

Technical Memo

To: Andy Haub, Eric Christensen, City of Olympia
Brandi Lubliner, WDOE

From: William J. Taylor

Date: February 5, 2019

Re: Bioretention Hydrologic Performance (BHP) Study II
Site Selection Process and List of Selected Sites
Technical Memo – Deliverables 2.2 and 2.3 Combined

This memo provides a summary of the site selection process and results of the site evaluations combined into one memo. As the selection process and recommended sites for selection are connected, it made sense to combine these into one product.

Background

The BHP Study II follows the BHP Study I (conducted with the City of Bellingham) and again involved contacting Puget Sound Basin jurisdictions to identify “candidate” bioretention facilities to be recommended for evaluation and possible selection in a set of ten facilities for performance monitoring.

The difference in the BHP II selection criteria from the first BHP Study was specifically to select sites designed using the Western Washington Hydrology Model version 2012 (WWHM 2012). The goal of this project is to evaluate the performance of the model, in addition to observe how the bioretention facilities are performing in the field.

As before, the selected sites are being monitored for inflow and outflowing stormwater flows. Site data is also being collected for groundwater and ponding levels, bioretention soil mix composition and infiltration rate, subsurface soil conditions, and vegetation composition and density as supporting information to evaluate the site performance.

Outreach to Jurisdictions, and Candidate Sites Identified and Evaluated in the Field

Jurisdictions, and this time public school districts, selected for contact to nominate potential sites came from four different sources:

1. Jurisdictions indicating interest in the BHP study from previous contact or during the current SAM project selection process,
2. Public School Districts identified through the Office of Superintendent of Public Instruction
3. Jurisdictions identified through the Ecology Water Quality Grant program as having funded construction of a bioretention facility as part of their grant funded project, and
4. Jurisdictions that contacted the consultant team as a result of group emails from the Stormwater Work Group, the APWA Stormwater Managers Committee, and from the NPDES Stormwater Permit Coordinators forum.

Over thirty school districts and over 15 jurisdictions were contacted through direct telephone contact with stormwater managers or associated engineers and water quality specialists to discuss the BHP study, and their recommendations on possible candidate sites within their jurisdiction.

Based on the initial criterion that candidate sites had to be designed using WWHM 2012, almost thirty facilities were recommended for site evaluation. Site design plans (including planting plans), technical information reports (TIRs) and modeling information was gathered for most of these facilities. Twenty-five facilities were then identified for conducting a site visit for final evaluation. Because most of the sites contained multiple cells each with their own conditions, the site visits for these twenty-five facilities resulted in visual evaluation of approximately seventy individual cells.

Site Field Evaluation

After receipt of design drawings, TIRs, and hydrologic modeling results, each consultant discipline leader evaluated their background material before assessing each site in the field. Information then assessed in the field related to each of the main disciplines for selection of the sites:

- Assessment of inflow and outflow locations for flow monitoring feasibility
- Qualitative soil media composition and soil probe depths

In a different process from the previous BHP study, we did not conduct vegetation assessments as all the sites were recently constructed, or were still unplanted as we were visiting the sites. It was decided to conduct the vegetation assessment in the following spring to allow final planting and an assessment of initial survival.

Site Selection Criteria

The same site selection criteria developed in the BHP I was used as a reference to review and make note of many of the site design conditions and parameters for the candidate sites. Attachment 1 also provides a list of monitoring, modeling, and geotechnical information for each of the candidate sites.

As with the BHP I study, the accessibility of flow monitoring to attain accurate hydrologic results was almost exclusively the deciding factor. The remaining criteria checklist items were nonetheless useful as a checklist reminder of factors affecting site performance and additional data collection needs.

Separate from the criteria checklist, we used the surficial geologic and jurisdictional representation as guides to select sites that represented a wide range in geologic and jurisdictional participation.

Final Sites Selected for Monitoring

The geographic distribution of the full set of 25 sites visited is presented in Figure 1, and the final set of selected sites is listed in Table 1 below, and shown in Figure 2. Attachment 1 provides a full list of the sites visited, selected, addresses and the associated jurisdiction contacts.

Table 1. The final set of sites selected under the BHP II project.

