Exhibit 2g

WESTCOTT SHORES JOINT-USE DOCK CONSTRUCTION PROJECT

FEBRUARY 26, 2018

S.J.C. DEPARTMENT OF
MAY 31 2018
COMMUNITY DEVELOPMENT

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PSJ000-18-0003
DICKHAUS, DAVID

BIOLOGICAL EVALUATION

Westcott Shores Joint-Use Dock Construction Project

Prepared for:

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Section 1. General Information

Applicants:	David Dickhaus 59 Wildwod Lane Friday Harbor, WA 98250	D.J. Roy and Jennifer Robinson 57 Wildwood Lane Friday Harbor, WA 98250
	Warren and Nancy Appleton 63 Wildwood Lane Friday Harbor, WA 98250	Leonie Griswold (optional) 977 White Point Road Friday Harbor, WA 98250

Agent Contact:	Jeff Otis
Office Phone:	(360) 376-3679
Email:	jeffo@rockisland.com

Physical location of proposed work is the common boundary between two parcels:

Dickhaus Property:

59 Wildwood Lane
Friday Harbor, WA 98250
TPN: 462341003000
Section 23, Township 36N, Range 4W
Latitude: 48.598558° N, Longitude: -123.152876° W
Waterbody: *Westcott Bay*

-AND-

Appleton Property:

63 Wildwood Lane
Friday Harbor, WA 98250
TPN: 462341009000
Section 23, Township 36N, Range 4W
Latitude: 48.598558° N, Longitude: -123.152876° W
Waterbody: *Westcott Bay*

1.1 Project Contacts

Agency/Firm	Project Role	Contact	Phone/email	Address
Jen-Jay, Inc.	Environmental Surveys; Author, BE	Chris Betcher	360-376-4664 jenjay@rockisland.com	P.O. Box 278 Deer Harbor, WA 98243
WDFW	Habitat Biologist, HPA	Doug Thompson	360-466-4345 X251 doug.thompson@dfw.wa.gov	WDFW Field Office PO Box 1100 La Conner, WA 98257
U.S. Army Corps of Engineers	Section 10 RHA, Section 404 CWA	Randel Perry	360-734-3156 Randel.J.Perry@usace.army.mil	Seattle District Regulatory Branch Post Office Box 3755 Seattle, WA 98124-3755
NMFS	ESA, EFH Review (Pacific salmon, marine mammals, EFH fish species)		206-526-6150	7000 Sand Point Way NE Seattle, WA 98115
USFWS	ESA Review (Bull Trout, bird species)		360-753-9440	510 Desmond Dr. SE Suite 102 Lacey, WA 98503

1.2 Definition of Terms

The ***Endangered Species Act*** requires that federal agencies consider several types of effects, as defined below:

Direct effects are effects from actions that would immediately remove or destroy habitat, harm individuals of the species, or adversely modify designated critical habitat. Direct effects include actions that potentially would remove or destroy habitat, or displace or otherwise influence the species, either positively (beneficial effects) or negatively (adverse effects).

Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Indirect effects may include impacts to food resources, or foraging areas, and impacts from increased long- term human access.

Interdependent and/or interrelated effects are effects from actions that (1) have no independent utility apart from the primary action, or (2) are part of a larger action and depend on the larger action for their justification, and/or (3) are required as part of the action, including maintenance and/or use of the project, as well as other actions that would be carried out to implement, maintain, and/or operate the project.

Cumulative effects are those effects of future state or private activities (not involving federal activities) that are reasonably certain to occur within the action area.
Existing Environmental Conditions (Environmental Baseline) (50 CFR Part 402.02) consists of the following:

- The past and present effects 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 impacts of state or private actions contemporaneous with the consultation in process.

Conservation measures are measures proposed to avoid or minimize project effects on listed species. Unless stated otherwise, the effects determinations are based on the assumption that stated conservation measures would be incorporated into the project.
The effects determinations are the specific conclusions of the biological evaluation. The BE must contain a distinct statement of the overall effect of the project on each listed species and/or designated critical habitat. Possible categories for listed species are:

- ***No effect***
- ***May affect, not likely to adversely affect***
- ***May affect, likely to adversely affect***

1.3 Abbreviations

BE	Biological Evaluation
DNR	Department of Natural Resources
DPS	Distinct population segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily significant unit
FR	Federal Register
HPA	Hydraulic Permit Approval
MHHW	Mean higher high water
MLLW	Mean lower low water
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PCEs	Primary constituent elements
SRKW	Southern resident killer whale
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife

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Section 2. Project Description

The proposed project is a new private, joint-use recreational dock system shared between the owners of tax parcels 462341009000 (Appleton), 462341003000 (Dickhaus), and 462341007000 (Robinson) on Wildwood Lane in Westcott Bay, San Juan Island. Tax parcels 462341001000 and 462341011000 (Griswold and Robinson respectively) are optional joint users. The proposed dock will be located at 48.598554° N latitude and -123.15288° W longitude, at the property line between the Appleton and Dickhaus parcels.

The shoreline at the project location consists of a 10' sediment bluff behind a low solid rock shoreline with areas of gravel and cobble. Solid rock leads to boulders and mud toward the water. There is an existing, make-shift wooden ramp/ladder and small concrete steps on shore at the Appleton property that will be removed in conjunction with the proposed pier construction. There is also a wooden stairway and lower concrete steps leading from the top of the bank to the shoreline at the Dickhaus property. These stairs are also proposed for removal. The shoreline leads to mud habitat in the subtidal zone, as determined by an eelgrass and macro algae habitat survey done by Jen-Jay, Inc. on September 19th, 2017. There is no eelgrass (*Zostera marina*) or macroaglae present at the project location. All of Westcott Bay is WDFW documented Pacific herring spawning habitat. More information on the existing aquatic habitat and shoreline condition is discussed in *Section 3. Existing Environmental Conditions.*

The proposed joint-use dock system will consist of:

1) A fully-grated pier, measuring 5'7"x 176' (982sq ft) with ten (10) associated 10" diameter epoxy-coated steel pier piles;
2) A fully-grated ramp, measuring 4'7" x 48' (220sq ft) that will be connected to the pier, and float;
3) A fully-grated "T" float, with 6' x 10' (60sq ft) ramp landing area and 8' x 80' (640sq ft) main float;
    a. Alongside the ramp landing float will be two (2) 10" diameter epoxy-coated steel float guide piles. The main float will be anchored using four (4) submerged float anchors (Manta Ray or Duck Bill);
    b. The ramp landing float will be supported by eight (8) 3' x 4' x 20" foam-filled float tubs and the main float will be supported by twenty-six (26) 2' x 4' x 20" foam-filled float tubs (see Appendices 7-9).
    c. The resulting float system will have approximately 733sq ft of total float grating, with functional grating of approximately 429sq feet (59% total open area).
4) A fully-grated, steel stairway leading to the shoreline from the landward end of the pier, with six to eight (6-8) associated steel pin piles for support.

The cumulative overwater coverage of the dock structure (minus the ramp overlap) will total 1882 sq ft. All decking on the new dock system will be fully-grated for increased light penetration to the environment below. All development will occur within nearshore waters.

The pier and stairs have been designed to work around existing trees and shrubs. No disturbance of vegetation is expected, therefore no re-vegetation is required.

All construction drawings are included in Appendices 1-10. Site photos are included in Figure 1.

