



## MOUNTAINS TO SOUND GREENWAY TRUST

### ANNETTE LAKE TRAIL #1019 RECONSTRUCTION

#### REQUEST FOR BID (RFB) - COVER PAGE

Name of SERVICE PROVIDER: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Website: \_\_\_\_\_

Contact Person's Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature of authorized official: \_\_\_\_\_

Date: \_\_\_\_\_

SERVICE PROVIDER shall electronically submit this form and all required documents by **5pm on September 24, 2021**.

Please submit all documents to:

Mike Stenger

Recreation Projects Manager

[mike.stenger@mtsgreenway.org](mailto:mike.stenger@mtsgreenway.org)

## ANNETTE LAKE TRAIL #1019 RECONSTRUCTION

### PROJECT DESCRIPTION

The Mountains to Sound Greenway Trust (Greenway Trust) in collaboration with the United States Forest Service (USFS) is seeking qualified trails contractors to reconstruct the upper two miles of the Annette Lake Trail #1019 in Mount Baker-Snoqualmie National Forest. The Annette Lake Trail #1019 is a non-wilderness trail.

The U.S. Forest Service was granted funds through the Great American Outdoors Act (GAOA) to accomplish a variety of deferred maintenance projects within the newly designated Mountains to Sound Greenway National Heritage Area ("Greenway NHA"). The U.S. Forest Service has identified a partnership with The Greenway Trust to accomplish a subset of projects identified within the Greenway NHA, including the Annette Lake Trail #1019 reconstruction project. The project will also provide economic opportunities to local service providers, community organizations, and other partners. The NEPA process and permission to proceed have been completed, and further permitting is not required for this project.

The selected SERVICE PROVIDER will be engaged as a CONTRACTOR with the Greenway Trust to complete the Annette Lake Trail #1019 reconstruction project to USFS specifications. (Note that the terms SERVICE PROVIDER and CONTRACTOR are used interchangeably in this document.)

Trail maintenance and rehabilitation work includes re-benching various sections of the trail that have experienced significant tread creep. This work may be performed with a mini-excavator or by hand. New turnpike construction is needed on roughly 400 feet of trail, mostly near the final ½ mile of the trail. Material for the turnpikes would be harvested on site. If adequate down material cannot be salvaged for the project, up to 15 trees with a diameter of less than 20" dbh may need to be felled on site for material. Additional trail work includes construction of new drainage structures and reconstruction of existing drainage structures, construction of 450 feet of crib ladder steps, and performing maintenance on all existing structures.

The selected SERVICE PROVIDER will be engaged as a CONTRACTOR with the Greenway Trust to complete the Annette Lake Trail #1019 reconstruction project to USFS specifications. Note that the terms SERVICE PROVIDER and CONTRACTOR are used interchangeably in this document.

Work shall be completed before November 30th, 2022.

### PROJECT LOCATION

The Annette Lake Trail #1019 is in the South Fork Snoqualmie River Valley in the Mount Baker-Snoqualmie National Forest, Snoqualmie Ranger District (MBS-Snoqualmie). The project is reached from the Annette Lake Trailhead, located off Exit 47 of I-90 and FS Road 55. The GPS coordinates for the Annette Lake Trailhead are: **47.39284, -121.47414**. Reconstruction will be completed between mile points 1.5 and 3.6. Coordinates for the beginning of project (BOP) are: **47.37795, -121.47187**. See attached maps.

## EVALUATION FACTORS

The Greenway Trust will rate proposals based on the following factors, with cost and adherence to project timeline being the most important factors:

1. Responsiveness to the requirements set forth in this *Request for Bid*
2. Relevant past projects including examples of work and references
3. Unit pricing and total bid amounts
4. Technical expertise/experience of bidder and bidder's staff
5. Ability to respond to Greenway Trust schedules and timeline

The Greenway Trust reserves the right to award to the bidder that presents the best value to the Greenway Trust as determined solely by the Greenway Trust in its absolute discretion.

## SUBMISSION GUIDELINES AND REQUIREMENTS

The following submission guidelines and requirements apply to this *Request for Bid*:

1. Bidders (SERVICE PROVIDER) should notify the Greenway Trust of their intent to submit a bid. Notification should be made by email.
2. **Complete bid responses will include the following items.** Include additional information as separate attachment(s).
  - ☐ Proposed costs as detailed in the SCHEDULE OF ITEMS.
  - ☐ Hourly rates/costs for any items not included in the SCHEDULE OF ITEMS including labor and machine/power equipment. (Attached cost/rate sheet is preferred.)
  - ☐ If you have a standard set of terms and conditions, please submit them with your proposal. All terms and conditions will be subject to negotiation.
  - ☐ A list of proposed mechanized equipment to be used to complete the project.

Equipment Type	Equipment Description (make, weight, width, etc.)

- ☐ Proposed project schedule and milestones. This project must be completed by the project deadline of **November 30, 2022**. SERVICE PROVIDER must submit a project schedule with milestones outlining their plan for meeting the deadline. Please use the following table or attach information separately:

Pay Item	# Days	Start Date	Completion Date	Construction Approach
91202, 91101				
92201, 92202				
92501, 92503, 92706				
93201				
93601				
93602A, 93602B				
Completion				

- ☐ A list of at least two projects that are substantially similar to this project, including references for each. Examples of work should be provided.

Project #1 Name	
Project Location	
Project Owner/Agency	
Contact Name / Phone / Email	
Brief Description of Work	
Completion Date	
Project Cost	

Project #2 Name	
Project Location	
Project Owner/Agency	
Contact Name / Phone / Email	
Brief Description of Work	
Completion Date	
Project Cost	

3. The SERVICE PROVIDER is required to maintain Commercial General Liability (CGL) Insurance (\$2,000,000 general aggregate limit.) Employers Liability (Stop Gap) Insurance (\$1,000,000 per accident) and Business Auto Policy (BAP) Insurance (\$1,000,000 per accident.) SERVICE PROVIDER must submit proof of insurance and be prepared to name the Mountains to Sound Greenway Trust as additionally insured to be awarded this project.
4. The SERVICE PROVIDER will be required to abide by Davis-Bacon and Related Acts (DBA) which applies to contractors and subcontractors performing work on federal contracts.
5. Proposals must be signed by a representative that is authorized to commit SERVICE PROVIDER'S company. Responses to this RFB must be received prior to 5pm Pacific time on the bid submittal deadline. Proposals must remain valid for a period of 60 days.

DEADLINES	DATES
Notify Greenway Trust of intent to submit bid.	September 17, 2021
Bid submittal deadline.	September 24, 2021
Project proposal acceptance. *	October 1, 2021
Project completion deadline.	November 30, 2022

*\*The Greenway Trust reserves the right to adjust the proposal acceptance date.*

An on-site meeting may be scheduled between a SERVICE PROVIDER and the selection team if the Greenway Trust needs additional information to support the selection of a qualified SERVICE PROVIDER.

**SECTION B - SCHEDULE OF ITEMS**

Annette Lake Trail #1019, Reconstruction MP 1.0 – 3.6  
Mt. Baker-Snoqualmie National Forest, King, Co. WA

<b>PAY ITEM</b>	<b>ITEM DESCRIPTION</b>	<b>METHOD OF MEAS.</b>	<b>EST. QUANTITY</b>	<b>PAY UNIT</b>	<b>UNIT PRICE</b>	<b>TOTAL BID</b>
91101	Trail Construction – Excavation & Embankment	AQ	13841	LF	\$ _____	\$ _____
91202	Trail Construction – Clearing & Grubbing	AQ	<u>13841</u>	LF	\$ _____	\$ _____
92201	Waterbar - Rock	AQ	2	EA	\$ _____	\$ _____
92202	Waterbar – Treated Pole	AQ	2	EA	\$ _____	\$ _____
92501	Parallel Ditch	AQ	121	LF	\$ _____	\$ _____
92503	Lead-Off Ditches	AQ	14	LF	\$ _____	\$ _____
92706	Drain Dips	AQ	40	EA	\$ _____	\$ _____
93201	Turnpike – Native Pole Retainer	AQ	375	LF	\$ _____	\$ _____
93201A	Turnpike – Rock	AQ	25	LF	_____	_____
93601	Crib Ladder Stairways	AQ	450	LF	\$ _____	\$ _____
93602A	Individual Step – Treated Pole	AQ	24	EA	\$ _____	\$ _____
93602B	Individual Step – Rock	AQ	10	EA	\$ _____	\$ _____
90701	Mobilization	AQ	1	LS	\$ _____	\$ _____
<b>TOTAL BID</b>			\$ _____			

Organization/Company		
Email		Date
Contact name		
Authorizing Signature		

## **SECTION C - DESCRIPTION OF WORK**

### **C.1 DESCRIPTION OF WORK:**

This project involves the reconstruction of 2.6 miles of Hiker Only, non-wilderness trail. Work includes the clearing, grubbing, excavation and embankment, switchback rehab, installation of pole and rock steps, turnpike reconstruction, and a variety of other trail and drainage structures.

Clearing, grubbing, excavation and embankment shall be on trail segments designated by the Greenway Trust Project Manager to be below standard.

The contractor will be responsible for the purchase of all materials, mobilization, and construction of all other portions of the project. Mountain bicycles and stock are allowed on the lower portion of this trail (trailhead to the Palouse to Cascades Trail). Wildlife noise restriction may apply. See SECTION D – SPECIAL CONTRACT REQUIREMENTS.

### **C.2 PROJECT LOCATION:**

This project is located on the Snoqualmie Ranger District/North Bend Area, of the Mt. Baker-Snoqualmie National Forest. From Seattle or Bellevue, take I-90 east and take exit #47. Turn right at the end of the exit ramp, cross the South Fork Snoqualmie River. At the junction with FSR #55, turn left. Follow RD 55 ½ mile to the trailhead (Trailhead for both Annette Lake and Asahel Curtis Nature Trail).

### **C.3 PROJECT TIMING:**

This project shall be completed between date of fully executed contract and November 30, 2022. The normal construction season at the site is typically May through November 1. Low snow years may allow access earlier and later in the year.

### **C.4 TECHNICAL SPECIFICATIONS**

Technical specifications are contained in applicable sections in:

- a) Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects, US Customary Units, 10/30/2014. Available at: <http://www.fs.fed.us/recreation/programs/trail-management/trailplans/index.shtml>

The requirements contained in these Standard Specifications are hereby made a part of this solicitation and any resulting contract. Standard Specifications and Special Project Specifications which are applicable to this contract are listed in the attached Specification List. The Special Project Specifications are physically attached.

The contractor shall notify the Greenway Trust Project Manager (“Greenway Trust PM”) when leaving the project area for three or more days and within 24 hours after returning to the project area. Each week, unless otherwise approved, the Contractor shall report his location and progress to the Greenway Trust PM to permit timely inspection and acceptance of completed work by the Greenway Trust.

**C.5 PRICE RANGE:** Between \$150,000 - \$175,000

**C.6 PRE-BID CONFERENCE:** None Scheduled

## SECTION D - SPECIAL CONTRACT REQUIREMENTS

### 1. APPLICABLE MITIGATION MEASURES

Based on the reviews conducted by resource specialists, and consultation with U.S. Department of Interior: Fish and Wildlife Service (USFWS), the following mitigations and best management practices (BMPs) are required:

- Mini-excavators or motorized wheelbarrows operating prior to **July 16<sup>th</sup>** will be of a type emitting less than 90 dB noise level.
- No chainsaw or other motorized hand tool operations prior to **July 16<sup>th</sup>**.
- No trees > 21" or meeting potential nest tree description will be felled for turnpike construction materials
- Project activities generating noise above ambient levels (i.e., chainsaw) would occur between two hours after sunrise to two hours before sunset when within 110 yards from suitable nesting habitat, between **April 1 and Sept 23**.

#### General Trail Construction

- Trail construction should minimize disturbed area as much as possible while still meeting project objectives.
- Trail should be located outside of the Riparian Reserve when possible and trail design should minimize stream crossings. Stream crossings will be oriented perpendicular to the channel.
- All instream and riparian construction will occur during summer base flow periods (after July 16<sup>th</sup>). Work will abide by the instream work timing windows for the project site and other pertinent provisions listed in the HPA MOU.
- There shall be no excavation, filling, or disposal of material within the wetted perimeter of the stream, unless such action is approved by an aquatics specialist.
- Spoils from any excavation should be placed in a hydrologically stable location outside of the Riparian Reserve.
- If flooding or wet weather cause sedimentation to streams, pause operations until favorable conditions return.
- If work within the active channel requires water diversion, stop diverting if stream becomes turbid. Work may resume when the turbidity can be mitigated.
- Disturbed ground should have BMPs in place to prevent erosion and sedimentation. These may include but are not limited to water bars, drainage features, plantings, straw bales, or wattles.
- Any culverts or drainage structures should be installed to pass the 100-year flood event plus potential debris, the channel at the stream crossing should also be similar in width and slope as the channel above and below the trail.
- Trail drainage features including but not limited to out sloping, grade reversal, knicks, rolling grade dips, and water bars should be spaced no more than 50 feet apart.
- All trash should be removed from the site prior to completion.

#### Trees in Riparian Reserves

- Trees used for trail building materials should be sourced from outside the Riparian Reserve entirely where feasible, but at least from the outer half of the Riparian Reserve and carried versus dragged. Any trees needing to be felled or cleared within the Riparian Reserve should be felled towards the stream and left in place.

## **Machinery/Excavators**

- Any machinery maintenance involving potential contaminants (fuel, oil, hydraulic fluid, antifreeze, etc.) will occur outside of Riparian Reserve and should take place on an absorbent pad.
- There must be a spill prevention response plan prior to the use of heavy machinery, and machinery will be checked for leaks and repaired prior to starting work each day.
- No fuels will be stored within Riparian Reserves and all petroleum products will be secured in self-contained safety cans.
- If machinery crosses a stream channel it should be limited to a one-time crossing in an area that minimizes disturbance, a temporary platform will be put in place if necessary. Machinery should stay on trail prism as much as possible to minimize disturbance area.

## **Standard Mitigations for Ground Disturbing Work**

- Any vehicles, tools, or heavy equipment used for ground disturbing work must be washed of soil and plant material prior to arriving on the MBSNF and before leaving the project area to reduce the spread of weeds.
- Work from lightly infested areas to highly infested areas and/or from high elevation to low elevation if possible to further reduce the spread of weeds.
- Any imported material must be inspected/certified for weeds prior to being brought onto the Forest. Requests for inspections for commercial rock, gravel, and sand sources must be sent to the Forest Invasive Species Coordinator no less than 3 weeks prior to being imported onto the Forest. Any straw, hay, or mulch being brought onto the Forest must come from a source that has been certified by the Washington Weed Free Hay and Mulch Program (WWHAM).
- The Invasive Species Coordinator will be notified when specific implementation date is known to facilitate coordination of any necessary herbicide treatment work prior to project implementation.

## **HERITAGE RESOURCES**

H1 - If a previously unidentified cultural resource(s) is discovered during project implementation, the activity shall be stopped in the area of the find and a reasonable effort to secure and protect the resource(s) shall be made. The Heritage Specialist shall be notified and the Forest would fulfill its responsibilities in accordance with the Programmatic Agreement and other applicable regulations.

H2 - If Indian human remains or other cultural items specified in the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered, work shall stop and the finding shall be secured. The MBS NAGPRA protocol shall be followed and the Forest Service will take jurisdiction. Notify the Heritage Specialist

## **VEGETATION**

V1 - If any previously undiscovered TES or S&M plants are discovered, before or during project implementation, halt work until a USFS botanist is consulted and necessary mitigation measures are enacted.

V2 – Thoroughly clean heavy equipment (tracks, wheels, frame, undercarriage, bucket etc) and service vehicles offsite with high pressure washing system prior to commencement of work. Service vehicles leaving the local area (MBS and adjacent municipal areas) and or used off paved municipal roads away from the project area shall be thoroughly cleaned before returning to work site. Equipment shall be inspected by Greenway Trust PM prior to mobilization onto Forest Service land to ensure machinery is clean and free of dirt and debris that could contain seeds.

V4 - Suppliers must provide annual documentation indicating that the following products have been examined by a qualified inspector and deemed free of State listed noxious weeds: Straw or other mulch (*weed-free straw for erosion control must be certified by WA State via the WWHAM program ([http://www.nwcb.wa.gov/WWHAM/WWHAM\\_suppliers.htm](http://www.nwcb.wa.gov/WWHAM/WWHAM_suppliers.htm))*); Gravel, rock, or other fill; Seeds (according to Association of Official Seed Analysts' standards).

