

Drainage Report

Bonney Lake High School Building Expansion

Prepared for:

**Sumner-Bonney Lake School District
19701 – 104th Street East
Bonney Lake, WA 98391**

**Contact: Marina Tanay
Phone: (253) 891-6305**

Prepared by:

**Sitts & Hill Engineers, Inc.
4815 Center Street
Tacoma, Washington 98409**

**Contact: David Fillmore, P.E.
Phone: (253) 474-9449**

January 2026

Job Number 20,939



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Project Engineers Certification

I hereby state that this Drainage Report for **Sumner-Bonney Lake School District** for the Bonney Lake High School Building Expansion 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 for professional engineers. I understand that the City of Bonney Lake does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.



2026-01-14

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1 Proposed Project Description

Site-related improvements include new and replaced asphalt and concrete pavements for pedestrian and vehicular access to the building, new concrete walks, playfield upgrades (from natural turf to synthetic turf), as well as new landscaping areas. Utility improvements include new water utility services (to service the building addition only); new sanitary sewer services (a new pump station will serve the building addition only); as well as stormwater collection, conveyance, and stormwater treatment features that will tie into the existing onsite stormwater system.

This report has been prepared in accordance with the 2021 Pierce County Stormwater Management and Site Development Manual ('the Manual'), which has been adopted by the City of Bonney Lake.

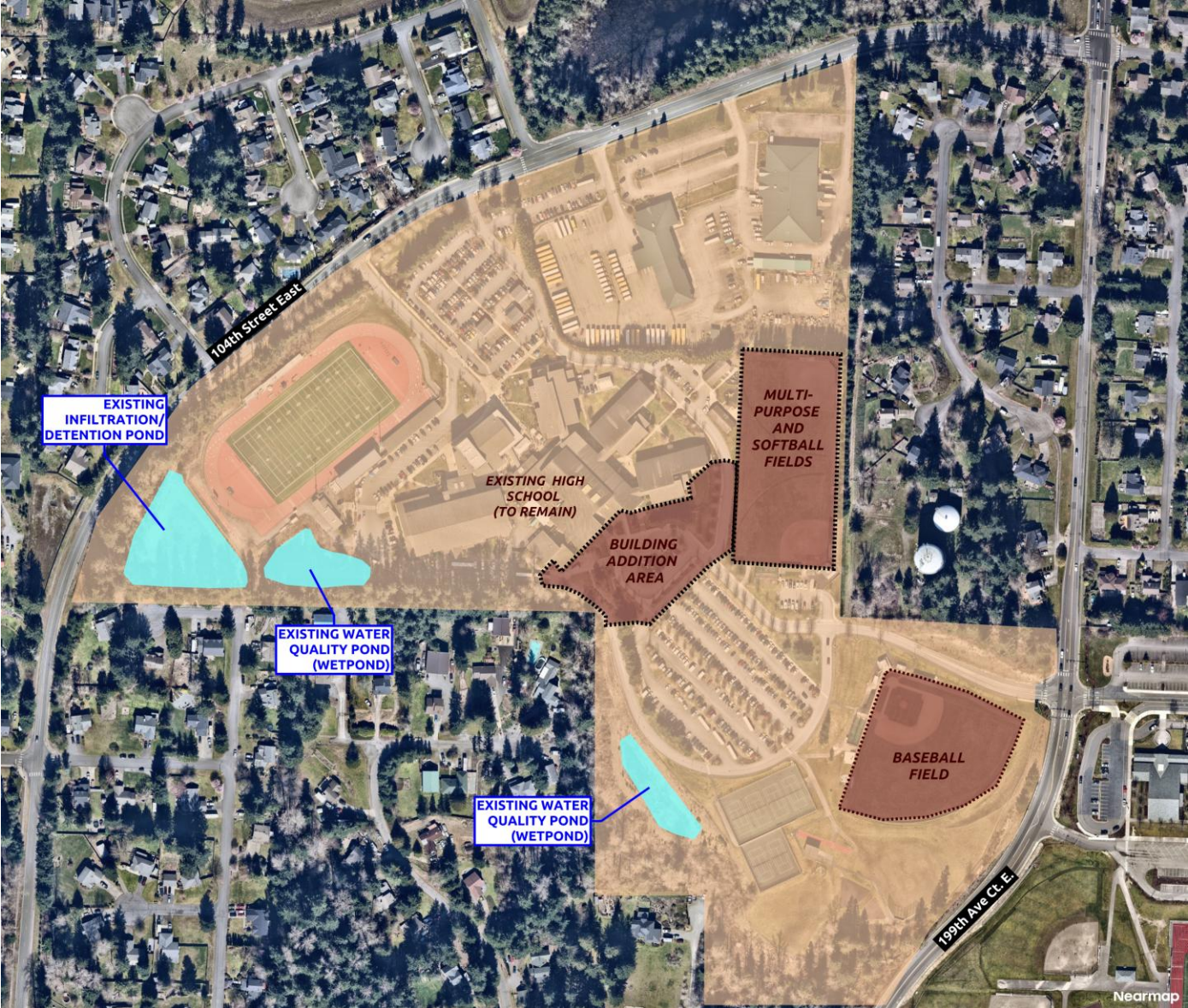
The site address is 10920 199th Ave Ct E, Bonney Lake, Washington 98391. Please see the vicinity map included as Figure 1. The project improvements are proposed over several parcels: 0519044027 (37.20 acres), 0519044013 (4.95 acres), 0519044014 (5.00 acres), and 0519033005 (36.24 acres) – totaling 83.39 acres. The project site is 7.87 acres. The site is currently developed and driveway entrances to the site are located off 199th Avenue Court East and 104th Street East. The site is zoned PF (Public Facilities). Adjacent properties are primarily zoned Suburban Residential (SR) and are within Pierce County limits (outside City of Bonney Lake limits).

The project surface coverages are summarized on Table 1 (see next page). There will be an overall net decrease in impervious surface coverages upon completion of this project. The existing water quality and detention ponds were designed for an overall increase in impervious surface coverage, as outlined in the previously approved stormwater calculations (excerpts included herein for reference). Therefore, no new water quantity control (flow control) facilities are proposed. Since the new synthetic turf fields are considered pollution-generating pervious surfaces, new enhanced water quality facilities (Oldcastle Biopods) are proposed for treatment of the synthetic field runoff. Based on the surface coverages outlined on Table 1, Minimum Requirements 1-10 apply to the new and replaced hard surfaces and the converted vegetation areas. Existing onsite facilities have been inspected and appear to be in good working condition and will continue to serve the site. The table below outlines the proposed project area surfaces coverages. Exhibits depicting the coverages outlined in Table 1 are included in Appendix A.

