

Attachment I

SEPA Checklist



SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [\[HELP\]](#)

1. Name of proposed project, if applicable: **Lower Satsop Right Bank Conservation Project**
2. Name of applicant: **Grays Harbor Conservation District**

3. Address and phone number of applicant and contact person:

**Michael Nordin
Grays Harbor Conservation District
330 Pioneer Ave. W
Montesano, WA 98563**

4. Date checklist prepared: **July 29, 2021**

5. Agency requesting checklist: **Grays Harbor County**

6. Proposed timing or schedule (including phasing, if applicable): **Construction will occur September through October 2021 (or into November if field conditions allow).**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Biological Evaluation Form, JARPA, Critical Areas Report

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None known

10. List any government approvals or permits that will be needed for your proposal, if known.

Hydraulic Project Approval (HPA - WDFW), Clean Water Act Section 401 Water Quality Certification (Ecology), Clean Water Act Section 404 NWP 13 (USACE), Grays Harbor County Critical Areas Review, Shoreline Development and Conditional Use Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Satsop Right Bank Conservation Project (project) is located on the right bank of the river at Willis Road near Montesano, Washington. The Satsop River and its eroding riverbank lie along the eastern edge of the project area. The project purpose is to provide protection for approximately 1,950 feet of riverbank along the Lower Satsop River in order to reduce the current aggressive rates of erosion, conserve the right bank line, and generally preserve the river's migration corridor until the Lower Satsop Restoration and Protection Program Phase II project (summer 2022) is constructed. Through extensive coordination with the Washington Department of Fish and Wildlife (WDFW), the project has also been designed to be self-mitigating and will provide enhanced habitat structure for fish. The study area for the project is a 13.25-acre area consisting of uplands historically used for agricultural purposes.

The right bank of the Satsop River within the project area is anticipated to experience high rates of erosion (upwards of 115 feet per year) in June 2021 to June 2022 and June 2022 to

June 2023. This represents a total of 4.39 acres by June 2022 and another 5.06 acres by June 2023. The erosion will result in complete loss of valuable farmland, and the erosion will directly result in downstream sedimentation which will negatively affect fish habitat and downstream dredge management operations in Grays Harbor.

Multiple projects have recently been completed along the Lower Satsop River focusing on flood protection and restoration. In 2019 and 2020, WDFW completed substantial restoration projects in the floodplain to remove dikes and revetments, and to return river flows to floodplain areas previously inaccessible for decades. In 2020, Grays Harbor County constructed the Keys Road Flood Protection Project (i.e., Phase I of the Lower Satsop Restoration and Protection Program) that involved installation of engineered log jams and setback log structure revetments to protect Keys Road and associated infrastructure. Phase II of the Lower Satsop Restoration and Protection Program is currently in design and will be constructed in summer 2022. Recent significant bank erosion within the Right Bank project area has occurred, resulting in current and anticipated future loss of riparian habitat and adjacent farmland. Construction of this project in fall 2021 is intended to slow the rate of erosion until the Phase II project can be constructed.

The project will consist of installation of four log jack spurs, continuous log rows, and log jacks with boulder ballast to be installed in uplands set back 5 to 6 feet from the top of bank. No impacts will occur waterward of the bank or below the ordinary high water mark (OHWM) of the Satsop River. Log structures (jacks, rows, spur pieces) will be assembled in a separate construction staging area well back from the County's designated shoreline zone and trucked in for placement at time of construction. Excavation, placement, and backfilling of assembled log structures will require 2 to 3 weeks in October.

Additionally, a temporary access road is proposed to provide a stabilized surface for on-site construction traffic and access for adaptive management activities. The road will be 15 feet wide and will include 80-foot-diameter turn-arounds near each end, for a total area of approximately 1.43 acres (62,260 square feet). The road will consist of geotextile and/or geogrid laid on the existing ground surface, with approximately 1 foot of hog fuel (wood chips) placed on top, for a total volume of approximately 2,400 cubic yards. The hog fuel and geotextile/geogrid will be removed prior to the end of the 3-year maintenance period, and the area will be restored to pre-existing conditions by seeding with grass seed and/or mulch (unless another cover crop is selected for installation by the farmers). No long-term adverse environmental effects will occur from this activity.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project is located on the right bank of the river at Willis Road near Montesano, Washington. The site is situated north of the confluence of the Satsop River and south of US 12 and the community of Satsop. It is within Water Resources Inventory Area (WRIA) 22, the Lower Chehalis Watershed. The project area is specifically located in Section 7 of Township 17N Range 6W and Sections 1 and 12 of Township 17N Range 7W. A site vicinity map and site plan sheet are included in Attachment A.

B. Environmental Elements [\[HELP\]](#)

1. Earth [\[help\]](#)

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

Topography of the project area is relatively flat with higher cut banks along the river.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The majority of the project area is composed of silt loam soils. The site has been used for agricultural purposes (pasture, corn and grass production, and a seasonal pumpkin patch). The proposed project will excavate some of these soils, but all soils will remain on-site and used as backfill. The agricultural soils to be excavated are anticipated to naturally erode over time, and the project will minimize land loss over the long term. There is an ample amount of the same agricultural habitat in the vicinity.

The characteristics of the bank at the project site consist of a slope close to vertical with highly erodible Chehalis and Humptulips silt loam soils completely void of riparian vegetation, aside from the northernmost portion of the bank.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No, with the exception of a steep cut bank along the river created by and subject to erosive forces from the river.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The project will result in a total of 23,000 square feet (0.53 acres) of excavation of native soil material (17,500 cubic yards), placement of 5,300 cubic yards of rock and log material, and backfilling with native soil. Additionally, the temporary access road will result in 62,260 square feet (1.43 acres) of excavated soil and 2,400 cubic yards of wood chip (hog fuel) surfacing. All soil will remain on-site and will be backfilled directly over excavated areas. Excavation will occur to a depth of up to approximately 20 feet below ground surface. Ground disturbance will occur only within approximately 200,000 square feet (4.6 acres) of farmed uplands. This includes the excavation for log jacks, log rows, and log jack spurs, the temporary access road area, and the staging area. No structure placement will occur in the staging and access areas. No impacts will occur waterward of the bank or below the OHWM of the Satsop River.

The proposed temporary access road will provide a stabilized surface for on-site construction traffic and access for adaptive management activities. The road will consist

of geotextile and/or geogrid laid on the existing ground surface, with approximately 1 foot of hog fuel (wood chips) placed on top, for a total volume of approximately 2,400 cubic yards. The hog fuel and geotextile/geogrid will be removed prior to the end of the 3-year maintenance period, and the area will be restored to pre-existing conditions by seeding with grass seed and/or mulch (unless another cover crop is selected for installation by the farmers). No long-term adverse environmental effects will occur from this activity

The staging area will be located in an upland field accessed from Willis Farm Road. The staging area and project entry point will consist of a graveled construction entrance. Soil will be temporarily stockpiled adjacent to excavation areas. Following installation of structures, excavated soils will be replaced, and the site will be graded to even contours. Grass seed and/or mulch will be installed upon project completion (unless another cover crop is selected for installation by the farmer). Silt fence will be installed around the entire project area. No additional stormwater measures are anticipated.

The project will use engineered log structures (log jacks, log row bundles, and log jack spurs) to reduce stream power and conserve banks. Large, rounded boulders (ballast), steel cable, steel chain, and all-thread rods use will be minimized and only used where necessary to provide ballast and connect logs. Rock will be sourced from local quarries within the Lower Chehalis River basin and will be rounded (not angular) to the extent feasible. Logs will likely consist of conifers. Native soils to be excavated will remain on-site and used to partially bury engineered structures.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Possible erosion during construction activities due to exposed soils.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Not applicable, no impervious surfaces are planned for the project..

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Construction best management practices (BMPs) and a temporary erosion and sediment control (TESC) plan will be implemented during the construction phase. Post construction erosion characteristics of a dynamic river floodplain/channel will be expected.

2. Air [\[help\]](#)

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

There will be emissions associated with the operation of heavy equipment to place/construct the log jams and excavate soils for engineered log jam placement during project construction. There will be no emissions associated with the project itself once construction concludes.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:

None

3. **Water** [\[help\]](#)

- a. Surface Water: [\[help\]](#)

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The project is being constructed within the floodplain of the Lower Satsop River, within 1 mile of its confluence with the Chehalis River.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. The project is being constructed within the floodplain and adjacent to the right (west) bank of the Lower Satsop River. The project will consist of installation of four log jack spurs, continuous log rows, and multiple groupings of log jacks installed in uplands set back 5 to 6 feet from the top of bank (see site plans, Attachment A). No impacts will occur waterward of the bank or below the OHWM of the Satsop River.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

The project is intended to conserve the existing bank of the Satsop River. No discharge of dredged and/or fill material into a wetland or other waterbody is anticipated to occur during construction. As natural bank erosion continues, the log/ballast structures will sluff into the river channel to provide long-term erosion control and bank conservation conjointly with the Phase II project. To prevent rock/log material associated from sluffing into the river during construction due to on-going erosion, excavation activities will be set back 5 to 6 feet from the top of bank.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals or diversions will be required.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Yes. The entire project lies within the 100-year floodplain (see site plans, Attachment A).

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

See section 3.a.3. No discharge of waste materials is anticipated.

- b. Ground Water: [\[help\]](#)

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

N/A

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

N/A

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

N/A

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Temporary degradation to water quality associated with project construction is not anticipated to occur due to the use of construction BMPs. However, as the Satsop River continues to naturally erode the bank and engineered log structures are sluffed into the river, increases in turbidity may occur. Any resulting suspended sediments would be short-term and would likely settle out and dilute to ambient conditions within 3,000 feet downstream of the site. Bank sluffing and erosion is an ongoing process, so this project would limit added sediments into the river in the long term. Therefore, water quality beyond 3,000 feet downstream may experience temporary increases in turbidity associated with structures sluffing into the river as natural erosion occurs and until the bank is conserved.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

N/A

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

A stormwater pollution prevention plan (SWPPP) will be prepared prior to starting construction which will include appropriate upland erosion and sediment control measures to ensure prevention of runoff from the dredged material into the river.

4. **Plants** [\[help\]](#)

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
☐ evergreen tree: fir, cedar, pine, other
☐ shrubs
☐ grass
☒ pasture
☒ crop or grain

- _____ Orchards, vineyards or other permanent crops.
- _____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- _____ water plants: water lily, eelgrass, milfoil, other
- _____ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

The project area size is 13.31 acres and consists of farmed/agricultural upland. Uplands consist of farmland that is used for pasture, corn and grass production, and a seasonal pumpkin patch for visitors, including a grassed airstrip (Chapman Farms). The near-vertical eroded bank is void of riparian vegetation. Riparian vegetation is present within the project area only within the northeasternmost corner where no construction activities are planned. Riparian vegetation in this area consists of young deciduous forest dominated by red alder (*Alnus rubra*) with a dense shrub understory of mixed native and invasive species such as giant knotweed (*Fallopia sachalinensis*), Himalayan blackberry (*Rubus armeniacus*), and reed canarygrass (*Phalaris arundinacea*). The project has been designed to avoid impacts to existing riparian vegetation. All ground cover within the project area (including staging area) may be temporarily disturbed.

The limits of disturbance will be approximately 200,000 square feet (4.6 acres) of farmed lands including staging, temporary access road area, and project activities. All native soils excavated will be used as fill on-site.

c. List threatened and endangered species known to be on or near the site.

None known

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Grass seed and/or mulch will be installed upon project completion (unless another cover crop is selected for installation by the farmer).

e. List all noxious weeds and invasive species known to be on or near the site.

Giant knotweed (*Fallopia sachalinensis*), Himalayan blackberry (*Rubus armeniacus*), and reed canarygrass (*Phalaris arundinacea*).

5. Animals [\[help\]](#)

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:

mammals: deer, bear, elk, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other _____

During the July 16, 2021, site visit (conducted by Parametrix biologists), in-stream riparian and upland habitats were observed. The following species were identified:

- **American dipper**

- Kingfisher
- Killdeer
- Deer (tracks)
- Black bear (scat)
- Canada goose
- Great blue heron
- Cedar waxwing (nesting in in-stream wood structures)

During the delineation field work for the Keys Road Flood Protection project (to the adjacent east of the project site), Natural Systems Design (NSD) biologists observed, heard, or saw evidence of the following species within the project area or its immediate vicinity (Phase I of project permitting submitted in March 2020):

- Pacific treefrog (heard)
- Coyote (scat)
- Black-capped chickadee (seen)
- Downy or hairy woodpecker (sign observed)
- Spotted towhee (seen)
- Song sparrow (seen)
- Steller's jay (heard)
- American robin (seen)
- American crow (seen)
- Bewick's wren (seen)

Review of the WDFW Priority Habitat and Species Inventory online data mapper indicated that the general vicinity of the study area at the confluence of the Satsop and Chehalis Rivers supports a variety of priority species and habitats including freshwater emergent, scrub-shrub, and forested wetlands (Washington Department of Fish and Wildlife 2021). Resident coastal cutthroat, dolly varden/bull trout, winter steelhead, summer and fall Chinook, coho, and fall chum are all mapped as utilizing the Lower Satsop River adjacent to the study area. Trumpeter swan, big-brown bat, Yuma myotis, and concentrations of waterfowl are all mapped in a broad swath encompassing the floodplain of the Lower Satsop River and the main stem of the Chehalis River, but no particular species point occurrences are mapped within the study area. The Priority Habitat and Species database contains two 1979 occurrences of Olympic mudminnow, a state sensitive species, generally along historic channel alignments of the Lower Satsop River, but not within the study area.

b. List any threatened and endangered species known to be on or near the site.

No NMFS species or their designated critical habitat occur within the action area. USFWS species protected under the Endangered Species Act that may occur in the vicinity are listed below:

- Marbled murrelet (*Brachyramphus marmoratus*)
- Streaked Horned Lark (*Eremophila alpestris strigata*)
- Yellow-billed Cuckoo (*Coccyzus americanus*)
- Bull trout (*Salvelinus confluentus*), coastal-Puget Sound Distinct Population Segment, Critical habitat

c. Is the site part of a migration route? If so, explain.

The project area may be used as a migratory corridor for marbled murrelets traveling

between the Pacific Ocean and nest sites located in the Satsop or Chehalis River watershed. The nearest designated critical habitat is approximately ten miles to the east along the Chehalis River and 22 miles to the north along the Satsop River, in Olympic National Park.

- d. Proposed measures to preserve or enhance wildlife, if any:

No in-water work is planned during construction. However, following construction and as the bank erodes, it is anticipated that the structures will sluff into the river at any time during the year, including at times outside of the in-water work window. To minimize impact to fish and fish habitat as the structures are sluffed into the river during erosion events, the design includes placement of structures in excavated trenches. By doing this, the overall height from which structures sluff into the river during erosion is greatly reduced. This design measure is intended to minimize impact to water quality, fish, and to recreational river users. Additional conservation methods and BMPs are outlined in the Biological Evaluation prepared for the project.

- e. List any invasive animal species known to be on or near the site.

None known

6. Energy and Natural Resources [\[help\]](#)

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

N/A

- b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe.

N/A

- c. What kinds of energy conservation features are included in the plans of this proposal?
List other proposed measures to reduce or control energy impacts, if any:

N/A

7. Environmental Health [\[help\]](#)

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?
If so, describe.

None known

- 1) Describe any known or possible contamination at the site from present or past uses.

None known

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None known

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced

during the project's development or construction, or at any time during the operating life of the project.

Fuels and materials associated with the heavy equipment used to construct the project will be on-site during project construction. Dump trucks will be used to haul logs and rock material to the staging area. The log jacks, log jack spurs, and continuous log row structures will be assembled in the staging area using chainsaws, tracked excavators, and hand tools. Once assembled, the structures will be placed with a tracked crane or excavator. Tracked excavators will be used to excavate, stockpile excavated material adjacent to areas of excavation, and replace native soil. Off-road dump trucks may be used to transport log jacks, log row bundles, and soil within the project area.

- 4) Describe special emergency services that might be required.
None known
- 5) Proposed measures to reduce or control environmental health hazards, if any:
The staging and refueling area for equipment will be located in an upland area, at least 250 feet from the riverbank, with absorbent pads in place and spill containment equipment present to reduce the potential for release of contaminants should any sort of accidental spill or leakage occur. A spill prevention, control, and countermeasure plan (SPCC) and a SWPPP will be prepared for the project.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?
The project is in a rural setting. Under current pre-project conditions, ambient noise levels in a rural setting with a low-speed and high-speed arterial (i.e., Keys Road to the east and US 12 to the north) are approximately 60 to 70 A-weighted decibels (dBA) at 50 feet from the roadway, decreasing to approximately 43 dBA at 3,000 feet.
- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)?
Indicate what hours noise would come from the site.
The project is in a rural setting and will require the use of heavy machinery, including a tracked excavator, tracked crane, and a dump truck in agricultural uplands and above the top of bank of the Satsop River. Typical noise levels generated by this type of heavy equipment are around 90 dBA at 50 feet, decreasing to approximately 60 to 70 dBA at 3,000 feet. Ambient noise levels in a rural setting with a low-speed and high-speed arterial (i.e., US 12 and rural roadways) are approximately 60 to 70 dBA at 50 feet from the roadway, decreasing to approximately and 43 dBA at 3,000 feet. Thus, construction noise levels are anticipated to be at ambient noise levels at a distance of 3,000 feet (0.57 mile) from the project site, based on the rural setting in which the project is located and the noise levels generated by project construction activities. Thus, impacts from terrestrial noise are delineated at 3,000 feet from the project area boundary. Construction will occur during normal construction working hours.
- 3) Proposed measures to reduce or control noise impacts, if any:
Construction activities will comply with time limits for operations per Grays Harbor County Municipal Code.

8. Land and Shoreline Use [\[help\]](#)

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The project is located in a Rural Development designated area. The site is composed of uplands which are all under agricultural use. Adjacent properties are also uplands used for agricultural purposes. The Satsop River lies to the adjacent east of the site. The proposal could have minor effects on agricultural and recreational use of parts of the site; however, these parts of the property will be lost due to erosion if the proposed project is not constructed.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The majority of the project area is upland consisting of farmland that is used for pasture, corn and grass production, and a seasonal pumpkin patch for visitors. The project purpose is to protect this farmland from the effects of riverbank erosion from the Lower Satsop River. No agricultural land of commercial significance will be converted to other uses as a result of the proposed project.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

The project will not affect crop harvest as corn will already have been harvested by the time construction starts. However, Chapman Farms operates a seasonal pumpkin patch and grass airstrip that is open to the public. Construction activities may reduce the overall area available for pumpkin patch operations but will not directly affect the pumpkin crop.

- c. Describe any structures on the site.

No structures are located on the site. A residence (the Willis residence) is located approximately 300 feet to the west of the limits of potential effects, and to the adjacent south of the staging/laydown area. The proposed project will help preserve this residence.

- d. Will any structures be demolished? If so, what?

N/A

- e. What is the current zoning classification of the site?

County A2 Long Term Agricultural Use

- f. What is the current comprehensive plan designation of the site?

Montesano Area Comprehensive Plan designates the area as Agricultural/Forestry. (Montesano Area Comprehensive Plan, 1979, page 32 of 42)

- g. If applicable, what is the current shoreline master program designation of the site?

Rural Development Environment

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Per Article VI, Section 57 of Grays Harbor County Ordinance No. 448, streams are considered a water of the state, and thus, the Satsop River is regulated by the County as a critical area, specifically as a Fish and Wildlife Habitat Conservation Area. Streams and their buffers are classified and rated as riparian stream corridors. The stream category is determined based on perennial or intermittent flow and use or potential use by salmonids, and stream buffers are determined based on the stream type and measured outward from the OHWM (Article VI, Section 61). Neither U.S. Army Corps of Engineers nor the Washington State Department of Ecology (Ecology) regulates impacts on stream buffers.

The Lower Satsop River is designated as a Shoreline of the State (i.e., a Type S water) (WAC 173-18-180, Grays Harbor County List), and as such is afforded a 150-foot buffer from OHWM.

Additionally, WDFW has mapped the following priority habitats and species as occurring within the project area or the vicinity:

Priority species list:

Fish:

- Olympic mudminnow (*Novumbra hubbsi*)
- Chinook (*Oncorhynchus tshawytscha*)
- Summer Chinook (*Oncorhynchus tshawytscha*)
- Coho (*Oncorhynchus kisutch*)
- Fall Chinook (*Oncorhynchus tshawytscha*)
- Dolly Varden/ Bull Trout (*Salvelinus malma/ S. confluentus*)
- Steelhead (*Oncorhynchus mykiss*)
- Winter Steelhead (*Oncorhynchus mykiss*)
- Chum (*Oncorhynchus keta*)
- Trout (*Oncorhynchus mykiss*)
- Cutthroat (*Oncorhynchus clarkii*)
- Resident Coastal Cutthroat (*Oncorhynchus clarkii*)
- Chum (*Oncorhynchus keta*)

Birds:

- Trumpeter Swan (*Cygnus buccinator*)
- Northern Spotted Owl (*Strix occidentalis*)

Bats:

- Yuma Myotis (*Myotis yumanensis*)
- Big Brown Bat (*Eptesicus fuscus*)

Habitats:

- Freshwater Emergent Wetlands
- Freshwater Forested/Shrub Wetlands
- Riverine

- i. Approximately how many people would reside or work in the completed project?

None

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

N/A

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project has been designed to preserve as much existing land as possible from bank erosion to continue existing agricultural use. As bank erosion continues, the project has been designed to be forward compatible with future restoration activities to be conducted in 2022 under the Lower Satsop Restoration and Protection Program's Phase II project (summer 2022).

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

The project purpose is to protect this farmland from the effects of riverbank erosion from the Lower Satsop River. No additional measures are proposed to protect agricultural land. Forest lands are not present on the site.

9. Housing [\[help\]](#)

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

N/A

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

N/A

c. Proposed measures to reduce or control housing impacts, if any:

N/A

10. Aesthetics [\[help\]](#)

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

N/A

b. What views in the immediate vicinity would be altered or obstructed?

N/A

c. Proposed measures to reduce or control aesthetic impacts, if any:

N/A

11. Light and Glare [\[help\]](#)

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

N/A

- c. What existing off-site sources of light or glare may affect your proposal?

None

- d. Proposed measures to reduce or control light and glare impacts, if any:

N/A

12. Recreation [\[help\]](#)

- a. What designated and informal recreational opportunities are in the immediate vicinity?

Fishing on foot, fishing from drift boats, recreational canoeing/kayaking, and hunting.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

No

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Design considerations have been made for line of sight of log jack spurs and log rows from the perspective of a boater that would allow visual awareness of potential obstacles and adequate time to respond by maneuvering to avoid the obstacles. Signage will be posted at local boat access points and along the bank warning recreational river users of the presence of the log structures and advising them to stay back from the bank.

13. Historic and cultural preservation [\[help\]](#)

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

There are no buildings, structures, or sites located within the project site that are over 45 years old and listed or determined eligible for listing in preservation registers.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation?

This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

No landmarks, features or other evidence of Indian or historic use or occupation are present at the site, and no material evidence, artifacts, or areas of cultural importance were found on or near the site during a study conducted in June 2021.

In June 2021, Dudek (cultural resources management subconsultant) excavated 21 shovel probes along the eroding bank on the Willis and Chapman parcels within the proposed API/APE for another project along the Satsop (Lower Satsop Restoration and Protection Program's Phase II project). No cultural resources were identified. The project extends west from the bank outside of the previously tested and surveyed API/APE. A pedestrian survey and additional subsurface testing will need to be conducted for these areas of the Satsop Right Bank Conservation Project. Although the Washington Department of Archaeology and Historic Preservation (DAHP) predictive model maps the Satsop Right

Bank Conservation Project within an area considered “very high risk for cultural resources,” the local landform is flooded regularly 5 months of the year (November–March), and the landform is not as likely to yield archaeological deposits as the model indicates. The additional survey and subsurface testing fieldwork to sample the Satsop Right Bank Conservation Project API/APE is forthcoming, and a cultural resources technical survey report will be submitted for this permitting process.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

As part of their cultural resources reporting for this project, the Washington Information System for Architectural and Archaeological Records Data (WISAARD) database was searched for known archaeological sites, historic properties, and graves within or near the project area, as well as local and regional cultural resource studies. A field survey was conducted, which consisted of a pedestrian survey and subsurface testing (shovel probes), and a report was completed to document the findings.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

An inadvertent discovery plan (IDP) will be prepared as part of the USACE Sec. 404 permit. If, over the course of project construction, human skeletal remains are discovered, the Grays Harbor County Coroner, Ecology (Office of Chehalis Basin), and DAHP must be notified immediately. If archaeological materials are uncovered during the project, Grays Harbor County and its contractors must immediately stop work, and the project manager must contact USACE as the lead federal agency and Ecology (Office of Chehalis Basin) as the lead state agency.

14. Transportation [\[help\]](#)

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The staging area will be located in an upland field accessed from Willis Farm Road, a private road accessed from Brady Loop Road E. The staging area and project entry point will consist of a graveled construction entrance.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

None

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

N/A

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No

- h. Proposed measures to reduce or control transportation impacts, if any:

None

15. Public Services [\[help\]](#)

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No

- b. Proposed measures to reduce or control direct impacts on public services, if any.

None

16. Utilities [\[help\]](#)

- a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
other _____

No utilities are located at the site.

- d. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None

C. Signature [\[HELP\]](#)

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Jaya K. MacLean

Name of signee Taya MacLean

Position and Agency/Organization Senior Scientist/Parametrix

Date Submitted: 8/2/21

D. Supplemental sheet for nonproject actions [\[HELP\]](#)

(IT IS NOT NECESSARY to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

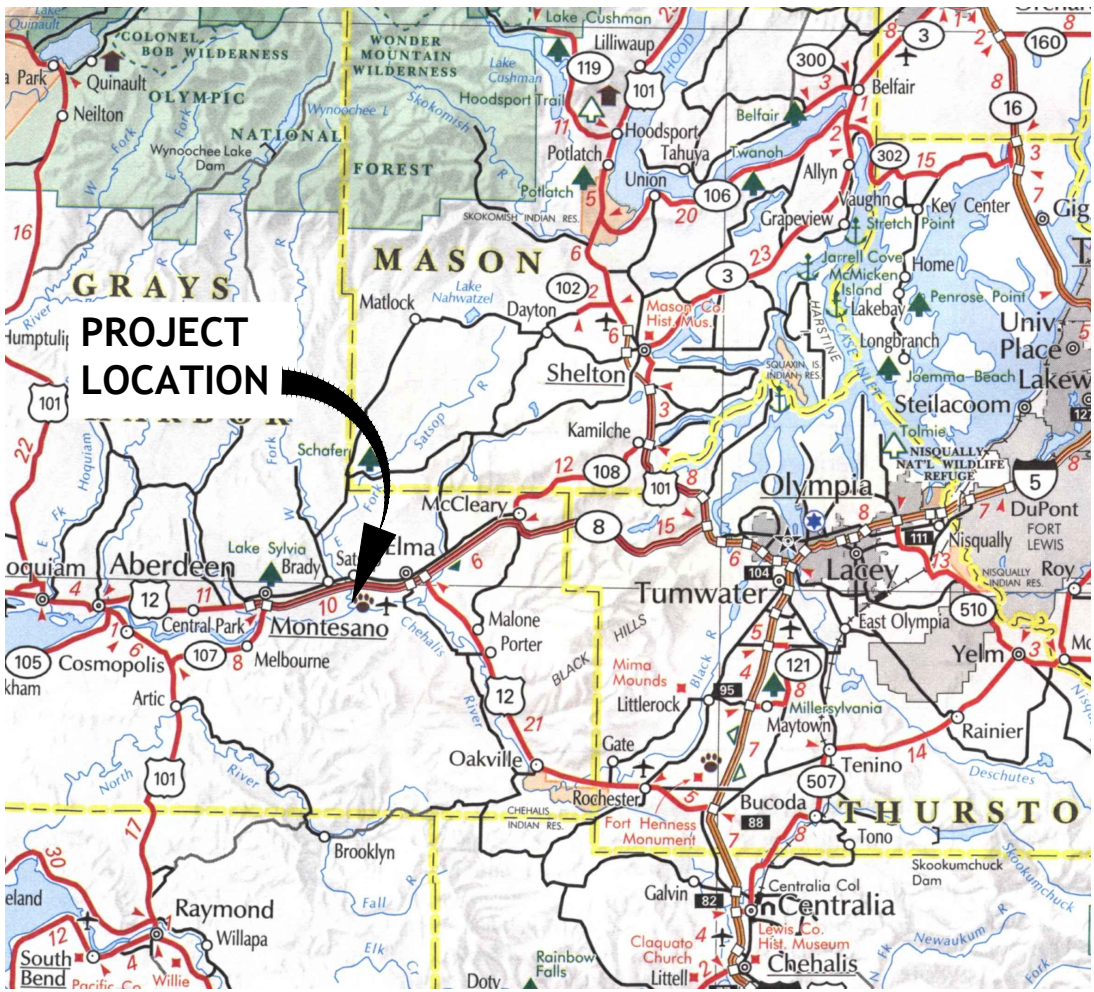
Attachment A

Vicinity Map and Site Plans

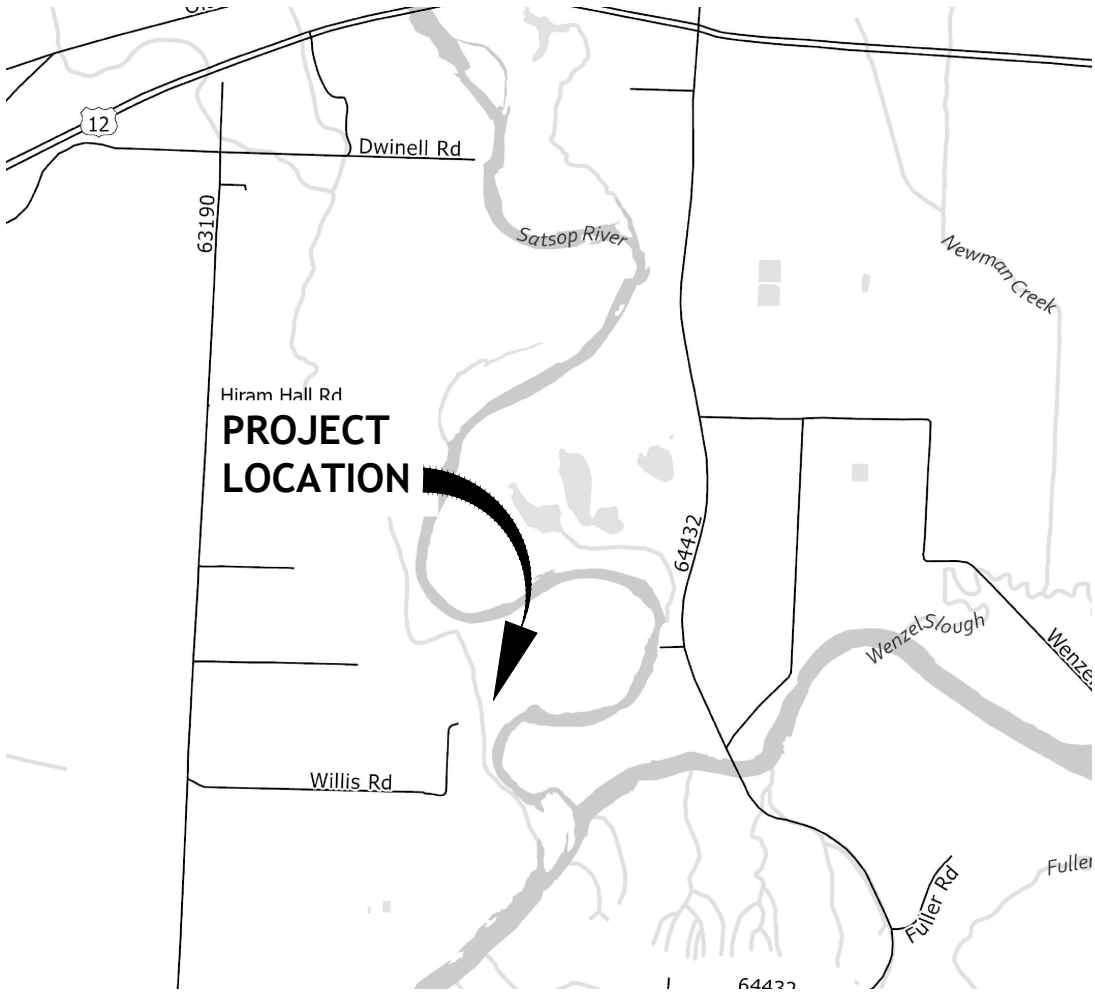


LOWER SATSOP RIGHT BANK CONSERVATION PROJECT

GRAYS HARBOR CONSERVATION DISTRICT



LOCATION MAP
NO SCALE



VICINITY MAP
NO SCALE

INDEX TO DRAWINGS		
SHT NO.	DWG NO.	SHEET TITLE
GENERAL		
1	G1	TITLE SHEET, LOCATION AND VICINITY MAPS, AND INDEX TO DRAWINGS
2	G2	GENERAL NOTES, LEGEND AND ABBREVIATIONS
CIVIL		
3	C1	EXISTING SITE PLAN
4	C2	SITE PLAN - PROPOSED - 1
5	C3*	SITE PLAN - PROPOSED - 2
6	C4*	SECTIONS
7	C5*	CONSTRUCTION SEQUENCING - 1
8	C6*	CONSTRUCTION SEQUENCING - 2
DETAILS		
9	DT1	LOG JACK DETAIL
10	DT2	LOG JACK SPUR DETAIL
11	DT3	CONTINUOUS LOG ROW DETAIL
TESC		
12	T1	STAGING AND ACCESS PLAN
13	T2*	TESC DETAILS - 1
14	T3*	TESC DETAILS - 2
* SHEET NOT INCLUDED IN PERMIT REVIEW SET		

PERMIT REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	DESIGNED CFO
			DRAWN CFO
			CHECKED ####
			APPROVED ####

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY
FILE NAME PS7132001G-01
JOB No. 217-7132-001
DATE 08/21

PRELIMINARY



PROJECT NAME
LOWER SATSOP RIGHT BANK CONSERVATION PROJECT
MONTESANO, WA

TITLE SHEET, LOCATION AND VICINITY MAPS, AND INDEX TO DRAWINGS
--

DRAWING NO. 1 OF 14
G1

PATH: U:\PSO\Projects\Clients\7132- Groys Harbor Conservation District\217-7132-001 Satop RB Protection\985vca\CADD\DWG PLOTTED BY: alencia DATE: Friday, July 30, 2021 2:00:55 PM LAYOUT: G2

LEGEND

DESCRIPTION

PROPOSED

EXISTING

MAJOR CONTOURS

MINOR CONTOURS

2022 PROJECTED BANKLINE

2023 PROJECTED BANKLINE

SHADOW LINE

AREA OF POTENTIAL EFFECT

RIPARIAN VEGETATION LIMIT

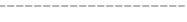
SHORELINE BUFFER

PARCEL BOUNDARY

TEMP ACCESS ROAD

=====

.....



DESCRIPTION

PROPOSED

EXISTING

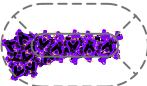
CONTINUOUS LOG ROW

LOG JACK

LOG JACK SPUR

STAGING/ STOCKPILING AREA

LOG JACK SPUR EXCAVATED AREA



LEGEND

DATUM

VERTICAL DATUM

NAVD88

ABBREVIATIONS

AC	ACRE
APE	AREA OF POTENTIAL EFFECT
APPROX	APPROXIMATE
CL	CENTERLINE
CLR	CLEAR, CLEARANCE
CONST	CONSTRUCT, CONSTRUCTION
CY	CUBIC YARD
DT	DETAIL
DWG	DRAWING
EA	EACH
ENGR	ENGINEER
EXIST	EXISTING
FIG	FIGURE
FT	FEET, FOOT
IN	INCH
LWM	LARGE WOODY MATERIAL
NTS	NOT TO SCALE
OHWM	ORDINARY HIGH WATER MARK
REQD	REQUIRED
SF	SQUARE FEET
SPEC	SPECIFICATION
STA	STATION
T	TON
TEMP	TEMPORARY
TESC	TEMPORARY EROSION SEDIMENT CONTROL
TOB	TOP OF BANK
TYP	TYPICAL
U	UPSIDE DOWN
WSEL	WATER SURFACE ELEVATION
WT	WEIGHT

DETAIL AND SECTION DESIGNATION



INDICATES DETAIL NUMBER

INDICATES DRAWING/SHEET WHERE DETAIL IS SHOWN



INDICATES SECTION LETTER

SECTION APPEARS ON THE SAME DRAWING/SHEET

INDICATES DETAIL NUMBER

TYPICAL
DETAIL

NO SCALE



INDICATES DRAWING/SHEET WHERE DETAIL IS REFERRED TO

INDICATES SECTION LETTER

TYPICAL
SECTION

NO SCALE



SECTION APPEARS ON THE SAME DRAWING/SHEET

PERMIT REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	DESIGNED CFO
			DRAWN CFO
			CHECKED RSR
			APPROVED ####

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME PS7132001G-01
JOB No. 217-7132-001
DATE 08/21

PRELIMINARY



PROJECT NAME
LOWER SATSOP RIGHT BANK CONSERVATION PROJECT MONTESANO, WA

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

DRAWING NO. 2 OF 14
G2

U:\PSO\Projects\Clients\7132-001 Satsop RB Protection\995\CA\DWG PLOTTED BY: alecda DATE: Friday, July 30, 2021 2:54:08 PM
LAYOUT: C1

2018 SATSOP RIVER
HORIZONTAL ALIGNMENT

CHAPMAN
239 BRADY LOOP RD E
170701440030

CHAPMAN
239 BRADY LOOP RD E
170701440020

CHAPMAN
239 BRADY LOOP RD E
170701440040

STATE OF WASHINGTON WILDLIFE
600 CAPITOL WAY N
170606330010

STATE OF WASHINGTON DEPT OF GAME
905 E HERON
170607210060

OLYMPIC VIEW DAIRY
83 WILLIS ROAD
170607220010

WILLIS
83 WILLIS RD
170712110010

OLYMPIC VIEW DAIRY
83 WILLIS ROAD
170701410010

CONTRERAS NORBERTO & ROSALINA
45 N BLOCKHOUSE RD
170701440010

CONTRERAS NORBERTO & ROSALINA
45 N BLOCKHOUSE RD
170701410030

TOP OF BANK

LUBBE
186 BRADY LOOP RD E
170701430020

CHAPMAN
239 BRADY LOOP RD E
170701430010

CHAPMAN
239 BRADY LOOP RD E
170701430030

CHAPMAN
239 BRADY LOOP RD E
170701430040

APE. SEE SHEET T1

WILLIS
16 WILLIS RD
170712120030

OLYMPIC VIEW DAIRY
64 WILLIS ROAD
170712140010

OLYMPIC VIEW DAIRY
83 WILLIS ROAD
170712110020

RESTAU DELBERT L & BETTY J
273 BRADY LOOP RD E
170712110040

MORENO
271 E BRADY LOOP RD
170712110030

MCNEIL
269 E BRADY LOOP RD
170712120020

OLYMPIC VIEW DAIRY
83 WILLIS ROAD
170712120010



SCALE IN FEET
0 200 400

NOTES

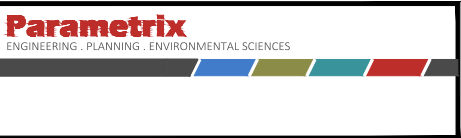
1. SURVEY AND AERIAL IMAGERY COMPLETED
JUNE 4, 2021.
2. PARCEL DATA INCLUDES: OWNER, ADDRESS, AND
PARCEL NUMBER.

