



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

August 29, 2019
Wailuku, Hawaii

Approval of a Stream Diversion Works Permit Application (SDWP.4950.6)
by East Maui Irrigation Company to Remove and Abandon 11 Diversions (Category 3)
on the Honopou, Hanehoi (Puolua), and Pi'ina'au (Palauhulu) Streams,
East Maui Irrigation System, East Maui, Hawai'i; TMK: Various

No.	Diversion Name	Stream	TMK	Land owner	FR	CD	SMA
1	Honopou Long Strainer at Lowrie Ditch (L-15)	Honopou	2-9-004:039	EMI			
2	Honopou Siphon at Lowrie Ditch (L-16)	Honopou	2-9-004:038	State	Y		
3	Honopou at Haiku Ditch (H-8)	Honopou	2-9-003:042	EMI			Y
4	East Hanehoi at Lowrie Ditch (L-5a)	Hanehoi	2-9-009:019 2-9-014:009	EMI		Y	
5	Hanehoi West #1 at Lowrie Ditch (L-5b)	Hanehoi	2-9-009:019 2-9-014:009	EMI		Y	
6	Hanehoi Small Intake at Lowrie Ditch (L-5c)	Hanehoi	2-9-009:019 2-9-014:009	EMI		Y	
7	Puolua (Huelo) at New Hamakua Ditch (NH-17a)	Hanehoi (Puolua)	2-9-014:001	State		Y	
8	Puolua (Huelo) Roseapple at Lowrie Ditch (L-7a)	Hanehoi (Puolua)	2-9-006:033	EMI			
9	Hanehoi West #2 at Lowrie Ditch (L-7b)	Hanehoi	2-9-006:028 2-9-006:033	State EMI			
10	Hauolowahine Small Intake at Hauolo Ditch (K-30b)	Pi'ina'au (Palauhulu)	1-1-002:002	State	Y	Y	
11	Hauolowahine Runoff Pad at Koolau Ditch (K-30d)	Pi'ina'au (Palauhulu)	1-1-002:002	State	Y	Y	

Note: FR - Forest Reserve; CD - Conservation District; SMA - Special Management Area.

<u>APPLICANT</u>	<u>LANDOWNER</u>	<u>LANDOWNER</u>
Mark Vaught East Maui Irrigation Co. PO Box 791628 Paia, HI 96779	East Maui Irrigation Co. (2) 2-9-003:042; 2-9-004:039; 2-9-006:033; 2-9-009:019; 2-9-014:009	State of Hawaii (2) 1-1-002:002; 2-9-004:038; 2-9-006:028; 2-9-014:001

SUMMARY OF REQUEST

Approve the Stream Diversion Works Permit (SDWP.4950.6) Application to reconnect tributaries to the main stream, fill intake grates with rock and concrete, construct wingwalls, remove a small diversion dam, then abandon in-place the remaining infrastructure on the subject 11 diversions on the Honopou, Hanehoi (Puolua), and Pi‘ina‘au (Palauhulu) Streams, East Maui, to comply with the interim instream flow standards (IIFS) established by the Decision and Order in the Commission on Water Resource Management’s (Commission) contested case hearing CCH-MA13-01 dated June 20, 2018. Category 3 diversions are defined by the Applicant as stream diversion structures where proposed actions are more extensive than that categorized as maintenance/repair.

The Board of Land and Natural Resources (BLNR) has jurisdiction on land owned by the State through Revocable Permits Nos. S-7264 Huelo License and S-7265 Ke‘anae License areas. But has limited jurisdiction for actions taken in the Conservation District and located on private land. The Commission has jurisdiction for actions taken in the stream channel only. The County has certain permitting authority on land in the Special Management Area (SMA).

LOCATION: Island of Maui in the surface water hydrologic units of Honopou (**Map 1**), Hanehoi (Puolua) (**Map 2**), and Pi‘ina‘au (Palauhulu) (**Map 3**).

STREAM DESCRIPTION

Honopou. The hydrologic unit of Honopou covers 2.7 square miles from the lower slopes of Haleakalā at 2,286 feet elevation to the sea (**Map 1**). Honopou Stream is 4 miles in length. Most of the hydrologic unit is made up of the Ko‘olau Forest Reserve. Honopou is mostly a gaining stream. The Hawaii Stream Assessment rates Honopou average in comparison to other watersheds in Maui and statewide. The Division of Aquatic Resources (DAR) assigns Honopou a total watershed rating of 5 out of 10, a total biological rating of 5 out of 10, and a combined 5 out of 10. Native species observed in the stream include:

Fish: ‘O‘opu nākea (*Awaous guamensis*), ‘o‘opu ‘akupa (*Eleotris sandwicensis*), ‘o‘opu ‘alamo‘o (*Lentipes concolor*), and ‘o‘opu nōpili (*Sicyopterus stimpsoni*).

Crustaceans: ‘Ōpae kala‘ole (*Atyoida bisulcata*) and ‘ōpae ‘oeha‘a (*Macrobrachium grandimanus*).

Mollusks: none observed.

Also observed were two native dragonflies, giant Hawaiian dragonfly (*Anax strenuous*) and globe skimmer (*Pantala flavescens*), and the native damselfly, pacific Megalagrion damselfly

(*Megalagrion pacificum*). 'O'opu 'alamo'o was found only in the upper reaches. Larval recruitment of native fish has been observed near the stream mouth.

Hanehoi (Puolua). The hydrologic unit of Hanehoi covers 1.4 square miles (**Map 2**). Hanehoi Stream is 3.2 miles in length, traversing in a northeasterly direction from its headwaters originating in the Ko'olau Forest Reserve at 1,200 feet to Hoalua Bay. A tributary, Puolua (Huelo), is 1.3 miles in length and flows intermittently in the upper section of the stream. Most of the catchment is made up of the Ko'olau Forest Reserve. The lower altitudes are occupied by grasses and shrubs with few cultivated lands. Only one native species of crustacean 'ōpae kala'ole (*Atyoida bisulcata*) was observed in Hanehoi, while no native fish or mollusks were observed. All of the fish and macroinvertebrates observed in the middle reaches (downstream of Lowrie Ditch) were introduced species. It is unranked in the Hawaii Stream Assessment.

Pi'ina'au (Palauhulu). The hydrologic unit of Pi'ina'au covers 22 square miles (**Map 3**). Pi'ina'au Stream is 13.1 miles in length, originating in the Waikamoi Preserve before entering the ocean. A tributary, Palauhulu, is 4.8 miles in length. It is fed perennially by the Ko'olau Forest Reserve and flows through Keahu Falls, Waiokuna Falls, and the Waiokuna Pond before joining with Pi'ina'au Stream. The Hawaii Stream Assessment classifies the aquatic resources as outstanding. Pi'ina'au was noted for the presence of 'o'opu 'alamo'o (*L. concolor*), 'o'opu nākea (*A. stamineus*), 'o'opu nōpili (*S. simpsoni*), and hīhīwai (*N. granosa*), among others. Pi'ina'au and Palauhulu feed Waialohe Pond, which provides habitat for estuarine animals. The size of the watershed and the diversity of native stream animals present makes Pi'ina'au rate high in comparison to other watersheds in Maui and statewide. DAR assigns Pi'ina'au a total watershed rating of 8 out of 10, a total biological rating of 8 out of 10, and a combined overall rating of 9 out of 10. Native species observed in the stream include:

Fish: 'O'opu nākea, 'o'opu 'akupa, 'o'opu 'alamo'o, and 'o'opu nōpili, 'o'opu 'akupa (*Stenogobius hawaiiensis*), and Hawaiian or barred flagtail (*Kuhlia sp.*).

Crustaceans: 'Ōpae kala'ole and 'ōpae 'oeha'a.

Mollusks: Freshwater limpet (*Ferrissia sharpi*), hapawai and hīhīwai.

BACKGROUND

On September 16, 2016, Alexander & Baldwin, Inc. (A&B), filed a Stream Diversion Works Permit Application for Removal / Abandonment for 70 diversions along the A&B System in the surface water hydrologic units of Honopou, Hanehoi, Pi'ina'au, Waiokamilo, and Wailuanui. Commission staff asked A&B to refile separate applications, presenting the data (descriptions, maps, photos, sketches, etc.) by hydrologic unit (east to west), then by ditch system (mauka to makai) in order to more effectively convey the proposed work to government agency reviewers and the general public. Revised applications were received in February 2017.

In March 2017, staff met with the Department of Health's Clean Water Branch (DOH) to discuss the abandonment application. However, in part due to their unfamiliarity with the A&B System, DOH-CWB staff contended that a more rigorous environmental review process may be necessary and that some diversion structures may need to be completely removed.

In June 2018, staff met with A&B to discuss the stream diversion works abandonment process. It was decided that A&B:

1. Take certain minor maintenance actions where possible to effectuate the restoration of streamflow quickly (Category 1 diversions, 15 total) then subsequently file a revised application to formally abandon these diversions;
2. File a revised application for Category 2 diversions (15 total) which are located away from the main ditch and require minor work to abandon in-place;
3. File a revised application for Category 3 diversions (11 total) which require more extensive work to abandon in-place; and
4. File a revised application for Category 4 diversions (29 total) of which 28 have been inactive since 2007 and one cannot be located and is believed to be no longer functional.

On June 20, 2018, the Commission issued its Findings of Fact, Conclusions of Law, and Decision and Order (D&O) in contested case hearing CCH-MA13-01. The Commission classified streams in four broad categories (D&O, p. iv) that represent different priorities and management strategies. Of the four, one category is Kalo (Taro) and Community Streams and is summarized as follows:

Kalo (Taro) and Community Streams - The goal is to return free flowing water, with no upstream diversions, to all streams which have historically supported significant kalo cultivation. From the D&O, p. 262:

138. The following streams will have all diversions ceased to allow for all water to flow to the taro growing areas or for community and non-municipal domestic use: Honopou, Huelo (Puolua), Hanehoi, Pi'ina'au, Palauhulu, Waiokamilo, Wailuanui, Ohia, Waianu, Kualani, and Makapipi.
139. All diversions for these streams shall be modified so that no out of watershed transfers will occur from these streams.
140. In requiring the release of all water from these streams for the use of appurtenant rights users, the IIFS will be set at zero (0) below the taro loi complexes and the domestic use diversions. The users will determine the amount of water that will remain in the stream or that will be returned to the stream from the taro loi.

Additionally, the Commission noted on page 269 of the D&O:

- i. It is intended that diversion structures only need to be modified to the degree necessary to accomplish the amended IIFS and to allow for passage of stream biota, if needed.
- j. This Order does not require that every diversion on every tributary be removed or modified, the Commission is only looking at modifications to main stem and major diversions to accomplish the amended IIFS set forth above (*in reference to the chart of IIFS values by stream on p. 268 of D&O*). The Commission also recognizes that it is not the purpose of this proceeding to determine how the diversions will be modified. That issue will be before the Commission in a subsequent process.

- k. The intent of the Commission is to allow for the continued use and viability of the EMI (*East Maui Irrigation*) Ditch system and will not require the complete removal of diversions unless necessary to achieve the IIFS.

On July 23, 2018, in a coordinated agency effort, Commission staff conducted a site visit of Honopou and Hanehoi with staff from A&B, the Department of Land and Natural Resources' (DLNR) Office of Conservation and Coastal Lands, Land Division, Division of Forestry and Wildlife (DOFAW), and DAR. The site visit was intended to address pending issues including, but not limited to, Conservation District Use permits, streamflow connectivity to address fish passage across stream diversion structures, and activities within the State Forest Reserve.

On August 22, 2018, the Commission received a revised abandonment application for 15 Category 2 diversions; a revised abandonment application (electronic only) for 11 Category 3 diversions on October 2, 2018; and a revised abandonment application (electronic only) for 29 Category 4 diversions on October 2, 2018. Staff made additional non-substantive comments.

On February 7, 2019, the Commission received a complete permit application.

On February 19, 2019, the Commission approved to abandon in-place 15 category 2 diversions on the Honopou, Pi'ina'au (Palauhulu), and Wailuanui Streams, East Maui. Category 2 was defined by the applicant as located away from the main ditch and required minor work to abandon.

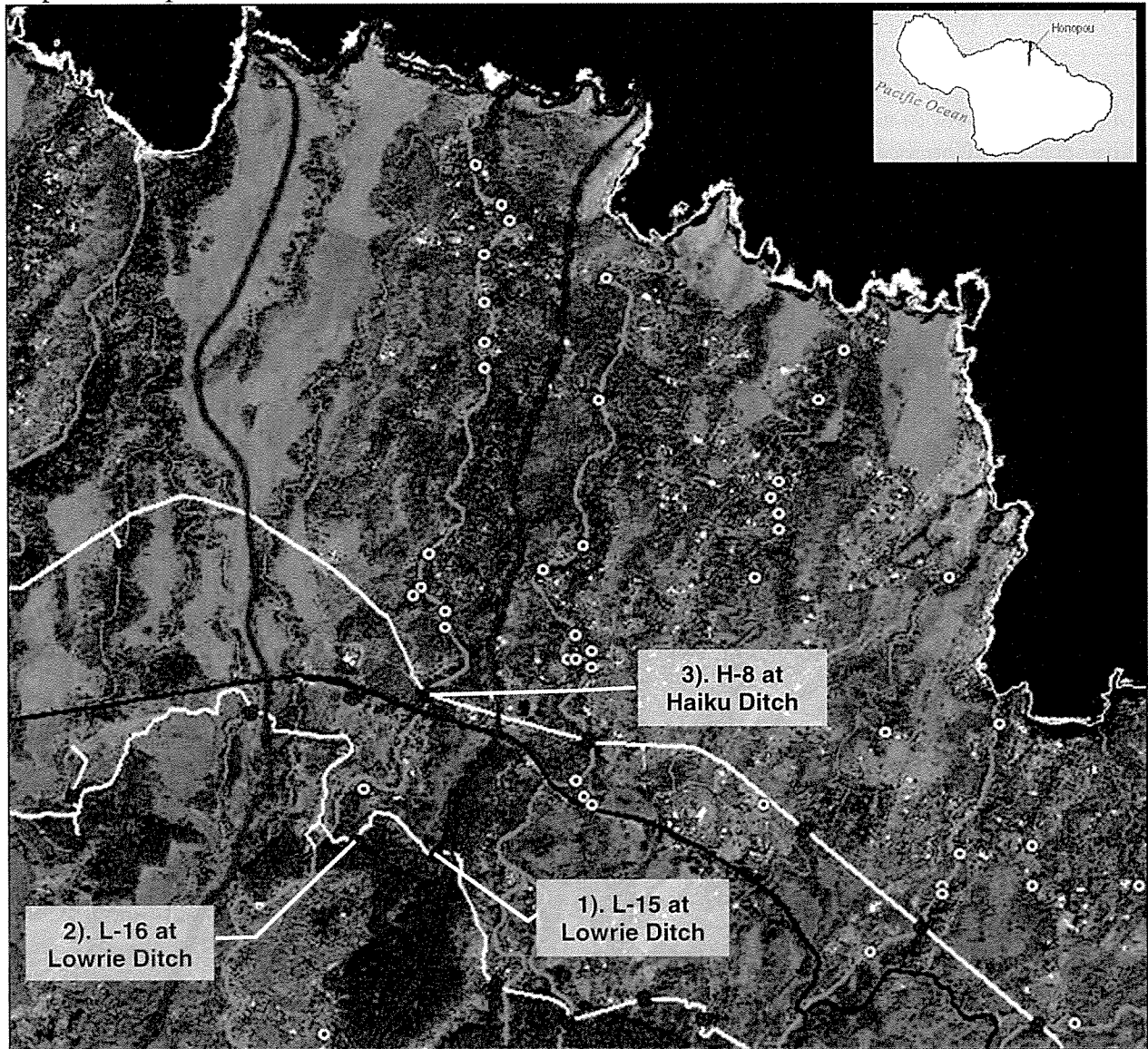
On May 22, 2019, Sean O'Keefe, Director of Environmental Affairs for Alexander & Baldwin, sent revised drawings via email of the proposed modifications for seven (7) diversions which they previously stated in their Stream Diversion Works Permit application that "the design of the 'stream overpass' for this location has not yet been finalized."

On May 23, 2019, Commission staff went on a site visit to Category 1 and 3 sites with DAR, DOFAW, County and EMI staff.

PROJECT DESCRIPTION

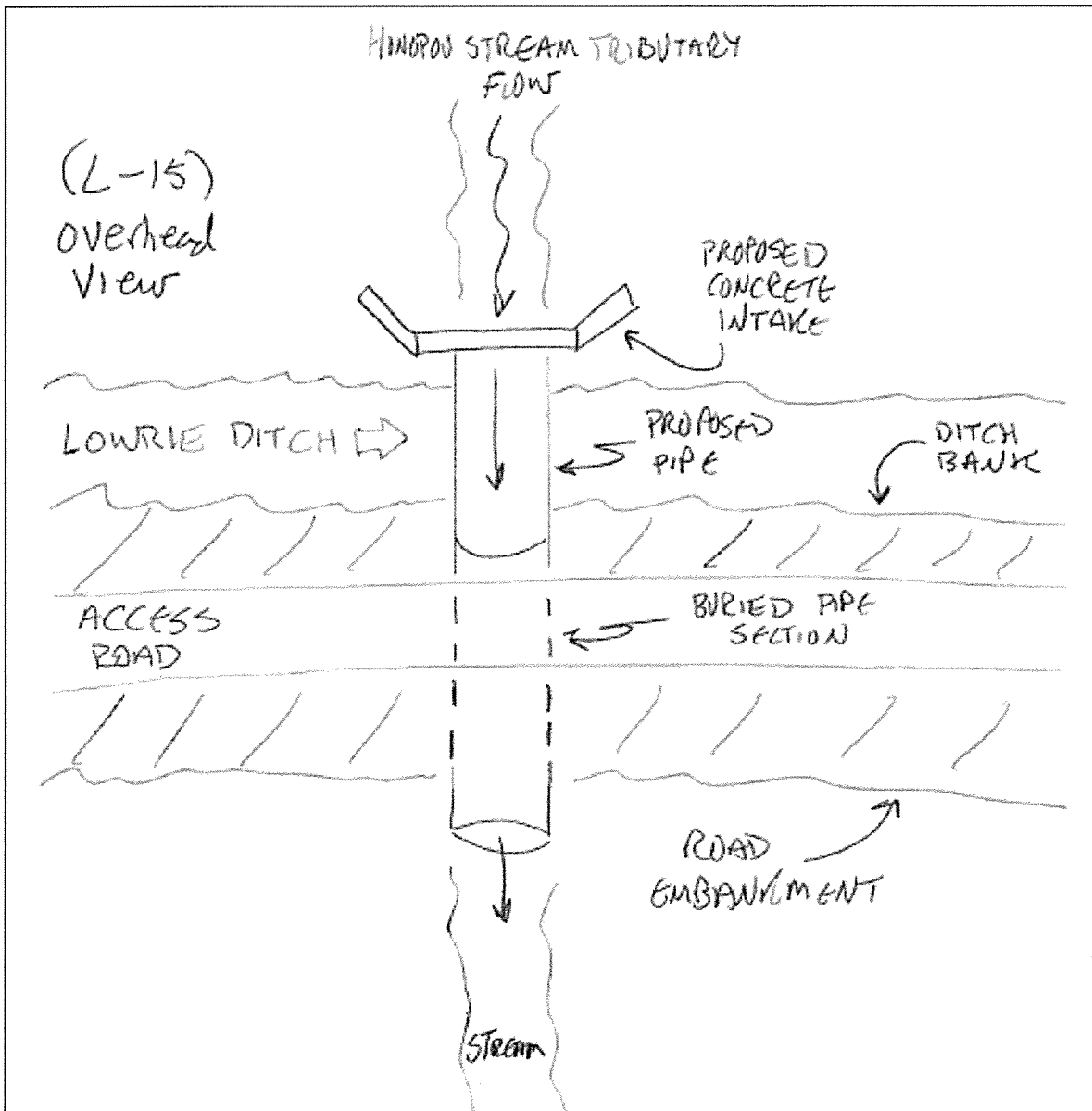
Reconnect tributaries to the main stream, fill intake grates with rock and concrete, construct wingwalls, remove a small diversion dam, and then abandon in-place the remaining infrastructure on the subject 11 Category 3 stream diversions works structures. Location maps, photos, and a summary of the proposed work for each diversion are provided below.

Map 1. Honopou Watershed Unit.



1. Honopou Long Strainer at Lowrie Ditch (L-15). On private land, not in the Forest Reserve (FR) or Special Management Area (SMA), but in the Conservation District (CD).

Figure 1. EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). East Honopou Stream at Intake L-15 flows directly into Lowrie Ditch. A concrete pipe no more than 24 inches in diameter will be installed through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. Less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.



DAR Comments (Exhibit 4): The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns.

Photo 1. Honopou Long Strainer at Lowrie Ditch (L-15).



DOFAW Comments (Exhibit 5): The applicant currently holds authorizations to employ certain structural improvements within the forest reserve to divert water for collection and use. At such time that those structures will no longer be used for that, or any other approved purpose, DOFAW requests that they be removed, to the extent practicable for the reasons given below. We believe this request is consistent with the Commission's D&O dated June 20, 2018, which noted that instream uses shall be guided by the general principles set forth in §13-169-20, Hawaii Administrative Rules (HAR), which include that, where practicable, streams should be maintained with water sufficient to preserve fish, wildlife, scenic, aesthetic, recreational, and other uses, and stream systems should be retained substantially in their natural condition. Also:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.

