

CITY OF SAMMAMISH SURFACE WATER DESIGN MANUAL ADDENDUM

PREFACE – How to Use this Document

General Introduction

This document was prepared for the City of Sammamish to meet the requirements of the NPDES Phase 2 permit to develop, implement, and enforce a program to reduce pollutants in stormwater runoff from new development, redevelopment and construction site activities. Per the NPDES permit, this program applies to all sites that disturb a land area 1 acre or greater (the NPDES regulatory threshold), including projects less than one acre that are part of a larger common plan of the development or sale. The program applies to private and public development, including roads.

The City of Sammamish has adopted the 2009 King County Surface Water Design Manual (2009 KCSWDM) in order to be in compliance with its Phase II Municipal Stormwater permit. This Addendum to the 2009 KCSWDM defines how the requirements of the KCSWDM are to be implemented within the City of Sammamish. The Addendum specifies all changes, additions, and deletions to the 2009 KCSWDM to make it appropriate for use within the City of Sammamish. The 2009 KCSWDM along with this Addendum define the drainage requirements for development and redevelopment projects within the City.

Ecology has allowed local jurisdictions to follow previous stormwater requirements for projects disturbing less than one acre. The City has elected to continue their previous practice of applying the requirements of the 1998 King County Surface Water Design Manual (1998 KCSWDM) to those projects disturbing less than the required threshold (1 acre).

Which Manual should be used

If your project will disturb less than acre and is not part of a larger common plan or sale, then use the 1998 KCSWDM in conjunction with the applicable sections of this addendum. If your project proposes to disturb more than 40,000 sq ft but less than an acre, then a pre-construction on-site inspection is required to review the proposed clearing limits, and a post construction survey is required to certify that less than an acre was disturbed.

Projects that propose to disturb over an acre shall use the 2009 KCSWDM in conjunction with this addendum.

Purpose of and Need for the Addendum

The City has been issued a Phase II Municipal Stormwater Permit (Permit) effective February 16, 2007. The Permit was issued under the National Pollutant Discharge

Elimination System (NPDES), as administered by the Washington State Department of Ecology (Ecology) within Washington State. The Permit specifies minimum requirements and technical thresholds for stormwater mitigation needed for construction sites, new developments, and redevelopments.

Ecology prepared the 2005 Stormwater Management Manual for Western Washington to provide technical guidance to control the quantity and quality of stormwater runoff from new developments and redevelopments. The measures included in the Ecology manual are considered necessary to comply with state water quality standards and protect beneficial uses. If a jurisdiction adopts the 2005 Ecology manual or equivalent manual as approved by Ecology, they will meet one of the requirements of their NPDES permit.

The City of Sammamish has previously relied upon the earlier versions of the KCSWDM to guide stormwater mitigation within the City. King County recently updated its manual to be consistent with the 2005 Ecology manual. Ecology has deemed the 2009 KCSWDM and associated requirements to be equivalent to the 2005 Ecology Manual. By adopting the 2009 KCSWDM and addressing the associated requirements, the City will be in compliance with the NPDES requirements that rely on the Ecology manual or approved equivalent.

The purpose of this Addendum is to tailor the KCSWDM to meet the unique conditions within the City, and be consistent with the City codes, organization and processes. No substantive changes have been made to the KCSWDM in order to maintain equivalency in requirements and the level of protection provided by the KCSWDM.

Relationship of the KCSWDM and the City of Sammamish Low Impact Development (LID) Code

The City of Sammamish recently adopted low impact development code amendments. The 2009 KCSWDM encourages LID through careful site planning to limit disturbance of native vegetation and it also requires consideration of specific LID techniques to reduce runoff from developed sites. The KCSWDM provides specific design guidance for implementation of the measures encouraged in the City's LID code. As a result, the 2009 KCSWDM and the City of Sammamish LID ordinance complement each other.

How to Use this Document

This Addendum shall be used in coordination with the 2009 KCSWDM for the following:

- To translate specific wording or reference from King County to the City.
- To cross-reference City ordinances and City maps in lieu of King County ordinances and maps.
- To provide a linkage or reference to other City requirements such as more restrictive requirements outlined in basin plans and the City's Critical Areas Ordinances.
- To provide exceptions and additions to the KCSWDM.

The 2009 KCSWDM shall be used in its entirety except as directed in this Addendum. Exceptions and additions to the 2009 KCSWDM are organized and referenced by chapter and section in the same manner as the 2009 KCSWDM. Some global changes are provided in this preface, which shall be applied throughout the entire 2009 KCSWDM. The user shall override the maps and references to other documents as indicated within this Addendum.

