Stormwater Management Plan Submission Guidelines
for
Removal/Fill Permit Applications
Which Involve Impervious Surfaces

July 2005

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Mission Statement

Mike Carrier, Natural Resource Advisor to Governor Kulongoski, identified in an address to state waterway permit regulators in April 2005, that non-point source pollution is the single most important factor we must address regarding water quality in Oregon. Nonpoint source pollution is largely driven by stormwaters running off from various land-use practices. The Environmental Protection Agency (EPA) has identified improperly managed stormwater runoff as one of the principle causes of water quality impairment and habitat degradation in developed and developing areas. There is a growing public awareness of this issue in Oregon. This awareness has lead to local, state, and federal agency regulatory policy development along with widespread efforts by the agencies and the public to implement practices designed to address the negative effects to water quality from pollutants carried in stormwater. DEQ has the regulatory responsibility to address stormwater pollution control through many programs which include 401 Water Quality Certification (associated with removal/fill permits), Undergound Injection Control (UIC), National Pollution Discharge Elimination System (NPDES) permits, Nonpoint Source, and through Total Maximum Daily Load (TMDL) requirements. The goal of this Stormwater Manangement Planning package is to assist Oregon removal/fill project applicants in developing and submitting post-construction stormwater management plans which will employ Best Management Practices (BMPs) to the maximum extent practicable, such that water quality in the receiving surface and ground waters is protected. In the absence of an Oregon DEQ Post-Construction Stormwater Management Manual, our aim is to provide guidance for removal/fill permit applicants to identify, properly implement and maintain commonly accepted post-construction stormwater management practices which have been shown to be effective for treating pollutants expected based on project type and location variables.

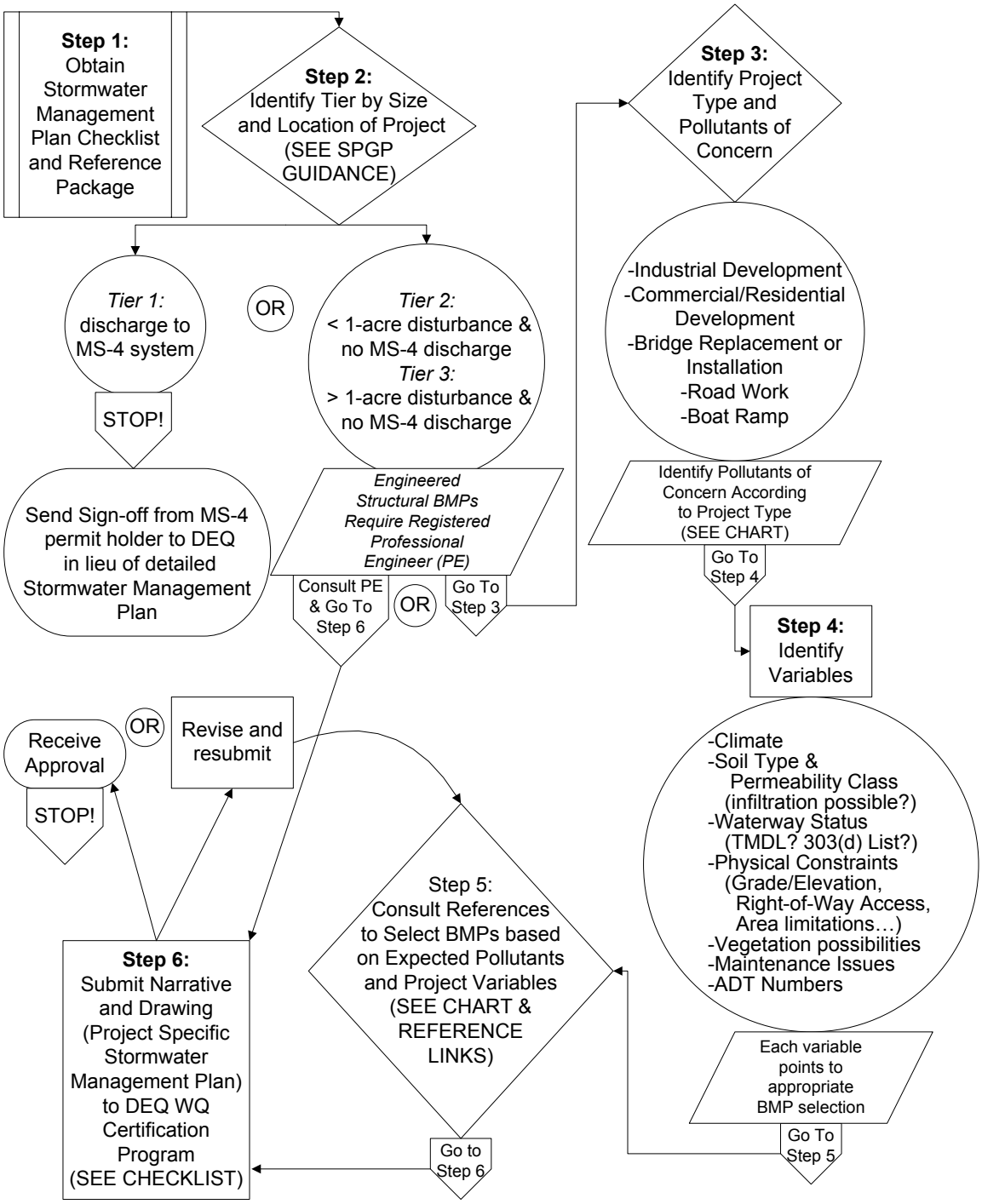
A 1997 Oregon Association of Clean Water Agencies (ACWA) study reported that urban stormwater runoff was likely causing exceedences of water quality standards. The study noted that the order of increasing pollution concentrations by land use types were: open space, residential, commercial, in-stream industrial, transportation and in-pipe industry. This suggests that it is appropriate to anticipate severity of impacts differentiated by project type. In planning for site development, it is critical that developers become aware of the potential water quality impacts resulting from stormwater runoff and plan for how to reduce or mitigate those impacts. A comprehensive stormwater management plan developed concurrently with construction and operations planning, is the most economically, socially, and environmentally conservative means for providing protection to receiving waters.