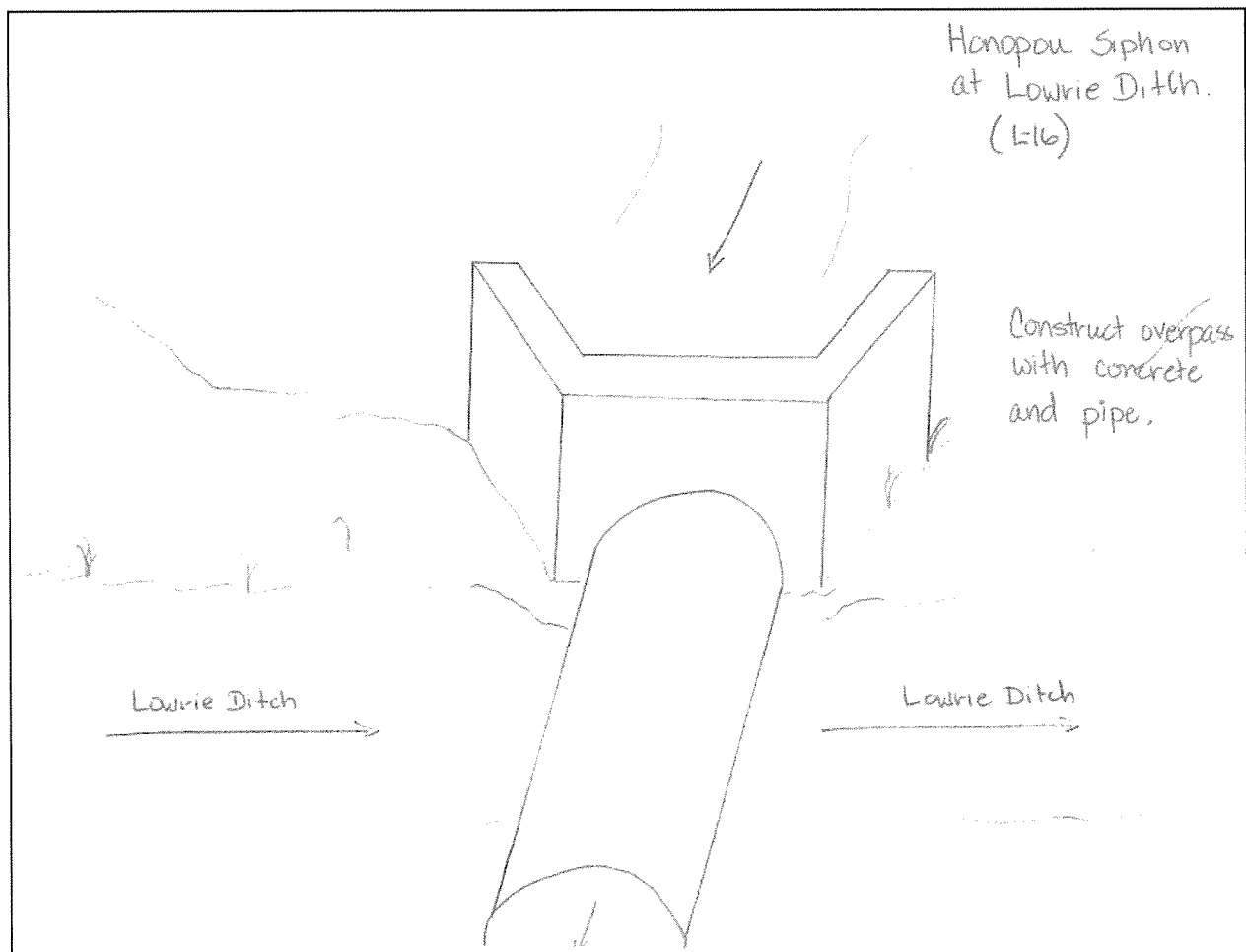
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

FWS Comments (Exhibit 9): Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch as proposed by EMI. Due to the small size of the tributary upstream of Lowrie Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the Lowrie Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

2. Honopou Siphon Intake at Lowrie Ditch (L-16). On State land, in the FR, but not in the CD or SMA.

Figure 2. EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019) The Honopou Stream tributary at Intake L-15 flows directly into Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access

road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Stream flow going into ditch. The proposal or a concrete overpass ditch appears to be better but these sketches do not reveal the true building specifications and conditions. I would like more information. The two lines without descriptions is indescribable.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

Photo 2. Honopou Siphon Intake at Lowrie Ditch (L-16).



FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or

trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. While the small size of the tributary upstream of Lowrie Ditch is not anticipated to provide sufficient habitat for stream biota, the Commission staff recommends the construction of an open concrete channel, as considered initially, with a minimum width of 24-inches (See **Photo 3** below for example).

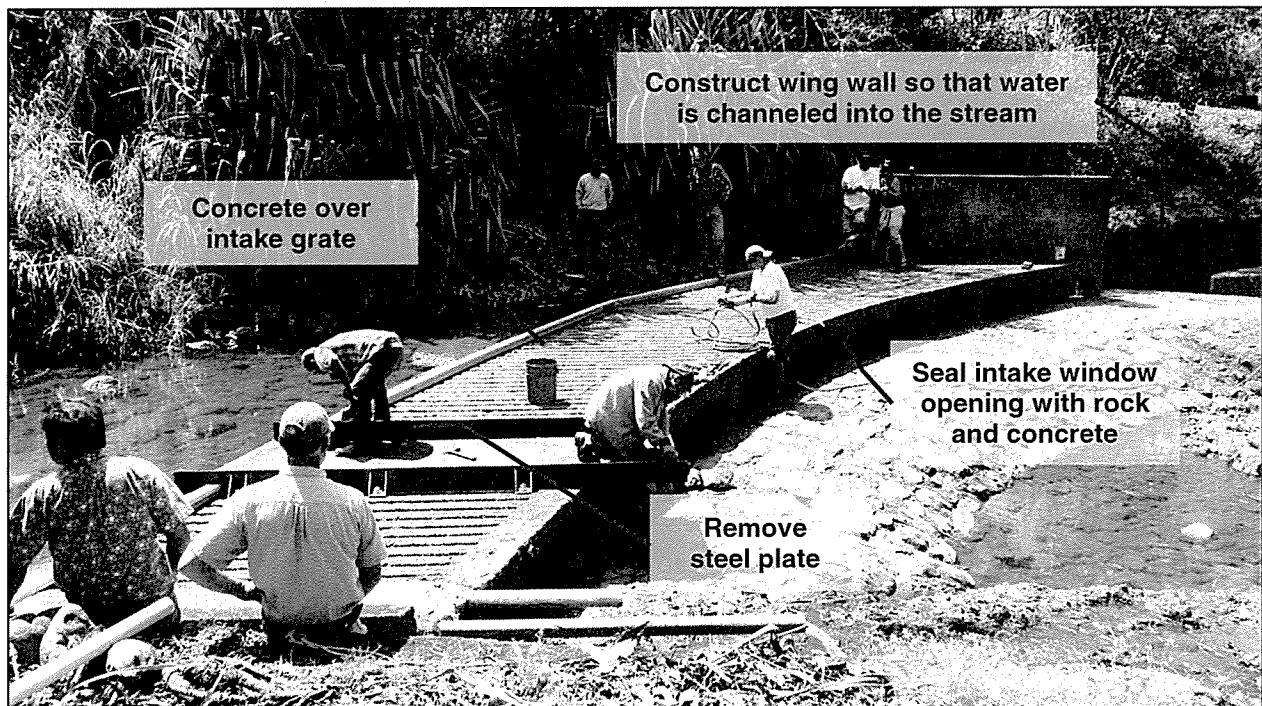
Photo 3. Typical “stream overpass” intended to prevent the ditch from intercepting a stream.



3. Honopou at Haiku Ditch (H-8). On private land, not in the FR or CD, but in the SMA.

EMI Proposed Actions: To prevent flow into the ditch, the grate in the top of the diversion must be sealed by filling the grate openings with concrete/grout. An existing plate bolted on the diversion was installed to provide a low-flow channel over the diversion will be removed. Openings below the grate on the downstream side will be filled with stream rocks and concrete. Finally, to prevent water from overflowing into the ditch during high flows, an existing wingwall on the west end of the diversion will be extended to just beyond the downstream edge of the ditch using concrete and stream rocks. The amount of fill (including concrete/grout and rocks already in the stream) is about five to ten cubic yards. (Photo 3).

Photo 4. EMI proposed actions at Honopou at Haiku Ditch (H-8).

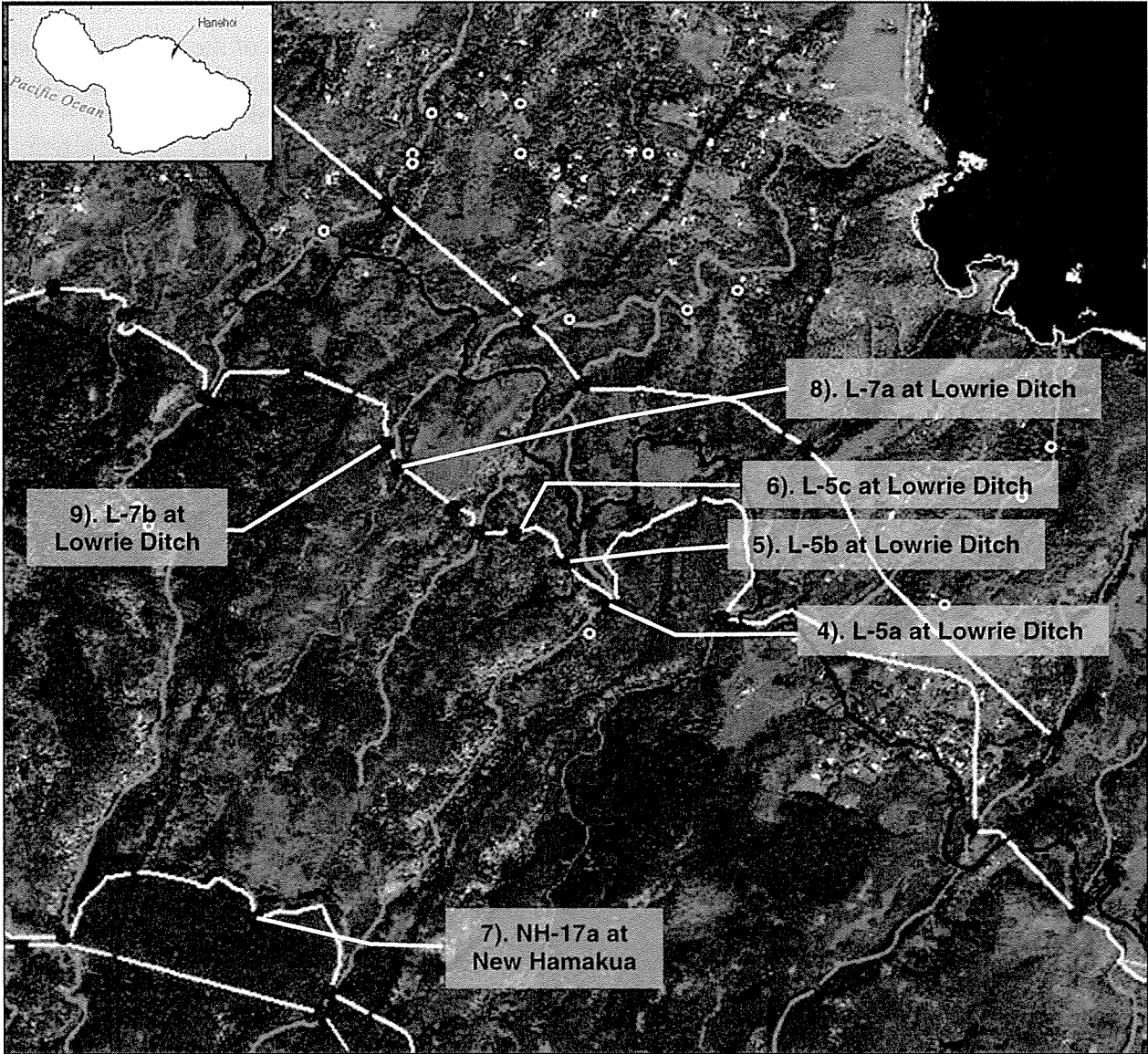


DAR Comments: Will the barrier be removed which increases the height of the water to flow over the metal section? It might be better to lower the elevation on the Hana side of the pool and allow a continuous flow over the concrete portion by the pipes. Please remove all of the pipes and lower that side of the diversion.

DOFAW Comments: In addition to measures identified in the application, please remove the steel plate that overhangs the stream as it may obstruct fish passage.

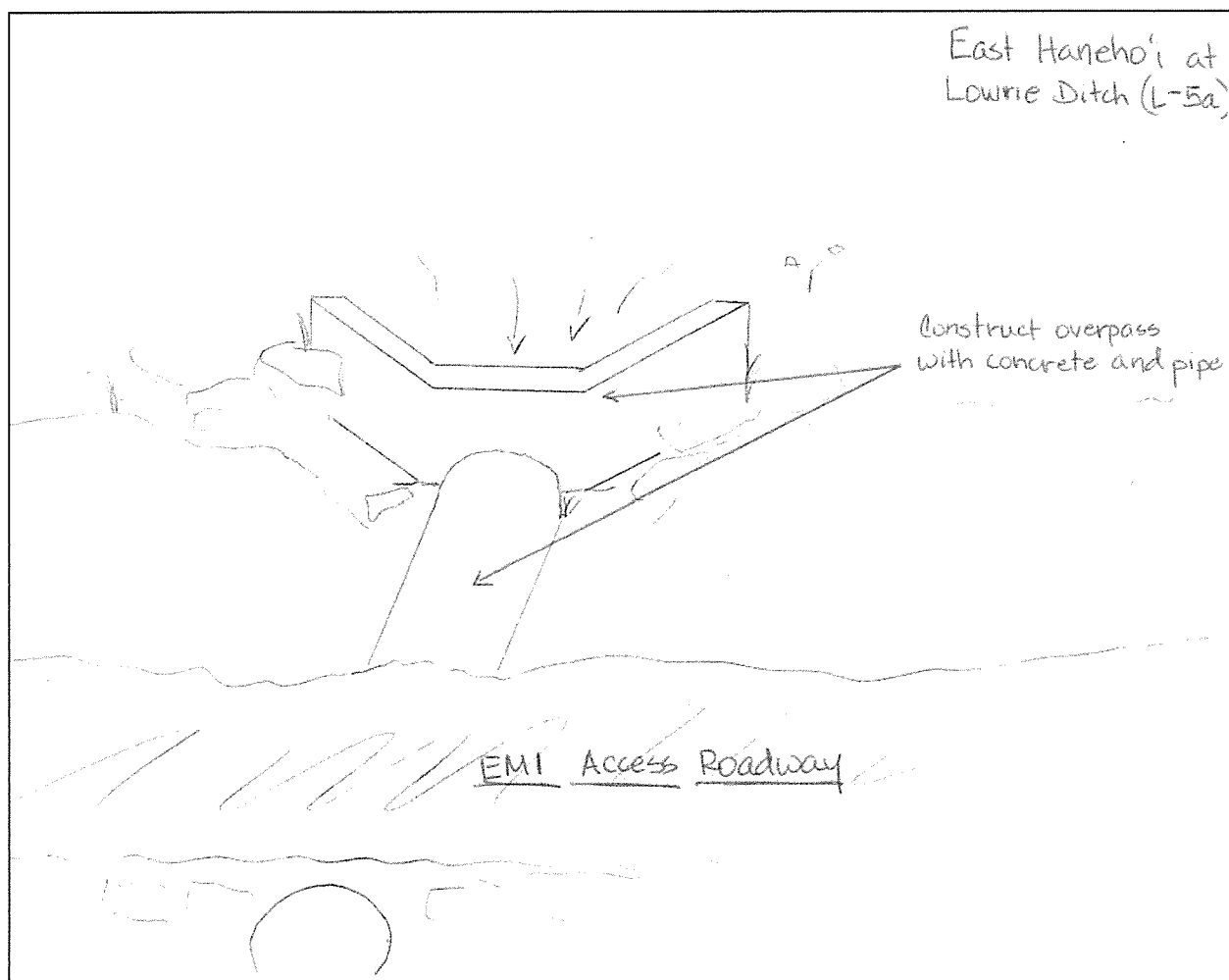
Commission Staff Recommendations: The Commission staff supports the modifications as proposed by EMI with the additional recommendations to: 1) Remove the low-flow steel plate and associated L-brackets, and concrete lip on the upstream edge of the intake grate; 2) Remove pipes on the east side of the intake grates; and 3) Construct an angled downstream face when sealing the intake window to promote fish passage across the structure.

Map 2. Hanehoi Watershed Unit.



4. East Hanehoi at Lowrie Ditch (L-5a). On private land, in the CD, but not in the FR or SMA.

Figure 4. EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). The East Hanehoi Stream tributary at Intake L-5a flows directly into Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access

road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Where is the ditch and where is the stream? There is inadequate information/specifications for the stream overpass.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Photo 5. East Hanehoi at Lowrie Ditch (L-5a).



Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch as proposed by EMI. Due to the small size of the tributary upstream of Lowrie Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the Lowrie Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

5. Hanehoi West #1 at Lowrie Ditch (L-5b). On private land, in the CD, but not in the FR or SMA.

Figure 5: EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). The Hanehoi Stream tributary at Intake L-5b flows directly into Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.

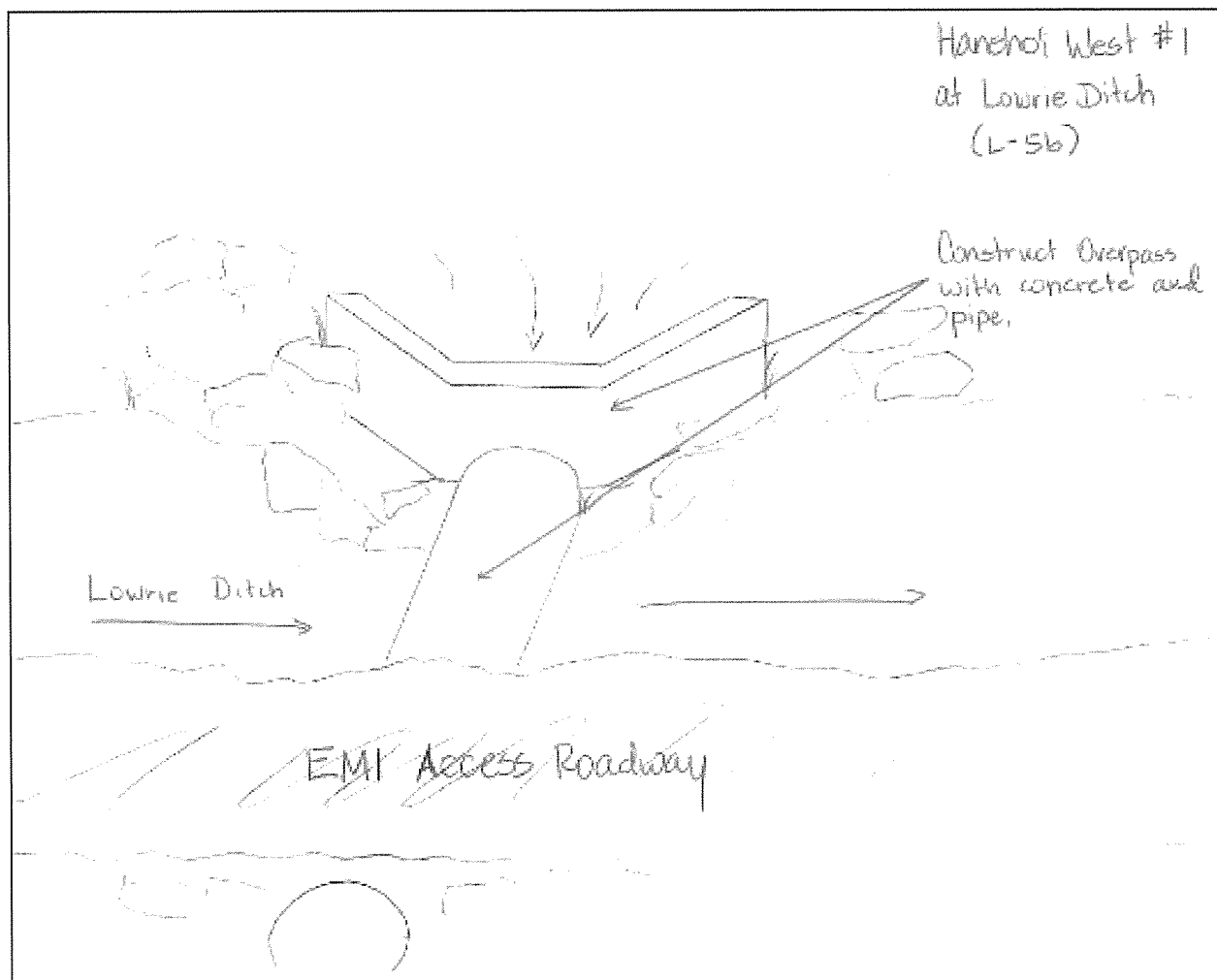


Photo 6. Hanehoi West #1 at Lowrie Ditch (L-5b).



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Could a box culvert be used to encase the ditch? It would be appropriate to allow the stream to flow naturally over the ditch. This appears to be a larger stream which likely has a higher flow during heavy storms.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.

