



## PUBLIC WORKS DEPARTMENT

# STORMWATER AND DESIGN REPORT (S.D.R.) CHECKLIST

(Based on 1992 and 2001 DOE Manuals, and SWMC)

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_

Project No.: \_\_\_\_\_

By: \_\_\_\_\_

Circled items need to be addressed.  
Checked items are complete.

INSERT SIGNED PROFESSIONAL ENGINEER'S OR SURVEYOR'S STAMP HERE

### GENERAL

- 1. \_\_\_\_ Table of contents with page numbers provided.
- 2. \_\_\_\_ Stamped, signed, and dated by P.E.

### SECTION I - PROJECT OVERVIEW

- 1. \_\_\_\_ Narrative - Pre & post development.
- 2. \_\_\_\_ Figure 1 – S.D.R. Worksheet.
- 3. \_\_\_\_ Figure 2 – Site Location.
- 4. \_\_\_\_ Figure 3 – Drainage Basins, Sub-Basins, & Site Characteristics:
  - a. acreage of sub-basins
  - b. existing discharge points to and from site
  - c. routes of existing, construction and future flows at all discharge points and downstream hydraulic structures.
  - d. minimum USGS 1:24,000 topo map base
  - e. show (and cite) length of travel from farthest upstream end of proposed storm system in development to any proposed flow control facility.
- 5. \_\_\_\_ Figure 4 – Soils Map:
  - a. project site
  - b. area draining to site
  - c. drainage system downstream of site for distance of the downstream analysis.

### SECTION II - CONDITIONS & REQUIREMENTS SUMMARY

- 1. \_\_\_\_ Pre-approval conditions & applicable requirements pertaining to site engineering:
  - a. SEPA mitigations
  - b. environmentally sensitive area requirements
  - c. variances and adjustments
  - d. conditions of plat approval

### SECTION III – OFF-SITE ANALYSIS

1. \_\_\_\_\_ Maps at 1" = 100' or larger used for delineation of upstream tributary area to the site and to the downstream system.
2. \_\_\_\_\_ Narrative - general make up of drainage system. Pipe size, channel characteristics and drainage structures.
3. \_\_\_\_\_ Downstream analysis
  - a. study area definition and maps
  - b. resource review
  - c. field inspection
  - d. drainage system description and problem descriptions
  - e. mitigation of existing or potential problems

### SECTION IV – RETENTION/DETENTION ANALYSIS AND DESIGN

#### Part A – Existing Site Hydrology

1. \_\_\_\_\_ Narrative – assumptions and site parameters used in analysis.
2. \_\_\_\_\_ Acreages, soil types, land covers, and basin maps.
3. \_\_\_\_\_ Basin maps, graphics, exhibits for each sub-basin affected.
4. \_\_\_\_\_ Delineation and acreage of onsite areas and areas contributing runoff to the site, flow control facility location, outfall and overflow route shown on topographic map.
5. \_\_\_\_\_ Sub-basins labeled and stormwater model parameters referenced.
6. \_\_\_\_\_ 100-year floodplain delineated along closed depressions, streams, lakes and wetlands.

#### Part B – Developed Site Hydrology

1. \_\_\_\_\_ Narrative – assumptions and site parameters used in analysis.
2. \_\_\_\_\_ Acreages, soil types, land covers, roadway layouts and all constructed drainage facilities.
3. \_\_\_\_\_ Basin areas and flows depicted on a map, referenced to a computer printout or calc. sheets with areas highlighted and tabulated in a listing of all developed sub-basin flows.
4. \_\_\_\_\_ Sub-basins labeled, and stormwater model parameters referenced.

#### Part C – Performance Standards

1. \_\_\_\_\_ Area specific flow control standard from flow control applications map and any modifications to standard, to address onsite or offsite drainage conditions.
2. \_\_\_\_\_ Conveyance system capacity standards.
3. \_\_\_\_\_ Area specific water quality treatment and applicable special requirements for source control or oil control.

