

PORT OF CASCADE LOCKS

CASCADE LOCKS TRAIL CONSTRUCTION

REQUEST FOR PROPOSALS

AUGUST 9, 2023

PROJECT MANAGER:
MARK JOHNSON
PORT OF CASCADE LOCKS
427 PORTAGE ROAD (PO BOX 307)
CASCADE LOCKS, OR 97014
PHONE: 541-308-5306

REQUEST FOR PROPOSAL

Dear Prospective Bidder:

The Port of Cascade Locks (Port) invites you to submit a proposal for construction of a portion of Phase I of the new Cascade Locks Trail System. The Port is looking for proposals to complete the scope of work attached within the time frame presented. This Request for Proposal (RFP) is being conducted in accordance with Port Policies and Procedures, Oregon Administrative Rules (OAR's), and Oregon Revised Statutes (ORS) that govern Ports (ORS 777) and public contracting (ORS 279B).

This document contains the instructions that must be followed by any proposer submitting a proposal. Noncompliance with these instructions shall be cause for disqualification.

All questions and discussion regarding the RFP must be directed solely to Mark Johnson at the Port. Mark Johnson's contact information is listed below.

Mark Johnson
541-308-5306
mjohnson@portofcascadelocks.org

CLOSING DATE AND LOCATION

Completed RFP submissions must be transmitted electronically to Mark Johnson no later than 5:00 PM, PDT on September 13, 2023

The address for submission is:

mjohnson@portofcascadelocks.org

SUBJECT LINE: Cascade Locks Trail Construction

IMPORTANT DATES

This estimated schedule of events may be modified, at the sole discretion of the Project Manager, in order to accommodate unexpected events.

Activity	Date
RFP Issued	August 9, 2023
Onsite pre-bid meeting (optional)	August 23, 2023
Requests for clarifications/questions	August 30, 2023
Responses to clarifications/questions	September 6, 2023
Proposals Due/ Closing Date	September 13, 2023
Proposal Evaluation	September 18, 2023
Recommendation to Management/Approval	September 19, 2023
Notification of Award	September 20, 2023
Start date of Agreement (approx.)	As soon there after

Request for Clarification; Request for Changes to Contract Terms; Protest of Contract Terms

Proposers may submit a written request for clarification of RFP provisions, request for changes to contract terms, including the statement of work, or a protest of contract terms, including the statement of work, no later than the “Deadline for Requests for Change.” Any proposal taking exception to the contract terms or other RFP provisions may be deemed non-responsive and may be rejected. Emails for requests for clarifications, requests for change, and protests shall be marked “Request for Clarification/Request for Changes/Protest” and shall be sent to the following RFP contact:

Mark Johnson

mjohnson@portofcascadelocks.org

Re: Request for Clarification/Request for Changes/Protest

Amendments to RFP

The Port will issue any amendment to the RFP in the form of an addendum. Anyone intending on submitting a proposal should contact Mark Johnson at the Port and request to be added to the list of proposers that will receive information and any amendments to the RFP. Notice of any addendum will be emailed to those proposers that have contacted Mark Johnson.

Cancellation of RFP

The Port may cancel this RFP at any time upon its finding that it is in the public interest to do so, in its sole discretion.

Rejection of Proposals

The Port may reject a particular proposal or all proposals upon its finding that it is in the public interest to do so.

Intent to Award

The Port will provide written notice to any apparent successful proposers. Identification of “apparent successful proposers” is procedural only and creates no right of the named proposers to award of the contracts.

Award

After review of received Proposals, Port staff will make a recommendation and the Port will proceed with final award.

SCOPE OF WORK

In 2021, the Columbia River Gorge National Scenic Area (CRGNSA) approved the development of the Cascade Locks Trail System, created in partnership with the Port of Cascade Locks (Port) and the Northwest Trail Alliance (NWTa). The system will eventually consist of nearly 15 miles of new multi-use trails, supported by new trailheads, that will connect to the existing network of Gorge trails around Cascade Locks. The purpose of this project was to help meet the growing demand for mountain biking opportunities in the Pacific Northwest and to provide visitor-related economic development to the community of Cascade Locks.

Later in 2021, the Port, with the support of NWTa and the CRGNSA, received a grant from the Oregon Parks and Recreation Department to fund the construction of approximately 6.3 miles of bike-optimized new trail. NWTa is currently constructing approximately 3.0 miles of the trail as a match for the grant; this RFP is to construct the balance of approximately 3.3 miles. Located due east of Cascade Locks, the site is on what is known as Wyeth Bench, to the north and below the Gorge Face. A mature mixture of deciduous and coniferous trees populate the rocky soil and basalt outcroppings are found throughout the area; a portion of the project burned in the Eagle Creek Fire. There are existing trails to the east, west, and south of the project area, and several active and closed access roads.

The Port seeks to have the project completed as soon as possible but understands that weather, operating restrictions, and other conditions may preclude the rapid execution of the project. In all cases, however, the project must be completed by February 28th, 2025.

The permit issued by the CRGNSA allows mechanized equipment (chainsaws, totters, brushers, excavators, totters, etc) to operating only between July 16 and February 28; noise-producing equipment may *not* operate outside of this window.

GENERAL CONDITIONS

DEBARMENT AND SUSPENSION OF PROPOSERS

Port may debar a proposer for any of the reasons specified in ORS 279B.130 after notice and reasonable opportunity to be heard.

DISCUSSIONS BETWEEN PROPOSERS AND THE PORT

Only the Port employee listed on this RFP (Mark Johnson), or his designated representative, is authorized to provide an explanation or interpretation of language included in the RFP. All interpretations, clarifications, or modifications deemed acceptable by the Port shall be issued as Revisions to the RFP and will be sent to all potential proposers recorded as having received the RFP.

EXAMINATION OF RFP DOCUMENTS

It is a proposer's responsibility to read each question or requirement statement carefully to ensure a complete understanding of the requested information. Failure to do so shall be at the proposer's own risk. Each question should be restated as a heading to the response so that it is clear which question is being addressed.

REQUIRED INFORMATION

In order to be considered responsible, acceptable, and eligible for evaluation; proposals must contain all requested information and shall be in sufficient form and detail to enable a comprehensive understanding and analysis by Port.

It is a proposer's responsibility to ensure that the Port representative listed on this RFP has received all information necessary to determine a proposer's capability to meet the requirements of the RFP. The Proposal shall be submitted in accordance with the structure, format, and content requirements described herein. Failure to comply with these requirements may cause a proposal to be rejected without further consideration.

SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

The proposer shall comply with all state and federal laws and county and local ordinances and regulations which in any manner affect those engaged or employed in the work.

CONSTRUCTION CONTRACTORS REGISTRATION

Oregon law requires all contractors must be registered with the Construction Contractors Board in order to submit a bid to do work and to do work as a contractor. The proposer shall include registration with the Construction Contractors Board within the proposal.

RECEIPT OF PROPOSALS AND CONFIDENTIALITY

Proposals must be received strictly in accordance with the deadline (time and place) for submission, as stated in this RFP. Late proposals shall be rejected. Notwithstanding ORS 192.410 to 192.205, proposals are not required to be open for public inspection until after the notice of intent to award a contract is issued. Port may withhold from

disclosure to the public any materials that are exempt or conditionally exempt from disclosure under ORS 192.501 to 192.501. The fact that proposals may be opened or discussed at a public meeting does not make the contents of the proposals subject to disclosure.

Proposals are confidential until they are opened on the Closing date. After opening, the opened proposals may be available for public inspection under Oregon Public Records Law, ORS 192-410-192.505. Application of the Oregon Public Records Law shall determine if any information claimed to be exempt from disclosure is, in fact, exempt. Proposers shall include material designated as confidential on separate sheets of paper clearly marked as "Confidential," which shall be readily separable from the remainder of the proposal. In the event of a public records request, a proposer will be notified prior to release of any information submitted by the proposer.

SUBMISSION OF PROPOSAL

Proposers shall complete and return all the information requested in the RFP by the stated Due Date and Time as specified in the "Closing Date and Location." Proposals in response to this RFP must be submitted as follows:

- It is proposer's responsibility to transmit the electronic RFP to be delivered by the required Due Date and Time (it is suggested that the proposer send a follow-up e-mail confirming that the proposal has been transmitted to insure that the size of the files transmitted are not stripped off by Port's email security measures).
- One electronic file must be sent by e-mail to the address specified in "Closing Date and Location."

PROTESTS AND JUDICIAL REVIEW

If a proposer feels it has been aggrieved by an award decision as provided in ORS 279B.410, the proposer may appeal the decision through the following administrative process:

- A protest must be in writing, signed by an authorized representative of the proposer and submitted within seven (7) calendar days after A Notice of Intent to Award to the Port's General Manager at the Port's current place of business.
- The Port will consider the merits of the protest as presented in the written documentation and make a decision in a timely manner. Port will issue a written notice to the proposer of Port's decision.
- The Decision will be final and no further administrative remedies shall be available to the proposer.
- Judicial review is available as provided in ORS 279B.405.

Signature Required; Proposer Affirmations

The proposal must be signed by an authorized representative of the proposer. Proposer's signature and submission of a signed proposal in response to the RFP constitutes proposer's affirmation that:

- (a) Proposer has completely read and understands all the provisions of this particular RFP;
- (b) The proposal submitted is in response to the specific language contained in the RFP, and proposer has made no assumptions based upon either verbal or written statements not contained in this RFP or any other previously issued RFP, if any;
- (c) The proposal was prepared independently from all other proposers and without collusion, fraud, or dishonesty;
- (d) Port shall not be liable for any claims or be subject to any defenses asserted by proposer based upon, resulting from, or related to proposer's failure to comprehend all requirements of the RFP;
- (e) Port shall not be liable for any expenses incurred by proposer in either preparing and submitting its proposal or in participating in the proposal evaluation/selection or contract negotiation process, if any;
- (f) Proposer accepts and agrees to be bound by the terms and conditions of the RFP and any negotiable terms and conditions it offers for negotiation to the extent accepted by Port in the negotiation process. Proposer further accepts and agrees to be bound by all the terms and conditions of the contract awarded and to provide all services required to be provided thereunder.

Proposals Constitute Firm Offers

Submission of a proposal constitutes proposer's affirmation that all terms and conditions, including pricing, constitute a binding offer that shall remain firm for a period of ninety (90) days from the Closing Date.

EVALUATION OF PROPOSALS

EVALUATION PROCESS AND SCORING

The Port evaluation team will evaluate the written proposals submitted against the nine (9) evaluation criteria, as described below.

Port may choose to incorporate information learned during presentations, as well as information learned through its own due diligence when evaluating and ranking Proposals. It is always in the best interest of each proposer to provide informative, concise, well-organized technical and business information relative to the requirements in the initial Proposal and in any subsequent submittals in response to subsequent requests for information or clarification by Port.

Port reserves the right, in addition to the evaluation team, to investigate the qualifications and facilities of any proposer.

EVALUATION CRITERIA

Port will use the following criteria to evaluate each proposal. Port will rank proposals based solely upon the information submitted in response to this RFP. Port will evaluate the following criteria

Evaluation Criterion 1 – PRICE (30%)

The price evaluation will be based on the total price to execute the project submitted by the proposer.

Evaluation Criterion 2—WARRANTY, MAINTENANCE AND REPAIRS (PASS/FAIL)

Proposers should include proof of insurance, contractor licensed and bonded in the State of Oregon.

Evaluation Criterion 3—INSTALLATION SCHEDULE AND DUE DATE (20%)

Proposers should include a description of the construction process and due date.

Proposers should include progress benchmarks with corresponding dates for completion.

Evaluation Criterion 4—INDUSTRY EXPERIENCE (50%)

Proposers should include a summary of experience in the industry, with examples of services and products provided to demonstrate experience on similar projects building bike-optimized, multi-use friendly new singletrack trails, preferably in the Gorge but at least in the Pacific Northwest within the northern Oregon or southern Washington Cascade Mountain Range. The Port is requesting a minimum of three (3) references be submitted with your company's bid proposal.

Table of Contents

SECTION 1: PRIMARY MOUNTAIN BIKE TRAIL EXPERIENCES..... 4

SECTION 2: TRAIL CONSTRUCTION SPECIFICATIONS 5

SECTION 3: PROJECT DESCRIPTION AND SCOPE..... 8

3.1 GENERAL PROJECT DESCRIPTION 8

3.2 MOUNTAIN BIKE-OPTIMIZED SINGLETRACK..... 8

3.3 PROJECT SCOPE..... 8

3.4 ADDITIONS AND DELETIONS 8

3.5 DISCREPANCIES..... 9

SECTION 4: MAPS AND CONSTRUCTION NOTES 10

SECTION 5: PROJECT DETAILS 15

5.1 PHASE 1 15

SECTION 6: TRAIL CONSTRUCTION REQUIREMENTS..... 16

6.1 TRAIL DESIGN 16

6.2 BIKE-OPTIMIZED TRAILS..... 16

6.3 TRAIL CONSTRUCTION BEST PRACTICES 16

6.4 CORRIDOR CLEARING AND TRAIL ALIGNMENT..... 16

6.5 DEBRIS..... 17

6.6 TREAD..... 17

6.7 ROCKS..... 18

6.8 WOODY MATERIAL 18

6.9 FALL ZONE CLEARING 18

6.10 BACKSLOPE..... 18

6.11 TRAIL, FINISHED CONDITION..... 18

6.12 SPOILS STABILIZATION..... 18

6.13 TURNS..... 19

6.14 GRADE REVERSALS..... 19

6.15 ABOVE-GRADE EARTHEN STRUCTURES..... 19

6.16 WATER DIVERSIONS 19

6.17 INVASIVE SPECIES..... 19

6.18 FILTER STRIPS..... 20

6.19 MECHANIZED EQUIPMENT BEST PRACTICES 20

6.20 NOISE RESTRICTIONS 20

6.21 SENSITIVE SALAMANDER SPECIES 20

6.22 RIPARIAN AREAS 20

6.23 INVASIVE PLANTS..... 20

6.24 CULTURAL RESOURCES.....	21
6.25 BONNEVILLE POWER ADMINISTRATION.....	21
SECTION 7: UNIT DEFINITIONS AND DETAIL DRAWINGS	22
7.1 TRAIL CONSTRUCTION (FIGURES 1 - 4).....	22
7.2 CLEARING LIMITS (FIGURE 5)	22
7.3 ARMORED TREAD/STONE PITCHING (FIGURE 5)	22
7.4 ROLLING GRADE DIP (FIGURE 7).....	23
7.5 TERRACE (FIGURE 8)	23
7.6 ROCK RETAINING WALL (FIGURE 9)	23
7.7 ROCK ARMORED FORD (FIGURE 10)	24
7.8 CONSTRUCTED TURN/INSLOPED TURN (FIGURE 11).....	24
7.9 CONSTRUCTED TURN/INSLOPED SWITCHBACK.....	24
7.10 BOARDWALK/PUNCHEON (FIGURE 12A-C)	25
7.11 TREAD RECONSTRUCTION	25
7.12 ROCK RIP-RAP	25
7.13 FILLED TREAD TRAIL (FIGURE 13).....	25
7.14 BASIN AND RISE TRAIL (FIGURE 14).....	25
7.15 TRAIL CLOSURE (FIGURE 15).....	25
7.16 TECHNICAL TRAIL FEATURE (TTF)	26
7.17 BOULDERS.....	26
7.18 MODIFICATIONS.....	26
7.19 FIGURES.....	27
SECTION 8: CONTRACTOR QUALIFICATIONS, REQUIREMENTS, AND RESPONSIBILITIES	39
8.1 MOUNTAIN BIKE-OPTIMIZED EXPERIENCE	39
8.2 TOOLS	39
8.3 MECHANIZED EQUIPMENT	39
8.4 BACKCOUNTRY PROTOCOL	39
8.5 TIMETABLE.....	39
8.6 MEETINGS AND PROGRESS REVIEWS.....	40
8.7 WHAT CONTRACTOR PROVIDES.....	40
8.8 COORDINATION.....	40
8.9 PUBLIC SAFETY	40
8.10 EMPLOYEE/SUBCONTRACTOR CONDUCT	40
8.11 COMPETENCE	40