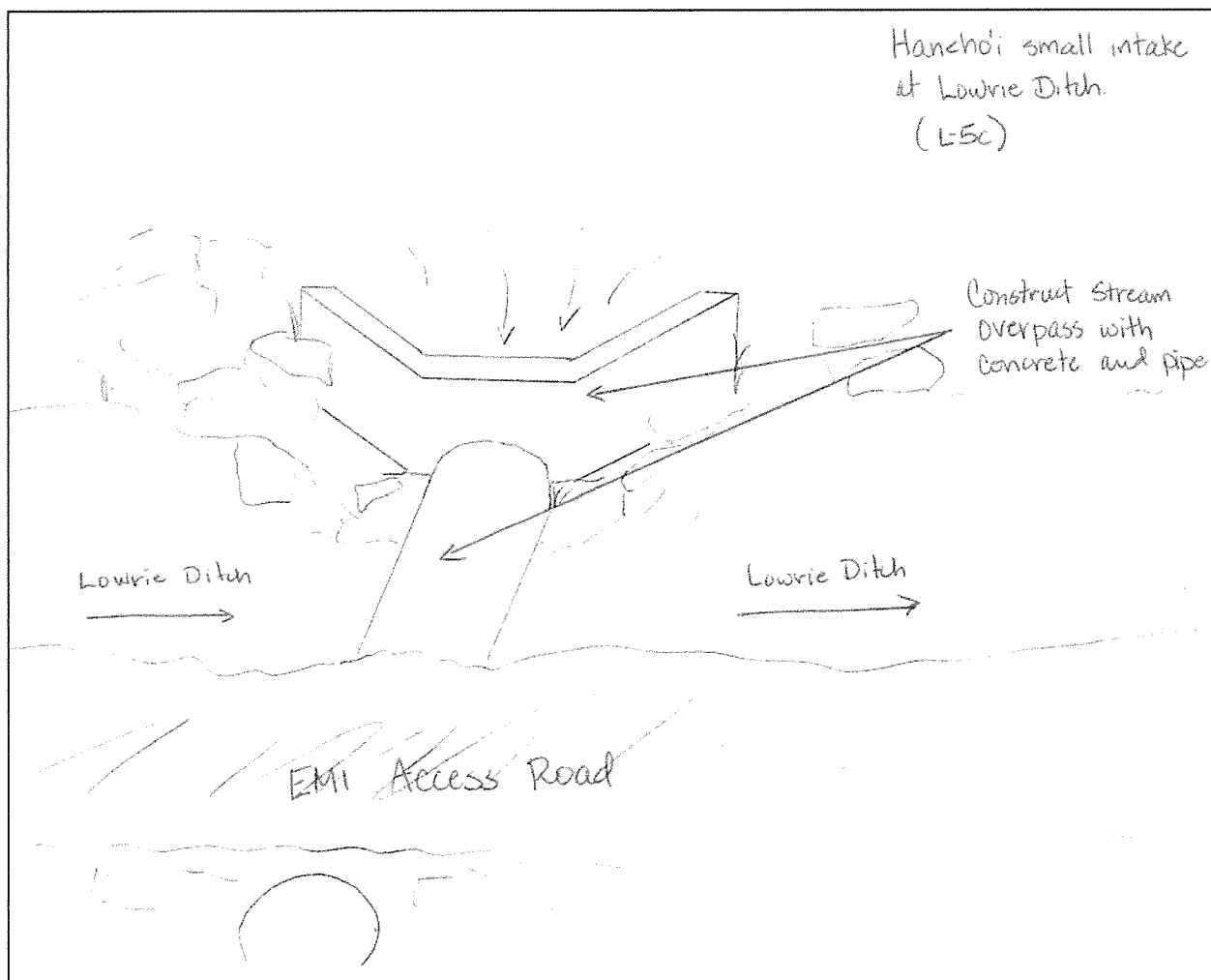
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch as proposed by EMI. Due to the small size of the tributary upstream of Lowrie Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the Lowrie Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

6. Hanehoi small intake at Lowrie Ditch (L-5c). On private land, in the CD but not in the FR or SMA.

Figure 6: EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). The Hanehoi Stream tributary at Intake L-5c flows directly into Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given

priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Need more information.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

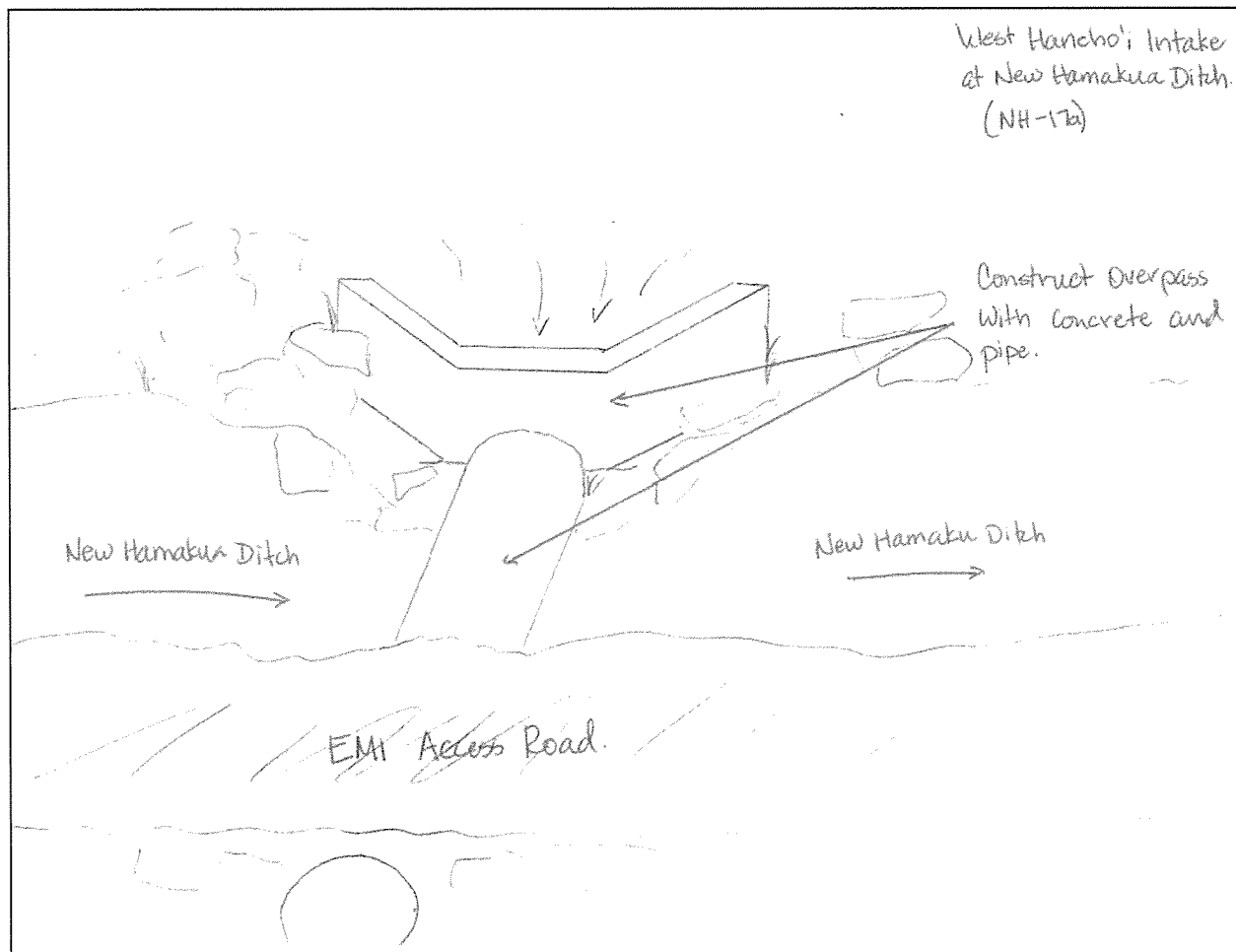
Photo 7. Hanehoi small intake at Lowrie Ditch (L-5c).



Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch as proposed by EMI. Due to the small size of the tributary upstream of Lowrie Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the Lowrie Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

7. Puolua (Huelo) at New Hamakua Ditch (NH-17a). On State land, in the CD and FR, but not in the SMA.

Figure 7: EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). The Puolua (Huelo) Stream tributary at Intake NH-17a flows directly into New Hamakua Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access

road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Need specifications.

DOFAW Comments: The methods employed to enable the stream to cross the road should ensure that erosion of the road is avoided. This may be done by installing a concrete swale or culvert of appropriate diameter under the road.

As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained

Photo 8. Puolua (Huelo) at New Hamakua Ditch (NH-17a).



FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15). The proposed action includes activities at diversion NH-17a where the Pacific Hawaiian damselfly has been found previously. We recommend our Best Management Practices for Work in Aquatic Environments to minimize degradation of water quality and impacts to fish and wildlife resources. Permits are required for accurate surveys of this species so coordinate with us to develop and implement survey protocols.

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the New Hamakua Ditch as proposed by EMI. Due to the small size of the tributary upstream of New Hamakua Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the New Hamakua Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

8. Puolua (Huelo) Roseapple at Lowrie Ditch (L-7a). On private land, not in the FR or SMA, but straddles the Conservation and Agricultural Districts.

EMI Proposed Actions: This diversion consists of an unlined channel intercepting the stream. To prevent flow from being intercepted by the ditch, two options are being considered:

Figure 8a. Under the preferred option, a concrete headwall with wingwalls will be constructed at the edge of the ditch where it intercepts the stream and a concrete pipe, approximately 24 inches in diameter, will be installed through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. This will require partial excavation of the road to lay the pipe, followed by backfilling and compaction. Any excess soil from the excavation will be applied to the surrounding road and compacted.

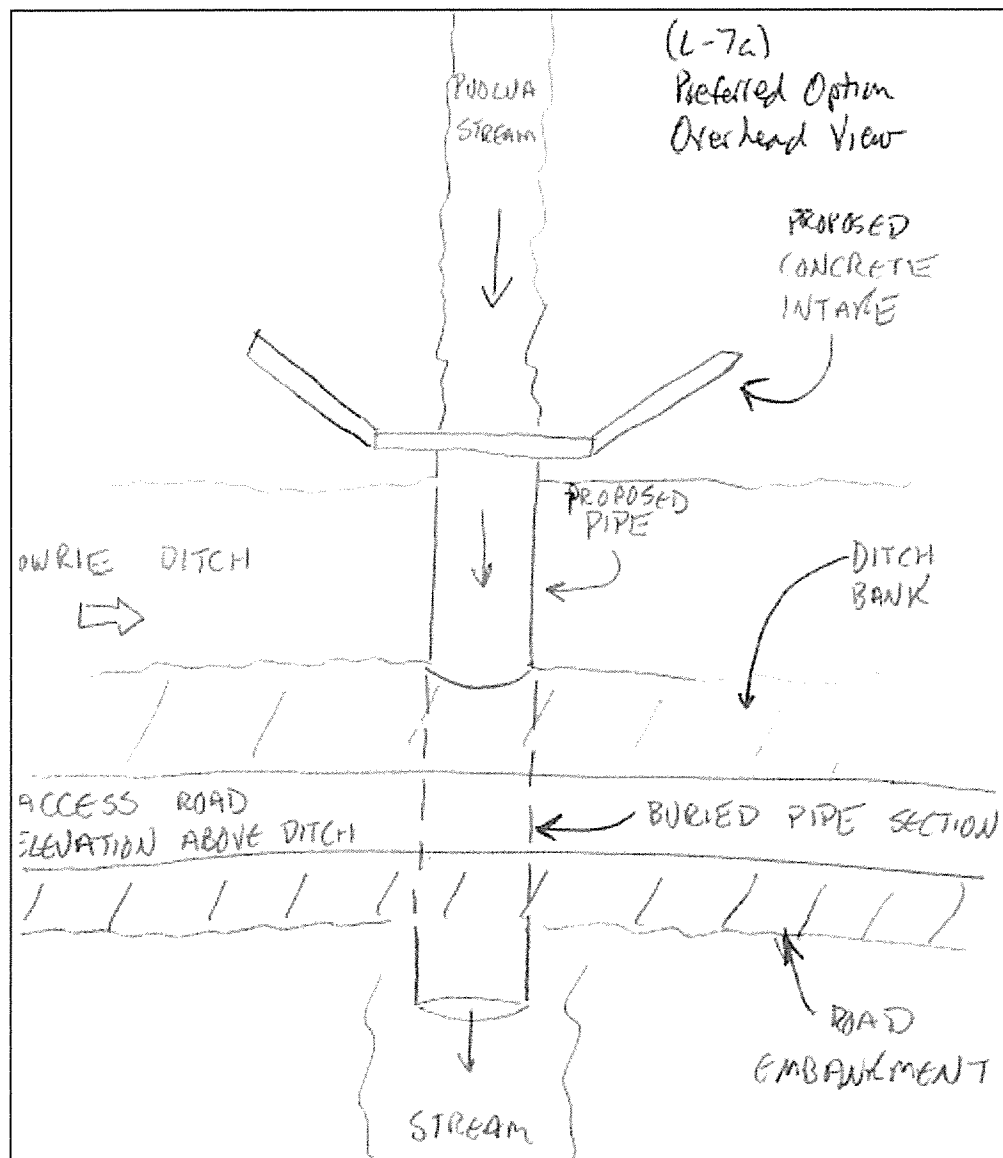
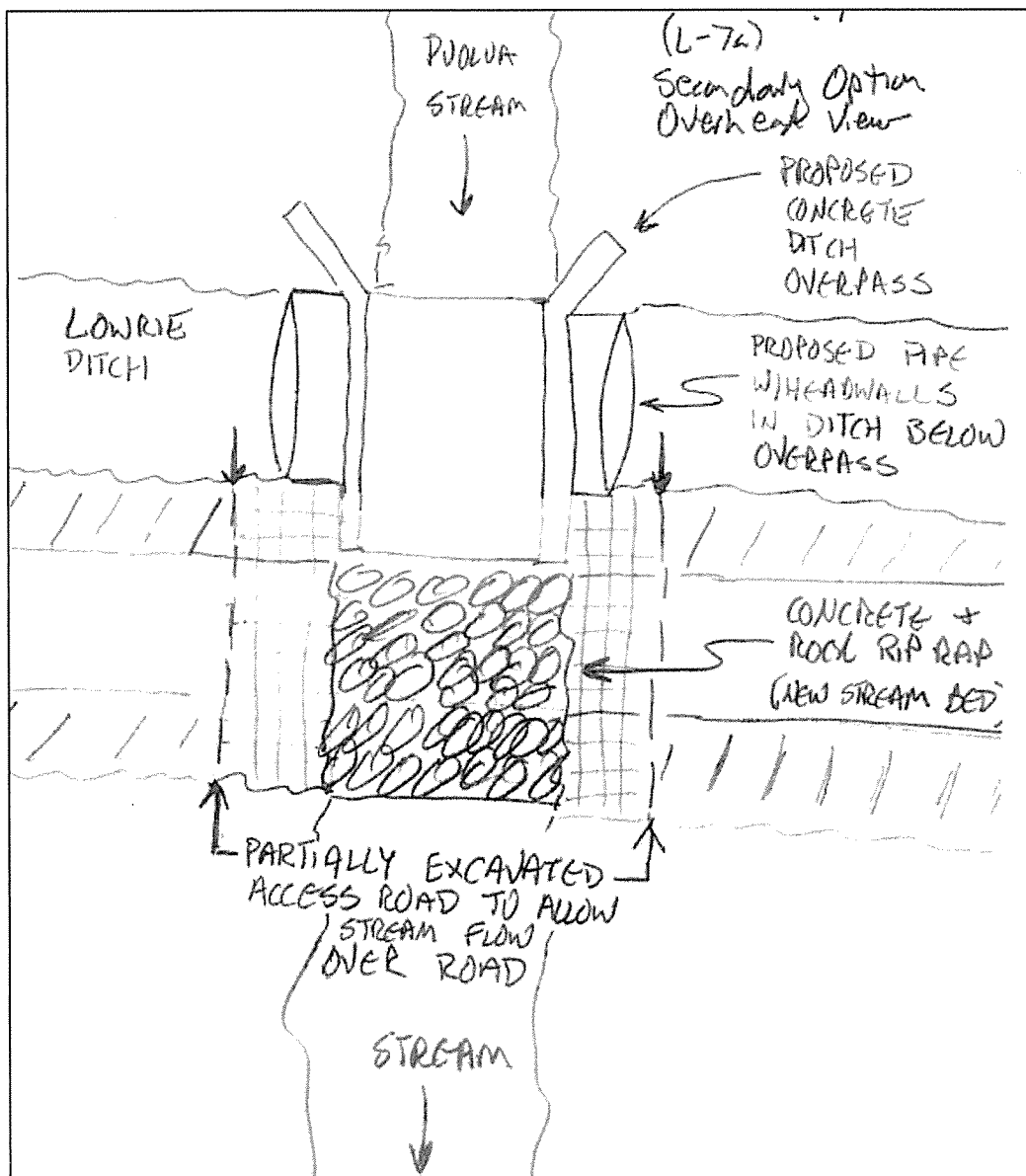


Figure 8b. Under the second alternative, a pipe and headwalls will be laid in the ditch itself where it intercepts the stream and a concrete overpass. The existing access road below (makai of) the ditch would need to be partially excavated to allow the stream to flow over the road after it passes over the ditch. Concrete riprap will be added to the road where the stream will flow over it to armor the road and prevent it from washing out. Only a portion of the overpass would be installed within the existing stream bed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is estimated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch under either option, while an less than one cubic yard of riprap (comprised of concrete and stream rocks) will be used to armor the access road in what will become part of the stream bed. This work may require a small excavator, which would operate from the stream bank. An existing 8-inch PVC pipe currently installed as a temporary bypass will be removed and disposed off-site.



DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. This appears to be wider and may have higher storm flows. It appears that a box culvert for the ditch might be easier than trying to build a stream overpass. Prefers Fig. 8b and supports natural stream bottoms.

Photo 9. Puolua (Huelo) Roseapple at Lowrie Ditch (L-7a).



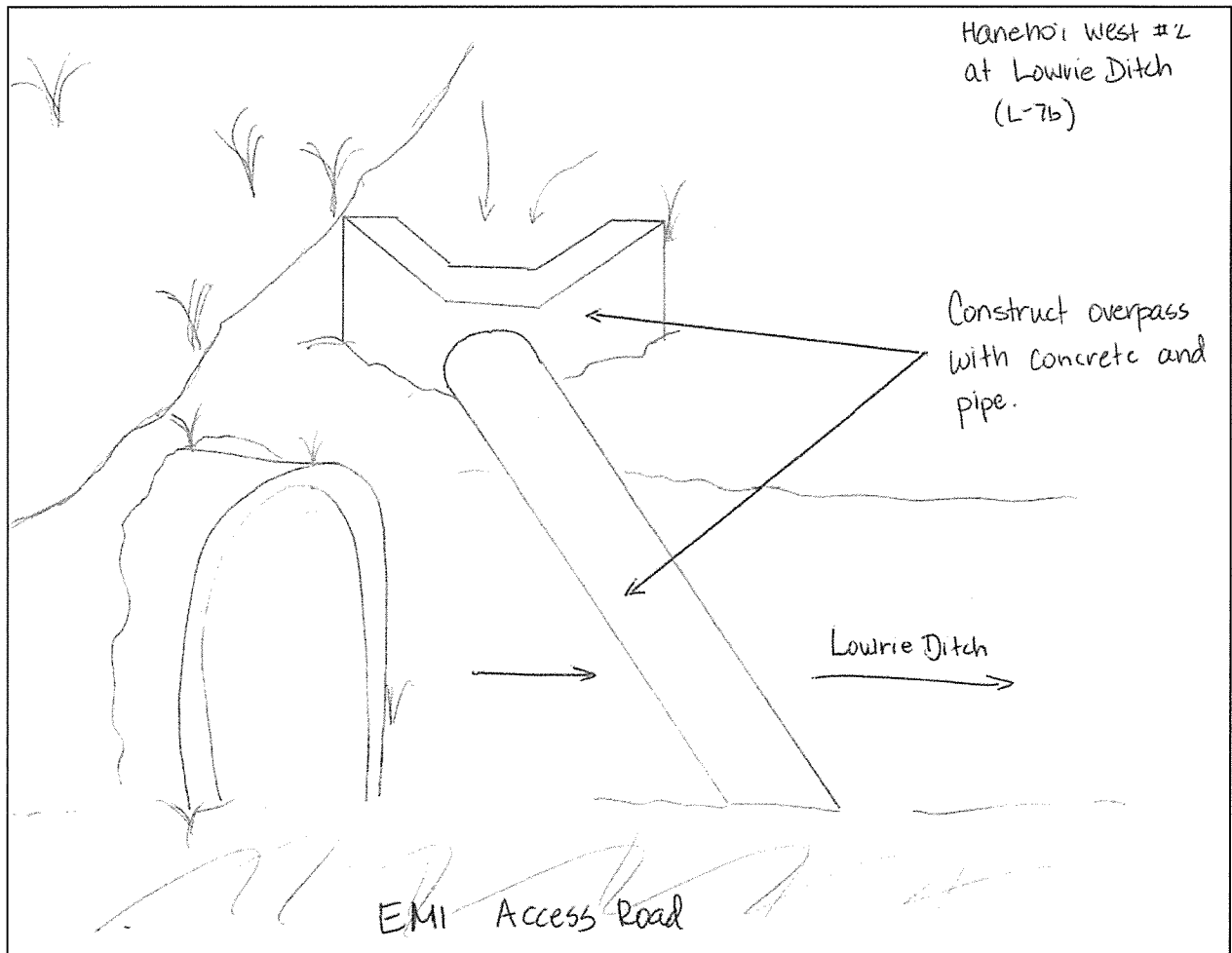
DOFAW Comments: The application proposes to construct an overpass that will allow the stream to cross the ditch. Since the access road runs parallel to the ditch at this location, the stream will also need to cross the road. A concrete swale should be constructed across the road at this location to avoid erosion of the road, which appears to be currently comprised of soil

only. A culvert should not be used at this site since this stream is a fish corridor and fish are not expected to cross through culverts.

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of the second alternative as proposed by EMI. The second alternative will require installation of a large pipe within the Lowrie Ditch, thus allowing the Puolua (Huelo) Stream to pass over unimpeded. Construction of a concrete ditch overpass and wingwalls, along with a concrete and rock/riprap ford crossing will be required to pass water over the Lowrie Ditch. It has been noted in past site visits and photos that the stream tends to meander so that conveying the water through a single pipe would likely not be effective.

9. Hanehoi West #2 at Lowrie Ditch (L-7b). On State (downstream side) and private (upstream side) land, not in the FR, CD, or SMA.

Figure 9: EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). Construct stream overpass over ditch (per email dated May 22, 2019). The Hanehoi Stream tributary at Intake L-7b flows directly into Lowrie Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. However, the current proposal is to install a concrete pipe no more than 24 inches in diameter through which the stream can pass over the ditch. The pipe will extend under an existing access road located below (makai of) the ditch, and will discharge into the stream bed downstream of the road. Only a portion of the overpass would be installed within the existing streambed on the upstream side of the ditch, while the majority of the structure will span the ditch and the access road. It is anticipated that less than one cubic yard of concrete will be needed to construct the intake on the upstream side of the ditch. This work may require the use of a small excavator, which would operate from the stream bank.

