STORM DRAINAGE REPORT

For:

JIFFY PARK

18836 International Blvd, SeaTac, WA

Parcel IDs: 1001000035, 1001000040, 1001000045, 1001000050, 1001000055, 1001000060, 1001000065, 1001000070, 3323049133

Engineer:

Jay Decker, PE

Bush, Roed & Hitchings

15400 SE 30th Pl Suite 100

Bellevue, WA 98007

(206) 323-4144

Date: November 28th, 2022

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1.0 – PROJECT OVERVIEW

The project site is located at 18836 International Blvd in SeaTac, WA. The existing site is a residential development which contains 76,481 sf (1.75 ac) of landscaped area, 15,157 sf (0.35 ac) of building foundation, and 14,375 sf (0.33 ac) of driveway, for a total of 106,013 sf (2.43 ac). The proposed project will be an easterly expansion of the existing Jiffy Park "self-parking". The new plus replaced area is 83,215 sf (1.93 ac) of impervious driveway and the pervious area is 22,353 sf (0.50 ac) of landscaping.

See **Appendix A – Hard Surface Summary for Proposed Design**, **Appendix B – Hard Surface Summary for Existing Site**, and **Appendix C – Civil Plans.**

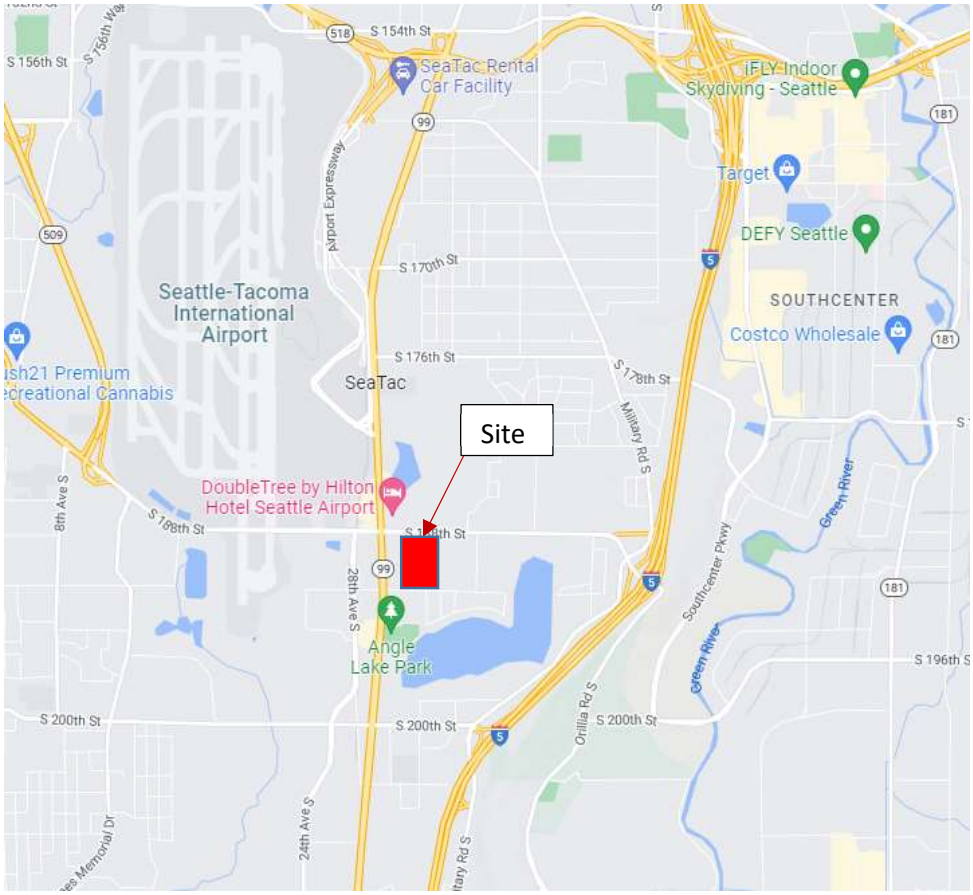

Figure 1 – Vicinity Map

2.0 – CORE AND SPECIAL REQUIREMENTS

The design of the facilities on site conforms to the "2021 Surface Water Design Manual" for King County (KC SWDM) and City of Seatac Stormwater Program. As per KC SWDM, a Full Drainage Review is required.

See **Flow Chart** below for more details on minimum requirements selection process.

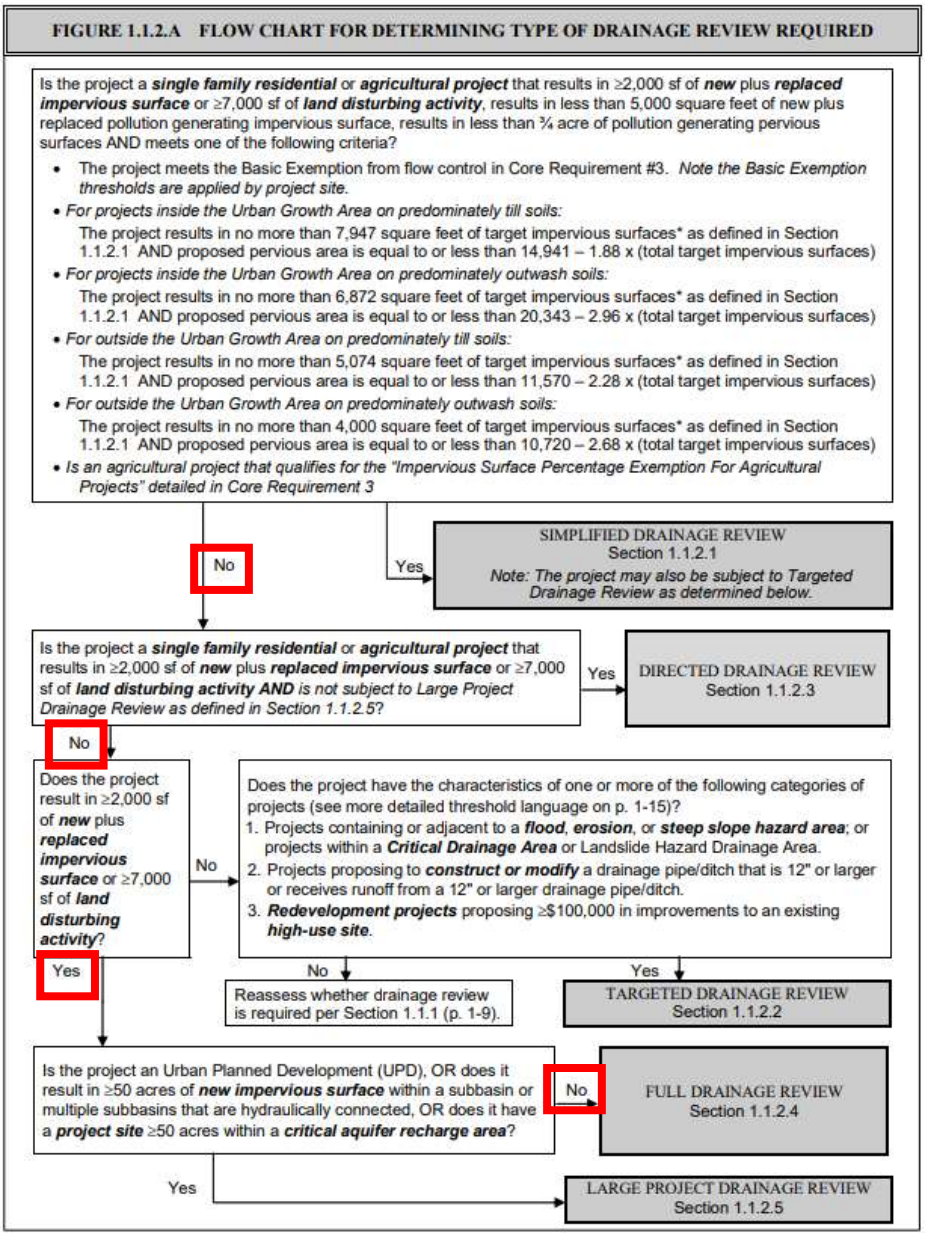

Figure 2 – Drainage Review Type Flow Chart

Core and Special Requirements Analysis

The site proposes 83,215 sf (1.93 ac) of new plus replaced hard surface. Core Requirements #1 through #9 and Special Requirements #1 through #5 apply to the Full Drainage Review. See **Appendix A – Hard Surface Summary for Proposed Design.**

Core Requirements:

1. **Drainage at the Natural Location:**

   The existing drainage from the site drains west to the adjacent parking lot. Stormwater in the new parking expansion area onsite will be detained via a detention pipe and will continue to flow to west to a catch basin located at the adjacent parking lot, thus, maintaining existing drainage patterns.

2. **Offsite Analysis:**

   From the existing site, stormwater drains into the existing adjacent parking lot drainage to the west. From there, the water enters the municipal stormwater system in International Blvd and continues to flow west for approximately 1,100 ft and discharges into Des Moines Creek, which eventually discharges into Puget Sound. The project does not propose any additions or changes to the offsite stormwater drainage and there are no existing or predicted drainage and water quality problems.

3. **Flow Control Facilities:**

   The project requires Basic Flow Control per the city of SeaTac Flow Control Applications Map, see **Figure 3**. Level 1 flow control standard which matches existing site conditions 2- and 10-year peaks is required on this site. The project proposes a circular detention pipe with a 6 ft diameter and 90 ft length is proposed to satisfy this requirement. See **Section 4.0** – **Permanent Flow Control** and See **Appendix D – WWHM Report** for more details.

4. **Conveyance System:**

   Conveyance calculations will be provided as requested. 8-inch diameter pipes on the site have adequate slope and flow capacity for this relatively small area.

5. **Erosion and Sediment Control:**

   See **Section 3.4 Erosion Control Plan**.

6. **Maintenance and Operations:**

   The proposed onsite stormwater system will be maintained privately in accordance with Appendix A of the KC SWDM.

7. **Financial Guarantees and Liability:**

   N/A. No flow control BMPs are implemented in the public right of way.

8. **Water Quality Facilities:**

The project requires Enhanced Water Quality Treatment per city of SeaTac Water Quality Applications Map, see **Figure 4**. A 4'x12' Biopod vault with 18-inches of media is proposed. **Section 4.2 – Detention and Water Quality Design**.

9. **Flow Control BMPs:**

   All landscaped areas will utilize soil amendment per city of SeaTac Soil Amendment Requirements. All other flow control BMPs are infeasible. See **Section 4.1 - Flow Control BMP Evaluation and Design.**

Special Requirements:

1. **Other Adopted Area-Specific Requirements:**

   The proposed project will comply with other adopted area-specific requirements as applicable.

2. **Flood Hazard Area Delineation:**

   N/A. The proposed project is not located in or adjacent to a flood hazard area.

3. **Flood Protection Facilities:**

   N/A. The proposed project will not rely on existing flood protection against hazards posed by erosion and will not modify or construct a new flood protection facility.

4. **Source Control:**

   The following BMPs from the King County Stormwater Pollution Prevention Manual are proposed as source control.

   - A-1: Required BMPs for All Properties with Commercial Activities
   - A-4: Outdoor Storage of Soil, Sand, and Other Erodible Materials
   - A-13: Vehicle Washing and Steam Cleaning
   - A-18: Vehicle and Equipment Repair and Maintenance
   - A-26: Landscaping Activities, Vegetation Management, and Irrigation
   - A-28: Demolition of Buildings
   - A-31: Parking Lots, Driveways and Outside Storage Areas

5. **Oil Control:**

   N/A. The proposed project is not a high-use site and will not require oil control. According to Jiffy Park parking data on this site and a sister site, the average customer parks for 5.5 days. Including the associated shuttle trips this equates to an average daily traffic generation of 164. Therefore, this site does not meet the definition of a "high-use" site.

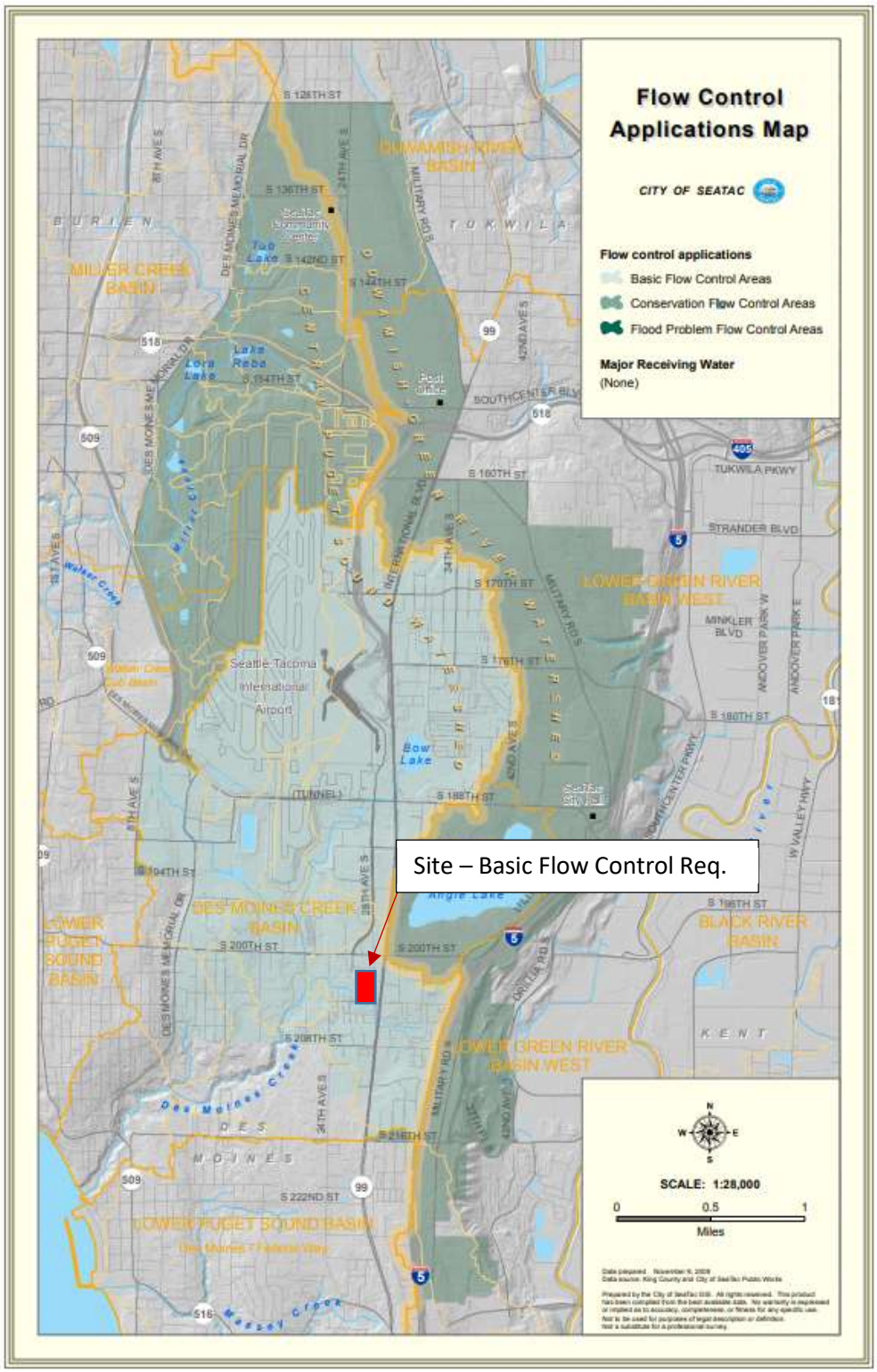

Figure 3 – Flow Control Application Map

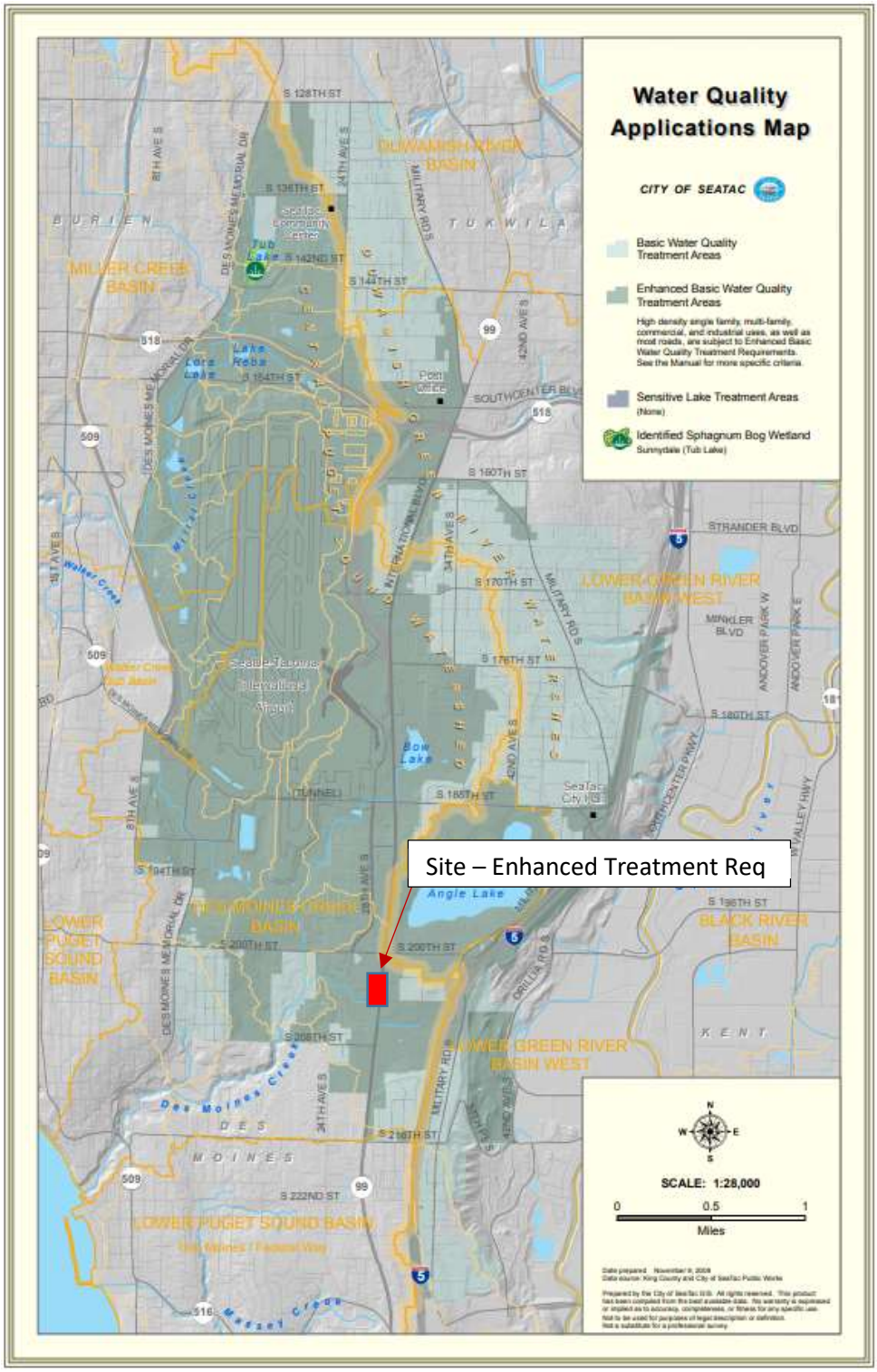

Figure 4 – Water Quality Application Map

3.0 – SITE ANALYSIS

3.1 - Downstream Analysis

See **Section 2.0 – Core and Special Requirements** for Downstream Analysis.

