

# Historic Columbia River Highway State Trail

## Viento to Mitchell Point (Segment E) and Mitchell Point (Segment F)

### Grading Plan Narrative

#### **Purpose:**

The purpose of this Grading Plan Narrative is to provide the requirements outlined in Article 75 Section 520(2)(z) of the Hood River County Zoning Ordinance for the Viento to Mitchell Point (Segment E) and Mitchell Point (Segment F) project (the Project).

The Gorge landscape and steep terrain require careful earthwork and thoughtful construction in order to properly place the Historic Columbia River Highway State Trail into the landscape. Much time and design effort has been expended by the project designers and engineers in order to “fit” the trail into the landscape and minimize cut and fill slopes. Along many trail sections, retaining walls are proposed to keep the construction corridor narrow. This narrow corridor alignment limits impacts to the landscape by following the existing terrain and allowing for the preservation of many large trees and other unique natural resources.

#### **Site Map:**

Attachment A of the Project National Scenic Area Permit Application is the Project Site Map prepared at a scale of 1 inch equals 200 feet with 5 foot existing contour intervals that includes the layout of the Project, its Area of Potential Impacts (API), and the habitats and habitat buffers that the Project travels thru.

Due to the complexity and amount of work in the Project, separate project plans are included in the application (Attachment B – Grading Plan – Viento to Mitchell Point (Segment E) and Attachment C – Grading Plan – Mitchell Point (Segment F)). These plan sets provide the existing and proposed final grades, locations of all areas to be graded with cut banks and fill slopes delineated, and the estimated dimensions of the graded areas.

#### **Volume of Material to be moved:**

Viento to Mitchell Point (Segment E):

- 20,700 cubic yards of embankment
- 10,800 cubic yards of excavation
- See Attachment B of the Permit Application – Grading Plan – Viento to Mitchell Point (Segment E) for additional details.

Mitchell Point (Segment F):

- 7,000 cubic yards of excavation
- 1,000 cubic yards of embankment
- 7,500 cubic yards of rock excavation (tunnel)

- See Attachment C of the Permit Application – Grading Plan – Mitchell Point (Segment F) for details.

**Height of cut banks and fill slopes:**

The typical section sheets show the proposed cut and fill slopes along the trail (typically 2:1). The plan and profile sheets display the daylight cut and fill slopes which along with the typical sections and the profile indicate the height and width of typical cuts and fills. For the extent of the project, cuts and fills typically do not exceed 16'-20'.

**Retaining Walls:**

Two reinforced vegetated soil slopes, two rockery walls, two mechanically stabilized earth (MSE) walls, are proposed along this Project. The following summarizes the wall locations, overall length, maximum height (includes a 2-foot minimum embedment), exposed facing type for each wall, and other wall features.

*Viento Creek Wall - Reinforced Soil Slope (Fill Slope) (Station 303+05) (NSA Permit Application Attachment B Sheet H.3)*

The Viento Creek Wall is located along the right side of the trail and begins at Station 303+05 with a length of 77 feet, a maximum height of 12 feet and will have a vegetated soil slope facing on a 1:1 slope. The wall extends across an existing box culvert structure in Viento Creek which is assumed to have sufficient structural capacity to support the weight of the trail and soil slope. A 42" pedestrian railing and hot mix asphalt concrete wearing surface is provided on the top of the all to maintain the visual integrity of the trail. Additional details are shown on NSA Permit Application Attachment B Sheet H.10.

*Maintenance Facility Wall – Reinforced Soil Slope (Fill Slope) (Station 307+85) (NSA Permit Application Attachment B Sheet H.4)*

The Maintenance Facility Wall is located along the left side of the trail and begins at Station 307+85 with a length of 169 feet, a maximum height of 11 feet and will have a vegetated soil slope facing on a 1:1 slope. A 42" pedestrian railing and hot mix asphalt concrete wearing surface is provided on the top of the all to maintain the visual integrity of the trail. Additional details are shown on NSA Permit Application Attachment B Sheet H.10.

*Big Cut Wall – Stacked Rockery Wall (Cut Wall) (Station 309+87) (NSA Permit Application Attachment B Sheet H.5)*

The Big Cut Wall is a cut slope stacked rockery wall that is located along the right side of the trail and begins at Station 309+87 with a length of 134 feet and a maximum height of 12 feet. This rockery wall requires a 2:1 cut slope of top back of the wall in order to maintain the rockery wall at a reasonable height. Additional details are shown on NSA Permit Application Attachment B Sheet H.11.

*Little Cut Wall – Stacked Rockery Wall (Cut Wall) (Station 310+17) (NSA Permit Application Attachment B Sheet H.5)*

The Little Cut Wall is a cut slope stacked rockery wall that is located along the left side of the trail and begins at Station 310+17 with a length of 53 feet and a maximum height of 11 feet. Additional details are shown on NSA Permit Application Attachment B Sheet H.11.

*Dome Rock Wall – Mechanically Stabilized Earth (Fill Wall) (Station 321+73) (NSA Permit Application Attachment B Sheets H.6 and H.7)*

The Dome Rock Wall begins at Station 321+73 and is an MSE Wall with a length of 327 feet, a maximum height of 9 feet and with a cast in place, darkened concrete, stacked stone appearing form liner facing. A dark brown steel pedestrian railing is provided along the top of the wall with an 8 foot distance provided between trail centerline and face of railing. Additional details are shown on NSA Permit Application Attachment B Sheet H.10.

