

EXHIBIT H

Storm Drainage Report

DRAINAGE REPORT

DAUNTLESS TOWNHOMES

SPR/CUP/ULS SUBMITTAL

Owner & Applicant:

Laughlin Development LLC
PO Box 10607
Bainbridge Island, WA 98110
jim@laughlindevelopmentllc.com
206.660.0374

Engineer:

SEABOLD
ENGINEERING LLC



PO Box 445
Indianola, WA 98342
360.930.4668
Kelsey@SeaboldEng.com

I hereby state that this Drainage Report has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community of professional engineers. The analysis has been prepared utilizing procedures and practices specified by the City of Poulsbo and within the standard accepted practices of the industry. I understand that the City of Poulsbo does not and will not assume liability for the sufficiency, suitability or performance of drainage facilities prepared by me.

Date:

January 6, 2026

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PROJECT DESCRIPTION

This residential project is proposing eight duplexes for a total of sixteen units on a 1.83-acre mostly undeveloped site in the Olhava Master Plan Overlay in the City of Poulsbo. The project is located at 21900 Dauntless Drive NW, east of NW Olympic College Way in Olhava. The parcel is 1.83-acres with Tax ID 102601-1-042-2001 and is in Section 10, Township 26 North, Range 1 East.

The townhome project is within the City of Poulsbo and zoned Business Park within the Olhava Master Plan which allows multifamily through a Conditional Use Permit (CUP). The Olhava Master Plan (OMP) encompasses approximately 215-acres of land and was designed and constructed in accordance with the 1992 Washington State Department of Ecology Stormwater Manual for the Puget Sound Basin by American Engineering Corporation in the Storm Drainage Design Report dated May 31, 2002. After the Olhava Master Plan approval, development included installation of the primary circulation roadways, utilities, mass grading and several regional stormwater facilities.

As a part of the Olhava Master Plan project, this project site, within Sub-Basin 8, was graded and designed for a future impervious area of 0.99-acres or 54.2% of the 1.83-acre site with stormwater runoff designed for conveyance to a regional stormwater quality and quantity control system. Sub-Basin 8 encompassed 60.50-acres (post-development) constituting the northeastern portion of Olhava, with stormwater runoff conveyed to the regional stormwater mitigation pond system No. 4, consisting of 3 constructed ponds and one existing infiltration pond. The design was for stormwater mitigation from future impervious areas of 32.80-acres within the basin, equating to 54.2% of the Sub-Basin 8.

The site grading during the construction phase of Olhava created a relatively flat bench along the western approximate $\frac{3}{4}$ of the site and a slope on the eastern $\frac{1}{4}$ sloping to the existing stormwater mitigation pond system. Stormwater runoff from the proposed site development will be routed to the existing stormwater mitigation system to provide stormwater quantity control (Flow Control) as designed and vested by the Olhava Master Plan.

Stormwater runoff from the pollution generating impervious surfaces of the site will be routed to a BioPod to provide enhanced Water Quality treatment prior to discharge from the site in accordance with Minimum Requirements No. 6 of the current Washington State Department of Ecology's 2019 Stormwater Management Manual for Western Washington (SWMMWW).

EXISTING CONDITIONS

The existing site is 1.83-acres and is currently developed with site grading prepped for a future project and an existing telecommunication building (see Figure 1). The site is sparsely vegetated with low grass and volunteer invasive non-native and native shrubs and small trees.

Dauntless Drive fronts the length of the site's southern property line with a gentle to moderate slope from west to east at approximately 5%. The site itself was graded during the construction of Olhava creating a relatively flat bench along the western approximate $\frac{3}{4}$ of the site and a slope on the eastern $\frac{1}{4}$ sloping at approximately 45% and 25-vertical feet (ft) to the existing stormwater mitigation pond system.

City of Poulsbo's Wetlands Critical Area Map (see Figure 2) shows a delineated wetland on the adjacent parcel to the east and partially extending onto the site, however the delineation from the Olhava Master Plan (see Figure 3 which is Figure 3 of Existing Sub-Basins of the OMP Storm Drainage Design Report) is entirely contained on the adjacent parcel to the east. BGE Environmental LLC prepared an evaluation of the existing wetland, dated October 6, 2025 (see Appendix 1).