3.2 - Soil Conditions

According to the United States Department of Agriculture – National Resources Conservation Service Soil Map, the soil onsite is Urban land-Alderwood complex, with a typical soil profile of gravelly sandy loam from the surface to 7 inches, and very gravelly sandy loam at depths below 7 inches.

3.3 - Environmentally Critical Areas (ECA)

There are no ECAs in the vicinity of the site.

3.4 - Erosion Control Plan

The limit of disturbance will include an area of 96,141 sf (2.21 ac).

A silt fence along the west and southwest perimeter of the limit of disturbance will be implemented per Section D.2.1.3.1 in the KC SWDM. A 1,530 sf sediment trap will be sized using the 2-year developed peak discharge and implemented onsite per Section D.2.1.5.1 and two 20,000 gal baker tanks will be used to and will drain via the new storm drain connection to the existing catch basin to the west. See below for sediment trap sizing and the TESC plan from **Appendix C – Civil Plans** for baker tank sizing.

Sediment trap sizing per KCSWDM D.2.1.5.1:

0.735 cfs * 2,080 sf/cfs≈ 1,530 sf

The onsite stockpile will be covered and maintained with a plastic covering per Section D.2.1.2.4. Tree protection fencing will be implemented to protect trees that will not be removed. The existing driveway to the east will be used as a construction entrance. See **Appendix C – Civil Plans** for details.

Example construction sequence:

1. Pre-construction meeting.
2. Post sign with name and phone number of ESC supervisor (may be consolidated with the required notice of construction sign).
3. Flag or fence clearing limits.
4. Install catch basin protection if required.
5. Grade and install construction entrance(s).
6. Install perimeter protection (silt fence, brush barrier, etc.).

7. Construct sediment ponds and traps.
8. Grade and stabilize construction roads.
9. Construct surface water controls (interceptor dikes, pipe slope drains, etc.) simultaneously with clearing and grading for project development.
10. Maintain erosion control measures in accordance with King County standards and manufacturer's recommendations.
11. Relocate erosion control measures or install new measures so that as site conditions change the erosion and sediment control is always in accordance with the King County Erosion and Sediment Control Standards.
12. Cover all areas that will be unworked for more than seven days during the dry season or two days during the wet season with straw, wood fiber mulch, compost, plastic sheeting or equivalent.
13. Stabilize all areas that reach final grade within seven days.
14. Seed or sod any areas to remain unworked for more than 30 days.
15. Upon completion of the project, all disturbed areas must be stabilized and BMPs removed if appropriate.

4.0 – PERMANENT STORMWATER CONTROL

4.1 - Flow Control BMP Evaluation and Design

Section C.2 in the KCSWDM was used to evaluate the feasibility of each flow control BMP. Landscaped areas will utilize soil amendment. All other BMPs are infeasible.

Landscaped Areas:

All proposed landscaped areas will utilize amended soils per city of SeaTac Soil Amendment Requirements.

Driving and Parking Surface:

1. Full Dispersion is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
2. Full Infiltration is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
3. Limited Infiltration is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
4. Bioretention is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
5. Permeable Pavement is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
6. Basic Dispersion is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.
7. Perforated Pipe Connection is infeasible due to the site being mapped as infeasible per city of SeaTac LID BMP Infeasibility Map.

See **Appendix A – Hard Surface Summary for Proposed Design** and **Appendix C – Civil Plans.**

Figure 5 – Full Dispersion Infeasibility Map

Figure 7 – Limited Infiltration Infeasibility Map

Figure 6 – Full Infiltration Infeasibility Map

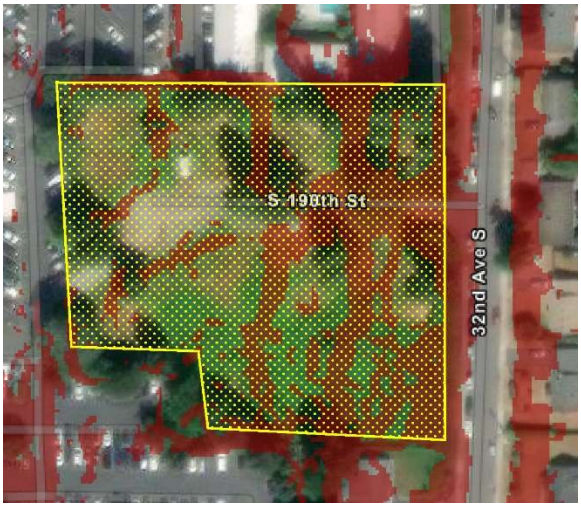

Figure 8 – Bioretention Infeasibility Map

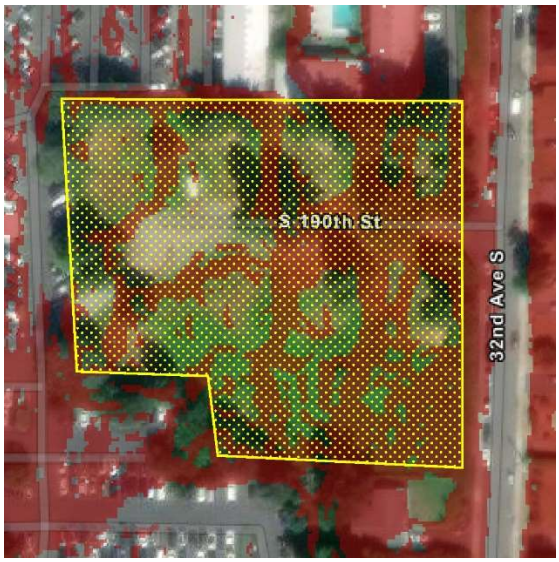

Figure 9 – Permeable Asphalt Pavement Infeasibility Map

Figure 11 – Perforated Pipe Infeasibility Map

Figure 10 – Basic Dispersion Infeasibility Map

4.2 - Detention and Water Quality Design

A - Detention Pipe

A 90 LF 72" diameter corrugated metal detention pipe is proposed to detain the entire site. The flows allowed per **peak control standard** for the 2.43-acre site and the developed release rates for the 2-year, 10-year storm events are shown below in Table 1. See **WWHM Model** in **APPENDIX D**

Table 1: Peak Flow Release:

Event	Allowable Release Rates	Developed Release Rates
2-Year	0.428 cfs	0.417 cfs
10-Year	0.746 cfs	0.738 cfs

B – Water Quality Design

A 12' x 4' Biopod Biofilter System Vault with an 18-inches media thickness is proposed to provide to treat stormwater runoff from the site up to enhanced treatment standards. See calculations below.

Area 2.43 ac

Water Quality flow rate 0.16 cfs
(See page 14 of Appendix D – WWHM Report)

Use 1.6 gpm/sf of media surface

$$N\ (\text{Cartridges}) = \frac{(0.16\ \text{cfs})*(449\ \text{gpm/cfs})}{1.6\ \text{gpm/SF}}$$

$$= 45\ \text{SF}$$

4'X12' BIOPOD

5.0 – SPECIAL REPORTS AND STUDIES

N/A

6.0 – OTHER PERMITS

N/A

7.0 – APPENDICES

Appendix A – Hard Surface Summary for Proposed Design

SURFACE SUMMARY

LANDSCAPING
=22,353 SF (0.50 AC)

IMP DRIVEWAY
=83,215 SF (1.93 AC)

TOTAL SITE
=105,568 SF (2.43 AC)

20 10 0 20 40

SCALE IN FEET
1"=20'

24"x36" 11/21/2022 U:\C3D\2016\2016189\ENGINEERING\EXHIBITS\DRAINAGE BASIN MAPS\BASIN MAP.DWG

BUSH, ROED & HITCHINGS, INC.
LAND SURVEYORS & CIVIL ENGINEERS
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(206) 323-4144
1-800-935-0508
FAX# (206) 323-7135

BUSH, ROED & HITCHINGS, INC. SEAL 1969 WASHINGTON

NO	REVISION	DATE

PROP. CONDITIONS SUMMARY
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

drawn by	checked by
MFM	JDD
scale	date
AS SHOWN	01/31/22
job no.	
2016189	
sheet 1 of 1	

Appendix B – Hard Surface Summary for Existing Site

BUSH, ROED & HITCHINGS, INC.
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FAX# (206) 323-7135

BUSH, ROED & HITCHINGS, INC. SEAL 1969 WASHINGTON

NO	REVISION	DATE

EXIST. CONDITION SURFACE SUMMARY
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

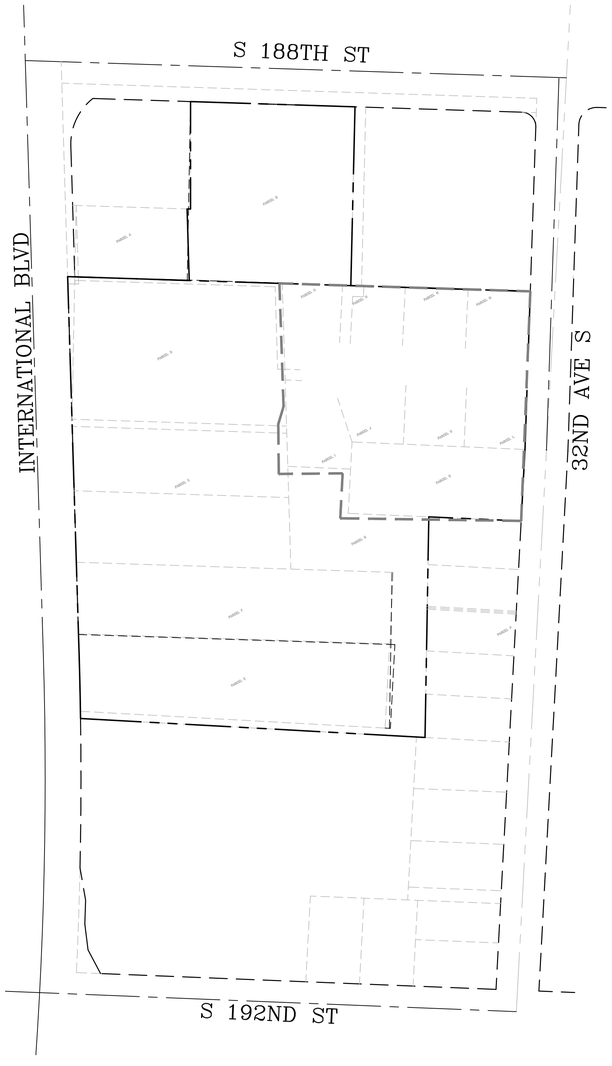
drawn by	checked by
MFM	JDD
scale	date
AS SHOWN	11/21/22
job no.	
2016189	
sheet 1 of 1	

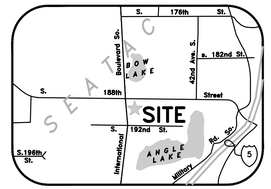
24"x36" 11/28/2022 U:\C3D\2016\2016189\ENGINEERING\EXHIBITS\DRAINAGE BASIN MAPS\EXISTING CONDITIONS BASIN MAP.DWG

Appendix C – Civil Plans

JIFFY PARK

18836 INTERNATIONAL BLVD, SEATAC WASHINGTON





VICINITY MAP

LEGAL DESCRIPTION:

PARCEL A: (NOT A PART)

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY WASHINGTON DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE EASTERLY LINE OF STATE ROAD NO. 1, AS LOCATED JANUARY 31, 1945, WITH THE NORTH LINE OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 33;
THENCE SOUTHERLY ALONG THE EAST LINE OF SAID STATE ROAD NO. 1 AS FORMERLY LOCATED A DISTANCE OF 300 FEET TO THE TRUE POINT OF BEGINNING;
THENCE EAST PARALLEL TO THE NORTH LINE OF SAID SUBDIVISION, 170 FEET;
THENCE NORTHERLY PARALLEL TO THE EAST LINE OF SAID STATE ROAD NO. 1 AS FORMERLY LOCATED A DISTANCE OF 100 FEET;
THENCE WEST PARALLEL TO THE NORTH LINE OF SAID SUBDIVISION, 170 FEET TO THE EASTERLY LINE OF SAID STATE ROAD NO. 1 AS FORMERLY LOCATED;
THENCE SOUTHERLY ALONG SAID ROAD LINE 100 FEET TO THE TRUE POINT OF BEGINNING;
EXCEPT THAT PORTION THEREOF CONVEYED TO THE STATE OF WASHINGTON FOR PRIMARY STATE HIGHWAY NO. 1, REDONDO TO SEATTLE, BY DEEDS RECORDED UNDER RECORDING NUMBERS 3695685 AND 3695691, RECORDS OF SAID COUNTY.

PARCEL B:

THAT PORTION OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF SOUTH MARGIN OF SOUTH 188TH STREET WITH THE EASTERLY MARGIN OF STATE ROAD NO. 1 AS SAID MARGINS EXISTED ON JANUARY 19, 1944;
THENCE EAST ALONG THE SAID SOUTH MARGIN OF SOUTH 188TH STREET, 180.00 FEET TO THE TRUE POINT OF BEGINNING OF THE TRACT HEREIN DESCRIBED;
THENCE EAST 230.00 FEET;
THENCE SOUTH 270.00 FEET;
THENCE WEST 228.70 FEET;
THENCE NORTH 270.00 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING;
EXCEPT THE NORTH 20 FEET THEREOF CONVEYED TO KING COUNTY FOR ROAD PURPOSES BY DEED RECORDED UNDER RECORDING NUMBER 5336600;
ALSO EXCEPT PORTION, IF ANY, LYING WITHIN THE FOLLOWING DESCRIBED TRACT:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, WHERE SAID NORTH LINE IS INTERSECTED BY THE EAST LINE OF STATE ROAD NO. 1;
THENCE SOUTHERLY ALONG THE EAST LINE OF SAID STATE ROAD NO. 1, 300 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING SOUTHERLY ALONG SAID EAST LINE OF STATE ROAD NO. 1, 200 FEET;
THENCE EAST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION, 300 FEET;
THENCE NORTH PARALLEL WITH THE SAID EAST LINE OF STATE ROAD NO. 1, 200 FEET;
THENCE WEST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION, 300 FEET TO THE TRUE POINT OF BEGINNING.

PARCEL C:

THAT CERTAIN PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER WHERE SAID NORTH LINE IS INTERSECTED BY THE EAST LINE OF STATE ROAD NO. 1;
THENCE SOUTHERLY ALONG THE EAST LINE OF SAID STATE ROAD NO. 1, 500 FEET TO THE TRUE POINT OF BEGINNING;
THENCE EAST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION 300 FEET;
THENCE SOUTHERLY PARALLEL WITH SAID EAST LINE OF STATE ROAD NO. 1, 200 FEET;
THENCE WEST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION 300 FEET TO THE EAST LINE OF SAID STATE ROAD NO. 1;
THENCE NORTHERLY ALONG SAID EAST LINE OF SAID STATE ROAD NO. 1 TO THE TRUE POINT OF BEGINNING.

PARCEL D:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT IN THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER WHERE SAID NORTH LINE IS INTERSECTED BY THE EAST LINE OF STATE ROAD NO. 1;
THENCE SOUTHERLY ALONG THE EAST LINE OF SAID STATE ROAD NO. 1, 300 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING SOUTHERLY ALONG SAID EAST LINE OF STATE ROAD NO. 1, 200 FEET;
THENCE EAST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION, 300 FEET;
THENCE NORTH PARALLEL WITH THE SAID EAST LINE OF STATE ROAD NO. 1, 200 FEET;
THENCE WEST PARALLEL WITH THE NORTH LINE OF SAID SUBDIVISION, 300 FEET TO THE TRUE POINT OF BEGINNING.