Table 1 - Project Surface Coverages

EXISTING CONDITIONS				
Asphalt Paving	45,995	sf	1.06	ac
Total PGIS	45,995	sf	1.06	ac
Concrete Walks	24,757	sf	0.57	ac
Building	-	sf	-	ac
Gravel	38,603	sf	0.89	ac
Total NPGIS	63,360	sf	1.46	ac
Total Impervious	109,355	sf	2.51	ac
Landscaping	233,280	sf	5.36	ac
Synthetic Turf Fields (PGPS)	-	sf	-	ac
Total Pervious	233,280	sf	5.36	ac
Total	342,635	sf	7.87	ac
PROPOSED CONDITIONS				
Asphalt Paving	46,280	sf	1.06	ac
Total PGIS	46,280	sf	1.06	ac
Concrete Walks	27,578	sf	0.63	ac
Building	16,405	sf	0.38	ac
Gravel	-	sf	-	ac
Total Non-PGIS	43,983	sf	1.01	ac
Total Impervious	90,263	sf	2.07	ac
Landscaping (NPGPS)	38,625	sf	0.89	ac
Synthetic Turf Fields (PGPS)	213,747	sf	4.91	ac
Total Pervious	252,372	sf	5.79	ac
Total	342,635	sf	7.87	ac
Total Disturbed Area	342,635	sf	7.87	ac
Total New Hard Surface	90,263	sf	2.07	ac
Total New & Replaced Hard Surfaces	90,263	sf	2.07	ac
Total New NPGPS	38,625	sf	0.89	ac
Total New PGPS	213,747	sf	4.91	ac
Total	342,635	sf	7.87	ac

Figure 1 - Vicinity Map



1.1 Minimum Requirements

Please see the Pierce County Flow Chart, included as Figure 2 in this report, for determining the requirements for this project. This re-development project proposes more than 5,000 square feet of new hard surface area and will increase the value of the existing improvements by at least 50%. Therefore, Minimum Requirements #1-10 apply to the new and replaced hard surfaces and converted vegetation areas. Below is a summary of how the project will satisfy each of the Minimum Requirements.

1.1.1 Minimum Requirement #1 – Preparation of Stormwater Site Plans

This report and the accompanying drawings satisfy this requirement.

1.1.2 Minimum Requirement #2 - Construction Stormwater Pollution Prevention

Please see the Construction Stormwater Pollution Prevention Plan (CSWPPP), and Demolition and TESC Plans, Notes, and Details. The CSWPPP is prepared in accordance with Section 2.2 in Volume II of the Manual and includes a discussion of the 13 required elements and references any applicable BMPs.

1.1.3 Minimum Requirement #3 - Source Control of Pollution

Source control BMPs for construction sites are included in the Construction Stormwater Pollution Prevention Plan (CSWPPP) and the project plans. These documents are bound under separate cover and included in this permit submittal.

1.1.4 Minimum Requirement #4 - Preservation of Natural Drainage Systems and Outfalls

The existing project areas drain to an existing stormwater conveyance network that directs discharge to the existing water quality and infiltration/detention ponds. The existing drainage patterns to the existing ponds will be maintained.

1.1.5 Minimum Requirement #5 - On-site Stormwater Management

The project triggers Minimum Requirements #1-10; therefore, per Figure 2.3 (Flow Control for Determining Minimum Requirement #5) of the Manual, it is required to either use List #2 or demonstrate compliance with LID Performance Standard and apply Soil Preservation and Amendment BMP to fulfill this requirement. It is proposed to use List #2 to satisfy Minimum Requirement #5. Below is a discussion of the proposed stormwater management BMPs and a consideration of the stormwater management BMPs from List #2:

- **Lawn and Landscaped Areas:** Soil Preservation and Amendment BMPs will be implemented at pervious areas disturbed by the project. Please see the Landscape Plans included with this submittal.
- **Roofs and Other Hard Surfaces:** Full Dispersion, Permeable Pavement, Bioretention BMP, Sheet Flow Dispersion, and Concentrated Flow Dispersion BMP are not feasible because of the low permeability of the underlying soils. The project proposes to direct stormwater runoff from the proposed hard surfaces to the stormwater management facilities and maintain the discharge durations from the site such that the hydrology of the downstream area is maintained.

1.1.6 Minimum Requirement #6 – Runoff Treatment

The proposed Biopods will provide enhanced water quality treatment prior to discharge of runoff from the proposed synthetic turf field areas. Please see the Treatment Facility Selection

Flow Chart, included as Figure 3 in this report, for determining the requirements for runoff treatment.

- Oil control is not required because the site is not considered high-use, will not have a high-risk activity such as petroleum storage or transfer, and will not be subject to parking, storage, or maintenance for more than 25 vehicles over 10 tons gross weight.
- Phosphorous control is not required as there is no discharge to a phosphorous sensitive water body.

The project proposes enhanced treatment for treatment of stormwater runoff from the synthetic turf fields with Oldcastle Biopods. Calculations provided in Appendix B demonstrate that the proposed Biopods will meet the treatment requirements of the Manual.

1.1.7 Minimum Requirement #7 – Flow Control

There is more than 10,000 square feet of effective impervious surface associated with the project. The project proposes to utilize the existing stormwater infiltration/detention facilities. Per excerpts from the previously approved drainage report, the ponds were sized to accommodate additional impervious coverage. As outlined in Table 1 of this report, this project will actually result in a net decrease in overall impervious coverage.

1.1.8 Minimum Requirement #8 – Wetlands Protection

There are no nearby wetlands that will be impacted by the proposed development.

1.1.9 Minimum Requirement #9 – Operation and Maintenance

Please see the Maintenance and Source Control Manual submitted as a separate document. This plan was prepared in accordance with Section 3.3.6 in Volume I of the Manual and includes the maintenance checklists for the stormwater management facilities included in this project.

1.1.10 Minimum Requirement #10 – Financial Liability

The project owner is a public entity, Sumner-Bonney Lake School District; therefore, performance bonding is not required.