8.12 COMPLIANCE WITH MODERN PRACTICES.....	40
8.13 CONDITION OF MATERIALS AND EQUIPMENT.....	41
8.14 DISPOSAL OF MATERIALS AND SUPPLIES NOT APPROVED.....	41
8.15 DISPOSAL OF MATERIALS AND SUPPLIES NOT USED	41
8.16 USE OF PREMISES – STORAGE.....	41
8.17 TRAIL REHABILITATION.....	41
8.18 USE OF SUBCONTRACTORS	41
8.19 PERMITS	41
8.20 FIRE PROTECTION	42
8.21 OPERATION RESTRICTIONS	42
8.22 SAMPLE TRAIL SECTIONS.....	42
8.23 RESOURCE PROTECTION	42
SECTION 9: APPENDIX A - PROJECT DESIGN FEATURES TO PROTECT SCENIC, NATURAL, CULTURAL, AND RECREATION RESOURCES.....	43

NOTE: THE TERM “CLIENT” HEREIN INCLUDES CLIENT’S REPRESENTATIVE.

SECTION 1: PRIMARY MOUNTAIN BIKE TRAIL EXPERIENCES

Based on the desires identified by the community, the primary trail experiences for the proposed mountain bike trails shall be:

1) *Escape*

An outing that takes a rider's mind off the stress of daily life allows them to return mentally refreshed. This typically entails a route designed to avoid the sights and sounds of other human activity, highlighted by an absorbing, potentially distracting, trail that allows a rider to focus on their adventure.

2) *Challenge*

The trails should be technically stimulating for riders. Challenging trails reward skill and are in high demand by riders as they seek to improve their expertise. This is *not* to say that the trails should be hard, but instead should be challenging within the identified skill level; success comes from incrementally improving one's skills over time to unlock the subtle efficiencies of flow and momentum. The trails should not be straight or contain extended constant grades as these decrease the skills needed to navigate a trail.

These characteristics will vary in primacy based on the landscape, terrain, trail density, proximity to developed facilities (e.g., roads), and other factors.

Difficulty Rating

The trails have been designed with a specific difficulty level in mind, based on the system developed by the International Mountain Bicycling Association. Trail construction must adhere to these guidelines, as modified by this document.

Feasible Trails for the Landscape

Given the typical terrain, vegetation, and soils it is possible to develop bike-optimized singletrack trails that offer a wide range of experiences, including those that highlight the primary experience characteristics of Escape and Challenge.

Design Specifications

The physical characteristics of a trail combine to define the experiences that people will have on the trail. Escape and Challenge will be achieved through a meandering tread with variable sinuosity. The trail will provide a consistently enjoyable experience for riders based on the preferred or mandatory directionality of the trails; some trails will be maximized for an experience in either an ascending or descending direction but the trail will not be heavily manipulated in a manner commonly associated with "flow" trails.

Optional lines are allowed and encouraged for descending-direction riders if they do not impede bi-directional trail movement.

SECTION 2: TRAIL CONSTRUCTION SPECIFICATIONS

Trail Number/Name	6	
Mileage (appx.)	0.44	
Difficulty Rating	More Difficult (Blue Square)	
Primary Experience	Challenge	
Secondary Experience	Escape	
<i>Trail Characteristic/Feature</i>	<i>Value</i>	<i>Description</i>
Finished tread width, 0% - 20% sideslope	24" - 30"	
Finished tread width, 21% - 40% sideslope	24" - 36"	
Finished tread width, 40%+ sideslope	36"	
Horizontal clearance	48" - 72"	Typically centered on trail tread.
Vertical clearance	8' - 10'	Over entire trail tread.
Outslope	0% - 7%	Avoid aggressive outsloping for purposes of drainage; use grade reversals instead.
Inslope	0% - 7%	Avoid aggressive insloping to avoid the sensation of a "flow trail".
Average grade, soil	5%	
Maximum grade, soil	10%	Maximum length of segment = 10'; may be exceeded where flow reduces braking.
Maximum grade, rock or armored, climbing	10%	Maximum length of segment = 10'
Maximum grade, rock or armored, descending	10%	Maximum length of segment = 10'
Maximum grade, soil, optional lines	15%	Maximum length of segment = 20'
Maximum grade, rock or armored, optional lines	20%	Maximum length of segment = unlimited
Grade reversal, frequency (trough-to-trough)	50'	More than outslope, grade reversals will be responsible for draining the tread. Grade reversals should not make the trail feel "hyperkinetic" or resemble a pump track. Instead, the natural terrain should be "surfed" to take advantage of microtopography.
Turn radius	5' - 8'	"Switchberm" style turns with tighter radii and minimal berming necessary only to resist turning forces. Maximum berm height = 12". Backsides of berms must be filled at 1:2.
Roughness/texture	6"	Relief from surround typical soil-based tread
Roughness/texture, optional lines	12"	Relief from surround typical soil-based tread
Sightlines	100'	Continual clear sightlines are expected.
TTFs, natural, unavoidable	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. Must meet other criteria.
TTFs, natural, optional lines	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. May exceed roughness/texture criteria by 100%; finished tread width criteria may not be exceeded. Optional lines must be approved in advance.
MTTFs, natural, unavoidable	Not allowed	
MTTFs, natural, optional lines	Not allowed	

Trail Number/Name	7	
Mileage (appx.)	1.81	
Difficulty Rating	More Difficult (Blue Square)	
Primary Experience	Challenge	
Secondary Experience	Escape	
<i>Trail Characteristic/Feature</i>	<i>Value</i>	<i>Description</i>
Finished tread width, 0% - 20% sideslope	24" - 30"	
Finished tread width, 21% - 40% sideslope	24" - 36"	
Finished tread width, 40%+ sideslope	36"	
Horizontal clearance	48" - 72"	Typically centered on trail tread.
Vertical clearance	8' - 10'	Over entire trail tread.
Outslope	0% - 7%	Avoid aggressive outsloping for purposes of drainage; use grade reversals instead
Inslope	0% - 7%	Avoid aggressive insloping to avoid the sensation of a "flow trail".
Average grade, soil	5%	
Maximum grade, soil	10%	Maximum length of segment = 10'; may be exceeded where flow reduces braking.
Maximum grade, rock or armored, climbing	10%	Maximum length of segment = 10'
Maximum grade, rock or armored, descending	10%	Maximum length of segment = 10'
Maximum grade, soil, optional lines	15%	Maximum length of segment = 20'
Maximum grade, rock or armored, optional lines	20%	Maximum length of segment = unlimited
Grade reversal, frequency (trough-to-trough)	50'	More than outslope, grade reversals will be responsible for draining the tread. Grade reversals should not make the trail feel "hyperkinetic" or resemble a pump track. Instead, the natural terrain should be "surfed" to take advantage of microtopography.
Turn radius	5' - 8'	"Switchberm" style turns with tighter radii and minimal berming necessary only to resist turning forces. Maximum berm height = 12". Backsides of berms must be filled at 1:2.
Roughness/texture	6"	Relief from surround typical soil-based tread
Roughness/texture, optional lines	12"	Relief from surround typical soil-based tread
Sightlines	100'	Continual clear sightlines are expected.
TTFs, natural, unavoidable	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. Must meet other criteria.
TTFs, natural, optional lines	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. May exceed roughness/texture criteria by 100%; finished tread width criteria may not be exceeded. Optional lines must be approved in advance.
MTTFs, natural, unavoidable	Not allowed	
MTTFs, natural, optional lines	Not allowed	

Trail Number/Name	8	
Mileage (appx.)	1.06	
Difficulty Rating	More Difficult (Blue Square)	
Primary Experience	Challenge	
Secondary Experience	Escape	
<i>Trail Characteristic/Feature</i>	<i>Value</i>	<i>Description</i>
Finished tread width, 0% - 20% sideslope	24" - 30"	
Finished tread width, 21% - 40% sideslope	24" - 36"	
Finished tread width, 40%+ sideslope	36"	
Horizontal clearance	48" - 72"	Typically centered on trail tread.
Vertical clearance	8' - 10'	Over entire trail tread.
Outslope	0% - 7%	Avoid aggressive outsloping for purposes of drainage; use grade reversals instead.
Inslope	0% - 7%	Avoid aggressive insloping to avoid the sensation of a "flow trail".
Average grade, soil	5%	
Maximum grade, soil	10%	Maximum length of segment = 10'; may be exceeded where flow reduces braking.
Maximum grade, rock or armored, climbing	10%	Maximum length of segment = 10'.
Maximum grade, rock or armored, descending	10%	Maximum length of segment = 10'.
Maximum grade, soil, optional lines	15%	Maximum length of segment = 20'.
Maximum grade, rock or armored, optional lines	20%	Maximum length of segment = unlimited.
Grade reversal, frequency (trough-to-trough)	50'	More than outslope, grade reversals will be responsible for draining the tread. Grade reversals should not make the trail feel "hyperkinetic" or resemble a pump track. Instead, the natural terrain should be "surfed" to take advantage of microtopography.
Turn radius	5' - 8'	"Switchberm" style turns with tighter radii and minimal berming necessary only to resist turning forces. Maximum berm height = 12". Backsides of berms must be filled at 1:2.
Roughness/texture	6"	Relief from surround typical soil-based tread.
Roughness/texture, optional lines	12"	Relief from surround typical soil-based tread.
Sightlines	100'	Continual clear sightlines are expected.
Technical Trail Features (TTFs), natural, unavoidable	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. Must meet other criteria.
TTFs, natural, optional lines	allowed, encouraged	Encourage root- and rock-based TTFs to meet Challenge and Escape experiences. May exceed roughness/texture criteria by 100%; finished tread width criteria may not be exceeded. Optional lines must be approved in advance.
MTTFs, natural, unavoidable	Not allowed	
MTTFs, natural, optional lines	Not allowed	

SECTION 3: PROJECT DESCRIPTION AND SCOPE

3.1 General Project Description

The US Forest Service is developing a 14.8-mile, shared-use trail system on National Forest System (NFS) lands surrounding Cascade Locks and within the Columbia River Gorge National Scenic Area (CRGNSA) and Hood River County, Oregon.

The purpose of this project is to help meet the growing demand for mountain biking opportunities in the Pacific Northwest consistent with the 1986 Columbia River Gorge National Scenic Area Act. This project, developed in coordination with the Port of Cascade Locks and the Northwest Trail Alliance, and responsive to the 2019-2023 Oregon Statewide Comprehensive Outdoor Recreation Plan, will result in a trail system to connect to the existing Gorge 400 Trail, Herman Creek Trail, and Pacific Crest National Scenic Trail (PCT) and expand biking, hiking, and equestrian trail opportunities near the community of Cascade Locks.

The surroundings demand a high standard-of-care during construction activities due to steep slopes, heavy vegetation, surface water, high-voltage power lines, buried utilities, active recreation, and/or the protection of natural, cultural, and scenic resources.

3.2 Mountain Bike-Optimized Singletrack

This focus of this project is the construction of mountain bike-optimized natural surface singletrack trail. A mountain bike-optimized trail is one that maximizes the fun and efficiency of the bicycling experience through the provision of trail features and macro- and micro-design techniques. Desired characteristics include: cambered trail surfaces to counter user forces, insloped turns, incorporation of native rock features, and seamless transitions between trail types. Trail features and flow should progress as a user gets deeper into the system; larger, tighter, more narrow examples of similar elements moving from “green circle” (easier) to “blue square” (more difficult) to “black diamond” (most difficult) areas. Along segments intended for more skilled trail users, optional lines available only to more-skilled riders are desirable.

All of the trails are open to pedestrians and some of the trails are open to equestrians, so the design and construction must accommodate multiple recreation uses.

3.3 Project Scope

Construct a portion of Phase I (appx. 3.31 miles) of the recently approved Cascade Locks Trail System to provide a new destination-quality trail network in the Columbia River Gorge National Scenic Area adjacent to Cascade Locks, OR.

