|  |
| --- |
| City of Lacey Drainage Control Plan Report Template*This is a template for a Drainage Control Plan Report. A completed draft of this plan shall be submitted to the City in the permit or land use application package. The draft plan shall target an approximately 90 percent (or greater) level of completion.**Throughout this template, instructions are provided in blue boxes, which should be deleted prior to submission. Refer to the following for additional requirements and details:* * *Drainage Control Plan Report Checklist: [link when this becomes available]*
* *Chapter 3 of the City of Lacey (City) Stormwater Design Manual (SDM): [<* [https://cityoflacey.org/resource\_library/stormwater-utility](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcityoflacey.org%2Fresource_library%2Fstormwater-utility%2F&data=05%7C01%7CDchriste%40ci.lacey.wa.us%7C053196cfa34e44f9a69e08da3435822d%7C7806582ae87e40e0a1339ead1e97c9b4%7C0%7C0%7C637879701674574697%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=42r0lgPWJo8ifHppGLV3coQhuDmkm9onmJhD4luKqe0%3D&reserved=0) *>]*

***Instructions:**** *Fill in each section*
* *If some sections do not apply, keep the section titles, but designate as “Not applicable” where a specific section does not apply*
* *Show the page number for each section of the report*
* *Show page numbers of appendices*
* *Identify all attachments included with the report*
* *Number all pages starting at Section 1 (Page 7 of this template)*
* *Use of tables / checklists is optional*
* *Prior to submission, delete blue bordered boxes (including this one)*
* *Prior to submission, update the Table of Contents:*
	+ *Click on the Table of Contents*
	+ *Select ‘Update Table’ in the upper left corner*
	+ *Select ‘Update page numbers only’*
 |

|  |
| --- |
| *The Drainage Control Plan Report must have a cover sheet with the following information provided. Include the word ‘DRAFT’ in the title for the first submission.* |

**DRAFT**

**Drainage Control Plan Report for
[project name]**

Project location

**Project Applicant**

Project applicant’s name

address

telephone number

e-mail address

|  |
| --- |
| Company Logo (optional) |

**Project Engineer**

Project engineer’s name

company name

address

telephone number

e-mail address

Date of submittal

## Project Engineer’s Certification

|  |
| --- |
| *The project engineer responsible for completion of a Drainage Control Plan submittal as described herein shall be a professional engineer licensed in Washington State. Refer to SDM Chapter 3 for additional details.* |

*“I hereby state that this Drainage Control Plan Report for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (name of project) has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Lacey does not and will not assume liability for the sufficiency, suitability, or performance of drainage BMPs prepared by me.”*

|  |
| --- |
| [project engineer’s seal] |

Table of Contents

[Project Engineer’s Certification 3](#_Toc105648411)

[Section 1. Project Overview 6](#_Toc105648412)

[1.1 Site Information 6](#_Toc105648413)

[1.2 Project Description 6](#_Toc105648414)

[1.3 Proposed Stormwater Drainage Design 6](#_Toc105648415)

[1.4 Subarea Data Tabulation 7](#_Toc105648416)

[Section 2. Development Conditions and Requirements 8](#_Toc105648417)

[2.1 Project Vesting 8](#_Toc105648418)

[2.2 Permits Required 8](#_Toc105648419)

[2.3 Project Type and Size 8](#_Toc105648420)

[2.4 Critical Areas 10](#_Toc105648422)

[2.5 Core Requirements 11](#_Toc105648423)

[Section 3. Site and Vicinity Description 13](#_Toc105648424)

[3.1 Existing Physiography 13](#_Toc105648425)

[3.2 Existing Improvements 13](#_Toc105648426)

[3.3 Drainage Patterns 13](#_Toc105648427)

[3.4 Qualitative Analysis 13](#_Toc105648428)

[3.5 Quantitative Analysis 14](#_Toc105648429)

[Section 4. Soils and Infiltration Analysis 15](#_Toc105648430)

