

**STORMWATER TREATMENT FACILITIES
CONSTRUCTION PLAN REVIEW CHECKLIST**

12/3/08

General Conditions

- _____ Map of proposed subwatershed to each subbasin, including total area and CN
- _____ Design Flow or Design Volume to each STF, as appropriate
- _____ Operation and Maintenance instructions for each STF
- _____ Design drawings of all proposed STF locations
- _____ Detailed construction specifications
- _____ Location and dimensions of all proposed STF easements or tracts
- _____ Grading plan
- _____ STF Maintenance Agreement
- _____ Unique identifiers for each STF
- _____ STF phasing plan
- _____ Edging material per landscape plan approved by PC
- _____ Percolation test results

Administrative Items

- _____ STF Maintenance Agreement provided
- _____ Performance Surety provided, if required
- _____ Maintenance Bond provided
- _____ Certification of installer provided, if required

Rain Garden (RG)

- _____ Drainage area and RG Area match Final Stormwater Mgmt Study
- _____ Plan view showing dimensions and features
- _____ Minimum 20' from WQv pool to residential building foundation, except as below
- _____ Minimum 10' from WQv pool to residential building foundation if serves 1 lot and is downgradient or no basement
- _____ Detailed cross-section
- _____ Maximum ponding depth of 6 inches is provided
- _____ Engineered Soil Mix (Bioretention Soil Mix) meets spec in STF Manual or 1:1 sand/compost mix
- _____ 6" optional planting soil layer, if provided
- _____ 24" engineered soil mix depth
- _____ Filter strip of grass (for RG receiving flow off pervious areas)
- _____ Filter strip of approved rock (for RG receiving flow off impervious areas)
- _____ 3 inches of aged shredded hardwood mulch provided
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period
- _____ At least 2 feet above the seasonal high water table
- _____ Overflow path or structure provided

Infiltration Basins (IB)

- _____ Drainage area and IB area match Final Stormwater Mgmt Study
- _____ Plan view showing plan dimensions and features
- _____ Minimum 20' from WQv pool to residential building foundation unless no basement
- _____ Minimum 100' if building is located downhill
- _____ 3:1 length to width ratio (or greater)
- _____ Sediment Pretreatment Provided
- _____ Overflows routed around the basin
- _____ Detailed cross-section
- _____ 3:1 side slope or flatter
- _____ Max ponding depth of 24"
- _____ Overflow path or structure provided
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period

Infiltration Trenches (IT)

- _____ Drainage area and IT dimensions match Final Stormwater Mgmt Study
- _____ Plan view showing plan dimensions and features
- _____ 20 foot sediment forebay or grass channel precedes trench
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Infiltration rate of receiving soil is greater than or equal to 0.5 inch/hour

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- _____ Soil has no greater than 40% clay content
- _____ Infiltration Trench designed as offline device
- _____ Detailed cross-section
- _____ Depth of trench between 3 and 8 feet deep
- _____ Trench filled with 1.5" to 2.5" clean stone, no limestone or shale
- _____ Filter fabric on all 4 sides of clean stone
- _____ Pea gravel filter layer on top of trench
- _____ At least 4 feet above the seasonal high water table
- _____ Grading plan with bottom and overflow elevations

Bioretention (BR)

- _____ Drainage area and BR area match Final Stormwater Mgmt Study
- _____ Plan view showing plan dimensions, features, and underdrain layout
- _____ Pretreatment utilized if appropriate
- _____ Length to width ratio approximately 2:1
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Detailed cross-section
- _____ 6" maximum ponding depth
- _____ Engineered Soil Mix (Bioretention Soil Mix) meets spec in STF Manual or 1:1 sand/compost mix
- _____ Engineered Soil Mix 30" minimum depth
- _____ 3 inches of aged shredded hardwood mulch provided
- _____ Side slopes 3:1 or flatter
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period
- _____ At least 2 feet above the Seasonal High Water Table
- _____ Underdrain Provided - 4" minimum perforated pipe
- _____ Longitudinal underdrain max spacing 10' on center
- _____ Transverse underdrains required if width > 20' with max spacing 10' on center
- _____ One cleanout every 50' and at each end of pipe run
- _____ Underdrain downstream connection elevation shown
- _____ Filter fabric overlaying gravel blanket
- _____ Overflow path or structure provided