Figure 2 - Minimum Requirements Flow Chart

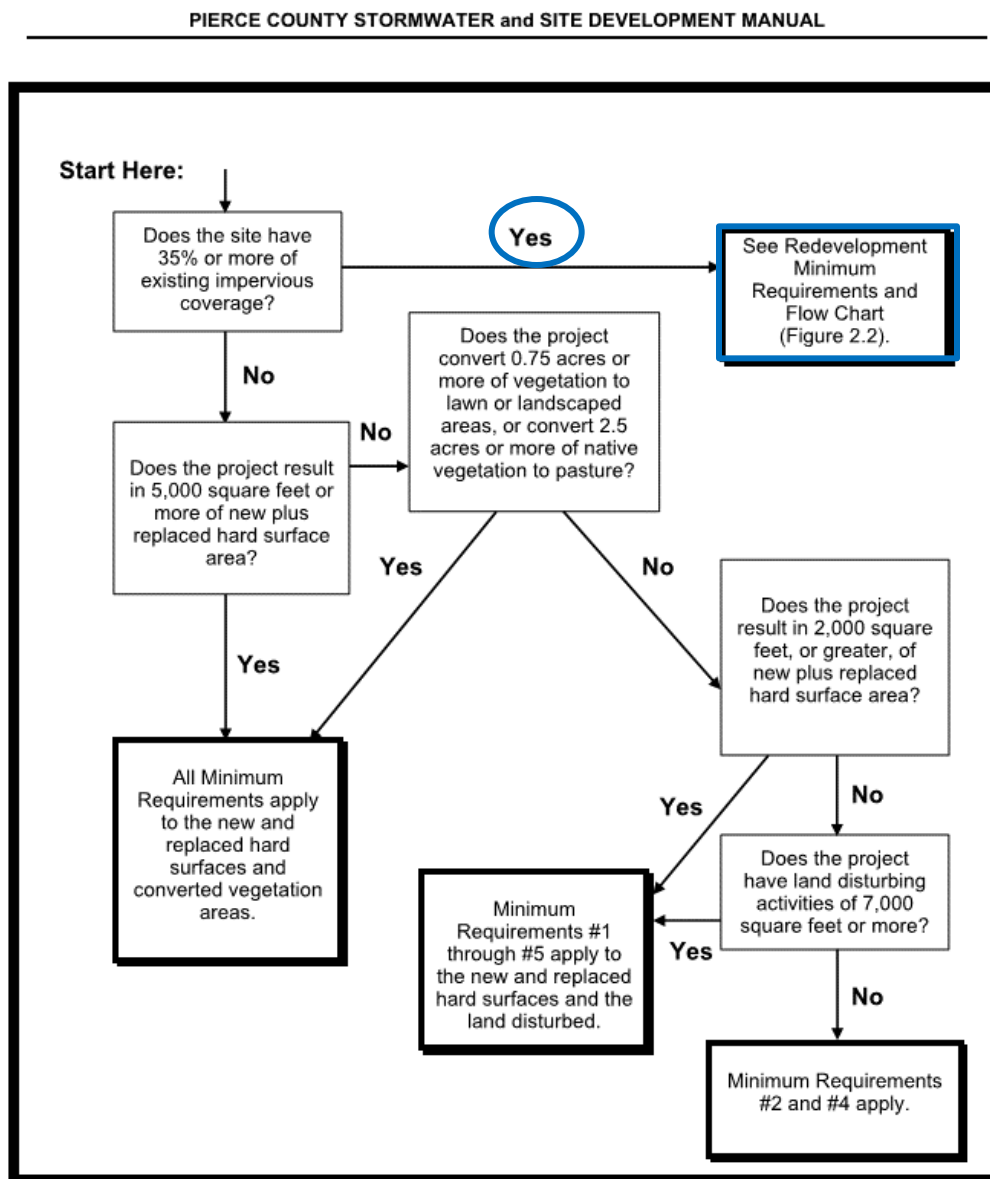


Figure 2.1. Flow Chart for Determining Requirements for New Development.

PIERCE COUNTY STORMWATER and SITE DEVELOPMENT MANUAL

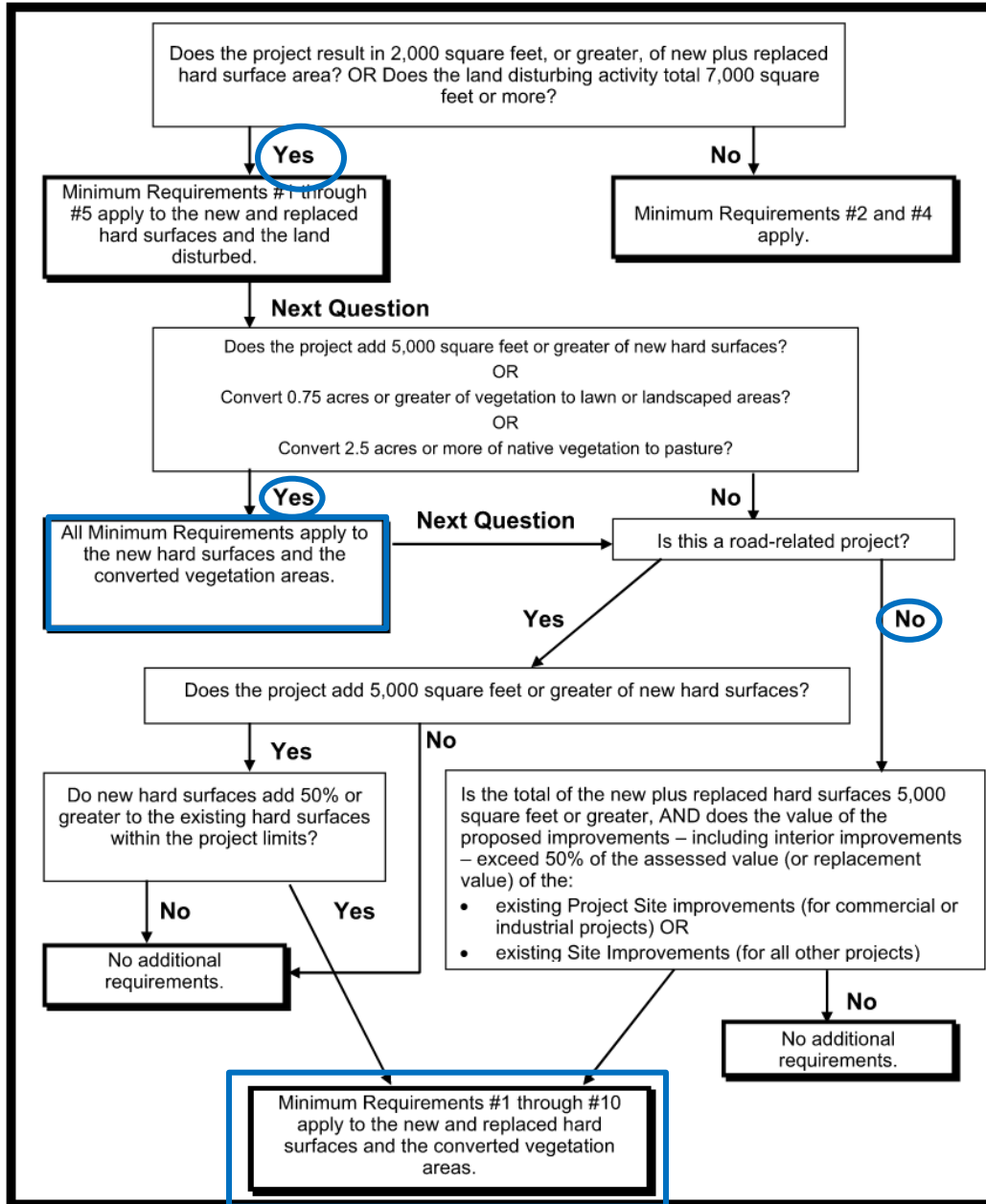


Figure 2.2. Flow Chart for Determining Requirements for Redevelopment.