## **2. USE OF PREMISES**

- a. Before any camp, quarry, borrow pit, storage, detour, or bypass site, other than shown on the drawings, is opened or operated on USDA land or lands administered by the USDA, written permission shall be obtained through the Greenway Trust PM, who will seek USFS concurrence. A camp is interpreted to include the campsite or trailer parking area of any employee working on the project for the Contractor.
- b. Camp sites and trailer parking areas used by any employee working on the project for the contractor shall be kept neat and clean. There shall be no improvements made to the site.
- c. Unless provided otherwise, the Contractor shall: (i) provide and maintain sanitation facilities for the workforce at the site and (ii) dispose of solid waste in accordance with applicable Federal, State, and local regulations.
- d. Designated Camp: Contractor camps have not been identified. Trailer and RV parking is best done at or near the Annette Lake Trail. Primitive spike camps can be established near the work site. Security along the road is an issue when the road is open to the public. It is best not to leave a camp unoccupied overnight or on weekends.
- e. Food Preparation & Cooking: (1) Unattended attractants (human foods, soft drinks and alcoholic beverages, cosmetics and toiletries, pet foods, processed livestock feed and grains, cooking residue, empty food containers, and other refuse) will be unavailable to wildlife by either storing in IGBC tested and certified bear resistant containers, or by hanging 10 or more feet above ground level, 4 or more feet from the hanging structure, and 100 or more feet from sleeping areas. Attractants will be considered attended when non-sleeping people are within 80' of the attractants. (2) Food preparation, cooking, and cleaning areas will be 100 or more feet from sleeping areas.

### **3. LANDSCAPE PRESERVATION**

(a) The Contractor shall confine operations to Project Area or other areas designated in contract documents and prevent the depositing of rocks, excavated materials, stumps, or other debris outside of these limits. Material, which falls outside of these limits shall be retrieved, disposed of, or incorporated in the work as directed by the Greenway Trust PM.

(b) Prevention of Oil Spills. If the Contractor maintains storage facilities for oil or oil products onsite, appropriate preventive measures shall be taken to ensure that any spill of such oil or oil products does not enter any stream or other waters of the United States or any of the individual states.

Servicing of all equipment shall be done only in the area approved by the Greenway Trust PM.

If the total oil or oil products storage exceeds 1,320 gallons or if any single container exceeds a capacity of 660 gallons, the Contractor shall prepare a Spill Prevention Control and Countermeasures (SPCC) Plan. Such plan shall meet applicable EPA requirements (40 CFR 112) including certification by a registered professional engineer.

The Contractor will be required to make reasonable attempts to preserve the scenic and natural environment along this construction project.

(c) Trash and Refuse - Contractor shall remove all contractor trash and refuse from the contract area. Material to be removed includes, but is not limited to; used engine oil, oil filters, oil cans, grease cartridges, camp refuse such as tin cans, paper, garbage, etc. This material must be removed to a State, County, or Municipality designated solid waste disposal area.

(d) Tree and Bark Damage: Trees used as anchors or spar poles for cable yarding of construction materials (ie: bridge beams, barrier logs) shall be protected from bark damage and girdling. Chokers (nylon web, chains, or cable) shall be shimmed and will not have direct contact with live bark.

### **4. USE OF MOTORIZED EQUIPMENT**

The use of motorized trail construction equipment, and motorized trail transportation equipment, including power tools, will be permitted as shown below. Trail construction equipment used will not have a wheelbase or track width of more than 36" (1-2 ton) without approval of the Greenway Trust Project Manager. Motorcycles or motorized trail bikes will not be permitted on this trail.

Any damage to the existing trail or other facilities, resulting from the use of trail construction equipment (excavators, loaders, or power carriers), shall be the responsibility of the contractor. This includes any damage to existing and new surfacing, boardwalks, bridges, and any other structures.

EQUIPMENT	OPERATING SEASONS
Chain Saws	No activities are allowed prior to July 16. Activities are allowed from 2 hours after sunrise to 2 hours before sunset after July 15 <sup>th</sup> .
Gasoline Brushers	Same as above
Gasoline Rock Drills	Same as above
Gasoline Wood Drills	Same as above
Gasoline Generators	Same as above
Power Wheelbarrow	Activities are allowed Sept 24 – March 31. Activities are restricted April 1 – Sept 23 <sup>rd</sup> as follows: Only machinery with low ambient noise levels (below 90 dbh) operating between two hours after sunrise and two hours before sunset when within 110 yards of suitable nesting habitat.
Excavator	Same as above (see “Power Wheelbarrow”)
Bobcat (Small Loader)	Same as above (see “Power Wheelbarrow”)

## **5. USE OF PACK AND SADDLE ANIMALS**

The first mile of the Annette Lake Trail (trailhead to the Palouse to Cascades Trail) is open to stock. Pack stock may be used for the mobilization of materials and equipment. Pack stock may be used with permission of the District Ranger. A written request will be submitted at least 14 days prior to use.

When pack stock is used the following conditions apply:

### **THE FOLLOWING ORDERS PERTAIN TO PACK AND SADDLE ANIMALS USED TO TRANSPORT MATERIALS EQUIPMENT, SUPPLIES, AND/OR CREW MEMBERS:**

**A. *Possessing or transporting any livestock feed other than processed feed.*** (Processed feed includes any type of commercially available feed that does not contain viable plant seeds. Certified weed free hay may contain viable plant seeds and is not considered processed under this definition.)

**B. *Entering or being in the wilderness with a group consisting of a combination of persons and pack and saddle animals exceeding 12 in total number.*** (Pack and saddle animals include the following: all horses, mules, burros, donkeys, llamas, goats, and other animals commonly used for packing gear or carrying a rider.)

**C. *Grazing of livestock within 200 feet of any lake or stream.***

**D.** These restrictions are based the Best Management Practices for the Prevention of Noxious Weeds, Amendment #14, Mt. Baker-Snoqualmie National Forest Land Management Plan, 10/25/99. In addition, the following stock practices shall be followed:

**1.** Stock camps and length of stay will be as designated by the Greenway Trust PM. In general, duration will be limited to delivery of materials and supplies. Contractor should not expect to board

stock at the construction site for the duration of the project unless approved by the Greenway Trust PM in advance.

2. Use of stock may be allowed for the transport of materials and supplies as needed for this project. Stock will not be allowed at work site unless specifically needed for completion of the project. Such use will be approved, in advance, by the Greenway Trust PM.

3. All stock shall be contained by approved low impact methods including high lines, electric fence, or corral, well away from the trail or as approved by the Greenway Trust PM. Other methods of containment will be allowed as approved by the Greenway Trust PM. Stock will be always confined except when delivering materials and supplies. No permanent improvements shall be made.

## **7. LOCAL MATERIALS SOURCES**

All borrow areas shall be approved in advance by the Greenway Trust PM or designated representative and shall be so located and excavated as to be screened from the trail way.

## **8. DISPOSAL OF CONSTRUCTION DEBRIS**

Existing structures, such as retainers, waterbars, culverts, bridges, and puncheon, which are removed, and debris from the construction of retainers, waterbars, puncheon, viewpoints, and bridges, shall be disposed of at a site and in a manner approved by the Greenway Trust PM.

## **8. CLEAN-UP**

In addition to the aforementioned requirements, the contractor shall remove all construction stakes, tags, and plastic flagging located within 50 feet of the completed trail centerline for the entire length of the project within five days after the final acceptance of all other work on the project.

## **9. EMERGENCY CONTROL (USDA 452.236-77) (FEB 1988)**

(a) Contractor's Responsibility of Fighting Fire. The Contractor, under the direction of the Forest Supervisor or, in the absence of said officer, acting independently, shall immediately extinguish all fires on or in the vicinity of the project. If it is determined subsequently by the USFS that a fire was caused by the Contractor or the Contractor's agents or employees, whether caused directly or indirectly as a result of Contractor operations, the Contractor's cost relating to extinguishing the fire shall not be reimbursed by the Greenway Trust or by the Government and shall be the sole responsibility of the Contractor. In addition, the Contractor may be held liable for all damages on costs incurred by the Government for labor subsistence, equipment, supplies, and transportation deemed necessary to suppress a fire set or caused by the Contractor or the Contractor's agent or employees.

(b) Contractor's Responsibility for controlling Other Emergencies. When requested by the USFS, the Contractor shall allow the Forest Service to temporarily use not less than the current area rate established by

the Forest Service. Employees and equipment will be released from emergency operations when other labor and equipment adequate for the protection of the area is obtained.

#### **10. FIRE PROTECTION REQUIREMENTS**

The following fire requirements are attached to this document and/or found online and are applicable.

- Fire Protection and Suppression, R6-FS-6300-50 (4/87)
- Additional Fire Precautionary Measures - Communications, R6-FS-6300-54 (2/84)
- Fire Plan, R6-FS-6300-55 (2/84) (Form to be filled out by contractor upon bid award and submitted to Greenway Trust PM before beginning construction).

Disposal by burning will not be allowed.

#### **11. BARRICADES, WARNING SIGNS, AND OTHER DEVICES**

Approved signs shall be placed at the trailhead and all trail junctions to notify the public of the construction activity. The contractor will be responsible for all on-site signing.

#### **12. MAINTENANCE OF TRAFFIC**

The Annette Lake Trail will be open to the public during construction. The contractor is responsible for occasional closures that may be required for construction activities. The contractor is responsible for maintaining signing and barricades.

#### **13. OTHER CONTRACTORS AND ADMINISTRATIVE CREWS**

Other Contractor(s) or trail crews may be working adjacent to the project site. The Contractor shall fully cooperate with the other Contractor(s) and work crews, including planning, scheduling, and timely notification of blasting and aviation activities.

#### **14. PRODUCT SUBSTITUTIONS, SHOP DRAWINGS AND MATERIAL CERTIFICATION**

Any modification of other items, designs, materials, products, or equipment (including Government-furnished property), made necessary because of a substitution, will be the responsibility of the Contractor without adjustment in contract price or time. The Greenway Trust approval of any substitute will not affect the Contractor's responsibility for such modification. The Contractor will request any and all substitutions, after award of the contract has been made. No approvals will be made prior to award.

### **SECTION E – FIRE PROTECTION & SUPPRESSION**

### **SECTION F – VICINITY MAP**

### **SECTION G – TRAIL CONSTRUCTION LOG**

### **SECTION E - DRAWINGS & SPECIFICATIONS**

**Pacific Northwest Region  
Fire Protection and Suppression**

1. Fire Period and Closed Season

Specific fire prevention measures are listed below and shall be effective for the period April 1 to October 31 of each year. The Forest Service may change the dates of the said period by advance written notice if justified by unusual weather or other conditions. Required tools and equipment shall be kept currently in serviceable condition and immediately available for initial attack on fires.

2. Fire Plan

Before starting any operations on the project, the Contractor, Permittee, Licensee, or Purchaser, hereinafter referred to as the "Contractor," shall prepare a fire plan in cooperation with the Contracting officer providing for the prevention and control of fires in the project area.

The Contractor shall certify compliance with fire protection and suppression requirements before beginning operations during the fire period and closed season, and shall update such certification when operations change.

3. Substitute Measures

The Contracting officer may by written notice, authorize substitute measures or equipment or may waive specific requirements during periods of low fire danger.

4. Emergency Measures

The Forest Service may require emergency measures, including the necessary shutting down of equipment or portions of operations in the project area during periods of fire emergency created by hazardous climatic conditions.

5. Fire Control

The Contractor shall, independently and in cooperation with the Forest Service, take all reasonable action to prevent and suppress fires in a project area. Independent initial action shall be prompt and shall include the use of all personnel and equipment available in the project area.

For the purpose of fighting forest fires on or in the vicinity of the project, which are not caused by the Contractor's operations, the Contractor shall place employees and equipment temporarily at the disposal of the Forest Service. Any individual hired by the Forest Service will be employed in accordance with the Interagency Pay Plan for Emergency Firefighters. The Forest Service will compensate the Contractor for equipment rented at fire fighting equipment rates common in the area or at prior agreed to rates.

1 6. Compliance with State Forest Laws

2  
3 Listing of specific fire precautionary measures herein is not intended to relieve  
4 the Contractor in any way from compliance with the State Fire Laws covering  
5 fire prevention and suppression equipment, applicable to operations under this  
6 contract, permit or license.  
7

8 7. Fire Precautions  
9

10 Specific fire precautionary measures are as follows:

11  
12 a. Smoking and Open Fires  
13

14 Smoking and fires shall be permitted only at the option of the  
15 Contractor. The Contractor shall not allow open fires on the project  
16 area without advance permission in writing from the Forest Service.  
17

18 Unless restricted by State Law or Federal Regulation, smoking shall  
19 be permitted only in such portions of the project area that are free of  
20 flammable material. Smokers shall sit down to smoke in such a  
21 position that any burning material will fall within a cleared area, and  
22 shall extinguish and press out in mineral soil all burning material  
23 before leaving the cleared area.  
24

25 b. Fire Extinguishers and Equipment on Trucks, Tractors, etc.  
26

27 All power-driven equipment operated by the Contractor on National  
28 Forest land, except portable fire pumps, shall be equipped with one  
29 fire extinguisher having a UL rating of at least 5 BC, and one "D"  
30 handled or long handled round point shovel, size "O" or larger. In  
31 addition, each motor patrol, truck, and passenger-carrying vehicle  
32 shall be equipped with a double-bit axe or Pulaski, 3-1/2 pounds or  
33 larger.  
34

35 Equipment shall be kept in a serviceable condition and shall be  
36 readily available.  
37

38 c. Power Saws  
39

40 Each gasoline power saw operator shall be equipped with a  
41 pressurized chemical fire extinguisher of not less than 8-ounce  
42 capacity by weight, and one long-handled round point shovel, size "o"  
43 or larger. The extinguisher shall be kept in possession of the saw  
44 operator at all times. The shovel shall be accessible to the operator  
45 within one (1) minute.  
46

47 d. Extinguishers  
48

49 One refill for each type or one extra extinguisher sufficient to replace  
50 each size extinguisher required on equipment shall be safely stored  
51 in the fire tool box or other agreed upon place on the project area that  
52 is protected and readily available.

1  
2 e. Spark Arresters and Mufflers  
3

4 Each internal combustion engine shall be equipped with a spark  
5 arrester meeting either (1) USDA Forest Service Standard 5100-1a,  
6 or (2) appropriate Society of Automotive Engineers (SAE)  
7 recommended practice J335 (b) and J350 (a) as now or hereafter  
8 amended unless it is:  
9

- 10 (1) Equipped with a turbine-driven exhaust supercharger such  
11 as the turbocharger. There shall be no exhaust bypass.  
12  
13 (2) A passenger-carrying vehicle or light truck, or medium truck  
14 up to 40,000 GVW, used on roads and equipped with a  
15 factory-designed muffler complete with baffles and an  
16 exhaust system in good working condition.  
17  
18 (3) A heavy truck, such as a dump or log truck, or other vehicle  
19 used for commercial hauling, used only on roads and  
20 equipped with a factory designed muffler and with a vertical  
21 stack exhaust system extending above the cab.  
22

23 Exhaust equipment described in this subsection, including spark  
24 arresters and mufflers, shall be properly installed and constantly  
25 maintained in serviceable condition.  
26

27 f. Emergency Fire Precautions  
28

29 The Contractor shall restrict operations in accordance with the  
30 Industrial Fire Precaution Levels listed below. The Forest Service may  
31 change the Industrial Fire Precaution Levels to other values upon  
32 revision of the National Fire Danger Rating System and may change  
33 the specific Industrial Fire Precaution Levels when such changes are  
34 necessary for the protection of the National Forest. When sent to the  
35 Contractor, the revised Industrial Fire Precaution Levels will  
36 supersede the attached levels.  
37

38 **Industrial Fire Precautions Schedule**

39 Level Industrial Fire Precaution (IFPL)  
40

- 41 I. Closed season- Fire Precaution requirements are in effect. A fire  
42 watch/security is required at this and all higher levels unless otherwise waived.  
43  
44 II. Partial hoot-owl- The following may operate only between the hours of 8 p.m.  
45 and 1 p.m., local time:  
46  
47 a. power saws, except at loading sites;  
48 b. cable yarding;  
49 c. blasting;  
50 d. welding or cutting of metal.  
51  
52 III. Partial shutdown- The following shall be prohibited except as indicated:

1  
2 Cable Yarding – except that gravity operated logging systems employing  
3 non-motorized carriages may be operated between the hours of 8 p.m.  
4 and 1 p.m., local time, when all block and moving lines, except the line  
5 between the carriage and the chokers, are suspended 10 feet above the  
6 ground.

7  
8 Power Saws – except power saws may be used at loading sites and on  
9 the tractor/skidder operations between the hours of 8 p.m. and 1 p.m.,  
10 local time.

