US Army Corps of Engineers
Seattle District

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Joint Public Notice

Application for a Department of the Army Permit and a Washington Department of Ecology Water Quality Certification and/or Coastal Zone Management Consistency Concurrence

US Army Corps of Engineers
Regulatory Branch
4735 E. Marginal Way S, Bldg 1202
Seattle, WA 98134-2388
Telephone: (503) 278-1845
ATTN: Brad Johnson,
Project Manager

WA Department of Ecology
SEA Program
Post Office Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6076
ATTN: SEA Program,
Federal Permit Coordinator

Public Notice Date: March 1, 2023
Expiration Date: **March 31, 2023**

Reference No.: NWS-2022-379
Name: Grays Harbor, Port of (Haul Road Bank Stabilization Phase II)

Interested parties are hereby notified that the U.S. Army Corps of Engineers (Corps) and the Washington Department of Ecology (Ecology) have received an application to perform work in waters of the U.S. as described below and shown on the enclosed drawings dated January 28, 2023.

The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Ecology will review the work pursuant to Section 401 of the CWA, with applicable provisions of State water pollution control laws and the Coastal Zone Management Act.

APPLICANT: Port of Grays Harbor
Attention: Gary Nelson
111 S. Wooding Street
Aberdeen, Washington 98520
Telephone: (360) 533 9530

AGENT: Parametrix
Attention: Taya Maclean
1019 39th Avenue, Suite 100
Puyallup, Washington 98374
Telephone: (503) 416-6193

LOCATION: The proposed project is located in the Chehalis River, river mile 17.5, along Haul Road, near Montesano, Grays Harbor County, Washington.

WORK: The applicant proposes to discharge up to 1,466 cubic yards large wood, ballast boulders, cobbles and gravels, slash, and fiber matting within 492 linear feet of the Chehalis River below the ordinary high water mark (OHWM) to provide bank protection. As part of the project, the applicant would excavate up to 36 cubic yards of native sediment within 53 linear feet of the Chehalis River below the OHWM to reshape the embankment and establish a riparian bench. The applicant would construct log jacks and triangles consisting of three or four log members bolted together to form a triangle or pyramid shaped structure that would be ballasted by a chain-attached boulder. Log jacks and triangles would be

pre-assembled in the dry and then lowered into place directly adjacent to or on top of each other to create a cohesive, interlocked, flexible wood-based bank structure. Log jacks and triangles are proposed as a series of three bendway weirs, located at the upstream extent, center, and downstream extent of the eroded embankment.

Embankment reshaping includes embankment fill, comprised of cobble, gravels, and slash, to provide infrastructure protection via additional bank width. Cobble and slash would be used below an elevation of 10 feet with a gravel mix and riparian plantings would be used above this elevation to allow establishment of riparian zone over time. The gravel mix would extend to the top of bank. The design of slope would be 2 feet horizontal to 1-foot vertical, with erosion control fabric applied to the upper portion of the bank. Management of turbidity during embankment construction activities would consist of installation of a temporary cobble berm at the toe of the embankment slope.

Following construction, the area between the edge of the graveled road and down the bank to the 10-foot elevation would be planted in three zones. Zone 1 would be covered with erosion control natural fiber blanket and planted with willow stakes. A willow fascine bundle would be installed at base of the planting zone to lock the coir blanket in place. Zone 2 would be planted with native shrubs, trees, and grass seed. Zone 3 would be seeded with native grass seed.

The applicant would access the project area by using the existing Haul Road. Proposed construction equipment include crane, excavator, loader, haul trucks, and hand-held power tools. Work would occur from top of bank along the Chehalis River and material would be placed on the bank, above and below the OHWM.

PURPOSE: The applicant stated purpose is to protect critical infrastructure on Haul Road from erosion.

ADDITIONAL INFORMATION: The location of the ordinary high water mark/ line of mean high water/ high tide line shown on the project drawings have not yet been verified by the U.S. Army Corps of Engineers (Corps). If the Corps determines the boundaries of the waters are substantially inaccurate a new public notice may be published.

MITIGATION: The applicant did not propose compensatory mitigation.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat.

A preliminary determination indicates that the activity would affect endangered or threatened species, or their critical habitat. Consultation under Section 7 of the ESA is required.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The proposed action would impact EFH in the project area.

U.S. Army Corps of Engineers (Corps) has determined that the proposed action will adversely affect designated EFH for federally managed fisheries in Washington waters. The Corps has initiated EFH consultation with the National Marine Fisheries Service.

CULTURAL RESOURCES: The Corps has reviewed the latest published version of the National Register of Historic Places, Washington Information System for Architectural and Archaeological Records Data and other sources of information. The Corps invites responses to this public notice from Native American Nations or tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns regarding historic properties and sites of religious and cultural significance at or near the project area. After receipt of comments from this public notice, the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Nations in accordance with Section 106 of the National Historic Preservation Act, as appropriate.

There are no recorded historic properties within the permit area. The permit area has been so extensively disturbed by modern development that little likelihood exists for the proposed project to impinge upon an undisturbed historic property.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION – CORPS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

The described discharge will be evaluated for compliance with guidelines promulgated by the Environmental Protection Agency under authority of Section 404(b)(1) of the CWA. These guidelines require an alternatives analysis for any proposed discharge of dredged or fill material into waters of the United States.

SOURCE OF FILL MATERIAL: The source of the fill material will be consist of locally sourced gravel, cobble, logs, slash, boulders (ballast), and natural fiber matting (coir).

EVALUATION – ECOLOGY: Ecology is soliciting comments from the public; Federal, Native American Nations or tribal governments, State, and local agencies and officials; and other interested parties in

order to consider and evaluate the impacts of this activity. Ecology will be considering all comments to determine whether to certify or deny a Section 401 Water Quality Certification for the proposed project.

ADDITIONAL EVALUATION: This proposal is the subject of Shorelines Substantial Development Permit, being processed by Grays Harbor County.

Per 33 CFR 325(b)(1)(i), this public notice serves as the Section 401(a)(2) neighboring jurisdiction notification to the Environmental Protection Agency.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether authorizing the work would not be contrary to the public interest. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commenter's name, address, and phone number. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration.

CORPS COMMENTS: All e-mail comments should be sent to brad.a.johnson2@usace.army.mil. Conventional mail comments should be sent to: U.S. Army Corps of Engineers, Regulatory Branch, Attention: Brad Johnson, 4735 E. Marginal Way S, Bldg 1202, Seattle, Washington, 98134-2388. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses.

ECOLOGY COMMENTS: Any person desiring to present views on the project pertaining to a request for water quality certification under Section 401 of the CWA and/or Coastal Zone Management consistency concurrence, may do so by submitting written comments to the following address: Washington State Department of Ecology, Attention: Federal Permit Coordinator, Post Office Box 47600, Olympia, Washington, 98504-7600, or e-mail to ecyrefedpermits@ecy.wa.gov.

To ensure proper consideration of all comments, responders must include the following name and reference number in the text of their comments: Haul Road Bank Stabilization Phase 2, NWS-2022-379.

Encl: Figures (15)