3.4 Additions and Deletions

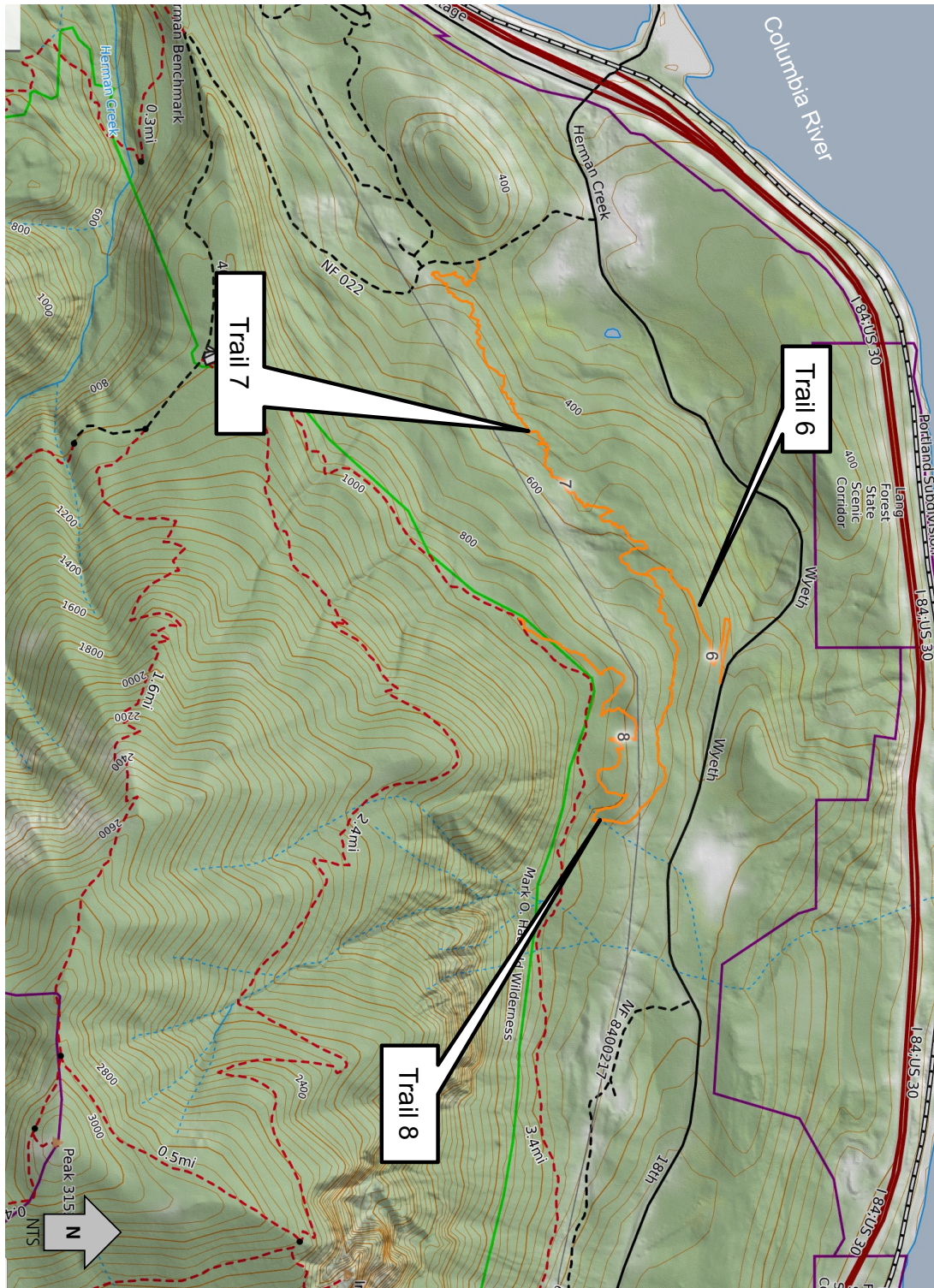
No extras or additional work will be allowed or paid for unless such extras or additional work are ordered in writing by the client, and the price fixed and agreed upon before such work is performed. The client will not accept any overruns or pay any quantities beyond those specified.

The client retains the right, without invalidating the contract, to make additions to or deductions from the work defined in this document, and in case such deductions or additions are made, an equitable adjustment of the addition to or deduction in cost shall be made between the client and the contractor, and must be agreed to in writing.

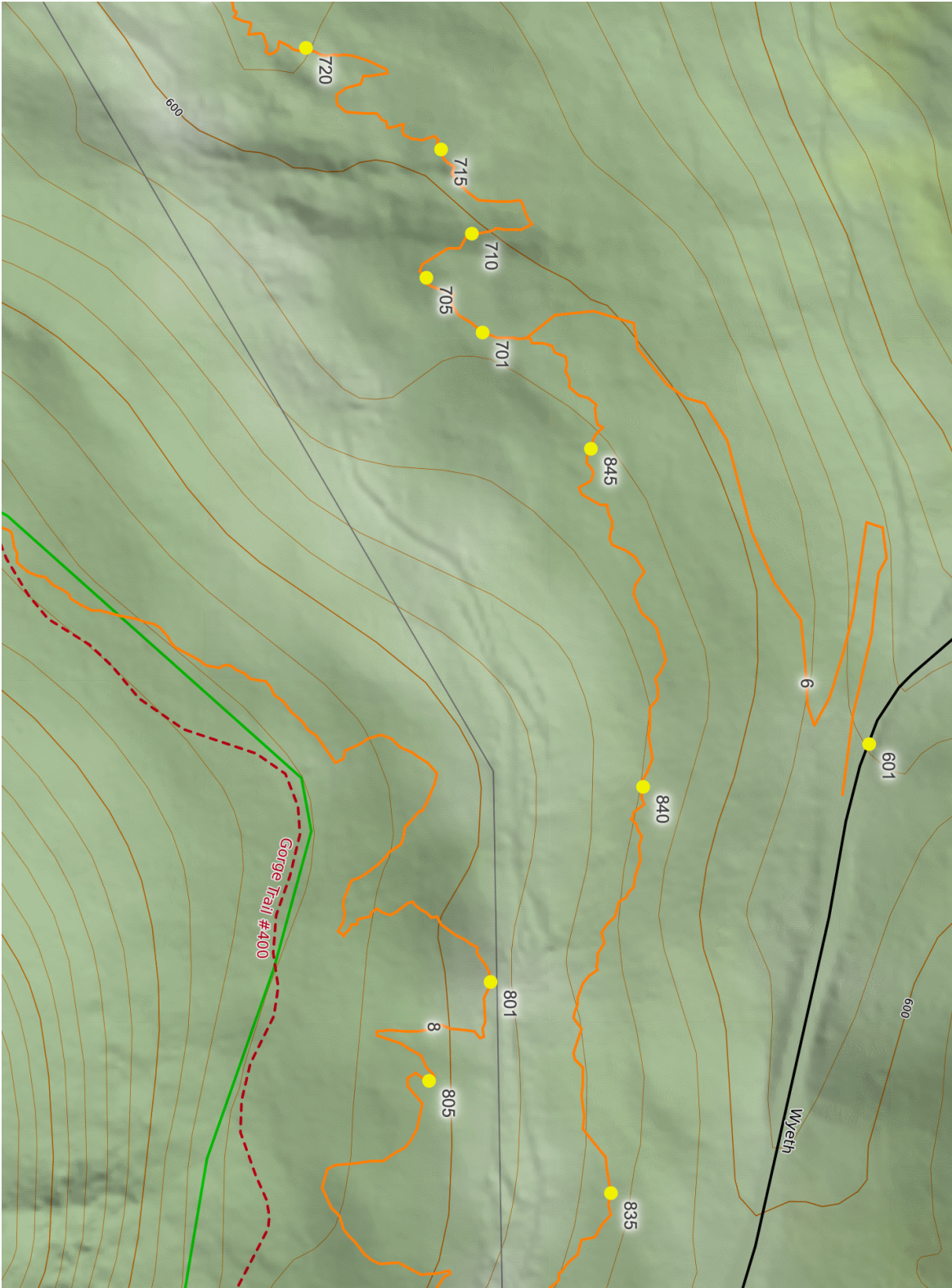
3.5 Discrepancies

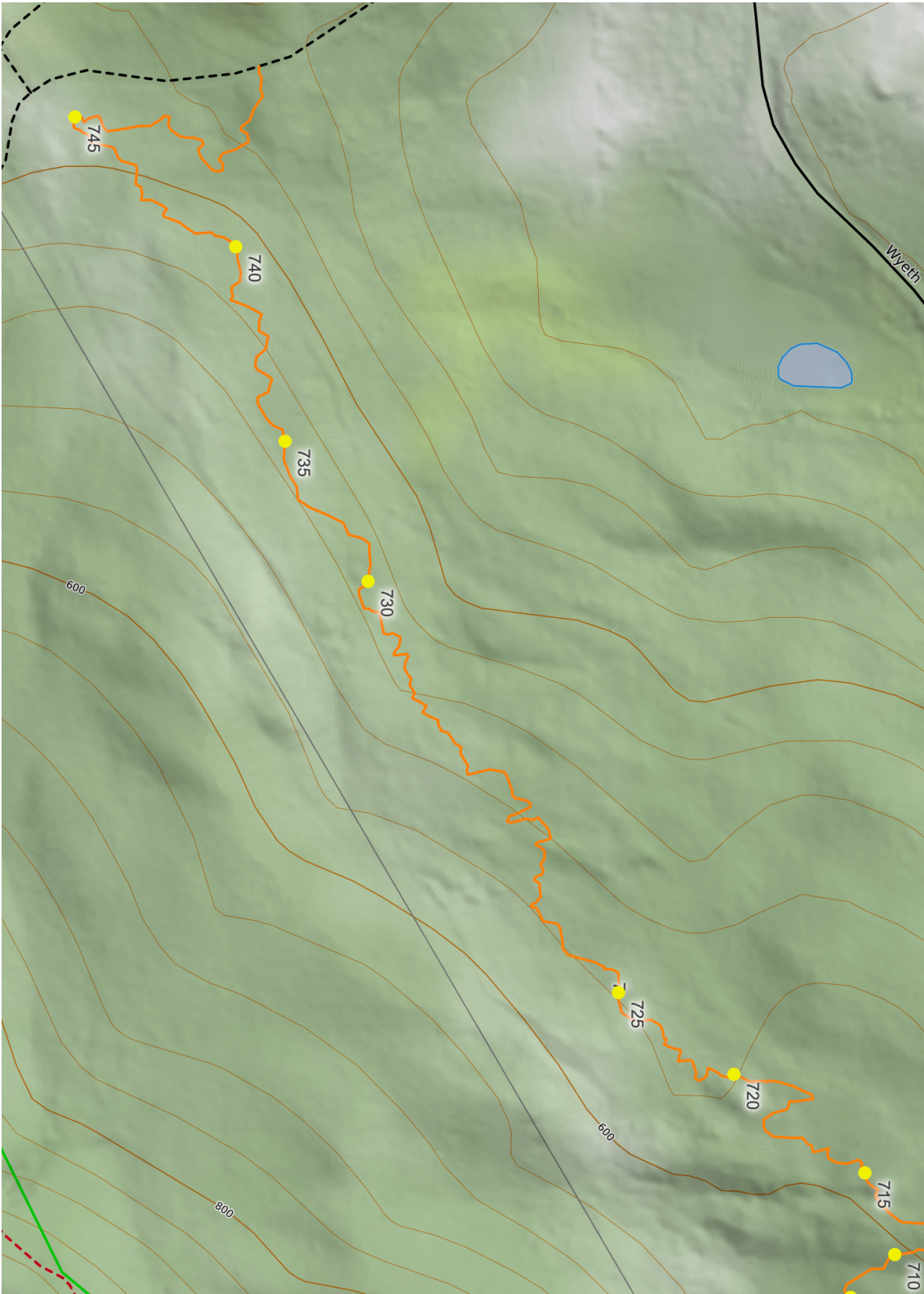
Should the contractor discover discrepancies in this and/or related documents (e.g., project details or specifications), the matter shall at once be brought to the attention of the client, and the discrepancies corrected before proceeding further.

SECTION 4: MAPS AND CONSTRUCTION NOTES



Cascade Locks Trail System - Phase I
Site Plan







Point #	Note
601	Locate utilities prior to construction.
701	Use native rock to create 8-foot long by 3-foot wide rock armored segment in main line.
705	Left-hand quarter-berm into native soil and then up and over rock mound. Manipulate rocks as needed to make passable line.
710	Trail on steep sidehill, use native rocks to create downhill edge of bench.
715	Trail on steep sidehill, use native rocks to create downhill edge of bench.
720	Trail on steep sidehill, use native rocks to create downhill edge of bench.
725	Short, steep section.
730	Trail enters old roadbed.
735	Trail leaves old roadbed.
740	Trail on steep sidehill, use native rocks to create downhill edge of bench.
745	Install small right-hand quarter-berm.
801	Whoopdee across landing so riders can carry speed up the opposing climb.
805	Stacked climbing turns.
810	Install optional rock rolldown with approach above turn.
815	Install optional rock-over.
820	Install optional rock rolldown on uphill side of trail.
825	Trail crosses BPA road.
830	Trail exits BPA corridor.
835	Future intersections; ignore flagline that heads NE (downhill) and continue on flagline that heads SE (uphill).
840	Rock outcropping, route trail up and over.
845	Install optional rock drop.

SECTION 5: PROJECT DETAILS

5.1 Phase 1

Description: Construct approximately 3.31 miles of trail per the attached maps and the trail alignments flagged in the field.

Trail ID	GPS Length (LF)	Ground Length (appx. LF)	Ground Length (appx. miles)
6	1,922	2,306	0.44
7	7,975	9,570	1.81
8	4,653	5,584	1.06

SECTION 6: TRAIL CONSTRUCTION REQUIREMENTS

6.1 Trail Design

Design of any new segments or reroutes must be guided by the sustainable trail principles promulgated by accepted resources such as the current editions of the *Trail Solutions*; *IMBA's Guide to Building Sweet Singletrack*, *Managing Mountain Biking*; *IMBA's Guide to Providing Great Riding, Bike Parks*; *IMBA's Guide to New School Trails*, and the *USDA's Trail Construction and Maintenance Notebook*.

6.2 Bike-Optimized Trails

All trails constructed as part of this project shall be natural surface singletrack trail that is optimized for mountain bicyclists. A subset of the larger family of rolling contour trails, bike-optimized trails share the following basic characteristics:

- Synergy with the landscape: Making the most of what the natural terrain provides by using the trail to explore the topography and features (rocks, trees, terrain) present. Some describe a good trail as one that has been revealed, not so much as constructed.
- Opposition to user forces: Bike-optimized trails maximize the efficiencies afforded by using a bicycle and are designed to counteract forces that direct a user off the trail. Insloped turns and cambered tread surfaces, for example, promote traction, safety, sustainability, and enjoyment.
- Conservation of momentum: The ideal trail avoids “flow killers” such as sharp turns, incongruent features, and disjointed climbs and descents. Instead, it utilizes undulations and cambered turns to rewards smooth, deliberate riding and to maximize forward motion. A bike-optimized trail encourages a better understanding of the bicyclist/bicycle interface, allowing riders to reach that unique sensation of floating through the landscape.
- Leading the user forward: A sense of discovery, combined with a design that maximizes a rider's forward momentum, helps to draw the user forward. The trail is never repetitive or predictable, nor is it “awkward”, with variety and innovation combining to create an intuitive feel.

6.3 Trail Construction Best Practices

To satisfy erosion and sediment control requirements, the trail must be finished as the project advances. Ideally, all roughed-in corridor will be finished the same day and before any anticipated rainfall. Any segments requiring delayed finishing must be approved in advance by the client.