11  
12 In addition, the following are permitted between the hours of 8 p.m. and 1  
13 p.m., local time:

- 14  
15 a. tractor/skidder operations;  
16 b. mechanized loading and hauling of any product or material;  
17 c. blasting;  
18 d. welding or cutting of metal;  
19 e. any other spark-emitting operation not specifically mentioned.  
20

21 IV. General shutdown – All operations are prohibited.

22  
23 The following definitions shall apply to those Industrial Fire Precaution Levels:

24  
25 Cable yarding systems: A yarding system employing cables and winches in a fixed  
26 position.

27 Closed Season (Fire Precautionary Period): That season of the year when a fire  
28 hazard exists as declared by the responsible agency official.

29  
30 Contracting officer: The person executing the contract, permit or license on behalf  
31 of the Government and includes that person's designated representative, acting  
32 within the limits of their authority or the duly appointed successor to the individuals.

33  
34 Loading sites/woods site/project area: A place where any product or material  
35 (including but not limited to logs, firewood, slash, soil, rock, poles, posts, etc.) is  
36 placed in or upon a truck or other vehicle.

37  
38 Low hazard area: Means any area where the responsible agency representative  
39 (WDNR, ORF, BIA, BLM) determines the combination of elements reduces the  
40 probability of fire starting and/or spreading.

41  
42 Tractor/skidder operations: Include a harvesting operation, or portion of a  
43 harvesting operation, where tractors, skidders, or other harvesting equipment  
44 capable of constructing fireline, are actively yarding forest products and can quickly  
45 reach and effectively attack a fire start.

46  
47 Waivers, written in advance, may be used for any and all activities. Activities for  
48 which waivers may be issued include, but are not limited to:

- 49  
50 a. mechanized loading and hauling;  
51 b. road maintenance such as sprinkling, graveling, grading, and paving;

- c. cable yarding using gravity systems or suspended lines and blocks, or other yarding systems where extra prevention measures will significantly reduce the risk of fire;
- d. power saws at loading sites or in felling and bucking where extra prevention measures will significantly reduce the risk of fire;
- e. maintenance of equipment (other than metal cutting and welding) or improvements such as structures, fences, and powerlines.

Such waiver, or substitute precautions will prescribe measures to be taken by the Contractor to reduce the risk of ignition, and/or the spread of fire. The Contracting officer shall consider site-specific weather factors, fuel conditions, and specific operations that result in less risk of fire ignition and/or spread than contemplated when precaution level was predicted. Consideration shall also be given to measures that reduce the precaution levels above. The Contractor shall assure that all conditions of such waivers or substitute precautions are met.

The Contractor shall obtain the predicted Industrial Fire Precaution Level daily, prior to the start of work, from the appropriate Ranger District headquarters. If predictions made after 6:00 p.m., local time, are significantly different than the original prediction, the Forest Service will inform the Contractor when changes in restrictions or industrial precautions are made.

**NOTE:** The IFPL system does not apply on lands protected by ODF east of the summit of the Cascades.

Where hauling involves transit through more than one shutdown/regulated use area, the precaution level at the woods loading site shall govern the level of haul restriction, unless otherwise prohibited by other than industrial precaution level system.

#### 8. Fire Tools

The contractor shall furnish serviceable fire fighting tools in a readily accessible fire tool box or compartment of sound construction with a hinged lid and hasp so arranged that the box can be secured or sealed. The box shall be red and marked "Fire Tools" in letters one inch high. It shall contain a minimum of:

- a. 2 axes or Pulaski's with a 32-inch handles;
- b. 3 adze eye hoes, one Pulaski may be substituted for one adze eye hoe;
- c. 3 long-handled, round point shovels, size "o" or larger.

#### 9. Fire Security

When the Industrial Fire Precaution Level is "I" or higher, unless a waiver is granted, the Contractor shall designate a person who shall perform fire security services listed below on the project area and vicinity. The designated person shall be capable of operating the Contractor's communications and fire fighting equipment specified in the contract, excluding helicopters and of directing the activities of the Contractor's personnel on forest fires. In lieu of having the designated person perform the required supervisory duties, the

Contractor may provide another person meeting the qualifications stated above to direct the activities of Contractor's personnel and equipment during all firefighting activities.

Services described shall be for at least one hour from the time the Contractor's operations are shut down. For the purposes of this provision, personnel servicing equipment, and their vehicles, who are not engaged in cutting or welding metal, are excluded.

Fire security services shall consist of moving throughout the operation area or areas constantly looking, reporting, and taking suppression action on any fires detected. Where possible, the designated person shall observe inaccessible portions of helicopter operating areas from vantage points within or adjacent to project area.

10. Blasting

Whenever the Industrial Fire Precaution Level is "I" or greater, a fire security person equipped with a long handled, round point, No. "O" or larger, shovel, and a five-gallon backpack pump can filled with water will stay at location of blast for 1 hour after blasting is done. Blasting may be suspended by Forest Service in writing, in an area of high rate of spread and resistance to control.

Fuses shall not be used for blasting. Explosive cords shall not be used without written permission of Forest Service, which may specify conditions under which such explosives may be used and precautions to be taken.

11. Additional Fire Precautionary Measure 1- Tank Truck

Contractor shall provide a tank truck or trailer, containing not less than 300 gallons of water, during yarding, loading, land clearing, right-of-way clearing and mechanical treatment of slash. A tank truck or trailer will not be required if power saw falling and bucking is the only operation. Such tank truck or trailer shall be maintained in a serviceable condition and located within 10 minutes, round trip, from each project area during fire period and closed season.

The tank truck or trailer shall be equipped with a pump capable of discharging 20 gallons of water per minute, using a ¼ inch nozzle tip, through a 50 foot length of rubber lined hose. In addition, 500 feet of serviceable fabric jacket rubber lined hose of not less than 1 inch outside diameter, fitted with a nozzle capable of discharging a straight stream of ¼ inch diameter and a spray pattern shall be immediately available for use. The tank, pump and at least 250 feet of hose and nozzle shall be connected and ready for use at all times.

If a trailer is used, it shall be equipped with a hitch to facilitate prompt movement. A serviceable tow vehicle shall be immediately available for attachment to the trailer and must meet the time requirements stated above. Such truck or trailer shall be equipped to operate for a minimum of 8 hours. Tank truck or trailer shall be available from the start of work to the end of the Fire Watch/Fire Security service.

12. Additional Fire Precautionary Measure 2 - Communications

The Contractor shall provide adequate to-way communication facilities to report a fire to Forest Service within 15 minutes of detection. FCC Regulations prohibit commercial use of Citizen Band (CB) radios. (CB's are not considered adequate two-way communications). Such communications shall be operable during periods of operation of power-driven equipment; including the time fire security is required.

***USDA Forest Service – Region 6***

**Fire Plan**

(For use with forms R6-FS-6300-50,  
R6-FS-6300-51, and R6-FS-6300-52)

Contractor \_\_\_\_\_ Contract Number \_\_\_\_\_

Project Name \_\_\_\_\_ Contract Performance Period \_\_\_\_\_

Contractor's Representative for Fire Matters

<u>Name</u>	<u>Title</u>	<u>Telephone Number</u>
		<u>Office</u> <u>Residence</u>
_____	_____	_____

Contracting Officer's Representative

<u>Name</u>	<u>Title</u>	<u>Telephone Number</u>
		<u>Office</u> <u>Residence</u>
_____	_____	_____

Forest Service Inspector(s)

<u>Name</u>	<u>Title</u>	<u>Telephone Number</u>
		<u>Office</u> <u>Residence</u>
_____	_____	_____

Action by Contractor

The contractor shall take all reasonable and practical action to prevent and suppress fires in the project area. The Contractor shall take suppression action immediately upon discovery of or becoming aware of such fire.

Action by Forest Service

The forest service may counsel with the Contractor on suppression action and will, when necessary, supplement the Contractor's efforts by furnishing personnel and equipment not available to the Contractor. In the event that a fire is not suppressed by the Contractor and will require appreciable reinforcements, the Forest Service

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may take over suppression of the fire and may employ the Contractor's Personnel and equipment.

Fire Prevention and Suppression

Predicted fire precautions class may be obtained from the following local sources:

The Contractor has employed or designated the following named individual(s) as fireguard, whose duty is the detection and suppression of fires:

<u>Name</u>	<u>Title</u>	<u>Telephone Number</u>	
		<u>Office</u>	<u>Residence</u>
_____	_____	_____	_____
_____	_____	_____	_____

Contractor will [ ], will not [ ], permit employees to smoke while in the project area. Open fires will [ ], will not [ ], be permitted by the contractor. Although these activities may be permitted by the Contractor, it is understood that neither shall be allowed without being authorized in writing by the Contracting Officer's Representative.

Fires shall be reported to one of the following Forest Service employees:

<u>Name</u>	<u>Title</u>	<u>Telephone Number</u>	
		<u>Office</u>	<u>Residence</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Contractor's Employees Possessing Special Fires Qualifications

<u>Name</u>	<u>Best Fire Assignment</u>	<u>Other</u>
<u>Qualifications</u>		

Total number of employees who could perform firefighting duties\_\_\_\_\_

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20

Contractor's Equipment Available for Firefighting

Description, Type Make, Model, Size	Number Units	Location
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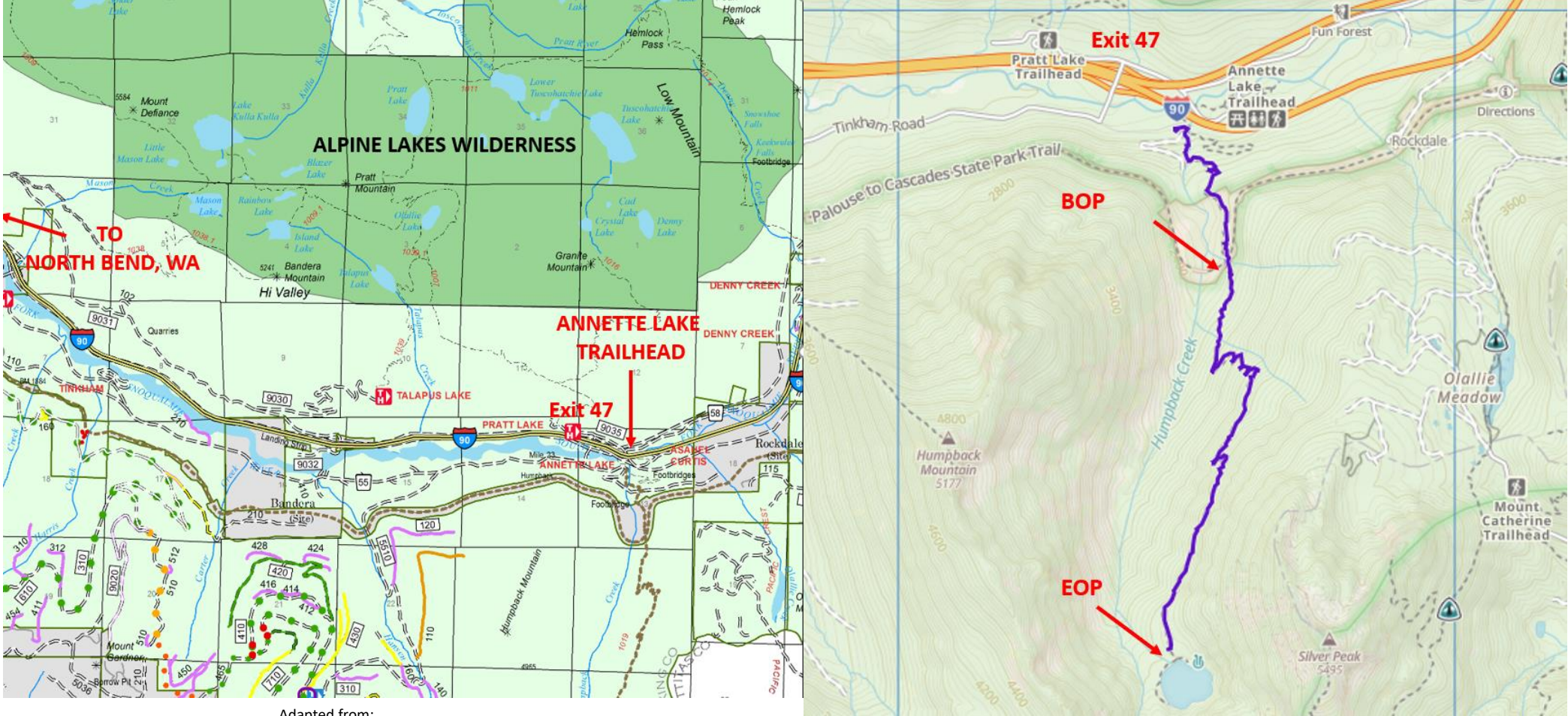
Joint Preparation of this fire plan is acknowledged:

_____ Contractor or Designated Representative	_____ Contracting Officer's Representative
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_____ Date:	_____ Date:
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# PROJECT LOCATION

The Annette Lake Trail #1019 is in the South Fork Snoqualmie River Valley in the Mount Baker-Snoqualmie National Forest, Snoqualmie Ranger District (MBS-Snoqualmie). The project is reached from the Annette Lake Trailhead, located off Exit 47 of I-90 and FS Road 55. The GPS coordinates for the Annette Lake Trailhead are: **47.39284, -121.47414**. Reconstruction will be completed between mile points 1.0 and 3.6. Coordinates for the beginning of project (BOP) are: **47.37795, -121.47187**.



Adapted from:



U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

STANDARD TRAIL PLAN

PROJECT NAME & LOCATION

Annette Lake Trail #1019

Reconstruction

Mount Baker-Snoqualmie National Forest

DRAWING NAME

VICINITY MAP

SECTION

900 - GENERAL

TYPICAL ID

VCM

REVISION DATE

XX/XX/XX

DRAWING NO.

STD\_900-02

SHEET

OF

NO SCALE

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

**SECTION G: TRAIL CONSTRUCTION LOG**

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	50+70		LF		Jct. w/ John Wayne Trail		Begin Project	
50+84	79+65	2881	LF		24"-36" Wide Trail	Trail Construction - Excavation	Restore tread to original specification	91101
50+84	79+65	2881	LF		8'W x 10'H Clearing Corridor	Trail Construction - Clearing and Grubbing	Restore clearing to original specification	91202
79+65	189+25	10960	LF		24"-36" Wide Trail	Trail Construction - Excavation	Restore tread to original specification	91101
79+65	189+25	10960	LF		8'W x 10'H Clearing Corridor	Trail Construction - Clearing and Grubbing	Restore clearing to original specification	91202
	79+65	1	EA		Switchback			
	79+65	3	LF			Construct Lead off Ditch	3'	92503
	79+65	5	LF			Construct Parallel Ditch	5'	92501
	83+30	1	EA		Drain Dip	Construct Drain Dip		92701
83+30	83+50	20	LF		Seeping creek w/ rock ford			
85+65	85+90	25	LF		Turnpike	Reconstruct Turnpike	Rock Retainer	93201
85+90	86+05	15	LF	27+		Construct Crib Ladder Stairway	6 Steps.	93601
	86+40	1	LF			Install Step	treated pole	93602A
	86+45	1	EA			Install Step	treated pole	93602A
	86+50	1	EA			Install Step	treated pole	93602A
	86+55	1	EA			Install Step	treated pole	93602A
	86+60	1	EA			Install Step	treated pole	93602A
	86+65	1	EA			Install Step	treated pole	93602A
	86+70	1	EA			Install Step	treated pole	93602A
	86+75	1	EA			Construct Water Bar	pole, treated	92202

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	<b>87+20</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	
	87+20	5	LF			Construct Parallel Ditch	5'	92501
87+20	87+24	4	LF		Rock Retaining Wall		Rock, 2' high	
	<b>90+00</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2,4' Radius</b>	
	90+00	7	LF			Construct Parallel Ditch	7'	92501
	90+00	5	LF			Construct Lead off Ditch	5'	92503
90+00	90+08	8	LF		Retaining Wall		Rock - 2'	
91+40	91+90	30	LF	28+		Construct Crib Ladder Stairway		93601
	<b>93+10</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	
	93+10	5	LF			Construct Parallel Ditch	5'	92501
	93+20	1	EA	30+		Install Step	treated pole	93602A
	93+30	1	EA	30+		Install Step	treated pole	93602A
	93+40	1	EA	30+		Install Step	treated pole	93602A
	93+50	1	EA	30+		Install Step	treated pole	93602A
	93+60	1	EA	30+		Install Step	treated pole	93602A
	93+70	1	EA	30+		Install Step	treated pole	93602A
	93+80	1	EA	30+		Install Step	treated pole	93602A
	93+85	1	EA	30+		Install Step	treated pole	93602A
	93+90	1	EA	30+		Construct Water Bar	pole, treated	92202
95+60	96+55	95	LF	30+		Construct Crib Ladder Stairway	35 Steps	93601
	95+60	1	EA	30+		Construct Drain Dip		92701
	95+90	1	EA	30+		Construct Drain Dip		92701
	95+20	1	EA	30+		Construct Drain Dip		92701
	96+50	1	EA	30+		Construct Drain Dip		92701