Addendum Organization

The information presented in this Addendum is organized as follows:

- **Preface – How to use this Document:** This preface provides instructions for using the City of Sammamish’s Addendum to the 2009 KCSWDM. It also defines terms in the KCSWDM that are used differently for the City of Sammamish; City departments that are equivalent to county departments referred to in the KCSWDM; and designations from the KCSWDM that do not apply to proposals in the City of Sammamish.
- **Chapter 1 – Drainage Review Requirements:** The City of Sammamish has made several minor changes to Chapter 1 of the 2009 KCSWDM. This Addendum provides replacement and supplemental text for specific sections of Chapter 1. Apart from these changes, the King County version of Chapter 1 applies for proposals in the City of Sammamish.
- **Chapter 2 – Drainage Plan Submittal:** The City of Sammamish has made minor changes to Chapter 2 of the 2009 KCSWDM. The King County version of Chapter 2 applies for proposals in the City of Sammamish, except that the applicant shall refer to the City of Sammamish documents for technical submittal requirements, project plan requirements, and as-built requirements.
- **Chapter 3 – Hydrologic Analysis and Design:** The City of Sammamish has made no changes to Chapter 3 of the 2009 KCSWDM. The King County version of Chapter 3 applies for proposals in the City of Sammamish. This Addendum to Chapter 3 provides guidance on the application of the various flow control standards specified in the 2009 KCSWDM.
- **Chapter 4 – Conveyance System Analysis and Design:** The City of Sammamish has made no changes to Chapter 4 of the 2009 KCSWDM. The King County version of Chapter 4 applies for proposals in the City of Sammamish.
- **Chapter 5 – Flow Control Design:** The City of Sammamish has made very minor changes to Chapter 5 of the 2009 KCSWDM. This addendum to Chapter 5 provides replacement text for the sections that are changed. Apart from these changes, the King County version of Chapter 5 applies for proposals in the City of Sammamish.

The City of Sammamish has adopted a Low Impact Development Ordinance that encourages the use of LID techniques within the City. LID applications can be used to reduce the size of flow control facilities following the credits specified in the 2009 KCSWDM.

- **Chapter 6 – Water Quality Design:** The City of Sammamish has made minor changes to Chapter 6 of the 2009 KCSWDM. This addendum to Chapter 6 provides replacement text for the sections that are changed. Apart from these changes, the King County version of Chapter 6 applies for proposals in the City of Sammamish.

The City of Sammamish requires higher levels of phosphorus removal for some lakes based on specific studies. The 2009 KCSWDM Addendum identifies the procedures to follow and the areas that are involved in higher levels of phosphorus removals.

- **Definitions:** The City of Sammamish has made changes to the definitions section of the 2009 KCSWDM. This Addendum to the Definitions section provides replacement text for the definitions that are changed. Apart from these changes, the King County version of the Definitions Section applies for proposals in the City of Sammamish.
- **Appendices:** Appendix B does not apply to the City of Sammamish. Appendices A, C, and D apply to proposals in the City of Sammamish.
- **References:** King County Reference sections 2, 3, 4B, 7C, 8M through 8Q, 9, and 10 do not apply to the City of Sammamish. King County Reference sections 7b, 8G, 8J, 8K, 8L have been replaced by a City of Sammamish reference. The King County version of Reference section 1, 4A, 4C, 5, 6, 7A and 8A through 8F, 8G, 8I apply to proposals in the City of Sammamish. New reference number 11 has been added.

City Equivalents for County Agencies

Unless the context requires otherwise, any reference to “County”, “King County”, or county department, shall refer to the City of Sammamish and any reference to county staff shall refer to the City Manager or designee, unless specifically referring to the Department of Community Development (DCD).

City Equivalents for County Ordinances

For proposals in the City of Sammamish, all reference in the KCSWDM to the following ordinances or municipal codes shall be replaced by reference as indicated in the following table.

City of Sammamish Surface Water Design Manual Addendum

King County Code (KCC)	Description	Sammamish Municipal Code (SMC)	Description
KCC 16.82	BUILDING AND CONSTRUCTION STANDARDS-Clearing and Grading	SMC 16.15	Clearing and Grading
KCC 21A.14	Development Standards Design Requirements	SMC 21A.25	Development Standards – Density and Dimensions
KCC 21A.24	Critical Areas	SMC 21A.50	Development Code – Environmentally Critical Areas
KCC 21A.06	Technical Terms and Land Use Definitions	SMC 21A.15.254	Definitions
KCC 20.14	Basin Plans	SMC 24.200	Interim Comprehensive Plan – Basin Plans
KCC 25	Shoreline Management	SMC 25	Shoreline Management
KCC 9*	Surface Water Management	SMC 13	Surface Water Management
		SMC 15.10	Flood Damage Prevention

*Title 9 still applies to the City of Sammamish per Ordinance 099-17, and is supplemented with SMC 15.

In general, references to the King County Critical Areas Ordinance (KCC 21A) are to be replaced by reference to the Sammamish Municipal Code (SMC 21A), particularly, chapter SMC 21A.50, Environmentally Critical Areas. Definitions for critical areas terminology may be found in SMC 21A.15. The following table provides additional detail on critical areas.