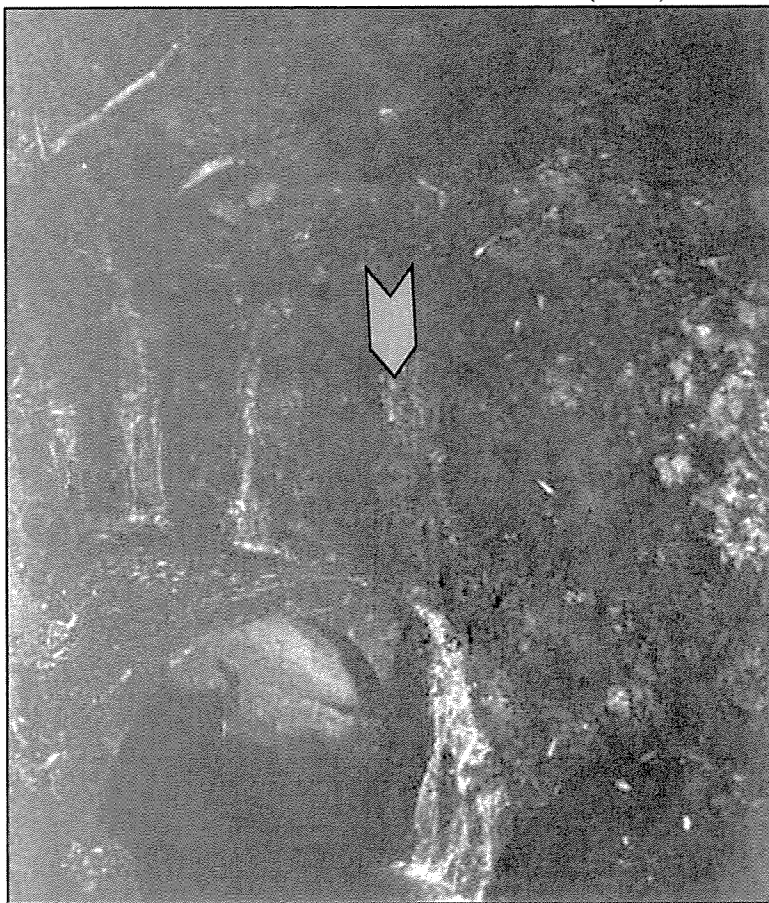


DAR Comments: The application seems to consistently use a stream overpass at various ditches without specifications or analysis of high flows. It appears that the Lowrie Ditch is being given priority over the Stream. EMI's proposed modifications maintains the Lowrie ditch and access road, not the natural stream. The typical stream overpass will allow most of the water during high flows to overflow into the ditch and only maintains a minimal flow from mauka to makai. The pipe transporting water downstream pours into the lower stream. If water is allowed to flow out of the pipe, migrating 'ōpae or 'o'opu cannot jump into the pipe. The proposed concrete pipe will not help upstream migration of native animals. DAR also has maintenance and inspection concerns. Not enough information.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

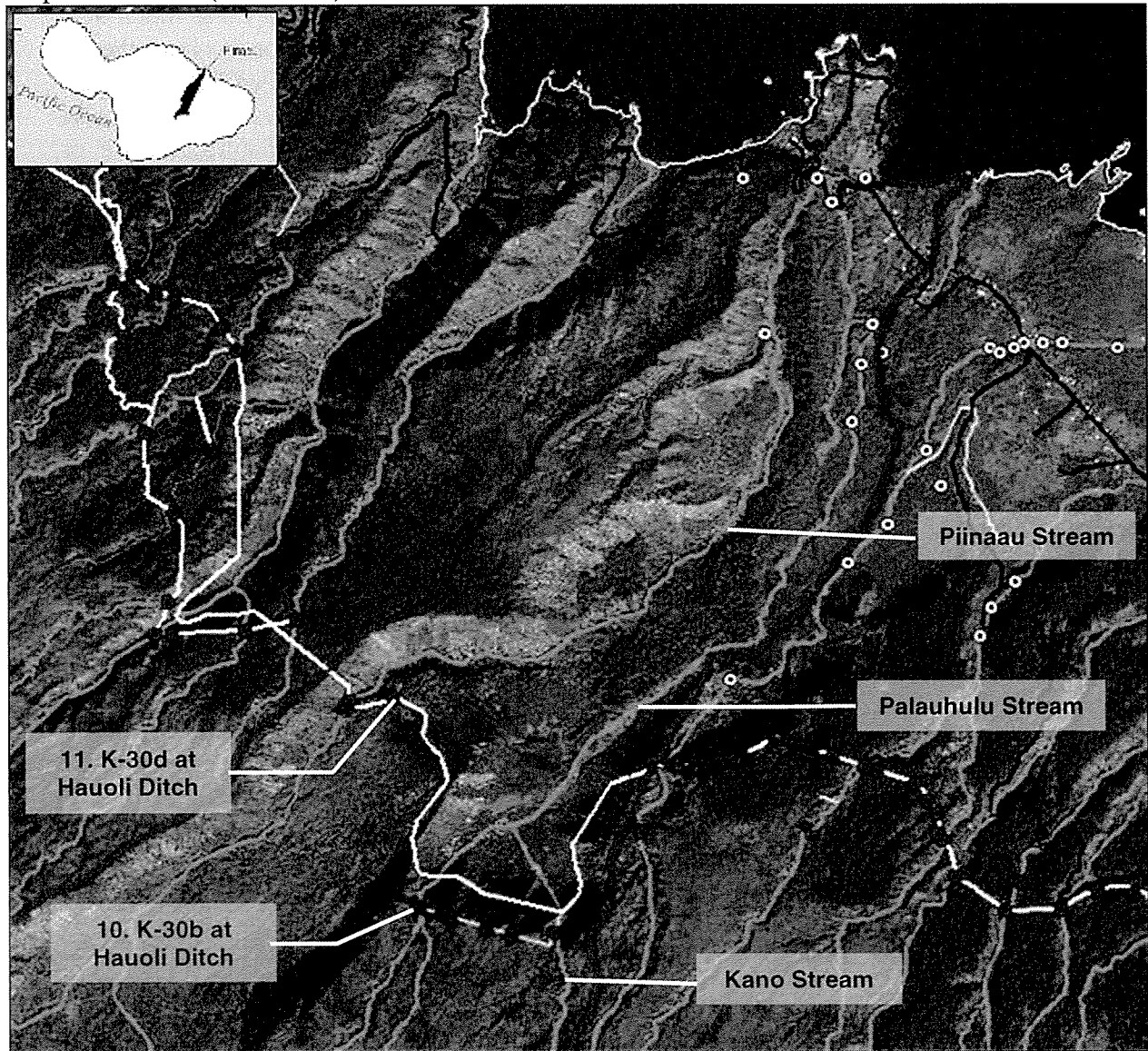
Photo 10. Hanehoi West #2 at Lowrie Ditch (L-7b).



FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a stream overpass over the Lowrie Ditch as proposed by EMI. Due to the small size of the tributary upstream of Lowrie Ditch, it is anticipated that the tributary will not provide sufficient habitat for stream biota. Additionally, EMI intends to bury the pipe under the existing road makai and adjacent to the Lowrie Ditch in order to maintain use of the road. Use of an open channel bypass, as alluded to by DAR and DOFAW, would require cementing the road to create a ford crossing and could result in downstream erosion of the road over time. The Commission staff does recommend that the pipe size should be no smaller than 24-inches to prevent clogging and potential maintenance issues.

Map 3. Pi'ina'au (Palauhulu) Watershed Unit.



Yellow line is a tunnel.

10. Hauolowahine Small Intake at Hauolo Ditch (K-30b). On State land, in the FR and CD, but not in the SMA.

EMI Proposed Actions: A concrete and stone dam/ditch routes a tributary into the Hauoli Ditch (Photo 11). The diversion dam will be removed from the stream and deposited in an upland area.

Photo 11. Tributary flows through concrete lined ditch (EMI, 1989) (K-30b).



DAR Comments: Needs more information regarding where the stream naturally flows.

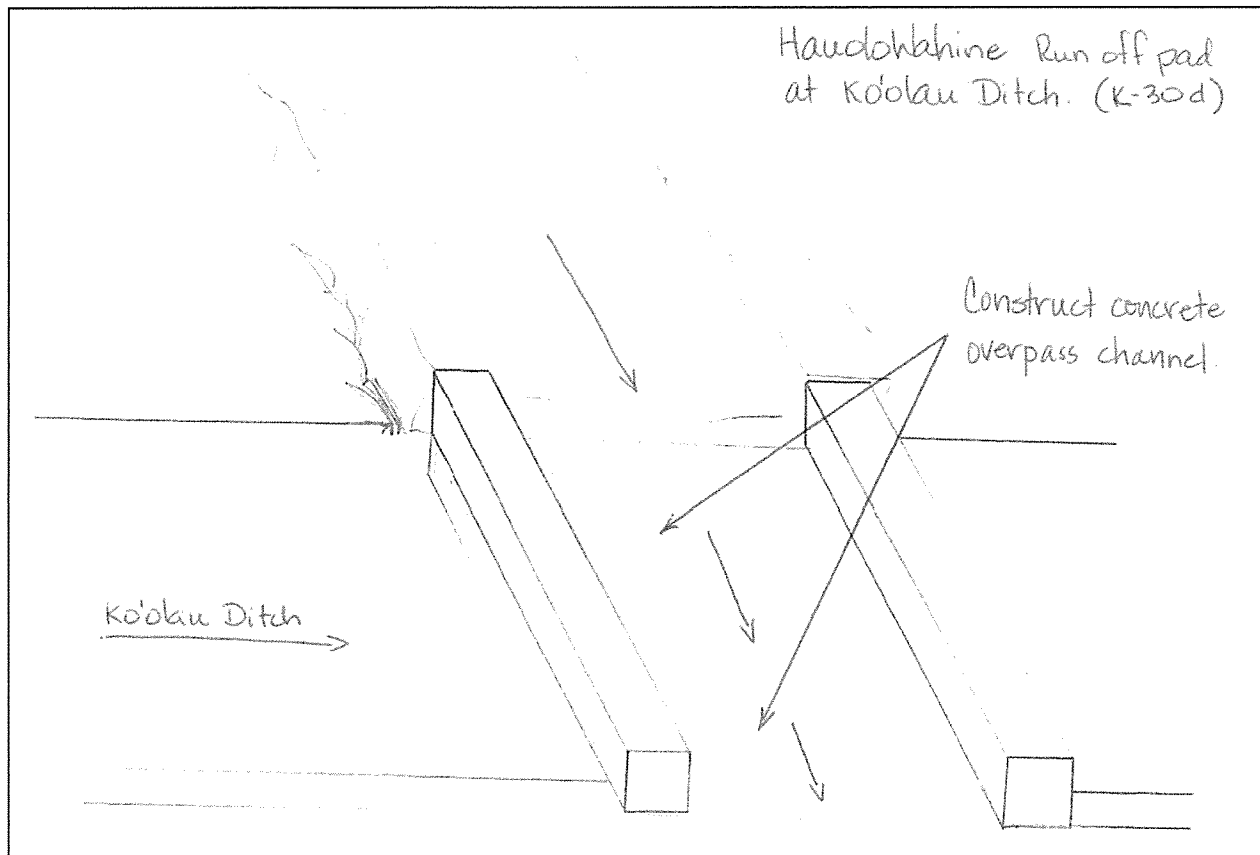
DOFAW Comments: No specific comments.

FWS Comments: Designated critical habitat for 17 listed plants and two listed birds is located within a half-mile upslope of the proposed project areas along Palauhulu Stream. See Exhibit 9 regarding additional recommendations on other native species and invasive species.

Commission Staff Recommendations: Remove stone and concrete dam.

11. Hauolowahine Runoff Pad at Koolau Ditch (K-30d). On State land, in the FR and CD, but not in the SMA.

Figure 11: EMI Proposed Actions: Construct stream overpass over ditch (per email dated May 22, 2019). The tributary at Intake K-30d flows directly into Koolau Ditch. EMI, in its submitted SDWP application, had not finalized plans for a stream overpass and was considering an open concrete structure. The current proposal is to construct a concrete overpass channel over the Koolau Ditch.



DAR Comments: Not enough information regarding site.

DOFAW Comments: As noted previously, with general concerns:

1. Walls, structures, or channels that alter the natural course of the stream can restrict flow. Stagnant waters become breeding sites for mosquitoes and are vectors for introduced diseases and are a major threat to native forest birds.
2. The use of pipes or other structures obstruct fish passage.
3. Stream alteration can result in high levels of erosion and adversely affect water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, may become derelict if not maintained.

FWS Comments: Native gobies move up stream corridors for reproduction. However, they will not pass through dark spaces (pipes). We recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow. Two listed animal species have the potential to either be in or fly through the vicinity of the project area - the Pacific Hawaiian damselfly (*Megalagrion pacificum*) and the Hawaiian hoary bat (*Lasiurus cinereus semotus*). Both are threatened by predation and habitat loss. We recommend not to disturb, remove, or trim woody plants greater than 15 feet tall during the birthing and pup-rearing season (June 1 – Sept 15).

Photo 12. Hauolowahine runoff pad at Koolau Ditch (K-30d).



Commission Staff Recommendations: The Commission staff, in order to more quickly effectuate the conveyance of water downstream, supports the construction of a concrete stream overpass over the Koolau Ditch as proposed by EMI.

AGENCY REVIEW COMMENTS

County of Maui, Planning Department: Pursuant to Maui County Code 19.62.100 - Development adjacent to drainage facilities, the Planning Director is unable to recommend issuance of any permit involving modification of a drainage facility that may adversely impact downstream properties. The Planning Department recommends the Commission request a drainage study or hydrologic analysis of the proposed actions, including an analysis of the anticipated effect on downstream properties, in order to ensure that there will be no adverse impacts. Further, notifying the identified downstream properties of the upstream work. Should the scope of work approved by Special Management Area (SMA) minor permit SM5 2017/0224 change substantially through deliberations by the Commission a new SMA assessment will be needed to evaluate the changes. Per the approved SM5 2017/0024: “The proposed scope of work consists solely of abandoning stream diversion facilities at Haiku Ditch “Pancho” intake at East Hanehoi Stream (East Maui Irrigation (EMI) Diversion Number H-3) by sealing the intake grates with rocks and concrete and removing the sluice gate from the diversion; and Haiku Ditch “School” intake at West Hanehoi Stream (also known as Huelo Stream or Puolua Stream, EMI Diversion Number H-4) by sealing the ditch intake opening with rocks and concrete and removing the sluice gate from the diversion; and Haiku Ditch intake at Honopou stream EMI Diversion Number H-8), by sealing intake grates with rocks and concrete, seal [sic] openings below the grate on the downstream side with rocks and concrete and extending an existing wingwall on the west end of the diversion to just beyond the downstream edge.” See **Exhibit 7**.

Department of Hawaiian Home Land (DHHL): Did not comment.

Department of Land and Natural Resources (DLNR), Aquatic Resources: See **Exhibit 4**.

DLNR, Engineering: No comments, not subject to our regulatory authority and permit.

DLNR, Forestry and Wildlife: See **Exhibit 5**.

DLNR, State Historic Preservation Division (SHPD): Did not comment.

Staff: The Applicant stated that some diversions covered by this application are considered historic structures because they are more than 50 years old, but none are listed on either the State or National Register of Historic Places. While no formal consultation with SHPD has been initiated for the subject project, the Applicant consulted with SHPD for similar projects in the past. Based on mitigation suggested for similar past projects, we anticipate SHPD recommendations for mitigation, if any, will be limited to scaled photographs of each diversion.

DLNR, Land Division: Use of government land triggers HRS 343. See **Exhibit 6**.

DLNR, State Parks: No objections, not subject to our regulatory authority.

Dept. of Health (DOH), Clean Water Branch: See **Exhibit 3**.

Staff: The lead agency for the protection of water quality is the Department of Health, Clean Water Branch, which administers the Federal Clean Water Act (33 U.S.C. §1251 et seq.) and the State Water Pollution Act (HRS Ch. 342D; HAR Ch. 11-54 Water Quality Standards; and HAR Ch. 11-55 Water Pollution Control). HAR §11-54-1 through §11-54-8 defines Best Management Practices and water quality criteria applicable to inland and nearshore waters and are based on the Federal Clean Water Act. HAR Ch. 11-55 Appendix C defines discharges of storm water associated with construction activity. HRS 174C-66 states that the DOH oversees the State's water quality control program.

Office of Hawaiian Affairs: Did not comment.

US Army Corps of Engineers: Did not comment.

US Fish and Wildlife Service: See **Exhibit 8**.

CHAPTER 343, HAWAII REVISED STATUTES (HRS) ENVIRONMENTAL ASSESSMENT

The action triggers an Environmental Assessment (EA) pursuant to HRS, Chapter 343 because 7 of the 11 subject diversions are located in the Conservation District and 5 are located on State land. DLNR's Office of Conservation and Coastal Land's (OCCL) Site Plan Approval letter dated October 19, 2018, exempted the subject proposed stream overpasses from requiring an EA pursuant to HAR §11-200-8 and DLNR Exemption Class 8 (2) "*demolition and removal of existing structures, facilities, utilities, and other improvements on state lands, except those structures located on any historic site as designated in the National Register or Hawaii Register as provided for in the National Historic Preservation Act of 1966*".

TRADITIONAL AND CUSTOMARY PRACTICES

The subject action is not anticipated to have any impact upon traditional and customary practices in the watershed area. Should any impacts be identified in the future, the Commission may decide to re-evaluate the IIFS. The Commission's analysis under *Ka Pa'akai O Ka'aina*, are as follows:

The Commission, as part of contested case hearing CCH-MA13-01, reviewed documentation and heard testimony from many area residents regarding traditional and customary native Hawaiian practices on the subject East Maui streams. Implementation of these proposed stream diversion works abandonment actions are in support of those practices.

- 1) *The identity and scope of valued cultural, historical, or natural resources in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area.*

The Applicant cited the 275-page County of Maui Planning Department, Kalo Kanu O Ka 'Āina: A Cultural Landscape Study of Ke'anae and Wailuanui, Island of Maui, July 1995; and Kumu Pono Associates, Wai O Ke Ola: He Wahi Mo'olelo No Maui Hikina, A

Collection of Native Traditions and Historical Accounts of the Lands of Hāmākua Poko, Hāmākua Loa and Ko'olau, Maui Hikina (East Maui), Island of Maui, 2001.

- 2) *The extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action.*

The Applicant stated that the proposed action will have a positive impact on stream resources due to the total restoration of flows in the affected streams. This in turn will have a positive effect on traditional and customary rights, including but not limited to kalo cultivation in areas downstream of the diversions.

- 3) *The feasible action, if any, to be taken by the Commission on Water Resource Management to reasonably protect native Hawaiian rights if they are found to exist.*

The Applicant stated that the Commission's expedited approval will advance the projects' work schedule to restore streamflow to the expected benefit of native Hawaiian rights.

STAFF REVIEW

Criteria for Ruling on a Stream Diversion Works Permit Application (HAR §13-168-32(d)):

1. The quantity and quality of the stream water or the stream ecology shall not be adversely affected.

Staff: The proposed actions are intended to restore streamflow to more natural conditions.

2. Where instream flow standards or interim instream flow standards have been established pursuant to HAR Chapter 13-169, no permit should be granted for any diversion works which diminishes the quantity or quality of stream water below the minimum established to support identified instream uses, as expressed in the standards.

Staff: The IIFS for Honopou, Hanehoi (Puolua), Pi'ina'au (Palauhulu) Streams were established in the Commission's Decision and Order (p. 269) under CCH-MA13-01.

3. The proposed diversion works shall not interfere substantially and materially with existing instream or non-instream uses or with diversion works previously permitted.

Staff: The proposed actions are intended to restore streamflow to more natural conditions.

RECOMMENDATION

1. Approve the Stream Diversion Works Permit (SDWP.4950.6) Application to reconnect tributaries, construct overpass structures and wingwalls, fill intake grates with rock and concrete, remove a small diversion dam, then abandon in-place the remaining infrastructure

on the subject 11 (Category 3) diversions on the Honopou, Hanehoi (Puolua), Pi'ina'au (Palauhulu) Streams, East Maui, subject to the standard conditions in **Exhibit 1** and special conditions below.

Honopou:

1. Honopou Long Strainer at Lowrie Ditch (L-15): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.
2. Honopou Siphon at Lowrie Ditch (L-16):. Construct a stream overpass over the Lowrie Ditch as recommended by Commission staff, consisting of wing walls and an open concrete channel no less than 24-inches in width. The majority of the structure will span the ditch and access road. A ford crossing or other open structure should be constructed on the access road to prevent erosion and should be presented to Commission staff for review and approval prior to construction.
3. Honopou at Haiku Ditch (H-8): Seal diversion at Haiku Ditch as proposed by EMI ,with the additional recommendations by Commission staff to: 1) Remove the low-flow steel plate and associated L-brackets, and concrete lip on the upstream edge of the intake grate; 2) Remove pipes on the east side of the intake grates; and 3) Construct an angled downstream face when sealing the intake window to promote fish passage across the structure.

Hanehoi (Puolua):

4. East Hanehoi at Lowrie Ditch (L-5a): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.
5. Hanehoi West #1 at Lowrie Ditch (L-5b): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.
6. Hanehoi Small Intake at Lowrie Ditch (L-5c): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.
7. Puolua (Huelo) at New Hāmākua Ditch (NH-17a): Construct a stream overpass over the New Hamakua Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.

8. Puolua (Huelo) Roseapple at Lowrie Ditch (L-7a): Install a large pipe in the Lowrie Ditch with headwalls as proposed under EMI's second alternative. Construction of a concrete ditch overpass and wingwalls, along with a concrete and rock/riprap ford crossing will be required to pass water over the Lowrie Ditch.
9. Hanehoi West #2 at Lowrie Ditch (L-7b): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.

Pi'ina'au (Palauhulu):

10. Hauolowahine Small Intake at Hauolo Ditch (K-30b): Remove stone and concrete dam as proposed by EMI.
 11. Hauolowahine Runoff Pad at Koolau Ditch (K-30d): Construct a stream overpass over the Lowrie Ditch as proposed by EMI, consisting of wing walls and a concrete pipe no less than 24-inches in diameter. The majority of the structure will span the ditch and access road, with a portion of the pipe buried under the access road. Work may require the use of a small excavator operating from the stream bank.
2. The Applicant should consult with the County of Maui Planning Department in order to address any issues raised in their letter dated August 7, 2019. The Commission believes that the work proposed under the Stream Diversion Works Permit application is a restoration of natural streamflow conditions that: 1) can be accommodated in natural and existing stream channels further downstream of EMI system; and 2) is generally supported by the Hanehoi and Huelo community as evidenced by testimony in the Commission's contested case hearing CCH-MA13-01.
 3. The Applicant shall follow the U.S. Fish and Wildlife Services' Best Management Practices for Work in Aquatic Environments to minimize degradation of water quality and impacts to fish and wildlife resources and survey protocols.
 4. The Applicant shall coordinate with Commission staff throughout the construction process, including submission of final plans and photos upon completion of the work. Any non-natural materials shall be removed from the project area and disposed of properly.