There appears to be a general willingness to implement post-construction water quality protection measures with regard to stormwater pollutants. However even when post-constuction stormwater planning is initiated at the earliest stages of a project, a comprehensive stormwater management can be expensive, depending on the scope of the proposed project and the resulting impacts. Accordingly, it is reasonable to scale the expectations for stormwater control plans such that the highest levels of pollution control management are expected from the most pollutant generating projects – type, size, ubiquity, timeframe – with a scaled down requirement for lesser impacting projects. Further, the financial capacity of the applicant to employ the highest levels of treatment within practicality must be considered, with requirements adjusted based on reasonably justified constraints, alternatives analysis, and antidegradation review where appropriate.

A tiered approach to stormwater management plan submittal requirements has been described in the draft Statewide Programmatic General Permit (SPGP) to begin to address equitability in stormwater management requirements as described above. Along with the tiered system, the status of the waterbody to be impacted is important in determining level of pollution control expectations. Projects impacting waters classified as impaired under the Federal Clean Water Act and listed on the 303(d) list or with an EPA approved TMDL could be subject to higher expectations of treatment for stormwater pollutants regardless of the size of the project. In order to certify that water quality will be maintained, DEQ must be able to make a determination that the proposed stormwater management plan will control pollutants to the maximum extent practicable and will not allow for stormwater pollutants to contribute to existing problems.