Porous Pavement (PP)

- _____ Drainage area and PP area match Final Stormwater Mgmt Study
- _____ Plan view with dimensions
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Detailed cross-section
- _____ Base coarse aggregate is appropriate with fractured surfaces
- _____ Aggregate has 30% open space
- _____ At least 4 feet above the seasonal high water table
- _____ Non-woven geotextile membrane installed under aggregate
- _____ Overflow path or structure provided
- _____ Certification of installer note on plans

Extended Detention Wetland (EDW)

- _____ Drainage area and EDW area match Final Stormwater Mgmt Study
- _____ Plan view with dimensions
- _____ Forebay, Micropool, Low Marsh, and High Marsh areas provided and areas meet guidance in Table 15 in BMP Manual
- _____ Minimum 20 feet from 1% pool elevation to residential structure
- _____ Sediment Forebay Provided
- _____ Flow Path through the facility at least 3 times the width
- _____ 12' safety bench provided around micropool with at least 6:1 slope
- _____ Energy dissipation provided at inlet
- _____ 15' perimeter maintenance path provided
- _____ Detailed cross-section
- _____ Design WQv depth less than 24"
- _____ Vegetated slopes no steeper than 4:1
- _____ Vegetation covers 50-75% of total surface area
- _____ Dam design, if applicable, meets state criteria - refer to detention checklist

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- _____ Overflow path or structure provided
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period
- _____ 4" minimum drawdown pipe provided (40 hr. drawdown)

Sand Filters (SF)

- _____ Drainage area and SF dimensions match Final Stormwater Mgmt Study
- _____ Plan view with dimensions
- _____ Pretreatment sedimentation chamber provided
- _____ Sand Filter is offline/ higher than design flows not routed through filter
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Detailed cross-section
- _____ Minimum 18"-24" filter bed
- _____ Sand conforms to ASTM C-33 or AASHTO M-6 ranges in size from 0.02" to 0.04"
- _____ 6" perforated pipe underdrain in 1.5" to 2.5" clean free-draining aggregate
- _____ Filter Fabric provided on top of 1.5" to 2.5" clean free-draining aggregate

Wetland Swale (WS) 5 acres or less

- _____ Drainage area and WS dimensions match Final Stormwater Mgmt Study
- _____ Plan view with dimensions
- _____ Longitudinal profile
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Detailed cross-section (include WQv, 10% and 1% depths/elevations)
- _____ Check dams provided if slope > 2%
- _____ Overflow path or structure provided
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period
- _____ Bottom width 2'-8'
- _____ Side slopes 3:1 or flatter
- _____ 18" maximum ponding depth, 12" average
- _____ 4 ft/sec maximum velocity during 50% storm; max depth ≤ 2'

Bio-Swale (BS)

- _____ Drainage area and BS Dimensions match Final Stormwater Mgmt Study
- _____ Plan view with dimensions
- _____ Minimum 20 feet from WQv pool to residential building foundation unless no basement
- _____ Longitudinal profile
- _____ Detailed cross-section include WQv, 10% and 1% depths/elevations
- _____ Check dams provided if slope > 4%
- _____ 4" perforated underdrain pipe with 6" of 1.5" to 2.5" clean free-draining aggregate cover
- _____ Overflow path or structure provided
- _____ Grading plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period
- _____ Bottom width 2'-8'
- _____ Side slopes 3:1 or flatter
- _____ 30" permeable soil layer
- _____ 12" maximum ponding depth
- _____ 5 ft/sec maximum velocity during 50% storm

Extended Wet Detention Basin (EWDB) (between 2 and 1000 acres)

- _____ Drainage area and EWDB area match Final Stormwater Mgmt Study
- _____ Plan view showing plan dimensions and features
- _____ Pretreatment or sediment forebay provided (at least 10% of WQv)
- _____ 2:1 approximate length:width ratio
- _____ Minimum 20 feet from 1% pool elevation to residential structure
- _____ Permanent pool 4-6', no greater than 12'
- _____ Detains WQv above permanent pool
- _____ 15' perimeter maintenance path provided with slope less than 5:1

