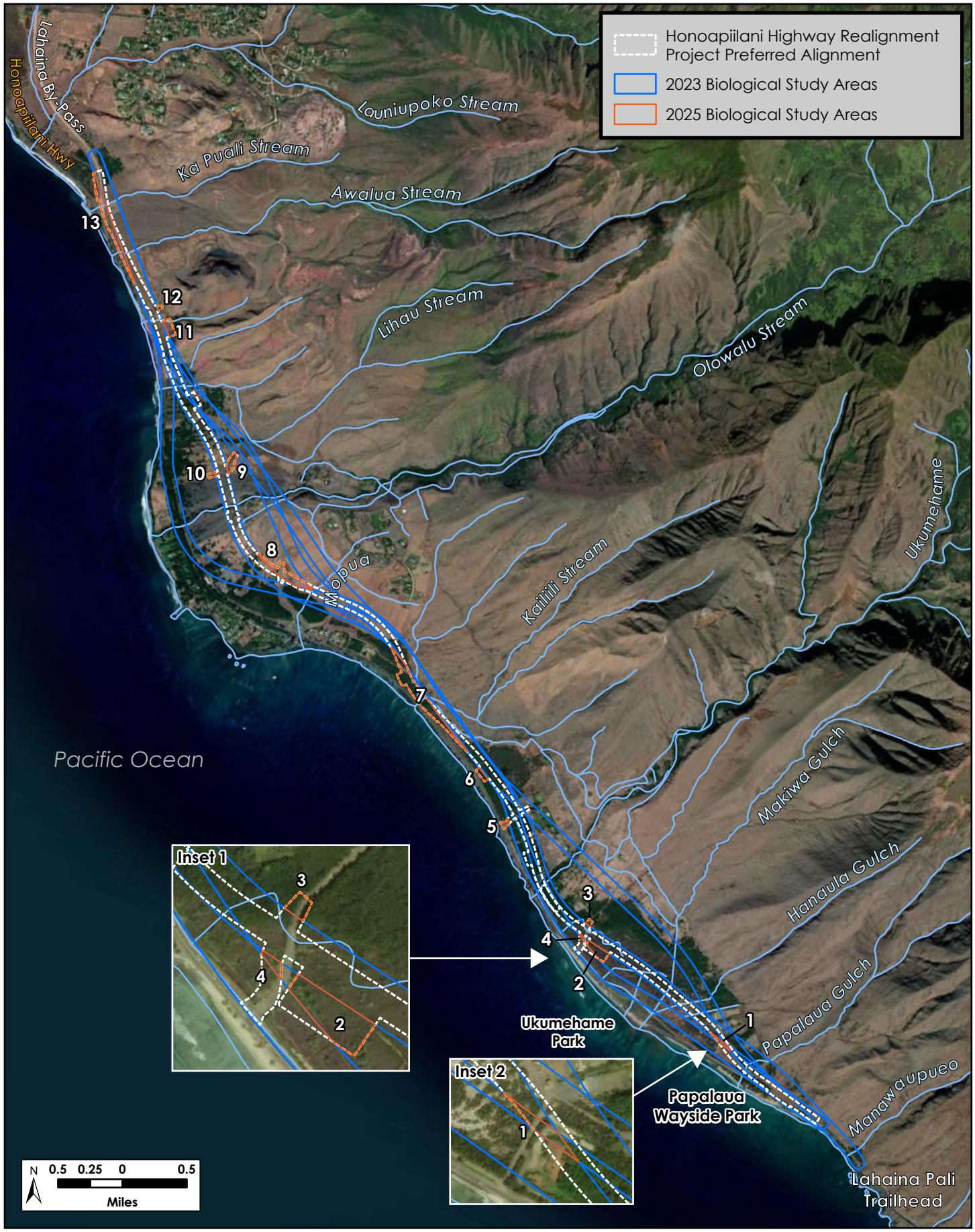

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Figure 2. Wetland Delineation Study Area
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

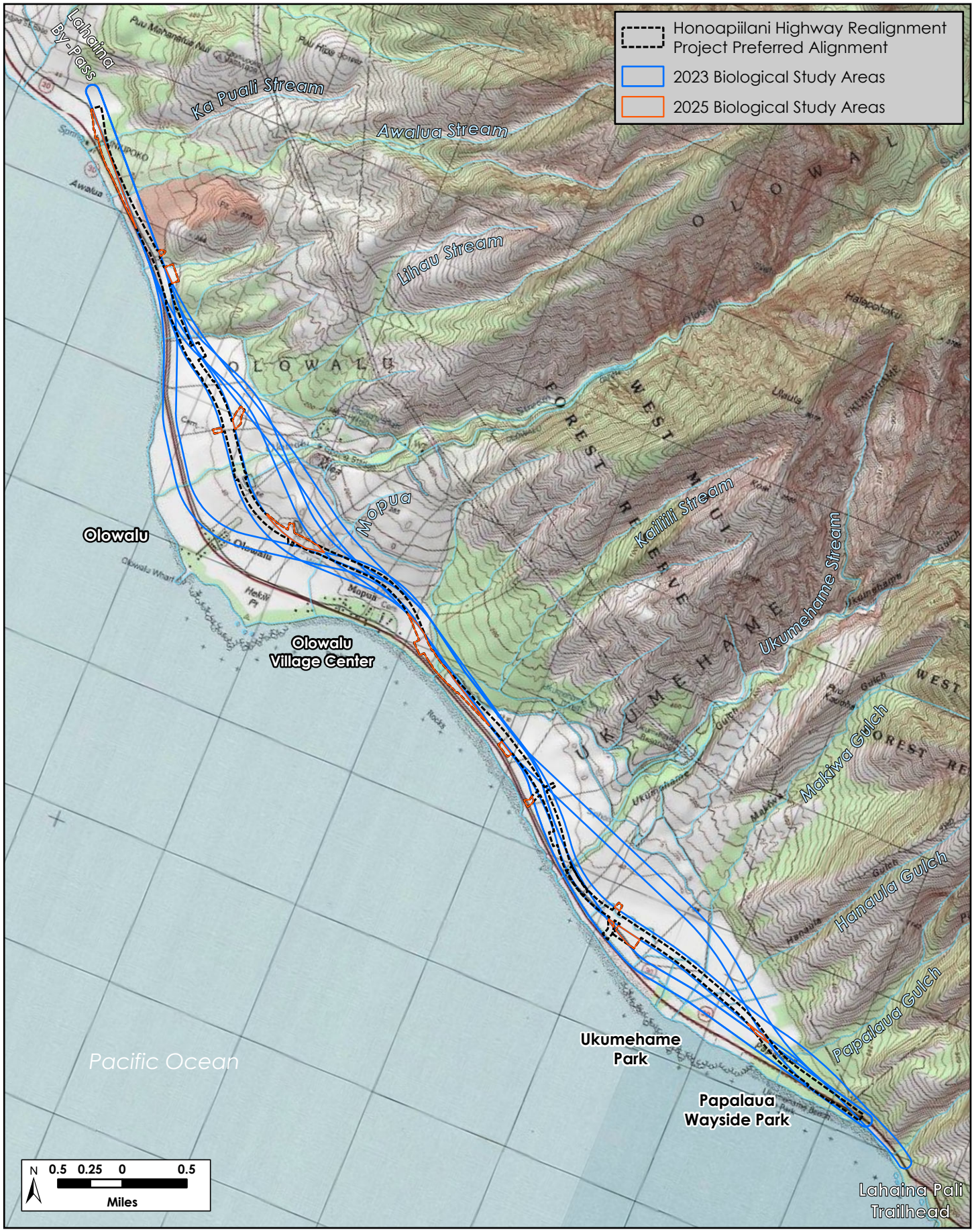

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Figure 3. USGS Topographic Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

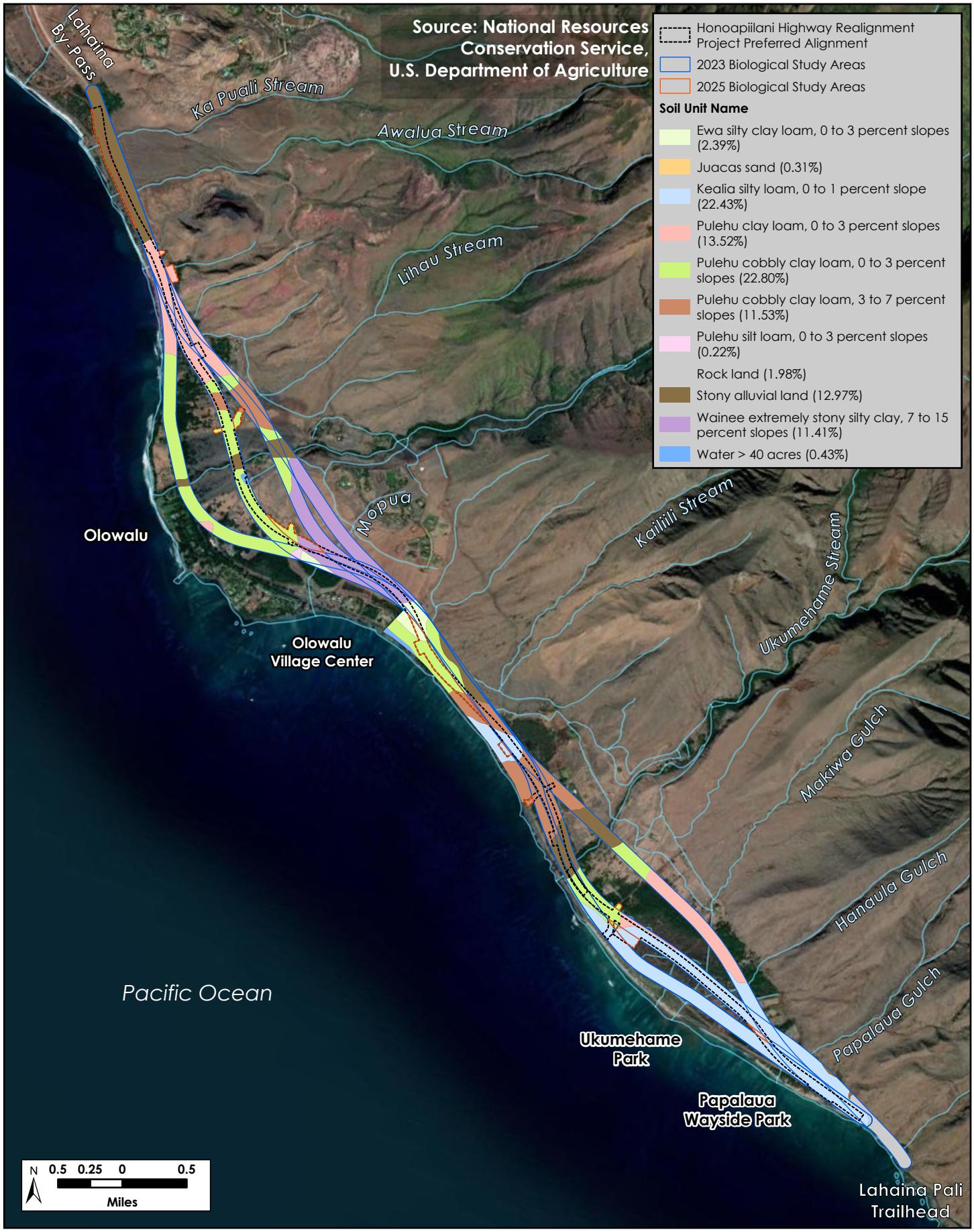

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Figure 4. Soils Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

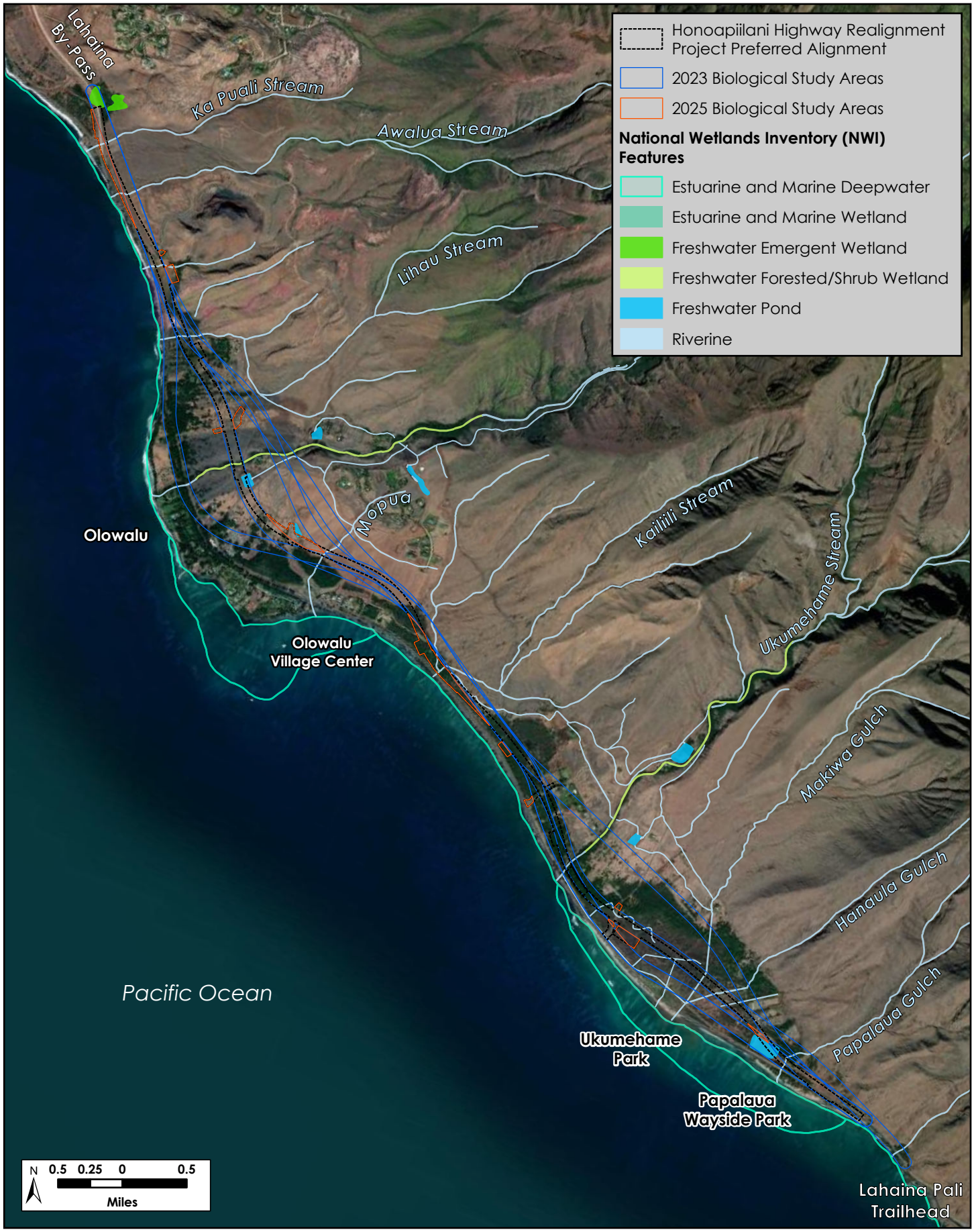

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Figure 5. National Wetland Inventory Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

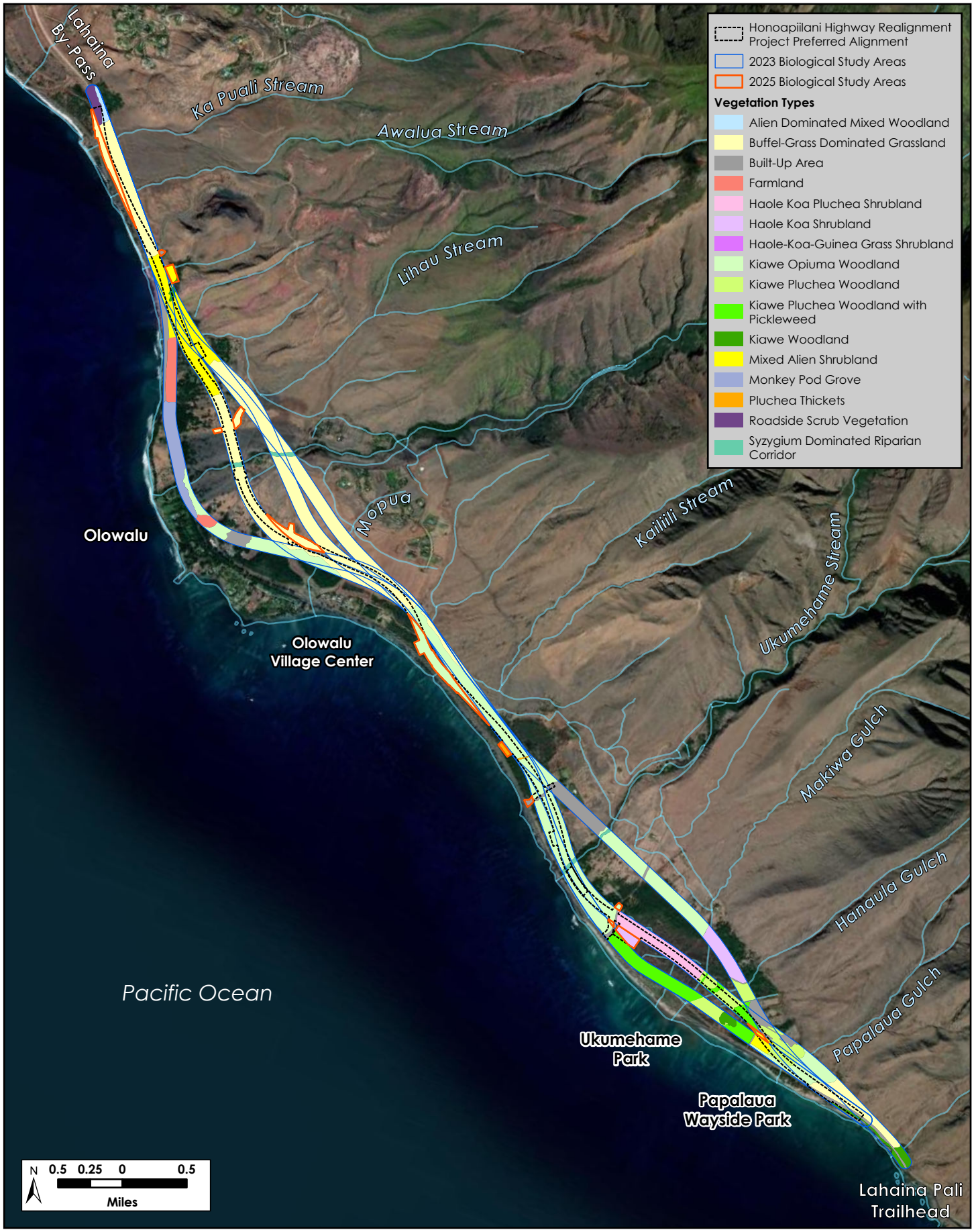

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Figure 6. Habitat/Vegetation Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

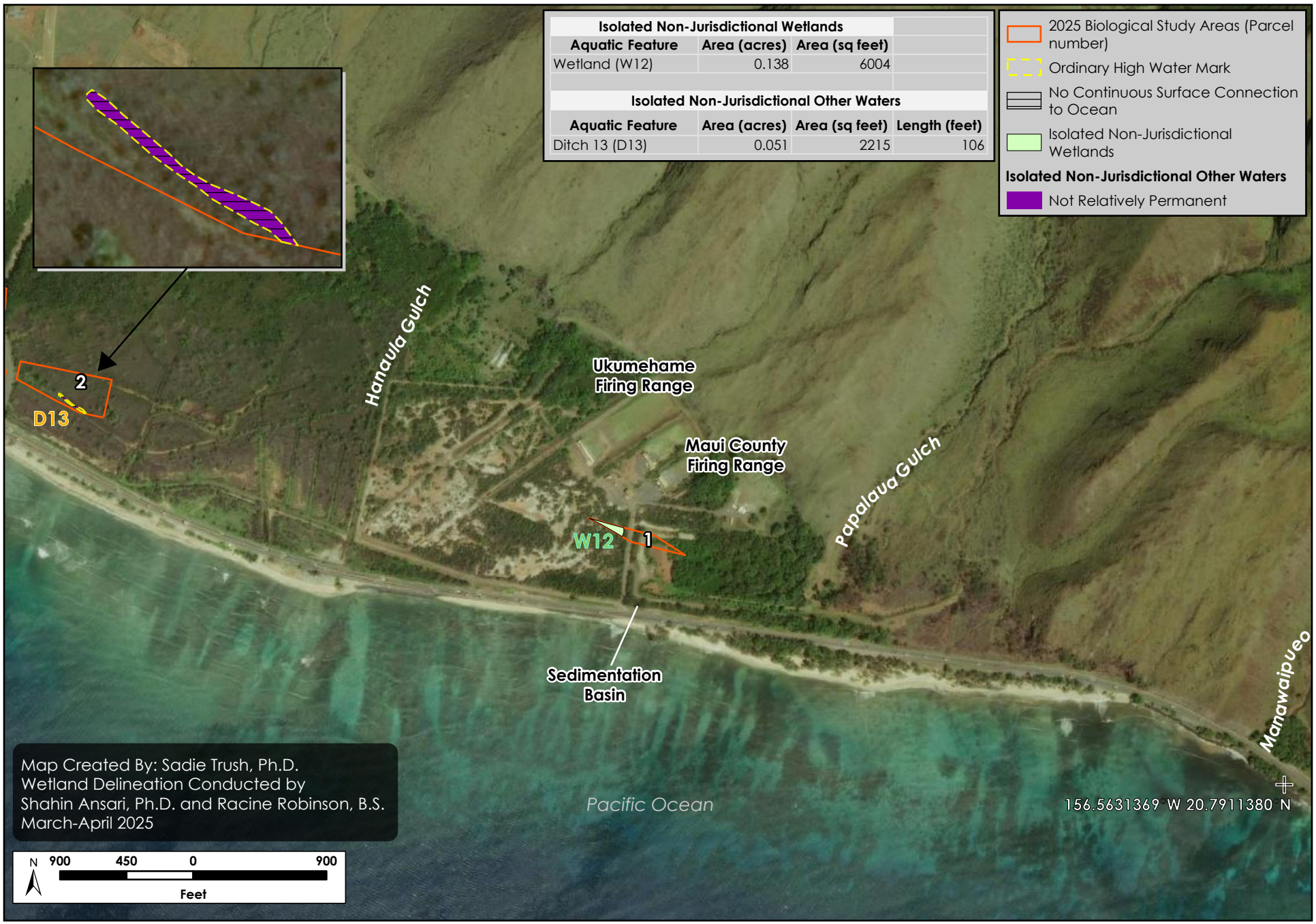

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Figure 7. Preliminary Identification of Waters of the U.S. in the Papalaua and Ukumehame Portions of the 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)

