DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

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HONOLULU, HAWAII 96813
Phone: (808) 523-4564 • Fax: (808) 523-4567
Web site: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

WW.P 03-386

December 22, 2003

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson,

Finding of No Significant Impact (FONSI) for
Fort Weaver Road Reconstructed Sewer
T.M.K. 9-1-005, 006, 007, 009, 023, 024, 025, 027, 028, and 036
Ewa, Oahu, Hawaii

The City and County of Honolulu Department of Design and Construction has reviewed the comments received during the 30-day public comment period which began on February 23, 2003. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the January 8, 2004 OEQC Environmental Notice.

We have enclosed a completed OEQC publication Form, four copies of the final EA and a revised project summary on disk. Please call Carl Arakaki at (808) 523-4671 if you have any questions.

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

2004-01-08 FONSI
FORT WEAVER ROAD RECONSTRUTED SEWER

FINAL ENVIRONMENTAL ASSESSMENT

FOR

FORT WEAVER ROAD RECONSTRUCTED SEWER

Ewa, Oahu, Hawaii

Proposing Agency:

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF DESIGN AND CONSTRUCTION

This environmental document prepared pursuant to Chapter 343, HRS

Responsible Official: _____ Date: _____
Timothy Steinberger, PE, Director

Prepared by:
ParEn inc., dba Park Engineering
567 South King Street, Suite 300
Honolulu, Hawaii 96813

December 2003

FINAL ENVIRONMENTAL ASSESSMENT

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I. EXECUTIVE SUMMARY

The City and County of Honolulu, as part of its islandwide effort to eliminate both wet and dry weather sanitary sewer overflows (SSO's), is evaluating the gravity sewer systems serving the Ewa Beach community. These sewers known as the *Ewa Interceptor Sewers East and West* were installed in the early 1980's have experienced substantial deterioration over the last two decades as evidenced by data collected by the City. In addition, the hydraulic capacity of various segments of the sewer main are inadequate for projected future flows based on the anticipated development documented in the City's current Development Plan (DP) Maps.

During the planning phase of this project various alternatives to correct the structural and hydraulic problems of the existing wastewater collection system was evaluated. The recommended alternative presented in the Design Engineering Report DAR (dated January 2003) was to rehabilitate the sewer lines and manholes in both the West and East Interceptors to correct severe corrosion or structural problems. In addition, an 18-inch parallel relief line installed by microtunneling was proposed. This process minimizes the need for long, deep excavations and impacts to the neighborhood. The relief line would alleviate the surcharge problems of the existing sewer trunk line, satisfy the City's program requirements and provide the most feasible and cost-effective solution to upgrade the sewer system.

Subsequent to the approval of the DAR the City has accepted a proposal by Haseko Inc., the developer of Ocean Pointe to upgrade the Ewa Beach WWPS and the *Ewa Beach Interceptor (West)*. These upgrades will accommodate future flows from Ocean Pointe with a replacement line of 30-inches to 36-inches installed parallel to the 24-inch *Ewa Interceptor Sewer (West)*. All flows previously conveyed by the *West Interceptor* will be transferred to this replacement line. The developer improvements will preclude the need for the proposed 18-inch relief line and any sewer line or manhole rehabilitation work on the *West Interceptor*.

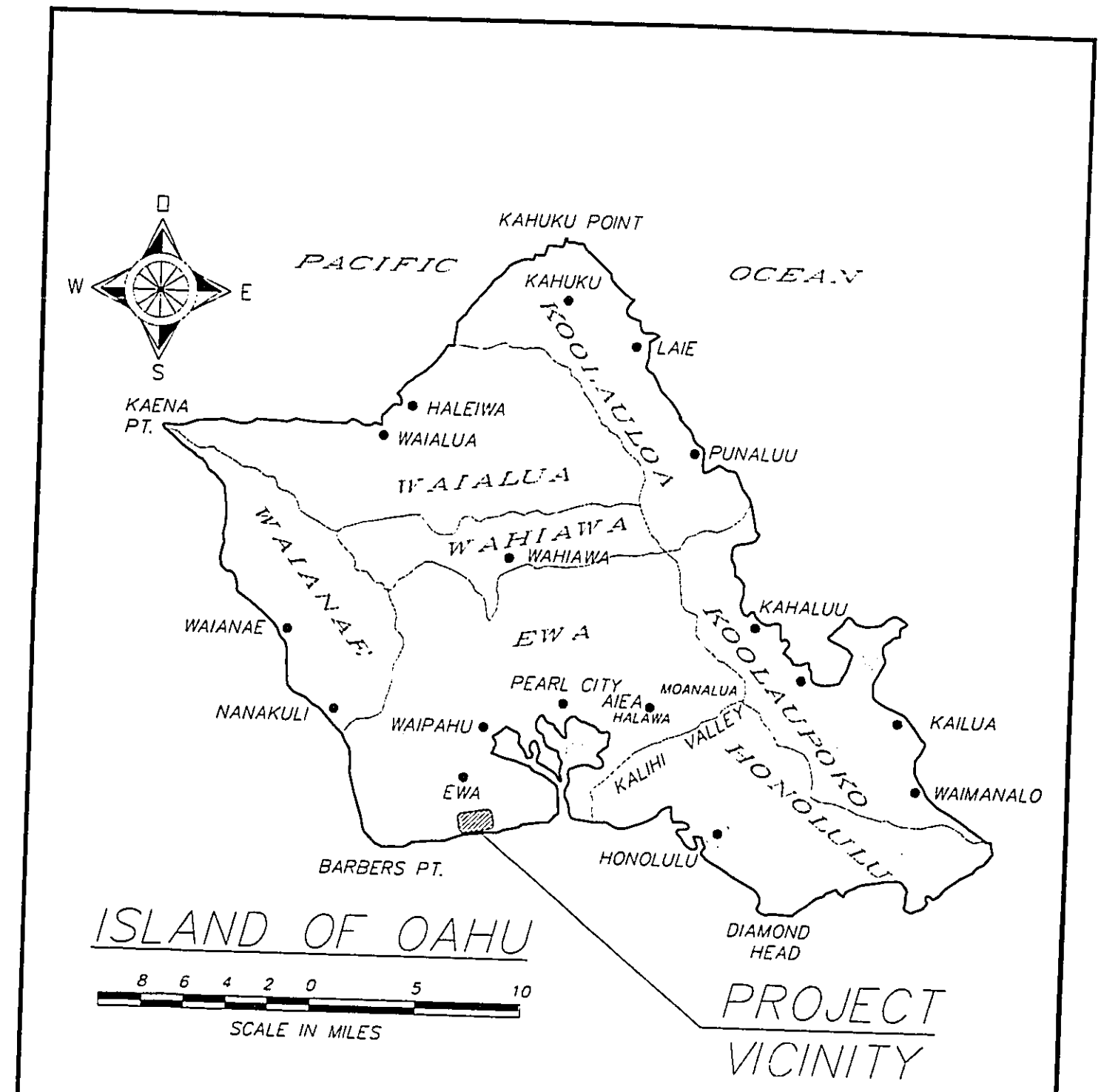
The approximate cost to rehabilitate all sewer lines and manholes identified with severe structural or corrosion problems in the *Ewa Beach Interceptor East* is about $2.94 million. See Appendix C.

After a review of the Environmental Assessment by various governmental agencies and other interested organizations, it has been concluded that an Environmental Impact Statement (EIS) will not be required. Short term impacts such as traffic disruption, dust and noise generation can be expected as a result of construction activity. These impacts can be mitigated by strict adherence to applicable guidelines set by the State Department of Health (DOH).

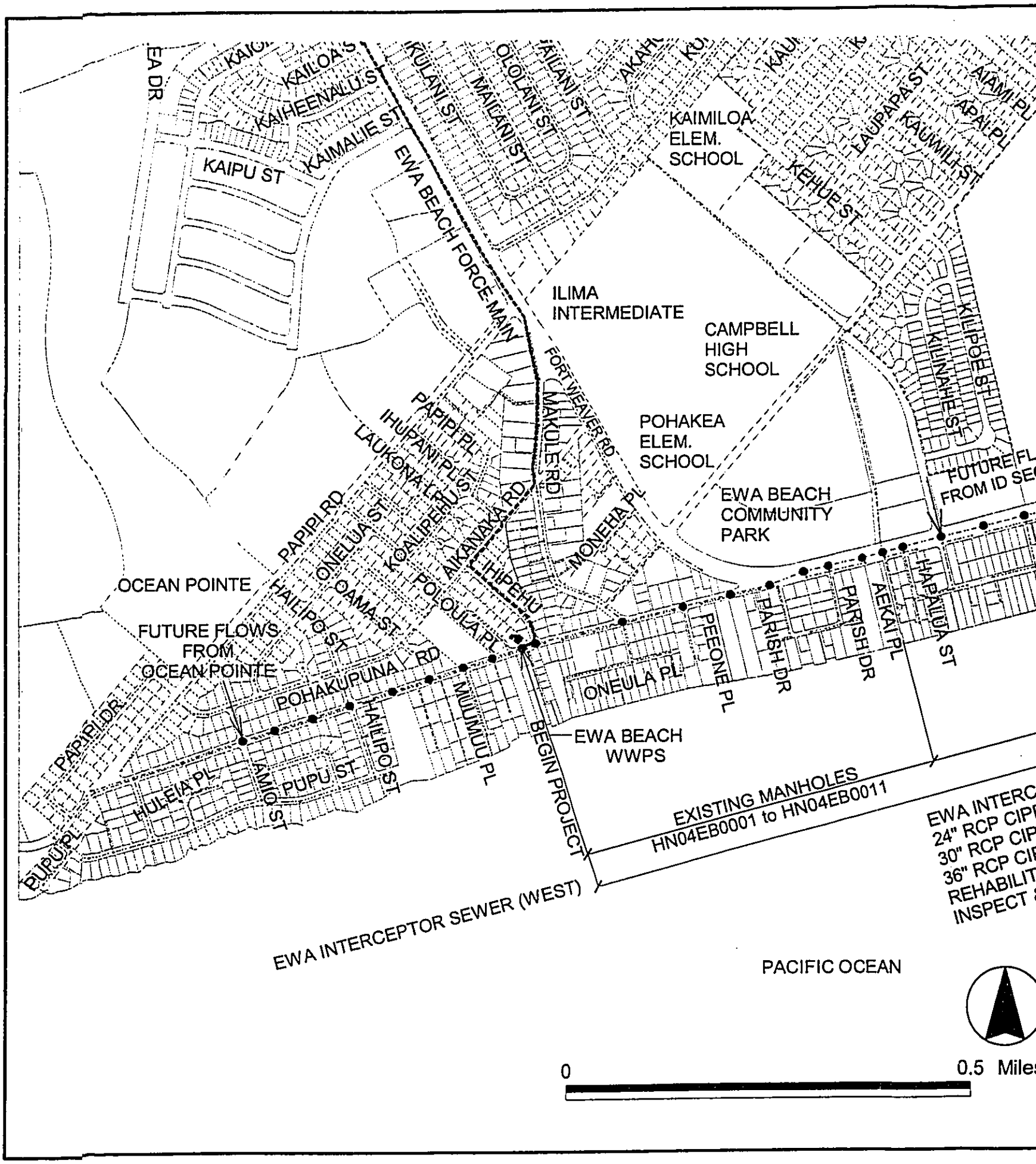
II. SUMMARY INFORMATION

CHAPTER 343, HAWAII REVISED STATUTES (HRS)
FINAL ENVIRONMENTAL ASSESSMENT

Project Name:	Fort Weaver Road Reconstructed Sewer
Project Number:	W4-03
Proposing Agency:	City and County of Honolulu Department of Design and Construction 650 South King Street Honolulu, Hawaii 96813
Approving Agency:	City and County of Honolulu Department of Design and Construction 650 South King Street Honolulu, Hawaii 96813
Prepared By:	ParEn, Inc. dba Park Engineering 567 South King Street, Suite 300 Honolulu, Hawaii 96813
Anticipated Determination:	Finding of No Significant Impact (FONSI)
Project Description:	Cured-In-Place-Pipe (CIPP) rehabilitation of about 6,380 linear feet of 24-inch, 30-inch, and 36-inch sewer lines. Twelve (12) sewer manholes identified with severe corrosion or structural problems will be rehabilitated using fiberglass inserts or protective epoxy coatings. One additional sewer manhole will be assessed and may also require rehabilitation. Re-establishment of sewer connections within these manholes, surface restoration, sewer bypassing and traffic controls are other components of this project.
Project Location:	Ewa, Oahu, Hawaii. See figures 1 and 2
Tax Map Key:	9-1-005, 006, 007, 009, 023, 024, 025, 027, 028, and 036
Land Owner:	City and County of Honolulu and State of Hawaii
Land Area:	N/A



FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
VICINITY MAP
FIGURE 1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KULANI ST
MAILANI ST
OLOLANI ST
AKAHI
KAUI
KAIMILOA ELEM. SCHOOL
LAUPAPA ST
KAUWILA ST
AIAMI PL
APAI PL
KEHUE ST
KILIPOE ST
KILINAHE ST
ILIMA INTERMEDIATE
CAMPBELL HIGH SCHOOL
POHAKEA ELEM. SCHOOL
EWA BEACH COMMUNITY PARK
FUTURE FL
FROM ID SE
EWA BEACH FORCE MAIN
FORT WEAVER RD
MAKUE RD
PAPIPI RD
IHUPANI PL
LAUKONA LP
ONELUA ST
KOALIPEHU ST
AIKANAKA RD
IHIPEHU ST
MONEHA PL
OCEAN POINTE
HAILIPO ST
OAMA ST
POLOUILA PL
FUTURE FLOWS FROM OCEAN POINTE
POHAKUPUNA RD
PAPIPI DR
HULEIA PL
IAMO ST
PUPU ST
PUPU PL
MUUMUU PL
BEGIN PROJECT
EWA BEACH WWPS
ONEULA PL
PEEONE PL
PARISH DR
AEKAI PL
HAPALUA ST
EXISTING MANHOLES
HN04EB0001 to HN04EB0011
EWA INTERC
24" RCP CIP
30" RCP CIP
36" RCP CI
REHABILIT
INSPECT
EWA INTERCEPTOR SEWER (WEST)
PACIFIC OCEAN
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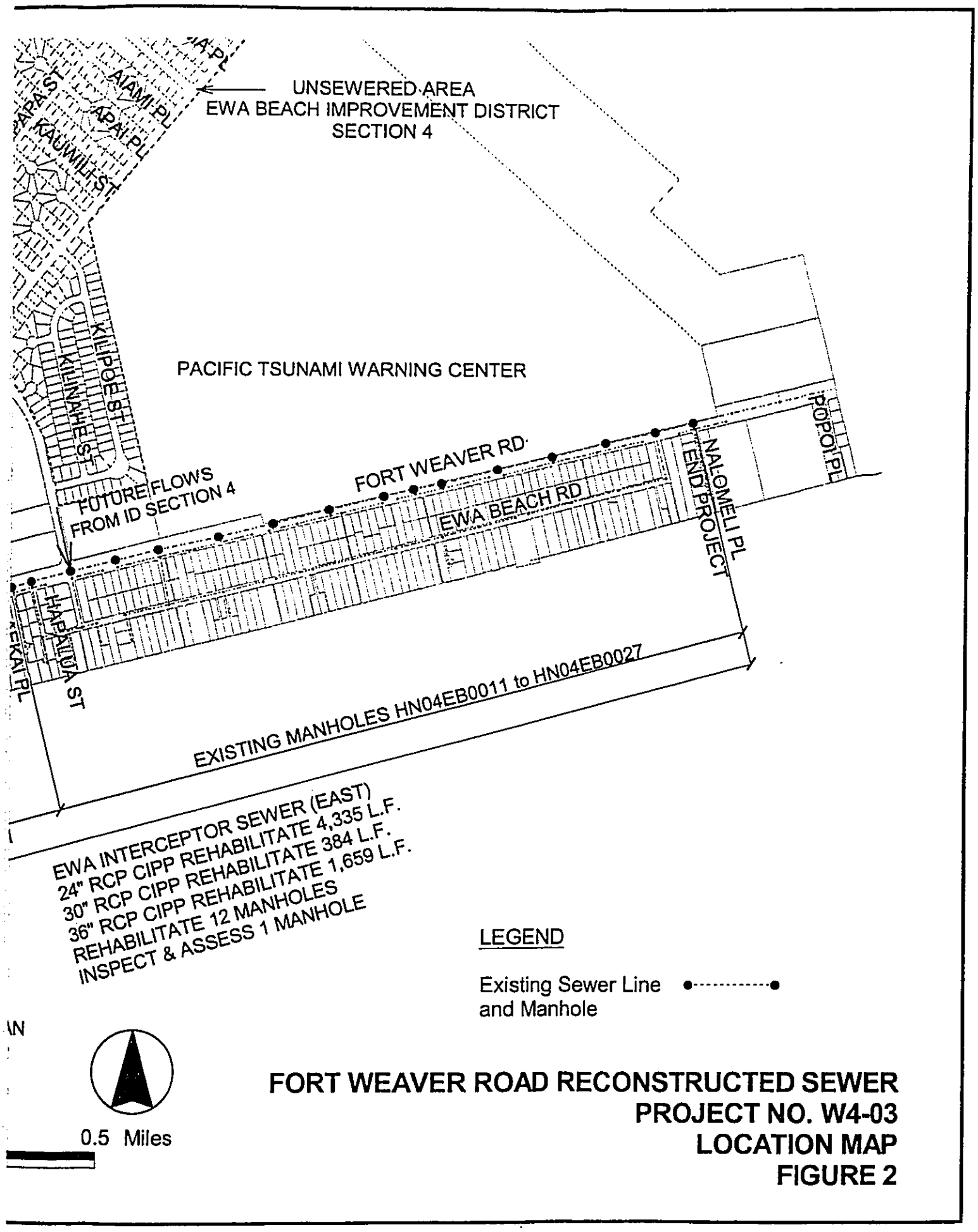
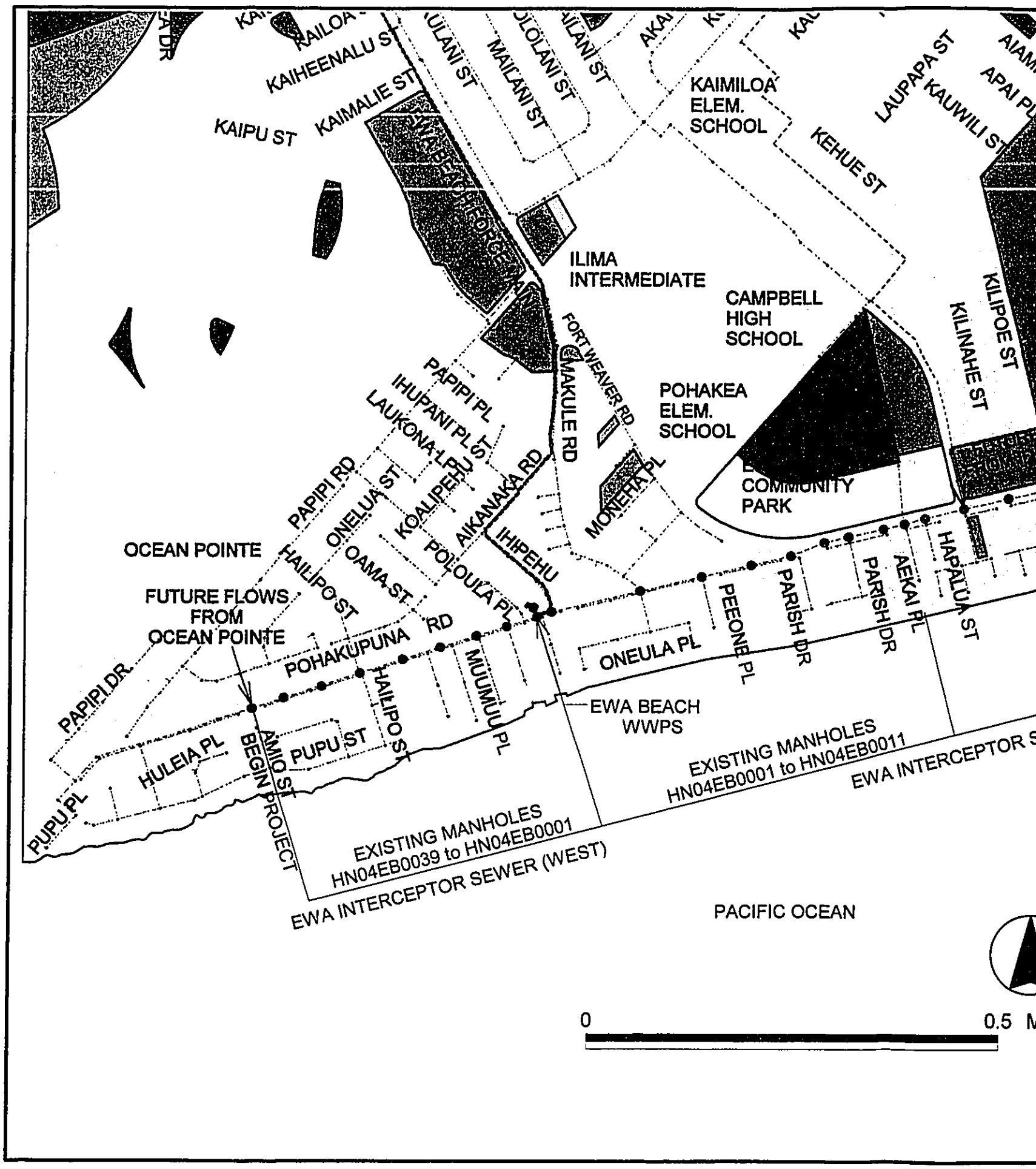
0.5 Mile



FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
LOCATION MAP
FIGURE 2

State Land Use Designation: Urban

County Zoning: Residential R-5. See figure 3.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FUTURE FLOWS FROM OCEAN POINTE
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PAPIPI DR
HULEIA PL
AMIO ST
PUPU ST
PUPU PL
BEGIN PROJECT
EWA BEACH WWPS
EXISTING MANHOLES HN04EB0001 to HN04EB0011
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EXISTING MANHOLES HN04EB0039 to HN04EB0001
EWA INTERCEPTOR SEWER (WEST)
PACIFIC OCEAN
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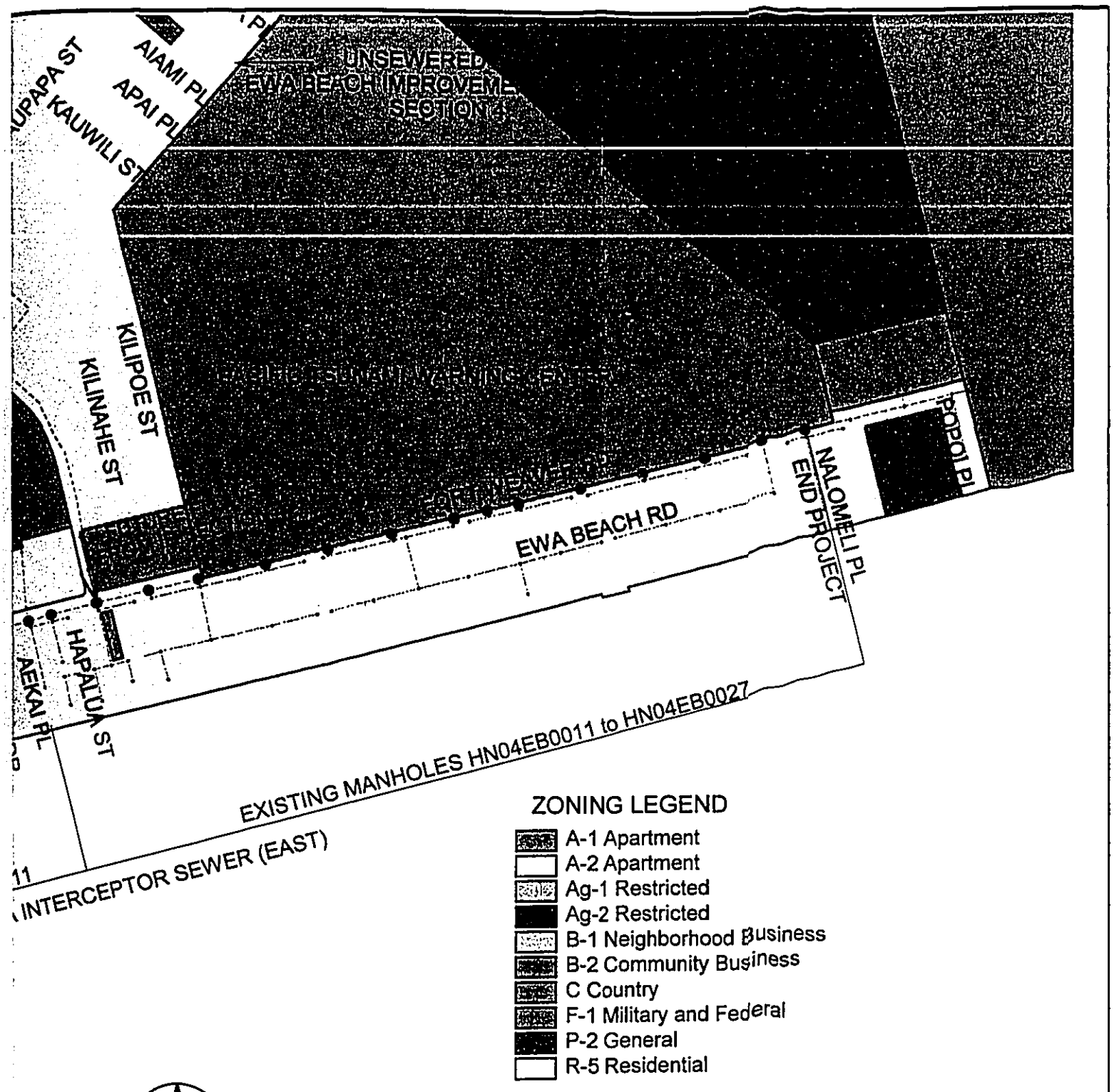
0.5 M



FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
ZONING MAP
FIGURE 3

III. AGENCIES & ORGANIZATIONS CONSULTED

Federal:
- U.S. Department of Army
- U.S. Department of Interior

State of Hawaii:
- Department of Agriculture
- Department of Education
- Department of Land and Natural Resources
  - Land Division
  - Historic Preservation Division
- Department of Health
- Department of Transportation
- University of Hawaii
- Office of Environmental Quality Control
- Office of Hawaiian Affairs

City and County of Honolulu:
- Board of Water Supply
- Department of Environmental Services
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- Honolulu Fire Department
- Honolulu Police Department

Utilities:
- Hawaiian Electric Company
- Verizon Hawaii, Inc.
- Oceanic Time Warner Cable of Hawaii
- The Gas Company

Others:
- National Weather Service - Pacific Tsunami Warning Center
- Ewa Neighborhood Board #23
- Ewa Beach Public & School Library (reserve)

IV. PROJECT DESCRIPTION

A. Background

The City and County of Honolulu (City), as part of its islandwide effort to eliminate both wet and dry weather sanitary sewer overflows (SSO's), is evaluating the gravity sewer systems serving the Ewa Beach community. Included in this study is the *Ewa Interceptor Sewer East.* These sewer lines, installed in the early 1980's, have experienced substantial deterioration over the last two decades as evidenced by data collected by the City. In addition, the hydraulic capacity of various segments of the sewer main is suspected to be inadequate for projected future flows based on the anticipated development documented in the City's current Development Plan (DP) Maps.