PARCEL E:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY MARGIN OF STATE HIGHWAY NO. 1, A DISTANCE OF 918.5 FEET SOUTH OF THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER;
THENCE EASTERLY ALONG A LINE THAT INTERSECTS THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, 931.6 FEET SOUTH OF THE NORTHEAST CORNER THEREOF, A DISTANCE OF 483.1 FEET;
THENCE NORTHERLY AND PARALLEL TO THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, A DISTANCE OF 128.45 FEET;
THENCE WESTERLY AND PARALLEL TO THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, 488.4 FEET TO THE EASTERLY MARGIN OF STATE HIGHWAY NO. 1;
THENCE SOUTHERLY ALONG SAID MARGINAL LINE, 118.5 FEET TO THE TRUE POINT OF BEGINNING;

EXCEPT A STRIP 50 FEET WIDE OFF THE EAST END AND A STRIP 10 FEET WIDE OFF THE SOUTH SIDE THEREOF RESERVED FOR ROAD PURPOSES.

PARCEL F:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY MARGIN OF STATE HIGHWAY NO. 1, 700 FEET SOUTH OF THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER;
THENCE EAST PARALLEL TO THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, A DISTANCE OF 493.3 FEET;
THENCE SOUTH AND PARALLEL TO THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, 100 FEET;
THENCE WEST AND PARALLEL TO THE NORTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, 488.4 FEET TO THE EASTERLY MARGIN OF STATE HIGHWAY NO. 1;
THENCE NORTHERLY ALONG SAID MARGINAL LINE, 100 FEET TO POINT OF BEGINNING;
EXCEPT A STRIP 50 FEET WIDE OFF THE EAST END THEREOF RESERVED FOR ROAD PURPOSES.

PARCEL G:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY MARGIN OF STATE HIGHWAY NO. 1, AS CONVEYED TO THE STATE OF WASHINGTON BY DEED RECORDED UNDER RECORDING NUMBER 2014215, A DISTANCE OF 918.5 FEET SOUTH OF THE NORTH LINE OF SAID SUBDIVISION;
THENCE SOUTH 87°05'38" EAST TO THE SOUTHWEST CORNER OF BOW GLEN NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 55 OF PLATS, PAGE 41, IN KING COUNTY, WASHINGTON;
THENCE NORTH 0°59'05" EAST ALONG THE WEST LINE OF SAID PLAT, 306.84 FEET TO THE NORTHWEST CORNER OF LOT 1 IN SAID PLAT;
THENCE NORTH 87°29'40" WEST ALONG THE SOUTH LINE OF A TRACT CONVEYED BY MARGARET L. STANLEY TO D.C. STANLEY BY DEED RECORDED UNDER RECORDING NUMBER 4676040 TO THE SOUTHWEST CORNER OF SAID STANLEY TRACT;
THENCE NORTHERLY ALONG THE WEST LINE OF SAID TRACT TO THE SOUTHEAST CORNER OF LOT 11, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, IN KING COUNTY, WASHINGTON;
THENCE NORTH 87°29'40" WEST ALONG THE SOUTH LINE OF SAID LOT, DISTANCE OF 88.75 FEET TO THE SOUTHWEST CORNER THEREOF;
THENCE SOUTH 0°59'05" EAST, TO THE NORTH LINE OF TRACT DEFINED AS PARCEL 'B' IN A DEED TO FRED E. LAVERY AND INA LAVERY RECORDED UNDER RECORDING NUMBER 4825236;
THENCE EAST ALONG SAID NORTH LINE TO A LINE 50 FEET WEST OF THE WEST LINE OF SAID BOW GLEN NO. 2;
THENCE SOUTH 0°59'05" EAST PARALLEL WITH SAID WEST LINE TO A LINE 10 FEET NORTH OF AND PARALLEL WITH THE WESTERLY PRODUCTION OF THE SOUTH LINE OF SAID BOW GLEN NO. 2;
THENCE NORTH 87°05'38" WEST ALONG SAID PARALLEL LINE TO THE EASTERLY MARGIN OF SAID STATE HIGHWAY;
THENCE SOUTHERLY ALONG SAID MARGIN TO THE POINT OF BEGINNING.

PARCEL H:

LOT 9, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL I:

LOT 11, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL J:

LOT 12, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL K:

LOT 13, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL L:

LOT 14, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL M:

LOT 7, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL N:

LOT 8, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL O:

LOT 10, BOW GLEN, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 54 OF PLATS, PAGE 98, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL P: (NOT A PART)

LOT 3, BOW GLEN NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 55 OF PLATS, PAGE 41, RECORDS OF KING COUNTY, WASHINGTON.

PARCEL Q:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 23 NORTH, RANGE 4 EAST, W.M., IN KING COUNTY, WASHINGTON DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT WHICH IS NORTH 87°59'04" WEST 313.02 FEET FROM A CONCRETE MONUMENT NOW MARKING THE INTERSECTION FO THE CENTER LINE OF 33RD AVENUE SOUTH AND THE NORTH MARGIN OF SOUTH 192ND STREET, AS SHOWN ON THE PLAT OF SNIVELY'S ANGLE LAKE TRACTS, AS PER PLAT RECORDED IN VOLUME 49 OF PLATS, PAGE 13, RECORDS OF KING COUNTY, SAID DESCRIBED POINT BEING THE SOUTHEAST CORNER OF SAID SECTION 33, AS ESTABLISHED BY GEORGE COTTERIL;
THENCE NORTH 03°04'29" EAST ALONG THE EAST LINE OF SAID SECTION 33 AS EXTENDED FROM THE COTTERIL CORNER, 1,307.24 FEET, MORE OR LESS, TO THE NORTHEAST CORNER OF SAID SUBDIVISION;
THENCE NORTH 88°10'06" WEST ALONG THE NORTH LINE THEREOF 272 FEET;
THENCE SOUTH PARALLEL WITH THE EAST LINE OF SAID SECTION (AS HERETOFORE DESCRIBED) 518.4 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH PARALLEL WITH SAID SECTION LINE 100 FEET;
THENCE EAST 272 FEET, MORE OR LESS, TO A POINT IN THE EAST LINE OF SAID SUBDIVISION WHICH IS 621.6 FEET SOUTH OF THE NORTHEAST CORNER THEREOF;
THENCE NORTH ALONG SAID SUBDIVISION LINE 100 FEET;
THENCE WEST 272 FEET TO THE POINT OF BEGINNING;
EXCEPT THE EASTERLY 30 FEET THEREOF;

SITUATE IN THE CITY OF SEA-TAC, COUNTY OF KING, STATE OF WASHINGTON.

PROJECT CONTACTS

OWNER:
HB JIFFY PARK LLC
600 UNIVERSITY ST, STE 2018
SEATTLE, WA 98101

ENGINEER:
BUSH ROED & HITCHINGS
15400 SE 30TH PL STE 100
BELLEVUE, WA 98007
CONTACT: JAY DECKER, P.E.
jayd@brhinc.com
PH: (206) 323-4144

SURVEYOR:
BUSH ROED & HITCHINGS
15400 SE 30TH PL STE 100
BELLEVUE, WA 98007
PH: (206) 323-4144

SHEET INDEX

TYPICAL CONSTRUCTION SEQUENCE:

1. PRE-CONSTRUCTION MEETING.
2. POST SIGN WITH NAME AND PHONE NUMBER OF ESC SUPERVISOR (MAY BE CONSOLIDATED WITH THE REQUIRED NOTICE OF CONSTRUCTION SIGN).
3. FLAG OR FENCE CLEARING LIMITS.
4. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
7. CONSTRUCT SEDIMENT PONDS AND TRAPS.
8. GRADE AND STABILIZE CONSTRUCTION ROADS.
9. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
10. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH SEATAC STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
11. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE SEATAC EROSION AND SEDIMENT CONTROL STANDARDS.
12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING OR EQUIVALENT.
13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS.
14. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
15. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BMPS REMOVED IF APPROPRIATE.

JAY D. DECKER — STATE OF WASHINGTON — 31195 — REGISTERED PROFESSIONAL ENGINEER

BUSH ROED & HITCHINGS, INC. — CORPORATE SEAL — 1969 — BUSH ROED & HITCHINGS, INC.

BUSH, ROED & HITCHINGS, INC.
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NO	REVISION	DATE

COVER SHEET
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

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AS SHOWN	12/02/22

job no. 2016189

sheet C1.0 of 8

24"x36" 12/2/2022 U:\C3D\2016\2016189\ENGINEERING\0_PLAN SHEETS\1_ON SITE PLANS\01 COVER.DWG

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF SEATAC MUNICIPAL CODE (SMC), THE 2016 KING COUNTY ROAD STANDARDS (KCRS) AS AMENDED BY THE CITY OF SEATAC ADDENDUM TO ROAD STANDARDS, THE LATEST VERSION OF THE KING COUNTY SURFACE WATER DESIGN MANUAL (KCSWDM) AS AMENDED BY THE CITY OF SEATAC ADDENDUM TO THE KCSWDM, AND THE LATEST VERSION OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND MUNICIPAL CONSTRUCTION AND ALL CONDITIONS OF THE PERMITS AND LAND USE ACTIONS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE APPLICANT AND THE PROFESSIONAL CIVIL ENGINEER TO CORRECT ANY ERROR, OMISSION, OR VARIATION FROM THE ABOVE REQUIREMENTS FOUND IN THESE PLANS. ALL CORRECTIONS SHALL BE AT NO ADDITIONAL COST OR LIABILITY TO CITY OF SEATAC. THE DESIGN ELEMENTS WITHIN THE PLANS HAVE BEEN REVIEWED ACCORDING TO THE SEATAC ENGINEERING REVIEW DIVISION CHECKLIST. SOME ELEMENTS MAY HAVE BEEN OVERLOOKED OR MISSED BY THE ENGINEERING REVIEW DIVISION PLANS REVIEWER. ANY VARIANCE FROM ADOPTED STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ENGINEERING REVIEW MANAGER IN WRITING PRIOR TO CONSTRUCTION.

2. THE DESIGN ELEMENTS WITHIN THESE PLANS HAVE BEEN REVIEWED ACCORDING TO THE CITY OF SEATAC ENGINEERING REVIEW DIVISION CHECKLIST. SOME ELEMENTS MAY HAVE BEEN OVERLOOKED OR MISSED BY THE ENGINEERING REVIEW DIVISION PLAN REVIEWER. ANY VARIANCE FROM THE CITY OF SEATAC'S ADOPTED STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE ENGINEERING REVIEW DIVISION MANAGER PRIOR TO CONSTRUCTION.

3. APPROVAL OF THE WORK DESCRIBED AS PART OF THIS PERMIT AND SHOWN IN THE PLANS DOES NOT CONSTITUTE AN APPROVAL OF ANY OTHER CONSTRUCTION (DOMESTIC WATER CONVEYANCE, SEWER CONVEYANCE, GAS, ELECTRICAL, ETC.). ALL WORK SHOWN ON THESE PLANS NEED TO BE PERMITTED BY THE CITY OF SEATAC ENGINEERING REVIEW DIVISION PRIOR TO THE START OF CONSTRUCTION. MORE THAN ONE PERMIT MAY BE NECESSARY FOR THE WORK SHOWN.

4. A PRECONSTRUCTION MEETING MUST BE HELD BETWEEN THE CITY OF SEATAC ENGINEERING REVIEW DIVISION, THE APPLICANT, THE APPLICANT'S CONSTRUCTION REPRESENTATIVE, AND REPRESENTATIVES FROM THE VARIOUS UTILITIES BEING CONSTRUCTED OR AFFECTED BY THESE PLANS ON-SITE OR AT CITY HALL NO LATER THAN 72 HOURS PRIOR TO START OF ON-SITE CONSTRUCTION. CALL THE CITY OF SEATAC ENGINEERING REVIEW DIVISION ADMINISTRATIVE NUMBER AT 206.973.4764 TO ARRANGE A TIME FOR OUR REPRESENTATIVE TO MEET WITH THE CONTRACTOR, SUB-CONTRACTORS, AND UTILITY REPRESENTATIVES. ALL CONTRACTORS AND SUB-CONTRACTORS WILL NEED TO SHOW PROOF OF STATE L & I CONTRACTORS' REGISTRATION AND CITY BUSINESS LICENSE AT THE PRE-CONSTRUCTION MEETING.

5. A COPY OF THE LATEST APPROVED PLANS, PERMITS, AND ALL ASSOCIATED DOCUMENTS MUST BE ON THE JO SITE AT ALL TIMES DURING CONSTRUCTION.

6. IT SHALL BE THE APPLICANT'S/CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL APPLICABLE CONSTRUCTION EASEMENTS NECESSARY BEFORE INITIATING WORK ON PRIVATE PROPERTY.

7. GROUNDWATER ENCOUNTERED DURING EXCAVATION SHALL BE DISPOSED OF PER SECTION 7-08 OF THE WSDOT STANDARD SPECIFICATIONS.

8. ALL ROADWAY SUBGRADE SHALL BE BACKFILLED AND COMPACTED TO 95 PERCENT DENSITY (WSDOT 2-06.3).

9. OPEN CUTTING OF EXISTING ROADWAYS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY CITY OF SEATAC PUBLIC WORKS DIRECTOR OR DESIGNEE AND NOTED ON THESE APPROVED PLANS.

10. WHEN THERE IS NO ACTIVE CONSTRUCTION ACTIVITY, TRENCHING IN THE ROADWAY MUST BE COVERED WITH STEEL PLATES AND THE LANES REOPENED. EACH SIDE OF THE PLATE SHALL HAVE A MINIMUM OF 12 INCHES BEARING ON THE SIDES OF A CUT, AND SHALL BE ANCHORED BY STEEL PINS SHIMMED TO PREVENT MOVEMENT, AND ORIENTED TO BE PERPENDICULAR TO TRAFFIC. PLATES SHALL BE BEDDED ON TEMPORARY PAVEMENT PATCH MATERIAL AND THE BEDDING SHALL BE TAPERED ON ALL SIDES TO PROVIDE SMOOTH TRANSITION FOR ALL USERS. PLATES SHALL BE TEXTURED TO PROVIDE A NON-SKID SURFACE IN DRY AND WET CONDITIONS. ALL PLATES SHALL BE HIGHLIGHTED WITH PAINT, AND AN ADVANCE WARNING SIGN SHALL BE USED TO IDENTIFY THE PRESENCE OF THE PLATE.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AN APPROVED TRAFFIC CONTROL PLAN. SECTION 1-07.23, "TRAFFIC CONTROL," OF THE WSDOT STANDARD SPECIFICATIONS SHALL APPLY IN ITS ENTIRETY.

12. CONSTRUCTION NOISE SHALL BE LIMITED IN ACCORDANCE WITH SEATAC MUNICIPAL CODE SECTION 8.05.360. NORMAL WORKING HOURS ARE FROM 7:00 A.M. TO 4:00 P.M. MONDAY THROUGH FRIDAY. ON THE FOLLOWING MAJOR ARTERIALS, HOWEVER, HOURS OF OPERATION SHALL BE LIMITED FROM 8:30 A.M. TO 3:00 P.M.: INTERNATIONAL BOULEVARD, MILITARY ROAD SOUTH, DES MOINES MEMORIAL DRIVE SOUTH, 24TH AVENUE SOUTH, 28TH AVENUE SOUTH, S. 154TH STREET, S. 160TH STREET, S. 170TH STREET, S. 176TH STREET, S. 188TH STREET, AND S. 200TH STREET. ADDITIONAL RESTRICTIONS MAY APPLY BASED ON SEPA CONDITIONS OR SPECIFIC SITE CHARACTERISTICS. WORK OUTSIDE THE NORMAL WORKING HOURS, OR ON SATURDAYS (9:00 A.M. TO 10:00 P.M.), SUNDAYS (9:00 TO 6:00 P.M.), AND HOLIDAYS, WILL REQUIRE PRIOR WRITTEN APPROVAL FROM THE ENGINEERING REVIEW DIVISION. REQUESTS FOR SUCH AFTER-HOURS, WEEKEND, OR HOLIDAY MUST BE SUBMITTED TO THE ENGINEERING REVIEW DIVISION 72 HOURS IN ADVANCE OF SUCH WORK AND MUST BE APPROVED IN WRITING. CITY STAFF TIME FOR AFTER-HOURS, SATURDAY, SUNDAY, AND HOLIDAY WORK WILL BE BILLED AT THE RATE OF ONE AND ONE HALF TIMES THE STANDARD HOURLY RATE.

13. NO LANE CLOSURE OR WORK WILL BE ALLOWED ON THE ROADS LISTED IN ITEM #14 DURING THE TIMES LISTED UNLESS APPROVED BY THE CITY OF SEATAC ENGINEERING REVIEW DIVISION:
    - FROM MIDNIGHT 3 DAYS PRIOR TO THANKSGIVING TO MIDNIGHT MONDAY AFTER THANKSGIVING.
    - FROM MIDNIGHT DECEMBER 23RD, OR THE FRIDAY PRIOR, IF IT OCCURS ON A SATURDAY OR SUNDAY, TO MIDNIGHT JANUARY 2ND, OR THE MONDAY AFTER, IF IT FALLS ON A FRIDAY, SATURDAY OR SUNDAY.

