



CITY OF OREGON CITY ENGINEERING STORMWATER REVIEW CHECKLIST FOR PUBLIC WORKS CONSTRUCTION

Project No. and Name: _____

Date : _____

LEGEND: X = O.K. blank = INCOMPLETE NA = NOT APPLICABLE

Disclaimer : This checklist does not prevent the designer from knowing all of the standards. This checklist is to be used as a guide, not a replacement for the Stormwater and Grading Design Standards or City Code Section 13.12. More information can be found within the standards.

I. STORMWATER AND GRADING STANDARDS

<https://www.orcity.org/1227/Stormwater-Grading-Design-Standards>

_____ Signed and Stamped by a professional civil engineer licensed in the State of Oregon

Stormwater Triggers:

- _____ 5,000 square feet of new or replaced impervious surface; Or
- _____ 500 square feet of new impervious surface within NROD; Or
- _____ 1,000 square feet disturbance of ex. impervious surface within NROD; Or
- _____ High Risk Development per 1.2.1.E
- _____ Exemptions per 1.2.2 with appropriate description.

Report Includes In General:

- _____ Grading, Fill, and Excavation Calculations and/or Discussion (3.1)
- _____ Stormwater Mgmt Facility Design Calculations and/or Discussion (4.2)
- _____ Stormwater Conveyance Calculations and/or Discussion (5.1)
- _____ Source Controls Calculations and/or Discussion (6.1)
- _____ Erosion Prevention and Sediment Control Exhibits and/or Discussion
- _____ Operation and Maintenance Plan – Exhibits and/or Discussion

Report Includes Specifically:

- _____ Cover Sheet With:
 - _____ Project Name
 - _____ City Planning File Number

- Project Engineer's Name, Address, Phone Number
- Applicant's Name, Address, Phone Number
- Table of Contents
- Vicinity Map
- Basin Maps
 - Project Boundaries
 - Offsite Contributing Basins
 - Onsite Drainage Basins
 - Approx. Locations of all Major Drainage Structures
 - Course of Stormwater from onsite to receiving body of water
 - Reference to the source of the topographic base map (e.g. USGS)
 - Map Scale
 - North Arrow
- Project Description
 - Size of Project
 - Location of Project (Address/Parcel Number)
 - Zoning
 - Proposed Land Use
 - Proposed Impervious Surfaces
 - Proposed Landscaped Surfaces (pervious)
- Required Permits
 - NPDES 1200-C
 - DEQ
 - USCOE
 - US Fish and Wildlife
- References to Relevant Reports
- Existing Conditions
 - Existing Soil Conditions (based on NRCS report or Geotech report)
 - Soil (Hydrologic Soil Group A, B, C or D)
 - Groundwater information (Depth, seasonal, aquifer, etc.)
 - Site topography
 - Describe Pre-Developed Hydrologic conditions
 - Points of Discharge
 - Offsite Drainage

- NROD, Geohazard, or Floodplain Overlays
- Locations of known wells on or within 250 feet of property
- Locations of existing fuel tanks
- Developed Site Drainage Conditions
 - Describe the Stormwater Management Strategy being Implemented
 - Emergency Overflow
- Downstream Analysis**
 - Drainage Basin Description
 - Contributing Areas
 - Description of impact to downstream conveyance systems or natural waterways post development

Appendices of Report Specifically Include (9.4.2):

- Site Assessment and Planning Checklist
- Soils Report (NRCS report or Geotech report) with infiltration rates or tests
- BMP Sizing Tool Summary
- On-site Hydraulic Design Computations
 - Basin map (Proposed impervious area(s) & pervious areas)
 - Runoff Calculations
 - Conveyance System Capacity Calculations
- Downstream Analysis Hydraulic Design Computations
 - Drainage Basin map (including topography)
 - Runoff Calculations (Pre-development vs Post-development)
 - Conveyance System Capacity Calculations (Pre-development vs Post-development)
- Curb and catch basin inlet sizing
- Energy Dissipater Calculations
- Operations and Maintenance Plan
- Landscape Plan

SITE ASSESSMENT AND PRELIMINARY DESIGN (Chapter 2)

- Level 1 – Onsite Retention (Fully infiltrate 10 year design storm within 72 hours)
- Level 2 – Onsite stormwater management using LID
 - Stormwater facilities sized using the BMP Sizing Tool
 - Use “Forest” for Pre-Developed Site Cover
 - Use correct Hydrologic Soil Group (Per NRCS report or geotechnical report)

_____ Stormwater facilities sized using the Engineered Method (utilize the continuous runoff model or equivalent as approved by the City Engineer per 4.3.4.)