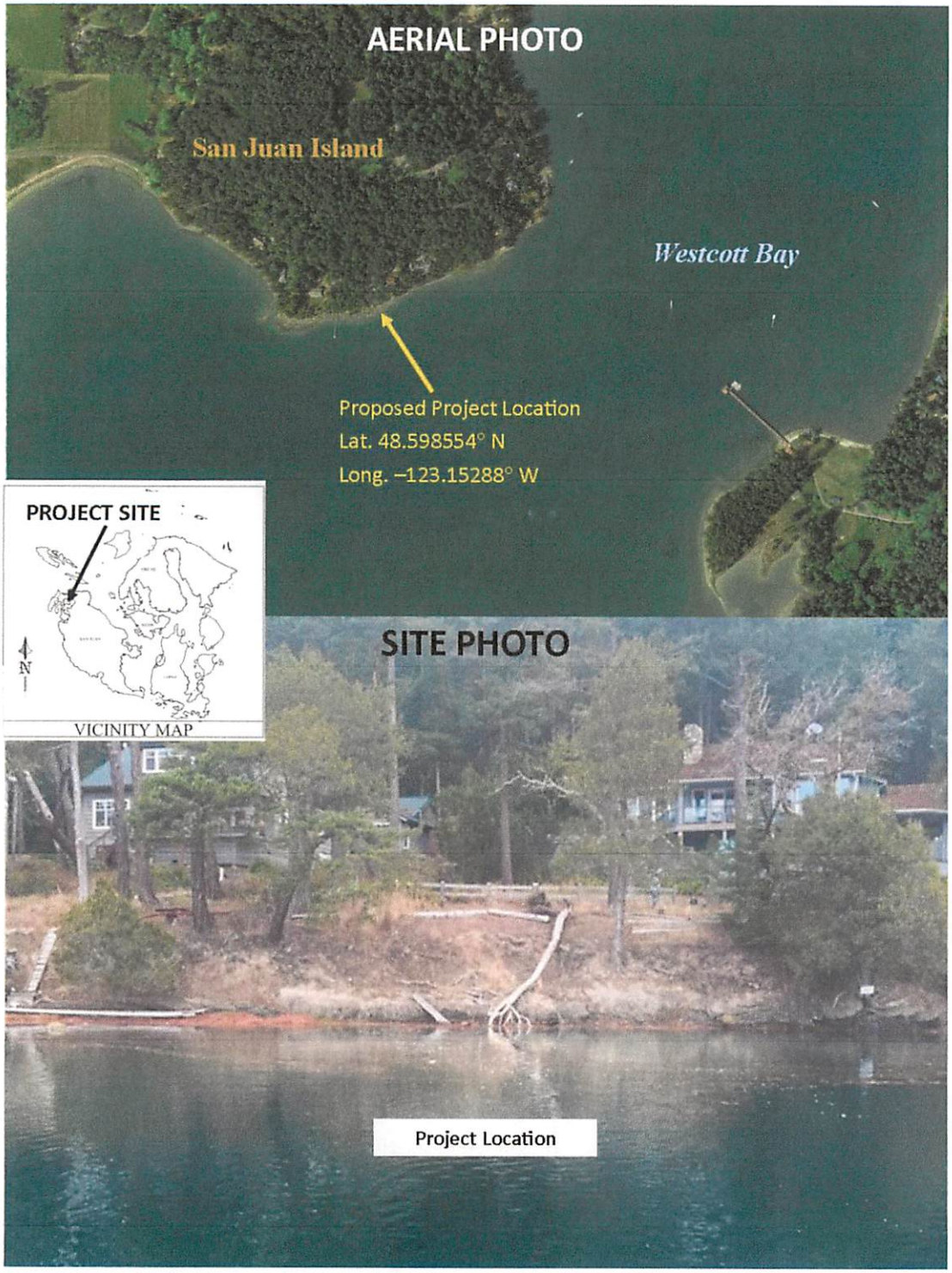

Figure 1. Westcott Shores dock construction site.

2.1 Project Site Descriptions

The shoreline description at the project location was determined by Washington Department of Fish

and Wildlife (WDFW) priority habitat and forage fish habitat maps, Washington Department of Ecology Coastal Atlas maps, as well as a site visit and eelgrass and macro algae habitat survey conducted by Jen-Jay, Inc. on September 19, 2017.

The shoreline at the project location consists of solid rock on shore with 0-4" rock at the shoreward extent of the surveyed area. There are existing concrete steps associated with both Appleton and Dickhaus parcels which lead from the top of a sediment bank to the rock shore below. The rocky shoreline leads to mud in the subtidal zone, as was determined by the eelgrass and macro algae habitat survey. No macro algae was found in the surveyed area. The survey can be visualized in the attached survey drawing (Appendix 3). There was no eelgrass (*Zostera marina*) observed in the project area. Washington Department of Fish and Wildlife has documented all of Westcott Bay as Pacific herring spawning habitat. The shore opposite the proposed project has documented surf smelt spawning habitat. No documented forage fish spawning habitat exists on shore at the project location. Details of the shoreline and aquatic habitat and vegetation will be discussed further in *Section 3: Existing Environmental Conditions*.

2.2 Construction Techniques & Sequencing

The proposed dock replacement will be created in compliance with all requirements set forth in the Washington Administrative Code for the construction of a new dock. All components will be prefabricated and brought to the project site via construction barge.

2.2.1 Pre-Fabrication

The proposed pier and ramp will be constructed at Mantle Industries in Blaine, WA. The moorage float will be constructed at the contractor's Seattle yard. All prefabricated components will be transported to the project site on the construction barge.

2.2.2 Site Preparation

If required by San Juan County a pre-construction site meeting will be scheduled with County staff and Waterfront Construction's construction crew.

2.2.3 On-site Construction

On-site construction will consist of driving or drilling the pier and float piles using a rock drill or vibratory hammer as bottom conditions dictate. Once piles are installed, a barge mounted construction crane will be used to install galvanized steel cap beams, and hoist the grated pier sections onto the cap beams. All components will be bolted together using stainless or galvanized steel hardware.

After the pier is secured to the piles, the moorage float sections will be set in the water and connected using the barge mounted construction crane. The float(s) will be secured to the float guide piles and submerged galvanized steel float anchors will be installed. Float anchors will be attached to the new moorage float by elastic tendons to prevent scouring of the seafloor.

Once the float is secured to the float guide piles, the crane will lift the ramp into place. The shoreward end of the ramp will be bolted to the pier, and the water-ward end will be set on the new

moorage float.

Once the dock system is installed, stairway pin piles will be driven in preparation for placement of the new steel stairs. The stair sets and landings will be lowered onto the pin piles using the barge-mounted construction crane. Components will then be bolted together using steel hardware. Following construction of the new stairway, the existing stairs at the Appleton and Dickhaus properties will be removed. All installation and demolition work will be completed from the water by the construction barge.

All construction debris and removed materials will be stored on the construction barge in a 20 c/y debris container for later disposal at an approved upland facility.

Construction drawings which illustrate the existing and proposed dock structure can be found in Appendices 1-10.

2.2.4 Equipment Used

All construction equipment and materials used in this project will be stationed on a construction barge. A barge mounted construction crane will be used to set the pier piles, pier section, moorage float and ramp into place. Portable power tools and hand tools will also be used to connect the pier to the piles and to secure the float and ramp in place. This equipment will also be used to aide in the removal of the existing stairs and ramp/ladder.

2.2.5 Materials Used

Construction materials used can be found in Table 1 below.

Table 1. Westcott Shores Proposed Joint-use Dock System Materials

Pier Materials		
Part	***Specification***	***Treatment***
Piling	10" STD Wall Steel	Epoxy Coated
Caps	6" x 15" Steel	Galvanized
Pier Tubing	Aluminum	None
Grating	Molded Plastic	None
Hardware	Steel	Stainless or HD Galvanized
Ramp Materials		
Ramp Tubing	Aluminum	None
Grating	Fiberglass	None
Hardware	Steel	Stainless or Galvanized
Float Materials		
Piling	10" STD Wall Steel	Epoxy-Coated
Grating	Molded Plastic	None
Nailers	2" x 4" and 3" x 4" Douglas fir #2 or better	ACZA
Joist	2" x 8" Douglas fir #2 or better	ACZA

Rim Joist	2" x 8" Douglas fir #2 or better	ACZA
Stringers	4" x 12" Douglas fir #2 or better	ACZA
Hardware	Steel	Stainless or Galvanized
Stair Materials		
Pin Piles	Steel	Epoxy-Coated or Galvanized
Frame	Steel	Galvanized
Grated Decking	Fiberglass	None

2.2.6 Work Corridor

The work corridor will be the area within the proposed dock footprint, and the footprint of the construction barge used to install the dock and associated pile. All work will occur in-water from the construction barge. Proposed upland work includes the removal of the existing stairs and access ramp/ladder on the Dickhaus and Appleton properties.

2.2.7 Staging Area and Equipment Wash Outs

All staging activities will occur on the construction barge. Equipment washouts will not occur at the project site. Washouts will occur at an approved upland area following completion of the proposed project.

2.2.8 Stockpiling Areas

The construction barge will hold all construction materials during the project. All project debris will be stored on the boat for later disposal at an approved upland facility.

2.2.9 Running of Equipment During Construction

Equipment will be running off and on throughout the on-site removal and installation phases. All equipment will be kept in good running order, free of leaks or debris, and will only be used when required.

