STATE OF HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawaiʻi

180-Day Exp. Date: April 14, 2024

March 22, 2024

Board of Land and
Natural Resources
State of Hawaiʻi
Honolulu, Hawaiʻi

REGARDING	Conservation District Use Application (CDUA) OA-3943, for the Kamehameha Highway at Kaʻaʻawa Erosion Mitigation Project
LANDOWNER	City and County of Honolulu
APPLICANT	Department of Transportation, Highways Division
LOCATION	Kaʻaʻawa Beach Park makai of Kamehameha Highway; Koʻolauloa, Oʻahu
TAX MAP KEY	(1) 5-1-002:seaward of 025
AREA OF USE	Approximately 0.43 acres (18,730 square feet) of submerged lands
SUBZONE	Resource & General

EXHIBITS

1. Project location
2. State of Hawaiʻi Conservation District map.
3. Photos.
4. Flood Hazard Assessment Map
5. USGS Atlas of Natural Hazards
6. Certified Shoreline (June 29, 2023).
7. Preliminary construction plan.
8. PacIOOS – 3.2 feet sea level rise exposure area.
9. DOT memo to Chairperson regarding historic properties, May 1, 2023.
10. DOT memo to Chairperson regarding 6E compliance, Feb 14, 2024.

INTRODUCTION

The Department of Transportation (DOT) proposes to construct an engineered rock revetment to address chronic and episodic coastal erosion that is undermining a portion of Kamehameha Highway adjacent to Kaʻaʻawa Beach Park (see **Exhibit 1**). The exposed makai shoulder of the highway has been subjected to wave inundation that resulted in undermining that extends up to 10 feet under the shoulder of the road and extending as far as the makai travel way stripe. This section of highway is in danger of failure and collapse and poses a risk to public safety.

EXISTING LAND USE

The eroding area lies within the General Subzone of the State Land Use Conservation District, while State lands makai of the shoreline lie within the Resource Subzone (see **Exhibit 2**). The proposed work would take place seaward of TMK (1) 5-1-002:025. The parcel is owned by the City and County of Honolulu and is identified as Kaʻaʻawa Beach Park. The proposed project site is adjacent to the makai side of Kamehameha Highway, directly across the highway from Kaʻaʻawa Elementary School. The surrounding land use is residential to the north and west, and the Pacific Ocean and its coastline to the east and south. Prior to the shoreline eroding the site was part of the sandy Kaʻaʻawa Beach Park, however, the area is now a very narrow strand of sandy beach that lies within the shoreline. The remaining sandy portion of the beach park (with the comfort station) lies to the north. South of the project is a seawall constructed of stacked concrete pillars. There is no sandy beach fronting pillars.

The sandy shoreline of Kaʻaʻawa runs approximately 2-miles, with intermittent sandy beaches, from Kaʻōio Point to the south to Swanzy Beach Park to the north. Offshore of the project site is a wide and shallow fringing limestone flat reef stretching 1,000 to 3,000 feet seaward. The fringing reef is divided with deep channels and depressions at various locations with abundant sand deposits.

Kamehameha Highway is the only roadway providing access to communities along the windward coast, connecting the coastal communities of Kāheʻohe, Kahaluʻu, Kaʻaʻawa, Punaluʻu, Hauʻula, and Lāʻie. It is the primary access for police, fire, and emergency medical services. Many portions of the highway that directly follow the coastline are within feet of the shoreline and only a few feet above it. The Department of Transportation – Highways Division records indicate an average daily traffic count of approximately 13,000 vehicles indicating a highly used roadway.

A single power pole guy wire pole is the only utility within the project area.

Around February 2020, to address the erosion threat to Kamehameha Highway the applicant constructed a temporary revetment adjacent to the highway shoulder and capped it with concrete to the same level as the highway. According to the applicant, the structure was not an engineered revetment, but was temporarily built to protect the highway. Boulders from the temporary revetment are dislodging and being deposited on

the beach and the concrete cap is developing cracks and is separating from the highway shoulder (see **Exhibit 3**).

Flora and Fauna

Flora: The only endangered flora in the vicinity, as identified by the United States Fish and Wildlife Service, is the flowering tree kauila. No kauila would be affected by the proposed project. Several coconut trees and milo trees within the proposed revetment footprint will be removed. A tree assessment was done by a ASCA Consulting Arborist, who identified a total of 14 trees and 12 palms within the proposed revetment footprint. The arborist reported that all the palms were overmature and not good candidates for relocation. However, the arborist did recommend trying to preserve 5 of the 12 palms (near the north end of the project site) at their current location and building the revetment around them. The arborist reported that the remaining trees were over mature and stressed with severe root rot and recommended their removal.

Marine Fauna: Green Sea turtles and Hawaiian monk seals may visit the vicinity but are not commonly seen foraging in the nearshore waters or nesting in the area. Construction on the shoreline is not anticipated to generate underwater sounds that would adversely affect marine creatures. The project area has not been designated as critical habitat by the Federal Government or the State of Hawai‘i for endangered species. The dive survey did not identify any listed endangered or threatened marine species.

A biological survey of the nearshore vicinity was conducted from the shoreline to 50 meters out. The survey indicated that the marine habitat was essentially unchanged from the shore to the outer limits of the survey. The most abundant marine life were various species of algae. Corals were relatively rare and consisted primarily of small, isolated colonies of typical Hawaiian reef species. Fish communities were lacking in number of individuals and variety of species. The few fishes observed were small.

Terrestrial Fauna: The Hawaiian hoary bat roosts in woody vegetation and will leave young unattended bats in the trees and shrubs when they forage. To minimize impacts to the hoary bats, woody plants greater than 15-feet tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing (June 1 through September 15). Site clearing will be timed to avoid disturbance to the hoary bats in the project area. OCCL will recommend that this be made a condition of any permit that is approved.

Several bird species, including wetland, forest, and sea birds are listed for the general project vicinity. Specifically, 2 species of sea birds were listed, the band-rumped storm-petrel and the short-tailed albatross. Sea birds fly at night and are affected by artificial light which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines, or towers that protrude above the vegetation line. Any additional use of artificial night light, particularly during each year’s peak fallout period (September 15 through December 15) could result in additional seabird injury or mortality. To address this potential issue, project construction would not involve nighttime work or any additional lighting.

Coastal Hazards

Flood: The Federal Emergency Management Agency (FEMA) flood hazard map for the project site indicates that the parcel is rated as Flood Zone VE (EL 10) over the north and changes to Zone AE (EL 10) over the southern portion. Zone VE indicates a coastal flood zone with a velocity hazard, along with a base flood elevation (BFE – elevation expressed as a height above mean sea level (MSL)) value of 10 in parentheses. For the southern half of the property, a Zone AE designation means that a BFE has been calculated for, but without an additional velocity hazard (see **Exhibit 4**). A BFE value represents the water surface elevation for a 1% annual chance of flood (in this case, based on the 100-year tsunami inundation limits). The BFE value for the northern and southern portions of the property are equivalent, at 10 ft. above MSL.

Additionally, The U.S. Geological Survey's (USGS) Atlas of Natural Hazards in the Hawaiian Coastal Zone places the project area in the erosion risk rating of "4," a high-risk rating (see **Exhibit 5**). The project site is susceptible to erosion without mitigation efforts. There is a current certified shoreline for the project area (see **Exhibit 6**).

Tsunami: Most tsunamis that have impacted the State have originated from tectonically active areas in the Pacific (known as the Ring of Fire) such as Japan, the Aleutian Islands, Alaska, Chile, etc. Seismic waves originating from earthquakes in these locations typically takes hours to reach Hawaiʻi. Buoy sensors that are part of the Pacific tsunami warning system gives Hawaiʻi several hours of advance warning of impending tsunamis. Although less common, tsunamis have originated from seismic activities within the Hawaiian Islands. There is much less advance warning for the arrival of these waves. Fletcher et al. (2002) report that 10 of the 26 tsunamis with a flood elevation greater than 3.3 feet that have made landfall in the Hawaiian Islands during recorded history had significant damaging effects on Oʻahu. This means, on average 1 damaging tsunami reaches Oʻahu every 19 years. The recent record (1946 to present) shows 4 tsunamis caused damage on Oʻahu. This equates to the approximate historical average of 1 damaging tsunami every 19 years. As such, there is a possibility of the revetment experiencing a damaging tsunami during its projected 25-year life expectancy.

Hurricane: Hurricane season for Hawaiʻi runs from June 1 to November 30. Hurricanes generally form off the west coast of Mexico and move westward across the Central Pacific. Based on historical data hurricanes typically pass south of the Hawaiian Islands and occasionally veer north of the islands. Late season hurricanes tend to form south of the islands and move north towards the islands. Three hurricanes have passed over or through the islands in the past 25 years. Hurricane Iwa in 1982 which passed near Kauai, Hurricane Iniki in 1992 which passed over Kauai, and Hurricane Iselle in 2014 which passed over the Big Island. These storms caused significant damage along the shorelines of the Hawaiian Islands.

In recent years, there have been several close calls hurricanes. Hurricane Hector and Lane both in 2018, and Hurricane Douglas in 2020. Although not as destructive, these hurricanes did inundate the shorelines causing debris, sand, and rocks to be deposited on roadways, including Kamehameha Highway in the vicinity of the project area. As such,

the project area may be impacted by hurricanes passing in close vicinity to, or over, the islands.

Historical and Cultural Resources

Pre-western contact settlement in the Kaʻaʻawa area is not well documented. Military records from the 1830s indicate that several hundred people lived in Kaʻaʻawa, and less than 3,000 people lived in the entire Koʻolauloa district. During the time of the Mahele (mid 1800s) which divided land among the king, chiefs, and government, private land ownership was introduced. Majority of Kaʻaʻawa valley was purchased by Dr. Gerrit P. Judd in 1870 and became Oʻahu Plantation and later Kuʻuloa Ranch Ltd. in 1927. Also, in 1927 the Kaʻaʻawa Military Reservation was established to support the Jungle Warfare Center in Kahana Valley. The reservation was located approximately where Swanzy Beach Park is today. The reservation land was returned to the Territory of Hawaiʻi in 1953.

Because of the limited development in the Kaʻaʻawa area only a small number of archaeological investigations have been conducted. Many of the archaeological investigations were in response to inadvertent discoveries of skeletal remains, and small archaeological surveys and monitoring projects close the coastline. No large-scale inventory surveys have been done in Kaʻaʻawa.

During J. Gilbert McAllister (1933) island-wide reconnaissance survey, which focused on monument features (including heiau) and traditional sites, he documented human remains eroding out of the beach berm south of the project site. Recently, at least 20 traditional Hawaiian burials (or fragment remains) have been documented along the coastline in Kaʻaʻawa. An investigation of one of the burial sites showed both traditional Hawaiian materials and a small piece of post-contact material in the deposit.

International Archeology, LLC completed an archaeological inventory survey for the proposed project. A total of 6 test units were excavated at 4 locations along the makai right-of-way of Kamehameha Highway. The test results identified traditional to early historical deposits and feature designated as a component of Site 50-80-06-7122. The deposit contained midden, charcoal, FCR (fire-cracked rock; by-product of the use of hot rocks for cooking and heating purposes), and a low number of artifacts. A radiocarbon determination from a sample taken at the base of the deposit indicates human activities began sometime between 13th to early 15th century.

Since the construction would involve excavation in the beach and road shoulder area an archaeological monitor will be on site during the project construction should any archaeological remains be unearthed.