Jurisdiction	Project Name
Bellingham (BUW)	Columbia WQ Improvements
Bellingham (BCK)	Nevada – Kentucky Bike Boulevard
Marysville (M3Q)	1 st and 3 rd Street SW Retrofit
Marysville (M1C)	1 st and 3 rd Street SW Retrofit
Monroe S.D. (MPP)	Park Place Middle School
Monroe S.D. (SSW)	Salem Woods Elementary
Renton (RSH)	Green Connections
Tacoma S.D. (FWI)	Wainwright Intermediate
Tacoma S.D. (TWH)	Wilson High School
Tumwater S.D. (TBM)	Bush Middle School

Seasonal Schedule for Monitoring

The monitoring phase of the project has begun, with virtually all the sites were installed and collecting continuous flow and rainfall data by October 15, 2018. The only exception was the two Bellingham sites which were installed on 10/22/18; and at the Bellingham BUW site one of the two inlet weirs was not installed until 11/6/18. The geotechnical site assessment work and field infiltration testing was completed during October and November 2018.

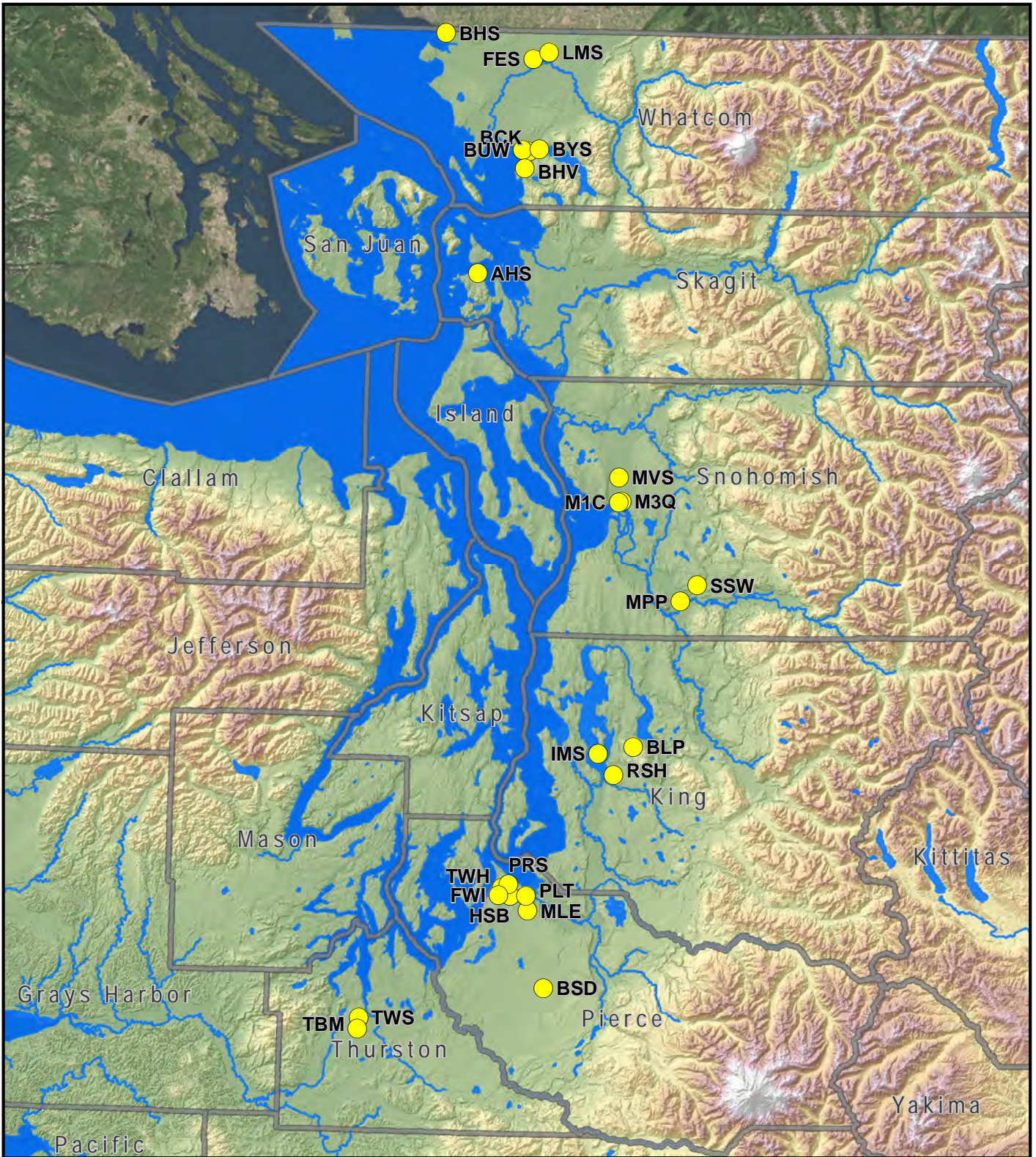
As with the BHP I Study, we recommend extending the period of monitoring from the current five months to eight months. The added value of observed groundwater conditions at many of the sites added value to analysis of the spring groundwater transition season.