2.2.10 Clean-Up and Re-vegetation

Any destruction/installation debris will be removed and stored on the barge for later transport to an approved upland disposal site. No disturbance of vegetation is expected, therefore no re-vegetation is required.

2.2.11 Project Timing and Work Window

All proposed construction will take place during daylight hours and at appropriate tides during WDFW and Army Corps of Engineers approved in-water work windows for the protection of fish in Tidal Reference Area 10.

The proposed appropriate work window for this project is September 1 – January 15, during daylight hours. This work window is proposed in order to protect sensitive salmonid species, as well as spawning Pacific herring, which may be found transiting the project area.

Delivery of materials will be coordinated with high tides to prevent grounding of the barge, with low

tides being used to facilitate construction.

2.2.12 Duration of Construction

Onsite project installations are expected to take approximately five to ten (5-10) work days, depending on tides and weather.

2.2.13 Action Area

The action area is the defined geographic area potentially affected by the proposed project. Activities of this project that pose potential impacts to endangered or threatened species and their critical habitats are likely to be associated with the driving of piles. Pile driving can temporarily elevate turbidity and suspended sediments in the water column, as well as increase noise levels in the area. Underwater noise produced during implementation of this project will travel in a linear fashion outward from the area of piling installation into Westcott Bay. Conservative measures of predicted noise pressure from vibratory pile driving (NMFS 2016a and b) are expected to be approximately 186 db Peak, 170 dB RMS, and 170 db SEL.

Noise impacts associated with acoustically sensitive species (particularly protected cetaceans) are expected to be non-injurious at these sound pressures for all hearing frequencies (Table 2). This level of sound could possibly disturb animal behaviors in nearby areas. The narrow shape of Westcott Bay will confine noise dispersal through attenuation by contact of sound waves with land masses. This will limit the arc of propagation and dispersal from the area of piling installation such that sound will be propagated predominantly within Westcott Bay. The action area for this project, based on sound attenuation, includes the entire southern portion of Westcott Bay. It is anticipated that very little sound attenuation will extend beyond the mouth of the bay into Haro Strait.

Table 2. WSDOT Underwater Noise Effect Thresholds (Data from National Marine Fisheries Service[§]; Stadler and Woodbury 2009[ǂ], and Hastings 2002*))

	Vibratory Pile Driving Disturbance Threshold	***Injury Threshold (PTS) Received Level***
Cetaceans	120 dB RMS[§]	≥ 202 dB RMS[§] (impulse) ≥ 173 dB SEL (non-impulsive)
Pinnipeds	120 dB RMS[§]	≥ 218 dB RMS[§] (impulsive) ≥201 dB SEL (non-impulsive)
Fish all sizes	Behavior effects threshold 150 dB RMS (vibratory/impact driving)*	Peak 206 dB[ǂ]
Marbled Murrelets	150 dB Potential Behavioral Effects	202 dB SEL

Section 3. Existing Environmental Conditions

3.1 Shoreline Vegetation and Habitat Conditions

The shoreline at the project location is primarily solid rock, with a 10' tall sediment bank at the back of the shore zone. Native trees partially support the bank structure. Upland from the rocky, low shoreline at the Dickhaus and Appleton properties is land zoned rural residential with native vegetation and trees covering most of the upland, non-developed area. Residential structures and developed landscaping occupy approximately 30% of the parcels. Native trees predominate the undeveloped portions. There are residences and other structures associated with the applicant properties as well as neighboring properties.

3.2 Aquatic Substrate and Vegetation

Aquatic vegetation at this site is generally absent. Fringe eelgrass (*Zostera marina*) has been documented in the area by the Washington Department of Ecology Coastal Atlas maps, although eelgrass was not observed during the eelgrass and macro algae habitat survey conducted September 19, 2017 by Jen-Jay, Inc. No macro algae was observed growing in the surveyed area. Drift algae was observed in small accumulations throughout the survey. Monitoring and mitigation for disturbance to aquatic vegetation is not anticipated to be necessary for the proposed project.

3.3 Forage Fish Habitat

Adults and juveniles of forage fish species, including Pacific herring, Pacific sand lance, and surf smelt, are typically found occupying or transiting through nearshore habitat throughout northern Puget Sound. Forage fish could forage in, rest within, or move through the proposed development areas since they are in a nearshore area within Puget Sound.

According to the WDFW "Forage Fish Spawning Map", Pacific herring spawning habitat exists in all waters of Westcott Bay, though no suitable spawning vegetation exists at the project location (see Appendix 3). On the eastern shore of Westcott Bay, across from the proposed project, WDFW has documented surf smelt spawning habitat. Smelt spawning habitat is not documented at the project site. The rock shoreline at the project location indicates that this is not appropriate smelt or sandlance spawning habitat. There are other beaches in the vicinity. No eelgrass was observed in the surveyed area, although Washington State Coastal Atlas documents fringe eelgrass (*Zostera marina*) habitat along the shoreline.

All potential effects to the marine environment will be minimized by installing pre-constructed components of the dock system. Installation activities will occur during approved work windows for the protection of forage fish, and with BMPs implemented, as discussed in *Section 6.3: Conservation Measures*. No adverse impacts to forage fish are expected based on the project proposal.

3.4 Surrounding Land and Water Uses

San Juan Island is a ferry-served island in San Juan County, WA. Boats being used for a number of

purposes are common in the waters of Westcott and Garrison Bays. There are private mooring buoys and residential docks in the vicinity, including mooring buoys associated with participants in the proposed joint-use dock agreement. These structures are typical of private recreational activities associated with residences in the area. Additionally, Westcott Bay Shellfish Farm is located across the bay from the proposed project.

3.5 Level of Development

There are residences and other structures associated with the applicant's properties, as well as neighboring properties. There are private docks and a number of mooring buoys in the vicinity. Nearby vegetated areas include non-native pasture grasses and landscaping, as well as native shrubs and trees.

3.6 Water quality

The marine waters in and adjacent to San Juan County are designated as Class AA or Extraordinary Quality (to be appropriate for swimming, fishing, boating and aesthetic enjoyment) and are to meet the criteria outlined in WAC-173-201A. According to Washington State's 2012 Water Quality Assessment, water quality was assessed by the Washington Department of Ecology in an area adjacent and north of the project location, and was identified as category 2: waters of concern. Waters of concern designations indicate "there is some evidence of a water quality problem, but not enough to require production of a water quality improvement (WQI) project (including total maximum daily load [TMDL]) at this time. There are several reasons why a water body would be placed in this category. A water body might have pollution levels that are not quite high enough to violate the water quality standards, or there may not have been enough violations to categorize it as impaired according to Ecology's listing policy. There might be data showing water quality violations, but the data were not collected using proper scientific methods. In all of these situations, these are waters that we want to continue to test" (Dept. of Ecology 2016).

It is expected that the proposed project would have no impact on long-term water quality in the area of the project location. Increased turbidity due to the installation of piles is expected to be minimal and temporary in duration, dissipating within the next tidal cycle. Best management practices for equipment maintenance and operation as outlined in *Section 6.3: Conservation Measures* will ensure no introduction of contaminants to the marine environment.

Section 4. Federally Listed Species and Designated Critical Habitat in the Project Area

4.1 Listed Species

This informal consultation addresses the following federally listed species and areas of associated critical habitat: marbled murrelets, leatherback sea turtles, humpback whales, southern resident killer whales, Chinook salmon, Hood Canal summer-run chum salmon, coastal Puget Sound bull trout, Puget Sound steelhead, bocaccio, canary rockfish, yelloweye rockfish, southern distinct population segment (DPS) of eulachon, and southern DPS of North American green sturgeon. Chinook salmon, bull trout, chum salmon, sturgeon, and steelhead use the San Juan Islands area for foraging and as a corridor for migration. Bocaccio, canary rockfish, and yelloweye rockfish live in association with habitats found throughout the San Juan Islands, particularly rocky reefs and stands of large macro algae such as bull kelp. Marbled murrelets, humpback whales, and southern resident killer whales use the waters in and adjacent to San Juan County primarily for feeding. Leatherback sea turtles are extremely rare in Puget Sound and have never been officially recorded in the area. Their distribution in the San Juans is presumed, based on sightings on the outer coast of Washington State. The eastern DPS of Steller sea lion was delisted in December, 2013 by National Marine Fisheries Service and is not addressed in this report.

