Erosion and Sediment Control and Roadside Development for PMs
May 8, 2019
Environmental Stewardship is a value held by ODOT, embraced by Oregonians & enforced by regulations
Raindrop impacts soil @ 20 MPH
On EXPOSED soils will dislodge sediment
Not just “stuff that happens”
Erosion Types

Pop-out
(Shadow planar slide)

Shallow Planar Slide
Sedimentation

Sediment leaving site as mud flow

Turbid water leaving site

Permit Violations
Once sediment is loose it is difficult to control
Sediment’s Impacts to Aquatic Habitats

- Smothers salmon nests/gravels
- Warms water – less oxygen
- Blocks sunlight – fewer aquatic plants & up the food chain
- Sediment carries pollutants
- Harder for predatory fish to see prey
- Damages fish gills
- Avoidance of area
- Effects can be lethal
- Some Salmon are Federally Listed Endangered Species
NPDES Permits  1200-CA

“Until this permit expires or is modified or revoked...”

• Covers all Construction activities under the authority of a public Agency that will result in the disturbance of one acre or more, or multi-phased projects where the combined disturbance is one acre or more.

• Permit regulates discharge of storm water

• Sedimentation is considered pollution. Permit exists to prevent water pollution

• All projects on ODOT ROW work under jurisdiction of one of 5 ODOT 1200-CA permits. (1 per region)

• Permit conditions are enforceable by law.
NPDES 1200-CA

“in place to prevent”

• Earth slides or mud flow from leaving construction site.
• Evidence of concentrated flows (rills, rivulets, channels) leaving construction site
• Turbid flows leaving construction site
• Deposits of sediment in areas that drain, unprotected, to surface waters
• Deposits of sediment on surface streets
• Deposits of sediment outside of permitted site, likely to discharge to surface waters.”
NPDES 1200-CA & Specifications
Require ESCP

• ESCP = Erosion & Sediment Control Plan

• Contractor’s ESCP is: plan, implementation of plan and modifications to the plan in response to schedule, phased work, construction disturbances, wet season and unanticipated events.

• Agency ESCP can not anticipate means and methods, work phasing or schedule, so Contractor modified version should be more accurate.
Section 00280 Description

00280.00 Scope

• This work consists controlling soil erosion and preventing eroded sediments from leaving site.

• Requirements described in these Specifications and ESCP are the minimum for all project construction sites. Changing site conditions frequently require additional measures.

• These Specifications cover all ODOT projects unless specified and includes disposal sites.

• The Specification requirements support the permit requirements

00280 Section describes work that Contractor bid on, that is required by law and paid for by the Citizens of Oregon. Erosion and sediment control does not interfere with contracted work, it is contracted work.
00280.41 Construction: Work Restrictions

• Delineate clearing limits & No Work Areas with high visibility markings such as orange plastic mesh fence.
• Install perimeter controls prior to ground disturbing activities
• Update the ESCP and schedule for **wet season** to ensure appropriate controls are implemented and maintained.

**Wet Season Work**: Oct. 1 – May 31 (00280.02)

• Temporary work suspension during wet season is an appropriate BMP.
• Limit the amount of disturbed areas to that which can be effectively controlled.
00280.42 (a) Soil Exposure Limitations (continued)

• West of the Cascades (Entire Year)
  Stabilize all other areas within 14 days of exposure

• East of the Cascades (October 1-April 30)
  Stabilize all other areas within 14 days of exposure

• East of the Cascades (May 1-September 30)
  Stabilize slope and embankment construction in stages based on site conditions, weather and as determined by Agency

Erosion and Sediment Control does not begin 2 weeks before the wet season.
“Going Forward, erosion and sediment control on our project sites needs to be an area of emphasis.”
PME – Version 2: August 4, 2013 in dry weather
– Committing Resources
Perimeter Control Shown on plans
00280.40: “Install ESC as shown...”
00280.41 “Install all appropriate perimeter controls before beginning ground disturbing activities.”
October 11, 2016, After 1.04 inches of rain, sediment discharged to receiving waters
Inspection report during storm: 10-9-16
Report states no sediment leaving the site