PERMIT REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	DESIGNED RSR
			DRAWN CFO
			CHECKED ####
			APPROVED ####

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FILE NAME PS7132001C-01
JOB No. 217-7132-001
DATE 08/21

PRELIMINARY



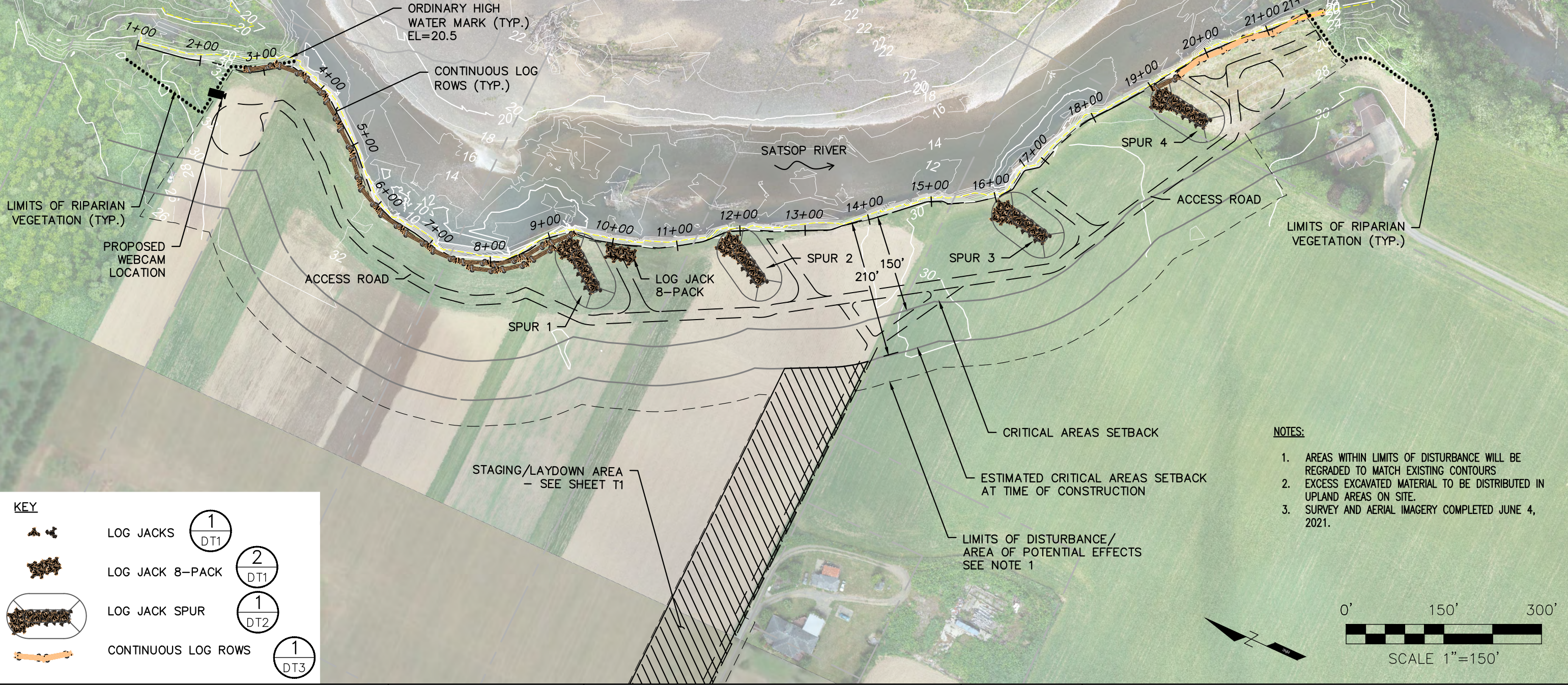
PROJECT NAME LOWER SATSOP RIGHT BANK CONSERVATION PROJECT MONTESANO, WA
--

EXISTING SITE PLAN


DRAWING NO. 3 OF 14
C1


WOOD STRUCTURE SCHEDULE


STRUCTURE	NUMBER STRUCTURES	TYPE A LOGS (40 LF X 16-22" DBH)	TYPE R LOGS (40 LF X 16-22" DBH W/ ROOTWAD)	TYPE W LOGS (18 LF X 16" DBH)	BALLAST BOULDERS (4-8 TON)
CONTINUOUS LOG ROWS	19	38	38		
LOG JACKS	108			648	184




KEY

 LOG JACKS

 LOG JACK 8-PACK

 LOG JACK SPUR

 CONTINUOUS LOG ROWS

1
DT1

2
DT1

1
DT2

1
DT3

NOTES:

1. AREAS WITHIN LIMITS OF DISTURBANCE WILL BE REGRADED TO MATCH EXISTING CONTOURS
2. EXCESS EXCAVATED MATERIAL TO BE DISTRIBUTED IN UPLAND AREAS ON SITE.
3. SURVEY AND AERIAL IMAGERY COMPLETED JUNE 4, 2021.

Parametrix
ENGINEERING · PLANNING · ENVIRONMENTAL SCIENCES
1019 39th Ave. SE, Suite 100
Puyallup, WA 98374

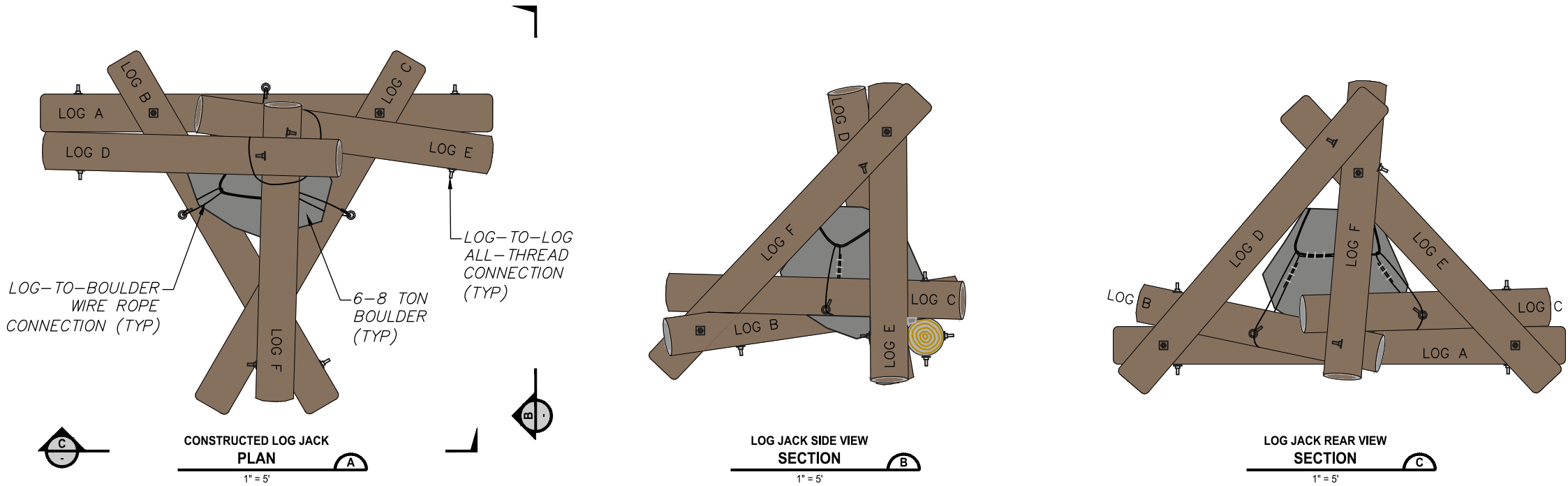
nhc
northwest hydraulic consultants
12787 gateway drive south
tukwila, washington 98168-3308
phone: (206) 241-6000
fax: (206) 439-2420

PRELIMINARY – NOT FOR
CONSTRUCTION

Job:2006723
Rev:
Drft: CB
Chkd: JL
Date: 30Jul21

Lower Satsop Right Bank Conservation Project
SITE PLAN - PROPOSED
Shoreline Permit

C2

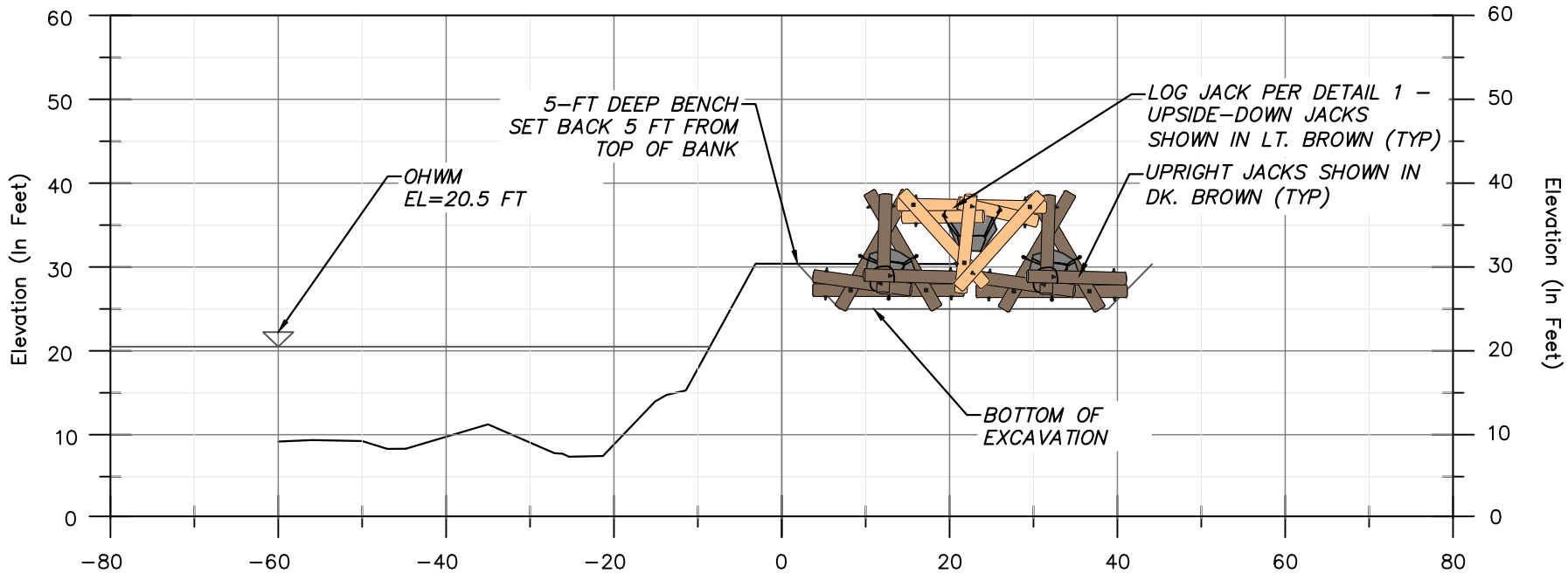


THE LOG JACK IN THE IMAGE ABOVE IS TYPICAL AND FOR ILLUSTRATION ONLY. DISCREPANCIES EXIST BETWEEN THE IMAGE AND THE LOG JACK DESIGN. SLASH NOT SHOWN FOR CLARITY.

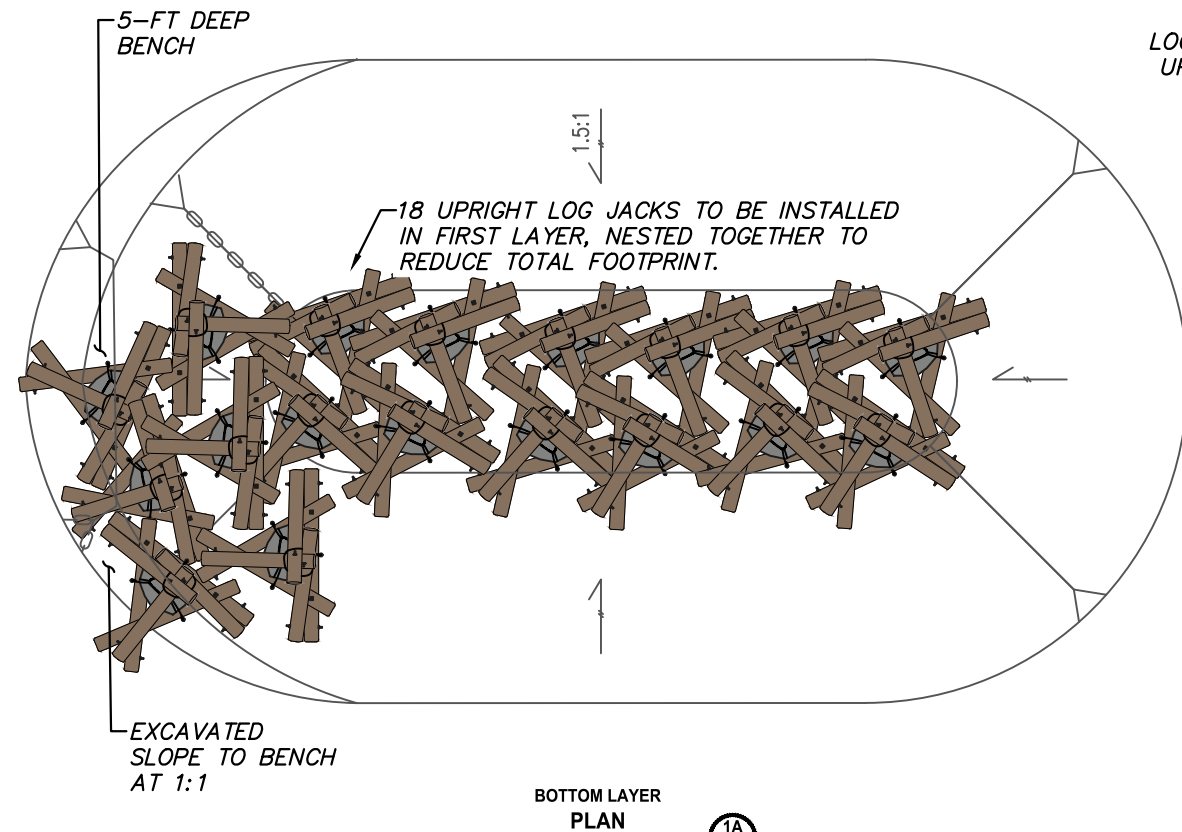
1 LOG JACK UNIT - TYPICAL PLAN & SECTION VIEWS
SCALE: 1"=20'

NOTES FOR LOG JACK CONSTRUCTION:

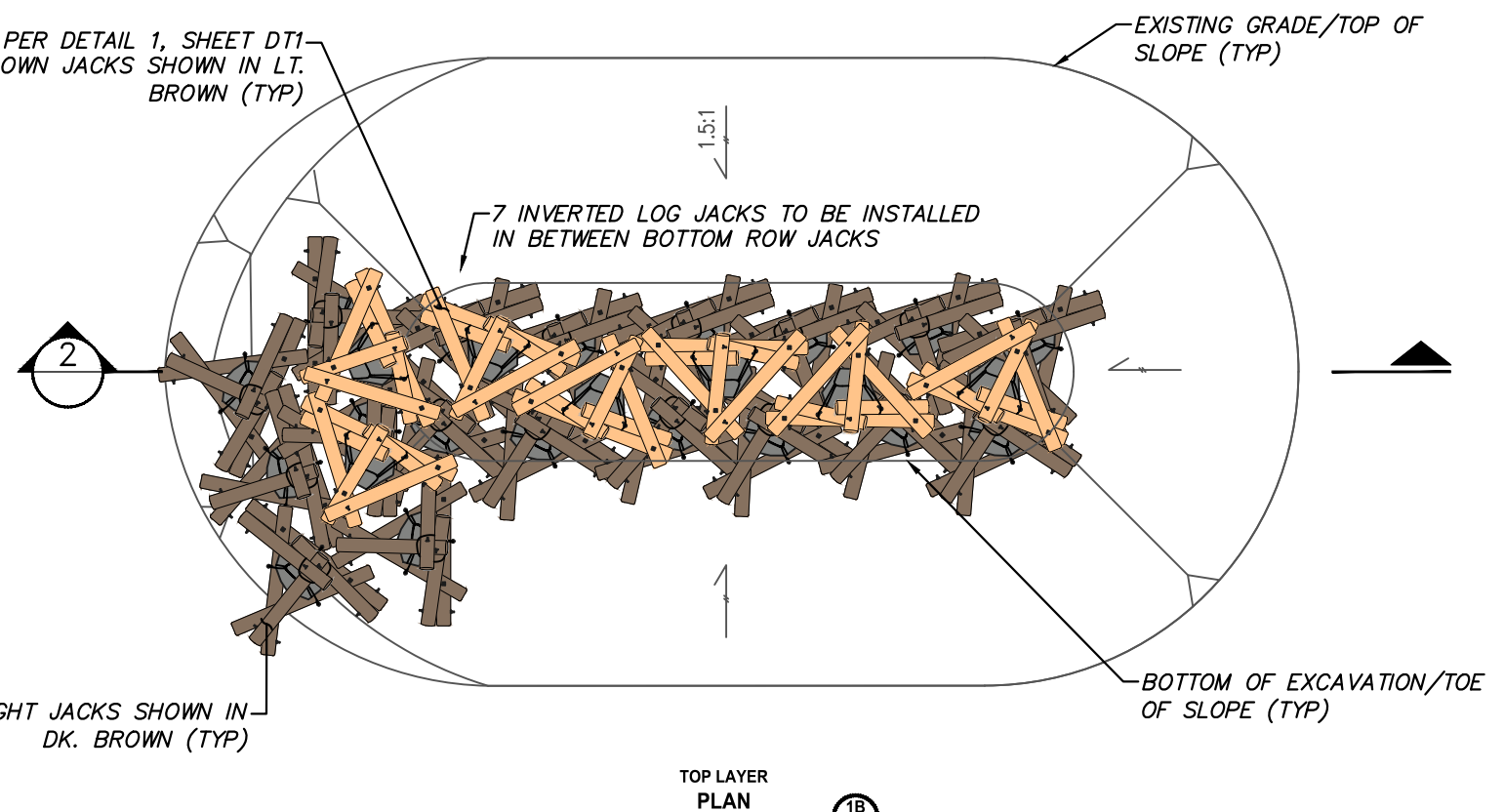
- LOG JACKS SHALL BE CONSTRUCTED FROM DOUGLAS FIR, WESTERN RED CEDAR OR SITKA SPRUCE, 18 FEET IN LENGTH AND 16 TO 22 INCHES IN DIAMETER.
- 6-8 TON BOULDERS SHALL BE USED FOR LOG JACK BALLAST.
- LOGS AND BOULDERS ARE NOT SYMMETRICAL AND HAVE NATURALLY OCCURRING VARIATIONS THAT NECESSITATE CUSTOM FITTING. 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 CONTAINED WITHIN AND IN CONTACT WITH A MINIMUM OF 5 LOGS.
- REMOVE ALL BARK BETWEEN LOG- TO-LOG CONNECTIONS.
- 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 ~1 0" WIDE BY ~2" DEEP CUT AT THE APPROPRIATE ANGLE.
- ALL LOG-TO-LOG ALL-THREAD CONNECTIONS MUST BE MADE THROUGH THE CENTER OF THE LOG WITH A MINIMUM OF 18" BETWEEN THE ALL-THREAD AND THE LOG END.
- FOR ALL LOG-TO-LOG CONNECTIONS, PEEN THE ALL-THREAD TO A DEPTH OF 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.
- WIRE ROPE SHOULD BE MECHANICALLY TENSIONED TO ~¾ OF THE ROPE WORKING LOAD. FOR LOG JACKS PLACED UPSIDE DOWN, THE TOPS OF LOGS D, E, AND F SHOULD BE TRIMMED TO AN EVEN HEIGHT, LEAVING A MINIMUM OF 18" BEYOND THE CONNECTION POINTS.
- COMPLETED LOG JACKS CAN BE TRIMMED DURING PLACEMENT TO FACILITATE FITTING THEM ADJACENT TO ONE ANOTHER, LEAVING A MINIMUM OF 18" BEYOND THE CONNECTION POINTS.



2 LOG JACK 8-PACK - SECTION
SCALE: 1"=20'



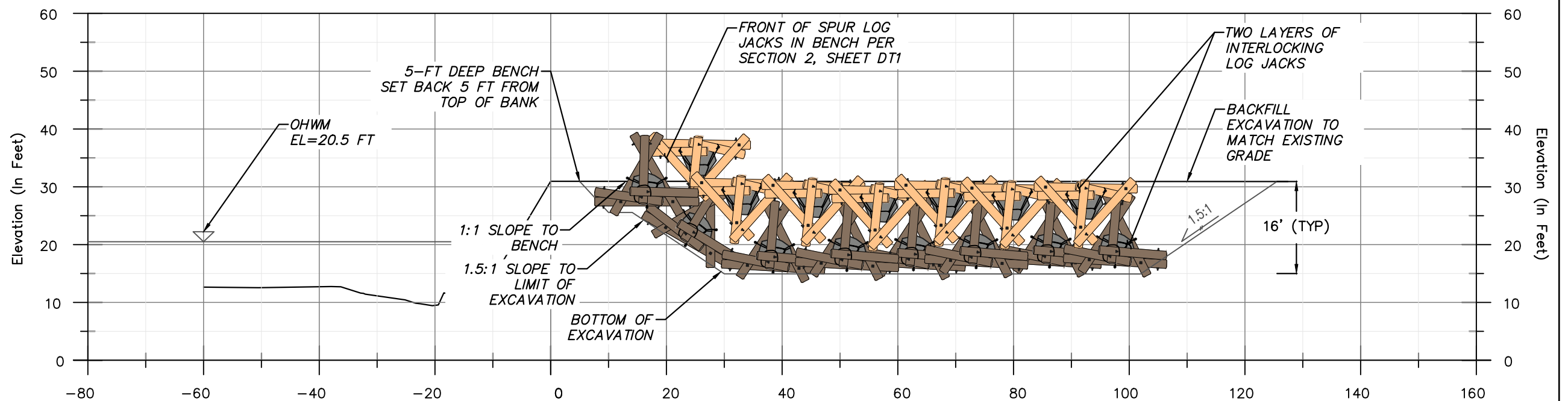
LOG JACK PER DETAIL 1, SHEET DT1
UPSIDE-DOWN JACKS SHOWN IN LT. BROWN (TYP)



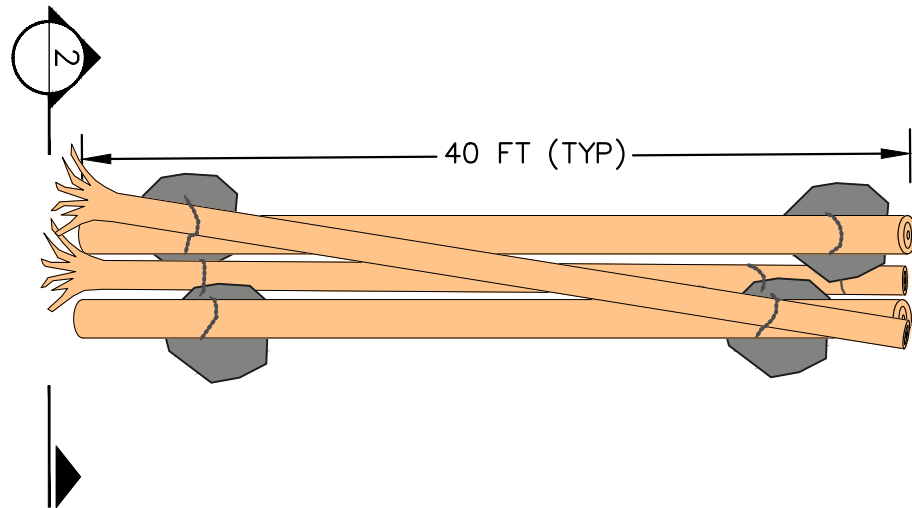
1 LOG JACK SPUR - PLAN
SCALE: 1"=20'

NOTES ON LOG JACK SPUR CONSTRUCTION:

- LOG JACKS ARE HELD TOGETHER BY FRICTION IN THE SPUR CONFIGURATION - NO ANCHORING BETWEEN ADJACENT UNITS WILL OCCUR.
- ALL EXCAVATED SLOPES ARE 1.5:1 UNLESS NOTED OTHERWISE
- PACK SLASH INTO JACK VOIDS BEFORE BACKFILLING
- STOCKPILE EXCAVATED SOILS AND BACKFILL EXCAVATION TO MATCH EXISTING CONTOURS.



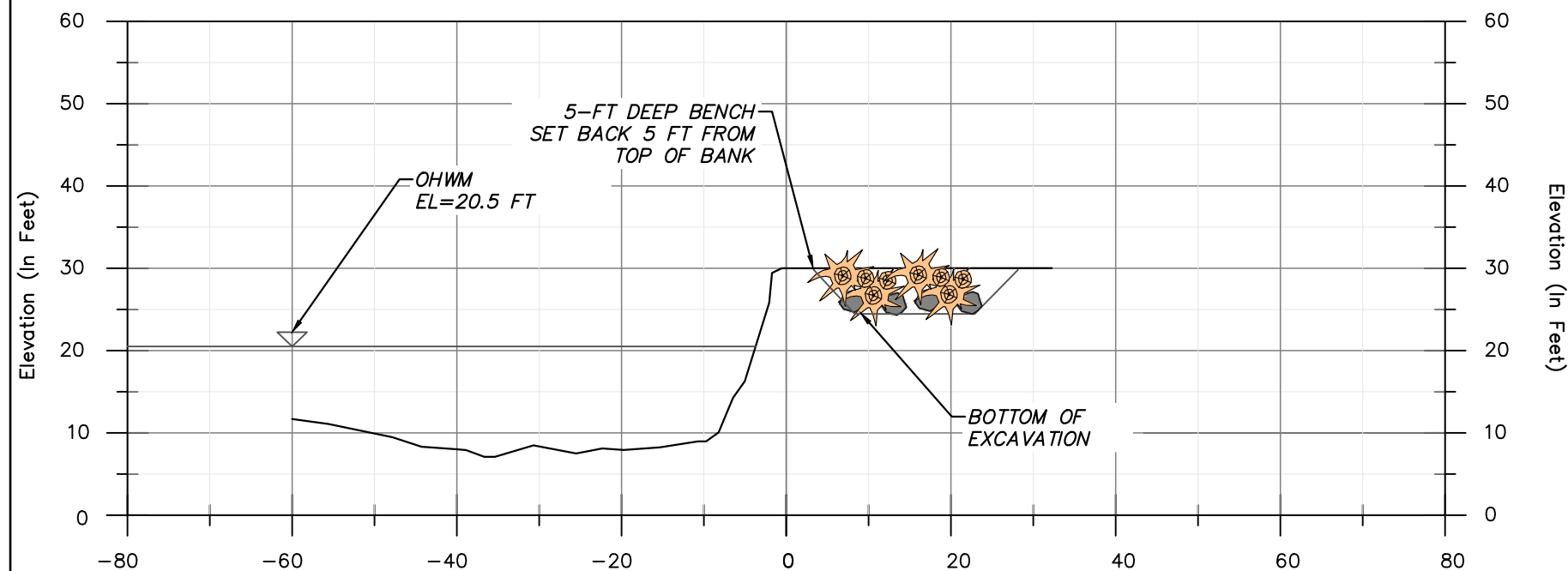
2 LOG JACK SPUR - SECTION
SCALE: 1"=20'



NOTES FOR CONTINUOUS LOG ROWS:

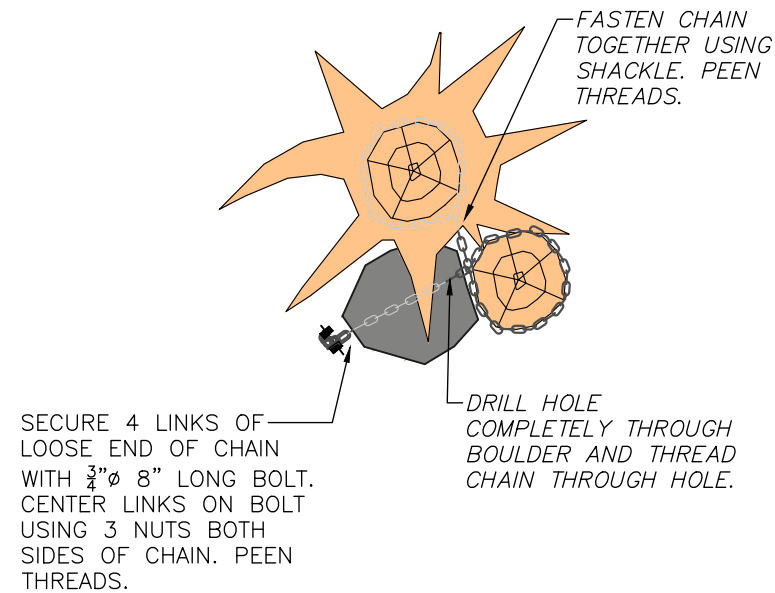
1. EACH UNIT CONSISTS OF FOUR LOGS (TWO WITH ROOTWADS) AND FOUR BALLAST BOULDERS CONNECTED WITH CHAIN.
2. ASSEMBLED UNITS WILL BE INSTALLED WITHIN A 5 FOOT DEEP TRENCH, SET BACK MINIMUM 5 FEET FROM TOP OF BANK.
3. UNITS WILL BE INSTALLED END-TO-END, ADJACENT UNITS WILL NOT BE CHAINED OR CONNECTED TOGETHER.

1 CONTINUOUS LOG ROW UNIT - PLAN
SCALE: 1"=20'

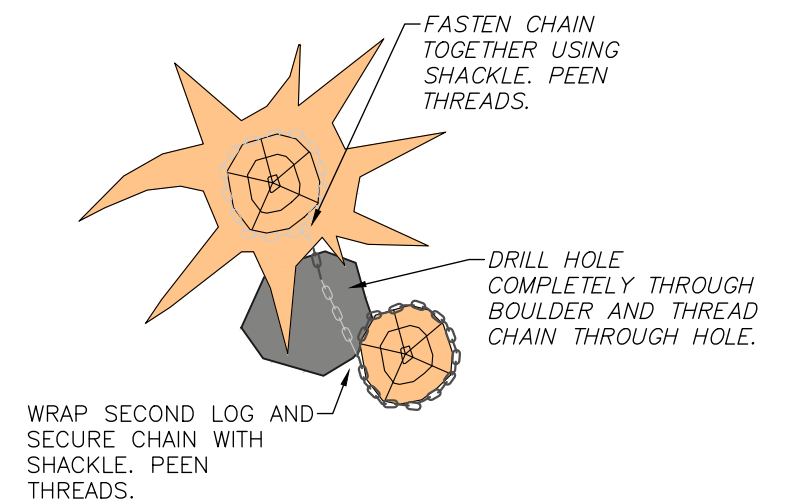


2 CONTINUOUS LOG ROW INSTALLATION - SECTION
SCALE: 1"=20'

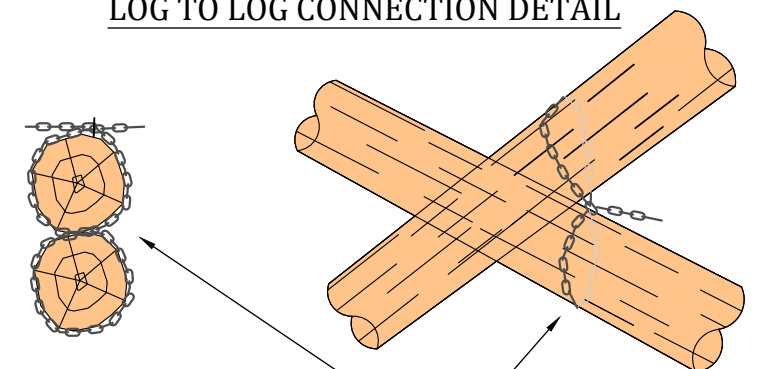
LOG TO LOG TO BOULDER CONNECTION DETAIL



LOG TO BOULDER TO LOG CONNECTION DETAIL



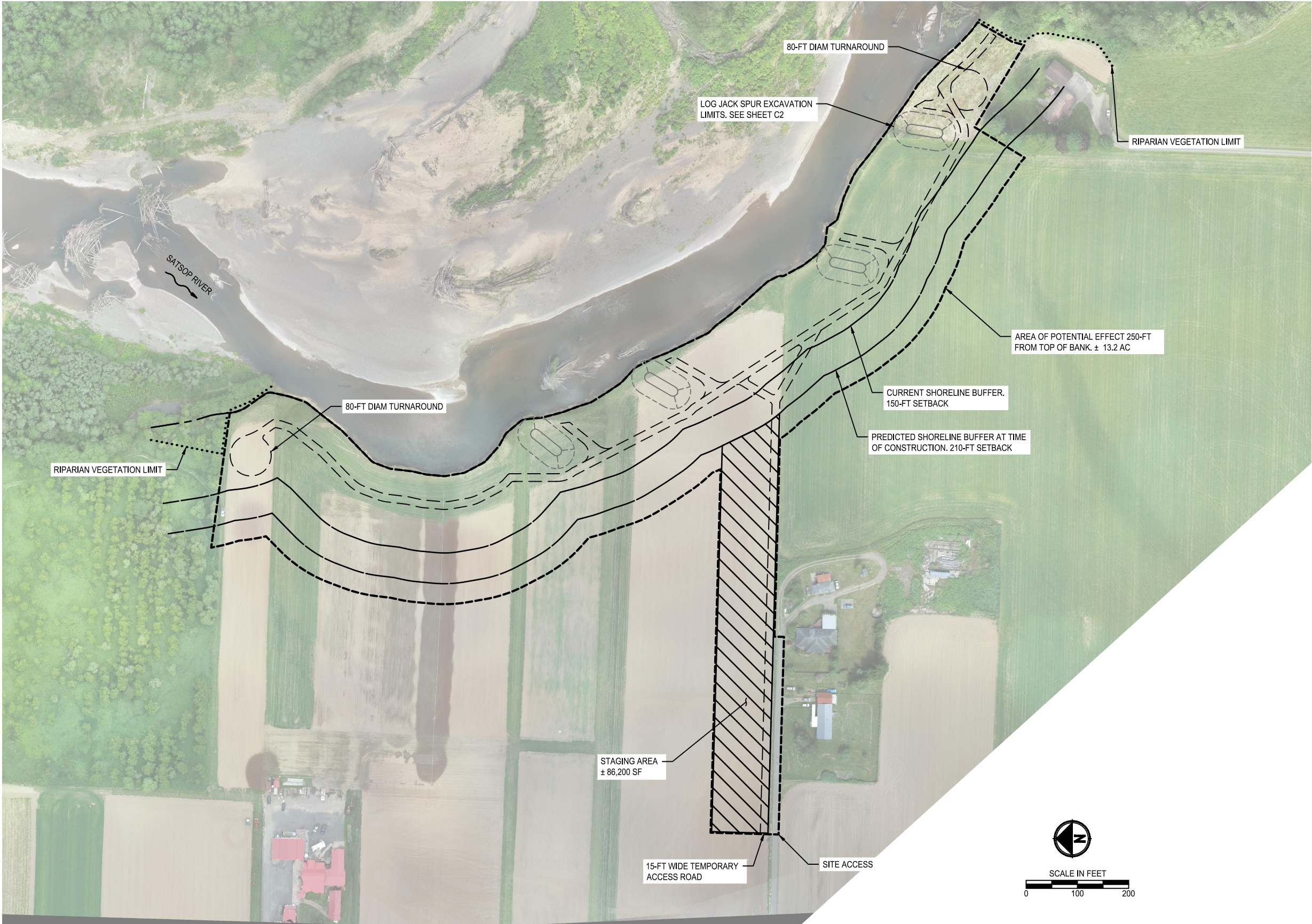
LOG TO LOG CONNECTION DETAIL



NOTES FOR LOG TO BOULDER AND LOG TO LOG CONNECTIONS:

- PROVIDE 2" DEEP NOTCH AND SEAT CHAIN WITHIN THE GROOVE. USE STAPLES TO SECURE CHAIN WITHIN NOTCH.
- BOULDERS AS CLOSE TO EACH LOG AS POSSIBLE, NO SLACK IN THE CHAIN UNLESS OTHERWISE NOTED.

PATH: U:\PSO\Projects\Clients\7132- Graye Harbor Conservation District\217-7132-001 Satsop RB Protection\995\cadd\DWG PLOTTED BY: aleanda DATE: Friday, July 30, 2021 2:57:17 PM LAYOUT: T1



- NOTES
1. SURVEY AND AERIAL IMAGERY COMPLETED JUNE 4, 2021.
 2. SITE ACCESS SHALL BE FROM THE WILLIS PROPERTY'S PRIVATE ROAD.
 3. TEMPORARY ACCESS ROAD SHALL BE 15-FT WIDE AND CONSIST OF GEOTEXTILE AND HOG FUEL (WOOD CHIPS). ACCESS ROAD SHALL BE INSTALLED AND MAINTAINED THROUGH THE DURATION OF THE PROJECT AND REMOVED PRIOR TO THE END OF THE 3-YEAR MAINTENANCE PERIOD. FOLLOWING REMOVAL, AREA WILL BE RESTORED TO PRE-EXISTING CONDITIONS AND RE-SEEDED WITH PASTURE GRASS OR CROP.
 4. GRAVEL CONSTRUCTION ENTRANCE SHALL BE INSTALLED AND MAINTAINED THROUGH THE DURATION OF THE PROJECT.
 5. WILLOW WATTLES OR OTHER BIOENGINEERING TECHNIQUES MAY BE INSTALLED AT UNDETERMINED LOCATIONS ALONG THE BANK FOLLOWING EROSION AS STRUCTURES SLUFF DOWN TO THE RIVERBANK, PER THE ADAPTIVE MANAGEMENT PLAN.
 6. MAINTENANCE AGREEMENT AND/ OR TEMPORARY ACCESS/ CONSTRUCTION EASEMENT WILL BE IN PLACE BETWEEN APPLICANT AND LANDOWNERS PRIOR TO CONSTRUCTION.

PERMIT REVIEW SET
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY	DESIGNED
			RSR
			DRAWN
			CFO
			CHECKED
			RSR
			APPROVED
			####

ONE INCH AT FULL SCALE, IF NOT, SCALE ACCORDINGLY
FILE NAME
PS7132001T-01
JOB No.
217-7132-001
DATE
08/21

PRELIMINARY



PROJECT NAME
LOWER SATSOP RIGHT BANK CONSERVATION PROJECT
MONTESANO, WA

STAGING AND ACCESS PLAN

DRAWING NO. 12 OF 14
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