

**ORDINANCE NO. 2023 (2009)**

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING BOTHELL MUNICIPAL CODE CHAPTER 11.20, ENFORCEMENT; 18.01, DEFINITIONS; 18.02, ALTERATIONS TO BOTHELL STANDARDS; 18.04, STORMWATER AND DRAINAGE CONTROL CODE; 18.08, VARIANCE PROCESS; 18.10, STORM AND SURFACE WATER UTILITY; AND BOTHELL STANDARDS CHAPTER 4, SURFACE WATER DESIGN MANUAL

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WHEREAS, Washington State Department of Ecology issued the City of Bothell a National Pollutant Discharge Elimination System (NPDES) Phase II permit, in compliance with the provisions of the State of Washington Water Pollution Control Law, Chapter 90.48 Revised Code of Washington, and the Federal Water Pollution Control Act (The Clean Water Act) Title 33 United States Code, Section 1251 et seq.; and

WHEREAS, in accordance with the NPDES Phase II permit requirements, the City of Bothell has begun to adopt policies, procedures, and Code amendments; and

WHEREAS, the City Council initiated a series of housekeeping and issue-specific Code amendments on January 6, 2009, relating to stormwater management; and

WHEREAS, the City Council on June 9, 2009, conducted a study session on proposed Code amendments; and

WHEREAS, the City of Bothell Public Works Department on March 5, April 4, and April 14, 2009, transmitted drafts of such amendments to the Washington State Department of Community, Trade, and Economic Development for its review, which transmittal met the requirement in the Growth Management Act that the state receive proposed amendments at least sixty (60) days prior to the anticipated adoption date; and

WHEREAS, the City of Bothell Community Development Department on May 7, 2009, issued a SEPA Determination of Non-Significance concerning such amendments, which meets the requirements of the State Environmental Policy Act for review of environmental impacts; and

WHEREAS, a Public Hearing was held on June 16, 2009 and the City Council has determined that the Code amendments for stormwater management and the Bothell Standards Chapter 4, Surface Water Design Manual, attached here as Exhibit A, are in the public interest; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Bothell Municipal Code Chapter 11.20, Enforcement; 18.01, Definitions; 18.02, Alterations To Bothell Standards; 18.04, Storm Water And Drainage Control Code; 18.08, Variance Process; 18.10, Storm And Surface Water Utility; and Bothell Standards Chapter 4, Surface Water Design Manual are hereby amended as set forth in Exhibit A attached hereto by this reference as if set forth in full.

Section 2. SEVERABILITY. If any section, sentence, clause or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 3. EFFECTIVE DATE. This ordinance, being an exercise of a power specifically delegated to the City legislative body, is not subject to referendum, and shall take effect August 15, 2009, after passage and publication of an approved summary thereof consisting of the title.

Section 4. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers and any references thereto.

APPROVED:



MARK LAMB  
MAYOR

ATTEST/AUTHENTICATED:



JOANNE TRUDEL  
CITY CLERK

APPROVED AS TO FORM:

  
JOSEPH BECK  
CITY ATTORNEY

FILED WITH THE CITY CLERK: June 9, 2009  
PASSED BY THE CITY COUNCIL: June 16, 2009  
PUBLISHED: June 22, 2009  
EFFECTIVE DATE: August 15, 2009  
ORDINANCE NO.: 2023 (2009)

SUMMARY OF ORDINANCE NO. 2023 (2009)

City of Bothell, Washington

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On the 16<sup>th</sup> day of June, 2009, the City Council of the City of Bothell passed Ordinance No. 2023 (2009). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING BOTHELL MUNICIPAL CODE CHAPTER 11.20, ENFORCEMENT; 18.01, DEFINITIONS; 18.02, ALTERATIONS TO BOTHELL STANDARDS; 18.04, STORMWATER AND DRAINAGE CONTROL CODE; 18.08, VARIANCE PROCESS; 18.10, STORM AND SURFACE WATER UTILITY; AND BOTHELL STANDARDS CHAPTER 4, SURFACE WATER DESIGN MANUAL

The full text of this Ordinance will be mailed upon request.

  
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JOANNE TRUDEL  
CITY CLERK

FILED WITH THE CITY CLERK: June 9, 2009  
PASSED BY THE CITY COUNCIL: June 16, 2009  
PUBLISHED: June 22, 2009  
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## EXHIBIT A

### Chapter 11.20 ENFORCEMENT

Sections: (Blue underline font is not proposed changes, it is web link only)

<u>11.20.001</u>	Purpose.
<u>11.20.002</u>	Scope.
<u>11.20.003</u>	Violations.
<u>11.20.004</u>	Duty to enforce, right of entry.
<u>11.20.005</u>	Investigation and notice of violation.
<u>11.20.006</u>	Time to comply.
<u>11.20.007</u>	Cease activity order.
<u>11.20.008</u>	Emergency order.
<u>11.20.009</u>	Review by hearing examiner.
<u>11.20.010</u>	Penalties.

#### **11.20.001 Purpose.**

The purpose of this chapter is to establish an efficient procedure for enforcement of code violations. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

#### **11.20.002 Scope.**

The procedures set forth in this chapter shall be utilized to enforce violations of BMC Titles 8, Health and Safety, 12, the Zoning Code; 13, the Shoreline Master Program; 14, Environment; 20, the Building Code; 15, the Subdivision Code; 17, the Transportation Regulations; 18, the Utilities Regulations; 21, the Methods to Mitigate Development Impacts; and 22, Landmark Preservation. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

#### **11.20.003 Violations.**

A. It is unlawful for any person to initiate, maintain or cause to be initiated or maintained the use of any structure, land or property within the city of Bothell without first obtaining the permits or authorizations required for the use by the applicable provisions of this code, the Bothell shoreline master program or the Bothell Municipal Code Appendix.

B. It is unlawful for any person to use, construct, erect, enlarge, alter, repair, move, improve, convert, equip, occupy, maintain, locate, demolish or cause to be used, constructed, located, or demolished any structure, land or property within the city of Bothell in any manner that is not permitted by the terms of any permit or authorization issued pursuant to the applicable provisions of this code, the Bothell shoreline master program or the Bothell Municipal Code Appendix; or any permit or other authorization issued pursuant thereto; provided, that the terms or conditions are explicitly stated on the permit or the approved plans.

C. In addition to the above, it unlawful to:

1. Remove or deface any sign, notice, complaint or order required by or posted in accordance with this chapter;
2. Misrepresent any material fact in any application, plans or other information submitted to obtain any building or construction authorization;
3. Fail to comply with any of the requirements of an order to cease activity issued under this chapter; and

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4. Fail to comply with any of the applicable provisions of this code, the Bothell shoreline master program or the Bothell Municipal Code Appendix. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

**Note:**

***The Bothell Municipal Code Appendix has been retired with the sunset of the last Concomitant Agreement. Mention of these obsolete regulations may be deleted from the Code.***

### **11.20.004 Duty to enforce, right of entry.**

A. Enforcement Authority. The director may call upon the police, fire, building, public works or other appropriate city departments to assist in enforcement. As used in this chapter, "director" shall also mean either the director of community development or the director of public works, and his or her duly authorized representative(s).

1. It shall be the duty of the community development director to enforce this chapter and the provisions of BMC Titles 8, 11, 12, 13, 14, 15, 20, 21 and 22, the Bothell shoreline master program, ~~and the Bothell Municipal Code Appendix.~~

2. It shall be the duty of the public works director to enforce this chapter and the provisions of BMC Titles 17 and 18, ~~or the Bothell Municipal Code Appendix.~~

B. Upon presentation of proper credentials, the director may, with the consent of the owner or occupier of a building or premises, or pursuant to a lawfully issued inspection warrant, enter at reasonable times any building or premises subject to the consent or warrant in order to perform the duties imposed by this chapter.

C. This chapter shall be enforced for the benefit of the health, safety and welfare of the general public, and not for the benefit of any particular person or class of persons.

D. It is the intent of this chapter to place the obligation of complying with its requirements upon the owner, occupier or other person responsible for the condition of the land and buildings within the scope of this code, the Bothell shoreline master program, and/or the Bothell Municipal Code Appendix.

E. No provision of or any term used in this chapter is intended to impose any duty upon the city or any of its officers or employees which would subject them to damages in a civil action. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.005 Investigation and notice of violation.**

A. Investigation. The director shall investigate any structure, property or use which the director reasonably believes does not comply with the applicable standards and requirements of this code, the Bothell shoreline master program and/or the Bothell Municipal Code, ~~Appendix.~~

B. Notice of Violation. If after investigation the director determines that the applicable standards or requirements of this code, the Bothell shoreline master program and/or the Bothell Municipal Code Appendix have been violated, the director may serve a notice of violation upon the owner, tenant or other person responsible for the condition. The notice of violation shall contain the following information:

1. A separate statement of each standard, code provision or requirement violated;

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2. What corrective action, if any, is necessary to comply with the standards, code provision or requirements;

3. A reasonable time for compliance;

4. A statement that if the violation is not already subject to criminal prosecution, that any subsequent violations may result in criminal prosecution as provided in BMC 11.20.010.

C. Service. The notice shall be served on the owner, tenant or other person responsible for the condition by personal service, registered mail, or certified mail with return receipt requested, addressed to the last known address of such person. If, after a reasonable search and reasonable efforts are made to obtain service, the whereabouts of the person(s) is unknown or service cannot be accomplished and the director makes an affidavit to that effect, then service of the notice upon such person(s) may be made by:

1. Publishing the notice once each week for two consecutive weeks in the city's official newspaper; and

2. Mailing a copy of the notice to each person named on the notice of violation by first class mail to the last known address if known, or if unknown, to the address of the property involved in the proceedings.

D. Posting. A copy of the notice shall be posted at a conspicuous place on the property, unless posting the notice is not physically possible, or the director determines other methods of giving notice such as mailing, or personal service will reasonably apprise the property owner and/or other persons responsible for the alleged code violation of the pending code enforcement action.

E. Other Actions May Be Taken. Nothing in this section shall be deemed to limit or preclude any action or proceeding pursuant to BMC 11.20.007, Cease Activity Order; BMC 11.20.008, Emergency Order; criminal prosecution as provided in BMC 11.20.010; or for the additional and injunctive relief described in BMC 11.20.010.

F. Optional Notice to Others. The director may mail, or cause to be delivered to any or all residential and/or nonresidential rental unit(s) in the structure or post at a conspicuous place on the property, a notice which informs each recipient or resident about the notice of violation, cease activity order or emergency order and the applicable requirements and procedures.

G. Amendment. A notice or order may be amended at any time in order to:

1. Correct clerical errors; or

2. Cite additional authority for a stated violation. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.006 Time to comply.**

A. Determination of Time. When calculating a reasonable time for compliance, the director should consider the following criteria:

1. The type and degree of violation cited in the notice;

2. The stated intent, if any, of a responsible party to take steps to comply;

3. The procedural requirements for obtaining a permit to carry out corrective action;

4. The complexity of the corrective action, including seasonal considerations, construction requirements and the legal prerogatives of landlords and tenants; and

5. Any other circumstances beyond the control of the responsible party.

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B. Order Becomes Final Unless Appealed. Unless an appeal is filed with the director for hearing before the hearing examiner in accordance with BMC 11.20.009, the notice of violation shall become the final order of the director. A copy of the notice shall be filed with the King County department of records and elections or the Snohomish County auditor. The director may choose not to file a copy of the notice or order if the notice or order is directed only to a responsible person other than the owner of the property. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.007 Cease activity order.**

Whenever a continuing violation of this code will materially impair the director's ability to secure compliance with this code, or when the continuing violation threatens the health, safety and welfare of the public, the director may issue a cease activity order specifying the violation and prohibiting any work or other activity at the site. A failure to comply with a cease activity order shall constitute a violation of this chapter. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.008 Emergency order.**

Whenever any use or activity in violation of this code, the Bothell shoreline master program and/or the Bothell Municipal Code ~~Appendix~~ threatens the health, safety and welfare of the occupants of the premises or any member of the public, the director may issue an emergency order directing that the use or activity be discontinued and the condition causing the threat to the public health, safety or welfare be corrected. The emergency order shall specify the time for compliance and shall be posted in a conspicuous place on the property. A failure to comply with an emergency order shall constitute a violation of this chapter.

Any condition described in the emergency order which is not corrected within the time specified is hereby declared to be a public nuisance and the director is authorized to abate such nuisance summarily by such means as may be available. The cost of such abatement shall be recovered from the owner or person responsible or both in the manner provided by law. (Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.009 Review by hearing examiner.**

A. The person incurring the penalty described in a notice of violation issued by the director pursuant to BMC 11.20.005 may obtain an appeal of the notice by requesting such appeal within 15 calendar days after service of the notice. When the last day of the period so computed is a Saturday, Sunday or federal or city holiday, the period shall run until 5:00 p.m. on the next business day. The request shall be in writing, and upon receipt of the appeal request, the director shall forward the request to the hearing examiner, pursuant to Chapter 2.54 BMC.

1. Notice of the appeal shall be sent to the following:
  - a. Appellant and/or the person(s) named on the notice of violation;
  - b. Affected city departments;
  - c. Affected agencies with jurisdiction;
2. The notice shall contain those items identified in BMC 11.19.002(F);
3. Notice of the appeal hearing shall be issued at least 10 calendar days prior to the hearing.

B. At or after the appeal hearing, the hearing examiner may:

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1. Sustain the notice of violation;
2. Withdraw the notice of violation;
3. Continue the review to a date certain for receipt of additional information;
4. Modify the notice of violation, which may include an extension of the

compliance date.

C. The hearing examiner shall issue a decision within 10 working days after the date of the completion of the review and shall cause the same to be sent to the person(s) named on the notice of violation under the same procedures described in BMC 11.20.005(C), and mailed to the complainant, where the complainant has provided an address and filed with the King County department of records and elections or the Snohomish County auditor, whichever is applicable.

D. The decision of the hearing examiner shall be final and conclusive, subject to reconsideration. In order to appeal the decision of the hearing examiner, a person with standing to appeal a decision imposing criminal penalties must appeal to the Bothell municipal court, and a person with standing to appeal a decision imposing civil penalties must make application for a land use petition under Chapter 36.70C RCW, within 21 calendar days of the issuance of the examiner's decision. The cost of transcription of all records ordered certified by the court for such review shall be borne by the appellant. (Ord. 1871 § 1, 2002; Ord. 1815 § 1, 2000; Ord. 1628 § 1, 1996).

### **11.20.010 Penalties.**

A. Violations of Bothell Municipal Code ~~and/or Bothell Municipal Code Appendix.~~

1. Civil Penalty.

a. Any person violating or failing to comply with any of the provisions of this code or Bothell Municipal Code Appendix, with the exception of the SMP, ~~and~~ BMC Title 15, Subdivisions, and Title 18, Utilities, shall be subject to a maximum penalty in the amount of \$250.00 per day for each violation from the date set for compliance until compliance with the order is achieved. In addition to the actual penalty imposed, should the city violation be affirmed, the hearing examiner shall assess to the appellant an amount for the costs incurred by the city, and the examiner in prosecuting the appeal before the hearing examiner. These costs shall include those expenses incurred in preparing the appeal, issuing public notice as required under BMC 11.20.009(A), general clerical expenses, staff and examiner preparation time, site inspections, city attorney costs, and other expenses incurred by the city. City prosecution costs shall be waived should the violator correct the alleged violation 10 or more working days prior to the scheduled appeal hearing; provided, however, correction of the alleged violation prior to the scheduled appeal hearing shall not preclude the city from pursuing imposition of civil penalties at the hearing.

b. In addition to any penalty which may be imposed by the city, any person violating or failing to comply with any of the provisions of this code ~~or the Bothell Municipal Code Appendix~~, with the exception of the SMP and BMC Title 15, Subdivisions, shall be liable for all damage to public or private property arising from such violation, including the cost of restoring the affected area to its condition prior to the violation.

c. The penalty imposed by this section shall be collected by civil action brought in the name of the city. The director shall notify the city attorney in writing of the

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name of any person subject to the penalty, and the city attorney shall, with the assistance of the director, take appropriate action to collect the penalty.

d. The violator may show as full or partial mitigation of liability as determined by the hearing examiner:

(1) That the violation giving rise to the action was caused by the willful act, or neglect, or abuse of another; or

(2) That correction of the violation was commenced promptly upon receipt of the notice thereof, but that full compliance within the time specified was prevented by inability to obtain necessary materials or labor, inability to gain access to the subject structure, or other condition of the property or circumstance beyond the control of the defendant.

2. Special Penalties for Noise and Construction Work Hour Infractions.

a. Civil Noise Infraction. Any person violating or failing to comply with the provisions of Chapter 8.26 BMC shall be subject to a civil noise infraction for which a monetary penalty may be assessed and a stop work order issued. Penalties shall be as follows:

(1) First Offense. If a person has not violated the provisions of Chapter 8.26 BMC during the one-year period preceding the most recent violation, a warning shall be given and no monetary penalty shall be assessed.

(2) Second Offense. If a person has violated the provisions of Chapter 8.26 BMC within the one-year period preceding the most recent violation, a citation shall be issued assessing a monetary penalty in the amount of \$250.00 and a stop work order shall be issued.

(3) Third Offense. If a person has violated the provisions of Chapter 8.26 BMC twice within the one-year period preceding the most recent violation, a citation shall be issued assessing a monetary penalty in the amount of \$250.00, plus issuance of a stop work order. During the stop work period the violator shall submit a plan that includes the methods and operational changes to be implemented to prevent any future violations. The plan shall be reviewed and approved by the public improvements director prior to rescinding the stop work order.

(4) Fourth Offense and Any Additional Offense. If a person has violated the provisions of Chapter 8.26 BMC three or more times within the one-year period preceding the most recent violation, criminal penalties, as outlined under BMC 11.20.010(A)(3), shall be assessed.

3. Special Penalties for BMC Title 18, Utilities.

a. Basic Penalty. Each day or portion thereof during which a violation of the subtitle exists is a separate violation of the subtitle. The cumulative monetary penalty for each violation of the subtitle shall be as follows:

(1). The penalty for the first day a violation exists is One Hundred Dollars (\$100.00);

(2). The penalty for the second day a violation exists is Two Hundred Dollars (\$200.00);

(3). The penalty for the third day a violation exists is Three Hundred Dollars (\$300.00);

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(4). The penalty for the fourth day a violation exists is Four Hundred Dollars (\$400.00);

(5). The penalty for each day a violation exists beyond four days is Five Hundred Dollars (\$500.00).

Schedule of Penalties per Violation

<u>Day</u>	<u>Fine for that Day</u>	<u>Cumulative Total</u>
<u>1</u>	<u>\$100.00</u>	<u>\$100.00</u>
<u>2</u>	<u>\$200.00</u>	<u>\$300.00</u>
<u>3</u>	<u>\$300.00</u>	<u>\$600.00</u>
<u>4</u>	<u>\$400.00</u>	<u>\$1,000.00</u>
<u>5</u>	<u>\$500.00</u>	<u>\$1,500.00</u>
<u>6 and up</u>	<u>\$500.00</u>	<u>\$2,000.00 and up \$500.00 per day.</u>

b. Triple Penalties: Penalties maybe trebled for;

(1) A repeat violation, which means an additional violation of a requirement of this subtitle for which the responsible party has previously received a notice of violation and failed to correct the violation by the compliance date;

(2) A violation resulting in physical harm to persons or to private or public property;

(3) A knowing or deliberate violation. The responsible party shall assume the burden of proof for demonstrating that the violation was not deliberate;

(4) A violation resulting from gross negligence or reckless conduct.

c. Reduction of Penalties. Penalties may be reduced based upon one (1) or more of the following mitigating factors:

(1). The responsible party shows due diligence and/or substantial progress in correcting the violations;

(2). Another responsible party was the primary cause of the violation;

(3) The responsible party was unaware of the violation and had not acted negligently or recklessly;

c. Penalty for Significant Violation. Responsible parties for violations causing significant harm to public health, safety or welfare, the environment, or public or private property shall be assessed the penalties set forth in the schedule above, or an amount equivalent to the economic benefit the responsible party derived from the violation, whichever is greater. "Significant harm" is harm which cannot be fully corrected or mitigated by the responsible party, and which cannot be adequately compensated for by assessment of penalties, costs, expenses or damages under this chapter. Economic benefit may be determined by an increase in market value of property, value received by the responsible party, savings in costs realized by the responsible party, increased income to the responsible party, or any other method reasonable under the circumstances.

d. Damages. Any party who violates any of the provisions of Title 18 shall, in addition to any penalties provided for such violation, be liable for any cost, expense, loss or damage occasioned thereby to the City, plus a charge of fifteen percent (15% for

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administrative costs. This clause does not establish a cause of action that may be asserted by any party other than the City. Penalties, damage, costs and expenses may be recovered only by the City.

e. Effect of Payment of Penalties. The person to whom an order is directed is not relieved of the duty to take corrective action to correct the violation by payment of a monetary penalty pursuant to this subtitle.

f. Enforcement and Collection of Penalty. The penalties provided for in this subsection may be enforced as otherwise provided in this chapter or in any other available manner and the penalties imposed may be collected as provided under subsection (1)(a), above.

### 3. Criminal Penalties.

a. Any person violating or failing to comply with any of the applicable provisions of this code or Bothell Municipal Code ~~Appendix~~, with the exception of the SMP and BMC Title 15, Subdivisions, and who has had a judgment entered against him or her pursuant to BMC 11.20.006 or 11.20.009 or its predecessors within the past five years shall be subject to criminal prosecution and upon conviction of a subsequent violation shall be fined in a sum not exceeding \$5,000 or be imprisoned for a term not exceeding one year or be both fined and imprisoned. Each day of noncompliance with any of the applicable provisions of this code and/or the Bothell Municipal Code Appendix shall constitute a separate offense.

b. The above criminal penalty may also be imposed:

(1) For any other violation for which corrective action is not possible;

and

(2) For any willful, intentional, or bad faith failure or refusal to comply with the standards or requirements.

c. In addition to any criminal penalty which may be imposed by the city, a violator may also be liable for damages and costs of restoration described in subsection (A)(1)(b) of this section.

4. Additional Relief. The director may seek legal or equitable relief to enjoin any acts or practices and abate any condition which constitutes or will constitute a violation of the applicable provisions of this code and/or the Bothell Municipal Code Appendix when civil or criminal penalties are inadequate to effect compliance.

#### B. Shoreline Master Program (SMP) Violations.

1. Civil Penalty. Any person who shall fail to conform to the terms of a permit issued under the Bothell SMP or who shall undertake development on the shorelines of the state without first obtaining any permit required under the SMP shall also be subject to a civil penalty not to exceed \$1,000 for each violation. Each permit violation or each day of continued development without a required permit shall constitute a separate violation.

2. Criminal Penalty. In addition to incurring civil liability under this section, any person found to have willfully engaged in activities on the shorelines of the state in violation of the provisions of the SMP, the Shoreline Management Act, Chapter 90.58 RCW, or any rules or regulations adopted thereto, shall be guilty of a gross

## EXHIBIT A

misdemeanor, and shall be punished by a fine of not less than \$25.00 nor more than \$1,000, or by imprisonment for not more than 90 days, or by both such fine and imprisonment; provided, that the fine for the third and all subsequent violations in any five-year period shall not be less than \$500.00 nor more than \$10,000.

3. Damages, Attorneys' Fees and Costs. Any person subject to the SMP who violates any provision of the Shoreline Management Act or permit issued pursuant thereto shall be liable for all damage to public or private property arising from such violation, including the cost of restoring the affected area to its condition prior to violation. The city attorney may bring suit under this section on behalf of the city of Bothell. In addition to such relief, including money damages, the court in its discretion may award attorneys' fees and costs of the suit to the prevailing party.

### C. Subdivision Violations.

1. Any person, firm, corporation, or association or any agent of any person, firm, corporation, or association who violates any provision of Chapter 58.17 RCW or BMC Title 15, Subdivisions, relating to the sale, offer for sale, lease, or transfer of any lot, tract, or parcel of land, shall be guilty of a gross misdemeanor and shall be punished by a fine not more than \$5,000, or by imprisonment for not more than one year, or by both such fine and imprisonment. Each sale, offer for sale, lease or transfer of each separate lot, tract, or parcel of land in violation of any provision of Chapter 58.17 RCW or BMC Title 15, Subdivisions, shall be deemed a separate and distinct offense.

2. Whenever land within a subdivision granted final approval is used in a manner or for a purpose which violates any provision of Chapter 58.17 RCW, any provision of BMC Title 15, Subdivisions, or any term or condition of plat approval prescribed for the plat by the local government, then the prosecuting attorney, or the attorney general if the prosecuting attorney shall fail to act, may commence an action to restrain and enjoin such use and compel compliance with the provisions of Chapter 58.17 RCW or BMC Title 15, or with such terms and conditions. The costs of such action may be taxed against the violator. (Ord. 1815 § 1, 2000; Ord. 1649 § 1, 1996; Ord. 1628 § 1, 1996).

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### Chapter 18.01 DEFINITIONS

Sections:

18.01.010 Definitions.

#### **18.01.010 Definitions.**

For the purpose of this chapter and all of BMC Title 18, the terms, phrases, words and their derivations have the following definitions. When not inconsistent with the context, words used in the present tense include the future tense, words in the plural number include the singular number, and words in the singular number include the plural number. The word “shall” is always mandatory. The word “may” is permissive. Other definitions contained in Chapter 11.02 BMC, Definitions, and in BMC Title 17, Transportation, shall also apply to this title and chapter, except when inconsistent with a definition herein.

1. AKART – All Known, Available, and Reasonable methods of prevention, control, and Treatment as established by State Water Pollution Control Act, sections 90.48.010 RCW and 90.48.520 RCW.
2. “Best Management Practices” (BMPs). Means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and structural or managerial practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.
3. “Bothell Surface Water Design Manual” (BSWDM) means the manual of technical and administrative procedures established by the director which delineates methods to be used, the level of detail of analysis required, and other details for implementation of the provisions of this chapter. This manual is found in Chapter 4 of the Bothell Standards.
4. “Clean Water Act” means the federal Water Pollution Control Act (33 USC Section 1251 et seq.), and any subsequent amendments thereto
5. “Common areas” means those parcels of land set aside for the use in common by the owners of other lots.
6. “Comprehensive storm and surface water program” means a plan and all implementing regulations and procedures including but not limited to capital projects, public education activities, land use management regulations adopted by ordinance for managing surface and storm water management facilities and features within the city.
7. “Director” means the director of the department of public works of the city of Bothell or his/her designee.
8. “Drainage basin” means the geographic region within which water drains into a particular aquatic system or other body of water.
9. “Drainage facility” means the system of collecting, conveying, and storing surface and storm water runoff. Drainage facilities shall include but not be limited to all surface and storm water conveyance and containment facilities including streams, pipelines, channels, ditches, swamps, lakes, wetlands, closed depressions, infiltration facilities,

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retention/detention facilities, erosion/sedimentation control facilities, and other drainage structures and appurtenances, both natural and constructed.

10. "Excavation" means the digging, breaking, or removal of soil or rock.

11. "Grading" means the shaping, excavating, or filling of the ground surface.

12. "Ground Water" means water in a saturated zone or stratum beneath the surface of the land or below a surface water body.

13. "Hazardous materials" means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

14. "Hyperchlorinated" means water that contains more than 10mg/Liter chlorine.

15. "Illicit discharge" means any direct or indirect non-stormwater discharge to the city's surface and storm water management system, except as expressly allowed by this chapter. 16. "Illicit connection" means any man-made conveyance that is connected to a municipal separate storm sewer, surface waters, or ground waters without a permit, excluding roof drains and other similar type connections. Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected, outfall to, or flow into municipal separate storm sewer system, surface waters, or ground waters.

17. "Low-income elderly" for the purpose of this title shall be the age as established by RCW 74.38.070 as it now exists or may hereafter be amended and shall have an annual income level as established by the very low income category limit published by the United States Department of Housing and Urban Development for its programs for the Seattle, Bellevue, Everett-PMSA\MSA as the same now exists or may hereafter be amended.

18. "Municipal separate storm sewer system" (MS4) means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

a. Owned or operated by the city of Bothell;

b. Designed or used for collecting or conveying stormwater;

c. Which is not part of a Publicly Owned Treatment Works (POTW). "POTW" means any device or system used in treatment of municipal sewage or industrial wastes of a liquid nature which is publicly owned; and

d. Which is not a combined sewer. A "Combined sewer" means a system that collects sanitary sewage and stormwater in a single sewer system.

19. "National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit" means a permit issued by the Environmental Protection Agency (EPA) (or by the Washington Department of Ecology under authority delegated pursuant to 33 USC Section 1342 (b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or a general area-wide basis.

20. "Natural surface water drainage system" means such landscape features as rivers, streams, open water courses that collect, convey, or store surface waters, piped streams, lakes, and wetlands. This system circulates water in a complex hydrological cycle.

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21. "Permissible alternative" means alternative methods, procedures or materials which differ from the Bothell Standards and/or development regulations which results in a system function equal to, or better, than the original standard accomplishing the same purpose. Permissible alternatives are characterized as modifications which are in the public interest, are based upon sound engineering judgment, and that meet requirements for safety, function, appearance and maintainability.

22. "Pollutants" in regard to surface and storm water include but are not limited to oils and petroleum products, paints and paint thinners, pesticides, fertilizers, soaps, detergents, washing wastes and any pollutants found on the following lists, as now or hereafter amended, herein adopted as part of this chapter by reference:

- a. Discarded Chemicals List of WAC 173-303-9903.
- b. Toxic Dangerous Waste List of WAC 173-303-101.
- c. Dangerous Waste Sources List of WAC 173-303-9904.
- d. Dangerous Waste Constituents List of WAC 173-303-9905.
- e. Dangerous Waste Mixtures List of WAC 173-303-084.
- f. Persistent Dangerous Waste List of WAC 173-303-10.

23. "Pollution" means such contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state or surface and ground waters within the jurisdiction of the City of Bothell, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other beneficial uses, or to livestock, wild animals, birds, fish, or the most sensitive aquatic life.

24. "Receiving bodies of water" means creeks, streams, rivers, lakes, and other natural surface bodies of water into which storm and surface waters are directed, either naturally or in manmade ditches or piped systems.

25. "Sewage" means the combination of water-carried wastes from residences, businesses, buildings, institutions and industrial establishments, which wastes contain polluted matter subject to treatment.

26. "Sanitary side sewer" means a conduit extending from the plumbing system of a structure to and connecting with a public sewer system.

27. "Storm and surface water management services" means the services provided by the storm and surface water management utility, including but not limited to basin planning, facilities maintenance, regulation, financial administration, public involvement, drainage investigation and enforcement, restoration and maintenance of aquatic resources, surface and storm water quality and environmental monitoring, natural surface water drainage system planning, intergovernmental relations, and facility design and construction.

28. "Storm water" means that portion of precipitation that does not naturally percolate into the ground or evaporates, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility. 29. "Surface and storm water management system" means constructed drainage facilities and any natural surface water drainage features which collect, store, control, treat and/or convey surface and storm water.

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30. "Storm drainage side sewer" means a conduit extending from the plumbing system of a structure to and connecting with a public storm drainage system.

31. "Storm drainage system" includes but is not limited to the system of pipes, detention/retention facilities, water quality devices, low impact development features, infiltration systems, any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities and ditches that direct storm water from surrounding lands to surface waters.

32. "Stormwater Pollution Prevention Plan" (SWPPP) means a document which describes the best management practices and activities to be implemented by a person to identify sources of pollution or contamination at a premise and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or receiving waters to the maximum extent practicable.

33. "Surface Waters" includes lakes, rivers, ponds, streams, inland waters, salt waters, wetlands, other surface waters, and water courses as well as shallow groundwater..

34. "Undeveloped parcel" means any parcel which has not been altered from its natural state by the construction, creation, or addition of impervious surface(s).

35. "Utility" means the Bothell storm and surface water management utility created under the provisions of this title.