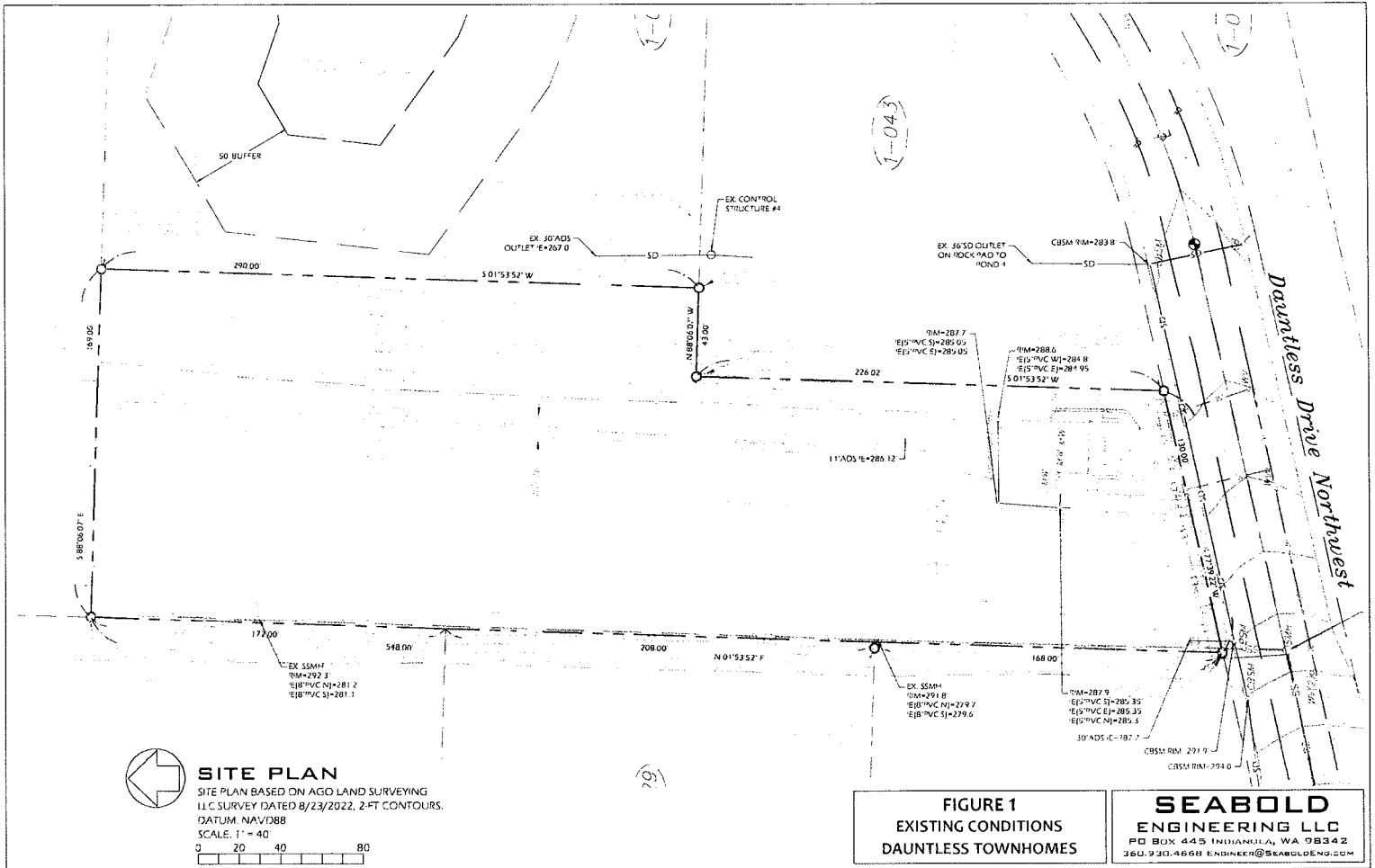
SITE ACCESS

Existing

The site is accessed from Dauntless Drive NW with two existing curb cuts within the existing sidewalk.

Proposed

A single centrally located access is proposed along Dauntless Drive NW.

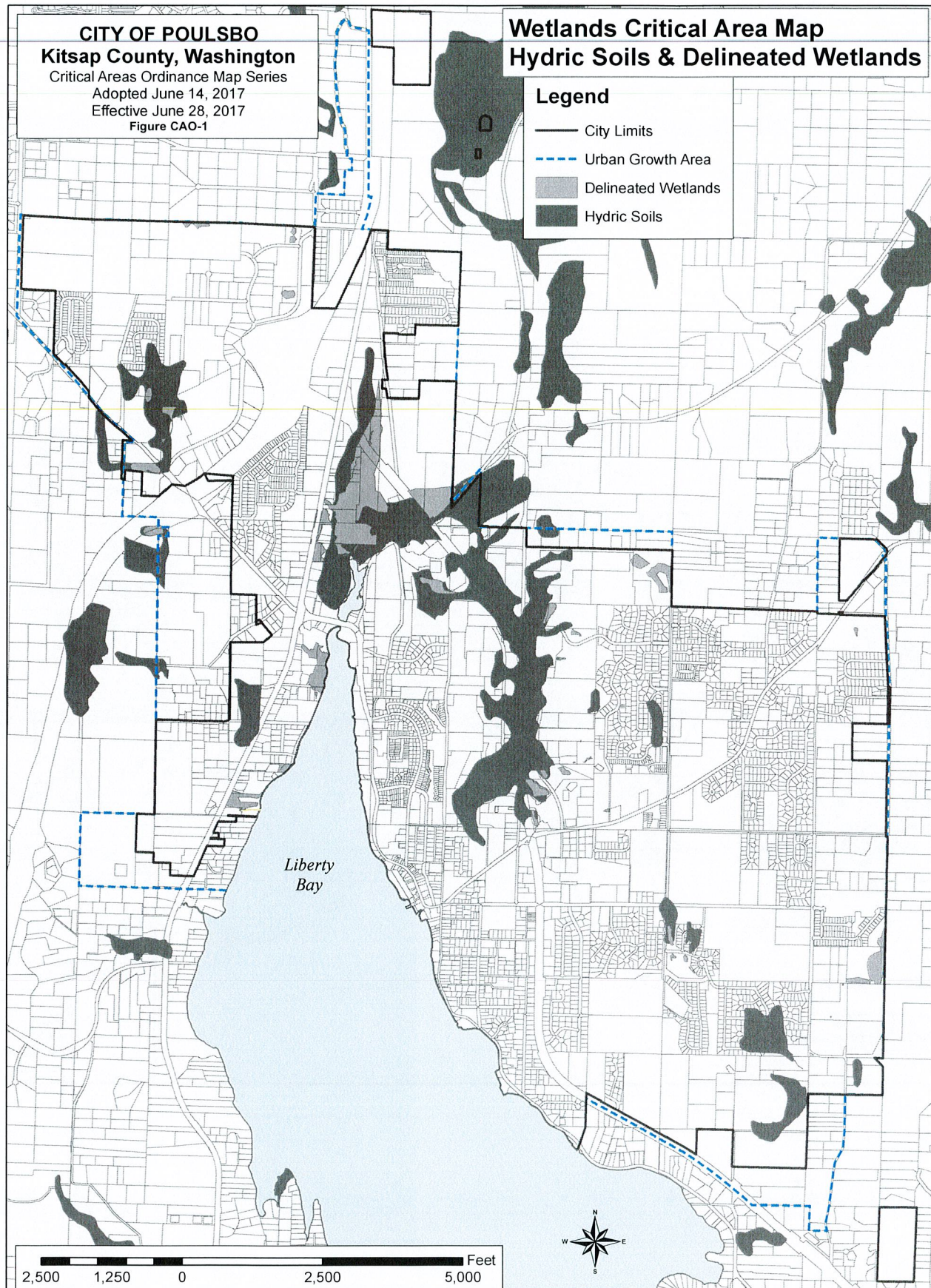


CITY OF POULSBO
Kitsap County, Washington
 Critical Areas Ordinance Map Series
 Adopted June 14, 2017
 Effective June 28, 2017
 Figure CAO-1

