PORT OF TACOMA

TACOMA, WASHINGTON

WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT

PROJECT NO. 201107.01

CONTRACT NO. 071421

Appendices B-I

Thais Howard, PE

Director, Engineering

Elly Bulega, PE

Project Manager

END OF SECTION

PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 01 - Project Title Page

00 01 07 - Seals Page

00 01 10 - Table of Contents

00 01 15 - List of Drawing Sheets

00 11 13 - Advertisement for Bids

00 21 00 - Instructions to Bidders

00 26 00 - Substitution Procedures

00 31 00 - Available Project Information

00 31 26 - Existing Hazardous Material Information

00 41 00 - Bid Form

00 43 13 - Bid Security Form

00 45 13 - Responsibility Detail Form

00 52 00 - Agreement Form

00 61 13.13 - Performance Bond

00 61 13.16 - Payment Bond

00 61 23 - Retainage Bond

00 61 23.13 - Retainage Escrow Agreement

00 72 00 - General Conditions

00 73 16 - Insurance Requirements

00 73 46 - Washington State Prevailing Wage Rates

00 73 63 - Security Requirements

SPECIFICATIONS

DIVISION 01 -- GENERAL REQUIREMENTS

01 10 00 - Summary

01 14 00 - Work Restrictions

01 20 00 - Price and Payment Procedures

01 26 00 - Change Management Procedures

01 29 73 - Schedule of Values

01 30 00 - Administrative Requirements

01 31 23 - Web-based Construction Management

01 32 16 - Construction Progress Schedule

01 33 00 - Submittal Procedures

01 35 29 - Health, Safety, and Emergency Response Procedures
01 35 43.13 - Hazardous Materials Handling Procedure
01 35 47 - Air and Noise Control Procedures
01 41 00 - Regulatory Requirements
01 42 19 - Reference Standards
01 45 00 - Quality Control
01 50 00 - Temporary Facilities and Controls
01 55 00 - Vehicular Access and Parking
01 57 13 - TESC and Project SWPPP
01 60 00 - Product Requirements
01 71 00 - Examination and Preparation
01 74 13 - Construction Cleaning
01 74 19 - Construction Waste Management and Disposal
01 77 00 - Closeout Procedures
DIVISION 02 -- EXISTING CONDITIONS
02 41 00 - Demolition
02 90 00 - Fugitive and Silica Dust Control Procedures
DIVISION 03 -- CONCRETE
03 20 00 - Concrete Reinforcing
03 30 00 - Cast-in-Place Concrete
03 60 00 - Grouting
DIVISION 05 -- METALS
05 50 00 - Metal Fabrications
DIVISION 09 -- FINISHES
09 96 00 - High Performance Coatings
DIVISION 32 -- EXTERIOR IMPROVEMENTS
32 12 16 - Asphalt Paving
DIVISION 35 -- WATERWAY AND MARINE CONSTRUCTION
35 59 13 - Marine Fenders
APPENDICES
Appendix A - Corps of Engineers Permit
Appendix B - Hydraulic Project Approval Permit
Appendix C - Shoreline Substantial Development Permit Exemption
Appendix D - SEPA Exemption

Appendix E - Department of Ecology Water Quality Certification

Appendix F - Port of Tacoma Construction SWPPP Short Form

Appendix G - Water Quality Monitoring And Protection Plan (WQMPP)

Appendix H - EPA Region 10 BMP for Piling Removal and Replacement in Washington Sate

Appendix I - Marine Mammal Monitoring Plan

END OF SECTION

APPENDIX B

HYDRAULIC PROJECT APPROVAL PERMIT

HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

Issued Date: July 23, 2018
Project End Date: March 09, 2021

Permit Number: 2016-6-119+02
FPA/Public Notice Number: N/A
Application ID: 7030

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
Port of Tacoma ATTENTION: Jennifer Stebbings PO Box 1837 Tacoma, WA 98401-1837	

Project Name: Programmatic Piling Replacement and Repair Program

Project Description: Load-bearing and fender piling may be damaged by the impact of ships against the piling or the pier faces, or through the actions of marine borers, necessitating their replacement to prevent further damage to the pier. Without replacement of damaged pile, the docks and piers could quickly degrade to the point that they are no longer useful, or become dangerous to human health and safety. Annual maintenance is required and piling will be replaced on an as-needed basis to maintain the function and structural integrity of the various docks and marginal wharves within the Port of Tacoma (Port). The number and location of piling replaced annually is dependent upon the number damaged in the preceding year, and the locations of the damaged piling. Annualized replacement rates give an estimate of the annual replacement average, though the actual number may be higher or lower in a given year. The annualized replacement rates are included in the attached copy of the 2011 JARPA for the Port's programmatic pile program, previously approved by WDFW. As the numbers may vary from the annualized replacement rates, no more than 200 piles will be replaced in a single year under this application.

PROVISIONS

AUTHORIZED WORK TIMES

1. TIMING LIMITATION: To protect fish and shellfish habitats at the job site, work below the ordinary high water line must occur from July 16 and February 14 of any year.

2. APPROVED PLANS: Work must be accomplished per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled Programmatic Piling Replacement and Repair Program, dated 3/3/2016, except as modified by this Hydraulic Project Approval.

Approved actions covered by this permit are:
1. Replacement of up to 200 damaged or deteriorating piling annually in locations listed in the approved JARPA/Plans with new concrete, steel, untreated or ACZA-treated wood piling.

You must have a copy of these plans available on site during all phases of the project proposal.

NOTIFICATION

3. PRE- AND POST-CONSTRUCTION NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail at HPAapplications@dfw.wa.gov; mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work, and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date

for work or date the work was completed, and the permit number. The Washington Department of Fish and Wildlife may conduct inspections during and after construction; however, the Washington Department of Fish and Wildlife will notify you or your agent before conducting the inspection.

4. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS AND EQUIPMENT

5. Establish the staging area (used for activities such as equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants like petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

6. Clearly mark boundaries to establish the limit of work associated with site access and construction.

7. Confine the use of equipment to specific access and work corridor shown in the approved plans.

8. Check equipment daily for leaks and complete any required repairs before using the equipment in or near the water.

9. Lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols are recommended for use in equipment operated in or near water.

10. Operate vessels during tidal elevations that are adequate to prevent grounding of the barge.

11. Do not deploy anchors or spuds in seagrass or kelp.

12. Maintain anchor cable tension, set and retrieve anchors vertically, and prevent mooring cables from dragging to avoid impacts to seagrass and kelp.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

13. Prevent contaminants from the project, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.

14. Use tarps or other methods to prevent treated wood, sawdust, trimmings, drill shavings and other debris from contacting the bed or waters of the state.

CONSTRUCTION MATERIALS

15. To prevent leaching, construct forms to contain any wet concrete. Place impervious material over any exposed wet concrete that will come in contact with waters of the state. Forms and impervious materials must remain in place until the concrete is cured.

16. Do not use wood treated with oil-type preservative (creosote, pentachlorophenol) in any hydraulic project. Wood treated with waterborne preservative chemicals (ACZA, ACQ) may be used if the Western Wood Preservers Institute has approved the waterborne chemical for use in the aquatic environment. The manufacturer must follow the Western Wood Preservers Institute guidelines and the best management practices to minimize the preservative migrating from treated wood into aquatic environments. To minimize leaching, wood treated with a preservative by someone other than a manufacturer must follow the field treating guidelines. These guidelines and best management practices are available at www.wwpinstitute.org.

PILE REMOVAL, DRIVING

17. Remove the existing piling and dispose of them in an upland area above extreme high tide waters.

HYDRAULIC PROJECT APPROVAL

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18. As specified in the approved plans, the replacement pilings must be similarly sized (as removed) diameter steel, concrete, untreated or Chemonite (ACZA) treated wood pilings.

19. Attach rubbing strips made of ultra high molecular weight (UHMW) type plastic, or high density polyethylene (HDPE) type plastic to the replacement fender system. Do not use rubber tires for the fender system.

20. Fit all pilings with devices to prevent perching by fish-eating birds.

21. The use of both a vibratory and/or an impact hammer is authorized for piling installation under this Hydraulic Project Approval, however a vibratory driver is preferred.

22. Sound attenuation methods are required for the driving or proofing of steel piles with an impact hammer below the ordinary high water line. For impact driving of steel piles that exceed the following criteria, a bubble curtain or other Washington Department of Fish and Wildlife approved sound attenuation device must be used. The specific criteria include sound pressure levels of:
a) Greater than or equal to 206 dB (one micropascal squared per second) peak,
b) Greater than or equal to 187 dB (one micropascal squared per second) accumulated sound exposure level (SEL) for fish greater than or equal to 2 grams, and
c) Greater than or equal to 183 dB (one micropascal squared per second) (SEL) for fish less than 2 grams.
d) Install a bubble curtain around the pile during all driving operations to ensure proper sound attenuation. The bubble curtain must distribute air bubbles around 100 percent of the perimeter of the piling over the full length of the pile in the water column.

23. Use appropriate sound attenuation when driving or proofing steel piling with an impact hammer.
a. For driving or proofing steel piling, 10 inches in diameter or less, install a 6 inch thick wood block, plastic or rubber between the piling and the impact hammer during impact pile driving operations or install a pile sleeve or bubble curtain around the piling during impact pile driving operations that distributes air bubbles around 100% of the perimeter of the piling over the full depth of the water column.
b. For driving or proofing steel piling greater than 10 inches in diameter, install a bubble curtain around the pile during piling impact driving operations that distributes air bubbles around 100% of the perimeter of the piling over the full depth of the water column.

24. To avoid attracting fish to light at night, limit impact pile driving to daylight hours whenever feasible.

25. Piling removal:
a. Vibratory or water jet extraction is the preferred method of pile removal.
b. Place the piling on a construction barge or other dry storage site after the piling is removed. The piling must not be shaken, hosed off, left hanging to dry or any other action intended to clean or remove adhering material from the piling near waters of the state.
c. If a treated wood piling breaks during extraction, remove the stump from the water column by fully extracting. If the stump cannot be fully extracted, remove the remainder of the stump with a clamshell bucket, chain, or similar means, or cut it off three feet below the mudline. Cap all buried cut stumps and fill holes left by piling extraction with clean sand.
d. When removing creosote piling, containment booms and absorbent booms (or other oil absorbent fabric) must be placed around the perimeter of the work area to capture wood debris, oil, and other materials released into marine waters as a result of construction activities to remove creosote pilings. All debris on the bed and accumulated in containments structures must be collected and disposed upland at an approved disposal site.

DEMOBILIZATION/CLEANUP

26. Remove all trash and unauthorized fill in the project area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper, that is waterward of the ordinary high water line and deposit upland.

27. Reshape beach area depressions created during project activities to preproject beach level upon project completion.

HYDRAULIC PROJECT APPROVAL

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28. Remove all debris or deleterious material resulting from construction from the beach area or bed and prevent from entering waters of the state.

29. Do not burn wood, trash, waste, or other deleterious materials waterward of the ordinary high water line.

NOTES

NOTE: Ordinary High Water Line is defined as 'the mark on the shores of all waters that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in ordinary years as to mark upon the soil or vegetation a character distinct from the abutting upland. Provided, that in any area where the ordinary high water line cannot be found, the ordinary high water line adjoining saltwater is the line of mean higher high water and the ordinary high water line adjoining fresh water is the elevation of the mean annual flood (Revised Code of Washington, RCW 77.55.011(16); Washington Administrative Code, WAC 220-660-030(108)).

LOCATION #1:	, , WA					
WORK START:	March 10, 2016			WORK END:	March 9, 2021	
WRIA		Waterbody:			Tributary to:	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
						Pierce
Location #1 Driving Directions						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

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Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

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If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

HYDRAULIC PROJECT APPROVAL

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Habitat Biologist
Matthew Curtis

matthew.curtis@dfw.wa.gov
360-972-0190

for Director
WDFW

APPENDIX C

SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT EXEMPTION

City of Tacoma
Planning and Development Services

December 21, 2018

Port of Tacoma
Attn: Jenn Stebbings
P.O. Box 1837
Tacoma, WA 98401

via email:jstebbings@portoftacoma.com

RE: Shoreline Substantial Development Permit Exemption
File No. LU18-0303 – POT Programmatic Pile Repair Project

Dear Ms. Stebbings,

You have requested a Shoreline Substantial Development Permit Exemption to allow for pile repair and replacement at 14 Port-owned locations located within Commencement Bay over a five year period. The request is similar to previous City of Tacoma shoreline exemptions issued for programmatic pile repair and maintenance and the purpose of the project is to maintain the integrity of the existing structures in state comparable to their original condition.

The specific request is for the replacement and repair of damaged pile and associated pile caps, chokes, and whalers as needed. Creosote piling will be replaced with ACZA-treated timber that complies with the Western Wood Preservers Institute BMPs and concrete piling will be replaced with concrete piling. No more than 200 piling will be replaced in a single year. No new structures or expansion of existing structures is proposed. The project includes Several Best Management Practices (BMPs) to reduce impacts that may occur.

The Port of Tacoma has received approval from the U.S. Army corps of Engineers for the Programmatic Piling Repair. The approval includes special conditions to ensure compliance with the Endangered Species Act (ESA); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and tribal treaty rights. The approval also includes a Letter of Concurrence (LOC) from the U.S. Fish and Wildlife Service and National Marine Fisheries Service.

The proposal was reviewed by the State of Washington Department of Ecology and has been confirmed to comply with the applicable provision of the Clean Water Act. Water quality monitoring will be conducted. The POT has also received approval from the Washington Department of Fish and Wildlife. Copies of the approvals have been provided to the City of Tacoma.

Commencement Bay is a shoreline of the state. State waters and lands extending 200-feet from the Ordinary High Water Mark (OHWM) are regulated under the City of Tacoma's *Shoreline Master Program* (SMP) codified in the Tacoma Municipal Code (TMC) Chapter 13.10. The POT structures included with this proposal are lawfully established structures located in the S-13 Marine Waters of the State zoning district.

The proposed maintenance has been reviewed and determined to be consistent with the City's SMP exemption criteria in TMC 13.10.2.3.3 to prevent a decline, lapse, or cessation from a lawfully established condition. The proposed BMPs as well as conditions required under state

and federal approvals have been reviewed and are comprehensive. Adverse impacts will be temporary and limited during active construction. No permanent adverse impacts are anticipated.

Therefore, the Shoreline Exemption request is **Approved**, subject to the following conditions:

1. The applicant shall follow all proposed installation and construction methods and best management practices for minimizing unintended impacts during the repair and maintenance.
2. Appropriate best management practices will be used to prevent any runoff or deleterious material from entering Commencement Bay.
3. Construction material or debris shall be promptly removed and dispose of in an appropriate upland location.
4. The applicant shall notify the City of Tacoma and pertinent state or federal agencies in the event of an unexpected spill of fuel or other chemical into the waterway.
5. The repair work must conform to state and federal in-water work windows and accompanying conditions.
6. Replacement pilings shall be replaced at a one-to-one ratio. A copy of the USACE compliance form documenting the number and location of replacement pile installed shall be provided to the City annually.
7. This exemption shall be valid for a period not to exceed five years from the date of issuance. Should the Shoreline Master Program be revised prior to the completion of this project, additional review may be required.

Pursuant to WAC 197-11-800, subsection (3) and the City of Tacoma's SEPA Procedures, this proposed action is categorically exempt from the Threshold Determination and Environmental Impact Statement requirements of SEPA.

The applicant is also advised of the following:

- This permit is only applicable to the proposed project as described above and based upon the information submitted by the applicant. Future activities or development within regulated state waters or the 200-foot shoreline jurisdiction may be subject to further review and additional permits or exemptions as required in accordance with TMC 13.10.

- We are issuing this letter of exemption per the provisions of Tacoma's *Shoreline Master Program* and Tacoma Municipal Code (TMC) 13.10 to comply with the requirements of WAC 173-27-050 and WAC 173-27-040. Should you have any further questions or requests please do not hesitate to contact me at 253-591-5482.

Sincerely,

Shannon Brenner
Environmental Specialist

cc via electronic mail:
Washington Department of Ecology, Shorelands & Environmental Assistance Program, Zach Meyer, SWRO, P.O. Box 47775, Olympia, WA 98504-7775 (zmey461@ecy.wa.gov)

Washington Department of Fish and Wildlife, Liz Bockstiegel, 600 Capitol Way N., Olympia, WA 98501-1091(elizabeth.bockstiegel@dfw.wa.gov)
U.S. Army Corps of Engineers, Attn: Regulatory Branch, CENWS-OD-RG Attn: Halie Endicott, P.O. Box C-3755, Seattle, WA 98124 (halie.endicott@usace.army.mil)
U.S. Fish & Wildlife Service, Attn: Judy Lantor, 510 Desmond Drive SE #102, Lacey, WA 98503 (jusdy_lantor@fws.gov)

APPENDIX D
SEPA EXEMPTION

MEMORANDUM

DATE: November 20, 2014

TO: Port of Tacoma SEPA File

FROM: Jennifer Stebbings

SUBJECT: SEPA Exemption – Terminal and Shoreline Area Routine Maintenance and Repair

The Port of Tacoma (Port) currently owns multiple properties that require regular maintenance and repair to ensure a safe and efficient operation. The project sites are located on Port properties throughout the Tacoma Tideflats. All properties are zoned S-10 Port Industrial.

The project includes routine maintenance and repair work that will occur over a five year period commencing once the Port receives all necessary approvals, which may include a Nationwide 3 permit from the U.S. Army Corps of Engineers, a Hydraulic Project Approval from the Washington State Department of Fish and Wildlife, and a formal exemption letter from the City of Tacoma covering both Shoreline and Critical Area requirements.

The routine maintenance and repair activities apply to the following typical Port infrastructure: hanging and bolt-on fender systems and rub strips; bull rails; bollards; utilities (excluding stormwater infrastructure); power/gear switches; crane rails; dock surfaces (planks, pavement); other existing paved and impervious surfaces; building exteriors; containment berms; light poles; safety equipment and platforms; navigation lights; and cathodic protection systems. The following routine maintenance and repair activities are needed to maintain the integrity of Port infrastructure and to operate safely and efficiently.

Hanging and bolt-on fender systems and rub strip repair: Work will occur from existing piers located above and adjacent to marine waters and in the 100-year floodplain. To replace the fenders and rub strips, a derrick is maneuvered as close as possible to the wingwall where it holds the replacement fender or rub strip while the bolts are removed by hand. The original fender or rub strip is then lowered and loaded onto a barge or truck and removed from the site. The replacement fender or rub strip is then held and bolted into place.

Bull rail repairs/maintenance: Work will occur from existing piers located above and adjacent to marine waters and in the 100-year floodplain. No parts of the bull rail are in contact with the water. The bull rail and decking are generally installed manually using hand tools from the dock surface. However, on occasion, it will be necessary to use a forklift or backhoe to remove heavy sections.

Bollard installation/relocation (includes mooring hardware): Work will occur from existing piers located above and adjacent to marine waters and in the 100-year floodplain. The concrete of the bull rail and pile cap will be chipped away to expose the rebar, and holes will be drilled in the broken concrete surface. Dowels will be epoxied into the holes to provide solid anchoring points for the new concrete to help integrate the old and the new as one structure. The new bollard will be placed in position and integrated into the existing rebar and concrete and the pour will be formed up, then the new concrete will be poured and finished.

Utility maintenance (excluding stormwater): Work can occur from existing piers located above and adjacent to marine waters and within the 100-year floodplain. Maintenance in areas landward of the Ordinary High Water Mark (OHWM) may include trenching, backfilling and repaving.

Repair or replacement of underground utilities will require existing pavement to be saw cut and removed for trenching. Trenching will remove the subgrade material to allow access to the existing utilities. Once repairs are complete the trench will be backfilled with excavated material or new clean imported material. All excavated material not used will be stockpiled for testing and proper disposal offsite. Repaving will be conducted to match the existing surface, grade, and asphalt thickness.

