

CITY OF KENMORE

SURFACE WATER DESIGN MANUAL ADDENDUM

General Introduction

The City of Kenmore adopted the 2016 King County Surface Water Design Manual (2016 KCSWDM) in order to be in compliance with the Washington State Department of Ecology Phase II Municipal Stormwater permit. This Addendum to the 2016 KCSWDM defines how the requirements of the KCSWDM are to be implemented within the City of Kenmore. The Addendum specifies all changes, additions, and deletions to the 2016 KCSWDM to make it appropriate for use within the City of Kenmore. The 2016 KCSWDM along with this Addendum define the drainage requirements for development and redevelopment projects within the City.

Purpose of and Need for the Addendum

The City has been issued a Phase II Municipal Stormwater Permit (Permit) effective August 1, 2013. The Permit was issued under the National Pollutant Discharge 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.

The City of Kenmore has previously relied upon the earlier versions of the KCSWDM to guide stormwater standards within the City. King County recently updated its manual to be consistent with the 2012 Ecology manual. Ecology has deemed the 2016 KCSWDM and associated requirements to be equivalent to the 2012 Ecology Manual. By adopting the 2016 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 2016 KCSWDM to meet the unique conditions within the City, and be consistent with the City's codes, organization and processes. No substantive changes have been made to the 2016 KCSWDM in order to maintain equivalency in requirements and the level of protection provided by the 2016 KCSWDM.

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

The City of Kenmore adopted code amendments that minimize the loss of native vegetation and reduce runoff from developed sites. The 2016 KCSWDM requires on site flow control best management practices (BMPs) to mitigate the impacts of storm and surface water runoff generated by new impervious surfaces, new pervious surfaces, existing impervious surfaces, and replaced impervious surfaces. Flow control BMPs are methods to disperse, infiltrate, or

otherwise reduce or prevent development related increases in runoff at or near the sources of those increases. The 2016 KCSWDM provides specific design guidance for implementation of the LID measures encouraged in the City's development code. As a result, the 2016 KCSWDM and the City of Kenmore development code complement each other.

How to Use this Document

This Addendum shall be used in coordination with the 2016 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 2016 KCSWDM shall be used in its entirety except as directed in this Addendum. Exceptions and additions to the 2016 KCSWDM are organized and referenced by chapter and section in the same manner as the 2016 KCSWDM. Some global changes are provided in this preface, which shall be applied throughout the entire 2016 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:** This preface provides instructions for using the City of Kenmore's Addendum to the 2016 KCSWDM. It also defines terms in the 2016 KCSWDM that are used differently for the City of Kenmore; City departments that are equivalent to county departments referred to in the 2016 KCSWDM; and designations from the 2016 KCSWDM that do not apply to proposals in the City of Kenmore.
- **Chapter 1 – Drainage Review and Requirements:** The City of Kenmore has made several changes to Chapter 1 of the 2016 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 to proposals in the City of Kenmore.
- **Chapter 2 – Drainage Plan Submittal:** The City of Kenmore has made minor changes to Chapter 2 of the 2016 KCSWDM. Section 2.4.2 has been modified to include an additional requirement for the inspection of installed LID BMPs. The King County version of Chapter 2 applies to proposals in the City of Kenmore, except that the applicant shall refer to the City of Kenmore documents for technical submittal requirements, project plan requirements, and as-built requirements.

- **Chapter 3 – Hydrologic Analysis and Design:** The City of Kenmore has made no changes to Chapter 3 of the 2016 KCSWDM. The King County version of Chapter 3 applies to proposals in the City of Kenmore.
- **Chapter 4 – Conveyance System Analysis and Design:** The City of Kenmore has made minor changes to Chapter 4 of the 2016 KCSWDM. More stringent requirements for allowable pipe materials, deflection, maximum distance between structures, and other requirements are listed in the City of Kenmore Addendum. Apart from these changes, the King County version of Chapter 4 applies to proposals in the City of Kenmore.
- **Chapter 5 – Flow Control Design:** The City of Kenmore has made very minor changes to Chapter 5 of the 2016 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 to proposals in the City of Kenmore.

The City of Kenmore has adopted a Low Impact Development Ordinance that encourages the use of LID site planning techniques within the City. LID site planning techniques can help to reduce the size of flow control facilities required in the 2016 KCSWDM.

- **Chapter 6 – Water Quality Design:** The City of Kenmore has made minor changes to Chapter 6 of the 2016 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 to proposals in the City of Kenmore.

The City of Kenmore amends Chapter 6 of the 2016 KCSWDM to allow for bioretention to be utilized as a pretreatment facility.

- **Definitions:** The City of Kenmore has made changes to the definitions section of the 2016 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 to proposals in the City of Kenmore.
- **Appendices:** Appendices A, C, and D apply to proposals in the City of Kenmore, appendix B does not apply.
- **References:** King County Reference sections 1, 2, 3, 4A, 4B, 7, 8 and 10 do not apply to the City of Kenmore. King County Reference section 8 has been replaced by a City of Kenmore Reference section 8. The King County version of Reference section 4C, 4D, 5, 6, 9, 11 and 14 apply to proposals in the City of Kenmore.

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 Kenmore and any reference to county staff shall refer to the City Manager or designee, unless referring to a specific department.

City Equivalents for County Ordinances

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

King County Code (KCC)	Description	Kenmore Municipal Code (KMC)	Description
KCC 16.82	Clearing and Grading	Chapter 15.25 KMC	Land Alterations
KCC 21A.14	Development Standards Design Requirements	Chapters 18.21 – 18.29 KMC	Development Standards included within each zoning classification
KCC 21A.24	Critical Areas	Chapter 18.55 KMC	Critical Areas
KCC 21A.06	Technical Terms and Land Use Definitions	Chapter 18.20 KMC	Technical Terms and Land Use Definitions
KCC 20.14	Basin Plans		Surface Water Master Plan (2015)
KCC 9	Surface Water Management	Chapter KMC 13.35	Surface Water Management Policy

City Equivalents for Critical Areas

In general, references to the King County Critical Areas Ordinance (KCC 21A) are to be replaced by reference to the Kenmore Municipal Code (Chapter 18.55 KMC), Critical Areas. Definitions for critical areas and terminology may be found in Chapter 18.20 KMC. Additional details and development standards for critical areas can be found in Chapter 18.55 KMC.

City Equivalents for County Maps

For proposals in the City of Kenmore, all reference in the 2016 KCSWDM to the following maps shall be replaced by reference as indicated in the following table.

King County Map or Designation	City of Kenmore Map
Flow Control Applications Map	The King County Flow Control Applications Map included with the KCSWDM shall not be applied in the City of Kenmore. The Swamp Creek basin is a flood problem flow control area (level 3) and the remainder of the City of Kenmore is a conservation flow control area (level two) except for project sites with identified downstream flooding problems that may require a higher level of flow control for impact mitigation.
Water Quality Applications Map	The King County Water Quality Applications Map included with the KCSWDM shall not be applied in the City of Kenmore. All of the City of Kenmore is a basic water quality treatment area unless the proposed land use triggers enhanced basic water quality treatment.
Erosion Hazard Near Sensitive Water Bodies Map in KCC 21A.38.210	The King County Erosion Hazard Near Sensitive Water Bodies mapping included with the KCSWDM shall not apply in the City of Kenmore.
Flood Hazard Area as defined in KCC 21A.06	The King County Flood Hazard Area mapping included with the KCSWDM shall not apply in the City of Kenmore. Flood hazard areas are depicted on the City of Kenmore Critical Areas Mapping: Streams and Wetlands map.
Erosion Hazard Area	The King County Erosion Hazard Area mapping included with the KCSWDM shall not apply in the City of Kenmore. Erosion hazard areas are depicted on the City of Kenmore Critical Areas Mapping: Geological Hazard Areas map.
Landslide Hazard Area	The King County Landslide Hazard Area mapping included with the KCSWDM shall not apply in the City of Kenmore. Landslide hazard areas are depicted on the City of Kenmore Critical Areas Mapping: Geological Hazard Areas map [KMC 13.32.390].

City Equivalents for County Plans or Studies

In general, references to county-approved plans or studies in the 2016 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 Kenmore.

County Designations that do not Apply in the City

The following designations are used in the 2016 KCSWDM but are not currently used in the City

of Kenmore; any reference in the 2016 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 Kenmore:

- **Agricultural Project**
- **Forest Production Zone Area**
- **Master Drainage Plans (MDPs)**
- **Rural Residential Development**
- **Sensitive Area Folio** - refer to City of Kenmore Critical Areas Maps
- **Stormwater Compliance Plans (SWCPs)**
- **Urban Planned Development**
- **Zoning Classifications:** The 2016 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 Kenmore contains no equivalent zoning. Project proponents should refer to City zoning maps to determine which zoning classifications apply to their projects.

CHAPTER 1 – Drainage Review and Requirements

The City of Kenmore has made several minor changes to Chapter 1 of the 2016 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 Kenmore. The City’s changes to the County document are as follows:

- **Key Terms and Definitions (page 1-1 of the 2016 KCSWDM)** — Replace all references to KCC 21A with Chapter 18.20 KMC. In addition, the following changes to specific terms apply:

Term (page)	Action
Critical Drainage Area (p 1-2)	<p><i>Replace as follows per Section 13.35.040 KMC:</i></p> <p>Critical drainage areas are sites where the city manager has determined that the existing flooding, drainage and/or erosion conditions present an imminent likelihood of harm to the welfare and safety of the surrounding community shall meet special drainage requirements set by the city manager until such time as the community hazard is alleviated.</p> <p>Critical drainage areas are regulated in Section 13.35.040 KMC Critical drainage and/or erosion areas.</p>
Erosion hazard area (p 1-3)	<p><i>Replace as follows per Section 18.20.940 KMC:</i></p> <p>Erosion hazard areas are those areas identified by the United States Department of Agriculture Natural Resources Conservation Service or identified by a special study as having a “moderate to severe” or “very severe” erosion potential.</p> <p>Erosion hazard areas are defined in Section 18.20.940 KMC Erosion hazard areas and regulated under Section 18.55.600 KMC through Section 18.55.650 KMC.</p>
Flood Hazard Area (p 1-3)	<p><i>Replace as follows per Section 18.20.1070 KMC:</i></p> <p>Flood hazard areas are those areas in the City 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.</p> <p>Flood hazard areas are regulated in Section 18.55.700 KMC through Section 18.55.750 KMC.</p>

Term (page)	Action
Landslide Hazard Area (p 1-5)	<p><i>Replace as follows per Section 18.55.1570 KMC:</i></p> <p>Landslide hazard areas are areas that are potentially subject to risk of mass movement resulting from a combination of geologic, topographic, and hydrologic factors including: bedrock, soil, slope gradient, slope aspect, geologic structure, ground water, or other factors. [Ord. 11-0329 § 3 (Exh. 1).]</p> <p>Landslide hazard areas are regulated in Section 18.55.600 KMC through Section 18.55.650 KMC.</p>

- **SECTION 1.1.1 PROJECTS REQUIRING DRAINAGE REVIEW (page 1-12 of the 2016 KCSWDM)**

Replace the “King County Permits and Approvals” table with the following table and replace the text in numbers 1 and 4 with:

1. The project adds or will result in either: 500 square feet or more of new impervious surface or 2,000 square feet or more of replaced impervious surface, or new plus replaced impervious surface, or (if subsection 1.1.1(1) is not met, see conditions set forth in subsections 1.1.1(2) through (7) of the Surface Water Design Manual, to determine if design review is required).
4. The project contains or is adjacent to a flood hazard area as defined in *Section 18.20.1070 KMC, OR*

Add the following as a new number 7:

7. Is a redevelopment project on a site where the total of new plus replaced impervious surface is 5,000 square feet or more, and whose valuation of proposed improvements – including interior improvements and excluding required mitigation and frontage improvements – exceeds 50 percent of the assessed value of the existing site improvements.

- **Section 1.1.2.1 PROJECTS REQUIRING DRAINAGE REVIEW (page 1-16 of the 2016 KCSWDM)**

Replace the “Threshold” text of KCSWDM 1.1.2.1 is revised so that the minimum threshold for projects eligible for Simplified Drainage Review shall be 500 square feet.

The remaining text and threshold requirements of KCSWDM 1.1.2.1, Simplified Project Drainage Review, shall apply within the City of Kenmore.

City of Kenmore Permits and Approvals	
<ul style="list-style-type: none"> • Administrative use permit • Amend adopted P-suffix conditions • Binding site plan • Boundary line adjustment • Building permit • Grading permit • Conditional use permit • Master plan development permit • Planned unit development 	<ul style="list-style-type: none"> • Reasonable use exception • Right-of-way permit • Short plat • Short plat alteration • Site plan review • Subdivision • Subdivision alteration • Unclassified use permit • Variance

- **Section 1.2 CORE REQUIREMENTS, Section 1.2.2.1.2 Downstream Water Quality Problems Requiring Special Attention (page 1-30 of the 2016 KCSWDM)** — The following supplemental information is added to this section:

The 2016 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 2016 KCSWDM references Category 2, 4, and 5 water quality problems as requiring special attention. Within the City of Kenmore, the following water quality problems are currently listed by the Department of Ecology, based on the 2015 Water Quality Assessment, approved by the U.S. Environmental Protection Agency on July 22, 2016. The latest designated impaired waterbodies can be viewed at:

<http://www.ecy.wa.gov/programs/Wq/303d/currentassessmt.html>

Impaired Water Body	Parameter	Category*
Sammamish River	Bacteria, Dissolved Oxygen, and Temperature	5
Swamp Creek	Temperature, Bioassessment, Temperature, and Dissolved Oxygen	5
Swamp Creek	Mercury	2
Swamp Creek	Bacteria	4a
Unnamed creek (Trib to Swamp Creek)	Bioassessment, Dissolved Oxygen, and Temperature	5
Unnamed creek (Trib to Swamp Creek)	Bacteria	4a

Impaired Water Body	Parameter	Category*
Lake Washington	Polychlorinated Biphenyls (PCBs) and Total Phosphorus	5

* *Definition of Categories for impaired waterbodies:*

- *Category 2: Waters of concern, some evidence of water quality problem.*
- *Category 4a: Water bodies that have an approved TMDL in place and are actively being implemented.*
- *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.

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.

- **SECTION 1.2.3 CORE REQUIREMENT NO. 3: FLOW CONTROL (page 1-38 of the 2016 KCSWDM)**
 - The following statement shall be added to the flow control requirement: "infiltration of stormwater runoff shall be used wherever feasible."
 - The remaining text of KCSWDM 1.2.3 Core Requirement No. 3: Flow Control, shall apply within the City of Kenmore.
- **Section 1.2.3.1 AREA-SPECIFIC FLOW CONTROL FACILITY REQUIREMENT**
 - Section 1.2.3.1.A (Basic Flow Control Areas) shall not apply within the City of Kenmore.
 - Section 1.2.3.1.B (Conservation Flow Control Areas) shall apply throughout the City of Kenmore, except where the City has determined that Flood Problem Flow Control is needed.
 - Section 1.2.3.1.C (Flood Problem Flow Control Areas) shall apply within the Swamp Creek basin within the City of Kenmore.
 - The "Impervious Surface Percentage Exemption for Agricultural Projects" (KCSWDM 1.2.3.1) is void and shall not apply within the City of Kenmore.
 - Add new sections following IMPERVIOUS SURFACE PERCENTAGE EXEMPTION FOR

AGRICULTURAL PROJECTS (page 1-42 of the 2016 KCSWDM)

- MAINTENANCE EXEMPTIONS

The following pavement maintenance practices are exempt:

- a) Pothole and square cut patching
- b) Overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage (overlaying permeable or pervious pavements with traditional (non-permeable) asphalt or pavement is not considered pavement maintenance)
- c) Shoulder grading
- d) Reshaping/regrading drainage systems
- e) Crack Sealing
- f) Resurfacing with in-kind material without expanding the road prism
- g) Pavement preservation activities that do not expand the road prism
- h) Vegetation maintenance
- i) Catch basin and pipe maintenance
- j) Regrading/reshaping/resurfacing of existing ramps or sidewalks to meet ADA requirements
- k) Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
- l) Projects that do not impact the base course are exempt and are not considered “replaced impervious”.

- MAINTENANCE NON-EXEMPTIONS

The following pavement maintenance practices are not exempt:

- a) The practices subject to the Core Requirements that are triggered when the thresholds are met or exceeded. The extent to which the manual applies is explained for each circumstance.

- b) Removing and replacing a paved surface and impacting the base course. If impervious surfaces are not expanded, Core Requirements #1, 5, 6, and 9 apply.

- **Section 1.2.8 CORE REQUIREMENT #8: WATER QUALITY**

- Add the following new maintenance exemptions and non-exemptions under the section EXEMPTIONS FROM CORE REQUIREMENT #8 (page 1-69 of the 2016 KCSWDM)

5. MAINTENANCE EXEMPTIONS

The following pavement maintenance practices are exempt:

- a) Pothole and square cut patching
- b) Overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage (overlaying permeable or pervious pavements with traditional (non-permeable) asphalt or pavement is not considered pavement maintenance)
- c) Shoulder grading
- d) Reshaping/regrading drainage systems
- e) Crack Sealing
- f) Resurfacing with in-kind material without expanding the road prism
- g) Pavement preservation activities that do not expand the road prism
- h) Vegetation maintenance
- i) Catch basin and pipe maintenance
- j) Regrading/reshaping/resurfacing of existing ramps or sidewalks to meet ADA requirements
- k) Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
- l) Projects that do not impact the base course are exempt and are not considered “replaced impervious”.

6. MAINTENANCE NON-EXEMPTIONS

The following pavement maintenance practices are not exempt.

- a) The practices subject to the Core Requirements that are triggered when the thresholds are met or exceeded. The extent to which the manual applies is explained for each circumstance.
- b) Removing and replacing a paved surface and impacting the base course. If impervious surfaces are not expanded, Core Requirements #1, 5, 6, and 9 apply.

CHAPTER 2 – Drainage Plan Submittal

The City of Kenmore has added supplemental information and made minor changes to Chapter 2 of the 2016 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 Development Services (DDS).

Supplemental Information

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

1. Grading Permit and Engineering Permit applications. The applications and associated checklists are provided on the City's website.

Section 2.4.2 FINAL CORRECTED PLAN SUBMITTAL (page 2-39 of the 2016 KCSWDM) — Replace Section 2.4.2 in entirety as follows:

During the course of construction, special inspections are required for LID and Flow Control BMPs. Once construction is completed, a qualified professional shall provide a signed letter verifying that the BMPs have been inspected, installed correctly, and are functioning as designed. Any as-built deviations from the approved permit plan set shall be explained clearly in the letter.

CHAPTER 3 – Hydrologic Analysis and Design

The City of Kenmore has made no changes to Chapter 3 of the 2016 KCSWDM. Project proponents should refer to the county document for guidance on hydrologic analysis and design.

CHAPTER 4 – Conveyance System Analysis and Design

The City of Kenmore has made minor changes to Chapter 4 of the 2016 KCSWDM. The following stricter requirements apply as applicable in this chapter:

1. Allowed Pipe Types:

Corrugated polyethylene (CPE) pipe, Polypropylene (PP) pipe, and Polyvinyl chloride (PVC) pipe are deleted and shall be replaced with the following allowed pipe and criteria:

- WSDOT Section 9-05.24 Polypropylene Culvert Pipe, Polypropylene Storm Sewer Pipe, and Polypropylene Sanitary Sewer Pipe
- All joints for polypropylene pipe shall be made with a bell/bell or bell and spigot coupling and shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477. All gaskets shall be factory installed on the pipe in accordance with the manufacturer's recommendations.
- Qualification for each manufacturer of polypropylene storm sewer pipe requires joint system conformance to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477 and a formal quality control plan for each plant proposed for consideration.
- A Manufacturer's Certificate of Compliance shall be required and shall accompany the materials delivered to the project. The certificate shall clearly identify production lots for all materials represented. The Contracting Agency may conduct verification tests of pipe stiffness or other properties it deems appropriate.
- WSDOT Section 9-05.24(1) Polypropylene Culvert Pipe and Storm Sewer Pipe
- Polypropylene culvert and storm sewer pipe shall conform to the following requirements:
 - For dual wall pipe sizes up to 30 inches: ASTM F2736.
 - For triple wall pipe sizes from 30 to 60 inches: ASTM F2764.
 - For dual wall profile pipe sizes 36 to 60 inches: AASHTO MP 21, Type S or Type D.
 - Fittings shall be factory welded, injection molded or PVC.
- (Corrugated polyethylene drainage pipe CPEP pipe will not be allowed as it does not meet minimum standards).

2. Acceptable Pipe Sizes:

12-inch is the minimum diameter pipe to be maintained by the City. With City approval, the pipe diameter may be reduced to a minimum of 8-inch, if the pipe capacity is adequate

for design flows.

3. Storm Drain Markers:

Storm drain markers are required, if feasible, at every catch basin. Markers are to be placed in locations approved by Public Works.

4. Pipe Slope:

Minimum pipe slope shall be 0.5%

5. Storm Testing:

All storm system shall be jetted, cleaned, and televised prior to final acceptance into City maintenance.

6. Structure Locations and Appurtenances:

Maximum pipe run between structures shall 300-ft. For maintenance of structures, a truck turnaround shall be provided. Maximum distance between maintenance vehicle access and drainage structure shall be 150-ft. Structures located in non-pavement areas shall include 2-ft wide asphalt ring around structure lid.

7. Pipe Deflections:

Once backfill is complete, the line and grade at pipe flow line leaving standing water greater than ½-inch in depth shall not be accepted and must be repaired prior to acceptance by the City.

8. Pipe Anchors:

Pipe anchor shall include 1" PVC pipe to be installed through the concrete anchor below the pipe to allow passing of ground water.

9. Drainage Structures:

The most updated WSDOT Standard Plans Section B shall be used to determine acceptable design standards.

10. Drainage Structures Ladders:

Ladders required within drainage structures shall not block inlet or outlet pipes and must be accessible from structure opening. Refer to WSDOT Standard Plans for details and specifications.

11. Submerged and Surcharged Pipe:

The 100-year design elevation of downstream stormwater facilities such as stormwater ponds or vaults shall be at or below all pipe inverts. Exception to this standard is the pipe from the first catch basin just upstream of the stormwater facility may be submerged to allow pipe inlet to facility to be submerged.

CHAPTER 5 – Flow Control Design

The City of Kenmore has made minor changes to Chapter 5 of the 2016 KCSWDM. The following stricter requirements apply as applicable in this chapter:

The King County Flow Control Applications Map included with the KCSWDM shall not be applied in the City of Kenmore. The Swamp Creek basin is a flood problem flow control area (level 3) and the remainder of the City of Kenmore is a conservation flow control area (level two) except for project sites with identified downstream flooding problems that may require a higher level of flow control for impact mitigation.

CHAPTER 6 – Water Quality Design

The City of Kenmore has added supplemental information and made minor changes to Chapter 6 of the 2016 KCSWDM, as described below.

Change to 2016 KCSWDM

- The King County Water Quality Applications Map included with the KCSWDM shall not be applied in the City of Kenmore. All of the City of Kenmore is a basic water quality treatment area unless the proposed land use triggers enhanced basic water quality treatment.
- The City of Kenmore allows bioretention to be used for presettling, but it must be designed to meet presettling requirements listed in 6.5.1.2 (Presettling Requirement).

DEFINITIONS

The City of Kenmore has made the following changes to the Definitions Section of the 2016 KCSWDM. Project proponents should refer to the county document for other definitions.

Term (page)	Action
<p>Erosion hazard area (p 9 of KCSWDM Definitions)</p>	<p><i>Replace as follows (from Section 18.20.940 KMC):</i></p> <p>Erosion hazard areas means those areas identified by the United States Department of Agriculture Natural Resources Conservation Service or identified by a special study as having a “moderate to severe” or “very severe” erosion potential.</p>
<p>Flood hazard area (p 1-10 of KCSWDM Definitions)</p>	<p><i>Replace as follows (per Section 18.20.1070 KMC):</i></p> <p>Flood hazard areas means those areas in the City 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.</p>
<p>Landslide Hazard Area (page 15 of KCSWDM Definitions)</p>	<p><i>Replace as follows (per Section 18.20.1570 KMC):</i></p> <p>Landslide hazard areas means areas that are potentially subject to risk of mass movement resulting from a combination of geologic, topographic, and hydrologic factors including: bedrock, soil, slope gradient, slope aspect, geologic structure, ground water, or other factors.</p>

APPENDICES

The City of Kenmore has made the following changes to the Appendices section of the 2016 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 Kenmore has made no changes, and Appendix A applies in its entirety to the City of Kenmore.

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

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

Appendix D: Construction Stormwater Pollution Prevention (CSWPP) Standards – This is a separately bound document included with the KCSWDM and this appendix applies in its entirety to the City of Kenmore.

REFERENCE

Table Ref-1 identifies which reference sections in the 2016 KCSWDM apply and those that do not apply to the City of Kenmore. Table Ref-2 lists additional City of Kenmore references that apply.

Table Ref-1. Applicability of KCSWDM References to projects in the City of Kenmore

No.	Description	Action
1	KCC 9.04 Surface Water Runoff Policy	This reference document shall be deleted in entirety. Project proponents should refer to Chapter 13.35 KMC.
2	Adopted Critical Drainage Areas	This reference document shall be deleted in entirety. Project proponents should refer to Chapter 18.55 KMC.
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. Applicable. B. Not applicable. See Section 15.25.150 KMC. C. Applicable. D. Applicable.
5	Wetland Hydrology Protection Guidelines	These guidelines apply.

No.	Description	Action
6	<p>Hydrologic/Hydraulic Design Methods</p> <ul style="list-style-type: none"> A. Infiltration Rate Test B. Pond Geometry Equations C. Introduction to Level Pool Routing D. Supplemental Modeling Guidelines 	<p>This reference section is applicable.</p>
7	<p>Engineering Plan Support</p> <ul style="list-style-type: none"> A. King County Standard Map Symbols B. Standard Plan Notes and Example Construction Sequence C. Storm Filter Facility Access and Cartridge Configuration 	<ul style="list-style-type: none"> 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	<p>Forms and Worksheets</p> <ul style="list-style-type: none"> A. TIR Worksheet B. Offsite Analysis Drainage System Table C. Water Quality Facility Sizing Worksheets D. Flow Control and Water Quality Facility Summary Sheet and Sketch E. CSWPPP Worksheet Forms F. Adjustment Application Form and Process Guidelines G. Dedication and Indemnification Clause H. Bond Quantities 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 	<ul style="list-style-type: none"> A. Replace with City Form. B. Replace with City Form. C. Replace with City Form. D. Replace with City Form. E. Replace with City Form. F. Replace with City Form. G. Replace with City Form. H. Replace with City Form. I. Replace with City Form. J. Replace with City Form. K. Replace with City Form. L. Replace with City Form. M. Replace with City Form. N. Replace with City Form. O. Replace with City Form. P. Replace with City Form. Q. Replace with City Form.
9	<p>Interim Changes to Requirements</p> <ul style="list-style-type: none"> A. Blanket Adjustments B. Administrative Changes 	<p>Applicable.</p>
10	<p>King County Identified Water Quality Problems</p>	<p>Delete in entirety</p>

No.	Description	Action
<p>11</p>	<p>Materials A. (VACANT) B. (VACANT) C. Bioretention Soil Media Standard Specifications D. (VACANT) E. Roofing Erodible or Leachable Materials</p>	<p>A. Not applicable. B. Not applicable. C. Applicable. D. Not applicable. E. Applicable.</p>
<p>12</p>	<p>(VACANT)</p>	<p>Not applicable</p>
<p>13</p>	<p>(VACANT)</p>	<p>Not applicable</p>
<p>14</p>	<p>Supplemental Approved Facilities A. Approved Proprietary Facilities B. Approved Public Domain Facilities</p>	<p>A. Applicable. B. Applicable.</p>