

Oregon Department of
Transportation

Erosion and Sediment
Control:
Fundamentals Course

Introduction
and
Background



But not on an ODOT project site!

Learning Outcomes

- Explain the different types of erosion processes and their impacts
- Recognize and enforce permit and contract requirements
- Identify Best Management Practices (BMPs), their application, installation and operation

Learning Outcomes

- Locate and interpret ESC specifications
- Learn how to communicate effectively with contractors regarding ESCs
- Recognize when ESC measures have been properly installed and what to do when they are not

Course Agenda

1. Introduction
2. Permit Requirements
3. Erosion Processes and Impacts
4. Drainage and Sediment Control
5. Erosion and Source Controls
6. Standard Specifications
7. Qualified Products List
8. Installation, Inspection and Maintenance
9. Erosion Control Planning Strategy
10. Reading Erosion and Sediment Control Plans

Course Materials

- Course "Notes" Manual
- ODOT Erosion Control Manual/ODOT Erosion Control Field Manual available online at:

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/publications2.shtml>

Course Examinations

- There is no exam for the General Course
- The Inspector Certification Exam will cover information from the General Course as well

Pre-Course Quiz

- Take out a blank piece of paper
- Take 15 minutes to answer 15 questions on your pre-course knowledge
- We will review these answers at the end of the day

Pre-Course Quiz

1. True or False?

Erosion is the process by which, through the actions of wind and water, soil particles are deposited in sediment control devices.

Pre-Course Quiz

2. List three types of soil erosion:

- a. Sheet
- b. Gully
- c. Sediment
- d. Splash
- e. "C" Horizon

Pre-Course Quiz

3. The goal of the NPDES regulations is to:
 - a. Stop all erosion and sedimentation
 - b. Make waters fishable and swimmable
 - c. Protect the beneficial uses of water resources
 - d. (b) and (c)

Pre-Course Quiz

4. True or False?

A combination of both erosion and sediment control practices is generally more effective than using one type of practice (i.e., erosion control or sediment control).

Pre-Course Quiz

5. True or False?

A 1V:2H slope is steeper than a 3H:1V slope.

Pre-Course Quiz

6. True or False?

The amount of surface cover, in the form of temporary mulch or permanent vegetation, has a direct impact on the potential for soil erosion.

Pre-Course Quiz

7. The amount of disturbed area that requires compliance with the NPDES construction regulations is:
 - a. 1 acre
 - b. 5 acres
 - c. 10 acres
 - d. 20 acres

Pre-Course Quiz

8. List three appropriate criteria for selecting a BMP for use on a construction site.
 - a.
 - b.
 - c.

Pre-Course Quiz

9. True or False?

During grading and vertical construction, the owner and contractor are responsible for maintaining water pollution control measures.

Pre-Course Quiz

10. True or False?

Silt fence is a good BMP to use for concentrated flow (e.g., across channels).

Pre-Course Quiz

11. True or False?

Concrete washout water may be disposed of in the storm drain because it is biodegradable.

Pre-Course Quiz

12. True or False?

In accordance with the General Permit, active sites must be inspected by the permittee daily during storm water or snow melt runoff.

Pre-Course Quiz

13. True or False?

Active construction sites must be inspected at least every 14 days during periods of no runoff.

Pre-Course Quiz

14. True or False

Public agencies are exempt from compliance with the NPDES construction regulations.

Pre-Course Quiz

15. The best time to construct a stabilized construction entrance is:
- a. Before vertical construction begins
 - b. Before grading begins
 - c. When you know a regulator is going to visit the site
 - d. After you have received an NOV

Questions?

Permit Requirements

Regulatory Background

- Federal Clean Water Act (CWA) of 1972
- NPDES Implementation in Oregon
- ODOT Background and Policies
- ODOT NPDES Requirements
- Other Agencies and Acts

Federal Regulations

- Clean Water Act - enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States
- National Pollutant Discharge Elimination System (NPDES)
- Point and nonpoint sources
- Agency having authority - EPA

NPDES Implementation in Oregon

- EPA has delegated the implementation of the NPDES program to the State of Oregon
- ODEQ administers the program through the Oregon Revised Statute 468B and Oregon Administrative Rules
- ORS 468B.025 prohibits discharge of waste water into waters of the State without a permit

ODOT Background and Policies

- ODOT is required to comply with NPDES 1200-CA General Construction Permit issued by the ODEQ
- State law for ODOT to comply with other Federal, State, County and City regulatory requirements

Background and Policies

- ODOT assures that its actions do not jeopardize threatened or endangered species and implements measures identified by the US Fish and Wildlife Service and National Marine Fisheries Service

Background and Policies: Contractors

- Required to adhere to the project plans and specs (Section 00150)
- Required to review and revise the site-specific ESCP and present this plan at least 10 days prior to the Pre-Construction conference
- Be aware of and adhere to any limitations imposed by environmental permits (e.g., Division of State Lands, Army Corps of Engineers including conservation measures identified in the Biological Assessment (BA) for the project

Background and Policies: Contractors

Prior to beginning construction, the Contractor is required to submit a general work schedule and plan that indicates:

- Planned implementation of temporary and permanent erosion control measures; and,
- Shutdown procedures for winter and other work interruptions

Oregon General Construction Permit

- ODOT holds several NPDES Permits, including the 1200-CA General Construction Permit (GCP)
- GCP requires site-specific erosion and sediment control
- Other pollutants such as oil, gasoline and solvents

Erosion and Sediment Control Plan (ESCP)

- ODOT usually prepares the Erosion and Sediment Control Plan (ESCP) for each project
- ESCP implemented by Contractor
- For certain projects, ODOT may specify that the Contractor develop the ESCP

ESCP

- The ESCP consists of plans, details, and specifications that are included in the contract documents
- The ESCP is intended to provide adequate measures to minimize erosion and control sediment resulting from construction activities within a project's boundaries.

