



# Stormwater Quality Worksheet

This worksheet is to be used in conjunction with the Connecticut Stormwater Quality Manual for any new land development. It is designed to help the regulated community and regulatory agencies work through the recommendations provided in the 2004 Connecticut Stormwater Quality Manual. It is not currently required to be submitted with any permit applications submitted to the Connecticut Department of Environmental Protection (DEP).

## Part I: General Information

|   |   |                 |  |
|---|---|-----------------|--|
| 1. List applicant information.  |   |                 |  |
| Name:   |   |                 |  |
| Address:  |   |                 |  |
| City/Town:  | State:  | Zip Code:       |  |
| Phone:  | ext.  | Fax:            |  |
| E-mail:   |   |                 |  |
| Contact Person:   | Title:  |                 |  |
| 2. List site information.   |   |                 |  |
| Site Name:  |   |                 |  |
| Address:  |   |                 |  |
| City/Town:  | State:  | Zip Code:       |  |
| 3. Proposed Stormwater Management Practices (STP) (check all that apply): |   |                 |  |
| <input type="checkbox"/> Site Planning and Design                         | <input type="checkbox"/> Stormwater Treatment Practices |                 |  |
| 4. Critical Resources (check all that apply):                             |   |                 |  |
| <b>On-site</b>  |   | <b>Off-site</b> |  |
| <input type="checkbox"/> Wells, aquifers                                  | <input type="checkbox"/> Neighboring land uses          |                 |  |
| <input type="checkbox"/> Wetlands, streams, ponds                         | <input type="checkbox"/> Wells, aquifers                |                 |  |
| <input type="checkbox"/> Public drinking water supplies                   | <input type="checkbox"/> Wetlands, streams, ponds       |                 |  |
| <input type="checkbox"/> Other: (please describe)                         | <input type="checkbox"/> Public drinking water supplies |                 |  |
|   | <input type="checkbox"/> Other: (please describe)       |                 |  |

**Part I: General Information (continued)**

|   |               |                     |                 |                      |
|---|---------------|---------------------|-----------------|----------------------|
| 5. List any plans and/or reports that may be referenced in this worksheet. In addition to the name of each plan or report, label each consecutively starting with the number 1 (e.g., Report 1: <i>name of report</i> , etc.) Use the plan or report identifier number where necessary in this worksheet. |               |                     |                 |                      |
| <b>6a. Provide the location of the following information. Use the identifier numbers provided in Part I: item 5 of this worksheet for consistency.</b>  | <b>Plan #</b> | <b>Plan sheet #</b> | <b>Report #</b> | <b>Report page #</b> |
| <b>Site Description</b>   |               |                     |                 |                      |
| i. Natural and manmade features at the site   |               |                     |                 |                      |
| ii. Site topography, drainage patterns, flow paths, and ground cover  |               |                     |                 |                      |
| iii. Impervious area and runoff coefficient   |               |                     |                 |                      |
| iv. Site soils as defined by USDA   |               |                     |                 |                      |
| v. Stormwater discharge from site and known sources of pollutants and sediment loading  |               |                     |                 |                      |
| vi. Critical areas, buffers, and setbacks established by authorities  |               |                     |                 |                      |
| vii. Water quality classification of on-site and adjacent water bodies  |               |                     |                 |                      |
| viii. Identity of any on-site or adjacent waterbodies included on CT 303(d) list of impaired waters   |               |                     |                 |                      |
| <b>6b. Potential Stormwater Impacts</b>   |               |                     |                 |                      |
| i. Potential pollutant sources  |               |                     |                 |                      |
| ii. Type of anticipated stormwater pollutants and relative/calculated load of each pollutant  |               |                     |                 |                      |
| iii. Summary of calculated pre- and post-development peak flows   |               |                     |                 |                      |
| iv. Summary of calculated pre- and post-development groundwater recharge  |               |                     |                 |                      |

**Part II: Site Planning and Design**

See Chapter 4 of the Stormwater Quality Manual for complete descriptions of concepts listed in this Part.

|   |  |
|---|--|
| <b>A. Site Planning and Design Concepts</b>   |  |
| <i>Indicate Yes or No for each item listed below and provide a brief explanation in the space provided.</i> |  |
| 1. Has the development been designed to fit the terrain?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. Has the development been designed to limit land disturbance?   | <input type="checkbox"/> Yes <input type="checkbox"/> No |