Ola i ka wai,



M. KALEO MANUEL
Deputy Director

Exhibits:

1. Standard Stream Channel Alteration Permit and Stream Diversion Works Permit Conditions
2. Legal Authorities

3. DOH standard comments
4. DLNR, Division of Aquatic Resources letter dated March 20, 2019
5. DLNR, Division of Forestry and Wildlife letter dated June 28, 2019
6. DLNR, Land Division memo dated March 29, 2019
7. County of Maui, Planning Department letter dated August 7, 2019
8. U. S. Fish and Wildlife Service letter dated March 27, 2019
9. Sierra Club, Hawai'i Chapter letter dated August 9, 2019

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE
Chairperson

STANDARD STREAM CHANNEL ALTERATION PERMIT AND
STREAM DIVERSION WORKS PERMIT CONDITIONS
(Revised May 15, 2018)

1. The permit application and staff submittal approved by the Commission at its meeting on the above date shall be incorporated herein by reference.
2. The project may require other agency approvals regarding wetlands, water quality, grading, stockpiling, endangered species, and floodways. The permittee shall comply with all other applicable statutes, ordinances, and regulations of the Federal, State and county governments, including, but not limited to, instream flow standards.
3. The permittee, his successors, assigns, officers, employees, contractors, agents, and representatives, shall indemnify, defend, and hold the State of Hawaii harmless from and against any claim or demand for loss, liability, or damage including claims for property damage, personal injury, or death arising out of any act or omission of the permittee or his successors, assigns, officers, employees, contractors, and agents under this permit or related to the granting of this permit.
4. The permittee shall notify the Commission, by letter, of the actual dates of project initiation and completion. The permittee shall submit a set of as-built plans and photos in pdf format of the completed work to the Commission upon completion of this project. This permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The proposed work under this stream channel alteration permit shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.
5. Before proceeding with any work authorized by the Commission, the permittee shall submit one set of construction plans and specifications in PDF format to determine consistency with the conditions of the permit and the declarations set forth in the permit application.
6. The permittee shall implement site-specific, construction Best Management Practices in consultation with the DOH Clean Water Branch and other agencies as applicable, that are designed, implemented, operated, and maintained by the permittee and its contractor to properly isolate and confine activities and to contain and prevent any potential pollutant(s) discharges from adversely impacting State waters per HRS Ch. 342D Water Pollution; HAR §11-54-1 through §11-54-8 Water Quality Standards; and HAR Ch. 11-55 Water Pollution Control, Appendix C.
7. The permittee shall protect and preserve the natural character of the stream bank and stream bed to the greatest extent possible. The permittee shall plant or cover lands denuded of vegetation as quickly as possible to prevent erosion and use native plant species common to riparian environments to improve the habitat quality of the stream environment.
8. In the event that subsurface cultural remains such as artifacts, burials or deposits of shells or charcoal are encountered during excavation work, the permittee shall stop work in the area of the find and contact the Department's Historic Preservation Division immediately. Work may commence only after written concurrence by the State Historic Preservation Division.

LEGAL AUTHORITIES

Water as a Public Trust. The four public trust purposes are:

1. Maintenance of waters in their natural state;
2. Domestic water use of the general public, particularly drinking water;
3. The exercise of Native Hawaiian and traditional and customary rights, including appurtenant rights. *Waiahole*, 94 Hawaii 97; 9 P.3d 409 (2000).
4. Reservations of water for use on Hawaiian home lands. *Waiola O Molokai, Inc.*, 103 Hawaii 401; 83 P.3d 664 (2004).

HRS §174C-71 Protection of instream uses. The Commission shall establish and administer a statewide instream use protection program. In carrying out this part, the Commission shall cooperate with the United States government or any of its agencies, other state agencies, and the county governments and any of their agencies. In the performance of its duties the Commission shall:

- (2) Establish interim instream flow standards;
 - (D) In considering a petition to adopt an interim instream flow standard, the Commission shall weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses;
- (3) Protect stream channels from alteration whenever practicable to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses;
 - (A) The Commission shall require persons to obtain a permit from the Commission prior to undertaking a stream channel alteration; provided that routine streambed and drainageway maintenance activities and maintenance of existing facilities are exempt from obtaining a permit;
 - (C) The Commission shall establish guidelines for processing and considering applications for stream channel alterations consistent with section 174C-93;

HRS §174C-92 Registration of existing stream diversion works. Any person owning or operating a stream diversion works within or outside of a water management area shall register such work with the Commission. Registration shall be on the forms provided by the Commission. Reporting requirements on the registration forms shall be reasonable.

HRS §174C-93 Permits for construction or alteration. No person shall construct or alter a stream diversion works, other than in the course of normal maintenance, without first obtaining a permit from the Commission.

HAR §13-168-2 Definitions.

“Instream flow standard” means a quantity or flow of water or depth of water which is required to be present at a specific location in a stream system at certain specified times of the year to protect aquatic life, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses.

“Instream use” means beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. Instream uses include, but are not limited to:

- (1) Maintenance of aquatic life and wildlife habitats;
- (2) Outdoor recreational activities;
- (3) Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;
- (4) Aesthetic values such as waterfalls and scenic waterways;
- (5) Navigation;
- (6) Instream hydropower generation;
- (7) Maintenance of water quality;
- (8) The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
- (9) The protection of traditional and customary Hawaiian rights.

“Stream diversion” means the act of diverting, pumping or otherwise removing water from a stream into a channel, ditch, pipeline, or other conduit.

“Stream diversion works” means any artificial structure, excavation, pipeline, or other conduit constructed singly or in combination, for the purpose of diverting or otherwise removing water from a stream into a channel, ditch, tunnel, pipeline, etc.

HAR §13-168-31 Registration of existing stream diversion works. Within one year from the effective date of these rules, the owner or operator of any stream diversion works in any area of the state shall register such facility with the Commission. Registration shall be on the forms provided by the Commission and shall include information such as location, dimensions, elevations, divertible capacity, construction plans, method of measuring flows, and all other facts or information reasonably required.

HAR §13-168-35 Abandoned stream diversion works. (a) The owner of any stream diversion works wishing to abandon or remove such works shall first obtain a stream diversion permit issued or caused to be issued by the Commission. No abandonment work shall be undertaken by the applicant until such a permit is issued by the Commission.

(b) Each application for a stream diversion permit to perform abandonment work shall be made on forms furnished by the Commission, shall not require a fee, and shall include:

- (1) The name and address of the applicant;
- (2) The location and description of the proposed stream diversion work abandonment;
- (3) An assessment of the impact the abandonment will have on the stream environment;
- (4) Relevant maps, plans, and drawings; and
- (5) Other information as may be necessary for the Commission to determine the merits of the proposed stream channel alteration, including any hazards to public health, safety, or welfare, and the desirability of issuing a permit.

Dept. of Health (DOH), Clean Water Branch:

1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Antidegradation policy (HAR, §11-54-1.1) requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
 - b. Designated uses (HAR, §11-54-3) as determined by the classification of the receiving State waters.
 - c. Water quality criteria (HAR, §11-54-4 through §11-54-8).
2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for point source water pollutant discharges into State surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged. For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee (\$1,000 for an individual NPDES permit or \$500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website at: <https://eha-cloud.doh.hawaii.gov/epermit/>. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form. Some of the activities requiring NPDES permit coverage include, but, are not limited to:
 - a. Discharges of Storm Water
 - i. For Construction Activities Disturbing One (1) or More Acres of Total Land Area. By HAR Chapter 11-55, an NPDES permit is required before the start of the construction activities that result in the disturbance of one (1) or more acres of total land area, including clearing, grading, and excavation. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale.
 - ii. For Industrial Activities for facilities with primary Standard Industrial Classification (SIC) Codes regulated in the Code of Federal Regulations (CFR) at 40 CFR 122.26(b)(14)(i) through (ix) and (xi). If a facility has more than one SIC code, the activity that generates the greatest revenue is the primary SIC code. If revenue information is unavailable, use the SIC code for the activity with the most employees. If employee information is also unavailable, use the SIC code for the activity with the greatest production.
 - iii. From a small Municipal Separate Storm Sewer System (along with certain non-storm water discharges).
 - b. Discharges to State surface waters from construction activity hydrotesting or dewatering
 - c. Discharges to State surface waters from cooling water applications

- d. Discharges to State surface waters from the application of pesticides (including insecticides, herbicides, fungicides, rodenticides, and various other substances to control pest) to State waters
 - e. Well-Drilling Activities
Any discharge to State surface waters of treated process wastewater effluent associated with well drilling activities is regulated by HAR Chapter 11-55. Discharges of treated process wastewater effluent (including well drilling slurries, lubricating fluids wastewater, and well purge wastewater) to State surface waters requires NPDES permit coverage. NPDES permit coverage is not required for well pump testing. For well pump testing, the discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices (BMPs) shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of the storm drain prior to discharge. Furthermore, BMPs shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.
3. A Section 401 Water Quality Certification (WQC) is required if your project/activity:
- a. Requires a federal permit, license, certificate, approval, registration, or statutory exemption; and
 - b. May result in a discharge into State waters. The term "discharge" is defined in Clean Water Act, Subsections 502(16), 502(12), and 502(6).
Examples of "discharge" include, but are not limited to, allowing the following pollutants to enter State waters from the surface or in-water: solid waste, rock/sand/dirt, heat, sewage, construction debris, any underwater work, chemicals, fugitive dust/spray paint, agricultural wastes, biological materials, industrial wastes, concrete/sealant/epoxy, and washing/cleaning effluent. Determine if your project/activity requires a federal permit, license, certificate, approval, registration, or statutory exemption by contacting the appropriate federal agencies (e.g. Department of the Army (DA), U.S. Army Corps of Engineers (COE), Pacific Ocean Division Honolulu District Office (POH) Tel: (808) 835-4303; U.S. Environmental Protection Agency, Region 9 Tel: (415) 947-8021; Federal Energy Regulatory Commission Tel: (866) 208-3372; U.S. Coast Guard Office of Bridge Programs Tel: (202) 372-1511). If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch regarding their permitting requirements. To request a Section 401 WQC, you must complete and submit the Section 401 WQC application. This application is available on the e-Permitting Portal website located at: <https://eha-cloud.doh.hawaii.gov/epermit/>. Please see HAR, Chapter 11-54 for the State's Water Quality Standards and for more information on the Section 401 WQC. HAR, Chapter 11-54 is available on the CWB website at: <http://health.hawaii.gov/cwb/>.
4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality

requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation and up to two (2) years in jail.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:
 - a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.
 - b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.
 - c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.
 - d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.
 - e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

DAVID Y. IGE
GOVERNOR OF HAWAII



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RESOURCE MANAGEMENT

SUZANNE D. CASE
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2019 MAR 20 PM 3:52

BRUCE S. ANDERSON, PH.D.
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KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
NEIL HANNAHS
PAUL J. MEYER

M. KALEO MANUEL
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 821
HONOLULU, HAWAII 96809

March 4, 2019

RECEIVED

SDWP.4950.6

MAR 06 2019

Division of Aquatic Resources
DAR 5879

TO: Aha Moku Advisory Council
Aquatic Resources
Engineering Division
Forestry and Wildlife
Historic Preservation
Land Division
State Parks

FROM: M. Kaleo Manuel, Deputy Director *[Signature]*
Commission on Water Resource Management

SUBJECT: East Maui Irrigation Company Application for a Stream Diversion Works Permit for Abandonment (SDWP.4950.6), Category 3 Diversions, Honopou, Hanehoi (Puolua), and Pi'ina'au (Palauhulu) Streams, East Maui, Hawai'i, Tax Map Keys: (2) 1-1-002:002; 2-9-003:042; 2-9-004:038 and 039; 2-9-006:028 and 033; 2-9-009:019; 2-9-014:001; 2-9-014:009

We would appreciate your review and comment on the subject permit application within **30 days** from the date of this memo. The project proposes to abandon 11 diversions on the subject streams. The application is available for review at <http://dlnr.hawaii.gov/cwrm/surfacewater/review/>. If you have any questions, contact Rebecca Alakai at 587-0266, or rebecca.r.alakai@hawaii.gov.

Response:

- We have no objections
- Not subject to our regulatory authority and permit
- Comments attached
- Additional information requested
- Extended review period requested

Contact Person: *[Signature]* Date: 3/20/19
Brian Nelson DAR Administrator

FILE ID: SDWP 4950.6
DOC ID: 21380

DAVID Y. IGE
GOVERNOR OF
HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: March 7, 2019
DAR # 5879

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

DEAN D. UYENO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

MEMORANDUM

TO: Brian J. Neilson
Acting DAR Administrator

FROM: Skippy Hau, Aquatic Biologist

SUBJECT: East Maui Irrigation Company Application for a Stream Diversion Works Permit for Abandonment (SDWP.4950/6). Category-3 Diversions, Honopou, Hanehoi (Puolua), an Piina'au (Palauhulu) Stream,

Request Submitted by: M. Kaleo Manuel, Deputy Director

Location of Project: East Maui, Hawai'i, TMK (2)1-1-002:002; 2-9-003:042; 2-9-004:038 and 0'

Brief Description of Project:

Selected diversions on Honopou, Hanehoi, and Piinaau Streams will be sealed by bolting plates over intake grate or openings will be sealed with concrete. The application seems to consistently use a stream overpass of various ditches without specifications. The stream will be allowed to flow over the irrigation ditch. If too small, overflow water will enter the ditch system. In several locations, a secondary option proposes to replace a section of the irrigation ditch with concrete pipe or box culvert and restoration of a natural stream over the irrigation ditch.

Comments:

No Comments Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved:

Brian J. Neilson
Acting DAR Administrator

Date:

3/20/19

DAR# 5879

Comments

As described previously, the removal of sluice gates is fully supported. However, there is no proposed removal of stone walls and dams which were built over time, to funnel water towards the intakes. If the gratings are sealed with metal or concrete, will diversions be inspected in the future to insure water is continuously flowing downstream?

We still recommend concrete dam and wall removal and the restoration of natural stream habitat. Will pipes (metal and plastic) and other objects that help transport water to diversions and ditches be removed?

Shouldn't diversion structures on State land be totally removed?

Prior to phase IV proposed improvements to use box culverts to protect irrigation ditches, we strongly support the restoration of each stream to flow naturally over the box culverts. There were several streams which continue to flow directly into irrigation ditches. For example, during our Honopou and Kolea stream surveys, we found the smaller stream directly flowing into the irrigation ditch. Only during flooding will water flow over the ditch and go downstream.

Will these diversion structures be evaluated for high stream flows?

SDWP_4950_6

(P.29) Honopou long strainer at Lowrie Ditch L-15. It appears the Lowrie Ditch is being given priority over the stream. The 24-inch concrete pipe replaces a plastic pipe currently transporting water downstream. The stream should flow naturally and not be piped over the proposed box culvert/ditch.

Site Photographs - Honopou Stream Diversions

Photo 2. The typical stream overpass will allow most of the water during high flows to overflow into the ditch. Instead of maintaining the natural stream, it will maintain flow in the irrigation ditch. It will continue to maintain a minimal flow from mauka to makai.

(P.30) Photo 3. Honopou siphon at Lowrie Ditch (L-16). Stream flow going into ditch.

DAR# 5879

Comments

Photo 4. Honopou at Haiku Ditch (H-8). Will the barrier be removed which increases the height of the water to flow over the metal section? It might be better to lower the elevation on the Hana side of the pool and allow a continuous flow over the concrete portion by the pipes. Please remove all of the pipes and lower that side of the diversion.

(P.33) Figure 2. This structure does not restore the natural stream but maintains the Lowrie Ditch and the access road. This "concrete intake" is similar to the concrete walls and dams that should be removed where "sluice gates were removed." If this structure is approved, the flow from the pipe must flow on the ground and not above the stream. The pipes transporting water downstream pours into the lower stream (see attached photo). If water is allowed to flow out of the pipe, migrating opae or 'o'opu cannot jump through the pipe.

(P.34) Figure 3. The proposed concrete pipe will not help upstream migration of native animals. These modifications maintain the integrity of the existing irrigation ditch system. The pipe appears to flow under the access road. Will water flow into a natural stream bottom?

(P.35) Figure 4. The proposal for a concrete overpass ditch appears to be better but these sketches do not reveal the true building specifications and conditions. I would like more information. The two lines without descriptions is indescribable.

(P.36) Figure 5. This also appears to be an incomplete sketch with not enough details. We also lack scale or the amount of water that is flowing in the stream. I strongly recommend that a weir similar to the one in (Pi'ina'au) Palauhulu weir (see photo) which is used to transport water to the Keanae peninsula is strongly recommended. The water is allowed to flow continuously and stream animals can successfully migrate upstream. Allowing water to flow by the stonewall (Hana side) would seem to be optimal.

DAR# 5879

Comments

(P.44) Photo 5. Where is the ditch and where is the stream?

Photo 6. Appears to be the same photo identified as typical stream overpass. The size of the overpass should be appropriately sized for the amount of stream flow.

(P.45) Photo 7. Hanehoi West #1 at Lowrie Ditch. Could a box culvert be used to encase the ditch? It would be appropriate to allow the stream to flow naturally over the ditch. This appears to be a larger stream which likely has a higher flow during heavy storms.

Photo 8. Hanehoi small intake. Is the photo of Hanehoi stream above the irrigation ditch?

(P.46) Photo 9. Puoloa (Huelo) at New Hamakua Ditch. This appears to be a smaller trickle that could be transported by a stream overpass. There appears to be less stream habitat and smaller flow.

Photo 10. Puoloa (Huelo) at Lowrie Ditch. This appears to be wider and may have higher storm flows. Could a box culvert over the ditch be considered?

(P.47) Photo 11. Hanehoi West #2 at Lowrie Ditch. This is upstream. What does the ditch look like?

(P.49) Figure 6. East Hanehoi at Lowrie Ditch(L-5a). There is inadequate information/specifications for the stream overpass.

(P.50) Figure 7. Hanehoi West #1 at Lowrie Ditch. Need a description of ditch (L-5b).

(P.51) Figure 8. Hanehoi small intake at Lowrie Ditch. Need more information description (L-5c).

(P.52) Figure 9. Puolua (Huelo) at New Hamakua Ditch.(NH-17a). Need specifications.

DAR# 5879

Comments

(P.53) Figure 10. Puolua (Huelo) at Lowrie Ditch (Hanehoi Roseapple) (L-7a). It appears that a box culvert for the ditch might be easier than trying to build an overpass for stream.

(P.54) Figure 11. Puolua (Huelo) at Lowrie Ditch (pipeline preferred). How much flow? Has flow been measured during storm conditions?

(P.55) Figure 12. Puolua Proposed concrete intake over Lowrie Ditch (preferred). Need more information about the access road and downstream habitat conditions.

(P.56) Figure 13. Secondary option. I prefer this option and believe high flows can address the heavy flooding. Depending on the width of the stream, would a box culvert also be considered? We support natural stream bottoms.

(P.57) Figure 14. (L-7a) Secondary option.

(P.58) Figure 15. (L-7b) More information is needed.

(P.65) Photo 12. Hauolo Ditch (K-30b) Where does the stream naturally flow? The Hauolo small diversion (one of four) should be fully explained. Can the four diversions be shown on a map?

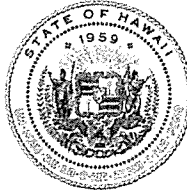
Photo 13. Hauolowahine runoff by pad at Koolau Ditch (K-30d). If "runoff" pad, an overpass might be appropriate.

(P.66) Photo 14. This appears to be the same photo. Please show what the location actually looks like. I am unclear as to what the flow will be like during storm conditions. Water appears to insure that excess water will overflow into the ditch and a minimal flow will be allowed to go downstream.

There isn't enough information to conclude that the same small stream overpass structure is adequate to restore mauka to makai flows in the different streams.

August 29, 2019

DAVID Y. IGE
GOVERNOR OF HAWAII



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SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

KALEO MANUEL,
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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LAND
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

June 28, 2019

TO: Kaleo Manuel, Deputy Director
Commission on Water Resource Management

FROM: David Smith, Administrator *DES*
Division of Forestry and Wildlife

SUBJECT: Comments on Alexander and Baldwin, Inc. applications for stream diversion works permits for abandonment.

Thank you for the opportunity to comment on the applications for stream diversion works permits for abandonment submitted to the Commission on Water Resource Management (Commission) by Alexander and Baldwin, Inc. (A&B). It is our understanding that the applicant intends to abandon 70 stream diversions and is in the process of securing the appropriate permits to do so. We understand further that the diversions are being grouped into different categories for administrative purposes and that separate applications are being submitted for each category.

The Division appreciates A&B's long-standing commitment to the conservation of East Maui's vital watersheds. We have worked closely with A&B and the other partners of the EMWP to implement effective conservation measures at a landscape scale with unprecedented success. We provide our comments here in the spirit of that partnership to further our shared commitment to the effective conservation of the watersheds of east Maui.

In a memo dated December 18, 2018, the Division provided comments on one of those applications, filed as SDWP 4915.6 (<https://dlnr.hawaii.gov/cwrm/surfacewater/review/>). In that memo, we expressed concerns that the applicant intends to leave in place a number of stream alterations that may substantially alter the natural condition of the streams, concrete fixtures, channels, walls, catchments, and tunnels that potentially alter stream flows and surfaces, exacerbate erosion, encourage establishment of invasive species, degrade plant and wildlife habitats, and affect wildlife dispersal and movements. Our comments were general, citing the biological and regulatory reasons for our concerns, and noting that the applicant did not explain its rationale for leaving certain stream alterations in place. We

requested that the applicant provide additional information to inform its proposal to leave those alterations in place.

In a follow-up discussion on March 28, 2019 with you and your staff regarding a subsequent application, filed as SDWP 4950.6, Division staff reiterated our concerns and offered to provide more specific comments and recommendations regarding the proposed abandonments. Pursuant to that, we conducted field assessments at selected diversions for which abandonment is planned. Our findings and recommendations from those assessments are provided in Attachments A and B.

Finally, we appreciate A&B's expressed desire to restore stream flow in a timely manner. While we acknowledge that implementation of some of the measures we recommend here may require additional time, we suggest that the primary tasks to restore stream flow can be implemented initially, ensuring that water is returned to the streams in a timely manner, with the additional recommended work to proceed on a reasonable schedule.