May 2025

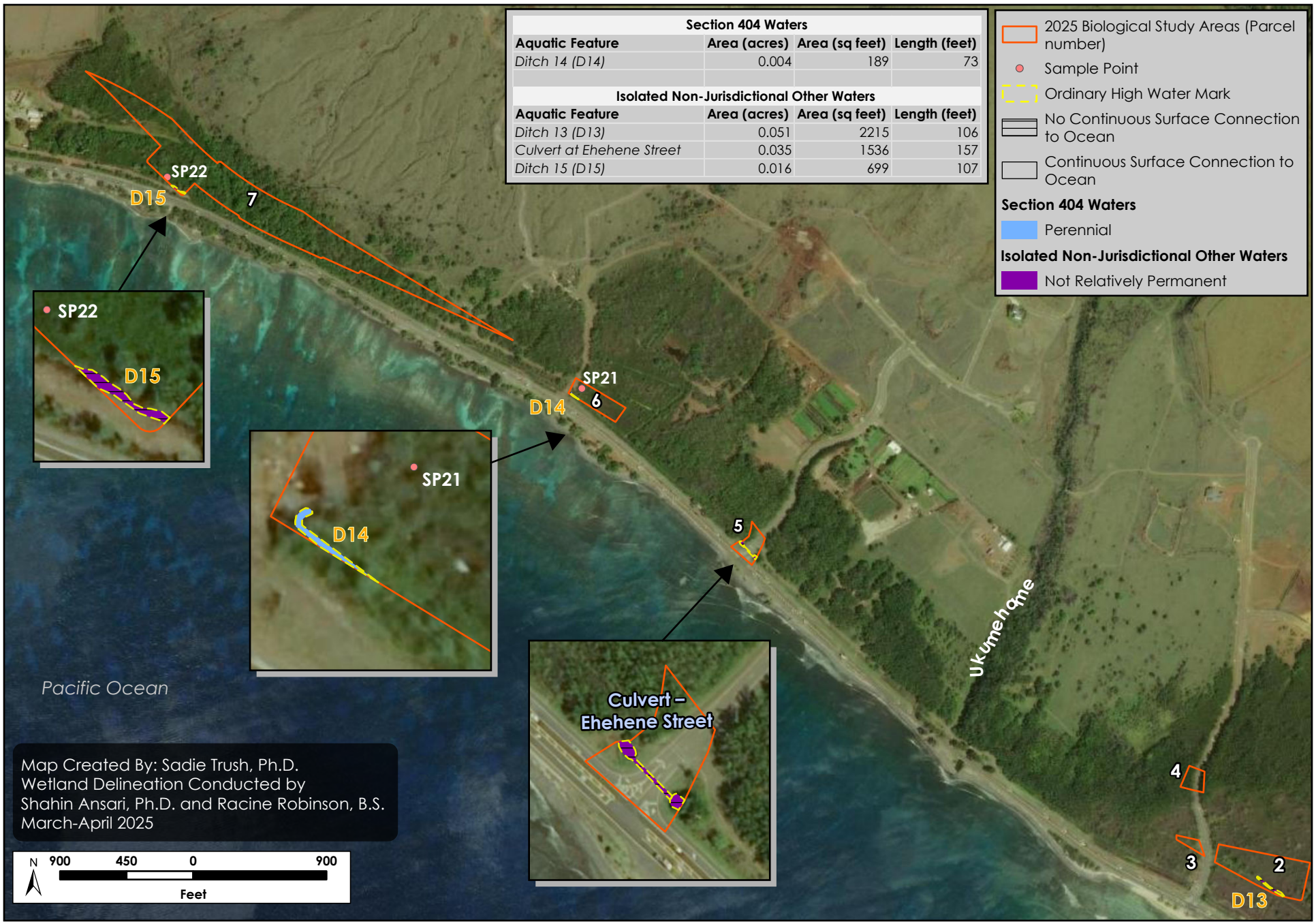

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Figure 8. Preliminary Identification of Waters of the U.S. in the Ukumehame Portions of the 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)
May 2025

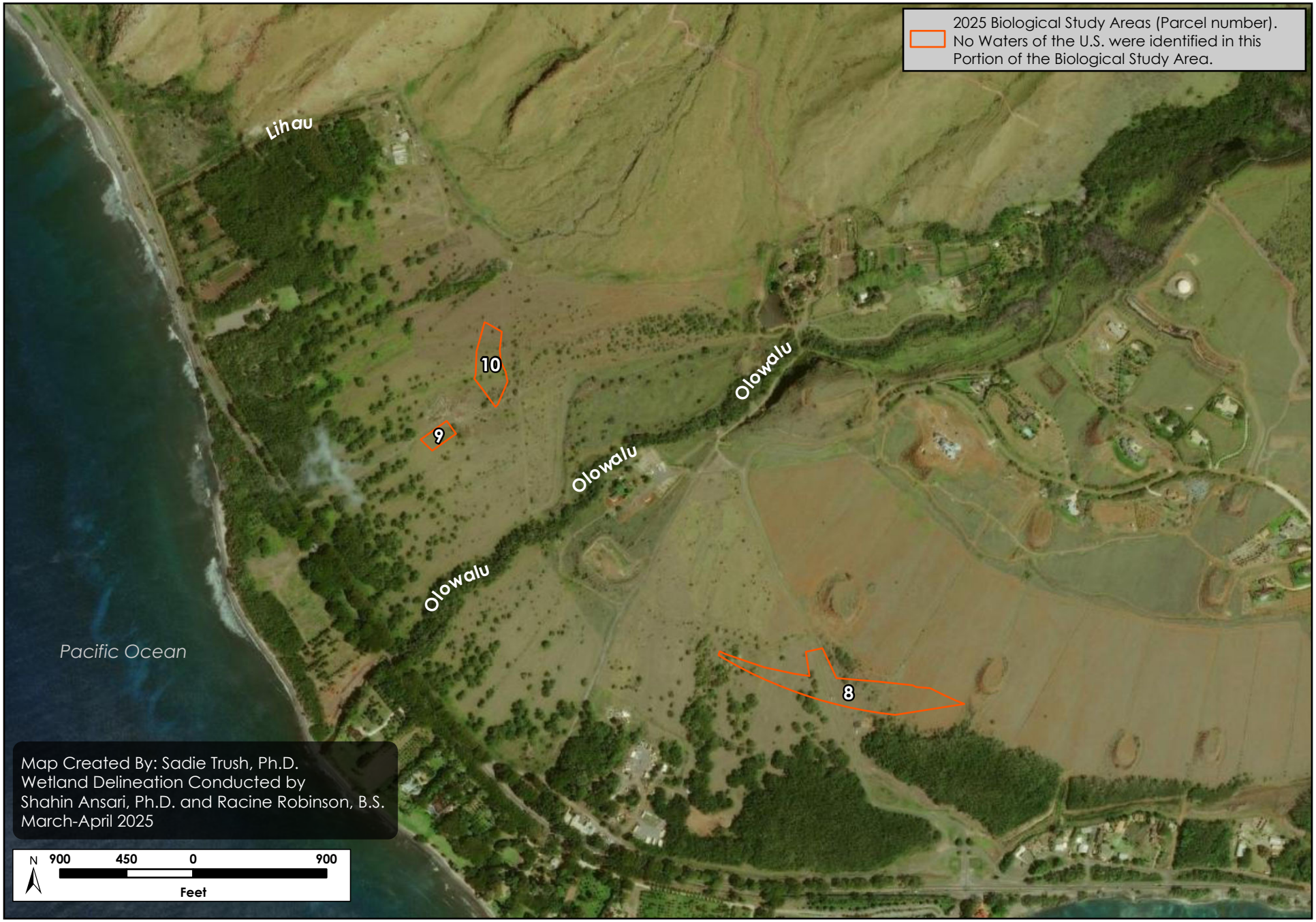

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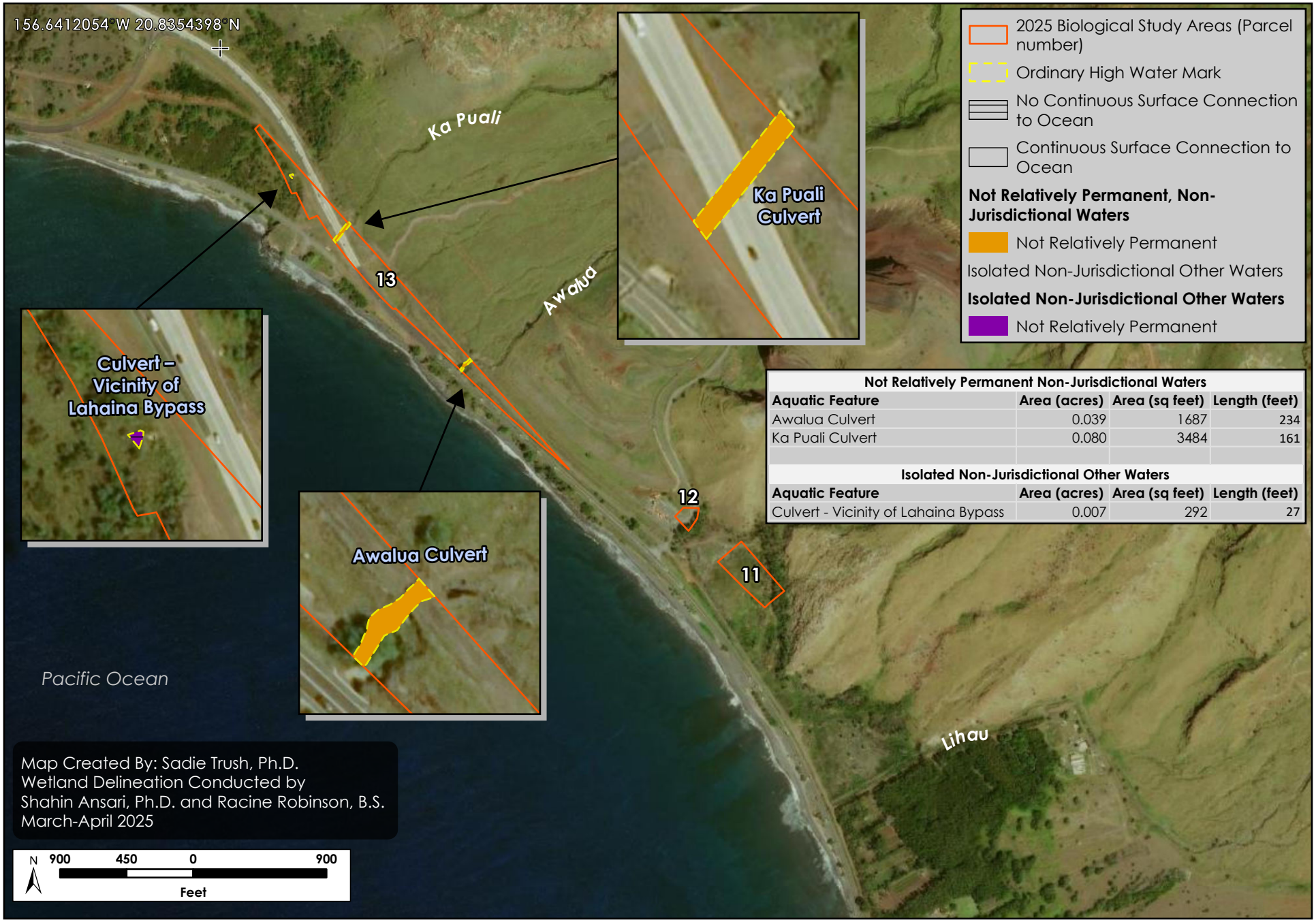
Figure 9. Preliminary Identification of Waters of the U.S. in the Olowalu Portion of the 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)

May 2025



Not Relatively Permanent Non-Jurisdictional Waters			
Aquatic Feature	**Area (acres)**	**Area (sq feet)**	**Length (feet)**
Awalua Culvert	0.039	1687	234
Ka Puali Culvert	0.080	3484	161
Isolated Non-Jurisdictional Other Waters			
Aquatic Feature	**Area (acres)**	**Area (sq feet)**	**Length (feet)**
Culvert - Vicinity of Lahaina Bypass	0.007	292	27

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Figure 10. Preliminary Identification of Waters of the U.S. in the Launiupoko Portion of the 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)

May 2025

Appendix B. Wetland Delineation Datasheets with Photos

WETLAND DETERMINATION DATA FORM – Hawai'i and Pacific Islands Region

Project/Site: Honoapiilani Highway Improvement Project - East of County Firing Range City: Ukumehame Sampling Date: 5/1/23 Time: 10:30 am

Applicant/Owner: Hawaii Department of Transportation State/Terr/Comlth.: HI Island: Maui Sampling Point: SP12

Investigator(s): Shahin Ansari, Terrell Erickson TMK/Parcel: _____

Landform (hillslope, coastal plain, etc.): _____ Local relief (concave, convex, none): _____

Lat: 156.57761W Long: 20.795880N Datum: _____ Slope (%): _____

Soil Map Unit Name: Kealia Silt Loam NWI classification: Area has "Riverine" features

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 sq feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prosopis pallida	5	Y	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 200 sq feet)			
1. Batis maritima	100	Y	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	5	x 4 =	20
UPL species	_____	x 5 =	_____
Column Totals:	105 (A)		120 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain in Remarks or in the delineation report)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 2.5/2						Clay	Many fine roots
6-18	5YR 3/3	80-98	2.5YR 4/6	2-20			Clay	Prominent contrast

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Muck Presence (A8)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Dark Surface (S7)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ Stratified Layers (A5)
___ Sandy Mucky Mineral (S1)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

Black concentrations were charcoal and not Mn.

HYDROLOGY

Wetland Hydrology Indicators: (Explain observations in Remarks, if needed.)

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Tilapia Nests (B17)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Fiddler Crab Burrows (C10) (Guam, CNMI, and American Samoa)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
X Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches):
Water Table Present? Yes ___ No X Depth (inches):
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches):

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

P. pallida trees appeared stunted and and almost dead in this B. maritima dominated patch. Area next to this patch is open parking for County firing range which showed signs of ponding.

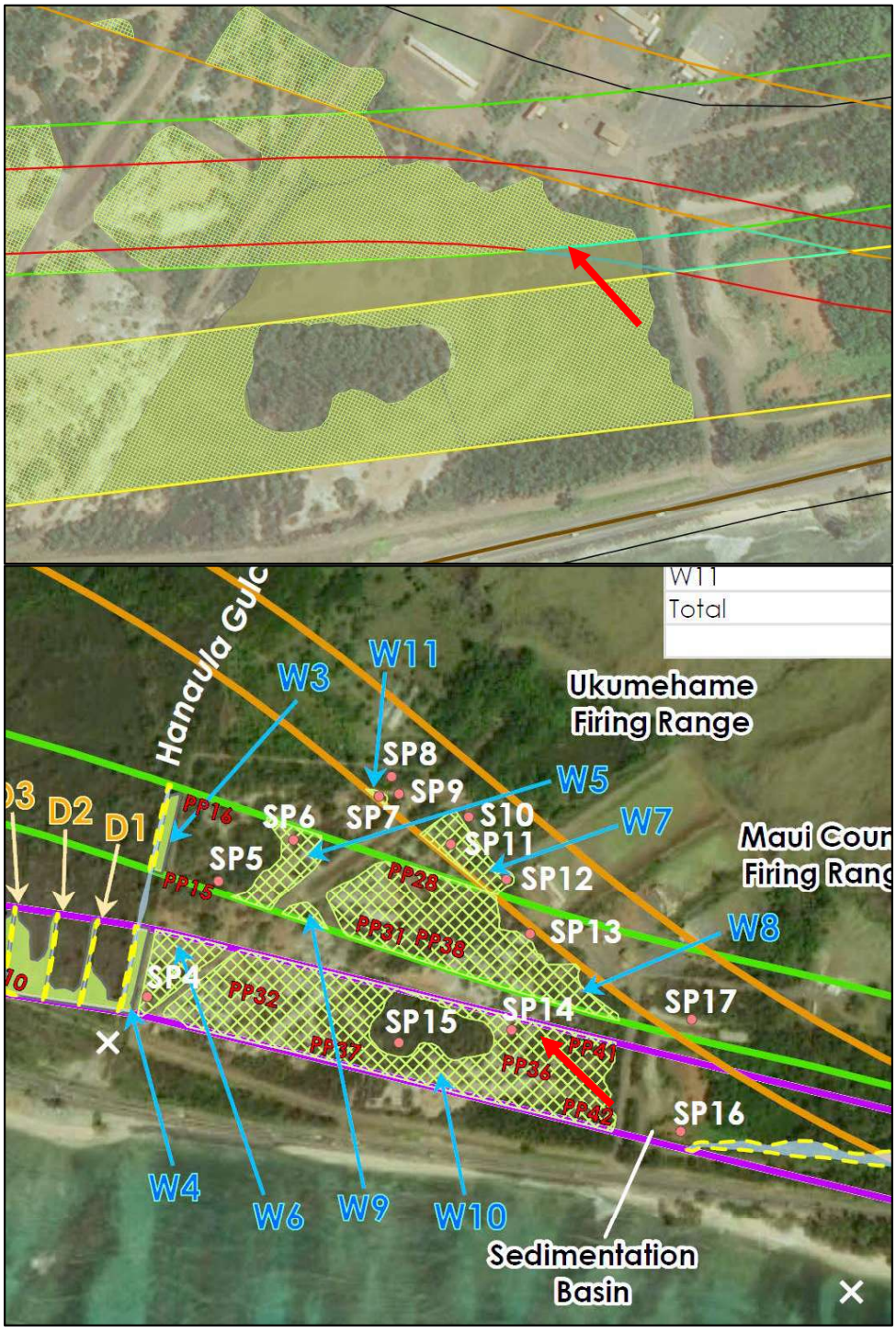

Photo 1. Snippets from the 2023 wetland delineation draft field map (above) and the technical report Figure 7 (below). The red arrow indicates W12 area that was delineated as wetland between the two proposed alignments but was cut to show impacted wetlands within the 2023 biological survey area limits (alignments).

Photo 2. View of wetland 12 taken from the Maui County Road leading to the firing rage. View to the north. Stressed kiawe trees in the foreground with dense ground cover of the obligate pickeleweed (*Batis maritima*) plants in the background.

Photo 3. Photo taken in 2023 near the northern end (toward tip of the triangular shaped W12 parcel) of W12 with dense pickleweed (*Batis maritima*) ground cover and with dead and dying kiawe (*Prosopis pallida*) trees (right corner). View to the east.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Hawaii and Pacific Islands Region
See ERDC/EL TR-12-5; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Honoapiilani # 4692-02 City: Olowalu Sampling Date: 4/3/25 Time: 9:40 AM
Applicant/Owner: State/Terr/Comlth.: Hi Island: Maui Sampling Point: SP-21
Investigator(s): Shahin Ansari, Racine Robinson TMK/Parcel:
Landform (hillside, coastal plain, etc.): Depressional basin Local relief (concave, convex, none): concave
Lat: Long: Datum: Slope (%): 3
Soil Map Unit Name: Pulehu cobbly clay loam, 0-3% slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Depressional basin along dry ditch, adjacent to roadside ditch of Honoapiilani Hwy. Soil disturbed - comprised of rocky fill material with debris (rocks, large cobble, tire debris, trash)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 =Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10')			
1. Pluchea	100	X	FAC
2.			
3.			
4.			
5.			
	100 =Total Cover		
Herb Stratum (Plot size: 10x10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 =Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Bare ground - no herbs due to dense Pluchea cover.

SOIL

Sampling Point: SP-21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3								woody debris/organic material
3-8	7.5YR 2.5/1	100					Loam	Organic debris (non-decayed)
8-17	7.5YR 2.5/1	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6) **(Guam, CNMI, and American Samoa)**
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock/compacted soil

Depth (inches): 17

Hydric Soil Present? Yes ____ No X

Remarks:

Soil very crumbly and dry between 3-8 inches. After 8inches, a little more moist but still crumbles.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) **(Guam, CNMI, and American Samoa)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Stunted Prosopis pallida outside of plot

Photo 4. Approximate landscape location of SP21 (white dot to the left). Other features illustrated in this landscape picture are Ditch 14 (pink blob), Ditch 9 (yellow arrows), connection of Ditch 9 to the Pacific Ocean (red arrow), culvert at Ehehene Street (white arrow), and the perennial Ukumehame Stream (blue arrow).

Photo 5. Dense thickets of facultative shrubs *Pluchea* spp. (*Pluchea x fosbergii* and *Pluchea indica*) where SP21 was placed. View to the west. Stressed upland kiawe (*Prosopis juliflora)* trees in the backgrroud. Facultative milo (*Thespesia populnea*) trees in the foreground.

Photo 6. Soil pit at SP21 revealed non-hydric soils of loam and clay textures. The top three inches was composed of woody debris/organic matter.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Hawaii and Pacific Islands Region
See ERDC/EL TR-12-5; the proponent agency is CECW-COR

OMB Control #: 0710-0024, Exp: 09/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Honoapiilani (#4692-02 City: Olowalu Sampling Date: 4/02/25 Time: 10:30 AM
Applicant/Owner: State/Terr/Comlth.: Hi Island: Maui Sampling Point: SP22
Investigator(s): Shahin Ansari, Racine Robinson TMK/Parcel:
Landform (hillside, coastal plain, etc.): Slight hillslope Local relief (concave, convex, none): concave
Lat: Long: Datum: Slope (%): 2
Soil Map Unit Name: Pulehu cobbly clay loam, 0-3% slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 =Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10')			
1. Pluchea	100		FAC
2. Leucaena leucocephala	2		UPL
3.			
4.			
5.			
	102 =Total Cover		
Herb Stratum (Plot size: 10x10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 =Total Cover		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Bare ground and leaf litter in herbaceous stratum, Pluchea blocks any herb growth.