Wetlands Critical Area Map
Hydric Soils & Delineated Wetlands

Legend

- City Limits
- - - Urban Growth Area
- Delineated Wetlands
- Hydric Soils



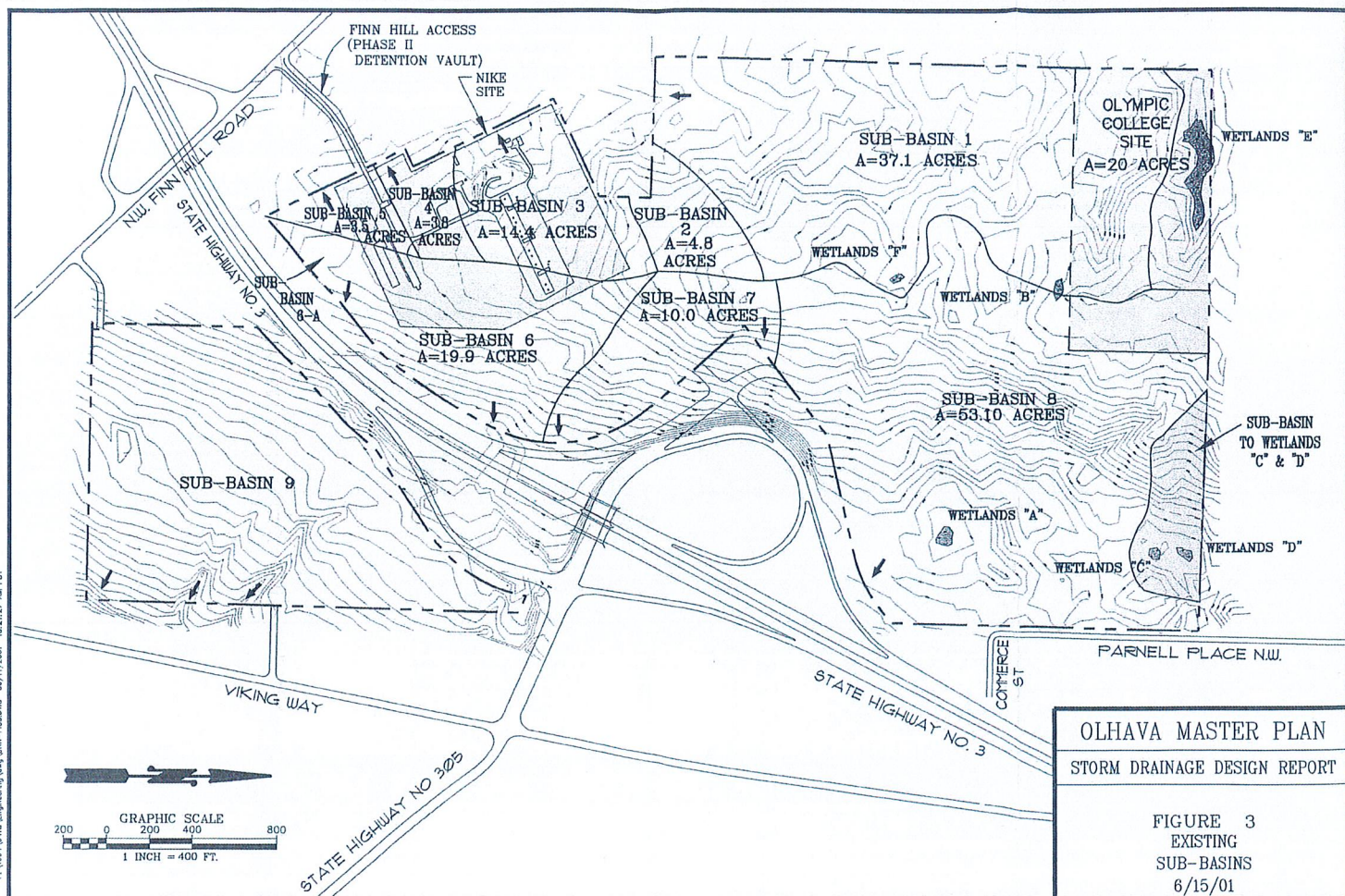
Critical Area Map Series Primary Map Sources and Original Scales:

Delineated Wetlands compiled using Plat Maps from the City of Poulsbo Planning Department.
 Hydric Soils United States Department of Agriculture, Soil Conservation Service in cooperation with the Washington State Department of Natural Resources and Washington State University Agricultural Research Center 1977 1:24,000
 W.S.D.N.R. Hydrography, Washington State Department of Fish and Wildlife 1:24,000
 Deeter, J. 1979, Quaternary Stratigraphy of Kitsap County Appendix III, p 149-159 and Plate 9
 Welch, W.B., Frans, L.M., and Olsen, T.D., 2014, Hydrogeologic framework, groundwater movement, and water budget of the Kitsap Peninsula, west-central Washington: U.S. Geological Survey Scientific Investigations Report 2014-5106, 44 p., <http://dx.doi.org/10.3133/sir20145106>. Prepared in cooperation with the Kitsap Public Utility District.
 Kitsap County Assessor's Tax Maps 1:12,000 (Kitsap County IT, GIS Division)
 * Note: Saltwater wetlands are not represented on this map, however, they are of concern within the Shoreline Management Act.

This critical area map series is intended for general critical area planning. These maps are schematic representations of physical features, infrastructure, and land ownership boundaries. The map information was derived from available public records and existing sources, not from surveys. Studies may be necessary with project review to verify information.

City of Poulsbo Planning Department GIS
 June 14, 2017

P:\1994\19415\Engineering\New\Site-102.1946 06/11/2001 10:21:27 AM PLOT



OLHAVA MASTER PLAN
STORM DRAINAGE DESIGN REPORT

FIGURE 3
EXISTING
SUB-BASINS
6/15/01

FRONTAGE IMPROVEMENTS

Existing

Frontage improvements along Dauntless Drive NW include a concrete sidewalk, with concrete curb and gutter.

Proposed

The existing 5-ft wide concrete sidewalk along the street frontage, approximately 130-ft, is proposed to be replaced and will be evaluated for ADA compliance, with compliant sections to remain if feasible.

EROSION CONTROL

A preliminary erosion and sediment control plan is included on plan sheet C5 of this submittal plan set. A detailed erosion and sediment control plan will be developed and submitted for site utility permit.

ONSITE UTILITIES

WATER

Existing

City water main is located in Dauntless Drive in the southern/eastbound lane. An existing water service serves the site for irrigation purposes. A fire hydrant is located centrally along the Dauntless Drive street frontage. An 8-inch ductile iron water main stub is extended out of Dauntless Drive to the southeast property corner.

Proposed

A water main extension is proposed to be connected to the provided water stub near the southeast corner and proceed west then north within the proposed road corridor to provide water service to a fire hydrant, water meters for each unit and fire suppression systems. Each unit will be equipped with a fire suppression system, to be designed by a fire suppression engineer, with water supplied through the individual water meters. The water main is proposed to be extended to near the northwest property corner for a future looped connection for the future development of the property to the west.

SANITARY SEWER

Existing

An existing sewer main runs north to south along the western property line to Dauntless Drive. No known sewer service stubs to the site exist.

Proposed

Each of the eight proposed buildings will have a 6-inch side sewer service connection to the existing sewer main on-site.

OTHER SITE UTILITIES

Power, telephone and cable will be designed by others.

STORM DRAINAGE

Upstream System

Generally no uphill areas slope toward the site. Three undeveloped lots west and uphill of the property were graded with the Olhava Master Plan project and have an interceptor drain at the top of the slope to intercept runoff and convey it to the stormwater drainage system.

Existing System

The project site is graded generally east where an interceptor swale and culvert drainage system is located near the top of slope to collect stormwater runoff and direct it east to the stormwater mitigation pond system No. 4. The existing telecommunication building has a drainage system collecting runoff from the access driveway, which is assumed to be conveyed east to the ponds however an outlet has not been observed.

Downstream System

The site drains east to the stormwater pond system No.4 per the Olhava Master Plan project design. The pond system infiltrates runoff as designed. The system has been analyzed by local engineers for the development of other lots within Sub-Basin 8 of Olhava which drain to the pond system No. 4 and have indicated the successful infiltration performance. The stormwater mitigation pond system No. 4 has an overflow connection to the existing stormwater drainage system at the intersection of Parnell Place NW & NW Commerce Street which drains east along NW Commerce Street. This system eventually drains to the WSDOT (Washington State Department of Transportation) right-of-way and stormwater ponds, east of State Route 3 & Viking Avenue then eventually to Dogfish Creek & Liberty Bay (see Figure 4 which is Figure 2 of Downstream Analysis of the OMP Storm Drainage Design Report)

Proposed System

A stormwater collection system is proposed to serve the proposed buildings and access road. Rooftop downspout, footing drainage and roadway drainage systems will be conveyed to the stormwater mitigation pond system No. 4 east of the site, per the Olhava Master Plan. Stormwater from the new pollution generating impervious areas will be conveyed to a BioPod for enhanced Water Quality treatment prior to discharge from the site.