Table 3. Federally listed species and associated critical habitats which occur in the Puget Sound region and may overlap with the project area. Endangered Species Act (ESA) listing status and the presence of critical habitats at the project site are listed below. ESA listings are provided from the National Marine Fisheries Service (NMFS) unless otherwise noted.

Listed Species	*Federal Listing Status*	*Critical Habitat in the Project Area*
Fish		
Puget Sound Chinook Salmon *Oncorhynchus tshawytscha*	*Threatened (2005)*	*One or more PCEs present*
Hood Canal Summer-run Chum Salmon *Oncorhynchus keta*	*Threatened (2005)*	*No critical habitat present*
Puget Sound Steelhead *Oncorhynchus mykiss*	*Threatened (2007)*	*No critical habitat present*
Coastal-Puget Sound Bull Trout *Oncorhynchus confluentus*	*Threatened (1999)* *(listed by USFWS)*	*No critical habitat present*
Georgia Basin Bocaccio Rockfish *Sebastes paucispinis*	*Endangered (2010)*	*No critical habitat present*

Canary Rockfish *Sebastes pinniger*	*Threatened (2010)* ***Delisted (2017)***	---
Yelloweye Rockfish *Sebastes ruberrimus*	*Threatened (2010)*	*No critical habitat present*
Eulachon **(Southern DPS)** *Thaleichthys pacificus*	*Threatened (2010)*	*No critical habitat present*
North American Green Sturgeon **(Southern DPS)** *Acipenser medirostris*	*Threatened (2006)*	*No critical habitat present*
Marine Mammals		
Southern Resident Killer Whale *Orcinus orca*	*Endangered 2005*	*No critical habitat present*
Humpback Whale *Megaptera novaeangliae*	*Endangered (1970)*	*No critical habitat designated*
Plants		
Golden Paintbrush *Castilleja levisecta*	*Threatened 1997*	*No critical habitat designated*
Birds		
Marbled Murrelet *Brachyramphus marmoratus*	*Threatened (1992)*	*No critical habitat present*
Streaked Horned Lark *Eremophila alpestris strigata*	*Threatened (2013)*	*No critical habitat present*
Yellow-Billed Cuckoo (Western DPS) *Coccyzus americanus*	*Threatened (2014)*	*No critical habitat present*
Reptiles		
Leatherback Sea Turtle *Dermochelys coriacea*	*Endangered (1970)*	*No critical habitat present*

4.2 Pacific Rockfish

The final rule for NMFS to list the Puget Sound/Georgia Basin DPSs of yelloweye rockfish (*Sebastes ruberrimus*) as threatened, and bocaccio (*Sebastes paucispinis*) as endangered under the ESA was made effective on July 27, 2010 (75 FR 22276). Critical habitat was recently designated as of November, 2014 with final rule being effective February 11, 2015. The U.S. portion of Puget Sound/Georgia Basin that is occupied by yelloweye rockfish and bocaccio has been divided into five

biogeographic areas based on the presence and distribution of adult and juvenile rockfish, geographic conditions, and habitat features. These five interconnected areas are: (1) The San Juan/Strait of Juan de Fuca Basin, (2) Puget Sound Main Basin, (3) Whidbey Basin, (4) South Puget Sound, and (5) Hood Canal. Each basin has different kinds of, levels of, and sensitivity to human impacts (NMFS, 2014).

The proposed project occurs in the San Juan/Strait of Juan de Fuca Basin. It is the most northward and westward of the five basins. It is bounded by the Canadian border and Bellingham Bay to the north, the entrance to the Strait of Juan de Fuca from the Pacific Ocean to the west, the Olympic Peninsula and Admiralty Inlet to the south, and Whidbey Island and the mainland to the east. The Victoria Sill has been recognized as the western boundary of the DPSs because it is hypothesized to control larval dispersal for rockfish of the region (Drake et al. 2010). Yelloweye rockfish and bocaccio occur in the San Juan Archipelago and the Strait of Juan de Fuca (Washington, 1977; Moulton and Miller, 1987; Pacunski, 2013). This basin has the most rocky shoreline and benthic habitats of the United States portion on the DPSs (78 FR 47642). In fact, the many islands that make up the San Juan Archipelago have rocky shorelines with extensive, submerged aquatic vegetation and floating kelp beds – habitat considered ideal for juvenile bocaccio rockfish settlement sites (78 FR 47642). Furthermore, it is estimated that 93 percent of the rocky benthic habitats of the United States portion of the range of all three DPSs are within this basin region (Palsson et al., 2009), and often adjacent to areas of complex bathymetry (78 FR 47642). This region's complex bathymetry is a result of its geological history and development – processes consisting mainly of plate tectonic processes and glacial scouring and deposits. These processes have resulted in grooved and polished bedrock outcrops, erratic boulders, and moraines spread along the seafloor of the San Juan Archipelago. More fish species inhabit more complex marine habitats versus less complex marine habitats (Anderson and Yoklavich, 2007), as complexity often provides refuge from predators as well as allows for energy conservation through sheltering from currents.

There are 36 species of rockfish found in the Puget Sound and Georgia Basin areas. Of these species, bocaccio and yelloweye rockfish have been given endangered or threatened (respectively) status under the ESA. When assessing the potential impacts of any project, consideration must be taken for the various life stages of each of these species, as well as the specific habitat and dietary requirements each of their life stages may require.

4.2.1 Puget Sound Yelloweye Rockfish and Bocaccio

Adult yelloweye rockfish and bocaccio eat invertebrates and fishes, such as green sea urchin (*Stongylocentrotus droebachiensis*) eggs, crabs, various shrimp species (Pandalus spp.), rockfish (Sebastes spp.), flatfish (Pleuronectidae spp.), juvenile salmon (Oncorhynchus spp.), walleye pollock, (*Theragra chalcogramma*), Pacific hake (*Merluccius productus*), Pacific cod (*Gadus macrocephalus*), surfperches (Embiotocidae spp.), and lingcod (*Ophiodon elongates*). Common forage fish that are part of their diets include Pacific herring (*Clupea pallasii*), surf smelt (*Hypomesus pretiosus*), and Pacific sand lance (*Ammodytes hexapterus*) (Washington et al., 1978; Lea et al., 1999; Love et al., 2002; Yamanaka et al., 2006).

Juvenile rockfish feed on phytoplankton, zooplankton, other small crustaceans, invertebrate eggs, krill, other small invertebrates, and, as they become larger, fish (Moser and Boehlert, 1991; Love et

al., 1991; Love et al., 2002).

Adult yelloweye and bocaccio generally live at depths from approximately 30 to 425 m (100 ft to 1,400 ft; Orr et al., 2000; Love et al., 2002). They are often found in habitats amongst or adjacent to complex habitat features characterized by steepness and roughness, such as rocky outcroppings, bedrock, and areas dominated by cobble-boulder fields (Yoklavich et al., 2000; Love et al., 2002; Wang, 2005; Anderson and Yoklavich, 2007). Although Puget Sound benthic habitat is dominated by expanses of mud, sand, clays, cobbles and boulders without rock, some of these have adequate bathymetric complexity to attract these species (Anderson and Yoklavich, 2007; Young et al., 2010). Thus rocky, high-relief areas are not exclusively occupied by rockfishes. Sand, mud, and other sediments may also be used (Haw and Buckley, 1971; Washington, 1977; Miller and Borton, 1980; Reum, 2006).

Pelagic juveniles of bocaccio do not associate with bottom habitat until they reach 1.0-3.5 inches long (3-9 cm) at 3 to 6 months (Love et al., 2002; Weis, 2004). Then they settle in nearshore waters on rock, cobble and sand substrates (Love et al., 1991; Love et al., 2002). Areas with large kelp species provide the most preferred habitat (Carr, 1983; Haldorson and Richards, 1987; Matthews, 1989; Love et al., 2002). Kelp harvest, boat operations, oyster culture activity, and petroleum product toxins can all adversely affect kelps. Low dissolved oxygen, eutrophication, and harvest of organisms that feed on the kelp are considered to be indirect adverse impacts affecting kelp habitat (Mumford, 2007). Rockfish in the waters in and adjacent to San Juan County are vulnerable to development activities that affect the macro algae in the near shore habitat due to the larval and/or juvenile dependence to this type of habitat (San Juan County, 2012). A combination of warmer temperatures, food, and refuge from predators benefits juvenile rockfish in this habitat (Love *et al.*, 1991). The highest densities of juvenile bocaccio rockfish, as well as other rockfish species, occur in areas with floating and submerged kelp (Carr, 1983; Haldorson and Richards, 1987; Matthews, 1989; Love *et al.*, 2002).