SOIL

Sampling Point: SP22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1								Organic material + woody debris
1-12	5YR 2.5/1	95	5YR 3/3	2	C	M	Clay	
12-18	10YR 3/2	100					Clay	
18-20	10YR 3/1	99	5YR 3/4	1	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Muck Presence (A8)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6) **(Guam, CNMI, and American Samoa)**
- ___ Dark Surface (S7)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Stratified Layers (A5)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Tilapia Nests (B17)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Fiddler Crab Burrows (C10) **(Guam, CNMI, and American Samoa)**
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Stunted Leucaena leucocephala in plot. Stunted + stressed Prosopis pallida within area outside of plot.

Photo 4. Approximate landscape location of SP22 (red dot) in the Olowalu area. The area is relatively disturbed and overlaps remnant ditches from the time of the sugarcane plantation. The yellow lines illustrate the approximate location of the isolated non-jurisdiction ditches (D10 and D 11) that were delineated in 2023 and had water in it. The pink line illustrate the approximate location of the ditch delineated during this 2025 survey.

Photo 5. SP22 was placed amidst dense thickets of facultative thickets of *Pluchea spp*. (*Pluchea x fosbergii* and *Pluchea indica*). Stressed out kiawe (*Prosopis pallida*) trees seen in the background were scattered amongst the *Pluchea* thickets.

Photo 6. Soil sampled at SP22 was dry and did not meet any hydric soil indicators. There were some brick pieces in the profile as seen in the sample (picture to the right) suggesting fill.

Appendix C. Ordinary High Water Mark Delineation Datasheets with Photos

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: 4692-02	Site Name: 2025 Biological Study Area Parcel 2.	Date and Time: April 3, 2025 1 pm
Location (lat/long): 156.58634N 20.79787W	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
This features is part of the remnant ditch system from the sugarcan plantation time in the Ukumehame region. There were no recent flood or drought events at the time of the survey. The ditch derives its hydrology from the Hanaula Gulch and associated ditches. As expected it was dry and flows only during and after rain.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Ditch with earthern bed and banks, remnant from when the land was under sugarcane plantation. Linear ditch with no standing water but saturated bed. Woody debris along bed and banks.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [ ] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [ ] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [X] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [X] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [ ] **Change in vegetation type from** _____ **to** _____
- [X] **Change in density of vegetation**
- [X] **Exposed roots below intact soil layer**
- [X] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Other physical indicators

- [X] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [X] **Leaf litter disturbed or washed away**
- [X] **Water staining**

Other observed indicators? Describe:

No standing water but saturated bed. Ditch suddenly terminates and appeared sedimented.

Project ID #: 4692-02

Step 4 Was additional information used to support identification of the OHWM? ☒ Yes ☐ No

If yes, describe and attach information to data sheet:

The ditch is visible in aerial imagery which was used to corroborate and field delineation.

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Bed and lower banks were covered with fallen, matted down, dead branched and debris. Sediment deposit on the woody debris and change from mostly unvegetated bed to vegetated upper banks were were some of the main indicators used to place the OHWM elevation at the ditches.

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 10	see attached
Photo 11	see attached
Photo 12	see attached.

Photo 10. Break in slope (yellow line), dead matted down woody debris with mostly unvegetated bed with some recently recruited herbaceous plants in the saturated bed were the main OHWM indicators in Ditch 13. The approximate location where ditch enters parcel 2 of the Biological Study Area.

Photo 11. Undercut bank (yellow line) at some places and change in vegetation from unvegetated to vegetated banks were also used to determine the OHWM level in Ditch 13.

Photo 12. Location where Ditch 13 abruptly terminates in the northern portion of parcel 2 of the Biological Study Area.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Honoapiilani Highway	Site Name: Culvert Ehehene Street	Date and Time: April 3, 2025. 2:30 pm
Location (lat/long): 156.59595N 20.80365W	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
This feature is a concrete culvert that runs north-south direction under Ehehene Street parallel to the existing Honoapiilani Highway. No extreme recent flood or drought event occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

While the top beam and headwall of the concrete culverts were visible on both sides of Ehehene Street, the wings of the concrete culvert were overgown with vegetation making is hard to identify the OHWM.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [X] Other: _____
- [ ] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [X] *human-made berms or levees*
  - [X] *other berms:* concrete culvert
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [X] *transition from* soil to concrete
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [ ] **Change in vegetation type from** _____ **to** _____
- [ ] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [X] **Other vegetation observations**

Change from concrete wings of culvert to vegetated bed and bank.

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:

Other than for the slight break in the earthen bank along the wings of the culvert, no other OHWM indicators were obvious. The culvert openings and the ditch that it opens into on both sides were dry and vegetated. and the ditch that the culvert opens into is filled. Observations made and photos taken during the 2023 survey show the area around the culvert opening and the shallow ditch it opens into to be mowed, dry and mostly filled in with soil. Although the concrete itself was not blocked.

Project ID #: Honoapiilani Highway

Step 4 Was additional information used to support identification of the OHWM? ☒ Yes ☐ No

If yes, describe and attach information to data sheet:

Observations and photos from the 2023 survey were used to confirm the OHWM level at this culvert. Photos attached.

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Other than for the concrete culvert structure and a slight break in slope the OHWM indicators here were very weak.

Additional observations or notes

See attached photos.

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 13	See attached.
Photo 14	See attached
Photo 15	See attached

Photo 13. Landscape position of the Ehehene Street culvert (white two-way arrow), the ditch system (yellow arrows) that runs parallel to the existing Honoapiilani Highway, perennial Ukumehame Stream (blue arrow), and the location where the ditch system connects to the Pacific Ocean (red arrow) under the Highway.

Photo 14. Ehehene Street culvert (south opening on top and north opening below) was overgrown with vegetation at the time of the 2025 survey.

Photo 15. Ehehene Street culvert – south side (north view) as observed during the 2023 survey. Other than for a slight break in the slope (yellow line) no OHWM indicators were obvious at this disturbed and manipulated culvert location.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Honoapiilani Highway	Site Name: Ditch 14, parcel 6 of 2025 study area	Date and Time: April 3, 2025. 2:00 pm
Location (lat/long): 156.59919N, 20.80637	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Ditch 14 is part of the old agricultural ditch system that runs parallel to the existing Honoapiilani Highway in the vicinity of Ehehene Street. Normal low flows occurred at the time of the survey.
No extreme recent flood or drought event occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Dense impenetrable thickets of vegetation surround the ditches that made it challenging to find OHWM indicators here.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [ ] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [ ] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [ ] **Change in vegetation type from** _____ **to** _____
- [ ] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [X] **Wracking/presence of organic litter**
- [X] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [X] **Water staining**

Other observed indicators? Describe:

Pooled water under very dense thickets of the facultative Pluchea spp. shrubs.

Project ID #: Honoapiilani Highway

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Break in slope with pooled water.

Additional observations or notes

The ditch is covered under dense woody thickets of the Pluchea shrubs and fallen logs of kiawe trees precluding access. Only a small portion of the ditch was visible. Aerial imagery shows this ditch to potentially be a continuation of Ditch 9 (delineated in the 2023 study for this project) that runs parallel to the existing Honoapiilani Highway. The entire ditch system is a remnant from the old sugarcane plantation. Stretches of the ditch system including Ditches 9 and this Ditch 14 are filled in.

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 16	See attached
Photo 17	See attached
Photo 18	See attached
Photo 19	See attached

Photo 16. Landscape position of the Ditch 14 (pink blob to the left), the ditch system (yellow arrows) that runs parallel to the existing Honoapiilani Highway, Ehehene Street culvert (white two-way arrow), perennial Ukumehame Stream (blue arrow), and the location where the ditch system connects to the Pacific Ocean (red arrow) under the Highway.

Photo 17. Ehehene Street culvert (south opening on top and north opening below) was overgrown with vegetation at the time of the 2025 survey.

Photo 18. Brown (reflecting in photo her; blue arrows) Water in Ditch 14 under thickets of facultative Pluchea shrubs.

Photo 19. OHWM (yellow line) observed at Ditch 14 with water stained leaves on the bank. Blue arrow shows where standing water was observed.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

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Project ID #: Honoapiilani Highway	Site Name: Ditch 15, Olowalu Village	Date and Time: April 2, 2:30 pm
Location (lat/long): 156.60647N, 20.80988W	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?
Ditch is in the agricultural area in Olowalu. It is isolated with no surface connection to the ocean. No recent extreme flood or drought event occurred leading up to the delineation of this feature.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Very difficult to identiy the OHWM as the the ditch was covered with woody debris that was then overgrown with thickets of Pluchea shrubs.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [X] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [ ] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [ ] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [X] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [X] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [ ] **Change in vegetation type from** _____ **to** _____
- [ ] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [X] **Water staining**

Other observed indicators? Describe:

Very difficult to observe OHWM indicators as the ditch was very overgrown with woody debris and Pluchea shrubs.

Project ID #: Honoapiilani Highway

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Other than break in bank and pooled water, OHWM indicators were very difficult to see in this ditch that was overgrown with vegetation and also covered with dead woody debris. Silt deposits on the woody debris and water staining of leaves on the bank were also observed.

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 20	See attached
Photo 21	See attached
Photo 22	See attached

Photo 20. Ditch 15 overgrown with thickets of *Pluchea* spp. (*Pluchea x foxbergii* and *Pluchea indica*). Shovel indicates the location of the ditch under the dense vegetation.

Photo 21. Ditch 15 - Dense vegetation made it very difficult to identify the OHWM indicators. Break in slope (shovel on top of bank) and saturated bed were used to identify the OHWM level. A ruler could be easily inserted down to about a foot in bed but not on the banks.

Photo 22. Water in Ditch 15 was covered by dense woody debris.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
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Project ID #: Honoapiilani Highway	Site Name: Awalua Stream Culvert	Date and Time: April 2, 2025 3:30 pm
Location (lat/long): 20.82993N, 156.63674W	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Awalua Stream is an intermittent stream that runs through undeveloped buffel grass grassland. The stream was dry at the time of the survey. No recent extreme flood or drought events occurred.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

This is a concrete culvert that carries Awalua Stream over a an inner paved road that runs parallel to the main Honoapiilani Highway. The upstream or eastern portion of the stream is not channelized and has heavily eroded steep earthern banks.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [X] Other: Concrete culvert
- [X] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [X] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [X] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [X] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [ ] **Change in vegetation type from** _____ **to** _____
- [ ] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [X] **Other vegetation observations**
  Concrete unvegetated bed with concrete north bank and stone wall as the south bank.

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:

Project ID #: Honoapiilani Highway

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Transect was placed perpendicular to the bed of the culvert between the inner road and the Honoapiilani Highway. The concrete wall that formed the north bank was a support feature for the road that was not used for the OHWM. The elevation of the rock wall that formed the southern bank indicated the OHWM level here. This rockwall along with the unvegetated concrete bed clearly indicated the OHWM level for this feature.

Additional observations or notes

Kiawe (Prosopis pallida) and dead buffel grass (Cenchrus ciliaris) dominated the banks of concrete channel that carries Awalua Stream between the inner road and the eastern side of the Honoapiilani Highway. The culvert continues under the Honoapiilani Highway carryig Awalua Stream to the Pacific Ocean. Very dry conditions prevailed at the time of the survey. There were no signs of water or moisture in the stream bed.

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 23	See attached.
Photo 24	See attached

Photo 23. Awalua Stream concrete culvert (east view) location of transect between the inner (unnamed) paved road and the Honoapiilani Highway. The south side rock wall feature (yellow line) with the vegetated bank was used to determine the OHWM level here.

Photo 24. Landscape location (red arrow) of the delineated culvert feature on the west side of the inner (unnamed) road that runs parallel to the Honoapiilani Highway (not seen here). Awalua Stream flows in the east-west direction under this inner road.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

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Project ID #: Honoapiilani Highway	Site Name: Culvert in vicinity of Lahaina Bypass	Date and Time: April 2, 4 pm
Location (lat/long): 156.63988N, 20.83322W	Investigator(s): Shahin Ansari and Racine Robinson	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [ ] LiDAR
- [ ] geologic maps
- [ ] climatic data
- [ ] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [ ] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Concrete culvert in the Launiupoko watershed near the Lahaina Bypass. No extreme flood or drought events occurred leading up to the delineation.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

The cuvert was about 25 feet away from the western edge of the road. It was was not visible from the roadside. as it was overgrown with buffel grass (Cenchrus ciliaris).

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [ ] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [ ] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [X] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [X] *transition from* concrete to sediment
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [X] **Change in vegetation type from** _____ **to** _____
- [ ] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

_____

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:

The upper concrete beam and wings of culvert were the main indicators. There was no water and rocks were set in the spillway. The culvert was surrounded by mostly upland buffel grass.

Project ID #: Honoapiilani Highway

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

The upper concrete beam and wings of culvert were used to delineate the OHWM level here.

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☐ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description
Photo 25	See attached.

Photo 25. The top beam and the wings of the concrete culvert were used to delineate the OHWM level at this feature.

HT Harvey & Associates
Update to Wetland Field Studies Conducted in 2023, 2024, and 2025

November 2025

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Memorandum

Project No. 4692-02

April 30, 2025

To: **James Sullivan, Environmental Planner, WSP USA**

From: **Shahin Ansari, Senior Ecologist, H. T. Harvey & Associates**

CC: **Kelly Hardwicke, Principal in Charge, H. T. Harvey & Associates**
Jamie Bents, Project Manager, WSP USA

Subject: **Honoapiilani Highway Improvements Project – Update to Wetland Field Studies Conducted in 2023, 2024, and 2025**

The purpose of this memo is to summarize the findings of the three (2023, 2024, and 2025) separate wetland field studies conducted for the Honoapiilani Highway Improvements Project (Project). This memo also makes the jurisdictional determinations made in the three corresponding technical reports of findings consistent with the March 12, 2025, the U.S. Environmental Protection Agency (EPA) and Department of the Army (DA) (the agencies) guidance (EPA 2025) to field staff on implementation of "continuous surface connection" and restricting jurisdiction to "relatively permanent waters" consistent with the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency* and the September 2023 Conforming Rule.

In 2023, a wetland delineation for the Honoapiilani Highway Improvements Project was completed and a technical report of findings prepared in December 2023 (H. T. Harvey & Associates 2023) and published in the Project's December 2024 Draft Environmental Impact Study (DEIS) (USDOT et al. 2024). This technical report was initially prepared consistent with the U.S. Environmental Protection Agency's and the Department of Army's final rule published in January of 2023 [("Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023)] and applied the longstanding approach to determine jurisdiction for tributaries, adjacent wetlands, and additional waters, that is, certain types of waters are jurisdictional (under the January 2023 final rule) if they meet either the relatively permanent standard or significant nexus standard. Under this rule, even wetlands and waters lacking a continuous surface connection could still be considered "adjacent" waters of the U.S.

While substantial consideration was made in this 2023 effort to describe surface connection of various features to the Pacific Ocean, the project only attempted to determine jurisdictional Waters of the U.S. (WoUS) status in light of the May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* or the Clean Water Act conforming rule of September 2023 [("Revised Definition of 'Waters of the United States';

Conforming," 88 FR 61964, September 8, 2023)] in areas where a distinct lack of surface connection was observed in field studies originally conducted under the January 2023 rule (e.g., only very obviously "isolated" features were marked as potentially non-jurisdictional based on field studies that did not focus at the time closely on connection). Also, at drafting of the 2023 report, ephemeral streams that have a continuous surface connection to the ocean were determined to be jurisdictional in the absence of detailed guidance on that implementation regarding not relatively permanent waters. The 2023 technical report determined a total of 9.13 acres of potential Section 404 WoUS (4.59 acres of jurisdictional wetlands and 4.54 acres of jurisdictional other waters) and a total of 16.709 acres of non-jurisdictional waters (16.67 acres of potentially isolated non-jurisdictional wetlands and 0.037 acres of potentially isolated non-jurisdictional other waters).

In 2024, upon review of the 2023 wetland delineation technical report, the U. S. Army Corps of Engineers (USACE), in an email (POH-2022-00114) to the Hawaii Department of Transportation, expressed that the Project's proposed potentially non-jurisdictional wetlands in the Ukumehame region might be connected to the Pacific Ocean (ocean) via discreet features such as an underground culvert and requested further focused surveys and direct evidence clarifying surface connections of these wetlands to the ocean under the Clean Water Act conforming rule of September 2023. Therefore, on May 2, 2024, the Project team visited the Project site to investigate potential surface connection to the ocean of the wetlands delineated in 2023 in the Ukumehame region. A follow up memo dated August 13, 2024 (H. T. Harvey & Associated 2024), detailed the findings of this field investigation that was also published in the Project's December 2024 DEIS (USDOT et al. 2024). Applying the conforming September 2023 rule, this memo determined that *all* wetlands delineated in the 2023 study in the Ukumehame region were non-jurisdictional due to lack of evidence of a continuous surface connection to the ocean. The jurisdictional determination on other waters outside of the Ukumehame region made in the 2023 report, however, was not addressed in this August 2024 memo, as these features had not been requested by the USACE to be revisited in the field.

In 2025, based upon comments received on the DEIS, the four proposed alignments were further refined leading to the selection of a preferred alternative. While the vast majority of the Biological Study Area (BSA) surveyed in 2023 overlaps the preferred alternative, there were a few scattered parcels along the preferred alternative that were not part of the 2023 wetland field studies. Therefore, in April and May 2025, additional wetland delineation was conducted in 13 distinct parcels along the current preferred alignment totaling 31.3 acres. The results of this delineation are described in a separate memo to WSP USA, dated April 29, 2025. A total of 0.004 acres of Section 404 WoUS were delineated in the 2025 additional BSA. The Project's April 29, 2025 memo was prepared consistent with the March 12, 2025, the U.S. Environmental Protection Agency (EPA) and Department of the Army (DA) (the agencies) guidance (EPA 2025) to field staff on implementation of "continuous surface connection" and restricting jurisdiction to "relatively permanent waters" consistent with the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency* and the September 2023 Conforming Rule. Also, in this April 29, 2025 memo the term "seasonal drainage" (which was previously used in the 2023 wetland delineation report to describe streams and other waterbodies that only flowed during or shortly after rain events, i.e. ephemeral streams and non-wetland ditches) was changed to "not

relatively permanent" and such features were also determined to be non-jurisdictional under current USACE practice in applying the September 2023 rule.

Table 1 below summarizes the findings of the three separate wetland studies for the Project after making consistent with the March 12, 2025, the agencies guidance to field staff on implementation of "continuous surface connection" and restricting jurisdiction to "relatively permanent waters" consistent with the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency* and the September 2023 Conforming Rule. Updated wetland delineation maps for the Project are included as an attachment. A total of 0.964 Section 404 waters are delineated in the Project area.