14. THE CONTRACTOR SHALL PROVIDE UNIFORMED OFFICERS WITH MARKED POLICE VEHICLES IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN(S). CONTACT THE KING COUNTY POLICE OFFICERS' GUILD TO ARRANGE FOR OFF DUTY OFFICERS. THEY CAN BE REACHED BY PHONE AT 206-957-0934 OR BY EMAIL AT OFFDUTY@KCPOG.COM. OFFICERS FROM OTHER COUNTIES MAY BE SUBSTITUTED IF THE KING COUNTY POLICE OFFICERS' GUILD CANNOT PROVIDE OFFICERS. CLOSURE OF A LANE OF TRAFFIC ON THE FOLLOWING ARTERIALS SHALL REQUIRE THE PRESENCE OF AN OFF-DUTY POLICE OFFICER WITH MARKED PATROL VEHICLE AS PART OF THE TRAFFIC CONTROL PLAN(S): INTERNATIONAL BOULEVARD; MILITARY ROAD SOUTH; DES MOINES MEMORIAL DRIVE SOUTH; 24TH AVENUE SOUTH; 28TH AVENUE SOUTH; S. 154TH STREET; S. 160TH STREET; S. 170TH STREET; S. 176TH STREET; S. 188TH STREET; S. 200TH STREET; OR ANY SIGNALIZED INTERSECTION.

15. THE STANDARD COORDINATE SYSTEM TO BE USED FOR PROJECTS IN SEATAC, UNLESS OTHERWISE APPROVED BY CITY OF SEATAC ENGINEERING REVIEW DIVISION, IS: NAD_1983_HARN_STATEPLANE_WASHINGTON_NORTH_FIPS_4601_FEET, WKID: 2926 AUTHORITY: EPSG, WASHINGTON STATE PLANE COORDINATES (NORTH ZONE), NORTH AMERICAN DATUM OF 1983 (1991) HARN, SPHEROID GRS 1980, VERTICAL DATUM NAVD88, LINEAR UNITS IN U.S. SURVEY FEET*, FIPS 4601 (*1 FOOT EQUALS 0.3048006096 METERS).

16. UPON COMPLETION OF THE PROJECT, A SET OF CAD PRODUCED AS-BUILT DRAWINGS THAT ARE COORDINATELY CORRECT USING CITY'S HORIZONTAL AND VERTICAL CONTROL IS TO BE PREPARED BY A PROFESSIONAL LICENSED SURVEYOR OR ENGINEER. AS BUILT DRAWINGS ARE TO BE REVIEWED AND APPROVED BY THE CITY OF SEATAC. ONCE APPROVED BY THE CITY FOR ACCURACY, AN ELECTRONIC CAD FILE OF THE DRAWING SHALL BE PROVIDED TO THE CITY OF SEATAC FOR A PERMANENT RECORD.

DRAINAGE NOTES:

1. ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT 7-02.3(1). REDUCTIONS IN COMPACTION REQUIREMENTS ARE ALLOWED TO ACCOMMODATE BIORETENTION OR PERMEABLE PAVEMENT INSTALLATIONS.

2. STEEL PIPE SHALL BE GALVANIZED AND HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE (KCRS 7.03).

3. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, SHALL HAVE LOCKING FRAMES AND GRATES OR SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.

4. ALL CATCH BASIN GRATES SHALL CONFORM TO THE LATEST EDITION OF THE KCRDCS DRAWING NUMBERS 7- 013, 7-017, 7-018, 7-019, 7-020, OR 7-021, AND SHALL INCLUDE THE STAMPING "OUTFALL TO STREAM, DUMP NO POLLUTANTS". ALL GRATES AND SOLID COVERS WITHIN THE RIGHT-OF-WAY SHALL HAVE EON LOCK, ERGO ROUND COVERS, OR APPROVED EQUIVALENT.

5. ALL DRIVEWAY CULVERTS LOCATED WITHIN CITY OF SEATAC RIGHT-OF-WAY SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH. DRIVEWAY CULVERTS SHALL BE 12"DIAMETER CONCRETE OR EQUIVALENT WITH BEVELED END SECTIONS ON ALL EXPOSED ENDS TO MATCH THE SIDE SLOPE, AND ARE TO HAVE QUARRY SPALLS FOR EROSION PROTECTION ON EACH END (SEE KCRS 7.03(G), DRAWING NO. 7-001).

6. THE STANDARD ROCK LINING OF DITCHES SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE KING COUNTY SURFACE WATER DESIGN MANUAL AND SECTION 9-13 OF THE WSDOT STANDARD SPECIFICATIONS. ROCK GRADATION SHALL BE AS FOLLOWS: PASSING 8-INCH SQUARE SIEVE 100%; PASSING 3-INCH SQUARE SIEVE 40%; AND PASSING ½INCH SIEVE 10%. INSTALLATION SHALL BE PLACED SO AS TO FORM A FIRM, DENSE PROTECTIVE MAT CONSISTENT WITH EXAMPLES IN KCRDCS DRAWING NUMBER 7-024 AND CONFORMING TO THE DESIGN SURFACE OF THE DITCH. INDIVIDUAL ROCKS SHALL NOT PROTRUDE MORE THAN 3 INCHES FROM THAT SURFACE.

7. ALL STORM PIPE, DETENTION TANKS & VAULTS, WATER QUALITY TANKS & VAULTS, AND COMBINED DETENTION & WATER QUALITY TANKS & VAULTS SHALL BE SUBJECT TO TESTING PER SECTION 7-04 OF THE WSDOT STANDARD SPECIFICATIONS AND CITY OF SEATAC STANDARD PROCEDURES.

8. DETENTION TANKS MUST PASS AN EXFILTRATION TEST PER THE WSDOT 2016 7-04.3(1)B STANDARD PRIOR TO FINALIZING THE STE PERMIT.

9. ALL DISTURBED PERVIOUS AREAS (COMPACTED, GRADED, LANDSCAPED, ETC.) OF THE DEVELOPMENT SITE MUST DEMONSTRATE ONE OF THE FOLLOWING: THE EXISTING DUFF LAYER SHALL BE STAGED AND REDISTRIBUTED TO MAINTAIN THE MOISTURE CAPACITY OF THE SOIL, OR AMENDED SOIL SHALL BE ADDED TO MAINTAIN THE MOISTURE CAPACITY PURSUANT TO CITY OF SEATAC SOIL AMENDMENT STANDARDS.

10. SITE CLEARING IS LIMITED SEASONALLY BETWEEN OCTOBER 1 AND MARCH 30 INCLUSIVE, UNLESS OTHERWISE APPROVED WITH A WRITTEN DECISION BY THE CITY OF SEATAC ENGINEERING REVIEW DIVISION.

11. PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS AND/OR BUILDINGS ON THE SITE, THOSE PORTIONS OF THE STORMWATER FACILITIES NECESSARY TO ACCOMMODATE THE CONTROL OF SURFACE AND STORMWATER RUNOFF DISCHARGE FROM THE SITE DURING CONSTRUCTION MUST BE CONSTRUCTED, APPROVED, AND FUNCTIONING PROPERLY.

12. DRAINAGE INLETS (STUB-OUTS) SHALL BE PROVIDED FOR EACH INDIVIDUAL LOT, EXCEPT FOR THOSE LOTS APPROVED FOR INFILTRATION BY THE CITY OF SEATAC. STUB-OUTS SHALL CONFORM TO THE FOLLOWING:
    a. EACH OUTLET SHALL BE SUITABLY LOCATED AT THE LOWEST ELEVATION ON THE LOT, SO AS TO SERVICE ALL FUTURE ROOF DOWNSPOUTS AND FOOTING DRAINS, DRIVEWAYS, YARD DRAINS, AND ANY OTHER SURFACE OR SUBSURFACE DRAINS NECESSARY TO RENDER THE LOTS SUITABLE FOR THEIR INTENDED USE. EACH OUTLET SHALL HAVE FREE-FLOWING, POSITIVE DRAINAGE TO AN APPROVED STORMWATER CONVEYANCE SYSTEM OR TO AN APPROVED OUTFALL LOCATION.
    b. OUTLETS ON EACH LOT SHALL BE LOCATED WITH A FIVE-FOOT-HIGH, 2" X 4" STAKE MARKED "STORM" OR "DRAIN". THE STAKE SHALL EXTEND ABOVE SURFACE LEVEL, BE VISIBLE, AND BE SECURED TO THE STUB-OUT.
    c. PIPE MATERIAL SHALL CONFORM TO UNDERDRAIN SPECIFICATIONS DESCRIBED IN KCRS 7.03. IF NON-METALLIC, THE PIPE SHALL CONTAIN WIRE OR OTHER ACCEPTABLE DETECTION.
    d. DRAINAGE EASEMENTS ARE REQUIRED FOR DRAINAGE SYSTEMS DESIGNED TO CONVEY FLOWS THROUGH INDIVIDUAL LOTS.
    e. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONVEYANCE LINES WITH RESPECT TO UTILITIES (E.G., POWER, GAS, TELEPHONE, TELEVISION, ETC.).
    f. ALL INDIVIDUAL STUB-OUTS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE LOT HOMEOWNER.

13. PIPE COVER NOTES:
    a. FOR COVER LESS THAN 1 FT. DUCTILE IRON PIPE IS USED.
    b. FOR COVER FROM 1 FT. TO 2 FT. USE REINFORCED CONCRETE PIPE.
    c. FOR A MIN. 2 FT. COVER – ANY MATERIAL LISTED IN THE 2016 KING COUNTY SURFACE WATER
    d. DESIGN MANUAL OTHER THAN PVC MAY BE USED.
    e. PVC PIPE REQUIRES AT LEAST 3 FT. COVER.
    f. ALL PVC PIPES REQUIRE A SAND COLLAR WHEN CONNECTING TO A CONCRETE STRUCTURE.

    NOTES: ALL DIMENSIONS ARE MEASURED FROM TOP (OUTSIDE) OF PIPE. A) COVER IS THE MATERIAL OVER THE OUTSIDE TOP OF THE PIPE (COVER MAY NOT INCLUDE THE MATERIAL OF THE PIPE). IF YOU HAVE A THREE-FOOT GRADE DIFFERENTIAL BETWEEN THE INVERT OF A 12"DIAMETER PIPE AND THE FINISHED GRADE, YOU DO NOT HAVE TWO FOOT OF COVER OVER THE PIPE. EXCEPTIONS MAY BE GRANTED IN NONVEHICULAR AREAS.

14. THE CONTRACTOR SHALL PROVIDE CCTV FOOTAGE OF ALL PIPES INSTALLED IN RIGHT-OF-WAY TO THE CITY.

EROSION AND SEDIMENT CONTROL NOTES:

1. THE APPROVED STORMWATER EROSION AND SEDIMENT CONTROL/POLLUTION PREVENTION PLAN (ESC/SWPPP), IF REQUIRED, MUST BE KEPT ON THE CONSTRUCTION SITE AT ALL TIMES.

2. APPROVAL OF THE EROSION AND SEDIMENT CONTROL (ESC) MEASURES SHOWN IN THE APPROVED PLANS DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, LID BMPS, UTILITIES, ETC.) UNLESS THAT IS ALSO COVERED BY THIS PERMIT.

3. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC BMPS IS THE RESPONSIBILITY OF THE APPLICANT/ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.

4. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING, PRIOR TO CONSTRUCTION (SWDM APPENDIX D AS AMENDED BY THE CITY OF SEATAC ADDENDUM TO THE KCSWDM), UNLESS SPECIFICALLY ALLOWED BY THE CITY INSPECTOR. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.

5. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL BMPS, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN AND TRACKING OUT TO ROAD RIGHT-OF-WAY DOES NOT OCCUR FOR THE DURATION OF THE PROJECT. PEDESTRIAN ACCESS ROUTE TO BE MAINTAINED AT ALL TIMES.

6. PROTECT ALL BIO RETENTION FACILITIES, RAIN GARDENS, AND PERMEABLE PAVEMENT FROM SEDIMENTATION THROUGH INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL BMPS. RESTORE PERMANENT BMPS TO THEIR FULLY FUNCTIONING CONDITION IF THEY ACCUMULATE SEDIMENT DURING CONSTRUCTION.

7. PREVENT COMPACTION OF BIO RETENTION FACILITIES AND RAIN GARDENS BY EXCLUDING CONSTRUCTION EQUIPMENT AND FOOT TRAFFIC.

8. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.

9. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION, ETC.).

10. THE ESC BMPS SHALL BE INSPECTED DAILY BY THE APPLICANT/ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT BY THE CESCL OF WEEKLY REVIEWS OF THE ESC BMPS, TO BE COPIED ON REQUEST FOR THE CITY INSPECTOR.

11. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC COVER METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).

12. ANY AREA NEEDING ESC MEASURES NOT REQUIRING IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS. DRY SEASON ONLY.

13. THE ESC BMPS ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN TWENTY-FOUR (24) HOURS FOLLOWING A STORM EVENT
.

14. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

15. ANY PERMANENT FLOW CONTROL FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST THREE FEET BELOW THE FINAL GRADE OF THE PERMANENT FACILITY.

16. COVER BMPS WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE SURFACE WATER DESIGN MANUAL.

17. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2 TO 3 INCHES.

18. FOR PROJECTS THAT DISTURB GREATER THAN 1 ACRE, OR ARE A PART OF A LARGER COMMON PLAN OF DEVELOPMENT THAT DISTURBS GREATER THAN 1 ACRE, THE FOLLOWING APPLIES:
    a. THE DISCHARGE MONITORING LOG/REPORTS MUST BE KEPT ONSITE AT ALL TIMES.
    b. DISCHARGES FROM THE CONSTRUCTION SITE GREATER THAN 25 NTU (NEPHELOMETRIC TURBIDITY UNITS) MUST BE TREATED PRIOR TO DISCHARGE AND SAID TREATMENT METHOD MUST BE APPROVED AND FIELD VERIFIED BY CITY INSPECTION STAFF. [NOTE: TREATMENT APPROVAL AND VERIFICATION DOES NOT RELEASE PROPERTY OWNER/DEVELOPER FROM THE RESPONSIBILITY OR LIABILITY OF ENSURING STATE WATER QUALITY STANDARDS (WAC-173-201A) ARE MET FOR DIRECT OR INDIRECT DISCHARGES TO THE RECEIVING WATER(S)].

19. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND THOSE AREAS TO BE COVERED BY OTHER METHODS SHALL BE SUBMITTED TO THE ENGINEERING REVIEW DIVISION. THE CITY ENGINEERING INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

20. THE CONSTRUCTION PROJECT APPROVED BY THIS PERMIT IS SUBJECT TO CITY BUILDING INSPECTION UNDER SEATAC MUNICIPAL CODES TITLE 12 (PUBLIC UTILITIES CODE) AND TITLE 13 (BUILDINGS AND CONSTRUCTION CODE) WITHOUT PRIOR NOTICE.