Maintenance and repair of electrical equipment will be conducted based on the associated building and common industrial standard.

Warning system equipment maintenance and repair includes work on speaker arrays, strobes, and control cabinets that are located on poles in upland locations.

Power/Switch gear maintenance: Work may occur from existing piers located above and adjacent to marine waters and within the 100-year floodplain.

Maintenance and repair of electrical equipment will be conducted based on the associated building and common industrial standard.

Crane rail repairs: Work will occur from existing paved wharfs located above and adjacent to marine waters and within the 100-year floodplain. All work will occur from the surface of the existing paved wharf.

Deck repairs including re-planking of dock surfaces (wood): Work will occur above and adjacent to marine waters and within the 100-year floodplain. Specifically, deteriorated timber planks will be removed and replaced with new timber planks. No in-water work will occur; all equipment will be positioned on the dock itself; and no increase in footprint or overwater coverage is proposed.

The deteriorated timber will be removed by cutting with a chainsaw and lifting out either by hand or with a truck-mounted davit. Due to the severe constraints beneath the dock, the Port will not be able to employ work floats or tarps to capture falling debris; however, workers will operate a vacuum while using power tools to cut decking, and skim any debris that may escape the vacuum to minimize impacts to the waterbody. Replacement timbers will be installed using hand tools.

Re-paving existing paved areas: Work will occur landward of the OHWM and may occur within the 100-year floodplain. The old surface will be milled away. An application of a tack coat will be applied and a new layer asphalt will then be laid down with paving machines and rollers.

Exterior building repairs and maintenance: Work will occur above and adjacent to marine waters and within the 100-year floodplain. Maintenance and repair work will be conducted from improved areas surrounding existing buildings. Typical equipment may include lifts, scaffolding, and trucks. Landscaping maintenance is limited to the immediate area surrounding buildings and parking areas that are not part of a restoration, mitigation, or other area that is not already regularly maintained.

Containment berm installation and maintenance: Work will occur landward of the OHWM and may occur within the 100-year floodplain. Typical equipment used to construct a containment berm includes trucks and paving equipment.

Light pole maintenance: Work will occur above and adjacent to marine waters and within the 100-year floodplain. Typical equipment will include lifts and trucks.

Maintenance of safety equipment: Work will occur above and adjacent to marine waters and within the 100-year floodplain. Safety equipment will be installed using hand tools on the dock surface or with the use of a boom truck operated from the dock or a barge. Workers will operate a vacuum while using power tools to cut decking in over water areas and skim any debris that may escape the vacuum to minimize waterbody impacts.

Safety ladders are approximately 30 feet long and 24 inches wide and are mounted to the face of the wharf or pier (please see Figure 1 for standard dimensions). Life rings and their housing are approximately 2 feet by 2 feet and are mounted to the top of the wharf or pier.

Navigation light maintenance and replacement: Work will occur above and adjacent to marine waters and within the 100-year floodplain. Navigation lights will be accessed by boat and replaced with hand tools.

Safety platform maintenance: Work will occur above and adjacent to marine waters and within the 100-year floodplain. Line platforms will be accessed from the pier and will be maintained with hand tools and/or use of a boom truck operated from the pier.

Cathodic protection system repair/maintenance: Work will occur within the 100 year floodplain above and in marine waters. Repair and maintenance will be done with hand tools from a floating work platform and/or by divers.
The Port of Tacoma will ensure that the maintenance activities do not harm wildlife, vegetation or other elements of the shoreline environment. In addition to the following BMPs, the maintenance activities will be designed to comply with applicable federal, state and local laws and regulations to avoid and minimize adverse impacts to the aquatic environment.

The following BMPs apply to all maintenance activities:

- Each activity will comply with the Washington Department of Fish and Wildlife Hydraulic Project Approval requirements including timing restrictions to protect juvenile salmonid migration.
- Each activity will comply with water quality restrictions imposed by the Washington Department of Ecology and implement corrective measures if water quality standards are exceeded.
- If a contractor performs the maintenance activities, they will be required to prepare a Spill Prevention, Control and Countermeasures plan (SPCC). The SPCC plan will describe how the contractor will store all fuels and hazardous substances that may be onsite during construction. It will include procedures that the contractor will follow in the event of a fuel or chemical spill, and will require the contractor to have a spill response kit that will prevent spilled material from entering surface waters. The plan will also include emergency phone numbers and contacts that will be made in the event of a spill.
- No petroleum products, hydraulic fluids, chemicals, or any other polluting substances shall be allowed to enter waters of the state.
- Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., will be checked regularly for drips or leaks, and shall be maintained and stored properly with secondary containment to prevent spills.
- Once the activity is complete, all temporary work structures, devices, equipment, materials, man-made debris and wastes from the project shall be completely removed from the shoreline.
- Temporary floating work platforms will not disturb eelgrass, kelp, and/or intertidal wetland vascular plants.
- Work that could result in debris and substances entering waters of the state shall include a containment structure capable of collecting all debris and substances. Where space or worker safety constraints preclude the use of such structures, workers will operate a vacuum

while using power tools to cut or drill, and will skim any debris that may escape the vacuum to minimize waterbody impacts.
- No stockpiling or staging of materials will occur waterward of the OHWM of any waterbody, except for when work is occurring on a paved wharf/pier. Stockpiles will be covered with plastic to prevent contact with the elements and erosion.
- All areas for equipment fuel storage will be located 150 feet from open water or wetlands.
- Fueling and servicing of all equipment will be confined to an established staging area that is at least 150 feet from open water or wetlands.
- A spill kit with oil-absorbent materials is on site to be used in the event of a spill.
- Deck and storm drain inlets will be protected to prevent sediment and contaminants from entering the waterways or storm drain system.
- Proper BMPs such as a silt fence and/or straw wattles will be used to provide a physical barrier to sediment and prevent runoff.

BMPs specific to the maintenance activity include, but are not limited to:

Hanging and bolt-on fender systems and rub strip repair
- A small barge, wood and/or cloth barrier will be used to catch debris to prevent it from falling into the water.

Bull rail repairs/maintenance
- A small barge, wood and/or cloth barrier will be used to catch debris to prevent it from falling into the water.

Bollard installation/relocation (includes mooring hardware)
- Stormwater BMPs will be in place to ensure that concrete dust is not carried through the deck drains on the wharf/pier, and to ensure that stormwater does not contact wet or fresh concrete.
- A small barge, wood and/or cloth barrier will be used to catch the concrete as it is chipped to prevent it from falling into the water.
- Concrete forms will be completely sealed on the bottom and sides to prevent wet concrete from escaping and dropping into the water.
- Washwater and leftover concrete product will not be allowed to drain onto the deck or into storm drains or allowed to drain to waters of the state.

Utility maintenance (excluding stormwater)
- Work that could result in debris and substances entering waters of the state shall include a containment structure capable of collecting all debris and substances.
- Stormwater BMPs will be in place to ensure that concrete dust is not carried through the deck drains on the pier/wharf, and to ensure that stormwater does not contact wet or fresh concrete.
- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.

Power/Switch gear maintenance
- Stormwater BMPs will be in place to ensure that concrete dust is not carried through the deck drains on the pier/wharf, and to ensure that stormwater does not contact wet or fresh concrete.
- Washwater and leftover concrete product will not be allowed to drain onto the deck or into storm drains or allowed to drain to waters of the state.

Crane rail repairs

- Work that could result in debris and substances entering waters of the state shall include a containment structure capable of collecting all debris and substances.
- Stormwater BMPs will be in place to ensure that concrete dust is not carried through the deck drains on the pier/wharf, and to ensure that stormwater does not contact wet or fresh concrete.
- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.
- Concrete forms will be completely sealed on the bottom and sides to prevent wet concrete from escaping and dropping into the water.
- Washwater and leftover concrete product will not be allowed to drain to deck or storm drains or allowed to drain to waters of the state.

Deck repairs including re-planking of dock surfaces (wood)

- Work floats or tarps will be used to capture any falling debris to prevent any material from entering the waterway. Where such space or worker safety constraints preclude the use of such structures, workers will operate a vacuum while using power tools to cut or drill, and will skim any debris that may escape the vacuum to minimize waterbody impacts.
- Excess or waste materials will not be allowed to enter waters of the state. All such materials will be collected and recycled or disposed of at an approved upland facility.
- Wood treated with creosote or pentachlorophenol will not be used.
- Any deck overlay removal and/or replacement must have a sound subsurface that will prevent existing or new overlay material from entering waters of the state.

Re-paving existing paved areas

- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.
- Washwater and leftover concrete product will not be allowed to drain to deck or storm drains or allowed to drain to waters of the state.

Exterior building repairs and maintenance

- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.
- Work that could result in debris and substances entering state water shall include a containment structure capable of collecting all debris and substances.

Containment berm installation and maintenance

- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.

Light pole maintenance

- Slurry, cuttings, or process water will not be allowed to drain to waters of the state or stormwater conveyance systems.

Safety equipment installation/relocation (ladders, flotation devices, etc.)

- A small barge, wood and/or cloth barrier will be used to catch debris to prevent it from falling into the water.

Navigation light maintenance and replacement

- Work that could result in debris and substances entering waters of the state shall include a containment structure capable of collecting all debris and substances.

Safety platform maintenance

- A small barge, wood and/or cloth barrier will be used to catch debris to prevent it from falling into the water.

Cathodic protection system repair/maintenance
Work that could result in debris and substances entering waters of the state shall include a containment structure capable of collecting all debris and substances.
SEPA Finding: The Port of Tacoma, as lead agency, has determined that there is no establishment, change, or material expansion in use for the project and it is categorically exempt from SEPA review based on the criteria described in WAC 197-11-800(3).

WAC 197-11-800(3): Repair, remodeling and maintenance activities—The following activities shall be categorically exempt: The repair, remodeling, maintenance, or minor alteration of existing private or public structures, facilities or equipment, including utilities, involving no material expansions or changes beyond that previously existing; except that, where undertaken wholly or in part on lands covered by water, only minor repair or replacement of structures may be exempt (examples include repair or replacement of pilings, ramps, floats, or mooring buoys, or minor repair, alteration, or maintenance of docks.

Tony Warfield
Senior Environmental Project Manager

11/25/14
Date

APPENDIX E

DEPARTMENT OF ECOLOGY WATER QUALITY CERTIFICATION

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

September 11, 2018

Port of Tacoma
ATTN: Ms. Jennifer Stebbings
PO Box 1837
Tacoma, WA 98401-1837

RE: Water Quality Certification Order No. **15952** for Corps Public Notice No. **NWS-2011-0089-WRD** for the Programmatic Piling Repair Project, within the Blair, Hylebos, and Sitcum Waterways, and Commencement Bay, Tacoma, Pierce County, Washington

Dear Ms. Stebbings:

On November 15, 2017, the Port of Tacoma submitted a Joint Aquatic Resource Permit Application (JARPA) to the Department of Ecology (Ecology) for a Section 401 Water Quality Certification (401 Certification) under the federal Clean Water Act for the proposed Programmatic Piling Repair Project.

On behalf of the State of Washington, Ecology certifies that the work described in the JARPA and the public notice complies with applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended, and applicable state laws. This certification is subject to the conditions contained in the enclosed Order.

If you have any questions, please contact Lori Kingsbury at (360) 407-6926. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

Perry J Lund, Section Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

Enclosure

By Certified Mail 9489 0090 0027 6019 1528 66

cc: Frank Nichols, Corps of Engineers
Lisa Anderson, Puyallup Tribe of Indians
Char Naylor, Puyallup Tribe of Indians
Matthew Curtis, WDFW

e-cc: ecyrefedpermits@ecy.wa.gov
Justine Barton, EPA
Kristine Koch, EPA
Loree' Randall, Ecology
Laura Inouye, Ecology
Zach Meyer, Ecology
Marv Coleman, Ecology
Lori Kingsbury, Ecology

IN THE MATTER OF GRANTING A WATER QUALITY CERTIFICATION TO Port of Tacoma in accordance with 33 U.S.C. 1341 (FWPCA § 401), RCW 90.48.120, RCW 90.48.260 and Chapter 173-201A WAC	)	**ORDER No. 15952** **Corps Reference No. NWS- 2011-0089-WRD** Programmatic Piling Repair Project within, Blair, Hylebos, and Sitcum Waterways, and Commencement Bay, Tacoma, Pierce County, Washington

TO: Port of Tacoma
ATTN: Ms. Jennifer Stebbings
PO Box 1837
Tacoma, WA 98401-1837

On November 15, 2017, the Port of Tacoma submitted a Joint Aquatic Resource Permit Application (JARPA) to the Department of Ecology (Ecology) requesting a Section 401 Water Quality Certification (WQC). The U.S. Army Corps of Engineers issued a joint public notice for the project pursuant to the provisions Chapter 173-225 WAC on March 15, 2018.

The Port of Tacoma proposes to conduct maintenance activities at 15 wharf/pier structures over a five year period. Work activities include the replacement of up to 200 piles per year (broken fender piles, dolphin piles, and/or support piling) and the associated pile caps, chocks, whalers, and rub strips. The structures are located at West Sitcum Terminal, Terminal 7 (A and B), East Sitcum Terminal, Husky Terminal, Washington United Terminal, Blair Dock, PCT, East Blair 1, Parcel 115, Tote, Trident, Parcel 99, Parcel 105, and Parcel 86 within the Port of Tacoma.

Concrete piles will be replaced with concrete piles and will be no greater than 24-inches in diameter. Treated-timber piles will be replaced with ACZA-treated timber piles no greater than 18-inches in diameter.

Existing damaged piles will be removed with a vibratory hammer or by pulling with a choke chain. Piles that break during extraction may be cut off at or below the mudline and the location would be capped with clean sand. Up to 120 cubic yards of clean sand may be placed per year. Up to 1,000 piles could be placed and up to 750 cubic yards of sand could be placed over the five year period.

The purpose of the proposed project is to maintain the function and structural integrity of the existing wharf/pier structures. This project does not include placement of additional structures or expansion of footprints.

The project is located on Port of Tacoma properties within the Hylebos, Blair, and Sitcum Waterways, and Commencement Bay, Tacoma, Pierce County, Washington; Northwest Quarter of Sections 34, Township 21 North, Range 3 East; WRIA 10, Puyallup-White Watershed.

AUTHORITIES:

In exercising authority under 33 U.S.C. §1341, RCW 43.21C.060, and RCW 90.48.260, Ecology has examined this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. Sections 1311, 1312, 1313, 1316, and 1317 (FWPCA Sections 301, 302, 303, 306, and 307).
2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. 1313 and by Chapter 90.48 RCW, and with other applicable state laws; and,
3. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

WATER QUALITY CERTIFICATION CONDITIONS:

Through issuance of this Order, Ecology certifies that it has reasonable assurance that the activity as proposed and conditioned will be conducted in a manner that will comply with applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 U.S.C. § 1341, RCW 90.48.120, RCW 90.48.260, Chapter 173-200 WAC and Chapter 173-201A WAC, water quality certification is granted to the Applicant subject to the conditions within this Order.

Certification of this proposal does not authorize the Applicant to exceed applicable state water quality standards (Chapter 173-201A WAC), ground water standards (Chapter 173-200 WAC) or sediment quality standards (Chapter 173-204 WAC). Furthermore, nothing in this certification shall absolve the Applicant from liability for contamination and any subsequent cleanup of surface waters, ground waters or sediments occurring as a result of project construction or operations.

A. General Conditions:

1. For purposes of this Order, the term "Applicant" shall mean the Port of Tacoma and its agents, assignees and contractors.
2. All submittals required by this Order shall be sent to Ecology's Southwest Regional Office, Attn: Federal Permit Manager, SEA Program, PO Box 47775, Olympia, WA 98504-7775 or via e-mail to fednotification@ecy.wa.gov with a copy to Lori.kingsbury@ecy.wa.gov. All submittals shall reference Order No. **15952** and Corps No. **NWS-2011-0089-WRD** and include the Applicant name, project name, project contact, and the contact's phone number.

3. Work authorized by this Order is limited to the work described in the JARPA received by Ecology on November 15, 2017.
4. The Applicant shall obtain Ecology review and approval before undertaking any changes to the proposed project that may affect water quality and are not authorized by this Order.
5. Within 30 days of receipt of updated information, Ecology will determine if the revised project requires a new Water Quality Certification and Public Notice or if a modification to this Order is required.
6. This Order shall be rescinded if the U.S. Army Corps of Engineers does not issue a Section 404 permit.
7. Copies of this Order shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and lead workers, and state and local government inspectors.
8. The Applicant shall provide access to the project site and all mitigation sites upon request by Ecology personnel for site inspections, monitoring, necessary data collection, and/or to ensure that conditions of this Order are being met.
9. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines that further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (*e.g.*, violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect water quality.
10. The Applicant shall ensure that all appropriate project engineers and contractors at the project site have read and understand relevant conditions of this Order and all permits, approvals, and documents referenced in this Order. The Applicant shall provide Ecology a signed statement (see Attachment A for an example) from each project engineer and contractor that they have read and understand the conditions of this Order and the above-referenced permit, plans, documents, and approvals. These statements shall be provided to Ecology before construction begins at the project site.
11. This Order does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically provided for in conditions of this Order.
12. Failure of any person or entity to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

B. Water Quality Conditions:

1. This Order does not authorize temporary turbidity exceedances of water quality standards beyond the limits established in WAC 173-201A-210.
   a. The area of mixing established for turbidity in marine waters is a radius of 150 feet from the in-water activity.
   b. Turbidity must not exceed 10 NTU over background when the background is 50 NTU or less; or a 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
   c. pH shall be within the range of 6.5 to 9.0, with a human-caused variation within the above range of less than 0.5 units.
2. The Applicant shall conduct water quality monitoring as described in the approved *Final Water Quality Monitoring and Protection Plan (WQMPP), Port of Tacoma Programmatic Pile Repair and Replacement Project,* prepared by Jenn Stebbings, Port of Tacoma, dated September 5, 2018.
3. Ecology must approve, in writing, any changes or additions to the WQMPP prior to implementation of the changes or additions.
4. Results of the water quality monitoring shall be documented in a report and submitted to Ecology's Federal Permit Manager weekly during the in-water work per condition A.2 of this Order.
5. If water quality exceedances are observed outside the point of compliance, work shall cease immediately and the Applicant or the contractor shall assess the cause of the water quality problem and take immediate action to stop, contain, correct the problem and prevent further water quality turbidity exceedances.
6. Notification of exceedances shall be made to Ecology **within 24 hours of occurrence.** Notification shall be made with reference to Order No. 15952 Attn: Federal Permit Manager by telephone at (360) 407-6926 or by e-mail to fednotification@ecy.wa.gov with a copy to Lori.kingsbury@ecy.wa.gov. The Applicant shall, at a minimum, provide Ecology with the following information:
   a. A description of the nature, extent, and cause of the exceedance.
   b. The period of non-compliance, including exact dates, duration, and times and/or anticipated time when the project will return to compliance.
   c. The steps taken, or to be taken to reduce, eliminate, and prevent a recurrence of the non-compliance.
   d. In addition, within five (5) days after the notification of the exceedance, the Applicant shall submit a written report to Ecology (per conditions A.2.) that describes the nature

of the exceedance(s), corrective action taken and/or planned, steps taken to prevent a recurrence, photographs, and any other pertinent information.

7. Mitigation and/or additional monitoring may be required if the monitoring results indicate that the water quality standards have not been met.

C. Timing Requirements:

1. This Order shall remain in effect for a period of five (5) years from the date of issuance. Continuing this project beyond the five-year term of this Order will require the Applicant to submit a request for an extension at least 60 days prior to the expiration of this Order.

2. In-water work window:

- July 16 to February 14 of any year

D. Notification Requirements:

1. The Applicant shall provide a copy of the final Corps Permit to Ecology's Southwest Regional Office Federal Permit Manager (in accordance with Condition A.2, above) within two weeks of receipt of the permit.