Table 1. Summary of Jurisdictional and Non-Jurisdictional Waters of the U.S. Delineated Within the Honoapiilani Highway Improvements Project, 2023 and 2025 Biological Study Area

Habitat Type	Area (acres)	Notes
Total Isolated Non-Jurisdictional Wetlands	***21.403***	
W1	*4.131*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be isolated non-jurisdictional in the 2024 supplemental memo.*
W2	*0.442*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W3	*0.228*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W4	*0.234*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W5	*0.910*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 6	*0.949*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 7	*0.811*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no*

Habitat Type	Area (acres)	Notes
		continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.
W 8	*4.792*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 9	*0.153*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 10	*8.575*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 11	*0.040*	*Ukumehame wetland. Determined to be jurisdictional in the 2023 report. Found no continuous surface connection to ocean in 2024 follow up field study and determined to be non-jurisdictional in the 2024 supplemental memo.*
W 12	*0.138*	*Ukumehame wetland. Delineated in 2023, not part of 2023 wetland delineation map because outside of the project's proposed alignments. Found no continuous surface connection to ocean in 2024 follow up field study. Included in project's 2025 preferred alignment.*
Total Jurisdictional Waters	***0.964***	
Ukumehame Stream	*0.330*	*Perennial stream with connection to Pacific Ocean via culvert under the existing highway.*
Olowalu Stream	*0.260*	*Perennial stream with connection to Pacific Ocean via culvert under the existing highway.*
Ditch 9 (D9)	*0.370*	*Perennial water body. Vicinity of Ehehene Street. Continuous surface connection to Pacific Ocean via culvert under the existing highway.*
Ditch 14 (D14)	*0.004*	*Perennial water body. Vicinity of Ehehene Street. Continuation of Ditch 9 delineated during the 2025 field study. Continuous surface connection to the ocean.*
Total Not Relatively Permanent Non-Jurisdictional Waters	***2.565***	
Manawaipueo Gulch/Stream	*0.140*	*Not relatively permanent stream in Ukumehame watershed with continuous surface connection to ocean*

Habitat Type	Area (acres)	Notes
Papalaua Gulch/Stream	*1.670*	*Not relatively permanent stream in Ukumehame watershed with continuous surface connection to ocean via culvert under the existing Highway.*
Mopua Stream	*0.200*	*Not relatively permanent stream in Olowalu watershed with no continuous surface connection to ocean*
Lihau Stream	*0.160*	*Not relatively permanent stream in Olowalu with continuous surface connection to ocean*
Awalua Stream	*0.152*	*Not relatively permanent stream in Launiupoko watershed with continuous surface connection to ocean*
Awalua Stream Culvert	*0.039*	*Not relatively permanent stream culvert in Launiupoko watershed with continuous surface connection to ocean. Delineated in 2025*
Ka Puali Stream	*0.124*	*Not relatively permanent stream in Launiupoko watershed with continuous surface connection to ocean*
Ka Puali Culvert	*0.080*	*Not relatively permanent stream culvert in Launiupoko watershed with continuous surface connection to ocean. Delineated in 2025*
Total Isolated Non-Jurisdictional Other Waters	***1.283***	
Hanaula Gulch/Stream	*0.160*	*Not relatively permanent stream in Ukumehame with no continuous surface connection to ocean*
Ditch 1 (D1)	*0.041*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 2 (D2)	*0.040*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 3 (D3)	*0.037*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 4 (D4)	*0.049*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 5 (D5)	*0.018*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not*

Habitat Type	Area (acres)	Notes
		have a continuous surface connection to the Pacific Ocean.
Ditch 6 (D6)	*0.186*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 7 (D7)	*0.226*	*Not relatively permanent waterbody connected to Ditch 7 in Ukumehame region which is connected to Hanaula Gulch which does not have a continuous surface connection to the Pacific Ocean.*
Ditch 8 (D8)	*0.380*	*Perennial waterbody. No continuous surface connection to the Pacific Ocean.*
Ditch 10 (D10)	*0.021*	*Not relatively permanent water body in the vicinity of Olowalu village. Possibly connected to D11 and D15 but neither have continuous surface connection to the ocean.*
Ditch 11 (D11)	*0.009*	*Not relatively permanent water body. Vicinity Olowalu village. Possibly connected to D10 and but neither have continuous surface connection to the ocean.*
Ditch 12 (D12)	*0.007*	*Perennial water body (a lava tube type hole with standing water at a depth of about 20 feet) in the vicinity of Lahania Bypass in Launiupoko. No continuous surface connection to another ditch or stream or ocean.*
Ditch 13 (D13)	*0.051*	*Not relatively permanent waterbody in Ukumehame region. Delineated in 2025 field study. Maybe connected to D6. Neither have a continuous surface connection to the Pacific Ocean.*
Ditch 15 (D15)	*0.016*	*Not relatively permanent water body. Vicinity Olowalu village. Possibly connected to D10 and D11 but neither have continuous surface connection to the ocean.*
Culvert Ehehene Street	*0.035*	*Not relatively permanent waterbody at Ehehene Street in the Ukumehame region with no continuous surface connection to ocean. Delineated in 2025*
Culvert Vicinity of Lahaina Bypass	*0.007*	*Not relatively permanent water body in the vicinity of Lahaina Bypass. Delineated in 2025.*
Total Section 404 Waters of the U.S.	**0.964**	
Total Non-Jurisdictional Waters	**25.251**	
Total Non-Jurisdictional Upland Areas	**907.115**	
Total Wetland Delineation Study Area	**933.33**	

In conclusion, H. T. Harvey & Associates' delineation of Section 404 WoUS conducted for the Project has been based upon our best professional judgement in a rapidly changing and sometimes uncertain regulatory environment. Federal jurisdiction is solely dependent on the determination and confirmation by USACE. Acceptance may require a site visit by a USACE representative to confirm the delineation data points gathered in the surveyed area. The delineations conducted for this Project are not official until the Hawaii Department of Transportation and the Federal Highways Administration receives a letter of Jurisdictional Determination from USACE.

References

[EPA] Environmental Protection Agency. 2025. Memorandum to the Field Between the U.S. Department of Army, U. S. Army Corps of Engineers and the U.S. Environmental Protection Agency Concerning the Proper Implementation of "Continuous Surface Connection" Under the Definition of "Waters of the United States" Under the Clean Water Act. March 12, 2025. <https://www.epa.gov/system/files/documents/2025-03/2025cscguidance.pdf> Accessed April 5.

H. T. Harvey & Associates. 2023. Honoapiilani Highway Improvements Project Preliminary Identification of Waters of the United States Technical Report. Prepared for WSP USA. *In* Appendix 3.9 – Water Resources, Wetlands, and Floodplains – Supplemental Information *of* Draft Environmental Impact Statement. <https://www.honoapiilanihwyimprovements.com/pdfs/deis/app_03_09.pdf>.

H. T. Harvey & Associates. 2024. Memorandum: Honoapiilani Highway Improvements Project – Field Investigations About Surface Connections of Potentially Non-Jurisdictional and Jurisdictional Wetlands to Waters of the U.S. Prepared for WSP USA. *In* Appendix 3.9 – Water Resources, Wetlands, and Floodplains – Supplemental Information *of* Draft Environmental Impact Statement. <https://www.honoapiilanihwyimprovements.com/pdfs/deis/app_03_09.pdf>.

[USDOT] U.S. Department of Transportation, [FHWA] Federal Highways, and [HDOT] Hawaii Department of Transportation. 2024. Draft Environmental Impact Statement. Honoapiilani Highway Improvements Project, West Maui: Ukumehame to Launiupoko Draft Environmental Impact Statement. <https://www.honoapiilanihwyimprovements.com/info-plus-docs/>.

Attachment

Updated Wetland Delineation Figures for 2023 and 2025 Biological Study Areas

Attachment—Updated Wetland Delineation Figures for 2023 and 2025 Biological Study Areas

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Figure 1. Project Vicinity
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

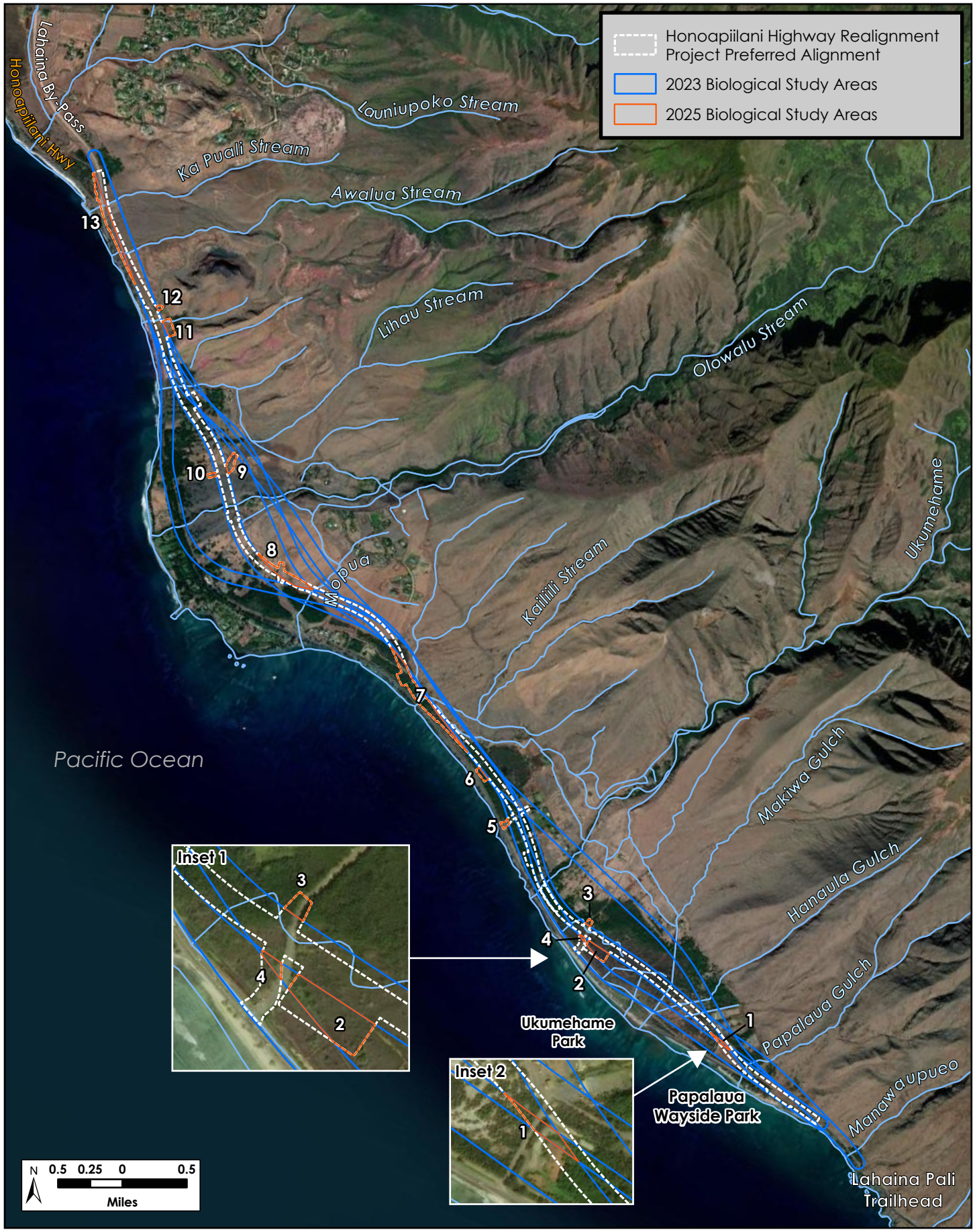

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Figure 2. Wetland Delineation Study Area
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

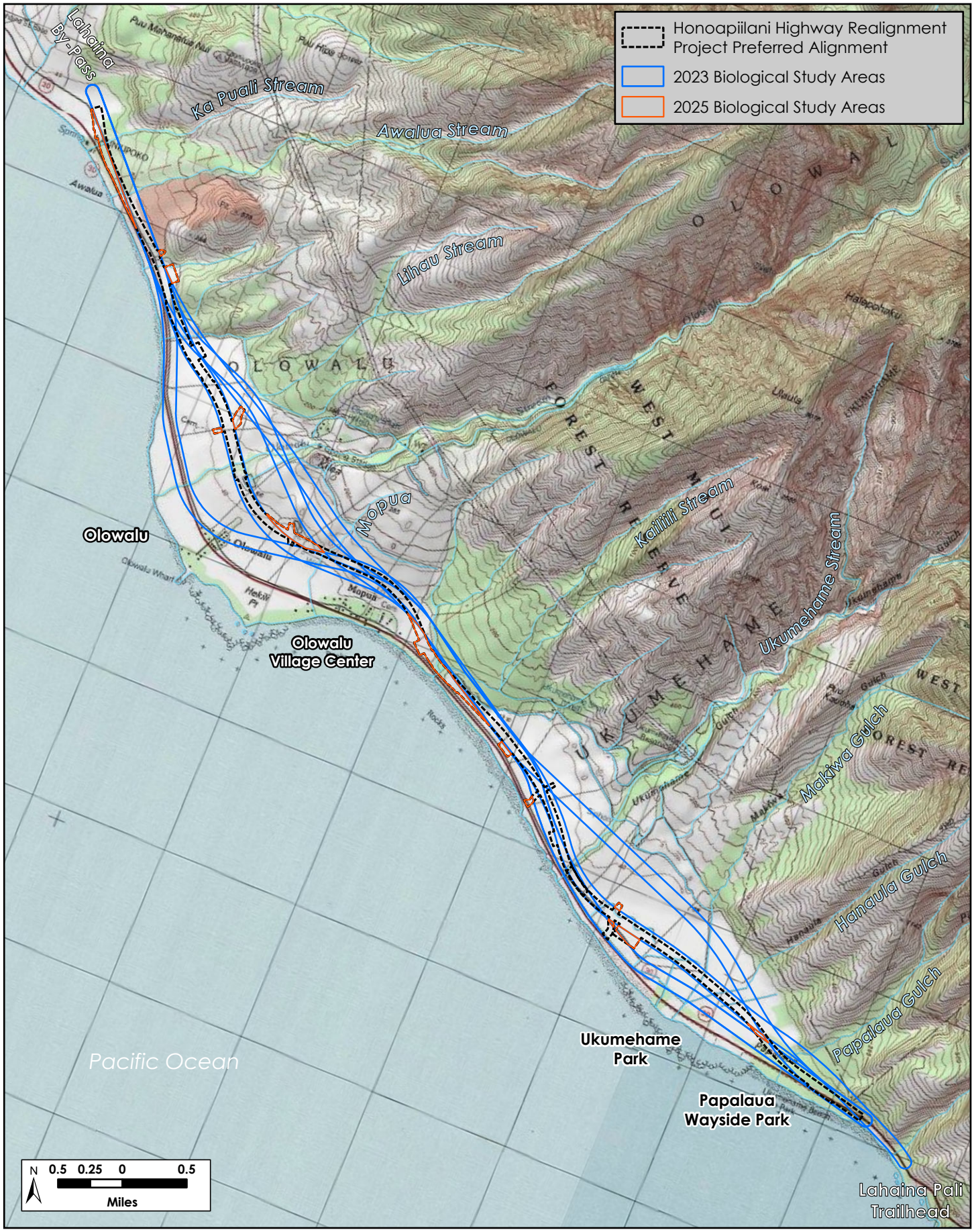

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Figure 3. USGS Topographic Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

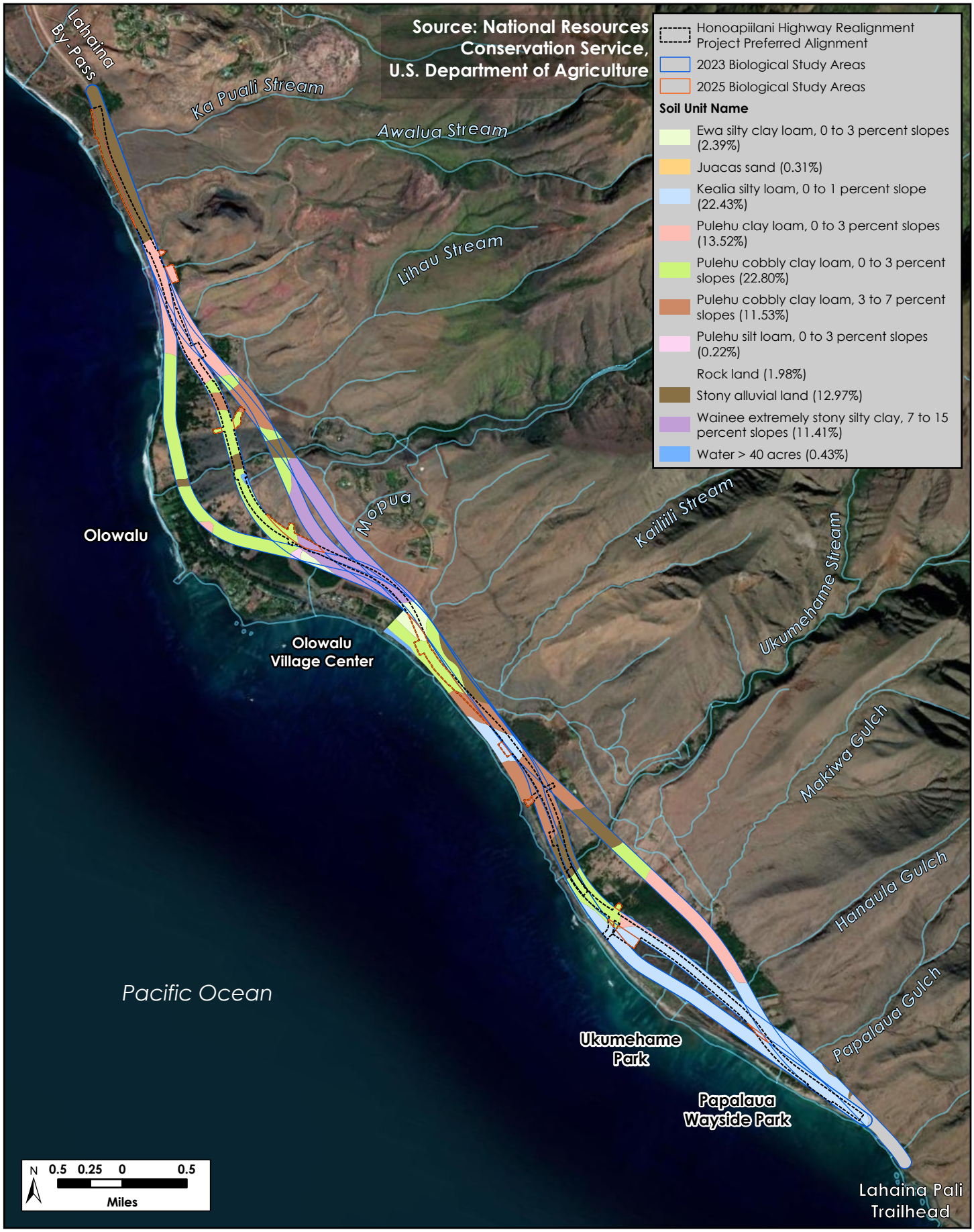

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Figure 4. Soils Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

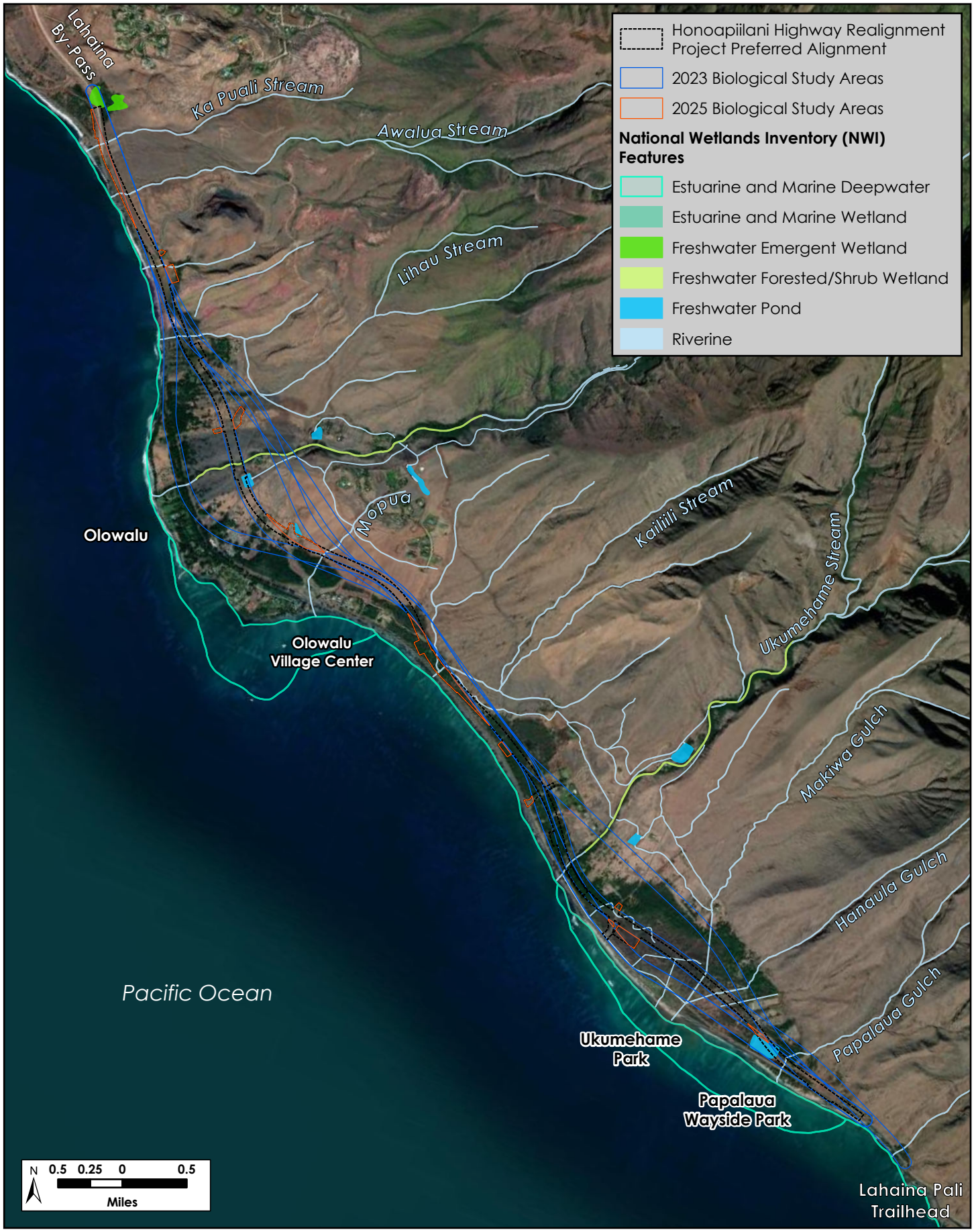

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Figure 5. National Wetland Inventory Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

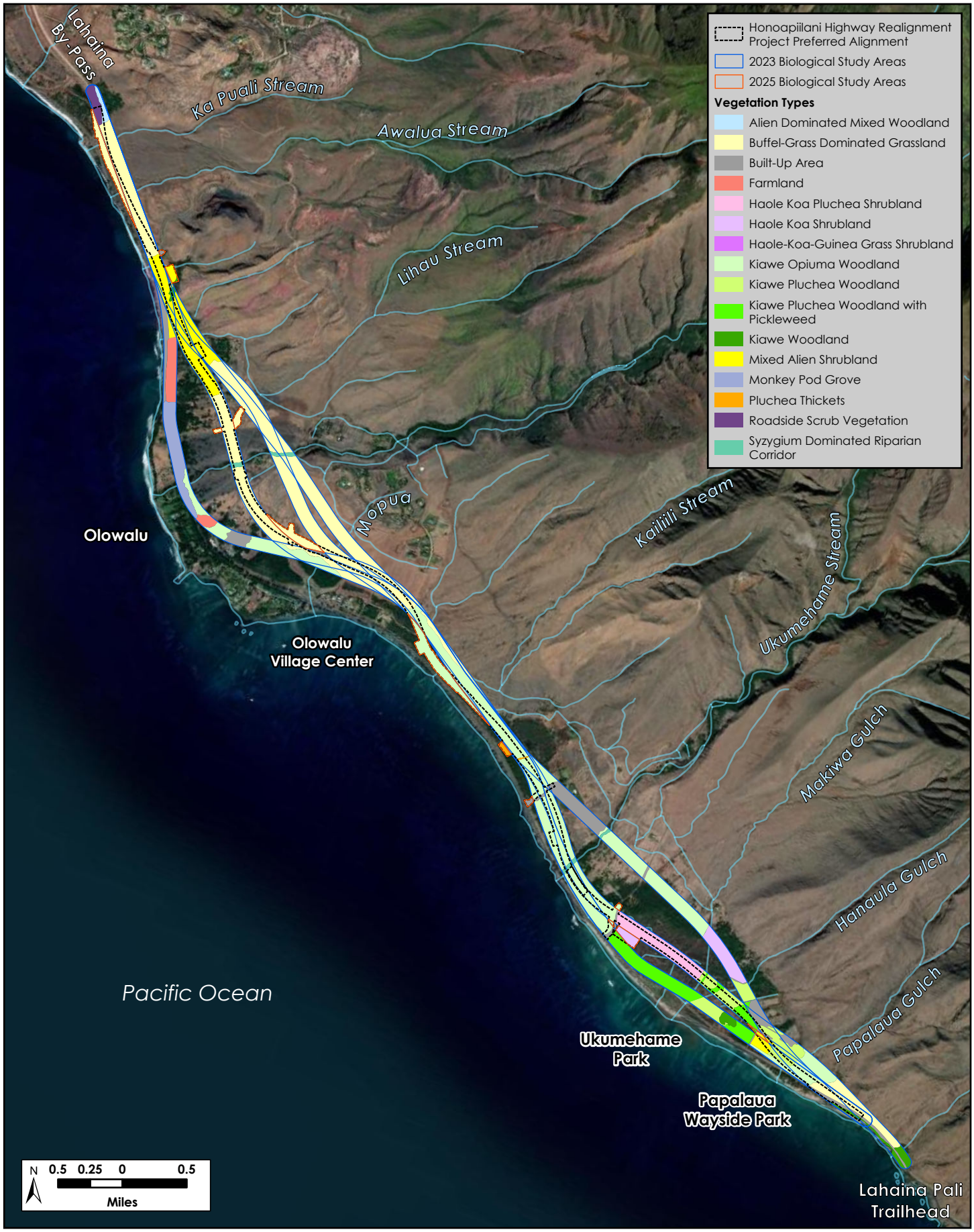

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Figure 6. Habitat/Vegetation Map
Honoapiilani Highway Improvement Project
Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