_____ Level 3 – Offsite or Regional Facilities

_____ Level 4 – Fee in Lieu

GRADING, FILL, AND EXCAVATION (Chapter 3)

_____ All excavated slopes no steeper than 2:1, unless approved otherwise

_____ Fill slopes shall not be constructed on natural slopes steeper than 2:1

_____ Benched ground where natural slopes are steeper than 4:1 and the height is greater than 5 feet, at a minimum of 10 feet wide, unless approved otherwise

_____ Delineation of Rock disposal (on grading plan)

_____ Rock sizes greater than 6 inches in maximum dimension shall be 5 feet or more below grade

_____ Describe Compaction needs

_____ Describe any significant slope needs

_____ Describe any fills supporting structures

_____ Describe Stormwater Management Facility Berm Embankments

_____ Embankment Soils

_____ Compaction Standard

_____ Excavation Standard

_____ Anti-Seepage Collars

_____ Embankments of 6 feet or less shall have minimum top width of 5 ft

_____ 12 foot minimum width of top of berm when used for maint. access

_____ Describe growing media for Stormwater Facilities

_____ Top of cut slope shall be no closer to the boundary line than 1/5 the vertical height of the cut, minimum 2 feet, maximum 10 feet

_____ Toe of fill slope shall be no closer to the boundary line than 1/2 the vertical height of the cut, minimum 3 feet, maximum 20 feet

_____ Grading Plan

_____ No smaller than 1inch = 100 feet scale

_____ Cover Sheet

_____ Existing Topography

_____ Finished Grade Contours

_____ Site Water Resources (NROD, Floodplain, wetlands, etc)

_____ Locations of Disturbed Areas

_____ Quantities of Cut/Fill

- Locations of Stormwater Features
- Locations of Drainage Structures
- Construction Information (information concerning construction methods, fill material specifications, source of fill material, compaction specifications, haul routes, and other construction information when known and applicable.)
- Standard Grading Notes

STORMWATER MANAGEMENT FACILITY (Chapter 4)

Stormwater Facility Design

- Infiltration testing & results (NRCS report or tests per Appendix D)
- Growing media specifications (Per Appendix A: A.4)
- Plantings (per plant list in Appendix A)
- Unmitigated Area (without flow control) allowed when:
 - Runoff joins pre-developed downstream drainage within $\frac{1}{4}$ mile
 - Downstream analysis shows no adverse impacts
 - Public easements obtained
 - Cumulative Release Rate is less than pre-developed rate

Detention Pond Design

- Maximum active storage depth = 4 feet
- Bottom width = 10 feet for ponds 3 ft or less of active storage depth
- Bottom width = 15 feet for ponds 3 ft or more of active storage depth
- Interior Side Slopes = 3:1 max
- Exterior Side Slopes = 4:1 max
- Fenced with gate (when perimeter grades are steeper than 3:1; always required around public ponds)
- Signage
- Flow Control Structure detail (orifice and weir dimensions and elevation sized using BMP sizing tool)
- Emergency Overflow (spillway) for Post developed 100 year storm
 - Directs overflows safely toward the downstream conveyance system
 - Invert is 6 inches above primary overflow elevation
 - Minimum depth of 9 inches from top of berm
 - Minimum 6 inches of freeboard during design storm

_____ Rip-rap per Table 5-5

General Maintenance Access

- _____ Maximum grade : 12 percent
- _____ Minimum width of surface = 12 feet
- _____ Paved surfaces = 2" asphalt over 6 " aggregate
- _____ Paved surfaces to within 10 feet horizontal and 3 feet vertical of openings of water quality and flow control structures