6.4 Corridor Clearing and Trail Alignment

The trail corridor was flagged with pink ribbon flagging and/or pin flags. Corridor clearing and trail construction shall be confined to within ten meters (10 m) of either side of the corridor flagging. More restrictive corridor clearing conditions shall apply when warranted by the situation, including but not limited to where the trail:

- a) Crosses roads or streams.
- b) Is adjacent to private property.
- c) Crosses or is adjacent to public rights-of-way.

- d) Crosses or is adjacent to the Bonneville Power Administration (BPA) right-of-way. Trail layout and construction will ensure that no portion of the trail is within fifty feet (50') of any BPA structure (e.g., steel lattice tower, steel pole, concrete pole, or concrete foundation) and that trail corridor avoids all equipment landings. No grade changes to facilitate construction or disposal of overburden shall be allowed within BPA's easement area. As needed, BPA right-of-way and access roads shall be returned to their original condition following trail construction.

Changes to the approved flagline must be approved in advance. If the flagging has disappeared and it is impossible to identify the corridor, the contractor shall immediately contact the client before proceeding with corridor clearing.

All felled trees will be left on site to contribute to coarse woody debris. Downed trees should be left in whole pieces to the greatest extent practicable.

No trees greater than thirty inches (30") diameter at breast height (dbh) will be removed during trail construction or maintenance unless the trees are classified by the client as hazard or danger trees.

Trees between eighteen inches (18") and thirty inches (30") dbh can be removed on a limited basis (averaging no more than one tree per 1,000 feet of trail) within the trail corridor.

Trees greater than eleven inches (11") but less than eighteen inches (18") dbh can be removed on a limited basis (averaging no more than one tree per 150 feet of trail) within the trail corridor.

Removal of any tree greater than eleven inches (11") requires approval by the client. A penalty of \$500 per tree shall be levied against the contractor for unauthorized cutting/removal/damage of trees per the above standards.

6.5 Debris

Cut and scatter all branches and brush removed as part of the trail development. No debris shall be left within ten feet (10') of the trail. Butt-ends of any sawed limbs must face away from trail. The trails and adjacent areas shall be left in a finished and natural-looking condition and minimize disturbance to natural resources to the extent possible. Construction shall leave no scars greater than three inches in diameter on live parts of native trees/plants. Any created slash shall be dispersed away from the trail with one surface in contact with the ground. Slash heights shall be less than twenty-four inches (24") in height.

6.6 Tread

All tread should be constructed as full bench whenever possible. If fill is required, it should be supported by a stone retaining wall sufficient to support the expected forces.

Specific tread widths are a function of their location in the system. Specific values are enumerated in Section 2: Trail Construction Specifications. Narrower gateways through natural obstacles (trees, rock outcrops) are encouraged. Tread widths in areas of dynamic flow, landings, and insloped turns, for example, may be wider to accommodate the full range of riding experiences. Significant deviations from these situations require approval of the client.

6.7 Rocks

Maximum size rock material to be left in the trail is a function of its location in the system. Specific values are enumerated in Section 2: Trail Construction Specifications.

All rock embedded in the trail surface should be stable. When used in structures, care will be taken to match rock to the immediate surroundings; grain patterns, lichen growth, etc. Excessive tool marks on rocks are unacceptable. Non-native rock may not be imported into a work area without approval of client.

6.8 Woody Material

Woody material such as stumps, logs, and brush shall be removed from the trail tread. No stumps less than twelve inches (12") in diameter shall be left within five feet (5') of the trail tread. Remaining stumps shall be cut to 8" or less from the surrounding ground and dirt added to cut face of stump.

6.9 Fall Zone Clearing

Areas adjacent to dynamic trail segments where users have a greater potential to exit the immediate trail corridor shall be cleared of impact focusers; butt-end branches, stumps, and rocks under six inches (6") in diameter.

6.10 Backslope

The trail backslope shall be graded to a three-to-one (3:1) slope or until it matches the existing slope. In areas where the backslope has the potential to become part of the active tread (e.g., upper entrance to insloped turns) it must be finished to trail tread specifications.

6.11 Trail, Finished Condition

Final finishing and grading of the trail tread, backslope, down-slope spoils, and drainage features shall result in a surface that matches the texture of the surrounding forest floor while enabling water to drain off and away from the trail.

6.12 Spoils Stabilization

All excavated materials not used in the trail tread or other trail structures must be stabilized. Spoils shall be distributed in a thin layer adjacent to the trail tread. Spoils may not be placed in drainages or swales. When possible, spoils should be mulched with native materials to discourage erosion while native seed stocks reestablish. In certain circumstances, installation of engineered erosion control measures may be required.

If seeding is used in stabilization or revegetation, it must be a mix approved by the Columbia River Gorge National Scenic Area. Any mulch/erosion control/fill materials must be certified weed-free and from a source approved by the Columbia River Gorge National Scenic Area.

At all times, spoils stabilization must satisfy the terms of the project approval and applicable regulations.

6.13 Turns

All turns shall be insloped to resist the forces exerted by users. Acceptable values for turn radii and grades across the turns are enumerated in Section 2: Trail Construction Specifications. Insloped turns shall be constructed to have good flow for wheeled trail users, e.g., no decreasing-radius turns. All turns must include an entrance and exit rolling grade dip. If conditions warrant, a traditional rolling crown switchback may be constructed with prior approval of client.

6.14 Grade Reversals

A designed grade reversal or constructed rolling grade dip should occur at least as frequently as identified in Section 2: Trail Construction Specifications, and preferably more frequently. Any grade reversals must be anchored or choked with rocks/logs to discourage short cutting. Grade reversals shall be measured trough-to-trough or tip-to-tip.

In mountain bike-specific trails, grade reversals also double as elements: rollers, booters, and pump/rhythm sections. In this context, grade reversal shape, size, and placement should reflect its location within the system. Specific details will be determined by the contractor in partnership with the client.

6.15 Above-Grade Earthen Structures

Any portion of trail rising above the grade of its surroundings must be composed of mineral soil. If soil is scarce, a rock core may be used so long as it provides less than fifty percent (50%) of the total volume of the structure. Use of organic materials, duff, woody debris, etc., is prohibited.

Fill structures must have a fill slope of at least two-to-one (2:1) or the angle of repose of the local soil, whichever is softer. A rock retaining wall may be substituted for a fill slope with permission of the client. Fill structures must be completely stabilized and compacted. Acceptable techniques include track-packing or compaction via a dedicated tamping unit. Hand tamping is not acceptable. Raw soil faces that do not become tread must be mulched and seeded in the same fashion as spoils and satisfy the terms of the project erosion control methodologies.

Examples of above-grade earthen structures include built (rather than excavated) grade reversals and turn pads on insloped switchbacks.

6.16 Water Diversions

In general, the tread should be outsloped at approximately five percent (5%). When not possible or desirable due to purpose-built insloping, resource concerns, or obstruction, water can be directed down the trail for up to ten feet (10') before a water diversion location.

6.17 Invasive Species

To reduce the spread of invasive plant species the following protocols are required:

- a) All hand tools and mechanized equipment must be free of invasive seeds and clean of any dirt and mud when entering the project site.
- b) Immediately after removing machines from the site they shall be cleaned.

- c) All materials used during construction and maintenance of the trailhead and trail system will be certified weed-free and from a source approved by the Columbia River Gorge National Scenic Area.

6.18 Filter Strips

Filter strips are vegetated areas downslope of the trail corridor intended to treat sheet flows coming off the tread. Filter strips function by slowing down flow velocities, filtering out sediments, and providing an opportunity for infiltration into the underlying soils. Properly mulched spoils may be designated as part of the filter strip. Filter strips shall not be used as regular travelways for equipment and materials. Areas with inadequate filter strip capacity above waterways may require installation of engineered erosion control measures to satisfy erosion and sediment control methodologies.

6.19 Mechanized Equipment Best Practices

All track marks must be raked smooth. Affected area will be finished to have a nature shape, e.g., spoils piles rounded, smoothed and cleared of significant brush, blade edges blended, etc. A spill kit suitable for five gallons of fluid will be onsite and within 200 yards of mechanized equipment whenever equipment is being operated. Equipment shall be serviced and refueled outside of riparian areas to reduce the chance of spilling toxic fuels and lubricants.

6.20 Noise Restrictions

To avoid potential noise disturbance to northern spotted owls, construction and maintenance activities requiring the use of chainsaws, heavy equipment, or helicopter support will only occur between July 16 and February 28 of any given year.

6.21 Sensitive Salamander Species

To protect habitat for sensitive salamander species, ground disturbance will be minimized, and no fill will be added to sections of trail crossing talus slopes or boulder fields.

6.22 Riparian Areas

Construction activities should maintain at least 95% ground cover (e.g. vegetation, duff, or litter) within riparian areas. Avoid ground disturbing activities in saturated soil areas where practicable.

6.23 Invasive Plants

Construction will limit disturbance to existing populations of non-native invasive plants to the extent practicable.

To reduce the potential for transport or spread of invasive plants, all vehicles and equipment used during construction of the trailhead and trail system will be washed before entering the project site.

To reduce the potential for weed spread through fill material (e.g. gravel and rock), all materials used during construction will be certified weed-free and from a source approved by the Columbia River Gorge National Scenic Area.

6.24 Cultural Resources

Contractor shall review a copy of the Columbia River Gorge National Scenic Area Inadvertent Discovery Plan. If cultural resources are discovered during implementation, all construction activities within 100 feet of the discovered resource shall cease. Cultural resources should remain as found; further disturbance is prohibited.

6.25 Bonneville Power Administration

Access to BPA structures shall remain open and unobstructed at all times during trail construction. Equipment, machinery, and vehicles traveling within BPA's easement area shall remain at least 25 feet (25') away from any BPA structure or guy anchor ground attachment point. If there is a possibility that any equipment will encroach on this distance, then a safety watcher is required. There will be no storage of flammable materials or refueling of vehicles or equipment within BPA's easement area.

SECTION 7: UNIT DEFINITIONS AND DETAIL DRAWINGS

Any accompanying figures are for illustrative purposes only and do not relieve contractor of the need to satisfy written requirements contained elsewhere in this document.

7.1 Trail Construction (Figures 1 - 4)

The trail tread shall consist of packed soil or rock. Stumps and/or roots should be excavated and removed from the trail tread unless they are specifically allowed as part of the trail texture. Backslope dimensions are derived from the surrounding area such that they have a run-to-rise of two-to-one (2:1). In areas where the backslope has the potential to become part of the active tread it must be finished to trail tread specifications.

The trail should contain frequent grade reversals. To encourage self-cleaning, the grade of the drains at the bottom of the grade reversals must be sloped to drain in an aggressive manner while simultaneously resisting user forces. In some cases, this will require insloping with a drainage basin placed into the hillside. If grade reversals result in a fill slope, these slopes and the associated feature(s) will be finished to satisfy the above-grade earthen structure guidelines.

Any downslope spoils must be distributed such that no berm is present. Spoils must be stabilized with a covering of forest duff. In areas with insufficient duff, seed-free straw from a source approved by the Columbia River Gorge National Scenic Area may be substituted for forest materials. Excess soil shall not be distributed into drainages or adjacent to streams.

If borrow pits are created during trail construction, they will be finished to satisfy the requirements of the trail and its surroundings: slopes graded to the local angle of repose, stumps and roots trimmed, spoils stabilized and covered with forest duff. Borrow pits may not form a potential injury hazard for forest users and may not be created outside of the approved corridor.

7.2 Clearing Limits (Figure 5)

The trail shall be cleared of vegetation per the dimensions shown in Figure 5 and in compliance with other specifications noted in this document, particularly Section 6.4. Furthermore, clearing shall be used to maximize sight distances to the extent practical.

7.3 Armored Tread/Stone Pitching (Figure 5)

The width of armored tread should be at least 1.5 times the width of the specified trail tread to permit users to find their line as the trail matures, and at least two times as wide in areas where more varied line selection is likely (e.g., landings, insloped turns).

Stone pitching must extend at least ten inches (10") deep with a minimum of two-thirds (2/3) of the rock buried below the surface of the surrounding grade. Stones should be stable and aligned perpendicular to the direction of travel. Each end of a pitched section shall be supported by larger "bookend" stones embedded in the ground. Stones used for armoring should be a minimum of four inches (4") thick and a minimum of twenty-four inches (24") wide. Voids shall be filled with compacted native mineral soil, crushed rock, and/or crusher fines. Client may require additional guide stones along the edges of the trail if the final surface of the trail appears more rugged than the adjacent landscape.

7.4 Rolling Grade Dip (Figure 7)

The minimum length of the drain portion shall be six feet (6') and the ramp must be at least ten feet (10') long; the height differential between the bottom of the dip and the top of rise shall be approximately eight inches (8") to twenty-four inches (24"). The sides of the rise must have a slope of at least two-to-one (2:1) or the angle of repose of the local soil, whichever ratio is greater (e.g., whichever slope is more gentle).

To encourage self-cleaning, the grade of the drains at the bottom of the grade reversals must be sloped to drain in an aggressive manner while simultaneously resisting user forces. In some cases, this will require insloping with a drainage basin placed into the hillside. If grade reversals result in a fill slope, these slopes and the associated feature(s) will be finished to satisfy the above-grade earthen structure guidelines.

Rolling grade dips/grade reversals must be sited at least twenty feet (20') uphill from significant turns in order to reduce the effects of unweighting by higher speed users. Exceptions on these dimensions and requirements may be made by the client on a site-by-site basis to accommodate terrain constraints or to enhance the user experience. In certain locations, the client may approve smaller structures reinforced with large rocks that fit the character of the trail to be an acceptable substitute.

7.5 Terrace (Figure 8)

A terrace is a combination of landing, drain, retaining wall, and step, useful for creating sustainable shared-use trails in steeper corridors than would be unsupported by the natural surface tread alone. Steps are used to accelerate the climb/descent while the use of landings between risers allows continued use by bicycles. Terraces may be incorporated in new trail construction or applied as a corrective maintenance measure.

Step risers should be constructed out of stone. Maximum riser height is determined from the step height requirements of the trail segment. The riser shall be battered (sloped) in the direction of uphill travel. A riser may be assembled from multiple stones with the understanding it must withstand the dynamic loading of climbing and descending users.

The landing must have a minimum length of at least 1.5 times the stride or wheelbase of the longest users. Each landing must contain a drain off to the side, preferably to the downhill side; it is not acceptable for a landing to drain over its riser. The drain differential must be at least six inches (6"). The fill required to create the landing is considered part of this unit.

The downhill edge of the landing must be supported by a retaining wall of stone. The landing's retaining wall must satisfy all the requirements of a stand-alone wall (see 5.7).