Steps in Developing a Stormwater Management Plan

for Removal/Fill Permits Involving Impervious Surfaces



SPGP GUIDANCE

[from Stormwater Management Guidance for the Statewide Programmatic General Permit (SPGP) for Specified Removal/Fill Activities]

Stormwater discharges to waters of the state must not violate state water quality standards, including ***Oregon Administrative Rule (OAR) 340-041-0004****, the Antidegradation Policy for Surface Water.*.

a. *Description of Tiers*- to determine level of post-construction stormwater management plan requirements, use one of the following:
   i. *Tier 1 Project*- A project located within a community permitted under a National Pollution Discharge Elimination Strategy (NPDES) Phase I or II Municipal Separate Storm Sewer System (MS4) and discharging to the municipal system. If the applicant does not plan to discharge into the permitted municipal system, they must move to Tier 2 or Tier 3;
   ii. *Tier 2 Project*- Outside MS4 areas, and total site disturbance less than one acre; or,
   iii. *Tier 3 Project*- Outside MS4 areas, and total site disturbance one acre or greater.

b. *Documentation Required*- The above described Projects, Tiers 1, 2, and 3, require the following documentation to demonstrate that post construction stormwater will be managed to attain compliance with state water quality standards.
   i. *Tier 1 Projects*- Require documentation from the MS4 Phase I/II municipality that post construction stormwater discharged from the project site will be accepted into the municipal system, or a statement from the applicant that a request has been submitted to the municipality to accept project stormwater. Projects may receive a provisional permit from DSL which will become final only with proof of approval of stormwater acceptance by the Phase I/II municipality.
   ii. *Tier 2 Projects*- The applicant must submit a post-construction *Stormwater Management Plan* for Tier 2 projects which follows the *Stormwater Management Plan Submission Guidelines for Removal/Fill Permit Applications Which Involve Impervious Surfaces* (available from DEQ) which includes the following elements:
      (1) A site sketch or plan view drawing indicating the drainage flow directions, and discharge locations, contours or spot elevations (preferably both) showing direction of stream and surface flow and location and size of proposed facilities (e.g., parking lots, driveways, buildings, or roads) and nearest downstream waterbody, other physical features of the site, and the location and type of construction and post-construction Best Management Practices (BMPs);
      (2) A description of proposed BMPs to insure adequate capacity, proper function, and appropriate design for the site such that quality, quantity, and seasonality of pre-construction hydrologic conditions are mimicked, based on anticipated stormwater generation due to new impervious surfaces;

(3) A BMP implementation schedule, operation and maintenance plan, and designation of a party or agency with documentation of their agreement for responsibility for post-construction BMP maintenance; and,

(4) A plan for removal, recycling and disposal of temporary BMPs which are not intended for post-construction use.

(5) If engineered structural BMPs are incorporated into the post construction stormwater management plan they must be prepared and stamped by an Oregon registered Professional Engineer (PE).

(6) The applicant must submit a copy of the *Stormwater Management Plan* for Tier 3 Projects to both DSL and DEQ when the permit application is submitted.

iii. *Tier 3 Projects*- Requirements for Stormwater Management Plans for Tier 3 projects:

(1) The applicant must submit a post-construction *Stormwater Management Plan* for Tier 3 projects which includes all requirements stated in Tier 2, (1) through (4) above;

(2) The *Stormwater Management Plan* must contain calculations for the amount of stormwater generated from new impervious surfaces resulting from site construction using one of the DEQ-accepted Stormwater Manuals (*see Reference Section, attached)*.