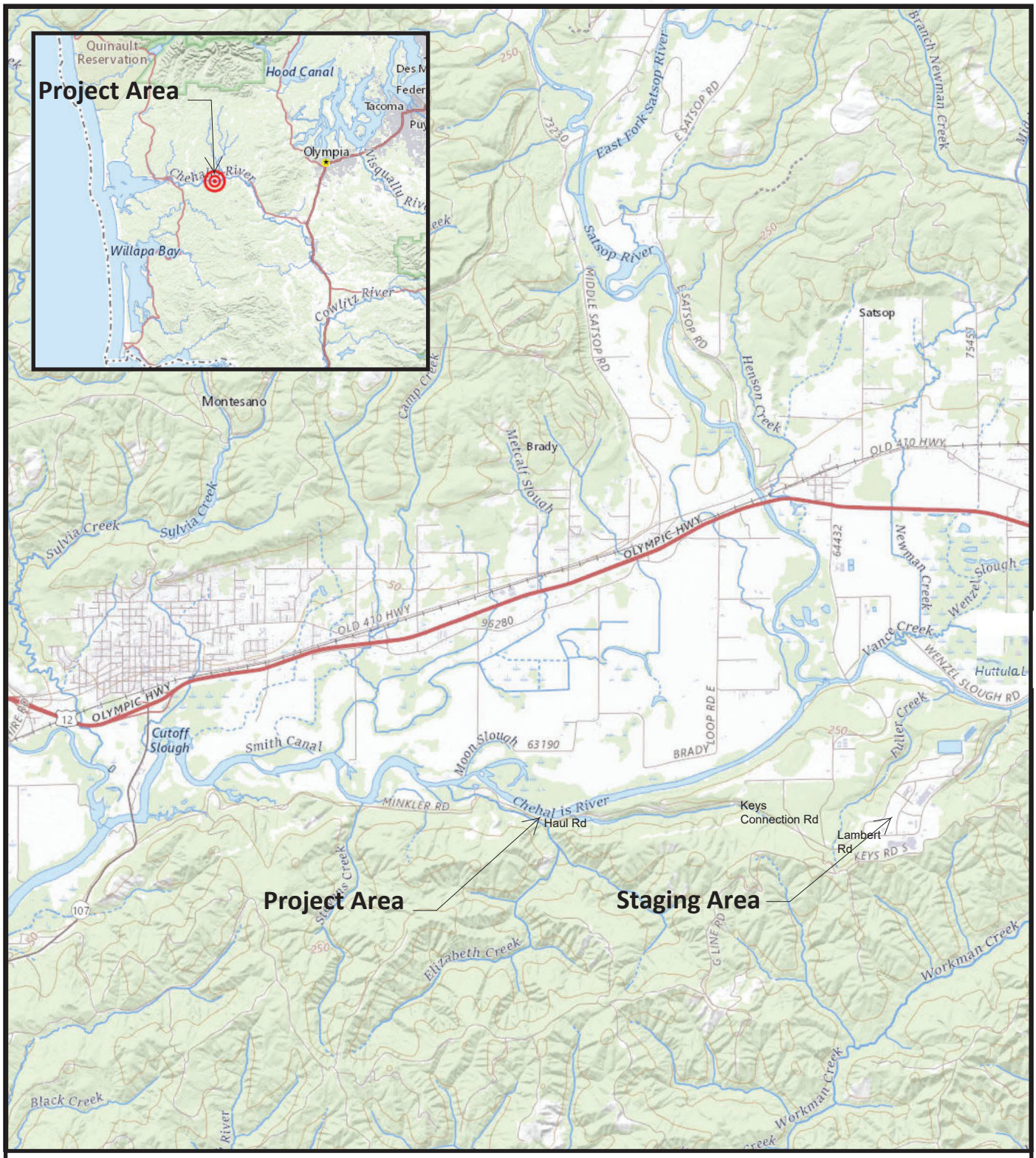

Figure 1. Vicinity Map

Haul Road Bank Protection Project, Phase 2

Applicant: Port of Grays Harbor
USACE Reference: NWS-2022-0379
Location: Haul Road along Chehalis River, River mile 17.5 (left bank); Near Montesano, Grays Harbor County, WA; 46.962990 Lat, -123.535549 Long; T 17N, R 7W, Sec. 14, 15
Parcel #, Adjacent Property Owners: Refer to Figure 2
Sheet 1 of 14
Last Revised: 1/28/2023

Parametrix
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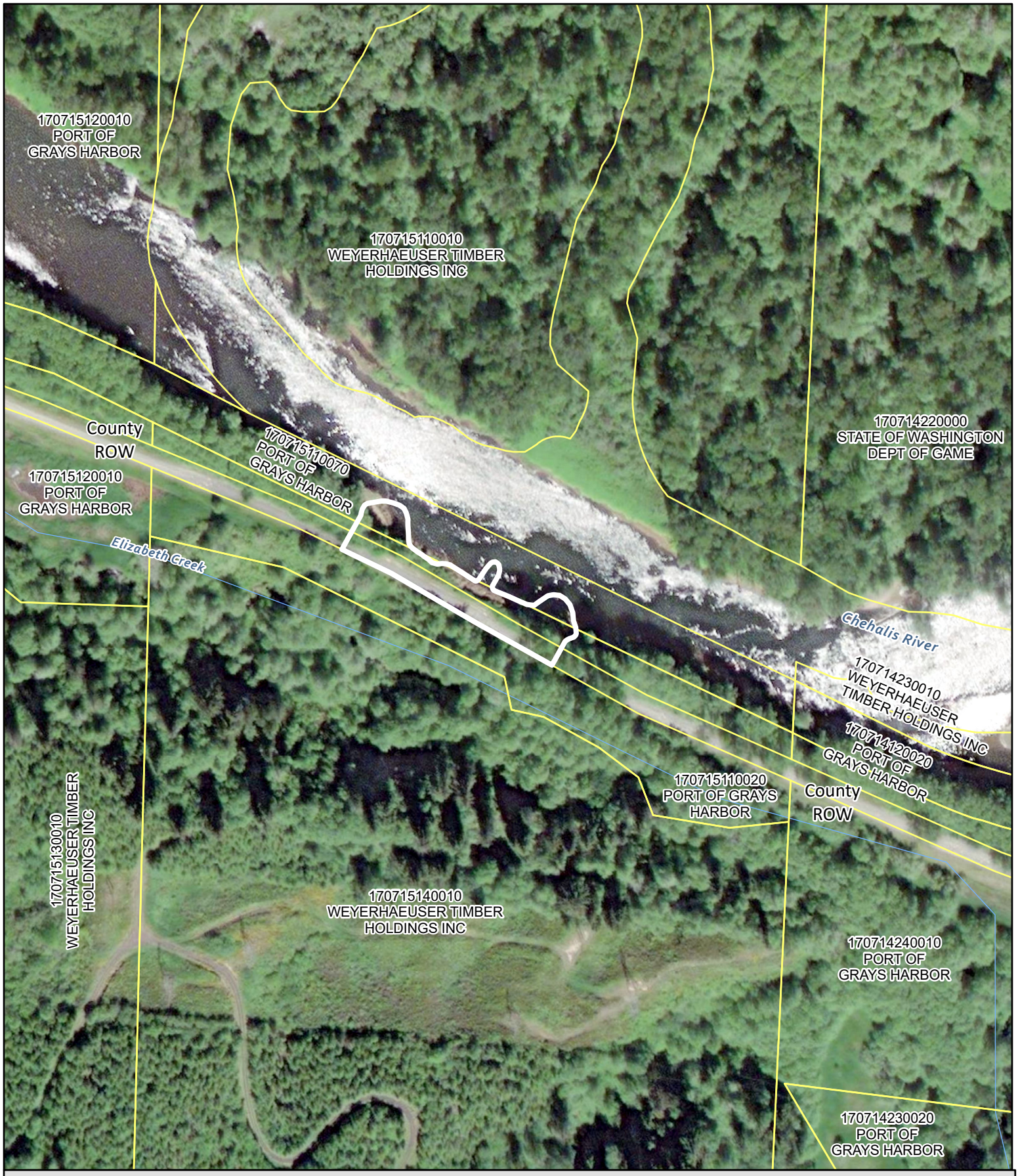
nhc

1:72,224

0 0.5 1 2 mi
0 0.75 1.5 3 km

N

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National



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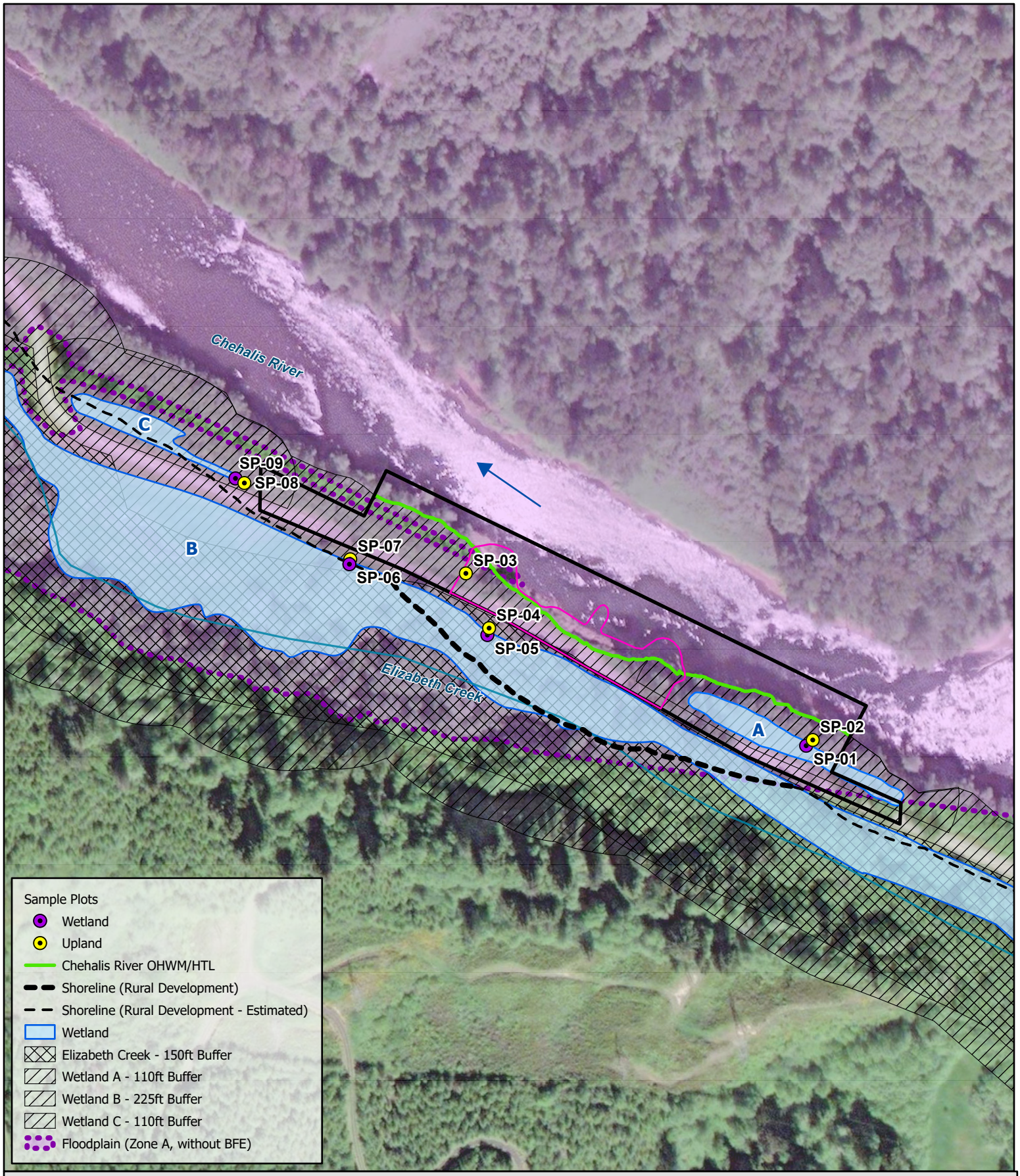
Limits of Disturbance
Parcels