**Part II: Site Planning and Design (continued)**

|   |
|---|
| <p>3. Have impervious areas been reduced or disconnected where possible? <input type="checkbox"/> Yes <input type="checkbox"/> No<br/> <i>(Where Alternative Site Design techniques have been utilized, describe in Part II. B of this worksheet)</i></p> |
| <p>4. Has the development been designed to preserve and utilize natural drainage system? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>   |
| <p>5. Have setbacks and vegetated buffers been provided? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>   |
| <p>6. Has the creation of steep slopes been minimized? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>   |
| <p>7. Has pre-development vegetation been maintained? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>  |
| <p>8. Briefly describe post-construction landscaping practices used including attention to native/non-invasive planting.</p>  |
| <p><b>B. Alternative Site Design</b><br/> <i>Check all aspects included in the development design.</i></p>  |
| <p><input type="checkbox"/> Reduced street widths <span style="margin-left: 150px;"><input type="checkbox"/> Reduced street lengths</span></p>  |
| <p><input type="checkbox"/> Alternative cul-de-sac design <span style="margin-left: 150px;"><input type="checkbox"/> Reduced use of storm sewers</span></p>   |
| <p><input type="checkbox"/> Reduced parking lot size <span style="margin-left: 150px;"><input type="checkbox"/> Using permeable paving material</span></p>  |
| <p><input type="checkbox"/> Removal of curbing and addition of slotted curb stops <span style="margin-left: 150px;"><input type="checkbox"/> Incorporation of bioretention into parking lot islands</span></p>  |
| <p><input type="checkbox"/> Alternative lot development <span style="margin-left: 150px;"><input type="checkbox"/> Incorporation of rain gardens on house lots</span></p>   |
| <p>For all aspects checked, provide a detailed explanation:</p><br><br><br><br><br><br><br><br><br><br>   |

### Part III: Stormwater Treatment Practices

Complete Sections A through E for all developments. Complete and include appropriate sheets from Part IV for each practice checked in this Part.

| A. Practices Used   |   |
|---|---|
| Check all practices used in development.  |   |
| Primary Treatment Practices   | Secondary Treatment Practices                                   |
| <input type="checkbox"/> Stormwater Pond (P1)   | <i>Conventional</i>   |
| <input type="checkbox"/> micropool extended detention pond  | <input type="checkbox"/> Dry detention pond (S1)                |
| <input type="checkbox"/> wet pond   | <input type="checkbox"/> Underground detention facilities (S2)  |
| <input type="checkbox"/> wet extended detention pond  | <input type="checkbox"/> Deep sump catch basins (S3)            |
| <input type="checkbox"/> multiple pond system   | <input type="checkbox"/> Oil/particle separators (S4)           |
| <input type="checkbox"/> pocket pond  | <input type="checkbox"/> Dry wells (S5)                         |
| <input type="checkbox"/> Stormwater Wetlands (P2)   | <input type="checkbox"/> Permeable pavement (S6)                |
| <input type="checkbox"/> shallow wetland  | <input type="checkbox"/> Vegetated filter strips (S7)           |
| <input type="checkbox"/> extended detention wetland   | <input type="checkbox"/> Grass drainage channels (S8)           |
| <input type="checkbox"/> pond/wetland system  | <i>Innovative/ Emerging Technologies</i>                        |
| <input type="checkbox"/> Infiltration Practices (P3)  | <input type="checkbox"/> Catch basin inserts (S9)               |
| <input type="checkbox"/> infiltration Trench  | <input type="checkbox"/> Hydrodynamic separators (S10)          |
| <input type="checkbox"/> infiltration Basin   | <input type="checkbox"/> Media filters (S11)                    |
| <input type="checkbox"/> Filtering Practices (P4)   | <input type="checkbox"/> Underground infiltration systems (S12) |
| <input type="checkbox"/> surface sand filter  | <input type="checkbox"/> Alum injections (S13)                  |
| <input type="checkbox"/> underground sand filter  |   |
| <input type="checkbox"/> perimeter sand filter  |   |
| <input type="checkbox"/> organic filter   |   |
| <input type="checkbox"/> bioretention   |   |
| <input type="checkbox"/> Water Quality Swales (P5)  |   |
| <input type="checkbox"/> dry swales   |   |
| <input type="checkbox"/> wet swales   |   |
| 1. If there is no primary treatment practice used, explain why.   |   |
| 2. Are other innovative emerging technologies proposed that are not listed? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>If yes, please describe technologies. |   |
| 3. Provide a diagram of the treatment train showing the practices used, their locations, and how they are connected. Attach and label a separate sheet to this sheet.         |   |