Figure 3 - Treatment Facility Selection Flow Chart

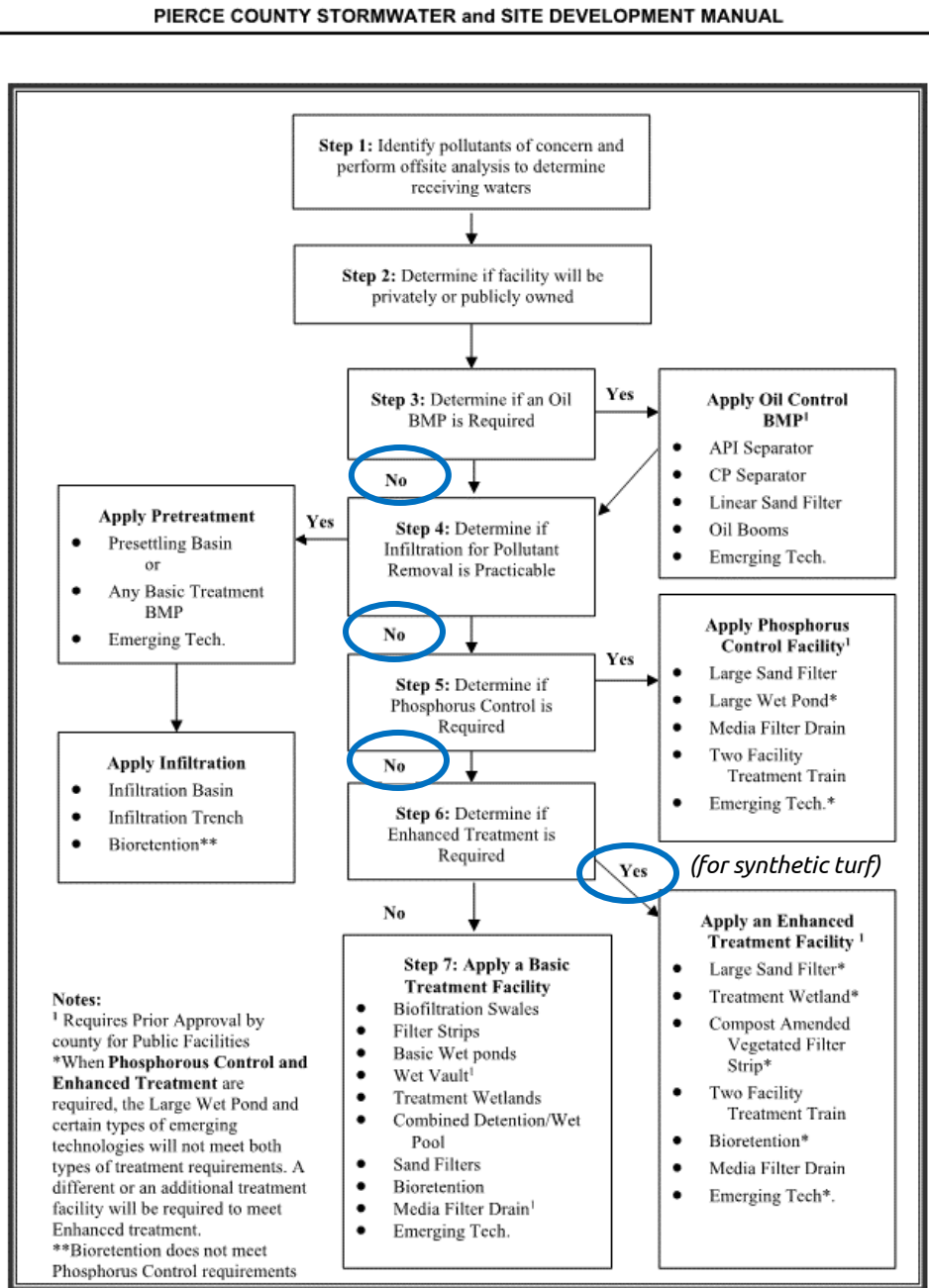


Figure 2.1. Treatment Facility Selection Flow Chart.

2 Existing Conditions

The onsite project limits consist of approximately 7.87 acres, which have been previously developed to support the site's use as a high school. The site is accessed from both 199th Avenue Court East and 104th Street East. Onsite stormwater is collected and conveyed to an existing onsite stormwater management system comprised of closed conveyance piping, water quality (wet) ponds, and an infiltration/detention pond. All onsite facilities are in good working condition. New and replaced impervious surfaces are proposed that will be tributary to existing stormwater facilities associated with the original development of the site. The project will not significantly alter the way these facilities function and they will continue to provide adequate treatment and infiltration/detention. Please see the calculations included in Appendix B that verify the adequacy of the existing facilities.

According to Pierce County GIS, the site lies within an Aquifer-Recharge area and contains a Landslide Hazard area. According to the FEMA FIRMette included as Figure 4, the site is situated in Zone X, an area of minimal flood hazard. Stormwater runoff generated by the proposed synthetic turf fields will be treated with Biopod Biofilters. These filters will provide enhanced stormwater treatment prior to infiltration in the aquifer recharge area. Stormwater from other pollution-generating surfaces will be treated within the existing wetponds. In the proposed condition, the site will be stabilized with a building, asphalt pavement, concrete walks, and landscaping. Proposed slopes will not exceed 2H:1V, or as recommended by the geotechnical engineer. Therefore, the risk associated with a potential landslide area has been mitigated. We are unaware of any environmentally hazardous areas that would affect the proposed development or of historical drainage problems on or adjacent to the project site.

3 Infiltration Rates / Soils Report

Based on geotechnical explorations, soils consist of loose to medium dense, gravelly sand and sand interpreted as recessional outwash deposits, and very dense, silty sand with gravel interpreted as lodgment till.

A Geotechnical Engineering Report for the site has been prepared and is included under separate cover.

4 Wells and Septic Systems

According to DOE Well Report, there are no existing wells located on-site and there will be no proposed wells. The site is serviced by public sewer; there are no existing or proposed septic systems on the project site.

5 Fuel Tanks

We are not aware of fuel tanks located above or below grade on the project site.

6 Sub-basin Description

The site is currently developed as a high school and the underlying soils consist of either till or fill material placed during the original development. There is little to no existing stormwater

runoff that leaves or enters the site. In the proposed condition, stormwater runoff will be treated prior to any discharge, as the ponds were conservatively oversized.