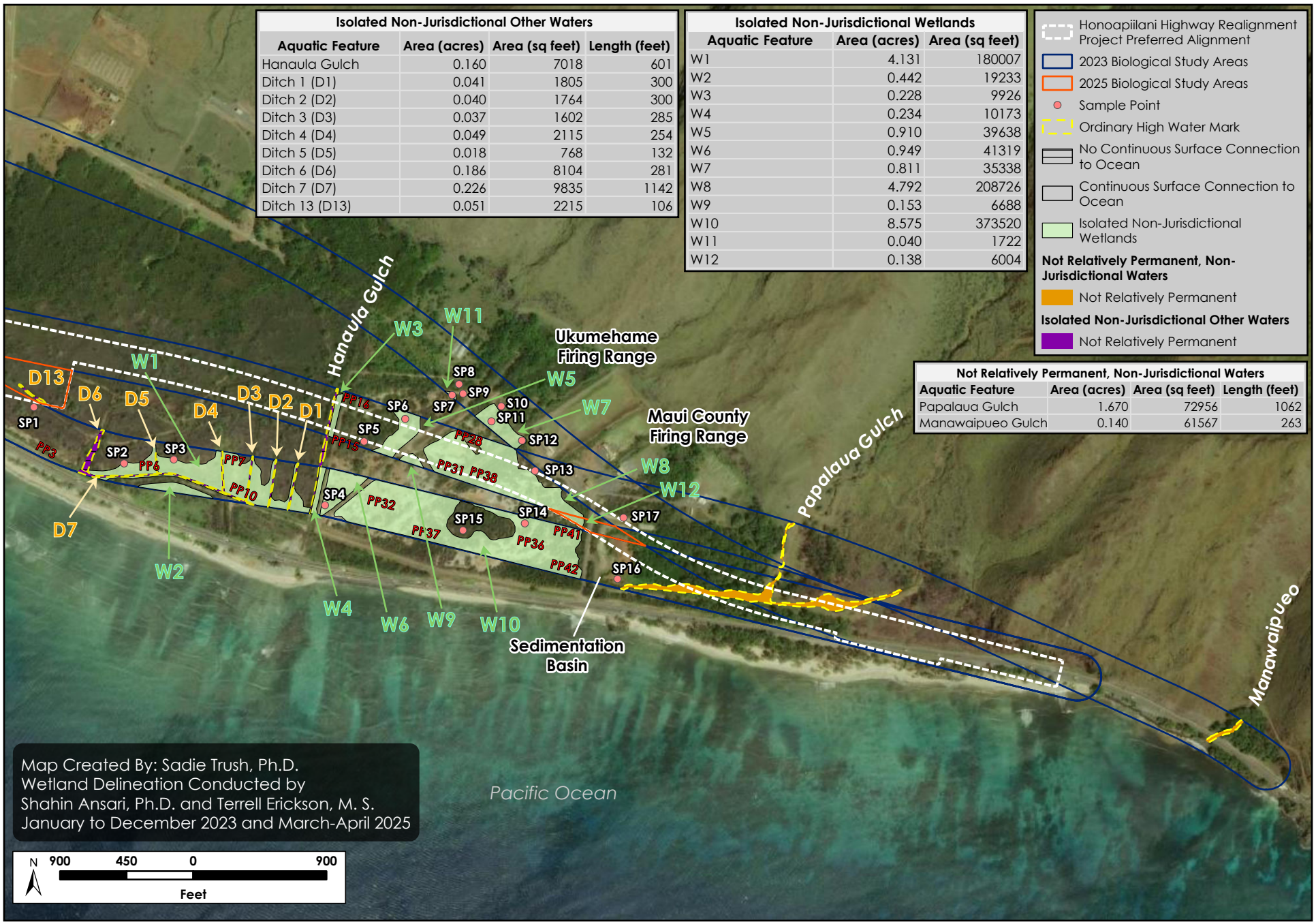

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Figure 7. Preliminary Identification of Waters of the U.S. in the Papalaua and Ukumehame Portions of the 2023 and 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)

April 2025

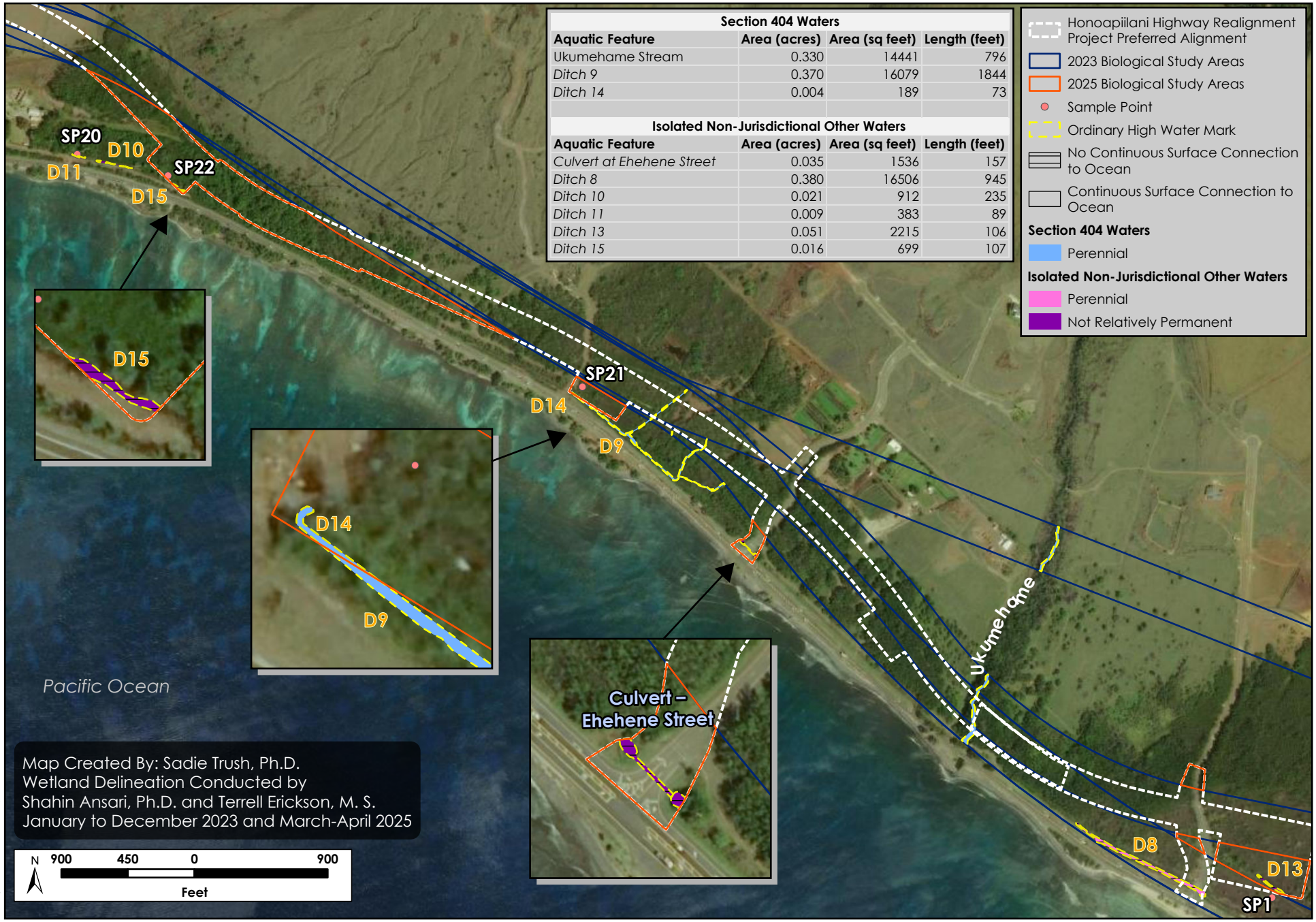

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Figure 8. Preliminary Identification of Waters of the U.S. in the Ukumehame Portions of the 2023 and 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)
May 2025

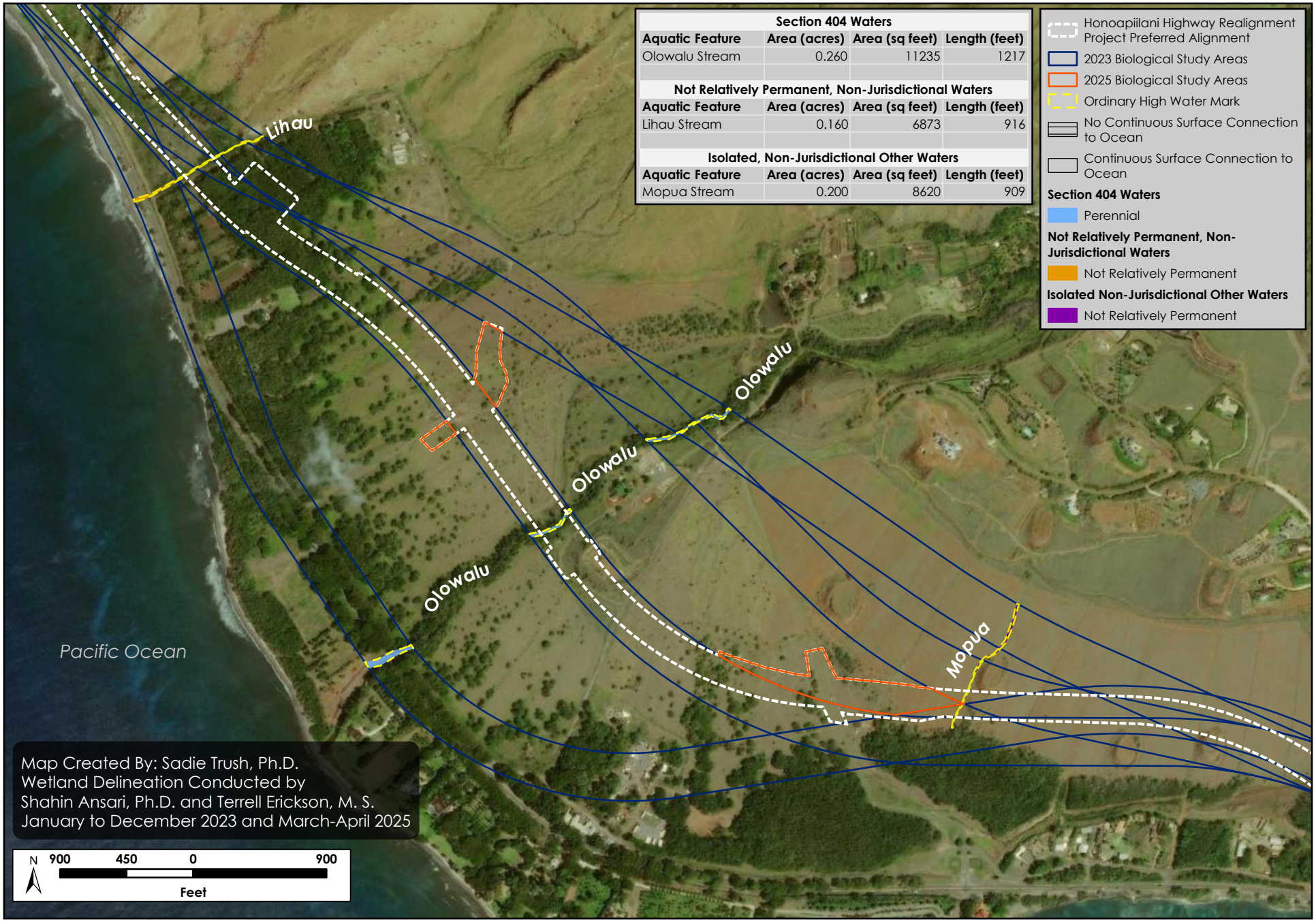

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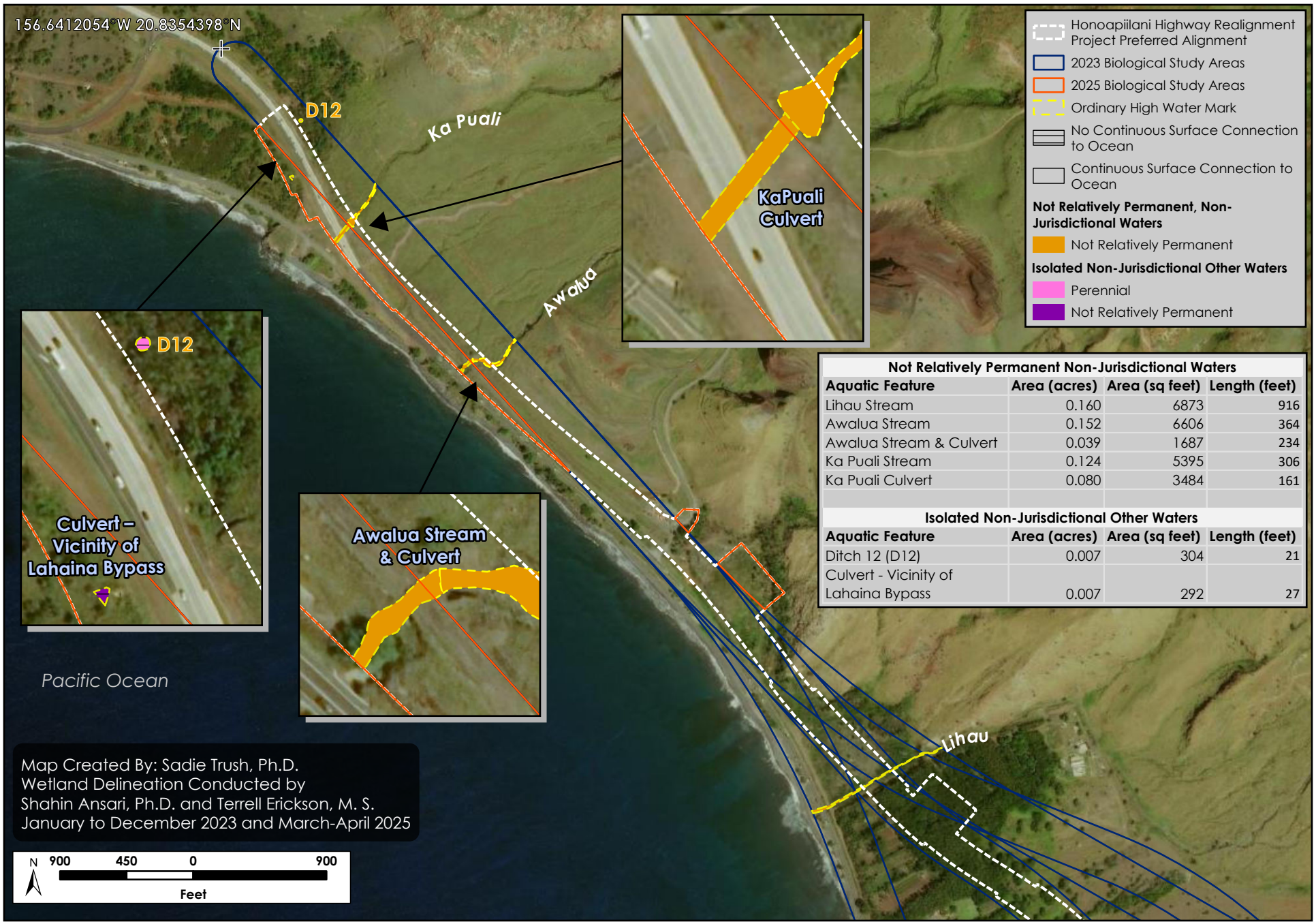
Figure 9. Preliminary Identification of Waters of the U.S. in the Olowalu and Launiupoko Portions of the 2023 and 2025 Biological Study Area

Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)

April 2025



Not Relatively Permanent Non-Jurisdictional Waters			
Aquatic Feature	**Area (acres)**	**Area (sq feet)**	**Length (feet)**
Lihau Stream	0.160	6873	916
Awalua Stream	0.152	6606	364
Awalua Stream & Culvert	0.039	1687	234
Ka Puali Stream	0.124	5395	306
Ka Puali Culvert	0.080	3484	161

Isolated Non-Jurisdictional Other Waters			
Aquatic Feature	**Area (acres)**	**Area (sq feet)**	**Length (feet)**
Ditch 12 (D12)	0.007	304	21
Culvert - Vicinity of Lahaina Bypass	0.007	292	27

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Figure 10. Preliminary Identification of Waters of the U.S. in the Olowalu and Launiupoko Portions of the 2023 and 2025 Biological Study Area
Honoapiilani Highway Improvement Project Preliminary Delineation of Wetlands and Other Waters (4692-02)
April 2025

Agency Correspondence

REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: Honolulu District

- I am requesting a JD on property located at: Honoapiilani Highway
  (Street Address)
  TMK: see attached County: Maui State: Hawaii
  Acreage of Parcel/Review Area for JD: 4300 acres
  Section: -- Township: -- Range: --
  Latitude (decimal degrees): 20.808573 Longitude (decimal degrees): -156.601503
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ☐ I currently own this property. ☐ I plan to purchase this property.
  ☐ I am an agent/consultant acting on behalf of the requestor.
  ☑ Other (please explain): ownership varies; parcels will be aquired by the State of Hawaii Department of Transportation.
- Reason for request: (check as many as applicable)
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ☑ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ☐ A Corps JD is required in order to obtain my local/state authorization.
  ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ☐ I believe that the site may be comprised entirely of dry land.
  ☐ Other: _____
- Type of determination being requested:
  ☑ I am requesting an approved JD.
  ☐ I am requesting a preliminary JD.
  ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: _____ Date: _____

- Typed or printed name: _____

Company name: _____

Address: _____

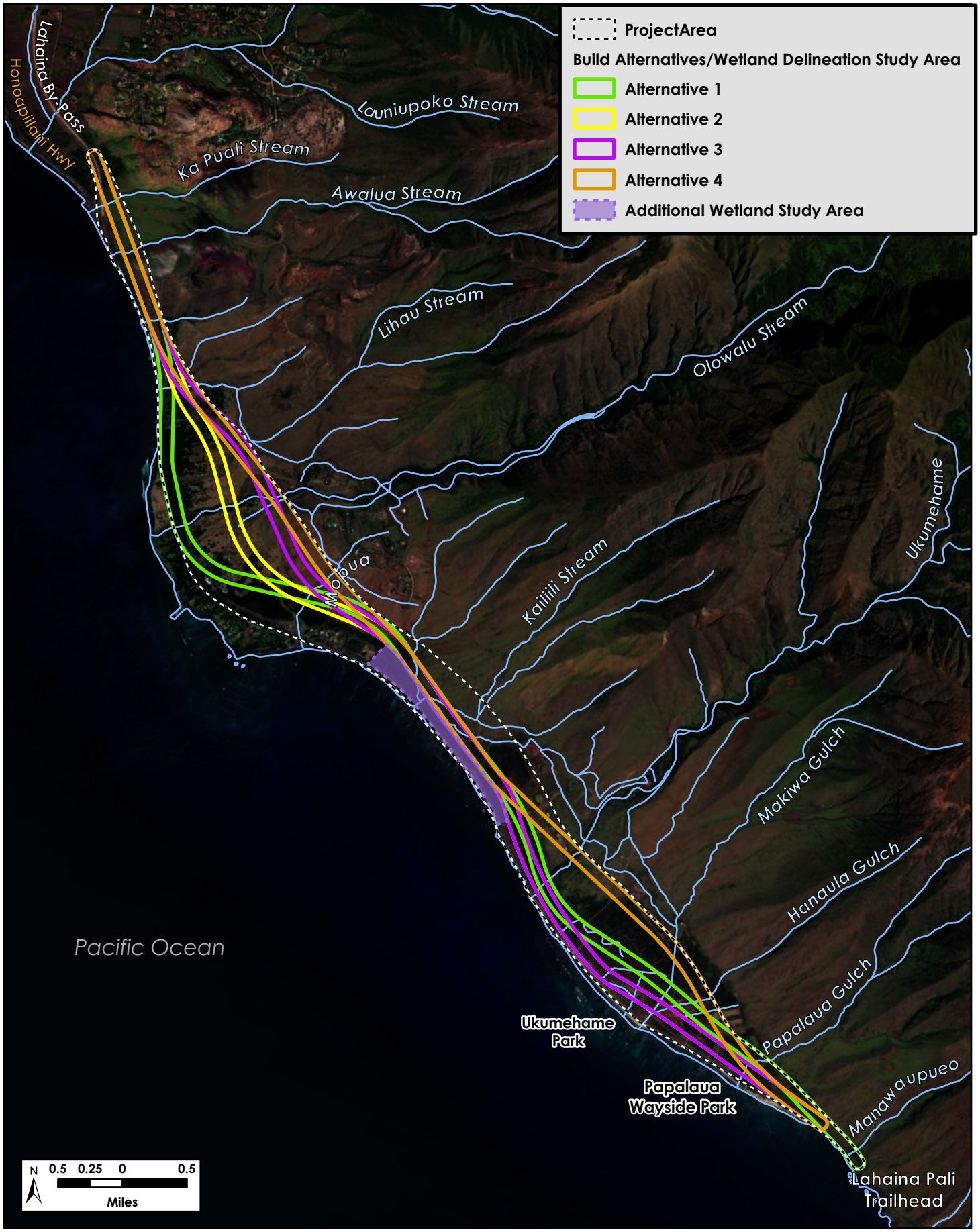
_____

Daytime phone no.: _____

Email address: _____

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Honolulu District Office
U.S. Army Corps of Engineers
Regulatory Office, Building 230
Ft. Shafter, Hawaii 96858-5440
Phone: 808-835-4303
Fax: 808-835-4126
Email: CEPOH-RO@usace.army.mil