*Ridge Cut Wall – Mechanically Stabilized Earth (Fill Wall) (Station 338+78) (NSA Permit Application Attachment B Sheets H.8 and H.9)*

The Ridge Cut Wall begins at Station 338+78 and is an MSE Wall with a length of 502 feet, a maximum height of 12 feet and with a cast in place, darkened concrete, stacked stone appearing form liner facing. A dark brown steel pedestrian railing is provided along the top of the wall with an 8 foot distance provided between trail centerline and face of railing. Additional details are shown on NSA Permit Application Attachment B Sheet H.10.

*Entry Drive Wall – Reinforced Soil Slope (Fill Slope) (Station PC 295+91) (NSA Permit Application Attachment C Sheet C.4)*

The Entry Drive Wall is located along the left side (east side) of the eastbound on-ramp to I-84 and begins at Station PC 295+91 with a length of 155 feet, a maximum height of 15 feet and will have a vegetated soil slope facing on a 1:1 slope. A stone curb and hot mix asphalt concrete wearing surface is provided on the top of the fill slope wall to support the roadway. Additional details are shown on NSA Permit Application Attachment C Sheet C.4.

*West Wall, W1 – Cast-in-Place Concrete Retaining Wall (Fill Wall) (Station 444+40) (NSA Permit Application Attachment C Sheets I.4 and I-5)*

The West Wall, W1 begins at Station 440+40 and is a Cast-in-Place Concrete Retaining Wall with a length of 439 feet, a maximum height of 7 feet and with a stone masonry facing and a 4 foot tall pilaster railing on top. Additional details are shown on NSA Permit Application Attachment C Sheets I.6 to I-9.

*East Wall, W2 – Cast-in-Place Concrete Retaining Wall (Fill Wall) (Station 454+82) (NSA Permit Application Attachment C Sheets I.2 and I-3)*

The East Wall, W2 begins at Station 454+82 and is a Cast-in-Place Concrete Retaining Wall with a length of 322 feet, a maximum height of 7 feet and with a stone masonry facing and a 4 foot tall pilaster railing on top. Additional details are shown on NSA Permit Application Attachment C Sheets I.6 to I-9.

**Provisions for compaction, drainage, and stabilization:**

This project will be designed to meet the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (2014)*. Trail construction will be managed and inspected by Western Federal Lands Highway Division (WFLHD) engineers and inspectors. The project construction contractor must construct the trail according to the project's plans and specifications which includes access points, construction limits, erosion control, earth work, drainage, and revegetation requirements. A copy of the final plans and specifications will be provided to the County when available.

### **Plant materials for revegetation:**

All proposed plant materials are indigenous to the Project Site in this area of the Columbia River Gorge and are suitable for planting throughout the Project and on the north facing slopes.

The current planting plan is included in the Revegetation and Mitigation Plans (NSA Permit Application - Attachment B Sheets L.2 thru L.20). The plant material quantity has not yet been determined. The Project Landscape Architects intent is to restore disturbed areas using a combination of plants appropriate to the specific sites along the trail alignment.

Once the Project is completed, the US Forest Service will be responsible for the planting work. At the time this Grading Plan is being written, the US Forest Service has already started collecting native seeds and propagating plants from the Project site.

The revegetation and landscape enhancement sites are generally on steep, north facing slopes and will not be irrigated. Instead, planting will be scheduled by the US Forest Service at a time of year (either fall or spring, depending on construction progress) when plant establishment is optimal for the “wet side” of Oregon. To further enhance plant establishment, mycorrhizae and compost mulch are used to aid and support the plant soil environment by aiding in moisture retention, providing soil and plant nutrients, insulating root mass, creating optimal plant soil symbiotic relationships, controlling erosion, and a variety of additional benefits.

### **Erosion Control Measures:**

The major water quality concerns during construction are erosion prevention and sediment control. For construction activities, DEQ is responsible for issuance and enforcement of their NPDES 1200-C permits.

Section 401 of the federal Clean Water Act requires DEQ Water Quality Certification that the project will not violate water quality standards. It is anticipated that stormwater discharges during trail construction will be covered under the Oregon Department of Transportation’s Region 1 NPDES 1200-CA Permit.

The project will need an Oregon DEQ-compliant erosion and sediment control plan prior to the start of any construction. The current draft erosion and sediment control plan are included in the NSA Permit Application (Attachment B Sheets F.2 to F.12) and (Attachment C Sheets F.1 to F.15). EPSC measures will include:

1. Preserve existing vegetation. Implement highly visible fencing and flagging of disturbance limits to preserve existing vegetation to the extent practicable. Preserved vegetation will act as a vegetative buffer to minimize stormwater velocity and control sediment transport
2. Temporarily stabilize disturbed and placed soils. Minimize active erosion with mulch stabilization on disturbed soils prior to final stabilization. Apply mulch in conjunction with proper surface roughening techniques, which will minimize stormwater velocity and prevent erosion.
3. Install silt fence on contour down gradient of land disturbing activities to capture sediment in stormwater runoff. Install straw wattles on disturbed slopes to minimize stormwater velocity and prevent erosion.

4. Insert inlet protection at stormwater collection features to minimize sediment discharge into stormwater conveyance systems.
5. Protect engineered water quality facilities during construction
6. Construct gravel construction entrances or wheel washes.
7. Establish vegetative cover of disturbed areas as permanent stabilization.
8. Require the contractor to maintain a spill control kit to be used in case of a material spill.