Request for Clean Water Act
Section 401 Water Quality Certification
Washington State Department of Ecology
Phone: (360) 407-6076 or E-mail: ecyrefedpermits@ecy.wa.gov

AGENCY USE ONLY

Date Received:	5/20/2024
Aquatics ID No.:	142148
County:	King
Complete Request:	5/20/2024

This Section 401 Water Quality Certification (WQC) request form must be submitted as part of a WQC request and identifies information needed for review. Please see Department of Ecology's (Ecology) webpage[1] for more information about the WQC request process and additional information regarding the request requirements.

Submit this WQC Request form along with the supporting information[2] to ecyrefedpermits@ecy.wa.gov.

Request packages should be sent in by email, mail submissions will not be accepted. Supporting information should not be consolidated into one large file, if your documents are consolidated into one file, please separate them before submitting.

Per the 2023 EPA Water Quality Certification rule, the certifying authority may identify the contents of a request for certification relevant to water quality related impacts from the activity. Items listed in Section D are always required for a complete application. If notified by Ecology prior to submittal of this request, items listed in Section E are also required. If this information has been provided to Ecology as part of your federal permit application, you do not need to submit them again. However, please indicate in Section D how they were provided. Ecology will provide acknowledgement of receipt of a complete WQC request to the project proponent. Once Ecology confirms we have received all the required information, our review time will begin.

A. Project Information

Project Name: Belmondo Levee Repair

Ecology Aquatics ID Number: 142148

Project Location (Please attach a project location map when submitting this form):

Project Address: Cedar River, River Mile 10.4 County: King

B. Federal Permit or License Reference Number, if known: NWS-2022-784-WRD

Federal Agency: ☑ U.S. Army Corps of Engineers (Corps) ☐ U.S. Coast Guard
☐ Federal Energy Regulatory Commission ☐ Environmental Protection Agency (EPA)
☐ Other:

Identify the U.S. Army Corps permit, if applicable: ☑ Nationwide Permit ☐ Individual ☐ Other: _____
If Nationwide Permit which one(s)? NWP(s) # 3, 27

[1] https://ecology.wa.gov/Regulations-Permits/Permits-certifications/401-Water-quality-certification
[2] To submit documents over 25MB, e-mail ecyrefedpermits@ecy.wa.gov to request a secure link. Ecology does not accept outside links. Please include the Aquatics ID and project name when requesting a link.

To request an ADA accommodation, contact Ecology by phone at (360) 407-6076 or email at ecyrefedpermits@ecy.wa.gov, or visit https://ecology.wa.gov/accessibility.
For Relay Service or TTY call 711 or 877-833-6341.

Si necesita este formulario en español, por favor, llámenos a (360) 407-6076
o envíenos un correo electrónico a: ecyrefedpermits@ecy.wa.gov

C. Was a Pre-Filing Meeting Request submitted to Ecology prior to submitting this WQC request?

☑ Yes, a pre-filing meeting request was submitted on date: 4/19/2024

D. Required for all projects requesting an individual WQC. Please check the boxes below indicating where the following documents can be found within this WQC request.

	Within WQC request	Within federal permit application	Previously submitted to Ecology and is still up to date	Notes to find information within the submission
Copy of the federal permit application package for the federal permit or license	☑			Folder: "USACE Permit Packag
Complete up to date JARPA or other accepted application form	☐	☑	☐ Date:	JARPA_BelmondoRepair2020
Status of State Environmental Policy Act (SEPA) determination and/or exemption	☑	☐	☐ Date:	Belmondo Repair SEPA DNS.pd
Project location map and drawings	☑	☑	☐ Date:	Belmondo Drawings 20230512
Best management practices (BMPs)	☑	☑	☐ Date:	Belmondo_WQMP.doc, Sheet 6
Construction methodologies	☐	☑	☐ Date:	JARPA #6e (JARPA_Belmondo5
Requirements for In-Water Work				
Water quality monitoring plan	☑	☐	☐ Date:	Belmondo_WQMP.doc
Aquatic resource avoidance and minimization identified (e.g. eelgrass)	☐	☑	☐ Date:	Critical Area Report_Belmondo
Riparian revegetation, restoration, and management measures	☐	☑	☐ Date:	Sheet 15 of Belmondo Drawing
Requirements for Work in Wetlands				
Wetland delineation report with data sheets	☐	☑	☐ Date:	Critical Area Report_Belmondo
Wetland ratings	☐	☑	☐ Date:	Critical Area Report_Belmondo
Wetland mitigation plan, including avoidance and minimization measures, for wetland, stream, and/or other aquatic resources	☐	☑	☐ Date:	Critical Area Report_Belmondo
Riparian planting and monitoring and measures	☐	☑	☐ Date:	Critical Area Report_Belmondo

E. Required by project type or when identified by Ecology. Please check the boxes below indicating where the following documents can be found within this WQC request.

	Within WQC request	Within federal permit application	Previously submitted to Ecology and is still up to date	Notes to find information within the submission
Mitigation				
Wetland mitigation bank use plan	☐	☐	☐ Date:	
In-lieu (ILF) use plan	☐	☐	☐ Date:	
Water Quality Monitoring				
Water quality monitoring and protection plan	☐	☐	☐ Date:	
Spill prevention control and countermeasures plan	☐	☐	☐ Date:	
Upland Work				
Erosion and sediment control plan	☐	☑	☐ Date:	Sheet 6 of Belmondo Drawing
Stormwater pollution prevention plan	☐	☐	☐ Date:	
De-Watering				
Flow diversion, cofferdam, and dewatering system plan	☐	☑	☐ Date:	Sheet 6 and 7 of Belmondo D
Stream bypass plan	☐	☑	☐ Date:	Stormwater ditch and groundw
Water dispersion/ infiltration plan	☐	☑	☐ Date:	Sheet 6 of Belmondo Drawing
Culverts and Bridges				
Bridge demolition and construction plan	☐	☐	☐ Date:	
Culvert removal and replacement plan	☐	☐	☐ Date:	
Dredging				
Dredging and excavation plans	☐	☐	☐ Date:	
Suitability determination	☐	☐	☐ Date:	
Soils testing and characterization reports	☐	☐	☐ Date:	
Other				
Stone column installation plan	☐	☐	☐ Date:	
Horizontal direction drill (HDD) inadvertent return plan	☐	☐	☐ Date:	
Levee repair and bank stabilization plan	☐	☑	☐ Date:	Belmondo Drawings 2023051
Piling removal and installation plan	☐	☐	☐ Date:	
Wastewater servicing for marina operations	☐	☐	☐ Date:	

Aquatic invasive species management plan	☐	☐	☐ Date:	

F. Project Proponent Information

Project Proponent

First/Last Name: Alex Lincoln

Organization: King County Water and Land Resources Division

Phone #: (206) 263-0989 E-mail: alincoln@kingcounty.gov

Agent/Consultant

First/Last Name:

Organization:

Phone #: E-mail:

G. Required Certification Statements:

The project proponent hereby certifies that all information contained herein is true, accurate, and complete, to the best of my knowledge and belief.

The project proponent hereby requests that the certifying authority review and take action on this WQC request within the applicable reasonable period of time.

Signature: Alex Lincoln Digitally signed by Alex Lincoln Date: 2024.05.13 09:25:16 -07'00' Date: 5/13/2024

Print Name: Alex Lincoln

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers ®
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received: 5/20/2024 edoc
Rec'd WQC Req Form

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Belmondo Levee Repair Project

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Lincoln, Alex			
2b. Organization (If applicable)			
King County Department of Natural Resources and Parks, Water and Land Resources Division, River and Floodplain Management Section			
2c. Mailing Address (Street or PO Box)			
201 S. Jackson St., #5600			
2d. City, State, Zip			
Seattle, WA, 98104			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
206-263-0989	206-316-7156		alincoln@kingcounty.gov

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
3b. Organization (If applicable)			
3c. Mailing Address (Street or PO Box)			
3d. City, State, Zip			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☒ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

Cedar River, River Mile 10.4. See 5p.

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Maple Valley, WA

5d. County [help]

King

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
SW 1/4	29	23 N	6 E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

47.448519, -122.073442

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

292306-9021, 292306-9035, 292306-9019

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Cedar Shores Land LLC		292306-9019

5i. List all wetlands on or adjacent to the project location. [help]

Two wetlands were identified and delineated within the study area on May 3, 2022. Wetland A is located in the left bank floodplain of the Cedar River, part of which is within the project area. Wetland B is located in a stormwater ditch between the Cedar River Trail and State Route 169.

Wetland A is a Category II palustrine forested wetland, and vegetation is dominated by red alder, salmonberry, reed canarygrass, and Himalayan blackberry. Wetland B is a Category III palustrine emergent wetland, and vegetation is dominated by red alder, big-leaf maple, reed canarygrass, and Himalayan blackberry. For more information about these wetlands, refer to the *Belmondo Levee Repair Critical Areas Report*, prepared by ESA Associates (2022).

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

The Cedar River is mapped as a Type S water, and flows southeast to northwest/north through the project area.

A small groundwater-fed channel flows south to north through the floodplain and through Wetland A, entering the Cedar River within the project site. The channel is an abandoned mainstem channel of the Cedar River; historic maps show that the section of channel within the project area was part of the active channel of the Cedar River until the 1990s. The channel is now fed by a combination of groundwater and flow originating a small pond on private property (parcel # 2923069033) that is mapped as connected to the mainstem Cedar. The channel is primarily activated during high flow events, and there are currently no indicators of OHW within this channel. Salmonid fry have been observed in the lower reaches of this channel.

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Riparian habitat is limited along the left bank by levee armor and steep banks, though native shrubs and trees planted in 2010 exist along the levee and engineered log jam. Planted vegetation atop the levee includes Douglas fir, willow, red osier dogwood, twinberry, Pacific ninebark, rose, snowberry, alder, and big leaf maple. Several large big leaf maples are also present along the levee within the project area, provide shading to the river and floodplain. The plant community in the floodplain adjacent to the levee is a mix of native and non-native species; native species include small red alders, lady fern, willow, sword fern, salmonberry, and *Juncus* spp., and non-native species include primarily reed canarygrass as well as jewelweed and Himalayan blackberry. Vegetation within the stormwater ditch between SR-169 and the Cedar River Trail is primarily reed canarygrass and blackberry, though several small *Prunus* spp. and big leaf maple trees are also present.

The Cedar River provides habitat for several salmonid species including fall Chinook, coho, steelhead, sockeye, and cutthroat trout. The existing damaged engineered log jam has created a deep scour pool with overhanging wood cover which currently provides aquatic habitat for these species. The floodplain adjacent to the Belmondo Levee currently provides off-channel and flood refuge habitat for salmonids at higher flows. An existing groundwater-fed channel also provides some off-channel habitat, but it is overrun with reed canarygrass, is primarily sheet flow through the wetland, and the outlet to the Cedar River is perched at low flow.

No levees or revetments exist on the right bank and so the river is largely unconfined in this reach given the accessibility of the right bank floodplain to the river. However, the channel is single thread through the project reach and the meander bend in the project area is currently located up against the left bank due to deflection off of upstream bedrock and the upstream WPA levee; these upstream controls will likely continue leftward channel migration in the future, and the mainstem Cedar River is likely to engage the existing floodplain rock barb over time with channel migration.

5m. Describe how the property is currently used. [help]

Properties in the project area are used as open space in the Belmondo Reach Natural Area, and as part of the Cedar River Trail on top of the Belmondo Levee. A regional fiber optic line is located beneath the trail. State Route 169 is located adjacent to the project area; between SR-169 and the Cedar River Trail prism there is a stormwater ditch that conveys flow through Wetland B. A small portion of parcel 292306-9019 within the project area is privately owned by Cedar Shores Land LLC, and includes the Cedar River and its left bank.

5n. Describe how the adjacent properties are currently used. [help]

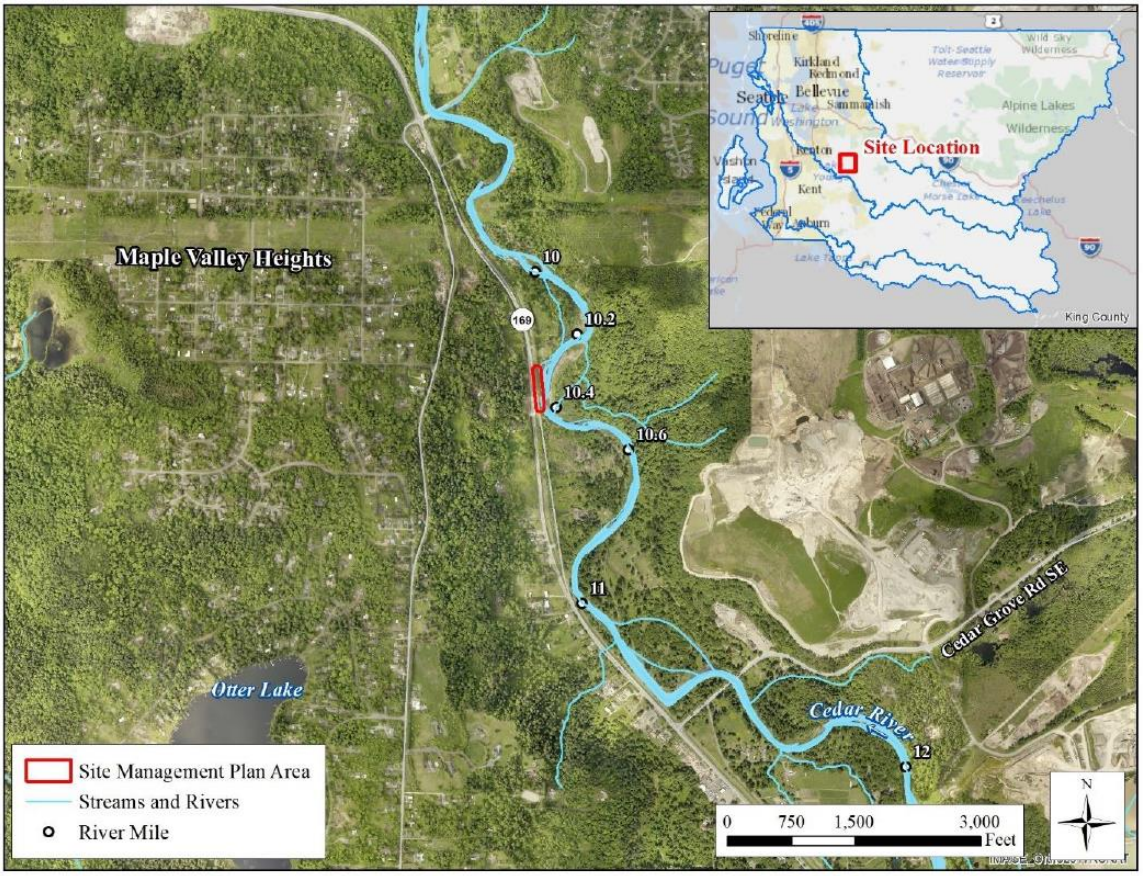
State Route 169 (SR-169) is located adjacent to the Cedar River Trail and project area on the left bank. On the left bank upstream of the project area, land is owned by King County Parks Division and is used for access and maintenance of Parks owned parcels and recreational areas. The right bank is owned by Cedar Shores LLC who operates a gravel mine, though this parcel is largely undeveloped.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

The Belmondo Levee provides flood protection for SR-169, the Cedar River Trail, and a buried regional fiber optic trunk line. Approximately 100 ft of the levee was damaged during 2020 flooding, including loss of fill within an existing engineered log jam, embankment erosion, and loss of toe and face rock, resulting in an over-steepened and unprotected levee core. If unaddressed, the damage will likely expand, resulting in potential impacts to infrastructure and loss of public property.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

Traveling southbound on SR-169 (Renton-Maple Valley Road), continue past SE Jones Road for 0.5 miles. Turn left onto a private road to cross the Cedar River Trail onto a Seattle Public Utilities parcel (292306-9013) to access the site during construction.



Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

The Belmondo Levee Repair Project is located on the left bank of the Cedar River, near River Mile 10.4. During a flood event in February 2020, an existing engineered log jam (built in 2011) and approximately 100 linear feet of levee was damaged. The project seeks to repair the damaged portion of the levee and ELJ while also enhancing aquatic habitat along the levee and adjacent floodplain.

The section of damaged levee will be repaired with rock placement and construction of a new engineered log jam. The latter is intended to provide bank protection, deflect flow, and enhance stability of the existing damaged ELJ by interlacing the two structures. Repair to the damaged ELJ will also include adding slash/racking and large wood pieces but will not involve a full re-build of the structure such that the deep pool in front of and below the structure can be preserved. Repair of the levee bank with embedded large wood was considered (e.g., a biorevetment) but was not carried forward because it would require removal of two large maple trees that provide channel shading in this reach which is largely lacking in large trees. Anchored large wood pieces placed parallel to the bank and a bank roughening structure will also be added to the rock repair to increase bank complexity.

The project will also include habitat enhancement in the floodplain adjacent to the damaged section of levee. Floodplain grading will increase connectivity of the small channel and floodplain wetland with the Cedar River, enhancing access to backwater/off-channel habitat for juvenile salmonids and removing existing reed canarygrass. Large wood placement in the floodplain and within graded channels will increase floodplain roughness and aquatic habitat quality.

An existing rock barb along the levee upstream of the damaged ELJ and bank will be enhanced with placement of triangular large wood elements with the intention of improving cover along the structure for fish. We anticipate that these triangular large wood elements will deform over time and remain engaged with the streambed as the mainstem Cedar River migrates leftwards over time. Plantings in the floodplain and on the bank adjacent to the levee and ELJ repair are intended to provide riparian habitat and channel shading when mature.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The project proposes to reduce flood risk by repairing the levee to protect SR-169, the Cedar River Trail, and the buried regional fiber optic line. The design seeks to accomplish this in a way that will retain existing mainstem pool habitat and provide further bank enhancement through placement of additional large wood in a new engineered log structure, anchored roughening pieces, and a bank roughening structure.

The project is also an opportunity to enhance existing floodplain and floodplain connectivity, which should benefit salmonids. Removal of invasive vegetation in the floodplain, replacement with native trees and shrubs, floodplain grading to enhance connectivity with backwater and side channel habitat, and placement of large wood should increase floodplain habitat quality for juvenile salmonid rearing and flood refuge. Constructing large wood structures along the existing rock barb should increase channel roughness at high flows and, when the mainstem Cedar has migrated to this location in the future, will create additional mainstem hydraulic complexity.

6c. Indicate the project category. (Check all that apply) [help]

☐ Commercial ☐ Residential ☒ Institutional ☐ Transportation ☐ Recreational

☐ Maintenance ☒ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☒ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☒ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☒ Channel Modification	☐ Fishway	☐ Raft	

☒ Other: Flood risk reduction; large wood placement; non-native vegetation removal and native planting in the riparian zone.

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

All project elements except the upland planting area will be constructed within the 100-year floodplain and all project elements are within, or immediately adjacent to, the Cedar River.

Pre-Construction: Prior to the nesting season for migratory birds (prior to April 2024), hand tools and heavy equipment (excavator) will be used to clear existing trees and vegetation from the river bank within the project area and staging area. The intent of early clearing is to minimize the potential for disturbing nesting migratory birds during construction. Trees will be removed to preserve rootwads when possible, and stockpiled in the staging area for later placement in the project site following construction of the levee and ELJs.

Prior to construction mobilization, the County will host a pre-construction meeting and site visit(s) with the contractor to ensure full and mutual understanding of the project site conditions, contract document requirements, and permit requirements. Early in the mobilization process and prior to commencing with construction of the various project elements, the contractor will establish site safety measures (traffic control, fencing, etc.) and implement necessary TESC elements and BMP's in compliance with permit requirements and to protect sensitive areas (Cedar River waters, adjacent trees and vegetation, etc.). These measures may include: silt fencing, wattles or coir logs to capture sediment laden runoff; temporary bulk bag isolation to either isolate the in-water work or at least minimize flow velocities; and, turbidity curtains to isolate the work area and minimize downstream turbidity resulting from in-water excavation and material placement). Pumping and dispersion of turbid water to a designated infiltration area may occur as needed by the contractor. These measures may be installed, added to and/or modified throughout the project to maximize effectiveness and ensure ongoing compliance with permit conditions.

