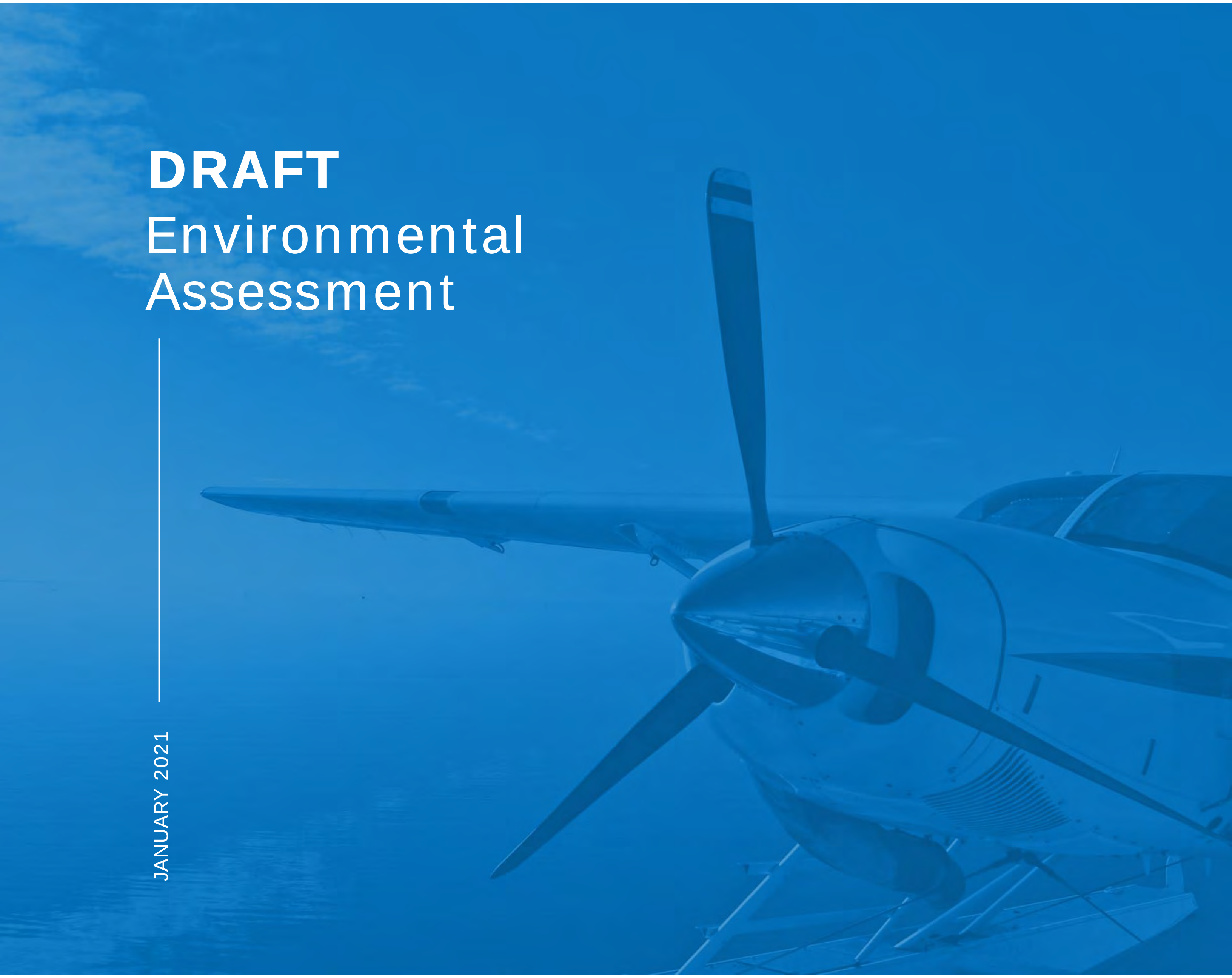
CITY & BOROUGH OF SITKA



DRAFT
Environmental Assessment

JANUARY 2021

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Acronyms

AAC	Alaska Administrative Code
AC	Advisory Circular
ACZA	ammoniacal copper zinc arsenate
ADEC	Alaska Department of Environmental Conservation
ADEED	Alaska Department of Education and Early Development
ADF&G	Alaska Department of Fish and Game
AKEPIC	Alaska Exotic Plant Information Clearinghouse
APDES	Alaska Pollutant Discharge Elimination System
AWC	Anadromous Waters Catalog
BMPs	Best Management Practices
CBS	City and Borough of Sitka
CWA	Clean Water Act
dB	Decibel
DCRA	Department of Community and Regional Affairs
DNL	Day-Night Average Sound Levels
DNR	Alaska Department of Natural Resources
DPS	distinct population segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FMP	Fisheries Management Plans
HMRP	Hazardous Materials Response Plan
IC	institutional controls
IHA	Incidental Harassment Authorization
IPaC	Information for Planning and Conservation
MHW	mean high-water
MMPA	Marine Mammals Protection Act
MSL	Mean sea level
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOB	Naval Operating Base
NPFMC	North Pacific Fishery Management Council
NPS	National Park Service
NRHP	National Register of Historic Places
PSOs	Protected Species Observers
RFFA	reasonably foreseeable future actions
SCAP	Sitka Climate Action Plan
SEARHC	Southeast Alaska Regional Health Consortium
SHPO	State Historic Preservation Officer
SolsticeAK	Solstice Alaska Consulting Inc.
SPCC	Spill Prevention, Control, and Countermeasures
UAA	University of Alaska Anchorage
U.S.	United States
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDPS	Western DPS
WOUS	Waters of the United States
WWII	World War II

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Executive Summary

The City and Borough of Sitka, in cooperation with the Federal Aviation Administration, is proposing a new seaplane base on Japonski Island in Sitka, Alaska. The new seaplane base is needed because the existing seaplane base is deteriorating and in poor condition. The existing seaplane base has been operating at its current location on the west shore of Baranof Island for 65 years and is at the end of its useful life and the site location has no potential for expansion.

The new seaplane base would be located near 1190 Seward Avenue on the northwest side of Japonski Island, approximately 1.4 miles west of downtown Sitka and approximately 600 miles from Anchorage at 57.055418 North Latitude; -135.363889 West Longitude (Sec. 34 and 35, T55S, R63E, Copper River Meridian, United States Geological Survey Quadrangle Sitka A5).

Purpose & Need

The purpose of the proposed Project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. Seaplanes provide essential transportation services for Sitka residents and regional communities in Southeast Alaska where communities are scattered among a number of islands with no road access or land airports. The current base has insufficient capacity and space to accommodate current and future demand; a congested location with conflicting adjacent uses; poor, unsafe dock conditions for fueling and maneuvering on the docks; and congested sea lane and bird hazard conditions.

CBS worked with aviation stakeholders to identify the facilities needed to support safe and efficient seaplane operations. Facility needs identified were:

- A seaplane float for based seaplanes;
- A transient seaplane dock for loading unloading, and mooring without removing the aircraft from the water;
- A haul-out ramp to allow based seaplanes to be removed from the water for long-term parking, storage, washing, and maintenance;
- On-site aircraft maintenance facilities;
- Gangways with handrails for safe passenger and freight loading;
- A covered passenger waiting area with restrooms,
- A fuel storage and delivery system,
- A landside vehicle parking area, and
- Potential for lease lots for support services (such as repairs and maintenance).

Alternatives Considered

The City and Borough of Sitka has evaluated over a dozen sites over the last 20 years to address the need for a new seaplane base. Three siting studies have been completed, all of which recommended the Japonski Island site. Other sites were not able to meet the Project needs from a safety, environmental, or capacity perspective. Therefore, this Environmental Assessment addresses only the Proposed Alternative and the No Action Alternative.

Comparison of Environmental Impacts

This Environmental Assessment becomes a Federal document when evaluated and signed and dated by the responsible Federal Aviation Administration official.

APPROVED: ________________________________ DATE: ________________________

(Responsible FAA Official)

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1.0 Introduction

The City and Borough of Sitka (CBS) owns and operates the Sitka Seaplane Base (Federal Aviation Administration [FAA] identifier A29). A29 is located on Sitka Channel between Thomsen and ANB harbors (Figures 1 and 2); it has been operating at its current site for 65 years and is at the end of its useful life. Despite the poor condition of the existing facilities and the lack of support infrastructure, seven of the seaplane base's eight slips are currently leased, and operations (takeoffs and landings) were estimated at 1,043 for 2018 (CBS 2020a). CBS, in cooperation with FAA, is proposing a new seaplane base on Japonski Island.

Sitka, Alaska is located on Baranof Island on Sitka Channel approximately 600 air miles from Anchorage at 57.0527 North Latitude; -135.3311 West Longitude (Sec. 36, T55S, R63E, Copper River Meridian, United States Geological Survey [USGS] Quadrangle Sitka A5). Sitka is accessible only by air or water. It is approximately 95 miles from Juneau and 150 miles from the nearest Alaska road system at Haines.

Sitka serves as a hub for health care, goods distribution, and transportation for neighboring communities. Most of the smaller communities using Sitka as a hub are accessible only by seaplane. The availability of floatplane transportation is critical to the Sitka economy and to medical, personal, and tourism transportation. Sitka's seaplanes are important to the social and economic fabric of this coastal region's remote communities, lodges, recreation areas, hatcheries, and fishing fleets. Government agencies including the U.S. Forest Service, U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADF&G), Alaska State Troopers, and the Civil Air Patrol require seaplanes to access remote communities and resources.

Because a new seaplane base would require FAA Alaskan Airports Division approval and funding of the Proposed Action Alternative (a federal nexus as defined under the National Environmental Policy Act [NEPA]), an Environmental Assessment (EA) is required. This document serves to evaluate the environmental effects of the proposed action, which is discussed further in Chapter 3.0 (Proposed Action).

Figure 1: Location and Vicinity Map

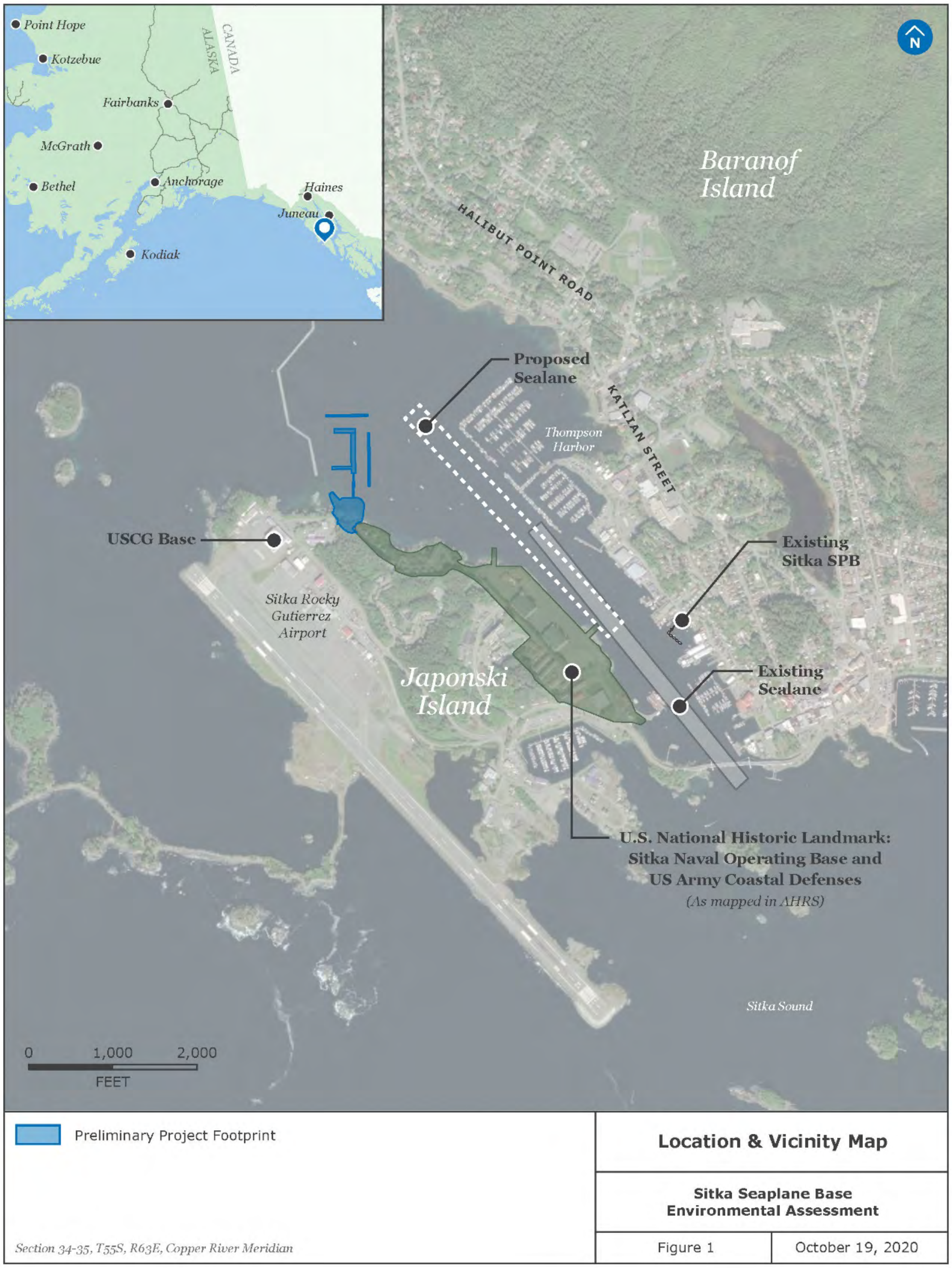
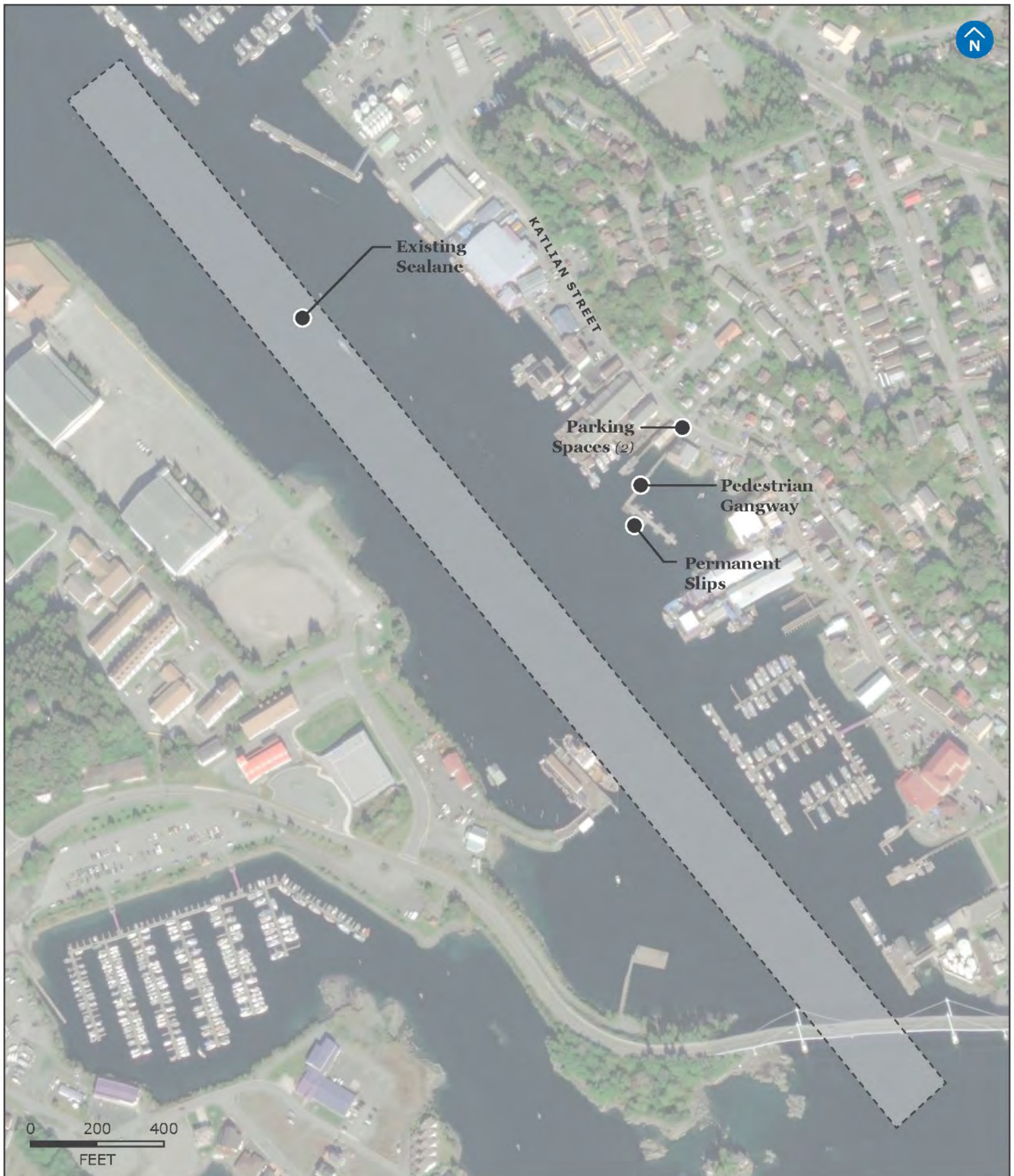


Figure 2: Existing Site Facilities



Existing Site Facilities

Sitka Seaplane Base Environmental Assessment

Figure 2 | October 19, 2020

Section 34-35, T55S, R63E, Copper River Meridian

2.0 Purpose & Need

The purpose of the proposed Project (Project) is to construct a new seaplane base in Sitka to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base (A29). The condition of the A29 facilities have deteriorated and the site has insufficient capacity and the inability to expand due to site constraints. The timber floats are weathered, have lost their preservative treatment, and are losing their floatation capability. In January 2016, A29 was temporarily closed because one pile supporting the transient float collapsed, damaging the transient float. A dive inspection showed significant pile section loss for another three piles. CBS made emergency temporary repairs to allow A29 to reopen in Fall 2016. Repairs included sleeving piles with larger diameter piles, structural float repairs, and additional floatation for the floats. These repairs have a limited useful life, and complete reconstruction would be required to maintain this seaplane base for long-term use. In addition to needing substantial repairs, A29 has insufficient capacity and the inability to expand due to the constraints of the current location, congested sea-lane, and conflicts with boat traffic and birds. A new seaplane base is needed to address the unsafe and hazardous conditions at the existing facility and to provide needed air transportation facilities for Sitka residents and surrounding communities.

Three studies have evaluated solutions to address the deficiencies at the existing location (HDR 2002, DOWL 2012, DOWL 2016). The 2016 Siting Analysis (DOWL 2016) states:

> "Capacity concerns are evidenced by A29's recent full occupancy, a waiting list of seaplane owners who had been waiting two years or more to rent a slip, and interviews of seaplane pilots and businesses wanting to use a public seaplane base in Sitka. Safety concerns include concentrations of seabirds in and around A29's operating area, conflicts with boat traffic, lack of adequate taxi lane clearance between the seaplane base floats and neighboring Sitka Sound Seafoods facility, and submerged rock obstructions adjacent to the floats. Operational concerns include the lack of fueling facilities that requires seaplane operators to carry and dispense fuel from small containers, and inadequate vehicle parking. A29 is also unable to adequately serve commercial traffic because it lacks enough vehicle parking, on-site aircraft maintenance, a drive-down ramp to the floats, a passenger shelter, and equipment storage."

CBS worked with aviation stakeholders during the seaplane studies to identify the facilities needed to support safe and efficient seaplane operations and to provide a financially self-supporting transportation facility. Facility needs identified were:

- A seaplane float for based seaplanes;
- A transient seaplane dock for loading, unloading, and mooring without removing the aircraft from the water;
- A haul-out ramp to allow based seaplanes to be removed from the water for long-term parking, storage, washing, and maintenance;
- On-site aircraft maintenance facilities;
- Gangways with handrails for safe passenger and freight loading;
- A covered passenger waiting area with restrooms,
- A fuel storage and delivery system,
- A landside vehicle parking area, and
- potential for lease lots for support services (such as repairs and maintenance).

3.0 Proposed Action

This Chapter identifies the proposed action, as well as a No Action alternative, and a discussion of other site location and site design alternatives that were considered but dismissed as the Project evolved over the last 20 years.

NEPA requires agencies to consider the environmental effects of their actions and to evaluate reasonable alternatives that would meet the purpose and need for the Project with less adverse environmental impacts. The basic criteria for alternatives to be considered are that the alternative must be reasonable, feasible, and achieve the Project's purpose. Not every alternative must be evaluated in detail in an EA, but alternatives dismissed from further analysis should be described with the rationale for their dismissal.

CBS has evaluated twelve potential seaplane base locations over the last 20 years. Siting studies conducted in 2002, 2012, and 2016 all identified the proposed Japonski Island location as the preferred site for the new seaplane base (HDR 2002, DOWL HKM 2012, DOWL HKM 2016). Section 3.3 (Alternatives Considered but Dismissed) describes the sites that were evaluated in earlier studies but were dismissed from detailed analysis.

3.1. Identification of Federal Action

The CBS requests FAA Alaskan Airports Division to approve and fund the Proposed Action Alternative and an Airport Layout Plan.

3.2. Public Scoping for the Proposed Federal Action

A public scoping meeting was held on December 11, 2019 at Harrigan Centennial Hall with 25 people in attendance. Most comments were related to the site selection process, the financing of the Project, and the urgent need for the Project. More details are provided in Chapter 6.3 (Public Scoping). As part of the Project scoping process, the CBS considered public and agency comments received during scoping meetings and used the information to inform the proposed action and key issues evaluated.

3.3. Proposed Action Alternative

The new Sitka seaplane base would be located on a 2.02-acre parcel at the end of Seward Street on the northeast end of Japonski Island (Figure 3). The upland parcel where the facility is proposed would be acquired from the Alaska Department of Education and Early Development (ADEED) and is adjacent to the U.S. Coast Guard (USCG) Air Station Sitka.

The marine area for the seaplane base would be acquired from the Alaska Department of Natural Resources (DNR). The CBS has submitted to DNR an application for conveyance of submerged and tidelands and received a preliminary approval for conveyance of tidelands adjacent to the upland parcel to accommodate seaplane floats and operations areas[1]. The marine component of the facility would include a pile-supported trestle, a gangway, a landing float, a transient float, a based seaplane float, and, if needed, a floating wave attenuator north of the floats to attenuate waves from the main harbor entrance gap in the existing breakwater or southeast of the floats to attenuate waves from the channel to the south.

[1] *The orientation of the seaplane floats was changed during concept development. CBS would work with DNR to reflect the current tideland conveyance area during the required tideland survey.*

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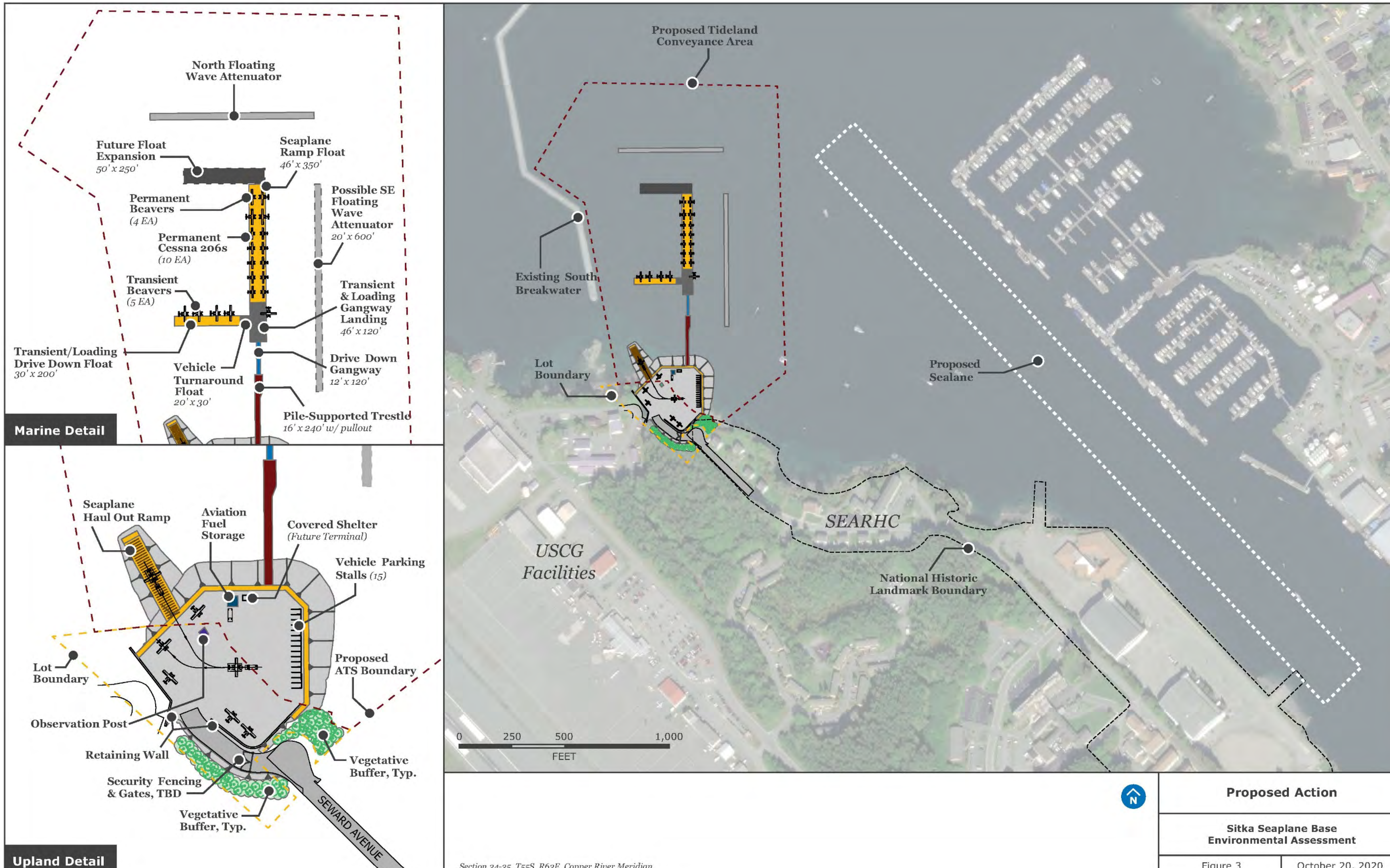
Figure 3: Proposed Action



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The 2016 Siting Analysis identified a potential demand for up to 19 based aircraft and 15 transient aircraft if all of the desired support facilities were available at a new seaplane base. Given that CBS may need to construct the new seaplane base in phases and may not be able to accommodate all facilities requested initially, it was determined that the proposed site would accommodate 14 based aircraft and four transient aircraft.

The proposed facility would include:

- Seaplane float (350 feet by 46 feet) with ramps for 14 based seaplanes (4 DE Havilland Beavers and 10 Cessna 206s)
- Transient seaplane float (220 feet by 30 feet) with capacity for four transient seaplanes (sized for DE Havilland Beavers)
- Drive-down gangway (120 feet by 16 feet) and landing float (120 feet by 46 feet) for access to seaplane floats
- Pile-supported trestle (240 feet by 16 feet) with 50-foot turn-out lane at gangway
- Wave attenuators on the north and southeast (if required)
- Vehicle parking area (15 parking spaces)
- Electricity, water, and lighting for the seaplane floats
- Covered waiting area and eventual terminal area
- Safe access between the parking positions and the water operating area
- Fuel storage and access facilities
- Upland seaplane parking areas and maneuvering room
- Seaplane haul out ramp
- Security fencing
- Landscape buffer along southern boundary
- Accommodations for future expansion

3.3.1. Facility Design and Elements

The new seaplane base concept was developed using safety and planning criteria in FAA's Advisory Circular (AC) 150/5395-1B Seaplane Bases. The facility design is based on expected use by aircraft similar to the more common aircraft used in Southeast Alaska (DE Havilland Beavers and Otters, and Cessna 206s) to accommodate the operational needs of current and future seaplane base users.

The seaplane floats assume a design length of 42 feet for a DE Havilland Otter, 30 feet for a DE Havilland Beaver, and 20 feet both fore and aft of each position where transient aircraft would be moored parallel to the dock.

The seaplane floats would be constructed of treated timber and galvanized steel fasteners. The submerged timber structural elements of the floats would be pressure treated with creosote because it is the only effective preservative for wood that would remain wet at all times. All other timber components that would not be fully submerged would be pressure treated with ammoniacal copper zinc arsenate (ACZA). All preservative treatment would be in accordance with best management practices (BMPs) as set forth by the Western Wood Preservers Institute. The timber framing connections would be reinforced with galvanized steel fastening components. Floatation would consist of closed cell expanded polystyrene billets covered with a robust application of 100 percent solid polyurethane and/or polyethylene floatation tubs. The billets would be sized and shaped as necessary prior to the spray application of the polyurethane coating. The coating would protect the billets from physical damage, water absorption, colonization by encrusting organisms, and other factors.

The seaplane floats would be accessed from shore via a pile-supported trestle and drive-down gangway that hinges from the trestle and lands on the floats. The trestle would be 16 feet wide by 240 feet long with a 24-foot widened area at the top of the gangway to allow vehicles to safely pass while concurrently entering and departing the floats. The trestle surface would be either galvanized steel grating or treated timber decking and would allow rain to pass through.

Electric power is currently available to the Project site. Power would be run underground across the site and then placed in a utilidor conduit that would be hung from the float facility to provide power to individual seaplane ramps. Water and sewer service are also available at the site edge. These would be run to the shelter area for restroom facilities and water would be run down onto the floats in the utilidor conduit. A sewage lift station would be required to pump sewage up from the lower site elevation to the sewer main located along Seward Avenue.

Lighting would be provided in the parking area, at the covered shelter area, and on the floats. Detailed lighting plans would be developed as part of Project design, and will evaluate measures to focus light on specific use areas and minimize unnecessary light pollution. Lighting may also be placed on the floating wave attenuators, in coordination with the USCG to minimize potential hazards for boats operating during low light conditions.

The upland area would be designed to accommodate vehicle parking spots, a covered shelter (to eventually become a terminal), five seaplane tiedown spaces, room for a fuel storage tanks and fueling facilities, and room for maneuvering aircraft to and from the seaplane ramp.

The fueling facility would consist of an above-ground storage tank placed within a secondary containment facility. Fuel would flow by gravity in steel piping hung from the trestle and float facility. A fuel pump and flexible fuel hose and reel would be located on the seaplane float to allow seaplane fueling. A spill containment kit would be placed near the storage tank and on the float, including absorbent materials to be used during fueling to catch drips.

A seaplane ramp would be constructed to facilitate seaplane removal from the water. The proposed concrete ramp would be located near the northwest corner of the upland area.

FAA planning criteria for seaplane bases recommends a water lane for takeoffs and landings of at least 3,500 feet by 200 feet with a 20:1 approach surface, and a depth of at least 4 feet. The water lane area should avoid established shipping and boating lanes, areas that attract birds, and populated areas along the shore. The proposed water lane area would be further north of the existing water lane. While the takeoff and landing area would still be in an area with substantial boat activity, it would be away from the O'Connell Bridge connecting Baranof Island to Japonski Island, farther from the seafood processing facilities that attract gulls and other birds, and farther away from the more commercial and institutional area of the islands' shorelines.

The new seaplane base would have the potential to be expanded in the future to include additional based and transient aircraft and other needed facilities as shown in Figure 3. The existing seaplane base (A29), would not be demolished as part of the Project. The CBS would determine the appropriate reuse or removal of the facility in the future.

3.3.2. Construction

The parcel proposed for the new seaplane base has steep slopes and little level ground. The existing site elevation ranges from 60 feet above mean sea level (MSL) on the hill on the west side, to 30 feet above MSLat the cul-de-sac on the south, and down to below MSL on the channel side. The seaplane base would be constructed by clearing and grading the Japonski Island site, lowering the overall upland site elevation to approximately 22 feet MSL. An access road would be constructed from the cul de sac on Seward Avenue into the site with retaining walls to support the proposed site elevation. The existing hill at the southeast end of the site would be blasted and excavated and the rock material generated used as fill to extend the seaward portion of the site offshore by approximately 200 feet. Additional material needed for the fill footprint would be generated from existing private quarries located four to six miles north of the City of Sitka on Halibut Point Road and barged to the site. It is anticipated that the material needed would be delivered in approximately 20 barge loads, assuming a barge capacity of 1,500 cubic yards per barge. Some areas may be paved.

All seaplane floats would be anchored by steel piles socketed into bedrock. Socketing involves drilling into the bedrock to create a socket that is slightly larger than the pile. The piles would be installed through the sediment with vibratory pile-driving equipment and then socketed into the bedrock with down-the-hole drilling and driving equipment. The void between the pile and the socket edge would be filled with aggregate or grout, usually Portland cement or an ultra-high strength grout. Preliminary socket depths of 10 feet to 20 feet into competent bedrock are anticipated. The socketed pile provides stability by resisting lateral loads and uplift forces. The elevation of the floats would rise and fall with the tide. Socketing is anticipated due to presumed shallow bedrock conditions at the site based on historical site investigations in the vicinity (DOWL 1989).

Temporary steel piles, likely 16-18 inches in diameter, would be installed during construction of the approach trestle leading from shore to the gangway. The piles would be vibrated into the mud to support steel templates that will position the permanent piles. Three to five temporary piles would be used to support templates at each pile bent. After the permanent piles are driven, the temporary piles will be removed and relocated to the next pile bent and the process repeats. Roughly 30 temporary piles would be driven to complete the trestle.

Table 1 provides an estimate of socketed piles needed to anchor the seaplane floats and to support the access trestle. These estimates would be confirmed following a future Project-specific geotechnical investigation at the Project site.

Table 1. Piles Required by Element

Float Element	Steel Pile Diameter	Number of Piles Required
Based Seaplane Float	24 Inch	18
Transient Seaplane Float	16 Inch	8
Gangway Landing Float	24 Inch	14
Trestle (permanent)	16 Inch	28
Trestle (temporary)	16-18 Inch	30

Preliminary wave analysis was done as part of concept site planning (PND 2020). Further wave studies would be conducted to determine whether either or both of the proposed wave attenuators are required and whether they could be constructed and maintained with anchors as opposed to socketed piles. Approximately 25 24-inch diameter socketed steel piles or 25 heavy anchors and chains would be required for each wave attenuator. Piles would be constructed as described above. Anchors would be placed by a crane stationed on a barge. The crane would lower the anchor to the seafloor using a cable or strap assembly.

Construction of the ramp would require grading of about 0.4 acres of sloping intertidal beach area, constructing the ramp with clean shot rock embankment and armor rock materials placed directly over the existing ground during low tidal stage. Precast concrete panels would be placed directly on treated timbers set to design grade over the crushed rock aggregate base course. Each concrete panel will be connected to an adjacent plank with a bolted end plate assembly to prevent movement during wave and tidal current activity. Armor rock and underlayer rock will be placed by conventional excavators on all exposed embankment slopes to protect against coastal erosion. Based on preliminary wave studies, maximum armor rock size is estimated to be 3 tons.

Blasting and rock excavation would be required along the southern hillside. Blasting would likely take one month during which there could be several small blasts followed by rock removal and placement for proposed embankments.

Construction access to the site would primarily be along Seward Avenue, with the exception of material barging as noted above. The construction period would be up to 16 months long with six to eight months for the upland activities and six to eight months for the marine facilities, some of which could occur concurrently. Marine construction would be timed to avoid the March herring spawning period and other sensitive periods as directed by the National Marine Fisheries Service (NMFS). Construction staging for marine elements would be on floating barges. Upland construction staging would initially occur in the Seward Street cul de sac and existing graded areas on the site and then move completely on-site as the uplands are cleared and graded. Pile driving for the marine facilities could occur concurrently to the upland grading.

Additional information on construction activities in the marine area is included in the Essential Fish Habitat (EFH) Assessment included as Appendix B.

3.3.2. Permits and Approvals Required

The following permits would be required:

- DNR (Tideland conveyance)
- United States Army Corps of Engineers (USACE) (Section 404 Clean Water Act [CWA] and Section 10 of the Rivers and Harbors Act Permit)
- Alaska Department of Environmental Conservation (ADEC) (Section 401 CWA; Alaska Pollutant Discharge Elimination System [APDES] General Permit for Discharges from Large and Small Construction Activities/National Pollutant Discharge Elimination System Section 402 Permit)
- CBS (Floodplain Regulation Development Permit)

Additional required consultations and approvals include:

- Alaska State Historic Preservation Officer (SHPO) and Local Indian Tribes, Alaskan Native Villages and Native Hawaiian organizations (National Historic Preservation Act [NHPA] and US Department of Transportation Act Section 4(f)))
- NMFS (Endangered Species Act [ESA], Magnuson-Stevens Fishery Conservation & Management Act, Marine Mammal Protection Act [MMPA])
    - *Biological Opinion, Incidental Harassment Authorization, EFH Assessment*
- USFWS (ESA, MMPA, Fish & Wildlife Coordination Act)

3.4. Alternatives Dismissed from Further Consideration

Using FAA seaplane base planning criteria and aviation user input, 12 sites were evaluated in 2002 for their ability to accommodate safe takeoff, landing, taxiing, and docking operations and to accommodate the facilities needed to adequately address forecast operations capacity (See Table 2 and Figure 4). Appendix A (Alternatives Considered) contains additional information on the seaplane base location alternatives evaluated during the seaplane base siting studies conducted over the last 18 years.

3.5. No Action: No-Build Alternative

The No Action Alternative is used as a baseline against which to compare the Proposed Action. The No Action Alternative would result in continued use of the existing seaplane base, which is at diminished capacity. No new seaplane base would be constructed. None of the following deficiencies identified at the existing seaplane base would be addressed.

- Seaplane operations would continue to have conflicts with boat traffic and face hazards from birds attracted to seafood processing plant outfalls.
- The takeoff and landing area in the narrow channel would continue to require operations under the O'Connell Bridge.
- The Sitka Seaplane Base would continue to have a limited number of accessible seaplane slips and would not be able to accommodate De Havilland Otters and Beavers, which are best suited for providing commercial and recreational transportation services in the area.
- Parking would remain limited and no support facilities, such as aircraft fueling facilities or maintenance areas would be available.

Table 2. Sites Evaluated in 2002 Seaplane Base Siting Study[2]

Site Evaluated	Reason for Dismissal from Detailed Analysis
Starrigavan Bay	Safety: adverse wind and wave conditions
Existing Site	Existing uses would constrain maneuvering; minimal area for expansion; bird hazards from fish processing facility
Eliason Harbor	Existing use by small boats would lead to congestion; shallow water would require dredging; cost prohibitive
Mount Edgecumbe	Noise impacts to school; proximity to wildlife attractants; insufficient area for future expansion
SEARHC Cove	Noise impacts to clinic/residential areas; shallow coves and low waterline at low tide; insufficient development potential
Japonski Lagoon	Conflicts with Sitka Rocky Gutierrez Airport Master Plan; proximity to wildlife attractants; excessive wind exposure
Safe Harbor	Adverse wind and wave conditions; proximity to U.S. Coast Guard vessels and dock; noise
Charcoal Island	Adverse wind and wave conditions
Sawmill Cove	Adverse wind and wave conditions
Work Float	Adverse wind and wave conditions; proximity to U.S. Coast Guard vessels and dock; insufficient development potential
Jamestown Bay	Adverse wind and wave conditions
Herring Cove	Adverse wind and wave conditions

[2] *Source: HDR 2002*

Figure 4: Alternatives Dismissed from Detailed Analysis

- Use of the seaplane base would likely continue to decline as aircraft operations look for safer and more efficient facilities with more support services.
- The cost to maintain the facility would continue to increase as the facilities are beyond their useful life and in poor condition.

3.5.1. Permits and Approvals Required

No permits are required under the no action alternative.

3.6. Alternatives Summary

See a summary of the potential effects of the alternatives in Table 3.

Table 3. Comparison of Alternatives

	Proposed Action	No Action
Purpose and Need		
Capacity	The Proposed Action would meet this aspect of the purpose and need	The no action alternative would not meet this aspect of the purpose and need.
Safety	The Proposed Action would meet this aspect of the purpose and need	The no action alternative would not meet this aspect of the purpose and need.
Operations	The Proposed Action would meet this aspect of the purpose and need	The no action alternative would not meet this aspect of the purpose and need.
Environmental Impacts[1]		
Biological Resources	Approximately 1.47 acres of Essential Fish Habitat and endangered species habitat permanently filled to expand upland site, overwater structures would affect 1.62 acres of marine waters. Direct effects to humpback whales and Steller sea lions has the potential to result in Level B (behavioral) harassment (via disturbance reactions and/or masking). Humpback whales and Steller sea lions could experience a temporary loss of suitable habitat in the Project area due to elevated noise levels associated with in-water construction causing their displacement from the area. Displacement of either mammal by noise would not be permanent and would not result long-term effects to the local population. Impacts to marine mammal prey species are expected to be minor and temporary. Mitigation measures would be implemented to reduce impacts of noise on habitat. Therefore, indirect effects on Mexico distinct population segment of humpback whales or Western distinct population segment of Steller sea lions from prey effects from the Project are not expected to be substantial. An Incidental Harassment Authorization application for the Project would be required for take of marine mammals under the Marine Mammal Protection Act. The Project is not anticipated to have an effect on bald or golden eagles.	The No Action Alternative would not affect biological resources beyond existing effects.
Climate	The Proposed Action may result in some operations occurring in Sitka Channel that would otherwise occur near other Southeast Alaska seaplane facilities, but is not expected to induce additional Southeast Alaska seaplane operations overall.	The No Action alternative does not address potential change in sea level rise.

	Proposed Action	No Action
Hazardous Materials, Solid Waste, and Pollution Prevention	The Proposed Action does not involve a property on the National Priorities List and hazardous waste generation is not anticipated. Construction generated solid waste is not expected to exceed available landfill capacities.	The No Action Alternative would not result in a change from current conditions.
Historical, Architectural, Archaeological, and Cultural Resources	The Proposed Action would adversely affect a historic structure that is recommended as eligible to the National Register as part of the Sitka Naval Operating Base and U. S. Army Coastal Defenses National Historic Landmark. Consultation is underway with interested parties to determine if the facility is eligible and, if so, appropriate mitigation to address this adverse effect.	The No Action Alternative would not affect cultural resources.
Land Use	Undeveloped land would change to aviation use. This would increase the use intensity of the land, but is consistent with the adjacent U.S. Coast Guard air base and historic military aviation use of the area.	The No Action Alternative would not affect land use.
U.S. Department of Transportation Section 4(f)	The Proposed Action would result in adverse effects to an observation post located on the proposed site that is recommended as eligible for the National Register of Historic Places as a contributing element to the Sitka Naval Operating Base and U. S. Army Coastal Defenses National Historic Landmark. There are no feasible and prudent alternatives to the use of the site and all appropriate planning is being conducted to address the adverse effects of the use. Consultation is underway with interested parties to determine if the facility is eligible and, if so, appropriate mitigation to address this adverse effect.	The No Action Alternative would not affect Section 4(f) lands.
Natural Resources and Energy Supply	No impacts to existing infrastructure (water, sewer, electric grid) are anticipated. Sufficient capacity for utilities and fill materials.	The No Action Alternative would not affect these resources.
Noise and Noise-Compatible Land Use	Aviation use would result in more noise generated from seaplane operations and traffic but noise levels would not exceed land use compatibility standards. Traffic would increase on Seward Avenue increasing traffic noise levels at facilities along Seward Avenue. Short-term construction noise effects would be mitigated through marine staging for materials and blasting plan.	The No Action Alternative would not change noise levels from current conditions.
Socioeconomics	Supports Sitka's role as a hub community for local communities with associated positive economic impacts.	The No Action Alternative would not affect socioeconomics.
Environmental Justice	No disproportionately high and adverse effects on protected populations.	The No Action Alternative would not affect environmental justice.

	Proposed Action	No Action
Children's Health and Safety Risks	Adjacent uses include clinical facilities for outpatient behavioral health treatment. Noise levels inside clinics is unlikely to change substantially. Noise levels at the school and clinical facilities would remain within land use compatibility standards. Vehicle traffic would increase but unlikely to result in any substantial increase in safety risks.	The No Action Alternative would not affect children's health or safety risks.
Visual Effects	View from adjacent uses would change. Lowering the site elevation, buffering landscape at the cul-de-sac, and reorientation of floats to the north reduces visual impacts to adjacent uses.	The No Action Alternative would not affect visual resources.
Wetlands	Site development would result in fill of .06 acres of terrestrial wetlands, 0.17 acres of intertidal waters, and 1.47 acres of marine waters, for a total fill of 1.7 acres. A Clean Water Act Section 404 wetland fill permit would be required from the U.S. Army Corps of Engineers prior to construction.	The No Action Alternative would not affect wetlands.
Floodplains	The Project would result in 3.03 acres of fill in the Coastal High Hazard Area and would require a Development Permit under Sitka floodplain regulations.	The No Action Alternative would not affect floodplains.
Surface Waters	Approximately 2.98 acres of Sitka Channel would be affected by the Project. Approximately 1.64 acres of fill would be placed in Sitka Channel, and approximately 1.34 acres of Sitka Channel would be affected through construction of pile-supported trestles or shaded by floating or anchored elements (wave attenuator, floats). A Section 10 Rivers and Harbors Act would be required from the U.S. Army Corps of Engineers prior to construction and would include a USCG navigation hazard review to minimize the potential for adverse effects to navigation in Sitka Channel.	The No Action Alternative would not affect surface waters.
Cumulative Impacts	Past uses include aviation uses at the U.S. Coast Guard air base and past military use of the facilities within the National Historic Landmark. The National Historic Landmark facilities are currently used for primarily institutional (schools, behavioral clinics) and one residential use. Future uses include expansion of health care facilities with a new regional health care facility planned along Seward and Tongass Avenues. Impacts of this action when considered with past, present, and reasonably foreseeable actions are not expected to result in substantial cumulative effects.	The No Action Alternative would not result in a change from current conditions.

4.0 General Setting

Sitka is located in the Alexander Archipelago, which is characterized by temperate rain forests, fjords, prevalence of islands, and maritime climate. This climate experiences little seasonal variation and consistent precipitation, with an annual mean of 30 inches to 220 inches. Mean annual temperatures vary from 33 to 46 degrees Fahrenheit.

Terrain of this ecoregion is a result of intense glaciation during late advances of the Pleistocene. The deep, narrow bays, steep valley walls that expose much bedrock, thin moraine deposits on hills and in valleys, very irregular coastline, high sea cliffs, and deeply dissected glacial moraine deposits covering the lower slopes of valley walls are all evidence of the effects of glaciation. Elevations range from sea level to over 3,000 feet with rounded mountains and steep-sided angular mountains present. Rolling moraine landforms dominate hills and valley bottoms.

The city is located in the coastal maritime rainforest, consisting primarily of western hemlock and Sitka spruce. Brown bears are common and unlike most of Alaska, ADF&G states that there are amphibians (newts, frogs, etc.) present in southeast Alaska. Forests and estuaries provide habitat for birds and fish with Sitka black-tailed deer as the most wide-ranging large mammal in the ecoregion.

The region is free from permafrost. Ash-influenced soils are located on areas of Baranof Island.

The City of Sitka is located on Baranof Island, approximately 93 miles southwest of Juneau and the Project is on Japonski Island, across Sitka Channel from Baranof Island, and adjacent to the USCG Air Station Sitka. The mean high-water (MHW) elevation for Sitka harbor is 9.16 feet. Japonski Island has seven distinct surficial deposits including drift, volcanic ash, muskeg, elevated delta and shore deposits, alluvial deposits, modern beach deposits, and man-made fill (Yehle, 1974). Numerous expanses of subtidal wetlands exist on Japonski Island.

The shores of Sitka Channel between the O'Connell bridge and the USACE break water are developed in a wide variety of commercial, marine, aviation, and institutional uses. CBS operates three marinas in the area with over 500 slips, including Eliason and Thomsen Harbors, directly across the channel from the proposed site. Petro Marine has a fuel storage facility and fuel dock between these marinas and the A29 seaplane base, which has commercial development adjacent to the north and Sitka Sound Seafood processing facility to the south. The ANB harbor is located further south with a marine industrial area and tank farm just north of the bridge. South of the Project site, the shoreline was developed by the military during World War II (WWII). These former military areas along the west shore of the channel have been repurposed for institutional uses, including health care and education.

The channel has extensive marine operations with commercial fishing vessels, cruise ships, USCG cutters, research vessels, private watercraft of various sizes, and human-powered watercraft such as kayaks.

5.0 Impact Comparison of Alternatives

This chapter provides a description of the existing environmental, social, and economic setting for the area that would be affected by construction of the Proposed Action. This chapter also presents the environmental effects that would likely result from the implementation of the alternatives presented in Chapter 2. The two alternatives carried forward for full evaluation in this EA are the Proposed Action and the No Build Alternative.

Environmental consequences are described in terms of direct, indirect, and cumulative impacts. Direct impacts are those that are caused by the action and occur at the same time and place. Indirect impacts are those that are caused by the action, but occur later in time or are further removed in distance, but are still reasonably foreseeable. Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (see Section 3.15). Cumulative impacts are not discussed for the No Build Alternative, since this alternative would not be expected to contribute to existing cumulative impacts in the Project area.

FAA Order 1050.1F requires that impacts of a proposed federal airport Project be evaluated for specific resource categories (FAA 2020b). This is an issues-based environmental assessment; therefore, only those resource categories where the Project impacts were identified as an issue of concern are evaluated in detail. Other resource categories that were not evaluated in detail and the rationale for determining them non-applicable are provided in Chapter 5.1 (Non-Applicable Categories).

5.1. Non-Applicable Categories

The following impact categories are not considered applicable as either the resource is not present in the area or the resource was not identified as a potential issue of concern during the scoping process for the Project.

5.1.1. Air Quality

Sitka meets the National Ambient Air Quality Standards (NAAQS) for major air pollutants and is not located in a nonattainment area. Per the Alaska Administrative Code (AAC) 18 AAC 50.15, Sitka, Alaska is considered a Class II area. Stringent air quality standards in Class II areas have been established for sulfur dioxide, nitrogen oxides, and particulate matter, and cannot be exceeded. The Project would not be considered a “major source of air pollutants” and would not require an operating permit under Title V of the Clean Air Act. The new seaplane base is expected to be a General Aviation airport and would have fewer than 180,000 annual operations; therefore, air quality analysis is not required. The Erosion and Sediment Control Plan for the Project would address temporary impacts to air quality from construction (dust).

5.1.2. Climate

Climate change refers to a significant change in long-term (decades to millennia) weather patterns as a result of changes in the concentrations of greenhouse gases within the Earth’s atmosphere. While aviation contributes to greenhouse gas emission, the new seaplane base is not anticipated to result in a substantial increase of aviation activity or greenhouse gas emissions. The Proposed Action may result in some operations occurring in Sitka Channel that would otherwise occur near other Southeast Alaska seaplane facilities, but is not expected to induce additional Southeast Alaska seaplane operations overall. CBS adopted a Sitka Climate Action Plan (SCAP) in 2011. The SCAP provides planning mitigation measures and suggestions, including partnering with the FAA to discuss impacts to airports regarding runway elevations and sea level change.

5.1.3. Coastal Resources

Alaska's participation with the national Coastal Zone Management Act (known as the Alaska Coastal Management Program) ended on June 30, 2011. There are no coastal barriers (www.fema.gov/nfip/ cobra.shtm) or coral reefs (http://www.reefbase.org/ gis_maps/ default.aspx) within the State of Alaska.

5.1.4. Farmland

There is no prime or unique farmland, nor farmland of state or local importance in the vicinity of the Project (www.ak.nrcs.usda.gov/technical/soils/soilslocal.html).

5.1.5. Wild and Scenic Rivers

There are no Wild or Scenic Rivers in the vicinity of the Project (www.hps.gov/rivers/ wildriverslist.html).

5.1.6. Groundwater

Limited published data exists regarding groundwater within the Project area. A search of EPA's sole source aquifers indicates there are no such resources in Alaska (https://www.epa.gov/ dwssa/map-sole-source-aquifer-locations).

Below is a discussion of the remaining resource categories that are required by FAA Order 1050.1F to be evaluated in an EA.

5.2. Biological Resources (Fish and Wildlife)

5.2.1. Affected Environment

5.2.1.1. Habitat

Sitka Channel is about 150 feet wide and about 22 feet deep at the narrowest (National Oceanic and Atmospheric Administration [NOAA] 2020a). The mean tide range is 7.7 feet, the diurnal tide range is 9.94 feet, and the extreme range is 18.98 feet (NOAA 2020b).

The Project area has a semi-protected, partially mobile, sediment or rock and sediment habitat class and a sand and gravel flat or fan coastal class (NMFS 2020b). The area has a semi-protected biological wave exposure, a narrow splash zone, and a sheltered tidal flats environmental sensitivity index. According to the website, the oil residency index is month to years (moderate persistence). The intertidal area is semi-protected due to its location inside Sitka Channels' breakwater; however, there is some wave action that comes through the breakwater breaches and onto the shoreline. The substrate varies at the site through the site and shoreline elevation from large boulders and bedrock outcrops to gravel, pebbles, and mud.

The high intertidal zone of the Project area is characterized by boulders and bedrock outcroppings, little algal growth, and some common acorn barnacles (*Balanus glandula*), snails (primarily *Littorina sitkana*), and limpets (*Lottiidae sp.)*. Although the mid-intertidal zone varies somewhat with substrate, most of the area is dominated by rockweed (*Fucus gardneri*) and barnacles (*B. glandula/Semibalanus balanoides*) comprise the second highest cover. A small mussel (Mytilus *trossulus*) bed is found on the eastern edge of the mid-intertidal area of the Project area. The lower intertidal zone, is comprised four different areas including: a small eelgrass bed (*Zostera marina*); an area dominated with mud and sugar kelp (*Saccharina latissimi*); an area characterized by the invasive algal species wireweed (*Sargassum muticum*); and an area dominated by a sugar kelp bed.

The marine area is bounded to the north by the Channel Rock Breakwaters, on the east by Sitka harbors, and on the west by the proposed upland site. While the Project area appears to be previously undisturbed, it is completely surrounded by development. Facilities associated with the Mount Edgecumbe High School, Mount Edgecumbe Medical Center, and the Southeast Alaska Regional Health Consortium (SEARHC) are south of the Project area. The USCG Air Station Sitka is located due west of the Project site, beside the Sitka Rocky Gutierrez Airport Terminal. Eliason and Thomsen Harbors are located across the channel to the northeast, and residential development is directly north of the Project area.

The Project area experiences high levels of marine vessel traffic with highest volumes occurring May through September. Marine vessels that be found in the area include passenger ferries, commercial freight vessels/barges, commercial tank barges, small cruise ships, commercial fishing boats, charter vessels, recreational vessels, kayaks, and floatplanes (Nuka 2019). From analysis of 2018 vessel traffic in Southeast Alaska, Sitka had the second highest number of commercial vessel port calls (~1,800) following Ketchikan (Nuka 2019). The most common type of vessel traffic was cargo, followed by cruise ships. In 2018, 45.5 million pounds of cargo transited Sitka's port with a $61 million value (NOAA 2020). Much of this traffic travels through Sitka Channel and by the Project area.

5.2.1.2. Fish and Essential Fish Habitat

A review of the ADF&G's Anadromous Waters Catalog (AWC) indicates one anadromous waterway within the action area, which is defined as the area where sound from Project construction could be experienced by fish (Figure 5). Peterson Creek (113-41-10185), located across Sitka Channel directly opposite the Project site, is anadromous for all five species of Pacific salmon and for Dolly Varden (ADF&G 2020b).

The Magnuson-Stevens Fishery Conservation and Management Act (1996) defines EFH as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". According to NMFS EFH mapper (NMFS 2020a), EFH occurs for all five species of Pacific salmon and 23 species of groundfish in the waterways in and around the Project area, including in Sitka Channel. The NMFS EFH mapper also indicates that Sitka Channel is not a Habitat Area of Particular Concern for EFH.

Table 4 lists salmon species and Table 5 lists groundfish species and the life stages at which they are present.

Table 4. Salmon Species with Essential Fish Habitat in the Project Area

Salmon Species	Juvenile	Immature	Mature	Juvenile-Marine Waters	Adult-Marine Waters	Spawning-Freshwater Only
Coho Salmon (Oncorhynchus kisutch)	—	—	—	✓	✓	—
Chum Salmon (O. keta)	—	✓	—	✓	✓	—
Pink Salmon (O. gorbuscha)	—	—	—	✓	✓	—
Chinook Salmon (O. tshawytscha)	—	✓	—	—	✓	—
Sockeye Salmon (O. nerka)	—	✓	—	✓	✓	—

*Dash (--) means no data is available on these stages.

Figure 5: Action Area for Marine Mammal Analysis

Table 5. Groundfish Species with Essential Fish Habitat in the Project Area

Ground Fish Species	Egg	Larvae	Late Juvenile	Adult	Spawning
Aleutian Skate (Bathyraja aleutica)	—	—	—	✓	—
Pacific Cod (Gadus macrocephalus)	—	—	✓	✓	—
Walleye Pollock (Gadus chalcogrammus)	✓	—	—	✓	—
Shortspine Thornyhead Rockfish (Sebastolobus alascanus)	—	—	—	✓	—
Shortraker Rockfish (Sebastes borealis)	—	—	✓	—	—
Pacific Ocean Perch (S. alutus)	—	✓	—	—	—
Redbanded Rockfish (S. babcocki)	—	—	✓	—	—
Black Rockfish (S. melonops)	—	—	—	✓	—
Dusky Rockfish (S. ciliatus)	—	—	✓	—	—
Silvergray Rockfish (S. brevispinis)	—	—	✓	—	—
Quillback Rockfish (S. maliger)	—	—	—	✓	—
Redstriped Rockfish (S. proriger)	—	—	✓	—	—
Rosethorn Rockfish (S. helvomaculatus)	—	—	✓	✓	—
Sablefish (Anoplopoma fimbria)	—	✓	—	—	—
Yellow Irish Lord (Hemilepidotus jordani)	—	—	—	✓	—

Ground Fish Species	Egg	Larvae	Late Juvenile	Adult	Spawning
Great Sculpin (Myoxocephalus polyacanthocephalus)	—	—	✓	✓	—
Bigmouth Sculpin (Hemitripterus bolini)	—	—	✓	✓	—
Arrowtooth Flounder (Atheresthes stomias)	—	—	✓	✓	—
Northern Rock Sole (Lepidopsetta polyxystra)	—	—	—	✓	—
Dover Sole (Microstomus pacificus)	—	✓	✓	—	—
Yellowfin Sole (Limanda aspera)	✓	—	—	✓	—
Alaska Plaice (Pleuronectes quadrituberculatus)	—	—	—	✓	—
Octopus (unidentified)	—	—	—	✓	—

*Dash (--) means no data is available on these stages.

A detailed description of each species in the Project area is available in the Project's EFH Assessment included in Appendix B (Solstice Alaska Consulting Inc. [SolsticeAK] 2020).

ADF&G identified Pacific Herring (Clupea pallasii) and Pacific Halibut (Hippoglossus stenolepis) as important species in the Project area (ADF&G 2019). While not an EFH species; Pacific Herring serve an important ecological role within Sitka Channel and are known to spawn on intertidal and subtidal substrates within the Project area in the spring (ADF&G 2019). They provide an abundant, high energy food source for a wide variety of fishes, mammals, including ESA-listed humpback whales and Steller sea lions, and birds. Herring are also commercially important and support a roe fishery in Sitka that remains one of the largest and most valuable roe fisheries in Alaska. Pacific herring are known to spawn on intertidal and subtidal substrates within the Project area in the spring (ADF&G 2019).

Inhabiting waters between 20 and 1,000 ft, Pacific Halibut are typically found near the bottom over a variety of bottom types, and sometimes swim up in the water column to feed (ADF&G 2020a). Pacific Halibut are not an EFH species, but are an important in subsistence, commercial, and recreational fisheries in Alaska. According to local fishing charters, the Sitka area supports one of the state's largest recreational halibut fisheries with a plentiful supply of halibut all year round (Big Blue Charters 2020).

5.2.1.3. Protected Marine Species

Marine mammals within the Project area include the following: fin whale (*Balaenoptera physalus*), North Pacific right whale (*Eubalaena japonica*), sperm whale (*Physeter macrocephalus*), humpback whale (*Megaptera novaeangliae*), Steller sea lion (*Eumatopia jubatus*), gray whale (*Eschrichtius robustus*), minke whale (*B. acutorostrata*), killer whale (*Orcinus orca*), Cuvier's beaked whale (*Ziphius cavirostris*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), harbor seal (*Phoca vituline*), northern fur seal (*Callorhinus ursinus*), and northern sea otter (*Enhydra lutris*). Marine mammals are protected by NMFS and USFWS under the MMPA. Some species have additional protections under the ESA.

The NMFS endangered species and critical habitat mapper indicates five species of marine mammals that are listed under the ESA within the Project area (NMFS 2020a). Listed species that have the potential to be in the vicinity of the action area are fin whale, North Pacific right whale, sperm whale, humpback whale, and Steller sea lion. The action area does not fall within any designated critical habitat of an ESA-listed species, but is within proposed critical habitat for the Mexico distinct population segment (DPS) humpback whale. A search of the USFWS' Information for Planning and Conservation (IPaC) did not find any ESA-listed marine mammals within the Project area under their jurisdiction (USFWS 2019).

MMPA-protected species under NMFS' jurisdiction that have habitat in the Project area include the ESA species listed above and gray whale, minke whale, killer whale, Cuvier's beaked whale, Dall's porpoise, harbor porpoise, Pacific white-sided dolphin, harbor seal, and northern fur seal (NMFS 2020a). The only MMPA protected species under USFWS jurisdiction found in the Project area is the northern sea otter (USFWS 2020). Based on existing data, the only non-ESA MMPA-protected species expected to be observed in the Project area include killer whale, harbor porpoise, harbor seal, and northern sea otter.

Because the north end of Sitka Channel is shallow and narrow, the listed species of fin whale, North Pacific right whale, and sperm whale are not expected in the Project area. These species are rare in the inside waters of Southeast Alaska (Neilson et al. 2012). Based on previous marine mammal surveys conducted in the area, no fin whales, North Pacific right whales, or sperm whales were sighted, and these species are not known or expected to occur near or within Sitka Channel (Windward 2017; Turnagain 2017; Turnagain 2018; Straley et al. 2018).

Within Southeast Alaska, humpback whales are documented throughout all major waterways and in a variety of habitats, including open-ocean entrances, open-strait environments, near-shore waters, areas with strong tidal currents, and secluded bays and inlets. They tend to concentrate in several areas, including northern Southeast Alaska. Patterns of occurrence likely follow spatial and temporal changes in prey abundance and distribution with humpback whales adjusting their foraging locations to follow areas of high prey density (Allen and Angliss 2012). Given their widespread range and their opportunistic foraging strategies, humpback whales might be found in the Project vicinity year-round during the proposed Project activities (NMFS 2019). The vast majority of humpback whales (94 percent) in Southeast Alaska are likely to be from the recovered (from ESA listing) Hawaii DPS, and about six percent are likely to be from the ESA-listed threatened Mexico DPS (Wade et al. 2016).

Steller sea lions are known to occur year-round in the action area. Most are expected to be from the unlisted Eastern DPS; however, it is likely that some Steller sea lions in the Project area are from the Western DPS (WDPS) which is listed as endangered by NMFS under the ESA (Hastings et al. 2019; Jemison et al. 2013; NMFS 2013). Jemison et al. (2013) estimated an average annual breeding season movement of WDPS Steller sea lions to Southeast Alaska of 917 animals. Recent information from NMFS indicates that up to half the Steller sea lions in the Project area could be from the WDPS (SolsticeAK 2018).

NMFS's endangered species and critical habitat mapper indicates there is no critical habitat for ESA-listed species in the Project area (NMFS 2020b, 2019). The Biorka Island sea lion haulout (over 20 km southwest of the proposed Project location) is the closest designated critical habitat for Steller sea lions in Southeast Alaska and is well outside the action area. Proposed critical habitat for Mexico DPS humpback whales (approximately six percent of whales in the Project area) does occur in the action area; the proposal for the designation of critical habitat is under review. The action area is expected to be included in the decision on critical habitat.

During recent marine mammal monitoring in the Project vicinity, killer whales have been observed intermittently and usually in groups of four to eight (Windward 2017, Turnagain 2017, Turnagain 2018, Straley et al. 2018, SolsticeAK 2018). Transient killer whales, primarily from the West Coast transient stock, occur most frequently in the action area. Less often, whales from the Eastern North Pacific Gulf of Alaska, Aleutian Islands, and Bering Sea transient stocks occur in the action area (Straley 2017).

Harbor porpoises commonly frequent nearshore waters, but are not common in the Project vicinity. Observations from multiple locations around Sitka Channel from 2000 to 2018 show harbor porpoises occurring infrequently in or near the action area (Windward 2017; Turnagain 2017; Turnagain 2018; Straley et al. 2018).

Harbor seals are common in the inside waters of southeastern Alaska, including in the vicinity of the proposed Project. During recent marine mammal monitoring efforts in the Project vicinity, harbor seals were observed consistently throughout the year (Windward 2017; Turnagain 2017; Turnagain 2018; Straley et al. 2018). Harbor seals haul out of the water periodically to rest, give birth, and nurse their pups. According to the Alaska Fisheries Science Center's list of harbor seal haul-out locations, the closest listed haulout (ID 2,933 name CE49A) is located in Sitka Sound beyond Japonski Island and approximately three kilometers outside of the Project site (Alaska Fisheries Science Center 2018).

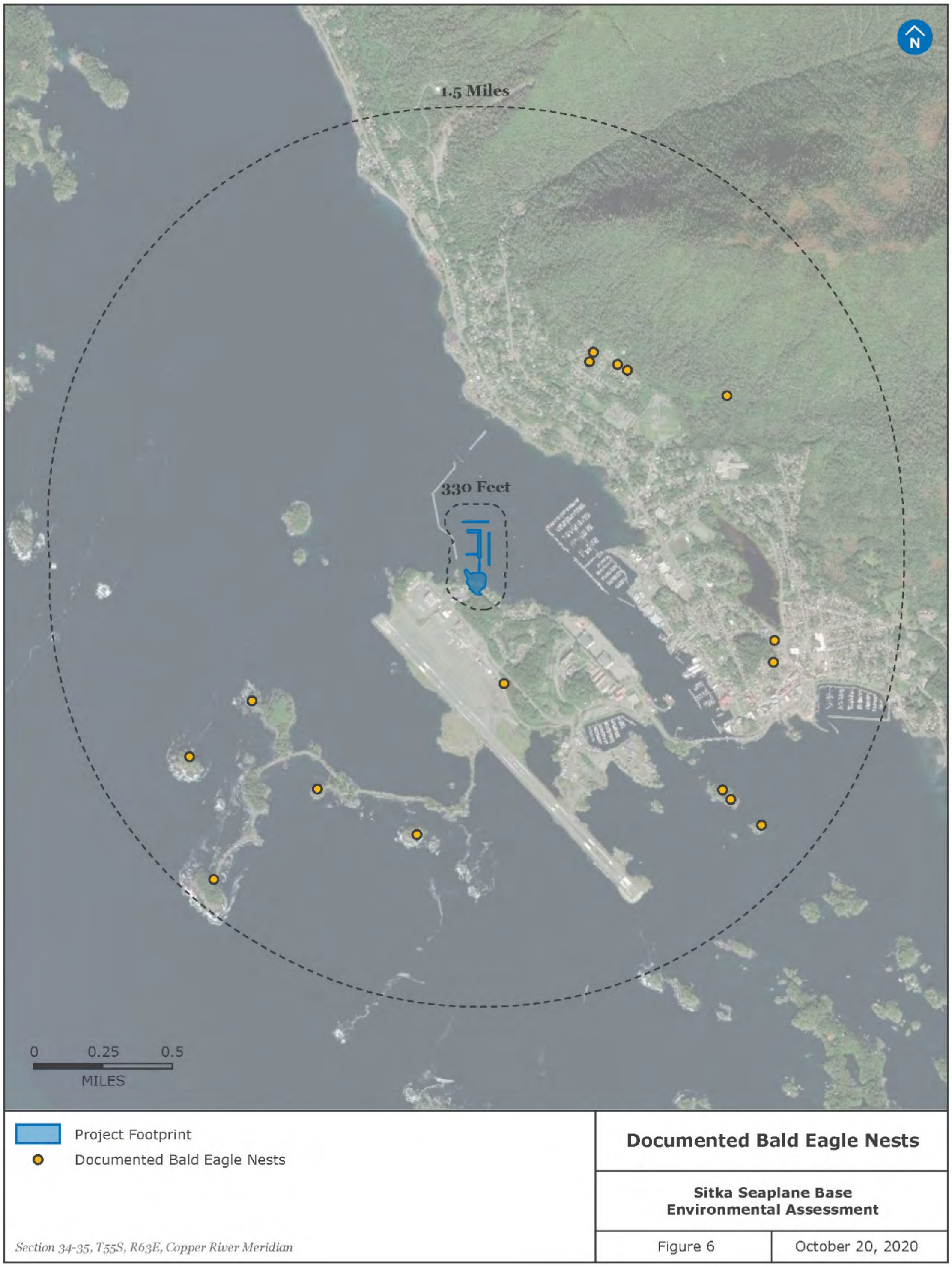
Although uncommon, minke whales and gray whales have been observed on rare occasions during marine mammal monitoring efforts in the Project vicinity, most often outside Sitka Channel (Windward 2017; Turnagain 2017; Turnagain 2018; Straley et al. 2018).

Northern sea otters are commonly observed in the Project vicinity throughout the year (Straley 2018). In 2018, northern sea otters were observed five out of eight days during monitoring at the O'Connell Float in Sitka Channel (over one kilometer from the Project location) (SolsticeAK 2018). Sea otters are not migratory and generally do not disperse over long distances.

5.2.1.4. Migratory Birds and Eagles

Bald and golden eagles and their nests are protected from take, including disturbance under the federal Bald and Golden Eagle Protection Act. Suitable eagle perching and nesting habitat exists on or adjacent to the proposed Project. There are no known active or inactive eagle nests on or within 330 feet of the proposed Project (USFWS 2020). The nearest documented nest is approximately 1,800 feet to the south (Figure 6).

Figure 6: Documented Bald Eagle Nests



5.2.1.5. Invasive Species

Executive Order 13112 Safeguarding the Nation from the Impacts of Invasive Species, as amended on December 5, 2016, requires federal agencies to prevent and control the introduction of invasive species to minimize the economic, ecological, and human health effects that invasive species may cause. The Alaska Exotic Plant Information Clearinghouse (AKEPIC) database, administered by the Alaska Center for Conservation Science at the University of Alaska Anchorage (UAA) was used to identify any invasive terrestrial, marine, and aquatic plant species that could do harm to native habitats on or adjacent to the Project. Although no invasive species have not been reported or identified on or adjacent to the Project site (AKEPIC 2020), wireweed, an invasive algal species, was found in the intertidal/subtidal zone within the Project area (SolsticeAK 2020).

5.2.2. Environmental Consequences of Alternatives

5.2.2.1. Essential Fish Habitat

Approximately 1.47 acres of EFH would be permanently filled for upland staging associated with the Project. While eelgrass beds, Peterson Creek, and important fish rearing habitat have been mostly avoided by this Project (Figure 7), the seaplane base's overwater structures would shade approximately 1.34 acres of EFH which could permanently reduce or cause fragmentation of algae beds and inhibit eelgrass development in the area.

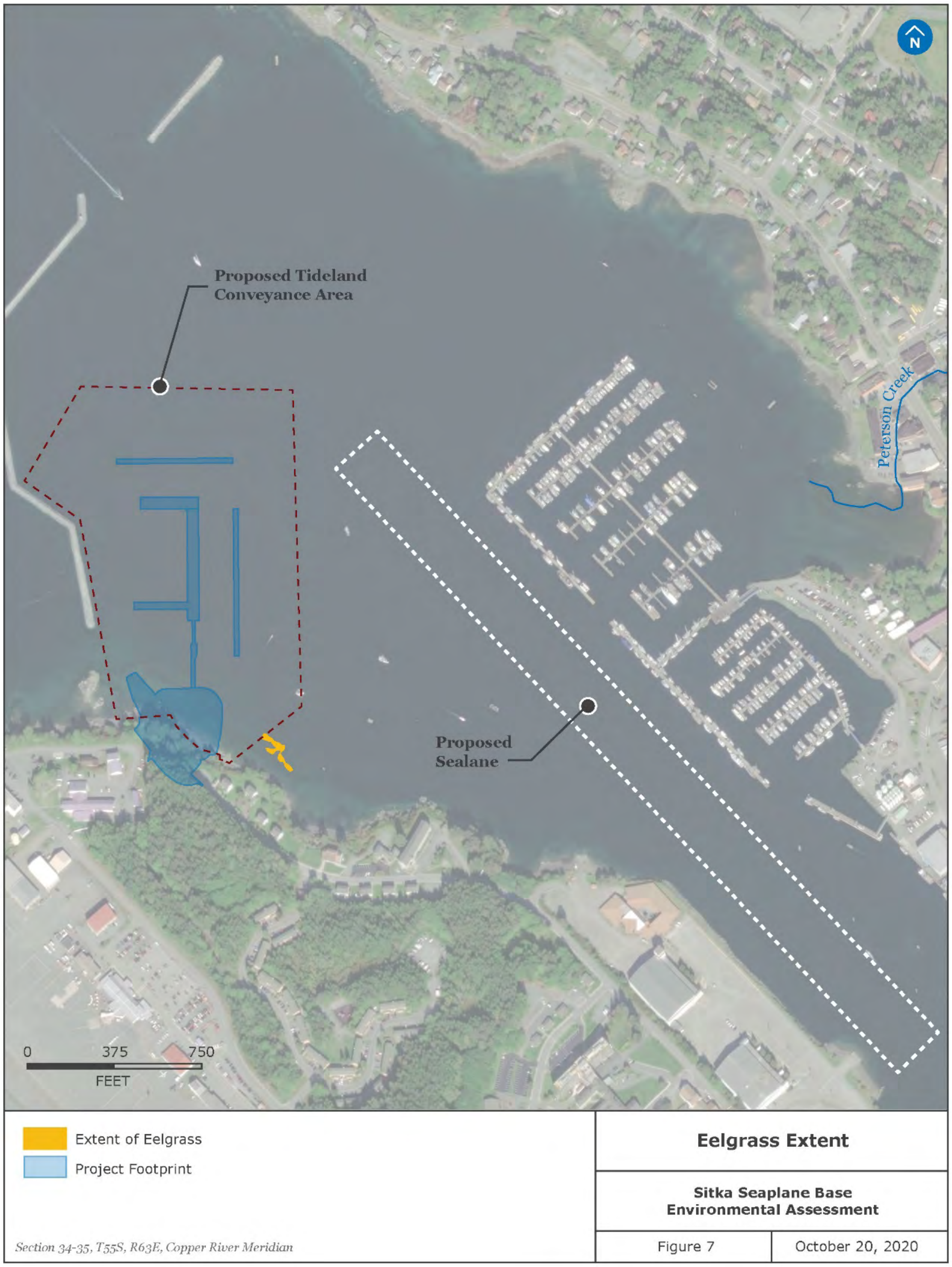
Construction activities within coastal marine areas have the potential to impact EFH. Construction of the new seaplane base may temporarily adversely impact EFH due to elevated noise from impact pile socketing, increased turbidity, increased vessel traffic, increased risk of introducing invasive species, and increased risk of accidental spills. The mouth of Peterson Creek (AWC: 113-41-10185) may potentially be directly impacted by propagated noise during construction.

Impacts are described in detail in the Project's EFH assessment (Appendix B, SolsticeAK 2020). Table 6 details potential adverse impacts to EFH from Project activities (NOAA 2017).

Table 6. Potential Adverse Impacts to EFH and EFH-listed Species for Activities Associated with the Proposed Project

	Project Activity			
Potential Impacts	Discharge of Fill Material	Overwater Structures	Pile Driving and Temporary Pile Removal	Vessel Traffic
Fish Avoidance/Displacement	✔	✔	✔	
Fish Injury or Mortality	✔	✔	✔	
Loss or Alteration of Fish Habitat	✔	✔		✔
Increase in Turbidity	✔		✔	✔
Release of Contaminants		✔	✔	✔
Increased Mechanism for Invasive Species Introduction or Dissemination				✔
Decrease in Ambient Light		✔		
Reduction in Wave and Current Regimes	✔	✔		✔

Figure 7: Eelgrass Extent



Development of the seaplane base's upland surfaces into more impervious surfaces (such as paved areas, shelter structures, haul out ramp, etc.) could exacerbate local stormwater runoff leading to sedimentation, siltation, and an increase contaminants and debris in EFH. A decrease in aquatic vegetation and phytoplankton as a result of a decrease in ambient light from the seaplane base's overwater structures could indirectly impact fish by reducing prey abundance and habitat complexity (NOAA 2017). Further, construction activities, such as discharge of fill and noise from pile driving could injure fish. Injured fish, particularly prey species, may be more susceptible to predation resulting in indirect impacts on other EFH species and disruptions to the local marine system as a whole.

