Drainage Report

Regional Athletic Complex Parking Lot Design
Lacey, Washington

Prepared For:
City of Lacey

Prepared By:
SCJ Alliance
Whitney Holm, PE
8730 Tallon Lane NE, Suite 200
Lacey, WA 98516
360.352.1465

January 2023

SCJ ALLIANCE
CONSULTING SERVICES

Drainage Report

Project Information

Project:	Regional Athletic Complex Parking Lot Design
Prepared for:	City of Lacey 420 College St SE Lacey, WA 98503 360.413.4340 Contact: Ashley Smith

Reviewing Agency

Jurisdiction:	City of Lacey 420 College St SE Lacey, WA 98503

Project Representative

Prepared by:	SCJ Alliance 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465 scjalliance.com
Contact:	Whitney Holm, PE
Project Reference:	SCJ #22-000313 Path: N:\Projects\0620 City of Lacey\22-000313 RAC Parking Lot Design\Design\Storm\Drainage Report.docx

Signature

I hereby state that this Drainage Control Plan Report for the Regional Athletic Complex Parking Lot Design 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 Lacey does not and will not assume liability for the sufficiency, suitability, or performance of drainage BMPs prepared by me.

3/1/2023

Prepared by Kelcie Hopkins, EIT

Approved by Whitney Holm, PE

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1 Proposed Project Description

The following report was prepared for the Regional Athletic Complex (RAC) project in Lacey, WA. This report was prepared to comply with the minimum technical standards and requirements that are set forth in the City of Lacey 2022 *Stormwater Design Manual (SDM).*

Project Proponent:	City of Lacey
Parcel Numbers:	A: 11814410200, B: 11814410300
Total Parcel Area:	A: 4.3 Acres, B: 67.06 Acres
Current Zoning:	LD 3-6, Low-Density Residential
Required Permits:	Grading, Utility, Paving, etc.
Site Address:	8323 Steilacoom Rd SE
Section, Township, Range:	Section 14, Township 18 N, Range 1 W

The proposed RAC parking lot site is located on primarily on one parcel, 11814410200 that contains a total of 4.3 acres, the project site includes some frontage and a portion of parcel number 11814410300, which totals the project acreage to 5.84 acres. The site is bounded by Steilacoom Rd SE to the north, RAC Entrances to the east and south, and Marvin Rd SE to the west. The site contains an existing gravel parking area, concrete sidewalk along the frontage on Marvin Rd SE, approximately 90’ of concrete sidewalk along the frontage on Steilacoom Rd SE, and asphalt sidewalk along the frontages on the RAC Entrances. Specifically, the proposed site improvements/construction activities for this project include the following:

- Demolition of existing gravel areas
- Site preparation, grading, and erosion control activities
- Construction of parking lot, sidewalks, and plaza area
- Construction/installation of on-site water quality and flow control facilities

A site vicinity map of the proposed project location, an Existing and Proposed Basin Map, and a worksheet for determining the number of Core Requirements for this project has been prepared and is enclosed herein as **Appendix 3**. Core requirements 1-9 are required for this project. Table 1 below describes the land use of the parcel.

Table 1. Land Type Designations Existing vs. Proposed

Land Type Designations	Area (Acres)	% of Total Area
Total On-Site Area	**5.58**	**100**
Existing Pervious Surface	5.32	95.3
Existing Impervious Surface	0.26	4.7
Proposed Pervious Surface	1.66	29.7
Proposed Impervious Surface	3.92	70.3

1.1 Summary of Compliance On-Site

The stormwater design complies with the 9 core requirements as follows:

1.1.1 Core Requirement #1 – Preparation of Stormwater Site Plans

This Drainage Report will meet all of the requirements of the SDM.

1.1.2 Core Requirement #2 – Construction Stormwater Pollution Prevention

A pollution prevention plan has been included within the stormwater site plan, enclosed herein as **Attachment 2**, which describes the 13 required elements. Further, an erosion control plan has been prepared and is part of the engineering plan set, enclosed herein as **Attachment 1**. The contractor may need to amend and update these plans as part of development and/or management of the SWPPP. The contractor will be responsible for preparing the full SWPPP which shall comply with all of the required elements and the Washington Department of Ecology requirements for coverage under the NPDES Construction Stormwater General Permit.

1.1.3 Core Requirement #3 – Source Control of Pollution

All source control BMPs have been evaluated for feasibility and are identified in the Maintenance and Source Control Manual, see **Attachment 4**.

1.1.4 Core Requirement #4 – Preservation of Natural Drainage Systems and Outfalls

Currently, the majority of stormwater runoff throughout the parcel infiltrates on site. Stormwater runoff that doesn't infiltrate sheet flows from a high point in the east portion of the site to a low point located in the west portion of the site. After construction, the majority of the stormwater runoff will be collected, treated, and infiltrated on-site via bioretention ponds located in the southwest portion of the site. See section 4 of this manual for drainage system design descriptions.

1.1.5 Core Requirement #5 On-Site Stormwater Management

In accordance with Core Requirement #7, this project is not flow control exempt. Using Figure 2.1: Flow Chart for Determining Requirements for New Development, the proposed project is a new development

triggering core requirement #1-9, therefore the project shall employ the On-Site Stormwater Management BMPs in accordance with the Low Impact Performance Standard or List #2. The project will demonstrate compliance with List #2, see below.

1.1.5.1 Lawn and Landscaped Areas

Per Chapter 7 Section 7.4.1, the 2016 SDM, Post Construction Soil Quality and Depth will be utilized to the maximum extent practicable. See landscape plans for details.

1.1.5.2 Roofs

- Full Dispersion (Chapter 7, Section 7.4.2) or Downspout Infiltration (Chapter 7, Section 7.4.10)
- Bioretention (Chapter 7, Section 7.4.4)
- Downspout Dispersion Systems (Chapter 7, Section 7.4.10)
- Perforated Stub-out Connections (Chapter 7, Section 7.4.10)
- All roof related BMPs are not applicable because the site development does not include the construction of buildings or structures with overhangs.

1.1.5.3 Other Hard Surfaces:

- Full Dispersion (Chapter 7, Section 7.4.2): Full dispersion is not feasible for this project site. Full dispersion requires that the site protects at least 65% of the site in a forest or native condition. For this reason alone, this BMP is not feasible. In addition, the existing topography and the surrounding development does not allow for the required native vegetation paths.
- Permeable Pavement (Chapter 7, Section 7.4.6): Permeable pavement is not feasible due to the site grading and the requirement for treatment. The on-site soils also do not allow for treatment through infiltration.
- Bioretention (Chapter 7, Section 7.4.4): Bioretention is feasible for a portion of the proposed project improvements and will be used to the maximum extent practicable.
- Sheet Flow Dispersion or Concentrated Flow Dispersion (Chapter 7, Section 7.4.2): For the reasons mentioned above, all dispersion BMPs are infeasible for the proposed project.

1.1.6 Core Requirement #6 – Runoff Treatment

The proposed project is located within the 5-year time of travel zone for a wellhead protection area according to Figure 8B.1 of the SDM and therefore requires enhanced treatment. Enhanced treatment will be provided for the pollution generating impervious surfaces through the use of a bioretention facility. A bioretention facility was chosen for this project based on the step-by-step selection process in Section 8.2.1 of the SDM. See Section 4 of this report for an in-depth description of the selection process.

1.1.7 Core Requirement #7 – Flow Control

This requirement will be met through infiltration in multiple proposed stormwater facilities. The stormwater runoff from the proposed improvements will infiltrate within a bioretention facility that connects to an overflow retention facility. See Section 4 of this report for flow control design information.

1.1.8 Core Requirement #8 – Wetlands Protection

There are no wetlands on the project site nor does the project site does currently discharge into a wetland.

1.1.9 Core Requirement #9 – Operation and Maintenance

A Maintenance and Source Control Manual has been included as **Attachment 4**.

2 Existing Conditions Description

2.1 Existing On-Site Conditions

The subject site is +/- 5.58 acres in size, this site includes parcel 11814410200, a portion of parcel 11814410300, and frontage. Topography within the property is generally flat and level. The parcel currently has a gravel parking lot with frontage improvements along three sides of the parcel. This lot currently contains a retention pond for the RAC. See the figures below.

Figure 1 – Existing Conditions (1990)

Figure 2 – Existing Conditions (2020)

2.2 Critical Areas

Flood Zones: The project parcel is located with Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 53067C0192E. According to the FIRM Map the project parcel is located within Zone X. Zone X is determined to be an area of minimal flood hazard. See **Appendix 3** for the FIRM Map.

Wellhead Protection Areas: According to Figure 8B.1 of the SDM, the proposed project is located within the 5-year time of travel zone for a wellhead protection area. See **Appendix 3** for the Wellhead Protection Area Map.

2.3 On-site Soils Information

A geotechnical investigation was conducted by Landau Associates, Inc. (Landau) on August 17, 2022. A technical memorandum was provided on September 1, 2022 and summarized Landau's findings as follows. The site is primarily surfaced with gravel and asphalt, and surficial deposits of the site are mapped as Vashon recessional outwash (Qgo) and Latest Vashon recessional [outwash] sand and minor silt (Qgos). Soils on-site were observed in two general categories, fill and recessional outwash. Fill extended to 0.25 to 1.0 ft bgs in a dense and damp to moist condition. Fill consisted of asphalt and crushed gravel, sand and gravel with variable asphalt and plastic content. Recessional outwash was observed beneath the fill up to 10.5 ft bgs and consisted of light brown or gray to dark gray sand and gravel with variable silt and cobble content in a medium to dense and damp to moist condition. On-site soils are conducive to infiltration and bioretention facilities. Field infiltration rates measured to be 20 – 25 inches per hour. Factoring in a safety factor of about 4, a design infiltration rate of 5.5 inches per hour was utilized when sizing infiltration facilities. See **Attachment 3** for the Soils Report.

3 Vicinity Analysis and Subbasin Description

There are no known flooding or bank overtopping problems, and no steep slopes are located near the project site.

The project site is located within the Category I Critical Aquifer Recharge Area. The project site is also located in the 5-year time of travel zone for wellhead protection therefore requiring enhanced treatment. There are no known fuel tanks on-site.

3.1 Qualitative Upstream Analysis

The surrounding roadways to the parcel, with the exception of Steilacoom Rd SE, have curbing along both sides. Stormwater systems are located through all of the roadways as well. Therefore, stormwater runoff from the roadways adjacent to the parcel is collected by catch basins and conveyed through the City of Lacey stormwater system. No stormwater runoff is conveyed onto the parcel from the adjacent areas.

3.2 Qualitative/Quantitative Downstream Analysis

The majority of the stormwater runoff from the proposed improvements will be collected, treated, and infiltrated on-site. The project site is divided between two subbasins. Basin 1 collects stormwater runoff from 0.54 acres of frontage improvements along Steilacoom Rd SE and conveys the water via a new installment of catch basins and pipe into the city's stormwater collection system via an existing catch basin on the southeast corner of Steilacoom Rd SE and Marvin Rd SE. Basin 1 added less than 5,000 square feet of pervious area, therefore the frontage improvements are flow control exempt. Basin 2 collects stormwater runoff from 5.04 acres of asphalt and sidewalk improvements and conveys the water to a treatment and flow control system located in the southwest portion of the project site. The stormwater runoff will first be treated on-site within a bioretention facility sized to infiltrate 91% of the runoff then conveyed to a larger flow control pond to release the stormwater at rates less than predeveloped rates. See **Appendix 3** for Basin Maps. See **Appendix 1** for facility sizing calculations. See Section 4 of this report for the facility sizing descriptions.

4 Flow Control and Water Facility Sizing

4.1 Summary Section

Following Figure 2.1 and Figure 2.2 (See **Appendix 3**), Basin 1 of this project classifies as a re-development that triggers core requirements #1 – 5. Following Figure 2.1 (See **Appendix 3**), Basin 2 of this project classifies as a new development that triggers all of the core requirements. For Basin 2, bioretention facilities were sized dependent on the project site pervious area, see the following sections of this report for more information. See **Appendix 3** for the existing and proposed basin maps.

4.2 Performance Standards and Goals

Following Figure 2.1 – Flow Chart for Determining Requirements for New Development, the project site is considered a new development. Following Figure 2.2 – Flow Chart for Determining Requirements for Re-Development, the project site triggers all of the requirements for the new impervious surfaces. The majority of the stormwater runoff from the disturbed area of the project parcels will be collected, treated, and infiltrated on-site. Enhanced treatment will be provided for all of the pollution-generating impervious surfaces through the use of a bioretention facility.

4.3 Conveyance System Analysis and Design

The piped conveyance system is sized to convey the developed conditions 25-year return period peak runoff. All main stormwater conveyance pipes are a minimum of 12-inch in diameter and designed at a minimum slope of 0.5%. A backflow analysis was modeled for this system using CAD Storm and Sanitary Analysis (SSA) and passed. See **Appendix 1** for conveyance calculations.

4.4 Water Quality System

Figure 8.1 in the SDM determines that enhanced treatment is required for this project. The water will be treated via a bioretention facility which leads to a retention facility designed as described below:

- Treatment Basin
  - 5.58 acres of impervious and pervious area conveyed to the Bioretention and retention facilities.
  - Bioretention Facility Dimensions:
    - Bottom surface area: 1,538 SF
    - Bottom elevation: 222.50
    - Outlet elevation: 226.00
    - Lined with 1.5’ amended soils in depth
    - Depth: 4.5’ including at least 1’ of freeboard
    - 3:1 Side Slopes
    - Design infiltration rate: 3 in/hr
  - Overflow Retention Facility Dimensions:
    - Bottom surface area: 5,330 SF
    - Bottom elevation: 223.00
    - Inlet elevation: 225.80

- Depth: 4’ including at least 1’ of freeboard
- 3:1 Side Slopes
- Design infiltration rate: 5.5 in/hr
- 100-year stage depth: 3.2 feet

See **Appendix 1** for WWHM Calculations. See **Attachment 1** for the site development drawings which include the drainage plans.

4.5 Flow Control System

Basin 1 of the proposed development does not add 5,000 square feet or more of new hard surfaces, therefore flow control is not required.

Flow control is required for Basin 2 of the proposed development and will be provided through infiltration within a bioretention facility and a retention facility. Stormwater runoff from the proposed parking and sidewalk areas is collected by catch basins throughout the site area and conveyed via 12” pipe to the southwest portion of the project site into a bioretention pond designed to infiltrate 91% of the stormwater runoff at 3 in/hr per design standards in Section 8.3.6 of the SDM. The remaining 9% of the stormwater runoff will be conveyed to a retention pond designed to infiltrate 100% at 5.5 in/hr, per design standards in Section 7.2.3 of the SDM.

The Western Washington Hydrology Model (WWHM 2012) was used to size the infiltration facilities. The drainage plan with the conveyance, treatment, and infiltration layouts has been included as Drainage Control Plan **Attachment 1**. See **Appendix 1** for the WWHM reports.

Table 2. Flow Control Basin Area Analysis

Land Type Designations	Area (Acres)
Basin 2	**5.04**
Asphalt	3.42
Sidewalk	0.07
Landscape	1.55

5 Aesthetic Considerations for Facilities

All of the stormwater facilities will be designed in such a way that they will provide necessary treatment and flow control while also be aesthetically pleasing to the proposed use of the site. The bioretention facility and retention facility will be planted in a way that will match the surrounding landscaping areas.

6 Covenants, Dedications, Easements

It is the City of Lacey’s policy that the property owner(s) shall maintain their stormwater drainage facilities. Thus, the City of Lacey will be responsible for maintaining and insuring that all installed

drainage facilities are functioning in accordance with their design purposes. The City of Lacey will keep a copy of the maintenance plan at the project site. The Maintenance and Source Control Manual is a standalone document submitted separately from the Stormwater Site Plan and the Establishment of Maintenance Covenant will be included as **Attachment 5** at the time of the civil permit submittal.

It is important to note that only slow release fertilizers shall be applied for the life of the development at a maximum amount of 4 lbs of nitrate as Nitrogen annually and no more than 1 lb. per application for every 1,000 square feet of turf grass. Only fertilizer formulas with a minimum of 50% water insoluble form of nitrogen are permitted for use. Approved water insoluble forms of nitrogen include sulfur and/or polymer coated fertilizers, Isobutylidene Diurea (IBDU), Methylene Urea and Ureaform, and organic fertilizers registered with Washington Department of Agriculture.

7 Agreements and Guarantees

Maintenance and/or operational bonding or other appropriate financial guarantees are required for all projects to ensure construction and functionality of drainage facilities in compliance with applicable standards. These guarantees are to be consistent with the most recent edition of the City of Lacey Development Guidelines and Public Works Standards.

8 Other Permits or Conditions Placed on the Project

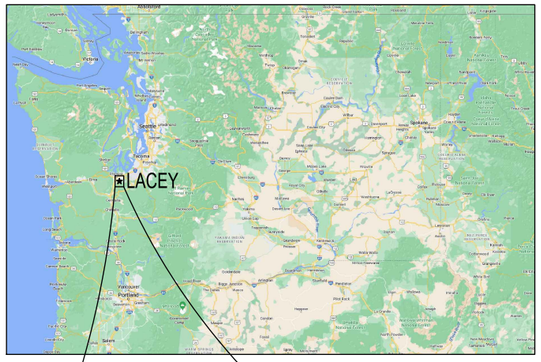
There are no other known required permits at this time.

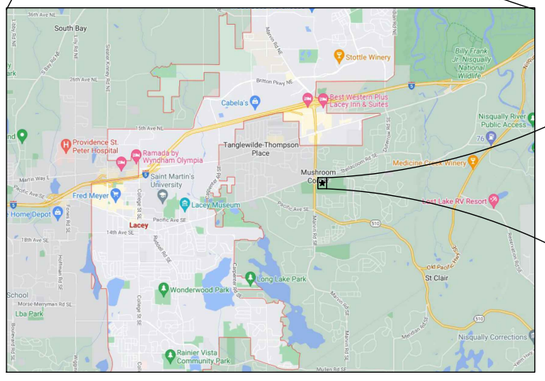
END OF STORMWATER SITE PLAN

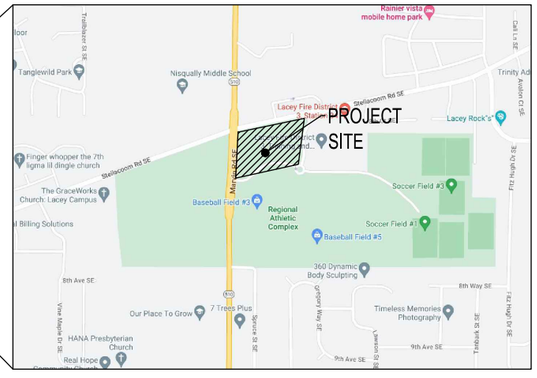
Drainage Control Plan
Attachment 1
Site Development Drawings

SEC. 14, T 18N., R 1W., W.M.

RAC PARKING LOT EXPANSION
90% CONSTRUCTION PLANS
LACEY, WA







NTS

A PORTION OF SEC 14, T 18N., R 1W., W.M.
LACEY, WA

OWNER / APPLICANT

CITY OF LACEY
420 COLLEGE ST SE
LACEY, WA 98503
PHONE: 360.413.4340
CONTACT: ASHLEY SMITH

CONSULTANTS

SCJ ALLIANCE
8730 TALLON LANE NE, SUITE 200
LACEY, WA 98516
PHONE: 360.352.1465
CONTACT: WHITNEY HOLM, PE

SITE INFORMATION

PARCEL NUMBER: 11814410200; 11814410300
ACRES: ±6.28

SITE ADDRESS:

8345 STEILACOOM RD SE
LACEY, WA 98513

BASIS OF BEARINGS:

MERIDIAN IS WASHINGTON COORDINATE SYSTEM OF 1983/91 – SOUTH ZONE DERIVED FROM TIES TO HPGN STATIONS SANDERSON, MCKENNA AND CBL1110 AND TO WSDOT GPS STATIONS G259R, GP34005–2, GP34005–4, GP34101–32, GP34101–39, HC34–2, LUHR RM2, TS34–33, TS34–59 AND TO THURSTON COUNTY GPS STATIONS U–531, AT–194, AT–352, AT–355, AT–447, AT449 AND AT–478. DISTANCES SHOWN ARE GROUND SCALE U.S. SURVEY FEET. COMBINED SCALE FACTOR (GROUND TO GRID) IS 0.999935701. SURVEY AF# 3111152 DATED 09–24–1997.

DATUM:

THE CITY OF LACEY BENCHMARKS ARE BASED ON NGVD 29 DATUM FROM PRIMARY CONTROL ESTABLISHED BY FEDERAL AND STATE AGENCIES TO FIRST OR SECOND ORDER ACCURACY. THE CITY OF LACEY'S BENCHMARKS ARE GENERALLY TO THIRD ORDER ACCURACY.

LEGAL DESCRIPTION:

SECTION 13 / 14 TOWNSHIP 18 RANGE 1W QUARTER NW SW / NE SE
BLA13101203 TR A DOCUMENT 4335765

SECTION 13 / 14 TOWNSHIP 18 RANGE 1W QUARTER NW SW / NE SE
BLA13101203LA TR B DOCUMENT 4335765

UTILITIES

STORMWATER/SEWER:
CITY OF LACEY
UTILITY SERVICES
PO BOX 3400
420 COLLEGE STREET SE
LACEY, WA 98509–3400
PH: 360.491.5616

WATER/SOLID WASTE:
CITY OF LACEY
UTILITY SERVICES
PO BOX 3400
420 COLLEGE STREET SE
LACEY, WA 98509–3400
PH: 360.491.5616

ELECTRIC/NATURAL GAS:
PUGET SOUND ENERGY – PSE
10885 NE 4TH STREET
BELLEVUE, WA 98009
PH: 425.452.1234
EMERGENCY SERVICE: 888.225.5773
CONTACT: DAVE LESINSKI
ENGINEERING SPECIALIST, CONSTRUCTION SERVICES
PH: 253.476.6425

CUSTOMER CONSTRUCTION
3130 S 38TH ST
TACOMA, WA 98409
PH: 888.321.7779

TELEPHONE:
QWEST COMMUNICATIONS
711 CAPITOL WAY S, STE 307
OLYMPIA, WA 98501
PH: 360.754.5912
CONTACT: WAYDE HOLMQUIST
SR DESIGN ENGINEER

CABLE:
COMCAST
410 VALLEY AVE NW, STE 307
PUYALLUP, WA 98371
PH: 253.261.0945
FX: 253.864.4215
CONTACT: ERIC PARTON
COMCAST BUSINESS SERVICES GROUP

SHEET INDEX

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 9:10:08am – User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22–000313 RAC PARKING LOT DESIGN\CADD\22–000313 CV–01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: COVER SHEET

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
46811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 CV-01
DRAWING NO:	CV-01
SHEET NO:	01 OF 35

SEC. 14, T 18N., R 1W., W.M.

SCJ ALLIANCE
GENERAL CONSTRUCTION NOTES:

1. ALL WORK, WORKMANSHIP AND MATERIALS FOR THIS PROJECT SHALL MEET OR EXCEED THE PROJECT SPECIFICATIONS, CITY OF LACEY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS AND MAY INCLUDE REFERENCES TO THE MOST CURRENT VERSION OF THE **$$$**–WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION–**$$$**. IF THERE IS A CONFLICT BETWEEN THE SPECIFICATION TYPES, THE MOST RESTRICTIVE REFERENCE SHALL BE ADHERED TO.
2. ALL GOVERNMENTAL SAFETY REGULATIONS SHALL BE STRICTLY ADHERED TO INCLUDING OSHA, WISHA AND THE WASHINGTON DEPARTMENT OF LABOR AND INDUSTRY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DULY NOTIFY THE CITY IN ADVANCE OF THE COMMENCEMENT OF ANY AUTHORIZED WORK AND TO SCHEDULE REQUIRED INSPECTIONS. ALL REQUIRED INSPECTION TESTS WILL BE PERFORMED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR SHALL PROVIDE A TWO–YEAR WARRANTY ON ALL WORKMANSHIP AND MATERIAL FOLLOWING ACCEPTANCE OF THE PROJECT BY THE OWNER.
5. THE APPROVAL OF THESE PLANS BY THE CITY OF LACEY DOES NOT RELIEVE THE CONTRACTOR OR DEVELOPER OF THE RESPONSIBILITY TO COMPLY WITH THE REQUIREMENTS OF OTHER GOVERNING AGENCIES.
6. CAUTION – NOTICE TO CONTRACTOR
   THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON THE PROJECT SURVEY AND OTHER RECORDS OF UTILITIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL 1–800–424–5555 48 HOURS PRIOR TO PLANNED EXCAVATIONS.
7. THE DESIGN SHOWN IS BASED UPON THE ENGINEER'S UNDERSTANDING OF THE EXISTING CONDITIONS. THE EXISTING CONDITIONS SHOWN ON THIS PLAN SHEET ARE BASED UPON COMPILED SURVEY DATA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING FIELD CONDITIONS PRIOR TO BIDDING THE PROPOSED WORK IMPROVEMENTS. IF CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER OR OWNERS REPRESENTATIVE.
8. EXISTING UTILITIES ARE SHOWN FOR REFERENCE ONLY. PRIOR TO CONNECTION TO EXISTING UTILITIES THE CONTRACTOR SHALL VERIFY EXACT LOCATION, DIA, LENGTH, CONDITION, PIPE TYPE, SLOPE AND VERTICAL AND HORIZONTAL ALIGNMENT OF THE EXISTING UTILITY AND PROPOSED POINT OF CONNECTION. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
9. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY LOCAL, STATE, AND FEDERAL APPROVALS AND PERMITS.
10. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THE APPROVED PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS AT THE CONSTRUCTION SITE AT ALL TIMES.
11. THE CONTRACTOR SHALL PROVIDE SLOPE PROTECTION FOR SLOPES OF 5:1 OR GREATER ACCORDING TO ASSOCIATED GENERAL CONTRACTORS (AGC) STANDARD GUIDELINES AND BEST MANAGEMENT PRACTICES (BMP'S).
12. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL FACILITIES IN ACCORDANCE WITH THE CITY OF LACEY, DEPARTMENT OF ECOLOGY STORMWATER MANUAL, THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), AND PER THE EROSION CONTROL PLAN.
13. THE CONTRACTOR SHALL SAFELY MAINTAIN TRAFFIC AND CONTINUOUS ACCESS TO PRIVATE AND/OR PUBLIC PROPERTY.
14. CONSTRUCTION SIGNING AND TRAFFIC CONTROL SHALL BE PER THE CURRENT COPY OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
15. ALL VEHICLES AND EQUIPMENT SHALL BE KEPT WITHIN THE WORK AREAS ESTABLISHED FOR THAT WORK SHIFT UNLESS TRAVELING TO OR FROM THE SITE. UNDER NO CIRCUMSTANCES SHALL VEHICLES OR EQUIPMENT BE PARKED OR STORED OUTSIDE OF THESE AREAS.
16. OTHER CONSTRUCTION PROJECTS MAY OCCUR NEAR THE PROJECT SITE AND MAY BE IN PROGRESS CONCURRENT WITH THE PROJECT. THE CONTRACTOR SHALL COOPERATE AS NECESSARY AND NOT INTERFERE OR HINDER THE PROGRESS OR COMPLETION OF WORK BEING PERFORMED BY OTHER CONTRACTORS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN ON THESE DRAWINGS AND TO OBTAIN ACCEPTANCE BY THE CITY OF LACEY AND THE PROJECT OWNER.
18. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL "PRE CONSTRUCTION" STATE OR BETTER.
19. DRIVEWAY ACCESS AND UTILITY SERVICE TO EXISTING HOMES AND BUSINESSES SHALL BE MAINTAINED AT ALL TIMES.
20. SEE LANDAU DRAFT TECHNICAL MEMORANDUM DATED SEPTEMBER 1, 2022 FOR ADDITIONAL INFORMATION INCLUDING GROUNDWATER

CITY OF LACEY GENERAL CONSTRUCTION NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF LACEY STANDARDS AND THE MOST CURRENT EDITION OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA). IN CASES OF CONFLICT, THE MOST STRINGENT STANDARD SHALL APPLY.
2. THE CONTRACTOR SHALL BE IN COMPLIANCE WITH ALL SAFETY STANDARDS AND REQUIREMENTS AS SET FORTH BY OSHA, WISHA AND THE STATE OF WASHINGTON, DEPARTMENT OF LABOR AND INDUSTRIES.
3. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF LACEY SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
4. IF CONSTRUCTION IS TO TAKE PLACE IN THE COUNTY RIGHT–OF–WAY, THE CONTRACTOR SHALL NOTIFY THE COUNTY AND OBTAIN ALL THE REQUIRED APPROVALS AND PERMITS.
5. A PRE–CONSTRUCTION MEETING SHALL BE HELD WITH THE CITY OF LACEY CONSTRUCTION INSPECTOR A MINIMUM 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
6. THE CITY OF LACEY CONSTRUCTION INSPECTOR SHALL BE NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE OF A TAP CONNECTION TO AN EXISTING MAIN. THE INSPECTOR SHALL BE PRESENT AT THE TIME OF THE TAP.
7. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 NOT LESS THAN TWO BUSINESS DAYS AND NOT MORE THAN 10 BUSINESS DAYS PRIOR TO ANY EXCAVATION. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR MAINTAINING ALL LOCATE MARKS ONCE THE UTILITIES HAVE BEEN LOCATED.
8. TEMPORARY STREET PATCHING SHALL BE ALLOWED FOR AS APPROVED BY THE CITY ENGINEER. TEMPORARY STREET PATCHING SHALL BE PROVIDED BY PLACEMENT AND COMPACTION OF 1–INCH MAXIMUM ASPHALT CONCRETE COLD MIX. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AS REQUIRED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL IN ACCORDANCE WITH THE WSDOT/APWA STANDARD PLANS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (ALL APPLICABLE 'K' PLANS) AND/OR THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). PRIOR TO DISRUPTION OF ANY TRAFFIC, A TRAFFIC CONTROL PLAN SHALL BE PREPARED AND SUBMITTED TO THE CITY FOR APPROVAL. NO WORK SHALL COMMENCE UNTIL ALL APPROVED TRAFFIC CONTROL IS IN PLACE.
10. EROSION CONTROL/WATER POLLUTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1–07.15 OF THE WSDOT/APWA STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AND THE CITY OF LACEY STORMWATER DESIGN MANUAL. AT NO TIME WILL SILTS AND DEBRIS BE ALLOWED TO DRAIN INTO AN EXISTING OR NEWLY INSTALLED FACILITY UNLESS SPECIAL PROVISIONS HAVE BEEN DESIGNED.
11. ALL SURVEYING AND STAKING SHALL BE PERFORMED PER THE CORRESPONDING CHAPTER OF THE CITY OF LACEY DEVELOPMENT GUIDELINES AND PUBLIC WORKS STANDARDS.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF AN APPROVED SET OF PLANS ON THE CONSTRUCTION SITE AT ALL TIMES.
13. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED BY THE PROJECT ENGINEER AND THE CITY OF LACEY.
14. IF CONSTRUCTION IS TO TAKE PLACE IN OTHER JURISDICTION'S RIGHT–OF–WAY(I.E., THE COUNTY, THE STATE, THE CITY OF OLYMPIA, OR OTHER ADJACENT MUNICIPALITIES), THE CONTRACTOR SHALL NOTIFY THE JURISDICTION AND OBTAIN ALL THE REQUIRED APPROVALS AND PERMITS.
15. PRIOR TO BACKFILL ALL MAINS AND APPURTENANCES SHALL BE INSPECTED AND APPROVED BY THE CITY OF LACEY CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FOR CORRECTION OF ANY DEFICIENCIES AND/OR FAILURES AS DETERMINED BY SUBSEQUENT TESTING AND INSPECTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF LACEY FOR THE REQUIRED INSPECTIONS.
16. THE CITY WILL BE GIVEN 72–HOURS' NOTICE PRIOR TO SCHEDULING A SHUTDOWN. WHERE CONNECTIONS REQUIRE "FIELD VERIFICATION", CONNECTION POINTS SHALL BE EXPOSED BY THE CONTRACTOR AND FITTINGS VERIFIED 72 HOURS PRIOR TO DISTRIBUTING SHUT–DOWN NOTICES.

ABBREVIATIONS

&	AND
Ð	ANGLE
±	APPROXIMATELY
@	AT
℄	CENTERLINE
°	DEGREE
=	EQUALS
'	FOOT
>	GREATER THAN
"	INCH
#	NUMBER
%	PERCENT
AC	ASPHALTIC CONCRETE
ADD'L	ADDITIONAL
ADJT	ADJACENT
AFF	ABOVE FINISH FLOOR
AP	ANGLE POINT
APPROX	APPROXIMATE
ARCH	ARCHITECT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATB	ASPHALT TREATED BASE COURSE
AVE	AVENUE
BCR	BEGIN CURB RETURN
BFV	BUTTERFLY VALVE
BGS	BELOW GROUND SURFACE
BLK	BLOCK(S)
BLDG	BUILDING
BM	BENCHMARK
BVC	BEGIN VERTICAL CURB
C	CONDUIT
CB	CATCH BASIN
CF	CUBIC FEET
CIRC	CIRCUIT, CIRCULA(R, TION)
CIP	CAST–IN–PLACE
CIP MON	CAST–IN–PLACE MONUMENT
CJ	CENTER JOINT
℄	CENTER LINE
CL	CROWNLINE
CLR	CLEAR
CO	CLEANOUT
COMM	COMMUNICATION
COMPT	COMPACTED
CONC	CONCRETE
CONST	CONSTRUCT
CONT	CONTINU(E, ED, OUS, ATION)
COORD	COORDINATE
CSBC	CRUSHED SURFACING BASE COURSE
CSTC	CRUSHED SURFACING TOP COURSE
CULV	CULVERT
CU YD	CUBIC YARD
D/W	DRIVEWAY
DEF	DEFLECTION
DEG	DEGREE
DEMO	DEMOLISH/DEMOLITION
DIA	DIAMETER
DIM	DIMENSION(S)
DIP	DUCTILE IRON PIPE
DR	DRIVE
DWG(S)	DRAWING(S)
E	EAST OR ELECTRICAL
EA	EACH
ECR	END CURB RETURN
EHH	ELECTRICAL HANDHOLE
EL, ELEV	ELEVATION
ELEC	ELECTRIC(AL)
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EQ	EQUAL(LY)
EQUIP	EQUIPMENT
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EX, EXIST	EXISTING EXP EXPANSION
EXP	EXPANSION
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FF	FINISH FLOOR
FG	FINISH GRADE ELEVATION
FH	FIRE HYDRANT
FIN	FINISH(ED)
FL	FIRE LINE/FLANGE
FT	FOOT/FEET
G	GAS
GALV	GALVANIZED
GRND	GROUND
GV	GATE VALVE
HH	HANDHOLE
HORIZ	HORIZONTAL
HT	HEIGHT
IE	INVERT ELEVATION
IN	INCH
JB, J–BOX	JUNCTION BOX
JT	JOINT TRENCH
KV	KILOVOLTS
KW	KILOWATT
KWH	KILOWATT HOURS
L	LENGTH
LB(S)	POUND(S)
LF	LINEAR FEET
LP	LOW POINT ELEVATION
LT	LEFT
MAX	MAXIMUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MON	MONUMENT IN CASE
N	NORTH, NORTHING
N/A	NOT APPLICABLE
NE	NORTHEAST
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NO, NO	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OC, OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
P	POWER, POWER VAULT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE OR PORTLAND CEMENT CONCRETE
PED	PEDESTAL
PI	POINT OF INTERSECTION
℗	PROPERTY LINE
POC	POINT OF CONNECTION
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PROP	PROPERTY
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
PVMT	PAVEMENT
PWR	POWER
QTY	QUANTITY
R	RADIUS
RD	ROAD, ROADWAY
REF	REFERENCE
REINF	REINFORC(E, ED, ING, MENT)
REQ'D	REQUIRED
REV	REVISION
RIM	STRUCTURE RIM ELEVATION
RT	RIGHT TURN
R/W, ROW	RIGHT OF WAY
S	SOUTH OR SLOPE
SCHED	SCHEDULE
SD, SDMH	STORM DRAIN, STORM DRAIN MANHOLE
SE	SOUTHEAST
SECT	SECTION(S)
SHT	SHEET
SP	SPRINKLER
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN	SQUARE INCH
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	STATION
STD	STANDARD
STRUCT	STRUCTURE(E, AL)
SW	SOUTHWEST
SYS	SYSTEM
T	TELEPHONE OR TELEPHONE VAULT
TBD	TO BE DETERMINED
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB ELEVATION
TELE	TELEPHONE
TEMP	TEMPORARY
TOW	TOP OF WALL ELEVATION
TP, T/P	TOP OF PIPE
TYP	TYPICAL
UDG	UNDERGROUND
VAP	VERTICAL ANGLE POINT
VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME
W	WEST, WIDTH, WIDE OR WATER
W/	WITH
W/O	WITHOUT
WM	WATER MAIN OR WILLAMETTE MERIDIAN
WV	WATER VALVE
XFMR	TRANSFORMER

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 9:10:13am – User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22–000313 RAC PARKING LOT DESIGN\CADD\22–000313 GN–01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: GENERAL NOTES

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 GN-01
DRAWING NO:	GN-01
SHEET NO:	02 OF 35

TOPOGRAPHIC SURVEY OF
REGIONAL ATHLETIC COMPLEX
EAST ½, SEC. 14, T18N, R1W, W.M.