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_____ Flow path through the facility equals 3 times the width
_____ Detailed cross-section
_____ 10 foot wide littoral bench provided around the pond perimeter between 6" and 12" below permanent pool
_____ Littoral bench slope no steeper than 6:1
_____ Slopes 4:1 above normal pool, 3:1 below normal pool
_____ Energy dissipators provided at pipe outlets
_____ Multiple stage outlet structure in accordance with Final Stormwater Mgmt Study
_____ Overflow path or structure provided
_____ Grading Plan with bottom and overflow elevations (WQv, 10%, 1% depths/elevations)
_____ Detailed landscape plan per plan approved by PC
_____ Appropriate plant selection based on assumed inundation period
_____ Drawdown pipe provided - sized to draw down in 40 hours
_____ Dam Design, if applicable, meets state criteria
_____ Complies with City's pond requirements

Native Vegetation Swale (NVS) (maximum 5 acres)

_____ Drainage area and NVS dimensions match Final Stormwater Mgmt Study
_____ Plan view with dimensions
_____ Longitudinal profile
_____ 1.5% maximum longitudinal slope
_____ Minimum 20 feet from WQv flow elevation to residential building foundation unless no basement
_____ Detailed cross-section
_____ Check dams provided if slope > 2.5% (1% min. slope)
_____ Overflow path or structure provided
_____ Grading Plan with bottom and overflow elevations (WQv, 10%, and 1% depths/elevations)
_____ Detailed landscape plan per plan approved by PC
_____ Appropriate plant selection based on assumed inundation period
_____ Bottom width 2'-8'
_____ Side slopes 3:1 or flatter
_____ 4" maximum depth
_____ 1 ft/sec maximum velocity
_____ 4 ft/sec maximum velocity during 50% storm

Extended Dry Detention Basin (EDDB)

_____ Drainage area and EDDB area match Final Stormwater Mgmt Study
_____ Plan view showing plan dimensions and features
_____ Pretreatment or sediment forebay provided (at least 10% of WQv)
_____ Minimum 20 feet from 1% pool elevation to residential structure
_____ 15' perimeter maintenance path provided
_____ Detailed cross-section
_____ Slopes 4:1 for facilities capturing only WQv, 3:1 for basins also capturing flood volumes
_____ Fence required if side slopes are steeper than 5:1
_____ Energy dissipators provided at pipe outlets
_____ Low flow channel provided
_____ WQv depth 2-5'
_____ Multiple stage outlet structure in accordance with Final Stormwater Mgmt Study
_____ 15' maintenance ramp around perimeter
_____ Overflow path or structure provided
_____ Grading Plan with bottom and overflow elevations (WQv, 10% and 1% depths/elevations)
_____ Detailed landscape plan per plan approved by PC
_____ Appropriate plant selection based on assumed inundation period
_____ Dam Design, if applicable, meets state criteria

Turf Swale (TS) (maximum 5 acres)

_____ Drainage area and TS dimensions match Final Stormwater Mgmt Study
_____ Plan view with dimensions
_____ Longitudinal profile
_____ Minimum 20 feet from WQv pool elevation to residential building foundation unless no basement
_____ Detailed cross-section
_____ 2'-4' bottom width
_____ Side slopes 3:1 or flatter

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- _____ 1 ft/sec minimum longitudinal slope
- _____ 18" maximum depth (12" average depth)
- _____ 4 ft/sec maximum velocity during 50% storm
- _____ 4" maximum depth
- _____ Check dams provided, if required
- _____ Overflow path or structure provided
- _____ Grading plan with bottom and overflow elevations (WQv, 10% and 1% depths/elevations)
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection based on assumed inundation period

Proprietary Media Filtration, Hydrodynamic Separation, Baffle boxes, and Oil Grit Separators

- _____ Drainage area matches Final Stormwater Mgmt Study
- _____ Size and/or dimensions match Final Stormwater Mgmt Study
- _____ Bypass provided
- _____ Maintenance access provided
- _____ Design information provided by manufacturer

Vegetated Filter Strips (VFS)

- _____ Drainage area and VFS dimensions match Final Stormwater Mgmt Study
- _____ Flow enters and exits VFS as sheet flow
- _____ Grades between 1% and 6%
- _____ 130' maximum approach length
- _____ VFS length=1/3 approach length
- _____ Grading Plan with bottom and overflow elevations
- _____ Detailed landscape plan per plan approved by PC
- _____ Appropriate plant selection with dense, 100% coverage (based on assumed inundation period)