2. Written notification (e-mail is preferred) shall be made to Ecology's Southwest Regional Office Federal Permit Manager in accordance with condition A2, above for the following activities:

   a. At least ten (10) days prior to the onset of in-water work for each construction season;

   b. Within ten (10) days after completing in-water work for each construction season;

   c. Immediately following a violation of the state water quality standards or any condition of this Order;

   d. The Applicant shall provide an annual report to Ecology by January 31 of the following year that includes the details of the piling repair work conducted in the previous year including location information, photos, details of any problems and how they were resolved, and a list of piling work that is planned for the next calendar year.

E. Project Specific Conditions:

General Construction

1. All work in and near waters of the state shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices (BMP's) suitable to prevent exceedances of state water quality standards shall be in place at before starting maintenance work and shall be maintained throughout the duration of the maintenance activity.

2. Staging areas will be located a minimum of 50 feet from waters of the state, including wetlands. If a staging area must be located within 50 feet of waters of the state, then the

Applicant shall provide a written explanation (with additional BMPs) and obtain approval from Ecology's Federal Permit Manager before placing the staging area within the setback area.

3. No Stockpiling or staging of materials shall occur within the OHWM of any waterbody.
4. In order to prevent contamination to surface waters, machinery and equipment used during construction shall be serviced, fueled, and maintained on uplands a minimum of 100 feet from waters of the state including wetlands, unless otherwise approved by Ecology.
5. No petroleum products, fresh concrete, lime, chemicals, or other toxic or deleterious materials shall be allowed to enter waters of the state.
6. All equipment that will operate over or within waters of the state shall be free of external petroleum-based products. Accumulation of soils or debris shall be removed from the drive mechanisms and the undercarriage of equipment prior to use. Equipment shall be inspected daily for leaks, accumulation of grease, etc. Any identified problems shall be fixed before operating over or within waters of the state.
7. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working area shall not be discharged into state waters. The Applicant shall establish a separate, contained area for washing down vehicles and equipment that does not have any possibility of draining to surface waters and/or wetlands.
8. All construction debris, concrete waste material, excess sediment, and other solid waste shall be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.
9. The Applicant shall have a boat available on site during in-and over-water work activities to manage booms and retrieve any debris that enters the water.
10. The Applicant shall ensure that fill material (sand) placed for the proposed project does not contain toxic material in toxic amounts.
11. The Applicant shall use tarps or other containment method when cutting, drilling, or removing biofouling over water to prevent sawdust, concrete rubble, and other debris from entering waters of the state.

Work In Potentially Contaminated Areas

12. Work proposed within or adjacent to an existing or previously designated Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site shall be coordinated with the Puyallup Tribe and CERCLA agencies and any recommendations that result from that coordination implemented.

13. Work proposed within or adjacent to an existing or previously designated Model Toxics Control Act (MTCA) site shall be coordinated with Ecology and any recommendations from that coordination followed.
14. If contamination is discovered, it must be reported to Ecology (per Condition A2, above). Contaminated soils or water may require special handling and/or disposal to avoid water pollution during pile repair/replacement activities.

Pile Installation and Removal

15. The Applicant shall consider the best tidal conditions for piling removal that may result in the lease amount of disturbance to in place sediment. If piling removal results in exceedance of turbidity at the compliance boundary, reconsider the timing of the removal to a more restricted timeframe. For example. The lowest practical tide condition or around slack water.
16. Vegetable-based hydraulic fluid shall be utilized in pile driving equipment.
17. New piling shall be ACZA-treated timber, or concrete. ACZA-treated timber shall comply with the Western Wood Preservers Institute BMPs.
18. New piling shall be installed using a vibratory hammer and may be proofed with an impact hammer. In some instances use of an impact hammer may be necessary for full installation.
19. If an impact hammer is used for pile installation or proofing, a suitable noise attenuation device (such as a bubble curtain or wood block) shall be used to protect marine life.
20. Rub strips shall be made of ultra-high molecular weight (UHMW) or high-density polyethylene (HDPE) plastic.
21. Hydraulic jetting devices shall **not** be used to place or remove piles or move sediment away from the piling.
22. A containment boom and oil-absorbent sausage booms shall be placed around the perimeter of the work area when removing creosote-treated piles to capture debris and other material. All accumulated debris shall be removed at least daily (and always prior to moving the boom) and disposed of at an approved upland disposal facility.
23. Piling shall be removed using vibratory methods or by pulling with a choke chain.
24. The operator shall "wake up" piling to be removed by vibrating it to break the skin friction bond between piling and sediment. This bond breaking will minimize turbidity in the water column as well as possibly breaking off the piling.
25. The work areas on barge decks or uplands shall include a containment basin for piles and any sediment/slurry associated with the pile removal. The containment basins shall have continuous sidewalls and be constructed in such a fashion to prevent any release of

contaminants or debris into waters of the state. Water/slurry remaining in the containment basins shall not be discharged into waters of the state.

26. Once removed from the substrate, piles shall be moved directly from the water into the containment basin and shall not be shaken, hosed-off, stripped or scraped off, left hanging to drip, or any other action intended to clean or remove adhering material from the pile.

27. If piles break during removal and cannot be extracted by mechanical means, the piling shall be cut off at or below mudline and capped with a nominal 6-inch cover of clean sand.

28. All piles that are cut off and not fully extracted shall have the locations identified with GPS and the coordinates documented in the annual report submitted to Ecology. (Per condition D.2.d. above.)

29. Extracted piles, excess sediment, all construction debris and other solid waste material shall be properly managed and disposed of in an approved upland disposal site.

Concrete Work

30. Spill protection measures shall be in place prior to any concrete delivery over water. All forms for any concrete structures shall be completely sealed off to prevent the possibility of fresh concrete entering waters of the state.

31. Concrete delivery systems shall be inspected daily to prevent any discharges of concrete and/or slurry water into waters of the state.

32. Concrete process water shall not enter waters of the state. Any concrete process/contact water discharged from a confined area with curing concrete shall be routed to upland areas to be treated and disposed of properly with no possible entry to waters of the state.

G. Emergency/Contingency Measures:

1. The Applicant shall develop and implement a Spill Prevention Control and Countermeasure (SPCC) Plan for all aspects of this project and shall have adequate and appropriate spill response materials on hand to respond to emergency release of petroleum products or any other material to waters of the state.

2. Any work that is causing distressed, dead, or dying fish; or any discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, is prohibited. If these occur, the Applicant or Operator shall immediately take the following actions:

   a. Cease operations that are causing the compliance problem.

   b. Assess the cause of the water quality problem and take appropriate and immediate measures to correct the problem and/or prevent further environmental damage.

c. In the event of finding distressed, dead, or dying fish, the Applicant or Operator shall collect fish specimens and water samples in the affected area within the first hour of the event. These samples shall be held in refrigeration or on ice until instructed by Ecology on what to do with them. Ecology may require analysis of these samples before allowing the work to resume.

d. In the event of a discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of any spilled material and used cleanup materials.

e. Immediately notify Ecology's 24-Hour Spill Response Team at 1-800-645-7911 **and** within 24 hours of spills or other events to Ecology's Federal Permit Manager at (360) 407-6926 or (360) 407-6300.

f. Submit a detailed written report to Ecology within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps taken to prevent recurrence, results from any samples taken, and any other pertinent information.

3. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.

4. If at any time during work the Applicant finds buried chemical containers, such as drums, or any unusual conditions indicating disposal of chemicals, the proponent shall immediately notify Ecology using the above phone numbers.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel Rd SW, Suite 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Lori Kingsbury
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
Lori.kingsbury@ecy.wa.gov

MORE INFORMATION

Pollution Control Hearings Board Website
www.eho.wa.gov/Boards_PCHB.aspx

Chapter 43.21B RCW - Environmental Hearings Office – Pollution Control Hearings Board
http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21B

Chapter 371-08 WAC – Practice and Procedure
http://apps.leg.wa.gov/WAC/default.aspx?cite=371-08

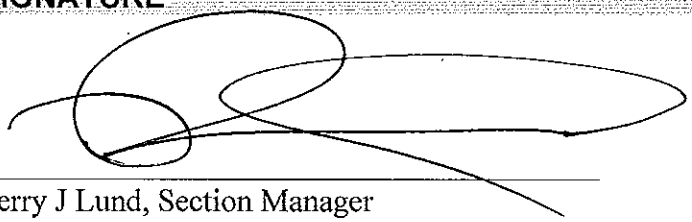
Chapter 90.48 RCW – Water Pollution Control
http://apps.leg.wa.gov/RCW/default.aspx?cite=90.48

Chapter 173.204 WAC – Sediment Management Standards
www.ecy.wa.gov/biblio/wac173204.html

Chapter 173-200 WAC – Water Quality Standards for Ground Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173200.html

Chapter 173-201A WAC – Water Quality Standards for Surface Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173201A.html

SIGNATURE



9/11/2018

Perry J Lund, Section Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

Date

Attachment A
Statement of Understanding
Water Quality Certification Conditions

Programmatic Piling Repair Project
Port of Tacoma
Water Quality Certification Order No.**15952**
and
Corps Reference No. **NWS-2011-0089-WRD**

I, _____, state that I will be involved as an agent or contractor for the Port of Tacoma in the Programmatic Piling Repair Project located within the Blair, Hylebos, and Sitcum waterways, and Commencement Bay, in Tacoma, Pierce County, Washington. I further state that I have read and understand the relevant conditions of Washington Department of Ecology Water Quality Certification Order No. 15952 and the applicable permits and approvals referenced therein which pertain to the project-related work for which I am responsible.

Signature	Date
Title	Phone
Company	

APPENDIX F
PORT OF TACOMA
CONSTRUCTION SWPPP
SHORT FORM

CONSTRUCTION SWPPP SHORT FORM

The threshold for using the Port of Tacoma's (Port) short form is a project that proposes to clear or disturb less than one acre of land. Projects falling within this threshold may use this short form instead of preparing a professionally designed Construction Stormwater Pollution Prevention Plan (SWPPP). If project disturbance quantities exceed this threshold, you must prepare of formal Construction SWPPP as part of your submittal package. If your project is within the threshold and includes—or may affect—a critical area, please contact the Port to determine if the SWPPP short form may be used.

CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN SHORT FORM

Project Name:

Address:

Contact/Owner: Phone:

Erosion Control Supervisor:

Phone: Cell: Pager:

Emergency (After hours) Contact: Phone:

Permit No.:

Parcel No.:

Required Submittals

A Construction SWPPP consists of both a project narrative and a site plan. The project narrative describes existing conditions on the site, the proposed conditions, and how construction site runoff will be managed until final site stabilization is achieved. Any additional relevant information should be included in the project narrative. All Best Management Practices (BMPs) that will be utilized onsite must be included as part of the project narrative and provided (electronically or hard copy) as part of the submittal package. If additional BMPs beyond those included in the Washington Department of Ecology's (Ecology) Western Washington Stormwater Management Manual (Ecology SWMM) or the City of Tacoma's (City) Stormwater Management Manual (City SWMM) are proposed to be used, a narrative and appropriate details describing the BMP (its function, installation method, and maintenance activities) will be required.

The site plan is a drawing which shows the location of the proposed BMPs to control erosion and sedimentation during and after construction activities.

PROJECT NARRATIVE

The Construction SWPPP Short Form narrative must be completed at part of the submittal package. Any information described, as part of the narrative, should also be shown on the site plan.

Note: From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted by special authorization from the Port.

A. Project Description (Check all that apply)

☐ New Structure ☐ Building Addition ☐ Grading/Excavation
☐ Paving ☐ Utilities ☐ Other:

1. Total project area (square feet)
2. Total proposed impervious area (square feet)
3. Total existing impervious area (square feet)
4. Total proposed area to be disturbed (square feet)
5. Total volume of cut/fill (cubic yards)

Additional Project Information:

B. Existing Site Conditions (Check all that apply)

1. Describe the existing vegetation on the site. (Check all that apply)
   ☐ Forest ☐ Pasture/field grass ☐ Pavement ☐ Landscaping ☐ Brush
   ☐ Trees ☐ Other:
2. Describe how surface water (stormwater) drainage flows across/from the site. (Check all that apply)
   ☐ Sheet Flow ☐ Gutter ☐ Catch Basin ☐ Ditch/Swale ☐ Storm Sewer
   ☐ Stream ☐ Other:
3. Describe any unusual site condition(s) or other features of note.
   ☐ Steep Grades ☐ Large depression ☐ Underground tanks ☐ Springs
   ☐ Easements ☐ Existing structures ☐ Existing utilities ☐ Other:

C. Adjacent Areas (Check all that apply)

1. Check any/all adjacent areas that may be affected by site disturbance and fully describe below in item 2:

☐ Streams* ☐ Lakes* ☐ Wetlands* ☐ Steep slopes*

☐ Residential Areas ☐ Roads ☐ Ditches, pipes, culverts ☐ Other:

** If the site is on or adjacent to a critical area (e.g., waterbody), the Port may require additional information, engineering, and other permits to be submitted with this short form.*

2. Describe how and where surface water enters the site from properties located upstream:

3. Describe the downstream drainage path from the site to the receiving body of water (minimum distance of 0.25 mile [1320 feet]). (E.g., water flows from the site into a curb-line, then to a catch basin at the intersection of X and Y streets. A 10-inch pipe system conveys water another 1000 feet to a wetland.) Include information on the condition of the drainage structures.

D. Soils (Check all that apply)

The intent of this section is to identify when additional soils information may be required for applicants using this short form. There are other site-specific issues that may necessitate a soils investigation or more extensive erosion control practices. The Port will determine these situations on a case-by-case basis as part of their review.

1. Does the project propose infiltration? Infiltration systems require prior Port approval.

☐ Yes ☐ No

2. Does the project propose construction on or near steep slopes (15% or greater)?

☐ Yes ☐ No

If infiltration is proposed for the site or steep slopes (15% or greater) have been identified, the Port will require soils information as part of project design. The applicant must contact a soil professional or civil engineer that specializes in soil analysis and perform an in-depth soils investigation. If the Yes box is checked for either question, the Port may not permit the use of this short form.

E. Construction Sequencing/Phasing

1. Construction sequence: the standard construction sequence is as follows:
   - Mark clearing/grading limits.
   - Install initial erosion control Best Management Practices (BMPs) (e.g., construction entrance, silt fence, catch basin inserts, etc.).
   - Clear, grade, and fill project site as outlined in the site plan while implementing and maintaining proper temporary erosion and sediment control BMPs simultaneously.
   - Install permanent erosion protection as described in the specifications (e.g., impervious surfaces, landscaping, etc.).
   - Remove temporary erosion control methods as permitted. Do not remove temporary erosion control until permanent erosion protection is fully established.

   List any changes from the standard construction sequence outlined above:

2. Construction phasing: if construction is going to occur in separate phases, please describe:

F. Construction Schedule

1. Provide a proposed construction schedule (dates construction starts and ends, and dates for any construction phasing.)

   Start Date: **End Date:**

   Interim Phasing Dates:

   Wet Season Construction Activities: Wet season occurs from October 1 to April 30. Please describe construction activities that will occur during this time period.

Note: Additional erosion control methods may be required during periods of increased surface water runoff.

2. **Site plan** (see Figure 1, page 6)

A site plan, to scale, must be included with this checklist that shows the following items:

- ☐ a. Address, Parcel Number, Permit Number, and Street Names
- ☐ b. North Arrow
- ☐ c. Indicate boundaries of existing vegetation (e.g., tree lines, grassy areas, pasture areas, fields, etc.)
- ☐ d. Identify any onsite or adjacent critical areas and associated buffers (e.g., wetlands, steep slopes, streams, etc.).
- ☐ e. Identify any FEMA base flood boundaries and Shoreline Management boundaries.
- ☐ f. Show existing and proposed contours.
- ☐ g. Delineate areas that are to be cleared and/or graded.
- ☐ h. Show all cut and fill slopes, indicating top and bottom of slope catch lines.
- ☐ i. Show locations where upstream run-on enters the site and locations where runoff leaves the site.
- ☐ j. Indicate existing surface water flow direction(s).
- ☐ k. Label final grade contour and indicate proposed surface water flow direction and surface water conveyance systems (e.g., pipes, catch basins, ditches, etc.).
- ☐ l. Show grades, dimensions, and direction of flow in all (existing and proposed) ditches, swales, culverts, and pipes.
- ☐ m. Indicate locations and outlets of any dewatering systems (usually to sediment trap).
- ☐ n. Identify and locate all erosion control methods to be used during and after construction.

ONSITE FIELD VERIFICATION OF ACTUAL CONDITIONS IS REQUIRED.

Figure 1. (to be worked out with Engineering Dept.)

GUIDELINES FOR EROSION CONTROL ELEMENTS

This SWPPP must contain the 12 required elements, as required by Ecology. Check off each element as it is addressed in the SWPPP short form and/or on your site plan.

- ☐ 1. Mark Clearing Limits
- ☐ 2. Establish Construction Access
- ☐ 3. Control Flow Rates
- ☐ 4. Install Sediment Controls
- ☐ 5. Stabilize Soils
- ☐ 6. Protect Slopes
- ☐ 7. Protect Drain Inlets
- ☐ 8. Stabilize Channels and Outlets
- ☐ 9. Control Pollutants
- ☐ 10. Control Dewatering
- ☐ 11. Maintain BMPs
- ☐ 12. Manage the Project

The following is a brief description of each of the 12 required elements of a SWPPP. If an element does not apply to the proposed project site, please describe why the element does not apply. Applicable BMPs are listed with each element and in Table 1. Please note that this list is not a comprehensive list of BMPs available for small construction projects, but erosion and sediment control techniques most pertinent to small construction sites are included here. More detailed information on construction BMPs can be found in Ecology's SWMM Volume II and the City's SWMM Volume II (Ecology 2005; City of Tacoma 2012). Please provide hard copies of the BMPs that will be used for the project and include as part of this Construction SWPPP. BMPs that may be used if needed can be noted as being contingent in the event additional erosion control is needed. Describe any additional BMPs that will be utilized onsite and add them to the SWPPP short form.

For phased construction projects, clearly indicate erosion control methods to be used for each phase of construction.

Element #1 – Mark Clearing Limits

All construction projects must clearly mark any clearing limits, sensitive areas and their buffers prior to beginning any land disturbing activities, including clearing and grading. Clearly mark the limits both in the field and on the site plans. Limits shall be marked in such a way that any trees or vegetation that is to remain will not be harmed.

Applicable BMPs include:

- BMP C101: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: High Visibility Plastic or Metal Fence
- BMP C104: Stake and Wire Fence

☐ The BMP(s) being proposed to meet this element are:

_____

_____

OR

☐ This element is not required for this project because:

_____

_____

_____

_____

Element #2 – Establish Construction Access

All construction projects subject to vehicular traffic shall provide a means of preventing vehicle "tracking" soil from the site onto streets or neighboring properties. Limit vehicle traffic on- and off-site to one route if possible. All access points shall be stabilized with a rock pad construction entrance or other Port-approved BMP. The applicant should consider placing the entrance in the area for future driveway(s), as it may be possible to use the rock as a driveway base material. The entrance(s) must be inspected weekly, at a minimum, to ensure no excess sediment buildup or missing rock.

Applicable BMPs include:

- BMP C105: Stabilized Construction Entrance
- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #3 – Control Flow Rates

Protect properties and waterways downstream of the project site from erosion due to increases in volume, velocity, and peak flow of stormwater runoff from the project site.

Permanent infiltration facilities shall not be used for flow control during construction unless specifically approved by the Environmental Department. Sediment traps can provide flow control for small sites by allowing water to pool and allowing sediment to settle out of the water.