JAY D. DECKER — STATE OF WASHINGTON — 31195 — REGISTERED PROFESSIONAL ENGINEER

CORPORATE SEAL — BUSH, ROED & HITCHINGS, INC. — 1969 — WASHINGTON

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NO	REVISION	DATE

NOTES SHEET
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

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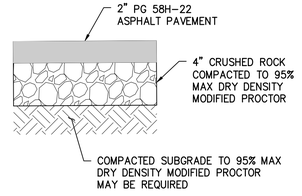
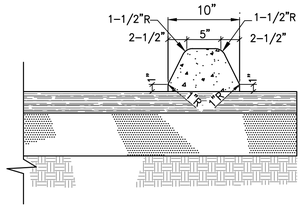
MFM	JDD
scale	date
AS SHOWN	12/02/22
job no.	
2016189	
sheet C1.1 of 8	

LEGEND:

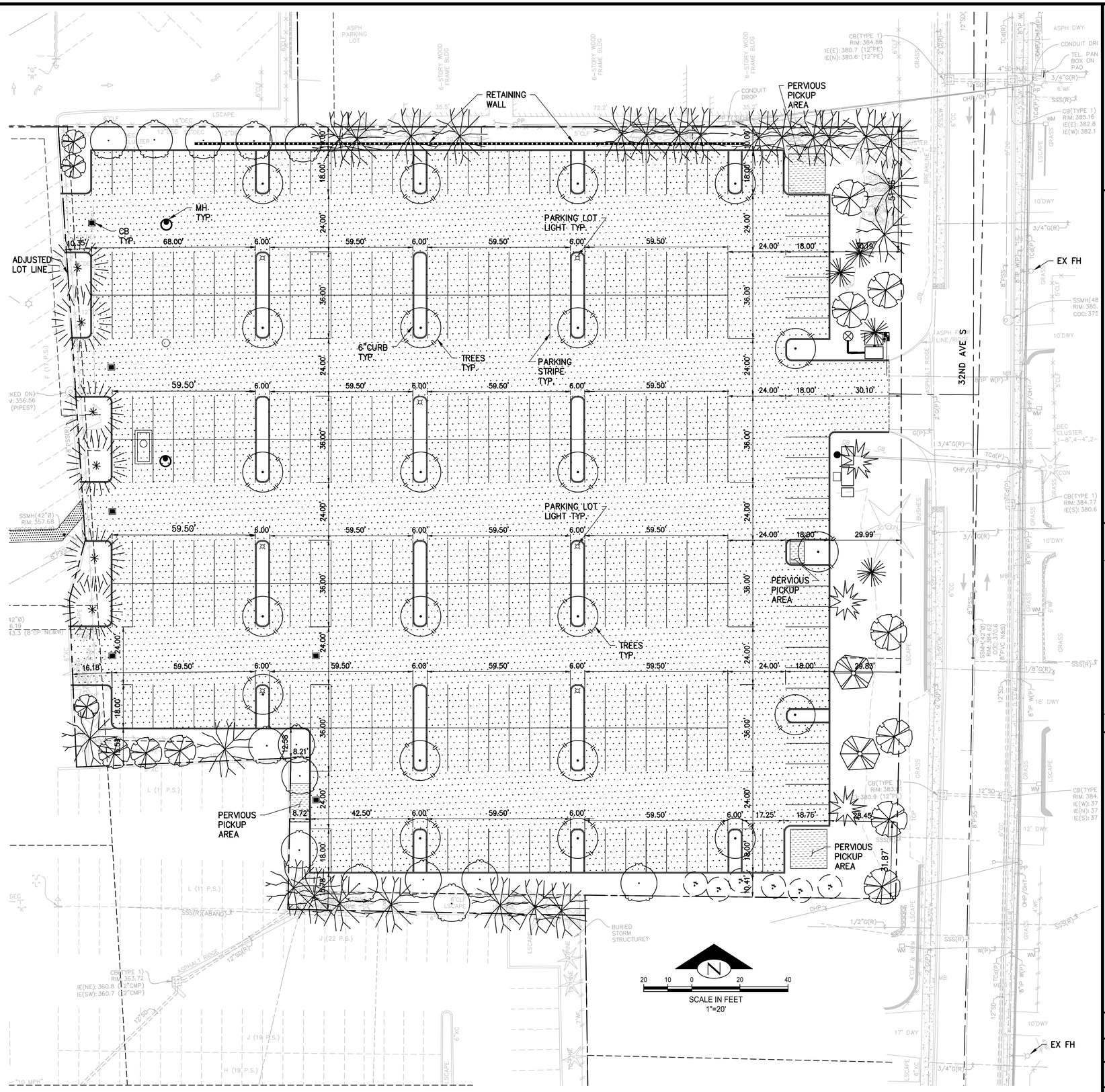
- PICKUP AREA ~ PERVIOUS MATERIAL
- DRIVEWAY ASPHALT PAVEMENT (1/–)
- WHITE PARKING STRIPE ~ 4"WIDE
- 6" HIGH EXTRUDED CURB (2/–)
- RETAINING WALL (LESS THAN 4'H)
- PARKING LOT LIGHT (DEFERRED ELECTRICAL PERMIT)
- POWER POLE (PER PSE DESIGN)
- CATCH BASIN PER DRAINAGE PLAN
- MANHOLE PER DRAINAGE PLAN



ASPHALT DETAIL (1/–)
SCALE: NTS



6" HIGH EXTRUDED CURB DETAIL (2/–)
SCALE: NTS



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SITE PLAN
18836 INTERNATIONAL BLVD
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scale	date
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2016189	
sheet C2.0 of 8	

24"x36" 12/2/2022 U:\C3D\2016\2016189\ENGINEERING\0_PLAN SHEETS_ON SITE PLANS\02 SITE PLAN.DWG

SILT FENCE

CONTRACTOR MAY USE DETENTION SYSTEM FOR SEDIMENT STORAGE AS CONSTRUCTION PHASING ALLOWS

LIMITS OF DISTURBANCE

REMOVE EX TELEPHONE CONDUIT

REMOVE WTR MAIN TO EAST

FILL AND ABANDON EX SSMH 4 FEET BELOW GRADE CAP EX 8"SS TO WEST

REMOVE EX CB AND ASSOCIATED STORM PIPES

FILL AND ABANDON EX SSMH 4 FEET BELOW GRADE CAP EX 8"SS TO EAST

CAP EX WTR MAIN TO EAST REMOVE WTR MAIN TO WEST

REMOVE EX GAS LINE

CONTACT PSE TO REMOVE EX POLES

CAP EX GAS COORDINATE W/ PSE

CONTACT PSE TO REMOVE EX POLES

REMOVE EX TELEPHONE BOX TYP.

USE EX DRIVEWAY FOR CONSTRUCTION ENTRANCE

SEDIMENT TRAP
~1,530 SF MIN SURFACE AREA
CONTRACTOR TO PHASE LOCATION OF SEDIMENT COLLECTION AS CONSTRUCTION DICTATES

COVER STOCKPILE

TWO 20,000 GAL BAKER TANKS
CONNECT TO PERMANENT OUTLET

TREE PROTECTION FENCE (TYP)

INTERCEPTOR SWALE (TYP)

PROPERTY LINE (TYP)

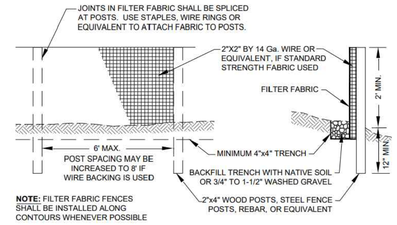
BURIED STORM STRUCTURE?

32ND AVE S

S 190TH ST

SCALE IN FEET
1"=20'

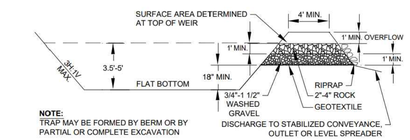
FIGURE D.2.1.3.A SILT FENCE



NOTE: FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOURS WHENEVER POSSIBLE

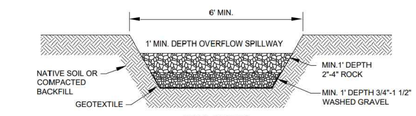
SILT FENCE 1
NOT TO SCALE

FIGURE D.2.1.5.A SEDIMENT TRAP



NOTE:
TRAP MAY BE FORMED BY BERM OR BY PARTIAL OR COMPLETE EXCAVATION

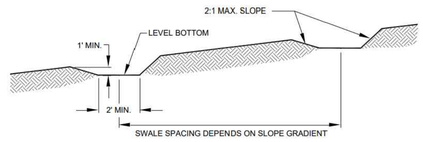
CROSS SECTION



TRAP OUTLET

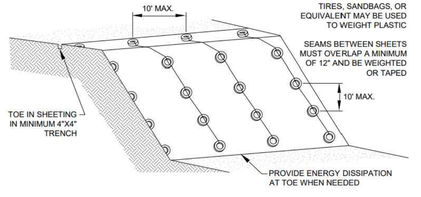
SEDIMENT TRAP 2
NOT TO SCALE

FIGURE D.2.1.6.C INTERCEPTOR SWALE



INTERCEPTOR SWALE 3
NOT TO SCALE

FIGURE D.2.1.2.D PLASTIC COVERING



PLASTIC COVERING 4
NOT TO SCALE

BAKER TANK SIZING:

CONVERT THE WWHM 2-YEAR PEAK FLOW FROM CFS TO GPM
2-YR PEAK FLOW = 0.735 CFS = (0.735 CFS)*(448.83 GPM/1 CFS) = 330.06 GPM

CALCULATE THE REQUIRED STORAGE PER VOLUME 2 OF THE CITY OF SEATTLE STORMWATER MANUAL
"PUMP DISCHARGE IN GALLONS PER MINUTE (GPM) X 16 = CUBIC FEET STORAGE"
(330.06 GPM)*(16) = 5,281 CUBIC FEET

CONVERT CUBIC FEET (CF) OF STORAGE INTO GALLONS (GAL) OF STORAGE
(5,281 CF)*(7.48 GAL/1 CF) = 39,503 GAL

THE PROJECT PROPOSES (2) 20,000 GAL BAKER TANK TO BE USED ON-SITE WITH A MAXIMUM DISCHARGE RATE OF 230 GPM

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TESC AND UTILITY CAPPING PLAN
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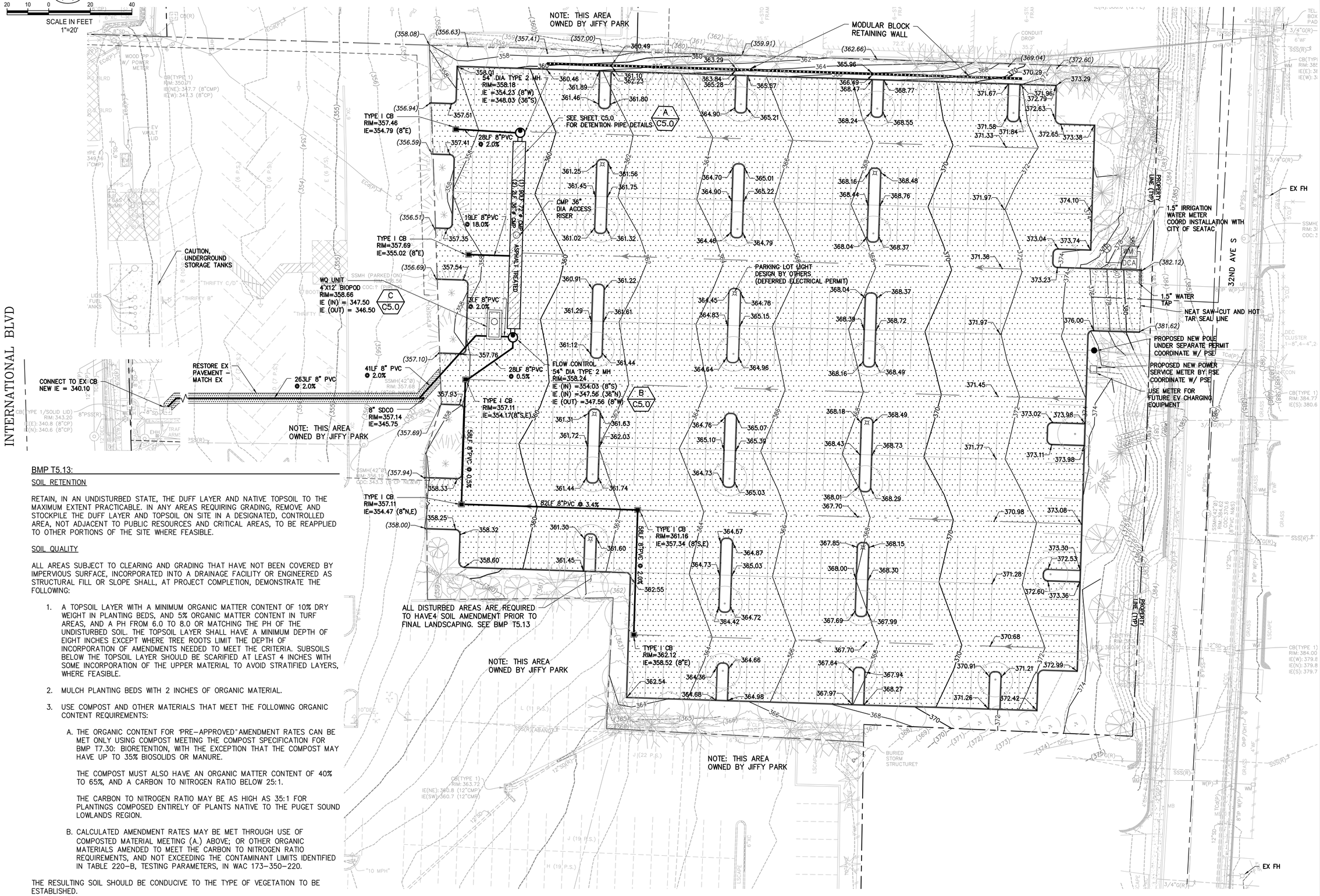
24"x36" 12/2/2022 U:\C3D\2016\2016189\ENGINEERING\0_PLAN SHEETS\1_ON SITE PLANS\03 TESC PLAN.DWG



BMP T5.13:

SOIL RETENTION

RETAIN, IN AN UNDISTURBED STATE, THE DUFF LAYER AND NATIVE TOPSOIL TO THE MAXIMUM EXTENT PRACTICABLE. IN ANY AREAS REQUIRING GRADING, REMOVE AND STOCKPILE THE DUFF LAYER AND TOPSOIL ON SITE IN A DESIGNATED, CONTROLLED AREA, NOT ADJACENT TO PUBLIC RESOURCES AND CRITICAL AREAS, TO BE REAPPLIED TO OTHER PORTIONS OF THE SITE WHERE FEASIBLE.

SOIL QUALITY

ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:

1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.

2. MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL.

3. USE COMPOST AND OTHER MATERIALS THAT MEET THE FOLLOWING ORGANIC CONTENT REQUIREMENTS:

   A. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BMP T7.30: BIORETENTION, WITH THE EXCEPTION THAT THE COMPOST MAY HAVE UP TO 35% BIOSOLIDS OR MANURE.

   THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 40% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1.

   THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.

   B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIAL MEETING (A.) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.

THE RESULTING SOIL SHOULD BE CONDUCIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.

JAY D. DECKER STATE OF WASHINGTON 31195 REGISTERED PROFESSIONAL ENGINEER

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GRADING/DRAINAGE PLAN
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

drawn by	checked by
MFM	JDD
scale	date
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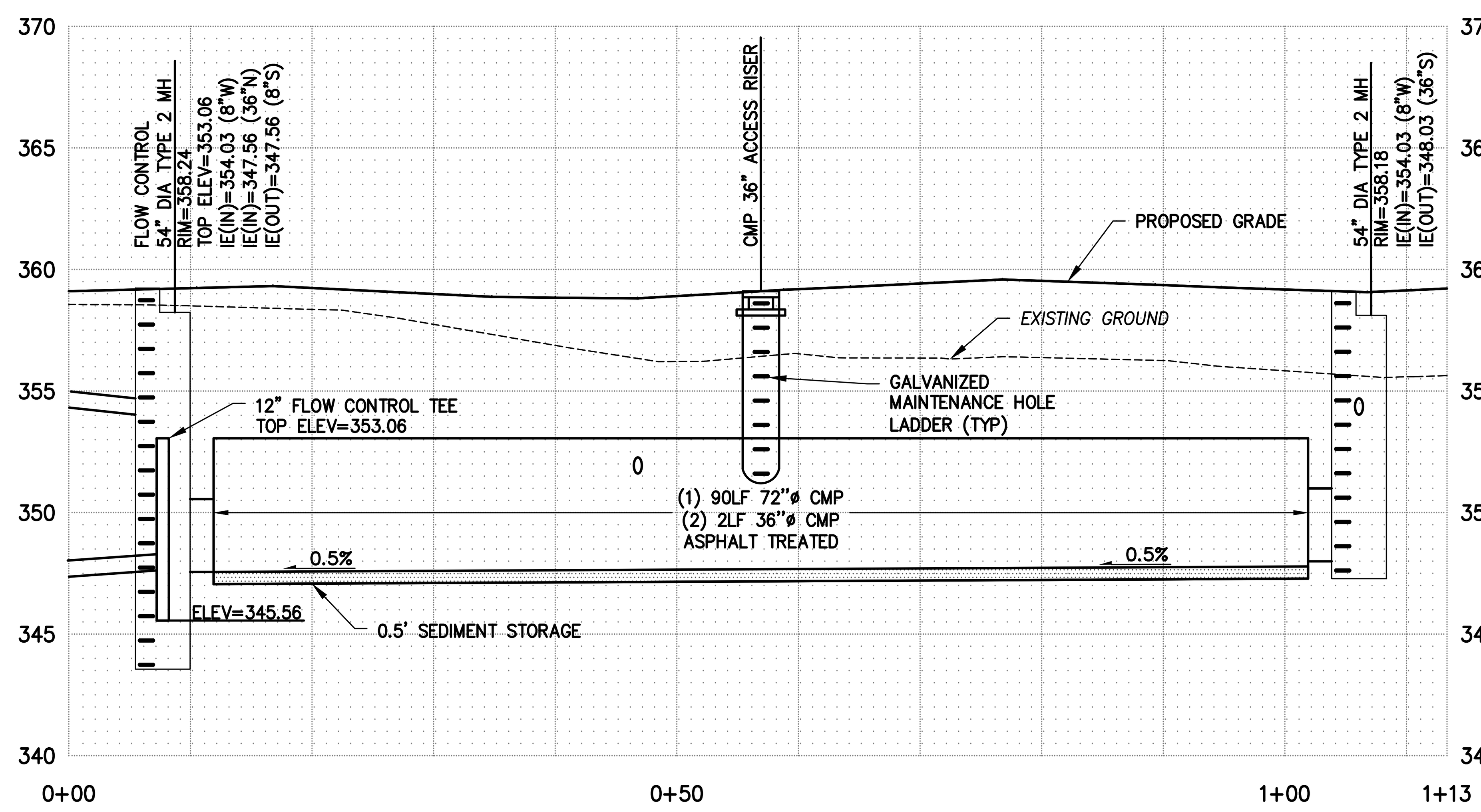
job no.	
2016189	
sheet C4.0	of 8