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	<b>97+10</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	
	97+10	1	EA		Waterbar	Clean	Rock	
	97+10	1	EA	20+		Construct Drain Dip		92701
	97+70	1	EA			Construct Drain Dip		92701
	98+40	1	EA			Construct Drain Dip		92701
	99+00	1	EA			Construct Drain Dip		92701
	99+65	1	EA	20+		Construct Drain Dip		92701
	<b>99+65</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4'</b>	
	99+65	2	LF			Construct Lead off Ditch	2'	92503
	99+65	5	LF			Construct Parallel Ditch	5'	92501
	100+15	1	EA			Construct Drain Dip		92701
	100+60	1	EA	25+		Install Step	Rock	93602B
	100+70	1	EA	25+		Install Step	Rock	93602B
	100+80	1	EA	25+		Install Step	Rock	93602B
	100+90	1	EA	25+		Install Step	Rock	93602B
	101+00	1	EA	25+		Install Step	Rock	93602B
	101+20	1	EA	25+		Construct Drain Dip		92701
	101+20	1	EA	20+		Install Step	Rock	93602B
	101+30	1	EA	20+		Install Step	Rock	93602B
	101+40	1	EA	20+		Install Step	Rock	93602B
	101+50	1	EA	20+		Install Step	Rock	93602B
	101+60	1	EA	20+		Install Step	Rock	93602B
101+65	102+25	60	LF					
	<b>102+25</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	102+25	5	LF			Construct Parallel Ditch	5'	92501
	102+25	2	LF			Construct Lead off Ditch	2'	92503
	105+00	1	EA	17+		Construct Drain Dip		92701
	105+90	1	EA	24+		Construct Drain Dip		92701
	<b>105+90</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	
	105+90	5	LF			Construct Parallel Ditch	5'	92501
	106+90	1	EA			Construct Drain Dip		92701
	108+00	1	EA			Construct Drain Dip		92701
	109+00	1	EA			Construct Drain Dip		92701
	115+85	1	EA		Shallow Stream Ford		Rock retainer	
115+85	116+30	45	LF					
	116+30	1	EA		Culvert	Remove	6" CMP	
	116+30	1	EA			Construct Drain Dip		92701
116+30	116+45	15	LF			Construct Parallel Ditch	15'	92501
	116+80	1	EA			Construct Water Bar	Rock	92201
116+80	117+10	30	LF		Water seeping from uphill slope	Construct Parallel Ditch	30'	92501
	117+40	1	EA		Creek xing and drain dip	Construct Drain Dip		92701
	117+80	1	EA		Creek crossing	Construct Drain Dip		92701
117+80	118+65	85	LF	30+		Construct Crib Ladder Stairway		93601
	120+65	1	EA	8+		Construct Drain Dip		92701
	122+65	1	EA			Construct Drain Dip		92701
	123+85	1	EA			Construct Drain Dip		92701
	124+00	1	EA	20+		Construct Drain Dip		92701
	126+00	1	EA	20+		Construct Drain Dip		92701

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	128+50	1	EA	15+		Construct Drain Dip		92701
	130+00	1	EA	15+		Construct Drain Dip		92701
	<b>131+88</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Typer 2, 4' Radius</b>	
	131+88	4	LF			Construct Parallel Ditch	4	92501
	131+88	2	LF			Construct Lead off Ditch	2	92503
	132+50	1	EA	20+		Construct Drain Dip		92701
	133+50	1	EA	20+		Construct Drain Dip		92701
136+00	136+25	25	LF		Rock Retaining Wall		Rock, 2' high	
	<b>136+25</b>	<b>1</b>	<b>EA</b>		<b>Switchback</b>		<b>Type 2, 4' Radius</b>	
	136+25	5	LF			Construct Parallel Ditch	5'	92501
139+20	139+90	70	LF	23+		Construct Crib Ladder Stairway	20 Steps	93601
141+15	141+25	10	LF		Shallow Stream Ford		Seasonal creek	
	143+50	1	EA	28+		Construct Drain Dip		92701
143+25	143+75	50	LF	28+		Construct Crib Ladder Stairway	18 Steps	93601
144+70	145+50	70	LF	26+		Construct Crib Ladder Stairway	23 Steps	93601
	171+75	1	EA		Trail Seep/Drain Dip	Construct Drain Dip		92701
171+75	172+05	30	LF		Trail Seep	Construct Parallel Ditch		92501
	172+05	1	EA		Trail Seep/Drain Dip	Construct Drain Dip		92701
	173+20	1	EA			Construct Drain Dip		92701
	174+60	1	EA			Construct Drain Dip		92701
	176+00	1	EA			Construct Drain Dip		92701
	177+25	1	EA			Construct Drain Dip		92701
	178+30	1	EA			Construct Drain Dip		92701
178+65	178+85	20	LF			Construct Turnpike	Log Retainer	93201

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

9/9/2021

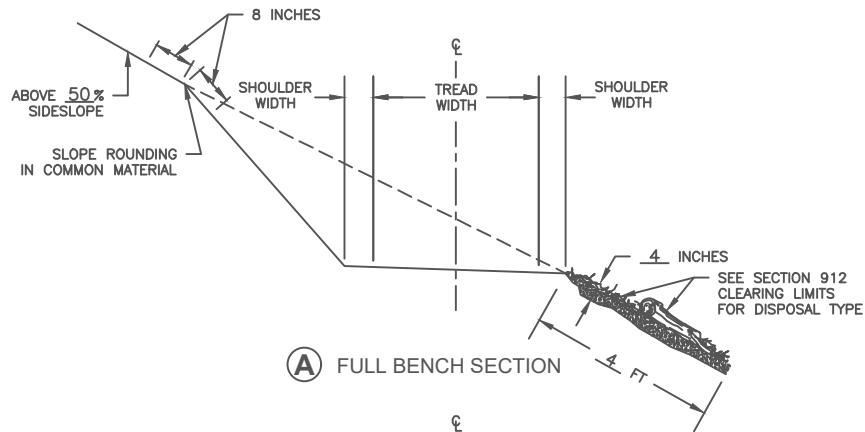
From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
	178+85	1	EA			Construct Drain Dip		92701
	179+00	1	EA			Install Step	treated pole	93602A
179+10	179+50	40	LF			Construct Turnpike	Log Retainer	93201
181+85	182+20	35	LF			Construct Turnpike	Log Retainer	93201
182+35	182+70	35	LF			Construct Turnpike	Log Retainer	93201
	182+70	1	EA	22+		Install Step	treated pole	93602A
	182+75	1	EA			Install Step	treated pole	93602A
	182+85	1	EA			Install Step	treated pole	93602A
	182+95	1	EA			Install Step	treated pole	93602A
182+95	183+20	25	LF			Construct Turnpike	Log Retainer	93201
183+50	183+65	15	LF			Construct Turnpike	Log Retainer	93201
183+75	183+85	10	LF			Construct Turnpike	Log Retainer	93201
184+00	184+35	35	LF			Construct Turnpike	Log Retainer	93201
	184+65	1	EA			Construct Drain Dip		92701
184+65	184+80	15	LF			Construct Turnpike	Log Retainer	93201
	184+90	1	EA	13+		Install Step	treated pole	93602A
	185+00	1	EA	13+		Install Step	treated pole	93602A
	185+25	1	EA	13+		Install Step	treated pole	93602A
	185+45	1	EA	13+		Install Step	treated pole	93602A
	185+65	1	EA	13+		Construct Water Bar	Rock	92201
	185+65	1	EA			Construct Drain Dip		92701
185+65	186+05	40	LF			Construct Turnpike	Log Retainer	93201
186+35	186+65	30	LF			Construct Turnpike	Log Retainer	93201
186+65	186+80	15	LF	25+		Construct Crib Ladder Stairway	5 Steps	93601

**ANNETTE LAKE TRAIL #1019  
RECONSTRUCTION**

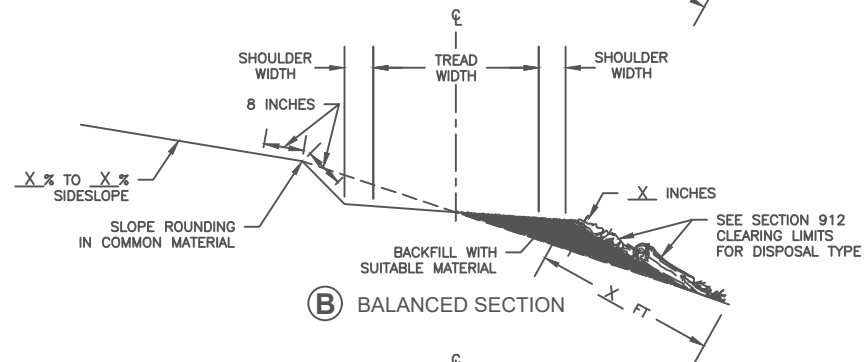
9/9/2021

From (LF)	To (LF)	Quantity (LF)	Unit (LF)	Grade	Existing	Description of Work	Comments	Pay Item
187+25	187+45	20	LF			Construct Turnpike	Log Retainer	93201
187+85	188+05	20	LF	25+		Construct Crib Ladder Stairway	6 Steps	93601
188+05	188+60	55	LF			Construct Turnpike	Log Retainer	93201
	<b>189+25</b>				<b>END OF PROJECT</b>		<b>ANNETTE LAKE</b>	

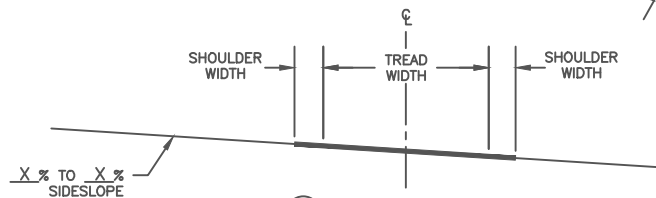
# TYPICAL TRAIL CROSS SECTIONS



**(A) FULL BENCH SECTION**



**(B) BALANCED SECTION**



**(C) FLAT SECTION**

## TYPICAL TRAIL TREAD AND SHOULDER WIDTH

TYPICAL ID	SECTION TYPE	TREAD FINISH	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
				UPHILL	DOWNHILL	
	A	T1	36"	N/A	N/A	All trail construction shall be full bench

## TREAD CROSS SLOPE

TYPICAL ID	OUTSLOPE	INSLOPE	CROWNED SECTION	COMMENTS
TCS-1	3%	None	2%	No Insloped Trail

## SLOPE AND TRAILBED FINISH

TREAD FINISH	ROOTS	LOOSE ROCK	EMBEDDED ROCK	COMMENTS
T1	>1/2"	>1"	>2"	Reduce embedded rock.
T2				
T3				
T4				
T5				
T6				

## TRAILBED AND SLOPE FINISH

### SLOPE FINISH

REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE WITH DIAMETERS GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

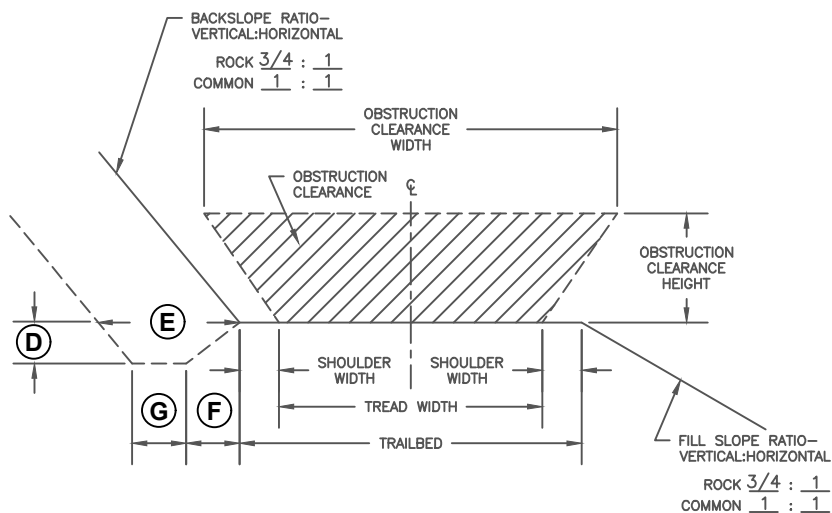
### TRAILBED FINISH

REMOVE LOOSE ROCK ON THE TRAILBED WITH A DIMENSION GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES MORE THAN THE DIMENSIONS SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

### NOTES:

- SLASH CONSISTS OF LOGS, LIMBS, BRUSH, AND ROCKS PLACED RANDOMLY IN A WAY TO CATCH SEDIMENT MOVEMENT.
- LIMB ALL TREES AND SHRUBS AND TAMP SLASH INTO GROUND SO THAT 80% OF SLASH IS IN CONTACT WITH THE GROUND.



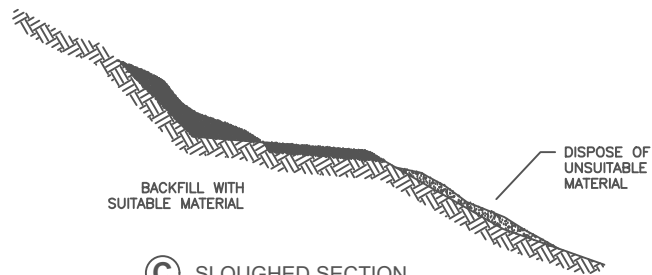
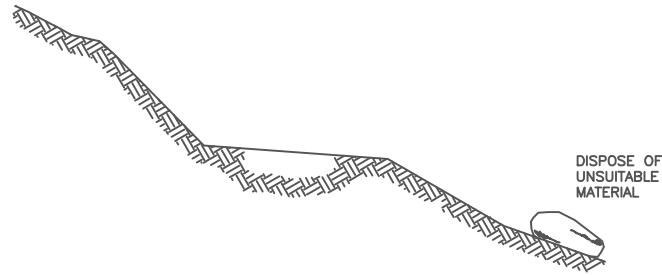
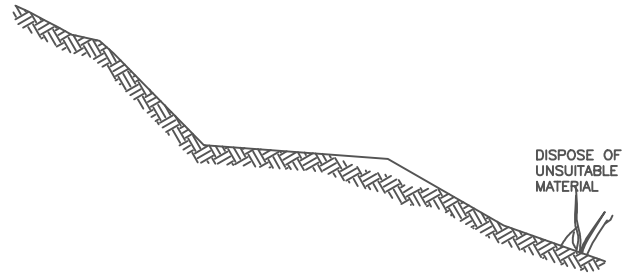
TYPICAL DITCH AND OBSTRUCTION CLEARANCE SECTION

TYPICAL DITCH DIMENSIONS

TYPICAL ID	DITCH DIMENSIONS (INCHES)				COMMENTS
	D	E	F	G	
	12"	30"	12"	12"	N/A

OBSTRUCTION CLEARANCE TABLE

TYPICAL ID	OBSTRUCTION CLEARANCE		COMMENTS
	WIDTH	HEIGHT	
ALL	60"	30"	TREAD WIDTH = 36"

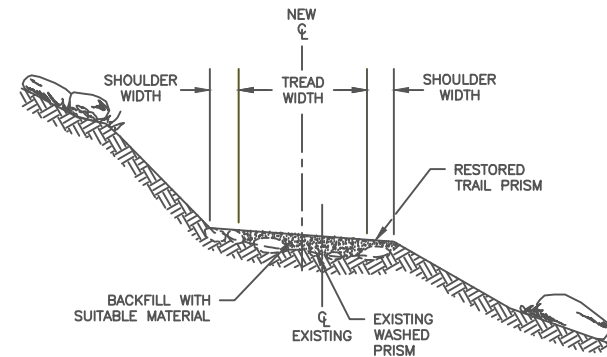


**C** SLOUGHED SECTION

EXISTING TRAIL RESTORATION					
TYPICAL ID	SECTION TYPE	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
			UPHILL	DOWNHILL	
	ALL	36"	N/A	N/A	X

NOTES:

1. RE-ESTABLISH ORIGINAL DRAINAGE STRUCTURES TO MATCH NEW TREAD SURFACE.
2. INSTALL CHECK DAMS, DRAINAGE DIPS OR OTHER DRAINAGE STRUCTURES WHEN SPECIFIED.
3. DRAINAGE DIPS WILL BE STAKED IN THE FIELD WHEN REQUIRED AND WILL BE PAID SEPARATELY UNDER SECTION 927.
4. USE ONLY SUITABLE MATERIAL TO CONSTRUCT RESTORED TRAIL PRISMS. DISPOSE OF UNSUITABLE MATERIAL AS SHOWN ON PLANS.
5. SEEDING, FERTILIZING & MULCHING WHEN REQUIRED WILL BE PAID UNDER SECTION 981.