Applicable BMPs include:

- BMP C207: Check Dams
- BMP C240: Sediment Trap

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element 4 – Install Sediment Controls

Surface water runoff from disturbed areas must pass through an appropriate sediment removal device prior to leaving a construction site or discharging into a waterbody. Sediment barriers are typically used to slow stormwater sheet flow and allow the sediment to settle out behind the barrier.

Sediment controls must be installed/constructed prior to site grading.

Applicable BMPs include:

- BMP C208: Triangular Silt Dike
- BMP C232: Gravel Filter Berm
- BMP C233: Silt Fence
- BMP C235: Straw Wattles

☐ The BMP(s) being proposed to meet this element are:

_____

_____

OR

☐ This element is not required for this project because:

_____

_____

_____

_____

Element #5 – Stabilize Soils

Stabilize exposed and unworked soils by applying BMPs that protect the soils from raindrop impact, flowing water, and wind.

From October 1 through April 30, no soils shall remain exposed or unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed or unworked for more than 7 days. This applies to all soils whether at final grade or not.

Applicable BMPs include:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets
- BMP C123: Plastic Covering
- BMP C140: Dust Control

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #6 – Protect Slopes

Protect slopes by diverting water at the top of the slope. Reduce slope velocities by minimizing the continuous length of the slope.

Applicable BMPs include:

- BMP C200: Interceptor Dike and Swale
- BMP C204: Pipe Slope Drains
- BMP C207: Check Dams

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #7 – Protect Drain Inlets

All operable storm drain inlets must be protected during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment. Install catch basin protection on all catch basins within 500 feet downstream of the project.

Applicable BMPs include:

- BMP C220: Storm Drain Inlet Protection

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #8 – Stabilize Channels and Outlets

Stabilize all temporary onsite conveyance channels. Provide stabilization to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the conveyance system outlets.

Applicable BMPs include:

- BMP C202: Channel Lining
- BMP C209: Outlet Protection

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #9 – Control Pollutants

Handle and dispose of all pollutants, including demolition debris and other solid wastes in a manner that does not cause stormwater contamination. Provide cover and containment for all chemicals, liquid products (including paint), petroleum products, and other materials. Handle all concrete and concrete waste appropriately.

Applicable BMPs include:

- BMP C150: Materials on Hand
- BMP C151: Concrete Handling
- BMP C152: Sawcutting and Surface Pollution Prevention
- BMP C153: Material Delivery, Storage and Containment

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #10 – Control Dewatering

Clean, non-turbid dewatering water, such as groundwater, can be discharged to the stormwater system provided the dewatering flow does not cause erosion or flooding of receiving waters.

Applicable BMPs include:

- BMP C150: Materials on Hand

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #11 – Maintain BMPs

Maintain and repair temporary erosion and sediment control BMPs as needed. Inspect all BMPs at least weekly and after every storm event.

Remove all temporary erosion and sediment control BMPs within 30 days after final site stabilization or if the BMP is no longer needed. Any sediment trapped during construction activities should be removed or stabilized onsite. No sediment shall be discharged into the stormwater drainage system or any natural conveyance system (e.g., streams).

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Element #12 – Manage the Project

Phase development projects to prevent soil erosion and the transport of sediment from the project site during construction. Coordinate all work prior initial construction with subcontractors and other utilities to ensure no areas are worked prematurely.\

A designated erosion and sediment control person is required for all construction projects. This person is responsible for ensuring that the project's erosion and sediment control BMPs are appropriate for the site and are functioning properly. They are also responsible for updating the SWPPP as necessary as site conditions warrant. They must be available 24 hours a day to ensure compliance.

Applicable BMPs include:

- BMP C160: Certified Erosion and Sediment Control Lead
- BMP C162: Scheduling
- BMP C180: Small Project Construction Stormwater Pollution Prevention

☐ The BMP(s) being proposed to meet this element are:

OR

☐ This element is not required for this project because:

Table 1. Applicable BMPs for the 12 Elements of a SWPPP

Element #1 – Mark Clearing Limits		
BMP C101	Preserving Natural Vegetation	
BMP C102	Buffer Zones	
BMP C103	High Visibility Plastic and Wire Fence	
BMP C104	Stake and Wire Fence	
Element #2 – Establish Construction Entrance		
BMP C105	Stabilized Construction Entrance	
BMP C106	Wheel Wash	
BMP C107	Construction Road/Parking Area Stabilization	
Element #3 – Control Flow Rates		
BMP C207	Check Dams	
BMP C240	Sediment Trap	
Element #4 – Install Sediment Controls		
BMP C208	Triangular Silt Trap	
BMP C232	Gravel Filter Berm	
BMP C233	Silt Fence	
BMP C235	Straw Wattles	
Element #5 – Stabilize Soils		
BMP C120	Temporary and Permanent Seeding	
BMP C121	Mulching	
BMP C122	Nets and Blankets	
BMP C123	Plastic Covering	
BMP C140	Dust Control	
Element #6 – Protect Slopes		
BMP C200	Interceptor Dike and Swale	
BMP C204	Pipe Slope Drains	
BMP C207	Check Dams	
Element #7 – Protect Drain Inlets		
BMP C220	Storm Drain Inlet Protection	
Element #8 – Stabilize Channels and Outlets		
BMP C202	Channel Lining	
BMP C209	Outlet Protection	
Element #9 – Control Pollutants		
BMP C150	Materials on Hand	

Element #9 – Control Pollutants, cont.		
BMP C151	Concrete Handling	
BMP C152	Sawcutting and Surfacing Pollution Prevention	
BMP C153	Materials, Delivery, Storage and Containment	
Element #10 – Control Dewatering		
BMP C150	Materials on Hand	
Element #11 – Maintain BMPs		
BMP C160	Certified Erosion and Sediment Control Lead	
Element #12 – Manage the Project		
BMP C160	Certified Erosion and Sediment Control Lead	
BMP C162	Scheduling	
BMP C180	Small Project Construction Stormwater Pollution Prevention	

REFERENCES

City of Tacoma. 2012. Stormwater Management Manual 2012 Edition. Public Works/ Environmental Services, Maintenance Division, Tacoma, Washington.

Washington State Department of Ecology (Ecology). 2005. Stormwater Management Manual for Western Washington. Water Quality Program, Lacey, Washington.

APPENDIX G
PORT OF TACOMA
WATER QUALITY MONITORING AND PROTECTION PLAN (WQMPP)

FINAL
Water Quality Monitoring and Protection Plan (WQMPP)

Port of Tacoma Programmatic Pile Repair and Replacement Project (NWS-2011-0089-WRD renewal, WQC #15952)

Prepared by

Jenn Stebbings
Biologist – Port of Tacoma

June 8, 2018
Revised September 4, 2018
Final September 5, 2018

PURPOSE

The Water Quality Monitoring and Protection Plan (WQMPP) will be used to identify and track the performance of Best Management Practices (BMPs) used during in-water work within the project limits of the Port of Tacoma's (Port) Programmatic Pile Repair and Replacement project. This Ecology-approved programmatic WQMPP is the minimum standard for the Contractor to follow. Proposed monitoring that is not covered in this WQMPP and has not already undergone Ecology review must be approved by Ecology prior to starting in-water work. Ecology requires a 45-60-day review period for additional site-specific WQMPPs.

This WQMPP includes a monitoring schedule that identifies the appropriate parameters to be monitored, locations, monitoring and sampling procedures, and frequency.

OBJECTIVES

This WQMPP will:

- Identify appropriate BMPs for use while performing work under this WQC.
- Document the performance of BMPs used within waters of the state we are working in through water quality monitoring and sampling.
- Determine if Water Quality Standards are being met at the edge of the point of compliance.
- Help to ensure compliance with the conditions of the Section 401 Water Quality Certification (401) while conducting construction activities below the (OHWM).

Any changes to monitoring must be approved by Ecology prior to making the changes.

GENERAL PROJECT DESCRIPTION

Load-bearing and fender piling need to be replaced periodically due to damage caused by impacts from ships when they are berthed against the piling or pier faces, or through the actions of marine borers or other natural events. Load-bearing and fender piling will be replaced on an as-needed basis to maintain the function and structural integrity of the various docks and marginal wharves within the Port. Most piles will be treated wood (creosote or ACZA); however, some may be concrete. Concrete piles will be replaced with concrete piles and timber-treated piles will be replaced with ACZA-treated timber piles that have undergone the appropriate best practices for use in water. The replacement piles will be of similar diameter to the damaged piles. Without replacement of damaged piles, the docks and piers will quickly degrade to the point they are no longer functional, or are dangerous to human health and safety. Annual maintenance is required to maintain their function and structural integrity.

The following activities will occur below the OHWM and/or over the following surface waters:

- Work may be conducted from a developed, upland location (e.g., pier deck), or from a barge (e.g., spud barge). Equipment on the barge may include a derrick crane, long-reach excavator fitted with a claw or vibratory head, and/or a storage area for the new and/or derelict piles. Barge operations are addressed in the BMP section.
- Old piling typically will be removed by vibratory hammer; however, some may be removed by pulling with a choke chain.

- New piling will be installed using a vibratory hammer, and may be proofed with an impact hammer. In some instances, it may be necessary to use an impact hammer for the full installation.
- Chocks and whalers will be repaired and/or replaced as necessary to restore the fender system to its design capabilities. Pile caps will be repaired/replaced as necessary.
- Fender piling will be covered on the outer face with a rub strip that is lag-screwed to the piles to prevent frictional loss of treated wood during ship berthing.
- All activities will occur at/below the OHWM within the Blair, Hylebos and Sitcum Waterways, with the exception of the repairs to chocks, whalers and pile caps, which typically occur above the OHWM.

WATER QUALITY STANDARDS FOR SURFACE WATERS

This project is located at the Port of Tacoma, located in WRIA 10, doing work in the Blair, Hylebos and Sitcum Waterways.

The Water Quality Standards applicable to these sites per Washington Administrative Code (WAC) 173-201A-210(1)(e) are as follows:

- Turbidity will not exceed
    - 10 NTUs over background when the background is 50 NTUs or less; or
    - A 20-percent increase in turbidity when the background is more than 50 NTUs.
    - The water quality standard for turbidity will need to be met at the compliance boundary at the edge of the authorized mixing zone for construction activities. The turbidity water quality standard includes an allowed 150-foot mixing zone that extends out from the point of the in-water activity (WAC 173-201A-210(1)(e)(i)).
- pH will be monitored only during concrete pile replacement activities if wet concrete comes into contact with waters of the U.S. There is no area of mixing for pH. pH will be within the range of 6.5 to 9.0 with a human-caused variation within the above range of less than 0.5 units. (WAC 173-201A-210(1)(f)).
- Oil and Grease- No Visible Sheen

IN-WATER WORK CONDUCTED IN KNOWN OR POTENTIALLY CONTAMINATED SITES

Pile replacement activities covered under the Port's permits are generally managed the same as a known (CERCLA) or potentially contaminated site; however, turbidity monitoring in known (CERCLA) or potentially contaminated sites will be initially conducted using a turbidity meter. These areas include:

- Pier 3 (Husky) – Site 4 on the JARPA figures
- WUT – Site 5 on the JARPA figures
- Trident – Site 11 on the JARPA figures
- Parcel 99 (Arkema) – Site 13 on the JARPA figures

In addition to the sites listed above, the EPA and the Puyallup Tribe will be notified a minimum of 60 days prior to the start of in-water work at the two following sites on the Hylebos Waterway:

- Parcel 86 – Site 14 on the JARPA figures

- Parcel 105 – Site 15 on the JARPA figures

During this notification period, the EPA may recommend and/or require additional or different BMPs depending on site conditions. Based on the recommendations, the Port will modify the BMPs for the site-specific work accordingly.

See the Sampling Protocol section for detailed description of turbidity monitoring in the CERCLA or potentially contaminated sites.

BMPS FOR IN-WATER/OVER-WATER ACTIVITIES

The Port will implement BMPs in accordance with EPA Region 10 Best Management Practices for Piling Removal and Placement in Washington State to reduce, eliminate, or minimize the effects of the proposed action on the aquatic environment. The BMPs listed below may be modified by the EPA during the 60-day notification period for the sites listed above, based on coordination and site-specific conditions. BMPs for all Port sites include, but are not limited to:

- Only the piling requiring replacement will be replaced.
- The work will be completed within the footprint of the existing structure and no expansion of the structure is proposed.
- Replacement piles will be wood piles no greater than 18 inches in diameter, and concrete piles no greater than 24 inches in diameter.
- Pile removal and installation will be conducted during daylight hours.
- When possible, removal of pile will occur during low tide conditions for best visibility. This is to reduce the potential for breaking the pile, and to increase the chance of retrieval if piles are broken during extraction.
- Typically, no more than 6-8 piling will be replaced in a single day, and work hours are generally limited to a standard work day.
- The piling will be removed slowly to minimize turbidity in the water column and reduce sediment disturbance.
- Piling that has been removed will be moved expeditiously into a containment area for processing and disposal.
- Piling will not be twisted, bent or otherwise deformed during the removal process.
- Piling will not be shaken, hosed-off, stripped or scraped, or any other action intended to clean or remove material from the piling. Sediment associated with removed piling will not be returned to the waterway.
- Vibratory extraction is the preferred method of pile removal.
- Work will be confined to within a floating containment boom. A small boat will be available at all times during pile replacement activities to manage the boom and capture debris.
- Work below the OHWM will occur during the WDFW-approved in-water work window (July 16 – February 15) when salmonids are unlikely to be present.
- The work will comply with the water quality restrictions imposed by the Washington Department of Ecology.
- Contractors will be required to prepare a Spill Prevention, Control and Countermeasures (SPCC) plan. The SPCC plan will describe how the contractor will store all fuels and hazardous

substances that may be onsite during construction. It will include procedures that the contractor will follow in the event of a spill, and will require the contractor to have spill response equipment onsite in the event a spill does occur. The plan will also include emergency phone numbers and contacts that will be made in the event of a spill.

- No petroleum products, hydraulic fluids, chemicals or any other polluting substances shall be allowed to enter waters of the U.S.
- Equipment will be checked for drips or leaks, and shall be maintained and stored properly.
- Once pile replacement activity is complete, all temporary work structures, devices, equipment, materials man-made debris and wastes from the project will be completely removed from the work area.
- Temporary floating work platforms and/or booms will not disturb eelgrass, kelp, and/or intertidal wetland vascular plants.
- Piles will not be placed in or adjacent to vegetated shallows, wetlands, special aquatic sites, or within sites designated by WDFW as documented for suitable forage fish spawning.
- No piling will be installed in or within 25 feet of any eelgrass beds and barges will not anchor over any eelgrass beds.
- If a barge is used, it will not ground out or rest on the substrate, or be staged over or within 25 feet of vegetated shallows (except where such vegetation is limited to State-designated noxious weeds).
- The bottom of any structure, vessel, watercraft grid, or watercraft lift will be at least 1 foot above the level of the substrate during all water levels.
- Containment areas on barges, piers and upland areas shall have continuous sidewalls and controls as necessary.
- There will be a designated containment area that can be covered during precipitation events (e.g., covered dumpster).
- No stockpiling or staging of materials will occur below the OHWM of the waterways.
- No piles will be associated with log raft booms.
- No installation or removal of sheet piling will occur.
- Only ACZA-treated wood will be used and treatment will comply with the Western Wood Preservers Institute BMPs.
- Existing piles will either be 1) fully extracted or 2) cut 3 feet below the mudline. If piles cannot be fully extracted or cut below the mudline, they may be cut at or near the mudline and then driven to a depth of 3 feet below the mudline. This BMP may be modified based on recommendations provided by EPA during the 60-day notification period.
- Holes left when removing piling will be capped with clean sand. Any sand used as fill material will be washed and cleaned prior to being brought to the site, and will be obtained from a commercial source that is operating within compliance with the ESA. This BMP may be modified based on recommendations provided by EPA during the 60-day notification period.
- During removal of creosote-treated piles, containment booms and oil-absorbent sausage booms (or other oil-absorbent fabric) will be placed around the perimeter of the work area to capture wood debris, oil, and other materials released into marine waters.

- All accumulated debris (shavings, sawdust, woody debris, pile-associated sediment and adhered organisms) will be collected daily, contained onsite, and disposed of at an approved upland site.
- Removed creosote-treated piles will be disposed of in a manner that precludes their further use. Piles will be cut into manageable lengths (4 feet or less) for transport and disposal in an approved upland location that meets the liner and leachate standards contained in the Washington Administrative Code (WAC), Chapter 173-304, Minimum Functional Standards, and that complies with the ESA. No reuse of treated wood will occur.
- All treated wood will be contained during and after removal to preclude sediments and any impacted materials from entering the aquatic environment.
- Hydraulic water jets will not be used to remove or place piles.
- Equipment and vehicles will be stored in established staging areas when not in use (excluding cranes, which cannot be easily moved).
- Wet concrete will not be allowed to come into contact with surface water. During concrete repair work, forms will remain in place until concrete is cured.

SAMPLING PROTOCOL

Sampling Locations

Turbidity monitoring locations will be measured directly from the point of construction activity. Each site will have a point of compliance, an early detection point, and a background point identified; the monitoring locations will be identified in the field. Monitoring will be conducted at the following locations:

- Background monitoring location (at least 150 feet outside the area of influence prior to work)
    - This location will take into account previous and surrounding in-water activities. The background monitoring location may change due to tidal conditions (upgradient at the start of in-water work may become downgradient during in-work activities).
- Early detection monitoring locations (75 feet downstream/downgradient of the point of construction during work)
    - If turbidity is elevated at the early detection location, additional/different BMPs will be implemented to prevent actual exceedance. This applies to both visual and physical turbidity observations.
- Compliance monitoring locations (150 feet downstream/downgradient of the point of construction during work)
    - Turbidity that is observed as greater than background turbidity at or beyond the 150-foot-radius point of compliance from the area of construction activity is considered an exceedance of water quality standards. This applies to both visual and physical turbidity observations.

In addition to these locations, visual monitoring will be performed at the point of the active operation to monitor the effectiveness of the BMPs and for visible sheen and/or construction debris.

In the unlikely event wet concrete is observed to fall into a waterway, pH will be measured in the waterway in the immediate vicinity of the spilled concrete until it is confirmed that the pH is in compliance with the pH water quality standard.

Sampling Procedures

Water will be observed for the appropriate parameters, per the Monitoring Schedule below, following the equipment and sampling guidelines:

- CERCLA sites (Sites 4, 5, 11 and 13 on JARPA figures) will be physically monitored with a turbidity meter.
    - The first compliance sample for turbidity will be taken approximately 1 hour after the in-water activity starts. A minimum of two samples will be recorded during the in-water work activities.
    - If there are no turbidity exceedances within the first 5 days of sampling, the project will convert to the visual sampling protocols.
- Turbidity will be monitored visually at all sites.
    - The first compliance sample for turbidity will be taken approximately 1 hour after the in-water activity starts, unless there is a visual plume at the point of compliance prior to 1 hour.
- Oil and Grease is a continuous visual for a visible sheen on the water's surface.
- If turbidity appears to exceed the water quality criteria using visual methods, a turbidity meter will be employed no later than 1 hour after the observation. A background sample will be taken outside the area of influence and prior to the downstream or radius samples.
- In the unlikely event wet concrete is observed to fall into a waterway, pH will be measured with a pH meter. pH will be measured in the waterway in the immediate vicinity of the spilled concrete until it is confirmed that the pH is in compliance with the pH water quality standard. The water quality standard for pH is that pH must be between 6.5 and 9.0, with a variation of no more than 0.5 pH units within this range (WAC 173-201A-210(1)(f)).

Monitoring Contacts

Jenn Stebbings or other designated Port of Tacoma personnel will be responsible for providing Ecology with the necessary notifications and results of the monitoring per the frequency specified in the 401.

The Contractor will be responsible for conducting the 401 water quality monitoring; however, the Port of Tacoma will oversee water quality monitoring to ensure compliance with the WQC. The phone number to reach the Port of Tacoma office is 253-383-5841.