[4.1 Summary of Soils and Geotechnical Data 15](#_Toc105648431)

[4.2 Subsurface Factors 15](#_Toc105648432)

[4.3 Infiltration Rates 15](#_Toc105648433)

[Section 5. On-Site Stormwater Management and Low Impact Development (Core Requirement #5) 16](#_Toc105648434)

[5.1 LID Site Design 16](#_Toc105648435)

[5.2 Methodology 16](#_Toc105648436)

[5.3 LID Practices 16](#_Toc105648437)

[5.4 Post-Construction Soil Quality and Depth 17](#_Toc105648438)

[5.5 Retained Trees and Aesthetics 17](#_Toc105648439)

[Section 6. Runoff Treatment and Flow Control (Core Requirements #6 & #7) 18](#_Toc105648440)

[6.1 Runoff Treatment Selection 18](#_Toc105648441)

[6.2 BMP Types & Descriptions 18](#_Toc105648442)

[6.3 Facility Selection and Design Data 18](#_Toc105648443)

[6.4 Design Calculations 18](#_Toc105648444)

[Section 7. Runoff Collection and Conveyance System 20](#_Toc105648445)

[7.1 System Design and Layout 20](#_Toc105648446)

[7.2 Conveyance System Calculations Summary 20](#_Toc105648447)

[Section 8. Source Control (Core Requirement #3) 21](#_Toc105648448)

[8.1 Potential Sources of Pollutants 21](#_Toc105648449)

[8.2 Source Control BMPs 21](#_Toc105648450)

[8.3 Source Control Checklist and Worksheet 21](#_Toc105648451)

[Section 9. Covenants, Dedications, Easements, Agreements, and Guarantees 22](#_Toc105648452)

[9.1 Covenants, Dedications, and Easements 22](#_Toc105648453)

[9.2 Agreements and Guarantees 22](#_Toc105648454)

[Drainage Control Plan Appendices 23](#_Toc105648455)

[Appendix 1: Maps and Plans 23](#_Toc105648456)

[Appendix 2: Supplemental Reports and Information 24](#_Toc105648457)

[Appendix 3: Design Calculations 24](#_Toc105648458)

[Appendix 4: Soil Management Plan 25](#_Toc105648459)

[Drainage Control Plan Attachments 26](#_Toc105648460)

[Attachment 1: Construction SWPPP Report 26](#_Toc105648461)

[Attachment 2: Maintenance and Source Control Manual 26](#_Toc105648462)

## Project Overview

### Site Information

|  |
| --- |
| *Site information should include the parcel number(s), address or legal description of site property, current zoning, streets/general vicinity, property owner(s), total project site area, surrounding land uses.* |

|  |  |
| --- | --- |
| Parcel number(s) | [Fill in this table] |
| Address or legal description of site property |  |
| Current zoning |  |
| Streets/general vicinity |  |
| Property owner(s) |  |
| Total project site area |  |
| Surrounding land uses |  |

### Project Description

|  |
| --- |
| *Provide a brief description of the proposed development project (type, size, location, proposed improvements including structures and paving, phasing (if applicable), and for additions/remodels only, current assessed value and cost of improvements excluding land value).* |

[Insert text here]

### Proposed Stormwater Drainage Design

|  |
| --- |
| *Describe the overall drainage plan concept, proposed permanent stormwater BMPs, their locations and distribution across the site, and proposed ownership. Refer to SDM Chapter 3 for additional details. Refer to SDM Chapters 7 and 8 regarding permanent stormwater BMP design for flow control and runoff treatment.* |

[Insert text here]

|  |
| --- |
| Table 1.1. Proposed Permanent Stormwater BMPs. |
| Permanent Stormwater BMP | Location | Proposed Ownership |
| [Fill in this table] |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

### Subarea Data Tabulation

|  |
| --- |
| *Provide data tables for existing and proposed surface areas. Example tables are provided below. Refer to SDM Chapter 3 for additional details.* |