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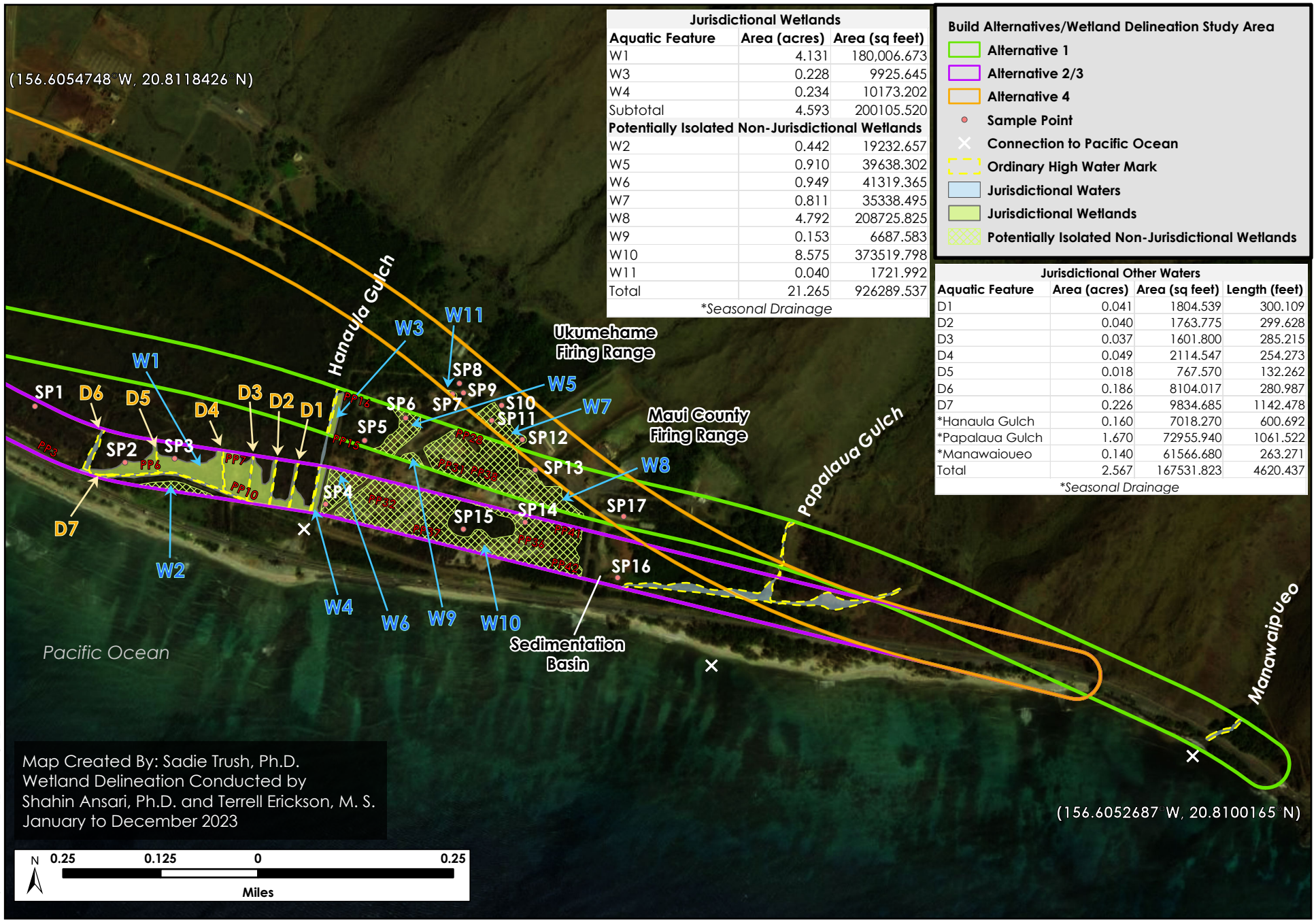
H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2. Wetland Delineation Study Area
Honoapiilani Highway (4692)
September 2023



Jurisdictional Wetlands		
Aquatic Feature	**Area (acres)**	**Area (sq feet)**
W1	4.131	180,006.673
W3	0.228	9925.645
W4	0.234	10173.202
Subtotal	4.593	200105.520
Potentially Isolated Non-Jurisdictional Wetlands		
W2	0.442	19232.657
W5	0.910	39638.302
W6	0.949	41319.365
W7	0.811	35338.495
W8	4.792	208725.825
W9	0.153	6687.583
W10	8.575	373519.798
W11	0.040	1721.992
Total	21.265	926289.537

*Seasonal Drainage

Build Alternatives/Wetland Delineation Study Area
- Alternative 1
- Alternative 2/3
- Alternative 4
- Sample Point
- Connection to Pacific Ocean
- Ordinary High Water Mark
- Jurisdictional Waters
- Jurisdictional Wetlands
- Potentially Isolated Non-Jurisdictional Wetlands

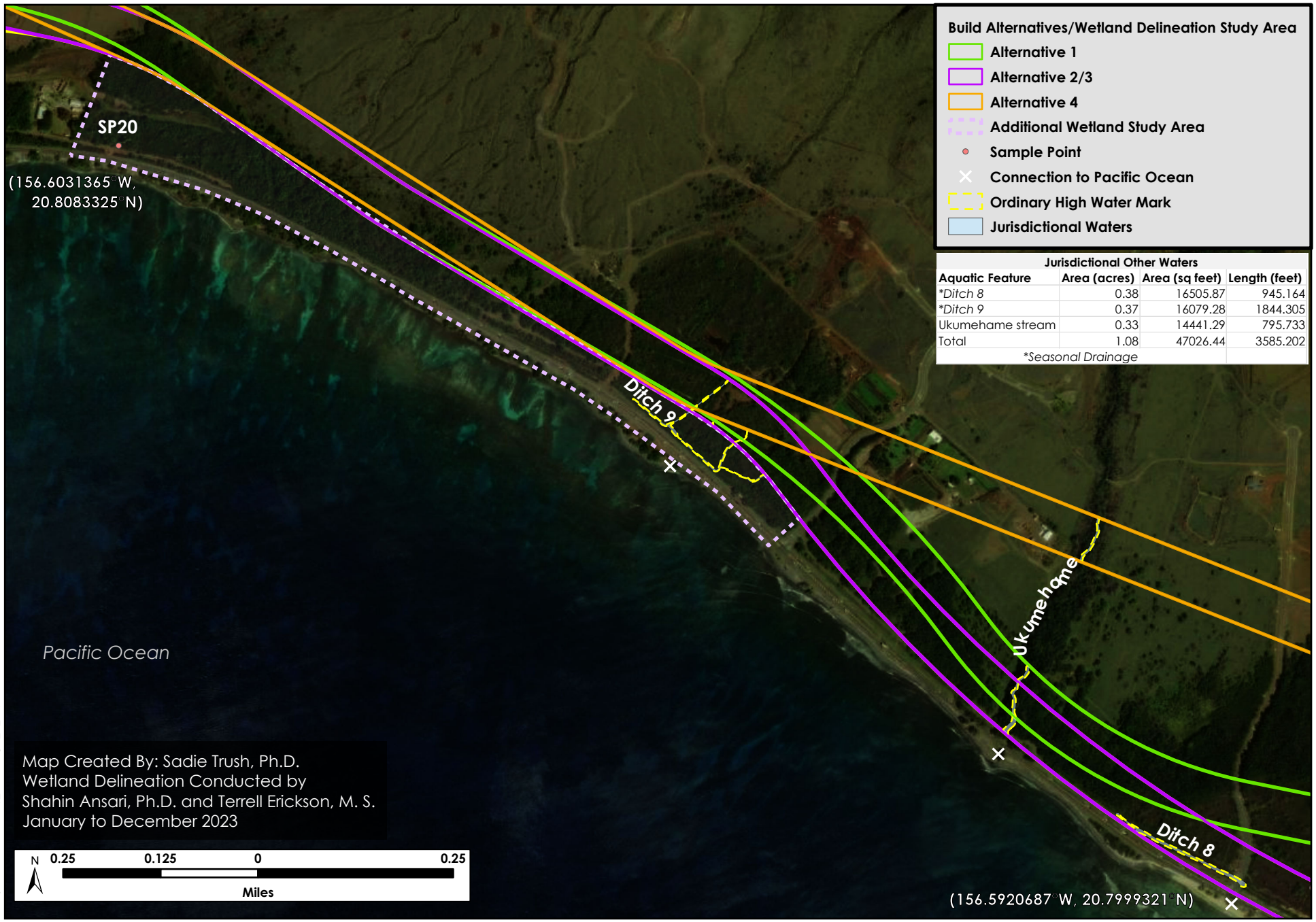
Jurisdictional Other Waters			
Aquatic Feature	**Area (acres)**	**Area (sq feet)**	**Length (feet)**
D1	0.041	1804.539	300.109
D2	0.040	1763.775	299.628
D3	0.037	1601.800	285.215
D4	0.049	2114.547	254.273
D5	0.018	767.570	132.262
D6	0.186	8104.017	280.987
D7	0.226	9834.685	1142.478
*Hanaula Gulch	0.160	7018.270	600.692
*Papalaua Gulch	1.670	72955.940	1061.522
*Manawaioueo	0.140	61566.680	263.271
Total	2.567	167531.823	4620.437

*Seasonal Drainage

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1. Preliminary Identification of Jurisdictional Wetlands, Potentially Isolated Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Papalaua and Ukumehame Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



Jurisdictional Other Waters

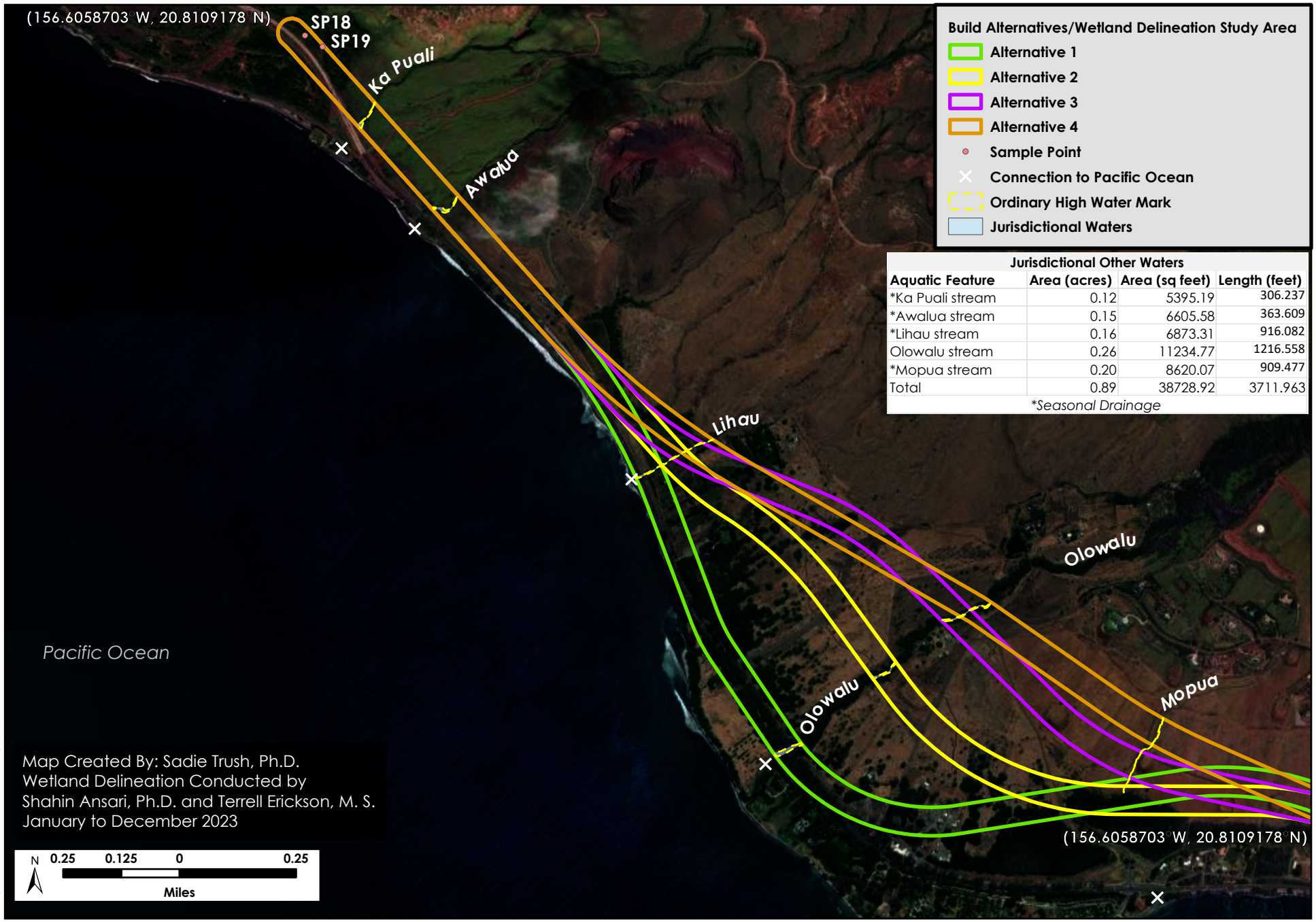
Aquatic Feature	Area (acres)	Area (sq feet)	Length (feet)
**Ditch 8*	0.38	16505.87	945.164
**Ditch 9*	0.37	16079.28	1844.305
Ukumehame stream	0.33	14441.29	795.733
Total	1.08	47026.44	3585.202

**Seasonal Drainage*

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 2. Preliminary Identification of Jurisdictional Wetlands, Potentially Isolated Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Papalaua and Ukumehame Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



Jurisdictional Other Waters

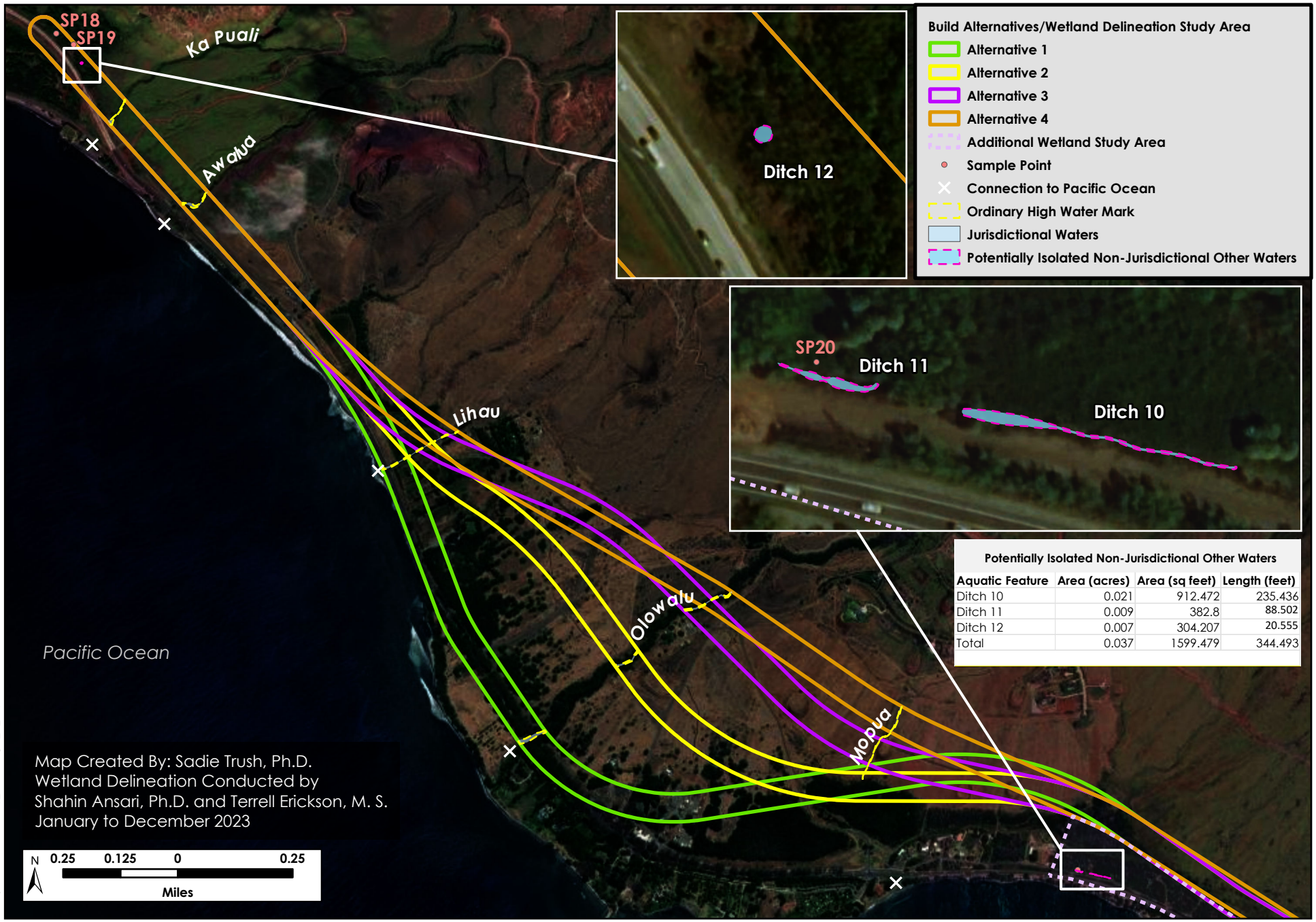
Aquatic Feature	Area (acres)	Area (sq feet)	Length (feet)
*Ka Puali stream	0.12	5395.19	306.237
*Awalua stream	0.15	6605.58	363.609
*Lihau stream	0.16	6873.31	916.082
Olowalu stream	0.26	11234.77	1216.558
*Mopua stream	0.20	8620.07	909.477
Total	0.89	38728.92	3711.963

**Seasonal Drainage*

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 3. Preliminary Identification of Jurisdictional Other Waters in the Olowalu and and Launiupoko Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 4. Preliminary Identification of Jurisdictional and Potentially Isolated Non-Jurisdictional Other Waters in the Olowalu and Launiupoko Areas of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

Alternative 1 Land Acquisitions	Alternative 2 Land Acquisitions	Alternative 3 Land Acquisitions	Alternative 4 Land Acquisitions	Tax Map Key	OwnerCat
X	X	X	X	47001030	Govt. County
X	X	X	X	48001001	Govt. State
X	X	X	X	48001003	Govt. State
X	X	X	X	48002002	Govt. State
X	X	X	X	48002008	Govt. State
	X	X	X	48002041	Govt. County
X	X	X	X	48002042	Govt. State
X	X	X	X	48002045	Govt. State
X	X	X	X	48002046	Govt. County
X	X	X	X	48002047	Govt. State
			X	48002049	Govt. County
X	X	X		48002057	Govt. County
X	X	X		48002058	Govt. County
X	X	X	X	48002059	Govt. County
X	X	X		48002068	Govt. County
	X	X		48002069	Govt. County
X	X	X	X	48002070	Govt. County
X	X	X		48002071	Govt. County
			X	48002075	Private
			X	48002090	Private
			X	48002091	Private
			X	48002092	Private
			X	48002094	Private
			X	48002095	Private
			X	48002096	Private
			X	48002098	Private
			X	48002107	Private
			X	48002108	Private
			X	48002109	Private
			X	48002110	Private
			X	48002111	Private
			X	48002112	Private
			X	48002113	Private
X				48002114	Private
X				48002115	Private
			X	48002116	Private
			X	48002117	Private
			X	48002118	Private
			X	48002120	Private
X			X	48002121	Private
	X	X		48002125	Private
X	X	X	X	48003008	Govt. State
X				48003034	Govt. State
X	X	X	X	48003039	Govt. State
X			X	48003098	Private
X			X	48003099	Private
X	X	X	X	48003100	Private
X	X	X	X	48003101	Private
X	X			48003102	Private
X	X			48003103	Private
X	X			48003104	Private
X	X	X		48003105	Private

		X	X	48003106	Private
		X	X	48003107	Private
	X	X	X	48003108	Private
		X	X	48003109	Private
		X	X	48003110	Private
	X	X	X	48003111	Private
X	X			48003112	Private
X	X			48003113	Private
X	X	X	X	48003114	Private
X	X	X	X	48003115	Private
X	X	X	X	48003116	Private
		X	X	48003117	Private
X	X	X	X	48003118	Private
X	X	X	X	48003125	Private

Agency	Acres
DPR	114.95
DLNR	1865.31
DLNR	37.39
DLNR	188.77
DLNR	383.81
DPR	6.71
DLNR	31.91
DOT	11.88
DPR	44.86
Army National Guard	39.28
DPR	0.47
DPR	9.15
DPR	0.52
DPR	4.41
DPR	18.01
DPR	1.04
DPR	36.57
DPR	29.76
	7.14
	3.89
	7.99
	12.28
	5.36
	5.41
	3.56
	7.24
	7.41
	13.28
	6.36
	5.00
	5.00
	5.00
	6.60
	11.00
	12.76
	7.34
	11.73
	55.40
	3.16
	5.16
	0.46
DLNR	609.91
DLNR	0.53
DLNR	65.38
	15.03
	15.57
	27.10
	29.37
	16.89
	27.80
	50.28
	40.73

	16.69
	41.14
	82.82
	16.17
	17.22
	16.58
	24.61
	25.21
	28.83
	26.20
	16.04
	15.59
	42.72
	2.27
	4304.02562

* Spreadsheet shows which TMKs are crossed by the 140ft ROW associated with each alternative.