Figure 2 - Parcel Map
Haul Rd Bank Protection Project, Phase 2
Applicant: Port of Grays Harbor
Reference Number: USACE NWS-2022-0379

Date: 2/3/2023
Sheet 2 of 14
Sources: ESRI, Google Earth Imagery (August 2021), Grays Harbor County, NHD Plus Database

0 100 200 400 Feet

Haul Rd, Chehalis River (RM 17.5)
Montesano, WA, Grays Harbor County



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Date: 2/2/2023
Sheet 3 of 14
Sources: ESRI, Google Earth Imagery (August 2021), Grays Harbor County, NHD Plus Database, NHC

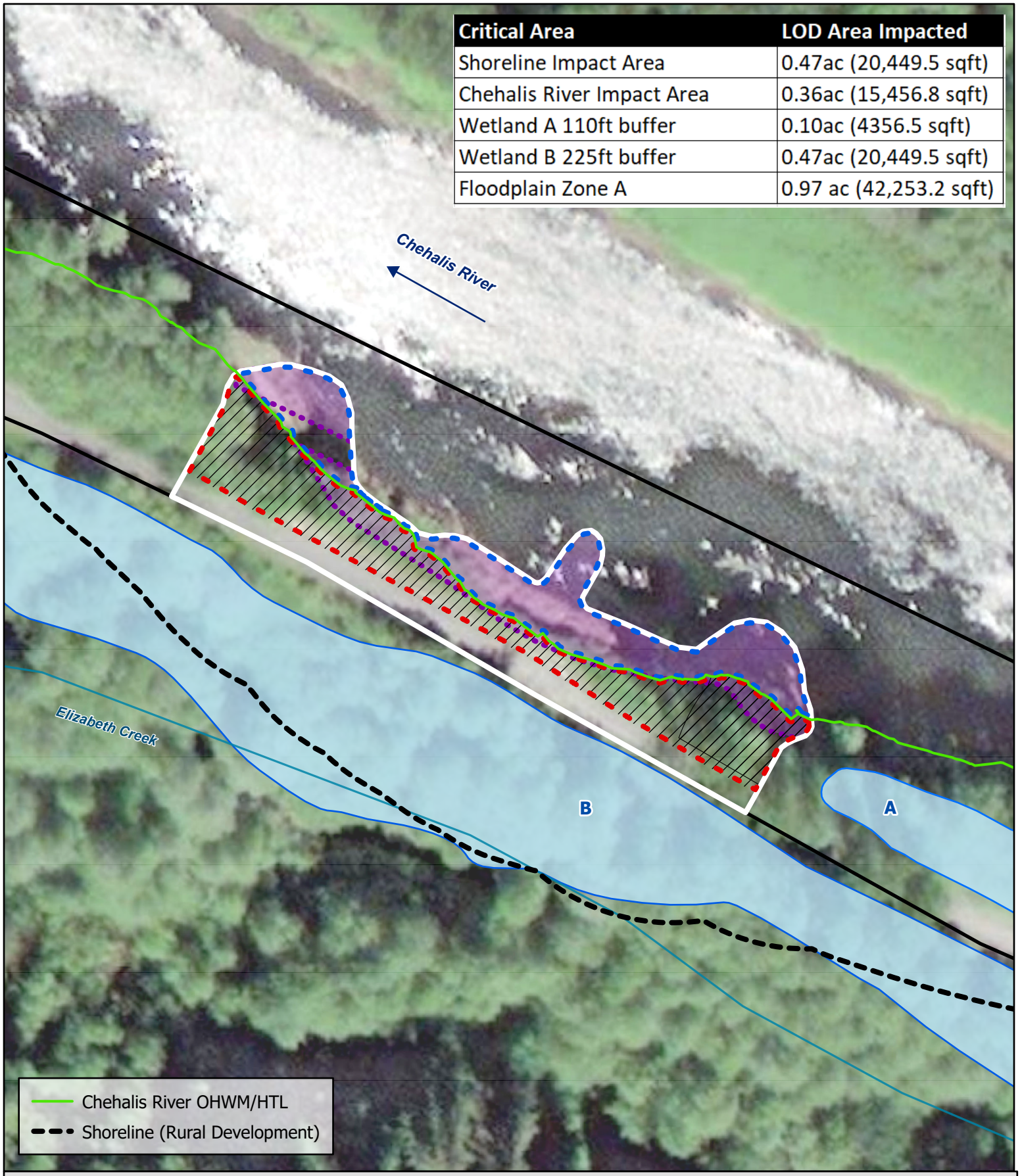
0 100 200 400 Feet

Elizabeth Creek
Critical Areas - Study Area
Limits of Disturbance

MHW (9.2ft NAD88) elevation linework not shown for clarity

Figure 3 - Critical Areas Map
Haul Rd Bank Protection Project, Phase 2
Applicant: Port of Grays Harbor
Ref Number: USACE NWS-2022-0379

Haul Rd, Chehalis River (RM 17.5)
Montesano, WA, Grays Harbor County



Critical Area	LOD Area Impacted
Shoreline Impact Area	0.47ac (20,449.5 sqft)
Chehalis River Impact Area	0.36ac (15,456.8 sqft)
Wetland A 110ft buffer	0.10ac (4356.5 sqft)
Wetland B 225ft buffer	0.47ac (20,449.5 sqft)
Floodplain Zone A	0.97 ac (42,253.2 sqft)

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Date: 2/2/2023
Sheet 4 of 14
Sources: ESRI, Google Earth Imagery (August 2021), Grays Harbor County, NHD Plus Database, NHC

0 25 50 100 Feet

- Elizabeth Creek
- Critical Areas - Study Area
- Chehalis River Impact Area
- Shoreline Impact Area
- Limits of Disturbance (1.02 ac)
- Wetland
- Wetland A Impact Area - 110ft Buffer
- Wetland B Impact Area - 225ft Buffer
- Floodplain Impact Area (Zone A, without BFE)

Figure 4 - Critical Areas Impacts Map
Haul Rd Bank Protection Project, Phase 2
Applicant: Port of Grays Harbor
Ref Number: USACE NWS-2022-0379

Haul Rd, Chehalis River (RM 17.5)
Montesano, WA, Grays Harbor County

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Date: 2/2/2023
Sheet 5 of 14
Sources: ESRI, Google Earth Imagery (August 2021), Grays Harbor County, NHD Plus Database, NHC

0 25 50 100 Feet

Chehalis River OHWM/HTL
Critical Areas - Study Area
Limits of Disturbance

Mitigation Planting Area
Zone 1 (5,768.6 sqft)
Zone 2 (8,715.2 sqft)
Zone 3 (3,979.6 sqft)

MHW (9.2ft NAD88) elevation linework not shown for clarity

Figure 5 - Critical Areas Mitigation Planting Plan
Haul Rd Bank Protection Project, Phase 2
Applicant: Port of Grays Harbor
Ref Number: USACE NWS-2022-0379

Haul Rd, Chehalis River (RM 17.5)
Montesano, WA, Grays Harbor County

Table 1. Zone 1 Planting Area (Riparian Bank - 5,768.6 sq ft)

Scientific Name	Common Name	Size[a]	Spacing (on-center)	Quantity
Salix scouleriana	Scouler's willow	Cutting	5 feet	133
Salix sitchensis	Sitka willow	Cutting	5 feet	133
			Total	***266***
Salix spp.	Willow	Fascine bundle[b]	Continuous row at toe of backfill	492 linear feet of bank, up to 700 feet of continuous row material

[a] Cuttings can be substituted with container stock, depending on timing of planting.