Monitoring Schedule

The following monitoring parameters will be observed during in-water work activities:

- Visual turbidity monitoring at all sites
- Physical turbidity monitoring using a turbidity meter initially at CERCLA sites (Sites 4, 5, 11 and 13 on JARPA figures)
- Sheen
- Construction debris in the water
- Distressed or dying fish
- Operation and effectiveness of BMPs

Monitoring Duration (Physical)

During work below the OHWM at CERCLA sites (Sites 4, 5, 11 and 13 on JARPA figures), the contractor will conduct physical turbidity monitoring with an approved turbidity meter. Physical

turbidity monitoring will be conducted before in-water work begins, one hour after in-water work begins, and a minimum of twice a day during in-water work activities. If no turbidity exceedance is observed for 5 days, physical turbidity monitoring can convert to visual turbidity monitoring.

Monitoring Duration (Visual)

During work below the OHWM, the contractor will conduct visual turbidity monitoring. Visual turbidity monitoring will occur continuously, and will be documented a minimum of twice a day during in-water work activities. Visual monitoring will occur for as long as the construction activity that has triggered monitoring is taking place.

Contingency Sampling

CERCLA Sites: If a water quality exceedance is documented at the point of compliance at a CERCLA site (Sites 4, 5, 11 and 13 on JARPA figures), field personnel will stop work. The source of the exceedance or impact will be identified and assessed, and corrective actions will be evaluated and implemented. Notification of the exceedance will be reported to the Ecology Federal Permit Manager/Coordinator within the time specified by the 401. Field personnel will implement operations modifications and/or additional/different BMPs to bring water quality back into compliance with the criteria. Physical turbidity sampling will occur until it is confirmed water quality is back in compliance with the criteria.

All Sites: If an exceedance of a water quality standard appears to occur during visual monitoring, a turbidity meter will be used to verify the results. The background turbidity level, the early detection location and the point of compliance location will all be sampled to verify the exceedance. If the exceedance is confirmed using the turbidity meter, field personnel will stop work and assess the source of the exceedance or impact, and corrective actions will be evaluated. Once the source has been identified, field personnel will implement operation modifications or other supplemental control measures or BMPs to bring water quality back into compliance with the criteria.

Once the control measures have been deemed effective, monitoring will continue every 4 hours using the turbidity meter during working hours until the water quality exceedances have been brought into compliance. Once compliance with water quality standards is achieved, the project shall return to its standard sampling schedule.

Non Compliance

If either visual and/or physical monitoring indicates that water quality standards have been exceeded, the required reporting will be initiated.

REPORTING

All water quality monitoring results (visual and physical) will be recorded on the monitoring form attached (Attachment A).

All sample results will be submitted to the Ecology Federal Permit Manager/Coordinator weekly, or per the frequency specified in the 401.

If visual or physical turbidity monitoring indicates an exceedance of water quality standards, notification shall be made to Ecology's Federal Permit Manager/Coordinator. CERCLA or potentially contaminated sites (Sites 4, 5, 11, 13, 14 and 15 on JARPA figures) will require notification within 2 hours of an exceedance; all other sites will require notification within 24 hours of an exceedance.

ATTACHMENTS

Attachment A – Sample Monitoring Results Reporting Form
Attachment B – Figures

Port of Tacoma Daily Turbidity Monitoring
In-Water Construction for Pile Repair and Replacement
ACOE Permit #: NWS-2011-0089-WRD ECY Order #: TBD

Date: _____ **Observer:** _____

Start of in-water work: _____ **CERCLA Site?** ☐ Yes ☐ No

End of in-water work: _____

Observation 1			
Time: _____	Turbidity visible within 150-foot radius of in-water work? ☐ Yes ☐ No	NTUs (CERCLA only)	Notes (work modifications, monitoring point, additional observations, etc.)

Observation 2			
Time: _____	Turbidity visible within 150-foot radius of in-water work? ☐ Yes ☐ No	NTUs (CERCLA only)	Notes (work modifications, monitoring point, additional observations, etc.)

General description of weather, waterway conditions, circumstances affecting background turbidity, and work affecting turbidity throughout the day.

Water Quality Monitoring during In-Water Work Activities

Turbidity should NOT be visible more than 150 feet (radius) at any time during in-water work activities. If turbidity is visible, stop work and contact the Engineering Project Manager.

A minimum of two (2) observations must be recorded during active in-water work activity.

Recorded observations should be a minimum of 2 hours apart unless in-water work ceases before 2 hours have passed. If in-water work activity ends before 2 hours, record second observation at the end of the in-water work activity.

(For CERCLA sites only) In addition to visual observations of turbidity and requirements listed above, CERCLA sites must also have water quality measurements taken with an approved turbidimeter.

FIGURE 01 - Vicinity Map

REFERENCE: NWS-2011-0089-WRD (renewal)
WQC: TBD
PROJECT: Programmatic Piling Repair
APPLICANT: Port of Tacoma
LOCATION: Tacoma, WA

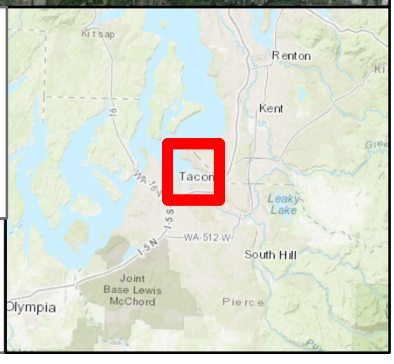
IN: Commencement Bay

NEAR: Tacoma

COUNTY: Pierce

STATE: Washington

ADJACENT LANDOWNERS:
1. City of Tacoma
2. City of Fife
3. WSDOT
4. Puyallup Tribe of Indians
5. Numerous Private Landowners



SHEET: 1 OF 2
DATE: 6/8/2018
AUTHOR: Brian Archer

0 0.5 0.75 1 1.25 Miles

N
W E
S

Port of Tacoma
PO Box 1837 Tacoma, WA 98401 (253) 383-5841

Document Path: \\apps.portoftacoma.com\GISUserProjects\EnvironmentalI\Stebbings\2017_ProgPile_VicinityMap.mxd

Document Path: \\apps.portoftacoma.com\GISUserProjects\Environmental\Stebbings\Programmatic Pile\Figure 2_WQMP_example.mxd

FIGURE 02: EXAMPLE WATER QUALITY MONITORING LOCATIONS

REFERENCE: NWS-2011-0089-WRD (renewal)
WQC: #TBD
APPLICANT: PORT OF TACOMA

PROJECT: PROGRAMMATIC PILE REPLACEMENT WATER QUALITY MONITORING PLAN

SHEET 2 OF 2 **DATE: 6/8/2018**

Legend

- Pier
- Early Detection (75 ft)
- Compliance Monitoring (150 ft)
- Port Parcels
- ★ Point of Construction

0 200 400 600 800 Feet

N W E S

Port of Tacoma

APPENDIX H

PORT OF TACOMA

EPA REGION 10 BEST MANAGEMENT PRACTICES FOR PILING REMOVAL & PLACEMENT IN WASHINGTON STATE

EPA Region 10
Best Management Practices
For Piling Removal and Placement in Washington State

February 18, 2016

The following Best Management Practices (BMPs) developed by the Environmental Protection Agency (EPA) are listed by each activity associated with piling removal and placement and are applicable to projects conducted in marine and freshwater environments of Washington State as well as piling "repair" which includes aspects of both pile removal and placement. A project may include multiple methods of removal or placement. Furthermore, these BMPs may be used for projects in other states as long as they are consistent with any relevant requirements of the appropriate state and federal agencies.

The purpose of these BMPs is to protect water, sediment and habitat quality by minimizing turbidity, sediment disturbance and debris re-entry to the water column and benthic zone during pile removal/placement activities. These BMPs are applicable, regardless of the degree of sediment contamination that may be present, to all types of piling (wood, steel, concrete, plastic) or piling combinations (e.g., dolphins), and for any location (freshwater or saltwater) regardless of tide or sediment makeup (silt, sand, etc.). Additional BMPs that may be particularly applicable for permitted projects co-located with contaminated sediments, or within the boundaries of a regulated sediment clean-up site, are called out in text boxes.

Several agencies have published BMPs related to minimizing the introduction and spread of contaminants associated with pile placement and/or removal (e.g., WDNR[1], WDFW[2], NOAA[3]). Additionally, there are BMPs focused on impacts beyond those covered in this document that are applicable to all in-water construction involving piling. An example is adherence to site specific work windows. One overriding BMP, applicable to all in-water piling removal/placement, is adherence to the approved work windows for Endangered Species Act (ESA) fish protection as described in the US Army Corps of Engineers (USACE) Permit Guidebook:

http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook.aspx

Furthermore, National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFWS) have specific conservation measures that must be followed in order to avoid and/or minimize the effects of underwater noise generated during pile driving and removal operations on ESA-listed fish, marbled murrelets, and marine mammals. It is recommended that the

[1] WA Department of Natural Resources Derelict Creosote Piling Removal BMPs see http://wa-dnr.s3.amazonaws.com/publications/aqr_rest_pilingremoval_bmp.pdf

[2] WA Department of Fish and Wildlife Hydraulic Code rules (WAC 220-660-140 and 380) for residential and public recreational docks, pier, ramps, floats, watercraft lifts, and buoys in freshwater and saltwater areas. http://apps.leg.wa.gov/wac/default.aspx?cite=220-660

[3] National Oceanic and Atmospheric Administration, 2009. The Use of Treated Wood Products in Aquatic Environments: Guidelines to West Coast NOAA Fisheries Staff for Endangered Species Act and Essential Fish Habitat Consultations in the Alaska, Northwest and Southwest Regions. Prepared by NOAA Fisheries –Southwest Region, October 12, 2009.

applicant contact NMFS and USFWS to determine if there are ESA-listed species in the project area, and to request technical assistance on conservation measures that could be incorporated into the project to minimize noise-related impacts to listed species.

PILING REMOVAL – General BMPs

The following general BMPs (see also Debris Control BMPs) apply to all piling removal activities regardless of the extraction or cutting technique:

1. Prior to commencement of the work the project engineer or contractor should assess the condition of the piling, and identify whether piling will be removed using a barge or upland equipment. The contractor's work plan must include procedures for extracting and handling piling that break off during removal. In general, complete extraction of piling is always preferable to partial removal.

2. When possible, removal of treated wood piling should occur in the dry or during low water conditions. Doing so increases the chances that the piling won't be broken (greater visibility by the operator) and increases the chances of retrieval in the event that piling are broken.

3. The crane operator shall remove piling slowly. This will minimize turbidity in the water column as well as sediment disturbance.

4. The operator shall minimize overall damage to treated wood piling during removal. In particular, treated wood piling must not be broken off intentionally by twisting, bending or other deformation. This will help reduce the release of wood-treating compounds (e.g., creosote) and wood debris to the water column and sediments.

5. Upon removal from the substrate and water column, the piling shall be moved expeditiously into the containment area for processing, and disposal at an approved off-site, upland facility (see #24 and #25 below).

6. The piling shall not be shaken, hosed-off, stripped or scraped off, left hanging to drip or any other action intended to clean or remove adhering material from the piling. Any sediment associated with removed piling must not be returned to the waterway. Adhered sediments associated with treated piling are likely contaminated and may, along with piling, require special handling and disposal.

7. The operator shall make multiple attempts to remove a pile before resorting to cutting (See Piling Removal BMPs).

PILING REMOVAL - Vibratory Extraction Specific BMPs
Vibratory extraction is the preferred method of piling removal because it causes the least disturbance to the seabed, river or lake bed and it typically results in the complete removal of the piling from the aquatic environment.

8. The operator should "wake up" piling by vibrating to break the skin friction bond between piling and sediment. This bond breaking avoids pulling out a large block of sediment and possibly breaking off the piling in the process.

PILING REMOVAL - Direct Pull Extraction Specific BMPs
Direct pull extraction refers to the removal of piling by grabbing or wrapping the piling and then directly pulling the piling from the sediment – using a crane or other large machinery. For example, piling are wrapped with a choker cable or chain and then removed by crane with a direct upward pull. Another method could involve an excavator with a pincer attachment that can grasp a pile and remove it with a direct upward pull. The use of direct pull can be combined with initial vibratory extraction.

9. Excavation of sediment from around the base of a pile may be required to gain access to portions of the pile that are sound, and to allow for extraction using direct pull methods. Excavation may be performed in-the-dry at low tide or in the water using divers. Hydraulic jetting devices should <u>not</u> be used to move sediment away from piling, in order to minimize turbidity and releases to the water column and surrounding sediments.

PILING REMOVAL - Clamshell Bucket Extraction Specific BMPs
Clamshell removal of piling uses a barge-based or upland excavator-mounted clamshell bucket. The clamshell is lowered from a crane and the jaws grasp the piling stub as the crane pulls up. Clamshell bucket extraction has the potential to disturb sediments if deployed close to the sediment surface and increases the likelihood of damaging piling which can result in incomplete removal of a pile. However, a clamshell bucket may be needed when broken or damaged piling cannot be removed using vibratory or direct pull extraction methods. Extraction with a clamshell might be the best way to remove piling that were cut at or below the mudline previously and have little or no stub accessible above the mudline.

10. To the extent possible, clamshell extraction should be performed in the dry during low tide, low river flows, or reservoir draw-down. Under these conditions, the operator can see the removal site and piling, improving the chance for full removal of piling.

11. Since sediment management is potentially a larger concern when using a bucket, every effort should be made to properly size the bucket to the job and operate it in ways that minimize sediment disturbance.

12. Excavation of sediment from around the base of a pile may be needed to gain access to portions of the pile that are sound, and to allow for extraction using a clam shell. Excavation may be performed in-the-dry at low tide or in the water using divers. Hydraulic jetting devices should not be used to move sediment away from piling, in order to minimize turbidity and releases to the water column and surrounding sediments.

13. Because clamshell extraction has a higher potential to generate debris, it is particularly important that an offshore boom be in place with this removal technique. If treated wood piling are being removed, extracted piles shall be transferred to the containment basin without leaving the boomed area to prevent loss of treated wood chemicals (e.g., creosote) and debris to the water column and sediments.

14. The operator must minimize pinching of treated wood and overall damage to treated wood piling during removal. This will help reduce the potential for releasing treated wood chemicals (e.g., creosote) and debris to the water column and sediments.

15. No grubbing for broken piling is allowed.

Additional Pile Removal BMPs for Locations with Contaminated Sediments

- During project planning, consider that the best tidal condition for piling removal will be dictated by the specifics of the removal. For example, in some circumstances water access for removal equipment at high tide may be less disturbing to the sediment than access in the dry at low tide. In others, removal in the dry is the best option.

- During project planning, consider the pros/cons of each method and its potential to disturb contaminated sediments. For example, while a clamshell bucket may be more feasible for removal of buried or broken piling, it is also more likely to disturb sediments. It may be preferable to manually excavate and remove by direct pull.

- Based on EPA's experience at numerous Superfund cleanup sites (e.g., Pacific Sound Resources, Olympic View, Ketchikan Pulp Mill and Lockheed), extraction of piling is not expected to result in exposure to subsurface contaminated sediments via an exposed "hole". Therefore EPA does not require placement of sand prior to or after pile pulling, unless it is part of an overall project design, such as a cap. Undocumented placement of clean sand may complicate future characterization efforts at cleanup sites.

- If piling removal results in exceedance of turbidity or other water quality standards at the compliance boundary, reconsider the timing of removal to a more restricted time frame, for example, the lowest practical tide condition or around slack water.

PILING REMOVAL - Pile Cutting Specific BMPs

Pile cutting shall be considered a last resort following multiple attempts to fully extract piling using vibratory, direct pull, and/or clamshell bucket extraction. On a project-specific basis, pile cutting may be appropriate to maintain slope stability or if a pile is broken and cannot be removed by other methods. A pneumatic underwater chainsaw, shearing equipment, or other equipment should be used to cut a pile.

16. Piling shall be cut below the mudline, with consideration given to the mudline elevation, slope and stability of the site.

17. In intertidal and shallow subtidal areas (shallower than -10 ft MLLW) seasonal accretion and erosion of the nearshore and/or beach can expose cutoff piling. In these locations, piling should be cut off at least 2-feet below the mudline. In deeper subtidal areas (deeper than -10 ft MLLW), piling should be cut off at least 1-foot below the mudline.

18. Hand excavation of sediment (with divers in subtidal areas) is needed to gain access for cutting equipment. To minimize turbidity and releases to the water column and surrounding sediments, hydraulic jetting devices shall <u>not</u> be used to move sediment away from piling.

19. As a condition of their permit, the permittee will be required to provide a post-construction drawing/map to the Corps of Engineers for the Administrative Record, which shows the location and number of piling left in place (above and below mudline) with the GPS location(s) in NAD 83. The permittee will also be required to provide this information to the property owner(s).

Additional Pile Cutting BMPs for Locations with Contaminated Sediments:

- Complete removal of piling from the environment is preferred. When necessary, project-specific requirements (including equipment selection) for cutting shall be set by the project engineer, and coordinated with EPA and any other appropriate resource agencies, considering the mudline elevation, slope and stability of the site and the condition of the piling.

- If cutting is required, the appropriate depth below mudline for cutting should be made on a project-specific basis, with the goal of minimizing both the resuspension of contaminated sediments and release of wood treatment chemicals.

- For projects with derelict treated pile stubs which can't be removed, consideration should be given to either leaving these in place or, if possible, cutting them below the mudline. Cutting the pile at the mudline may release PAHs into the water column. If a sand cover is placed over the cut pile this may help contain the PAHs, however the new sediment may move over time and the pile may be exposed again. WDNR is currently testing other methods to fully extract piling stubs.

- The decision to leave piling in place that were originally slated for removal must be coordinated with EPA and any other appropriate resource agencies. For example, if the work is being performed as part of a State or Federal cleanup, the decision to leave piling in place, as well as documentation, must be coordinated with the agency with cleanup oversight.

- Any piling left in place (including those below mudline) must be mapped with GPS coordinates (in NAD 83) and characterized by the project engineer. This information must be provided to the Federal or State agency with cleanup oversight, or in the case of a Corps permit, the permittee will be required to provide a post-construction map to the Corps of Engineers for the Administrative Record, which shows the location and number of piling left in place (above and below mudline) with the GPS location(s) in NAD 83. This information will also be provided to the property owner(s).

PILING REMOVAL - Debris Control BMPs

The following BMPs apply to all piling removal activities regardless of the extraction/cutting technique:

20. All work should be confined to within a floating containment boom. The need for, type and size of the boom should be determined on a project-specific basis considering project size, habitat, water flow conditions, sediment quality, etc. A description of boom placement and management must be included in the permit application. A small boat should be available at all times during active construction to manage the boom and captured debris. If used, anchors must be removed once the project is complete.

21. For projects removing treated wood piling or a pier with wood components (like decking), a floating boom with absorbent pads must be installed to capture floating surface debris and any creosote sheen.

a) The boom shall be located at a sufficient distance from all sides of the structure or piling that are being removed to ensure that contaminated materials are captured.
b) Extracted piles shall be transferred to the containment basin without leaving the boomed area to prevent loss of treated wood chemicals (e.g., creosote) and debris to the water column and sediments.
c) The boom shall stay in its original location until any sheen present from removed piling has been absorbed by the boom or removed utilizing absorbent material.

22. Any shavings, sawdust, woody debris (splintered wood, fragments, loose piling) on the water or sediment surface must be retrieved and placed in the containment area. Likewise any pile-associated sediment and adhered organisms must be collected daily, contained on site, and ultimately disposed at an approved upland disposal site along with the extracted piling and decking.

23. When asphalt or other decking is removed, the contractor shall prevent asphalt grit or other debris on the pier from entering the water. Prior to demolition, the contractor shall remove as much of the surface asphalt grit and debris as possible. Floating platforms, suspended tarps, or other means should be deployed under and around the structure to capture grit and debris.