Trail Diversion: Before construction on the levee or floodplain enhancement elements begins, a trail detour will be established to allow recreational users to safely navigate around the construction site. A fence or barrier will be placed down the middle of the Cedar River Trail to divert users onto the trail shoulder between the construction staging area and construction site. At the construction site, the ditch between the Cedar River Trail and SR-169 will be temporarily filled and a 10' wide paved trail

will be built on top. A temporary 18” culvert will placed within the temporary fill to continue conveying stormwater through the ditch.

Levee: It is likely the levee will be constructed in a single segment making it easier to contain turbidity with bulk bag isolation and turbidity curtain. The individual components of the levee will be constructed in a bottom up sequence starting with the toe rock and finishing at the top of the bank. An excavator (likely a long-reach) will be used to excavate and place the filter blanket and large scour resistant toe rock foundation below riverbed level at the toe of the riverbank. Because of the bank height, the Contractor may elect to first excavate a working surface (bench) partway down the bank so that the excavator can be positioned closer to the waterline to allow sufficient reach. A second excavator could support the first excavator by removing excavated materials and delivering the large toe rock. Once the toe rock foundation has been placed up to the riverbed elevation, excavators would be used to grade the bank back at the design slope. The remainder of the filter blanket and toe rock will progressively be placed up the bank to the low water level. Following placement of the toe-rock, the excavator would then progressively install the filter blanket and riprap up to the OWHM.

New ELJ:

- The riverbed and bank will be excavated with an excavator for the new ELJ base.
- The contractor will then install the toe rock in the same manner described for the levee to create a relatively level platform. Stockpiled riverbed alluvium will be used to backfill around the extents of the toe rock.
- Next the five layers of logs will be installed in the ELJ as shown on the drawings. Because the first layer of logs will be placed below water depth, large ballast boulders will be chained to each log to counteract buoyancy. Once the first layer of logs are in position, the spaces between the logs will be backfilled with riprap, creating a level platform for the next layer.
- The second layer will be arranged between the piles and perpendicular to the first layer, with the rootwads facing upstream with ballast boulders and the spaces between the logs backfilled with riprap, creating a level platform for the next layer.
- The third layer of logs will be installed in the same manner but perpendicular to the second layer, with rootwads oriented upstream and the spaces between the logs backfilled with riprap, creating a level platform for the next layer.
- The fourth layer of logs will be placed parallel to the second layer, these logs will attach bumper logs to the front of the structure that project down to the appropriate level. These logs will not have rootwads. They will have ballast boulders attached in order to counteract buoyancy of the structure during high flow events.
- The fifth and final layer of logs will cross both the new bank deflection ELJ and the existing ELJ to connect the two structures.

Existing ELJ:

The existing ELJ will have two new layers. Prior to constructing the first layer, voids in the existing ELJ will be stuffed with racking and slash.

- The first layer will coincide with the fourth layer of the new ELJ and install bumper logs out in front of the existing ELJ that will be shingled with the bumper logs from the new bank deflection ELJ.
- The second layer of the existing ELJ will be the same as the fifth layer of the new ELJ where large, long crossing logs with ballast boulders will connect the two ELJs. Additional slash will be placed to fill the voids between the logs at both the ELJs.
- The river bank above the ELJs will be rebuilt with select fill and native vegetation as described above.

Bank Roughening Structure

The Bank Roughening Structure will be installed in a section of the levee upstream of the large maples. The levee will be repaired up to elevation 205, then a layer of logs will be installed perpendicular into the bank. A second crossing log with the rootwad upstream will be installed with chain to the logs below and ballast boulders will be installed to counteract buoyancy. The upper bank will be rebuilt with select fill and native vegetation as described above.

Large wood elements (triangular structures) will be installed in front and on top of the existing rock barb with heavy machinery (excavator) and hand labor. The ballast boulders associated with the large wood elements will be installed into the rock barb. Voids under and in between the large wood elements will be stuffed with racking and slash.

Wetland Enhancement: Prior to work in the wetland enhancement grading area, any connection to the river will be isolated with bulk bags and a turbidity curtain. Access to the wetland enhancement grading area will be just upstream of the existing rock barb. The wetland enhancement grading and reed canary grass removal will be done with heavy machinery. The ground water expression in the relic side channel will be pumped to the river. Ground water encountered in the excavation area will be pumped to the upland infiltration area east of the site. In wet areas with heavy machinery the contractor may elect to install swamp mats for the excavator to operate from while excavating the reed canary grass and wetland enhancement grading. Large wood in the wetland enhancement area will be placed with the excavator between existing trees as directed by the project representative.

Native Vegetation: The final (top) layer of the bank repair will also use a combination of heavy equipment to to place the fill material and amend soils, and hand labor to lay out coir fabric cover and to plant native trees and shrubs.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: February 1, 2025 End Date: November 30, 2025 ☒ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

Approximately $1,100,000 for construction cost.

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

Permanent impacts to wetlands will be avoided. Temporary erosion and sediment control best management practices (silt fence, straw wattles) will be installed to prevent movement of sediment beyond active work areas into wetlands. Project actions will benefit wetland quality through removal of invasive vegetation, replanting with native vegetation, and placement of large wood.

Clearing and excavation within Wetland A will be the minimum required to remove reed canarygrass root mats and improve floodplain and backwater connectivity. Excavation within Wetland A aims to remove invasive vegetation and enhance floodplain connectivity; impacts will be temporary since the area will be replanted and habitat quality is expected to improve as a result of excavation. Excavation within the buffer of Wetland A is expected to permanently convert wetland buffer to wetland area. Clearing along the bank and levee slopes will temporarily impact wetland buffers; these areas will be restored and replanted with native woody vegetation.

Clearing and temporary fill placed within the ditch that contains Wetland B will be the minimum needed to establish a trail diversion. Vegetation to be cleared is primarily blackberry, and disturbed areas will be replanted with native trees, shrubs, and wetland vegetation to improve the quality of habitat in this area.

7b. Will the project impact wetlands? [help]

☒ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

Impacted areas will be improved compared to existing conditions, through removal of reed canarygrass and blackberry, installation of native trees and shrubs, and large wood placement. Restoration plans have been prepared to compensate for impacts (see Sheet 15 on project drawings). Mitigation goals, objectives, and performance standards can be found in the Critical Areas Report (ESA, 2022).

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

Areas temporarily impacted will be restored with native vegetation within the wetland and wetland buffers. These plantings are intended to outcompete any remaining or returning reed canarygrass in the project area, while providing shade to floodplain, newly excavated channel, and mainstem river areas. Plantings should also increase the diversity and complexity of vegetation communities and habitat, and the input of insects and detritus into aquatic systems. Eventually, vegetation planted in the floodplain will likely be recruited into the river, providing a source of small and large wood to the Cedar River.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
Clear Vegetation, Excavate	Wetland A	Riverine, Category II	1645 sq ft	Temporary until planted	R, E	1645 sq ft
Clear Vegetation, temporary fill	Wetland B (stormwater ditch)	Depressional, Category III	3785 sq ft	Temporary	R, E	3785 sq ft

Note: Wetland buffers overlap with stream buffers in all areas, so wetland buffer impacts are presented as aquatic area buffer impacts in 8e below.

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

For the temporary trail diversion, 500 cubic yards of select fill will be placed within and adjacent to Wetland B in the stormwater ditch with an excavator. To build the trail on top of the temporary fill, 80 cubic yards of asphalt and 80 cubic yards of trail base material will be used, using excavators, trucks and asphalt paving machinery.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Excavating will occur with heavy machinery operating from swamp mats for the floodplain excavation. Material excavated within Wetland A includes sand and silts less than 100 CY. Excavated material is expected to contain reed canary grass and root mass to be disposed of per King County Noxious Weeds guidelines.

An excavator will also be used to remove the temporary fill associated with the trail diversion in and adjacent to Wetland B in the stormwater ditch. All of this fill (500 CY, 80 CY asphalt, 80 CY trail base material) will be removed and disposed of off site.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

The damaged engineered log jam will be repaired and stabilized rather than re-built, so that impacts to the existing scour pool habitat and cover provided by the ELJ are minimized. The extent of rock placement is limited to the pre-damage footprint. Rock is being used to repair the eroded bank section rather than embedded wood in order to avoid removal of existing large maple trees along the bank which provide shade to the mainstem Cedar River.

Additionally, TESC best management practices will be employed during construction to avoid and minimize impacts to streams, including isolation of the in-water work area and use of turbidity curtains. Construction activities conduced below the ordinary high water mark of the Cedar River will be conducted during the WDFW- and USACE-approved in-water work window for the Cedar River.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

The proposed project includes restoration plans that include planting floodplain and stream bank areas with native plantings. Installation of large wood pieces and structures, and enhanced floodplain connectivity should provide a net benefit to aquatic habitat. Mitigation goals, objectives, and performance standards can be found in the Critical Areas Report (ESA, 2022).

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

See 7g and attached restoration plan (Sheet 13).

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Excavation	Cedar River	In-stream (below OHWM)	Temporary, until restored	800 CY	2,340 sq ft
Excavation	Cedar River	Stream/wetland buffer (above OHWM)	Temporary, until restored	600 CY	6,900 sq ft

Fill	Cedar River	In-stream (below OHWM)	Permanent	570 CY total (350 CY riprap, 60 CY quarry spalls, 150 CY ballast rock)	1,340 sq ft
Fill	Cedar River	Stream/wetland buffer (above OHWM)	Permanent	90 CY riprap, 330 CY select fill, 240 CY compost, 240 CY topsoil	1,100 sq ft
Fill – Bulk Bags	Cedar River	In-stream	Temporary	100 CY	200 LF, 4020 sq ft
Large Wood Installation	Cedar River	In-stream (below OHWM)	Permanent	180 CY	200 LF
Vegetation Clearing	Cedar River	Stream/wetland buffer	Temporary, until restored	n/a	18,070 sq ft

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

Fill – Riprap includes placement of 350 cubic yards below the OHWM and 90 cubic yards above the OHWM along the 100 ft of damaged bank and within the new ELJ. Riprap will be installed using an excavator. Riprap will be salvaged from onsite and imported from an approved offsite quarry.

Fill – Backfill includes placement of 60 cubic yards of quarry spalls below the OHWM. In addition, 330 cubic yards to select fill will be placed above the OHWM along the bank, on top of the existing ELJ and new ELJ. These will be installed using an excavator for fill materials. To amend soils, 240 cubic yards of topsoil, 240 cubic yards of compost, and 120 cubic yards of wood chip mulch will be placed above OHW and outside of wetlands along the bank on top of ELJs, on disturbed areas along the upper slope of the stormwater ditch, and within the staging area. The contractor may elect to use a blower truck for wood chip mulch.

Fill – Ballast rock includes placement of 150 cubic yards of ballast rock below the OHWM, within the existing ELJ, new ELJ, wood bank roughening structure, and large wood elements along the rock barb. Ballast rock will be installed using an excavator and imported from an approved offsite quarry.

Fill – Bulk bags consists of cubic yard bulk sacks filled with washed river gravels to be used for work area isolation during construction of the engineered log jams and bank repair. Bulk bags will be placed using a long reach excavator or crane. Washed river gravels will be imported from an approved offsite quarry.

Large wood installation will include 180 cubic yards of wood, varying in diameter from 18-30 inches and 15-45 ft in length and 25 CY of slash/racking. In total, 39 pieces of large wood will be used; 20 pieces will be used to construct the new bank deflection jam, 9 pieces will be used for the large wood elements on the rock barb, 6 pieces will be used for the bank roughening structure, 2 pieces will be anchored along the rock repair, and 2 pieces will be unanchored in the floodplain. Large wood and slash will be harvested within standard of Washington State Forest Practices Rules (Title 222 WAC). Wood will be installed by an excavator and hand labor.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Excavation activities will be conducted below the OHWM of the Cedar River to repair bank damage and increase connectivity of the floodplain with the Cedar River. The volume of excavated material below the OHWM is estimated at 800 cubic yards and will be levee material (face rock and core material) and native alluvium. Material above the OHWM and within the floodplain to be excavated is estimated at 600 cubic yards. Material containing invasive plant species material and roots will be disposed of appropriately off site. Clean fill will be disposed of at an approved quarry or additional approved location.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
WDFW	Bethany Scoggins	(425) 420-0601	2/29/2024
Muckleshoot Indian Tribe	Martin Fox	(253) 876-3121	8/2/2022
King County DLS	Stacy Graves	(206) 477-0324	4/11/2024
USACE	Kylie Miller	(206) 482-6917	4/19/2024
NOAA NMFS	Keith Wolf	(425) 666-9183	12/8/2023
WDNR	Trina Contreras	(206) 949-1720	6/6/2022
King County Parks	Andy Boland	(206) 477-6135	7/11/2022
King County Historic Preservation Program	Philippe LeTourneau	(206) 477-4529	8/30/2023
Seattle Public Utilities	Brent Lackey	(206) 684-7890	8/22/2022
Department of Ecology	Sonia Mendoza	(360) 918-1342	4/19/2024

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☒ Yes ☐ No

The Cedar River is on the 303(d) list for water temperature.

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

171100120106

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.

WRIA 8 – Cedar/Sammamish

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☐ Yes ☒ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☐ Urban ☐ Natural ☐ Aquatic ☒ Conservancy ☐ Other: _____

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☐ Shoreline ☒ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: _____

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

State Route 169 and the Cedar River Trail follow a former railroad line constructed in the 1800s; the Cedar River Trail is built on top of the historic railway prism.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

Please see attached materials

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Chinook salmon (*Oncorhynchus tshawytscha*; Threatened), steelhead (*Oncorhynchus mykiss*; Threatened), and coho salmon (*Oncorhynchus kisutch*; Candidate) use the Cedar River and may use the unnamed floodplain channel.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]
Steelhead trout, sockeye salmon, bull trout, kokanee, Chinook, coho, coastal cutthroat trout are listed as occurring or breeding in the Cedar River within the project area. These species may also use the floodplain tributary channel, though this is unconfirmed. WDFW PHS on the Web accessed on July 13, 2022.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.

☒ A copy of the SEPA determination or letter of exemption is included with this application.

☐ A SEPA determination is in progress and will be submitted soon.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☒ Shoreline Exemption Type (explain): Repair of an existing structure

Other City/County permits:

☒ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification ☐ Non-Federally Regulated Waters

FEDERAL AND TRIBAL GOVERNMENT
United States Department of the Army (U.S. Army Corps of Engineers): ☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)
United States Coast Guard: For projects or bridges over waters of the United States, contact the U.S. Coast Guard at: d13-pf-d13bridges@uscg.mil ☐ Bridge Permit ☐ Private Aids to Navigation (or other non-bridge permits)
United States Environmental Protection Agency: ☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)
Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC) ☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. __AL_____ (initial)

Alex Lincoln		04/19/2024
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

TO BE COMPLETED BY APPLICANT [help]

Project Name: Belmondo Levee Repair Project

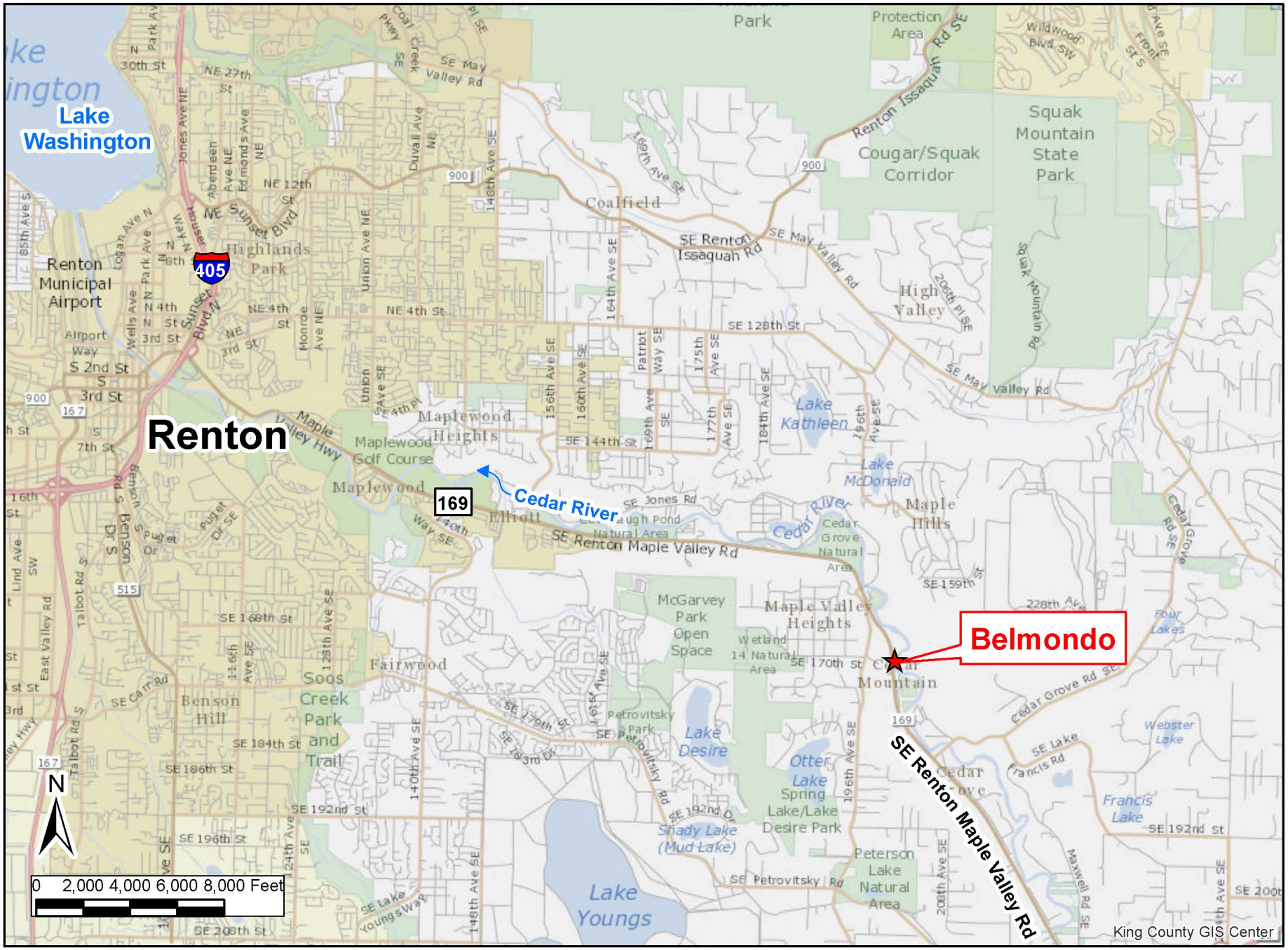
Location Name (if applicable): Cedar River

Attachment D:
Construction sequence [help]

Use this attachment only if your project will be constructed in phases or stages. Complete the outline showing the construction sequence and timing of activities, including the start and end dates of each phase or stage.

Use black or blue ink to enter answers in white spaces below.