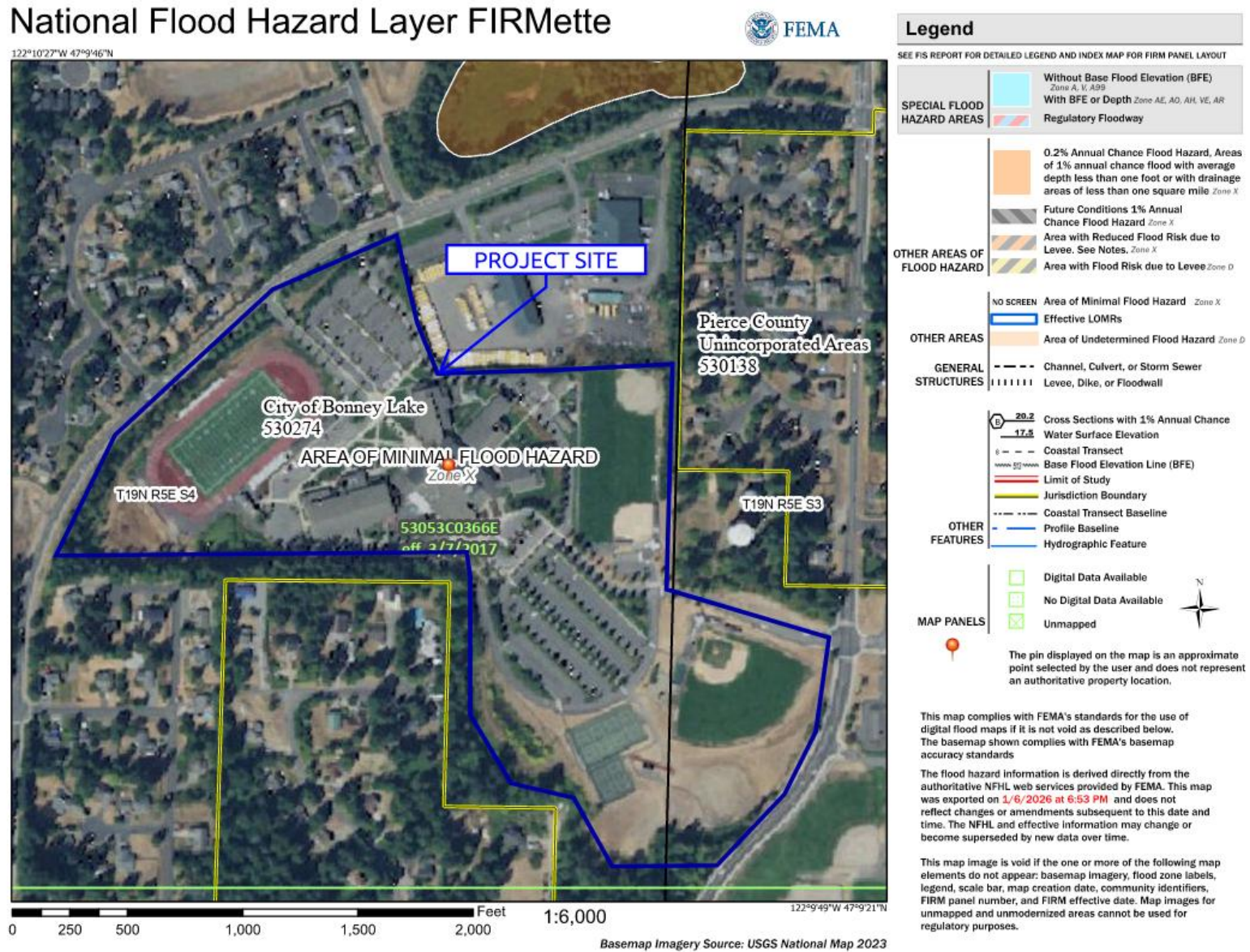
7 Flood Plain Analysis

According to the FEMA FIRMette, included as Figure 4 in this report, the site is located within Zone X, an area of minimal flood hazard.

8 Aesthetic Considerations for Facilities

N/A – there are no new above-ground stormwater management facilities.

Figure 4 - FEMA Flood Map



9 Facility Sizing and Downstream Analysis

The project proposes to utilize the existing water quality and water quantity control facilities. According to the previously approved Drainage and Erosion Control Report prepared by Warner Engineering (2002), the onsite stormwater facilities were designed in accordance with the Pierce County Stormwater Management Manual and the City of Bonney Lake Public Works and Design Standards. The project site is tributary to Infiltration Pond No. 1, as identified in the Warner Engineering report.

Per the previously approved calculations (see Figures 5 and 6 of this section), the pond was conservatively sized to contain approximately 1.9 times the volume of the 100-year, 7-day storm event, providing a total storage volume of approximately 4.46 acre-feet, without accounting for infiltration. The approved calculations further indicate that up to 4.131 acres of additional impervious surface could be tributary to the wetpond while maintaining adequate water quality treatment capacity.

Based on the proposed project surface coverage analysis (Table 1), the project will *reduce* total impervious area by approximately 19,092 square feet (0.44 acres) with no net acreage change in pollution generating impervious surfaces (net acreage change is 285 sf, 0.00 acres). Therefore, the proposed improvements do not increase loading to the existing water quality or flow control facilities, and no additional infiltration or detention facilities are required.

Water quality treatment is provided only for the new pollution-generating pervious surfaces (PGPS), consisting of the proposed synthetic turf fields, via Oldcastle Biopod biofiltration units.

9.1 WWHM Verification of Flow Control Compliance

To further demonstrate the sufficiency of the existing pond under current regulatory standards, the pond was evaluated using a DOE-approved continuous simulation model, the Western Washington Hydrology Model (WWHM), in accordance with the 2021 Pierce County Stormwater Management Manual.

Two WWHM basins were used in the analysis:

- Basin 1 represents the majority of the site for which no grading or surface coverage changes are proposed. This basin remains identical in both the pre-developed and mitigated conditions.
- Basin 2 represents the project area.

For Basin 2, the pre-developed condition was modeled as C, Forest, Flat, consistent with PCSWMM guidance. The mitigated condition incorporates the proposed project surface coverages. A detention pond was then sized within the WWHM model to match the forested pre-developed discharge durations in accordance with the PCSWMM flow duration standard. No infiltration credit was applied in the modeling, providing a conservative analysis.

The WWHM results indicate that a pond volume of approximately 0.51 acre-feet is required to meet the flow duration standard for the project area. Based on the previously approved Warner Engineering calculations, approximately 2.88 acre-feet of surplus storage volume is available within the existing pond system. Therefore, the existing facility provides approximately 5.6 times the volume required to mitigate the proposed project area under current PCSWMM standards.

Accordingly, the existing pond system is demonstrated to be more than adequate to accommodate the proposed improvements while maintaining the Pierce County Stormwater Management Manual standards for water quantity control.

Table 2 – WWHM Verification Summary

Pond #1 Verification Summary		
Original Design Summary - Pond #1 (see Figure 5)		
Total Pervious	20.91	acres
Total Impervious	15.52	acres
Total Pond #1 Basin	36.43	acres

Project Site - to Pond #1 (Existing)		
Existing Pervious	5.36	acres
Existing Impervious	2.51	acres
Total	7.87	acres

WWHM Basin 1	Pond #1 Basin Remainder (Existing - No Changes)			<i>Existing/to Remain-No Change</i>
	Existing Pervious (to Remain)	15.11	acres	
	Existing Impervious (to Remain)	13.45	acres	
	Total	28.56	acres	
WWHM Basin 2	Project Site - to Pond #1 (Proposed)			<i>Mitigated to Match Forested Duration</i>
	Pervious	5.79	acres	
	Impervious	2.08	acres	
	Total	7.87	acres	

Total 36.43 acres

WWHM Basin 1 and WWHM Basin 2 Routed to Pond			
WWHM Pond Volume Requirements	0.51	ac-ft	<i>See WWHM Calcs</i>
Pond Volume Provided (per Warner Report)	4.46	ac-ft	<i>See Figure 5</i>
Original (Warner) Required Pond Volume	2.88	ac-ft	<i>See Figure 5</i>

Downstream Connections 0 0 0

Precipitation Applied to Facility

Evaporation Applied to Facility

Facility Dimensions

Facility Bottom Elevation (ft)	0
Bottom Length (ft)	27.01900047
Bottom Width (ft)	27.01900047
Effective Depth (ft)	8.95
Left Side Slope (H/V)	3
Bottom Side Slope (H/V)	3
Right Side Slope (H/V)	3
Top Side Slope (H/V)	3

Infiltration NO

Outlet Structure Data

Riser Height (ft)	7.95
Riser Diameter (in)	18
Riser Type	Notched
Notch Type	Rectangular
Notch Height (ft)	3.5019
Notch Width (ft)	0.24


Orifice Number	Diameter (in)	Height (ft)
1	6.858	0
2	0	0
3	0	0

Pond Volume at Riser Head (ac-ft) 508

Show Pond Table Open Table

Initial 0

Figure 5 - Calculation Excerpt (Flow Control)



WARNER ENGINEERING
 5122 Olympic Dr. NW
 Suite B204
 Gig Harbor, WA 98335

Civil Engineering & Planning
 Office (206) 858-8577
 Fax (206) 858-8579

PROJECT: BONNEY LAKE H.S.
 INFILTRATION POND #1

JOB NO. 019031
 Page _____ OF _____

PREPARED BY: C. LEVEY DATE: 5/3/02
 CHECKED BY: SCALE: N.T.S.