7.6 Rock Retaining Wall (Figure 9)

The measurement unit of a rock retaining wall is square feet, calculated from the exposed vertical face. Rock retaining walls should be stable and battered (inclined back into the slope) a minimum of fifteen percent (15%) from vertical. All walls should have rubble backfill of at least six inches (6") in depth behind the wall to allow for drainage and to prevent damage from frost heaves. The base of the wall should

be placed on firm, compacted mineral soil or rock outcroppings. Any small stones used to “chink” larger stones in place should be inserted from the back of the wall. The top of the wall shall not be counted in the width of the trail tread. The top layer of stones shall be installed in a manner to avoid being accidentally dislodged by trail users. Deadmen (stones that extend from the wall into the slope) should be used to ensure integrity. There should be one deadman for every half square yard (0.5 SY) of wall face.

7.7 Rock Armored Ford (Figure 10)

Grade reversals shall be created in the trail tread prior to the crossing on each bank. Maximum grade on each approach is fifteen percent (15%) for a maximum distance of fifty feet (50'). The armored tread surface shall extend through the stream and up the banks until a grade of less than fifteen percent (15%) can be achieved. The armored tread will be flush with the stream bottom to discourage failures from cavitation. Armoring shall extend downstream one-half (1/2) the required maximum tread width of trail tread to discourage headcutting.

7.8 Constructed Turn/Insloped Turn (Figure 11)

The insloped turn unit includes armoring and drainage features associated with the structure.

Each insloped turn requires a grade reversal/rolling grade dip before and after; these shall not be counted as separate units for cost estimating or payment purposes. The dips for these drainage features should be a minimum of six (6) feet long. To encourage self-cleaning, the grade of the drains at the bottom of the grade reversals must be sloped to drain in an aggressive manner while simultaneously resisting user forces. In some cases, this will require insloping with a drainage basin placed into the hillside. If grade reversals result in a fill slope, these slopes and the associated feature(s) will be finished to satisfy the above-grade earthen structure guidelines. The uphill dip should be sited to minimize unweighting effects for higher speed users except where warranted and desired on expert or advanced trails.

Specifications for radius and cross slope across the turn are enumerated in Section 2: Trail Construction Specifications. Turning radii should be consistent. Turns with a running grade of twenty percent (20%) or greater in the apex should have a rock armored drain twenty-four (24) inches wide following the inside of the turn. If multiple turns are required, they will be sited to minimize “stacking”.

7.9 Constructed Turn/Insloped Switchback

The switchback unit includes any walls, armoring, and drainage features associated with the structure.

Each insloped switchback requires a grade reversal/rolling grade dip before and after; these shall not be counted as separate units for cost estimating or payment purposes. The dips for these drainage features should be a minimum of six (6) feet long. To encourage self-cleaning, the grade of the drains at the bottom of the grade reversals must be sloped to drain in an aggressive manner while simultaneously resisting user forces. In some cases, this will require insloping with a drainage basin placed into the hillside. If grade reversals result in a fill slope, these slopes and the associated feature(s) will be finished to satisfy the above-grade earthen structure

guidelines. The uphill dip should be sited to minimize unweighting effects for higher speed users except where warranted and desired on expert or advanced trails.

All switchbacks will be constructed with an insloped turnpad. Specifications for radius and cross slope across the turn are enumerated in Section 2: Trail Construction Specifications. Turning radii should be consistent. Turns with a running grade of twenty percent (20%) or greater in the apex should have a rock armored drain twenty-four (24) inches wide following the inside of the turn. Interior of legs shall be anchored by and filled with large rocks and/or woody debris to discourage shortcutting.

Fill structure for turnpads will comply with composition, compaction, and fill slope requirements of an Above-Grade Earthen Structure. Client may require that a retaining wall be employed in place of a fill slope. Any retaining structures will be constructed of stone and comply with all Rock Retaining Wall specifications. If multiple switchbacks are required, they will be sited to minimize "stacking".

7.10 Boardwalk/Puncheon (Figure 12a-c)

No boardwalks/puncheons are anticipated for the project; this detail can be ignored.

7.11 Tread Reconstruction

Any tread reconstruction should match the new trail construction specifications noted elsewhere in this document.

7.12 Rock Rip-Rap

Rock Rip-Rap is a six inch (6") deep layer of placed stone intended to stabilize slopes with concentrated storm flow. Typically, this technique will be used to protect drains of rolling grade dips and drainage channels below an armored crossing. Individual stones should be gabion-class or equivalent. Rock Rip-Rap is measured by the square yard.

7.13 Filled Tread Trail (Figure 13)

Filled tread trails are used in areas with approximate sideslope of <5% and/or where lack of surface drainage is likely to cause wet tread conditions.

7.14 Basin and Rise Trail (Figure 14)

Basin and rise trails design are used in areas with gentle sideslopes (approx. 5-10%) in well-draining soils under moderate to dense conifer canopies.

7.15 Trail Closure (Figure 15)

Existing compacted tread shall be scarified to encourage regrowth of native seed stock. Exposed soils will be covered with local leaf litter, duff, and/or imported material as deemed appropriate by the client. Trail tread will be disguised with woody debris if any is available. If trail is incised, check dams will be placed at a minimum of every twenty-five feet (25') to capture sediment. If the trail is actively eroding, grade reversals will be added to stem continued damage. The trail corridor will be erased via the placement of vertical debris if available. If the length of trail to be closed is greater than one hundred feet (100') the vertical debris must extend a minimum of fifty feet (50') from each end.

7.16 Technical Trail Feature (TTF)

The location and design of any Technical Trail Feature (TTF) will be a collaborative effort between the contractor and the client. Design specifications will be derived from the specifications of the host trail segment and adhere to current best practices for the design and construction of TTFs. Wooden, metal, or other non-native material TTFs are not allowed.

TTFs should have a playful and organic appearance to better match the natural environment. Recommendations include curved structures instead of straight lines or angles and surfaces that pitch, yaw, and vary in width.

A fall zone sufficient to accommodate the likely trajectory of a trail user accidentally leaving the TTF shall be cleared of all materials that could focus impact (e.g., stumps, sharp rocks, woody materials).

7.17 Boulders

On-site boulders shall be salvaged during construction and reuse in the trail system where necessary to help anchor the apex of turns, define and improve intersections, prevent short-cutting, create chokes, and otherwise enhance the edge of the trail corridor where necessary. Landscape boulders shall be a minimum of eighteen inches (18") in diameter, with a minimum of one-third (1/3) of the rock buried below grade.

7.18 Modifications

Modifications to the specifications may be allowed but must be made by the client in writing.