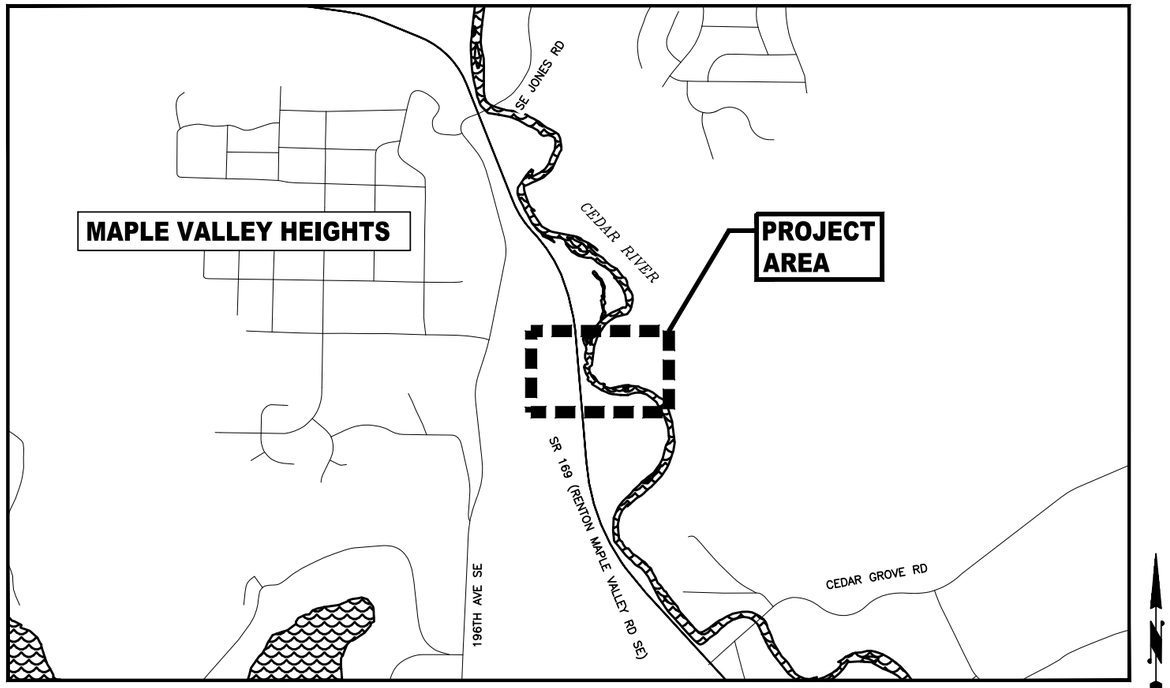
Phase or Stage	Start Date	End Date	Activity Description
1 (pre-construction clearing and stabilization)	January 1, 2025	March 15, 2025	Clear existing vegetation within upland vegetation areas (bank and staging areas) ahead of the bird nesting season, to comply with the Migratory Bird Treaty Act. Following clearing, any disturbed areas will be stabilized with hog fuel where needed.
2 (construction)	July 1, 2025	September 15, 2025	Construct the project. All in-water work will be completed during the approved in-water work window. Planting will be completed prior to November 30, 2025.



King County

KING COUNTY FLOOD CONTROL DISTRICT

VICINITY MAP



BELMONDO LEVEE REPAIR

CEDAR RIVER RM 10.4

WRIA 8

LAT 47.448 LONG -122.074

OWNER CONTACT INFORMATION::

KING COUNTY RIVER AND FLOODPLAIN MANAGEMENT
KING STREET CENTER
201 S JACKSION ST SUITE 5600
SEATTLE, WA 98104–3855

PROJECT MANAGER: MARK RUEBEL
PHONE: (206) 477–4090
EMAIL: MARK.RUEBEL@KINGCOUNTY.GOV

PROJECT ECOLOGIST: ALEX LINCOLN
PHONE: (206) 263–0989
EMAIL: ALINCOLN@KINGCOUNTY.GOV

PROJECT ENGINEER: MARK BEGGS, P.E.
PHONE: (206) 773–3702
EMAIL: MBEGGS@KINGCOUNTY.GOV

LEGAL AND SURVEY DESCRIPTION::

THE PROJECT LIMITS ARE WITHIN UNINCORPORATED KING COUNTY.

THIS PROJECT SITE IS WITHIN A PORTION OF THE SW, SECTION 29, T23N., R06E., W.M.

ZONED: RA–10

PARCEL: 292306–9021
LEGAL DESCRIPTION: C P S R/W ACROSS W 1/2 OF SEC

PARCEL: 292306–9035
LEGAL DESCRIPTION: POR GL 8 & 10 LY ELY OF C & P S R/W & NLY OF LN BEG AT PT ON ELY MGN C & P S R/W 550 FT N OF S LN OF GL 8 TH S 05–17–00 E 30 FT TH N 73–27–09 E 683 FT M/L TO RIVER W 20 FT FOR RD LESS C/M RGTS

SHEET INDEX

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

FIELD BOOK: DS/BM	05/2021
SURVEYED: DS/BM	05/2021
SURVEY BASE MAP: STH	05/2021
CHECKED: KLA	05/2021

NUM.	REVISION	BY	DATE
	60% DRAFT 05/2023		

NUM.	RECORD CHANGES APPROVED	BY	DATE

APPROVED: MARK RUEBEL, P.E.	05/2023
PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS–YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS–YOUNG, E.I.T.	05/2023

PROJECT No. 1139129

CONTRACT No. ––

MARK K. RUEBEL STATE OF WASHINGTON 44267 REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

MARK K. RUEBEL STATE OF WASHINGTON 24238 REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

VICINITY MAP AND SHEET INDEX

NOT FOR CONSTRUCTION

SHEET 1 OF 17 SHEETS

GENERAL NOTES:

1. BEFORE BEGINNING CONSTRUCTION VERIFY THAT EXISTING SITE CONDITIONS ARE AS INDICATED IN THE DRAWINGS AND SPECIFICATIONS. RIVER CHANNEL BANK TOPOGRAPHY WAS SURVEYED IN MAY 2021, AND WILL LIKELY HAVE CHANGED BY TIME OF CONSTRUCTION.
2. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREIN HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN. IMMEDIATELY CONTACT THE PROJECT REPRESENTATIVE IF A UTILITY OR OTHER EXISTING CONDITION PRESENTS A CONFLICT OR OTHERWISE PREVENTS OR INTERFERES WITH COMPLETION OF THE WORK.
3. LOCATE AND PROTECT NEARBY EXISTING UTILITIES, STRUCTURES, PAVEMENTS, AND FACILITIES WHICH ARE NOT ABANDONED OR REMOVED DURING CONSTRUCTION.
4. TRAFFIC CONTROLS SHOWN ON SHEET 3 ARE THE MINIMUM REQUIRED AND SHALL BE AUGMENTED BY THE CONTRACTOR IN ACCORDANCE WITH CONTRACTOR'S TRAFFIC CONTROL PLAN (TCP). CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN PER MUTCD AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL STAKE THE PROJECT CONSTRUCTION LIMITS FOR APPROVAL BY THE PROJECT REPRESENTATIVE AT LEAST 5 WORKING DAYS PRIOR TO COMMENCING ONSITE ACTIVITIES. ALL CLEARING NECESSARY FOR CONSTRUCTION SHALL BE LIMITED TO THE AREA REQUIRED FOR SAFE EQUIPMENT OPERATION AND TO MINIMIZE THE AREA OF DISTURBANCE. CLEARING LIMITS SHALL NOT BE EXPANDED UNLESS APPROVED BY THE PROJECT REPRESENTATIVE. THE CONTRACTOR SHALL PRESERVE AS MUCH EXISTING VEGETATION AS POSSIBLE AND NOT DAMAGE OR DISTURB VEGETATION MARKED BY THE PROJECT REPRESENTATIVE FOR PRESERVATION.
6. A COPY OF THE CONTRACT DRAWINGS, SPECIFICATIONS, AND ANY REQUIRED PERMITS MUST BE ON SITE AT ALL TIMES DURING CONSTRUCTION.
7. TREES AND BRUSH NOT SHOWN ON THE PLANS MAY BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, THE PROJECT REPRESENTATIVE SHALL IDENTIFY AND FLAG ALL TREES TO BE REMOVED PRIOR TO CONSTRUCTION IN THE PROJECT AREA.
8. PERFORM ALL CONSTRUCTION IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, COUNTY, AND CITY PERMIT REQUIREMENTS.
9. ALL EQUIPMENT OPERATING IN AREAS OTHER THAN THE EXISTING ROAD AND GRAVEL SHOULDER SHALL USE ONLY BIODEGRADABLE VEGETABLE BASED HYDRAULIC FLUIDS OR APPROVED OTHER.

SOURCES OF INFORMATION:

LIDAR
KING COUNTY 2021

AERIAL IMAGERY
KING COUNTY 2021

ORDINARY HIGH WATER AND WETLANDS
ENVIRONMENTAL SCIENCE ASSOCIATES MAY 2022

TOPOGRAPHIC AND BATHYMETRIC SURVEY

PARAMETRIX
TOPOGRAPHIC SURVEY MAY 2021
BATHYMETRIC SURVEY MAY 2021

HORIZONTAL DATUM
THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD 83/11 WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE BASED ON GPS FIELD SURVEY TO WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) MONUMENT DESIGNATIONS GP17169-353 AND IS17243. POINT DESIGNATION GP17169-353 NORTHING: 169,561.990 EASTING: 1,332,190.262 POINT DESIGNATION IS17243 NORTHING: 169,347.394 EASTING: 1,332,159.209

VERTICAL DATUM
THE VERTICAL DATUM FOR THIS SURVEY IS NAVD 88 BASED ON GPS FIELD SURVEY TO WSDOT MONUMENT DESIGNATION GP17169-353. ELEVATION = 225.872

EXISTING LINE TYPES:

425	MAJOR 5' CONTOUR (EXISTING)
422	MINOR 1' CONTOUR (EXISTING)
	PROPERTY LINES
R/W	RIGHT-OF-WAY
	EDGE OF ASPHALT/ PAVEMENT
OHW	ORDINARY HIGH WATER
SURVEY	SURVEY LIMIT LINE
LWL	LOW WATER LINE
100Y	100 YR FIS FLOODPLAIN
	WETLAND BOUNDARY
C	INTERSTATE FIBER OPTIC LINE
?	UNKNOWN EXTENTS

DESIGN LINETYPES:

10	MAJOR 5' CONTOUR
12	MINOR 1' CONTOUR
CL	CLEARING LIMITS
TC	TURBIDITY CURTAIN
CD	BULK BAG COFFER DAM
SW	STRAW WATTLE
	PROJECT LIMITS
SF	SILT FENCE
	BULK BAG ISOLATION

LEGEND:

- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- CP #10006 — SURVEY CONTROL POINT
- STABILIZED CONSTRUCTION ENTRANCE
- CORRUGATED STEEL PLATE CONSTRUCTION ENTRANCE
- STAGING/STOCKPILE AREA
- REMOVE EXISTING TREE
- DAMAGED AREA
- EXISTING REVETMENT
- SELECT FILL
- FILTER LAYER
- CLASS C ROCK
- EXISTING BANK MATERIAL
- NATIVE PLANTINGS
- SIGNAGE
- ACCESS
- 1 — TREE REMOVAL NUMBER
- SB-X — 2010 BORING LOCATION
- WATER INFILTRATION AREA
- XXXX — PARCEL NUMBER (2923069-XXXX)
- TRAIL DIVERSION
- WORK AREA
- TEMPORARY FILL

ABBREVIATIONS:

APPROX	APPROXIMATELY
COMP	COMPACTED
CP	CONTROL POINT
CSBC	CRUSHED SURFACING BASE COURSE
DBH	DIAMETER AT BREAST HEIGHT
DIA	DIAMETER
EL	ELEVATION
ELJ	ENGINEERED LOG JAM
EXIST	EXISTING
FIS	FLOOD INSURANCE STUDY
FT	FEET/FOOT
IE	INVERT ELEVATION
KC	KING COUNTY
KC WLRD	KING COUNTY WATER AND LAND RESOURCES DIVISION
LWS	LARGE WOOD STRUCTURE
MAX	MAXIMUM
MIN	MINIMUM
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
PMX	PARAMETRIX
QTY	QUANTITY
RCKC	REBAR AND CAP, KING COUNTY
RD	ROAD
R/W	RIGHT-OF-WAY
SE	SOUTHEAST
SF	SQUARE FEET/FOOT
SPECS	SPECIFICATIONS
SQ	SQUARE
ST	STREET
STA	STATION
TCP	TRAFFIC CONTROL PLAN
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
TEMP	TEMPORARY
TYP	TYPICAL
WAC	WASHINGTON ADMINISTRATIVE CODE
WSDOT	WASHINGTON DEPARTMENT OF TRANSPORTATION
YR	YEAR
&	AND

DRAWING REFERENCE:

- 1 / 5 — DETAIL REFERENCE NUMBER; DRAWING(S) ON WHICH DETAIL IS SHOWN
- A / 5 — SECTION REFERENCE LETTER; DRAWING(S) ON WHICH SECTION IS SHOWN
- SECTION/DETAIL, SCALE: 1"=XX' — A / 5 — SECTION/DETAIL REFERENCE LETTER; DRAWING(S) FROM WHICH SECTION/DETAIL WAS TAKEN

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS-YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

NOT FOR CONSTRUCTION — MARK W. RUEBEL, PROFESSIONAL ENGINEER, 44267
NOT FOR CONSTRUCTION — MARK BEGGS, PROFESSIONAL ENGINEER, 54238

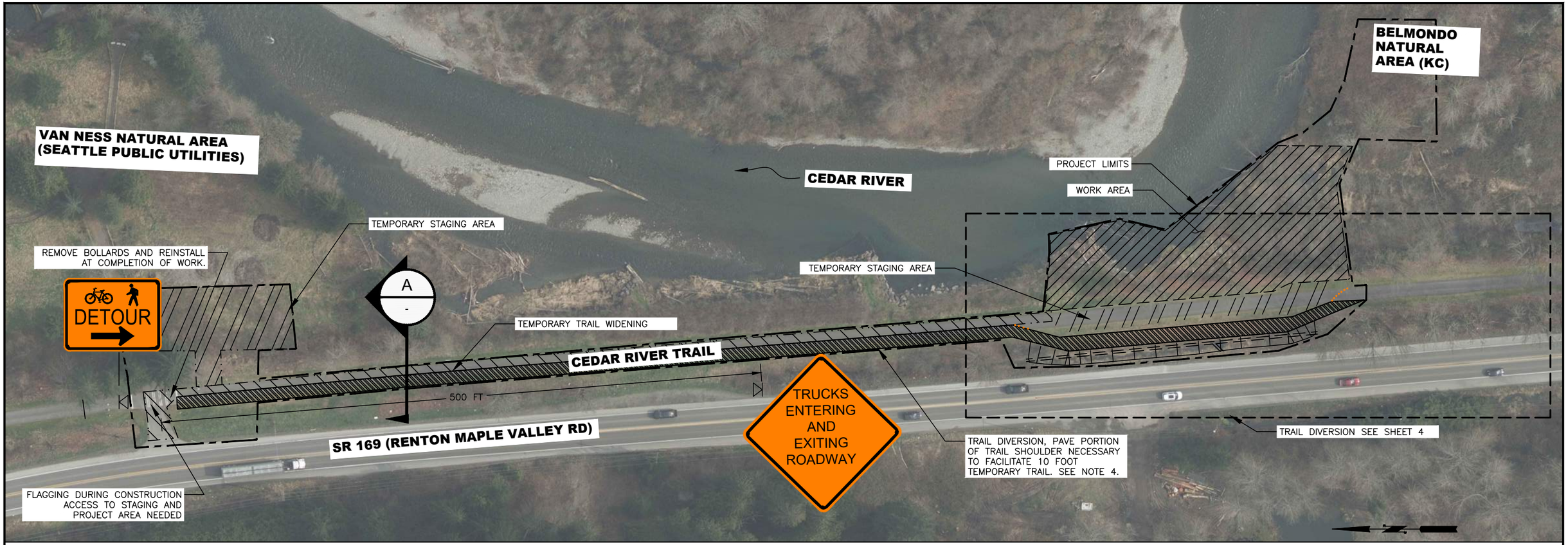
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

LEGEND AND ABBREVIATIONS

NOT FOR CONSTRUCTION

SHEET 2 OF 17 SHEETS



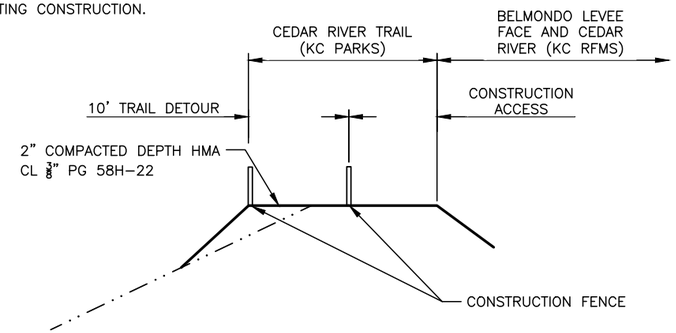
ACCESS AND TRAFFIC CONTROL NOTES:

1. HEAVY TRUCK AND EQUIPMENT ACCESS AND EGRESS TO SITE IS ONLY VIA SR 169 (RENTON MAPLE VALLEY RD SE). CONSTRUCTION ACCESS LIMITED TO RIGHT TURNS.
2. SECURE SITE EACH EVENING AND ON WEEKENDS WITH HIGH VISIBILITY FENCE OR EQUIVALENT.
3. PROTECT EXISTING TRAIL WITH ROAD PLATES OR ADDITIONAL MEASURES TO PROTECT FROM DAMAGE.
4. PAVE TRAIL SHOULDER TO ACCOMMODATE 10 FOOT WIDTH TEMPORARY TRAIL DIVISION FOR FULL EXTENT OF PROJECT AREA AND CONSTRUCTION ACCESS CORRIDOR.
5. TEMPORARY STAGING AREA SHALL BE FLAGGED BY THE CONTRACTOR AND APPROVED BY PROJECT REPRESENTATIVE PRIOR TO ANY CLEARING OR USE.
6. STREET SWEEP OR POWER BROOM ANY TRACK OUT ON CEDAR RIVER TRAIL AND SR 169 (MAPLE VALLEY RD SE) IMMEDIATELY OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.
7. TRAFFIC CONTROL SIGNAGE SIZE AND PLACEMENT SHALL BE INSTALLED IN COMPLIANCE WITH MUTCD ADOPTED BY WAC 468–95, ITS MODIFICATIONS AND WSDOT SIGN FABRICATION MANUAL.
8. CONTRACTOR SHALL NOTIFY WSDOT TEN DAYS PRIOR TO SIGN INSTALLATION.
9. AFTER CONSTRUCTION, REPAIR TRAIL TO PREPROJECT CONDITIONS OR BETTER.

POTENTIAL CONSTRUCTION SEQUENCE NOTES:

1. PRE–CONTRACT VEGETATION CLEARING TO OCCUR PRIOR TO MARCH FOR MIGRATORY BIRD TREATY ACT COMPLIANCE.
2. SCHEDULE AND ATTEND PRE–CONSTRUCTION MEETING AND NOTIFY PERMIT AUTHORITIES BEFORE STARTING CONSTRUCTION.
3. IMPLEMENT THE TRAFFIC CONTROL PLAN. SEE THIS SHEET.
4. IMPLEMENT THE TRAIL DIVERSION. SEE SHEET 4.
5. IMPLEMENT THE TESC AND WATER MANAGEMENT PLAN. SEE SHEET 6.
6. PROTECT TRAIL DURING CONSTRUCTION.
7. REMOVE (GRUB) INVASIVE VEGETATION AND DISPOSE.
8. REMOVE AND SALVAGE RIPRAP FROM LEVEE FACE.
9. COMPLETE LEVEE FACE ROCK REPAIR, ELJ REPAIR AND INSTALLATION OF NEW ELJS.
10. COMPLETE INSTALLATION OF WETLAND ENHANCEMENT ELEMENTS.
11. COMPLETE UPPER BANK INSTALLATION AND NATIVE PLANTINGS.
12. REASSEMBLE, REPAIR OR RESTORE TRAIL TO PRE–PROJECT CONDITIONS.
13. RESTORE PUBLIC ACCESS TO TRAIL AFTER FINAL WALK THROUGH WITH PROJECT REPRESENTATIVE.
14. FOLLOWING CONSTRUCTION, REMOVE HIGH VISIBILITY FENCE AND REMOVE TESC FEATURES.
15. COMPLETE PLANTING PLAN PER SHEET 15.