If you have any questions, please feel free call me or Doug Beyerlein.

Bill Taylor

Taylor Aquatic Science and Policy

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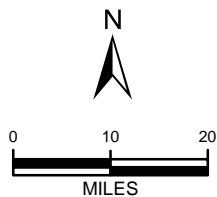


LEGEND:

- ALL SITES
- COUNTY

DATA SOURCES / REFERENCES:
 AERIAL: WORLD IMAGERY, ESRI, DIGITAL GLOBE 2017
 UNIVERSITY OF WASHINGTON 10 METER COMPILED DEM FROM
 USGS1998 DEM QUARTER QUADS
 WADNR: COUNTY BOUNDARY

LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE



NOTE: BLACK AND WHITE
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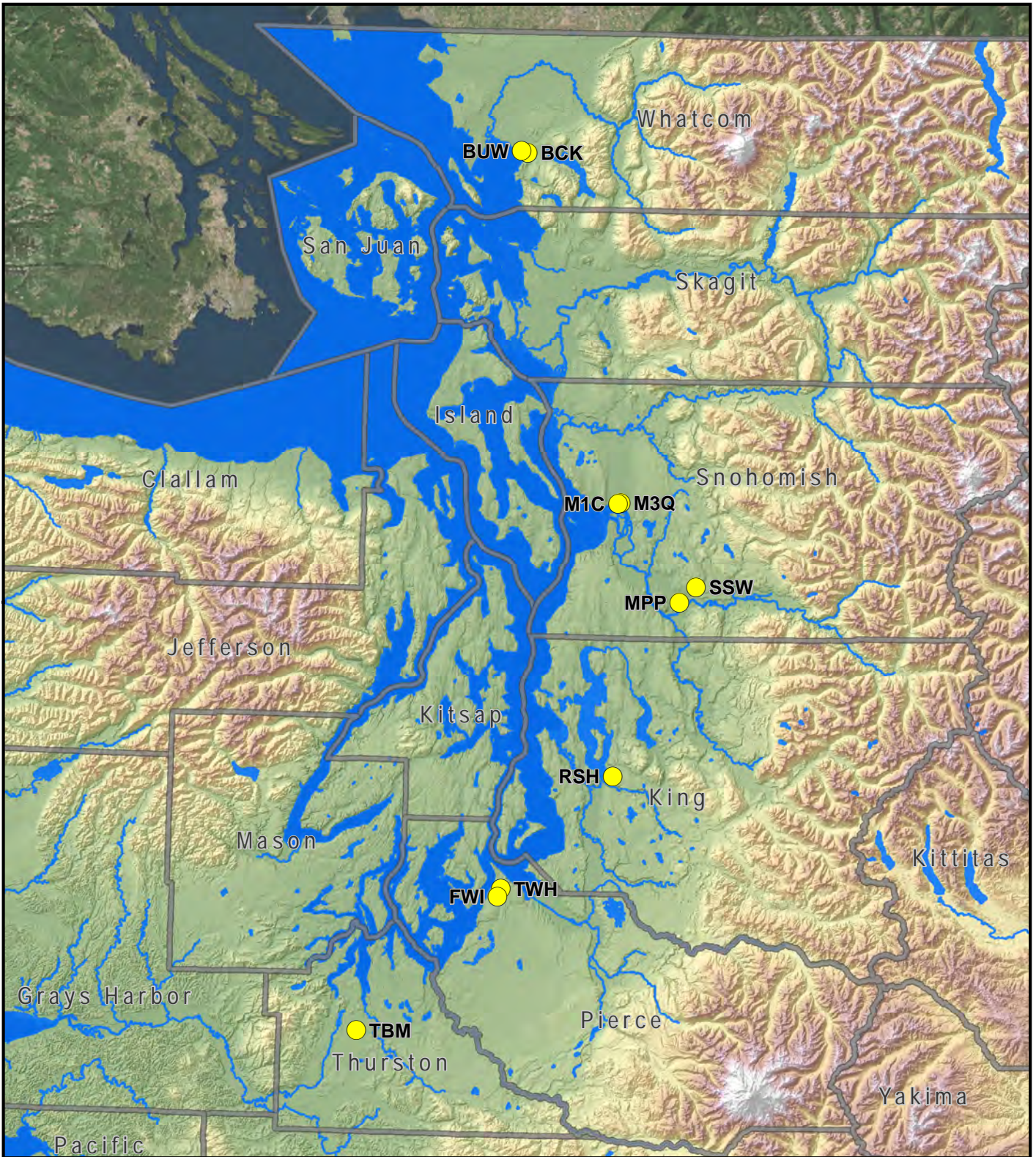
associated
 earth sciences
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BIORETENTION SITES