PROPOSED USE

Revetment Construction

The proposed project is to construct an engineered boulder rock revetment along an approximately 450-feet long section of the shoreline. The goal is to prevent progressive erosion and scour from undermining and destabilizing the northbound lane of Kamehameha Highway. The application states, the porous revetment would absorb a significant amount of the incoming wave energy and would prevent the downward motion of the wave energy from the vertical erosion scarp. The most common method of revetment construction is to place an armor layer of stone, sized according to wave height, over an under-layer and filter designed to distribute the weight of the armor layer and to prevent loss of fine material through voids between stones.

The armor stones would be basalt rock with a weight of 1,300 to 2,200 pounds each, placed over 130 to 230 pounds underlayer stone and geotextile fabric (see **Exhibit 7**). The design crest elevation is +8 feet mean sea level, equivalent to the highway elevation, with a width of 6.6 feet, and a front slope of 1:1.5 (vertical to horizontal). A rock toe scour apron extends another 4.4 feet seaward. In its completed form the revetment will be approximately 22 feet wide as measured from the landward edge of the crest to the seaward edge of the toe, and with a length of approximately 450 feet measured end to end. The revetment crest would be the same as the highway elevation, so it would not obstruct the ocean view.

Construction of the revetment will occur in 25 feet increments starting from north end of the project site and proceeding towards the south, this would help prevent exposing the geotextile filter fabric and bedding to damaging wave action. The construction work will involve clearing, excavating, filling, grading, stockpiling of salvaged material, slope penetration, geotextile filter fabric placement, underlayer stone placement, and finally armor stone placement. All excavated beach sand will be stockpiled on the beach above the mean higher high-water line to the north side of the advancing construction.

The engineered rock revetment is intended to be a shoreline mitigation measure designed to prevent progressive erosion and scour from undermining and destabilizing the northbound lane of Kamehameha Highway. The project's design life is approximately 25 years, which is considered a short- to medium-term solution with respect to typical infrastructure lifespan. The revetment design will follow the guideline provided by the US Army Corps of Engineers (USACOE) *Coastal Engineering Manual* (2006) and *EM* 1110-2-1614, *Design of Coastal Revetments, Seawalls, and Bulkheads*.

The structure size has been minimized to the extent possible while still meeting the project needs. The proposed revetment will protect the highway while longer term planning for the windward coast can be pursued.

A power pole will be temporarily stabilized during the construction. The existing guy wire configuration will be replaced following completion of the project. There is no telecommunication, power lines, or Board of Water Supply municipal water system within the project area.

Site Access

The site access will be directly from Kamehameha Highway fronting the work area. Closure of the northbound lane of Kamehameha Highway is likely during the construction as the road shoulder is narrow at the project site. The staging area for materials will be at the north end just south of the Kaʻaʻawa Beach Park comfort facility (men/women restrooms and shower area).

The revetment would be constructed almost entirely landward of the water line. Only a portion of the toe scour apron would extend seaward of the mean higher high water (+1.1 feet). The footprint of the revetment would be in the sandy beach shoreline, essentially devoid of marine life.

ALTERNATIVES CONSIDERED

1. **No Action**. This action would result in continued erosion of the underlying and now exposed embankment, the progressive undermining of the road shoulder, and the development and expansion of new void spaces beneath the northbound lanes of the highway. Without appropriate erosion mitigation, Kamehameha Highway will eventually become fully undermined and rendering it unusable until repairs can be done.

2. **Highway Relocation**. Kamehameha Highway is immediately adjacent to Kaʻaʻawa Elementary School and a densely developed residential neighborhood. The residential streets are very narrow and not designed for heavy vehicles such as trucks and busses that regularly use the highway. Mauka of the residential area the topography rises steeply with dense rainforest growth on the rugged Koolau mountains. Highway relocation would require extensive alteration and grading and require a large amount of private land acquisition to proceed with a highway bypass solution.

3. **Protective Beach**. Placing suitable sand along a shoreline can be an effective means of mitigating beach loss, protecting against shoreline recession, protecting the back shore area, and providing for recreational enjoyment. However, beach nourishment requires a suitable source of beach quality sand and of sufficient quantity to meet the needs of the project. The project site is a chronically eroding shoreline, and a previous attempt to place sand along the shoreline was not successful. The shoreline is exposed to significant wave energy and wave driven longshore currents that flows north to south, which quickly removes sand that is placed on the beach. Groin structures would need to be used to stabilize the beach fill. A groin is a structure built perpendicular to the shoreline and is designed to prevent longshore transport of sand and slow sand movement and erosion of a beach. Groins can be used to trap sand and build a protective beach where there is significant longshore sand volume available and the effects on the downdrift shoreline are not considered to be a concern. Given the limited project purpose – to protect the highway in the most effective, efficient, and with the least impact –

and the short (450 feet) project area, the construction of a stable protective beach is beyond the project scope.

4. **Alternative Revetment Material**. ElcoRock sand filled geotextile containers were considered an alternative means of a revetment construction. ElcoRock is a geotextile container filled onsite with sand and is stacked to form a revetment structure. Each container is 6ft. by 8ft. by 2ft. high and has a volume of 2.5 cubic meters and has a fill weight of approximately 10,000 pounds, which will provide a very stable structure for the project site. However, the ElcoRock average life span is approximately 10 years in a sun and seawater environment and would not provide erosion protection for the 25-year project objective.

OCCL believes that alternatives 1, 2, and 4 do not seem to be feasible, immediate solutions that would meet the project criteria of 25-year mitigation objective. Alternative 2 (highway relocation) should remain as a possible option to be pursued in the long term as this solution would physically relocate the highway away from the coastline area.

Alternative 3 (protective beach) seems to be a very viable possible long-term solution. Groins have been shown to accrete sand by interrupting longshore currents and allowing suspended sand to deposit in the shoreline area. This alternative coupled with repair to the makai shoulder of the highway and the addition of a set of concrete stairs access to the beach would provide a solution that would repair the highway and possibly allow the accretion of a sandy beach area. This alternative could provide a win-win situation for the applicant, the community, and the visiting public.

MITIGATIVE ACTIONS AND PRACTICES

General and Site-Specific Best Management Plans (BMPs)

The proposed revetment has been designed to be compatible with standard construction as well as site specific BMPs, including but not limited to:

- Turbidity containment devices (silt curtains) shall be installed around the area of groin construction, sand recovery, and sand placement.
- Visual monitoring for turbidity outside of the silt curtains shall be conducted. If turbidity is observed, work shall stop, and the silt curtains shall remain in place until the turbidity dissipates. The silt curtains shall be inspected after dissipation and prior to resuming work.
- All construction personnel on site shall be informed of the potential for endangered species that may occur within or transit through the project area. It shall be made clear that any intentional physical interactions with identified threatened or endangered species is explicitly prohibited.

- A competent observer shall be designated to observe the construction work area and vicinity for the presence of federally listed species, including but not limited to, green sea turtles, hawksbill sea turtles, and Hawaiian monk seals. Visual surveys up to 150 feet from the work area shall be made prior to the start of each workday and following any breaks of more than one-half hour in both water and beach areas.
- A 150 feet safety zone shall be established around the project area where a competent observer shall visually monitor the area for marine protected species 30 minutes prior to and 30 minutes after post-project in-water activity. The observer shall record information on the species, numbers, behavior, time of observation, location, start and end time of activity, characteristics of the marine species, and any observed disturbances of the work on the species (visual or acoustics).
- Work shall be conducted only if the safety zone is clear of all marine federally protected species.
- Upon sighting of a marine federally protected species within the safety zone during active work, all work shall immediately cease until the animal has left the zone. If a protected species enters the safety zone, and the work cannot be stopped, observations shall be made, and NOAA-NMFS staff in Honolulu shall be immediately contacted to facilitate agency assessment of the collected data. Work may commence after the animal voluntarily departs the area.
- All equipment and material shall be free of contaminants of any kind including excessive silt, sludge, anoxic or decaying organic matter, clay, dirt, oil, floating debris, grease, foam, or any other pollutant that would affect beach or water quality.
- All work to cease in the event of unusual conditions, such as large tidal events or high surf conditions, affects the project site, except for efforts to avoid damage to natural resources, such as the temporary removal of silt curtains.
- Construction site inspections and debris clean-up and disposal will be made at end of each workday. Equipment not being used shall be removed from the work site. A full inspection of the work site shall be conducted at the end of the project to ensure no construction waste is left on site.
- Nighttime work or work requiring artificial light is prohibited. No new light source shall result from this project.
- Any injury or take of green or hawksbill sea turtles on land shall immediately be reported to the U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office at (808) 792-9400, and the Army Corps of Engineers (ACOE) at (808) 835-4303 and CEPOH-RO@usace.army.mil. Similarly, any injury or take of green or hawksbill sea turtles or monk seal in the water shall immediately be reported to NOAA-NMFS 24-hour hotline at 1-888-256-9840, and the ACOE, and CEPOH-

RO@usace.army.mil. The incident should also be reported to the Pacific Island Protected Species Program Manager, Southwest Region at (808) 973-2987.

Historic and Cultural Resources Mitigation Actions

- At a minimum, an archaeological monitor shall be onsite during construction. Should any unanticipated archaeological sites or remains, such as walls, platforms, pavements, mounds, or remains such as artifacts, burials, or concentrations of charcoal or shells be uncovered by the work activity, all work shall cease in that immediate area and the contractor shall notify the SHPD. No work shall resume until a SHPD clearance is obtained.

SUMMARY OF COMMENTS

The Office of Conservation and Coastal Lands referred the application to the following agencies for review and comment: DLNR - Division of Aquatic Resources, Historic Preservation Division, Division of Conservation and Resource Enforcement, Division of Forestry and Wildlife, Engineering Division, Oʻahu District Land Office; Office of Hawaiian Affairs; United States (US) Army Corps of Engineers; Department of Business, Economic Development and Tourism - Office of Planning and Sustainable Development; Department of Health – Environmental Planning Office; City and County of Honolulu - Department of Planning and Permitting; Kaʻaʻawa Community Association; Koʻolauloa Neighborhood Board; Aha Moku Advisory Committee. The application was forwarded to the Kāneʻohe Public Library and was also available on OCCL's website for review.

The following written comments and/or testimony were received from individuals and agencies, and summarized by staff:

DLNR-Division of Forestry and Wildlife

No objections.

DLNR – Land Division

Any improvements makai of the certified shoreline requires a land disposition, likely in the manner of a permanent easement from the Land Board.

C&C – Department of Planning and Permitting

No objections.

US Army Corps of Engineers (ACOE)

It appears that jurisdictional waters may be present within the project boundaries, but there is not enough information for a determination of the requirement for a ACOE permit to be made.

The ACOE regulatory authorities are based on Section 10 of the Rivers and Harbors Act (RHA) of 1899 and Section 404 of the Clean Water Act (CWA). Section 10 of the RHA prohibits the obstruction or alteration of any navigable water of the U.S. (WOTUS) without a Department of Army (DA) permit. Section 404 of the CWA prohibits the discharge of dredged or fill material into WOTUS without a DA permit.

It appears that there is potential for a discharge of fill below the high tide line. If a ACOE permit is required, then we will require an application. We must also evaluate the project for any impacts to resources such as threatened or endangered species, historic properties, and/or essential fish habitat, and consult if necessary. If applying for a permit, include detailed plans/drawings of the proposed project where waters are present. Include a clear line indicating the ordinary high-water mark or high tide line in your plans and include the amount and type of fill that would be placed below the line.

A permit is not required if all work being done is in uplands.