B. Project Location

The project site is bordered to the north by residential subdivisions, Ewa Beach Community Park and the Pacific Tsunami Warning Center to the north and the Ocean Pointe Development to the west. Wastewater generated from the areas west of the Ewa Beach Pump Station (WWPS) flow by gravity through the *Ewa Interceptor Sewer (West)* along Pohakupuna Road. Wastewater from the areas east of the WWPS flow by gravity through the *Ewa Interceptor Sewer (East)* along Fort Weaver Road and Pohakupuna Road. The project extends from WWPS, near the intersection of Pohakupuna Road and Ihipehu Street at its west end to the intersection of Fort Weaver Road and Nalomeli Place at its east end. A vicinity and location map, identifying the project area is provided in Figures 1 and 2.

C. Technical Characteristics

1. Structural and Corrosion Evaluation and Hydraulic Adequacy of Sewer Lines

The structural and corrosion condition of the *Ewa Interceptor Sewer East* and its ability to convey current and future flows was evaluated. Structural evaluation was based on closed circuit television (CCTV) inspections conducted in May 1996. Hydraulic adequacy was evaluated using a flow model to simulate flow conditions for current and future development. The peak design flow included wet-weather infiltration and inflow occurring during a 2-year, 6-hour design storm. The flow modeling identified hydraulic deficiencies in the sewer lines signified by surcharging, a condition where the peak design flow surpasses the full flow capacity of the sewer line. Alternatives were then developed to correct any deficiencies of the sewer line.

2. Rehabilitation of Sewer Lines

Cured-In-Place-Pipe (CIPP) rehabilitation of 6,379 linear feet of 24-, 30- and 36-inch reinforced concrete pipe will correct structural or corrosion problems of the sewer lines. The proposed rehabilitation method is a trenchless process accomplished by inserting or hydraulically pushing flexible liners from one existing manhole to another. Hot water is commonly used for curing during this process. See Figure 4.

3. Rehabilitation of Sewer Manholes

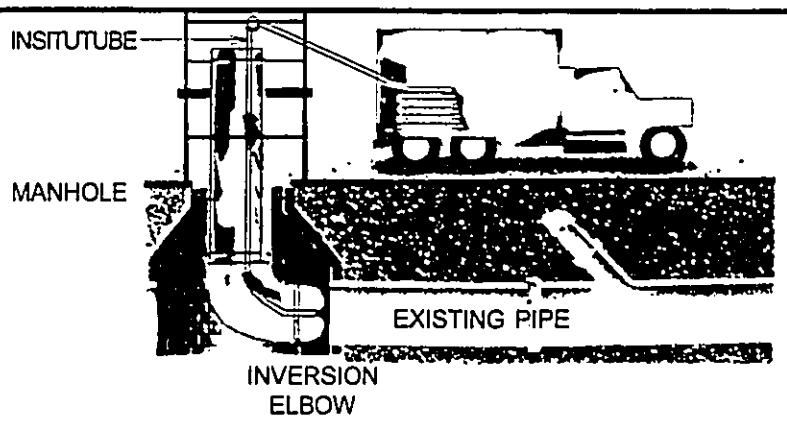
A total of twelve (12) manholes will require rehabilitation based on inspections conducted for the City. One additional manhole will be inspected and evaluated for rehabilitation. Two methods of rehabilitation are recommended for this project. Four of the manholes have unusual configurations with varying diameter bases and risers and will be rehabilitated using epoxy protective coatings. The remaining eight will be rehabilitated using a pre-cut fiberglass liner. Excavation around the area surrounding the existing manhole is required to remove the top portion of the manhole, afterwhich the fiberglass liner is inserted into the manhole and mortared in place. The annular space between the liner and the existing manhole is filled with a flowable concrete mixture. The manhole benches can be rehabilitated using either Portland Cement with a protective coating or modular manhole inverts. See Figure 5.

D. Socio-Economic Characteristics

An immediate economic impact of this project is the estimated $2.94 million of work for the construction industry.

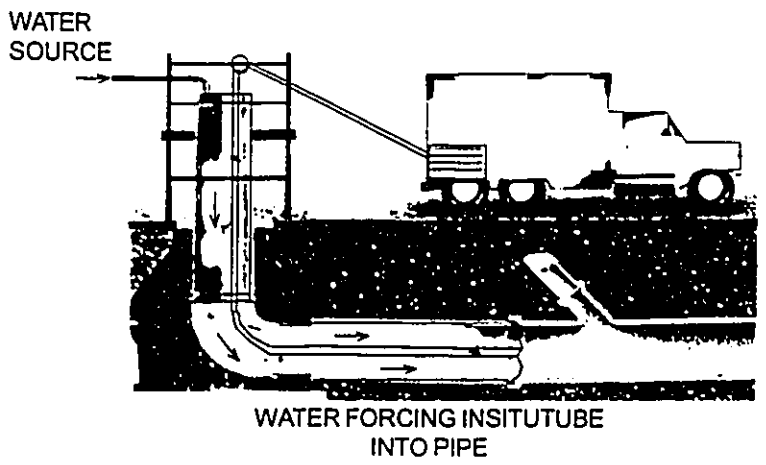
E. Environmental Characteristics

Temporary disruptions to the environment may occur due to construction activity at the sewer manholes necessary for CIPP and sewer manhole rehabilitation. Environmental impacts caused by these activities will be mitigated to comply with applicable regulations, and will be discussed further in subsequent sections.



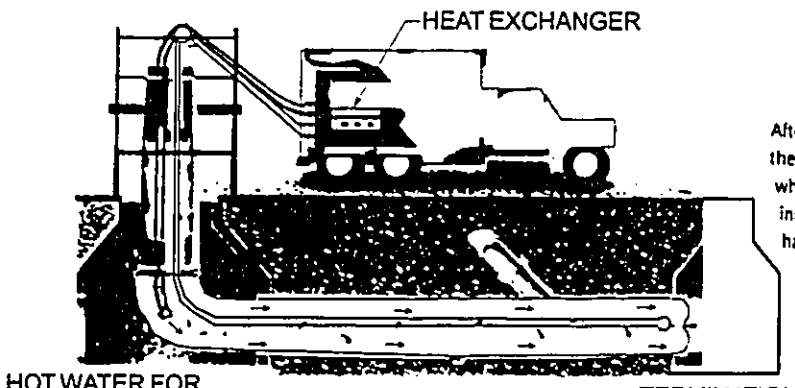
STAGE ONE

Resin-saturated, flexible Insitutube® material is installed in the existing pipe, through either a manhole or other access point. The Insitutube material is then cuffed back and banded to an inversion elbow, creating a closed system that allows the water inversion process to take place.



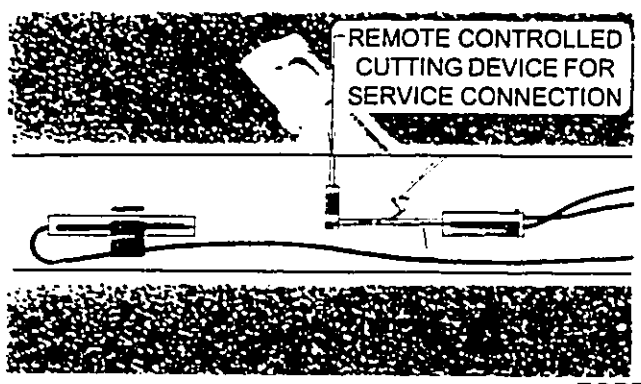
STAGE TWO

Water from nearby hydrants (or other convenient sources) is used to invert the Insitutube material. The force of the water turns the resin-impregnated tube inside out and into the pipe being reconstructed. As the tube travels through the pipe, water is continually added to maintain a constant pressure, keeping the tube pressed tightly against the walls of the old pipe. No dragging, tearing, or abrasion occurs as the tube gently *inverts over pipeline irregularities.*



STAGE THREE

After the Insitutube material reaches the termination point, the water in the line is circulated through a heat exchanger, where it is heated and returned to the tube. The hot water initiates the cure of the thermosetting resin, causing it to harden into a structurally sound, jointless "pipe within a pipe," an Insitupipe® cured-in-place-pipe.



STAGE FOUR

Once the Insitupipe composite has hardened and cooled, the water pressure is released and the ends are trimmed. Service connections are reinstated internally with a remote-controlled cutting device or by man-entry techniques. The operation is then complete, and the newly installed pipe is ready for immediate use. All this is accomplished with little or no excavation.

FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
CIPP REHABILITATION WATER INVERSION OVERVIEW
FIGURE 4

F. Approvals and Permits Required

A pre-assessment consultation and Draft Environmental Assessment (DEA) to help determine impacts of the proposed project were conducted with affected and interested community groups and Federal, State and County agencies. The pre-assessment consultation letters sent to these groups and agencies and responses received are included in Appendix A. The DEA letters and responses received are included in Appendix B. The approvals and permits required for this project are identified below:

APPROVALS

City and County of Honolulu
Department of Design and Construction
Department of Environmental Services

State of Hawaii
Department of Health – Environmental Management Division
Department of Transportation – Highways Division

PERMITS

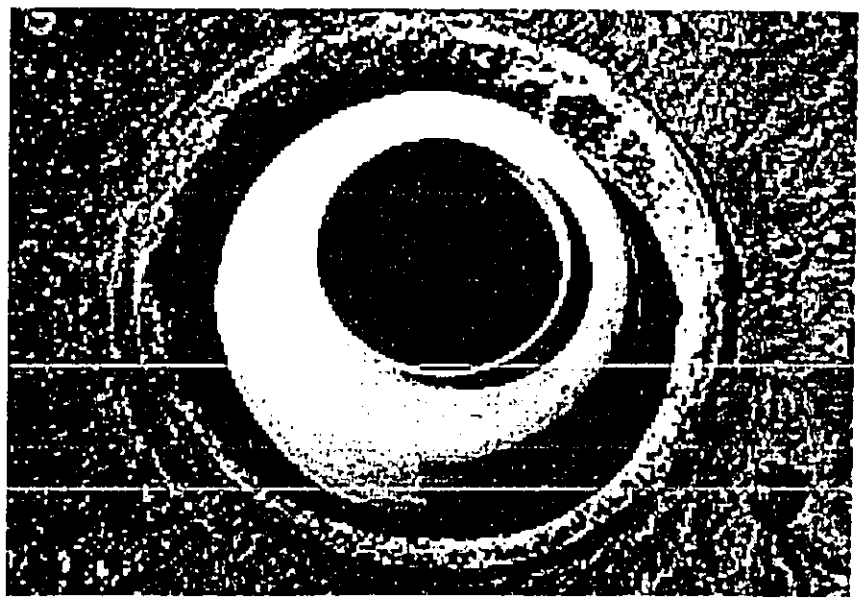
State of Hawaii
Department of Health
- Noise Permit and/or Variance from Noise and Radiation Branch
- Chapter 55 Water Pollution Control, Hawaii Administrative Rules, Title 11, State Department of Health, for discharges of hydrotesting waters

Department of Transportation
- Permit to Perform Work on a State Highway
- Easement/Use and Occupancy Agreement

City and County of Honolulu
- Sidewalk and Driveway Permit
- Dumping Charges
- Excavation Permit
- Street Usage Permit
- Fire Hydrant Use Permit
- Industrial Wastewater Discharge Permit for Temporary Discharges into the City's Sewer System

G. Estimated Construction Schedule and Phasing

The project is tentatively scheduled for construction in 2005. The project will not be phased but will be completed in its entirety. The City will coordinate the schedules of other utility projects in the area to minimize impacts to the community.



Excavation around the area surrounding the existing manhole is required to remove the top portion of the manhole. The pre-cut fiberglass liner is inserted into the manhole and mortared in place.

Liner is one integral piece, can be made up to 25 feet in height, hydrogen sulfide and corrosion resistant and withstands H-20 traffic loads.

FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
FIBERGLASS INSERT MANHOLE REHABILITATION
FIGURE 5

V. DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. Topography

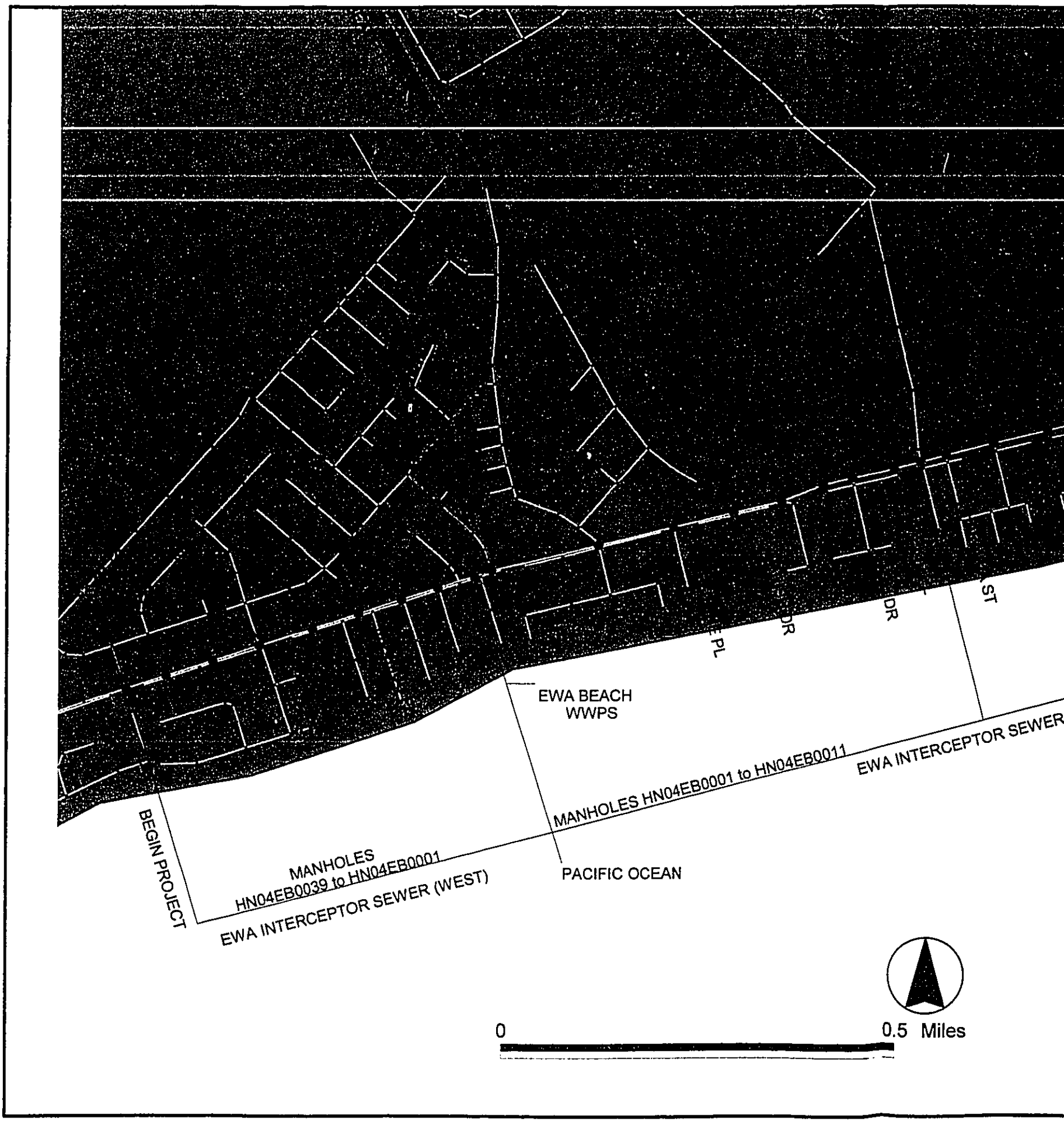
The *Ewa Interceptor Sewer (East)* at its upstream end starts near Nalomeli Place about 6 feet outside of the edge of pavement of Fort Weaver Road. Existing ground along this section is comprised of dirt, scrub bush, and grass. The interceptor sewer is installed parallel to a 6-foot high chain link fence north of Fort Weaver Road for about 3,350 feet. The sewer alignment goes onto Fort Weaver Road crossing two westbound traffic lanes on its way to the center of the street and continues along the center of Fort Weaver Road for about 1,210 feet. Near Parish Drive the sewer turns towards the south side of Fort Weaver Road and cuts through sewer easements located within private property. The sewer proceeds to the north side of Pohakupuna Road on its way to the Ewa Beach WWPS. This stretch of Pohakupuna Road is flat with existing elevations ranging between 4.8 and 6.1 msl.

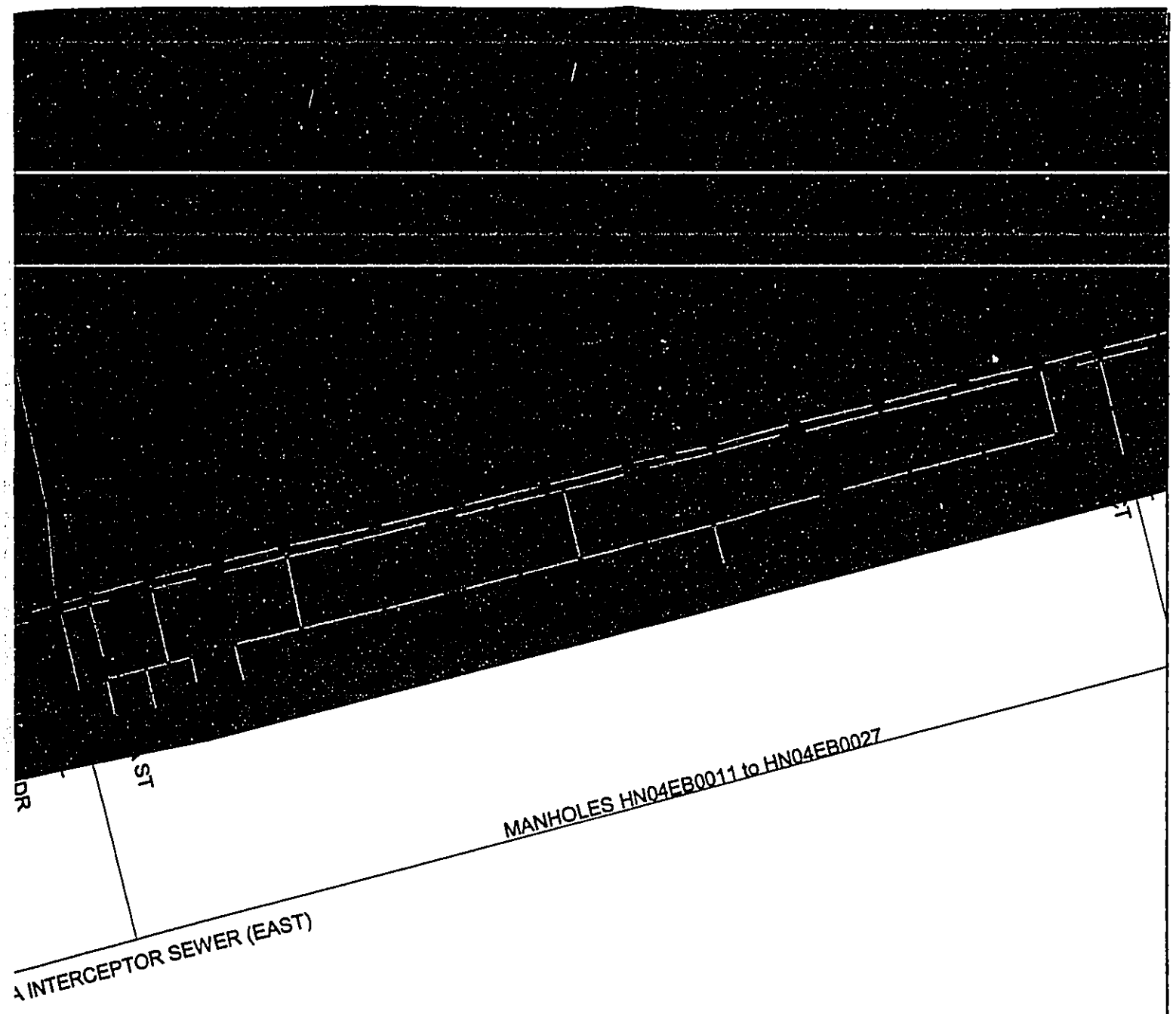
B. Soils

Based on review of existing boring information by Geolabs, Inc., subsurface conditions at the project site generally consist of 2 to 3 feet of clayey and sandy fill soils overlying medium dense to dense silty, coralline sand and coral reef materials. The subsurface materials encountered in the borings appear to be relatively uniform in character along the existing pipe alignment. Boring log information indicates that shallow groundwater conditions exist at the site ranging between 2 and 5 feet below the existing ground surface. These correspond to elevations between –0.5 feet and +3.0 feet mean sea level (msl). These groundwater levels will fluctuate in response to the changing tides.

According to the *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* the soil at the project site is classified as Coral Outcrop (CR). This type of soil consists of coral or cemented calcareous sand and is geographically associated with Jaucas (Ja, Jc), Keaau (KmA) and Mokuleia (Mt) soil series. These soils occur along the coastal plains of Oahu, and have varying characteristics as shown below. See figure 6.

	Permeability	Runoff	Erosion Hazard
Ja, Jc	Rapid	Very Slow	Slight
KmA	Slow	Slow	No more than Slight
Mt	Moderate (in surface layer) Rapid (in subsoil)	Very Slow	No more than Slight


EWA BEACH
WWPS
EWA INTERCEPTOR SEWER
MANHOLES HN04EB0001 to HN04EB0011
BEGIN PROJECT
MANHOLES
HN04EB0039 to HN04EB0001
EWA INTERCEPTOR SEWER (WEST)
PACIFIC OCEAN
0
0.5 Miles



SOIL CLASSIFICATION LEGEND

Fd Fill Land

CR Coral Outcrop

0.5 Miles

FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
SOILS MAP
FIGURE 6

C. Climate

Average temperature ranges of the project area vary from the upper 70s between November and February and close to 90° between June and August. Average annual rainfall is less then 20 inches with monthly lows between May and July and monthly highs between December and January. Because of its location, the climate of the project area like the rest of the Hawaiian Islands is strongly influenced by the ocean. The ocean supplies moisture to the air and regulates its temperature, making variability of temperature and humidity small. The project site in a leeward area of the island between two of Oahu's major mountain ranges is influenced by descending, warming air from which some moisture has been removed as it passes over the mountains. Consequently, the project site is generally clearer and drier then the windward sections of Oahu.

D. Geology

The project site is located near the Ewa Beach shoreline and is underlain by old coral-algal reef and other calcareous deposits that comprise the Ewa Plain. The reef material consists of coral and algal accumulations with embedded coralline sand and marine sediments. Alluvial deposits composed of terrestrial clays and silts may also be present in the subsurface.

E. Land Use

The project site is entirely within land designated Urban by State Land Use classification. Pohakupuna Road and Fort Weaver Road are bordered on both sides by residential units.

F. Flora and Fauna

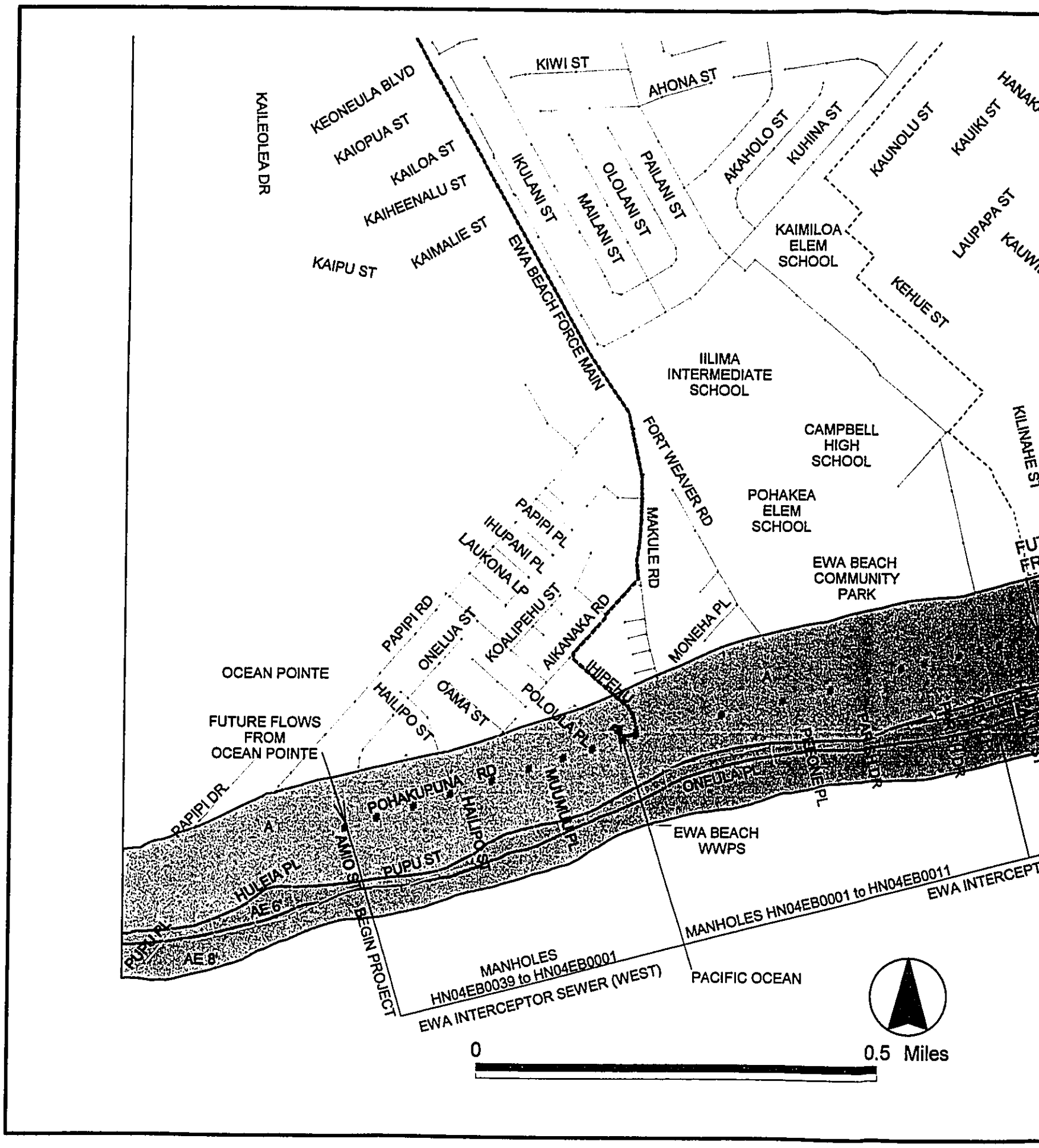
No known endangered species of flora or fauna live within the project site. Installation of the proposed sewer line should have no impact on wildlife due to the high degree of existing development in the area.