7.19 Figures

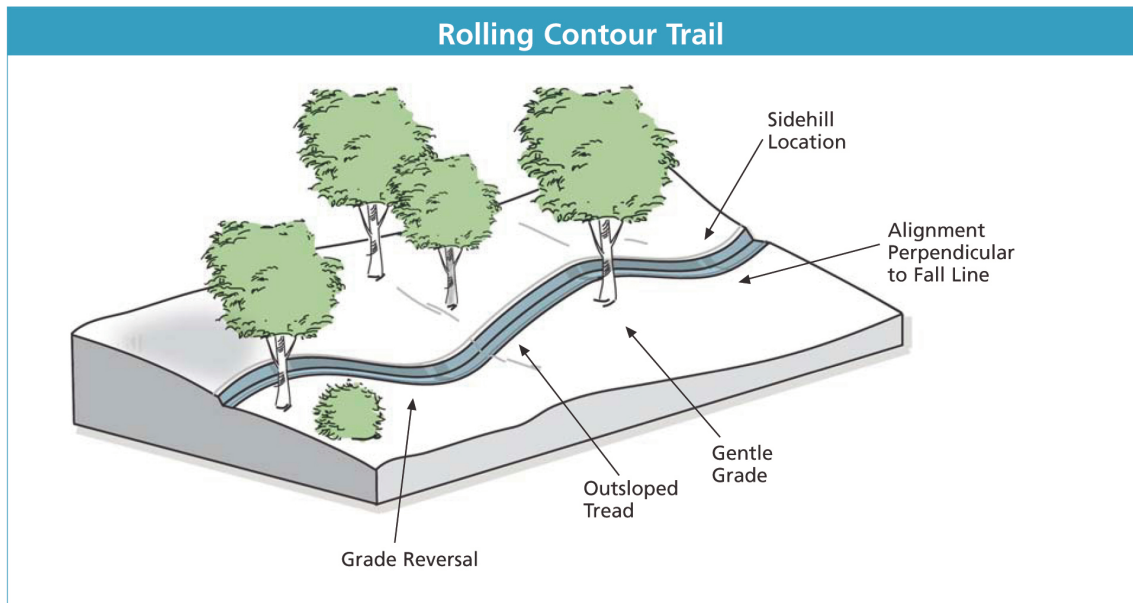


Figure 1: Rolling Contour Trail

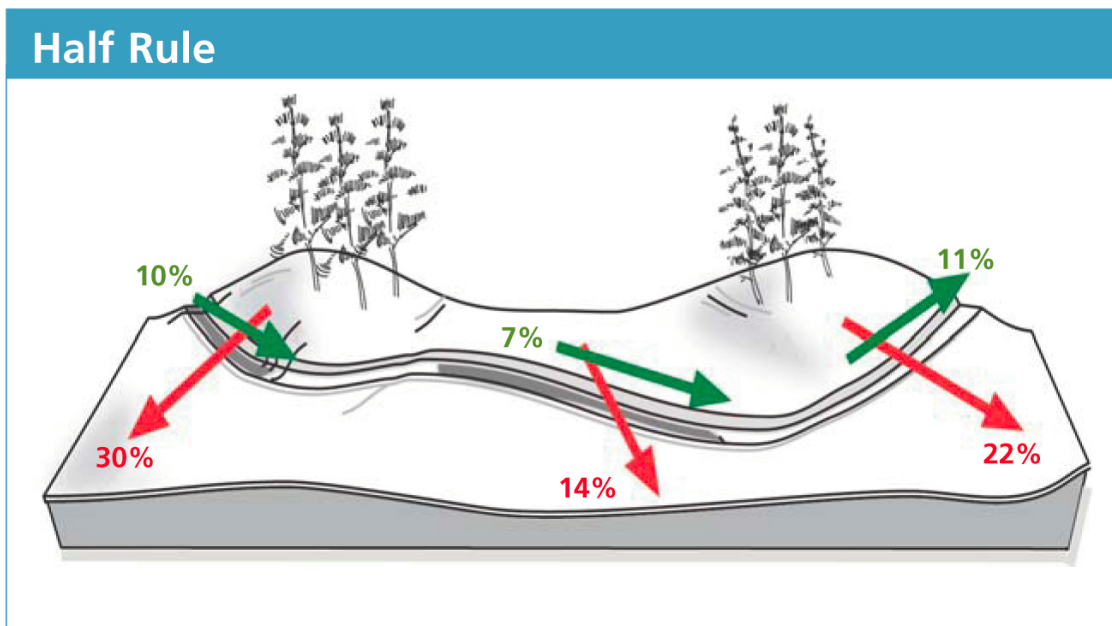


Figure 2: Illustration of The Half Rule

Full Bench Trail

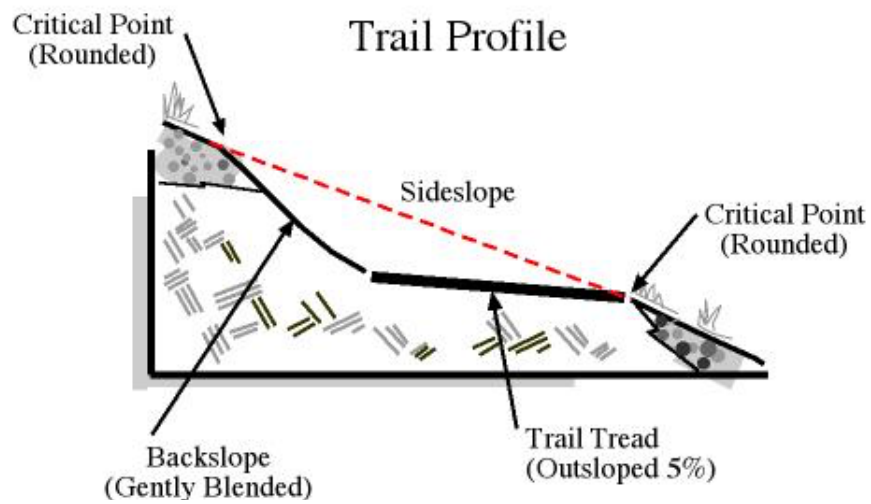
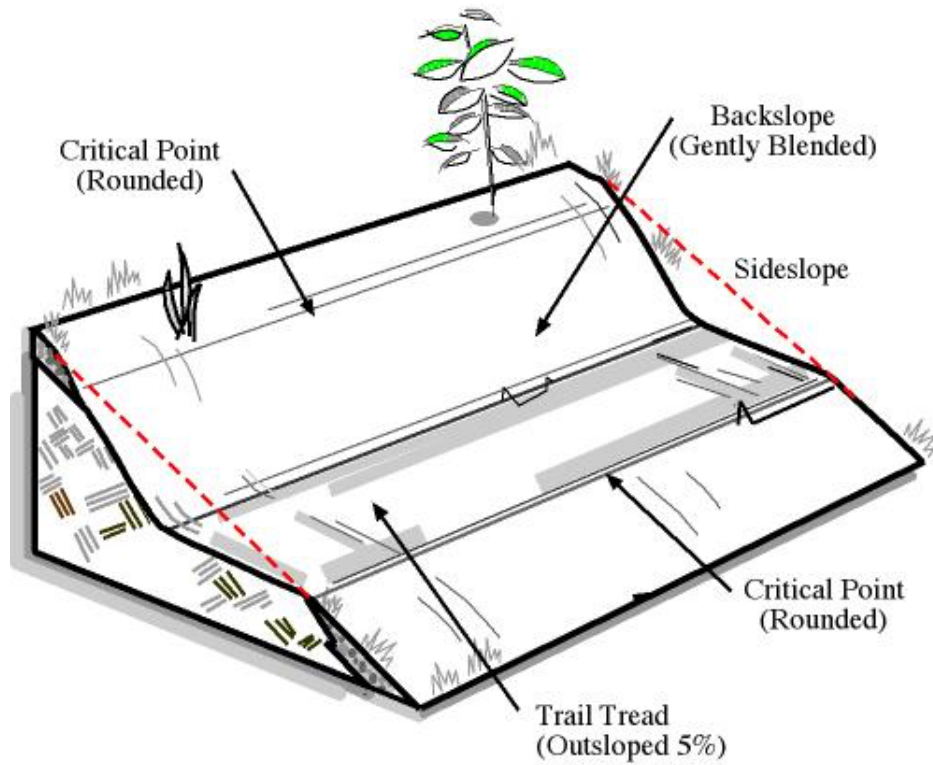
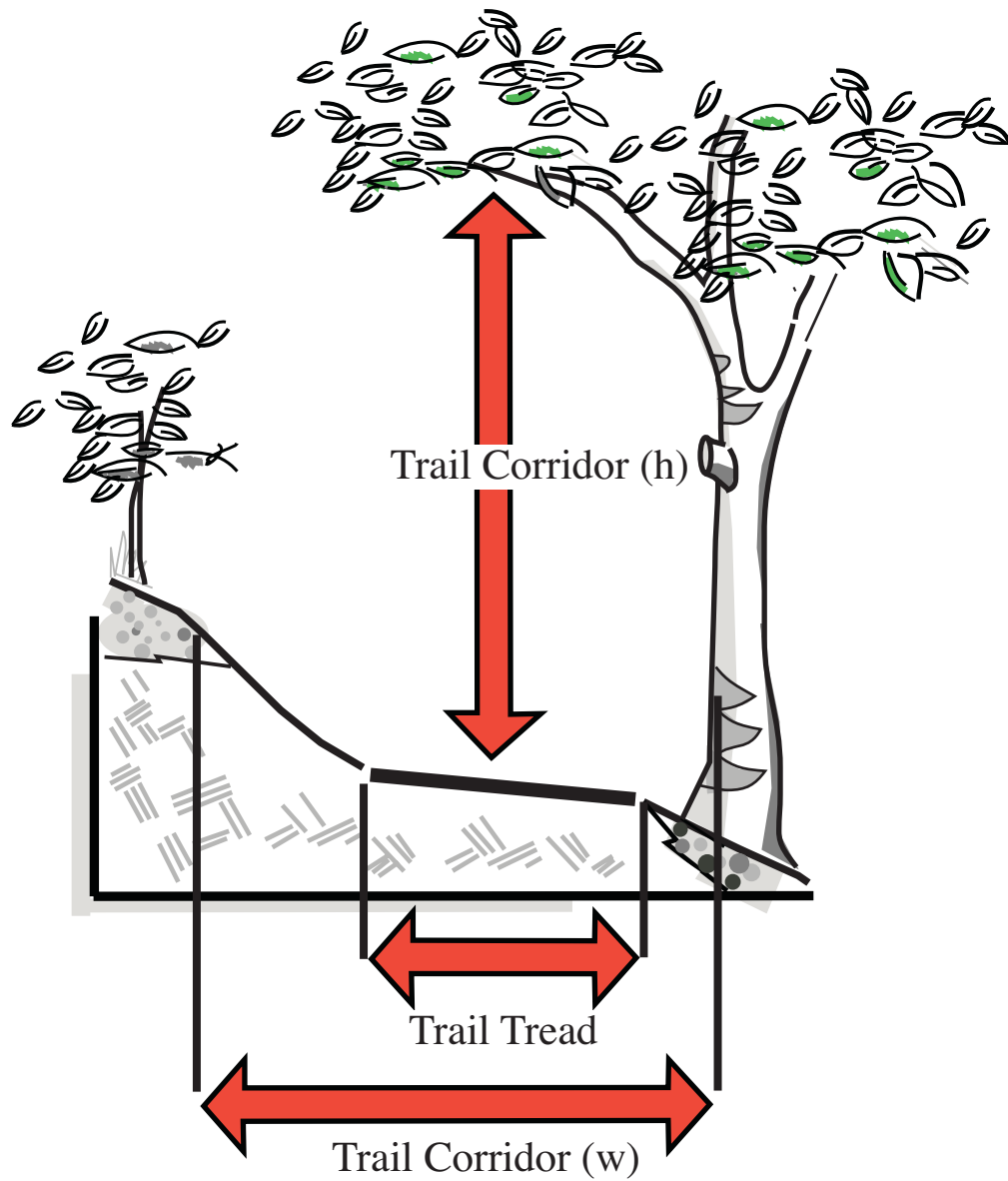


Figure 3: Full Bench Trail



Trail Tread = 24" – 36"
 Trail Corridor (w) = 48" – 72"
 Trail Corridor (h) = 8' – 10'