Threshold Determination

The Olhava Master Plan was designed and constructed in accordance with the 1992 Washington State Department of Ecology Stormwater Manual for the Puget Sound Basin by American Engineering Corporation in Storm Drainage Design Report dated May 31, 2002. As a part of the Olhava Master Plan project, this project site was graded and designed for a future impervious area of 0.99-acres or 54.2% of the 1.83-acre site with stormwater runoff designed for conveyance to a regional stormwater quality and quantity control system.

Proposed developed site land cover areas include the following:

Rooftop	12,160-sf
Driveway	12,035-sf
Sidewalks	3,130-sf
Parking	2,465-sf
Driveway Aprons	4,080-sf
<u>Misc. Patios/Walkways</u>	<u>6,400-sf (400-sf/DU)</u>
Total Impervious Areas	40,270-sf

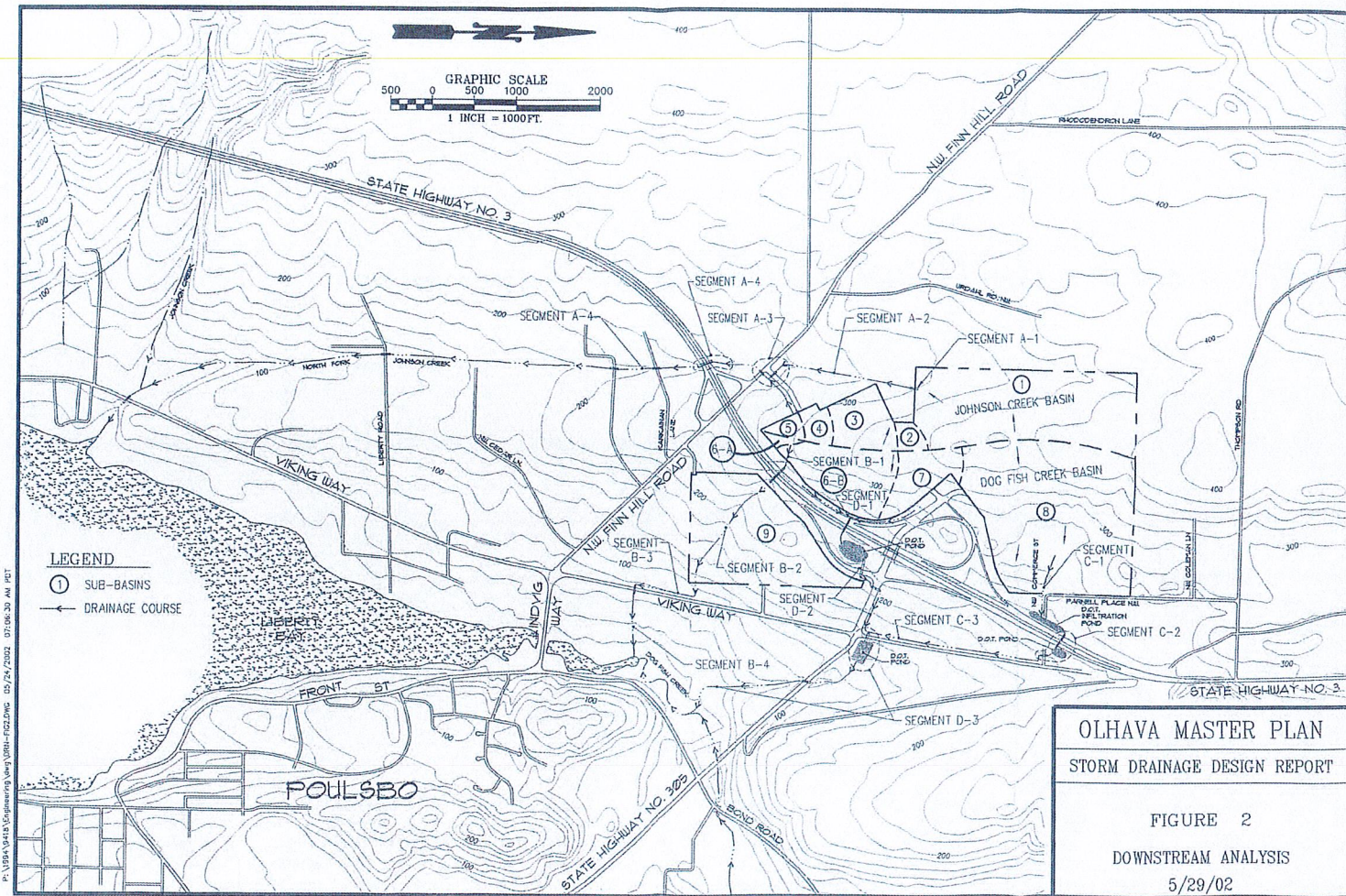
Total proposed impervious areas associated with this project are ±40,270-square feet (sf) which is 0.92-acres and equivalent to 50.5% of the project site (see Figure 5).

The existing telecommunications building rooftop area of 505-sf and its' access driveway of 5,890-sf have a combined existing impervious area of 6,395-sf, equivalent to 8% of the site. The existing gravel area of 4,720-sf will be removed and a paved apron from the proposed roadway of 435-sf will replace it. Total impervious areas associated with the telecommunications building are 2,110-sf, equivalent to 2.6% of the site.

Combined total impervious areas for the existing and proposed site conditions are 42,380-sf or 53.2% of the site, which is less than the allowable 54.2% impervious coverage.

Landscaping areas and disturbed soil areas will have soil amendment per Post-Construction Soil Quality & Depth BMP T5.13 to help reduce and mitigate stormwater runoff to the extent feasible & to provide a high quality growing environment for the proposed landscaping.

The access road, emergency vehicle turnaround, parallel parking, driveway aprons and sidewalk areas total approximately 22,145-sf of pollution generating hard surfaces (PGHS). Minimum Requirement No. 6, Runoff Treatment, is required when PGHS exceeds 5,000-sf, and will be provided with a BioPod (BPU-681B see Appendix 3) to provide Enhanced Water Quality Treatment by removing sediments and oils suspended in stormwater prior to discharge from the site.



WWHM (Western Washington Hydrology Model) 2012 models the Water Quality flow rate from these proposed pollution generating impervious surfaces to be 0.1265-cubic feet per second (cfs) (see Appendix 2), adequately provided by the BioPod which has a peak Water Quality flow rate of 0.128-cfs. WWHM 2012 models the peak 100-year flow frequency flow rate from these proposed impervious surfaces to be 1.1576-cfs (see Appendix 2), also adequately handled by the BioPod which has a peak bypass flow rate of 5.0-cfs.