G. Historic Sites and Archaeological Resources

The proposed project will involve excavation under existing roadways, within an existing utility corridor. A record review conducted by the State Historic Preservation Division (SHPD) showed that there are no known historic sites along the Fort Weaver Road corridor.

H. Flood Hazard

According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map number 15003C0330E the project site lies entirely within Zone A, a Special Flood Hazard Area that would be inundated by a 100-year flood. The base flood elevation has not been determined for this area. Figure 7 contains a Flood Map showing the project site in relation to the Flood Hazard Area.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KAIOPUA ST
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KAIHEENALU ST
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HANAK
LAUPAPA ST
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IILIMA INTERMEDIATE SCHOOL
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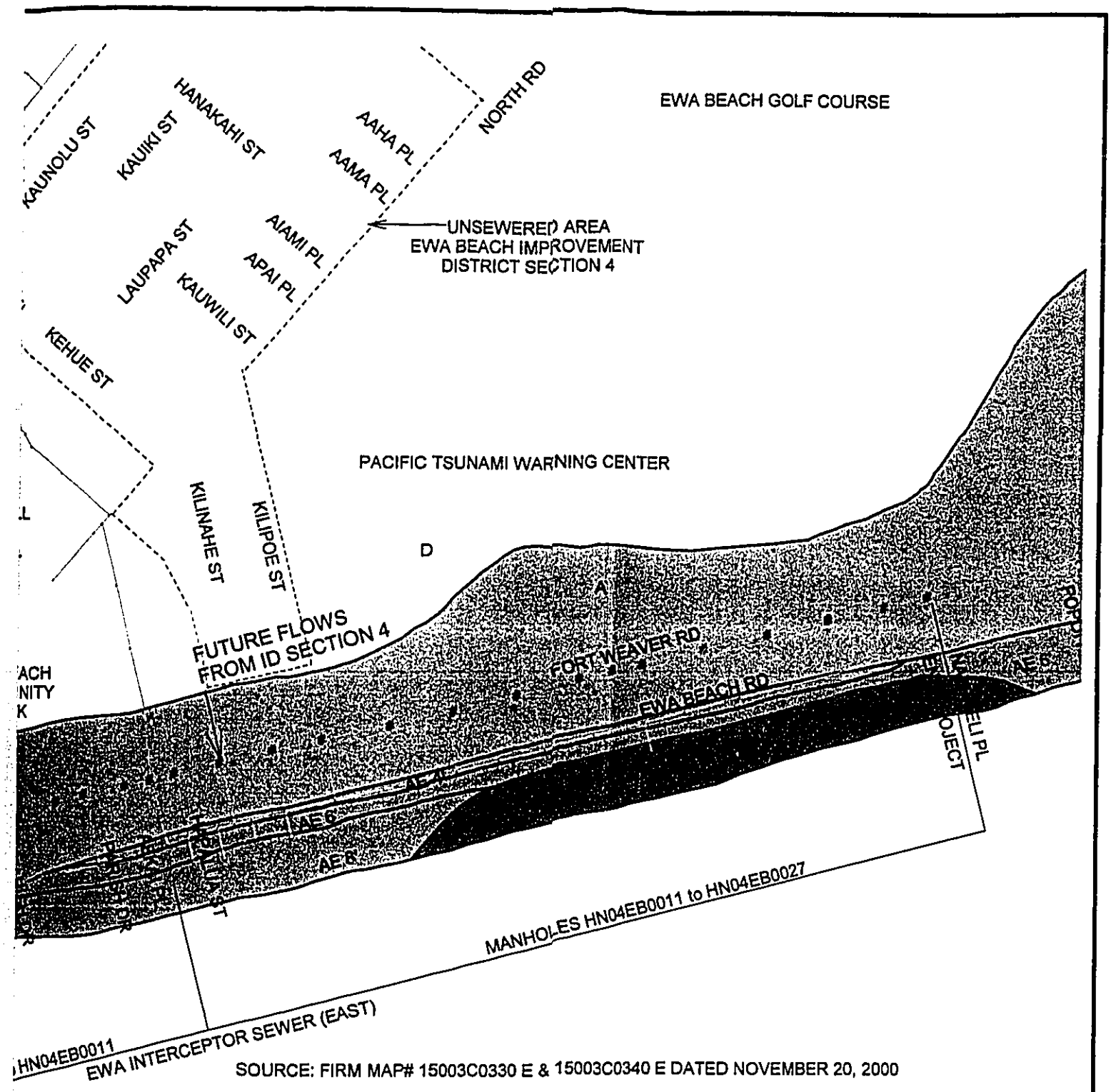
EWA INTERCEPT
MANHOLES HN04EB0039 to HN04EB0001
EWA INTERCEPTOR SEWER (WEST)
PACIFIC OCEAN
0
0.5 Miles



SOURCE: FIRM MAP# 15003C0330 E & 15003C0340 E DATED NOVEMBER 20, 2000

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
ZONE A NO BASE FLOOD ELEVATIONS DETERMINED
ZONE AE 4', 6', 8' BASE FLOOD ELEVATION DETERMINED
ZONE D AREAS IN WHICH FLOOD HAZARDS ARE UNDETERMINED
ZONE VE 8' COASTAL FLOOD WITH VELOCITY HAZARD; BASE FLOOD ELEVATIONS DETERMINED

0.5 Miles

FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
FLOOD ZONE MAP
FIGURE 7

VI. POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

A. Impacts During Construction.

The project involves rehabilitation of existing sewer trunk lines and manholes. The main construction impacts will be noise, dust, traffic and utility service disruption to residences.

1. Noise

Periodic noise from construction equipment such as backhoes, trucks, compactors, pumps, generators and pavers will impact residents near the project site. The Contractor shall observe and comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control". The use of vibratory hammers to install or remove sheet pilings used to fortify open cut excavations is prohibited. Noise generated from bypass pumps operating at night shall be moderated by using an enclosed housing unit. A Community Noise permit will control maximum permissible sound levels generated by the previously mentioned construction activities.

A Community Noise Variance application will be filed with the Department of Health that would allow 24-hour a day, 7 days a week operation of bypass pumps. The variance will govern the permissible sound levels for by-pass pumping of sewer flows during sewer line rehabilitation. The contractor will be required to follow Best Management Practices in the plans and specifications including housing units, noise barriers and/or insulation to control noise levels at all times.

2. Exhaust Emissions

The Contractor shall be responsible for proper maintenance of all construction equipment and vehicles to minimize pollutant exhaust emissions.

3. Dust

A Dust Control Management Plan shall be implemented by the Contractor to control the generation of fugitive dust during construction activities. This plan shall identify and address activities that have a significant potential for fugitive dust and must comply with provisions of Hawaii Administrative Rules 11-60.1-33. As a minimum, the components of this plan shall include:

a. Planning the different phases of construction in order to minimize the amount of dust-generating materials and activities. This might involve centralizing material transfer points and on-site vehicular traffic routes and locating dusty equipment in the areas of least impact.

b. Providing an adequate water source at the site for dust control prior to the start of construction.

c. Controlling of dust from shoulders, project entrances and access roads.

d. Providing adequate dust control measures during weekends, after hours and prior to daily start-up of construction activities.

e. Controlling of dust from debris being hauled away from the project site.

4. Traffic

The flow of traffic along Pohakupuna Road and Fort Weaver Road and surrounding roadways will be disrupted, as vehicles will be diverted around open manholes being rehabilitated or being used as access for CIPP sewer line inversion. Parking will be restricted on both sides of the street where applicable during construction. Special-duty police officers and/or trained construction flagmen will be used to control and moderate traffic congestion. The City and State may require a traffic impact study to assess the project's impact and proposed mitigation measures on Pohakupuna and Fort Weaver Road. The Contractor will be required to provide advance notice to area residents, schools and the City Department of Transportation Services (DTS), and State Department of Transportation (DOT) whenever construction affecting traffic flow is anticipated. The notice shall include the nature of the work, construction schedule, lane and street closures or detours, suggested alternate routes, expected length of time of inconvenience, and any restrictions that may be imposed to complete the work. Written notification shall be given at

least 14 calendar days prior to commencement of traffic detours and sewage bypassing work for each inversion site.

5. Utility Service Disruption

   Water, gas, electric and telephone service may be disrupted during construction activities. The Contractor shall protect all existing utilities within the project area during construction.

6. Public Safety and Convenience

   The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and take all necessary precautions for the protection, convenience and safety of the public. Residents may be inconvenienced in terms of driveway access and other road frontage usage (mail, deliveries, refuse collection) when construction is directly fronting their lots.

7. Emergency Vehicle Access

   The Contractor shall be required to provide advance notice to emergency services (fire, police and ambulance) at least 14 calendar days prior to commencement of traffic detours. Some roadways will be blocked during construction periods and will be specified in the construction traffic control plans. During these periods, the Contractor shall provide adequate clearance in or adjacent to construction zones, to allow emergency vehicles to enter and exit the area during emergency situations.

8. Safety and Stability of Open Excavations

   Open excavations shall be properly sheeted and braced by the Contractor to make it safe and secure from possible slides, cave-ins and settlement.

9. Protection of Adjacent Improvements

   Existing adjacent improvements and structures shall be properly supported with beams, struts or underpinning to fully protect them from damage.

10. Disposal of Hot Water for CIPP Curing Process

Proper disposal of hot water used during the CIPP curing process shall be the responsibility of the contractor conducting the rehabilitation operation. The water and any other waste materials generated during the pipe rehabilitation process shall be disposed of in an environmentally safe manner in accordance with applicable State and County requirements. A site shall be designated as a "wet-out" site for the resin vacuum impregnation process. The contract documents for the project shall include provisions for controlling odors produced during the rehabilitation process.

11. Discharge of Hydrotesting Water

Proper disposal of hydrotesting water used for testing new sewer lines shall be the responsibility of the Contractor. Discharging of hydrotesting water shall be subject to water quality criteria and conditions set forth in an NPDES General Permit reviewed and approved by the Department of Health. The Contractor shall also obtain a permit from the City to discharge effluent into their storm drain system. Hydrotest effluent may be discharged into the City's wastewater collection system, upon receiving approval from the Department of Environmental Services (ENV).

B. Long-term Impacts.

The long-term impact of this project is positive considering the current condition of the sewer system. There are no long-term negative impacts associated with the implementation of this project.

VII. ALTERNATIVES CONSIDERED

As mentioned earlier the City has accepted a proposal by Haseko Inc., the developer of Ocean Pointe to upgrade the Ewa Beach WWPS and the *Ewa Beach Interceptor (West)*. These upgrades will accommodate future flows from Ocean Pointe with a larger relief line of 30-inches to 36-inches installed parallel to the 24-inch *Ewa Interceptor Sewer (West)*. Prior to acceptance of the developer's proposal a smaller 18-inch relief line was being considered as part of the reconstruction work on the *West Interceptor* in conjunction with rehabilitation of sewer lines and manholes in the *Ewa Interceptor Sewer (East) and (West)*. The Cured-in-Place-Pipe (CIPP) process using a water inversion process to invert the liner into the sewer lines is shown in Figure 4. Fiberglass inserts was the recommended rehabilitation method for the manholes. The proposed work on the *East Interceptor* was common to both alternatives considered. The differences in the first two alternatives described below were due to the proposed work on the *Ewa Interceptor Sewer (West)*.

A. Upsizing of Existing Trunk Line by Open Trenching

This alternative involves replacing 1,718 l.f. of inadequate 24-inch RCP with new 30-inch RCP by open trenching. With the existing trunk sewer installed more than 20 feet below the ground surface and entirely beneath the water table an extensive amount of excavation, shoring to stabilize trenches, dewatering and traffic control on Pohakupuna Road and connecting side streets would be required. A total of eight (8) new sewer manholes would also be required under this alternative with sewer reconnections made from inside the manholes. Total cost of this alternative was about $8.18 million.

B. Relief Line Installed by Open Trenching

In this alternative, an 18-inch relief line installed parallel to the existing 24-inch line was proposed to carry excess flows of the *Ewa Interceptor Sewer (West)*. The relief line would be installed at approximately the same depth as the existing 24-inch line but at a steeper slope, diverting up to 2.35 mgd of peak flows. The line would start near Amio Street and convey the flows through approximately 1,920 l.f. of 18-inch sewer line, discharging back to the interceptor line just before entering the Ewa Beach WWPS. A total of nine (9) new sewer manholes would be installed at depths of between 19 and 20 feet. Excavation, shoring to stabilize trenches, dewatering and traffic control on Pohakupuna Road and connecting side streets would be required. Sewer reconnections can be made from inside the sewer manholes. In addition, about 1,000 l.f. of 24-inch RCP and two manholes identified to be in severe structural or corrosion condition will also be rehabilitated in the West Interceptor. Total cost of this alternative was about $7.55 million.

C. Interim Plan – Correct Structural and Corrosion Problems by Rehabilitation and Defer Installation of Relief Line

This interim plan was considered because of the probability of acceptance of the developer's proposal to upgrade the Ewa Beach WWPS and the *Ewa Beach Interceptor (West).* The upgrades are based on making maximum use of the available capacity of the downstream Ewa Beach WWPS force main and will allow future flows from Ocean Pointe to increase beyond the amount currently in the City's future flow model of 3.67 mgd. The proposal involves a larger relief line of 30-inches to 36-inches installed parallel to the 24-inch *Ewa Interceptor Sewer (West)* to accommodate a maximum peak flow from Ocean Pointe of 9.09 mgd. This additional 6.69 mgd of peak flows over and above the current allocation of 2.4 mgd would be required after 2005.

This alternative would allow correction of deficiencies in the *East and West Interceptors* by rehabilitation and deferred any other improvements until capacity issues of sewer trunk lines and facilities downstream of the Ewa Beach WWPS are resolved. This will provide rehabilitated sewer lines of the *Ewa Beach Interceptor (West)* with sufficient capacity to carry future peak flows, as long as the flows from Ocean Pointe are limited to the 2.4 mgd. Based on the developer's implementation schedule and pending approval by the City, the 2.4 mgd would not be exceeded until the year 2005. The approximate cost to rehabilitate all sewer lines and manholes identified with severe structural or corrosion problems in the *Ewa Beach Interceptors (West) and (East)* is about $3.2 million. As a result, the City would be able to defer or possibly eliminate more than $3 million in capital expenditures.

VIII. DETERMINATION, FINDINGS AND REASONS TO SUPPORT DETERMINATION

This Final Environmental Assessment is part of the environmental review process that meets the requirements of Chapter 343, HRS. After completing an assessment of the potential environmental effects of the proposed project and consulting with government agencies and interested parties, the proposing agency does not anticipate any significant impacts. Therefore, DDC anticipates a Finding of No Significant Impact (FONSI) will be made, with reasons supporting this determination discussed below:

1. The proposed actions do not involve irrevocable commitments to loss or destruction of any natural or cultural resource. There are no cultural resources associated with the project site.

2. The proposed action does not curtail the range of beneficial uses of the environment and will barely be perceptible as it is buried under existing roadways. The proposed project will be compatible with the uses of the surrounding area.

3. The proposed action does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions or executive orders. The proposed project is consistent with the State's Land Use Plan which is in concert with all applicable policies, goals and guidelines. No long-term environmental conflicts are foreseen.

4. The proposed action will not substantially affect the economic or social welfare of the community. Any impact on the economy will result from short-term, construction related activities. Cash infusion during the construction phase will be the primary short-term positive economic impact. Upon completion of the project, the economic situation should return to the existing condition.

5. The proposed actions will not substantially affect public health as construction-related air and noise impacts will be temporary and short-term in nature. Construction activities shall be regulated to minimize noise, dust and exhaust emissions.

6. The proposed action does not involve substantial secondary impacts, such as population changes or effects on public facilities. The proposed project does not directly result in an increase of population in the area. It will eliminate the restriction to growth due to the inadequacy of the existing system and allow development of lands in conformance with the County General plan.

7. The proposed action does not involve a substantial degradation of environmental quality. The existing physical qualities of the surrounding areas will be preserved.

8. The proposed actions are individually limited and cumulatively do not have a considerable effect upon the environment, nor require a commitment to larger actions.

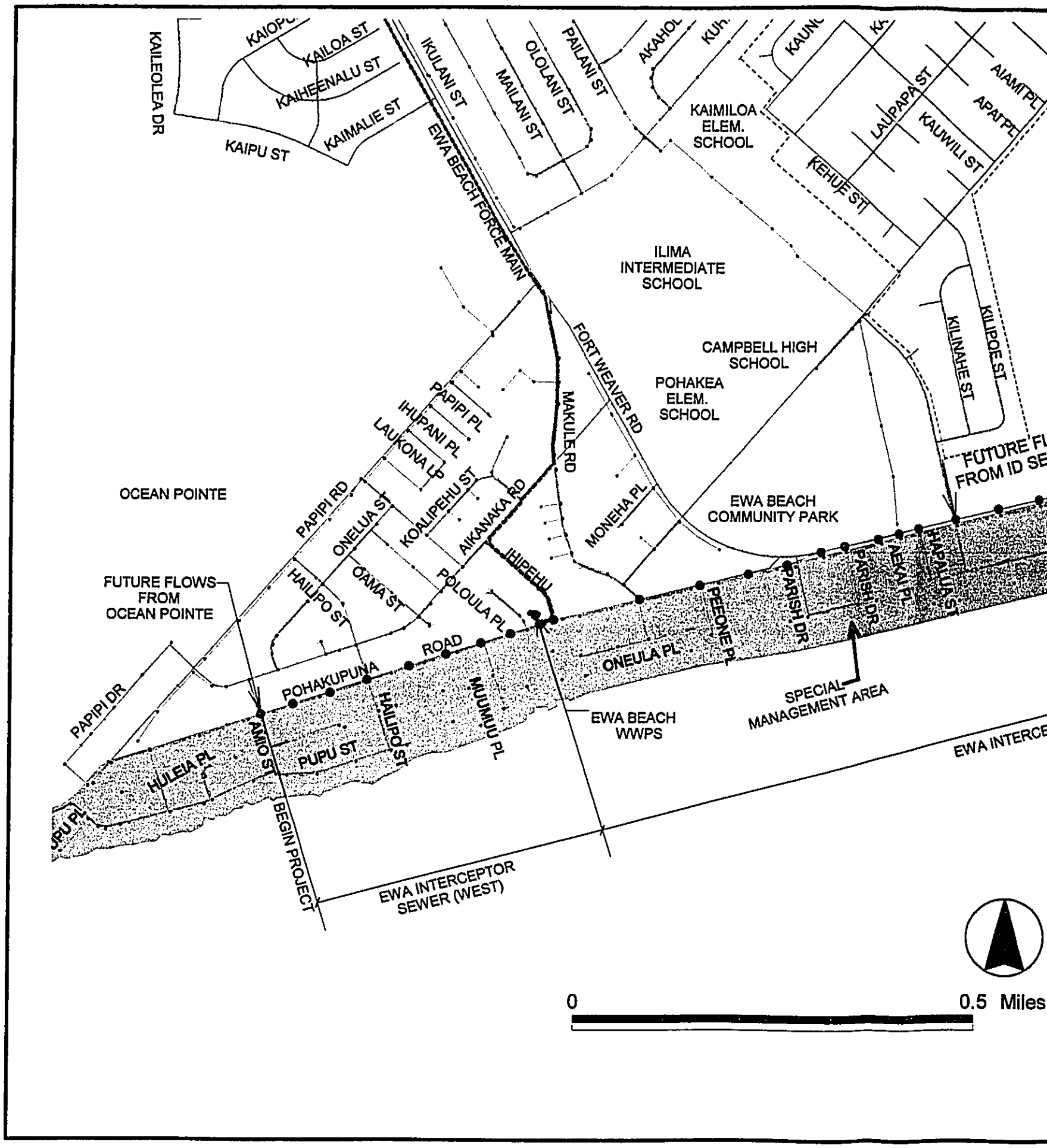
9. The proposed actions will not affect any rare, threatened or endangered species or their habitats. There are no known, rare, threatened or endangered species or habitat associated with the project site, which has undergone significant disturbance for roadway use.

10. The proposed action does not detrimentally affect the air or water quality or ambient noise levels. Any effect on environmental quality during the construction phase will be limited in area and for a short duration. These short-term impacts will be mitigated by normal construction practices and will be regulated by project plans and specifications.

11. The proposed actions do not affect an environmentally sensitive area, such as a flood plain, tsunami zone, or erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters. The proposed project is located in a Special Flood Hazard Area that would be inundated by a 100-year flood. See figure 7. The proposed sewer line improvements will be underground and will not affect the environment, or have any significant adverse impact on fresh or coastal waters. See figure 8. The determination letter from Department of Planning and Permitting dated September 24, 2002 stating that the project site falls outside of the SMA boundary was included in the DEA.

12. The proposed action does not affect scenic vistas and view planes identified in county or state plans or studies.

13. The proposed action does not require substantial energy consumption. Diesel or gas powered construction equipment such as backhoes, trucks, compactors, and pavers will be used during excavations. The completed sewer line will consume no energy.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KILIPOE ST
CAMPBELL HIGH SCHOOL
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MAKUILE RD
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PAPIPI RD
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KOALIPEHU ST
AIKANAKA RD
MONEHA PL
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HAPALUA ST
AEKAI PL
PARISH DR
PEEONE PL
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IHIPEHU
POLOULA PL
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PAPIPI DR
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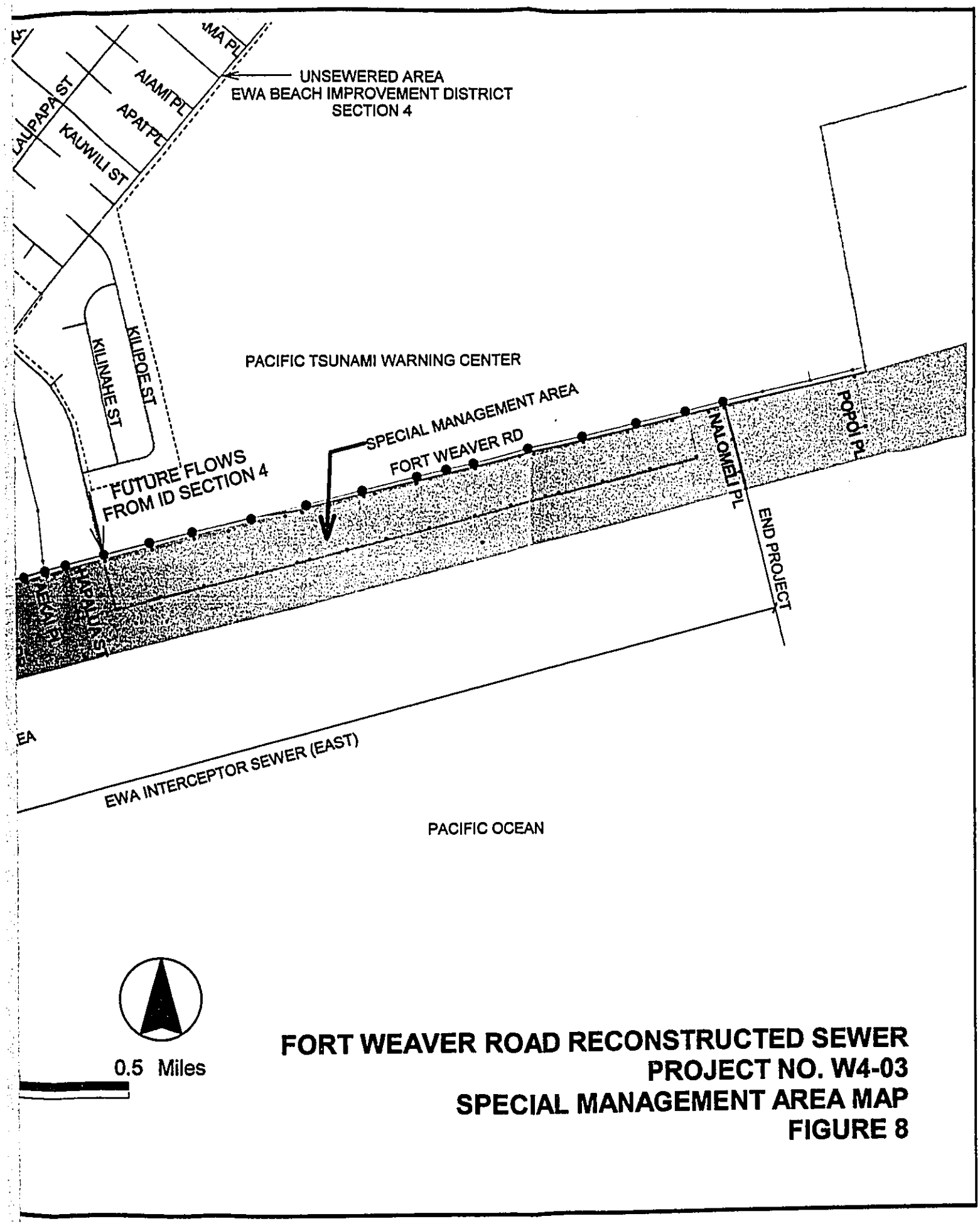


FORT WEAVER ROAD RECONSTRUCTED SEWER
PROJECT NO. W4-03
SPECIAL MANAGEMENT AREA MAP
FIGURE 8

IX. REFERENCES

1. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii*, United States Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii, Agricultural Experiment Station, August 1972.

2 *Geology and Groundwater Resources of the Island of Kauai, Hawaii*, G.A. Macdonald, D.A. Davis, D.C. Cox, 1960.

3. *Ocean Pointe Offsite Sewer Master Plan*, The Limtiaco Consulting Group, January 2002.

4. *Fort Weaver Road Reconstructed Sewer Design Alternatives Report*, ParEn Inc., January 2003.

APPENDIX A

Correspondence from Agencies & Organizations

Summary of Comments Received for Draft EA of February 2003

Agency or Organization	Comments or Questions	Response
State of Hawaii		
Department of Education	Letter dated 2/28/03. No new comments.	ParEn, Inc. letter dated 1/27/03 states requirement for Contractor to provide advance notice to schools whenever construction affecting traffic flow is expected. No additional response required.
Department of Land and Natural Resources - State Historic Preservation Division (SHPD)	Letter dated 4/3/03, Hawaii Historic Preservation Review; No Historic Properties will be affected by this project.	No additional response required.
Office of Environmental Quality Control	Letter dated 4/7/03, Cultural impact assessment and use of indigenous and Polynesian plants in public landscaping.	ParEn, Inc. letter dated 12/3/03. No comments from community groups except OHA (see below). Project involves no new landscaping with Contractor required to restore any existing landscaping disturbed by construction to original condition.
Office of Hawaiian Affairs	Letter dated 3/14/03. No new comments.	ParEn, Inc. letter dated 1/27/03 states that if burials or cultural artifacts are found work will cease and SHPD will be contacted. Plans revised to include this requirement. No additional response required.
Department of Transportation	Letter dated 4/9/03. Concerns have been satisfactorily addressed.	ParEn, Inc. letter dated 1/27/03. All comments addressed. Plans have been reviewed by Highways Division Traffic Branch. No additional response required.