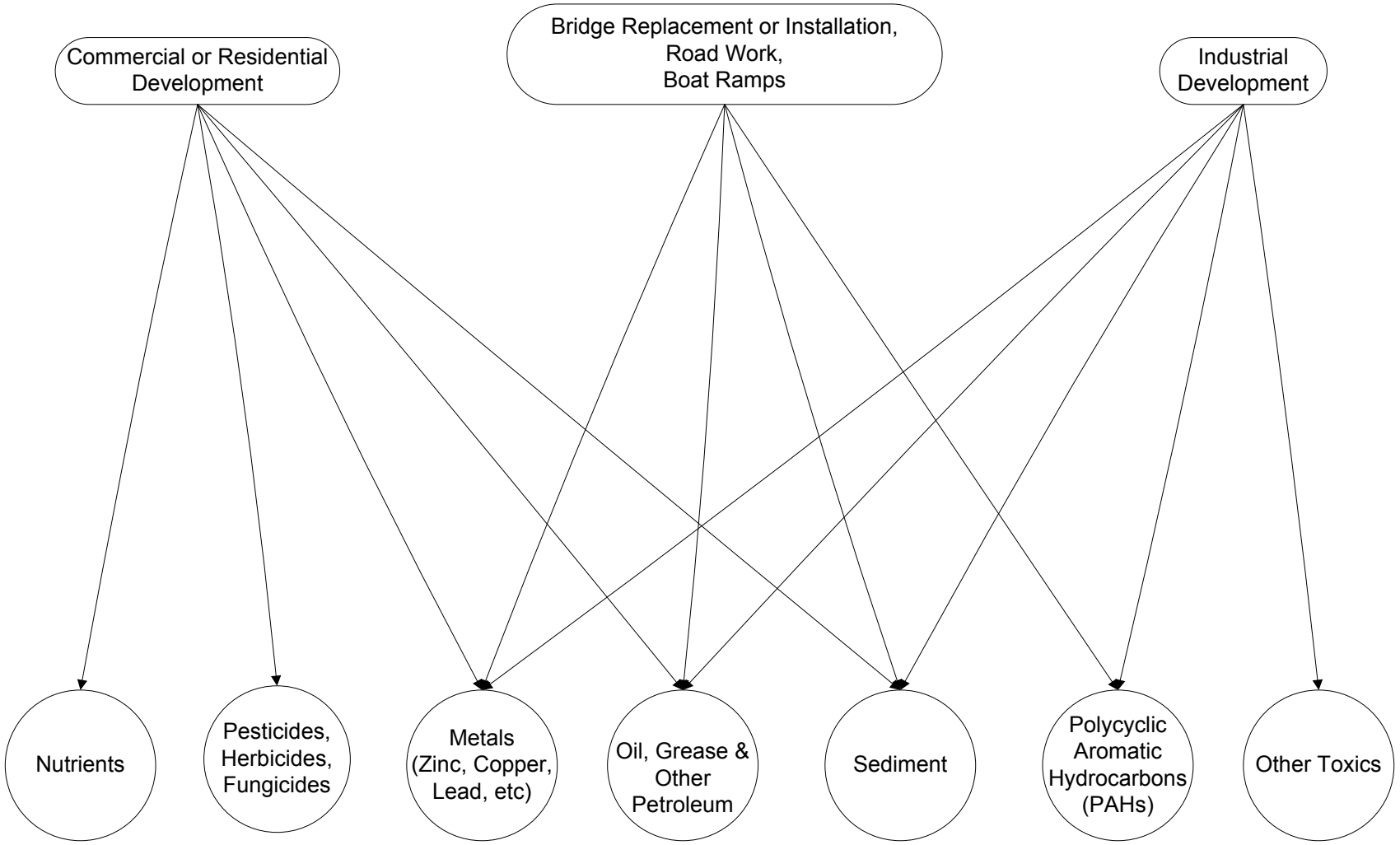
(3) The applicant must submit an erosion prevention and sediment control plan to DEQ or it's designated agent to obtain a 1200-C, or 1200-CA permit if soil disturbance occurs over one acre or more during construction activities (including but not limited to clearing, grading, stockpiling, filling, earthwork, excavation, development, building, demolition, and other ground disturbing or denuding activities). See new application guidance for the NPDES General Storm Water Discharge Permits, 1200-CA for municipalities and 1200-C for others at: http://www.deq.state.or.us/wq/wqpermit/StormWaterFeesTable.htm

(4) The NPDES 1200-C or 1200-CA permit must be retained on-site during construction, and the applicant must follow all requirements in the permit.

(5) If engineered structural BMPs are incorporated into the post construction stormwater management plan they must be prepared and stamped by an Oregon registered Professional Engineer (PE).