**D** WASHED SECTION

# CLEARING LIMITS - TREES AND LOGS

TYPICAL ID	CLEARING METHOD	CLEARING LIMITS			* LEAVE TREES		CLEAR ZONE			STUMPS	HAZARD TREE	DISPOSAL METHOD	COMMENTS
		DOWNHILL WIDTH (A)	UPHILL WIDTH (B)	CLEARING HEIGHT (C)	DISTANCE (FEET) (D)	DIAMETER (INCHES)	DOWNHILL WIDTH (E)	UPHILL WIDTH (F)	MAXIMUM OBSTRUCTION HEIGHT (G)	MAXIMUM HEIGHT (H)	REMOVAL WIDTH (I)		
	C 2	4'	4'	10'	>24"	>6"	2'	2'-4'	12"	2"	SEE LOG	D 1	

## CLEARING METHOD

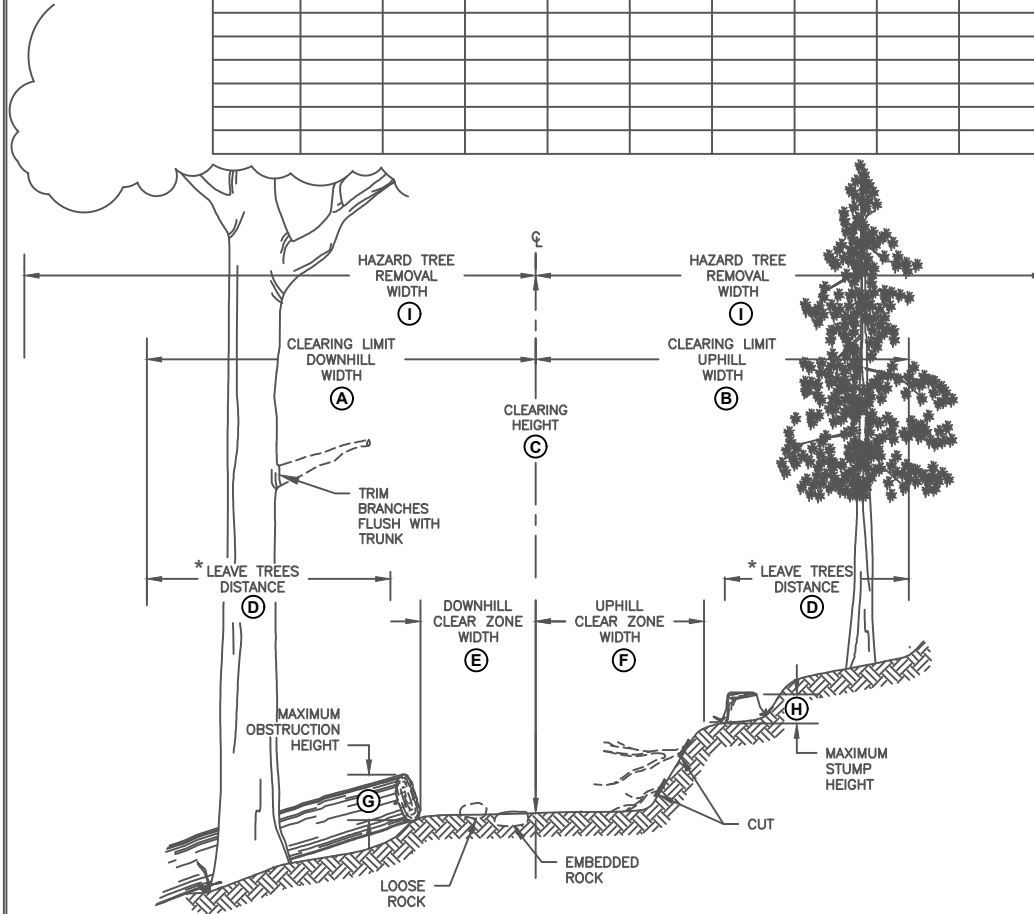
CLEARING TYPE	CLEARING METHOD	COMMENTS
C1	NEW CONSTRUCTION	TREES, PRUNING, & BRUSH
C2	CLEARING LIMIT RESTORATION	TREES, PRUNING, LOGS, BRUSH & MAINTENANCE
C3	TRAIL OPENING	LOGGING OUT, LOOSE ROCK & DRAINAGE CLEARING
C4	HAZARD TREE REMOVAL	ALONG TRAIL CORRIDOR
C5	HAZARD TREE REMOVAL	INDIVIDUAL (AS MARKED)
C6	LOOSE ROCK & ROOT REMOVAL	X
C7	X	X

LEAVE TREES: LEAVE TREES SHOULD BE LIVE, SOUND & UNDAMAGED WITH UNCOMPROMISED ROOT SYSTEMS.

HAZARD TREES: HAZARD TREES ARE TREES THAT ARE STANDING OR LEANING DEAD TREES LARGER THAN 8 INCHES IN DIAMETER AND GREATER THAN 90 FEET IN HEIGHT.

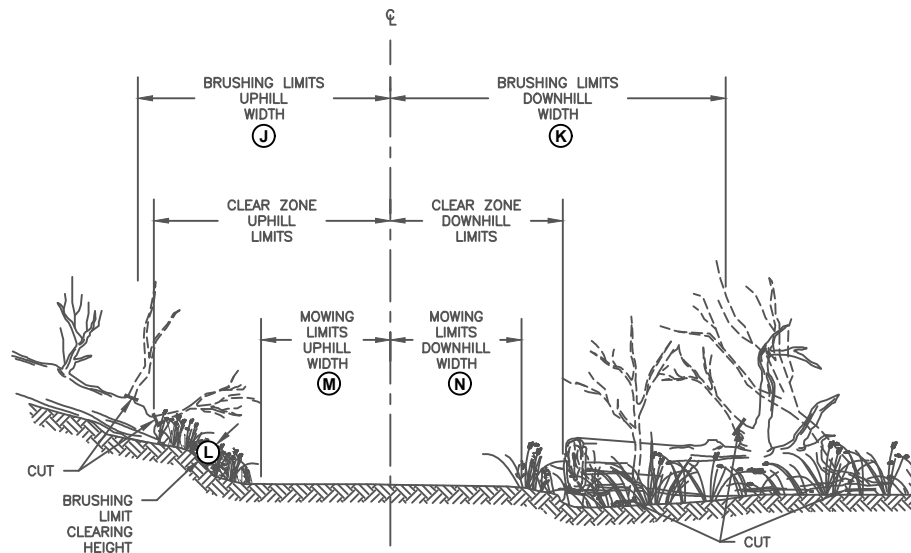
## DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	NO MORE THAN 4" DEPTH
D2	LOP AND SCATTER ON FILL SLOPE	
D3	PILE AND BURN	
D4	CHIP	
D5	HAUL TO DISPOSAL SITE	
D6	X	



# CLEARING LIMITS - BRUSHING

TYPICAL ID	CLEARING METHOD	BRUSHING LIMITS			MOWING LIMITS		DISPOSAL METHOD	COMMENTS
		UPHILL WIDTH (J)	DOWNHILL WIDTH (K)	CLEARING HEIGHT (L)	UPHILL WIDTH (M)	DOWNHILL WIDTH (N)		
	C 9	4'	4'	10'	N/A	N/A	D 1	X



NOTE:  
SEE SHEET STD\_912-01 FOR  
CLEAR ZONE LIMITS

## CLEARING METHOD

CLEARING TYPE	CLEARING METHOD	COMMENTS
C9	BRUSHING	X
C10	MOWING	
C11	X	

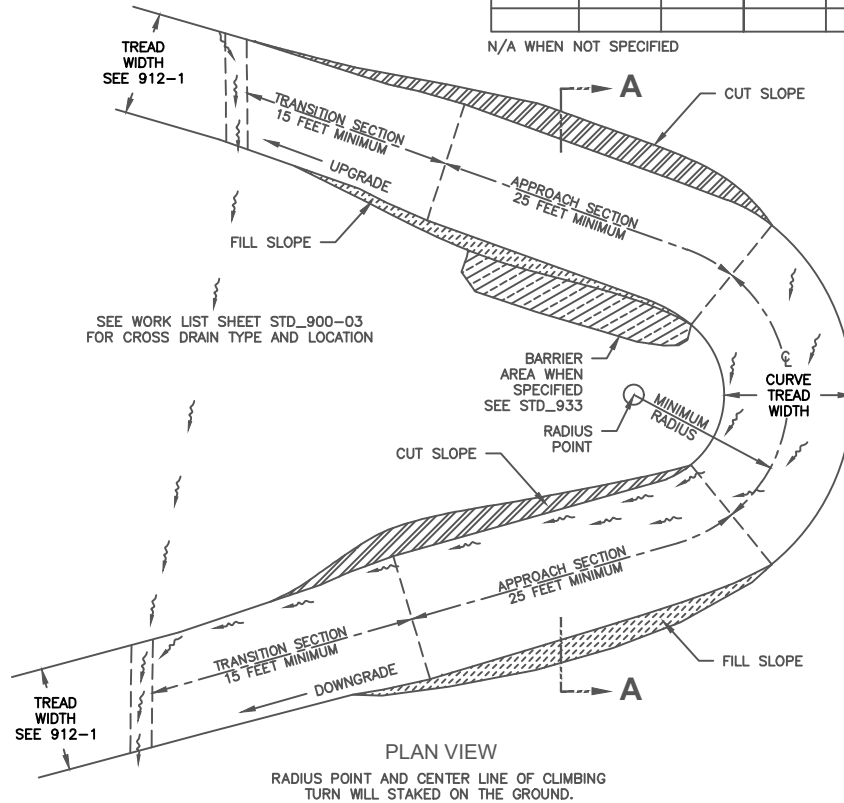
## DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	X
D2	LOP AND SCATTER ON FILL SLOPE	
D3	PILE AND BURN	
D4	CHIP	
D5	HAUL TO DISPOSAL SITE	
D6	X	

# CLIMBING TURN SECTIONS

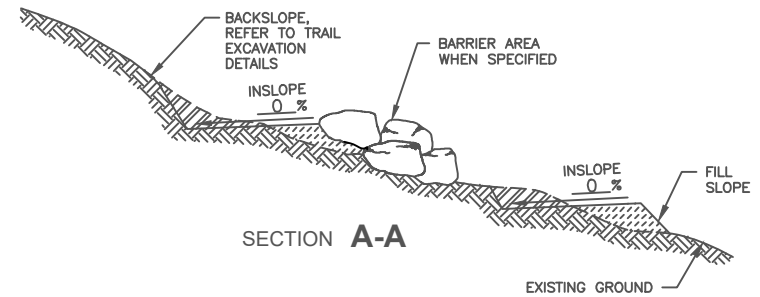
TYPICAL ID	MINIMUM RADIUS	CURVE TREAD WIDTH	BARRIER TYPE	COMMENTS
	X	X		AS STAKED ON THE GROUND
				SEE CONSTRUCTION LOG

N/A WHEN NOT SPECIFIED



PLAN VIEW

RADIUS POINT AND CENTER LINE OF CLIMBING TURN WILL STAKED ON THE GROUND.



SECTION A-A

NOTE:  
CONSTRUCT CONSTANT GRADE THROUGH BOTH APPROACH SECTIONS.

# TALUS OR ROCK SECTION

TYPICAL ID	TREAD WIDTH	SHOULDER WIDTH		GEOTEXTILE TYPE	BASE COURSE		SURFACE COURSE		COMMENTS
		UPHILL	DOWNHILL		TYPE	DEPTH	TYPE	DEPTH	
	36"	6"	6"	N/A	B 1	4"-6"	S 1	4"	FILL VOIDS WITH BROKEN ROCK
									PRIOR TO INSTALLING BASE AND SURFACE COURSE

N/A WHEN NOT APPLICABLE

## GEOTEXTILE TYPE

TYPE	MATERIAL	COMMENTS
G1	NON-WOVEN	X
G2	WOVEN	
G3	X	

## BASE COURSE MATERIAL TYPE

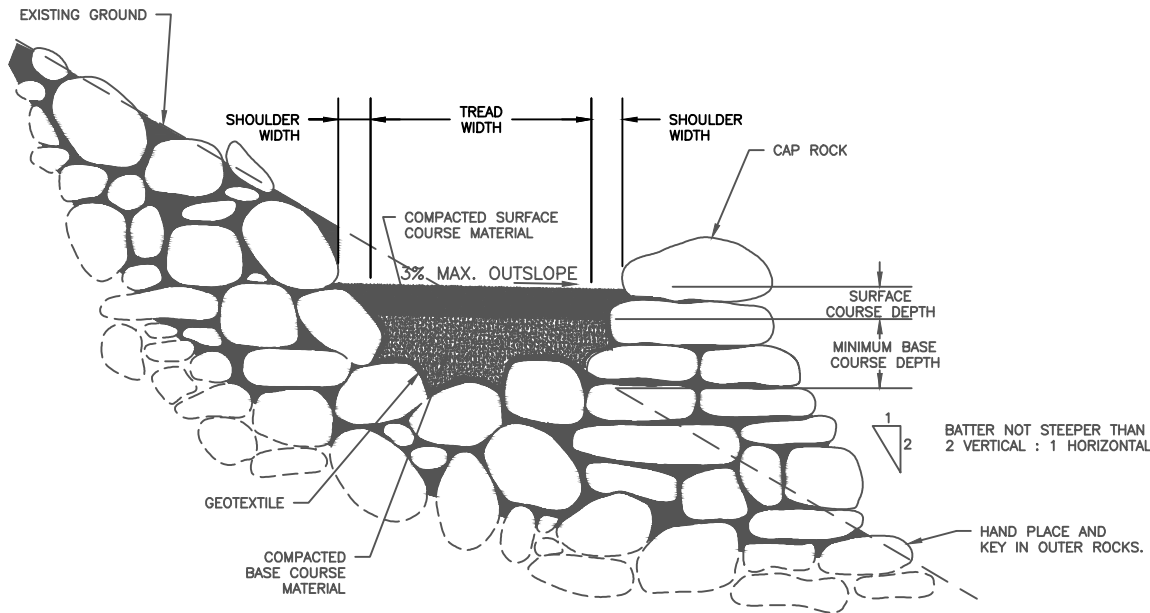
TYPE	MATERIAL	GRADATION	COMMENTS
B1	PITRUN	4"-	NATIVE BORROW
B2	AGGREGATE	X	
B3	X	X	

## SURFACE COURSE MATERIAL TYPE

TYPE	MATERIAL	GRADATION	COMMENTS
S1	PITRUN	2"-	NATIVE BORROW
S2	AGGREGATE	X	
S3	X	X	

### NOTE:

1. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
2. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.