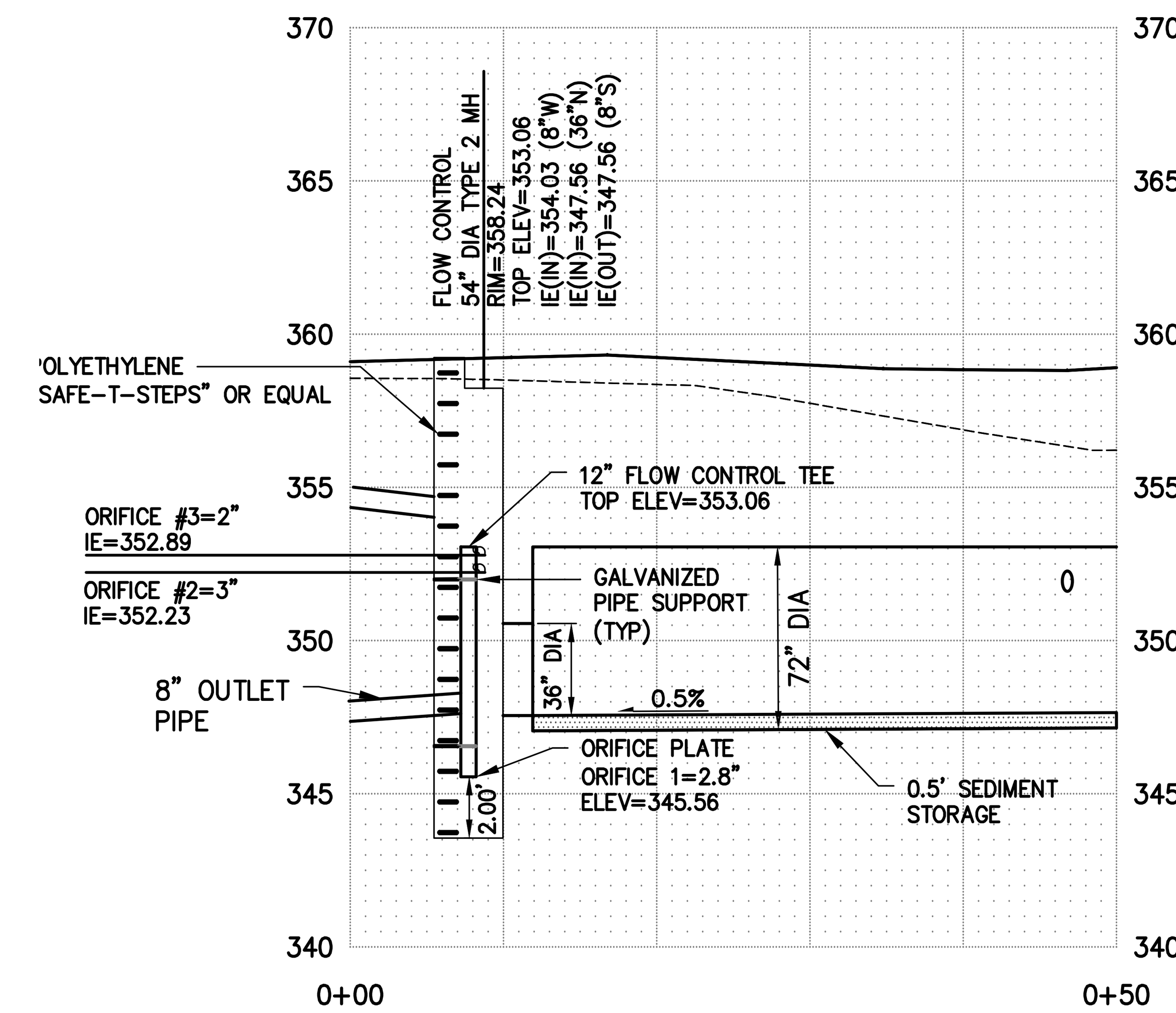
24"x36" 12/2/2022 U:\C3D\2016\2016189\ENGINEERING\O_PLAN SHEETS_ON SITE PLANS\04 GRADING AND DRAINAGE PLAN.DWG



DETENTION PIPE DETAIL

SCALE: 1" = 10'H; 1" = 5'V

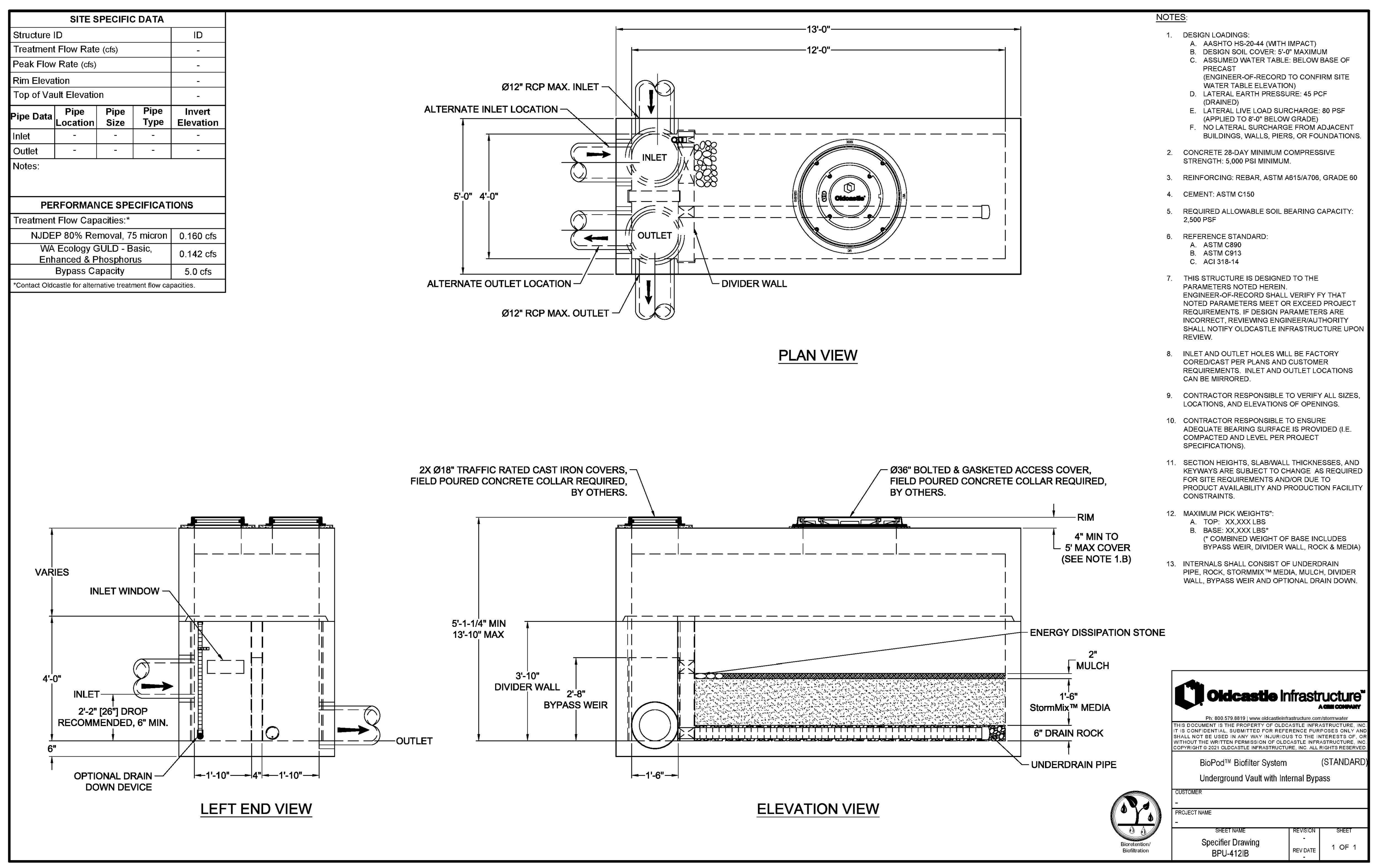
A / C5.0



FLOW CONTROL STRUCTURE DETAIL

SCALE: 1" = 10'H; 1" = 5'V

B / C5.0



BIOPOD DETAIL

NOT TO SCALE

C / C5.0

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DRAINAGE DETAILS
18836 INTERNATIONAL BLVD
SEATAC KING WASHINGTON

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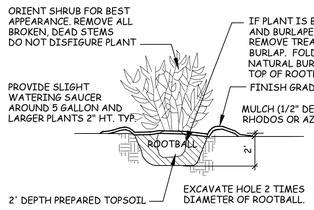
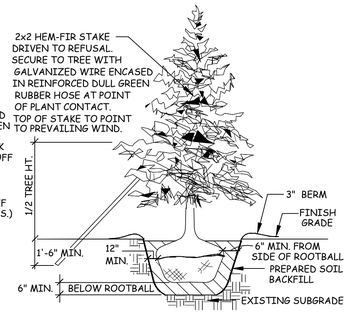
scale: AS SHOWN	date: 12/02/22
job no. 2016189	
sheet C5.0 of 8	

24"x36" 12/2/2022 U:\C3D\2016\2016189\ENGINEERING\0_PLAN SHEETS\1_ON SITE PLANS\05 DRAINAGE DETAIL.DWG



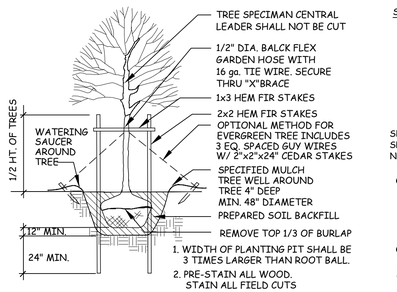
5 L-1 TYPICAL SHRUB PLANTING

SCALE: N.T.S.



4 L-1 TYP. CONIFEROUS TREE PLANTING

SCALE: N.T.S.

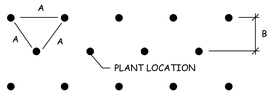


3 L-1 TYP.DECIDUOUS TREE PLANTING

SCALE: N.T.S.

SPACING "A"	SPACING "B"	# OF PLANTS/SF
6" o.c.	5.20"	4.60
8" o.c.	6.93"	2.60
10" o.c.	8.66"	1.66
12" o.c.	10.40"	1.15
15" o.c.	13.00"	.738
18" o.c.	15.60"	.512
24" o.c.	20.80"	.290
30" o.c.	26.00"	.185
36" o.c.	30.00"	.116

SEE GROUNDCOVER PLANT KEY FOR MAXIMUM TRIANGULAR SPACING "A". THIS CHART IS TO BE USED TO DETERMINE NUMBER OF GROUNDCOVER PLANTS REQUIRED IN A GIVEN AREA.



PLANT SPACING CHART

FOR USE WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER, AS IN ALL MASSED SHRUB/GROUNDCOVER PLANTINGS

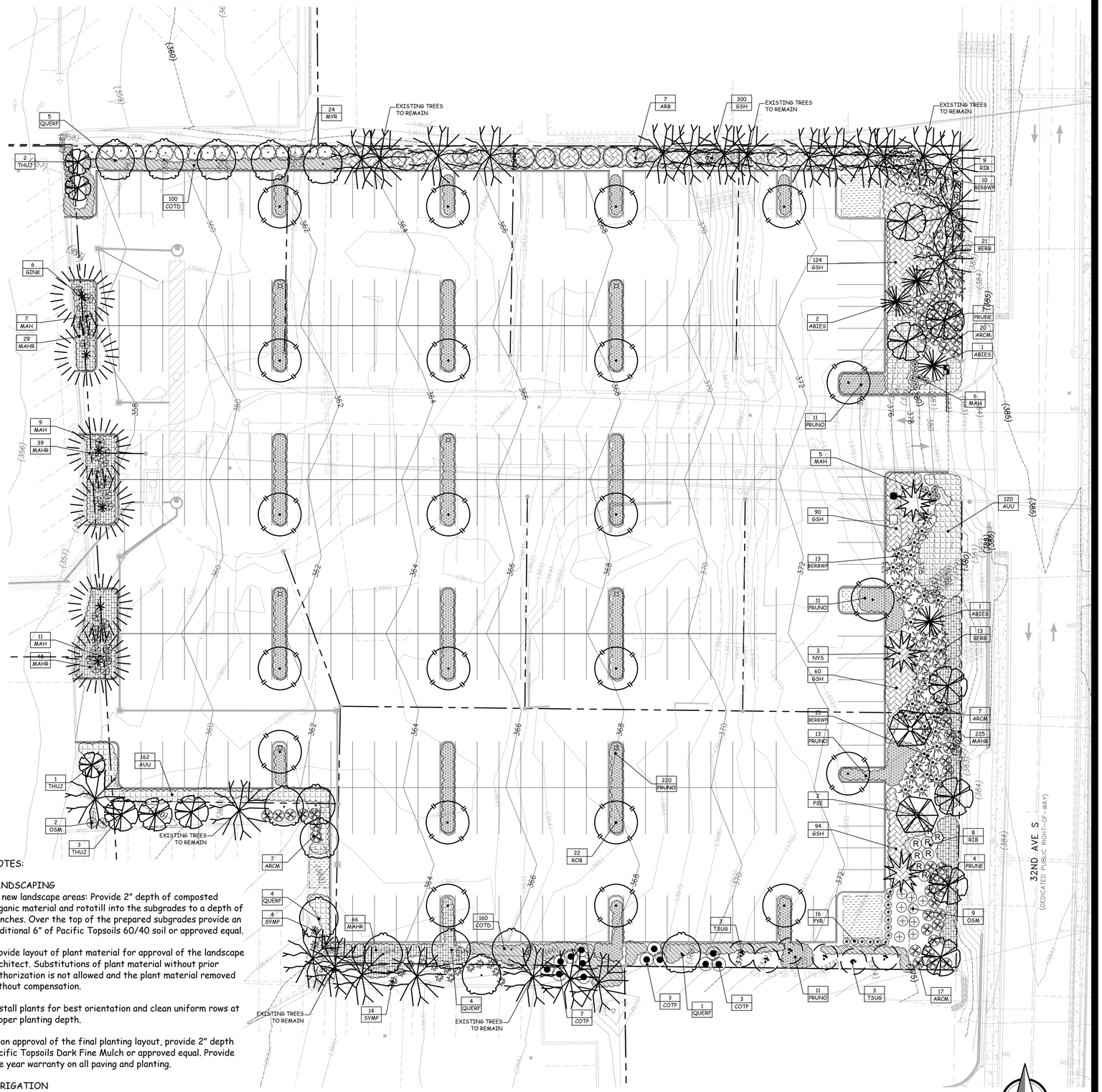
2 L-1 PLANT SPACING CHART

SCALE: N.T.S.

PLANT LIST

April 9, 2022, November 25,2022

QUAN	PLANT SYMBOL	PLANT NAME	SIZE SPACING
4	ABIES	ABIES GRANDIS/ GRAND FIR	8' B/B
7	ARB	ARBUTUS UNDEO COMPACTA/ STRAWBERRY BUSH	3-4' B/B
51	ARCM	ARCTOSTAPHYLOS SUNSET MANZANITA	ONE GALLON CAN, 36" TRI SP.
282	AUU	ARCTOSTAHPYLOS UVA URSI MASSACHUSETTS	1 GALLO24" TRI SPACING ON CAN
38	BERBWP	BERBERIS WILLIAM PENN WILLIAM PENN BARBERRY	5 GALLON CAN 36" TRI SP.
34	BERB	BERBERIS THUNBERGII BARBERRY	5 GALLON CAN 36 TRI SP.
260	COTD	COTONEASTER DAMMERI	1 GALLON AT 24" TRI SP
13	COTP	COTONEASTER PARNEYI/ PARNEY COTONEASTER	5 GALLON, 24" HEIGHT & WIDTH, 5' SPACING
11	OSM	OSMANTHUS GOSHIKI	5 GALLON, 18" HEIGHT, 5 FEET TRI. CENTER
6	GINK	GINKGO BILOBA GINKO	2 " CALIPER
668	GSH	GAULTHERIA SHALLON SALAL	4" pots, 12" TRI SP.
38	MAH	MAHONIA AQUIFOLIUM/ TALL OREGON GRAPE	5 GALLON CAN 48" TRI SP
407	MAHR	MAHONIA REPANS	1 GALLON CAN 18" TRI SP
24	MYR	MYRICA CALIFORNICA/ BAY LAUREL	5 GALLON CAN, FULL, 24" HEIGHT, 5' TRI SP
3	NYS	NYSSA SYLVATICA RED RAGE/ RED RAGE TUPELO	2.0" CALIPER
7	PRUNE	PRUNUS EMARGINATA/ BITTER CHERRY	2" B/B
220	PRUNO	PRUNUS LAUROCERACUS OTTOLUYKEN/ OTTOLUYKEN LAUREL	12-16" b/b
2	PSE	PSEUDOTSUGA MENZEISII/ DOUGLAS FIR	8' B/B
16	PYR	THUJA PYRAMIDALIS EMERALD GREEN	5 ' TO 6'B/B , 2-6" OC
14	QUERF	QUERCUS ROBUR FASTIGIATA/ COLUMNAR OAK	2.0" CALIPER, 10' to 12', B/B
17	RIB	RIBES SANGUINNEUM CURRENT	5 GALLON CAN, 5' TRI SP
22	ROB	ROBINIA PSEUDOACACIA SUNBURST LOCUST	2.0" CALIPER
18	SYMP	SYMPHIOCARPUS ALBUS SNOWBERRY	ONE GALLON, 30" ON CENTER
4	THUJ	THUJA PLICATA HOGAN	8' B/B
6	TSUG	TSUGA MERTENSIANA/ MOUNTAIN HEMLOCK	8' B/B



NOTES:

LANDSCAPING
In new landscape areas: Provide 2" depth of composted organic material and rototill into the subgrades to a depth of 6 inches. Over the top of the prepared subgrades provide an additional 6" of Pacific Topsoils 60/40 soil or approved equal.

Provide layout of plant material for approval of the landscape architect. Substitutions of plant material without prior authorization is not allowed and the plant material removed without compensation.

Install plants for best orientation and clean uniform rows at proper planting depth.