PILING REMOVAL - Piling Storage, Handling and Disposal BMPs
The following BMPs apply to all piling and associated piling-derived debris.

24. Upon removal from the substrate, the piling and associated sediments shall be moved expeditiously from the water into a containment area on the barge deck, adjacent pier, or upland area.

25. The containment area shall be constructed in such a fashion as to restrict any release of contaminants or debris to the aquatic environment. Containment areas on barges, piers and upland areas shall have continuous sidewalls and controls as necessary (e.g., straw bales, oil absorbent boom, ecology blocks, durable plastic sheeting or lining, covers, etc.) to contain all sediment, wood-treating compounds, organisms and debris, and to prevent re-entry of these materials into the aquatic environment.

26. Any floating debris, splintered wood, or sediment removed during pile pulling must be placed in a containment area.

27. Creosote-treated wood piling/sections shall be disposed of in a manner that precludes their further use. Piling will be cut into manageable lengths (4-foot or less) for transport and disposal at an approved upland location that meets the liner and leachate standards of the

Minimum Functional Standards, Chapter 173-304 WAC. In all cases, the permittee must be prepared to provide documentation of disposal.

28. Any sediments, construction debris/residue and plastic sheeting from the containment basin shall be removed and disposed in accordance with applicable federal and state regulations. For disposal, this will require shipment to an approved Subtitle D Landfill.

Additional Pile Storage, Handling and Disposal BMPs for Locations with Contaminated Sediments:

- Pre-project planning shall include measures to minimize water contact with piling and associated contaminated sediments. For example, the containment area can be designed to be covered during precipitation and when not in use, and/or piling and associated sediment can be quickly moved to a final disposal location and not retained at the project site.

- Water collected in a containment area may require special management or treatment depending on project specifics. In some cases, water may be stored in Baker tanks and treated off site. In others, a treatment system may be constructed on site. Discharge water must meet the requirements of the Clean Water Act, including the requirements of a National Pollution Discharge and Elimination System permit (or substantive requirements) in order to discharge to surface water.

PILING PLACEMENT - Piling Material BMPs

29. Piling may be made of steel, concrete, plastic, treated or untreated wood. For large structural replacements, EPA encourages installation of piling made of concrete, steel, or plastic.

30. If treated wood is used, piling must be treated with wood preservatives in compliance with the Registration Documents issued by EPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), and following the Western Wood Preservers Institute (WWPI) guidelines and BMPs to minimize the preservative migrating from treated wood into aquatic environments (see http://www.wwpinstitute.org/documents/BMP_Revise_4.3.12.pdf). Rub strips are required if treated wood is to be used for fender piling.

31. Note that WDFW Hydraulic Code rules prohibit use of wood treated with oil-type preservatives (creosote, pentachlorophenol) in both marine (WAC 220-660-400 6b) and freshwater environments (WAC 220-660-120 6f). Wood treated with waterborne-type preservatives (e.g., ACZA, ACQ) may be used if these are manufactured and installed according to WWPI guidelines and BMPs. WDNR does not allow use of creosote or

otherwise treated (ACZA and CCA) wood for new construction on state-owned aquatic land in both marine and freshwater environments.

PILING PLACEMENT – General BMPs

32. Wood, concrete, steel or plastic piling may be installed using vibratory methods and/or an impact hammer. Vibratory methods are typically preferred as they reduce impacts to fish listed under the Endangered Species Act (ESA), though this method may be combined with impact hammer for proofing. At the design phase, it is recommended that the applicant contact the U.S. Fish and Wildlife Service and National Marine Fisheries Service to determine if there are ESA-listed species in the project area, and to request technical assistance on conservation measures that could be incorporated into the project to minimize impacts to listed species.

33. Hydraulic jetting devices shall not be used to place piling.

34. When a pile is being repaired using splicing or other methods, the permittee shall prevent the introduction of construction-related materials into the aquatic environment. For example, wet concrete must be prevented from entering waters of the state, and forms/sleeves made of impervious materials must remain in place until concrete is cured. Additionally, when a maintenance or repair method requires cleaning of piling, e.g. removal of encrusting organisms, any removed material must be captured and disposed upland.

35. When steel or plastic piling are being reused in the aquatic environment, any sediment adhered to piling or remaining inside of hollow piling must first be removed and disposed of upland at an appropriate location. Creosote-treated piling may not be reused.

36. When proposing to reuse piling, the applicant must evaluate whether there is the potential to transport invasive species from the source area, and must ensure their complete removal such that there is no opportunity for transport/transfer of invasive species. For more information on areas of concern for the spread of invasive species and procedures for minimizing the spread of invasive species through de-contamination see:

http://www.ecy.wa.gov/programs/eap/InvasiveSpecies/AIS-PublicVersion.html.

APPENDIX I

PORT OF TACOMA

MARINE MAMMAL MONITORING PLAN

PORT OF TACOMA
MARINE MAMMAL MONITORING PLAN
FOR PROGRAMMATIC PILE REPLACEMENT AND REPAIR ACTIVITIES

INTRODUCTION

The Port of Tacoma (Port) proposes to conduct pile replacement and repair activities (the proposed action) at 15 wharf/dock structures located in the Blair, Hylebos, and Sitcum Waterways, and in inner Commencement Bay in Tacoma, Washington (Figure 2).

The action area for the proposed action has been established based on the extent of the zones of influence from the following components of the project (Temporary Effects Areas):

- Project footprint (in-water)
- Terrestrial noise
- Underwater noise during impact pile installation (Impact Temporary Effect Area)
- Underwater noise during vibratory pile removal and installation (Vibratory Temporary Effect Area)

Noise levels during both impact pile installation and vibratory pile removal and/or installation could exceed the noise thresholds National Marine Fisheries Service (NMFS) has established for underwater disturbance of marine mammals within portions of the action area at each of the 15 sites. The Programmatic Biological Evaluation (PBE) prepared for this project states that a marine mammal monitoring plan will be implemented during pile removal and installation conducted between October 1 and February 14, to avoid impacts to marine mammals. The areas in which monitoring is proposed in this plan is dependent upon the location and type of activity being conducted (vibratory removal and/or installation, or impact installation). Some sites will not require monitoring.

DISCUSSION

In-Water Vibratory Pile Removal and Installation

NMFS has established an underwater noise disturbance threshold of 120 dB_{RMS} (decibels root mean square) for non-impulse, continuous industrial noises for cetaceans and pinnipeds. Noise levels during vibratory pile removal and installation would exceed this threshold within a portion of the action area (Vibratory Temporary Effect Area) at each of the 15 sites.

The proposed action will consist of the removal and installation of up to 200 piles annual in each year of the program (July 16, 2018 – February 14, 2023). The proposed action will replace a combination of load-bearing structural piles and fender piles. Most of the piles are treated timber piles (including creosote-treated and ACZA-treated piles); however, some are concrete. The proposed action will not install creosote-treated timber piles. ACZA-treated timber piling of a similar size and diameter will replace both creosote-treated and ACZA-treated timber piling. The largest timber piling to be replaced is approximately 18 inches in diameter. Concrete piling of a similar size and diameter will replace existing concrete piling. The largest concrete piling that will

be replaced is 24 inches in diameter. Most of the piling to be replaced is less than 18 inches in diameter and the proposed action will replace no more than an estimated four concrete piles with diameters of 18 inches or greater in a single year.

New research associated with pile driving has been published since the previous permit cycle. A review of existing literature including project-specific data published by WSDOT (Laughlin 2007; 2011; 2015) California Department of Transportation's (CalTrans) Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, which includes the Compendium of Pile Driving Sound Data (Buehler et al. 2015, CalTrans 2015), and project-specific data published by the U.S. Navy (NSWCCD 2016), indicate that 160 dB_{RMS} is still an appropriate worst case estimate of the maximum sound levels likely to be produced during vibratory removal or installation of timber or concrete piles, for the following reasons:

- WSDOT reports that, on average, vibratory noise levels are between 10 and 20 dB lower than those produced by impact pile driving (WSDOT 2017).
- In 2015, the U.S. Navy collected hydroacoustic data during vibratory removal of timber piles and impact driving of concrete piles at Pier 6 of its naval shipyard in Bremerton. The results of this monitoring indicate that average values during vibratory removal of the timber piles ranged between 138 dB_{RMS} and 158 dB_{RMS}, with an overall average of 152 dB_{RMS}. The average values during impact pile driving of 24-inch concrete piles ranged from 168 dB_{RMS} to 183 dB_{RMS} with an overall average of 178 dB_{RMS} (NSWCCD 2016). The average impact noise was approximately 35 dB to 40 dB higher across the analysis bandwidth when compared to the site's quiet ambient condition (NSWCCD 2016).
- CalTrans' Compendium of Pile Driving Data provides information regarding vibratory installation of: 12-inch H-type steel pipe piles (150 dB_{RMS}), 12-inch steel pipe piles (155 dB_{RMS}), 24-inch AZ steel sheet pile (160 dB_{RMS}), and 36-inch steel pipe piles (170 dB_{RMS}) (CalTrans 2015). Concrete and timber piles produce much lower underwater sound pressures than similarly sized steel piles. Given these sound pressure levels, for purposes of this consultation, the sound pressure levels associated with vibratory removal and/or installation of 12–18-inch timber piles or 12–24-inch concrete piles would not exceed 160 dB_{RMS} on average.

The following assumptions underlay the vibratory pile removal and installation noise attenuation analysis:

- Background in-water noise levels in the action area are not available, so the analysis used a marine mammal vibratory guideline threshold of 120 dB_{RMS}.
- A worst-case estimate of noise level from vibratory removal and installation of concrete and timber piles is 160 dB_{RMS}.
- Noise will attenuate at a rate of 4.5 dB per doubling distance (meters).
- Sound will stop when it reaches the nearest land mass.

The distance at which 160 dB_{RMS} is expected to attenuate to 120 dB_{RMS} using the practical spreading loss model is approximately 4,642 meters, or 2.9 miles.

$R_1 = R_2 * (10^{(TL/15)}) = 10 * (10^{((160-120)/15)}) = 4{,}641.6$ meters.

Figures 3-17 show the Vibratory Temporary Effect Area for each of the 15 sites.

The Port may collect site-specific, in-water noise background data before the start of the project to determine if the monitoring can be reduced.

In-Water Impact Pile Installation

NMFS has established impact pile driving underwater noise injury thresholds of 180 dB_{RMS} for cetaceans and 190 dB_{RMS} for pinnipeds, and impact pile driving disturbance thresholds of 160 dB_{RMS} for both cetaceans and pinnipeds. Noise levels during impact pile installation are not expected to exceed injury thresholds for either pinnipeds or cetaceans, but will likely temporarily exceed the disturbance threshold of 160 dB_{RMS} within a portion of the action area at each of the 15 sites (Impact Temporary Effect Area).

Data published by WSDOT indicate that impact installation of timber piles has been measured as producing underwater noise levels as high as 180 dB_{Peak}, 170 dB_{RMS}, and 160 dB SEL (sound exposure level) (WSDOT 2016). These same data indicate that impact installation of 36-inch concrete piles typically produces single strike sound pressure levels of 192 dB_{Peak}, 176 dB_{RMS}, and 174 dB SEL (WSDOT 2017). CalTrans has published project-specific data documenting lower decibel levels during impact driving of 24-inch concrete piles (188 dB_{Peak}, 176 dB_{RMS}, and 166 dB SEL) (CalTrans 2015); however, for purposes of making a conservative estimate of the extent of underwater noise produced, the higher decibel levels have been used to determine the extent of underwater noise.

The distance at which 176 dB_{RMS} is expected to attenuate to 160 dB_{RMS} using the practical spreading model is approximately 117 meters or 383 feet.

$R_1 = R_2 * (10^{(TL/15)}) = 10 * (10^{((176-160)/15)}) = 116.6$ meters.

Figures 3-17 show the Impact Temporary Effect Area for each of the 15 sites.

SPECIES PRESENCE

ESA-listed marine mammal species (Southern Resident killer whale and humpback whale) are not expected to be present within the Blair, Hylebos, or Sitcum Waterways at any time, and are therefore unlikely to be exposed to elevated underwater noise associated with any pile removal or installation conducted at Parcels 86, 99, and 105 (Sites 15, 13, and 14, respectively on Figures 15-17).

Additionally, pile removal or installation conducted at Washington United Terminal (WUT), Blair Dock, Pierce County Terminal (PCT), East Blair 1 (EB-1), and Puget Sound Energy (PSE) (Sites 5-8 and 12, respectively on Figures 7-10 and 14) is only expected to elevate sound levels within Commencement Bay within a small area where ESA-listed marine mammals are unlikely to be present, or within such a small area that the noise would be insignificant.

As presented in the PBE, Southern Resident killer whales and humpback whales are not expected within Commencement Bay between July 16 and September 30, and pile removal and installation conducted during this time period would not be expected to affect any ESA-listed marine mammals (Osborne 2008; Mongillo 2012). Southern Resident killer whales are most commonly observed in Commencement Bay between approximately October and January, with the greatest potential for occurrence being between December and January (Osborne 2008). Humpback whales are sighted only occasionally in south Puget Sound, and are unlikely to occur within the waters of inner Commencement Bay at any time of the year.

MONITORING SCHEDULE

Marine mammal monitoring will be implemented between October 1 and February 14 to avoid impacts to ESA-listed marine mammals as determined by the PBE prepared for this proposed action. The monitoring will be implemented at the pile replacement activity-specific locations identified as Monitoring Areas and as detailed below under Monitoring Protocol.

MONITORING AREAS (VIBRATORY & IMPACT PILE REPLACEMENT ACTIVITY)

The sites at which vibratory pile removal and/or installation could potentially affect ESA-listed marine mammals are West Sitcum Terminal (formerly APMT), Terminal 7, East Sitcum Terminal (formerly OCT), Husky Terminal, Washington United Terminal (WUT), Blair Dock, Parcel 115, Tote Terminal, and Trident Piers 24 and 25 (Sites 1-6 and 9-11 on Figures 3-6 and 11-13). Therefore, during any vibratory pile removal or installation conducted at these sites (Sites 1-4 and 9-11), the Vibratory Monitoring Area within the 120 dB_{RMS} Vibratory Temporary Effect Area identified on Figures 3-6 and 11-13 will be monitored and maintained as a marine mammal buffer area. Vibratory pile removal or installation will not commence or will be suspended temporarily if any orca or humpback whale is present within the Vibratory Monitoring Area (i.e., marine mammal buffer) for the respective site at which vibratory pile replacement activities are being conducted (Sites 1-4 and 10-11).

The only site at which impact pile installation could potentially affect ESA-listed marine mammals is at Trident Piers 24 and 25 (Site 11 on Figure 13). Therefore, during any impact pile installation or proofing conducted at Site 11, the respective Impact Monitoring Area within 160 dB_{RMS} Impact Temporary Effect Area identified on Figure 13 will be monitored and maintained as marine mammal buffer area. Impact pile installation or proofing will not commence or will be suspended temporarily if any orca or humpback whale is present within Site 11 (Figure 13) Impact Monitoring Area (i.e., marine mammal buffer).

The Port may collect site-specific in-water noise background data before the start of a pile replacement project to determine if the monitoring areas can be reduced.

MONITORING PROTOCOL

The Port will conduct the following marine mammal monitoring activities during the timeframe indicated under the Monitoring Schedule, at the locations specified under Monitoring Areas and shown on the attached figures.

1. Qualified biologists or other trained marine mammal observers who meet the list of qualifications for marine mammal observers will be present on site at all times during pile removal/driving activities per the Monitoring Schedule and at the specified Monitoring Areas.
2. Two observers will monitor the Vibratory Monitoring Area as required by the Monitoring Schedule and at the specified Monitoring Areas (October 1 to February 14, at Sites 1-6 and 9-11, as shown on Figures 3-6 and 11-13). The first observer will be in the vicinity of the proposed pile replacement activity. The second observer will either be at a land-based location or on a boat traveling within the vibratory disturbance area. The most likely land-based locations for the second observer will be at a location on Browns Point, along Marine

View Drive, or along the southwestern shoreline of Commencement Bay (Schuster Parkway, Ruston Way).

3. A single observer will monitor the Impact Monitoring Area as required by the Monitoring Schedule and at the specified Monitoring Areas (October 1 to February 14 at Site 11, as shown on Figure 13).
4. The observer(s) will use binoculars and visual observation to scan the waters within the respective Monitoring Area.
5. The observer(s) will scan the waters 20 minutes before the beginning of pile removal/driving activities and during all pile removal/driving activities. The observer(s) will notify the on-site operator in charge if Southern Resident killer whales or humpback whales enter or are observed within the respective Monitoring Area 20 minutes prior or during pile driving. The operator in charge will require the contractor to not begin or to cease work until the animal has moved outside the Monitoring Area.

MINIMUM QUALIFICATIONS FOR MARINE MAMMAL OBSERVERS

1. Visual acuity in both eyes (correction is permissible) sufficient to discern moving targets at the water's surface and to estimate target size and distance. Use of binoculars may be necessary to identify the target correctly.
2. Advanced education in biological science, wildlife management, mammalogy, or related field (bachelor's degree or higher is preferred).
3. Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
4. Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
5. Sufficient training, orientation, or experience with construction operation to preserve personal safety during observations.
6. Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.