Juvenile yelloweye rockfish appear to prefer deeper offshore waters down to 98 feet (30 meters) just above the adult depth range and are not typically found near shore (Love et al. 1991; Yamanaka et al., 2006; Studebaker et al. 2009). All 36 rockfish species found in the area surrounding the proposed project site give live birth to larval young. The young larval rockfish are dispersed by currents and inhabit pelagic habitat into their early juvenile stage. Larval rockfish can inhabit the full water column but mostly occur in the upper 80 meters (Love *et al.*, 2002; Weis, 2004).

There have been a number of effects contributing to the decline of these species over time: habitat degradation; commercial and recreational over-utilization; low dissolved oxygen; elevated contaminant levels; and inadequate regulatory mechanisms (75 FR 22276). Each of the ESA-listed rockfish may be found in areas of high relief and over sand, mud and other unconsolidated substrates (Washington, 1977; Miller and Borton, 1980-2009), but they appear to prefer rocky habitats. Rocky habitat comprises 207 square kilometers km (80 sq. mi.) in north Puget Sound. This habitat type has been affected by derelict fishing gear, bridge construction, cables and pipelines, and dredge spoil deposition (Palsson, et al., 2009). Juvenile life stages may occupy near shore habitat over rock and cobble substrates; however, the vast majority of juvenile rockfish are found in

kelp habitat (Carr, 1983; Haldorson and Richards, 1987; Matthews, 1989; Hayden-Spear, 2006). The water quality and substrate alterations that may coincide with coastal developments can affect the availability of suitable habitat for rockfish as well as their associated prey species. All potential effects to the marine environment will be minimized by installing pre-constructed dock system components, and by taking precautionary measures while installing piles and removing stairs.

Designated critical habitat for adult rockfish is where the bathymetry is greater than 30 m deep (79 FR 68041). Temporarily disturbed sediment is expected to settle within the immediate project area and thus will not enter designated critical habitat for adult rockfish. The action area for the project occurs outside the designated critical habitat for juvenile yelloweye rockfish based on preferences for deeper water. Additionally, the project area does not occur within the proposed critical habitat for juevenile bocaccio, which use rocky, complex, and potentially kelp-dominated substrates. The substrate at the project site is dominated by gently sloping mud with no kelp, and is not expected to be of value for settling juvenile bocaccio. The proposed project **may affect**, but is **not likely to adversely affect** listed species of rockfish, and will have **no effect** on their critical habitat.

4.3 Pacific Salmonids

Multiple species of salmonid fish use waters surrounding Puget Sound including the waters of San Juan, Skagit, and Whatcom Counties during various life cycle stages. These species include Puget Sound steelhead (*Oncorhynchus mykiss*), Puget Sound bull trout (*Oncorhynchus confluentus*), Hood Canal summer-run chum salmon (*Oncorhynchus keta*), and Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*).

The proposed project does not exist within the designated critical habitat of Puget Sound steelhead, Puget Sound summer-run chum salmon, or Puget Sound bull trout. These species are unlikely to spend significant time in the project area. Their time spent in the island nearshore environment is either not well documented (the case with Puget Sound Steelhead (FR 81 9251)), or currently designated critical habitats are centered around estuarine and riparian areas outside of the San Juan Islands (as is the case with Puget Sound bull trout (50 CFR Part 17) and Hood Canal summer-run chum salmon (70 FR 52630)). Nearshore areas closer to these species' freshwater critical habitats are important for migration, spawning and juvenile foraging, but critical areas have not yet been shown to extend into the marine waters of the San Juan Islands. In contrast, all twenty-two populations of Puget Sound Chinook salmon use the county's nearshore and marine waters throughout the year for feeding and migrating. Juvenile Chinook salmon use the area for at least a portion of their maturation period. Nearshore habitats of particular importance for juvenile Chinook include pocket estuaries and streams offering juvenile salmon food resources and protection from predators (SJC BAS, 2011).

The proposed project exists within the nearshore marine area, designated critical habitat for the Puget Sound Chinook salmon evolutionarily significant unit (ESU)(70 FR 52630). The nearshore marine area consists of areas contiguous with the shoreline out to a depth no greater than 30 m relative to the shoreline throughout most of Puget Sound (i.e., a depth zone that generally coincides with the maximum depth of the photic zone). Critical habitat is defined, in part, as specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological

features essential to conservation. Those features may require special management considerations or protection. In particular, eelgrass and kelp provide cover for rearing, migrating, and maturing juvenile and sub-adult Chinook salmon and their prey, although deeper waters may be occupied by subadult and maturing Chinook salmon.

The proposed project does not exist within the designated critical habitat of Puget Sound Steelhead, Hood Canal Summer-run Chum Salmon, or Bull Trout. Project impacts to designated critical habitats for these species are not addressed as they are negligible or non-existent. Project impacts to these species are likely to be temporary and minimal as these species are not likely to consistently use the project area. Assessment of impacts to Puget Sound Chinook and their critical habitat are discussed below.

4.3.1 Puget Sound Chinook Salmon

Primary Constituent Elements determined essential to the conservation of Puget Sound Chinook are:

(1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.

The project location is in a nearshore marine area. There are no suitable freshwater spawning sites in the project vicinity. There will be no effects from the project to this PCE.

(2) Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

The project location is in a nearshore marine area. There are no suitable freshwater spawning sites in the project vicinity. There will be no effects from the project to this PCE.

(3) Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

The project location is in a nearshore marine area. There are no suitable freshwater migration corridors in the project vicinity. There will be no effects from the project to this PCE.

(4) Estuarine areas free of obstruction with water quality, water quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh- and seawater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The project location is not in an estuarine area; thus it does not contain conditions that would be

suitable as transitional habitat for juvenile and adult salmon. There will be no effects from the project to this PCE.

(5) Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.

Existing site conditions may provide prey habitat and thus foraging opportunities for juvenile Chinook salmon. However, with no submerged aquatic vegetation or overhanging large wood, large rocks, boulders, or side channels the area lacks many natural cover elements.

Adults and juveniles of forage fish species, including Pacific herring, Pacific sand lance, and surf smelt, are typically found occupying or transiting through nearshore habitat throughout northern Puget Sound. These forage fish are valuable prey for developing Chinook salmon. According to the WDFW Forage Fish Spawning Map, Pacific herring spawning habitat has been identified at the project location. On shore, no potential forage fish spawning habitat exists on solid rock. Surf smelt spawning habitat is documented across the bay on the eastern shore of Westcott Bay. Forage fish could forage in, rest at, or move through the action area since it is a nearshore area within the Puget Sound. No eelgrass was observed during the eelgrass and macro algae habitat survey. It is unlikely that out-migrating salmon would use the project area, as many necessary forage and cover elements are absent.

This primary constituent element may be temporarily directly affected by pile driving activities, due to disturbance effects on fish as a result of noise and increased turbidity. It is expected that negative effects during pile driving will disappear once installation activities are completed. Work windows for the protection of salmon and forage fish species will be observed during all construction activities.

(6) Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The proposed project site is located in nearshore habitat and will not have direct impact to marine offshore areas. Although deeper waters may be occupied by sub-adult and maturing Chinook salmon, this project area does not contain offshore PCEs that require special management consideration. There will be no effects from the project to this PCE.

4.3.2 Determination of Effect on listed Puget Sound Salmonids and Associated Critical Habitat

The project area may require special management consideration and protection as it may contain at least one primary constituent element (PCE) for Puget Sound Chinook salmon critical habitat. Moderate quality forage could be temporarily affected by construction activities affiliated with the proposed project (temporary and localized sediment disturbance, increased water turbidity, and noise during installation). However, the project location lacks many natural cover and forage elements necessary for growth and maturation of young salmon. The proposed project is designed

to avoid and minimize negative impacts to the nearshore environment over the long-term through project design and the use of BMPs listed in *Section 6.3 Conservation Measures*. The proposed project **may affect**, but is **not likely to adversely affect** Puget Sound salmonids or their critical habitat.