ATCHMENT	A _{imp} (Ac)	A _{PERV} (Ac)	POND AREA	ELEV (SF)	INFILTRATION RATE: 30 IN/HR
Road WET POND 1	19.119	19.372	625	18,509	
Road Bioswale 1	1.394	0.211	626	15,175	
Bioswale 1	0.000	0.469	628	18,703	STORAGE PROVIDED:
POND 1	0.060	0.859	630	22,472	19,446.5 CF
TOTAL (Ac) 36.434	15.523	20.911	632	26,471	= 4.46 AC-FT
Q _{100,24} = 15.01 CFS; Q _{100,7} = 6.10 CFS			634	29,648	AT ≥ 634
			635	31,193	

100-YR, 24 HR STORAGE VOLUME REQUIRED = 0.46 AC-FT AT Σ = 626.34

1-YR, 7-DAY STORAGE VOLUME REQUIRED = 2.30 AC-FT AT Σ = 634.43

REQUIRED STORAGE VOLUME = 2.30 AC-FT = 100,198 CF

CORRECTED VOLUME (25%) = 2.875 AC-FT = 125,235 CF

VOLUME PROVIDED (max Σ 634) = 19,446.5 CF = 4.46 AC-FT
 * **TOTAL VOLUME PROVIDED IS 1.9 TIMES GREATER THAN 100-YR, 7-DAY STORAGE VOLUME**

TIME TO INFILTRATE 100-YR, 7-DAY STORAGE (CORRECTED):

$$(125,235 \text{ CF}) \left(\frac{\text{HR}}{30 \text{ IN}} \right) \left(\frac{12 \text{ IN}}{\text{FT}} \right) \left(\frac{1}{13,502 \text{ CF}} \right) = \underline{\underline{3.71 \text{ HR}}}$$

STORAGE REQUIRED FOR "MAXIMUM IMPERVIOUS" TO WET POND

Q_{imp} = 19.654 AC.5 A_{PERV} = 16.780 AC.5 A_{TOTAL} = 36.434 AC.5 Q_{100,24} = 17.75 CFS
 Q_{100,7} = 6.65 CFS

100-YR, 24 HR STORAGE = 0.63 AC-FT AT Σ 626.78
 100-YR, 7-DAY STORAGE = 2.27 AC-FT AT Σ 630.38
CORRECTED VOLUME (25%) = 2.84 AC-FT
VOLUME PROVIDED (Σ 634) = 4.46 AC-FT
 * **1.9 TIMES GREATER THAN VOLUME REQUIRED**

TIME TO INFILTRATE
 100-YR, 7-DAY (CORRECTED)
 3.66 HR

Calculations have been excerpted from the Drainage and Erosion Control Report prepared by Warner Engineering (Job No. 019031), which were approved as a part of the original High School Development. A copy of the previously approved report can be provided upon request.

Figure 6 – Calculation Excerpt (Water Quality)

 WARNER ENGINEERING 5122 Olympic Dr. NW Suite B204 Gig Harbor, WA 98335 Civil Engineering & Planning Office (206) 858-8577 Fax (206) 858-8579	PROJECT: BONNEY LAKE H.S. WETPOND CALCS.		JOB NO. 019031
	PREPARED BY: C. LEVEY CHECKED BY:	DATE: 5/2/02 SCALE: N.T.S.	Page 2 OF 2

POND SIZING

$Q_6 = 3.786 \text{ cfs}$, $V_6 = 0.00185$, $FS = 2$

$SA = FS(Q_6 / V_6) = 2(3.786 \text{ cfs} / 0.00185) = 4207 \text{ SF}$
 MIN. SURFACE AREA

SURFACE AREA PROVIDED = $6119 \text{ SF} + 11568 \text{ SF} = 17,687 \text{ SF}$

VOLUME REQUIRED = $56,109 \text{ CF}$, $1.288 \text{ AC-FT} = V_6$

VOLUME PROVIDED = $71,965 \text{ CF}$

MAXIMUM IMPERVIOUS SURFACE FOR 71,965 CF WETPOND:

$A_{imp} = 18.250 \text{ AC}$, $A_{perv} = 15.241 \text{ AC}$, $A_{TOTAL} = 33.491 \text{ AC}$

$V_6 = 71,726 \text{ CF} = 1.647 \text{ AC-FT} < 71,965 \text{ CF (VOLUME PROVIDED)}$

$Q_6 = 4.893 \text{ cfs}$

$SA = 2(4.893 \text{ cfs} / 0.00185 \text{ cfs}) = 5437 \text{ SF} < 17,687 \text{ SF}$
 (SA PROVIDED)

"TOTAL" A_{imp} - "DESIGN" A_{imp}
 $18.250 \text{ AC} - 14.119 \text{ AC} = 4.131 \text{ AC}$ "FUTURE" IMPERVIOUS AREA

*** 4.131 AC OR 179,946 SF OF FUTURE IMPERVIOUS ADDITIONS MAY BE MADE TO THE PROJECT BEFORE THE WETPOND IS AT CAPACITY ***

Calculations have been excerpted from the Drainage and Erosion Control Report prepared by Warner Engineering (Job No. 019031), which were approved as a part of the original High School Development. A copy of the previously approved report can be provided upon request.

9.2 Water Quality Sizing

Since the project proposes to replace the existing under-drained grass fields with under-drained synthetic turf fields, enhanced treatment will be provided by the project for collected runoff from the new fields with Oldcastle Biopods. The online water quality flow rates were generated for each synthetic turf field area, then a Biopod was selected that could treat the required flow rate. Please see Appendix B for a summary of WWHM Inputs and Appendix C for the WWHM Report. Biopods are approved for enhanced treatment by the Washington State Department of Ecology for Basic, Enhanced, and Phosphorus treatment.

Biopod BP-MF (Point of Compliance 01)

Biopod BP-MPF	
Tributary Area	1.53 acres
Proposed Online WQ Flow	0.038 cfs
BPU-46IB Treatment Capacity	0.057 cfs

PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities:*	
NJDEP 80% Removal, 75 micron	0.064 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.057 cfs
Bypass Capacity	5.0 cfs
*Contact Oldcastle for alternative treatment flow capacities.	