The proposed wave attenuator(s) and floats could change the wave and current regime in the area by disrupting and redirecting or slowing circulation, which may alter localized substrate and detrital materials and impact the nearshore detrital food web. Disruptions to sediment transport from the new seaplane base's marine structures could act as barriers to natural processes required for algal propagation and fish settlement, foraging, rearing, and spawning (NOAA 2017).

Impacts to EFH are further discussed in the EFH Assessment in Appendix B. EFH impact minimization and mitigation measures are found in Section 5.2.3.1.

5.2.2.2. Protected Marine Species

Since neither listed fin whale, North Pacific right whale, sperm whale, or unlisted Cuvier's beaked whale, Dall's porpoise, Pacific white-sided dolphin, and northern fur seal are expected in the Project action area, the Project would not likely adversely affect these species. However, it is likely that the listed Mexico DPS humpback whales and WDPS Steller sea lion, along with gray whale, minke whale, killer whale, harbor porpoise, harbor seal, and northern sea otter could be adversely affected by habitat loss and construction activities due to the proposed action. Impacts to ESA-listed marine mammals expected in the action area, humpback whales and Steller sea lions, are discussed below and addressed in detail in the draft Biological Assessment (Appendix C) submitted to NMFS as part of Section 7 formal consultation under the ESA.

Approximately 2.98 acres of habitat would be lost due to the placement of fill (1.64 acres) in marine waters and intertidal areas and the placement of overwater structures (1.34 acres) in marine waters. Sitka Channel and the proposed Project area are not pristine marine waters and are not presently designated critical habitat. Permanent impacts from the proposed Project are not expected to jeopardize either humpback whales or Steller sea lions as the area affected by the Project is a relatively small portion of their available habitat.

Direct effects to humpback whales and Steller sea lions from noise associated with construction, primarily from impact, vibratory, and socket pile driving and vessel noise, would have the potential to result in Level B (behavioral) harassment (via disturbance reactions and/or masking). Level A harassment (resulting in injury) to humpback whales (low-frequency ceatceans) is not expected to occur because humpback whales are very uncommon in the Project area and because construction could be shut down prior to humpback whales entering their respective Level A zones. Note that underwater blasting is not proposed, and landside blasting associated with this project was analyzed and found to not have an impact on marine mammals.

Implementation of shutdown zones and a Marine Mammal Monitoring and Mitigation Plan (as typically required by NMFS) would reduce the potential of exposure to underwater noise levels above the Level A harassment threshold established by NMFS. Any Level A or Level B incidental takes of Steller sea lions or humpback whales will be addressed and approved through an Incidental Harassment Authorization (IHA) issued from NMFS. The draft IHA application requests an estimated 105 Level B takes of humpback whlate (an estimated 6% from Mexico DPS, or 6 takes) and an estimated 1,552 Level B takes of Steller sea lion (approximately 50% from WDPS, or 776 takes).

Humpback whales and Steller sea lions could be temporarily displaced from the action area due to elevated noise levels produced by in-water construction. Displacement of either species by noise would be temporary and impacts would be limited to short-term effects on the local population.

Vessel traffic generated during construction could result in vessel strikes of marine mammals. Based on documented incidents, vessel strikes are a concern for humpback whales. Fewer Steller sea lion vessel strikes have been recorded. No known whale-vessel collisions have occurred in the Project area, as the probability of strike events depends largely on vessel speed (Laist et al. 2001). The risk of vessel strike to Steller sea lions and humpback whales associated with the proposed Project is low given: 1) vessels transporting Project materials to Sitka will follow well-established, frequently used routes; 2) a limited number of vessels would be needed for construction (likely no more than 20 barge trips); 3) within Sitka Channel, vessels must travel under 5 miles per hour, within a no wake zone (CBS Code 13.10.195); and 4) the limited duration of construction.

The likelihood of humpback whales and Steller sea lions exhibiting behavior responses due to vessel traffic is low. Both species are likely habituated to vessels because the Project location is in Sitka Channel and there is a high amount of existing vessel traffic in the area. There are no known Steller sea lion rookeries or haulouts near the Project area; therefore, the chances of stress due to increased vessel traffic near critical habitat is unlikely.

The probability of Project impacts to humpback whales or Steller sea lions from accidental spills or other pollution due to construction is very small. The risk of spills and pollutants related to the Project would be mitigated by implementing best management practices and policies to prevent accidental spills during base construction and operation. Introducing a fueling facility to the SBP may increase the risk of a spill during fueling and requires proper spill protection procedures. If a spill were to occur, plans would be in place and materials would be available for cleanup activities.

The new seaplane base would have the potential to increase water and air seaplane traffic in the Sitka Channel vicinity. Noise due to seaplanes flying over and landing in the channel has the potential to impact humpback whales and Steller sea lion behavior. Although no interactions between seaplanes and humpback whales and Steller sea lions have been documented, landings and takeoffs could result in unsafe conditions for animals in the vicinity; however, it is expected that the animals would avoid the area during busy periods. Seaplane strikes could occur, but are unlikely to injury humpback whales because whales are much larger than the seaplanes and because there is no underwater propulsion equipment on the sea planes. Seaplane strikes of Steller sea lions are also unlikely due to avoidance and no underwater propulsion associated with seaplanes. Seaplane and marine mammal interactions during seaplane taxiing, takeoff, and landing could also pose a risk to human safety.

Steller sea lions have been observed hauled out on floats in Sitka harbors and in other locations throughout Alaska, and there is the potential for the animals to haul out on floats and floating wave attenuators (depending on whether the design accommodates the weight of a sea lion). Suitable haul out locations in the area could lead to more sea lions congregating in the area, which could lead to the increased potential for negative human interactions and the potential for unavoidable seaplane and/or vessel strikes. Hazing of Steller sea lions from the area would require NMFS's approval, if required.

Impacts to marine mammal prey species, such as Walleye Pollock, Pacific Herring, and salmon, are expected to be minor and temporary. The most likely impact to fish and krill from the Project would be temporary behavioral avoidance and displacement from the immediate area from elevated noise levels from construction and seaplane operations. The area in which any disruptions to prey species would occur is relatively small compared to the available foraging habitat around Sitka. Further, mitigation measures would be implemented to reduce impacts of noise on habitat (see Section 5.2.3). Therefore, indirect effects on Mexico DPS humpback whale or WDPS Steller sea lion prey during the proposed Project are not expected to be substantial.

5.2.2.2.1 Non-ESA Listed Species

The proposed seaplane base is expected to have the same impacts on non-ESA listed marine mammals as those listed above for humpback whales and Steller sea lions. Specifically, noise associated with construction, primarily from impact, vibratory, and socket pile driving, and vessel noise, would have the potential to result in Level B (behavioral) harassment (via disturbance reactions and/or masking) or Level A harassment. An IHA application for the proposed Project would be submitted to NMFS and USFWS for take of marine mammals under the MMPA. The NMFS IHA application would seek approval for takes of killer whale (776 Level B takes), harbor porpoise (970 Level B takes), harbor seal (1164 Level B takes and 194 Level A takes), minke whale (58 Level B takes), and gray whale (19 Level B takes). In addition, an IHA application would be submitted to the USFWS for the take of northern sea otter (776 Level B takes). There is no intention to apply for take of any other non-ESA marine mammals due to the proposed Project, since they are not expected in the area.

5.2.2.3. Migratory Birds and Eagles

The Project area would be surveyed for the presence of eagles and their nests prior to construction in order to avoid impacts to nests or nesting birds. If active bald or golden eagle nests are found within the Project area, a primary zone of a minimum 330 feet would be maintained as an undisturbed habitat buffer around nesting eagles. If bald eagle nests are documented within 0.5 mile during the pre-construction survey, CBS would consult with USFWS prior to the start of construction for any nests within 660 feet of the cut and fill limits or 0.5 mile of pile driving. The Proposed Project is not anticipated to have an effect on bald or golden eagles.

5.2.2.4. Invasive Species

Construction, operation, and maintenance activities could increase vectors for invasive species introduction and dissemination through vessel, vehicle, and seaplane traffic. Measures to minimize and avoid this are described in Chapter 5.2.3.3 (Invasive Species).

5.2.3. Minimization and Mitigation

5.2.3.1. Essential Fish Habitat

Incorporating the following conservation measures would help minimize adverse impacts to EFH and EFH-managed species/species complexes and other fish and marine resources in the Project area.

- The Project design minimizes the areal extent of fill in EFH, especially in areas that support managed species (eelgrass).
- Fill would be sloped to maintain shallow water, photic zone productivity; allow for unrestricted fish migration; and provide refuge for juvenile fish.
- The Project would employ the fewest number of pilings necessary to support the dock structure and to allow light into under-pier areas, minimizing impacts to the substrate.
- As recommended by NMFS, the overwater structures' decks would be placed at least 5 feet above the water surface.
- Operation protocols would require vessels to operate at sufficiently low speeds to reduce wake energy, and follow no-wake zones designated near sensitive habitats.
- CBS would develop operations protocols to minimize contamination from bilge waters, antifouling paints, seaplane accidents, general maintenance, fueling, and nonpoint source contaminants from upland facilities related to vessel operations and navigation.
- CBS would implement practical measures to reduce, contain, and clean up petroleum spills.
- Pile installation and removal would occur at a time of year (January-May) when larval and juvenile stages of fish species with designated EFH are not present.
- Impact hammer use would be minimized, and piles would first be driven as deep as possible with a vibratory hammer and socketing.
- A 50-foot-deep silt curtain would surround the pile driving and temporary pile removal operation.
- Temporary piles would be removed slowly to allow sediment to slough off at or near the mudline to reduce suspended sediment and turbidity.
- CBS will require BMPs to prevent or minimize contamination from seaplane fueling, general maintenance, and non-point source contaminants from upland facilities.

5.2.3.2. *Endangered Species and Critical Habitat and Marine* Mammals

To minimize impacts of Project activities on marine mammals, including ESA-listed species, a detailed Marine Mammal Monitoring and Mitigation Plan would be developed and would be implemented during any in-water pile driving and removal activities. Applications for IHAs would be prepared and submitted to NMFS to authorize the potential for Level A and Level B takes of marine mammals in the Project vicinity. Incorporating the following mitigation measures would help to avoid and minimize adverse impacts to ESA and MMPA-protected species and critical habitat in the Project area.

- The Project design uses minimal fill and does not require dredging or blasting.
- The Project design uses the smallest-diameter and number of piles practicable.
- Pile driving and temporary pile removal operations would be surrounded by a 50-foot-deep silt curtain.
- Floats or barges would not be grounded at any tidal stage.
- The contractor would provide and maintain a spill cleanup kit on-site at all times as part of a safety plan and any fueling equipment would be checked regularly for drips or leaks.
- Oil spill prevention and response equipment would be readily available for oil or other fuel spill containment and response should any release occur.
- Measures would be implemented to prevent petroleum products, cement, chemicals, or other deleterious materials from entering surface waters.
- A NMFS-approved marine mammal monitoring plan would be followed during construction activities. The plan would include the following:
    - When marine mammals are present, there would be a 10-meter shutdown zone for construction-related activity where acoustic injury is not an issue. For these activities, monitoring would take place beginning 15 minutes prior to initiation of noise-inducing activities until the activity is complete.
    - Protected Species Observers (PSOs) would be present during pile driving and removal and pile driving/removal would not begin until a PSO has given a notice to proceed following.
    - Pile caps (pile softening material) would be used to minimize the noise generated during pile installation
    - To minimize impacts to marine mammals, a “soft start” technique would be used when impact pile driving with an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets.
    - Prior to pile driving, the action area would be surveyed for marine mammal presence for 30 minutes. Any marine mammal sightings would delay pile driving/removal until the animal(s) is confirmed to have moved outside of and on a path away from the area or if 15 minutes (for pinnipeds or small cetaceans) or 30 minutes (for large cetaceans) have elapsed since the last sighting of the marine mammal within the shutdown zone.
    - Shutdowns would be implemented if a marine mammal appears likely to enter a shutdown zone.
    - All work would be performed during daylight hours and under appropriate weather conditions to allow for visual monitoring.

5.2.3.3. Invasive Species

Measures to minimize or eliminate the potential for introduction, establishment, and spread of invasive species would be implemented during construction.

Construction equipment would be pressure washed to remove soil, seed, and plant material prior to moving onto or off the Project site. Clean fill material, native plants, and certified native seed mix would be used, removing the risk of seeding exposed areas with invasive species. Stabilization of disturbed areas would occur as soon as practicable, reducing the risk of invasive species establishing themselves in the exposed soils. Stabilization can include paving, laying down a gravel layer, and/or seeding and vegetating. Certified native seed or locally produced seed mix would be used when seeding is the selected stabilization method.

5.2.4. Consultations, Permits, and Other Approvals

The following consultations, permits, and other approvals would be required for the implementation of the proposed action:

- ESA Formal Consultation for species under NMFS's jurisdiction (Mexico DPS humpback whales, WDPS Steller sea lion)
- MMPA IHA for takes of marine mammal under NMFS's jurisdiction (humpback whales, Steller sea lions, killer whales, harbor porpoise, harbor seal, minke whale, and gray whale)
- MMPA IHA for takes of marine mammals under USFWS's jurisdiction (Northern sea otters)
- USACE Section 404 and Section 10 Permit for fill activity and placement of offshore infrastructure

Consultation with NMFS on ESA-listed species and marine mammals is underway. Consultation with the USACE and USCG on Section 404 and Section 10 permit requirements are also underway.

5.3. Hazardous Materials, Solid Waste, and Pollution Prevention

5.3.1. Affected Environment

Contaminated sites often threaten public health or the environment and can cause economic hardship to people and communities. ADEC maintains an inventory of contaminated sites. There are 13 contaminated sites within one-half mile of the proposed Project (Table 7, Figure 8).

None of these sites are active, however six have institutional controls (IC) (ADEC 2020). ICs are instituted when contamination remains above the established cleanup levels without an unacceptable risk to human health or the environment. Sites with ICs usually require coordination with ADEC if construction is on or immediately adjacent to the site boundary.

Most of the sites are associated with the Sitka Airport or the Sitka NOB, operated by the USCG, are more than 1,000 feet from the Project footprint, and would not be affected by the Project.

Solid waste facilities in Sitka consists of a Class III landfill, industrial scrap yard, waste area, transfer station, and recycling center. The Sitka landfill was permitted in 2006 and has an estimated 250 years of capacity for inert waste materials (CBS 2014).

5.3.2. Environmental Consequences of the Alternatives

The proposed Project would not occur within an area documented as contaminated with hazardous materials. However, as Japonski Island was used during WWII, there is a potential of discovering hazardous material during construction.

Generation of construction waste is not anticipated to affect the capacity of the landfill.

5.3.3. Minimization and Mitigation

A Hazardous Materials Response Plan (HMRP) and Spill Prevention, Control, and Countermeasures (SPCC) plan would be required from the construction contractor to address appropriate storage, use, and disposal of any hazardous materials during construction. All construction waste would be managed and disposed of in accordance with all state and federal solid-waste-management laws and regulations. If contaminated soil or groundwater is encountered during construction, the contractor shall immediately notify CBS and stop work until coordination on the appropriate response occurs with ADEC.

5.3.4. Consultation, Permits, and Other Approvals

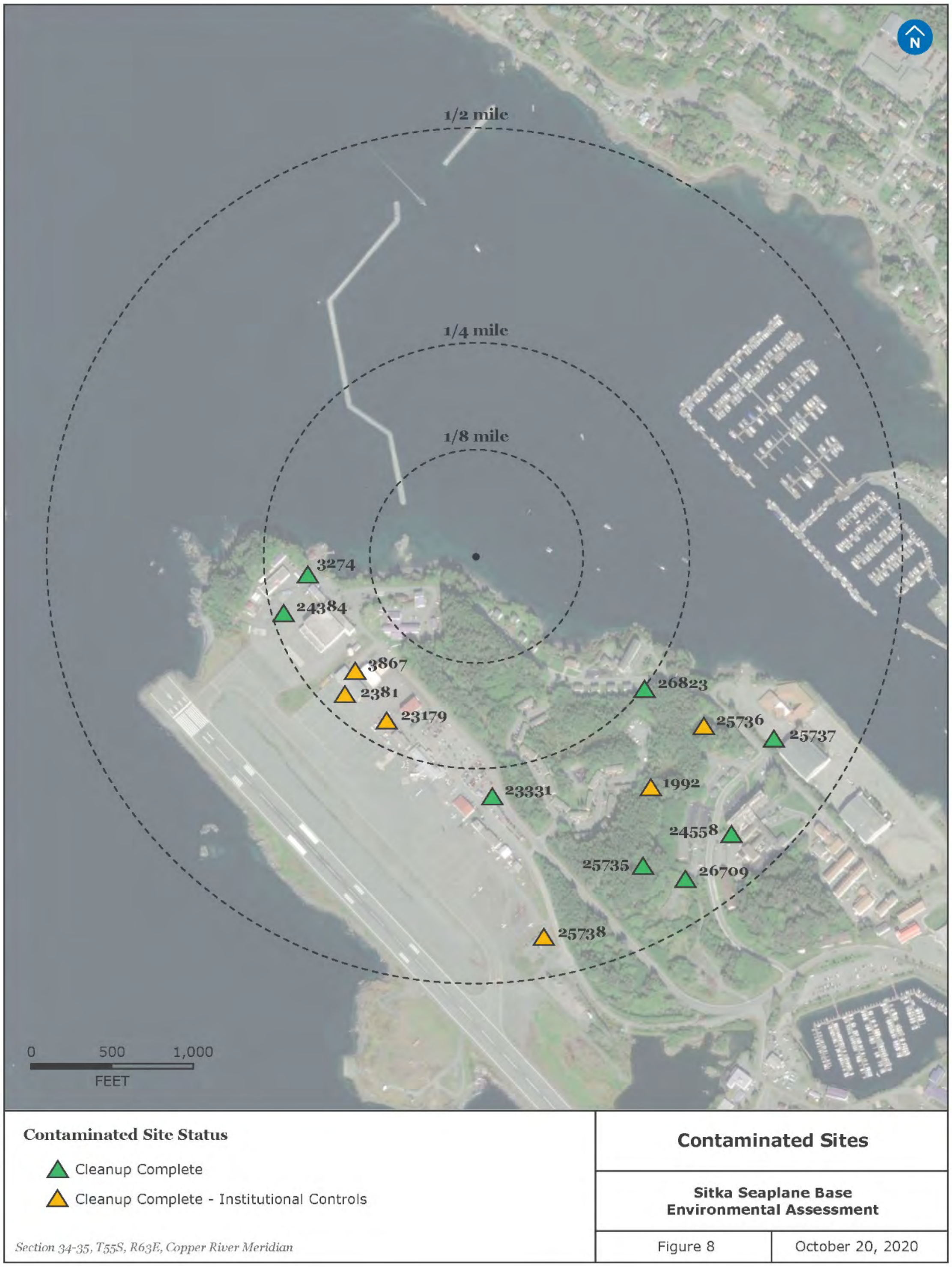
No consultation, permits, or other approvals related to hazardous materials would be required.

Table 7. Contaminated Sites on Japonski Island

Site Name	Hazard ID	Cleanup Status	Contamination Source/Restrictions	Distance to Project (feet)
Avis Rent A Car -Sitka	23331	Complete	Underground storage tanks/Advance approval required to transport soil or groundwater off-site	1,491
USCG Air Station - Sitka	24384	Complete	Underground storage tanks/ Advance approval required to transport soil or groundwater off-site	1,221
SEARHC - Mount Edgecumbe Hospital, Tank ME-3	24558	Complete	Underground storage tanks/ Advance approval required to transport soil or groundwater off-site	2,344
Sitka NOB - Area E - Millerville Housing	25735	Complete	Underground and aboveground storage tanks/ Advance approval required to transport soil or groundwater off-site	2,184
Sitka NOB - Area H - Seaplane Dock	25737	Complete	Underground fuel lines and tank truck loading/ Advance approval required to transport soil or groundwater off-site	2,169
Mount Edgecumbe Hospital USTs 2 & 3	26709	Complete	Underground storage tanks/Advance approval required to transport soil or groundwater off-site	2,385
SEARHC Mount Edgecumbe Bldg 211A	26823	Complete	Vehicle and hazardous material storage/none	1,353
USCG Japonski Island Base	3274	Complete	Aboveground storage tank spill/Advance approval required to transport soil or groundwater off-site.	1,032
Sitka NOB - Area F - Tank Farm No. 2	1992	Complete -IC	Aboveground and underground storage tanks/ some contaminated soil remains at concentrations above the cleanup level below the paved parking lot.	1,800
Mountain Aviation	2381	Complete -IC	Hangar fuel storage/Property restrictions are in effect until such time that contaminant concentrations in soil in the utility corridor just beyond the leasehold boundary are shown to meet the most stringent cleanup criteria.	1,163
ADOT&PF Sitka Airport S&C Building	3867	Complete -IC	Petroleum contamination from undetermined source/deed restrictions	1,045
ADOTPF - Sitka Airport Maintenance Station	23179	Complete -IC	Underground storage tanks/deed restrictions in place	1,168
Sitka NOB - Area G - Igarotte Housing Area	25736	Complete -IC	Unidentified/Advance approval required to transport soil or groundwater off-site	1,771
Sitka NOB - Area K Tank Farm No. 3	25738	Complete -IC	Underground storage tanks; Advance approval required to transport soil or groundwater off-site	2,400

Source: ADEC 2020. Note: ID (identification number).

Figure 8: Contaminated Sites



5.4. Historical, Architectural, Archaeological and Cultural Resources

5.4.1. Affected Environment

The study area for cultural resources is defined as a 250' buffer around construction limits of the Project, which includes all areas requiring fill, construction or demolition, and ground disturbance (Figure 9). Figure 10 shows Project elements that are located within this study area.

The Alaska Heritage Resources Survey, maintained by the Office of History and Archaeology, was reviewed for this Project. The study area extends into the northwestern boundary of Sitka Naval Operating Base (NOB) and US Army Coastal Defenses National Historic Landmark (NHL) managed by the National Park Service (NPS). Additionally, the Project proposes to access the new seaplane base via Seward Avenue through the NHL.

The Sitka NOB was one of three Alaskan Naval Air Stations used during WWII (NPS 2020). Sitka NOB was originally established as an advance seaplane base in 1937 and was designated a NOB in 1942. During WWII planes operating out of the Sitka NOB patrolled Southeast Alaska and the Gulf of Alaska. Sitka NOB also provided critical defense for shipping in the Gulf of Alaska. Beginning in 1941, the U.S. Army established Forts Ray, Rousseau (which replaced Fort Ray as the headquarters for coastal defense in 1943), Pierce, and Babcock to provide defensive support to the Sitka NOB. As part of this effort the Army also constructed the Coastal Defense Network, a system of armaments and fortifications to protect Sitka Sound and associated Naval facilities. Sitka NOB was closed by the Navy in 1944 (Bush 1944; NPS 2020).

Several historic sites are located in the vicinity of Seward Avenue and one are located in the vicinity of the Project. The Sitka NOB and U.S. Army Coastal Defenses NHL was designated in 1986 for its role in WWII defenses in Alaska and the Aleutian Islands. The NHL is comprised of the Sitka NOB and Fort Rousseau, including associated U.S. Army Coastal Defenses on eight islands. The 1986 nomination had 78 contributing features, and although there have been safety and efficiency improvements and changes in use, these retain the character of their period of significance. The NPS is currently in the process of updating the 1986 nomination to account for changes to the NHL, including demolition or rehabilitation of buildings, and improved documentation of contributing features (NPS 2020). The revised NHL nomination includes the Sitka NOB road system.

In May 2020, a site visit of the Project footprint identified one building, consisting of an intact WWII-era observation post (Appendix C). Development of the new seaplane base would require demolition of this building. Observation posts similar to this building were used to identify and triangulate the position and distance of enemy craft to guide artillery fire. The position of this building in relation to a battery of 90mm Anti Motor Torpedo Boat guns constructed at Watson Point during WWII supports this hypothesis (Berhow 2020). Unfortunately, the available records associated with the artillery at Watson Point do not include this building. It is also possible that this building was constructed by Marine or Army infantry as part of series of small coastal fortifications that used to ring Japonski, Alice, and Charcoal Islands. These small defensive positions would have ranged from foxholes and trenches to more elaborate concrete buildings such as this (M. Hunter and M. Berkhow personal communication to C. Kennedy [DOWL], August 7, 2020).

Consultations with the NPS and Alaska SHPO are underway regarding this building's eligibility to the National Register of Historic Properties (NRHP). A preliminary Determination of Eligibility has been completed and recommends that the building is significant under Criterion A based on its association with significant events (WWII), and furthermore recommends it as a contributing feature to the Sitka NOB and U.S. Army Coastal Defenses NHL.

Figure 9: Proposed Area of Potential Effect

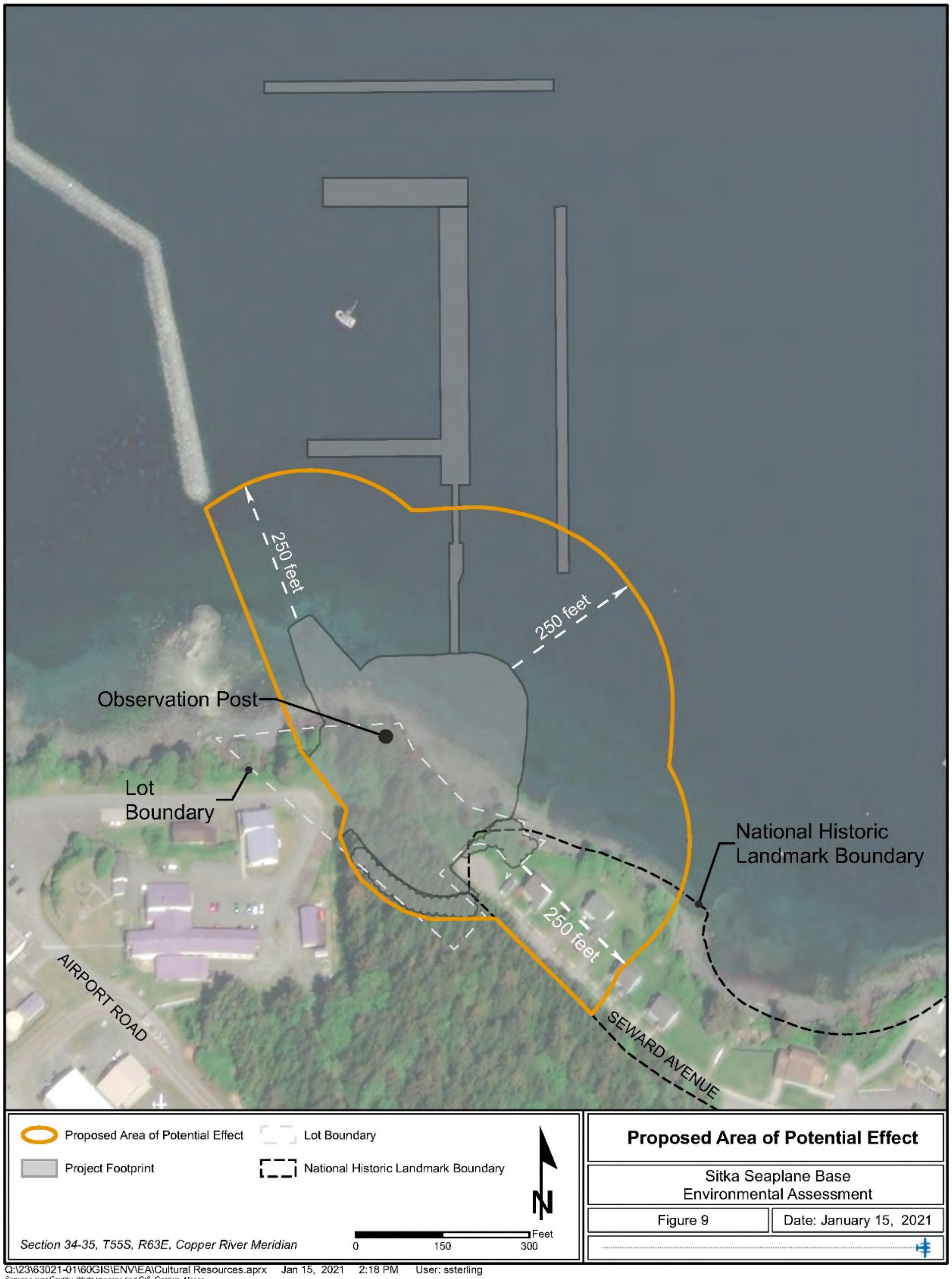
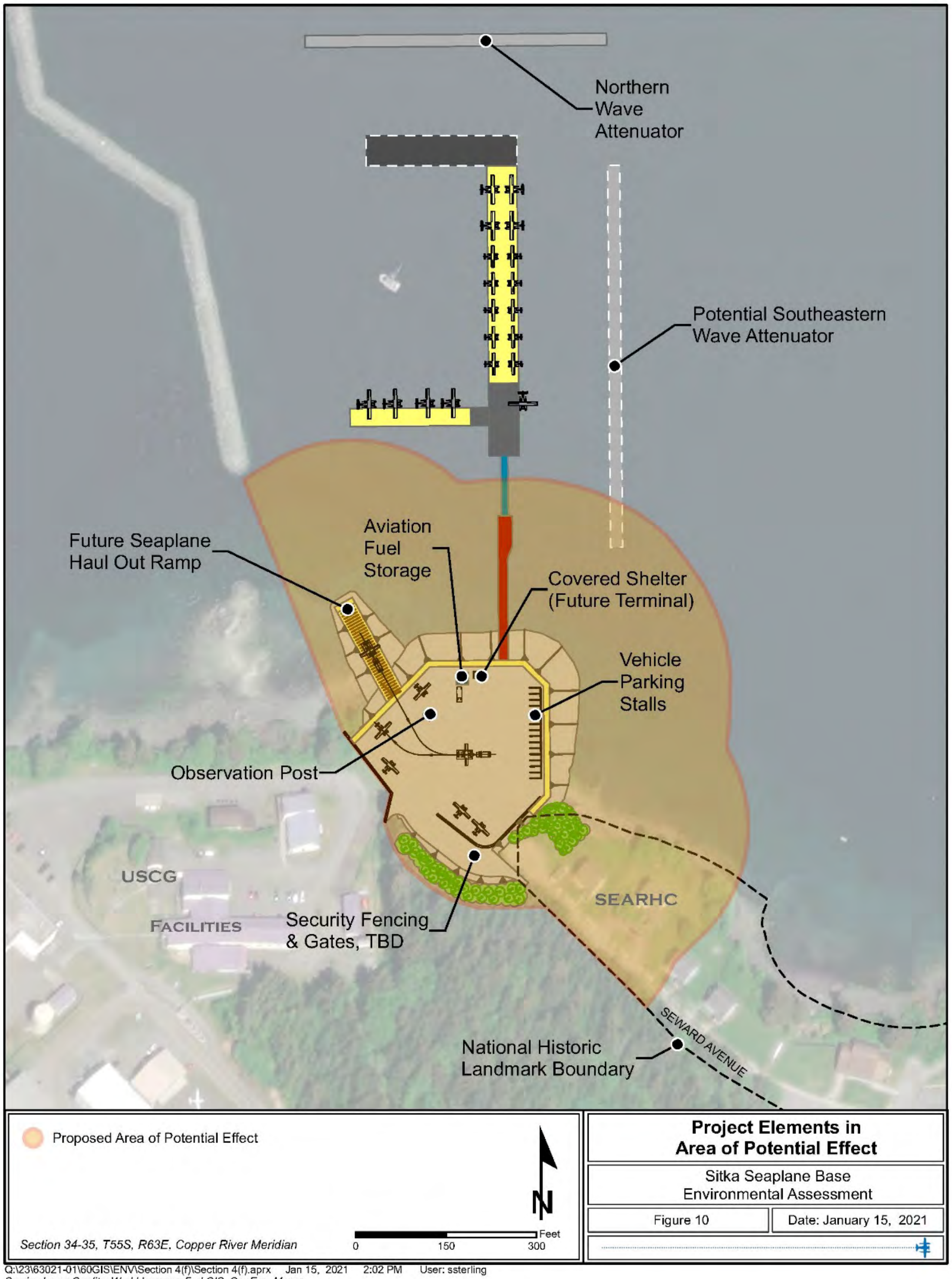


Figure 10: Project Elements in Area of Potential Effect



5.4.2. Environmental Consequences of the Alternatives

It is expected that the proposed seaplane facilities, including the access road and parking lot, can be designed to avoid direct impacts on the contributing features of the NHL as it currently exists.

Impacts to cultural resources range from changes to the character of the NHL due to additional noise and visual alterations of the setting to physical damages to individual elements (as part of vibration from construction activities, heavy traffic, or other construction-related impacts.) Addition of buildings and structures could alter the original setting of the NHL (or the impacted portion of the NHL, specifically). Similarly, changes to the types, duration, and volume of noise associated with construction and operation of the seaplane base could alter the setting and feeling of the impacted portion of the NHL. Vibration from construction activities, blasting of the hill at the entry area, and staging of heavy equipment have the potential to cause damage to WWII-era buildings and roads, which may not have been updated or reinforced.

The Project proposes to avoid visual and audible impacts to the NHL and the facilities within it. Noise impacts resulting from construction of the Project would be temporary and would only occur during construction which would be expected to occur over one to two years. Barge delivery of fill materials would eliminate the need for gravel hauling trucks to use Seward Avenue. Blasting of the hill at the south end of the Project site would occur only over a one-month period. A blasting plan would be developed and coordinated with the NPS, SEARHC, and Mount Edgecumbe High School. Vibrations at the site boundary would be less than the level at which damage to drywall occurs. The blast plan would include noise and vibration monitors during blast events located at critical adjacent structures.

Changes in noise levels within the NHL along Seward Avenue would occur during seaplane base operations as vehicle traffic on Seward Highway would increase and ground-based activities at the seaplane base would generate noise. However, noise from both land-based aircraft (including helicopters and commercial airplanes) and seaplanes can already routinely be heard from the institutional and residential areas of the NHL. The main commercial airport and the USCG Air Station Sitka are nearby and seaplanes currently takeoff and land on Sitka Channel.

As noted above, the concrete observation post has been recommended as eligible for the NRHP as contributing feature of the NHL. Since the Proposed Action would demolished this structure, this would constitute an adverse effect on an historic property. Consultation in accordance with Section 106 of the NHPA is underway with appropriate parties to identify appropriate minimization and mitigation measures to address this adverse effect.

5.4.3. Minimization and Mitigation

Project design elements to avoid visual impacts to the adjacent NHL have been included in Project design. Examples of these include lowering the site elevation, changing the orientation of the seaplane base floats, and including vegetative barriers designed to obscure the seaplane base from the direct view of the NHL. A blast plan for construction would be developed and coordinated with NPS, SEARHC, and Mount Edgecumbe High School to incorporate measures to monitor and minimize the potential for blasting effects on the structures on Seward Avenue.

Impacts to previously undocumented WWII relics or other artifacts will be addressed by implementing a standard inadvertent discovery plan. Under such a plan, if other war relics or artifacts are found during construction, work would be halted and the SHPO notified. Work on the site would not restart until appropriate agency consultation occurred.

As noted above, Section 106 consultation is underway to determine whether the observation post is eligible to the NRHP and is a contributing element of the Sitka NOB and U.S. Army Coastal Defenses NHL, whether the effects of the Project on this property are adverse, and the appropriate minimization or mitigation measures to be implemented to address the adverse effect to the observation post.

5.4.4. Consultation, Permits, and Other Approvals

Consultation to resolve adverse effects under Section 106 of the NHPA has been initiated with the NPS, Alaska SHPO, and Native entities and organizations (see Section 6.2, Section 106 Consultation, for a list of recipients). Consultation underway includes discussion about NRHP eligibility of the observation post. Since the draft Determination of Eligibility recommends the observation post as eligible for the NRHP as a contributing element of the NHL, consultation with the Alaska SHPO and NPS is underway to determine appropriate minimization or mitigation measures to be implemented to address the adverse effect. Potential mitigation measures may include, but are not limited to, documentation of the structure through the Historic Amercian Buildings Survey (HABS) and Historic American Engineering Record (HAER), use of interpretive signage documenting the observation post and its use in WWII, documentation of another similar structure on the island, or other measures. Consultation currently underway with appropriate parities will identify specific mitigation measures and responsibilities in a Memorandum of Agreement (MOA) prior to any site disturbance.

5.5. Land Use

5.5.1. Affected Environment

Japonski Island is zoned public land. The island has a variety of public facilities including the Sitka Rocky Gutierrez Airport, the USCG Air Station Sitka, the municipal wastewater treatment plant, SEARHC/Mount Edgecumbe Medical Center and the Mount Edgecumbe High School. A SEARHC clinic, day care center, and office building, and a government-owned residence are located within the immediate Project vicinity. SEARHC outpatient behavioral health clinics are located on Seward Avenue south of the Project site and a new SEARHC hospital is proposed for construction to the southwest of the site.

The CBS Comprehensive Plan 2030 identified the need to replace Sitka's existing deteriorating seaplane base to maintain the economic and transportation benefits it provides not only to Sitka residents, but other nearby small communities (CBS 2018a). The plan also noted the deterioration of the existing seaplane base; the existing conflicts between seaplane operations, boats, and birds; and the need for eliminatory conflicts between floatplane operators and boats in Sitka Channel.

5.5.2. Environmental Consequences of the Alternatives

The proposed action is consistent with land use plans for publicly zoned areas and would address the issues identified for the existing seaplane base. It would achieve the goal identified in the CBS Comprehensive Plan 2030 and would be consistent with other transportation related uses of Japonski Island including the Sitka Rocky Gutierrez Airport and USCG Air Station Sitka.

The intensity of land use would change on the site, resulting in additional vehicle traffic and noise on Seward Avenue. One structure on Seward Avenue is used as a residence, other structures are used for behavioral health services, and Mount Edgecumbe High School is located on the Sitka Channel shoreline farther south on Seward Avenue. These are noise sensitive uses. Noise effects are discussed further in Section 5.8 (Noise and Noise-Compatible Land Use).

5.5.3. Minimization and Mitigation

No minimization or mitigation actions are proposed or would be required.

5.5.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to land use would be required.

5.6. Department of Transportation Act, Section 4(f)

5.6.1. Affected Environment

Publicly owned wildlife refuges, parks and recreation areas, and historic sites eligible for the NRHP are properties protected from transportation impacts by Section 4(f) of the Department of Transportation Act. There are no wildlife refuges, parks, or recreation areas located in the Project area. However, the Sitka NOB and US Army Coastal Defenses NHL is adjacent to the proposed seaplane base site and is protected by Section 4(f). In addition, there is an observation post located on the Project site that is recommended as eligible for the NRHP as a contributing element to the NHL in a draft Determination of Eligibility evaluation. This structure would be removed as part of the Proposed Action.

5.6.2. Environmental Consequences of the Alternatives

Although the proposed site is adjacent to the Sitka NOB and US Army Coastal Defenses NHL, site development would not encroach on the adjacent NHL. Construction activities may have temporary effects on the NHL due to increased traffic and construction noise. In addition, vehicle traffic and associated traffic noise, and seaplane operations and noise in Sitka Channel may have longer term effects on the NHL. These effects are not expected to be so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired or diminished.

However, the Project would have an adverse effect on the observation post located on the proposed site. A Section 4(f) evaluation was conducted to determine if there were any feasible and prudent alternatives to the Proposed Action (Appendix D). The evaluation found that there were no prudent or feasible alternatives to the Proposed Action. Consultation is underway to ensure that all proper planning has been completed to mitigate the effects on this site. The Project team would coordinate with the Alaska SHPO, the NPS, and the FAA on concurrence with this determination prior to an site disturbance.

5.6.3. Minimization and Mitigation

Minimization and mitigation measures associated with the NHL are discussed in Section 5.5 (Historical, Architectural, Archaeological and Cultural Resources). Consultation currently underway with appropriate parities will identify specific mitigation measures and responsibilities in a Memorandum of Agreement (MOA) prior to any site disturbance.

5.6.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to Section 4(f) properties would be required.

5.7. Natural Resources and Energy Supply

5.7.1. Affected Environment

The CBS electrical grid is primarily powered by hydropower. In 2015, the CBS completed a major expansion of the Blue Lake hydroelectric Project and its capacity ranges between 22 megawatts (MW) in the summer and 32 MW in the winter (CBS 2018b). Low voltage electrical lines run from substations west to Japonski Island. Increased electric loads on Japonski Island are anticipated through expansion of the SEARHC campus and per the Japonski Island Electrical Master Plan, a general increase of 0.2 MW was estimated for “a float plane facility” (CBS 2018b).
The Sitka Wastewater Treatment Facility is located on Japonski Island, which collects domestic wastewater from across Japonski Island, including the Japonski Airport and USCG housing area and (CBS 2012).

CBS provides potable water to residents through a system sourced from Blue Lake and demand has remained relatively constant for more than 10 years and is anticipated to remain stable for the foreseeable future (CBS 2018a).

Fill materials would be obtained from excavation of a hill on the site and from an existing quarry.

5.7.2. Environmental Consequences of the Alternatives

Construction of the new seaplane base on Japonski Island may result in an increase in seaplane operations in Sitka Channel. Many of these operations would likely occur anyway, but might be based out of the commercial airport or other areas in Southeast Alaska. The increase in energy usage from the Project would likely be negligible. Although power, water, and sewer would be provided to the site, CBS utilities have sufficient capacity and the demand generated by the seaplane base would have minimal effects on local utility systems.

There is an existing quarry located within CBS. This quarry and material generated on site from excavation would be sufficient for proposed material needs.

5.7.3. Minimization and Mitigation

The contractor would produce a traffic control plan to address operational traffic delays, and detours during construction that make efficient use of time and energy.

5.7.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to natural resources and energy supply would be required.

5.8. Noise and Noise-Compatible Land Use

5.8.1. Affected Environment

Japonski Island contains Sitka's commercial airport and the USCG's Air Station Sitka, which conducts search and rescue operations in Southeast Alaska. The existing seaplane base is located south and east of the proposed site. Seaplanes currently take off and land on Sitka Channel from the existing seaplane base south of the proposed site.

Noise-sensitive receptors, such as Mount Edgecumbe High School, SEARHC facilities, and a residence are located on Japonski Island in the vicinity of the site. It has been noted that existing seaplane operations in the channel sometimes interfere with class activities at Mount Edgecumbe High School.

5.8.2. Environmental Consequences of the Alternatives

Noise impacts from the proposed Project were evaluated with consideration of Yearly Average Day-Night Noise Levels (DNL) and land use noise compatibility guidelines. This noise metric averages aircraft sound levels over a 24-hour period based on the number of events and the time period in which they occur. Most land uses (including residential, schools, and health care facilities) are compatible with DNL levels of 65 decibels (dB) and below.

FAA environmental review guidance does not require noise analysis for Projects involving Design Group I and II airplanes, such as Cessna and Beavers, when these operations do not exceed 90,000 annual (247 average daily) operations. However, due to the proximity of Mount Edgecumbe High School at the water's edge and other potentially noise sensitive uses in the project vicinity, a noise analysis was conducted.

A screening level analyisis was conducted using FAA's Area Equivalent Method Version 2C SP2. The model provides a comparison of existing to future average noise levels by calculating the increase in the footprint of the 65 dB DNL contour. Based on the expected increase in the number of flights and an increase in the number of louder aircraft, the screening analysis indicated that a more detailed method should be used for calculating impacts at noise sensitive receptors. Detailed analysis was performed using FAA's Aviation Environmental Design Tool AEDT version 3C. Appendix E contains a summary of the noise analysis performed. Table 8 below shows the noise level calculated at selected receptors for a peak activity day (assumed to be in the summer).

Table 8. Future Estimated Average Noise Levels at Noise Sensitive Locations

Receptor ID	Receptor Name	Latitude (deg)	Longitude (deg)	Noise Level (dB)	Noise Metric
1	Mount Edgecumbe HS	57.054134	-135.354005	64	DNL
2	Mount Edgecumbe Student Housing	57.051257	-135.352418	57	DNL
3	SEARHC Hospital – Existing Location	57.051933	-135.35608	52	DNL
4	SEARHC Hospital – New Location	57.051825	-135.358634	49	DNL
5	SEARHC Community Health Services	57.053966	-135.36001	54	DNL
6	Buildings at 1200-1202 Seward Avenue	57.055235	-135.363033	55	DNL

Seaplane takeoff and landing operations would still occur in the Sitka Channel, but may be shifted north of their current location. The new seaplane base would provide more float capacity and could increase the number of seaplane operations in the Sitka Channel from an estimated 1,043 per year to approximately 3,522 per year (CBS 2020a). Use is seasonal and so daily operations would be higher in summer and lower in the winter. Peak-day operations are expected to be around 20 operations per day with the Proposed Action.

Although the noise analysis shows that average noise levels for all sites are within the standard for land use compatibility (less than 65 dB DNL), some noise impacts on Mount Edgecumbe High School would continue to occur occasionally during individual takeoff events depending on the aircraft type, takeoff location, and weather conditions. Although the takeoff activities would be further from the school, there may be more operations on the channel. Highest use levels would occur during summer, when school is not in session.

Noise impacts from the Proposed Action on other potentially noise sensitive uses in the project area are well below 65 dB DNL. Therefore the surrounding uses and activities would be considered compatible.

The Proposed Action would also increase traffic on Seward Avenue, with a potential to increase traffic noise. Although traffic would increase, noise is not expected to increase substantially as traffic would be spread out throughout the week and cars would be traveling at a slow speed on Seward Avenue. Therefore, there would not be a substantial increase in traffic noise volumes, particularly inside structures.

Temporary impacts to noise-sensitive receptors from construction activities, particularly blasting, are anticipated, but would be short term and end at construction completion.

5.8.3. Minimization and Mitigation

A blast plan would be developed and would incorporate measures to reduce the potential for adverse effects on structures along Seward Avenue. The plan would be coordinated with NPS, SEAHC, and the ADEED.

5.8.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to noise would be required.

5.9. Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

5.9.1. Affected Environment

CBS is located in Sitka Sound in the Gulf of Alaska. The proposed Project site is located on Japonski Island, a small island just off of Baranof Island within the Alexander Archipelago. Japonski Island connects to Baranof Island via the O'Connell Bridge. Aviation or marine transportation is required to travel from CBS. CBS has five harbors supporting commercial, sport, and recreational boats. The CBS Harbor Enterprise Fund maintains all of CBS's public harbors and ports.

The Sitka region is the historic lands of the Tlingit people who have inhabited the region for over 4,000 years. Russia began to colonize the region in 1741, primarily to support fur trading activities, and by 1808 it served as the capital of Russian Alaska with a major port exporting goods to several countries (Department of Community and Regional Affairs (DCRA) 2020). Sitka became part of the United States in 1867 when Alaska was purchased from Russia and it served as the capital of the Alaska territory until 1906 (DCRA 2020). The 2019 population was estimated at 8,493 people (U.S. Census Bureau (USCB) 2020); it is the sixth largest city in Alaska.

Local, state, and federal government; agriculture, forestry, fishing, and hunting; health care and social assistance; accommodation and food service; retail trade; manufacturing; and transportation and warehousing are major employers in CBS (CBS 2018a). The local scenery and city's location along major cruise ship routes have contributed to a growing tourism sector. Approximately 82 percent of tourists travel to Sitka by cruise ship, 17 percent by air, and 1 percent by ferry. In CBS, most cruise ships use the Halibut Point Marine Dock (CBS, 2018).

5.9.1.1. *Environmental Justice*

The CBS has a racial composition similar to Alaska's statewide racial composition, 66 percent of the population is white, 16 percent is American Indian or Alaska Native, eight percent is Asian, one percent is black or African American, and the remainder are some other race or a mixture of races (USCB 2020). Average per capita income is $38,423 and median household income is $71,534 (in 2018 dollars). This is comparable to Alaska's $35,874 per capita income and $76,715 median household income (USCB 2020). An estimated eight percent of the population in CBS is below the poverty level, compared to 10% in Alaska (USCB 2020).

Japonski Island has little residential development, other than USCG-based housing and a small subdivision on the southeast end of Japonski Island. In addition, approximately 400 students living in Mount Edgecumbe dormitories, and there is a state-owned structure used as the Mount Edgecumbe High School Principal's residence adjacent to the site.

5.9.1.2. *Children's Environmental Health & Safety Risks*

Approximately 25 percent of CBS's population is comprised of school age children or younger (under 18). CBS schools are operated by the Sitka School District. CBS is home to Baranof Elementary, Keet Gooshi Heen Elementary, Blatchley Middle School, Sitka High School, and Pacific High School. These schools are located across Sitka Channel on Baranoff Island. Mount Edgecumbe High School is operated by ADEED and is located at the south end of Seward Avenue. It serves approximately 400 students. The Mount Edgecumbe Medical Center/ SEARHC facility located south and west of the site is the only hospital in Sitka and provides emergency services. SEARHC has multiple medical service buildings throughout Sitka, including family care, sports/student health services, dental clinic, eye clinic, behavioral health, physical therapy, and long-term care. Mount Edgecumbe Medical Center also receives patients who require high level of care from other communities in the region. Many of these communities rely on seaplanes to transport residents to Sitka for medical care.

5.9.2. Environmental Consequences of the Alternatives

The proposed Project would not induce population growth, require any relocation, or provide substantial changes in the community's tax base. It would support overall community economic activity by providing transportation between smaller local communities in the area and Sitka. An economic impact analysis conducted in 2016 estimated a new seaplane base could generate up to $1.6 million in earnings for Sitka businesses with an estimated 39 percent of that income staying in Sitka (DOWL 2016).

Although there could be occasional noise effects on students in the Mount Edgecumbe High School, the overall noise level is not anticipated to exceed 65 dB DNL. Given educational uses are considered to be compatible with noise levels under 65 dB DNL, the Proposed Action would not result in a disproportionately high and adverse effect on the school population and would not impact children's environmental health and safety.

5.9.3. Minimization and Mitigation

No minimization or mitigation actions would be required. CBS would work with pilots and Mount Edgecumbe High School staff to develop a noise minimization program to reduce noise effects during the school year.

5.9.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to socioeconomics, environmental justice, and children's environmental health and safety risks would be required.

5.10. Visual Impacts

5.10.1. Affected Environment

The upland area where the land-based improvements are planned is an undeveloped vegetated parcel with steep slopes at the end of Seward Avenue between the USCG Air Station Sitka and Sitka Channel. Land use along Sitka Channel includes harbors and marinas, lodging, commercial businesses, residential housing, and governmental or tribal buildings. Thomsen Harbor, with approximately 200 vessels moored, is across Sitka Channel about ¼ mile from the proposed marine components of the Project. The existing seaplane base is located to the south across Sitka Channel.

5.10.2. Environmental Consequences of the Alternatives

The new seaplane base would be on the north end of Japonski Island adjacent to the USCG Air Station Sitka. New lighting is proposed as part of this Project but most use is expected to occur during long summer daylight hours. Although the Proposed Action would result in changing the site from an undeveloped vegetated lot to a seaplane base, the facility would not be out of character with other development along Sitka Channel. The existing elevation at the site varies from about 30 feet mean sea level (MSL) at the central area north of the cul-de-sac to 60 feet MSL at the top of the hill on the southwest corner and down to an elevation of 10 feet MSL at the shoreline. The site would be cleared and graded to an elevation of about 22 feet MSL with a retaining wall located just south of Seward Avenue and along the USCG facility and landscape buffering along the Seward Avenue end of the site. Given the lower elevation of the site compared to the facilities to the south, the retaining wall, and the vegetation buffer, visual impacts would be minimal.

5.10.3. Minimization and Mitigation

To mitigate the change in the nature of the view from development to the south, the marine components have been oriented farther north and the upland area has been lowered in elevation and a landscape buffer is proposed along the south end of the facility.

5.10.4. Consultation, Permits, and Other Approvals

No consultation, permits, or other approvals related to visual impacts would be required.

5.11. Water Resources

5.11.1. Affected Environment

5.11.1.1. Wetlands

DOWL conducted a wetland delineation in May 2020 on the terrestrial portion of the project to identify and classify areas under USACE jurisdiction per Section 404 of the CWA. The approximate 2.0-acre study area consists of forested, scrub shrub, and tidal areas adjacent to Sitka Harbor. Approximately 97 percent of the study area is uplands, with 0.06 acres of potentially jurisdictional wetlands and 0.01 acres of Waters of the U.S.[3] (WOUS) (Appendix D, Wetland Delineation and Functions and Values Report). No streams were observed in the wetland study area. All wetlands in the study area are classified as PSS1B (using the Cowardin classification (Cowardin 1979). Table 9 summarizes the results of the wetland delineation.

Table 9. Wetlands, Waters of the U.S., and Uplands in the Wetland Study Area

Type	Acres	Cowardin Classification
Wetlands	0.06	PSS1B
Waters of the U.S.	0.01	M2USN
Uplands	1.9	N/A

Note: Cowardin classifications described in Cowardin 1979.

The most common plant species identified in the wetland study area included western hemlock (*Tsuga heterophylla*), Sitka mountain ash (*Sorbus sitchensis*), salmonberry, false lily of the valley, stink currant, and red alder (*Alnus rubra*). The wetland study area is predominantly uplands, consisting of western hemlock and Sitka spruce forests. The southern

[3] *Waters of the U.S. is a term established in the CWA and includes waters used for interstate commerce, waters subject to the ebb and flow of tide, interstate waters, tributaries of these waters, the territorial sea, and wetlands adjacent to these waters.*

side of the access road has an open understory, while the northern forested area has a scrub shrub understory consisting of salmonberry, Sitka mountain ash, and alder. Upland slopes are two to three percent.

Wetland habitats occur in the northern and northwestern portion of the wetland study area and typically begin as small seeps. One wetland starts as two seeps that flow together into a single swale. The other wetland is a small seep that starts at a toeslope. The wetlands occur on two-to-three percent slopes between several hills. Both wetlands are adjacent to the coastline and Sitka Harbor, separated by approximately 6 to 20 feet of uplands.

Scrub-shrub wetlands are characterized by greater than 30 percent aerial cover in the shrub layer and have a robust scrub shrub layer of stink currant (*Ribes bracteosum*) and salmonberry (*Rubus spectabilis*) with an herbaceous layer of false lily of the valley (*Maianthemum dilatatum*). Characteristically, these wetlands are depressional, concave (two to three percent slopes) features that form as seeps. These wetlands are located beneath the forest canopy but are small in size and have either scrub shrub vegetation or a sparsely vegetated concave surface. Both wetlands start as seeps flowing downhill. One wetland forms a swale while the other flows to a downhill point, forming a triangle. Dominant vegetation includes stink currant, false lily of the valley, and salmonberry.

A triangle-shaped seep wetland formed at a toeslope, and has a sparsely vegetated concave surface. The shrub stratum is growing over top of the wetland to maximize sunlight with few individuals rooted in the seep, and the herb stratum is growing at the downslope point of the triangle on a slight rise in elevation. The shrub stratum is dominantly salmonberry, which is most common on moist to wet, water-receiving sites in forested or wooded areas (Zouhar 2015). The Salmonberry grows laterally over top of the seep.

A functional assessment was completed for the two PSS1B wetlands. These wetlands were similar in Cowardin Classification, hydrogeomorphic classification, small in size, and similar in formation from spring seeps (Appendix D, Wetland Delineation and Functions and Values Report). The assessment area scored higher functioning for surface water storage, stream water cooling, sediment and toxicant retention and stabilization, phosphorus retention, and nitrate removal and retention.

Wetlands in the study area are adjacent to a traditional navigable water (Sitka Channel) and are separated by approximately 6 to 20 feet of uplands. Wetlands are assumed to be jurisdictional under Section 404 of the Clean Water Act (CWA) due to proximity to a traditional navigable water.

Marine waters subject to Section 10 of the Rivers and Harbors Act and Section 404 occur in tidal areas in Sitka Harbor below MHW elevation of 9.16 feet and are composed of gravel, cobble, boulder, and bedrock substrate with barnacles and marine vegetation growing along the rocks.

5.11.1.2. Floodplains

The Federal Emergency Management Agency (FEMA 2020) has identified portions of the project area as a Coastal High Hazard Area, which have special flood hazards associated with high velocity waters from tidal and storm surges. The project area has an identified base flood elevation of 21 feet above sea level.

5.11.1.3. Surface Water

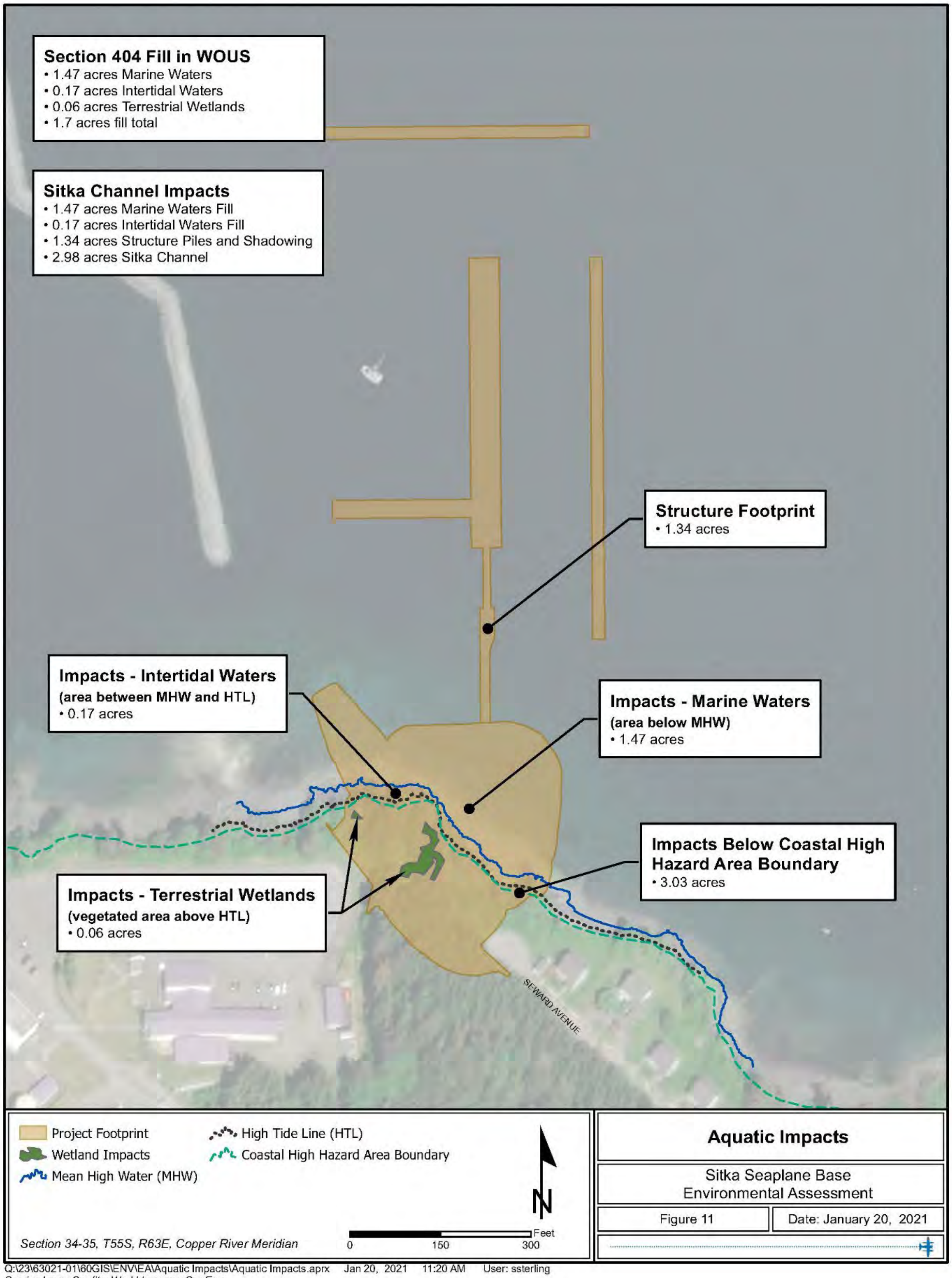
Sitka Channel is the only receiving waterbody. There are no creeks or other waterbodies within the upland area of the proposed Project. The Indian River, Sawmill Creek, Swan Lake, Cascade Creek, Blue Lake, and an unnamed lagoon on Japonski Island are the principal surface-water bodies in the Sitka area (USGS 1995).

5.11.2. Environmental Consequences of the Alternatives

5.11.2.1. Wetlands

As a seaplane base, the Proposed Action is water dependent. The Project would place fill in 0.06 acres of wetlands above HTL, 0.17 acres of intertidal waters between HTL and MWH, and 1.47 acres in marine waters below MHW, resulting in 1.7 acres of fill impacts in WOUS subject to Section 404 of the CWA (Figure 11).

Figure 11: Aquatic Impacts



5.11.2.2. Floodplains

The Project would result in 3.03 acres of fill within the Coastal High Hazard Area but not result in impeded flows. Consultation with CBS and a CBS Development Permit would be required to ensure compliance with the National Flood Insurance Program.

5.11.2.3. Surface Water

Approximately 2.98 acres of Sitka Channel, including intertidal areas, would be affected by the Project (Figure 11). In addition to the 1.47 acres of fill placed in Sitka Channel and 0.17 acres of fill placed in intertidal areas, approximately 1.34 acres would be affected through construction of floating/anchored elements (wave attenuator(s), floats) and pile-supported trestles.

5.11.3. Minimization and Mitigation

All construction activities would be conducted according to the APDES Alaska Construction General Permit. A contractor prepared SWPPP would identify all receiving waters and identify appropriate BMPs to use during construction to prevent erosion and to prevent untreated runoff from reaching nearby waterbodies.

If a fueling facility is incorporated into the seaplane base design, it is likely clearances would be required from ADEC, the Environmental Protection Agency, the local Fire Marshall, and the USCG. Any new fuel systems would have a spill prevention and response plan and oil spill cleanup supplies on site.

Appropriate compensatory mitigation for wetland and marine impacts, if required, would be determined during permitting. The permitting process would also include a USCG review for risks to navigation in the channel and may require lighting on the wave attenuators and floats to minimize potential navigation hazards in low light conditions.

5.11.4. Consultation, Permits, and Other Approvals

A USACE 404/Section 10 permit (Individual Permit) and a CBS Development Permit would be obtained prior to construction.

5.12. Cumulative Impacts and Irreversible and Irretrievable Commitment of Resources

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFA). Cumulative impacts are not discussed for the no-action alternative, since this alternative would not be expected to contribute to existing cumulative impacts in the Project area.

5.12.1. Past, Present and RFFAs

For purposes of the proposed Project, the review of past actions follows the FAA 1050.1F Desk Reference (FAA Office of Environmental and Energy 2015), "Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the Proposed Action and alternative(s)." Present actions (i.e., actions that are in progress for which effects have begun) are those that are occurring in the same general time frame as this Project that could have cumulative impacts. Reasonably foreseeable future actions include those that are not remote or speculative (generally meaning they are included in planning documents reviewed for this Project).

5.12.2. Affected Environment

The timeframe for the cumulative impact analysis considers 10 years into the past (approximately 2009 to 2019) and 20 years into the future (through approximately 2039). The geographic scope considered for cumulative impacts includes Japonski Island and the Sitka Channel, as the potential effects of the Project are limited to those areas.

Past actions include the following:

- Historic military activities including construction of facilities along Seward Avenue and development of the USCG Air Station Sitka
- Development of a marina on the east side of Sitka Channel
- Construction and addition to a breakwater in Sitka Channel
- Reuse of buildings along Seward Avenue as educational and health facilities
- Fall 2016 repairs to pile section and restoring all existing seaplane slips

Present actions include the following:

- Wastewater treatment facility upgrades on south end of Japonski Island
- Sitka Airport terminal improvements and expansion

RFFAs include the following:

- Proposed construction of a new SEARHC hospital on Tongass and Seward Avenues
- Construction of more lease lots at Sitka's Rocky Gutierrez Airport

5.12.3. Resources and Actions Considered

Cumulative effects would only occur for resource categories where the Proposed Action would have an effect. These include endangered species, aquatic habitats, land use, and noise.

5.12.4. Environmental Consequences

Past activities have had moderate effects on marine habitats adjacent to the proposed seaplane site. There are no known foreseeable actions planned within the Project area that would contribute to cumulative effects on EFH or EFH-managed species/species complexes and other fish and marine resources. Most of the RFFAs would occur on the other side of the island and so would not affect the same aquatic habitats or the land uses on Seward Avenue. The cumulative effects of the Project are not anticipated to exceed significance criteria for any environmental resource evaluated.

6.0 Coordination

6.1. Agency Correspondence

Agency scoping for the seaplane improvements Project was conducted November 2019. Scoping letters describing the Project and soliciting information were sent to the appropriate state and federal agencies:

On November 19, 2019, CBS in coordination with FAA sent an agency scoping letter and to the following recipients:

- ADF&G
- NMFS
- USACE

Scoping comments were received from ADFG, NMFS, and USACE and provided information on marine habitats and aquatic resources to be addressed through consultation or in the environmental document.

An agency scoping meeting was held on December 12, 2019 at Harrigan Centennial Hall and via teleconference with 21 people in attendance. Comments included a need to address fisheries habitat and specifically herring use, noise impacts on existing development and recreation, and potential for wetlands or contaminated sites.

6.2. Section 106 Consultation

FAA sent Section 106 consultation initiation letters to the following entities:

- Alaska SHPO
- NPS
- Sitka Tribe of Alaska
- Hoonah Indian Association
- Hydaburg Indian Association
- Organized Village of Kake
- Central Council Tlingit & Haida Indian Tribes of Alaska
- Yakutat Tlingit Tribe
- Sitka Historic Preservation Commission
- Sealaska

The NPS and Alaska SHPO provided information on the adjacent NHL. Consultation with appropriate parties is under way to evaluate whether the observation post on the proposed Project site is eligible to the NRHP, to document the effects on this structure, and to determine appropriate mitigation for the effects. No site disturbance would occur prior to completion of the Section 106 consultation.

6.3. Consultation on Endangered Species and Marine Mammal Protection Act

The NMFS has provided information on EFH, endangered species, and protected marine mammals that may be found in Sitka Channel and the Project vicinity. Consultation with NMFS on EFH was conducted (Appendix B) and consultation related to the ESA Section 7 and the MMPA are underway. CBS would request an IHA from NMFS for the potential harassment of marine mammals during construction and operation of the facility.

6.4. Public Scoping

A public scoping meeting was held on December 11, 2019 at Harrigan Centennial Hall with 25 people in attendance.

Most comments were related to the site selection process, the financing of the Project, and the urgent need for the Project. The scoping process was initiated on November 22, 2019 and continued through December 31, 2019. Notification of the scoping process was advertised through:

- Advertisements in the Sitka Sentinel on November 22 and November 29, 2019
- Direct email to pilots and other aviation contacts from previous studies
- Direct mail postcard to all Sitka residents
- Community calendar notices and Public Service Announcements on radio (Coast Alaska-KCAW and KIFW 1230/The Rock 103.7

7.0 List of Preparers

Table 10 provides the list of preparers.

Table 10. List of Preparers

Name and Education	Affiliation and Expertise Applied to Document	Profession or Experience
City and Borough of Sitka		
Kelli Cropper, MPM	Project Manager	Architectural Project Management/ 30 years
DOWL		
Maryellen Tuttell, AICP	Environmental Lead	Environmental compliance/33 years
Kenneth Nichols, PE	Engineering Lead	Engineering 29 years/Aviation Engineering/27 years
Leyla Arsan	Senior Review	Environmental compliance/Fish Biologist/18 years
Emily Creely	Environmental Support	Professional Wetland Scientist/ environmental compliance/ 20 years
Caity Kennedy	Cultural Resources	Historian/11years
Lucy F. O'Quinn	Cultural Resource	Archaeologist/23 years
Josh Grabel, PWS	Wetlands	Professional Wetland Scientist/12 years
Lizzie Zemke	Environmental scoping	Professional Wetland Scientist/ environmental compliance/28 years
PND		
Dick Somerville, PE	Infrastructure Design Lead	Engineering 40 years/Marine Engineering/30 years
Solstice		
Robin Reich	Marine Environment and Mammals, ESA, EFH	Marine Biologist/ 20 years
Natalie Kiley-Bergen	Marine Environment and Mammals, ESA, EFH	Environmental Planner/ 3 years

Abbreviations:

AICP: *American Institute of Certified Planners*
MPM: *Master of Project Management*
PE: *Professional Engineer*
PWS: *Professional Wetland Scientist*

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Appendix A:

Alternatives Considered

Alternatives Evaluated But Dismissed from Further Consideration

The condition of the existing Sitka Seaplane Base (A29) facilities have deteriorated and the site has insufficient capacity and the inability to expand due to site constraints. A new seaplane base is needed to address the unsafe and hazardous conditions at the existing facility.

Over the last 18 years, the City and Borough of Sitka has conducted three studies evaluating solutions to address the deficiencies at the existing location (HDR 2002, DOWL 2012, DOWL 2016).

Using FAA seaplane base planning criteria and aviation user input, 12 sites were evaluated in 2002 for their ability to accommodate safe takeoff, landing, taxiing, and docking operations and to accommodate the facilities needed to adequately address forecast operations capacity (See Figure A-1). Criteria specifically evaluated included:

- Future Demand – ability to meet long-term demand of 15 slips.
- Water Operating Area Characteristics – including size, current speed, water levels, wave action, debris, maneuvering space, sheltered moorage, safe bottom conditions, wildlife attractants, operational flexibility, prevailing winds, and approach and departure paths.
- Shoreside Facilities – including floating docks, gangways, and haulout ramps
- Upland Facilities – including lease lots, administrative facilities, access, parking

The 2002 study evaluated sites in four steps:

- Site Identification
- Fatal Flaw Screening (including topography, wind characteristics, wave characteristics)
- Conceptual Layouts and Evaluation
- Preferred Alternative Recommendation

The majority of sites (nine) were determined to have fatal flaws from an operations safety perspective due to topography, wind and wave conditions, and other marine traffic congestion issues (Table 1). Topography is a critical consideration, as are protection from wind and waves and proximity to the area to be served. Seaplane bases must have sufficient airspace for safe operations. Southeast Alaska, including Sitka, is an extremely mountainous area with the potential for extreme wind and waves. Sitka Channel provides some protection from the storms of the Gulf of Alaska.

Only three alternatives were identified as reasonable alternatives to provide the needed capacity and provide for safe seaplane operations. The three sites were all located on Japonski Island's northeast shore: Work Float Site, Mount Edgecumbe School Site, and Southeast Alaska Regional Health Consortium (SEARHC) Site (now called Japonski Island site), which became reasonable alternatives (Table 2, Figure A-2). The 2002 study recommended the SEARHC site and developed a master plan concept for a new seaplane base at that location.

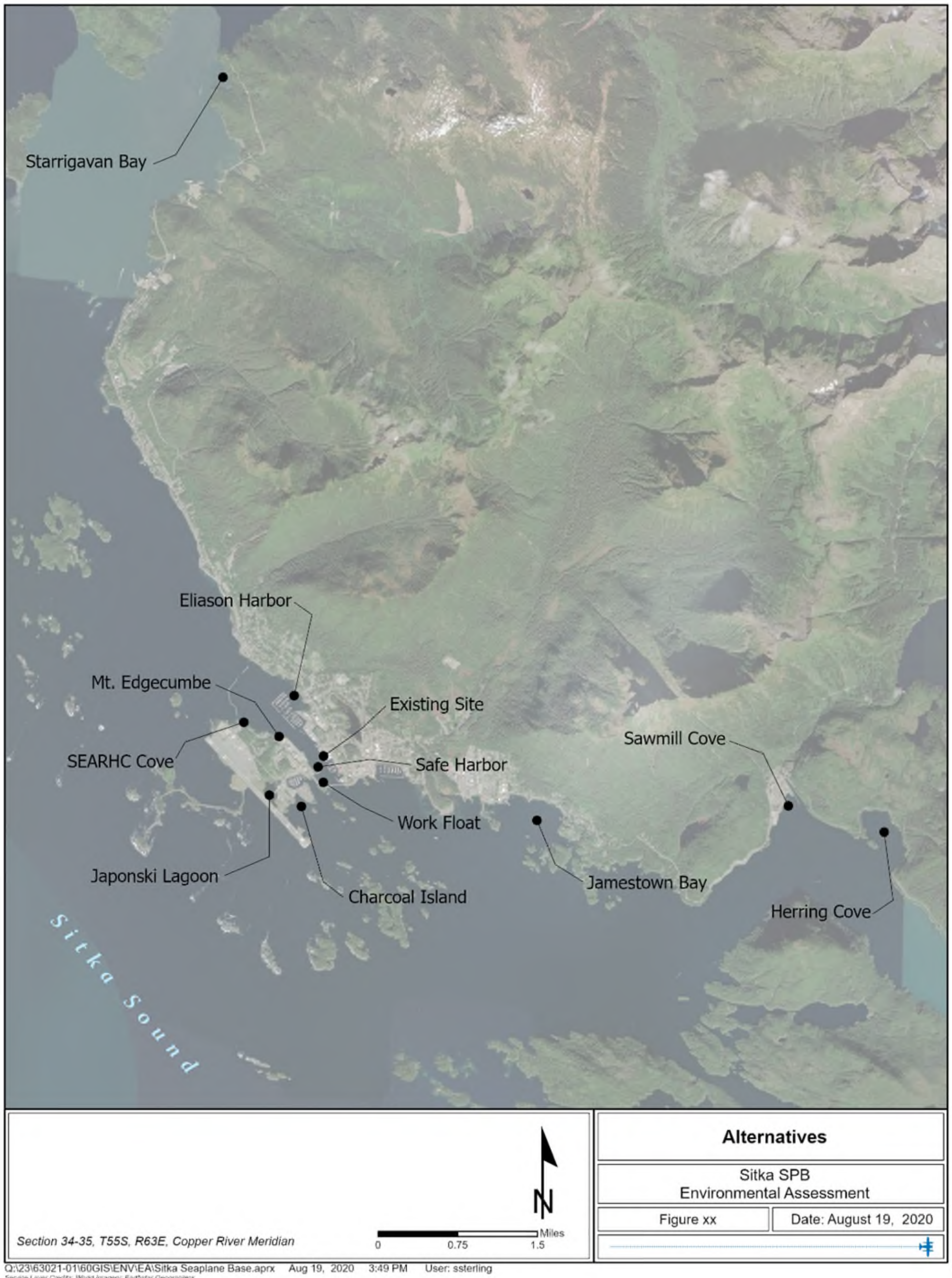

Figure A1: Alternatives Evaluated in 2002 HDR Alternatives Report

Table 1. Sites Dismissed in Fatal Flaw Screening

Site Evaluated	Reason for Dismissal from Detailed Analysis
Starrigavan Bay	• No protection from open ocean swells • Large wind chop from southeast, north and west • Water typically choppy and rough • Huge wakes from large boats and ferry • No room for upland development • High level of salmon and waterfowl use • Too far from town for seaplane pilots and community
Existing Site	• Rocks and boulders under the water • Heavy bird attractant at adjacent fish processing plant • Significant fishing and boat traffic • Inadequate size for safe maneuvering room • No expansion room to meet existing nad forecast demand • No upland area for parking • Small expansion area available only • Narrow wingtip clearances between seaplanes
Thomsen/Eliason Harbor	• Constrained by large boat harbor and shallow water • Insufficient space at low tide to safely accommodate seaplane passage without significant dredging • Salmon run in vicinity • Would need cost-prohibitive dredging and development • High-value wetlands in intertidal area • Freezing concern due to freshwater concentration from anadromous stream • High level of boat traffic • Possible strong local opposition to upland development for seaplane facilities
Mount Edgecumbe	• More aircraft noise in residential and institutional areas • More exposure of dock to wind and wave action • Concern over north and west winds • Insufficient uplands for future seaplane base development
SEARHC Cove	• Dock exposed to more sea swells as they come in between the breakwater and Japonski Island • Seaplane operations very close to SEARHC clinic and residential areas • Insufficient upland area for seaplane base development • Very shallow cove, fairly far waterline retreat during low tide

Site Evaluated	Reason for Dismissal from Detailed Analysis
	• Increased road traffic on road next to SEARHC hospital • More seaplane noise for land uses at north end of Japonski Island
Japonski Lagoon	• Incompatible with Sitka Airport Master Plan • Safety problem with wildlife hazard posed by lagoon • Wind exposure • Sea lane only partially protected from sea swells and larger waves • Expense of blasting sea lane channel • No breakwater protection for eastern side of sea lane
Charcoal Island	• Significant wave, sea swell, and wind energy • Long taxi into Sitka Channel • Large wind chop from prevailing winds • Strong and turbulent winds from Blue Lake • Topography limits during cloudy or foggy conditions
Sawmill Cove	• Long fetch of Silver Bay with direct access to open ocean via Eastern Channel • Large wind chop from prevailing winds • Strong and turbulent winds from Blue Lake • Topography limits during cloudy or foggy conditions • Too far from town for seaplane pilots and community
Work Float	• Not well protected from wind • Cost and lack of feasible relocation for work float use • Seaplanes in close proximity to US Coast Guard vessels and dock • Difficult to control access to the storage area an dock • Heavy boat traffic at fueling facility and mouth of harbor under bridge • Insufficient upland parking area and development potential
Jamestown Bay	• Turbulent wind due to surrounding topography • Large number of downwind takeoffs • Significant exposure to southwest swells • High level of small and large boat traffic • Upland area mostly residential
Herring Cove	• Long fetch of Silver Bay with direct access to open ocean via Eastern Channel • Large wind chop from prevailing winds • Strong and turbulent winds from Blue Lake • Topography limits during cloudy or foggy conditions • Too far from town for seaplane pilots and community

Adapted from HDR, 2002a, 2002b

Table 2. Sites Evaluated in Identifying 2002 Preferred Alternative

Site Evaluated	Advantages	Disadvantages
Safe Harbor	• Sufficient uplands for vehicle parking. • Some protection from swells, wind, and waves from US Coast Guard dock. • Easily seen/accessed from existing road system. • Least constrained future landside development.	• Seaplanes in close proximity to US Coast Guard vessels and dock • More exposed to prevailing winds and wave action than existing or proposed site • Relatively congested boat traffic area • Not substantially away from wildlife attractants at existing site
Mount Edgecumbe	• More seaplane operations in Western Anchorage, not main Sitka Channel, reducing Channel congestion • Well protected from south and southeast winds • Increased separation from primary bird attraction to 2,000 feet • Potential use of existing ramp for light maintenance and fueling	• More aircraft noise in residential and institutional areas • More exposure of dock to wind and wave action • Concern over north and west winds • Insufficient uplands for future seaplane base development
SEARHC Cove	• More seaplane operations in Western Anchorage, not main Sitka Channel, reducing Channel congestion • Seaplane dock size not constrained by surrounding land • Best location operationally • Reduces proximity to primary bird hazard • Increased separation from primary bird attraction to 3,500 feet • Proximity to airport facilitates passenger transfer and access to fuel and maintenance personnel	• Dock exposed to more sea swells as they come in between the breakwater and Japonski Island • Seaplane operations very close to SEARHC clinic and residential areas • Insufficient upland area for seaplane base development • Very shallow cove, waterline retreat during low tide • Increased road traffic on road next to SEARHC hospital • More seaplane noise for land uses at north end of Japonski Island

Adapted from HDR 2002a, 2002b

Figure A2: Alternatives Evaluated in 2012 DOWL HKM Study

In 2012, CBS updated the seaplane base siting study conducted in 2002 (DOWL HKM 2012). Those alternatives that had been determined to have fatal flaw in 2002 and were outside Sitka Channel were not re-evaluated. The 2012 study re-evaluated three sites in Sitka Channel: 1) the SEARHC site, 2) the existing seaplane base site, and 3) the Eliason Harbor site. This study evaluated a number of potential facility and operating area layouts for each site to see which best met the ability to accommodate forecast capacity and provide for safe seaplane operations. The study again identified the SEARHC site as the preferred site.