(6) The applicant must submit a copy of the *Stormwater Management Plan* for Tier 3 Projects to both DSL and DEQ when the permit application is submitted.

Step 3: Identify Pollutants by Project Type



Step 5: Select BMPs

PROJECT TYPE	VARIABLES TO CONSIDER	REASONABLY EXPECTED POLLUTANTS	POTENTIAL BMP CATEGAORIES *(some require Registered Professional Engineer)*		
COMMERCIAL & RESIDENTIAL DEVELOPMENT	Soil Type Climate Impaired waterway? TMDL 303(d) List Physical Constraints Grade/Elevation Limited Access Right of way Access/Own Limited area for BMPs Others? Maintenance Constraints Vegetation possible? New vs. Re-Development	Sediment	wet or dry ponds - detention and settling		** Infiltration and Underground Injection may not be permitted in some areas and needs registration with DEQ's UIC Program – contact Barbara Priest 503 229-5945)* **Consult References Provided on REFERENCE LINKS Page For BMP Specifications & Limitations**
			wet vaults or other underground injection	*	
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
		Metals (zinc, copper, lead, etc)	wet or dry ponds - detention and settling		
			wet vaults or other underground injection	*	
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
		Oil, Grease & Other Petroleum	wet or dry ponds - detention and settling		
			wet vaults or other underground injection	*	
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
			oil/water separator		
		Nutrients (nitrogen, phosphorous, other fertilizer ingredients)	wet or dry ponds - detention and settling		
			wet vaults or other underground injection	*	
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
		Pesticides, Herbicides, Fungicides	biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	

Step 5: Select BMPs

PROJECT TYPE	VARIABLES TO CONSIDER	REASONABLY EXPECTED POLLUTANTS	POTENTIAL BMP CATEGORIES *(some require Registered Professional Engineer)*		
ROAD & BRIDGE WORK	ADT number Soil Type Climate Impaired waterway? TMDL 303(d) List Physical Constraints Grade/Elevation Limited Access Right of way Access/Own Limited area for BMPs Others? Maintenance Constraints Vegetation possible? New vs. Re-Development	Oil, Grease & Other Petroleum Polycyclic Aromatic Hydrocarbons (PAHs)	wet or dry ponds - detention and settling		** Infiltration and Underground Injection may not be permitted in some areas and needs registration with DEQ's UIC Program – contact Barbara Priest 503 229-5945* **Consult References Provided on REFERENCE LINKS Page For BMP Specifications & Limitations**
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
			oil/water separator		
		Sediment	wet or dry ponds - detention and settling		
			wet vaults or other underground injection	*	
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
		Metals (zinc, copper, lead, etc)	wet or dry ponds - detention and settling		
			biofiltration (e.g. filter strips)		
			bioinfiltration (e.g. swales)	*	
			sand or media filters		
			constructed wetlands		
			infiltration and porous pavements	*	
INDUSTRIAL DEVELOPMENT	Soil Type Climate Impaired waterway? TMDL 303(d) List Physical Constraints Grade/Elevation Limited Access Right of way Access/Own Limited area for BMPs Others?	Oil, Grease & Other Petroleum Polycyclic Aromatic Hydrocarbons (PAHs)	see DEQ NPDES Guidance		
		Metals (zinc, copper, lead, etc) Sediment Other Toxics			

Step 5: REFERENCE LINKS

DEQ Guidance Document for Preparation of the NPDES Storm Water Pollution Control Plan 2004
http://www.deq.state.or.us/nwr/SWPCP_Guidance_2004.pdf

DEQ Best Management Practices for Stomwater Discharges Associated with Industrial Activities 2001
http://www.deq.state.or.us/nwr/Industrial%20BMPs.pdf

DEQ Guidance Document for Preparation of the NPDES Storm Water Pollution Control Plan 1997
http://www.deq.state.or.us/wq/wqpermit/SWGuidance.pdf

DEQ Recommended Best Management Practices for Stormwater Discharge 1997
http://www.deq.state.or.us/wq/wqpermit/StormWaterBMPs.pdf