Applicant's response

Please note that by letter dated July 11, 2022, your office verified that the proposed project complies with the terms and conditions of Nationwide Permit #3 (Maintenance). Reference DA File No. POH-2020-00156.

DBEDT – Office of Planning and Sustainable Development

1. CZMA Federal Consistency. Per DEA response letter, Item #1, a DA Nationwide Permit (NWP) #3 (Maintenance) was issued by the ACOE on November 23, 2021. It was determined that the NWP #3 permit was not subject to CZMA federal consistency. However, the proposed roadway erosion mitigation project would be partially constructed in navigable waters. Should an additional federal license or permit be required for this project, then the project may be subject to further CZMA federal consistency consideration.
2. Beach Protection. There is low-lying strand of sandy beach along most of the shoreline at this location. OPSD suggests that the discussion of "Beach protection" on page 14, of the subject CDUA respond to the objective and policies of beach protection set forth in HRS §§ 205A-2(b)(9) and (c)(9), as amended, to assess and minimize the potential impacts on the sandy beach from the proposed rock revetment project.
3. Lateral Shoreline Access. For the potential impacts on the surrounding beach and shoreline access, the OPSD recommends that the CDUA includes a reference to the response, dated June 14, 2022, to OCCL's comments (Comment 7) on the DEA relating to lateral shoreline access.

4. Public Shoreline Access. The onsite construction is estimated to take 120 days, and the project will impact recreational activities and public access to the shoreline during construction. The CDUA needs to assess and mitigate the impacts of the proposed construction on the public shoreline access with site-specific mitigation measures.

Applicant's response

1. CZMA Federal Consistency. The project has been issued a DA Nationwide Permit #3 (Maintenance) and does not require a CZMA federal consistency review. Should further federal permitting be required which may require a CZM review, we will coordinate with OPSD, CZMA.
2. Beach Protection [reference HRS § 205A-2(b)(9) and (c)(9), objectives and policies of beach protection]. As stated in the CDUA the nearshore coastal processes are driven by the prevailing trade wind waves and the nearshore bathymetry. The extensive shallow reef shelf and adjacent deep channel combine to create the nearshore circulation pattern and longshore sand transport in the project area. There is a steady shore-parallel (longshore) current that flows along the beach in a north-to-south direction. This longshore current is generated by the mass flow of water-driven over the shallow reef by the persistent, short period, breaking waves from the prevailing trade winds. During the winter season large north swell increases the current intensity. This relatively vigorous current terminates south of the project site as it flows off the shallow reef and into a small, slightly deeper (8-10 feet) basin just north of the cobble stream mouth deposit. Here the current makes a U-turn as it empties into and flows back out through the submerged Kaʻaʻawa Stream channel. This current does not reverse direction but simply varies in intensity by increasing in velocity with increases in the offshore wave height. This longshore current is strongest during periods of large winter season north swell wave events. The narrow strand beach along the shore varies in width seasonally and depending on the strength of the longshore current.

   Oʻahu Shoreline Study Erosion Maps prepared by the University of Hawaiʻi, Coastal Geology Group, show the shoreline in the project vicinity to be persistently and chronically eroding with long-term shoreline recession of 0.5 – 1 foot per year. In 1975, a joint ACOE and C&C beach nourishment project placed 9,300 cubic yards of sand along the shoreline. The sand rapidly disappeared, and no renourishment has been accomplished since. Following the renovation of Kaʻaʻawa Beach Park comfort station, erosion threatened the building, and it was protected by a cemented rock revetment. The project site is currently bound by a rock revetment to the north and vertical concrete block seawall to the south. The proposed revetment is the minimum size and footprint necessary to meet the project purpose of protecting the highway from erosion damage. The revetment will directly abut the existing shoreline bank and will change a near vertical eroding earthen and boulder scarp into a stable sloping porous rock face. The proposed project will not alter the nearshore bathymetry and will not significantly alter the topography. It will not alter longshore current or longshore sand transport patterns.

The porous sloping revetment will dissipate more wave energy and be less reflective than the existing eroding shoreline and vertical bank. However, it is also recognized that this is a very energetic coastline, with limited available sand resources. Armoring of the shoreline to protect the highway will fix the shoreline position, and prevent it from migrating inland as it erodes, and thus may reduce the potential for a beach in the future. In addition, energy at the shoreline is expected to increase with future climate change and sea level rise, and the narrow sandy shoreline may over time disappear entirely.

3. Lateral Shoreline Access. As previously discussed, the narrow strand beach along the shore varies in width and elevation seasonally, and with prevailing wave and current conditions, and thus lateral access along the shoreline on the beach is highly variable. A good example of the impact of a structure on the beach is the existing vertical concrete seawall located at the south end of the proposed revetment. The beach fronting the seawall consistently varies depending on the wave and current conditions, sometimes it's wide and above high tide, and sometimes it's narrow and submerged. However, this appears to be a function of the sand availability and prevailing waves and current and does not appear to be affected by the presence of the seawall. If there is sand available and coastal conditions permit the beach accretes, when conditions change it can disappear, in a variable cycle of accretion and loss. The proposed project is not expected to change these fundamental coastal processes in the project vicinity, and the beach is expected to continue to vary in width and elevation, thus lateral access availability will vary. Over time however, in the face of climate change and sea level rise, the narrow beach may disappear altogether.
4. Public Shoreline Access. For constructability and safety reason public shoreline access in the project vicinity will be restricted during weekdays (Monday-Friday) when construction is in progress. However, access to Kaʻaʻawa Beach Park and the shoreline will not be restricted on weekends and State holidays, except for possible discrete locations where the condition of the shoreline due to in process construction is considered possible hazardous.

Marvalynn Keama-Medeiros (support)

Ms. Keama-Medeiros states the road is in disarray and it's embarrassing as well as extremely unsafe. Also, there other projects not as urgent as fixing Kam Hwy, such as the roundabout in Kahaluʻu. She is for the roundabout; however, priority should be Kam Hwy Kaʻaʻawa. The roads are getting worse each season.

Applicant's response

The Hawaiʻi Department of Transportation (HDOT) appreciates your support for the proposed highway protection project and notes your concern that this vital highway serving the residents of the windward coast be maintained.

Jessica Dillen (support)

Ms. Dillen states our community needs to have reliable infrastructure which include roadways. Having a reliable route home from work without having to constantly check for road closures would be life changing. A notification of road closure in Kāheʻohe would also improve quality of life.

Applicant's response

The HDOT appreciates your support for the proposed highway protection project and notes your concern that this vital highway serving the residents of the windward coast be maintained. We also note your desire for timely and easily accessible notification when there are highway closures. There will be a need for north bound land closure and contra-flow traffic at Kaʻaʻawa during project construction. We will, however, endeavor to keep the community informed of construction activities in a timely manner.

Christine Carrillo (support)

Ms. Carrillo states the current condition of the highway not only poses a risk to public safety but also hinders the community's economic and social well-being. She states the deteriorating condition has become a significant hazard. Potholes and uneven road surfaces are a safety concern for motorists and pedestrians. In recent months, there have been several incidents, including minor accidents and near misses, which could have been prevented with better road conditions.

She further states the highway affects local businesses. The disrepair condition of the highway discourages tourism and impedes the smooth operation of local commerce. Tourist often comment of the poor road conditions, which negatively impacts the overall impression of Kaʻaʻawa and dissuades them from returning or recommending to others.

Moreover, the highway's condition affects the daily lives of Kaʻaʻawa residents. Commutes have become longer and more stressful, impacting the quality of life and productivity of the community.

Repairing Kamehameha Highway would be a valuable investment in the safety, economy, and quality of life in Kaʻaʻawa.

Applicant's response

The HDOT appreciates your support for the proposed highway protection project and notes your concern that this vital highway serving the residents of the windward coast be maintained.

Sally Greene (support)

Ms. Greene states the stability of the road is critical to many communities along the Windward coast. It is necessary for emergency vehicles, work, and school commutes, and to secure supplies and services.

Applicant's response

The HDOT appreciates your support for the proposed highway protection project and notes your concern that this vital highway serving the residents of the windward coast be

maintained. We also note your desire for timely and easily accessible notification when there are highway closures. There will be a need for north bound land closure and contra-flow traffic at Kaʻaʻawa during project construction. We will, however, endeavor to keep the community informed of construction activities in a timely manner.

ANALYSIS

On October 17, 2023, the Department notified the applicant that:

1. The proposed uses are identified land uses in the General subzone of the Conservation District, pursuant to the Hawaiʻi Administrative Rules (HAR), 13-5-22, P-15, **SHORELINE EROSION CONTROL**, (D-1) Seawall, revetment, groin, or other coastal erosion control structure or device, including sand placement, to control erosion of land or inland area by coastal waters, provided that the applicant shows that (1) the applicant would be deprived of all reasonable use of the land or building without the permit; (2) the use would not adversely affect beach processes or lateral public access along the shoreline, without adequately compensating the State for its loss; or (3) public facilities (e.g., public roads) critical to public health, safety, and welfare would be severely damaged or destroyed without a shoreline erosion control structure, and there are no reasonable alternatives (e.g., relocation). Requires a shoreline certification.

   The above land uses require a permit from the Board of Land and Natural Resources, who have the final authority to modify, grant, or deny any permit;

2. Pursuant to HAR, §13-5-40, a Public Hearing will be required;

3. In conforming with the Hawaiʻi Revised Statutes (HRS), Chapter 343, as amended, and HAR, Section 11-200, the Final Environmental Assessment (FEA) and Findings of No Significant Impact (FONSI) was published in *The Environmental Notice* on June 23, 2022, for the Kamehameha Highway at Kaʻaʻawa Erosion Mitigation. The FEA was reviewed and a FONSI was determined by the State of Hawaiʻi, Department of Transportation;

4. Prior to presenting the application to the Board of Land and Natural Resources (BLNR) our office will need:

   a. A stamped certified shoreline map.
   b. State of Hawaiʻi Historic Preservation Division 6E determination; and
   c. To contact Land Division for any necessary land disposition.

The County determined the project is not in the Special Management Area.

Notice of CDUA OA-3943 was published in The Environmental Notice on November 8, 2023.

OCCL held a public hearing on November 29, 2023, at the Kaʻaʻawa Elementary School. Representatives from the Department of Transportation and Sea Engineering (consultants) were present. All testifying attendees were in support of the proposed project. Community members made two requests regarding the project; 1) Being located across the highway from the project, Kaʻaʻawa Elementary School requested to be notified at least one week before the work starts so parents and school staff can be informed, and, 2) If, in the future, Kamehameha Highway is realigned mauka into the neighborhood, the commenter requested that speed bumps be placed along the new highway to deter speeding.

OCCL will recommend that the Board make notifying the school a specific condition of the permit.

CONSERVATION CRITERIA

The following discussion evaluates the merits of the proposed land use by applying the criteria established in HAR §13-5-30.

1) The proposed use is consistent with the purpose of the Conservation District.

   The objective of the Conservation District is to conserve, protect and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.

   The intent of the project is to provide much needed erosion mitigation along the shoreline for a limited stretch of Kamehameha Highway. The HDOT recorded the Annual Average Daily Vehicle Traffic count as 13,000 vehicles. It is the primary access for police, fire, and emergency medical vehicles. If the ongoing erosion forces closure of the highway at the project site all vehicles would have to detour through the narrow residential streets to bypass the closure, including trucks, busses, emergency vehicles, and commuters going to work. The proposed project would eliminate this possible significant impact on transportation in the Kaʻaʻawa area.