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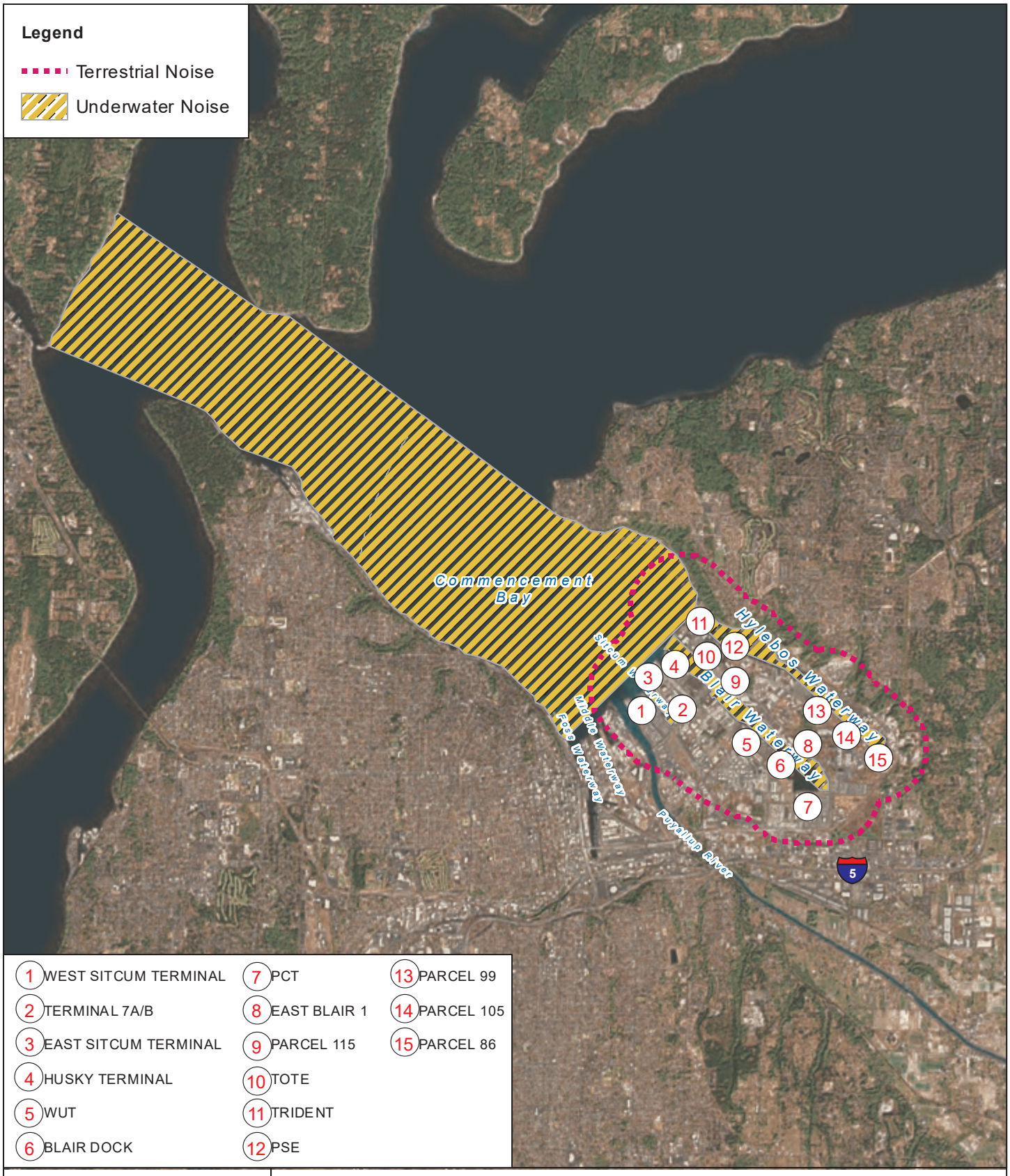

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FIGURE 2 - ACTION AREA

PROJECT: Programmatic Piling Repair - Biological Evaluation

REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 2 of 17

N
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0 0.5 1 2 3 Miles

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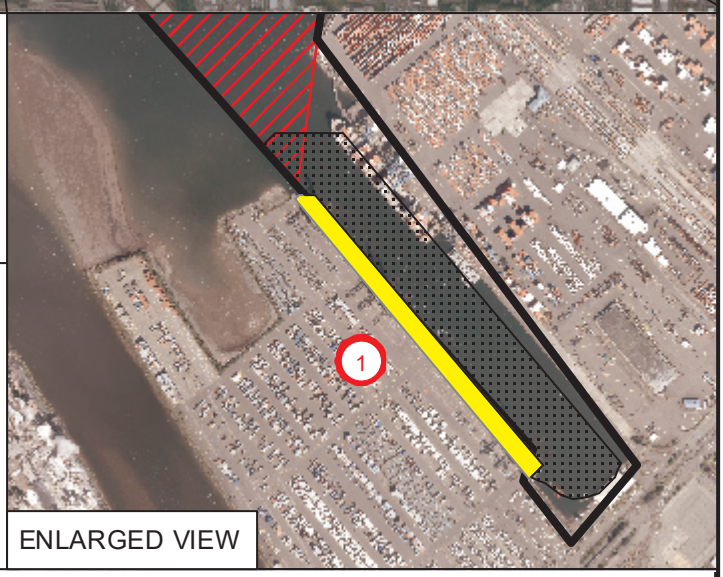
Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL	7 PCT	13 PARCEL 99
2 TERMINAL 7A/B	8 EAST BLAIR 1	14 PARCEL 105
3 EAST SITCUM TERMINAL	9 PARCEL 115	15 PARCEL 86
4 HUSKY TERMINAL	10 TOTE	
5 WUT	11 TRIDENT	
6 BLAIR DOCK	12 PSE	



ENLARGED VIEW

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FIGURE 3 - SITE 1

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 3 of 17

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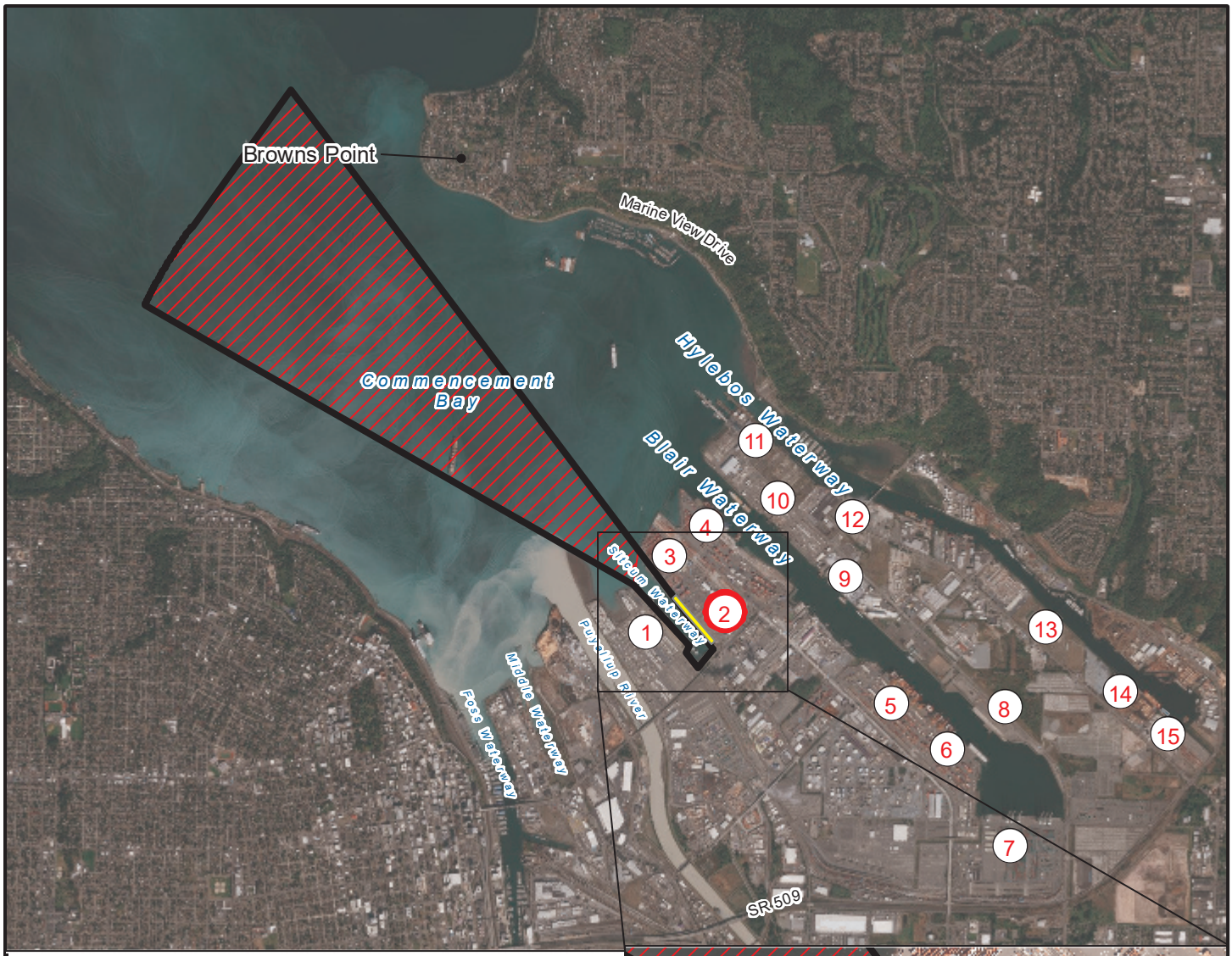

Site
Vibratory Monitoring Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL	7 PCT	13 PARCEL 99
2 TERMINAL 7A/B	8 EAST BLAIR 1	14 PARCEL 105
3 EAST SITCUM TERMINAL	9 PARCEL 115	15 PARCEL 86
4 HUSKY TERMINAL	10 TOTE	
5 WUT	11 TRIDENT	
6 BLAIR DOCK	12 PSE	

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FIGURE 4 - SITE 2

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 4 of 17

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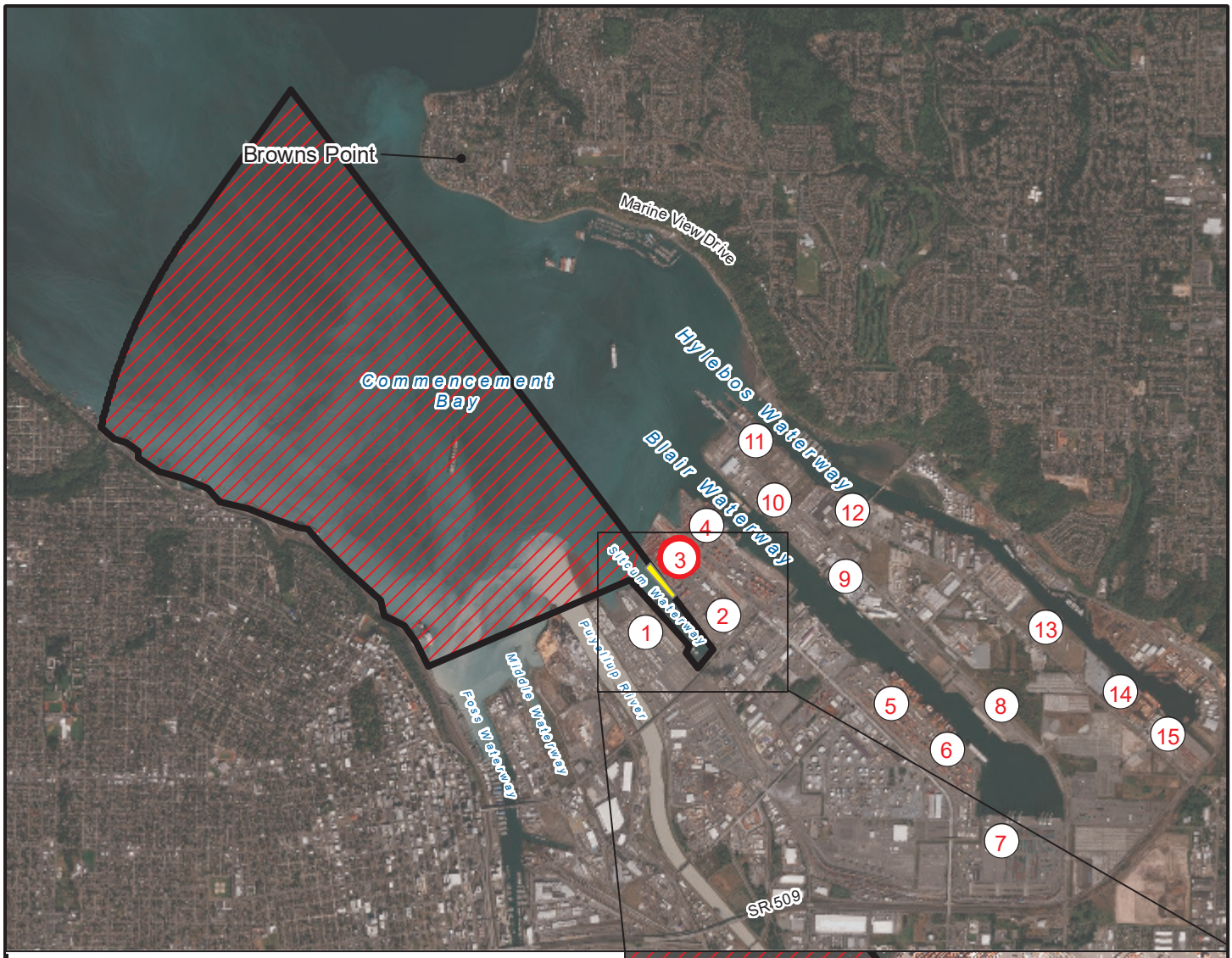
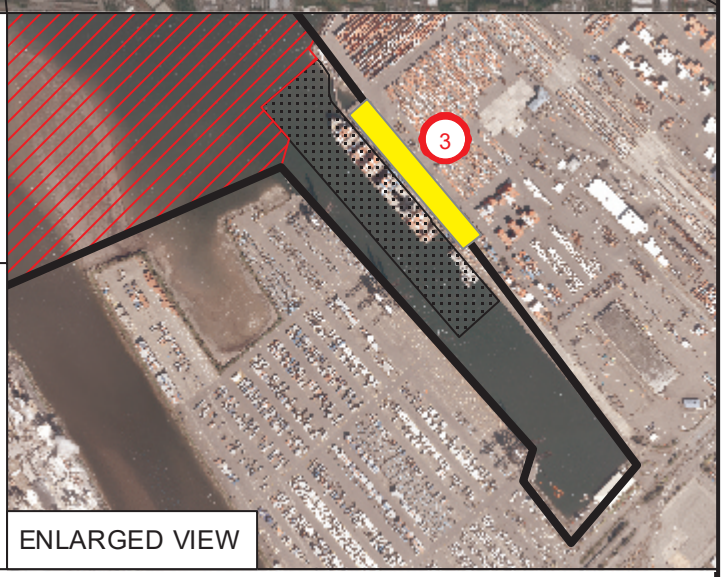


Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86



ENLARGED VIEW

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FIGURE 5 - SITE 3

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 5 of 17

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

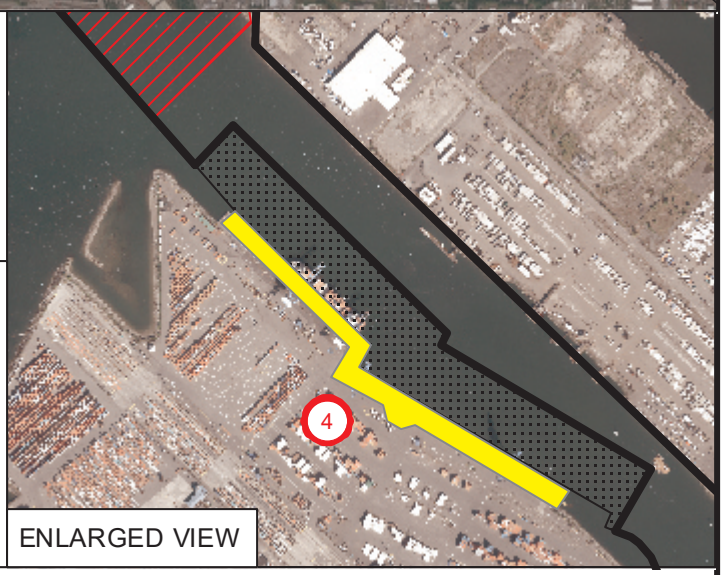

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FIGURE 6 - SITE 4

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 6 of 17

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
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12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

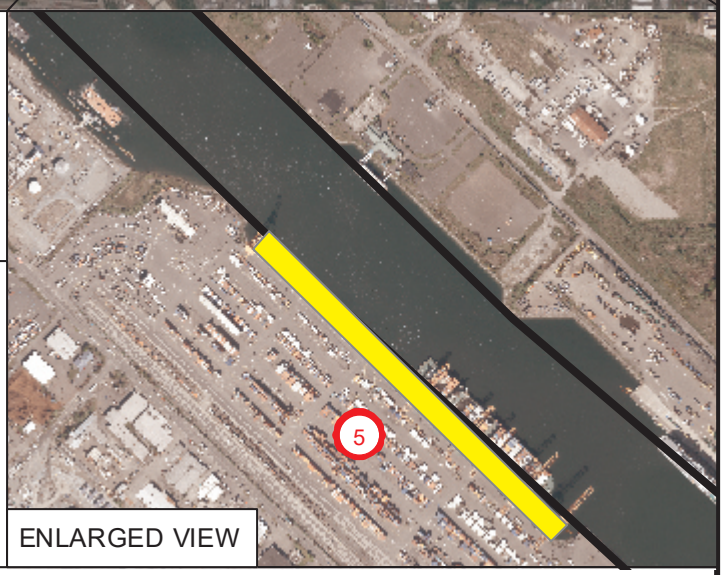

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FIGURE 7 - SITE 5

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 7 of 17

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Miles

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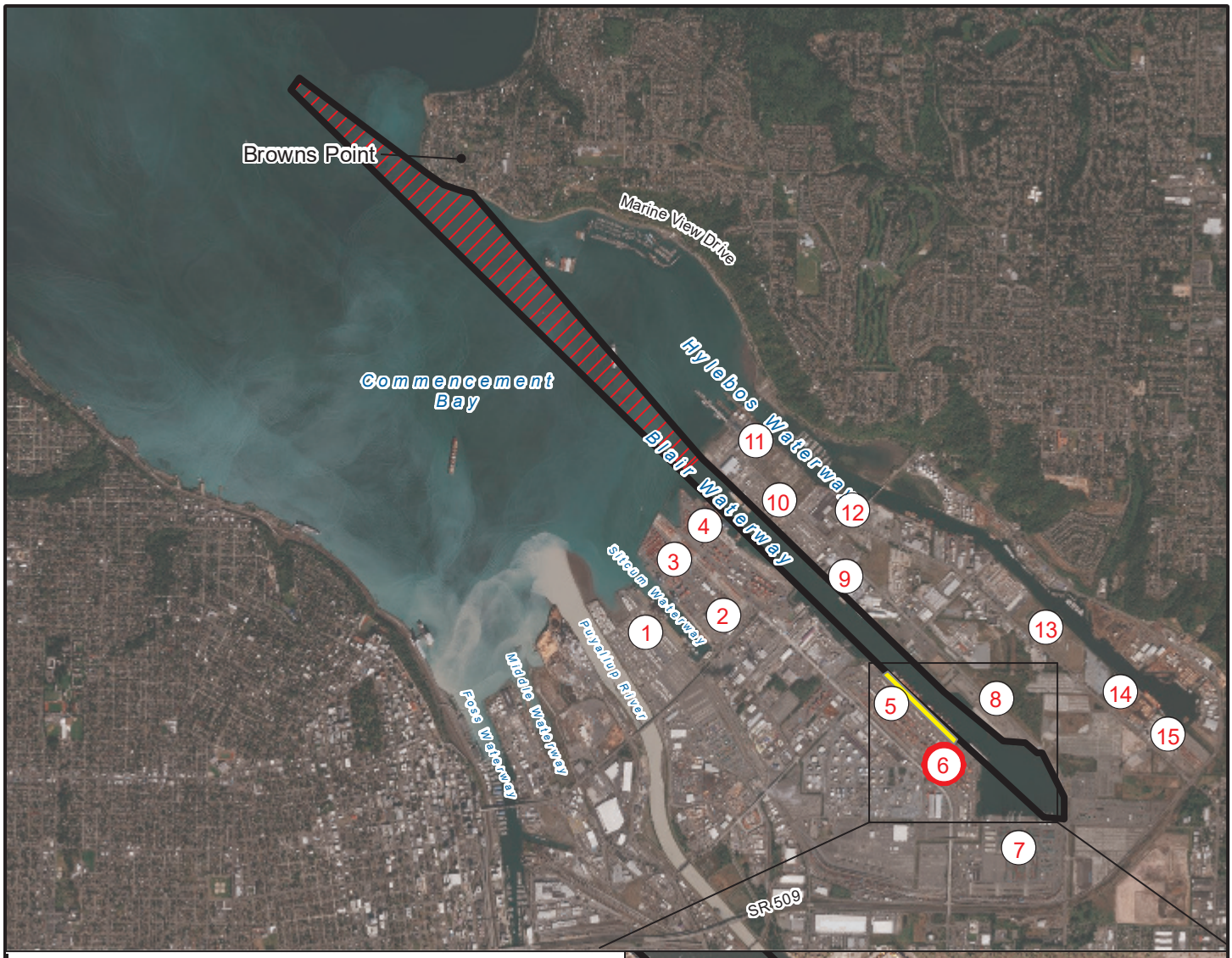

Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

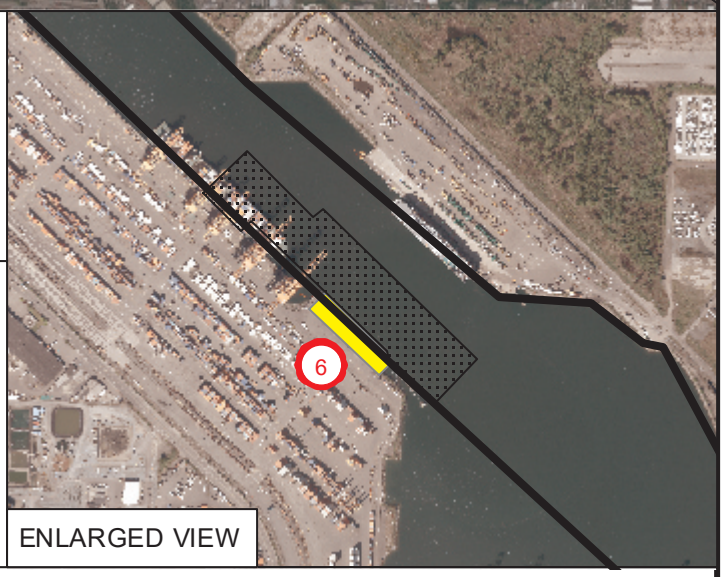

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FIGURE 8 - SITE 6

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 8 of 17

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0 0.325 0.65 1.3 1.95 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL	7 PCT	13 PARCEL 99
2 TERMINAL 7A/B	8 EAST BLAIR 1	14 PARCEL 105
3 EAST SITCUM TERMINAL	9 PARCEL 115	15 PARCEL 86
4 HUSKY TERMINAL	10 TOTE	
5 WUT	11 TRIDENT	
6 BLAIR DOCK	12 PSE	

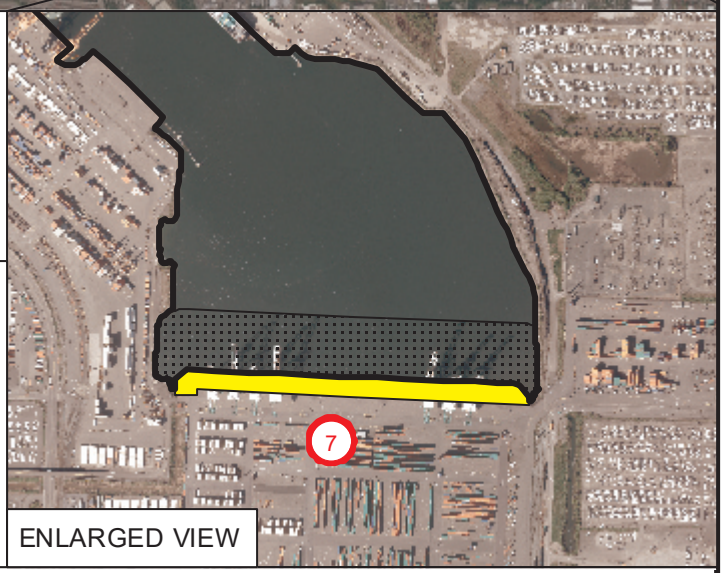

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FIGURE 9 - SITE 7

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 9 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

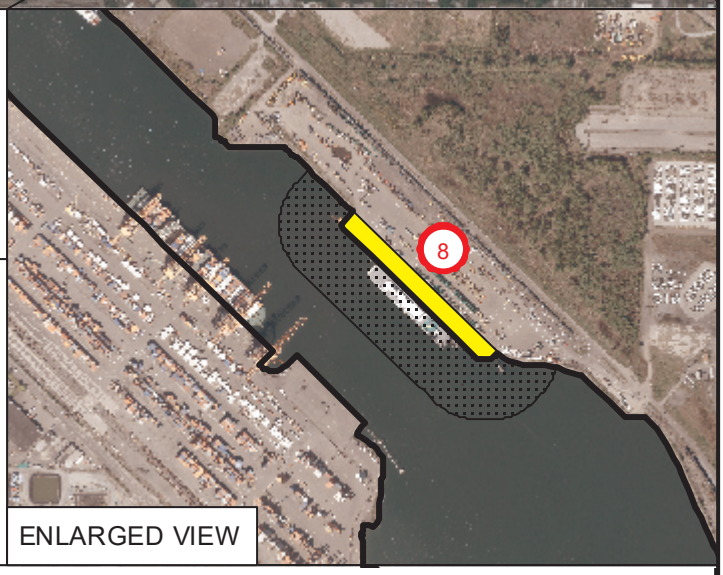

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FIGURE 10 - SITE 8

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 10 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

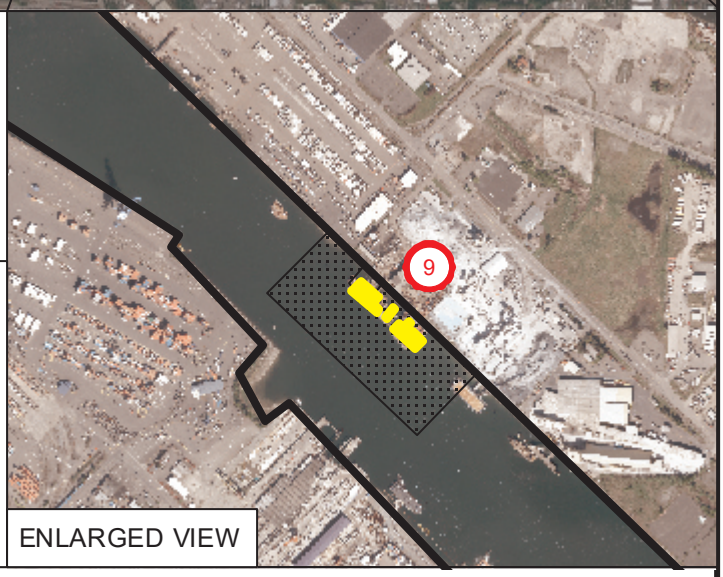

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FIGURE 11 - SITE 9

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 11 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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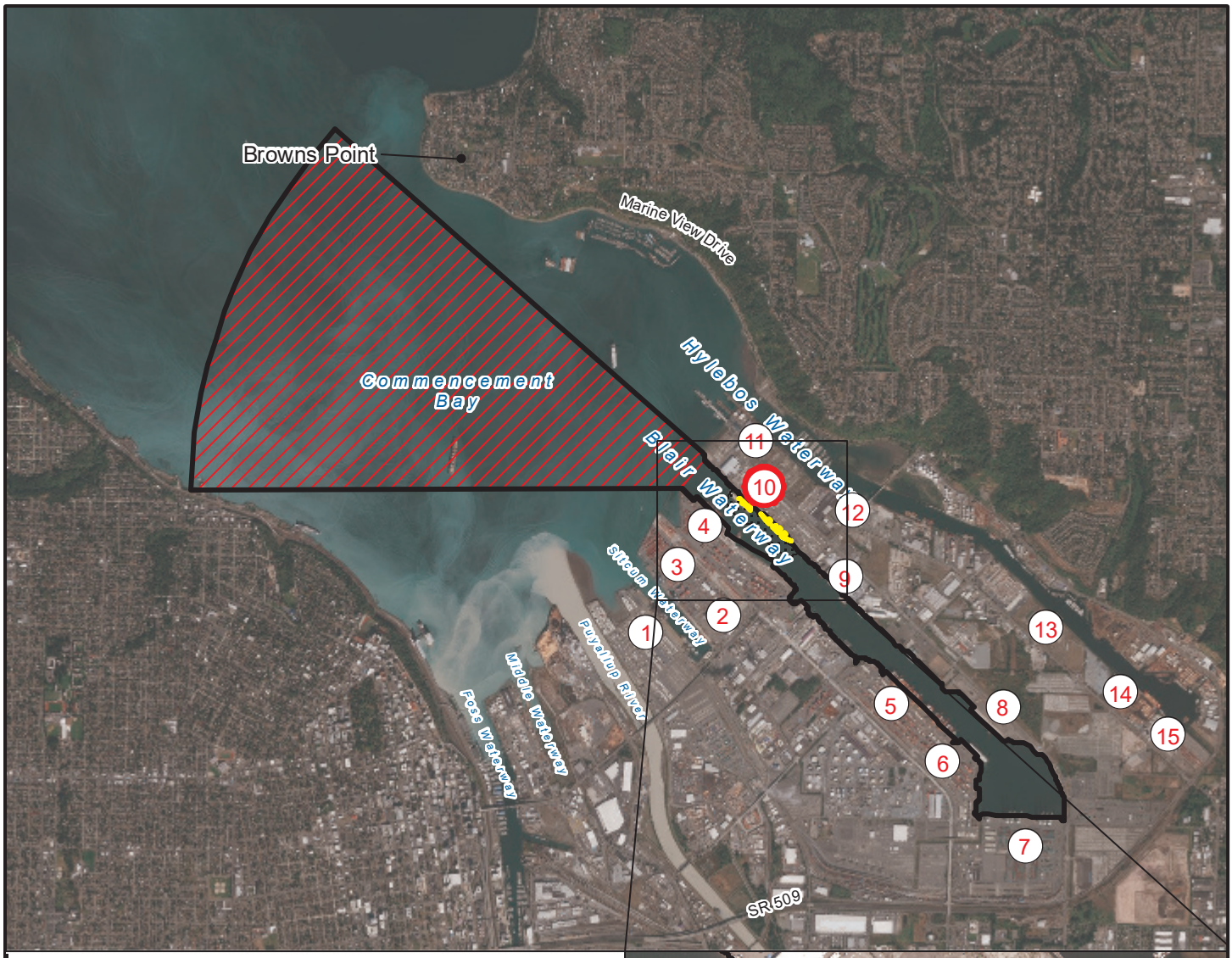

Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

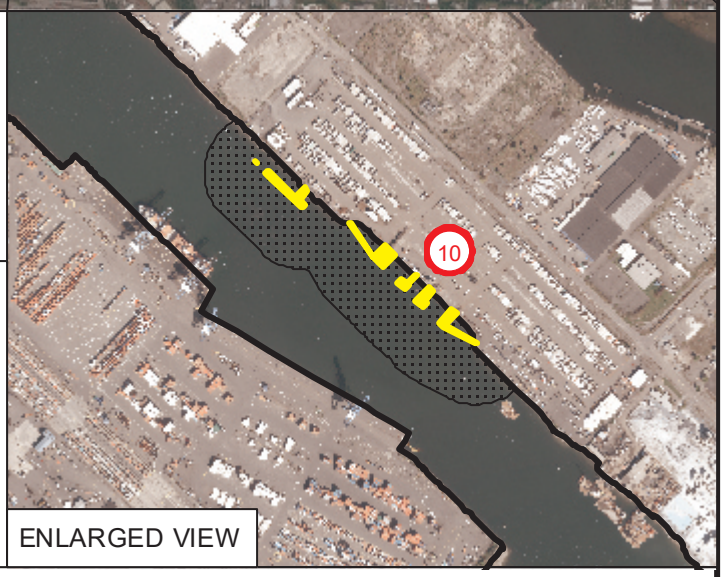

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FIGURE 12 - SITE 10

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 12 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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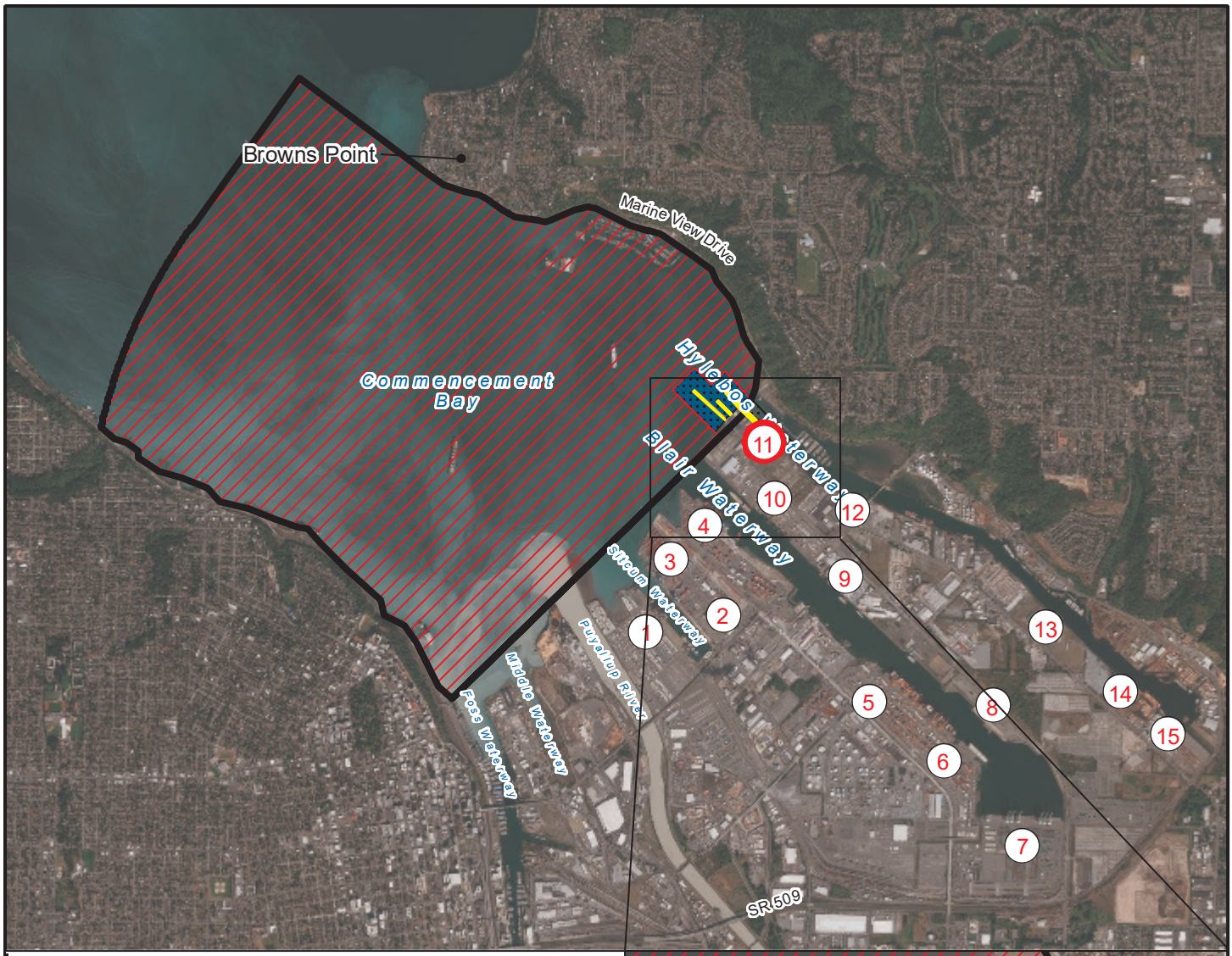

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FIGURE 13 - SITE 11

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 13 of 17

N
S
0 0.075 0.15 0.3 0.45 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

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FIGURE 14 - SITE 12

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 14 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

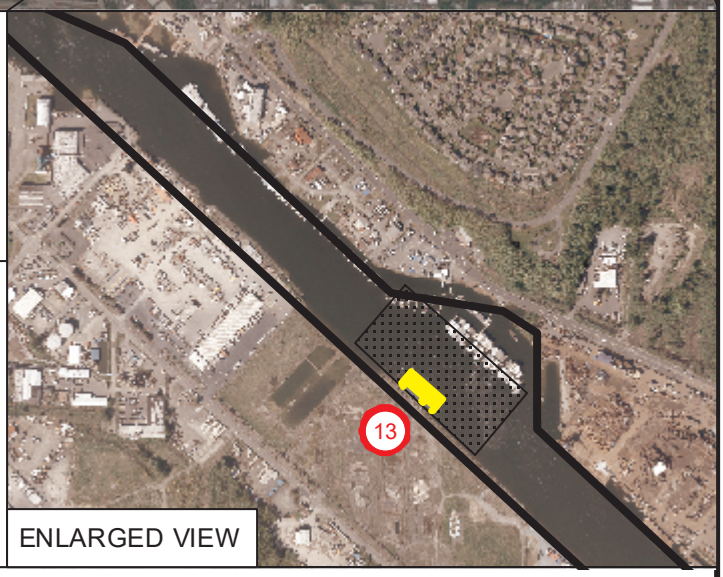

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FIGURE 15 - SITE 13

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 15 of 17

N
S
0 0.25 0.5 1 1.5 Miles

L:\Projects\Environmental\programaticpermits\mxd\2017Fig15_Site13.mxd, DATE: 11/3/2017, AUTHOR: nick.haldeman

Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

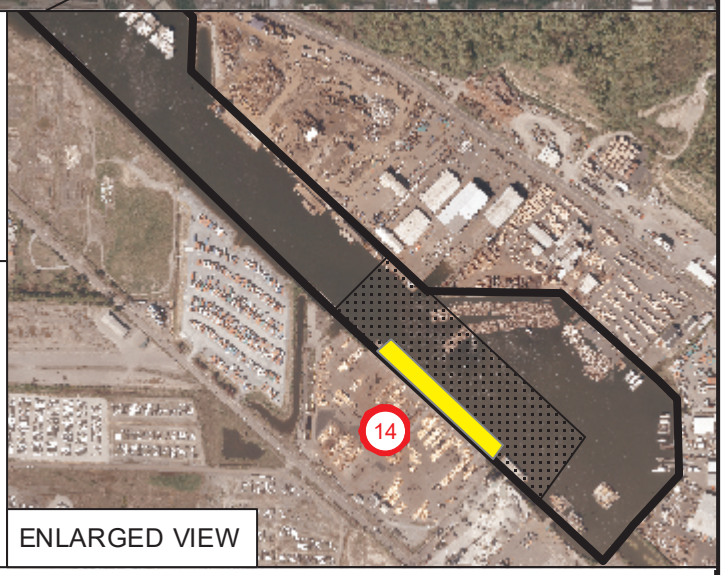

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FIGURE 16 - SITE 14

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 16 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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Site
Vibratory Temp. Effect Area (Removal/Installation)
Vibratory Monitoring Area (Removal/Installation)
Impact Temp. Effect Area (Installation)
Impact Monitoring Area (Installation)

1 WEST SITCUM TERMINAL
2 TERMINAL 7A/B
3 EAST SITCUM TERMINAL
4 HUSKY TERMINAL
5 WUT
6 BLAIR DOCK
7 PCT
8 EAST BLAIR 1
9 PARCEL 115
10 TOTE
11 TRIDENT
12 PSE
13 PARCEL 99
14 PARCEL 105
15 PARCEL 86

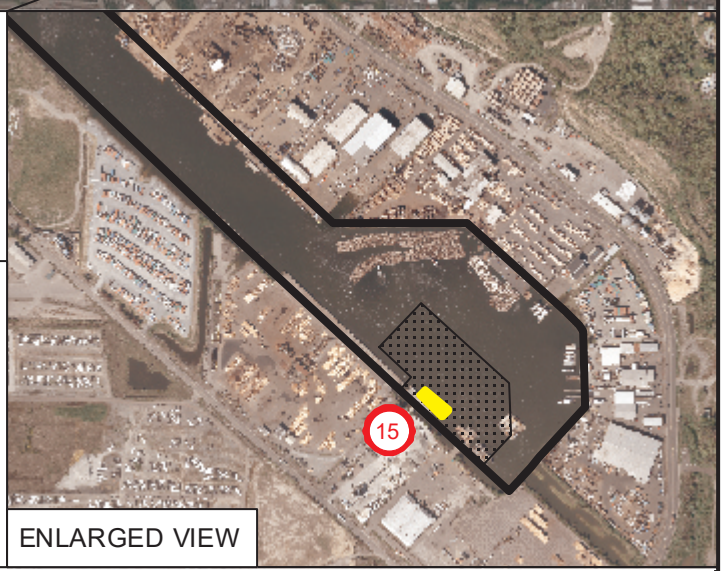

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FIGURE 17 - SITE 15

PROJECT: Programmatic Piling Repair - Biological Evaluation
Temporary Effect and Monitoring Areas
REFERENCE #: NWS-2011-0089-WRD
LOCATION: Port of Tacoma
SHEET: 17 of 17

N
S
0 0.25 0.5 1 1.5 Miles

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