40 0 40 80 120
SCALE IN FEET



A - **TYPICAL SECTION TEMPORARY TRAIL WIDENING**
SCALE: NTS

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PROJECT MANAGER:	MARK RUEBEL, P.E.	05/2023
ECOLOGIST:	ALEX LINCOLN	05/2023
DESIGNER:	MARK BEGGS, P.E.	05/2023
	DARIAN KIS–YOUNG, E.I.T.	05/2023
CAD DESIGN:	DARIAN KIS–YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. ––

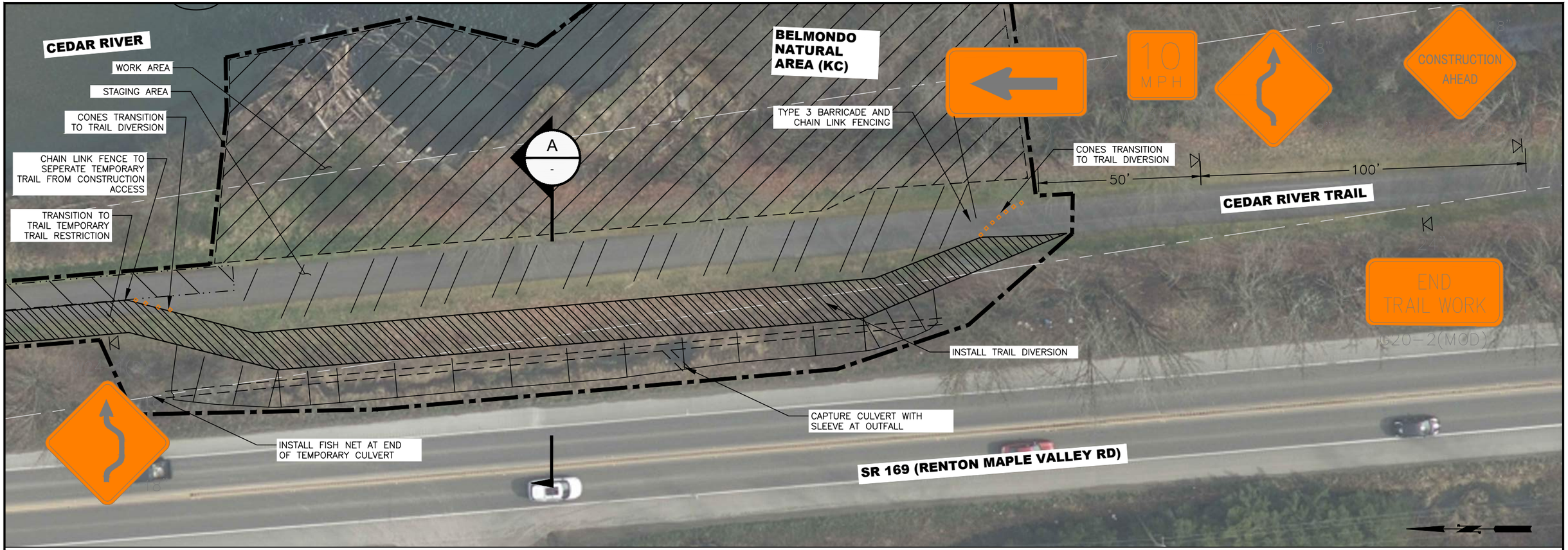
MARK W. RUEBEL — STATE OF WASHINGTON — 24267 — REGISTERED PROFESSIONAL ENGINEER
MARK W. RUEBEL — STATE OF WASHINGTON — 24238 — REGISTERED PROFESSIONAL ENGINEER

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

ACCESS AND TRAFFIC CONTROL
NOT FOR CONSTRUCTION

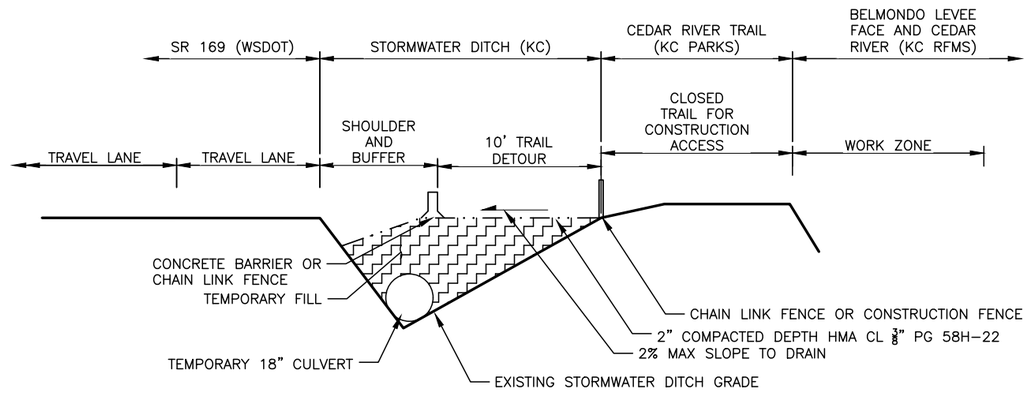
SHEET 3 OF 17 SHEETS



15 0 15 30 45
SCALE IN FEET

NOTES:

1. ALL SIGNS ARE BLACK ON ORANGE.
2. A MINIMUM OF 3 FEET OF CLEARANCE SHOULD BE KEPT BETWEEN THE SIGNS AND THE EDGE OF TRAIL WHEREVER POSSIBLE.
3. PROVIDE AND MAINTAIN A SMOOTH AND EVEN TRANSITION BETWEEN EXISTING TRAIL AND TEMPORARY TRAIL DIVERSION. A MAXIMUM ¼" ELEVATION CHANGE IS ACCEPTABLE.
4. SIGN SPACING IS APPROXIMATE AND IS INTENDED FOR GUIDANCE PURPOSES ONLY. SIGNS SHOULD BE ADJUSTED BASED ON SITE CONDITIONS AND KC PARKS RECOMMENDATIONS.
5. TRAFFIC CONTROL SHALL BE INSPECTED AND MAINTAINED IN GOOD WORKING ORDER. THE CONTRACTOR SHALL RESPOND TO AND MAY BE REQUIRED TO ADAPT TRAFFIC CONTROL MEASURES IN RESPONSE TO CONCERNS RAISED BY THE PUBLIC. MODIFICATIONS OR ADAPTATIONS TO TRAFFIC CONTROL SHALL REQUIRE APPROVAL FROM KING COUNTY PARKS AS APPLICABLE.
6. REMOVAL OF THE DIVERSION TRAIL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. RESTORATION OF THE DIVERSION AREA AND WORK ZONE TO PRE-PROJECT CONDITIONS OR BETTER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND AS APPROVED BY KC PARKS.



A - **TYPICAL SECTION TRAIL DIVERSION**
SCALE: NTS

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PROJECT No. 1139129
CONTRACT No. --

MARK W. RUEBEL — STATE OF WASHINGTON — 24267 — REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

MARK W. REVISION — STATE OF WASHINGTON — 24267 — REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

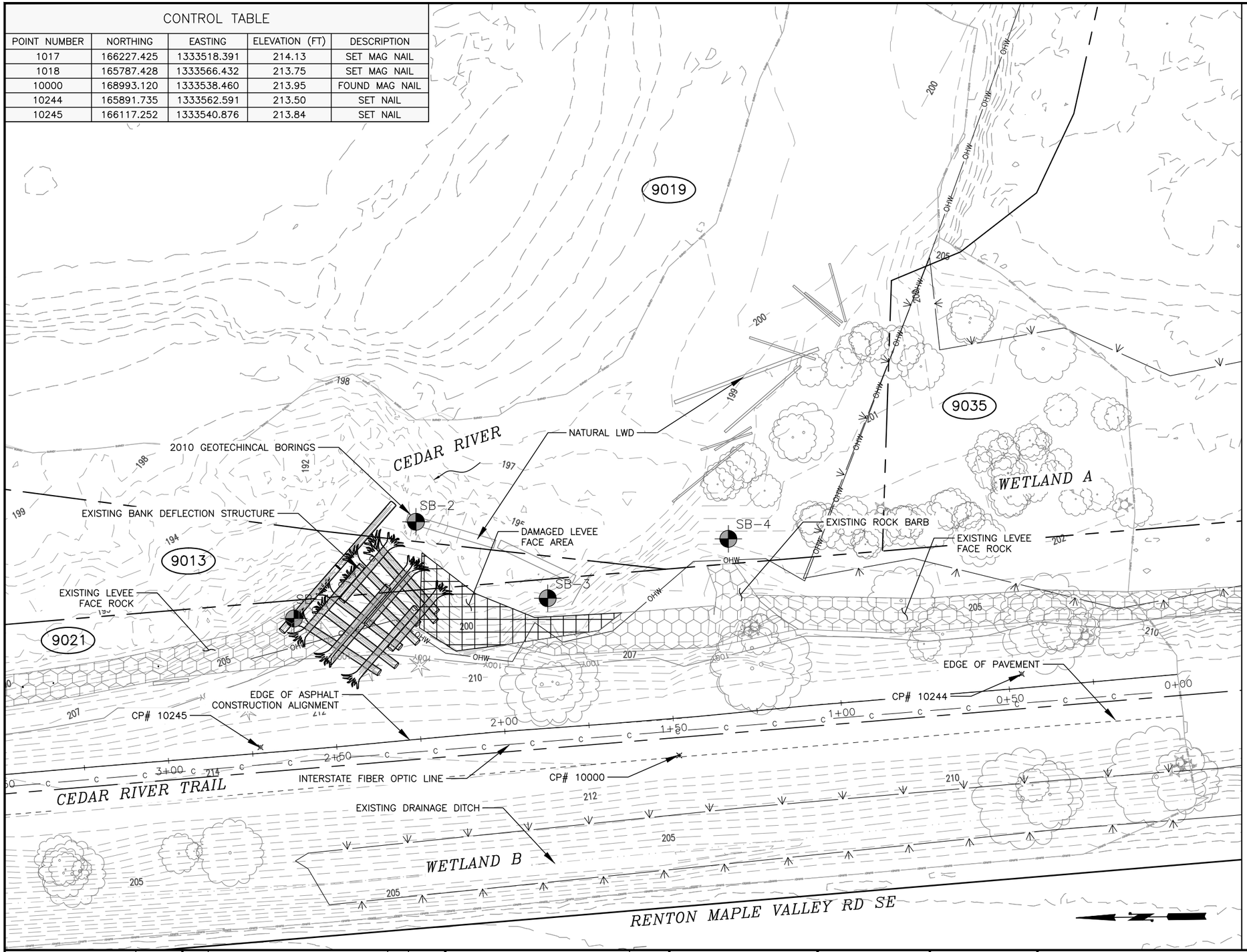
BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

TRAIL DIVERSION

NOT FOR CONSTRUCTION

SHEET 4 OF 17 SHEETS

CONTROL TABLE				
POINT NUMBER	NORTHING	EASTING	ELEVATION (FT)	DESCRIPTION
1017	166227.425	1333518.391	214.13	SET MAG NAIL
1018	165787.428	1333566.432	213.75	SET MAG NAIL
10000	168993.120	1333538.460	213.95	FOUND MAG NAIL
10244	165891.735	1333562.591	213.50	SET NAIL
10245	166117.252	1333540.876	213.84	SET NAIL



EXISTING CONDITIONS NOTES:

1. PROPERTY LINES AND RIGHT OF WAY ARE DERIVED FROM KING COUNTY ASSESSORS MAP AND ARE APPROXIMATE.
2. EXTENTS OF EXISTING RIPRAP AND DAMAGE LOCATIONS ARE APPROXIMATE AND TO BE VERIFIED AT TIME OF CONSTRUCTION.
3. RIVER BANK CONTOURS SHOWN REPRESENT CONDITIONS AT THE TIME OF SURVEY.
4. ORDINARY HIGH WATER LINE REFLECTS GRADES AT TIME OF DELINEATION.
5. BANK DEFLECTION STRUCTURE LOG LOCATIONS ARE FROM ORIGINAL DESIGN DRAWINGS AND MAY HAVE SHIFTED SINCE CONSTRUCTION OR DURING DAMAGE.
6. SEE SHEET 8 FOR CONSTRUCTION ALIGNMENT STATION TABLE.

BORINGS		
LABEL	NORTHING	EASTING
SB-1	166107.02	1333579.02
SB-2	166071.17	1333607.67
SB-3	166032.14	1333585.03
SB-4	165978.63	1333602.62

15 0 15 30 45
SCALE IN FEET

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DARIAN KIS-YOUNG, E.I.T. 05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T. 05/2023

PROJECT No. 1139129
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MARK RUEBEL 24267 REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION
MARK BEGGS 24238 REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

King County
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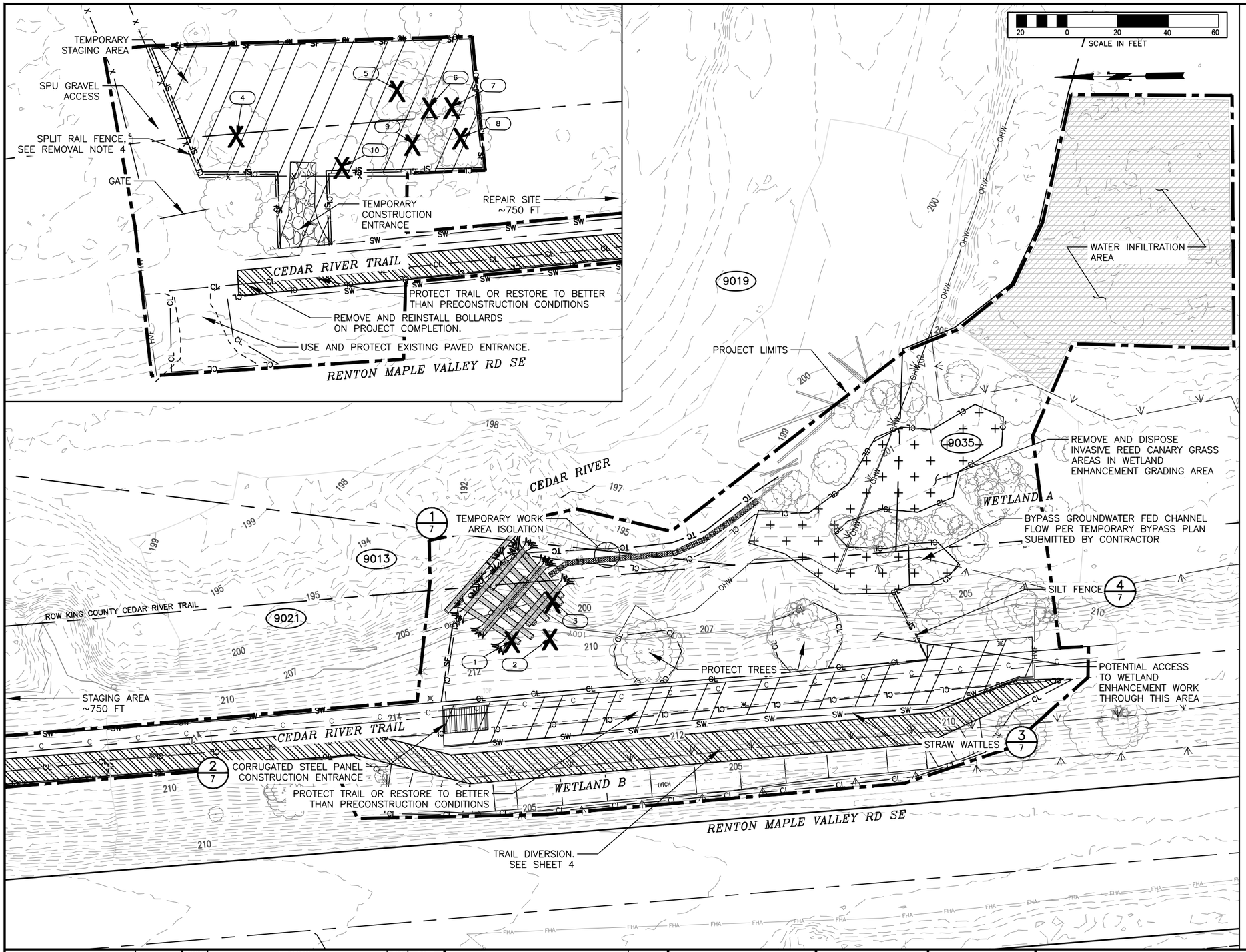
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

EXISTING CONDITIONS AND SURVEY CONTROL
NOT FOR CONSTRUCTION

SHEET 5 OF 17 SHEETS



CLEARING-REMOVAL NOTES:

1. PROTECT ALL TREES FLAGGED NOT FLAGGED FOR REMOVAL.
2. WHEN POSSIBLE, NATIVE VEGETATION SHALL BE LEFT IN PLACE AND CARE SHALL BE TAKEN TO MINIMIZE DAMAGE.
3. TREES REMOVED SHALL BE STOCKPILED AND PLACED IN THE PROJECT AREA AT THE DIRECTION OF THE PROJECT REPRESENTATIVE.
4. REMOVE AND REPLACE SPLIT RAIL FENCE ADJACENT TO STAGING AREA.

TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) NOTES:

1. WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE PERMITS.
2. THE FOLLOWING BEST MANAGEMENT PRACTICES SHALL BE ON–SITE OR READILY ACCESSIBLE DURING ALL CONSTRUCTION ACTIVITIES: QUARRY SPALLS FOR EQUIPMENT ACCESS, STRAW WATTLES, PLASTIC SHEETING, TURBIDITY CURTAIN, SAND BAGS.
3. TEMPORARY CONSTRUCTION ENTRANCES SHALL BE INSTALLED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
4. LAY HOG FUEL FOR ACCESS ROUTES AS DIRECTED BY THE PROJECT REPRESENTATIVE.
5. STRAW WATTLE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. INSTALL TEMPORARY WORK AREA ISOLATION PRIOR TO ANY GRADING ACTIVITIES.
7. THE TESC MEASURES MUST BE INSTALLED AND MAINTAINED IN CONJUNCTION WITH ALL CONSTRUCTION ACTIVITIES IN SUCH A MANNER TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE RIVER OR VIOLATE APPLICABLE WATER QUALITY STANDARDS.
8. PROVIDE AND MAINTAIN A SPILL CLEANUP KIT FOR FUEL AND HYDRAULIC OIL SPILLS.
9. ANY AREA OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH APPROVED TESC COVER METHODS.
10. TURBID WATER FROM EXCAVATION AREAS TO BE PUMPED TO WATER INFILTRATION AREA

TREES TO BE REMOVED		
TREE NUMBER	SPECIES	DBH
1	DOUGLAS FIR	0'–5"
2	DOUGLAS FIR	0'–4"
3	RED ALDER	0'–5"
4	COTTONWOOD	0'–9"
5	COTTONWOOD	0'–7"
6	COTTONWOOD	0'–8"
7	COTTONWOOD	0'–7"
8	RED ALDER	0'–5"
9	COTTONWOOD	0'–6"
10	COTTONWOOD	0'–6"

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Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

CLEARING-REMOVALS AND TESC

NOT FOR CONSTRUCTION

SHEET 6 OF 17 SHEETS

TEMPORARY WORK AREA ISOLATION NOTES:

1. CONTRACTOR SHALL COORDINATE WITH PROJECT REPRESENTATIVE FOR FISH EXCLUSION ACTIVITIES. TIME SHALL BE ALLOTTED IN CONSTRUCTION SCHEDULE FOR THIS ACTIVITY PER SPECIFICATIONS. CONSTRUCTION WITHIN THE ISOLATED WORK AREA MAY NOT COMMENCE UNTIL THE OWNER HAS COMPLETED ALL FISH EXCLUSION ACTIVITIES.