   The erosion control structure shall prevent shoreline erosion and protects the public right of way that provides transportation for people, goods and services.

2) The proposed land use is consistent with the objectives of the Subzone of the land on which the use will occur.

   The objective of the Resource Subzone is to “ensure, with proper management, the sustainable use of the natural resources of those areas.” The objective of the General Subzone is to “designate open space where specific conservation uses may not be defined, but where urban use would be premature.”

HAR § 13-5-22, (P-15), provides for the use of shoreline erosion control revetments for "(3) public facilities (e.g., public roads) critical to public health, safety, and welfare would be severely damaged or destroyed without a shoreline erosion control structure, and there are no reasonable alternatives (e.g., relocation). The proposed revetment is a mid-term solution for the protection of the critical roadway, with a design life of approximately 25 years. The structure size has been minimized to the extent possible while still meeting the project needs. The project will protect the highway while longer term planning for the windward coastline can be accomplished.

3) The proposed land use complies with the provisions and guidelines contained in Chapter 205A, HRS entitled "Coastal Zone Management", where applicable.

Coastal Zone Management (CZM)

- **Recreational resources**. Kaʻaʻawa Beach Park is an ideal location for coastal recreation. The project site is along a sandy shoreline within the Kaʻaʻawa Beach Park which is under the jurisdiction of the City and County of Honolulu. The area is heavily utilized year-round by the local community for fishing, snorkeling, swimming, paddling, sailing, surfing, and spearfishing. The proposed project would result in temporary shoreline recreation impacts during construction but would not result in long-term recreation impacts. Currently, the project site is very degraded and unsafe, with numerous rocks and boulders undermined, and overhanging road shoulder. The revetment is not expected to significantly alter the existing recreational resource.

  During the construction work hours, public access would be managed to promote public (and construction crew) safety and welfare

- **Historic Resources**. Kamehameha Highway was constructed as a paved automobile roadway in the late 1920s. on top of the 19th century government road which in turn followed a pre-contact trail. Construction would entail very limited excavation in dynamic and already heavily altered shoreline, and any discovery of archaeological remains or burials is considered unlikely. The project will be coordinated with State Historic Preservation Division.

  International Archaeology, LLC completed an archaeological inventory survey for the project area. A total of 6 test units were excavated at 4 locations along the makai right-of-way of the highway. The testing resulted in the documentation of a traditional to early historical deposit (Layer VI) and feature designated as component of Site 50-80-06-7122. The deposit contained midden, charcoal, FCR, and a low density of artifacts. A radiocarbon determination indicated human activities began sometime between the 13th to early 15th century.

  Pursuant to HAR §13-284-6, Site 50-80-06-7122 is evaluated as significant under "criteria d" (it has produced information important for research on prehistory or history) and "criteria e" (have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once

carried out, or still carried out, at the property due to associations with traditional beliefs, events or oral accounts – these associations being important to the group's history and cultural identity).

Construction would involve a small amount of excavation in a dynamic and already sand and sediment shoreline bank. An archaeological monitor will be on site during construction should archaeological remains be discovered.

- **Scenic and Open Space Resources**: The proposed revetment crest would be the same as the highway elevation, so it would not obstruct the view. Additionally, the revetment would be constructed of native basalt rock and would look like numerous existing locations on the Windward coast where the highway is protected by a rock revetment.

- **Coastal Ecosystems**: The revetment would be constructed almost entirely landward of the water line, in an eroding and shifting sandy shoreline. Results of the marine ecosystem investigations show that most abundant benthic biota to be algae, corals are rare, and fish communities are lacking in number and variety. The project will reduce erosion of the shoreline and nearshore turbidity. Best Management Practices including environmental protection and turbidity containment barriers around the active construction area will be implemented to protect the coastal ecosystem.

  The total footprint of the revetment will be approximately 10,660 square feet, and which will be almost entirely landward of the mean higher high-water line (+1.1 feet), i.e., out of the water. Only a small portion (approximately 435 square feet) of the toe scour apron will extend seaward of the mean higher high-water line. As such, the project impacts on the surrounding coastal ecosystems are not considered significant.

  Best Management Practices including environmental protection and turbidity containment barriers around active construction areas will be implemented to protect the coastal ecosystem. Recommendations from the U.S. Fish and Wildlife Service and NOAA-National Marine Fisheries Service will be followed for the protection of threatened and endangered species, such as the green sea turtles and Hawaiian monk seals.

- **Economic Uses***:* Protection of the highway in the project area is essential to maintaining accessibility to not just Kaʻaʻawa, but the entire windward coast.

- **Managing Development**: Improve the development review process, communication, and public participation in the management of coastal resources and hazards. The project will require a Department of Army permit for work in navigable waters (a Nationwide Permit #3 for Maintenance was issued on November 23, 2021), an Environment Assessment in accordance with Hawaiʻi Revised Statutes (HRS), Chapter 343, and a Conservation District Use Permit pursuant to Hawaiʻi Administrative Rules (HAR), Title 13, Chapter 5. The

Kaʻaʻawa Community Association has been consulted and a virtual meeting held, and they have submitted a letter support for the project.

- **Public Participation***: Stimulate public awareness, education, and participation in coastal management*. A public hearing was held on November 29, 2023, at the Kaʻaʻawa Elementary School which is located directly across from the project site.

- **Beach and Coastal Dune Protection***:* The nearshore coastal processes are primarily driven by the prevailing trade wind waves and the nearshore bathymetry. The extensive shallow reef shelf and adjacent deep channel combine to create the nearshore circulation pattern and longshore sand transport along the beach in a north-to-south direction. This current does not reverse direction but varies in intensity with the strongest current occurring during the large winter season swells. The narrow strand of beach varies in width seasonally depending the on strength of the longshore current. The project will impact recreational activities and public access during construction, and impede natural beach and dune migration in the long run.

- **Marine and Coastal Resources**:

  No significant long-term impacts to marine resources are anticipated to result from the proposed project. Environmental construction specifications and Best Management Practices (BMP) will be formulated to protect marine resources, including water quality, benthic flora and fauna, corals, fishes, and endangered species. The project will coordinate with NOAA National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, and the ACOE.

- **Coastal hazards**. Flood Rate Insurance Maps indicate that Kaʻaʻawa is in a flood zone and is exposed to potential tsunamis and hurricanes. The proposed project is not expected to affect the project area exposure to coastal hazards. The proposed revetment would help protect the highway during coastal hazard conditions.

  It should be noted that climate change and sea level rise may be very significant and may likely affect the proposed revetment's integrity and various repaired sections of the road's shoulder regardless of the design parameters of the revetment accounting for a 3.2 feet of sea level rise during the revetment's designed life span (see **Exhibit 8**).

- **Public participation**. The CDUA was published in The Environmental Notice on November 8, 2023, and OCCL's website at http://dlnr.Hawaiʻi.gov/occl since acceptance. A public hearing was held on November 29, 2023, at the Kaʻaʻawa Elementary School with approximately 25 attendees. During this hearing, the public was able to provide oral public testimony. All testimonies presented were in favor the project. The OCCL also received public comments via mail and emails. The applicant has provided OCCL with written responses to all public comments that were received.

4) The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region.

   The proposed revetment would be in a shifting sand shoreline location and is not anticipated to have any significant impact to the surrounding marine environment. All construction activities will follow the BMP plan developed for this specific project. The BMP plan should prevent or minimize adverse impacts to the environment during construction. A revetment, like any form of shoreline hardening, will negatively impact beach processes. The current proposal minimizes those impacts as much as possible; OCCL is only comfortable recommending approval given the overwhelming public interest in protecting the highway.

5) The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

   The shoreline both north and south of the project site has existing rock revetment protection for the highway. The proposed revetment height crest would be the same as the highway elevation, so it would not obstruct the view. Although the revetment would have a man-made look, it would be constructed of native basalt rock and would look similar to other revetments along the windward coastline.

6) The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.

   Again, the proposed revetment would have a man-made look, it would be constructed of native basalt rock and be like other revetments adjacent to the highway along the windward coast. Essentially, this project would look the same as other revetments along the coast.

7) Subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

   No subdivision of land is proposed for this project.

8) The proposed land use will not be materially detrimental to the public health, safety and welfare.

   The proposed land use is to protect a public highway. The project will be implemented to comply with Federal, State, and County rules and regulations governing public safety and health. Potential sources of adverse impacts have been identified and appropriate mitigative measures have been developed. If the ongoing erosion forces closure of the highway at the project site all vehicles would have to

detour through the narrow residential streets to bypass the closure, including trucks, busses, emergency vehicles, and commuters going to work.

CULTURAL IMPACT ANALYSIS

Some of the traditional cultural practices that occur in the project area and nearby waters include fishing, surfing, snorkeling, diving, swimming, gathering, and reflection.

During construction, public use of portions of the shoreline area may be prevented for safety reasons. Upon completion, the project would not curtail these activities.

Early (pre-western contact) settlement of the area is poorly documented. Missionary records from the 1830s indicate that several hundred people lived in Kaʻaʻawa. During the Great Mahele in the mid-19th century, private land ownership was introduced to Hawaiʻi. Much of Kaʻaʻawa Valley was purchased by Dr. Gerrit P. Judd in 1870 and became Oʻahu Plantation and later Kualoa Ranch Ltd. in 1927. Also, in 1927 the Kaʻaʻawa Military Reservation was established to support the Jungle Warfare Center in Kahana Valley – where Swanzy Beach Park is today. The reservation land was returned to the Territory of Hawaiʻi in 1953.

Only a relatively small number of archaeological investigations have been conducted in the Kaʻaʻawa area. Many of the archaeological investigations have been in response to inadvertent discoveries of human skeletal remains, and others are small archaeological inventory surveys and monitoring projects, all of which were close to the coast. No large landscape-scale archaeological inventory has been completed in Kaʻaʻawa.

McAllister (1933) included Kaʻaʻawa in his island wide reconnaissance survey, which was primarily focused on monument features (e.g., heiau). However, McAllister documented human remains eroding out of the beach berm located south of the project site. More recently, numerous inadvertent burials have been documented which included at least 20 traditional Hawaiian burials (or fragmentary remains) along the coastline in Kaʻaʻawa. Investigation at one burial site between 1991 and 2017 has shown not only traditional Hawaiian materials and burials but also a small amount of post-contact material.

During the processing of this application, no comments regarding traditional or cultural were received from native practitioners. The Office of Hawaiian Affairs did not provide any comments nor were any comments received from the public regarding native and/or traditional uses that may be infringed upon. To the extent to which traditional and customary native Hawaiian rights are exercised, the proposed action does not appear to affect traditional Hawaiian rights; it is believed that no action is necessary to protect these rights.

Staff believes valued cultural, historical, or natural resources customarily or traditionally used by native Hawaiian's may not be adversely affected within the Conservation District should this land use be approved. The project will be conditioned that if cultural finds are discovered, all work will cease, and the Historic Preservation Division will be notified.

During construction, recreational activities will be intermittently affected. However, the project would not result in any long term or permanent change in traditional use of the shoreline.

Hawaiʻi Revised Statutes 6E Determination

Pursuant to HRS, §6E-8(a), as stated in part, *Before any agency or officer of the State commences any project which may affect historic property, aviation artifact, or a burial site, the agency or officer shall advise the department and allow the department an opportunity for review of the effect of the proposed project on historic properties, aviation artifacts, or burial sites, consistent with section 6E-43, especially those listed on the Hawaiʻi register of historic places. The proposed project shall not be commenced, or in the event it has already begun, continued, until the department shall have given its written concurrence*.