4.4 Southern Resident Killer Whale

Killer whales are considered cosmopolitan in their distribution, meaning they are found in all of the world's oceans. They are most abundant in colder waters, including Antarctica, the North Atlantic and Pacific Oceans, though they also occur at lower densities in tropical, subtropical, and offshore waters (NOAA 2016). Killer whales are generally considered monotypic (belonging to one species), however, genetic studies and morphological evidence have led many cetacean biologists to now consider the existence of multiple species or subspecies of killer whales worldwide (Pitman and Ensor 2003). Scientific studies have identified many different populations (possibly even potentially different species or subspecies) of killer whales worldwide. Different populations of killer whales may exhibit different dietary needs, behavior patterns, social structures, and habitat preferences (NOAA 2016).

The most well-studied killer whale populations occur in the eastern North Pacific Ocean. Three distinct forms, or ecotypes, of killer whales are recognized in this region: resident, transient (or Bigg's), and offshore (Ford et al. 2000). The three types differ in morphology, ecology, behavior, and genetics. A recent genetic study (Morin et al. 2010) suggests the transient ecotype separated from other killer whales approximately 750,000 years ago and could represent a separate species or subspecies. All three types of killer whales share at least part of a home range, yet they are not known to intermix with one another. The resident and transient types both have multiple populations within their range.

The southern resident killer whales (SRKWs) of the northeast Pacific are considered one "stock" under the Marine Mammal Protection Act (MMPA) and one "distinct population segment" under the Endangered Species Act (ESA). The Southern Resident Killer Whale population is currently estimated at about 80 whales, a notable decline from the estimated historical level of approximately 200 during the late 1800s. In November 2005, the Southern Resident population was listed as endangered under the ESA. Critical habitat was designated in November 2006.

Southern resident killer whales have been identified frequently in the open waters of Haro Straight, however there are no documented sightings of SRKWs inside Westcott or Garrison Bays. The project action area is not located within critical habitat for the southern resident killer whale (*Orcinus orca*) due to the shallow depths of Westcott Bay. The final critical habitat designation includes waters greater in depth than 20 feet (Area 1: Summer Core Area) (71 FR 69054). The proposed project is located in waters shallower than -20 MLLW.

Although the in-water work associated with the project is not located in depths frequented by SRKWs, the sound pressures associated with rock drilling and pile driving may be disturbing to protected whales should they encounter the sound at close range. Sounds are expected to be non-injurious, even at a 10m distance from the sound source. There are no data reported for 6-inch diameter, 8-inch diameter or 10-inch diameter steel pipe pile reported by the Washington Department of

Transportation (WSDOT). However, average sound pressure measured at 10 meters from pile driving activities using a vibratory pile-driver for 12-inch diameter steel pipe pile have been measured at 171 dB Peak and 155 dB RMS (WSDOT).

Due to the convoluted shape of Westcott Bay, it is anticipated that nearly all sound pressures generated by pile driving activities will be contained within Westcott Bay, an area where SRKWs have never been documented. Due to the geographic nature of the project site, a marine mammal monitoring plan is not proposed. The proposed project **may affect**, but is **not likely to adversely affect** southern resident killer whales, and will have **no effect** on their critical habitat.

4.5 Eulachon, Southern DPS

Eulachon (*Thaleichthys pacificus*) is also known as candlefish or hooligan. They are a small, anadromous forage fish found in the northeast Pacific. Eulachon spend 3 to 5 years in saltwater before returning to freshwater to spawn from late winter through mid-spring. Eulachon typically occur in nearshore ocean waters up to 1,000 feet (300 m) in depth, except for brief spawning runs into their natal (birth) streams, usually at the end of their lives. Spawning grounds tend to be in the lower reaches of large snowmelt-fed rivers. "In the continental United States, most eulachon originate in the Columbia River Basin. Other areas in the United States where eulachon have been documented include the Sacramento River, Russian River, Humboldt Bay and several nearby smaller coastal rivers (e.g., Mad River), and the Klamath River in California; the Rogue River and Umpqua Rivers in Oregon; and infrequently in coastal rivers and tributaries to Puget Sound, Washington" (NOAA 2016).

Eulachon exhibit considerable year-to-year variability in their population abundance. However, nearly all spawning runs from California to southeastern Alaska have declined in the past 20 years, especially since the mid-1990s (NOAA 2016). As a result, the southern DPS of eulachon, a population segment extending from the border of British Columbia south to northern California, was listed as threatened under the ESA in 2010. Critical habitat for eulachon was designated in 2011 (76 FR 65323), and does not include any areas within Puget Sound. Although eulachon may be using waters of Puget Sound for migratory or foraging purposes, activities in the project locations would be expected to, at most, temporarily alter their behaviors. The proposed project **may affect, but is not likely to adversely affect** eulachon, and it will have **no effect** on eulachon critical habitat.

4.6 Golden Paintbrush

Golden paintbrush (*Castilleja levisecta),* a perennial herb in the figwort or snapdragon family, was listed as threatened by USFWS on June 11, 1997. Historically, golden paintbrush was reported in more than 30 sites in the Puget Trough of Washington and British Columbia, and as far south as the Willamette Valley of Oregon. It is now known from 11 remaining populations, nine of which are in Washington, and four in San Juan County (DNR 2010). Remaining populations are noted from San Juan Island, though no critical habitat has been designated for this species.

The Recovery Plan for the Golden Paintbrush describes the paintbrush's habitat as being located in the Puget Trough from sea level to 100 meters. Golden paintbrush generally occurs on flat grasslands and steep coastal grass-dominated bluffs, and have a west or southwest orientation (USFWS 2000). Low

deciduous shrubs are often common. Without fire, some sites have been colonized by trees and shrubs such as Douglas-fir (*Psuedotsuga menziesii*) , wildrose (*Rosa nutkana*) and Scotsbroom (*Cytisus scoparius*) (USFWS 2000). Biologists believe the species reproduces exclusively through seeds (USFWS 2000) though this is yet to be documented.

Potential impacts to golden paintbrush are limited to upland ground disturbance. The proposed project includes little to no upland ground disturbance. It is extremely unlikely that golden paintbrush would be present at this location due to the wooded nature of the upland habitat at the project site. Based on this information, it is anticipated that project activities will have **no effect**, on golden paintbrush.

4.7 Humpback Whales

Humpback whales (*Megaptera novaeangliae*) are more commonly found in the deep waters within Puget Sound. The Western North Pacific DPS of humpback whales was recently recognized by NOAA as a population with a high risk of extinction, and has thus been reclassified and listed as endangered on the ESA (81 FR 62259). There is currently no designated critical habitat for humpback whales. It is becoming more common for humpback whales to venture into the waters in and adjacent to San Juan County (Orca Network Sightings archives and The Whale Museum, Friday Harbor, WA).

The project area is isolated from the majority of humpback sightings by islands and narrow channels. The project is not within the critical habitat of humpback whales or their regular migratory or feeding routes, however, whale sightings have been on the rise in previously unexpected locations. There is currently no critical habitat established by the National Marine Fisheries Service for humpback whales.

Humpback whales may be affected by noise and boat movements associated with project activities in the action area. Due to the location of the project well inside Westcott Bay, project activities would not be anticipated to disturb humpback whales. Humpback whales would not be expected to be moving anywhere near the project area. Project activities **may affect, but are not likely to adversely affect** humpback whales.

4.8 Leatherback Sea Turtle

Critical habitat for the leatherback sea turtle (*Dermochelys* coriacea) does not exist in Puget Sound. The possible occurrence of leatherbacks in Puget Sound is presumed, not due to recorded accounts. Due to the lack of documented observations of leatherback turtles in the waters in and adjacent to San Juan County, the chance of an encounter in the project area is extremely low. Therefore, the proposed project will have **no effect** on the leatherback sea turtles or their critical habitat.

