



### 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 1 inch = 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 ¼ 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