**Part III: Stormwater Treatment Practices (continued)**

| <b>B. Stormwater Quality Management Objectives</b> |  |
|--|--|
| <i>Check all that apply</i>                        |  |
| <input type="checkbox"/> Groundwater Recharge      | Pollutants expected from development   |
| <input type="checkbox"/> Runoff Volume Reduction   | <input type="checkbox"/> Sediment      |
| <input type="checkbox"/> Stream Channel Protection | <input type="checkbox"/> Phosphorus    |
| <input type="checkbox"/> Peak Flow Control         | <input type="checkbox"/> Nitrogen      |
|  | <input type="checkbox"/> Metals        |
|  | <input type="checkbox"/> Hydro-Carbons |
|  | <input type="checkbox"/> Bacteria      |

| <b>C. Downstream Resources:</b> <i>List each stormwater treatment practice (STP) which may affect a downstream resource. Check each downstream resource affected for each STP listed. In the space below each listed practice describe how the STP is designed to reduce impacts to the affected downstream resources.</i> |                               |                              |                          |  |                          |
|--|-------------------------------|------------------------------|--------------------------|--|--------------------------|
| <i>See Section 8.4 of the Stormwater Quality Manual for additional guidance</i>  |                               |                              |                          |  |                          |
| <b>Stormwater Treatment Practice</b>   | <b>Sensitive Watercourses</b> | <b>Water Supply Aquifers</b> | <b>Lakes and Ponds</b>   | <b>Surface Water Drinking Supplies</b> | <b>Estuary/Coastal</b>   |
|  | <input type="checkbox"/>      | <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/>               | <input type="checkbox"/> |
| Description:   |                               |                              |                          |  |                          |
|  | <input type="checkbox"/>      | <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/>               | <input type="checkbox"/> |
| Description:   |                               |                              |                          |  |                          |
|  | <input type="checkbox"/>      | <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/>               | <input type="checkbox"/> |
| Description:   |                               |                              |                          |  |                          |
|  | <input type="checkbox"/>      | <input type="checkbox"/>     | <input type="checkbox"/> | <input type="checkbox"/>               | <input type="checkbox"/> |
| Description:   |                               |                              |                          |  |                          |

**Part III: Stormwater Treatment Practices (continued)**

D. Has the STP been designed to minimize the potential for nuisance insects and vectors?

*See Section 8.7 of the Stormwater Quality Manual for guidance*

Yes       No

Provide brief explanation:

E. Has the STP been designed to reduce the impact on natural wetlands and vernal pools?

*See Section 8.8 of the Stormwater Quality Manual for guidance*

Yes       No

Provide brief explanation:

## Part IV: Stormwater Treatment Practice (STP) Design Worksheets

### A. Stormwater Ponds (P1) (See Chapter 11-P1 of the Stormwater Quality Manual for guidance)

| <p>1. Type: (check one) (Reproduce this sheet for each type used.)</p> <p> <input type="checkbox"/> Wet Pond                 <input type="checkbox"/> Wet Extended Detention Pond<br/> <input type="checkbox"/> Micropool Extended Detention Pond                 <input type="checkbox"/> Multiple Pond System             </p> |   |   |
|--|---|---|
| <p>2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.</p>   |   |   |
| Parameter  | Design Criteria   | Provide report and/or plan page or sheet number showing aspect or calculation |
| Setback  | 50 feet from on-site sewage disposal systems                              |   |
|  | 50 feet from private wells  |   |
|  | 10 feet from any property line  |   |
|  | 20 feet from any structure  |   |
|  | 50 feet from any steep slope  |   |
|  | 750 feet from any vernal pool   |   |
| Preferred Shape  | Curvilinear   |   |
| Side Slopes  | 3:1 or maximum  |   |
|  | Terminate at safety benches   |   |
| Length to Width Ratio  | 3:1 minimum along the flow path between the inlet and outlet at mid-depth |   |
| Pretreatment Volume  | 10% of WQV  |   |
|  | 100% of WQV for higher pollutant loading (see Chapter 7)                  |   |
| Pond Volume  | Equal or exceeding WQV  |   |
| Drainage Area  |   |   |
| Wet ponds  | Minimum contributing drainage area 25 acres                               |   |
| Extended Detention   | Minimum contributing drainage area 10 acres                               |   |
| Pocket Ponds   | Minimum contributing drainage area 1-5 acres                              |   |
| Underlying Soils   | Low permeability unless groundwater intercepted                           |   |
| Capacity   | Minimum ratio of pool volume to WQV between 2:1 and 4:1                   |   |
| Depth  |   |   |
| Pool   | 3-6 feet, not greater than 8 feet   |   |
| Aquatic bench  | 12-18 inches  |   |
| Low Flow Orifice   | Protected from clogging   |   |
| Pond Drain   | Present   |   |
| Principle Spillway   | Inaccessible to children  |   |
| Warning Signs  | Posted against swimming/skating   |   |
| Maintenance Access   | Extending to public road  |   |
| Cross Sections   |   |   |
| Describe Cold Climate Design Features:   |   |   |
| Other Design Features:   |   |   |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**B. Stormwater Wetlands (P2)** (See Chapter 11-P2 of the Stormwater Quality Manual for guidance)

| 1. Type: (check one) (Reproduce and complete this sheet for each type used.)   |   |   |
|--|---|---|
| <input type="checkbox"/> Shallow Wetland <input type="checkbox"/> Pond/Wetland System<br><input type="checkbox"/> Extended Detention Wetland                             |   |   |
| <b>2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.</b> |   |   |
| Parameter  | Design Criteria   | Provide report and/or plan page or sheet number showing aspect or calculation |
| <b>Setback</b>   | 50 feet from on-site sewage disposal systems  |   |
|  | 50 feet from private wells  |   |
|  | 10 feet from any property line  |   |
|  | 20 feet from any structure  |   |
|  | 50 feet from any steep slope  |   |
|  | 750 feet from any vernal pool   |   |
| <b>Preferred Shape</b>   | Curvilinear   |   |
| <b>Side Slopes</b>   | 3:1 or maximum  |   |
|  | Terminate at safety benches   |   |
| <b>Length to Width Ratio</b>   | 3:1 minimum along the flow path between the inlet and outlet at mid-depth   |   |
| <b>Pretreatment Volume</b>   | 10% of WQV  |   |
|  | 100% of WQV for higher pollutant loading (see Chapter 7)  |   |
| <b>Drainage Area</b>   | Minimum contributing drainage area 25 acres   |   |
|  | Surface area of wetland 1 to 1.5% of contributing drainage area   |   |
| <b>Underlying Soils</b>  | Low permeability unless groundwater intercepted   |   |
| <b>Size</b>  | Based on calculations on page 11-P2-7 and 8. Approximate guidelines: ratio of wetland to drainage area 0.2 for shallow marshes and 0.1 for extended detention shallow wetland systems |   |
| <b>Depth</b>   | Marsh/Wetland   | 0.5 to 1.5 feet   |
|  | Forebays/Micropools   | 4-6 feet  |
| <b>Low Flow Orifice</b>  | Protected from clogging   |   |
| <b>Wetland Drain</b>   | Present   |   |
| <b>Principle Spillway</b>  | Inaccessible to children  |   |
| <b>Warning Signs</b>   | Posted against swimming/skating   |   |
| <b>Maintenance Access</b>  | Extending to public road  |   |
| <b>Cross Sections</b>  |   |   |
| <b>Describe Cold Climate Design Features:</b>  |   |   |
| <b>Other Design Features:</b>  |   |   |