BASIS OF BEARING
MERIDIAN IS WASHINGTON COORDINATE SYSTEM OF 1983/91 - SOUTH ZONE DERIVED FROM TIES TO HPGN STATIONS SANDERSON, MCKENNA AND CBL1110 AND TO WSDOT GPS STATIONS G259R, GP34005-2, GP34005-4, GP34101-32, GP34101-39, HC34-2, LUHR RM2, TS34-33, TS34-59 AND TO THURSTON COUNTY GPS STATIONS U-531, AT-194, AT-352, AT-355, AT-447, AT449 AND AT-478.
DISTANCES SHOWN ARE GROUND SCALE U.S. SURVEY FEET. COMBINED SCALE FACTOR (GROUND TO GRID) IS 0.999935701. SURVEY AF# 3111152 DATED 09-24-1997.

METHOD OF SURVEY
SURVEY PERFORMED BY CONVENTIONAL FIELD TRAVERSE USING A LEICA TS-16 (THREE SECOND TOTAL STATION), LINEAR AND ANGULAR CLOSURE OF THE TRAVERSE MEET THE STANDARDS OF WAC 332-130-090.

BOUNDARY
THE BOUNDARY WAS COMPILED USING PHYSICAL FEATURES TIED IN THE FIELD AND DOCUMENTS OF RECORD AS SHOWN BELOW.

BLA REFERENCED
AFN-4335756

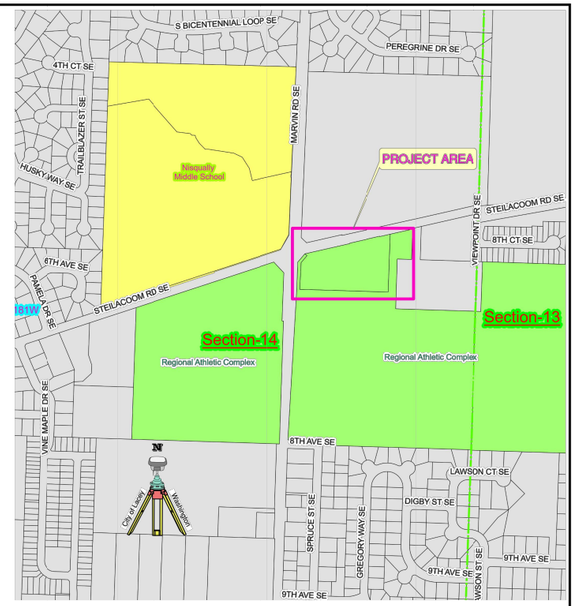
VERTICAL
THE CITY OF LACEY BENCHMARKS ARE BASED ON **NGVD 29** DATUM FROM PRIMARY CONTROL ESTABLISHED BY FEDERAL AND STATE AGENCIES TO FIRST OR SECOND ORDER ACCURACY. THE CITY OF LACEY'S BENCHMARKS ARE GENERALLY TO THIRD ORDER ACCURACY.

BENCHMARK
CITY OF LACEY BM#993
2" SURFACE MONUMENT AT THE C/L OF VINE MAPLE DR SE, 80' +/- SOUTH OF STEILACOOM RD SE
ELEV.=218.711'

SOURCE OF CONTOURS
COMPILE FIELD MEASUREMENTS USING AUTOCAD CIVIL 3D-2020

SOURCE OF UTILITY MARKINGS
SURFACE MARKINGS PROVIDED BY UTILITY NOTIFICATION CENTER (callbeforeyoudig.org)
TICKET # 21189894
"COMMUNICATION UTILITY WAS NOT PROPERLY MARKED IN FIELD"

FIELD SURVEYOR & FIELD BOOK
MIKE BREDESON & 256



VICINITY MAP
(NTS)

DATE OF SURVEY
06/2021

SCALE: 1" = 20'
0 10 20 40
CONTOUR INTERVAL=1'

PURPOSE OF TOPOGRAPHIC SURVEY:
TO PROVIDE CITY OF LACEY ENGINEERS TOPOGRAPHIC INFORMATION FOR A PROPOSED PARKING LOT.

NOTE:
The Topographic Survey depicts the physical features that were visible at the time of the survey. The City of Lacey is not responsible for the location of underground utilities that are marked or not marked in the field by other utility providers. All feature locations should be independently verified prior to design or construction.

X	BARB WIRE FENCE
	CHAIN LINK FENCE
	CONCRETE FENCE
	ROCK FENCE
XXX XXX XXX XXX XXX	WIRE FENCE
	WOOD FENCE
	GRAVEL
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
DIT	DITCH
SD	STORM (PAINTED)
SS	SEWER (PAINTED)
	RIGHT OF WAY
OTV	OVERHEAD CABLE
UTV	UNDERGROUND CABLE (PAINTED)
G	GAS (PAINTED)
OPH	OVERHEAD PHONE
OFO	OVERHEAD FIBER OPTIC
UPH	UNDER GROUND PHONE (PAINTED)
UFO	UNDERGROUND FIBER OPTIC (PAINTED)
OHE	OVERHEAD ELECTRIC
UGE	UNDERGROUND ELECTRIC (PAINTED)
W	WATER (PAINTED)
RW	RECLAIMED WATER (PAINTED)

CONCRETE

BUILDING

GRAVEL

ASPHALT

SURVEY SYMBOL LEGEND

Axle	Bike Symbol	Sewer Meter	Reduce Pressure Backflow Assem.	Gate	PVC Pipe	Alder Tree
Brass Disk	Handicap	Sewer Pump	Water Service	Guy Pole	Rock	Birch Tree
Boatspike	Left turn	Sewer Valve	Water Service-Reclaimed	Headstone	Service Disconnect	Cedar Tree
Cased Monument	Only Text	Blowoff	Water Tank	Junction Box type 1	Service Pole	Cherry Tree
Concrete Monument	Parallel Park End	Blowoff-Reclaimed	Water Valve	Junction Box type 2	Sign	Conifer Tree
Hub & Tack	Parallel Park Tic	Hydrant	Water Valve-Reclaimed	Junction Box type 3	Sign (Large)	Cottonwood Tree
Iron Pipe	Railroad Crossing	Hydrant-Reclaimed	Water Vault	Light Pole	Signal Control Cabinet	Deciduous Tree
Magnail w/ flasher	Right turn	Irrigation Valve	Water Vault-Reclaimed	Light Standard	Signal Pole	Fir Tree
Magnail	Straight Thru	Irrigation Valve-Reclaimed	Well	Luminaire	Street Light	Fruit Tree
PKnail w/flasher	Straight Thru and Left Turn	Post Indicator Valve	Anchor	Mailbox	Telehone Booth	Hemlock tree
PKnail	Straight thru and Right Turn	Sampling Station	Basketball Hoop	Pedestrain Head	Telephone Manhole	Holly Tree
Rebar no/cap	Catch Basin	Sampling Station-Reclaimed	BBQ	Pile	Telephone Pedestal	Madrona Tree
1/2" or #4 Rebar w/cap	Catch Basin w/EJIW inlet	Sprinkler head	Bollard	Pinic Table	Telephone Vault	Maple Tree
5/8" or #5 Rebar w/cap	Culvert	Sprinkler head-Redaimed	Dumpster	Pole	Trash Can	Oak Tree
Railroad Spike	Storm C/O	Water Air Release	Filler Cap	Post	TV Pedestal	Pine Tree
Scribe	Storm Manhole	Water Manhole	Flag Pole	Power Meter	Utility Pole	Poplar Tree
Traverse Point	Storm Strip Drain	Water Manhole-Reclaimed	Gas Manhole	Power Pole	Yard Light	Spruce Tree
Non Standard Curb Return	Lift Station	Water Meter	Gas Meter	Power Pole w/drop	Water Air Release-Reclaimed	Willow Tree
Truncated Domes	Sewer C/O	Water Meter-Reclaimed	Gaspump	Power Pole w/Luminaire	Tree Grate	Bush
	Sewer Manhole	Water Pump	Gas Vavle	Power Vault		Stump

CITY OF LACEY, WASHINGTON
DEPARTMENT OF PUBLIC WORKS
420 COLLEGE STREET S.E.
LACEY, WA 98503 (360) 491-5600

LACEY

DATE: 06-07-2021
DRAFTED:MKB
CHECKED: M. BREDESON
SCALE: 1"=20'
AREA OF WORK: SEC. 14, T18N, R1W, W.M.
FILE: RAC TOPO 06-2021.dwg

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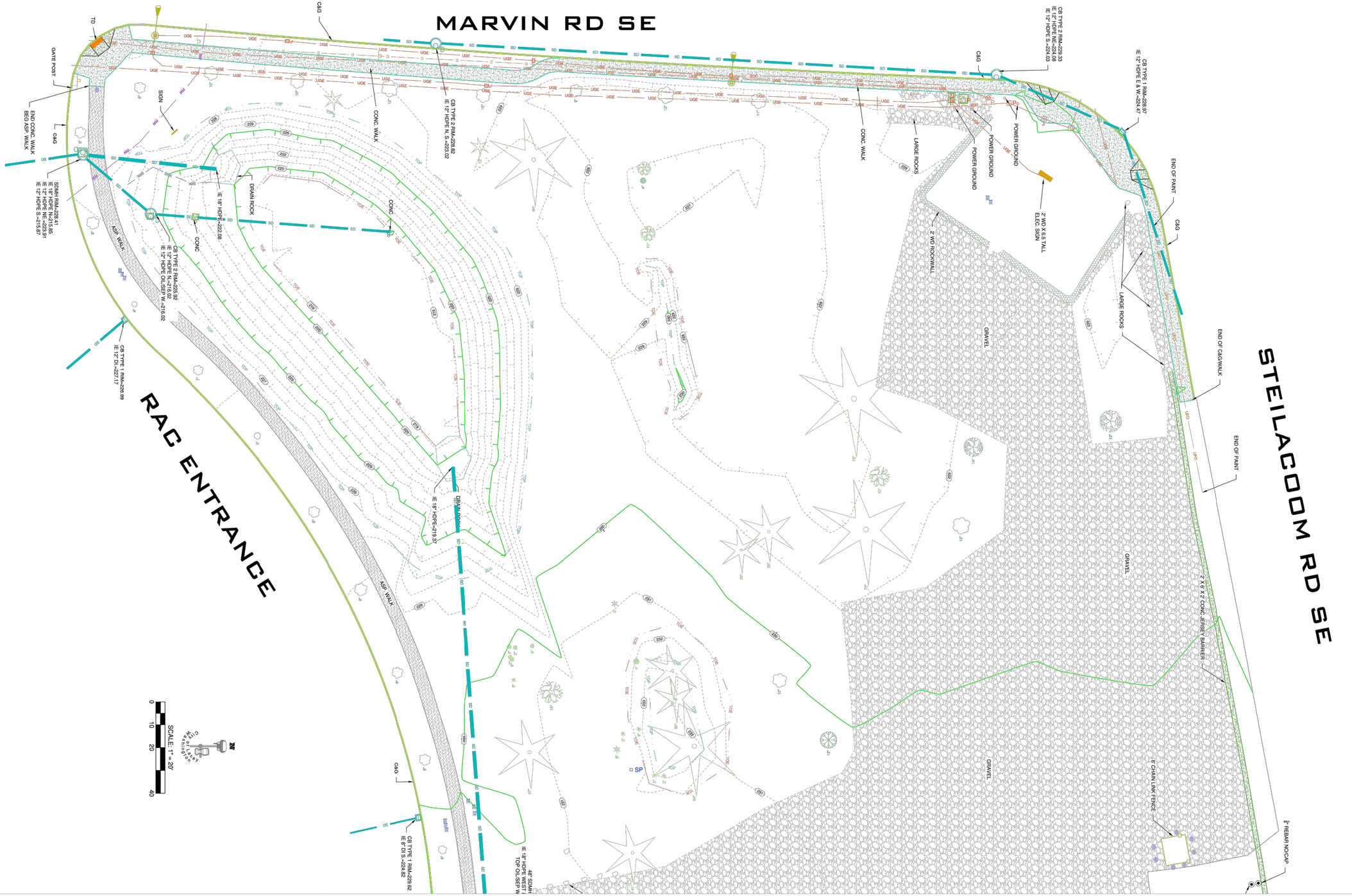
TOPOGRAPHIC SURVEY

REVISION BLOCK		
NO.	DATE	DESCRIPTION

DWG. NO.



SEE PAGE 3

CITY OF LACEY, WASHINGTON
DEPARTMENT OF PUBLIC WORKS
420 COLLEGE STREET S.E.
LACEY, WA 98503 (360) 491-5600

DATE: 06-07-2021
DRAFTED:MKB
CHECKED: M. BREDESON
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AREA OF WORK: SEC. 14, T18N, R1W, W.M.
FILE: RAC TOPO 06-2021.dwg

KENNY K. BRYAN — STATE OF WASHINGTON — 48248 — REGISTERED PROFESSIONAL LAND SURVEYOR — 06-23-2021

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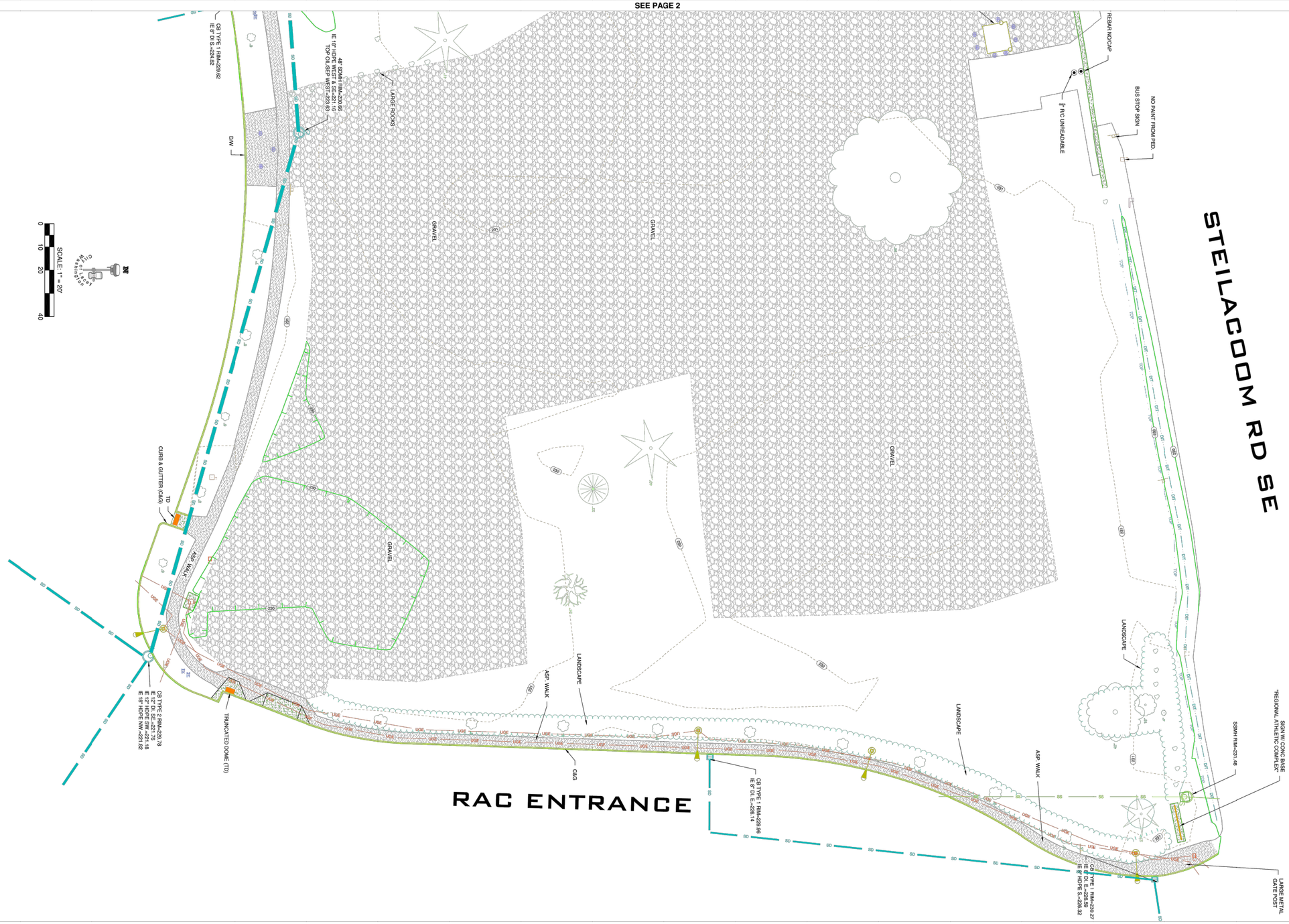
TOPOGRAPHIC SURVEY

REVISION BLOCK		
NO.	DATE	DESCRIPTION

DWG. NO.

SEE PAGE 2



CITY OF LACEY, WASHINGTON
DEPARTMENT OF PUBLIC WORKS
420 COLLEGE STREET S.E.
LACEY, WA 98503 (360) 491-5600

LACEY

DATE: 06-07-2021
DRAFTED:MKB
CHECKED: M. BREDESON
SCALE: 1"=20'
AREA OF WORK: SEC. 14, T18N, R1W, W.M.
FILE: RAC TOPO 06-2021.dwg

TIMOTHY K. BRYANT — STATE OF WASHINGTON — 18748 — REGISTERED PROFESSIONAL LAND SURVEYOR — 06-23-2021

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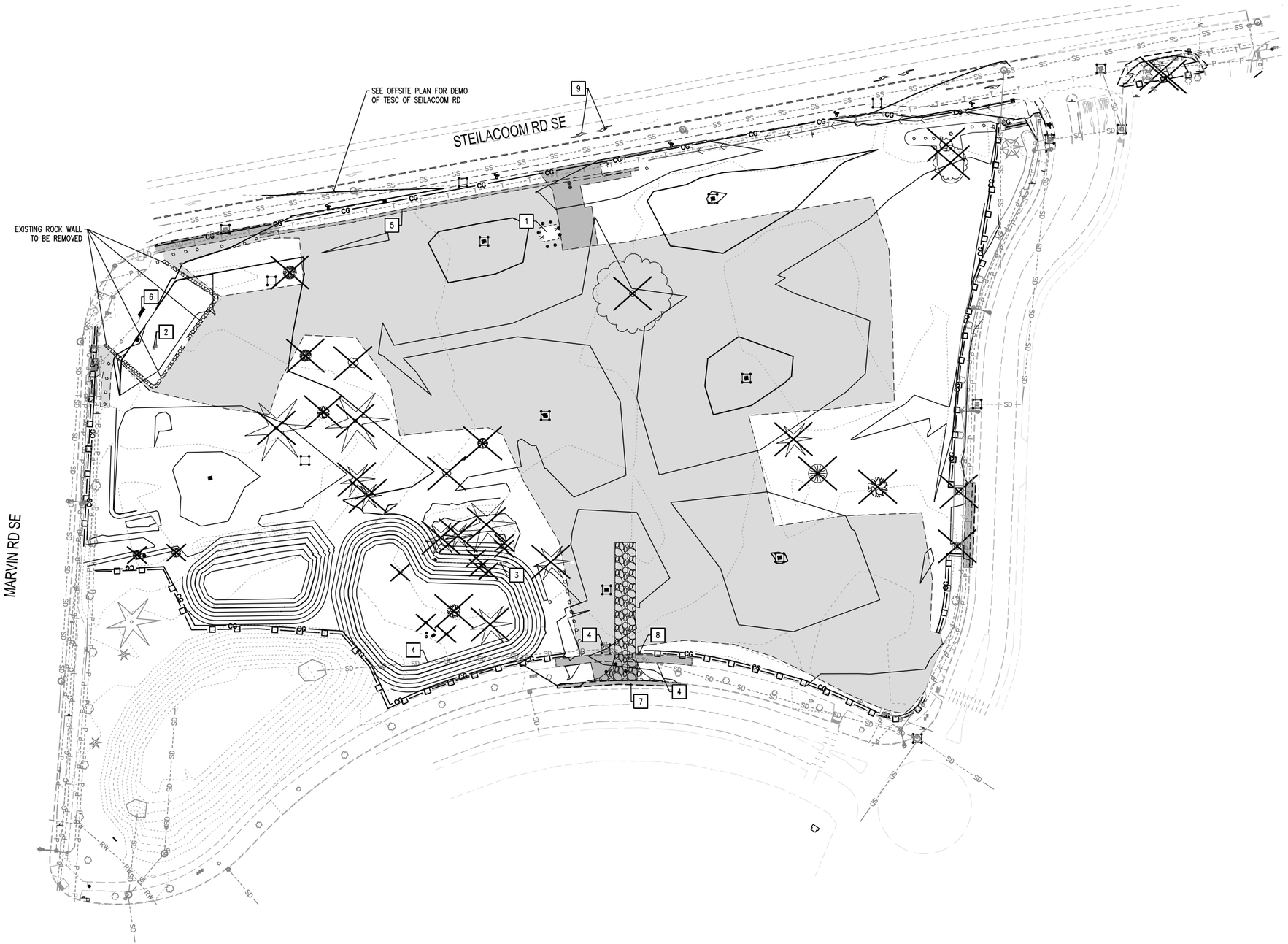
Sheet:

TOPOGRAPHIC SURVEY

REVISION BLOCK		
NO.	DATE	DESCRIPTION

DWG. NO.

SEC. 14, T 18N., R 1W., W.M.



0 40 80

SCALE IN FEET

LEGEND

- INLET SEDIMENT PROTECTION: SEE EC-02
- SILT FENCE: SEE EC-02
- CLEARING AND GRUBBING LIMITS
- STABILIZED CONSTRUCTION ENTRANCE: SEE EC-02
- SAWCUT
- EXISTING TREE AND ROOT BALL TO BE REMOVED AND BACK FILLED
- EXISTING GRAVEL TO BE REMOVED
- EXISTING ASPHALT/CONCRETE TO BE REMOVED
- TREE PROTECTION FENCING SEE EC-02

[XX] DEMOLITION NOTES:

1. PSE GAS AND ELECTRICAL EQUIPMENT AND ASSOCIATED FENCE AND BOLLARDS SHALL BE REMOVED: CONTRACTOR SHALL COORDINATE WITH PSE
2. IRRIGATION VALVES TO BE REMOVED AND RELOCATED: SEE LANDSCAPE PLANS
3. SPRINKLER HEAD TO BE REMOVED AND RELOCATED: SEE LANDSCAPE PLANS
4. PROTECT-IN-PLACE EXISTING STORM LINE AND STRUCTURES
5. REMOVE EXISTING ECOLOGY BLOCKS AND RETURN TO CITY OF LACEY. CONTRACTOR SHALL COORDINATE WITH CITY OF LACEY ON DELIVERY LOCATION
6. PROTECT-IN-PLACE DIGITAL MESSAGE BOARD AND ASSOCIATED WIRING
7. SAWCUT
8. SIGN REMOVAL

CALL BEFORE YOU DIG

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Feb 27, 2023 - 9:10:58am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 EC-01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: DEMOLITION AND TESC PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 EC-01
DRAWING NO:	EC-01
SHEET NO:	06 OF 35

CITY OF LACEY STANDARD EROSION CONTROL NOTES

- A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) IS REQUIRED FOR ALL CONSTRUCTION PROJECTS. THE NAMED PERSON OR FIRM SHALL BE ON-SITE OR ON-CALL AT ALL TIMES. FOR THIS SITE, THE PERSON/FIRM IS _____ AND THEIR TELEPHONE NUMBERS ARE: (OFFICE:) _____-_____-_____(CELL:)_____-_____-_____.

- APPROVAL OF THIS EROSION & SEDIMENT CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

- THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

- THE CLEARING LIMIT BOUNDARIES SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

- THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE SURFACE WATER, GROUND WATER, OR DISCHARGE STANDARDS.

- 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 TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

- THE ESC FACILITIES ON ACTIVE SITES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR--AND MAINTAINED, REPAIRED, OR AUGMENTED AS NECESSARY--TO ENSURE THEIR CONTINUED FUNCTIONING.

- THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED MONTHLY AND WITHIN 48 HOURS FOLLOWING A MAJOR STORM EVENT (≥1"RAINFALL IN 24 HOURS) BY THE APPLICANT/CONTRACTOR --AND MAINTAINED, REPAIRED, OR AUGMENTED AS NECESSARY --TO ENSURE THEIR CONTINUED FUNCTIONING. STORM DRAIN INLETS OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT. AT NO TIME SHALL MORE THAN 1 FOOT OR 1/3 OF THE SUMP VOLUME (WHICHEVER IS LESS) OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER OFFSITE WITHOUT TREATMENT.

- STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

- ROADS SHALL BE CLEANED THOROUGHLY AS NEEDED TO PROTECT DOWNSTREAM WATER RESOURCES OR STORMWATER INFRASTRUCTURE. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

- FROM OCTOBER 1 THROUGH APRIL 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. SOILS SHALL BE STABILIZED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. LINEAR CONSTRUCTION ACTIVITIES, SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL COMPLY WITH THESE REQUIREMENTS. THESE STABILIZATION REQUIREMENTS APPLY TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT. THE LOCAL PERMITTING AUTHORITY MAY ADJUST THESE TIME LIMITS IF IT CAN BE SHOWN THAT A DEVELOPMENT SITE'S EROSION OR RUNOFF POTENTIAL JUSTIFIES A DIFFERENT STANDARD.

- FROM OCTOBER 1 THROUGH APRIL 30, CLEARING, GRADING, AND OTHER SOIL-DISTURBING ACTIVITIES SHALL ONLY BE PERMITTED IF SHOWN TO THE SATISFACTION OF THE LOCAL PERMITTING AUTHORITY THAT THE TRANSPORT OF SEDIMENT FROM THE CONSTRUCTION SITE TO RECEIVING WATERS WILL BE PREVENTED.

- SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT-TRAPPING MEASURES.

- ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.

- MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. REPORT ALL SPILLS TO 911.

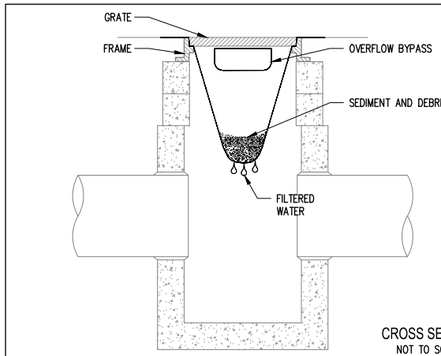
- WATER FROM MOST DEWATERING OPERATIONS SHALL BE DISCHARGED INTO A SEDIMENT TRAP OR POND. CLEAN, NON-TURBID WATER MAY BE DISCHARGED TO STATE SURFACE WATERS, PROVIDED THE DISCHARGE DOES NOT CAUSE EROSION OR FLOODING. HIGHLY TURBID OR CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM SHALL BE HANDLED SEPARATELY FROM STORMWATER AND PROPERLY DISPOSED.

CITY OF LACEY INLET PROTECTION NOTES

1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PRIMETER OF THE INLET, SO THAT THE OPEN ENDS FACE OUTWARD, NOT UPWARD. THE ENDS OF ADJACENT BLOCKS SHALL ABUT. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF BLOCKS THAT ARE 4 INCHES, AND 12 INCHES WIDE, THE ROW OF BLOCKS SHALL BE AT LEAST 12 INCHES BUT NO GREATER THAN 24 INCHES HIGH.
2. PLACE WIRE MESH OVER THE OUTSIDE VERTICAL FACE (OPEN END) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE BLOCKS. USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS.
3. PILE STONE AGAINST THE WIRE MESH TO THE TOP OF THE BLOCKS. USE 3/4-TO 3-INCH GRAVEL.
4. PLACE WIRE MESH OVER THE DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1 FT BEYOND EACH SIDE OF THE INLET STRUCTURE, USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, OVERLAP THE STRIPS. PLACE FILTER FABRIC OVER WIRE MESH.
5. PLACE 3/4-INCH GRAVEL OVER THE WIRE MESH. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. EXTEND THE STONE BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
6. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET AND CLEANED OR REPLACED.

CITY OF LACEY SILT FENCE NOTES

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTRNDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.



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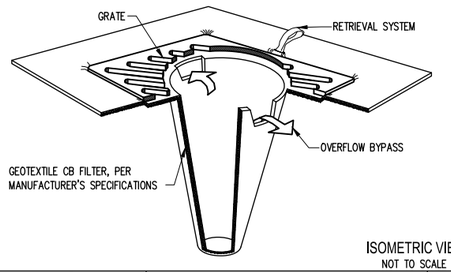

ISOMETRIC VIEW
NOT TO SCALE

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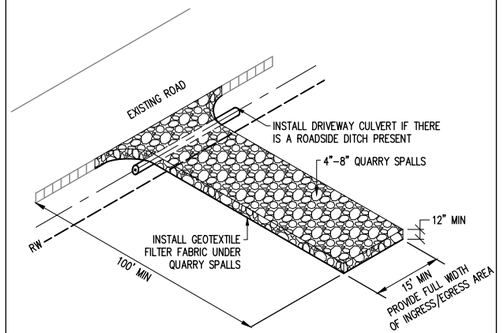
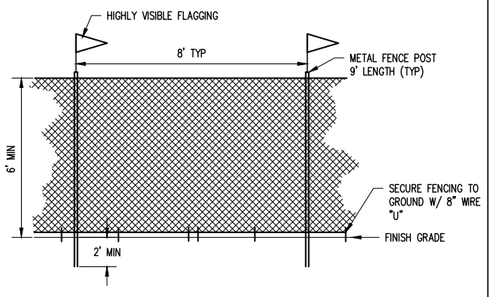
DATE: 05/2013 | INLET SEDIMENT PROTECTION



NOTES
1. INSTALL CONSTRUCTION ENTRANCE AT LOCATION WHERE ACCESS OFF OF A PAVED ROADWAY BEGINS.
2. DRIVEWAY SHALL MEET THE REQUIREMENTS OF THE PERMITTING AGENCY
3. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD

STABILIZED CONSTRUCTION ENTRANCE
NTS



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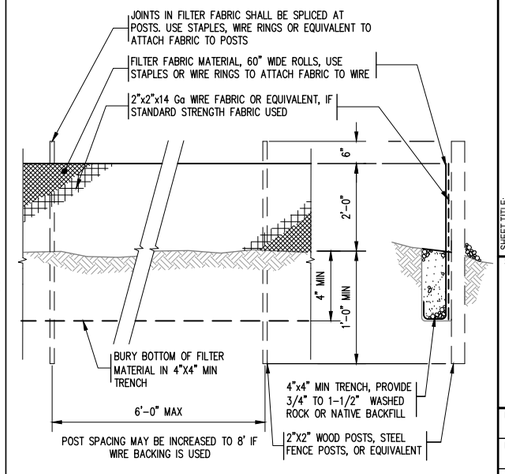


SCJ ALLIANCE | REFERENCE: STORMWATER DRAINAGE MANUAL FOR CITY OF OLYMPIA, WASHINGTON / 2009 | BMP C233
DATE: 05/2013 | SILT FENCE

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.2509
SCJALLIANCE.COM

SHEET TITLE: EROSION CONTROL NOTES & DETAILS

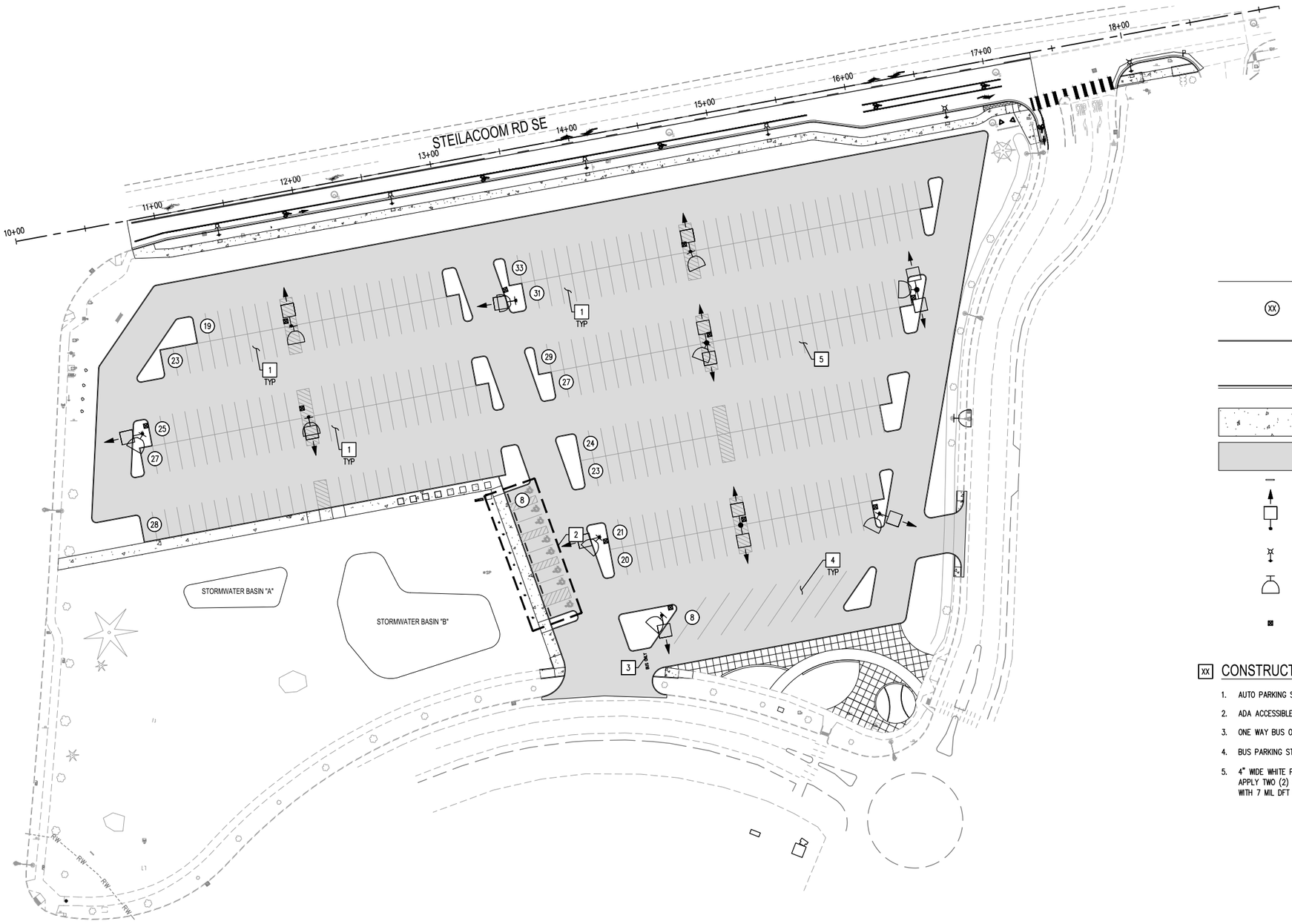
PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL: WHITNEY G HOLM, STATE OF WASHINGTON, 40811, REGISTERED PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 EC-02
DRAWING NO:	EC-02
SHEET NO:	07 OF 35

Feb 27, 2023 - 9:11:08am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CAD\22-000313 EC-02.DWG

SEC. 14, T 18N., R 1W., W.M.