The stormwater drainage system proposes a stub near the northwestern property corner to accommodate a connection for future development of the property to the west. This portion of the proposed drainage system bypasses the water quality facility assuming the off-site site will be required to provide its own water quality facility.

APPENDIX 1 - BGE Environmental LLC Wetland Review 10/6/2025



BGE Environmental, LLC.

Wetland Consulting and Land Use Planning

06 October 2025

Laughlin Development, LLC.
PO BOX 10607
Bainbridge Island, WA 98110

RE: Wetland Review Dauntless Dr NW, Poulsbo Tax Parcel 102601-1-044-2009

At your request, BGE completed field review and limited assessment on a known wetland area located on a 1.78-acre property on the west side of Dauntless Dr NW, see vicinity map Exhibit A. The scope of the assessment, as we understand it to be, is to determine if the subject wetland conditions regarding size, complexity, and function are the same as documented in the Olhava Master Plan. Our review included the following investigations and resources:

1. Review of *Storm Drainage Design Report*, American Engineering Corporation (AEC), 2002,
2. Review of Site Plan provided by Seabold Engineering
3. Resource data base search
 - a. Poulsbo Wetland Critical Area Map
 - b. Kitsap County GIS
 - c. DOE Water Quality Atlas
 - d. WDFW Priority Habitat and Species
 - e. National Wetland Inventory
 - f. DOE Coastal Zone Atlas
 - g. Google Earth
 - h. Bing Maps
4. Field investigation August 19, 2025.

PROJECT BACKGROUND

The subject wetland is cited (AEC) as Wetland A with a fifty-foot buffer. Wetland impact and drainage strategies for Olhava state that '*Wetland A will be preserved, undisturbed together with it's 50-foot buffer.*' According to AEC, the wetlands closed depression is incidental to the stormwater design and not meant to be utilized as a retention facility. However, the stormwater pond designed to this sub-basin will discharge to Wetland A at a release rate that meets pre-developed conditions

with the intention to 'maintain the integrity of the wetland'. The sub-basin pond (Pond 4) is multi-celled, providing detention, water quality, and sediment removal to clean up the stormwater prior to discharging. Direct stormwater discharges to wetlands are prohibited¹. To address this at the time, '**small depressions or infiltration galleries**' were constructed outside and around the fifty-foot wetland buffer. The small, depressions are designed to hold the overflow from Pond 4 and allow it to infiltrate naturally into the wetland, mimicking the natural hydrologic regime. A dispersal swale level spreader was installed at the outer edge of the infiltration galleries to ensure even flow distribution around the wetland buffer. The following excerpt is taken from Section III Preservation of Natural Drainage Areas Retention /Detention Analysis Sub-Basin 8, page 26 of the AEC report:

Storm Drainage Design Report, Phase One Grading and Erosion/Sedimentation Control

Sub-Basin 8. Sub-basin 8 is 53.14 acres in size and constitutes the northeast portion of the Olhava site and drains toward the existing large closed depression containing Wetlands A. There is no outlet from this closed depression and all stormwater runoff appears to infiltrate into the site soils. When developed, the basin size will increase to 60.50 acres and include the lower sections which originally by-passed this area. However, in order to maintain the water balance in the wetlands, the release rates into the infiltration area will be the pre-developed rates from the original 53.14 acres.

Impact on Wetlands A: A closed depression analysis is not warranted for the wetlands. The infiltration area to the wetlands closed depression is incidental to the design and was not meant to be used as a retention facility. Pond 4, serving Sub-basin 8 is designed to provide detention and controlled release to this area. The pre-developed release rates from Pond 4 were calculated to match the existing flows into the closed depression in order to maintain the integrity of the wetlands. In addition, the DOE SWWM Manual does not allow direct discharge into the wetlands and requires that discharge from any control structure mimic the pre-developed conditions. The pre-developed conditions for Sub-basin 8 were surface and sub-surface flows. Therefore, providing infiltration benches, which surround the buffer area, will provide surface and sub-surface flows needed to mimic the drainage to the wetlands. Also see additional analysis in Section VII wetlands.

Estimated Area: 53.14 acres

Estimated Time of Concentration: 176.11 minutes

Estimated Peak Flows:

Q ₂	2-year, 24-hour:	2.23	cfs
Q ₁₀	10-year, 24-hour:	4.64	cfs
Q ₁₀₀	100-year, 24-hour:	9.25	cfs
Q _{7day}	100-year, 7-day:	2.73	cfs

¹ Department of Ecology's Stormwater Management Manual for Western Washington, 1992

RESOURCE SEARCH

Wetland A documentation occurs on the City of Poulsbo's Wetland Critical Area Map. There are no documented priority habitat or species to the parcel or surrounding vicinity. This includes both flora and fauna. Threatened and Endangered species potentially in the vicinity include marbled murrelet, yellow-billed cuckoo, and bull trout. No habitat is present for these species. Review of the Kitsap County Critical Areas Ordinance (*No 217-1998*) amended August 9, 1999, we presume that the wetland is Category III **because**, at a minimum, it provides a critical Aquifer recharge function². Fifty-foot buffers were standard for a Category III rating.

FIELD FINDINGS

The field review was completed under dry conditions, August 19, 2025. The approach to the interior of the closed depression is off a 2:1 slope that is heavily vegetated. Near the toe-of-slope the level spreaders are observed as angular rock berms not more than a foot in height. Once under the canopy the floor is a thick layer of fallen leaves. Dried algal mats skirt tree trunks from heights of up to four feet.

A silt fence sits on top of the constructed infiltration berm, establishing the edge of the wetland buffer of fifty-feet. The berm circles the wetland at a higher elevation to the floor of the landward closed depression. In some areas the change in elevation is over five feet. Once on the wetland side of the silt fence there is an overabundance of downed trees. The edge of Wetland A is delineated roughly fifty-feet from the silt fence. The wetlands interior is a thicket of downed trees of various stand ages. Vegetation is observed as an ecotone of hardhack in some areas. The downed logs are blanketed with dried algae. Water marks on the downed material suggests seasonal ponding up to four feet deep.

DISCUSSION

BGE completed an aerial review of the landscape from pre- to post-construction. The vicinity contours and Wetland A were taken from the drainage report and placed over a 2002 aerial, see Exhibit B. This is after the projects grading, and it shows the clearing limits roughly fifty-feet off the wetland boundary. The canopy was mostly Western red cedar. The understory and shrub complex are presumed to be typical. Note the original contours around the wetland.