36. "Utility permit" means the permit required for the extension of any utility main owned by the city on private property. (Ord. 1832 § 1, 2000; Ord. 1634 § 1, 1996; Ord. 1361 § 1, 1989; Ord. 1138 § 1, 1984; Ord. 1030 § 1, 1982).36. "Water Quality" means the chemical, physical, or biological integrity of surface and ground water as established by Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq, sec 101.

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### BMC 18.02.040 Permissible alternatives to Bothell Standards

- A. The public works director shall have the authority to review requests from an applicant for deviations from the Bothell Standards; provided the deviation shall result in performance equal to or better than the original standard. The decision to approve or deny the request shall include consideration of written information submitted by the applicant which shall include the following:
1. The specific standard deviation(s) being requested.
  2. An engineering report, calculations or documentation which indicates the requested alternative shall result in performance equal to or better than the original standard.
  3. Agreement to extend the city's regulatory time frame under growth management, when applicable, to review and act on the request.  
(Normally permits issued by public works are not subject to regulatory reform time frames).
- B. The director shall notify the applicant in writing of the decision as part of the normal permit review process. A copy of the decision shall be kept in the city's file for reference. ~~(Ord. 1634 § 1, 1996).~~
- C. In addition, when a permissible alternative is granted to the Minimum Requirements found in the Bothell Standards Chapter 4 Bothell Surface Water Design Manual, a written finding of fact shall be prepared by the public works director, that addresses the following:
1. The adjustment provides substantially equivalent environmental protection.
  2. Based on sound Engineering practices, the objectives of safety, function, environmental protection and facility maintenance, are met.

(Ord. 1634 § 1, 1996).

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### Chapter 18.04 STORM WATER AND DRAINAGE CONTROL CODE

#### Sections:

<u>18.04.010</u>	Title – Codification.
<u>18.04.020</u>	Intent.
<u>18.04.030</u>	Authority.
<u>18.04.040</u>	Permits required.
<u>18.04.050</u>	City/user responsibility.
<u>18.04.060</u>	Inspection – Powers and authority.
<u>18.04.070</u>	Drainage plan – Review and approval.
<u>18.04.080</u>	Additions, betterments, extensions – Compliance with comprehensive storm water plan.
<u>18.04.090</u>	Additions, betterments, extensions – Financing.
<u>18.04.100</u>	Additions, betterments, extensions – Procedure.
<u>18.04.110</u>	Additions, betterments, extensions – Construction.
<u>18.04.120</u>	Additions, betterments, extensions – Maintenance.
<u>18.04.130</u>	Additions, betterments, extensions – Reimbursement contracts.
<u>18.04.140</u>	Additions, betterments, extensions – Oversizing.
<u>18.04.150</u>	Trees and shrubbery – Species prohibited – Removal procedure.
<u>18.04.160</u>	Assumption of maintenance by city of facilities on public property.
<u>18.04.170</u>	Storm drainage side sewer – Permit required.
<u>18.04.180</u>	On-site systems – Permit required.
<u>18.04.190</u>	Storm drainage side sewer permit fees.
<u>18.04.200</u>	Storm drainage side sewer inspection.
<u>18.04.210</u>	Storm drainage side sewer “as-built.”
<u>18.04.220</u>	Storm drainage side sewer – Elevation to prevent backups.
<u>18.04.230</u>	Storm drainage side sewer – Connection to more than four buildings.
<u>18.04.240</u>	Storm drainage side sewer – Shared storm side sewer.
<u>18.04.250</u>	Storm drainage side sewer – Special conditions.
<u>18.04.260</u>	Prohibited acts.
<u>18.04.270</u>	General maintenance requirements.
<u>18.04.280</u>	Comprehensive storm drainage plan – Adoption.
<u>18.04.290</u>	Jurisdiction.
<u>18.04.330</u>	Repealed.
<u>18.04.400</u>	<u>Prohibition of Illicit Connections</u>
<u>18.04.500</u>	<u>Enforcement and Inspections</u>
<u>18.04.600</u>	Stop work order.

#### **18.04.010 Title – Codification.**

This code shall be referred to as the Bothell storm water and drainage control code and shall be codified as Chapter 18.04 BMC. (Ord. 1634 § 1, 1996; Ord. 843 § 1, 1977).

#### **18.04.020 Intent.**

The city council finds that the ordinance codified in this chapter is necessary in order to minimize water quality degradation by preventing the siltation of the city’s creeks,

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streams, rivers, lakes, and other water bodies; to protect property owners adjacent to developing land from increased runoff rates which could cause flooding and erosion of abutting property; to promote sound development policies which respect and preserve the city's watercourses; to insure the safety of city roads and rights-of-way; and to decrease surface water damage to public and private property. (Ord. 1634 § 1, 1996; Ord. 843 § 1, 1977).

### **18.04.030 Authority.**

This code constitutes an exercise of the police power of the city to promote the public health, safety and welfare and its provisions shall be liberally construed for the accomplishment of that purpose. (Ord. 1634 § 1, 1996).

### **18.04.040 Permits required.**

No person shall make any additions, betterments or extensions to the existing storm drainage system without first obtaining a permit to do so. The following permits apply to grading, excavating, and storm drainage system work:

A. ROW Permit. A right-of-way invasion permit shall be required whenever storm drainage system additions, betterments or extensions are made within the street right-of-way or a public easement.

B. Storm Drainage Side Sewer Permit. A storm drainage side sewer permit shall be required for the construction of any storm drainage side sewer or on-site storm drainage system.

C. Grading Permit. A grading permit shall be required whenever grading activities are performed.

Exemption from the permit requirements of this title shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of the BMC or the BSWDM. (Ord. 1634 § 1, 1996).

### **18.04.050 City/user responsibility.**

The city shall use reasonable diligence and care to maintain free flow of storm water and to avoid any interruption in service. The use of the storm drainage side sewer on the premises of the user shall be at the risk of the user, and the responsibility and the liability of the city shall cease at the connection of the storm drainage side sewer to the main or catchbasin. (Ord. 1634 § 1, 1996).

### **18.04.060 Inspection – Powers and authority.**

The public works director bearing proper credentials and identification shall be permitted, during city business hours, to enter property to which storm sewer service is being supplied by the city for the purpose of inspecting the condition of exterior connections to the city system and related apparatus. (Ord. 1634 § 1, 1996).

### **18.04.070 Drainage plan – Review and approval.**

All persons applying for any development permit and/or approvals shall submit for approval a drainage plan with their application and/or request in accordance with the BSWDM, except for applications for the following permits:

Administrative Interpretations Plumbing Permit

Sign Permit Electrical Permit

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Street Vacation Mechanical Permit  
Demolition Permit Sewer Connection Permit  
Street Use Permit Utility Permit (waste,  
Interior Alterations sewer, storm)  
with no change of use Water Meter Permit  
Right-of-Way Invasion Permit Hydrant Use Permit  
Single-Family Remodeling Side Storm Sewer Connection  
with no change of use  
Single-Family Building Permit  
not associated with any  
subdivision

(Ord. 1634 § 1, 1996).

### **18.04.080 Additions, betterments, extensions – Compliance with comprehensive storm water plan.**

Additions, betterments and extensions to the existing storm drainage system of the city shall be made in accordance with the storm drainage comprehensive plan and Bothell Standards adopted by the city council and shall require a permit. The fee for said permit shall be as established by resolution of the city. (Ord. 1634 § 1, 1996).

### **18.04.090 Additions, betterments, extensions – Financing.**

The cost of making additions, betterments and extensions to the existing storm drainage system may be paid from such sources and by such means as the city council from time to time may direct, in accordance with the provisions of the laws of the state as the same now exist or as they may hereafter be amended. (Ord. 1634 § 1, 1996).

### **18.04.100 Additions, betterments, extensions – Procedure.**

No additions, betterments or extensions to the storm drainage system shall be made unless complete plans are drawn in accordance with the comprehensive storm water plan and the Bothell Standards and have been approved by the director of public works and a permit has been issued. The procedure includes:

- A. The proposed addition, betterment or extension shall be designed by a licensed professional engineer.
- B. The applicant must obtain a permit prior to the commencement of any work.
- C. The developer shall pay all costs and fees including but not limited to engineering review, inspection of construction, permit fees and legal costs. A deposit, including but not limited to estimated engineering, inspection and legal costs, shall be posted with the department of public works upon submittal of the construction drawings. Any cost differential between the estimated and the actual cost incurred shall be paid to the city upon demand. If the deposit is more than the actual cost incurred, the city shall refund any unused portion to the developer.
- D. A performance bond, in a form approved by the city attorney, and written by a surety authorized to do business in the state, shall be provided prior to the issuance of the permit.
- E. If any work is to be performed in the public right-of-way, an appropriate right-of-way invasion permit must be obtained and a surety bond and insurance must be provided to the city. The insurance type and amount shall be specified by the director of

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public works. The insurance shall name the city as an additional insured, shall be primary to any other insurance available to the city and shall not be cancelable without 30 days' prior written notice to the city. (Ord. 1634 § 1, 1996).

### **18.04.110 Additions, betterments, extensions – Construction.**

All additions, betterments and extensions shall be designed and constructed to comply with Bothell Standards. The developer shall, before city acceptance of the construction, convey the same to the city, in a form satisfactory to the city. Such conveyance shall contain the owner's warranty of good title and the right to convey the same free and clear of all claims or other encumbrances and a warranty that the facilities as constructed are of the type, character and construction per plans, functioning and operating as an integral part of the storm drainage system. In the event any portion of such construction is situated on private property, the developer shall be required to procure private easements, fully executed and acknowledged, in a form satisfactory to the city. (Ord. 1634 § 1, 1996).

### **18.04.120 Additions, betterments, extensions – Maintenance.**

Prior to release of any construction bond or surety, the developer shall covenant to replace, repair or correct any defect in workmanship or materials in the conveyed facilities that shall occur or otherwise arise during a period of two years following date of acceptance by the city, and shall provide a bond to secure the covenant. The applicant shall further waive and release the city from any and all future claims for damages on behalf of himself and his successors in interest which may be suffered by reason of connection to the water system. The bond shall be in a form acceptable to the city attorney.

### **18.04.130 Additions, betterments, extensions – Reimbursement contracts.**

In the absolute discretion of the city council, on a recommendation from the public works director, a developer who has installed a main improvement at his own expense, and who is qualified for, may be given contract, but in no event shall its terms of reimbursement exceed 15 years. In the event the city agrees to enter into such contract, the contract shall provide for a set-aside of the estimated actual costs of the city's legal and administration expense incurred in administering the contract, to be approved by the city council. The contract shall specify, by legal description and scaled drawing, attached to the contract, the area benefited by the utility addition, betterment or extension and the cost identified with each benefited lot or parcel. (Ord. 1634 § 1, 1996).

### **18.04.140 Additions, betterments, extensions – Oversizing.**

Storm drainage mains to be installed by developers shall be oversized at the request of the city if the storm drainage comprehensive plan calls for a larger main than is needed for service to the property being developed. The city shall enter into a reimbursement agreement to pay for the oversizing. The developer shall provide the city an itemized accounting of construction costs for the storm drainage main extension constructed, together with an estimated cost of pipe and other materials of the size which would serve the development. The developer shall also provide certification that all material and labor charges have been paid. (Ord. 1634 § 1, 1996).

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### **18.04.150 Trees and shrubbery – Species prohibited – Removal procedure.**

It is unlawful to plant willow, poplar, cottonwood, soft maples, gum or any other tree or any shrub whose roots are likely to obstruct public or private storm drainage main or facility within 30 feet of the main or facility. The public works director is authorized to remove any trees or shrubs from any public street, or the roots of any trees or shrubs which extend from any public or private storm mains or facilities; provided, however, that he shall give 10 days' notice in writing to the owner or occupant of the abutting property to remove the same. If such owner or occupant fails or refuses to do so, the reasonable cost of such removal when done by the city shall be a lien upon the abutting property from which such trees or shrubs are removed. The city attorney is authorized, empowered and directed to collect such charge by suit maintained in the name of the city as plaintiff, in any court of competent jurisdiction. (Ord. 1634 § 1, 1996).

### **18.04.160 Assumption of maintenance by city of facilities on public property.**

The city is authorized to assume the maintenance of storm drainage facilities in public property or in public rights-of-way after the expiration of the two-year maintenance period in connection with the subdivision of land if:

- A. All of the requirements of the drainage plan per BMC 18.04.060 have been fully complied with;
- B. The facilities have been inspected and approved in accordance with the BSWDM;
- C. The cash or surety bonds required in BMC 18.04.090, Procedure, shall have been extended for one year, covering the city's first year of maintenance; and
- D. All necessary easements entitling the city to properly maintain the facility have been conveyed to the city and recorded with the county auditor. (Ord. 1634 § 1, 1996; Ord. 843 § 9, 1977).

### **18.04.170 Storm drainage side sewer – Permit required.**

It is unlawful for any person to make an opening in any public storm main or side sewer, or to connect or disconnect any private storm drain or side sewer therewith, or to lay, repair, alter or construct any storm drain to be connected to or disconnected from a public storm drain unless such person has first obtained a storm drainage side sewer permit from the public works director. Upon approval of plans and specifications and upon payment of all fees and charges, including connection charges, assessments, if any, and upon provision of an approved surety bond, if required, the public works director shall issue a permit to perform the work. The public works director shall have the right and is authorized to refuse to issue a permit to any person or contractor where reasonable grounds exist upon which to conclude that such person may refuse to or be unable to comply with the provisions of this code. (Ord. 1634 § 1, 1996).

### **18.04.180 On-site systems – Permit required.**

No person shall install an on-site storm system without first obtaining a permit for such installation from the department of public works. The fee for said permit shall be as established by resolution of the city. (Ord. 1634 § 1, 1996).

### **18.04.190 Storm drainage side sewer permit fees.**

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Connection of a storm drainage side sewer to a city main shall be by a licensed contractor or the homeowner. A storm drainage side sewer permit shall be procured prior to any work being accomplished. In addition to any other fees and charges payable the permit fee shall be as established by resolution of the city. (Ord. 1634 § 1, 1996).

### **18.04.200 Storm drainage side sewer inspection.**

It is unlawful for any person to cover or backfill any storm drainage side sewer, private storm sewer or lateral without having called for and received an inspection, testing and approval by the public works director. The applicant shall notify the public works department and request an inspection at least 24 hours before the scheduled inspection. The storm drainage side sewer permit shall be available on site at the time of the inspection. The permit fee shall include the cost of inspection except for the following:

- A. Inspections during hours other than public works business hours;
  - B. Inspections requested by contractor during storm side sewer installation requiring deep cuts, extremely wet soil conditions or when backfill is placed on pipe prior to test;
  - C. Call back resulting from poor workmanship or failure to comply with the code.
- (Ord. 1634 § 1, 1996).

### **18.04.210 Storm drainage side sewer “as-built.”**

- A. At the time of inspection, it shall be required that an as-built drawing of the side sewer be prepared. The as-built drawing shall show at least the following:
  1. Property boundaries, with dimensions and indicating north direction and abutting street(s);
  2. Location and scale size of existing buildings;
  3. Course of the storm drainage side sewer, its connection with the building(s) and all dimensions;
  4. Any additional information as may be deemed pertinent.
- B. The director of public works shall permanently retain a copy of all storm drainage side sewer as-builts on file with the department. (Ord. 1634 § 1, 1996).

### **18.04.220 Storm drainage side sewer – Elevation to prevent backups.**

Whenever a situation exists involving an unusual danger of backups from the public storm drain, the director of public works may prescribe a minimum elevation at which a storm drainage side sewer may be discharged to the public system. (Ord. 1634 § 1, 1996).

### **18.04.230 Storm drainage side sewer – Connection to more than four buildings.**

More than four buildings may be connected to a single storm drainage side sewer only upon approval of the director of public works. Plans setting forth the complete layout and specifications of the proposal, prepared by a registered professional engineer, shall be submitted to the city for approval. (Ord. 1634 § 1, 1996).

### **18.04.240 Storm drainage side sewer – Shared storm side sewer.**

- A. If a storm drainage side sewer, in the public right-of-way, belonging to another property owner is to be used, written permission from the property owner for such use must accompany the storm drainage side sewer application.

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B. When two or more structures, not in common ownership, are to be connected on one storm drainage side sewer, easements running with the land must be executed and recorded with the county auditor (department of records and elections). The easements shall be approved as to form by the city attorney and shall insure that all properties involved shall have perpetual use of the storm drainage side sewer and shall contain provisions for joint responsibility for costs of maintenance, repair and access, and shall be signed by the owners of the properties subject to the easements. The easement shall be acknowledged and must be recorded by the property owners with the county auditor (department of records and elections) before a permit shall be issued for construction. (Ord. 1634 § 1, 1996).

### **18.04.250 Storm drainage side sewer – Special conditions.**

Where physical conditions render compliance with the conditions of this code governing storm drainage side sewer installation impracticable, the public works director may issue a special permit for installation of a storm drainage side sewer requiring compliance with the provisions insofar as is reasonably possible, but such permit shall be issued only upon condition that the property owner execute and deliver to the city an instrument in form furnished by the city agreeing to save harmless and indemnify the city for any damage or injury resulting from special permit conditions. (Ord. 1634 § 1, 1996).

### **18.04.260 Prohibited acts**

A. It shall be prohibited and in violation of this chapter for any person or entity to:

Throw, drain, or otherwise discharge, cause or allow others under its control to throw, drain or otherwise discharge into the municipal storm drain system and/or surface and ground waters any materials other than stormwater. Examples of prohibited contaminants include but are not limited to the following:

1. Trash or debris
2. Construction materials.
3. Petroleum products including but not limited to oil, gasoline, grease, fuel oil and heating oil.
4. Antifreeze and other automotive products.
5. Metals in either particulate or dissolved form.
6. Flammable or explosive materials.
7. Radioactive material.
8. Batteries.
9. Acids, alkalis, or bases.
10. Paints, stains, resins, lacquers, or varnishes.
11. Degreasers and/or solvents.
12. Drain cleaners.
13. Pesticides, herbicides, or fertilizers.
14. Steam cleaning wasters.
15. Soaps, detergents, or ammonia.
16. Swimming pool or spa filter backwash.
17. Chlorine, bromine, or other disinfectants.
18. Heated water.
19. Domestic animal wasters.

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20. Sewage
21. Recreational vehicle waste.
22. Animal carcasses but not those naturally occur from natural causes such as salmon, deer, raccoon, birds, or other native species.
23. Food wasters.
24. Bark and other fibrous materials.
25. Lawn clippings, leaves, or branches from landscaping activities.
26. Silt, sediment, concrete, cement or gravel.
27. Dyes
28. Chemicals not normally found in uncontaminated waters.
29. Any other process-associated discharge except as otherwise allowed in this section.
30. Any hazardous material or waste not listed above.

a. Allowable discharges

The following types of discharges shall not be considered illegal discharges for the purposes of this chapter unless the director determines that the type of discharge, whether singly or in combination with others, is causing or is likely to cause pollution of surface water or groundwater.

- Diverted stream flows
- Rising ground waters.
- Uncontaminated ground water infiltration –as defined in 40 CFR 35.2005 (20).
- Uncontaminated pumped ground water.
- Foundation drains.
- Air conditioning condensation.
- Irrigation water from agricultural sources that is commingled with urban stormwater.
- Springs.
- Water from crawl space pumps.
- Footing drains.
- Flows from riparian habitats and wetlands.
- Discharges from emergency fire fighting activities.

b. Conditional Discharges

The following discharges shall not be considered illegal discharges for the purposes of the chapter if they meet the stated conditions or unless the (director) determines that the type of discharge, whether singly or in combination with others, is causing or is likely to cause pollution of surface water or groundwater:

1. Potable water including water from water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary and in volumes and velocities controlled to prevent re-suspension of sediments in the stormwater system;

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2. Lawn watering and other irrigation runoff are permitted but shall be minimized;
3. De-chlorinated swimming pool discharges. These discharges shall be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary and in volumes and velocities controlled to prevent re-suspension of sediments in the stormwater system;
4. Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents are permitted if the amount of street wash and dust control water used is minimized. At active construction sites, street sweeping must be performed prior to washing the street;
5. Non-storm water discharges covered by another NPDES permit, provided, that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations; and provided, that written approval has been granted for any discharge to the storm drain system;
6. Other non-stormwater discharges. The discharges shall be in compliance with the requirements of a stormwater pollution prevention plan (SWPPP) reviewed and approved by the city, which addresses control of such discharges by applying All Known and Reasonable Technology (AKART) to prevent contaminants from entering surface or ground water.

B. Cause or permit pollutants to enter any private drainage system which drains directly or indirectly into a private drainage system, or into the public drainage system;

C. Cause any damage to any drainage facilities or a private drainage system or the public drainage system;

D. Cause or permit horses, cattle, or other domestic animals to enter any watercourses or wetlands that are part of the drainage system of the city, except those permitted by the Washington State Department of Ecology. Storm water for stables, pastures, kennels, and other animal enclosures shall be treated with all reasonable BMPs for water quality protection so as to prevent polluted drainage waters from entering the drainage system of the city;

E. Cause or permit clearing, grading, or other land surface changes to take place in such a way as to allow drainage from the site to carry any suspended or dissolved matter into the drainage system of the city without first treating the drainage with all reasonable BMPs;

F. Cause or permit any work that would result in the transmission of silt, pollution materials, or other foreign substances from one part of the drainage system to another, without first treating the drainage with all reasonable BMPs;

G. Discharge any water or in any way cause the temperature of the water discharged from the property to exceed by more than five degrees Fahrenheit the temperature of the nearest receiving body of waters, by the time it reaches the receiving body of waters;

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H. Introduce into the drainage system any liquid or solid foreign substances which shall cause the water quality to degrade from the water quality standards of the receiving body of waters;

I. Place obstructions of any kind which would prohibit the free passage of fish, in channels which may contain fish now, or with improvements could contain fish in the future, unless approved by the director or through the hydraulic project approval (HPA) process; or

J. Release any illicit discharge other than those authorized by a national pollutant discharge elimination system (NPDES). (Ord. 1634 § 1, 1996).

K. Abatement: Discharge of pollutants – Liability for Expenses Incurred by the City.

1. Any person responsible for a pollutant discharge into the surface waters or stormwater system shall be responsible for the costs and expenses incurred by the city in carrying out any pollutant abatement or restoration procedures, including the collection, removal, containment, treatment or disposal of pollutant materials, and including all personnel, legal and other costs and expenses.

### **18.04.270 General maintenance requirements.**

A. Duty to maintain:

1. The property owner, or facility owner as identified by means of an easement or other like document, shall maintain, repair, restore or replace, at the owner's expense, all private storm water and drainage systems located on the owner's property or for which the person is the owner.

2. No person shall cause or permit any drainage system to be obstructed, filled, graded, or used for disposal of debris.

3. All storm drainage facilities shall be maintained in accordance to the standards as set forth in the BSWDM. The owner of facilities shall be required to maintain these facilities in a clean condition at least semi-annually, in conformance with the approved design. These facilities shall be subject to an annual inspection by the director or his delegate, and any and all deficiencies noted in writing shall be corrected within 30 calendar days of written notice to the owner.

4. Failure to comply with the requirements of this section shall be subject to the civil penalties described in BMC 11.20.010(A). (Ord. 1634 § 1, 1996).

### **18.04.280 Comprehensive storm drainage plan – Adoption.**

The city comprehensive storm water master plan dated June, 1994 is adopted and incorporated herein by reference. (Ord. 1634 § 1, 1996).

### **18.04.290 Jurisdiction.**

All of the real property within the limits of the city is included within the plan and BWSDM and any supplements or amendments thereto. (Ord. 1634 § 1, 1996; Ord. 980 § 1, 1980; Ord. 680 § 2, 1973).

### **18.04.330 Storm drain system facility charge – Computation – Collection.**

Repealed by Ord. 1662. (Ord. 1634 § 1, 1996).

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### **18.04.400 Prohibition of Illicit Connections**

1. The construction, use, maintenance, or continued existence of illicit connections to the storm drain system is prohibited.

2. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

3. A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the city's stormwater system, or allows such a connection to continue.

### **18.04.500 Enforcement and Inspections**

1. Enforcement. The Code Enforcement Officer shall enforce violations of this code, as provided for in Chapter 11.20 BMC, Enforcement. The violation or failure to comply with any of the provisions of this chapter is unlawful. The remedies provided in this section, whether civil or criminal, shall be cumulative and shall be in addition to any other remedy provided by law.

#### 2. Inspections.

A. Authority. The Director is authorized to gain access to private property, make such inspections of drainage facilities, and take such actions as may be required to enforce the provisions of this chapter.

B. Procedures for Entry to Private Property. Whenever necessary to make an inspection to enforce any of the provisions of this chapter, monitor for proper function of drainage facilities or whenever the Director has reasonable cause to believe that violations of this chapter are present or operating on a subject property or portion thereof, the Director may enter such premises at all reasonable times to inspect the same or perform any duty imposed upon the Director by this chapter; provided, that if such premises or portion thereof is occupied, the Director shall first make a reasonable effort to locate the owner or other person having charge or control of the premises or portion thereof and request entry. If after reasonable effort, the inspector is unable to locate the owner or other person having charge or control of the premises or portion thereof, and has reason to believe the condition of the stormwater system creates an imminent hazard, the inspector may enter.

C. Property Owners Responsibility to Provide and Maintain Access to Drainage Facilities. Proper ingress and egress to any stormwater facility shall be provided to the Director to inspect, monitor or perform any duty imposed upon the Director by this chapter. The Director shall notify the responsible party in writing of failure to comply with this access requirement. Failing to obtain a response within 7 days from the receipt of notification the Director may order the work required completed or otherwise address the cause of improper access. The obligation for the payment of all costs that may be incurred or expended by the City in causing such work to be done shall thereby be imposed on the person holding title to the subject property.

#### D. Orders.

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1. Authority. The Director is authorized to issue to an owner or persons representing an owner an order to maintain or repair a component of a drainage facility to bring it into compliance with this chapter.

2. Procedure. The order shall include:

a. A description of the specific nature, extent and time of the violation and the damage or potential damage that reasonably might occur;

b. A notice that the violation or the potential violation cease and desist and the specific corrective action to be taken;

c. A reasonable time to comply, depending on the circumstances;

d. Penalties that may be incurred by any owner of a stormwater system not in compliance with this chapter; and

e. Any required structural repairs to a drainage facility are subject to approval by the Director.

### E. Penalties for Violations.

1. Persons Subject to Penalty. Any person who violates or fails to comply with the requirements of this chapter or who fails to conform to the terms of an approval or order issued by the Director shall be subject to the civil and criminal penalties provided in Chapter 11.20 BMC, Enforcement. Each day of continued violation shall be considered a separate violation for purposes of penalty.

2. Reinspection Fees. In addition to criminal and civil penalties, the Director may impose a reinspection fee for any account or storm drainage facility found not to be in compliance of this chapter. The inspection fee shall be independent of any current or future penalties that may be incurred by the property owner for noncompliance of this chapter.

### **18.04.600 Stop work order.**

In the event the director finds any person engaged in construction for the purpose of making a connection to a public storm drain system without a permit, the director shall immediately notify such person to stop work. If such work is not immediately stopped, the public works director shall issue a stop work order and no further work shall be done until the person has complied with all the rules and regulations of the city. (Ord. 1634 § 1, 1996; Ord. 1030 § 1, 1982).

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### **BMC 18.08 Variance Process**

#### **18.08.010 Purpose.**

The purpose of this chapter is to establish the type of action, contents of a complete application and criteria for approval for variances from this title or the Bothell Standards.

The public works director shall have authority to determine whether a request for deviation from the Bothell Standards or public works development regulations is a permissive alternative or not. Permissible alternatives generally involve decisions of technical analysis, criteria and engineering judgement for design purposes and are not subject to this chapter. Nonpermissible alternatives shall be subject to this title and variance process. (Ord. 1634 § 1, 1996).

#### **18.08.020 Type of action.**

A variance is a Type III action and shall be considered in accordance with the procedures for such actions as set forth in BMC Title 11, Administration. (Ord. 1634 § 1, 1996).

#### **18.08.030 Contents of complete application.**

An application for a variance is complete for the purposes of this section when it has been determined by the city to contain the information described below in addition to the standard application information required under BMC Title 11, Administration. An application shall be deemed complete if it is sufficient for continued processing even though additional information may be required or modifications may subsequently be made. The city's determination of completeness shall not preclude the city from requesting additional information or studies, either at the time of the notice of completeness or subsequently if new information is required or substantial changes in the application occur. A complete application shall contain:

- A. Completed application form and attachments signed and dated by owner/agent.
- B. Complete legal description of the subject property.
- C. Site plan depicting existing and proposed improvements on the property. The site plan shall contain the following information in addition to the standard information required by BMC Title 11, Administration:
  1. Dimensions and shape of the lot and adjacent street names;
  2. Location and dimensions of existing and proposed buildings including setbacks and requested variance(s);
  3. Circulation. Adjacent street improvements, curb cut locations for ingress and egress; parking layout in accordance with Chapter 12.16 BMC;
  4. Existing and proposed landscaping in accordance with Chapter 12.18 BMC;

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5. Existing watercourses, sensitive areas (such as wetlands, geologically hazardous areas, etc.) utility lines, easements, deed restrictions, structures, rockeries, and other manmade or natural features restricting use of the subject property;
  6. Preliminary grading plan depicting proposed and existing grades at five-foot contours, if grading is proposed in conjunction with proposed use; and
  7. Preliminary street, storm drainage, water distribution, sanitary sewer, gas, power, sidewalks, and exterior lighting layout including sizes and including applicable preliminary calculations.
- D. Narrative explanation of variance being requested.
- E. Ten copies of all plans and two copies of applicable calculations and reports. All oversized plans shall be folded to eight and one-half inches by 14 inches.
- F. One paper reduction of each oversized plan to eight and one-half inches by 14 inches or eight and one-half inches by 11 inches.
- G. The following information for those projects subject to compliance with the State Environmental Policy Act (SEPA):
1. Complete description of the proposed action;
  2. Completed environmental checklist;
  3. Additional Information/SEPA Checklist (WAC 197-11-335). The SEPA Checklist covers 16 subjects. If after review of the SEPA Checklist, it is determined that there is insufficient information to make a threshold determination, additional information shall be required using any one of the following actions:
    - a. The applicant shall provide more information on the subjects in the checklist;
    - b. The city makes its own further study;
    - c. The city shall consult with other agencies, requesting information on the proposal's potential impacts which lie within other agencies' jurisdiction or expertise;
  4. Supplemental reports including but not limited to traffic, geotechnical, and wetlands;
  5. Any proposed mitigation plans. All site mitigation plans shall comply with the criteria for site plans listed above.
- H. Application fee and engineering trust deposit.
- I. The applicant shall sign an agreement which extends the review and decision time frames established by the Growth Management Act in order to consider the variance request.
- J. A photocopy of the list of names and addresses (labels) for all property owners whose property is within 300 feet of the subject property.
- K. Three stamped (no metered mail) and labeled, legal-sized envelopes (No. 10) for each property owner whose property is within 300 feet of the subject property. These envelopes are to provide three public

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notice mailings, the envelopes must be sorted into three separate sets with each set containing one envelope for each property owner.

- L. Applications found to contain material errors shall not be deemed complete until such material errors are corrected.
- M. The public works director may waive specific submittal requirements determined to be unnecessary for review of the application. (Ord. 1634 § 1, 1996).