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SCALE IN FEET

LEGEND

- (XX) STALL COUNT
- CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD. PLAN F.10.12.04 SEE SP-03
- CEMENT CONCRETE CURB AND GUTTER PER CITY OF LACEY STD. DWG. 4-14 SEE SP-03
- CONCRETE SIDEWALK PER CITY OF LACEY STD. DWG. 4-9: SEE SP-03
- LIGHT DUTY ASPHALT PAVING: SEE SP-02
- PRECAST CONCRETE WHEELSTOP: SEE SP-02
- PARKING LOT LIGHT POLE FIXTURE(ARROW INDICATES DIRECTION OF AIMING FOR OPTICS) SEE BCE ELECTRICAL PLAN DATED 2-21-2023
- STREET LIGHT FIXTURE
- FIXED POLE MOUNTED CAMERA – MOUNT AT +30' AFG. SEE BCE ELECTRICAL PLAN DATED 2-21-2023
- SITE HANDHOLE

(XX) CONSTRUCTION NOTES:

1. AUTO PARKING STALL: 9'x20' (TYP): SEE SP-03
2. ADA ACCESSIBLE PARKING STALLS: SEE SP-02
3. ONE WAY BUS ONLY DRIVE AISLE
4. BUS PARKING STALL: 12'X40' (TYP)
5. 4" WIDE WHITE PAINT LINES
   APPLY TWO (2) COATS OF TRAFFIC WHITE PAINT WITH 7 MIL DFT PER COAT (TYP)

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 9:11:33am – User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 SP-01.DWG

REVISIONS	DATE	BY
1		

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CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: SITE & PAVING PLAN

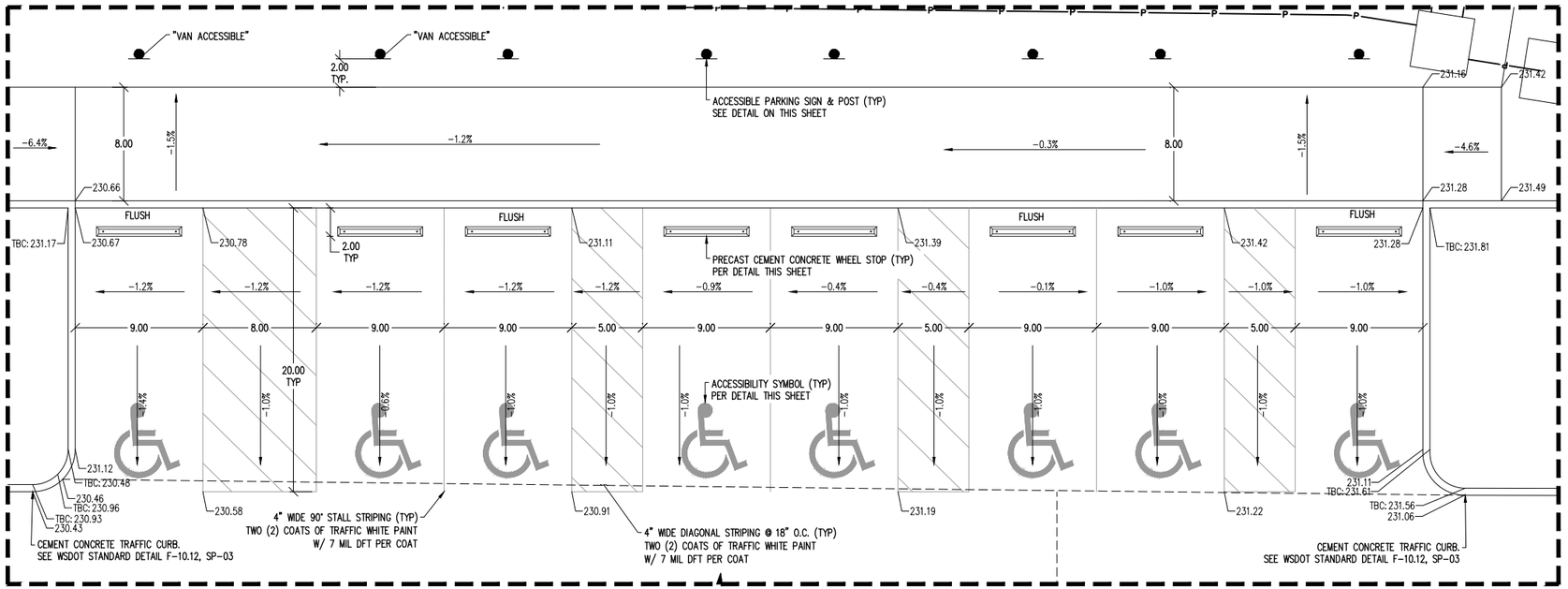
PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
49851
REGISTERED
PROFESSIONAL ENGINEER

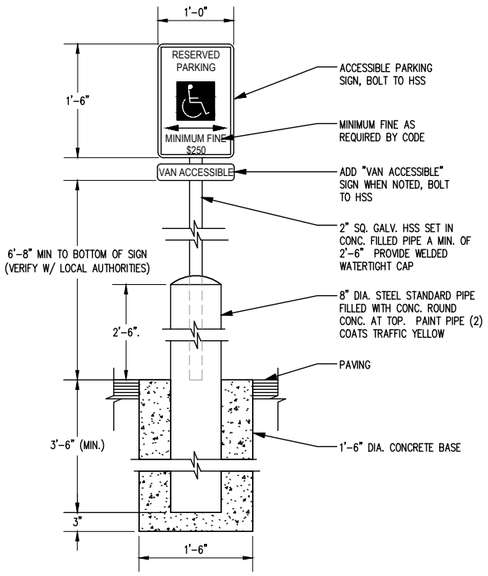
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SP-01
DRAWING NO:	SP-01
SHEET NO:	08 OF 35



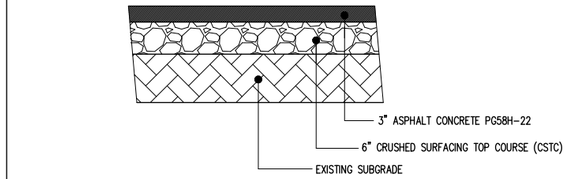
ACCESSIBLE PARKING STALLS

1" = 5'



ACCESSIBLE PARKING SIGN AND POST

NTS



LIGHT DUTY ASPHALT PAVING

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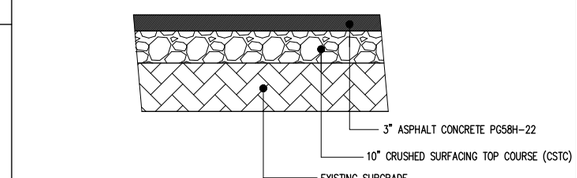


HEAVY DUTY ASPHALT PAVING

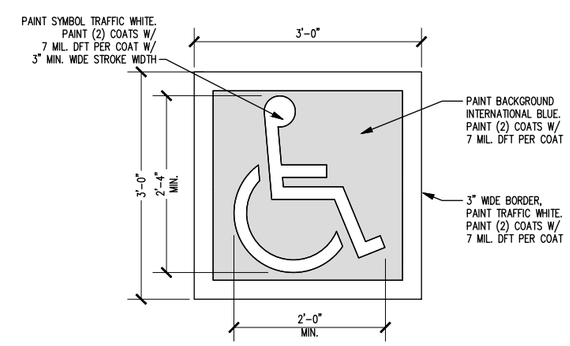
NTS

NOTES

1. THE ASPHALT MIXTURE AND ASPHALT CEMENT SHALL CONFORM TO THE 2023 WSDOT STANDARD SPECIFICATION SECTION 5-04 FOR 1/2-INCH HMA PG58H-22 ASPHALT BINDER.
2. MATERIALS SHALL MEET THE 2023 WSDOT STANDARD SPECIFICATION PROVIDED IN THE GEOTECHNICAL REPORT.
3. MATERIALS AND CONSTRUCTION OF PAVEMENTS FOR PROJECT SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE GEOTECHNICAL ENGINEERING REPORT THAT WAS FINALIZED BY LANDAU ASSOCIATES INC, ON SEPTEMBER 1ST 2022.
4. THE AGGREGATE BASE COURSE MATERIALS SHOULD BE PLACED ON A STABLE SUBGRADE AND COMPACTED TO AT LEAST 95 PERCENT OF THE MATERIAL'S MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557)

TYPICAL ASPHALT PAVEMENT SECTIONS

NTS



ACCESSIBILITY SYMBOL

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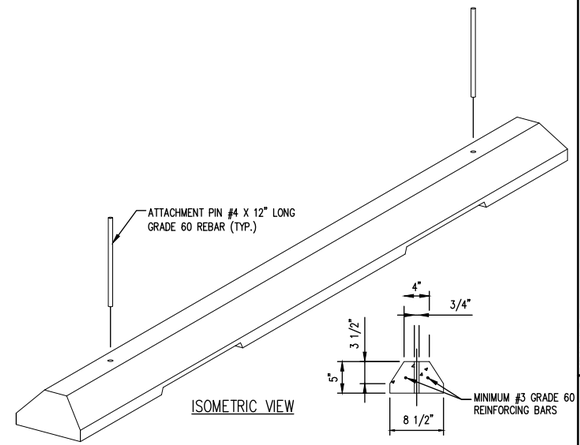


ELEVATION

GENERAL NOTES:

1. CONCRETE FOR WHEEL STOP: MINIMUM 3,000 PSI IN 28 DAYS
2. REINFORCING STEEL: PER ASTM A615, GRADE 60
3. ATTACHMENT PINS SHALL HAVE 7 INCH EMBEDMENT.

PRECAST CONCRETE WHEEL STOP

NTS

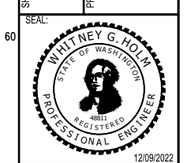
BY	DATE	REVISIONS
		1

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: SITE PLAN NOTES & DETAILS

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:



12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SP-02
DRAWING NO:	SP-02
SHEET NO:	09 OF 35

Feb 27, 2023 - 9:11:51am - User: jacob.mcintyre
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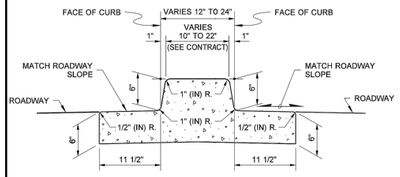
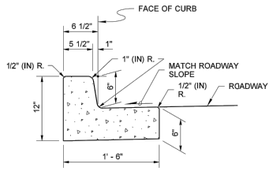
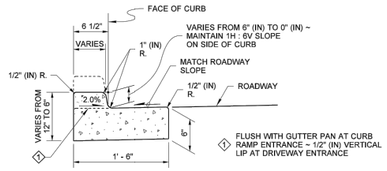


DUAL-FACED CEMENT CONCRETE TRAFFIC CURB AND GUTTER

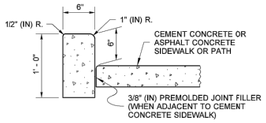


CEMENT CONCRETE TRAFFIC CURB AND GUTTER

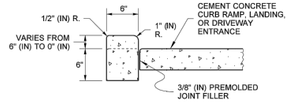


DEPRESSED CURB AND GUTTER SECTION

AT CURB RAMPS AND DRIVEWAY ENTRANCES



CEMENT CONCRETE PEDESTRIAN CURB

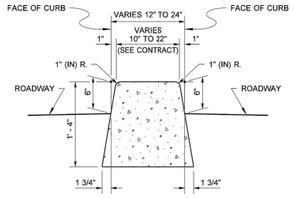


CEMENT CONCRETE PEDESTRIAN CURB

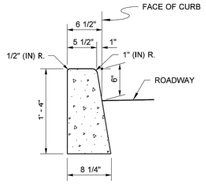
AT CURB RAMPS, LANDINGS, AND DRIVEWAY ENTRANCES

NOTE

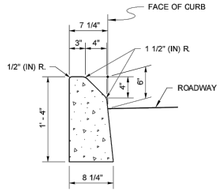
1. See **Standard Plan F-30.10** for Curb Expansion and Contraction Joint spacing. See **Standard Specification, Sections 8-04 and 9-04** for additional requirements.



DUAL-FACED CEMENT CONCRETE TRAFFIC CURB



CEMENT CONCRETE TRAFFIC CURB



MOUNTABLE CEMENT CONCRETE TRAFFIC CURB

Michael S Fleming

Digitally signed by Michael S Fleming
Date: 2020.09.24 07:39:38 -07'00'

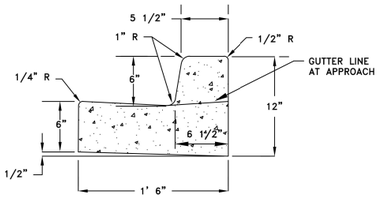
CEMENT CONCRETE CURBS

STANDARD PLAN F-10.12-04

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Date: 2020.09.24 07:57:43 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation

DG4-14.DWG

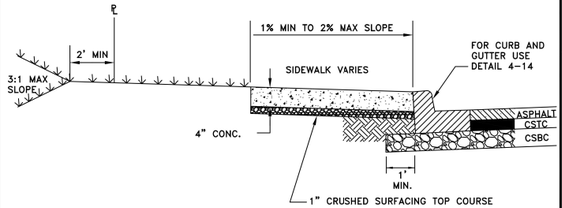


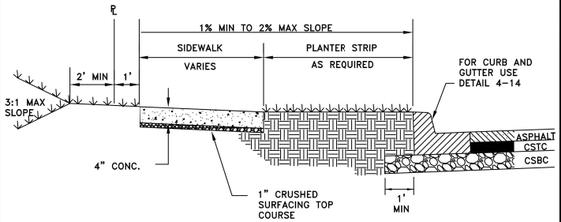
TYPE I

GENERAL NOTES:
1. EXPANSION JOINT MATERIAL TO BE 3/8" THICK PREMOLDED. JOINT FILLER FULL THICKNESS OF CONCRETE SPACING.
2. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING CONCRETE.
3. TYPE I USED ON OUTSIDE LANES.
4. TYPE II USED IN REVERSE SLOPE AREAS.
5. SEE 4B.025 FOR SPECIFICATIONS FOR CURBS AT MEDIANS.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
CEMENT CONCRETE CURB & GUTTER			
APPROVED: Roy A Schaerer, CITY ENGINEER			DWG. NO. 4-14
DES. WHO	DWN. WHO	CKD. MAH	DATE 12/15/2014

DG4-14.DWG



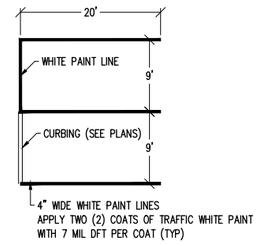


NTS

GENERAL NOTES:
1. FORMS SHALL BE WOOD OR METAL AND SHALL EXTEND FOR THE FULL DEPTH OF THE CONCRETE, SEE SECTION 8-14.3(2).
2. ALL FORMS SHALL BE STRAIGHT, FREE FROM WARP, AND OF SUFFICIENT STRENGTH TO RESIST THE PRESSURE OF THE CONCRETE WITHOUT SPRING.
3. FOR JOINTS AND SCORING SEE DETAIL 4-10.
4. CONCRETE DRIVEWAYS REQUIRE A MINIMUM DEPTH OF 6".
5. SEE ROADWAY SECTIONS FOR STREET TREE LOCATIONS.
6. THE TOP OR TOE OF ALL SLOPES SHALL BEGIN 2' BACK OF THE SIDEWALK OR THE RIGHT-OF-WAY LINE.
7. WHEN APPLICABLE THE RIGHT-OF-WAY LINE SHALL BE 1' BEHIND THE SIDEWALK.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
SIDEWALK			
APPROVED: Roy A Schaerer, CITY ENGINEER			DWG. NO. 4-9
DES. WHO	DWN. WHO	CKD. RAS	DATE 12/15/2014

DG4-9.DWG



AUTO PARKING STALL

NTS

BY	DATE	REVISIONS
		1

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: SITE PLAN DETAILS

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
46811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SP-02
DRAWING NO:	SP-03
SHEET NO:	10 OF 35

DRAWN BY: FERN LIDDELL

Feb 27, 2023 - 9:11:54am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 SP-02.DWG

SEC. 14, T 18N., R 1W., W.M.

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 - 9:12:09am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 HC-01.DWG

	BY	DATE	REVISIONS
1			

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CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: HORIZONTAL CONTROL PLAN

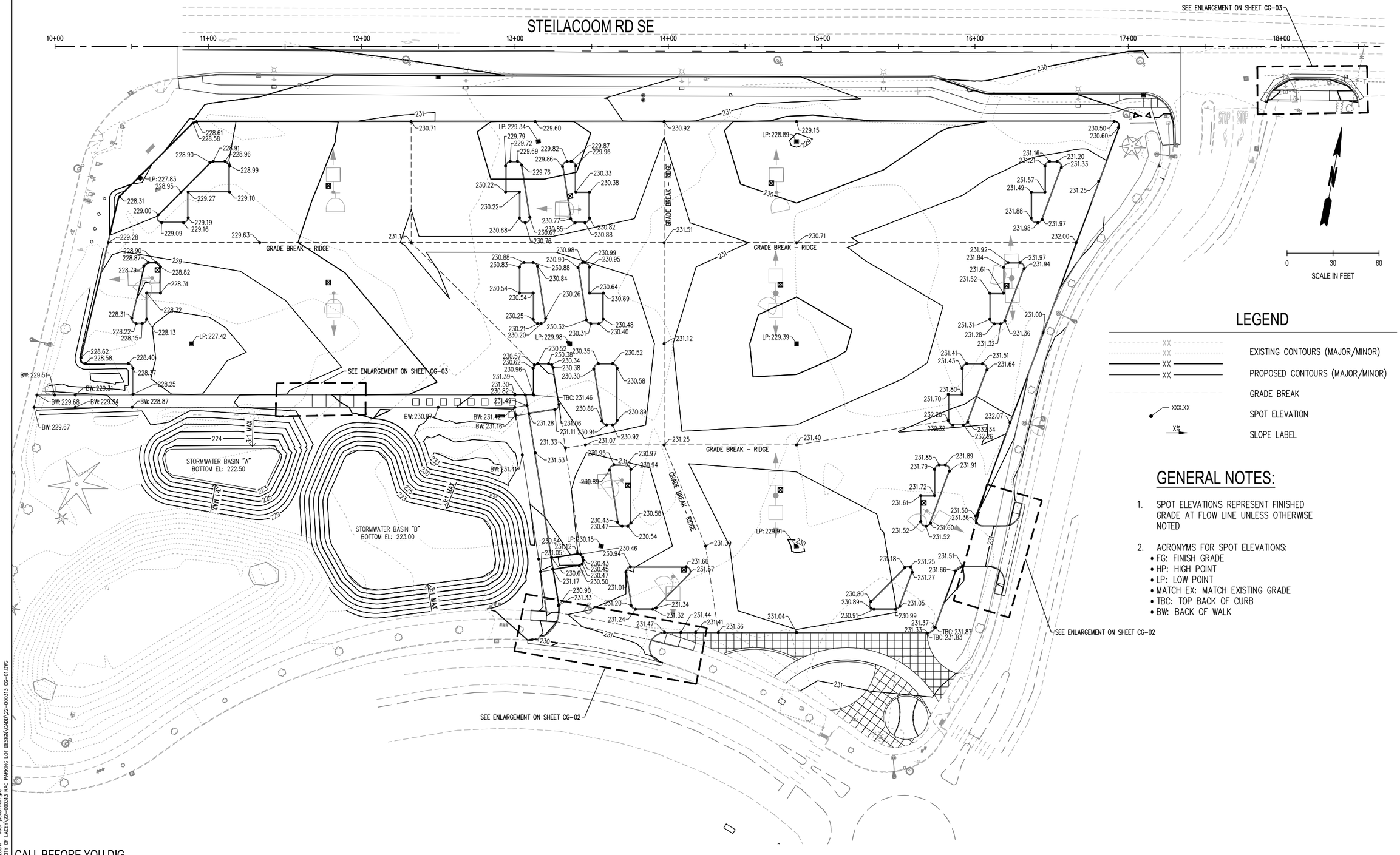
PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 HC-01
DRAWING NO:	HC-01
SHEET NO:	11 OF 35

SEC. 14, T 18N., R 1W., W.M.



LEGEND

- EXISTING CONTOURS (MAJOR/MINOR)
- PROPOSED CONTOURS (MAJOR/MINOR)
- GRADE BREAK
- SPOT ELEVATION
- SLOPE LABEL

GENERAL NOTES:

1. SPOT ELEVATIONS REPRESENT FINISHED GRADE AT FLOW LINE UNLESS OTHERWISE NOTED
2. ACRONYMS FOR SPOT ELEVATIONS:
   - FG: FINISH GRADE
   - HP: HIGH POINT
   - LP: LOW POINT
   - MATCH EX: MATCH EXISTING GRADE
   - TBC: TOP BACK OF CURB
   - BW: BACK OF WALK

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 9:12:28am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 CG-01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

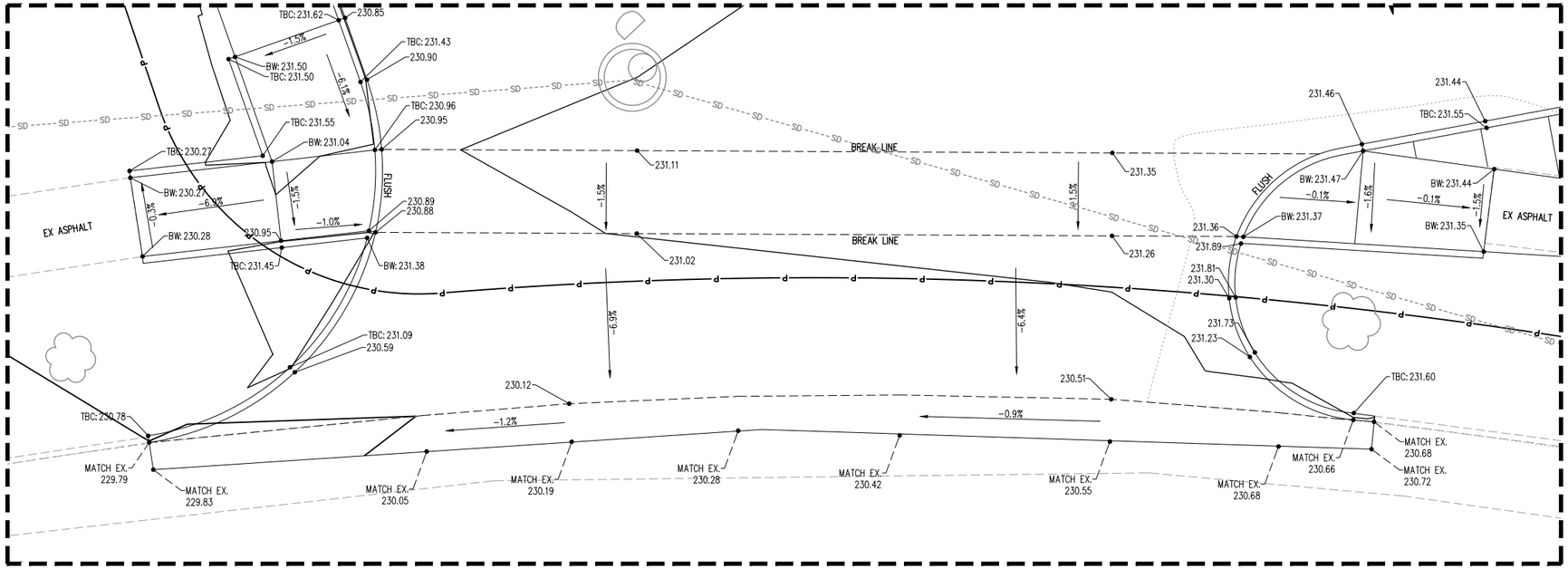
SHEET TITLE: GRADING PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
19811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

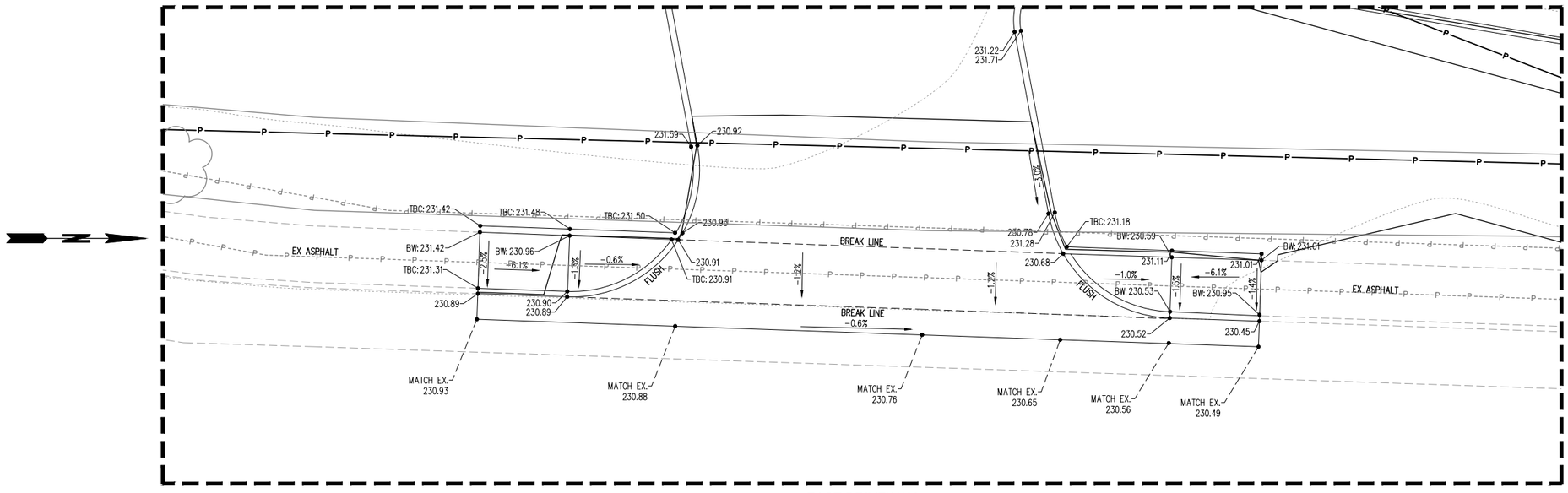
DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 CG-01
DRAWING NO:	CG-01
SHEET NO:	12 OF 35

SEC. 14, T 18N., R 1W., W.M.



SOUTH DRIVEWAY

1" = 5'



EAST DRIVEWAY

1" = 5'

0 5 10

SCALE IN FEET

LEGEND

- XX / XX — EXISTING CONTOURS (MAJOR/MINOR)
- XX / XX — PROPOSED CONTOURS (MAJOR/MINOR)
- GRADE BREAK
- xxx.xx — SPOT ELEVATION
- x% — SLOPE LABEL

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 - 9:13:09am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CAD\22-000313 CG-02.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: ENLARGED GRADING PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

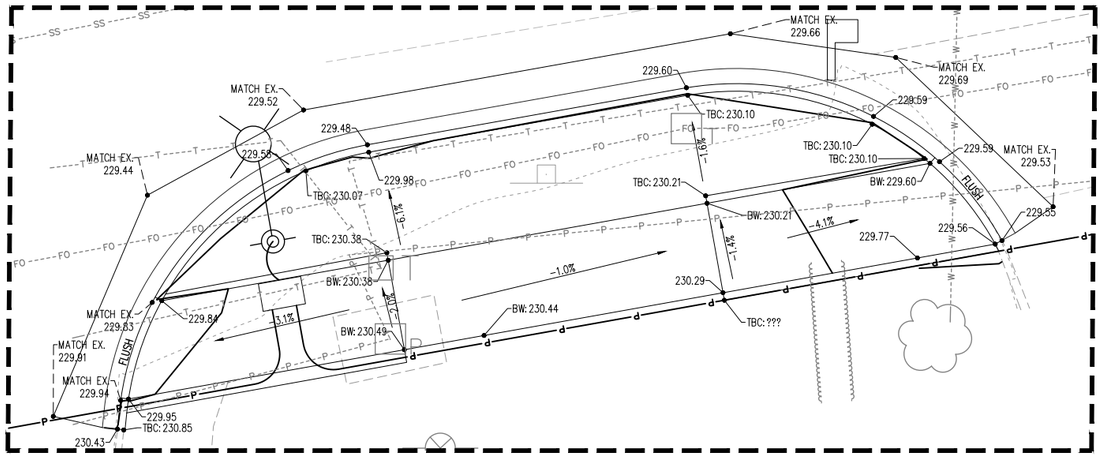
SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER

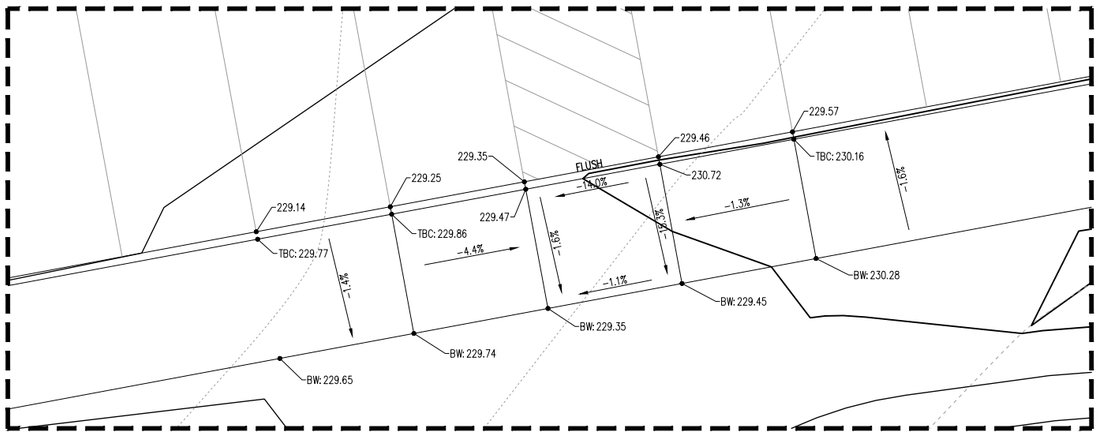
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	J. MCINTYRE
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 CG-02
DRAWING NO:	CG-02
SHEET NO:	13 OF 35

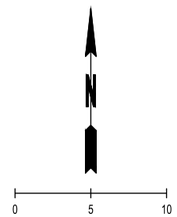
SEC. 14, T 18N., R 1W., W.M.



STEILACOOM ROAD WALKWAY
1" = 5'



NORTH ADA STALL
1" = 5'



LEGEND

- EXISTING CONTOURS (MAJOR/MINOR)
- PROPOSED CONTOURS (MAJOR/MINOR)
- GRADE BREAK
- SPOT ELEVATION (XXX.XX)
- SLOPE LABEL (X%)

GENERAL NOTES:

1. SPOT ELEVATIONS REPRESENT FINISHED GRADE AT FLOW LINE UNLESS OTHERWISE NOTED
2. ACRONYMS FOR SPOT ELEVATIONS:
   - FG: FINISH GRADE
   - HP: HIGH POINT
   - LP: LOW POINT
   - MATCH EX: MATCH EXISTING GRADE
   - TBC: TOP BACK OF CURB
   - BW: BACK OF WALK

CALL BEFORE YOU DIG

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BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: ENLARGED GRADING PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
22811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	J. MCINTYRE
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 CG-02
DRAWING NO:	CG-03
SHEET NO:	14 OF 35

Feb 27, 2023 9:13:33am – User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 CG-02.DWG

SEC. 14, T 18N., R 1W., W.M.

STEILACOOM RD SE

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

N: 632917.03, E: 76040.56
CATCH BASIN TYPE 1
RIM: 227.88
IE OUT: 225.32 (12" SE)

N: 632988.16, E: 76291.26
CATCH BASIN TYPE 1
RIM: 229.34
IE OUT: 226.34 (12" S)

N: 633019.00, E: 76456.84
CATCH BASIN TYPE 1
RIM: 228.89
IE OUT: 226.39 (12" S)

N: 632816.93, E: 76093.07
CATCH BASIN TYPE 1
RIM: 227.42
IE IN: 224.11 (12" E)
IE IN: 224.11 (12" NW)
IE OUT: 224.11 (12" S)

115 LF OF 12" @ 10.9%

247 LF OF 12" @ 0.36%

134 LF OF 12" @ 1.01%

132 LF OF 12" @ 0.50%

148 LF OF 12" @ 0.50%

N: 632862.11, E: 76335.58
CATCH BASIN TYPE 1
RIM: 229.98
IE IN: 224.99 (12" E)
IE IN: 224.99 (12" S)
IE IN: 224.99 (12" N)
IE OUT: 224.99 (12" W)

N: 632889.20, E: 76481.02
CATCH BASIN TYPE 1
RIM: 229.39
IE IN: 225.73 (12" N)
IE IN: 225.73 (12" S)
IE OUT: 225.73 (12" W)

B
SD-03

C
SD-03

A
SD-03

63 LF OF 12" @ 0.96%

N: 632752.89, E: 76105.17
4'x6'x1' DEEP
QUARR SPALL PAD
RIM: 224.62
IE IN: 223.48 (12" N)

82 LF OF 12" @ 0.96%

132 LF OF 12" @ 1.89%

N: 632736.09, E: 76379.88
CATCH BASIN TYPE 1
RIM: 230.15
IE OUT: 227.15 (12" N)

N: 632759.43, E: 76505.19
CATCH BASIN TYPE 1
RIM: 229.91
IE OUT: 226.91 (12" N)

0 30 60
SCALE IN FEET

LEGEND

- EXISTING CONTOURS (MAJOR/MINOR)
- PROPOSED CONTOURS (MAJOR/MINOR)
- STORM PIPE, (ASTM D3034 SDR35 OR APPROVED EQUAL UNLESS NOTED OTHERWISE, SIZE PER PLAN)
- TYPE 1 CATCH BASIN, PER CITY OF LACEY STD. DWG. 5-5: SEE SD-02
- RIP RAP SPILLWAY: SEE SD-02

NOTES:

1. ALL CATCH BASINS ARE STATIONED TO THE CENTER OF GRATE.

CALL BEFORE YOU DIG

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Feb 27, 2023 - 9:14:04am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 SD-01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: DRAINAGE PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

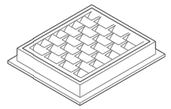
SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SD-01
DRAWING NO:	SD-01
SHEET NO:	15 OF 35

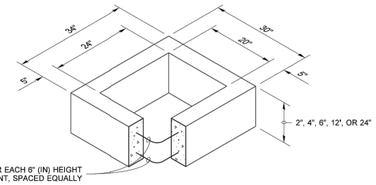
CITY OF LACEY GENERAL STORM DRAIN CONSTRUCTION NOTES

1. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF LACEY SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. A GRADING PERMIT FOR STORM POND CONSTRUCTION MAY BE REQUIRED.
2. STORM DRAIN PIPE MATERIAL SHALL BE ON THE WSDOT QUALIFIED PRODUCTS LIST FOR THE SPECIFICATION LISTED BELOW AND APPROVED BY THE CITY PRIOR TO INSTALLATION:
   - A. PLAIN CONCRETE STORM SEWER PIPE OR REINFORCED CONCRETE STORM SEWER PIPE PER WSDOT STANDARD SPECIFICATION 9-05.7.
   - B. SOLID WALL PVC STORM SEWER PIPE PER WSDOT STANDARD SPECIFICATION 9-05.12(1).
   - C. DUCTILE IRON SEWER PIPE PER WSDOT STANDARD SPECIFICATION 9-05.13.
   - D. HANCOR BLUE SEAL™ AND ADVANCED DRAINAGE SYSTEMS (ADS/HANCOR) N-12 HDPE AND (ADS/HANCOR) SANITITE UP TO 36 INCH IN DIAMETER PER WSDOT STANDARD SPECIFICATIONS 9-05.20 AND 9-05.24.
   - E. ADVANCE DRAINAGE SYSTEMS (ADS) CORRUGATED POLYPROPYLENE PIPE (CPEP) FROM 42" TO 60" IN DIAMETER PER WSDOT 9-05.24 (1) FOR USE NOT IN RIGHT OF WAY.
   - F. F. CONTECH DUROMAXX STEEL RIB REINFORCED POLYETHYLENE PIPE, IN DIAMETERS FROM 24 INCH TO 60 INCH PER WSDOT STANDARD SPECIFICATION 9-05.22.
3. ALL STORM DRAINAGE SYSTEMS SHALL BE TESTED PER WSDOT STANDARD SPECIFICATION SECTION 7-04.3. TESTING SHALL BE DONE BY THE CONTRACTOR.
4. TESTING OF THE STORM SEWER SHALL INCLUDE VIDEO RECORDING OF THE MAIN BY THE CONTRACTOR. IMMEDIATELY PRIOR TO VIDEO RECORDING, ENOUGH WATER SHALL BE RUN DOWN THE LINE SO IT COMES OUT THE LOWER CATCH BASIN. A COPY OF THE VIDEO RECORDING SHALL BE SUBMITTED TO THE CITY OF LACEY. ACCEPTANCE OF THE LINE WILL NOT BE MADE UNTIL AFTER THE RECORDING HAS BEEN REVIEWED AND APPROVED BY THE CITY. TESTING SHALL TAKE PLACE AFTER ALL UNDERGROUND UTILITIES ARE INSTALLED AND COMPACTION OF THE ROADWAY SUBGRADE IS COMPLETE.
5. SPECIAL STRUCTURES, OIL/WATER SEPARATORS, AND OUTLET CONTROLS SHALL BE INSTALLED PER PLANS AND MANUFACTURERS' RECOMMENDATIONS. WHERE OIL/WATER SEPARATORS ARE CONNECTED TO A SEWER SYSTEM, THEY SHALL BE INSTALLED WITH A P-TRAP OR CHECK VALVE TO PREVENT ODORS.
6. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH CORE REQUIREMENT 2 OF THE CURRENT CITY OF LACEY STORMWATER DESIGN MANUAL. FOR SITES WHERE VEGETATION HAS BEEN PLANTED THROUGH HYDROSEEDING, THE FINANCIAL GUARANTEE WILL NOT BE RELEASED UNTIL THE VEGETATION HAS BEEN THOROUGHLY ESTABLISHED.
7. WHERE CONNECTIONS REQUIRE "FIELD VERIFICATIONS", CONNECTION POINTS WILL BE EXPOSED BY CONTRACTOR AND FITTINGS VERIFIED 48 HOURS PRIOR TO DISTRIBUTING SHUT-DOWN NOTICES.
8. ALL CATCH BASINS/MANHOLES SHALL HAVE PADS PER LACEY STANDARD DETAIL.
9. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED IN WRITING BY THE PROJECT ENGINEER AND THE CITY OF LACEY.
10. ALL STORM PIPE SHALL BE A MINIMUM OF 12-INCH DIAMETER FOR MAINS AND 8- INCH DIAMETER FOR LATERALS CROSSINGS. WHEN PRIVATE STORMWATER (I.E. ROOF, LOT, OR FOOTING DRAINS) CANNOT BE INFILTRATED ON INDIVIDUAL LOTS, THE MINIMUM STANDARD PIPING CONNECTION TO THE PUBLIC SYSTEM SHALL BE 8- INCH PVC. THE 8-INCH MAIN USED FOR CONNECTION SHALL BEGIN AT THE RIGHT OF-WAY. THE CONNECTION TO THE CATCH BASIN OR MANHOLE SHALL BE CORED.
11. ALL STORM MAINS AND STORMWATER TREATMENT AND/OR FLOW CONTROL BMPS/FACILITIES AREAS SHALL BE STAKED FOR GRADE AND ALIGNMENT BY AN ENGINEERING OR SURVEY FIRM LICENSED TO PERFORM SUCH WORK.
12. THE MINIMUM STAKING OF STORM SEWER SYSTEMS SHALL BE AS FOLLOWS:
    - A. STAKE LOCATION OF ALL CATCH BASINS, MANHOLES, AND OTHER FIXTURES FOR GRADE AND ALIGNMENT.
    - B. STAKE LOCATION, SIZE, AND DEPTH OF STORMWATER TREATMENT AND/OR FLOW CONTROL BMPS/FACILITIES.
    - C. STAKE FINISHED GRADE OF ALL STORMWATER FEATURES, INCLUDING BUT NOT LIMITED TO CATCH BASIN/MANHOLE RIM ELEVATIONS, OVERFLOW STRUCTURES, WEIRS, AND INVERT ELEVATIONS OF ALL PIPES IN CATCH BASINS, MANHOLES, AND PIPES THAT DAYLIGHT.
13. PIPE SIZE, SLOPE, COVER, ETC., SHALL BE AS SPECIFIED IN THE CITY OF LACEY DEVELOPMENT GUIDELINES AND PUBLIC WORKS STANDARDS.
14. ALL DRIVEWAY CULVERTS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH AT THE CULVERT END. CULVERTS SHALL HAVE BEVELED END SECTIONS TO MATCH THE SIDE SLOPE.
15. IF DRAINAGE OUTLETS (STUB-OUTS) ARE TO BE PROVIDED FOR EACH INDIVIDUAL LOT, THE 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, 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 STORM WATER CONVEYANCE SYSTEM OR TO AN APPROVED OUTFALL LOCATION.
    - B. OUTLETS ON EACH LOT SHALL BE LOCATED WITH A FIVE-FOOT-HIGH, 2-INCH BY 4-INCH STAKE MARKED "STORM" OR "DRAIN." THE STUB-OUT SHALL VISIBLY EXTEND ABOVE SURFACE LEVEL AND BE SECURED TO THE STAKE.
    - C. DRAINAGE EASEMENTS ARE REQUIRED FOR DRAINAGE SYSTEMS DESIGNED TO CONVEY FLOWS THROUGH INDIVIDUAL LOTS.
    - D. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONVEYANCE LINES WITH RESPECT TO THE UTILITIES (E.G., POWER, GAS, TELEPHONE, TELEVISION).
    - E. ALL INDIVIDUAL STUB-OUTS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE LOT HOMEOWNER.
16. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE CITY. ANY MATERIAL DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE CITY AND SHALL BE CORRECTED IN THE AS-BUILT DRAWINGS.
17. 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 BE AMENDED IN ACCORDANCE WITH THE CURRENT CITY OF LACEY STORMWATER DESIGN MANUAL AND THEN SEEDED, PLANTED, AND MULCHED OR SIMILARLY STABILIZED AFTER CONSTRUCTION TO THE SATISFACTION OF THE CITY. FOR SITES WHERE GRASS HAS BEEN PLANTED THROUGH HYDROSEEDING, THE PERFORMANCE BOND WILL NOT BE RELEASED UNTIL THE GRASS HAS BEEN THOROUGHLY ESTABLISHED, UNLESS OTHERWISE APPROVED BY THE CITY.
18. ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING THE CONSTRUCTION PHASE OF THE DEVELOPMENT PROJECT.
19. NO FINAL CUT OR FILL SLOPE SHALL EXCEED 2:1 WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.
20. THE PROJECT ENGINEER SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESSES, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES, INCLUDING UTILITIES AND OTHER FRONTAGE IMPROVEMENTS, WHICH ARE TO INTERFACE WITH NEW WORK. THE CONTRACTOR SHALL PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, WITHOUT CONFLICT, ACCEPTABLE TO THE ENGINEER AND THE CITY, COMPLETE IN PLACE, AND READY TO USE.
21. COMPACTION OF ALL FILL AREAS SHALL BE PER CURRENT APWA SPECIFICATIONS. FILL SHALL BE PROVIDED IN 6-INCH MAXIMUM LIFTS AND SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM RELATIVE DENSITY. DEVIATION FROM THIS STANDARD MAY BE APPROVED BY THE DIRECTOR, OR DESIGNEE, WHERE RECOMMENDED BY THE LICENSED PROFESSIONAL ENGINEER FOR PLANNED OR EXISTING INFILTRATION FACILITIES.

DRAWN BY: LISA CYFORD



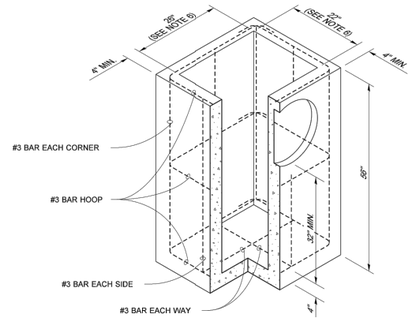
FRAME AND VANED GRATE



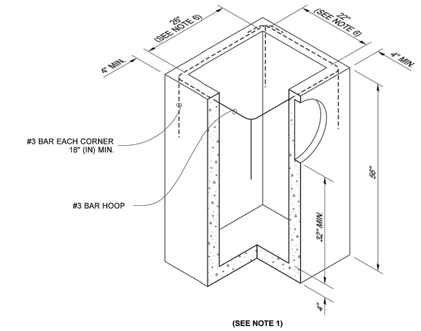
RECTANGULAR ADJUSTMENT SECTION

NOTES

1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot, shall be used with the minimum required rebar shown in the ALTERNATIVE **PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 18" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the Precast Base Section.
7. All pickup holes shall be grouted full after the basin has been placed.



PRECAST BASE SECTION



(SEE NOTE 1)

ALTERNATIVE PRECAST BASE SECTION

JULIE HEILMAN — STATE OF WASHINGTON — 21812 — REGISTERED PROFESSIONAL ENGINEER

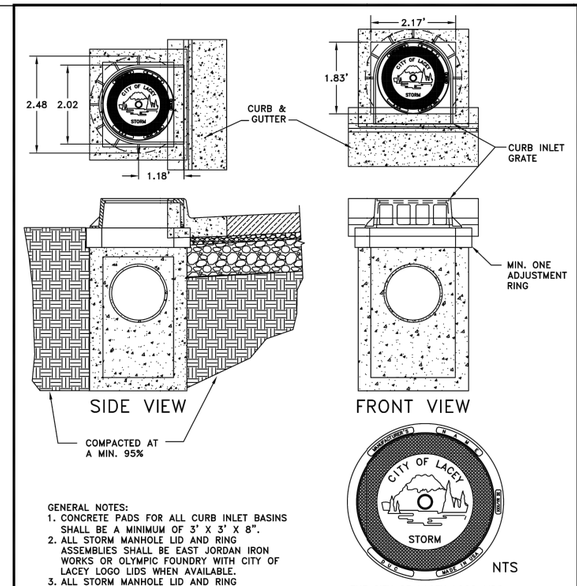
Heilman, Julie
Jan 25 2017 2:56 PM

CATCH BASIN TYPE 1P (FOR PARKING LOT)

STANDARD PLAN B-5.60-02

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Jan 26 2017 6:49 AM
STATE DESIGN ENGINEER
Washington State Department of Transportation



THE CITY OF LACEY LOGO LIDS SHALL BE USED WHEN AVAILABLE

GENERAL NOTES:
1. CONCRETE PADS FOR ALL CURB INLET BASINS SHALL BE A MINIMUM OF 3' X 3' X 8".
2. ALL STORM MANHOLE LID AND RING ASSEMBLIES SHALL BE EAST JORDAN IRON WORKS OR OLYMPIC FOUNDRY WITH CITY OF LACEY LOGO LIDS WHEN AVAILABLE.
3. ALL STORM MANHOLE LID AND RING ASSEMBLIES SHALL BE DUCTILE IRON AND MANUFACTURED IN THE USA.
4. THIS APPLICATION SHALL BE USED FOR INSTALLATIONS ON ARTERIALS AND BOULEVARDS OR WHEN STORM PIPING IS TOO SHALLOW TO MEET THE MINIMUM 2' OF COVER WHERE THE STORM PIPE ENDS UP IN THE ROADWAY STRUCTURE REGARDLESS OF THE TYPE OF PIPE BEING USED.
5. USE A 2" RECTANGULAR ADJUSTMENT SECTION TURNED LENGTHWISE TO ELIMINATE THE GAP UNDER THE FRAME.
6. DEVIATION FROM THE COMPACTION STANDARDS MAY BE APPROVED BY THE DIRECTOR, OR DESIGNEE, WHERE RECOMMENDED BY THE LICENSED PROFESSIONAL ENGINEER FOR PLANNED OR EXISTING INFILTRATION FACILITIES.

DG5-5.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

CURB INLET GRATE & CATCH BASIN INSTALLATION

APPROVED
CITY ENGINEER

DWG. NO. 5-5

DES	DWN	CKD	DATE
WHO	WHO	RAS	08/24/2017

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STORM DRAINAGE NOTES & DETAILS

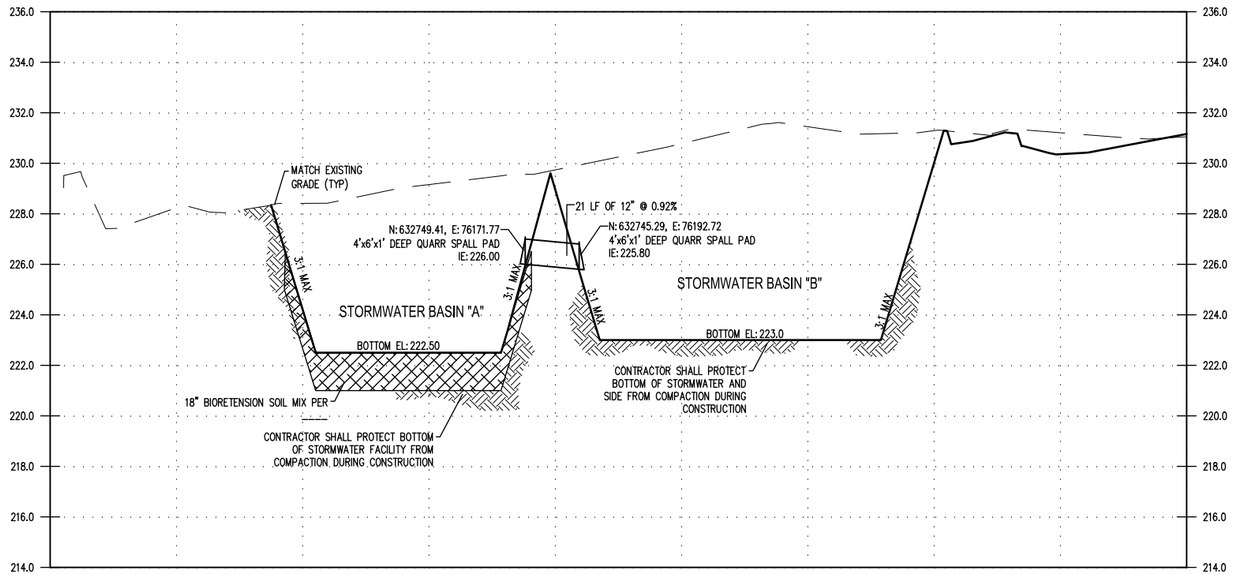
PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL: WHITNEY G. HOLM — STATE OF WASHINGTON — 49811 — REGISTERED PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SD-02
DRAWING NO:	SD-02
SHEET NO:	16 OF 35

Feb 27, 2023 - 9:14:14am - User: jacob.mcintyre
N:\PROJECTS\2022 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 SD-02.DWG



POND CROSS SECTION A

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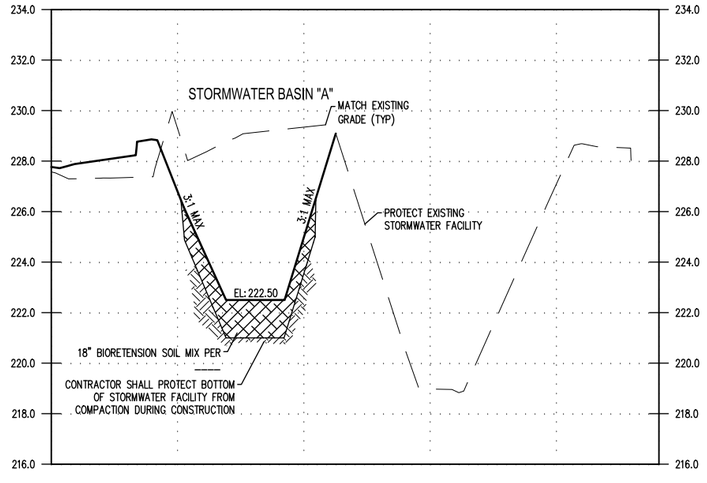
V: 0 3 6 SCALE IN FEET



POND CROSS SECTION B

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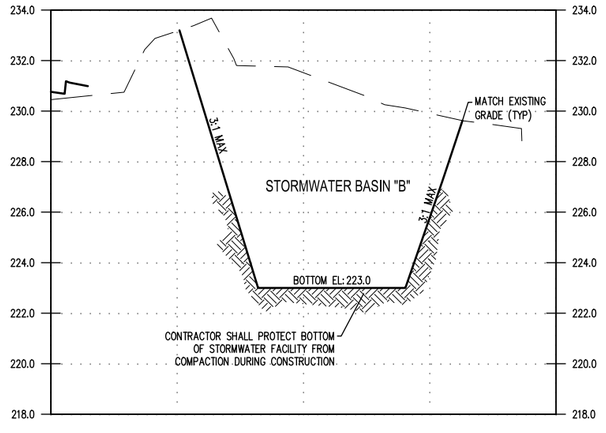
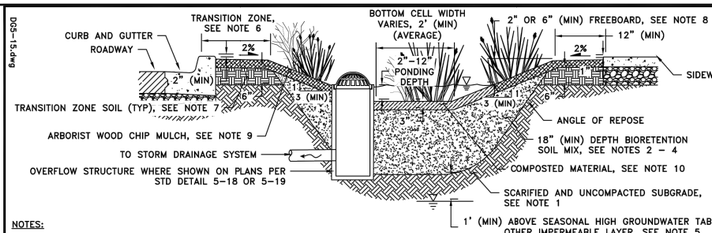


POND CROSS SECTION C

H: 0 30 60 SCALE IN FEET

V: 0 3 6 SCALE IN FEET

DOS-15.dwg



NOTES:

1. SCARIFY SUBGRADE 3" (MIN) BEFORE BIORETENTION SOIL MIX (BSM) INSTALLATION.
2. BSM SHALL CONFORM TO 2016 CITY OF LACEY STORMWATER DESIGN MANUAL (SDM) SPECIFICATIONS, SECTION 7.4.4.
3. BSM PLACEMENT, GRADING, AND CONSOLIDATION SHALL NOT OCCUR WHEN THE BSM IS EXCESSIVELY WET, OR HAS BEEN SUBJECTED TO MORE THAN 1/2 INCH OF PRECIPITATION WITHIN 48 HOURS PRIOR TO PLACEMENT. EXCESSIVELY WET IS DEFINED AS BEING AT OR ABOVE 22 PERCENT SOIL MOISTURE BY A GENERAL TOOLS & INSTRUMENTS DSMM500 PRECISION DIGITAL SOIL MOISTURE METER WITH PROBE (OR EQUIVALENT). THERE SHALL BE NO VISIBLE FREE WATER IN THE MATERIAL.
4. PLACE BSM LOOSELY WITH A CONVEYOR BELT OR WITH AN EXCAVATOR OR LOADER FROM A HEIGHT OF 6 FEET OR LESS (I.E., DO NOT DUMP MATERIAL DIRECTLY FROM TRUCK INTO CELL). COMPACT BSM USING NON-MECHANICAL COMPACTION METHODS (E.G., BOOT PACKING, HAND TAMPING, OR WATER CONSOLIDATION).
5. MINIMUM DEPTH TO GROUNDWATER OR OTHER IMPERMEABLE LAYER VARIES BY CONTRIBUTING AREA. SEE THE 2016 CITY OF LACEY SDM, SECTION 7.4.4 FOR REQUIREMENTS.
6. TRANSITION ZONE SHALL BE 1.5' (MIN) BETWEEN FACE OF CURB AND BEGINNING OF THE BIORETENTION SIDE SLOPE. PROVIDE 2.5' (MIN) TRANSITION ZONE WHERE ADJACENT TO PARALLEL PARKING. BIORETENTION SHALL NOT BE LOCATED ADJACENT TO PARALLEL PARKING THAT IS DESIGNATED AS ADA COMPLIANT.
7. TRANSITION ZONE SOIL SHALL BE ROCK BASE COURSE OR APPROVED SOIL COMPACTED TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTOR TEST (ASTM D1557).
8. MINIMUM FREEBOARD SHALL BE 2 INCHES FOR DRAINAGE AREAS LESS THAN 1,000 SQUARE FEET AND 6 INCHES FOR DRAINAGE AREAS 1,000 SQUARE FEET OR GREATER.
9. PROVIDE 3 INCHES OF ARBORIST WOOD CHIP MULCH OR DENSE GROUNDCOVER FOR UPLAND AREAS AND 3 INCHES COARSE COMPOST AS A MULCH FOR AREAS THAT SEE PONDING. SEE THE 2016 CITY OF LACEY SDM SECTION 7.4.4 FOR SPECIFICATIONS.
10. PROVIDE 3 INCHES COARSE COMPOST AS A MULCH FOR AREAS THAT SEE PONDING. SEE THE 2016 CITY OF LACEY SDM TABLE 5.9 FOR SPECIFICATIONS.

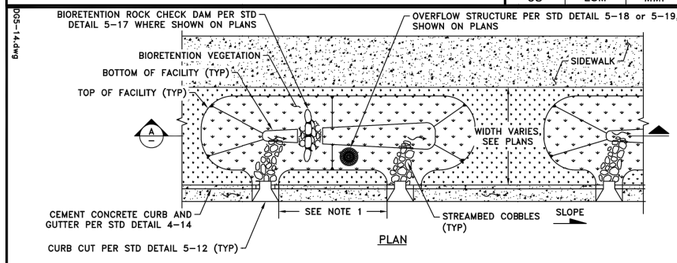
CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

BIORETENTION SECTION

APPROVED CITY ENGINEER	DWG. NO.
	5-15

DES	DWN	CKD	DATE
OS	ESM	MMF	08/24/2017

DOS-14.dwg



NOTES:

1. LOCATION, NUMBER, AND SPACING OF CURB CUTS VARY WITH FACILITY LENGTH AND ROAD SLOPE. PROVIDE A MINIMUM OF ONE CURB CUT PER FACILITY. SEE PLANS FOR LOCATIONS.

GENERAL NOTES:

1. REFER TO THE 2016 CITY OF LACEY STORMWATER DESIGN MANUAL SECTION 7.4.4 FOR SETBACK REQUIREMENTS.

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

BIORETENTION PLAN/PROFILE

APPROVED CITY ENGINEER	DWG. NO.
	5-14

DES	DWN	CKD	DATE
OS	ESM	MMF	08/24/2017

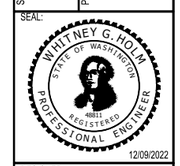
BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465, F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STORMWATER POND PROFILES

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:



12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SD-03
DRAWING NO:	SD-03
SHEET NO:	17 OF 35

Feb 27, 2023 - 9:14:27am - User: jacob.mcintyre
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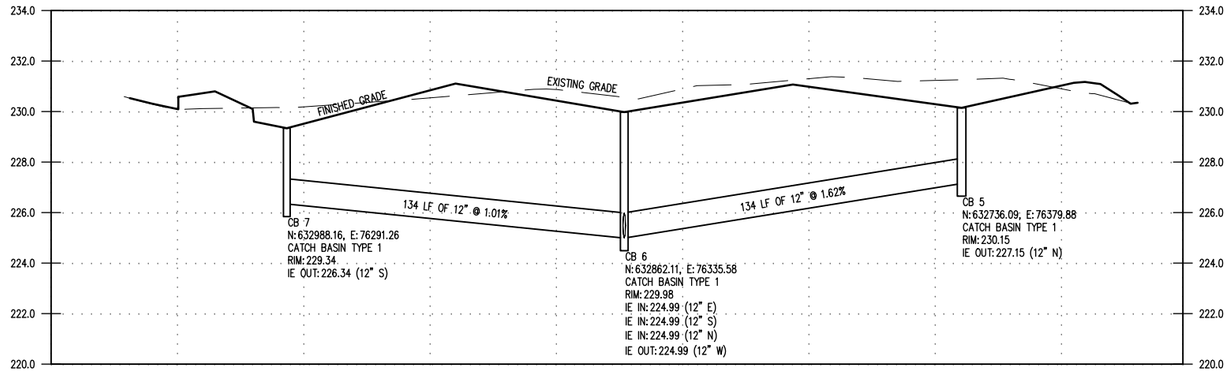

STORM PROFILE 1

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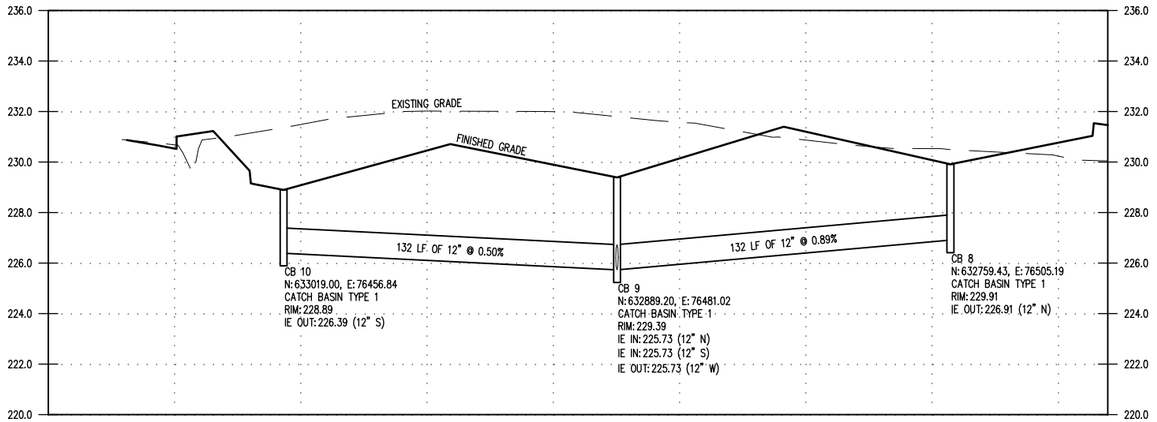
V 0 3 6 SCALE IN FEET



STORM PROFILE 2

H 0 30 60 SCALE IN FEET

V 0 3 6 SCALE IN FEET

BY	DATE	REVISIONS
		△

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CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STORM PIPE PROFILES

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SD-04
DRAWING NO:	SD-04
SHEET NO:	18 OF 35

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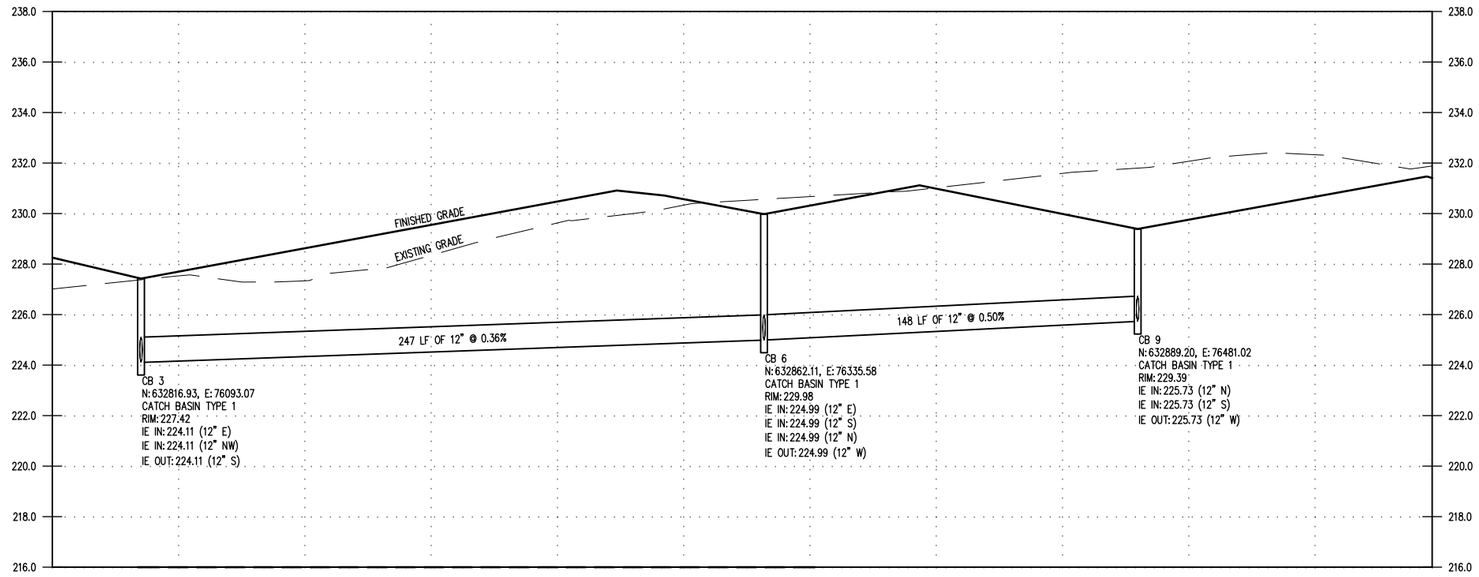

STORM PROFILE 3

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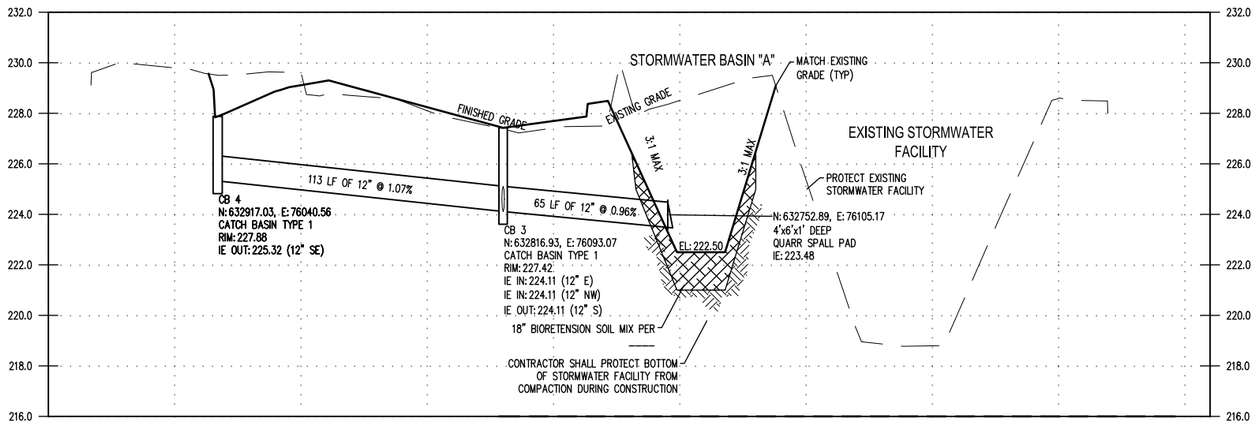
V 0 3 6 SCALE IN FEET



STORM PROFILE 4

H 0 30 60 SCALE IN FEET

V 0 3 6 SCALE IN FEET

REVISIONS	DATE	BY
1		

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STORM PIPE PROFILES

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 SD-04
DRAWING NO:	SD-05
SHEET NO:	19 OF 35

SEC. 14, T 18N., R 1W., W.M.

(XX) DEMOLITION NOTES:

1. SAWCUT
2. RELOCATE EXISTING COMMUNICATION VAULT, CONTRACTOR SHALL COORDINATE WITH $--$ FOR LOCATION
3. RELOCATE EXISTING SPEED LIMIT SIGN, SEE $--$ FOR LOCATION
4. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ASPHALT/CONCRETE AND REMOVE AS NEEDED
5. REMOVE FIRE STATION SIGN, POST AND FOUNDATION. RELOCATE SIGN AND POST ON NEW FOUNDATION, SEE $--$ FOR LOCATION
6. ADJUST SANITARY SEWER FRAME AND GRATE TO GRADE
7. REMOVE ECOLOGY BLOCKS, CONTRACTOR SHALL SALVAGE BLOCKS AND DELIVER TO CITY OF LACEY PROPERTY. CONTRACTOR SHALL COORDINATE LOCATION AND SCHEDULE WITH THE CITY OF LACEY
8. CONTRACTOR SHALL COORDINATE WITH UTILITY PURVEYOR ON RELOCATION OF PHONE PEDESTAL
9. COORDINATE WITH INTERCITY TRANSIT ON REMOVAL OF BUS SIGN, POST AND FOUNDATION. SIGN AND POST SHALL BE RETURNED TO INTERCITY TRANSIT.

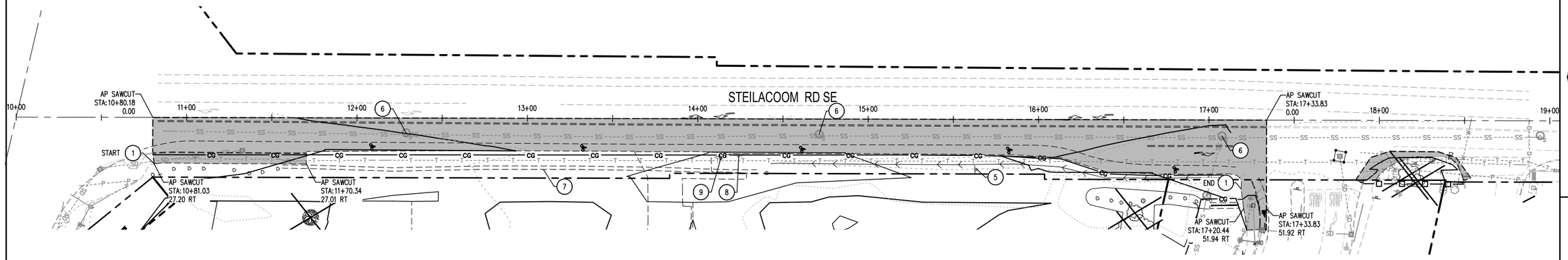
LEGEND

- INLET SEDIMENT PROTECTION: SEE EC-02
- SILT FENCE: SEE EC-02
- CLEAR AND GRUBBING LIMITS
- SAWCUT
- EXISTING TREE AND ROOT BALL TO BE REMOVED
- EXISTING ASPHALT/CONCRETE AND BASE TO BE REMOVED
- CEMENT CONCRETE CURB AND GUTTER PER CITY OF LACEY STD. DWG. 4-14 SEE SP-03

N

0 30 60

SCALE IN FEET



CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 - 9:15:05am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 FR-01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STEILACOOM TESC & DEMO PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

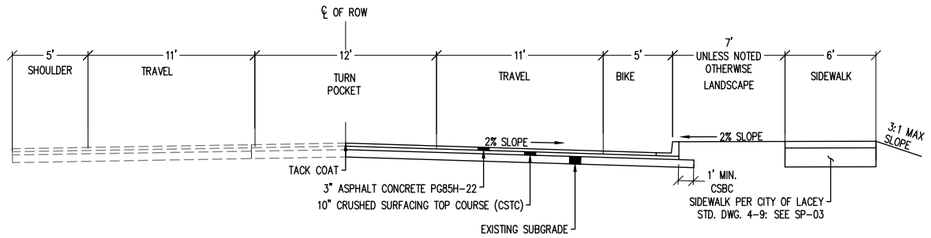
SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
40811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 FR-01
DRAWING NO:	FR-01
SHEET NO:	20 OF 35

SEC. 14, T 18N., R 1W., W.M.