In accepting the application, OCCL notified the applicant that, as a State agency, they were responsible for ensuring compliance with the requirements of 6E, and that a determination would be needed prior to the the application being presented to the Board of Land and Natural Resources (Board).

On May 1 2023 the applicant submitted their proposed determination that "no historic properties are likely to be present" to the State Historic Preservation Division (SHPD) via the Hawaiʻi Cultural Resources Information System (HICRIS), and followed it with a summary memorandum to the Chairperson of the Board. See **Exhibit 9**.

On February 14, 2024 the Hawaiʻi Department of Transportation submitted their conclusion that their responsibilities under 6E were fulfilled pursuant to HAR Chapter 13-527-5 (b)(2), as no objections had been received during the statutory review period. See **Exhibit 10**.

DISCUSSION

The effects of global warming and sea-level rise may be contributing to exacerbated coastal erosion and shoreline recession and are an increasing threat to the coastal portions of the highway.

The proposed land use consists of constructing a rock revetment, approximately 450 feet long, along the makai side of Kamehameha Highway in Kaʻaʻawa, across from Kaʻaʻawa Elementary School. The proposed rock revetment is intended to mitigate coastal erosion that has been ongoing at the site for some time. Currently, there is a temporary revetment erosion structure at the project location. As a temporary measure, in February 2020 the applicant constructed a non-engineered rock revetment with a concrete cap. Rocks from the temporary revetment is dislodging and being deposited along the sandy beach. Additionally, cracks have formed in the revetment's concrete cap. The proposed new, engineered revetment is intended to be a mid-term erosion mitigation structure with a lifespan of approximately 25 years. During the interim the applicant will be investigating long-term mitigation solutions.

Rock material for the revetment will be basalt rocks similar to those used to construct other revetments along other eroding windward coastline areas of Kamehameha Highway. Although not mentioned in the CDUA, basalt rocks from the current failing revetment may be used for the construction of the new revetment.

Staff notes that during construction Standard Best Management Practices will be observed. Within the CDUA and the FEA, the applicant has identified several mitigative measures, conditions, and practices to ensure that the proposal will have minimal effects on the natural and other resources nearby. As such, these mitigative measures are incorporated into the permit. Some of the mitigation measures are stated in the "Mitigation Actions and Practices" section of the report.

If subsurface historic artifacts, including human skeletal remains, structural remains, or cultural deposits are discovered during the construction, all work shall immediately cease in the vicinity of the find and the find shall be protected from any disturbance. Work may resume upon clearance from SHPD. An archaeological monitor will be on site during the construction activity.

A public hearing was held on November 29, 2023, at the Kaʻaʻawa Elementary School. All oral testimonies were in support of proposed project. There were no oppositions testimonies. At the public hearing a Kaʻaʻawa Elementary School representative requested that the school to be notified at least one week prior to the start of construction so school staff and parents could be informed.

The proposed project appears to fulfill the third parameter in HAR 13-5-22, P-15 listed above, "public facilities (e.g., public roads) critical to public health, safety, and welfare would be severely damaged or destroyed without a shoreline erosion control structure, and there are no reasonable alternatives." Kamehameha Highway serves as the main thoroughfare linking communities along the windward coast. The construction of the proposed revetment would protect the road from further erosion, and potentially creating a major traffic crisis. Public access along the highway would be maintained with the proposed revetment.

It should also be noted that shoreline hardening structures have been shown to exacerbate coastline erosion. The proposed project lies within the parcel identified as Kaʻaʻawa Beach Park. The proposed work will be just south of the public comfort facility (men/women restrooms and shower area) and the northern portion of Kaʻaʻawa beach. The proposed revetment may accelerate the loss of the remaining sandy beach area due to flanking erosion, all but eliminating Kaʻaʻawa beach.

The applicant presented several alternatives for the erosion mitigation. Of the 4 alternatives presented, alternative 3 discussed beach nourishment with sand replenishment and the use of groins to trap longshore sand movement. The OCCL feels this alternative should be researched further as sand replenishment coupled with a stub groin(s) near the south end of the project site could be a viable means of shoreline protection and revitalizing and expanding a highly used community beach. By providing shoreline protection this would allow the applicant to stabilize the makai side of Kamehemeha Highway.

Based upon agency and public comments, OCCL will recommend that the Board make the following conditions of the permit in addition to the standard conditions:

1. Woody plants greater than 15-feet tall shall not be disturbed, removed, or trimmed during the bat birthing and pup rearing (June 1 through September 15). Site clearing will be timed to avoid disturbance to the hoary bats in the project area.
2. No nighttime artificial lighting or work is allowed during the entire construction.
3. The permittee shall inform Kaʻaʻawa Elementary School administration one week prior to the construction start date.

While DOT concluded that no historic properties would be affected by the project, there is a real possibility that burials could be uncovered either during the work or by the on-going erosion. It will be imperative that the contractors comply with the conditions of the permit that work must stop immediately, and SHPD be contacted, if any artifacts or burials are uncovered.

Overall, staff believes that by strictly adhering to the best management practices and mitigation measures as described in the CDUA and FEA, the project should have minimal ecological effects.

RECOMMENDATION

Based on the preceding analysis and discussion, staff recommends with reservation that the Board of Land and Natural Resources **APPROVE** Conservation District Use Application OA-3943 for the Kamehameha Highway at Kaʻaʻawa Erosion Mitigation project, located in Kaʻaʻawa, Oʻahu, TMK: (1) 5-1-002:seaward of 025, subject to the following conditions:

1. The permittee shall comply with all applicable statutes, ordinances, rules, and regulation of the federal, state, and county governments, and applicable parts of this chapter;
2. The permittee, its successors and assigns, shall indemnify and hold the State of Hawaiʻi harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, its successors, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;
3. The permittee shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;
4. The permittee shall comply with all applicable Department of Health rules;
5. The proposed project shall not commence until the SHPD determines “No historic properties affected”; or “Effect, with proposed mitigation commitments,”

6. Before proceeding with any work authorized by the department or the board, the permittee shall submit copies of the construction plans and specifications to the chairperson or authorized representative for approval for consistency with the conditions of the permit and the declarations set forth in the permit application. Plan approval by the chairperson does not constitute approval required from other agencies;

7. Unless otherwise authorized, any work or construction to be done on the land shall be initiated within two years of the approval of such use, in accordance with construction plans that have been signed by the chairperson and shall be completed within three years of the approval of such use. The permittee shall notify the department in writing when construction activity is initiated and when it is completed;

8. The permittee shall notify the Office of Conservation and Coastal Lands in writing at least 24 hours prior to the initiation and upon completion of the project;

9. All representations relative to mitigation set forth in the accepted environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;

10. The permittee shall comply with all of the mitigation and Best Management Practice representations and conditions stated in this staff report;

11. The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;

12. In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and/or the department may, in addition, institute appropriate legal proceedings;

13. When provided or required, potable water supply and sanitation facilities shall have the approval of the department of health and the county department of water supply;

14. Provisions for access, parking, drainage, fire protection, safety, signs, lighting, and changes on the landscape shall be provided;

15. Where any interference, nuisance, or harm may be caused, or hazard established by the authorized activities/uses, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;

16. The permittee shall plan to minimize the amount of dust generating materials and activities. Material transfer points and on-site vehicular traffic routes shall be centralized. Dusty equipment shall be located in areas of least impact. Dust control measures shall be provided during weekends, after hours and prior to daily start-up of project activities. Dust from debris being hauled away from the project

site shall be controlled. Landscaping and dust control of cleared areas will be initiated promptly;

17. Should historic remains such as artifacts, burials, or concentration of charcoal be encountered during the construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact SHPD (692-8015), who will assess the significance of the find and recommend appropriate mitigation measures, if necessary;

18. The permittee shall implement both site specific and standard Best Management Practices including, but not limited to, the ability to contain and minimize silt in nearshore waters and clean up fuel, fluid, or oil spills immediately. Equipment must not be refueled in the shoreline area. If visible petroleum, persistent turbidity or other unusual substances are observed in the water as a result of the proposed operations, all work must cease immediately to ascertain the source of the substances;

19. Obstruction of public roads, trails, lateral shoreline access, and pathways shall be avoided or minimized. If obstruction is unavoidable, the permittee shall provide alternative roads, trails, lateral beach access, or pathways acceptable to the department;

20. During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;

21. Use of the area shall conform with the program of appropriate soil and water conservation district or plan approved by and on file with the department, where applicable;

22. The permittee shall obtain a county building or grading permit or both for the use prior to final construction plan approval by the department;

23. No night work that requires outdoor lighting during seabird fledging season from September to December;

24. No contamination of the marine or coastal environment (trash or debris) shall result from project related activities;

25. All placed material shall be free of contaminants of any kind including: excessive silt, sludge, anoxic or decaying organic matter, turbidity, temperature or abnormal water chemistry, clay, dirt, organic material, oil, floating debris, grease or foam or any other pollutant that would produce an undesirable condition to the beach or water quality;

26. The activity shall not adversely affect a federally listed threatened or endangered species or a species proposed for such designation, or destroy or adversely modify its designated critical habitat;

27. Where applicable, provisions for protection of beaches and the primary coastal dune shall be established by the permittee, to the satisfaction of the department, including but not limited to avoidance, relocation, or other best management practices;

28. Woody plants greater than 15-feet tall shall not be disturbed, removed, or trimmed during the bat birthing and pup rearing (June 1 through September 15). Site clearing will be timed to avoid disturbance to the hoary bats in the project area

29. The permittee shall inform Kaʻaʻawa Elementary School administration one week prior to the construction start date.

30. The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawaiʻi, and by Hawaiʻi statutory and case law;

31. Other terms and conditions as prescribed by the chairperson; and

32. Failure to comply with any of these conditions shall render this Conservation District Use Permit void under Chapter 13-5, as determined by the chairperson or the board.