ODOT General Design and Construction Considerations:

- ODOT will plan, site and develop roadways to minimize environmental impacts and protect areas that provide important water quality benefits
- Minimize land disturbance
- Direct nonpoint pollutant sources away from drainage swales, wetlands and water bodies

ODOT General Design and Construction Considerations:

- Cut and fill slopes will be as flat as practicable and consistent with soil stability
- Slopes of 1:2 or steeper may require special design
- Removed sediment from erosion control facilities will be handled and placed appropriately

ODOT NPDES Permit Requirements

- Preparation and implementation of an adequate ESCP for each construction site
- Copy of ESCP retained on-site
- Prevent discharge of significant amounts of sediment to surface waters based on the following observations:

ODOT NPDES Permit Requirements

- Earth slides or mudflows that leave site or are likely to discharge to surface waters
- Concentration of flows causing erosion or that are likely to leave site with a sediment load
- Evidence of rills, rivulets or channels
- Turbid water that is not filtered or settled

ODOT NPDES Permit Requirements

- Deposition of sediment where it can be mobilized into unprotected storm water inlets
- Lack of maintenance of failing inlet protection
- Deposition of sediment on public or private streets
- Deposition of sediment on any adjacent property

ODOT NPDES Permit Requirements

- DEQ may require modification to the ESCP if it is deemed ineffective
- Significant amounts of sediment that leave site must be cleaned up within 24 hours
- Under no conditions may sediment be washed into storm drains or drainageways
- Each ESCP shall at a minimum, include:

ODOT NPDES Permit Requirements

- Site Description
- Site Map
- Required Controls and Practices
- Additional Controls and Practices
- Inspection Requirements
- Inspection Requirements for Inactive or Inaccessible Sites
- Written Records

PENALTIES

- \$10,000 PER DAY FOR VIOLATION OF A TERM, CONDITION OR REQUIREMENT OF A PERMIT
- UNLAWFUL WATER POLLUTION COMMITTED WITH CRIMINAL NEGLIGENCE PUNISHABLE BY A FINE OF UP TO \$25,000 PER DAY, IMPRISONMENT UP TO ONE YEAR, OR BOTH
- A PERSON WHO KNOWINGLY DISCHARGES POLLUTANTS IS SUBJECT TO A CLASS B FELONY PUNISHABLE BY A FINE OF UP TO \$200,000 AND UP TO 10 YEARS IN PRISON

PHASE II INFORMATION

- Summary of NPDES Phase II regulations is contained in the ODOT Erosion Control Manual, Appendix B
- Additional information can be obtained on the EPA website:

<http://www.epa.gov/owm/sw/phase2/>

General Construction Permit 1200-CA Requirements

Permit is available at:

[http://www.deq.state.or.us/wq/wqperm
it/Gen1200.pdf](http://www.deq.state.or.us/wq/wqperm
it/Gen1200.pdf)

Application forms, NOT form, guidelines
are available at:

[http://www.deq.state.or.us/wq/wqperm
it/Gen1200CGuidance.pdf](http://www.deq.state.or.us/wq/wqperm
it/Gen1200CGuidance.pdf)

Other Agencies and Acts

- Coastal Zone Management Act (CZMA)
- Coastal Zone Reauthorization Amendments (CZARA)
- AASHTO Highway Drainage Manual, Vol. 3, Guidelines for ESC on Highways
- FHWA Memorandum – Final Rule
- Division of State Lands (DSL)

Other Agencies and Acts

- US Army Corps of Engineers (USACE)
 - Any activity that might result in discharge to waters of the State
 - DEQ 401 Certification
 - USACE 404 Permit

Local NPDES Implementation

- Cities, counties, other jurisdictions may hold municipal storm water permits
- May include specific requirements for construction sites
- Local jurisdictions may have grading ordinances, storm water ordinances, or construction permit requirements

Indian Tribes

- Are required to comply with NPDES requirements where eligible
- May have ordinances or permit requirements that affect construction
- Construction projects \geq 1 acre must comply with EPA's NPDES General Permit for Construction Activities (http://www.epa.gov/npdes/pubs/cgp2003_entirepermit.pdf)
- Check with EPA Region 10 for more information

Endangered Species Act

- Construction site discharge can result in impacts to endangered species or their habitat
- Impacts could be considered a "take" under ESA
- Stranding or impairing species access due to BMPs could also be considered a take
- Contact the National Marine Fisheries Service or U.S. Fish and Wildlife Service