By 2009 the closed depression was established around Wetland A. The infiltration berm was constructed and the level spreaders in place, see Exhibit C. The conifer trees are dead, and

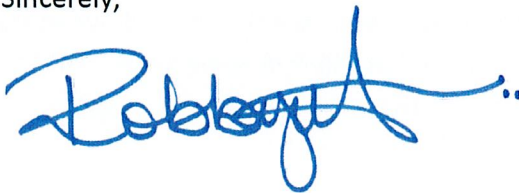
² Department of Ecology's Washington State Wetland Rating System for Western Washington, 2nd Edition, 1993, or as amended.

deciduous vegetation is establishing in the buffer and closed depression. A wet weather aerial from 2012 shows that the entire closed depression is inundated in the wet season, see Exhibit D. Only a small upland island is noted on the infiltration berm along the southern side. Google Earth aerials suggest that the conifers were needle bare by 2006. Inundation to the toe-of-slope of the closed depression is observable in other years on both Kitsap County GIS and Google Earth. The closed depression, which includes Wetland A and its buffer, is observed as inundated all years, personal communication Jim Laughlin, owner. Today the closed depression is a closed canopy of deciduous trees. The wetland buffer is also a closed canopy of deciduous trees, and the wetland is seasonally inundated with a smaller percentage of scrub shrub habitat along the it's outer edge or ecotone.

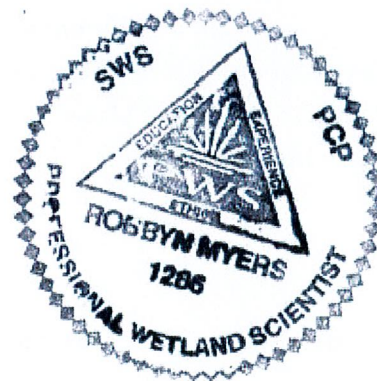
CONCLUSION

Wetland A exists today. It is a distinct area of seasonal inundation, mostly void of vegetation, within the closed depression. What has changed is the habitat complexity of the wetland buffer. This is not surprising as the stormwater design utilized the buffer as an infiltration berm changing the hydrologic regime within the buffer. Conifers, regardless of the species wetland indicator status, died off quickly with the introduced hydrology. Nevertheless, the wetland buffer is forested, voluntarily re-established with species tolerant to the hydrologic regime. BGE respectfully withholds an opinion on the infiltration galleries as these benches are part of the storm water facility.

Sincerely,



Robbyn Myers, M.S., SPWS



Exhibits A-D

BGE25_240 DAUNTLESS TMWDTR.100625.jki



EXHIBIT A: VICINITY MAP

BGE25_240

LAUGHLIN DEVELOPMENT LLC
DAUNTLESS DR NW
102601-1-044-2009



BGE Environmental, LLC
Wetland Consulting & Land Use Planning

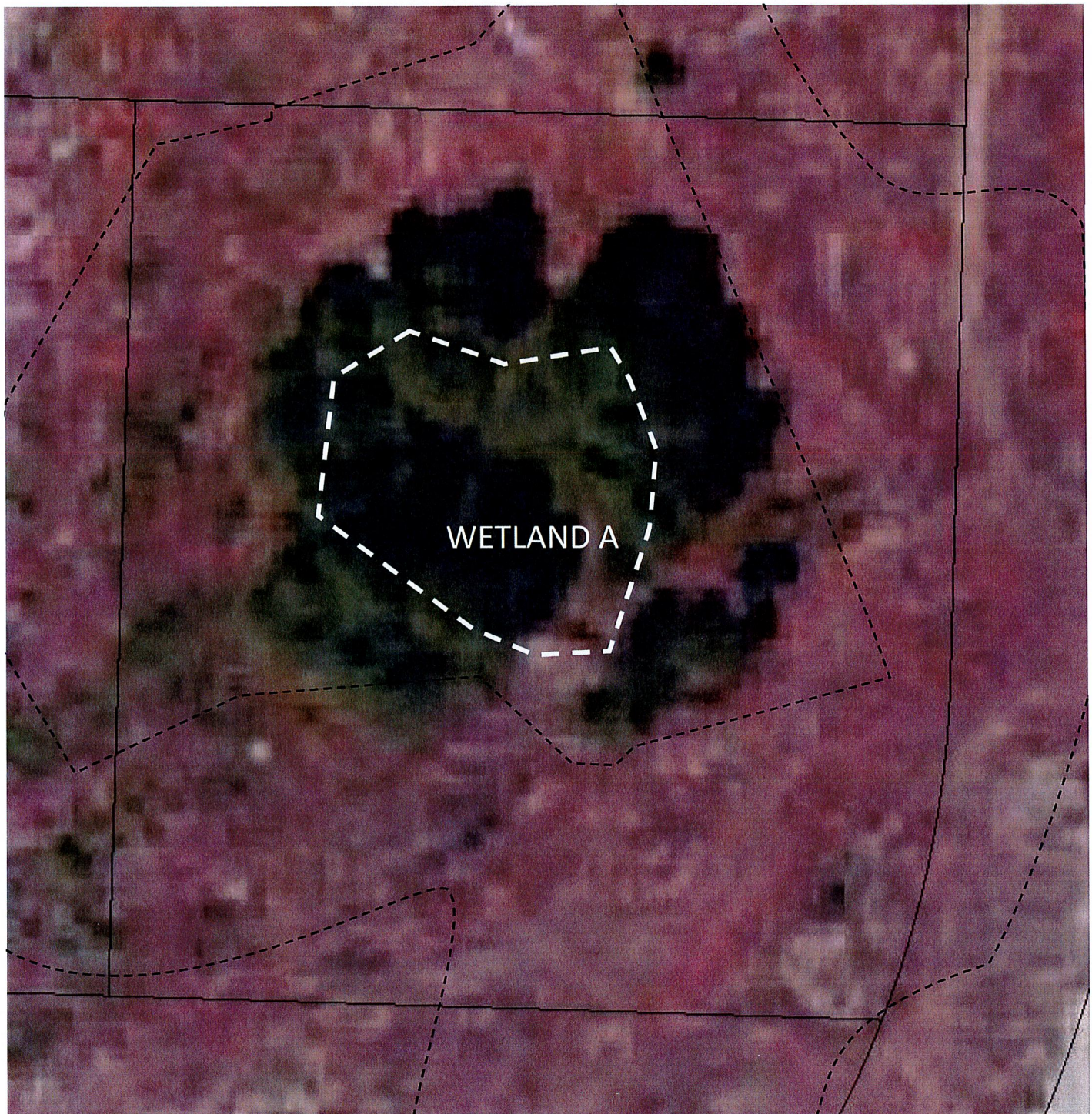


EXHIBIT B: WETLAND A PRE-CONSTRUCTION TOPOGRAPHY
OLHAVA MASTER PLAN FIGURE 3 EXISTING SUB-BASINS

BGE25_240

LAUGHLIN DEVELOPMENT LLC
DAUNTLESS DR NW
102601-1-044-2009



BGE Environmental, LLC

Wetland Consulting & Land Use Planning



EXHIBIT C: OBSERVED CONDITIONS OF CLOSED DEPRESSION

BGE25_240

LAUGHLIN DEVELOPMENT LLC
DAUNTLESS DR NW
102601-1-044-2009



BGE Environmental, LLC
Wetland Consulting & Land Use Planning



EXHIBIT D: OBSERVED CONDITIONS DURING THE WET SEASON

BGE25_240

LAUGHLIN DEVELOPMENT LLC
DAUNTLESS DR NW
102601-1-044-2009



BGE Environmental, LLC
Wetland Consulting & Land Use Planning

APPENDIX 2 - STORMWATER CALCULATIONS

StormFilter Sizing

Peak Flow Rates from Impervious Areas

Water Quality Flow Rate & Sizing

SWMM2012 Dauntless WQ

File Edit View Help Summary Report

Basin Help

Schematic

SCENARIOS

☐ Predeveloped

☒ Mitigated

Run Scenario

Basic Elements

Pro Elements

LID Toolbox

Commercial Toolbox

Move Elements

Basin 1 Mitigated

Subbasin Name: Basin 1 ☐ Designate as Bypass for POC:

Surface Interflow Groundwater

Flows To :

Area in Basin

☐ Show Only Selected

Available Pervious	Acres	Available Impervious	Acres
☒ A/B, Forest, Flat	0	☒ ROADS/FLAT	0.2763 =12,035-sf
☐ A/B, Forest, Mod	0	☐ ROADS/MOD	0
☐ A/B, Forest, Steep	0	☐ ROADS/STEEP	0
☐ A/B, Pasture, Flat	0	☐ ROOF TOPS/FLAT	0
☐ A/B, Pasture, Mod	0	☒ DRIVEWAYS/FLAT	0.1036 =4,515-sf
☐ A/B, Pasture, Steep	0	☐ DRIVEWAYS/MOD	0
☐ A/B, Lawn, Flat	0	☐ DRIVEWAYS/STEEP	0
☐ A/B, Lawn, Mod	0	☒ SIDEWALKS/FLAT	0.0719 =3,130-sf
☐ A/B, Lawn, Steep	0	☐ SIDEWALKS/MOD	0
☒ C, Forest, Flat	0	☐ SIDEWALKS/STEEP	0
☐ C, Forest, Mod	0	☒ PARKING/FLAT	0.0566 =2,465-sf
☐ C, Forest, Steep	0	☐ PARKING/MOD	0
☐ C, Pasture, Flat	0	☐ PARKING/STEEP	0
☐ C, Pasture, Mod	0	☐ POND	0
☐ C, Pasture, Steep	0	☐ Porous Pavement	0
☐ C, Lawn, Flat	0		
☐ C, Lawn, Mod	0		
☐ C, Lawn, Steep	0		
☐ SAT, Forest, Flat	0		
☐ SAT, Forest, Mod	0		
☐ SAT, Forest, Steep	0		

Pervious Total 0 Acres

Impervious Total 0.5084 Acres

Basin Total 0.5084 Acres =22,145-sf

Analysis

Run Analysis

Water Quality

On-Line BMP

24 hour Volume (ac-ft) 0.1012

Standard Flow Rate (cfs) 0.1265

Off-Line BMP

Standard Flow Rate (cfs) 0.0733

Stream Protection Duration LID Duration Flow Frequency Water Quality Hydrograph

Wetland Input Volumes LID Report Recharge Duration Recharge Predeveloped Recharge Mitigated