Water Quality

Run Analysis

On-Line BMP

24 hour Volume (ac-ft)

Standard Flow Rate (cfs)

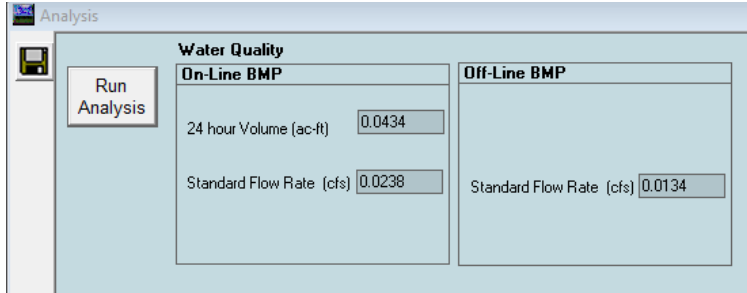
Off-Line BMP

Standard Flow Rate (cfs)

Biopod BP-SB (Point of Compliance 02)

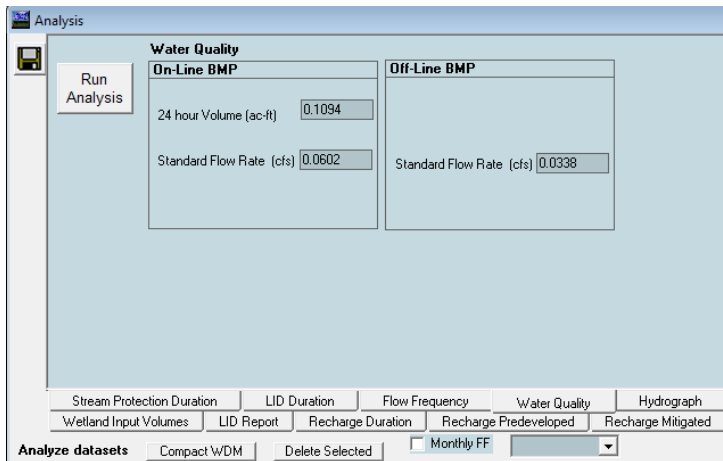
Biopod BP-SB	
Tributary Area	0.96 acres
Proposed Online WQ Flow	0.024 cfs
BPU-44IB Treatment Capacity	0.029 cfs

PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities:*	
NJDEP 80% Removal, 75 micron	0.032 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.029 cfs
Bypass Capacity	5.0 cfs
*Contact Oldcastle for alternative treatment flow capacities.	



Biopod BP-BB (Point of Compliance 03)

Biopod BP-BB	
Tributary Area	2.42 acres
Proposed Online WQ Flow	0.060 cfs
BPU-48IB Treatment Capacity	0.085 cfs



PERFORMANCE SPECIFICATIONS	
Treatment Flow Capacities:*	
NJDEP 80% Removal, 75 micron	0.096 cfs
WA Ecology GULD - Basic, Enhanced & Phosphorus	0.085 cfs
Bypass Capacity	5.0 cfs
*Contact Oldcastle for alternative treatment flow capacities.	

10 Utilities

Proposed water, fire, and sanitary utilities will be installed so as not to interfere with the proposed stormwater improvements. Please see the Grading and Drainage Plans for the location of the existing and proposed utilities and profiles for utility crossing information.

11 Covenants, Dedications, Easements

After construction, the operation and maintenance of the stormwater management system will be the responsibility of the owner, Sumner-Bonney Lake School District.

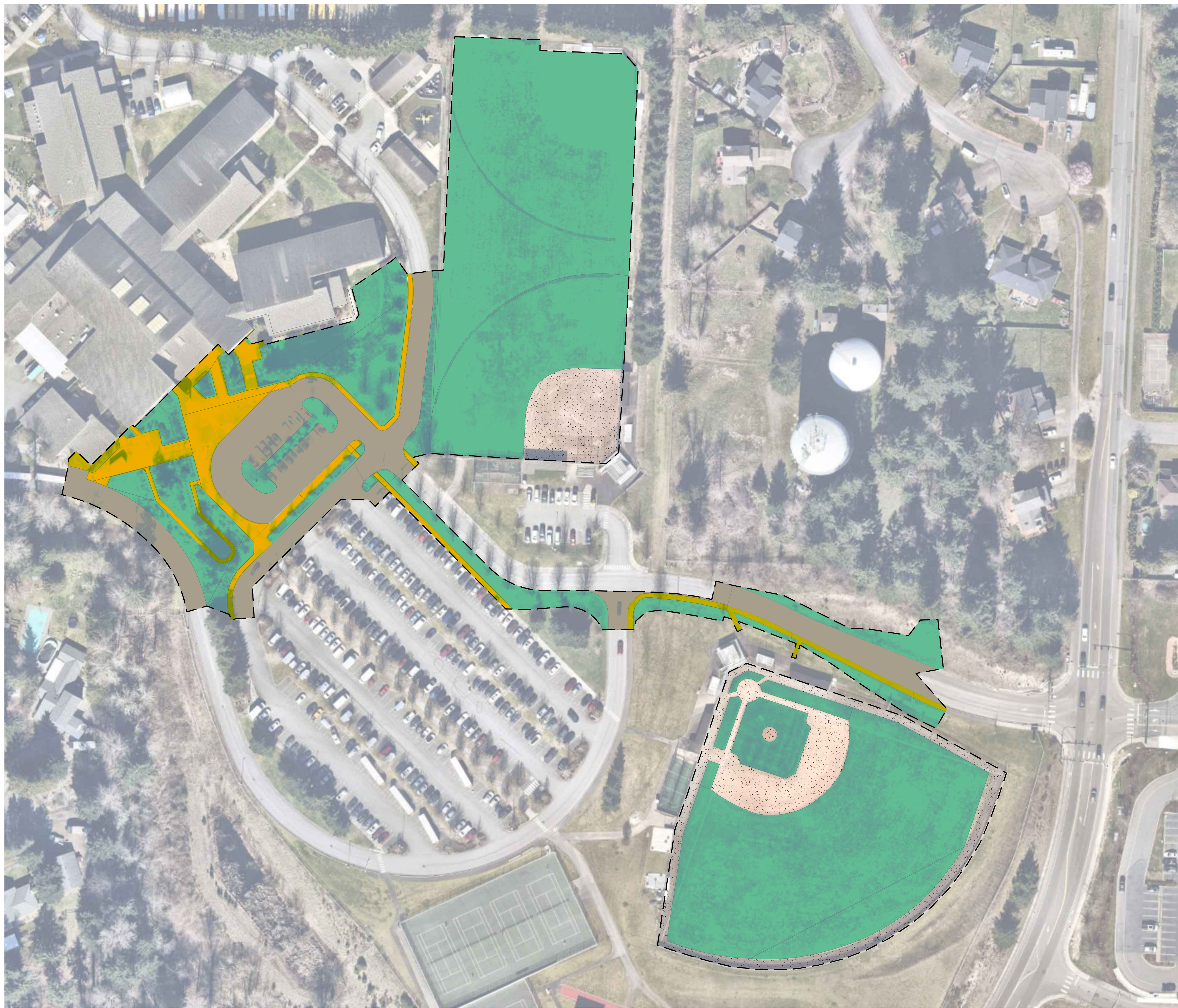
12 Property Owner's Association Articles of Incorporation

There are no property owner's association articles of incorporation.