DEQ Stormwater Management Guidelines –Underground Injection Control (UIC) Program 1998
http://www.deq.state.or.us/wq/groundwa/swmgmtguide.htm

DEQ Erosion and Sediment Control Manual 2005 (during construction)
http://www.deq.state.or.us/wq/wqpermit/ESCManual.htm

DEQ Biofilters: Guidance on Bioswales, Filter Strips, and Constructed Wetlands 2003
http://www.deq.state.or.us/nwr/Biofilters.pdf

* Eastern Washington Manual Ch 5
http://www.ecy.wa.gov/pubs/0410076.pdf

* City of Portland Manual Ch 2
http://www.portlandonline.com/bes/index.cfm?c=35122

* Western Washington Manual Vol 5
http://www.ecy.wa.gov/pubs/9915.pdf

* Clean Water Services Manual Apdx B & E
ftp://ftp.cleanwaterservices.org/Web/ConstructionStandards/0409%20D&C%20Stds%20Manual.pdf

* King County Surface Water Design Manual
http://dnr.metrokc.gov/wlr/dss/manual.htm

Low Impact Development: Technical Guidance Manual for Puget Sound 2005
http://www.psat.wa.gov/Publications/LID_tech_manual05/lid_index.htm
Guidelines and Resources for Implementing Soil Depth & Quality BMP T.5.13
WDOE Western Washington Stormwater Manual 2002
http://compostwashington.org/PDF/SOIL_MANUAL.pdf

EPA Fact Sheets
http://www.epa.gov/owm/mtb/mtbfact.htm

EPA Urban Stormwater Best Management Practices Study Report
http://www.epa.gov/waterscience/stormwater/usw_c.pdf

Stormwater Manager's Resource Center Manual - Design Examples
http://www.stormwatercenter.net/

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* denotes DEQ accepted post-construction stormwater management manuals

Step 6: Submit Narrative and Drawing to DEQ

You may enter information directly on the hard copy of this form *or* electronically to expand response areas

CHECKLIST FOR SUBMISSION OF

STORMWATER MANAGEMENT PLAN

Project numbers: Corps: DSL:	Project Type:
Project Location and County:	Date:
Manual Referenced:	Submitted By:

STORMWATER MANAGEMENT PLAN

☐ **Identify Pollutants of Concern (anticipated to be generated in stormwater due to project)**

☐ **Name and Status of Receiving Water [TMDL or 303(d) Listing - ex: Cow Creek RM 1.5 303(d) list for Temperature & E Coli? Known NPDES permit or other degrading activities nearby? In a Groundwater Management Area? (contact Barbara Priest 503 229-5945)]**

☐ **Proposed Best Management Practices (BMPs)**

- ☐ **Narrative Description (describe Treatment Train, Constraints, Best Efforts to surmount constraints…)**
- ☐ **Capacity (include Design Storm, Length/ Width/ Depth/ Slope of BMP, Analyses of Residence Time, Permeability, etc., as applicable)**
- ☐ **Summary of Operation (include High Flow Operation, Overland Routes, Distances to Water Features, Stormwater Travel Distances, Collection Features, Etc.)**
- ☐ **Maintenance Plan (identify Responsible Party, describe actions and/or manufacturer's maintenance recommendations)**

☐ **Site Sketch**

- ☐ North Arrow
- ☐ Drainage Flow Path & Slope
- ☐ Outlet Locations
- ☐ BMP locations (Permanent & Construction)
- ☐ Contours and/or Spot Elevations (both preferred)
- ☐ Receiving Water Location/Name
- ☐ Direction of Flow in Receiving Water
- ☐ Location of Existing Wetlands
- ☐ Soil Type and Permeability Class
- ☐ Location of Cross-Sections

☐ **Detail Drawings**

- ☐ Cross-Sections of Vegetated Drainage Features and Specification of Plant Materials
- ☐ Section Drawings of Structural BMP's
- ☐ Specifications for Orifice / Weir Features