TYPICAL CROSS SECTION

# NATURAL FORD STRUCTURE

TYPICAL ID	FORD WIDTH	APPROACHES				SIDE RETAINERS*		MINIMUM ROCK SIZE			COMMENTS
		WIDTH	GRADE	SURFACE TYPE	SURFACE DEPTH	TYPE	SIZE	CHECK DAM**** TYPE	STEPPING ROCK	RETAINER ROCK	
	48"	36"	AS STAKED	S 1	4"	ROCK	2 CF	ROCK	6 CF	2 CF	X

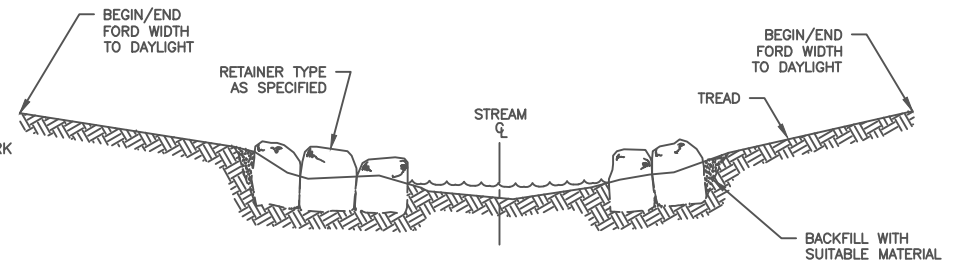
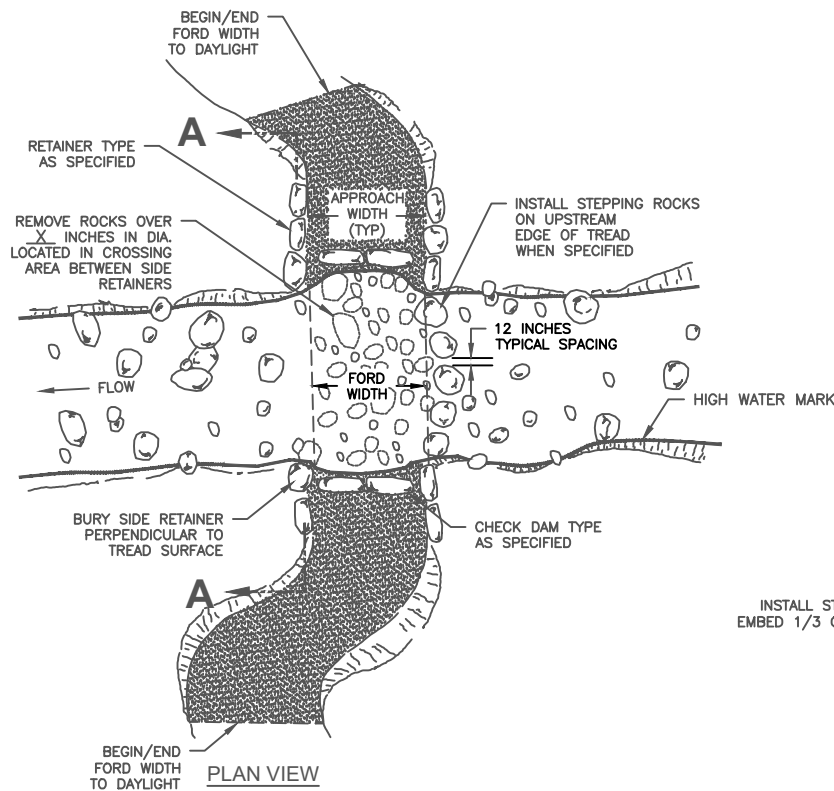
N/A WHEN NOT APPLICABLE

\*FOR TYPICAL RETAINERS SEE SHEET STD\_911-03

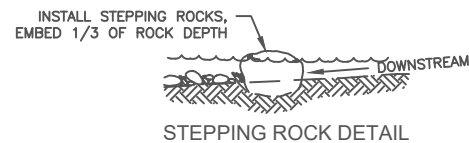
\*\*\*\*FOR CHECK DAM SEE SHEET STD\_928-01

## SURFACE COURSE MATERIAL TYPE

TYPE	MATERIAL	GRADATION	COMMENTS
S1	PITRUN	4"—	NATIVE BORROW
S2	AGGREGATE	X	
S3	CLAY	X	
S4	WOODCHIPS	X	
S5	X	X	



## SECTION A-A



STEPPING ROCK DETAIL

[illegible]

SEE SHEET STD\_935-20-01  
STACKED ROCK RETAINING  
WALL FOR DETAILS

CULVERT LOCATION  
WHERE STAKED

CAP ROCK

TREAD

12 INCH  
MINIMUM

12 INCH  
MINIMUM

EMBED ROCKS  
6 INCH MINIMUM

MINIMUM WIDTH EQUALS  
1.5X DIAMETER OF PIPE

PIPE BEDDING  
6 INCH MINIMUM  
WHEN SPECIFIED

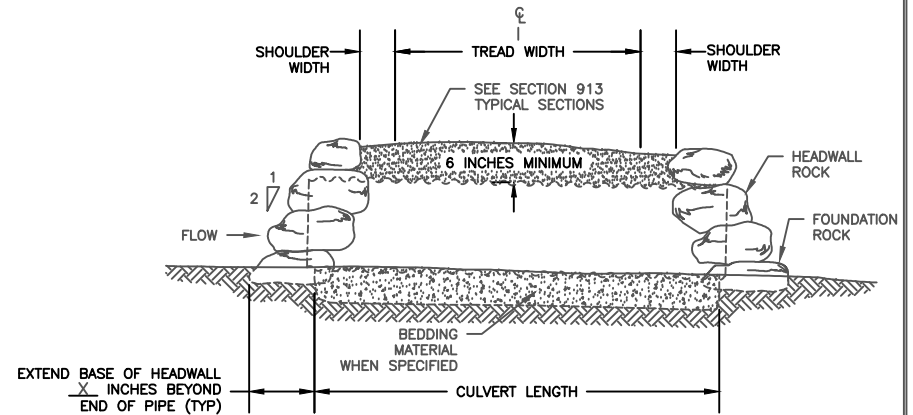
GEOTEXTILE  
WHEN SPECIFIED

END VIEW

CULVERT TYPE

NOTE:

1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
2. NO ROCKS LARGER THAN 1 1/2 INCHES WITHIN 12 INCHES OF PIPE.



ELEVATION VIEW

TYPE	MATERIAL	GRADATION	COMMENTS
B1	PITRUN	X	X
B2	AGGREGATE	X	
B3	X	X	

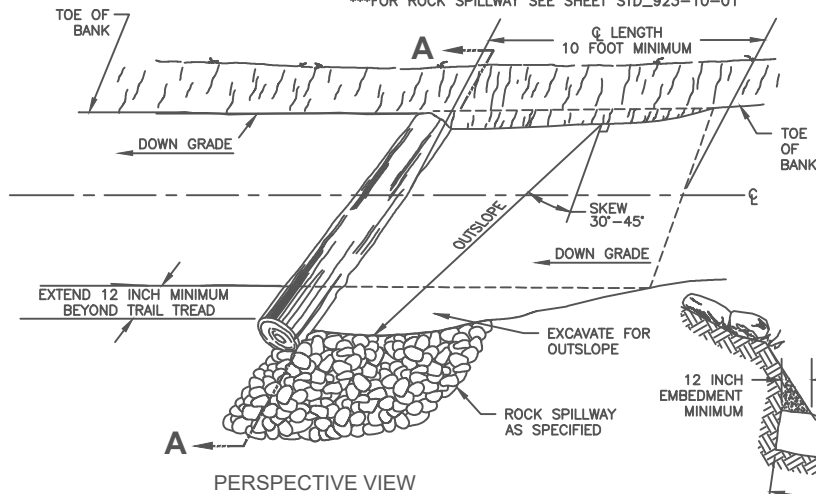
# SKEW

TRAIL GRADE	SKEW ANGLE
<5%	45° MAX
>5%	30° MIN

# LOG OR TREATED TIMBER WATERBAR

TYPICAL ID	MATERIAL TYPE	ANCHOR SECTION TYPE	SPECIES	PRESERV. TYPE	OUTSLOPE	LENGTH	ROCK SPILLWAY***	COMMENTS
	M 1	A	CEDAR	N/A	5-8%	5'-6'	N/A	ADJUST LENGTH AS NEEDED

N/A WHEN NOT APPLICABLE  
\*\*\*FOR ROCK SPILLWAY SEE SHEET STD\_923-10-01

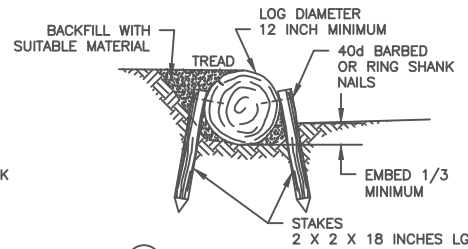


## MATERIAL TYPE

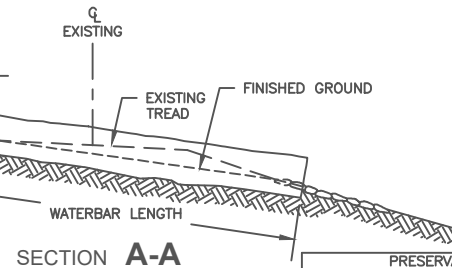
TYPE	MATERIAL	SIZE	COMMENTS
M1	LOG	8"-10"	NATIVE-ON-SITE WESTERN CEDAR
M2	SAWN TIMBER		
M3	RAIL ROAD TIES		
M4	X		

## NOTES:

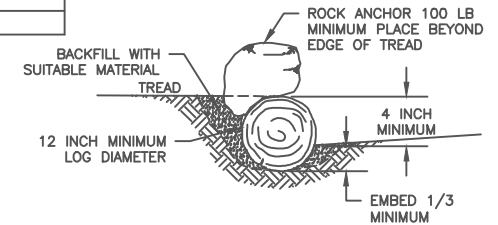
1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
2. PRE-DRILL HOLES FOR FASTENERS TO PREVENT SPLITTING OF LOGS OR SAWN TIMBER.



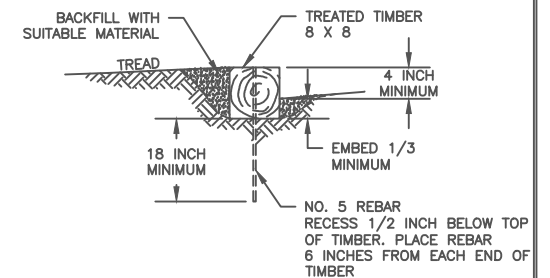
**A** LOG ANCHOR SECTION  
PLACE STAKE ANCHOR BEYOND EDGE OF TREAD



SECTION A-A



**B** LOG WITH ROCK ANCHOR SECTION



**C** TREATED TIMBER ANCHOR SECTION

## PRESERVATIVE TREATMENT - (REFER TO AWPA USE CATEGORY SYSTEM)

PRESERVATIVE TYPE	TREATMENT TYPE	USE CATEGORY	COMMENTS
P1	WB	UC4A	X
P2	WB	UC3B	
P3	XX	XXXX	

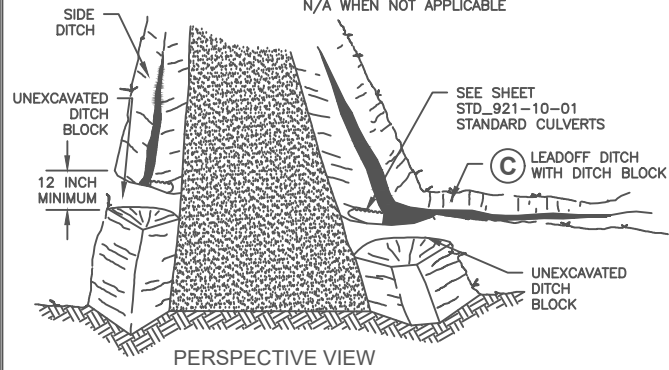
TREATMENT TYPE  
WB = WATERBORNE  
OT = OIL-BORNE

USE CATEGORY  
UC3B = ABOVE GROUND - EXPOSED  
UC4A = GROUND CONTACT - GENERAL USE  
UC4B = GROUND CONTACT - HEAVY DUTY

# TYPICAL DITCH SECTIONS

TYPICAL ID	DITCH TYPE	GEOTEXTILE TYPE	DITCH DIMENSIONS (INCHES)					LINING MATERIAL		SPACING (FEET)	MATERIAL	DITCH BLOCK		COMMENTS
			D	E	F	G	H	J	TYPE			LT	RT	
	B	N/A	12"	30"-36"	12"	8"-12"	6"	N/A	N/A	**	**	X	X	**SEE CONST. LOG FOR DETAILS

N/A WHEN NOT APPLICABLE

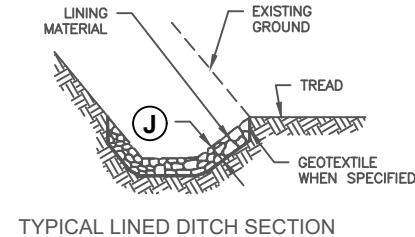
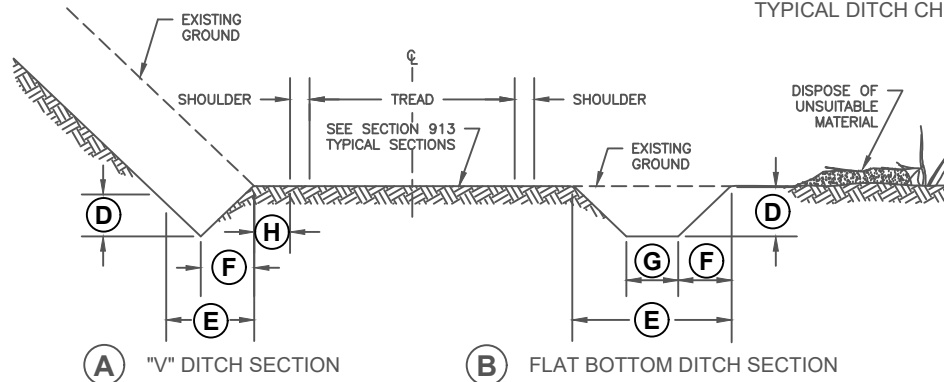
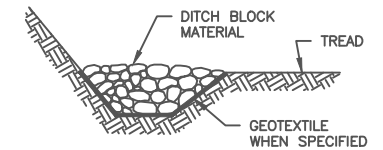
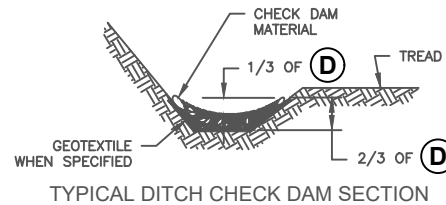


## DITCH LINING OR CHECK DAM MATERIAL

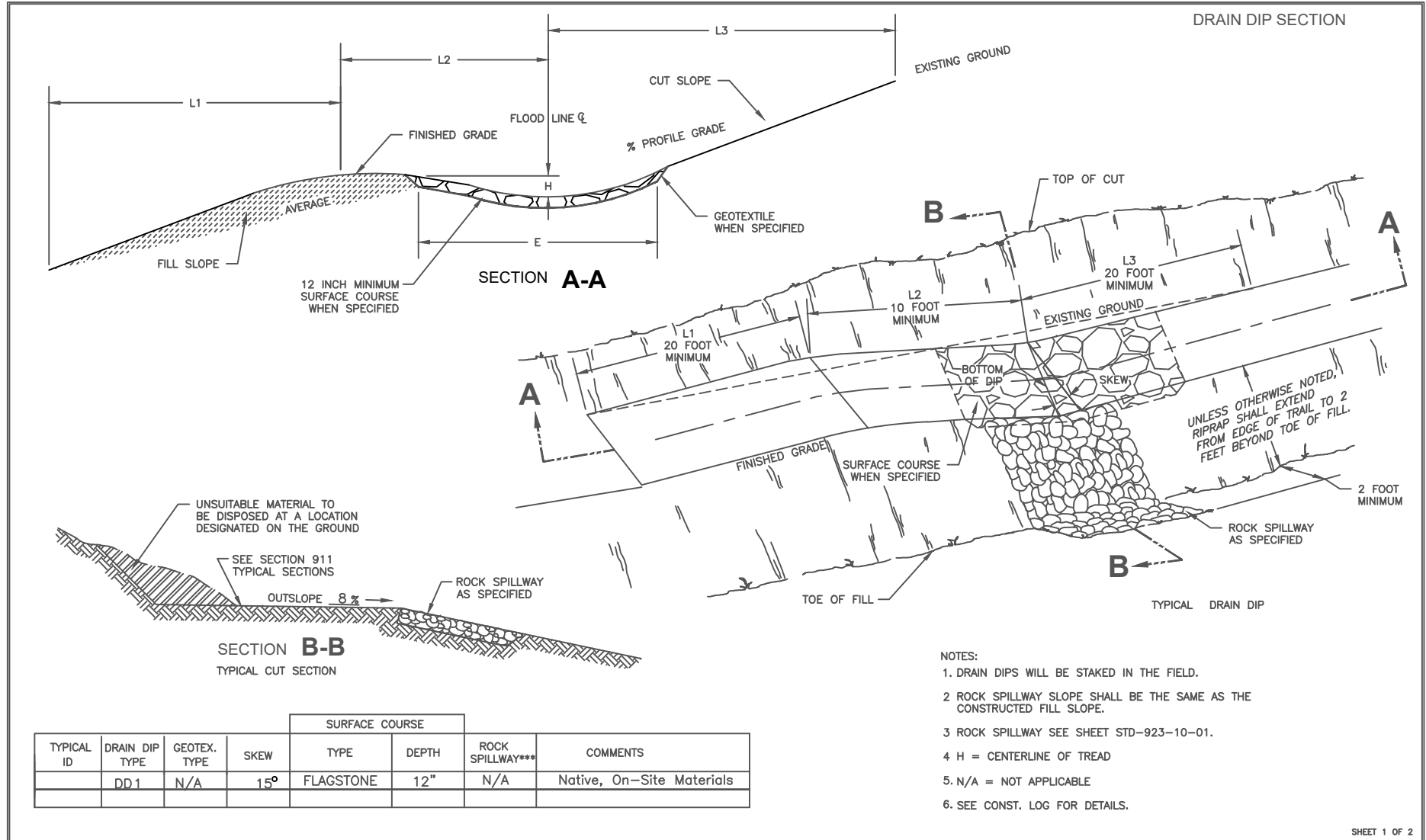
TYPE	MATERIAL	GRADATION	COMMENTS
DL1	GRAVEL	X	X
DL2	ROCK	X	
DL3	X	X	

## LEAD OFF DITCH/ CHECK DAM SPACING

DRAINAGE GRADE	DRAINAGE SPACING (FEET)
<3	OCCASIONAL
3-7	60
8-12	30
>12	18



- NOTES:
1. LEAD-OFF DITCHES SHALL UTILIZE AS MUCH NATURAL DRAINAGE AS POSSIBLE.
  2. LEAD-OFF DITCH SHALL DRAIN TO DAYLIGHT.



