pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT
OFFICE OF WATER PROGRAMS

STANDARD PCSM TECHNICAL GUIDE

Project: _____

Project Name: _____ **Date**: _____

Check that the following items are completed in the PCSM Plan. If an item is not applicable write N/A.

"The PCSM Plan shall be prepared by a person trained and experienced in PCSM design methods and techniques applicable to the size and scope of the project being designed"

Item Location: D = PCSM Drawings, N = PCSM Narrative, D&N = Drawings and Narrative

"The existing topographic features of the project site and the immediate surrounding area"

_____	Legible Mapping	D
_____	Existing Contours	D
_____	Type of Cover	D
_____	Existing Improvements (i.e. roads, buildings, utilities, etc.)	D
_____	Sufficient surrounding area	D
_____	Complete mapping symbols and north arrow	D
_____	Location Map (i.e. USGS)	D or N

"The types, depth, slope, locations and limitations of the soils and geologic formations"

_____	Types, slopes and locations of soil types	D
_____	Soil type use limitations and resolutions	N
_____	Hydric Soils	N

"The characteristics of the project site, including the past, present and proposed land uses and the proposed alteration to the project site"

_____	Proposed limits of construction	D
_____	Proposed contours and grades	D
_____	Proposed improvements (i.e. roads, buildings, utilities etc.)	D
_____	Past, present and proposed land uses	N
_____	Existing features	D
_____	Proposed Impervious Areas	D

"An identification of the net change in volume and rate of stormwater from pre-construction hydrology to post-construction hydrology for the entire project site and each drainage area"

_____	The design storm used for calculations is identified	N
_____	Pre-construction hydrology runoff rate and volume are identified for the entire project site and each drainage area	N
_____	Post-construction hydrology runoff rate and volume are identified for the entire project site and each drainage area	N
_____	The net change in runoff rate and volume are identified for the entire project site and each drainage area	N

"An identification of the location of surface waters of this Commonwealth, which may receive runoff within or from the project site and their classification under Chapter 93 (relating to water quality standards)"

_____	Existing streams, wetlands, floodway, etc.	D
_____	Receiving watercourses	D
_____	Chapter 93 classification streams or other water bodies	N

"A written description of the location and type of PCSM SCMs including construction details for permanent stormwater SCMs including permanent stabilization specifications and locations"

_____	All permanent PCSM SCMs are identified in the narrative and shown in the plan drawings	D&N
_____	Construction details are included for all permanent PCSM SCMs	N
_____	Permanent stabilization specifications for all permanent PCSM SCMs are included	N
_____	Proprietary SCM systems are illustrated on the drawings in accordance with their manufacturer's requirements	D
_____	Infiltration SCMs are provided with overflows and/or underdrains as needed to meet site and soil limitations	D & N

"A sequence of PCSM SCM implementation or installation in relation to earth disturbance activities of the project site and a schedule of inspections for critical stages of PCSM SCM installation"

_____	Complete and site specific sequence of SCM installations	D&N
_____	Activities planned to limit exposed areas	D&N
_____	Removal of temporary SCMs	D&N
_____	Critical stages of SCM installation are identified	N

"Supporting calculations"

_____	Calculations for all SCMs and points of interest are provided	N
_____	Methodology used for all calculations is identified	N
_____	The design storm used for each calculation is identified	N
_____	Current (approved within the past five (5) years) Act 167 plans are identified	D or N
_____	Act 167 plan consistency verification is provided	N
_____	All flowcharts from the Pennsylvania Post-construction Stormwater Management Manual with flow path highlighted have been provided	N
_____	All appropriate worksheets from the Pennsylvania Post-construction Stormwater Management Manual have been completed and are provided	N

"Plan drawings"

_____	Locations of SCMs are shown along with tributary drainage areas	D
_____	Construction details are included for all PCSM SCMs	D
_____	All easements and rights-of-way are shown on plan drawings	D
_____	Sensitive resources are shown (i.e. steep slopes, riparian, etc.)	D&N
_____	Existing and proposed discharges & points of interest	D
_____	Floodplain and floodway delineations	D
_____	Locations and sufficient infiltration testing to represent proposed locations of volume and rate control BMPs	D
_____	PCSM Plan Drawings are consistent with E&S Plan in relation to proposed contours, improvements, soils, wetlands, floodways, streams, discharge locations, E&S BMPs, etc.	D

Infiltration BMPs

_____	All infiltration SCMs must have infiltration testing completed	N
_____	All infiltration SCMs must have soil testing completed	N
_____	All infiltration SCMs should be sited on un-compacted soils	D&N

SCM 6.4.2 Infiltration Basins

_____	Maintain a minimum 2-foot separation to bedrock and high water table	D&N
_____	Do not install on recently placed fill (<5 years)	D&N
_____	Allow 2 foot buffer between bed bottom and seasonal high groundwater table	D&N

SCM 6.4.4 Infiltration Trench

_____	Perforated pipe set at a minimum slope in a stone filled, level-bottomed trench	D&N

_____	Limited in width (3 to 8 feet) and depth of stone (6 feet max recommended)	D&N
_____	Trench is wrapped in nonwoven geotextile (top, sides, and bottom)	D&N
_____	A minimum of 6” of topsoil is placed over trench and vegetated	D&N

SCM 6.4.5 Bio-retention

_____	Ponding depths generally limited to 12 inches or less	D&N
_____	Native vegetation that is tolerant of variability, salts and stress	D&N
_____	Modify soil with compost	D&N