**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**C. Infiltration Practices (P3)** (See Chapter 11-P3 of the Stormwater Quality Manual for guidance)

| <p>1. Type: (check one) (Reproduce and complete this sheet for each type used.)</p> <p><input type="checkbox"/> Trench <span style="margin-left: 200px;"><input type="checkbox"/> Basin</span></p> |   |   |
|--|---|---|
| <p>2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.</p>                           |   |   |
| Parameter  | Design Criteria                               | Provide report and/or plan page or sheet number showing aspect or calculation |
| Design Volume  | Entire water quality volume (WQV)             |   |
| Pretreatment Volume  | 25% of WQV                                    |   |
| Maximum Draining Time  | 48 to 72 hours after storm event (entire WQV) |   |
| Minimum Draining Time  | 12 hours (for adequate pollutant removal)     |   |
| Maximum Contributing Drainage  |   |   |
| Trench   | 5 acres                                       |   |
| Basin  | 25 acres                                      |   |
| Minimum Infiltration Rate  | 0.3 in/hr (as measured in field)              |   |
| Maximum Infiltration Rate  | 5.0 in/hr (as measured in field)              |   |
| Depth  |   |   |
| Trench   | 2 to 10 feet (trench depth)                   |   |
| Basin  | 3 feet (pondering depth) recommended          |   |
| Vegetated Buffers  | Around Trench                                 |   |
| Cross Sections   |   |   |
| Describe Cold Climate Design Features:   |   |   |
| Other Design Features:   |   |   |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**D. Filtering Practices (P4)** (See Chapter 11-P4 of the Stormwater Quality Manual for guidance)

| 1. Type: (check one) (Reproduce and complete this sheet for each type used.)<br><input type="checkbox"/> Surface Filters <span style="margin-left: 200px;"><input type="checkbox"/> Underground Filters</span> |  |   |
|--|--|---|
| 2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.  |  |   |
| Parameter  | Design Criteria                          | Provide report and/or plan page or sheet number showing aspect or calculation |
| <b>Maximum Drainage Area</b>   | <i>5 to 10 acres</i>                     |   |
| Bio-retention  | <i>Less than 5 acres</i>                 |   |
| <b>Slope</b>   | <i>6% or less</i>                        |   |
| <b>Head Difference</b>   | <i>5 to 7 feet</i>                       |   |
| <b>Underlying Soils</b>  | <i>Highly impervious</i>                 |   |
| <b>Distance to Water Table</b>   | <i>At least 3 feet separation</i>        |   |
| <b>Pretreatment Volume</b>   | <i>at least 25% WQV</i>                  |   |
| <b>Length to Width Ratio</b>   | <i>1.5:1 to 3:1</i>                      |   |
| <b>Design Volume</b>   | <i>At least 75% WQV</i>                  |   |
| <b>Draining Time</b>   | <i>Designed to Drain within 24 hours</i> |   |
| <b>Cross Sections</b>  |  |   |
| <b>Describe Cold Climate Design Features:</b>  |  |   |
| <b>Other Design Features:</b>  |  |   |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**E. Water Quality Swales (P5)** (See Chapter 11-P5 of the Stormwater Quality Manual for guidance)