[b] Fascine bundles can consist of a mix of the species listed above. Refer to design plans for representative planting details.

Table 2. Zone 2 Planting Area (Riparian Top of Bank - 8,715.2 sq ft)

Scientific Name	Common Name	Size[a]	Spacing (on-center)	Quantity
Trees				
Acer macrophyllum	bigleaf maple	1 gallon	10 feet	30
Alnus rubra	red alder	1 gallon	10 feet	30
Pseudotsuga menziesii	Douglas fir	1 gallon	10 feet	40
Shrubs				
Acer circinatum	vine maple	1 gallon or bareroot	5 feet	75
Frangula purshiana	Cascara	1 gallon or bareroot	5 feet	75
Cornus alba	Redtwig dogwood	1 gallon or bareroot	5 feet	75
Symphoricarpus albus	snowberry	1 gallon or bareroot	5 feet	75
			Total	***400***

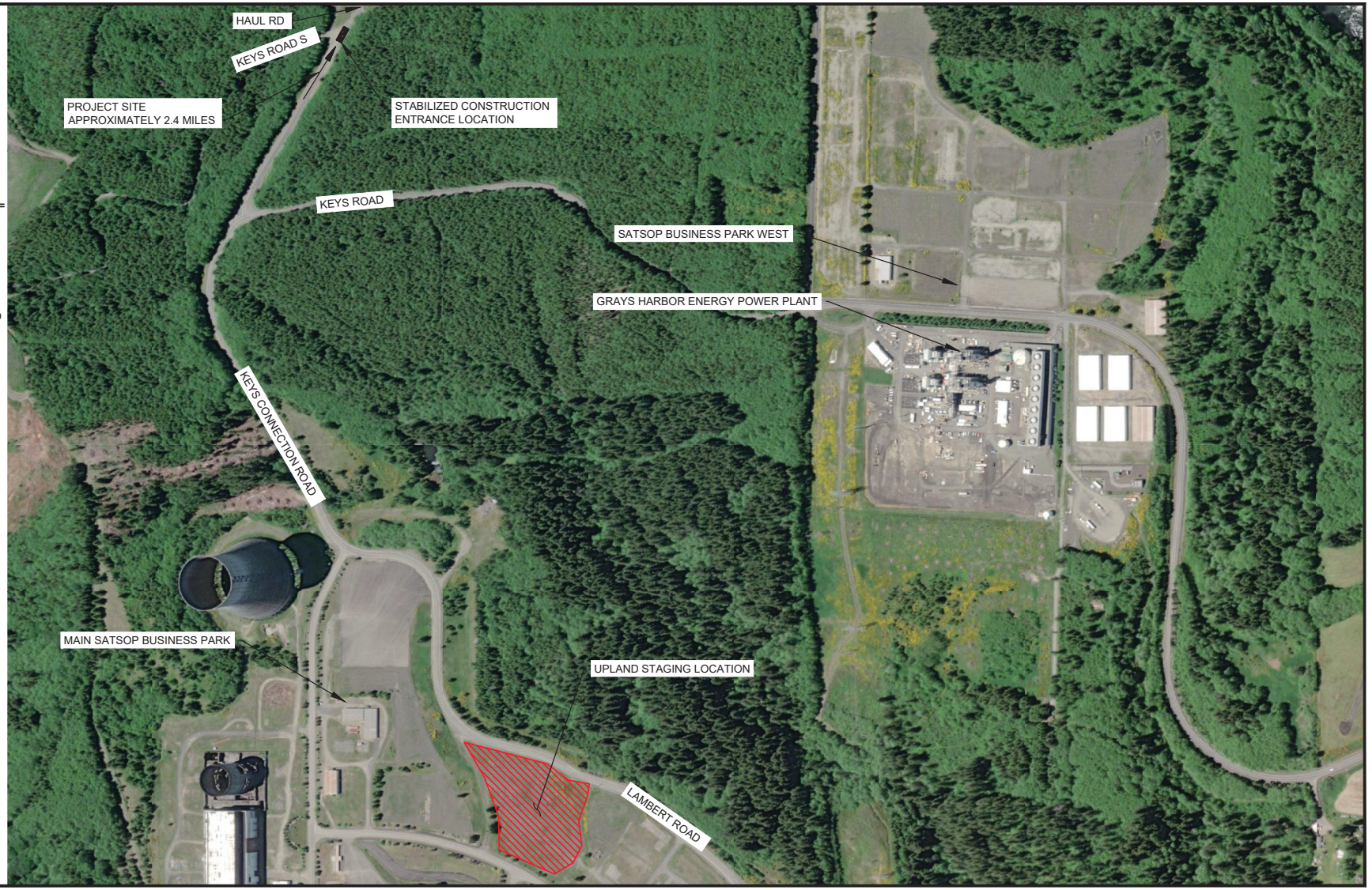
Native Seed Mix	Application Rate
Native riparian seed mix: • Slender Hairgrass (*Deschampsia elongata*) • Tufted Hairgrass (*D. cespitosa*) • Spike Bentgrass (*Agrostis exarata*) • Meadow Barley (*Hordeum brachyantherum*)	1 lb per 1000 sq ft or 20 lbs per acre OR As needed for bare soil areas >25 square feet

Table 3. Zone 3 Planting Area (Roadside - 3,979.6 sq ft)

Native Seed Mix	Application Rate
• Meadow Barley (Hordeum brachyantherum) 20% • Blue Wildrye (Elymus glaucus) 25% • Red Fescue (Festuca rubra) 25%	1 lb per 1000 sq ft or 20 lbs per acre OR As needed for bare soil areas >25 square feet

NOTES

1. STAGING AREA SHALL BE INSTALLED AND MAINTAINED THROUGH THE DURATION OF THE PROJECT TO BE REMOVED AT PROJECT COMPLETION. FOLLOWING REMOVAL, AREA SHALL BE THOROUGHLY CLEANED OF WOOD DEBRIS AND RESTORED TO PRE-EXISTING CONDITIONS.



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0 500

1 INCH = 500 FT.

Figure 7. Upland Staging Location
Haul Road Bank Protection Project, Phase 2
USACE Reference Number: NWS-2022-0379
Applicant Name: Port of Grays Harbor
Location: Haul Road along Chehalis River, River mile 17.5 (left bank)
Near Montesano, Grays Harbor County, WA
46.962990 Lat, -123.535549 Long; T 17N, R 7W, Sec. 14, 15
Sheet #: 7 of 14
Date: January 9, 2023

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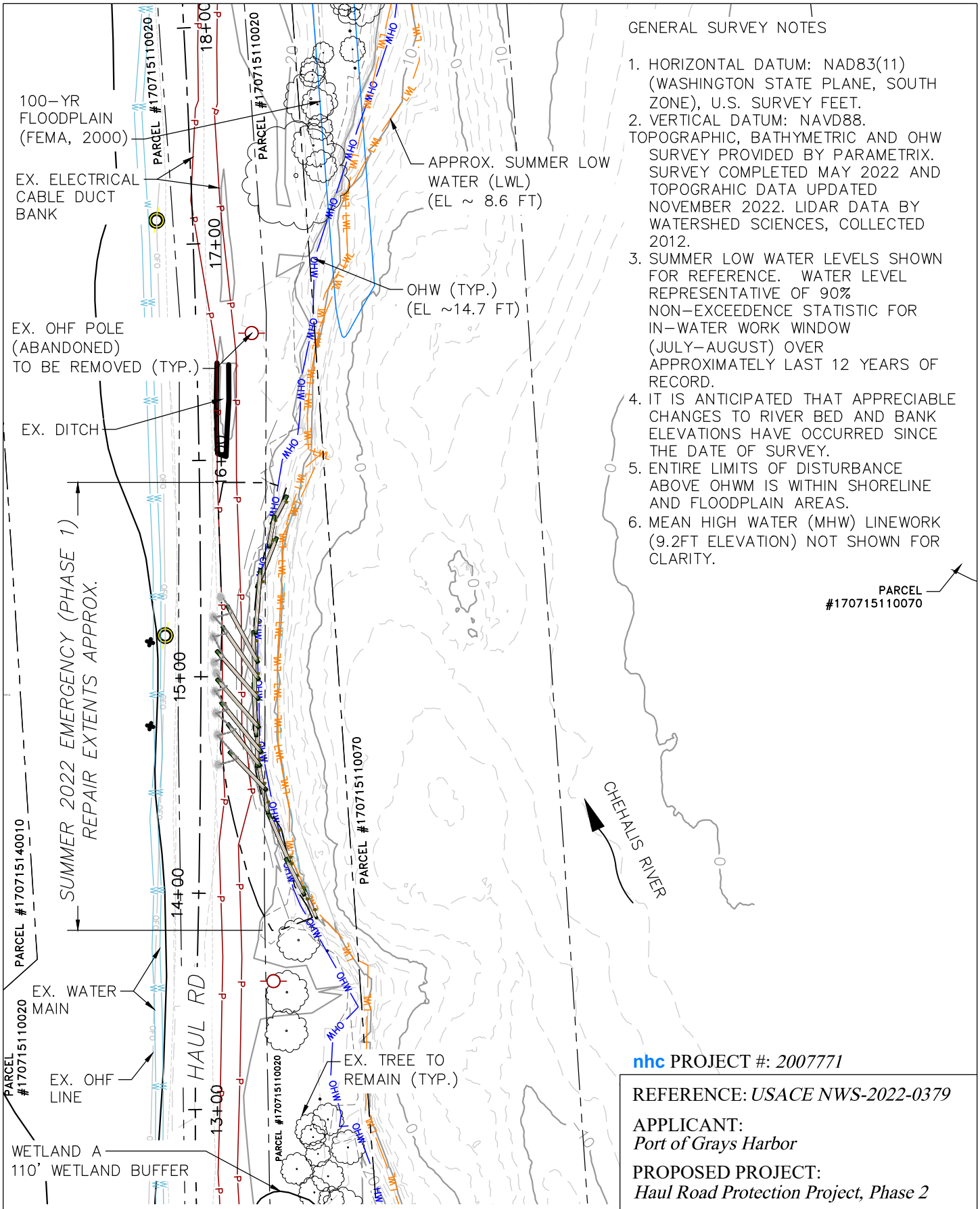