Upon approval of the final planting layout, provide 2" depth Pacific Topsoils Dark Fine Mulch or approved equal. Provide one year warranty on all paving and planting.

IRRIGATION
All areas will be irrigated.

CALL BEFORE YOU DIG
Call 811 or 1800 424 5555 at least two business days prior to digging operations. Provide ticket number.

1 L-1.0 LANDSCAPE PLAN

SCALE: 1" = 20'-0"

0 20 40
PLAN IN FEET

KLLA
LANDSCAPE ARCHITECTS INC.
P 206 396 7617
KLLA@COMCAST.NET
21803 NE 17TH COURT SAMMAMISH, WA 98074

SEAL:

STATE OF WASHINGTON
REGISTERED
LANDSCAPE, ARCHITECT
KENNETH E. LARGE
KLLA LANDSCAPE ARCHITECTS INC.
CERTIFICATE #301

JIFFY PARK

18836 INTERNATIONAL BLVD.
SEATAC WASHINGTON

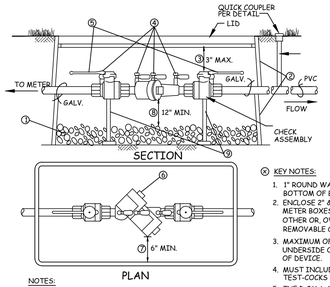
JOB NUMBER: KEL
DRAWN:
CHECKED:
DATE: April 27, 2022
REVISIONS:

1	Base Plan - 12/01/2022

SHEET TITLE:
LANDSCAPE PLAN

PERMIT SET

SHEET NUMBER:
L-1.0



SECTION

PLAN

KEY NOTES:

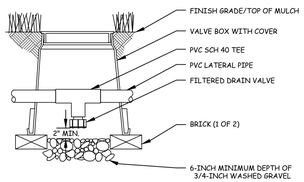
1. 1" ROUND WASHED GRAVEL, 6" DEEP ON BOTTOM OF BOX.
2. ENCLOSE 2" & SMALLER D.C.V.A. IN TWO METER BOXES STACKED ON TOP OF EACH OTHER OR, OVER SIZED. MUST HAVE REMOVABLE COVER.
3. MAXIMUM OF 3" DISTANCE BETWEEN UNDERSIDE OF LID AND HIGHEST POINT OF DEVICE.
4. MUST INCLUDE (4) RESILIENT SEATED TEST-COCKS WITH PLUGS INSTALLED.
5. THE D.C.V.A. MUST INCLUDE (2) RESILIENT SEATED SHUTOFF VALVES.
6. Y-PATTERN D.C.V.A. SHOULD BE INSTALLED ON SIDE.
7. WHEN TEST-COCKS ARE FACING SIDEWAYS THERE MUST BE A 6" MINIMUM CLEARANCE BETWEEN THEMAND SIDE OF BOX.
8. MINIMUM OF 12" BETWEEN LOWEST POINT OF DEVICE AND DRAIN ROCK.
9. PROVIDE SUPPORT FOR 2" DEVICES.

NOTES:

1. INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. ALL INSTALLATION MUST MEET MINIMUM STANDARDS OF UNIFORM PLUMBING CODE & WATER DISTRICT.
3. ASSEMBLY REQUIRES TESTING AND CERTIFICATION PRIOR TO USE AND ANNUALLY THEREAFTER. FOR INFORMATION CONTACT WATER QUALITY TECHNICIAN.
4. APPLY AND PAY FOR ALL REQUIRED PERMITS
5. 1" DOUBLE CHECK ASSEMBLY

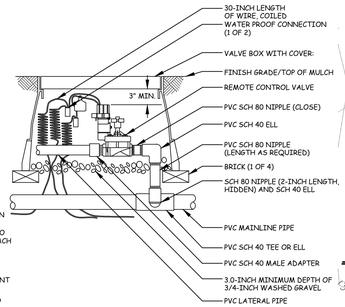
POINT OF CONNECTION (DCA)

5 / L-2.0 SCALE: N.T.S.



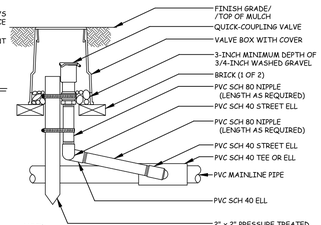
DRAIN VALVE

6 / L-2.0 SCALE: N.T.S.



TYP. REMOTE CONTROL VALVE

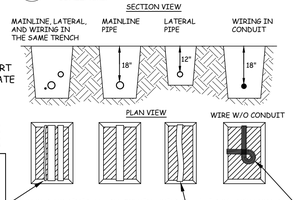
1 / L-2.0 SCALE: N.T.S.



NOTE:
1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.

TYP. QUICK COUPLER

2 / L-2.0 SCALE: N.T.S.

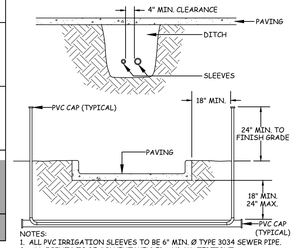


NOTES:

1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH TYPE 3034 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
2. FOR PIPE AND WIRE BURIAL DEPTHS SEE SPECIFICATIONS.

TYP. PIPE AND WIRING TRENCH

3 / L-2.0 SCALE: N.T.S.



NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE 6" MIN. Ø TYPE 3034 SEWER PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP TO 95% PROCTOR.

TYP. SLEEVE UNDER PAVEMENT

4 / L-2.0 SCALE: N.T.S.

IRRIGATION FLOW CHART

THE FOLLOWING CHART IS TO BE USED BY THE CONTRACTOR FOR SIZING LATERAL PIPE. WHEN USING THIS CHART DO NOT EXCEED A VELOCITY OF 5 FEET PER SECOND. THIS CHART REPRESENTS THE FRICTION LOSS PER 100 FEET OF PIPE. THE CONTRACTOR SHALL CALCULATE GALLONAGE USING THE HEADS SHOWN ON THE PLAN.

FLOW G.P.M.	VELOCITY F.P.S	P.S.I. LOSS	VELOCITY F.P.S	P.S.I. LOSS	VELOCITY F.P.S	P.S.I. LOSS	VELOCITY F.P.S	P.S.I. LOSS	VELOCITY F.P.S	P.S.I. LOSS
1	0.47	0.06	0.28	0.02	0.18	0.01	0.13	0.00		
2	0.94	0.22	0.57	0.07	0.36	0.02	0.27	0.01	0.17	0.00
3	1.42	0.46	0.86	0.14	0.54	0.04	0.41	0.02	0.26	0.01
4	1.89	0.79	1.15	0.26	0.72	0.08	0.55	0.04	0.35	0.01
5	2.36	1.20	1.44	0.36	0.90	0.12	0.68	0.06	0.44	0.02
6	2.83	1.68	1.73	0.51	1.08	0.16	0.82	0.08	0.53	0.03
7	3.30	2.23	2.02	0.67	1.26	0.22	0.96	0.11	0.61	0.04
8	3.77	2.85	2.30	0.86	1.44	0.28	1.10	0.14	0.70	0.05
9	4.25	3.55	2.59	1.07	1.62	0.34	1.24	0.18	0.79	0.06
10	4.72	4.31	2.88	1.30	1.80	0.42	1.37	0.22	0.88	0.07
11	5.19	5.15	3.17	1.56	1.98	0.50	1.51	0.26	0.97	0.09
12	5.65	6.06	3.46	1.83	2.17	0.59	1.65	0.30	1.06	0.10
14	6.60	8.05	4.04	2.43	2.53	0.78	1.92	0.40	1.23	0.14
16	7.55	10.30	4.61	3.11	1.89	1.00	2.20	0.52	1.41	0.17
18	8.49	12.81	5.19	3.87	3.23	1.24	2.40	0.64	1.59	0.22
20	9.43	15.58	5.77	4.71	3.61	1.51	2.75	0.74	1.76	0.26
22	10.38	18.53	6.34	5.52	3.97	1.80	3.03	0.83	1.94	0.32
24	11.32	21.83	6.92	6.60	4.34	2.12	3.30	1.09	2.12	0.37
26	12.27	25.32	7.50	7.65	4.70	2.46	3.58	1.27	2.29	0.43
28	13.21	29.04	8.08	8.78	5.06	2.82	3.86	1.46	2.47	0.49
30	14.15	33.00	8.86	9.99	5.43	3.20	4.13	1.66	2.65	0.56
35	16.51	43.91	10.10	13.27	6.32	4.26	4.82	2.20	3.08	0.75
40	18.37	56.23	10.54	17.00	7.23	5.45	5.51	2.82	3.53	0.96
45			12.58	21.24	8.13	6.78	6.20	3.51	3.97	1.19
50			14.42	25.70	9.04	8.24	6.89	4.26	4.41	1.44
55			15.57	30.66	9.94	9.83	7.56	5.08	4.85	1.72
60			17.31	36.02	10.23	11.58	8.27	5.37	5.30	2.02
65			18.75	41.77	11.75	13.40	8.96	6.93	5.74	2.35
70					12.88	15.37	9.65	7.96	6.18	2.83
75					13.56	17.47	10.24	9.03	6.63	3.06
80					14.46	19.04	11.03	10.18	7.08	3.44
85					15.27	22.02	11.75	11.28	7.50	3.88

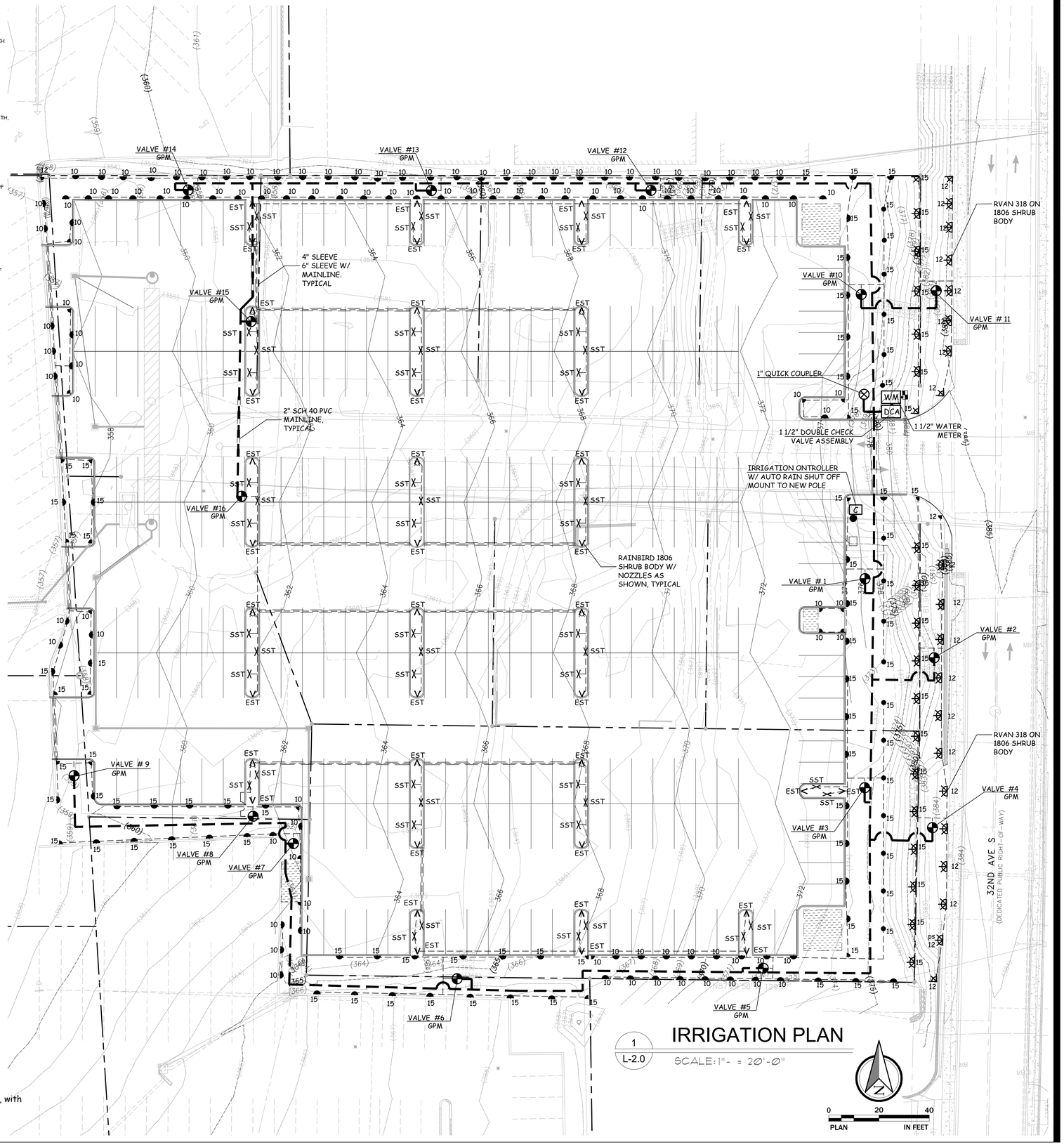
SIZE	3/4"	1"	1-1/4"	1-1/2"	2"
OD	1.050	1.315	1.650	1.900	2.375
ID	.930	1.189	1.502	1.720	2.149

7 / L-2.0 IRRIGATION FLOW CHART SCALE: N.T.S.

IRRIGATION LEGEND

All shrub zone nozzles shall be installed on Rainbird 1806 spray bodies

- < End strip spray
- Side strip spray
- Rainbird 1800 ¼, ½, ¾, full and variable angle variable radius nozzles. The nozzle arc and arc distance are not shown.
- RVAN 318 on 1806 shrub body
- C — CONTROLLER: Rainbird ESP w/ wireless rain shut off, Mount to outside of building
- DCA — DOUBLE CHECK VALVE ASSEMBLY (5 / L-2.0): Double check assembly
- MAINLINE: 1-1/2" SCH. 40 PVC Pipe/Solvent Weld. Tie into existing mainline as shown. Plan shows diagramatic location
- LATERAL: Class 200 PVC Pipe/ Solvent Weld, minimum 3/4" diameter size, as noted or per velocity sizing chart.
- SLEEVE PER DETAIL (4 / L-2.0)
- ZONE VALVES (24VAC Electric): Rainbird PEB series 1" for 10-20 gpm, Rainbird XCZ 100 PRBR for drip zones (1 / L-2.0)
- QCV — 1" QUICK COUPLING VALVE: Rain Bird #44: Install in 12" Standard valve Box (2 / L-2.0)
- ISOLATION GATE VALVES: 3" 150 psi WOG Brass Gate Valve, FIPT X FIPT, with handwheel & rising stem. Place in valve box
- DV — DRAIN VALVE: see detail (6 / L-2.0)



IRRIGATION PLAN

1 / L-2.0 SCALE: 1"- = 20'-0"

KLLA
LANDSCAPE ARCHITECTS INC.
P 206 396 7617
KLLA@COMCAST.NET
21803 NE 17TH COURT SAMMAMISH, WA 98074

SEAL:

STATE OF WASHINGTON
REGISTERED
LANDSCAPE, ARCHITECT
KENNETH E. LARGE
KLLA LANDSCAPE ARCHITECTS INC.
CERTIFICATE #301

JIFFY PARK

18836 INTERNATIONAL BLVD.
SEATAC WASHINGTON

JOB NUMBER: KEL
DRAWN:
CHECKED:
DATE: April 27, 2022
REVISIONS:

1	Base Plan - 12/01/2022

SHEET TITLE:

IRRIGATION PLAN

PERMIT SET

SHEET NUMBER:

L-2.0

Appendix D – WWHM Report

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	02 JIFFY DET TANK
Site Name:	
Site Address:	
City:	
Report Date:	11/28/2022
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.000
Version Date:	2021/08/18
Version:	4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 5 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	1.75
Pervious Total	1.75

Impervious Land Use	acre
ROOF TOPS FLAT	0.35
DRIVEWAYS MOD	0.33
Impervious Total	0.68
Basin Total	2.43

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Lawn, Mod	0.5
Pervious Total	0.5

Impervious Land Use	acre
SIDEWALKS FLAT	1.93
Impervious Total	1.93
Basin Total	2.43

Element Flows To:

Surface	Interflow	Groundwater
Tank 1	Tank 1	

Mitigated Routing

Tank 1

Dimensions

Depth:	6 ft.	
Tank Type:	Circular	
Diameter:	6 ft.	
Length:	90 ft.	
Discharge Structure		
Riser Height:	5.5 ft.	
Riser Diameter:	24 in.	
Orifice 1 Diameter:	2.8 in.	Elevation:0 ft.
Orifice 2 Diameter:	3 in.	Elevation:4.669 ft.
Orifice 3 Diameter:	2 in.	Elevation:5.33 ft.