Tables 1.2 and 1.3 summarize the existing and proposed areas for this project, respectively.

|  |
| --- |
| Table 1.2. Existing Site Land Coverage Tabulation. |
| Existing Surface | Surface Type | Area (square feet) | Area (acres) |
| Driveway | Hard/Impervious | [Fill in this table] |  |
| Walkway | Hard/Impervious |  |  |
| Roof | Hard/Impervious |  |  |
| Forested/Trees | Pervious |  |  |
| Pasture/Landscaping | Pervious |  |  |
| **Total Site/Parcel Area** |  |  |

|  |
| --- |
| Table 1.3. Proposed Site Land Use Coverage Tabulation. |
| Proposed Surface | Surface Type | **Pollutant Generating** | Area (square feet) | Area (acres) |
| Roadway | Hard/Impervious | Yes - PGIS | [Fill in this table] |  |
| Driveway | Hard/Impervious | Yes - PGIS |  |  |
| Walkway | Hard/Impervious | No |  |  |
| Roof | Hard/Impervious | No |  |  |
| Permeable Pavement | Hard/Pervious | Yes - PGPS |  |  |
| Landscaping | Pervious | Yes - PGPS |  |  |
| Undisturbed (e.g., tree tract) | Pervious | No |  |  |
| Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |
| **Total Project Area** |  |  |

 PGIS = Pollution Generating Impervious Surface

 PGPS = Pollution Generating Pervious Surface

## Development Conditions and Requirements

### **Project Vesting**

|  |
| --- |
| *Specify applicable versions of SDM and DG&PWS (i.e., 2022 SDM); if other than current versions were used, provide justification.* |

|  |
| --- |
|[ ]  2022 SDM  |
|[ ]  SDM from another year |
|[ ]  2017 City of Lacey Development Guidelines and Public Works Standards (DG&PWS)  |
|[ ]  DG&PWS from another year |

*If the 2022 SDM or the 2017 DG&PWS was not used, provide a narrative justification here.*

[Insert text here]

### **Permits Required**

|  |
| --- |
| *List applicable permits for the project that are required by the City and other agencies and the present status of applicable permits. Refer to SDM Chapter 3 for additional details.* |

|  |
| --- |
| Table 2.1. Permits Required. |
| Permit Title | Agency Requiring Permit | Permit Requirements that Impact the Project | Present Status |
| [Fill in this table] |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### **Project Type and Size**

|  |
| --- |
| *Specify the project type as either new development or redevelopment; the total area of new and/or replaced hard surfaces; the total area to be disturbed; and the results from the applicable flow chart in Chapter 2 of the SDM of applicable Core Requirements. Include the valuation of the proposed improvements, including interior improvements, for redevelopment projects.**While a highlighted markup of the applicable flow chart is recommended, it is not required and a narrative description of the applicable flowchart results may be used.* |

Table 2.2 lists the new, replaced, and disturbed areas for the project.

|  |
| --- |
| Table 2.2. New, Replaced, and Disturbed Areas. |
| Area Type | Area |
| Total New Hard Surfaces | [Fill in this table] |
| Total Replaced Hard Surfaces |  |
| Total Area Disturbed |  |

A Drainage Control Plan is required for projects that must address all Core Requirements. **Select “yes” or “no” for each statement below.** If the answer is “yes” for any statement, a Drainage Control Plan is required for the project.

|  |  |  |
| --- | --- | --- |
| Yes | No | Statement |
|[ ] [ ]  Does the project convert 0.75 acres **or more** of vegetation to lawn or landscaped areas to pasture? |
|[ ] [ ]  Does the project convert 2.5 acres **or more** of native vegetation to pasture? |
|[ ] [ ]  Does the Project result in 5,000 square feet **or more** of new plus replaced hard surface area? |

|  |
| --- |
| [ ]  **New Development**: Include markup of flow chart from Figure 2.1 |
| [ ]  **Redevelopment:** Include markup of flow chart from Figure 2.2 |
| If this is a redevelopment project, include valuation of proposed improvements, including interior improvements: |
| [Insert text here] |

### **Critical Areas**

|  |
| --- |
| *Describe the presence of any critical areas or environmentally sensitive areas. Indicate any site design and construction requirements that implement the applicable critical area standards and requirements. Refer to SDM Chapter 3 for additional details.* |

Does this project involve work in or near critical areas? [ ] Yes [ ] No

Describe the presence of any critical areas or environmentally sensitive areas, including the following:

|  |  |
| --- | --- |
|[ ]  Wetlands |[ ]  Endangered Species Act (ESA) species habitat |
|[ ]  Wellhead Protection Areas (WHPAs) |[ ]  Critical Aquifer Recharge Areas (CARAs) |
|[ ]  Geologically hazardous areas |[ ]  Steep slopes |
|[ ]  Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |[ ]  Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

### **Core Requirements**

|  |
| --- |
| *Below each Core Requirement heading below, describe how the Core Requirement is being addressed by the project. If a Core Requirement does not apply to the project, provide justification. Refer to SDM Chapter 3 for additional details.* |

#### **Core Requirement #1: Preparation of Stormwater Site Plans**

[Insert text here]

#### Core Requirement #2: Construction Stormwater Pollution Prevention

[Insert text here]

#### Core Requirement #3: Source Control of Pollution

[Insert text here]

#### Core Requirement #4: Preservation of Drainage Systems and Outfalls

[Insert text here]

#### Core Requirement #5: On-Site Stormwater Management

|  |
| --- |
| *Describe how LID principles were applied to the site planning process, and indicate whether the project used the mandatory list option, or the LID performance standard option, and provide complete documentation demonstrating compliance with either approach.* |

[Insert text here]

*Which of the following options was implemented for CR #5?*

|  |
| --- |
|[ ]  List #1 |
|[ ]  List #2 |
|[ ]  List #3 |
|[ ]  LID performance standard |

#### Core Requirement #6: Runoff Treatment

[Insert text here]

#### Core Requirement #7: Flow Control

[Insert text here]

#### Core Requirement #8: Wetlands Protection

[Insert text here]

#### Core Requirement #9: Operation and Maintenance

[Insert text here]

## Site and Vicinity Description

|  |
| --- |
| *Where subsequent report sections call for more details on these issues (e.g., soils, wells, septic systems), a brief description and reference to the specific Drainage Report section or appendix is sufficient.* |

### Existing Physiography

|  |
| --- |
| *Describe the existing physical setting of the project site. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Existing Improvements

|  |
| --- |
| *Describe any existing constructed improvements and other non-natural features on the project site. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Drainage Patterns

|  |
| --- |
| *Describe existing drainage patterns at the project site and adjacent lands, and proposed accommodations and/or alterations to existing drainage flows. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Qualitative Analysis

|  |
| --- |
| *Conduct a* ***qualitative analysis*** *downstream from the site to the receiving water and upstream of the site to characterize any potential offsite flow to the site or backwatering effects.* *Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Quantitative Analysis

|  |
| --- |
| *A* ***quantitative analysis*** *may be required for any project deemed to need additional downstream information or where the project engineer or the SDM Administrator determines that a quantitative analysis is necessary to evaluate the off-site impacts or the capacity of the conveyance system.**Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

## Soils and Infiltration Analysis

### Summary of Soils and Geotechnical Data

|  |
| --- |
| *Provide a summary of existing site soil conditions and pertinent information from the site geotechnical report. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

|  |
| --- |
| Table 4.1. Soil Characteristics. |
| **Soil description** | **Area (acres)** | **Percent of Site** |
| **Geologic/glacial** (e.g., Vashon till or recessional outwash) | **NRCS Soil Units** (e.g., Indianola series, Hydrologic Soil Group A) |
| [Fill in this table] |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### Subsurface Factors

|  |
| --- |
| *Describe subsurface soil, rock, and groundwater conditions in relation to proposed stormwater BMPs.** *Infiltration feasibility assessment, including presence of any restrictive layers within 10 feet depth below the base of any proposed infiltration BMPs.*
* *Determination of seasonal high groundwater levels at the site and methodology.*
 |

[Insert text here]

### Infiltration Rates

|  |
| --- |
| *Describe the methodology and results used to determine initial and design infiltration rates. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

## On-Site Stormwater Management and Low Impact Development (Core Requirement #5)

|  |
| --- |
| *This section shall describe how Core Requirement #5 will be implemented for the project. Where feasible, projects shall maximize the use of LID site design strategies to minimize effective impervious areas, vegetation loss, and stormwater runoff. Refer to SDM Chapters 3 & 4 for additional details.* |

### LID Site Design

|  |
| --- |
| *Provide the following:** *Summary of LID site design considerations and how they are being implemented.*
* *Description of how LID principles and practices will be applied to the project.*
 |

[Insert text here]

### Methodology

|  |
| --- |
| *For LID BMPs and Core Requirement #5, provide the following:** *Project narrative showing how the project will fulfill the requirement for on-site management of stormwater*
* *Description of how site planning and layout were implemented*
* *Total area of vegetation retained*
* *Choice of List #2 or LID Performance Standard, and describe how the project complies with the selected option.*

*Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### LID Practices

|  |
| --- |
| *Describe the LID BMPs that are proposed to be implemented on-site. Specify the BMP names and BMP numbers per the SDM.* |

[Insert text here]

### Post-Construction Soil Quality and Depth

|  |
| --- |
| *Specify the implementation option(s) for post-construction soil quality and depth and quantify the areas of disturbed soils to be amended. Refer to SDM Chapter 3 for additional details.* |

*Which of the implementation options will be used? Select all that apply.*

|  |
| --- |
|[ ]  Retain and protect undisturbed soil |
|[ ]  Amend soil |
|[ ]  Stockpile soil |
|[ ]  Import soil |

[Insert text here]

### Retained Trees and Aesthetics

|  |
| --- |
| *Describe how the stormwater design blends-in with the site layout and landscaping and the effort made to make the BMPs aesthetically pleasing, how BMPs will provide useable open space, and how the BMPs will fit into the landscaping plan. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

## Runoff Treatment and Flow Control (Core Requirements #6 & #7)

### Runoff Treatment Selection

|  |
| --- |
| *Summarize the selection process for runoff treatment BMPs for Core Requirement #6. Specify the runoff treatment performance goals that are required for the project site, and the basis for the selected BMPs.* |

[Insert text here]

*Which of the following runoff treatment performance goals are required for the project site?*

|  |
| --- |
|[x]  Oil control (SDM Chapter 8, Section 8.3.2) |
|[ ]  Phosphorus Treatment (SDM Chapter 8, Section 8.3.3) |
|[ ]  Enhanced Treatment (SDM Chapter 8, Section 8.3.4) |
|[ ]  Basic Treatment (SDM Chapter 8, Section 8.3.6) |
|[ ]  Additional Runoff Treatment (SDM Chapter 8, Section 8.3.5):* Bacteria
* Dissolved Oxygen
* Temperature
 |

*Specify the basis for the selected BMPs and provide details below.*

|  |
| --- |
|[ ]  Watershed or Basin Plans |
|[ ]  Water Clean-up Plans |
|[ ]  Groundwater Management Areas (Wellhead Protection and Critical Aquifer Recharge) |
|[ ]  Lake Management Plans |

[Insert text here]

### BMP Types & Descriptions

|  |
| --- |
| *Specify and describe the runoff treatment BMPs that are proposed to be implemented on-site to meet the required performance standards. If separate flow control BMPs are proposed for Core Requirement #7, describe those BMPs and how they are proposed to be implemented. Use the BMP names and BMP numbers per the SDM.* |

[Insert text here]

### Facility Selection and Design Data

|  |
| --- |
| *Describe facility selection and sizing (minimum required and proposed). Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Design Calculations

|  |
| --- |
| *Provide design calculations for all proposed BMPs. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

*Fill in the following table for each proposed BMP:*

|  |
| --- |
| **Table 6.1 Design Stage for [BMP Name].** |
| **Recurrence Interval** | **Stage (ft)** | **Storage Volume (ac-ft)** |
| 2-year | [Fill in this table] |  |
| 5-year |  |  |
| 10-year |  |  |
| 25-year |  |  |
| 50-year |  |  |
| 100-year |  |  |

|  |
| --- |
| **Table 6.2 Elevations for [BMP Name].** |
| **Key Features** | **Elevation (ft)** |
| Infiltration Surface (Base/Bottom) | [Fill in this table] |
| Lowest Orifice | [add / remove rows as needed] |
| BMP Overflow |  |
| BMP Rim (Overflow + Freeboard) |  |

## Runoff Collection and Conveyance System

|  |
| --- |
| *Document the methods and results of analyses used to evaluate and design the conveyance system per the hydraulic computation guidance in SDM Chapter 6. All calculations, equations, graphs, nomographs, and references used shall be provided in Appendix 3 of the Drainage Control Plan (Design Calculations) and summarized in this section* |

### System Design and Layout

|  |
| --- |
| *Provide a narrative description of the runoff collection and conveyance system. Describe the general layout, and identify all components of the system including pipes, inlets, manholes, open channels, natural channels, and culverts.* |

[Insert text here]

### Conveyance System Calculations Summary

|  |
| --- |
| *Provide summaries of all calculations for capacity of the conveyance system. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

## Source Control (Core Requirement #3)

### Potential Sources of Pollutants

|  |
| --- |
| *Describe potential pollutant sources that may occur on the developed project site, based on the expected site use.* |

[Insert text here]

### Source Control BMPs

|  |
| --- |
| *List and provide a description of applicable permanent postconstruction Source Control practices that will be described in greater detail in the Maintenance and Source Control Manual (Drainage Control Plan Attachment 2). Refer to SDM Chapter 9, Section 9.2 for Source Control BMP Selection.* |

[Insert text here]

### Source Control Checklist and Worksheet

|  |
| --- |
| *Check and list all activities that will occur at proposed project. Use one worksheet for each activity from the checklist. Refer to SDM Chapter 9, Appendix 9A.* |

[Insert/reference the checklist and worksheet here]

## Covenants, Dedications, Easements, Agreements, and Guarantees

### Covenants, Dedications, and Easements

|  |
| --- |
| *Summarize information relevant to covenants, dedications, and easements. Details shall be provided in the Maintenance and Source Control Manual and the Establishment of Maintenance Covenant. Refer to SDM Chapter 3 for additional details.* |

[Insert text here]

### Agreements and Guarantees

|  |
| --- |
| *Describe the maintenance and/or operational bonding or other appropriate financial guarantees required for this project to ensure construction and functionality of drainage BMPs in compliance with applicable standards. These guarantees shall be consistent with the most recent edition of the City of Lacey Development Guidelines and Public Works Standards (DG&PWS).* |

[Insert text here]

Drainage Control Plan Appendices

|  |
| --- |
| *Where the project warrants additional technical documentation, or where the SDM Administrator determines that additional information is necessary, that information shall be included as appendices to the Drainage Control Plan. The following highlights typical Drainage Control Plan appendices. Refer to SDM Chapter 3 for additional details.* |

Appendix 1: Maps and Plans

|  |
| --- |
| *Appendix 1 of the Drainage Control Plan Report shall include the following maps, sized so that all pertinent details are clearly visible:**1a. Vicinity Map (8.5”x11”): Show city boundary, major streets, and project location.**1b. NRCS Soil Types Map (8.5”x11”): e.g., from Web Soil Survey.**1c. Existing Site Topography Map (11”x17” fold-out): Show all features described in Drainage Control Plan Report Section 3. Refer to SDM Chapter 3 for additional details.**1d. Basin Map (11”x17” fold-out): Delineate post-development site areas draining to each runoff collection point and identify TDAs applicable. Refer to SDM Chapter 3 for additional details.**1e. Soil Data Locations Map(s) (11”x17” fold-out): Provide locations of soil test pits and/or borings relative to both the existing ground contours and the proposed site layout and stormwater BMP locations.**1f. Site Plan & Stormwater BMP Plans (11”x17” fold-out): Provide reduced-size duplicates of the site plan & drainage plan sheets from the full-size plan set submittal. Refer to SDM Chapter 3 for additional details.**1g. Stormwater Details (11”x17” fold-out): Provide reduced-size duplicates of the Drainage Details sheets from the full-size plan set submittal, showing stormwater system section views, BMP details, etc.**Refer to SDM Chapter 3 and the DG&PWS for site development drawing requirements and detail drawing requirements.* |

Appendix 2: Supplemental Reports and Information

|  |
| --- |
| *Depending on site and vicinity characteristics, various special reports and studies may be required to provide supplemental information. The various types of supplemental reports and information may include:** *Soils/geotechnical report (see required contents in Chapter 3 of the SDM)*
* *Wetland delineation and description*
* *Groundwater quality and/or hydrogeology*
* *Critical areas analysis and delineation*
* *Slope protection/stability*
* *Floodplain delineation/flood protection BMP conformance*
* *Ecology’s applicable GULD documentation and the manufacturer’s product data*
 |

Appendix 3: Design Calculations

|  |
| --- |
| *Design calculations must include complete calculations for the conveyance, flow control, and runoff treatment BMPs. Calculations must be presented in a clear and orderly manner and labeled and annotated as needed to facilitate an efficient review and approval process. Required calculation components include:** *Printouts of the continuous modeling computation files (e.g., continuous modeling inputs, screenshots, and results) annotated to highlight and clarify key inputs, results, and conclusions.*
* *Other computer printouts or manual calculations used in the stormwater design.*
* *Digital copies of the model with files sufficient to re-run the model including input parameters and model output files.*
 |

Appendix 4: Soil Management Plan

|  |
| --- |
| *If Post-construction Soil Quality and Depth BMP is used on site (refer to SDM Chapter 7, Section 7.4.1), a Soil Management Plan must be included in the project submittal. The Soil Management Plan must include the following:** *A site map showing areas to be fenced and left undisturbed during construction, and areas that will be amended at the turf or planting bed rates*
* *Determination of soil conditions*
* *Identified soil quality implementation option*
* *Calculations of the amounts of compost, compost amended topsoil, and mulch to be used on the site.*

*General guidance on these procedures can be found in the Building Soil manual (Stenn, et al. 2018), available at <*[*www.buildingsoil.org*](https://herrerainc.sharepoint.com/21-07533-000/Shared%20Documents/5-Drainage%20Report%20Template%20and%20Outlines/Template/www.buildingsoil.org)*>.* |

Drainage Control Plan Attachments

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| *The following two attachments shall be included in the project submittals, but as standalone documents bound separately from the Drainage Control Plan Report. Refer to SDM Chapter 3 for additional details.* |

Attachment 1: Construction SWPPP Report

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| *A complete Construction SWPPP (narrative report and drawings) is required as part of the Drainage Control Plan submittal. Refer to Chapter 5, Section 5.2.2, of the SDM for items that shall be included in the Construction SWPPP report.*  |

Attachment 2: Maintenance and Source Control Manual

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| *The Maintenance and Source Control Manual must include site-specific details including applicable BMPs, frequency of maintenance activities, a landscape plan, and specific contaminants that are restricted and controlled. Refer to SDM Chapter 3 for additional details.* |