Summary of Comments Received for Draft EA of February 2003

Agency or Organization	Comments or Questions	Response
City and County of Honolulu		
Board of Water Supply	Letter dated 2/26/03. No new comments.	ParEn, Inc. letter dated 1/27/03 addressed concerns regarding coordination of construction schedules of utility projects in the area to minimize impacts to community. No additional response required.
Fire Department	Letter dated 3/19/03. No new comments.	ParEn, Inc. letter dated 1/27/03 addressed concerns regarding maintaining fire apparatus access throughout site for project duration & notifying Fire Communication Center if existing fire hydrant system will be interrupted. No additional response required.
Department of Transportation Services	Letter dated 3/17/03. Need for Traffic Impact Study, traffic flow on City roads, Advanced notification of affected groups, Street Usage Permit.	ParEn, Inc. letter dated 12/3/03. Reduced scope of work and short duration of rehabilitation work on City road should preclude need for Traffic Impact Study. All other comments addressed.

Summary of Comments Received for Draft EA of February 2003

Agency or Organization	Comments or Questions	Response
Federal		
Department of the Army U.S. Army Engineer District, Honolulu Regulatory Branch	Letter dated 3/18/03. The project does not affect any waters under U.S. jurisdiction. Coordinate project with Ocean Pointe Development.	ParEn, Inc. letter dated 12/3/03. All comments addressed.
Utilities		
The Gas Company	Letter dated 2/28/03. Minimize potential conflicts with existing gas facilities.	ParEn, Inc. letter dated 12/3/03. All comments addressed.
Hawaiian Electric Company, Inc.	Letter dated 3/26/03. Coordinate work with HECO to minimize impact to underground crossings.	ParEn, Inc. letter dated 12/3/03. All comments addressed.

[redacted]
LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF BUSINESS SERVICES

February 28, 2003

Mr. Keith S. Uemura, Vice President
Park Engineering
Kawaiahao Plaza, Suite 300
567 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Uemura:

Subject: Fort Weaver Road Reconstructed Sewer
Draft Environmental Assessment
Ewa, Oahu, Hawai'i

The Department of Education (DOE) has reviewed the Draft Environmental Assessment for upgrading the sewer system serving the residents of Ewa Beach and has no comment concerning the proposed project.

The DOE appreciates your January 27, 2003 letter stating that the project will not go through any school property and pointing out traffic mitigation measures to include the advance notification to schools when construction affecting traffic flow is anticipated.

Thank you for the opportunity to respond.

Should you have any questions, please call Ms. Heidi Meeker of our branch at 733-4862.

Sincerely yours,

Raynor M. Minami

Raynor M. Minami, Director
Facilities and Support Services Branch

RMM:hy

cc: R. Loui, OBS

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

PETER T. YOUNG, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DAN DAVIDSON, DEPUTY DIRECTOR FOR LAND
ERNEST Y.W. LAU, DEPUTY DIRECTOR FOR
COMMISSION ON WATER RESOURCE MANAGEMENT

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

HAWAI'I HISTORIC PRESERVATION
DIVISION REVIEW

Log #: 2003.0193
Doc #: 0304SC04

Applicant/Agency: Keith S. Uemura
Park Engineering
Address: 567 South King Street
Honolulu, Hawaii 96813-1676
SUBJECT: Chapter 6E-8 Historic Preservation Review of a Draft Environmental Assessment for the Fort Weaver Road Reconstructed Sewer

Ahupua'a: Honouliuli
District, Island: 'Ewa, O'ahu
TMK: (1)-9-005, 006, 007, 009, 023, 024, 025, 027, 028 & 036

1. We believe there are no historic properties present, because:

___ a) intensive cultivation has altered the land
_✓_ b) residential development/urbanization has altered the land
___ c) previous grubbing/grading has altered the land
___ d) an acceptable archaeological assessment or inventory survey found no historic properties
___ e) other:

2. This project has already gone through the historic preservation review process, and mitigation has been completed ___.

_✓_ Thus, we believe that "no historic properties will be affected" by this undertaking

Staff: John T. Callan Date: 3 April 2003

Title: Archaeologist - O'ahu (Phone: 808-692-8026)

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
[illegible]

April 7, 2003

Mr. Timothy Steinberger
Mr. Carl Arakaki
Department of Design and Construction, City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Mr. Keith Uemura
ParEn Inc , dba Park Engineering
567 South King Street, Suite 300
Honolulu, Hawai'i 96813

Dear Messrs. Steinberger, Arakaki, and Uemura.

Having reviewed the draft environmental assessment (DEA) for the Fort Weaver Road Reconstructed Sewer Draft Environmental Assessment (DEA), TMK 1-9, plats 5, 6, 7, 9, 23, 24, 25, 27, 28, and 36 in the judicial district of 'Ewa, the Office of Environmental Quality Control offers the following comments for your consideration.

1 **CULTURAL IMPACT ASSESSMENT IS NOT THE SAME AS HISTORIC PRESERVATION ASSESSMENT:** Per page 11 of the DEA, you surmise that no historic sites will be affected. Thank you for the inclusion of the October 21, 2002, letter of State Historic Preservation Division Administrator Donald Hibbard which concludes pursuant to Chapter 6E, Hawai'i Revised Statutes, that "[b]ecause it is unlikely that subsurface historic sites would be found along the corridor, we believe that this project will have "no effect" on significant historic sites." For your information, the requirements of Chapter 6E, Hawai'i deal with historic preservation and often do not address current contemporary cultural practice. Per Act 50, Session Laws of Hawai'i, Regular Session of 2000, environmental must address cultural impacts. Please refer to our internet website at http://www.state.hi.us/health/oeqc/index.htm and download the guidance document on cultural impact assessment and seek out community members knowledgeable about whether this project may have adverse effects on current contemporary cultural practices.

2. **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING:** Please consider the use of native, indigenous and polynesian introduced plants in restorative landscaping.

If you have any questions concerning this letter, please call Leslie Segundo, Environmental Health Specialist, at (808) 586-4185; alternatively, you may send electronic mail to him at lsegundo@mail.health.state.hi.us. Thank you for the opportunity to comment.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

ParEn, Inc. dba park engineering
Suite 300, Kamehameha Plaza ☐ 567 South King Street, Honolulu, Hawaii 96813-3036 ☐ Telephone (808) 531-1676 ☐ FAX (808) 536-5946

December 3, 2003

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State Office Tower
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Attention: Mr. Leslie Segundo

Dear Ms. Salmonson:

Subject: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii

Thank you for the comments in your letter of April 7, 2003 regarding the Draft Environmental Assessment (DEA) for the subject project. The following has been prepared in response to your comments:

1. **Cultural Impact Assessment:**
Pre-assessment consultation letters and the DEA was sent to the Ewa Neighborhood Board #23 and Ewa Beach Public & School Library in order to get comments from interested community members knowledgeable about contemporary cultural practices. Comments were also requested from the Office of Hawaiian Affairs (OHA). A response letter dated March 14, 2003 was received from OHA asking for assurances that work would cease and the State Historic Preservation Division (SHPD) would be contacted if burials or cultural artifacts were found. This requirement is also included in the construction documents. Based on these actions, we feel the project will have no adverse effects on the current contemporary cultural practices of the Ewa Beach community and thus a Cultural Impact Assessment will not be required.

2. **Indigenous and Polynesian Introduced Plants for Public Landscaping:**
While the project does not involve new landscaping, the Contractor is required to restore any existing landscaping disturbed as a result of his construction activities to their original condition.

We hope this adequately addresses your concerns for the project. Your letter and this response will be included in the forthcoming Final Environmental Assessment. If you have any further questions, please contact me at 531-1676.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

SYM:mac

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD03/911

March 14, 2003

Keith S. Uemura
Park Engineering
Suite 300 Kawaiahao Plaza
567 South King St.
Honolulu, HI 96813-3036

Re: Draft Environmental Assessment for Fort Weaver Road Reconstructed Sewer

Dear Mr. Uemura,

OHA is in receipt of your February 13, 2003 request for review and comment on the above referenced project.

OHA will rely on your assurances that if burials or cultural artifacts are found, work will cease and the State Historic Preservation Division will be contacted.

Thank you for this opportunity to comment. If you have further questions, please contact Pua Aiu at 594-1931 or e-mail her at paiu@oha.org.

Sincerely,

Peter L. Yee
Director
Nationhood and Native Rights

LINDA LINGLE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

APR 9 2003

RODNEY K. HARAGA
DIRECTOR

Acting Deputy Director
GLENN M. OKIMOTO

IN REPLY REFER TO

HWY-PS
2.9913

Mr. Keith Uemura
ParEn, Inc.
567 South King Street, Suite 300
Honolulu, Hawaii 96813-1676

Dear Mr. Uemura:

Subject: Draft Environmental Assessment, Fort Weaver Road Reconstructed Sewer, Ewa, TMK: 1-9-05: vars.

Thank you for providing a copy of the Draft Environmental Assessment for our review.

Our concerns have been satisfactorily addressed.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

February 26, 2003

Mr. Keith S. Uemura
ParEn, Inc.
Suite 300 Kawaiahao Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Uemura:

Subject: Your Letter of February 13, 2003 on the Draft Environmental Assessment for the Fort Weaver Road Reconstructed Sewer

Thank you for the opportunity to comment on the proposed project.

The comments in our letter of October 6, 2002 are still applicable.

If you have any questions, please contact Joseph Kaakua at 527-6123.

Very truly yours,

K. Sinda

for CLIFFORD S. JAMILE
Manager and Chief Engineer

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET SUITE H425 • HONOLULU, HAWAII 96819-1883
TELEPHONE: (808) 831-7781 • FAX: (808) 831-7780 • INTERNET: www.co.honolulu.hi.us

March 19, 2003

Mr. Keith S. Uemura, Vice President
ParEn, Inc., dba Park Engineering
Kawaiahao Plaza, Suite 300
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Uemura:

Subject: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii

We received your letter of transmittal dated February 13, 2003, requesting our comments on the Draft Environmental Assessment for the above-mentioned project. As mentioned in a previous letter dated October 10, 2002, for the same project, the Honolulu Fire Department requires that the following be complied with:

1. Maintain fire apparatus access throughout the construction site for the duration of the project.

2. Notify the Fire Communication Center at 523-4411 regarding any interruption in the existing fire hydrant system during the project.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Sincerely,

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/SK:bh

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE (808) 523-4525 • FAX (808) 523-4730 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "EEKOA" MIYAMOTO
DEPUTY DIRECTOR

March 17, 2003

TP2/03-21862R

Mr. Keith S. Uemura
ParEn, Inc.
Suite 300, Kawaiahao Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Uemura:

Subject: Fort Weaver Road Reconstructed Sewer

In response to your February 13, 2003 transmittal, we reviewed the draft environmental assessment for the subject project and have the following comments:

1. A traffic impact study should be conducted that addresses the following:
   - Traffic impact and proposed mitigation measures for Pohakupuna Road and the surrounding City-jurisdiction roadway system
   - Traffic impact on State-jurisdiction, Fort Weaver Road and resulting impacts on the surrounding City-jurisdiction roadways
   - Traffic impact on the area schools, especially before and after school hours, and proposed mitigation measures. Clear and safe pedestrian (especially student) routes should be provided at all times
   - Rationale for all proposed road closures, duration of road closures, and alternate routes to be provided

2. All City roadways affected by the project should be kept open to traffic flow at all times to ensure minimal impact on the area community as well as on motorists passing through the area.

3. The area neighborhood board, area residents, and emergency services (fire, ambulance and police) should be notified prior to the implementation of any detours or road closures. We also ask that this department be notified so that we can then alert Oahu Transit Services of the construction activity.

4. A Street Usage Permit from this department may be required for this project. Section IV.F. Approvals and Permits Required should be revised accordingly.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
Director

ParEn, Inc. dba park engineering
Suite 300, Kaneohoo Plaza ☐ 567 South King Street, Honolulu, Hawaii 96813-3036 ☐ Telephone (808) 531-1676 ☐ FAX (808) 536-5696

December 3, 2003

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attention: Ms. Faith Miyamoto

Dear Ms. Soon:

Subject: Fort Weaver Road Reconstructed Sewer, Project No. W4-03
Ewa, Oahu, Hawaii

Thank you for your comments in your letter of March 17, 2003 regarding the Draft Environmental Assessment (EA) for the subject project. The following has been prepared in response to your numbered comments in the paragraphs below.

1. Traffic Impact Study
   The scope of this project along the City roadway (Pohakupuna Road) has been reduced, with the elimination of the relief line and all rehabilitation work west of the Ewa Beach Wastewater Pump Station. The revised scope of work along Pohakupuna Road involves rehabilitation of about 1,500 lineal feet of 36-inch sewer line by a "trenchless" process called cured-in-place-pipe (CIPP). Three sewer manholes will also be rehabilitated along this section. Because the amount of time required for this work and traffic impacts to the community will be of short duration a traffic impact study should not be required. A traffic control plan that provides proposed mitigative measures will be reviewed and approved by the City as part of the construction plans. The State of Hawaii Department of Transportation Highways Division has provided comments on both the EA and the construction plans and currently is not requiring a traffic impact study be conducted for the portion of the project along Fort Weaver Road. The Contractor shall be required to provide advance notice to area schools whenever construction affecting traffic flow is expected.

2. Traffic Flow on City Roads
   Pohakupuna Road will be kept open at all times, however the traffic will be diverted around CIPP and manhole rehabilitation work areas and in some cases, the westbound traffic lane will be shut down. In those cases, special duty police or flagmen are called out in the plans to allow traffic to safely pass through the work area in the open lane.

3. Notifications
   The Ewa Beach Neighborhood Board and City emergency services (Police, Fire and Ambulance) have provided comments on the Draft EA. The Contractor shall be required to notify these groups as well as the Department of Transportation Services prior to implementation of any detours or road closures.

4. Street Usage Permit
   A Street Usage Permit from the City was added to Section IV.F of the EA.

We hope this adequately addresses your concerns for the project. If you have any further questions, please contact me at 531-1676.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

CTT:mac

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

March 18, 2003

Regulatory Branch

Mr. Keith S. Uemura
Planner
ParEn, Inc.
567 South King Street
Honolulu, Hawaii 96813-3036

Dear Mr. Uemura:

This is in reply to your request for comments to be incorporated into an Environmental Assessment (EA) for the proposed Fort Weaver Road Sewer Reconstruction Project, located at Ewa Beach, Oahu Island. Based on the information provided, I have determined that the entire project are in upland areas which contain no waters of the U.S. subject to our jurisdiction. Therefore a DA permit is not required. We also note that the City and County of Honolulu is coordinating this project with the Ocean Pointe development project, certain areas of which are under Department of the Army permit coverage.

File Number 200300327 has been assigned to this project. Please feel free to contact Mr. Farley Watanabe of my staff at 438-7701, if you have additional questions.

George P. Young, P.E.
Chief, Regulatory Branch

ParEn, Inc. dba park engineering
Suite 300, Kawaiahao Plaza ☐ 567 South King Street, Honolulu, Hawaii 96813-3036 ☐ Telephone (808) 531-1676 ☐ FAX (808) 536-2966

December 3, 2003

Mr. George Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Department of the Army
Fort Shafter, Hawaii 96858-5440

Attention: Mr. Farley Watanabe

Dear Mr. Young:

Subject: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii
File # 200300327

Thank you for your determination and comments in your letter of March 18, 2003 regarding the Draft Environmental Assessment (DEA) for the subject project. In response to your comments, the City and County of Honolulu is coordinating this project with the Ocean Pointe development project.

If you have any further questions, please contact me at 531-1676.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

SYM:mac

515 Kamakee Street Honolulu, Hawaii 96814
P.O. Box 3000 Honolulu, Hawaii 96802-3000
Telephone 808.535.5900 Facsimile 808.594.5630 Sales

THE GAS COMPANY
Customer Energy Services

February 28, 2003

ParEn Inc. dba Park Engineering
Suite 300 Kawaiahao Plaza
567 South King Street
Honolulu, Hawaii 96813-3036

Attention: Mr. Keith S. Uemura

Gentlemen:

Subject: Draft Environmental Assessment for
Fort Weaver Road Reconstructed Sewer

Please be advised that The Gas Company maintains underground utility gas mains in the project vicinity, which serves commercial and residential customers in the area and is interconnected with the utility network in Ewa. We would appreciate your consideration during the project planning and design process to minimize any potential conflicts with the existing gas facilities in the project area.

Thank you for the opportunity to comment on the Draft Environmental Assessment. Should there be any questions, or if additional information is desired, please call Chris Anderson at 594-5564.

Sincerely,

Charles E. Calvet, P.E.
Manager, Engineering

CEC:kis
03-112

Suite 300, Kawaiahao Plaza ☐ 567 South King Street, Honolulu, Hawaii 96813-3036 ☐ Telephone (808) 531-1676 ☐ FAX (808) 536-5908

ParEn, Inc. ☐ dba park engineering

December 3, 2003

Mr. Charles E. Calvet, P.E., Manager
Engineering Department
The Gas Company
P.O. Box 3000
Honolulu, Hawaii 96802-3000

Attention: Chris Anderson

Dear Mr. Calvet:

Subject: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii

Thank you for the comments in your letter of February 28, 2003 regarding the Draft Environmental Assessment (EA) for the subject project. The following has been prepared in response to your comments:

A general note will be included in the construction plans stating that the contractor shall call BHP Gas Company at least five working days before starting excavation to arrange for field location of the existing gas pipelines. The contractor shall also excavate and backfill around gas pipelines in the presence of a BHP Gas company representative. For relocation of any gas pipeline, the contractor shall notify BHP Gas Company five working days before start of work. Any relocation of gas facilities shall be done by BHP Gas company and paid for by the contractor.

We hope this adequately addresses your concerns for the project. If you have any further questions, please contact me at 531-1676.

Sincerely yours,

ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

SYM:mac

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

GEN-6 (EIS)

March 26, 2003

Mr. Keith S. Uemura
ParEn, Inc.
300 Kawaiahao Plaza
567 South King Street
Honolulu, HI 96813-1676

Dear Mr. Uemura:

Re: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii

Thank you for the opportunity to review and comment on the February 2003 Draft EA of the Fort Weaver Road Reconstructed Sewer as proposed by the Department of Design & Construction, City & County of Honolulu.

HECO has several underground crossings along the route of the sewer. We would appreciate the opportunity to review any advance drawings to determine whether the project will impact our facilities.

Our point of contact for this project, and the originator of these comments, is Enrique Che (543-7281), Director of Planning & Design, Customer Installations. I suggest that your staff deal directly with Enrique to coordinate HECO's participation in this project.

Sincerely,

Kirk Tomita
Senior Environmental Scientist

cc: OEQC
E. Che

ParEn, Inc. dba park engineering
Suite 300, Kawaiahao Plaza ☐ 567 South King Street, Honolulu, Hawaii 96813-3036 ☐ Telephone (808) 531-1676 ☐ FAX (808) 536-5816

December 3, 2003

Mr. Enrique Che, Director
Planning & Design, Customer Installations
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Che:

Subject: Fort Weaver Road Reconstructed Sewer
Ewa, Oahu, Hawaii

Thank you for the comments in your letter of March 26, 2003 regarding the Draft Environmental Assessment (EA) for the subject project. The following has been prepared in response to your comments:

> A copy of the Final EA including a set of construction plans will be sent to your office for review and comments to preclude any potential conflicts with this project and your underground facilities.

We hope this adequately addresses your concerns for the project. If you have any further questions, please contact me at 531-1676.

Sincerely yours,

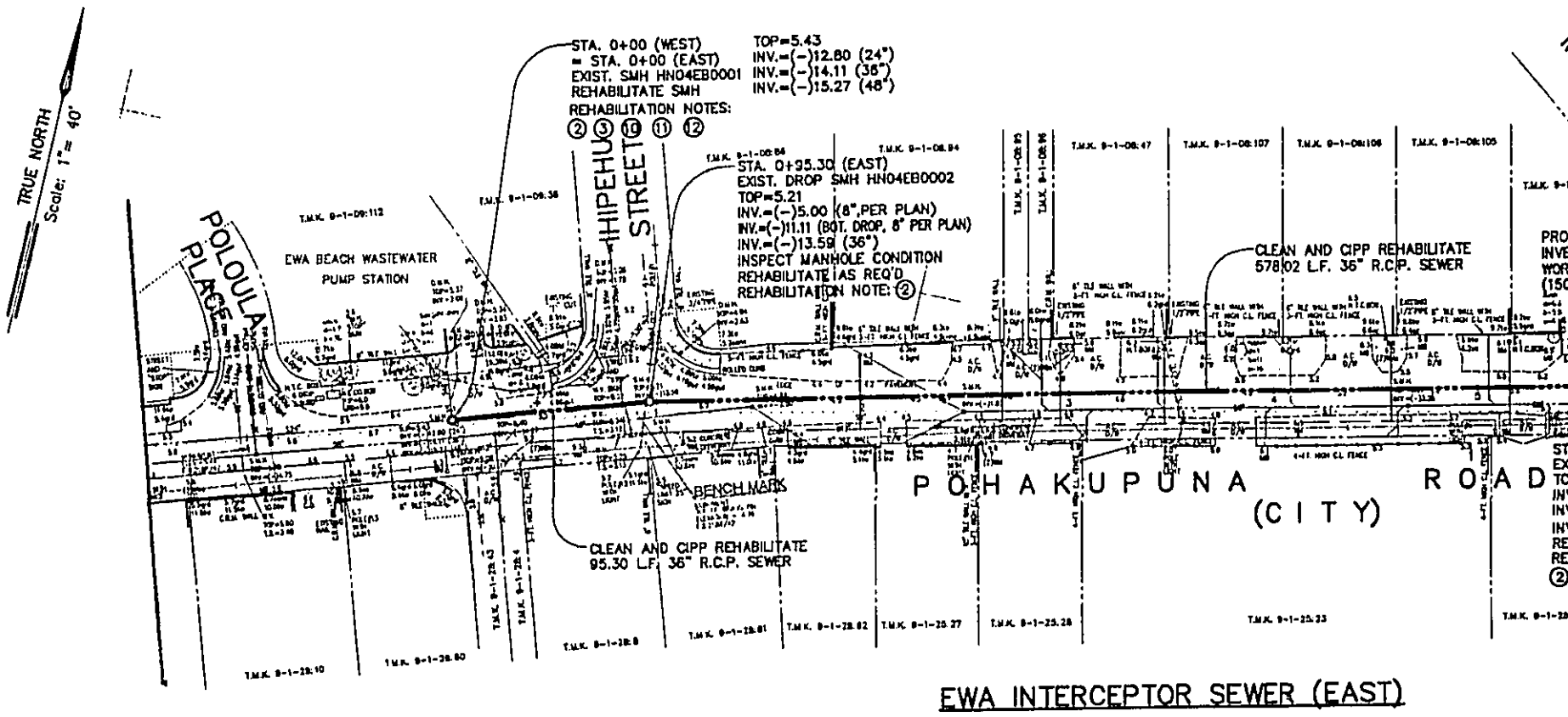
ParEn, Inc.
dba PARK ENGINEERING

Keith S. Uemura
Vice President

SYM:mac

APPENDIX B

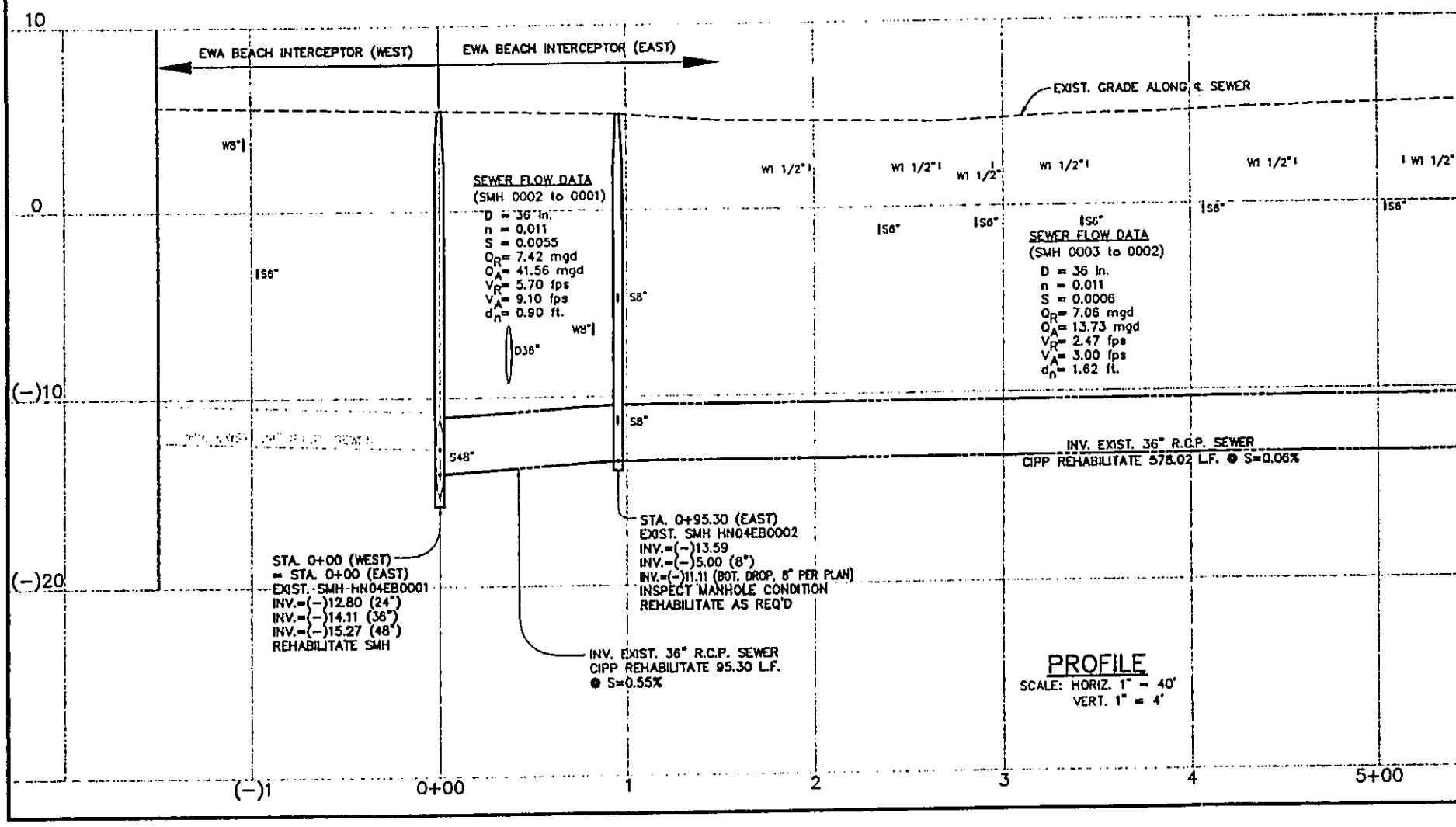
Preliminary Plan & Profiles
(half-size)