City of Sammamish Surface Water Design Manual Addendum

King County Code (KCC)	Description	Sammamish Municipal Code (SMC)	Description
Title 2	Administration	20	Administrative Procedures, Environmental Policy
21A.24.230	Flood hazard area	21A.50.230 15.10	Frequently flooded areas Flood Damage prevention
21A.24.311 – 21A.24.314	Critical Aquifer recharge area	21A.50.280 21A.15.253	Critical aquifer recharge areas – Development standards and permitted alterations Definition
21A.24.230	Erosion hazard area	21A.50.220 21A.50.225 21A.15.415	Erosion hazard areas – Development standards and permitted alterations. Erosion hazards near sensitive water bodies – Special district overlay. Definition
21A.24.280	Landslide hazard area / Landslide hazard drainage area	21A.50.260 21A.15.680	Landslide hazard area – Development standards and permitted alterations Definition
21A.24.290	Seismic hazard areas	21A.50.270 21A.15.1045	Seismic hazard area – Development standards and permitted alterations Definition
21A.24.310	Steep slope hazard areas	21A.15.1230 21A.15.1230	Definition. Steep slope hazard areas now included as part of landslide hazard areas. Definition
21A.24.318 – 21A.24.345	Wetlands areas	21A.50.290 – 21A.50.320 21A.15.1415	Wetlands - Development standards and permitted alterations Definition
21A.24.355 – 21A.24.381	Aquatic Areas	21A.50.330 – 21A.50.350	Streams
21A.24.383 - 21A.24.388	Wildlife habitat conservation areas	21A.15.468 21A.50	Wildlife habitat conservation areas

City Equivalents for County Maps

For proposals in the City of Sammamish, all reference in the KCSWDM to the following maps shall be replaced by reference as indicated in the following table.

King County Map or Designation	City of Sammamish Map*
Flow Control Applications Map	Flow Control Applications Map Map to be provided by the City
Landslide Hazard Drainage Areas Map	Landslide Hazard Drainage Area Map Map to be provided by the City
Water Quality Applications Map	Water Quality Applications Map Map to be provided by the City
Flood Hazard Area as defined in KCC 21A.06	Environmentally Sensitive Areas Map Frequently flooded areas include all areas of special flood hazards within the jurisdiction of the City of Sammamish as defined in SMC 21A.50.230 and as shown on the Environmentally Sensitive Areas Map.
Erosion Hazard Area*	Definition provided in SMC 21A.50.220
Landslide Hazard Area*	Definition provided in SMC 21A.50.260
Critical Aquifer Recharge Area*	Definition provided in SMC 21A.50.280

* Maps are on the City's web site at <http://www.ci.sammamish.wa.us/Maps.aspx>.

City Equivalents for County Plans or Studies

In general, references to county-approved plans or studies in the KCSWDM are to be replaced by reference to appropriate City-approved plans or studies. If comparable City-approved plans or studies do not exist, then references to County-approved plans or studies shall be retained for proposals in the City of Sammamish.

County Designations that do not Apply in the City

The following designations are used in the 2009 KCSWDM but are not currently used in the City of Sammamish; any reference in the KCSWDM to the existence of areas with these designation or thresholds or requirements for such areas is to be disregarded for proposals in the City of Sammamish:

- **Agricultural Project**
- **Coal Mine Hazard Area**
- **Forest Production Zone Area**
- **Master Drainage Plans (MDPs)**
- **Rural Residential Development**
- **Sensitive Area Folio** - refer to City of Sammamish Sensitive Areas Maps at <http://www.ci.sammamish.wa.us/Maps.aspx>
- **Stormwater Compliance Plans (SWCPs)**
- **Urban Planned Development**
- **Zoning Classifications:** The KCSWDM references to Agricultural (A) Zoning, Forest (F) Zoning, or Rural (R) Zoning are intended for areas outside of the Urban Growth Boundary; therefore, the City of Sammamish contains no equivalent zoning. Project proponents should refer to City zoning maps to determine which zoning classifications apply to their projects.

Equivalency of the KCSWDM Relevant to the City of Sammamish

Note that King County Code (KCC) Chapter 9.04 (Surface Water Runoff Policy) and the KCSWDM alone are not equivalent with the Ecology manual. In a letter to King County dated February 19, 2008, Ecology identified additional requirements that a Phase II community needs to incorporate in order to be able to adopt the KCSWDM as an equivalent to the Ecology Manual. These other adopted requirements and the aspects of the Ecology manual or permit requirements that they address are listed in the following table. The table also identifies the equivalent City of Sammamish code or the requirement that needs be followed to obtain equivalency and be in compliance with the Permit.

City of Sammamish Surface Water Design Manual Addendum

Ecology Requirement	King County Code (KCC)	Sammamish Municipal Code (SMC) or Requirement
<p>Construction erosion and sediment controls are required for all new and redevelopment projects, regardless of project size.</p>	<p>To meet this requirement, King County relies on KCC 16.82.095 Clearing and Grading to require erosion and sediment controls at all sites where a site is disturbed, regardless of whether a permit is required.</p>	<p>The City of Sammamish meets this requirement in SMC 16.15.090 Clearing and Grading.</p>
<p>The application of construction erosion and sediment control requirements and the soil quality and depth best management practice (BMP) for flow control are not currently located in the KCSWDM.</p>	<p>These requirements are located in KCC 16.82 Clearing and Grading.</p>	<p>To meet this requirement, follow “BMP T5.13: Post- Construction Soil Quality and Depth” in the Ecology Manual, and provided herein as Reference 11.</p>
<p>The wetlands protection requirement (Minimum Requirement #8) is not contained in the KCSWDM,</p>	<p>Wetland protection requirements are located in KCC 21A.24 Critical Areas.</p>	<p>The City of Sammamish meets this requirement in SMC 21A.50.290 through 21A.50.632.</p> <p>Wetland management area- Special district overlay is provided in 21A.50.322.</p> <p>Wetland definitions are proved in SMC 21A.15.1395 through 21A.15.1415.</p>
<p>Exemptions for treatment and flow control in rural areas (allowed for up to 4% total impervious area and 15% new pervious area).</p>	<p>Ecology approves the exemptions based on the County’s rural area clearing restrictions in KCC 16.82 Clearing and Grading.</p> <p>Buffer requirements are contained in KCC 21A.24 Critical Areas.</p>	<p>The City of Sammamish meets these requirements in SMC 16.15 and SMC 21A.50.</p>

CHAPTER 1 – Drainage Review and Requirements

The City of Sammamish has made several minor changes to Chapter 1 of the 2009 KCSWDM. This chapter provides replacement and supplemental text for specific sections of Chapter 1. Apart from these changes, the King County version of Chapter 1 applies for proposals in the City of Sammamish. The City’s changes to the County document are as follows:

- **Key Terms and Definitions (page 1-1 of the 2009 KCSWDM)** — Replace all references to KCC 21A with SMC 21A. In addition, the following changes to specific terms apply:

Term (page)	Action
Critical aquifer recharge area (p 1-2)	<p><i>Replace as follows per SMC 21A.15.253:</i> “Critical aquifer recharge areas” is the critical area designation that is applied to areas where extra protection of groundwater quantity and quality is needed because of known susceptibility to contamination and importance to drinking water supply. Such areas are delineated on maps provided by the City. See the “Definitions” section for more details.</p> <p>Critical aquifer recharge areas are regulated in SMC 21A.50.280 Critical aquifer recharge areas – Development standards.</p> <p>Also mapped. See City’s website</p>
Critical Drainage Area (p 1-2)	<p><i>Replace as follows per SMC 21A.15.255:</i> “Critical drainage area” means an area that has been formally determined by the King County surface water management department to require more restrictive regulation than countywide standards afford in order to mitigate severe flooding, drainage, erosion, or sedimentation problems that result from the cumulative impacts of development and urbanization. (Ord. O2003-132 § 10).</p> <p>Critical drainage areas are defined in SMC 21A.15.255 and are regulated in SMC 21A.50.355 Lake management areas – Special District overlay.</p>
Erosion hazard area (p 1-2)	<p><i>Replace as follows per SMC 21A.15.415:</i> “Erosion hazard area” is the critical area designation that is applied to areas underlain by soils that are subject to severe erosion when disturbed. See the “Definitions” section for more details.</p> <p>Erosion hazard areas are regulated in SMC 21A.50.220 Erosion hazard areas – Development standards and permitted alterations.</p>

Term (page)	Action
Flood Hazard Area (p 1-3)	<i>Replace as follows per SMC 15 Flood Damage Prevention:</i> SMC 15 shall be the basis for establishing the areas of special flood hazard.
Landslide Hazard Area (p 1-3)	<i>Replace as follows per SMC 21A 15.680:</i> “Landslide hazard area” is the critical designation that is applied to areas potentially subject to severe risk of landslide due to topography, soil conditions, and geology.

- **Section 1.1.1 PROJECTS REQUIRING DRAINAGE REVIEW (page 1-9 of the 2009 KCSWDM)** — Replace the “King County Permits and Approvals” table with the following table:

City of Sammamish Permits and Approvals
Construction Permits Right of Way Permit Site Development Permits Conditional Use Permits Clear and Grade Permit Shoreline Management Substantial Development Permits Short Subdivision Developments (Short Plat) Subdivision Developments (Plats) Commercial Site Development Permit (CSDP) Unified Zone Development Permit (UZDP) Plat Alterations
Notes: See SMC 20.05 - PROCEDURES FOR LAND USE PERMIT APPLICATIONS, PUBLIC NOTICE, HEARINGS, AND APPEALS for additional information.

- **Section 1.2 CORE REQUIREMENTS, Downstream Water Quality Problems Requiring Special Attention (page 1-26 of the 2009 KCSWDM)** — The following supplemental information is added to this section:

The 2009 KCSWDM recognizes water quality problems requiring special mitigation measures to protect receiving waters. A water quality problem is defined as a problem documented by the state to exceed the state’s numeric water quality standard. The 2009 KCSWDM references Category 2, 4, and 5 water quality problems as requiring special attention. Within the City of

Sammamish, the following water quality problems are currently listed by the Department of Ecology, based on the 2008 Water Quality Assessment, approved by the U.S. Environmental Protection Agency on January 29, 2009. The latest designated impaired waterbodies can be viewed at <http://apps.ecy.wa.gov/wqawa/viewer.htm>.

Impaired Water Body	Parameter	Category*
Lake Sammamish	Dissolved oxygen, fecal coliform	5
Lake Sammamish	Total phosphorus	2
Pine Lake Creek	Fecal coliform, dissolved oxygen, total phosphorus	5
Laughing Jacobs Creek	Fecal coliform, dissolved oxygen	5
Ebright Creek	Fecal coliform	5
Ebright Creek	Dissolved oxygen	2
Evans Creek	Fecal coliform, dissolved oxygen, temperature	4a
Evans Creek	pH	2
Beaver Lake No. 2	Total phosphorus	2

* Definition of Categories for impaired waterbodies:

- Category 2: Waters of concern, some evidence of water quality problem.
- Category 4 (a and b): Polluted waters with a plan (TMDL) or pollution control program in place to address the problem.
- Category 5: Polluted waters, a TMDL plan is required.

Projects that discharge to the impaired waterbodies identified above may be required to implement special treatment to address the water quality problem in accordance with the requirements outlined in Section 1.2.2.3, Water Quality Problem Impact Mitigation.

Studies and lake management plans have determined that Beaver and Pine Lakes within the City of Sammamish require a higher level of total phosphorus reduction than that currently required by the 2009 KCSWDM. For projects that drain to Beaver Lake or Pine Lake, the project proponent shall contact the City for specific requirements necessary to attain the desired level of total phosphorus reduction.

The federal Clean Water Act requires that a Total Maximum Daily Load (TMDL) cleanup plan be developed for each of the waterbodies on the state's list of impaired waterbodies, known as the "303(d) list." The TMDL study

identifies pollution problems in the watershed, and specifies how much pollution needs to be reduced or eliminated to achieve clean water. Ecology has prepared TMDLs for fecal coliform bacteria, temperature and dissolved oxygen for the Bear-Evans watershed. Strategies identified in the TMDLs to address the water quality impairment in the Bear-Evans watershed are listed below. Development or redevelopment projects within the City of Sammamish that ultimately drain to Evans Creek should incorporate these actions as appropriate.

TMDL - Implementation Strategy for Fecal Coliform Bacteria in the Evans Creek Watershed

- Implement structural (as appropriate) and non-structural stormwater source control best management practices (BMPs).
- Restore riparian vegetation to help filter out stormwater pollutants.
- Properly manage domestic animal and livestock wastes.

TMDL - Implementation Strategy for Temperature and Dissolved Oxygen in the Evans Creek watershed

- Plant new and preserve existing trees in the riparian zone along lengths of the creeks.
- Investigate opportunities to enhance groundwater recharge.
- Restore and protect wetlands in areas that will benefit the stream and enhance habitat.
- Consider a water management strategy that recognizes the benefits of maintaining summer baseflows.
- Minimize human-caused sources of nutrients in the watershed.

▪ Soil Amendment Requirement

All projects that propose 7,000 square feet of land disturbing activity, or more, are required to amend the soils as specified below. This requirement is intended to apply to all projects independent of what surface water design manual is used.

- Except as otherwise provided below, areas that have been cleared and graded shall have the soil moisture holding capacity restored to that of the original undisturbed soil native to the site to the maximum extent practicable. The soil in any area that has been compacted or that has had some or all of the duff layer or underlying topsoil removed shall be amended to mitigate for lost moisture-holding capacity. The amendment shall take place between May 1 and October 1. The topsoil layer shall be a minimum of eight inches thick, unless the applicant demonstrates that a different thickness will provide conditions equivalent to the soil moisture-holding capacity native to the site. The topsoil layer shall have an organic matter content of between five to ten percent dry weight and a pH suitable

for the proposed landscape plants. When feasible, subsoils below the topsoil layer should be scarified at least four inches with some incorporation of the upper material to avoid stratified layers. Compost used to achieve the required soil organic matter content must meet the definition of "composted materials" in WAC 173-350-220.

- This subsection does not apply to areas that: a. Are subject to a state surface mine reclamation permit; or b. At project completion are covered by an impervious surface, incorporated into a drainage facility or engineered as structural fill or slope.
- **Section 1.3.1 SPECIAL REQUIREMENT #1: OTHER ADOPTED AREA-SPECIFIC REQUIREMENTS (page 1-77 of the 2009 KCSWDM)** — Replace the table in Section 1.3.1 on page 1-78 with the following:

Threshold	Requirement
IF a proposed project is in a basin plan or lake management plan...	THEN the proposed project shall comply as codified by the City of Sammamish Municipal Code.

CHAPTER 2 – Drainage Plan Submittal

The City of Sammamish has added supplemental information and made minor changes to Chapter 2 of the 2009 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on drainage plan submittal. All submittal reviews shall be conducted by the Department of Community Development (DCD).

Supplemental Information

As part of our Surface Water Design Manual the applicant shall refer to the following documents for Project Plans and As-Builts.

- 1) Site Development Permit – Technical Submittal Requirements (Pages 3-5 relate to Stormwater). This document is provided on the city website at: <http://www.ci.sammamish.wa.us/files/document/7089.pdf>
- 2) The applicant shall use the *City of Sammamish Standard Development Project Close-out (M/D Period) PW Administration Items Requirements/Checklist* form (available from the City of Sammamish Department of Community Development as a guide to assembling a *First Submittal Intake* package.

Section 2.4.2 FINAL CORRECTED PLAN SUBMITTAL (page 2-35 of the 2009 KCSWDM) — Replace Section 2.4.2 in entirety as follows:

The applicant shall use the *City of Sammamish Standard Development Project Close-out (M/D Period) PW Administration Items Requirements/Checklist* form (available from DCD) as a guide to assembling a *Second Submittal Intake* package for project closeout.

CHAPTER 3 – Hydrologic Analysis and Design

The City of Sammamish has made no changes to Chapter 3 of the 2009 KCSWDM. Project proponents should refer to the county document for guidance on hydrologic analysis and design.