ROAD SECTION
NOT TO SCALE

XX CONSTRUCTION NOTES:

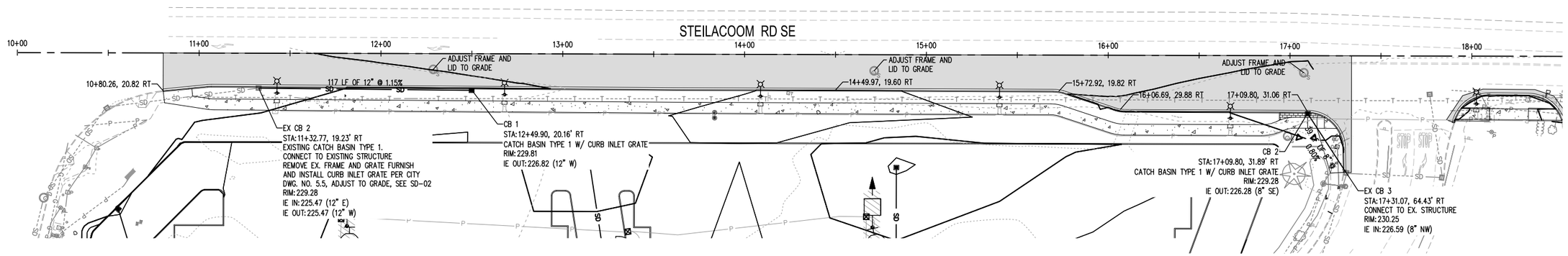
1. SIDEWALK & ADA RAMP ENLARGEMENT: SEE FR-04

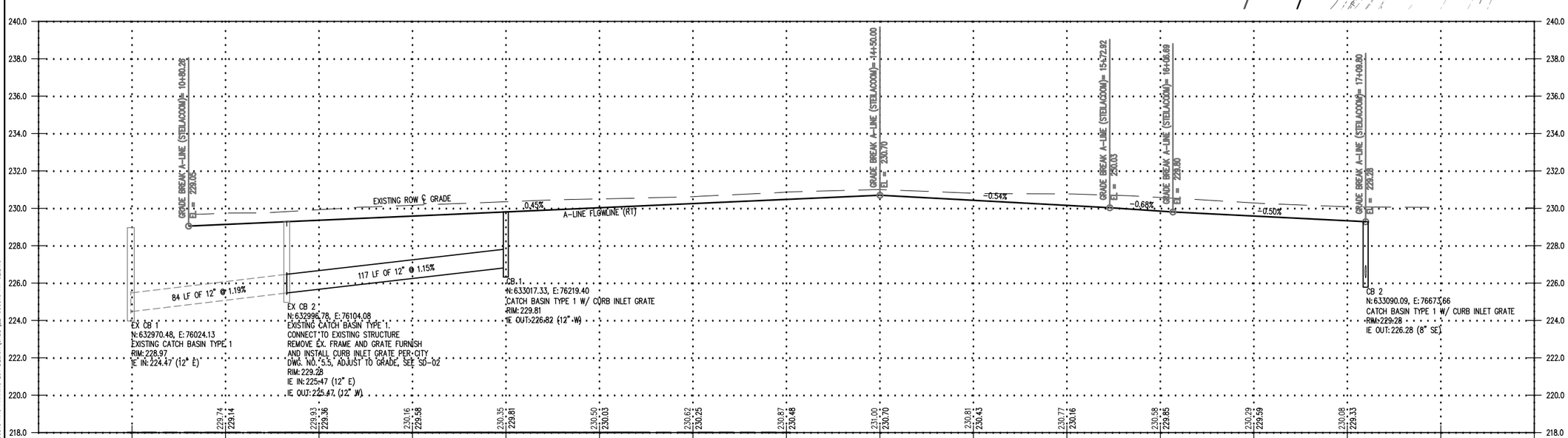
LEGEND

- CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD. PLAN F.10.12.04 SEE SP-03
- CEMENT CONCRETE CURB & GUTTER PER CITY OF LACEY STD. DWG. 4-14 SEE SP-03
- SIDEWALK PER CITY OF LACEY STD. DWG. 4-9: SEE SP-03
- HEAVY DUTY ASPHALT PAVING SEE SP-02
- SD — STORM PIPE, (ASTM D3034 SDR35 OR APPROVED EQUAL UNLESS NOTED OTHERWISE, SIZE PER PLAN)
- TYPE 1 CATCH BASIN WITH CURB INLET GRATE, PER CITY OF LACEY STD. DWG. 5-5: SEE SD-02

N

0 30 60
SCALE IN FEET





A-LINE (STEILACOOM)

H 0 30 60 SCALE IN FEET

V 0 3 6 SCALE IN FEET

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 9:15:58am – User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 FR-02.DWG

BY	DATE	REVISIONS
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SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STEILACOOM ROADWAY PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
20811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 FR-02
DRAWING NO:	FR-02
SHEET NO:	21 OF 35

SEC. 14, T 18N., R 1W., W.M.

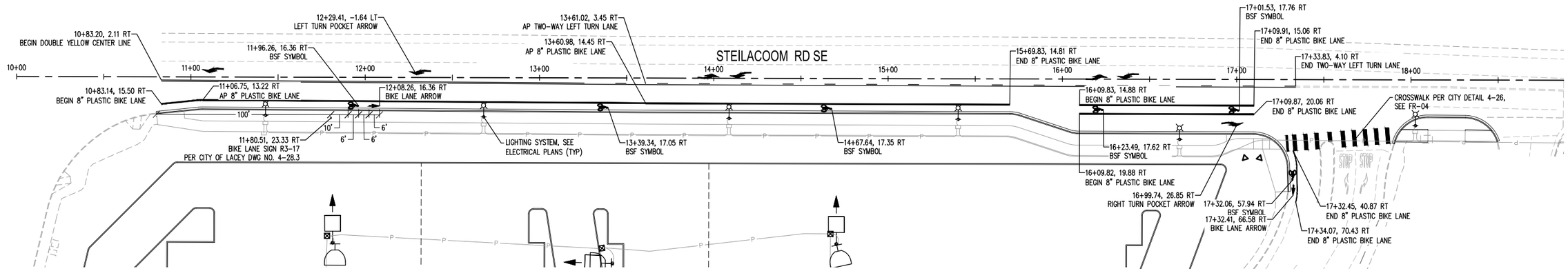
LEGEND

- CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD. PLAN F.10.12.04 SEE SP-03
- CEMENT CONCRETE CURB AND GUTTER PER CITY OF LACEY STD. DWG. 4-14 SEE SP-03
- 8" SOLID DOUBLE YELLOW CENTER LINES PER CITY OF LACEY STD. DWG. 4-27 & 4-28.5: SEE FR-04
- 8" SOLID AND BROKEN YELLOW CENTER LINES PER CITY OF LACEY STD. DWG. 4-27 & 4-28.5: SEE FR-04
- 8" SOLID WHITE BIKE LINES PER CITY OF LACEY STD. DWG. 4-27 SEE FR-04
- LEFT AND RIGHT TURN POCKET ARROWS PER CITY OF LACEY DWG NO. 4-28.1 SEE FR-04
- BSF SYMBOL & BIKE LANE ARROW PER CITY OF LACEY DWG NO. 4-28.2 SEE FR-04
- CROSSWALK PER CITY OF LACEY DWG NO. 4-26 SEE FR-04

N

0 30 60

SCALE IN FEET



CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 - 9:16:31am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 FR-03.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: STEILACOOM STRIPING PLAN

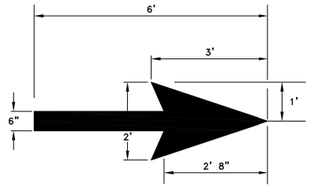
PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

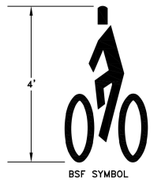
WHITNEY G. HOLM
STATE OF WASHINGTON
22811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 FR-03
DRAWING NO:	FR-03
SHEET NO:	22 OF 35



BIKE LANE ARROW



BSF SYMBOL

GENERAL NOTES:
1. THE MATERIALS USED FOR ALL STOP LINES, CROSSWALKS, ARROWS, PARKING DELINEATION LINES, LETTERS, LEGENDS, AND SYMBOLS SHALL BE PREMARK OR HOT TAPE PREFORMED THERMOPLASTIC 125 MIL THICKNESS.
2. THE PLASTIC MATERIAL USED TO FORM ALL LONG LINE PAVEMENT MARKINGS SHALL BE PAVE-MARK OR NORLINE THERMOPLASTIC.
2. ALL MARKINGS SHALL MEET FEDERAL METRIC STANDARDS.

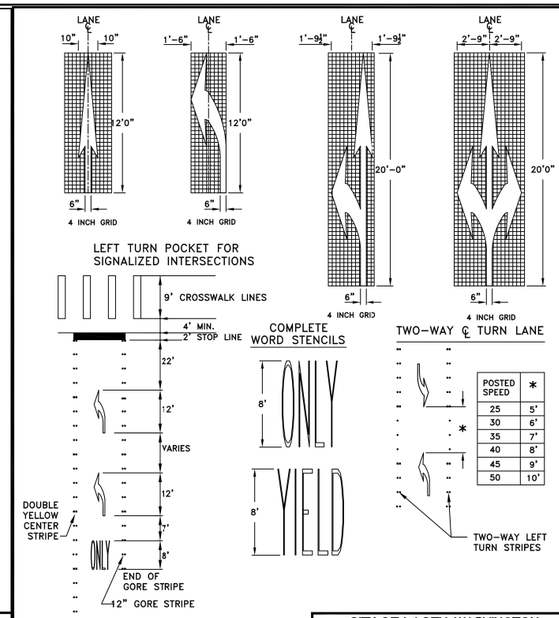
CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

PAVEMENT MARKINGS BICYCLE LANES

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-28.2

DES	DWN	CKD	DATE
WHO	WHO	RAS	12/15/2014

DG4-28.2.DWG



GENERAL NOTES:
1. THE MATERIALS USED FOR ALL STOP LINES, CROSSWALKS, ARROWS, PARKING DELINEATION LINES, LETTERS, LEGENDS, AND SYMBOLS SHALL BE PREMARK OR HOT TAPE PREFORMED THERMOPLASTIC 125 MIL THICKNESS.
2. THE PLASTIC MATERIAL USED TO FORM ALL LONG LINE PAVEMENT MARKINGS SHALL BE PAVE-MARK OR NORLINE THERMOPLASTIC, HYDROCARBONFORMULATION125 MIL THICKNESS MARKING MATERIAL.
3. ALL MARKINGS SHALL MEET FEDERAL METRIC STANDARDS.

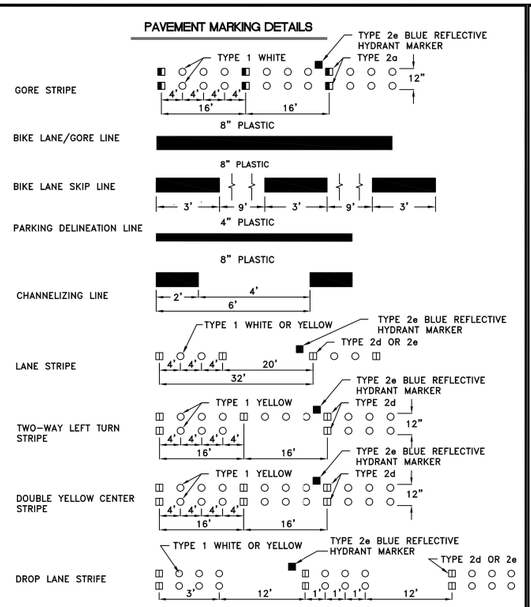
DG4-28.1.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

PAVEMENT MARKINGS

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-28.1

DES	DWN	CKD	DATE
MAH	MAH	PDM	12/15/2014



LANE MARKERS
- ○ TYPE 1 LANE MARKERS, WHITE OR YELLOW
- ■ TYPE 2a REFLECTIVE LANE MARKER, WHITE AND RED
- ◫ TYPE 2d REFLECTIVE LANE MARKER, YELLOW AND YELLOW
- ◫ TYPE 2e REFLECTIVE LANE MARKER, WHITE ONE SIDE ONLY
- ■ TYPE 2e TWO WAY BLUE REFLECTIVE HYDRANT MARKER INSTALLED 8" ON CENTER FROM THE CENTER OF THE ROADWAY.

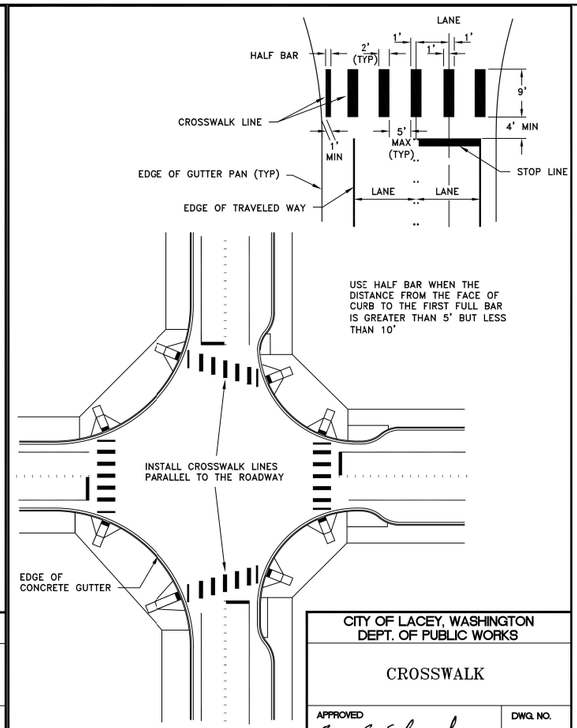
DG4-27.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

STRIPING DETAIL

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-27

DES	DWN	CKD	DATE
MAH	WHO	PDM	12/15/2014



CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

CROSSWALK

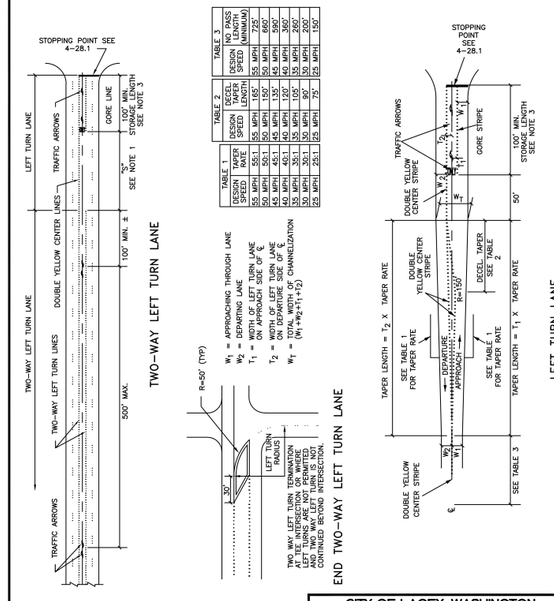
APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-26

DES	DWN	CKD	DATE
WHO	WHO	RAS	12/15/2014

DG4-26.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM



NOTES:
1. "S" = 80' FOR POSTED SPEED ≤ 30 M.P.H.
   "S" = 120' FOR POSTED SPEED 35-50 M.P.H.
   "S" = 170' FOR POSTED SPEED > 50 M.P.H.
2. SEE DETAIL 4-28.1 FOR STRIPING SPECIFICATIONS.
3. USE DESIGN LENGTH DETERMINED BY THE T.I.A.

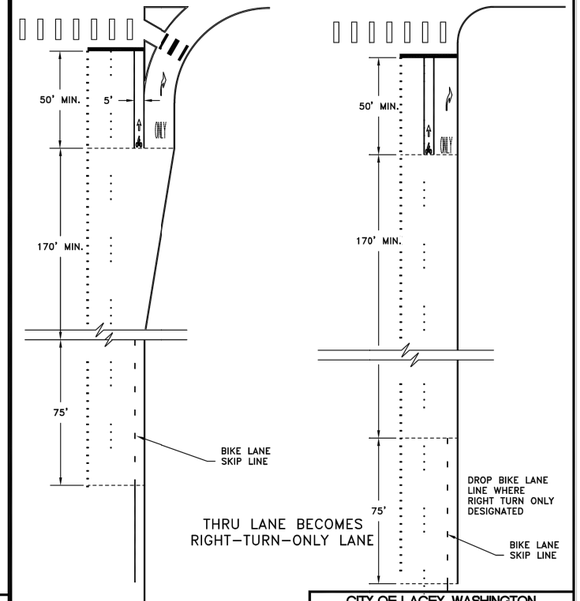
DG4-28.5.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

LEFT TURN LANE PAVEMENT MARKINGS

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-28.5

DES	DWN	CKD	DATE
MAH	WHO	PDM	12/15/2014



GENERAL NOTE:
1. SEE STRIPING DETAIL 4-27 AND 4-28.2 FOR BIKE LANE PAVEMENT MARKINGS.

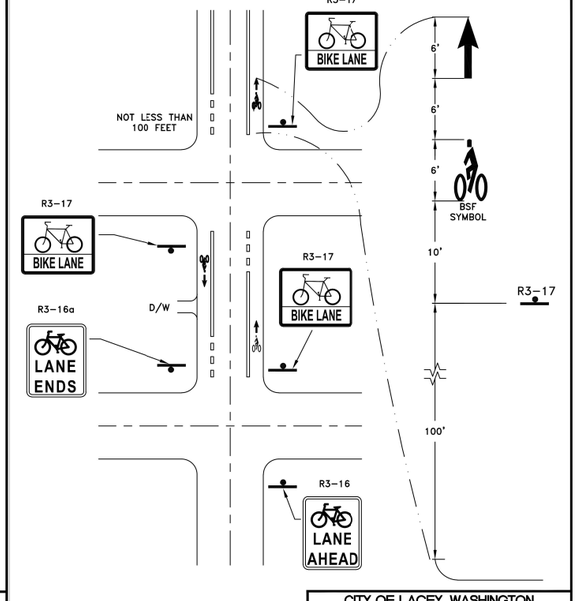
CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

BIKE LANES AT RIGHT TURNS

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-28.4

DES	DWN	CKD	DATE
MAH	MKB	PDM	08/24/2017

DG4-28.3.DWG



GENERAL NOTES:
1. BIKE LANE SIGNS R3-17 SHALL BE PLACED AT FAR SIDE OF THE INTERSECTION.
2. THE SPACING FOR THE R3-17 SIGNS SHALL BE 800 FEET MAXIMUM.

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

BIKE LANE SIGNING AT INTERSECTIONS

APPROVED / CITY ENGINEER	DWG. NO.
Ryan A Schaaf	4-28.3

DES	DWN	CKD	DATE
MAH	WHO	PDM	12/15/2014

SHEET TITLE: STEILACOOM RD DETAILS

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:
WHITNEY G. HOLM
STATE OF WASHINGTON
26811
REGISTERED
PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 FR-04
DRAWING NO:	FR-04
SHEET NO:	23 OF 35

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Drainage Control Plan
Attachment 2
Construction SWPPP Report

Construction Stormwater Pollution Prevention Plan (SWPPP)

Regional Athletic Complex Parking Lot Design
Lacey, Washington

December 2022

SCJ ALLIANCE
CONSULTING SERVICES

Construction SWPPP

Project Information

Project:	**Regional Athletic Complex Parking Lot Design**
Site Address:	8323 Steilacoom Rd SE **Olympia, WA 98513**
Owner/Applicant:	City of Lacey 420 College St SE Lacey, WA 98503 360.413.4340
Contact:	Ashley Smith

Reviewing Agency

Jurisdiction:	City of Lacey

Project Representative

Prepared by:	**SCJ Alliance** 8730 Tallon Lane NE, Suite 200 Lacey, WA 98516 360.352.1465
Contact:	Whitney Holm, PE Whitney.Holm@scjalliance.com
Project Reference:	SCJ #22-000313 Path: N:\Projects\0620 City of Lacey\22-000313 RAC Parking Lot Design\Design\Storm\Appendices\SWPPP\2022-xxxx SWPPP.docx

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1. NARRATIVE

1.1 STORMWATER BMPS

Total Disturbed Area: 5.58 acres

Property Use: Low-Density Residential (LD 3-6)

Parcel Number: 11814410200

Section, Township, Range: Section 14, Township 18N, Range 1W, W.M.

The following explains and illustrates the measures to be taken on the site to control erosion and sedimentation problems. The SWPPP is a guideline to follow during construction to prevent erosion and sedimentation. Erosion control measures are not limited to those shown in this SWPPP. Measures shall be installed as necessary to meet the Department of Ecology's (DOE) and the Thurston County's guidelines for stormwater pollution prevention and the requirements of the DOE National Pollutant Discharge Elimination System (NPDES) permit. Further, the SWPPP shall be updated by the contractor as required by the requirements of the DOE NPDES permit.

1.1.1 *Element #1 –Mark Clearing Limits*

To protect adjacent properties and reduce the area of soil exposed, the limits of the construction will be clearly marked before land-disturbing activities begin. Where possible natural vegetation shall be preserved. The following BMP will be implemented where appropriate:

- BMP C101: Preserving Natural Vegetation
- BMP C103: High Visibility Plastic or Metal Fence
- BMP C233: Silt Fence

1.1.2 *Element #2 – Establish Construction Access*

Access points should be established to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning shall be employed to prevent sediment from entering state waters. All wash wastewater shall be controlled on site.

Construction access will be granted from the existing fire station accress road on the west side of the parcel.

- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

1.1.3 *Element #3 – Control Flow Rates*

Properties and waterways downstream from development sites shall be protected from erosion due to increases in the volume, velocity, and peak flow rate of stormwater runoff from the project site. The following BMPs are applicable for this project. If the following BMPs are not shown on the construction plan set, the Engineer reserves the right to direct the Contractor to install, construct, and/or implement said BMPs:

- BMP C240: Sediment Trap

In general, discharge rates of stormwater from the site will be controlled where increases in impervious area or soil compaction during construction could lead to downstream erosion, or where necessary to meet local agency stormwater discharge requirements.

1.1.4 *Element #4 – Install Sediment Controls*

Prior to leaving a construction site, stormwater runoff must pass through a sediment pond or other appropriate sediment removal BMP. Silt fence barriers shall be installed in accordance with BMP C233. In addition, the following BMP's will be implemented where appropriate:

- BMP C233: Silt Fence

In addition, sediment will be removed from paved areas in and adjacent to work areas manually or using mechanical sweepers, as needed, to minimize tracking of sediments on vehicle tires away from the site and to minimize wash off of sediments from adjacent streets in runoff.

In some cases, sediment discharge in concentrated runoff can be controlled using permanent stormwater BMP's (e.g. infiltration swales, ponds, trenches). Sediment loads can limit the effectiveness of some permanent stormwater BMP's, such as those used for infiltration or biofiltration; however, those BMP's designed to remove solids by settling (wet ponds or detention ponds) can be used. When permanent stormwater BMP's will be used to control sediment discharge, the structure will be protected from excessive sedimentation with adequate erosion and sediment control BMP's. Any accumulated sediment shall be removed after construction is complete and the permanent stormwater BMP will be restabilized with vegetation per applicable design requirements once the remainder of the site has been stabilized. Concentrated runoff is not anticipated for this project.

1.1.5 *Element #5 – Stabilize Soils*

All exposed and unworked soils shall be stabilized by application of effective BMP's, which protect the soil from the erosive forces of raindrop impact and flowing water and from wind erosion. From October 01 through April 30 of each calender year, no soils shall remain exposed and unworked for more than two (2) days. From May 01 to September 30 of each calender year, no soils shall remain exposed and unworked for more than seven (7) days. This condition applies to all on-site soils, whether at final grade or not. Additionally, except where approved chemical treatment, full dispersion, or infiltration is practiced, clearing, grading, and other soil disturbing activities are prohibited between November 1 and February 28.

In areas where construction activities have temporarily or permanently ceased, seeding and mulching shall be used in accordance with BMP's C120 and C121. Dust control shall be used as needed to prevent wind transport of dust from disturbed soil surfaces and in accordance with BMP C140.

In general, cut slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

- BMP C120: Temporary and Permanent Seeding
- BMP C123: Plastic Covering
- BMP C140: Dust Control

1.1.6 *Element #6 – Protect Slopes*

Slopes shall be constructed in a manner that will minimize erosion. This shall include, but is not limited to: placing excavated material on the uphill side of trenches, collecting drainage at the top of slopes, etc. Slopes will be stabilized as indicated in Element #5 above. In addition, the following BMP's will be implemented where appropriate:

- BMP C130: Surface Roughening
- BMP C131: Gradient Terraces

1.1.7 *Element #7 – Protect Drain Inlets*

All storm drain inlets made operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. However, the first priority is to keep all access roads clean of sediment and keep street wash water separate from entering storm drains until treatment can be provided. Storm Drain Inlet Protection (BMP C220) will be implemented for all drainage inlets that could potentially be impacted by sediment-laden runoff on and near the project site. The following inlet protection measures will be applied on this project:

- BMP C220: Storm Drain Inlet Protection

1.1.8 *Element #8 – Stabilize Channels and Outlets*

All temporary on-site conveyance channels shall be constructed and stabilized to prevent erosion. Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent to streambanks, slopes and downstream reaches shall be provided at the outlets of all conveyance systems. The following BMP's will be implemented where appropriate:

- BMP C202: Channel Lining
- BMP C207: Check Dams
- BMP C209: Outlet Protection

1.1.9 *Element #9 – Control Pollutants*

All pollutants, including waste materials, that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater. Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations shall be followed for application rates and procedures. No pH-Modifying sources will be present on-site.

Three source control BMP's will apply to this project:

- A Spill Prevention Plan
- Maintenance of Storm Drainage Facilities
- Street Sweeping

In addition, the following BMP's shall be implemented where appropriate:

- BMP C151: Concrete Handling
- BMP C152: Sawcutting and Surfacing Pollution Prevention
- BMP C153: Material Delivery, Storage and Containment
- BMP C154: Concrete Washout Area

1.1.10 *Element #10 – Control Dewatering*

Clean, non-turbid de-watering water, as determined by the Certified Professional in Erosion and Sediment Control, can be discharged to systems tributary to state surface waters, provided the de-watering flow does not cause erosion or flooding of receiving waters. These clean waters should not be routed through stormwater sediment ponds.

Highly turbid or otherwise contaminated de-watering water, such as from equipment operation shall be handled separately from stormwater at the site. Some disposal options, depending on site

constraints, may include: 1) transport off-site in vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters, 2) on-site treatment using chemical treatment or other suitable treatment technologies, or 3) sanitary sewer discharge with local sewer district's approval if there is no other option.

1.1.11 *Element #11 – Maintain BMP's*

All temporary and permanent erosion and sediment control BMP's shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMP's will be conducted per the inspection schedule in Section 6.

All temporary erosion and sediment control BMP's shall be removed within 30 days after the final site stabilization is achieved or after the temporary BMP's are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMP's or vegetation shall be permanently stabilized.

- BMP C160: Certified Erosion and Sediment Control Lead

1.1.12 *Element #12 – Manage the Project*

Erosion and sediment control BMP's for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns.
- Emphasize erosion control rather than sediment control.
- Minimize the extent and duration of the area exposed.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.

In addition, project management will incorporate the key components listed below:

Phasing

Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities during each phase of construction, per the Scheduling BMP (C162).

Inspection and Monitoring

All BMP's shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to:

- Assess the site conditions and construction activities that could impact the quality of stormwater, and

- Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

A Certified Erosion and Sediment Control Lead shall be on-site or on-call at all times.

Whenever inspection and/or monitoring reveals that the BMP's identified in this SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMP's or design changes shall be implemented as soon as possible.

Maintaining an Updated SWPPP

This SWPPP shall be retained on-site or within reasonable access to the site.

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

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

1.1.13 *Element #13 – Protect Low Impact Development BMPs*

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repairs shall be completed in accordance with the practices, procedures, and materials for each respective BMP.

All Bioretention and Rain Garden BMPs shall be protected from sedimentation through installation and maintenance of erosion and sediment control BMPs. Prevent compaction Bioretention and Rain Garden BMPs by excluding construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.

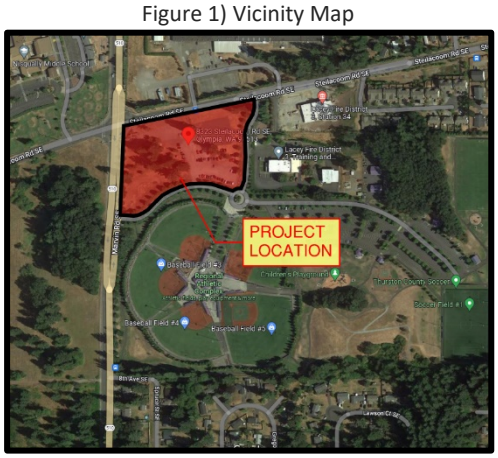
- BMP C102: Buffer Zone
- BMP C103: High Visibility fence
- BMP C200: Interceptor Dike and Swale
- BMP C201: Grass-Lined Channels
- BMP C207: Check Dams
- BMP C208: Triangular Silt Dike (TSD) (Geotextile-Encased Check Dam)

- BMP C231: Brush Barrier
- BMP C233: Silt Fence
- BMP C234: Vegetated Strip

1.2 PROJECT DESCRIPTION

The project is located at 8323 Steilacoom Road SE, Olympia, WA 98513. See Vicinity Map below.

Figure 1) Vicinity Map



The project site is +/- 5.58 acres in size and includes one 4.3 acre parcel and frontage. The site contains an existing gravel parking area, concrete sidewalk along the frontage on Marvin Rd SE, approximately 90' of concrete sidewalk along the frontage on Steilacoom Rd SE, and asphalt sidewalk along the frontages of the RAC entrances. The stormwater runoff from this project is divided into two subbasins. The first subbasin will collect water from the frontage improvements and convey the runoff into the city stormwater system via a catch basin on the southest corner of Marvin Rd and Steilacoom Rd SE. The second subbasin will collect stormwater runoff from on-site of the project area and will be conveyed to a bioretention pond on the southwest corner of the site for treatment, excess stormwater will be conveyed from the bioretention pond to a retention pond on-site to be entirely infiltrated on-site.

1.3 EXISTING SITE CONDITIONS

The site's topography is generally flat and level. The existing site topography is included on the survey in the construction documents. Further, an erosion control plan has also been prepared as part of the construction documents.

The existing vegetation consists of large Douglas fir trees, various fruit trees and a stormwater infiltration pond located in the southwest portion of the site.

There are no known ponding problems located on-site.

1.4 ADJACENT AREAS

The project site is bounded by Steilacoom Rd SE to the north, RAC Entrances to the east and south, and Marvin Rd SE to the west. Stormwater runoff from the project site will be treated and infiltrated on-site. Stormwater runoff from frontage improvements consist of the addition of less than 5,000 SF of stormwater runoff to the City of Lacey's stormwater drainage system, therefore there are no anticipated adverse effects to the downstream systems.

1.5 CRITICAL AREAS

Flood Zones: The project parcel is located with Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 53067C0192E. According to the FIRM Map the project parcel is located within Zone X. Zone X is determined to be an area of minimal flood hazard.

Wellhead Protection Areas: According to Figure 8B.1 of the SDM, the proposed project is located within the 5-year time of travel zone for a wellhead protection area.

1.6 SOIL

Landau Associates performed a geotechnical investigation in August of 2022. Subsurface explorations observed the Vashon recessional outwash (Qgo) and Latest Vashon recessional [outwash] sand and minor silt (Qgos). Fill was found between 0.25 to 1.0 ft below ground surface. On-site soils were found to be conducive to infiltration and bioretention facilities. Field infiltration rates measured to be 20-25 inches per hour and a design infiltration rate of 5.5 inches per hour was utilized when sizing infiltration facilities.

1.7 POTENTIAL EROSION

Potential on-site erosion control problems are not anticipated at this time. The Certified Professional in Erosion and Sediment Control will be on-site or on-call during construction activities to identify any erosion control problems. If there is a problem, the Certified Professional in Erosion and Sediment Control will promptly authorize the Contractor to initiate corrective measures.

1.8 CONSTRUCTION PHASING

The BMP implementation schedule will be driven by the construction schedule. The key milestones for each segment are as follows:

- **05/01/2023: Dry season starts**
- **06/05/2023:** Mobilize equipment on-site
- **06/05/2023:** Mobilize and store all erosion and sediment control (ESC) and soil stabilization products (store Materials On Hand BMP C150)
- **06/05/2023:** Install ESC measures include stormwater management facility if applicable

- **06/05/2023:** Begin implementing soil stabilization and sediment control BMPs throughout the site for the duration of the wet season. Implement Element #12 BMPs and manage site to minimize soil disturbance.
- **06/05/2023:** Site inspections and monitoring conducted weekly and for applicable rain events as detailed in Section 1.13 of this SWPPP
- **06/12/2023:** Begin clearing and grubbing
- **10/15/2023: Wet season starts**
- **05/01/2024: Dry season starts**
- **07/29/2024:** Construction ends, restoration of the project site completed

1.9 CONSTRUCTION SCHEDULE

Estimated Construction Start Date: June 2023

Estimated Construction End Date: July 2024

1.10 FINANCIAL/OWNERSHIP RESPONSIBILITIES

Lacey Regional Athletic Complex will be the owner of the site and will have full responsibility financially. If or when a new owner takes over the site the new owner will have full financial responsibilities of the site.

1.11 ENGINEERING CALCULATIONS

All the engineering calculations from WWHM are documented in the Drainage and Erosion Control Plan Appendix 1 prepared by SCJ Alliance December 2022.

1.12 POLLUTION PREVENTION TEAM

1.12.1 *Roles and Responsibilities*

The pollution prevention team consists of personnel responsible for implementation of the SWPPP, including the following:

- Certified Erosion and Sediment Control Lead – Primary contractor contact, responsible for site inspections (BMPs, visual monitoring, sampling, etc.); to be called upon in case of failure of any ESC measures.
- Resident Engineer – For projects with engineered structures only (sediment pond/traps, sand filters, etc.): site representative for the owner that is the project's supervising eingeer responsible for inspections and issuing instructions and drawings to the contractor's site supervisor or representative.

- Emergency Owner Contact – Individual that is the site owner or representative of the site owner to contacted in the case of an emergency.

- Monitoring Personnel – Personnel responsible for conducting water quality monitoring; for most sites this person is also the CESCL.

1.12.2 *Team Members*

Title	Name (s)	Phone Number
Project Engineer	Whitney Holm	360.352.1465
Emergency Owner Contact		
Emergency Ecology Contact	Souhwest Regional Office	360.407.6300
Non-Emergency Ecology Contact	Carol Serdar	360.407.6269
Monitoring Personnel		

1.13 SITE INSPECTIONS AND MONITORING

Monitoring includes visual inspection, monitoring for water quality parameters of concern and documentation of the inspection and monitoring findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements

- Site inspections; and,

- Stormwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book. This SWPPP may function as the site log book if desired, or the forms may be separated and included in a separate site log book. However, if separated, the site log book must be maintained on site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

1.13.1 *Site Inspection*

All BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. The inspector will be a CESCL per BMP C160. The name and contact information for the CESCL is provided in Seciton 1.12.2 of this SWPPP

Site inspection will occur in all areas disturbed by construction activities and at all potential stormwater discharge points. Stormwater will be examined for the presence of suspended sediment, turbidity, discoloration, and oily sheen.

The site inspector will evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of the stormwater discharges. All maintenance and repairs will be documented in the site log book or forms provided in this document. All new BMPs or design changes will be documented in the SWPPP as soon as possible.

1.13.2 *Site Inspection Frequency*

Site inspected will be conducted at least once a week and within 24 hours following any discharge from the site. For sites with temporary stabilization measures, the site inspection frequency will be reduced to once every month.

1.13.3 *Site Inspection Documentation*

The site inspector will record each site inspection using the site log inspection forms provided in Appendix C. The site inspection log forms may be separated from this SWPPP document, but will be maintained on site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

1.14 STORMWATER QUALITY MONITORING

1.14.1 *Turbidity*

Turbidity sampling and monitoring will be conducted during the entire construction phase of the project. Samples will be collected weekly at the discharge point nearest the current phase of the project work. If there is no flow at the discharge point, the attempt to sample will be recorded in the site log book and reported to Ecology in the monthly Discharge Monitoring Report (DMR) as “No Discharge”. Samples will be analyzed for turbidity using the Hach 2100Q Turbidimeter.

The key benchmark turbidity value is 25 nephelometric turbidity units (NTU) for the downstream receiving water body. If the 25 NTU benchmark is exceeded in any sample collected, the following steps will be conducted:

1. Ensure all BMPs specified in this SWPPP are installed and functioning as intended.

2. Assess whether additional BMPs should be implemented, and document modified BMPs in the SWPPP as necessary.

3. Sample discharge daily util the discharge is 25 NTU or lower.

If the turbidity exceeds 250 NTU at any time, the following steps will be conducted:

1. Notify ecology by phone within 24 hours of analysis (see Section 1.12.2 of this SWPPP for contact information).

2. Continue sampling daily until the discharge is 25 NTU or lower. Initiate additional treatment BMPs such as off-site treatment, infiltration, filtration and chemical treatment within 24 hours, and implement those additional treatment BMPs as soon as possible, but within a minimum of 7 days.

3. Describe inspection results and remedial actions taken in the site log book and in monthly discharge monitoring reports described in Section 1.15 of this SWPPP.

1.14.2 *pH*

Sampling and monitoring of pH occurs if significant concrete work (> 1,000 cubic yards throughout the life of the project) or use of engineered soils (e.g., cement-treated base) is anticipated. No significant concrete work or engineered soils is planned for this project; therefore , no pH testing will be conducted.

1.15 RECORDKEEPING

1.15.1 *Site Log Book*

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements;
- Site inspections; and,
- Stomrwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book.

1.15.2 *Records Retention*

Records of all monitoring information (site log book, inspection reports/checklists, etc.), this Stormwater Pollution Prevention Plan, and any other documentation of compliance with permit requirements will be retained during the life of the construction project and for a minimum of three years following the termination of permit coverage in accordance with permit condition S5.C.

1.15.3 *Access to Plans and Records*

The SWPPP, General Permit, Notice of Authorization letter, and Site Log Book will be retained on site or within reasonable access to the site and will be made immediately available upon request to Ecology or the local jurisdiction. A copy of this SWPPP will be provided to Ecology within 14 days of receipt of written request for the SWPPP from Ecology. Any other information requested by Ecology will be submitted within a reasonable time. A copy of the SWPPP or acces ot the SWPPP will be provided to the public when requested in writing in accordance with permit condition S5.G.