Respectfully submitted,
Calen Miyahara

MC Cal Miyahara, Coastal Land Program Specialist
Office of Conservation and Coastal Lands

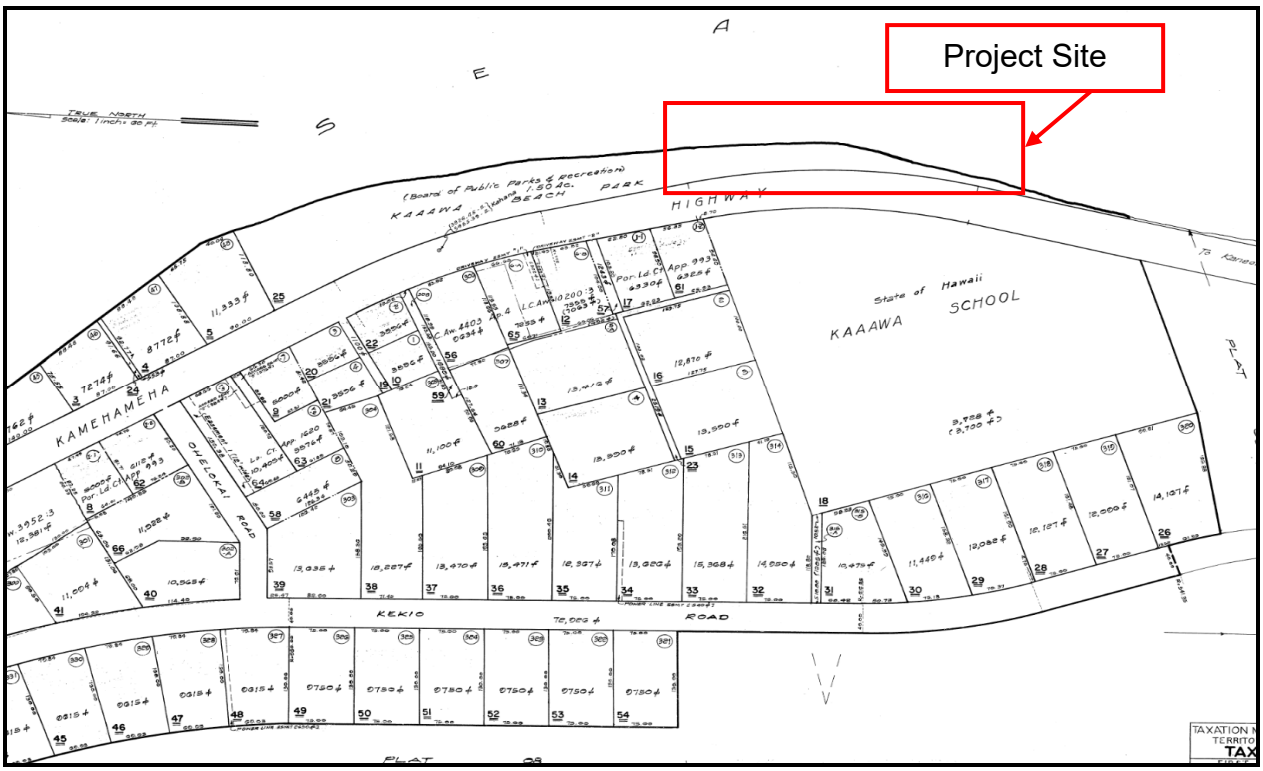
Approved for submittal:

_____
Dawn N.S. Chang, Chairperson
Board of Land and Natural Resources

General vicinity of Kamehameha Highway at Kaaawa Erosion Mitigation project area.

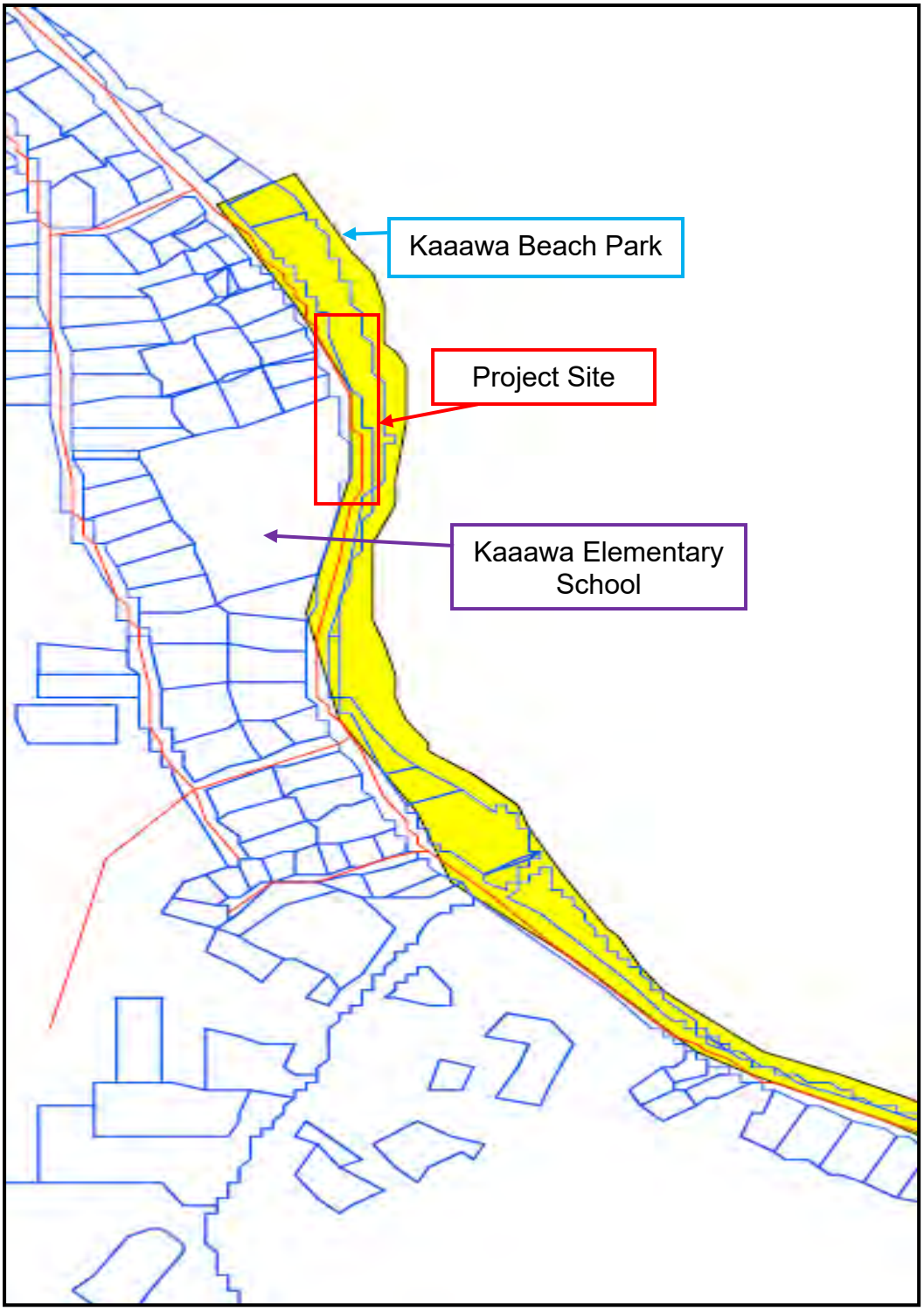
Exhibit 1: Project Location

Aerial view of vicinity map.



TMK: (1) 5-1-002:seaward of 025.

Exhibit 1: Project Location



State Land Use General Conservation District identified by yellow shading.

Exhibit 2: State of Hawaii Conservation District Map

View of project area and Kamehameha Highway looking south.

View of project area and Kamehameha Highway looking north.

Temporary revetment and concrete cap separating from Kam Hwy road shoulder.

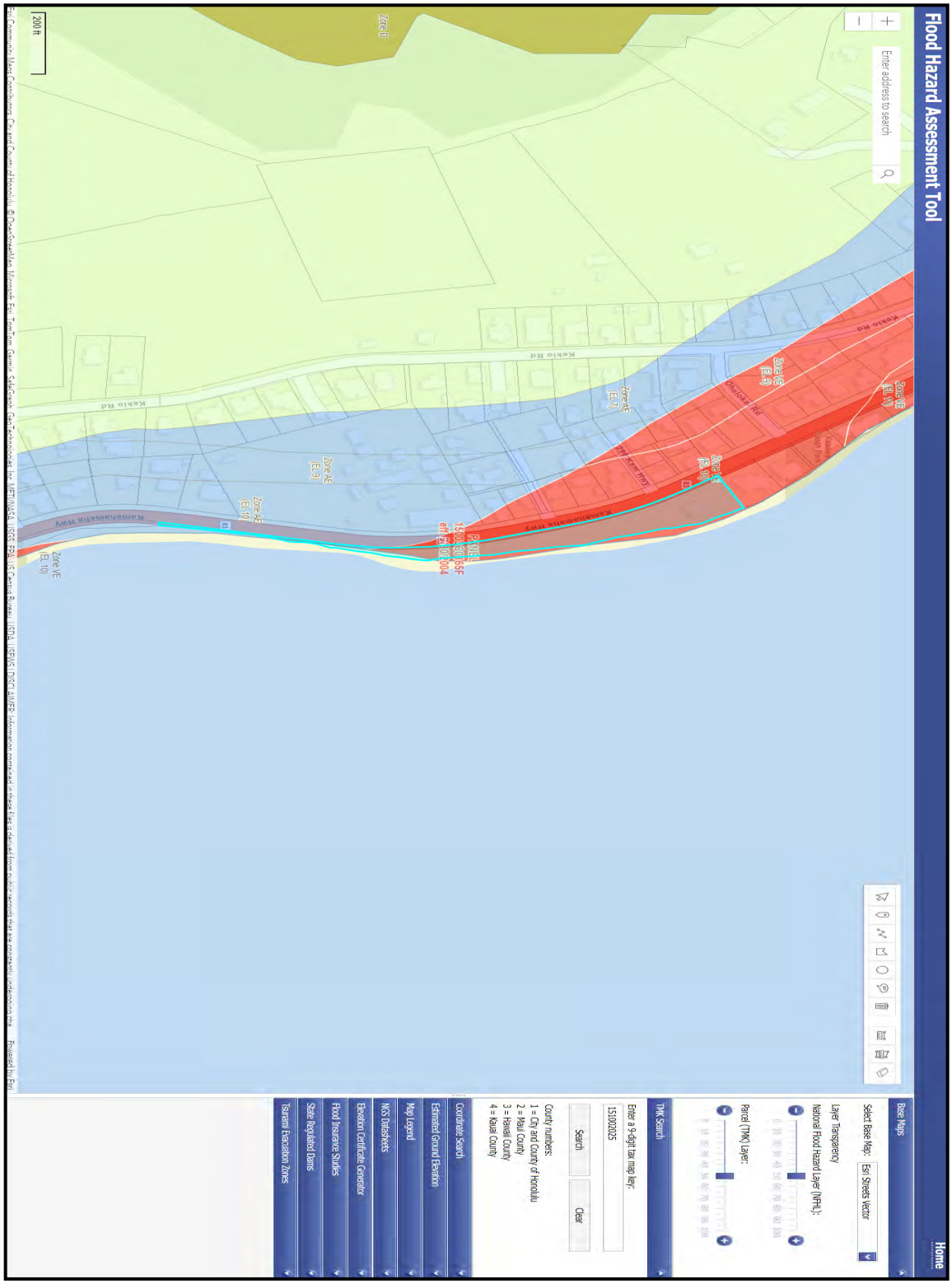
View of temporary revetment boulders being dislodged and narrowed Kaaawa beach.

View of failed temporary revetment and narrowed Kaaawa beach.

View of concrete cap separating from Kam Hwy road shoulder.