Executive Summary

During 23 visits from January-September 2023, H. T. Harvey & Associates wetland ecologists performed a delineation of wetlands and other waters in support of the Honoapiilani Highway Improvement Project located in West Maui. The Project Area overlaps three watersheds in West Maui: Ukumehame, Olowalu, and Launiupoko. Approximately 902 acres within the Project's study area, which was defined to encompass the project's temporary and permanent impact areas, were surveyed for jurisdictional waters (wetlands and other waters) that may be subject to regulation under Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers. This area (902 acres) included a 300 feet swath centered around each of the four proposed Build Alternatives and an additional 37 acres outside of these Build Alternatives. Because the study spanned from January to September, it allowed for observations and consideration of both wet and dry seasons when sampling. The results are based on the observation of conditions present across these multiple surveys. In total, 9.130 acres of jurisdictional wetlands and other waters were mapped in the wetland delineation study area. When estimated separately for each Build Alternative this includes: 0.228 and 1.337 acres of jurisdictional wetlands and other waters respectively in Build Alternative 1; 4.365 and 2.255 acres of jurisdictional wetlands and other waters respectively in Build Alternative 2; 4.365 and 2.280 acres of jurisdictional wetlands and other waters in Build Alternative 3; and zero jurisdictional wetlands and 1.777 acres of jurisdictional other waters in Build Alternative 4. Additionally, 16.709 acres of potentially isolated non-jurisdictional wetlands and other waters were identified within the study area If determined to be waters of the U.S., these features would be regulated under Section 401 of the Clean Water Act.

Habitat Type	Area (acres)	Notes
Total Jurisdictional Wetlands	***4.593***	
Wetland 1	*4.131*	*Surface connection to the Pacific Ocean via Ditch 7 and the Hanaula Gulch culvert under the existing highway*
Wetland 3	*0.228*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Wetland 4	*0.234*	*Surface connected to the Pacific Ocean via the Hanaula Gulch*
Total Potentially Isolated Non-Jurisdictional Wetlands	***16.672***	
Wetland 2	*0.442*	*No surface connection to the ocean*
Wetland 5	*0.910*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*
Wetland 6	*0.949*	*Wetlands 5 and 6 are connected in the area in between the Build Alternatives. Wetland 6 is separated from Wetland 4 via a built-up dirt road and fence. No surface connection to the ocean*

Habitat Type	Area (acres)	Notes
Wetland 7	*0.811*	*No surface connection to ocean*
Wetland 8	*4.792*	*No surface connection to ocean*
Wetland 9	*0.153*	*No surface connection to ocean*
Wetland 10	*8.575*	*No surface connection to ocean*
Wetland 11	*0.040*	*No surface connection to ocean*
Total Jurisdictional Other Waters	***4.537***	
Manawaipueo Gulch	*0.140*	*Connection to Pacific Ocean via culvert under the existing highway*
Papalaua Gulch	*1.670*	*Connection to Pacific Ocean via culvert under the existing highway*
Hanaula Gulch	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 1	*0.041*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 2	*0.040*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 3	*0.037*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 4	*0.049*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 5	*0.018*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 6	*0.186*	*Connection to Ditch 7 which is connected to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 7	*0.226*	*Connection to the Pacific Ocean via Hanaula Gulch culvert under the existing highway*
Ditch 8	*0.380*	*Vicinity of Pohaku Aeko Street. Connection to Pacific Ocean via culvert under the existing highway*
Ukumehame Stream	*0.330*	*Connection to Pacific Ocean via culvert under the existing highway*
Ditch 9	*0.370*	*Vicinity of Ehehene Street. Connection to Pacific Ocean via culvert under the existing highway*
Mopua Stream	*0.200*	*Connection to Pacific Ocean via culvert under the existing highway*
Olowalu Stream	*0.260*	*Connection to Pacific Ocean via culvert under the existing highway*
Lihau Stream	*0.160*	*Connection to Pacific Ocean via culvert under the existing highway*
Awalua Stream	*0.150*	*Connection to Pacific Ocean via culvert under the existing highway*
Ka Puali Stream	*0.120*	*Connection to Pacific Ocean via culvert under the existing highway*

Habitat Type	Area (acres)	Notes
Total Potentially Isolated Non-Jurisdictional Other Waters	**0.037**	
Ditch 10	*0.007*	*No surface connection to another ditch or stream or ocean.*
Ditch 11	*0.009*	*No surface connection to another ditch or stream or ocean.*
Ditch 12	*0.021*	*No surface connection to another ditch or stream or ocean.*
Total Potential Waters of the U.S.	**9.130**	
Total Potentially Isolated Non-Jurisdictional Waters of the U.S.	**16.709**	
Total Non-Jurisdictional Upland Areas	**876.161**	
Wetland Delineation Study Area Total	**902.000**	

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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1. Project Vicinity
Honoapiilani Highway (4692)
September 2023

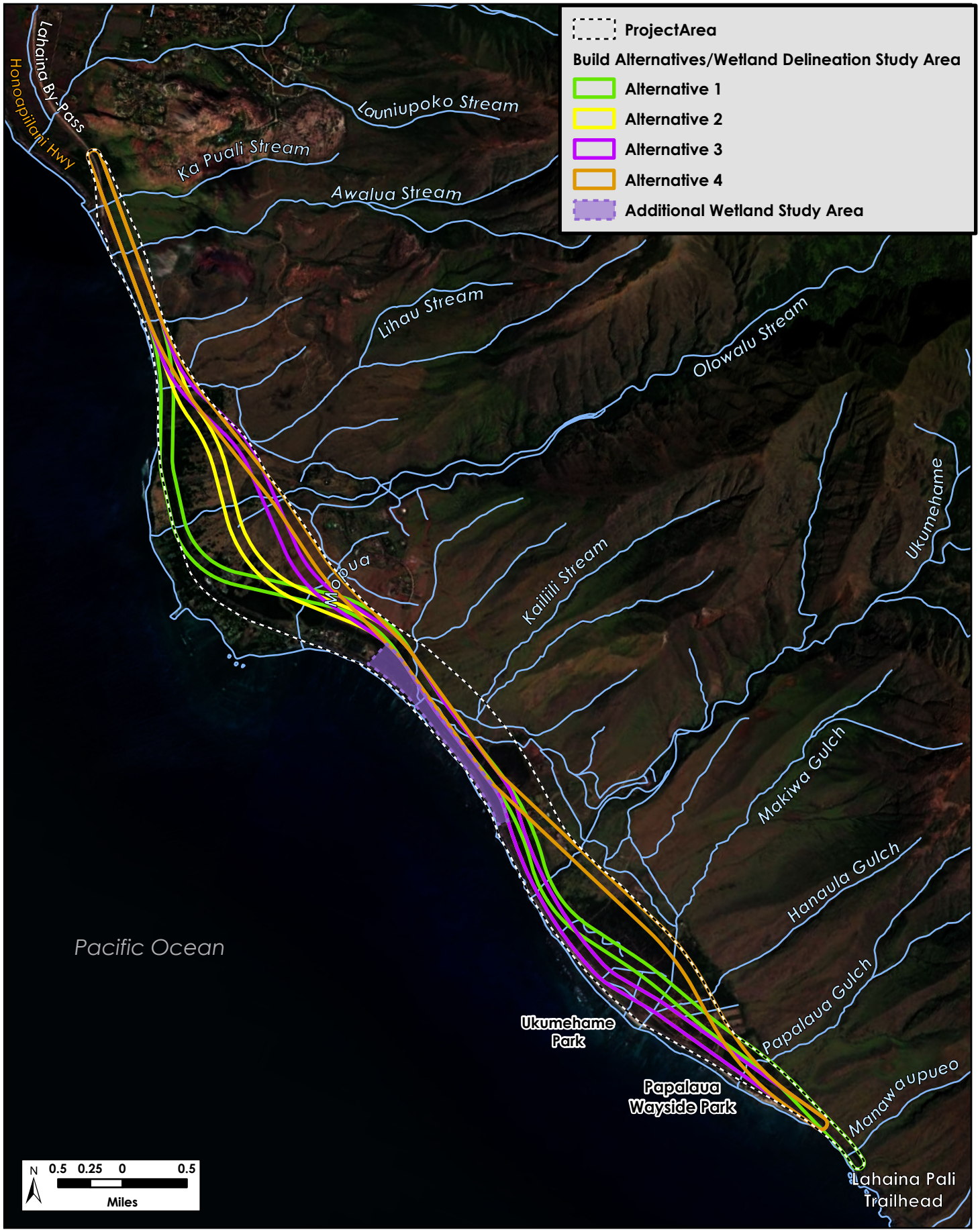

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Figure 2. Wetland Delineation Study Area
Honoapiilani Highway (4692)
September 2023

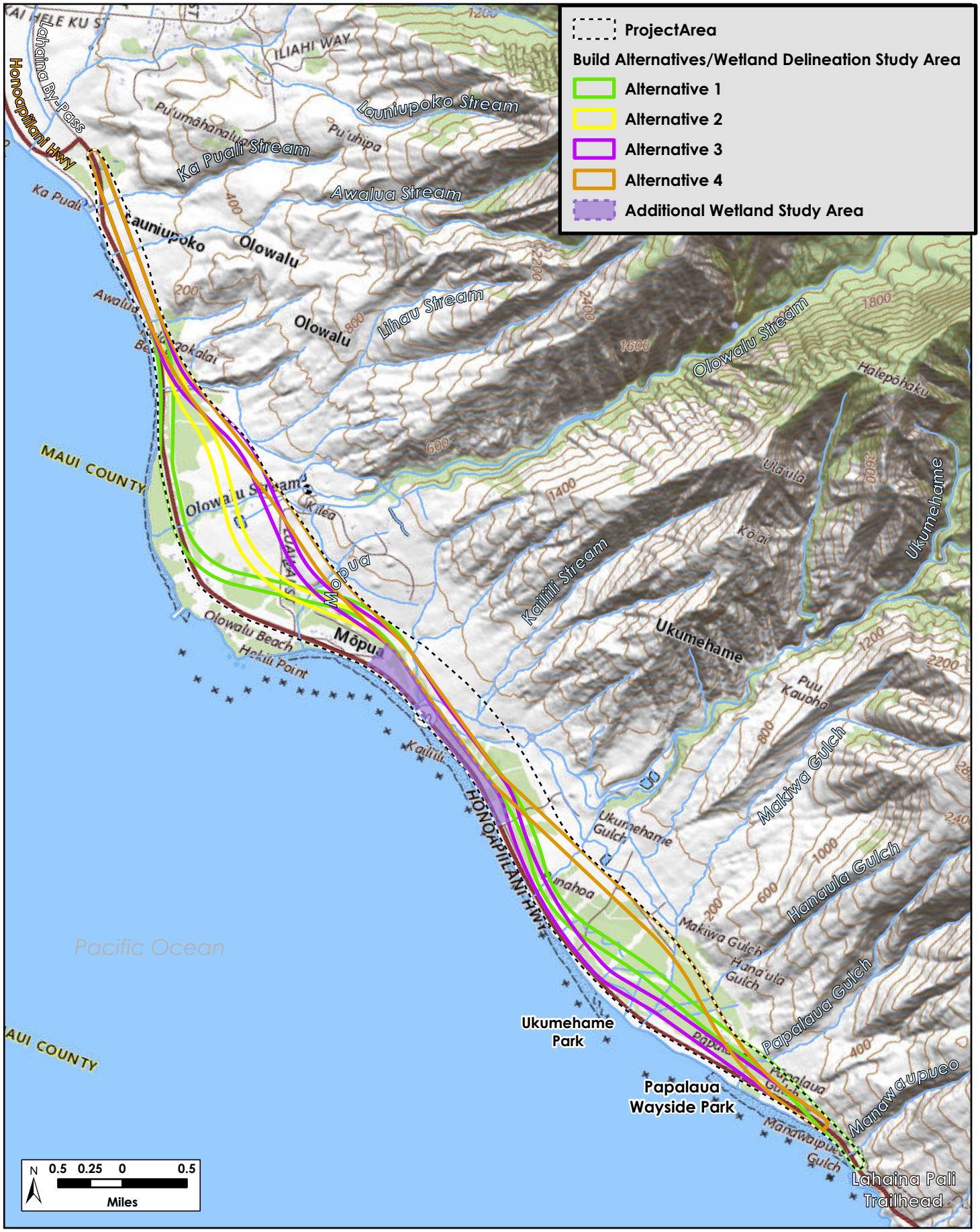

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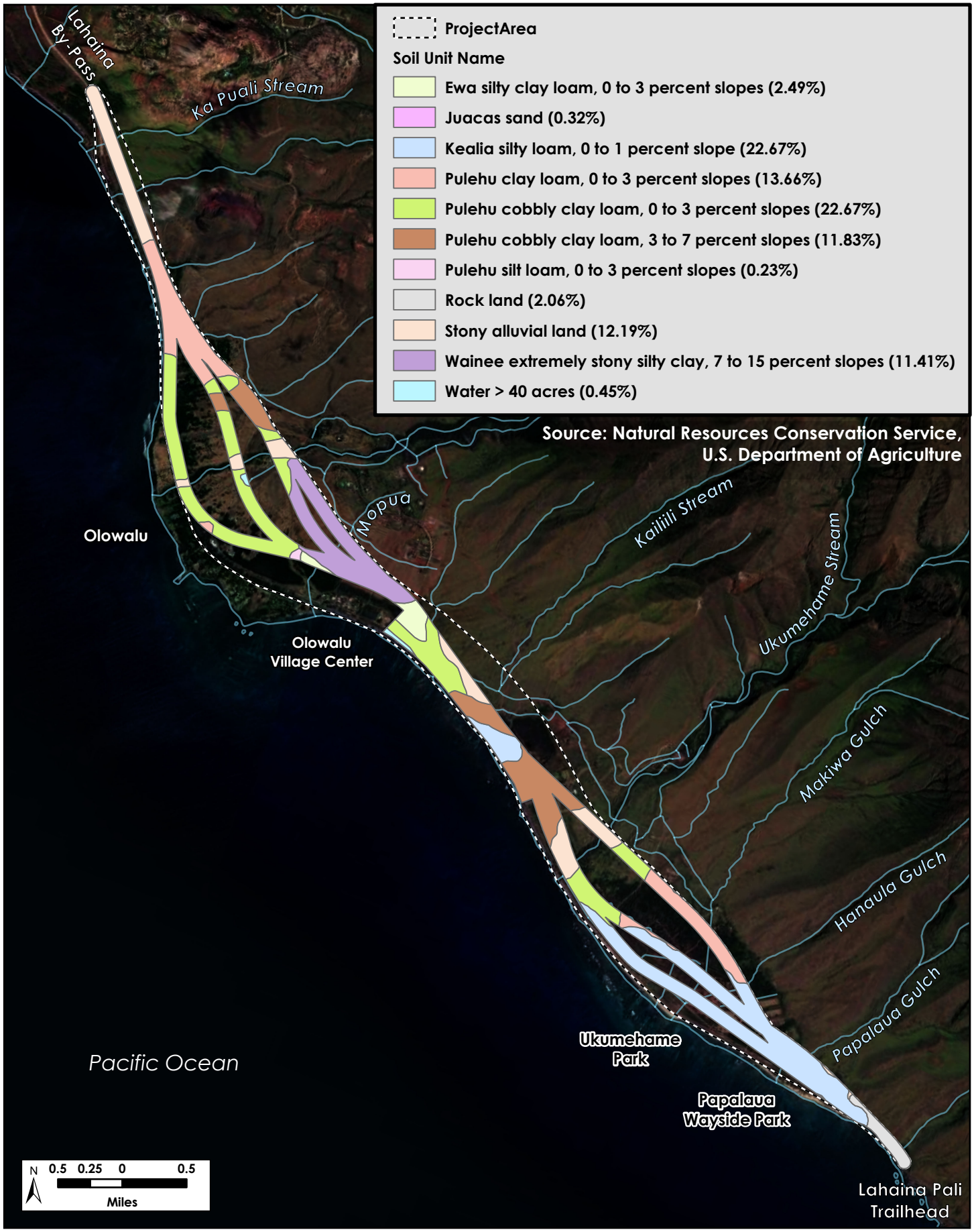
Figure 3. Topographic Map
Honoapiilani Highway (4692)
September 2023



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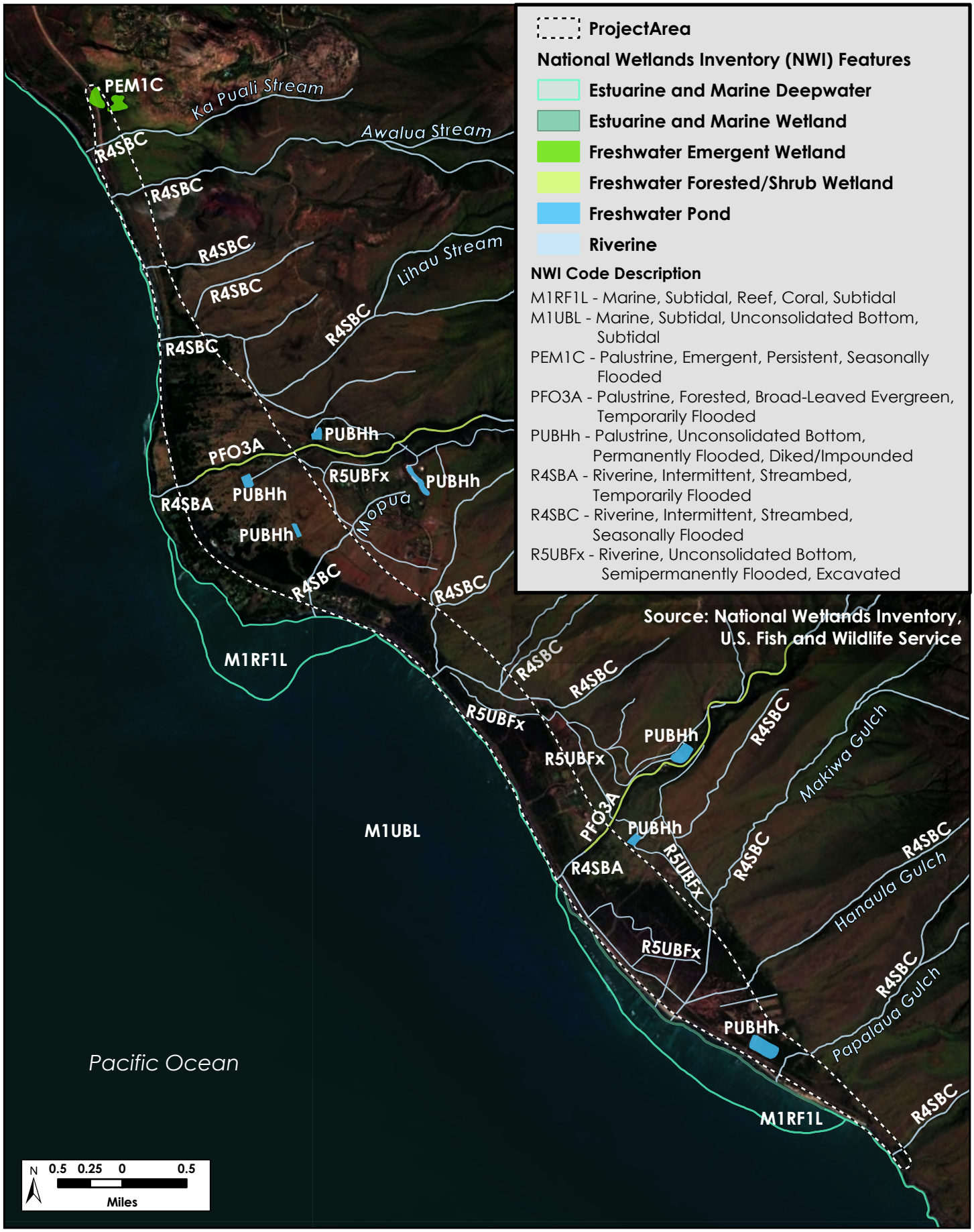
H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 4. Soils Map
Honoapiilani Highway (4692)
September 2023



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 5. National Wetlands Inventory Map
Honoapiilani Highway (4692)
September 2023