SHEET 1 OF 2

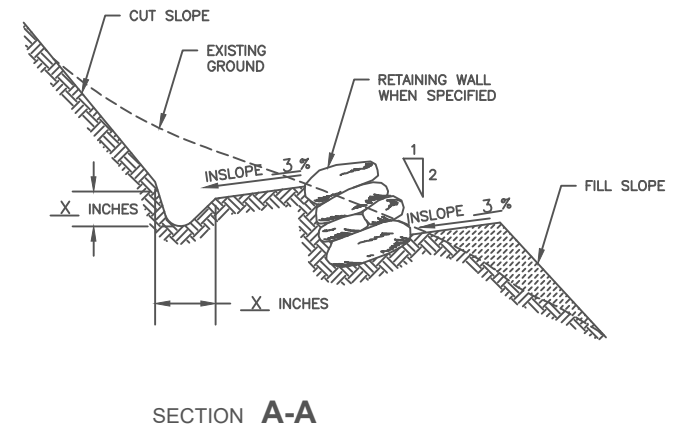
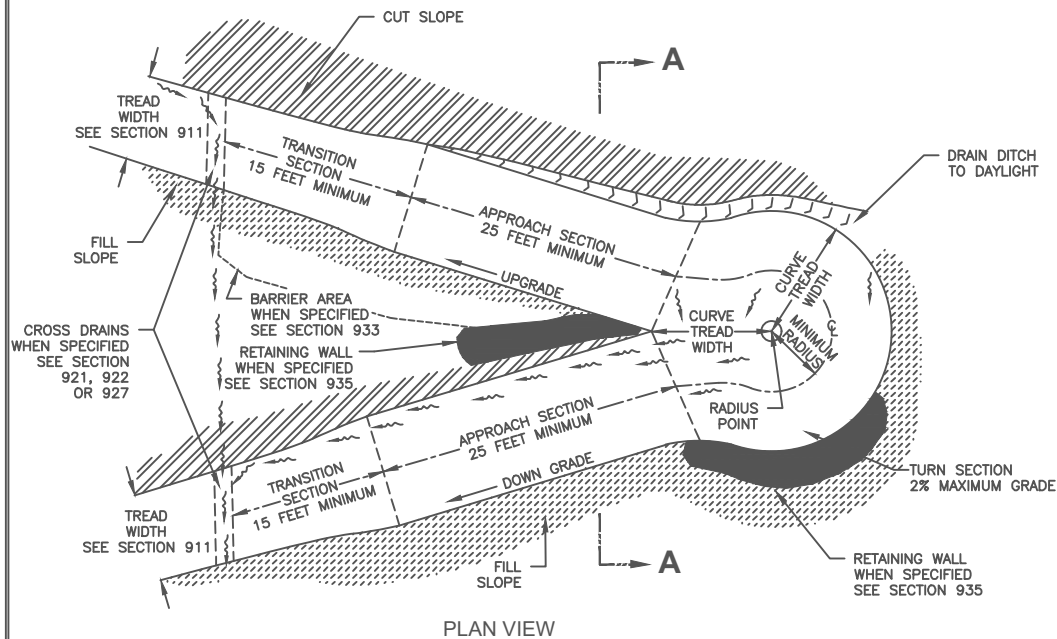
# TYPE 2 CIRCULAR LANDING SWITCHBACK SECTIONS

TYPICAL ID	MINIMUM RADIUS	CURVE TREAD WIDTH	BARRIER TYPE	RETAINING WALL TYPE	CROSS DRAINS	COMMENTS
SW2-1	18"	4'	VARIES	VARIES	VARIES	SEE CONST. LOG FOR DETAILS

N/A WHEN NOT SPECIFIED

## NOTE:

1. RADIUS POINT AND CENTERLINE OF SWITCHBACK AS STAKED ON THE GROUND.
2. DITCHES WILL BE CONST. IN ACCORDANCE WITH STD-931-20-01.
3. BOTH SWITCHBACK LEGS WILL BE FULL BENCH UNLESS RETAINING WALLS ARE SPECIFIED.



NOTES:

1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
2. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
3. LEADOFF DITCH TO BE CONSTRUCTED THE SAME AS SIDE DITCHES.
4. LEAD-OFF DITCH TO DRAIN TO DAYLIGHT.

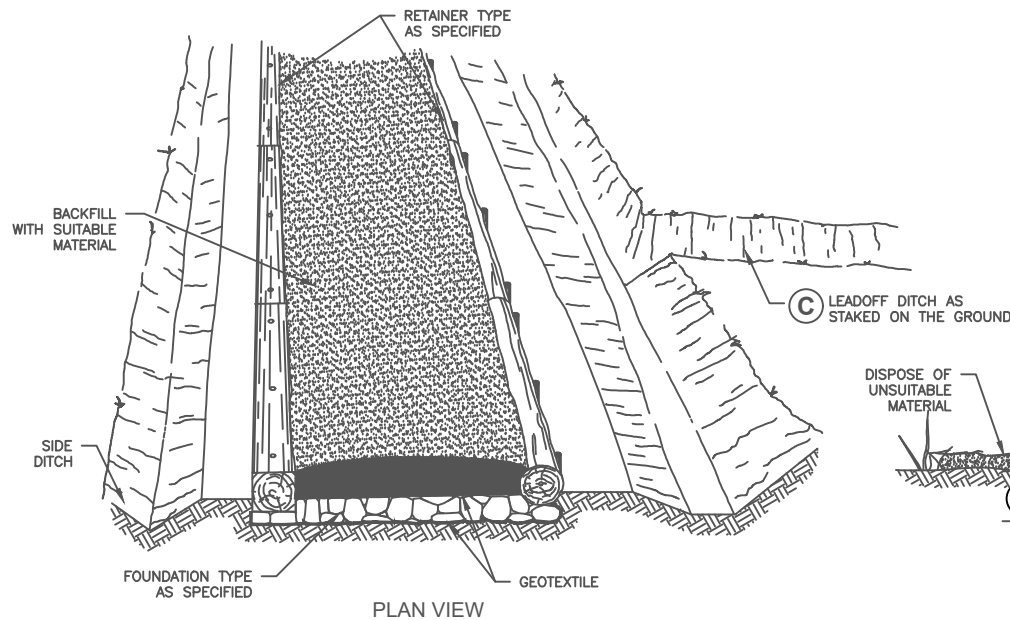
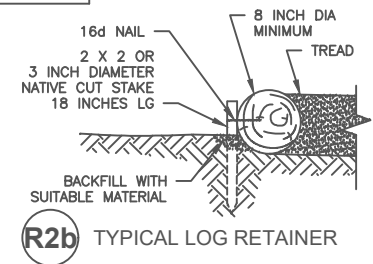
TYPE 2 - STANDARD TURNPIKE WITH FOUNDATION

				RETAINER*	DITCH								FOUNDATION**		
TYPICAL ID	GEOTEXTILE			TYPE	TYPE	LOCATION		DIMENSIONS (INCHES)				TYPE	COMMENTS		
	TYPE	TOP	BTM			LT	RT	D	E	F	G				
	N/A	X	X	R 2B	B	X	X	X	X	X	X	FD 1 & 2	SEE CONST. LOG FOR DETAILS		

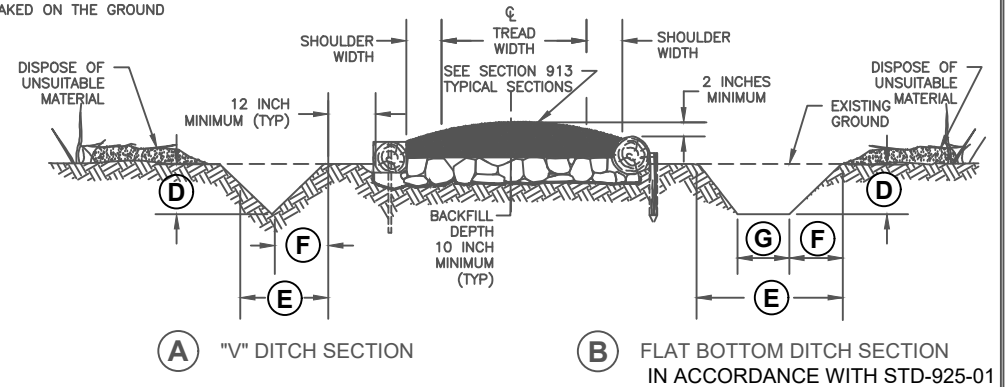
TYPE	MATERIAL	ROCK SIZE	GRADATION %	COMMENTS
FD1	AGGREGATE	5/8" MINUS		SURFACE; 4" DEPTH
FD2	COARSE ROCK	6" MINUS		NATIVE, ON-SITE BORROW, 4"-6" DEPTH

IN-FILL MATERIAL TYPE

N/A WHEN NOT APPLICABLE  
\*FOR TYPICAL RETAINERS SEE SHEET STD\_911-03  
\*\*FOR FOUNDATIONS SEE SECTION STD\_918

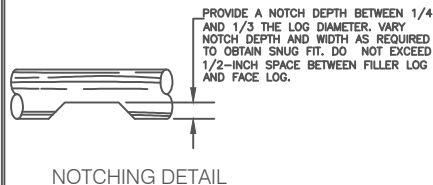
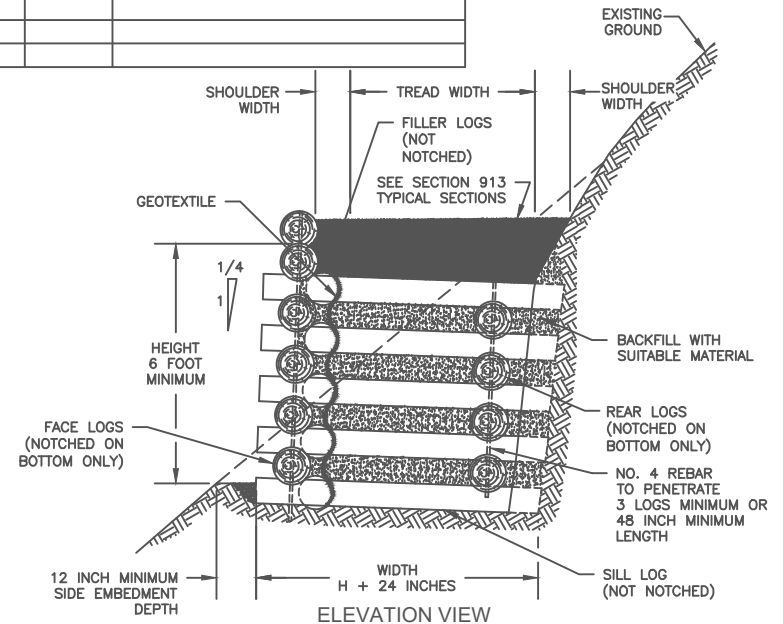
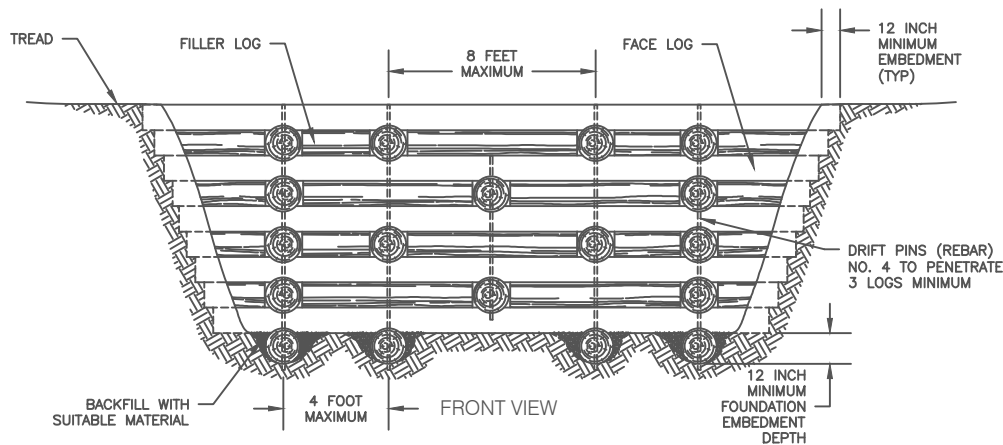


TYPICAL CROSS SECTION



TYPICAL ID	GEOTEXTILE TYPE	EMBEDMENT DEPTH		HEIGHT	LOG CRIB					RETAINER* TYPE	SPECIES	PRESERV. TYPE	COMMENTS
		SIDE	FOUNDATION		SILL LOG DIAMETER	FILLER LOG DIAMETER	HEADER LOG DIAMETER	REAR LOG DIAMETER	FACE LOG DIAMETER				
	N/A	12"	8"	SEE LOG	6"-8"	6"-8"	6"-8"	6"-8"	6"-8"	R2c	**	P1	**TREATED POLE: CCA, .60 LB/CF

N/A WHEN NOT APPLICABLE  
 \*FOR TYPICAL RETAINERS SEE SHEET STD\_911-03



- NOTES:
1. STRAIGHTNESS REQUIREMENTS: THE TRUE CENTER OF EACH LOG DEVIATES NO MORE THAN 2 INCHES FROM A STRAIGHT LINE BETWEEN THE CENTERS OF THE ENDS OF THE LOG.
  2. PRE-DRILL HOLES FOR DRIFT PINS AND OTHER FASTENERS TO PREVENT SPLITTING OF LOGS OR SAWN TIMBERS.
  3. RECESS END OF REBAR 1/2 INCH BELOW TOP OF TIMBER TOP HEADER LOG. PLACE REBAR A MINIMUM OF 12 INCHES FROM EACH END OF TIMBER WITH MAXIMUM REBAR SPACING AS SHOWN ON THE DRAWINGS.
  4. COMPACT BACKFILL AND FOUNDATION IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
  5. FIELD TREAT ALL FIELD CUTS AND PRE-DRILLED HOLES WITH 3 COATS OF COMMERCIALY AVAILABLE COPPER NAPHTHATE.
  6. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.