GENERAL SURVEY NOTES

1. HORIZONTAL DATUM: NAD83(11) (WASHINGTON STATE PLANE, SOUTH ZONE), U.S. SURVEY FEET.
2. VERTICAL DATUM: NAVD88. TOPOGRAPHIC, BATHYMETRIC AND OHW SURVEY PROVIDED BY PARAMETRIX. SURVEY COMPLETED MAY 2022 AND TOPOGRAHIC DATA UPDATED NOVEMBER 2022. LIDAR DATA BY WATERSHED SCIENCES, COLLECTED 2012.
3. SUMMER LOW WATER LEVELS SHOWN FOR REFERENCE. WATER LEVEL REPRESENTATIVE OF 90% NON-EXCEEDENCE STATISTIC FOR IN-WATER WORK WINDOW (JULY-AUGUST) OVER APPROXIMATELY LAST 12 YEARS OF RECORD.
4. IT IS ANTICIPATED THAT APPRECIABLE CHANGES TO RIVER BED AND BANK ELEVATIONS HAVE OCCURRED SINCE THE DATE OF SURVEY.
5. ENTIRE LIMITS OF DISTURBANCE ABOVE OHWM IS WITHIN SHORELINE AND FLOODPLAIN AREAS.
6. MEAN HIGH WATER (MHW) LINEWORK (9.2FT ELEVATION) NOT SHOWN FOR CLARITY.

EXISTING CONDITIONS

SCALE: 1" = 60'

nhc PROJECT #: *2007771*

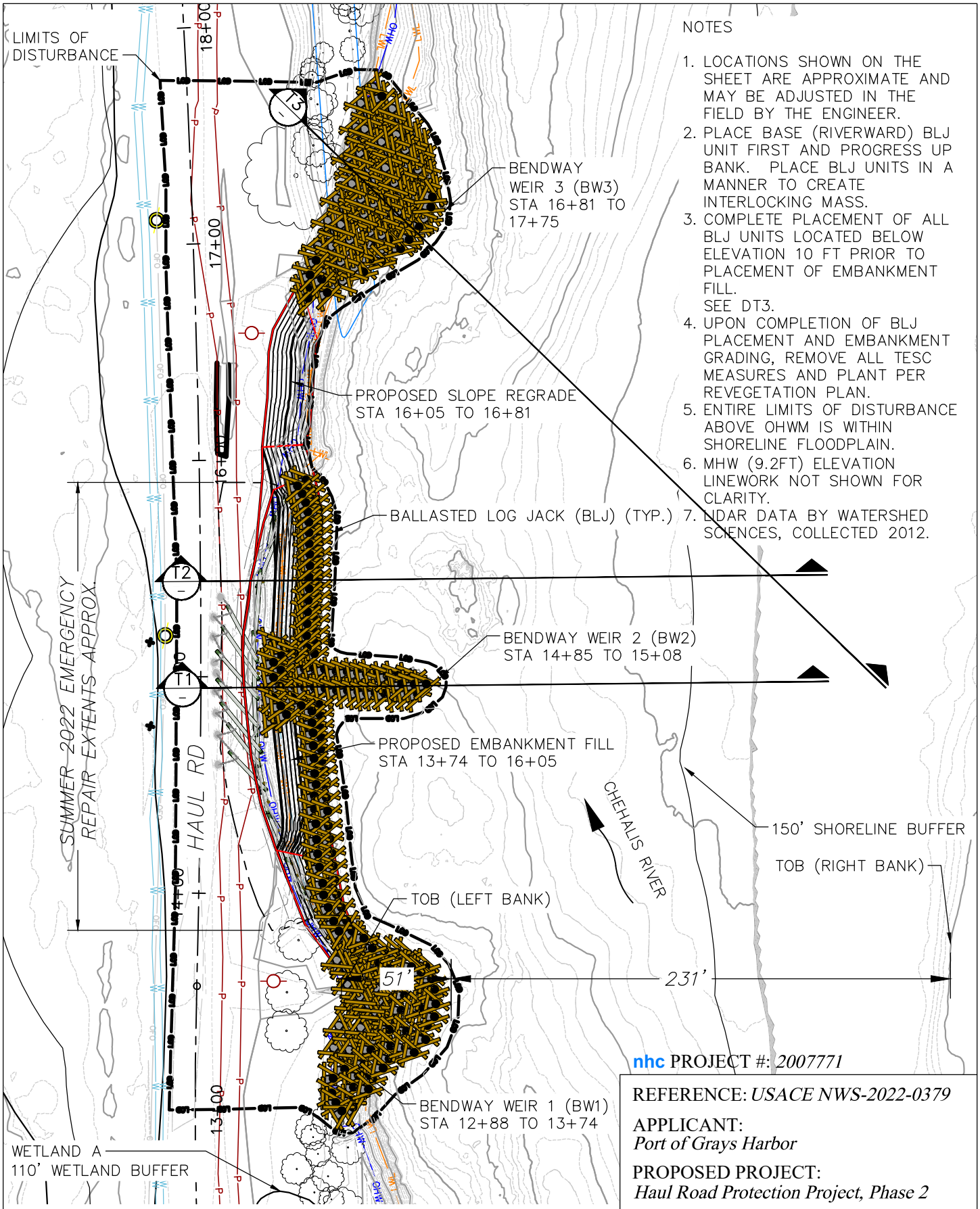
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *8 of 15* DATE: *02/09/23*



NOTES

1. LOCATIONS SHOWN ON THE SHEET ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
2. PLACE BASE (RIVERWARD) BLJ UNIT FIRST AND PROGRESS UP BANK. PLACE BLJ UNITS IN A MANNER TO CREATE INTERLOCKING MASS.
3. COMPLETE PLACEMENT OF ALL BLJ UNITS LOCATED BELOW ELEVATION 10 FT PRIOR TO PLACEMENT OF EMBANKMENT FILL. SEE DT3.
4. UPON COMPLETION OF BLJ PLACEMENT AND EMBANKMENT GRADING, REMOVE ALL TESC MEASURES AND PLANT PER REVEGETATION PLAN.
5. ENTIRE LIMITS OF DISTURBANCE ABOVE OHWM IS WITHIN SHORELINE FLOODPLAIN.
6. MHW (9.2FT) ELEVATION LINEWORK NOT SHOWN FOR CLARITY.
7. LIDAR DATA BY WATERSHED SCIENCES, COLLECTED 2012.