Detention Pond Interior Access

- _____ Maximum grade : 18 percent
- _____ Minimum width of surface = 10 feet
- _____ Minimum width of curve alignments = 15 feet
- _____ Bollards to limit access
- _____ Within 3 vertical feet and 10 horizontal feet of the lowest elevation of the pond
- _____ Landscape Block Surface
- _____ Access roads longer than 300 feet require a turn around

STORMWATER CONVEYANCE (Chapter 5)

- _____ Points of Discharge
- _____ Overland Emergency Overflow Path
- _____ Pipe Sizing Calculations based on Design Event per Table 5-1
- _____ Describe Design Method (Rational, Hydrograph, etc.)
- _____ Minimum T/C (Time of Concentration) = 5 minutes
- _____ Rainfall Intensity per Figure 5-2
- _____ Use of proper Manning's "n" from Table 5-3
- _____ Capacity Analysis for Pressure Flow
- _____ Open Channel Design
- _____ Culvert Design
- _____ Public Pipe System Requirements
 - _____ Minimum 2 feet cover under collector and above roads
 - _____ May use Class 52 Ductile Iron or Class V concrete for 1 ft cover
 - _____ PVC and HDPE require 2 feet minimum cover
 - _____ Minimum velocity = 2.5 fps
 - _____ Maximum velocity = 15 fps
 - _____ Minimum 12" in size

- Maximum pipe length = 400 feet
- Minimum separation = 6" vertical, 3 ft horizontal from other utilities
- Debris grates for 18" in diameter or larger
- Minimum pipe slope = 0.5%
- Manholes or curb inlets with manhole-type access at all pipe junctions exceeding 4 feet depth or 18" in size
- Outfalls with energy dissipaters
- Drainage easements = 15 feet
- Foundation drains piped directly to storm system for commercial/industrial
- Foundation drains piped to street for single-family residential

SOURCE CONTROLS (Chapter 6)

Solid Waste Storage Areas:

- Have a permanent canopy, roof, or awning and drain to sanitary sewer; or
- Hydraulically-isolated solid waste storage area directed to pretreatment facility (Oil/ water separator) or stormwater management facility prior to discharge to storm sewer.

Address applicable requirements to design source controls for the proposed site use.

- Fuel Dispensing Facilities and Surrounding Traffic Areas (Section 6.3)
- Above-Ground Storage of Liquid Materials (Section 6.4)
- Solid Waste Storage Areas, Containers, and Trash Compactors (Section 6.5)
- Exterior Storage of Bulk Materials (Section 6.6)
- Material Transfer Areas/Loading Docks (Section 6.7)
- Equipment and/or Vehicle Washing Facilities (Section 6.8)
- Stormwater and Groundwater Management for Development on Land With Suspected or Known Contamination (Section 6.9)
- Covered Vehicle Parking Areas for Industrial or Commercial Uses (Section 6.10)
- Industrial and Commercial High Traffic Areas (Section 6.11) (ADT) of 2,500 vehicles
- Land Uses Subject to Oregon Department of Environmental Quality (ODEQ) 1200-Z
- Industrial Stormwater Permit Requirements (Section 6.12)
 - Informational Signage
 - Spill Control
 - Public Sanitary Sewer Discharge Permit

EROSION PREVENTION AND SEDIMENT CONTROL (Chapter 7)

- _____ Erosion Control (required for disturbance of 1,000 square feet or greater; *Erosion Control plan reviewed separately by City's Erosion Control Officer*)
- _____ DEQ 1200-C Permit (Disturbance of 1.0 acre or greater)

OPERATION AND MAINTENANCE OF STORMWATER FACILITIES (Chapter 8)

Operation and Maintenance Plan

- _____ Facility Information
- _____ Responsible Party information
- _____ Funding source
- _____ Regular Maintenance Procedures and Inspections (See Appendix C)
- _____ Lifespan (i.e., when to replace growing media, plantings, and control structure elements)

Attachments:

- _____ Site Plan
- _____ Facility Details
- _____ Maintenance Agreement/Covenant