In January 2016, a storm damaged the existing seaplane base. Emergency repairs were completed to allow for continued use, but at a lower capacity and on a temporary basis. This heightened the need for proceeding with the location and development of a new Sitka Seaplane Base.

In 2016, CBS again conducted a site analysis to identify the preferred site to move forward to begin seaplane base development (DOWL 2016). The 2016 study expanded on the 2002 and 2012 studies using updated data, findings from field visits, interviews with local officials and seaplane users, public meetings, and input from the Sitka Port and Harbors Commission and the Federal Aviation Administration. The analysis from the 2016 report is summarized in Table 3.

Draft Evaluation Criteria

Scoring Range 1 - 3 (worst - best); 0 = non-responsive
Unweighted criteria

Notes	SPB Site Selection Criteria	Alternatives		
		Eliason Harbor	Japonski Island	Existing SPB ALT 1B
	Facility Requirements			
1	Wind protection	2	1	3
2	Wave protection	2	1	3
3	Icing	1	3	3
4	Capacity	3	3	1
5	Accommodate future growth	2	3	0
6	Aircraft maneuvering room	2	3	1
7	Taxi distance to takeoff area	3	3	2
8	Vehicle parking	3	3	3
9	Fueling facilities	3	3	3
10	Drive-down ramp to floats	3	3	1
11	On-site aircraft maintenance	3	3	0
	Category Score Total	27	29	20
	Category Rank	2nd Best	Best	3rd Best
	Safety Concerns			
12	Wildlife hazards	2	3	1
13	Potential conflicts with boat traffic	1	3	1
	Category Score Total	3	6	2
	Category Rank	2nd Best	Best	3rd Best
	Environmental Concerns			
14	Dredging and/or rock removal	1	3	2
15	Adjacent land uses	1	1	1
	Category Score Total	2	4	3
	Category Rank	3rd Best	Best	2nd Best
	Cost and Feasibility Concerns			
16	Property acquisition	3	1	1
17	Capital cost	1	2	3
18	Operating and maintenance cost	1	2	3
19	Revenue generation potential	3	3	1
	Category Score Total	8	8	8
	Category Rank	Tie	Tie	Tie
	Cumulative Scores	40	47	33
	Overall Rankin	2nd Best	Best	3rd Best

The 2016 study again recommended the site at the northeast end of Japonski Island.

Given the previous analysis on a wide variety of alternatives and additional analysis on the existing Sitka Seaplane Base site, these alternatives were not carried forward for additional analysis in the Environmental Assessment.

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Appendix B:

Essential Fish Habitat Assessment

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Essential Fish Habitat Assessment

City and Borough of Sitka
Sitka Seaplane Base Project
Sitka Channel, Sitka, Alaska

November 2020

Prepared for:
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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AWC	Anadromous Waters Catalog
BMP	best management practices
CBS	City and Borough of Sitka
dB	decibels
EFH	Essential Fish Habitat
FAA	Federal Aviation Administration
FMP	Fisheries Management Plan
ft	feet
GOA	Gulf of Alaska
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
µPa	micropascal
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPFMC	National Pacific Fisheries Management Council
SEL	sound exposure level
SPB	Seaplane Base
USACE	U.S. Army Corps of Engineers

1 INTRODUCTION

The City and Borough of Sitka (CBS) is proposing to construct a new seaplane base (SPB) in Sitka Channel on the northern shore of Japonski Island in Sitka, Alaska. The new SPB will replace the existing SPB (Federal Airline Administration [FAA] identifier A29) currently located on the eastern shore of Sitka Channel, near Eliason Harbor and downtown Sitka. The new SPB will address existing capacity, safety, and condition deficiencies for critical seaplane operations, and allow seaplanes to more safely transit Sitka Channel. Construction, which includes the installation of piles to support a floating ramp dock, floating transient dock, landing gangway, wave attenuators, and a shore-access transfer span and trestle, is anticipated to begin in January 2023 and be completed in June 2025.

Currently, the SPB A29 off Katlian Street is at the end of its useful life and has a number of shortcomings, including limited docking capacity. A29 has only eight spaces, four of which cannot be accessed during low tide. The facility also lacks on-site fueling infrastructure, is expensive to maintain, has wildlife conflicts with a nearby seafood processing plant, and requires pilots to navigate a busy channel with ship traffic. The new SPB will improve the safety of seaplane operation in the channel, along with reducing traffic and congestion in Sitka Channel. The proposed SPB will provide, among other improvements, 14 permanent slips, space for 5 transient planes, on-site fuel storage, a drive down ramp, a seaplane haul-out ramp, and upland seaplane and car parking.

This assessment of Essential Fish Habitat (EFH) for the Sitka Seaplane Base project is being provided in compliance with The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). EFH is defined by the Magnuson-Stevens Act as those “waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity”.

The 1996 amendment established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan (FMP). Section 305(b)(2) of the Magnuson-Stevens Act requires Federal action agencies to consult with National Oceanic and Atmospheric Association (NOAA)’s National Marine Fisheries Service (NMFS) on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH. The proposed SPB on Japonski Island is located within an area designated as EFH and the below assessment satisfies EFH consultation requirements.

2 PROJECT PURPOSE

The purpose of this project is to construct a new SPB on Japonski Island in Sitka Channel and address capacity, safety, operational, and condition deficiencies at the existing Sitka SPB. This project is needed to support critical seaplane operations and transportation in Southeast Alaska, to resolve existing seaplane and boat conflicts, and to replace the existing base which is 65 years old and in poor condition.

The CBS identified the need for a new SPB in 2002, and the planning process progressed as conditions at the facility continued to degrade. In 2002, CBS completed a Sitka Seaplane Base Master Plan to assess the need for a new SPB and layout a proposed facility and location (HDR Alaska, Inc. 2002). In 2012, CBS completed a Siting Analysis to reevaluate SPB sites and confirmed Japonski Island as the recommended location (DOWL KHM 2012). In 2016, CBS conducted another Siting Analysis which confirmed aviation stakeholder interest, resolved FAA funding concerns, and provided an economic impact study (DOWL 2016). The CBS has now received funding for planning and environmental review for the new SPB (CBS 2019).

3 PROPOSED ACTION

3.1 PROJECT LOCATION

The new SPB will be located on the north shore of Japonski Island, along the eastern side of Sitka Channel, approximately 1.5 miles north of downtown Sitka, in Southeast Alaska; Township 55S, Range 63E, Sections 34 and 35, Copper River Meridian; United States Geologic Survey (USGS) Quad Map Sitka A-latitude 57.0575 and longitude -135.7382 (Figure 1-2) (Earthpoint 2020). Sitka Channel is a high traffic passage and the main way to access Sitka by water, a commonly used method of transportation in Southeast Alaska.

The proposed project will be located within the Channel Rock Breakwaters in the Sitka Channel on the northeast side of Japonski Island. The Channel Rock Breakwaters were built perpendicular to the Sitka Channel, a little more than half a mile northwest of Thomsen Harbor, in order to provide protection for the harbor and other facilities and structures located throughout the channel. The distance from Channel Rock Breakwaters to the James O’Connell Bridge is about 6,500 feet (ft), and Sitka Channel is about 150 ft wide and about 22 ft deep at the narrowest (NOAA 2020). The mean tide range is 7.7 ft, the diurnal tide range is 9.94 ft, and the extreme range is 18.98 ft (NOAA 2020a). The Sitka Channel connects to the larger Sitka Sound, an active fishery and transportation corridor.

Figure 1. New Sitka SPB Location

Figure 2. Location of New Sitka SPB in Sitka Channel

3.2 DEFINITION OF ACTION AREA

The project action area designates the area where any effect will or could occur from the proposed action. For EFH, the action area is the area of water that at any given time could be ensonified above acoustic thresholds for fish species with EFH. The action area will be ensonified where direct underwater noise levels from vibratory installation of 16-inch and 24-inch piles is expected. The action area is confined to marine waters within the northern half of Sitka Channel, extending approximately 1.5 miles from the western opening in the Channel Rock Breakwaters and over 1 mile from the eastern opening in the Channel Rock Breakwaters (Figure 3).

There is one anadromous stream across Sitka Channel from the action area. Peterson Creek is anadromous (Anadromous Waters Catalog [AWC] #113-41-10185) for all five species of salmon and Dolly Varden and located along the eastern perimeter of the action area (ADF&G 2020). Since the proposed project will be exclusively located in marine waters opposite Sitka Channel from Peterson Creek, impacts beyond the mouth of the creek are not anticipated (Figure 4).

Figure 3. New Sitka SPB Action Area and Pile Driving Location

Figure 4. Location of Peterson Creek

3.3 CONSTRUCTION DETAILS

Construction of the proposed project will include the installation of piles to support a based seaplane ramp float, transient seaplane float, drive-down gangway, landing dock, trestle, and wave attenuator(s) (Table 1-2 and Figure 5-6). The project will:

- Install 30 temporary 18-inch-diameter steel piles as templates to guide proper installation of permanent piles (these temporary piles will be removed prior to project completion).
- Install 32 permanent 24-inch-diameter piles and 36 permanent 16-inch-diameter piles to support the ramp float, transient float, vehicle turnaround float, drive-down gangway, landing dock, and trestle.
- Construct and install 350-foot by 46-foot ramp float, 220-foot by 30-foot transient float, 120-foot by 12-foot drive-down gangway, 30-foot by 20-foot turnaround float, 120-foot by 46-foot landing dock, and 240-foot by 16-foot trestle (Table 1-2 and Figure 5-6).
- Install 50 permanent 24-inch-diameter piles to support two 20-foot by 600-foot wave attenuators (25 piles per wave attenuator).
- Install other SPB float components such as bull rail, floating fenders, mooring cleats, electricity connections, waterlines, lighting, passenger walkway, hand rail, and mast lights. Additional upland features include a haul-out ramp, aviation fueling infrastructure, fuel storage, vehicle driveway, curb, gravel parking for seaplanes and

vehicles, security fencing, landscape buffer, and a covered shelter (Note: all upland components will be installed out of the water).

- Discharge fill to develop 1.47 acres of uplands and conduct blasting of 24,000 cubic yards of material extending 200 feet inshore from the high tide line. The side slopes of fill will have ratio of 2 horizontal to 1 vertical (2H:1V) slopes with heavy open graded armor rock and interstitial spaces.
- Conduct one month of blasting and rock excavation at the end of the Seward Avenue in the southwest corner of the project uplands, approximately 150 to 200 feet from the high tide line.

Table 1. New Sitka SPB Construction Components

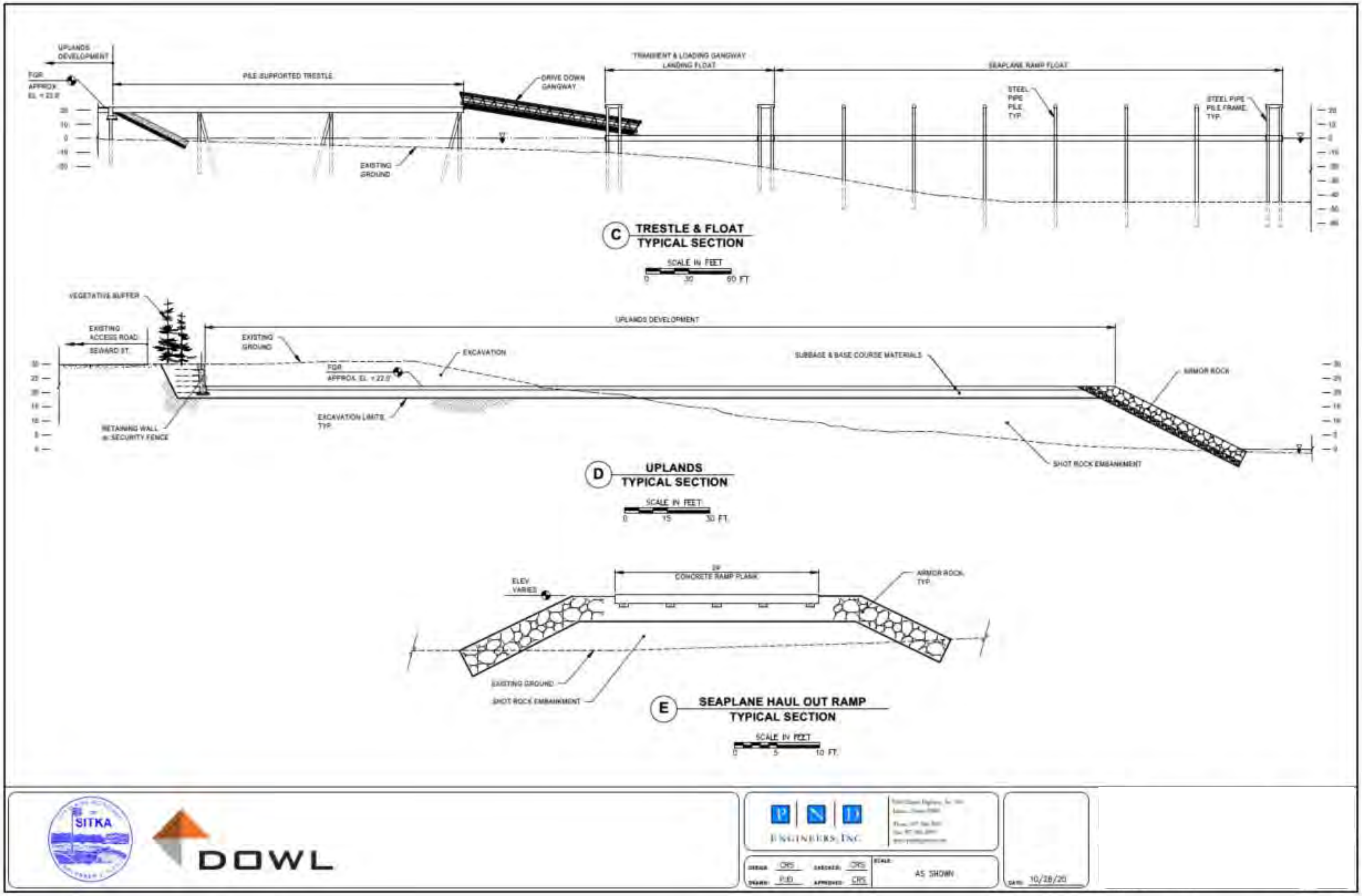
Construction Component	Material	Dimensions (ft)	Distance Above Mean High Water (ft)
Primary Seaplane Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	350 x 46	2
Transient Seaplane Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	200 x 30	2
Vehicle Turnaround Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	30 x 20	2
Drive-Down Gangway	Marine grade aluminum, fiberglass and polyethylene	120 x 12	2-13 (sloped gangway)
Landing Dock	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	120 x 46	2
Trestle	Galvanized steel and treated timber	240 x 16	13
Haul-out Ramp	Concrete	Part of Uplands	N/A
Wave Attenuator(s)	Concrete	2 each @ 20 x 600	3
Piles	Galvanized Steel	See Table 2	15 to top of pile

Table 2. New Sitka SPB Pile Installation and Removal Summary

Description	Project Component			
	Temporary Pile Installation	Temporary Pile Removal	Permanent Pile Installation	Permanent Pile Installation
Diameter of Steel Pile (inches)	18	18	24	16
# of Piles	30	30	82	36
Vibratory Pile Driving				
Total Quantity	30	30	82	36
Diameter	18	18	24	16
Max # Piles Vibrated per Day	4	4	4	4
Vibratory Time per Pile	15 min	15 min	15 min	15 min
Vibratory Time per Day	60 min	60 min	60 min	60 min
Number of Days (46 days)	8	8	21	9
Vibratory Time Total (44 hours 30 min)	7 hours 30 min	7 hours 30 min	20 hours 30 min	9 hours
Socketing Pile Driving				
Total Quantity	--	--	82	36
Diameter	--	--	24	16
Max # Piles Socketed per Day	--	--	2	2
# of Strikes per Pile	--	--	0	0
Socketing Time per Pile	--	--	5 hrs	5 hrs
Socketing Time per Day	--	--	10 hrs	10 hrs
Number of Days (59 days)	--	--	41	18
Socketing Time Total (590 hours)	--	--	410 hours	180 hours
Impact Pile Driving				
Total Quantity	30	30	82	36
Diameter	18	18	24	16
Max # Piles Impacted per Day	2	2	2	2
Impact Time per Pile	5 min	5 min	5 min	5 min
Impact Time per Day	10 min	10 min	10 min	10 min
Number of Days (89 days)	15	15	41	18
Impact Time Total (14 hours 50 min)	2 hours 30 min	2 hours 30 min	6 hours 50 min	3 hours

Figure 5. Proposed Action

Figure 6. Side Profile of Proposed Action



3.3.1 Pile Installation Equipment

The following pile installation equipment is expected to be used:

- Vibratory Hammer: ICE 44B/Static weight 12,250 pounds
- Socketing Hammer: Holte 100,000 feet-pounds top drive with down-the-hole hammer and bit
- Diesel Impact Hammer: Delmag D46/Max Energy 107,280 feet-pounds

3.3.2 Pile Installation Methods

Installation and Removal of Temporary (Template) Piles

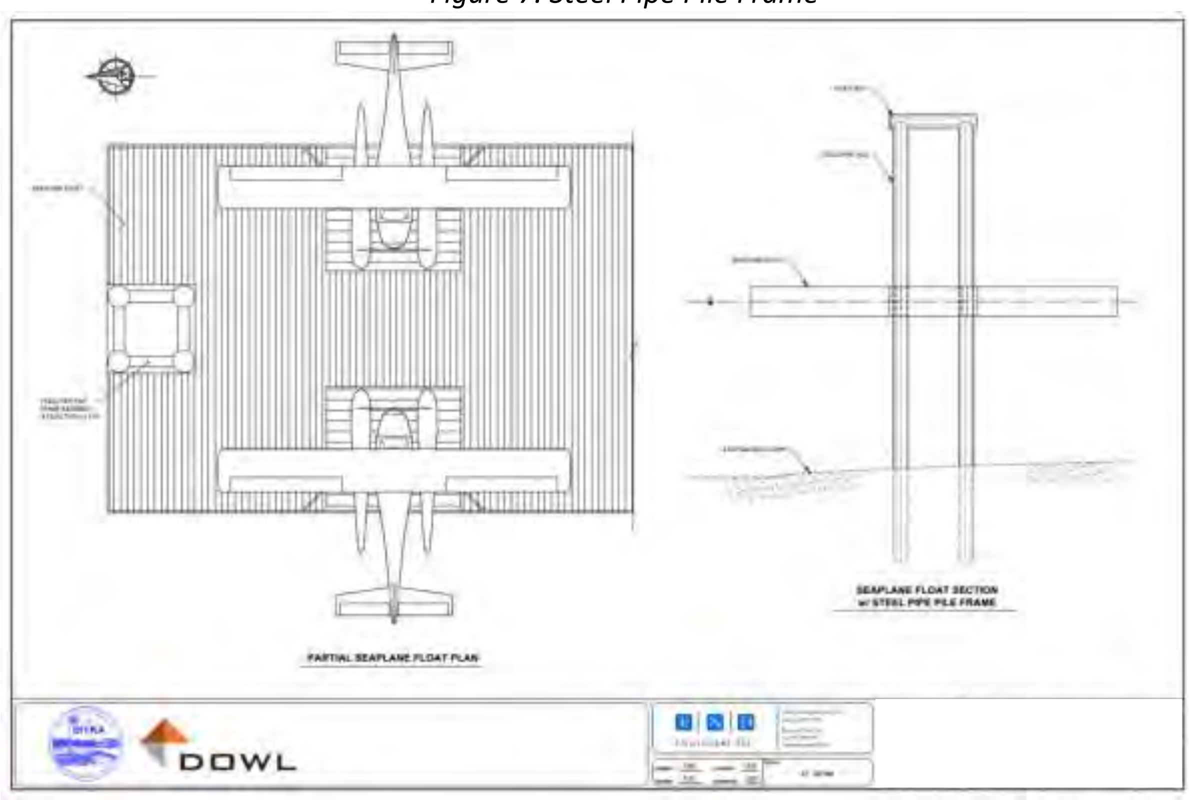
A maximum of 30 temporary 18-inch-diameter piles will be installed and removed using a vibratory hammer in constructing the project trestle.

Installation of Permanent Piles

All permanent 24-inch-diameter and 16-inch-diameter piles will be initially installed with a vibratory hammer. After vibratory driving, piles will be socketed into the bedrock with down-the-hole drilling equipment. Finally, piles will be driven the final few inches of embedment with an impact hammer.

Piles at the end of the based seaplane float and the corners of the landing dock will be installed as a steel pipe pile frame for added stability and reinforcement (Figure 7). Please see Table 2 for a conservative estimate of the amount of time required for pile installation and removal.

Figure 7. Steel Pipe Pile Frame



3.3.3 Construction Vessels

The following vessels are expected to be used to support construction:

- One material barge (approximately 250 ft by 76 ft by 15.5 ft) to transport materials from Washington to the project site and to be used onsite as a staging area during construction.
- One construction barge (crane Barge 280 ft by 76 ft by 16 ft) to transport materials from Washington to the project site and to be used onsite to support construction.
- 1 skiff (25-foot skiff with a 125–250 horsepower outboard motor) transported to the project site on the material barge or acquired locally in Sitka to support construction activities.
- 1 skiff (25-35-foot skiff powered with a 35-50 horsepower outboard motor) transported to the project site on the material barge or acquired locally in Sitka to support Protected Species Observer efforts.

3.3.4 Other In-water Construction and Heavy Machinery Activities

In addition to the activities described above, the proposed action will involve other in-water construction and heavy machinery activities. Examples of other types of activities include using standard barges, tug boats, or clamshell equipment to place and position piles on the substrate via a crane (i.e., “stabbing the pile”).

The seaplane floats will be constructed of treated timber and galvanized steel fasteners. The submerged timber structural elements of the floats will be pressure treated with creosote because it is the only effective preservative for wood that will remain wet at all times. All other timber components that will not be fully submerged will be pressure treated with ammoniacal copper zinc arsenate. All preservative treatment will be in accordance with best management practices (BMP’s) as set forth by the Western Wood Preservers Institute. Floatation includes closed cell expanded polystyrene billets covered with 100 percent solid polyurethane and/or polyethylene floatation tubs to protect from physical damage, water absorption, colonization by encrusting organisms, and other factors.

3.3.5 Project Operation Activities

The new SPB includes operation of a new seaplane takeoff and landing lane and taxi path, which will not require any construction. The new water lane is farther north of but overlapping with the existing seaplane water lane, away from the O’Connell Bridge and seafood processing facilities. The new water lane is 4,000 ft long by 200 ft.

Use and operation of the SPB float will include seaplane loading and unloading, general maintenance, connections for water and electric power, and fueling. SPB uplands will provide above ground fuel tank storage, an access ramp for hauling out seaplanes, seaplane and vehicle parking, general storage, and covered shelter for passenger waiting.

SPB operation protocols will incorporate BMP's to prevent or minimize contamination from seaplane accidents, general maintenance, fueling, and nonpoint source contaminants from upland facilities

4 ESSENTIAL FISH HABITAT IN THE ACTION AREA

The waters southwest of the breakwaters on the northern shore of Japonski Island in the Sitka Channel are designated as EFH under the Magnuson-Stevens Act for all 5 species of Pacific salmon and 23 species of Gulf of Alaska (GOA) groundfish (NMFS 2020; Balsiger 2019). Alaska Department of Fish and Game (ADF&G) also identified Pacific Herring and Pacific Halibut as important in the project area (ADF&G 2019). Additionally, U.S. Army Corps of Engineers (USACE) identified 11 additional EFH fish species when conducting work on the nearby Channel Rock Breakwaters, suggesting additional EFH listed species in Sitka Channel and the general project vicinity (USACE 2011). EFH listings are summarized in Tables 3 and 4 and a description of each EFH species is provided below.

Table 3. Essential Fish Habitat Salmon Species in Action Area

Salmon Species	Juvenile	Immature	Mature	Juvenile-marine	Adult-marine waters	Spawning-freshwater only
Coho Salmon				X	X	
Chum Salmon		X		X	X	
Pink Salmon				X	X	
Chinook Salmon		X			X	
Sockeye Salmon		X		X	X	

Table 4. Essential Fish Habitat Groundfish Species in Action Area

Ground Fish Species	Egg	Larvae	Late Juvenile	Adult	Spawning
Aleutian Skate				X	
Pacific Cod			X	X	
Walleye Pollock	X			X	
Shortspine Thornyhead Rockfish				X	
Shortraker Rockfish			X		
Pacific Ocean Perch		X			
Redbanded Rockfish			X		
Black Rockfish				X	
Dusky Rockfish			X		
Silvergray Rockfish			X		
Quillback Rockfish				X	
Redstriped Rockfish			X		
Rosethorn Rockfish			X	X	
Sablefish		X			
Yellow Irish Lord				X	
Great Sculpin			X	X	
Bigmouth Sculpin			X	X	
Arrowtooth Flounder			X	X	
Northern Rock Sole				X	
Dover Sole		X	X		
Yellowfin Sole	X			X	
Alaska Plaice				X	
Octopus				X	

4.1 ESSENTIAL FISH HABITAT SPECIES DESCRIPTIONS

4.1.1 Salmonid Species Descriptions

Coho Salmon (*Oncorhynchus kisutch*)

Coho Salmon EFH inhabit Sitka Channel off the north shore of Japonski Island (NMFS 2020). Coho Salmon enter spawning streams from July to November, usually during periods of high runoff. The eggs hatch early in the spring, where the embryos remain in the gravel using the egg yolk until emerging in May or June. Juvenile Coho Salmon spend up to three winters in streams and may spend five winters in lakes before migrating to the sea as smolt (ADF&G 2008). Coastal streams, lakes, estuaries, and tributaries to large rivers provide Coho Salmon rearing habitat. Coho Salmon juveniles may also use brackish-water estuarine areas in summer and migrate upstream to fresh water to overwinter. They spend about 16 months at sea before returning to coastal areas and entering fresh water to spawn (North Pacific Fishery Management Council [NPFMC] 2018). Because Coho Salmon have been documented in nearby Peterson Creek, it is likely that they could be found in marine waters of the action area at certain times of the year.

Chum Salmon (*O. keta*)

Chum Salmon EFH inhabit Sitka Channel off the north shore of Japonski Island (NMFS 2020). Returning after 2 to 7 years, Chum Salmon spawn between June and November in gravel in streams, side-channel sloughs, and intertidal portions of streams when the tide is below the spawning grounds (NPFMC 2018). Chum Salmon fry do not overwinter in the streams, but instead migrate out of the streams directly to the sea shortly after emergence (ADF&G 2008). This outmigration occurs between February and June, with most leaving streams during April and May. Chum Salmon tend to linger and forage in the intertidal areas at the head of bays. Estuaries are important for Chum Salmon rearing during spring and summer. Chum Salmon have been documented in nearby Peterson Creek; therefore, they could be found in marine waters of the action area at some point in their lifecycle.

Pink Salmon (*O. gorbuscha*)

Pink Salmon EFH inhabit Sitka Channel off the north shore of Japonski Island (NMFS 2020). Pink Salmon are distinguished from other Pacific salmon by having a fixed two-year life span. Because of the life span, pink salmon spawning in a particular river system in odd and even years are reproductively isolated from each other and have developed into genetically different lines (NPFMC 2018). Adult Pink Salmon enter spawning streams between late June and mid-October. They spawn within a few kilometers of the coast, and spawning within the intertidal zone or the mouth of streams is very common. Shallow riffles where flowing water breaks over coarse gravel or cobble-size rock and the downstream ends of pools are favored spawning areas. The eggs hatch in early to mid-winter, and fry emerge from gravel to migrate downstream into salt water by late winter or spring (ADF&G 2008). Pink Salmon have been documented in nearby Peterson Creek and could be found in marine waters of the action area at some point in their lifecycle.

Chinook Salmon (*O. tshawytscha*)
Chinook Salmon EFH inhabit Sitka Channel off the north shore of Japonski Island (NMFS 2020). Adult Chinook Salmon are found over a broad geographic range, encompassing different ecotypes and very diverse habitats in Southeast Alaska. Chinook Salmon generally spawn from mid-June to mid-August in waters ranging from a few centimeters deep to several meters deep. Eggs hatch in the late winter or early spring, and juveniles typically remain in fresh water for at least one year before migrating to the ocean in springtime (ADF&G 2008). Chinook Salmon spend up to six years at sea before returning to freshwater streams to spawn between July through September (NPFMC 2018; Morrow 1980). Because Chinook Salmon have been documented in nearby Peterson Creek, it is likely that they could be found in marine waters of the action area at certain times of the year.

Sockeye Salmon (*O. nerka*)
Sockeye Salmon EFH inhabit Sitka Channel off the north shore of Japonski Island (NMFS 2020). Sockeye Salmon exhibit a greater variety of life history patterns than other Pacific salmon and are known to use lake-rearing habitats in the juvenile stages (NPFMC 2018). Sockeye Salmon generally spawn in late summer and autumn. They use a wide variety of spawning habitats, including rivers, streams, and upwelling areas along lake beaches. Eggs hatch during the winter, and the young salmon move into the rearing areas. In systems with lakes, juveniles usually spend up to three years in fresh water before migrating to the ocean in the spring as smolts. However, in systems without lakes, many juveniles migrate to the ocean shortly after emerging from the gravel (ADF&G 2008). Sockeye Salmon have been documented in nearby Peterson Creek and could be found in marine waters of the action area at some point in their lifecycle.

4.1.2 Ground Fish Species Descriptions

Aleutian Skate (*Bathyraja aleutica*)
Juvenile and adult skates use the outer shelf regions of the GOA and feed on bottom invertebrates and fish. Not much is known about seasonal movements or early life stage habitat requirements; however, skates are known to use a broad range of substrate types (mud, sand, gravel, and rock) and can typically be found in the lower portion of the water column (NPFMC 2019). It is probable that Aleutian Skates occasionally inhabit Sitka Channel and surrounding waters.

Pacific Cod (*Gadus macrocephalus*)
Pacific Cod prefer soft substrate such as mud, sandy mud, muddy sand, or sand in deeper waters (Marrow 1980). Pacific Cod are concentrated along the continental shelf edge and upper slope from 100 to 200 meters of water during winter and spring before overwintering in shallower waters (<100 meters) (DiCosimo 2001). Larvae are epipelagic and most commonly found in the upper 45 meters of the water column. Juveniles use nearshore waters from 60 to 150 meters deep and often use eelgrass and kelp beds (NMFS 2003). Based on available habitat in Sitka Channel, it is likely Pacific Cod are present in the area.

Walleye Pollock (*Gadus chalcogrammus*)

Walley Pollock is the second most abundant groundfish stock in the Gulf of Alaska and accounts for 25 to 50 percent of the catch and 20 percent of the biomass. Based upon mid-water trawler surveys, Pacific Walleyes prefer waters less than 300 meters. Peak spawning in the GOA happens in late March in Shelikof Strait generally over 100 to 200 meters of water. Juveniles have a widespread distribution and have no known habitat preferences. Adult Walleye Pollock occur throughout the water column on the outer and mid-continental shelf of the GOA (NPFMC 2019). The proposed project is within the GOA stock area which extends from Southeast Alaska to the Aleutian Islands; however, because of the available habitat, it is questionable whether Walleye Pollock inhabit Sitka Channel.

Shortspine Thornyhead Rockfish (*Sebastolobus alascanus)*

Shortspine Thornyhead is a demersal species common throughout the GOA and found along the Pacific Rim from Japan to Baja California as deep as 1,500 meters. Spawning takes place in the late spring (April) and early summer (July) in the GOA. Juveniles remain pelagic period for over a year and settle out in shallow benthic habitats between 100 and 600 meters. They migrate deeper as they grow and range from 90 to 1500 meters. Thornyhead Rockfish prefer muddy areas, sometimes near rocks or gravel (NPFMC 2019). It is questionable whether Shortspine Thornyhead Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Shortraker Rockfish (*Sebastes borealis*)

Shortraker Rockfish are found in the highest abundance along the continental slope in areas of steep slopes and numerous boulders between 300 to 500 meters. Little is known about the early life stages of this species. It is estimated that Shortraker Rockfish spawn from February to April. The larvae are pelagic and have been found in offshore waters and some larvae have been sampled in coastal Southeast Alaskan waters. Juveniles share the same habitat as adults; however, they have been found in shallower areas (NPFMC 2019). It is questionable whether they Shortraker Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Pacific Ocean Perch (*S. alutus*)

Pacific Ocean Perch have a wide range throughout the North Pacific. They can be found in Alaskan waters during all life stages. Adults are primarily found offshore during fall and winter months in 150 to 420 meters waters along the outer continental shelf and the upper continental slope. During the summer, adults migrate to shallower depths (150 to 300 meters). Not much is known about the early life stages of Pacific Ocean Perch; however, larvae released offshore in April and May are thought to be pelagic and drift with the current. Larvae release likely occurs offshore, but it is suggested that small juveniles prefer rocky, high relief areas inshore and progressively move into deeper waters (NPFMC 2019). It is questionable whether Pacific Ocean Perch inhabit Sitka Channel and surrounding waters; however, they are considered here.

Redbanded Rockfish (*S. babcocki*)

Redbanded Rockfish are distributed from the central Bering Sea and Aleutian Islands to southern California (Byersdorfer and Watson 2010). This large deep-water species prefers offshore reefs and depths from 50 to approximately 600-meter depths (Mecklenburg et al. 2002). Based on available habitat, it is questionable whether they Redbanded Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Black Rockfish (*S. melonops*)

Black Rockfish are part of the pelagic shelf rockfish complex and are distributed from Aleutian Islands to southern California. They prefer rocky reefs in shallower waters, but can be found as deep as 350 meters. Spawning generally occurs in the spring from January to May, and typically have a small home range (ADF&G No Date). This species is a likely inhabitant of Sitka Channel and surrounding waters.

Dusky Rockfish (*S. ciliatus*)

Much of the information that has been obtained about Dusky Rockfish comes from data collected during the summer months from the commercial fishery or in research surveys. Based upon this data, Dusky Rockfish appear to be abundant in the GOA. It is presumed that spawning occurs in spring and may extend into summer. Juveniles share the same 100 to 200 meters depth preferences possibly along rocky areas of the outer continental as adults, but they have been found in shallower water during this early life stage (NPFMC 2019). It is questionable whether Dusky Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Silvergray Rockfish (*S. brevispinis*)

Silvergray Rockfish can be found from the western GOA to Baja California (NMFS No Date). Considered as other rockfish for GOA, EFH for late juveniles is the general distribution area for this life stage and incudes the lower portion of the water column along the middle and outer shelf throughout the GOA (50 to 200 meters) (NPFMC 2019). It is questionable whether Silvergray Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Quillback Rockfish (*S. maliger*)

Quillback Rockfish are part of the demersal shelf rockfish complex and are distributed from Kodiak Island to southern California. They prefer shallow waters up to 100 meters, but can be found as deep as 250 meters. Spawning generally occurs in the spring from March to June. Juveniles are known to be at the margins of kelp beds, while adults are found over rock substrates or cobble and sand next to reefs (NPFMC 2019). This species is a likely inhabitant of Sitka Channel and surrounding waters.

Redstriped Rockfish (*S. proriger*)

Redstriped Rockfish can be found from the Bering Sea to Baja California (NMFS No Date). Considered as other Rockfish for GOA, EFH for late juveniles is the general distribution area for this life stage and includes the lower portion of the water column along the middle and outer shelf throughout the GOA (50 to 200 m) (NPFMC 2019). It is questionable whether Redstriped Rockfish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Rosethorn Rockfish (*S. helvomaculatus*)
Rosethorn Rockfish are part of the demersal shelf rockfish complex and are distributed from Kodiak Island to southern California. They can be found as deep as 550 meters. Spawning takes places in the spring from February to September, but most commonly takes place in May. Although not much is known about Rosethorn Rockfish lifecycle, juveniles have been observed at the margins of kelp beds and adults are found over rock substrates or cobble and sand next to reefs (NPFMC 2019); therefore, they could be found in Sitka Channel and surrounding waters.

Sablefish (*Anoplopoma fimbria*)
Most adult and late juvenile Sablefish are found in depths of 370 to 920 meters along the continental shelf, the lope, and the deep-water coastal fjords over any substrate (NPFMC 2019). Spawning occurs in late spring and larvae have been found in pelagic waters at 300 to 500 meters (McFarlane 1997). It is questionable whether Sablefish inhabit Sitka Channel and surrounding waters; however, they are considered here.

Yellow Irish Lore (*Hemilepidotus jordani*)
Yellow Irish Sole are bottom-dwelling fish that live in tide pools and in shallow marine waters, but can be found in deeper waters. They can occasionally can be found in freshwater. Sculpins generally spawn in the winter; however, larvae have been found year-round. Adults and late juveniles are distributed from subtidal areas near shore to the edge of the continental shelf (down to 200 meters), and Sitka is the eastern most known location that Yellow Irish Lore have been observed. Because Yellow Irish Lore are known to use a wide range of habitats, including intertidal pools and all shelf habitats, e.g., mud, sand, gravel, etc. (NPFMC 2019), it is likely that they are found in Sitka Channel and surrounding waters.

Great Sculpin (*Myoxocephalus polyacanthocephalus*)
Great Sculpins are bottom-dwelling fish that live in tide pools and in shallow marine waters, but can be found in deeper waters. They can occasionally can be found in freshwater. Sculpins generally spawn in the winter; however, larvae have been found year-round. Adults and late juveniles can be found throughout the intertidal area to 200 meters, most commonly on sand at moderate depths (50 to 100 meters). Sculpins are known to use a wide range of habitats, including intertidal pools and all shelf habitats, e.g., mud, sand, gravel, etc. (NPFMC 2019), and it is likely that they inhabit Sitka Channel and surrounding areas.

Bigmouth Sculpin (*Hemitripterus bolini*)
Bigmouth Sculpins are bottom-dwelling fish that live in tide pools and in shallow marine waters, but can be found in deeper waters. They can occasionally can be found in freshwater. Sculpins generally spawn in the winter; however, larvae have been found year-round. Adults and late

juveniles can be found throughout deeper offshore waters in the GOA and grow up to 70 centimeters in length. Bigmouth Sculpins are known to use a wide range of habitats, including intertidal pools and all shelf habitats, e.g., mud, sand, gravel, etc. (NPFMC 2019); therefore, they could inhabit Sitka Channel and surrounding waters.

Arrowtooth Flounder (*Atheresthes stomias*)
Arrowtooth Flounder have a benthic lifestyle with distinct summer and winter grounds along the eastern Bering Sea shelf. Spawning occurs as early as September and as late as March at depths of 100 to 360 meters (NPMFC 2019; DiCosimo 2001). Pelagic (open seas) eggs and larvae inhabit all areas of the continental shelf, though predominantly inhabiting only the inner and middle shelf regions. Juveniles and adults are demersal (bottom dwelling) in gravel and muddy sand. Juveniles typically inhabit shallow areas until they are about 10 centimeters long. During winter, the flounder migrate to shelf margins and upper continental slopes to avoid cold temperatures (NPMFC 2019). This species is a likely inhabitant of Sitka Channel and surrounding waters.

Northern Rock Sole (*Lepidopsetta polyxystra*)
Northern Rock Sole, a shallow water flatfish, has a wide distribution from the southern Bering Sea and throughout the Aleutian Islands to as far south as Washington (Byersdorfer and Watson 2010). Northern Rock Sole migrate to shallow waters on the continent shelf for feeding after spawning in the spring (NPFMC 2019). They are most often found at depths from 50 to 100 meters in the summer before returning to deeper waters in the winter (Armistead and Nichol 1993). Juveniles spend their first year in shallow waters on the continental shelf (Forrester 1964). It is questionable whether Norther Rock Sole inhabit Sitka Channel and surrounding waters; however, they are considered here.

Dover Sole (*Microstomus pacificus*)
There is a wide spread distribution of Dover Sole in the GOA with a presence in waters deeper than 300 meters, but more common between 100 to 200 meters during the summer (Turnock et al. 2002). Spawning occurs in deeper waters from February through May with peak spawning occurring in May (Abookire and Macewicz 2003). As Dover Sole go through life stages and reach sexual maturity, they move down the continental slope and into deeper waters (NPMFC 2019). Because Dover Sole primarily inhabit deeper waters, it is questionable whether they inhabit Sitka Channel and surrounding waters.

Yellowfin Sole (*Limanda aspera*)
Yellowfin Sole are part of the shallow water flatfish management complex in the GOA and are distributed from waters off of British Columbia to the Sea of Japan. They over-winter near the shelf margins, before migrating to inner shelf in April or early May for spawning. Spawning periods can happen anytime from late May through to August, primarily in shallow water. Juveniles separate from adults and remain in shallow areas until 15 cm. During the summer, eggs are found pelagic waters along the shelf and upper slope (from 0 to 500 meters) and

adults prefer sandy substrates in nearshore shallow shelf areas (NPFMC 2019). Yellowfin Sole could inhabit Sitka Channel and surrounding waters.

Alaska Plaice (*Pleuronectes quadrituberculatus*)
Alaska Plaice are present in continental shelf waters year-round and travel seasonally throughout their range. A majority of Alaska Plaice have been sampled along the Alaska Peninsula and around Kodiak Island, but they have also been found within the GOA. Sampling events have obtained fish from near shore waters at depths less than 100 meters. Alaska Plaice spawning typically occurs from March to April on hard sandy ground (Zhang 1987; NPMFC 2019). Alaska Plaice could inhabit Sitka Channel and surrounding waters.

Octopus (*unidentified*)
Octopus can be found from subtidal waters to deep waters close to the outer slope, with the highest diversity along the shelf break and an abundance on the shelf. Life histories of some octopus species in this region are relatively unknown but generally, life spans anywhere from 1 to 2 years or 3 to 5 years depending on species. Adults are preferential to substrate with rocks and cobble, and on sand and mud (NPFMC 2019). This species is a likely inhabitant of Sitka Channel and surrounding waters.

4.1.3 Non-EFH Protected Species

Pacific Herring (*Chupea harengus*) and Pacific Halibut (*Hippoglossus stenolipsis*) do not have EFH in the project action area; however, they serve an important ecological role within Sitka Sound (ADF&G 2019) and are described here due to an expressed interest from NMFS and ADF&G in their December 2019 letters regarding the project. Pacific Herring specifically provide an abundant, high energy food source for a wide variety of fishes, mammals, and birds. Herring are also commercially important and support a roe fishery in Sitka that remains one of the largest and most valuable roe fisheries in Alaska.

The largest herring stock in Southeast Alaska migrates to Sitka Sound each spring for an annual spawning event, spanning several days to several weeks from mid-March to mid-May. Pacific Herring spawn on intertidal and subtidal substrates within the project area in spring, and incubating eggs hatch about two weeks later (ADF&G 2019). Based on ADFG surveys over the last 30 years, herring spawning areas have been highly variable, but observed on marine vegetation around the perimeter of the Sitka Airport which includes the Channel Rock Breakwaters. Herring spawn from the intertidal zone down to about mean lower low water, targeting areas with substantial macroalgae concentrations. Egg deposition occurs on all species of kelp in the Sitka area, particularly *Macrocystis* and *Saccharina*, but herring also use eelgrass, *Fucus*, coralline algae, red algae, and hard rocky substrates.

4.2 EXISTING CONDITIONS IN THE ACTION AREA

4.2.1 Sitka Channel and Channel Rock Breakwaters

Sitka Channel is a narrow passage between Japonski Island and the much larger Baranof Island. Downtown Sitka and multiple harbors are located along the east shore of the channel, and there is a United States Coast Guard Wharf on the west shore. The channel, about 6,500 ft long, 150 ft wide, and about 50 ft at the deepest, is bookended by the Channel Rock breakwaters to the north and the John O'Connell bridge to the south (NOAA 2020).

The mean tide range is 7.7 ft, the diurnal tide range is 9.94 ft, and the extreme range is 18.98 ft (NOAA 2020a). The channel is characterized by multiple marine habitats that support a wide variety of fish and wildlife species. Habitats in the channel range from calm protected embayments to high energy wave-swept exposed coastlines. Much of the developed Sitka waterfront area has a rocky shoreline (USACE 2012). The seafloor in the channel contains a mosaic of bottom types including a mixed-soft bottom (mixture of silt, sand, pebbles, cobbles, boulders, and shell) and bedrock outcrops.

The three Channel Rock breakwaters were authorized in 1992, and initial construction was completed in 1995 with placement of a total of 310,500 cubic yards of rock to provide wave protection for expanded harbor capacity in the Sitka Channel (USACE 2012). The Channel Rock breakwaters were expanded to fill a gap in the existing structure following a 2011 USACE feasibility study in response to elevated wave action and erosion in the channel.

A marine survey conducted June 5-6, 2020 documented habitats and mapped eelgrass present south of the proposed development area.

According to the ShoreZone Mapper, the shoreline at the proposed project site in Sitka Channel has the following characteristics (ShoreZone 2019):

- Habitat Class: protected/partially mobile/sediment or rock and sediment; protected/mobile/sediment; semi-protected/partially mobile or rock and sediment; semi-protected/anthropogenic permeable.
- Coastal Class: ramp with gravel/sand beach; cliff with gravel/sand beach; sand and gravel flat fan; gravel beach, narrow; man-made permeable.
- Biological Wave Exposure: protected; semi-protected; semi-exposed.

Eelgrass Extent

During a June 2020 intertidal habitat survey, one eelgrass bed was identified near the project location (Figure 8). The eelgrass bed is approximately 409 square meters in size with 90% eelgrass coverage and located east of the project footprint (SolsticeAK 2020).

Figure 8. Eelgrass Bed Extent within the Project Area

Contamination History

The are no known contamination issues and no active contaminated sites monitored by the Alaska Department of Environmental Conservation (ADEC) within the project site (ADEC 2020). There are active contaminated sites and locations of known contamination closed with institutional controls near the proposed project on Japonski Island. Previous marine sediment sampling in the project area indicated no marine contamination despite the area's long history of commercial marine activity, including ongoing seaplane operations (USACE 2011).

4.2.2 Anadromous Waterways

There is one anadromous stream across Sitka Channel from the action area. Peterson Creek is anadromous (AWC #113-41-10185) for all five species of salmon and Dolly Varden and located along the eastern perimeter of the action area (ADF&G 2020). See Figure 4 in Section 3.2.

5 EFFECTS ASSESSMENT

In general, construction activities and marine vessel operations in estuarine habitats and in coastal marine areas have the potential to impact EFH. The construction and use of the SPB and associated structures may adversely impact marine resources directly and indirectly through increased sound levels, increased turbidity, habitat loss and/or modification. Other impacts that may occur as a result of the proposed project include the following: increased vessel traffic, increased human access (e.g., tourism), and cumulative development of shoreline habitat for commercial uses. Impacts as a result of each construction activity and indirect impacts are described below. Table 5 (see below) details each activity that could impact EFH and what potential adverse impacts the activity may have (NOAA 2017).

Table 5. Potential Adverse Impacts to Essential Fish Habitat and EFH-listed Species for Activities Associated with the Proposed Project

	Project Activity			
Potential Impacts	Discharge of Fill Material and Uplands Development	Overwater Structures	Pile Driving and Temporary Pile Removal	Seaplane and Vessel Traffic
Fish Avoidance/Displacement	X	X	X	
Fish Injury or Mortality	X		X	
Loss or Alteration of Fish Habitat	X	X		X
Release of Contaminants		X	X	X
Increased Mechanism for Invasive Species Introduction or Dissemination				X
Decrease in Ambient Light		X		
Reduction in Wave and Current Regimes	X	X		X

5.1 DISCHARGE OF FILL MATERIAL AND UPLANDS DEVELOPMENT

Approximately 1.47 acres of Sitka Channel below mean high water will be filled to support upland staging and vehicle and seaplane parking. Since blasting will take place upland of the high tide line, there will be no in-water noise impacts to species with EFH in the project action area.

5.1.1 Short-Term Impacts

Sedimentation

Discharge of fill material for the creation of SPB uplands will temporarily increase sedimentation, turbidity, and available light in the process of creating new uplands from fill material. Blasting will not affect sedimentation from uplands development given its proximity inshore from the high tide line and anticipated sedimentation from discharging of fill. These impacts will be temporary, but contribute to the long-term habitat loss impacts to biological functions and hydrologic conditions addressed below. Increased turbidity during upland excavation and fill activities can injure fish by temporarily impacting feeding efficiency and clogging or damaging fish gills from suspended solids, leading to possible suffocation and increased energy demands (NOAA 2017).

5.1.2 Long-term Impacts

Habitat Loss

Discharge of fill material to create project uplands reduces available fish habitat, potentially impacting productive habitats with important biological functions and hydrologic conditions. Given the project's location in a tidal area, discharge of fill will alter both biotic and abiotic conditions. Productive fish habitat can support fish spawning, breeding, and feeding, facilitating growth to maturity. Fill permanently eliminates area fish habitat (NOAA 2017). Reduced low gradient habitat or native substrate in coastal waters could likely negatively affect salmon rearing, by altering shelter important to juvenile salmonids. Changing habitat gradients may impact abundance and productivity of adult salmon, salmon prey, and intertidal rearing flatfish.

Establishing SPB uplands has the potential to impact hydrological conditions by obstructing flow, changing water velocity and direction, and altering coastal profile which collectively can alter aquatic communities, erosion and deposition, and overall water stratification. Zooplankton abundance, an important food source for juvenile Pink and Chum Salmon, depend on currents for transport from offshore to nearshore areas (NOAA 2017).

Within the direct fill footprint, there is a large patch of the invasive algal species *Sargassum muticum*. The process of converting a 1.47-acre area to uplands will eradicate the known population of this invasive species from the action area. During a habitat assessment of the area, the algae species was not identified anywhere else within the footprint of project infrastructure (SolsticeAK 2020); however, it is found in other locations in Sitka Channel and Sitka Sound could be transported within the project footprint.

5.1.3 Indirect Impacts

Development of hardened impervious upland surfaces for the proposed project, including parking and shelter structures, will exacerbate stormwater runoff. Stormwater runoff can affect sedimentation and siltation and increase contaminants in tidal habitats. Nonpoint source contamination and debris may increase from introduced hardened surfaces and reduced land use buffers (NOAA 2017).

Injured fish as a result of increased turbidity and the potential release of contaminants during discharge of fill to create SPB uplands may have indirect impacts on other species and the local marine system as a whole. Decreased visibility and an increase in suspended particles in the water column from discharge of fill can have indirect impacts on prey species by making them more susceptible to predation. These effects will be over a minimal project footprint relative to available habitat in the area. When combined with fish displacement from the area during construction, , there is a small potential to affect future fish populations in the area anda minimal risk to local commercial, sport, and subsistence harvests (NOAA 2017).

5.1.4 Cumulative Effects

Development along and within the Sitka Channel has occurred for several decades. There are no known future or foreseeable actions planned in the action area that will contribute to cumulative effects on EFH or EFH-managed species/species complexes and other fish and marine resources.

5.1.5 Conservation and Mitigation Measures

Incorporating the following conservation measures related to fill will help minimize adverse impacts to EFH and EFH-managed species/species complexes.

- The new SPB design will minimize fill in EFH and avoid a large area of eelgrass just east of project infrastructure (Figure 8).
- The side slopes of fill will be shallow to follow current tidal conditions which facilitates photic zone productivity; allows for unrestricted fish migration; and provides refuge for juvenile fish in interstitial spaces.
- A Section 404 Permit will be obtained to ensure fill activity is essential to the project, project impacts have been reduced, and unavoidable impacts compensated sufficiently.

5.2 VESSEL TRAFFIC

5.2.1 Short-Term Impacts

Short-term impacts to EFH from project vessel traffic during construction could increase wakes and surge in the action area, which could lead to shoreline erosion, disrupted coastal habitats, and increased turbidity.

5.2.2 Long-term Impacts

Seaplane operations could have long-term impacts to EFH. Seaplanes takeoffs, landings, and transiting in the area could cause wakes, leading to shoreline erosion, disrupted coastal habitats, and increased turbidity.

There is a minor but potential risk of contamination, most likely oil spills, from the operation of the new SPB. Seaplanes are permitted to use avgas fuel, an especially toxic petroleum product, necessitating proper mitigation and preventative protocols. There is also a minor risk that seaplane operations could introduce invasive species, requiring proper mitigation and preventative SPB protocols.

Seaplane operations have occurred in the area for several decades, and while the new seaplane base may result in more operations, impacts are expected to remain at a minor level. Sitka Channel experiences high levels of marine traffic, including ongoing seaplane operations. The new SPB will relocate seaplane operations within the channel to an area that currently has less marine traffic, reducing congestion from vessel traffic in Sitka Channel.

5.2.3 Indirect Impacts

Operation of the new SPB has the potential to increase water and air traffic in the Sitka Channel vicinity. With additional vessel traffic there will be an increased potential for shoreline wake impacts, increased turbidity, and spills from vessels or planes which could impact EFH.

5.2.4 Conservation and Mitigation Measures

Incorporating the following vessel and seaplane operation conservation measures will help minimize adverse impacts to EFH and EFH-managed species/species complexes.

- A storm drain system including manholes with catchment sumps to trap solids and an oil water separator will be installed in the upland area to collect surface runoff and to remove contaminants prior to delivery to any receiving waters.
- SPB facilities will be designed to include practical measures to reduce, contain, and clean up petroleum spills.
- Oil spill response equipment will be located at the new SPB facility.
- SPB operation protocols and user agreements will require seaplanes to operate at no wake speeds in Sitka Channel (with the exception of operating within the taxi lane) in compliance with the Sitka Harbor no wake designations (CBS 2020).
- SPB operation protocols will incorporate BMP’s to prevent or minimize contamination from seaplane accidents, general maintenance, fueling, and nonpoint source contaminants from upland facilities.

5.3 PILE INSTALLATION AND REMOVAL

5.3.1 Short-Term Impacts

Sound

An action area for the SPB has been determined by the area of water that will be ensonified above the acoustic threshold of 155 decibels (dB) re 1µPa (micropascal) (root mean square) for impacting; this is the area where received noise levels from pile driving could expose fish to impacts described below. The action area includes approximately 4 square kilometers of northern Sitka Channel near downtown Sitka in Southeast Alaska (Figure 3).

Piles will be a central component of the new SPB’s marine structures. Steel piles will support the trestle, gangway landing dock, and floating dock structures. To install and remove these piles a vibratory hammer, down-the-hole system, and impact hammer will be used. Each piece of equipment produces sound that exceeds known acoustic thresholds for fish species (Carlson et al 2001; Wursig et al 2000). Impact hammers produce sharp, short bursts of sound, while vibratory hammers produce sound with a longer duration that have more energy in the lower frequency range and create more sensitivity for fish (Carlson et al 2001; Wursig et al 2000).

There are several methods used to remove temporary piles from the substrate. For the proposed project, piles will be removed from the substrate using a vibratory hammer or the direct pull method. The use of the vibratory hammer will cause similar sound impacts as present during pile installation; however, the direct pull method creates little in-water noise.

Considering sound profiles and area topography, the estimated area in which sound will exceed injury thresholds for fish will extend from 500 and 3,000 meters from pile driving at the new SPB site for impact pile driving (Figure 3).[1] Sound will be truncated by landforms, and may radiate across Sitka Channel to the shores of Baranof Island near downtown Sitka and through narrow openings in the Channel Rock Breakwaters reaching the Apple Islands.

Vibratory pile driving will occur for approximately 60 minutes each day; therefore, ensonification of the area by vibratory pile driving will be for approximately 45 hours over 46 days (not concurrent). Socketing pile driving will occur for approximately 10 hours each day; therefore, ensonification of the area by socketing will be for approximately 590 hours over 59 days (not concurrent). Impact driving will occur for approximately 10 minutes each day; therefore, ensonification of the area by impacting will be for approximately 15 hours over 89 days (not concurrent). Total ensonification from pile driving will be for approximately 650 hours over 194 days.

Little is known about the effects of sound on juvenile and adult fish; however, current research accepted by NMFS supports that physical injury can occur when SPLs reach 206 dB re 1 µPa during a single strike and/or when the accumulated sound exposure level (SEL) from multiple strikes reaches 187 dB re 1 µPa for large fishes (≥2 grams) or 183 dB re 1 µPa for small fishes (<2 grams). There is currently not enough research to determine how sound impacts the earlier life stages of fish though it is known that smaller fish are more affected than larger fish by sound pollution (NOAA 2017).

During pile installation and removal, pile driving sound can affect the distribution and behavior of juvenile pink salmon and chum salmon. Other species of fish may change migration routes to avoid the area or leave the area entirely and habitat (NOAA 2017). SPLs of 155 dB re 1 µPa can stun small fish and make them more susceptible to predation. Physical injury to fish such as fatal damage to swim bladders in small fish and compromised swim bladders in larger fish can also result from exposure to underwater sound.

Sedimentation

As piles are installed, it is expected approximately 1.5 cubic meters of material will be excavated of each trestle pile and 4 cubic meters of material will be excavated from each float pile. Less than two piles will be drilled in a day to minimize the volume of sediment disturbance. About 2 cubic meters per day will be released during construction of the trestle and about 8 cubic meters per day will be released during the construction of the floats, with a total of 182 cubic meters overall for the project.

[1] Impact pile driving source level of 186.7 SEL/ 198.6 SPL8 is estimated from documented median received levels at 10 meters from impact hammering of 48-inch piles for the Port of Anchorage test pile project (Austin et al. 2016, Tables 9 and 16).

5.3.2 Long-term Impacts

No long-term impacts are expected from the placement of piles.

5.3.3 Indirect Impacts

EFH loss as a result of indirect impacts related to pile driving activities, such as barging and equipment and piles to the site and staging barges in the area, are expected to be temporary and minimal relative to fish populations and overall available EFH.

Piles can support growth of algal and sessile invertebrate species, which can increase and improve the quality of EFH in areas.

5.3.4 Conservation and Mitigation Measures

Incorporating the following pile driving conservation measures will help to minimize adverse impacts to EFH and EFH-managed species/species complexes.

Sound Conservation and Mitigation Measures

- The project will use the fewest number of piles necessary to support the new SPB facilities and allow light to reach under-pier areas and minimize impacts to the substrate.
- Pile installation and removal will not occur from March to June, when larval and juvenile stages of fish species are present within the action area.
- Impact hammer use will be minimized. When impact hammers are used, the pile will first be driven as deep as possible with a vibratory hammer and socketing, before using an impact hammer to drive the pile to its final position.
- As possible, the impact hammer will be operated at a reduced energy setting and impacted into bedrock.

Sedimentation Conservation and Measures

- A silt curtain will surround the pile driving and temporary pile removal operation.
- Temporary piles will be removed slowly to allow sediment to slough off at or near the mudline.

5.4 OVERWATER STRUCTURES

5.4.1 Short Term Impacts

No short-term impacts are expected as a result of installing overwater structures.

5.4.2 Long-term Impacts

Long-term impacts as a result of installing new SPB overwater structures will include changes in ambient light conditions and alterations of wave and current energy regimes. As a result of the project, there is also an increase in the risk of contamination released from activities associated with seaplanes using the overwater facilities (NOAA 2017). While eelgrass beds, which are important fish rearing habitat, will be mostly avoided by this project (Figure 8), the new SPB's overwater structures will shade approximately 1.62 acres of EFH which could permanently reduce or cause fragmentation of eelgrass and algae beds.

Ambient light is often reduced as a result of overwater structures. Shade caused by overwater structures may limit the distributions of plants, invertebrates, and fish or reduce complexity of the habitat below the structures. This is due to a decrease in available light for photosynthesis to occur in diatoms, benthic algae, eelgrass, and other photosynthesizers that marine and estuarine fishes rely on for food, protection, and rearing young. Structure height, width, composition, and orientation relative to the sun can all influence shading footprints of overwater structures (NOAA 2017).

The height, width, and composition of the project structures, as well as the orientation of the structures in relation to the sun, can influence how large a shade footprint an overwater structure may produce and how much of an adverse impact that shading effect may have on the localized habitat (NOAA 2017).

Juvenile salmonoids may avoid swimming under overwater structures with high activity like floats and docks. Reduced-light conditions can also directly adversely impact fish species that rely on visual cues for spatial orientation, prey capture, schooling, predator avoidance, and migration, encouraging avoidance of shaded areas. However, the protected, low energy nature of certain structures, including the nearby breakwaters or project wave attenuators, may attract some juvenile fish to change behavior and congregate in those spaces (NOAA 2017).

In addition to SPB float structures altering available light, other overwater structures, such as project wave attenuators, can adversely alter wave and current energy regimes in the area. The wave attenuators for the new SPB may interrupt the transportation of detrital materials and alter substrate composition in nearshore habitats (Hanson et al 2005; NOAA 2017). Adequate substrate is required for plant propagation, fish and shellfish settlement and rearing, and forage fish spawning (NOAA 2017).

Some treated wood is incorporated into the overwater marine structures. Contaminants from project materials such as the submerged wood used with creosote and ammoniacal copper zinc arsenate used in the trestle and floating dock structures are commonly known to leak into the marine environment for a short period after installation. These chemicals are known to cause harmful effects to fish such as, but not limited to: cancer, reproductive anomalies, immune dysfunction, and growth and development impairment (NOAA 2017).

5.4.3 Indirect Impacts

A decrease in aquatic vegetation and phytoplankton as a result of a decrease in light from project overwater structures can indirectly impact fish by reducing prey abundance and habitat complexity (NOAA 2017).

5.4.4 Overwater Structures Conservation and Mitigation Measures

Incorporating the following conservation measures will help to minimize adverse impacts to EFH and EFH-managed species/species complexes.

- Wherever possible, the materials used for the overwater portions of the trestle and gangway, will allow some ambient light to penetrate to the water surface and water flow below the structure through grating and openings.
- The largest section of the dock will be installed in a north-south orientation to allow the arc of the sun to cross perpendicular to the structure to reduce the and intensity of shading.
- The float will be located in deep water to avoid light limitation and grounding impacts to the intertidal or shallow subtidal zones.
- The overwater trestle deck will be placed at least 1 meter (3 ft) above the water surface to reduce shading and increase available ambient light. Other floating structures will be approximately 0.5 meters above the water surface.
- All preservative treatment will be in accordance with the Western Wood Preservers Institute BMPs.

6 CONCLUSIONS AND DETERMINATION OF EFFECTS

Approximately 1.47 acres of shallow water EFH will be lost from the implementation of the proposed project due to filling for the upland staging area; however, fill will be minimized as much as possible and conservation measures will help to mitigate the impacts. Construction methods and proposed conservation measures will help to minimize short-term adverse impacts to EFH and EFH-managed species/species complexes. Few long-term adverse impacts to EFH from overwater structures and operations of the SPB are expected. Adverse impacts to EFH will occur over a minimal footprint relative to available fish habitat throughout Sitka Sound, and most will be mitigated through conservations measures. Indirect impacts to EFH and EFH-managed species, including those caused by potential increases in marine traffic will be mitigated through conservation measures, including SPB operating protocols and spill response plans.

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Appendix C:

Biological Assessment

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Solstice Alaska Consulting, Inc.
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December 16, 2020

David Gann, Marine Mammal Specialist
NOAA Fisheries Alaska Region
Protected Resources Division
709 W 9th St
Juneau, AK 99801

Subject: Sitka Sea Plane Base Biological Assessment

Dear Mr. Gann:

Please find the attached Biological Assessment (BA) for construction of the Sitka Seaplane Base Project provided in compliance with Section 7(a)(2) of the Endangered Species Act (ESA).

The new SPB is located on the north shore of Japonski Island in Sitka Channel and will replace the existing facility near Sitka Harbor. The new SPB will address existing capacity, safety, and condition deficiencies for critical seaplane operations and allow seaplanes to more safely transit Sitka Channel. The project includes the following: installing and driving piles to support a based seaplane dock, floating transient dock, landing gangway, wave attenuators, and a shore-access transfer span and trestle; discharging fill to develop base uplands; upland blasting along Seward Avenue; and grading and casting concrete for a seaplane haulout ramp.

The National Marine Fisheries Service (NMFS) endangered species and critical habitat mapper indicates the following five species of marine mammals listed under the ESA that could be found within the project area: Mexico distinct population segment (DPS) humpback whale (*Megaptera novaeangliae*), Western DPS Steller sea lion (*Eumetopias jubatus*), fin whale (*Balaenoptera physalus*), North Pacific right whale (*Eubalaena japonica*), and sperm whale (*Physeter macrocephalus*). The project area does not fall within any designated critical habitat of an ESA-listed species, but is within proposed critical habitat for Mexico DPS humpback whales.

The project is not anticipated to adversely affect fin whales, North Pacific right whales, or sperm whales. However, the project is likely to adversely affect humpback whales and Steller sea lions. The attached BA provides project details, additional information about affected species, anticipated impacts, and mitigation measures for your division's review and comment. Additionally, an Incidental Harassment Authorization application for this project is forthcoming.

We look forward to working with you and your staff to answer any questions you may have about this BA. Please feel free to contact me at robin@solsticeak.com or 907.929.5960 with additional questions.

Sincerely,

Robin Reich

President
Solstice Alaska Consulting, Inc.

Attachment: Biological Assessment

Copies: Jack Gilbertsen, Lead Environmental Protection Specialist, FAA Alaskan Region
Kelli Cropper, City and Borough of Sitka
Maryellen Tuttell, DOWL
Randy Vigil, U.S. Army Corps of Engineers
Dwayne Meadows, PhD., Office of Protected Resources F/PR1

SOLSTICE alaska consulting inc

Endangered Species Act Section 7 Biological Assessment for Listed Species under the Jurisdiction of the National Marine Fisheries Service

City and Borough of Sitka

Sitka Seaplane Base

Sitka Channel, Sitka, Alaska

December 2020

Prepared for:
City and Borough of Sitka
6100 Lincoln St.
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Prepared by:

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2607 Fairbanks Street, Suite B
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Submitted to:
National Marine Fisheries Service

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ACRONYMS AND ABBREVIATIONS

4MP	Marine Mammal Monitoring and Mitigation Plan
µPa	microPascal
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ANSI	American National Standards Institute
BA	Biological Assessment
BMP	Best Management Practice
CBS	City and Borough of Sitka
CV	critical value
dB	decibels
DPS	distinct population segment
DTH	down-the-hole
EDPS	Eastern distinct population segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESCA	Endangered Species Conservation Act
FAA	Federal Aviation Administration
GPIP	Gary Paxton Industrial Park
HDPE	high density polyethylene
HF	High-Frequency
Hz	hertz
IHA	Incidental Harassment Authorization
IPaC	Information, Planning, and Consultation
IPCC	Intergovernmental Panel on Climate Change
ITS	Incidental Take Statement
kHz	kilohertz
LE	cumulative sound exposure level
LF	Low-Frequency
Lpk	peak sound pressure level
m	meters
MLLW	mean lower low water
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OW	Otariid Pinnipeds

PBR	potential biological removal
PR1	Permits and Conservation Division’s
PSO	Protected Species Observer
PTS	permanent threshold shift
PW	Phocid Pinnipeds
rms	root mean square
SEARHC	Southeast Alaska Regional Health Consortium
SEL	sound exposure level
SolsticeAK	Solstice Alaska Consulting Inc.
SPB	Seaplane Base
SPL	sound pressure level
TS	threshold shift
TTS	temporary threshold shift
Turnagain	Turnagain Marine Construction
UHMW	ultra-molecular weight polyethylene
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VHF	Very High-Frequency
WDPS	Western distinct population segment
Windward	Windward Project Solutions

1 INTRODUCTION

The City and Borough of Sitka (CBS) is proposing to construct a new seaplane base (SPB) in Sitka Channel on the northern shore of Japonski Island in Sitka, Alaska. The new SPB will replace the existing SPB (Federal Airline Administration [FAA] identifier A29) currently located on the eastern shore of Sitka Channel, near Eliason Harbor and downtown Sitka. The new SPB will address existing capacity, safety, and condition deficiencies for critical seaplane operations, and allow seaplanes to more safely transit Sitka Channel. Construction, which includes the installation of piles to support a floating ramp dock, floating transient dock, landing gangway, wave attenuators, and a shore-access transfer span and trestle, is anticipated to begin in January 2023 and be completed in June 2025.

Currently, the SPB A29 off Katlian Street is at the end of its useful life and has a number of shortcomings, including limited docking capacity. A29 has only eight spaces, four of which cannot be accessed during low tide. The facility also lacks on-site fueling infrastructure, is expensive to maintain, has wildlife conflicts with a nearby seafood processing plant, and requires pilots to navigate a busy channel with ship traffic. The new SPB will improve the safety of seaplane operation in the channel, along with reducing traffic and congestion in Sitka Channel. The proposed SPB will provide, among other improvements, 14 permanent slips, space for 5 transient planes, on-site fuel storage, a drive down ramp, a seaplane haul-out ramp, and upland seaplane and car parking.

This Biological Assessment (BA) for the Sitka Seaplane Base Project is being provided in compliance with Section 7 of the Endangered Species Act (ESA) of 1973. Section 7 establishes procedures designed to ensure continued existence of listed species and minimize the destruction or adverse modification of designated critical habitat for those species regulated under the ESA. Under section 7(a)(2) of the ESA, projects considered a Federal Action are required to consult with National Oceanic and Atmospheric Association (NOAA)'s National Marine Fisheries Service (NMFS) on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect listed species.

The NMFS endangered species and critical habitat mapper indicates five species of marine mammals that are listed under the ESA within the project area (NMFS 2020, Table 1). The project area does not fall within any designated critical habitat of an ESA-listed species, but is within proposed critical habitat for Mexico distinct population segment (DPS) humpback whales. A search of the United State Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) did not find any ESA-listed marine mammals within the project area under their jurisdiction (USFWS 2019).

Table 1. Determination of Effects on ESA-Protected Species under NMFS Jurisdiction.

Species	ESA Listing Status	Species Determination	Critical Habitat	Critical Habitat Determination
Mexico DPS Humpback Whale (*Megaptera novaeangliae*)	Threatened	Likely to Adversely Affect	Under Review	--
Western DPS (WDPS) Steller Sea Lion (*Eumetopias jubatus*)	Endangered	Likely to Adversely Affect	Designated	No Effect
Fin Whale (*Balaenoptera physalus*)	Endangered	Not Likely to Adversely Affect	Not Designated	--
North Pacific Right Whale (*Eubalaena japonica*)	Endangered	Not Likely to Adversely Affect	Designated	No Effect
Sperm Whale (*Physeter macrocephalus)*	Endangered	Not Likely to Adversely Affect	Not Designated	--

The action that is the subject of this BA is NMFS Office of Protected Resources – Permits and Conservation Division's (PR1) proposed issuance of an Incidental Harassment Authorization (IHA) to take marine mammals by harassment under the Marine Mammal Protection Act (MMPA) incidental to the CBS proposed SPB Project in Sitka, Alaska. The consulting agency for this proposal is NMFS's Alaska Region. The action agency is the FAA. FAA has designated CBS, DOWL, and Solstice Alaska Consulting, Inc. (SolsticeAK) as their designated non-federal representative to assist with these consultations.

2 PROJECT PURPOSE

The purpose of this project is to construct a new SPB on Japonski Island in Sitka Channel and address capacity, safety, operational, and condition deficiencies at the existing Sitka SPB. This project is needed to support critical seaplane operations and transportation in Southeast Alaska, to resolve existing seaplane and boat conflicts, and to replace the existing base which is 65 years old and in poor condition.

The CBS identified the need for a new SPB in 2002, and the planning process progressed as conditions at the facility continued to degrade. In 2002, CBS completed a Sitka Seaplane Base Master Plan to assess the need for a new SPB and layout a proposed facility and location (HDR Alaska, Inc. 2002). In 2012, CBS completed a Siting Analysis to reevaluate SPB sites and confirmed Japonski Island as the recommended location (DOWL KHM 2012). In 2016, CBS conducted another Siting Analysis which confirmed aviation stakeholder interest, resolved FAA funding concerns, and provided an economic impact study (DOWL 2016). The CBS has now received funding for planning and environmental review for the new SPB (CBS 2019).

Sitka's intrastate transportation infrastructure includes the Alaska Marine Highway System, the Sitka Airport, and seaplanes and other charter options (CBS 2020). Sitka functions as a central transit hub for more remote communities in Southeast Alaska, and seaplanes are an essential element of transportation for that system. Some communities in the southern portion of Southeast Alaska are without land runways and only have seaplane bases for aviation infrastructure. Within this subregional network of airports, A29 serves as a hub for access to essential medical services, facilitates a statewide aviation system through Sitka Rocky Gutierrez Airport, and expands retail opportunities for multiple communities (DOWL 2016). Transportation infrastructure is essential for the safety and security of Southeast communities, and deficiencies at the existing SPB are limiting the efficient use of seaplane resources in and around Sitka.

The first SPB in Alaska was established in 1937 on Japonski Island, built by the United States Navy (CBS 2018). With a long history in the region, seaplanes continue to serve Sitka's local economy, particularly the fishery and tourism sectors. As a vibrant community only accessibly by water or air, seaplanes facilitate both local and regional transportation. Forecasted growth of seaplane traffic in Sitka expects continued seaplane use and associated facility demands (DOWL 2016). Currently, there is competition for slip access between commercial and non-commercial operators. Given current capacity limitations, commercial operators require approval from the Harbormaster to pick up passengers at A29 (DOWL 2016). Both commercial and non-commercial seaplanes are in need of expanded base access.

Demand for the existing SPB has exceeded capacity, and the facility has had, at times, a multi-year waitlist with up to seven additional pilots seeking slip access (DOWL 2016). Given the deteriorated condition of the docks, only some slips are desirable to lease. Pilots have been concerned for multiple years over the condition of the dock, and some minimize use of the facility over concerns that unstable structures could damage aircraft. There is only one slip accessible to transient pilots, all other slips are leased full time. Boats are occasionally tied to the dock and float ramp, impeding seaplane access (AirNav 2020).

In addition to base demand exceeding current capacity, there are safety concerns from boat traffic surrounding A29 and an inadequate taxi lane for landing and takeoff, further hindering operation. The site's proximity to Sitka Sound Seafoods fish processing plant has created additional conflicts with foraging shorebirds in the SPB's vicinity. The failing docks also pose a safety hazard to pilots and passengers during loading and unloading, and walking to shore.

A29 lacks essential SPB infrastructure and is without necessary fueling facilities, requiring seaplane operators to carry and dispense fuel from their own containers. A29 is inadequate for commercial traffic because it has insufficient vehicle parking, lacks on-site aircraft maintenance, and does not have a drive-down ramp, passenger shelter, or equipment storage (DOWL 2016).

The facility is also deteriorating, requiring costly municipal maintenance after pilings collapsed and temporarily closed the SPB in January 2016 (DOWL 2016).

3 PROPOSED ACTION

3.1 CONSTRUCTION DETAILS

Construction of the proposed project will include the installation of piles to support a based seaplane ramp float, transient seaplane float, drive-down gangway, landing dock, trestle, and wave attenuator(s), along with development of a haul-out ramp and upland facilities (Table 2-3 and Figure 1-2). The project will:

- Install 30 temporary 18-inch-diameter steel piles as templates to guide proper installation of permanent piles (these temporary piles will be removed prior to project completion).
- Install 32 permanent 24-inch-diameter piles and 36 permanent 16-inch-diameter piles to support the ramp float, transient float, vehicle turnaround float, drive-down gangway, landing dock, and trestle.
- Construct and install 350-foot by 46-foot ramp float, 220-foot by 30-foot transient float, 120-foot by 12-foot drive-down gangway, 30-foot by 20-foot turnaround float, 120-foot by 46-foot landing dock, and 240-foot by 16-foot trestle (Table 1-2 and Figure 5-6).
- Install 50 permanent 24-inch-diameter piles to support two 20-foot by 600-foot wave attenuators (25 piles per wave attenuator).
- Install other SPB float components such as bull rail, floating fenders, mooring cleats, electricity connections, waterlines, lighting, passenger walkway, hand rail, and mast lights. Additional upland features include a haul-out ramp, aviation fueling infrastructure, fuel storage, vehicle driveway, curb, gravel parking for seaplanes and vehicles, security fencing, landscape buffer, and a covered shelter (Note: all upland components will be installed out of the water).
- Conduct about two months of rock blasting and excavation of about 22,000 cubic yards of material extending from about 16 feet to 60 vertical feet above mean lower low water (MLLW; 0.00 datum) located at the end of the Seward Avenue in the southwest corner of the project uplands inland of the high tide line.
  - Rock blasting and excavation will extend 200 horizontal feet inland.
  - One blasting event per day on 24 days (not consecutive) at a maximum 90 decibels [dB] per event (Southeast Earth Movers 2020).
- Discharge of 1.7 acres of fill in Section 404 wetlands and waters of the US. The side slopes of fill will have ratio of 2 horizontal to 1 vertical (2H:1V) slopes with heavy open graded armor rock and interstitial spaces.

Table 2. New Sitka SPB Construction Components

Construction Component	Material	Dimensions (feet)	Distance Above Mean High Water (feet)
Based Seaplane Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	350 x 46	2
Transient Seaplane Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	200 x 30	2
Drive-Down Gangway	Marine grade aluminum, fiberglass and polyethylene	120 x 12	2-13 (sloped gangway)
Vehicle Turnaround Float	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	30 x 20	2
Landing Dock	Treated timber, galvanized steel, coated polystyrene billets and polyethylene floatation tubs	120 x 46	2
Trestle	Galvanized steel and treated timber	240 x 16	13
Wave Attenuator(s)	Concrete	2 each @ 20 x 600	3
Haul-out Ramp	Concrete	Part of Uplands	N/A
Piles	Galvanized Steel	See Table 2	15 to top of pile

Table 3. New Sitka SPB Pile Installation and Removal Summary

Description	Project Component			
	Temporary Pile Installation	Temporary Pile Removal	Permanent Pile Installation	Permanent Pile Installation
Diameter of Steel Pile (inches)	18	18	24	16
# of Piles	30	30	82	36
Vibratory Pile Driving				
Total Quantity	30	30	82	36
Diameter (inches)	18	18	24	16
Max # Piles Vibrated per Day	4	4	4	4
Vibratory Time per Pile	15 min	15 min	15 min	15 min
Vibratory Time per Day	60 min	60 min	60 min	60 min
Number of Days (46 days)	8	8	21	9
Vibratory Time Total (44 hours 30 min)	7 hours 30 min	7 hours 30 min	20 hours 30 min	9 hours
Socketing Pile Driving				
Total Quantity	--	--	82	36
Diameter (inches)	--	--	24	16
Max # Piles Socketed per Day	--	--	2	2
Socketing Time per Pile	--	--	5 hrs	5 hrs
Socketing Time per Day	--	--	10 hrs	10 hrs
Number of Days (59 days)	--	--	41	18
Socketing Time Total (590 hours)	--	--	410 hours	180 hours
Impact Pile Driving				
Total Quantity	30	--	82	36
Diameter (inches)	18	--	24	16
Max # Piles Impacted per Day	2	--	2	2
Impact Time per Pile	5 min	--	5 min	5 min
Impact Time per Day	10 min	--	10 min	10 min
Number of Days (74 days)	15	--	41	18
Impact Time Total (12 hours 20 min)	2 hours 30 min	--	6 hours 50 min	3 hours

Figure 1. Proposed Action

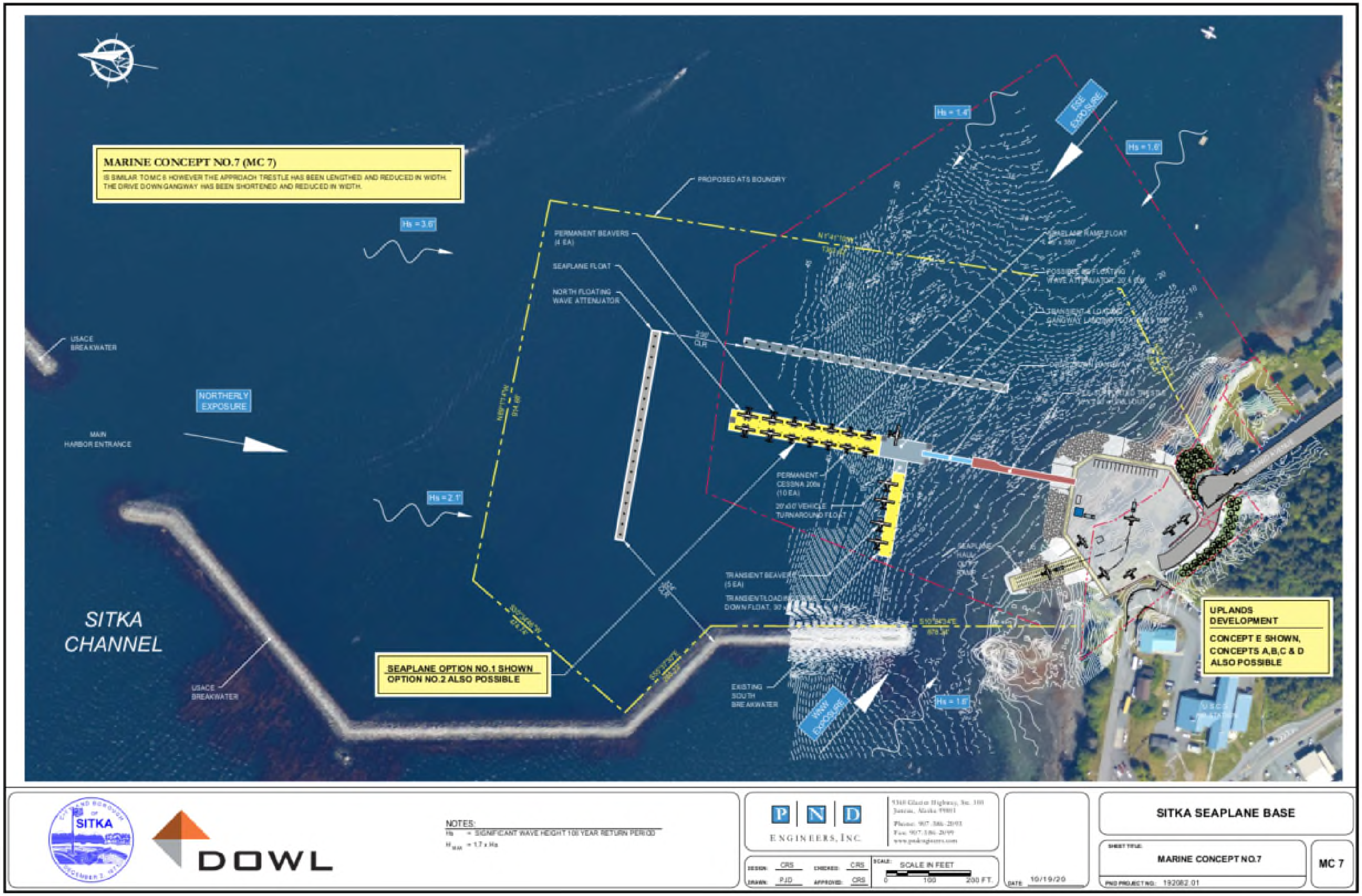
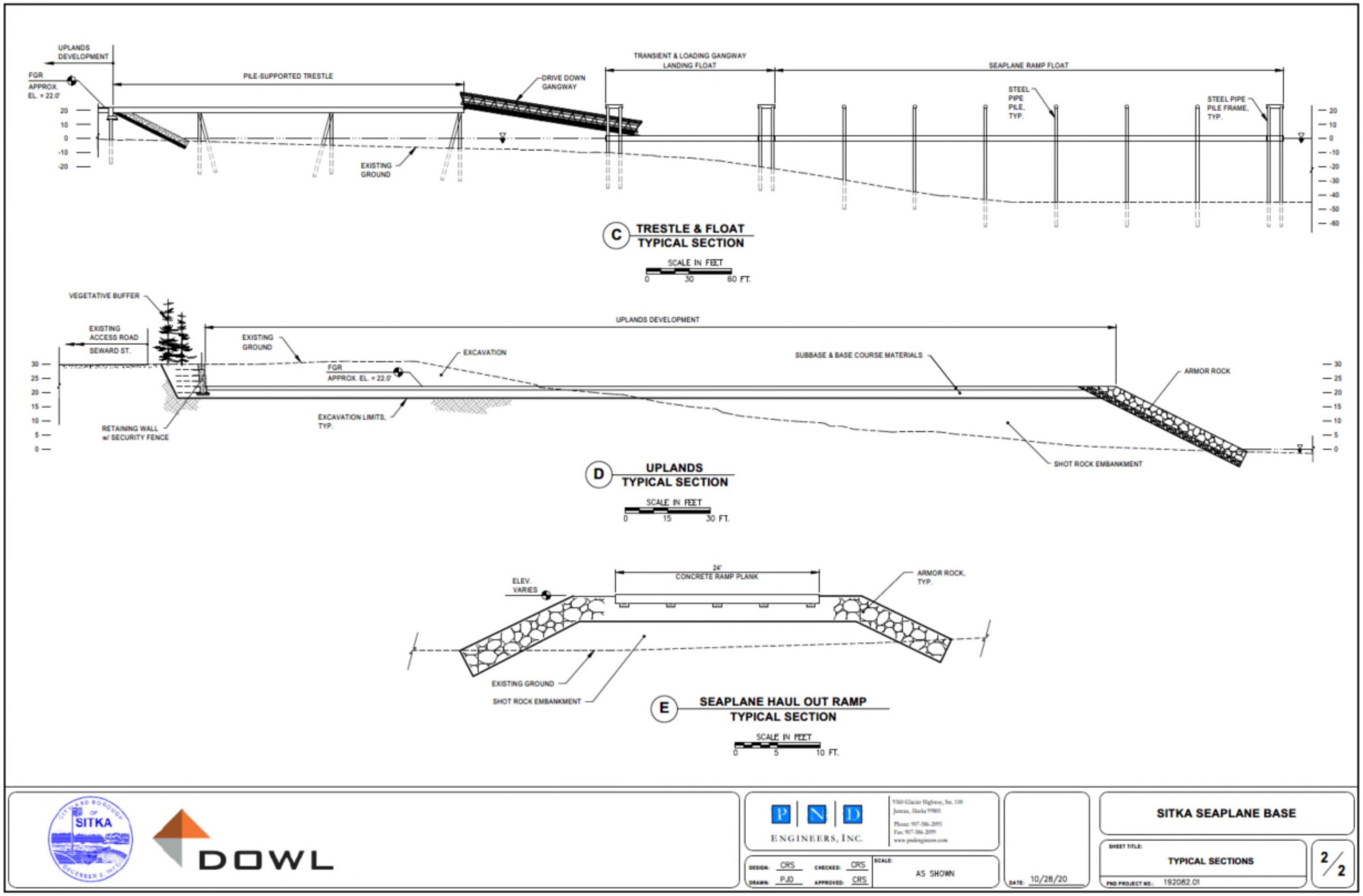


Figure 2. Side Profile of Proposed Action



3.2 PROJECT LOCATION

The new SPB will be located on the north shore of Japonski Island, along the eastern side of Sitka Channel, approximately 1.5 miles north of downtown Sitka, in Southeast Alaska; Township 55S, Range 63E, Sections 34 and 35, Copper River Meridian; United States Geologic Survey (USGS) Quad Map Sitka A-latitude 57.0575 and longitude -135.7382 (Figure 3-4) (Earthpoint 2020). Sitka Channel is a high traffic passage and the main way to access Sitka by water, a commonly used method of transportation in Southeast Alaska.

The proposed project will be located within the Channel Rock Breakwaters in the Sitka Channel on the northeast side of Japonski Island. The Channel Rock Breakwaters were built perpendicular to the Sitka Channel, a little more than half a mile northwest of Thomsen Harbor, in order to provide protection for the harbor and other facilities and structures located throughout the channel. The distance from Channel Rock Breakwaters to the James O'Connell Bridge is about 6,500 feet (ft), and Sitka Channel is about 150 ft wide and about 22 ft deep at the narrowest (NOAA 2020). The mean tide range is 7.7 ft, the diurnal tide range is 9.94 ft, and the extreme range is 18.98 ft (NOAA 2020a). The Sitka Channel connects to the larger Sitka Sound, an active fishery and transportation corridor.

Figure 3. New Sitka SPB Location

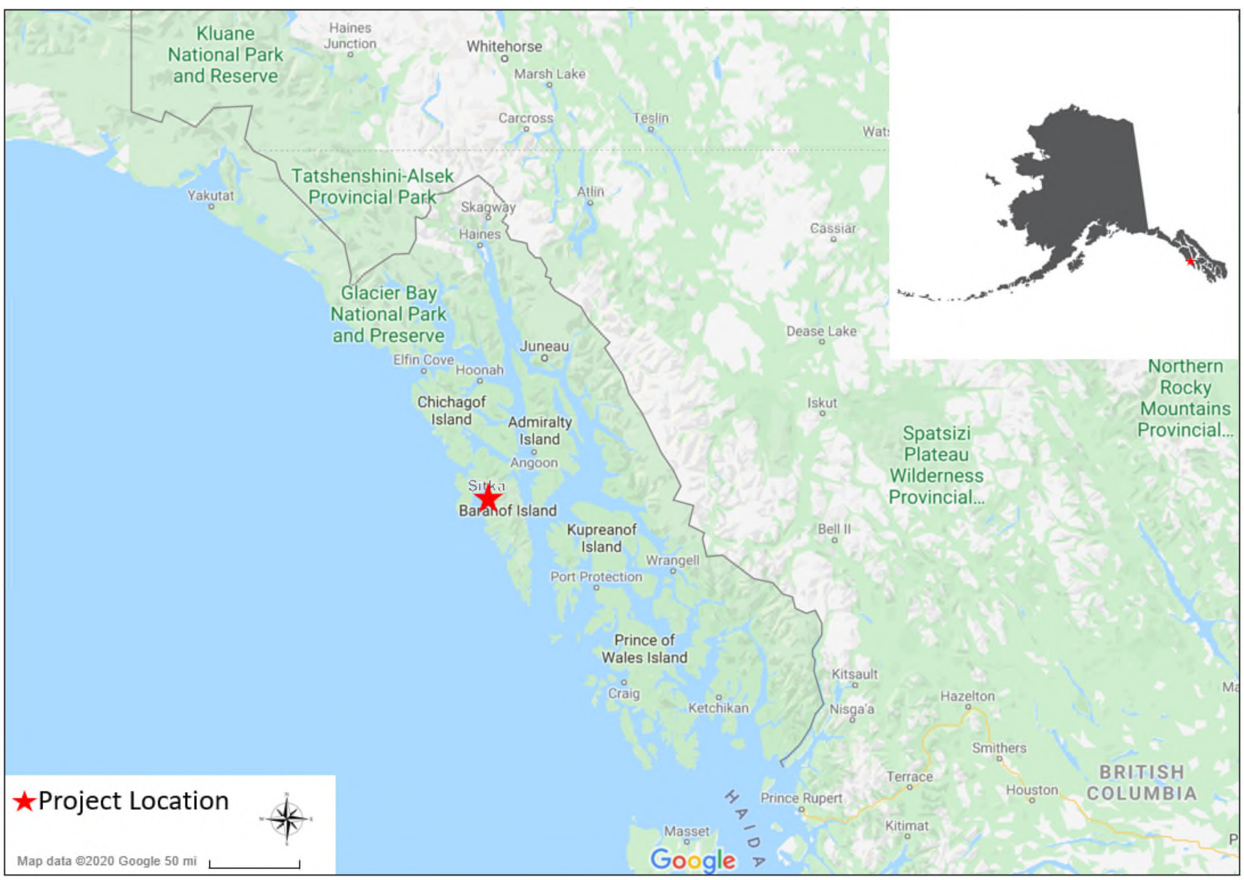
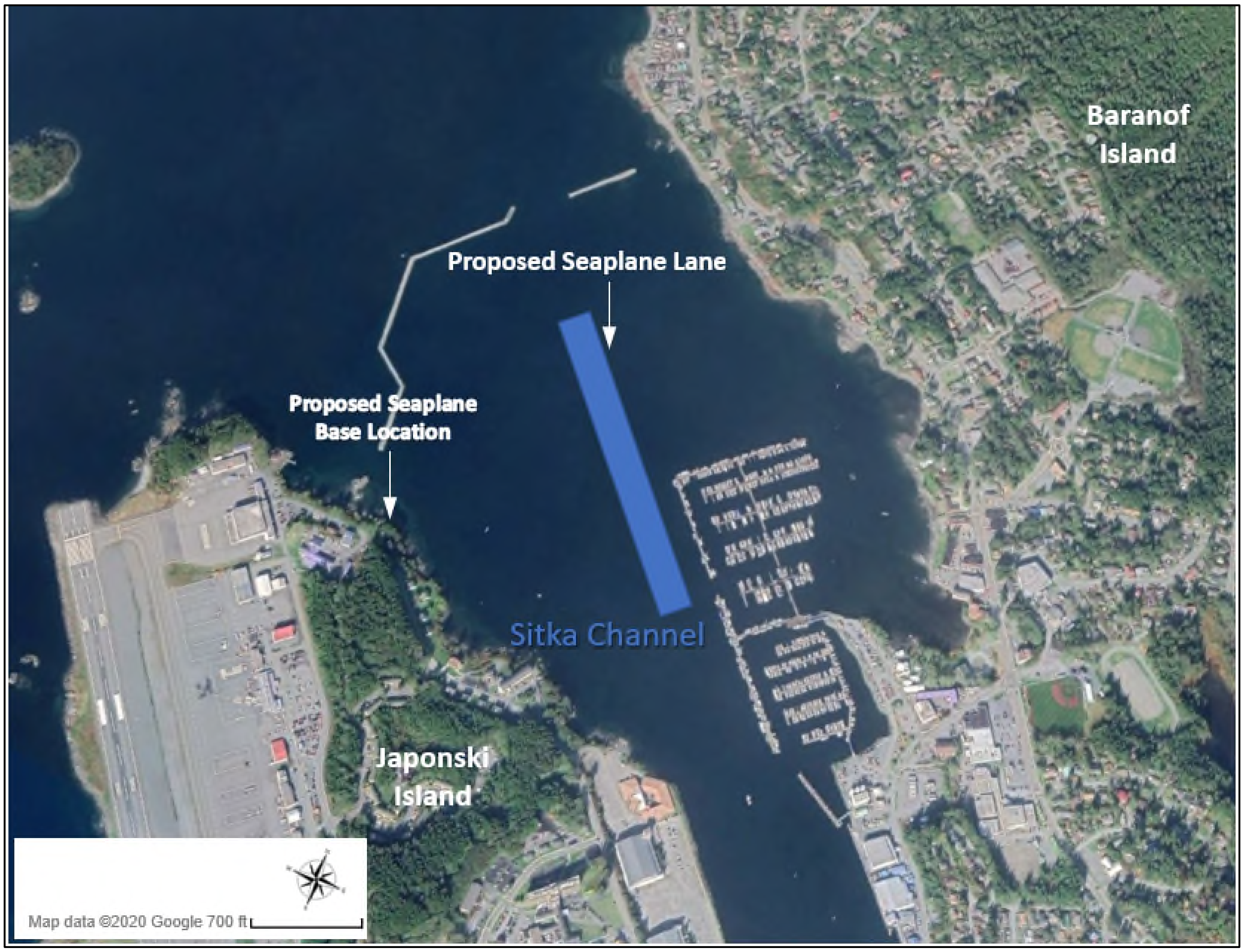


Figure 4. Location of New Sitka SPB in Sitka Channel



The project location will resolve multiple existing obstacles facing seaplane operation in Sitka Channel. The project location on Japonski Island is 3,400 feet from the nearest fish processing plant which will reduce wildlife conflicts with seabirds in the vicinity of fish processing plants (DOWL 2016). The proposed SPB should reduce conflicts with marine vessels during landing and takeoff with a relocated seaplane lane (Figure 4). The relocated seaplane lane moves taxi operations into a wider, less congested section of Sitka Channel.

3.2.1 Pile Installation Equipment

The following pile installation equipment is expected to be used:

- Vibratory Hammer: ICE 44B/Static weight 12,250 pounds
- Socketing Hammer: Holte 100,000 feet-pounds top drive with down-the-hole hammer and bit
- Diesel Impact Hammer: Delmag D46/Max Energy 107,280 feet-pounds

3.2.2 Pile Installation Methods

Installation and Removal of Temporary (Template) Piles

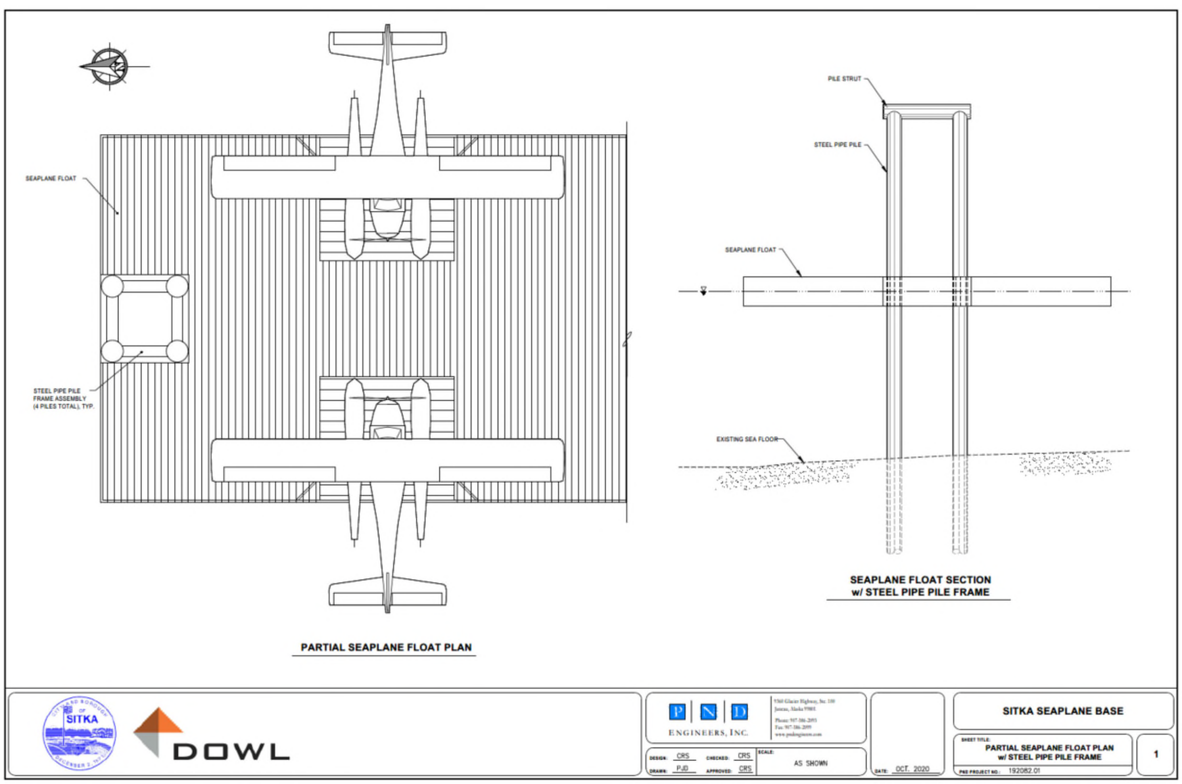
A maximum of 30 temporary 18-inch-diameter piles will be installed and removed using a vibratory hammer and impacting hammer in constructing the project trestle.

Installation of Permanent Piles

All permanent 24-inch-diameter and 16-inch-diameter piles will be initially installed with a vibratory hammer. After vibratory driving, piles will be socketed into the bedrock with down-the-hole drilling equipment. Finally, piles will be driven the final few inches of embedment with an impact hammer.

Piles at the end of the based seaplane float and the corners of the landing dock will be installed as a steel pipe pile frame for added stability and reinforcement (Figure 5). Please see Table 3 for a conservative estimate of the amount of time required for pile installation and removal.

Figure 5. Steel Pipe Pile Frame



3.2.3 Construction Vessels

The following vessels are expected to be used to support construction:

- One material barge (approximately 250 feet by 76 feet by 15.5 feet) to transport materials from Washington to the project site and to be used onsite as a staging area during construction.
- One construction barge (crane barge 280 feet by 76 feet by 16 feet) to transport materials from Washington to the project site and to be used onsite to support construction.
- 1 skiff (25-foot skiff with a 125–250 horsepower outboard motor) transported to the project site on the material barge or acquired locally in Sitka to support construction activities.
- 1 skiff (25-35-foot skiff powered with a 35-50 horsepower outboard motor) transported to the project site on the material barge or acquired locally in Sitka to support Protected Species Observer (PSO) efforts.

3.2.4 Construction Sequence

In-water construction of the cruise ship dock will begin with installation of an approximately 240-foot-long trestle. Once the trestle is constructed, floats will be constructed. Trestle and float construction will use the following sequence:

1) Vibrate 30 temporary 18-inch-diameter piles for the trestle with a minimum of ten feet into overburden to create a template to guide installation of permanent piles.
2) Weld a frame around the temporary piles.
3) Within the frame, vibrate, socket, and impact permanent 16-inch-diameter piles into place for the trestle; and vibrate, socket, and impact permanent 16-inch and 24-inch-diameter piles into place for the gangways and floats.
4) Remove the frame and temporary piles.
5) Perform this sequence working further from the shoreline for each sequence.

After all piles are installed, construction will proceed with installation of the floating docks, gangways, mechanical systems, connections for electricity, water, and lighting, and other above-water components like the vehicle driveway, passenger walkway, and mast lights.

Please see Table 3 for a conservative estimate of the amount of time required for pile installation and removal.

3.2.5 Other In-water Construction and Heavy Machinery Activities

In addition to the activities described above, the proposed action will involve other in-water construction and heavy machinery activities. Examples of other types of activities include using standard barges, tug boats, or other equipment to place and position piles on the substrate via a crane (i.e., “stabbing the pile”).

The seaplane floats will be constructed of treated timber and galvanized steel fasteners. The submerged timber structural elements of the floats will be pressure treated with creosote because it is the only effective preservative for wood that will remain wet at all times. All other timber components that will not be fully submerged will be pressure treated with ammoniacal copper zinc arsenate. All preservative treatment will be in accordance with best management practices (BMP's) as set forth by the Western Wood Preservers Institute. Floatation includes closed cell expanded polystyrene billets covered with 100 percent solid polyurethane and/or polyethylene floatation tubs to protect from physical damage, water absorption, colonization by encrusting organisms, and other factors.

3.2.6 Project Operation Activities

The new SPB includes operation of a new seaplane takeoff and landing lane and taxi path, which will not require any construction. The new water lane is further north of the existing water lane, away from the O'Connell Bridge and seafood processing facilities. The new water lane is 4,000 feet long by 200 feet wide.

Use and operation of the SPB float will include seaplane loading and unloading, general maintenance, connections for water and electric power, and fueling. SPB uplands will provide above ground fuel tank storage, an access ramp for hauling out seaplanes, vehicle parking, general storage, and covered shelter for passenger waiting.

SPB operation protocols will incorporate BMP's to prevent or minimize contamination from seaplane accidents, general maintenance, fueling, and nonpoint source contaminants from upland facilities.

3.3 DEFINITION OF ACTION AREA

The vicinity of the project area that will be affected directly by the action, referred to as the action area in this document, has been determined by the area of water that will be ensonified above acoustic thresholds in a day. In this case, the action area is the area where received noise levels from vibratory, socketing, and impact pile driving installation of 16-inch and 24-inch permanent piles and vibratory and impact pile installation and removal of 18-inch temporary piles (the farthest-reaching noise associated with the project) are expected to decline to 120 dB. As shown in Table 5, the noise from the pile driving methods and timing has the capacity to travel up to 100 kilometers from the source.

Project ensonification is truncated where land masses obstruct underwater sound transmission, thus, the action area is largely confined to marine waters within the northern half of Sitka Channel and extending approximately 1.5 miles (4,000 kilometers) from the western opening in the Channel Rock Breakwaters and over 1 mile (3,000 kilometers) from the eastern opening in the Channel Rock Breakwaters (Figure 6). Note, this document also refers to the project vicinity. This term refers to an area larger than the action area, which includes the waters surrounding Japonski Island and eastern Sitka Sound. This term is used because some of the information available about marine mammals in Sitka is based on sightings in the general vicinity of Sitka.

To minimize impacts to humpback whales, Steller sea lions, fin whales, north pacific right whales, and sperm whales, shutdown and monitoring of harassment zones will be implemented to protect and document listed marine mammals in the action area. Please see Table 5 for calculated distances to the Level A and B thresholds, Section 3.5 for mitigation information, shutdown and monitoring zones and figures, and the attached Marine Mammal Monitoring and Mitigation Plan (4MP) (Appendix B) for more details on mitigation, shutdown, and monitoring procedures.

Figure 6. New Sitka SPB Action Area and Pile Driving Location

3.3.1 Acoustic Thresholds and Ensonified Area

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals will be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur Permanent Threshold Shifts (PTS) of some degree (equated to Level A harassment).

The proposed action area is the perimeter of ensonified impacts to the marine environment. Considerations and mitigation for marine mammals are based off of the action area.

Vibratory driving, socketing, and impact pile installation, and vibratory and impact pile removal will generate in-water and in-air noise that exceeds acoustic thresholds for ESA-listed species in the area and may result in harassment takes of humpback whales and Steller sea lions.

3.3.2 Level A Harassment

NMFS' *Technical Guidance for Assessing the Effects of Anthropogenic Sounds on Marine Mammal Hearing Version 2.0* (NMFS 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive) (NMFS 2018). SPB construction activity includes the use of both impulsive (impact pile driving) and non-impulsive (vibratory pile driving and removal and socketing) sources. The thresholds for auditory injury are provided in Table 4.

Table 4. Thresholds Identifying the Onset of PTS

	PTS Onset Thresholds*(received level)	
Hearing Group	**Impulsive (Impact Pile Driving)**	**Non-impulsive (Vibratory Pile Driving)**
Low-Frequency (LF) Cetaceans	Cell 1 $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	Cell 2 $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	Cell 3 $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	Cell 4 $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	Cell 5 $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	Cell 6 $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	Cell 7 $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	Cell 8 $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	Cell 9 $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	Cell 10 $L_{E,OW,24h}$: 219 dB

Adapted from: NMFS 2018

*Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (Lpk) has a reference value of 1 µPa, and cumulative sound exposure level has a reference value of 1µPa2s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript "flat" is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, HF, and VHF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

3.3.3 Level B Harassment

NMFS predicts that all marine mammals are likely to be behaviorally harassed in a manner that is considered Level B harassment (disturbing behavioral patterns without injuring) when exposed to underwater anthropogenic noise above received levels of 120 decibels (dB) re 1µPa (microPascal) root mean square (rms) for continuous and above 160 dB re 1µPa rms for non-explosive impulsive sources (NMFS 2018).

In addition to underwater noise, pinnipeds can be adversely affected by in-air noise. Loud noises can cause hauled-out pinnipeds to flush back into the water, leading to disturbance and possible injury. NMFS has established an in-air noise disturbance threshold of 100 dB rms for Steller sea lions (NMFS 2018). According to the blasting plan (Southeast Earthmovers 2020), uplands rock blasting would not to exceed 90 dB at the center of the blast, which is below the in-air noise disturbance threshold for Steller sea lions. Pile driving and removal associated with this project will generate in-air noise above ambient levels within the action area but will not extend more than 69 meters and 22 meters from any type of pile being impacted or vibrated, respectively.[1] Given that there are no documented Steller sea lion haulouts in the action area, no in-air disturbance to hauled-out individuals are anticipated as a result of the proposed project; thus, land area is not included in the action area.

3.3.4 Calculated Distances to Level A and Level B Thresholds

For this project distances to the Level A and Level B thresholds were calculated based on various source levels for a given activity and pile type (e.g. vibratory removal 18-inch diameter steel pile, impact pile driving 24-inch diameter steel pile) and, for Level A harassment, accounted for the maximum duration of that activity per day using the practical spreading model in the spreadsheet tool developed by NMFS. Calculated distances to thresholds are shown in Table 5 and range from approximately 1 meter to 100 kilometers. Please see Section 3.5 for monitoring and shutdown zones associated with these thresholds.

1 Predicted distances for in-air threshold distances. The Washington State Department of Transportation has documented un-weighted rms levels for a vibratory hammer (30-inch pile) to an average 96.5 dB and a maximum of 103.2 dB at 15 meters (Laughlin 2010). The Port of Anchorage, AK found source levels of 101 dB at 15 meters during impact installation of 48-inch-diameter steel piles (Austin et al. 2016). The maximum source level from these studies of 103.2 was used as a source level for this project.

Table 5. Distances to NMFS Level A and B Acoustic Thresholds

		Distance (in meters) to Level A and Level			
Activity	Received Level at 10 meters	Level A[2]			Level B
		Low-Frequency Cetaceans	Mid-Frequency Cetacean	Otariid	
Vibratory Pile Driving/Removal					
18-inch steel temporary installation 15 min per pile, 60 minutes/day (8 days)	161 SEL [3]	2.3	0.2	0.1	4,642
18-inch steel temporary removal 15 min per pile, 60 minutes/day (8 days)	161 SEL[3]	2.3	0.2	0.1	4,642
16-inch steel permanent installation 15 min per pile, 60 minutes/day (18 days)	161 SEL[3]	2.3	0.2	0.1	4,642
24-inch steel permanent installation 15 min per pile, 30 minutes/day (41	161 SEL[3]	2.3	0.2	0.1	4,642
Socketing Pile Driving					
16-inch steel permanent installation 5 hours per pile, 10 hours/ day (18 days)	164 SEL/ 190 PK [4]	3,618.3	24.3	27.8	100,000
24-inch steel permanent installation 15 min per pile, 30 minutes/day (41 days)	164 SEL/ 190 PK[4]	3,618.3	24.3	27.8	100,000
Impact Pile Driving					
16-inch steel permanent installation 5 min per pile, 10 minutes/day (18 days)	161 SEL/ 184.9 PK[5]	11.7	0.4	0.5	97
24-inch steel permanent installation 5 min per pile, 10 minutes/day (41 days)	161 SEL/ 184.9 PK[5]	11.7	0.4	0.5	97
18-inch steel temporary installation 15 min per pile, 60 minutes/day (8 days)	161 SEL/ 184.9 PK[5]	11.7	0.4	0.5	97
18-inch steel temporary removal 15 min per pile, 60 minutes/day (8 days)	161 SEL/ 184.9 PK[5]	11.7	0.4	0.5	97

[1] Distances, in meters, refer to the maximum radius of the zone.

[2] The values provided here represent the distance at which an animal may incur PTS if that animal remained at that distance for the entire duration of the activity within a 24-hour period. For example, a harbor seal (phocid) will have to remain 1.4 meters from 24-inch piles being installed via vibratory methods for 1 hour for PTS to occur.

[3] The 16-inch, 18-inch, and 24-inch-diameter vibratory pile driving and 18-inch-diameter vibratory pile removal source level of 161 SPL is proxy from median received levels at 10 meters for vibratory pile driving of 24" steel piles driven at the Naval Base Kitsap in Bangor, Washington (Naval Facilities Engineering Systems Command 2012) and

from acoustic modeling of nearshore marine pile driving at Navy installations in Puget Sound (United States Navy 2015). Level A Distances calculated using NMFS Version 2.1 2020 User Spreadsheet Tab A.1 Vibratory Pile Driving.
[4] The DTH (down the hole) pile driving source level of 164 sound exposure level (SEL)/ 190 peak sound level (PK) is proxy from 36" and 42" Sound Source Characterization of Down the Hole Hammering in Thimble Shoal, VA (Denes et al. 2019). Level A Distances calculated using NMFS Version 2.1 2020 User Spreadsheet Tab E.2 DTH Pile Driving.
[5]The impact pile driving source level of 161 SEL/ 184.9 PK is proxy from median measured source levels from impact driving of 24-inch piles for the Kodiak Ferry Terminal project (Austin et al. 2016, Table 40). Level A Distances calculated using NMFS Version 2.1 2020 User Spreadsheet Tab E.1 Impact Pile Driving.

3.4 PROPOSED MITIGATION MEASURES

To minimize effects to listed species, CBS proposes to implement the mitigation measures outlined below.

3.4.1 General Construction Mitigation Measures

The project uses the most compact design possible, while meeting the demands of the vessels that will use the facility.

- The project uses a design that does not require dredging or in-water blasting and to the extent possible given project requirements, minimizes fill and on land blasting.
- The project uses a design that incorporates the smallest-diameter piles practicable while still minimizing the overall number of piles.
- Noise associated with in-water pile driving will be localized and occur over confined time intervals. In-water pile driving will occur over a 179-day period (not necessarily consecutive days). During that time, vibratory driving will occur for approximately 45 hours, socketing will occur for approximately 590 hours, and impact pile driving will occur for approximately 13 hours. A maximum of 60 minutes of vibratory pile driving, 10 hours of socketing, or 10 minutes of impact pile driving will occur each day of pile driving.
- Any treated wood that comes in contact with water will be treated in accordance with BMP’s developed by the Western Wood Preservers Institute. Treated wood will be inspected before installation to ensure that no superficial deposits of preservative material remain on the wood.
- Plans for avoiding, minimizing, and responding to releases of sediments, contaminants, fuels, oil, and other pollutants will be developed and implemented.
- Spill response equipment will be kept on-site during construction and operation.
- Floats or barges will not be grounded at any tidal stage.

3.4.2 Pile Driving and Removal Mitigation Measures

- The project has been designed to use the fewest piles practicable (alternative designs required significantly more piles). This design was selected to reduce noise impacts associated with the duration of pile driving.
- To reduce noise production, the vibratory hammer will be operated at a reduced energy setting (30 to 50 percent of its rated energy).
- Pile driving softening material will be used to minimize noise during vibratory and impact pile driving. Much of the noise generated during pile installation comes from

contact between the pile being driven and the steel template used to hold the pile in place. The contractor will use high-density polyethylene (HDPE) or ultra-high-molecular-weight polyethylene (UHMW) softening material on all templates to eliminate steel on steel noise generation.
- Before impact or vibratory pile driving begins, the contractor will employ "soft start" procedures.[2]
- When the impact hammer is used, a pile cushion will be placed inside the drive cap to reduce noise.
- The impact hammer will be operated at reduced fuel setting as long as is practicable.

3.4.3 Marine Mammal Monitoring and Mitigation Measures

The CBS has developed a 4MP as a part of its IHA application. The 4MP is presented in its entirety in Appendix B and summarized below.

PSO's will be present during all in-water work. If marine mammals are observed within the shutdown or monitoring zones (Tables 6 and 7), the sighting will be appropriately documented as a Level A or B take. If the number of Steller sea lions or humpback whales observed within the Level A or B zones during noise-producing project activities approaches the number of takes authorized in the Incidental Take Statement (ITS), the CBS will notify NMFS and request that the USACE and NMFS PR1 reinitiate consultation. The project will also incorporate soft start or ramp-up procedures when beginning or resuming pile installation and extraction activities after an interruption of activity lasting more than 30 minutes. These mitigation measures will decrease the likelihood that Steller sea lions and humpback whales will be exposed to SPLs that may result in injury.

3.4.3.1 Protected Species Observers

Qualified PSO's will be employed for marine mammal monitoring. PSO's will maintain verbal communication with the construction personnel to implement appropriate mitigation measures.

3.4.3.2 Proposed Monitoring

The proposed Level A and Level B disturbance zones will be monitored 30 minutes before, during, and 30 minutes after all in-water construction activity. If a humpback whale or Steller sea lion is observed within the Level A or B zones, the sighting will be documented as a Level A or B exposure, depending on location of take. If the number of Steller sea lions or humpback whales exposed to Level A or Level B harassment approaches the number of takes allowed by the IHA, the CBS will notify NMFS and seek further consultation.

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[2] The soft start or "ramp–up" procedure for vibratory driving is a requirement of the U.S. Fish and Wildlife Service to mitigate noise impacts on Northern sea otters as outlined in their August 7, 2012 Observer Protocols.

3.4.3.3 Clearing the Shutdown Zones

Prior to the start of daily in-water construction activity, the PSO will clear the shutdown zones for a period of 30 minutes. Clearing the shutdown zone means a humpback whale or Steller sea lion has not been observed within their respective shutdown zones for that 30-minute period (Table 6). If a humpback whale or Steller sea lion is observed within the shutdown zones, a soft-start will not proceed until they have left the shutdown zone or has not been observed for 30 minutes.

3.4.3.4 Soft Start Procedures

Soft start procedures will be used prior to pile removal and installation, to allow marine mammals to leave the area prior to exposure to maximum noise levels. For vibratory hammers, the soft-start technique will initiate noise from the hammer for 15 seconds at a reduced energy level, followed by 1-minute waiting period and repeat the procedure 2 additional times. For impact hammers, the soft-start technique will initiate 3 strikes at a reduced energy level, followed by a 30-second waiting period. This procedure will also be repeated two additional times.

3.4.3.5 Shutdown Procedures

Once pile driving has been initiated, if a humpback whale or Steller sea lion is observed approaching or within a shutdown zone, shutdown procedures will be implemented to prevent exposure. The shutdown zones are outlined in Table 6.

The animal will be considered clear if it has been observed leaving the shutdown zone or it has not been seen in the shutdown zone for 30 minutes.

3.5 MITIGATION MEASURES DESIGNED TO REDUCE IMPACTS TO LISTED SPECIES

- There will be a nominal 10-meter shutdown zone for construction-related activity where acoustic injury is not an issue. This type of work could include (but is not limited to) the following activities: (1) movement of the barge to the pile location; (2) positioning of the pile on the substrate via a crane (i.e., stabbing the pile); (3) removal of the pile from the water column/substrate via a crane (i.e., deadpull); or (4) the placement of sound attenuation devices around the piles. For these activities, monitoring will take place from 15 minutes prior to initiation until the action is complete.
- PSO's will be present in the action area during all vibratory pile removal and vibratory, impact, and drilling installation.
- To ensure that the action area has been surveyed for humpback whale and Steller sea lion presence, pile driving/removal will not begin until a PSO has given a notice to proceed.
- To reduce noise production, the vibratory hammer will be operated at a reduced energy setting (30 to 50 percent of its rated energy) as much as practicable.
- Piles will be driven with a vibratory hammer to the maximum extent possible (i.e. until the desired depth is achieved or to refusal) prior to socketing and using an impact hammer.

- To reduce noise production, socketing and impact hammering will use the minimum energy needed to safely install the piles.
- To minimize noise during vibratory, socketing, and impact pile driving, pile caps (pile softening material) will be used. Much of the noise generated during pile installation comes from contact between the pile being driven and the steel template used to hold the pile in place. The contractor will use HDPE or UHMW softening material on all templates to eliminate steel on steel noise generation.
- To minimize impacts, a “soft start” technique will be used when impact pile driving with an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent 3-strike sets.
- The soft-start will be applied prior to the beginning of pile driving/removal activities each day or when pile driving/removal hammers have been idle for more than 30 minutes.
- Prior to pile driving, the action area will be surveyed for 30 minutes. If any humpback whale or Steller sea lion is sighted within a shutdown zone during this 30-minute survey period prior to pile driving, or during the soft-start, contractors will delay pile driving/removal until the animal(s) is confirmed to have moved outside of and on a path away from the area or if 30 minutes have elapsed since the last sighting of the marine mammal within the shutdown zone.
- Shutdowns will be implemented if a humpback whale or Steller sea lion appears likely to enter a shutdown zone (Section 3.5)

3.5.1 Level A Shutdown Zones

The CBS will implement shutdowns to protect Mexico DPS humpback whales and Steller sea lion from Level A harassment as shown in Table 6 and Figure 7. These shutdowns will prevent auditory injury during vibratory installation, vibratory removal, socketing, and impact installation.

Table 6. Pile Driving Shutdown Zones Designed to Avoid Level A Take

Source	Shutdown Zone (meters)	
	Humpback Whales	Steller Sea Lions
Barge movements, pile positioning, on land rock blasting, sound attenuation placement[1]	10	10
Vibratory Pile Driving/Removal		
18-inch steel temporary installation (30 piles; 60 min per day on 8 days)	10	10
18-inch steel temporary removal (30 piles; 60 min per day on 8 days)	10	10
16-inch steel permanent installation (36 piles; 60 min per day on 9 days)	10	10
24-inch steel permanent installation (82 piles; 60 min per day on 21 days)	10	10
Socketing Pile Driving		
16-inch steel permanent installation (36 piles; 10 hours per day on 18 days)	3,000[2]	50
24-inch steel permanent installation (82 piles; 10 hours on 41 days)	3,000[2]	50
Impact Pile Installation		
16-inch steel permanent installation (36 piles; 30 min per day on 18 days)	25	10
24-inch steel permanent installation (82 piles; 30 min per day on 41 days)	25	10
18-inch steel temporary installation (30 piles; 60 min per day on 8 days)	25	10
18-inch steel temporary removal (30 piles; 60 min per day on 8 days)	25	10

Shutdown zone distances, in meters, refer to the maximum radius of the zone and are rounded (see Table 5 for calculated distances).

[1] Although acoustic injury is not the primary concern with these construction activities, shutdowns will be implemented to avoid impacts to species.

[2] The farthest distance that sound will transmit from the source is 3,000 meters before transmission is stopped by Apple Islands. See table 5 for calculated distances based on the practical spreading model.

Figure 7. Level A Shutdown Zones

3.5.2 Level B Monitoring Zones

The CBS is requesting Level B take of Mexico DPS humpback whales (during socketing only) and Steller sea lions (during all pile driving) incidental to constructing the new SPB construction and shutdowns associated with Level B harassment of this species are not proposed. The monitoring zones associated with Level B disturbance are outlined in Table 7 and Figure 8.

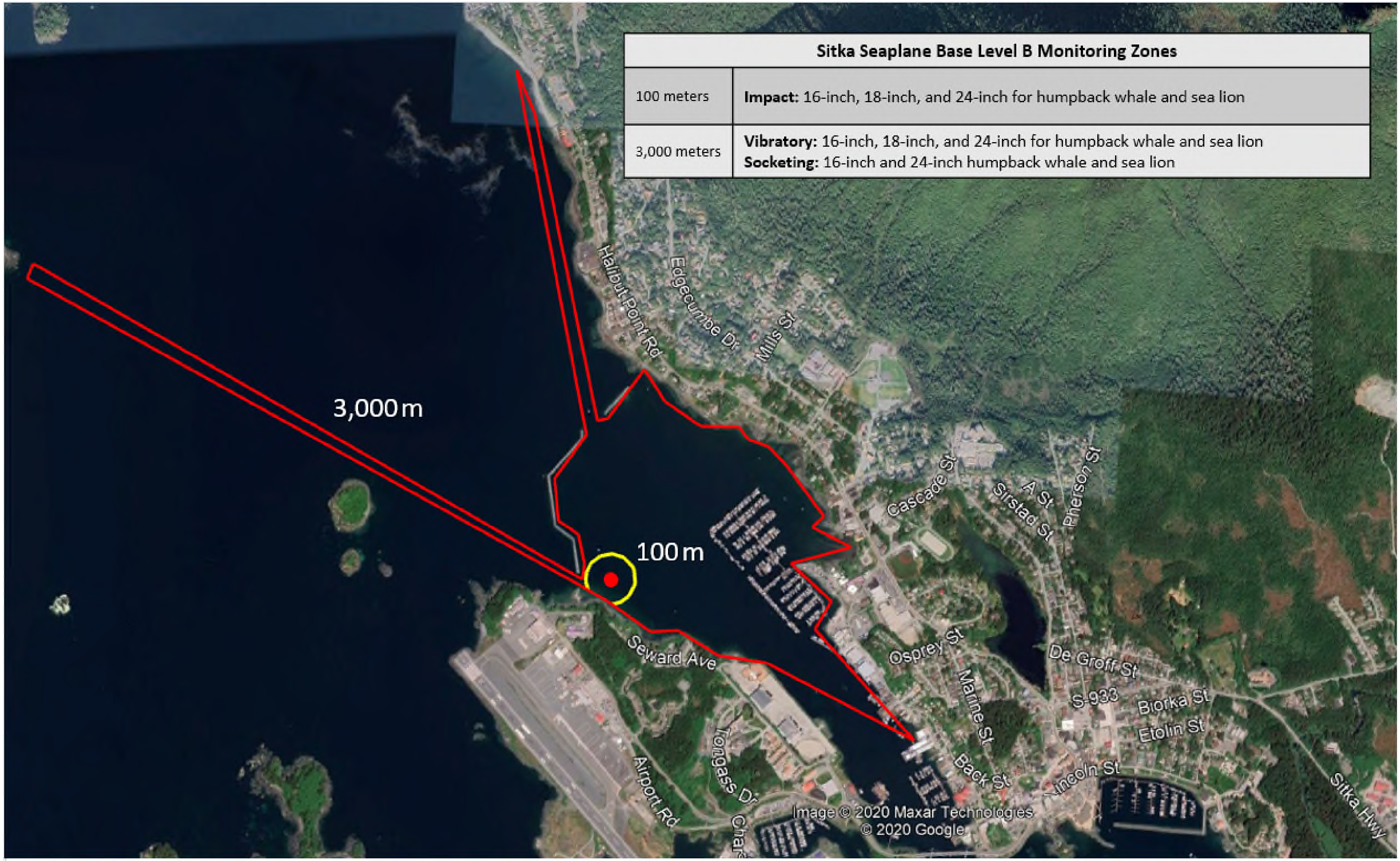
Table 7. Level B Monitoring Zones

Source	Monitoring Zones (m)
Vibratory Pile Driving/Removal	
18-inch steel temporary installation (30 piles; 30 min per day on 15 days)	3,000*
18-inch steel temporary removal (30 piles; 30 min per day on 15 days)	3,000*
16-inch steel permanent installation (36 piles; 30 min per day on 18 days)	3,000*
24-inch steel permanent installation (82 piles; 30 min per day on 41 days)	3,000*
Socketing Pile Driving	
16-inch steel permanent installation (36 piles; 10 hours per day on 18 days)	3,000*
24-inch steel permanent installation (82 piles; 10 hours on 41 day)	3,000*
Impact Pile Installation	
18-inch steel temporary installation (30 piles; 30 min per day on 15 days)	100
18-inch steel temporary removal (30 piles; 30 min per day on 15 days)	100
16-inch steel permanent installation (36 piles; 30 min per day on 18 days)	100
24-inch steel permanent installation (82 piles; 30 min per day on 41 days)	100

Shutdown zone distances, in meters, refer to the maximum radius of the zone and are rounded (see Table 5 for calculated distances).

* The farthest distance that sound will transmit from the source is 3,000 meters before transmission is stopped by Apple Islands. See table 5 for calculated distances based on the practical spreading model.

Figure 8. Level B Monitoring Zones



4 DESCRIPTION OF THE SPECIES AND THEIR HABITAT

Five species of ESA-listed marine mammals under NMFS's jurisdiction may occur in the action area:

- Endangered Western DPS (WDPS) Steller sea lion (*E. jubatus*)
- Threatened Mexico DPS humpback whale (*M. novaeangliae*)
- Endangered fin whale (*B. physalus*)
- Endangered North Pacific right whale (*E. japonica*)
- Endangered sperm whale (*P. macrocephalus*)

Critical habitat has been designated for two of these species, the WDPS Steller sea lion and the North Pacific right whale (Table 1); however, the project action area does not encompass critical habitat of any ESA-listed species, and thus this project will have no effect on critical habitat. Critical habitat for threatened Mexico DPS humpback whale is proposed and undergoing the approval process. The proposed critical habitat will include the project action area.

4.1 SPECIES THE PROJECT IS NOT LIKELY TO ADVERSELY AFFECT

We reviewed the species listed above and conclude that the following species are not likely to be adversely affected by the proposed action: fin whale, North Pacific right whale, and sperm whale. These analyses are provided below. Some of the following sections contain direct excerpts from species information on the NMFS website.

4.1.1 Fin Whale

The fin whale was listed as an endangered species under the Endangered Species Conservation Act (ECSA) in 1970 (35 FR 18319; December 2, 1970) and continued to be listed as endangered following passage of the ESA in 1973. The fin whale is listed as depleted throughout its range under the MMPA of 1972. The main reason for listing is that fin whales were depleted by historic and modern whaling practices (NMFS 2015).

A migratory species, fin whales generally spend the spring and early summer feeding on krill and small fish in cold, high latitude waters as far north as the Chukchi Sea, with regular feeding grounds in the Gulf of Alaska, Prince William Sound, along the Aleutians Islands, and around Kodiak Island. In the fall, fin whales tend to return to low latitudes for the winter breeding season, though some may remain in residence in their high latitude ranges if food resources remain plentiful (Alaska Department of Fish and Game [ADF&G] 2008). In the eastern Pacific, fin whales typically spend the winter off the central California coast and into the Gulf of Alaska.

Fin whales are found in deep offshore waters. Panigada et al. (2005) found water depth to be the most significant variable in describing fin whale distribution, with more than 90 percent of sightings occurring in waters deeper than 2,000 m.

Fin whales are rare in the inside waters of southeastern Alaska (Neilson et al. 2012). Given that no fin whales have been observed in marine mammal surveys conducted around Sitka Channel, no fin whales are expected to occur within the action area (Straley and Pendell 2017).

Fin whales are not expected in the project area because of its location in the shallow and narrow at the north end of Sitka Channel. The CBS has not requested, and NMFS PR1 does not intend to authorize, any injury or harassment of fin whales in association with the project. Given their expected low density in the project area, the shallowness of the area relative to the species' preferred foraging depths (Panigada et al. 2005), and the implementation of shutdown procedures if a marine mammal is observed likely to enter the shutdown zone, we conclude that it is extremely unlikely to encounter a fin whale in the action area, and thus the Sitka SPB Project **is not likely to adversely affect fin whales**.

4.1.1.1 Fin Whale Critical Habitat

Critical habitat has not been designated for the fin whale.

4.1.2 North Pacific Right Whale

The North Pacific right whale was listed as an endangered species under the ECSA in 1970 (73 FR 12024; 2008) and continued to be listed as endangered following passage of the ESA in 1973. The North Pacific right whale is considered depleted throughout its range under the MMPA. In 2008, NMFS listed the endangered northern right whale (*Eubalaena spp.*) as two separate, endangered species: North Pacific right whale (*E. japonica*) and North Atlantic right whale (*E. glacialis*). The main reason for listing is that the whales were heavily exploited by whaling in the North Pacific (NMFS 2015a).

North Pacific right whales inhabit the Pacific Ocean, particularly between 20°N and 60°N. They primarily occur in coastal or shelf waters, although movements over deep waters are known. Few sightings of right whales occur in Alaska; those that do occur in Alaska are primarily in the central North Pacific and Bering Sea. Since 1996, right whales have been consistently observed in Bristol Bay (southeastern Bering Sea) during the summer months. Sightings have been reported as far south as central Baja California in the eastern North Pacific, as far south as Hawaii in the central North Pacific, and as far north as the sub-Arctic waters of the Bering Sea and Sea of Okhotsk in the summer (NMFS 2015a).

According to NMFS, right whales are the rarest of all large whale species. Depleted by whaling and illegal harvesting, only an estimated 30 North Pacific right whales remain in the eastern stock (the population of whales that summers in the southeastern Bering Sea and Gulf of Alaska) (NMFS 2015b).

Migratory patterns of the North Pacific right whale are unknown, although it is thought the whales spend the summer on high-latitude feeding grounds far from shore and migrate to more temperate waters during the winter. For much of the year, their distribution is strongly correlated to the distribution of their prey. The primary food sources are zooplankton, including copepods, euphausiids, and cyprids. Right whales are skimmers: they feed by removing prey from the water using baleen while moving with an open mouth through a patch of zooplankton (NMFS 2015a).

Given that no North Pacific right whales have been observed in marine mammal surveys conducted around Sitka Channel, no North Pacific right whales are expected to occur within the action area (Straley and Pendell 2017). North Pacific right whales are rare in the action area. During Straley et al.'s (2018) 190 hours of monitoring, no North Pacific right whales were observed in the O'Connell Bridge Lightering Float Pile Replacement Project action area, about 1500 meters away from the Sitka Seaplane Base Project area. The whales were not observed during the 21 days of monitoring during the construction of Gary Paxton Industrial Park Dock in October and November 2017 (Turnagain Marine Construction [Turnagain] 2017). They were not observed during the 8 days of monitoring during the construction of the Sitka Petro Dock in January 2017 (Windward Project Solutions [Windward] 2017). They were not sighted during monitoring at Biorka Island in June, July, August, or September 2018 (Turnagain 2018). Additionally, North Pacific right whales were not observed during limited monitoring conducted in September 2018 in the immediate vicinity of the O'Connell lightering Float (SolsticeAK 2018).

North Pacific right whales are not expected in the project area because they are so rare, and because the project location is not a documented feeding or calving area. The CBS has not requested, and NMFS PR1 does not intend to authorize, any injury or harassment of North Pacific right whales in association with the project. Given their expected low density in the project area and implementation of shutdown procedures if a marine mammal is observed likely to enter the shutdown zone, we conclude that it is extremely unlikely to encounter a North Pacific right whale in the action area, and thus the Sitka Seaplane Base Project **is not likely to adversely affect North Pacific right whales**.

4.1.2.1 North Pacific Right Whale Critical Habitat

In April 2008, because the North Pacific right whale was listed as a separate, endangered species (the "northern right whale"), and because this was a newly listed entity, NMFS was required to designate critical habitat for the "North Pacific right whale." The same two areas, within the Gulf of Alaska (just southeast of Kodiak Island) and within the Bering Sea (west of Bristol Bay and north of False Pass), that were previously designated as critical habitat (71 FR 38277; 2006) for the northern right whale are now designated as critical habitat for the North Pacific right whale (73 FR 19000, 2008) (NMFS 2015a; NMFS 2007).

The designated critical habitat in the Gulf of Alaska (located over 900 km [550 m] west of the proposed action) is the closest designated critical habitat for the North Pacific right whale and is well outside the action area. The project will have **no effect on North Pacific right whale critical habitat**.

4.1.3 Sperm Whale

The sperm whale was listed as an endangered species under the ECSA in 1969 (35 FR 18319; December 2, 1970) and continued to be listed as endangered following passage of the ESA in

1973. The sperm whale was listed as depleted under the MMPA of 1972. The main reason for its listing is that most sperm whale populations were depleted by modern whaling (NMFS 2010).

Sperm whales are found typically far from land throughout the world's oceans in deep waters between about 60°N and 60°S. They tend to inhabit areas with a water depth of 600 meters (1,968 ft) or more, and are uncommon in waters less than 300 meters (984 ft) deep (NMFS 2020a). Sperm whale calls have been detected year-round in the Gulf of Alaska (Mellinger et al. 2004). They can also be found in the Bering Sea and throughout the Aleutian Islands (ADF&G 2020).

Sperm whale distribution is dependent on their food source (primarily large squid, sharks, skates, and fishes) and suitable conditions for breeding, and varies with the sex and age composition of the group. The species abundance and migrations are not as predictable or well understood as migrations of most baleen whales. In some mid-latitudes, there seems to be a general trend to migrate north and south depending on the seasons (whales move poleward in the summer). However, in tropical and temperate areas, there appears to be no obvious seasonal migration. Females and young whales generally stay in tropical and temperate waters. Male sperm whales tend to migrate north in the summer to feed (NMFS 2020a).

Given that no sperm whales have been observed in marine mammal surveys conducted around Sitka Channel, no sperm whales are expected to occur within the action area (Straley and Pendell 2017). Sperm whales are not expected in the project area because of its location in the shallow and narrow north entrance of Sitka Channel. The CBS has not requested, and NMFS PR1 does not intend to authorize, any injury or harassment of sperm whales in association with the project. Given their expected low density in the project area, the shallowness of the area relative to the species' preferred habitat depths, and the implementation of shutdown procedures if a marine mammal is observed likely to enter the shutdown zone, we conclude that it is extremely unlikely to encounter a sperm whale in the action area, and thus the Sitka Seaplane Base Project **is not likely to adversely affect sperm whales**.

4.1.3.1 Sperm Whale Critical Habitat
Critical habitat has not been designated for the sperm whale.

4.2 SPECIES THE PROJECT IS LIKELY TO ADVERSELY AFFECT
After reviewing information about the Mexico DPS humpback Whale and WDPS Steller Sea Lion, it is likely these species will be adversely affected by the proposed action. Analyses are provided below. Some of the following sections contain direct excerpts from species information on the NMFS website and from NMFS biological opinions that evaluated humpback whales in Southeast Alaska (NMFS 2017, NMFS 2017a).

4.2.1 Mexico DPS Humpback Whale

4.2.1.1 Description, Status, and Range

Humpback whales are classified in the cetacean suborder Mysticeti, whales characterized by having baleen plates for filtering food from water. The humpback whale is one of the larger baleen whales, weighing up to 25-40 tons (22,000-36,000 kilograms; 50,000-80,000 pounds) and up to 18 meters (60 feet) long, with females larger than males. Newborns are about 4.5 meters (15 feet) long and weigh about 1 ton (900 kilograms; 2,000 pounds). Humpback whales reach sexual maturity at 4 to 7 years, and their lifespan can be 50 years or more. The species is well known for long pectoral fins, which can be up to 4.6 meters (15 feet) long. The body coloration is primarily dark grey, but individuals have a variable amount of white on their pectoral fins and belly. This variation is so distinctive that tail fluke pigmentation patterns are used to identify individual whales, analogous to human fingerprints.

Humpback whales filter feed on tiny crustaceans (mostly krill), plankton, and small fish; they can consume up to 3,000 pounds (1,360 kg) of food per day (Chenoweth et al. 2017). Well-documented North Pacific humpback whale prey include: krill, Pacific Herring, juvenile salmon, Capelin, Pacific Sandlance, juvenile Walleye Pollock, Eulachon, Pacific Sandfish, Surf Smelt and Lanternfish (Straley et al. 2017). Common hunting methods involve using air bubbles to herd, corral, or disorient fish.

Nearly all populations of humpback whales undertake seasonal migrations from their tropical calving and breeding grounds in winter to their high-latitude feeding grounds in summer. In their summer foraging areas and winter calving areas, humpback whales tend to occupy shallower, coastal waters; during their seasonal migrations; however, humpback whales disperse widely in deep, pelagic waters and tend to avoid shallower, coastal waters (Winn and Reichley 1985). There is also evidence that a small number of whales have overwintered in SEA and did not undergo their winter migrations to breeding areas (Straley et al. 2018).

In 1970, the humpback whale was listed as endangered worldwide, under the ESCA of 1969 (35 FR 8491; June 2, 1970), primarily due to decimation from whaling. Congress replaced the ESCA with the ESA in 1973, and humpback whales continued to be listed as endangered. Following the cessation of most legal whale harvest, humpback whale numbers increased.

4.2.1.2 Abundance

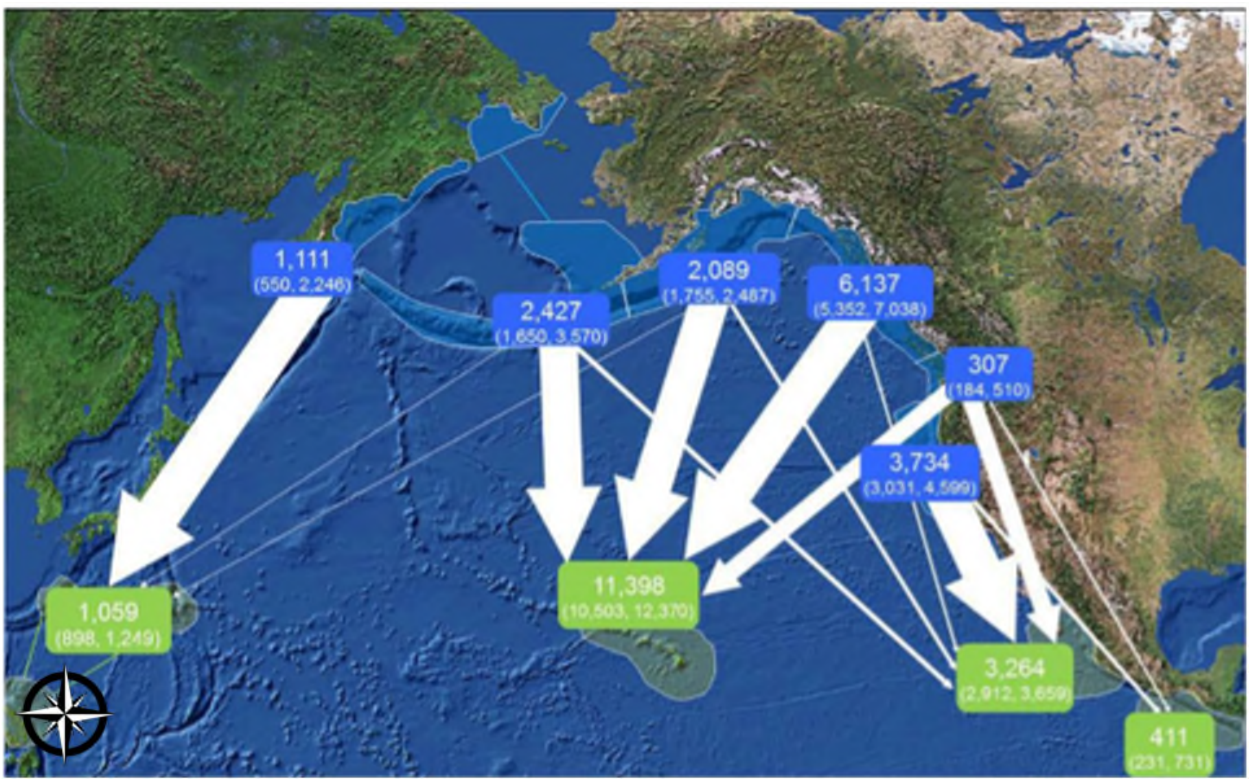
Within the summer feeding area of Southeast Alaska / Northern British Columbia, Wade et al. (2016) estimates the abundance of humpback whales to be 6,137 (critical value [CV] =0.07). Based on the probability of occurrence reported in Wade et al. (2016) (Table 3), it is likely that Southeast Alaska/Northern British Columbia may contain 5,763 whales from the non-listed Hawaii DPS (recovered) and 374 whales from the threatened Mexico DPS.

The humpback whale is distributed worldwide in all ocean basins, with a total population of at least 80,000. They have a broad geographical range from tropical to temperate waters in the Northern Hemisphere and from tropical to near-ice-edge waters in the Southern Hemisphere

(Allen and Angliss. 2015). Using fluke identification photographs from 2004 through 2006, Barlow et al. (2011) estimates that the abundance of humpback whales in the North Pacific is 21,063 animals. More recently, using a multi-strata analysis, Wade et al. (2016) estimates the abundance of humpback whales in the North Pacific is 16,132 for the winter areas and 15,805 for the summer areas. The population in the North Pacific has increased substantially after the cessation of major commercial whaling operations in the late twentieth century, and the current abundance estimate exceeds some pre-whaling estimates.

In 2015, NMFS conducted a global status review of humpback whales and changed the status of humpback whales under the ESA (Bettridge et al. 2015). The globally-listed species was divided into 14 DPS's, 4 of which are endangered and 1 is threatened, and the remaining 9 are no longer listed under the ESA (81 FR 62260; September 8, 2016). Wade et al. (2016) provides information on the basis for DPS designation and the status of each DPS. Figure 9 depicts humpback whale abundance and migratory patterns.

Figure 9. Humpback Whale Abundance



Note: Migratory destinations from feeding area (blue) to breeding area (green) are indicated by arrows with the width of arrow proportional to the percentage of whales moving into winter breeding area (Wade et al. 2016).

Humpback whales may be seen at any time of year in Alaska, but most animals winter in temperate or tropical waters near Mexico, Hawaii, and in the western Pacific near Japan. In the spring, the animals migrate back to Alaska where food is abundant. They tend to concentrate in several areas, including Southeast Alaska, Prince William Sound, near Kodiak Island, the Barren

Islands at the mouth of Cook Inlet, and along the Aleutian Islands. The Chukchi Sea is the northernmost area for humpbacks during their summer feeding; although, in 2007, humpbacks were seen in the Beaufort Sea east of Barrow, suggesting a northward expansion of their feeding grounds (Zimmerman and Karpovich 2008).

4.2.1.3 Humpback Whales in Southeast Alaska

Based on an analysis of migration between winter mating/calving areas and summer feeding areas using photo-identification, Wade et al. (2016) concluded that humpback whales feeding in Alaskan waters belong primarily to the Hawaii DPS (now recovered), with small contributions of Mexico DPS (threatened) and Western North Pacific DPS (endangered) individuals. The probability of encountering whales from each of the four North Pacific DPS's in various feeding areas is summarized in Table 8 below (NMFS 2016).

Table 8. Probability of Encountering Humpback Whales from each DPS in the North Pacific Ocean in Various Feeding Areas (Adapted from Wade et al. 2016)

	North Pacific Distinct Population Segments			
Summer Feeding Areas	**Western North Pacific DPS (endangered)**	**Hawaii DPS (not listed)**	**Mexico DPS (threatened)**	**Central America DPS (endangered)**
Kamchatka	100%	0%	0%	0%
Aleutian Islands, Bering, Chukchi, Beaufort	4.4%	86.5%	11.3%	0%
Gulf of Alaska	0.5%	89.0%	10.5%	0%
Southeast Alaska / Northern British Columbia	0%	93.9%	6.1%	0%
Southern British Columbia / Washington	0%	52.9%	41.9%	14.7%
Oregon/California	0%	0%	89.6%	19.7%
NOTE: For the endangered DPS's, these percentages reflect the upper limit of the 95 percent confidence interval of the probability of occurrence in order to give the benefit of the doubt to the species and to reduce the chance of underestimating potential takes.				

Whales from the Western North Pacific, Mexico, and Hawaii DPS overlap on feeding grounds off Alaska and are not visually distinguishable. In the action area the vast majority of humpback whales (94%) are likely to be from the recovered Hawaii DPS and about 6% are likely to be from the threatened Mexico DPS.

In recent decades, humpback whales have been steadily increasing in southeast Alaska. The southeast Alaska-specific rate of increase is approximately 5.6% annually (Calambokidis et al. 2008) and the latest estimate of abundance for Southeast Alaska and northern British Columbia is between 3,005 and 6,137, depending on the modeling approach employed. As previously mentioned, humpback whales in Southeast Alaska are 94% comprised of the Hawaii DPS (not listed) and 6% of the Mexico DPS (threatened; Wade et al. 2016). Given Wade et al. (2016), in this assessment, we use 6% to approximate the percentage of humpback whales observed in the action area that will be from the Mexico DPS.

The Mexico DPS is comprised of approximately 3,264 (CV=0.06) animals (Wade et al. 2016) with an unknown population trend, though likely to be in decline (81 FR 62260).

Within Southeast Alaska, humpback whales are found throughout all major waterways and in a variety of habitats, including open-ocean entrances, open-strait environments, near-shore waters, area with strong tidal currents, and secluded bays and inlets. They tend to concentrate in several areas, including northern Southeast Alaska. Patterns of occurrence likely follow the spatial and temporal changes in prey abundance and distribution with humpback whales adjusting their foraging locations to areas of high prey density (Allen and Angliss 2012).

During 190 hours of observation from 1994 to 2002 from Sitka's Whale Park, 440 humpback whales were observed (Straley et al. 2018). During 21 days of monitoring during the construction of Gary Paxton Industrial Park (GPIP) Dock between October 9 and November 9, 2017, 39 humpback whales were observed (Turnagain 2017). No humpback whales were observed within Sitka Channel and in the vicinity of the O'Connell float during the 8 days of monitoring in January 2017 during the construction of the Sitka Petro Dock (Windward 2017). Near Biorka Island, about 25 kilometers south of the project, 22, 3, 0, and 2 humpback whales were sighted in June, July, and August, and September, 2018, respectively (Turnagain 2018). Humpback whales were not observed during recent monitoring conducted for short periods over 8 days in September 2018 within a 400-meter radius surrounding the O'Connell Bridge Lightering Float (SolsticeAK 2018).

Given their widespread range and their opportunistic foraging strategies, humpback whales may be in the project vicinity year-round during the proposed project activities.

4.2.1.4 Hearing Ability

Humpback whales are classified by NMFS as low-frequency cetaceans with a generalized hearing range of 7 hertz (Hz) to 35 kilohertz (kHz) (NMFS 2018). However, because of the lack of captive subjects and logistical challenges of bringing experimental subjects into the laboratory, no direct measurements of mysticetes hearing are available. Consequently, hearing in mysticetes is estimated based on other means such as vocalizations (Wartzok and Ketten, 1999), anatomy (Houser et al. 2001; Ketten 1997), behavioral responses to sound (Edds-Walton 1997), and nominal natural background noise conditions in their likely frequency ranges of hearing (Clark and Ellison 2004). The combined information from these and other sources strongly suggests that mysticetes are likely most sensitive to sound from perhaps tens of hertz to ~10 kHz. However, evidence suggests that humpbacks can hear sounds as low as 7 Hz (Southall et al. 2007), up to 24 kHz, and possibly as high as 30 kHz (Au et al. 2006; Ketten 1997).

4.2.1.5 Critical Habitat

Critical habitat for the Threated Mexico DPS humpback whale is proposed and undergoing the approval process. The proposed critical habitat will include the project action area and is assumed to designate prey as the essential physical or biological feature for species conservation (NMFS 2019). Humpback whale diets are dominated by euphausiid species and small pelagic fish, including Pacific Herring which are found in the project action area.

Pacific Herring serve an important ecological role within Sitka Sound and are known to spawn on intertidal and subtidal substrates within the project area in the spring (ADF&G 2019). They provide an abundant, high energy food source. Herring are also commercially important and support a roe fishery in Sitka that remains one of the largest and most valuable roe fisheries in Alaska. Given that Sitka Channel is an active marine transportation corridor and a small part of Sitka Sound, most herring fishing takes place outside of Sitka Channel.

4.2.2 WDPS Steller Sea Lion

4.2.2.1 Description and Status

Steller sea lions belong to the family Otariidae meaning “eared” seals. Steller sea lions, the largest otariids, show marked sexual dimorphism with males 2-3 times larger than females. On average, adult males weigh 681 kilograms (1,501 pounds) and adult females are much smaller, weighing on average 273 kilograms (602 pounds) (Winship et al. 2001).

Steller sea lions are opportunistic predators, feeding primarily on a wide variety of fishes and cephalopods, including Atka Mackerel, Walleye Pollock, Pacific Herring, Capelin, Pacific Cod, Pacific Sand Lance, and salmon (Pitcher 1981; Merrick et al. 1997). They occasionally feed on other marine mammals and birds (Pitcher and Fay 1982; NMFS 2008). The foraging strategy of Steller sea lions is strongly influenced by seasonality of sea lion reproductive activities on rookeries and the ephemeral nature of many prey species.

The Steller sea lion was listed as a threatened species under the ESA on November 26, 1990 (55 FR 49204). In 1997, NMFS reclassified Steller sea lions as two DPS’s based on genetic studies and other information (62 FR 24345; May 7, 1997). At that time, the eastern DPS (EDPS) (which includes animals born east of Cape Suckling, Alaska, at 144°W) was listed as threatened, and the WDPS (which includes animals breeding west of Cape Suckling, both in Alaska and Russia) was listed as endangered. On November 4, 2013, the EDPS was removed from the endangered species list (78 FR 66140).

As summarized most recently by Muto et al. (2016a), the WDPS Steller sea lions decreased from an estimated 220,000-265,000 animals in the late 1970s to less than 50,000 in 2000. Factors that may have contributed to this decline include incidental take in fisheries, legal and illegal shooting, predation, exposure to contaminants, disease, and ocean regime shift/ climate change (NMFS 2008; Miller and Trites 2005). The most recent comprehensive aerial photographic and land-based surveys of WDPS Steller sea lions in Alaska (DeMaster 2014) estimated a total Alaska population (both pups and non-pups) of 49,500 (Muto et al. 2016a).

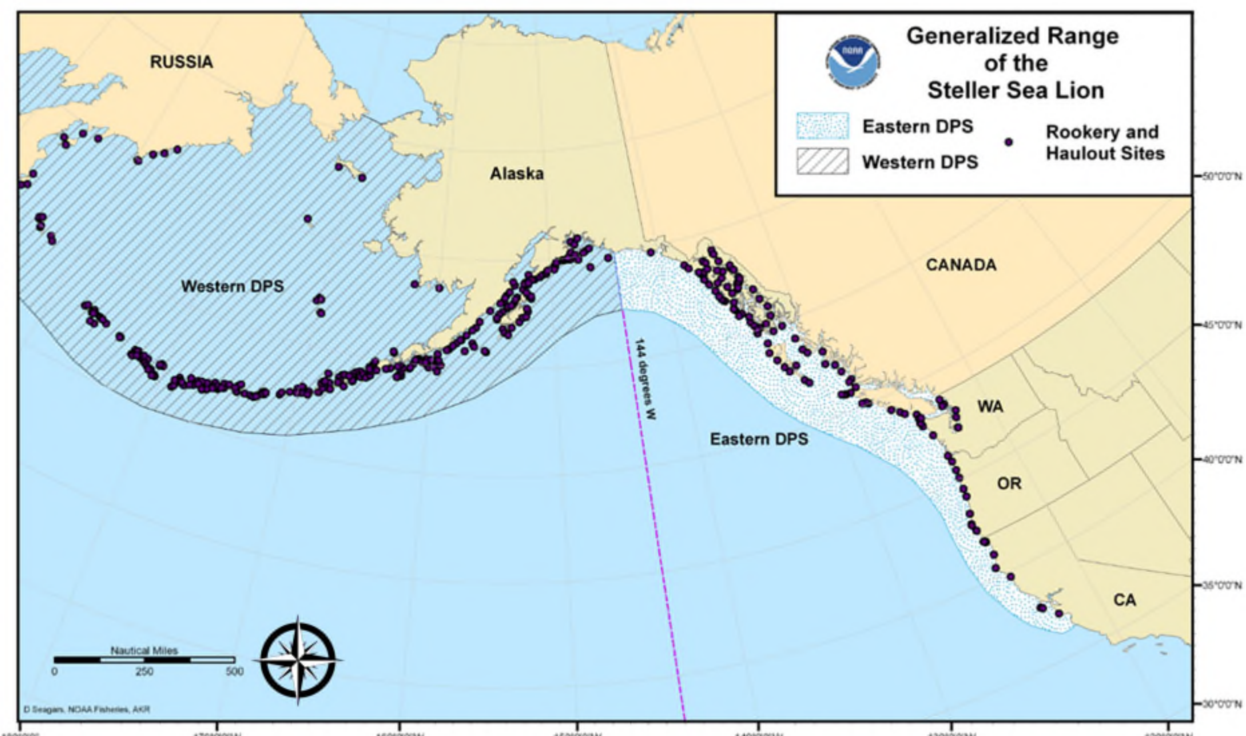
Although Steller sea lion abundance continues to decline in the western Aleutians, numbers are thought to be increasing in the eastern part of the WDPS range.

4.2.2.2 Range

Steller sea lions prefer the colder temperate to sub-Arctic waters of the North Pacific Ocean. They range along the North Pacific Rim from northern Japan to California, with centers of abundance in the Gulf of Alaska and Aleutian Islands (Loughlin et al. 1984). Although Steller sea lions seasonally inhabit coastal waters of Japan in the winter, the only breeding rookeries located outside the U.S. are found in Russia (Burkanov and Loughlin 2005).

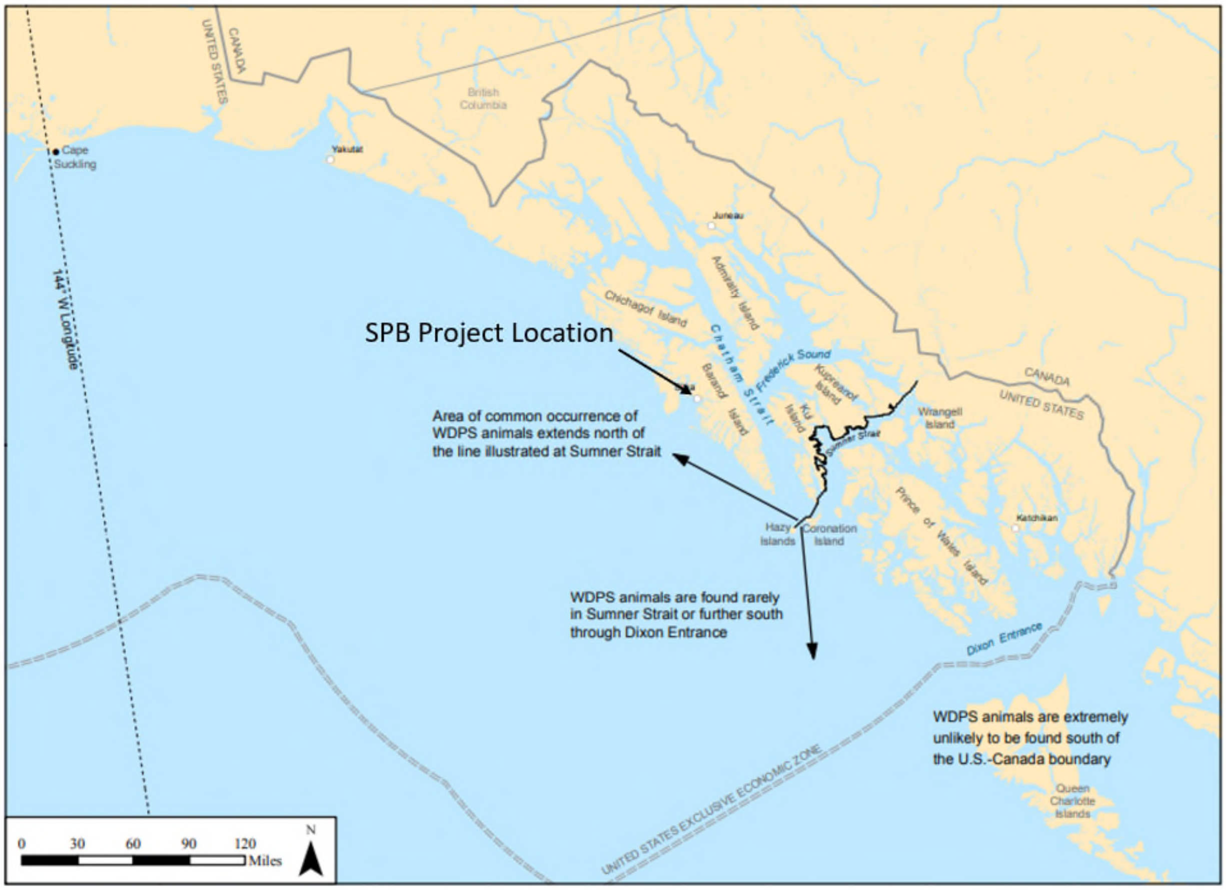
Of the two Steller sea lion populations in Alaska, the EDPS includes sea lions born on rookeries from California north through Southeast Alaska and the WDPS includes those animals born on rookeries from Prince William Sound westward, with an eastern boundary set at 144°W (NMFS 2017b) (Figure 10).

Figure 10. Generalized Ranges of WDPS and EDPS Steller Sea Lions (Source: NMFS 2017b)



Steller sea lions are not known to migrate annually, but individuals may widely disperse outside of the breeding season (late-May to early-July) (Jemison et al. 2013; Allen and Angliss 2015). Jemison et al. (2013) found that there is regular movement of WDPS Steller sea lions across the 144°W boundary (Figure 11). The majority of the cross-boundary movements are temporary with individuals returning to their natal DPS for breeding, but some females from the WDPS have likely emigrated permanently and have given birth to pups at White Sisters and Graves Rocks rookeries. The vast majority of confirmed sightings of WDPS animals have been in northern areas of Southeast Alaska, north of Frederick Sound (Jemison et al. 2013, NMFS 2013).

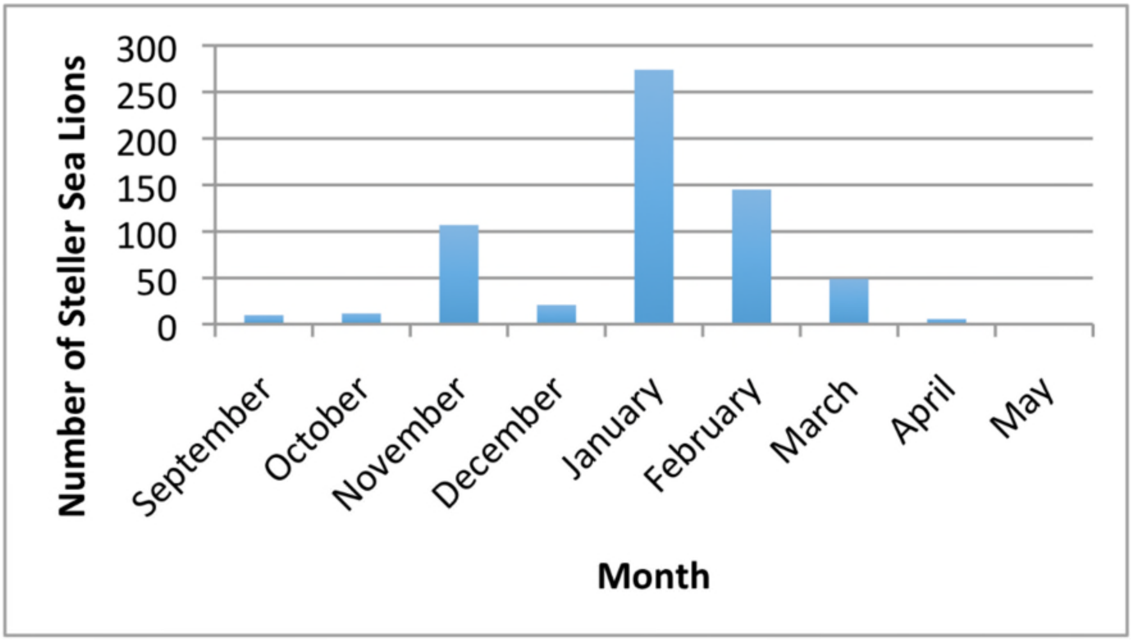
Figure 11. Area of Occurrence of WDPS Steller Sea Lions North and South of Summer Strait (Adapted from NMFS 2013)



4.2.2.3 Distribution in the Project Area

Steller sea lions occur year-round in the project area. Most are expected to be from the EDPS; however, it is likely that some Steller sea lions in the action area are from the WDPS (Jemison et al. 2013; NMFS 2013). Jemison et al. (2013) estimated an average annual breeding season movement of Western DPS Steller sea lions to southeast Alaska of 917 animals. Recent information from NMFS indicates that up to half the Steller sea lions in Sitka Seaplane Base Project's action area could be from the Western DPS (SolsticeAK 2018a).

Figure 12. Steller Sea Lion Counts from Land-Based Surveys at Whale Park from September through May between 1994 and 2000 (Adapted from Straley and Pendell 2017)



From 2000 to 2016, Straley also collected marine mammal data from small vessels or Allen Marine 100-foot catamarans throughout the year. Based on Straley's surveys, Steller sea lion numbers are highest near the project area, in Silver Bay and Eastern Channel of Sitka Sound, in January and February (Figure 12). Sea lions were often seen in groups of 4 or more; however, a group of more than 100 was sighted on at least one occasion (Straley and Pendell 2017).

Steller sea lions were seen during every month of monitoring (September to May) between 1994 and 2002. In 2016 and 2017 land-based surveys and aerial photographs were utilized to research the western Steller sea lion's breeding seasons. The area of research included six regions; eastern, central, and western Gulf of Alaska and eastern, central, and western Aleutian Islands. The findings observed about 11,952 pups and about 42,315 non-pups. At Whale Park, located southeast of the proposed project location, January was the most abundant month with about 190 Steller sea lions spotted. February and November were next with about 170 and 120 Steller sea lions spotted respectively. The fewest Steller sea lions were spotted in the month of May (1995-2002). During the Petro Marine Dock construction on the Sitka Channel in 2017, 3 Steller sea lions were spotted (Straley et al. 2018).

Individual sea lions were seen on 19 of 21 days in Silver Bay and Easter Channel during monitoring for GPIP dock construction between October and November 2017 (Turnagain 2017). Near Biorka Island, sea lions were seen infrequently; six, two, and zero sea lions were sighted in June, July, and August 2018, respectively (Turnagain 2018). During 8 day of monitoring for the Petro Marine dock in January 2017, individual sea lions were seen on 3 days (Windward 2017). Steller sea lions were observed 5 of 8 days during monitoring conducted for 15-minute periods over 8 days in September 2018 within a 400-meter radius surrounding the O'Connell Bridge

Lightering Float (SolsticeAK 2018). In-water construction work for the O'Connell Bridge Lightering Float Pile Replacement Project occurred from June 9 to June 12, 2019. Construction activities included deadpull removal, vibratory hammering, and drilling. 42 Steller sea lions were sighted from June 9 to June 11, 2019. The Steller sea lion's behavior resembled swimming, traveling, foraging, and milling (SolsticeAK 2018). Anecdotal evidence also indicates that sea lions are common in Sitka Channel near the project footprint.

During Straley's surveys, Steller sea lions were often seen in groups of 2 to 3; however, a group of more than 100 was sighted on at least one occasion (Straley et al. 2018). Steller sea lions in groups ranging from 1 to 8 individuals were observed around Sitka GPIP dock construction. All Steller sea lions were alone in Sitka Channel during Petro Marine Dock construction monitoring (Windward. 2017). SolsticeAK (2018) observed a group of four sea lions on one day; however, most sea lions were alone during the September 208 monitoring period.

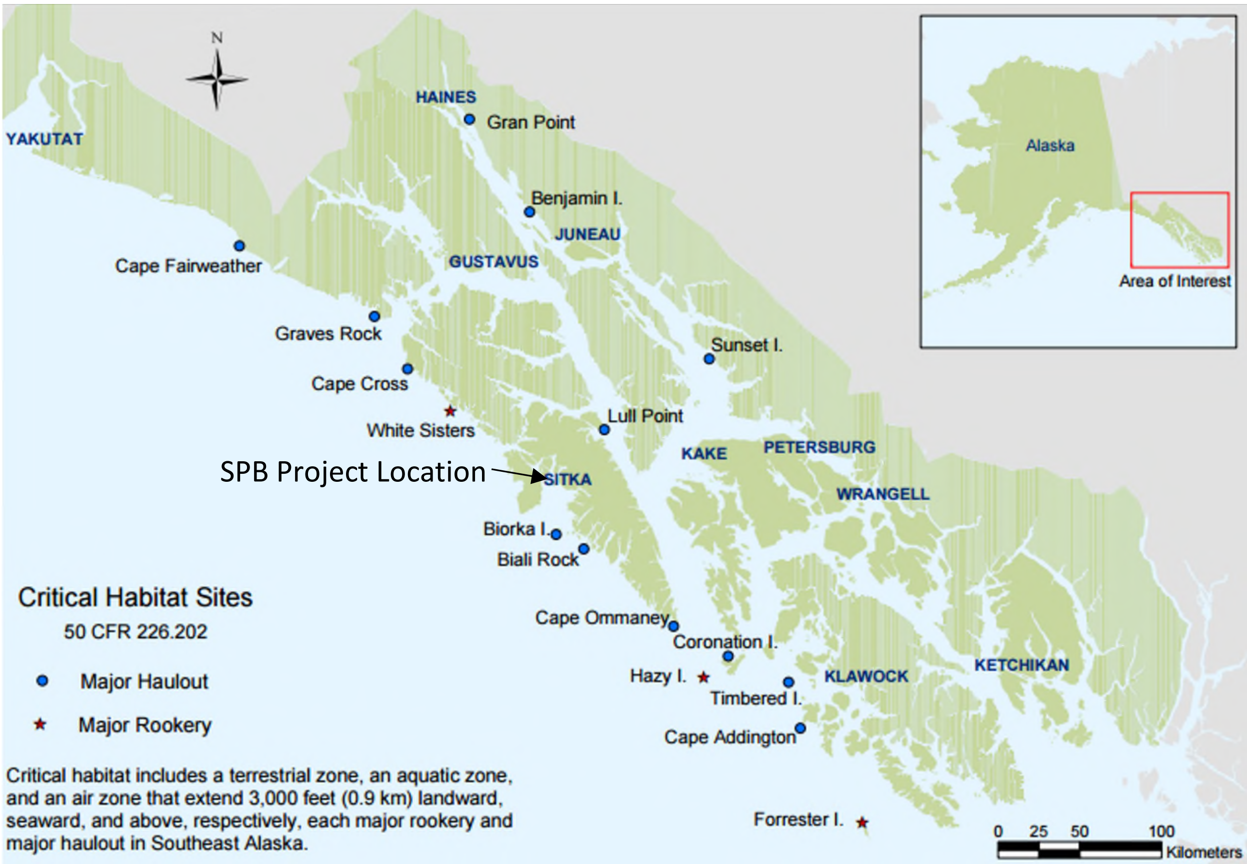
4.2.2.4 Hearing Ability

The ability to detect sound and communicate underwater is important for a variety of Steller sea lion life functions, including reproduction and predator avoidance. NMFS categorizes Steller sea lions in the otariid pinniped functional hearing group, with an applied frequency range between 60 Hz and 39 kHz in water (NMFS 2018). Studies of Steller sea lion auditory sensitivities have found that this species detects sounds underwater between 1 to 25 kHz (Kastelein et al. 2005), and in air between 250 Hz and 30 kHz (Muslow and Reichmuth 2010; Reichmuth and Southall 2011). For this project, sound from pile installation and extraction operations are anticipated to be within the hearing range of Steller sea lions.

4.2.2.5 Steller Sea Lion Critical Habitat

NMFS designated critical habitat for the Steller sea lion on August 27, 1993 (58 FR 45269). The project action area does not overlap Steller sea lion critical habitat. The Biorka Island haul out (over 20 km southwest of the proposed action area; Figure 13) is the closest designated critical habitat in Southeast, Alaska and is well outside the action area. The project will have **no effect on Steller sea lion critical habitat.**

Figure 13. Steller Sea Lion Critical Habitat in Southeast Alaska (Adapted from NMFS 2017c)



5 ENVIRONMENTAL BASELINE

The environmental baseline considers the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process (50 CFR § 402.02).

The project vicinity is an area of high human use and habitat alteration. Ongoing human activity in the action area that impacts marine mammals includes marine vessel activity, pollution, climate change, noise (e.g., aircraft, vessel, pile-driving, etc.), and coastal zone development.

5.1 PHYSICAL ENVIRONMENT

The Sitka Seaplane Base Project is located on the north shore of Japonski Island (1.467 square km) in the Sitka Channel near the Sitka Rocky Gutierrez Airport Terminal, a United States Coast Guard (USCG) Air Station, Mount Edgecumbe High School, Mt. Edgecumbe Medical Center, and the University of Alaska Southeast Sitka campus. Sitka Channel separates Japonski Island from Sitka Harbor and downtown Sitka on the much larger Baranof Island (4,160 square km). The mean tide range in the Sitka Channel is 7.7 feet, the diurnal tide range is 9.94 feet, and the extreme range is 18.98 feet (NOAA 2020a).

The Sitka Channel is located on the eastern shore of Sitka Sound, west of Crescent Bay and adjacent to Whiting Harbor. Sitka Channel is bookended by the Channel Rock Breakwaters to the north and the James O'Connell Bridge to the south, a distance of about 2,200 meters. Sitka Channel is approximately 150 feet wide and about 22 feet deep at its narrowest, which is on the east side of Harbor Rock of the breakwaters (NOAA 2020). USACE first constructed the breakwaters in 2007 with three distinct segments and two vessel entrances. Following a review in 2012, the opening between the south and main breakwaters was closed to reduce excessive wave energy in the channel harbors (USACE 2012).

The majority of the project footprint is previously undisturbed, but proximal to recent construction on the Channel Rock Breakwaters (approximately 500 feet). Currently there is no infrastructure or active development at the site. Facilities associated with the Mt. Edgecumbe Medical Center and the Southeast Alaska Regional Health Consortium (SEARHC)are immediately to the south of the project site. The USCG Air Station Sitka is located due west of the project site, beside the Sitka Rocky Gutierrez Airport Terminal.

The channel is characterized by multiple marine habitats that support a wide variety of fish and wildlife species. Habitats in the channel range from calm protected embayments to high energy wave-swept exposed coastlines. Much of the developed Sitka waterfront area has a rocky shoreline (USACE 2012). The seafloor in the channel contains a mosaic of bottom types including a mixed-soft bottom (mixture of silt, sand, pebbles, cobbles, boulders, and shell) and bedrock outcrops.

According to the ShoreZone Mapper (ShoreZone 2019), the shoreline at the proposed project site in Sitka Channel has the following characteristics:

- Habitat Class: protected/partially mobile/ sediment or rock and sediment; protected/mobile/sediment; semi-protected/partially mobile or rock and sediment; semi-protected/ anthropogenic permeable
- Coastal Class: ramp with gravel/sand beach; cliff with gravel/sand beach; sand and gravel flat fan; gravel beach, narrow; man-made permeable
- Biological Wave Exposure: protected; semi-protected; semi-exposed

5.2 FISH AND ESSENTIAL FISH HABITAT

The waters off the north shore of Japonski Island in Sitka Channel are designated as Essential Fish Habitat (EFH) under the Magnuson Stevens Fisheries and Conservation Management Act for 23 species of ground fish and all 5 species of Pacific salmon. These ground fish species include: Coho Salmon, Chum Salmon, Pink Salmon, Chinook Salmon, Sockeye Salmon, Aleutian Skate, Pacific Cod, Walleye Pollock, Shortspine Thornyhead Rockfish, Shortraker Rockfish, Pacific Ocean Perch, Redbanded Rockfish, Black Rockfish, Dusky Rockfish, Silvergrey Rockfish, Quillback Rockfish, Redstriped Rockfish, Rosethorn Rockfish, Sablefish, Yellow Irish Lord, Great Sculpin, Bigmouth Sculpin, Arrowtooth Flounder, Northern Rock Sole, Dover Sole, Yellowfin Sole, Alaska Plaice, and octopus (NMFS 2020b). Alaska Department of Fish and Game and NMFS have also identified Pacific herring and Pacific halibut as important in the project area (ADF&G 2019).

There are no anadromous streams that flow directly into the SPB site. The Alaska Department of Fish and Game Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes lists one anadromous stream that flows into the action area. Peterson Creek is anadromous (113-41-10185) for all five species of salmon and Dolly Varden and located along the eastern perimeter of the action area (ADF&G 2020a). Since the proposed project will be exclusively located in marine waters opposite Sitka Channel from Peterson Creek, direct impacts to the creek are not anticipated from this project. According to the NMFS EFH mapper, Sitka Channel does not have any designated Habitat Areas of Particular Concern.

5.3 MARINE VESSEL ACTIVITY

The action area experiences high levels of marine vessel traffic with highest volumes occurring May through September. Marine vessels that use the action area include passenger ferries, commercial freight vessels/barges, commercial tank barges, cruise ships, commercial fishing boats, charter vessels, recreational vessels, kayaks, and floatplanes (Nuka 2019). The Alaska Marine Highway operates year-round in Sitka with sailings multiple days a week and provides transit to numerous communities in Southeast Alaska, Washington state, and Canada.

The waters of the Inside Passage support marine cargo transportation. According automatic identification system passage-line data plots obtained from the Marine Exchange of Alaska, in 2011 1,489 vessels moved north or south between Alaska and British Columbia. The data show that 288 vessels moved east or west between the Dixon Entrance and the Pacific Ocean during the year. Cargo ships calling at Prince Rupert dominated the east-west large vessel traffic. Cruise ships, tugs, and ferries dominated the north-south traffic (Nuka 2012). In 2018, 644 unique commercial vessels were working in or transiting through Southeast Alaska traveling 2,297,966 tracked nautical miles (Nuka 2019).

From analysis of 2018 vessel traffic in Southeast Alaska, Sitka had the second highest number of commercial vessel port calls (~1,800) following Ketchikan (Nuka 2019). The most common type of vessel traffic was cargo, followed by cruise ships. In 2018, 45.5 million pounds of cargo transited Sitka port totally $61 million (NOAA 2020b).

Cruise ships are the largest vessels that routinely use the action area. After renovations to the Old Sitka Dock in 2018, Sitka can see two to three ships a day during peak traffic in the summer (May to September). Cruise ship traffic in Sitka peaked in 2008 with nearly 290,000 visitors (KCAW 2018) and saw the second highest number of visitors in 2019 after receiving 210,000 visitors during the cruise season (Alaska Public Media 2019).

Numerous commercial and charter fishing vessels and recreational craft, such as powerboats and sailboats, operate in the project vicinity. The CBS Harbor Department operates and maintains the following 5 boat harbors: Crescent Harbor, Sealing Cove Harbor, ANB Harbor, Thomsen Harbor and Eliason Harbor.

5.4 Fishery Interactions Including Entanglements

Marine mammal entanglement, or by-catch, is a documented source of injury and mortality to cetaceans, including humpback whales. The International Whaling Commission recently listed by-catch as a primary concern. Entanglement may result in only minor injury or may potentially significantly affect individual health, reproduction, or survival (NMFS 2019a, NMFS 2018a).

Entanglement in marine debris is a contributing factor to marine mammal injury and mortality. The sources of these entanglements are extensive and diverse. Actively-fished gear, marine debris, abandoned fishing gear, and non-fishery-related gear, and other gear types have been involved in marine animal entanglements. Other gear interactions with humpback whales in Alaska have occurred with purse seine fisheries, anchoring systems and mooring lines, and marine debris. Every year, humpback whales are reported entangled in fishing gear in Alaska, particularly crab and shrimp pot gear and gill net fishing gear (NMFS 2019a).

Entanglement is considered one of the primary causes of anthropogenic mortality in humpback whales (NMFS. 2016a). Bettridge et al. (2015) report that fishing gear entanglements may moderately reduce the population size or the growth rate of the Hawaii, Central America, and Mexico DPS. Between 2009 and 2013, there were two known mortalities of humpback whales in the Bering Sea/Aleutian Islands pollock trawl fishery and one in the Bering Sea/Aleutian Islands flatfish trawl fishery (Allen and Angliss. 2015). One humpback whale was also injured in the Hawaii shallow set longline fishery in 2011. Minimum estimated mean annual mortality to Western North Pacific humpback whales caused by entanglement from fishing gear was 0.8 whales for the period of 2011 to 2015. This number is greater than 10% of the potential biological removal (PBR) for this stock (3.0), and therefore, cannot be considered insignificant (Muto et al. 2016).

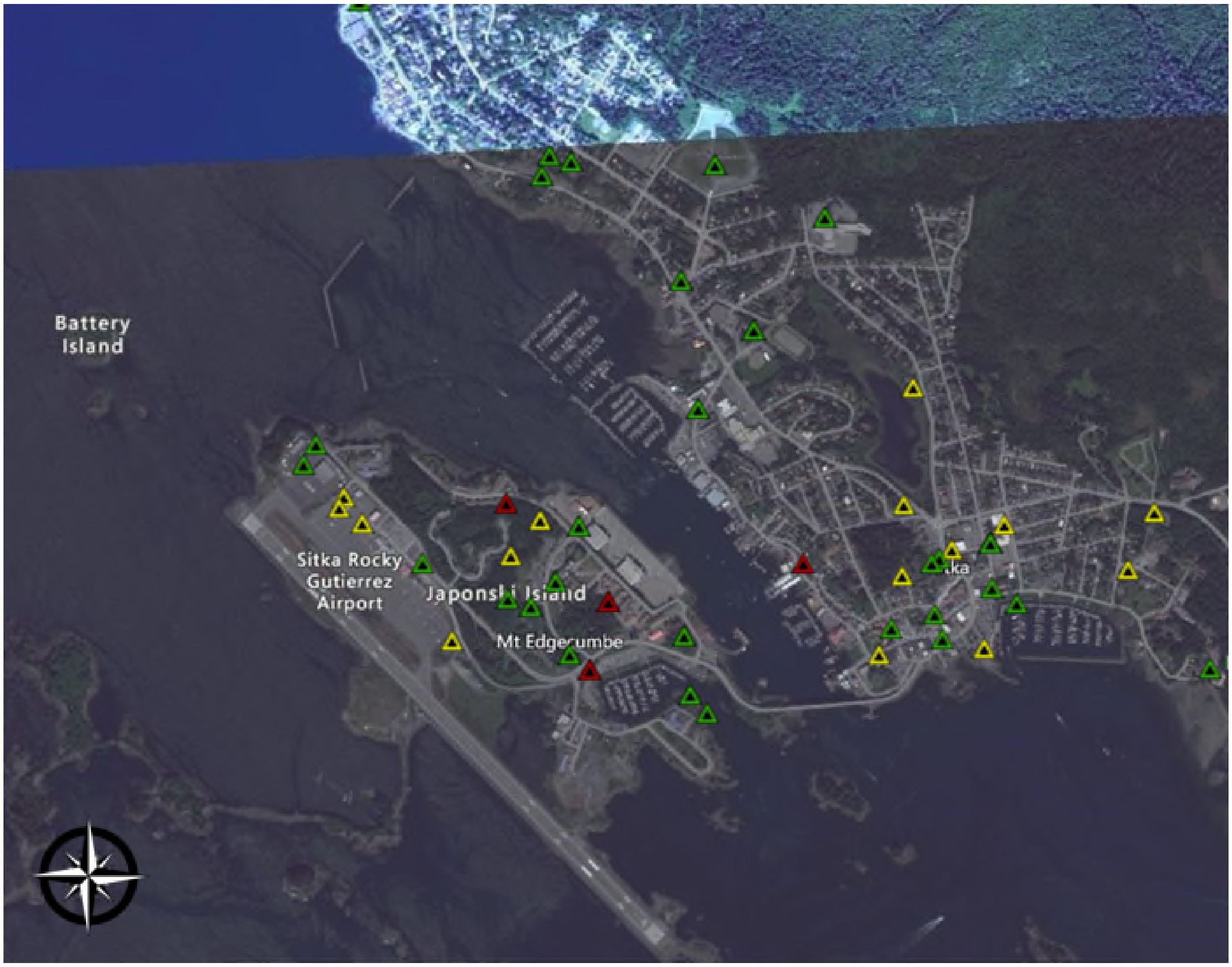
A substantial proportion of the materials entangling Steller sea lions in Southeast Alaska is from marine sources. Helker et al. (2017) found that Steller sea lions were the most common species reported in human-caused mortality and serious injury events between 2011 and 2015, and the Western DPS Steller sea lions were primarily subject to injuries caused by federal groundfish trawl fisheries (n=66). Constricting entanglements by marine debris and other fishery gear were a major contributing factor to human-caused mortality events. The average annual mortality and serious injury rate caused by U.S. commercial fisheries in 2011-2015 is 31 Western DPS Steller sea lions. As this is less than 10% of the PBR for the species calculated by Muto et al. (2019; PBR level = 320), this number can be considered insignificant. However, as not all fisheries are monitored, this number is likely a gross underestimation. Most entangling materials are unidentifiable because of being deeply embedded in the animal's flesh; however, when visible, the most commonly identified materials are plastic packing bands, rubber straps from crab pots, and various netting, ropes, and monofilament line (Raum-Suryan et al. 2017).

5.5 Pollution

The action area is not a water quality impaired water body according to the Alaska Department of Environmental Conservation (ADEC) water quality database and the water quality is expected to be good (ADEC 2020). A search of the ADEC contaminated sites database does not list any active or clean-up complete sites in the immediate action area (Figure 14). There are multiple contaminated sites near the action area, as well as cleanup complete and cleanup complete-institutional control sites. The following sites are located on land near the vicinity of the project area (ADEC 2020a).

- Actively contaminated- SEARHC Mount Edgecumbe Building 211A; hazard ID 26823, approximately 100 meters outside the action area. Soil samples indicated that the amount of diesel range organics that are in the soil are above ADEC clean up range. There were also races of residual range organics. This site was added to the database on December 26, 2017.
- Cleanup complete-institutional controls-Sitka NOB-Area G-Igarotte Housing Area; hazard ID 25736, approximately 100 meters outside the action area. Soils were contaminated with petroleum and lead. An agreement of a follow up every five years has been settled for the site.
- Cleanup complete-Sitka NOB-Area H-Seaplane Dock; hazard ID 25737, approximately 100 meters outside the action area. Underground fuel lines and the tank truck loading rack were the main sources of soil contamination however the concentrations were not considered significant in reports for the site.

Figure 14. Alaska DEC Contaminated Sites Mapper (ADEC 2020a)



A number of intentional and accidental discharges of contaminants pollute the marine waters of Alaska annually. Intentional sources of pollution, including domestic, municipal, and industrial wastewater discharges, are managed and permitted by the ADEC (ADEC 2020b). Within the action area, there are ADEC-permitted seafood processing discharges associated with two seafood processing plants. Seafood Producers Cooperative Sitka Seafood Plant (onshore processor) within Sitka Channel, approximately 1.1 kilometers southeast from the project location and outside the action area, discharges 5.4 million gallons of fish processing waste annually (permit number AKG520101). North Pacific Seafoods Sitka Plant (onshore processor) within Sika Channel, approximately 1.3 kilometers southeast from the project location and outside the action area, discharges 4.1 million gallons of fish processing waste annually (permit number AKG520065).

Further, the CBS discharges treated community domestic wastewater approximately 2 kilometers southwest of the project site and outside the action area in Sitka Sound's Middle Channel (EPA 2001).

5.6 Climate and Ocean Regime Change

Since the 1950s the atmosphere and oceans have warmed, glaciers and sea ice have diminished, sea level has risen, and concentrations of greenhouse gases have increased. The time period between 1983 and 2012 was likely the warmest 30-year period in the Northern Hemisphere in the last 1,400 years. This warming is thought to lead to increased decadal and inter-annual variability and increases in extreme weather events (Intergovernmental Panel on Climate Change [IPCC] 2013; Mann et al. 2017). The likelihood of further global-scale changes in weather and climate events has a well-established scientific consensus (Overland and Wang 2007; IPCC 2013; Salinger et al. 2013).

Effects to marine ecosystems from increased atmospheric carbon dioxide and climate change include ocean acidification, expanded oligotrophic gyres, shifts in temperature, circulation, stratification, dangerous marine heatwaves, and disrupted nutrient input (IPCC 2019; Doney et al. 2012). Altered oceanic circulation and warming cause reduced subsurface oxygen concentrations (IPCC 2019; Keeling et al. 2010). These large-scale shifts have the potential to disrupt existing trophic pathways as change cascades from primary producers to top level predators (Doney et al. 2012; Salinger et al. 2013).

The strongest warming is expected in the Arctic, exceeding the estimate for mean global warming and attributed in part to the “ice-albedo feedback.” The “ice-albedo feedback” is a positive feedback loop as reflective Arctic ice and snow retreats, surface albedo diminishes and the earth absorbs more heat, further accelerating warming and snow and ice retreat (NRC 2014, Thackeray and Hall 2019). Climate change is projected to have substantial direct and indirect effects on individuals, populations, species, and the structure and function of marine, coastal, and terrestrial ecosystems in the foreseeable future (NRC 2014).

Climate change may impact marine mammals through changes in the distribution of temperatures suitable for rearing young, the distribution and abundance of prey, and the distribution and abundance of competitors or predators. Salmon may lose habitat through thermal refuge, increase in the intensity of rainfall, and an increase in saltwater intrusion may affect rearing and deteriorate spawning habitats (Haufler et al. 2010; NMFS 2019b).

Shifts in ocean climate are the most parsimonious underlying explanation for the broad suite of ecosystem changes that have been observed in the North Pacific Ocean in recent decades (Trites et al. 2007; Miller et al. 2005). Changes in ocean climate are hypothesized to have affected the quantity, quality, and accessibility of prey, which in turn may impact populations of marine mammals, including humpback whales and Steller sea lions (Trites et al. 2007; Miller et al. 2005). Sea level rise has altered El Niño-Southern Oscillation, complex annual weather patterns in the Pacific Ocean, which also affects Steller sea lion and humpback whale prey abundance and geographic distribution. Additionally, sea level rise means that shallow islands are at risk of being submerged by rising waters which will affect active rookery and haul out sites for Steller sea lions (NMFS 2020c).

Increased ocean acidification has negatively impacted marine life and disrupts predator prey relationships. An oceanographer for NOAA's Pacific Marine Environmental Laboratory explained that waters in Southeast Alaska are naturally more acidic when compared to other areas due to glacial discharge (Juneau Empire 2019). Glacial runoff dilutes the water's alkalinity which enables the surface water to absorb carbon dioxide which decreases the pH in the water (NPS 2018). Another factor that naturally increases acidification is the marine dependent communities that are in the area (Juneau Empire 2019).

5.7 Coastal Zone Development

Coastal zone development results in the loss and alteration of nearshore marine mammal habitat and any changes in habitat quality. Increased development may prevent marine mammals from reaching or using important feeding, breeding, and resting areas. The shoreline in the immediate project area is primarily developed with impervious surfaces directly adjacent to the shoreline of the project footprint. Few areas of natural shoreline exist in the project site, mostly near the proposed upland parking area and haul out ramp. There is little opportunity for further development within in the community as the SPB is located between USCG Air Strip facility and SEARHC facilities.

5.8 IN-WATER NOISE

The project area is subject to noise from many anthropogenic sources, including marine vessels, seafood processing, shoreline and dock construction, aircraft, and land vehicles. Beyond Sitka Channel and the Channel Rock Breakwaters, the project action area extends into highly trafficked marine vessel routes in Sitka Sound.

6 EFFECTS OF THE ACTION

"Effects of the action" means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). The effects from noise associated with pile driving and removal on the Mexico DPS of humpback whales and WDPS Steller sea lions are discussed below.

6.1 DIRECT EFFECTS

Direct effects defined under the ESA are immediate effects caused by the proposed action and occurring concurrently with the proposed action. Direct effects from the proposed action include noise associated with the removal of existing piles and construction of the new structures and operation of support vessels. Direct impacts such as physical destruction or alteration of habitat for humpback whales or Steller sea lions are not anticipated to occur from the Sitka SPB Project because the small project footprint and location in shallow water near the western extremity of the Channel Rock Breakwaters.

6.1.1 Acoustic Disturbance/Noise from Pile Extraction and Installation

Sounds above auditory thresholds may cause discomfort or tissue damage to auditory or other biological systems of all animals, including humans (National Institute of Health 2014). Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Southall et al. 2007). A TS can be permanent, in which hearing sensitivity is not recoverable, or temporary, in which the animal's hearing threshold can recover over time (Southall et al. 2007).

Marine mammals depend on acoustic cues for vital biological functions (e.g., orientation, communication, finding prey, avoiding predators); thus, temporary threshold shifts (TTS) may reduce an afflicted animal's fitness in survival and reproduction. However, this depends on the frequency and duration of TTS, as well as the biological context in which disruption occurs (Kastak et al. 2005). A TTS of limited duration, occurring in a frequency range that does not coincide with those used for recognition of important acoustic cues, will have little to no effect on an animal's fitness. NMFS classifies TTS as disturbance (Level B) harassment because repeated TTS sound exposure could cause PTS, which constitutes a lasting injury, (Southall et al. 2007; NMFS 2018; Southall et al. 2019).

Direct impacts of noise to marine mammals depend not only on sound magnitude but also on the species receiving the sound, exposure type (e.g., continuous vs. pulse), duration, site characteristics, and individual animal characteristics such as habituation, season, or motivation (Ellison et al. 2012). Some of the in-water sound source levels from pile installation and removal from the proposed action will generate noise loud enough to harm or harass Mexico DPS humpback whales at certain distances. Possible impacts include injury and disturbance ranging from mild (e.g., startle response, or masking of species relevant sounds) to severe (e.g., abandonment of habitat). Disruptive ambient noise from increased vessel traffic is likely responsible for masking humpback whale communication with implications for vital life functions, including foraging success, calf rearing, and social behavior (Gabriele et al. 2018).

Auditory interference, or masking, occurs when an interfering noise is similar in frequency and loudness to (or louder than) the auditory signal received by an animal while it is processing echolocation signals or listening for acoustic information from other animals. Masking can interfere with an animal's ability to gather acoustic information about its environment, such as predators, prey, conspecifics, and other environmental cues (Francis and Barber 2013). The exact way that humpback whale prey is impacted by noise sources at various levels is not yet clear, but the available information is sufficient to indicate that underwater noise is posing a management concern for many fish and invertebrate species (Hawkins and Popper 2017).

The impacts of masking may be greater for cetaceans, which produce complex vocalizations for different purposes and across multiple modes, such as whistling, echolocation click production, calling, and singing. Exposure to anthropogenic noise may result in changes to cetacean vocalization behavior. For example, in the presence of potentially masking signals, humpback whales and killer whales have been observed to increase the length of their songs (Fristrup et al. 2003; Foote et al. 2004), while right whales have been observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks et al. 2007).

The Sitka SPB Project construction activities could mask vocalizations or other important acoustic information. This could affect communication among individuals or affect their ability to receive information from their environment. However, the primary effects of project activities will occur in an industrialized channel, where masking from vessel sounds and dock activity likely occur frequently. Project activities contributing to masking in the surrounding environment will likely be very small relative to the existing conditions.

As explained in Section 3.3, the above-ambient sound of pile driving and removal is anticipated to radiate from the SPB into Sitka Channel and a narrow portion of Sitka Sound. All pile driving and removal associated with the project is estimated to occur for a total of 647 hours over 179 days (not necessarily consecutive days) (Section 3.3 and Table 3). Additionally, there are no documented Steller sea lion haulouts in the action area and uplands rock blasting will not exceed the Steller sea lion in-air noise threshold; therefore, in-air noise is not included in estimated takes. See estimated level B takes in Table 9 below.

Table 9. Estimated Species Occurrence in Action Area and Take Calculation

Species	Estimated Number of Sightings per Day	Estimated Typical Group Size	Estimated Max Group Size	Level B Take Calculation
Humpback Whale [1]	Occasional	1-2	4	2 animals per group x 0.5 group per day x 105 days=105[2]
Steller Sea Lion [3]	Daily	4-8	8	8 animals per group x 1 group per day x 179 days=1432

[1] Most humpback whales observed in the area were solitary. Straley's survey data reports a typical group size of 2-4 whales (Straley et al 2018). During work on GPIP Dock, groups of 5 and 10 individuals were seen a few times, but most of the time, single whales were observed near the mouth of Silver Bay (Turnagain 2017).
[2] Only requesting level B takes during vibratory and socketing pile driving (105 days).
[3] During Straley's surveys, Steller sea lions were often seen in groups of 2 to solitary or in groups of 2; however, a group of more than 100 was sighted on at least one occasion (Straley et al. 2018). During GPIP dock construction, Steller sea lions were observed in groups of 1 to 8 individuals. During Petro Marine Dock construction monitors observed solitary sea lions (Windward 2017). During monitoring at the O'Connell Float SolsticeAK (2018) observed a group of four sea lions on one day; but most sea lions were solitary.

Given the estimate of 6[3] Mexico DPS humpback whales occurring within the action area during project activities, we anticipate any masking or acoustic effects to Mexico DPS humpbacks to be very small.

Approximately half of Steller sea lions in the project area are expected to be from the WDPS, or 716 takes. Masking is likely less of a concern for Steller sea lions, which vocalize both in air and

[3] The CBS has requested Level B take of 105 humpback whales. Based on the probabilities described in Wade et at. 2016 (shown in Table 3), we anticipate that 6% (or 6) of the humpback whales in the action area will be from the Mexico DPS.

water and do not echolocate or communicate with complex underwater "songs." Vocalizing is important on land at rookeries and haul-out sites, and noise is considered a possible threat to Steller sea lions (NOAA 2019).

6.1.2 Turbidity/Sedimentation

During the estimated 647 hours of in-water project construction, a temporary and localized increase in turbidity near the seafloor will occur in the immediate area surrounding each of the piles driven and removed. Although prey species such as herring and salmon can congregate in Sitka Sound, the project site does not support a consistent abundance of prey for humpback whales or Steller sea lions. Thus, the temporary and localized turbidity associated with the berth expansion project is unlikely to measurably affect humpback whales or Steller sea lions, or their prey, in the action area.

6.1.3 Marine Vessel Activity

Tugs and barges will be used to deliver materials to the project site and will remain onsite during project construction. Additionally, a small skiff will be used for day-to-day project construction. After all piles are placed and the SPB is operational, overall vessel traffic in the action area is not expected to increase, but seaplane traffic is expected to be redistributed along a different route in Sitka Channel. There is the potential for some increase in seaplane traffic with improved and updated base facilities, but an increase in large vessels (like the yachts, fish processors, and research vessels) is not expected as a result of this project. Despite an increase in seaplane traffic, this project will provide more appropriate and safe space for operation and likely will reduce conflicts with marine mammals and overall vessel congestion in Sitka Channel. As a result of this project, marine mammals in the area will be exposed to some additional marine vessel traffic during construction, but not likely to encounter increased conflicts from SPB operation once the base is completed.

Vessels transiting the marine environment have the potential to collide with, or strike, marine mammals (Laist et al. 2001; Nielsen et al. 2012). As mentioned above, Sitka Sound is a medium-risk area for humpback whale-vessel collisions and the probability of strike events depends largely on vessel speed (Laist et al. 2001). Vessels associated with the project will follow well-established, frequently utilized navigation lanes as they cross Sitka Sound and enter Eastern and Middle Channel and Sitka Channel, and they will be traveling at slow speeds. Humpback whales and sea lions in the action area have been previously exposed to ship traffic, and are unlikely to change their behavior in response to vessel traffic associated with this project.

Ongoing activities within the waters near the community of Sitka, including frequent vessel traffic, contribute to elevated background levels of underwater noise in the action area. Tugs and barges can emit significant noise levels, around 171-176 dB (Richardson et al. 1995; Kipple and Gabriele 2004). Marine mammals in the area are currently exposed to such sounds, yet they continue to use the waters. Given the transitory nature of vessels used for this project, any disturbance of a particular individual by a project-associated vessel will be very limited in space and time.

Vessel strikes of humpback whales is a general concern for the population. An examination of all known ship strikes for large (baleen and sperm) whales from all shipping sources indicates vessel speed is a principal factor in whether a vessel strike results in death (Laist et al. 2001; Vanderlaan and Taggart 2007). In assessing records with known vessel speeds, Laist et al. (2001) found a direct relationship between the occurrence of a whale strike and the speed of the vessel involved in the collision. The authors concluded that most deaths occurred when a vessel was traveling in excess of 14.9 miles per hours (mph) (13 knots).

Inside Sitka Channel is a no wake zone, requiring vessels to go 5 mph or slower however, outside the channel in Sitka Sound, ships may be travelling much faster (CBS 2020a). The largest ships usually travel at speeds between 23-27 miles per hour (20-24 knots).

This project will not increase marine vessel activity or the likelihood of accidental ship strikes, which may cause injury or mortality of marine species. There are no known Steller sea lion rookeries or haul outs near the action area (Figure 10) and sea lions are habituated to vessel traffic in this busy area; therefore, the chances of injury or stress due to increased vessel traffic associated with construction will be minimal.

Neilson et al. (2012) summarized 108 reported whale-vessel collisions in Alaska from 1978 to 2011, none of which were from seaplanes. Most strikes (86%) involved humpback whales. Small vessel strikes were most common (<15 meters, 60%), but medium (15–79 meters, 27%) and large (≥80 meters, 13%) vessels also struck humpback whales. Most strikes (91%) occurred in May through September, and there were no reports from December or January. The majority of strikes (76%) were reported in southeastern Alaska. The number of humpback whale collisions detected in Southeast Alaska increased by 5.8% annually from 1978 to 2011, which closely matches the 6.8% annual growth rate of the humpback whale population in southeastern Alaska between 1986 and 2008. The report identifies whale-vessel collision hotspots in southeastern Alaska and does not classify the action area or surrounding waters as areas where such hotspots occur. In August of 2017, the Princess Cruises Ship Grand Princess came into the port of Ketchikan with a humpback whale carcass on its bow, NOAA later performed a necropsy to determine the cause of death (NOAA 2017).

From 2007 to 2013, there were four documented cases of Steller sea lions killed or injured by vessel strikes in Alaska, none from seaplanes (NMFS 2020c). Vessel activity can disturb sea lions, instigating mass stampedes that can crush or injure smaller animals and disrupt normal nursing cycles in rookeries. Vessel traffic and associated noise can also disrupt feeding and other water activities (NMFS 2020c).

6.1.4 Pollution

Permitted and un-permitted sources have the potential to produce pollutants in the action area. Additionally, there is potential for an oil or pollution spill from activities associated with the project; however, the risk of spills and pollutants related to the project will be mitigated by implementing BMP’s and policies to prevent accidental spills. If a spill were to occur, plans will be in place, and materials will be available for cleanup activities. The probability of project effects to Mexico DPS humpback whales of Steller sea lions from accidental spills or other pollution sources is very small. We do not anticipate pollution to cause adverse effects to marine mammals in Sitka Channel or Sitka Sound, an area which represents a very small fraction of the range of Mexico DPS humpback whales and WDPS Steller sea lions.

6.1.5 Habitat Loss or Modification

Mexico DPS humpback whales and WDPS Steller sea lions could experience a temporary loss of suitable habitat in the action area if elevated noise levels associated with in-water construction results in their displacement from the area. Displacement of either mammal by noise will not be permanent and will not result long-term effects to the local population. A loss of habitat from the project is not anticipated because of the relatively small size of the project footprint and since there are no documented sightings of either mammal in the project footprint, only in the action area.

6.2 INDIRECT EFFECTS

Indirect effects defined under the ESA are effects from the proposed action that occur at a later time, but are still reasonably certain to occur. Indirect effects from the seaplane base includes impacts from noise on habitat.

6.2.1 Effects of Noise on Habitat

Fish populations in the project area that serve as Mexico DPS humpback whale and WDPS Steller sea lion prey could be affected by noise from in-water pile-driving. High underwater sound pressure levels (SPL) have been documented to alter behavior, cause hearing loss, and injure or kill individual fish by causing serious internal injury (Hastings and Popper 2005).

In general, impacts to marine mammal prey species are expected to be minor and temporary. The area likely impacted by the proposed project is relatively small compared to the available habitat around Sitka. The most likely impact to fish from the proposed project will be temporary behavioral avoidance of the immediate area. Any behavioral avoidance by fish of the immediate area will still leave large areas of fish and foraging habitat in the action area. Further, mitigation measures will be implemented to reduce impacts of noise on habitat. Therefore, indirect effects on Mexico DPS humpback whale or WDPS Steller sea lion prey during the proposed project are not expected to be substantial.

6.3 CUMULATIVE EFFECTS

“Cumulative effects” are those effects of future state, local, tribal, or private activities, not involving Federal activities, that are reasonably certain to occur within the action area (50 CFR § 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Reasonably foreseeable future activities within and immediately adjacent to the dock will likely involve the placement of fill, dredging, or structures in the area, requiring authorization from the USACE and consultation pursuant to Section 7 of the ESA. Therefore, such activities do not meet the ESA definition of cumulative effects and are not addressed here.

7 Determination of Effect

The proposed Sitka SPB Project is likely to adversely affect the ESA-listed Mexico DPS humpback whales and WDPS Steller sea lions due to the noise associated with the pile-driving. Noise associated with the project may reach levels exposing Mexico DPS humpback whales and WDPS Steller sea lions to Level A and B harassment under the MMPA, and therefore, cannot be considered having insignificant or discountable effects on the species. However, mitigation measures described in Section 3.5 will be implemented throughout the duration of the project to reduce exposure to noise associated with the pile-driving. These mitigation measures include minimization of construction noise, marine mammal monitoring, safety radii, clearing the safety radii, soft-starts procedures, and shut-down procedures to eliminate any Level A takes and minimize Level B takes. An IHA for Level B take only the proposed project will be submitted for take of marine mammals including Mexico DPS humpback whales and WDPS Steller sea lions to NMFS Office of Protected Resources and construction of the project will not begin until the IHA is approved.

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Appendix D:

Cultural Resources and Section 4(f)

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Appendix D1:

Cultural Resources Field Memo

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MEMORANDUM

TO:	Maryellen Tuttell, DOWL
FROM:	C. Kennedy
DATE:	August 7, 2020
SUBJECT:	Condition Assessment: Concrete Observation Station, Sitka Alaska

On May 20, 2020, Cultural Resources Specialist Caitlin Kennedy conducted a field survey of a concrete building located within the proposed area of potential effect (APE) of the Sitka Seaplane Base Project (Figures 1 and 2). The purpose of the condition assessment was to ascertain the building's dimensions, overall condition, and designed purpose. This information will assist in a determination of whether it should be considered eligible for the National Register of Historic Places, either individually or as a contributing element of the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark (NHL).

Historic Context:

Sitka Naval Operating Base was originally established as an advance seaplane base in 1937 and was designated a Naval Operating Base (NOB) in 1942. During World War two (WWII) planes operating out of the Sitka NOB patrolled southeast Alaska and the Gulf of Alaska. Sitka NOB also provided critical defense for shipping in the Gulf of Alaska. Beginning in 1941 the U.S. Army established Forts Ray, Rousseau (which replaced Fort Ray as the headquarters for coastal defense in 1943), Pierce, and Babcock to provide defensive support to the Sitka NOB. As part of this effort the Army also constructed the Coastal Defense Network, a system of armaments and fortifications to protect Sitka Sound and associated Naval facilities. Sitka NOB was closed by the Navy in 1944 (Bush 1944; National Park Service 2020).

The Sitka Naval Operating Base and U.S. Army Coastal Defenses NHL was designated in 1986 for its role in WWII defenses in Alaska and the Aleutian Islands. The NHL is comprised of Sitka NOB and Fort Rousseau, including associated U.S. Army Coastal Defenses on eight islands. The National Park Service (NPS) is currently in the process of updating the 1986 nomination to account for changes to the NHL, including demolition or rehabilitation of buildings, and improved documentation of contributing features (National Park Service 2020).

Documentation of Building:

The concrete building is rectangular in shape with a slightly off-center observation slit situated on the north wall (Figure 3). There is a single entrance (Figure 4). The observation slit, which is roughly 16" in height, offers 180-degree views of Sitka Channel. At one time the observation slit had three upright metal supports. The walls range in thickness from approximately 12" to 20". Approximate interior dimensions are depicted in Figure 5. There are wooden boards set high on the interior walls and along the observation slit. Construction also included some earthworks, evidenced by a collapsed covered trench on the south side, and stone reinforcements on the north (Figure 6).

Review of archival materials (including maps and narrative descriptions of installation) yielded no documentation of this building (Bush 1944; U.S. Army 1944). One possibility is that it was constructed as a base-end station or observation station. Base-end stations similar to this building were used to triangulate the position and distance of enemy craft to guide artillery fire. The position of this building in relation to a battery of 90mm Anti Motor Torpedo Boat guns constructed at Watson Point supports this hypothesis (Berhow 2020). Unfortunately, the available records associated with the artillery at Watson Point do not include this building (Figure 7). It is also possible that this building was constructed by Marine or Army infantry as part of series of small coastal fortifications that used to ring Japonski, Alice, and Charcoal Islands. These small defensive positions would have ranged from foxholes and trenches to more elaborate concrete buildings such as this (M. Hunter and M. Berhow personal communication to C. Kennedy [DOWL], August 7, 2020).

Condition:

The exterior of the building is slightly discolored and heavily overgrown with vegetation. The vegetation, which would have been entirely or partially cleared during use, has become overgrown, obscuring the view. The building also shows some signs of spalling on the northwest side, possibly a result of deflection, or weakness caused by erosion (Figure 8). Wooden boards set high on the interior walls, which may have been used to mount brackets for electrical wiring, show some moisture damage but are otherwise in fair condition. The concrete at the door and observation slit shows some deterioration, likely from erosion. The metal pipe supports for the observation slits are heavily corroded (in one case, entirely corroded), which has resulted in slight spalling of the surrounding concrete (Figure 9).

Recommendations:

The building fits within the historic context for permanent construction during World War II as its function was essential to the coastal defense mission of the military installations at Sitka NOB and Fort Rousseau (R. Christopher Goodwin and Associates 1997). It remains in its original location and construction materials typical of the period. Despite showing wear from decades of disuse, it still neatly conveys its original purpose as an observation building, either as a base-end station associated with nearby artillery at Watson Point or as one of a series of observation stations that once dotted the coastline of Sitka NOB and other Coastal Defenses. Today, this building is one of two intact concrete fortifications of this type on Japonsky, Alice, and Charcoal islands (M. Hunter personal communication to C. Kennedy [DOWL], August 7, 2020).

This building should be considered for inclusion on the National Register for Historic Places as a contributing feature to the Sitka Naval Operating Base and U.S. Army Coastal Defenses NHL. It retains integrity of location, design, materials, feeling, and association as defined by the nomination of the NHL. Although the 1986 and drafted update of the NHL nomination do not include this or any other similar buildings, there is precedent for inclusion of the base-end station/observation station as a contributing feature to the NHL. Other State and National Historic Landmarks (such as the Aleutian Islands World War II National Historic Area and Fort Rousseau Causeway State Historical Park), and state recreation areas (such as Caines Head State Recreation Area in Seward) have undertaken preservation and/or interpretive measures for similar WWII improvements.

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FIGURES

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Proposed Area of Potential Effect

Section 34-35, T55S, R63E, Copper River Meridian

0 75 150 300 Feet

Proposed Area of Potential Effect

Sitka SPB
Environmental Assessment

Figure1

Date: August 10, 2020

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Service Layer Credits: World Imagery: Fed GIS, GeoEye, Maxar, CNES/Airbus DS

Proposed Project Elements

Sitka SPB
Environmental Assessment

Figure 2 | Date: August 10, 2020

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Service Layer Credits: World Imagery: GeoEye, CNES/Airbus DS

Observation Slit Dimensions

Sitka SPB
Environmental Assessment

Figure 3

Date: August 10, 2020

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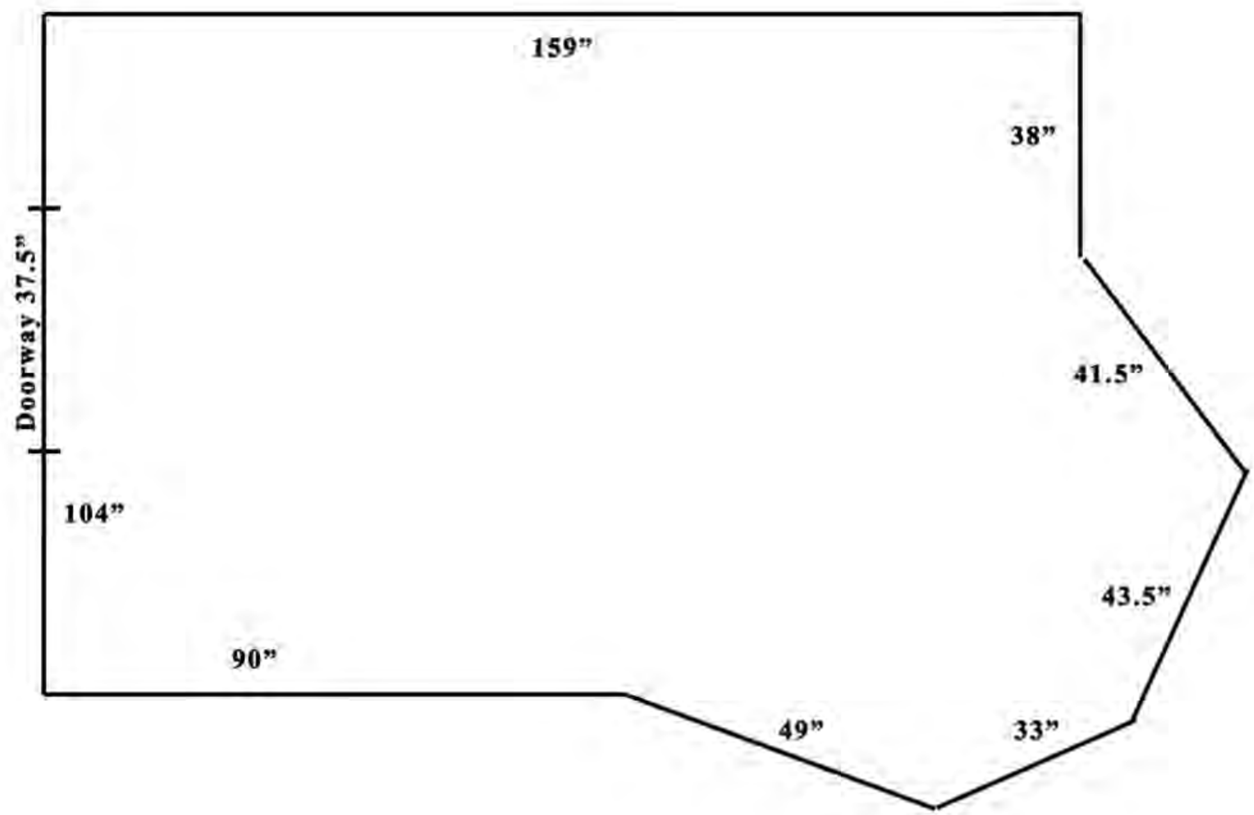
Entry Dimensions, Internal

Sitka SPB
Environmental Assessment

Figure 4	Date: August 10, 2020



Interior Dimensions

Sitka SPB
Environmental Assessment

Figure 5

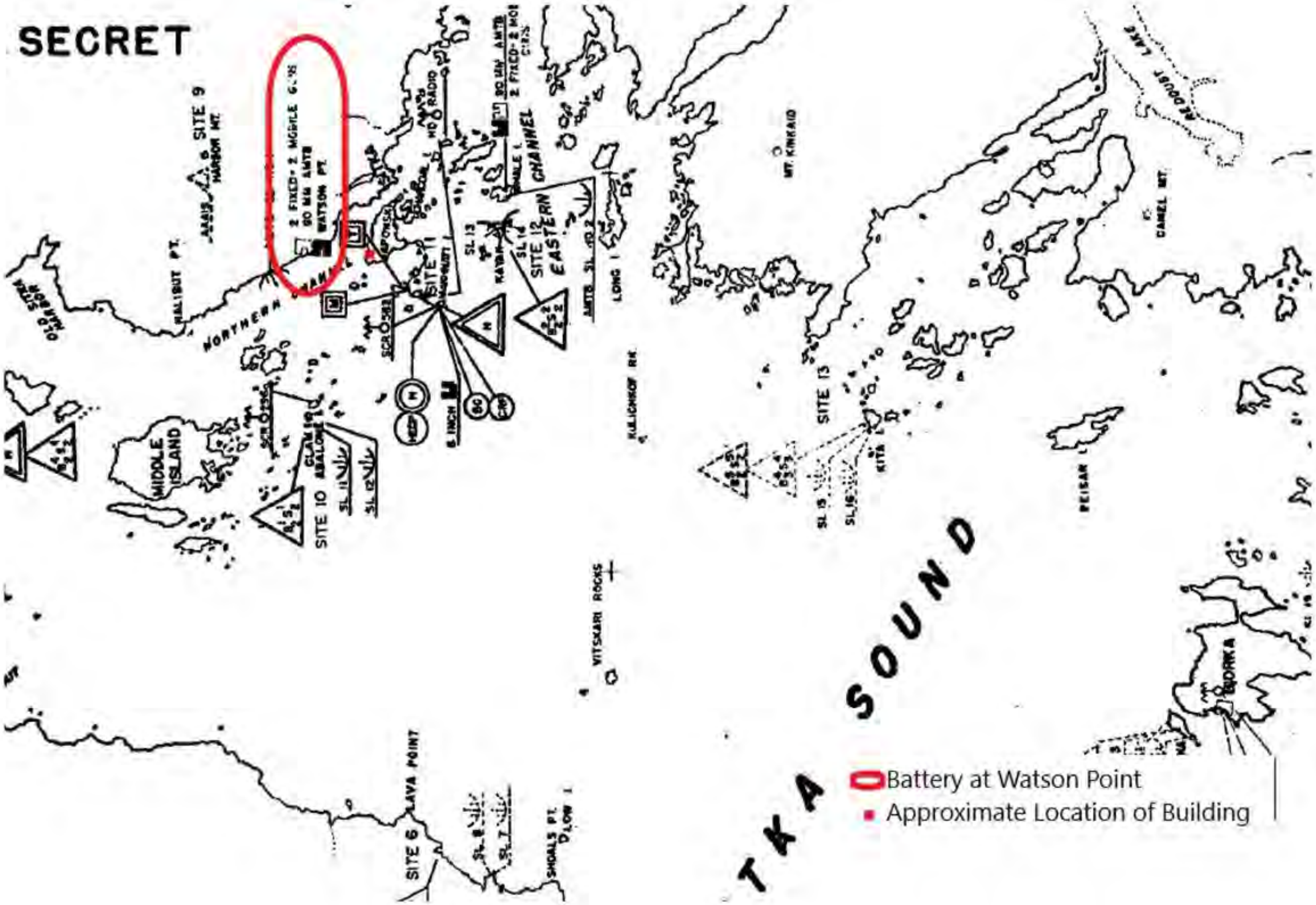
Date: August 10, 2020

Ground Support, North (Seaward) Side

Sitka SPB
Environmental Assessment

Figure 6

Date: August 10, 2020



Source: Supplement to the Harbor Defense Project,
Harbor Defenses of Sitka: Annex B

As-Built Map

Sitka SPB
Environmental Assessment

Figure 7 | Date: August 10, 2020

Light Spalling on NW Exterior Wall

Sitka SPB
Environmental Assessment

Figure 8 | Date: August 10, 2020

Remains of Window Support, Spalling

Sitka SPB
Environmental Assessment

Figure 9	Date: August 10, 2020

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Appendix D2:

Draft Determination of Eligibility

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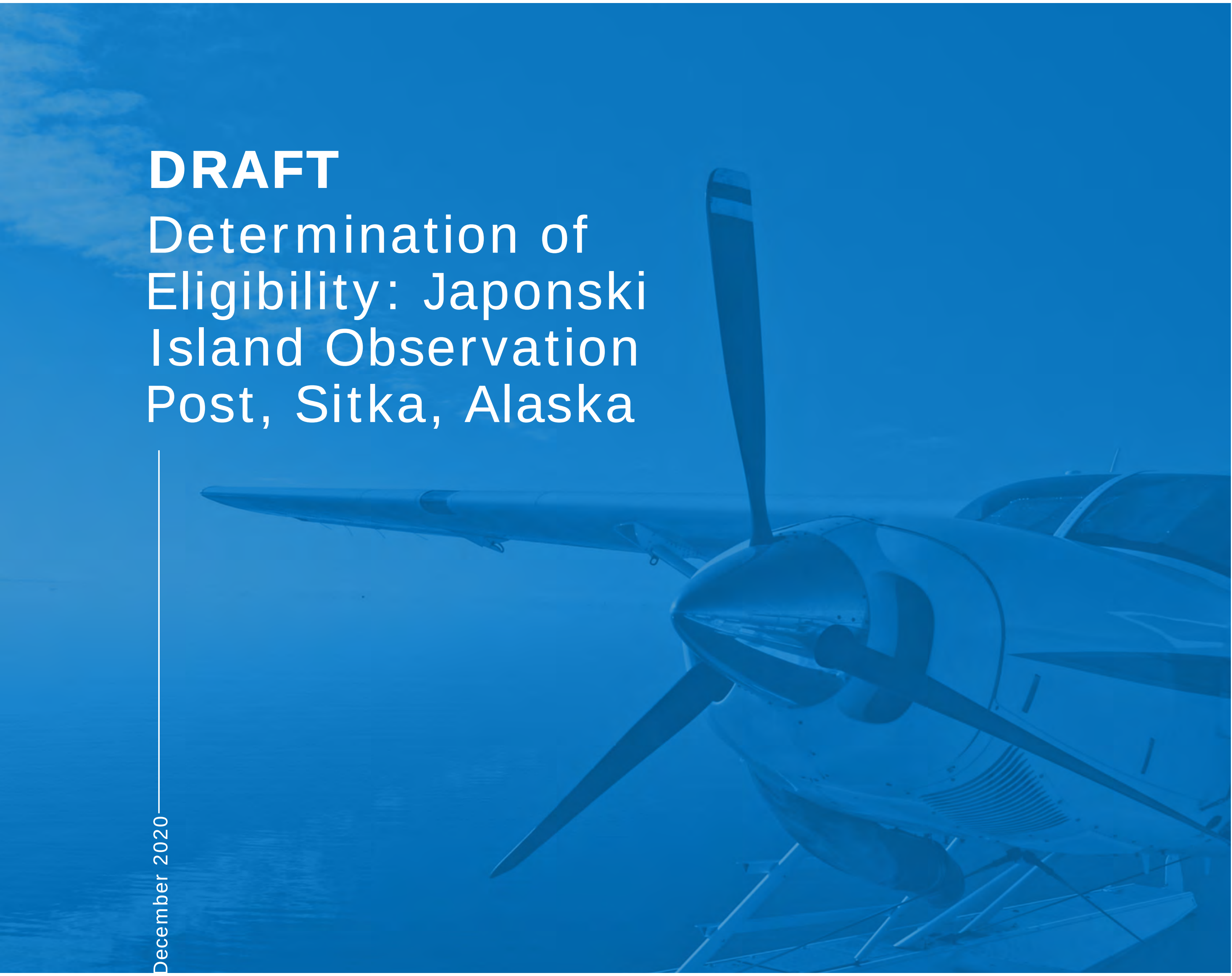
CITY & BOROUGH OF SITKA



DRAFT

Determination of Eligibility: Japonski Island Observation Post, Sitka, Alaska

December 2020

PREPARED FOR:

U.S. Department of Transportation
Federal Aviation Administration
Alaskan Region, Airports Division
222 West 7th Avenue

ON BEHALF OF THE SPONSOR:

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100 Lincoln Street
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PREPARED BY:

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Contents

RESTRICTED DATA NOTICE

Site-specific information for cultural resources described in this report is restricted and confidential under the provisions of the Archaeological Resources Protection Act and the National Historic Preservation Act. Sharing this information is limited to those with a legitimate need to know, such as appropriate personnel from agencies and authorized investigators. This report is not a public document. Do not disseminate.

Project Description

The City and Borough of Sitka (CBS) owns and operates the Sitka Seaplane Base (Federal Aviation Administration [FAA] identifier A29). A29 is located on Sitka Channel between Thomsen and ANB harbors (Figure 1); it has been operating at its current site for 65 years and is at the end of its useful life. CBS, in cooperation with FAA, is proposing a new seaplane base on Japonski Island.

The new Sitka seaplane base would be located on a 2.02-acre parcel at the end of Seward Street on the northeast end of Japonski Island (Figure 2). The upland parcel where the facility is proposed would be acquired from the Alaska Department of Education and Early Development (ADEED) and is adjacent to the U.S. Coast Guard (USCG) Air Station Sitka. The Project would require fill in Sitka Channel to reduce the length and height of the gangway to access the marine facilities.

The marine area for the seaplane base would be acquired from the Alaska Department of Natural Resources (DNR). The CBS has submitted to DNR an application for conveyance of state-owned tidelands and submerged lands for the facility and received a preliminary approval. The marine component of the facility would include a pile-supported trestle, a gangway, a loading and maneuvering float, a transient float, a based seaplane float, and, if needed, a floating wave attenuator north of the floats to attenuate waves from the main harbor entrance gap in the existing breakwater and/or southeast of the floats to attenuate waves from the channel to the south.

The 2016 Siting Analysis identified a potential demand for up to 19 based aircraft and 15 transient aircraft if all of the desired support facilities were available at a new seaplane base. Given that CBS may need to construct the new seaplane base in phases and may not be able to accommodate all facilities requested initially, it was determined that the proposed site would accommodate 14 based aircraft and four transient aircraft.

The proposed facility would include:

- Seaplane float (350 feet by 46 feet) with ramps for 14 based seaplanes (4 DE Havilland Beavers and 10 Cessna 206s)
- Transient seaplane float (220 feet by 30 feet) with capacity for four transient seaplanes (sized for DE Havilland Beavers)
- Drive-down gangway (120 feet by 16 feet) and landing float (120 feet by 46 feet) for access to seaplane floats
- Pile-supported trestle (240 feet by 16 feet) with 50-foot turn-out lane at gangway
- Wave attenuators on the north and southeast (if required)
- Vehicle parking area (15 parking spaces)
- Electricity, water, and lighting for the seaplane floats
- Covered waiting area and eventual terminal area
- Safe access between the parking positions and the water operating area
- Fuel storage and access facilities

- Upland seaplane tie-downs, future maintenance facilities and hangars, and maneuvering room
- Seaplane haul out ramp
- Security fencing
- Landscape buffer along southern boundary
- Accommodations for future expansion

Project Location

The City of Sitka is located on Baranof Island in the Northern Pacific Ocean. The Island was home to the Tlingit Indians before its settlement by Russians in the mid-eighteenth century. It served as the capital of the Russian America Territory and was a major center for the United States military during World War II. Sitka continues to be a center for fishing, trade, services, and tourism in Southeast Alaska. The Project will be constructed on a parcel on Japonski Island, across Sitka Channel from Baranof Island. The proposed site is currently owned by the State of Alaska, Department of Education and Early Development (ADEED).

Area of Potential Effects

The area of potential effects (APE) is defined as the that area within which direct and indirect impacts may occur to archaeological, historical, and or cultural resources as a result of proposed Project activities. The combined direct and indirect APE includes areas subject to ground disturbance, construction activities (including placement of fill), noise, vibration, increased traffic and other potential impacts, and spans 250 feet from Project components (Figure 3). Due to the topography of the site, and the planned excavation and lowering of the upland portion of the Project, the APE does not extend into the U.S. Coast Guard properties to the west. Direct and indirect impacts from the Project are unlikely to adversely affect cultural resources in these areas as they are topographically separated from the project site (Figure 4).

Methods

Assessment methods for this project included both a desktop review and on-site survey. DOWL consulted the Alaska Heritage Resources Survey (AHRS) for recorded resources in and near the APE, the National Register of Historic Places (NRHP), and National Historic Landmarks databases maintained by the National Park Service (NPS). In addition, DOWL reviewed previous surveys and other literature to inform background study for the Project, and archival materials to assist in analysis of cultural resources within the APE.

Literature Review and Archival Research

Prior to fieldwork, the Integrated Business Suite (IBS) Portal database at the State of Alaska, Department of Natural Resources, Office of History and Archaeology (OHA) was reviewed to determine the extent of previous cultural resource work in the area. The purpose of the file search was to identify any previous cultural resources studies, and documented historic buildings, structures, objects, or historic districts located near the subject buildings, or if the subject buildings were potentially part of a historic district. In addition, reports and documentation not readily available on file at OHA were obtained from digital libraries and online archives and reviewed for relevance to the project.

Field Survey Methods

On May 20, 2020, Cultural Resources Specialist Caitlin Kennedy conducted a field survey of a concrete building located within the proposed APE of the Sitka Seaplane Base Project. The purpose of the condition assessment was to ascertain the building's dimensions, overall condition, and designed purpose.

The survey adhered to the guidance provided in *National Register Bulletin #24 – Guidelines for Local Surveys: A Basis for Preservation Planning* prepared by the NPS and the *Alaska Historic Buildings Survey Manual and Style Guide* prepared by the OHA (NPS 1984; OHA 2016). The building was evaluated for inclusion in the NRHP by following guidelines set forth in *National Register Bulletin #15 – How to Apply the National Register Criteria for Evaluation* (NPS 1997).

The exterior and interior of the building was documented and photographed, with attention given to those elements that may qualify it for inclusion in the NRHP. Visible alterations and changes over time were noted, as well as possible changes to interior wall configuration. No materials and/or artifacts observed within or around the building were collected.

Results

The Project APE and surrounding areas have been subject to numerous previous studies for historical, archaeological, architectural, and other cultural resources. Within the APE these studies have largely focused on identification and documentation of features associated with World War II-era military facilities. These and other relevant documents/studies are listed in Attachment A. None of the included studies appear to have documented the building, although some documents describe similar, more elaborate structures (Alaska Department of Natural Resources 2012).

Historic Context

Numerous reports have detailed the cultural chronology of the Sitka area: see in particular the Sitka Historic Preservation Plan (Pollnow and DeArmond 2010; Pollnow et al. 2017). The history of military buildup and operations during World War II are likewise discussed at length in supporting documentation for the Sitka Naval Operating Base and U.S. Coastal Defenses National Historic Landmark (National Park Service 2020). Sitka Naval Operating Base (NOB) was originally established as an advance seaplane base in 1937 and was designated a NOB in 1942. During World War II planes operating out of the Sitka NOB patrolled southeast Alaska and the Gulf of Alaska. Sitka NOB also provided critical defense for shipping in the Gulf of Alaska. Beginning in 1941 the U.S. Army established Forts Ray, Rousseau (which replaced Fort Ray as the headquarters for coastal defense in 1943), Pierce, and Babcock to provide defensive support to the Sitka NOB. As part of this effort the Army also constructed the Coastal Defense Network, a system of armaments and fortifications to protect Sitka Sound and associated Naval facilities. Sitka NOB was closed by the Navy in 1944 (Bush 1944; Conn et al. 1941; Hanable and Ponko Jr. 1983; National Park Service 2020).

The Sitka NOB and U.S. Army Coastal Defenses National Historic Landmark (NHL) was designated in 1986 for its role in World War II defenses in Alaska and the Aleutian Islands. The NHL is comprised of Sitka NOB and Fort Rousseau, including associated U.S. Army Coastal Defenses on eight islands. The NPS is currently in the process of updating the 1986 nomination to account for changes to the NHL, including demolition or rehabilitation of buildings, and improved documentation of contributing features (National Park Service 2020).

Previously Recorded Cultural Resources Listed in the Alaska Heritage Resources Survey

Ten documented cultural resources are located within 500 feet of the APE. Table 1 provides information on AHRS sites within 500 feet of the APE. One, the Sitka NOB and U.S. Coastal Defenses NHL (SIT-00079) is listed on the NRHP. Four buildings associated with the military buildup on Japonski Island that have not been evaluated for NRHP eligibility but are considered contributing buildings to the NHL are within 500 feet of the APE (Figure 5). Five additional buildings/structures are located within 500 feet of the APE but are located outside of the NHL boundary and are not considered contributing features (these cultural resources are shown in grey in Table 1).

Table 1* AHRS Sites *within 500 Feet of APE

AHRS No.	Site Name	DOE Status
SIT-00079	Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark	NHL-Listed
SIT-00479	Small Arms and Pyrotechnic Magazine No. 1, Building No. 83	None
SIT-00481	FUSE AND DETONATOR NO. 12	None
SIT-00485	SMALL LOG MAGAZINE	None
SIT-00492	LOG RUIN #3	None
SIT-00579	Building 201 Married Officers Quarters	Contributing
SIT-00580	Building 202 Married Officers Quarters	Contributing
SIT-00581	Building 203 Married Officers Quarters	Contributing
SIT-00582	Building 204 Married Officers Quarters	Contributing
SIT-00583	Building 205 Officers Recreation, Totem Club	Contributing
SIT-00585	Building 207 Married Officers Quarters	Contributing
SIT-00607	Building 212 Bachelor Officers Quarters	Contributing
SIT-00648	Mount Edgecumbe School[1]	None

[1] AHRS has labeled and mapped this structure in a different location than the current Mt. Edgecumbe School.

Building Documentation

The concrete building on the proposed site is rectangular in shape with a slightly off-center observation slit situated on the north wall (Figure 6). There is a single entrance (Figure 7). The observation slit, which is roughly 16” in height, offers 180-degree views of Sitka Channel. At one time the observation slit had three upright metal supports. The walls range in thickness from approximately 12” to 20”. Approximate interior dimensions are depicted in Figure 8. There are wooden boards set high on the interior walls and along the observation slit. Construction also included some earthworks, evidenced by a collapsed covered trench on the south side, and stone reinforcements on the north (Figure 9).

Condition

The exterior of the building is slightly discolored and heavily overgrown with vegetation. The vegetation, which would have been entirely or partially cleared during use, has become overgrown, obscuring the seaward view. The building also shows some signs of spalling on the northwest side, possibly a result of deflection, or weakness caused by erosion (Figure 10). Wooden boards set high on the interior walls, which may have been used to mount brackets for electrical wiring, show some moisture damage but are otherwise in fair condition. The concrete at the door and observation slit shows some deterioration, likely from erosion. The metal pipe supports for the observation slits are heavily corroded (in one case, entirely corroded), which has resulted in slight spalling of the surrounding concrete (Figure 11).

Archival Materials

Review of archival materials (including maps and narrative descriptions of installation) yielded no documentation of this building (Bush 1944; Conn et al. 1941; U.S. Army 1944), nor did previous surveys of the area. Initial research indicated that, based on the building’s location, it may have been constructed as a Base End Station. Base End Stations similar to this building were used to triangulate the position and distance of enemy craft to guide artillery fire. The position of this building in relation to a battery of 90mm Anti Motor Torpedo Boat guns constructed at Watson Point supports this hypothesis (Berhow 2020). Unfortunately, the available records associated with the artillery at Watson Point do not include this building (U.S. Army 1944, Figure 12). Moreover, the lack of mount points for azimuth instruments or depression position finders further indicate that this was not the designed purpose for the building.

It is more likely that this building was constructed by Marine or Army infantry as part of series of small coastal fortifications that used to ring Japonski, Alice and Charcoal Islands. These small defensive positions would have been second priority defensive positions, which, depending on whether actively engaged with the enemy would, ranged from foxholes and trenches to more elaborate concrete buildings such as this (U.S. War Department 1941a:16–18; 1941b:280–288). Construction of aboveground defensive positions and observation posts during World War II were used under various circumstances, including when groundwater levels prevented construction of cut-and-cover shelters. Reinforced concrete was preferred for aboveground shelters to offer protection from enemy fire.

Surface shelters provided “maximum observation and exit facility” and could be further hidden from view and reinforced with layers of earth (U.S. War Department 1940:206–219).

Determination of Eligibility – Applying National Register Criteria for Evaluation

Section 101 of the National Historic Preservation Act (NHPA) (16 USC 470a[a]) established the National Register to catalog historic properties significant in American history, architecture, archaeology, engineering, and culture. NHPA defines “historic properties” as prehistoric and historic districts, sites, buildings, structures, and objects listed or eligible for inclusion on the NRHP including artifacts, records, and material remains related to the property (16 USC 470w, Sec. 301.5). Consideration is given to both the criteria of significance and integrity of the site condition. The evaluation should consider the historic context of the property, including its relation to other known historic properties.

Consideration of National Register Criteria for Evaluation

The NRHP (36 CFR 60.4) outlines the criteria (A-D) for determining the eligibility for a historic property as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *(b) that are associated with the lives of persons significant in our past; or*
>
> *(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *(d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).*

Criterion A: Association with Significant Events

To be considered for listing under Criterion A, a property “must be associated with one or more events important in the defined historic context: (NPS 1997:12). The building fits within the historic context for construction during World War II as its function was essential to the coastal defense mission of the military installations at Sitka NOB and Fort Rousseau (R. Christopher Goodwin and Associates 1997). The observation post is eligible for the NRHP under Criterion A.

Criterion B: Association with Lives of Significant Persons

To be considered for listing under Criterion B, a property must be "associated with individuals whose specific contributions to history can be identified and documented" (NPS 1997:14). The observation post is not connected to a person of significance in the past and therefore is not eligible for the NRHP under Criterion B.

Criterion C: Distinctive Characteristics of a Type, Period, or Method of Construction

To be considered for listing under Criterion C, a property must "embody distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or, represent a significant and distinguishable entity whose components may lack individual distinction" (NPS 1997:17). The observation post is constructed to military specifications typical of the period of significance, and therefore is not eligible for the NRHP under Criterion C.

Criterion D: Potential to Yield Important Information in prehistory or History

To be considered for listing under Criterion D, a property must have the potential to answer, "important research questions about human history [that] can only be answered by the actual physical material of cultural resources" (NPS 1997:21). The observation post was built using standard plans and material known to be common to the period in which it was constructed. It is not likely to yield important information that has not already been recorded and is therefore not eligible for the NRHP under Criterion D.

Consideration of Integrity

As outlined in 36 CFR § 60.4, in order to be considered eligible for the NRHP a property must retain sufficient integrity to convey its significance in American history, architecture, archaeology, engineering, or culture. There are seven aspects of integrity – location, design, setting, materials, workmanship, feeling, and association. The property must also convey its historic identity through retention of essential physical features. Essential physical features enable the property to convey its historic identity; the features represent *why* and *when* a property was significant.

If a property is eligible for the NRHP under Criterion A, it should retain the essential physical features "that made up its character or appearance during the period of its association with the important event" (NPS 1997:46). And while design and workmanship may not be as vital, the integrity of location, setting, materials, feeling, and association should ideally be retained (NPS 1997:48; Table 2).

Table 2 Essential Features of Integrity under Criterion A

Criterion	Essential Feature	Vital Aspects of Integrity	Integrity Lost If:
A	The property must retain evidence of World War II character	Property must maintain integrity of Location, Setting, Materials, Feeling, and Association	Property has been moved during or after Period of Significance (Location), substantially altered, including use of new materials and changes to physical character (Materials, Feeling, and Workmanship), or no longer retains basic design features that convey their historic appearance or function (Design)

To retain integrity of *location*, a property must be located where it was originally constructed or where the historic event occurred (NPS 1997:44). The observation post retains its location. To retain integrity of *design*, a property must have its original "form, plan, space, structure, and style" (NPS 1997:44). Although no photographs of this building were located during archival research, the building retains design typical of similar structures constructed during World War II. The building retains its design. To retain integrity of *setting*, the character of the physical environment and the surroundings "in which the property played its historical role" must be maintained (NPS 1997:45). The view from observation post has been partially obscured by overgrowth, but the overall physical environment has not changed since World War II. Therefore, the building retains its setting.

To retain integrity of *materials*, a property "must retain the key exterior materials dating from the period of its historic significance" (NPS 1997:45). The building has not been altered with new materials since its construction during World War II and retains integrity of materials. To retain integrity of *workmanship*, a property must demonstrate the "labor and skill in constructing" a structure and "furnish evidence of the technology of a craft [and] illustrate the aesthetic principles of a historic… period" (NPS 1997:45). The construction materials and methods used to construct the observation post conform to documented specifications defined in military literature from the period of significance. Although weather-worn, the observation post is intact enough to demonstrate the labor and skill its construction required; the observation post retains integrity of workmanship.

To retain integrity of *feeling*, a property must demonstrate a "presence of physical features that, taken together, convey the property's historic character" (NPS 1997:45). Most of the physical features at the observation post are intact, although the nearby defensive trench is obscured by vegetation. With the exception of the defensive trenching around the observation post, which are obscured by overgrowth, the observation post retains almost all physical features that indicate its use during World War II; therefore, it retains its feeling.

To retain integrity of *association*, a property must have a “direct link” with an important historic event. It “retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer” (NPS 1997:45). The observation post retains the majority of its structural materials and proximity to the Sitka NOB and Coastal Defenses NHL. Taken alone (e.g. in the absence of the NHL), this observation post would not necessarily be able to convey its association with World War II. The proximity to the NHL and extensive documentation of the military operations on Japonski Island and surrounding Sitka area, however, strongly support integrity of association.

The observation post (AHRS No. pending) meets the conditions for NRHP Criterion A. It remains in its original location and construction materials typical of the period. Despite showing wear from decades of disuse, it still neatly conveys its original purpose as one of a series of observation stations that once dotted the coastline of Sitka NOB and other Coastal Defenses. Although the ruins of several concrete structures are extant in the Sitka Naval Operating Base and U.S. Coastal Defenses NHL, this building is one of two intact observation posts of this type on Japonski, Alice, and Charcoal islands (M. Hunter personal communication to C. Kennedy [DOWL], August 7, 2020).

As the observation post has retained its essential physical characteristics and the vital aspects of integrity that would allow “a historical contemporary [to] recognize the property as it exists today” (NPS 1997:48), DOWL recommends that the observation post should be considered eligible as a contributing feature to the Sitka Naval Operating Base and U.S. Army Coastal Defenses NHL. It retains integrity of location, design, materials, feeling, and association as defined by the nomination of the NHL. Although the 1986 and drafted update of the NHL nomination do not include this or any other similar buildings, there is precedent for inclusion of the Base End Station/observation station as a contributing feature to the NHL. Other State and National Historic Landmarks (such as the Aleutian Islands World War II National Historic Area and Fort Rousseau Causeway State Historical Park), and state recreation areas (such as Caines Head State Recreation Area in Seward) have undertaken preservation and/or interpretive measures for similar World War II improvements.

Assessment of Effect

Consultation with NPS suggests that potential adverse effects to the NHL include indirect effects such as increased noise, traffic, and changes to the setting of nearby World War II structures. The Project proposes to minimize these impacts through marine delivery of construction materials to avoid heavy truck traffic through the NHL, lowering of the site elevation for the upland portion of the seaplane base and incorporating a landscape buffer at the existing end of Seward Avenue to reduce potential for visual impacts, and realigning the orientation of the marine structures to reduce the potential for visual effects.

During field survey in May 2020, DOWL documented the observation post (AHRS no. pending), which is entirely within the Project APE. DOWL recommends that the observation post is eligible for the NRHP as a contributing property to the Sitka Naval Operating Base and U.S. Coastal Defenses NHL under Criterion A. The Project proposes to demolish the observation post. DOWL therefore recommends a finding of adverse effects to historic properties.

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Figures

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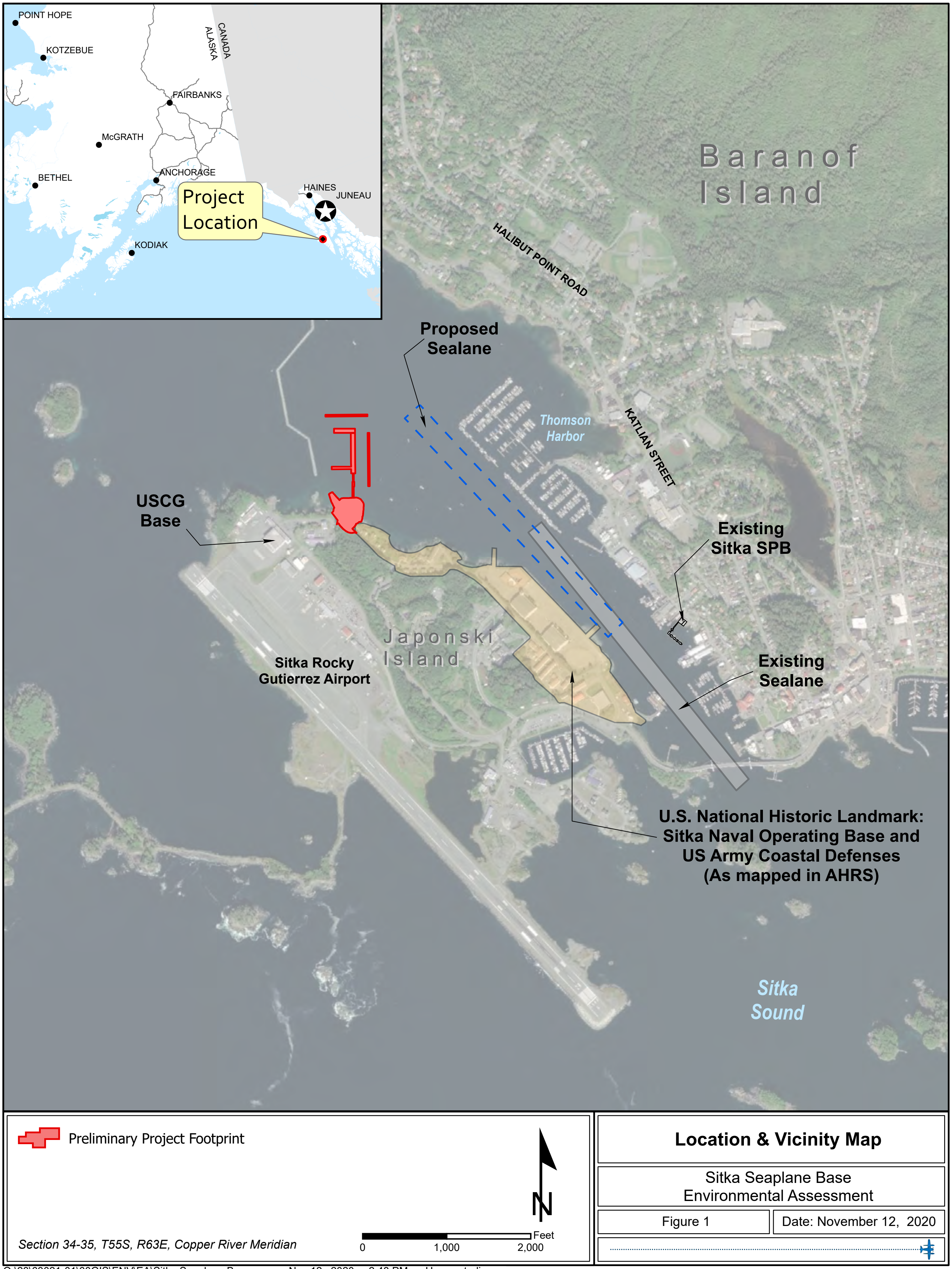

Location & Vicinity Map

Sitka Seaplane Base
Environmental Assessment

Figure 1

Date: November 12, 2020

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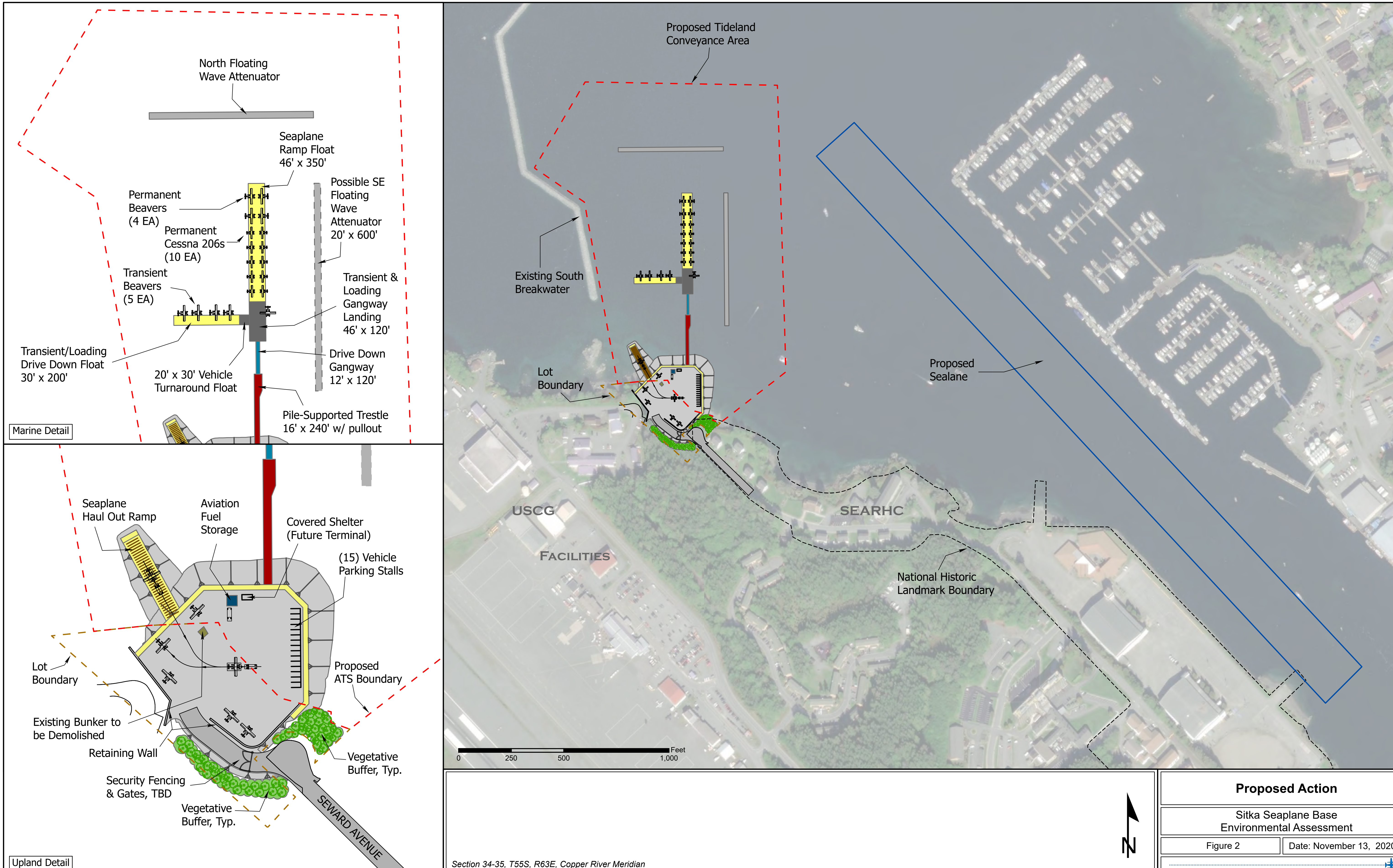
Service Layer Credits: World Imagery: Fed GIS, GeoEye, Maxar



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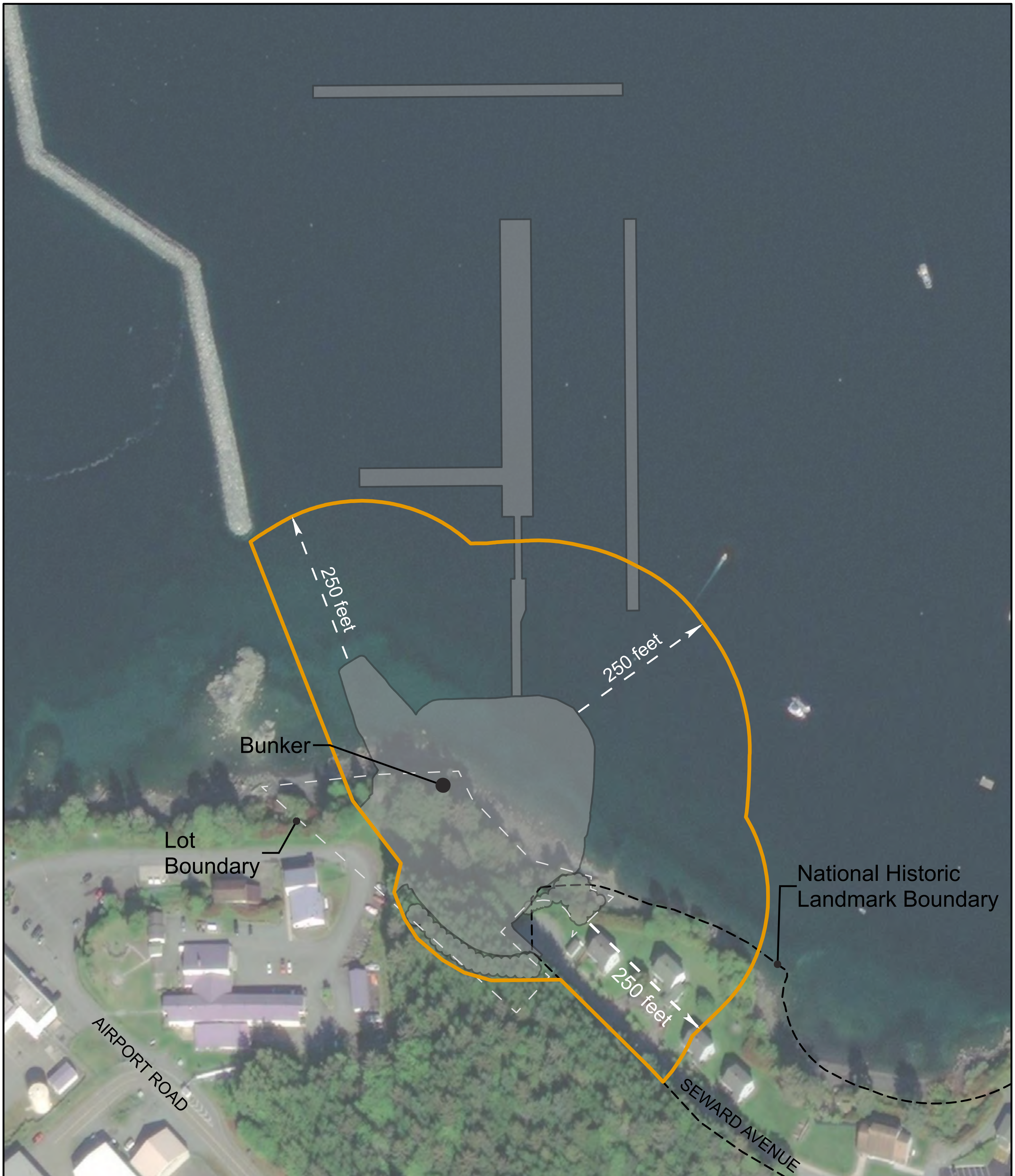

Proposed Area of Potential Effect

Project Footprint

Lot Boundary

National Historic Landmark Boundary

Section 34-35, T55S, R63E, Copper River Meridian

0 150 300 Feet

N

Proposed Area of Potential Effect

Sitka Seaplane Base
Environmental Assessment

Figure 3	Date: November 19, 2020

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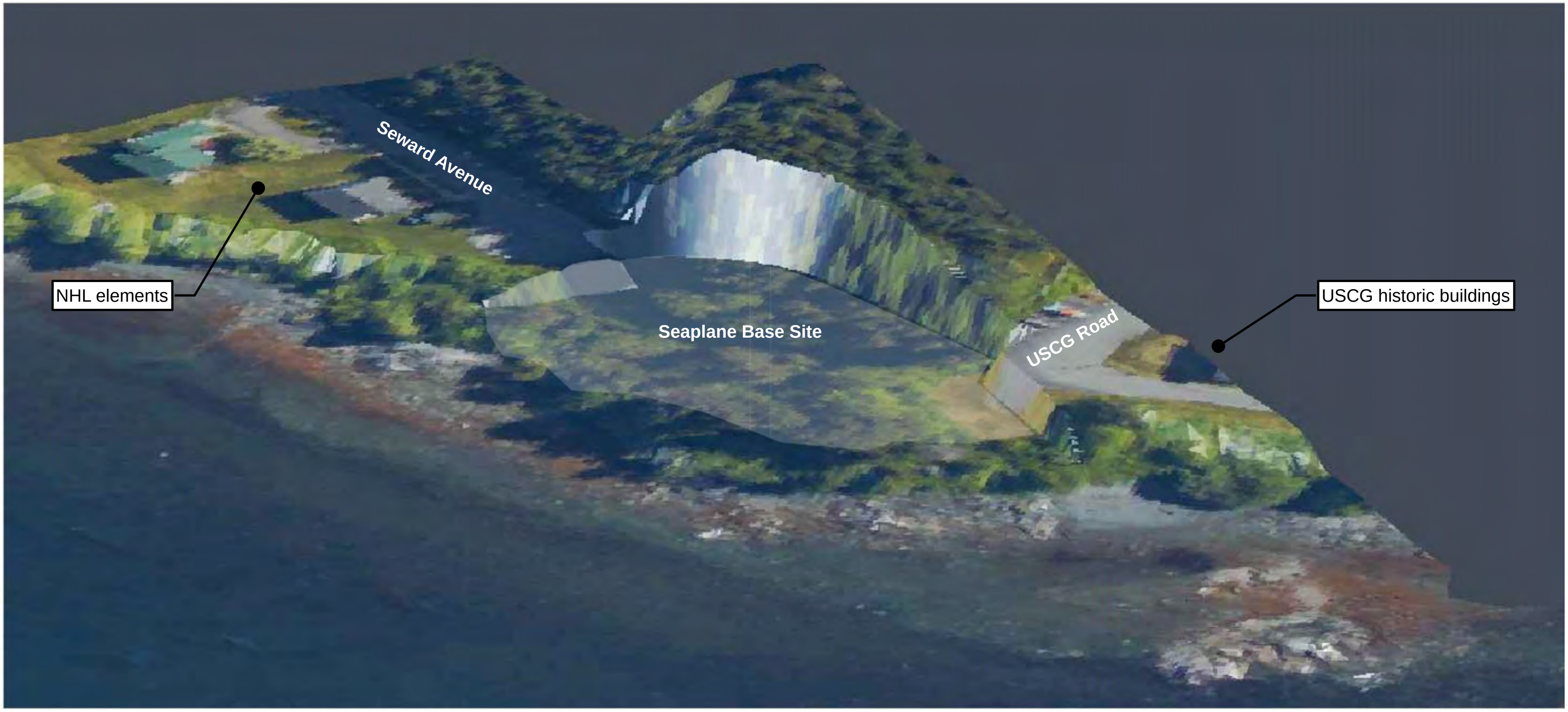
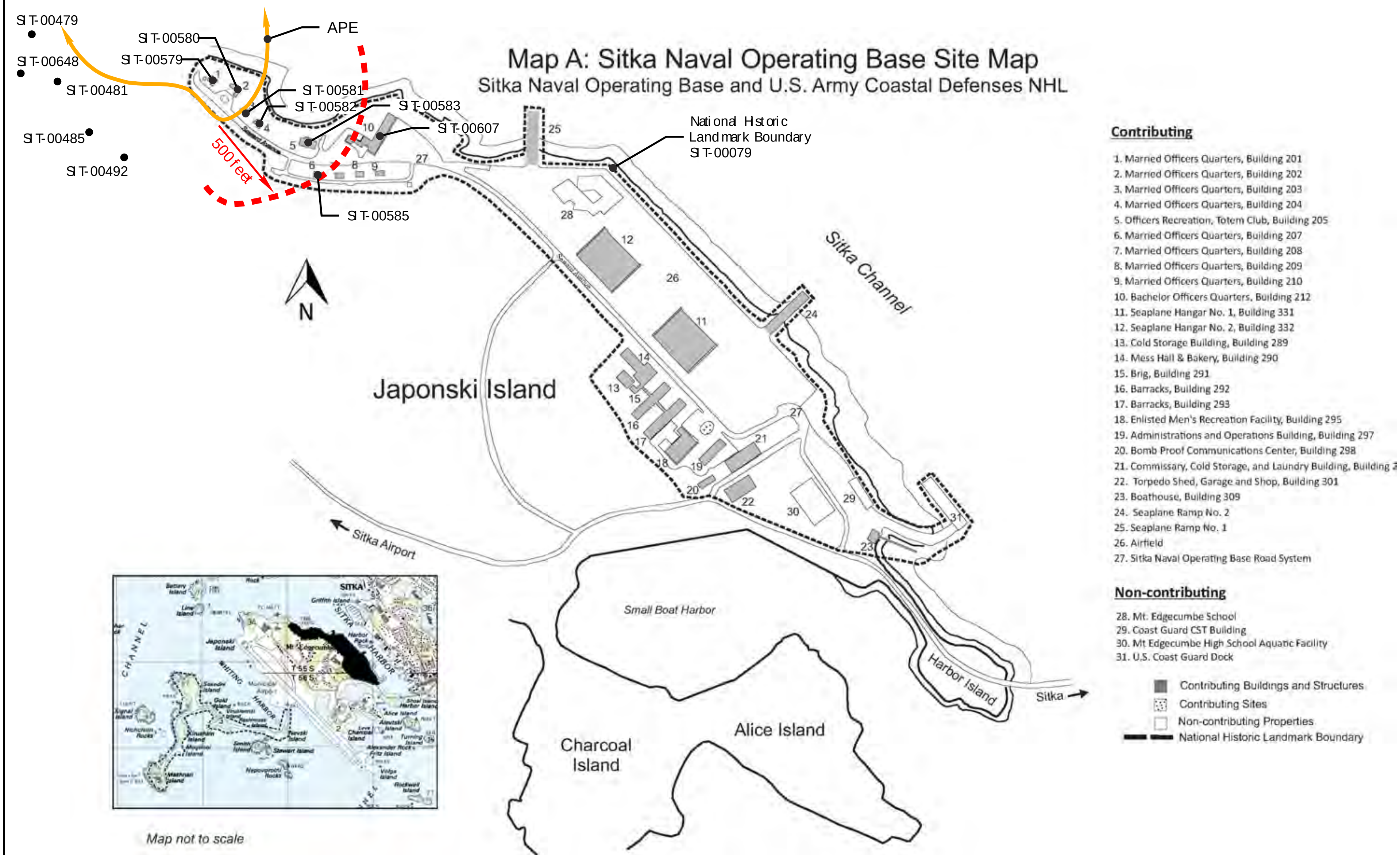


Note: This rendering is a visual representation of the elevation differences between the proposed project finished site and other historic structures/areas. The image is not to scale and may not accurately show distances between various structures/features.

Rock Cut Topographic Rendering

Sitka Seaplane Base
Environmental Assessment

Figure 4	Date: December 09, 2020



NHL Contributing Buildings within 500 Feet of APE

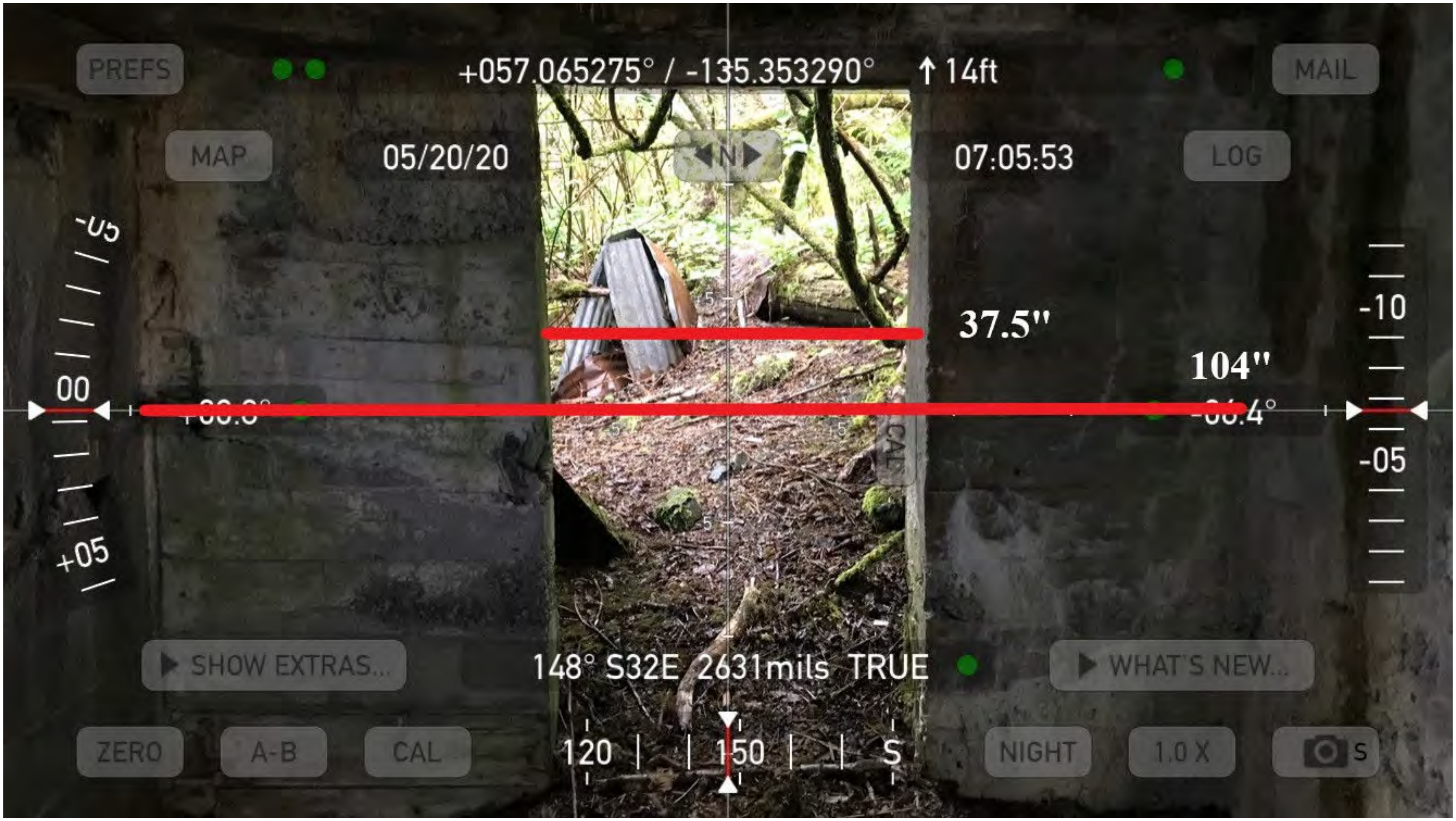
Sitka Seaplane Base
Environmental Assessment

Figure 5 | Date: November 23, 2020

Observation Slit Dimensions

Sitka Seaplane Base
Environmental Assessment

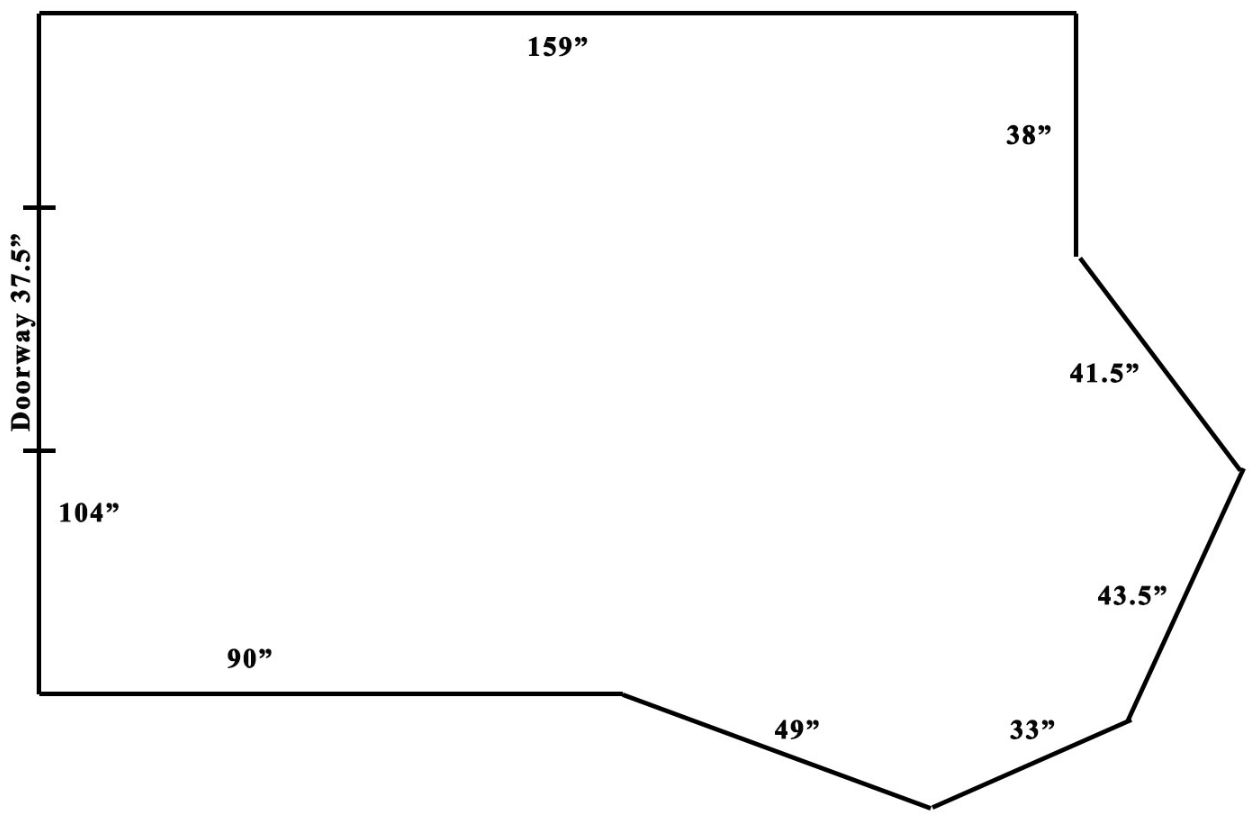
Figure 6 | Date: November 12, 2020



Entry Dimensions, Internal

Sitka Seaplane Base
Environmental Assessment

Figure 7	Date: November 12, 2020



Interior Dimensions

Sitka Seaplane Base
Environmental Assessment

Figure 8 | Date: November 12, 2020

Ground Support, North (Seaward) Side

Sitka Seaplane Base
Environmental Assessment

Figure 9	Date: November 12, 2020

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Light Spalling on NW Exterior Wall

Sitka Seaplane Base
Environmental Assessment

Figure 10	Date: November 12, 2020

Remains of Window Support, Spalling

Sitka Seaplane Base
Environmental Assessment

Figure 11 | Date: November 12, 2020

Battery at Watson Point

Approximate Location of Building

Source: Supplement to the Harbor Defense Project, Harbor Defenses of Sitka: Annex B

As-Built Map

Sitka Seaplane Base
Environmental Assessment

Figure 12 | Date: November 19, 2020

Attachments

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Attachment A - Previous Surveys near Project APE

Level	Document	Reference
Level IIB - Architectural	Structural Evaluation of Mount Edgecumbe School Buildings 290, 292, 293, 295, 297, 331, 332	Bettisworth et al. 1984
Level I - Literature Review	National Historic Landmarks Program, Review of Alaska Properties	Keel 1984
Level I - Literature Review	Assessment of Impact on Mt Edgecumbe School	BIA 1985
Level IV - Mitigative	Draft Memorandum: NHL and Section 106 Actions for Mt Edgecumbe School	Lind 1986
Level II - Reconnaissance Survey	Defense Environmental Restoration Account Inventory Report for Fort Rousseau, Sitka, AK	Anton and Henslee 1986
Level I - Literature Review	Letter RE: Sitka Airport Access Road Project #69277	Faulkner 1993
Level II - Reconnaissance Survey	Archaeology and Historicity Study of Air Station Sitka, Sitka Alaska	Onat 1995
Level I - Literature Review	Inventory of Historic Sites and Structures, City and Borough of Sitka, Alaska, Part II, Site Index and Inventory Forms	Betts and Longenbaugh 1997
Level I - Literature Review	Correspondence, ADOT/PF Proposed Removal of Mermaid Cove Mausoleum/WWII Ammunition Bunker (SIT-00565)	Sundberg 2000
Level I - Literature Review	Statement of Significance for the Fort Ray Historic District (Charcoal and Alice Islands) and the Mermaid Cove Mausoleum, Sitka, Alaska: Sitka Safety Area Improvement, Phase I, Project 72038	Yarborough 2000
Level I - Literature Review	Building 212 Renovations (SIT-00563)	Harritt 2000
Level IV - Mitigative	"Journey Back Home" Relocation Synopsis, Final: Sitka Airport Safety Improvements Phase I, Grave Relocation, AK Project No. 72038, Federal AIP#3-02-0268-0800	Yarborough 2000
Level I - Literature Review	A Determination of Eligibility to the National Register of Historic Places, Mount Edgecumbe Medical Center, SIT-571	Campbell 2001
Level IIB - Architectural	Ammunition Magazine Historical Recordation, Fort Ray Historic District, for the Sitka Airport Safety Improvements, Phase I, Sitka, Alaska	Gillette 2001
Level IIB - Architectural	A Survey of Historic Buildings Associated with the Sitka Naval Operating Base, Southeast Alaska Regional Heath Consortium Campus, Sitka Alaska, March 2002	Lane 2002
Level I - Literature Review	Revised Boundary of the Sitka Naval Operating Base	Lewis 2002

Level I - Literature Review	Letter Report Re Magnetic Resonance Imaging (MRI) Addition to Mount Edgecumbe Medical Center, Sitka	Campbell 2003
Level IIB - Architectural	A History and Description of Mermaid Cove Mausoleum, Sitka, Alaska	Dunning and Welsh 2003
Level I - Literature Review	Draft Phase I Site Assessment Report for Fort Rousseau Formerly Used Defense Sites	Keres 2003
Level IV - Mitigative	Sitka Safety Area Improvements Phase 1	Sundberg 2003
n/a	Japonski Island Boathouse Adaptive Re-Use, Final Schematic Design, Sitka, Alaska, HPF Grant 03410	Welsh Whitely 2004
Level I - Literature Review	Letter Report Re Underwater Communications Cable Removal	McConnell 2004
Level IV - Mitigative	Alaska, Our Last Frontier in Time of Peace, Our First Front in War: An Interpretation and Description of Fort Ray, Alaska	Dunning and Welsh 2004
Level I - Literature Review	Letter Report Re Removal of Contaminated Soil at the Sitka Naval Operating Base in Sitka, Alaska	McConnell 2005
Level IIB - Architectural	Sitka Airport Access Historical Evaluation, Sitka, Alaska, Project No. 68187	Gillette 2005
n/a	Letter RE: Sitka Airport Access Improvements	Bittner 2006
n/a	Letter and Plans Re Proposed Repair to The Japonski Island Boathouse Foundation	Welsh Whitely 2006
Level I - Literature Review	Letter RE: Clean up Sitka Airstation and Impacts to SIT479	Grover 2007
Level I - Literature Review	A Historical, Architectural, Archaeological, and Cultural Resource Assessment for Proposed Improvements to the Sitka Rocky Gutierrez Airport, Sitka, Alaska	Ellis 2008
Level I - Literature Review	Letter Report RE: Hospital Building Renovations (SIT-571)	Harritt 2010
n/a	Sitka Historic Preservation Plan: A Guide to Cultural Resource Management	Pollnow 2010
Level I - Literature Review	Letter Report RE: Sitka Tribe of Alaska Transit Bus Maintenance Facility Project Lot 11, Alice and Charcoal Island Subdivision, Alaska, Request for Concurrence with Area of Potential Effect and Finding of No Effect	Gehrke 2011
Level I - Literature Review	Letter Report RE: SEARHC Interior Renovations of Mount Edgecumbe High School Heritage Hall Building 295 (SIT-00598)	Lundgren 2011
Level IIB - Architectural	Japonski Island Boathouse Phase 1 Renovation and Adaptive Reuse Plan	North Wind Architects, LLC 2011
n/a	2010 Fort Rousseau Causeway State Historic Park Preservation Plan	DNR 2012
Level I - Literature Review	Letter RE: MEHS Old Powerhouse Building Demolition	Mahoney 2012
Level IIB - Architectural	Historic American Buildings Survey (HABS) Photographs, Old Powerhouse, Mt.	Arend 2012

	Edgecumbe High School (MEHS), Sitka, Alaska	
Level IV - Mitigative	Memorandum of Agreement for Removal of Searchlight Station No. 10 Debris, Lisianski Point, World War II Base End and Searchlight Stations of Sitka Sound Booklet	Pierce and Pollnow 2015
Level IV - Mitigative	Demolition of the Maintenance Storage Shed, Construction of the Mt. Edgecumbe High School Aquatic Center Project, and Inadvertent Discovery of SIT-1069	Krauthoefer 2016
n/a	The Sitka Historic Preservation Plan	Pollnow, Ditmar, and Littlefield 2017
Level IIB – Architectural	Historic Properties Survey, Evaluation, and Determination of Eligibility for the National Register of historic Places of Four Public Health Service Buildings, Mt. Edgecumbe Medical Center Campus, Sitka, Alaska	True North Sustainable Development Solutions, LLC 2017

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Appendix D3:

Section 4(f) Evaluation

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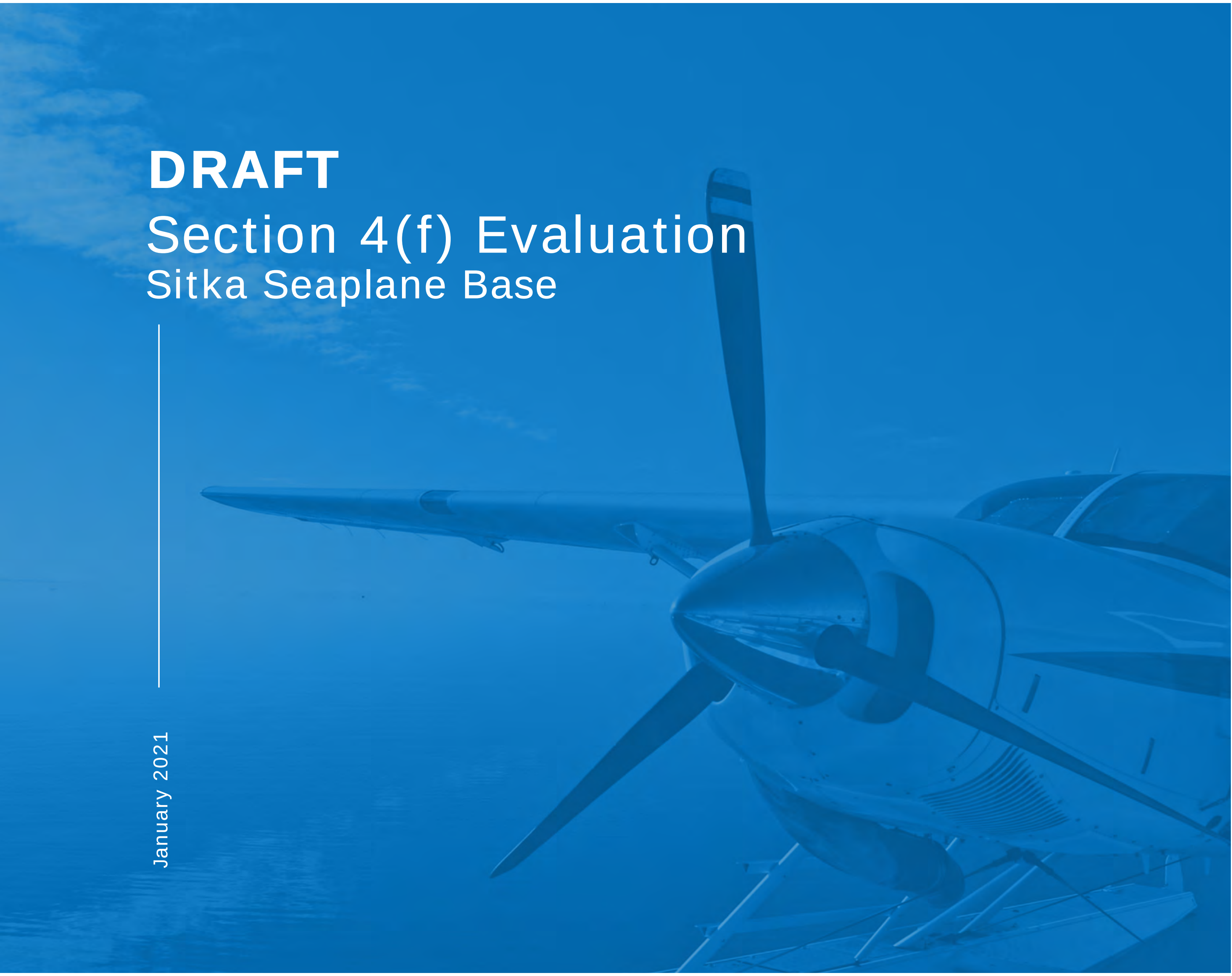
Section 4(f) Evaluation

Sitka Seaplane Base



January 2021

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Acronyms

AASP	Alaska Aviation System Plan
ARC	Airport Reference Code
CBS	City and Borough of Sitka
CFR	Code of Federal Regulation
EA	Environmental Assessment
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FHWA	Federal Highway Administration
MOA	Memorandum of Agreeement
NHL	National Historic Landmark
NOB	Naval Operating Base
NPS	National Park Service
NRHP	National Register of Historic Places
Secretary	Secretary of Transportation
SHPO	State Historic Preservation Officer
U.S.C.	United States Code
USCG	United States Coast Guard

1.0 Introduction

1.1. Section 4(f) Background

Section 4(f) of the Department of Transportation Act of 1996 (as amended), 49 United States Code (U.S.C.) §303(c), states:

The Secretary (Secretary of Transportation) may approve a transportation program or project (other than any project for a park road or parkway under Section 204 of Title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if—

(1) there is no prudent and feasible alternative to using that land; and

(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

The Federal Aviation Administration (FAA) uses Federal Highway Administration (FHWA) regulations (23 Code of Federal Regulations [CFR] 774) as guidance in implementing Section 4(f) impact analysis and documentation. The term "feasible and prudent avoidance alternative" from the quotation above is defined by FHWA at 23 CFR 774.17:

(1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.

(2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

(3) An alternative is not prudent if:

- i. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- ii. It results in unacceptable safety or operational problems;
- iii. After reasonable mitigation, it still causes:
  - A. Severe social, economic, or environmental impacts;
  - B. Severe disruption to established communities;
  - C. Severe disproportionate impacts to minority or low-income populations; or
  - D. Severe impacts to environmental resources protected under other Federal statutes;
- iv. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- v. It causes other unique problems or unusual factors; or
- vi. It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

1.2. Proposed Action

The City and Borough of Sitka (CBS), in cooperation with the Federal Aviation Administration (FAA), is proposing a new seaplane base on Japonski Island in Sitka, Alaska. Seaplanes provide essential transportation services for Sitka residents and regional communities in Southeast Alaska where communities are scattered among a number of islands with no road access or land airports. The new seaplane base is needed because the existing seaplane base is deteriorating and in poor condition. The existing seaplane base has been operating at its current location on the west shore of Baranof Island for 65 years and is at the end of its useful life and the site location has no potential for expansion.

The new seaplane base would be located near 1190 Seward Avenue on the northwest side of Japonski Island, approximately 1.4 miles west of downtown Sitka and approximately 600 miles from Anchorage at 57.055418 North Latitude; -135.363889 West Longitude (Sec. 34 and 35, T55S, R63E, Copper River Meridian, United States Geological Survey Quadrangle Sitka A5).

CBS worked with aviation stakeholders to identify the facilities needed to support safe and efficient seaplane operations. Facility needs identified were:

- A seaplane float for based seaplanes;
- A transient seaplane dock for loading unloading, and mooring without removing the aircraft from the water;
- A haul-out ramp to allow based seaplanes to be removed from the water for long-term parking, storage, washing, and maintenance;
- On-site aircraft maintenance facilities;
- Gangways with handrails for safe passenger and freight loading;
- A covered passenger waiting area with restrooms,
- A fuel storage and delivery system,
- A landside vehicle parking area, and
- Potential for lease lots for support services (such as repairs and maintenance).

2.0 Purpose and Need

The purpose of the proposed Project (Project) is to construct a new seaplane base in Sitka to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base (A29) and to provide needed air transportation facilities for Sitka residents and surrounding communities. The condition of the A29 facilities have deteriorated and the site has insufficient capacity and the inability to expand due to site constraints. The timber floats are weathered, have lost their preservative treatment, and are losing their floatation capability. In January 2016, A29 was temporarily closed because one pile supporting the transient float collapsed, damaging the transient float. A dive inspection showed significant pile section loss for another three piles. CBS made emergency temporary repairs to allow A29 to reopen in Fall 2016. Repairs included sleeving piles with larger diameter piles, structural float repairs, and additional floatation for the floats.

These repairs have a limited useful life, and complete reconstruction would be required to maintain this seaplane base for long-term use. In addition to needing substantial repairs, A29 has insufficient capacity and the inability to expand due to the constraints of the current location, congested sea-lane, and conflicts with boat traffic and birds. A new seaplane base is needed to address the unsafe and hazardous conditions at the existing facility.

> "Capacity concerns are evidenced by A29's recent full occupancy, a waiting list of seaplane owners who had been waiting two years or more to rent a slip, and interviews of seaplane pilots and businesses wanting to use a public seaplane base in Sitka. Safety concerns include concentrations of seabirds in and around A29's operating area, conflicts with boat traffic, lack of adequate taxi lane clearance between the seaplane base floats and neighboring Sitka Sound Seafoods facility, and submerged rock obstructions adjacent to the floats. Operational concerns include the lack of fueling facilities that requires seaplane operators to carry and dispense fuel from small containers, and inadequate vehicle parking. A29 is also unable to adequately serve commercial traffic because it lacks enough vehicle parking, on-site aircraft maintenance, a drive-down ramp to the floats, a passenger shelter, and equipment storage." (2016 Siting Analysis, DOWL 2016)

CBS worked with aviation stakeholders during the seaplane studies to identify the facilities needed to support safe and efficient seaplane operations and to provide a financially self-supporting transportation facility (Figures 1 and 2). Facility needs identified were:

- A seaplane float for based seaplanes;
- A transient seaplane dock for loading, unloading, and mooring without removing the aircraft from the water;
- A haul-out ramp to allow based seaplanes to be removed from the water for long-term parking, storage, washing, and maintenance;
- On-site aircraft maintenance facilities;
- Gangways with handrails for safe passenger and freight loading;
- A covered passenger waiting area with restrooms,
- a fuel storage and delivery system,
- a landside vehicle parking area, and
- potential for lease lots for support services (such as repairs and maintenance).

3.0 Section 4(F) Property

The Sitka Naval Operating Base (NOB) and U.S. Army Coastal Defenses National Historic Landmark (NHL) was designated in 1986 for its role in World War II (WWII) defenses in Alaska and the Aleutian Islands. The NHL is comprised of Sitka NOB and Fort Rousseau, including associated U.S. Army Coastal Defenses on eight islands. Sitka NOB was originally established as an advance seaplane base in 1937 and was designated a NOB in 1942. During WWII planes operating out of the Sitka NOB patrolled Southeast Alaska and the Gulf of Alaska. Sitka NOB also provided critical defense for shipping in the Gulf of Alaska. Beginning in 1941, the U.S. Army established Forts Ray, Rousseau (which replaced Fort Ray as the headquarters for coastal defense in 1943), Pierce, and Babcock to provide defensive support to the Sitka NOB. As part of this effort the Army also constructed the Coastal Defense Network, a system of armaments and fortifications to protect Sitka Sound and associated Naval facilities. Sitka NOB was closed by the Navy in 1944 (Bush 1944; NPS 2020).The National Park Service (NPS) is currently in the process of updating the 1986 nomination to account for changes to the NHL, including demolition or rehabilitation of buildings, and improved documentation of contributing features (NPS 2020).

The 1986 nomination had 78 contributing features, and although there have been safety and efficiency improvements and changes in use, these retain the character of their period of significance. The NPS has established a boundary for the portion of the NHL adjacent to the Project site that encompasses a number of facilities (both contributing and not contributing to the NHL) that were used on Japonski Island during WWII (Figure 3). The current NHL boundary ends at the south end of the proposed project site.

The Section 4(f) property that would be affected by the project is an intact observation post located on the project site (AHRS SIT-01115). DOWL documented the facility during a site visit in May 2020 (Appendix C) and recommended the structure as eligible to the National Register of Historic Places (NRHP) in a Draft Determination of Eligibility distributed to consulting parties in December 2020.

This observation post was constructed by Marine or Army infantry as part of series of small coastal fortifications that used to ring Japonski, Alice and Charcoal Islands. These small defensive positions would have been second priority defensive positions, which, depending on whether actively engaged with the enemy, ranged from foxholes and trenches to more elaborate concrete buildings such as this (U.S. War Department 1941a:16–18; 1941b:280–288). Construction of aboveground defensive positions and observation posts during World War II were used under various circumstances, including when groundwater levels prevented construction of cut-and-cover shelters. Reinforced concrete was preferred for aboveground shelters to offer protection from enemy fire. Surface shelters provided "maximum observation and exit facility" and could be further hidden from view and reinforced with layers of earth (U.S. War Department 1940:206–219).

DOWL prepared a draft Determination of Eligibility (DOE) and recommended the observation post (AHRS SIT-01115) located on the project site as eligible for the NRHP as a contributing feature of the Sitka NOB and U.S. Army Coastal Defenses NHL under Criterion A for its association with coastal defense of Alaska during WWII. Furthermore, the DOE recommended that the observation post (AHRS SIT-01115) retains integrity of location, materials, design, feeling, and association. Despite showing wear from decades of disuse, it still neatly conveys its original purpose as one of a series of observation posts that once dotted the coastline of the Sitka NOB and U.S. Army Coastal Defenses NHL. Although the ruins of several concrete structures are extant in the Sitka NOB and U.S. Army Coastal Defenses NHL, this building is one of two intact observation posts of this type on Japonski, Alice, and Charcoal islands (M. Hunter personal communication to C. Kennedy [DOWL], August 7, 2020).

4.0 Impacts to the Section 4(F) Property

The proposed Sitka Seaplane Base project would require the demolition of the observation post (AHRS SIT-01115) for construction of the transportation facility; therefore, Section 4(f) is triggered.

Pursuant to 36 CFR 800.5(d)(2), implementing regulations of Section 106 of the National Historic Preservation Act (NHPA), FAA has found, and the SHPO and NPS have concurred, that the Proposed Action would adversely affect the observation post. Therefore, Section 4(f) applies to this federal undertaking.

5.0 Feasible and Prudent Alternatives

The Proposed Action Alternative is the only alternative to be fully assessed in this Section 4(f) Evaluation. As demonstrated in Section 5.1, no other feasible and prudent alternatives are available for this project.

5.1. Alternatives Considered and Dismissed

Feasible and prudent alternatives to avoid the Section 4(f) property must meet the proposed project's purpose and need. The term "prudent" refers to rationale judgment. Under FAA Order 5050.4B, paragraph 1007.e(5)(a), a project can be eliminated if it might be feasible or technically possible, but not rational when one considers its safety, policy, environmental, social, or economic consequences. Factors used to evaluate if an alternative is prudent are shown in Table 1 as defined in 23 CFR 774.17.

Table 1: Alternative Evaluation Factors

Factors used to evaluate if an alternative is prudent:	
(A)	Does the alternative compromise the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need?
(B)	Does the alternative cause unacceptable safety or operational problems?
(C)	Does the alternative cause severe social, economic, or environmental impacts after reasonable mitigation?
(D)	Does the alternative cause severe disruption to established communities after reasonable mitigation?
(E)	Does the alternative cause severe disproportionate impacts to minority or low-income populations after reasonable mitigation?
(F)	Does the alternative cause severe impacts to environmental resources protected under other federal statutes after reasonable mitigation?
(G)	Does the alternative result in additional construction, maintenance, or operational costs of an extraordinary magnitude?
(H)	Does the alternative cause other unique problems or unusual factors?
(I)	Does the alternative involve multiple factors listed above, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude?

5.1.1. Alternative Locations

CBS completed three siting studies over the last 20 years to determine the appropriate site for the new seaplane base. Each siting study identified the proposed project site as the site that best meets project safety and operational requirements. Table 2 lists the 11 alternative sites that were evaluated in 2002, 2012, and 2016 (HDR 2002; DOWL HKM 2012; DOWL 2016; Figure 4). None of these alternative sites meet the feasible and prudent standard, as documented below.

Table 2: Alternative Sites Evaluated and Dismissed

Alternative	Rationale for Dismissing Alternative	Section 4(f) Factors (Table 1)
Starrigavan Bay	• No protection from open ocean swells • Large wind chop from southeast, north and west • Water typically choppy and rough • Huge wakes from large boats and ferry • No room for upland development • High level of salmon and waterfowl use • Too far from town for seaplane pilots and community	A – Safety concerns, lack of upland facilities, and distance from community activity area compromise project's ability to meet purpose and need. B – Unacceptable safety concerns related to exposure to open water with wind from several areas, choppy and rough water, and large wakes from large boats and ferries; unacceptable operational concerns due to distance from community and lack of potential for upland facilities. C – Environmental concerns regarding salmon and waterfowl use. G – Construction, maintenance, and operational costs high due to remote location. I – The combination of factors A, B, C, and G cumulatively result in problems of extraordinary magnitude.
Existing A29 Site	• Rocks and boulders under the water • Wildlife hazard from adjacent fish processing plant • Significant fishing and boat traffic conflicts • Inadequate size for safe maneuvering room • Cannot meet existing and forecast demand • No upland area for support facility development • Narrow wingtip clearances between seaplanes	A – Safety concerns, inadequate space for aircraft parking and maneuvering, and lack of room for upland facilities compromise project's ability to meet purpose and need. B – Unacceptable safety concerns related to bird hazards, other water user conflicts, tight maneuvering area. H – There is virtually no potential for upland facilities. I – The combination of factors A, B, and H cumulatively result in problems of extraordinary magnitude.
Thomsen/ Eliason Harbor	• Constrained by large boat harbor and shallow water • Insufficient space at low tide for safe seaplane passage without significant dredging • Salmon run in vicinity • Cost-prohibitive dredging and development needs • High-value wetlands in intertidal area • Freezing concern due to freshwater concentration from anadromous stream • High level of boat traffic • Possible strong local opposition to upland development for seaplane facilities	A – Safety concerns and lack of space for upland facilities would compromise purpose and need. B – Unacceptable safety concerns related to high boat use, shallow waters, and icing. C – Social, economic, and environmental concerns. Conflicts with fishing and other boating uses that are important to Sitka's social and economic identify. Environmental concerns regarding salmon and waterfowl use. H – Uplands completely developed; little opportunity for upland support facilities. I – The combination of factors A, B, C, and H cumulatively result in problems of extraordinary magnitude.

Table 2: Alternative Sites Evaluated and Dismissed

Alternative	Rationale for Dismissing Alternative	Section 4(f) Factors (Table 1)
Mount Edgecumbe	• More aircraft noise in residential and institutional areas • More exposure of dock to wind and wave action • Concern over north and west winds • Insufficient uplands for future seaplane base development	A – Lack of potential for upland facilities compromises purpose and need. B – Safety issues related to exposure to wind and waves. C – Social and environmental concerns related to effects on residential, high school, and institutional area and the NHL. H – Uplands completely developed; little opportunity for upland support facilities. I – The combination of factors A, B, C, and H cumulatively result in problems of extraordinary magnitude.
Japonski Lagoon	• Incompatible with Sitka Airport Master Plan • Maintains wildlife hazard posed by lagoon • Wind exposure • Sea lane only partially protected from sea swells and larger waves • Expense of blasting sea lane channel • No breakwater protection for sea lane east side	B –Safety problems related to exposure to wind and waves in proposed operations area; retains wildlife hazard proposed to be mitigated through Sitka Airport Master Plan. C – Social, economic, and environmental concerns due to incompatibility with Sitka airport; impacts on Sitka airport has potential for substantial economic and social effects . I – The combination of factors B and C cumulatively result in problems of extraordinary magnitude.
Charcoal Island	• Significant wave, sea swell, and wind energy • Long taxi into Sitka Channel • Large wind chop from prevailing winds • Expense of constructing breakwater protection	A – Distance from activities focus in Sitka Channel and safety concerns regarding wind and wave exposure and conflicts with Sitka airport operations compromises project’s ability to meet purpose and need. B – Safety concerns with operations area from open water wind and wave exposure, and conflicts with Sitka Airport operations. I – The combination of factors A and B cumulatively result in problems of extraordinary magnitude.
Sawmill Cove	• Long fetch of Silver Bay with direct access to open ocean via Eastern Channel • Large wind chop from prevailing winds • Strong and turbulent winds from Blue Lake • Topography limits during cloudy or foggy conditions • Too far from town for seaplane pilots and community	A – Safety concerns and distance from community compromise project’s ability to meet purpose and need. B – Unacceptable safety concerns; related to open ocean waves, strong and turbulent winds, and topography. G – Construction, maintenance, and operational costs high due to remote location. I – The combination of factors A, B, and G cumulatively result in problems of extraordinary magnitude.

5.1.2. Smaller Development Plan Alternative

CBS and the FAA evaluated the potential to preserve the observation post in place and design the seaplane base facilities around it (Figure 5). However, the new seaplane base is designed to provide safe maneuvering and operations, while providing facilities to support future growth and sustain itself through user fees.

Leaving the observation post in place was determined not to be possible, given the need to level the site's steep topography and lower the overall site elevation to minimize impacts to the adjacent Sitka NOB and U.S. Army Coastal Defenses NHL and to provide an efficient area for support facilities, such as a floatplane ramp, and potential future support facilities. Lowering the site and expanding it out into the tidelands also reduces the length of the marine trestle, reducing environmental effects from additional pile placement in the marine environment and lowering the development cost for the upland and marine facilities. Adequate room for support facilities are required to meet the transportation needs with a self-supporting facility.

The smaller development plan with the observation post intact and the seaplane facility built around it was determined not to be feasible and prudent for the following factors from Table 1.

- Factor A – The smaller upland operation area, lack of a seaplane ramp, and higher construction cost for the marine facilities due to the length of the trestle would compromise project's ability to meet purpose and need.
- Factor B – This alternative results in unacceptable operational problems. The steep topography of the site limits the potential for a seaplane ramp and seaplane parking and maneuvering area as well as room for future lease lots to contribute funds to support the facility.
- Factors C – This alternative would not allow the site to be lowered to minimize the potential for visual or noise impacts on the adjacent NHL and the security needs for the US Coast Guard.
- Factor F – This alternative limits the potential for mitigation of effects on the adjacent NHL protected under the NHPA and Section 4(f). Leveling and lowering the site provides a buffer between the site and the NHL and minimizes any visual and noise effects on the NHL.

6.0 Least Overall Harm

Per 23 CFR 774.3, if there are no feasible and prudent alternatives that avoid the Section 4(f) property, then the Administration may approve, from among the remaining alternatives that use the Section 4(f) property, only the alternative that causes the least overall harm to the Section 4(f) property. The factors to be considered for an analysis of harm relative to a Section 4(f) property are defined in 23 CFR 774.3 (c)(1).

Given that the Proposed Action is the only alternative that is feasible and prudent to construct, a least overall harm analysis was not conducted for this Section 4(f) Evaluation.

7.0 All Possible Planning

Per 23 CFR 774.3, Section 4(f) requires all possible planning to minimize harm and requires documentation of measures take to minimize harm and concurrence of the officials having jurisdiction over the Section 4(f) property regarding these measures. The measures taken to minimize harm and mitigate impacts include:

- Changing the project design to lower the site elevation, reorienting the seaplane floats, and incorporating landscaping at the Seward Avenue boundary of the site to minimize the potential for visual and/or noise effects on the portion of the NHL adjacent to the Project site.
- Development of a Memorandum of Agreement (MOA) in consultation with the officials with jurisdiction over the Section 4(f) property (SHPO, NPS) and the Sitka Historical Preservation Commission to identify appropriate measures and responsible parties to mitigate the adverse effects.

Table 2: Alternative Sites Evaluated and Dismissed

Alternative	Rationale for Dismissing Alternative	Section 4(f) Factors (Table 1)
Safe Harbor	• Exposed to prevailing winds and waves • Close proximity to US Coast Guard (USCG) vessel dock and operations • Wildlife hazards from seafood processing sites	A – Safety concerns related to wind and wave exposure and lack of upland development potential compromise project's ability to meet purpose and need. B – Unacceptable safety concerns; conflicts with US Coast Guard vessel operations. C – Land use compatibility concerns due to US Coast Guard operations and noise near high school. I – The combination of factors A, B, and C cumulatively result in problems of extraordinary magnitude.
Work Float	• Not well protected from wind • Lack of feasible relocation for work float use • Close proximity to USCG vessels/dock • Difficult to control access to storage area and dock • Heavy boat traffic at fueling facility and mouth of harbor under bridge • Insufficient area for upland development	A – Safety concerns and lack of upland development potential compromise project's ability to meet purpose and need. B – Unacceptable safety concerns; conflicts with boat fueling area and Coast Guard vessel operations. C – Land use concerns related to displacement of current work float use and noise near high school. I – The combination of factors A, B, and C cumulatively result in problems of extraordinary magnitude.
Jamestown Bay	• Turbulent wind due to surrounding topography • Large number of downwind takeoffs • Significant exposure to southwest swells • High level of small and large boat traffic • Upland area mostly residential	B – Unacceptable safety concerns related to wind and wave exposure and turbulent winds due to topography. Conflicts with small and large boat traffic. C – Land use compatibility concerns with residential area. I – The combination of factors B and C cumulatively result in problems of extraordinary magnitude.
Herring Cove	• Long fetch of Silver Bay with direct access to open ocean via Eastern Channel • Large wind chop from prevailing winds • Strong and turbulent winds from Blue Lake • Topography creates safety hazards during cloudy or foggy conditions • Too far from town for seaplane pilots and community	A – Safety concerns and distance from community compromise project's ability to meet purpose and need. B – Unacceptable safety concerns; unacceptable operational concerns due to distance from community and lack of potential for upland facilities. G – Construction, maintenance, and operational costs high due to remote location. I – The combination of factors A, B, and G cumulatively result in problems of extraordinary magnitude.

Sources: HDR 2002; DOWL HKM 2012; DOWL 2016

8.0 Conclusion and Findings

The FAA and CBS have considered all feasible and prudent alternatives meeting the project's purpose and need that avoid using the Section 4(f) property.

Section 4(f) states that the Secretary may approve a transportation program or project requiring the use of publicly-owned land of a park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance or land of a historic site of national, state, or local significance as determined by the official having jurisdiction over those resources only if:

- there is no prudent and feasible alternative that would avoid using those resources; and
- the program or project includes all possible planning to minimize harm resulting from the use.

The FAA and CBS have determined that:

(1) There are no feasible or prudent alternatives that avoid using or adversely affecting the Section 4(f) property. With the exception of the Proposed Action, all alternatives were determined to be infeasible and not to be prudent due to a number of factors, including failure to meet the project purpose and need; safety and operational problems; severe social, economic, or environmental impacts; severe disruption to established communities; severe impacts to environmental resources protected under other federal statutes; and additional construction, maintenance, or operational costs of an extraordinary magnitude.

(2) A number of measures were incorporated into the Project to reduce the potential for adverse effects on the adjacent NHL and contributing elements to it by a) lowering the site elevation; b) reorienting the seaplane floats to the north; and c) incorporating landscape buffering at the Seward Avenue site boundary.

(3) The Sitka Seaplane Base Project has included all possible planning to minimize harm resulting from the physical use and adverse effect to the Section 4(f) property. The proposed project avoids effects to the adjacent NHL and would include a Memorandum of Agreement with the NPS, SHPO, and Sitka Historic Preservation Commission to resolve the adverse effect to the observation post through the implementation of mitigation measures.

9.0 Record of Coordination

Table 3 lists coordination efforts conducted in support of this Section 4(f) Evaluation. Appendix B contains copies of correspondence.

Table 3: Record of Coordination Relative to the Section 4(f) Property

Date	Activity	Description
November 20-26, 2019	Initiation of Consultation	FAA sent an initiation of consultation letter to SHPO, NPS, Sitka Historic Preservation Commission, Sealaska, Central Council of Tlingit & Haida Indian Tribes of Alaska, Hoonah Indian Association, Hydaburg Cooperative Association, Organized Village of Kake, Sitka Tribe of Alaska, Yakutat Tlingit Tribe
October 15, 2020	Consultation Meeting	Meeting between FAA, CBS, SHPO, and NPS to discuss the potential for effects on the NHL and the site visit to evaluate the observation post.
December 17, 2020	Submittal of DOE/Findings	Draft DOE and draft finding of adverse effects submitted to SHPO and NPS.
January TBD, 2021	Consultation Meeting	Meeting between FAA, CBS, SHPO, and NPS to discuss determination of eligibility for observation post, potential finding of adverse effects, and appropriate measures to minimize harm and mitigate adverse effect.

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HDR. 2002. Sitka Seaplane Base Master Plan. Prepared for City & Borough of Sitka. HDR Alaska, Inc. August 2002.

National Park Service (NPS). 2020. Draft National Historic Landmark Nomination: Sitka Naval Operating Base and U.S. Army Coastal Defenses.

U.S. War Department. 1940. Engineer Field Manual: Field Fortifications. U.S. Government Printing Office, Washington, D.C..

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Figures

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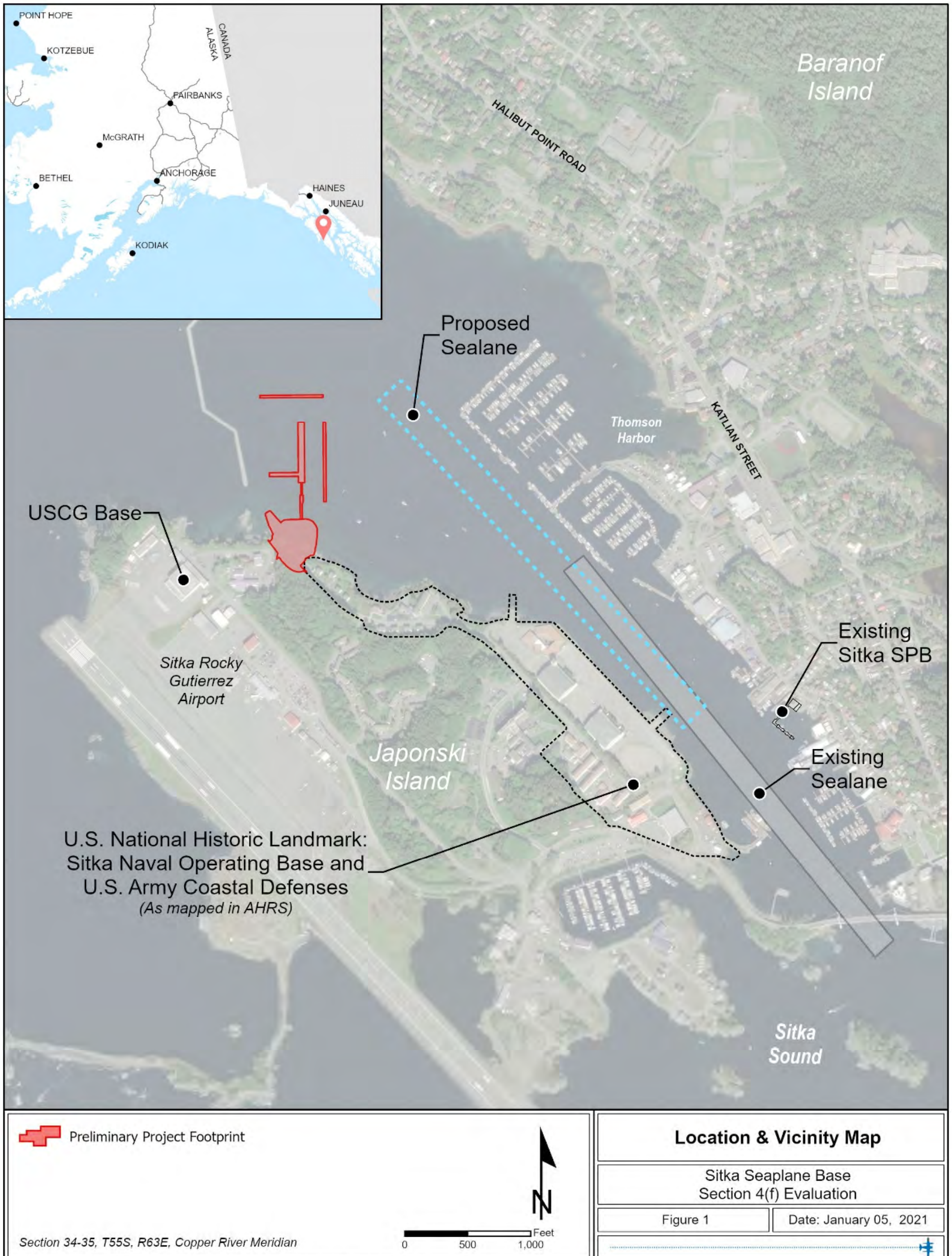

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Figure 1: Vicinity Map

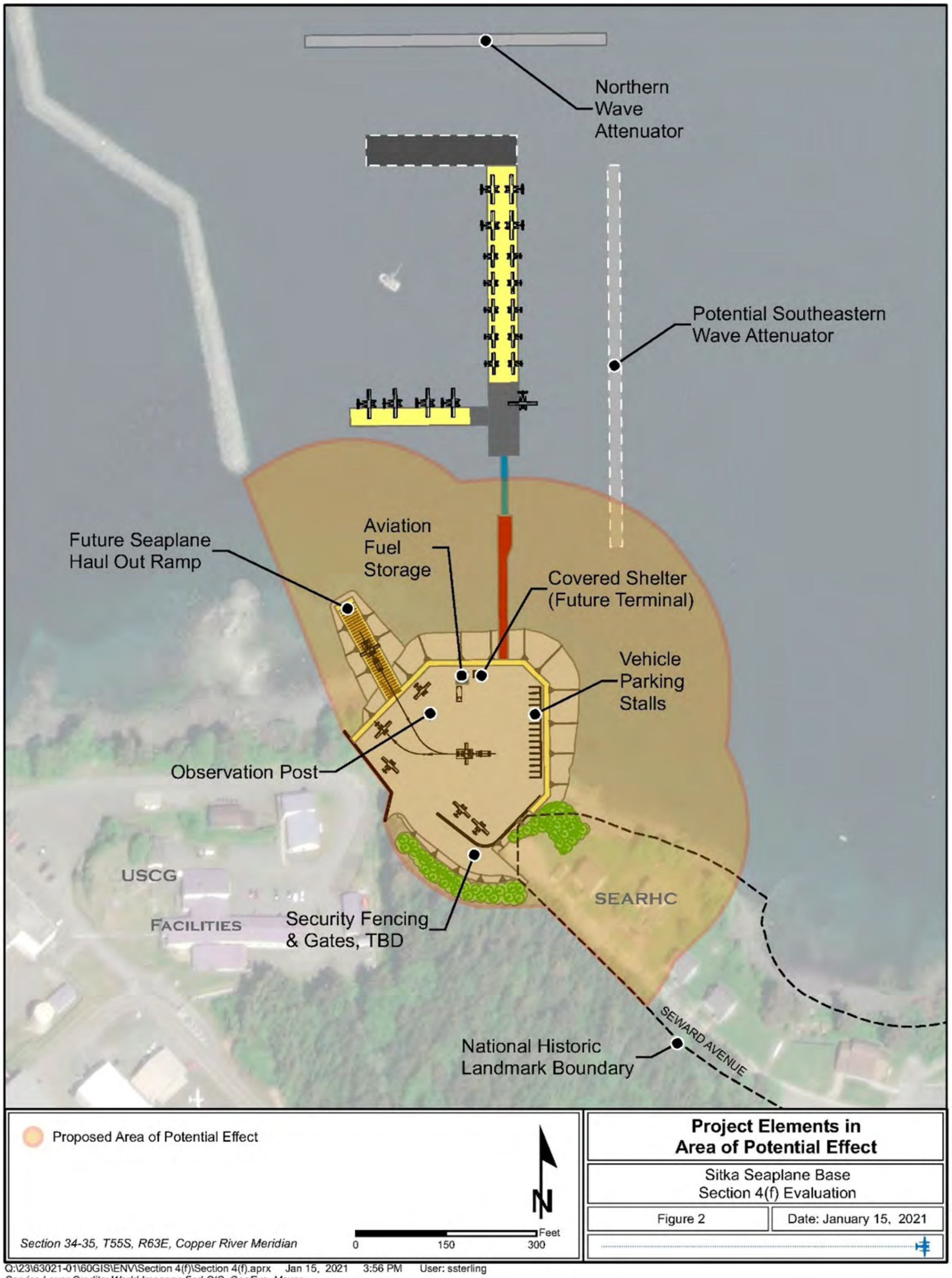

Figure 2: Sitka Seaplane Base Area of Potential Effect

Figure 3: NHL Boundary Adjacent to Proposed Seaplane Base Site

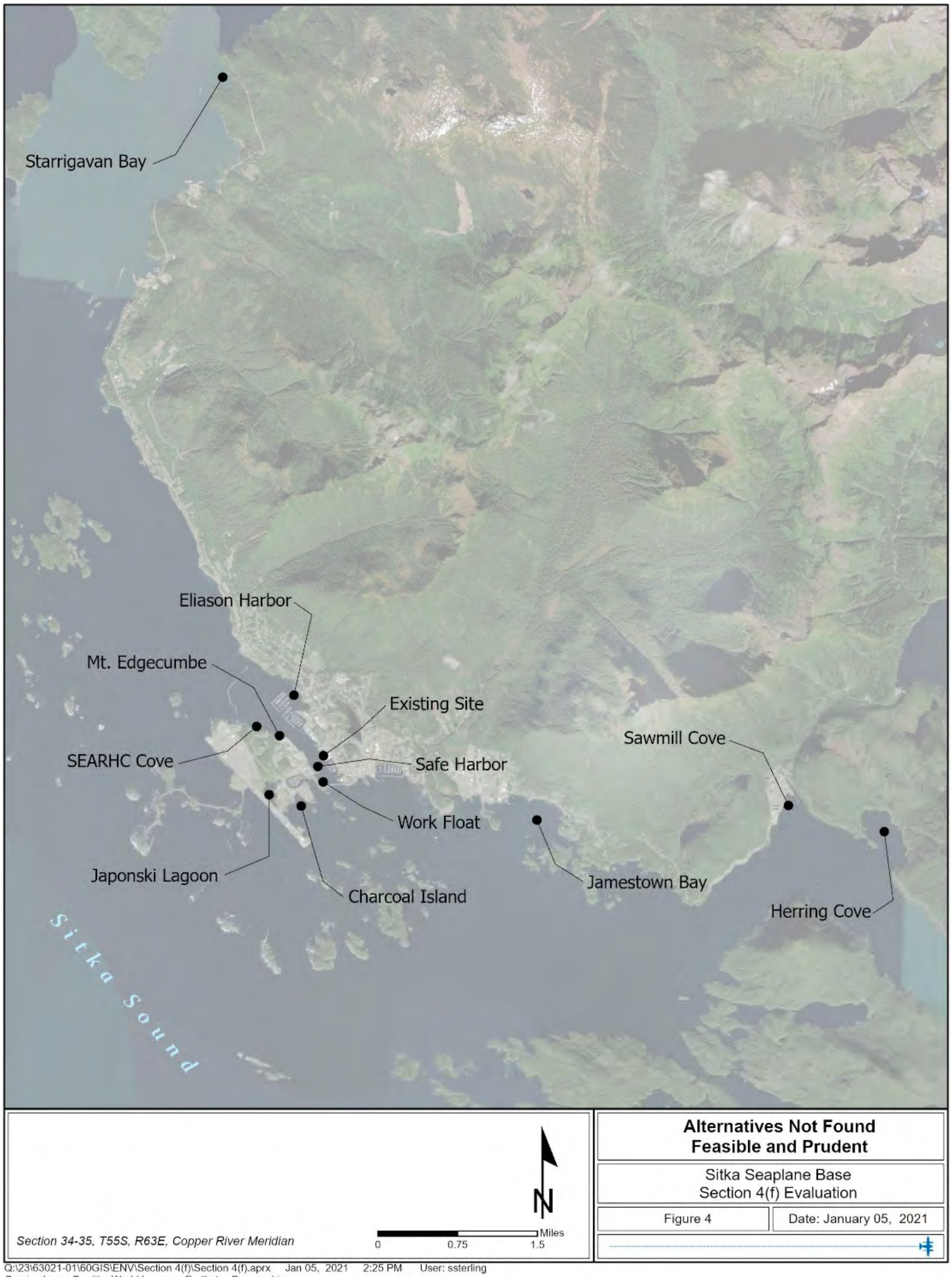

Figure 4: Alternatives Not Found Feasible and Prudent

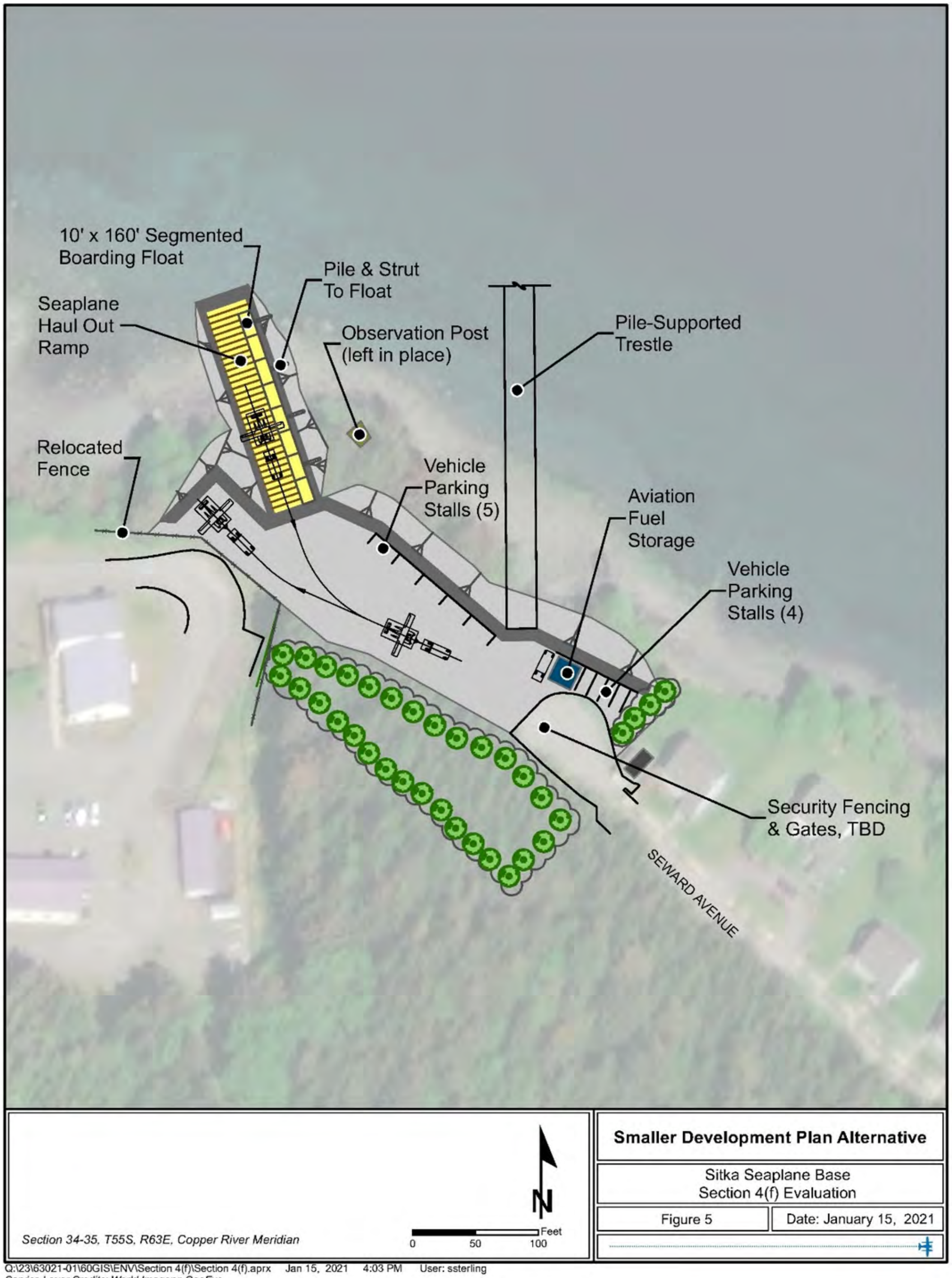

Figure 5: Smaller Development Plan Alternative

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Appendix 1:

Memorandum of Agreement (TBD)

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MOA TO BE DEVELOPED THROUGH CONSULTATION.

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Appendix 2:

Consulting Parties Correspondence

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In Reply Refer To:
New Sitka Seaplane Base
Federal Project # 3-02-0488-001-2019

Consultation Initiation

November 26, 2019

Judith Bittner
State Historic Preservation Officer
550 West 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3357

Subject: Initiation of Consultation

Dear Ms. Bittner:

The City and Borough of Sitka (CBS), in cooperation with the Alaska Division of the Federal Aviation Administration (FAA), is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island, which is deteriorating and in poor condition. The existing seaplane base has been operating at its current location for 65 years and is at the end of its useful life. The purpose of the proposed project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

For purposes of the National Historic Preservation Act, we are initiating this consultation with you to assist us in determining the Area of Potential Effect (APE) and identifying historic properties that may be affected by the proposed project.

Project Description

1) **Acquisition of Land.** CBS plans to acquire lands on shore (uplands) and tide & submerged lands for construction of the new seaplane base. CBS proposes to acquire the uplands with FAA Airport Improvement Program (AIP) Land Acquisition grant funds. CBS has also submitted an application for tidelands and submerged lands to the Alaska Department of Natural Resources (ADNR) for approximately 23 acres for construction of seaplane floats and associated infrastructure and the seaplane operating area.

2) **Construction of New Seaplane Base.** This project tentatively includes the following elements (Figure 2):
   - New fuel storage and distribution system
   - Vehicle parking area

- On-site aircraft maintenance capability
- A drive-down ramp to the seaplane base floats
- Electricity, water and sewer, and lighting
- Float slips for based seaplanes and for transient seaplanes
- Safe access between the parking positions and the water operating are, and
- Options to accommodate future growth with potential float expansion.

3) **Demolition of Existing Seaplane Base.** This project will include the removal/disposal of the existing seaplane floats located at the previous seaplane area.

Preliminary Area of Potential Effect
The Preliminary APE is the footprint of the proposed project, measuring 26.2 acres (Figure 3).

Identification Efforts
A preliminary search of the Alaska Heritage Resource Survey (AHRS) identified previously recorded archaeological and historic sites in the project vicinity. A known historic bunker lies within/adjacent to the project area. The project area appears to be within 250 feet of the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark (shown in Figure 1). The existing seaplane base, slated to be demolished, is within 250 feet of the Pyramid Packing Company (SIT-00320).

Consulting Parties

- National Park Service
- Sealaska
- Sitka Tribe of Alaska (IRA)
- Hoonah Indian Association
- Hydaburg Cooperative Association
- Organized Village of Kake
- Central Council Tlingit & Haida Indian Tribes of Alaska
- Yakutat Tlingit Tribe
- Sitka Historic Preservation Commission

If you have questions or comments related to this proposed project, I can be reached at the address above, by telephone at 907-562-2000, or by e-mail at loquinn@dowl.com.

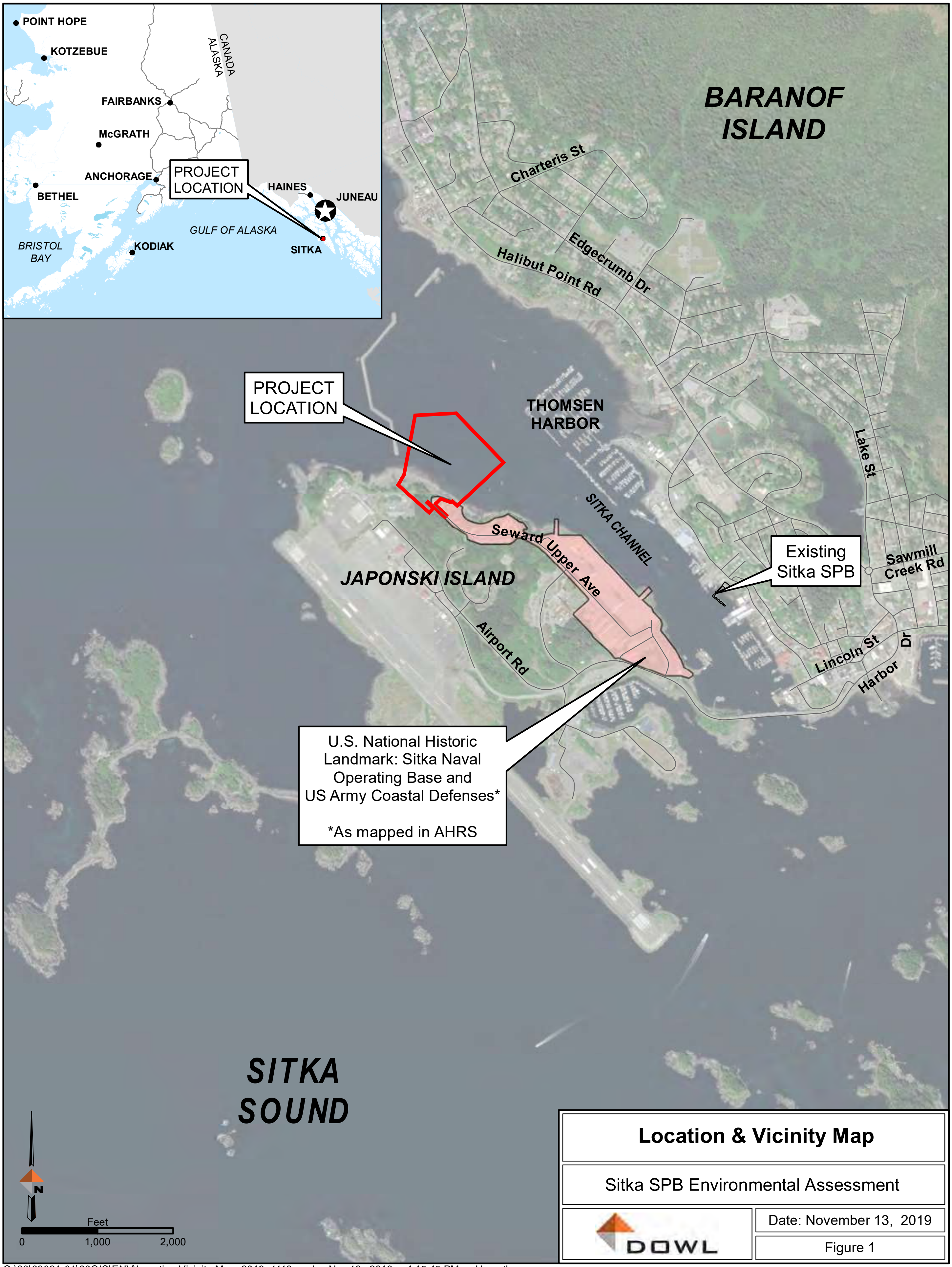
Your timely response will greatly assist us in incorporating your concerns into project development. For that purpose, we respectfully request that you respond within thirty days of your receipt of this correspondence.

Sincerely,

Lucy Flynn O'Quinn
Cultural Resources Specialist, SOI

Enclosures:
Figure 1. Project Vicinity Map
Figure 2. Preliminary Project Concept Map
Figure 3. Project Preliminary APE

Electronic cc w/ enclosures:
Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division
Kelli Cropper, City and Borough of Sitka



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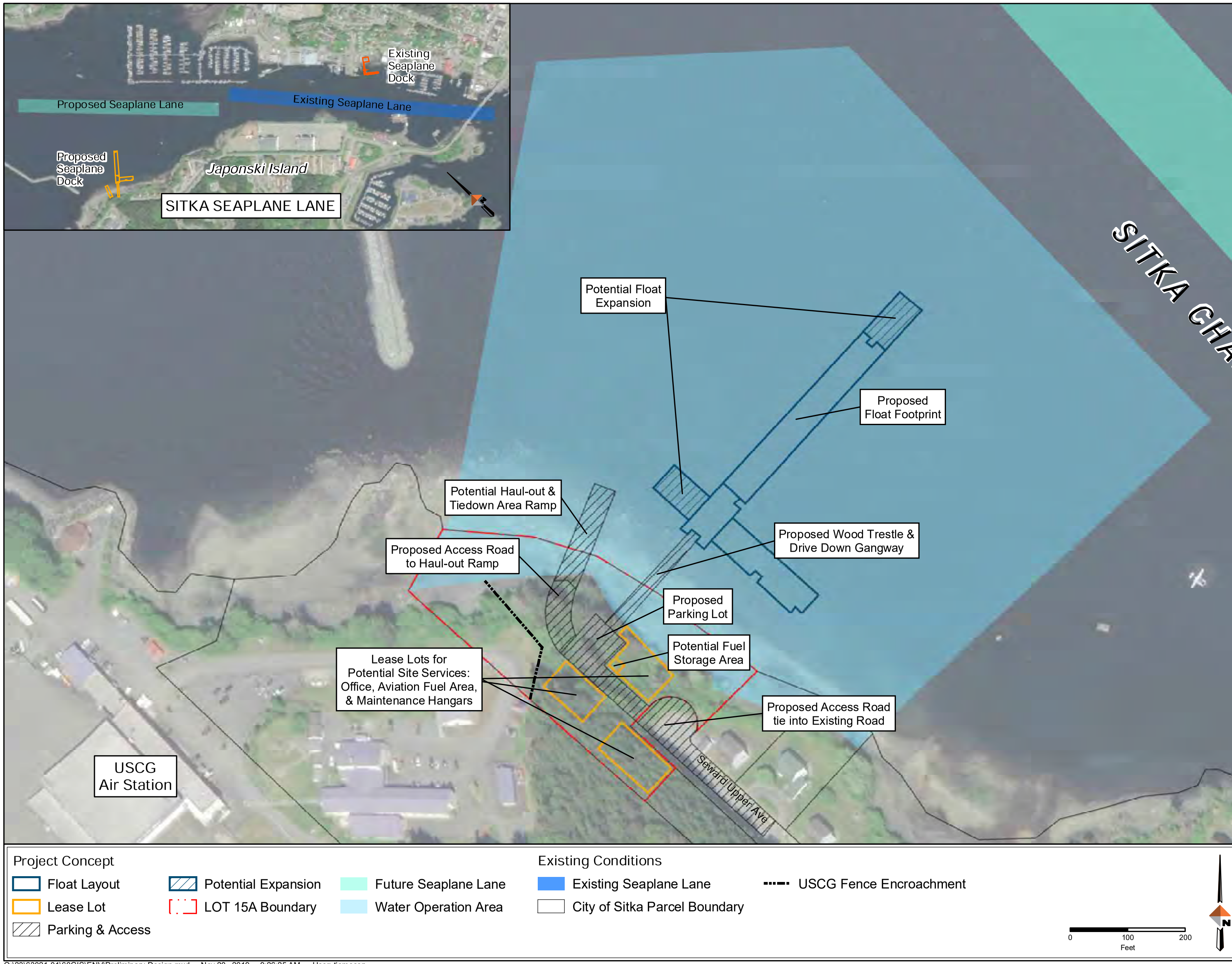
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Preliminary Design

Sitka SPB Environmental Assessment

DOWL

Date: November 20, 2019

Figure 2

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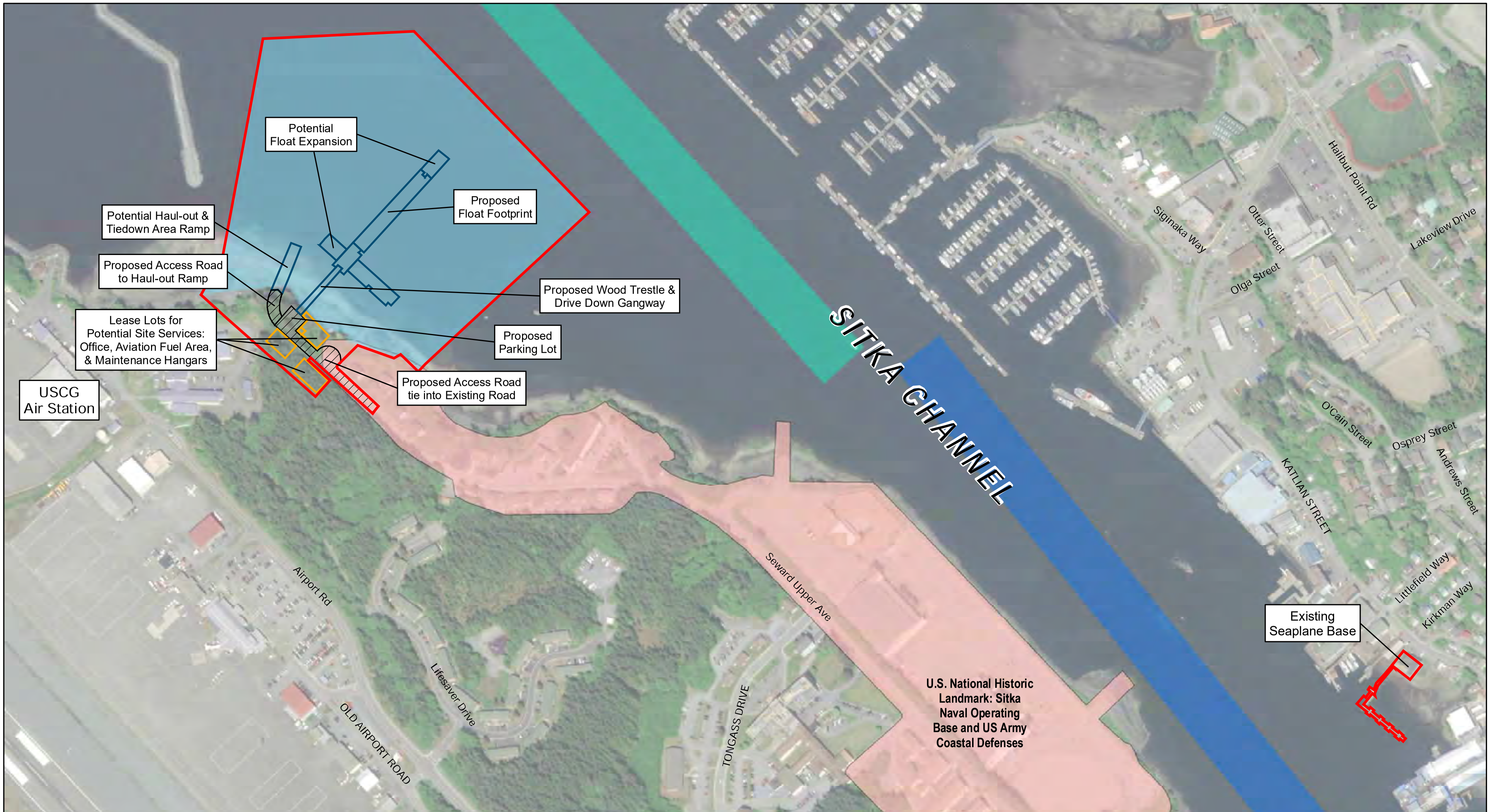
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Preliminary Project Elements

- Float Layout
- Potential Service Area
- Parking Lot and Road Expansion
- Proposed Seaplane Lane
- Water Operation Area
- Preliminary APE

Existing Conditions

- US National Historic Landmark*
- Existing Seaplane Lane

* As mapped in AHRS

0 200 400
Feet

N

Preliminary APE

Sitka Seaplane Base Planning & EA

DOWL

Date: November 20, 2019

Figure 3

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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

U.S. Department
of Transportation

**Federal Aviation
Administration**

AIRPORTS DIVISION

222 W. 7th Avenue, Box 14
Anchorage, Alaska
99513-7587

November 20, 2019

New Sitka Seaplane Base, AIP 3-02-0488-001-2019, Sitka, Alaska, *Government-to-Government Consultation Initiation*

Joe Valle
Yakutat Tlingit Tribe
P.O. Box 418
Yakutat, AK 99689

Dear Mr. Valle,

The Federal Aviation Administration (FAA) in cooperation with the owner and operator of the Sitka Seaplane Base, the City and Borough of Sitka is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island.

Purpose of Government-to-Government Consultation

The primary purpose of government-to-government consultation as described in Federal Executive Order 13175 “Consultation and Coordination with Indian Tribal Governments” and FAA’s Order 1210.20 “American Indian and Alaska Native Tribal Consultation Policy and Procedures” is to ensure that Federally Recognized Tribes are given the opportunity to provide meaningful and timely input regarding proposed FAA actions that uniquely or significantly affect Tribes.

Consultation Initiation

With this letter, the FAA is offering to consult on concerns that uniquely or significantly affect your Tribe related to the potential action described below. Early identification of Tribal concerns will allow the FAA and the airport owner and operator to consider ways to avoid and minimize potential impacts to Tribal resources and/or cultural practices as project planning and alternatives are developed and refined. We would be pleased to discuss details of the proposed project and its potential impacts with you.

Project Information

The purpose of the proposed project is to replace the existing seaplane base which has been operating at its current location for 65 years and is at the end of its useful life. The project proposes to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

1) Acquisition of Land. CBS plans to acquire lands on shore (uplands) and tide & submerged lands for construction of the new seaplane base. CBS proposes to acquire the uplands with FAA Airport Improvement Program (AIP) Land Acquisition grant funds. CBS has also submitted an application for tidelands and submerged lands to the Alaska Department of Natural Resources (ADNR) for approximately 23 acres for construction of seaplane floats and associated infrastructure and the seaplane operating area.

2) Construction of New Seaplane Base. This project tentatively includes the following elements (Figure 2):

- New fuel storage and distribution system
- Vehicle parking area
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- A drive-down ramp to the seaplane base floats
- Electricity, water and sewer, and lighting
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- Safe access between the parking positions and the water operating are, and
- Options to accommodate future growth with potential float expansion.

3) Demolition of Existing Seaplane Base. This project will include the removal/disposal of the existing seaplane floats located at the previous seaplane area.

Confidentiality

We understand that you may have concerns regarding the confidentiality of information on areas or resources of religious, traditional and cultural importance to the Tribe. We would be happy to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information

If you wish to provide comments related to this proposed project, please contact:

FAA Airports Division
ATTN: **Venus Larson**
222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587
Fax: 907-271-2851
Email: Venus.Larson@faa.gov

Project Consultation Options Form

Your timely response will assist us in incorporating your concerns into project planning. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to the FAA within thirty (30) days of your receipt of this correspondence.

Sincerely,

Venus Larson
Project Manager

Enclosures:

- Tribal Consultation Options form
- Figure 1. Project Vicinity Map
- Figure 2. Preliminary Project Concept Map
- Figure 3. Project Preliminary APE

Cc:
Kelli Cropper, Project Manager, City and Borough of Sitka

Tribal Government to Government Consultation Response Form

[Name of Tribe]
[Tribal office address]

Project Name: *[Name]*
Federal/State Project Numbers: *[Federal/State Project Numbers]*

Please check a response, provide contact information, sign and mail, email or fax this form to FAA.

____ The *[Name of Tribe]*, a federally recognized tribe, would like to consult with the FAA in a government-to-government relationship for this proposed project.

____ The *[Name of Tribe]* has no interest associated with this proposed project and further consultation is not required.

____	____________________
Tribal Leader (Please print)	Telephone
____	____________________
Tribal Leader (Signature)	Date

If you have decided to consult, please identify a Tribal Representative for the consultation.

____	__________________
Name of Formal Tribal Representative (Please print)	Telephone
____	__________________
Name of Formal Tribal Representative (Signature)	Date

Tribal Contact information:

Phone:
Fax:
e-mail:
Other: (please describe)

Please mail, email, or fax Response Form

FAA Airports Division, ATTN: Leslie Grey
222 W. 7th Avenue, Box 14,
Anchorage, AK 99513-7587

FAX: 907-271-2851

EMAIL: AKAirportEnv@faa.gov

U.S. Department
of Transportation

**Federal Aviation
Administration**

AIRPORTS DIVISION

222 W. 7th Avenue, Box 14
Anchorage, Alaska
99513-7587

November 20, 2019

*New Sitka Seaplane Base, AIP 3-02-0488-001-2019, Sitka, Alaska***,** *Government-to-Government Consultation Initiation*

Anne Davis
Sitka Tribe of Alaska (IRA)
456 Katlian Street
Sitka, AK 99835-7505

Dear Ms. Davis,

The Federal Aviation Administration (FAA) in cooperation with the owner and operator of the Sitka Seaplane Base, the City and Borough of Sitka is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island.

<u>Purpose of Government-to-Government Consultation</u>
The primary purpose of government-to-government consultation as described in Federal Executive Order 13175 "Consultation and Coordination with Indian Tribal Governments" and FAA's Order 1210.20 "American Indian and Alaska Native Tribal Consultation Policy and Procedures" is to ensure that Federally Recognized Tribes are given the opportunity to provide meaningful and timely input regarding proposed FAA actions that uniquely or significantly affect Tribes.

<u>Consultation Initiation</u>
With this letter, the FAA is offering to consult on concerns that uniquely or significantly affect your Tribe related to the potential action described below. Early identification of Tribal concerns will allow the FAA and the airport owner and operator to consider ways to avoid and minimize potential impacts to Tribal resources and/or cultural practices as project planning and alternatives are developed and refined. We would be pleased to discuss details of the proposed project and its potential impacts with you.

<u>Project Information</u>
The purpose of the proposed project is to replace the existing seaplane base which has been operating at its current location for 65 years and is at the end of its useful life. The project proposes to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

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Confidentiality
We understand that you may have concerns regarding the confidentiality of information on areas or resources of religious, traditional and cultural importance to the Tribe. We would be happy to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information
If you wish to provide comments related to this proposed project, please contact:

FAA Airports Division
ATTN: **Venus Larson**
222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587
Fax: 907-271-2851
Email: Venus.Larson@faa.gov

Project Consultation Options Form
Your timely response will assist us in incorporating your concerns into project planning. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to the FAA within thirty (30) days of your receipt of this correspondence.

Sincerely,

Venus Larson
Project Manager

Enclosures:

- Tribal Consultation Options form
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- Figure 2. Preliminary Project Concept Map
- Figure 3. Project Preliminary APE

Cc:
Kelli Cropper, Project Manager, City and Borough of Sitka

<u>Tribal Government to Government Consultation Response Form</u>

[Name of Tribe]
[Tribal office address]

Project Name: *[Name]*
Federal/State Project Numbers: *[Federal/State Project Numbers]*

Please check a response, provide contact information, sign and mail, email or fax this form to FAA.

____ The *[Name of Tribe]*, a federally recognized tribe, would like to consult with the FAA in a government-to-government relationship for this proposed project.

____ The *[Name of Tribe]* has no interest associated with this proposed project and further consultation is not required.

____ ____________________
Tribal Leader (Please print) Telephone

____ ____________________
Tribal Leader (Signature) Date

If you have decided to consult, please identify a Tribal Representative for the consultation.

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Tribal Contact information:

Phone:
Fax:
e-mail:
Other: (please describe)

Please mail, email, or fax Response Form

FAA Airports Division, ATTN: Leslie Grey
222 W. 7th Avenue, Box 14,
Anchorage, AK 99513-7587

FAX: 907-271-2851

EMAIL: AKAirportEnv@faa.gov

U.S. Department
of Transportation

**Federal Aviation
Administration**

AIRPORTS DIVISION

222 W. 7th Avenue, Box 14
Anchorage, Alaska
99513-7587

November 20, 2019

New Sitka Seaplane Base, AIP 3-02-0488-001-2019, Sitka, Alaska, *Government-to-Government Consultation Initiation*

Robert Starbard
Hoonah Indian Association
P.O. Box 602
Hoonah, AK 99829-0602

Dear Mr. Starbard,

The Federal Aviation Administration (FAA) in cooperation with the owner and operator of the Sitka Seaplane Base, the City and Borough of Sitka is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island.

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FAA Contact Information

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222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587
Fax: 907-271-2851
Email: Venus.Larson@faa.gov

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Sincerely,

Venus Larson
Project Manager

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- Figure 3. Project Preliminary APE

Cc:
Kelli Cropper, Project Manager, City and Borough of Sitka

Tribal Government to Government Consultation Response Form

[Name of Tribe]
[Tribal office address]

Project Name: *[Name]*
Federal/State Project Numbers: *[Federal/State Project Numbers]*

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____ The *[Name of Tribe]*, a federally recognized tribe, would like to consult with the FAA in a government-to-government relationship for this proposed project.

____ The *[Name of Tribe]* has no interest associated with this proposed project and further consultation is not required.

______________________________	______________
Tribal Leader (Please print)	Telephone
______________________________	______________
Tribal Leader (Signature)	Date

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Please mail, email, or fax Response Form

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U.S. Department
of Transportation

**Federal Aviation
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AIRPORTS DIVISION

222 W. 7th Avenue, Box 14
Anchorage, Alaska
99513-7587

November 20, 2019

*New Sitka Seaplane Base, AIP 3-02-0488-001-2019, Sitka, Alaska***,** *Government-to-Government Consultation Initiation*

Doreen Witwer
Hydaberg Cooperative Association
P.O. Box 349
Hydaberg, AK 99922-0349

Dear Ms. Witwer,

The Federal Aviation Administration (FAA) in cooperation with the owner and operator of the Sitka Seaplane Base, the City and Borough of Sitka is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island.

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Consultation Initiation

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FAA Airports Division
ATTN: **Venus Larson**
222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587
Fax: 907-271-2851
Email: Venus.Larson@faa.gov

Project Consultation Options Form
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Sincerely,

Venus Larson
Project Manager

Enclosures:

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- Figure 2. Preliminary Project Concept Map
- Figure 3. Project Preliminary APE

Cc:
Kelli Cropper, Project Manager, City and Borough of Sitka

Tribal Government to Government Consultation Response Form

[Name of Tribe]
[Tribal office address]

Project Name: *[Name]*
Federal/State Project Numbers: *[Federal/State Project Numbers]*

Please check a response, provide contact information, sign and mail, email or fax this form to FAA.

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____ The *[Name of Tribe]* has no interest associated with this proposed project and further consultation is not required.

____ ____________________
Tribal Leader (Please print) Telephone

____ ____________________
Tribal Leader (Signature) Date

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Name of Formal Tribal Representative (Please print) Telephone

____ __________________
Name of Formal Tribal Representative (Signature) Date

Tribal Contact information:

Phone:
Fax:
e-mail:
Other: (please describe)

Please mail, email, or fax Response Form

FAA Airports Division, ATTN: Leslie Grey
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Anchorage, AK 99513-7587

FAX: 907-271-2851

EMAIL: AKAirportEnv@faa.gov

U.S. Department of Transportation
Federal Aviation Administration

AIRPORTS DIVISION

222 W. 7th Avenue, Box 14
Anchorage, Alaska
99513-7587

November 20, 2019

*New Sitka Seaplane Base, AIP 3-02-0488-001-2019, Sitka, Alaska***,** *Government-to-Government Consultation Initiation*

Teresa A. Gaudette
Organized Village of Kake
P.O. Box 316
Kake, AK 99830-0316

Dear Ms. Gaudette,

The Federal Aviation Administration (FAA) in cooperation with the owner and operator of the Sitka Seaplane Base, the City and Borough of Sitka is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island.

Purpose of Government-to-Government Consultation

The primary purpose of government-to-government consultation as described in Federal Executive Order 13175 “Consultation and Coordination with Indian Tribal Governments” and FAA’s Order 1210.20 “American Indian and Alaska Native Tribal Consultation Policy and Procedures” is to ensure that Federally Recognized Tribes are given the opportunity to provide meaningful and timely input regarding proposed FAA actions that uniquely or significantly affect Tribes.

Consultation Initiation

With this letter, the FAA is offering to consult on concerns that uniquely or significantly affect your Tribe related to the potential action described below. Early identification of Tribal concerns will allow the FAA and the airport owner and operator to consider ways to avoid and minimize potential impacts to Tribal resources and/or cultural practices as project planning and alternatives are developed and refined. We would be pleased to discuss details of the proposed project and its potential impacts with you.

Project Information

The purpose of the proposed project is to replace the existing seaplane base which has been operating at its current location for 65 years and is at the end of its useful life. The project proposes to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

1) Acquisition of Land. CBS plans to acquire lands on shore (uplands) and tide & submerged lands for construction of the new seaplane base. CBS proposes to acquire the uplands with FAA Airport Improvement Program (AIP) Land Acquisition grant funds. CBS has also submitted an application for tidelands and submerged lands to the Alaska Department of Natural Resources (ADNR) for approximately 23 acres for construction of seaplane floats and associated infrastructure and the seaplane operating area.

2) Construction of New Seaplane Base. This project tentatively includes the following elements (Figure 2):
- New fuel storage and distribution system
- Vehicle parking area
- On-site aircraft maintenance capability
- A drive-down ramp to the seaplane base floats
- Electricity, water and sewer, and lighting
- Float slips for based seaplanes and for transient seaplanes
- Safe access between the parking positions and the water operating are, and
- Options to accommodate future growth with potential float expansion.

3) Demolition of Existing Seaplane Base. This project will include the removal/disposal of the existing seaplane floats located at the previous seaplane area.

Confidentiality
We understand that you may have concerns regarding the confidentiality of information on areas or resources of religious, traditional and cultural importance to the Tribe. We would be happy to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information
If you wish to provide comments related to this proposed project, please contact:

FAA Airports Division
ATTN: **Venus Larson**
222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587
Fax: 907-271-2851
Email: Venus.Larson@faa.gov

Project Consultation Options Form
Your timely response will assist us in incorporating your concerns into project planning. For that purpose, we respectfully request that you complete the enclosed Project Consultation Options form and forward it to the FAA within thirty (30) days of your receipt of this correspondence.

Sincerely,

Venus Larson
Project Manager

Enclosures:

- Tribal Consultation Options form
- Figure 1. Project Vicinity Map
- Figure 2. Preliminary Project Concept Map
- Figure 3. Project Preliminary APE

Cc:
Kelli Cropper, Project Manager, City and Borough of Sitka

Tribal Government to Government Consultation Response Form

[Name of Tribe]
[Tribal office address]

Project Name: *[Name]*
Federal/State Project Numbers: *[Federal/State Project Numbers]*

Please check a response, provide contact information, sign and mail, email or fax this form to FAA.

____ The *[Name of Tribe]*, a federally recognized tribe, would like to consult with the FAA in a government-to-government relationship for this proposed project.

____ The *[Name of Tribe]* has no interest associated with this proposed project and further consultation is not required.

______________________________	______________
Tribal Leader (Please print)	Telephone
______________________________	______________
Tribal Leader (Signature)	Date

If you have decided to consult, please identify a Tribal Representative for the consultation.

______________________________	______________
Name of Formal Tribal Representative (Please print)	Telephone
______________________________	______________
Name of Formal Tribal Representative (Signature)	Date

Tribal Contact information:

Phone:
Fax:
e-mail:
Other: (please describe)

Please mail, email, or fax Response Form

FAA Airports Division, ATTN: Leslie Grey
222 W. 7th Avenue, Box 14,
Anchorage, AK 99513-7587

FAX: 907-271-2851

EMAIL: AKAirportEnv@faa.gov

In Reply Refer To:
New Sitka Seaplane Base
Federal Project # 3-02-0488-001-2019

Consultation Initiation

November 26, 2019

Richard Peterson
Central Council of Tlingit & Haida Indian Tribes of Alaska
320 W. Willoughby Avenue, Suite 300
Juneau, AK 99801

Subject: Initiation of Consultation

Dear Mr. Peterson:

The City and Borough of Sitka (CBS), in cooperation with the Alaska Division of the Federal Aviation Administration (FAA), is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island, which is deteriorating and in poor condition. The existing seaplane base has been operating at its current location for 65 years and is at the end of its useful life. The purpose of the proposed project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

For purposes of the National Historic Preservation Act, we are initiating this consultation with you to assist us in determining the Area of Potential Effect (APE) and identifying historic properties that may be affected by the proposed project.

Project Description

1) **Acquisition of Land.** CBS plans to acquire lands on shore (uplands) and tide & submerged lands for construction of the new seaplane base. CBS proposes to acquire the uplands with FAA Airport Improvement Program (AIP) Land Acquisition grant funds. CBS has also submitted an application for tidelands and submerged lands to the Alaska Department of Natural Resources (ADNR) for approximately 23 acres for construction of seaplane floats and associated infrastructure and the seaplane operating area.

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Preliminary Area of Potential Effect
The Preliminary APE is the footprint of the proposed project, measuring 26.2 acres (Figure 3).

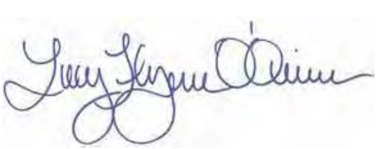
Identification Efforts
A preliminary search of the Alaska Heritage Resource Survey (AHRS) identified previously recorded archaeological and historic sites in the project vicinity. A known historic bunker lies within/adjacent to the project area. The project area appears to be within 250 feet of the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark (shown in Figure 1). The existing seaplane base, slated to be demolished, is within 250 feet of the Pyramid Packing Company (SIT-00320).

Consulting Parties
- State Historic Preservation Officer
- National Park Service
- Sealaska
- Sitka Tribe of Alaska (IRA)
- Hoonah Indian Association
- Hydaburg Cooperative Association
- Organized Village of Kake
- Yakutat Tlingit Tribe
- Sitka Historic Preservation Commission

If you have questions or comments related to this proposed project, I can be reached at the address above, by telephone at 907-562-2000, or by e-mail at loquinn@dowl.com.

Your timely response will greatly assist us in incorporating your concerns into project development. For that purpose, we respectfully request that you respond within thirty days of your receipt of this correspondence.

Sincerely,



Lucy Flynn O'Quinn
Cultural Resources Specialist, SOI

Enclosures:
Figure 1. Project Vicinity Map
Figure 2. Preliminary Project Concept Map
Figure 3. Project Preliminary APE

Electronic cc w/ enclosures:
Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division
Kelli Cropper, City and Borough of Sitka

In Reply Refer To:
New Sitka Seaplane Base
Federal Project # 3-02-0488-001-2019

Consultation Initiation

November 26, 2019

Anthony Mallott
Sealaska
One Sealaska Plaza, Suite 400
Juneau, AK 99801

Subject: Initiation of Consultation

Dear Mr. Mallott:

The City and Borough of Sitka (CBS), in cooperation with the Alaska Division of the Federal Aviation Administration (FAA), is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island, which is deteriorating and in poor condition. The existing seaplane base has been operating at its current location for 65 years and is at the end of its useful life. The purpose of the proposed project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

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Sincerely,

Lucy Flynn O'Quinn
Cultural Resources Specialist, SOI

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Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division
Kelli Cropper, City and Borough of Sitka

In Reply Refer To:
New Sitka Seaplane Base
Federal Project # 3-02-0488-001-2019

Consultation Initiation

November 26, 2019

Janet Clemens
National Park Service
2525 Gambell Street
Anchorage, AK 99503

Subject: Initiation of Consultation

Dear Ms. Clemens:

The City and Borough of Sitka (CBS), in cooperation with the Alaska Division of the Federal Aviation Administration (FAA), is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island, which is deteriorating and in poor condition. The existing seaplane base has been operating at its current location for 65 years and is at the end of its useful life. The purpose of the proposed project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

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2) **Construction of New Seaplane Base.** This project tentatively includes the following elements (Figure 2):
   - New fuel storage and distribution system
   - Vehicle parking area

425-869-2670 ■ 800-865-9847 (fax) ■ 8410 154th Avenue NE, Suite 120 ■ Redmond, Washington 98052 ■
www.dowl.com

- On-site aircraft maintenance capability
- A drive-down ramp to the seaplane base floats
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If you have questions or comments related to this proposed project, I can be reached at the address above, by telephone at 907-562-2000, or by e-mail at loquinn@dowl.com.

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Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division
Kelli Cropper, City and Borough of Sitka

In Reply Refer To:
New Sitka Seaplane Base
Federal Project # 3-02-0488-001-2019

Consultation Initiation

November 26, 2019

Amy Ainslie
Sitka Historic Preservation Commission
100 Lincoln Street
Sitka, Alaska 99835

Subject: Initiation of Consultation

Dear Ms. Ainslie:

The City and Borough of Sitka (CBS), in cooperation with the Alaska Division of the Federal Aviation Administration (FAA), is proposing to construct a new seaplane base on the north end of Japonski Island to replace the existing seaplane base on the west shore of Baranof Island, which is deteriorating and in poor condition. The existing seaplane base has been operating at its current location for 65 years and is at the end of its useful life. The purpose of the proposed project is to address capacity, safety, and operational and condition deficiencies at the existing Sitka Seaplane Base. The project is located at approximately 57.06° North and 135.36° West; in Sections 34–35 of Township 55 South, Range 63 East, Copper River Meridian (USGS Quadrangle Sitka A-5) (Figure 1).

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Sincerely,

Lucy Flynn O'Quinn
Cultural Resources Specialist, SOI

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Electronic cc w/ enclosures:
Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division
Kelli Cropper, City and Borough of Sitka

Maryellen Tuttell

From:	Clemens, Janet <janet_clemens@nps.gov>
Sent:	Friday, December 6, 2019 2:55 PM
To:	Lucy Flynn O'Quinn
Cc:	venus.larson@faa.gov; Lizzie Zemke; Kelli Cropper; Jennifer PEDERSON WEINBERGER
Subject:	Re: Sitka Seaplane Base Consultation Initiation - NPS comments
Attachments:	NPS_Response_DOWL Sitka Seaplane Base 12062019.pdf; Map #2 proposed seaplane base with NHL considerations - 12.05.2019.pdf; Map #1 Sitka Naval Operating Base area of NHL site map 12.6.2019.pdf
Categories:	Filed by Newforma

Hi Lucy,

We appreciate being part of the consultation process for the proposed project, as it relates to the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark.

Please see our comments in the attached memo and the cited maps, and let me know if you have any questions. I look forward to continued consultation about the project.

Thank you,

Janet

PS - note our address is 240 W. 5th Avenue, Anchorage, AK 99501

Janet Clemens, Historian
National Park Service
Interior Region 11 - Alaska
240 W. 5th Avenue
Anchorage, AK 99501
t. 907/644-3461
f. 907/644-3811

On Tue, Nov 26, 2019 at 10:16 AM Lucy Flynn O'Quinn <loquinn@dowl.com> wrote:

> Please see the attached letter and maps for consultation initiation of the Project. A hardcopy has also been mailed to your address.
>
> Thank you,

Lucy Flynn O'Quinn
Cultural Resources Specialist

DOWL

(907) 562-2000 | office
(907) 865-1209 | direct

4041 B Street
Anchorage, AK 99503

www.dowl.com

United States Department of the Interior

NATIONAL PARK SERVICE
Interior Region 11 • Alaska
240 West 5th Avenue, Room 114
Anchorage, Alaska 99501

IN REPLY REFER TO:
1.B (AKRO-CR)

December 6, 2019

VIA ELECTRONIC MAIL – NO HARD COPY TO FOLLOW

Lucy Flynn O'Quinn
Cultural Resources Specialist, SOI
DOWL
8410 154th Avenue NE, Suite 120
Redmond, WA 98052

Subject: New Sitka Seaplane Base; Federal Project# 3-02-0488-01-2019

Dear Ms. O'Quinn:

Thank you for contacting us as part of the National Historic Preservation Act, Section 106 initiation of consultation for the City and Borough of Sitka with the Alaska Division of the Federal Aviation Administration's proposed project to construct a new seaplane base on the north end of Japonski Island, Sitka, Alaska.

The National Park Service (NPS) administers the National Historic Landmark (NHL) program for the Secretary of the Interior and participates in the consultation process when there is the potential for an adverse effect to a National Historic Landmark (NHL). The proposed project area of potential effect is within the Sitka Naval Operating Base and U.S. Army Coastal Defenses National Historic Landmark boundary. Federal agencies undertaking a project within a NHL must be in compliance with Section 106 of the National Historic Preservation Act of 1966 54 U.S.C. 306108 and it implementing regulation 36 CFR §800). As such, the NPS serves as an interested party throughout the Section 106 process to ensure the integrity of the NHL.

To help with your identification efforts and potential assessment of effects, attached are two site maps: Map #1 shows the Sitka Naval Operating Base area of the NHL and identifies the specific historic properties; and Map #2 shows an overlay of the proposed project on a Google Earth screen shot, with notes about the NHL and how potential adverse effects for this historic residential area might be avoided or minimized.

We are interested in learning more about the project, including the letter reference about "A known historic bunker lies within/adjacent to the project area," as well as about the size and height of the proposed support structures, and if there are potential road "improvements" in anticipation of project construction.

If you have any questions about our comments, please contact Janet Clemens, Historian, at (907) 644-3461 or janet_clemens@nps.gov.

Sincerely,

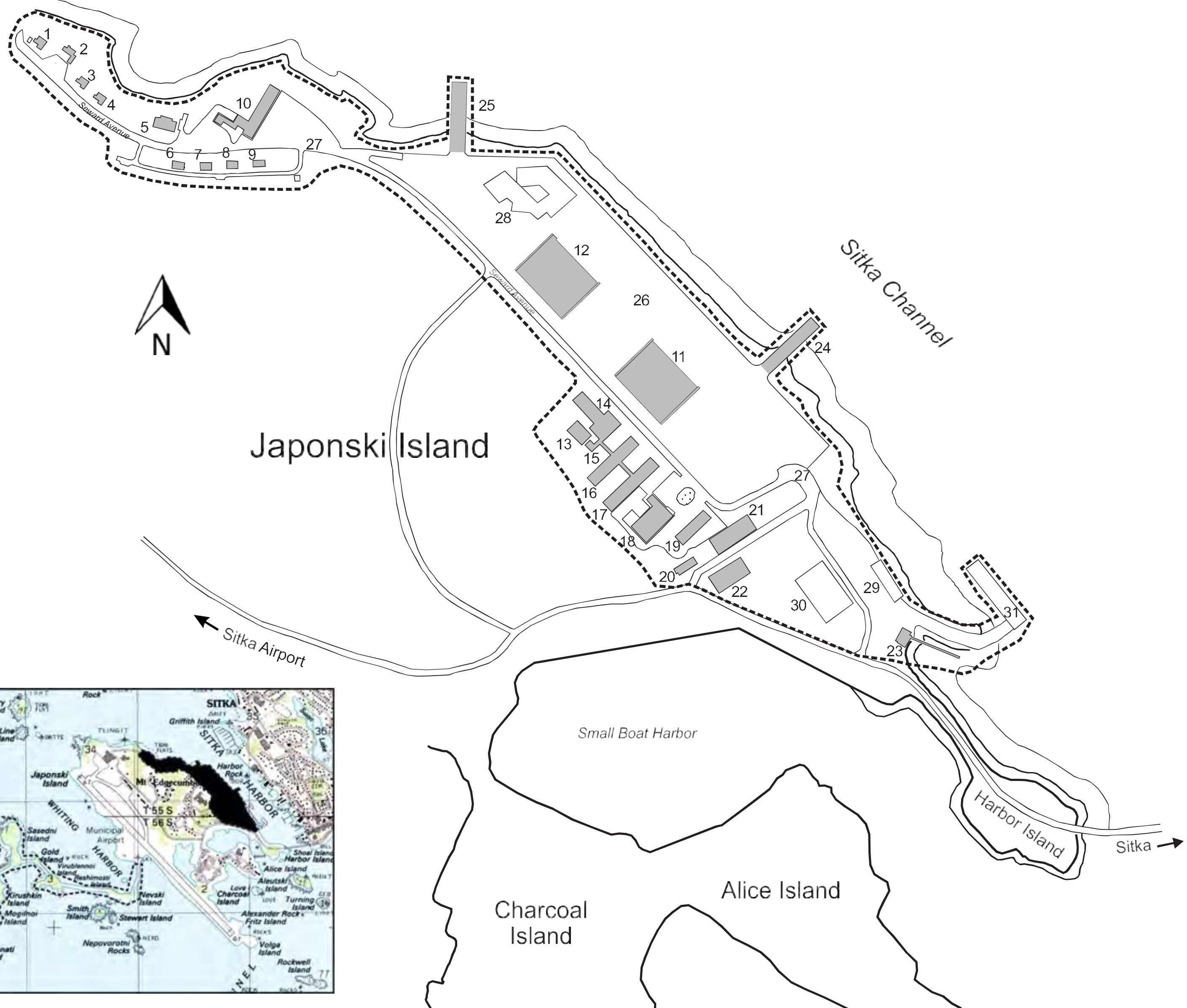
Jennifer Pederson Weinberger

Jennifer Pederson Weinberger
Alaska Region Cultural Resources Program Manager

Attachments: Map #1 and Map #2

cc: Venus Rivera Larson, Project Manager, FAA Alaska Region, Airports Division, venus.larson@faa.gov
Kelli Cropper, City and Borough of Sitka, kelli.cropper@cityofsitka.org

Map #1 NPS prepared, current site map of the Sitka Naval Operating Base area of the NHL.
Part of the draft revised NHL nomination, 12.06.2019.



Map not to scale

Contributing

1. Senior Officers Quarters, Building 201
2. Commanding Officers Quarters, Building 202
3. Senior Officers Quarters, Building 203
4. Senior Officers Quarters, Building 204
5. Officers Recreation, Totem Club, Building 205
6. Married Officers Quarters, Building 207
7. Married Officers Quarters, Building 208
8. Married Officers Quarters, Building 209
9. Married Officers Quarters, Building 210
10. Bachelor Officers Quarters, Building 212
11. Seaplane Hangar No. 1, Building 331
12. Seaplane Hangar No. 2, Building 332
13. Cold Storage Building, Building 289
14. Mess Hall & Bakery, Building 290
15. Brig, Building 291
16. Barracks, Building 292
17. Barracks, Building 293
18. Enlisted Men's Recreation Facility, Building 295
19. Administrations and Operations Building, Building 297
20. Bomb Proof Communications Center, Building 298
21. Commissary, Cold Storage, and Laundry Building, Building 299
22. Torpedo Shed, Garage and Shop, Building 301
23. Boathouse, Building 309
24. Seaplane Ramp No. 2
25. Seaplane Ramp No. 1
26. Airfield
27. Sitka Naval Operating Base Road System

Non-contributing

28. Mt. Edgecumbe School
29. Coast Guard CST Building
30. Mt Edgecumbe High School Aquatic Facility
31. U.S. Coast Guard Dock

Contributing Buildings and Structures
Contributing Sites
Non-contributing Properties
National Historic Landmark Boundary


Untitled Map
Write a description for your map.
Map #2 - NPS prepared, showing overlay of the proposed new seaplane base project with initial suggestions about how to minimize and avoid impacts to some of the character defining features of the Sitka Naval Operating Base section of the NHL. 12.5.2019
Leave as much of a buffer as possible between buildings and NHL boundary in these lots. Effort should be taken to preserve the historic Seward Avenue street-scape within the NHL (see photo). Buffering should include distance from seaplane base buildings and NHL boundary, and trees and vegetation to hide seaplane base from NHL buildings.
Proposed access road.
NHL Boundary
Alternative access road connecting to Airport Rd. would avoid NHL.
Airport Rd
Lifesaver Dr
Google Earth
Seward Avenue, looking northwest towards project area. Care should be taken to preserve the residential setting of the historic Officers' Housing Area pictured in the photo. Trees and vegetation on the left side and at the end of the road contribute to this setting.

Appendix E:

Noise Analysis

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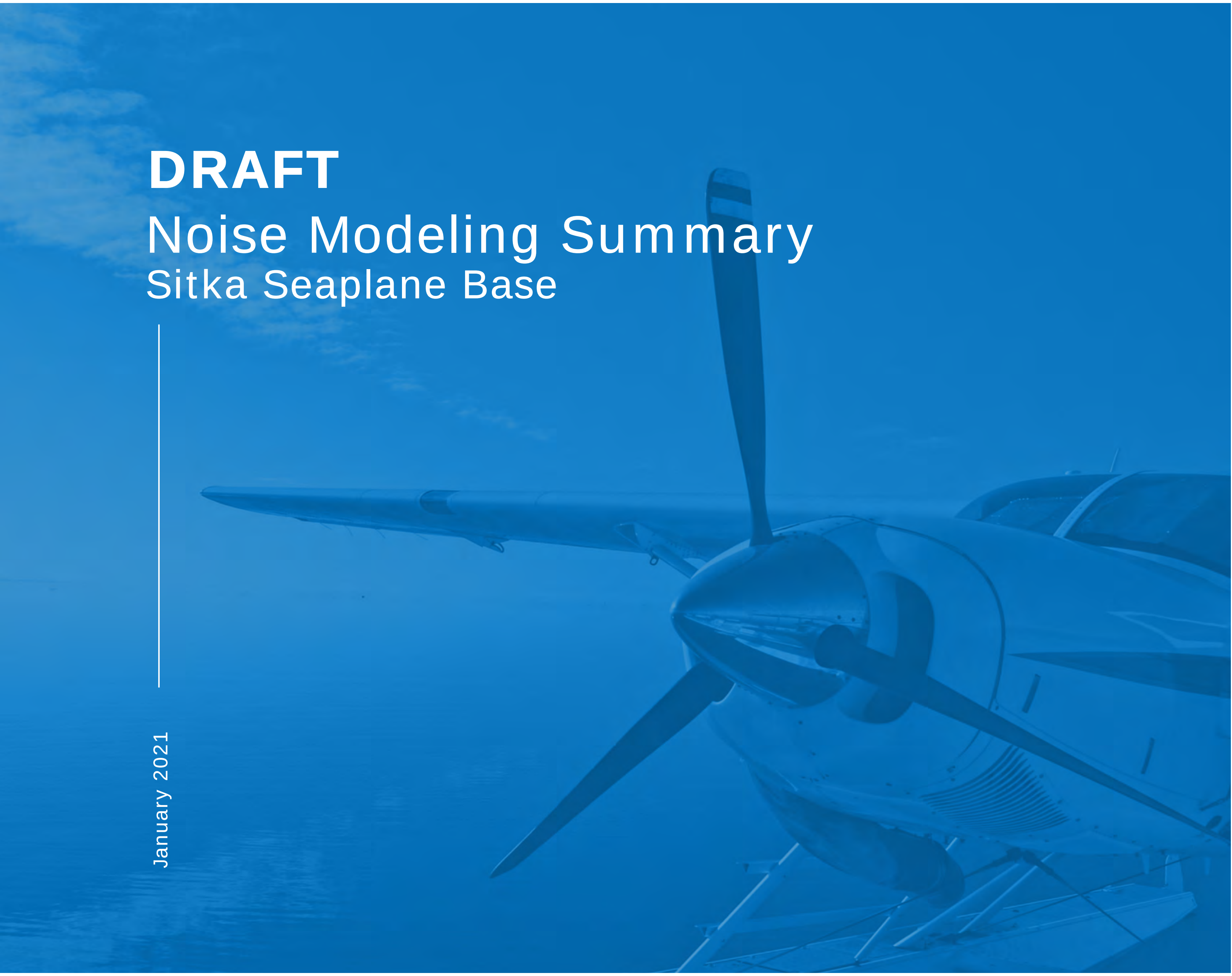

DRAFT

Noise Modeling Summary

Sitka Seaplane Base

January 2021

PREPARED FOR:

U.S. Department of Transportation
Federal Aviation Administration
Alaskan Region, Airports Division
222 West 7th Avenue
Anchorage, AK 99513

PREPARED BY:

DOWL
4041 B Street
Anchorage AK 99508

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Table of Contents

Figures

Tables

Appendices

Acronyms

AC	Advisory Circular
ADF&G	Alaska Department of Fish and Game
AEM	Area Equivalent Model
AEDT	Aviation Environmental Design Tool
AHRS	Alaska Heritage Resources Survey
CBS	City and Borough of Sitka
CFR	Code of Federal Regulations
dB	Decibel
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
FAA	Federal Aviation Administration
MSL	Mean sea level
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NPS	National Park Service
SEARHC	Southeast Alaska Regional Health Consortium
U.S.	United States

1.0 Introduction

The City and Borough of Sitka (CBS) owns and operates the Sitka Seaplane Base (Federal Aviation Administration [FAA] identifier A29). A29 is located on Sitka Channel between Thomsen and ANB harbors (Figure 1); it has been operating at its current site for 65 years and is at the end of its useful life. Despite the poor condition of the existing facilities and the lack of support infrastructure, seven of the seaplane base's eight slips are currently leased, and operations (takeoffs and landings) were estimated at 320 for 2018 (FAA 2020a). CBS, in cooperation with FAA, is proposing a new seaplane base on Japonski Island.

Sitka, Alaska is located on Baranof Island on Sitka Channel approximately 600 air miles from Anchorage at 57.0527 North Latitude; -135.3311 West Longitude (Sec. 36, T55S, R63E, Copper River Meridian, United States Geological Survey [USGS] Quadrangle Sitka A5). Sitka is accessible only by air or water. It is approximately 95 miles from Juneau and 150 miles from the nearest Alaska road system at Haines.

Sitka serves as a hub for health care, goods distribution, and transportation for neighboring communities. Most of the smaller communities using Sitka as a hub are accessible only by seaplane. The availability of seaplane transportation is critical to the Sitka economy and to medical, personal, and tourism transportation. Sitka's seaplanes are important to the social and economic fabric of this coastal region's remote communities, lodges, recreation areas, hatcheries, and fishing fleets. Government agencies including the U.S. Forest Service, U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, Alaska State Troopers, and the Civil Air Patrol require seaplanes to access remote communities and resources.

The proposed seaplane base is located on Japonski Island, adjacent to the U.S. Coast Guard base. Mt. Edgecumbe High School and Southeast Alaska Regional Health Consortium (SEARHC) health care facilities, and a residence for the Mt. Edgecumbe High School Principal are located on Seward Street south of the proposed sepalne base. These facilities are located on the west side of Sitka Channel, which would serve as the seaplane base operations area. Seaplane takeoff and landings would continue to occur in Sitka Channel, but the sea lane would shift north as shown in Figure 1. Concerns were raised during the project scoping process about the potential for incompatible levels of noise in the educational, residential, and health care facilities located along Seward Street. Although the level of operations at the proposed sea plane base would not typically require noise analysis by FAA environmental review guidelines, a noise analysis was conducted to address the compatability of these land uses with seaplane base noise levels.

The FAA analyses land use compatibility using compatible land use guidelines published in 14 CFR part 150, *Land Use Compatibility with Yearly Day-Night Average Sound Levels*. Compatibility has been shown to be tied to Yearly Average Day-Night Noise Levels (DNL) which account for all of the aircraft events over a 24 hour period, adjusting for events that occur between 10 p.m. and 7 a.m. which are perceived as more annoying. Most land uses (including residential, schools, and health care facilities) are compatible with DNL levels of 65 decibels (dB) and below, as shown in Table 1.

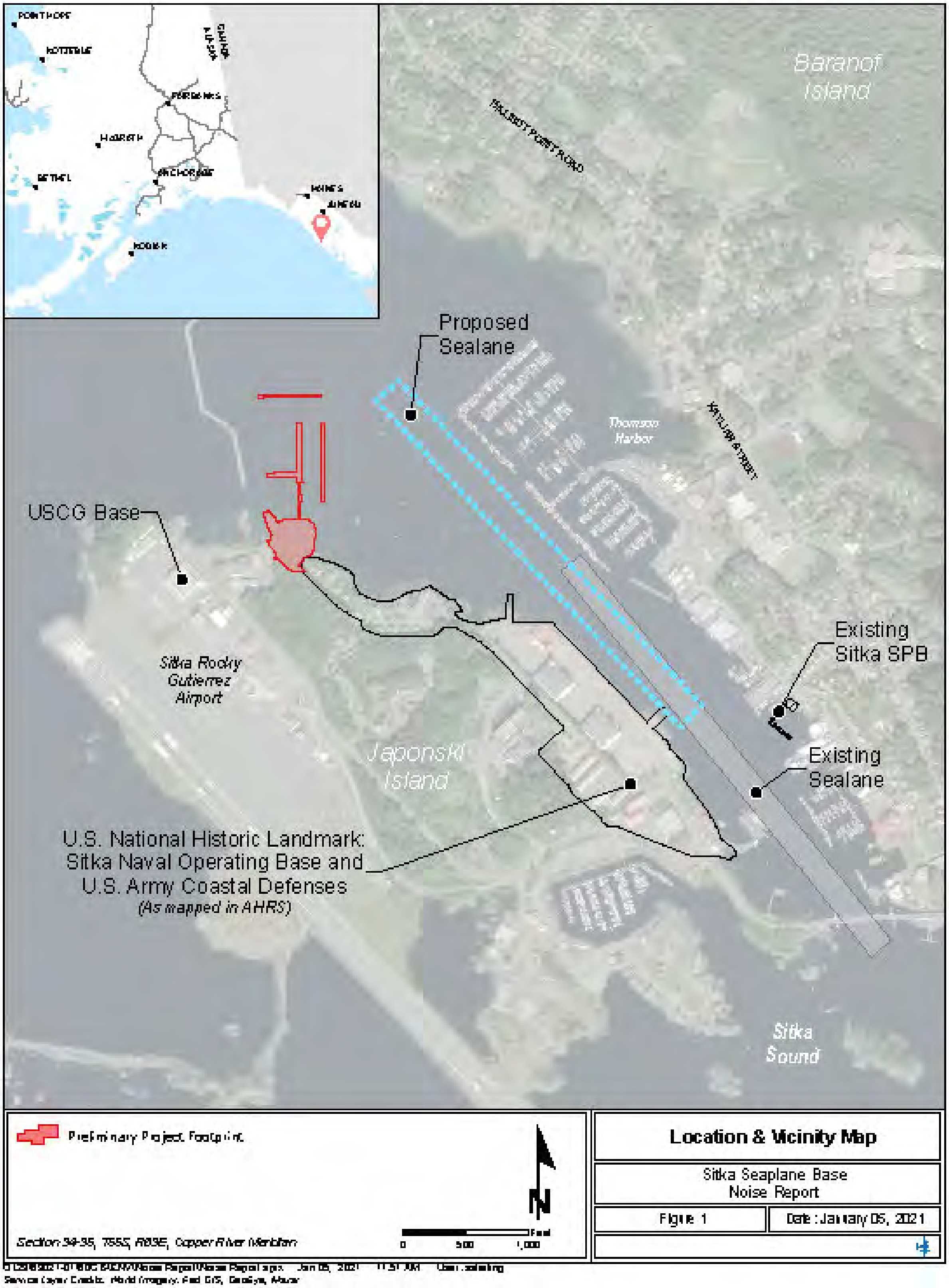
Table 1: FAA Land Use Compatibility with Yearly Day-Night Average Sound Levels (DNL)

Land Use	Yearly DNL Sound Level (decibles)					
	<65	65-70	70-75	75-80	80-85	>80
Residential	Y	N(1)	N(1)	N	N	N
Schools	Y	N(1)	N(1)	N	N	N
Hosptials	Y	25	30	N	N	N

Source: 14 CFR part 150, Appendix A, Table 1

Notes: Y means land use is compatible without restrictions. N means land use is not compatible.
N(1) suggests that residential or school uses should aim to reduce inside noise levels by 25-30 dB.
25 or 30 means use is generally compatible, but should aim to reduce inside noise levels by 25-30 dB. facilities.

Figure 1. Location and Vicinity Map



2.0 Facilities

This section identifies the change in facilities that will lead to changes in operations and associated noise levels with the proposed project.

2.1. Existing

Japonski Island contains Sitka's commercial airport and the USCG's Air Station Sitka, which conducts search and rescue operations in Southeast Alaska. The existing seaplane base is located south and east of the proposed site. Seaplanes currently take off and land on Sitka Channel from the existing seaplane base south of the proposed site.

Noise-sensitive receptors, such as Mount Edgecumbe High School, SEARHC facilities, and a residence are located on Japonski Island in the vicinity of the site. It has been noted that existing seaplane operations in the channel sometimes interfere with class activities at Mt. Edgecumbe High School.

2.2. Proposed

The marine area for the seaplane base would be acquired from the Alaska Department of Natural Resources (DNR). The CBS has submitted to DNR an application for conveyance of submerged tidelands and received a preliminary approval for conveyance of tidelands adjacent to the upland parcel to accommodate seaplane floats and operations areas . The marine component of the facility would include a pile-supported trestle, a gangway, a loading and maneuvering float, a transient float, a based seaplane float, and, if needed, a floating wave attenuator north of the floats to attenuate waves from the main harbor entrance gap in the existing breakwater or southeast of the floats to attenuate waves from the channel to the south.

The 2016 Siting Analysis identified a potential demand for up to 19 based aircraft and 15 transient aircraft if all of the desired support facilities were available at a new seaplane base. Given that CBS may need to construct the new seaplane base in phases and may not be able to accommodate all facilities requested initially, it was determined that the proposed site would accommodate 14 based aircraft and four transient aircraft.

The proposed facility would include:

- Seaplane float (350 feet by 46 feet) with ramps for 14 based seaplanes (4 DE Havilland Beavers and 10 Cessna 206s)
- Transient seaplane float (220 feet by 30 feet) with capacity for four transient seaplanes (sized for DE Havilland Beavers)
- Drive-down gangway (120 feet by 16 feet) and landing float (120 feet by 46 feet) for access to seaplane floats
- Pile-supported trestle (240 feet by 16 feet) with 50-foot turn-out lane at gangway
- Wave attenuators on the north and southeast (if required)
- Gravel vehicle parking area (15 parking spaces)
- Electricity, water, and lighting for the seaplane floats
- Covered waiting area and eventual terminal area
- Safe access between the parking positions and the water operating area
- Fuel storage and access facilities
- Upland seaplane parking areas and maneuvering room
- Seaplane haul out ramp
- Security fencing
- Landscape buffer along southern boundary
- Accommodations for future expansion

2.2.1. Sea Lane

The new seaplane base concept was developed using safety and planning criteria in FAA's Advisory Circular (AC) 150/5395-1B Seaplane Bases. The facility design is based on expected use by aircraft similar to the more common aircraft used in Southeast Alaska (DE Havilland Beavers, Cessna Caravans, and several smaller aircraft frame types) to accommodate the operational needs of current and future seaplane base users.

FAA planning criteria for seaplane bases recommends a water lane for takeoffs and landings of at least 3,500 feet by 200 feet with a 20:1 approach surface, and a depth of at least 4 feet. The water lane area should avoid established shipping and boating lanes, areas that attract birds, and populated areas along the shore. The proposed water lane area would be further north of the existing water lane. While the takeoff and landing area would still be in an area with substantial boat activity, it would be away from the O'Connell Bridge connecting Baranof Island to Japonski Island, farther from the seafood processing facilities that attract gulls and other birds, and farther away from the more commercial and institutional area of the islands' shorelines.

The existing seaplane base (A29), would not be demolished as part of the Project. The CBS would determine the appropriate reuse or removal of the facility in the future.

2.2.2. Fleet Mix

The current mix of aircraft that use A29 includes small floatplanes with a wingspan less than 49 ft. It is recognized that larger aircraft have difficulty navigating the piling configuration and shallow water conditions.