Figure 4: Clearing Limits

Stone Pitching

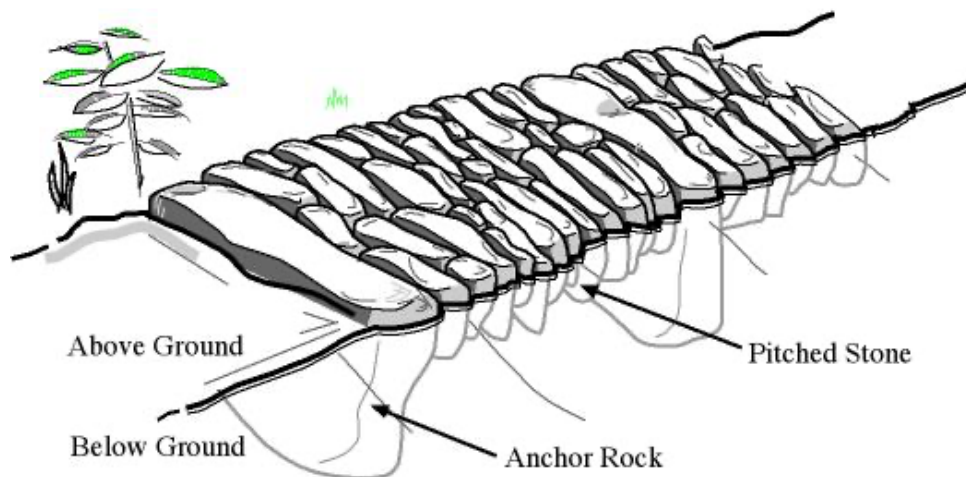


Figure 5: Stone Pitching

Rolling Grade Dip

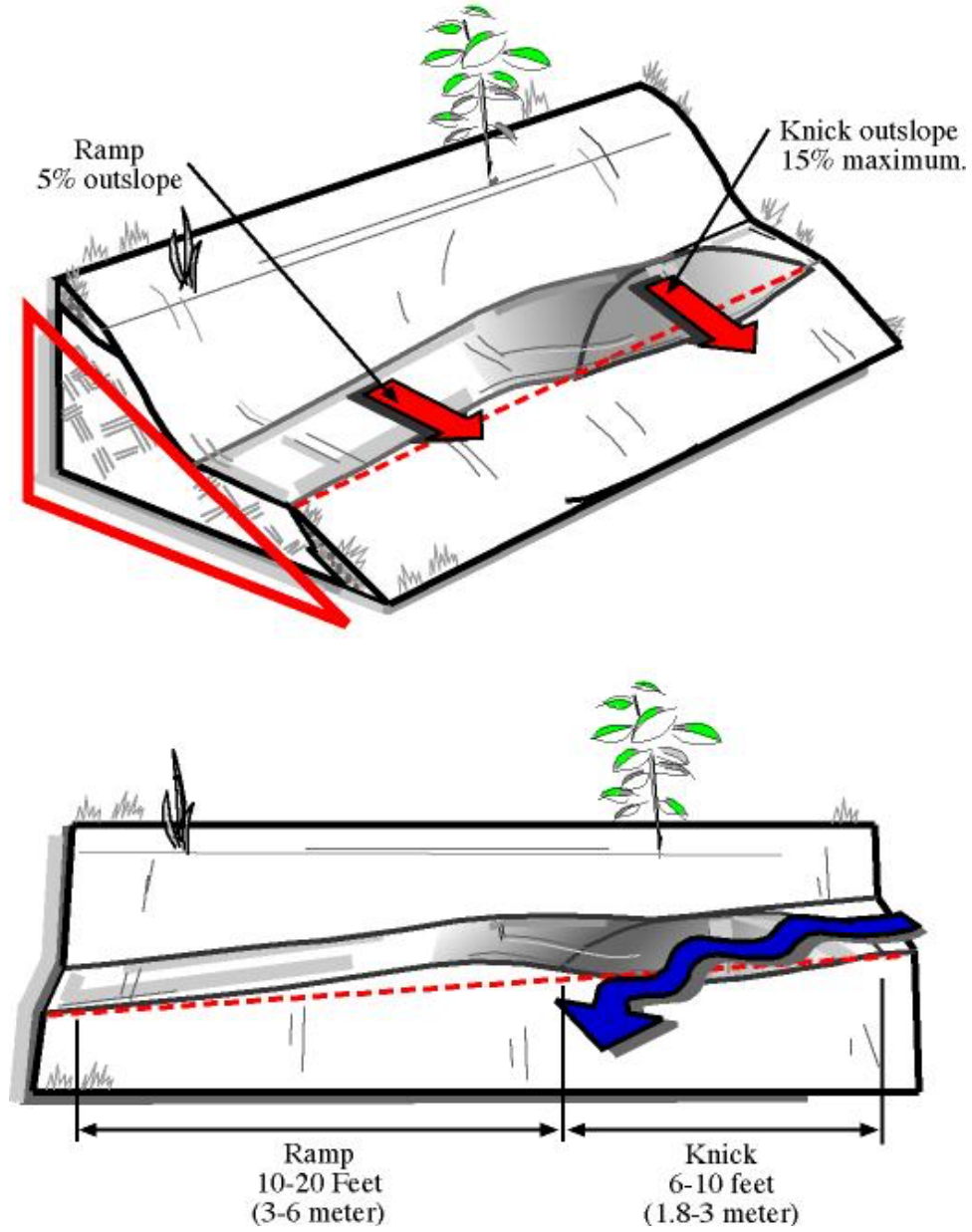


Figure 7: Rolling Grade Dip

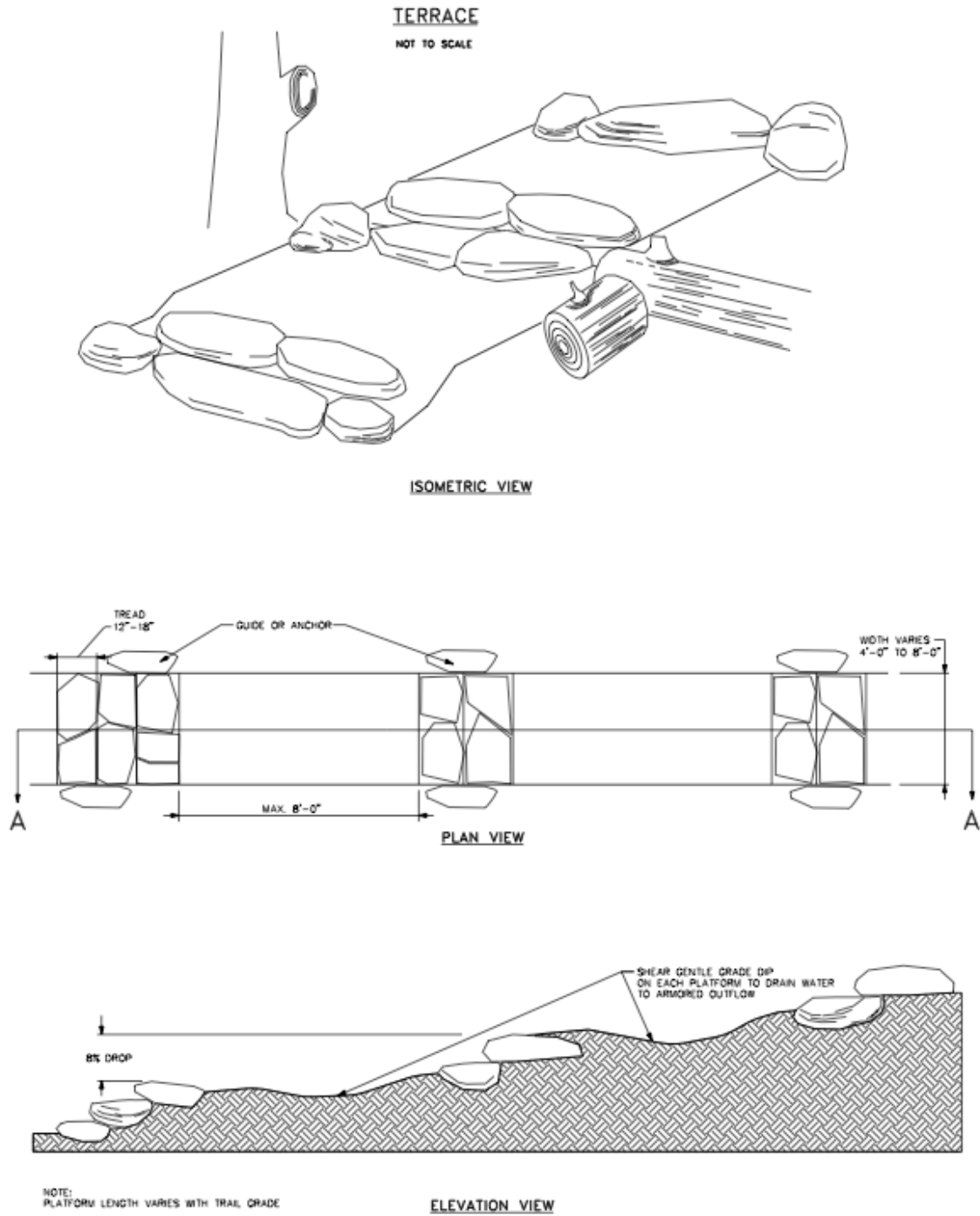


Figure 8: Terrace

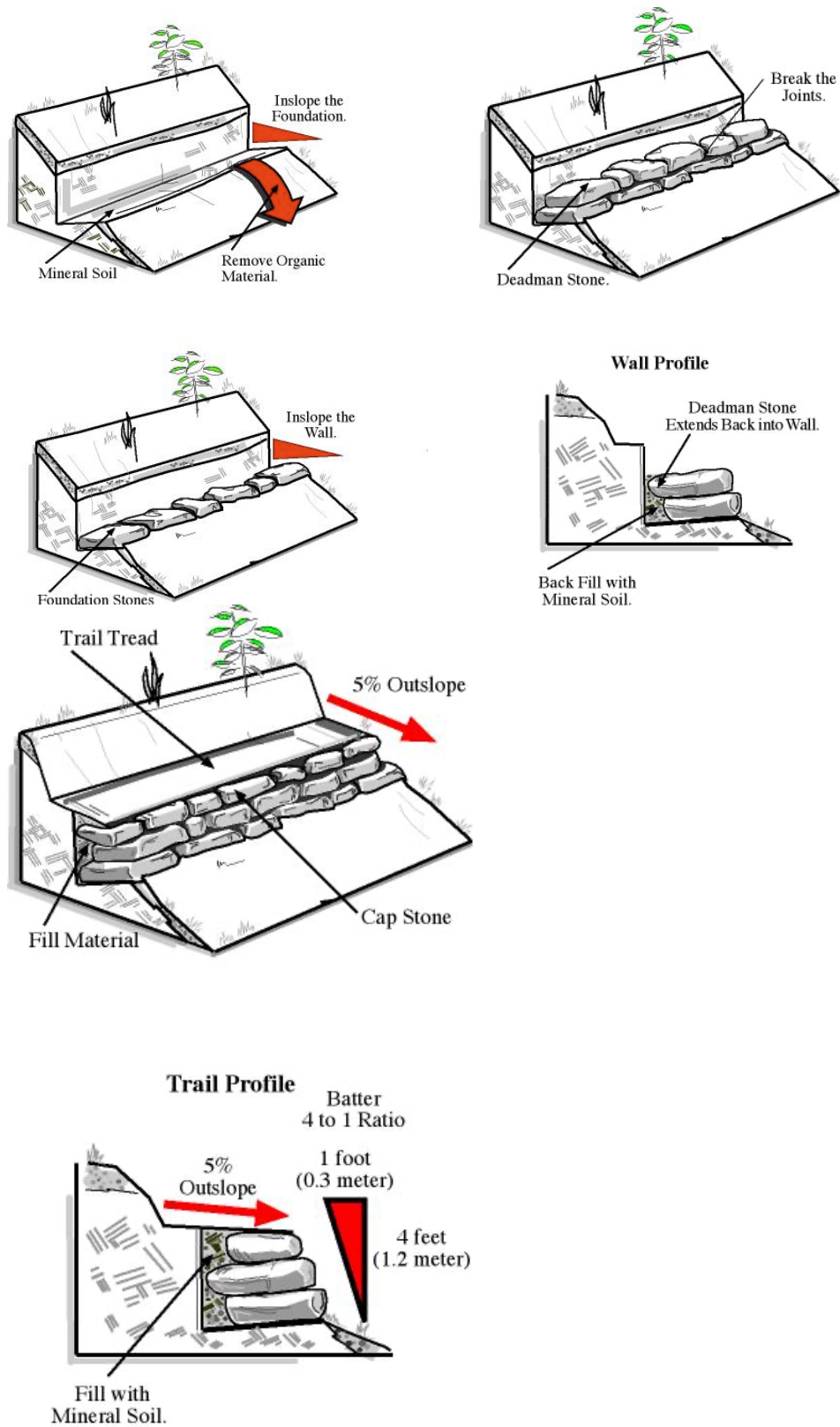
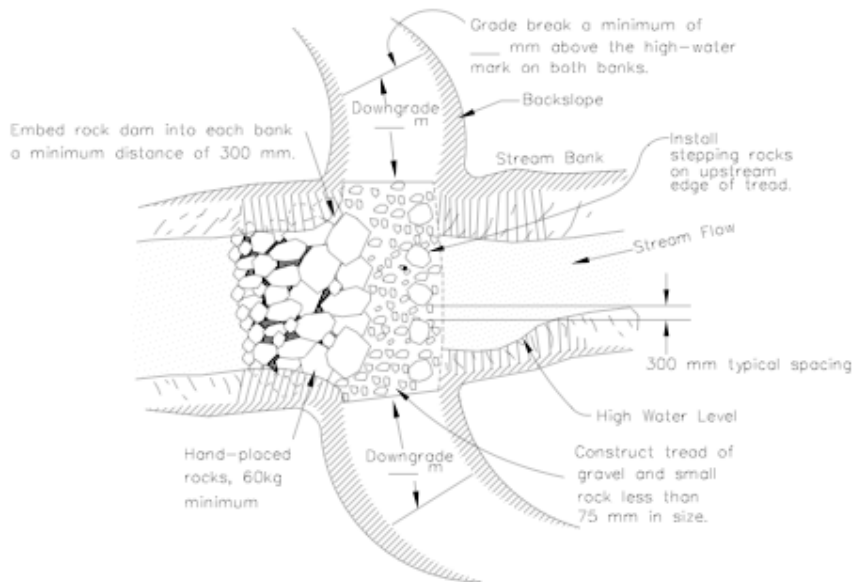


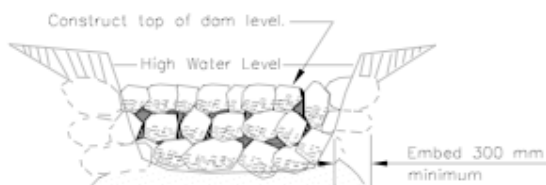
Figure 9: Rock Retaining Wall

SHALLOW STREAM FORD AND GULLY CROSSING ROCK STRUCTURE

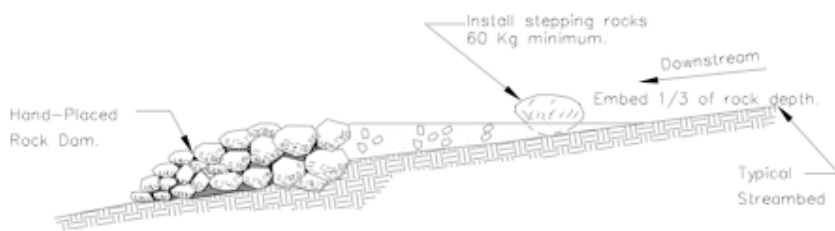
NOT TO SCALE



PLAN VIEW



PROFILE - ROCK DAM



CROSS SECTION

4/96

912-7

Figure 10: Rock Armored Ford

Insloped Turn

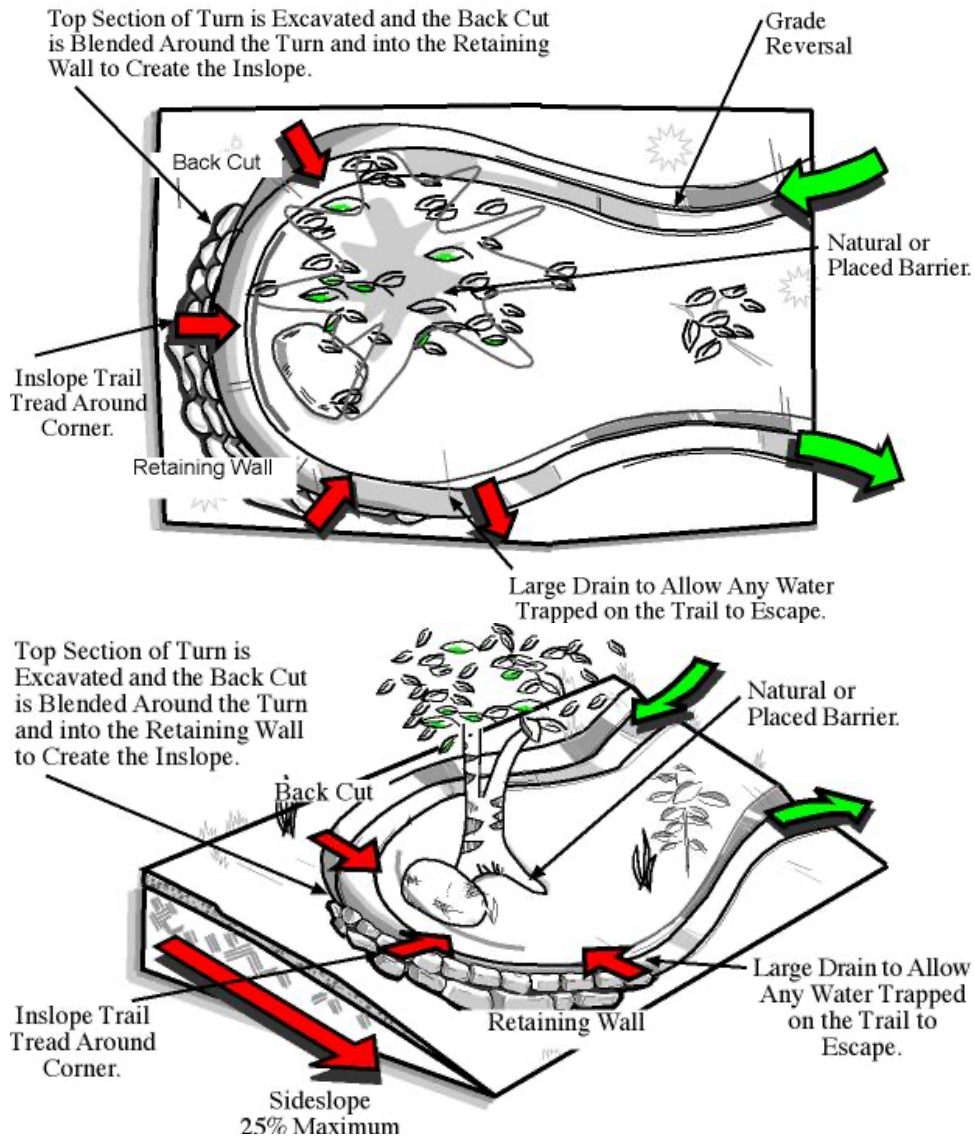


Figure 11: Insloped Turn

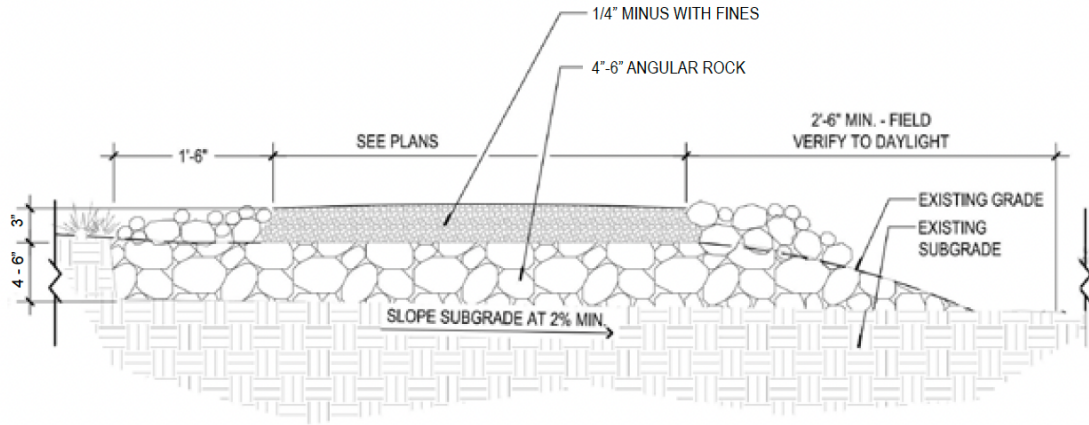
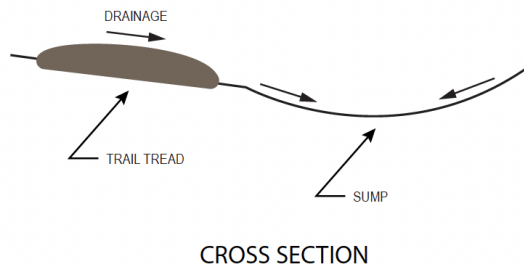
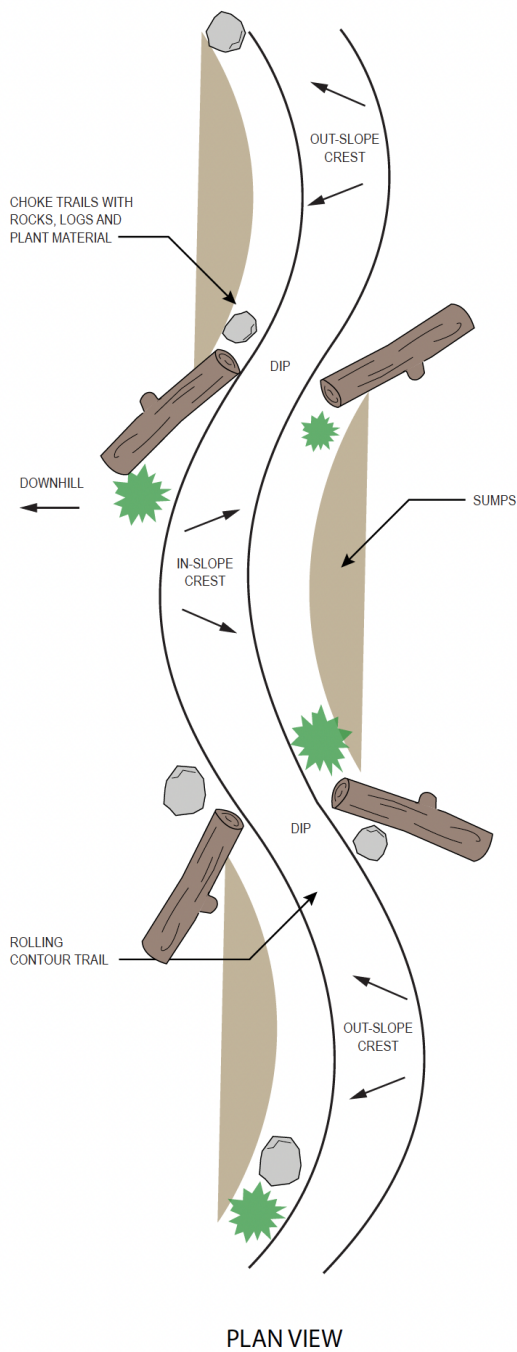


Figure 13: Filled Tread Trail



- NOTES
- 1) TRAIL TREAD TO BE BUILT WITH EXCAVATED MINERAL SOIL FROM SUMPS. NO IMPORT MATERIAL REQUIRED.
 - 2) BASIN AND RISE CONSTRUCTION TO OCCUR IN AREAS PRONE TO BEING WET SUCH AS WHERE EXISTING SIDE SLOPE IS $\leq 5\%$.
 - 3) IMPORTED ROCK MATERIAL IS NOT ANTICIPATED. ROCKS ENCOUNTERED ON SITE AS PART OF TRAIL CONSTRUCTION MAY BE USED AS CHOKE MATERIAL.
 - 4) IMPORTED LOG MATERIAL IS NOT ANTICIPATED. DOWNED LOGS ENCOUNTERED ON SITE MAY BE USED FOR CHOKE CONSTRUCTION.
 - 5) LOG AND ROCK MATERIAL TO BE BURIED 1/3 TO 1/2 OF HEIGHT.

Figure 14: Basin and Rise Trail

Trail Closure and Reclamation

Ensure smooth transition from existing trail to new trail.