PROPOSED CONDITIONS

SCALE: 1" = 60'

nhc PROJECT #: *2007771*

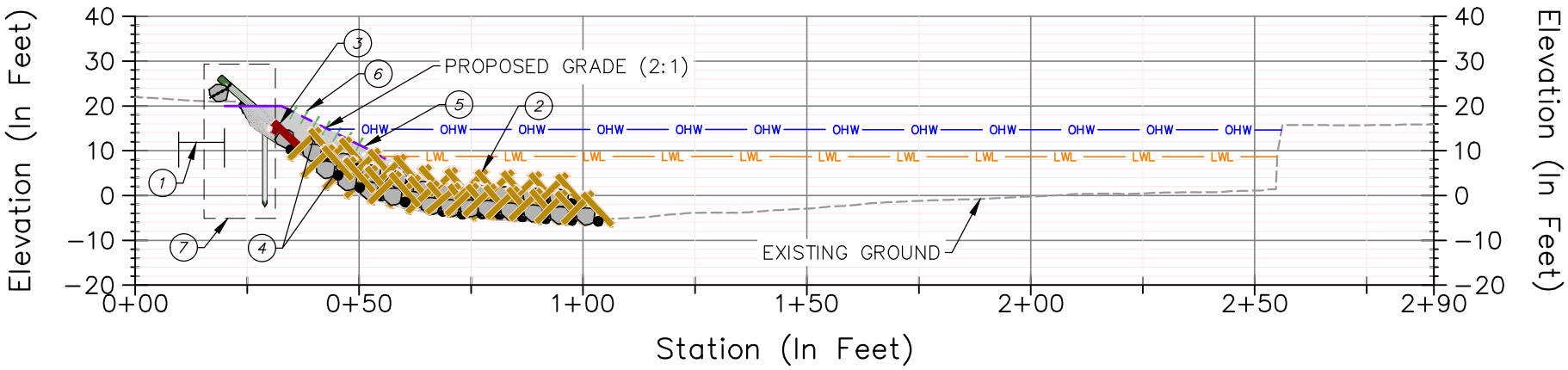
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *9 of 15* DATE: *02/09/23*



TYP. SECTION 1 – BENDWAY WEIR (T1)

NOT TO SCALE (STA. 14+85 TO 15+08)

GENERAL NOTES

1. LOCATIONS SHOWN ON THE SHEET ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.

KEY NOTES

1. POWER DUCT BANK (APPROXIMATE). CONTRACTOR TO FIELD LOCATE PRIOR TO ALL WORK ACTIVITIES.
2. BALLASTED LOG JACK UNIT. SEE DETAIL DT1.
3. BALLASTED LOG TRIANGLE UNIT. SEE DETAIL DT2.
4. EMBANKMENT FILL. SEE DETAIL DT3.
5. REGRADE UPPER BANK AT 2H:1V SLOPE. INSTALL COIR FABRIC AND FASCINES AS SHOWN THIS SHEET OR PER DIRECTION OF THE ENGINEER. SEE DETAIL DT3 FOR CONSTRUCTION SEQUENCE.
6. PLANTINGS INSTALLED ABOVE ELEVATION 10 FT, ALONG ALL BANK GRADING AREAS. SEE DETAIL DT3 FOR TYPICAL PLANTING ZONES.
7. SUMMER 2022 EMERGENCY REPAIR WORK. REMOVE AND REUSE CROSS LOGS AND BOULDERS. ALL OTHER EXISTING WORK ELEMENTS TO REMAIN UNLESS IDENTIFIED ON DRAWINGS.
8. MHW (9.2FT) ELEVATION LINEWORK NOT SHOWN FOR CLARITY.

nhc PROJECT #: *2007771*

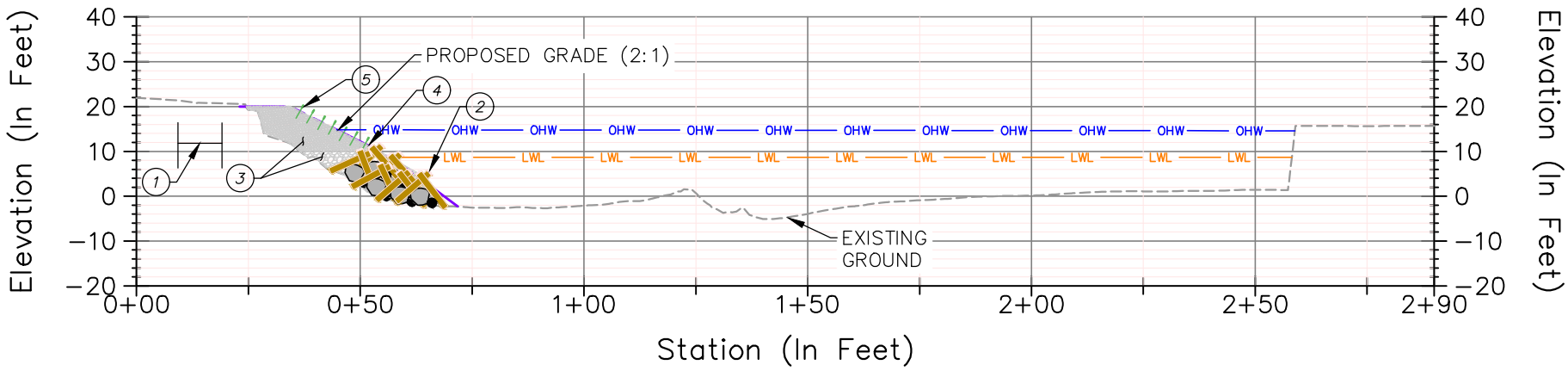
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *10 of 15* DATE: *02/09/23*



TYP. SECTION 2 – BANK PROTECTION

T2

NOT TO SCALE (STA. 15+08 TO 15+95)

GENERAL NOTES

1. LOCATIONS SHOWN ON THE SHEET ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.

KEY NOTES

1. POWER DUCT BANK (APPROXIMATE). CONTRACTOR TO FIELD LOCATE PRIOR TO ALL WORK ACTIVITIES.
2. BALLASTED LOG JACK UNIT. SEE DETAIL DT1.
3. EMBANKMENT FILL. SEE DETAIL DT3.
4. REGRADE UPPER BANK AT 2H:1V SLOPE. INSTALL COIR FABRIC AND FASCINES AS SHOWN THIS SHEET OR PER DIRECTION OF THE ENGINEER. SEE DETAIL DT3 FOR CONSTRUCTION SEQUENCE.
5. PLANTINGS INSTALLED ABOVE ELEVATION 10 FT, ALONG ALL BANK GRADING AREAS. SEE DETAIL DT3 FOR TYPICAL PLANTING ZONES.
6. MHW (9.2FT) ELEVATION LINEWORK NOT SHOWN FOR CLARITY.

nhc PROJECT #: *2007771*

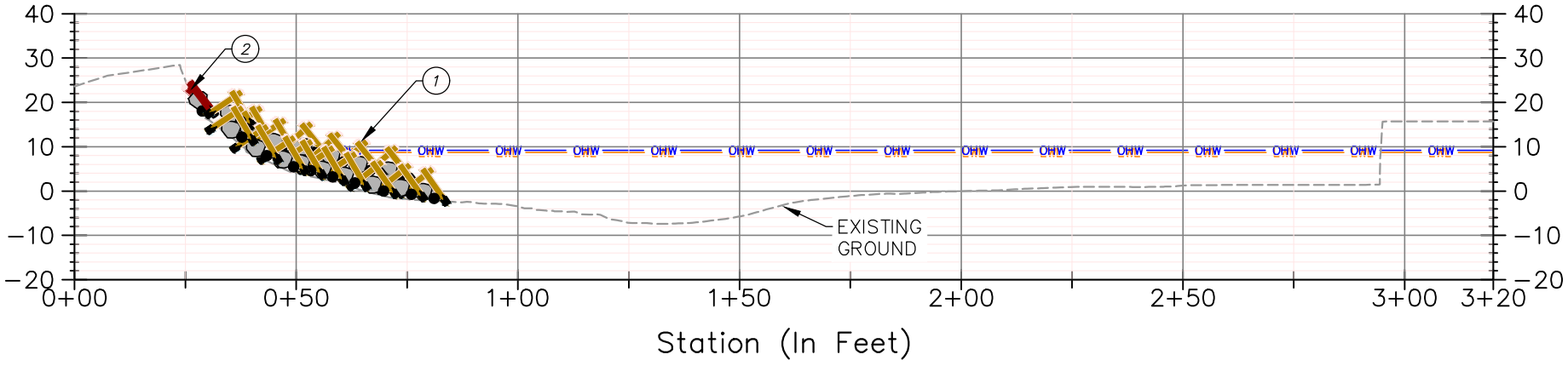
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *11 of 15* DATE: *02/09/23*



TYP. SECTION 3 – BENDWAY WEIR

T3

NOT TO SCALE (STA. 16+81 TO 17+75)

GENERAL NOTES

1. LOCATIONS SHOWN ON THE SHEET ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.

KEY NOTES

1. BALLASTED LOG JACK UNIT. SEE DETAIL DT1.
2. BALLASTED LOG TRIANGLE UNIT. SEE DETAIL DT2.
3. MHW (9.2FT) ELEVATION LINEWORK NOT SHOWN FOR CLARITY.

nhc PROJECT #: *2007771*

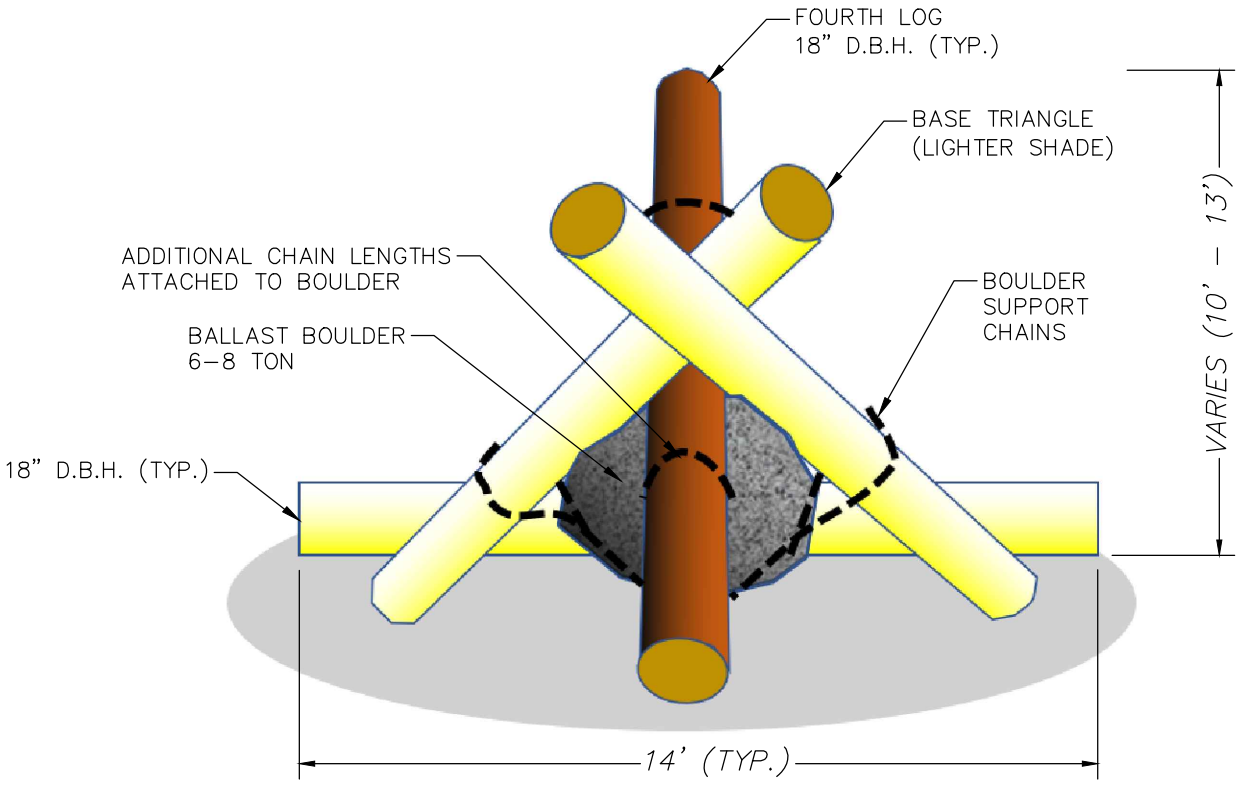
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *12 of 15* DATE: *02/09/23*



BALLASTED LOG JACK DETAIL DT1

NOT TO SCALE

GENERAL NOTES

1. CREATE BASE TRIANGLE WITH THREE LOGS AND CONNECT WITH 1"O.D. ALL–TREAD. LOG–LOG BOLTED CONNECTIONS NOT SHOWN.
2. POSITION FOURTH LOG PERPENDICULAR TO BASE TRIANGLE AND BOLT TO TWO BASE TRIANGLE LOGS WITH 1"O.D. ALL–THREAD. INTERIOR OPENING MUST RESTRICT BALLAST BOULDER FROM PASSING THROUGH.
3. PLACE LOG JACK IN ORIENTATION AS SHOWN OVER BALLAST BOULDER. ENSURE THE BOULDER CANNOT PASS THROUGH LOG STRUCTURE. HOIST THE BOULDER UNTIL IT IS OFF THE GROUND AND IN CONTACT WITH THE FOURTH LOG AND TWO UPRIGHT BASE TRIANGLE LOGS.
4. WRAP THREE CHAIN LEGS UP AND AROUND THE FOURTH LOG AND TWO UPRIGHT BASE TRIANGLE LOGS AND SECURE WITH A SHACKLE OR BOLT TO CREATE A BOULDER SLING. LIFT THE ENTIRE ASSEMBLY OFF THE GROUND TO ENSURE THE BOULDER DOES NOT PULL THROUGH THE WOOD ASSEMBLY.
5. AT REST, THE BOULDER SHALL BE ENTIRELY SUPPORTED BY THE BASE TRIANGLE WITH NO GROUND CONTACT AND NOT MORE THAN 8 INCHES OF SEPARATION BETWEEN THE BOULDER AND EITHER THE FOURTH LOG OR TWO UPRIGHT BASE TRIANGLE LOGS.
6. ADDITIONAL CHAIN LOOP SHALL BE WRAPPED AROUND THE TOP OF THE FOURTH LOG AND CONNECTED WITH 3/4" GALVANIZED BOLT TYPE SHACKLE.

nhc PROJECT #: *2007771*

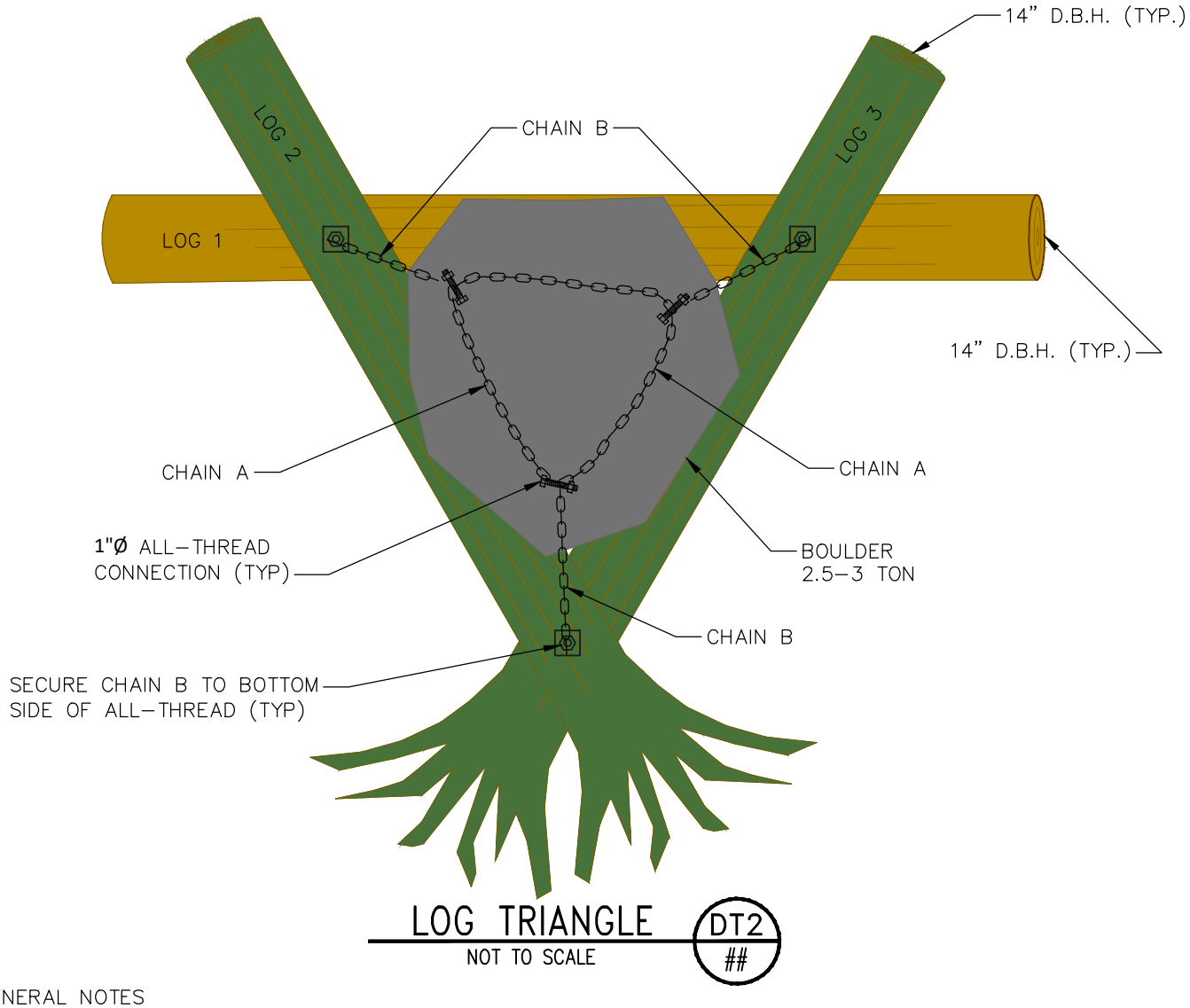
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *13 of 15* DATE: *02/09/23*



LOG TRIANGLE

NOT TO SCALE

DT2
##

GENERAL NOTES

1. LOGS AND BOULDERS ARE NOT SYMMETRICAL AND HAVE NATURALLY OCCURRING VARIATIONS THAT NECESSITATE CUSTOM FITTING. THE CONTRACTOR WILL MODIFY THE LOG-TO-LOG AND LOG-TO-BOULDER CONNECTIONS SO THAT THE COMPLETED JACK IS A TIGHT AND COMPACT UNIT. THERE SHOULD BE NO PLAY IN THE LOG-TO-LOG CONNECTIONS. THE BOULDER SHOULD BE SECURELY FASTENED TO THE LOG TRIANGLE.
2. REMOVE ALL BARK BETWEEN LOG-TO-LOG CONNECTIONS.
3. FOR ALL LOG-TO-LOG CONNECTIONS, USE CHAINSAW LOG DEBARKER OR SIMILAR SO THAT ONE LOG NESTLES INTO THE OTHER. THE LOG-TO-LOG CONNECTION MUST NOT BE A SINGLE POINT OF CONTACT. A TYPICAL LOG NOTCH WILL BE ~10" WIDE BY ~2" DEEP CUT AT THE APPROPRIATE ANGLE.
4. ALL LOG-TO-LOG ALL-THREAD CONNECTIONS MUST BE MADE THROUGH THE CENTER OF THE LOG WITH A MINIMUM LENGTH OF 2'-0".
5. FOR ALL LOG-TO-LOG CONNECTIONS, PEEN THE ALL-THREAD TO A DEPTH OF $\frac{1}{2}$ THE THREAD DEPTH IN TWO OPPOSING LOCATIONS IMMEDIATELY AGAINST THE NUT. LEAVE NO MORE THAN 3" OF ALL-THREAD EXPOSED PAST THE NUT.
6. CHAIN SHOULD BE MECHANICALLY TENSIONED TO ~$\frac{1}{4}$ OF THE CHAIN WORKING LOAD.
7. COMPLETED LOG TRIANGLES CAN BE TRIMMED DURING PLACEMENT TO FACILITATE FITTING THEM ADJACENT TO ONE ANOTHER, LEAVING A MINIMUM OF 18" BEYOND THE CONNECTION POINTS.

nhc PROJECT #: *2007771*

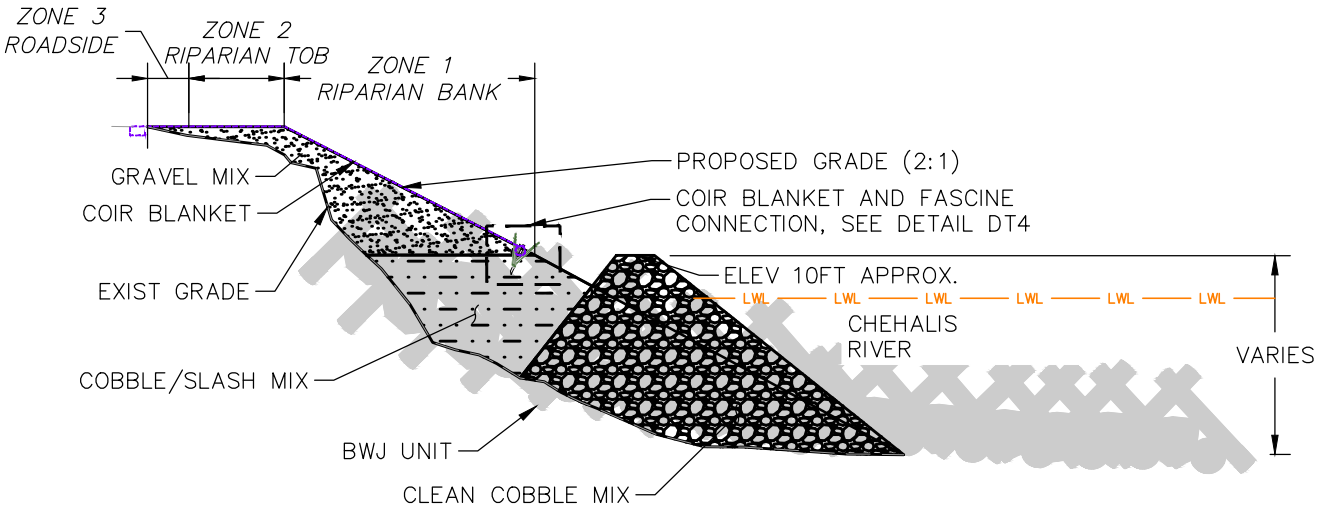
REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

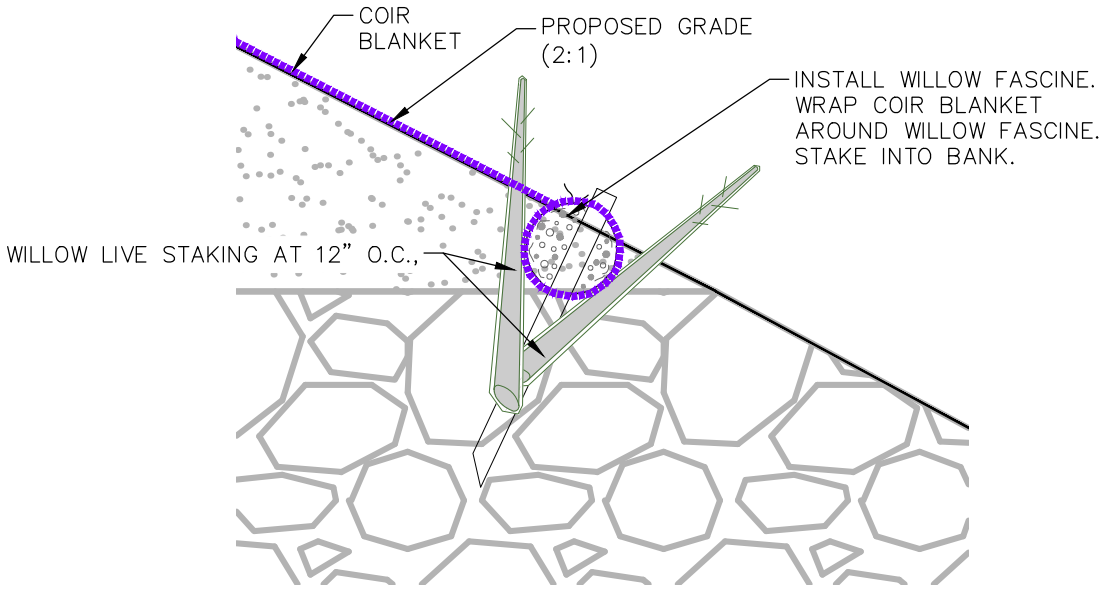
LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *14 of 15* DATE: *02/09/23*



EMBANKMENT FILL DETAIL — DT3 /

NOT TO SCALE



FASCINE CONNECTION DETAIL — DT4 /

NOT TO SCALE

EMBANKMENT FILL CONSTRUCTION SEQUENCE:

1. UPON PLACEMENT OF BWJ UNITS, PLACE CLEAN COBBLE MIX IN TEMPORARY BERM CONFIGURATION, UP TO ELEVATION 10FT, TO PROVIDE TEMPORARY FILTER FOR FINES DURING CONSTRUCTION.
2. BACKFILL WITH SLASH/COBBLE MIX BEHIND CLEAN COBBLE BERM TO ELEVATION 10FT.
3. INSTALL FASCINES FLUSH WITH BANK, AS SHOWN THIS SHEET OR PER ENGINEER IN FIELD. SEE DETAIL DT4, THIS SHEET.
4. REGRADE TEMPORARY BERM TO FINISH GRADES.
5. PLACE GRAVEL MIX FROM ELEVATION 10FT TO FINISH GRADE.
6. INSTALL AND ANCHOR COIR FABRIC. SEE DT3, THIS SHEET.
7. REFER TO PLANTING PLAN SHEET FOR PLANT SHEDULE AND TO THE CRITICAL AREAS REPORT FOR ADDITIONAL PLANTING AND MAINTENANCE RECOMMENDATIONS.
8. ZONE 1 TO BE PLANTED WITH WILLOW STAKES AND WILLOW FASCINE AT BASE. ZONE 2 TO BE PLANTED WITH SHRUBS, TREES, AND GRASS SEED. ZONE 3 TO BE SEEDED WITH NATIVE GRASS MIX.

nhc PROJECT #: *2007771*

REFERENCE: *USACE NWS-2022-0379*

APPLICANT:
Port of Grays Harbor

PROPOSED PROJECT:
Haul Road Protection Project, Phase 2

LOCATION:
Haul Rd, Chehalis River (RM 17.5), near Montesano, WA

SHEET: *15 of 15* DATE: *02/09/23*