<table>
<thead>
<tr>
<th>EROSION CONTROL MEASURES</th>
<th>FUNCTION AS DESIGNED?</th>
<th>DESCRIBE WHAT IS NOT FUNCTIONING</th>
<th>LOCATION OF DEFICIENCY</th>
<th>CORRECTIVE ACTION DATE COMPLETE</th>
<th>IS THERE VISIBLE OR MEASURABLE SEDIMENT LEAVING THE SITE?</th>
<th>HAS SEDIMENT ENTERED A BODY OF WATER?</th>
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</thead>
<tbody>
<tr>
<td>Sediment Fence</td>
<td>YES</td>
<td></td>
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<td>06/08/2016 NO</td>
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<td>06/23/2016 NO</td>
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<tr>
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<td>07/06/2016 NO</td>
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<td>Check Dam</td>
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<td></td>
<td></td>
<td>08/17/2016 NO</td>
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<tr>
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<td>09/30/2016 NO</td>
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<td>Sediment Barrier</td>
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<td>08/31/2016 NO</td>
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<tr>
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<td>08/31/2016 NO</td>
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<tr>
<td>Sediment Fence</td>
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<td>10/01/2016 NO</td>
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<td>Construction Entrance</td>
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<td></td>
<td>10/05/2016</td>
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ADDITIONAL INFORMATION MAY BE INCLUDED IN THIS FIELD OR ATTACHED AND SUBMITTED WITH THIS FORM

Rain again today. No work on the site at all. Everything is running clear.

3. Weekly rainfall amounts:

<table>
<thead>
<tr>
<th>MONITORING PERIOD</th>
<th>RAINFALL REPORTING STATION</th>
<th>ACTIVE</th>
<th>24-HOUR RAINFALL AMOUNT</th>
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<tr>
<td>10/9/16</td>
<td>10/9/16</td>
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<td>1.04</td>
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</table>

4. Signature

Minimum Monitoring Requirements: Inspect all erosion control facilities at least every 7 calendar days on active sites and two weeks on inactive sites. Inspect daily during storm water or snowmelt runoff and within 24 hours after more than ½ inch of rain per 24 hour period. See Section 00280 for additional information.
Relationships

ODOT is a trusted partner, with NMFS, FHWA, ODFW, USFS, ODA, DEQ, USAC and the native Tribes. These agencies oversee impacts to fish, wildlife, clean water, clean air, natural landscapes and other values that are embraced by ODOT.

Permit compliance reinforces ODOT’s reputation as a trusted partner with regulatory agencies.

All ODOT project work is conducted under five existing 1200-CA permits. This benefit is enabled by our trusted partner relationship with DEQ.
Compliance Trends

2017 Results
- BMP installed incorrectly: 29%
- Soil Erosion visible: 16.9%
- Current permits not on site: 10.5%

2016 Results
- BMP installed incorrectly: 23%
- Soil Erosion visible: 14%
- Current permits not on site: 11%

2015 Results
- BMP installed incorrectly: 23%
- Soil Erosion visible: 12%
- Current permits not on site: 8%

2014 Results
- BMP installed incorrectly: 26%
- Soil Erosion visible: 26%
- Current permits not on site: 6%
April 10, 2019

• Department of Environmental Quality requested turbidity monitoring reports for a project with a permit in their jurisdiction
• DEQ is entitled to review permit related documentation on request.
• If ODOT does what it is supposed to do, interactions with DEQ will be uneventful.
Contractor Maintains ESC facilities for effective functioning at all times

00280.40 Installation – “... If ESC are not effective, modify or change ESC so they become effective.”

00280.60 General - Maintain installed ESC devices in good working order and effective functioning at all times

00280.61 Ineffective Controls - Repair, replace or provide additional devices when control features do not function effectively
Sediment Fence Issues
Not “effective functioning”

Not Embedded

Damaged by rollers
Check Dam Issues
Not “effective functioning”

Side cutting

Incorrect spacing
Predictable & Preventable failure

Solution:
Runoff Control at end of curb
Erosion Control Mulch

Too thin mulch application

Seeding application rate unknown
OK, Now Roadside Development
Decompressing soil
Good Penetrating root form

Roots unable to penetrate compacted soil – plant died
Verify seed sack contains project specified seeds (01030.13)
Plan for seeding/mulching long slopes

Beyond reach of hydroseeder

Future seeding

seeded
Root bound plant
Circling roots are bad
Roots hold soil in place
Plant Establishment

01040.72 Periodic Inspections

• Typically 3 inspections: Spring, Summer and Fall. Inspectors go with Contractor on inspections

• Inspector will provide Contractor with list of corrective work

01040.73 Corrective Work

• Contractor is required to replace dead plants 15 days after receiving list of corrective work.
Much of ODOT’s plantings are required as permit conditions. If success is not achieved during the Project, ODOT pays until success is achieved.
Questions?