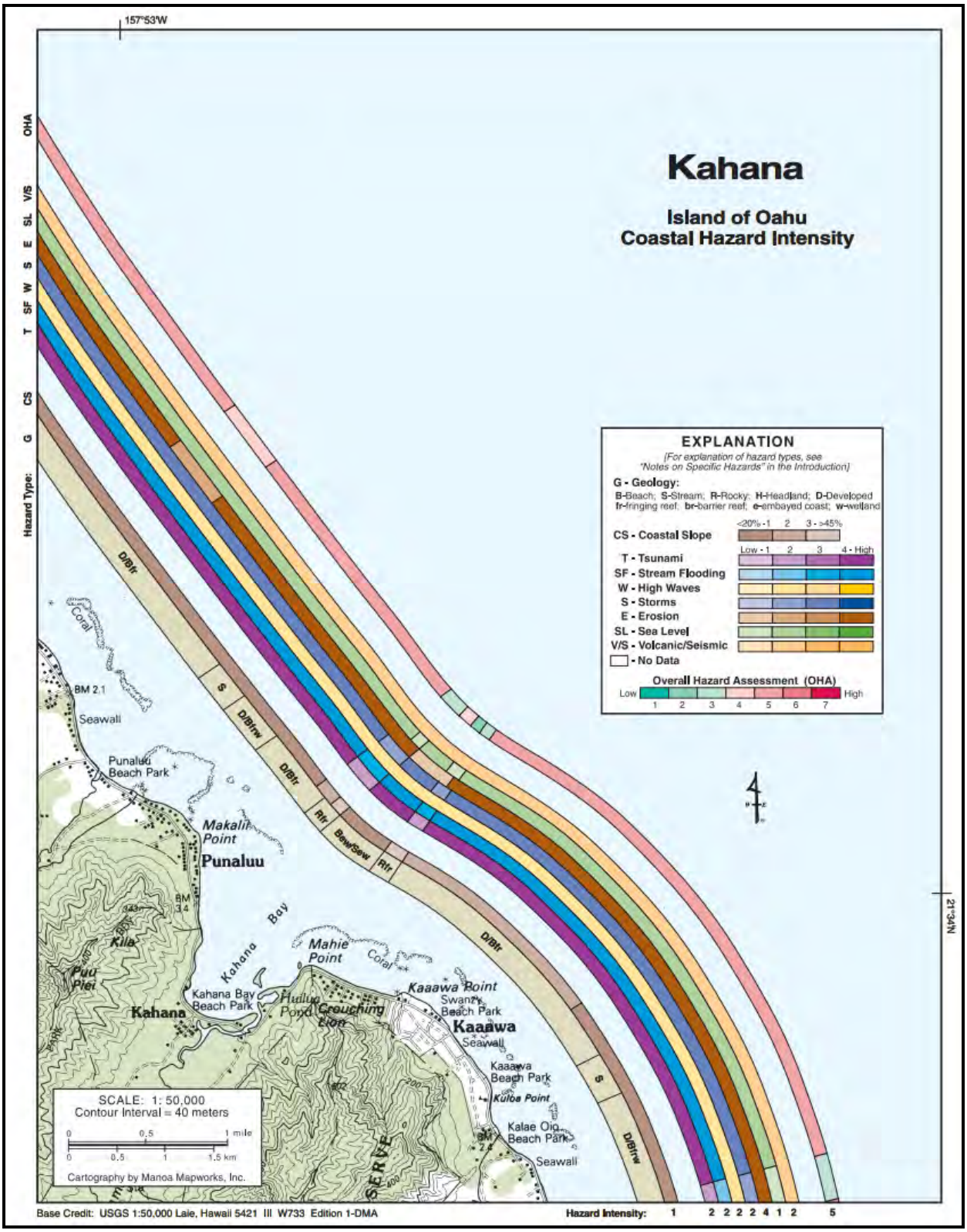
View of safety barrier falling onto Kaaawa beach area.

View of concrete cap separating from Kam Hwy road shoulder and safety barrier.



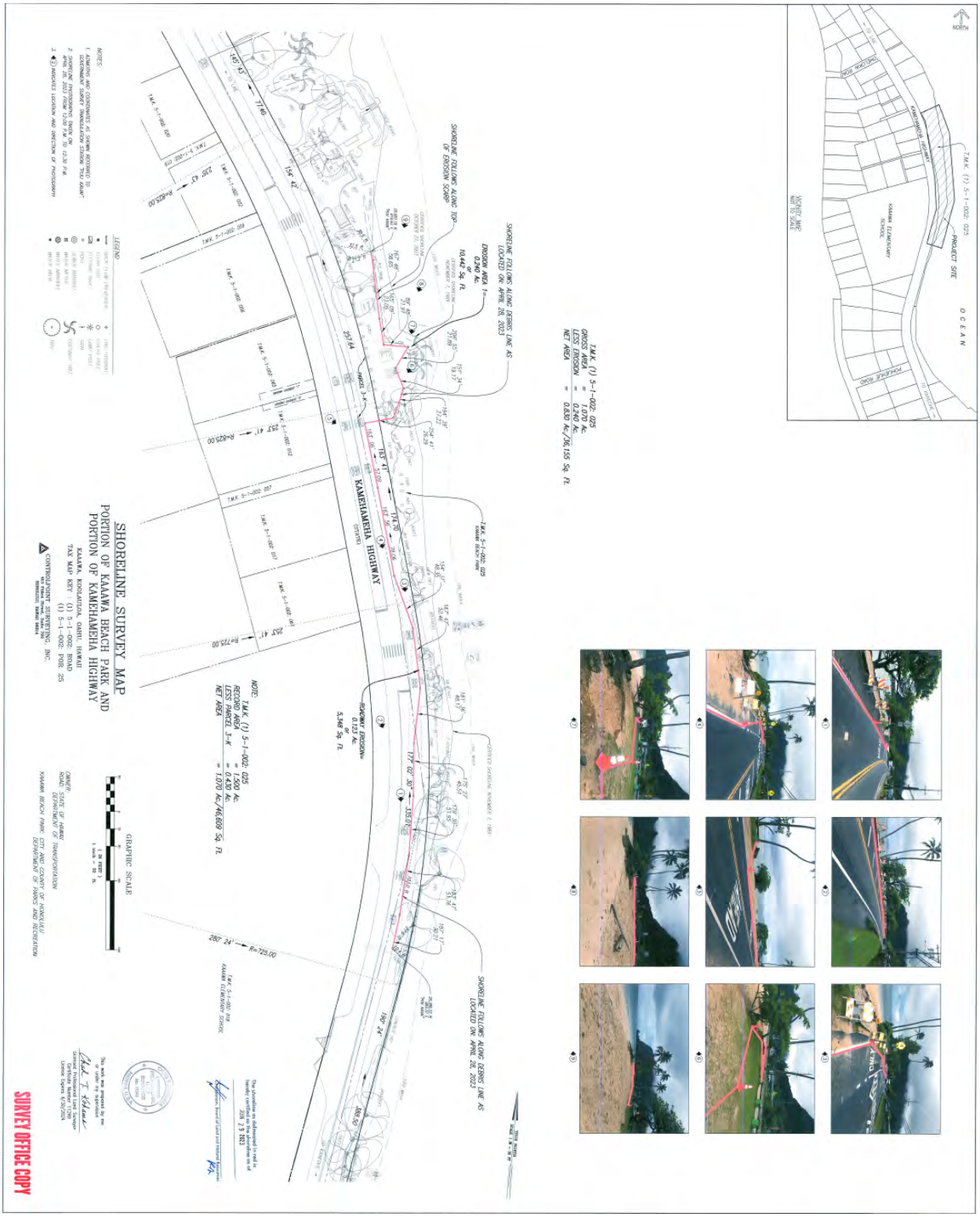
Project area lies within the flood hazard area.

Exhibit 4: Flood Hazard Assessment Map



Project area has a high rating for erosion and overall hazard assessment.

Exhibit 5: USGS Atlas of Natural Hazards

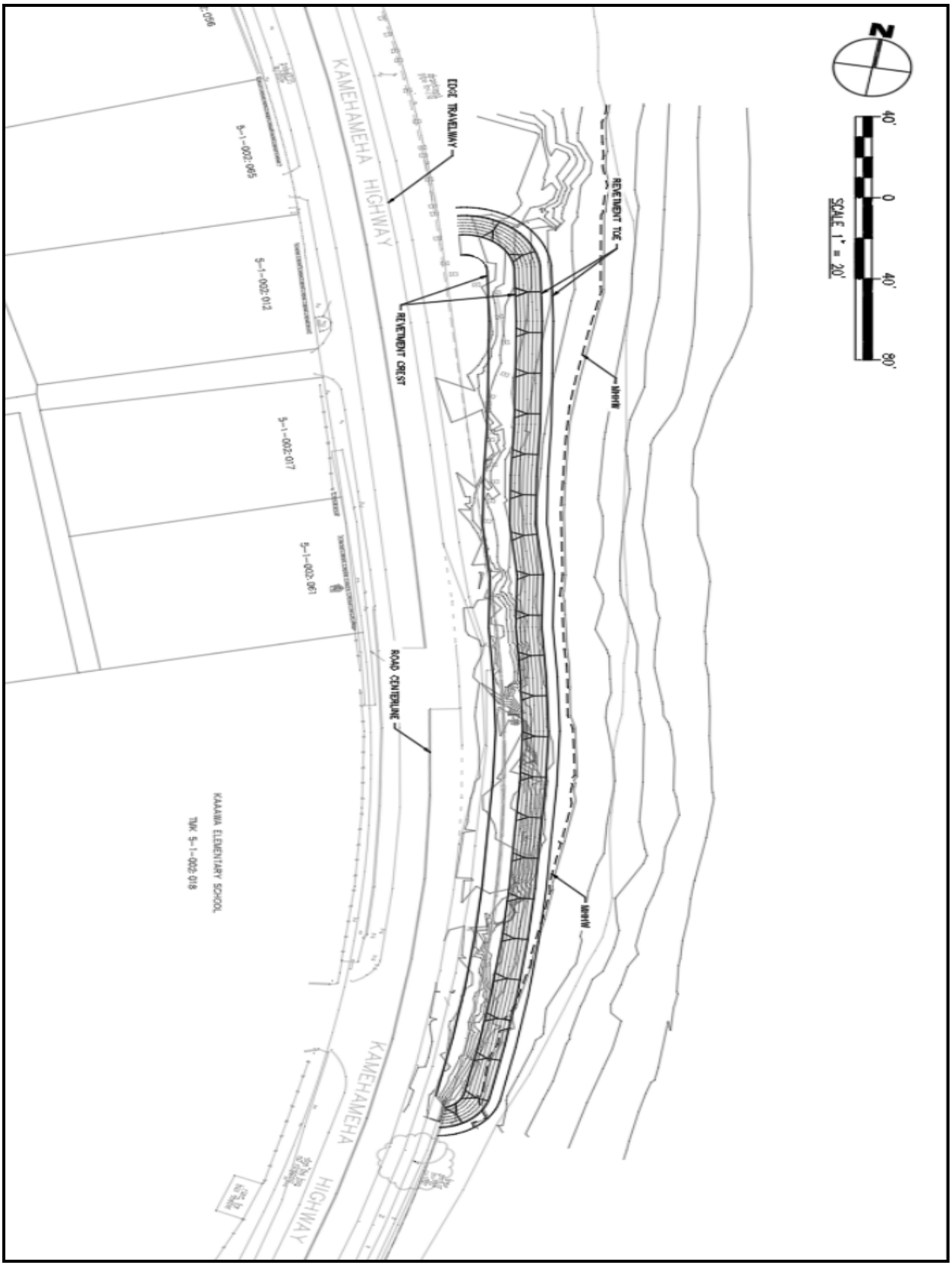


Due to erosion the shoreline has been located on Kamehameha Highway.