**BIORETENTION HYDROLOGIC
 PERFORMANCE MONITORING STUDY
 PUGET LOWLAND, WASHINGTON**

PROJ NO.	150387H007	DATE:	1/19	FIGURE:	1
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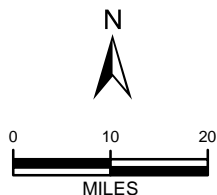


LEGEND:

-  SELECTED SITES
-  COUNTY

DATA SOURCES / REFERENCES:
 AERIAL: WORLD IMAGERY, ESRI, DIGITAL GLOBE 2017
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BIORETENTION SITES
BIORETENTION HYDROLOGIC
PERFORMANCE MONITORING STUDY
PUGET LOWLAND, WASHINGTON

PROJ NO.	150387H007	DATE:	1/19	FIGURE:	2
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Attachment 1. List of candidate bioretention monitoring sites visited and assessed for selection as a site to be monitored during the BHP II study. Sites highlighted in yellow are selected for monitoring.

Jurisdiction	Project Name	Location	Contact Name	Contact Phone
Anacortes (AHS)	Anacortes High School	1600 20th St, Anacortes	Marty Yates	360-293-1228
Bellevue (BLP)	Lewis Cr. Park Picnic Area	Lewis Creek Park	Kit Paulsen	425-452-4861
Bellingham (BUW)	Columbia WQ Improvements	Utter St. and Washington St.	Eli Mackiewicz	360-778-7955
Bellingham (BCK)	Nevada – Kentucky Bike Boulevard	Kentucky St. and Cornwall Avenue	Eli Mackiewicz	360-778-7955
Bellingham (BYS)	Yew St. SW Improvements	Yew St. between Texas and Alabama St.	Eli Mackiewicz	360-778-7955
Bellingham S.D. (BHV)	Happy Valley Elementary	1041 24th St., Bellingham	Eli Mackiewicz	360-778-7955
Bethel S.D. (BSD)	Shining Mountain Elementary	21615 38th Ave E, Spanaway	David Wells	253-683-6085
Blaine S.D. (BHS)	Blaine High School	1055 H Street, Blaine	Alan Pomeroy	360-332-0738
Lynden S.D. (FES)	Fisher Elementary	501 14th St., Lynden	Patty Fairbanks	360-303-0927
Lynden S.D. (LMS)	Lynden New Middle School	8750 Line Rd., Lynden	Patty Fairbanks	360-303-0927
Marysville (M3Q)	1 st and 3 rd Street SW Retrofit	3 rd and Quinn St.	Adam Benton	360.363.8283
Marysville (M1C)	1 st and 3 rd Street SW Retrofit	1 st and Cedar St.	Adam Benton	360-363-8283
Marysville (MVS)	Sonic Drive-In	3802 116th St NE	Adam Benton	360-363-8283
Mercer Island S.D. (IMS)	Islander Middle School	7447 84th Ave SE, Mercer Island	Tony Kuhn	206-230-6339
Monroe S.D. (MPP)	Park Place Middle School	1408 W Main St., Monroe	Heidi Hansen	360.804.2677
Monroe S.D. (SSW)	Salem Woods Elementary	12802 Wagner Rd., Snohomish Co.	Heidi Hansen	360.804.2677
Renton (RSH)	Green Connections	Harrington at NE 8 th St.	Ron Straka	425-430-7248
Tacoma (HSB)	Homestreet Bank	1501 S. Union Ave.	Mieke Hoppin	253-573-2332
Tacoma (PLT)	Prairie Line Trail	S. Hood and Dock St.	Mieke Hoppin	253-573-2332
Tacoma	Proctor South Development	N. 25 th Street and N. Madison Street	Mieke Hoppins	253-573-2332
Tacoma S.D. (MLE)	Mary Lyon Elementary	101 E. 46 th St., Tacoma	Mieke Hoppin	253-573-2332
Tacoma S.D. (FWI)	Wainright Intermediate	130 Alameda Ave., Fircrest	Michael Knaack	253-571-3316
Tacoma S.D. (TWH)	Wilson High School	1202 N Orchard St., Tacoma	Michael Knaack	253-571-3316
Tumwater S.D. (TBM)	Bush Middle School	2120 83rd Ave SW, Tumwater	Tanya Baker	360-709-7009
Tumwater S.D.(TWS)	Tumwater Middle School	6335 Littlerock Rd SW, Tumwater	Tanya Baker	360-709-7009

Site Information for Monitoring Assessment

				<u>Can inflow be easily monitored; 1 = Yes; 0 = No</u>	<u>Can inflow be monitored with simple modifications; 1 = Yes; 0 = No or Not applicable</u>	<u>Overall monitoring rating</u>	<u>Comments</u>	
	<u>Label</u>	<u>Jurisdiction</u>	<u>Site</u>	<u>Site Visit Date</u>				
1	M3Q	Marysville	3rd Street LID and Roadway improvement Project	4/30/18, 5/1/18	0	1	Tier 1	1 inlet and 1 outlet both with easy weir installs or curb cut modification
2	M1C	Marysville	Marysville 1st Street LID	4/30/18, 5/1/18	0	1	Tier 1	Only 1 inlet from curb, can't monitor outlet flow except via morning glory weir if riser overtops. Can't monitor sidewalk inputs but they are likely very small
3	MVS	Marysville	Sonic Drive-In	4/30/18, 5/1/18	1	1	No-Go	Received plan set only. Seasonal high GW depth ~5ft. owner said no
4	WHS	Tacoma	Wilson High School	4/30/18	1	1	Tier 1	Underdrained 2 inlets and 1 outlet pipe
5	HSB	Tacoma	Homestreet Bank	4/30/18	1	0	Tier 2	Underdrained could be monitored but lots of inputs Outlet comingled, owner status unknown
6	PRS	Tacoma	Proctor South	4/30/18	unk	unk	No-Go	Construction not finished at time of study
7	MLE	Tacoma	Mary Lyon Elementary School	7/31/2018	unk	unk	No-Go	Construction not finished at time of study
8	PLT	Tacoma	Prarie Line Trail	4/30/18	0	0	No-Go	Complicated stone weir walls and other confusion
9	BHV	Bellingham SD	Happy Valley Elementary School	7/20/19	0	0	No-Go	Too many inlets and comingled outflow, other cell lined, parking lot too many linked cells
10	AHS	Anacortes	Anacortes High School	10/1/18	unk	unk	No-Go	Construction not finished at time of study
11	FES	Lynden	Fisher Elementary School	7/20/2018	0	0	Tier 2	Lots of inlets, would need to monitor 1 and model 16, otherwise good
12	LMS	Lynden	Lynden New Middle School	7/20/2018	0	0	Tier 2	Can't monitor inflow as it is all sheet flow but very clearly defined drainage area likely best case for modeling inflow
13	BCK	Bellingham	Cornwall Kentucky	7/20/2018	1	1	Tier 1	2 inlets, 1 outlet. 1 inlet subject to some backwater
14	IMS	Mercer Island	Islander Middle School	8/15/2018	0	0	Tier 2	Multiple buried inlets with inverts below BSM level in cell
15	BYS	Bellingham	Yew St	7/20/2018	0	0	No-Go	Adjacent to permeable pavement sidewalk, likely receives flow from sidewalk base-course. Too many ins and Outs
16	BHS	Blaine	Blaine High School	7/20/2018	1	0	No-Go	Owner said no
17		Tumwater	Tumwater Middle School	7/31/2018	1	0	No-Go	All sites either comingled outflow or sheet flow to gravel to grass strip inflow
18	TBM	Tumwater	George Washington Bush Middle School	7/31/2018	1	1	Tier 1	Small cell in back with 1 inlet is good candidate
19	MPP	Monroe SD	Park Place Middle School	7/31/2018	1	1	Tier 1	Cell 6 has 1 inlet, no outlet, Cells 5 and 7 also considered but more complicated and more visible accessible for potential vandalism
20	SSW	Monroe SD	Salem Woods Elementary School	7/31/18	1	1	Tier 1	Cell 2, 1 inlet, outlet is high overflow
21	BLP	Bellevue	Lewis Creek Park	8/15/2018	0	1	No-Go	2 cells. One has sheet flow from pervious & basecourse. Second has overflow from 1st plus 2 curb cuts from pervious. Inflow may be low.
22	FWI	Tacoma SD	Wainwright Intermediate	8/15/2018	0	1	Tier 1	Cell 4 with two inlets selected. Cell 1 underlain by utility. Cell 2 has some minor inflow from sheet flow. Cell 3 extends to include a narrow, vegetated ditch (part of bioretention cell?)
23	BSD	Bethel SD	Shining Mountain ES	8/15/2018	0	0	Tier 2	Primarily sheet flow. Combined with piped inflow and outflow
24	BUW	Bellingham	Utter and Washington	9/28/2018	0	1	Tier 1	2 inlets 1 outlet, inlets are low but should work
25	RSH	Renton	Sunset Harrington	9/28/2018	0	1	Tier 1	2 inlets, unique underdrain with orifice flow control, outlet

Site Information for Modeling Assessment

	Label	Jurisdiction	Site	Site Visit Date	SWDM	SWM	Under-drains	Liner	Overflow	BSM Rate	BSM b	BSM n	Subgrade Design Rate	TIR Civil	
1	M3Q	Marysville	3rd Street LID and Roadway improvement Project	4/30/18, 5/1/18	Ecology 2014	WWHM 2012	no	No	Yes		1.5		2	Gray and Osborne, Inc	
2	M1C	Marysville	Marysville 1st Street	4/30/18, 5/1/18	Ecology 2014	WWHM 2012	no	no	Yes		1.5		2	Gray and Osborne, Inc	
3	MVS	Marysville	Sonic Drive-In	4/30/18, 5/1/18		WWHM 2012	Yes	No	Yes		1.5		3.1		
4	TWH	Tacoma	Wilson High School	4/30/18	Tacoma SWMM 2012	WWHM 2012	Yes	No	Yes		1.5	0.4	1.5	Sitts & Hill Engineers, Oct 2014	
5	HSB	Tacoma	Homestreet Bank	4/30/18	Tacoma SWMM 2016	WWHM 2012	Yes	No	Yes	12	>1.5			PACE, Oct 17, 2016	
6	PRS	Tacoma	Proctor South	4/30/18	Tacoma SWMM 2016	WWHM 2012	Yes	No	Yes		1.5			BCRA, Oct 2016	
7	MLE	Tacoma	Mary Lyon Elementary School	7/31/2018		WWHM 2012								AHBL, Oct 2017	
8	PLT	Tacoma	Prarie Line Trail	4/30/18		WWHM 2012								BCRA, June 2016	
9	BHV	Bellingham SD	Happy Valley Elementary School	7/20/19		WWHM 2012	yes	NE cell is lined						Freeland & Associates, May 2015	
10	AHS	Anacortes	Anacortes High School	10/1/18		WWHM 2012									
11	FES	Lynden	Fisher Elementary School	7/20/2018	Ecology 2005, 2014	WWHM 2012	no	no		3			27.1	Freeland and Associates	
12	LMS	Lynden	Lynden New Middle School	7/20/2018	Ecology 2005, 2014	WWHM 2012	no	no		3			14.73	Freeland and Associates	
13	BCK	Bellingham	Cornwall Kentucky	7/20/2018	Ecology 2005, 2014	WWHM 2012	yes	no	yes	15	1.5		3 cells with 3 different design rates	City of Bellingham Public Works	
14	IMS	Mercer Island	Islander Middle School	8/15/2018		WWHM 2012	yes	no	yes					LPD	
15	BYS	Bellingham	Yew St	7/20/2018		WWHM 2012									
16	BHS	Blaine	Blaine High School	7/20/2018		WWHM 2012	yes							Freeland and Associates	
17	TWS	Tumwater	Tumwater Middle School	7/31/2018	Tumwater DDECM 2010 and Ecology 2005	WWHM 2012, modeled not using bioretention settings	No - but design includes a rock-filled trench beneath BSM				3	1.5		6 biocells: Bio cell 2 and 5 have the highest % imp; bio cell 2: 1.7 iph; Bio cell 5: 2.0 iph	BCRA
18	TBM	Tumwater	George Washington Bush Middle School	7/31/2018	Tumwater DDECM 2010 and Ecology 2005	WWHM 2012	No	No	No		1.5		0.9	BCRA	
19	MPP	Monroe SD	Park Place Middle School	7/31/2018	Ecology 2005, 2014	WWHM 2012	No	No	No	2	1.5			Harmsen	
20	SSW	Monroe SD	Salem Woods Elementary School	7/31/2018	Snohomish County Drainage Manual 2016	WWHM 2012	No	No	No	1.5	1.5			Harmsen	
21	BLP	Bellevue	Lewis Creek Park	8/15/2018			Yes	Fabric						SvR Design	
22	FWI	Tacoma SD	Wainwright Intermediate	8/15/2018	Ecology 2014	WWHM 2012	Yes	No	Yes		1.5		1.5	AHBL	
23	BSD	Bethel SD	Shining Mountain ES	8/15/2018			no		yes						
24	BUW	Bellingham	Bellingham Columbia Neighborhood	9/28/2018	Ecology 2014	WWHM2012	Yes	No	Yes	12	1.75		0	PSE	
25	RSR	Renton	Renton	9/28/2018	Ecology 2014	WWHM4	Yes	No	Yes	5	1.5		1.2	CH2MHILL	

Site Information for Geotechnical Assessment

	Label	Jurisdiction	Site	Site Visit Date	Geotech	CF	Geology	Explorations	Inf Test Type	Hydrogeology	BSM rate < Native iph	Estimated Construction	Comments
1	M3Q	Marysville	3rd Street LID and Roadway Improvement Project	4/30/18, 5/1/18	PanGEO	NA	Rec. OW (per regional mapping)	EB	grain size	A1	no	2017	Shallow groundwater, less than 10 feet.
2	M1C	Marysville	Marysville 1st Street	4/30/18, 5/1/18	PanGEO	NA	Rec. OW (per regional mapping)	EB	grain size	A1	no	2017	Shallow groundwater, less than 5 feet, tidal influence
3	MVS	Marysville	Sonic Drive-In	4/30/18, 5/1/18	Unk	unk	Rec. OW (per regional mapping)	unk	Infil. test indicated on plan sheet	unk	unk	2017	Received plan set only. Seasonal high GW depth ~5ft.
4	TWH	Tacoma	Wilson High School	4/30/18	AESI 2000, 2004, 2014	None	Till/Adv. OW	EB, EP	None	B2	no	2016	Underdrained. 2 inlets, only one shown on plans.
5	HSB	Tacoma	Homestreet Bank	4/30/18	Zipper Geo Associates, LLS.	None, "not suitable"	Fill/Till	EB	None, "not suitable"	B2	no	2017	Underdrained
6	PRS	Tacoma	Proctor South	4/30/18	GeoResources 4/21/2016 (reference d, not attached)	unk	Fill/Till	unk	unk	B2	no	NA	Not yet constructed at time of study. Geotech report not included in PDF attachments.
7	MLE	Tacoma	Mary Lyon Elementary School	7/31/2018	GeoEngineers, Inc.	0.45	Rec. OW?/Till	EB	PIT	B2	no	NA	Not yet constructed at time of study.
8	PLT	Tacoma	Prarie Line Trail	4/30/18	unk	unk	unk	unk	unk	unk	unk	2017	Geotech report not included.
9	BHV	Bellingham SD	Happy Valley Elementary School	7/20/19	Geotest	NA	Till over outwash	EB, EP	PIT	B2	No - zero field rate in till; did not test the advance	2016	Not suitable for flow monitoring; shallow ground water - one cell lined.
10	AHS	Anacortes	Anacortes High School	10/1/18	AESI	NA	hard silt	EB	none	EX		NA	Not yet constructed at time of study.
11	FES	Lynden	Fisher Elementary School	7/20/2018	Geotest	0.252	Rec outwash (Sumas)	EB, EP	grain size	A1/A2	Yes	2018	City conditioned the project to conduct PIT at the time of construction; no documentation of test received. GW ATD 19 to 20' bgs; mottled at 1.5, 4.5 to 5.5, not interpreted as gw per geotech.
12	LMS	Lynden	Lynden New Middle School	7/20/2018	Geotest	0.252	Rec outwash (Sumas)	EB, EP	grain size	A1/A2	Yes	2018	GW ATD 13 to 18' bgs; mottled at 10.5'.
13	BCK	Bellingham	Cornwall Kentucky	7/20/2018	MTC	0.18	B'ham drift and Fill	HA	grain size	EX	2 cells in GMD - no; 1 cell in fill - possibly	2017	Cells "field fit", may differ from plans. Overflow/underdrain present.
14	IMS	Mercer Island	Islander Middle School	8/15/2018	AESI	NA	pre-Vashon nonglacial	EB	none	F	No	2016	Qpvn at biocell #3, gw at ~10' in EB-7 ATD near Biocell #3; an MW was installed in the parking lot area. One inlet not field located, may join other inlet (but plans show separate).
15	BYS	Bellingham	Yew St	7/20/2018	unk	unk	fill	unk	unk	unk	unk	2016	Adjacent to permeable pavement sidewalk, likely receives flow from sidewalk base-course. No geotech report received.
16	BHS	Blaine	Blaine High School	7/20/2018	unk	unk	unk	unk	unk	unk	unk	2018	Facility may not be complete - may be waiting on landscapers. Recieved plan sheet only.
17	TWS	Tumwater	Tumwater Middle School	7/31/2018	Landau	not stated	Rec. OW	EB, HA, direct push	grain size	A1	No	2016	Groundwater 10' bgs at time of report, monitoring ongoing. Groundwater TM calculated adjusted rates based on 1999 groundwater condition.
18	TBM	Tumwater	George Washington Bush Middle School	7/31/2018	Landau	not stated	Rec. OW	EB	grain size	A1	No	2016	shallow groundwater; high groundwater hazard area
19	MPP	Monroe SD	Park Place Middle School	7/31/2018	AESI	0.4	Alluvium	EP, IT, EB	PIT	D1	No	2017 and 2018	Two phases of construction - 1st set of cell was 2017, second set was 2018
20	SSW	Monroe SD	Salem Woods Elementary School	7/31/2018	AESI	0.315	Rec. OW	EP, IT, EB	PIT	A1	no	2018	Only one inlet appears to be present, plans show two
21	BLP	Bellevue	Lewis Creek Park	8/15/2018	unk	unk	unk	unk	unk	unk	unk	2017	Received plan sets only.
22	FWI	Tacoma SD	Wainwright Intermediate	8/15/2018	AESI	.45, .045	Rec. OW., till	EP	PIT	A2	no	2016	Cell 1 underlain by utility. Cell 2 has some minor inflow from sheet flow. Cell 3 and 4 have inflow from 2 curb cuts each. Cell 3 extends to include a narrow, vegetated ditch (part of bioretention cell?)
23	BSD	Bethel SD	Shining Mountain ES	8/15/2018	unk	unk	unk	unk	unk	unk	unk	2012-2013	No documents received.
24	BUW	Bellingham	Bellingham Columbia Neighborhood	9/28/2018	Element solutions	not stated	Fill, GMD and outwash	EB, EP	grain size, PIT	E2	no	2016	Underdrained.
25	RSH	Renton	Renton	9/28/2018	CH2MHILL	8 (or 0.125)	fill/ rec OW	EB, EP	PIT	A3	no	2017	Underdrained, through orifice.