4.9 Marbled Murrelet

Critical habitat for the marbled murrelet (*Brachyramphus marmoratus*) was designated on May 24, 1996. Critical habitat was only identified in the terrestrial environment and not in the marine environment of Puget Sound, including waters surrounding the San Juan Islands. Within areas essential for successful marbled murrelet nesting, only those areas that contain one or more Primary Constituent Elements (PCEs) are by definition, critical habitat. PCEs for the marbled murrelet are

described as (1) trees with potential nesting platforms, and (2) forested areas within ½-mile of potential nest trees with a canopy height of at least ½ the height of the potential nest tree height (61 FR 26256). No marbled murrelet nesting sites occur within 200 feet of the proposed project, although foraging marbled murrelets may occur within the project area year round. Marbled murrelets occur over open water, feeding on forage fish species such as Pacific herring and Pacific sand lance. If there are marbled murrelets in the area, it is expected that they will continue to forage, rest, or move through the area during the proposed construction activity. Piles will be driven using vibratory equipment or a rock drill. No impact-related noise disturbance will be associated with the project. No long-term direct or indirect effects are expected to impact individual marbled murrelets or their populations. The proposed project will have **no effect** on the critical habitat of Marbled Murrelets, and **may affect, but is not likely to adversely affect** feeding or traveling marbled murrelets.

4.10 North American Green Sturgeon, Southern DPS

North American Green Sturgeon (*Acipenser medirostris*) are a large, widely distributed fish that spend most of their adult and subadult lives inhabiting marine and estuarine waters from southern California to Alaska. The best available data suggest that these are important habitats within which green sturgeon make seasonal, long-distance migrations, most likely associated with foraging and aggregation areas along the coast. Green sturgeon primarily occur in deep water, around the 110 m depth bathymetry (Erickson and Hightower 2007). "Tagging studies of Southern DPS fish in the vicinity of this DOD site revealed that: (1) the majority of fish likely enter and migrate some distance through the deep, outer, western portion of the Strait of Juan de Fuca, but turn around and migrate along the western coast of Vancouver Island up to overwintering habitats off of Brooks Peninsula on Vancouver Island, rather than migrating through the eastern portion of the Strait of Juan de Fuca and the Strait of Georgia; and (2) a much smaller number of fish migrate to Puget Sound, based on very low detection rates (NMFS 2016)."

The southern DPS of North American green sturgeon is listed as threatened by NMFS on the ESA. Primary constituent elements present within Puget Sound include food resources, water flow, water quality, depths, and migratory corridors for feeding, migration, aggregation, and holding by subadult and adult green sturgeon. Observations of green sturgeon in Puget Sound are much less common compared to the other estuaries in Washington. Both Northern DPS and Southern DPS green sturgeon adults and/or subadults have been detected in the area, but the extent to which Southern DPS green sturgeon use Puget Sound is unknown. The activities occurring in Puget Sound and the special management concerns associated with them are similar to those in Willapa Bay and Grays Harbor. Dredging and in-water construction or alterations (e.g., pile driving, bridge construction, bank stabilization) could affect benthic habitats and alter water flow and water quality (NMFS 2016).

There is no designated critical habitat for North American green sturgeon in Puget Sound. The likelihood of encountering this species at the project location is highly unlikely due to the rare occurrences of these fish in the area and the shallow depth of the project site. Best management practices established for other sensitive fishes are also expected to protect sturgeon and their foraging and migratory habitats. Temporary turbidity and noise associated with project activities **may affect** movement and behavior of sturgeon in the area, but it is expected that these activities **will not**

adversely affect North American green sturgeon. Activities will have **no effect** on the critical habitat of green sturgeon.

4.11 Streaked Horned Lark

The streaked horned lark (*Eremophila alpestris strigata*) is a subspecies of the wide-ranging horned lark, and is endemic to the Pacific Northwest. The subspecies was listed as threatened on the endangered species list in 2013 and critical habitat was designated. Streaked horned larks are small, ground-dwelling birds with an historical breeding range from southern British Columbia to southwestern Oregon, however the bird has been extirpated from much of its former range, including the San Juan Islands (www.fws.gov). Horned larks prefer wide open spaces (300 acres or more) with no trees and few, if any, shrubs. The streaked horned lark nests on the ground in sparsely vegetated sites dominated by grasses and forbs, historically the prairie habitats of the San Juans. Currently no critical habitat is designated in the San Juan Islands for streaked horned larks.

Because streaked horned larks have not been found in the San Juan Islands for some time, it is extremely unlikely that the birds will be found in the project area. Additionally, the upland areas around the immediate project vicinity are heavily wooded, and are not consistent with the preferred habitat of streaked horned larks.

It is anticipated that proposed project will have **no effect** on streaked horned larks or their critical habitat.

4.12 Yellow-billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is a medium-sized bird with an historical breeding range through much of North America. Available data suggest that within the last 50 years the species' distribution west of the Rocky Mountains has declined substantially. In 2013, the western DPS of the yellow-billed cuckoo was proposed as threatened on the endangered species list (www.fws.gov).

Western yellow-billed cuckoos breed in dense willow and cottonwood stands in river floodplains. State historical records for the bird show that breeding cuckoos were most often sighted in willow bottoms along the Willamette and Columbia Rivers. Actions that alter or destroy riparian habitat are of particular concern, including unmanaged cattle grazing which can contribute to the loss of sub-canopy vegetation and cottonwood regeneration.

Currently, no critical habitat is designated in Washington State for the yellow-billed cuckoo. The upland areas in the immediate project vicinity do not contain elements of yellow-billed cuckoo habitat. It is anticipated that the proposed project will have **no effect** on the western DPS of yellow-billed cuckoos or their critical habitat.

Table 5. Determination of effect for ESA-listed species and designated critical habitat found in the action area (NLAA = not likely to adversely affect; NE = no effect)

Listed Species	*Impact Mechanism*	*Effects Determination*		*Rationale for Effects Determination*
		Critical Habitat Effects	*Species Effects*	
Fish				
Puget Sound Chinook Salmon, Steelhead, Bull Trout, and Hood Canal Summer-run Chum Salmon	*Feeding and movement disturbance in critical habitat due to noise and turbidity in the action area.*	*NLAA*	*NLAA*	*Project effects are temporary or insignificant. BMPs for this project ensure no adverse effects on populations or critical habitat. Individual effects will be temporary and likely limited to change in use patterns.*
Georgia Basin Bocaccio Rockfish	*Feeding and movement disturbance outside critical habitat due to turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area and individuals are not likely to occur near project activities.*
Yelloweye Rockfish	*Feeding and movement disturbance outside critical habitat due to turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area and individuals are not likely to occur near project activities.*
Eulachon	*Feeding and movement disturbance outside critical habitat due to turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area. Individuals are not likely to occur near project activities.*
North American Green Sturgeon (Southern DPS)	*Feeding and movement disturbance outside critical habitat due to turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area and individuals are not likely to occur near project activities.*
Marine Mammals				

Southern Resident Killer Whale	*Temporary foraging disturbance due to boat presence and increased turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area and individuals are not likely to occur near project activities. This project includes sound-producing activities that are not anticipated to extend into SRKW habitat.*
Humpback Whale (Western North Pacific DPS)	*Temporary foraging disturbance due to boat presence and increased turbidity in the action area.*	---	*NLAA*	*There is no critical habitat designated for this species. This project includes sound-producing activities that are not anticipated to extend into SRKW habitat.*
Birds				
Marbled Murrelet	*Temporary foraging disturbance due to noise and increased turbidity in the action area.*	*NE*	*NLAA*	*Critical habitat is not present in the action area. Project effects are insignificant due to type of project activity and equipment used.*
Streaked Horned Lark	*Unlikely to be found in the project area*	*NE*	*NE*	*Project activities are proposed in an area with habitat not preferred by this species. Critical habitat is not present in the action area.*
Yellow-billed Cuckoo	*Unlikely to be found in the project area*	*NE*	*NE*	*Project activities are proposed in an area with habitat not preferred by this species. Critical habitat is not present in the action area.*
Reptiles				
Leatherback Sea Turtle	*Extremely unlikely to be found in project area*	*NE*	*NE*	*Populations have not been recorded in or near the action area.*
Plants				

Golden Paintbrush	*Unlikely to be found in the project area*	---	*NE*	*There is no critical habitat designated for this species. The project is proposed in habitat not preferred by this species. Minimal upland work is proposed.*

Section 5. Essential Fish Habitat Analysis

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires federal agencies to consult with NMFS on activities that may adversely affect essential fish habitat (EFH). Essential fish habitat is defined by the MSA in Section 3 (104-297) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The objective of this EFH assessment is to describe potential adverse effects to designated EFH for federally managed species within the proposed action area. It also describes conservation measures proposed to avoid, minimize or otherwise offset potential adverse effects to designated EFH resulting from the proposed action.