EWA INTERCEPTOR SEWER (EAST)

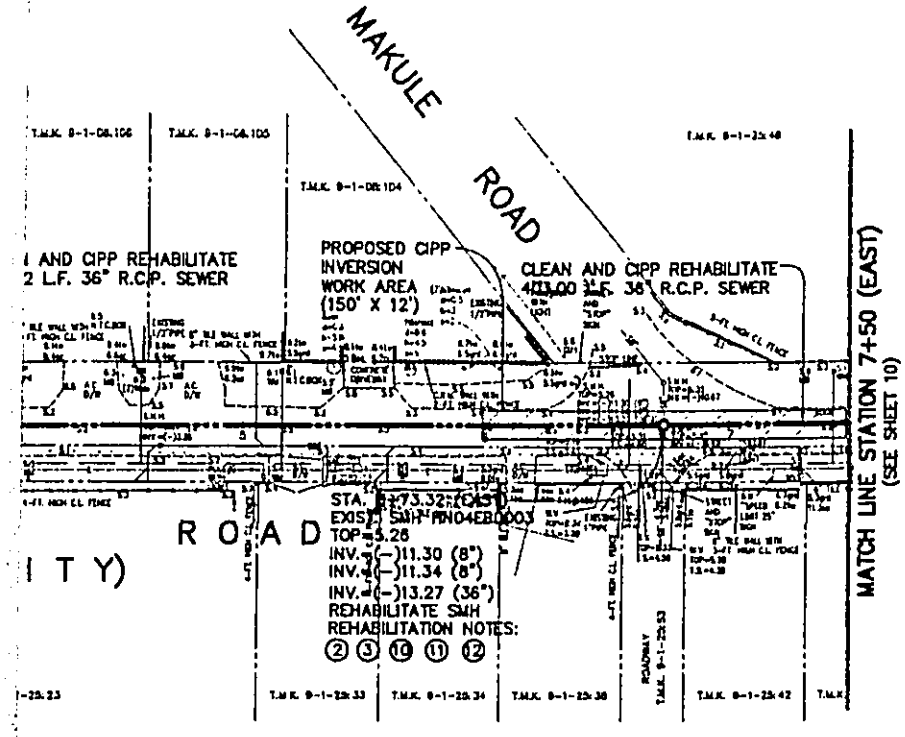
PLAN

SCALE: 1" = 40'



PROFILE

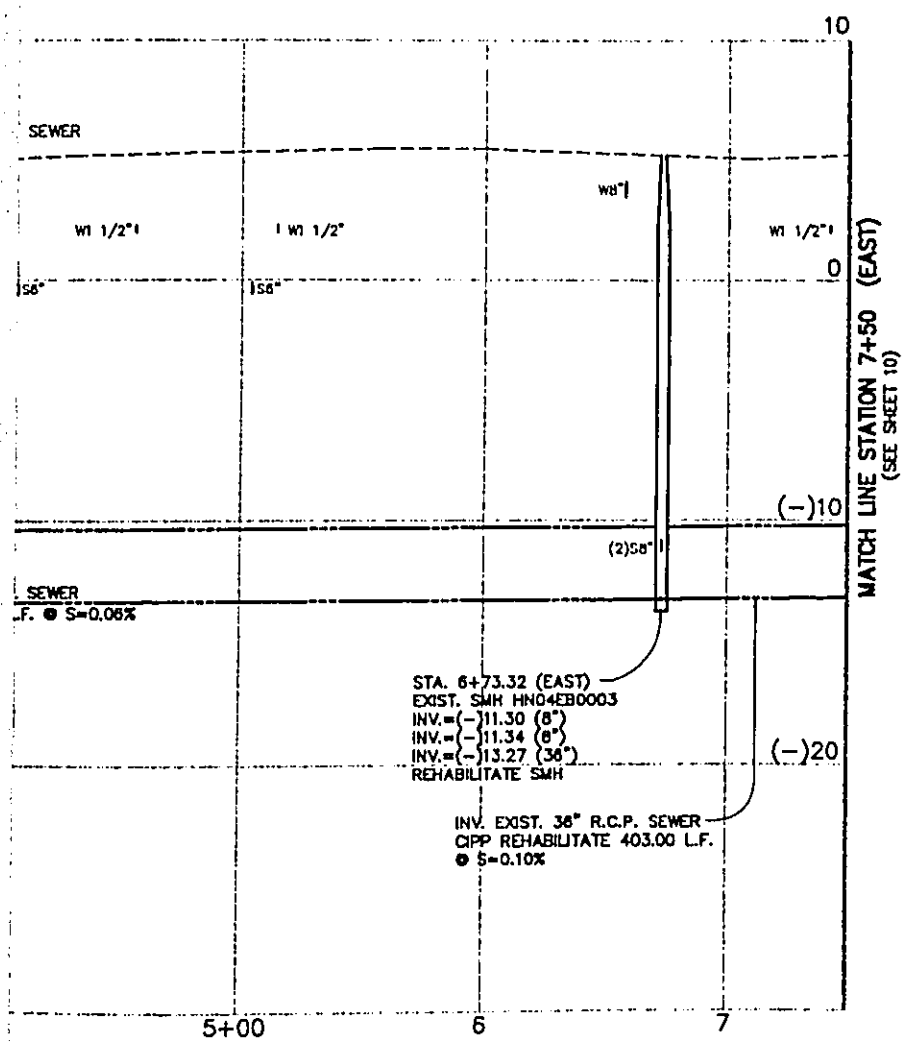
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'



(EAST)

MANHOLE REHABILITATION NOTES:

① EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
② CLEAN EXISTING MANHOLE WALLS AND BENCH.
③ REMOVE ALL RUNGS.
④ CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
⑤ MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
⑥ LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.
⑦ FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.
⑧ RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
⑨ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
⑩ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.
⑪ REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
⑫ REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.



REVISION	DATE	BASIS	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

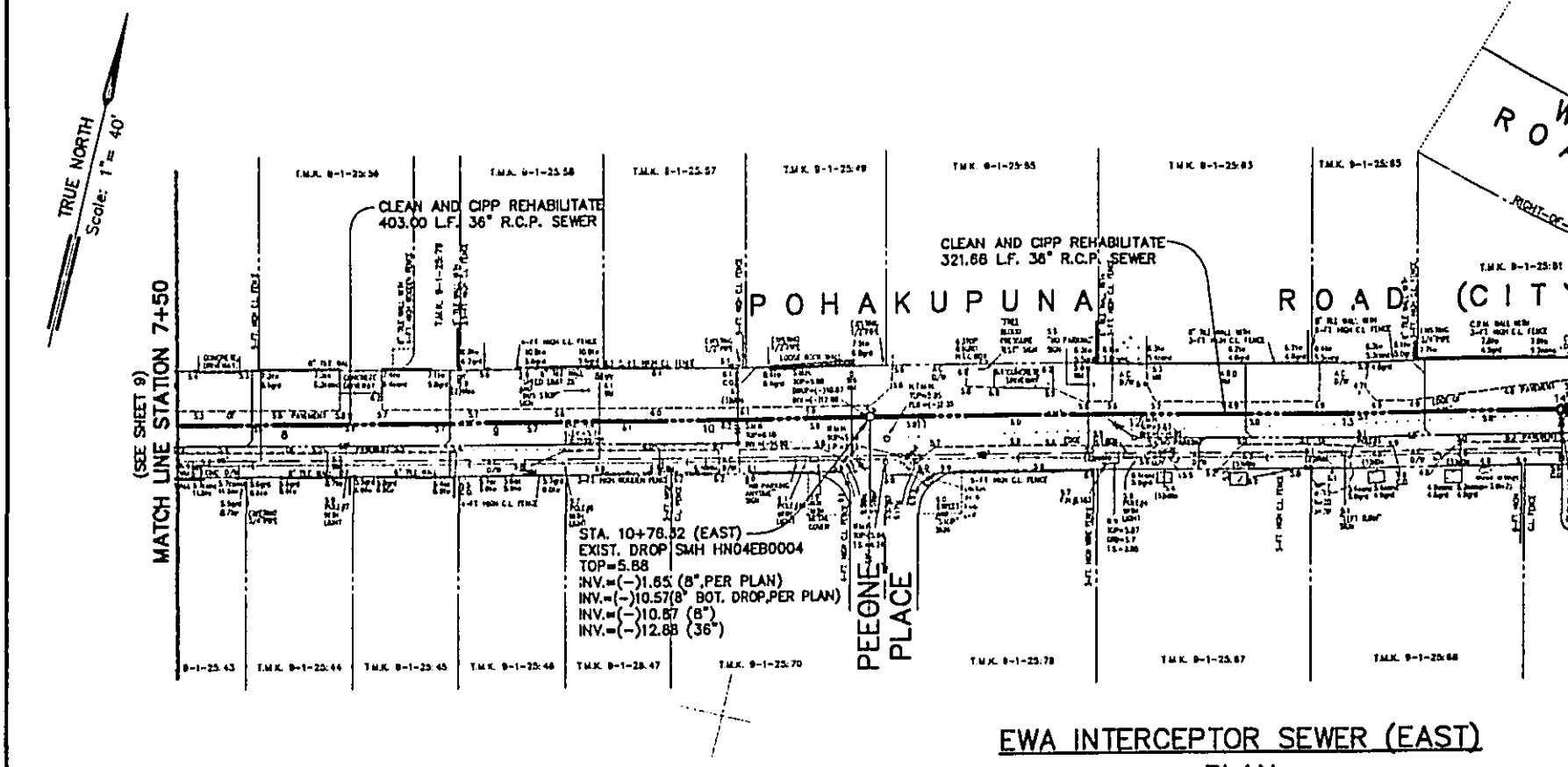
PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-005, 006, 007, 008, 023, 024, 025, 027, 028 & 036

ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 0+00 TO 7+50

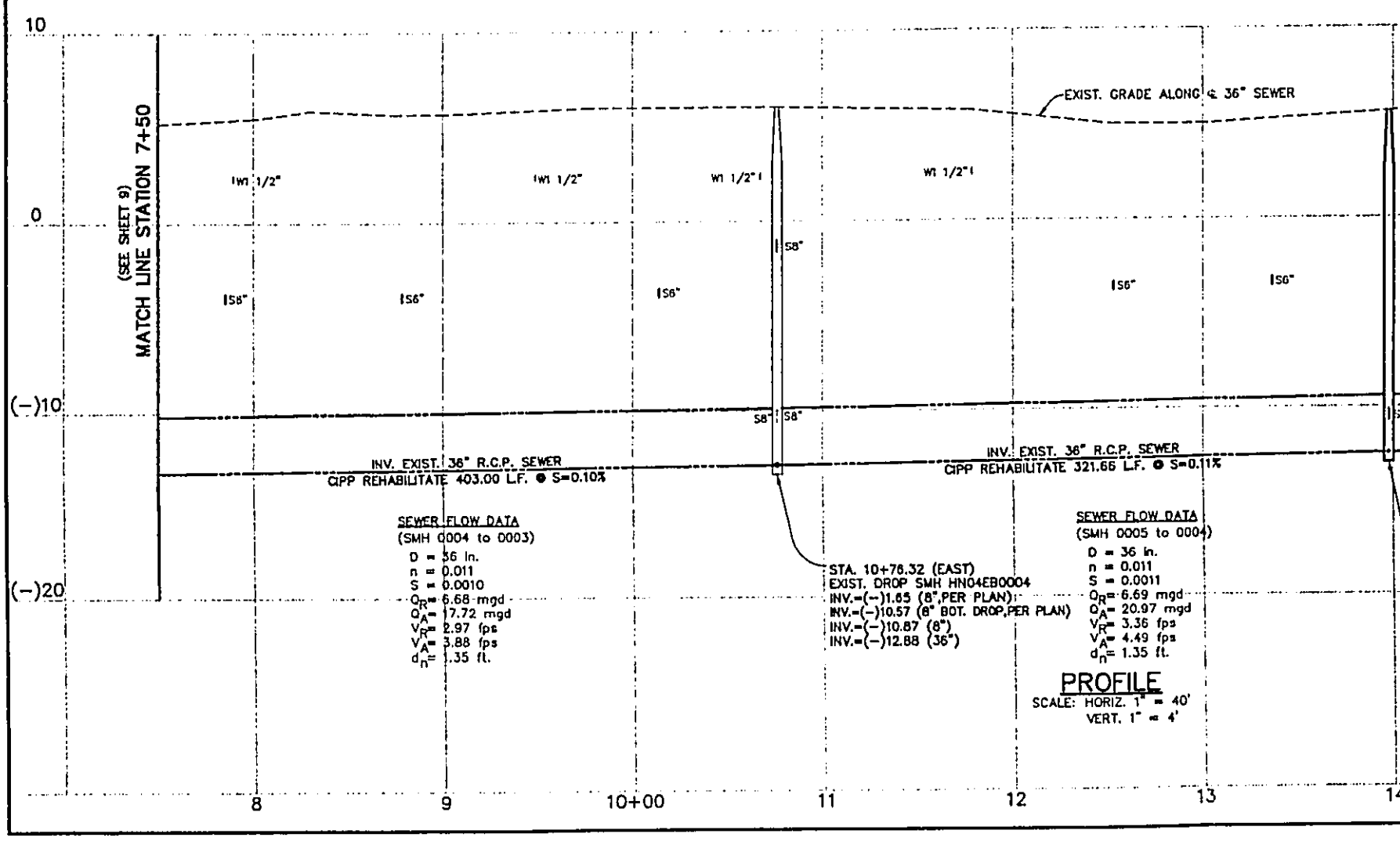
DESIGNED BY: EYA, CTT — CHECKED BY: KSU
DRAWN BY: EYA, ANH — SECTION HEAD
APPROVED — BRANCH HEAD
CHIEF, WWDE, DDC — DATE

PROJECT NO. W4-03

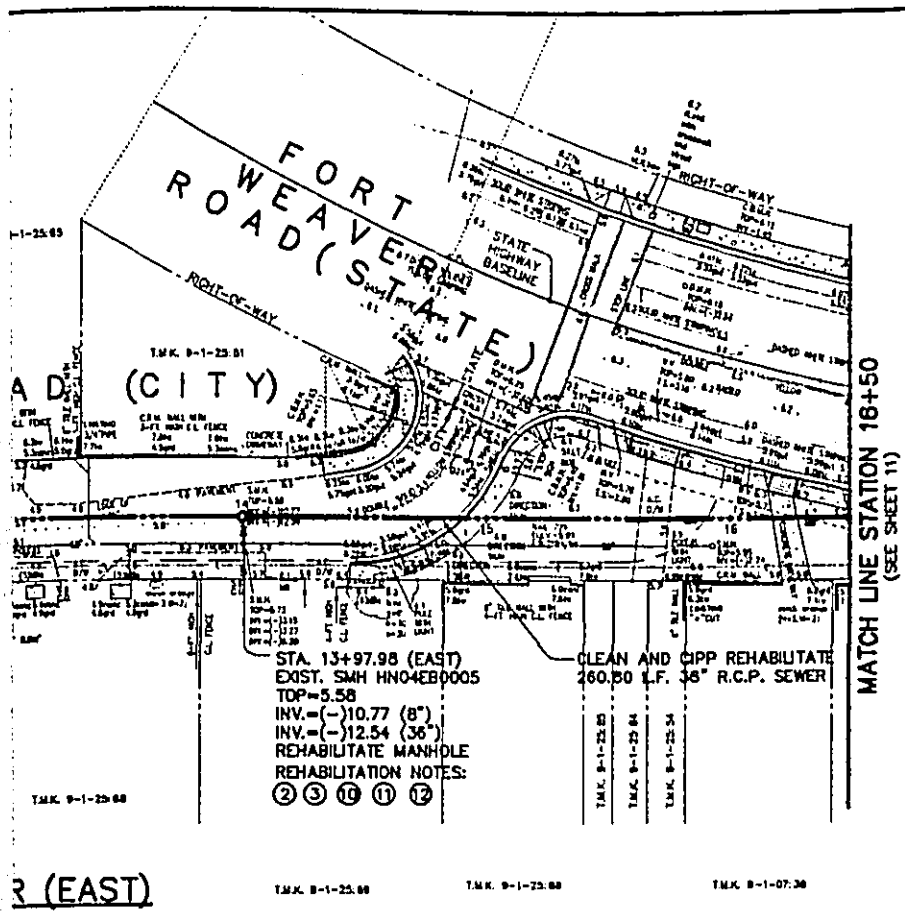
FILE	POCKET	FOLDER	NO.



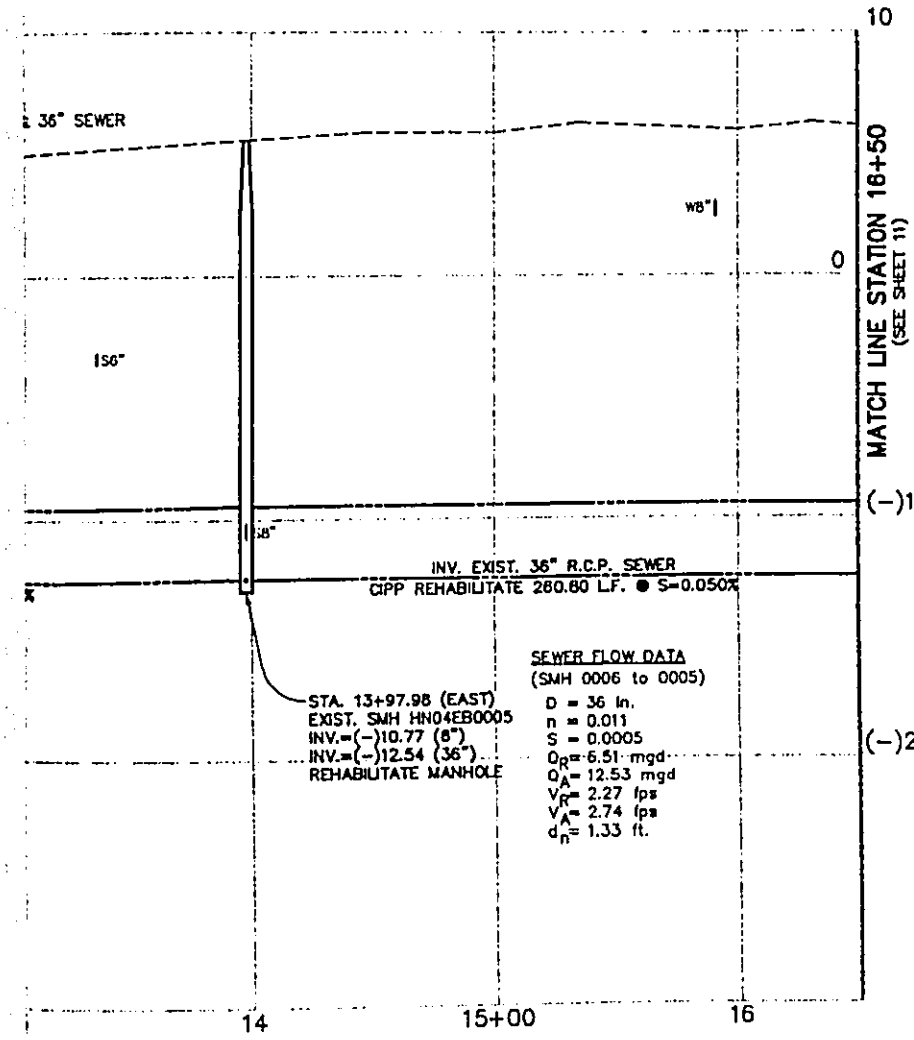
EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'



R (EAST)



MANHOLE REHABILITATION NOTES:

① EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
② CLEAN EXISTING MANHOLE WALLS AND BENCH.
③ REMOVE ALL RUNGS.
④ CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
⑤ MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
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⑧ RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
⑨ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
⑩ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.
⑪ REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
⑫ REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.

REVISION	DATE	BRIEF	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-035, 008, 007, 006, 033, 034, 023, 027, 028 & 036

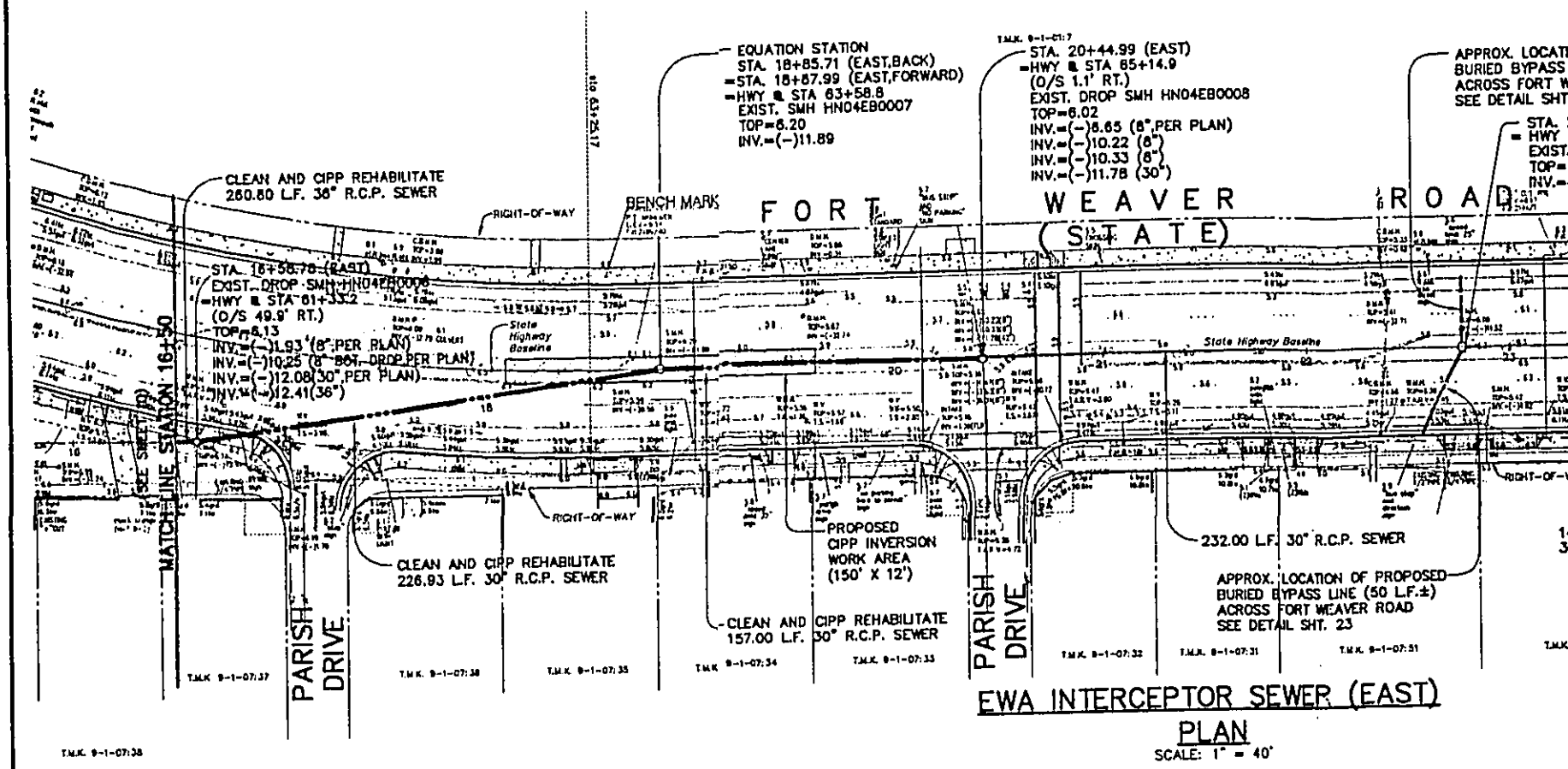
ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 7+50 TO 16+50

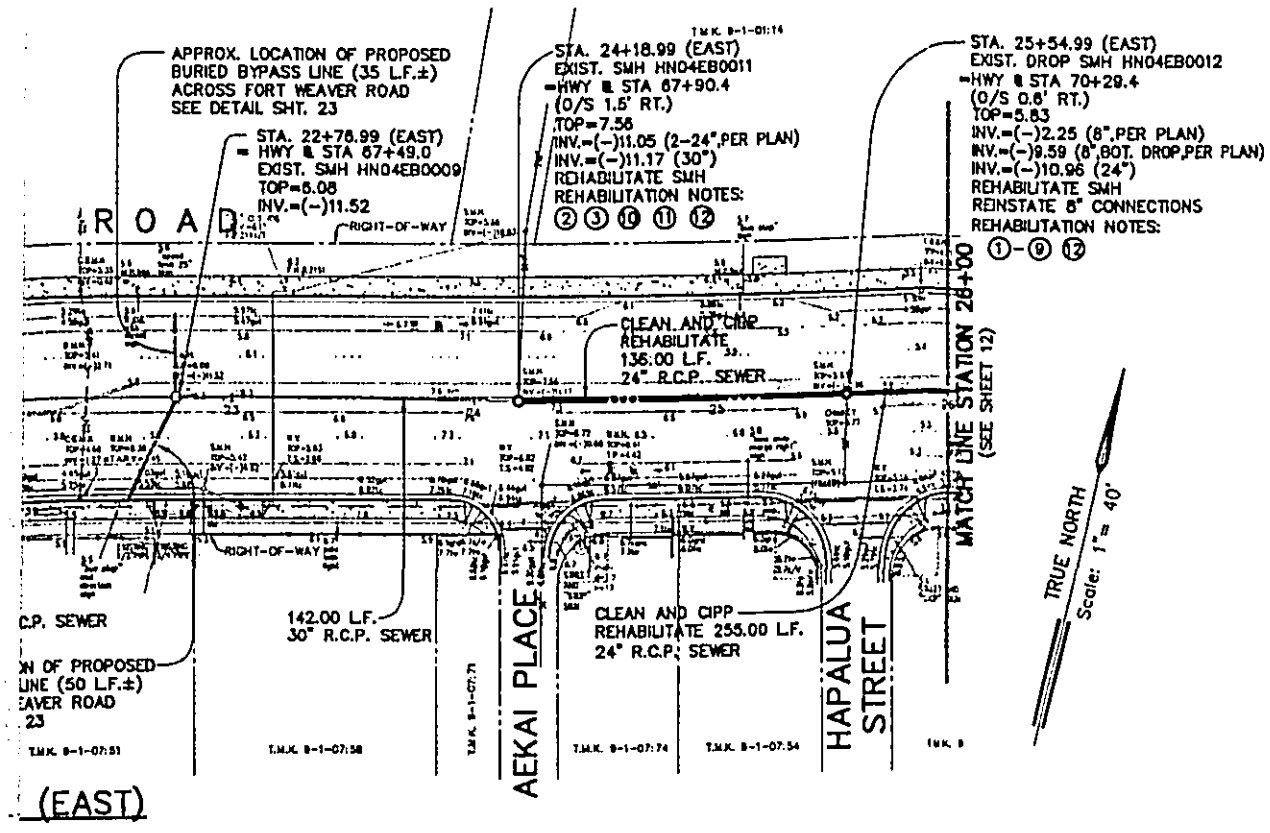
DESIGNED BY: STN, CTT — CHECKED BY: KSU
DRAWN BY: STN, AWK — SECTION HEAD
APPROVED — BRANCH HEAD
DIST. MGR. SOC — DATE

PROJECT NO. W4-03

SHEET 10 OF 23 SHEETS

FILE	POCKET	FOLDER	NO.