| <p>1. Type: (check one) (Reproduce and complete this sheet for each type used.)</p> <p><input type="checkbox"/> Dry Swale <span style="margin-left: 200px;"><input type="checkbox"/> Wet Swale</span></p> |   |   |
|---|---|---|
| <p>2. Provide the location of the following information. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.</p>                                  |   |   |
| Parameter   | Design Criteria   | Provide report and/or plan page or sheet number showing aspect or calculation |
| <b>Pretreatment Volume</b>  | <i>25% of the water quality volume (WQV)</i>  |   |
| <b>Preferred Shape</b>  | <i>Trapezoidal and parabolic</i>  |   |
| <b>Bottom Width</b>   | <i>4 feet minimum recommended for maintenance, 8 feet maximum, widths up to 16 feet are allowable if a dividing berm or structure is used</i>   |   |
| <b>Side Slopes</b>  | <i>3(h): 1(v) maximum, 4:1 or flatter recommended for maintenance (where space permits)</i>   |   |
| <b>Longitudinal Slope</b>   | <i>1% to 2% without check dams, up to 5% with check dams</i>  |   |
| <b>Drainage Area</b>  | <i>No more than 5 acres</i>   |   |
| <b>Sizing Criteria</b>  | <i>Length, width, depth and slope needed to provide surface storage for the WQV.</i>  |   |
| Dry Swale   | <i>Maximum ponding time of 24 hours</i>   |   |
| Wet Swale   | <i>retains the WQV for 24 hours; ponding may continue longer (5 days recommended maximum duration to avoid potential for mosquito breeding)</i> |   |
| <b>Underlying Soil Bed</b>  | <i>Equal to Swale width</i>   |   |
| Dry Swale   | <i>Moderately permeable soils ( USCS ML, SM, or SC), 30 inches deep with gravel/pipe underdrain system</i>                                      |   |
| Wet Swale   | <i>Undisturbed soils, no underdrain system</i>  |   |
| <b>Depth and Capacity</b>   | <i>Surface storage of WQV with maximum ponding depth of 18 inches for water quality treatment</i>   |   |
|   | <i>Safely convey 2-year storm with non-erosive velocity</i>   |   |
|   | <i>Adequate capacity for 10-year storm with 6 inches of freeboard</i>   |   |
| <b>Cross Sections</b>   |   |   |
| <b>Describe Cold Climate Design Features:</b>   |   |   |
| <b>Other Design Features:</b>   |   |   |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**F. Secondary Treatment Practices (S1-S13)**

|   |   |
|---|---|
| <p><b>Provide location of explanatory narrative, computations and plan/detail for each numbered item consistent with "Design Consideration" for each measure. Use the report and/or plan identifier numbers provided in Part I: item 5 of this worksheet for consistency.</b></p> |   |
| <p><b>S1: Dry Detention Ponds</b></p>   |   |
| <p>Explain why this practice is suitable for this site (see pp 11-S1-1 to 2):</p>   |   |
| <p><b>Item:</b></p>   | <p><b>Provide report and/or plan page or sheet #:</b></p> |
| 1. Sediment Forebay with Deep Permanent Pool  |   |
| 2. Extended Detention Storage Design (no longer than 5 days)  |   |
| 3. Outlet Wet Pool  |   |
| 4. Pond Configuration   |   |
| 5. Low Flow Channels  |   |
| 6. Dam Safety Section of CTDEP IWRD consulted regarding State jurisdiction?   |   |
| <p><b>S2: Underground Detention Facilities</b></p>  |   |
| <p>Explain why this practice is suitable for this site (see pp 11-S2-1 to 3):</p>   |   |
| <p><b>Item:</b></p>   | <p><b>Provide report and/or plan page or sheet #:</b></p> |
| 1. Siting   |   |
| 2. Pretreatment   |   |
| 3. Inlets, Outlets, and Overflows   |   |
| <p><b>S3: Deep Sump Catch Basins</b></p>  |   |
| <p>Explain why this practice is suitable for this site (see pp 11-S3-1 to 3):</p>   |   |
| <p><b>Item:</b></p>   | <p><b>Provide report and/or plan page or sheet #:</b></p> |
| 1. Drainage Area  |   |
| 2. Design   |   |
| 3. Maintenance  |   |
| 4. Sediment Disposal  |   |
| <p><b>S4: Oil/Particle Separators</b></p>   |   |
| <p>Explain why this practice is suitable for this site (see pp 11-S4-1 to 6):</p>   |   |
| <p><b>Item:</b></p>   | <p><b>Provide report and/or plan page or sheet #:</b></p> |
| 1. Drainage Area  |   |
| 2. Sizing/Design  |   |
| 3. Maintenance  |   |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**F. Secondary Treatment Practices (S1-S13)**