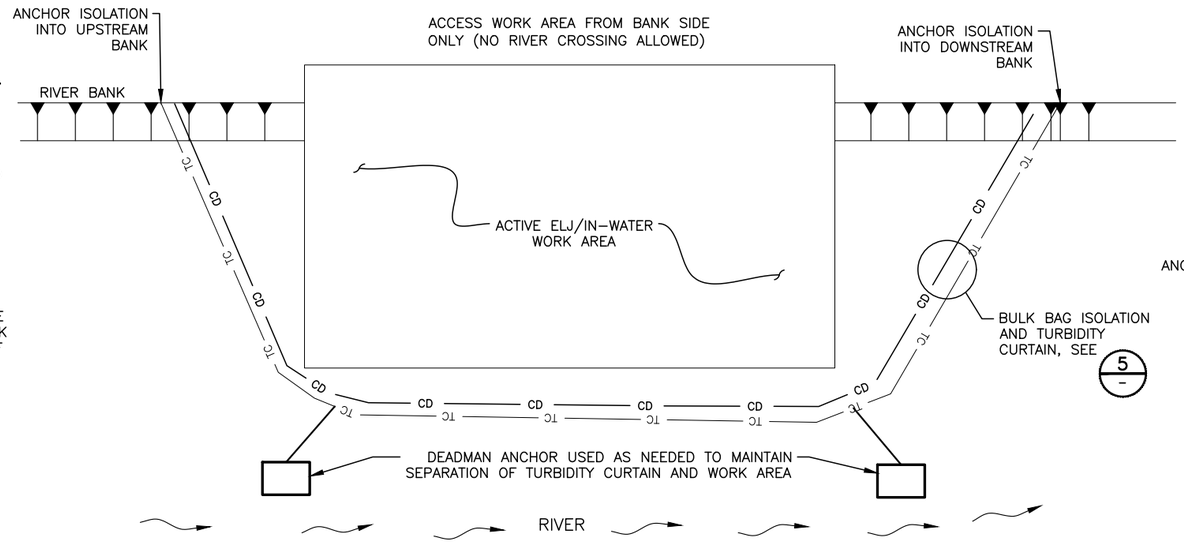
2. CONTRACTOR SHALL CONSTRUCT TEMPORARY FLOW DIVERSION MEASURES STARTING AT UPSTREAM END OF WORK AREA TO DIRECT WATER AWAY FROM WORK AREA.

3. THE IMPLEMENTATION OF TEMPORARY WORK AREA ISOLATION PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF WATER MANAGEMENT FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED. ANY DAMAGE TO THE WORK RESULTING FROM INADEQUACY OF THE WORK AREA ISOLATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADDITIONAL PAYMENT FOR THE COSTS ASSOCIATED WITH FAILURE OF THE ISOLATION SYSTEM.

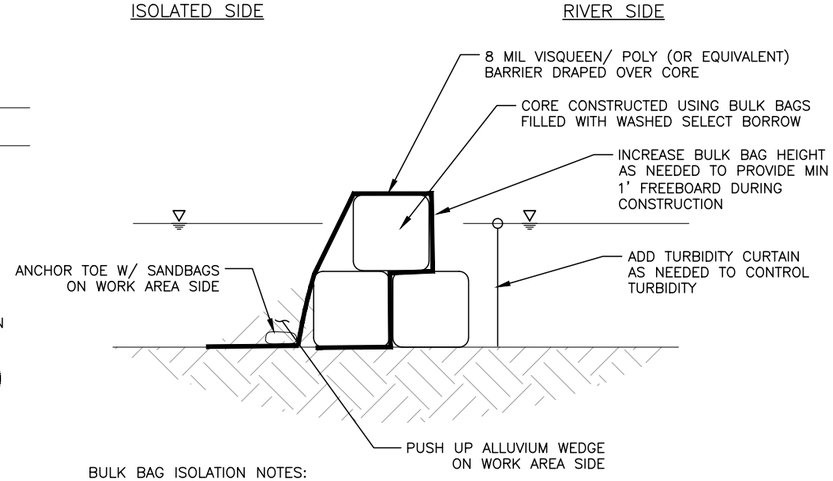
4. THE WORK AREA ISOLATION FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS, DURING THE CONSTRUCTION PERIOD. THESE WORK AREA ISOLATION FACILITIES SHALL BE UPGRADED AS NEEDED FOR CHANGING SITE CONDITIONS.

5. CONTRACTOR SHALL DESIGN ALL REQUIRED SHORING AND ALL FLOW AND WATER EXCLUSION STRUCTURES AND SYSTEMS. SURCHARGES SHALL BE DETERMINED BY THE CONTRACTOR ON THE BASIS OF CONSTRUCTION EQUIPMENT, CONSTRUCTION TRAFFIC, EQUIPMENT STORAGE, SPOILS HANDLING, WORK SEQUENCE AND OTHER FACTORS.

6. ALL TEMPORARY SHORING SYSTEMS SHALL BE DESIGN BY A LICENSED PROFESSIONAL ENGINEER.



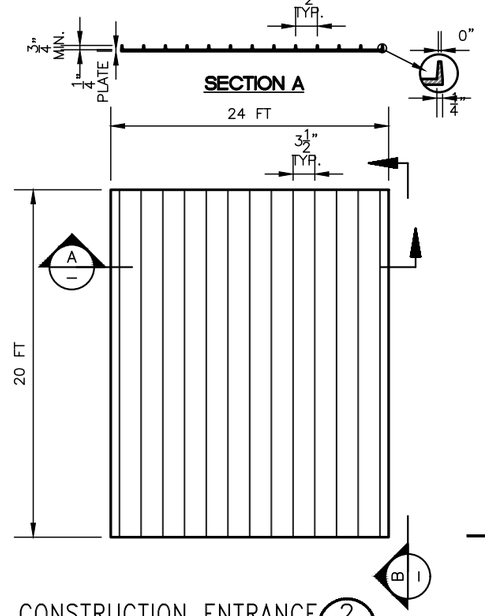
TEMPORARY WORK AREA ISOLATION SCHEMATIC 1/6
NTS



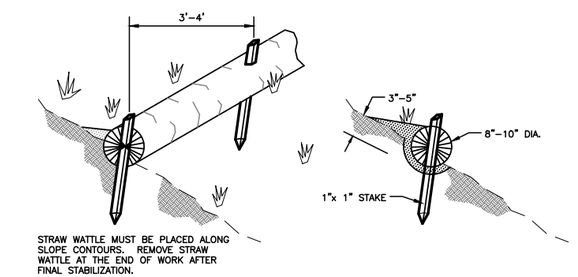
BULK BAG ISOLATION NOTES:

1. ALTERNATIVE DESIGN MAY BE PROPOSED BY CONTRACTOR FOR APPROVAL BY PROJECT REPRESENTATIVE.

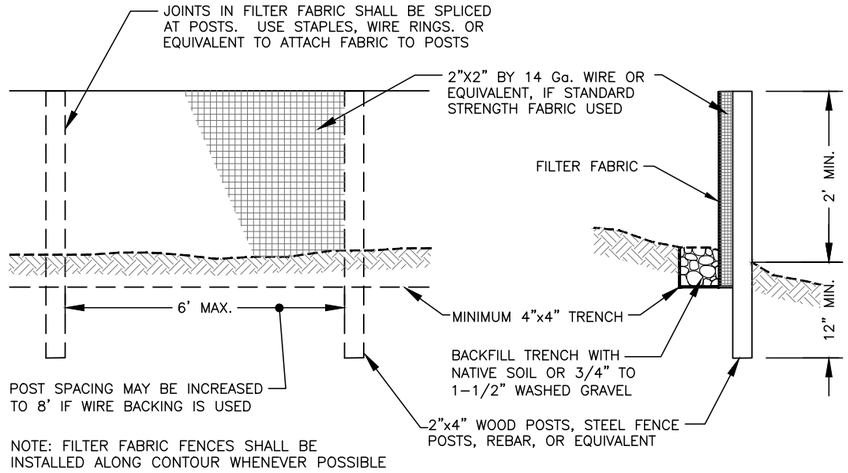
BULK BAG ISOLATION DETAIL 5/-
NOT TO SCALE



CORRUGATED STEEL PANEL CONSTRUCTION ENTRANCE 2/6
NTS



STRAW WATTLES 3/6
NTS



SILT FENCE DETAIL 4/6
NTS

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

FIELD BOOK: DS/BM	05/2021
SURVEYED: DS/BM	05/2021
SURVEY BASE MAP: STH	05/2021
CHECKED: KLA	05/2021

NUM.	REVISION	BY	DATE
	60% DRAFT 05/2023		

NUM.	RECORD CHANGES APPROVED	BY	DATE

APPROVED: MARK RUEBEL, P.E.	05/2023
PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS-YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

MARK W. RUEBEL — STATE OF WASHINGTON — 24267 — REGISTERED PROFESSIONAL ENGINEER
MARK W. RUEBEL — STATE OF WASHINGTON — 24238 — REGISTERED PROFESSIONAL ENGINEER

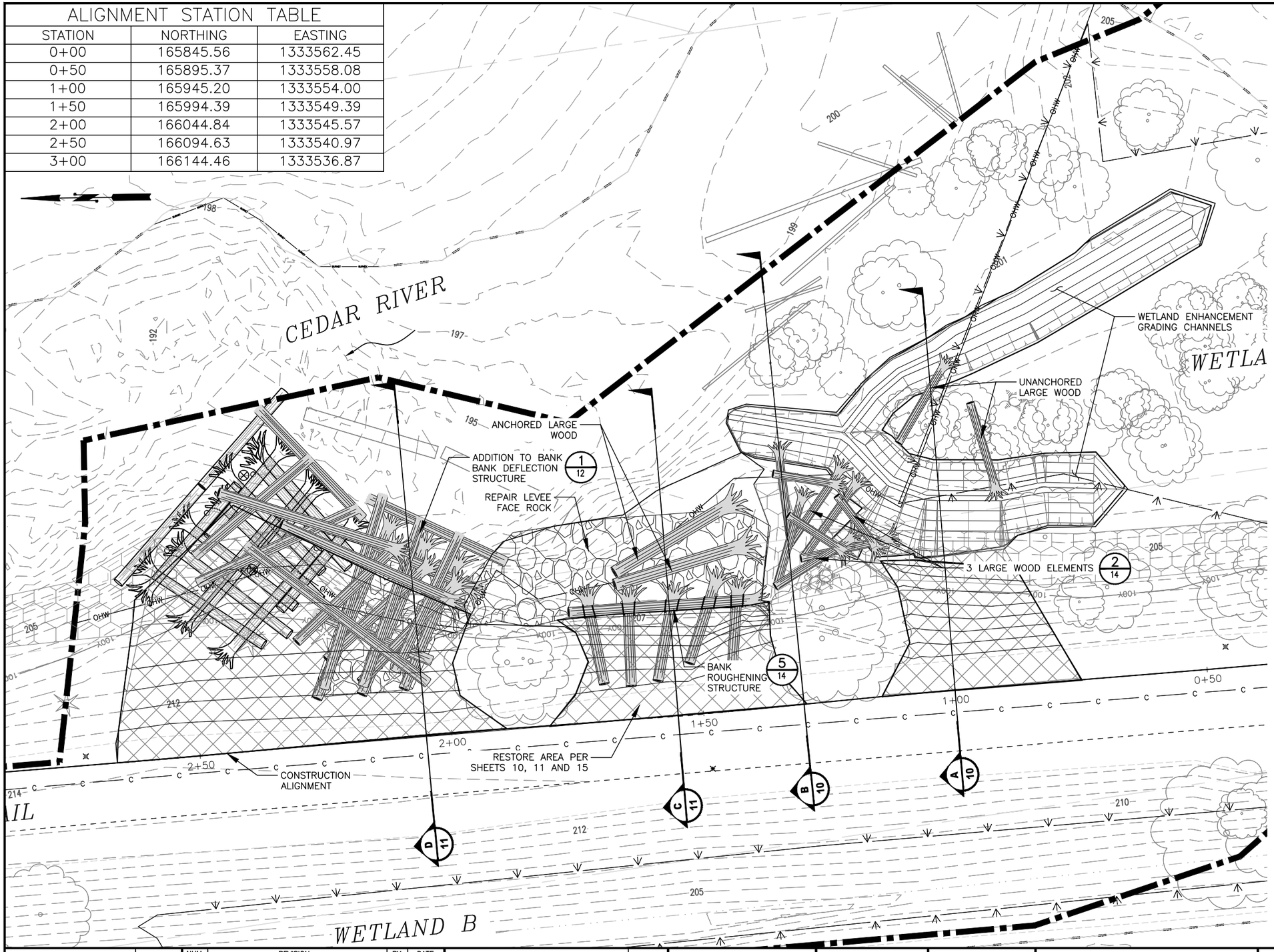
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

TESC DETAILS AND NOTES
NOT FOR CONSTRUCTION

SHEET 7 OF 17 SHEETS

ALIGNMENT STATION TABLE		
STATION	NORTHING	EASTING
0+00	165845.56	1333562.45
0+50	165895.37	1333558.08
1+00	165945.20	1333554.00
1+50	165994.39	1333549.39
2+00	166044.84	1333545.57
2+50	166094.63	1333540.97
3+00	166144.46	1333536.87



GENERAL CONSTRUCTION NOTES:

1. SALVAGED TREES TO BE USED AS RACKING/SLASH IN NEW BANK DEFLECTION ELJ.

SCALE IN FEET: 10 0 10 20 30

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
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CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129

CONTRACT No. --

MARK RUEBEL 24267 REGISTERED PROFESSIONAL ENGINEER — CONSTRUCTION

MARK BEGGS 24238 REGISTERED PROFESSIONAL ENGINEER — CONSTRUCTION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

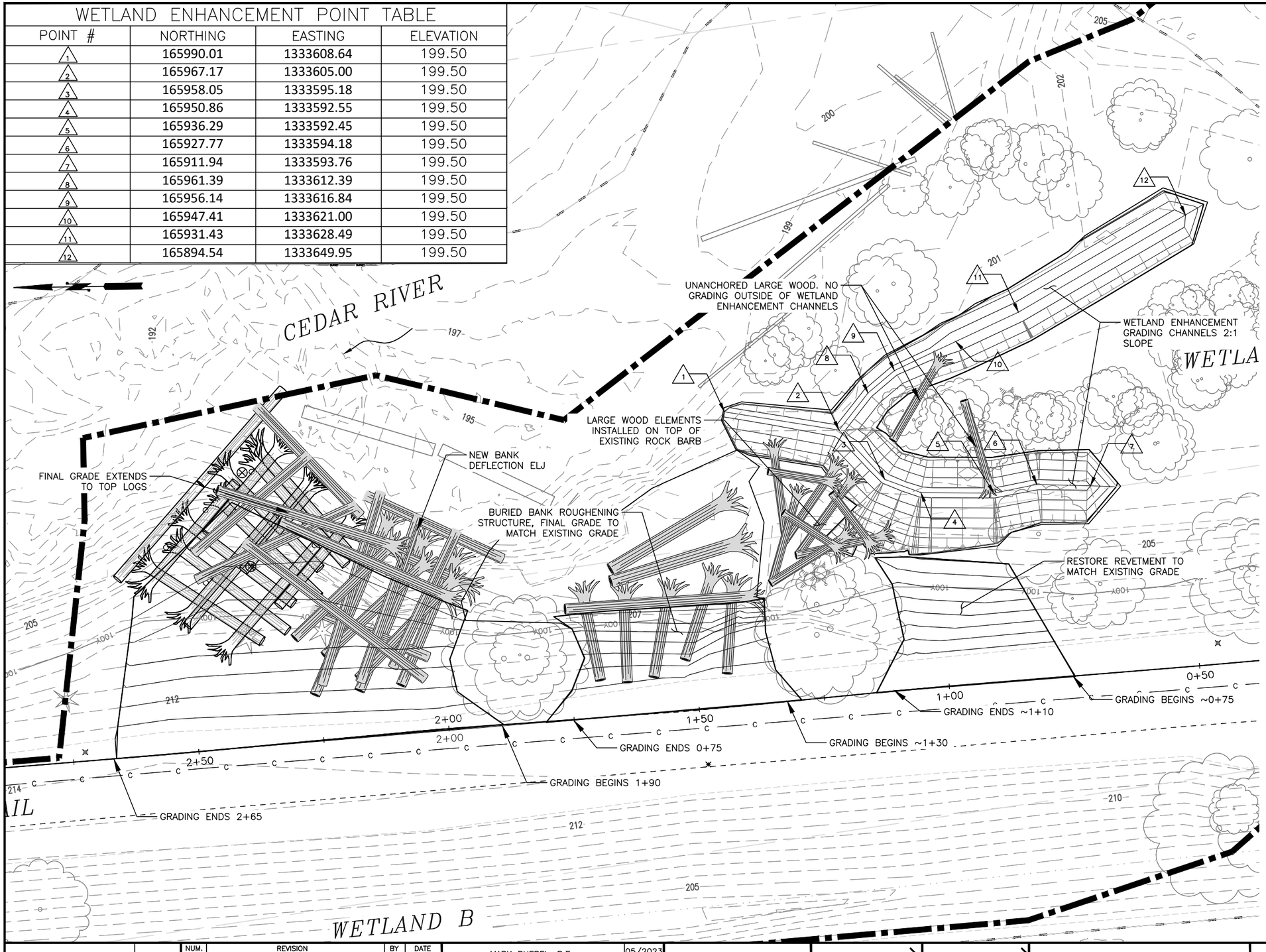
BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

PROPOSED DESIGN - PLAN VIEW

NOT FOR CONSTRUCTION

SHEET 8 OF 17 SHEETS

WETLAND ENHANCEMENT POINT TABLE			
POINT #	NORTHING	EASTING	ELEVATION
1	165990.01	1333608.64	199.50
2	165967.17	1333605.00	199.50
3	165958.05	1333595.18	199.50
4	165950.86	1333592.55	199.50
5	165936.29	1333592.45	199.50
6	165927.77	1333594.18	199.50
7	165911.94	1333593.76	199.50
8	165961.39	1333612.39	199.50
9	165956.14	1333616.84	199.50
10	165947.41	1333621.00	199.50
11	165931.43	1333628.49	199.50
12	165894.54	1333649.95	199.50



GENERAL GRADING NOTES:

1. EXISTING CONDITIONS SURVEY REFLECTS MAY 2021 CONDITIONS. FIELD VERIFY CONDITIONS.

10 0 10 20 30
SCALE IN FEET

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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SURVEYED: DS/BM	05/2021		60% DRAFT 05/2023			PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
SURVEY BASE MAP: STH	05/2021					ECOLOGIST: ALEX LINCOLN	05/2023
CHECKED: KLA	05/2021					DESIGNER: MARK BEGGS, P.E.	05/2023
						DARIAN KIS-YOUNG, E.I.T.	05/2023
		NUM.	RECORD CHANGES APPROVED	BY	DATE	CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

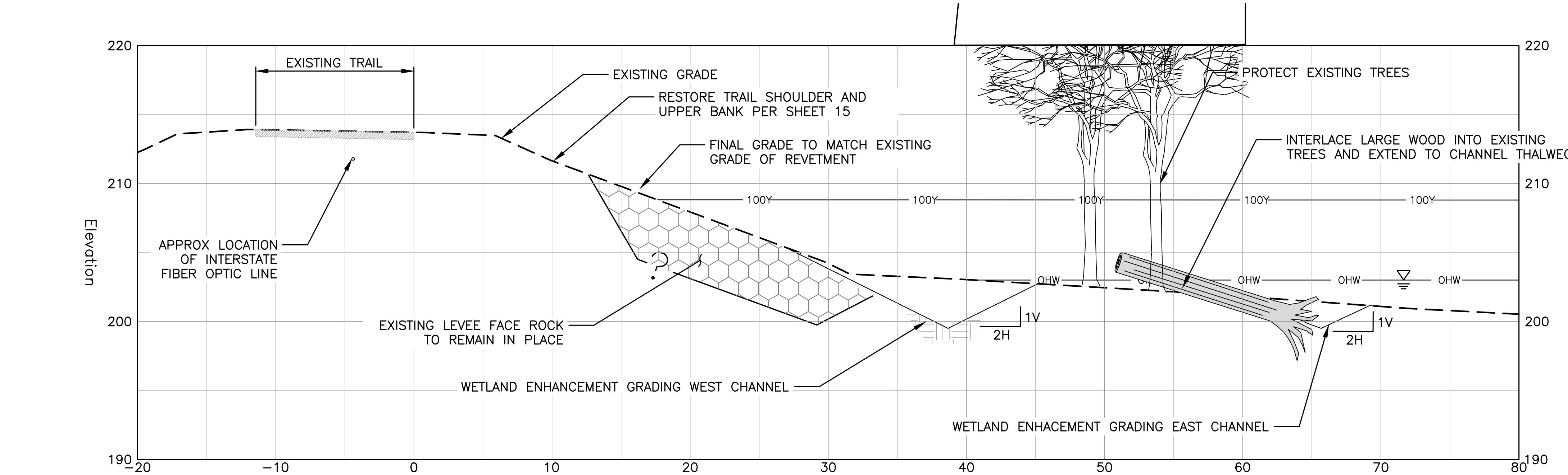
MARK W. RUEBEL — STATE OF WASHINGTON — 24267 — REGISTERED PROFESSIONAL ENGINEER — COMPLETION
MARK BEGGS — STATE OF WASHINGTON — 24238 — REGISTERED PROFESSIONAL ENGINEER — COMPLETION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