Attachment A

General comments

The Division of Forestry and Wildlife is responsible for the management of forest and wildlife resources within the Ko'olau Forest Reserve that may be affected by the actions proposed in the subject application. The applicant currently holds authorizations to employ certain structural improvements within the forest reserve to effect the diversion of water for collection and use. At such time that those structures will no longer be used for that, or any other, approved purpose, the Division requests that they be removed, to the extent practicable. We believe this request is consistent with the Commission's Conclusions of Law, dated June 20, 2018, in which it is noted that instream uses shall be guided by the general principles set forth in §13-169-20, Hawaii Administrative Rules, which include that, where practicable, streams should be maintained with water sufficient to preserve fish, wildlife, scenic, aesthetic, recreational, and other uses, and stream systems should be retained substantially in their natural condition.

In our field assessments conducted in May of this year, we noted several general issues of concern related to the proposed abandonment of diversion structures in the forest reserve. Those include:

1. Walls, structures, or channels that alter the natural course of the stream, such that water becomes trapped and stagnant in areas where flow is restricted. Stagnant waters become breeding sites for mosquitoes, which are vectors for introduced diseases that are a major threat to native forest birds.
2. Use of pipes or other structures that are known to obstruct passage of native fish.
3. Alteration of streams that result in high levels of erosion, affecting water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, which may become derelict if not maintained.

Attachment B

Specific comments

1) Honopou Stream

- a) Honopou is a perennial stream approximately 10 miles in length, originating in the Koolau Forest Reserve. The stream is reported by DAR to have native macro faunal diversity > 5 species, including native fish, crustaceans, and insects.
- b) Diversions
 - i) Wailoa ditch intake (W-22)
 - (1) Comments
 - (a) Diversion located in Koolau FR
 - (b) Grate captures water diverting it to the Wailoa ditch. Application proposes to seal grate to allow stream to flow. Accessory pipes were found in the diversion area.
 - (2) Recommendations
 - (a) Remove any pipes and accessories not in use.

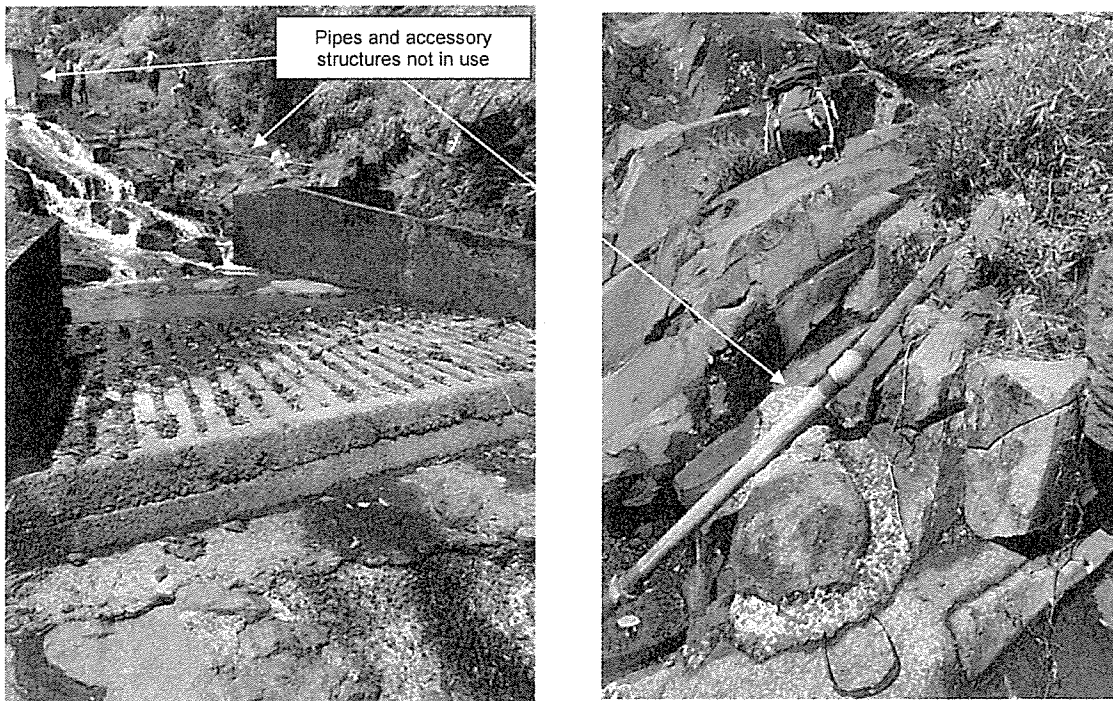


Figure 1. Wailoa ditch intake (W-22). Collection grate (left) and accessory pipes (right).

- ii) New Hamakua ditch intake (NH-22)
 - (1) Comments
 - (a) Diversion located in Koolau FR
 - (b) Grate on the west side of stream captures water for diversion. Application proposes to seal grate by filling with concrete.
 - (2) Recommendations
 - (a) After the grate is sealed, the steel plate should be removed and sufficient concrete should be used to ensure that stream flow is continuous over the grate area and water cannot become trapped and stagnant, creating breeding sites for mosquitoes.
 - (b) Remove any accessory structures not in use, such as the pump house shown in the figure below.

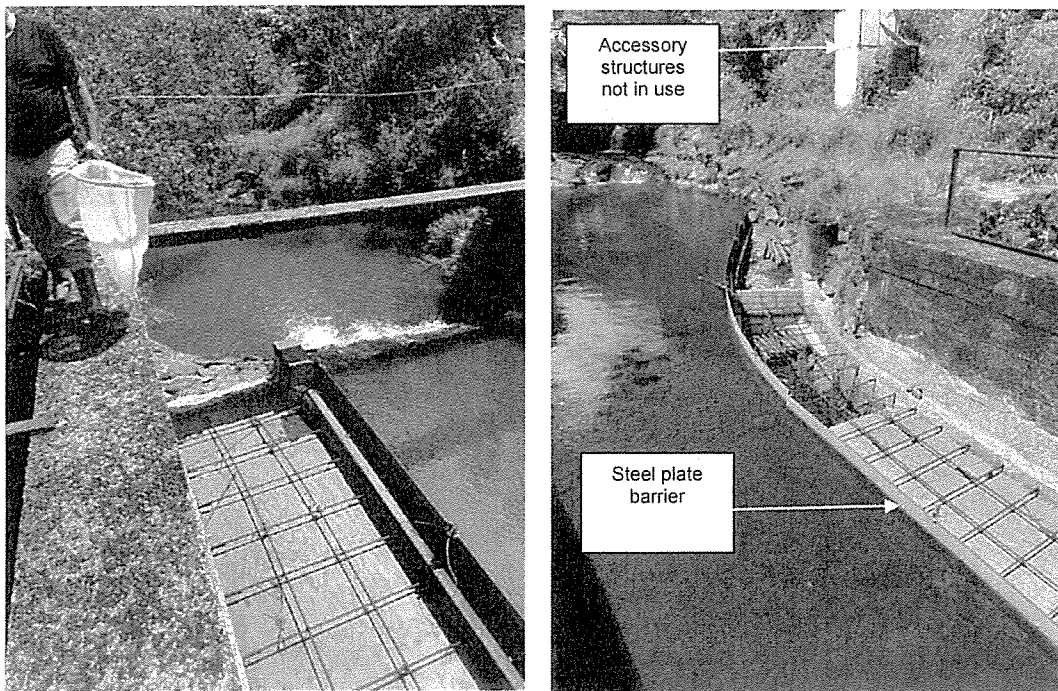


Figure 2. Grate to be sealed (left). Accessory pump house above grate (right).

- iii) Lupi long intake at Wailoa ditch (W-22a)
 - (1) Comments
 - (a) Diversion located in Koolau FR
 - (b) Grate is sealed. This tributary leads to Honopou stream.
 - (c) The tributary appears to take a modified path through cut and disturbed soil that may be prone to extensive erosion. It is not clear why this is the case and whether this is an unnatural condition that has resulted from ground disturbance.
 - (2) Recommendation
 - (a) Further investigation is recommended to assess whether there is an erosion problem that can be addressed.

- iv) Wailole intake at New Hamakua ditch (NH-23)
 - (1) Comments
 - (a) This diversion is on EMI lands.
 - (b) The tributary feeds Honopou stream, which runs through the Koolau Forest reserve.
 - (c) The road crossing this tributary to Honopou stream appears to be prone to high levels of erosion.
 - (2) Recommendation
 - (a) Please assess erosion and impacts to water quality resulting from this location and consider installation of a concrete swale or other measures to control erosion.

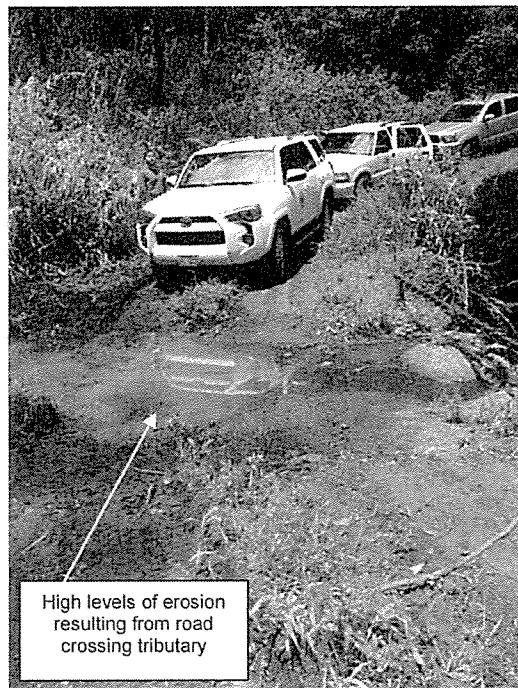


Figure 3. Road crossing tributary would appear to be prone to high levels of erosion.

- v) Honopou at Haiku ditch (H-8)
 - (1) Comments
 - (a) This diversion is on EMI lands.
 - (b) The diversion structures appear to include a steel plate that overhangs the stream. This plate may interfere with fish passage.
 - (2) Recommendation
 - (a) In addition to measures identified in the application, please remove the steel plate that overhangs the stream. This plate may obstruct fish passage.

2) Hanehoi stream

a) Hanehoi Stream is a perennial stream approximately 5.4 miles in length, originating in the Koolau FR. Hanehoi Stream supports native algae, crustaceans, and insects, including *Megalagrion pacificum*, listed as endangered under state and federal law.

b) Diversions

i) Hanehoi at Wailoa ditch (W-18)

(1) Comments

(a) Diversion located in Koolau FR

(b) Walls on both sides of the stream prevent the stream water from taking its natural course. The walls create sections where water stands and cause pooling of water, which becomes stagnant and creates breeding sites for mosquitoes.

(c) Water is also standing and foul in the sluice basin or catchment entry structure where the gate is located.

(2) Recommendations

(a) In addition to the measures identified in the application to seal the grate, remove the walls to restore the natural stream flow and eliminate mosquito breeding sites.

(b) Prevent stagnant water and mosquito breeding sites sealing the sluice basin or other measures to avoid water standing in the structure.

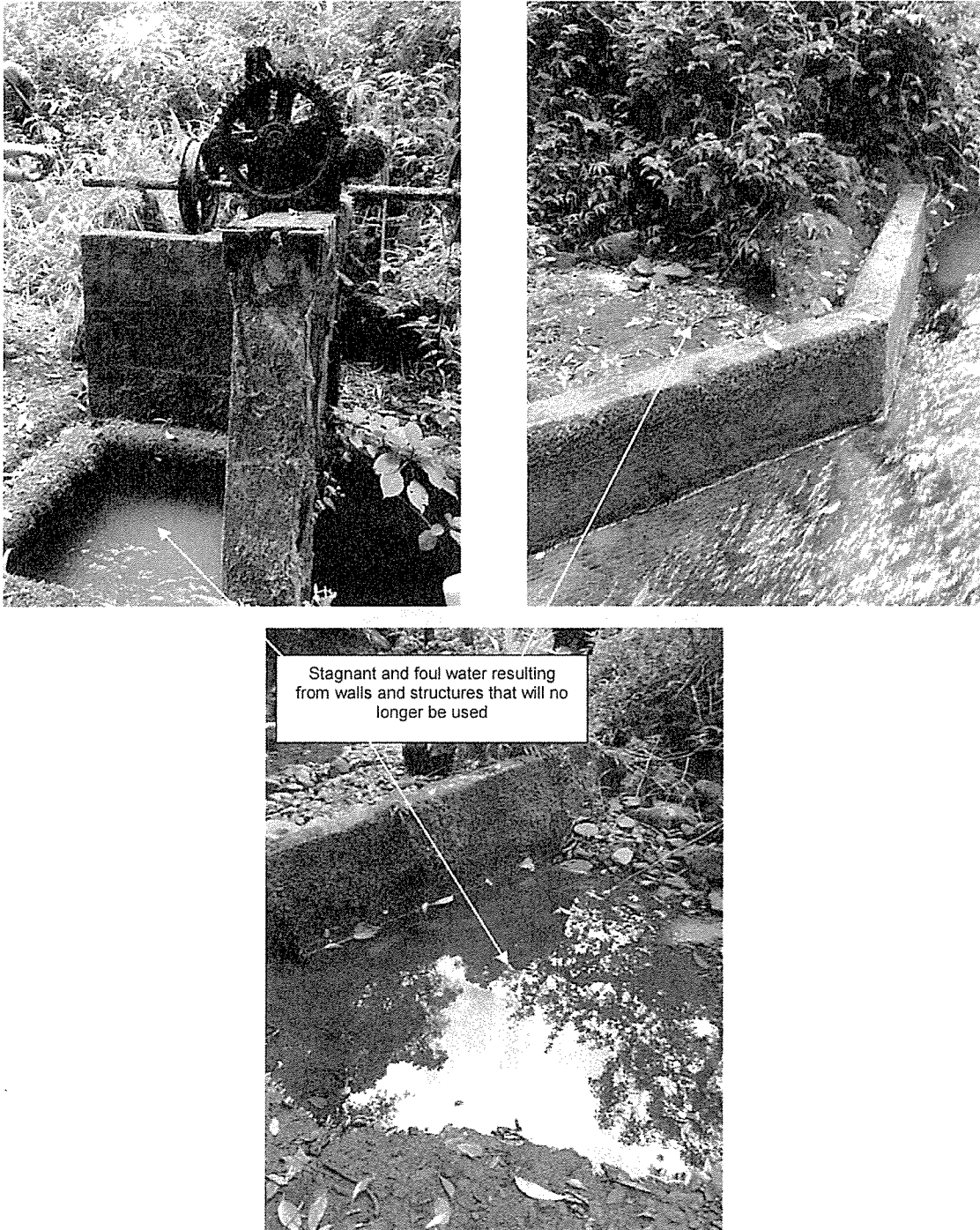


Figure 4. Stagnant water standing in depressions created by the walls and the gate structure.

- ii) Hanehoi Huelo intake at New Hamakua ditch (NH-17)
 - (1) Comments
 - (a) The wall across the stream bed creates a dam that obstructs the natural course of the stream.
 - (2) Recommendations
 - (a) In addition to the measures identified in the application to seal the grate, please remove the wall across the stream bed to restore the natural stream flow.

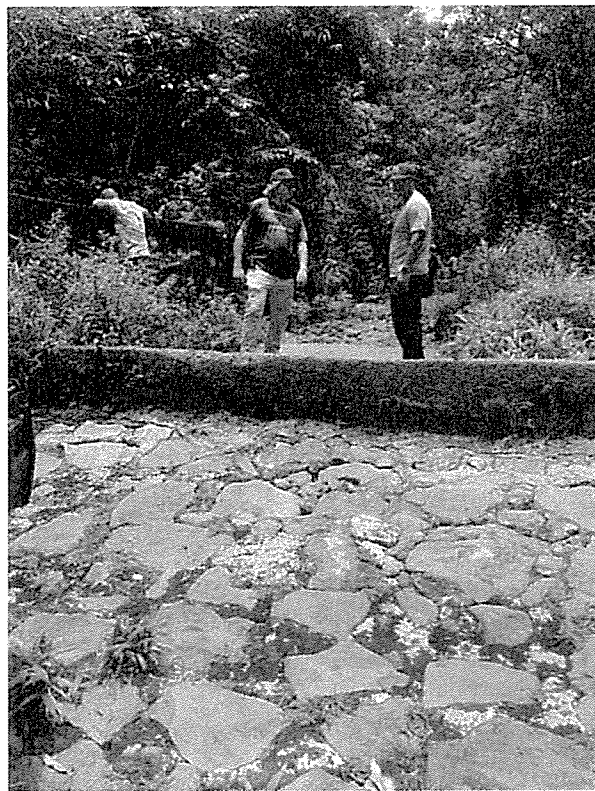


Figure 5. Wall across stream bed creates a dam that that alters flow and creates standing water.

iii) West Hanehoi (Puolua) intake at New Hamakua ditch (NH-17a)

(1) Comments

- (a) Located in Koolau FR
- (b) This tributary enters the New Hamakua ditch where the access road runs along and makai of the ditch. The application proposes to install a stream bypass to enable the tributary to cross over the ditch.
- (c) The stream must also cross the road and the application does not describe how that will be constructed.

(2) Recommendations

- (a) The methods employed to enable the stream to cross the road should ensure that erosion of the road is avoided. This may be done by installing a concrete swale or by installation of a culvert of appropriate diameter under the road.



Figure 6. Location where tributary will cross the access road.

iv) Hanehoi (Puoloa) Roseapple intake at Lowrie ditch (L-7a).

(3) Comments

(a) The application proposes to construct an overpass that will allow the stream to cross the ditch. Since the access road runs parallel to the ditch at this location, the stream will also need to cross the road.

(4) Recommendations

(a) A concrete swale should be constructed across the road at this location to avoid erosion of the road, which appears to be currently comprised of soil only.

(b) A culvert should not be used at this site since this stream is a fish corridor and fish are not expected to cross through culverts.



Figure 7. Location where stream will cross access road.

3) East Wailuanui Stream

a) Wailuanui Stream is a perennial stream that originates in the Koolau FR and spans a length of approximately 9.6 miles. Wailuanui Stream supports a high diversity of native species, including crustaceans, fish, snails, and insects.

b) Diversions

i) East Wailuanui at Koolau ditch (K-18)

(1) Comments

(a) This diversion consists of walls on both sides of the stream that divert the stream into the ditch on the west side of the stream. The east wall crosses nearly the entire stream bed to divert the water to the west.

(b) The walls trap standing water on both sides of the stream, as well as in the intake, which we found to be very stagnant, creating breeding sites for mosquitoes. The application proposes to permanently remove the sluice gate to restore stream flow and to fill the intake with concrete.

(2) Recommendations

(a) Remove the walls on the east and west side of the stream in their entirety. Those walls will no longer be used for diversion purposes and their presence creates large areas of stagnate water that creates breeding sites for mosquitoes.

(b) Ensure that sufficient fill material is used for the intake to ensure that water does not become stagnant in the intake.

(c) Remove the pillar and structures at the intake since they will no longer be used for water diversion purposes.

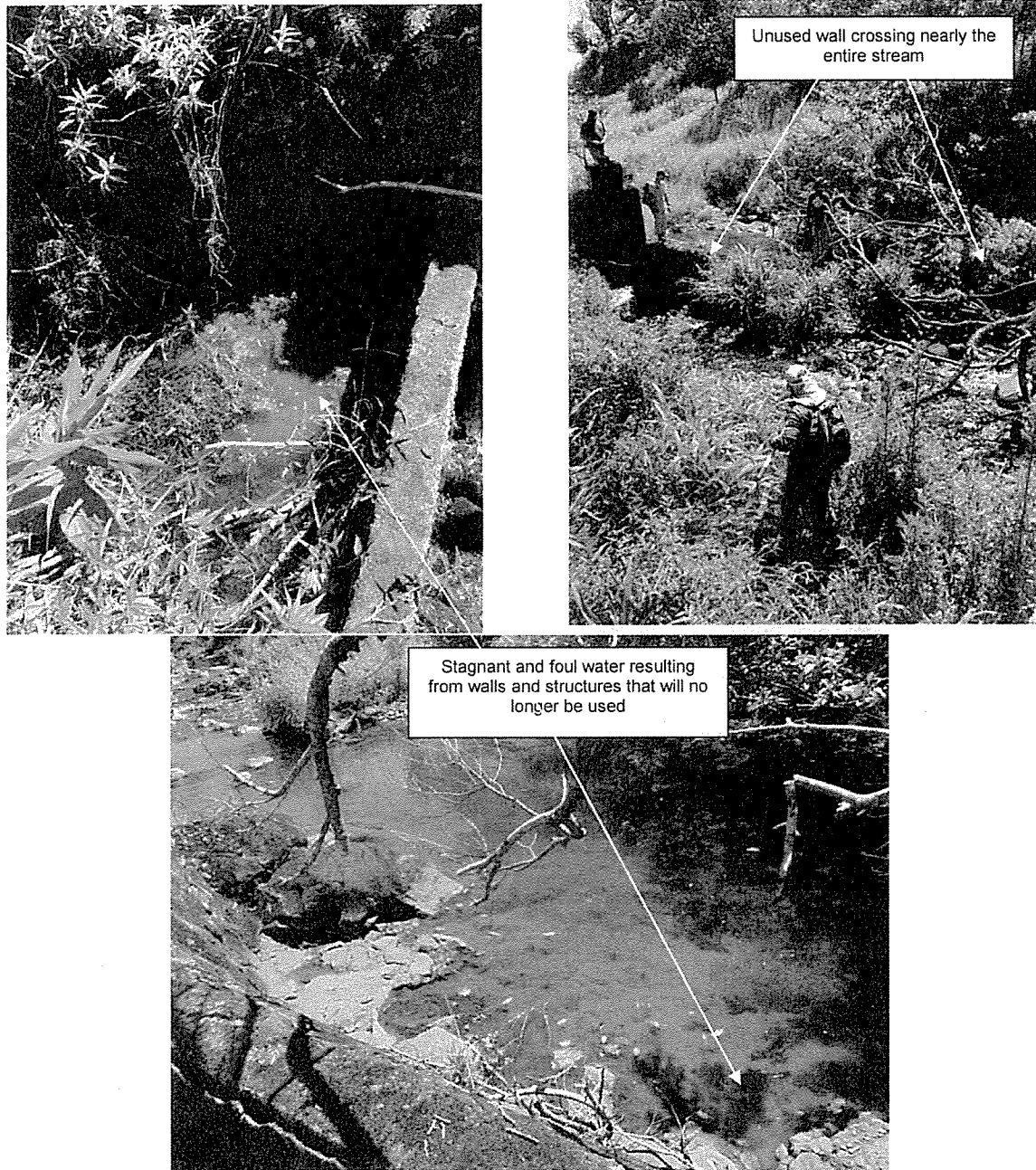


Figure 8. East Wailuanui at Koolau ditch (K-18). Stagnant water outside the west wall (top left), wall crossing stream (top right), stagnant water on the east side of the stream.

ii) East Wailuanui to Koolau ditch at control house (K-19)

(1) Comments

- (a) Diversion consists of walls that channel the stream flow over the ditch where a collection grate allows the water to fall into the ditch.
- (b) The application proposes to cover and seal the grate so that water will continue downstream.