| <b>S5: Dry Wells</b>   |  |
|--|--|
| Explain why this practice is suitable for this site (see pp 11-S5-1 to 4): |  |
| <b>Item:</b>   | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Soils   |  |
| 2. Land Use  |  |
| 3. Drainage Area   |  |
| 4. Water Table/ Bedrock  |  |
| 5. Size/Depth  |  |
| 6. Miscellaneous   |  |
| 7. Construction  |  |
| 8. Operation and Maintenance   |  |
| <b>S6: Permeable Pavement</b>  |  |
| Explain why this practice is suitable for this site (see pp 11-S6-1 to 4): |  |
| <b>Item:</b>   | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Soils   |  |
| 2. Land Use  |  |
| 3. Slope   |  |
| 4. Water Table/ Bedrock  |  |
| 5. Construction (Site Preparation and Planting)                            |  |
| 6. Operation and Maintenance   |  |
| <b>S7: Vegetated Filter Strips and Level Spreaders</b>                     |  |
| Explain why this practice is suitable for this site (see pp 11-S7-1 to 6): |  |
| <b>Item:</b>   | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Slope   |  |
| 2. Soils   |  |
| 3. Drainage Area   |  |
| 4. Water Table/ Bedrock  |  |
| 5. Size  |  |
| 6. Vegetation  |  |
| 7. Level Spreader  |  |
| 8. Construction  |  |
| 9. Operation and Maintenance   |  |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**F. Secondary Treatment Practices (S1-S13)**

| <b>S8: Grass Drainage Channels</b>  |  |
|---|--|
| Explain why this practice is suitable for this site (see pp 11-S8-1 to 3):  |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Provides sufficient channel length                                       |  |
| 2. Provides non-erosive velocities  |  |
| 3. Sufficient capacity and conveyance for 10-year frequency storm event.    |  |
| <b>S9: Catch Basin Inserts</b>  |  |
| Explain why this practice is suitable for this site (see pp 11-S9-1 to 3):  |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. High Flow Bypass   |  |
| 2. Maintenance  |  |
|   |  |
| <b>S10: Hydrodynamic Separators</b>   |  |
| Explain why this practice is suitable for this site (see pp 11-S10-1 to 3): |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Drainage Area  |  |
| 2. Sizing/Design  |  |
| 3. Performance  |  |
| 4. Maintenance  |  |
| 5. Sediment Disposal  |  |
| <b>S11: Media Filter</b>  |  |
| Explain why this practice is suitable for this site (see pp 11-S11-1 to 3): |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Sizing/ Design   |  |
| 2. Maintenance  |  |
| 3. Sediment Disposal  |  |

**Part IV: Stormwater Treatment Practice (STP) Design Worksheets (continued)**

**F. Secondary Treatment Practices (S1-S13)**

| <b>S12: Underground Infiltration Systems</b>                                |  |
|---|--|
| Explain why this practice is suitable for this site (see pp 11-S12-1 to 3): |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Siting   |  |
| 2. Pretreatment   |  |
| 3. Design Volume  |  |
| 4. Draining Time  |  |
| 5. Infiltration Rate  |  |
| <b>S13: Alum Injection</b>  |  |
| Explain why this practice is suitable for this site (see pp 11-S13-1 to 2): |  |
| <b>Item:</b>  | <b>Provide report and/or plan page or sheet #:</b> |
| 1. Design   |  |
| 2. Operation and Maintenance  |  |

## Part V: Calculations Worksheet

For each STP used, provide calculations for each item listed. Use separate sheet for each STP.

| Name of STP for which the following calculations are provided:         |                          |                           |                     |
|--|--------------------------|---------------------------|---------------------|
| 1. Compute Water Quality Volume (WQV):                                 |                          |                           |                     |
| <b>WQV = (ac-ft)</b>   |                          |                           |                     |
| 2. Compute Water Quality Flow (WQF):                                   |                          |                           |                     |
| <b>WQF = (cfs)</b>   |                          |                           |                     |
| 3. Compute Groundwater Recharge Volume (GRV):                          |                          |                           |                     |
| <b>GRV = (ac-ft)</b>   |                          |                           |                     |
| 4. Compute Runoff Capture Volume (RCV):                                |                          |                           |                     |
| <b>RCV = (ac-ft)</b>   |                          |                           |                     |
| <b>5. Provide Peak Discharge Rates for the following storm events:</b> |                          |                           |                     |
| Storm Event  | Pre-Development<br>(cfs) | Post-Development<br>(cfs) | Change<br>(+/- cfs) |
| 24 hr  |                          |                           |                     |
| 2-year   |                          |                           |                     |
| 10-year  |                          |                           |                     |
| 25-year  |                          |                           |                     |
| 100-year   |                          |                           |                     |
| 500-year   |                          |                           |                     |