### **18.08.040 Criteria for approval.**

A variance shall be granted by the city only if an applicant demonstrates all of the following:

- A. The strict enforcement of the provisions of this title or the Bothell Standards creates an unreasonable hardship to the property owner;
- B. The variance is reasonable because of the unique size, shape, topography, or location of the subject property;
- C. The subject property is deprived, by provisions of this title or the Bothell Standards of rights and privileges enjoyed by other properties in the vicinity and under an identical zone;
- D. The need for the variance is not the result of deliberate actions of the applicant or property owner;
- E. The variance does not create public health or safety hazards;
- F. The variance does not relieve an applicant from any of the procedural provisions of this title Bothell Standards or;
- G. The variance does not allow establishment of a use that is not otherwise permitted in the zone in which the proposal is located;
- H. The variance is the minimum necessary to relieve the applicant of the unreasonable hardship;
- I. The variance from public works engineering standards or site improvement requirements does not infringe upon or interfere with easement or covenant rights or responsibilities;
- J. The variance does not relieve an applicant from the provisions of the Critical Areas Regulations, Chapter 14.04 BMC, and the shoreline master program, except as provided therein; and
- K. In the case of a waterward shoreline variance, the following additional criteria are met:
  - 1. Strict application of the standards precludes a reasonable allowable use of the subject property; and
  - 2. The public rights of navigation and use of the shoreline shall not be adversely affected. (Ord. 1634 § 1, 1996).
- L. In the case of the Minimum Requirements contained in the Bothell Standards Chapter 4 Bothell Surface Water Design Manual, exceptions shall only be granted if such application of Minimum Requirements imposes a severe and unexpected economic hardship on the project applicant. The following shall also apply:
  - 1. Any exception must also meet the following criteria:

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- a. The exception will not increase risk to the public health and welfare, nor injurious to other properties in the vicinity and/or downstream, and to the quality of waters of the state; and
  - b. The exception is the least possible exception that could be granted to comply with the intent of the Minimum Requirements.
2. A written finding of fact shall be prepared that considers and documents the following:
- a. The current (pre-project) use of the site, and
  - b. How the application of the minimum requirement(s) restricts the proposed use of the site compared to the restrictions that existed prior to the adoption of the minimum requirements; and
  - c. The possible remaining uses of the site if the exception were not granted; and
  - d. The uses of the site that would have been allowed prior to the adoption of the minimum requirements; and
  - e. A comparison of the estimated amount and percentage of value loss as a result of the minimum requirements versus the estimated amount and percentage of value loss as a result of requirements that existed prior to adoption of the minimum requirements; and
  - f. The feasibility for the owner to alter the project to apply the minimum requirements. (Ord. 1634 § 1, 1996).

### **18.08.050 Decision process.**

- A. The public works director shall first determine whether an initial request shall be subject to this process or shall be handled administratively as a permissible alternative to the public works regulations and/or Bothell Standards. The public works director shall review variance requests associated with public works codes and Bothell Standards and make written recommendations to the applicable hearing body for conditions of approval or denial.

Processing the variance request shall conform to requirements of BMC Title 11, Administration of Development Regulations. (~~Ord. 1634 § 1, 1996~~).

- B. Variance requests to the Minimum Requirements found in Bothell Standards Chapter 4 Bothell Surface Water Design Manual are also subject to the following:
1. A written finding of fact shall be prepared by the public works director that documents the determination to grant an exception to the Minimum Requirements.
  2. The city shall keep records, including the written findings of fact, of all exceptions to the Minimum Requirements.

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3. The city shall seek prior approval from the Washington State Department of Ecology for any city-wide exemption(s). (Ord. 1634 § 1, 1996).

**Chapter 18.10**  
**BOTHELL STORM AND SURFACE WATER UTILITY**

Sections:

<u>18.10.010</u>	Title – Codification.
<u>18.10.020</u>	Intent.
<u>18.10.030</u>	Authority.
<u>18.10.040</u>	Definitions.
<u>18.10.050</u>	Administration.
<u>18.10.060</u>	Liability disclaimer.
<u>18.10.070</u>	Investigations.
<u>18.10.080</u>	Charge system established – Charges imposed.
<u>18.10.090</u>	Description of rate structure.
<u>18.10.100</u>	Storm and surface water drainage charges.
<u>18.10.110</u>	Storm and surface water service charge schedule.
<u>18.10.120</u>	Exemptions.
<u>18.10.130</u>	Rate adjustments and appeals.
<u>18.10.140</u>	Billing and collection.
<u>18.10.150</u>	Liens.
<u>18.10.160</u>	Storm and surface water fund established.
<u>18.10.170</u>	Storm and surface water management policy issues.

**18.10.010 Title – Codification.**

This code shall be referred to as the storm and surface water utility code and shall be codified as Chapter 18.10 BMC. The Bothell storm and surface water utility shall be referred to as the “utility” throughout this chapter. (Ord. 1634 § 1, 1996).

**18.10.020 Intent.**

A. Public Health, Safety and Welfare. Establishment of this utility is necessary in order to promote the public health, safety and welfare by promoting a comprehensive approach to surface and storm water problems. This comprehensive approach includes the following elements: basin planning, land use regulation, construction of facilities, maintenance, public education, and provision of surface and storm water management services. Because the most cost effective and beneficial approach to surface and storm water management is through preventative actions and protection of the natural drainage system, the utility shall give priority to methods which provide protection or enhancement of the natural surface water drainage system over means which primarily involve construction of new drainage facilities or systems.

B. Rates and Charges. This code is intended to establish rates and charges which shall be uniform for the same class of customer and service, to establish methods of development and construction, and to comply with the provisions of Chapters 35.92 and 35.67 RCW. The purpose of the rates and charges established herein is to provide a method for payment of all or any part of the cost and expense of surface and storm water management services and to secure issuance of general obligation or revenue bonds for such services. Imposition of these rates and charges is also necessary in order to promote the public health, safety and welfare by minimizing uncontrolled surface and storm water, erosion, and water pollution; to preserve and utilize the many

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values of the city's natural drainage system including water quality, open space, fish and wildlife habitat, recreation, education, and urban separation and drainage facilities; and to provide for the comprehensive management and administration of surface and storm water. (Ord. 1634 § 1, 1996).

### **18.10.030 Authority.**

This code constitutes an exercise of the police power of the city to promote the public health, safety and welfare, and its provisions shall be liberally construed for the accomplishment of that purpose. (Ord. 1634 § 1, 1996).

### **18.10.040 Definitions.**

A. "Developed parcel" means any parcel altered from the natural state by the construction, creation, or addition of impervious surfaces.

B. "Elderly" means the age established by RCW 74.38.070, at it now exists or may hereafter be amended.

C. "Impervious surface" means a hard surface area which either prevents or retards the entry of water into the soil mantle as it entered under natural conditions prior to development, and/or a hard surface area which causes water to run off the surface in greater quantities or at an increased area of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roofs, walkways, patios, driveways, parking lots, storage areas, areas which are paved, graveled or made of packed or oiled earthen materials, or other surfaces which similarly impede the natural infiltration of surface and storm water. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for the purpose of this chapter.

D. "Land use code" or "zoning code" means the restrictions on the type of development for a specific parcel of land as described in BMC Titles 15, 16 and 17.

E. "Low-income" means a person with an annual income level as established by RCW 84.36.381(5)(b), as the same now exists or may hereafter be amended.

F. "Maintenance" means the act or process of cleaning, repairing or preserving a system, unit, facility, structure, or piece of equipment.

G. "Parcel" means the smallest separately segregated unit or plot of land having an identified owner, boundaries, and surface area which is documented for property tax purposes and given a tax lot number by either the King County or Snohomish County assessor.

H. "Person" means any individual, firm, company, association, corporation, or governmental agency.

I. "Property owner of record" means a person or persons shown in the records of the county assessor to be the owner of property and to whom property tax statements are directed.

J. "Rate category" means the classification in this chapter given to a parcel in the service area based upon the type of land use on the parcel and the percentage of impervious surface area contained on the parcel.

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K. "Rates" means the dollar amount charged per unit of surface area of a parcel of real property or per parcel based upon the land use classification and/or amount of impervious surface coverage for the accommodation of storm and surface water runoff and other surface water management services.

L. "Retention/detention facility" means a type of drainage facility designed either to hold water for a considerable length of time and then release it by evaporation, plant transpiration and/or infiltration into the ground; or to hold runoff for a short period of time and then release it to the surface and storm water management system.

M. "Residence" means a building or structure or portion thereof, designed for and used to provide a place of abode for human beings. The term residence includes the term "residential" or "residential unit" as referring to the type of or intended use of a building or structure.

N. "Service charges" means charges to property owners for storm and surface water management services.

O. "Residential parcel" means any parcel which contains no more than three residences or three residential units which are within a single structure and is used primarily for residential purposes.

P. "State highway right-of-way" means the right-of-way of a state limited access highway. The term does not include city streets forming a part of the route of state highways that are not limited access highways or state property under the jurisdiction of the Department of Transportation that is outside the right-of-way lines of a state highway.

Q. "Utility" means the Bothell storm and surface water management utility created under the provisions of this chapter. (Ord. 1634 § 1, 1996).

### **18.10.050 Administration.**

The Bothell storm and surface water management utility herein created shall be administered and enforced by the Bothell director of department of public works, or his/her duly authorized designee. The director is hereby authorized to specify such storm and surface water facility operation, maintenance and performance standards as necessary to implement the requirements of this code and carry out the duties of the director. (Ord. 1634 § 1, 1996).

### **18.10.060 Liability disclaimer.**

A. Floods from storm water runoff may occasionally occur which exceed the capacity of storm drainage facilities constructed and maintained by funds made available under this chapter. The city's adoption of this code does not imply that property liable for the storm and surface water drainage charge shall always be free from storm water flooding or flood drainage. Further, this code does not purport to reduce the need or the necessity for any property owner to obtain flood insurance.

B. This chapter shall be administered and enforced for the benefit of the health, safety and welfare of the general public, and not for the benefit of any particular person or class of persons.

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C. No provision of or any term used in this chapter is intended to impose any duty upon the city or any of its officers or employees which would subject them to damages in a civil action. (Ord. 1634 § 1, 1996).

### **18.10.070 Investigations.**

Upon presentation of proper credentials, the director may, with the consent of the owner or occupier of the premises or property, or pursuant to a lawfully issued warrant, enter at reasonable times any property or premises subject to the consent or warrant, in order to implement this code. (Ord. 1634 § 1, 1996).

### **18.10.080 Charge system established – Charges imposed.**

A. Effective January 1, 1995, the director shall classify all properties in the city into rate categories according to their land use classification and/or degree of impervious surface coverage. Effective January 1, 1995, the city shall impose on all property located within the Bothell city limits, a storm and surface water service charge.

B. A system and structure of storm and surface water service charges is hereby established in accordance with the following provisions of this chapter.

C. The city and other jurisdictions may enter into interlocal agreements allowing the other jurisdictions to provide surface and storm water management services and/or charges for specified developed parcels lying within outside of the city. (Ord. 1634 § 1, 1996).

### **18.10.090 Description of rate structure.**

A. The service charges shall be based on the relative contribution of increased surface and storm water runoff from a given parcel to the surface and storm water management system. The percentage of impervious surfaces on the parcel and the total parcel acreage shall be used to indicate the relative contribution of increased surface and storm water runoff from the parcel to the surface and storm water management system. The relative contribution of increased surface and storm water runoff from each parcel shall determine that parcel's share of the service charge revenue needs. The service charge revenue needs of the program are based upon all or any part, as determined by the council, of the cost of surface and storm water management services or to pay or secure the payment of all or any portion of any issue of general obligation or revenue bonds issued for such purpose.

B. The service charge for each parcel within the service area shall be determined under the following methodology: residential and very lightly developed nonresidential parcels shall receive a flat service charge for the reasons set forth in BMC 18.10.100. Parcels shall be classified into the appropriate rate category by their percentage of impervious surface coverage. Data collected from parcel investigations shall be used to determine each parcel's percentage of impervious surface coverage. After a parcel has been assigned to the appropriate rate category, the service charge for the parcel shall be calculated by multiplying the total acreage of the parcel times the rate for that category. (Ord. 1634 § 1, 1996).

### **18.10.100 Storm and surface water drainage charges.**

A. Developed Parcels.

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1. Policy. Developed parcels contribute to an increase in surface and storm water runoff to the surface and storm water management system. This increase in surface and storm water runoff results in the need to establish rates and charges to finance the city's activities in surface and storm water management.

2. Rate Based Upon Contribution. Developed parcels shall be subject to the rates and charges of the storm and surface water management utility based on their contribution to increased runoff. The factors to be used to determine the degree of increased surface and storm water runoff to the surface and storm water management system from a particular parcel shall be the percentage of impervious surface coverage on the parcel and the total acreage of the parcel.

### B. Undeveloped Parcels.

1. Policy. Undeveloped parcels do not contribute as much as developed parcels to an increase in surface and storm water runoff into the surface and storm water management system. Undeveloped properties are those which have not been graded or altered from their natural state. Undeveloped property is proposed to be exempt from storm and surface water utility service charge. Once graded or altered, the property would be classified in the very light category of zero percent to 10 percent impervious surface. The very light category would be charged a flat rate, regardless of size, equal to the single-family rate category.

2. Exemption. Undeveloped properties shall be exempt from the rates and charges of the storm and surface water management utility.

### C. Non-Single-Family Properties with Private Detention Systems.

1. Policy. Maintained drainage facilities mitigate the increased runoff contribution of developed parcels by providing on-site drainage control.

#### 2. Exemptions.

a. Step 1: Properties with private detention systems would be eligible for a 25 percent reduction in the total storm water service charge if they are owned and maintained by the property owner in accordance with BMC 18.04.270 and the city of Bothell storm and surface water utility operations and maintenance standards.

b. Step 2: Properties with private detention systems would be eligible for a 50 percent reduction in the total storm water service charge if they:

(1) Are owned and maintained by the property owner in accordance with BMC 18.04.270 and the city of Bothell storm and surface water utility operations and maintenance standards; and

(2) Meet the 1994 or most current comprehensive plan design standards.

The minimum service charge is \$5.56 per parcel per month.

### D. Residential Parcels.

1. Policy. The variance between residential parcels in parcel size and percentage of impervious surface coverage is found to be minor and to reflect only minor differences in increased runoff contributions. The administrative cost of calculating the service charge individually for each residential parcel and maintaining accurate information would be very high. Therefore, a flat charge for residential parcels is less costly to administer than calculating a separate charge for each parcel and is equitable because of the similarities in total parcel size and total impervious surface coverage between residential parcels.

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2. Flat Charge. Residential parcels shall be charged a flat charge based upon the average parcel size and average percentage of impervious surfaces.

### E. Very Lightly Developed Parcels.

1. Policy. Very lightly developed nonresidential parcels which have an impervious surface coverage of less than 10 percent of the total parcel acreage are characterized by a very low intensity of development and generally a large number of acres. A greater number of acres of undeveloped land associated with an impervious surface results in significantly less impact to the surface and storm water management system.

2. Flat Charge. These parcels shall be charged a flat charge which will encourage the retention of areas of very lightly developed land.

### F. Lightly to Very Heavily Developed Parcels.

1. Policy. Lightly to very heavily developed nonresidential parcels which have an impervious surface coverage of 10 percent or more have a substantial impact on the surface and storm water management system. The impact of these parcels on the surface and storm water management system increases with the size of the parcels.

2. Charge Determined by Percentage of Impervious Surface. Lightly to very heavily developed properties shall be charged a rate determined by the percent of impervious surface coverage multiplied by the parcel acreage.

### G. Road System.

1. Policy. City and state streets contribute a significant amount of increased runoff to the surface and storm water management system, which contributes to the need for basin planning, drainage facilities and other related services. However, both the city streets and state highway programs provide substantial annual programs for the construction and maintenance of drainage facilities, and the roads systems and their associated drainage facilities serve as an integral part of the surface and storm water management system. City and state road(s) drainage systems, unlike the drainage systems on other properties, are continually being upgraded to increase both conveyance capacity and control. It is envisioned that the streets program will work cooperatively with the storm and surface water management utility to improve regional surface and storm water management services.

2. Rate to Reflect Benefit. The rate charged city streets and state highways shall reflect the benefit which city streets and state highway facilities provide to the surface and storm water management system. The percentage of impervious surface coverage for city streets and state highways shall be calculated by dividing average width of roadway and shoulder by the average width of the right-of-way. The service charge shall be calculated at 30 percent of the standard rate for other properties with similar percent impervious surface. The rate charged for state highway right-of-way shall be 30 percent of the rate for comparable real property in terms of impervious surface coverage, or as otherwise provided by RCW 90.03.525.

H. Senior/Disabled Low-Income Discount. Parcels owned by persons qualifying for senior or disabled property tax exemption, as determined by each county's assessor's office, would be exempt from storm and surface water service charges. The property tax exemption is authorized in RCW 84.36.381. The property owners' status must be approved and on file with the county assessor's office. (Ord. 1714 § 1, 1997; Ord. 1670 § 1, 1996; Ord. 1634 § 1, 1996).

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**18.10.110 Storm and surface water service charge schedule.**

A. Schedule. The schedule for storm and surface water service charges shall be as follows:

Class	Impervious Surface %	2007 Rate	2009 Rate
Residential	N/A	\$77.51 per parcel/year	\$110.06 per parcel/year
Very Light	>0% to <10%	\$77.51 per parcel/year	\$110.06 per parcel/year
Light	>10% to <20%	\$180.81 per acre/year	\$256.75 per acre/year
Moderate	>20% to <45%	\$375.06 per acre/year	\$532.59 per acre/year
Moderate Heavy	>45% to <65%	\$724.36 per acre/year	\$1,028.59 per acre/year
Heavy	>65% to <85%	\$918.04 per acre/year	\$1,303.62 per acre/year
Very Heavy	>85% to 100%	\$1,203.52 per acre/year	\$1,709.00 per acre/year
City Streets	N/A	Set in accordance with RCW 90.03.525	Set in accordance with RCW 90.03.525
State Highways	N/A	Set in accordance with RCW 90.03.525	Set in accordance with RCW 90.03.525
Undeveloped	0%	Exempt	Exempt

B. Minimum Service Charge. The minimum service charge in any class shall be \$110.06 per parcel/year.

C. City Reserves the Right to Make Changes. The city may supplement or alter charges within subareas of the city so as to charge properties or parcels of one subarea for improvements, studies, or maintenance which the city council deems to provide service or benefit the property owners of one subarea.

D. Annual Review of Schedule. The city council will review the surface water management service charges annually to ensure the long-term fiscal viability of the program and to guarantee that debt covenants are met. The program shall use equitable and efficient methods to determine service charges. (Ord. 2001 § 1, 2008; Ord. 1968 § 1, 2006; Ord. 1951 § 1, 2005; Ord. 1934 § 1, 2004; Ord. 1918 § 1, 2003; Ord. 1889 § 1, 2002; Ord. 1863 § 1, 2001; Ord. 1714 § 1, 1997; Ord. 1670 § 1, 1996; Ord. 1634 § 1, 1996).

**18.10.120 Exemptions.**

Property shall be exempt from service charges when the property is owned by and is the personal residence of a low-income or elderly person(s) approved by the King or Snohomish County assessor for a senior citizen or disabled persons property tax exemption. (Ord. 1634 § 1, 1996).

**18.10.130 Rate adjustments and appeals.**

A. Any person billed for service charges may file a "Request for Rate Adjustment" with the storm and surface water management utility within two years of the date from which the bill was sent. However, filing of such a request does not extend the period for payment of the charge.

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B. Requests for rate adjustment may be granted or approved by the director only when one of the following conditions exists:

1. The parcel is owned and is the personal residence of a person or persons determined by the county assessor as qualified under BMC 18.10.120;
2. The acreage of the parcel charged is in error;
3. The parcel is nonresidential and the actual impervious surface coverage of the parcel charged places it in a different rate category than the rate category assigned by the director;
4. The parcel is served by one or more retention/detention facilities required pursuant to the city's approved operation, maintenance and performance standards, or can be demonstrated by the property owner to provide retention/detention or surface and storm water to the operation, performance and maintenance standards and maintained at the expense of the parcel owner to the standards required by the department of public works. Nonresidential parcels may be eligible for a reduction in charges in accordance with BMC 18.10.100(C)(2). The minimum service charge for such parcels shall be as established in BMC 18.10.100(C)(2) as now existing or hereafter amended;
5. The parcel is utilized by a state accredited public school district or state accredited private school or private sectarian school, excluding home schools in a residential structure, which provides thereon activities for children in grades K-12 which directly benefit the storm and surface water management utility. The activities may include: curriculum specific to the issues and problems of surface and storm water management, and student activities in the community to expose students to the efforts required to restore, monitor or enhance the surface and storm water management system. Pursuant to RCW 35.67.025, the amount of the rate adjustment shall be determined by the director based upon the cost of the activities to the school district but not to exceed the value of the activity to the storm and surface water management utility. Determination of which activities qualify for the surface water management service charge reduction shall be made by the director. Reductions in surface water management service charges shall only be granted to school districts which provide programs that have been evaluated by the utility. The rate adjustment for the school district activity may be applied to any parcel in the service area which is owned or operated by the school district; provided, however, the provisions of this subsection shall expire and effectively be repealed as of January 1, 1997; or
6. The service charge bill was otherwise not calculated in accordance with the terms of this chapter.

C. The property owner shall have the burden of proving that the rate adjustment sought should be granted.

D. Decisions on requests for rate adjustments shall be made by the director based on information submitted by the applicant and by the division within 30 days of the adjustment request except when additional information is needed. The applicant shall be notified in writing of the director's decision. If an adjustment is granted which reduces the charge for the current year or two prior years, the applicant shall be refunded the amount overpaid in the current and two prior years.

E. If the director finds that a service charge bill has been undercharged, then either an amended bill shall be issued which reflects the increase in the service charge or the

## EXHIBIT A

undercharged amount shall be added to the next year's bill. This amended bill shall be due and payable under the provisions set forth herein. The director may include in the bill the amount undercharged for two previous billing years in addition to the current bill.

F. Decisions of the director on requests for rate adjustments shall be final unless within 30 days of the date the decision was mailed, the applicant files a petition for a writ of certiorari in the superior court with jurisdiction. (Ord. 1634 § 1, 1996).

### **18.10.140 Billing and collection.**

The city may administer the billing and collection services required to implement this chapter, or it may enter into interlocal agreements with King and/or Snohomish County for this purpose. All billing and collection services shall be implemented as follows:

A. All property subject to service charges shall be assessed annually on January 1st based upon the rate category, land use classification, and acreage then applicable to each such property and at the rate as set forth in BMC 18.10.110.

B. The service charge shall be displayed and billed on the annual property tax statement for the parcel and shall be mailed to the name and address shown on the real property tax roll at the time annual property tax bills are prepared. Properties which do not receive a property tax statement shall receive a separate service charge billing statement.

C. If a payment is received in conjunction with a combined property tax and service charge, and the payment is less than the sum of the total property tax plus service charge or less than the sum of one-half of the property tax plus one-half of the service charge, and unless otherwise specified by the parcel owner, the payment shall be applied to the annual property tax of the parcel first pursuant to the provisions of Chapter 84.56 RCW and any remaining amount to the service charge.

D. The total amount of the service charge shall be due and payable on or before the thirtieth day of April and shall be delinquent after that date; however, if one-half of such service charge is paid on or before the said thirtieth day of April, the remainder shall be due and payable on or before the thirty-first day of October and shall be delinquent after that date.

E. Parcel characteristics affecting the service charge which are altered after November 1st of any year shall not be a basis for calculation of the service charge until after December 31st of the following year.

F. Adjustments to the annual service charge may be made when property is annexed into the city. The service charge for the billing year during which annexation occurs shall be subject to a proration formula included in an interlocal agreement between the city and the county in which the annexed area lies. (Ord. 1634 § 1, 1996).

### **18.10.150 Liens.**

Nothing contained in this chapter shall be construed as a waiver of liens, and the city shall have all rights to liens as provided in Chapter 35.67 RCW, as the same exists or may hereafter be amended, or any other rights to enforce the collection of storm and surface water service charges as may from time to time be provided in state law. The lien shall have superiority as established by RCW 35.67.290. There shall be added to the delinquent amounts and interest all costs and expenses incurred by the city in compelling payment of the same. (Ord. 1634 § 1, 1996).

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### **18.10.160 Storm and surface water fund established.**

The storm and surface water management fund is hereby created. All service charges shall be deposited in this fund, to be used only for the purpose of paying all or any part of the cost and expense of providing surface water management services, or to pay or secure the payment of all or any portion of any issue of general obligation or revenue bond issued for such purpose. (Ord. 1634 § 1, 1996).

### **18.10.170 Storm and surface water management policy issues.**

A. Service Charge Revenues. It is the finding of the city that comprehensive management of surface and storm water runoff must include anticipation of future growth and development in the design and improvement of the surface and storm water management system. Service charge revenue needs shall be based upon the present and future requirements of the surface and storm water management system, and these needs shall be considered when determining the rates and charges of the program.

B. Comprehensive Storm Water Master Plan. It is the finding of the city that storm water master plans are essential to establishing a comprehensive approach to a capital improvement program, maintenance of facilities and regulation of new developments. A plan should analyze the measures needed to control surface and storm water runoff which results from existing and anticipated development within the city. The measures investigated to control runoff should include land use regulation such as setback requirements or community plan revisions which revise land use densities as well as the use of drainage facilities. A plan also should recommend the quantity and water quality runoff control measures required to further the purposes set forth in the current city's comprehensive plan, and community goals. The institutional requirements and regulations, including but not limited to land use management, funding needs, and incentives for preserving the natural surface water drainage system should be identified in the plan.

C. Need for Mitigation. It is the finding of the city that additional surface and storm water runoff problems may be caused by new land use development if not properly mitigated both through protection of natural systems and through constructed improvements. Bothell land use and development codes have been adopted by the city to mitigate the impact of new land use development. Further mitigation of these impacts is based on expertise which continues to evolve as new information on our natural systems is obtained and new techniques are discovered. The storm and surface water management utility shall continuously provide valuable information on the existing problems and areas of the natural drainage system that need special protection. The city is researching and developing methods to protect the natural drainage system through zoning, buffering, and setbacks to alleviate existing problems. Setback and buffering measures allow natural preservation of wetlands and stream corridors to occur, alleviate erosion and water pollution and provide a safe environment for the small mammals and fish which inhabit sensitive areas. Based upon the above findings, and as information and methods become available, the director shall draft and submit to the council, regulations and development standards to allow protection of the surface and storm water management system including natural drainage systems.

D. Financial Management Operations Policy. The utility shall maintain long-term fiscal viability and fund solvency for all of its related funds. All required capital and operating expenditures shall be covered by service charges and other revenues

## EXHIBIT A

generated or garnered by the utility. The utility shall pay all current operating expenses from current revenues and shall maintain an operating reserve to minimize service impacts due to revenue or expenditure variances from plan during a fiscal year. This reserve shall be calculated based on the historic variability of revenue and expenditures. The program shall adopt a strategic financial planning approach which recognizes the dynamic nature of the program's fiscal operating environment. Long-term projections shall be updated in the utility's adopted strategic plan. One-time revenue shall be dedicated to one-time only expenditures and shall not be used to support ongoing requirements. The utility's approach to financial reporting and disclosure shall be comprehensive, open and accessible.

E. Financial Management Capital Policy. The utility shall prepare a multiyear capital improvement program which encompasses all of the utility's activities related to the acquisition, construction, replacement, or renovation of capital facilities or equipment. All proposed new facilities shall be subject to a consistent and rigorous needs analysis. The utility's capital facilities shall be planned and financed to ensure that the benefits of the facilities and the costs for them are balanced over time.

F. Financial Management Debt Policy. The utility shall manage its debt to ensure continued high credit quality, access to credit markets, and financial flexibility. All of the utility's debt management activities shall be conducted to maintain at least the current credit ratings assigned to the city's debt by the major credit rating agencies and to maintain an adequate debt service coverage ratio. Long-term debt shall not be used to support operating expenses.

G. The utility may provide services related to surface and storm water management, including but not limited to basin planning, facilities maintenance, regulation, financial administration, public involvement, drainage investigation and enforcement, aquatic resource restoration, surface and storm water quality and environmental monitoring, natural surface water drainage system planning, intergovernmental relations, and facility design and construction. The utility may contract for services with interested municipalities or special districts including but not limited to sewer and water districts, school districts, port districts or other governmental agencies.

H. The city finds that in order to achieve a comprehensive approach to surface and storm water management, the city and other jurisdictions within the same basin(s) should coordinate and contract for services with interested municipalities or special districts, school districts, port districts or other governmental agencies.

I. The city finds that many of the difficulties found in the management of surface and storm water problems are contributed to by the general lack of public knowledge about the relationship between human actions and surface and storm water management. In order to achieve a comprehensive approach to surface and storm water management, the city should provide general information to the public about land use and human activities which impact surface and storm water management.

J. The city finds that pursuant to RCW 35.67.025, public school districts can provide significant benefits to the city regarding surface and storm water management through education programs and community activities related to the management system. These programs and activities can provide students with an understanding of human activities and land use practices that create surface and storm water problems and involve students by learning from first hand exposure, the difficulties of resolving surface

## EXHIBIT A

and storm water management problems after they occur. (Ord. 1634 § 1, 1996; Ord. 1608 § 1, 1995).

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# Chapter 4

## Bothell Surface Water Design Manual



City of Bothell™



## Design & Construction Standards And Specifications

Prepared by



EXHIBIT A PART 2

2023 (2009)

## Foreword

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This is Chapter 4 of the City of Bothell Design and Construction Standards and Specifications. This updated version has been created to adopt the 2005 Ecology Stormwater Management Manual and meet requirements of the NPDES Phase II Municipal Stormwater Permit.

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## Section 1 - Definitions

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For the provisions of this manual, the following definitions allow readers to review terms used in this manual and limit the need for interpretation by the reader.

- **Arterial** - A road or street primarily for through traffic. A major arterial connects an Interstate Highway to cities and counties. A minor arterial connects major arterials to collectors. A collector connects an arterial to a neighborhood. A collector is not an arterial. A local access road connects individual homes to a collector.
- **Certified Erosion and Sediment Control Lead (CESCL)** - means an individual who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by the Department (see BMP C160 in the Stormwater Management Manual for Western Washington (2005)). A CESCL is knowledgeable in the principles and practices of erosion and sediment control. The CESCL must have the skills to assess site conditions and construction activities that could impact the quality of stormwater and, the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges. Certification is obtained through an Ecology approved erosion and sediment control course. Course listings are provided online at Ecology's web site.
- **Common plan of development or sale** - a site where multiple separate and distinct construction activities may be taking place at different times on different schedules, but still under a single plan. Examples include: phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g. a development where lots are sold to separate builders); a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; and projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility. If the project is part of a common plan of development or sale, the disturbed area of the entire plan shall be used in determining permit requirements.
- **Effective impervious surface** - Those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Impervious surfaces on residential development sites are considered ineffective if the runoff is dispersed through at least one hundred feet of native vegetation in accordance with BMP T5.30 - "Full Dispersion," as described in Chapter 5 of Volume V of the 2005 Ecology Manual.
- **Financial guarantees** - Guarantees in the form of performance and maintenance bonds. See Chapter 1, section 1-5 of City of Bothell Design and Construction Standards and Specifications.
- **Geologically hazardous areas** - Areas susceptible to erosion, sliding, earthquake, or other geological events. They pose a threat to the health and safety of citizens when incompatible

development is sited in areas of significant hazard (WAC 365-190-080(4)). Such incompatible development may not only place itself at risk, but also may increase the hazard to surrounding development and use. Areas susceptible to one or more of the following types of hazards shall be designated as a geologically hazardous area:

- A. Erosion hazard;
- B. Landslide hazard;
- C. Seismic hazard; and
- D. Other geological events including mass wasting, debris flows, rock falls, and differential settlement. (Ord. 1946 § 3, 2005).

- **Geologically hazardous drainage area (GHDA)** - Area which contributes runoff, directly or indirectly, to a geologically hazardous area.
- **High-use site** - Are sites that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. Refer to Section 2, Volume I, 2.5.6 of this manual for additional information.
- **Impervious surface** - A hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling.
- **Land disturbing activity** - Any activity that results in movement of earth, or a change in the existing soil cover (both vegetative and nonvegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance practices are not considered land-disturbing activity.
- **Maintenance** - Repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and results in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems. Those usual activities may include and replacement of dysfunctional facilities, including cases where environmental permits require replacing an existing structure with a different type structure, as long as the functioning characteristics of the original structure are not changed. One example is the replacement of a collapsed, fish blocking, round culvert with a new box culvert under the same span, or width, of roadway.