Exhibit 6: Certified Shoreline (June 29, 2023)

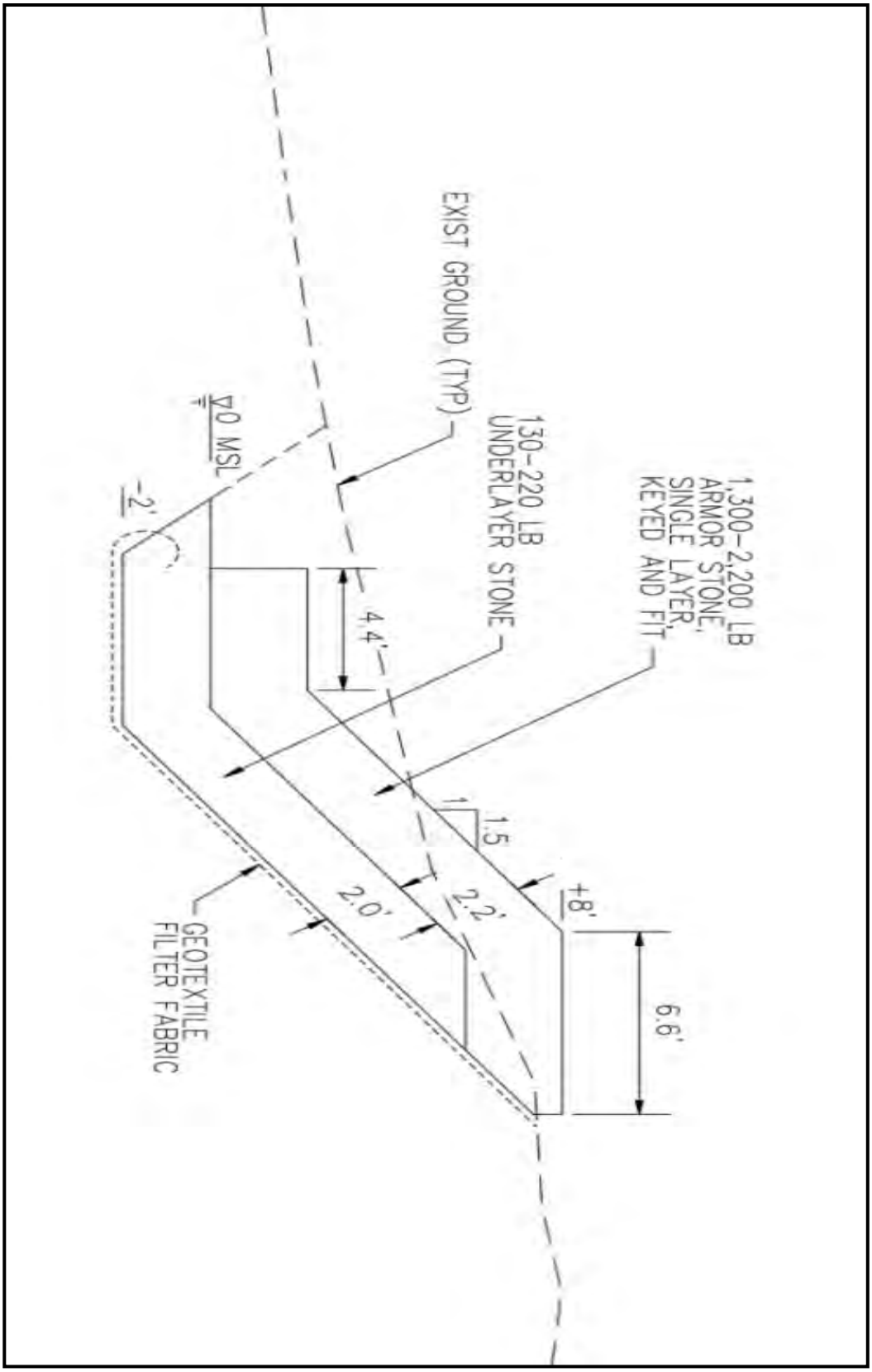
Proposed revetment relative to Kaaawa Beach Park and Kaaawa Elementary School.

Exhibit 7: Preliminary construction plan



Rock revetment, plan view.

Exhibit 7: Preliminary construction plan



Rock revetment, cross-section view.

Exhibit 7: Preliminary construction plan

Exhibit 8: PacIOOS 3.2 feet sea level rise exposure area

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

IN REPLY REFER TO:

HWY-L 2.1305

May 1, 2023

TO: DAWN N.S. CHANG, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: ALAN S. DOWNER, Ph.D., ADMINISTRATOR
STATE HISTORIC PRESERVATION DIVISION (SHPD)

FROM: MUNG FA CHUNG, HIGHWAYS ENGINEERING PROGRAM MANAGER *Mung Fa Chung*
MATERIALS TESTING AND RESEARCH BRANCH (MTRB)
HAWAII DEPARTMENT OF TRANSPORTATION (HDOT)

SUBJECT: HAWAII REVISED STATUES (HRS) CHAPTER 6E-8 AND HAWAII ADMINISTRATIVE RULES (HAR) 13-275-5(B)(2), NO SIGNIFICANT HISTORIC SITES IN THE PROPOSED PROJECT AREA, KAMEHAMEHA HIGHWAY AT KAAAWA EROSION MITIGATION, KAAAWA AHUPUAA, KOOLAULOA DISTRICT, ISLAND OF OAHU, TAX MAP KEY 5-1-002:025

In accordance with HRS Section 6E-8 and HAR Chapter 13-275-5(b)(2) the HDOT requests the State Historic Preservation Officer's concurrence to the HDOT's no significant historic sites likely to be present in the project area.

Project Background

A 400-foot-long section of Kamehameha Highway passing through Kaaawa in the vicinity of the elementary school has become undermined due to chronic and episodic coastal erosion. The undermining extends up to 10 feet under the shoulder of the road, extending as far inshore as the makai travel way stripe. This section of road is in danger of failure and collapse. Kamehameha Highway is the only roadway providing access to windward communities from the south, and if this section of road fails, transportation services, emergency services, and commuter lines will be significantly impaired. (Figure 3).

Project Area

The project is located along Kamehameha Highway, Route 83, in Kaaawa ahupuaa, Koolauloa District, on the island of Oahu. The project area is approximately 450-foot-long shoreline reach makai of the Kaaawa Elementary School, extending south from the developed portion of Kaaawa Beach Park. The work will occur within the HDOT highway right-of-way (ROW) and property owned by the City and County of Honolulu, Department of Parks, and Recreation. (Figures 1 and 2).

Project Description

The proposed action is to construct an engineered rock revetment along the 400-foot length of the threatened project shoreline. The construction design is to place a stone armor layer, sized according to the design wave height and other oceanographic design criteria, over stone underlayer and geotextile filter fabric. The goal of this design is to prevent progressive erosion and scour from undermining and destabilizing the northbound lane of Kamehameha Highway. Porous rock revetments absorb a significant fraction of incoming wave energy and would prevent the downward motion of reflected wave energy from the currently vertical erosion scarp. This downward motion of reflected wave energy results in scour of the natural sediment at the base of the scarp.

The armor stone would be basalt rock with a weight of 1,300 to 2,200 pounds, placed over 130 to 220 pounds underlayer stone and geotextile filter fabric. The design crest elevation is +8 feet Mean Sea Level, equivalent to the highway elevation, with a width of 6.6 feet, and a front slope of 1:1.5 (vertical-to-horizontal). A rock toe scour apron extends another 4.4 feet seaward. In its completed form, the new revetment will be approximately 22 feet wide as measured from the landward edge of the crest across to the seaward edge of the toe, and with a length of approximately 450 feet measured end to end.

Work will proceed in approximately 25 feet increments, with clearing, excavating, filling, grading, stockpiling of salvaged material, slope preparation, geotextile filter fabric placement, underlayer stone placement, and finally armor stone placement. Underlayer or core stone placement shall not advance more than 25 feet ahead of cover stone installation in order to mitigate unforeseen environmental situations such as sudden increases in nearshore wave heights or heavy rains. Excavated beach sand from the foundation and toe trench shall be stockpiled on the beach above the mean higher high-water line (+1.1 feet) to the north (updrift) side of the advancing revetment construction. (Figure 4 and 5).

Historic Properties in the Project Area

Pursuant to HAR §13-275-2, a historic property is "any building, structure, object, district, area or site, including heiau and underwater site, which is over fifty years old."

An Archaeological Inventory Survey (AIS) in support of the Kamehameha Highway at Kaaawa Erosion Mitigation Project was conducted by International Archaeology LLC in December 2022. A total of six test units were excavated at four locations along the makai ROW of Kamehameha Highway. Testing resulted in the documentation of a traditional to early historical deposit (Layer VI) and feature designated as a component of Site 50-80-06-7122. This deposit contains midden, charcoal, fire cracked rock, and a low density of artifacts. A radiocarbon determination obtained from a combustion feature originating from the base of the deposit, indicates human activities began sometime between the 13th to early 15th centuries. A continuation of activity into the historical period is suggested based on the recovery of a single Pinctada sp. button recovered from the upper margin of the deposit.

Site 50-80-06-7122 was originally documented by Groza and Hammatt (2010) and is evaluated as significant per HAR §13-284-6 under criterion d (it has produced information important for research on prehistory or history) and criterion e (have an important value to the native Hawaiian people or to another ethic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts these associations being important to the group's history and cultural identity). The results of this AIS are generally consistent and bolster the previous interpretation of site 50-80-06-7122.

Effect Determination

While the project vicinity has the potential to include historic artifacts based on the information above, there has not been any historic properties identified within the 450-foot-long project area. Further, construction of the project would involve a very small amount of excavation in a dynamic and already heavily altered sand and sediment shoreline bank; thus, the discovery of archaeological remains is considered unlikely. The HDOT staff and the design team have inspected the area during past site visits over a two-year period, and no historic properties have been identified. For these reasons, the HDOT is rendering a determination of "No historic properties affected" under HAR 13-275-7 and seeks SHPD concurrence with this determination.

We have included the following attachments:
Figure 1 – Project Location Map.
Figure 2 – Project vicinity map.
Figure 3 – Existing highway shoulder condition
Figure 4 – Rock revetment, typical section
Figure 5 – Rock revetment, plan view

Should you have any questions, please contact our Project Manager, Ms. Mung Fa Chung, MTRB, HWY (808) 832-3405 extension 105 or by email at mungfa.chung@hawaii.gov.
The project team looks forward to working with you, and greatly appreciates your attention to this matter.

JOSH GREEN, M.D.
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KE KIA'ĀINA

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DIRECTOR
KA LUNA HO'OKELE

Deputy Directors
Nā Hope Luna Ho'okele
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DEPARTMENT OF TRANSPORTATION | KA 'OIHANA ALAKAU
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IN REPLY REFER TO:

HWY-L 24-2.30030

February 14, 2024

TO: DAWN N. S. CHANG, CHAIRPERSON
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTENTION: ALAN S. DOWNER, Ph.D., ADMINISTRATOR
STATE HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

FROM: MUNG FA CHUNG *Mung Fa Chung*
HIGHWAYS ENGINEERING PROGRAM MANAGER
MATERIALS TESTING AND RESEARCH BRANCH
HAWAII DEPARTMENT OF TRANSPORTATION

SUBJECT: KAMEHAMEHA HIGHWAY AT KAAAWA EROSION MITIGATION, KAAAWA AHUPUAA, KOOLAULOA DISTRICT, ISLAND OF OAHU, TAX MAP KEY: 5-1-002:025

The Hawaii Department of Transportation (HDOT) sent a written letter dated May 1, 2023, that rendered a determination of "no significant historic sites are likely to be present" in accordance to Hawaii Administrative Rules Chapter 13-275-5 (b)(2), for the aforementioned Kaaawa erosion mitigation project. It was received by your office on May 1, 2023, via Hawaii Cultural Resources Information System. We have received no written objection to our proposed action within the thirty (30) day statutory review period. Pursuant to Chapter 13-275-3 (e), the State Historic Preservation Division is presumed to concur with our submittal if no written response is received. Our responsibility under 6E for this proposed action were fulfilled as of June 1, 2023, and the HDOT will proceed with the following project.

Kamehameha Highway at Kaaawa Erosion Mitigation to construct a basalt rock revetment along 400-foot length of threatened shoreline.