SCM 6.4.8 Vegetated swale

_____	Longitudinal slopes range from 1 to 6 %	D&N
_____	Side slopes range from 3:1 to 5:1	D&N
_____	Bottom width of 2 to 8 feet	D&N
_____	Convey the 10-year storm event with a minimum of 6 inches of freeboard	D&N
_____	Designed for non-erosive velocities up to the 10-year storm event	D&N

SCM 6.4.9 Vegetated Filter strip

_____	Filter Strip length is a function of the slope, vegetative cover, and soil type	D&N
_____	Minimum recommended length of filter strip is 25 feet	D&N
_____	Filter strip slope should never exceed 8%; less than 5% are preferred	D&N
_____	Level spreading devices are recommended to provide uniform sheet flow	D&N
_____	Maximum contributing drainage area slope is generally less than 5%	D&N
_____	Minimum filter strip width should equal the width of the drainage area	D&N

SCM 6.4.10 Infiltration Berm

_____	Maintain a minimum 2-foot separation to bedrock and high water table	D&N
_____	Berms should be relatively low, preferable no more than 24 inches in height	D&N
_____	If berms are to be mowed, the berm side slopes should not exceed a ratio of 4:1	D&N
_____	Berms should be vegetated with turf grass at a minimum	D&N

SCM 6.5.2 Runoff recapture and use

_____	Storage devices designed to capture a portion of small, frequent storm events	D&N
_____	Systems must provide for bypass or overflow of large storm events	D&N
_____	Water budget incorporating anticipated water inflow and usage required	D&N

Water Quality and Rate Control SCMs

SCM 6.6.1 Constructed Wetlands

_____	Adequate drainage area or proof of sustained base flow	D&N
_____	Maintenance of permanent water surface	D&N
_____	Relatively impermeable soils or engineered liner	D&N
_____	Sediment collection and removal	D&N
_____	Adjustable permanent pool and dewatering mechanism	D&N

SCM 6.6.2 Wet pond/Retention basin

_____	Adequate drainage area or proof of sustained baseflow	D&N
_____	Natural high groundwater table	D&N
_____	Maintenance of permanent water surface	D&N
_____	Should have at least 2 to 1 length to width ratio	D&N
_____	Forebay for sediment collection and removal	D&N
_____	Dewatering mechanism	D&N

SCM 6.6.3 Dry extended basin

_____	Hydraulic capacity controls effectiveness	D&N
_____	Ideal in combination with other SCMs	D&N

Restoration SCMs

SCM 6.7.1 Riparian buffer restoration

_____	Reestablish buffer areas along perennial, intermittent, and ephemeral streams	D&N
_____	Plant native, diverse tree and shrub vegetation	D&N
_____	Create a short-term maintenance and long-term maintenance plan	D&N
_____	Clear, well-marked boundary	D&N

SCM 6.7.2 Landscape restoration

_____	Minimize traditional turf lawn area	D&N
_____	Maximize landscape restoration area planted with native vegetation	D&N
_____	Protect landscape restoration area during construction	D&N
_____	Prevent post-construction erosion through adequate stabilization	D&N
_____	Minimize mowing (two times per year)	D&N

SCM 6.7.3 Soil amendment and restoration

_____	Physical loosening	D&N
_____	Compost amendments	D&N

SCM 6.7.4 Floodplain restoration

_____	Can prevent riparian problems from getting worse or can fix problems caused by historical practices	D&N
_____	Reattachment of root systems of floodplain vegetation/riparian areas connected to groundwater and/or base flow	D&N
_____	Removal of "legacy sediments" and associated nutrients stored within the stream corridors prior to release through bank erosion	D&N

Other SCMs and related structural measures

SCM 6.8.1 Level spreaders

_____	Must be level	D&N
_____	Are not applicable in areas with easily erodible soils and/or little vegetation	D&N
_____	Should safely diffuse at least the 10-year storm peak rate	D&N
_____	Bypassed flows should be stabilized in a sufficient manner	D&N

"A long-term operation and maintenance schedule, which provides for inspection of PCSM SCMs, including the repair, replacement, or other routine maintenance of the PCSM SCMs to ensure proper function and operation"

_____	Inspection schedule of each permanent SCM is provided	N
_____	Directions for maintenance and/or replacement of each SCM	N
_____	Directions for sediment disposal	N
_____	Responsible party (owner, operator, inspector) has been identified	N

"Procedures which ensure that the proper measures for recycling or disposal of materials associated with or from the PCSM SCMs are in accordance with DEP laws, regulations and requirements"

_____	Project wastes are identified	N
_____	Directions for recycling /disposal of wastes	D or N

"An identification of naturally occurring geologic formations or soil conditions that may provide hazards to the project or surrounding environment or have the potential to cause or contribute to pollution after earth disturbance activities are completed and PCSM SCMs are operational and development of a management plan to avoid or minimize potential pollution and its impacts"

_____	Potential for geologic or soil conditions to cause pollution during construction	N
_____	Instructions for proper handling and/or disposal of all materials which could cause	D

pollution are provided

_____	Typical details are provided for proper handling and/or disposal of all such materials	D
_____	The locations of all such materials are clearly shown on the plan maps	D

“An identification of potential thermal impacts from post-construction stormwater to surface waters of this Commonwealth including SCMs to avoid, minimize or mitigate potential pollution from thermal impacts”

_____	Applicant has described how thermal impacts of stormwater runoff from the project site were avoided	N
_____	Applicant has described how thermal impacts were minimized and mitigated	D&N

“A riparian forest buffer management plan when required under § 102.14 (relating to riparian buffer requirements)”

_____	Existing and/or proposed buffers are shown on the plan drawings	D