- **Master Drainage Plan** - A plan that proposes specific drainage control systems that will prevent significant adverse impacts to the site's natural hydrologic system and to existing and planned offsite drainage systems and natural resources.
- **Native vegetation** - Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site historically. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple, and vine maple; shrubs such as willow, elderberry salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.
- **New development** - Land disturbing activities, including Class IV - general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of impervious surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.
- **Pollution-generating impervious surface (PGIS)** - Those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities (as further defined in the glossary); or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall.

Erodible or leachable materials, wastes, or chemicals are those substances which, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage. Metal roofs are also considered to be PGIS unless they are coated with an inert, non-leachable material (e.g., baked-on enamel coating).

A surface, whether paved or not, shall be considered subject to vehicular use if it is regularly used by motor vehicles. The following are considered regularly-used surfaces: roads, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lanes, vehicular equipment storage yards, and airport runways.

The following are not considered regularly-used surfaces: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, fenced fire lanes, and infrequently used maintenance access roads.

- **Pollution-generating pervious surfaces (PGPS)** - A nonimpervious surface subject to use of pesticides and fertilizers or loss of soil. Typical PGPS include lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields.
- **Pre-developed condition** - The native vegetation and soils that existed at a site prior to the influence of Euro-American settlement. The predeveloped condition shall be assumed to be

a forested land cover unless reasonable, historic information is provided that indicates the site was prairie prior to settlement.

- **Project site** - That portion of a property, properties, or right of way subject to land disturbing activities, new impervious surfaces, or replaced impervious surfaces.
- **Receiving waters** - Bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow.
- **Redevelopment** - On a site that is already substantially developed (i.e., has 35% or more of existing impervious surface coverage), the creation or addition of impervious surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities.

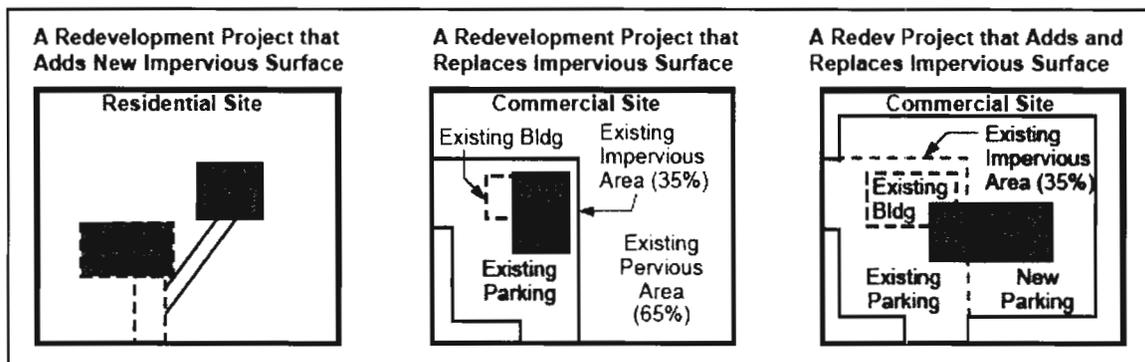


Figure 1.1 Diagram of impervious surface scenarios. Courtesy of King County

- **Replaced impervious surface** - For structures, the removal and replacement of any exterior impervious surfaces or foundation. For other impervious surfaces, the removal down to bare soil or base course and replacement.
- **Single Family Detached Residential Project** - Any project that constructs or modifies a single family dwelling unit, makes improvements such as a driveway or play court, or clears native vegetation that will contain a residential dwelling, or is a plat/short plat/boundary line adjustment that results in lots that contain single family dwelling units.
- **Site** - The area defined by the legal boundaries of a parcel or parcels of land that is (are) subject to new development or redevelopment. For road projects, the length of the project site and the right-of-way boundaries define the site.
- **Source control BMP** - A structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. This manual separates source control BMPs into two types. Structural Source Control BMPs are physical, structural, or

mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. Operational BMPs are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV of the 2005 Ecology Manual for details.

- **Threshold Discharge Area** - An on-site area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flow path). The purpose of this definition is to clarify how the thresholds of this manual are applied to project sites with multiple discharge points.

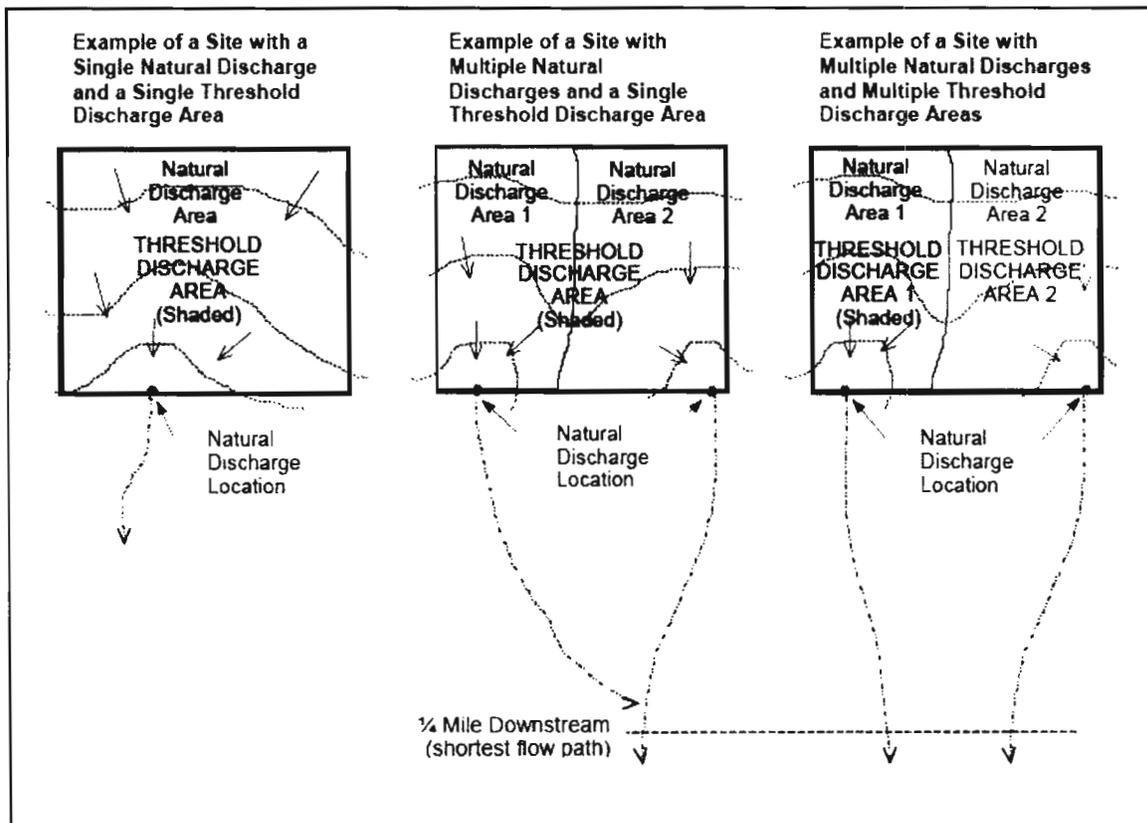


Figure 1.2. Diagram of Threshold Discharge Areas. Courtesy of 2005 Ecology Manual.

## **Section 2 - Adoption and Modification of Washington State Department of Ecology 2005 Stormwater Management Manual for Western Washington**

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### **Preface**

The City of Bothell has selected the 2005 Washington State Department of Ecology Stormwater Management Manual for Western Washington (2005 Ecology Manual) to be the local stormwater management manual for development, redevelopment, and site improvement projects that require surface water management. This Chapter of the City of Bothell Standards and Specifications adopts the manual with the modifications identified.

Modifications have been made to better connect previous stormwater management in the City of Bothell with the 2005 Ecology Manual. The previous Chapter 4 adopted the 1998 King County Surface Water Design Manual. The shift from one manual to the other has created a situation where terminology and requirements have significantly changed. Modifications have also occurred due to language requirements and changes required by the NPDES Phase II Municipal Stormwater Permit, Appendix 1.

Lastly, modifications have been made to the 2005 Ecology Manual to coincide with Washington State Pollution Control Hearing Board (PCHB) rulings that made the application of the 2005 Ecology Manual thresholds only applicable to sites that disturb one acre or more or are less than one acre but part of a common plan of development or sale. This has brought some complexity to threshold application.

This document intends to meet or exceeds the 2005 Ecology Manual requirements, the NPDES Phase II Municipal Stormwater Permit requirements, and the requirements issued by the PCBH. The following includes modifications of the 2005 Ecology Manual as well as additional information to facilitate stormwater management in Bothell.

# Volume I - Minimum Technical Requirements

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## Chapter 1 - Introduction

Adopted in full except for the following modification. The modification is locally adopted by this manual:

### 1.6.6 - NPDES and State Waste Discharge Permits for Municipalities

Washington Department of Ecology issued the NPDES Phase II Municipal Stormwater Permit to the City of Bothell January 2007, effective February 2007. The permit requires the City of Bothell to update stormwater management design standards to meet or exceed Appendix 1 of the NPDES Phase II permit. This resulted in the need for the City of Bothell to adopt the 2005 Ecology Stormwater Management Manual for Western Washington (2005 Ecology Manual).

The NPDES Phase II Municipal Stormwater Permit requires adoption of new stormwater design standards for sites that disturb one acre or more or are less than one acre but part of a larger common plan of redevelopment or sale. Accordingly, the City of Bothell has decided to adjust requirements for sites below the aforementioned threshold.

Additional changes or additions to the 2005 Ecology Manual are required to be compliant with the NPDES Phase II Municipal Stormwater Permit.

## Chapter 2 - Minimum Requirements for New Development and Redevelopment

Volume I, Chapter 2, of the 2005 Ecology Manual is fully replaced by this manual.

### 2.1 - Relationship to Puget Sound Water Quality Management Plan

This manual, now expanded to be applicable throughout western Washington, was originally developed to comply with the 1991 Puget Sound Water Quality Management Plan. That plan (as amended in 2000) requires all counties and cities within the Puget Sound drainage basin to adopt stormwater programs which include minimum requirements for new development and redevelopment set by the Plan and in guidance developed by the Department of Ecology (Ecology). The programs are to include ordinances that address:

*"... at a minimum: (1) the control of off-site water quality and quantity effects; (2) the use of best management practices for source control and treatment; (3) the effective treatment, using best management practices, of the storm size and frequency (design storm) as specified in the manual for proposed development; (4) the use of infiltration, with appropriate precautions, as the first consideration in stormwater management; (5) the protection of stream channels, fish, shellfish habitat, other aquatic habitat, and wetlands; (6) erosion and sedimentation control for new construction and redevelopment projects; and (7) local enforcement of these stormwater controls."*

Ecology considers the above description to be generic to proper stormwater management in any region within the state of Washington.

Throughout this Chapter, guidance to meet the requirements of the Puget Sound Water Quality Management Plan is written in bold and supplemental guidelines that serve as advice and other materials are not in bold. To have an equivalent manual, the City of Bothell has adopted the definitions, thresholds, minimum requirements, and adjustment and variance criteria that are displayed in bold.

### 2.2 - Exemptions

#### ***Forest Practices:***

Forest practices regulated under Title 222 WAC, except for Class IV General forest practices that are conversions from timber land to other uses, are exempt from the provisions of the minimum requirements.

#### ***Commercial agriculture:***

Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture, and the construction of impervious surfaces are not exempt.

***Oil and Gas Field Activities or Operations:***

Construction of drilling sites, waste management pits, and access roads, as well as construction of transportation and treatment infrastructure such as pipelines natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations are exempt. Operators are encouraged to implement and maintain Best Management Practices to minimize erosion and control sediment during and after construction activities to help ensure protection of surface water quality during storm events.

***Road Maintenance:***

The following road maintenance practices are exempt: pothole and square cut patching, overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping/regrading drainage systems, crack sealing, resurfacing with in-kind material without expanding the road prism, and vegetation maintenance.

The following road maintenance practices are considered redevelopment, and therefore are not categorically exempt. The extent to which the manual applies is explained for each circumstance.

- Removing and replacing a paved surface to base course or lower, or repairing the roadway base: If impervious surfaces are not expanded, Minimum Requirements #1 - #5 apply. However, in most cases, only Minimum Requirement #2, Construction Stormwater Pollution Prevention, will be germane. Where appropriate, project proponents are encouraged to look for opportunities to use permeable and porous pavements.
- Extending the pavement edge without increasing the size of the road prism, or paving graveled shoulders: These are considered new impervious surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for redevelopment projects are met.
- Resurfacing by upgrading from dirt to gravel, asphalt, or concrete; upgrading from gravel to asphalt, or concrete; or upgrading from a bituminous surface treatment ("chip seal") to asphalt or concrete: These are considered new impervious surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for redevelopment projects are met.

***Underground utility projects:***

Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics are only subject to Minimum Requirement #2, Construction Stormwater Pollution Prevention. Underground utility work is required to manage materials

All other new development is subject to one or more of the Minimum Requirements (see Chapter 2.4).

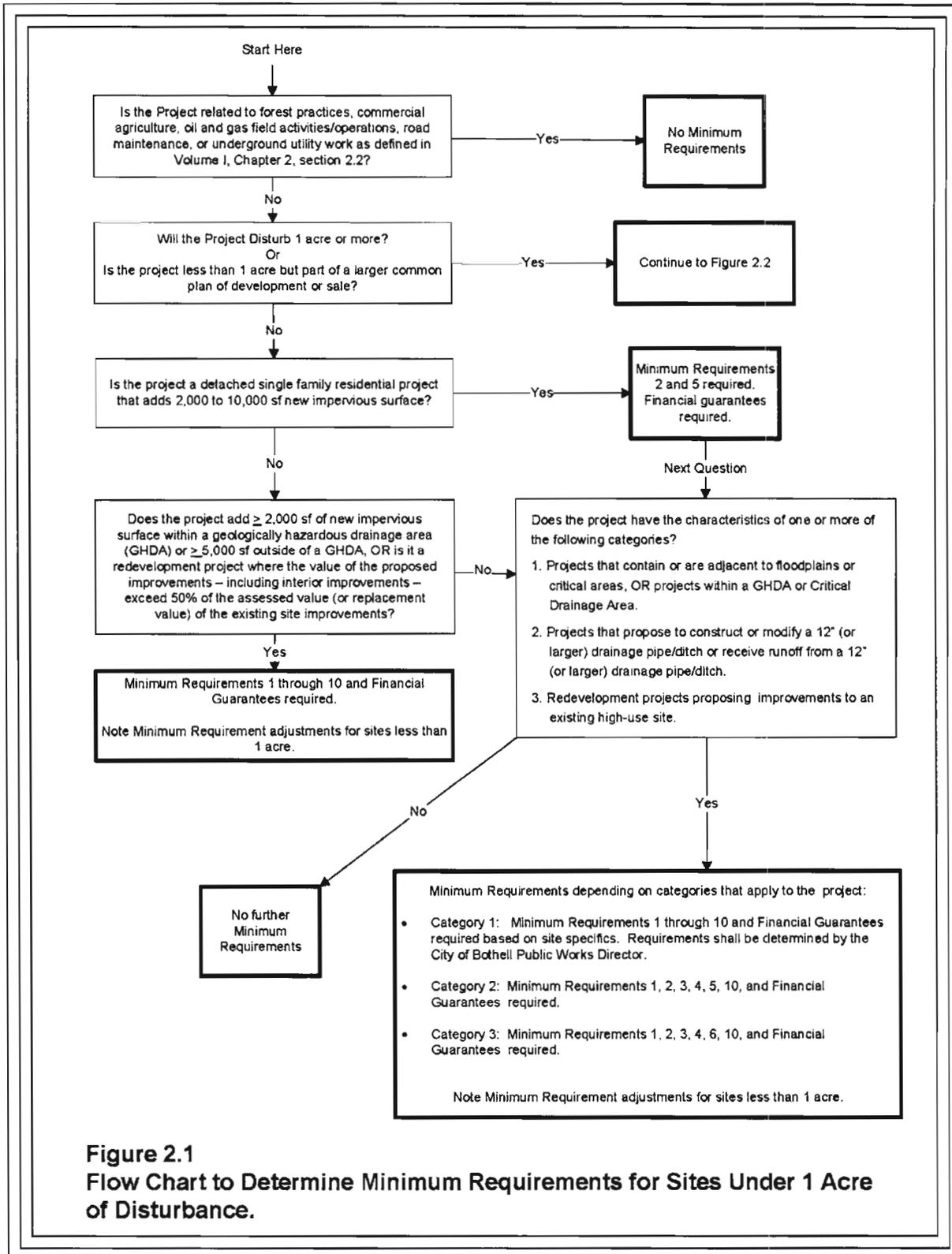
## **2.3 - Definitions Related to the Minimum Requirements**

This section has been moved to the definitions section of this manual, Section 1. The definitions section includes additional definitions pertaining to the City of Bothell, specific to this manual, and should be consulted to limit interpretation by the reader.

## **2.4 - Application of Minimum Requirements**

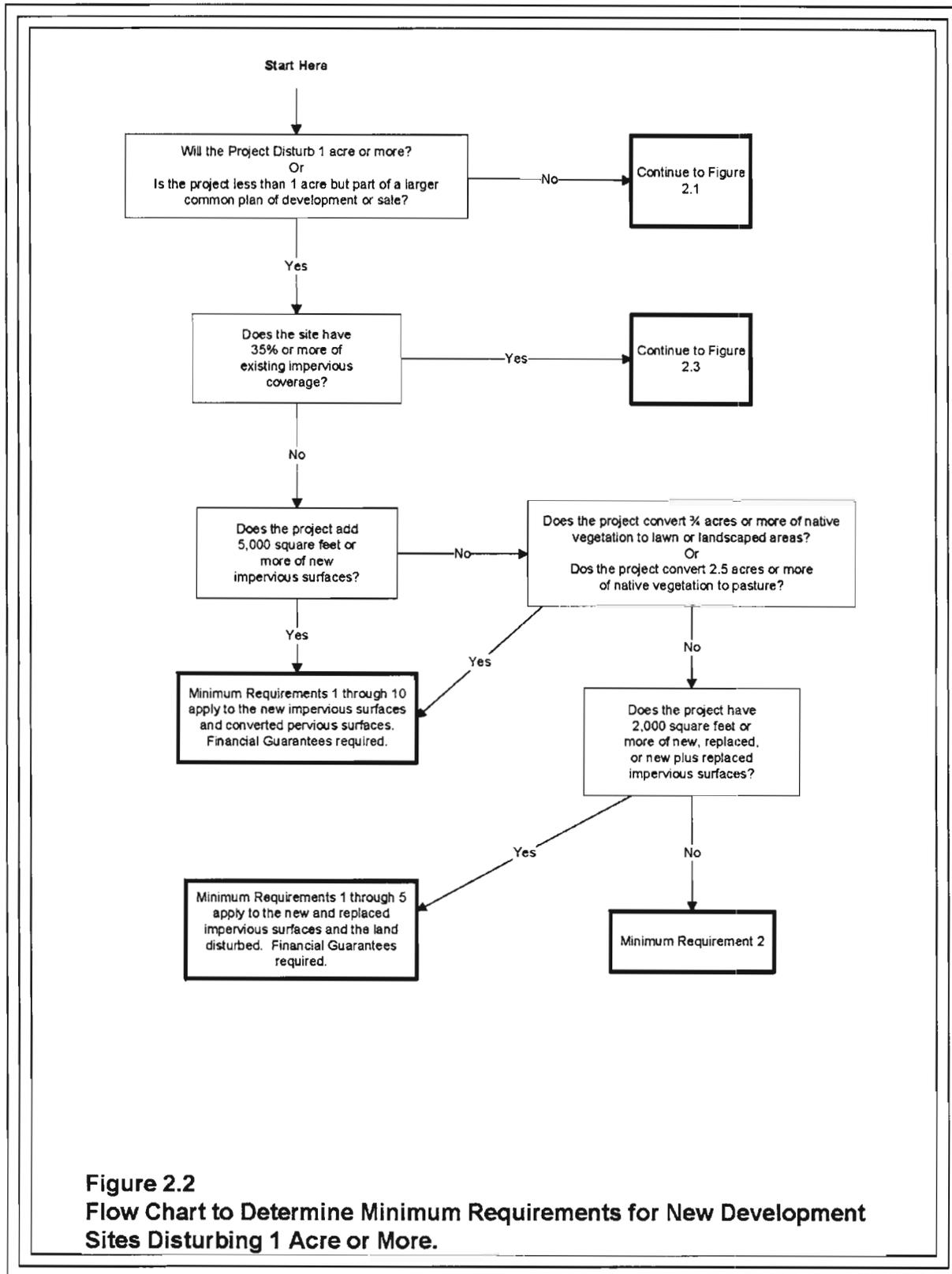
Not all of the Minimum Requirements apply to every development or redevelopment project. The applicability varies depending on the type and size of the project. This chapter identifies thresholds that determine the applicability of the Minimum Requirements to different projects. The flow charts in Figures 2.1, 2.2 and 2.3 shall be used to determine which requirements apply. The Minimum Requirements themselves are presented in Chapter 2.5.

Figure 2.1 has been added to address the 1 acre threshold of disturbance as defined by Appendix 1 of the NPDES Phase II Municipal Stormwater Permit.

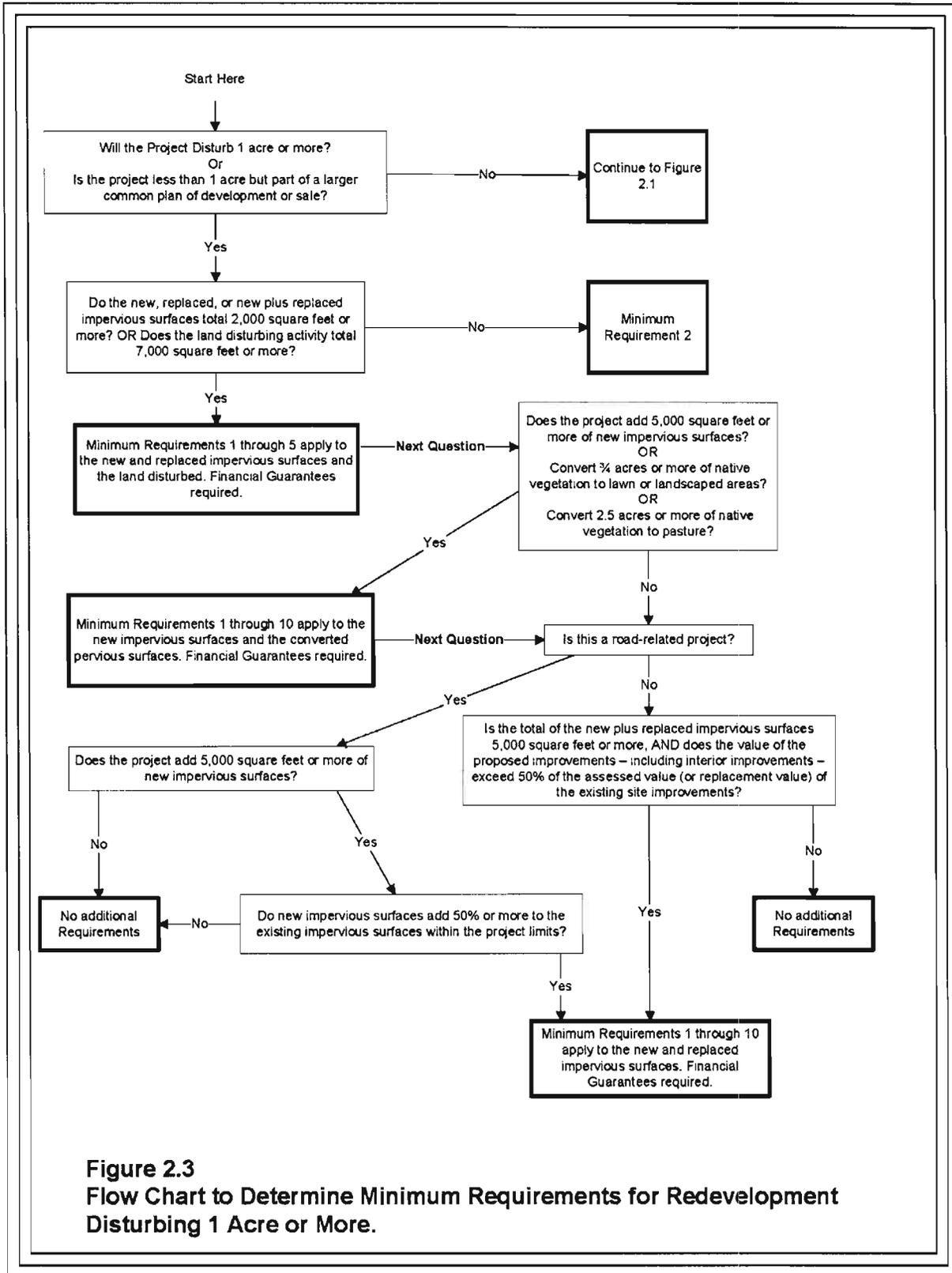


**Figure 2.1**  
**Flow Chart to Determine Minimum Requirements for Sites Under 1 Acre of Disturbance.**

**Figure 2.1 Minimum Requirements for Sites Under 1 Acre of Disturbance**



**Figure 2.2 Minimum requirements for new development sites with 1 acre or more of disturbance**



**Figure 2.3**  
**Flow Chart to Determine Minimum Requirements for Redevelopment**  
**Disturbing 1 Acre or More.**

Figure 2.3 Minimum requirements for redevelopment sites with 1 acre or more of disturbance.

## 2.4.1 - New Development

All new development shall be required to comply with Minimum Requirement 2.

New development, that disturbs less than one acre and is not part of a larger plan of development or sale, shall apply minimum requirements according to the following:

- Single family residential sites that add 2,000 to 10,000 sf new impervious surface shall apply minimum requirement 2 and 5. Financial guarantees shall may be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Any new development, excluding single family residential projects, that adds 5,000 sf or more of impervious surface, or add 2,000 sf or more of impervious surface within a Geologically Hazardous Drainage Area (GHDA), shall apply minimum requirements 1 through 10, financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Any new development, excluding single family residential projects, that add less than 5,000 sf impervious surface, or less than 2,000 sf impervious surface in an GHDA, are required to apply minimum requirements:
  - If the site contains or is adjacent to a flood plain, critical area, or within an GHDA: all minimum requirements and financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications. Application of minimum requirements is site specific; determination of applicable minimum requirements will be determined by the City of Bothell Public Works Director.
  - If the project proposes to construct or modify, or has draining to it, a 12 inch drainage pipe/ditch, minimum requirements 1,2,3,4,5,10, and financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

New development that disturbs 1 acre or more or is less than 1 acre but part of a larger common plan of development or sale shall comply with Minimum Requirements 1 through 5 and provide financial guarantees for the new and replaced impervious surfaces if the project:

- Creates or adds 2,000 square feet, but less than 5,000 sf, of new, replaced, or new plus replaced impervious surface area.

New development that disturbs 1 acre or more or is less than 1 acre and part of a larger plan of development or sale shall comply with Minimum Requirements 1 through 10 and provide financial guarantees for the new impervious surfaces and the converted pervious surfaces:

- Creates or adds 5,000 square feet, or more, of new impervious surface area, or
- Converts  $\frac{3}{4}$  acres, or more, of native vegetation to lawn or landscaped areas, or
- Converts 2.5 acres, or more, of native vegetation to pasture.

Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

### ***Additional Guidelines***

The City of Bothell may adopt basin plans. Project proponents need to verify if their site is within an adopted basin plan area and if that plan adjusts minimum requirements. Researching the application of basin planning to a specific site location is minimum requirement 9 and a required component of the site plan, minimum requirement 1. Basin plans could increase runoff treatment, flow control, and wetland protection requirements (requirements 6, 7, and 8, respectively). Inversely, basin plans could reduce minimum requirements by achieving flow control and water quality treatment requirements through regional facilities. Such facilities must be operational prior to and must have capacity for new development.

Appendix C of Volume III, of the 2005 Ecology Manual, directs users to model various low impact development techniques as landscaped area, 50% landscaped area, or pasture. Those same modeling credits may be used when summing project areas to determine whether the thresholds in Figures 2.1, 2.2 and 2.3 are exceeded.

Minimum requirement 5, on-site stormwater management, requires that low impact development strategies and downspout dispersion strategies shall be considered first in stormwater management. The City of Bothell requires that project proponents consider low impact development techniques during site design and during the selection of runoff treatment and flow controls BMPs. Low impact development techniques need to adhere to design standards established in Volume V, Chapter 5 of the 2005 Ecology Manual and the current Low Impact Development Technical Guidance Manual for Puget Sound. Project proponents will be required to provide sufficient geotechnical information, per BMC 14.04, to insure the use of on-site stormwater management techniques are feasible and appropriate for the specific project and location.

Where new development projects require improvements (e.g., frontage improvements) that are not within the same threshold discharge area, the minimum requirements may be met for an equivalent (flow and pollution characteristics) area that drains to the same receiving water.

The City of Bothell may grant a variance/exception to the application of the flow control requirements for new impervious surfaces. See Bothell Municipal Code (BMC) 18.08 for requirements and procedures related to variances/exceptions for drainage.

## 2.4.2 - Redevelopment

All redevelopment shall be required to comply with Minimum Requirement 2.

In addition, all redevelopment that exceeds certain thresholds shall be required to comply with additional Minimum Requirements as follows.

Redevelopment, that disturbs less than one acre and is not part of a larger common plan of redevelopment or sale, shall apply minimum requirements according to the following:

- Single family residential redevelopment projects that add 2,000 to 10,000 sf new impervious surface shall apply minimum requirements 2 and 5. Financial guarantees shall be required per Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Any redevelopment, excluding single family residential redevelopment projects, shall apply minimum requirements 1 through 10 and provide financial guarantees:
  - If the project adds 5,000 sf or more of impervious surface, or add 2,000 sf or more of impervious surface within a Geologically Hazardous Drainage Area (GHDA).
  - If the value of the proposed improvements - including interior improvements - exceed 50% of the assessed value (or replacement value) of the existing site improvements.

Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

- Any redevelopment, excluding single family residential redevelopment projects, that adds less than 5,000 sf new impervious, or less than 2,000 sf new impervious surface in a GHDA, are required to apply minimum requirements:
  - If the site contains or is adjacent to a flood plain, critical area, or within a geologically hazardous area, minimum requirements 1 through 10 and financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications. Application of requirements is site specific and shall be determined by the City of Bothell Public Works Director.
  - If the project proposes to construct or modify, or has draining to it, a 12 inch diameter drainage pipe/ditch, minimum requirements 1,2,3,4,5,10, and financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
  - If the project proposes improvements to an existing high-use site, minimum requirements 1,2,4,6,10, and financial guarantees apply. Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications. Minimum requirement 6 is

reduced to the oil control menu only. See section 2, Volume I, 2.5.6 of this manual.

**Redevelopment** that disturbs 1 acre or more or is less than 1 acre but part of a larger plan of development or sale shall comply with Minimum Requirements 1 through 5 and provide financial guarantees for the new and replaced impervious surfaces and the land disturbed if:

- The new, replaced, or total of new plus replaced impervious surfaces is 2,000 square feet or more, or
- The project proposes improvements to an existing high-use site.

Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

**Redevelopment** that disturbs 1 acre or more or is less than 1 acre and part of a larger plan of development or sale shall comply with Minimum Requirements 1 through 10 and financial guarantees for the new impervious surfaces and converted pervious areas if the project:

- Adds 5,000 square feet or more of new impervious surfaces or,
- Converts  $\frac{3}{4}$  acres, or more, of native vegetation to lawn or landscaped areas, or
- Converts 2.5 acres, or more, of native vegetation to pasture.
- Projects where the value of the proposed improvements - including interior improvements - exceed 50% of the assessed value (or replacement value) of the existing site improvements.

Financial guarantees shall be required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

If the runoff from the new impervious surfaces and converted pervious surfaces is not separated from runoff from other surfaces on the project site, the stormwater treatment facilities must be sized for the entire flow that is directed to them.

Minimum Requirements may be met for an equivalent (flow and pollution characteristics) area within the same site. For public roads' projects, the equivalent area does not have to be within the project limits, but must drain to the same receiving water.

Projects must retrofit the replaced impervious surfaces on the project site with flow control and water quality BMPs if the value of the proposed improvements - including interior improvements - exceeds 50% of the assessed value of the existing improvements.

### ***Additional Guidelines***

If runoff from new impervious surfaces, converted pervious surfaces, and replaced impervious surfaces (if the applicable cost or space threshold has been exceeded) is not separated from runoff from other existing surfaces within the project site or the site, the guidance in Volume III for offsite inflow shall be used to size the detention facilities.

Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics should not be subject to redevelopment requirements except construction site erosion control.

### ***Additional Requirements for the Project Site***

For road-related projects, runoff from the replaced and new impervious surfaces (including pavement, shoulders, curbs, and sidewalks) shall meet all the Minimum Requirements if the new impervious surfaces total 5,000 square feet or more and total 50% or more of the existing impervious surfaces within the project limits. The project limits shall be defined by the length of the project and the width of the right-of-way.

Other types of redevelopment projects shall comply with all the Minimum Requirements for the new and replaced impervious surfaces if the total of new plus replaced impervious surfaces is 5,000 square feet or more, and the valuation of proposed improvements - including interior improvements - exceeds 50% of the assessed value of the existing site improvements.

See Bothell Municipal Code (BMC) 18.08 for requirements and procedures related to variances/exceptions. For deviations from standards, see Chapter 1, section 1-8 of the City of Bothell Design and Construction Standards and Specifications.

### ***Objective***

Redevelopment projects have the same requirements as new development projects in order to minimize the impacts from new surfaces. To not discourage redevelopment projects, replaced surfaces aren't required to be brought up to new stormwater standards unless the noted cost or space thresholds are exceeded. As long as the replaced surfaces have similar pollution-generating potential, the amount of pollutants discharged shouldn't be significantly different. However, if the redevelopment project scope is sufficiently large that the cost or space criteria noted above are exceeded, it is reasonable to require the replaced surfaces to be brought up to current stormwater standards. This is consistent with other utility standards. When a structure or a property undergoes significant remodeling, the City of Bothell requires the site to be brought up to new building code requirements (e.g., on-site sewage disposal systems, fire systems).

## 2.5 Minimum Requirements

This chapter describes the minimum requirements for stormwater management at development and redevelopment sites. Chapter 2.4 shall be consulted to determine which requirements apply to any given project. Volumes II through V of the 2005 Ecology Manual present Best Management Practices (BMPs) for use in meeting the Minimum Requirements.

Throughout this Chapter, project proponents are required to adhere to requirements in bold font. Supplemental guidelines that serve as advice and other materials are not in bold.

### 2.5.1 Minimum Requirement 1: Preparation of Stormwater Site Plans

All projects meeting the thresholds in Chapter 2.4 shall prepare a Stormwater Site Plan for City of Bothell review. Stormwater Site Plans shall be prepared in accordance with Section 2, Volume I, 3.1 of this manual.

#### *Objective*

The 2005 Ecology Manual thresholds to require stormwater management were intended to trigger minimum requirements 1 through 5 for single family residential projects. The 2,000 square foot threshold for impervious surfaces and 7,000 square foot threshold for land disturbance were chosen to capture most single family home construction and their equivalent.

The City of Bothell is required by the National Pollution Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit to require the thresholds of the 2005 Ecology Manual only to sites that disturb 1 acre or more or sites less than 1 acre but part of a larger plan of development or sale. This adjusted threshold was the result of a ruling in August 2008 by The Washington State Pollution Control Hearing Board (PCHB). To be in agreement with the PCHB, the City of Bothell has adjusted requirements for sites disturbing less than 1 acre, including single family residential projects.

If the project disturbs one acre or more or is less than one acre but part of a larger common plan of development or sale, the scope of the stormwater site plan only covers compliance with Minimum Requirements #2 through #5 if the thresholds of 5,000 square feet of impervious surface or conversion of  $\frac{3}{4}$  acre of native vegetation to lawn or landscape, or conversion of 2.5 acres of native vegetation to pasture are not exceeded.

#### *Supplemental guidelines*

Projects proposed by departments within the City of Bothell must comply with this requirement. The City of Bothell shall determine the process for ensuring proper project review, inspection, and compliance by its own departments and agencies.

## 2.5.2 Minimum Requirement 2: Construction Stormwater Pollution Prevention Plan (SWPPP).

All new development and redevelopment shall comply with Construction SWPP Elements #1 through #12 below.

Projects in which the new, replaced, or new plus replaced impervious surfaces total 2,000 square feet or more, or disturb 7,000 square feet or more of land must prepare a Construction SWPP Plan (SWPPP) as part of the Stormwater Site Plan (see 2.5.1). Each of the twelve elements must be considered and included in the Construction SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the SWPPP.

All new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters.

Sediment and erosion control BMPs shall be consistent with the BMPs contained in Chapters 3 and 4 of Volume II of the 2005 Ecology Manual.

The SWPPP shall include a narrative and drawings. All BMP's shall be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative shall include documentation to explain and justify the pollution prevention decisions made for the project.

Projects that add or replace less than 2,000 square feet of impervious surface or disturb less than 7,000 square feet of land are not required to prepare a Construction SWPPP, but must consider all of the twelve Elements of Construction Stormwater Pollution Prevention and develop controls for all elements that pertain to the project site.

### *Element 1: Mark Clearing Limits*

Prior to beginning land disturbing activities, including clearing and grading, all clearing limits, critical areas and their buffers, and trees that are to be preserved within the construction area shall be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts. See Bothell Municipal Code (BMC) 12.18.030 for existing vegetation retention requirements.

- Plastic, metal, or stake wire fence may be used to mark the clearing limits.

The duff layer, native top soil, and natural vegetation shall be retained in an undisturbed state to the maximum extent practicable. If it is not practicable to retain the duff layer in place, it should be stockpiled on-site, covered to prevent erosion, and replaced immediately upon completion of the ground disturbing activities.

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### ***Element 2: Establish Construction Access***

- Construction vehicle access and exit shall be limited to one route, if possible, or two for linear projects such as roadways where more than one access is necessary for large equipment maneuvering.
- Access points shall be stabilized with a pad of quarry spalls or crushed rock prior to traffic leaving the construction site to minimize the tracking of sediment onto public roads.
- Wheel wash or tire baths shall be located on site, if the stabilized construction entrance is not effective in preventing sediment from being tracked onto public roads.
- If sediment is tracked off site, public roads shall be cleaned thoroughly at the end of each day, or more frequently during wet weather, if necessary to prevent sediment from entering waters of the state. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area.
- Street washing or using water to wash sediment from streets is not allowed in the City of Bothell.

### ***Element 3: Control Flow Rates***

- Properties and waterways downstream from development sites shall be protected from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site, as required by the City of Bothell.
- Downstream analysis is necessary if changes in flows could impair or alter conveyance systems, stream banks, bed sediment or aquatic habitat. See Chapter 3 for offsite analysis guidance.
- Where necessary to comply with Minimum Requirement #7, stormwater retention/detention facilities shall be constructed as one of the first steps in grading. Detention facilities shall be functional prior to construction of site improvements (e.g. impervious surfaces).
- The City of Bothell may require pond designs that provide additional or different stormwater flow control if necessary to address local conditions or to protect properties and waterways downstream from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site.
- If permanent infiltration ponds are used for flow control during construction, these facilities should be protected from siltation during the construction phase.

### ***Element 4: Install Sediment Controls***

- Prior to leaving a construction site, or prior to discharge to an infiltration facility, stormwater runoff from disturbed areas shall pass through a sediment pond or other appropriate sediment removal BMP. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance

standard of Element #3, bullet #1. Full stabilization means concrete or asphalt paving; quarry spalls used as ditch lining; or the use of rolled erosion products, a bonded fiber matrix product, or vegetative cover in a manner that will fully prevent soil erosion. The City of Bothell shall inspect and approve areas stabilized by means other than pavement or quarry spalls.

- Sediment ponds, vegetated buffer strips, sediment barriers or filters, dikes, and other BMPs intended to trap sediment on-site shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
- Earthen structures such as dams, dikes, and diversions shall be seeded and mulched according to the timing indicated in Element #5.
- BMPs intended to trap sediment on site must be located in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages, often during non-storm events, in response to rain event changes in stream elevation or wetted area.

### ***Element 5: Stabilize Soils***

- All exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrop impact and flowing water, and wind erosion.
- From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. This condition applies to all soils on site, whether at final grade or not. These time limits may be adjusted by the City of Bothell if it can be shown that the average time between storm events justifies a different standard.
- Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.
- Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.
- Soil stabilization measures selected should be appropriate for the time of year, site conditions, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or ground water.
- Soil stockpiles must be stabilized from erosion, protected with sediment trapping measures, and when possible, be located away from storm drain inlets, waterways and drainage channels.
- Linear construction activities, including right-of-way and easement clearing, roadway development, pipelines, and trenching for utilities, shall be conducted to meet the soil

stabilization requirement. Contractors shall install the bedding materials, roadbeds, structures, pipelines, or utilities and re-stabilize the disturbed soils so that:

- from October 1 through April 30 no soils shall remain exposed and unworked for more than 2 days; and
- from May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days.

### ***Element 6: Protect Slopes***

- Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion.
- Consider soil type and its potential for erosion.
- Off-site stormwater (run-on) shall be diverted away from slopes and disturbed areas with interceptor dikes and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.
- At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion. Temporary pipe slope drains shall handle the expected peak 10-minute flow velocity from a type 1A, 10-year, 24-hour frequency storm for the developed condition. The hydrologic analysis shall use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis shall use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology model to predict flows, bare soil areas should be modeled as “landscaped area.”
- Provide drainage to remove ground water intersecting the slope surface of exposed soil areas.
- Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.
- Check dams shall be placed at regular intervals within channels that are cut down a slope.
- Stabilize soils on slopes, as specified in Element #5.

### ***Element 7: Protect Drain Inlets***

- All storm drain inlets made operable during construction shall be protected so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.
- All approach roads shall be kept clean.

- Inlets should be inspected weekly at a minimum and daily during storm events. Inlet protection devices should be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

### *Element 8: Stabilize Channels and Outlets*

- All temporary on-site conveyance channels shall be designed, constructed and stabilized to prevent erosion from the expected peak 10 minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used.
- Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches shall be provided at the outlets of all conveyance systems

### *Element 9: Control Pollutants*

- All pollutants, including waste materials and demolition debris, that occur on-site shall be handled and disposed of in a manner that does not cause contamination of stormwater. Woody debris may be chopped and spread on site.
- Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste). On-site fueling tanks shall include secondary containment.
- Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle.
- Wheel wash or tire bath wastewater, shall be discharged to a separate on-site treatment system or to the sanitary sewer.
- Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations for application rates and procedures shall be followed.
- BMPs shall be used to prevent or treat contamination of stormwater runoff by pH modifying sources. These sources include, but are not limited to, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete

pumping and mixer washout waters. Stormwater discharges shall not cause or contribute to a violation of the water quality standard for pH in the receiving water.

- Construction sites with significant concrete work shall adjust the pH of stormwater if necessary to prevent violations of water quality standards.
- Construction site operators shall obtain written approval from Washington Department of Ecology prior to using chemical treatment, excluding CO<sub>2</sub> or dry ice to adjust pH.

### *Element 10: Control De-Watering*

- Foundation, vault, and trench de-watering water, which has similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond. Channels must be stabilized, as specified in Element #8.
- Clean, non-turbid de-watering water, such as well-point ground water, can be discharged to systems tributary to state surface waters, as specified in Element #8, provided the de-watering flow does not cause erosion or flooding of receiving waters. These clean waters should not be routed through a stormwater sediment pond.
- Highly turbid or otherwise contaminated dewatering water, such as from construction equipment operation, clamshell digging, concrete tremie pour, or work inside a cofferdam, shall be handled separately from stormwater.
- Other disposal options, depending on site constraints, may include: 1) infiltration, 2) transport off-site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters, 3) Ecology-approved on-site chemical treatment or other suitable treatment technologies, 4) sanitary sewer discharge with local sewer district approval, if there is no other option, or 5) use of a sedimentation bag with outfall to a ditch or swale for small volumes of localized dewatering.

### *Element 11: Maintain BMPs*

- All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair shall be conducted in accordance with BMP specifications.
- All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently stabilized.

### *Element 12: Manage the Project*

- Phasing of Construction - Development projects shall be phased where feasible in order to prevent soil erosion and, to the maximum extent practicable, the transport of sediment from the site during construction. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities for any phase.
- Clearing and grading activities for developments shall be permitted only if conducted pursuant to an approved site development plan (e.g., subdivision approval) that establishes permitted areas of clearing, grading, cutting, and filling. When establishing these permitted clearing and grading areas, consideration should be given to minimizing removal of existing trees and minimizing disturbance/compaction of native soils except as needed for building purposes. These permitted clearing and grading areas and any other areas required to preserve critical areas, buffers, native growth protection easements, or tree retention areas as required by BMC 12.18.030 , shall be delineated on the site plans and the development site.
- Seasonal Work Limitations - From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the City of Bothell that silt-laden runoff will be prevented from leaving the site through a combination of the following:
  1. Site conditions including existing vegetative coverage, slope, soil type and proximity to receiving waters; and
  2. Limitations on activities and the extent of disturbed areas; and
  3. Proposed erosion and sediment control measures.

Based on the information provided and/or local weather conditions, the City of Bothell may expand or restrict the seasonal limitation on site disturbance. The City of Bothell shall take enforcement action - such as a notice of violation, administrative order, penalty, or stop-work order under the following circumstances:

- If, during the course of any construction activity or soil disturbance during the seasonal limitation period, sediment leaves the construction site causing a violation of the surface water quality standard; or
- If clearing and grading limits or erosion and sediment control measures shown in the approved plan are not maintained.

The following activities are exempt from the seasonal clearing and grading limitations:

1. Routine maintenance and necessary repair of erosion and sediment control BMPs;
2. Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and
3. Activities where there is one hundred percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

- **Coordination with Utilities and Other Contractors** - The primary project proponent shall evaluate, with input from utilities and other contractors, the stormwater management requirements for the entire project, including the utilities, when preparing the Construction SWPPP.
- **Inspection and Monitoring** - All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have the skills to 1) assess the site conditions and construction activities that could impact the quality of stormwater, and 2) assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- **For construction sites one acre or larger that discharge stormwater to surface waters of the state, a Certified Erosion and Sediment Control Lead shall be identified in the Construction SWPPP and shall be on-site or on-call at all times. Certification may be obtained through an approved training program that meets the erosion and sediment control training standards established by Ecology.**
- **Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.**
- **Maintaining an Updated Construction SWPPP** - The Construction SWPPP shall be retained on-site or within reasonable access to the site.

The SWPPP shall be modified whenever there is a significant change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

The SWPPP shall be modified, if during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) calendar days following the inspection.

### ***Objective***

To control erosion and prevent sediment and other pollutants from leaving the site during the construction phase of a project.

### ***Supplemental Guidelines***

If a Construction SWPPP is found to be inadequate (with respect to erosion and sediment control requirements), then the City of Bothell will require that other BMPs be implemented, as appropriate.

The City of Bothell may allow development of generic Construction SWPPP's that apply to commonly conducted public road activities, such as road surface replacement, that trigger this minimum requirement.

The City of Bothell understands that not all 12 elements are appropriate for all projects. When the project proponent considers an element and determines that the element is not applicable to the subject project, the SWPPP shall indicate "not applicable" for that element.





### 2.5.3 Minimum Requirement 3: Source Control of Pollution

All known, available and reasonable source control BMPs shall be applied to all projects. Source control BMPs shall be selected, designed, and maintained according to Volume IV of the 2005 Ecology Manual. Structural and operational BMPs shall be selected and detailed in the drainage site improvement plan submitted to the City of Bothell with the development permit application. Volume IV shall be used to reference minimum structural and operational BMPs to control runoff pollutants associated with future land use(s) and operations. An example would be to select source controls for trash compactors and garbage dumpster areas. The City of Bothell shall require further selection of source controls if proposed source controls are inadequate to prevent runoff pollution to the maximum extent feasible.

#### *Objective*

The intention of source control BMPs is to prevent stormwater from coming in contact with pollutants. They are a cost-effective means of reducing pollutants in stormwater, and, therefore, should be a first consideration in all projects.

#### *Supplemental Guidelines*

An adopted and implemented basin plan (Minimum Requirement #9) or a Total Maximum Daily Load (TMDL, also known as a Water Clean-up Plan) may be used to develop more stringent source control requirements that are tailored to a specific basin.

Source Control BMPs include Operational BMPs and Structural Source Control BMPs. See Volume IV for design details of these BMPs. For construction sites, see Volume II, Chapter 4 of the 2005 Ecology Manual.

Structural source control BMPs should be identified in the stormwater site plan and should be shown on site plans submitted for review.

## 2.5.4 Minimum Requirement 4: Preservation of Natural Drainage Systems and Outfalls

Natural drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and down gradient properties. All outfalls require energy dissipation.

### *Objective*

To preserve and utilize natural drainage systems to the fullest extent because of the multiple stormwater benefits these systems provide; and to prevent erosion at and downstream of the discharge location.

### *Supplemental Guidance*

Creating new drainage patterns results in more site disturbance and more potential for erosion and sedimentation during and after construction. Creating new discharge points can create significant stream channel erosion problems as the receiving water body typically must adjust to the new flows. Diversions can cause greater impacts than would otherwise occur by discharging runoff at the natural location.

Where no conveyance system exists at the adjacent down gradient property line and the discharge was previously unconcentrated flow or significantly lower concentrated flow, then measures must be taken to prevent down gradient impacts. Drainage easements from downstream property owners may be needed and should be obtained prior to submittal of development permit application.

Where no conveyance system exists at the abutting downstream property line and the natural (existing) discharge is unconcentrated, any runoff concentrated by the proposed project must be discharged as follows:

- A. If the 100-year peak discharge is less than or equal to 0.2 cfs under existing conditions and will remain less than or equal to 0.2 cfs under developed conditions, then the concentrated runoff may be discharged onto a rock pad or to any other system that serves to disperse flows.
  
- B. If the 100-year peak discharge is less than or equal to 0.5 cfs under existing conditions and will remain less than or equal to 0.5 cfs under developed conditions, then the concentrated runoff may be discharged through a dispersal trench or other dispersal system, provided the applicant can demonstrate that there will be no significant adverse impact to downhill properties or drainage systems.

- C. If the 100-year peak discharge is greater than 0.5 cfs for either existing or developed conditions, or if a significant adverse impact to down gradient properties or drainage systems is likely, then a conveyance system must be provided to convey the concentrated runoff across the downstream properties to an acceptable discharge point (i.e., an enclosed drainage system or open drainage feature where concentrated runoff can be discharged without significant adverse impact).

Stormwater control or treatment structures shall not be located within the expected 25-year water level elevations for salmonid-bearing waters. Such areas may provide off-channel habitat for juvenile salmonids and salmonid fry. Designs for outfall systems to protect against adverse impacts from concentrated runoff are included in Volume V, Chapter 4, of the 2005 Ecology Manual. Project proponents shall refer to Bothell Shoreline Master Plan (4.13.3.8 (page 87)) for additional local requirements.

## 2.5.5 Minimum Requirement 5: On-site Stormwater Management

Projects shall employ On-site Stormwater Management BMPs to infiltrate, disperse, and retain stormwater runoff on-site to the maximum extent feasible without causing flooding or erosion impacts. Roof Downspout Control BMPs, functionally equivalent to those described in Chapter 3 of Volume III of the 2005 Ecology Manual, and Dispersion and Soil Quality BMPs, functionally equivalent to those in Chapter 5 of Volume V of the 2005 Ecology Manual, shall be required to reduce the hydrologic disruption of developed sites.

Chapter 5 of Volume V of the 2005 Ecology Manual incorporates low impact development and references the Low Impact Development Technical Guidance Manual for Puget Sound for on-site BMP selection. The City of Bothell requires that project proponents consider on-site stormwater management before considering flow control facilities. If on-site stormwater management is not feasible, project proponents shall provide evidence justifying why on-site management techniques are not feasible. Determination of on-site stormwater management being unfeasible will be determined by the City of Bothell Public Works Director.

### *Objective*

To use practices on individual properties to reduce the amount of disruption of the natural hydrologic characteristics of the site.

### *Supplemental Guidance*

“Flooding and erosion impacts” include impacts such as flooding of septic systems, crawl spaces, living areas, outbuildings, etc.; increased ice or algal growth on sidewalks/roadways; earth movement/settlement, increased landslide potential; erosion and other potential damage.

Recent research indicates that current techniques in residential, commercial, and industrial land development cause gross disruption of the natural hydrologic cycle with severe impacts to water and water-related natural resources. Based upon gross level applications of continuous runoff modeling and assumptions concerning minimum flows needed to maintain beneficial uses, watersheds must retain the majority of their natural vegetation cover and soils, and developments must meet the Flow Control Minimum Requirement of this chapter, in order to avoid significant natural resource degradation in lowland streams.

The Roof Downspout Control BMPs described in Section 3.1 of Volume III of the 2005 Ecology Manual, and the Dispersion and Soil Quality BMPs in Section 5.3.1 of Volume V of the 2005 Ecology Manual are insufficient to prevent significant hydrologic disruptions and impacts to streams and their natural resources. Therefore, the City of Bothell encourages and requires additional BMPs such as those in Appendix C in Volume III and Section 5.3.1 of Volume V of the 2005 Ecology Manual.

## 2.5.6 Minimum Requirement 6: Runoff Treatment Thresholds

The following require construction of stormwater treatment facilities (see Table 2.1):

- Projects in which the total of effective, pollution-generating impervious surface (PGIS) is 5,000 square feet or more in a threshold discharge area of the project, or
- Projects in which the total of pollution-generating pervious surfaces (PGPS) is three-quarters (3/4) of an acre or more in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site.
- Sites that are category 3 in Figure 2.1, are only required to provide oil control water quality treatment. Treatment shall be required according to the treatment type thresholds defined in this section.

Table 1. Treatment requirements by threshold discharge area.

Treatment Requirements by Threshold Discharge Area		
	WQ treatment Facilities	On-site Stormwater Management and Source Control BMPs
< ¾ acres of pollution generating pervious surfaces		X
≥ ¾ acres of pollution generating pervious surfaces	X	X
< 5,000 square feet pollution generating impervious surfaces		X
≥ 5,000 square feet pollution generating impervious surfaces	X	X

PGPS = pollution-generating pervious surfaces  
 PGIS = pollution-generating impervious surfaces  
 sf = square feet

### Treatment-Type Thresholds

#### 1. Oil Control:

Treatment to achieve Oil Control applies to projects that have “high-use sites.” High-use sites are those that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include:

- a) An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area;

- b) An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;
- c) An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);
- d) A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvement.

## 2. Phosphorous Treatment:

The requirement to provide phosphorous control is determined by the City of Bothell (e.g., through a lake management plan), or the Department of Ecology (e.g., through a waste load allocation). The City of Bothell may develop a management plan and implementing ordinances or regulations for control of phosphorus from new/redevelopment for the receiving water(s) of the stormwater drainage. The City of Bothell can use the following sources of information for pursuing plans and implementing ordinances and/or regulations:

- a) Those water bodies reported under section 305(b) of the Clean Water Act, and designated as not supporting beneficial uses due to phosphorous;
- b) Those listed in Washington State's Nonpoint Source Assessment required under section 319(a) of the Clean Water Act due to nutrients.

## 3. Enhanced Treatment:

Enhanced treatment for reduction in dissolved metals is required for the following project sites that discharge to fish-bearing streams, lakes, or to waters or conveyance systems tributary to fish-bearing streams or lakes:

Industrial project sites,  
Commercial project sites,  
Multi-family project sites, and  
High AADT roads as follows:

- Fully controlled and partially controlled limited access highways with Annual Average Daily Traffic (AADT) counts of 15,000 or more and
- All other roads with an AADT of 7,500 or greater.

However, such sites listed above that discharge directly (or, indirectly through a municipal storm sewer system) to Basic Treatment Receiving Waters (Appendix I-C of the *Stormwater Management Manual for Western Washington* (2005)), and areas of the above-listed project sites that are identified as subject to Basic Treatment requirements, are also not subject to Enhanced Treatment requirements. For developments with a mix of land use types, the Enhanced Treatment requirement shall apply when the runoff from the areas subject to the

Enhanced Treatment requirement comprise 50% or more of the total runoff within a threshold discharge area.

#### 4. Basic Treatment:

Basic Treatment generally applies to:

- Project sites that discharge to the ground, UNLESS:
  - 1) The soil suitability criteria for infiltration treatment are met; (see Chapter 3 of Volume III of the *Stormwater Management Manual for Western Washington* (2005) for soil suitability criteria) or
  - 2) The project uses infiltration strictly for flow control - not treatment - and the discharge is within ¼-mile of a phosphorus sensitive lake (use a Phosphorus Treatment facility), or within ¼ mile of a fish-bearing stream, or a lake (use an Enhanced Treatment facility).
- Residential projects not otherwise needing phosphorus control as designated by USEPA, the Department of Ecology, or by the City of Bothell;
- Project sites discharging directly to salt waters, river segments, and lakes listed in Appendix I-C of the *Stormwater Management Manual for Western Washington* (2005); and
- Landscaped areas of industrial, commercial, and multi-family project sites, and parking lots of industrial and commercial project sites that do not involve pollution-generating sources (e.g., industrial activities, customer parking, storage of erodible or leachable material, wastes or chemicals) other than parking of employees' private vehicles. For developments with a mix of land use types, the Basic Treatment requirement shall apply when the runoff from the areas subject to the Basic Treatment requirement comprise 50% or more of the total runoff within a threshold discharge

## Treatment Facility Sizing

**Water Quality Design Storm Volume:** The volume of runoff predicted from a 24-hour storm with a 6-month return frequency (a.k.a., 6-month, 24-hour storm). Wetpool facilities are sized based upon the volume of runoff predicted through use of the Natural Resource Conservation Service curve number equations in Chapter 2, Volume III of the 2005 Ecology Manual, for the 6-month, 24-hour storm. Alternatively, the 91<sup>st</sup> percentile, 24-hour runoff volume indicated by an approved continuous runoff model may be used.

**Water Quality Design Flow Rate:**

- *Preceding Detention Facilities or when Detention Facilities are not required.* The flow rate at or below which 91% of the runoff volume, as estimated by an approved continuous runoff model, will be treated. Design criteria for treatment facilities are assigned to

achieve the applicable performance goal at the water quality design flow rate (e.g., 80% TSS removal).

- *Downstream of Detention Facilities:* The full 2-year release rate from the detention facility.

Alternative methods can be used if they identify volumes and flow rates that are at least equivalent.

That portion of any development project in which the above PGIS or PGPS thresholds are not exceeded in a threshold discharge area shall apply On-site Stormwater Management BMPs in accordance with Minimum Requirement #5.

## Treatment Facility Selection, Design, and Maintenance

*Stormwater treatment facilities shall be:*

- selected in accordance with the process identified in Chapter 4, Volume I of the 2005 Ecology Manual,
- designed in accordance with the design criteria in Volume V of the 2005 Ecology Manual, and
- maintained in accordance with the maintenance schedule in Volume V of the 2005 Ecology Manual.

### *Additional Requirements*

Direct discharge of untreated stormwater from pollution-generating impervious surfaces to ground water is prohibited, except for the discharge achieved by infiltration or dispersion of runoff from residential sites through use of On-site Stormwater Management BMPs.

### *Objective*

The purpose of runoff treatment is to reduce pollutant loads and concentrations in stormwater runoff using physical, biological, and chemical removal mechanisms so that beneficial uses of receiving waters are maintained and, where applicable, restored. When site conditions are appropriate, infiltration can potentially be the most effective BMP for runoff treatment.

### *Supplemental Guidelines*

See Volume V of the 2005 Ecology Manual for more detailed guidance on selection, design, and maintenance of treatment facilities. The water quality design storm volume and flow rates are intended to capture and effectively treat about 90-95% of the annual runoff volume in western Washington. See Appendix I-B of Volume V of the 2005 Ecology Manual for background on their derivation.

Volume V of the 2005 Ecology Manual includes performance goals for Basic, Enhanced, Phosphorus, and Oil Control treatment, and a menu of facility options for each treatment type. Treatment facilities that are selected from the appropriate menu and designed in accordance with their design criteria are presumed to meet the applicable performance goals.

An adopted and implemented basin plan (Minimum Requirement #9), or a Total Maximum Daily Load (TMDL - also known as a Water Clean-up Plan) may be used to develop runoff treatment requirements that are tailored to a specific basin. However, treatment requirements shall not be less than that achieved by facilities in the Basic Treatment Menu (see Volume V, Chapter 3, of the 2005 Ecology Manual).

Treatment facilities applied consistent with this manual are presumed to meet the requirement of state law to provide all known available and reasonable methods of treatment (RCW 90.52.040, RCW 90.48.010). This technology-based treatment requirement does not excuse any discharge from the obligation to apply whatever technology is necessary to comply with state water quality standards, Chapter 173-201A WAC; state ground water quality standards, Chapter 173-200 WAC; state sediment management standards, Chapter 173-204 WAC; and the underground injection control program, Chapter 173-218 WAC. Additional treatment to meet those standards may be required by federal, state, or local governments.

Infiltration through use of On-site Stormwater Management BMPs can provide both treatment of stormwater, through the ability of certain soils to remove pollutants, and volume control of stormwater, by decreasing the amount of water that runs off to surface water. Infiltration through engineered treatment facilities that utilize the natural soil profile can also be very effective at treating stormwater runoff, but pretreatment must be applied and soil conditions must be appropriate to achieve effective treatment while not impacting ground water resources. See Chapter 6, Volume V of the 2005 Ecology Manual for design details.

Discharge of pollution-generating surfaces into a dry well, after pretreatment for solids reduction, can be acceptable if the soil conditions provide sufficient treatment capacity. Dry wells into gravelly soils are not likely to have sufficient treatment capability. They must be preceded by at least a basic treatment BMP. See Volume V, Chapters 2 and 7 of the 2005 Ecology Manual for details.

Impervious surfaces that are “fully dispersed” in accordance with BMP T5.30 in Volume V of the 2005 Ecology Manual are not considered effective impervious surfaces. PGIS surfaces that are “dispersed” in accordance with the BMPs in Section 5.1 of Volume V of the 2005 Ecology Manual are considered effective impervious surfaces. Porous pavers and Modular grid pavements are assigned a lower curve number (if using single event hydrology to size wetpools) and lower surface runoff calibrations (if using continuous runoff modeling). See Volume III of the 2005 Ecology Manual for a more complete description of hydrologic credits for On-site Stormwater Management BMPs.

## 2.5.7 Minimum Requirement 7: Flow Control

### *Applicability*

Projects must provide flow control to reduce the impacts of stormwater runoff from impervious surfaces and land cover conversions. The requirement below applies to projects that discharge stormwater directly, or indirectly through a conveyance system, into the Sammamish River in accordance with the following restrictions:

- Direct discharge to the Sammamish River does not result in the diversion of drainage from any perennial stream classified as Types 1, 2, 3, or 4 in the State of Washington Interim Water Typing System, or Types “S”, “F”, or “Np” in the Permanent Water Typing System, or from any category I, II, III or IV wetland (refer to BMC 14.04 for wetland definitions); and
- Flow splitting devices or drainage BMP’s are applied to route natural runoff volumes from the project site to any downstream Type 5 stream or category IV wetland:
  - Design of flow splitting devices or drainage BMP’s will be based on continuous hydrologic modeling analysis. The design will assure that flows delivered to Type 5 stream reaches will approximate, but in no case exceed, durations ranging from 50% of the 2-year to the 50-year peak flow.
  - Flow splitting devices or drainage BMP’s that deliver flow to category IV wetlands will also be designed using continuous hydrologic modeling to preserve pre-project wetland hydrologic conditions (BMC 14.04); and
- The project site must be drained by a conveyance system that is comprised entirely of manmade conveyance elements (e.g., pipes, ditches, outfall protection, etc.) and extends to the ordinary high water line of the exempt receiving water; and
- The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey discharges from future build-out conditions (under current zoning) of the site, and the existing condition from non-project areas from which runoff is or will be collected; and
- Any erodible elements of the manmade conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.

If the discharge is to a stream that leads to a wetland, or to a wetland that has an outflow to a stream, this requirement, requirements in BMC 14.04, and Minimum Requirement 8 apply.

The City of Bothell may petition Ecology to exempt projects in additional areas. A petition must justify the proposed exemption based upon a hydrologic analysis that demonstrates that the

potential stormwater runoff from the exempted area will not significantly increase the erosion forces on the stream channel nor have near field impacts as required by BMC 14.04.

### *Thresholds*

The following require construction of flow control facilities and/or land use management BMPs that will achieve the standard requirements for western Washington (see Tables 2.1, 2.2, and 2.3):

- Project disturbing less than 1 acre but not part of a larger common plan of development or sale, not within a geologically hazardous drainage area (GHDA), that add 10,000 sf or more of effective impervious surface within a threshold discharge area, or
- Projects disturbing more than one acre or less than 1 acre but part of a larger common plan of development or sale, in which the total of effective impervious surfaces is 10,000 square feet or more in a threshold discharge area, or
- Projects that add 2,000 sf or more of effective impervious surface to a threshold discharge area within a GHDA, or
- Projects that convert  $\frac{3}{4}$  acres or more of native vegetation to lawn or landscape, or convert 2.5 acres or more of native vegetation to pasture in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site, or
- Projects that through a combination of effective impervious surfaces and converted pervious surfaces cause a 0.1 cubic feet per second increase in the 100-year flow frequency from a threshold discharge area as estimated using the Western Washington Hydrology Model or other approved model.

That portion of any development project in which the above thresholds are not exceeded in a threshold discharge area shall apply On-site Stormwater Management BMPs in accordance with Minimum Requirement #5.

Table 2. Flow control requirements by threshold discharge area.

Flow Control Requirements by Threshold Discharge Area		
	Flow Control Facilities	On-site Stormwater Management BMPs
< ¼ acres conversion to lawn/landscape, or < 2.5 acres to pasture		X
≥¼ acres conversion to lawn/landscape, or > 2.5 acres to pasture	X	X
< 10,000 square feet of effective impervious area		X
≥ 10,000 square feet of effective impervious area	X	X
≥ 0.1 cubic feet per second increase in the 100-year flood frequency	X	X

### *Standard Requirement*

Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. The pre-developed condition to be matched shall be a forested land cover unless:

- 1) If the site disturbs less than 1 acre, and is not part of a larger common plan of development or sale, than the pre-development condition to be matched shall be the existing land cover.
- 2) reasonable, historic information is provided that indicates the site was prairie prior to settlement (modeled as “pasture” in the Western Washington Hydrology Model); or,
- 3) the drainage area of the immediate stream and all subsequent downstream basins have had at least 40% total impervious area since 1985. In this case, the pre-developed condition to be matched shall be the existing land cover condition. Where basin-specific studies determine a stream channel to be unstable, even though the above criterion is met, the pre-developed condition assumption shall be the “historic” land cover condition, or a land cover condition commensurate with achieving a target flow regime identified by an approved basin study.

This standard requirement is waived for sites that will reliably infiltrate all the runoff from impervious surfaces and converted pervious surfaces.

### *Alternative Requirement*

An alternative requirement may be established through application of watershed-scale hydrological modeling and supporting field observations. Flow control alternatives are not currently established in Bothell but may be in the future. Possible reasons for an alternative flow control requirement include:

- Establishment of a stream-specific threshold of significant bedload movement other than the assumed 50% of the 2-year peak flow;
- Zoning and Land Clearing Ordinance restrictions that, in combination with an alternative flow control standard, maintain or reduce the naturally occurring erosive forces on the stream channel; or
- A duration control standard is not necessary for protection, maintenance, or restoration of designated beneficial uses or Clean Water Act compliance.

### *Additional Requirement*

Flow Control facilities shall be selected, designed, and maintained according to this manual and the 2005 Ecology Manual. On-site stormwater Management BMPs shall be selected, designed, and maintained in accordance with this manual and the 2005 Ecology Manual.

### *Objective*

To prevent increases in the stream channel erosion rates that are characteristic of natural conditions (i.e., prior to disturbance by European settlement). The standard intends to maintain the total amount of time that a receiving stream exceeds an erosion-causing threshold based upon historic rainfall and natural land cover conditions. That threshold is assumed to be 50% of the 2-year peak flow. Maintaining the naturally occurring erosion rates within streams is vital, though by itself insufficient, to protect fish habitat and production.

### *Supplemental Guidelines*

Reduction of flows through infiltration decreases stream channel erosion and helps to maintain base flow throughout the summer months. However, infiltration should only be used where ground water quality is not threatened by such discharges.

Volume III includes a description of the Western Washington Hydrology Model. The model provides credits for use of certain On-site Stormwater Management BMPs described in Volume V, and other low impact development techniques described in Appendix C of Volume III of the 2005 Ecology Manual. Using those BMPs and LID techniques reduces the size of the required flow control facilities.

Application of sufficient types of On-site Stormwater Management BMPs can result in reducing the effective impervious area and the converted pervious areas such that a flow control facility is

not required. Application of “Full Dispersion”, BMP T5.30, also results in eliminating the flow control facility requirement for those areas that are “fully dispersed.”

See the supplemental guidelines for Minimum Requirement #8 and directions concerning use of the Western Washington Hydrology Model for information about tracking wetland hydrologic conditions.

Diversions of flow from perennial streams and from wetlands can be considered if significant existing (i.e., pre-project) flooding, stream stability, water quality, or aquatic habitat problems would be solved or significantly mitigated by bypassing stormwater runoff rather than providing stormwater detention and discharge to natural drainage features. Bypassing should not be considered as an alternative to applicable flow control or treatment if the flooding, stream stability, water quality or habitat problem to be solved would be caused by the project. In addition, the proposal should not exacerbate other water quality/quantity problems such as inadequate low flows or inadequate wetland water elevations. In all instances, the diversion of flow shall be consistent with BMC 14.04.

The existing problems and their solution or mitigation as a result of the direct discharge should be documented by a stormwater engineer AND biological scientist after review of any available drainage reports, basin plans, critical area reports, special studies, or other relevant literature. The restrictions in this minimum requirement on conveyance systems that transfer water to an exempt receiving water are applicable in these situations. Approvals from all regulatory authorities with relevant permits applicable to the project are required.

The Department of Ecology has published a listing of 20-year/40% Total Impervious Areas (TIA) in Western Washington. Listings were developed from satellite images taken in 1990, 1995, and 2000. No area within the City of Bothell was identified by Washington Department of Ecology as qualifying for the 20 year/40% TIA exemption. The 1991 Criterion TIA map and additional mapping data can be found at:

<http://www.ecy.wa.gov/services/gis/data/impervious/basins.htm>.

The City of Bothell can use these and local information sources to identify basins that meet the 40% TIA/20 year criterion. Basin plans will be created or updated with 40% TIA/20 year criterion as such plans, and associated basin studies, are feasible. The application of the 40% TIA/20-year criterion will be determined by the City of Bothell and not by project proponents.

The Dept. of Ecology hopes to publish guidance concerning basin studies to develop basin-specific flow control strategies intended to stabilize stream channels and provide flows intended to protect and restore beneficial uses such as fish resources. Until such guidance is published, the reader can review procedures used in the Des Moines Creek basin plan. The recommendations made in basin plans should be consistent with the requirements and intent of the federal Clean Water Act, the State Water Pollution Control Act, and any other applicable natural resources statutes, such as the Federal Endangered Species Act.

## 2.5.8 Minimum Requirement 8: Wetland Protection

### *Applicability*

The requirements below apply only to projects whose stormwater discharges into a wetland, either directly or indirectly through a conveyance system. These requirements must be met in addition to meeting Minimum Requirement #6, Runoff Treatment. Project proponents are also required to comply with Bothell Municipal Code 14.04 to protect wetlands.

### *Thresholds*

The thresholds identified in Minimum Requirement #6 - Runoff Treatment, and Minimum Requirement #7 - Flow Control shall also be applied for discharges to wetlands.

### *Standard Requirement*

Discharges to wetlands shall maintain the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated uses. The hydrologic analysis shall use the existing land cover condition to determine the existing hydrologic conditions unless directed otherwise by a regulatory agency with jurisdiction. A wetland can be considered for hydrologic modification and/or stormwater treatment in accordance with Guide Sheet 1B in Appendix I-D of the 2005 Ecology Manual.

### *Additional Requirements*

The standard requirement does not excuse any discharge from the obligation to apply whatever technology is necessary to comply with state water quality standards, Chapter 173-201A WAC, or state ground water standards, Chapter 173-200 WAC. Additional treatment requirements to meet those standards may be required by federal, state, or the City of Bothell.

Stormwater treatment and flow control facilities shall not be built within a natural vegetated buffer. Conveyance may be built within a vegetated buffer in compliance with BMC 14.04.

An adopted and implemented basin plan (Minimum Requirement #9), or a Total Maximum Daily Load (TMDL, also known as a Water Clean-up Plan) may be used to develop requirements for wetlands that are tailored to a specific basin.

### *Objective*

To ensure that wetlands receive the same level of protection as any other waters of the state. Wetlands are extremely important natural resources which provide multiple stormwater benefits, including ground water recharge, flood control, and stream channel erosion protection. They are easily impacted by development unless careful planning and management are conducted. Wetlands can be severely degraded by stormwater discharges from urban development due to pollutants in the runoff and also due to disruption of natural hydrologic functioning of the wetland

system. Changes in water levels and the frequency and duration of inundations are of particular concern.

## 2.5.9 Minimum Requirement 9: Basin/Watershed Planning

Projects may be subject to equivalent or more stringent minimum requirements for erosion control, source control, treatment, and operation and maintenance, and alternative requirements for flow control and wetlands hydrologic control as identified in Basin/Watershed Plans. Basin/Watershed plans shall evaluate and include, as necessary, retrofitting urban stormwater BMPs into existing development and/or redevelopment in order to achieve watershed-wide pollutant reduction and flow control goals that are consistent with requirements of the federal Clean Water Act. Standards developed from basin plans shall not modify any of the above minimum requirements until the basin plan is formally adopted and implemented by the City of Bothell within the basin, and approved or concurred with by Ecology.

### *Objective*

To promote watershed-based planning as a means to develop and implement comprehensive, water quality protection measures. Primary objectives of basin planning are to reduce pollutant loads and hydrologic impacts to surface and ground waters in order to protect beneficial uses.

### *Supplemental Guidelines*

Though Minimum Requirements #1 through #8 establish general standards for individual sites, they do not evaluate the overall pollution impacts and protection opportunities that could exist at the watershed level. In order for a basin plan to serve as a means of modifying the minimum requirements the following conditions must be met:

- the plan must be formally adopted by all jurisdictions with responsibilities under the plan and
- all ordinances or regulations called for by the plan must be in effect.

This is what is meant by an adopted and implemented basin plan.

Basin planning provides a mechanism by which the minimum requirements and implementing BMP's can be evaluated and refined based on an analysis of an entire watershed. Basin plans are especially well suited to develop control strategies to address impacts from future development and to correct specific problems whose sources are known or suspected. Basin plans can be effective at addressing both long-term cumulative impacts of pollutant loads and short-term acute impacts of pollutant concentrations, as well as hydrologic impacts to streams, wetlands, and ground water resources. The USGS has developed software called "GenScn" (Generation and Analysis of Model Simulation Scenarios) that can facilitate basin planning. The program is a Windows-based use of HSPF that predicts water quality and quantity changes for multiple scenarios of land use and water management within a basin.

Examples of how Basin Planning can alter the minimum requirements of this manual are given in Appendix I-A of the 2005 Ecology Manual.

## 2.5.10 Minimum Requirement 10: Operation and Maintenance

An operation and maintenance manual that is consistent with the provisions in Volume V of the 2005 Ecology Manual shall be provided for all proposed stormwater facilities and BMPs, and the party (or parties) responsible for maintenance and operation shall be identified. At private facilities, a copy of the manual shall be retained on-site or within reasonable access to the site, and shall be transferred with the property to the new owner. For public facilities, a copy of the manual shall be retained in the appropriate department of the City.

A log of maintenance activity that indicates what actions were taken shall be kept and be available for inspection by the City of Bothell. The log shall include the dates maintenance occurred, the extent of the maintenance, the name of the company providing maintenance, and the name/address of the disposal site where maintenance waste was disposed of.

### *Objective*

To ensure that stormwater control facilities are adequately maintained and operated properly.

### *Supplemental Guidelines*

Inadequate maintenance is a common cause of failure for stormwater control facilities. The description of each BMP in Volumes II, III, and V of the 2005 Ecology Manual includes a section on maintenance. Chapter 4 of Volume V of the 2005 Ecology Manual includes a schedule of maintenance standards for drainage facilities.

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## 2.6 Additional Requirements

### 2.6.1 Financial Guarantees

All drainage facilities constructed or modified for projects (except downspout infiltration and dispersion systems), and any work performed in the right-of-way, must comply with the financial guarantees requirements in Chapter 1, section 1-5 of the City of Bothell Design and Construction Standards and Specifications. Refer to Chapter 1 for performance and maintenance bond requirements.

### 2.6.2 Offsite Analysis and Mitigation

Development projects that discharge stormwater offsite shall submit an offsite analysis report that assesses the potential off-site water quality, erosion, slope stability, and drainage impacts associated with the project and that proposes appropriate mitigation of those impacts.

An initial qualitative analysis shall extend downstream for the entire flow path from the project site to the receiving water or up to one mile, whichever is less. If a receiving water is within one-quarter mile, the analysis shall extend within the receiving water to one-quarter mile from the project site.

The analysis shall extend one-quarter mile beyond any improvements proposed as mitigation. The analysis must extend upstream to a point where any backwater effects created by the project cease. Upon review of the qualitative analysis, the City of Bothell may require that a quantitative analysis be performed.

The existing or potential impacts to be evaluated and mitigated shall include:

- Conveyance system capacity problems;
- Localized flooding;
- Upland erosion impacts, including landslide hazards;
- Stream channel erosion at the outfall location;
- Violations of surface water quality standards as identified in a Basin Plan or a TMDL (Water Clean-up Plan); or violations of ground water standards in a wellhead protection area.

#### *Objective*

To identify and evaluate offsite water quality, erosion, slope stability, and drainage impacts that may be caused or aggravated by a proposed project, and to determine measures for preventing impacts and for not aggravating existing impacts. Aggravated shall mean increasing the frequency of occurrence and/or severity of a problem.

#### *Supplemental Guidelines*

Some of the most common and potentially destructive impacts of land development are erosion of downgradient properties, localized flooding, and slope failures. These are caused by increased surface water volumes and changed runoff patterns.

Projects shall be required to initially submit, with the permit application, a qualitative analysis of each downstream system leaving a site. The analysis shall accomplish four tasks:

***Task 1 - Define and map the study area***

(1) a site map showing property lines, and (2) the best available topographical map (e.g., from the Bothell Department of Public Works, Sewer District, or at a minimum a USGS 1:24000 Quadrangle Topographic map) with the study area boundaries, site boundaries, downstream flowpath, and potential/existing problems (Task 4) shown. Other maps, diagrams, and photographs such as aerial photos may be helpful in describing the study area.

***Task 2 - Review all available information on the study area***

To assist the design engineer in preparing an offsite analysis, Bothell has gathered information regarding existing and potential flooding and erosion problems. For all levels of analysis, all of the resources described below shall be reviewed for existing/potential problems in the study area (upstream and one mile downstream of the project site):

- Adopted basin plans (available at the Bothell Department of Public Works)
- Finalized drainage studies (available at the Bothell Department of Public Works)
- Basin Reconnaissance Summary Reports and 1"=400'scale problem summary maps (available at the Bothell Department of Public Works)
- Floodplain/floodway (FEMA) maps (available at the Bothell Department of Public Works)
- Other offsite analysis reports in the same subbasin, if available (check with the Bothell Department of Public Works records staff)
- Critical Areas Map (available from the Bothell Community Development Department must be used to document the distance downstream from proposed project to nearest critical areas identified on the map). Maps are also available from the City of Bothell website ([www.ci.bothell.wa.us](http://www.ci.bothell.wa.us).)
- Road drainage problems (check with the City of Bothell Public Works Maintenance Dept. )
- U.S. Department of Agriculture, *King County* Soils Survey (available at the Bothell Department of Public Works)
- Wetlands Inventory maps (available from the Bothell Community Development Department, also online at [www.ci.bothell.wa.us](http://www.ci.bothell.wa.us))

Potential/existing problems identified in the above documents shall be documented. If a document is not available for the site, note in the report that the information was not available as of a particular date. If necessary, additional resources are available from the City of Bothell, the Washington State Department of Fisheries and Wildlife (DFW), the State Department of Ecology (DOE), the United States Army Corps of Engineers (Corps), and the Public Works departments of other municipalities in the vicinity of the proposed project site.

***Task 3 - Field inspect the study area***

The design engineer should physically inspect the existing on- and off-site drainage systems of the study area for each discharge location for existing or potential problems and drainage features. An initial inspection and investigation should include:

- Investigate problems reported or observed during the resource review
- Locate existing/potential constrictions or capacity deficiencies in the drainage system
- Identify existing/potential flooding problems
- Identify existing/potential overtopping, scouring, bank sloughing, or sedimentation
- Identify significant destruction of aquatic habitat (e.g., siltation, stream incision)
- Collect qualitative data on features such as land use, impervious surface, topography, soils, presence of streams, wetlands
- Collect information on pipe sizes, channel characteristics, drainage structures
- Verify tributary drainage areas identified in task 1
- Contact the City of Bothell Public Works Department, neighboring property owners, and residents about drainage problems
- Note date and weather at time of inspection

***Task 4 - Describe the drainage system, and its existing and predicted problems***

For each drainage system component (e.g., pipe, culvert, bridges, outfalls, ponds, vaults) the following will be covered in the analysis: location, physical description, problems, and field observations.

All existing or potential problems (e.g., ponding water, erosion) identified in tasks 2 and 3 above shall be described. The descriptions shall be used to determine whether adequate mitigation can be identified, or whether more detailed quantitative analysis is necessary. The following information should be provided for each existing or potential problem:

- Magnitude of or damage caused by the problem
- General frequency and duration
- Return frequency of storm or flow when the problem occurs (may require quantitative analysis)
- Water elevation when the problem occurs
- Names and concerns of parties involved
- Current mitigation of the problem
- Possible cause of the problem
- Whether the project is likely to aggravate the problem or create a new one.

Upon review of this analysis, the City of Bothell may require mitigation measures deemed adequate for the problems, or a quantitative analysis, depending upon the presence of existing or predicted flooding, erosion, or water quality problems, and on the proposed design of the on-site drainage facilities. The analysis should repeat tasks 3 and 4 above, using quantitative field data including profiles and cross-sections.

The quantitative analysis shall provide information on the severity and frequency of an existing problem or the likelihood of creating a new problem. It shall evaluate proposed mitigation intended to avoid aggravation of the existing problem and to avoid creation of a new problem.

### ***Downstream Problems Requiring Special Attention***

While the flow controls serve to minimize the creation and aggravation of many types of downstream drainage problems, there are some types that are more sensitive to aggravation than others depending on the nature or severity of the problem. In particular, there are four types of downstream problems where the City has determined that the nature and/or severity of the problem warrants additional attention through the downstream analysis and possibly additional mitigation to ensure no aggravation:

- Conveyance system nuisance problems.
- Severe erosion problems.
- Severe flooding problems.
- Impacts upon critical areas (i.e. wetlands, fish habitat and passage, streams)

Conveyance system nuisance problems are minor but chronic flooding or erosion problems that result from the overflow of a constructed conveyance system that is substandard or has become too small due to upstream development, see definition below. Such problems warrant additional attention because of their chronic nature and because they result from the failure of a conveyance system to provide a minimum acceptable level of protection. Severe flooding and erosion problems as defined below also warrant additional attention because they either pose a significant threat to health and safety or can cause significant damage to public or private property.

### ***Conveyance System Nuisance Problems***

Nuisance problems in general are defined as any existing or predicted flooding or erosion that does not constitute a severe flooding or erosion problem as defined below. Conveyance system nuisance problems are defined as any nuisance flooding or erosion that results from the overflow of a constructed conveyance system for runoff events less than or equal to a 10-year event. Examples include inundation of a shoulder or lane of a roadway, overflows collecting in yards or pastures, shallow flows across driveways, minor flooding of crawl spaces or unheated garages/outbuildings, and minor erosion.

If a conveyance system nuisance problem is identified or predicted downstream, the need for additional mitigation must be evaluated as specified in "Problem-Specific Mitigation Requirements" below. This may entail additional on-site flow control or other measures as needed to prevent creation or significant aggravation of the problem.

For any other nuisance problem, which may be identified downstream, this manual does not require mitigation beyond the flow control minimum requirements. This is because to prevent aggravation of such problems (e.g., those caused by the elevated water surfaces of ponds, lakes, wetlands, and closed depressions or those involving downstream erosion) can require two to three times as much on-site detention volume, which is considered unwarranted for addressing nuisance problems. However, if under some unusual circumstance, the aggravation of such a nuisance problem is determined by Public Works to be a significant adverse impact,

additional mitigation may be required, through the State of Washington Environmental Policy Act.

### ***Severe Erosion Problems***

Severe erosion problems are defined as downstream channels, ravines, or slopes with evidence of or potential for erosion/incision sufficient to pose a sedimentation hazard to downstream conveyance systems or pose a landslide hazard by undercutting adjacent slopes. Severe erosion problems do not include roadway shoulder rilling or minor ditch erosion.

If a severe erosion problem is identified or predicted downstream, additional mitigation must be considered. This may entail additional on-site flow control or other measures as needed to prevent creation or aggravation of the problem.

### ***Severe Flooding Problems***

Severe flooding problems can be caused by conveyance system overflows or the elevated water surfaces of ponds, lakes, wetlands, or closed depressions. Severe flooding problems are defined as follows:

Flooding of the finished area of a habitable building, or the electrical/heating , system of a habitable building for runoff events less than or equal to a 100-year event. Examples include flooding of finished floors of homes and commercial or industrial buildings, or flooding of electrical heating system components in the crawl space or garage of a home. Such problems are referred to in this manual as “severe building flooding problems.”

Flooding over all lanes of a roadway or severely impacting a sole access driveway for runoff events less than or equal to the 100-year event. Such problems are referred to in this manual as “severe roadway flooding problems.”

If a severe flooding problem is identified or predicted downstream, the need for additional mitigation must be evaluated. This may entail consideration of additional on-site flow control or other measures as needed to prevent creation or significant aggravation of the problem.

### ***Impact Mitigation***

A proposed project must not significantly aggravate existing downstream problems or create new problems as a result of developing the site. This manual does not require development proposals to fix or otherwise reduce the severity of existing downstream drainage problems, although doing so may be an acceptable mitigation.

### ***Principles of Impact***

Aggravation of an existing downstream problem means increasing the frequency of occurrence and/or severity of the problem. Increasing peak flows at the site of a problem caused by conveyance system overflows can increase the frequency of the problem’s occurrence. Increasing durations of flows at or above the overflow return frequency can increase the severity

of the problem by increasing the depth and duration of flooding. Controlling peaks and durations through on-site detention can prevent aggravation of such problems by releasing the increased volumes due to development only at return frequencies below the conveyance overflow return frequency, with the net result of causing the conveyance system to flow full for a longer period of time.

When a problem is caused by high water-surface elevations of a volume-sensitive water body, such as a lake, wetland, or closed depression, aggravation means the same as for problems caused by conveyance overflows. Increasing the volume of flows to a volume-sensitive water body can increase the frequency of the problem's occurrence. Increasing the duration of flows for a range of return frequencies both above and below the problem return frequency can increase the severity of the problem; mitigating these impacts requires control of flow durations for a range of return frequencies both above and below the problem return frequency. The net effect of this duration control is to release the increased volumes due to development only at water surface elevations below that causing the problem, which in turn can cause an increase in these lower, but more frequently occurring, water surface elevations. This underscores an unavoidable impact of development upstream of volume-sensitive water bodies: the increased volumes generated by the development will cause some range of increase in water surface elevations, no matter what detention standard is applied.

Creating a new problem means increasing peak flows and/or volumes such that after development, the frequency of conveyance overflows or water surface elevations exceeds the thresholds for the various problem types discussed.

The potential for causing a new problem is often identified during the qualitative offsite analysis, where the observation of a reduction in downstream pipe sizes, for example, may be enough to predict creation of a new problem. A quantitative offsite analysis will typically be required to verify the capacity of the system and determine whether 100-year flows can be safely conveyed.

### ***Significance of impacts to Existing Problems***

The determination of whether additional on-site mitigation or other measures are needed to address an existing downstream problem depends on the significance of the proposed project's predicted impact on that problem. For some identified problems, Public Works will make the determination as to whether the project's impact is significant enough to require additional mitigation.

For conveyance system nuisance problems, the problem is considered significantly aggravated if there is any increase in the project's contribution to the frequency of occurrence and/or severity of the problem for runoff events less than or equal to the 10-year event. Note: Increases in the project's contribution to this type of problem are considered to be prevented if sufficient on-site flow control and/or offsite improvements are provided.

For severe erosion problems, the problem is considered significantly aggravated if there is any increase in project's contribution to the flow duration of peak flows ranging from 50% of the 2-year peak flow up to the full 50-year peak flow at the eroded area.

For severe building flooding problems, the problem is considered significantly aggravated if there is any increase in the project's contribution to the frequency, depth, and/or duration of the problem for runoff events less than or equal to the 100-year event.

For severe roadway flooding problems, the problem is considered significantly aggravated if any of the following thresholds are exceeded and there is any increase in the project's contribution to the frequency, depth, and/or duration of the problem for runoff events less than or equal to the 100-year event:

The existing flooding over all lanes of a roadway or overtopping the culverted section of a "sole access driveway" is predicted to increase in depth more than a quarter-inch or 10% (whichever is greater) for the 100-year runoff event.

The "existing flooding" over all lanes of a roadway or "severely impacting a sole access driveway" is more than 6 inches deep or faster than 5 feet per second for runoff events less than or equal to the 100-year event.

The "existing flooding" over all lanes of a sole access roadway is more than 3 inches deep or faster than 5 feet per second for runoff events less than or equal to the 100-year event, or is at any depth for runoff events less than or equal to the 10-year event.

### ***Problem Specific Mitigation Requirements***

IF a proposed project or threshold discharge area within a project drains to one or more of the three types of downstream drainage problems as identified through an offsite analysis, THEN the applicant must do one of the following:

- Submit a quantitative downstream analysis demonstrating that the proposed project will not create or significantly aggravate the identified downstream problem(s), OR
- Document that the flow control standard required is adequate to prevent creation or significant aggravation of the identified downstream problem(s) OR
- Provide additional on-site flow control necessary to prevent creation or significant aggravation of the downstream problem(s).
- Provide offsite improvements necessary to prevent creation or significant aggravation of the identified downstream problem(s)

OR

- Provide a combination of additional on-site flow control and offsite improvements sufficient to prevent creation or significant aggravation of the downstream problem(s) as demonstrated by a quantitative offsite analysis.

IF it is identified that the manner of discharge from a proposed project may create a significant adverse impact as described in Minimum Requirement 4, THEN Public Works may require the applicant to implement additional measures or demonstrate the impact will not occur.

### *Objective*

To ensure provisions are made (if necessary) to prevent creation or significant aggravation of the three types of downstream problems requiring special attention by this manual, and to ensure compliance with the discharge requirements of Minimum Requirement 4.

In addressing downstream problems per Problem-Specific Mitigation Requirement above, the easiest of the provisions to implement will often be that of additional on-site flow control. This involves designing the required on-site flow control facility to meet an additional set of performance criteria targeted to prevent significant aggravation of specific downstream problems.

Note that in some cases the minimum flow control standard applicable to the proposed project is already sufficient to prevent significant aggravation of many of the defined downstream problem types.

## 2.7 Adjustments

Adjustments to the Minimum Requirements may be granted prior to permit approval and construction. The City of Bothell may grant an adjustment. Refer to BMC 18.02.040 Permissible Alternatives to Bothell Standards for requirements and procedures to request adjustments.

## 2.8 Exceptions/Variations

Exceptions/variances (exceptions) to the Minimum Requirements may be granted by the City of Bothell. Refer to Bothell Municipal Code (BMC) 18.08 for information.

## Chapter 3 - Preparation of Stormwater Site Plans

The Stormwater Site Plan is the comprehensive report containing all of the technical information and analysis necessary for the City of Bothell to evaluate a proposed new development or redevelopment project for compliance with stormwater requirements. Contents of the Stormwater Site Plan will vary with the type and size of the project, and individual site characteristics.

The scope of the Stormwater Site Plan also varies depending on the applicability of Minimum Requirements (section 2, volume I, 2.4 of this manual).

This chapter describes the contents of a Stormwater Site Plan and provides a general procedure for how to prepare the plan. The specific BMPs and design methods and standards to be used are contained in Volumes II-V of the 2005 Ecology Manual. The content of, and the procedures for preparing a Construction Stormwater Pollution Prevention Plan (SWPPP) are covered in detail in Chapter 3 of Volume II of the 2005 Ecology Manual. Guidelines for selecting BMPs are given in Chapter 4, Volume I of the 2005 Ecology Manual. Site plans, or portions of site plans, are required for a specific permit can be found in Section 3 of this manual.

The goal of this chapter is to provide a framework for uniformity in plan preparation. Such uniformity will promote predictability throughout the region and help secure prompt governmental review and approval. Properly drafted engineering plans and supporting documents will also facilitate the operation and maintenance of the proposed system long after its review and approval.

State law requires that engineering work be performed by or under the direction of a professional engineer licensed to practice in Washington State. Plans involving construction of treatment facilities or flow control facilities (detention ponds or infiltration basins), structural source control BMPs, or drainage conveyance systems generally involve engineering principles and should be prepared by or under the direction of a licensed engineer. Construction Stormwater Pollution Prevention Plans (SWPPPs) that involve engineering calculations must also be prepared by or under the direction of a licensed engineer.

Drainage review for a proposed project's impact on surface and storm waters may be addressed by processes or requirements apart from Bothell's. Agencies such as those listed below may require some form of drainage review and impose drainage requirements that are separate from and in addition to Bothell's drainage requirements. The applicant is responsible for coordinating with these agencies and resolving any conflicts in drainage requirements.

**Table 3. Other agencies with jurisdiction and permits.**

Agency	Permit/Approval
<b>Seattle/King County Department of Public Health</b> <b>Washington State</b> <b>Department of Transportation</b> <b>Department of Fish and Wildlife</b> <b>Department of Ecology</b> <b>Department of Natural Resources</b>  <b>United States Army Corps of Engineers</b>	<b>On-site Sewage Disposal and Well permits</b>  <b>Developer/Local Agency Agreement</b> <b>Hydraulic Project Approval</b> <b>Short Term Water Quality Modification Approval</b> <b>NPDES Stormwater Permits</b> <b>Dam Safety Permit</b> <b>Forest Practices Class III Permit</b> <b>Sections 10, 401, and 404 Permits</b>

### 3.1 Stormwater Site Plans: Step-By-Step

The steps involved in developing a Stormwater Site Plan are listed below.

1. Collect and Analyze Information on Existing Conditions
2. Prepare Preliminary Development Layout
3. Perform Off-site Analysis
4. Determine Applicable Minimum Requirements
5. Prepare a Permanent Stormwater Control Plan
6. Prepare a Construction Stormwater Pollution Prevention Plan
7. Complete the Stormwater Site Plan
8. Check Compliance with All Applicable Minimum Requirements

#### 3.1.1 Step 1 - Collect and Analyze Information on Existing Conditions

The project overview must provide a general description of the project, predeveloped and developed conditions of the site, site area and size of the improvements, and the pre- and post-developed stormwater runoff conditions. The overview should summarize difficult site parameters, the natural drainage system, and drainage to and from adjacent properties, including bypass flows. Identify the natural receiving waters that the stormwater runoff either directly or eventually (after flowing through the downstream conveyance system) discharges to,

and any area-specific requirements established in local plans, ordinances, or regulations or in Water Clean-up Plans approved by Ecology.

The following figures are required to complete Step 1 of the Stormwater Site Plan:

***Figure 1. Site Plan Checklist***

Include a copy of the Site Plan checklist, specific to the development permit type, provided by the City of Bothell Community Development Department.

***Figure 2. Site Location***

Provide a map that shows the general location of the site. Identify all roads that border the site and all significant geographic features and environmentally critical areas (lakes, streams, steep slopes, wetlands, buffers, etc.).

***Figure 3. Drainage Basins, Sub basins, and Site Characteristics***

This figure shall display the following:

1. Show acreage of subbasins.
2. Identify all site characteristics.
3. Show existing runoff discharge points to and from the site.
4. Show routes of existing, construction, and future flows at all discharge points and downstream hydraulic structures.
5. Use a minimum USGS 1:2400 topographic map as a base for the figure.
6. Show (and cite) the length of travel from the farthest upstream end of a proposed storm system in the development to any proposed flow control facility.

***Figure 4. Soils***

Show the soils within the following areas:

1. The project site
2. The area draining to the site
3. The drainage system downstream of the site for the distance required by the offsite analysis (see Volume I, section 2.6.2).

All projects creating lots less than 22,000 square feet) must evaluate on-site soils for suitability for on-site stormwater management (minimum requirement 5). This soils report, as well as geotechnical investigations necessary for proposed infiltration facilities, shall be submitted under the Site Plan section titled Special Reports and Studies.

### 3.1.2 Step 2 - Prepare Preliminary Development Layout

Based upon the analysis of existing site conditions, locate the buildings, roads, parking lots, critical areas, and landscaping features for the proposed development. Consider the following points when laying out the site:

- Fit development to the terrain to minimize land disturbance;  
Confine construction activities to the least area necessary, and away from critical areas;
- Preserve areas with natural vegetation (especially forested areas) as much as possible;
- On sites with a mix of soil types, locate impervious areas over less permeable soil (e.g., till), and try to restrict development over more porous soils (e.g., outwash);
- Cluster buildings together;
- Minimize impervious areas; and
- Maintain and utilize the natural drainage patterns.
- Adhere to Bothell Municipal Code requirements regarding building location(s), pedestrian facilities, and existing trees.

The development layout designed here will be used for determining threshold discharge areas, for calculating whether size thresholds under Minimum Requirements #6, #7, and #8 are exceeded (see Figure 2.1, 2.2, 2.3), and for the drawings and maps required for the Stormwater Site Improvement Plan.

### 3.1.3 Step 3 - Perform Off-site Analysis

The phased offsite analysis approach outlined in Section 2, Volume I, 2.6.2 is required. This phased approach relies first on a qualitative analysis. If the qualitative analysis indicates a potential problem, the City of Bothell may require mitigation and/or a quantitative analysis. For more information, see Section 2, Volume I, 2.6.2 of this manual. All sites that trigger drainage review shall, at a minimum, conduct a qualitative offsite analysis.

### 3.1.4 Step 4 - Determine Applicable Minimum Requirements

Section 2, Volume I, 2.5 of this manual establishes project size thresholds for the application of Minimum Requirements to new development and redevelopment projects. Figures 2.1, 2.2, and 2.3 provide the same thresholds in a flow chart format.

### 3.1.5 Step 5 - Prepare a Permanent Stormwater Control Plan

Select stormwater control BMPs and facilities that will serve the project site in its developed condition. This selection process is presented in detail in the 2005 Ecology Manual, Chapter 4 of Volume I.

A preliminary design of the BMPs and facilities is necessary to determine how they will fit within and serve the entire preliminary development layout. After a preliminary design is developed, the designer may want to reconsider the site layout to reduce the need for construction of facilities, or the size of the facilities by reducing the amount of impervious surfaces created and

increasing the areas to be left undisturbed. After the designer is satisfied with the BMP and facilities selections, the information must be presented within a Drainage Review Permanent Stormwater Control Plan. The Drainage Review and Final Permanent Stormwater Control Plan should contain the following sections:

### ***Permanent Stormwater Control Plan - Existing Site Hydrology***

If flow control facilities are proposed to comply with Minimum Requirement #7, provide a listing of assumptions and site parameters used in analyzing the pre-developed site hydrology. The acreage, soil types, and land covers used to determine the pre-developed flow characteristics, along with basin maps, graphics, and exhibits for each subbasin affected by the project should be included.

For projects less than one acre and not part of a larger common plan of development or sale, the predevelopment land cover is the existing land cover.

For projects one acre or larger, or less than one acre but part of a larger common plan of development or sale, the pre-developed condition to be matched shall be forested land cover unless reasonable, historic information indicates the site was prairie prior to settlement.

Provide a topographic map, of sufficient scale and contour intervals to determine basin boundaries accurately, and showing:

- Delineation and acreage of areas contributing runoff to the site;
- Flow control facility location;
- Outfall;
- Overflow route; and
- All natural streams, wetlands, buffers, and drainage features.

The direction of flow, acreage of areas contributing drainage, and the limits of development should be indicated. Each basin within or flowing through the site should be named and model input parameters referenced.

### ***Permanent Stormwater Control Plan - Developed Site Hydrology***

#### ***All Projects:***

Totals of impervious surfaces, pollution-generating impervious surfaces, and pollution generating pervious surfaces must be tabulated for each threshold discharge area for which On-site Stormwater Management BMPs are the sole stormwater management approach. These are needed to verify that the thresholds for application of treatment facilities (Minimum Requirements #6 and #8) and flow control facilities (Minimum Requirement #7 and #8) are not exceeded.

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***Projects and Threshold Discharge Areas within Projects That Require Treatment and Flow Control Facilities:***

Provide narrative, mathematical, and graphic presentations of model input parameters selected for the developed site condition, including acreage, soil types, and land covers, road layout, and all drainage facilities.

Developed basin areas, threshold discharge areas, and flows should be shown on a map and cross-referenced to computer printouts or calculation sheets. Developed basin flows should be listed and tabulated.

Any documents used to determine the developed site hydrology should be included. Whenever possible, maintain the same basin name as used for the pre-developed site hydrology. If the boundaries of a basin have been modified by the project, that should be clearly shown on a map and the name modified to indicate the change.

Final grade topographic maps shall be provided. Finished floor elevations shall also be provided.

***Permanent Stormwater Control Plan - Performance Standards and Goals***

If treatment facilities are proposed, provide a listing of the water quality menus used (2005 Ecology Manual, Volume V, Chapter 3). If flow control facilities are proposed, provide a confirmation of the flow control standard being achieved (e.g., the Ecology flow duration standard).

***Permanent Stormwater Control Plan - Flow Control System***

Provide a drawing of the flow control facility and its appurtenances. This drawing must show basic measurements necessary to calculate the storage volumes available from zero to the maximum head, all orifice/restrictor sizes and head relationships, control structure/restrictor placement, and placement on the site.

Include computer printouts, calculations, equations, references, storage/volume tables, graphs as necessary to show results and methodology used to determine the storage facility volumes. Where the Western Washington Hydrology Model (WWHM), or other approved runoff model, is used, its documentation files should be included.

***Permanent Stormwater Control Plan - Water Quality System***

Provide a drawing of the proposed treatment facilities, and any structural source control BMPs. The drawing must show overall measurements and dimensions, placement on the site, location of inflow, bypass, and discharge systems.

Include WWHM or other approved model printouts, calculations, equations, references, and graphs as necessary to show the facilities are designed consistent with the 2005 Ecology Manual Volume V requirements and design criteria.

### ***Permanent Stormwater Control Plan - Conveyance System Analysis and Design***

Present an analysis of any existing conveyance systems, and the analysis and design of the proposed stormwater conveyance system for the project. This information should be presented in a clear, concise manner that can be easily followed, checked, and verified. All pipes, culverts, catch basins, channels, swales, and other stormwater conveyance appurtenances must be clearly labeled and correspond directly to the engineering plans. Conveyance specifications are provided in section 6 of this manual.

## **3.1.6 Step 6 - Prepare a Construction Stormwater Pollution Prevention Plan**

The Construction SWPPP for projects adding or replacing 2,000 square feet of impervious surface or more, or clearing 7,000 square feet or more, must contain sufficient information to satisfy the City of Bothell that the potential pollution problems have been adequately addressed for the proposed project. An adequate Construction SWPPP includes a narrative and drawings. The narrative is a written statement to explain and justify the pollution prevention decisions made for a particular project. The narrative contains concise information concerning existing site conditions, construction schedules, and other pertinent items that are not contained on the drawings. The drawings and notes describe where and when the various BMPs should be installed, the performance the BMPs are expected to achieve, and actions to be taken if the performance goals are not achieved.

The 12 Elements listed below must be considered in the development of the Construction SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the Construction SWPPP. These elements are described in detail in Section 2, Volume II, of the 2005 Ecology Manual. They cover the general water quality protection strategies of limiting site impacts, preventing erosion and sedimentation, and managing activities and sources.

The 12 Elements are:

- Mark Clearing Limits
- Establish Construction Access
- Control Flow Rates
- Install Sediment Controls
- Stabilize Soils
- Protect Slopes
- Protect Drain Inlets
- Stabilize Channels And Outlets

- Control Pollutants
- Control De-Watering
- Maintain BMPs
- Manage the Project

A complete description and BMPs applicable to each element is given in Volume II, Chapter 3 of the 2005 Ecology Manual.

On construction sites that discharge to surface water, the primary consideration in the preparation of the Construction SWPPP is compliance with the State Water Quality Standards. The step-by-step procedure outlined in Section 2, Volume II, 3.2 of this manual is recommended for the development of these Construction SWPPPs. A checklist is contained in Volume II, Section 3.3, of the 2005 Ecology Manual that may be helpful in preparing and reviewing the Construction SWPPP.

On construction sites that infiltrate all stormwater runoff, the primary consideration in the preparation of the Construction SWPPP is the protection of the infiltration facilities from fine sediments during the construction phase and protection of ground water from other pollutants. Several of the other elements are very important at these sites as well, such as marking the clearing limits, establishing the construction access, and managing the project.

### **3.1.7 Step 7 - Complete the Stormwater Site Plan**

The Stormwater Site Plan encompasses the entire submittal to the City of Bothell. It includes the following documents:

#### ***Project Overview***

The project overview must provide a general description of the project, predeveloped and developed conditions of the site, site area and size of the improvements, and the pre- and post-developed stormwater runoff conditions. The overview should summarize difficult site parameters, the natural drainage system, and drainage to and from adjacent properties, including bypass flows.

A vicinity map should clearly locate the property, identify all roads bordering the site, show the route of stormwater off-site to the local natural receiving water, and show significant geographic features and critical areas (streams, wetlands, lakes, steep slopes, etc.).

A site map should display:

- Acreage and outlines of all drainage basins;
- Existing stormwater drainage to and from the site;
- Routes of existing, construction, and future flows at all discharge points; and
- The length of travel from the farthest upstream end of a proposed storm drainage system to any proposed flow control and treatment facility.

A soils map should show the soils within the project site. Soil Survey maps may be used. However, it is the designer's responsibility to ensure that the soil types of the site are properly identified and correctly used in the hydrologic analysis.

### ***Existing Conditions Summary***

This is the summary described in Section 2, Volume I, 3.1.1 of this manual. If the project does not require an offsite analysis, this summary should also describe:

- The natural receiving waters that the stormwater runoff either directly or eventually (after flowing through the downstream conveyance system) discharges to, and
- Any area-specific requirements established in local plans, ordinances, or regulations or in Water Clean-up Plans approved by Ecology.

### ***Off-site Analysis Report***

This is the report described under Section 2, Volume I, 3.1.3 of this manual.

### ***Permanent Stormwater Control Plan***

This is the plan described in Section 2, Volume I, 3.1.5 of this manual.

### ***Construction Stormwater Pollution Prevention Plan***

This is the plan described in Section 2, Volume I, 3.1.6 of this manual.

### ***Special Reports and Studies***

Include any special reports and studies conducted to prepare the Stormwater Site Plan (e.g., soil testing, wetlands delineation).

### ***Other Permits***

Include a list of other necessary permits and approvals as required by other regulatory agencies, if those permits or approvals include conditions that affect the drainage plan, or contain more restrictive drainage-related requirements.

### ***Operation and Maintenance Manual***

Submit an operations and maintenance manual for each flow control and treatment facility. The manual should contain a description of the facility, what it does, and how it works. The manual must identify and describe the maintenance tasks, and the frequency of each task. The maintenance tasks and frequencies must meet the standards established in this manual.

Include a recommended format for a maintenance activity log that will indicate what actions will have been taken.

The manual must prominently indicate where it should be kept, and that it must be made available for inspection by the City of Bothell.

### ***Bond Quantities***

Refer to Additional Requirements, Financial Guarantees, Section 2, Volume I, 2.6.1 of this manual. All drainage facilities constructed or modified for projects, and any work performed in the right-of-way, must comply with the financial guarantee requirements in Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications. Project proponent shall provide financial guarantees documentation in the Stormwater Site Plan.

### **3.1.8 Step 8 - Check Compliance with All Applicable Minimum Requirements**

A Stormwater Site Plan as designed and implemented should specifically fulfill all Minimum Requirements applicable to the project. The Stormwater Site Plan should be reviewed to check that these requirements are satisfied.

## **3.2 Plans Required After Stormwater Site Plan Approval**

See Section 3 of this manual for detailed specifications of Final Stormwater Site Plan requirements.

## **Chapter 4 - BMP and Facility Selection Process for Permanent Stormwater Control Plans**

Adopted in full. Refer to the 2005 Ecology Manual Volume I directly for this chapter.

### **Appendix I-A through Appendix I-E**

Appendix I-D: Bothell Municipal Code (BMC) 14.04.530 A, B, and C provide guidelines and requirements for the use of wetlands in stormwater management. Project proponents shall adhere to performance standards detailed in BMC 14.04.

All other Appendices are adopted in full. Refer to the 2005 Ecology Manual Volume I directly for all other appendices.

## **Volume II - Construction Stormwater Pollution Prevention**

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### **Chapter 1 - Introduction to Construction Stormwater Pollution Prevention**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

### **Chapter 2 - Regulatory Requirements**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

### **Chapter 3 - Planning**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

### **Chapter 4 - Standards and Specifications for Best Management Practices**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

### **Appendix II-A - Standard Notes for Erosion Control**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

### **Appendix II-B - Background Information on Chemical Treatment**

Adopted in full. Refer to Volume II of the 2005 Ecology Manual.

## **Volume III - Hydrologic Analysis and Flow Control Design**

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### **Chapter 1 - Introduction**

Adopted in full. Refer to Volume III of the 2005 Ecology Manual.

### **Chapter 2 - Hydrologic Analysis**

Adopted in full. Refer to Volume III of the 2005 Ecology Manual.

### **Chapter 3 - Flow Control Design**

This manual adds the following requirements:

- Any above-ground stormwater facility will be screened from public right of way and adjacent property per the underlying zoning perimeter buffer requirements in the BMC.
- Detention facilities for all single family residential developments shall be located in a private detention tract, outside of the public right-of-way, unless approved in writing from the Public Works Director. For all other projects, detention facilities shall be located on private property.

The remainder of this chapter is adopted in full. Refer to Volume III of the 2005 Ecology Manual.

### **Appendix III-A through Appendix III-D**

Adopted in full. Refer to Volume III of the 2005 Ecology Manual.

## **Volume IV - Source Control BMPs**

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### **Chapter 1 - Introduction**

Adopted in full. Refer to Volume IV of the 2005 Ecology Manual.

### **Chapter 2 - Selection of Operational and Structural Source Control BMPs**

Adopted in full. Refer to Volume IV of the 2005 Ecology Manual.

### **Appendix IV-A through Appendix IV-G**

Adopted in full. Refer to Volume IV of the 2005 Ecology Manual.

## **Volume V - Runoff Treatment BMPs**

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### **Chapter 1 - Introduction**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 2 - Treatment Facility Selection Process**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 3 - Treatment Facility Menus**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 4 - General Requirements for Stormwater Facilities**

This manual adds the following requirements:

- Any above-ground stormwater facility will be screened from public right of way and adjacent property per the underlying zoning perimeter buffer requirements in the BMC.
- Treatment facilities for all single family residential developments shall be located in a private tract, outside of the public right-of-way, unless approved in writing from the Public Works Director. For all other projects, treatment facilities shall be located on private property.

The remainder of this chapter is adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 5 - On-site Stormwater Management**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 6 - Pretreatment**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 7 - Infiltration and Bio-infiltration Treatment Facilities**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 8 - Sand Filtration Treatment Facilities**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

### **Chapter 9 - Biofiltration Treatment Facilities**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

## **Chapter 10 - Wetpool Facilities**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

## **Chapter 11 - Oil and Water Separators**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

## **Chapter 12 - Emerging Technologies**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

## **Appendix V-A through Appendix V-D**

Adopted in full. Refer to Volume V of the 2005 Ecology Manual.

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## Section 3 - Drainage Review

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Drainage review is required for any proposed project that is subject to one of the following Bothell development proposal, permit, or approvals: Preliminary Subdivision, Short Plat, Boundary Line Adjustment, Land Clearing Permit, Building Permit, Conditional Use Permit, Critical Area Alteration, Planned Unit Development (PUD), and Right of Way Invasion Permit. In addition to the listed development actions, the proposed project must meet one of the following conditions to trigger drainage review:

- Adds or replaces 2,000 sf or more of new impervious surface, OR
- Disturbs 7,000 sf, converts 2.5 acres or more of native vegetation to pasture, converts 3/5 acres or more native vegetation to landscape, OR
- Involves a ditch or pipe drainage conveyance 12 inches or greater in diameter, OR
- Contains or is adjacent to a critical area or critical area buffer (BMC 14.04), OR
- Is a redevelopment project proposing improvements to a high-use site, OR
- Is a redevelopment project proposing improvements - including interior improvements - that exceed 50% of the assessed value (or replacement value) of the existing site improvements.

### 3.1 Drainage Review Types

For most projects adding 5,000 square feet or more of impervious surface, the full range of minimum requirements contained in Section 2, Volume I of this manual and additional requirements in Section 2, Volume I, of this manual must be evaluated for compliance through the drainage review process. However, for some types of projects the scope of requirements applied is narrowed to allow more efficient, customized review. Each of the following drainage review types tailors the review process and application of drainage requirements to a project's size, location, type of development, and anticipated impacts to the local and regional surface water system:

- Small Site Drainage Review, 3.1.1
- Targeted Drainage Review, 3.1.2
- Full Drainage Review, 3.1.3

Each project requires only one of the above drainage review types, with the single exception that a project which qualifies for Small Site Drainage Review may also require Targeted Drainage Review. Figure 3.1 can be used to determine which drainage review type would be required. This may entail consulting the more detailed thresholds for each review type specified in the above-referenced Sections.

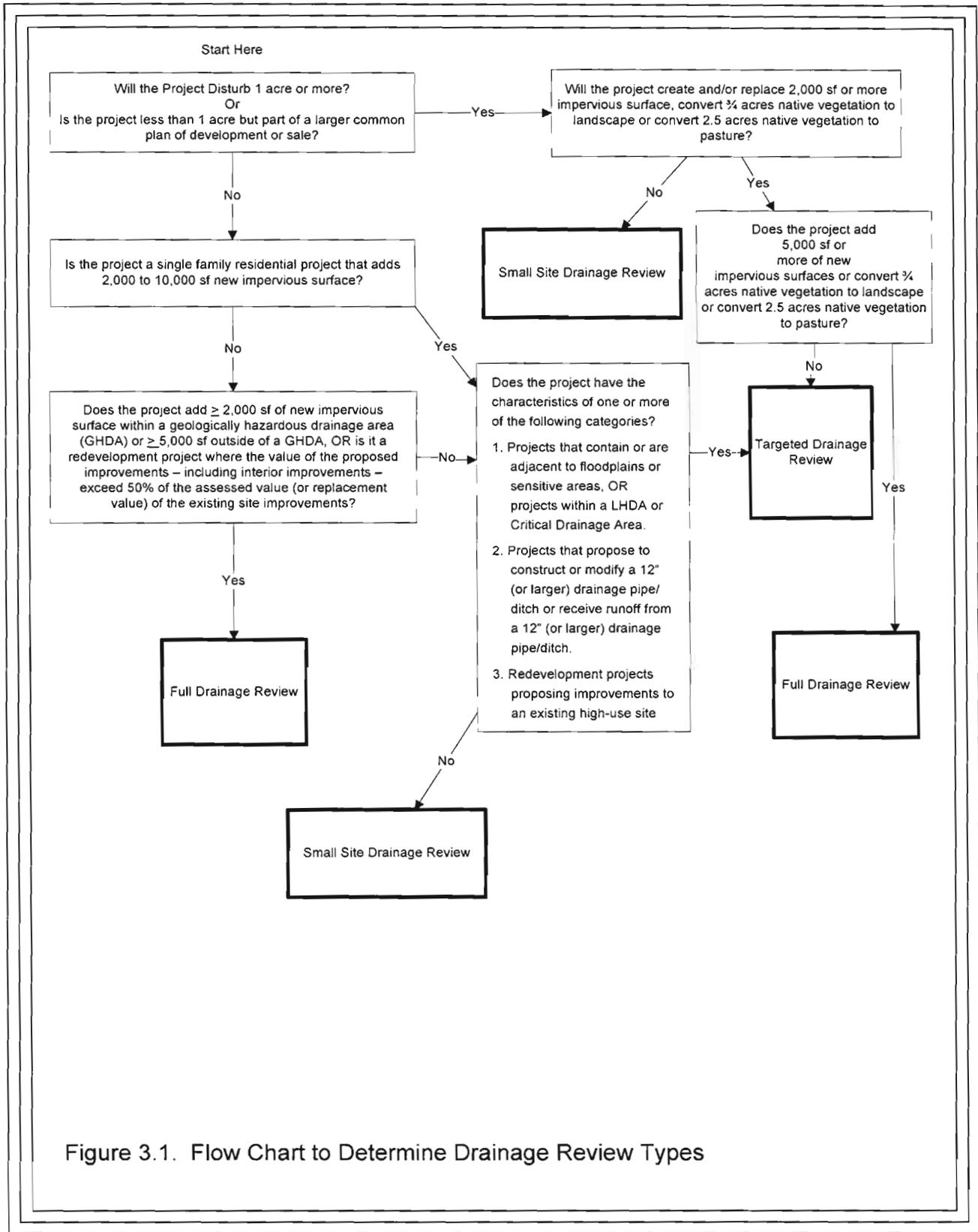


Figure 3.1. Flow Chart to Determine Drainage Review Types

Figure 3.1 Flow Chart to Determine Drainage Review Type

### 3.1.1 Small Site Drainage Review

Small Site Drainage Review is a simplified Drainage Review for small projects. The minimum requirements applied under Full Drainage Review are replaced with simplified small site requirements which can be applied by a non-engineer.

These requirements include flow control Best Management Practices (BMPs) such as setting aside open space to limit future site clearing, incorporating low impact development techniques as appropriate, and using simple measures such as splash blocks and gravel trenches to disperse or infiltrate runoff from impervious areas. Refer to minimum requirement 5 (Section 2, Volume I, 2.5.5 of this manual). Some projects will not have the soils necessary to accommodate on-sites stormwater management.

Small Site Drainage Review sites are required to meet minimum requirement 2, Construction Stormwater Pollution Prevention (Volume I, chapter 2, section 2.5.2 of this manual). For small sites, some elements of minimum requirement 2 may not apply. This alternative to Full Drainage Review acknowledges that drainage impacts for many small development proposals can be effectively mitigated without construction of costly sediment and erosion controls.

The Small Site Drainage Review process minimizes the time and effort required to design, submit, review, and approve drainage facilities for these proposals. In most cases, the requirements can be met with submittals prepared by contractors, architects, or homeowners without the involvement of a licensed civil engineer.

#### *Threshold*

Small Site Drainage Review is allowed for any project that is subject to drainage review that meets the following criteria:

- Projects that disturb less than 1 acre and are not part of a larger common plan of development or sale -
  - That are single family residential projects that add 2,000 to 10,000 sf of new impervious surface and:
    - do not contain or are adjacent to flood plains or critical areas, or within an GHDA or Critical Area,
    - do not construct or modify a 12" or larger drainage pipe/ditch.
    - do not involve High-use site improvements.
  - Any project type, besides single family residential projects, that adds less than 2,000 sf new impervious in an GHDA or less than 5,000 sf new impervious outside GHDA or is a redevelopment project where the value of the proposed improvements - including interior improvements - does not exceed 50% of the assessed value (or replacement value) of the existing site improvements.

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To qualify for small site drainage review, the non single family residential project must also:

- not contain or be adjacent to flood plains or critical areas, or within an GHDA or Critical Drainage Area,
  - not construct or modify a 12" or larger drainage pipe/ditch.
  - not involve High-use site improvements that cost \$100,000 or more.
- Projects that disturb 1 acre or more or projects less than 1 acre but part of a larger common plan of development or sale -
    - New development projects add or replace less than 2,000 sf of impervious surface, convert less than  $\frac{3}{4}$  acres of native vegetation to landscape, and/or convert less than 2.5 acres of native vegetation to pasture.
  - Redevelopment Projects - Any redevelopment project that disturbs less than 1 acre and adds and/or replaces less than 2,000 sf of impervious surface.

IF Small Site Drainage Review is allowed, THEN the applicant may apply the simplified small site submittal and drainage design requirements detailed in Section 6 of this manual.

The simplified drainage requirements applied under Small Site Drainage Review are considered sufficient to meet the overall intent of the minimum requirements, except under certain conditions when a proposed project has characteristics that trigger Targeted Drainage Review (see the threshold for Targeted Drainage Review in Section 3.1.2) and may require the involvement of a licensed civil engineer. Therefore, any proposed project that qualifies for Small Site Drainage Review as determined above and complies with the small site drainage requirements is considered exempt from all minimum requirements, excluding minimum requirements 2 and 5, except those which would apply to the project if it is subject to Targeted Drainage Review as specified in Section 2, Volume I, 3.1.2 of this manual. Financial Guarantees may be required, refer to Chapter 1, section 1-5 of the City of Bothell Design and Construction Standards and Specifications.

### 3.1.2 Targeted Drainage Review

Targeted Drainage Review (TDR) is an abbreviated evaluation by Public Works permit review staff of a proposed project's compliance with minimum requirements. Projects subject to this type of drainage review are typically small-site proposals or other small projects that have site-specific or project specific drainage concerns that must be addressed by a licensed civil engineer. Under Targeted Drainage Review, engineering costs associated with drainage design and review are kept to a minimum because the review includes only those requirements that would apply to the particular project.

#### *Threshold*

Targeted Drainage Review is required for those projects subject to drainage review AND which are not subject to Full Drainage Review as determined in Section 2, Volume I, 3.1.3 of this manual, AND which have the characteristics of one or more of the following project categories:

- Projects that disturb less than 1 acre and are not part of a larger common plan of development or sale -
  - TDR Project Category #1: Projects that contain or are adjacent to a floodplain, stream, lake, wetland, closed depression, or other critical area as defined by Bothell Municipal Code (BMC) 14.04; OR projects located within a Geologically Hazardous Drainage Area.
  - TDR Project Category #2: Projects that propose to construct or modify a drainage pipe/ditch that is 12" or more in size/depth or receives surface and storm water runoff from a drainage pipe/ditch that is 12" or more in size/depth.
  - TDR Project Category #3: Redevelopment projects that propose improvements to an existing high-use site.
- Projects that disturb 1 acre or more or projects less than 1 acre but part of a larger common plan of development or sale -
  - TDR Project Category #4: new development projects that add 2,000 sf or more but less than 5,000 sf impervious surface, convert less than  $\frac{3}{4}$  acres of native vegetation to landscape, and/or convert less than 2.5 acres of native vegetation to pasture.
  - TDR Project Category #5: redevelopment projects that add or replace 2,000 sf or more but less than 5,000 sf impervious surface, convert less than  $\frac{3}{4}$  acres of native vegetation to landscape, and/or convert less than 2.5 acres of native vegetation to pasture AND the proposed improvement value (interior and exterior improvements) must not exceed 50% of the assessed value of the existing site improvements.
  - TDR Project Category # 6: road-related projects that add less than 5,000 sf of new impervious surface. If the road-related project adds more than 5,000 sf new

impervious, it can still qualify for TDR Category #6 if the project does not add more than 50% impervious surface to the existing impervious surface within the project's limits.

IF Targeted Drainage Review is required, THEN the applicant must demonstrate that the proposed project complies with the minimum requirements corresponding to the project category or categories that best match the proposed project. The project categories and applicable requirements for each are described below and illustrated in Figure 2.1, 2.2, and 2.3.

Note: If the proposed project has the characteristics of more than one project category, the requirements of each applicable category shall apply.

Compliance with these requirements requires submittal of engineering plans and/or calculations stamped by a licensed civil engineer registered in the state of Washington, unless deemed unnecessary by the Public Works Director. The engineer need only demonstrate compliance with those minimum requirements that have been predetermined to be applicable based on specific project characteristics.

### ***TDR Project Category #1***

This category includes projects that are too small to trigger full drainage review, but may be subject to site-specific floodplain or critical area requirements, or other area-specific drainage requirements adopted by the City of Bothell. Such projects primarily include single family residential projects.

IF the proposed project meets the characteristics of TDR Project Category #1, THEN the applicant must demonstrate that the project complies with all applicable minimum requirements as determined by the City of Bothell Public Works Director. Project proponents will adhere to conveyance system specifications detailed in Section 5 of this manual. Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

### ***TDR Project Category #2***

This category is intended to apply selected minimum requirements to those projects that propose to construct or modify a drainage pipe or ditch 12 inches in diameter or larger, but are not adding sufficient impervious surface to trigger Full Drainage Review.

IF the proposed project meets the characteristics of TDR Project Category #2, THEN the applicant must demonstrate that the proposed project complies with the following requirements:

- Minimum Requirement 1 - Stormwater Site Plan and Site Improvement Plan
- Minimum Requirement 2 -Construction Stormwater Pollution Prevention Plan
- Minimum Requirement 3 - Source Control of Pollutants

- Minimum Requirement 4 - Preserve Natural Drainage and Outfall(s)
- Minimum Requirement 5 - On-site Stormwater Management
- Minimum Requirement 10 - Operation and Maintenance Manual (if applicable)
- Comply with Conveyance System Specifications in Section 5 of this manual.
- Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.

### ***TDR Project Category #3***

This category is intended to improve water quality by applying source control, and oil control water quality treatment to redevelopment projects located on the most intensively used sites developed prior to current water quality requirements. These are referred to as high-use sites and are defined below.

High-Use Site Definition: A high-use site is any one of the following:

- A commercial or industrial site with an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area, OR
- A commercial or industrial site subject to petroleum storage or transfer in excess of 1,500 gallons per year, not including delivered heating oil, OR
- A commercial or industrial site subject to use, storage, or maintenance of a fleet of 25 or more diesel vehicles that are over 10 tons net weight (e.g., trucks, buses, trains, heavy equipment, etc.), OR
- A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.

IF the proposed project meets the characteristics of TDR Project Category #3, THEN the applicant must demonstrate that the proposed project complies with the following requirements:

- Minimum Requirement 1 - Stormwater Site Plan and Site Improvement Plans
- Minimum Requirement 2 -Construction Stormwater Pollution Prevention Plan
- Minimum Requirement 3 - Source Control of Pollutants
- Minimum Requirement 4 - Preserve Natural Drainage and Outfall(s)
- Minimum Requirement 6 - Runoff Treatment (limited to oil control only)
- Minimum Requirement 10 - Operation and Maintenance Manual
- Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Comply with Conveyance System Specifications in Section 5 of this manual.

***Note: In some cases, Public Works may determine that application of these requirements does not require submittal of engineering plans and calculations stamped by a licensed civil engineer. For example, if catch basin inserts are proposed to meet oil control requirements, engineered plans and calculations may not be necessary. A plot plan showing catch basin locations may suffice.***

### ***TDR Project Category # 4***

This category is intended to reduce the minimum requirements for new development projects that do not qualify for small site drainage review but are not large enough to warrant full drainage review.

IF the proposed project meets the characteristics of TDR Project Category #4, THEN the applicant must demonstrate that the proposed project complies with the following requirements:

- Minimum Requirement 1 - Stormwater Site Plan and Site Improvement Plans
- Minimum Requirement 2 - Construction Stormwater Pollution Prevention Plan
- Minimum Requirement 3 - Source Control of Pollutants
- Minimum Requirement 4 - Preserve Natural Drainage and Outfall(s)
- Minimum Requirement 5 - On-site Stormwater Management
- Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Comply with Conveyance System Specifications in Section 5 of this manual.

### ***TDR Project Category #5***

This category is intended to reduce the minimum requirements for redevelopment projects that do not qualify for small site drainage review but are not large enough to warrant application of all minimum requirements.

IF the proposed project meets the characteristics of TDR Project Category #5, THEN the applicant must demonstrate that the proposed project complies with the following requirements:

- Minimum Requirement 1 - Stormwater Site Plan and Site Improvement Plans
- Minimum Requirement 2 - Construction Stormwater Pollution Prevention Plan
- Minimum Requirement 3 - Source Control of Pollutants
- Minimum Requirement 4 - Preserve Natural Drainage and Outfall(s)
- Minimum Requirement 5 - On-site Stormwater Management
- Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Comply with Conveyance System Specifications in Section 5 of this manual.

### ***TDR Project Category #6***

This category is intended to reduce the minimum requirements for road-related projects that do not qualify for small site drainage review but are not large enough to warrant full drainage review.

IF the proposed project meets the characteristics of TDR Project Category #6, THEN the applicant must demonstrate that the proposed project complies with the following requirements:

- Minimum Requirement 1 - Stormwater Site Plan and Site Improvement Plans
- Minimum Requirement 2 -Construction Stormwater Pollution Prevention Plan
- Minimum Requirement 3 - Source Control of Pollutants
- Minimum Requirement 4 - Preserve Natural Drainage and Outfall(s)
- Minimum Requirement 5 - On-site Stormwater Management
- Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications.
- Comply with Conveyance System Specifications in Section 5 of this manual.

### 3.1.3 Full Drainage Review

Full Drainage Review is the evaluation by Public Works permit review staff of a proposed project's compliance with the full range of minimum requirements and additional requirements in Section 2, Volume I of this manual. This review addresses the impacts associated with adding new impervious surface and changing land cover on typical sites.

#### *Threshold*

Full Drainage Review is required for any proposed projects, including redevelopment projects, that are subject to drainage review and which meet one or more of the following criteria:

- Projects that disturb less than 1 acre and are not part of a larger common plan of development or sale -
  - Projects which add 5,000 square feet or more of new impervious surface but which do not qualify for Small Site Drainage Review OR
  - Projects located within a Geologically Hazardous Drainage Area which add 2,000 square feet or more of new impervious surface but which do not qualify for Small Site Drainage Review OR
  - Redevelopment project where the value of the proposed improvements - including interior improvements - exceed 50% of the assessed value (or replacement value) of the existing site improvements
- Projects that disturb 1 acre or more or projects less than 1 acre but part of a larger common plan of development or sale -
  - Projects that add 5,000 sf of new impervious surface, convert  $\frac{3}{4}$  acres native vegetation or more to landscape, or 2.5 acres or more of native vegetation to pasture.
  - Redevelopment Projects that add 5,000 sf of new impervious surface, convert  $\frac{3}{4}$  acres native vegetation or more to landscape, or 2.5 acres or more of native vegetation to pasture, or increase the assessed value of the existing site by 50% or more.
  - Road-related projects that include 5,000 sf or more new plus replaced impervious surface.

IF Full Drainage Review is required, THEN the applicant must demonstrate that the proposed project complies with all minimum requirements. Financial guarantees are required in accordance with Chapter 1, section 1-5, of the City of Bothell Design and Construction Standards and Specifications. Conveyance system specifications in section 5 of this manual shall be required. Some minimum requirements will not be applicable to all projects but need to be considered for any project in full drainage review.

If the project will result in 50 acres or more of new impervious surface, the project proponent will be required to meet additional requirements. This will include the development of a Master Drainage Plan (MDP).

Engineering plans and calculations stamped by a licensed civil engineer registered in the state of Washington must be submitted in full drainage review and demonstrate compliance with requirements. The procedures and requirements for submittal of engineering plans and calculations can be found in Section 3.2 of this manual.

- State the maximum amount of added impervious surface and proposed clearing per lot as determined through engineering review. The maximum amount of impervious surface may be expressed in terms of square feet.
- Specify roof downspout controls by lot based on the "Flow Credit for Roof Downspout Controls" (see Volume III, Chapter 3 of the 2005 Ecology Manual) as determined through engineering review and approval.
- For a plat or short plat, record a note conditioning single family residential permit approval on compliance with approved roof downspout controls (Volume III, Chapter 3 of the 2005 Ecology Manual).

## 3.2 Drainage Plan Submittal Requirements

A licensed civil engineer registered in the State of Washington must stamp all preliminary and development review plans, excluding small site drainage review plans.

A professional land surveyor registered in the State of Washington must stamp legal descriptions used for preliminary and engineering plans. Topographic survey data and mapping prepared specifically for a proposed project may be performed by the licensed civil engineer stamping the engineering plans as allowed by the Washington State Board of Registration for Professional Engineers and Land Surveyors.

### 3.2.1 Types of Plans

#### ***Stormwater Site Plan (SSP)***

The SSP includes various reports and documentation of the project. The following are the different reports required in the SSP. Different levels of reports are required for development permit application, drainage review, and final SSP submittal. The Stormwater Site Plans documents include the following:

- ***Existing Conditions Summary***
  - Basic summary of existing conditions. Defined in Section 2, Volume I, 3.1.1 of this manual. Most existing conditions will be identified with the Existing Conditions Drainage Site Improvement Plan (defined below). This summary would include narrative descriptions not made obvious by the drainage site improvement plans.
- ***Offsite Analysis***
  - Qualitative Offsite Analysis: Defined in Section 2, Volume I, 2.6.2 of this manual.
  - Quantitative Offsite Analysis: Defined in Chapter 2, Volume I, 2.6.2 of this manual.
- ***Permanent Stormwater Control Plan***
  - Preliminary Permanent Stormwater Control Plan - Defined in Section 2, Volume I, 3.1.5 of this manual.
  - Drainage Review Permanent Stormwater Control Plan - Defined in Section 2, Volume I, 3.1.5 of this manual. This includes conveyance analysis and design, water quality facility selection and design, and flow control facility selection and design. The 2005 Ecology Manual, Volume I, section 4.2 shall be used for guidance in selecting facilities.
  - Final Permanent Stormwater Control Plan - see Section 2, Volume I, 3.2.2 of this manual.
- ***Operation and Maintenance Manual***

The Operations and Maintenance Manual shall be in accordance with Minimum Requirement 10. Details can be found in Section 2, Volume I, 2.5.10 of this manual.

- ***Other Permits***

Include a list of other necessary permits and approvals as required by other regulatory agencies, if those permits or approvals include conditions that affect the drainage plan, or contain more restrictive drainage-related requirements.

- ***Special Reports***

Include any special reports and studies conducted to prepare the Stormwater Site Plan (e.g., geotechnical report, wetland delineation).

### ***Drainage Site Improvement Plans (SIP)***

Site improvement plans shall portray design concepts in a clear and concise manner. The plans must present all the information necessary for persons trained in engineering to review the plans, as well as those persons skilled in construction work to build the project according to the design engineer's specifications. Supporting documentation for the drainage site improvement plans must also be presented in an orderly and concise format that can be systematically reviewed and understood by others.

#### Types of Drainage Site Improvement Plans:

- Small Site Improvement Plans - See section 5 of this manual.
- Existing Conditions SIP - see Section 2, Volume I, 3.1.1 of this manual. Refer to Section 4 of this manual for SIP technical specifications.
- Preliminary Development Layout - see Section 2, Volume I, 3.1.2 of this manual. Refer to Section 4 of this manual for SIP technical specifications. Preliminary Drainage SIPs must also meet requirements in BMC 11.06.002.
- Drainage Review Development Layout - see Section 2, Volume I, 3.1.2 of this manual. Refer to Section 4 of this manual for SIP technical specifications.
- Final Development Layout - see Section 2, Volume I, 3.2.2 of this manual. Refer to Section 4 of this manual for SIP technical specifications.
- Preliminary Stormwater Control SIP - Defined in Section 2, Volume I, 3.1.5 of this manual. Refer to Section 4 of this manual for SIP technical specifications.
- Drainage Review Stormwater Control SIP - Defined in Section 2, Volume I, 3.1.5 of this manual. Refer to Section 4 of this manual for SIP technical specifications.
- Final Stormwater Control SIP - see Section 2, Volume I, 3.2.2 of this manual. Refer to Section 4 of this manual for SIP technical specifications.

***Temporary Erosion and Sediment Controls (TESC) Plan***

- Small Site Drainage TESC Plan - See Section 5 of this manual.
- TESC Site Plan
- Construction Stormwater Pollution Prevention Plan (SWPPP) - See Volume II of the 2005 Ecology manual for specifications.





### 3.2.2 Minimum Drainage Plans Required with Development Permit Application

Bothell Municipal Code (BMC) 11.04 defines land use action types I, II, III, IVA, IVB, V, and exempt land use actions. Drainage review is required based on development permit type issued and thresholds identified at the beginning of this section (section 3 of this manual). Drainage review is not dependent on land use action types. Requirements and procedures for land use action types are dependent on development permit type and if SEPA review is required (see BMC 11.04). All project applications shall adhere to requirements established for permit applications in BMC 11.06.002. The following provides what drainage plans are required for development permit application, based on permit types.

#### ***Permit Types: Preliminary Subdivision, Short Plat, Preliminary Planned Unit Development, Binding Site Plan***

***Stormwater Site Plan*** - Existing Conditions Summary, Qualitative Offsite Analysis, Drainage Review Permanent Stormwater Control Plan.

***Site Improvement Plan*** - Existing Conditions SIP, Drainage Review Layout SIP, Drainage Review Stormwater Control SIP. Refer to Section 4 of this manual for drainage SIP technical specifications. Existing Conditions SIP will be generated by a licensed land surveyor. Additional plans may be required for review outside of drainage review.

#### ***Permit Types: Short Subdivisions***

***Stormwater Site Plan*** - Existing Conditions Summary, Qualitative Offsite Analysis, Preliminary Stormwater Control Plan (if site requires stormwater controls).

***Site Improvement Plan*** - Existing Conditions SIP, Preliminary Layout SIP, and Preliminary Stormwater Control SIP (if site requires stormwater controls). Project proponents in the short subdivision application process may be allowed to submit modified SIP as defined in Section 4, 4.1.1 of this manual. Additional plans may be required for review outside of drainage review.

#### ***Permit Types: Commercial Building Permit and Other Non Single Family Residential Building Permits***

Applications for commercial permits require that drainage review plans be submitted as part of the initial permit application. Most commercial projects will go through Full Drainage Review and require complete engineering plans. Projects that may qualify for limited scope engineering design should request Targeted Drainage Review during the preapplication meeting.

***Stormwater Site Plan*** - Existing Conditions Summary, Qualitative Offsite Analysis, Drainage Review Permanent Stormwater Control Plan (if site requires stormwater controls, see minimum requirements, Section 2, Volume I, 2.4 of this manual). Operations and maintenance manual, other permits, and special reports are required during application process.

***Site Improvement Plan*** - Existing Conditions SIP, Drainage Review Layout SIP, and Drainage Review Stormwater Control SIP (if site requires stormwater controls). Additional plans may be required for review outside of drainage review.

### ***Single Family Residential Building Permit***

***Stormwater Site Plan*** - Single family residential projects in targeted review will be required to deliver some of the Stormwater Site Plan requirements (see the Section 3, 3.1.2 of this manual). Single family residential projects in small site drainage review are not required to develop stormwater site plans.

***Single Family Site Improvement Plan*** - Small Site Improvement Plans for sites that qualify for small site drainage review - See section 5 of this manual. All other single family developments shall provide Existing Conditions SIP, Drainage Review Layout SIP, and Preliminary Stormwater Control SIP (if site requires stormwater controls). Additional plans may be required for review outside of drainage review.

### ***All other Permits: Boundary Line Adjustment, Land Clearing Permit, Conditional Use Permit, Critical Area Alteration, and Right of Way Invasion Permit.***

Other permit applications will require project-specific information. Initial drainage submittal requirements can be obtained by contacting Community Development or Public Works or by reviewing the application requirements for each permit as defined in in the following Bothell Municipal Code:

- BMC 12.12.040: Land Clearing Plan Requirements
- BMC 12.18.130: Landscaping Plan Requirements
- BMC 12.28.030: Conditional Use Permit Plan Requirements
- BMC 12.30.050: Preliminary PUD Plan Requirements
- BMC 12.30.080: Final PUD Plan Requirements
- BMC 12.36.030: Variance Plan Requirements
- BMC 14.04: Critical Area Alteration Plan Requirements
- BMC 15.08.020: Preliminary Short Plat Plan Requirements
- BMC 15.10.020: Final Plat Plan Requirements

Additional plans may be required for review outside of drainage review.

### 3.3 Plans Required for Drainage Review

#### *Full Drainage Review*

***Complete Stormwater Site Plan, including:*** Existing Conditions Summary, Quantitative Offsite analysis (if qualitative offsite analysis triggers further investigation), Drainage Review Permanent Control Plan, Operation and Maintenance Manual, Other Permits, Special Reports, and financial guarantees.

***Site Drainage Improvement Plans:*** Existing Conditions SIP, Drainage Review Development Layout, Drainage Review Stormwater Control SIP. All other Site Improvements Plans required by Section 4 of this manual.

***Temporary Erosion and Sediment Controls Plan*** - Stormwater Pollution Prevention Plan (SWPPP), see section 2, Volume II of the 2005 Ecology manual. Some elements of the SWPPP may not apply to every site, all elements should be evaluated. TESC Site Improvement Plans are also required.

#### *Targeted Drainage Review*

***Stormwater Site Plan, including:*** Existing Conditions Summary, Quantitative Offsite analysis (if qualitative offsite analysis triggers further investigation), Drainage Review Permanent Control Plan (if applicable), Operation and Maintenance Manual (if required), Other Permits (if applicable), and Special Reports(if applicable).

***Site Drainage Improvement Plans:*** Existing Conditions SIP, Drainage Review Development Layout, Drainage Review Stormwater Control SIP. All other Site Improvements Plans required by Section 4 of this manual.

***Temporary Erosion and Sediment Controls Plan*** - Stormwater Pollution Prevention Plan (SWPPP), see Volume II of the 2005 Ecology manual. Some elements of the SWPPP may not apply to every site, all elements should be evaluated. TESC Site Improvement Plans are also required.

#### *Small Site Drainage Review*

***Site Drainage Improvement Plans:*** Small Site Drainage SIP. See Section 6 of this manual.

***Temporary Erosion and Sediment Controls Plan*** - Small Drainage TESC Plan, see section 6 of this manual. Sites that disturb less than 7,000 sf are not required to submit a Stormwater Pollution Prevention Plan (SWPPP) but are required to consider all elements of the SWPPP in creating the small site TESC plan. Site disturbing more than 7,000 sf are required to develop a SWPPP and provide a Small Drainage TESC Plan.

## 3.4 Plans Required After Drainage Review

### 3.4.1 Plan Changes after Permit Issuance

If changes or revisions to the originally approved engineering plans require additional review, the revised plans shall be submitted to the Bothell Department of Public Works for approval prior to construction. The plan change submittals shall include all of the following:

1. The appropriate Field Change form(s)
2. Revised SSP or addendum
3. Revised SIP(s)
4. Other information needed for review.

### 3.4.2 Final Corrected Plan Submittal

During the course of construction, changes to the approved engineering plans are often required to address unforeseen field conditions or design improvements. Once construction is completed, it is the applicant's responsibility to submit to the Bothell Department of Public Works a final corrected plan ("as-builts"), which is an engineering drawing that accurately represents the project as constructed. These corrected drawings must be professionally drafted revisions applied to the original approved plan and must include all changes made during the course of construction; the TESC plan, however, should not be included. The final corrected plan must be stamped, signed, and dated by a licensed civil engineer registered in the State of Washington.

Refer to Chapter 1, section 1-14, of the City of Bothell Design and Construction Standards and Specifications "As Built (Construction Corrected Record) Drawing" requirements.

The Engineer of record shall inspect flow control and water quality treatment facilities post construction and certify that all facilities have been built to design specifications detailed in the Final Stormwater Control Site Improvement Plan and as described in the Stormwater Site Plan, "Final Stormwater Control Plan."

In addition to the requirements described in Chapter 1 of the City of Bothell Design and Construction Standards and Specifications, as builts must include the following information:

- Indicate dimensions of all easements, tracts, building setbacks, tops of slopes, wetland boundaries, and floodplains.
- Include pertinent restrictions as they apply to easements, tracts, and building setback lines.
- Include the dedication and indemnification clause required by King or Snohomish County, as appropriate.

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## Section 4 - Site Improvement Plan Technical Specifications

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### 4.1 Site Improvement Plans Technical Requirements

The vertical datum on which all engineering plans, plats, binding site plans, and short plats are to be based must be the North American Vertical Datum of 1988 (NAVD 88), and the datum must be tied to at least one City of Bothell Survey Control Network benchmarks. The benchmark(s) shall be shown or referenced on the plans. If a City of Bothell control network benchmark does not exist within ½ mile of the subject property, or if 250 feet or greater of total vertical difference exists between the starting benchmark and the project, an assumed or alternate vertical datum may be used.

Horizontal control for all plats, binding site plans, and short plats shall reference the North American Datum of 1983/91 as the coordinate base and basis of bearings. All horizontal control for these projects must be referenced to a minimum of two City of Bothell Horizontal Control monuments. If two horizontal control monuments do not exist within one mile of the project, an assumed or alternate coordinate base and basis of bearings may be used. Horizontal control monument and benchmark information is available from the Bothell Department of Public Works.

The site improvement plans consist of all the plans, profiles, details, notes, and specifications necessary to construct road, drainage structure, and off-street parking improvements. Site improvement plans include the following:

- A base map (see table 4.1) and
- Site plan and profiles (Section 4.2 of this manual).

*Note: Site plans must also include grading plans if on-site grading extends beyond the roadway.*

#### 4.1.1 General Site Drainage Improvement Plan Format

Refer to Chapter 1, section 1-9 of the City of Bothell Design and Construction Standards and Specifications for all general plan format requirements.

#### 4.1.2 Site Drainage Improvement Plan Base Map

A site drainage improvement plan base map provides a common base and reference in the development and design of any project. A base map helps ensure that the engineering plans, grading plans, and TESC plans are all developed from the same background information. This base map shall include the information listed in Table 4.1 below.

Table 4.1 Drainage Base Map Requirements

TABLE 4.1 DRAINAGE BASE MAP REQUIREMENTS	
Feature	Requirements
Ground Surface Topography	Provide topography within the site and extending beyond the property lines. Contour lines must be shown as described in "Plan View: Site Plan and Roadway Elements" (section 4, 4.2.1)
Surface Water Discharge	Provide ground surface elevations for a reasonable "fan" around points of discharge extending at least 50 feet downstream of all point discharge outlets.
Hydrologic Features	Provide spot elevations in addition to contour lines to aid in delineating the boundaries and depth of all existing floodplains, wetlands, channels, swales, streams, storm drainage systems, roads (low spots), bogs, depressions, springs, seeps, swales, ditches, pipes, groundwater, and seasonal standing water.
Other Natural Features	Show the location and relative sizes of other natural features such as rock outcroppings, existing vegetation, and trees 12" in diameter and greater that could be disturbed by the project improvements and construction activities (within tree canopy), noting species.
Flow	Provide arrows that indicate the direction of surface flow on all public and private property and for all existing conveyance systems.
Floodplains/ Floodways	Show the floodplain/floodways as depicted on FEMA maps or otherwise required by the City of Bothell Critical Areas Regulations.
General Background Information	Show the location and limits of all existing: <ul style="list-style-type: none"> <li>• Property boundaries</li> <li>• Structures</li> <li>• Easements (including dimensions)</li> <li>• Total property (including dimensions)</li> <li>• Roads and right-of-way</li> <li>• Sanitary sewers and water utilities</li> <li>• Common open space</li> <li>• Public dedications</li> <li>• Other manmade features affecting existing topography/proposed improvements.</li> </ul>
Development Limitations	Delineate limitations to the development that may occur.

## 4.2 Site Improvement Plan Profiles

The applicant shall include plans, information, and profiles for all projects, per Bothell Municipal Code. Bothell Municipal Codes that identify plan requirements include:

- BMC 12.12.040: Land Clearing Plan Requirements
- BMC 12.18.130: Landscaping Plan Requirements
- BMC 12.28.030: Conditional Use Permit Plan Requirements
- BMC 12.30.050: Preliminary PUD Plan Requirements
- BMC 12.30.080: Final PUD Plan Requirements
- BMC 12.36.030: Variance Plan Requirements
- BMC 14.04: Critical Area Alteration Plan Requirements
- BMC 15.08.020: Preliminary Short Plat Plan Requirements
- BMC 15.10.020: Final Plat Plan Requirements

In addition to the requirements of the Bothell Municipal Codes listed above, the following Site Drainage Plan Profiles are required for drainage review.

### 4.2.1 Drainage Plan View: Site Plan and Roadway Elements

- Provide property lines, right-of-way lines, and widths for proposed roads and intersecting roads.
- Provide all existing and proposed roadway features, such as centerlines, edges of pavement and shoulders, ditch lines, curbs, and sidewalks. In addition, show points of access to abutting properties and roadway continuations.
- Show existing and proposed topography contours at 2-foot intervals (5-foot intervals for slopes greater than 15 percent, 10-foot intervals for slopes greater than 40 percent). Contours may be extrapolated from USGS mapping, aerial photos, or other topography map resources. However, contours shall be field verified for roadway and stream centerlines, steep slopes, wetlands, floodplains, drainage tracts easements, and conveyance systems. Contours shall extend 300 feet beyond property lines to resolve questions of setback, cut and fill slopes, drainage swales, ditches, and access or drainage to adjacent property.
- Show the location of all existing utilities and proposed utilities (except those designed by the utility and not currently available) to the extent that these will be affected by the proposed project. Clearly identify all existing utility poles.
- Identify all roads and adjoining subdivisions.
- Show right-of-way for all proposed roadways, using sufficient dimensioning to clearly show exact locations on all sections of existing and proposed dedicated public roadway.
- Clearly differentiate areas of existing pavement and areas of new pavement.

- For subdivision projects, use drawing scales of 1"=20'. For commercial, multi-family, or other projects, use scales of 1"=20', however, 1"=10', 1"=30', and 1"=40' are acceptable. Show details for clarification, including those for intersections and existing driveways, on a larger scale.

#### 4.2.2 Drainage Plan View: Drainage Conveyance

- Sequentially number all catch basins and curb inlets starting with the structure farthest downstream.
- Represent existing storm drainage facilities in dashed lines and label with "Existing."
- Clearly label existing storm drainage facilities to be removed with "Existing to be removed."
- Show the length, diameter, and material for all pipes, culverts, and stub-outs. Include the slope if not provided on the profile view. Material may be noted in the plan notes.
- Clearly label catch basins as to size and type (or indicate in the plan notes).
- Clearly label downspout and footing drain stub-out locations for those lots intending to connect to the storm drainage flow control system. Locate all stub-outs to allow gravity flow from the lowest corner of the lot to the connecting catch basin.
- Show datum, benchmark locations, and elevations on each plan sheet.
- Clearly label all stub-out locations for any future pipe connections.
- Clearly show on the plans all utility easements, tracts, access easements, Native Growth Retention Areas, Critical Area buffers, Critical Area Setback Areas, and building setback lines. Show dimensions, type of restriction, and use.
- Using arrows, indicate drainage direction of hydraulic conveyance systems.

#### 4.2.3 Drainage Plan View: Other

- Show the location, identification, and dimensions of all buildings, property lines, streets, alleys, and easements.
- Verify the condition of all public right-of-way and the rights to use them as proposed.
- Show the locations of structures on abutting properties within 50 feet of the proposed project site.
- Show the location of all proposed drainage facility fencing, together with a typical section view of each fencing type.
- Provide section details of all retaining walls and rockeries, including sections through critical portions of the rockeries or retaining walls.
- Show all existing and proposed buildings with projections and overhangs.

- Show the location of all wells on site and within 100 feet of the site. Note wells to be abandoned.
- Show structural BMPs required by the King County Water Pollution Control Manual.

#### 4.2.4 Profiles: Roadway and Drainage

- Provide existing centerline ground profile at 50-foot stations and at significant ground breaks and topographic features, with average accuracy to within 0.1 feet on unpaved surface and 0.02 feet on paved surface.
- For publicly maintained roadways, provide final road and storm drain profile with the same stationing as the horizontal plan, reading from left to right, to show stationing of points of curve, tangent, and intersection of vertical curves, with elevation of 0.01 feet. Include tie-in with intersecting pipe runs.
- On a grid of numbered lines, provide a continuous plot of vertical positioning against horizontal.
- Show finished road grade and vertical curve data (road data measured at centerline or edge of pavement). Include stopping sight distance.
- Show all roadway drainage, including drainage facilities that are within the right-of-way or easement.
- On the profile, show slope, length, size, and type (in plan notes or on a detail sheet) for all pipes and detention tanks in public right-of-way.
- Indicate the inverts of all pipes and culverts and the elevations of catch basin grates or lids. It is also desirable, but not required, to show invert elevations and grate elevations on plan sheets.
- For pipes that are proposed to be within 2.0 feet of finished grade, indicate the minimum cover dimensions.
- Indicate roadway stationing and offset for all catch basins.
- Indicate vertical and horizontal scale.
- Clearly label all profiles with respective street names and plan sheet reference numbers, and indicate all profile sheet reference numbers on plan sheets, if drawn on separate sheets.
- Locate match points with existing pavements, and show elevations.
- Show all property boundaries.
- Label all match line locations.
- Provide profiles for all 12-inch and larger pipes and for channels (that are not roadside ditches).

- Show the location of all existing and proposed (if available or critical for clearance) gas, water, and sanitary sewer crossings.
- Show energy dissipater locations.
- Identify datum used and all benchmarks (may be shown on plan view instead). Datum and benchmarks must refer to established control when available.
- Use a vertical scale of 1"=5'. As an exception, vertical scale shall be 1"= 10' if the optional 1"= 100' horizontal scale is used on projects with lots one acre or larger. Clarifying details, including those for intersections and existing driveways, should use a larger scale.
- Split sheets, with the profile aligned underneath the plan view, are preferred but not required.

### 4.3 Required Minimum Details

The design engineer shall provide details for all construction, including but not limited to the following.

#### 4.3.1 Flow Control, Water Quality, and Infiltration Facility Details

- Provide a scaled drawing of each detention pond or vault and water quality facility, including the tract boundaries.
- Show predeveloped and finished grade contours at 2-foot intervals. Show and label maximum design water elevation.
- Dimension all berm widths.
- Show and label at least two cross-sections through a pond or water quality facility.
- One cross-section must include the restrictor.
- Specify soils and compaction requirements for pond construction.
- Show the location and detail of emergency overflows, spillways, and bypasses.
- Specify rock protection/energy dissipation requirements and details.
- Provide inverts of all pipes, grates, inlets, tanks, and vaults, and spot elevations of the pond bottom.
- Show the location of access roads to control manholes and pond/forebay bottoms.
- Provide plan and section views of all energy dissipaters, including rock splash pads. Specify the size of rock and thickness.
- Show bollard locations on plans. Typically, bollards are located at the entrance to drainage facility access roads.
- On the pond or water quality facility detail, show the size, type (or in plan notes), slope, and length of all pipes.
- Show to scale the section and plan view of restrictor and control structures. The plan view must show the location and orientation of all inlet pipes, outlet pipes, and flow restrictors.
- Draw details at one of the following scales: 1"=1', 1"=2', 1"=4', 1"=5', 1"=10', or 1"=20'.

### 4.3.2 Structural Plan Details

Any submittal that proposes a structure (e.g., bridge crossing, reinforced concrete footings, walls, or vaults) shall include plan sheets that include complete working drawings showing dimensions, steel placement, and specifications for construction. Structures may require a design prepared and stamped by a professional structural engineer licensed in the State of Washington, and an application for a separate non-residential building permit.

## **Section 5 - Conveyance System Design Standards**

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### **5.1 Standard Specifications and Details**

All projects shall be designed and constructed to conform to the City of Bothell Design and Construction Standards and Specifications. Design and Construction Standards and Specifications can be attained by contacting the Public Works Department.

### **5.2 Conveyance System Design Standards**

For basic conveyance system design in Bothell use the latest edition of the King County Surface Water Design Manual (SWDM), Chapter 4: Conveyance System Analysis and Design. The manual is available online at:

<http://www.kingcounty.gov/environment/waterandland/stormwater/documents/surface-water-design-manual/2009-swdm.aspx>

### **5.3 Conveyance Standards for Fish Passage Culverts**

Project proponents shall refer to Bothell Municipal Code (BMC) 14.04 for local fish passage culvert requirements. Conveyance standards detailed in the 2009 King County SWDM may need to be changed to accommodate fish passage pursuant to BMC 14.04.

## **Section 6 - Small Site Drainage Review**

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### **6.1 Small Site Drainage Review Requirements**

Small Site Drainage Review Requirements shall be those detailed in Appendix C of the 2009 King County Surface Water Design Manual (SWDM). Appendix C is available online at:

<http://www.kingcounty.gov/environment/waterandland/stormwater/documents/surface-water-design-manual/2009-swdm.aspx>

### **6.2 Adjustment to Sediment and Erosion Control Requirements for Projects in Small Site Drainage Review**

Section C.3 of Appendix C of the 2009 King County SWDM is omitted by this manual. For consistency of sediment and erosion control applications in the City of Bothell, projects qualifying for small site drainage review shall refer to Section 2, Volume I, 2.5.2 of this manual for sediment and erosion control requirements. Volume II of the 2005 Ecology Manual provides detailed guidance on sediment and erosion control measures and requirements of those controls in the City of Bothell.

Projects qualifying for small site drainage review shall refer to Appendix C for specifications of Small Site Drainage Review TESC Plan. King County SWDM refers to TESC plans as ESC plans.

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## References

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City of Bothell, Design and Construction Standards and Specifications (Surface Water Design Manual), Bothell, WA, 2000 edition.

City of Bothell, Municipal Code Title 14 (Environment), Bothell, WA, Ordinance 1996, passed July 29, 2008.

City of Bothell, Municipal Code Title 18 (Utilities Infrastructure), Bothell, WA, Title 18 was recodified from Title 13 by Ord. 1634. Prior legislation: 1622.

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Puget Sound Action Team, Low Impact Development Technical Guidance Manual for Puget Sound. Seattle, WA, February 2005.

Washington Department of Ecology, Guidance for Evaluating Emerging Stormwater Treatment Technologies (TAPE). Publication number 02-10-037, Olympia, WA, January 2008.

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