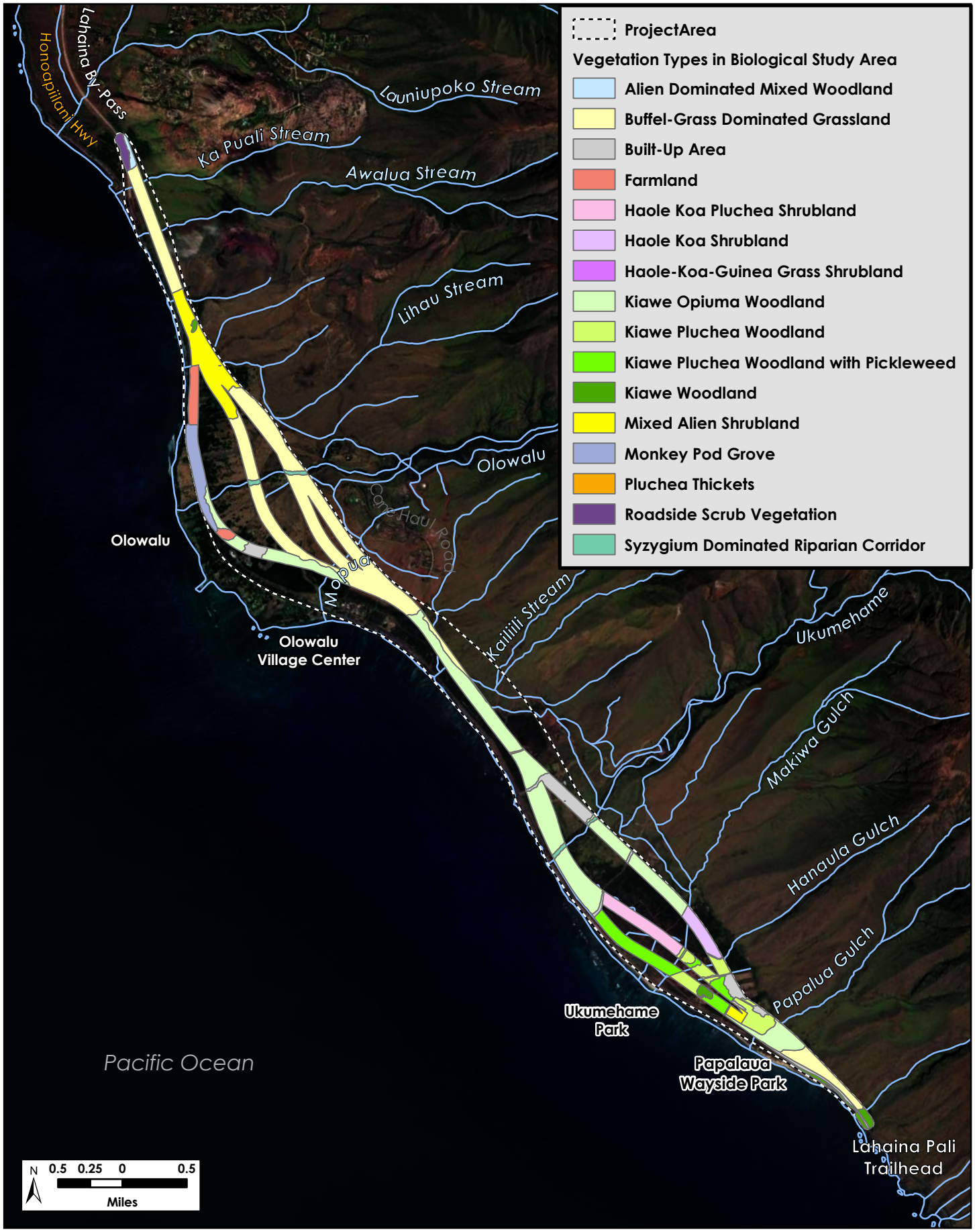

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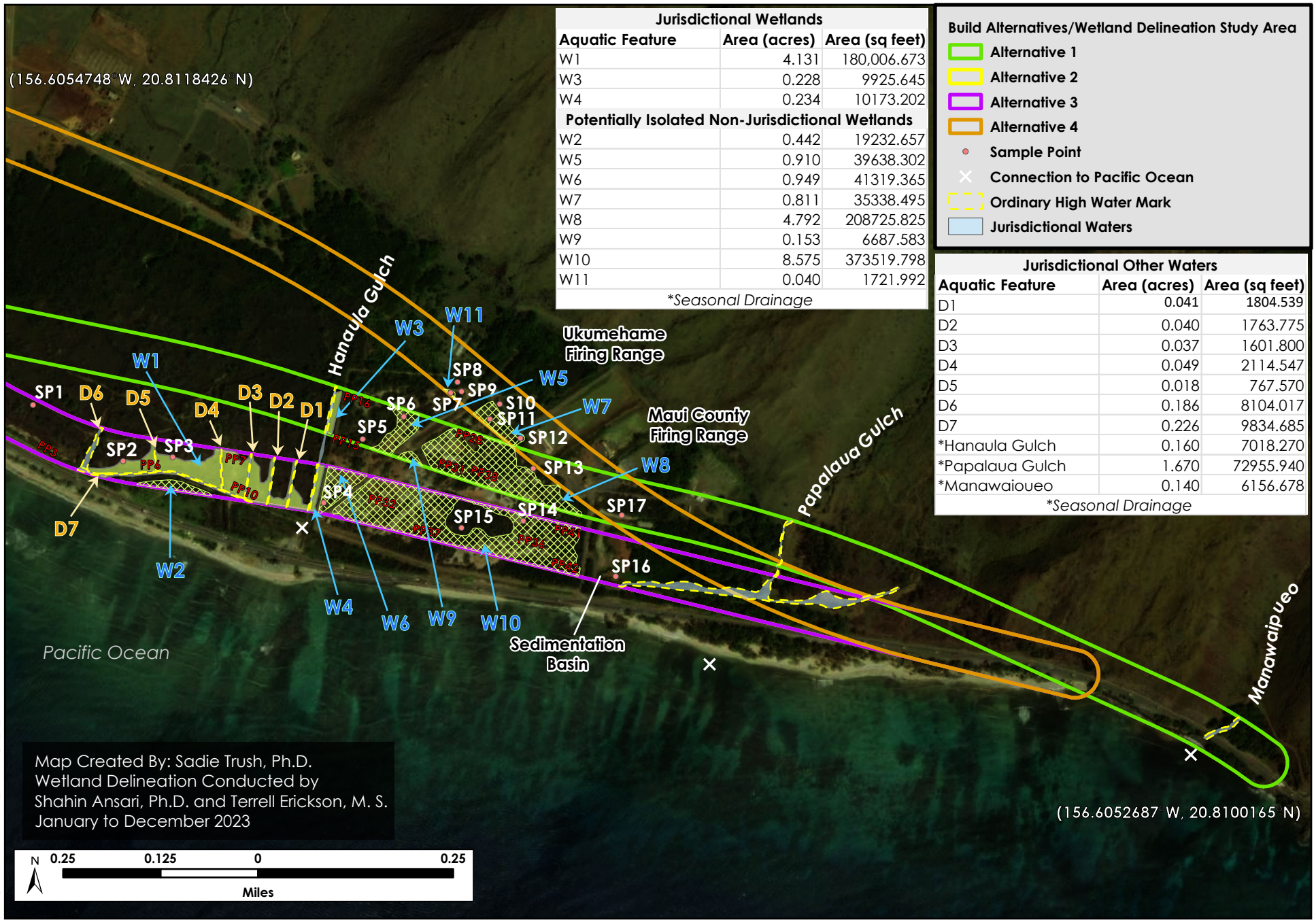
Figure 6. Habitat/Vegetation Types
Honoapiilani Highway (4692)
September 2023



Jurisdictional Wetlands		
Aquatic Feature	**Area (acres)**	**Area (sq feet)**
W1	4.131	180,006.673
W3	0.228	9925.645
W4	0.234	10173.202
Potentially Isolated Non-Jurisdictional Wetlands		
W2	0.442	19232.657
W5	0.910	39638.302
W6	0.949	41319.365
W7	0.811	35338.495
W8	4.792	208725.825
W9	0.153	6687.583
W10	8.575	373519.798
W11	0.040	1721.992
*Seasonal Drainage		

Build Alternatives/Wetland Delineation Study Area

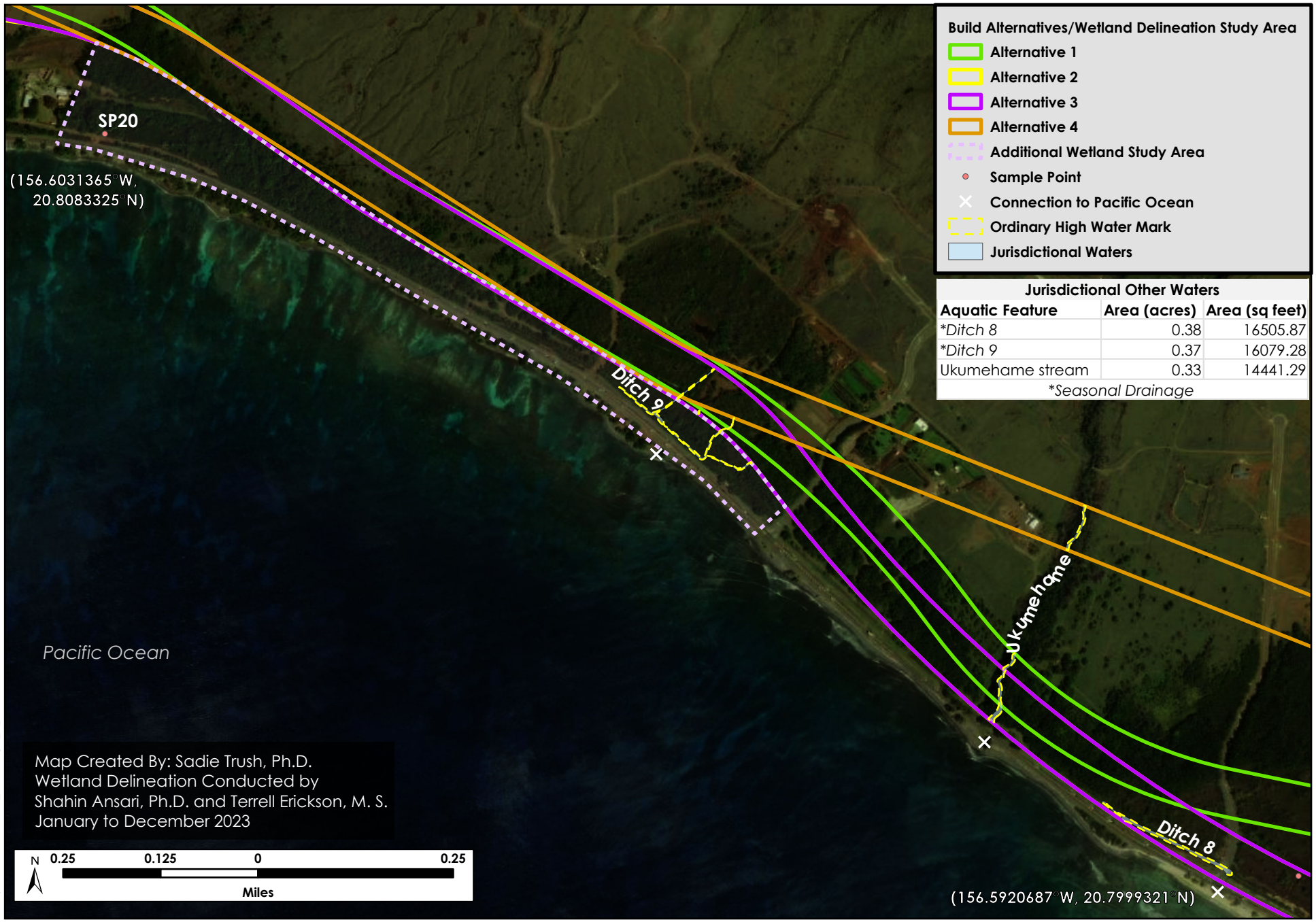
- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4
- Sample Point
- Connection to Pacific Ocean
- Ordinary High Water Mark
- Jurisdictional Waters

Jurisdictional Other Waters		
Aquatic Feature	**Area (acres)**	**Area (sq feet)**
D1	0.041	1804.539
D2	0.040	1763.775
D3	0.037	1601.800
D4	0.049	2114.547
D5	0.018	767.570
D6	0.186	8104.017
D7	0.226	9834.685
*Hanaula Gulch	0.160	7018.270
*Papalaua Gulch	1.670	72955.940
*Manawaioueo	0.140	6156.678
*Seasonal Drainage		

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 7. Preliminary Identification of Jurisdictional Wetlands, Potentially Isolated Non-Jurisdictional Wetlands, and Jurisdictional Other Waters in the Palalaua and Ukumehame Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

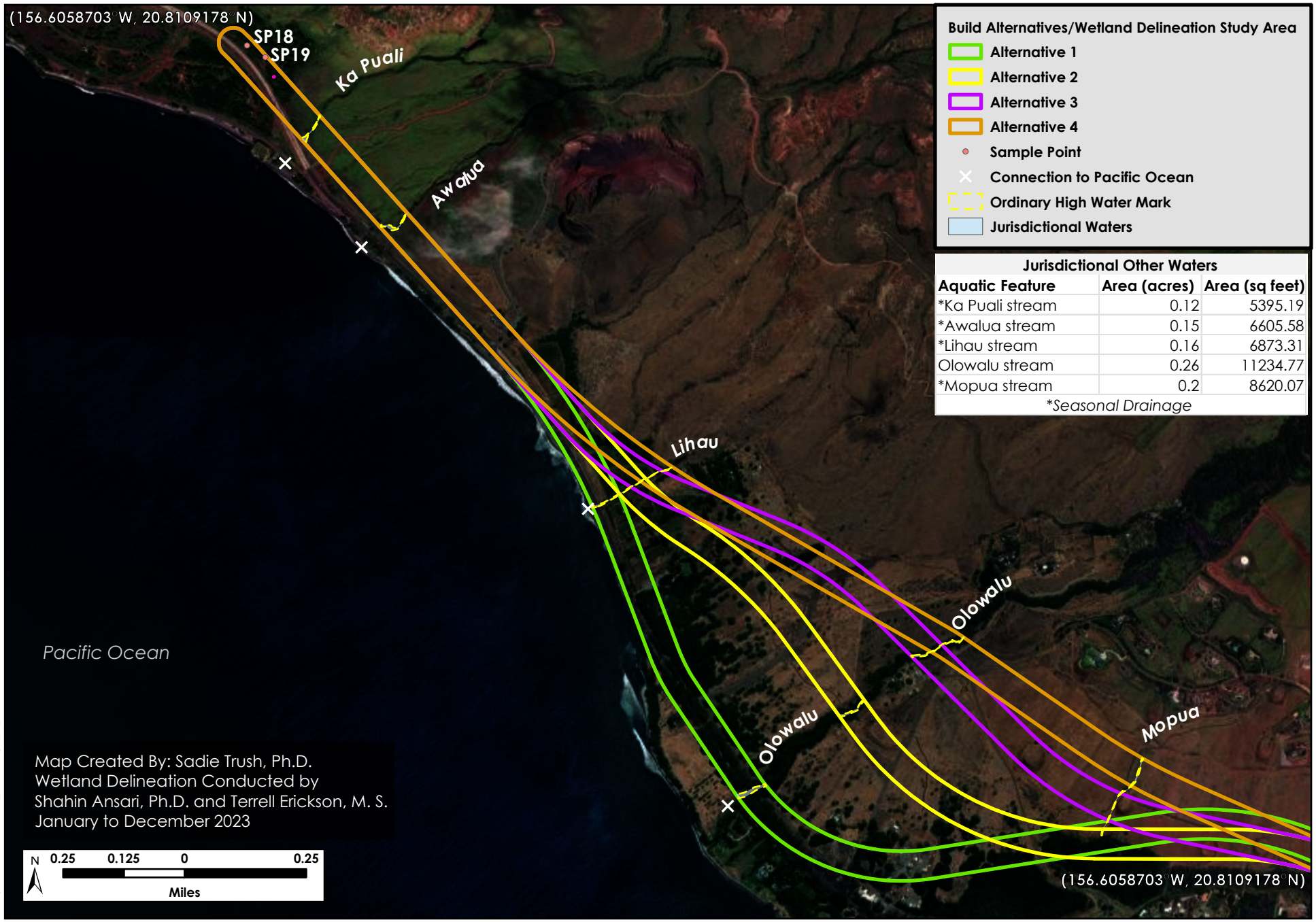


Jurisdictional Other Waters		
Aquatic Feature	Area (acres)	Area (sq feet)
*Ditch 8	0.38	16505.87
*Ditch 9	0.37	16079.28
Ukumehame stream	0.33	14441.29
*Seasonal Drainage		

H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 8. Preliminary Identification of Jurisdictional Other Waters in the Ukumehame Portion of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023



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Ecological Consultants

Figure 9. Preliminary Identification of Jurisdictional Other Waters in the Olowalu and Launiupoko Portions of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

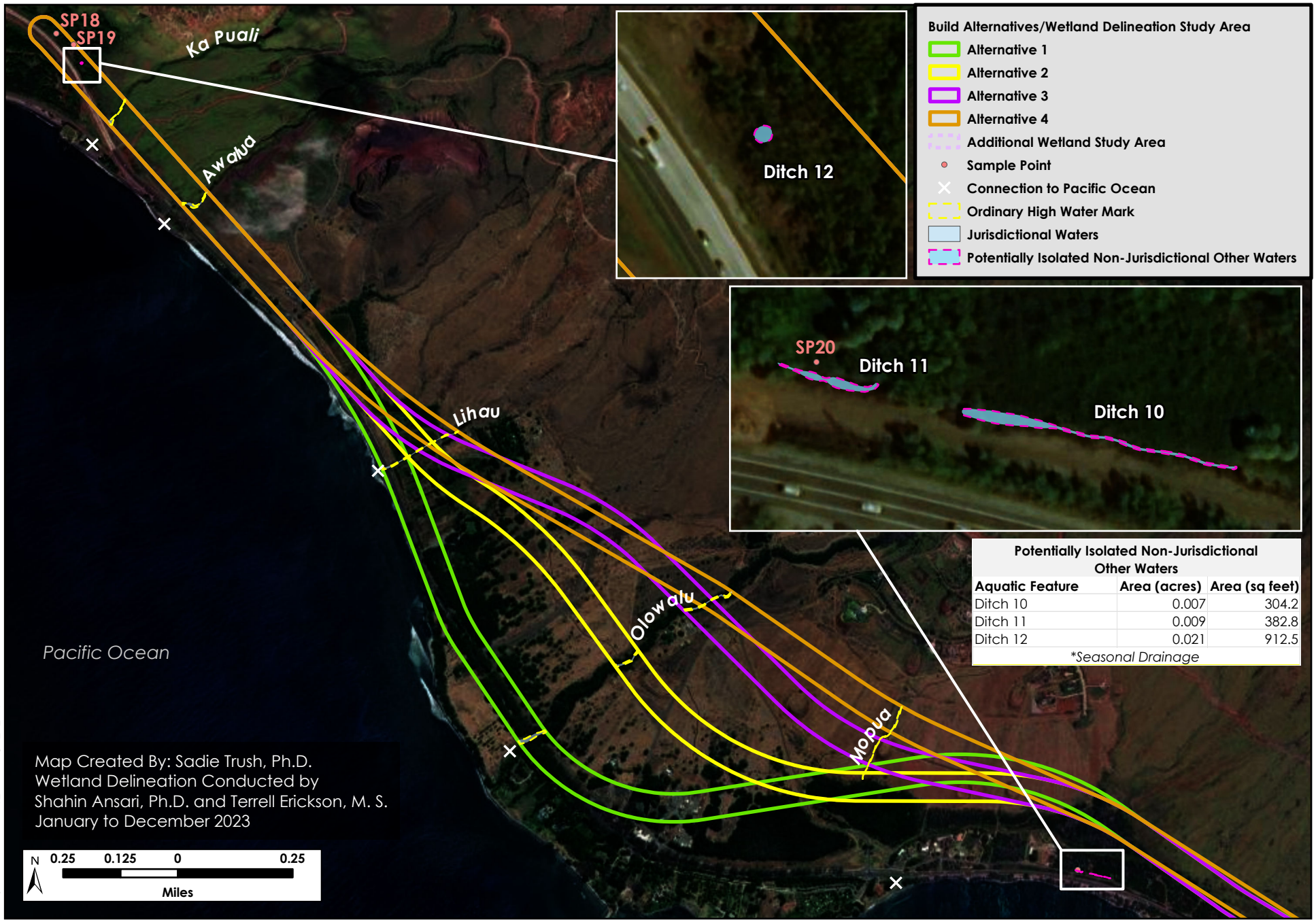

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Figure 10. Preliminary Identification of Jurisdictional and Potentially Isolated Non-Jurisdictional Other Waters in the Olowalu and Launiupoko Areas of the Wetland Delineation Study Area

Honoapiilani Highway Improvement Project (4692-02)
Preliminary Delineation of Wetlands and Other Waters
December 2023

Sullivan, James

From: Sullivan, Genevieve <genevieve.h.sullivan@hawaii.gov>
Sent: Monday, January 8, 2024 2:28 PM
To: Sullivan, James
Cc: Powell, Lisa (FHWA); Aiu, Pua; Yoshioka, Wayne
Subject: Fw: Jurisdictional Determination Request - Honoapiilani Highway, West Maui
Attachments: JD_Request_Form_Honoapiilani_Hwy.pdf; Project_Location_Map_Honoapiilani_Hwy_.pdf; Preliminary_Wetland_Delineation Maps_Honoapiilani_Hwy.pdf; TMK_Parcels_for_Acquisition_Honoapiilani_Hwy.xlsx

Follow Up Flag: Follow up
Flag Status: Flagged

Hi James,

Please find the JD submittal below.

Thanks!
Gen

From: Sullivan, Genevieve
Sent: Tuesday, January 2, 2024 11:10 AM
To: Brewer, J D CIV USARMY CEPOA (USA) <Jason.D.Brewer@usace.army.mil>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Subject: Jurisdictional Determination Request - Honoapiilani Highway, West Maui

Aloha Jason and Happy New Year!

Please accept this email as the Section 404 Jurisdictional Determination Request for the Honoapiilani Highway Improvements Project

The following documents are attached:

1. Jurisdictional Determination Request Form
2. Project Location Map - Honoapiilani Hwy Improvements
3. Preliminary Identification of Waters of the United States - Project Maps
4. Tax Map Key (TMK) Parcels for Acquisition
5. Executive Summary and Figures Only - The Preliminary Identification of Waters of the United States Technical Report
Executive_Summary_and_Figures_Only_Technical_Report_Honoapiilani_Hwy.pdf
6. The Preliminary Identification of Waters of the United States Technical Report
Wetland_Delination_Technical_Rpt_Honoapiilani_Hwy.pdf

Please let me know if the OneDrive links don't work for you and reach out anytime with questions.
And thank you so much for your patience as the project team put together this JD submittal package.

Kind Regards,

Genevieve
808-599-0504

Genevieve Hilliard Sullivan
Planner VI, HDOT Highways

808-587-1834 | genevieve.h.sullivan@hawaii.gov
http://hidot.hawaii.gov/highways/
869 Punchbowl Street Room 301, Honolulu, HI, 96813