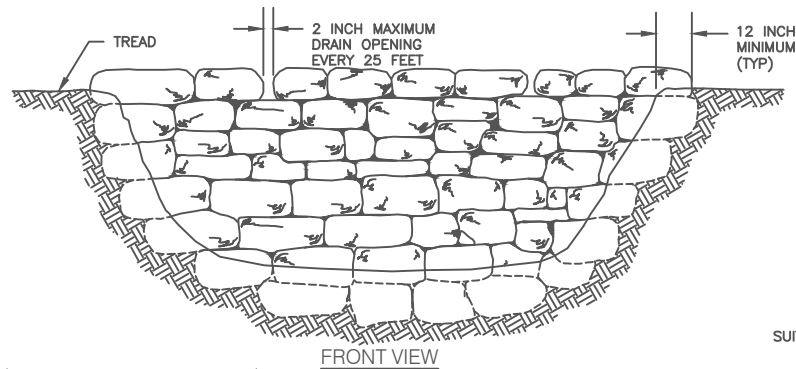
PRESERVATIVE TREATMENT -- (REFER TO AWPA USE CATEGORY SYSTEM)			
PRESERVATIVE TYPE	TREATMENT TYPE	USE CATEGORY	COMMENTS
P1	WB	UC4A	CCA, .60 LBS/CF GROUND CONTACT

TREATMENT TYPE		USE CATEGORY	
WB	= WATERBORNE	UC3B	= ABOVE GROUND
OT	= OIL-BORNE	UC4A	= GROUND CONTACT
		UC4B	= GROUND CONTACT
			- EXPOSED
			- GENERAL USE
			- HEAVY DUTY

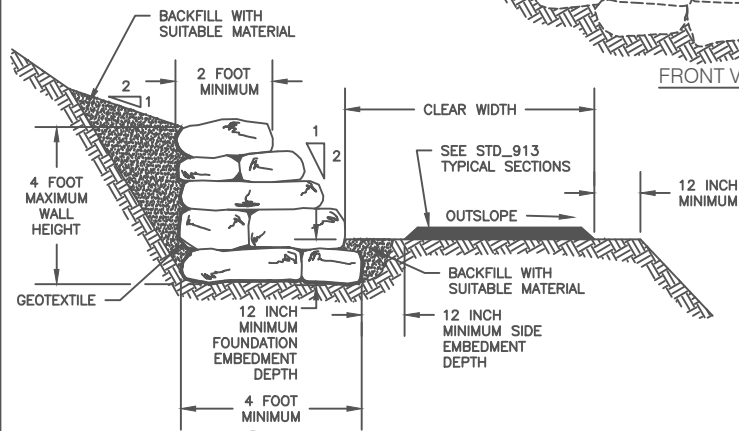
# STACKED ROCK RETAINING WALL

TYPICAL ID	GEOTEXTILE TYPE	EMBEDMENT DEPTH			COMMENTS
		FOUNDATION	SIDE	HEIGHT	
	N/A	12'	12"	SEE LOG	

N/A WHEN NOT APPLICABLE



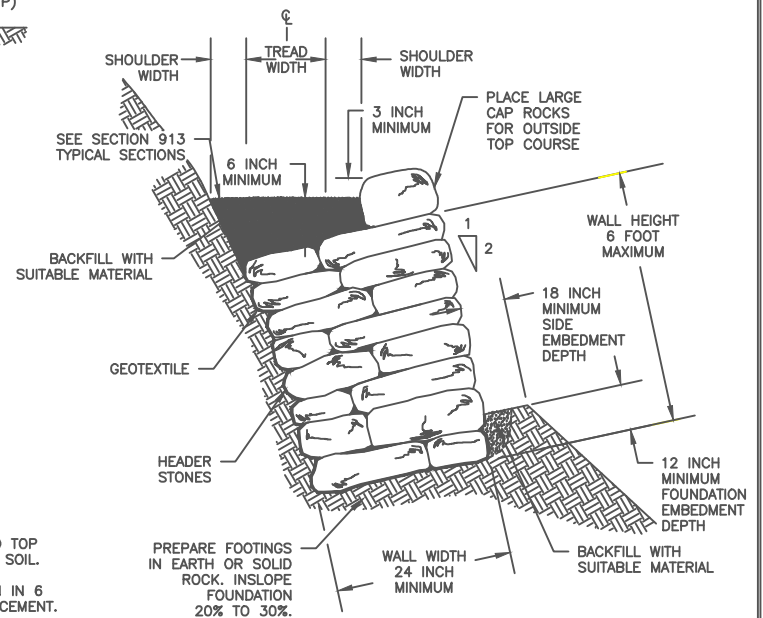
FRONT VIEW



**(A)** UPHILL RETAINING WALL SECTION  
SLOPE JOINTS INTO HILL.

## NOTES:

1. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
2. COMPACT BACKFILL AND FOUNDATION IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
3. CLEAR WIDTH IS GREATER OR EQUAL TO THE TREAD AND SHOULDER WIDTHS DEFINED IN SECTION 911.



**(B)** UNDERTREAD RETAINING WALL SECTION  
WALL WIDTH SHALL BE 2 FEET WIDE OR 1/2 THE WALL HEIGHT, WHICHEVER IS GREATER.

U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
**STANDARD TRAIL PLAN**

PROJECT NAME & LOCATION  
**ANNETTE LAKE TRAIL #1019**  
**MT. BAKER-SNOQUALMIE NATIONAL FOREST**  
**SNOQUALMIE RANGER DISTRICT**

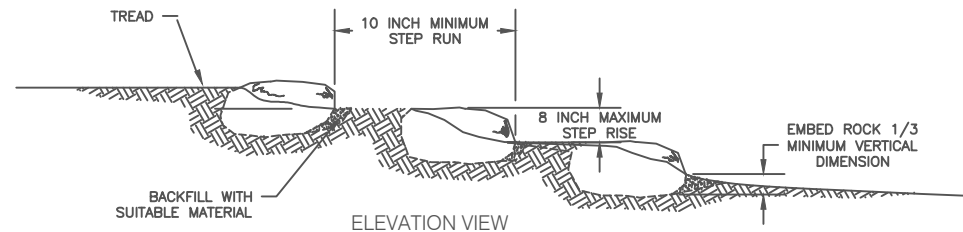
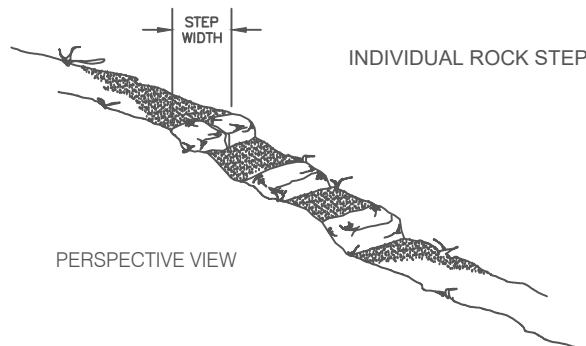
DRAWING NAME  
**STACKED ROCK RETAINING WALL**  
SECTION  
935 - RETAINING WALLS  
TYPICAL ID  
RRW

REVISION DATE  
**01/13/2021**  
**NO SCALE**

DRAWING NO.  
**STD\_935-20-01**  
SHEET  
**18** OF **X**

# INDIVIDUAL ROCK OR LOG STEP

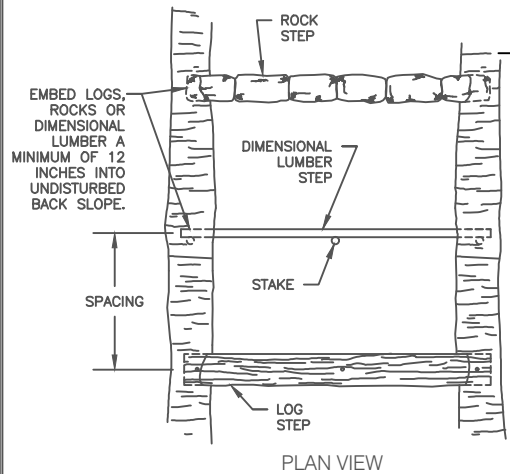
TYPICAL ID	STEP WIDTH	STEP RUN	STEP RISE	MINIMUM ROCK WEIGHT	COMMENTS
ROCK	48"	VARIES	8"Max.	X	X
LOG	48"	VARIES	8"Max.		TREATED POLE, CCA .60 LBS/CF



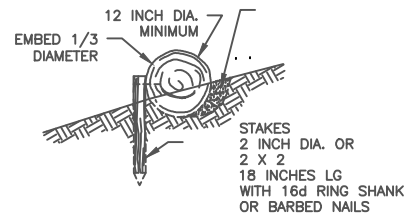
## ROCK RISER STAIRWAY

### NOTES:

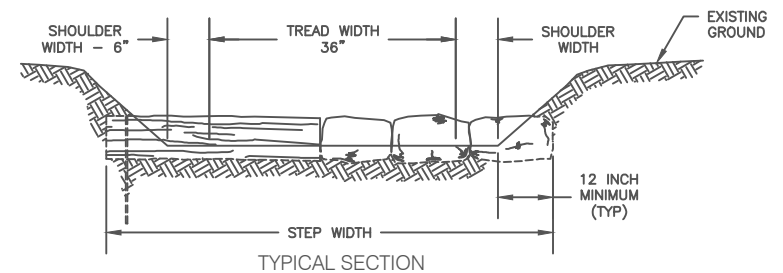
1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
2. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.



## INDIVIDUAL LOG STEP



C2a LOG



U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
**STANDARD TRAIL PLAN**

PROJECT NAME & LOCATION  
**ANNETTE LAKE TRAIL #1019**  
**MT. BAKER-SNOQUALMIE NATIONAL FOREST**  
**SNOQUALMIE RANGER DISTRICT**

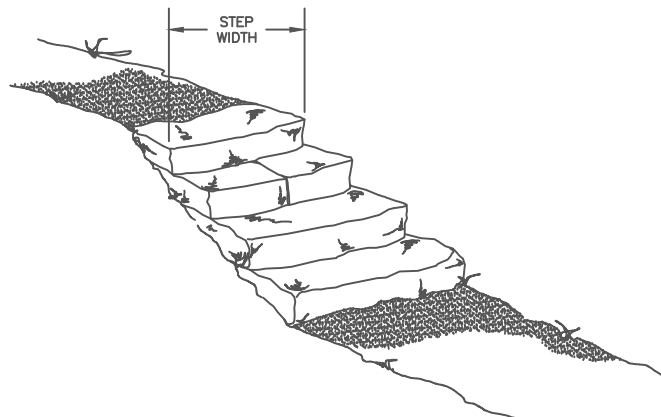
DRAWING NAME  
**INDIVIDUAL ROCK/LOG STEP**  
SECTION  
936 - STAIRWAYS  
TYPICAL ID  
IRS

REVISION DATE  
**01/13/2021**  
**NO SCALE**

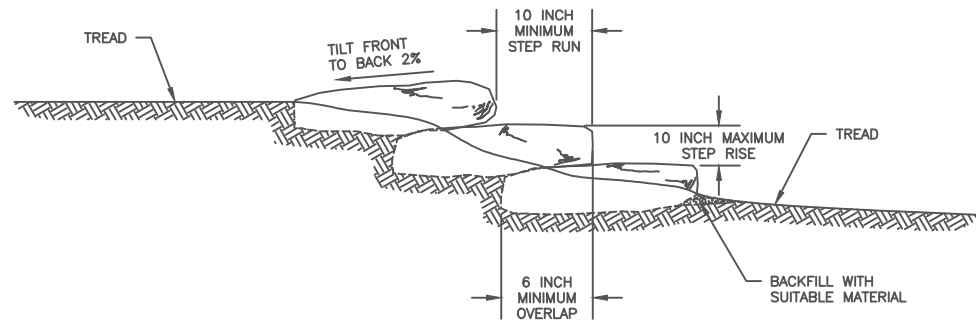
DRAWING NO.  
**STD\_936-10-02**  
SHEET  
**X** OF **X**

# OVERLAPPING ROCK STEP

TYPICAL ID	STEP WIDTH	STEP RUN	STEP RISE	STEP OVERLAP	MINIMUM ROCK WEIGHT	COMMENTS
	36"	VARIES	8" MAX.	6" MIN.	60 LBS	X



PERSPECTIVE VIEW

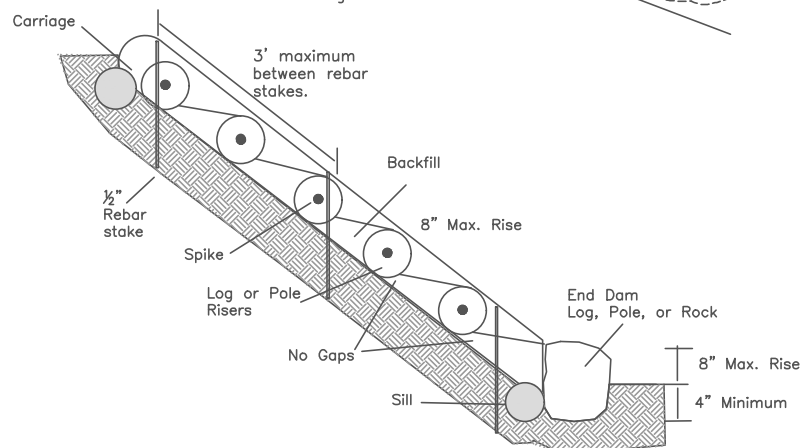
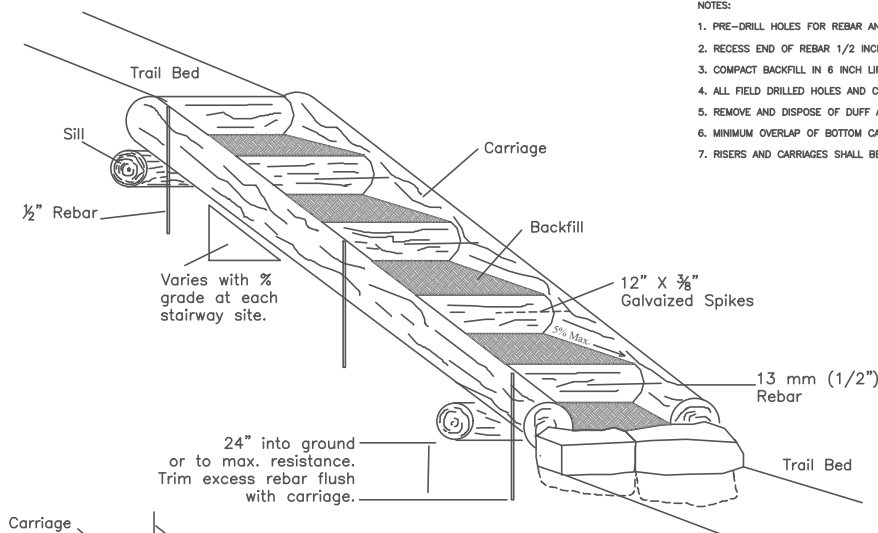


ELEVATION VIEW

## OVERLAPPING ROCK STAIRWAY

### NOTES:

1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
2. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.



LOG CRIB LADDER STAIRWAY

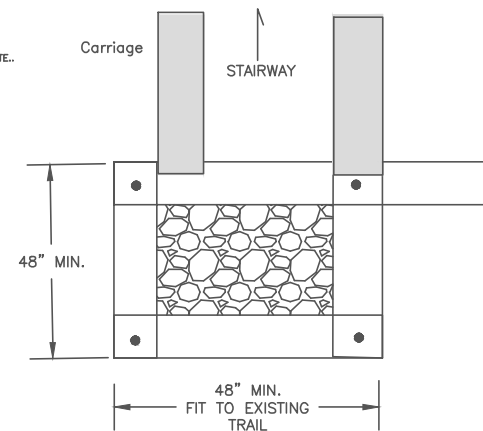
TYPICAL ID	MATERIAL TYPE	OVERALL LENGTH	OVERALL WIDTH	STEP RUN	COMMENTS
	M 1	VARIES	48"	VARIES	MAXIMUM 8" RISE / STEP

N/A WHEN NOT APPLICABLE

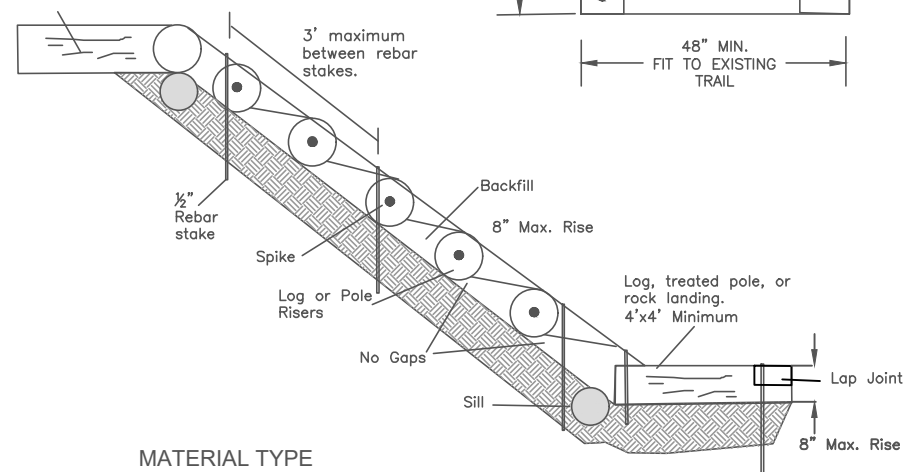
NOTES:

1. PRE-DRILL HOLES FOR REBAR AND PINS TO PREVENT SPLITTING OF LOGS OR SAWN TIMBERS.
2. RECESS END OF REBAR 1/2 INCH BELOW TOP OF TIMBER.
3. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
4. ALL FIELD DRILLED HOLES AND CUTS SHALL BE FIELD TREATED WITH 3 COATES OF COMMERCIALY AVAILABLE COPPER NAPHTHANATE..
5. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
6. MINIMUM OVERLAP OF BOTTOM CARRIAGE IS THE SAME AS THE STEP RUN LENGTH.
7. RISERS AND CARRIAGES SHALL BE THE SAME DIMENSIONS.

LANDING - TOP & BOTTOM OF STAIRWAY



Log, treated pole, or rock landing.  
Trailwidth X 4' Minimum



MATERIAL TYPE

TYPE	MATERIAL	SIZE	SPECIES/ GRADE	PRESERV. TYPE	COMMENTS
M1	LOG	6"-8"	HEM/FIR	P1	TREATED POLE: CCA .60 LBS/CF

PRESERVATIVE TREATMENT - (REFER TO AWPA USE CATEGORY SYSTEM)

PRESERVATIVE TYPE	TREATMENT TYPE	USE CATEGORY	COMMENTS
P1		UC4A	CCA, .60 LBS.CF, GROUND CONTACT

TREATMENT TYPE

WB = WATERBORNE  
OT = OIL-BORNE

USE CATEGORY

UC3B = ABOVE GROUND - EXPOSED  
UC4A = GROUND CONTACT - GENERAL USE  
UC4B = GROUND CONTACT - HEAVY DUTY