CLEAN AND CIPP REHABILITATE
260.80 L.F. 36" R.C.P. SEWER
RIGHT-OF-WAY
BENCH MARK
FORT WEAVER ROAD (STATE)
EQUATION STATION
STA. 18+85.71 (EAST,BACK)
=STA. 18+87.99 (EAST,FORWARD)
=HWY ℄ STA 63+58.8
EXIST. SMH HN04EB0007
TOP=6.20
INV.=(-)11.89
STA. 20+44.99 (EAST)
=HWY ℄ STA 65+14.9
(O/S 1.1' RT.)
EXIST. DROP SMH HN04EB0008
TOP=6.02
INV.=(-)6.65 (8",PER PLAN)
INV.=(-)10.22 (8")
INV.=(-)10.33 (8")
INV.=(-)11.78 (30")
APPROX. LOCATI
BURIED BYPASS
ACROSS FORT W
SEE DETAIL SHT
STA. 16+58.78 (EAST)
EXIST. DROP SMH HN04EB0006
=HWY ℄ STA 61+33.2
(O/S 49.9' RT.)
TOP=8.13
INV.=(-)1.93 (8",PER PLAN)
INV.=(-)10.25 (8" BOT. DROP,PER PLAN)
INV.=(-)12.08(30",PER PLAN)
INV.=(-)12.41(36")
MATCH LINE STATION 16+50
(SEE SHEET 10)
State Highway Baseline
CLEAN AND CIPP REHABILITATE
226.93 L.F. 30" R.C.P. SEWER
PROPOSED
CIPP INVERSION
WORK AREA
(150' X 12')
CLEAN AND CIPP REHABILITATE
157.00 L.F. 30" R.C.P. SEWER
232.00 L.F. 30" R.C.P. SEWER
APPROX. LOCATION OF PROPOSED
BURIED BYPASS LINE (50 L.F.±)
ACROSS FORT WEAVER ROAD
SEE DETAIL SHT. 23
PARISH DRIVE
T.M.K. 9-1-07:37
T.M.K. 9-1-07:38
T.M.K. 9-1-07:35
T.M.K. 9-1-07:34
T.M.K. 9-1-07:33
T.M.K. 9-1-07:32
T.M.K. 9-1-07:31
T.M.K. 9-1-07:51
T.M.K. 9-1-07:38
EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'
10
0
(-)10
(-)20
EXIST. GRADE ALONG ℄ 24" & 30" SEWER
W16"
S8"
SEWER FLOW DATA
(SMH 0007 to 0006)
D = 30 in.
n = 0.011
S = 0.0023
Q_R= 6.51 mgd
Q_A= 16.53 mgd
V_R= 4.03 fps
V_A= 5.21 fps
d_n= 1.15 ft.
W1 1/2"
W6"
SEWER FLOW DATA
(SMH 0008 to 0007)
W4"
D = 30 in.
n = 0.011
S = 0.0007
Q_R= 6.52 mgd
Q_A= 8.29 mgd
V_R= 2.51 fps
V_A= 2.61 fps
d_n= 1.67 ft.
S8"
(2)
S8"
SEWER FLOW DATA
(SMH 0009 to 0008)
D = 30 in.
n = 0.013
S = 0.0011
Q_R= 6.52 mgd
Q_A= 8.79 mgd
V_R= 3.03 fps
V_A= 2.77 fps
d_n= 1.60 ft.
D24"
W6"
INV. EXIST. 30" R.C.P. SEWER
CIPP REHABILITATE
226.93 L.F. @ S=0.23%
INV. EXIST. 30" R.C.P. SEWER
CIPP REHABILITATE
157.00 L.F. @ S=0.07%
INV. EXIST. 30" R.C.P. SEWER
232.00 L.F. @ S=0.11%
INV. EX
142
STA. 16+58.78 (EAST)
EXIST. DROP SMH HN04EB0006
INV.=(-)1.93 (8",PER PLAN)
INV.=(-)10.25 (8" BOT. DROP,PER PLAN)
INV.=(-)12.08(30",PER PLAN)
INV.=(-)12.41(36")
INV. EXIST. 36" R.C.P. SEWER
CIPP REHABILITATE
260.80 L.F. @ S=0.050%
STA. 18+85.71 (BACK)
STA. 18+87.99 (FORWARD)
EXIST. SMH HN04EB0007
INV.=(-)11.89
STA. 20+44.99 (EAST)
EXIST. DROP SMH HN04EB0008
INV.=(-)6.65 (8",PER PLAN)
INV.=(-)10.22 (8")
INV.=(-)10.33 (8")
INV.=(-)11.78 (30")
STA. 22+76.99 (EAST)
EXIST. SMH HN04EB0009
INV.=(-)11.52
MATCH LINE STATION 16+50
(SEE SHEET 10)
17
18
19
20+00
21
22
23
PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'



MANHOLE REHABILITATION NOTES:

① EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
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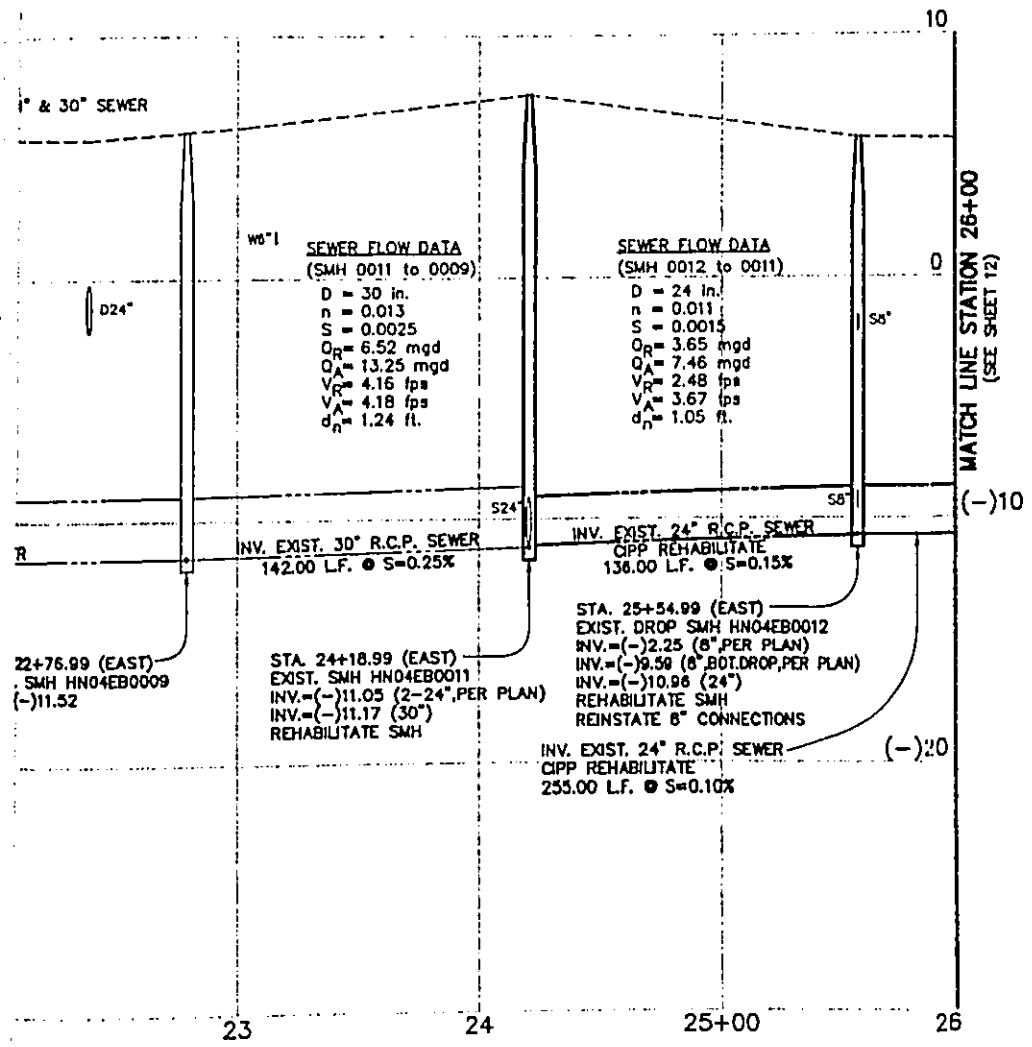
⑫ REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.



WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

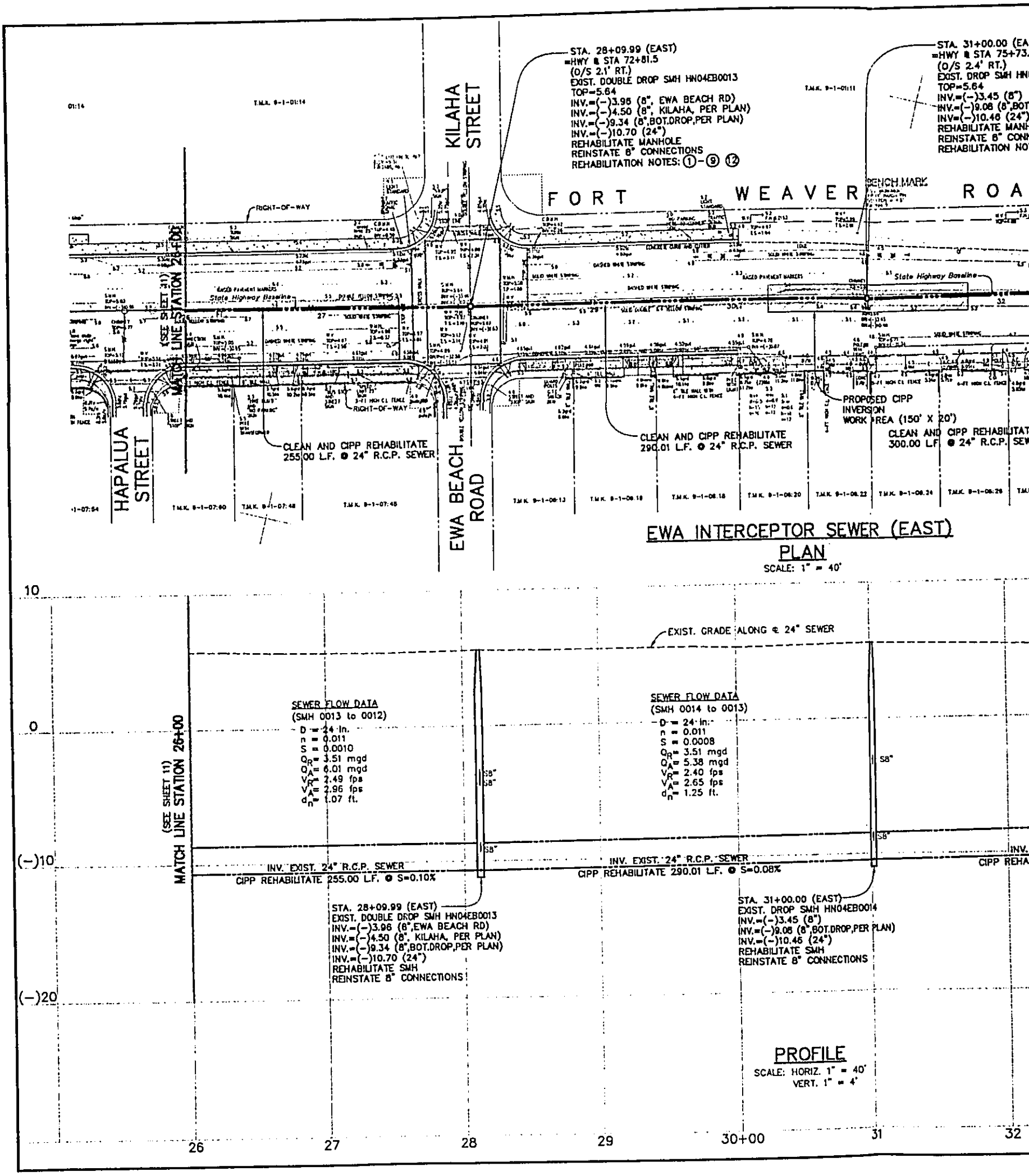
PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-005, 006, 007, 008, 023, 024, 025, 027, 028 & 036

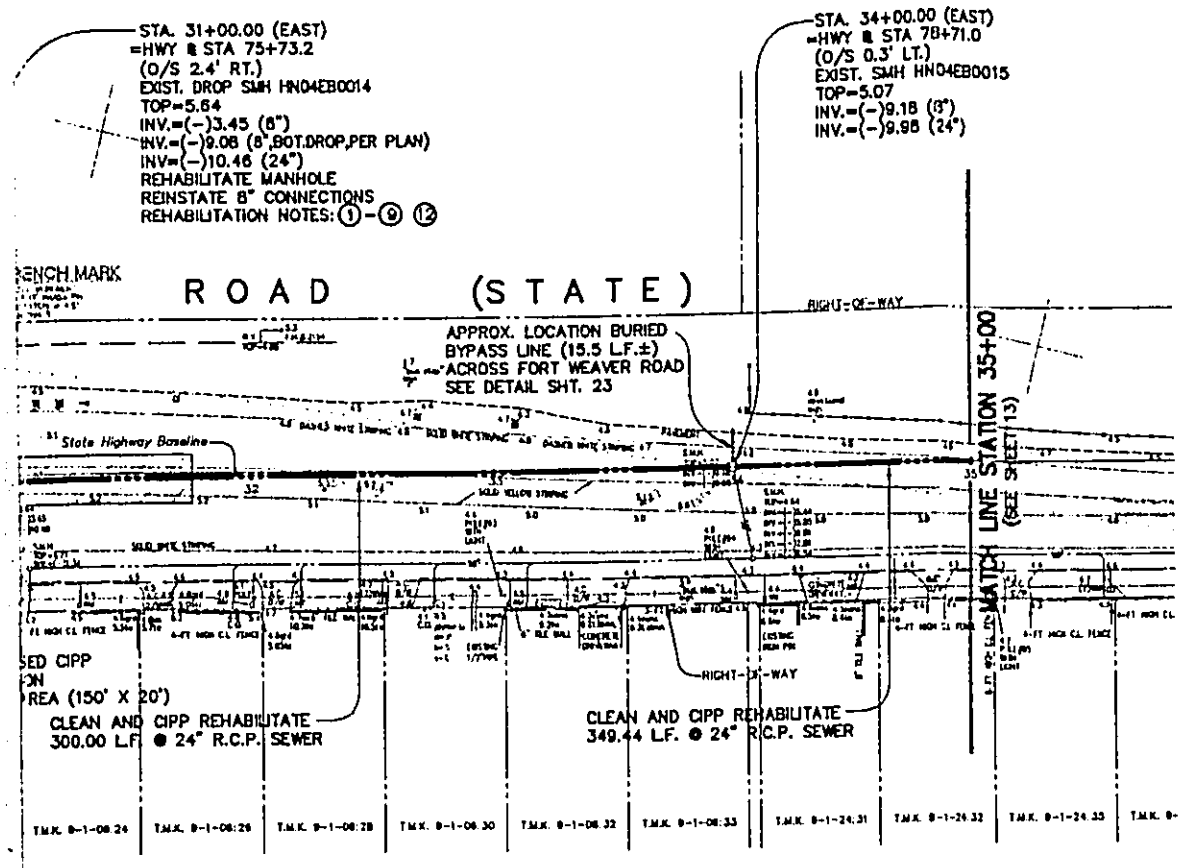
ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 16+50 TO 26+00

DESIGNED BY: STN. CIT
DRAWN BY: STN. ANH
CHECKED BY: KBU
APPROVED: SECTION HEAD / BRANCH HEAD / DIRECTOR, DEC / DATE

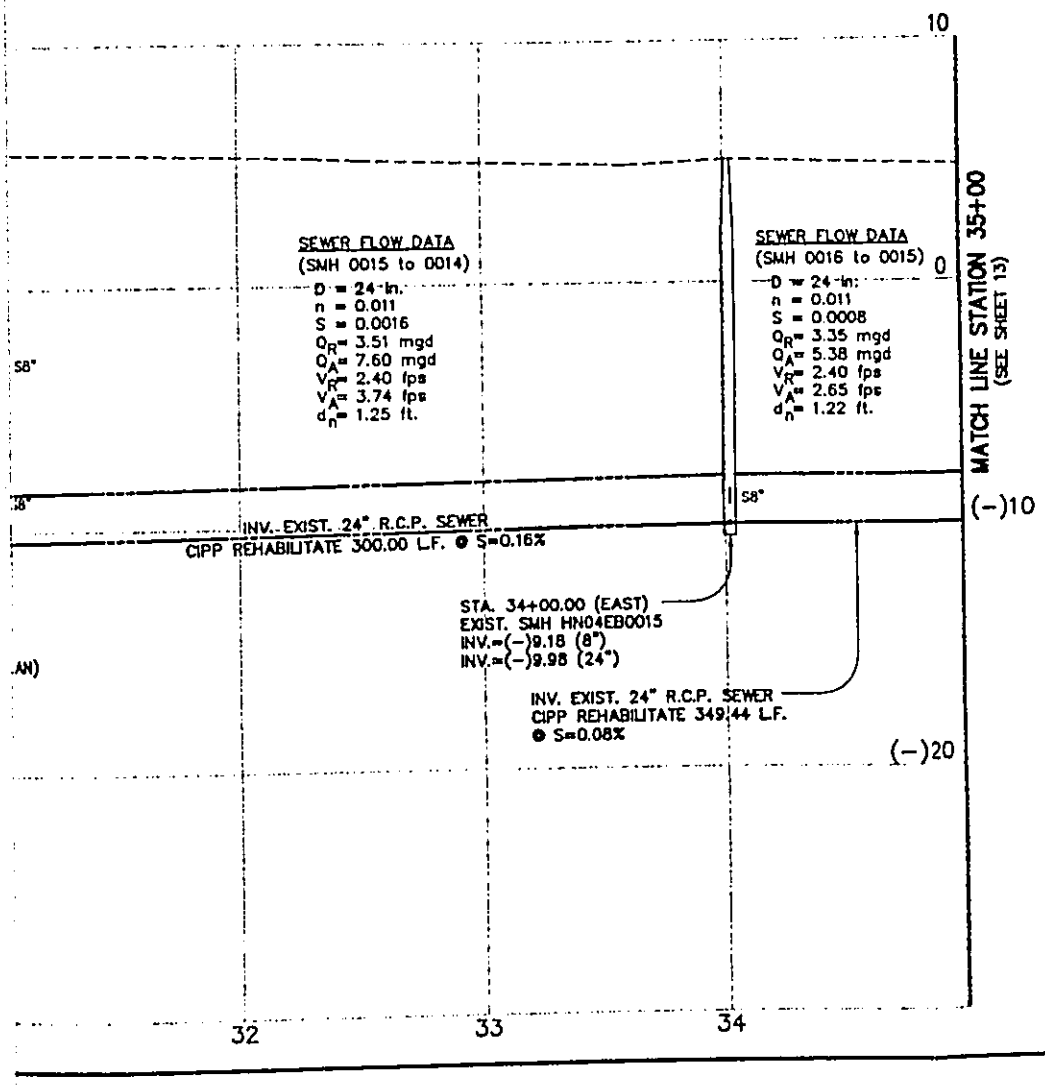
PROJECT NO. W4-03

SHEET 11 OF 23 SHEETS


STA. 28+09.99 (EAST)
=HWY ℄ STA 72+81.5
(O/S 2.1' RT.)
EXIST. DOUBLE DROP SMH HN04EB0013
TOP=5.64
INV.=(–)3.96 (8", EWA BEACH RD)
INV.=(–)4.50 (8", KILAHA, PER PLAN)
INV.=(–)9.34 (8",BOT.DROP,PER PLAN)
INV.=(–)10.70 (24")
REHABILITATE MANHOLE
REINSTATE 8" CONNECTIONS
REHABILITATION NOTES: ① – ⑨ ⑫
STA. 31+00.00 (EA
=HWY ℄ STA 75+73.
(O/S 2.4' RT.)
EXIST. DROP SMH HN
TOP=5.64
INV.=(–)3.45 (8")
INV.=(–)9.08 (8",BOT
INV=(–)10.46 (24")
REHABILITATE MANH
REINSTATE 8" CONN
REHABILITATION NO
FORT WEAVER
BENCH MARK
ROA
KILAHA STREET
HAPALUA STREET
EWA BEACH ROAD
RIGHT-OF-WAY
State Highway Baseline
(SEE SHEET 11) MATCH LINE STATION 26+00
CLEAN AND CIPP REHABILITATE
255.00 L.F. ● 24" R.C.P. SEWER
CLEAN AND CIPP REHABILITATE
290.01 L.F. ● 24" R.C.P. SEWER
PROPOSED CIPP
INVERSION
WORK AREA (150' X 20')
CLEAN AND CIPP REHABILITAT
300.00 L.F. ● 24" R.C.P. SEW
T.M.K. 9-1-07:60
T.M.K. 9-1-07:48
T.M.K. 9-1-07:45
T.M.K. 9-1-08:13
T.M.K. 9-1-08:18
T.M.K. 9-1-08:20
T.M.K. 9-1-08:22
T.M.K. 9-1-08:24
T.M.K. 9-1-08:26
EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'
10
0
(–)10
(–)20
EXIST. GRADE ALONG ℄ 24" SEWER
SEWER FLOW DATA
(SMH 0013 to 0012)
D = 24 in.
n = 0.011
S = 0.0010
Q_R = 3.51 mgd
Q_A = 6.01 mgd
V_R = 2.49 fps
V_A = 2.96 fps
d_n = 1.07 ft.
SEWER FLOW DATA
(SMH 0014 to 0013)
D = 24 in.
n = 0.011
S = 0.0008
Q_R = 3.51 mgd
Q_A = 5.38 mgd
V_R = 2.40 fps
V_A = 2.65 fps
d_n = 1.25 ft.
S8"
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 255.00 L.F. ● S=0.10%
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 290.01 L.F. ● S=0.08%
STA. 28+09.99 (EAST)
EXIST. DOUBLE DROP SMH HN04EB0013
INV.=(–)3.96 (8",EWA BEACH RD)
INV.=(–)4.50 (8", KILAHA, PER PLAN)
INV.=(–)9.34 (8",BOT.DROP,PER PLAN)
INV.=(–)10.70 (24")
REHABILITATE SMH
REINSTATE 8" CONNECTIONS
STA. 31+00.00 (EAST)
EXIST. DROP SMH HN04EB0014
INV.=(–)3.45 (8")
INV.=(–)9.08 (8",BOT.DROP,PER PLAN)
INV.=(–)10.46 (24")
REHABILITATE SMH
REINSTATE 8" CONNECTIONS
INV.
CIPP REHA
PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'
26
27
28
29
30+00
31
32



(EAST)



MANHOLE REHABILITATION NOTES:

① EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.

② CLEAN EXISTING MANHOLE WALLS AND BENCH.

③ REMOVE ALL RUNGS.

④ CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.

⑤ MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.

⑥ LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.

⑦ FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.

⑧ RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.

⑨ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.

⑩ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.

⑪ REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.

⑫ REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.