It is anticipated that several aircraft that will use the new facility are currently using the Sitka Rocky Gutierrez Airport on either fixed or amphibious gear. It is also anticipated that additional operators will base aircraft at the proposed facility.

Table 2 includes the existing and future operations with the proposed project.

Table 2. Expected Changes in Fleetmix (CBS 2020)

Aircraft Model	Existing Annual Operations	Future Annual Operations
Avid Flyer	150	200
Cessna 180	143	183
Cessna 185	540	1120
Cessna 206	0	600
Cessna 208 (Caravan)	0	600
DeHaviland Beaver	0	600
Husky A1	30	39
Piper Cub	180	180
Total	1,043	3,522

3.0 Modeling Results

FAA environmental review guidance does not require noise analysis for Projects involving Design Group I and II airplanes, such as Cessna and Beavers, when these operations do not exceed 90,000 annual (247 average daily) operations. However, due to the proximity of Mt. Edgecumbe High School at the water's edge and other noise sensitive uses in the project vicinity, noise analysis was conducted.

Seaplane takeoff and land takeoff and landing operations would still occur in the Sitka Channel, but may be shifted north of their current location. The new seaplane base would provide more float capacity and could increase the number of seaplane operations in the Sitka Channel from an estimated 1,043 per year to approximately 3,522 per year (CBS 2020) . Use is seasonal and so daily operations would be higher in summer and lower in the winter. Peak-day operations are expected to be around 20 operations per day with the Proposed Action.

Two methods of modeling noise were utilized. An initial screening method and a more detailed method as described below.

3.1. Area Equivalent Method (Version 2C SP2)

The Area Equivalent Method (AEM) is a mathematical procedure that provides an estimated noise contour area of a specific airport given the types of aircraft and the number of operations for each aircraft. The noise contour area is a measure of the size of the landmass enclosed within a level of noise as produced by a given set of aircraft operations.

3.1.1. Assumptions

The existing operations where compared to the proposed operations. Cessna 182 Floatplane and DeHaviland Beaver Floatplane are acceptable substitutions for all aircraft in the fleetmix.

3.1.2. Results

Screening level analyisis was conducted using FAA's AEM Version 2C SP2. The model provides a quick comparison of existing to future by calculating the increase in the footprint of the 65 DNL. Based on the expected increase in the number of flights as well as an increase in the number of louder aircraft, the screening analysis indicated that a more detailed method should be used for calculating impacts at noise sensitive receptors.

AEM was used to determine the change in area of the 65 DNL contour for the proposed change in operations and fleet mix. The area bounded by the 65 DNL increased from 0.01 Square Miles for the existing condition to 0.02 Square Miles for the proposed condition, which is greater than 100% change. Detailed analysis is recommended by FAA when the change is greater than 17%. Therefore more detailed analysis was performed. Appendix A includes printouts of the file for AEM Modeling.

3.2. Aviation Environmental Design Tool 3C (Build 140.0.11574.1)

Aviation Environmental Design Tool (AEDT) is a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences. AEDT is a comprehensive tool that provides information to FAA and stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review activities required under NEPA by consolidating the modeling of these environmental impacts in a single tool.

AEDT is designed to model individual studies ranging in scope from a single flight at an airport to scenarios at the regional, national, and global levels.

All FAA actions requiring noise, fuel burn or emissions modeling and for which the environmental analysis process has begun on or after March 6, 2020 are required to use AEDT 3c (Build 140.0.11574.1)

3.2.1. Assumptions

The existing operations where compared to the proposed future operations listed in Table 1. Cessna 182 Floatplane and DeHaviland Beaver Floatplane were used as acceptable substitutions for all aircraft in the fleetmix. Peak-day operations were estimated at 20 operations per day with the Proposed Action. Takeoffs and landings were split evenly between the sea lane ends, i.e. 50% taking off to the north and 50% taking off to the south for both existing and proposed operations.

Figure 2 shows the sea lane (runway) configuration used for modeling existing operations and the proposed future operations.

Noise receptors used in the noise modeling were selected to represent the types of noise-sensitive land uses occurring in the vicinity of the proposed sea lanes, including education, health care services, and residential uses. The receptors selected and the rationale for each is listed in Table 3 and the receptors are shown on Figure 3.

Figure 2: Modeled Runways

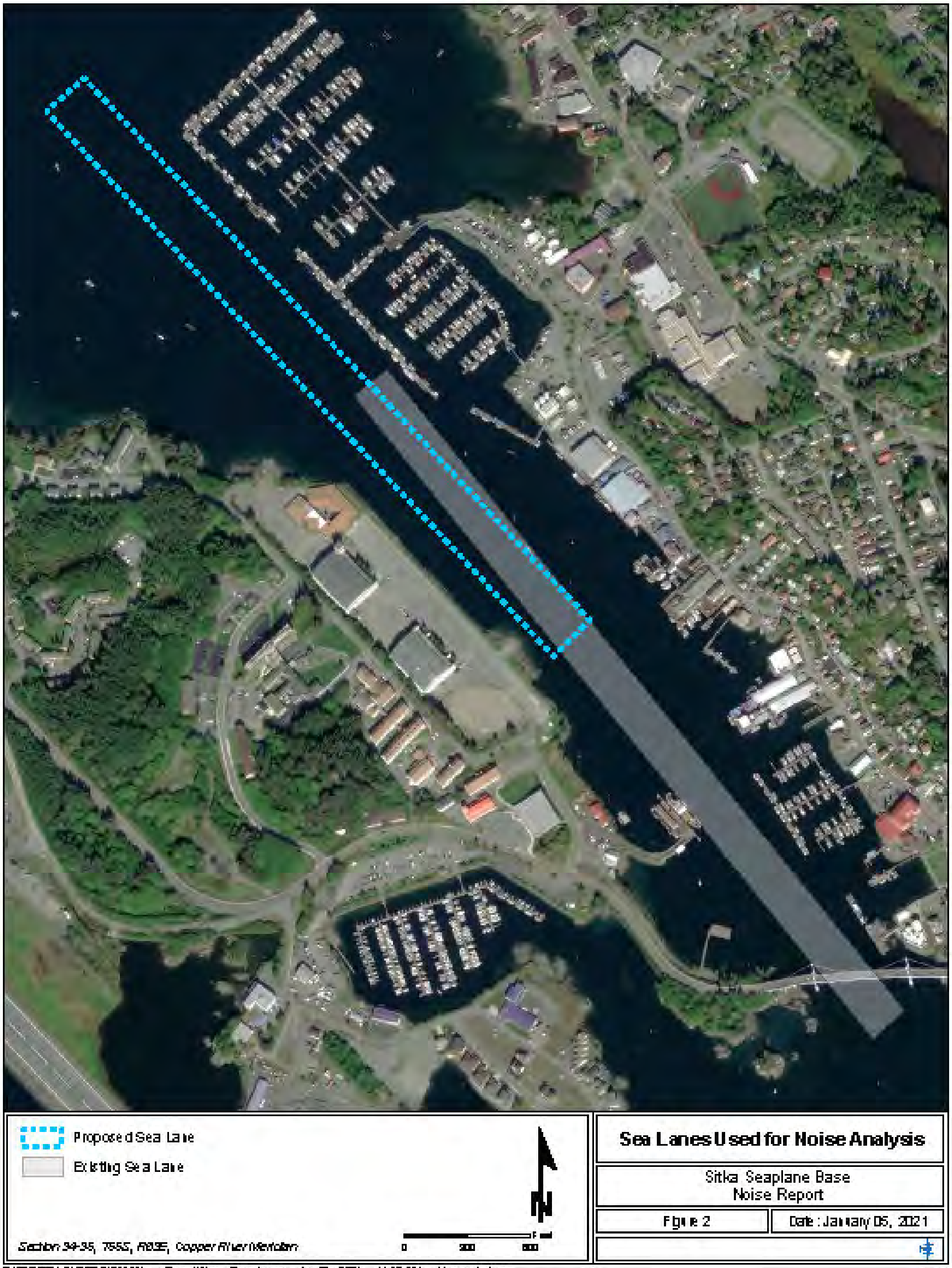


Figure 3: Receptor Locations

Table 3. Noise Receptors Used in Noise Modeling

Receptor ID	Receptor Name	Rationale for Selection
1	Mt. Edgecumbe High School	Educational use; nearest noise sensitive facility to sea lane
2	Mt. Edgecumbe Dormitory	Residential component of Mt. Edgecumbe High School
3	SEARHC Hospital – Existing	Existing health care facility
4	SEARHC Hospital – Proposed	Proposed health care facility
5	SEARHC Community Health Services	Existing outpatient health clinics
6	Building 1200-1202	Serves as a residence for Mt. Edgecubme High School Principal

3.2.2. Results

Noise impacts from the proposed Project were evaluated with consideration of 24-hr Average Day-Night Noise Levels (DNL) and land use noise compatibility guidelines. This noise metric averages aircraft sound levels over a 24-hour period based on the number of events and the time period in which they occur. Most land uses (including residential, schools, and health care facilities) are compatible with DNL levels of 65 decibels (dB) and below.

Appendix B contains a detailed summary of the noise analysis performed. Table 4 below shows the DNL calculated at selected receptors for a peak activity day.

Table 4: Noise Levels

Receptor ID	Receptor Name	Latitude (deg)	Longitude (deg)	Elevation (ft)	Noise Level (dB)	Metric
1	Mt. Edgecumbe High School	57.054134	-135.354005	15	64	DNL
2	Mt. Edgecumbe Dormitory	57.051257	-135.352418	21	57	DNL
3	SEARHC Hospital – Existing	57.051933	-135.35608	21	52	DNL
4	SEARHC Hospital – Proposed	57.051825	-135.358634	21	49	DNL
5	SEARHC Community Health Services	57.053966	-135.36001	20	54	DNL
6	Building 1200-1202	57.055235	-135.363033	11	55	DNL

As shown in the table, the highest impact is seen at Mt. Edgecumbe High School. Noise impacts on Mt. Edgecumbe High School will continue to occur occasionally during individual takeoff events depending on the aircraft type, takeoff location, and weather conditions. Although the takeoff activities would be further from the school, there may be more operations on the channel. Highest use levels would occur during summer, when school is not in session.

3.3. Conclusion

Although noise levels at Mt. Edgecumbe High School may increase to 65 dB DNL, this average noise level is considered compatible with educational and residential land uses. Operations are expected to be higher during summers, when school is not in session, and lower during the school year, reducing potential effects on the school.

4.0 References

City and Borough of Sitka. 2020. SPB Annual Operations Forecast. October 12, 2020.

DOWL HKM (DOWL). 2012. Siting Analysis; Sitka Seaplane Base. Prepared for City and Borough of Sitka. June 2012.

DOWL. 2016. Updated Siting Analysis; Sitka Seaplane Base. Prepared for City and Borough of Sitka. November 2016

Faegre, Aron. 2002. Seaplane Noise. December 15, 1995-Revised September 10, 2002.

Federal Aviation Administration (FAA). 2020a. Airport Master Record, FAA Form 5010-1, for A29. August 13, 2020.

FAA. 2020b. Order 1050.1F Desk Reference. Federal Aviation Administration Office of Environment and Energy. Version 2 (February 2020)

FAA. 1983. AC150/5020-1 Noise Control and Compatibility Planning for Airports. Federal Aviation Administration Office of Environment and Energy. (August 5, 1983)

HDR. 2002. Sitka Seaplane Base Master Plan. Prepared for City & Borough of Sitka. HDR Alaska, Inc. August 2002. https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

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Appendix 1:

AEM Input/Output File

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Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	0Q9 - New Sitka Seaplane Base

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	0.00987	0.02069	109.6%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CNA182FLT	2.86		4.72	
DHC-2FLT			4.93	

Only two floatplane aircraft are included in the model: Cessna 182 (abbreviated CNA182FLT)) and DeHaviland Beaver (abbreviated DHC-2FLT). In order to be conservative for screening purposes, DHC-2FLT was assumed to approximate operations by both Cessna 208 (Caravan) and DHC-2 (Beaver) aircraft. All other aircraft were assumed to be represented by Cessna 182.

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Appendix 2:

AEDT Input/Output Files

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Study Input Report

Study Information

Report Date: 11/20/2020 8:15:34 AM

Study Name: Sitka_SPB

Description:

Study Type: NoiseAndEmissions

Mass Units: Kilograms

Use Metric Units: No

Study Database Information

Study Database Version: 1.69.6

Airport Layouts

Layout Name: 2020-EA-Study

Airport Name: SITKA_SEAPLANEBASE

Airport Codes: 0Q9

Airport Description:

Country: US

State: ALASKA

City: SITKA

Latitude: 57.053269 degrees

Longitude: -135.350389 degrees

Elevation: 0.000000 feet

Runway: 12W-New/30W-New

Length: 3998 feet

Width: 200 feet

Runway End: 12W-New

Latitude: 57.058106 degrees

Longitude: -135.358894 degrees

Elevation: 0.000000 feet

Approach Displaced Threshold: 0 feet

Departure Displaced Threshold: 0 feet

Crossing Height: 50 feet

Glide Slope: 3.000000 deg

Change in Headwind: 0%

Effective Date: 11/1/2020

Expiration Date: 5/31/2021

Runway End: 30W-New

Latitude: 57.050388 degrees

Longitude: -135.344655 degrees

Elevation: 0.000000 feet

Approach Displaced Threshold: 0 feet

Departure Displaced Threshold: 0 feet

Crossing Height: 50 feet

Glide Slope: 3.000000 deg

Change in Headwind: 0%

Effective Date: 11/1/2020

Expiration Date: 5/31/2021

Runway: 12W-Exst/30W-Exst

Length: 3999 feet

Width: 200 feet

Runway End: 12W-Exst

Latitude: 57.056109 degrees

Longitude: -135.355316 degrees

Elevation: 0.000000 feet

Approach Displaced Threshold: 0 feet

Departure Displaced Threshold: 0 feet

Crossing Height: 50 feet

Glide Slope: 3.000000 deg

Change in Headwind: 0%

Effective Date: 11/1/2020

Expiration Date: 5/31/2021

Runway End: 30W-Exst

Latitude: 57.048189 degrees

Longitude: -135.341449 degrees

Elevation: 0.000000 feet

Approach Displaced Threshold: 0 feet

Departure Displaced Threshold: 0 feet

Crossing Height: 50 feet

Glide Slope: 3.000000 deg

Change in Headwind: 0%

Effective Date: 11/1/2020

Expiration Date: 5/31/2021

Receptor Sets

Receptor Set: Sitka-All

Description: All Receptors In Study

Number of receptors: 406

Receptor Set Type: Receptor

Annualizations (Scenarios)

Annualization (Scenario): Existing-A29

Description: Existing-A29

Start Time: Thursday, November 19, 2020

Duration: 01 days 00 hours

Air Performance Model: SAE_1845_APM

Noise Altitude Cutoff MSL (ft): n/a

Mixing Height AFE (ft): 3000

Fuel Sulfur Content: 0.0006

Sulfur Conversion Rate: 0.024

Use Bank Angle: True

Taxi Model: UserTaxiModel

Airport Layouts: 2020-EA-Study

Annualization: Existing-A29

Annualization (Scenario): New-0Q9

Description: New-0Q9

Start Time: Thursday, November 19, 2020

Duration: 01 days 00 hours

Air Performance Model: SAE_1845_APM

Noise Altitude Cutoff MSL (ft): n/a

Mixing Height AFE (ft): 3000

Fuel Sulfur Content: 0.0006

Sulfur Conversion Rate: 0.024

Use Bank Angle: True

Taxi Model: UserTaxiModel

Airport Layouts: 2020-EA-Study

Annualization: New-0Q9

Annualization (Scenario): Combined

Description: Combined

Start Time: Thursday, November 19, 2020

Duration: 01 days 00 hours

Air Performance Model: SAE_1845_APM

Noise Altitude Cutoff MSL (ft): n/a

Mixing Height AFE (ft): 3000

Fuel Sulfur Content: 0.0006

Sulfur Conversion Rate: 0.024

Use Bank Angle: True

Taxi Model: UserTaxiModel

Airport Layouts: 2020-EA-Study

Annualization: Combined

Annualization: Existing-A29

Operation group: Exst

Description: Exst

Start time: 11/19/2020 12:00:00 AM

Duration: 01 days 00 hours

Number of aircraft operations: 8

Annualization: New-0Q9

Operation group: New

Description: New

Start time: 11/19/2020 12:00:00 AM

Duration: 01 days 00 hours

Number of aircraft operations: 8

Annualization: Combined

Operation group: Combo

Description: Combo

Start time: 11/19/2020 12:00:00 AM

Duration: 01 days 00 hours

Number of aircraft operations: 16

User-Defined Aircraft Profiles

User-Specified Aircraft Substitutions

Metric Results

Metric Result ID: 1

Metric Result Name: DNL-All-Exst

Metric Result Description: DNL-AllReceptors-Existing

Metric: DNL

Receptor Set: Sitka-All

Annualization: Existing-A29

Run Start Time: 11/20/2020 8:12:55 AM

Run End Time: 11/20/2020 8:12:57 AM

Run Status: Complete

Run Options: RunOptions_DNL

Result Storage Options:

Dispersion Results: None

Emissions Results: Case

Noise Results: Case

Emissions/Performance Modeling Options:

Check Track Angle: False

Apply Delay & Sequencing Model: False

Calculate Aircraft Engine Startup Emissions: False

Calculate Speciated Organic Gases: False

Analysis Year (VALE):

Enhanced nvPM: False

BADA 4 Modeling Options:

Use BADA Family 4: False

Use ANP and BADA 3 Fallback: False

Enable reduced thrust taper: False

Reduced thrust taper upper limit:

Noise Modeling Options:

Atmospheric Absorption: SAE-ARP-5534

Lateral Attenuation: ApplyLateralAttenuationToPropsAndHelos

Type Of Ground: Hard

Use Terrain: False

Noise Line Of Sight Blockage: False

Fill Terrain: False

Terrain Fill In Value:

Do Number Above Noise Level: False

Metric Result ID: 2

Metric Result Name: DNL-All-New

Metric Result Description: DNL-All-Receptors-New

Metric: DNL

Receptor Set: Sitka-All

Annualization: New-0Q9

Run Start Time: 11/20/2020 8:12:57 AM

Run End Time: 11/20/2020 8:12:57 AM

Run Status: Complete

Run Options: RunOptions_DNL

Result Storage Options:

Dispersion Results: None

Emissions Results: Case

Noise Results: Case

Emissions/Performance Modeling Options:

Check Track Angle: False

Apply Delay & Sequencing Model: False

Calculate Aircraft Engine Startup Emissions: False

Calculate Speciated Organic Gases: False

Analysis Year (VALE):

Enhanced nvPM: False

BADA 4 Modeling Options:

Use BADA Family 4: False

Use ANP and BADA 3 Fallback: False

Enable reduced thrust taper: False

Reduced thrust taper upper limit:

Noise Modeling Options:

Atmospheric Absorption: SAE-ARP-5534

Lateral Attenuation: ApplyLateralAttenuationToPropsAndHelos

Type Of Ground: Hard

Use Terrain: False

Noise Line Of Sight Blockage: False

Fill Terrain: False

Terrain Fill In Value:

Do Number Above Noise Level: False

Metric Result ID: 3

Metric Result Name: DNL-All-Combined

Metric Result Description: DNL-AllReceptors-Combined

Metric: DNL

Receptor Set: Sitka-All

Annualization: Combined

Run Start Time: 11/20/2020 8:12:57 AM

Run End Time: 11/20/2020 8:12:59 AM

Run Status: Complete

Run Options: RunOptions_DNL

Result Storage Options:

Dispersion Results: None

Emissions Results: Case

Noise Results: Case

Emissions/Performance Modeling Options:

Check Track Angle: False

Apply Delay & Sequencing Model: False

Calculate Aircraft Engine Startup Emissions: False

Calculate Speciated Organic Gases: False

Analysis Year (VALE):

Enhanced nvPM: False

BADA 4 Modeling Options:

Use BADA Family 4: False

Use ANP and BADA 3 Fallback: False

Enable reduced thrust taper: False

Reduced thrust taper upper limit:

Noise Modeling Options:

Atmospheric Absorption: SAE-ARP-5534

Lateral Attenuation: ApplyLateralAttenuationToPropsAndHelos

Type Of Ground: Hard

Use Terrain: False

Noise Line Of Sight Blockage: False

Fill Terrain: False

Terrain Fill In Value:

Do Number Above Noise Level: False

Appendix F:

Wetland Delineation & Functions & Values Report

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 22270
JUNEAU, AK 99802-2270

August 5, 2020

Regulatory Division
POA-2020-00370

City and Borough of Sitka
100 Lincoln Street
Sitka, AK 99835

Dear Mr. Grabel,

This letter is in response to your July 23, 2020 request for a Department of the Army (DA) Jurisdictional Determination (JD) for your proposed seaplane base. The project is located within Section 35 T. 55 S., R. 63 E., Copper River Meridian; at Latitude 57.055418º N., Longitude -135.363889º W.; Sitka Borough, in Sitka, Alaska. The project are would include 0.06 acres of Palustrine, scrub-shrub wetlands and 0.01 acres of intertidal marine waters. Your project has been assigned number POA-2020-00370, Sitka Harbor, which should be referred to in all correspondence with us.

Based on our review of the information you provided and available to our office, we have preliminarily determined the subject project area contains waters of the United States (U.S.), and/or wetlands, under the Corps of Engineers (Corps) regulatory jurisdiction. See the attached Preliminary Jurisdictional Determination (PJD) Forms. Please sign and return the forms to our office. A PJD is not appealable, however, if you have additional information you would like the Corps to consider you may submit at any time. In addition, at any time you have the right to request and obtain an Approved Jurisdictional Determination (AJD), which can be appealed. If it is your intent to request an AJD, we recommend that work not commence until one is obtained.

Department of the Army authorization is required if you propose to place dredged and/or fill material into waters of the U.S., including wetlands. You can find a copy of the DA permit application online at: www.poa.usace.army.mil/Missions/Regulatory. You can refer to the sample drawing on our website at: www.poa.usace.army.mil/Portals/34/docs/regulatory/guidetodrawings2012.pdf.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide shoreward to the mean High Water Mark, and/or other waters identified by the Alaska District.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

If you have questions or to request a hard copy of the DA permit application, please contact me via email at: Delana.P.Wilks@usace.army.mil, by mail at the address above, or by phone at (907) 790-4494. For more information about the Regulatory Program, please visit our website at: www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

Delana Wilks
Regulatory Specialist

Enclosures

Preliminary Jurisdictional Determination Form

This preliminary JD find that there "*may be*" waters of the United States on the subject project site that could be affected by the proposed activity based on the following information:

District Office: Juneau Field Office
File/ORM #: POA-2020-00370
PJD Date: Aug 3, 2020

State: AK
City/County: City and Borough of Sitka

Name and Address of Person Requesting PJD:
DOWL
ATTN: Josh Grabel
4041 B Street
Anchorage, AK 99503

Nearest Waterbody: Sitka Harbor

Project Location
Section(s): 35
Township: 55 S
Meridian: Cooper River
Range: 63 E

USGS Quad Map:
Latitude: 57.055418 N
Longitude: -135.363889 W

Subdivision Name, Block, Lot, Directions to Project Site:

Identify (Estimate) Amount of Waters in the Review Area

Non-Wetland Waters:

Linear ft: | Width: | Acres: 0.01 | Stream Flow: Perennial

Wetlands

0.06 Acres Cowardin Class: Palustrine, scrub-shrub

Name of Any Water Bodies on the Site Identified as Section 10 Waters:
Tidal: Sitka Harbor
Non-Tidal:

☒ Office (Desk) Determination
☐ Field Determination

Date of Site Visit:

SUPPORTING DATA: Data Review for Preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below)

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Supplied by consultant on July 24, 2020
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data Sheet prepared by the Corps
- ☐ Corps navigable waters' study:
  - ☐ USGS NHD Data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s) Cite quad name:
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☒ National Wetlands Inventory map(s): NWI
- ☐ State/Local Wetland Inventory map(s):
- ☐ FEMA/FIRM map(s):
- ☐ 100-year Floodplain Elevation:
- ☒ Photographs:
  - ☒ Aerial (Name & Date) Google Earth Imagery 5/15/2020
  - ☐ Other (Name & Date)
- ☐ Previous determination(s). File # and date of response letter:
- ☐ Other Information:

<u>IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.</u>

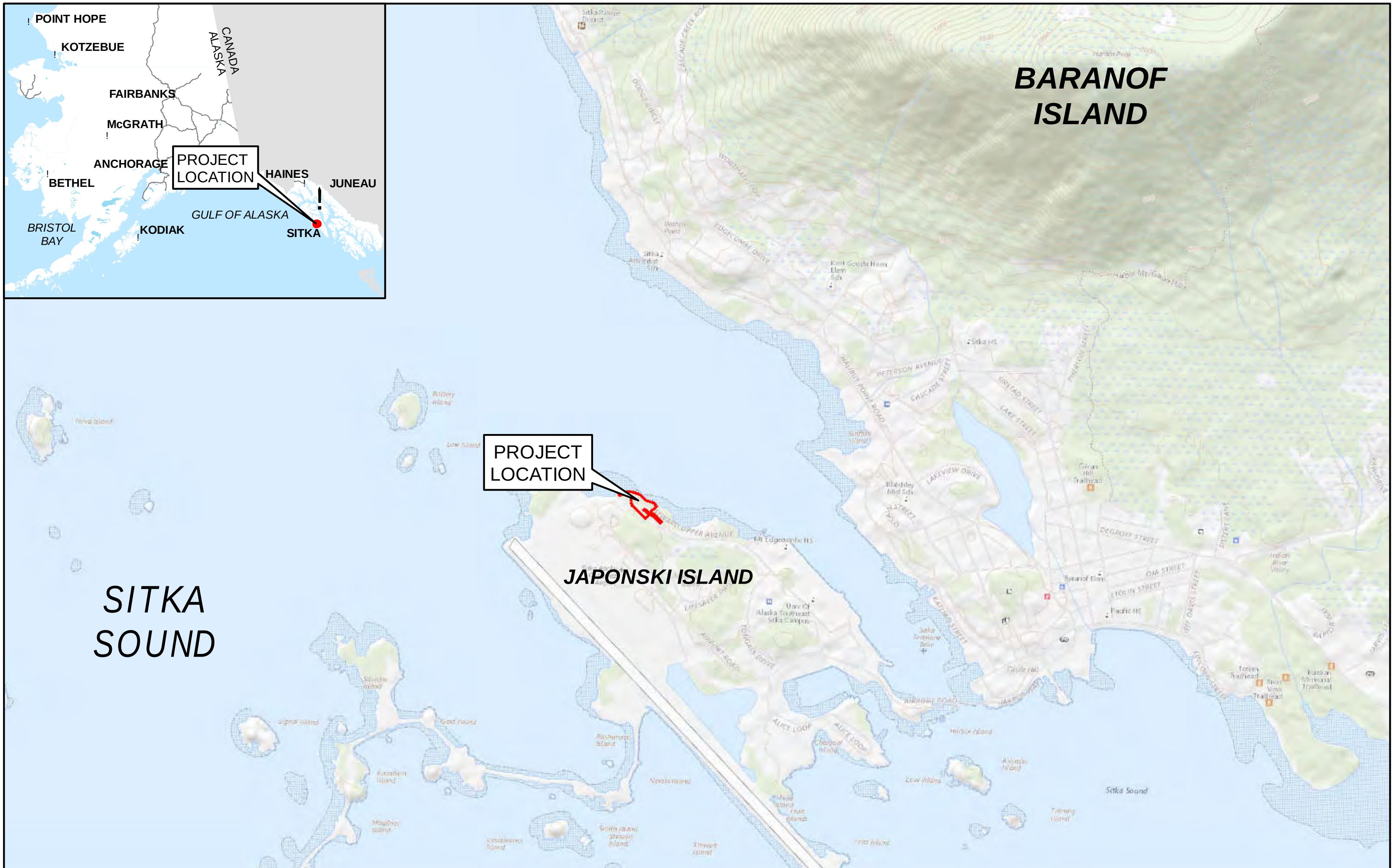
8/3/2020

Signature and Date of Regulatory Project Manager
(REQUIRED)

8/5/2020

Signature and Date of Person Requesting Preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS: 1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time. 2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.



Study Area

N

Feet
0 1,000 2,000

Location Vicinity Map

Sitka SPB Wetland Delineation

DOWL

Date: June 02, 2020

Figure 1

\\ANC-FS\anc-projects\23\63021-01\60GIS\ENV\Wetland Delineation\Location Vicinity Map.mxd Jun 02, 2020 12:47:23 PM User: jgrabel

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed October 2018.

Sources: Esri, Garmin, USGS, NPS

Mean High Water
Photo
Test Holes
Study Area

Cowardin Code

M2USN
PSS1B
Upland
Mean High Water
Fence

Feet
0 40 80

Wetland Delineation

Sitka SPB Wetland Delineation

DOWL

Date: June 03, 2020

Figure 3

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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

CITY AND BOROUGH OF SITKA

New Sitka Seaplane Base

Wetland Delineation/ Functions & Values Report

June 2020

Prepared for:

City and Borough of Sitka
100 Lincoln Street
Sitka, Alaska 99835

Prepared by:

DOWL
4041 B Street
Anchorage, AK 99503

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SITKA SEAPLANE BASE

Wetland Delineation/Functions and Values Report

Prepared for:

City and Borough of Sitka
100 Lincoln Street
Sitka, Alaska 99835

Prepared by:

DOWL

4041 B Street
Anchorage, AK 99503

June 2020

1123.63021.02

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TABLE OF CONTENTS

GRAPHICS

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APPENDICES

ACRONYMS

AA .... assessment area
CWA .... Clean Water Act
FAC .... Facultative
FACU .... Facultative Upland
GHCN .... global historical climatology network
MHW .... Mean High Water
M2 .... marine intertidal
PFO .... palustrine forested
PSS .... palustrine scrub shrub
US .... United States
USACE .... United States Army Corps of Engineers
USGS .... United States Geological Survey
USFWS .... United States Fish and Wildlife Service

1.0 INTRODUCTION

DOWL is providing environmental support for the City and Borough of Sitka for a new Sitka Seaplane Base. The project area is located at 1190 Seward Avenue, Sitka, Alaska 99835 (57.055418 North Latitude; -135.363889 West Longitude, Copper River Meridian, Township 55S, Range 63E, Section 34 and 35) (Appendix A; Figure 1). This project may impact jurisdictional waters of the United States (US) in Sitka, Alaska.

DOWL was contracted to conduct a Wetland Delineation and assess wetland function and values for an approximately 2.0 acre-study area to identify and classify areas that may fall under the United States Army Corps of Engineers (USACE) jurisdiction per Section 404 of the Clean Water Act (CWA). The USACE is the jurisdictional agency with authority to permit the discharge of dredged or fill material into a Waters of the United States (WOUS) per Section 404 of the CWA. Outlined within the CWA, wetlands are categorized as "Other WOUS." The USACE further defines wetlands as areas that are "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987) (40 CFR Part 230.3(t)).

The data herein is intended to provide the USACE with sufficient information to determine regulatory jurisdiction of aquatic resources subject to Section 404 of the CWA, and to evaluate the hydrological connectivity of such resources to a traditional navigable waterway, territorial sea, or navigable interstate waterway.

1.1 Environmental Setting

1.1.1 Regional Characteristics

The study area is within the Coastal Western Hemlock-Sitka Spruce Forest ecoregion, which is characterized by deep narrow bays, steep valley walls, irregular coastline and thin moraine deposits on hills and in valleys. Forests of western hemlock and Sitka spruce are widespread. The ecoregion has a maritime climate and has the mildest winters in Alaska and is generally free of permafrost. Soils near the mountains formed in gravelly and stony moraine deposits or in a mantle of volcanic ash over the morainal deposits. Soils of river deltas, terraces, alluvial fans, and floodplains formed in waterlain silts and clays. Poorly drained depressions are filled with fibrous peat (Gallant et al. 1995).

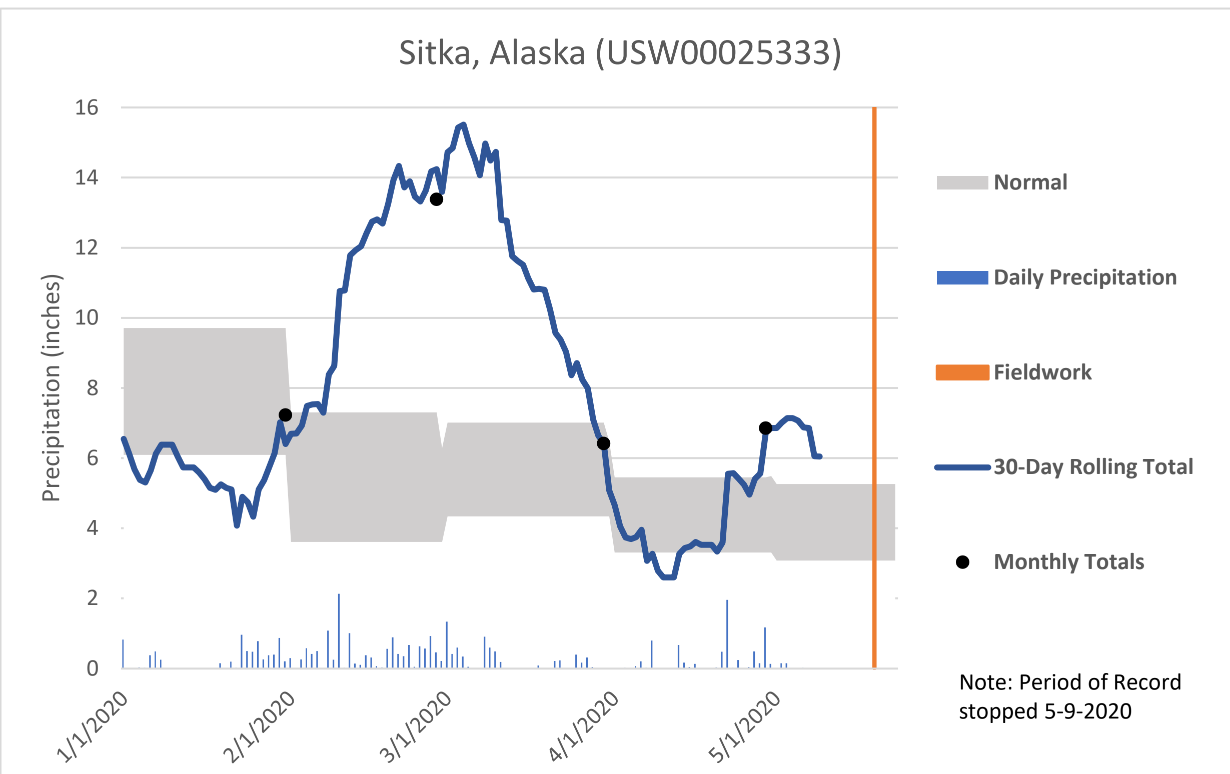
1.1.2 Study Area Characteristics

The City of Sitka is located on Baranof Island, approximately 93 miles southwest of Juneau. The study area is on Japonskii Island near the airport. Sitka lies in the maritime climate zone with small temperature variations, wet, cool summers, and relatively mild winters. Vegetation consists primarily of coastal western hemlock and Sitka spruce forest. Mean annual precipitation is about 87 inches (USGS 1995). The mean high-water (MHW) elevation for Sitka harbor is 9.16 feet. Japonski Island has seven distinct surficial deposits including drift, volcanic ash, muskeg, elevated delta and shore deposits, alluvial deposits, modern beach deposits, and man-made fill (Yehle 1974). Numerous expanses of subtidal wetlands exist on Japonski Island. The Indian River, Sawmill Creek, Swan Lake, Cascade Creek, Blue Lake, and an unnamed lagoon on

Japonski Island are the principal surface-water bodies in the Sitka area (USGS 1995). The City of Sitka in located in the Baranof Mountains, with a gradual southwest slope and steep eastern slope (Figure 1) (Wahrhaftig 1965). The growing season of this region is from May 29th to September 27th (USACE 2007).

1.2 Precipitation and Climatic Data

The closest global historical climatology network (GHCN) weather station is the Sitka Airport. The Sitka Airport GHCN weather station is located approximately 0.5 miles south of the project area. Precipitation data (Utah Climate Center 2020; Western Regional Climate Center 2020) from May 2000 to May 2020 was used to analyze antecedent conditions preceding the May 2020 data collection (Graphic 1). Daily precipitation values over a 30-day period were accumulated in order to examine the three-month period preceding data collection activities to determine if surface hydrology or soil moisture conditions observed were drier than normal, or wetter than normal (Natural Resource Conservation Service 2018). The period of record was stopped 5/9/2020 possibly due to COVID-19 impacts to data collection. Surface hydrology or soil moisture conditions observed were wetter than normal according to the precipitation analysis.



Graphic 1: Sitka Airport (USW00025333) 2020 Precipitation Data.

2.0 METHODS

2.1 Existing Data and Preparatory Analysis

The approximate 2.0-acre study area consists of forested, scrub shrub, and tidal areas adjacent to Sitka Harbor. A preliminary review of the study area was conducted prior to fieldwork based on:

- U.S. Geological Survey (USGS) 2017 Sitka A-5 SE Quadrangle
- USGS National Hydrography Dataset
- 2019 Aerial imagery
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory
- National Oceanic and Atmospheric Administration (NOAA) Tidal Datum for Sitka, Alaska
- Natural Resources Conservation Service (NRCS) Web Soil Survey

2.2 Field Data Collected

DOWL Environmental Specialists Joshua Grabel and Caity Kennedy conducted the wetland delineation fieldwork May 20, 2020 in accordance with *Part IV of the Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region [Version 2.0,* (USACE 2007)*]*.

Data was collected using the three-parameter approach combining site-specific indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. Field notes were taken to document landscape topography and general site characteristics.

At each sampling location, soil test pits (TH) were excavated to a depth of at least 24 inches, or to the presence of a restrictive digging layer. Soil and hydrology characteristics of texture, color, saturation, and depth to water table were recorded on Corps Routine Wetland Determination forms (Appendix B). Soil color was recorded using *Munsell Soil-Color Charts* (Munsell Color 2012). In the event soil excavation was not necessary to make a wetland/upland determination, a photographic point (PP) was taken. MHW photopoints (MHW) were taken along the 9.16-foot elevation to verify the NOAA tidal datum.

Typically, US Department of Agriculture Natural Resource Conservation Service Web Soil Survey is analyzed. No soil data was available for the terrestrial portions of the study area.

A GPS with 20-ft accuracy and Trimble Nomad with sub-meter accuracy were used to pinpoint sample point and photopoint locations for GIS mapping reference. ESRI ArcMap was used to calculate acreages. Report mapping is an estimate of wetland boundaries based on site photos and sketches, topographic data, and field observations. Additional survey investigations will be conducted to capture flagged wetland boundaries under a dense forest canopy, where a normal GPS and Trimble Nomad have trouble with accuracy.

Wetlands were classified and grouped according to guidelines outlined in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Sampling locations were selected to verify the preliminary mapping.

3.0 RESULTS

The 2.0-acre study area is comprised of approximately 0.06 acres of potentially jurisdictional wetlands and 0.01 acres of WOUS (3% of the study area), and 1.9 acres of non-jurisdictional uplands (97% of the study area) (Appendix 1: Figure 2). Percentages are rounded to the nearest whole number. All data sheets and photos are included in Appendix B. Table 1 summarizes the results by Cowardin classification.

Table 1: Wetlands, Waters of the U.S., and Uplands

Jurisdictional Type	Acres	Cowardin Classification	Data Points
Wetlands	0.06	PSS1B	TH2, TH5
Waterbodies	0.01	M2USN	MHW1, MHW2, MHW3, MHW4, MHW5, MHW6, MHW7
Uplands	1.9	N/A	TH1, TH3, TH4, PP1, PP2, PP3, PP4, PP5, PP6
Total Study Area	**2.0**		

PSS1B Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Saturated
M2USN Marine, Intertidal, Unconsolidated Bottom, Regularly Flooded

On-site observations indicate the study area has predominantly facultative (FAC) dominant hydrophytic vegetation and has greater than 2 inches of an organic layer typically. Wetland hydrology comes from primary indicators of high-water table, saturation, and sparsely vegetated concave surface. Analysis of the data collected in 2020 identified approximately 0.07 acres of wetlands and waterbodies, and 1.9 acres of uplands.

3.1 Wetlands

Wetland habitats in the study area typically begin as small seeps and flow downhill and are found in the northern and northwestern portion of the study area. One wetland starts as two seeps that flow together into a single swale. The other wetland is a small seep that starts at a toeslope. The wetlands are found on 2-3 percent slopes between several hills. Both wetlands are adjacent to the coastline and Sitka Harbor, separated by approximately 6-20 feet of uplands.

Wetland habitat types in the study area are palustrine, composed of two wetland areas. Palustrine habitats contain scrub shrub vegetation with a forest canopy growing overtop, however tree canopy did not exceed 10%. There is 30-60 percent bare ground underneath the scrub shrub canopy. Hydrology is composed of saturation, water table, sparsely vegetated concave surface, geomorphic position, and presence of reduce iron. Saturation is at 4-6 inches below the soil surface. Hydric soils indicators were histosols and histic epipedon.

The study area has one wetland Cowardin habitat system consisting of palustrine. Habitats within the study area are organized by vegetation stratum and then classified based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. See Table 2 for a summary of the data collected.

Table 2: Summary of Data Collected

Data #	Date Data Taken	Wetland Determination Form Completed	Hydrophytic Vegetation Present	Hydric Soils Present	Wetland Hydrology Present	Jurisdictional Status (Cowardin)
TH1	5/20/2020	Yes	No	Yes	No	Upland
TH2	5/20/2020	Yes	Yes	Yes	Yes	PSS1B
TH3	5/20/2020	Yes	Yes	No	No	Upland
TH4	5/20/2020	Yes	Yes	No	No	Upland
TH5	5/20/2020	Yes	Yes	Yes	Yes	PSS1B
PP1	5/20/2020	No	No	N/A	No	Upland
PP2	5/20/2020	No	No	N/A	No	Upland
PP3	5/20/2020	No	No	N/A	No	Upland
PP4	5/20/2020	No	No	N/A	No	Upland
PP5	5/20/2020	No	No	N/A	No	Upland
PP6	5/20/2020	No	No	N/A	No	Upland

Within the study area, there is one wetland habitat type as defined by a Cowardin classification.

3.1.1 Vegetation

Scrub-shrub wetlands (Cowardin classifications: PSS1B) are characterized by greater than 30% percent aerial cover in the shrub layer (Photo Set 1). These wetlands have a robust scrub shrub layer of stink currant (*Ribes bracteosum*) and salmonberry (*Rubus spectabilis*) with an herbaceous layer of false lily of the valley (*Maianthemum dilatatum*). All wetlands in the study area are classified as PSS1B. Characteristically, these wetlands are depressional, concave (two-to-three percent slopes) features that form as seeps.

Photo Set 1: Typical Scrub-Shrub Wetland

These wetlands are located beneath the forest canopy but are small in size and have either scrub shrub vegetation or a sparsely vegetated concave surface. Both wetlands start as seeps flowing downhill. One wetland forms a swale while the other flows to a downhill point, forming a triangle. Dominant vegetation includes stink currant, false lily of the valley, and salmonberry. Wetland vegetation is dominantly FAC to FACU.

The triangle-shaped seep wetland at TH 5 has problematic hydrophytic vegetation due to having a hydric soil, primary wetland hydrology, being a concave seep forming at a toeslope, and having a sparsely vegetated concave surface. The shrub stratum is growing over top of the wetland to maximize sunlight with few individuals rooted in the seep, and the herb stratum is growing at the downslope point of the triangle on a slight rise in elevation. The shrub stratum is dominantly salmonberry, which is most common on moist to wet, water-receiving sites in forested or wooded areas (Zouhar 2015). The Salmonberry aerial stems can be seen in Photo Set 1 on the right photo, growing laterally over top of the seep.

The most common plant species identified in the study area include western hemlock (*Tsuga heterophylla*), Sitka mountain ash (*Sorbus sitchensis*), salmonberry, false lily of the valley, stink currant, and red alder (*Alnus rubra*). All species and wetland indicators observed within the study area are shown in Table 3.

Table 3: Plant Species within the Study Area

Scientific Name	Common Name	Indicator Status
Alnus rubra	Red alder	FAC
Alnus viridis	Sitka alder	FAC
Maianthemum dilatatum	False lily of the valley	FAC
Picea sitchensis	Sitka spruce	FACU
Ribes bracteosum	Stink currant	FAC
Rubus spectabilis	Salmonberry	FACU
Sorbus sitchensis	Sitka mountain ash	FACU
Tsuga heterophylla	Western hemlock	FAC
Vaccinium ovalifolium	Oval-leaf blueberry	FAC

Notes: FAC = Facultative; FACU = Facultative Upland

3.1.2 Soils

Soils observed within the study area had anywhere from 2 to 24 inches of organic layer. Table 4 describes observations made in the field.

Table 4: Soil Observations at Full Sample Points within the Study Area

Sample Point	Organic Mat Thickness (inches)	Mineral Soil	Saturated Organics	Hydric
TH1	9	Sandy Loam	No	Yes, black histic
TH2	24	N/A	Yes	Yes, histosol
TH3	8	Silt Loam	No	No, 3” buried organics
TH4	2	Sandy Loam	No	No
TH5	12	Silt Loam	Yes	Yes, histic epipedon

A black histic was observed at TH1. This soil profile was characterized by 9 inches of organic material underlain by a sandy loam (B) horizon with a color of 7.5YR 3/2 from the Munsell Soil Color Chart (Munsell 2012). This site was moderately well drained, and no wetland hydrology was observed.

A histosol (A1) was observed at TH2. This soil profile was characterized by 24 inches of organic material. This site was very poorly drained and was characterized by saturation and high water table (4 inches deep).

A histic epipedon was observed at TH5. This soil profile was characterized by 12 inches of organic material underlain by a silt loam (B) horizon with a color of 10YR 2/1 from the Munsell Soil Color Chart (Munsell 2012). Soils at this site were poorly drained and primary wetland hydrology was present.

3.1.3 Hydrology

Using the NRCS method, it was determined that precipitation for the three months prior to the field investigation was above normal. Indicators of wetland hydrology were prevalent in the wetlands but lacking in upland areas.

At least one primary indicator was observed at both wetland locations where data forms were completed. Both sites (TH2 and TH5) had evidence of one secondary hydrologic indicator (geomorphic position, presence of reduced iron). No evidence of primary or secondary wetland hydrology indicators were observed at the remaining three data form sites. Hydrology indicators observed at each plot are shown in Table 5.

Table 5: Soil Observations at Full Sample Points within the Study Area

Sample Point	Hydrology Indicators	Wetland Hydrology Met
TH1	N/A	No
TH2	High water table, saturation, geomorphic position	Yes
TH3	N/A	No
TH4	N/A	No
TH5	Saturation, sparsely vegetated concave surface, presence of reduced iron, geomorphic position	Yes

3.2 Waterbody

Marine waters are found in tidal areas in Sitka Harbor below MHW. Waterbody consists of a tidally influenced coastline of Sitka Harbor. The MHW elevation of 9.16 feet was confirmed using a submeter accuracy GPS with visual observations of barnacles, saltwater vegetation growing on boulders, and debris deposits.

Photo Set 2: Mean High Water

Marine waters below MHW are composed of gravel, cobble, boulder, and bedrock substrate with barnacles and marine vegetation growing along the rocks. A low tide survey was conducted with photos for various substrate types and is attached as Appendix C. Table 6 is a summary of marine waterbody data collected.

Table 6: Summary of Data Collected

Data #	Date Data Taken	Jurisdictional Status (Cowardin)
MHW1	5/20/2020	M2USN
MHW2	5/20/2020	M2USN
MHW3	5/20/2020	M2USN
MHW4	5/20/2020	M2USN
MHW5	5/20/2020	M2USN
MHW6	5/20/2020	M2USN
MHW7	5/20/2020	M2USN

3.3 Non-Jurisdictional Uplands

The study area is predominantly uplands, consisting of western hemlock and Sitka spruce forests. The southern side of the access road has an open understory, while the northern forested area has a scrub shrub understory consisting of salmonberry, Sitka mountain ash, and alder. Upland slopes are 2-3%.

A black histic was detected at TH1. This soil profile was characterized by 9 inches of organic material with a 10YR 2/1 color from the Munsell Soil Color Chart but no saturation (Munsell 2012). The soil was underlain by a mineral soil material with chroma of 2 or less. Soil at this site was somewhat poorly drained.

TH3 had 5 inches of organic material, a 3-inch layer of mineral soil with a chroma greater than 2, and then a lower layer of 3 inches of organic material. The mineral soil beneath the lower organic layer contained a chroma of 2 or less. Black histic is not described in the 2007 Alaska Regional Supplement. The description comes from the NRCS Field Indicators of Hydric Soils in the United States (2018) that does not describe the separation of organic material by thin mineral layers to meet hydric soil indicator requirements. This forested area was near the access road and potential disturbance and contained a soil layer of iron colored silt between layers of organics and a layer of ash below organics.

No hydrology indicators were met in upland areas.

3.4 Ecosystem Services Score and Functional Assessment

The WESPAK-SE Functional Assessment was completed for the two PSS1B wetlands as an assessment area. These wetlands were similar in Cowardin Classification, hydrogeomorphic classification, small in size, and similar in formation from spring seeps. The field and desktop tabs of the workbook were completed resulting in an overall score of 7.17 and higher overall rating (Appendix 4). The assessment area scored higher functioning for surface water storage, streamwater cooling, sediment & toxicant retention & stabilization, phosphorus retention, and nitrate removal & retention.

The online, WESPAK-SE module is no longer functioning to answer some of the questions in the workbook, and the data available for download does not encompass all data needs. The same sources were used to answer questions with data from original sources.

4.0 CONCLUSION OR DISCUSSION

Approximately 0.06 acres of wetlands and 0.01 acres of waterbody fall within the extend of USACE jurisdiction under Section 404 and 10 the CWA. No streams were observed in the study area. Even though climatic conditions were wetter than normal, no surface water was observed in either wetland during the May 20, 2020 fieldwork. Wetland seeps such as those observed in the study area are common to southeast Alaska.

Wetlands within the study area are adjacent to a traditional navigable water (Sitka Harbor) and are separated by approximately 6-20 feet of uplands. The waterbody is Sitka Harbor. Wetlands and waters are assumed to be jurisdictional according to Section 10 and 404 of the Clean Water Act due to proximity to a traditional navigable water.

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APPENDIX 1: FIGURES

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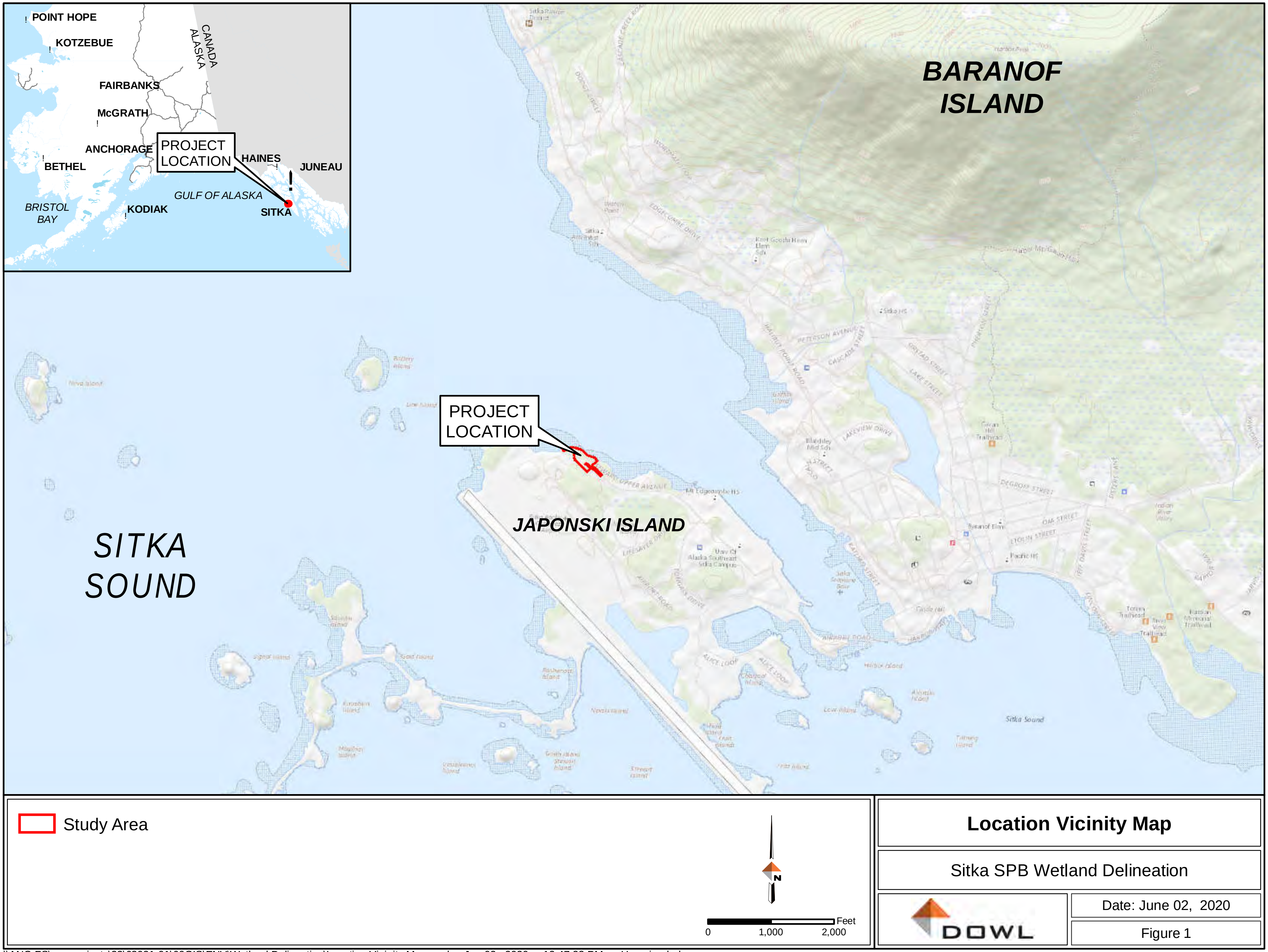

Location Vicinity Map

Sitka SPB Wetland Delineation

DOWL

Date: June 02, 2020

Figure 1

\\ANC-FS\anc-projects\23\63021-01\60GIS\ENV\Wetland Delineation\Location Vicinity Map.mxd Jun 02, 2020 12:47:23 PM User: jgrabel

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed October 2018.

Sources: Esri, Garmin, USGS, NPS

Mean High Water
Photo
Test Holes
Study Area

Cowardin Code

M2USN
PSS1B
Upland
Mean High Water
Fence

N

0 40 80 Feet

Wetland Delineation

Sitka SPB Wetland Delineation

DOWL

Date: June 03, 2020

Figure 3

Q:\23\63021-01\60GIS\ENV\Wetland Delineation\Wetland Delineation.mxd Jun 03, 2020 9:33:12 AM User: tjameson

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX 2: DATASHEETS AND PHOTODOC

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WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base | Borough/City: Sitka | Sampling Date: 5/20/2020

Applicant/Owner: City of Sitka | Sampling Point: TH1

Investigator(s): JRG, CLK | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): convex | Slope (%): 2

Subregion: Southeast | Lat: 57.055628 | Long: -135.364343 | Datum: NAD 83

Soil Map Unit Name: No digital data available | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No X (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?	X	
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:
Wetter than normal climatic conditions.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	10.00	Y	FAC
2.			
3.			
4.			
Total Cover:	10		
50% of total cover: 5	20% of total cover: 2		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Sorbus sitchensis	35	Y	FACU
2. Alnus viridis	15	N	FACU
3. Rubus spectabilis	30	Y	FACU
4.			
5.			
6.			
Total Cover:	80		
50% of total cover: 40	20% of total cover: 16		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Maianthemum dilatatum	25	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	25		
50% of total cover: 12.5	20% of total cover: 5		

Plot size (radius, or length x width) 1/10th acre | % Bare Ground 10

% Cover of Wetland Bryophytes - (Where applicable) | Total Cover of Bryophytes 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	-	x 1 =	-
FACW species	-	x 2 =	-
FAC species	50	x 3 =	150
FACU species	65	x 4 =	260
UPL species	-	x 5 =	-
Column Totals:	115 (A)		410 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No X

Remarks:

Mossy alder trunks

SOIL

Sampling Point: TH1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	Dead roots	-	-	-	-	-	Org	Fibric
3-9	10YR 2/1	100	-	-	-	-	Org	Hemic
9-24	7.5YR 3/2	100	-	-	-	-	SaL	Coarse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [x] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X No ____

Remarks:

Black histic hydric soil indicator met.
Dark mineral soil below organic
No aquic soil conditions in 0-9" layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dry soils -- no indicators of hydrology.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
Applicant/Owner: City of Sitka Sampling Point: TH2
Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Swale
Local relief (concave, convex, none): Concave Slope (%): 2
Subregion: Southeast Lat: 57.055748 Long: -135.364531 Datum: NAD 83
Soil Map Unit Name: No digital data available NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** **Yes** X **No** ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:
Wetter than normal climatic conditions.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. -			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: ___ 20% of total cover: ___			
Sapling/Shrub Stratum			
1. Rubus spectabilis	5	N	FACU
2. Vaccinium ovalifolium	10	N	FACU
3. Alnus viridis	5	N	FAC
4. Ribes bracteosum	50	Y	FAC
5.			
6.			
Total Cover:	70		
50% of total cover: 35 20% of total cover: 14			
Herb Stratum			
1. Maianthemum dilatatum	35	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	35		
50% of total cover: 17.5 20% of total cover: 7			

Plot size (radius, or length x width) 1/10th acre * % Bare Ground 30
% Cover of Wetland Bryophytes - Total Cover of Bryophytes -
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	-	x 1 = -
FACW species	-	x 2 = -
FAC species	100	x 3 = 300
FACU species	5	x 4 = 20
UPL species	-	x 5 = -
Column Totals:	105 (A)	320 (B)

Prevalence Index = B/A = 3.04

Hydrophytic Vegetation Indicators:
- ✔ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks:
* Swale has trees with canopy over top but not growing in swale, Western hemlock. 30% bare ground in swale.

SOIL

Sampling Point: TH2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100	-	-	-	-	Org	Sapric
8-24	10YR 2/2	50	-	-	-	-	Org	Sapric, 50% gravels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [x] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? Yes X **No** ____

Remarks:

Broken down organics
thick organics in swale

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [x] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 4

Wetland Hydrology Present? Yes X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

-Water seeping into pit at 4 inches
-Swale collects water flowing down hill

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020

Applicant/Owner: City of Sitka Sampling Point: TH3

Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Terrace

Local relief (concave, convex, none): None Slope (%): 0-1

Subregion: Southeast Lat: 57.055718 Long: -135.364931 Datum: NAD 83

Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Wetter than normal climatic conditions.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	40.00	Y	FAC
2. Alnus rubra	10.00	Y	FAC
3.			
4.			
Total Cover:	50		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum			
1. Rubus spectabilis	35	Y	FACU
2. Vaccinium ovalifolium	5	N	FAC
3.			
4.			
5.			
6.			
Total Cover:	40		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum			
1. Maianthemum dilatatum	45	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	45		
50% of total cover: 22.5	20% of total cover: 9		

Plot size (radius, or length x width) 1/10th acre % Bare Ground 2

% Cover of Wetland Bryophytes - Total Cover of Bryophytes -
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	-	x 1 =	-
FACW species	-	x 2 =	
FAC species	100	x 3 =	300
FACU species	35	x 4 =	140
UPL species	-	x 5 =	-
Column Totals:	135 (A)		440 (B)

Prevalence Index = B/A = 3.26

Hydrophytic Vegetation Indicators:

- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

Forested area with minimal species diversity

SOIL

Sampling Point: TH3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100	-	-	-	-	Org	Hemic
5-8	2.5YR 3/6	90	-	10	-	-	SiL	10% Org, Iron layer
8-11	10YR 2/1	100	-	-	-	-	Org	Sapric
11-20	5Y 5/1	90	-	10	-	-	SiL	10% gravels, Ash layer

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: Rock
Depth (inches): 20"

Hydric Soil Present? Yes ____ No X

Remarks:
Rock refusal at 20"
AA(-) in all layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No wetland hydrology present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020

Applicant/Owner: City of Sitka Sampling Point: TH4

Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Bench

Local relief (concave, convex, none): None Slope (%): 0-1

Subregion: Southeast Lat: 57.055233 Long: -135.364446 Datum: NAD 83

Soil Map Unit Name: No digital data available NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	X	
Hydric Soil Present?		X
Wetland Hydrology Present?		X
Is the Sampled Area within a Wetland?		X

Remarks:
Wetter than normal climatic conditions.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga heterophylla	80.00	Y	FAC
2. Picea sitchensis	5.00	N	FACU
3.			
4.			
Total Cover:	85		
50% of total cover: 42.5	20% of total cover: 17		
Sapling/Shrub Stratum			
1. Rubus spectabilis	5	Y	FACU
2. Vaccinium ovalifolium	2	Y	FAC
3.			
4.			
5.			
6.			
Total Cover:	7		
50% of total cover: 3.2	20% of total cover: 1.4		
Herb Stratum			
1. Maianthemum dilatatum	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	20		
50% of total cover: 10	20% of total cover: 4		

Plot size (radius, or length x width) 1/10th acre % Bare Ground 60

% Cover of Wetland Bryophytes - Total Cover of Bryophytes -
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	-	x 1 =	-
FACW species	-	x 2 =	-
FAC species	102	x 3 =	306
FACU species	10	x 4 =	40
UPL species	-	x 5 =	-
Column Totals:	112 (A)		346 (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
60% bare ground under tree canopy
Hemlock dominant forest with open understory

SOIL

Sampling Point: TH4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100	-	-	-	-	Org	Fibric
2-8	7.5YR 4/4	100	-	-	-	-	SaL	Coarse
8-24	7.5YR 3/3	90	-	-	-	-	SaL	Coarse, 10% organic inclusions

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

Bright, upland soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Sitka Seaplane Base Borough/City: Sitka Sampling Date: 5/20/2020
Applicant/Owner: City of Sitka Sampling Point: TH5
Investigator(s): JRG, CLK Landform (hillside, terrace, hummocks, etc.): Hillside
Local relief (concave, convex, none): concave Slope (%): 2-3
Subregion: Southeast Lat: 57.055882 Long: -135.365142 Datum: NAD 83
Soil Map Unit Name: No digital data available NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation Y, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	

Remarks:
Problematic vegetation with shrubs growing over top of seep. Some rooted in seep. Wetter than normal.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. -			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: ___ 20% of total cover: ___			
Sapling/Shrub Stratum			
1. Rubus spectabilis	70	Y	FACU
2. Sorbus sitchensis	15	N	FACU
3.			
4.			
5.			
6.			
Total Cover:	85		
50% of total cover: 42.5 20% of total cover: 17			
Herb Stratum			
1. Maianthemum dilatatum	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	20		
50% of total cover: 10 20% of total cover: 4			

Plot size (radius, or length x width) 20' x 10' % Bare Ground 60
% Cover of Wetland Bryophytes - (Where applicable) Total Cover of Bryophytes 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	-	x 1 = -
FACW species	-	x 2 = -
FAC species	20	x 3 = 60
FACU species	85	x 4 = 340
UPL species	-	x 5 = -
Column Totals:	105 (A)	400 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:
- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [x] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
60% bare ground beneath shrub layer
Salmonberry growing over top of seep but not dominatly rooted in seep. Sparse veg in seep. Hydrophytic vegetation problematic due to lack of indicator. Hydric soil and primary indicator of wetland hydrology met. Area is concave seep at toeslope.

SOIL

Sampling Point: TH5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100	-	-	-	-	Org	Sapric
12-24	10YR 2/1	5	-	-	-	-	SiL	95% gravels, cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine Swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: -

Depth (inches): -

Hydric Soil Present? **Yes** X **No** ____

Remarks:

Dark organics
AA(+) in both layers

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Sparsely Vegetated Concave Surface (B8)
- [ ] Marl Deposits (B15)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Dry-Season Water Table (C2)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water-stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [x] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [x] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seep starting at toeslope and flowing downhill
AA(+) in 0-24'

Location Description: PP1 LANDSCAPE – FACING Northeast

LANDSCAPE – FACING Southeast

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: **PP2 LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Northwest

Observed ground cover

#63021 Wetland Delineation	**Field Dates** May 20, 2020	**Site Photos** PP1-PP7 TH1-TH5

Location Description: **PP3   LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Southeast

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: PP4 LANDSCAPE – FACING Southeast

LANDSCAPE – FACING Southwest

Observed ground cover

#63021 Wetland Delineation | **Field Dates** May 20, 2020 | **Site Photos** PP1-PP7 TH1-TH5

Location Description: PP5 LANDSCAPE – FACING Southeast

LANDSCAPE – FACING Southwest

Observed ground cover

Location Description: PP6 LANDSCAPE – FACING Southeast

LANDSCAPE – FACING Southwest

Observed ground cover

#63021 Wetland Delineation	**Field Dates** May 20, 2020	**Site Photos** PP1-PP7 TH1-TH5

Location Description: **TH1 LANDSCAPE – FACING Southwest**

LANDSCAPE – FACING Northwest

SOILS: Soil pit

#63021 Wetland Delineation	**Field Dates** May 20, 2020	**Site Photos** PP1-PP7 TH1-TH5

Location Description: TH2 LANDSCAPE – FACING Northeast

LANDSCAPE – FACING Southwest

SOILS: Soil pit


#63021 Wetland Delineation | **Field Dates** May 20, 2020 | **Site Photos** PP1-PP7 TH1-TH5

Location Description: **TH3 LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Southeast

SOILS: Soil pit

Location Description: **TH4 LANDSCAPE – FACING North**

LANDSCAPE – FACING West

SOILS: Soil pit

Location Description: TH5 LANDSCAPE – FACING Northeast

LANDSCAPE – FACING Southwest

SOILS: Soil pit

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: **MHW1 LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Southwest

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: MHW2 LANDSCAPE – FACING Northeast

LANDSCAPE – FACING Northwest

Observed ground cover

#63021 Wetland Delineation | **Field Dates** May 20, 2020 | **Site Photos** PP1-PP7 TH1-TH5

Location Description: **MHW3 LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Southeast

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: **MHW4 LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Northwest

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: MHW5   LANDSCAPE – FACING Southwest

LANDSCAPE – FACING Northwest

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: **MHW6 LANDSCAPE – FACING Southeast**

LANDSCAPE – FACING Southwest

Observed ground cover

#63021 Wetland Delineation

Field Dates
May 20, 2020

Site Photos
PP1-PP7
TH1-TH5

Location Description: **MHW7** **LANDSCAPE – FACING Northeast**

LANDSCAPE – FACING Northwest

Observed ground cover

APPENDIX 3: LOW TIDE SURVEY

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Low Tide Survey 5-20-2020

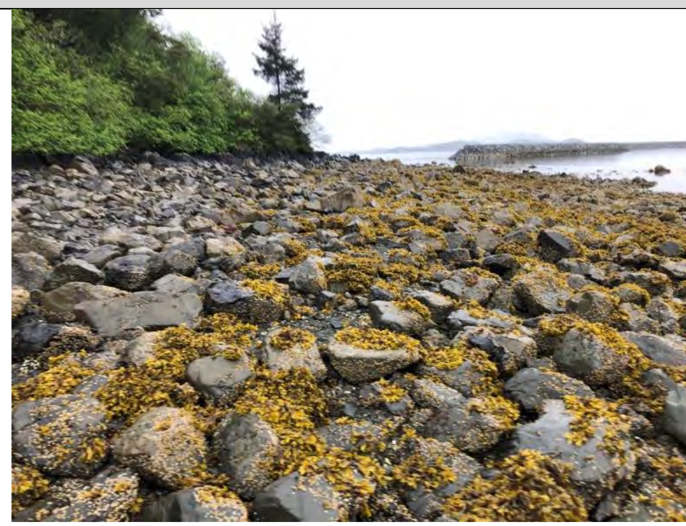
Location Description: B1

2" gravel swath down to low tide, boulders scattered along mean high water area.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

Location Description: B2

Boulders down to low tide, bedrock near mean high water area.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

Location Description: B3

Boulders from mean high water to low tide.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

Location Description: B4

Cobbles and boulders down to low tide.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

Location Description: B5

Boulders and cobbles down to low tide.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

Location Description: B6

Gravel from mean high water to start of boulders, bedrock in areas.

FACING Northeast	FACING Southeast
	
FACING Southwest	**FACING Northwest**
	

APPENDIX 4: WESPAK-SE SUMMARY

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Site Name or ID #:	Sitka Seaplane Base
Investigator Name:	Joshua Grabel
Date of Field Assessment:	5/20/2020
Nearest Town:	City of Sitka
Latitude (decimal degrees):	57.055418
Longitude (decimal degrees):	-135.363889
HUC12 Watershed # (from UAS web site):	190102121206
Approximate size of the Assessment Area (AA, in acres)	0.06
AA as percent of entire wetland (approx.)	100
Tidal phase during most of visit:	Low
What percent (approx.) of the **wetland** were you able to visit?	100.00
What percent (approx.) of the **AA** were you able to visit?	70.00
Have you attended a training session for this protocol? If so, indicate approximate month & year.	
How many wetlands have you assessed previously using this protocol (approx.)?	10.00

Scores will appear below after data are entered in worksheets OF, F, and S. See Manual for definitions and descriptions of how scores were computed.

WESPAK-SE version 2 scores for this NON-tidal Wetland Assessment Area (AA):

										FUNCTION			VALUE		
Specific Functions or Values:	Function Score raw	Value Score raw	**Score (normalized)**	**Function Rating**	**Value Score (normalized)**	**Value Rating**	FV raw	FV Index	**(normalized)**	Median of Normalized F Scores	*Thresholds for Function Rating (normalized score)* Low is < or =	High is >	Median of Normalized V Scores	*Thresholds for Value Rating (normalized score)* Low is < or =	High is >
Surface Water Storage (WS)	10.00	10.00	10.00	Higher	10.00	Higher	10.00	10.00	10.00	2.95	2.89	6.34	3.06	1.85	5.00
Stream Flow Support (SFS)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	3.17	2.67	6.13	3.33	1.45	4.48
Streamwater Cooling (WC)	7.20	0.00	7.20	Higher	0.00	Lower	3.60	7.20	7.00	4.00	3.36	5.87	1.98	2.11	5.49
Streamwater Warming (WW)	5.00	0.00	5.00	Moderate	0.00	Lower	2.50	5.00	4.03	5.42	3.33	6.80	2.78	2.78	6.63
Sediment & Toxicant Retention & Stabilization (SR	10.00	0.17	10.00	Higher	0.00	Lower	5.00	10.00	10.00	3.13	3.36	6.52	0.84	2.05	5.86
Phosphorus Retention (PR)	10.00	1.07	10.00	Higher	1.04	Lower	5.52	10.00	10.00	3.34	3.06	6.17	1.27	2.45	5.73
Nitrate Removal & Retention (NR)	10.00	4.17	10.00	Higher	4.56	Moderate	7.28	10.00	10.00	2.33	2.19	4.64	3.25	2.17	4.94
Carbon Sequestration (CS)	6.08		3.89	Moderate			3.89	3.89	3.89	6.53	3.66	6.43			
Organic Nutrient Export (OE)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	7.68	0.00	7.59	7.00	0.00	7.00
Anadromous Fish Habitat (FA)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	2.93	7.23	0.00	0.63	6.67
Resident & Other Fish Habitat (FR)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	0.00	0.00	7.43	0.00	1.50	7.76
Aquatic Invertebrate Habitat (INV)	4.53	2.26	3.50	Moderate	0.71	Lower	2.11	3.50	3.50	3.92	2.48	5.04	2.22	2.50	6.43
Amphibian Habitat (AM)	5.66	5.56	4.35	Moderate	6.45	Higher	5.40	5.40	4.80	4.40	3.59	6.74	4.21	2.43	5.19
Waterbird Feeding Habitat (WBF)	0.00	0.00	0.00	Lower	0.00	Lower	0.00	0.00	0.00	4.60	0.00	5.68	2.53	0.85	4.07
Waterbird Nesting Habitat (WBN)	2.53	0.00	3.65	Moderate	0.00	Lower	1.83	3.65	3.65	4.58	0.00	6.44	6.90	1.67	8.70
Songbird, Raptor, & Mammal Habitat (SBM)	5.35	3.33	6.61	Moderate	3.33	Moderate	4.97	6.61	6.44	8.05	0.00	7.35	4.22	2.50	5.63
Pollinator Habitat (POL)	2.30	3.20	2.72	Moderate	4.29	Moderate	3.50	3.50	3.06	4.94	2.45	5.38	4.15	2.65	5.83
Native Plant Habitat (PH)	5.28	5.88	4.88	Moderate	4.54	Moderate	4.71	4.88	3.94	5.24	4.52	6.51	3.78	3.78	6.46
Other Values or Attributes:															
Public Use & Recognition (PU)		2.54			3.16	Moderate	3.16	3.16	3.16				2.91	2.32	5.59
Subsistence & Provisioning Services (Subsis)		10.00			10.00	Higher	10.00	10.00	10.00				5.00	0.00	6.67
Wetland Sensitivity (Sens) *- not used in subsequent calculations*		4.58			7.13	Moderate	7.13	7.13	10.00				5.91	5.03	7.46
Wetland Ecological Condition (EC) *- not used in subsequent calculations*		1.72			1.81	Lower	1.81	1.81	1.91				4.15	2.79	5.08
Stress Potential (STR) *- not used in subsequent calculations*		4.91			7.32	Higher	7.32	7.32	10.00				6.43	3.31	5.73
Summary Scores for Groups:								Group Score Not Normalized	Group Score Normalized	Group Rating					
HYDROLOGIC Group (WS)								10.00	10.00	Higher	3.08	5.91			
WATER QUALITY Group (max+avg/2 of SR, PR, NR, CS)								9.24	10.00	Higher	4.23	6.75			
AQUATIC SUPPORT Group (max+avg/2 of SFS, INV, OE, WC, WW)								4.95	0.00	Lower	4.07	6.60			
FISH Group (max+avg/2 of FA, FR)								0.00	0.00	Lower	2.52	5.83			
AQUATIC HABITAT Group (max+avg/2 of AM, WBF, WBN)								3.81	2.48	Lower	4.04	6.82			
TERRESTRIAL HABITAT Group (max+avg/2 of SBM, PH, POL)								5.46	3.95	Moderate	3.61	6.32			
SOCIAL GROUP (max+avg/2 of PU, Subsis)								10.00	10.00	Higher	3.66	6.58			

AVG w/o Social	with Social	selected higher	normalized
7.20	7.60	7.60	7.17

Overall Score (see Manual for explanation of how the spreadsheet calculates it):	7.17
Overall Rating:	**Higher**

	Fmin raw	Fmax raw	Vmin raw	Vmax raw
WS	1.18	10.00	0.00	10.00
SFS	0.00	8.33	0.00	6.64
WC	0.00	10.00	0.00	7.58
WW	0.00	10.00	0.00	5.38
SR	2.14	10.00	0.17	4.54
PR	3.32	10.00	0.42	6.67
NR	3.49	10.00	0.42	8.65
CS	4.09	9.20		
OE	0.00	6.92	0.00	9.94
FA	0.00	7.67	0.00	10.00
FR	0.00	7.22	0.00	10.00
INV	2.81	7.73	1.66	10.00
AM	3.27	8.77	2.02	7.50
WBF	0.00	7.25	0.00	7.70
WBN	0.00	6.92	0.00	10.00
SBM	0.00	8.10	0.00	10.00
POL	0.61	6.82	0.00	7.47
PH	3.71	6.92	2.50	9.95
PU			0.78	6.34
SubSis			0.00	10.00
EC			2.52	5.41
Sen			0.00	9.50
STR			1.65	6.10

	FVmin raw	FVmax raw
WS	2.00	10.00
SFS	0.00	10.00
WC	0.67	10.00
WW	1.62	10.00
SR	3.35	7.48
PR	0.76	10.00
NR	0.00	10.00
CS	0.00	10.00
OE	0.00	10.00
FA	0.00	10.00
FR	0.00	10.00
INV	0.00	10.00
AM	1.16	10.00
WBF	2.37	8.09
WBN	0.00	10.00
SBM	0.48	10.00
POL	0.63	10.00
PH	1.84	9.57
PU	0.00	10.00
SubSis	0.00	10.00
EC	2.52	5.41
Sen	0.00	9.50
STR	1.65	6.10

HYDRO	0.00	10.00
WQ & CS	3.00	9.14
AQSUPP	4.97	9.42
FISH	0.00	10.00
HABAQ	1.82	9.84
HABTERR	2.49	10.00
SOCIAL	0.60	8.66

NOTE: Complete WESPAK spreadsheet available to agencies electronically upon request.