The City of Sammamish has identified specific areas requiring Level 2 or Level 3 flow control as defined within the KCSWDM. Flow control areas are identified in the flow control maps accompanying this Addendum.

The City of Sammamish accepts continuous models that have been approved by Ecology. Included among these are:

- **King County Runoff Time Series (KCRTS):** This is the hydrologic model that accompanies the 2009 KCSWDM. Ecology has deemed this model to be equivalent to the requirements of the Ecology manual provided that compliance for the flow-duration curves are consistent with the method Ecology uses. The model includes hourly and 15-minute rainfall. The 15-minute rainfall is used to determine peak flows used for conveyance design.
- **Western Washington Hydrologic Model (WWHM):** This is the hydrologic model that accompanies the Ecology manual. WWHM incorporates routines to evaluate LID techniques. WWHM was initially developed for detention and water quality design and did not focus on peak flow predictions for conveyance design. The standard model does not include rainfall data that would be suitable for determining peak flows for conveyance design.
- **MGSFlood:** This is the hydrologic model originally developed for Washington State Department of Transportation (WSDOT) for use in transportation projects. MGSFlood incorporates an extended rainfall database of 158 years in length created by combining rainfall records from different locations in the Pacific Northwest. It has recently incorporated a rainfall that is disaggregated to a 5-minute timestep to assist in the design of conveyance. MGSFlood also incorporates routines to evaluate LID techniques

The approved models are all derivatives of the Hydrologic Simulation Program-FORTRAN (HSPF) model. The City also accepts use of the HSPF model, provided suitable documentation is provided and approved concerning the runoff parameters used for the analyses. Approved regional parameters or basin-specific parameters developed during a basin plan can be used. Alternative parameters can be used following the protocols described in the 2009 KCSWDM.

Hydrologic analysis methods must follow “Table 3.2 Acceptable Uses of Runoff Computation Methods” found on page 3-10 of the 2009 KCSWDM. Derivatives of HSPF (e.g., KCRTS, MGSFlood, and WWHM) can be applied as indicated under the “KCRTS” column. As noted above, there are differences the rainfall data used for these derivative models. These differences are most noticeable in the generation of peak flows

used for conveyance design. The City of Sammamish currently accepts both KCRTS and MGSFlood for conveyance design.

CHAPTER 4 – Conveyance System Analysis and Design

The City of Sammamish has made no changes to Chapter 4 of the 2009 KCSWDM. Project proponents should refer to the county document for guidance on conveyance system analysis and design.

CHAPTER 5 – Flow Control Design

The City of Sammamish has added supplemental information and made several minor changes to Chapter 5 of the 2009 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on flow control design.

Supplemental Information

The City of Sammamish has identified specific areas where the Conservation Flow Control (Level 2) and Flood Problem Flow Control (Level 3) flow control standards described in the 2009 KCSWDM are to be applied within the City. Locations are shown on the City of Sammamish Flow Control Applications map accompanying this Addendum.

Generally, the King County Basic Flow Control (Level 1) standard does not apply within the City. There may, however, be circumstances where the Basic Flow Control standard can be applied. The 2009 KCSWDM defines the Basic Flow Control Standard as being appropriate for areas that drain to a closed conveyance system that discharges to a waterbody designated as a major receiving water. Lake Sammamish is designated a major receiving water. Developments that drain to closed drainage systems discharging directly to Lake Sammamish could, by definition, be eligible for the Basic Flow Control Standard. This would be the case where runoff from a new or redevelopment project area discharges to an existing system downstream drainage system where downstream capacity issues are likely with an increase in runoff to the system.

Chapter 5 describes various LID techniques. These should be used as the technical guidance for implementing the BMPs specified in the LID Ordinance.

Changes to 2009 KCSWDM

- **Section 5.3.1.1 DESIGN CRITERIA, Detention Ponds in Open Space (page 5-25 of the 2009 KCSWDM)** — This section does not apply. City of Sammamish does not require this signage.
- **Section 5.3.1.1 DESIGN CRITERIA, Figure 5.3.1.D Permanent Surface Water Control Pond Signs (page 5-29 of the 2009 KCSWDM)** — Replace references to King County and the King County logo with City of Sammamish and the City of Sammamish logo, respectively. Also, delete the last sentence and replace with the following:

For more information or to report littering, vandalism or other problems, call City Hall at 425-295-0500. For emergencies after-hours, holidays, and weekends call the public works emergency dispatch number at 206- 296-8100.

CHAPTER 6 – Water Quality Design

The City of Sammamish has added supplemental information and made one minor change to Chapter 6 of the 2009 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on water quality design.

Supplemental Information

The City of Sammamish adopts the BMPs and water quality treatment menus in the 2009 KCSWDM. Special treatment requirements for runoff draining to impaired waterbodies are addressed in Chapter 1. An exception to the KCSWDM is the treatment requirement for runoff discharging to lakes designated to receive a higher level of total phosphorus removal. The Sensitive Lake Protection Menu in the 2009 KCSWDM has a treatment goal of 50 percent reduction of annual average total phosphorus (TP), assuming typical pollutant concentrations in urban runoff. Lake management plans and studies have determined that Beaver Lake and Pine Lake require higher levels of phosphorus removal to protect the lakes from eutrophication brought about by development. Within these areas, a treatment goal of 80 percent reduction of TP is required. Areas requiring the higher level of TP reduction are shown on the Water Quality Treatment Application map accompanying this Addendum. Proponents for projects within these areas shall work with the City to determine the appropriate measures to be taken to achieve the 80 percent TP reduction goal.

Change to 2009 KCSWDM

- **Section 6.4.1.2 BASIC DESIGN CRITERIA, Figure 6.4.1.C Waterfowl Sign (page 6-82 of the 2009 KCSWDM)** — This section does not apply. City of Sammamish does not require this signage.

DEFINITIONS

The City of Sammamish has made the following changes to the Definitions Section of the 2009 KCSWDM. Project proponents should refer to the county document for other definitions.

Term (page)	Action
<p>Critical aquifer recharge area (p 1-2)</p>	<p><i>Replace as follows (from SMC 21A.15.253):</i></p> <p>Critical aquifer recharge areas (CARAs) means those areas in the City of Sammamish with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater. CARAs shall be classified based on the following criteria:</p> <ol style="list-style-type: none"> (1) Class 1 CARAs include those areas located within the mapped one- or five-year capture zone of a wellhead protection area. (2) Class 2 CARAs include those areas located within the mapped 10-year capture zone of a wellhead protection area. (3) Class 3 CARAs include those areas outside wellhead protection areas that are identified as high aquifer recharge potential areas based on characteristics of surficial geology and soil types. (Ord. O2005-193 § 2)
<p>Erosion hazard area (p 1-2)</p>	<p><i>Replace as follows (from SMC 21A.15.415):</i></p> <p>Erosion hazard areas mean those areas in the City underlain by soils that are subject to severe erosion when disturbed. Such soils include, but are not limited to, those classified as having a severe or very severe erosion hazard according to the USDA Soil Conservation Service, the 1973 King County Soils Survey or any subsequent revisions or addition by or to these sources. These soils include the following when they occur on slopes 15 percent or steeper:</p> <ol style="list-style-type: none"> (1) The Alderwood gravely sandy loam (AgD); (2) The Alderwood and Kitsap soils (AkF); (3) The Beausite gravely sandy loam (BeD and BeF); (4) The Everett gravely sandy loam (EvD); (5) The Kitsap silt loam (KpD); (6) The Ovall gravely loam (OvD and OvF); (7) The Ragnar fine sandy loam (RaD); and (8) The Ragnar-Indianola Association (RdE). (Ord. O2005-193 § 2; Ord. O2003-132 § 10)

City of Sammamish Surface Water Design Manual Addendum

Term (page)	Action
<p>Flood hazard area (p 1-3)</p>	<p><i>Replace as follows (per SMC 21A.15.680):</i></p> <p>Flood hazard areas means those areas in the City of Sammamish subject to inundation by the base flood and those areas subject to risk from channel relocation or stream meander including, but not limited to, streams, lakes, wetlands, and closed depressions. (Ord. O2003-132 § 10)</p>
<p>Frequently Flooded Area SMC 21A.50.230</p>	<p><i>Add new definition as follows (from SMC 21A.50.230):</i></p> <p>(1) Frequently flooded areas include all areas of special flood hazards within the jurisdiction of the City of Sammamish.(a) The areas of special flood hazard are identified by the Federal Insurance Administration in a scientific and engineering report entitled "the Flood Insurance Study for King County," as amended, as stated in SMC 15.10.060. The flood insurance study is on file at Sammamish City Hall. The best available information for flood hazard area identification as outlined in SMC 15.10.130(2) shall be the basis for regulation until a new FIRM is issued that incorporates the data utilized under SMC 15.10.130(2).</p> <p>(b) The director may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study conducted by the Federal Emergency Management Agency (FEMA) to designate frequently flooded areas, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show riparian habitat areas, or similar information.</p> <p>(2) Development in frequently flooded areas shall be subject to the provisions in Chapter 15.10 SMC. (Ord. O2005-193 § 1; Ord. O99-29 § 1)</p>

Term (page)	Action
<p><i>Landslide Hazard Area (Steep slope)</i> (page 1-3 of KCSWDM)</p>	<p><i>Replace as follows (per SMC 21A.15.680):</i></p> <p><i>Landslide hazard areas</i> mean those areas in the City of Sammamish potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. These areas are typically susceptible to landslides because of a combination of factors including: bedrock, soil, slope gradient, slope aspect, geologic structure, groundwater, or other factors. Landslide hazard areas include the following:</p> <p>(1) Areas of historic failures, such as:(a) Those areas delineated by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "severe" limitation for building site development;</p> <p>(b) Areas designated as quaternary slumps, earthflows, mudflows, or landslides on maps published by the U.S. Geological Survey or Department of Natural Resources;</p> <p>(2) Areas that have shown movement during the Holocene epoch, from 10,000 years ago to the present, or which are underlain by mass wastage debris from that epoch;</p> <p>(3) Any area with all three of the following characteristics:</p> <p>(a) Slopes steeper than 15 percent; and</p> <p>(b) Hillside intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and</p> <p>(c) Springs or groundwater seepage;</p> <p>(4) Areas with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least 10 feet of vertical relief;</p> <p>(5) Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;</p> <p>(6) Slopes having gradients steeper than 80 percent subject to rock fall during seismic shaking;</p> <p>(7) Areas potentially unstable because of rapid stream incision, stream bank erosion or undercutting by wave action; and</p> <p>(8) Landslide hazard areas do not include those areas composed of slopes greater than 40 percent that were created from a previously non-landslide hazard area through legal grading activity and that are confirmed to be stable by a qualified professional. (Ord. O2005-193 § 2; Ord. O2003-132 § 10)</p>

APPENDICES

The City of Sammamish has made the following changes to the Appendices section of the 2009 KCSWDM. Project proponents should refer to the county appendices where referenced below.

Appendix A: Maintenance Requirements for Flow Control, Conveyance, and WQ Facilities – The City of Sammamish has made no changes, and Appendix A applies in its entirety to the City of Sammamish.

Appendix B: Master Drainage Plan Objective, Criteria and Components, and Review Process – This appendix does not apply within the City of Sammamish.

Appendix C: Small Drainage Requirements – This is a separately bound document included with the KCSWDM and this appendix applies in its entirety to the City of Sammamish. Appendix C provides guidance for many of the low impact development (LID) techniques referenced in the City of Sammamish LID Ordinance.

Appendix D: Erosion and Sediment Control Standards – This is a separately bound document included with the KCSWDM and this appendix applies in its entirety to the City of Sammamish.

REFERENCE

Table Ref-1 identifies which reference sections in the KCSWDM apply and those that do not apply to the City of Sammamish. Table Ref-2 lists additional City of Sammamish references that apply.

Table Ref-1. Applicability of KCSWDM References to City of Sammamish Projects

No.	Description	Action
1	KCC 9.04 Surface Water Runoff Policy	This reference document applies. The King County surface water runoff policy, as adopted by reference in Chapter 9.04 KCC as adopted by SMC 15.05 (Ordinance 099-17 § 1)
2	Adopted Critical Drainage Areas	This reference document shall be deleted in entirety. Project proponents should refer to City codes, ordinances, and sensitive areas maps for description and requirements within sensitive areas.
3	Other Adopted Area Specific Drainage Requirements	This reference document shall be deleted in entirety. Project proponents should refer to City codes, ordinances, and sensitive areas maps for description and requirements within sensitive areas. The project proponent shall also work with the City on additional requirements that may apply to their project.
4	Other Drainage Related Regulations and Guidelines A. Grading Code Soil Amendment Standard B. Clearing & Grading Seasonal Limitations C. Landscape Management Plan Guidelines D. Shared Facility Maintenance Responsibility and Guidance	A. This standard is applicable. B. Not applicable. See SMC 16.15 C. Applicable. D. Applicable.
5	Wetland Hydrology Protection Guidelines	These guidelines apply.
6	Hydrologic/Hydraulic Design Methods A Infiltration Rate Test B Pond Geometry Equations	This reference section is applicable.

City of Sammamish Surface Water Design Manual Addendum

No.	Description	Action
7	Engineering Plan Support A. King County Standard Map Symbols B. Standard Plan Notes and Example Construction Sequence C. Stormfilter Access & Cartridge Configuration	A. Applicable. B. Replace with City's standard plan notes. Contact City for most current version of notes. C. Not applicable. Delete this reference subsection in entirety.
8	Forms and Worksheets	
	A. TIR Worksheet B. Clearing and Grading Seasonal Limitations C. Offsite Analysis Drainage System Table D. Flow Control and Water Quality Facility E. CSWPPP Worksheet Forms F. Adjustment Application Form and Process Guidelines G. Dedication and Indemnification Clause H. Bond Quantity Worksheet I. Maintenance and Defect Agreement J. Declaration of Covenant K. Drainage Release Covenant L. Drainage Easement M. Flow Control BMP Covenant (see replacement form name below). N. Impervious Surface Limit Covenant O. Clearing Limit Covenant P. River Protection Easement Q. Leachable Metals Covenant	A. Applicable. B. Applicable. C. Applicable. D. Applicable. E. Applicable. F. Applicable. G. Applicable, replace with COS updated form. H. Applicable. I. Applicable. J. Applicable, replace with COS updated form. K. Applicable, replace with COS updated form. L. Applicable, replace with COS updated form. M. Applicable, replace with COS updated form. N. Delete in entirety; not applicable. O. Delete in entirety; not applicable. P. Delete in entirety; not applicable. Q. Delete in entirety; not applicable.
9	Interim Changes to Requirements	Delete in entirety
10	King County Identified Water Quality Problems	Delete in entirety

No.	Description	Action
11	BMP T5.13 Post-Construction Soil Quality and Depth	<p>New section added. Excerpt from 2005 Stormwater Manual for Western Washington, Ecology. Excerpt applies in entirety except final section, <i>Flow Reduction Credits</i>, does not apply.</p> <p>The most current version of <i>Guidelines and Resources for Implementing Soil Quality and Dept BMP T5.13</i> is available at:</p> <p>http://www.soilsforsalmon.org/pdf/Soil_BMP_Manual.pdf</p>

Table Ref-2. City of Sammamish References

No.	Description
1	<p>Area-Specific Drainage Requirements</p> <p>A Flow Control Applications Map</p> <p>B Water Quality Applications Map</p> <p>C Landslide Hazard Drainage Areas Map</p> <p>[Others to be determined]</p>