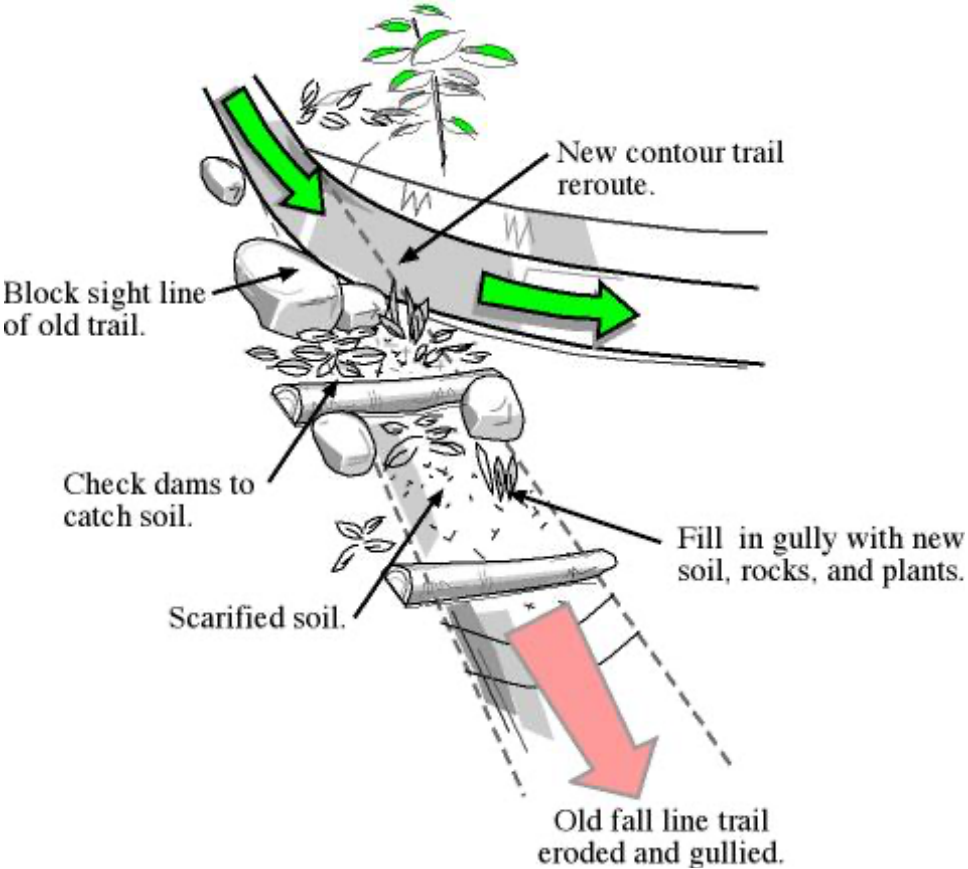


Figure 15: Trail Closure

SECTION 8: CONTRACTOR QUALIFICATIONS, REQUIREMENTS, AND RESPONSIBILITIES

8.1 Mountain Bike-Optimized Experience

In partnership with the client, the contractor will be expected to maximize the potential of the landscape hosting the trail corridors. Creativity is encouraged. The client is the final arbiter of the correctness of completed work. Inspection of work will be both visual and dynamic. The client will validate the riding experience of each trail as a prerequisite to final approval. Sections that do not ride properly will be improved and/or rebuilt at the contractor's expense until they are deemed acceptable to the client; the contractor will not be paid for partial or incomplete work, or work that does not meet the requirements, implicit and explicit, of this contract.

The contractor shall thoroughly test ride all trails and trail features by bike with appropriate expert rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with the client. Trails and features shall be modified and corrected as necessary until performance specifications are met and approved by the client.

8.2 Tools

The contractor shall perform the required work using hand tools and/or small mechanized equipment that is a maximum of thirty-nine (39) inches wide. Some sites may not be suitable for equipment this large and other sites may not be suitable for any mechanized equipment regardless of size due to terrain constraints. Permanent modification of trail outside the scope of work to accommodate equipment access (e.g., widening of an existing trail or creation of a permanent access route) is not desirable and must be specifically approved in advance by the client.

8.3 Mechanized Equipment

All mechanized equipment shall be in good mechanical condition, free of any fluid leaks, be equipped with spark arrestors if applicable, and have fire extinguishers mounted.

All equipment will be clean and free of debris before introduced to work site. Equipment is subject to inspection at the start and during the project.

Any equipment that appears to not meet these criteria shall be removed from the project site at the request of the client and at no additional cost to the client.

8.4 Backcountry Protocol

The Contractor's crew shall be familiar with backcountry operation and safety protocols as well as be familiar and adept at "leave no trace" practices.

8.5 Timetable

Ideally, the project will be completed by 28 February 2024. The client realizes that this may not be possible given the contracting timeline and therefore requests that the project be completed no later than 28 February 2025.

8.6 Meetings and Progress Reviews

The contractor shall meet with the client at the beginning of each workweek or as otherwise agreed upon by both parties to review progress and project expectations for the week.

8.7 What Contractor Provides

The contractor shall provide the necessary supervision, equipment, materials, and tools to perform specified trail maintenance and trail construction on identified trails and sites, including fuel for any mechanized equipment/tools and any and all personal protection and safety equipment.

8.8 Coordination

Trail contractor shall be responsible for coordination with the site development general contractor and subcontractors, if any, as required to complete all operations.

8.9 Public Safety

The contractor shall ensure that reasonable precautions are taken to protect the public at all times where work is being performed, including closure of construction area until the client has accepted the work.

8.10 Employee/Subcontractor Conduct

All of the contractor's employees and subcontractors shall conduct themselves in a proper manner at all times. Intoxication or any unsafe behavior by the contractor's employees while performing duties related to this contract is strictly prohibited. The contractor will be required to remove from the site any individual whose continued employment or retainer is deemed to be contrary to the public interest or inconsistent with the best interests of this trail construction project, and will not use such individual to perform services under this contract.

8.11 Competence

The contractor may be required to immediately remove from the worksite any employee or subcontractor of the contractor who is incompetent or who endangers persons or property or whose physical or mental condition is such that it would impair the employee's/subcontractor's ability to satisfactorily perform the work. Notification to the contractor shall be made by telephone promptly and confirmed in writing as soon as possible. No such removal shall reduce the contractor's obligation to perform all work required under this contract.

8.12 Compliance with Modern Practices

All work shall be performed and completed in a thoroughly skillful, efficient, and professional manner in accordance with best modern practices, regardless of any omissions from the attached specifications and/or drawings. Completed trails and features shall reflect professional workmanship in appearance, quality, and attention to detail. Trails and features shall be well integrated into site, aesthetically pleasing, and well-shaped, crafted, and finished according to commonly accepted best practices for high quality and sustainable natural surface trails. Work shall be completed to the client's satisfaction.

8.13 Condition of Materials and Equipment

All materials and equipment incorporated into the trail shall be new or otherwise in good working order and shall comply with the applicable standard in every case where such a standard has been established for the particular type of material in question.

8.14 Disposal of Materials and Supplies Not Approved

Materials, supplies, etc., that have been delivered to the job but do not comply with specifications and have not been approved shall be immediately replaced by the contractor at the contractor's expense. The contractor shall replace goods with material, supplies, etc., in full accordance with the specifications.

8.15 Disposal of Materials and Supplies Not Used

Materials, supplies, etc., that have been delivered to the job but are not used shall be removed from the site and properly disposed by the contractor at the contractor's expense.

8.16 Use of Premises – Storage

Contractor shall confine its apparatus, storage of materials, and operation of its employees/subcontractors to limits indicated by law, ordinance, permits, and/or directions of the client, and shall not unreasonably encumber the premises with its materials. Before any work is undertaken, the contractor shall consult with the client and secure from client the use of such space as may be available for the storage of materials and/or equipment. Contractor will be held responsible for any damage done in connection with the use of this location for storage.

8.17 Trail Rehabilitation

The contractor shall rehabilitate sections of trail that are be closed as a result of trail realignments, if any. Any travelways created as a result of construction and/or ingress/egress will be restored to their original condition.

8.18 Use of Subcontractors

The contractor shall be able to use subcontractors to complete the work provided the subcontractors are described in the bid submission and otherwise meet applicable licensing and insurance requirements, if any. Use of subcontractors not described in the bid submission will only be allowed with written permission of the client.

8.19 Permits

The contractor shall be responsible for obtaining necessary permits.

8.20 Fire Protection

The contractor shall take all measures necessary to prevent fires from starting and spreading, including but not limited to the following:

- a) Fire Equipment. The contractor shall ensure that all equipment operating in the permit area carry a serviceable shovel and a fire extinguisher.
- b) Industrial Fire Precaution Level (IFPL) Status Checks and Waivers. Oregon Department of Forestry establishes IFPL levels (detailed information can be found [here](#)). This project is in the MH-4 area for purposes of determining the IFPL. Contractor shall check IFPL daily during the fire season (usually June through October depending upon fire indicators) before conducting any activities. The contractor shall comply with the restrictions and prohibitions under the applicable IFPL, unless a waiver of the applicable IFPL granting permission to use otherwise prohibited equipment or engage in otherwise prohibited activities is obtained in writing from the Forest Service. The Forest Service may require the contractor to take additional resource protection measures in conducting activities and projects in the permit area to be consistent with the applicable IFPL. These measures shall be listed in the fire waiver.
- c) Fire Safety Inspections. The Forest Service may make periodic inspections to ensure the contractor complies with fire safety requirements. Failure to comply with these requirements shall result in a temporary shutdown of all activities or projects at the contractor's expense until full compliance is achieved.

8.21 Operation Restrictions

To avoid potential noise disturbance to northern spotted owls, construction and maintenance activities requiring the use of chainsaws, heavy equipment, or helicopter support will only occur between July 16 and February 28 (with the exception of trailhead development on Wyeth Road).

8.22 Sample Trail Sections

The contractor shall construct sample segments of a minimum fifty linear feet (50 LF) as indicated in the construction plans. These sections shall contain a complete sample of the construction methods, materials, and workmanship intended for the project. Owner's representative must accept work before additional construction may proceed. Modifications and corrections shall be executed as necessary for acceptance by owner. The approved samples shall be retained during construction as a standard of work. The samples may be part of the actual trail system.

8.23 Resource Protection

The contractor shall comply with all conditions for protections listed in Appendix A. The client may issue a stop work order at the contractor's expense if out-of-compliance work is being performed. The contractor shall be responsible for remediating any out-of-compliance work.

SECTION 9: Appendix A - Project Design Features to Protect Scenic, Natural, Cultural, and Recreation Resources

The following Project Design Criteria were disclosed in the Final Environmental Assessment for the project. This list is provided for ease of reference and are generally reflected in the main body of the contract. The requirements are considered non-discretionary.

Wildlife and Fisheries

1. All felled trees will be left on site to contribute to coarse woody debris.
2. Trail layout will ensure that no trees greater than 30" diameter at breast height (dbh) will be removed during trail construction or maintenance unless the trees are classified as hazard or danger trees.
3. Trees between 18" and 30" dbh can be removed on a limited basis (averaging no more than one tree per 1,000 feet of trail) within the trail corridor.
4. Trees > 11 inches but < 18 inches dbh can be removed on a limited basis (averaging no more than one tree per 150 feet of trail) within the trail corridor.
5. To avoid potential noise disturbance to northern spotted owls, construction and maintenance activities requiring the use of chainsaws, heavy equipment, or helicopter support will only occur between July 16 and February 28.
6. Use appropriate best management practices for sections of trail through wet areas to minimize delivery of sediment. All fords in these wet areas should be hardened to minimize sediment delivery and erosion.
7. To protect habitat for sensitive salamander species, ground disturbance will be minimized, and no fill will be added to sections of trail crossing talus slopes or boulder fields.

Water Quality and Soil Productivity

1. Trails will be constructed to conform to the terrain, minimize erosion, provide suitable drainage, and provide adequate pollutant filtering between the trail and any nearby waterbodies.
2. Activities within and adjacent to riparian areas should not accelerate sediment delivery to streams, lakes, wetlands, seeps, and springs.
3. To the extent practical, stream crossings will be oriented perpendicular to the channel; located where channels are narrow, straight, and characterized by stable soils; and designed to minimize restriction of flood flows and maintain floodplain connectivity. Low-water crossings will be designed to maintain the function and bedload movement of the natural stream channel and to minimize flow constriction, site disturbance, and channel blockage to the extent practicable. Unimproved fords will be located in stable reaches with a firm rock or gravel base that has sufficient load-bearing strength for allowed uses. Low-water crossings and ford approaches will be hardened, designed to minimize erosion, and constructed during dry season or during the in-water work period.
4. Construction activities should maintain at least 95% ground cover (e.g. vegetation, duff, or litter) within riparian areas. Avoid ground disturbing activities in saturated soil areas where practicable.

Botany

Sensitive Plants

1. The trail will be routed to avoid disturbance of dry cliff and rock-face habitat suitable for Howell's daisy (*Erigeron howellii*) and long-bearded hawkweed (*Hieracium longiberbe*).
2. In order to protect *Lobaria linita* and *Hypogymnia duplicata* species and habitat, removal of any trees greater than 11" diameter at breast height will require prior consultation with the Forest Service botanist.

Invasive Plants

1. To reduce the potential for transport or spread of invasive plants, all vehicles and equipment used during construction of the trailhead and trail system will be washed before entering NFS lands.
2. To reduce the potential for weed spread through fill material (including gravel and rock), all materials used during construction will be certified weed-free.

Recreation

1. On shared use sections of trail, trail layout and clearing will be used to maximize sight distances to the extent practical.

Cultural Resources

1. Contractors working on the project will review a copy of the Columbia River Gorge National Scenic Area Inadvertent Discovery Plan. If cultural resources are discovered during implementation, all construction activities within 100 feet of the discovered resource shall cease. Cultural resources should remain as found; further disturbance is prohibited. Notify Forest Service immediately.

Lands

1. Trail construction will ensure that no portion of the trail is within 50 feet of any BPA structure (e.g. steel lattice tower, steel pole, concrete pole, or concrete foundation) and that trail corridor avoids all equipment landings.
2. No grade changes to facilitate construction or disposal of overburden shall be allowed within BPA's easement area. As needed, BPA right-of-way and access roads shall be returned to their original condition following trail construction.
3. Access to BPA structures shall remain open and unobstructed at all times during trail construction and maintenance.
4. Equipment, machinery, and vehicles traveling within BPA's easement area shall remain at least 25 feet away from any BPA structure or guy anchor ground attachment point. If there is a possibility that any equipment will encroach on this distance, then a safety watcher is required. There will be no storage of flammable materials or refueling of vehicles or equipment within BPA's easement area.