1.15.4 *Updating the SWPPP*

In accordance with conditions S3, S4.B, and S.B.3 of the General Permit, this SWPPP will be modified if the SWPPP is ineffective in eliminating of significantly minimizing pollutants in stormwater discharges from the site or there has been a change in design, construction, operation, or maintenance at eh site that has a significant effect on the discharge, or potential for discharge, of pollutants to the waters of the State. The SWPPP will be modified within seven days of determination based on inspection(s) that

additional or modified BMPs are necessary to correct problems identified, and an updated timeline for BMP implementation will be prepared.

1.16 REPORTING

1.16.1 *Notification of Noncompliance*

If any of the terms and conditions of this permit is not met, and it causes a threat to human health or the environment, the following steps will be taken in accordance with permit section S5.F:

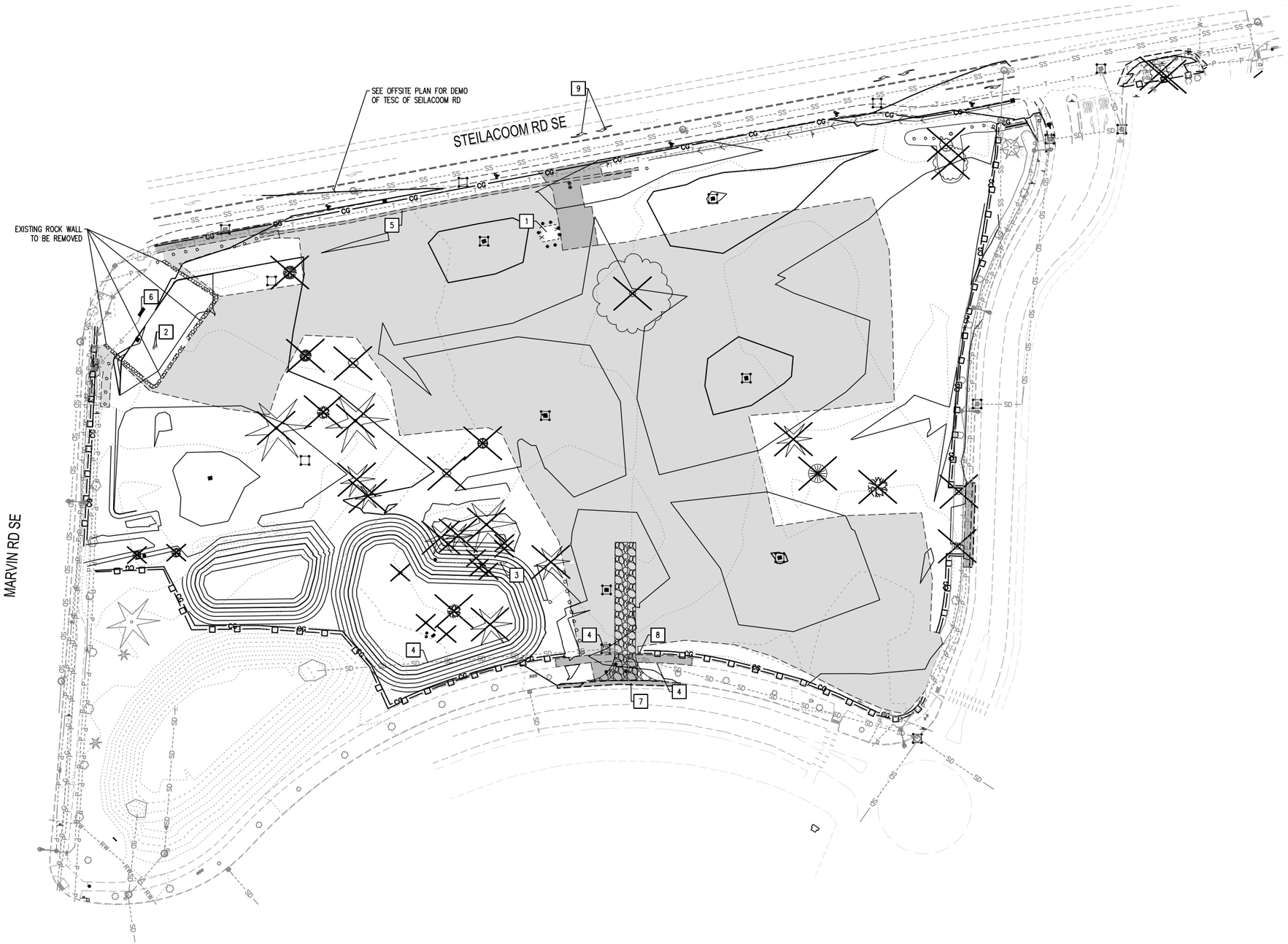
1. Ecology will be immediatedly notified of the failure to comply.

2. Immediate action will be taken to control the noncompliance issue and to correct the problem. If applicable, sampling and analysis of any noncompliance will be repeated immediately and submitted to Ecoloby within five days of becoming aware of the violation.

3. A detailed report describing the noncompliance will be submitted to Ecology within five days, unless requested earlier by Ecology.

APPENDIX A
EROSION CONTROL AND GRADING PLANS

SEC. 14, T 18N., R 1W., W.M.



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SCALE IN FEET

LEGEND

- INLET SEDIMENT PROTECTION: SEE EC-02
- SILT FENCE: SEE EC-02
- CLEARING AND GRUBBING LIMITS
- STABILIZED CONSTRUCTION ENTRANCE: SEE EC-02
- SAWCUT
- EXISTING TREE AND ROOT BALL TO BE REMOVED AND BACK FILLED
- EXISTING GRAVEL TO BE REMOVED
- EXISTING ASPHALT/CONCRETE TO BE REMOVED
- TREE PROTECTION FENCING SEE EC-02

[XX] DEMOLITION NOTES:

1. PSE GAS AND ELECTRICAL EQUIPMENT AND ASSOCIATED FENCE AND BOLLARDS SHALL BE REMOVED: CONTRACTOR SHALL COORDINATE WITH PSE
2. IRRIGATION VALVES TO BE REMOVED AND RELOCATED: SEE LANDSCAPE PLANS
3. SPRINKLER HEAD TO BE REMOVED AND RELOCATED: SEE LANDSCAPE PLANS
4. PROTECT-IN-PLACE EXISTING STORM LINE AND STRUCTURES
5. REMOVE EXISTING ECOLOGY BLOCKS AND RETURN TO CITY OF LACEY. CONTRACTOR SHALL COORDINATE WITH CITY OF LACEY ON DELIVERY LOCATION
6. PROTECT-IN-PLACE DIGITAL MESSAGE BOARD AND ASSOCIATED WIRING
7. SAWCUT
8. SIGN REMOVAL

CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 OR 1.800.424.5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.

Feb 27, 2023 - 9:10:58am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CADD\22-000313 EC-01.DWG

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

SHEET TITLE: DEMOLITION AND TESC PLAN

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL:

WHITNEY G. HOLM
STATE OF WASHINGTON
49811
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 EC-01
DRAWING NO:	EC-01
SHEET NO:	06 OF 35

CITY OF LACEY STANDARD EROSION CONTROL NOTES

- A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) IS REQUIRED FOR ALL CONSTRUCTION PROJECTS. THE NAMED PERSON OR FIRM SHALL BE ON-SITE OR ON-CALL AT ALL TIMES. FOR THIS SITE, THE PERSON/FIRM IS _____ AND THEIR TELEPHONE NUMBERS ARE: (OFFICE:) _____-_____-_____(CELL:)_____-_____-_____.

- APPROVAL OF THIS EROSION & SEDIMENT CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

- THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

- THE CLEARING LIMIT BOUNDARIES SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

- THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE SURFACE WATER, GROUND WATER, OR DISCHARGE STANDARDS.

- 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 TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

- THE ESC FACILITIES ON ACTIVE SITES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR--AND MAINTAINED, REPAIRED, OR AUGMENTED AS NECESSARY--TO ENSURE THEIR CONTINUED FUNCTIONING.

- THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED MONTHLY AND WITHIN 48 HOURS FOLLOWING A MAJOR STORM EVENT (≥1"RAINFALL IN 24 HOURS) BY THE APPLICANT/CONTRACTOR --AND MAINTAINED, REPAIRED, OR AUGMENTED AS NECESSARY --TO ENSURE THEIR CONTINUED FUNCTIONING. STORM DRAIN INLETS OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT. AT NO TIME SHALL MORE THAN 1 FOOT OR 1/3 OF THE SUMP VOLUME (WHICHEVER IS LESS) OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PROJECT COMPLETION AND ACCEPTANCE. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER OFFSITE WITHOUT TREATMENT.

- STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

- ROADS SHALL BE CLEANED THOROUGHLY AS NEEDED TO PROTECT DOWNSTREAM WATER RESOURCES OR STORMWATER INFRASTRUCTURE. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

- FROM OCTOBER 1 THROUGH APRIL 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. SOILS SHALL BE STABILIZED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. LINEAR CONSTRUCTION ACTIVITIES, SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL COMPLY WITH THESE REQUIREMENTS. THESE STABILIZATION REQUIREMENTS APPLY TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT. THE LOCAL PERMITTING AUTHORITY MAY ADJUST THESE TIME LIMITS IF IT CAN BE SHOWN THAT A DEVELOPMENT SITE'S EROSION OR RUNOFF POTENTIAL JUSTIFIES A DIFFERENT STANDARD.

- FROM OCTOBER 1 THROUGH APRIL 30, CLEARING, GRADING, AND OTHER SOIL-DISTURBING ACTIVITIES SHALL ONLY BE PERMITTED IF SHOWN TO THE SATISFACTION OF THE LOCAL PERMITTING AUTHORITY THAT THE TRANSPORT OF SEDIMENT FROM THE CONSTRUCTION SITE TO RECEIVING WATERS WILL BE PREVENTED.

- SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT-TRAPPING MEASURES.

- ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.

- MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. REPORT ALL SPILLS TO 911.

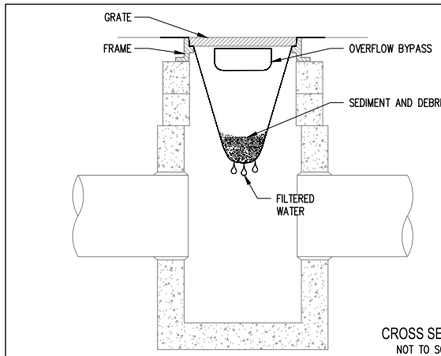
- WATER FROM MOST DEWATERING OPERATIONS SHALL BE DISCHARGED INTO A SEDIMENT TRAP OR POND. CLEAN, NON-TURBID WATER MAY BE DISCHARGED TO STATE SURFACE WATERS, PROVIDED THE DISCHARGE DOES NOT CAUSE EROSION OR FLOODING. HIGHLY TURBID OR CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM SHALL BE HANDLED SEPARATELY FROM STORMWATER AND PROPERLY DISPOSED.

CITY OF LACEY INLET PROTECTION NOTES

1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PRIMETER OF THE INLET, SO THAT THE OPEN ENDS FACE OUTWARD, NOT UPWARD. THE ENDS OF ADJACENT BLOCKS SHALL ABUT. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF BLOCKS THAT ARE 4 INCHES, AND 12 INCHES WIDE, THE ROW OF BLOCKS SHALL BE AT LEAST 12 INCHES BUT NO GREATER THAN 24 INCHES HIGH.
2. PLACE WIRE MESH OVER THE OUTSIDE VERTICAL FACE (OPEN END) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE BLOCKS. USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS.
3. PILE STONE AGAINST THE WIRE MESH TO THE TOP OF THE BLOCKS. USE 3/4-TO 3-INCH GRAVEL.
4. PLACE WIRE MESH OVER THE DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1 FT BEYOND EACH SIDE OF THE INLET STRUCTURE, USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, OVERLAP THE STRIPS. PLACE FILTER FABRIC OVER WIRE MESH.
5. PLACE 3/4-INCH GRAVEL OVER THE WIRE MESH. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. EXTEND THE STONE BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
6. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET AND CLEANED OR REPLACED.

CITY OF LACEY SILT FENCE NOTES

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTRNDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.



CROSS SECTION
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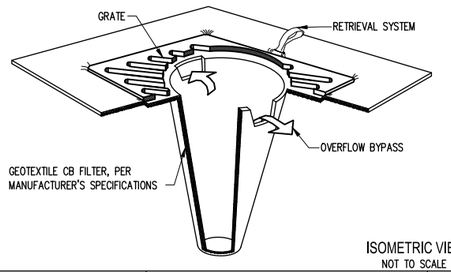

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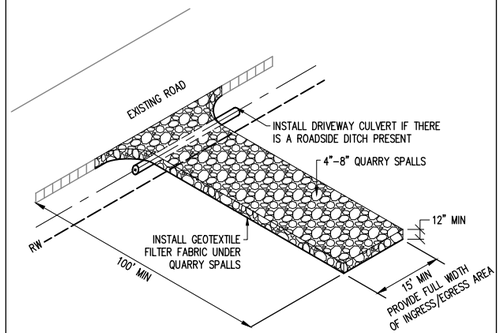
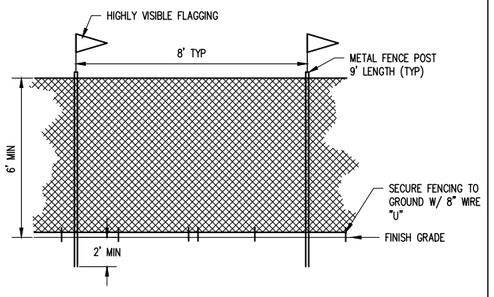
SCJ ALLIANCE | REFERENCE: STORMWATER DRAINAGE MANUAL FOR CITY OF OLYMPIA, WASHINGTON / 2009 | BMP C220
DATE: 05/2013 | INLET SEDIMENT PROTECTION

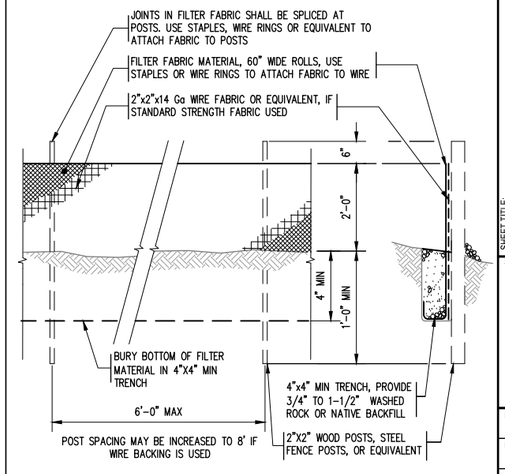


NOTES
1. INSTALL CONSTRUCTION ENTRANCE AT LOCATION WHERE ACCESS OFF OF A PAVED ROADWAY BEGINS.
2. DRIVEWAY SHALL MEET THE REQUIREMENTS OF THE PERMITTING AGENCY
3. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD

STABILIZED CONSTRUCTION ENTRANCE
NTS



SCJ ALLIANCE | REFERENCE: STORMWATER DRAINAGE MANUAL FOR CITY OF OLYMPIA, WASHINGTON / 2001 | BMP C105
DATE: 05/2013 | TREE PROTECTION FENCING



SCJ ALLIANCE | REFERENCE: STORMWATER DRAINAGE MANUAL FOR CITY OF OLYMPIA, WASHINGTON / 2009 | BMP C233
DATE: 05/2013 | SILT FENCE

BY	DATE	REVISIONS

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.2509
SCJALLIANCE.COM

SHEET TITLE: EROSION CONTROL NOTES & DETAILS

PROJECT NAME: RAC PARKING LOT EXPANSION
8345 STEILACOOM RD SE
LACEY, WA

SEAL: WHITNEY G HOLM, STATE OF WASHINGTON, 40811, REGISTERED PROFESSIONAL ENGINEER
12/09/2022

DESIGNER:	W. HOLM
DRAWN BY:	K. GANS
APPROVED BY:	W. HOLM
DATE:	DECEMBER 2022
JOB NO:	22-000313
DRAWING FILE NO:	22-000313 EC-02
DRAWING NO:	EC-02
SHEET NO:	07 OF 35

Feb 27, 2023 - 9:11:08am - User: jacob.mcintyre
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CAD\22-000313 EC-02.DWG

APPENDIX B
CONSTRUCTION BMPS

CITY OF LACEY STORMWATER POLLUTION SOURCE CONTROL CHECKLIST

Project Name:_____

Check all activities that will occur at a proposed site. Only activities common in the City of Lacey are included in this checklist. Other activities may apply to your site. Fill in the blank rows included under each activity grouping if needed based on the complete list of site-specific activities provided in Table 9A.1.

Source Control BMPs Applicable to All Sites		
BMP #	**BMP Name**	
S410	Correcting Illicit Discharges to Storm Drains	
S453	Formation of a Pollution Prevention Team	
S454	Preventive Maintenance/Good Housekeeping	
S455	Spill Prevention and Cleanup	
S456	Employee Training	
S457	Inspections	
S458	Record Keeping	
Source Control BMPs for Specific Activities		
BMP #	**BMP Name**	**Activity Conducted on the Site?**
Cleaning or Washing Source Control BMPs		
S431	Washing and Steam Cleaning Vehicles/Equipment/Building Structures	☐ Yes ☐ No
_____	_____	☐ Yes ☐ No
Roads, Ditches, and Parking Lot Source Control BMPs		
S415	Maintenance of Public and Private Utility Corridors and Facilities	☐ Yes ☐ No
S416	Maintenance of Roadside Ditches	☐ Yes ☐ No
S417	Maintenance of Stormwater Drainage and Treatment Systems	☐ Yes ☐ No
S421	Parking and Storage of Vehicles and Equipment	☐ Yes ☐ No
S430	Urban Streets	☐ Yes ☐ No
_____	_____	☐ Yes ☐ No
Soil Erosion, Sediment Control, and Landscaping Source Control BMPs		
S407	Dust Control at Disturbed Land Areas and Unpaved Roadways and Parking Lots	☐ Yes ☐ No
S408	Dust Control at Manufacturing Areas	☐ Yes ☐ No
S411	Landscaping and Lawn/Vegetation Management	☐ Yes ☐ No
S425	Soil Erosion and Sediment Control at Industrial Sites	☐ Yes ☐ No
S435	Pesticides and an Integrated Pest Management Program	☐ Yes ☐ No

BMP #	BMP Name	Activity Conducted on the Site?
Soil Erosion, Sediment Control, and Landscaping Source Control BMPs (continued)		
S444	Storage of Dry Pesticides and Fertilizers	□ Yes □ No
S449	Nurseries and Greenhouses	□ Yes □ No
S450	Irrigation	□ Yes □ No
_____	_____	□ Yes □ No
Storage and Stockpiling Source Control BMPs		
S427	Storage of Liquids, Food Waste, or Dangerous Waste Containers	□ Yes □ No
S428	Storage of Liquids in Permanent Aboveground Tanks	□ Yes □ No
S429	Storage or Transfer (Outside) of Solid Raw Materials, Byproducts or Finished Products	□ Yes □ No
_____	_____	□ Yes □ No
Transfer of Liquid or Solid Materials Source Control BMPs		
S409	Fueling at Dedicated Stations	□ Yes □ No
S412	Loading and Unloading Areas for Liquid or Solid Material	□ Yes □ No
S419	Mobile Fueling of Vehicles and Heavy Equipment	□ Yes □ No
S426	Spills of Oil and Hazardous Substances	□ Yes □ No
_____	_____	□ Yes □ No
Other Source Control BMPs		
S404	Commercial Printing Operations	□ Yes □ No
S414	Maintenance and Repair of Vehicles and Equipment	□ Yes □ No
S418	Manufacturing Activities – Outside	□ Yes □ No
S420	Painting/Finishing/Coating of Vehicles/Boats/Buildings/ Equipment	□ Yes □ No
S423	Recyclers and Scrap Yards	□ Yes □ No
S424	Roof/Building Drains at Manufacturing and Commercial Buildings	□ Yes □ No
S432	Wood Treatment Areas	□ Yes □ No
S433	Pools, Spas, Hot Tubs, and Fountains	□ Yes □ No
S438	Construction Demolition	□ Yes □ No
S443	Fertilizer Application	□ Yes □ No
S447	Roof Vents	□ Yes □ No
S451	Building, Repair, Remodeling, Painting, and Construction	□ Yes □ No
_____	_____	□ Yes □ No

Table 9A.1. All Site-Specific Source Control BMPs.	
BMP #	**BMP Name**
Cleaning or Washing Source Control BMPs	
S431	Washing and Steam Cleaning Vehicles/Equipment/Building Structures
S434	Dock Washing
S441	Potable Water Line Flushing, Water Tank Maintenance, and Hydrant Testing
Roads, Ditches, and Parking Lot Source Control BMPs	
S405	Deicing and Anti-Icing Operations for Airports
S406	Streets and Highways
S415	Maintenance of Public and Private Utility Corridors and Facilities
S416	Maintenance of Roadside Ditches
S417	Maintenance of Stormwater Drainage and Treatment Systems
S421	Parking and Storage of Vehicles and Equipment
S430	Urban Streets
Soil Erosion, Sediment Control, and Landscaping Source Control BMPs	
S407	Dust Control at Disturbed Land Areas and Unpaved Roadways and Parking Lots
S408	Dust Control at Manufacturing Areas
S411	Landscaping and Lawn/Vegetation Management
S425	Soil Erosion and Sediment Control at Industrial Sites
S435	Pesticides and an Integrated Pest Management Program
S444	Storage of Dry Pesticides and Fertilizers
S449	Nurseries and Greenhouses
S450	Irrigation
Storage and Stockpiling Source Control BMPs	
S427	Storage of Liquids, Food Waste, or Dangerous Waste Containers
S428	Storage of Liquids in Permanent Aboveground Tanks
S429	Storage or Transfer (Outside) of Solid Raw Materials, Byproducts or Finished Products
S445	Temporary Fruit Storage
Transfer of Liquid or Solid Materials Source Control BMPs	
S409	Fueling at Dedicated Stations
S412	Loading and Unloading Areas for Liquid or Solid Material
S419	Mobile Fueling of Vehicles and Heavy Equipment
S426	Spills of Oil and Hazardous Substances
S439	In-Water and Over-Water Fueling

Other Source Control BMPs	
S401	Building, Repair, and Maintenance of Boats and Ships
S402	Commercial Animal Handling Areas
S403	Commercial Composting
S404	Commercial Printing Operations
S413	Log Sorting and Handling
S414	Maintenance and Repair of Vehicles and Equipment
S418	Manufacturing Activities – Outside
S420	Painting/Finishing/Coating of Vehicles/Boats/Buildings/Equipment
S422	Railroad Yards
S423	Recyclers and Scrap Yards
S424	Roof/Building Drains at Manufacturing and Commercial Buildings
S432	Wood Treatment Areas
S433	Pools, Spas, Hot Tubs, and Fountains
S436	Color Events
S438	Construction Demolition
S440	Pet Waste
S442	Labeling Storm Drain Inlets On Your Property
S443	Fertilizer Application
S446	Well, Utility, Directional and Geotechnical Drilling
S447	Roof Vents
S451	Building, Repair, Remodeling, Painting, and Construction
S452	Goose Waste

APPENDIX C
SITE INSPECTION FORMS (AND SITE LOG)

Stormwater/Erosion Control Inspection Form

DATE:			TIME:		CONTACT:		
SITE:					ACRES:		
LOCATION:							
WEATHER:							
PERMIT ON SITE		PERMIT NO.					
SWPPP ON SITE		CONTRACTOR:					

Best Management Practices in the SWPPP:

Control BMPs	In Plan	Properly installed	Treatment BMPs	In Plan	Properly Installed	Other:
Preserv Nat Veg			Intercept Dike/Swale			
Buffer Zones			Grass Lines Swales			
High Vis Fence			Channel Lining			
Stake & Wire Fence			Water bars			
Stabilized Entrance			Pipe Slope Drains			
Wheel Wash			Subsurface Drains			
Road/Pk Area Stable			Level Spreader			
Temp/Perm Seeding			Check Dams			
Mulching			Triangular Silt Dike			
Nets/Blankets			Outlet Protection			
Plastic Covering			Sto Drain Inlet Protec			
Sodding			Straw Bale Barrier			
Topsoiling			Brush Barrier			
Polyacrylamides			Gravel Filter Berm			
Surface roughing			Silt Fence			
Gradient Terraces			Vegetated Strip			
Dust Control			Straw Wattles			
Materials On Hand			Sediment trap			
Concrete Handling			Temp Sed Pond			
Sawcut & Surface			SW Chem Treatment			
Erosion Control Lead			SW Filtration			
Pay Erosion Work			Is the site stabilized?		Partially	
Scheduling			Turbid Water is being discharged?			
Small Project			Receiving Water:			
Water Quality Samples Taken?			Results:	pH	TUR	CON	TEM	Other:
Sample ID:			LOC:					
Sample ID:			LOC:					
Sample ID:			LOC:					

This site is IN/OUT of compliance with the terms of the SWPPP & Permit.

Summary of remedial action(if needed):

I certify under penalty of law that this report is true, accurate and complete, to the best of my knowledge and belief.

Name: Title:

Signature:

Drainage Control Plan
Attachment 3
Soils Report

Draft Technical Memorandum

TO: Whitney Holm, PE (Project Manager), SCJ Alliance

FROM: Lance Levine, PE, and Steven R. Wright, PE

DATE: September 1, 2022

RE: **Summary of Geotechnical Engineering Services**
Regional Athletic Complex Parking Lot Design
Lacey, Washington
Project No. 1174068.010.011

Introduction

This memorandum summarizes the results from the geotechnical engineering services provided by Landau Associates, Inc. (Landau) in support of the Regional Athletic Complex (RAC) Parking Lot Design project, located at 8323 Steilacoom Road Southeast in Lacey, Washington (site; Figure 1). Services were provided in accordance with the scope outlined in the services agreement between Landau and SCJ Alliance (SCJ, project civil engineer) dated July 26, 2022.

This memorandum has been prepared with information provided by SCJ and with data collected during Landau's field exploration and laboratory testing programs.

Project Understanding

The City of Lacey (City) Parks, Culture & Recreation Department (project owner) proposes to expand and pave a gravel lot to accommodate 350 to 400 parking stalls covering approximately 2.9 acres. Other proposed site improvements include the addition of landscaping, irrigation, fire protection, curbs, striping, lighting, security cameras, and electrical utilities.

Site Conditions

The planned development area includes Thurston County parcel no. 11814410200 and the northwest portion of Thurston County parcel no. 11814410300. The site is primarily surfaced with gravel and asphalt along with smaller areas of grass and trees. Large Douglas fir trees, various fruit trees, and a stormwater infiltration pond are located in the southwest portion of the site. Most of the site is flat and level. The infiltration pond slopes are inclined at approximately 40 percent.

The site is bordered by Marvin Road Southeast to the west, Steilacoom Road Southeast to the north, and internal access drives for the park to the east and south. A southern entrance provides access to the site.

Geologic Setting

Geologic information for the site and the surrounding area was obtained from the *Geologic Map of the Lacey 7.5-minute Quadrangle, Thurston County, Washington* (Logan et al., 2003). Surficial deposits

at the site are mapped as Vashon recessional outwash (Qgo) and Latest Vashon recessional [outwash] sand and minor silt (Qgos). Both materials consist of sand and gravel with cobbles and silt deposited during deglaciation by streams and floods. The subsurface conditions observed in Landau's August 2022 explorations were generally consistent with the mapped geology for the site.

Subsurface Conditions

On August 17, 2022, Landau's excavating subcontractor advanced six test pits (TP-1 through TP-6) 9.3 to 10.5 feet (ft) below ground surface (bgs). The approximate locations of the explorations are shown on Figure 2.

Landau personnel coordinated and monitored the field explorations, collected representative soil samples, and maintained detailed logs of the subsurface soil and groundwater conditions observed. Subsurface conditions were described using the soil classification system shown on Figure 3, and in general accordance with ASTM International (ASTM) standard D2488, *Standard Practice for Description and Identification of Soils (Visual-Manual Procedures).* Summary exploration logs are presented on Figures 4 through 9.

At the completion of laboratory testing, the results will be issued with the final memorandum on Figures 10 through 12.

Soil Conditions

The soils observed in Landau's explorations were categorized into two general units:

- **Fill:** Fill was observed in all the test pits and typically consisted of asphalt and crushed gravel. The fill also consisted of sand with gravel with variable asphalt and plastic content. The fill was in a dense and damp to moist condition extending 0.25 to 1.0 ft bgs at the locations explored.
- **Recessional outwash:** Recessional outwash was observed beneath the fill in all the test pits. The recessional outwash typically consisted of light brown to dark brown or gray to dark gray sand and gravel with variable silt and cobble content in a medium dense to dense and damp tomoist condition. The recessional outwash extended to the maximum depth explored (10.5 ft bgs).

Groundwater Conditions

During Landau's August 2022 field investigation, groundwater was not observed to a maximum depth of 10.5 ft bgs. Site groundwater levels will vary depending on local subsurface conditions, weather conditions, and other factors. Site groundwater levels are expected to fluctuate seasonally, with maximum levels occurring during late winter and early spring.

Conclusions and Recommendations

Based on the subsurface conditions observed in Landau's explorations, site soils will provide adequate support for the proposed improvements, provided the following recommendations are incorporated into the project design.

Pavement

Pavement sections should be constructed on a firm, unyielding subgrade. Landau recommends constructing pavement on the existing fill material or on properly compacted structural fill that extends to the existing fill. Design recommendations for flexible pavement sections are provided in Table 1.

Asphalt pavement sections should be constructed on a compacted subgrade (i.e., on existing fill, recessional outwash, or structural fill), prepared as recommended herein. The light-duty pavement section should be used in areas that will not experience high traffic volume or heavy vehicle loads.

Table 1. Recommended Asphalt Pavement Design Sections

Pavement Section Type[(a)]	Assumed ESALs	Asphalt Pavement Thickness (inches)	Crushed Surfacing Thickness (inches)
Light duty	100,000	3	6
Heavy duty	500,000	3	10

(a) = Assumes pavement section will be founded on a subbase consisting of 12 inches of compacted native soils or fill extending to such soils.
ESALs = equivalent single-axle loads

Base course material should be compacted to at least 95 percent of the maximum dry density, determined in accordance with ASTM standard test method D1557, *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 [2,700 kN-m/m^3]).* Compacted base course should meet the requirements for Crushed Surfacing Base Course in Section 9-03.9(3) of the Washington State Department of Transportation's 2022 *Standard Specifications for Road, Bridge, and Municipal Construction* (*2022 WSDOT Standard Specifications*). To facilitate fine grading of the surface, the upper 2 inches of crushed surfacing could consist of crushed surfacing top course. Prevention of road-base saturation is essential for pavement durability; efforts should be made to limit the amount of water entering the base course.

Asphalt concrete should be Class B aggregate material or hot-mix asphalt class ½-inch and PG58H-22 binder, conforming to the requirements in Section 5-04 of the *2022 WSDOT Standard Specifications.* The asphalt should be compacted to at least 91 percent of the Rice density.

Stormwater Infiltration

Infiltration testing was completed using the U.S. Environmental Protection Agency falling head percolation test procedure as provided in Thurston County's 2016 *Drainage Design and Erosion Control Manual* (DDECM). With this procedure, water is infiltrated through a 6-inch-diameter pipe, installed approximately 6 inches below the existing pond's base. In accordance with the DDECM, correction factors to account for test method ($F_{testing}$ = 0.5), soil plugging ($F_{plugging}$ = 1.0), and pond geometry ($F_{geometry}$ = 0.49) were applied to the field infiltration rates to calculate the factored infiltration rates in Table 2.

Table 2. Factored Infiltration Rates

Exploration	Field Infiltration Rate (inches/hour)	Factored Infiltration Rate (inches/hour)
Infil-1	20	4.9
Infil-2	25	6.1

Stormwater facilities should be designed in accordance with local stormwater codes. Permanent stormwater pond slopes should be no steeper than 3 horizontal to 1 vertical (3H:1V). Permanent and temporary slopes should be protected from erosion and reseeded, or revegetated as soon as practical.

Construction Considerations

The following key points should be reviewed when developing project specifications:

- **Stripping:** Topsoil was not observed in the test pits; however, the few inches of grass covering the existing gravel and pavement must be removed. Although not observed in the test pits, the western portion of the site may have topsoil that should be stripped if encountered during construction of pavement sections. Stripped soils are not suitable for reuse as structural fill.
- **Subgrade preparation:** Landau recommends that pavements are constructed on existing fill, compacted native soils, or structural fill extending to such soils. Before structural fill or pavement base course is placed, the prepared subgrade should be proof-rolled in the presence of a qualified geotechnical engineer who is familiar with the site and can check for soft/disturbed areas. Areas of limited access can be evaluated with a steel T-probe. If probing or proof-rolling reveals loose and/or disturbed subgrades, the upper 1 ft of subgrade should be scarified, moisture-conditioned, and compacted to a firm, unyielding condition. Alternatively, unsuitable soils can be over-excavated and replaced with properly compacted import structural fill.
- **Utility trench excavation and backfill:** Landau anticipates that utility trenches will be excavated in medium dense to dense, sand and gravel with cobbles. A heavy-duty hydraulic excavator should be able to reach the required trench depths (up to 10 ft bgs). A smooth-

bladed bucket should be used to remove loose and/or disturbed soil from the trench bottom. The final trench bottom should be firm and free of roots, topsoil, lumps of silt and clay, construction debris, and organic and inorganic debris.

- **Site soil:** The site soils are generally suitable for use as structural fill. The contractor should be prepared to moisture condition site soils before compacting. Earthwork should be avoided during heavy and/or extended periods of precipitation.
- **Oversized material:** Cobbles were observed in the explorations and throughout the site at the surface. The contractor should be prepared to manage cobbles and boulders, as well as debris or rubble from previous site development and/or filling activities.
- **Import structural fill:** Gravel Borrow, as described in Section 9-03.14(1) of the *2022 WSDOT Standard Specifications,* is a suitable source of import structural fill. During periods of wet weather, the fines content should not exceed 5 percent, based on the minus ¾-inch fraction.
- **Fill placement and compaction:** Structural fill should be placed on an approved subgrade that consists of uniformly firm and unyielding native soils, existing fill, or on previously placed and compacted structural fill extending to such soils. Structural fill should be placed and compacted in accordance with the requirements in Section 2-03.3(14)C, Method C of the *2022 WSDOT Standard Specifications.* Method A is appropriate for non-structural areas such as landscaping. Each layer of structural fill should be compacted to at least 95 percent of the maximum dry density, determined in accordance with the compaction control tests in Section 2-03.3(14)D of the *2022 WSDOT Standard Specifications.* Alternatively, the maximum dry density can be determined using ASTM standard test method D1557.
- **Construction dewatering:** During Landau's August 2022 field investigation, groundwater was not observed to 10.5 ft bgs. Groundwater was not observed at the base of the existing pond during infiltration testing. Temporary excavations that encounter groundwater should be dewatered to allow construction to be completed in the dry. Where shallow groundwater seepage is encountered, the use of conventional sumps and pumps should be sufficient to dewater excavations. The contractor should be responsible for the design, monitoring, and maintenance of any dewatering systems.
- **Temporary slopes:** Temporary excavations should be completed in accordance with Section 2-09 of the *2022 WSDOT Standard Specifications.* The contractor should be responsible for actual excavation configurations and the maintenance of safe working conditions including temporary excavation stability. Temporary excavations in excess of 4 ft should be shored or sloped in accordance with the requirements outlined in Safety Standards for Construction Work, Part N (Washington Administrative Code Chapter 296-155). The soil likely to be exposed in the excavations should be considered Type C, with a maximum allowable excavation inclination of 1½H:1V. All applicable local, state, and federal safety codes should be followed.

  Permanent slopes: Permanent cut-and-fill slopes should be no steeper than 2H:1V. This design recommendation does not apply to stormwater pond slopes, which are typically 3H:1V or flatter. Stormwater pond slopes should be designed in accordance with local stormwater codes. Permanent and temporary slopes should be protected from erosion and reseeded or revegetated as soon as practical.

Use of This Technical Memorandum

Landau Associates, Inc. has prepared this technical memorandum for the exclusive use of SCJ Alliance for specific application to the RAC Parking Lot Design project in Lacey, Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau. Reuse of the information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau shall be at the user's sole risk. Landau warrants that, within the limitations of scope, schedule, and budget, its services have been provided in a manner consistent with that level of skill and care ordinarily exercised by members of the profession currently practicing in the same locality, under similar conditions as this project. Landau makes no other warranty, either express or implied.

Closing

We trust that this memorandum provides you with the information needed to proceed with the project. If you have questions or comments, or if we can be of further service, please contact Lance Levine at 360.791.3178 or at llevine@landauinc.com.

LANDAU ASSOCIATES, INC.

Lance Levine, PE
Senior Engineer

Steven R. Wright, PE
Principal

LGL/SZW/kee
[\\OLYMPIA1\PROJECTS\1174\068.010\R\RAC PARKING LOT DESIGN DRAFT TECHNICAL MEMORANDUM SRW LGL KEE.DOCX]

Attachments: Figure 1. Vicinity Map
Figure 2. Site Exploration and Location Plan
Figure 3. Soil Classification System and Key
Figures 4–9. Logs of Test Pits TP-1 through TP-6
Figures 10–12. Grain Size Distribution—To be provided after completion of lab testing

References

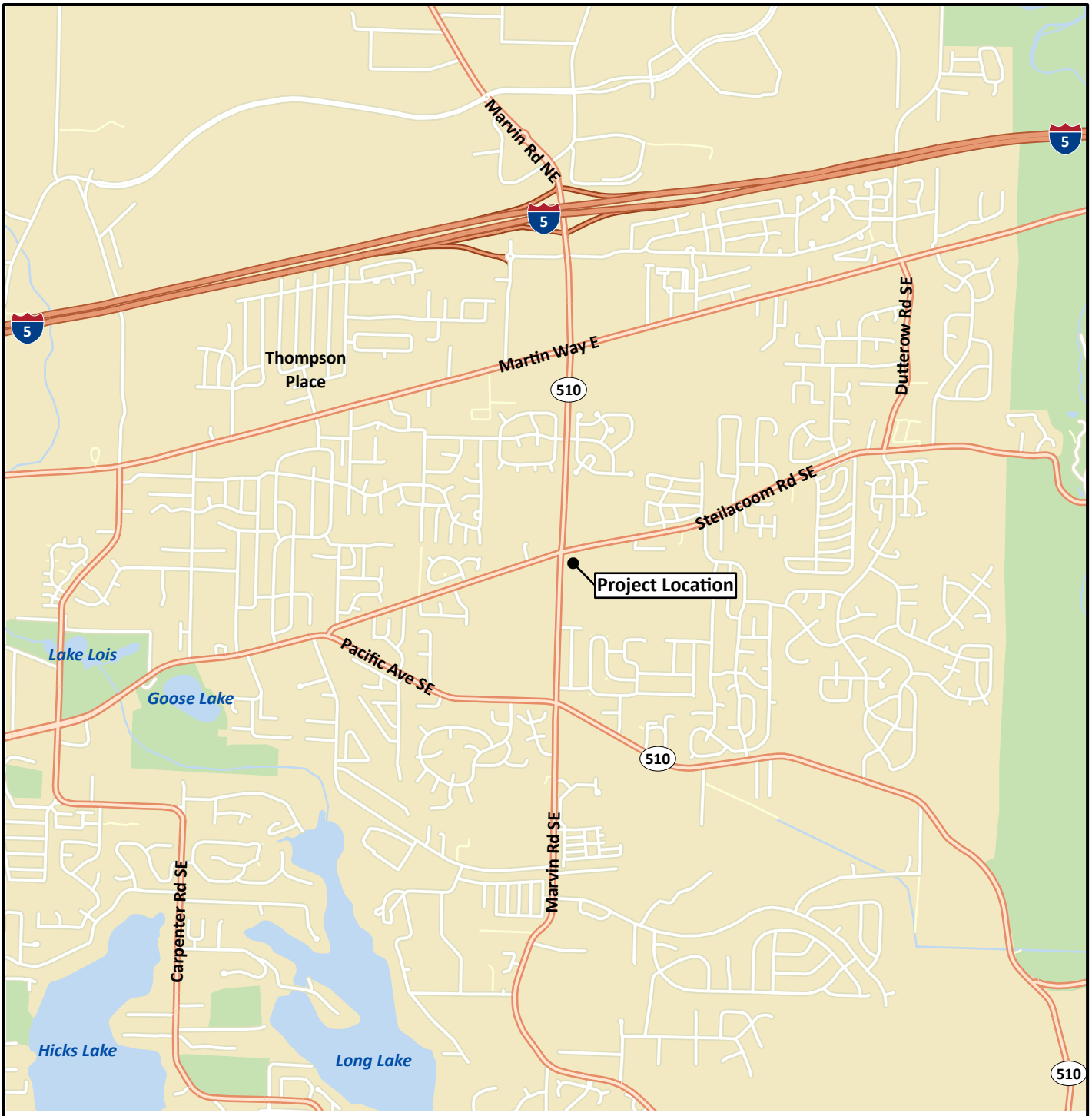
ASTM. 2017. Annual Book of ASTM Standards. In: *Soil and Rock (I).* West Conshohocken, PA: ASTM International.

LNI. 2020. Construction Work. Chapter 296-155 WAC; Part N. Excavation, Trenching, and Shoring. Washington State Department of Labor and Industries. June 2.

Logan, R.L., T.J. Walsh, H.W. Schasse, and M. Polenz. 2003. *Geologic Map of the Lacey 7.5-minute Quadrangle, Thurston County, Washington*. Washington State Department of Natural Resources. Washington Division of Geology and Earth Resources.

Thurston County. 2016. *Thurston County Drainage Design and Erosion Control Manual.* July.

WSDOT. 2021. *M41-10: Standard Specifications for Road, Bridge, and Municipal Construction.* 2022 Edition. Washington State Department of Transportation. August 22.



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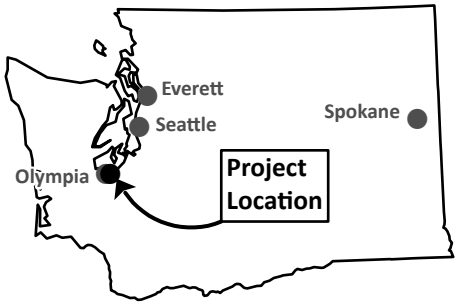

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RAC Parking Lot Design Lacey, Washington	**Vicinity Map**	Figure 1

Legend

TP-1 Approximate Test Pit Location and Designation

Infil-1 Approximate Infiltration Location and Designation

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: Google Maps 2022

0 120 240

Scale in Feet

LANDAU ASSOCIATES

RAC Parking Lot Design
Lacey, Washington

Site Exploration and Location Plan

Figure 2

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS [2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15% - "with gravel," "with sand," "with silt," etc.
	≤ 5% - "with trace gravel," "with trace sand," "with trace silt," etc., or not noted.

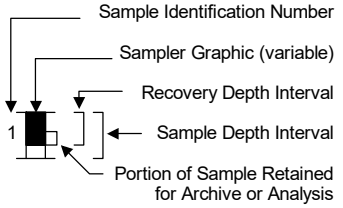
4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

SAMPLER TYPE & METHOD

Graphic	Code	Description
☒	a	3.25-in OD, 2.42-in ID Split Spoon
⧓	b	2.00-in OD, 1.50-in ID Split Spoon
◧	c	Shelby Tube
◪	d	Grab Sample
◧	e	Single-Tube Core Barrel
◧	f	Double-Tube Core Barrel
☒	g	2.50-in OD, 2.00-in ID WSDOT
☒	h	3.00-in OD, 2.37-in ID Mod. Calif.
☒	i	Other - See text if applicable
	1	300-lb Hammer, 30-inch Drop
	2	140-lb Hammer, 30-inch Drop
	3	Pushed Sample
	4	Vibrocore (Rotosonic/Geoprobe)
	5	Other - See text if applicable
	6	Piston Extraction

SAMPLE NUMBER & INTERVAL



Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

Groundwater

▽ Approximate water level at time of drilling (ATD)

▼ Approximate water level at time after drilling/excavation/well

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RAC Parking Lot Design
Lacey, Washington

Soil Classification System and Key

Figure 3

TP-1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol		
0						GP	6 inches of crushed GRAVEL (dense, damp) **(FILL)**	Groundwater not encountered.
						GP	Brown, sandy, fine to coarse GRAVEL with trace asphalt and plastic (dense, damp)	
						GP	Brown, sandy, fine to coarse GRAVEL with cobbles (dense, moist) **(RECESSIONAL OUTWASH)**	
2		S-1	d					
4						SP	Brown, gravelly, fine to coarse SAND (medium dense, moist)	
		S-2	d					
6							Grades to gravelly and dense	
8		S-3	d					
10								
12								

Excavation Method: Tracked Excavator
Ground Elevation (ft): Not Measured
Excavated By: Howards Const and Excvtg
Logged By: LGL

Test Pit Completed 08/17/22
Total Depth of Test Pit = 9.8 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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RAC Parking Lot Design
Lacey, Washington

Log of Test Pit TP-1

Figure 4

TP-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol		
0						AC	3 inches of ASPHALT (very dense, damp)	Groundwater not encountered.
						GP	**(FILL)**	
							6 inches of crushed GRAVEL (dense, damp)	
						SP	Dark brown, very gravelly, fine to coarse SAND with cobbles (dense, damp)	
							(RECESSIONAL OUTWASH)	
2		S-1	d				Grades to brown and moist	
4							Grades to without gravel and medium dense	
		S-2	d					
6							Grades to with gravel	
8								
		S-3	d					
10								
12								

Excavation Method: Tracked Excavator
Ground Elevation (ft): Not Measured
Excavated By: Howards Const and Excvtg
Logged By: LGL

Test Pit Completed 08/17/22
Total Depth of Test Pit = 10.2 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES

RAC Parking Lot Design
Lacey, Washington

Log of Test Pit TP-2

Figure 5

TP-3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol		

Excavation Method: Tracked Excavator
Ground Elevation (ft): Not Measured
Excavated By: Howards Const and Excvtg
Logged By: LGL

0
- GP / AC / SP — 1 inch of crushed GRAVEL (dense, damp) **(FILL)**; 3 inches of ASPHALT (very dense, damp)
- S-1 d
- SP — Grayish-brown, fine to coarse SAND with gravel (dense, moist)
- Plastic at 1.1 ft bgs
- Dark brown, very gravelly, fine to coarse SAND with cobbles (dense, moist) **(RECESSIONAL OUTWASH)**

2
- S-2 d
- Severe caving from 2 to 9.3 ft bgs
- GP — 3-inch-diameter steel pipe at 2.4 ft bgs
- Brown, sandy, fine to coarse GRAVEL with cobbles (dense, moist)

4
- S-3 d
- 2-inch-diameter steel pipe at 4.2 ft bgs

6

8

10

12

Groundwater not encountered.

Test Pit Completed 08/17/22
Total Depth of Test Pit = 9.3 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Test Pit TP-3

Figure 6

TP-4

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Tracked Excavator Ground Elevation (ft): Not Measured Excavated By: Howards Const and Excvtg Logged By: LGL	
0						GP AC SP	1 inch of crushed GRAVEL (dense, damp) **(FILL)** 2 inches of ASPHALT (very dense, damp)	Groundwater not encountered.
		S-1	d				Dark brown, very gravelly, fine to coarse SAND (dense, moist) **(RECESSIONAL OUTWASH)**	
2		S-2	d			GP	Brown, sandy, fine to coarse GRAVEL with cobbles (dense, moist)	
4								
6						SM	Light brown, silty, fine SAND (medium dense, moist)	
8		S-3	d					
		S-4	d			GP	Dark gray, very sandy, fine to coarse GRAVEL with cobbles (dense, moist)	
10								
12								

Test Pit Completed 08/17/22
Total Depth of Test Pit = 9.8 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Test Pit TP-4

Figure 7

TP-5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Tracked Excavator Ground Elevation (ft): Not Measured Excavated By: Howards Const and Excvtg Logged By: LGL	
0						GP	5 inches of crushed GRAVEL (dense, damp) **(FILL)**	Groundwater not encountered.
						SP-SM	Brown, very gravelly, fine to coarse SAND with silt (medium dense, damp) **(RECESSIONAL OUTWASH)**	
2		S-1	d					
		S-2	d			GP	Light brown, sandy, fine to coarse GRAVEL with cobbles (dense, moist)	
4								
6						SP	Dark gray, gravelly, medium to coarse SAND (medium dense, moist)	
		S-3	d				Grades to very gravelly	
8								
10								
12								

Test Pit Completed 08/17/22
Total Depth of Test Pit = 10.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Test Pit TP-5

Figure 8

TP-6

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Elevation (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Tracked Excavator Ground Elevation (ft): Not Measured Excavated By: Howards Const and Excvtg Logged By: LGL	
0						GP	5 inches of crushed GRAVEL (dense, damp) **(FILL)**	Groundwater not encountered.
						SP-SM	Dark brown, gravelly, fine to coarse SAND with silt (medium dense, moist) **(RECESSIONAL OUTWASH)**	
2		S-1	d			GP	Brown, sandy, fine to coarse GRAVEL (dense, moist)	
		S-2	d				Grades to light brown	
4								
6							Grades to very sandy and dark gray	
		S-3	d					
8								
10								
12								

Test Pit Completed 08/17/22
Total Depth of Test Pit = 10.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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RAC Parking Lot Design
Lacey, Washington

Log of Test Pit TP-6

Figure 9

Drainage Control Plan
Attachment 4
Maintenance and Source Control Manual
(Not Included, Attached Separately)

Drainage Control Plan
Attachment 5
Establishment of Maintenance Covenant

Appendix 1

Design Calculations

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	22-000313 RAC
Site Name:	
Site Address:	
City:	
Report Date:	1/23/2023
Gage:	Fairgrounds (Kaiser)
Data Start:	1955/10/01
Data End:	2011/09/30
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 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Forest, Flat	5.04
Pervious Total	5.04

Impervious Land Use	acre
Impervious Total	0
Basin Total	5.04

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Lawn, Flat	1.55
Pervious Total	1.55

Impervious Land Use	acre
ROADS FLAT	3.49
Impervious Total	3.49
Basin Total	5.04

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 1	Gravel Trench Bed 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Gravel Trench Bed 1 ← Bioretention facility (treatment)

Bottom Length:	50.00 ft.
Bottom Width:	20.00 ft.
Trench bottom slope 1:	3 To 1
Trench Left side slope 0:	3 To 1
Trench right side slope 2:	3 To 1
Material thickness of first layer:	1.5
Pour Space of material for first layer:	0.4
Material thickness of second layer:	0
Pour Space of material for second layer:	0
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	3 ← 12 in/hr with a factor of safety of 4 per SDM design standards
Infiltration safety factor:	1
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	646.432
Total Volume Through Riser (ac-ft.):	62.973
Total Volume Through Facility (ac-ft.):	709.405
Percent Infiltrated:	91.12 ← 91% infiltrated per treatment design standards in chapter 8 of the SDM
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3.5 ft.
Riser Diameter:	10 in.
Element Flows To:	
Outlet 1	Outlet 2
Trapezoidal Pond 1	

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.023	0.000	0.000	0.000
0.0500	0.023	0.000	0.000	0.070
0.1000	0.023	0.000	0.000	0.072
0.1500	0.024	0.001	0.000	0.073
0.2000	0.024	0.001	0.000	0.075
0.2500	0.025	0.002	0.000	0.076
0.3000	0.025	0.002	0.000	0.078
0.3500	0.026	0.003	0.000	0.080
0.4000	0.026	0.004	0.000	0.081
0.4500	0.027	0.004	0.000	0.083
0.5000	0.028	0.005	0.000	0.084
0.5500	0.028	0.005	0.000	0.086
0.6000	0.029	0.006	0.000	0.087
0.6500	0.029	0.006	0.000	0.089
0.7000	0.030	0.007	0.000	0.091
0.7500	0.030	0.008	0.000	0.092
0.8000	0.031	0.008	0.000	0.094
0.8500	0.031	0.009	0.000	0.096
0.9000	0.032	0.009	0.000	0.097
0.9500	0.032	0.010	0.000	0.099
1.0000	0.033	0.011	0.000	0.101
1.0500	0.034	0.011	0.000	0.102
1.1000	0.034	0.012	0.000	0.104

1.1500	0.035	0.013	0.000	0.106
1.2000	0.035	0.014	0.000	0.108
1.2500	0.036	0.014	0.000	0.109
1.3000	0.036	0.015	0.000	0.111
1.3500	0.037	0.016	0.000	0.113
1.4000	0.038	0.016	0.000	0.115
1.4500	0.038	0.017	0.000	0.117
1.5000	0.039	0.019	0.000	0.118
1.5500	0.039	0.021	0.000	0.120
1.6000	0.040	0.023	0.000	0.122
1.6500	0.041	0.025	0.000	0.124
1.7000	0.041	0.027	0.000	0.126
1.7500	0.042	0.029	0.000	0.128
1.8000	0.043	0.032	0.000	0.130
1.8500	0.043	0.034	0.000	0.132
1.9000	0.044	0.036	0.000	0.133
1.9500	0.044	0.038	0.000	0.135
2.0000	0.045	0.040	0.000	0.137
2.0500	0.046	0.043	0.000	0.139
2.1000	0.046	0.045	0.000	0.141
2.1500	0.047	0.047	0.000	0.143
2.2000	0.048	0.050	0.000	0.145
2.2500	0.048	0.052	0.000	0.147
2.3000	0.049	0.055	0.000	0.149
2.3500	0.050	0.057	0.000	0.151
2.4000	0.050	0.060	0.000	0.153
2.4500	0.051	0.062	0.000	0.155
2.5000	0.052	0.065	0.000	0.158
2.5500	0.052	0.067	0.000	0.160
2.6000	0.053	0.070	0.000	0.162
2.6500	0.054	0.073	0.000	0.164
2.7000	0.055	0.076	0.000	0.166
2.7500	0.055	0.078	0.000	0.168
2.8000	0.056	0.081	0.000	0.170
2.8500	0.057	0.084	0.000	0.172
2.9000	0.057	0.087	0.000	0.175
2.9500	0.058	0.090	0.000	0.177
3.0000	0.059	0.093	0.000	0.179
3.0500	0.060	0.096	0.000	0.181
3.1000	0.060	0.099	0.000	0.183
3.1500	0.061	0.102	0.000	0.186
3.2000	0.062	0.105	0.000	0.188
3.2500	0.063	0.108	0.000	0.190
3.3000	0.063	0.111	0.000	0.192
3.3500	0.064	0.114	0.000	0.195
3.4000	0.065	0.118	0.000	0.197
3.4500	0.066	0.121	0.000	0.199
3.5000	0.066	0.124	0.000	0.202
3.5500	0.067	0.128	0.098	0.204
3.6000	0.068	0.131	0.276	0.206
3.6500	0.069	0.134	0.497	0.209
3.7000	0.069	0.138	0.733	0.211
3.7500	0.070	0.141	0.957	0.214
3.8000	0.071	0.145	1.145	0.216
3.8500	0.072	0.149	1.282	0.218
3.9000	0.073	0.152	1.372	0.221
3.9500	0.073	0.156	1.467	0.223
4.0000	0.074	0.160	1.546	0.226

4.0500	0.075	0.163	1.622	0.228
4.1000	0.076	0.167	1.694	0.231
4.1500	0.077	0.171	1.763	0.233
4.2000	0.078	0.175	1.830	0.236
4.2500	0.078	0.179	1.894	0.238
4.3000	0.079	0.183	1.956	0.241
4.3500	0.080	0.187	2.016	0.243
4.4000	0.081	0.191	2.075	0.246
4.4500	0.082	0.195	2.131	0.248
4.5000	0.083	0.199	2.187	0.251

Trapezoidal Pond 1 ← Retention facility

Bottom Length:	80.00 ft.	
Bottom Width:	79.30 ft.	
Depth:	4 ft.	
Volume at riser head:	0.5480 acre-feet.	
Infiltration On		
Infiltration rate:	5.5	
Infiltration safety factor:	1	
Wetted surface area On		
Total Volume Infiltrated (ac-ft.):		62.972
Total Volume Through Riser (ac-ft.):		0
Total Volume Through Facility (ac-ft.):		62.972
Percent Infiltrated:		100
Total Precip Applied to Facility:		0
Total Evap From Facility:		0
Side slope 1:	3 To 1	
Side slope 2:	3 To 1	
Side slope 3:	3 To 1	
Side slope 4:	3 To 1	
Discharge Structure		
Riser Height:	3 ft.	
Riser Diameter:	12 in.	

Retention facility infiltrates 100% of the remaining storm water runoff

Element Flows To:
Outlet 1 Outlet 2

Pond Hydraulic Table

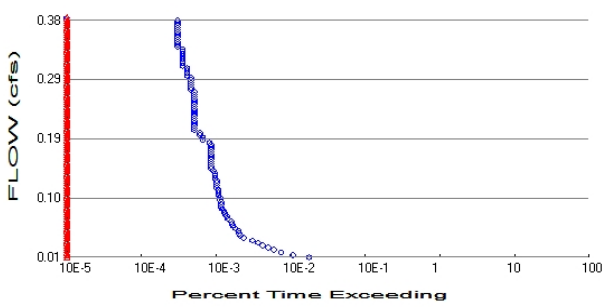
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.145	0.000	0.000	0.000
0.0444	0.146	0.006	0.000	0.813
0.0889	0.147	0.013	0.000	0.818
0.1333	0.148	0.019	0.000	0.824
0.1778	0.149	0.026	0.000	0.829
0.2222	0.150	0.032	0.000	0.835
0.2667	0.151	0.039	0.000	0.840
0.3111	0.152	0.046	0.000	0.846
0.3556	0.153	0.053	0.000	0.851
0.4000	0.154	0.060	0.000	0.857
0.4444	0.155	0.066	0.000	0.862
0.4889	0.156	0.073	0.000	0.868
0.5333	0.157	0.080	0.000	0.873
0.5778	0.158	0.087	0.000	0.879
0.6222	0.159	0.094	0.000	0.885
0.6667	0.160	0.102	0.000	0.890
0.7111	0.161	0.109	0.000	0.896
0.7556	0.162	0.116	0.000	0.902
0.8000	0.163	0.123	0.000	0.908
0.8444	0.164	0.131	0.000	0.913
0.8889	0.165	0.138	0.000	0.919
0.9333	0.166	0.145	0.000	0.925
0.9778	0.167	0.153	0.000	0.931
1.0222	0.168	0.160	0.000	0.936
1.0667	0.170	0.168	0.000	0.942
1.1111	0.171	0.175	0.000	0.948
1.1556	0.172	0.183	0.000	0.954
1.2000	0.173	0.191	0.000	0.960

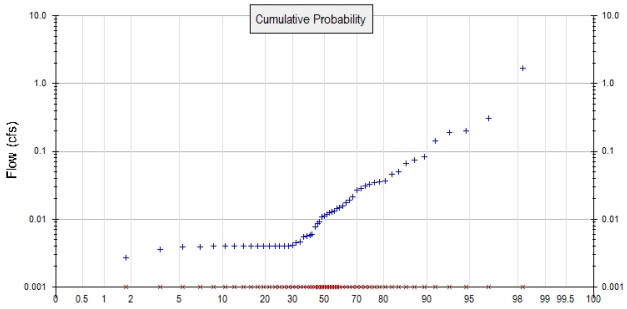
1.2444	0.174	0.198	0.000	0.966
1.2889	0.175	0.206	0.000	0.972
1.3333	0.176	0.214	0.000	0.978
1.3778	0.177	0.222	0.000	0.984
1.4222	0.178	0.230	0.000	0.990
1.4667	0.179	0.238	0.000	0.996
1.5111	0.180	0.246	0.000	1.002
1.5556	0.181	0.254	0.000	1.008
1.6000	0.182	0.262	0.000	1.014
1.6444	0.184	0.270	0.000	1.020
1.6889	0.185	0.278	0.000	1.026
1.7333	0.186	0.286	0.000	1.032
1.7778	0.187	0.295	0.000	1.038
1.8222	0.188	0.303	0.000	1.044
1.8667	0.189	0.311	0.000	1.050
1.9111	0.190	0.320	0.000	1.057
1.9556	0.191	0.328	0.000	1.063
2.0000	0.192	0.337	0.000	1.069
2.0444	0.194	0.346	0.000	1.075
2.0889	0.195	0.354	0.000	1.081
2.1333	0.196	0.363	0.000	1.088
2.1778	0.197	0.372	0.000	1.094
2.2222	0.198	0.380	0.000	1.100
2.2667	0.199	0.389	0.000	1.107
2.3111	0.200	0.398	0.000	1.113
2.3556	0.201	0.407	0.000	1.119
2.4000	0.203	0.416	0.000	1.126
2.4444	0.204	0.425	0.000	1.132
2.4889	0.205	0.434	0.000	1.138
2.5333	0.206	0.443	0.000	1.145
2.5778	0.207	0.453	0.000	1.151
2.6222	0.208	0.462	0.000	1.158
2.6667	0.210	0.471	0.000	1.164
2.7111	0.211	0.481	0.000	1.171
2.7556	0.212	0.490	0.000	1.177
2.8000	0.213	0.499	0.000	1.184
2.8444	0.214	0.509	0.000	1.190
2.8889	0.215	0.518	0.000	1.197
2.9333	0.217	0.528	0.000	1.204
2.9778	0.218	0.538	0.000	1.210
3.0222	0.219	0.548	0.035	1.217
3.0667	0.220	0.557	0.182	1.224
3.1111	0.221	0.567	0.389	1.230
3.1556	0.223	0.577	0.637	1.237
3.2000	0.224	0.587	0.907	1.244
3.2444	0.225	0.597	1.183	1.250
3.2889	0.226	0.607	1.447	1.257
3.3333	0.228	0.617	1.683	1.264
3.3778	0.229	0.627	1.879	1.271
3.4222	0.230	0.637	2.029	1.277
3.4667	0.231	0.648	2.138	1.284
3.5111	0.232	0.658	2.251	1.291
3.5556	0.234	0.668	2.347	1.298
3.6000	0.235	0.679	2.439	1.305
3.6444	0.236	0.689	2.528	1.312
3.6889	0.237	0.700	2.614	1.318
3.7333	0.239	0.711	2.697	1.325
3.7778	0.240	0.721	2.777	1.332

3.8222	0.241	0.732	2.856	1.339
3.8667	0.242	0.743	2.932	1.346
3.9111	0.244	0.753	3.006	1.353
3.9556	0.245	0.764	3.078	1.360
4.0000	0.246	0.775	3.149	1.367
4.0444	0.247	0.786	3.218	1.374

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 5.04
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1.55
Total Impervious Area: 3.49

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.01156
5 year	0.040618
10 year	0.086265
25 year	0.207785
50 year	0.382628
100 year	0.682267

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1956	0.035	0.000
1957	0.009	0.000
1958	0.006	0.000
1959	0.013	0.000
1960	0.012	0.000
1961	0.016	0.000
1962	0.004	0.000
1963	0.199	0.000
1964	0.050	0.000
1965	0.018	0.000

1966	0.004	0.000
1967	0.015	0.000
1968	0.005	0.000
1969	0.006	0.000
1970	0.011	0.000
1971	0.075	0.000
1972	0.066	0.000
1973	0.004	0.000
1974	0.028	0.000
1975	0.006	0.000
1976	0.033	0.000
1977	0.004	0.000
1978	0.027	0.000
1979	0.004	0.000
1980	0.004	0.000
1981	0.084	0.000
1982	0.144	0.000
1983	0.008	0.000
1984	0.011	0.000
1985	0.004	0.000
1986	0.014	0.000
1987	0.031	0.000
1988	0.004	0.000
1989	0.004	0.000
1990	0.005	0.000
1991	0.310	0.000
1992	1.667	0.000
1993	0.189	0.000
1994	0.004	0.000
1995	0.013	0.000
1996	0.036	0.000
1997	0.021	0.000
1998	0.004	0.000
1999	0.004	0.000
2000	0.003	0.000
2001	0.003	0.000
2002	0.004	0.000
2003	0.037	0.000
2004	0.046	0.000
2005	0.004	0.000
2006	0.004	0.000
2007	0.004	0.000
2008	0.004	0.000
2009	0.009	0.000
2010	0.013	0.000
2011	0.019	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	1.6665	0.0000
2	0.3100	0.0000
3	0.1990	0.0000
4	0.1893	0.0000
5	0.1441	0.0000
6	0.0838	0.0000
7	0.0747	0.0000
8	0.0657	0.0000

9	0.0503	0.0000
10	0.0464	0.0000
11	0.0369	0.0000
12	0.0360	0.0000
13	0.0349	0.0000
14	0.0329	0.0000
15	0.0305	0.0000
16	0.0285	0.0000
17	0.0271	0.0000
18	0.0211	0.0000
19	0.0191	0.0000
20	0.0177	0.0000
21	0.0157	0.0000
22	0.0148	0.0000
23	0.0144	0.0000
24	0.0133	0.0000
25	0.0129	0.0000
26	0.0125	0.0000
27	0.0117	0.0000
28	0.0112	0.0000
29	0.0108	0.0000
30	0.0091	0.0000
31	0.0087	0.0000
32	0.0077	0.0000
33	0.0060	0.0000
34	0.0058	0.0000
35	0.0057	0.0000
36	0.0054	0.0000
37	0.0046	0.0000
38	0.0044	0.0000
39	0.0041	0.0000
40	0.0041	0.0000
41	0.0040	0.0000
42	0.0040	0.0000
43	0.0040	0.0000
44	0.0040	0.0000
45	0.0040	0.0000
46	0.0040	0.0000
47	0.0040	0.0000
48	0.0040	0.0000
49	0.0040	0.0000
50	0.0040	0.0000
51	0.0040	0.0000
52	0.0039	0.0000
53	0.0039	0.0000
54	0.0036	0.0000
55	0.0027	0.0000
56	0.0027	0.0000

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0058	347	0	0	Pass
0.0096	210	0	0	Pass
0.0134	146	0	0	Pass
0.0172	115	0	0	Pass
0.0210	97	0	0	Pass
0.0248	83	0	0	Pass
0.0286	72	0	0	Pass
0.0324	60	0	0	Pass
0.0362	46	0	0	Pass
0.0400	41	0	0	Pass
0.0438	40	0	0	Pass
0.0477	39	0	0	Pass
0.0515	36	0	0	Pass
0.0553	33	0	0	Pass
0.0591	32	0	0	Pass
0.0629	31	0	0	Pass
0.0667	28	0	0	Pass
0.0705	27	0	0	Pass
0.0743	26	0	0	Pass
0.0781	25	0	0	Pass
0.0819	24	0	0	Pass
0.0857	23	0	0	Pass
0.0895	23	0	0	Pass
0.0933	23	0	0	Pass
0.0971	22	0	0	Pass
0.1009	22	0	0	Pass
0.1048	21	0	0	Pass
0.1086	21	0	0	Pass
0.1124	21	0	0	Pass
0.1162	20	0	0	Pass
0.1200	20	0	0	Pass
0.1238	20	0	0	Pass
0.1276	20	0	0	Pass
0.1314	19	0	0	Pass
0.1352	19	0	0	Pass
0.1390	19	0	0	Pass
0.1428	18	0	0	Pass
0.1466	17	0	0	Pass
0.1504	17	0	0	Pass
0.1542	17	0	0	Pass
0.1580	17	0	0	Pass
0.1618	17	0	0	Pass
0.1657	17	0	0	Pass
0.1695	17	0	0	Pass
0.1733	17	0	0	Pass
0.1771	17	0	0	Pass
0.1809	17	0	0	Pass
0.1847	17	0	0	Pass
0.1885	16	0	0	Pass
0.1923	13	0	0	Pass
0.1961	13	0	0	Pass
0.1999	12	0	0	Pass
0.2037	12	0	0	Pass

0.2075	10	0	0	Pass
0.2113	10	0	0	Pass
0.2151	10	0	0	Pass
0.2189	10	0	0	Pass
0.2228	10	0	0	Pass
0.2266	10	0	0	Pass
0.2304	10	0	0	Pass
0.2342	10	0	0	Pass
0.2380	10	0	0	Pass
0.2418	10	0	0	Pass
0.2456	10	0	0	Pass
0.2494	10	0	0	Pass
0.2532	10	0	0	Pass
0.2570	10	0	0	Pass
0.2608	10	0	0	Pass
0.2646	10	0	0	Pass
0.2684	10	0	0	Pass
0.2722	9	0	0	Pass
0.2760	9	0	0	Pass
0.2799	9	0	0	Pass
0.2837	9	0	0	Pass
0.2875	9	0	0	Pass
0.2913	9	0	0	Pass
0.2951	8	0	0	Pass
0.2989	8	0	0	Pass
0.3027	8	0	0	Pass
0.3065	8	0	0	Pass
0.3103	7	0	0	Pass
0.3141	7	0	0	Pass
0.3179	7	0	0	Pass
0.3217	7	0	0	Pass
0.3255	7	0	0	Pass
0.3293	7	0	0	Pass
0.3331	7	0	0	Pass
0.3369	7	0	0	Pass
0.3408	6	0	0	Pass
0.3446	6	0	0	Pass
0.3484	6	0	0	Pass
0.3522	6	0	0	Pass
0.3560	6	0	0	Pass
0.3598	6	0	0	Pass
0.3636	6	0	0	Pass
0.3674	6	0	0	Pass
0.3712	6	0	0	Pass
0.3750	6	0	0	Pass
0.3788	6	0	0	Pass
0.3826	6	0	0	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 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
Trapezoidal Pond 1 POC	☐	57.30			☐	100.00			
Gravel Trench Bed 1	☐	645.56			☐	91.12			
Total Volume Infiltrated		702.86	0.00	0.00		91.85	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

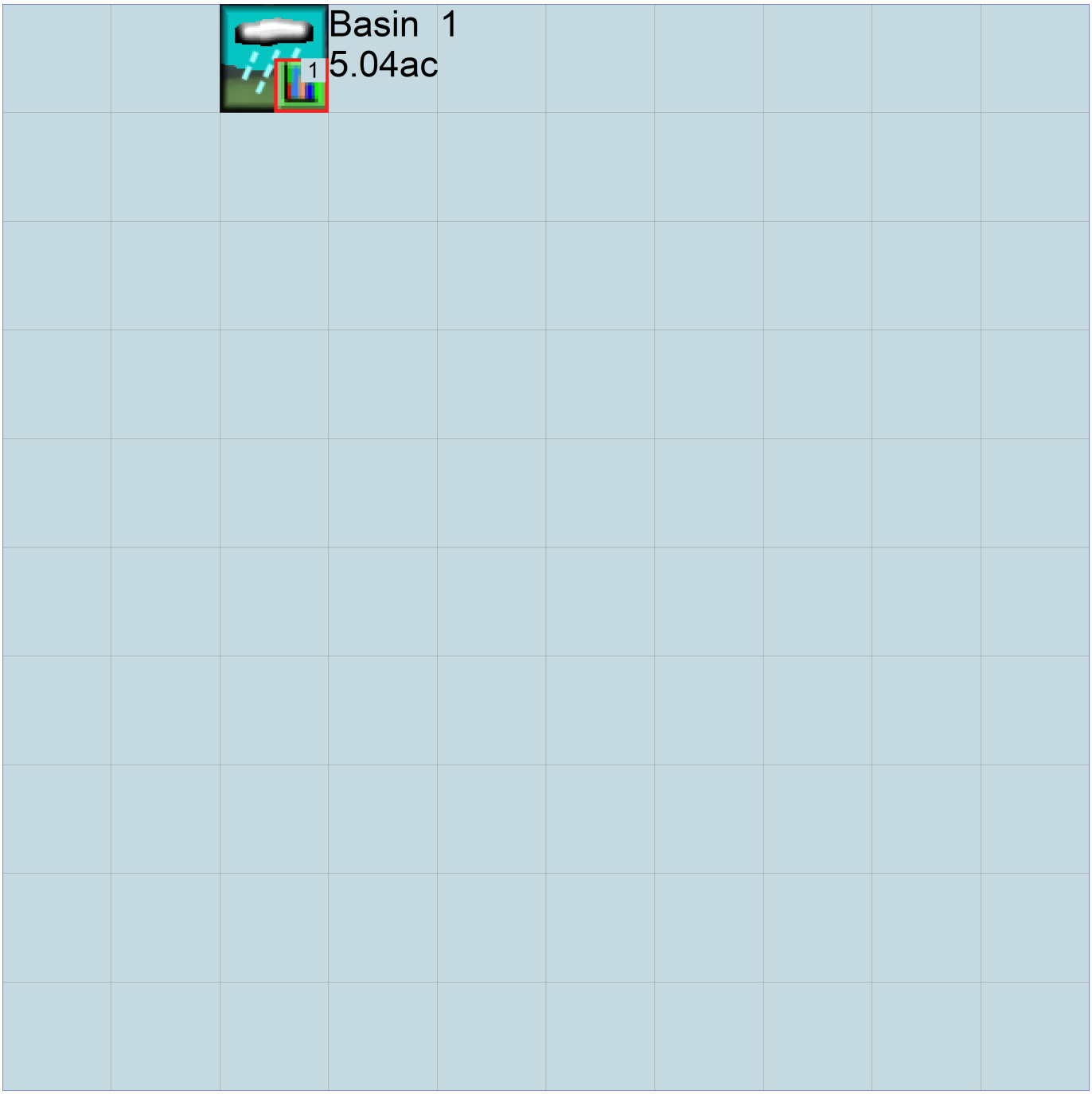
PERLND Changes

No PERLND changes have been made.