(2) Recommendations

- (a) The channel that is created by the walls is relatively narrow and low. It is unknown whether it may should be monitored regularly to ensure that it does not become obstructed by debris.
- (b) The control house and related structures should be removed if they are no longer in use.

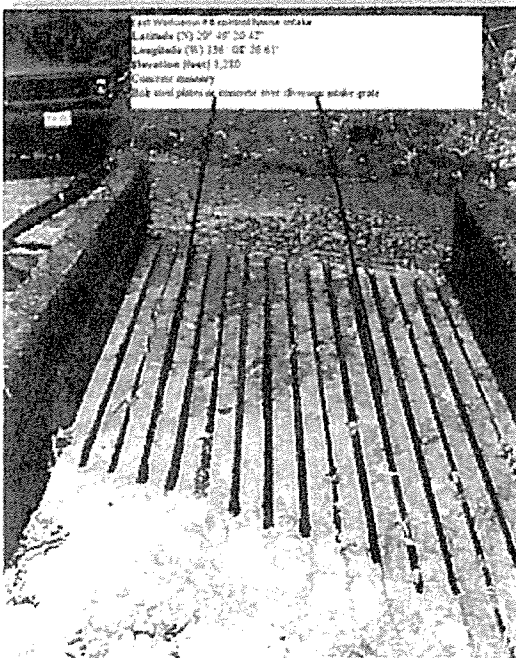


Figure 9. Channel to enable stream to cross ditch (left). Control house at K-19 (right).

iii) West Wailuanui intake #7 at Koolau ditch

(1) Comments

- (a) Diversion at a tributary that consists of a wing wall on the west side of the stream that directs flow into a set of slots in a wall on the east side.
- (b) Application proposes to fill the collection slots to enable stream to flow down. Where the stream crosses the access road, a pipe under the road directs water under the road. The road has a concrete swale.
- (c) The wing wall appears to be creating pooling of stagnant water and the pipe was found to be clogged. The pipe obstructs movement of fish upstream.

(2) Recommendations

- (a) Remove the wing wall to prevent standing water
- (b) Seal the pipe so that water will flow freely over the swale and enable fish movement upstream.



Figure 10. Wing wall causing pooling of stagnant water at K-20.

iv) West Wailuanui at Koolau ditch (K-21)

(1) Comments

- (a) Diversion consists of a large dam that directs the stream flow into collection slots on the east side of the stream.
- (b) The dam is fitted with a sluice and gate to enable water to flow downstream when it is not being diverted.
- (c) The application proposes to cover the collection slots and permanently remove the gate.

(2) Recommendations

- (a) The sluice is relatively narrow and may become clogged. Monitoring is recommended to ensure it does not become clogged.
- (b) If the gate house structure is no longer used it should be removed.
- (c) The dam will also not be used. However, since it is of substantial size and mass, we recommend that consideration of its disposition be deferred until further assessments can be conducted to determine the best course of action.



Figure 11. Dam, gate, and control structure at K-21.

DAVID Y. IGE
GOVERNOR OF HAWAII

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M. KALEO MANUEL
DEPUTY DIRECTOR

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

March 4, 2019

SDWP.4950.6

TO: Aha Moku Advisory Council
Aquatic Resources
Engineering Division
Forestry and Wildlife
Historic Preservation
✓ Land Division
State Parks

FROM: M. Kaleo Manuel, Deputy Director *Manuel*
Commission on Water Resource Management

SUBJECT: East Maui Irrigation Company Application for a Stream Diversion Works Permit for Abandonment (SDWP.4950.6), Category 3 Diversions, Honopou, Hanehoi (Puolua), and Pi'ina'au (Palauhulu) Streams, East Maui, Hawai'i, Tax Map Keys: (2) 1-1-002:002; 2-9-003:042; 2-9-004:038 and 039; 2-9-006:028 and 033; 2-9-009:019; 2-9-014:001; 2-9-014:009

We would appreciate your review and comment on the subject permit application within **30 days** from the date of this memo. The project proposes to abandon 11 diversions on the subject streams. The application is available for review at <http://dlnr.hawaii.gov/cwrm/surfacewater/review/>. If you have any questions, contact Rebecca Alakai at 587-0266, or rebecca.r.alakai@hawaii.gov.

Response:

- We have no objections
- Not subject to our regulatory authority and permit
- Comments attached
- Additional information requested
- Extended review period requested

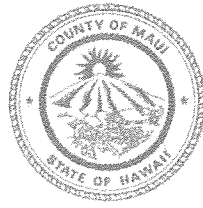
Contact Person: Daniel Ornelas Date: 3/29/19

DLNR Land Division, Maui District land office has received concerns from MAUI DART & MAUI DOFAW related to the subject request. Note: the applicant should be advised that any use of govt land does trigger compliance w/ HRS 34B

MICHAEL P. VICTORINO
Mayor

MICHELE CHOUTEAU MCLEAN, AICP
Director

JORDAN E. HART
Deputy Director



August 7, 2019

Comments for

Stream Diversion Works Permit for Abandonment, Category 3 Diversions

Honopou, Hanehoi (Puolua), and Piinaau (Palahulu) Streams, East Maui TMK: (2) 1-1-002:002;
2-9-003:042; 2-9-004:038, and 039; 2-9-006:028 and 033; 2-9-009:019; 2-9-014:001; 2-9-
014:009

Pursuant to Maui County Code 19.62.100- Development adjacent to drainage facilities, the Planning Director is unable to recommend issuance of any permit involving modification of a drainage facility that may adversely impact downstream properties.

The Planning Department recommends the Commission request a drainage study or hydrologic analysis of the proposed actions, including an analysis of the anticipated effect on downstream properties, in order to ensure that there will be no adverse impacts. Further, notifying the identified downstream properties of the upstream work.

Should the scope of work approved by Special Management Area (SMA) minor permit SM5 2017/0224 change substantially through deliberations by the Commission a new SMA assessment will be needed to evaluate the changes.

Per the approved SM5 2017/0024:

“The proposed scope of work consists solely of abandoning stream diversion facilities at Haiku Ditch “Pancho” intake at East Hanehoi Stream (East Maui Irrigation (EMI) Diversion Number H-3) by sealing the intake grates with rocks and concrete and removing the sluice gate from the diversion; and Haiku Ditch “School” intake at West Hanehoi Stream (also known as Huelo Stream or Puolua Stream, EMI Diversion Number H-4) by sealing the ditch intake opening with rocks and concrete and removing the sluice gate from the diversion; and Haiku Ditch intake at Honopou stream EMI Diversion Number H-8), by sealing intake grates with rocks and concrete, seal [*sic*] openings below the grate on the downstream side with rocks and concrete and extending an existing wingwall on the west end of the diversion to just beyond the downstream edge;”

August 29, 2019



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard
Honolulu, Hawaii 96850



In Reply Refer To:
01EPIF00-2019-TA-0204

March 27, 2019

Mr. M. Kaleo Manuel, Deputy Director
State of Hawaii Department of Land and Natural Resources
Commission on Water Resource Management
Post Office Box 621
Honolulu, Hawaii 96809

Subject: Technical Assistance for East Maui Irrigation Company's Application for a Stream Works Permit for Abandonment (SDWP.4950.6) on Three Streams in East Maui

Dear Mr. Manuel:

The U.S. Fish and Wildlife Service (Service) received your correspondence on March 5, 2019, for the review of the application by the East Maui Irrigation Company for a Stream Works Permit for Abandonment (SDWP.4950.6) on three streams [Honopou, Hanehoi (Puolua), and Pi'ina'au (Palauhulu)] on East Maui. The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

East Maui Irrigation Company (EMI) proposes to implement actions necessary to abandon eleven (11) diversions in order to restore flow to three watersheds on East Maui. The work will take place in TMKs: 2-9-003:042, 2-9-004:038, 2-9-004:039, 2-9-006:033, 2-9-009:019, 2-9-014:009, 1-1-002:002, 2-9-006:028, and 2-9-014:001 on East Maui. Stream flow would be restored to Honopou, Pi'ina'au, and Hanehoi streams through the construction of overpasses or underpasses to an existing ditch allowing the stream to flow. Other actions will include filling intake grates with rock and concrete, constructing additional wingwalls to maintain stream integrity, and removal of a small diversion dam. The project information states that all material removed from the diversion structures, except for stream rocks and boulders, will be transported off-site. In addition, all work is expected to be primarily done by hand, with heavy machinery needed only when necessary.

Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, two listed animal species have the potential to either be in or fly through the vicinity of the project area: Pacific Hawaiian damselfly (*Megalagrion pacificum*) and Hawaiian hoary bat (*Lasiurus cinereus semotus*). In addition, designated critical habitat for 17 listed plants and 2 listed birds is located within a half mile upslope of the proposed project activities at the Hauola ditch along the Palauhulu

tributary of the Pi'ina'au stream. This critical habitat has been designated for the plants: *Bidens campylotheca* ssp. *waihoiensis*, *Clermontia oblongifolia* ssp. *mauiensis*, *Clermontia peleana*, *Clermontia samuelli*, *Cyanea asplenifolia*, *Cyanea copelandii* ssp. *haleakalaensis*, *Cyanea duvalliorum*, *Cyanea hamatiflora* ssp. *hamatiflora*, *Cyanea kunthiana*, *Cyanea maritae*, *Cyanea mceldowneyi*, *Huperzia mannii*, *Melicope balloui*, *Melicope ovalis*, *Mucuna sloanei* var. *persericea*, *Phyllostegia haliakalae*, and *Wikstroemia villosa*. Two bird species, the Maui parrotbill (*Pseudonestor xanthophrys*) and akohekohe (*Palmeria dolei*), are also included in this particular critical habitat unit. While none of these species are known specifically from the area where the project will occur, the potential does exist for their occurrence.

Avoidance and Minimization Measures

Hawaiian damselflies

Hawaiian damselflies are found in aquatic habitats across the islands, with high species endemism within islands. Breeding habitat includes anchialine pools, perennial streams, marshes, ponds, and even artificial pools and seeps. Major threats include introduced fish, amphibians, and invertebrates in streams, reduced stream flow from drought and water diversion, small isolated populations, reduced habitat quality from ungulates and nonnative plants, and possibly overcollection.

The proposed action includes activities at diversion NH-17a, where the Pacific Hawaiian damselfly has been found previously. At this location, a new stream overpass will be constructed where the New Hamakua ditch intersects with Puolua stream within the Hanehoi watershed. To avoid and minimize impacts to Hawaiian damselflies, we recommend you incorporate the following applicable measures into your project:

- The U.S. Fish and Wildlife Service Recommended Standard Best Management Practices for Work in Aquatic Environments (see below) should be incorporated into the project description to minimize the degradation of water quality and impacts to fish and wildlife resources.
- Surveys for Pacific Hawaiian damselfly are recommended in this area. Permits are required for accurate surveys of this species, so we recommend coordinating with us on developing and implementing survey protocols.

Hawaiian hoary bat

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend you incorporate the following applicable measures into your project description:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup-rearing season (June 1 through September 15).

Designated Critical Habitat

While designated critical habitat does not occur within the project footprint, it may still be affected by project activities. To minimize potential impacts to designated critical habitat, all

project activities, including loading zones, materials storage, and other associated actions, should avoid overlapping with the designated critical habitat unit.

Species for which the critical habitat unit was designated may occur outside the unit's boundaries and may occur within the project footprint. To minimize potential adverse effects to these species, we recommend minimizing disturbance outside of existing developed or otherwise modified areas. When disturbance outside existing developed or modified sites is necessary, conduct a botanical survey for listed plant species within the project action area, defined as the area where direct and indirect effects are likely to occur. Surveys should be conducted by a knowledgeable botanist with documented experience in identifying native Hawaiian and Pacific Islands plants, including listed plant species. Botanical surveys should optimally be conducted during the wettest part of the year (typically October to April) when plants and identifying features are more likely to be visible, especially in drier areas. If surveys are conducted outside of the wet season, the Service may assume plant presence.

Other Native Species

In addition, native diadromous gobies ('o'opu) move up stream corridors for reproduction. However, they will not pass through dark spaces (i.e. pipes), so we recommend keeping diversions open as much as is feasible to accomplish the restoration of stream flow.

Invasive Species

All activities, including site surveys, risk introduction of nonnative species into project areas. Specific attention needs to be made to ensure that all equipment, personnel and supplies are properly checked and are free of contamination (weed seeds, organic matter, or other contaminants) before entering project areas. Quarantines and or management activities occurring on specific priority invasive species proximal to project areas need to be considered or adequately addressed. This information can be acquired by contacting local experts such as those on local invasive species committees (Maui Nui: <http://mauiinvasive.org/>).

If this potential project should receive federal funding, federal permits, or any federal authorization, it will require a Section 7 consultation with the Service. The Service only conducts Section 7 consultations with the federal action agency or their designated representative. We also understand that this project is the first phase of multiple stream flow restoration activities on East Maui. Future projects may include additional overlap with endangered species locations and critical habitat, so we recommend early consultation with the Service as these projects progress.

Thank you for participating with us in the protection of our endangered species. If you have any further questions or concerns regarding this consultation, please contact John Vetter, Fish and Wildlife Biologist, 808-792-9406, e-mail: john_vetter@fws.gov. When referring to this project, please include this reference number: **01EPIF00-2019-TA-0204**.

Sincerely,

MICHELLE
BOGARDUS

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MICHELLE BOGARDUS
Date: 2019.04.15
14:28:53 -10'00'

Michelle Bogardus
Island Team Leader
Maui Nui and Hawaii Island

**U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices**

The U.S. Fish and Wildlife Service (USFWS) recommends the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.
2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site-specific guidance.
3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.
4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see <http://www.haccp-nrm.org/Wizard/default.asp>) can help to prevent attraction and introduction of non-native species.
5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean up of accidental petroleum releases.
7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.



SIERRA
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To: Kaleo Manuel, Deputy Director
Commission on Water Resource Management

August 9, 2019

From: Sierra Club, Hawai'i Chapter
PO Box 2577 Honolulu, Hawai'i 96803

Subject: Comments on East Maui Irrigation ("EMI")/ Alexander and Baldwin, Inc. ("A&B") "Category 3" (SDWP 4950.6) and "Category 4" (SDWP 4951.6) applications for stream diversion works permits to abandon listed East Maui diversions.

Aloha Deputy Director Manuel, Water Commissioners and staff

Sierra Club of Hawai'i, on behalf of our 27,000 supporters across the state, thanks you for the opportunity to comment on the EMI/Alexander and Baldwin, Inc. (A&B) applications for stream diversion works SDWP-4950.6 (proposed Category 3 abandonment permits) and SDWP-4951.6 (already completed Category 4 abandonment permits), submitted to the Commission on Water Resource Management (CWRM). We understand that the official comment period for Cat 3 permits has already passed, but hope that the Commission will keep our comments in mind when they hear the matter of the Cat. 3 permits in Maui later this month.

As noted below, we ask the Commission to not approve the Category 4 after the fact permits until CWRM staff and Ke'anae-Wailuanui community members are satisfied that there is a plan and implementation schedule to restore biological connectivity for native stream species for the Waiokamilo-Palauhulu-Wailuanui-Wailuaiki stream system. The Commission has a proactive duty to make decisions which uphold Native Hawaiian traditional and customary rights. The Ko'olau community has fished and gathered from these same streams for centuries, and their rights to continue these practices is protected under the Hawai'i State Constitution.

Sierra Club has long advocated for the restoration of East Maui streams for the benefit of rural East Maui and Native Hawaiian communities, native fisheries and stream life, watershed ecosystems and public recreation and nature study. We support the efforts of A&B/EMI to abandon 70 stream diversions and restore mauka-makai flow and biological connectivity to the numerous streams and tributaries that are the lifeblood of East Maui.

Honopou, Hanehoi (Puolua), and Pi'ina'au (Palauhulu) Streams

We are mystified as to why the process has dragged on for so long. We often hear that the delay was due to County SMA and Army Corps review. Records obtained by Sierra Club Hawai'i indicate that USACE determinations were completed on January 26, 2018, a few months after being requested on October 17, 2017 and Maui County SMA exemption was granted on November 27, 2017, one month after requested. It has now been over a year and half since these needed agency reviews were completed. It is now past time to proceed with the complete and permanent restoration of the specific East Maui streams promised by A&B/EMI in April 2016, and formalized in the June 2018 CWRM IIFS Decision and Order.

We commend all involved for working towards a solution. We understand that the diversions are being grouped into different categories for administrative purposes and that separate applications are being submitted for each category, and we offer comments at this time for streams involved in Category 3 (SDWP_4950) and Category 4 (SDWP_4951.)

Sierra Club Maui volunteers have led educational hikes in these stream areas for over 30 years and have observed conditions along the streams and in the areas of the diversions. While SDWP Application 4951 (after the fact permits for diversions abandoned on 28-29 intakes on Waiokamilo stream and its tributaries) and SDWP Application 4950 (sealing intake grates, building stream overpasses and other modifications to abandon diversions on 11 streams and tributaries in the Huelo and Ke'anae areas) contain various maps and photos, many of these are very unclear, making detailed agency or public review difficult.

For example, in SDWP_4951, over a dozen metal or PVC pipes were described as already having been capped or removed. This action supposedly took place 12 years ago and is being permitted now. The Application should specify which pipes were removed, along with how the discarded pipe sections were disposed of. It should also indicate which pipes were "capped" and whether the capped sections are found near trails, streams or other natural areas, and if they are tightly sealed or leak. None of this information is provided. It is difficult to know when pictures were taken and whether the former "minor diversions," which once carried water from springs or tributaries into the Ko'olau Ditch, now carry water to any restored stream. We simply are not told in the Application what happens to the water that once went into the minor diversions.

In her December 26, 2016 comments on the EISPN for proposed long term A&B/EMI leases for East Maui, Sierra Club member and longtime Wailuanui resident, Leina Wender, offered these personal observations regarding the Waiokamilo stream Diversion restoration referenced in the EMI/A&B Category 4 After the Fact permit application SDWP_4951:

"The Early Consultation Summary of November 23, 2016 states that Waiokamilo Stream was "fully restored in 2007", and that several other streams are "planned for full and permanent restoration." The dictionary definitions of "restore" include "to return...something to a former condition..."; "to repair or renovate...so as to return it to its original condition"; and "to give something previously stolen, taken away, or lost back to the original owner or recipient." EMI has not restored Waiokamilo or any other stream."

Wender continues in her comments:

"EMI apparently no longer utilizes water from Waiokamilo. But this is not the same as restoration. EMI formerly diverted water not only from the main flume at Kikokiko, but also from numerous tributaries of various sizes which, before the existence of the ditch, eventually

found their way into Waiokamilo Stream. This water was collected via about two dozen diversions consisting primarily of concrete catchment basins with pipes. EMI has cut these pipes so that the water no longer goes into the ditch. Instead, it now drips or flows onto the ditch road, creating a muddy mess and additional habitat for invasive plants. Most of this water never makes its way off of the road, much less back into the stream. When they were built, the ditch and the ditch road cut into and altered the natural terrain. Nothing has been done to return this terrain to its original condition or to ensure that the water not diverted actually gets into the stream.”

“In addition, EMI has abandoned and no longer maintains the ditch road in the Waiokamilo area, resulting in its present hazardous condition. They also no longer monitor the area for miconia, which I have frequently encountered there in recent years. EMI has abandoned any responsibility for stewardship of the watershed areas they no longer utilize. Even in the areas they still use, banyan trees, clidemia and other invasive plants grow unfettered.”

These conditions of the Waikokamilo steam were reported in 2016, nine years after the claimed “restoration” of Waiokamilo stream. Photos taken by CWRM staff in 2008 and found in CWRM report PR200804 (*Instream Flow Standard Assessment Report for Hydrological Unit 6055, Waiokamilo*) show numerous Waiokamilo “minor” diversions as closed, but with pipes, unneeded dams and other debris left in place.

CWRM should not approve this After-the-Fact permit until they have a report from a staff visit to the area, in the company of Na Moku ‘Aupuni o Ko’olau representatives. If conditions are as described, CWRM should request that EMI submit within 60 days, the outline of a plan to remediate the situation and fully restore the natural ecosystem of the Waiokamilo stream and its tributaries. We would particularly recommend the removal of dam structures located far from the Ko’olau ditch, such as the one shown on intake K-25 at the Kikokiko waterfall intake. (See picture in Attachment A)

In reviewing the permit applications, it appears that some other significant information was not provided, especially in these areas:

- 1) How the abandoned diversions will be modified or removed to allow adequate biological connectivity to support Native Hawaiian traditional and customary gathering practices;
- 2) How diversion structures will be properly removed to minimize debris and mosquito breeding in and along streams; and
- 3) How “dry sections” of stream between diversion structures will be avoided to ensure complete restoration of mauka-makai stream flows.

Cultural Impacts Posed by Diversion Structures

The SDWP Application has a section (Items 44 & 45) to provide information on “Cultural Impacts” of the proposed action. The response provided by A&B/EMI in all the applications assumes that by simply allowing stream water to flow over, around or through the extensive, century old diversion dams and sluices, all traditional and customary cultural practices can be protected and ensured. Experience, generational knowledge and common sense has shown us that this simply is not true.

There is no discussion in the A&B/EMI Applications of the impacts presented by massive structures, pipes and catch basins to native stream life and its habitat. Native Hawaiian culture includes traditional gathering, and any "stream restoration" plan that returns stream water yet does not provide a viable habitat for the culturally and biologically important resources that live in the stream is an incomplete plan.