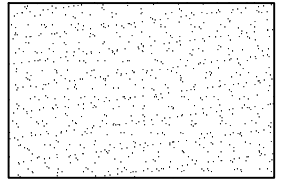



13 Other Permits or Conditions Placed on the Project

Offsite (right-of-way) improvements will be required for this development. A separate stormwater report will be prepared for the offsite improvements.

Appendix A Subbasin Maps

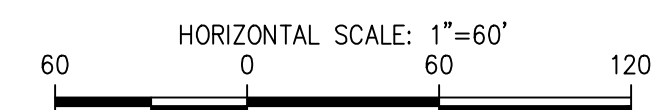


LEGEND

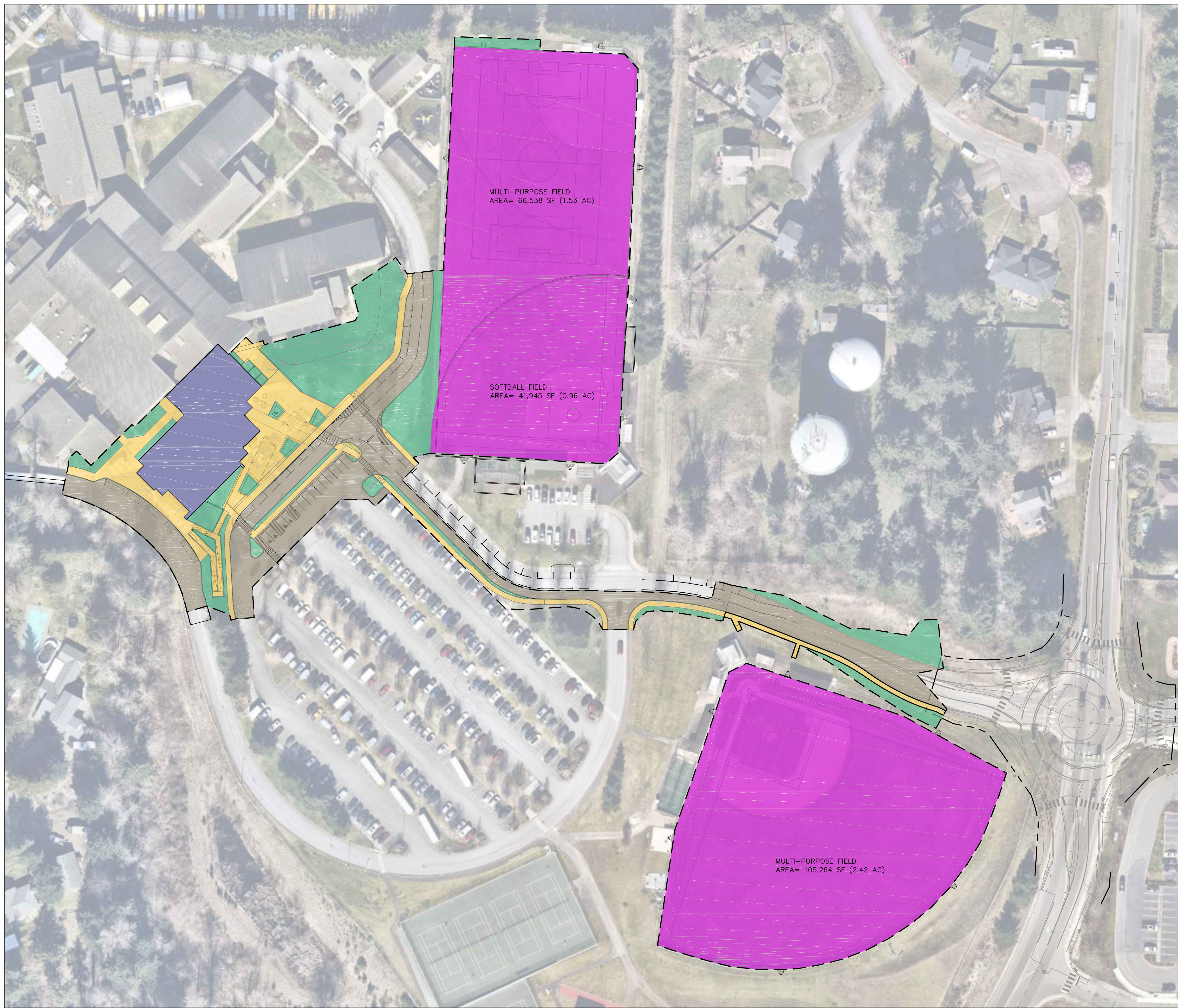
- 
PROJECT AREA
342,635 SF (7.87 ACRES)
- 
GRAVEL SURFACE
38,603 SF (0.89 ACRES)
- 
CONCRETE (WALKS)
24,757 SF (0.57 ACRES)
- 
PAVED DRIVING SURFACE
45,995 SF (1.06 ACRES)
- 
PERVIOUS (LANDSCAPE)
233,280 SF (5.36 ACRES)

PROJECT SITE EXISTING SURFACE COVERAGES


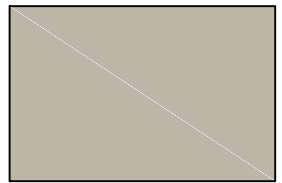
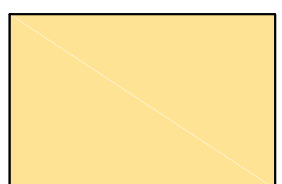
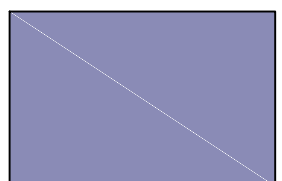
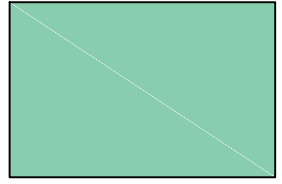
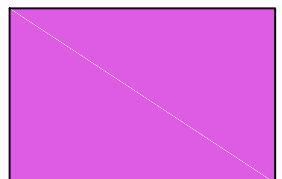
SCALE: 1"=60'




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LEGEND

-  PROJECT AREA
 342,635 SF (7.87 ACRES)
-  PAVED DRIVING SURFACE
 46,280 SF (1.06 ACRES)
-  CONCRETE (WALKS)
 27,578 SF (0.63 ACRES)
-  BUILDING
 16,405 SF (0.38 ACRES)
-  PERVIOUS (LANDSCAPE)
 38,625 SF (0.89 ACRES)
-  TURF FIELDS (LANDSCAPE)
 213,747 SF (4.91 ACRES)

PROJECT SITE PROPOSED SURFACE COVERAGES

SCALE: 1"=60'



HORIZONTAL SCALE: 1"=60'



Appendix B WWHM Model Report

A WWHM model report is provided to support the Water Quality Calculations for the proposed Biopods.

A copy of the report containing the WWHM printout can be accessed here:

<https://1drv.ms/b/c/3bda96259e432c3d/IQCyLhRO6yagSIMiW4Q6F-bVAZR5D91uylyQM95ifweJEEY?e=S49gtZ>