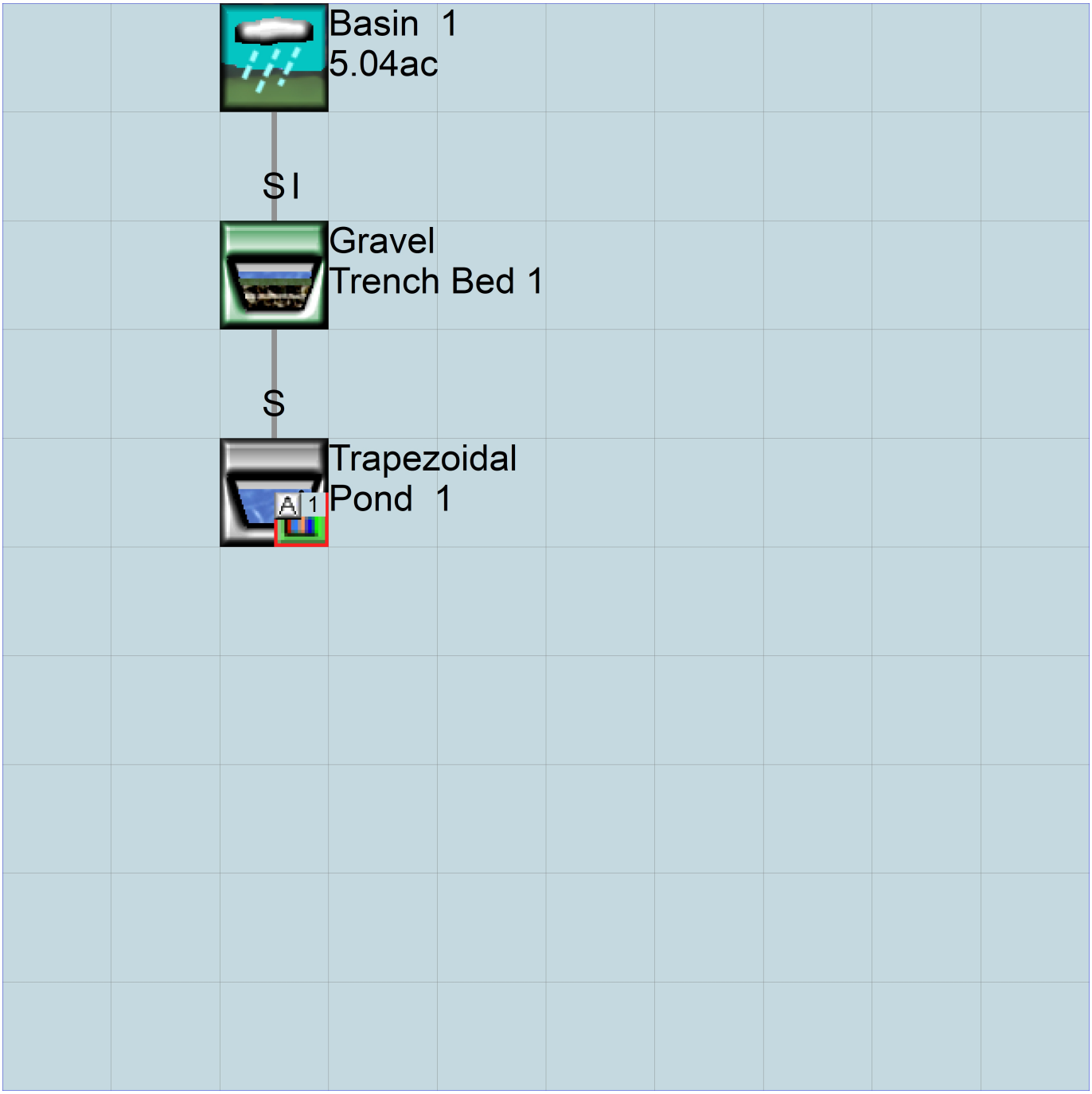
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



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Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

RAC Parking Lot Design: Conveyance Calculations

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.010
Channel Slope	0.005 ft/ft
Diameter	12.0 in
Discharge	2.27 cfs

Results	
Normal Depth	7.4 in
Flow Area	0.5 ft²
Wetted Perimeter	1.8 ft
Hydraulic Radius	3.4 in
Top Width	0.97 ft
Critical Depth	7.7 in
Percent Full	61.3 %
Critical Slope	0.004 ft/ft
Velocity	4.50 ft/s
Velocity Head	0.31 ft
Specific Energy	0.93 ft
Froude Number	1.103
Maximum Discharge	3.52 cfs
Discharge Full	3.27 cfs
Slope Full	0.002 ft/ft
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	61.3 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.4 in
Critical Depth	7.7 in
Channel Slope	0.005 ft/ft
Critical Slope	0.004 ft/ft

Appendix 2

Soil Management Plan

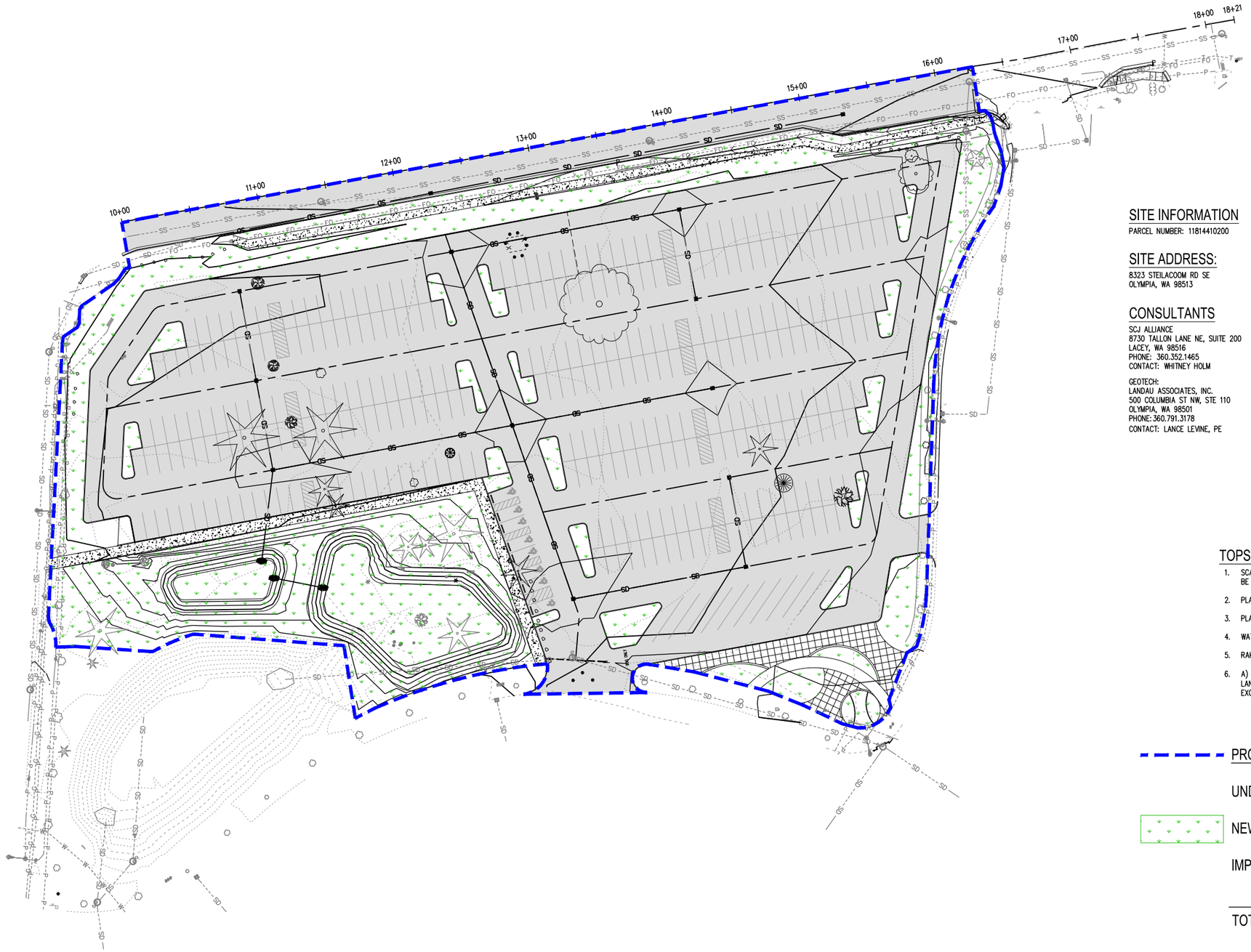
SOIL MANAGEMENT PLAN

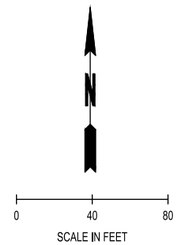
REGIONAL ATHLETIC COMPLEX PARKING LOT DESIGN
DECEMBER, 2022

APPLICANT / OWNER:
CITY OF LACEY
420 COLLEGE ST SE
LACEY, WA 98503
360.413.4340

CONTACT:
ASHLEY SMITH

PROJECT ENGINEER:
WHITNEY HOLM, P.E.
SCJ ALLIANCE
8730 TALLON LANE NE, SUITE 200
LACEY, WA 98516
360.352.1465





SITE INFORMATION

PARCEL NUMBER: 11814410200

SITE ADDRESS:

8323 STEILACOOM RD SE
OLYMPIA, WA 98513

CONSULTANTS

SCJ ALLIANCE
8730 TALLON LANE NE, SUITE 200
LACEY, WA 98516
PHONE: 360.352.1465
CONTACT: WHITNEY HOLM

GEOTECH:
LANDAU ASSOCIATES, INC.
500 COLUMBIA ST NW, STE 110
OLYMPIA, WA 98501
PHONE:360.791.3178
CONTACT: LANCE LEVINE, PE

OWNER / APPLICANT

OWNER: CITY OF LACEY

ADDRESS: 420 COLLEGE ST SE
LACEY, WA 98503

PHONE: 360.413.4340

CONTACT: ASHLEY SMITH

UTILITIES

WATER/SEWER: CITY OF LACEY
UTILITY SERVICES
PO BOX 3400
420 COLLEGE STREET SE
LACEY, WA 98509
PH: 360.491.5616

PHONE: QWEST COMMUNICATIONS
711 CAPITOL WAY S, STE 307
OLYMPIA, WA 98501
PH: 360.754.5912
CONTACT: WAYDE HOLQUIST

POWER/GAS: PUGET SOUND ENERGY
10885 NE 4TH STREET
BELLEVUE, WA 98009
PH: 425.452.1234

LEGAL DESCRIPTION:

SECTION 13 / 14 TOWNSHIP 18 RANGE 1W QUARTER NW SW / NE SE
BLA13101203 TR A DOCUMENT 4335765

SECTION 13 / 14 TOWNSHIP 18 RANGE 1W QUARTER NW SW / NE SE
BLA13101203LA TR B DOCUMENT 4335765

BASIS OF BEARINGS:

MERIDIAN IS WASHINGTON COORDINATE SYSTEM OF 1983/91 – SOUTH ZONE DERIVED FROM TIES TO HPGN STATIONS SANDERSON, MCKENNA AND CBL1110 AND TO WSDOT GPS STATIONS G259R, GP34005-2, GP34005-4, GP34101-32, GP34101-39, HC34-2, LUHR RM2, TS34-33, TS34-59 AND TO THURSTON COUNTY GPS STATIONS U-531, AT-194, AT-352, AT-355, AT-447, AT449 AND AT-478.
DISTANCES SHOWN ARE GROUND SCALE U.S. SURVEY FEET. COMBINED SCALE FACTOR (GROUND TO GRID) IS 0.999935701. SURVEY AF# 3111152 DATED 09-24-1997.

DATUM:

THE CITY OF LACEY BENCHMARKS ARE BASED ON NGVD 29 DATUM FROM PRIMARY CONTROL ESTABLISHED BY FEDERAL AND STATE AGENCIES TO FIRST OR SECOND ORDER ACCURACY. THE CITY OF LACEY'S BENCHMARKS ARE GENERALLY TO THIRD ORDER ACCURACY.

TOPSOIL NOTES FOR NEW PLANTING BEDS AND TURF AREAS:

1. SCARIFY OR TILL SUBGRADE IN TWO DIRECTIONS TO A DEPTH OF 6-INCHES. THE ENTIRE SURFACE SHOULD BE DISTURBED BY SCARIFICATION. DO NOT SCARIFY WITHIN DRIP LINE OF EXISTING TREES TO BE RETAINED.
2. PLACE 3 INCHES OF TOPSOIL MIX ON SURFACE AND TILL INTO 2 INCHES OF SOIL.
3. PLACE A SECOND LIFE OF 3 INCHES OF TOPSOIL MIX ON SURFACE.
4. WATER OR ROLL TO COMPACT SOIL TO APPROXIMATELY 85% OF MAXIMUM DRY DENSITY.
5. RAKE TO LEVEL AND REMOVE SURFACE ROCKS OR DEBRIS GREATER THAN 1 INCH IN DIAMETER.
6. A) IF LAWN, SEED OR SOD PER RECOMMENDATIONS OF SEED/SOD PROVIDER. B) IF PLANTING BED, PLANT LANDSCAPING PLANTS AS REQUIRED AND MULCH PLANTING BED WITH 2 INCHES OF ORGANIC MULCH EXCEPT AROUND PLANTS.

PROPOSED PROJECT AREA:

UNDISTURBED VEGETATION:	N/A
NEW PLANTING BEDS AND TURF AREAS :	1.66 ACRES (72310 SF)
IMPERVIOUS AREA:	3.92 ACRES (170755 SF)
TOTAL:	5.58 ACRES (243065 SF)

SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

HORIZONTAL SCALE: 1"=40'
DATE: DECEMBER, 2022
JOB No.: 22-000313
DRAWING FILE No.: 22-000313 Soil Management Plan.dwg

SOIL MANAGEMENT PLAN
REGIONAL ATHLETIC COMPLEX PARKING LOT DESIGN

EXHIBIT No: 1
SHEET No: 1

Soil Management Plan for BMP LID.02

PROJECT INFORMATION **Page # ____ of ____ pages**
Complete all information on page 1; only site address and permit number on additional pages.

Site Address / Lot No.: 8323 STEILACOOM RD SE, OLYMPIA, WA 98513	
Permit Type:	**Permit Number:**
Permit Holder: CITY OF LACEY	**Phone:** 360.413.4340
Mailing Address: 420 COLLEGE ST SE, LACEY, WA 98503	
Contact Person: ASHLEY SMITH	**Phone:** 360.413.4340
Plan Prepared By: SCJ ALLIANCE	

ATTACHMENTS REQUIRED (*Check off required items that are attached to this plan*)

_X_ **Site Plan showing, to scale:**	_X_ Areas of undisturbed native vegetation (no amendment required) _X_ New planting beds and turf areas (amendment required) _X_ Type of soil improvement proposed for each area
___ **Soil test results (required if proposing custom amendment rates)**	
___ **Product test results for proposed amendments**	

AREA #_____ (*should match Area # on Site Plan*)

PLANTING TYPE _X_ Turf _X_ Planting Beds	___ Undisturbed native vegetation ___ Other: _____	
SQUARE FOOTAGE OF THIS AREA: 72,310 square feet		
SCARIFICATION ___ Subsoil will be scarified	_6_ inches (depth) of scarification needed to achieve finished total 12" loosened depth.	
PRE-APPROVED AMENDMENT METHOD: ___ Topsoil import ___ Amend with compost ___ Stockpile and amend (____ cu. yds. stockpiled)	_3_ inches of compost or imported topsoil applied X 3.1 (*conversion factor, inches to cubic yards*) 9.3 = cu. yards per 1,000 sq. ft. X 72,310 sq.ft. in this area 675 = cubic yards of amendment → → → → → (*needed to cover this area to designated depth*)	PRODUCT: TOP SOIL QUANTITY: 675 CU. YDS.
CUSTOM AMENDMENT ___ Topsoil import ___ Topsoil & compost lift ___ Amend ___ Stockpile and amend (____ cu. yds. stockpiled)	**Attach test results and calculations.** ____ inches organic matter or topsoil import X 3.1 _____= cu. yards / 1,000 sq. ft. X ___ ,000s sq.ft. in this area ____ = cubic yards of amendment → → → → →	PRODUCT:_____ QUANTITY:_____CU. YDS.
MULCH	___ ,000 sq.ft. X 6.2 (*conversion, to give 2 inch mulch depth*) ____ = cubic yards of mulch → → → → → →	PRODUCT:_____ QUANTITY:_____CU. YDS.

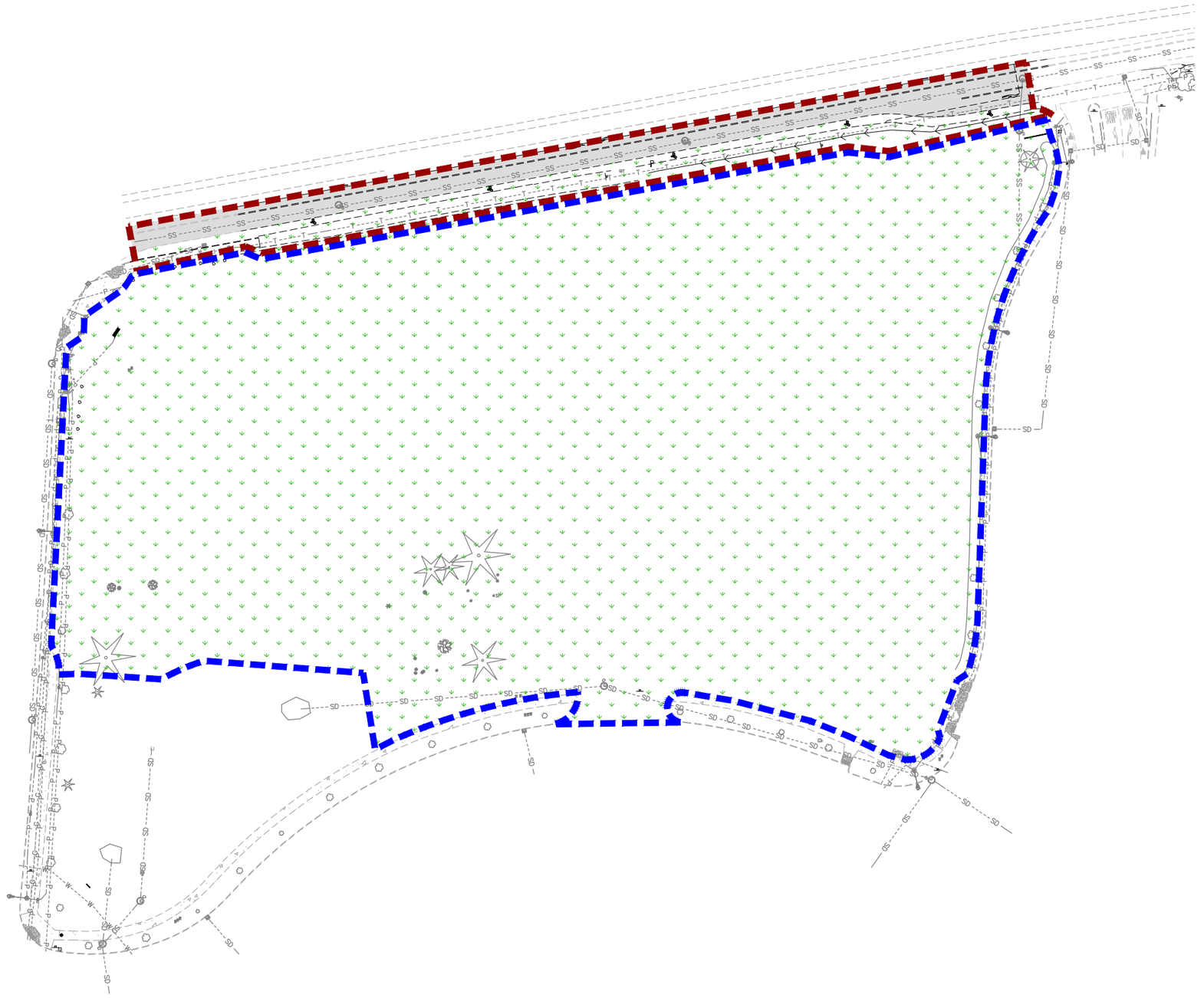
TOTAL AMENDMENT/TOPSOIL/MULCH FOR ALL AREAS (*complete on page 1 only, totaling all areas/pages in this Plan*)

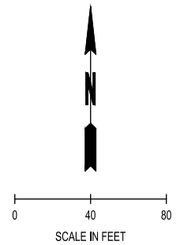
- ❑ **Product #1:**_____ ❑ **Quantity: _____cu. yds.**
- ❑ **Test Results: ___ % organic matter ____C:N ratio <25:1** (except mulch, or <35:1 for native plants) ____ **"stable"** (yes/no)
- ❑ **Product #2:**_____ ❑ **Quantity: _____cu. yds.**
- ❑ **Test Results: ___ % organic matter ____C:N ratio <25:1** (except mulch, or <35:1 for native plants) ____ **"stable"** (yes/no)
- ❑ **Product #3:**_____ ❑ **Quantity: _____cu. yds.**
- ❑ **Test Results: ___ % organic matter ____C:N ratio <25:1** (except mulch, or <35:1 for native plants) ____ **"stable"** (yes/no)

Date:	**Inspector:**	**Approved:**	**Revisions Required:**
Date:	**Inspector:**	**Approved:**	**Revisions Required:**

Appendix 3

Supplemental Reports and Information





PROPOSED BASIN AREAS:

BASIN 1:

ASPHALT PAVEMENT AREA:	0.26 ACRES
SIDEWALK AREA:	0.00 ACRES
PERVIOUS AREA:	0.28 ACRES
TOTAL:	0.54 ACRES

BASIN 2:

ASPHALT PAVEMENT AREA:	0.00 ACRES
SIDEWALK AREA:	0.00 ACRES
PERVIOUS AREA:	5.04 ACRES
TOTAL:	5.04 ACRES

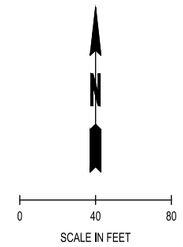
SCJ ALLIANCE
CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

HORIZONTAL SCALE: 1"=40'
DATE: DECEMBER, 2022
JOB No.: 22-000313
DRAWING FILE No.: 22-000313 SP2 Ex. Conditions Map.dwg

EXISTING CONDITIONS MAP
RAC PARKING LOT DESIGN, LACEY, WA

EXHIBIT No: EX-01
SHEET No: 1

Dec. 20, 2022 - 11:07:13am - User: kelcie.hopkins
N:\PROJECTS\0620 CITY OF LACEY\22-000313 RAC PARKING LOT DESIGN\CAD\EXHIBITS\22-000313 EX CONDITIONS MAP.DWG



PROPOSED BASIN AREAS:

BASIN 1:

ASPHALT PAVEMENT AREA:	0.35 ACRES
SIDEWALK AREA:	0.08 ACRES
PERVIOUS AREA:	0.11 ACRES
TOTAL:	0.54 ACRES

BASIN 2:

ASPHALT PAVEMENT AREA:	3.42 ACRES
SIDEWALK AREA:	0.07 ACRES
PERVIOUS AREA:	0.88 ACRES
RETAINED PERVIOUS POND AREA:	0.67 ACRES
TOTAL:	5.04 ACRES

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CONSULTING SERVICES
8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516
P: 360.352.1465 F: 360.352.1509
SCJALLIANCE.COM

HORIZONTAL SCALE: 1"=40'
DATE: DECEMBER, 2022
JOB No.: 22-000313
DRAWING FILE No.: 22-000313 SP2 Ex. Conditions Map.dwg

PROPOSED CONDITIONS MAP
RAC PARKING LOT DESIGN, LACEY, WA

EXHIBIT No: EX-02
SHEET No: 2

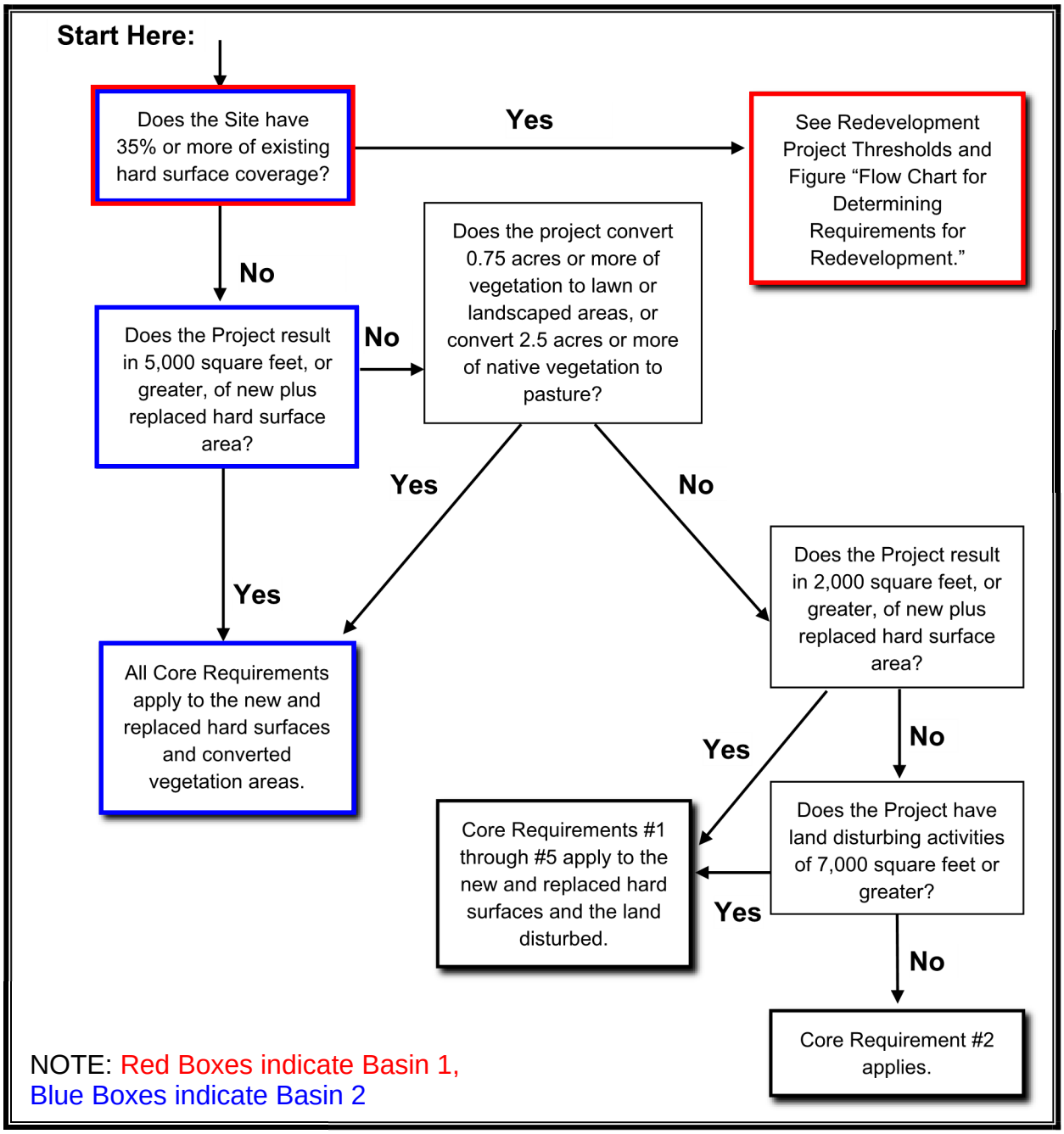

Figure 2.1. Flow Chart for Determining Requirements for New Development.

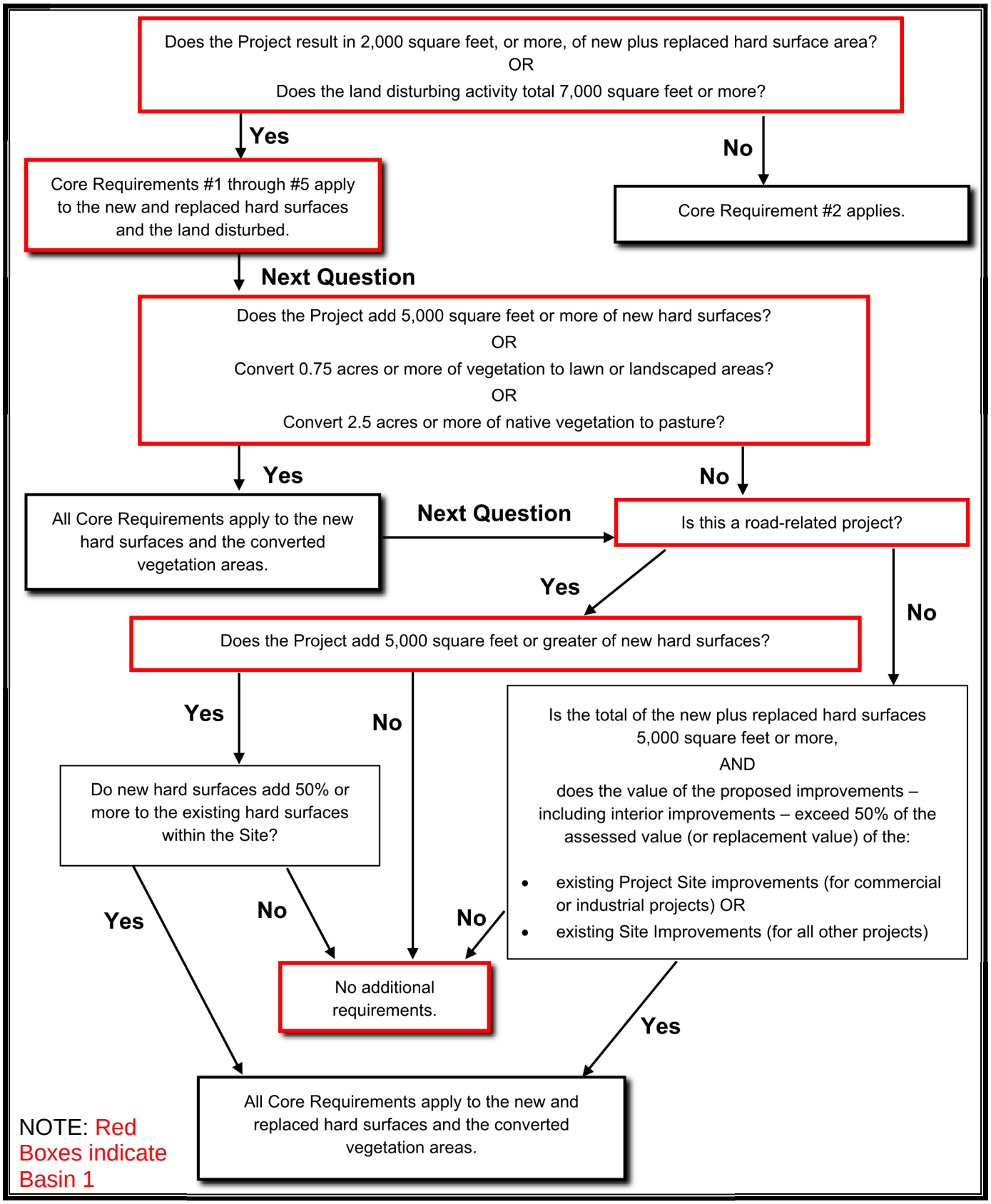

Figure 2.2. Flow Chart for Determining Requirements for Redevelopment.

National Flood Hazard Layer FIRMette

FEMA

122°46'12"W 47°3'1"N

122°45'35"W 47°2'36"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/7/2022 at 8:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

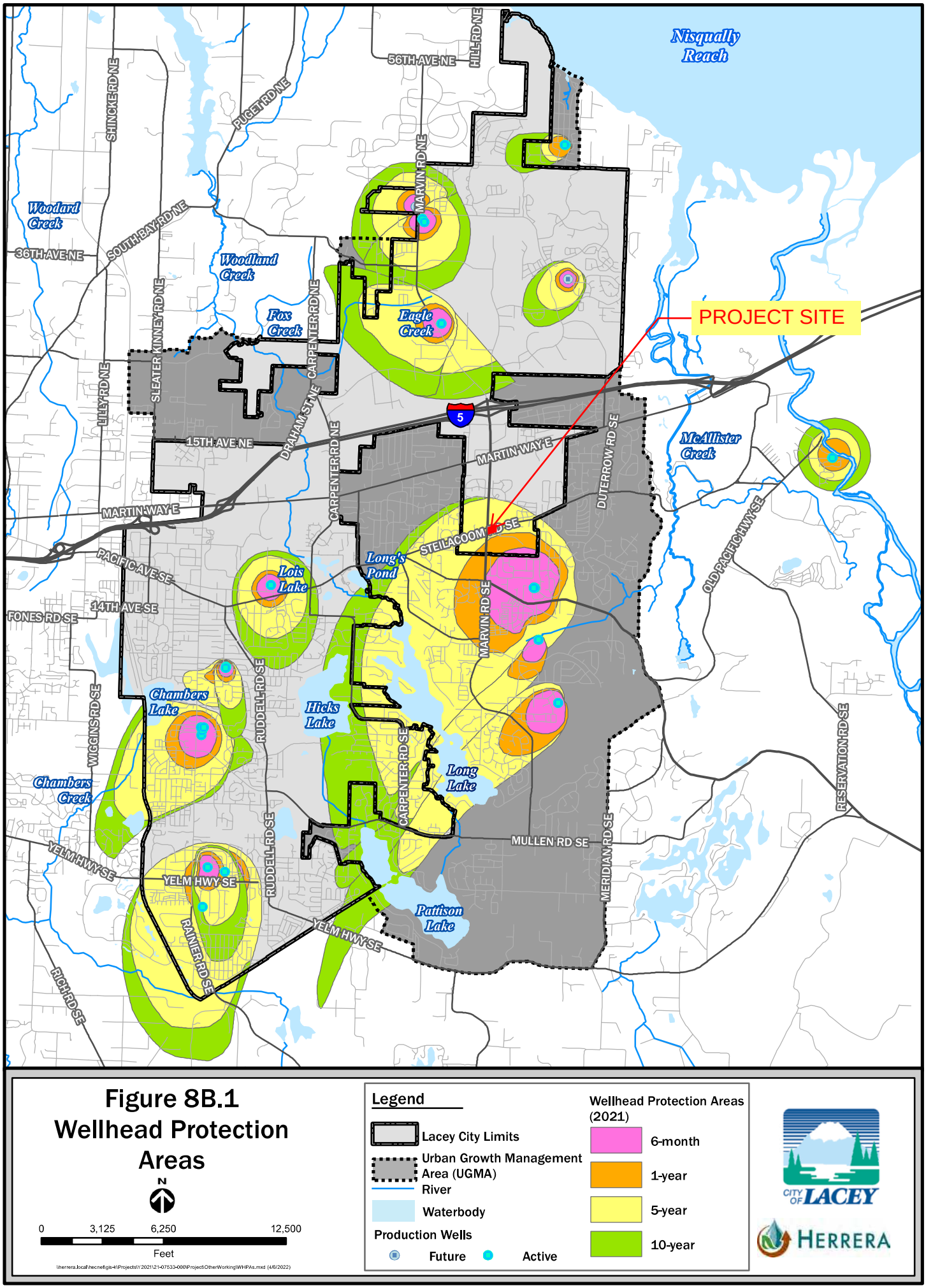

Figure 8B.1
Wellhead Protection Areas

N

0 3,125 6,250 12,500

Feet

\\herrera.local\hecnet\gis-k\Projects\Y2021\21-07533-000\Project\OtherWorking\WHPAs.mxd (4/6/2022)

Legend

- Lacey City Limits
- Urban Growth Management Area (UGMA)
- River
- Waterbody
- Production Wells: Future, Active

Wellhead Protection Areas (2021)

- 6-month
- 1-year
- 5-year
- 10-year

CITY OF LACEY

HERRERA