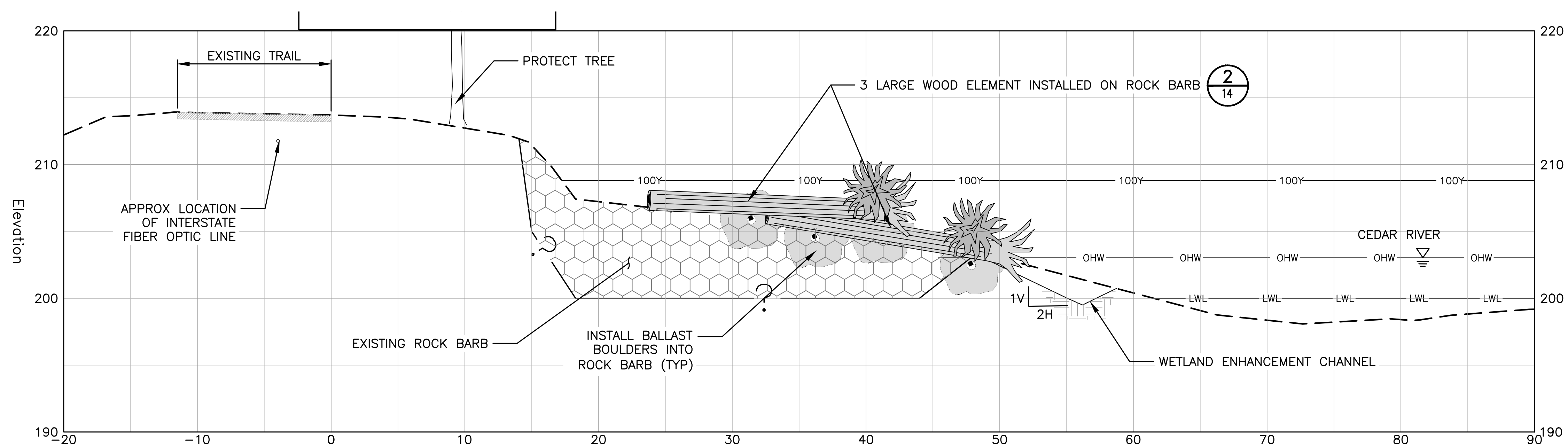
BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

PROPOSED DESIGN - GRADING
NOT FOR CONSTRUCTION

SHEET **9** OF **17** SHEETS



SECTION 1+00 WETLAND ENHANCEMENT (A / 8)
1:5



SECTION 1+30 ROCK BARB (B / 8)
1:5

100 YR EL = 208.8
OHW EL = 203

CONSTRUCTION NOTES:

1. FIELD VERIFY LOCATION OF INTERSTATE FIBER OPTIC LINE IF EXCAVATION WITHIN 4 FEET.
2. PLACEMENT OF LARGE WOOD ELEMENTS MAY REQUIRE ADJUSTMENT OF EXISTING ROCK BARB

811 Know what's below. Call before you dig.
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS-YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

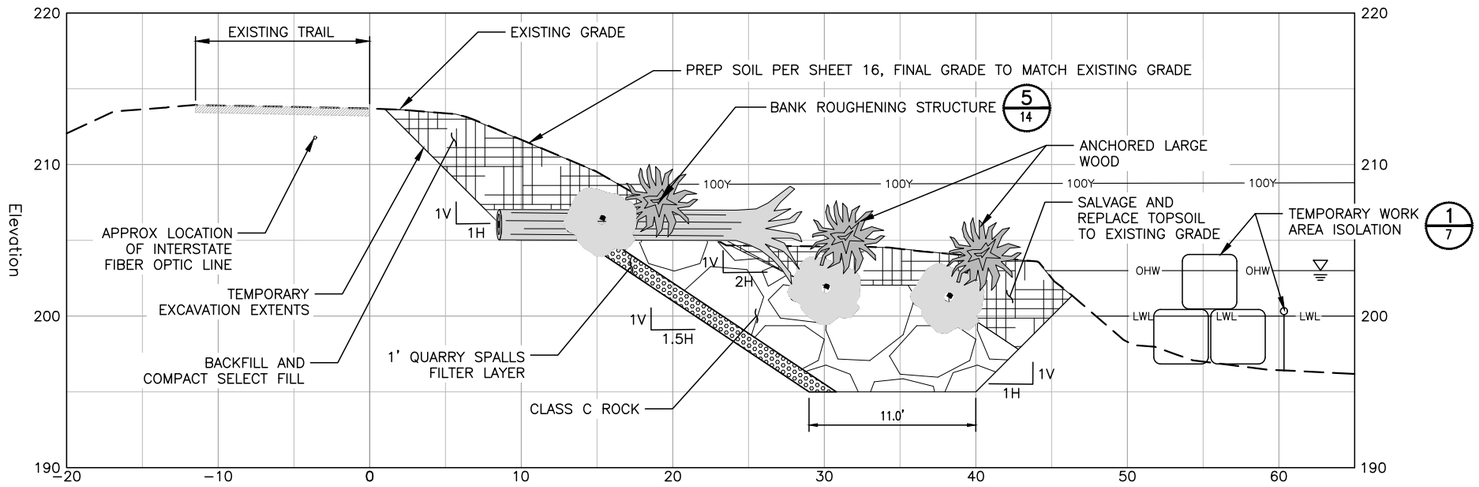
NOT FOR CONSTRUCTION (stamps: MARK W. RUEBEL, REGISTERED PROFESSIONAL ENGINEER 44267; MARK BEGGS, REGISTERED PROFESSIONAL ENGINEER 54238)

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

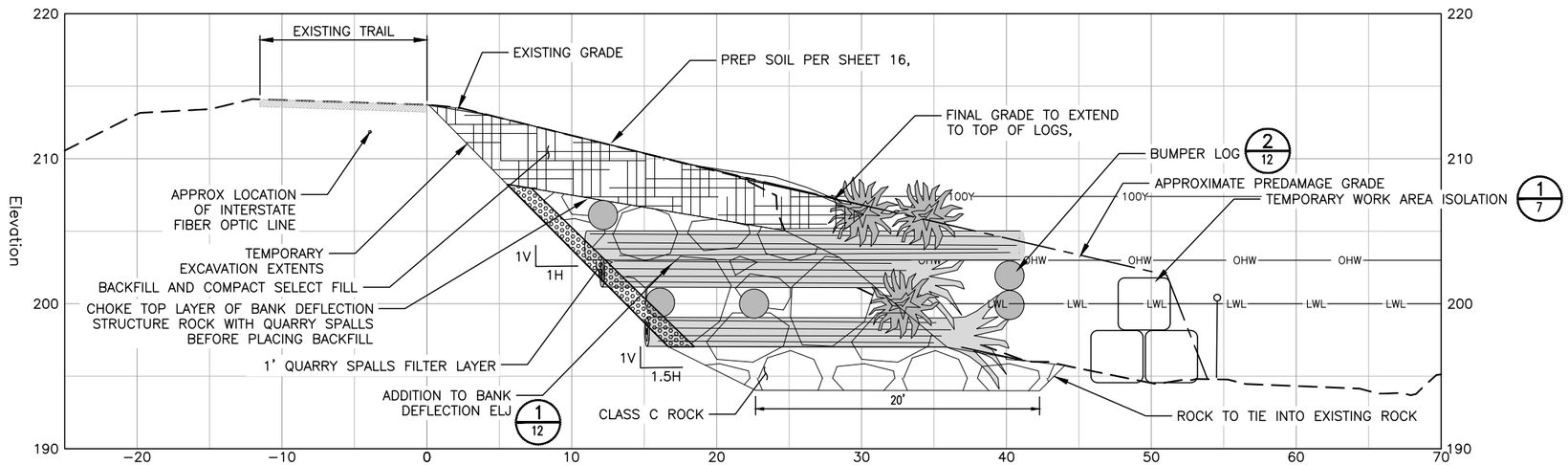
BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

PROPOSED DESIGN - SECTION VIEW 1
NOT FOR CONSTRUCTION

SHEET **10** OF **17** SHEETS



SECTION 1+55 BANK ROUGHENING LEVEE C/8



SECTION 2+05 BANK DEFLECTION STRUCTURE D/8

100 YR EL = 208.8
OHW EL = 203

NOTES:

- TOP OF BUMPER LOGS ELEVATION = 202.8 FEET
- BUMPER LOGS TO ABUT ROOTWADS

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS-YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

MARK W. RUEBEL — 24267 — REGISTERED PROFESSIONAL ENGINEER — 05/2023 — NOT FOR CONSTRUCTION

MARK R. BEGGS — 24238 — REGISTERED PROFESSIONAL ENGINEER — 05/2023 — NOT FOR CONSTRUCTION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

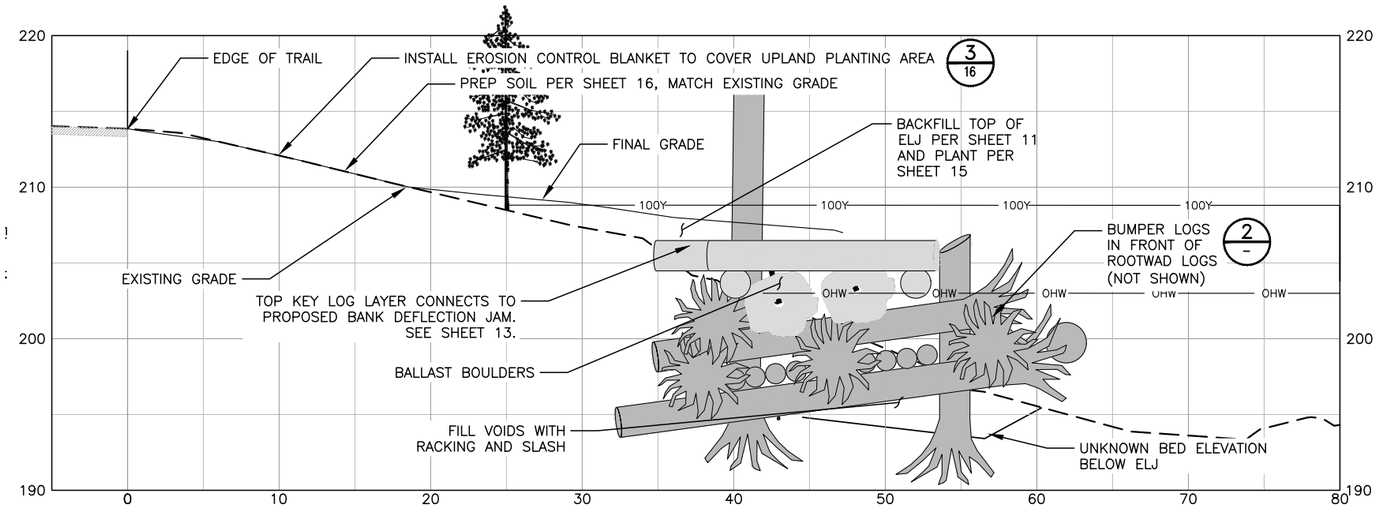
PROPOSED DESIGN - SECTION VIEW 2

NOT FOR CONSTRUCTION

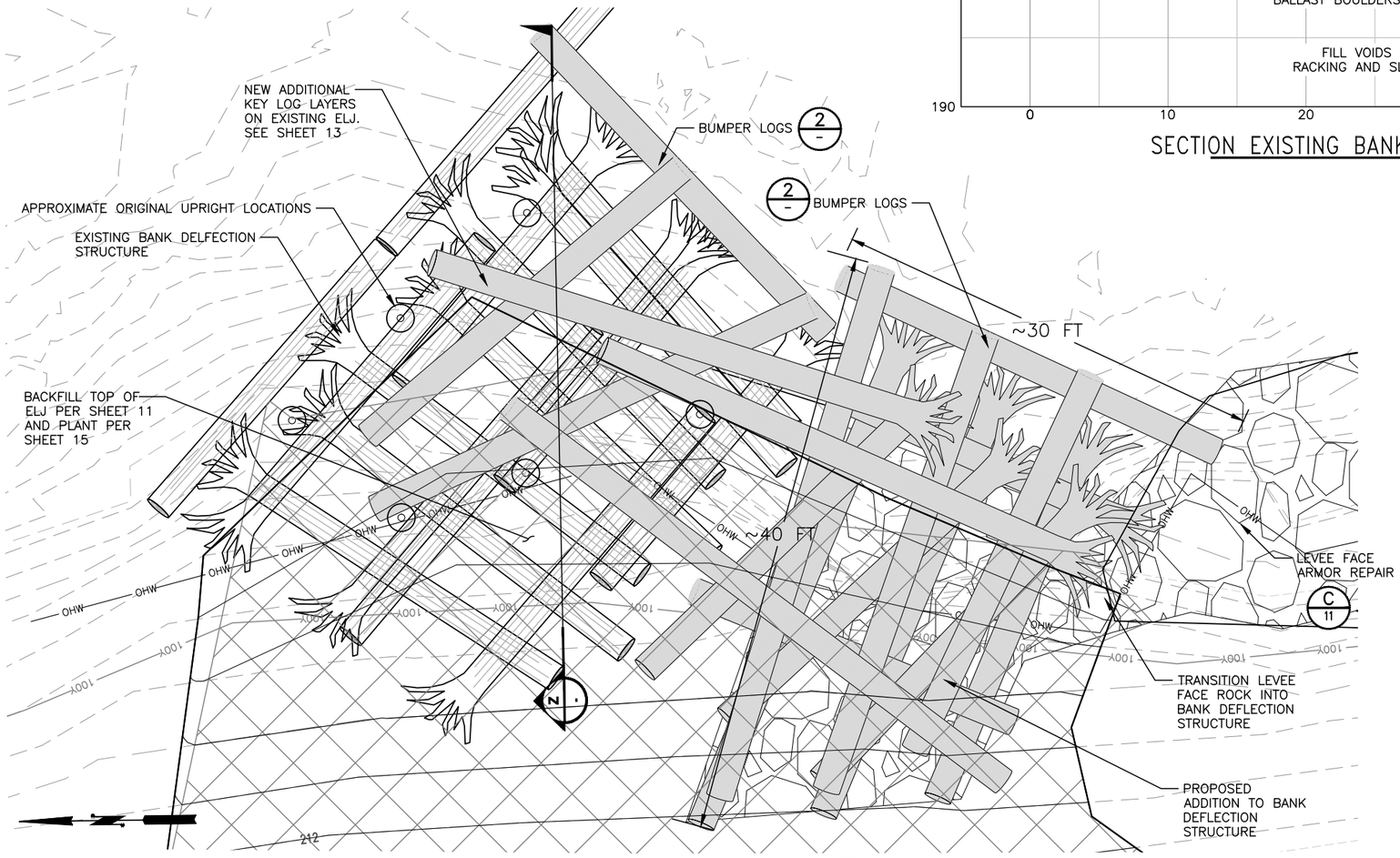
SHEET **11** OF **17** SHEETS

EXISTING ELJ NOTES:

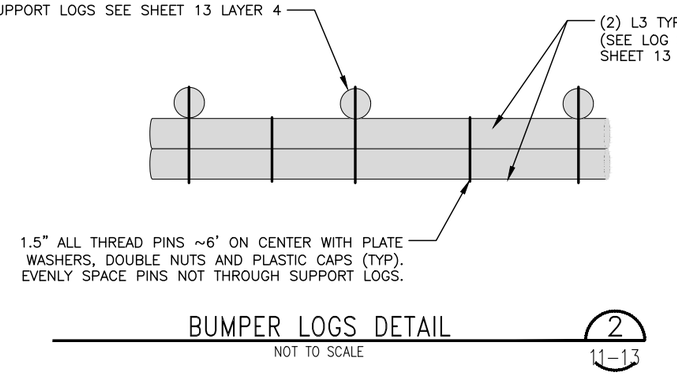
1. STRUCTURE LOCATION AND ORIENTATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO WORK ASSOCIATED WITH THE EXISTING BANK DEFLECTION STRUCTURE. EXISTING GRADES AROUND AND UNDERNEATH BANK DEFLECTION STRUCTURE TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO TEMPORARY WATER ISOLATION SYSTEM INSTALLATION.
2. CLEAR AND GRUB ACCESS PRIOR TO BANK DEFLECTION STRUCTURE INSTALLATION. ADJUST TEMPORARY WATER ISOLATION SYSTEM AS NECESSARY TO ENSURE WATER QUALITY REQUIREMENTS ARE MET.
3. PRIOR TO PLACING ANY ROCK OR LOGS, THE CONTRACTOR SHALL OBTAIN INSPECTION APPROVAL FROM THE PROJECT REPRESENTATIVE VERIFYING EXTENTS OF THE EXISTING BANK DEFLECTION STRUCTURE. IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT REPRESENTATIVE FOR THE INSPECTION. THE CONTRACTOR SHALL ALLOW 2 WORKING DAYS FOR THE INSPECTION TO TAKE PLACE.
4. NATURAL LOG MATERIALS THAT HAVE RACKED ONTO THE STRUCTURE MAY BE SALVAGED AND REPLACED INTO THE BANK DEFLECTION STRUCTURE WITH APPROVAL FROM THE PROJECT REPRESENTATIVE.
5. FILL VOIDS IN BANK DEFLECTION STRUCTURE WITH RACKING LOGS AND SLASH BEFORE INSTALLING KEY LOG LAYERS. ADDITIONAL RACKING LOGS AND SLASH SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN HORIZONTAL KEY LOG LAYERS.
6. INSTALL BUMPER LOGS AS SHOWN ON THE DRAWINGS AND OBTAIN INSPECTION APPROVAL FROM THE PROJECT REPRESENTATIVE PRIOR TO STARTING ADDITIONAL LOG LAYERS.