In their October 2016 letter to then EMI head, Garrett Hew, CWRM staff made it clear that the EMI Diversion Abandonment Applications needed to have sufficiently clear and detailed information for Agency and public review, and commented to A&B/EMI staff:

"After reviewing your submission, as discussed briefly last week, we are requesting that you provide more specific information for all of the diversions listed."

CWRM staff also noted that: "The information will also be available for public review and, as you are well aware, will be heavily scrutinized to ensure that all water is restored and biological connectivity is optimized."

Although this specific request was made by CWRM staff, the EMI/A&B applications make no reference to efforts made or planned to optimize biological connectivity for native stream life on the streams covered by the permit activities.

In November 2017, BLNR approved a continuation of the EMI holdover permit for the East Maui Lease areas covered by these applications. The holdover permit was approved for another year on the condition that "A&B needs to clean up their debris starting with more accessible areas and along streams."

That condition was also included in the November 2018 BLNR hearing decision on the holdover permits for 2019. A&B's current permit request would allow it to abandon in place discarded pipes and concrete that no longer serve any useful purpose. As such, they constitute debris that litters state land. In order to be consistent with the BLNR's condition, CWRM must mandate that these features that no longer serve any useful purpose be removed from state land.

The State of Hawaii Division of Fish and Wildlife (DOFAW) in their June 28, 2019 letter commenting on the EMI/A&B applications, appear to have the same concerns that discarded diversion structures will be left in place along the "restored" streams. Both the June 28 DOFAW letter and an earlier DOFAW memo from December 18, 2018, expressed concerns that the "applicant intends to leave a place a number of stream alterations that may substantially alter the natural condition of streams, concrete fixtures, channels, walls, catchments, and tunnels that potentially alter stream flows and surfaces, exacerbate erosion, encourage establishment of invasive species, degrade plant and wildlife habitats and affect wildlife dispersal and movements."

DOFAW provided a detailed analyses of intakes found in the EMI Cat 1 Application, EMI Cat 2 Application (SDWP_4915_6) and EMI Cat 3 Application (SDWP_4950) illustrate the types of alterations that can impact streams and stream life and should be properly removed.

DOFAW suggested that the present permits should be seen as the first step of the restoration process and that "the primary tasks to restore stream flow can be implemented initially, ensuring the water is returned to the streams in a timely manner, with the additional recommended work to proceed on a reasonable schedule."

The Sierra Club would like to see CWRM go a step further. We ask that CWRM require EMI/A&B to partner with the state on a specific plan and implementation timetable to remove unneeded diversion

debris, structures and accessory equipment (such as pipes) on or along the restored streams, to protect the Public Trust resources of the East Maui Lease/License areas.

Sierra Club concurs with the DOFAW comments, and requests that all the diversion structures be removed and are not allowed to be left in place. These structures:

- (a) interfere with native aquatic species;
- (b) facilitate mosquito breeding;
- (c) have the potential to take water from streams (even if the water is not removed from the ahupua'a);
- (d) threaten the safety of recreational users of public land;
- (e) will essentially become garbage, and
- (f) are aesthetically inappropriate in a natural environment.

We attach a short slide presentation (Attachment "A") of a few East Maui Lease area streams proposed for complete restoration, illustrating these conditions that need to be addressed during the stream restoration/diversion abandonment process.

We appreciate your consideration of our comments and suggestions.

Attachment A

from

Sierra Club Hawaii

August 11, 2019 Comments

RE: EMI ATF stream abandonment
Category 4 permits (SDWPA_4951)
Category 3 permits (SDWPA_4950)
and comments on other Restoration
streams

Sierra Club has concerns that unmodified diversion structures on "restored" stream interfere with movement and habitat of native aquatic species



Intake L-5
Hanehoi stream
Lowrie ditch

Status: to be fully and permanently restored.

Permit Action: CAT1, seal grate with concrete

Recommendation: Diversion structure impedes natural stream flow and has a slight overhang. It should be removed and a flatter bypass created over the Lowrie ditch to allow more natural grade of stream bed

Intake K-17 W. Wailuaiki stream Ko'olau ditch

Status: to be fully and permanently restored.

Permit Action: NONE. Gate removed.
 Streamlife left with very limited migration path



Overall, Wailua Iki West Stream has good potential stream habitat in the lower, middle, and upper reaches... Restoration of flow and improvement of animal passage would have the greatest effect on *S. stimpsoni* (*o'opu nopi'i*) and *A. bisulcata* (*opae kala'ole*), and would further enhance the overall productivity of Wailua Iki West Stream.

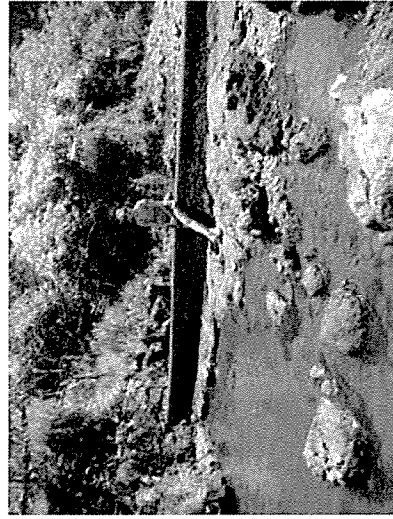
DAR 2009 survey of West Wailuaiki stream

West Wailuaiki Stream has high native streamlife habitat value :

"The data in this report reveals the potential adverse effects of stream alterations to biological resources in the stream and estuary, which bears significant ecological and cultural value."

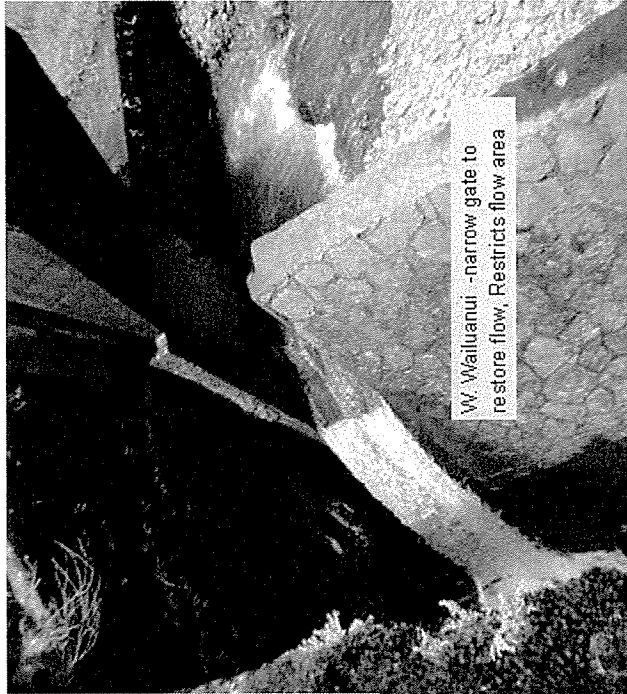
DAR 2009 survey of West Wailuaiki stream

- Recommendations:**
- Remove unneeded dam structure (photo below) to restore more natural flow patterns and avoid stagnant pools that breed mosquitos during low flow periods



Intake K-21 W. Wailuanui stream Ko'olau ditch
on State land
Status: to be fully and permanently restored.

Permit Action: NONE. Gate removed.
Streamlife left with very limited migration path due to two large
dam structures
Recommendation: Remove unneeded dam structures to create
more natural stream bed

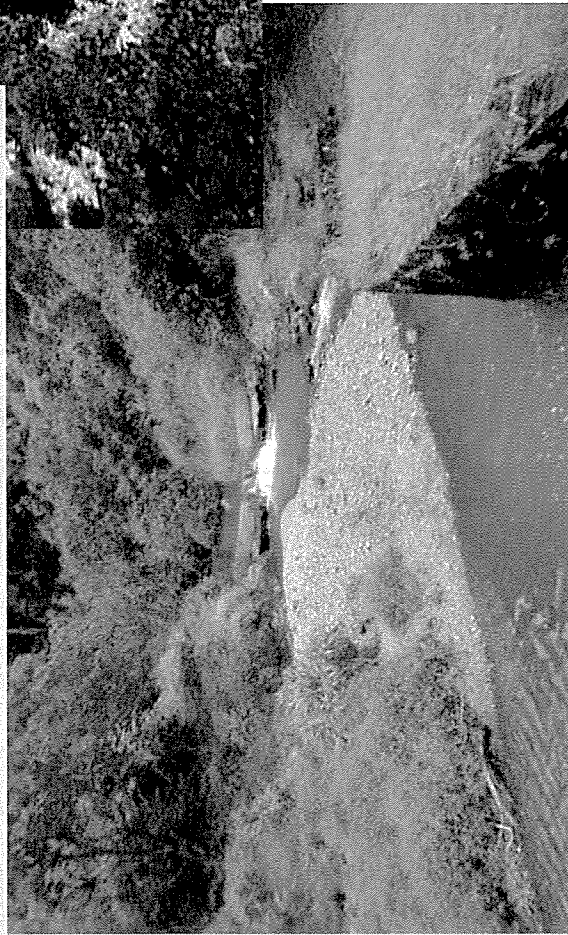


W. Wailuanui -narrow gate to
restore flow, Restricts flow area

**W. Wailuanui connectivity is important for native
stream life recovery**

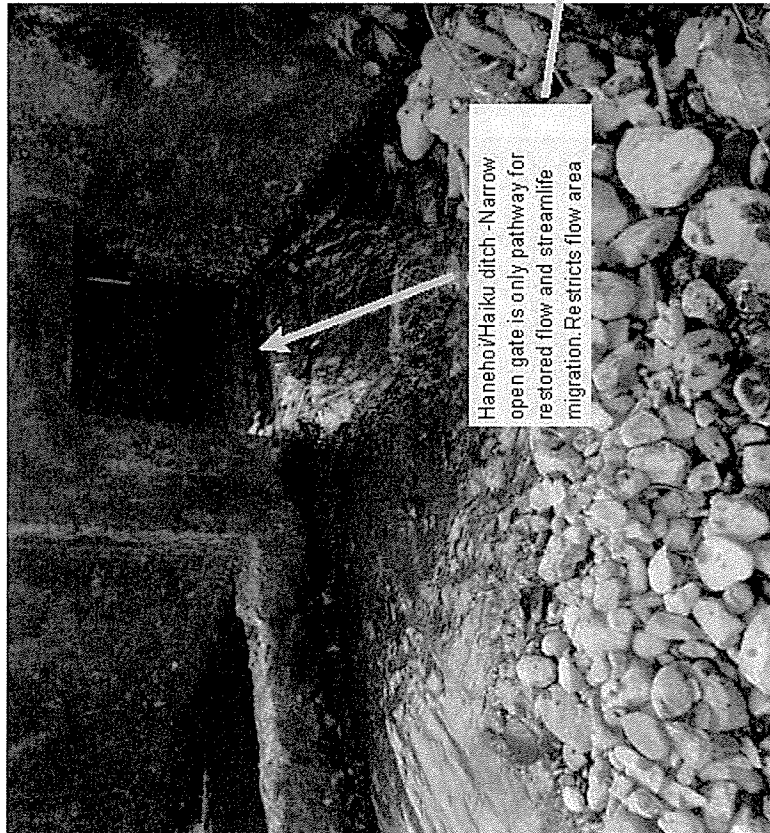
West Wailuanui stream rates better than average for
streams on Maui and statewide. due to range of
habitats present and the number of different native
species observed in the lower parts of the stream.
The stream lacks many of the commonly introduced
species and thus has a relatively intact native biota.

DAR 2009 study



Monday, August 12, 19

Intake H-3 Hanehoi stream New Haiku ditch
Status: to be fully and permanently restored.
Permit Action: CAT.1. Gate removed/grate sealed
Streamlife left with very limited migration path
Recommendation: remove unneeded dam/ catch basin structures

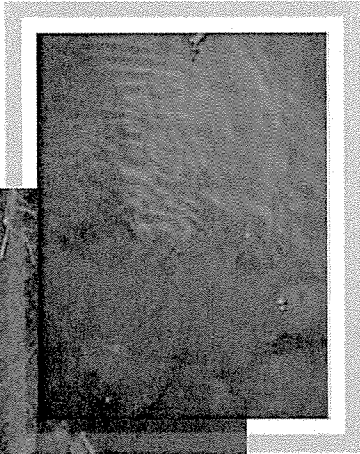
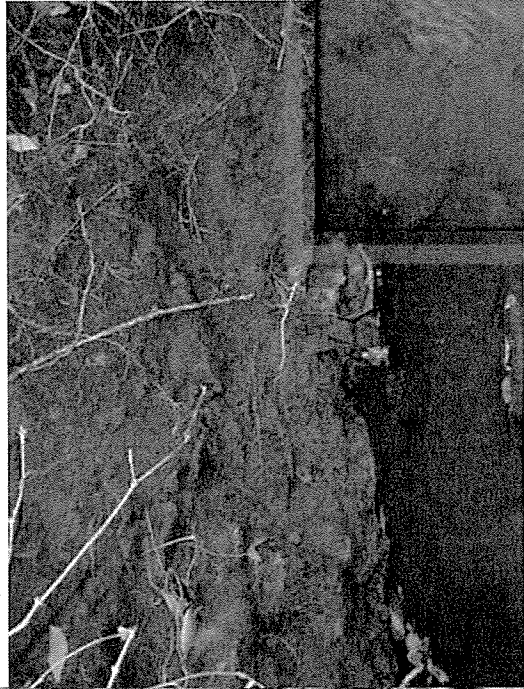


Monday, August 12, 19

**Intake H-3 Hanehoi stream New Haiku ditch
Status: to be fully and permanently restored.**

**Permit Action: CAT.1. Gate removed/grate sealed
Unneeded debris basin facilitates accumulation of stagnant
water and mosquito breeding; Flow concentrated in one spot
erodes soil banks and silts up water.**

**Recommendation: remove unneeded dam/ catch basin
structures create more natural flows**



Monday, August 12, 19

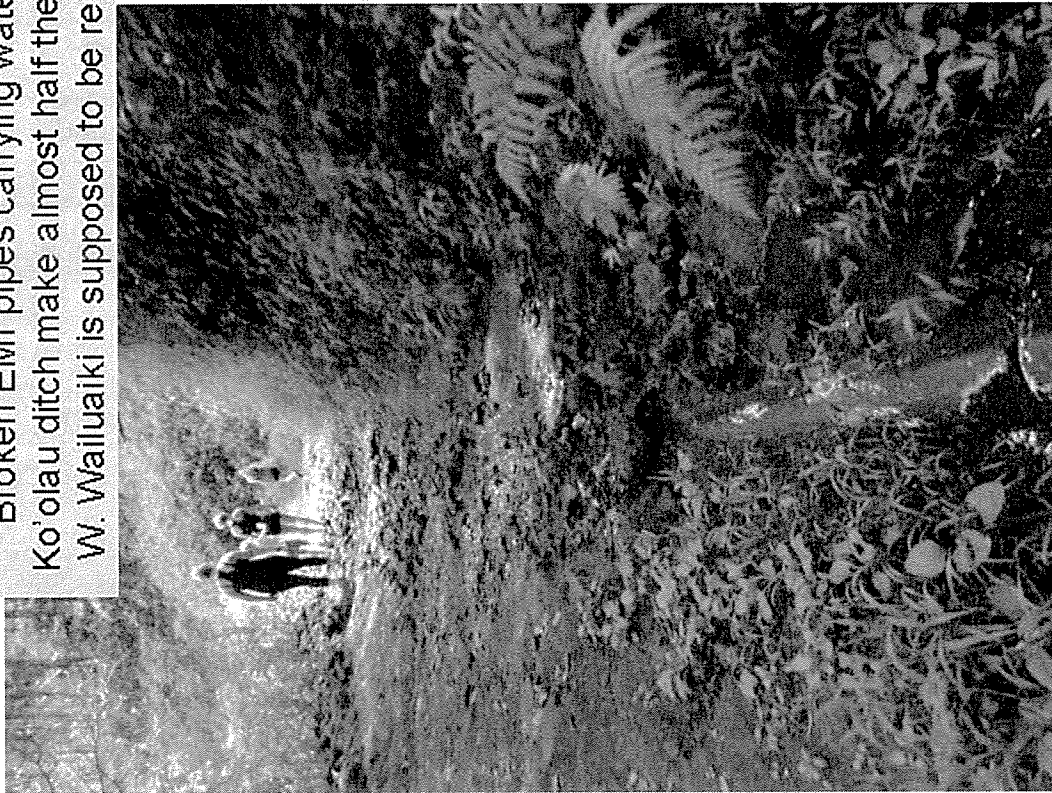
Debris left along public trails on public land threatens the safety of recreational users of public land;

Photo: jagged iron pipe along Wailuaiki Trail on State land



Monday, August 12, 19

Broken EMI pipes carrying water from a W. Wailuaiki stream tributary to Ko'olau ditch make almost half the public trail muddy, slippery and hazardous. W. Wailuaiki is supposed to be restored, but debris like this remains



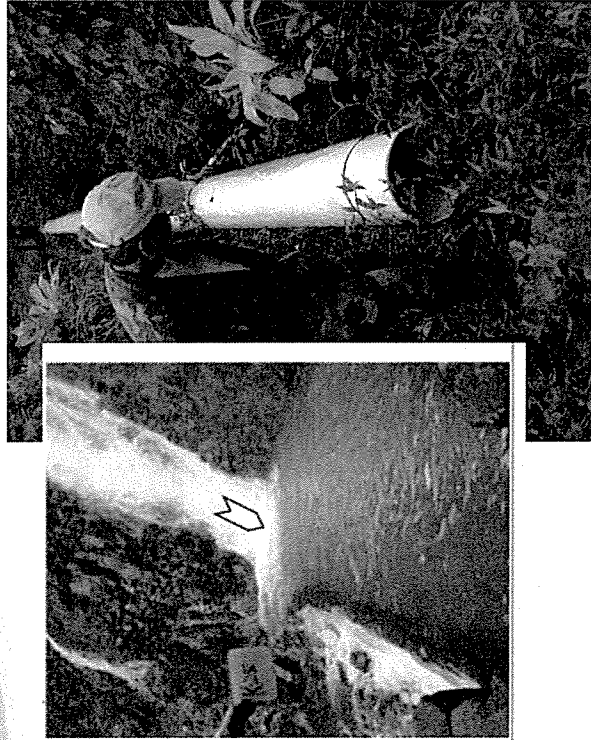
Monday, August 12, 19

Unneeded Irrigation system debris are aesthetically inappropriate in a natural environment, and will essentially become garbage.....

WAIOKAMILO

Waiokamilo Kikokiko Intake

Dec. 2008



Main Kikokiko 6-in intake pipe - severed and no longer operational

Intake K-25 Kikokiko waterfall leads by pipe to Ko'olau ditch

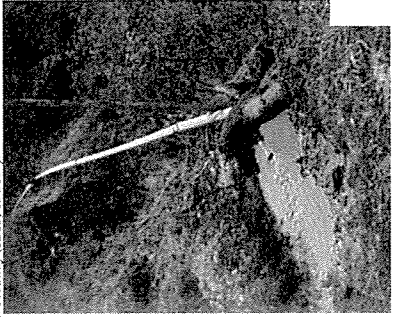

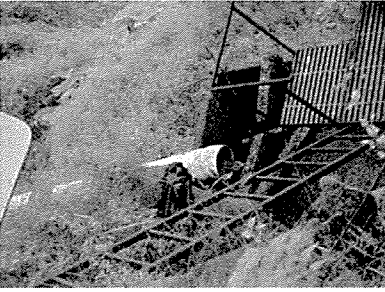


Status: stream to be fully and permanently restored.

Permit Action: Cat 4. Pipe severed but not removed at its source

Recommendation: remove unneeded pipe (photo left) and diversion dam (photo far left) at Kikokiko falls



Table 13-2. Continued. Minor diversions on the EMI System in the Waikamilo hydrologic unit.

Diversion ID	EMI Ditch System	Description
K-25a	Koolau	East Kikokiko 2-inch pipe intake. Concrete catchment basin with pipe.
		Photos. a) Concrete catchment basin captures seepage and transports water to Koolau Ditch below via a PVC pipe (EMI, 05/1989); b) Downstream view from diversion structure (RMT, 12/2007); c) Water dropping into concrete catchment basin below roadway (RMT, 12/2007).
		 a)
		 b)
		 c)
K-22g	Koolau	Koolau Ditch #10 crosscut intake #6. Concrete catchment basin with pipe.
		Photos. a) Concrete catchment basin captures seepage and transports water to Koolau Ditch below via a PVC pipe (EMI, 05/1989); b) Close-up view of disconnected PVC pipe outlet from catchment basin (RMT, 12/2007).
		 a)
		 b)

Intakes K-25-a & K-22-g Waiokamilo Stream Ko‘olau ditch--- State Land

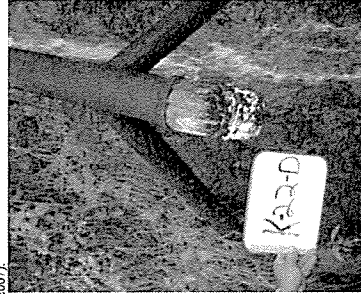
Status: stream to be fully and permanently restored.

Permit Action: CAT 4. Pipes “cut” but not removed at their source

Recommended Action: remove unsightly pipes on public land

Table 13-2. Continued. Minor diversions on the EMI System in the Waiokeamilo hydrologic unit.

Division ID	EMI Ditch System	Description
K-22c	Koolan	Koolan Ditch #10 crosscut intake #2. Concrete entrenchment basin with pipe.
		05/1989). a) Concrete entrenchment basin captures seepage and transports water to Koolan Ditch below via a PVC pipe (EMI, 12/2007). b) Upstream view from below capture of seepage with PVC pipe disconnected (RMT, 12/2007).
K-22d	Koolan	Koolan Ditch #10 crosscut intake #3. Concrete entrenchment basin with pipe.
		05/1989). a) Concrete entrenchment basin captures seepage and transports water to Koolan Ditch below via a pipe (EMI, 12/2007). b) Close-up of disconnected pipe below basin (RMT, 12/2007).



Intakes K-22-c & K-22-d Waiokeamilo Stream Ko'olau ditch-- State Land

Status: stream to be fully and permanently restored.

Permit Action: CAT 4. Pipes "cut" but not removed at their source. piped water may be causing erosions and degradation of trails on state land

Recommended Action: remove unsightly pipes on public land