Analyze datasets Compact WDM Delete Selected ☐ Monthly FF

Duration Chart

501 POC 1 Predeveloped flow

801 POC 1 Mitigated flow

All Datasets Flow Stage Precip Evap POC 1

Flood Frequency Method

☒ Log Pearson Type III 17B

Peak Flow Rates from Impervious Areas

WWHM2012 Dauntless Q

File Edit View Help Summary Report

Basin Help

Schematic

SCENARIOS

☐ Predeveloped

☒ Mitigated

Run Scenario

Basic Elements

Pro Elements

LID Toolbox

Commercial Toolbox

Move Elements

Basin 1 Mitigated

Subbasin Name: Basin 1 ☐ Designate as Bypass for POC

Flows To: Surface Interflow Groundwater

Area in Basin

Available Pervious Acres

Available Impervious Acres

Area in Basin

Available Pervious Acres

Available Impervious Acres

Pervious Total 0 Acres

Impervious Total 0.9344 Acres

Basin Total 0.9344 Acres =40,705-sf

Available Impervious Acres

ROADS/FLAT 0.2763 =12,035-sf

ROADS/MOD 0

ROADS/STEEP 0

ROOF TOPS/FLAT 0.2791 =12,160-sf

DRIVEWAYS/FLAT 0.1036 =4,515-sf

DRIVEWAYS/MOD 0

DRIVEWAYS/STEEP 0

SIDEWALKS/FLAT 0.2188 =9,530-sf

SIDEWALKS/MOD 0

SIDEWALKS/STEEP 0

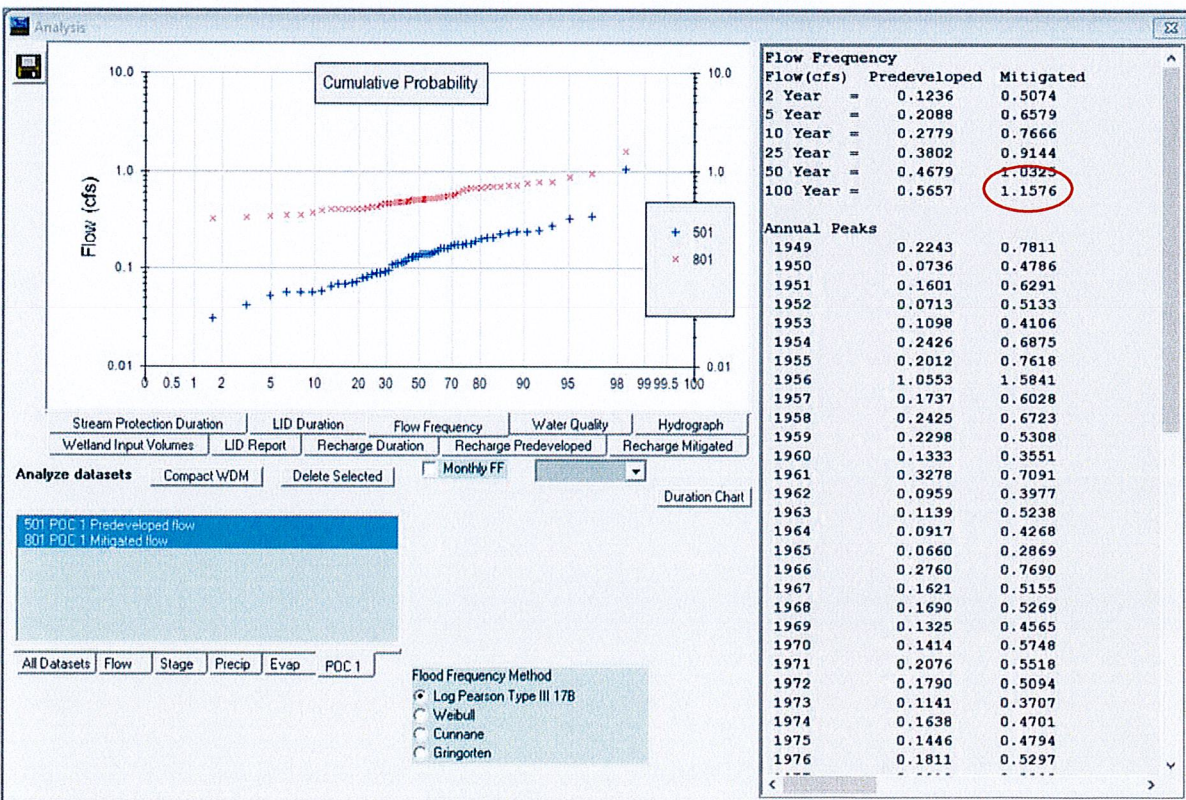
PARKING/FLAT 0.0566 =2,465-sf

PARKING/MOD 0

PARKING/STEEP 0

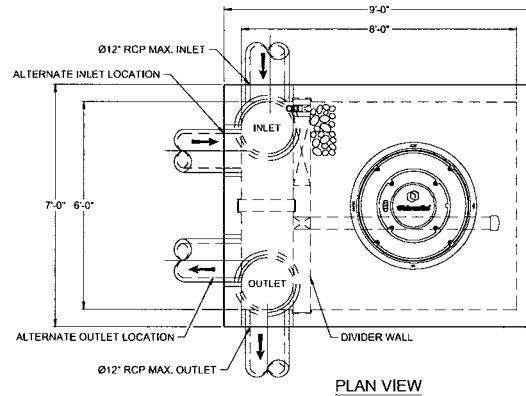
POND 0

Porous Pavement 0

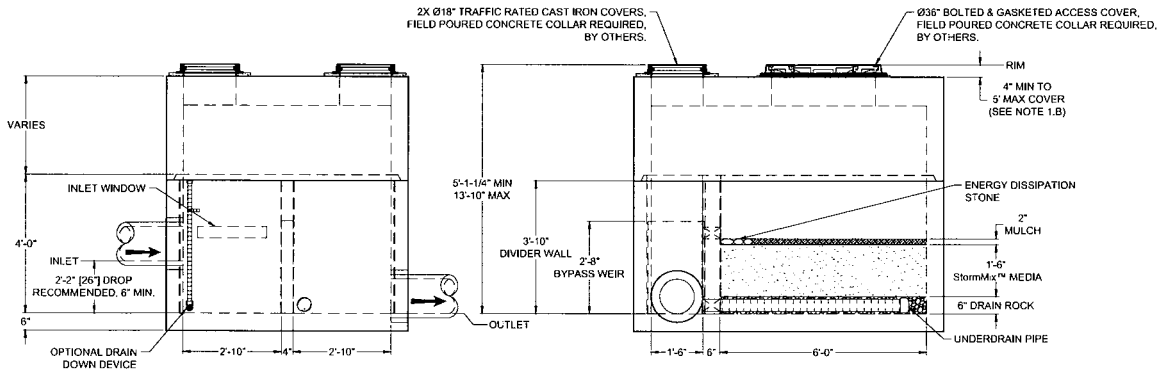


APPENDIX 3 - BioPod Biofilter System Specifier Drawing BPU-68IB

SITE SPECIFIC DATA				
Structure ID		ID		
Treatment Flow Rate (cfs)		-		
Peak Flow Rate (cfs)		-		
Rim Elevation		-		
Top of Vault Elevation		-		
Pipe Data	Pipe Location	Pipe Size	Pipe Type	Invert Elevation
Inlet	-	-	-	-
Outlet	-	-	-	-
Notes:				
PERFORMANCE SPECIFICATIONS				
Treatment Flow Capacities:				
NJDEP 80% Removal, 75 micron		0.144 cfs		
WA Ecology GULD - Basic, Enhanced & Phosphorus		0.128 cfs		
Bypass Capacity		5.0 cfs		
*Contact Oldcastle for alternative treatment flow capacities				



- NOTES**
- DESIGN LOADINGS
 - A. AASHTO HS 20-44 (WITH IMPACT)
 - B. DESIGN SOIL COVER 2'-0" MAXIMUM
 - C. ASSUMED WATER TABLE, BELOW BASE OF PRECAST
 - D. ENGINEER OF RECORD TO CONFIRM SITE WATER TABLE ELEVATION
 - E. LATERAL EARTH PRESSURE 45 PCF (DRAINED)
 - F. LATERAL LIVE LOAD SURCHARGE 80 PSF (APPLIED TO 2'-0" BELOW GRADE)
 - G. NO LATERAL SURCHARGE FROM ADJACENT BUILDINGS, WALLS, PIERS, OR FOUNDATIONS
 - CONCRETE 28-DAY MINIMUM COMPRESSIVE STRENGTH: 5,000 PSI MINIMUM
 - REINFORCING: REBAR, ASTM A615/A706, GRADE 60
 - CEMENT: ASTM C150
 - REQUIRED ALLOWABLE SOIL BEARING CAPACITY: 2,500 PSF
 - REFERENCE STANDARD
 - A. ASTM C890
 - B. ASTM C913
 - C. ACI 318.14
 - THIS STRUCTURE IS DESIGNED TO THE PARAMETERS NOTED HEREIN. ENGINEER OF RECORD SHALL VERIFY THAT NOTED PARAMETERS MEET OR EXCEED PROJECT REQUIREMENTS. IF DESIGN PARAMETERS ARE INCORRECT, REVENING ENGINEER/AUTHORITY SHALL NOTIFY OLDCASTLE INFRASTRUCTURE UPON REVIEW.
 - INLET AND OUTLET HOLES WILL BE FACTORY CORROGATED PER PLANS AND CUSTOMER REQUIREMENTS. INLET AND OUTLET LOCATIONS CAN BE VARIED.
 - CONTRACTOR RESPONSIBLE TO VERIFY ALL SIZES, LOCATIONS, AND ELEVATIONS OF OPENINGS.
 - CONTRACTOR RESPONSIBLE TO ENSURE ADEQUATE BEARING SURFACE IS PROVIDED (E.E. COMPACTED AND LEVEL PER PROJECT SPECIFICATIONS).
 - SECTION HEIGHTS, SLABWALL THICKNESSES, AND KEYWAYS ARE SUBJECT TO CHANGE AS REQUIRED FOR SITE REQUIREMENTS AND/OR DUE TO PRODUCT AVAILABILITY AND PRODUCTION FACILITY CONSTRAINTS.
 - MAXIMUM PICK WEIGHTS:
 - A. TOP: 22,000 LBS
 - B. BASE: 22,000 LBS
 - C. COMBINED WEIGHT OF BASE INCLUDES BYPASS WEIR, DIVIDER WALL, ROCK & MEDIA
 - INTERNALS SHALL CONSIST OF UNDERDRAIN PIPE, ROCK, STORMMAX™ MEDIA, MULCH, DIVIDER WALL, BYPASS WEIR AND OPTIONAL DRAIN DOWN.



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BiPod™ BioKer System (STANDARD)
Underground Vault with Internal Bypass

CUSTOMER: Specter Drawing
PROJECT NAME: SPU 6818

REVISION: REV DATE: 1 OF 1