REVISION	DATE	BASIS	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

PROJECT: FORT WEAVER ROAD
RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-025, 026, 027, 028, 023, 024, 025, 027, 028 & 036

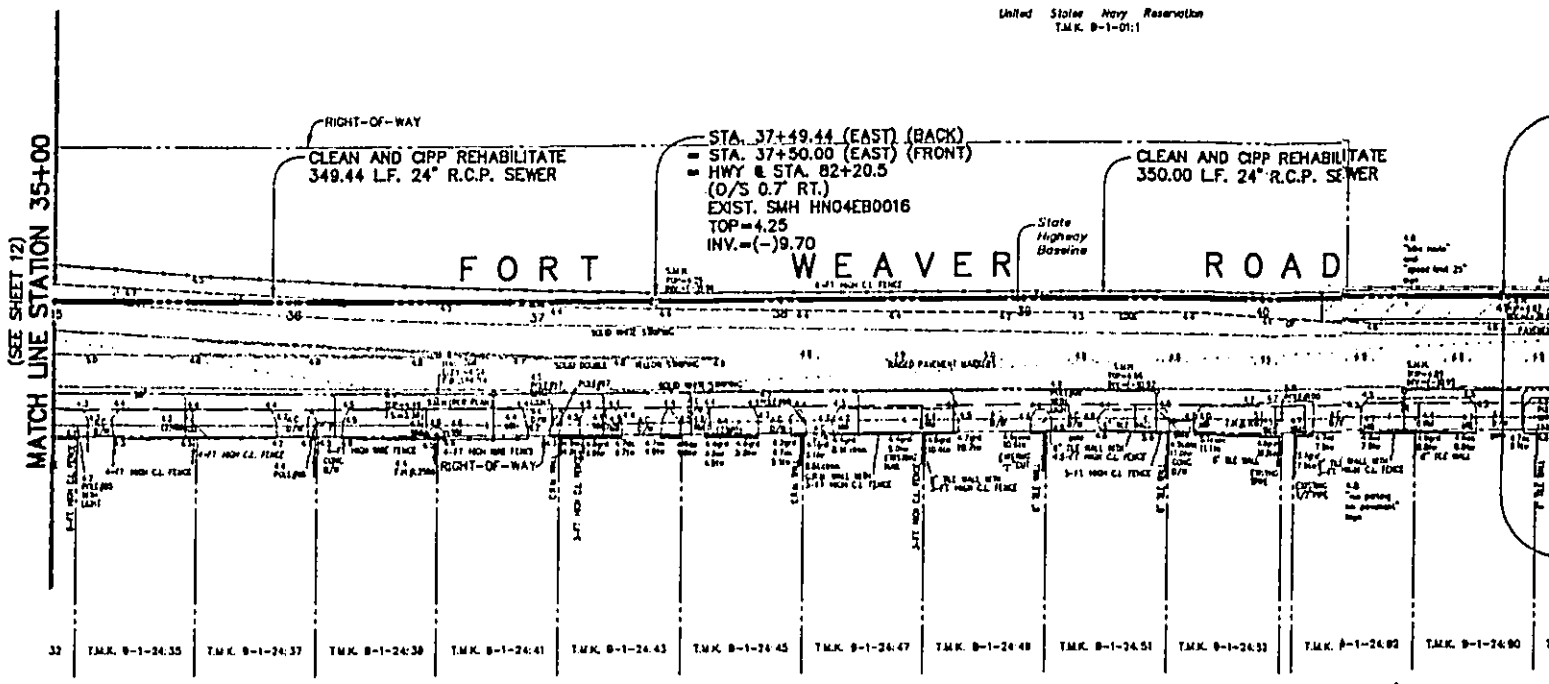
ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 26+00 TO 35+00

DESIGNED BY: STV, CIT
DRAWN BY: STV, AWH
CHECKED BY: KSH
SECTION HEAD
BRANCH HEAD
APPROVED
CHIEF, WWDE, WRC
DATE

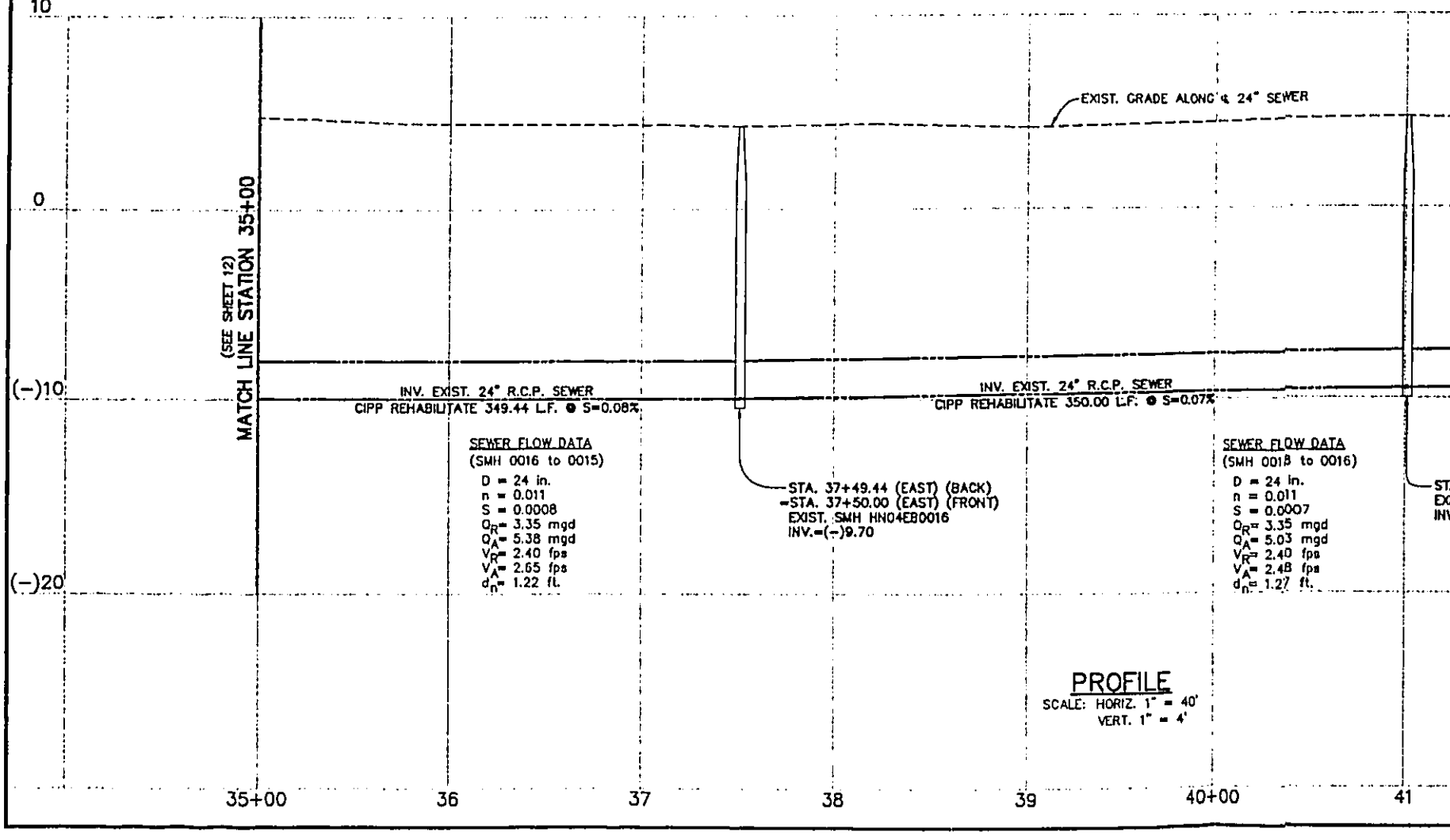
PROJECT NO. W4-03

SHEET 12 OF 23 SHEETS

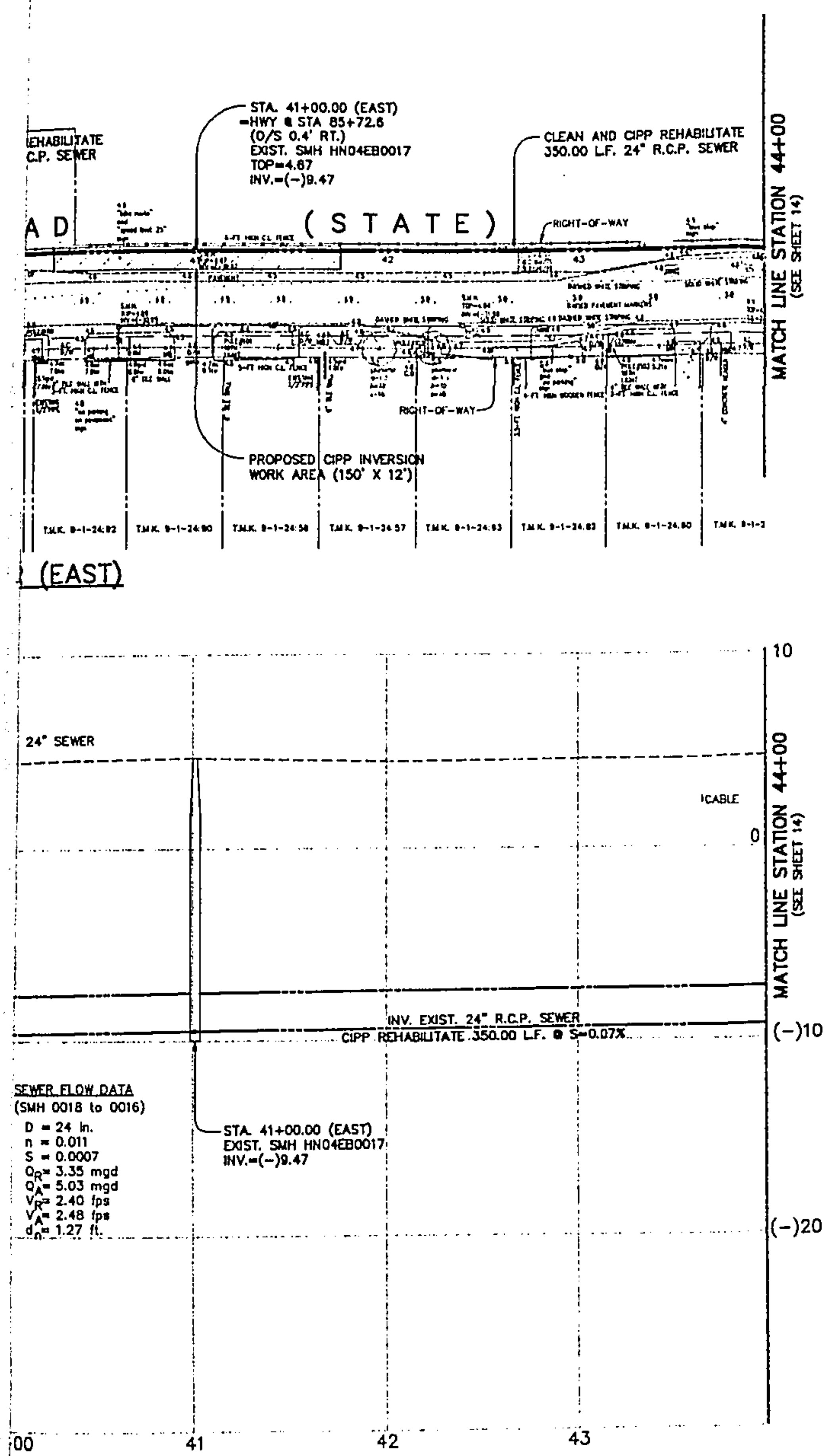
FILE	POCKET	FOLDER	NO.



EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'



PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'



MANHOLE REHABILITATION NOTES:

1. EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
2. CLEAN EXISTING MANHOLE WALLS AND BENCH.
3. REMOVE ALL RUNGS.
4. CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
5. MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
6. LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.
7. FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.
8. RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
9. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
10. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SD" FRAME & COVER.
11. REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
12. REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.

REVISION	DATE	BRIEF	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

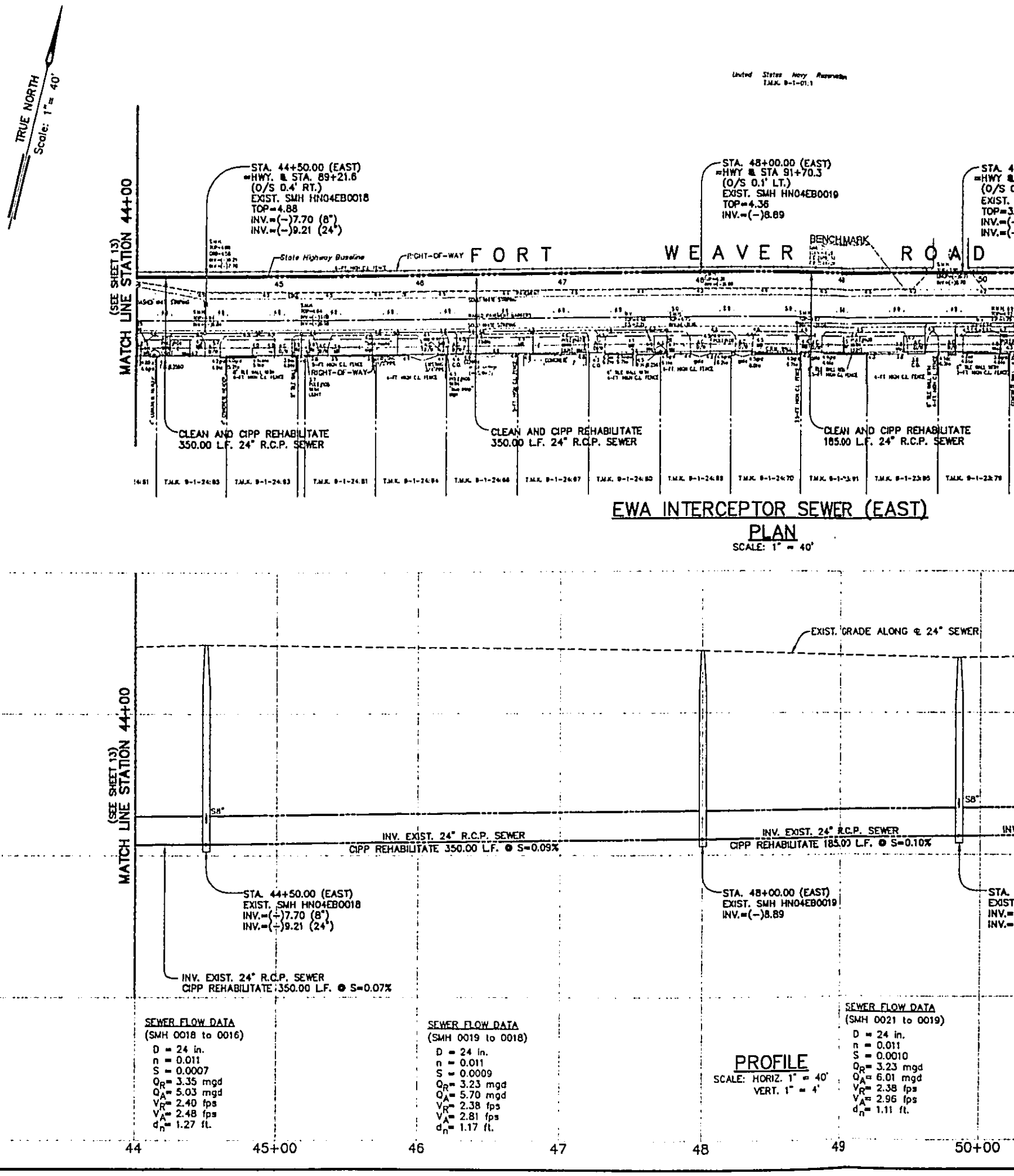
PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK. 9-1-005, 006, 007, 008, 023, 024, 025, 027, 028 & 036

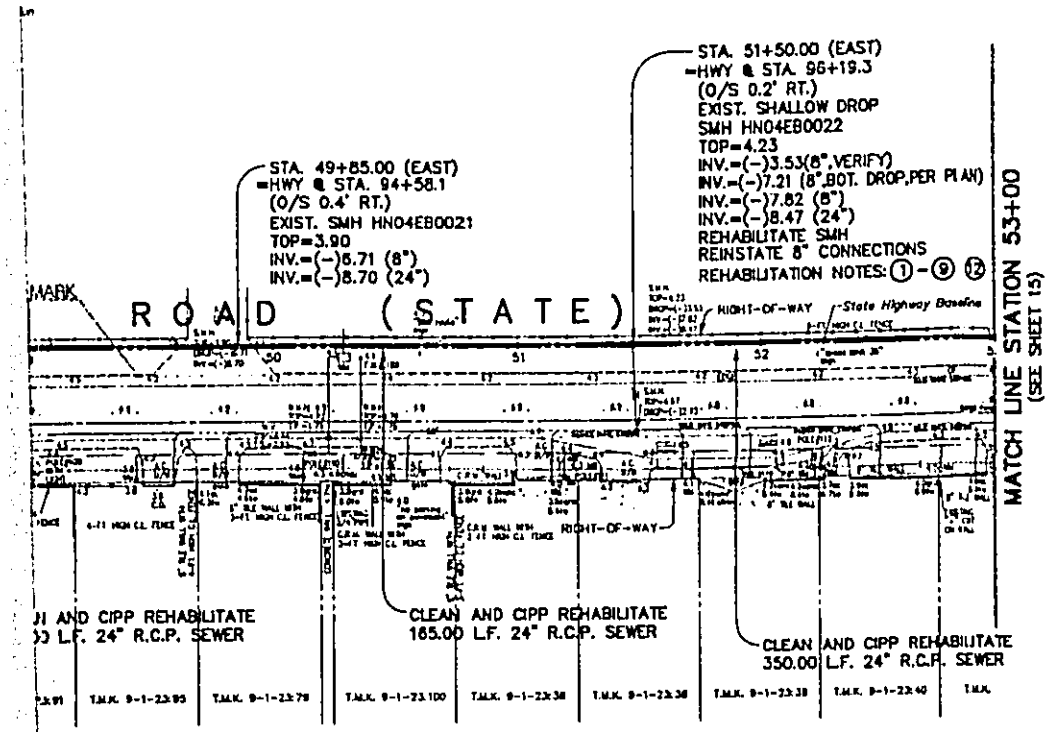
ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 35+00 TO 44+00

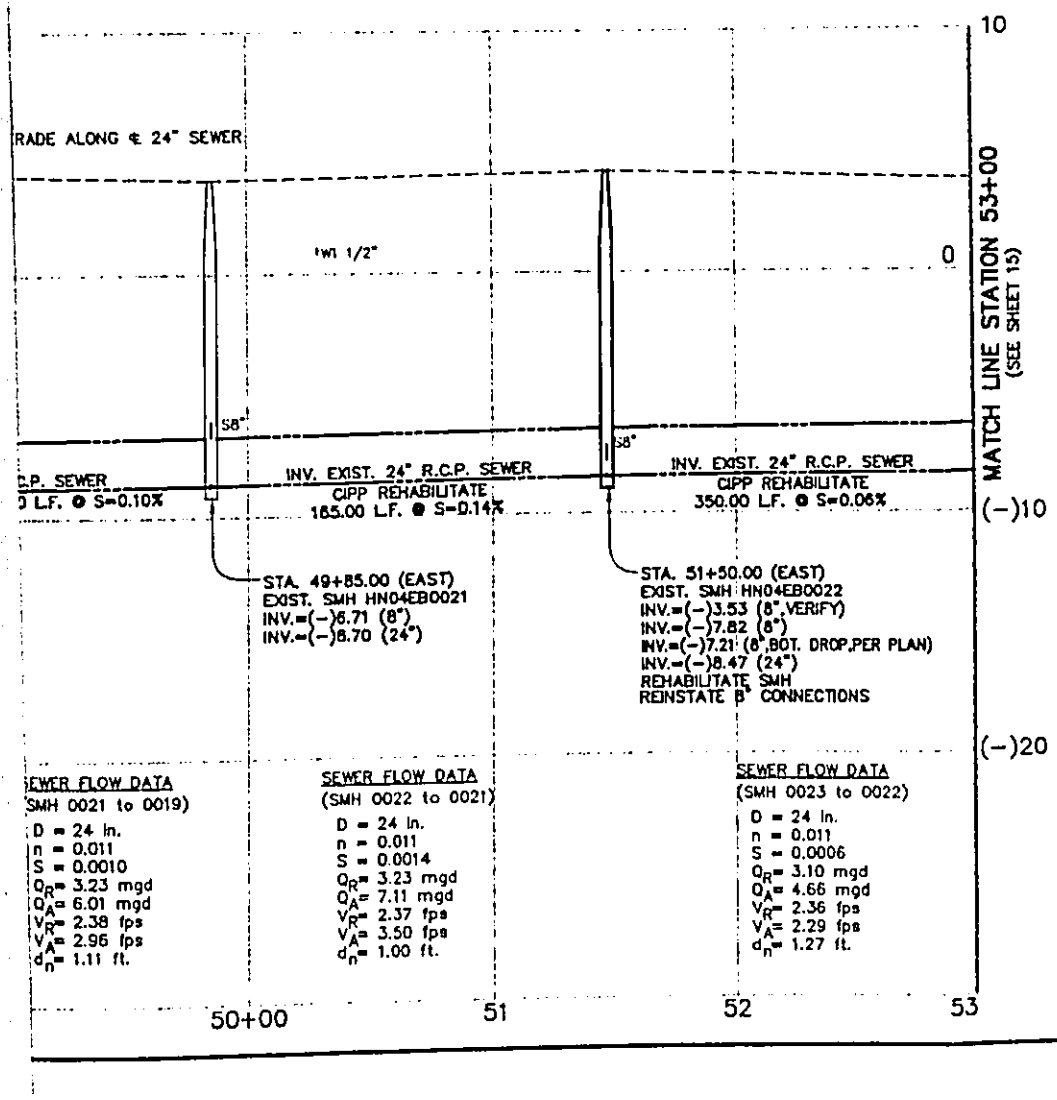
DESIGNED BY: SYH, CTT — CHECKED BY: KSU
DRAWN BY: SYH, AHM — SECTION HEAD:
APPROVED: — BRANCH HEAD:
CHIEF, DIV., DDC — DATE

PROJECT NO. W4-03

FILE	POCKET	FOLDER	NO.


TRUE NORTH
Scale: 1" = 40'
United States Navy Reservation
T.M.K. 9-1-01:1
STA. 44+50.00 (EAST)
=HWY. ℄ STA. 89+21.6
(O/S 0.4' RT.)
EXIST. SMH HN04EB0018
TOP=4.88
INV.=(-)7.70 (8")
INV.=(-)9.21 (24")
STA. 48+00.00 (EAST)
=HWY ℄ STA 91+70.3
(O/S 0.1' LT.)
EXIST. SMH HN04EB0019
TOP=4.36
INV.=(-)8.89
BENCHMARK
FORT WEAVER ROAD
State Highway Baseline
RIGHT-OF-WAY
MATCH LINE STATION 44+00
(SEE SHEET 13)
CLEAN AND CIPP REHABILITATE
350.00 L.F. 24" R.C.P. SEWER
CLEAN AND CIPP REHABILITATE
350.00 L.F. 24" R.C.P. SEWER
CLEAN AND CIPP REHABILITATE
185.00 L.F. 24" R.C.P. SEWER
EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'
10
0
(-)10
(-)20
EXIST. GRADE ALONG ℄ 24" SEWER
S8"
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 350.00 L.F. ● S=0.09%
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 185.00 L.F. ● S=0.10%
STA. 44+50.00 (EAST)
EXIST. SMH HN04EB0018
INV.=(-)7.70 (8")
INV.=(-)9.21 (24")
STA. 48+00.00 (EAST)
EXIST. SMH HN04EB0019
INV.=(-)8.89
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 350.00 L.F. ● S=0.07%
SEWER FLOW DATA
(SMH 0018 to 0016)
D = 24 in.
n = 0.011
S = 0.0007
Q_R= 3.35 mgd
Q_A= 5.03 mgd
V_R= 2.40 fps
V_A= 2.48 fps
d_n= 1.27 ft.
SEWER FLOW DATA
(SMH 0019 to 0018)
D = 24 in.
n = 0.011
S = 0.0009
Q_R= 3.23 mgd
Q_A= 5.70 mgd
V_R= 2.38 fps
V_A= 2.81 fps
d_n= 1.17 ft.
SEWER FLOW DATA
(SMH 0021 to 0019)
D = 24 in.
n = 0.011
S = 0.0010
Q_R= 3.23 mgd
Q_A= 6.01 mgd
V_R= 2.38 fps
V_A= 2.96 fps
d_n= 1.11 ft.
PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'
44
45+00
46
47
48
49
50+00





MANHOLE REHABILITATION NOTES:

① EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
② CLEAN EXISTING MANHOLE WALLS AND BENCH.
③ REMOVE ALL RUNGS.
④ CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
⑤ MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
⑥ LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.
⑦ FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.
⑧ RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
⑨ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
⑩ PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.
⑪ REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
⑫ REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.

REVISION	DATE	BASIC	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-005, 006, 007, 008, 023, 024, 025, 027, 028 & 036

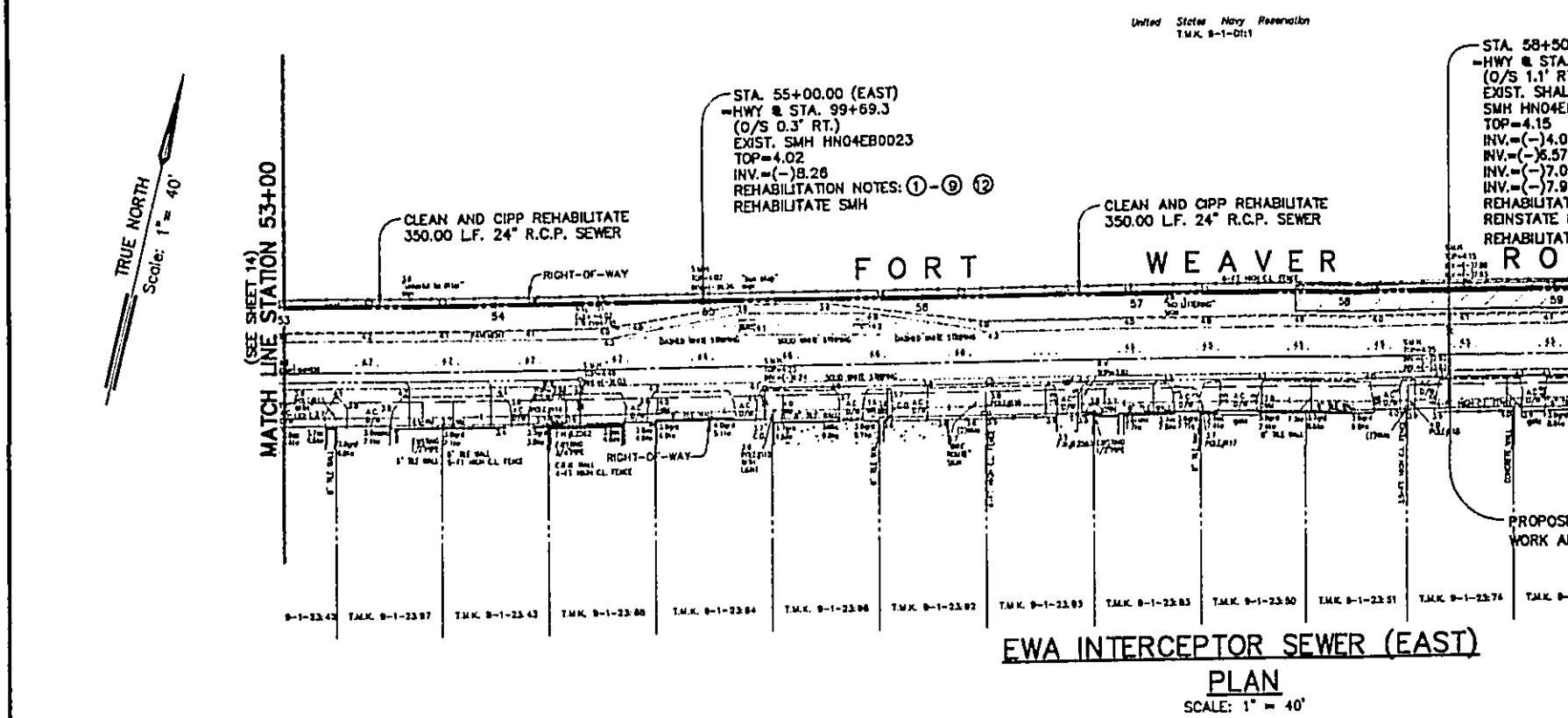
ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 44+00 TO 53+00

DESIGNED BY: SYK, CIT — CHECKED BY: JCN
DRAWN BY: SYK, AWA — SECTION HEAD
APPROVED — BRANCH HEAD
CHIEF, WWDE, BDC — DATE

PROJECT NO. W4-03

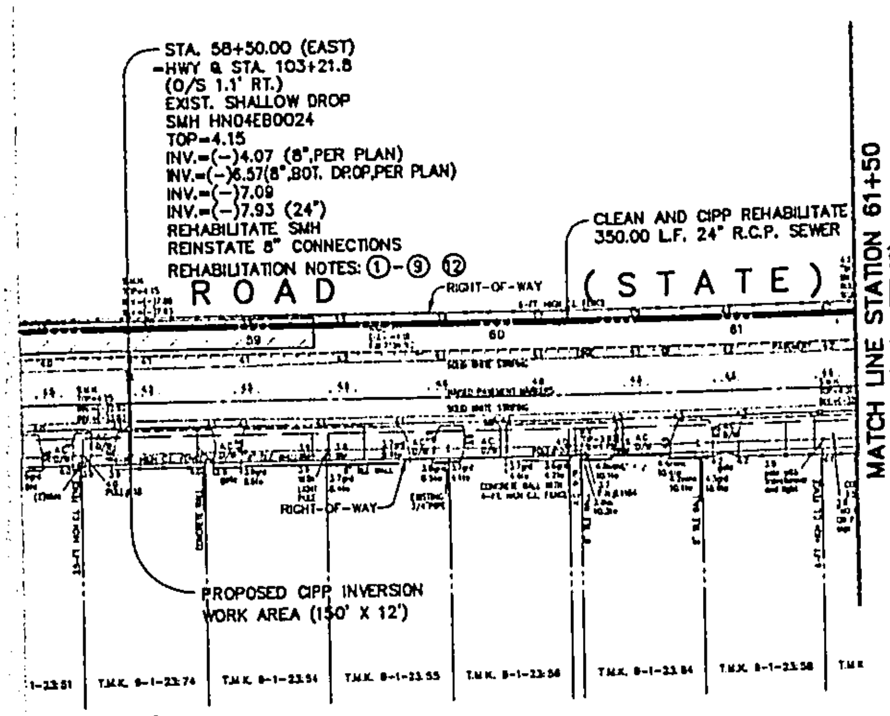
SHEET 14 OF 23 SHEETS

FILE	POCKET	FOLDER	NO.