5.1 Species with EFH in Puget Sound

A comprehensive compilation of historical collections of fish throughout Puget Sound prior to 1973, based on multiple gear types and varying sampling efforts, was used to assess the potential presence/absence of a particular species in the various areas of Puget Sound (Miller and Borton, 1980). In addition, a surface trawl survey of fish in near-shore habitats in northern Puget Sound from 1974 through 1976 provided more site-specific information concerning species presence and distribution (Fresh 1979). Of the 52 fish species identified as having EFH in the waters of Puget Sound, 18 species are likely to use the habitat found in the project area (Table 6). These species have at least one life history stage that may use habitat similar to that found in the project area and, if present, may be temporarily affected by the proposed action.

Table 6. Species of fish with designated EFH in Puget Sound waters are those with at least one life history stage that utilizes habitat similar to that found in the project area are indicated in bold (Miller and Borton 1980, Fishbase).

Species	Likely to occur in action area	Not likely to occur in action area	Unknown
Groundfish Species			
Spiny dogfish	X		
Big skate	X		
California skate			X
Longnose skate	X		
Ratfish	X		
Lingcod		X	
Cabezon		X	
Kelp greenling		X	

Pacific cod		X	
Pacific hake		X	
Sablefish		X	
Black rockfish		X	
Bocaccio rockfish		X	
Brown rockfish		X	
Canary rockfish		X	
China rockfish		X	
Copper rockfish		X	
Darkblotched rockfish		X	
Greenstriped rockfish		X	
Pacific ocean perch		X	
Quillback rockfish		X	
Redbanded rockfish		X	
Rosethorn rockfish		X	
Rosy rockfish		X	
Rougheye rockfish		X	
Sharpchin rockfish		X	
Shortspine thornyhead		X	
Splitnose rockfish		X	
Stripetail rockfish		X	
Tiger rockfish		X	
Vermillion rockfish		X	
Yelloweye rockfish		X	
Yellowtail rockfish		X	

Arrowtooth flounder	X		
Butter sole	X		
Curlfin sole			X
Dover sole	X		
English sole	X		
Flathead sole	X		
Pacific sanddab	X		
Petrale sole		X	
Rex sole	X		
Rock sole	X		
Sand sole	X		
Starry flounder	X		
Pacific Salmon Species			
Chinook salmon	X		
Coho salmon	X		
Pink salmon	X		
Coastal Pelagic Species			
Northern anchovy		X	
Pacific sardine		X	
Pacific herring	X		

5.2 Conclusion on Effects to EFH

The proposal is to construct a joint-use recreational dock system for the residents of Westcott Shores community association. Construction activities will be done in such a manner that impacts to EFH will be minimized, as described for ESA-listed fish species. These activities will be conducted during appropriate hours and tides to further reduce the chance of adversely affecting EFH from accidental

degradation occurrences, in both the project and action areas. It is expected that the extent of turbidity plumes as well as associated adverse effects will be minimized using the proposed installation techniques and best management practices outlined in *Section 6.3 Conservation Measures*. The installation of piles will temporarily disturb sediment, but it is expected that turbidity will settle within a tidal cycle, and that all installation activities will be completed within five to ten (5-10) work days.

Temporary disturbance to essential fish habitat may occur in conjunction with proposed project activities. It is expected that impacts will be similar to those already discussed for other nearshore fish species or species with life-history stages that utilize nearshore habitats. Any alterations to essential fish habitat are expected to be temporary and insignificant. Direct and indirect effects, as well as conservation measures for preserving essential fish habitat, are discussed in *Section 6 Probable Cumulative Impacts*. Conservation measures and best management practices listed in *Section 6.3 Conservation Measures* are expected to greatly reduce adverse impacts to groundfish, Pacific salmon, and coastal pelagic species EFH. In conclusion, it is expected that project activities **may affect**, but **will not adversely affect** EFH in the project areas.

Section 6. Probable Cumulative Impacts

The following are potential impacts associated with proposed project activities, followed by conservation measures and best management practices (BMPs) designed to minimize or eliminate such impacts.

6.1 Direct Impacts

1) Potential grounding of the barge
2) Potential of deleterious materials entering the water during construction
3) Stirring sediment into the water column during pile-driving activities:

   The installation of piles may result in elevated levels of fine-grained mineral and organic particles in the water column. If particles were to remain suspended for an extended period of time the turbidity plume caused by these suspended solids may cause:

   - Reduced light penetration, causing lowered rates of photosynthesis in aquatic vegetation;
   - Fish in the project area, as well as their prey species, to experience reduced feeding efficiency, resulting in reduced growth and increased susceptibility to disease;
   - Damage to aquatic vegetation and other sensitive habitats;
   - The physical, chemical, and biological characteristics of the substrate to experience varying degrees of change due to the disruption and resettling of sediments. Disruptions may have an adverse effect on infaunal and benthic organisms in the area by either smothering immobile organisms, such as invertebrate prey species, or forcing mobile organisms, such as benthic-oriented fish species to migrate from the area. Sediment disruption may also introduce nutrients and organic particulates. Excessive nutrients can change the chemical constituents of the water and may favor the growth of some organisms while being detrimental to others. Increases in organic particulates can lead to increased biological oxygen demand (BOD) resulting in reduced dissolved oxygen. The combination of these factors may temporarily reduce the suitability of the area for certain populations of fish and their prey;
4) Shading of the substrate by new overwater structures;
5) Noise disturbances to listed species during construction activities; in particular sounds from rock drilling and pile driving;
6) Direct physical contact of animals or habitats with, or indirect exposure to, oil discharge or other hazardous substances.

6.2 Indirect Impacts

1) Potential grounding of resident boats at low tide;
2) Potential of deleterious materials entering the water from use of the dock system;
3) Potential increased stirring of sediments from boats using the new dock;
4) Shading of the substrate by boats moored to the new dock system.

6.3 Conservation Measures

The potential direct and indirect impacts of this proposed project can be minimized by the following best management practices:

1) Situating the barge such that it does not ground out during construction activities;
2) Vibratory driving is proposed for this project. Sound attenuation measures have been estimated based on the WSDOT Practical Spreading Loss equation and reported sound pressures associated with pipe pile. It is not anticipated that sound pressures will extend into the habitat of ESA-listed whale species;
3) No deleterious material will enter state waters;
4) Equipment will be kept in good running order and engines will be run only while needed to help reduce noise and the possibility of deleterious materials entering the water column;
5) Disposal of all waste material will be done appropriately at an approved upland disposal site;
6) Pre-fabricated dock components will be used so that the duration of noise and turbidity disturbance resulting from installation will be shortened and debris from the project will be minimized;
7) Designing the dock system to ensure that the overall length is sufficient to prevent grounding of the float or moored boats at low tides;
8) Reduction in shading from use of grated surface on the proposed pier, ramp, and float;
9) Installation activities will take place at compatible tides during daylight hours to ensure that equipment does not ground out and installations are efficient;
10) Approved in-water work windows will be implemented, and work will occur over an estimated five to ten (5-10) day period;
11) Spill prevention and clean-up plans will be in place for this activity as a safe-guard against unexpected, accidental contamination. If a spill does occur that causes fish or other wildlife to be in obvious distress, project activity will immediately be halted and a WDFW Area Habitat biologist will be notified.

It is expected that the conservation measures and best management practices that have been established for this project will limit both the amount of sediment that is disturbed and the duration of disturbance caused by construction activities. This will minimize the impact to EFH and critical habitats in both the project and action areas. Turbidity induced by construction activities is expected to be short-term, with pile installation being completed within five to ten (5-10) work days. Following the BMPs for in-water construction activities will help reduce or prevent excessive sediments from entering the water column.

Section 7. Additional Management Considerations

A storm-water management plan is not applicable based on the project scope. No impervious surfaces or land disturbance is proposed for this project. All project work will be conducted in-water. Additionally, mitigation plans for land use restrictions, landowner management, maintenance, or monitoring are not necessary due to the project location and construction techniques.

The proposed project will adhere to all regulatory permits and associated work windows. Special management recommendations associated with authorized work times in saltwater areas set forth by WDFW with regards to the protection of juvenile salmonid migration, feeding, and rearing areas will restrict installation activities if necessary.

All work will be completed in-water from a construction barge. All materials for the construction of the dock system will be staged and accessed from the barge. No maintenance corridor is necessary for the proposed project. All removed materials will be stored upon the barge and disposed of at an approved upland facility.

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