#### Part D – Flow Control System

1. \_\_\_\_\_ Sketch – Flow Control facility and appurtenances with dimension and volume calculations from zero to maximum head; orifice sizes and head relationships; control structures/restrictor orientation to the facility.
2. \_\_\_\_\_ Volume sizing – computer printouts, equations, calculations, tables, graphs and other data to support volume of storage facilities.
3. \_\_\_\_\_ Volumetric factor of safety used. (Min 20% - 50% oversizing)

4. \_\_\_\_\_ Emergency spillway calculations provided.
5. \_\_\_\_\_ Control structure – tee-type w/ minimum 2 orifices, reverse-slope inlet.
6. \_\_\_\_\_ Backwater analysis.

Part E – Water Quality System

1. \_\_\_\_\_ Sketch – water quality facilities, source controls, oil controls and appurtenances, overall dimensions orientation, location of inflow, etc.
2. \_\_\_\_\_ Computer printouts, calculations, equations, references, and graphs necessary to substantiate design.
3. \_\_\_\_\_ Bioswale design computations, if applicable.
4. \_\_\_\_\_ Bioswale side slopes 3:1 or flatter in treatment area, 2:1 max above treatment area unless wall or rockery is used.

SECTION V – CONVEYANCE SYSTEM ANALYSIS AND DESIGN

1. \_\_\_\_\_ Detailed analysis of existing and proposed system. Labeling of elements conforms to engineering plans.
2. \_\_\_\_\_ If design results are on a computer printout, provide summary tabulation of performance.
3. \_\_\_\_\_ Pipe flow tables, flow profile computation tables, nomographs, charts, graphs, detail drawings, other aids used to design and confirm performance.

SECTION VI – SPECIAL REPORTS AND STUDIES

- |                                       |                          |                                  |                       |
|---------------------------------------|--------------------------|----------------------------------|-----------------------|
| 1. _____ Anadromous Fisheries Impacts | _____ Geology            | _____ Hydrology                  | _____ Structural Fill |
| _____ Floodplains                     | _____ Geotechnical/Soils | _____ Slope Protection/Stability | _____ Water Quality   |
| _____ Fluvial Geomorphology           | _____ Groundwater        | _____ Structural Design          | _____ Wetlands        |

SECTION VII – OTHER PERMITS

1. \_\_\_\_\_ List other permits by title, the agency requiring permit and requirements that affect the drainage plan. (WSDOT, WADOE, NPDES, WDOE – Dam Safety, etc.)

SECTION VIII – ESC ANALYSIS AND DESIGN

1. \_\_\_\_\_ Narrative – how proposed ESC measures comply with ESC standards:
  - a. clearing limits
  - b. cover measures
  - c. perimeter protection
  - d. traffic area stabilization
  - e. sediment retention
  - f. surface water controls
2. \_\_\_\_\_ Hydrologic and hydraulic information used to analyze and size ESC facility.
3. \_\_\_\_\_ Special measures for high erosion areas.
4. \_\_\_\_\_ ESC recommendations in special reports.
5. \_\_\_\_\_ Proposed exceptions or modifications and rationale/supporting documentation.

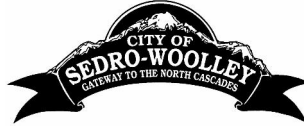
SECTION IX – BOND QUANTITIES, FACILITY SUMMARIES, AND DECLARATION OF COVENANT

1. \_\_\_\_\_ Bond Quantities Worksheet completed.
2. \_\_\_\_\_ Flow control an water quality facility summary sheet and sketch.
3. \_\_\_\_\_ Declaration of Covenant.

SECTION X – OPERATIONS AND MAINTENANCE MANUAL

1. \_\_\_\_\_ Maintenance and operation manual submitted specific to the project. Include a brief description of the flow control facility and water quality facilities, what they do, and how they work.
2. \_\_\_\_\_ Maintenance and operation manual shall be recorded with the final plat.

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# STORMWATER DESIGN REPORT

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