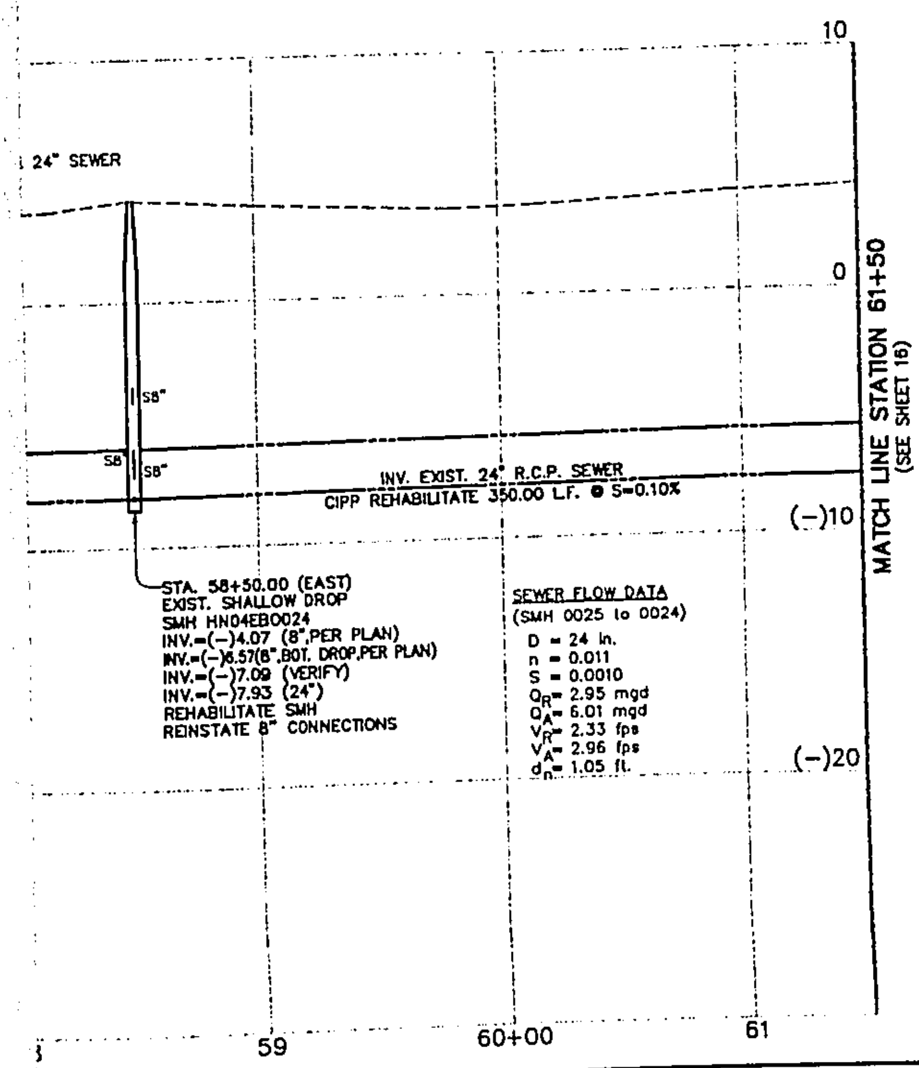

TRUE NORTH
Scale: 1" = 40'
MATCH LINE STATION 53+00
(SEE SHEET 14)
CLEAN AND CIPP REHABILITATE
350.00 L.F. 24" R.C.P. SEWER
RIGHT-OF-WAY
STA. 55+00.00 (EAST)
=HWY ℄ STA. 99+69.3
(O/S 0.3' RT.)
EXIST. SMH HN04EB0023
TOP=4.02
INV.=(-)8.26
REHABILITATION NOTES: ①-⑨ ⑫
REHABILITATE SMH
CLEAN AND CIPP REHABILITATE
350.00 L.F. 24" R.C.P. SEWER
FORT
WEAVER
RIGHT-OF-WAY
STA. 58+50
=HWY ℄ STA.
(O/S 1.1' R
EXIST. SHAL
SMH HN04E
TOP=4.15
INV.=(-)4.0
INV.=(-)6.57
INV.=(-)7.0
INV.=(-)7.9
REHABILITAT
REINSTATE
REHABILITAT
RO
PROPOS
WORK A
T.M.K. 9-1-23:97
T.M.K. 9-1-23:43
T.M.K. 9-1-23:84
T.M.K. 9-1-23:82
T.M.K. 9-1-23:83
T.M.K. 9-1-23:50
T.M.K. 9-1-23:51
T.M.K. 9-1-23:74
EWA INTERCEPTOR SEWER (EAST)
PLAN
SCALE: 1" = 40'
10
0
(-)10
(-)20
EXIST. GRADE ALONG ℄ 24" SEWER
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 350.00 L.F. @ S=0.06%
INV. EXIST. 24" R.C.P. SEWER
CIPP REHABILITATE 350.00 L.F. @ S=0.09%
SEWER FLOW DATA
(SMH 0023 to 0022)
D = 24 in
n = 0.011
S = 0.0006
Q_R = 3.10 mgd
Q_A = 4.66 mgd
V_R = 2.36 fps
V_A = 2.29 fps
d_n = 1.27 ft.
STA. 55+00.00 (EAST)
EXIST. SMH HN04EB0023
INV.=(-)8.26
REHABILITATE SMH
SEWER FLOW DATA
(SMH 0024 to 0023)
D = 24 in
n = 0.011
S = 0.0009
Q_R = 3.10 mgd
Q_A = 5.70 mgd
V_R = 2.36 fps
V_A = 2.61 fps
d_n = 1.11 ft.
S8"
S8"
S8"
STA. 58+50.
EXIST. SHALL
SMH HN04EB
INV.=(-)4.07
INV.=(-)6.57(E
INV.=(-)7.09
INV.=(-)7.93
REHABILITATE
REINSTATE 8
PROFILE
SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'
53
54
55+00
56
57
58

MANHOLE REHABILITATION NOTES:

1. EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
2. CLEAN EXISTING MANHOLE WALLS AND BENCH.
3. REMOVE ALL RUNGS.
4. CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
5. MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
6. LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.
7. FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.
8. RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
9. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
10. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.
11. REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
12. REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.



R (EAST)



REVISION	DATE	SHEET	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

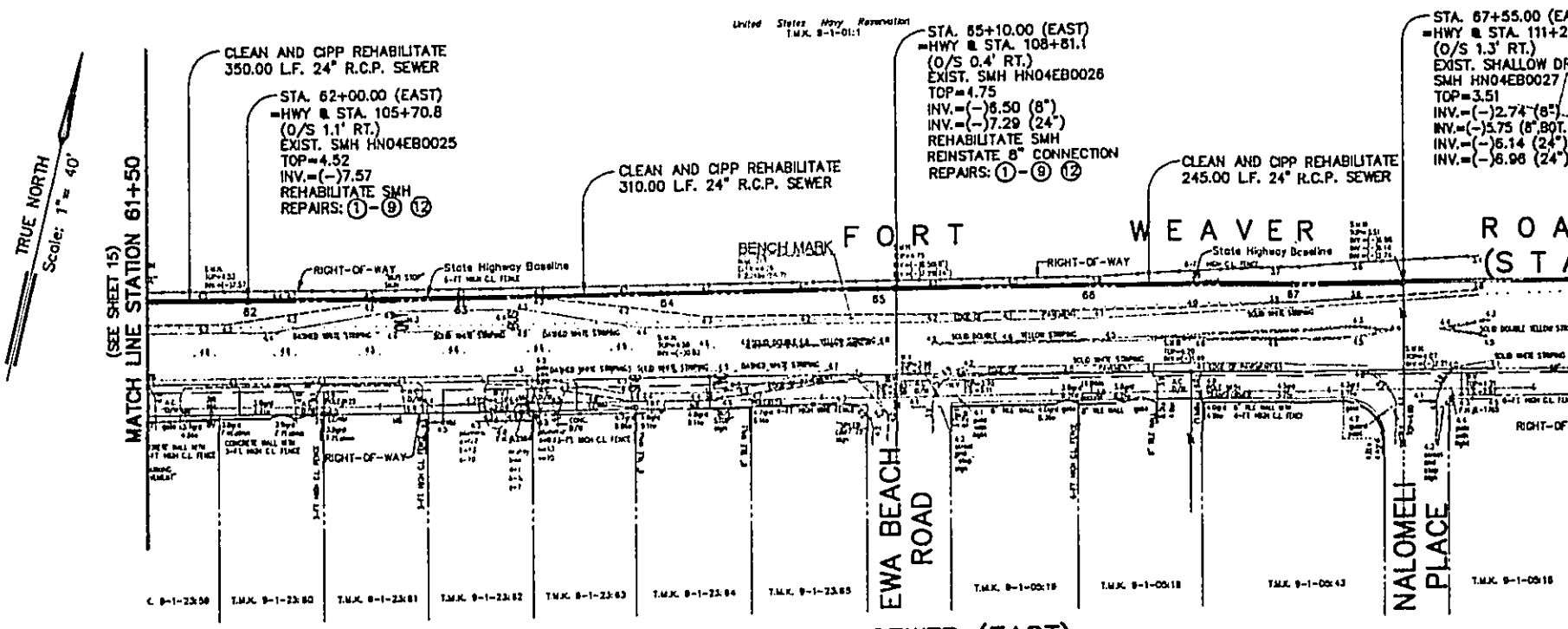
PROJECT: FORT WEAVER ROAD RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK 9-1-003, 006, 007, 009, 023, 024, 025, 027, 029 & 034

ITEM: PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 53+00 TO 61+50

DESIGNED BY: ETW, CTT — CHECKED BY: KSU
DRAWN BY: ETW, AHM — SECTION HEAD:
APPROVED: — BRANCH HEAD:
CHIEF, WWDE, DDC — DATE

PROJECT NO. W4-03

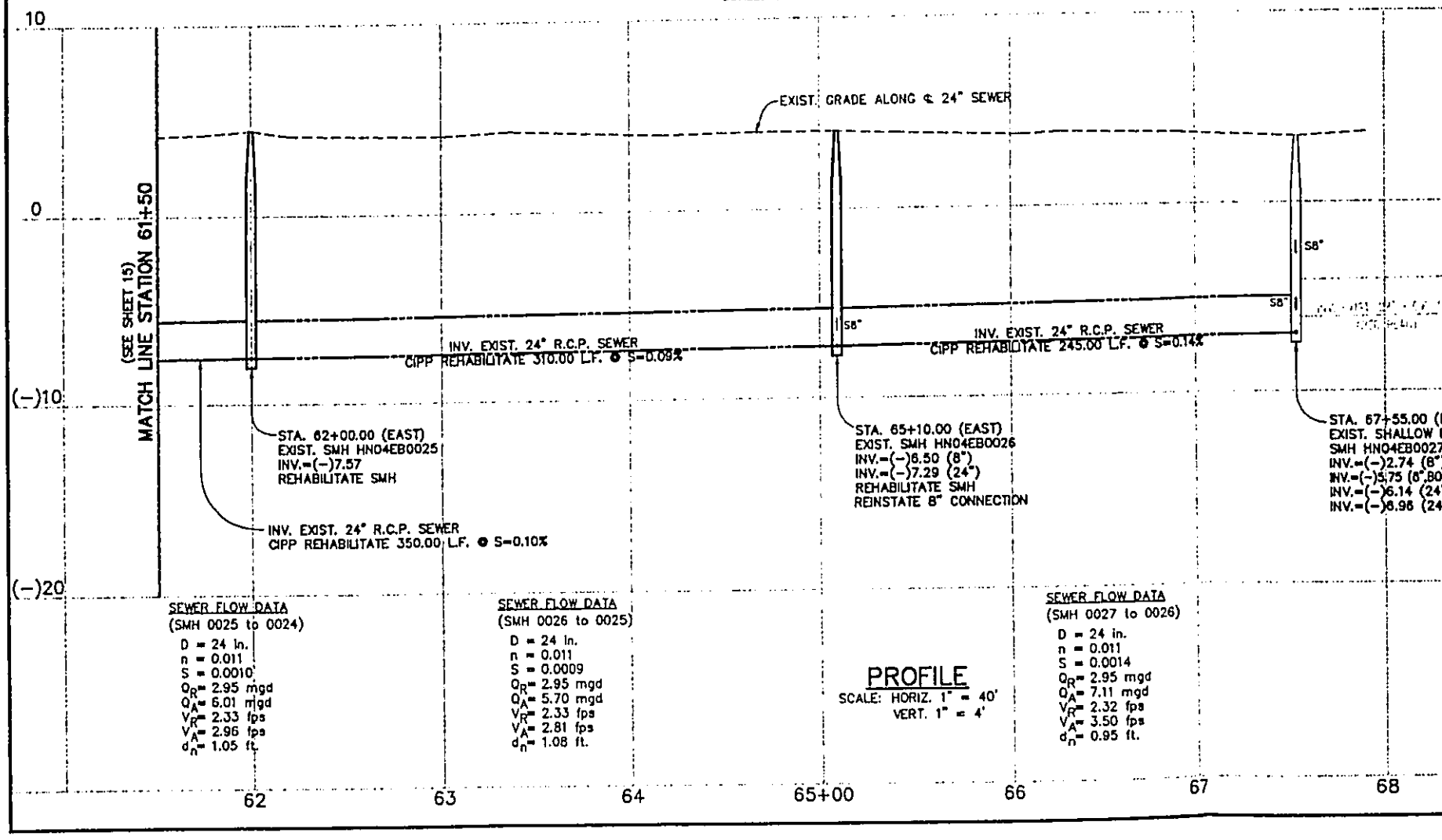
FILE	POCKET	FOLDER	NO.



EWA INTERCEPTOR SEWER (EAST)

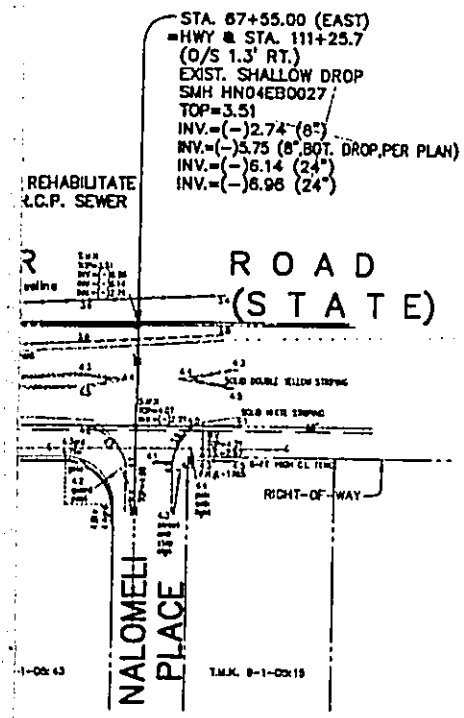
PLAN

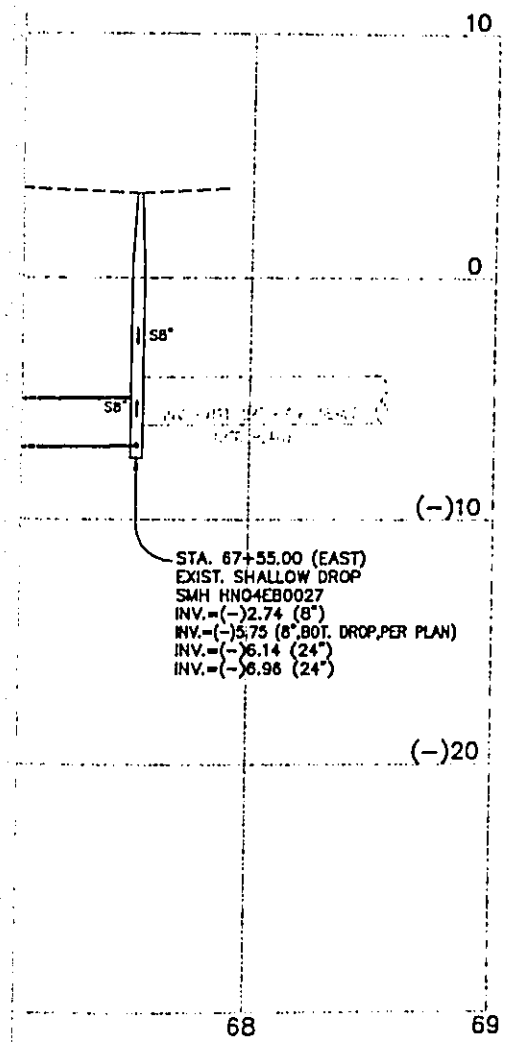
SCALE: 1" = 40'



PROFILE

SCALE: HORIZ. 1" = 40'
VERT. 1" = 4'





MANHOLE REHABILITATION NOTES:

1. EXCAVATE AROUND EXISTING MANHOLE AND REMOVE FRAME, COVER AND CONE.
2. CLEAN EXISTING MANHOLE WALLS AND BENCH.
3. REMOVE ALL RUNGS.
4. CUT BOTTOM OF FRP INSERT TO FIT MANHOLE BOTTOM OR REPAIR/RECONSTRUCT EXISTING MANHOLE BENCH TO PROVIDE FLAT SURFACE FOR PLACEMENT OF FRP INSERT.
5. MAKE CUTOUTS FOR EXISTING MANHOLE INLETS, DROPS AND CLEANOUTS.
6. LOWER FIBERGLASS INSERT INTO EXISTING MANHOLE ONTO A GROUT MIXTURE PLACED ON THE EXISTING MANHOLE BENCH TO FORM A GOOD BOTTOM SEAL.
7. FILL ANNULAR SPACE BETWEEN INSERT AND EXISTING SMH WITH FLOWABLE CONCRETE MIXTURE. BACKFILL AND COMPACT AROUND WITH SELECT SAND.
8. RAISE TOP OF MANHOLE TO GRADE, AS REQUIRED.
9. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SA" FRAME & COVER.
10. PROVIDE NEW MANHOLE INFLOW INSERT FOR TYPE TYPE "SB" FRAME & COVER.
11. REHABILITATE MANHOLE BASE, RISER AND CONE WALLS WITH EPOXY COATING.
12. REPAIR EXISTING MANHOLE BENCH AND CHANNEL AS REQUIRED.

REVISION	DATE	BRIEF	BY	APPROVED

WASTEWATER DESIGN AND ENGINEERING DIVISION
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

PROJECT:
FORT WEAVER ROAD
RECONSTRUCTED SEWER
EWA, OAHU, HAWAII
TMK: 9-1-003, 006, 007, 008, 013, 014, 025, 027, 028 & 036

ITEM:
PLAN AND PROFILE
EWA INTERCEPTOR SEWER (EAST)
STATION 61+50 TO END OF PROJECT

DESIGNED BY: SIN, CTT — CHECKED BY: KSU
DRAWN BY: SIN, ANN — SECTION HEAD
APPROVED: — BRANCH HEAD
CHief, WWDE, DDC — DATE

PROJECT NO. W4-03

APPENDIX C

Preliminary Construction Cost Estimate

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
1.	Mobilization (Not to exceed 6% of total sum bid excluding bid price for mobilization and allowance items).	Lump Sum			$ 160,000.00
2.	Cleaning of existing 24"sewer line, including plugs, removal and proper disposal of debris, and all incidentals required to complete the work.	4,336	Lin. Ft.	$ 15.00	$ 65,040.00
3.	Cleaning of existing 30"sewer line, including plugs, removal and proper disposal of debris, and all incidentals required to complete the work.	384	Lin. Ft.	$ 18.00	$ 6,912.00
4.	Cleaning of existing 36"sewer line, including plugs, removal and proper disposal of debris, and all incidentals required to complete the work.	1,659	Lin. Ft.	$ 20.00	$ 33,180.00
5.	Closed-circuit television (CCTV) inspections of pre- and post-rehabilitation of existing 24", 30", 36" sewer lines and sewer manholes, including all reports, documentation, and all incidentals required to complete the work.	12,758	Lin. Ft.	$ 5.00	$ 63,790.00
6.	Installation of cured-in-place (CIPP) lining including preparation of existing 24" sewer lines, removal and restoration of sewer manhole cone (if required), patching and grouting, testing of installed lining, and all incidentals, in place complete.	4,336	Lin. Ft.	$ 250.00	$ 1,084,000.00

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
7.	Installation of cured-in-place (CIPP) lining including preparation of existing 30" sewer lines, removal and restoration of sewer manhole cone (if required), patching and grouting, testing of installed lining, and all incidentals, in place complete.	384	Lin. Ft.	$ 300.00	$ 115,200.00
8.	Installation of cured-in-place (CIPP) lining including preparation of existing 36" sewer lines, removal and restoration of sewer manhole cone (if required), patching and grouting, testing of installed lining, and all incidentals, in place complete.	1,659	Lin. Ft.	$ 340.00	$ 564,060.00
9.	Rehabilitation of sewer manhole no. 1 with epoxy coating. Includes cleaning of manhole, rung removal, bench and channel repair as required, preparation and installation of SMH protective coatings, reconnection of 24", 36" & 48" sewer lines, installation of inflow insert, necessary grade adjustment and all incidentals, in place complete. (base: 96" I.D., 7'-3" high, riser: 96" I.D., 12' high. 12" slab with a 31.5" diameter hole between base & riser, Type "SB" frame and cover, 21 vertical linear feet).	Lump Sum		$	$ 16,000.00

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
10.	Rehabilitation of sewer manhole no. 3 with epoxy coating. Includes cleaning of manhole, rung removal, bench and channel repair as required, preparation and installation of SMH protective coatings, reinstatement of 2-36" and 2-8" connections, installation of inflow insert, necessary grade adjustment and all incidentals, in place complete. (base: 72" I.D., 6'-6" high, riser: 72" I.D., 3' high, riser: 48" I.D.,6' high, 12" slab with a 48" diameter hole between two risers, Type "SB" frame and cover, 19 vertical linear feet).	Lump Sum		$ _____	$ 16,500.00
11.	Rehabilitation of sewer manhole no. 5 with epoxy coating. Includes cleaning of manhole, rung removal, bench and channel repair as required, preparation and installation of SMH protective coatings, reinstatement of 2-36" and 1-8" connection, installation of inflow insert, necessary grade adjustment and all incidentals, in place complete. (base: 72" I.D., 6'-6" high, 72" I.D. riser: 4' high, 48" I.D. riser: 5' high, 12" slab with a 31.5" diameter hole between two risers, "SB" frame and cover, 18 vertical linear feet).	Lump Sum		$ _____	$ 16,000.00

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
12.	Rehabilitation of sewer manhole no.11 with epoxy coating. Includes cleaning of manhole, rung removal, bench and channel repair as required, preparation and installation of SMH protective coatings, reinstatement of 2-24" and 1-30" connection, installation of inflow insert, necessary grade adjustment and all incidentals, in place complete. (base: 72" I.D., 6'-6" high, riser: 48" I.D., 9' high, 12" slab with a 48" diameter hole between base & riser, "SB" frame and cover, 19 vertical linear feet).	Lump Sum		$ _____	$ 16,000.00
13.	Rehabilitation of three (3) drop sewer manholes (nos. 12, 13 & 14) with preformed FRP manhole inserts. Includes excavation and removal of frame, cover and eccentric cone, cleaning of manhole, rung removal, bench and channel repair as required, liner grouting, backfill, reinstatement of existing sewer lines into manhole including drop connections, installation of inflow inserts, grade adjustment as required and all incidentals, in place complete. (base and riser: 54" I.D., Type "SA" frame & cover, 16 to 17 vertical linear feet each manhole).	Lump Sum		$ _____	$ 46,500.00

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
14.	Rehabilitation of five (5) sewer manholes (nos. 22, 23, 24, 25 & 26) with preformed FRP manhole inserts. SMH nos. 22 & 24 are shallow drop manholes. Includes excavation and removal of frame, cover and eccentric cone, cleaning of manhole, rung removal, bench and channel repair as required, liner grouting, backfill, reinstatement of existing sewer lines into *manhole including shallow drop* connections, installation of inflow inserts, grade adjustment as required and all incidentals, in place complete. (base and riser: 54" I.D., Type "SA" frame & cover, 12 to 13 vertical linear feet each manhole).		Lump Sum	$	$ 75,000.00
15.	Inspect Drop SMH No. 2 for condition assessment. Rehabilitate SMH as required. (base: 72" I.D., 6' high, 72" I.D.riser: 5' high, 48" riser: 5' high, 12" slab with a 48" diameter hole between two risers, "SB" frame and cover, 19 vertical linear feet).		Allowance*		$ 10,500.00
16.	Special-duty police officers		Allowance*		$ 50,000.00
17.	Traffic control work, including design/modification of traffic control plans for CIPP sewer line and SMH rehabilitation, sewage flow bypassing, all traffic control devices, and placement and removal of devices, but excluding special-duty police officers.		Lump Sum		$ 100,000.00

FORT WEAVER ROAD RECONSTRUCTED SEWER
JOB NO. W4-03

PRELIMINARY CONSTRUCTION COST ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
18.	Sewer flow control, including temporary bypass system, controls, standby equipment, bypass lines, burying of bypass lines and restoration as required, plugs, appurtenances, and all incidentals.	Lump Sum			$ 500,000.00
	TOTAL SUM BID **(Proposal Schedule Items 1 to 18, inclusive)**				$ 2,938,682.00

* The unused portions of Allowance items shall remain with the City upon completion of the project. The Contractor shall not make a claim in the event the City chooses to delete any allowance item from the Contract.