SECTION EXISTING BANK DEFLECTION STRUCTURE Z/-



BANK DELFECTION STRUCTURE 1/8



BUMPER LOGS DETAIL 2/11-13
NOT TO SCALE

BUMPER LOG NOTES:

1. REMOVE BARK FROM CONNECTION AREAS AS NECESSARY TO OBTAIN A TIGHT FIT.
2. MINIMUM BUMPER LOG DIAMETER AT EITHER END IS 24"

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DARIAN KIS-YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS-YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. --

MARK W. RUEBEL 24267 REGISTERED PROFESSIONAL ENGINEER — 60% SUBMISSION NOT FOR CONSTRUCTION

MARK W. RUEBEL 24238 REGISTERED PROFESSIONAL ENGINEER — 60% SUBMISSION NOT FOR CONSTRUCTION

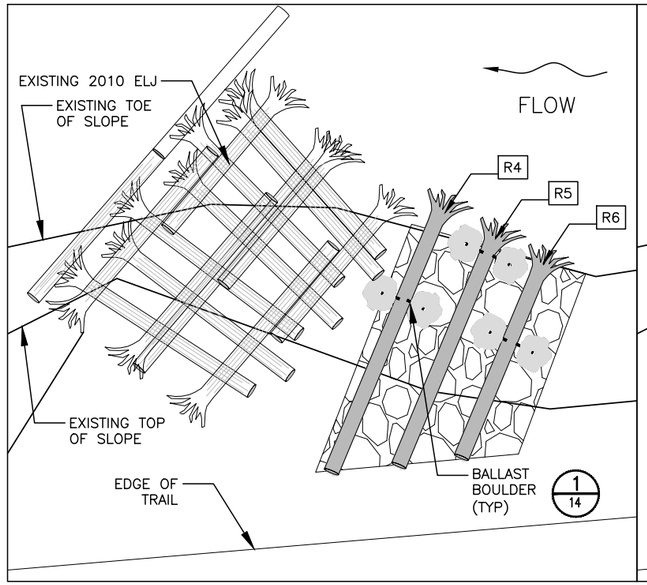
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

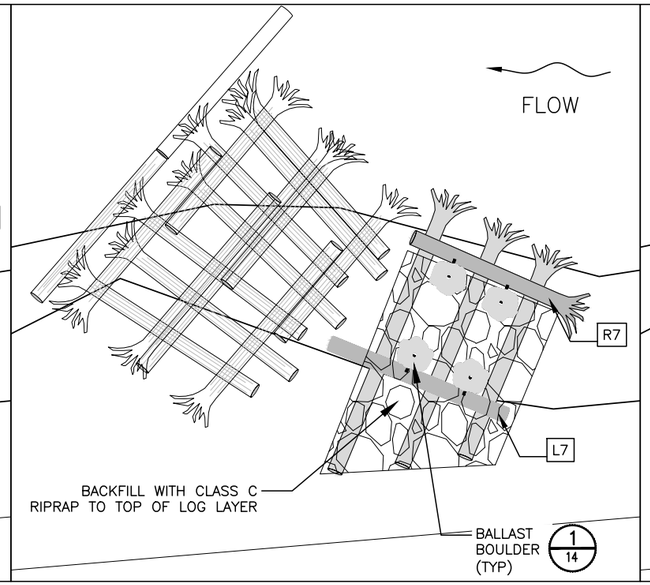
ENGINEERED LOG JAM - PLAN AND SECTION

NOT FOR CONSTRUCTION

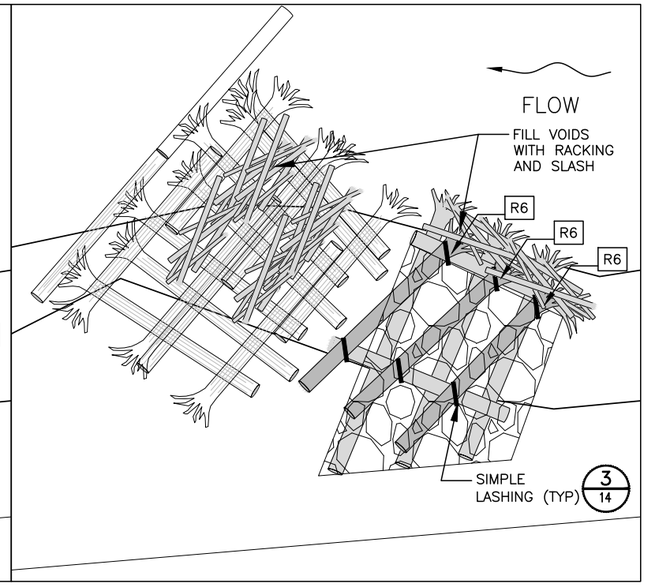
SHEET **12** OF **17** SHEETS



LAYER 1



LAYER 2



LAYER 3

KEY LOG SCHEDULE (BANK DEFLECTION STRUCTURE)

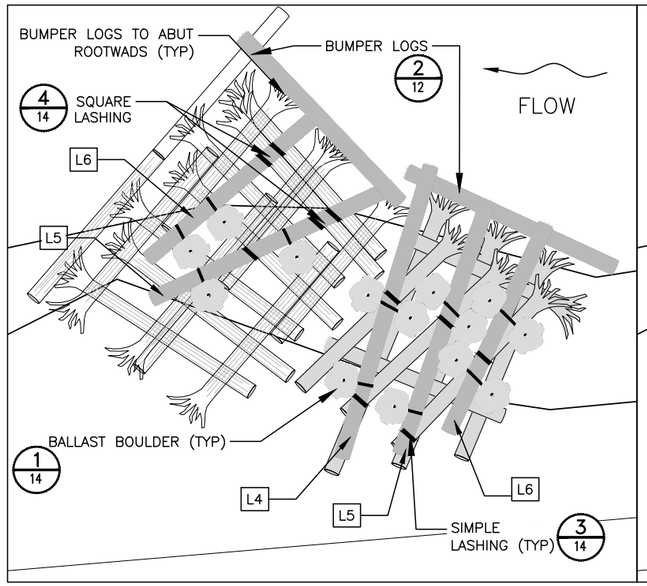
LOG TYPE	COUNT	DBH DIA (IN)	LENGTH (FT)*	ROOTWAD
R4	3	24	40	YES
R5	1	24	35	YES
R6	4	24	30	YES
R7	1	24	25	YES
L2	1	30	45	NO
L3	4	30	30	NO
L4	1	24	40	NO
L5	2	24	35	NO
L6	2	24	30	NO
L7	1	24	25	NO

* LOGS MAY BE FIELD FIT TRIMMED AS APPROVED BY PROJECT REPRESENTATIVE

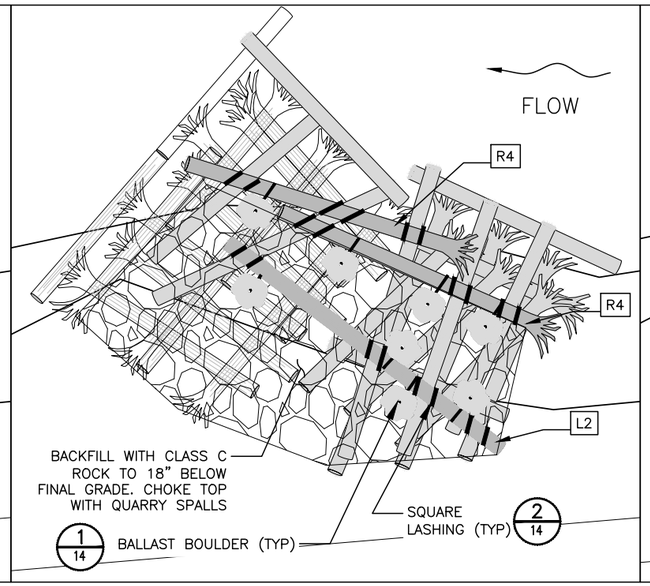
APPROXIMATELY 50–60 RACKING LOGS AND 60–90 CY OF SLASH IN BANK DEFLECTION STRUCTURE

5.5 TON BALLAST BOULDER SCHEDULE (PER BANK DEFLECTION STRUCTURE)

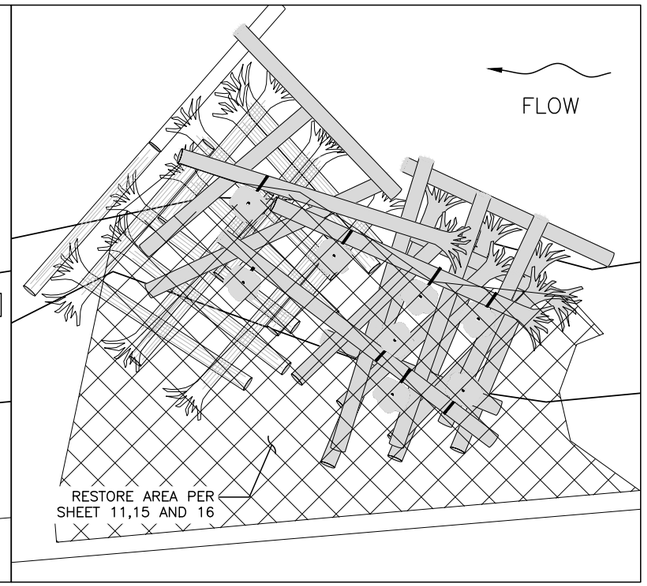
LAYER	COUNT
1	6
2	4
4	14
5	8
TOTAL	32



LAYER 4



LAYER 5



FINAL

BANK DEFLECTION STRUCTURE REPAIR SEQUENCE 1 8.12.13

NOT TO SCALE

BANK DEFLECTION STRUCTURE CONSTRUCTION NOTES:

1. GENERAL STRUCTURE LOCATION AND ORIENTATION SHALL BE STAKED BY THE CONTRACTOR PRIOR TO EXCAVATION. STRUCTURE LOCATION TO BE FIELD VERIFIED BY THE PROJECT REPRESENTATIVE FOLLOWING CONTRACTOR STAKING.
2. CLEAR AND GRUB ACCESS PRIOR TO BANK DEFLECTION STRUCTURE INSTALLATION. ADJUST TEMPORARY WATER ISOLATION SYSTEM AS NECESSARY TO ENSURE WATER QUALITY REQUIREMENTS ARE MET.
3. ALL CONTROL POINT LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE PROJECT REPRESENTATIVE PRIOR TO INSTALLATION.
4. PRIOR TO PLACING ANY ROCK OR LOGS, THE CONTRACTOR SHALL OBTAIN INSPECTION APPROVAL FROM THE PROJECT REPRESENTATIVE VERIFYING EXTENTS OF THE BANK DEFLECTION STRUCTURE. IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT REPRESENTATIVE FOR THE INSPECTION. THE CONTRACTOR SHALL ALLOW 2 WORKING DAYS FOR THE INSPECTION TO TAKE PLACE.
5. LOG MATERIALS SHALL BE PLACED AT THE LOCATION AND ORIENTATIONS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. TRIM CUT ENDS OF HORIZONTAL KEY LOGS TO FIT AS REQUIRED.
6. PLACE RACKING LOGS ALONG FACE OF STRUCTURES. RACKING LOGS AND SLASH SHALL BE PLACED TO CREATE AN INTERLOCKING MATRIX OF LOGS SECURED BETWEEN HORIZONTAL KEY LOGS.
7. PLACE SLASH OVER AND BETWEEN KEY LOGS AS SHOWN ON SHEET 13 FOR EACH LAYER SPECIFIED FOLLOWING PLACEMENT OF KEY LOGS AND RACKING LOGS.

811 Know what's below. Call before you dig. (UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

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PROJECT MANAGER: MARK RUEBEL, P.E.	05/2023
ECOLOGIST: ALEX LINCOLN	05/2023
DESIGNER: MARK BEGGS, P.E.	05/2023
DARIAN KIS–YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS–YOUNG, E.I.T.	05/2023

PROJECT No. 1139129

CONTRACT No. --

MARK RUEBEL 44267 REGISTERED PROFESSIONAL ENGINEER — COPY NOT FOR CONSTRUCTION

MARK RUEBEL 54238 REGISTERED PROFESSIONAL ENGINEER — COPY NOT FOR CONSTRUCTION

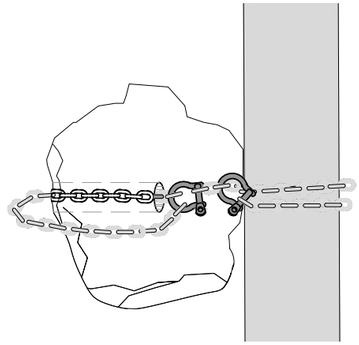
King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

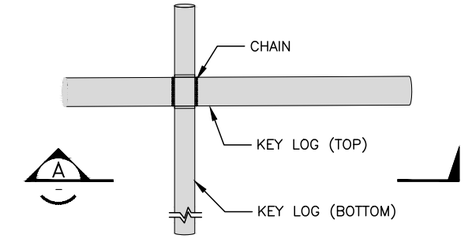
ENGINEERED LOG JAM - SEQUENCE

NOT FOR CONSTRUCTION

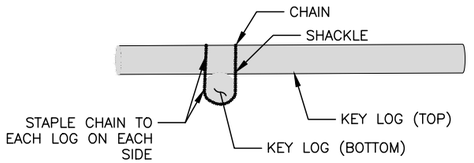
SHEET 13 OF 17 SHEETS



BALLAST BOULDER–LOG CONNECTION 1
NOT TO SCALE
13

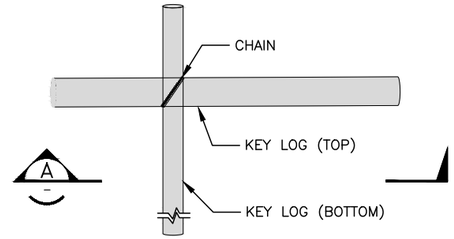


PLAN
NTS

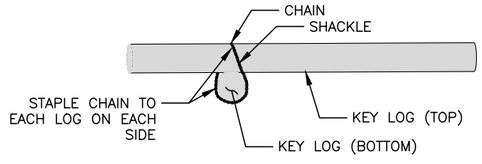


SECTION A
NTS
–

SQUARE LASHING LOG–LOG CONNECTION 4
NOT TO SCALE
–



PLAN
NTS

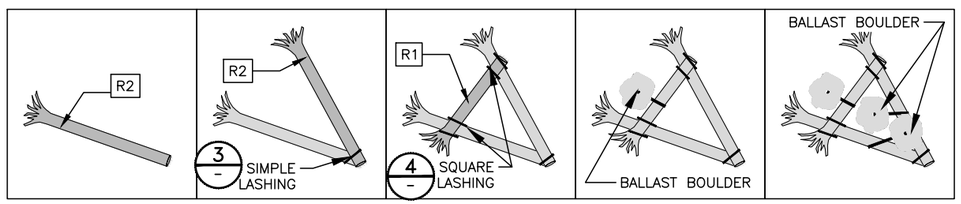


SECTION A
NTS
–

SIMPLE LASHING LOG–LOG CONNECTION 3
NOT TO SCALE
13

CONNECTION NOTES:

1. INSTALL BALLAST BOULDERS TO KEY LOG CONNECTIONS AND LOG–LOG CONNECTIONS MADE WITH CHAIN AS SHOWN ON DETAIL AND LAYER PLAN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE. CHAIN LASHING SYSTEM SHALL BE PUT IN TENSION AND BE MAINTAINED DURING CHAIN SHACKLING.
2. CONNECT KEY LOGS TO STEEL PILES WITH CHAIN AS SHOWN ON DETAIL AND LAYER PLAN OR AS DIRECTED BY THE PROJECT REPRESENTATIVE.
3. CHAIN LENGTH NEEDED PER LASHING WILL VARY BASED ON DIAMETER OF LOGS AND LOCATIONS OF THE LASHING.
4. INSTALL BALLAST BOULDERS TO REST ON THE ELJ LAYERS PREVIOUSLY CONSTRUCTED. BALLAST BOULDERS TO BE FIT AS CLOSE TO EACH LOG AS POSSIBLE, NO SLACK IN CHAIN UNLESS OTHERWISE NOTED.
5. CHAIN FOR LASHINGS SHALL BE ½ INCH DIAMETER GRADE 80 CHAIN.
6. ALL HARDWARE USED FOR LASHING AND CONNECTION SHALL BE OF THE QUANTITY AND TYPE SPECIFIED BY THE MANUFACTURER WITH AN EQUAL OR GREATER STRENGTH THAN THE CHAIN WORKING LOAD LIMIT OR AS APPROVED BY THE PROJECT REPRESENTATIVE.
7. MAR, PEEN OR ROUND ALL EXPOSED HARDWARE NUTS AND BOLT THREADS AFTER INSTALLATION FOR THEFT PROTECTION. PROJECT REPRESENTATIVE SHALL APPROVE ANY COATING PRIOR TO CONTRACTOR APPLYING IT. SECURE CHAIN TO LOGS USING 6 INCH LOGGING STAPLE.
8. CONTRACTOR MAY SUBMIT ALTERNATIVE CHAIN CONNECTION SYSTEM FOR APPROVAL.



LARGE WOOD ELEMENT 2
NOT TO SCALE
8,10

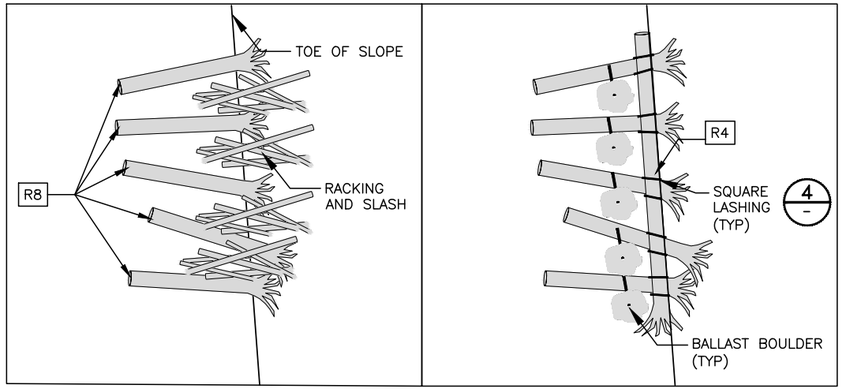
KEY LOG SCHEDULE (BANK DEFLECTION JAM)

LOG TYPE	COUNT	DBH DIA (IN)	LENGTH (FT)*	ROOTWAD
R1	1	18	15	YES
R2	2	18	20	YES

* LOGS MAY BE FIELD FIT TRIMMED AS APPROVED BY PROJECT REPRESENTATIVE

5.5 TON BALLAST BOULDER SCHEDULE (PER LARGE WOOD ELEMENT)

LAYER	COUNT
4	1
5	2
TOTAL	3



BANK ROUGHENING STRUCTURE 5
NOT TO SCALE
8,11

KEY LOG SCHEDULE (BANK ROUGHENING STRUCTURE)

LOG TYPE	COUNT	DBH DIA (IN)	LENGTH (FT)	ROOTWAD
R4	1	24	40	YES
R8	5	24	20	YES

APPROXIMATELY 10–20 RACKING LOGS AND 10–30 CY OF SLASH IN BANK ROUGHENING STRUCTURE

5.5 TON BALLAST BOULDER SCHEDULE (BANK ROUGHENING STRUCTURE)

LAYER	COUNT
2	5
TOTAL	5

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DARIAN KIS–YOUNG, E.I.T.	05/2023
CAD DESIGN: DARIAN KIS–YOUNG, E.I.T.	05/2023

PROJECT No. 1139129
CONTRACT No. ––

MARK W. RUEBEL — 24267 — REGISTERED PROFESSIONAL ENGINEER — 05/2023 — COMPLETION

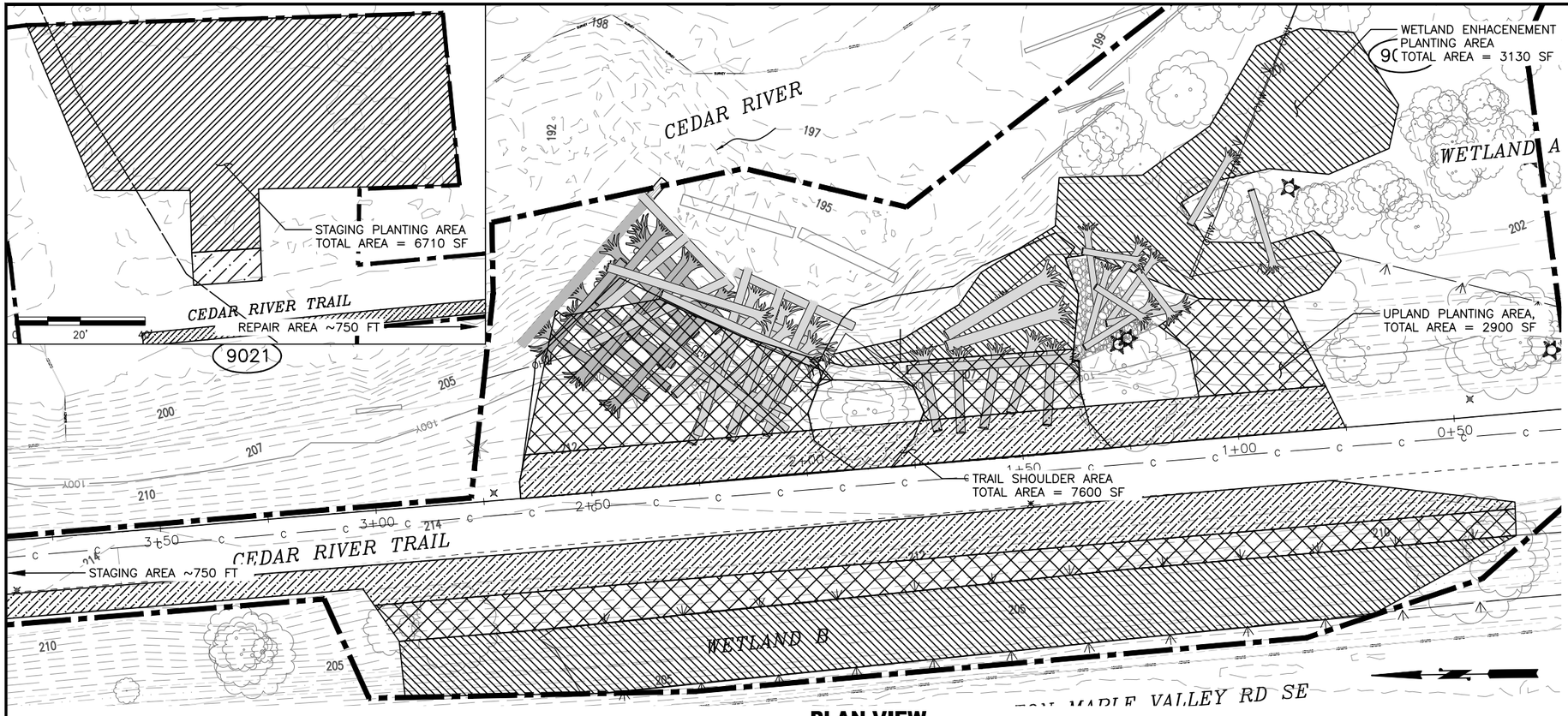
MARK W. BEGGS — 24238 — REGISTERED PROFESSIONAL ENGINEER — 05/2023 — COMPLETION

King County
Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

ENGINEERED LOG JAM - DETAILS AND NOTES
NOT FOR CONSTRUCTION

SHEET 14 OF 17 SHEETS



PLAN VIEW

LEGEND:

- TRAIL SHOULDER AREA
- UPLAND PLANTING AREA
- WETLAND ENHANCEMENT PLANTING AREA
- STAGING PLANTING AREA

GENERAL PLANTING NOTES:

1. ALL PLANTS SHALL BE KEPT SHADED AND ROOTS MOIST UNTIL TIME OF PLANTING.
2. PLANTING AREA BELOW THE COIR BLANKET TO BE COVERED WITH 3" LAYER OF ARBOR WOOD CHIP MULCH PRIOR TO PLANTING.
3. WHEN INSTALLING TREES AND SHRUBS, PULL ARBOR WOOD CHIP MULCH LAYER BACK BEFORE DIGGING PLANTING HOLE.
4. PLANT SHRUBS WITH 3' SETBACK FROM TREES.
5. PLANT TREES WITH SETBACK 3' AWAY FROM SHRUBS.
6. PLANT ALL TREES AND SHRUBS IN SINGLE–SPECIES CLUSTERS THROUGHOUT THE PLANTING AREA. CLUSTERS = 2 TO 3 PLANTS.
7. KC ECOLOGIST SHALL APPROVE PLANT LAYOUT PRIOR TO PLANT INSTALLATION.
8. WATER ALL PLANTING AREAS IMMEDIATELY AFTER PLANTING. WATERING SHALL OCCUR AFTER THE INSTALLATION OF PLANT MATERIAL.
9. AFTER PLANT INSTALLATION, REPLACE WOOD MULCH BY TAPERING IT DOWN TOWARDS THE STEM. KEEP WOOD MULCH 2" AWAY FROM TRUNK OR STEM.
10. MAINTAIN TREE PROTECTION FOR ALL EXISTING TREES IN PROJECT SITE AND STAGING/ACCESS AREA UNTIL PLANTING IS COMPLETE.
11. TRAIL SHOULDER AREA SHALL BE HYDROSEEDED WITH NATIVE GRASS/CLOVER SEED MIX.

PLANT SCHEDULE

SCIENTIFIC NAME	COMMON NAME	WETLAND INDICATOR STATUS	STOCK TYPE	SPACING ON CENTER (FEET)	UPLAND PLANTING AREA (EA)	WETLAND ENHACENMENT AREA (EA)	STAGING AREA (EA)	TRAIL SHOULDER (SF)
THUJA PLICATA	WESTERN RED CEDAR	FAC	NO. 1 CON	12	7	5	10	
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	NO. 1 CON	12	14		10	
ACER MACROPHYLLUM	BIG LEAF MAPLE	FACU	NO. 1 CON	12	14		10	
PICEA SITCHENSIS	SITKA SPRUCE	FAC	NO. 1 CON	12		5		
POPULUS TRICHOCARPA	COTTONWOOD	FAC	NO. 1 CON	12		10	10	
ALNUS RUBRA	RED ALDER	FAC	NO. 1 CON	12			10	
CORYLUS CORNUTA	BEAKED HAZELNUT	FACU	NO. 1 CON	5	30			
HOLODISCUS DISCOLOR	OCEANSPRAY	FACU	NO. 1 CON	5	30			
OEMLERIA CERASIFORMIS	OSOBERRY	FACU	NO. 1 CON	5	30		20	
AMELANCHIER ALNIFOLIA	SERVICEBERRY	FACU	NO. 1 CON	5	25		20	
SYMPHORICARPOS ALBUS	SNOWBERRY	FACU	NO. 1 CON	5	35		20	
RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	NO. 1 CON	5	25			
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	FACW	NO. 1 CON	5		10	20	
CORNUS SERICEA	RED OSIER DOGWOOD	FACW	NO. 1 CON	2		80		
CAREX OBNUPTA	SLOUGH SEDGE	OBL	10" PLUG	0.5		80		
JUNCUS EFFUSUS	PACIFIC RUSH	FACW	10" PLUG	2		40		
ATHYRIUM FILIX–FEMINA	LADY FERN	FAC	NO. 1 CON	2		80		
ACER CIRCINATUM	VINE MAPLE	FAC	NO. 1 CON	5			20	
SALIX LUCIDA	PACIFIC WILLOW	FACW	LS	1.5	--	160		
SALIX SITCHENSIS	SITKA WILLOW	FACW	LS	1.5	--	80		
	NATIVE SEED MIX							7600

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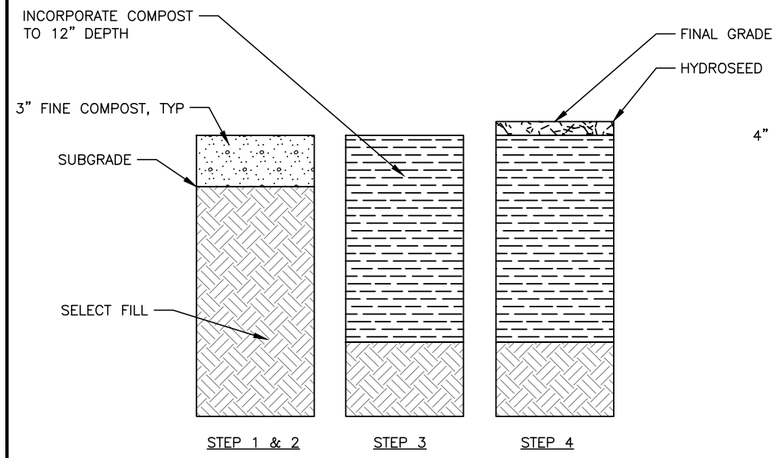
Water and Land Resources Division
River and Floodplain Management Section
Christie True, Director

BELMONDO LEVEE REPAIR
CEDAR RIVER RM 10.4

PLANTING PLAN

NOT FOR CONSTRUCTION

SHEET 15 OF 17 SHEETS

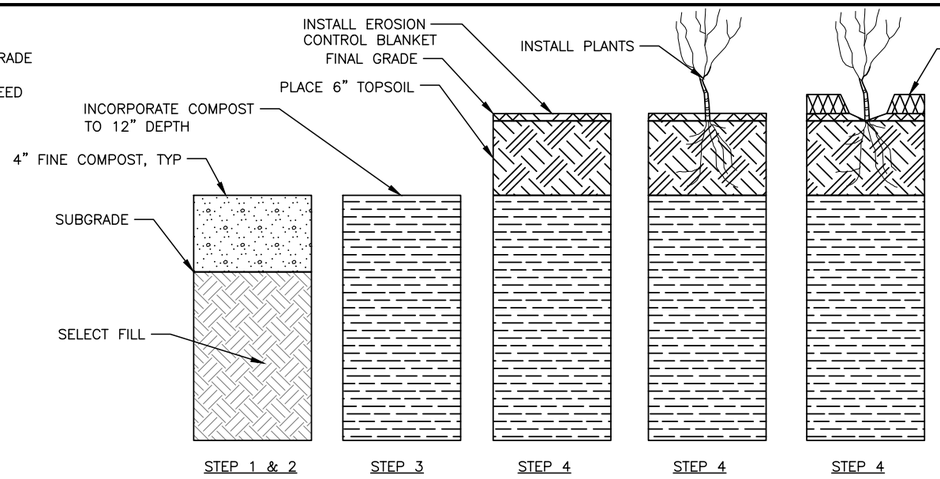


PLANTING AREA PREPARTION SEQUENCE:

1. REMOVE INVASIVE SPECIES. TREAT PLANTING AREAS PER CONTRACT REQUIREMENTS. ASSESS COMPACTION AND DECOMPACT PER SPECIFICATIONS. WORK WITHIN EXISTING ROOT ZONES SHALL BE DONE BY HAND.
2. PLACE 3" FINE COMPOST.
3. INCORPORATE FINE COMPOST TO 12" DEPTH.
4. INSTALL SEED, SEE PLANTING PLAN FOR LOCATIONS.

1 SOIL PREPARATION TYPE 1 - TRAIL SHOULDER AREA

SCALE: NTS



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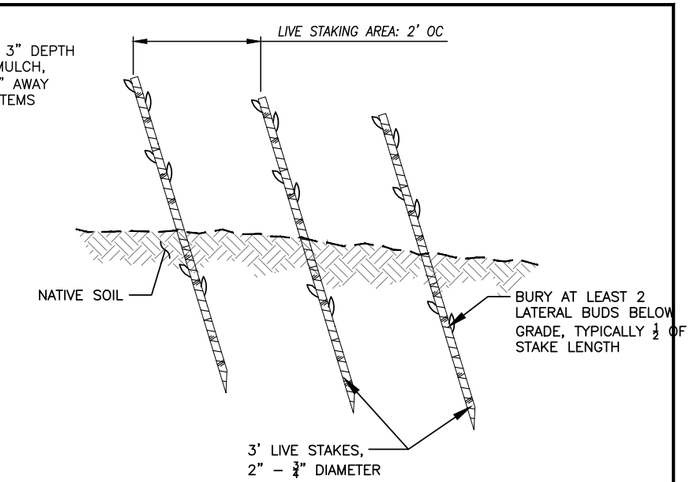
2. PLACE 4" FINE COMPOST
3. INCORPORATE FINE COMPOST TO 12" DEPTH.
4. PLACE 6" TOPSOIL TYPE A AND EROSION CONTROL BLANKET.
5. INSTALL PLANTS SEE PLANTING PLAN FOR LOCATIONS.
6. INSTALL BARK OR WOOD CHIP MULCH 3" DEEP.

2 SOIL PREPARATION TYPE 2 - RIPARIAN UPLAND PLANTING AREA

SCALE: NTS

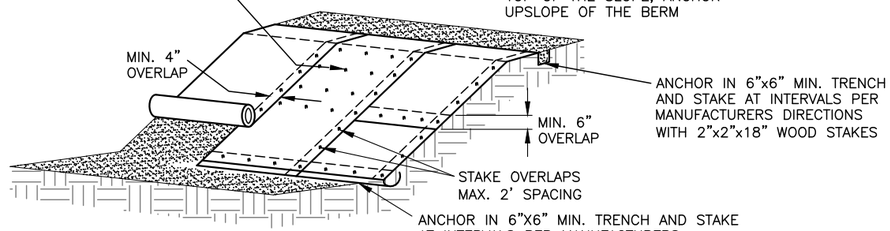


TYPICAL LIVE STAKE PLANTING DETAIL

NTS

SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR PROPER SOIL CONTACT

STAKE PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS



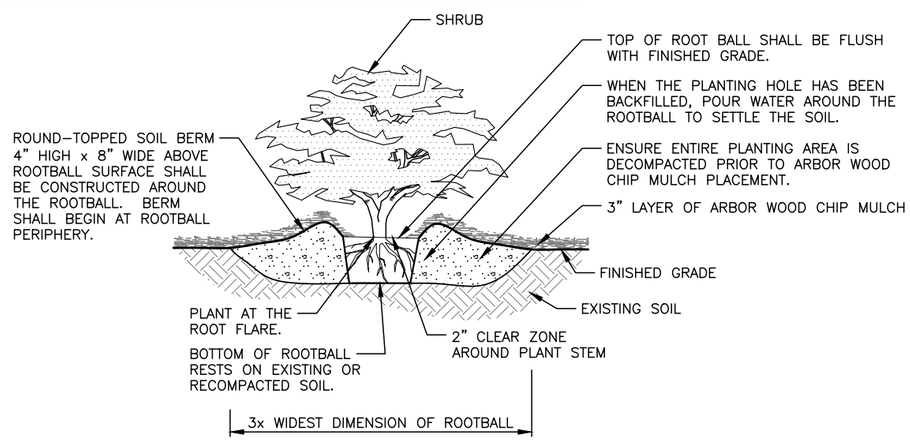
DO NOT STRETCH EROSION CONTROL BLANKET TIGHT – ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES

SHINGLE OVERLAPPING BLANKETS FOR FLOW IN DOWNSTREAM DIRECTION.

SEED, AND MULCH BEFORE MATTING INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.

EROSION CONTROL BLANKET (ECB)

NTS



SMALL TREE, SHRUB AND GROUND COVER PLANTING

NTS

3
11

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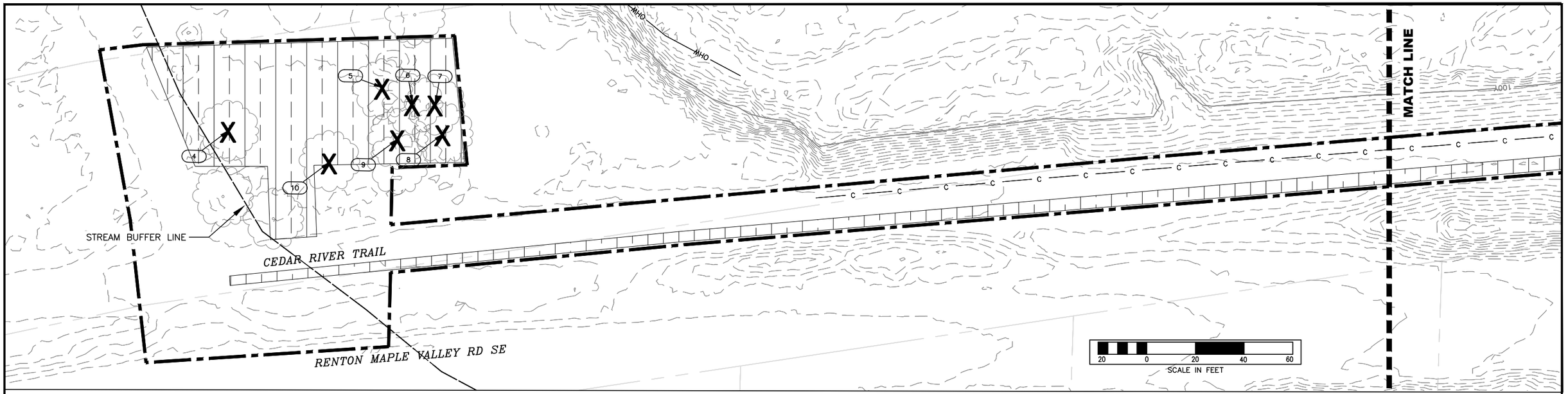
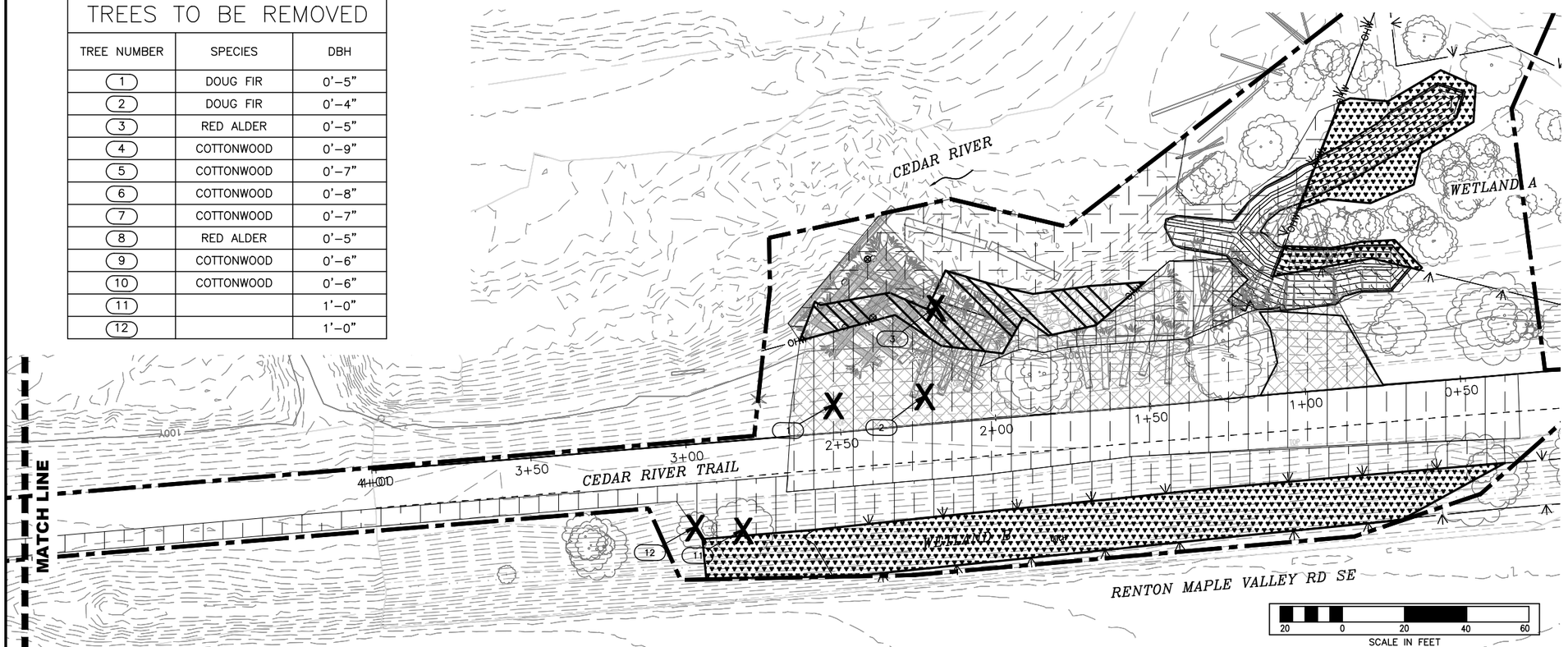
PLANTING PLAN DETAILS

NOT FOR CONSTRUCTION

SHEET **16** OF **17** SHEETS



TREES TO BE REMOVED		
TREE NUMBER	SPECIES	DBH
1	DOUG FIR	0'–5"
2	DOUG FIR	0'–4"
3	RED ALDER	0'–5"
4	COTTONWOOD	0'–9"
5	COTTONWOOD	0'–7"
6	COTTONWOOD	0'–8"
7	COTTONWOOD	0'–7"
8	RED ALDER	0'–5"
9	COTTONWOOD	0'–6"
10	COTTONWOOD	0'–6"
11		1'–0"
12		1'–0"



IMPACT NOTES:

1. TREES REMOVED SHALL BE SALVAGED AND REUSED AS RACKING/SLASH
2. BUFFER LINES MAY EXTEND BEYOND FIELD OF VIEW

IMPACTS ASSESSMENT		
HATCH	IMPACT	AREA
	PERMANENT STREAM/WETLAND BUFFER IMPACTS	1100
	TEMPORARY STREAM IMPACTS	4015
	STREAM/WETLAND BUFFER TO WETLAND CONVERSION	625
	PERMANENT STREAM IMPACTS	1340
	TEMPORARY WETLAND IMPACTS	5500
	TEMPORARY STREAM/WETLAND BUFFER IMPACTS	22000

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PROJECT IMPACTS
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SHEET **17** OF **17** SHEETS