See flow control structure design

Element Flows To:

Outlet 1 Outlet 2

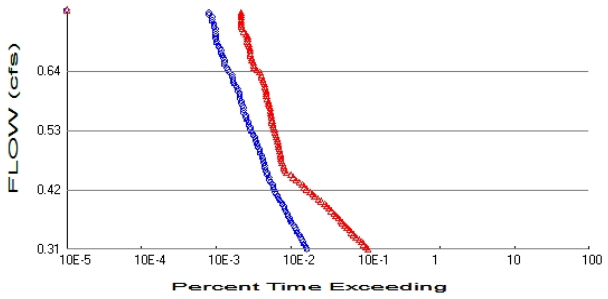
Tank Hydraulic Table

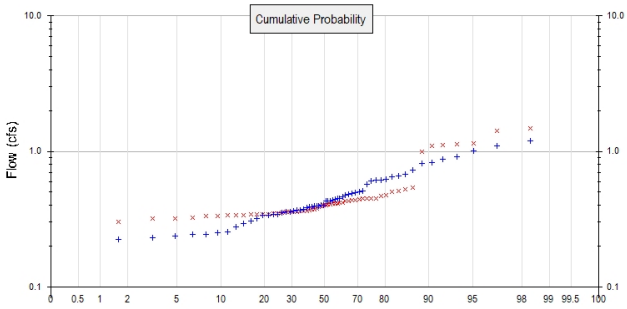
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000000	0.000000	0.000	0.000
0.0667	0.002599	0.000116	0.054	0.000
0.1333	0.003655	0.000326	0.077	0.000
0.2000	0.004451	0.000597	0.095	0.000
0.2667	0.005109	0.000917	0.109	0.000
0.3333	0.005679	0.001277	0.122	0.000
0.4000	0.006185	0.001673	0.134	0.000
0.4667	0.006640	0.002100	0.145	0.000
0.5333	0.007056	0.002557	0.155	0.000
0.6000	0.007438	0.003040	0.164	0.000
0.6667	0.007792	0.003548	0.173	0.000
0.7333	0.008121	0.004079	0.182	0.000
0.8000	0.008428	0.004630	0.190	0.000
0.8667	0.008716	0.005202	0.198	0.000
0.9333	0.008986	0.005792	0.205	0.000
1.0000	0.009240	0.006400	0.212	0.000
1.0667	0.009479	0.007024	0.219	0.000
1.1333	0.009705	0.007663	0.226	0.000
1.2000	0.009917	0.008317	0.233	0.000
1.2667	0.010118	0.008985	0.239	0.000
1.3333	0.010308	0.009666	0.245	0.000
1.4000	0.010486	0.010359	0.251	0.000
1.4667	0.010655	0.011064	0.257	0.000
1.5333	0.010814	0.011780	0.263	0.000
1.6000	0.010964	0.012506	0.269	0.000
1.6667	0.011105	0.013242	0.274	0.000
1.7333	0.011238	0.013986	0.280	0.000
1.8000	0.011362	0.014740	0.285	0.000
1.8667	0.011478	0.015501	0.290	0.000
1.9333	0.011587	0.016270	0.295	0.000
2.0000	0.011688	0.017046	0.300	0.000
2.0667	0.011781	0.017828	0.305	0.000
2.1333	0.011868	0.018617	0.310	0.000
2.2000	0.011948	0.019410	0.315	0.000
2.2667	0.012021	0.020209	0.320	0.000
2.3333	0.012087	0.021013	0.325	0.000

2.4000	0.012146	0.021821	0.329	0.000
2.4667	0.012199	0.022632	0.334	0.000
2.5333	0.012246	0.023447	0.338	0.000
2.6000	0.012286	0.024265	0.343	0.000
2.6667	0.012320	0.025085	0.347	0.000
2.7333	0.012348	0.025908	0.351	0.000
2.8000	0.012369	0.026732	0.356	0.000
2.8667	0.012384	0.027557	0.360	0.000
2.9333	0.012394	0.028383	0.364	0.000
3.0000	0.012397	0.029209	0.368	0.000
3.0667	0.012394	0.030035	0.372	0.000
3.1333	0.012384	0.030861	0.376	0.000
3.2000	0.012369	0.031687	0.380	0.000
3.2667	0.012348	0.032510	0.384	0.000
3.3333	0.012320	0.033333	0.388	0.000
3.4000	0.012286	0.034153	0.392	0.000
3.4667	0.012246	0.034971	0.396	0.000
3.5333	0.012199	0.035786	0.399	0.000
3.6000	0.012146	0.036597	0.403	0.000
3.6667	0.012087	0.037405	0.407	0.000
3.7333	0.012021	0.038209	0.411	0.000
3.8000	0.011948	0.039008	0.414	0.000
3.8667	0.011868	0.039801	0.418	0.000
3.9333	0.011781	0.040590	0.421	0.000
4.0000	0.011688	0.041372	0.425	0.000
4.0667	0.011587	0.042148	0.429	0.000
4.1333	0.011478	0.042917	0.432	0.000
4.2000	0.011362	0.043678	0.436	0.000
4.2667	0.011238	0.044432	0.439	0.000
4.3333	0.011105	0.045176	0.442	0.000
4.4000	0.010964	0.045912	0.446	0.000
4.4667	0.010814	0.046638	0.449	0.000
4.5333	0.010655	0.047354	0.453	0.000
4.6000	0.010486	0.048059	0.456	0.000
4.6667	0.010308	0.048752	0.459	0.000
4.7333	0.010118	0.049433	0.524	0.000
4.8000	0.009917	0.050101	0.554	0.000
4.8667	0.009705	0.050755	0.577	0.000
4.9333	0.009479	0.051394	0.598	0.000
5.0000	0.009240	0.052018	0.616	0.000
5.0667	0.008986	0.052626	0.632	0.000
5.1333	0.008716	0.053216	0.648	0.000
5.2000	0.008428	0.053788	0.663	0.000
5.2667	0.008121	0.054339	0.677	0.000
5.3333	0.007792	0.054870	0.696	0.000
5.4000	0.007438	0.055378	0.731	0.000
5.4667	0.007056	0.055861	0.755	0.000
5.5333	0.006640	0.056318	0.905	0.000
5.6000	0.006185	0.056746	1.465	0.000
5.6667	0.005679	0.057141	2.251	0.000
5.7333	0.005109	0.057501	3.200	0.000
5.8000	0.004451	0.057821	4.267	0.000
5.8667	0.003655	0.058092	5.414	0.000
5.9333	0.002599	0.058302	6.598	0.000
6.0000	0.000000	0.058418	7.779	0.000
6.0667	0.000000	0.000000	8.914	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 1.75
Total Impervious Area: 0.68

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.5
Total Impervious Area: 1.93

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.428546
5 year	0.612189
10 year	0.746398
25 year	0.930516
50 year	1.078396
100 year	1.235614

Peak flow control standards are met

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.417648
5 year	0.594656
10 year	0.737779
25 year	0.951579
50 year	1.1372
100 year	1.347576

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.682	0.447
1950	0.658	0.447
1951	0.397	0.414
1952	0.245	0.362
1953	0.244	0.357
1954	0.342	0.350
1955	0.370	0.406
1956	0.360	0.389
1957	0.477	0.443
1958	0.308	0.344

1959	0.256	0.322
1960	0.429	0.417
1961	0.364	0.373
1962	0.252	0.319
1963	0.390	0.347
1964	0.337	0.401
1965	0.500	0.371
1966	0.277	0.344
1967	0.647	0.410
1968	0.612	0.428
1969	0.452	0.365
1970	0.394	0.362
1971	0.482	0.381
1972	0.613	0.524
1973	0.225	0.334
1974	0.490	0.342
1975	0.495	0.409
1976	0.371	0.338
1977	0.343	0.355
1978	0.428	0.502
1979	0.449	0.394
1980	0.818	0.438
1981	0.403	0.417
1982	0.725	0.996
1983	0.434	0.507
1984	0.292	0.318
1985	0.400	0.399
1986	0.393	0.468
1987	0.443	0.448
1988	0.230	0.344
1989	0.340	0.337
1990	1.194	1.468
1991	0.868	1.097
1992	0.321	0.368
1993	0.236	0.277
1994	0.208	0.302
1995	0.351	0.359
1996	0.608	0.447
1997	0.459	0.411
1998	0.390	0.360
1999	1.005	1.127
2000	0.429	0.437
2001	0.358	0.346
2002	0.624	0.475
2003	0.570	0.340
2004	0.913	1.423
2005	0.382	0.428
2006	0.374	0.333
2007	1.102	1.115
2008	0.828	1.138
2009	0.509	0.539

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	1.1945	1.4679
2	1.1025	1.4229
3	1.0053	1.1381

4	0.9134	1.1273
5	0.8684	1.1147
6	0.8279	1.0968
7	0.8175	0.9964
8	0.7253	0.5389
9	0.6818	0.5241
10	0.6579	0.5074
11	0.6468	0.5019
12	0.6240	0.4747
13	0.6126	0.4678
14	0.6119	0.4484
15	0.6084	0.4471
16	0.5699	0.4468
17	0.5088	0.4466
18	0.5003	0.4435
19	0.4955	0.4380
20	0.4903	0.4375
21	0.4819	0.4285
22	0.4768	0.4275
23	0.4588	0.4171
24	0.4518	0.4170
25	0.4487	0.4138
26	0.4425	0.4110
27	0.4345	0.4103
28	0.4293	0.4086
29	0.4287	0.4059
30	0.4279	0.4012
31	0.4029	0.3994
32	0.3997	0.3940
33	0.3966	0.3886
34	0.3943	0.3812
35	0.3934	0.3732
36	0.3904	0.3709
37	0.3898	0.3683
38	0.3819	0.3651
39	0.3742	0.3625
40	0.3705	0.3624
41	0.3700	0.3595
42	0.3638	0.3592
43	0.3596	0.3567
44	0.3584	0.3552
45	0.3508	0.3503
46	0.3433	0.3468
47	0.3417	0.3461
48	0.3397	0.3444
49	0.3368	0.3437
50	0.3209	0.3436
51	0.3078	0.3416
52	0.2923	0.3400
53	0.2769	0.3377
54	0.2562	0.3375
55	0.2521	0.3343
56	0.2450	0.3327
57	0.2436	0.3218
58	0.2360	0.3187
59	0.2297	0.3180
60	0.2249	0.3023
61	0.2078	0.2765

Duration Flows

NOTE: Duration standard not required for this project site.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.3061	349	2327	666	Fail
0.3105	339	2186	644	Fail
0.3150	323	2047	633	Fail
0.3194	314	1909	607	Fail
0.3239	302	1765	584	Fail
0.3283	288	1611	559	Fail
0.3328	279	1500	537	Fail
0.3372	263	1393	529	Fail
0.3417	251	1315	523	Fail
0.3461	242	1212	500	Fail
0.3506	235	1135	482	Fail
0.3550	221	1058	478	Fail
0.3595	213	999	469	Fail
0.3639	204	932	456	Fail
0.3684	195	860	441	Fail
0.3728	190	813	427	Fail
0.3773	182	753	413	Fail
0.3817	176	695	394	Fail
0.3861	171	647	378	Fail
0.3906	165	611	370	Fail
0.3950	157	550	350	Fail
0.3995	148	500	337	Fail
0.4039	143	447	312	Fail
0.4084	135	421	311	Fail
0.4128	132	386	292	Fail
0.4173	128	347	271	Fail
0.4217	124	327	263	Fail
0.4262	121	304	251	Fail
0.4306	115	278	241	Fail
0.4351	110	252	229	Fail
0.4395	110	231	209	Fail
0.4440	104	213	204	Fail
0.4484	102	186	182	Fail
0.4529	98	178	181	Fail
0.4573	96	174	181	Fail
0.4618	95	172	181	Fail
0.4662	92	165	179	Fail
0.4707	91	160	175	Fail
0.4751	90	157	174	Fail
0.4795	88	156	177	Fail
0.4840	84	156	185	Fail
0.4884	82	152	185	Fail
0.4929	80	149	186	Fail
0.4973	77	146	189	Fail
0.5018	76	146	192	Fail
0.5062	73	143	195	Fail
0.5107	72	141	195	Fail
0.5151	70	137	195	Fail
0.5196	67	135	201	Fail
0.5240	63	132	209	Fail
0.5285	61	129	211	Fail
0.5329	61	126	206	Fail
0.5374	58	123	212	Fail
0.5418	58	120	206	Fail

0.5463	55	120	218	Fail
0.5507	54	118	218	Fail
0.5552	53	118	222	Fail
0.5596	50	115	230	Fail
0.5641	50	114	228	Fail
0.5685	50	114	228	Fail
0.5729	48	110	229	Fail
0.5774	46	108	234	Fail
0.5818	46	107	232	Fail
0.5863	44	103	234	Fail
0.5907	44	101	229	Fail
0.5952	44	100	227	Fail
0.5996	42	100	238	Fail
0.6041	42	99	235	Fail
0.6085	40	97	242	Fail
0.6130	37	96	259	Fail
0.6174	36	92	255	Fail
0.6219	36	90	250	Fail
0.6263	35	87	248	Fail
0.6308	35	86	245	Fail
0.6352	32	82	256	Fail
0.6397	31	75	241	Fail
0.6441	30	69	230	Fail
0.6486	28	68	242	Fail
0.6530	28	68	242	Fail
0.6574	28	64	228	Fail
0.6619	27	64	237	Fail
0.6663	26	62	238	Fail
0.6708	25	61	244	Fail
0.6752	25	61	244	Fail
0.6797	24	61	254	Fail
0.6841	23	59	256	Fail
0.6886	22	58	263	Fail
0.6930	22	56	254	Fail
0.6975	21	56	266	Fail
0.7019	21	56	266	Fail
0.7064	21	54	257	Fail
0.7108	21	51	242	Fail
0.7153	21	48	228	Fail
0.7197	20	46	230	Fail
0.7242	20	46	230	Fail
0.7286	19	46	242	Fail
0.7331	19	46	242	Fail
0.7375	19	46	242	Fail
0.7420	17	46	270	Fail
0.7464	17	46	270	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0.2522 acre-feet
On-line facility target flow:	0.2616 cfs.
Adjusted for 15 min:	0.2616 cfs.
Off-line facility target flow:	0.1559 cfs.
Adjusted for 15 min:	0.1559 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Tank 1 POC	☐	312.11			☐	0.00			
Total Volume Infiltrated		312.11	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

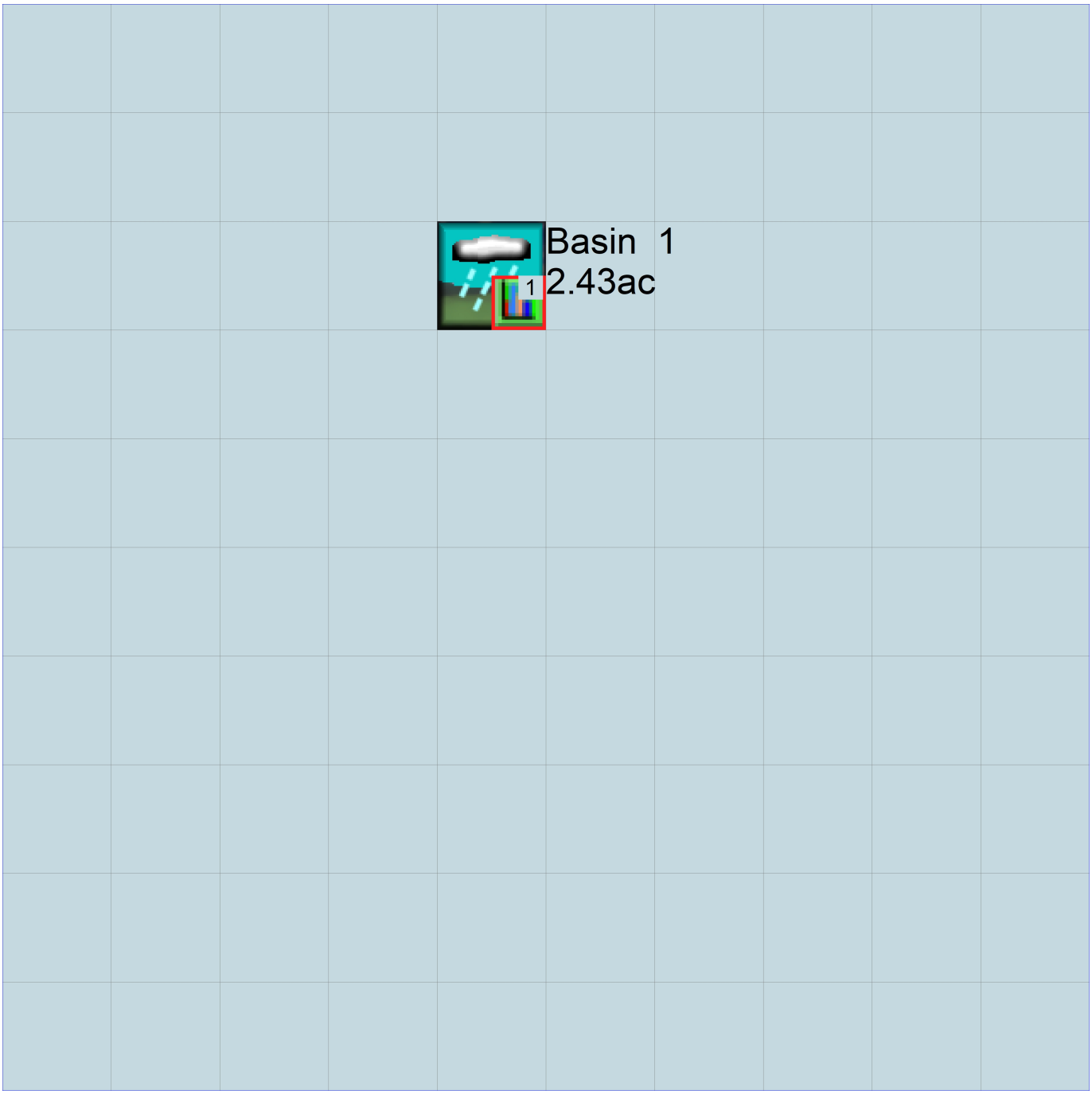
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic