

Set No. _____

**Specifications, Proposal,
and Contract Documents for:**

**NE 85th St Ped-Bike Connection
114th Ave NE to 6th St
CIP No. STC1070000
Job No. 37-24-PW**



**City of Kirkland
Department of Public Works
123 Fifth Avenue
Kirkland, Washington 98033**



**CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS**

**NE 85th St Ped-Bike Connection
114th Ave NE to 6th St
CIP NO. STC1070000
JOB NO. 37-24-PW**

Certificate of Engineer:

The Special Provisions and drawings contained herein have been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer licensed to practice in the State of Washington, is affixed below.



Vincent Wen, P.E.
Senior Engineer/Project Manager

Approved for Construction:

A handwritten signature in blue ink, appearing to read "George Minassian".

George Minassian, P.E.
Interim Capital Projects Manager



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City of Kirkland

INVITATION TO BID

INVITATION TO BID

Notice is hereby given that the City of Kirkland will receive sealed bids in the office of the Purchasing Agent, City Hall, 123 Fifth Avenue, Kirkland, Washington, at 2:00 P.M., local time on February 5, 2025, for the project hereinafter referred to as:

NE 85th St Ped-Bike Connection 114th Ave NE to 6th St
CIP NO. STC1070000 PROJECT JOB NO. 37-24-PW

At said time all bids will be opened and publicly read aloud. Each bid shall be accompanied by a bid proposal deposit in the form of a cashier's check or a bond issued on a form acceptable to your surety made payable to the City of Kirkland for a sum of not less than five percent (5%) of the total bid amount. No bid shall be considered unless accompanied by such bid proposal deposit. Incomplete proposals and proposals received after the time stated above will not be considered. Faxed or emailed responses are not acceptable.

The work to be performed under these specifications consists of furnishing all labor, tools, materials, and equipment necessary for constructions of the **NE 85th St Ped-Bike Connection 114th Ave NE to 6th St.**

Specific work includes, but is not limited to the improvement of NE 85th St from 6th St to 114th Ave NE including clearing and grubbing, traffic control and maintenance of traffic, temporary erosion and sediment control, construction of curbs, asphalt concrete paving, concrete paving, landscape buffer construction, sidewalk, retaining walls, storm drainage pipe, catch basins, traffic signal upgrades, illumination, channelization, signing, and other work. The estimated cost for this project is in the range of \$8,700,000 to \$9,600,000.

The City will not sell bid packages. Plans, specifications, and addenda may be viewed and obtained online at www.bxwa.com. Click on: "Posted Projects"; "Public Works", "City of Kirkland". The Bidders List is maintained by the Builder's Exchange of Washington, Inc. Registration for the bidder's list may be made online, by phoning (425) 258-1303, or at Builder's Exchange of Washington located at 2607 Wetmore Ave, Everett, WA.

The City of Kirkland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Questions regarding this project shall be submitted in writing to the Project Engineer, Kimberly Coraza via email at kcoraza@kirklandwa.gov. Questions via phone or email will not be accepted. Bidders shall submit questions no later than 4:00 P.M. January 29, 2025.

The City reserves the right to reject any and all bids, and to waive any informalities in the bidding, and to make the award to the lowest, responsive, responsible bidder as best serves the interests of the City.

No bids may be withdrawn within forty-five (45) after the actual date of the bid opening.
Published: Daily Journal of Commerce – January 9, 2025; January 15, 2025; January 22, 2025

GENERAL INFORMATION, PROPOSAL, & CONTRACT



City of Kirkland



CITY OF KIRKLAND

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**CITY OF KIRKLAND
INFORMATION FOR BIDDERS**

Bidders must bid on all items contained in the proposal.

The omission or deletion of any bid item will be considered non-responsive and shall be cause for rejection of the bid.

Submit your proposal on the Bid Proposal and other forms which are enclosed, or make a copy of the required forms and submit these documents.

The following forms must be executed in full with submittal of the bid:

1. BIDDER RESPONSIBILITY CRITERIA CHECKLIST
2. SUBCONTRACTOR RESPONSIBILITY CRITERIA CHECKLIST
3. PROPOSAL

The lump sum or unit prices must be shown in the spaces provided on the bid schedule.

Show total bid price in both words and figures on the Proposal.

The Proposal form must be completed in full, signed and dated.

4. BID BOND

A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five percent (5%) of the total amount bid and may be shown in dollars or on a percentage basis. (A cashier's check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.)

5. NONCOLLUSION AFFIDAVIT - Notarized
6. STATEMENT OF BIDDER'S QUALIFICATIONS

This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.

7. SUBCONTRACTOR IDENTIFICATION LIST

This form must be completed for HVAC, plumbing, and electrical subcontractors if the estimate exceeds \$1,000,000.

The following forms are to be executed after the contract is awarded:

1. CONTRACT
2. PERFORMANCE AND PAYMENT BOND
3. CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE; RETAINED PERCENTAGE ESCROW AGREEMENT

To be executed by the successful bidder based on bidder's selection of option.

4. CERTIFICATES OF INSURANCE

To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland must be named as an additional insured.

5. STATEMENT(S) OF INTENT TO PAY PREVAILING WAGES

Affidavit certifying all employees of Contractor and Subcontractor shall be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Washington State Department of Labor and Industries.

SPECIAL NOTE: Prior to commencing work, the contractor and all subcontractors must have applied and paid for a City of Kirkland business license

**CITY OF KIRKLAND
BIDDER RESPONSIBILITY CRITERIA**

It is the intent of City to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the City to submit documentation demonstrating compliance with the criteria. The bidder must:

- 1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;
- 2. Have a current Washington Unified Business Identifier (UBI) number;
- 3. Have:
 - a. Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. A Washington Employment Security Department number, as required in Title 50 RCW;
 - c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
- 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3). **Meet responsibility criteria in RCW 39.04.350**
- 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.
- 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

**CITY OF KIRKLAND
SUBCONTRACTOR RESPONSIBILITY CRITERIA**

- A. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.
- B. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
- 1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 - 2. Have a current Washington Unified Business Identifier (UBI) number;
 - 3. Have:
 - a) Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RC
 - b) A Washington Employment Security Department number, as required in Title 50 RCW;
 - c) A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - d) An electrical contractor license, if required by Chapter 19.28 RCW;
 - e) An elevator contractor license, if required by Chapter 70.87 RCW.
 - 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3). **Meet responsibility criteria in RCW 39.04.350**
 - 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.
 - 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

**CITY OF KIRKLAND
BID PROPOSAL**



NE 85TH ST PED-BIKE CONNECTION 114TH AVE NE TO 6TH ST

CIP NO. STC1070000

JOB NO. 37-24-PW

To: Director of Finance
City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this proposal are those named herein; that this proposal is in all respects fair and without fraud; that it is made without collusion with any official or employee of the City of Kirkland, hereinafter called the Owner; and that the proposal is made without any connection or collusion with any person making another proposal on this contract.

The bidder further declares that it has carefully examined the contract documents for the construction of the project; that it has satisfied itself as to the quantities involved, including materials and equipment and conditions of work involved, including the fact that the description of the quantities of work materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents; and that this proposal is made according to the provisions and under the terms of the contract documents, which documents are hereby made a part of this proposal.

The bidder further agrees that it has exercised its own judgment regarding the interpretation of subsurface information and has utilized all data which it believes pertinent from the engineer-architect, owner, and other sources in arriving at its conclusions.

The bidder agrees to hold its bid proposal open for 45 days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

The bidder agrees that if this proposal is accepted, it will, within ten (10) calendar days after notification of acceptance, execute the contract with the Owner in the form of contract included in the contract documents, and will, at the time of execution of the contract, deliver to the Owner the Performance and Payment Bond and all Certificates of Insurance required therein, and will, to the extent of its proposals, furnish all machinery, tools, apparatus, and other means of construction and do the work in the manner, in the time, and according to the methods as specified in the contract documents and required by the engineer or other project manager designated thereunder.

The bidder further agrees, if awarded the contract, to begin work within ten (10) calendar days after the date of the execution of the contract and to complete the construction within the time specified in Section 1-08.5 of the Special Provisions.

In the event the bidder is awarded the contract and shall fail to complete the work within the time limit or extended time limit agreed upon as more particularly set forth in the contract documents, liquidated damages shall be paid to the Owner per the specifications contained in the contract documents.

MUST BE SUBMITTED WITH PROPOSAL

The bidder further proposes to accept as full payment for the work proposed herein, the amounts computed under the provisions of the contract documents and based upon the lump sum and unit price amounts entered by the bidder for the various bid items included in the Bid Schedule. The bidder further agrees the lump sum and unit prices entered for the various bid items included in the Bid Schedule include all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses as well as all costs of materials, labor, tools and equipment required to perform and complete the work.

Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

The undersigned bids and agrees to complete all construction of the **NE 85TH ST PED-BIKE CONNECTION 114TH AVE NE TO 6TH ST; JOB NO. 37-24-PW** for the following:

Total Computed Price (*in figures*): \$ _____

Washington State Sales Tax per WAC 458-20-171 **10.3%** (*in figures*): \$ _____

Total Bid (*in figures*): \$ _____

Total Bid (*in words*): _____

Receipt of Addenda No(s). _____ is hereby acknowledged.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct:

CONTRACTOR (Firm Name)

Location or Place Executed: (City, State)

By

Name and title of person signing

(Indicate whether Contractor is Partnership, Corporation, or Sole Proprietorship)

Date

Washington State Contractor's Registration Number

Contractor's Industrial Insurance Account Number

MUST BE SUBMITTED WITH PROPOSAL

Employment Security Identification
Number

Uniform Business Identification
(UBI) Number

Contractor's Address:

Telephone Number

Fax Number

EMAIL

** Bid proposal to be submitted in a **sealed envelope** marked "**Bid Enclosed**" for **NE 85TH ST PED-BIKE CONNECTION 114TH AVE NE TO 6TH ST, JOB NO. 37-24-PW.**

**CITY OF KIRKLAND
BID SCHEDULE**

NE 85TH ST PED-BIKE CONNECTION 114TH AVE NE TO 6TH ST
JOB NO. 37-24-PW & CIP NO. STC1070000

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
1	Unexpected Site Changes	1-04	1	EST	\$50,000	\$50,000
2	Record Drawings (Minimum Bid \$5000)	1-05	1	LS		
3	Structure Surveying	1-05	1	LS		
4	Roadway Surveying	1-05	1	LS		
5	Apprenticeship Incentive	1-07	1	CALC	\$5,000	\$5,000
6	Apprenticeship Penalty	1-07	1	CALC	-\$5	-\$5
7	King County Sewer Potholing	1-07	1	LS		
8	Owner-Directed Potholing	1-07	12	EA		
9	Pedestrian Traffic Control	1-07	1	LS		
10	SPCC Plan	1-07	1	LS		
11	Type B Progress Schedule	1-08	1	LS		
12	Mobilization	1-09	1	LS		
13	Project Temporary Traffic Control	1-10	1	LS		
14	Clearing and Grubbing	2-01	1	LS		
15	Removing Cement Conc. Sidewalk	2-02	90	SY		
16	Removing Asphalt Conc. Curb	2-02	1,140	LF		
17	Removing Cement Conc. Curb	2-02	200	LF		
18	Removing Cement Conc. Curb and Gutter	2-02	10	LF		
19	Sawcutting Existing Pavement	2-02	2,100	LF		
20	Removal of Structures and Obstructions	2-02	1	LS		
21	Removing Drainage Structure	2-02	6	EA		
22	Removing Existing Drainage Pipe	2-02	170	LF		
23	Roadway Excavation Incl. Haul	2-03	830	CY		
24	Gravel Borrow Incl. Haul	2-03	7400	TON		
25	Structure Excavation Class A Incl. Haul	2-09	10,030	CY		

MUST BE SUBMITTED WITH PROPOSAL

26	Structure Excavation Class B Incl. Haul	2-09	770	CY		
27	Shoring or Extra Excavation Cl. A - Detention Vault	2-09	1	LS		
28	Shoring or Extra Excavation Class B	2-09	2,200	SF		
29	Construction Geotextile for Separation	2-12	40	SY		
30	Crushed Surfacing Top Course	4-04	1,880	TON		
31	Planing Bituminous Pavement	5-04	4,000	SY		
32	HMA CL. 1/2 In. PG 58H-22	5-04	840	TON		
33	Asphalt Cost Price Adjustment	5-04	1	CALC	\$2,500	\$2,500
34	Cement Conc. Pavement	5-05	250	SY		
35	Stamped Cement Conc. Pavement	5-05	650	SY		
36	Conc. Class 4000 - Abutments	6-02	21	CY		
37	St. Reinf. Bar - Abutments	6-02	6,700	LB		
38	Conc. Class 4000 - Piers	6-02	22	CY		
39	St. Reinf. Bar - Piers	6-02	9,564	LB		
40	Deck (NE 85th Pedestrian Bridge)	6-02	1	LS		
41	Voided Slab Girders (Includes Temporary Shoring)	6-02	290	LF		
42	Elastomeric Bearings	6-02	4	EA		
43	Pigmented Sealer	6-02	632	SY		
44	Bridge Railing - Superstr.	6-06	334	LF		
45	Conc. Class 4000 For Median Retaining Wall	6-11	8	CY		
46	St. Reinf. Bar For Median Retaining Wall	6-11	3,019	LB		
47	Gravel Backfill for Wall Incl. Haul	6-11	17	CY		
48	Structural Earth Wall	6-13	21,500	SF		
49	Gravel Borrow For Structural Earth Wall Incl. Haul	6-13	8,370	CY		
50	Constructing 5 Ft. Diam. Shaft	6-19	70	LF		
51	Constructing 4 Ft. Diam. Shaft	6-19	70	LF		
52	QA Shaft Test	6-19	4	EA		
53	Removing Shaft Obstructions	6-19	1	EST	\$29,400	\$29,400
54	Drain Pipe 6 In. Diam.	7-01	20	EA		
55	Cleanout 6 In. Diam.	7-01	23	EA		
56	Underdrain Pipe 6 In. Diam.	7-01	1,840	LF		

MUST BE SUBMITTED WITH PROPOSAL

57	Schedule A Storm Sewer Pipe 12 In. Diam	7-04	1,350	LF		
58	Ductile Iron Storm Sewer Pipe 12 In. Diam.	7-04	120	LF		
59	Pipe Anchor	7-04	3	EA		
60	Manhole 48 In. Diam. Type 3	7-05	1	EA		
61	Catch Basin Type 1	7-05	12	EA		
62	Catch Basin Type 2 48 In. Diam.	7-05	3	EA		
63	Adjust Catch Basin	7-05	2	EA		
64	Connection to Drainage Structure	7-05	2	EA		
65	Catch Basin Type 2 72 In. Diam. With Flow Restrictors	7-05	1	EA		
66	Plugging Existing Pipe	7-08	8	EA		
67	Water Connection to Irrigation	7-09	1	LS		
68	Service Connection 1 In. Diam.	7-15	1	EA		
69	Detention Vault	7-20	1	LS		
70	Erosion/Water Pollution Control	8-01	1	LS		
71	ESC Lead	8-01	120	DAY		
72	Inlet Protection	8-01	22	EA		
73	High Visibility Silt Fence	8-01	2,400	LF		
74	PSIPE Tilia cordata/Little leaf linden (3" Caliper)	8-02	4	EA		
75	PSIPE Acer rubrum 'Karpick'/ Karpick Maple (3" Caliper)	8-02	2	EA		
76	PSIPE Ulmus 'Frontier'/ Frontier Elm (3" Caliper)	8-02	3	EA		
77	PSIPE Acer saccharum 'Green Mountain'/ Green Mountain Sugar Maple (3" Caliper)	8-02	4	EA		
78	PSIPE Nyssa sylvatica Black Tupelo (3" Caliper)	8-02	4	EA		
79	PSIPE Cornus 'Eddies White Wonder'/ Eddies White Wonder Dogwood (3" Caliper)	8-02	4	EA		
80	PSIPE Psuedotsuga menziesii/ Douglas fir (6' Height)	8-02	40	EA		
81	PSIPE Pachysandra terminalis 'Green sheen'/ Japanese Pachysandra Green Sheen (#1 Cont)	8-02	380	EA		
82	PSIPE Mahonia aquifolium/ Oregon Grape (#2 Cont)	8-02	550	EA		
83	PSIPE Symphoricarpos alba/ Snowberry (#2 Cont)	8-02	1,020	EA		
84	Medium Compost	8-02	211	CY		

MUST BE SUBMITTED WITH PROPOSAL

85	Wood Chip Mulch	8-02	211	CY		
86	Topsoil Type A	8-02	201	CY		
87	12" Depth Root Barrier	8-02	266	LF		
88	18" Depth Root Barrier	8-02	154	LF		
89	Sod Installation	8-02	235	SY		
90	Property Restoration	8-02	1	LS		
91	Irrigation System	8-03	1	LS		
92	Type 410C Cement Conc. Curb	8-04	190	LF		
93	Extruded Curb	8-04	100	LF		
94	Cement Conc. Curb and Gutter	8-04	1,570	LF		
95	Raised Pavement Marker Type 2	8-09	2	HUND		
96	Removing Guardrail	8-11	1,810	LF		
97	Beam Guardrail Type 31	8-11	25	LF		
98	Beam Guardrail Type 31 Non-Flared Terminal	8-11	1	EA		
99	Beam Guardrail Anchor Type 11	8-11	1	EA		
100	Chain Link Fence Type 4	8-12	50	LF		
101	Chain Link Sidewalk Safety Rail	8-12	1,820	LF		
102	Cement Conc. Sidewalk	8-14	3,090	SY		
103	Cement Conc. Curb Ramp Type Perpendicular A	8-14	11	SY		
104	Heavy Loose Riprap	8-15	9	CY		
105	Illumination System Complete	8-20	1	LS		
106	Temporary Illumination System	8-20	1	LS		
107	Traffic Signal System	8-20	1	LS		
108	Temporary Traffic Signal System	8-20	1	LS		
109	Adjusting Existing Junction Box	8-20	5	EA		
110	Preformed Detector Loop Type 3	8-20	2	EA		
111	ITS - City Fiber	8-20	1	LS		
112	Permanent Signing	8-21	1	LS		
113	Paint Line	8-22	5,600	LF		
114	Plastic Crosswalk Line	8-22	60	SF		
115	Temporary Pavement Marking - Long Duration	8-23	140	LF		
116	Soil Cell	8-35	209	EA		

MUST BE SUBMITTED WITH PROPOSAL

TOTAL COMPUTED BID PRICE: \$ _____



BID DEPOSIT

Herewith find deposit in the form of a cashier's check or certified check in the amount of \$ _____ which amount is not less than five percent (5%) of the total bid.

SIGN HERE _____

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Kirkland, as Obligee, in the penal sum of _____ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for

_____ Project Name

_____ Job Number

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 20_____.

PRINCIPAL:

SURETY:

**CITY OF KIRKLAND
STATEMENT OF BIDDER'S QUALIFICATIONS**

Contractor Name: _____ Contact: _____

Business Address: _____

Business phone: _____ Fax: _____

Number of years the Contractor has been engaged in the construction business under the present firm name: _____

Describe the general character of work performed by your company: _____

List five projects of a similar nature which Contractor has completed within the last 10 years. Include contract amount and contact information for references:

Project Name	Amount	Owner/Agency	Contact	Phone	Year Completed

List major equipment anticipated to be used on this project; indicate whether Contractor-owned or to be leased from others: _____

Bank reference(s): _____

Washington State Contractor Registration No.: _____

Uniform Business Identification No.: _____

I certify that other contracts now in progress or hereafter obtained will not interfere with timely performance of the City of Kirkland project should I become the successful bidder.

Authorized Signature: _____

Print Name: _____ Title: _____

**CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION FOR CONTRACTS ESTIMATED TO BE
IN EXCESS OF ONE MILLION DOLLARS (\$1,000,000.00)**

RCW 39.30.060 requires the following:

“(1) Every invitation to bid on a prime contract that is expected to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 ... shall require each prime contract bidder to submit:

(a) Within one hour after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work; or

(b) Within forty-eight hours after the published bid submittal time, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of structural steel installation and rebar installation.

The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid non-responsive and, therefore, void."

Each bidder shall submit a list of:

1. HVAC, plumbing, electrical, structural steel installation, and rebar installation subcontractors; and
2. The specific items of work those subcontractors will perform on the contract; and
3. The specific items of work that will be performed by the bidder on the contract relating to work described in RCW 39.30.060.

**CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION LIST**

*REQUIRED IF ESTIMATE AMOUNT EXCEEDS \$1,000,000 (*Reference RCW 39.30.060 RCW*)

Proposed Subcontractors and items of work to be performed:

Subcontractor Name: _____

Item Numbers: _____

Subcontractor Name: _____

Item Numbers: _____

Subcontractor Name: _____

Item Numbers: _____

Subcontractor Name: _____

Item Numbers: _____

Subcontractor Name: _____

Item Numbers: _____

- make additional pages if necessary -

Work to be performed by Prime Contractor:

Item Numbers: _____

**CITY OF KIRKLAND
BIDDER'S CHECKLIST**

1. Have you reviewed the Bidder Responsibility and Subcontractor Responsibility Criteria?
2. Have you enclosed a bid bond or certified check with your bid? (Must be at least 5% of the total amount bid)
3. Have you entered a bid amount for all items and all schedules?
4. Do the written amounts of the proposal agree with the amounts shown in the figures?
5. Have you acknowledged receipt of addenda?
6. Has the proposal been properly completed and signed?
7. Have you completed the Statement of Bidder's Qualifications?
8. Have you completed the City of Kirkland Non-collusion Affidavit?
9. Have you completed the Subcontractor Identification List? (This is to be completed if the estimate amount exceeds \$1,000,000.)
10. Bid proposal to be submitted in a sealed envelope marked "Bid Enclosed" for:

CONTRACT

INFORMATION ONLY

The following forms must be executed and submitted by the successful bidder within ten (10) calendar days following Notice of Award.



City of Kirkland



CITY OF KIRKLAND

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**CITY OF KIRKLAND
PUBLIC WORKS AGREEMENT**

Version:063020

NE 85th St Ped-Bike Connection 114th Ave NE to 6th St
JOB NO. 37-24-PW & CIP NO. STC1070000

This agreement is made and entered into this _____ day of _____, 20__, by and between **CONTRACTOR NAME**, hereinafter called the "Contractor" and the City of Kirkland, hereinafter called the "City."

WITNESSETH:

Whereas, pursuant to the invitation of the City extended through an officially published "Invitation to Bid," the Contractor did, in accordance therewith, file with the City a proposal containing an offer which was invited by said notice, and

Whereas, the City has heretofore determined that said offer was the lowest responsible bid submitted; now, therefore, it is agreed:

Section 1. That Contractor shall comply in every way with the requirements of those certain specifications entitled: "NE 85th St Ped-Bike Connection 114th Ave NE to 6th St, Job No. 37-24-PW"

The further terms, conditions and covenants of the contract are set forth in the following contract documents which are hereby made a part of this agreement by actual attachment or by this reference thereto as follows:

- A. Invitation to Bid, as published by the City.
- B. Specifications prepared for this project by the City and named above by title.
- C. Detailed Plans listed and described in said Specifications, together with those which may be issued as supplements thereof.
- D. The bid proposals submitted by the Contractor as to those items and/or alternatives accepted by the City.
- E. Any written change orders, additions or deletions, if any, issued by the City, pursuant to this agreement.
- F. Indemnification and insurance provisions included in the project documents shall apply to this agreement.

Section 2. In consideration of faithful compliance with the terms and conditions of this agreement, whether set forth herein or incorporated by reference, the Owner shall pay to the Contractor, at the times and in the manner provided in said specifications, the total sum of _____ dollars (\$_____) which sum is subject, however, to increase or decrease in such proportion as the quantities named in said proposal are so changed, all as in said specifications and proposal provided.

In witness whereof, said Contractor and said City have caused this agreement to be executed on the day and year first written above.

CONTRACTOR (Firm Name)

Signature of authorized officer

Name and title of officer (print or type)

WA Contractor's Registration Number

Industrial Insurance Account Number

Uniform Business Identification (UBI) Number

Phone Number

(For corporations, LLC's and other legal entities)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____, to me known to be the _____ of _____, the legal entity that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said legal entity, for the uses and purposes therein set forth, and on oath stated that he/she was authorized to sign said instrument.

Given under my hand and official seal this _____ day of _____, 2____.

Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

(For individuals and d/b/a's)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____ and _____ to me known to be the individual(s) described herein and who executed the foregoing instrument, and acknowledged that he/she/they signed the same as his/her/their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 2____.

Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

CITY OF KIRKLAND

BY: _____
Tracey Dunlap, Deputy City Manager



PERFORMANCE BOND

Surety to have an A.M. Best rating of A-VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that **CONTRACTOR NAME**, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____, (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) in the sum of _____ dollars (\$_____), lawful money of the United States of America, plus the total amount of extra orders issued by the City to the Principal pursuant to the terms of the Contract referred to in the next succeeding paragraph hereof, for the payment whereof Principal and Surety bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for NE 85th St Ped-Bike Connection 114th Ave NE to 6th St, **Job No 37-24-PW**, which is hereby made a part of this bond as if fully set forth herein;

NOW, THEREFORE, the condition of this bond is such that:

1. If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety; and
2. If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal in the performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder;

THEN THIS obligation shall be null and void; otherwise to remain in full force and effect. If the City shall declare Principal to be in default of the Contract, and shall so notify Surety, Surety shall, within a reasonable time which shall not exceed 14 days, except for good cause shown, notify the City in writing of the manner in which surety will satisfy its obligations under this Bond.

Nonpayment of the Bond premium will not invalidate this Bond nor shall the City be obligated for the payment thereof. The Surety hereby waives notice of any modification of the Contract or extension of time made by the City.

Signed this _____ day of _____, 2_____.

Principal: _____ Surety: _____

By: _____ By: _____

Title: _____ Title: _____

Address: _____ Address: _____

City/Zip: _____ City/Zip: _____

Telephone: () _____ Telephone: () _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.



LABOR, MATERIAL AND TAXES PAYMENT BOND

Surety to have an A.M. Best rating of A-:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that, **CONTRACTOR NAME**, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____ (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) for the use and benefit of claimants as hereinafter defined, in the sum of _____ **Dollars (\$_____)**, lawful money of the United States of America, plus the total amount of any extra orders issued by the City, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for **NE 85th St Ped-Bike Connection 114th Ave NE to 6th St, Job No 37-24-PW**, which contract is by this reference made a part hereof;

WHEREAS, the contract is a public works contract, subject to the provisions of RCW Titles 39 and 60;

NOW, THEREFORE, the conditions of this obligation are such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for (a) all labor and material used or reasonably required for use in the performance of the contract and (b) all taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions: A claimant is defined as and includes (a) a person claiming to have supplied labor or materials for the prosecution of the work provided for in the contract, including any person having direct contractual relationship with the contractor furnishing the bond or direct contractual relationship with any subcontractor, or an assignee of such person, (b) the state with respect to taxes incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due and (c) any other person or entity as allowed or required by law.

3. The Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full prior to Final Acceptance of the project, or materials were furnished by such claimant, has an action on this bond for such sum or sums as may be justly due claimant, and may have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit or action.

(Form continues on next page)

4. No suit or action shall be commenced hereunder by any claimant (except the state with respect to taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due) unless the claimant has sent the written notice required under RCW Title 39 to the Principal and to the City's Purchasing Agent by registered or certified mail, or by hand delivery, no later than 30 days after Final Acceptance of the Project.

The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against the improvement, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety hereby waives notice of any modification of the contract or extension of time made by the City.

Signed this _____ day of _____, 2____
Principal: _____ Surety: _____
By: _____ By: _____
Title: _____ Title: _____
Address: _____ Address: _____
City/Zip: _____ City/Zip: _____
Telephone: () _____ Telephone: () _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

END OF LABOR, MATERIAL AND TAXES PAYMENT BOND FORM

**CITY OF KIRKLAND
CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT
OF STATUTORY RETAINED PERCENTAGE**

NE 85th St Ped-Bike Connection 114th Ave NE to 6th St
JOB NO. 37-24-PW & CIP NO. STC1070000

Monies reserved under provisions of Chapter 60.28 RCW, at the option of the Contractor, shall be:

Select
One

- (1) Retained in a fund by the City. No interest will be earned on the retained percentage amount under this election.

- (2) Retainage Bond

- (3) Placed in escrow with a bank or trust company by the City. When the monies reserved are to be placed in escrow, the City will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by the City and the bonds and securities held in escrow. (For the convenience of those Contractors choosing option (3) a City approved Form of Escrow Agreement is included on the next page and should be completed and submitted with the executed contract.)

The Contractor in choosing option (3) agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges or both, and further agrees to assume all risks in connection with the investment of the retained percentages in securities.

- (4) Deposited by the City in an interest-bearing account at the FDIC insured bank currently providing contracted banking services to the City of Kirkland. Interest on such account shall be paid to the contractor. Any fees incurred shall be the responsibility of the contractor.

CONTRACTOR:

Signature: _____

Print or Type Name: _____

Title: _____

Date: _____

RETAINAGE BOND
RETURN THIS FORM IF RETAINAGE BOND OPTION IS SELECTED

Contract Title	_____
Contract Number	_____
Contractor Name	_____

The Undersigned, _____, existing under and by virtue of the laws of the State of Washington and authorized to do business in the State of Washington as Principal, and _____ organized and existing under the laws of the State of _____ and authorized to transact business in the State of Washington as Surety, are jointly and severally held and bound unto _____, hereinafter called Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28, in the penal sum of

(\$ _____), Which is 5% of the principal's price on Contract ID _____.

WHEREAS, on the _____ day of _____, 2____, the said principal herein executed a contract with the Obligee, for the Contract specified above, Contract ID Number _____.

WHEREAS, said contract and RCW 60.28 require the Obligee to withhold from the Principal the sum of ____% from monies earned on estimates during the progress of the construction, herein after referred to as earned retained funds.

NOW WHEREAS, Principal has requested that the Obligee not retain any earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, the condition of the obligation is such that the Principal and Surety are held and bound unto the beneficiaries of the trust fund created by RCW 60.28 in the penal sum of _____ percent (____%) of the final contract cost which shall include any increases due to change orders, increases in quantities of work or the addition of any new item of work. If the Principal shall use the earned retained funds, which will not be retained, for the trust fund purposes of RCW 60.28, then this obligation shall be null and void; otherwise, it shall remain in full force and effect until release is authorized in writing by the Obligee. This bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28.

PROVIDED HOWEVER, that:

1. The liability of the surety under this bond shall not exceed 5% or 50% of the total amount earned by the Principal if no monies are retained by the Obligee on estimates during the progress of construction.
2. Any suit under this bond must be instituted within the time provided by applicable law.

Witness our hands this _____ day of _____, 2_____.

SURETY

PRINICIPAL

By: _____
 Name/Title

By: _____
 Name/Title

OF: _____

OF: _____

Surety Name and Local Office of Agent: _____

Surety Address and Phone of Local Office and Agent: _____

**CITY OF KIRKLAND
RETAINED PERCENTAGE ESCROW AGREEMENT**

NE 85th St Ped-Bike Connection 114th Ave NE to 6th St
JOB NO. 37-24-PW & CIP NO. STC1070000

Escrow No. _____

City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

Contractor: _____

Address: _____

Project Description: _____

TO: Escrow Bank or Trust Company:

Name: _____

Address: _____

Attention: _____

The undersigned, _____, herein referred to as the Contractor, has directed the City of Kirkland to deliver to you its warrants, which shall be payable to you and the Contractor jointly. Such warrants are to be held and disposed of by you in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Warrants or checks made payable to you and the Contractor jointly upon delivery to you shall be endorsed by you and forwarded for collection. The moneys will then be used by you to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor and approved by the City of Kirkland. Attached is a list of such bonds, or other securities approved by the City of Kirkland. Other bonds or securities, except stocks, may be selected by the Contractor, subject to the express written approval of the City of Kirkland. Purchase of such bonds or other securities shall be in a form which shall allow you alone to reconvert such bonds or other securities into money if you are required to do so at the direction of the City of Kirkland and Contractor.
2. When and as interest on the securities held by you pursuant to this agreement accrues and is paid, you shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.
3. You are not authorized to deliver to the Contractor all or any part of the securities held by you pursuant to this agreement (or any moneys derived from the sale of such securities, or the

negotiation of the City of Kirkland's warrants) except in accordance with written instructions from the City of Kirkland. Compliance with such instructions shall relieve you of any further liability related thereto. The estimated completion date on the contract underlying this Escrow Agreement is _____.

4. The Contractor agrees to pay you as compensation for your services hereunder as follows:

Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with you pursuant to this agreement until and unless the City of Kirkland directs the release to the Contractor of the securities and moneys held hereunder whereupon you shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of your fees as provided for hereinabove. In the event that you are made a party to any litigation with respect to the property held by you hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that you are required to render any service not provided for in these instructions, or that there is any assignment of the interests of this escrow or any modification hereof, you shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorneys fees occasioned by such default, delay, controversy, or litigation.

5. This agreement shall not be binding until executed by the Contractor and the City of Kirkland and accepted by you.
6. This instrument contains the entire agreement between you, the Contractor and the City of Kirkland, with respect to this escrow and you are not a part nor bound by any instrument or agreement other than this; you shall not be required to take notice of any default or any other matter nor be bound by nor required to give notice or demand, nor required to take any action whatever, except as herein expressly provided; you shall not be liable for any loss or damage not caused by your own negligence or willful misconduct.
7. The foregoing provisions shall be binding upon the assigns, successors, personal representatives, and heirs of the parties hereto.
8. The Contractor's Federal Income Tax Identification number is _____.

** Please note: Written release will be issued by the Director of Finance & Administration. For further information, contact the Purchasing Agent at (425) 587-3123.

The undersigned have read and hereby approve the instructions as given above governing the administration of this escrow and do hereby execute this agreement on this _____ day of _____, 2____.

CONTRACTOR:

CITY OF KIRKLAND:

By: _____
Signature

By: _____
Signature

Print or Type Name

Print or Type Name

Title

Title

Address: _____

123 Fifth Avenue
Kirkland, Washington 98033

The above escrow instructions received and accepted this _____ day of _____, 2____.

ESCROW BANK OR TRUST CO:

By: _____
Authorized Signature

Print or Type Name

Title

Securities Authorized by City of Kirkland (select one):

1. Bills, certificates, notes or bonds of the United States;
2. Other obligations of the United States or its agencies;
3. Obligations of any corporation wholly-owned by the government of the United States;
4. Indebtedness of the Federal National Mortgage Association; and
5. Time deposits in commercial banks.

RETURN THIS SIGNED AGREEMENT TO:

City of Kirkland
Attn: Purchasing Agent
123 Fifth Avenue
Kirkland, Washington 98033



CITY OF KIRKLAND RETAINAGE RELEASE REQUIREMENTS

DOCUMENTS REQUIRED TO BE ON FILE PRIOR TO RELEASE OF RETAINAGE

1. Intent to Pay Prevailing Wage (Contractor must generate including for subcontractors)

Department of Labor/Industries
Employment Standards Division
General Administration Building
Olympia, Washington 98504
(360) 956-5335
2. Notice of Completion of Public Works Contract (City generates)

Department of Revenue
Excise Tax Division
Olympia, Washington 98504
3. Affidavit of Wages Paid (Contractor must generate including for subcontractors)

Department of Labor/Industries
4. Certificate of Release - State Excise Tax by Public Works Contractor (Letter from State to City)

Department of Revenue
Department of Labor and Industries
Employment Security Department
5. Receipt for Payment in full or Release of Lien signed by Lien Claimant and filed with City (Responsibility of Contractor to obtain)

Claims against retainage or Payment Bond filed with City by any such subcontractor, workman, or material supplier.
6. Current insurance certificate through retainage release (Contractor generates)
7. Produce final invoice for retainage if bond is not selected (Contractor generates)

SPECIAL PROVISIONS



City of Kirkland

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1
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4

**DIVISION 1
GENERAL REQUIREMENTS**

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DESCRIPTION OF WORK

(March 13, 1995 WSDOT GSP)

This Contract provides for the improvement of *** NE 85th St between 6th St and 114th Ave NE. The Work to be performed shall include: construction of a new structural earth retaining wall, construction of a new multi-use path atop the retaining wall, demolition and reconstruction of existing roadway, installation of a stormwater detention vault, installation of stormwater structures and pipe, installation of illumination systems, installation of signal systems, installation of street trees and landscape restoration, and installation of permanent signing and pavement markings.*** and other Work, all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

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1-01 DEFINITIONS AND TERMS

(January 19, 2022 APWA GSP)

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1-01.3 Definitions

Delete the heading **Completion Dates** and the three paragraphs that follow it, and replace them with the following:

Dates

Bid Opening Date

The date on which the Contracting Agency publicly opens and reads the Bids.

Award Date

The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

Contract Execution Date

The date the Contracting Agency officially binds the Agency to the Contract.

Notice to Proceed Date

The date stated in the Notice to Proceed on which the Contract time begins.

Substantial Completion Date

The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

Physical Completion Date

The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

Completion Date

The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

1 **Final Acceptance Date**

2 The date on which the Contracting Agency accepts the Work as complete.

3
4 Supplement this Section with the following:

5
6 All references in the Standard Specifications or WSDOT General Special Provisions, to the
7 terms “Department of Transportation”, “Washington State Transportation Commission”,
8 “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State
9 Treasurer” shall be revised to read “Contracting Agency”.

10
11 All references to the terms “State” or “state” shall be revised to read “Contracting Agency”
12 unless the reference is to an administrative agency of the State of Washington, a State
13 statute or regulation, or the context reasonably indicates otherwise.

14
15 All references to “State Materials Laboratory” shall be revised to read “Contracting Agency
16 designated location”.

17
18 All references to “final contract voucher certification” shall be interpreted to mean the
19 Contracting Agency form(s) by which final payment is authorized, and final completion and
20 acceptance granted.

21
22 **Additive**

23 A supplemental unit of work or group of bid items, identified separately in the Bid Proposal,
24 which may, at the discretion of the Contracting Agency, be awarded in addition to the base
25 bid.

26
27 **Alternate**

28 One of two or more units of work or groups of bid items, identified separately in the Bid
29 Proposal, from which the Contracting Agency may make a choice between different
30 methods or material of construction for performing the same work.

31
32 **Business Day**

33 A business day is any day from Monday through Friday except holidays as listed in Section
34 1-08.5.

35
36 **Contract Bond**

37 The definition in the Standard Specifications for “Contract Bond” applies to whatever bond
38 form(s) are required by the Contract Documents, which may be a combination of a Payment
39 Bond and a Performance Bond.

40
41 **Contract Documents**

42 See definition for “Contract”.

43
44 **Contract Time**

45 The period of time established by the terms and conditions of the Contract within which the
46 Work must be physically completed.

47
48 **Notice of Award**

49 The written notice from the Contracting Agency to the successful Bidder signifying the
50 Contracting Agency’s acceptance of the Bid Proposal.

1 **Notice to Proceed**

2 The written notice from the Contracting Agency or Engineer to the Contractor authorizing
3 and directing the Contractor to proceed with the Work and establishing the date on which
4 the Contract time begins.

5
6 **Traffic**

7 Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and
8 equestrian traffic.

9
10 **1-02 BID PROCEDURES AND CONDITIONS**

11 **1-02.1 Prequalification of Bidders**

12 Delete this Section and replace it with the following:

13 **1-02.1 Qualifications of Bidder**

14 **(January 24, 2011 APWA GSP)**

15
16 Before award of a public works contract, a bidder must meet at least the minimum
17 qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to
18 be awarded a public works project.

19
20 **(July 31, 2017 APWA GSP)**

21 Add the following new section:

22
23 **1-02.1(1) Supplemental Qualifications Criteria**

24
25 **(January 1, 2016 COK GSP)**

26 Bidders shall complete and sign the Statement of Bidder's Qualification contained in the
27 Proposal. Said form must be submitted with the bid proposal.

28 After bids are opened, Contracting Agency may request that a bidder or all bidders
29 provide supplemental information concerning responsibility in accordance with RCW
30 39.04.350(2). Such supplemental information shall be provided to Contracting Agency in
31 writing within two (2) business days of the request. Whether bidder supplies this
32 supplemental information within the time and manner specified or not, in addition to
33 consideration of this additional information, Contracting Agency may also base its
34 determination of responsibility on any available information related to the supplemental
35 criteria.

36 If Contracting Agency determines that a bidder is not responsible, Contracting Agency will
37 provide, in writing, the reasons for such determination at which point the contractor will be
38 deemed disqualified in accordance with WSDOT Standard Specification 1-02.14(10) and
39 the proposal rejected. The bidder may appeal the determination within two (2) business
40 days after receipt of the determination by presenting additional information to Contracting
41 Agency. Contracting Agency will consider the additional information before issuing its final
42 decision. If Contracting Agency's final decision affirms that the bidder is not responsible,
43 Contracting Agency will not execute a contract with any other bidder until two (2) business
44 days after the bidder determined to be not responsible has received Contracting Agency's
45 final determination. The failure or omission of a bidder to receive or examine any form,

1 instrument, addendum or other document shall in no way relieve any bidder from
2 obligations with respect to the bid or to the contract.

3 Any bidder may, within five (5) business days before the bid submittal deadline, request
4 that Contracting Agency modify the supplemental criteria. Contracting Agency will
5 evaluate the information submitted by the bidder and respond before the submittal
6 deadline. If the evaluation results in a change of the criteria, the Contracting Agency will
7 issue an Addendum to the bidding documents identifying the new criteria.

8 Supplemental Criteria. Contracting Agency acknowledges that Change Orders (changes,
9 extra work, requests for equitable adjustment and claims (defined as including demands
10 for money or time in excess of the contract amount or contract time)) are ubiquitous on
11 public works construction projects. The expeditious resolution of Change Orders is critical
12 to the on budget and on time successful completion of a public works project. Thus, the
13 City has established the following relevant supplemental bidder responsibility criteria
14 applicable for the project:

15 1. Criterion. The bidder must demonstrate a record of successful and timely
16 resolution of Change Orders including compliance with public contract Change
17 Order resolution procedures (e.g. timely notice of event giving rise to the Change
18 Order, timely submission of a statement of the cost and/or impact of the Change
19 Order unless the bidder is able to show extenuating circumstances that explain
20 bidder's failure to timely provide such information to the satisfaction of Contracting
21 Agency.

22 2. Documentation. As evidence that the bidder meets the supplemental responsibility
23 criteria, after bids are opened and within two (2) business days of the public notice
24 of Contracting Agency's tabulation of bids, the lowest responsive bidder must
25 submit the following documentation of public works projects completed within the
26 previous three (3) years and include for each project the following:

- 27 a. The Owner and contact information for the Owner;
- 28 b. A listing of Change Orders and a signed statement from the bidder that the
29 project timelines concerning resolution of Change Orders was complied
30 with, and if not, provide a written explanation of what the bidder believes to
31 be the extenuating circumstances excusing compliance with the Contract
32 Change Order notice and claim provisions.

33 Contracting Agency may contact owners listed by the bidders to validate the information
34 provided by a bidder.

35 **1-02.2 Plans and Specifications**
36 **(June 27, 2011 APWA GSP)**

37
38 Delete this section and replace it with the following:

39 Information as to where Bid Documents can be obtained or reviewed can be found in the
40 Call for Bids (~~Advertisement~~ **Invitation** for Bids) for the work.

1 After award of the contract, plans and specifications will be issued to the Contractor at no
2 cost as detailed below:

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11" x 17")	3	Furnished automatically upon award.
Contract Provisions	3	Furnished automatically upon award.
Large plans (e.g., 22" x 34")	2	Furnished only upon request.

3
4 Additional plans and Contract Provisions may be obtained by the Contractor from the
5 source stated in the Call for Bids, at the Contractor's own expense.

6 **1-02.4 Examination of Plans, Specifications and Site of Work**

7 8 **1-02.4(1) General**

9 Section 1-02.4(1) is supplemented with the following:
10 *(September 3, 2019 WSDOT GSP)*

11
12 The Reference Information for this project is available for review by the Bidder at
13 the following location:

14
15 *** Appendix A through Appendix H of this Project Manual ***

16
17 The Reference Information includes the following:

18
19 *** Pre-Approved Plans and Standard Details, Permits, Geotechnical Report,
20 Stormwater TIR, Critical Areas Report, Arborist Report, Cultural Resource Report and
21 Inadvertent Discovery Plan, Pothole Logs **

22 **1-02.5 Proposal Forms**

23 *(November 25, 2024 APWA GSP)*

24
25 Delete this section and replace it with the following:

26
27 The Proposal Form will identify the project and its location and describe the work. It will also
28 list estimated quantities, units of measurement, the items of work, and the materials to be
29 furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that
30 call for, but are not limited to, unit prices; extensions; summations; the total bid amount;
31 signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda;
32 the bidder's name, address, telephone number, and signature; the bidder's DBE
33 commitment, if applicable; a State of Washington Contractor's Registration Number; and a
34 Business License Number, if applicable. Bids shall be in legible figures (not words) written in
35 ink or typed and expressed in U.S. dollars. The required certifications are included as part of
36 the Proposal Form.

37

1 The Contracting Agency reserves the right to arrange the proposal forms with alternates and
2 additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all
3 alternates and additives set forth in the Proposal Form unless otherwise specified.
4

5 **1-02.6 Preparation of Proposal**
6 **(November 25, 2024 APWA Option B)**
7

8 Supplement the second paragraph with the following:

- 9 4. If a minimum bid amount has been established for any item, the unit or lump sum price
10 must equal or exceed the minimum amount stated.
11

12 Delete the last two paragraphs, and replace them with the following:
13

14 The Bidder shall submit with their Bid a completed Contractor Certification Wage Law
15 Compliance form, provided by the Contracting Agency. Failure to return this certification as
16 part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award.
17 A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.
18

19 The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.
20

21 A bid by a corporation shall be executed in the corporate name, by the president or a vice
22 president (or other corporate officer accompanied by evidence of authority to sign).
23

24 A bid by a partnership shall be executed in the partnership name and signed by a partner.
25

26 A bid by a joint venture shall be executed in the joint venture name and signed by a member
27 of the joint venture.
28

29 **1-02.7 Bid Deposit**
30 **(March 8, 2013 APWA GSP)**
31

32 Supplement this section with the following:

33 Bid bonds shall contain the following:

- 34 1. Contracting Agency-assigned number for the project;
35 2. Name of the project;
36 3. The Contracting Agency named as obligee;
37 4. The amount of the bid bond stated either as a dollar figure or as a percentage which
38 represents five percent of the maximum bid amount that could be awarded;
39 5. Signature of the bidder's officer empowered to sign official statements. The
40 signature of the person authorized to submit the bid should agree with the signature
41 on the bond, and the title of the person must accompany the said signature;
42 6. The signature of the surety's officer empowered to sign the bond and the power of
43 attorney.
44

45 If so stated in the Contract Provisions, bidder must use the bond form included in the
46 Contract Provisions.

47 If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.
48

1 **1-02.8 Noncollusion Declaration and Lobbying Certification**
2 **(January 1, 2016 COK GSP)**

3
4 The following new paragraph is inserted at the end of Section 1-02.8:

5
6 **Conflict of Interest**

7 The bidder affirms that it presently has no interest and shall not acquire any interest, direct
8 or indirect, which would conflict in any manner or degree with the performance of its
9 services hereunder. The Contractor further covenants that in the performance of this
10 contract, no person having any conflicting interest shall be employed. Any interest on the
11 part of the Contractor or its employees must be disclosed forthwith to the City of Kirkland.
12 If this contract is within the scope of a Federal Housing and Community Development
13 Block Grant program, the Contractor further covenants that no person who presently
14 exercises any functions or responsibilities in connection with the block grant program has
15 any personal financial interest, direct or indirect, in this contract.
16

17 **1-02.10 Withdrawing, Revising, or Supplementing Proposal**
18 **(July 23, 2015 APWA GSP)**

19
20 Delete this section, and replace it with the following:

21
22 After submitting a physical Bid Proposal to the Contracting Agency, the Bidder may
23 withdraw, revise, or supplement it if:

- 24 1. The Bidder submits a written request signed by an authorized person and
25 physically delivers it to the place designated for receipt of Bid Proposals, and
- 26 2. The Contracting Agency receives the request before the time set for receipt of Bid
27 Proposals, and
- 28 3. The revised or supplemented Bid Proposal (if any) is received by the Contracting
29 Agency before the time set for receipt of Bid Proposals.
30

31 If the Bidder's request to withdraw, revise, or supplement its Bid Proposal is received
32 before the time set for receipt of Bid Proposals, the Contracting Agency will return the
33 unopened Proposal package to the Bidder. The Bidder must then submit the revised or
34 supplemented package in its entirety. If the Bidder does not submit a revised or
35 supplemented package, then its bid shall be considered withdrawn.
36

37 Late revised or supplemented Bid Proposals or late withdrawal requests will be date
38 recorded by the Contracting Agency and returned unopened. Mailed, emailed, or faxed
39 requests to withdraw, revise, or supplement a Bid Proposal are not acceptable.
40

41 **1-02.12 Public Opening of Proposal**

42
43 Section 1-02.12 is supplemented with the following:
44 **(July 19, 2022 COK SP)**

45
46 ***Date of Opening Bids***

47 Sealed Bids are to be received at the following location prior to the time specified:
48

49 At the City of Kirkland in the office of the City of Kirkland Council Chambers,
50 City Hall, 123 Fifth Avenue, Kirkland, Washington 98033 until 2:00 P.M. of the Bid opening

1 date. The Bid opening date for this project is February 5, 2025. Bids received will be publicly
2 opened and read after 3:00 P. M. on this date. Bids will not be received after this date and time.
3

4 **1-02.13 Irregular Proposals**

5 **(September 3, 2024 APWA GSP modified)**
6

7 Delete this section and replace it with the following:
8

- 9 1. A Proposal will be considered irregular and *may* be rejected if:
 - 10 a. The Bidder is not prequalified when so required;
 - 11 b. The Bidder adds provisions reserving the right to reject or accept the Award, or
12 enter into the Contract;
 - 13 c. A price per unit cannot be determined from the Bid Proposal;
 - 14 d. The Proposal form is not properly executed;
 - 15 e. The Bidder fails to submit or properly complete a subcontractor list (WSDOT
16 Form 271-015), if applicable, as required in Section 1-02.6;
 - 17 f. The Bidder fails to submit or properly complete a Disadvantaged Business
18 Enterprise Certification (WSDOT Form 272-056), if applicable, as required in
19 Section 1-02.6;
 - 20 g. The Bidder fails to submit Written Confirmations (WSDOT Form 422-031) from
21 each DBE firm listed on the Bidder's completed DBE Utilization Certification that
22 they are in agreement with the bidder's DBE participation commitment, if
23 applicable, as required in Section 1-02.6, or if the written confirmation that is
24 submitted fails to meet the requirements of the Special Provisions;
 - 25 h. The Bidder fails to submit DBE Good Faith Effort documentation, if applicable,
26 as required in Section 1-02.6, or if the documentation that is submitted fails to
27 demonstrate that a Good Faith Effort to meet the Condition of Award in
28 accordance with Section 1-07.11;
 - 29 i. The Bidder fails to submit a DBE Bid Item Breakdown (WSDOT Form 272-054),
30 if applicable, as required in Section 1-02.6, or if the documentation that is
31 submitted fails to meet the requirements of the Special Provisions;
 - 32 j. The Bidder fails to submit the Bidder Questionnaire (DOT Form 272-022), if
33 applicable as required by Section 1-02.6, or if the documentation that is
34 submitted fails to meet the requirements of the Special Provisions; or
 - 35 k. The Bid Proposal does not constitute a definite and unqualified offer to meet the
36 material terms of the Bid invitation.
- 37
38
39 2. A Proposal may be considered irregular and may be rejected if:
 - 40 a. The Proposal does not include a unit price for every Bid item;
 - 41 b. Any of the unit prices are excessively unbalanced (either above or below the
42 amount of a reasonable Bid) to the potential detriment of the Contracting
43 Agency;
 - 44 c. The authorized Proposal Form furnished by the Contracting Agency is not used
45 or is altered;
 - 46 d. The completed Proposal form contains unauthorized additions, deletions,
47 alternate Bids, or conditions;
 - 48 e. Receipt of Addenda is not acknowledged;
 - 49 f. A member of a joint venture or partnership and the joint venture or partnership
50 submit Proposals for the same project (in such an instance, both Bids may be
51 rejected); or
52

1 **1-02.14 Disqualification of Bidders**
2 **(May 17, 2018 APWA GSP, Option B)**

3
4 Delete this section and replace it with the following:

5
6 A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder
7 responsibility criteria in RCW 39.04.350(1), as amended; or does not meet Supplemental
8 Criteria 1-7 listed in this Section.

9
10 The Contracting Agency will verify that the Bidder meets the mandatory bidder
11 responsibility criteria in RCW 39.04.350(1), and Supplemental Criteria 1-2. Evidence that
12 the Bidder meets Supplemental Criteria 3-7 shall be provided by the Bidder as stated later
13 in this Section.

14
15 1. **Delinquent State Taxes**

16
17 A Criterion: The Bidder shall not owe delinquent taxes to the Washington State
18 Department of Revenue without a payment plan approved by the Department of
19 Revenue.

20
21 B. Documentation: The Bidder, if and when required as detailed below, shall sign a
22 statement (on a form to be provided by the Contracting Agency) that the Bidder
23 does not owe delinquent taxes to the Washington State Department of Revenue,
24 or if delinquent taxes are owed to the Washington State Department of Revenue,
25 the Bidder must submit a written payment plan approved by the Department of
26 Revenue, to the Contracting Agency by the deadline listed below.

27
28 2. **Federal Debarment**

29
30 A Criterion: The Bidder shall not currently be debarred or suspended by the
31 Federal government.

32
33 B. Documentation: The Bidder shall not be listed as having an “active exclusion” on
34 the U.S. government’s “System for Award Management” database
35 (www.sam.gov).

36
37 3. **Subcontractor Responsibility**

38
39 A Criterion: The Bidder’s standard subcontract form shall include the subcontractor
40 responsibility language required by RCW 39.06.020, and the Bidder shall have
41 an established procedure which it utilizes to validate the responsibility of each of
42 its subcontractors. The Bidder’s subcontract form shall also include a
43 requirement that each of its subcontractors shall have and document a similar
44 procedure to determine whether the sub-tier subcontractors with whom it
45 contracts are also “responsible” subcontractors as defined by RCW 39.06.020.

46
47 B. Documentation: The Bidder, if and when required as detailed below, shall submit
48 a copy of its standard subcontract form for review by the Contracting Agency, and
49 a written description of its procedure for validating the responsibility of
50 subcontractors with which it contracts.
51

1 4. **Claims Against Retainage and Bonds**
2

3 A Criterion: The Bidder shall not have a record of excessive claims filed against the
4 retainage or payment bonds for public works projects in the three years prior to
5 the bid submittal date, that demonstrate a lack of effective management by the
6 Bidder of making timely and appropriate payments to its subcontractors,
7 suppliers, and workers, unless there are extenuating circumstances and such
8 circumstances are deemed acceptable to the Contracting Agency.
9

10 B. Documentation: The Bidder, if and when required as detailed below, shall submit
11 a list of the public works projects completed in the three years prior to the bid
12 submittal date that have had claims against retainage and bonds and include for
13 each project the following information:
14

- 15 • Name of project
- 16 • The owner and contact information for the owner;
- 17 • A list of claims filed against the retainage and/or payment bond for any of the
- 18 projects listed;
- 19 • A written explanation of the circumstances surrounding each claim and the
- 20 ultimate resolution of the claim.
- 21

22 5. **Public Bidding Crime**
23

24 A Criterion: The Bidder and/or its owners shall not have been convicted of a crime
25 involving bidding on a public works contract in the five years prior to the bid
26 submittal date.
27

28 B. Documentation: The Bidder, if and when required as detailed below, shall sign a
29 statement (on a form to be provided by the Contracting Agency) that the Bidder
30 and/or its owners have not been convicted of a crime involving bidding on a
31 public works contract.
32

33 6. **Termination for Cause / Termination for Default**
34

35 A Criterion: The Bidder shall not have had any public works contract terminated for
36 cause or terminated for default by a government agency in the five years prior to
37 the bid submittal date, unless there are extenuating circumstances and such
38 circumstances are deemed acceptable to the Contracting Agency.
39

40 B. Documentation: The Bidder, if and when required as detailed below, shall sign a
41 statement (on a form to be provided by the Contracting Agency) that the Bidder
42 has not had any public works contract terminated for cause or terminated for
43 default by a government agency in the five years prior to the bid submittal date;
44 or if Bidder was terminated, describe the circumstances. .
45

46 7. **Lawsuits**
47

48 A Criterion: The Bidder shall not have lawsuits with judgments entered against the
49 Bidder in the five years prior to the bid submittal date that demonstrate a pattern
50 of failing to meet the terms of contracts, unless there are extenuating

1 circumstances and such circumstances are deemed acceptable to the
2 Contracting Agency
3

- 4 B. Documentation: The Bidder, if and when required as detailed below, shall sign a
5 statement (on a form to be provided by the Contracting Agency) that the Bidder
6 has not had any lawsuits with judgments entered against the Bidder in the five
7 years prior to the bid submittal date that demonstrate a pattern of failing to meet
8 the terms of contracts, or shall submit a list of all lawsuits with judgments entered
9 against the Bidder in the five years prior to the bid submittal date, along with a
10 written explanation of the circumstances surrounding each such lawsuit. The
11 Contracting Agency shall evaluate these explanations to determine whether the
12 lawsuits demonstrate a pattern of failing to meet of terms of construction related
13 contracts
14

15 As evidence that the Bidder meets the Supplemental Criteria stated above, the apparent
16 low Bidder must submit to the Contracting Agency by 12:00 P.M. (noon) of the second
17 business day following the bid submittal deadline, a written statement verifying that the
18 Bidder meets the supplemental criteria together with supporting documentation (sufficient
19 in the sole judgment of the Contracting Agency) demonstrating compliance with the
20 Supplemental Criteria. The Contracting Agency reserves the right to request further
21 documentation as needed from the low Bidder and documentation from other Bidders as
22 well to assess Bidder responsibility and compliance with all bidder responsibility criteria.
23 The Contracting Agency also reserves the right to obtain information from third-parties and
24 independent sources of information concerning a Bidder's compliance with the mandatory
25 and supplemental criteria, and to use that information in their evaluation. The Contracting
26 Agency may consider mitigating factors in determining whether the Bidder complies with
27 the requirements of the supplemental criteria.
28

29 The basis for evaluation of Bidder compliance with these mandatory and supplemental
30 criteria shall include any documents or facts obtained by Contracting Agency (whether
31 from the Bidder or third parties) including but not limited to: (i) financial, historical, or
32 operational data from the Bidder; (ii) information obtained directly by the Contracting
33 Agency from others for whom the Bidder has worked, or other public agencies or private
34 enterprises; and (iii) any additional information obtained by the Contracting Agency which
35 is believed to be relevant to the matter.
36

37 If the Contracting Agency determines the Bidder does not meet the bidder responsibility
38 criteria above and is therefore not a responsible Bidder, the Contracting Agency shall
39 notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees
40 with this determination, it may appeal the determination within two (2) business days of the
41 Contracting Agency's determination by presenting its appeal and any additional
42 information to the Contracting Agency. The Contracting Agency will consider the appeal
43 and any additional information before issuing its final determination. If the final
44 determination affirms that the Bidder is not responsible, the Contracting Agency will not
45 execute a contract with any other Bidder until at least two business days after the Bidder
46 determined to be not responsible has received the Contracting Agency's final
47 determination.
48

49 Request to Change Supplemental Bidder Responsibility Criteria Prior To Bid: Bidders with
50 concerns about the relevancy or restrictiveness of the Supplemental Bidder Responsibility
51 Criteria may make or submit requests to the Contracting Agency to modify the criteria.

1 Such requests shall be in writing, describe the nature of the concerns, and propose
2 specific modifications to the criteria. Bidders shall submit such requests to the Contracting
3 Agency no later than five (5) business days prior to the bid submittal deadline and address
4 the request to the Project Engineer or such other person designated by the Contracting
5 Agency in the Bid Documents.
6

7 **1-02.15 Pre-Award Information**
8 **(December 30, 2022 APWA GSP)**
9

10 Revise this section to read:

11
12 Before awarding any contract, the Contracting Agency may require one or more of these
13 items or actions of the apparent lowest responsible bidder:

- 14 1. A complete statement of the origin, composition, and manufacture of any or all
15 materials to be used,
- 16 2. Samples of these materials for quality and fitness tests,
- 17 3. A progress schedule (in a form the Contracting Agency requires) showing the order of
18 and time required for the various phases of the work,
- 19 4. A breakdown of costs assigned to any bid item,
- 20 5. Attendance at a conference with the Engineer or representatives of the Engineer,
- 21 6. Obtain, and furnish a copy of, a business license to do business in the city or county
22 where the work is located.
- 23 7. Any other information or action taken that is deemed necessary to ensure that the
24 bidder is the lowest responsible bidder.
25

26 **1-03 AWARD AND EXECUTION OF CONTRACT**
27

28 **1-03.1 Consideration of Bids**
29 **(December 30, 2022 APWA GSP)**
30

31 Revise the first paragraph to read:

32
33 After opening and reading proposals, the Contracting Agency will check them for correctness
34 of extensions of the prices per unit and the total price. If a discrepancy exists between the
35 price per unit and the extended amount of any bid item, the price per unit will control. If a
36 minimum bid amount has been established for any item and the bidder's unit or lump sum
37 price is less than the minimum specified amount, the Contracting Agency will unilaterally
38 revise the unit or lump sum price, to the minimum specified amount and recalculate the
39 extension. The total of extensions, corrected where necessary, including sales taxes where
40 applicable and such additives and/or alternates as selected by the Contracting Agency, will be
41 used by the Contracting Agency for award purposes and to fix the Awarded Contract Price
42 amount and the amount of the contract bond.
43

44 **1-03.3 Execution of Contract**
45 **(July 8, 2024 APWA GSP Option A)**
46

47 Revise this section to read:
48

1 Within 3 calendar days of Award date (not including Saturdays, Sundays and Holidays), the
2 successful Bidder shall provide the information necessary to execute the Contract to the
3 Contracting Agency. The Bidder shall send the contact information, including the full name,
4 email address, and phone number, for the authorized signer and bonding agent to the
5 Contracting Agency.
6

7 Copies of the Contract Provisions, including the unsigned Form of Contract, will be available
8 for signature by the successful bidder on the first business day following award. The number
9 of copies to be executed by the Contractor will be determined by the Contracting Agency.
10

11 Within 10 calendar days after the award date, the successful bidder shall return the signed
12 Contracting Agency-prepared contract, an insurance certification as required by Section 1-
13 07.18, a satisfactory bond as required by law and Section 1-03.4, the Transfer of Coverage
14 form for the Construction Stormwater General Permit with sections I, III, and VIII completed
15 when provided. Before execution of the contract by the Contracting Agency, the successful
16 bidder shall provide any pre-award information the Contracting Agency may require under
17 Section 1-02.15.
18

19 Until the Contracting Agency executes a contract, no proposal shall bind the Contracting
20 Agency nor shall any work begin within the project limits or within Contracting Agency-
21 furnished sites. The Contractor shall bear all risks for any work begun outside such areas
22 and for any materials ordered before the contract is executed by the Contracting Agency.
23

24 If the bidder experiences circumstances beyond their control that prevents return of the
25 contract documents within the calendar days after the award date stated above, the
26 Contracting Agency may grant up to a maximum of 10 additional calendar days for return of
27 the documents, provided the Contracting Agency deems the circumstances warrant it.
28

29 **1-03.4 Contract Bond** 30 **(January 1, 2016 COK GSP)**

31
32 Revise the first paragraph to read:

33 The successful bidder shall provide executed payment and performance bond(s) for the full
34 contract amount. Separate payment and performance bonds are required and each shall
35 be for the full contract amount. The bond(s) shall:

- 36 1. Be on Contracting Agency-furnished form(s);
- 37 2. Be signed by an approved surety (or sureties) that:
 - 38 a. Is registered with the Washington State Insurance Commissioner, and
 - 39 b. Appears on the current Authorized Insurance List in the State of Washington
40 published by the Office of the Insurance Commissioner, and
 - 41 c. Have an A.M. best rating of A:VII or better.
- 42 3. Guarantee that the Contractor will perform and comply with all obligations, duties, and
43 conditions under the Contract, including but not limited to the duty and obligation to
44 indemnify, defend, and protect the Contracting Agency against all losses and claims
45 related directly or indirectly from any failure:
 - 46 a. Of the Contractor (or any of the employees, subcontractors, or lower tier
47 subcontractors of the Contractor) to faithfully perform and comply with all contract
48 obligations, conditions, and duties, or

- 1 b. Of the Contractor (or the subcontractors or lower tier subcontractors of the
- 2 Contractor) to pay all laborers, mechanics, subcontractors, lower tier
- 3 subcontractors, material person, or any other person who provides supplies or
- 4 provisions for carrying out the work;
- 5 4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the
- 6 project under titles 50, 51, and 82 RCW; and
- 7 5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the
- 8 bond; and
- 9 6. Be signed by an officer of the Contractor empowered to sign official statements (sole
- 10 proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by
- 11 the president or vice president, unless accompanied by written proof of the authority
- 12 of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution,
- 13 power of attorney, or a letter to such effect signed by the president or vice president).

14
15 **1-03.7 Judicial Review**
16 ***(December 30, 2022 APWA GSP)***

17
18 Revise this section to read:

19
20 All decisions made by the Contracting Agency regarding the Award and execution of the

21 Contract or Bid rejection shall be conclusive subject to the scope of judicial review permitted

22 under Washington Law. Such review, if any, shall be timely filed in the Superior Court of the

23 county where the Contracting Agency headquarters is located, provided that where an action

24 is asserted against a county, RCW 36.01.050 shall control venue and jurisdiction.

25
26 **1-04 SCOPE OF THE WORK**

27
28 **1-04.1 Intent of the Contract**

29 ***(January 1, 2016 COK GSP)***

30 Section 1-04.1 is supplemented with the following:

31 All materials, tools, labor, and guarantees thereof of required to complete the work shall

32 be furnished and supplied in accordance with the Plans, these Special Provisions, the

33 Standard Specifications, and City of Kirkland Pre-Approved (Standard) Plans and Policies.

34 The Contractor shall include all costs of doing this work within the contract bid item prices.

35 **1-04.2 Coordination of Contract Documents, Plans, Special Provisions,**

36 **Specifications, and Addenda**

37
38 ***(December 30, 2022 APWA GSP) Revised***

39
40 Revise the second paragraph to read:

- 41
42 Any inconsistency in the parts of the contract shall be resolved by following this order of
- 43 precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):
- 44 1. Addenda,
 - 45 2. Proposal Form,
 - 46 3. Special Provisions,

- 1 4. Contract Plans,
- 2 5. WSDOT Standard Specifications,
- 3 6. Contracting Agency's Standard Plans, Policies, or Details (if any), and
- 4 7. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

5
6 **1-04.4 Changes**

7
8 *(January 19, 2022 APWA GSP)*

9
10 The first two sentences of the last paragraph of Section 1-04.4 are deleted.

11
12 *(*****)*

13 Supplement this Section with the following:

14
15 The Contractor shall immediately notify the Engineer of any item that the Contractor constitutes
16 to be a significant change and supplement the notification with enough information to determine
17 an adjustment cost prior to the performance of the Work. Notifications for cost impacts must be
18 made within 10 calendar days of a written or oral order from the Engineer, including any
19 direction, instruction, interpretation, or determination by the Engineer, or immediately if the order
20 is within 10 days prior to the work. If a basis of adjustment cannot be agreed upon before the
21 Work, Contractor may follow the protest procedures in accordance with 1-04.5.

22
23 **1-04.4(1) Minor Changes**

24
25 Section 1-04.4(1) is supplemented with the following:
26 *(July 19, 2022 COK GSP)*

27
28 **Unexpected Site Changes**

29 Payments or credits for changes amounting to \$15,000 or less may be made
30 under the Bid item "Unexpected Site Changes". At the discretion of the
31 Contracting Agency, this procedure for Unexpected Site Changes may be used
32 in lieu of the more formal procedure as outlined in Section 1-04.4, Changes.

33
34 The Contractor will be provided a copy of the completed order for Unexpected
35 Site Changes. The agreement for the Unexpected Site Changes will be
36 documented by signature of the Contractor, or notation of verbal agreement. If
37 the Contractor is in disagreement with anything required by the order for
38 Unexpected Site Changes, the Contractor may protest the order as provided in Section
39 1-04.5.

40
41 Payments will be determined in accordance with Section 1-09.6. For the purpose
42 of providing a common Proposal for all Bidders, the Contracting Agency has
43 entered an amount for "Unexpected Site Changes" in the Proposal to become a
44 part of the total Bid by the Contractor. Credits will be determined in accordance
45 with Section 1-09.4.

46
47 **1-04.6 Variation in Estimated Quantities**
48 *(December 30, 2022 APWA GSP)*

49
50 Revise the first paragraph to read:

1
2 Payment to the Contractor will be made only for the actual quantities of Work performed and
3 accepted in conformance with the Contract. When the accepted quantity of Work performed
4 under a unit item varies from the original Proposal quantity, payment will be at the unit Contract
5 price for all Work unless the total accepted quantity of the Contract item, adjusted to exclude
6 added or deleted amounts included in change orders accepted by both parties, increases or
7 decreases by more than 25 percent from the original Proposal quantity, and if the total
8 extended bid price for that item at time of award is equal to or greater than 10 percent of the
9 total contract price at time of award. In that case, payment for contract work may be adjusted
10 as described herein:
11

12 **1-04.11 Final Cleanup**

13
14 Section 1-04.11 is deleted in its entirety and replaced with the following:
15 **(January 1, 2016 COK GSP)**
16

17 From time to time or as may be ordered by the Engineer, the Contractor shall cleanup and
18 remove debris, refuse, and discarded materials of any kind resulting from the Work.
19 Failure to do so may result in cleanup done by the Owner and the cost thereof charged to
20 the Contractor and deducted from the Contractor's progress estimate.
21

22 The Contractor shall perform final cleanup as provided in this Section. The Engineer will
23 not establish the Physical Completion Date until this is done. All public and private
24 property the Contractor occupied to do the Work, including but not limited to the Street
25 Right of Way, material sites, borrow and waste sites, and construction staging area shall
26 be left neat and presentable. Immediately after completion of the Work, the Contractor
27 shall cleanup and remove all refuse and unused materials of any kind resulting from the
28 Work. Failure to do the final cleanup may result in the final cleanup being done by the
29 Owner and the cost thereof charged to the Contractor and deducted from the Contractor's
30 final progress estimate.

31 The Contractor shall:

- 32 1. Remove all rubbish, surplus materials, discarded materials, falsework, piling, camp
33 buildings, temporary structures, equipment, and debris;
- 34 2. Remove from the Project, all unneeded, oversized rock left from grading, surfacing,
35 or paving unless the Contract specifies otherwise or the Engineer approves
36 otherwise;
- 37 3. On all concrete and asphalt pavement work, flush the pavement clean and remove
38 the wash water and debris;
- 39 4. Sweep and flush structure decks and remove wash water and debris;
- 40 5. Clean out from all open culverts and drains, inlets, catch basins, manholes and
41 water main valve chambers, within the limits of the Project Site, all dirt and debris of
42 any kind that is the result of the Contractor's operations;
- 43 6. Level and fine grade all excavated material not used for backfill where the Contract
44 requires;
- 45 7. Fine grade all slopes;
- 46 8. Upon completion of grading and cleanup operations at any privately-owned site for
47 which a written agreement between the Contractor and property owner is required,

1 the Contractor shall obtain and furnish to the Engineer a written release from all
2 damages, duly executed by the property owner, stating that the restoration of the
3 property has been satisfactorily accomplished.

4 All costs associated with cleanup shall be incidental to the Work and shall be included in
5 the various Bid items in the Bid, and shall be at no additional cost to the Owner.

6 **1-04.12 Water, Electrical Power, Telecommunications, and Sanitary Sewer** 7 **Requirements**

8 *(January 27, 2021 COK GSP)*
9

10 Add new Section 1-04.12.

11
12 Except where specifically indicated otherwise in the Contract Documents, the
13 Contractor shall make all necessary arrangements and bear all costs as incidental to
14 the Contract for permits, temporary hook-ups, and decommissioning of
15 temporary services for all water, electrical power, telecommunications, and/or sanitary
16 sewer services necessary for performance of the Work.
17

18 **1-05 CONTROL OF WORK**

19 **1-05.1 Authority of the Engineer**

20 *(January 27, 2021 COK GSP)*

21 Section 1-05.1 is supplemented with the following:

22 When directed by the Engineer for purposes such as (but not limited to) maintaining
23 unrestricted public access and use outside the Work area, maintaining an appropriate
24 construction site appearance, and/or allowing full access to the Work by the Engineer or other
25 City personnel, the Contractor shall cleanup and remove debris, refuse, and discarded
26 materials of any kind resulting from the Work to meet those purposes. These activities shall
27 be incidental to the bid items associated with the Work that generated the debris, refuse, and
28 discarded materials. Failure to do so may result in cleanup done by the Owner and the cost
29 thereof charged to the Contractor by either deducting from the next Progress Payment to the
30 Contractor or direct billing from the City

31 **1-05.4 Conformity With and Deviations From Plans and Stakes**

32 Section 1-05.4 is supplemented with the following:
33

34 *(September 3, 2024 WSDOT GSP)*

35 **Contractor Surveying - Structure**

36 The Contracting Agency has provided primary survey control in the Plans.
37

38 The Contractor shall be responsible for setting, maintaining, and resetting all alignment
39 stakes, slope stakes, and grades necessary for the construction of bridges, noise walls,
40 retaining walls, buried structures, and marine structures. Except for the survey control data
41 to be furnished by the Contracting Agency, calculations, surveying, and measuring required
42 for setting and maintaining the necessary lines and grades shall be the Contractor's
43 responsibility.
44

1 The Contractor shall inform the Engineer when monuments are discovered that were not
2 identified in the Plans and construction activity may disturb or damage the monuments. All
3 monuments noted on the plans "DO NOT DISTURB" shall be protected throughout the length
4 of the project or be replaced at the Contractor's expense.

5
6 Detailed survey records shall be maintained, including a description of the work performed
7 on each shift, the methods utilized, and the control points used. The record shall be adequate
8 to allow the survey to be reproduced. A copy of each day's record shall be provided to the
9 Engineer within three working days after the end of the shift.

10
11 The meaning of words and terms used in this provision shall be as listed in "Definitions of
12 Surveying and Associated Terms" current edition, published by the American Congress on
13 Surveying and Mapping and the American Society of Civil Engineers.

14
15 The survey work by the Contractor shall include but not be limited to the following:

- 16
17 1. Verify the primary horizontal and vertical control furnished by the Contracting
18 Agency and expand into secondary control by adding stakes and hubs as well as
19 additional survey control needed for the project. Provide descriptions of secondary
20 control to the Contracting Agency. The description shall include coordinates and
21 elevations of all secondary control points.
- 22
23 2. Establish, by placing hubs and/or marked stakes, the location with offsets of
24 foundation shafts and piles.
- 25
26 3. Establish offsets to footing centerline of bearing for structure excavation.
- 27
28 4. Establish offsets to footing centerline of bearing for footing forms.
- 29
30 5. Establish wing wall, retaining wall, noise wall, and buried structure horizontal
31 alignment.
- 32
33 6. Establish retaining wall top of wall profile grade.
- 34
35 7. Establish buried structure profile grade.
- 36
37 8. Establish elevation benchmarks for all substructure formwork.
- 38
39 9. Check elevations at top of footing concrete line inside footing formwork immediately
40 prior to concrete placement.
- 41
42 10. Check column location and pier centerline of bearing at top of footing immediately
43 prior to concrete placement.
- 44
45 11. Establish location and plumbness of column forms, and monitor column plumbness
46 during concrete placement.
- 47
48 12. Establish pier cap and crossbeam top and bottom elevations and centerline of
49 bearing.
- 50

- 1 13. Check pier cap and crossbeam top and bottom elevations and centerline of bearing
2 prior to and during concrete placement.
- 3
- 4 14. Establish grout pad locations and elevations.
- 5
- 6 15. Establish structure bearing locations and elevations, including locations of anchor
7 bolt assemblies.
- 8
- 9 16. Establish box girder bottom slab grades and locations.
- 10
- 11 17. Establish girder and/or web wall profiles and locations.
- 12
- 13 18. Establish diaphragm locations and centerline of bearing.
- 14
- 15 19. Establish roadway slab alignment, grades and provide dimensions from top of girder
16 to top of roadway slab. Set elevations for deck paving machine rails.
- 17
- 18 20. Establish traffic barrier and curb profile.
- 19
- 20 21. Profile all girders prior to the placement of any deadload or construction live load
21 that may affect the girder's profile.
- 22
- 23 22. Establish locations for marine structures including fixed and floating berthing
24 structures, vehicle and pedestrian foundations and spans, and marine-based
25 buildings.
- 26

27 The Contractor shall provide the Contracting Agency copies of any calculations and staking
28 data when requested by the Engineer.

29
30 The Contractor shall submit the computed elevations at the top of bridge decks as a Type 2
31 Working Drawing. To compute top of bridge deck elevations, elevations shall be taken at the
32 tenth points along the centerline of each girder web from center-to-center of bearing. For
33 girders exceeding 100 feet in length, the elevations shall be taken at equivalent intervals not
34 to exceed 10 feet.

35
36 The Contractor shall ensure a surveying accuracy within the following tolerances:

	<u>Vertical</u>	<u>Horizontal</u>
38 1. Stationing on structures		±0.02 feet
39 2. Alignment on structures		±0.02 feet
40 3. Superstructure elevations	±0.01 feet variation from plan elevation	
41		
42 4. Substructure	±0.02 feet variation from Plan grades.	
43		
44		
45		
46		
47		

48 Buried structures shall be within the tolerances described in Section 6-20.3.

49

1 The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will
2 not change the requirements for normal checking by the Contractor.
3

4 When staking the following items, the Contractor shall perform independent checks from
5 different secondary control to ensure that the points staked for these items are within the
6 specified survey accuracy tolerances:
7

- 8 Piles
- 9 Shafts
- 10 Footings
- 11 Columns

12
13 The Contractor shall calculate coordinates for the points associated with piles, shafts,
14 footings and columns. The Contracting Agency will verify these coordinates prior to issuing
15 approval to the Contractor for commencing with the survey work. The Contracting Agency
16 will require up to seven calendar days from the date the data is received to issuing approval.
17

18 Contract work to be performed using contractor-provided stakes shall not begin until the
19 stakes are approved by the Contracting Agency. Such approval shall not relieve the
20 Contractor of responsibility for the accuracy of the stakes.
21

22 **Payment**

23 Payment will be made for the following bid item when included in the proposal:
24

25 "Structure Surveying", lump sum.
26

27 The lump sum contract price for "Structure Surveying" shall be full pay for all labor,
28 equipment, materials, and supervision utilized to perform the Work specified, including any
29 resurveying, checking, correction of errors, replacement of missing or damaged stakes, and
30 coordination efforts.
31

32 **(January 13, 2021 WSDOT GSP)**
33 **Contractor Surveying - Roadway**

34 The Contracting Agency has provided primary survey control in the Plans.
35

36 The Contractor shall be responsible for setting, maintaining, and resetting all alignment
37 stakes, slope stakes, and grades necessary for the construction of the roadbed, drainage,
38 surfacing, paving, channelization and pavement marking, illumination and signals, guardrails
39 and barriers, and signing. Except for the survey control data to be furnished by the
40 Contracting Agency, calculations, surveying, and measuring required for setting and
41 maintaining the necessary lines and grades shall be the Contractor's responsibility.
42

43 The Contractor shall inform the Engineer when monuments are discovered that were not
44 identified in the Plans and construction activity may disturb or damage the monuments. All
45 monuments noted on the plans "DO NOT DISTURB" shall be protected throughout the length
46 of the project or be replaced at the Contractors expense.
47

48 Detailed survey records shall be maintained, including a description of the work performed
49 on each shift, the methods utilized, and the control points used. The record shall be adequate

1 to allow the survey to be reproduced. A copy of each day's record shall be provided to the
2 Engineer within three working days after the end of the shift.
3

4 The meaning of words and terms used in this provision shall be as listed in "Definitions of
5 Surveying and Associated Terms" current edition, published by the American Congress on
6 Surveying and Mapping and the American Society of Civil Engineers.
7

8 The survey work shall include but not be limited to the following:
9

- 10 1. Verify the primary horizontal and vertical control furnished by the Contracting
11 Agency, and expand into secondary control by adding stakes and hubs as well as
12 additional survey control needed for the project. Provide descriptions of secondary
13 control to the Contracting Agency. The description shall include coordinates and
14 elevations of all secondary control points.
15
- 16 2. Establish, the centerlines of all alignments, by placing hubs, stakes, or marks on
17 centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and at
18 points on the alignments spaced no further than 50 feet.
19
- 20 3. Establish clearing limits, placing stakes at all angle points and at intermediate points
21 not more than 50 feet apart. The clearing and grubbing limits shall be 5 feet beyond
22 the toe of a fill and 10 feet beyond the top of a cut unless otherwise shown in the
23 Plans.
24
- 25 4. Establish grading limits, placing slope stakes at centerline increments not more than
26 50 feet apart. Establish offset reference to all slope stakes. If Global Positioning
27 Satellite (GPS) Machine Controls are used to provide grade control, then slope
28 stakes may be omitted at the discretion of the Contractor
29
- 30 5. Establish the horizontal and vertical location of all drainage features, placing offset
31 stakes to all drainage structures and to pipes at a horizontal interval not greater
32 than 25 feet.
33
- 34 6. Establish roadbed and surfacing elevations by placing stakes at the top of subgrade
35 and at the top of each course of surfacing. Subgrade and surfacing stakes shall be
36 set at horizontal intervals not greater than 50 feet in tangent sections, 25 feet in
37 curve sections with a radius less than 300 feet, and at 10-foot intervals in
38 intersection radii with a radius less than 10 feet. Transversely, stakes shall be
39 placed at all locations where the roadway slope changes and at additional points
40 such that the transverse spacing of stakes is not more than 12 feet. If GPS Machine
41 Controls are used to provide grade control, then roadbed and surfacing stakes may
42 be omitted at the discretion of the Contractor.
43
- 44 7. Establish intermediate elevation benchmarks as needed to check work throughout
45 the project.
46
- 47 8. Provide references for paving pins at 25-foot intervals or provide simultaneous
48 surveying to establish location and elevation of paving pins as they are being
49 placed.
50

- 1 9. For all other types of construction included in this provision, (including but not limited to channelization and pavement marking, illumination and signals, guardrails and barriers, and signing) provide staking and layout as necessary to adequately locate, construct, and check the specific construction activity.
- 2
- 3
- 4
- 5
- 6 10. Contractor shall determine if changes are needed to the profiles or roadway sections shown in the Contract Plans in order to achieve proper smoothness and drainage where matching into existing features, such as a smooth transition from new pavement to existing pavement. The Contractor shall submit these changes to the Engineer for review and approval 10 days prior to the beginning of work.
- 7
- 8
- 9

10 The Contractor shall provide the Contracting Agency copies of any calculations and staking data when requested by the Engineer.

11 The Contractor shall ensure a surveying accuracy within the following tolerances:

	<u>Vertical</u>	<u>Horizontal</u>
Slope stakes	±0.10 feet	±0.10 feet
Subgrade grade stakes set 0.04 feet below grade	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Stationing on roadway	N/A	±0.1 feet
Alignment on roadway	N/A	±0.04 feet
Surfacing grade stakes	±0.01 feet	±0.5 feet (parallel to alignment) ±0.1 feet (normal to alignment)
Roadway paving pins for surfacing or paving	±0.01 feet	±0.2 feet (parallel to alignment) ±0.1 feet (normal to alignment)

12 The Contracting Agency may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

13 When staking roadway alignment and stationing, the Contractor shall perform independent checks from different secondary control to ensure that the points staked are within the specified survey accuracy tolerances.

14 The Contractor shall calculate coordinates for the alignment. The Contracting Agency will verify these coordinates prior to issuing approval to the Contractor for commencing with the work. The Contracting Agency will require up to seven calendar days from the date the data is received.

1 Contract work to be performed using contractor-provided stakes shall not begin until the
2 stakes are approved by the Contracting Agency. Such approval shall not relieve the
3 Contractor of responsibility for the accuracy of the stakes.
4

5 Stakes shall be marked in accordance with Standard Plan A-10.10. When stakes are needed
6 that are not described in the Plans, then those stakes shall be marked, at no additional cost
7 to the Contracting Agency as ordered by the Engineer.
8

9 **Payment**

10 Payment will be made for the following bid item when included in the proposal:

11 "Roadway Surveying", lump sum.
12
13

14 The lump sum contract price for "Roadway Surveying" shall be full pay for all labor,
15 equipment, materials, and supervision utilized to perform the Work specified, including any
16 resurveying, checking, correction of errors, replacement of missing or damaged stakes, and
17 coordination efforts.
18

19 (*****)

20 Section 1-05.4 is further supplemented, prior to the "Payment" section for roadway surveying,
21 with the following:

22 Unless the Contractor elects to use the plan quantities included in the Bid form for
23 Roadway Excavation Including Haul as defined in Special Provision Section 2-03, the
24 Contractor shall have a Surveyor licensed in the State of Washington conduct ground
25 surveys at a minimum of 50-foot intervals throughout the length of the project in order to
26 determine pay quantities for all work described in Standard Specification 2-03, and Special
27 Provision Section 2-03. These surveys shall be conducted so as to develop complete
28 Digital Terrain Models (DTMs) at two key stages during the project construction. These
29 key stages are defined as follows:
30

31 1. "Existing Ground DTM"

32 Before any construction activity begins in order to establish a DTM of the existing
33 ground.

34 2. "Maximum Excavation DTM"

35 At the completion of all roadway excavation work to establish a DTM representing
36 the maximum roadway excavation conducted by the Contractor. Excavation for
37 work other than roadway excavation (such as, but not limited to, utility trenches,
38 illumination trenches, water line trenches, stormwater facilities, and retaining walls)
39 are measured and paid for in other areas of work.
40

41 The Contractor may choose to accept either or both of the Contracting Agency's DTM
42 surfaces that were created during the project's design phase for Items 1 and 2 above. If
43 the Contractor elects to do so, they must inform the Contracting Agency in writing of this
44 decision before any construction activity begins. Once the Contracting Agency accepts
45 the request, no adjustments to the design phase DTMs will be made or allowed.
46

47 (*****)

48 **Licensed Surveyors**

49 The Contractor shall be responsible for reestablishing or locating legal survey markers such
50 as GLO monuments or property corner monuments, conduct boundary surveys to determine

1 Contracting Agency right-of-way locations, and obtain, review and analyze deeds and
2 records as necessary to determine these boundaries. The Contracting Agency will provide
3 “rights of entry” as needed by the Contractor to perform the work.
4

5 The Contractor shall brush out or clear and stake or mark the right-of-way lines as designated
6 by the Engineer.
7

8 The Contractor shall inform the Engineer when monuments are discovered that were not
9 identified in the Plans and construction activity may disturb or damage the monuments. All
10 monuments noted on the plans “DO NOT DISTURB” shall be protected throughout the length
11 of the project or be replaced at Contractors expense.
12

13 When required, the Contractor shall prepare and file a Record of Survey map in accordance
14 with RCW 58.09 and provide a recorded copy to the Contracting Agency. The Contracting
15 Agency will provide all existing base maps, existing horizontal and vertical control, and other
16 material available with Washington State Plane Coordinate information to the Contractor.
17 The Contracting Agency will also provide maps, plan sheets, and/or aerial photographs
18 clearly identifying the limits of the areas to be surveyed. The Contractor shall establish
19 Washington State Plane Coordinates on all points required in the Record of Survey and other
20 points designated in the Contract documents.
21

22 Existing right of way documentation, existing base maps, existing horizontal and vertical
23 control descriptions, maps, plan sheets, aerial photographs and all other available material
24 may be viewed by prospective bidders at the office of the Engineer.
25

26 The Contractor shall perform all of the necessary calculations for the contracted survey work
27 and shall provide copies of these calculations to the Contracting Agency. Electronic files of
28 all survey data shall be provided and in a format acceptable to the Contracting Agency.
29

30 All survey work performed by the Contractor shall conform to all applicable sections of the
31 Revised Code of Washington and the Washington Administrative Code.
32

33 The Contractor shall provide all traffic control, signing, and temporary traffic control devices
34 in order to provide a safe work zone.
35

36 **Payment**

37 The Work described above under the subsection **Licensed Surveyors** shall be incidental to
38 the Bid Item “Roadway Surveying.”
39

40 **(*****)**

41 **Contractor Surveying – ADA Features**

42 **ADA Feature Staking Requirements**

43 The Contractor shall be responsible for setting, maintaining, and resetting all alignment
44 stakes, and grades necessary for the construction of the ADA features. Calculations,
45 surveying, and measuring required for setting and maintaining the necessary lines and
46 grades shall be the Contractor's responsibility. The Contractor shall build the ADA
47 features within the Specifications in the Standard Plans and Contract Documents.
48

49 **ADA Feature Contract Compliance**

1 The Contractor shall be responsible for completing measurements to verify all ADA
2 features comply with the Contract in the presence of the Engineer.

3
4 **ADA Feature As-Built Measurements**

5 The Contractor shall be responsible for providing electronic As-Built records of all ADA
6 feature improvements completed in the Contract.

7
8 In the instance where an ADA Feature does not meet accessibility requirements, all Work
9 to replace non-conforming Work and then to measure, record the as-built
10 measurements, and transmitting the electronic records to the Engineer shall be
11 completed at no additional cost to the Contracting Agency.

12
13 **Payment**

14 The Work described above under the subsection **Contractor Surveying – ADA Features**
15 shall be incidental to the Bid Item “Roadway Surveying.”

16
17 **1-05.7 Removal of Defective and Unauthorized Work**
18 **(October 1, 2005 APWA GSP)**

19 Supplement this Section with the following:

20
21 If the Contractor fails to remedy defective or unauthorized Work within the time specified in a
22 written notice from the Engineer, or fails to perform any part of the Work required by the
23 Contract Documents, the Engineer may correct and remedy such Work as may be identified
24 in the written notice, with Contracting Agency forces or by such other means as the
25 Contracting Agency may deem necessary.

26
27 If the Contractor fails to comply with a written order to remedy what the Engineer determines
28 to be an emergency situation, the Engineer may have the defective and unauthorized Work
29 corrected immediately, have the rejected Work removed and replaced, or have Work the
30 Contractor refuses to perform completed by using Contracting Agency or other forces. An
31 emergency situation is any situation when, in the opinion of the Engineer, a delay in its
32 remedy could be potentially unsafe, or might cause serious risk of loss or damage to the
33 public.

34
35 Direct or indirect costs incurred by the Contracting Agency attributable to correcting and
36 remedying defective or unauthorized Work, or Work the Contractor failed or refused to
37 perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from
38 monies due, or to become due, the Contractor. Such direct and indirect costs shall include in
39 particular, but without limitation, compensation for additional professional services required,
40 and costs for repair and replacement of Work of others destroyed or damaged by correction,
41 removal, or replacement of the Contractor’s unauthorized Work.

42
43 No adjustment in Contract time or compensation will be allowed because of the delay in the
44 performance of the Work attributable to the exercise of the Contracting Agency’s rights
45 provided by this Section.

46
47 The rights exercised under the provisions of this Section shall not diminish the Contracting
48 Agency’s right to pursue any other avenue for additional remedy or damages with respect to
49 the Contractor’s failure to perform the Work as required.

1 **1-05.9 Equipment**

2 (January 1, 2016 COK GSP)

3 The following new paragraph is inserted between the second and third paragraphs:

4 Use of equipment with metal tracks will not be permitted on concrete or asphalt surfaces
5 unless otherwise authorized by the Engineer.

6 **1-05.10 Guarantees**

7 (January 1, 2016 COK GSP)

8 Section 1-05.10 is supplemented as follows:

9 Guarantees and maintenance bonds shall be in accordance with City of Kirkland, State of
10 Washington, Public Works Performance and Payment Bond forms and requirements. The
11 performance bond shall be in the full amount of contract. The Contractor guarantees all
12 items of material, equipment, and workmanship against mechanical, structural, or other
13 defects for which the Contractor is responsible that may develop or become evident within
14 a period of one year from and after acceptance of the work by the Owner. This guarantee
15 shall be understood to require prompt remedy of defects upon written notification to the
16 Contractor. If the Owner determines the defect requires immediate repair, the Owner
17 may, without further notice to the Contractor, make the necessary corrections, the cost of
18 which shall be borne by the Contractor. To support the above guarantee, the Contractor's
19 performance bond shall remain in full force and effect for one year following the
20 acceptance of the project by the Owner.

21 **1-05.11 Final Inspection**

22 Delete this section and replace it with the following:

23

24 **1-05.11 Final Inspections and Operational Testing**

25 (October 1, 2005 APWA GSP)

26

27 **1-05.11(1) Substantial Completion Date**

28 When the Contractor considers the work to be substantially complete, the Contractor shall
29 so notify the Engineer and request the Engineer establish the Substantial Completion
30 Date. The Contractor's request shall list the specific items of work that remain to be
31 completed in order to reach physical completion. The Engineer will schedule an inspection
32 of the work with the Contractor to determine the status of completion. The Engineer may
33 also establish the Substantial Completion Date unilaterally.

34 If, after this inspection, the Engineer concurs with the Contractor that the work is
35 substantially complete and ready for its intended use, the Engineer, by written notice to
36 the Contractor, will set the Substantial Completion Date. If, after this inspection the
37 Engineer does not consider the work substantially complete and ready for its intended
38 use, the Engineer will, by written notice, so notify the Contractor giving the reasons
39 therefor.

40 Upon receipt of written notice concurring in or denying substantial completion, whichever
41 is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized
42 interruption, the work necessary to reach Substantial and Physical Completion. The
43 Contractor shall provide the Engineer with a revised schedule indicating when the
44 Contractor expects to reach substantial and physical completion of the work.

1 The above process shall be repeated until the Engineer establishes the Substantial
2 Completion Date and the Contractor considers the work physically complete and ready for
3 final inspection.

4 **1-05.11(2) Final Inspection and Physical Completion Date**

5 When the Contractor considers the work physically complete and ready for final
6 inspection, the Contractor by written notice, shall request the Engineer to schedule a final
7 inspection. The Engineer will set a date for final inspection. The Engineer and the
8 Contractor will then make a final inspection and the Engineer will notify the Contractor in
9 writing of all particulars in which the final inspection reveals the work incomplete or
10 unacceptable. The Contractor shall immediately take such corrective measures as are
11 necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously,
12 diligently, and without interruption until physical completion of the listed deficiencies. This
13 process will continue until the Engineer is satisfied the listed deficiencies have been
14 corrected.

15 If action to correct the listed deficiencies is not initiated within 7 days after receipt of the
16 written notice listing the deficiencies, the Engineer may, upon written notice to the
17 Contractor, take whatever steps are necessary to correct those deficiencies pursuant to
18 Section 1-05.7.

19 The Contractor will not be allowed an extension of contract time because of a delay in the
20 performance of the work attributable to the exercise of the Engineer's right hereunder.

21 Upon correction of all deficiencies, the Engineer will notify the Contractor and the
22 Contracting Agency, in writing, of the date upon which the work was considered physically
23 complete. That date shall constitute the Physical Completion Date of the contract, but
24 shall not imply acceptance of the work or that all the obligations of the Contractor under
25 the contract have been fulfilled.

26 **1-05.11(3) Operational Testing**

27 It is the intent of the Contracting Agency to have at the Physical Completion Date a
28 complete and operable system. Therefore when the work involves the installation of
29 machinery or other mechanical equipment; street lighting, electrical distribution or signal
30 systems; irrigation systems; buildings; or other similar work it may be desirable for the
31 Engineer to have the Contractor operate and test the work for a period of time after final
32 inspection but prior to the physical completion date. Whenever items of work are listed in
33 the Contract Provisions for operational testing they shall be fully tested under operating
34 conditions for the time period specified to ensure their acceptability prior to the Physical
35 Completion Date. During and following the test period, the Contractor shall correct any
36 items of workmanship, materials, or equipment which prove faulty, or that are not in first
37 class operating condition. Equipment, electrical controls, meters, or other devices and
38 equipment to be tested during this period shall be tested under the observation of the
39 Engineer, so that the Engineer may determine their suitability for the purpose for which
40 they were installed. The Physical Completion Date cannot be established until testing and
41 corrections have been completed to the satisfaction of the Engineer.

42 The costs for power, gas, labor, material, supplies, and everything else needed to
43 successfully complete operational testing, shall be included in the unit contract prices
44 related to the system being tested, unless specifically set forth otherwise in the proposal.

1 Operational and test periods, when required by the Engineer, shall not affect a
2 manufacturer's guaranties or warranties furnished under the terms of the contract.

3 Add the following new section:
4

5 **1-05.12(1) One-Year Guarantee Period**
6 **(March 8, 2013 APWA GSP)**
7

8 The Contractor shall return to the project and repair or replace all defects in workmanship
9 and material discovered within one year after Final Acceptance of the Work. The
10 Contractor shall start work to remedy any such defects within 7 calendar days of receiving
11 Contracting Agency's written notice of a defect, and shall complete such work within the
12 time stated in the Contracting Agency's notice. In case of an emergency, where damage
13 may result from delay or where loss of services may result, such corrections may be made
14 by the Contracting Agency's own forces or another contractor, in which case the cost of
15 corrections shall be paid by the Contractor. In the event the Contractor does not
16 accomplish corrections within the time specified, the work will be otherwise accomplished
17 and the cost of same shall be paid by the Contractor.
18

19 When corrections of defects are made, the Contractor shall then be responsible for
20 correcting all defects in workmanship and materials in the corrected work for one year after
21 acceptance of the corrections by Contracting Agency.
22

23 This guarantee is supplemental to and does not limit or affect the requirements that the
24 Contractor's work comply with the requirements of the Contract or any other legal rights or
25 remedies of the Contracting Agency.
26

27 **1-05.13 Superintendents, Labor and Equipment of Contractor**
28 **(August 14, 2013 APWA GSP)**

29 Delete the sixth and seventh paragraph of this section.

30 **1-05.14 Cooperation With Other Contractors**
31 **(*****)**

32 Section 1-05.14 is supplemented with the following:
33

34 The Contractor is responsible for providing adequate management staff in order to
35 participate in the coordination between the multiple contractors. This includes attendance of
36 at least one managing representative at the "I-405/Northeast 85th Street Interchange and
37 Inline BRT Station Project MOT and Traffic Task Force" bi-weekly meetings. This may also
38 include attendance of interface focused coordination meetings, attendance at progress
39 meetings, and field coordination meetings. Costs associated with the cooperation between
40 contractors shall be included as a cost of managing the project and no separate pay item
41 will be made.
42

43 **(March 13, 1995 WSDOT GSP)**
44 **Other Contracts or Other Work**

45 It is anticipated that the following Work adjacent to or within the limits of this project will be
46 performed by others during the course of this project and will require coordination of the
47 Work:
48

1 ***

2 **I-405/Northeast 85th Street Interchange and Inline BRT Station Project**

3 John Starbard
4 Regional Projects Manager (City of Kirkland)
5 425-587-3911
6 JStarbard@kirklandwa.gov

7
8 **Central Preservation**

9 Will Denton
10 Senior Project Engineer (City of Kirkland)
11 425-587-3872
12 WDenton@kirklandwa.gov

13 ***

14
15
16 **1-05.15 Method of Serving Notices**
17 **(January 4, 2024 APWA GSP)**

18
19 Revise the second paragraph to read:

20
21 All correspondence from the Contractor shall be served and directed to the Engineer. All
22 correspondence from the Contractor constituting any notification, notice of protest, notice
23 of dispute, or other correspondence constituting notification required to be furnished
24 under the Contract, must be written in paper format, hand delivered or sent via certified
25 mail delivery service with return receipt requested to the Engineer's office. Electronic
26 copies such as e-mails or electronically delivered copies of correspondence will not
27 constitute such notice and will not comply with the requirements of the Contract.
28

29 **1-05.16 Water and Power**

30 **(October 1, 2005 APWA GSP)**

31 The Contractor shall make necessary arrangements, and shall bear the costs for power
32 and water necessary for the performance of the work, unless the contract includes power
33 and water as a pay item.

34 Add the following new section:

35 **1-05.18 Record Drawings**

36 **(March 8, 2013 APWA GSP)**

37 The Contractor shall maintain one set of full size plans for Record Drawings, updated with
38 clear and accurate red-lined field revisions on a daily basis, and within 2 business days
39 after receipt of information that a change in Work has occurred. The Contractor shall not
40 conceal any work until the required information is recorded.

41 This Record Drawing set shall be used for this purpose alone, shall be kept separate from
42 other Plan sheets, and shall be clearly marked as Record Drawings. These Record
43 Drawings shall be kept on site at the Contractor's field office, and shall be available for
44 review by the Contracting Agency at all times. The Contractor shall bring the Record
45 Drawings to each progress meeting for review.

1 The preparation and upkeep of the Record Drawings is to be the assigned responsibility of
 2 a single, experienced, and qualified individual. The quality of the Record Drawings, in
 3 terms of accuracy, clarity, and completeness, is to be adequate to allow the Contracting
 4 Agency to modify the computer-aided drafting (CAD) Contract Drawings to produce a
 5 complete set of Record Drawings for the Contracting Agency without further investigative
 6 effort by the Contracting Agency.

7 The Record Drawing markups shall document all changes in the Work, both concealed and visible.
 8 Items that must be shown on the markups include but are not limited to:

- 9
- 10 • Actual dimensions, arrangement, and materials used when different than shown in the
- 11 Plans.
- 12 • Changes made by Change Order or Field Order.
- 13 • Changes made by the Contractor.
- 14 • Accurate locations of storm sewer, sanitary sewer, water mains and other water
- 15 appurtenances, structures, conduits, light standards, vaults, width of roadways,
- 16 sidewalks, landscaping areas, building footprints, channelization and pavement
- 17 markings, etc. Include pipe invert elevations, top of castings (manholes, inlets, etc.).
- 18

19 If the Contract calls for the Contracting Agency to do all surveying and staking, the
 20 Contracting Agency will provide the elevations at the tolerances the Contracting Agency
 21 requires for the Record Drawings.

22

23 When the Contract calls for the Contractor to do the surveying/staking, the applicable
 24 tolerance limits include, but are not limited to the following:

	Vertical	Horizontal
As-built sanitary & storm invert and grate elevations	± 0.01 foot	± 0.01 foot
As-built monumentation	± 0.001 foot	± 0.001 foot
As-built waterlines, inverts, valves, hydrants	± 0.10 foot	± 0.10 foot
As-built ponds/swales/water features	± 0.10 foot	± 0.10 foot
As-built buildings (fin. Floor elev.)	± 0.01 foot	± 0.10 foot
As-built gas lines, power, TV, Tel, Com	± 0.10 foot	± 0.10 foot
As-built signs, signals, etc.	N/A	± 0.10 foot

26

27 Making Entries on the Record Drawings:

- 28
- 29 • Use erasable colored pencil (not ink) for all markings on the Record Drawings,
- 30 conforming to the following color code:
- 31 • Additions - Red
- 32 • Deletions - Green
- 33 • Comments - Blue
- 34 • Dimensions - Graphite
- 35 • Provide the applicable reference for all entries, such as the change order number, the
- 36 request for information (RFI) number, or the approved shop drawing number.
- 37 • Date all entries.

- Clearly identify all items in the entry with notes similar to those in the Contract Drawings (such as pipe symbols, centerline elevations, materials, pipe joint abbreviations, etc.).

The Contractor shall certify on the Record Drawings that said drawings are an accurate depiction of built conditions, and in conformance with the requirements detailed above. The Contractor shall submit final Record Drawings to the Contracting Agency. Contracting Agency acceptance of the Record Drawings is one of the requirements for achieving Physical Completion.

Payment will be made for the following bid item:

Record Drawings (Minimum Bid \$ 5,000)	Lump Sum
-------------------------------------------	----------

Payment for this item will be made on a prorated monthly basis for work completed in accordance with this section up to 75% of the lump sum bid. The final 25% of the lump sum item will be paid upon submittal and approval of the completed Record Drawings set prepared in conformance with these Special Provisions.

A minimum bid amount has been entered in the Bid Proposal for this item. The Contractor must bid at least that amount.

Add new Section 1-05.19.

1-05.19 DAILY CONSTRUCTION REPORT AND WEEKLY COORDINATION MEETINGS

The Contractor and Subcontractors shall maintain daily, a Daily Construction Report of the Work. The Diary must be kept and maintained by Contractor's designated project superintendent(s). Entries must be made on a daily basis and must accurately represent all of the project activities on each day. Contractor shall provide signed copies of diary sheets from the previous week to Engineer at each Contractor and Contracting Agency weekly coordination meeting.

Every single diary sheet/page must have:

- Project name & number;
- Consecutive numbering of pages, and
- Typed or printed name, signature, and date of the person making the entry.

At a minimum the diary shall, for each day, have a separate entry detailing each of the following:

1. Day and date.
2. Weather conditions, including changes throughout the day.
3. Complete description of work accomplished during the day, with adequate references to the Plans and Contract Provisions so the reader can easily and accurately identify

- 1 said work on the Plans. Identify location/description of photographs or videos taken
2 that day.
- 3 4. Each and every changed condition, dispute or potential dispute, incident, accident, or
4 occurrence of any nature whatsoever which might affect Contractor, Contracting
5 Agency, or any third party in any manner. This shall be provided on a separate page
6 for other information.
- 7 5. List all materials received and stored on- or off-site by Contractor that day for future
8 installation, including the manner of storage and protection of the same.
- 9 6. List materials installed that day.
- 10 7. List all Subcontractors working on-site that day.
- 11 8. List the number of Contractor's employees working during each day, by category of
12 employment.
- 13 9. List Contractor's equipment on the site that day; showing which were in use, and
14 which idle.
- 15 10. Notations to explain inspections, testing, stake-out, and all other services furnished
16 by Contracting Agency or other party during the day.
- 17 11. Verify the daily (including non-work days) inspection and maintenance of traffic
18 control devices and condition of the traveled roadway surfaces.
- 19 12. Any other information that serves to give an accurate and complete record of the
20 nature, quantity, and quality of Contractor's progress on each day.
- 21 13. Add; Officials and visitors onsite
- 22 14. Change Orders
- 23 15. Occurrence of testing, staking or special inspections

24 It is expressly agreed between Contractor and Contracting Agency that the Daily Diary
25 maintained by Contractor shall be the "Contractor's Book of Original Entry" for the
26 documentation of any potential claims or disputes that might arise during this Contract. Failure
27 of Contractor to maintain this Diary in the manner described above will constitute a waiver of
28 any such claims or disputes by Contractor.

29 Preparation of the Daily Diary by the contractor shall be incidental to the unit prices for
30 applicable bid items. No separate payment shall be made for preparation and maintaining the
31 Daily Diary.

32 Engineer or the Engineer's representative on the job site will also complete a Daily
33 Construction Report.

34 Contractor and Contracting Agency weekly coordination meetings are expected to be held at
35 or near the job site. Each weekly coordination meeting is expected to consist of a discussion
36 of work accomplished, ongoing and upcoming work, and the current status of the work
37 schedule, and a forecast for the coming period. Status of material submittals, RFIs, change
38 orders, progress payments, sublet requests and other documentation will be discussed as
39 well.

40 Costs associated with the Contractor and Contracting Agency weekly coordination meetings
41 shall be included as a cost of managing the project and no separate pay item will be made.

1
2 **1-06 CONTROL OF MATERIAL**

3
4 **1-06.1 Approval of Materials Prior to Use**

5 **(January 1, 2016 COK GSP)**

6 Section 1-06.1 is supplemented as follows:

7 Approval of a Material source shall not mean acceptance of the Material. The Material
8 shall meet the requirements of the Contract.

9 **1-06.1(4) Fabrication Inspection Expense**

10 **(June 27, 2011 AWWA GSP)**

11 Delete this section in its entirety.

12 **1-06.6 Recycled Materials**

13 *(January 4, 2016 APWA GSP Modified)*

14 Delete this Section, including its subsections, and replace it with the following:

15
16 The Contractor shall make their best effort to utilize recycled materials in the construction of
17 the project. However, recycled materials shall not be permitted to be used as trench backfill
18 for utilities. Approval of such material use shall be as detailed elsewhere in the Standard
19 Specifications.

20
21 Prior to Physical Completion the Contractor shall report the quantity of recycled materials
22 that were utilized in the construction of the project for each of the items listed in Section 9-
23 03.21. The report shall include hot mix asphalt, recycled concrete aggregate, recycled
24 glass, steel furnace slag and other recycled materials (e.g. utilization of on-site material and
25 aggregates from concrete returned to the supplier). The Contractor's report shall be
26 provided on DOT form 350-075 Recycled Materials Reporting.

27
28 **1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC**

29 **(January 1, 2021 COK GSP)**

30 **1-07.1 Laws to Be Observed**

31 Section 1-07.1 is supplemented with the following:

32 The Contractor shall at all times eliminate noise to the maximum practicable extent. Air
33 compressing plants shall be equipped with silencers, and the exhaust of all gasoline motors
34 or other power equipment shall be provided with mufflers. Special care shall be used to
35 avoid noise or other nuisances, and the Contractor shall strictly observe all federal, state,
36 and local regulations concerning noise.

37 The Contractor shall make an effort to reduce carbon emissions by turning off engines on
38 construction equipment not in active use, and on trucks that are idling while waiting to load
39 or unload material for five minutes or more.

40 **Compliance with Laws**

1 The Contractor shall comply with the requirements of all other City ordinances, state
2 statutes, laws, and regulations, whether or not stated herein, which are specifically
3 applicable to the public improvements and work to be performed.

4 The Contractor shall be subject to City of Kirkland Code enforcement, as required by
5 Kirkland Municipal Code (KMC) Chapter 1.12. The Contractor shall fully comply with and
6 satisfy all fines and costs assessed by code enforcement(s) prior to the Completion Date,
7 unless otherwise authorized by the City of Kirkland in writing.

8 **(October 1, 2005 APWA GSP modified)**

9 Supplement this section with the following:

10 In cases of conflict between different safety regulations, the more stringent regulation shall
11 apply.

12 The Washington State Department of Labor and Industries shall be the sole and
13 paramount administrative agency responsible for the administration of the provisions of
14 the Washington Industrial Safety and Health Act of 1973 (WISHA).

15 The Contractor shall maintain at the project site office, or other well known place at the
16 project site, all articles necessary for providing first aid to the injured. The Contractor shall
17 establish, publish, and make known to all employees, procedures for ensuring immediate
18 removal to a hospital, or doctor's care, persons, including employees, who may have been
19 injured on the project site. Employees should not be permitted to work on the project site
20 before the Contractor has established and made known procedures for removal of injured
21 persons to a hospital or a doctor's care.

22 The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of
23 the Contractor's plant, appliances, and methods, and for any damage or injury resulting
24 from their failure, or improper maintenance, use, or operation. The Contractor shall be
25 solely and completely responsible for the conditions of the project site, including safety for
26 all persons and property in the performance of the work. This requirement shall apply
27 continuously, and not be limited to normal working hours. The required or implied duty of
28 the Engineer to conduct construction review of the Contractor's performance does not,
29 and shall not, be intended to include review and adequacy of the Contractor's safety
30 measures in, on, or near the project site. All costs associated with providing and
31 maintaining a safe project site are incidental to other Bid items and no separate pay item
32 will be made.

33 **(January 1, 2016 COK GSP)**

34 **Contractor's Safety Responsibilities**

35 These construction documents and the joint and several phases of construction hereby
36 contemplated are to be governed at all times by applicable provisions of the federal
37 law(s), including but not limited to the latest amendments of the following:

38 Williams-Steiger Occupational Safety and Health Act of 1980, Public Law 91-596.

39 Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of
40 Federal Regulations.

1 This project, the Contractor and its subcontractors, shall, at all times, be governed by
2 Chapter XIII of Title 29, Code of Federal Regulations, Part 1518 - Safety and Health
3 Regulations for Construction (35 CFR 75), as amended to date.

4 To implement the program, and to provide safe and healthful working conditions for all
5 persons, the construction superintendent or his/her designated safety officer shall conduct
6 general project safety meetings at the site at least once each month during the course of
7 construction.

8 The prime contractor and all subcontractors shall immediately report all accidents, injuries,
9 and health hazards to the Engineer, in writing. This shall not obviate any mandatory
10 reporting under the provisions of the Occupational Safety and Health Act of 1970. This
11 program shall become a part of the contract documents and the contract between the
12 Owner and the Contractor, and all subcontractors, as though fully written therein.

13 Where the location of the work is in proximity to overhead wires and power lines, the
14 Contractor shall coordinate all work with the utility and shall provide for such measures as
15 may be necessary for the protection of the workers.

16 Section 1-07.1 is supplemented with the following:

17
18 **(April 3, 2006 WSDOT GSP)**
19 **Confined Space**

20 Confined spaces are known to exist at the following locations:

- 21
22 ***
23 Type 2 Catch Basins
24 Manholes
25 Stormwater Vaults
26 ***

27
28 The Contractor shall be fully responsible for the safety and health of all on-site workers and
29 compliant with Washington Administrative Code (WAC 296-809).

30
31 The Contractor shall prepare and implement a confined space program for each of the
32 confined spaces identified above. The Contractors Confined Space program shall be sent to
33 the contracting agency at least 30 days prior to the Contractor beginning Work in or adjacent
34 to the confined space. No Work shall be performed in or adjacent to the confined space until
35 the plan is submitted to the Engineer as required. The Contractor shall communicate with the
36 Project Engineer to ensure a coordinated effort for providing and maintaining a safe worksite
37 for both the Contracting Agency's and Contractor's workers when working in or near a
38 confined space.

39
40 All costs to prepare and implement the confined space program shall be included in the Bid
41 prices for the various items associated with the confined space Work.

42

1 **1-07.2 State Taxes**

2 Delete this Section, including its sub-sections, in its entirety and replace it with the following:

3
4 **1-07.2 State Sales Tax**

5 *(June 27, 2011 APWA GSP)*

6
7 The Washington State Department of Revenue has issued special rules on the State sales
8 tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor
9 should contact the Washington State Department of Revenue for answers to questions in
10 this area. The Contracting Agency will not adjust its payment if the Contractor bases a Bid
11 on a misunderstood tax liability.

12
13 The Contractor shall include all Contractor-paid taxes in the unit Bid prices or other Contract
14 amounts. In some cases, however, State retail sales tax will not be included. Section 1-
15 07.2(2) describes this exception.

16
17 The Contracting Agency will pay the retained percentage (or release the Contract Bond if a
18 “FHWA funded” project) only if the Contractor has obtained from the Washington State
19 Department of Revenue a certificate showing that all Contract-related taxes have been paid
20 (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor
21 any amount the Contractor may owe the Washington State Department of Revenue,
22 whether the amount owed relates to this Contract or not. Any amount so deducted will be
23 paid into the proper State fund.

24
25 **1-07.2(1) State Sales Tax — Rule 171**

26
27 WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets,
28 roads, etc., which are owned by a municipal corporation, or political subdivision of the State,
29 or by the United States, and which are used primarily for foot or vehicular traffic. This
30 includes storm or combined sewer systems within and included as a part of the street or
31 road drainage system and power lines when such are part of the Roadway lighting system.
32 For Work performed in such cases, the Contractor shall include Washington State Retail
33 Sales Taxes in the various unit Bid item prices, or other Contract amounts, including those
34 that the Contractor pays on the purchase of the materials, equipment, or supplies used or
35 consumed in doing the Work.

36
37 **1-07.2(2) State Sales Tax — Rule 170**

38
39 WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or
40 existing buildings, or other Structures, upon real property. This includes, but is not limited
41 to, the construction of streets, roads, Highways, etc., owned by the State of Washington;
42 water mains and their appurtenances; sanitary sewers and sewage disposal systems unless
43 such sewers and disposal systems are within, and a part of, a street or road drainage
44 system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in
45 or above streets or roads, unless such power lines become a part of a street or Roadway
46 lighting system; and installing or attaching of any article of tangible personal property in or to
47 real property, whether or not such personal property becomes a part of the realty by virtue of
48 installation.

1 For Work performed in such cases, the Contractor shall collect from the Contracting Agency,
2 retail sales tax on the full Contract price. The Contracting Agency will automatically add this
3 sales tax to each payment to the Contractor. For this reason, the Contractor shall not
4 include the retail sales tax in the unit Bid item prices, or in any other Contract amount
5 subject to Rule 170, with the following exception.
6

7 Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or
8 a Subcontractor makes on the purchase or rental of tools, machinery, equipment, or
9 consumable supplies not integrated into the project. Such sales taxes shall be included in
10 the unit Bid item prices or in any other Contract amount.
11

12 **1-07.2(3) Services**

13
14 The Contractor shall not collect retail sales tax from the Contracting Agency on any Contract
15 wholly for professional or other services (as defined in Washington State Department of
16 Revenue Rules 138 and 244).
17

18 **1-07.5(3) State Department of Ecology** 19 **(January 1, 2021 COK GSP)**

20 Section 1-07.5(3) is supplemented with the following:
21

22 Contractor shall comply with all requirements of the Construction Stormwater General
23 Permit (CSWGP), if this permit has been issued for this Work. Additionally, Contractor
24 shall comply with all applicable requirement of Kirkland Municipal Code KMC 15.52, as
25 this local code has been adopted to meet Washington State Department of Ecology
26 requirements for city stormwater management.
27

28 CSWGP Permit Number (if issued): **#WAR314109**
29

30 CSWGP coverage is typically only issued by the State Department of Ecology in the
31 event the disturbed area for the Work is greater than one (1) acre. In the event
32 CSWGP coverage has been issued for this Work, Contractor shall coordinate the
33 Transfer of the permit from the Contracting Agency to the Contractor prior to any
34 ground disturbance commencing in the Work area.
35

36 Unless identified otherwise in the Contract Documents, compliance with all
37 requirements of this Section, the CSWGP, and the Kirkland Municipal Code KMC
38 15.52 shall be incidental to Contract pay items.
39

40 Revise the paragraph 6 to read:
41

42 6. When a violation of the Construction Stormwater General Permit (CSWGP) and/or
43 Kirkland Municipal Code KMC 15.52 occurs, Contractor shall immediately notify the
44 City of Kirkland Spill Hotline (425) 587-3900. Contractor shall also report to the
45 Engineer and other agencies as identified in the Contractor's Spill Prevention,
46 Control, and Countermeasures (SPCC) Plan (prepared in accordance with Section 1-
47 07.15(1)).

48 Revise the paragraph 8 to read:
49

1 8. If directed by the Contracting Agency and instead of or in partial conjunction with a
2 Notice of Completion, transfer the CSWGP coverage to the Contracting Agency when
3 Physical Completion has been given and the Engineer has determined that the project
4 site is not destabilized from erosion.

5 **1-07.6 Permits and Licenses**

6 **(January 1, 2021 COK GSP)**

7 Replace item 6 of the second paragraph of this section with the following:
8

9 6. The permit costs the Contracting Agency nothing. This shall include, but not be limited
10 to, application and initial review fees, costs associated with fulfillment of all permit
11 requirements, additional operational fees assessed during the life of the permit.

12 Supplement second paragraph of this section with the following:
13

14 7. When a violation of the Construction Stormwater General Permit (CSWGP) and/or
15 Kirkland Municipal Code KMC 15.52 occurs, Contractor shall immediately notify the
16 City of Kirkland Spill Hotline (425) 587-3900. Contractor shall also report to the
17 Engineer and other agencies as identified in the Contractor's Spill Prevention,
18 Control, and Countermeasures (SPCC) Plan (prepared in accordance with Section 1-
19 07.15(1)).

20 **1-07.6(1) Permits for Sanitary Sewer Discharge for Construction Dewatering**

21 Add new Section 1-07.6(1)

22 **(January 1, 2021 COK GSP)**

23
24 The Contracting Agency has not obtained a King County Authorization for Construction
25 Dewatering or local sanitary sewer operating permits for this Work. Contractor proposals for
26 this method of construction stormwater disposal will be supported by the Contracting Agency
27 only if, as determined by the Engineer, the proposal meets all the requirements indicated in
28 Section 1-07.6 and this Section.

29
30 Contractors proposing to use sanitary sewer methods for construction dewatering and
31 discharge are directed to the King County web page for "Construction Dewatering" for
32 applications and information on the application process.
33

34 In addition to the requirements of Section 1-07.6, Contractor shall provide to the Engineer
35 the written permission obtained by the Contractor from the local sanitary sewer operating
36 agency for use of the sanitary sewer for construction dewatering discharge in advance of the
37 Contractor applying for either general or individual King County Authorization for
38 Construction Dewatering.
39

40 Unless otherwise indicated in the Contract Documents or by the Engineer in writing, no
41 claims for equitable adjustment of Contract Time will be approved in order to obtain King
42 County Authorizations and/or local sanitary sewer operating permits.
43

44 **1-07.6(2) Permits for Off-site Staging and Storage Areas**

45 Add new Section 1-07.6(2)

46 **(January 1, 2021 COK GSP)**

1
2 The Contracting Agency has not obtained any City of Kirkland Temporary Use Permits for
3 temporary use(s) of off-site areas or properties in the City of Kirkland for the purposes of
4 staging, materials storage, and/or any other Contractor-desired temporary uses during the
5 Work. A City of Kirkland Temporary Use Permit must be obtained by the Contractor for
6 temporary use for the Work of any off-site areas or properties not located in a City of
7 Kirkland right-of-way (ROW). This requirement is in addition to any permissions and/or
8 agreements reached between the Contractor and the property owner(s) as required in
9 Section 1-07.24.

10
11 “Off-site” will be taken to mean any area not designated as part of the Work in the Plans or
12 other Contract Documents.

13
14 A City of Kirkland Temporary Use Permit is not required for additional use of areas located in
15 a City of Kirkland right-of-way (ROW) and not indicated in the Plans or other Contract
16 Documents. However, the Contractor shall not occupy additional City of Kirkland ROW not
17 shown as part of the Work without advance written approval by the Engineer. Contractor
18 shall photograph and/or video document the existing conditions of ROW used. Any damage
19 or degradation of the existing conditions in these areas shall be repaired and/or replaced by
20 the Contractor at no additional cost to the City of Kirkland.

21
22 Contractor shall apply for a City of Kirkland Temporary Use Permit from the City of Kirkland
23 Planning and Building Department through <http://mybuildingpermit.com> . Contractor shall
24 also notify the Engineer when the Temporary Use Permit application has been submitted.

25
26 Unless otherwise indicated in the Contract Documents or by the Engineer in writing, no
27 claims for equitable adjustment of Contract Time will be allowed requesting additional time
28 required for the Contractor to obtain a City of Kirkland Temporary Use Permit for temporary
29 use of any off-site area or property not designated as part of the Work area in the Plans.
30

31 **1-07.7 Load Limits**

32 Section 1-07.7 is supplemented with the following:

33 34 ***(March 13, 1995 WSDOT GSP)***

35 If the sources of materials provided by the Contractor necessitates hauling over roads other
36 than State Highways, the Contractor shall, at the Contractor's expense, make all
37 arrangements for the use of the haul routes.
38

39 **1-07.8 High-Visibility Apparel**

40 The third and fourth paragraphs of Section 1-07.8 are revised to read:

41 42 ***(November 4, 2024 WSDOT GSP)***

43 High-visibility garments shall always be the outermost garments worn in a manner to ensure
44 360 degrees of uninterrupted background and retroreflective material encircling the torso.

45
46 High-visibility garments shall be labeled as, and in a condition compliant with the ANSI/ISEA
47 107-2015 publication entitled “American National Standard for High-Visibility Safety Apparel
48 and Accessories,” or equivalent revisions.
49

50 **1-07.8(1) Traffic Control Personnel**

51 Section 1-07.8(1) is revised to read:

CITY OF KIRKLAND
NE 85TH ST PED-BIKE CONNECTION
SPECIAL PROVISIONS

1
2 **(November 4, 2024 WSDOT GSP)**

3 All personnel performing the Work described in Section 1-10 (including traffic control
4 supervisors, flaggers, and others performing traffic control labor of any kind) shall comply
5 with the following:
6

- 7
- 8 1. During daylight hours with clear visibility, workers shall wear a high-visibility
9 ANSI/ISEA 107 Type R Class 2 or 3 garment with background material that are
10 fluorescent yellow-green, fluorescent orange-red, or fluorescent red in color;
11 and a high visibility hardhat that is white, yellow, yellow-green, orange, or red
12 in color; and
 - 13 2. During hours of darkness (½ hour before sunset to ½ hour after sunrise) or
14 other low-visibility conditions (snow, fog, etc.), workers shall wear a high-
15 visibility ANSI/ISEA 107 Type R Class 2 or 3 garment with background material
16 that are fluorescent yellow-green, fluorescent orange-red, or fluorescent red in
17 color; a high-visibility lower garment meeting ANSI/ISEA 107 Class E, and a
18 high visibility hardhat marked with at least 12 square inches of retroreflective
19 material applied to provide 360 degrees of visibility.
20

21 **1-07.9 Wages**

22
23 **1-07.9(3) Apprentices**
24 **(*****)**

25
26 Revise the title of this Section from “Apprentices” to “Apprentices and Other Labor”.

27
28 Section 1-07.9(3) is supplemented with the following:
29

30 **Apprentice Utilization**

31 This Contract includes an Apprentice Utilization Requirement. Fifteen percent or more
32 of project Labor Hours shall be performed by Apprentices unless Good Faith Efforts are
33 accepted. Apprentice Utilization will be determined using the Department of Labor and
34 Industries (L&I) online Prevailing Wage Intent & Affidavit (PWIA) system.
35

36 **Additional Apprentice and Other Labor Utilization Goals**

37 GOALS: Additionally, the City is receiving funding from Sound Transit for this project,
38 and the City is bound by a contract with Sound Transit that sets the following aspirational
39 project-wide goals:

- 40 • 20% of all hours worked, are to be worked by Washington State registered
41 apprentices,
- 42 • 21% of all hours worked are to be worked by workers of color, and
- 43 • 12% of all hours worked are to be worked by women.
44

45 **Definitions**

46 For the purposes of this specification the following definitions apply:
47

- 48 1. Apprentice is a person enrolled in a State-approved Apprenticeship Training
49 Program.
50

2. Apprentice Utilization is the apprentice labor hours, on the project, expressed as a percentage of project Labor Hours based on certified payrolls or the affidavits of wages paid, whichever is least. The percentage is not rounded up.
3. Apprentice Utilization Requirement is the minimum percentage of apprentice labor hours required by the Contract.
4. Good Faith Effort(s) (GFE) describes the Contractor's efforts to meet the Apprentice Utilization Requirement including but not limited to the specific steps as described elsewhere in this specification.
5. Labor Hours are the total hours performed by all workers receiving an hourly wage who are subject to prevailing wage requirements for work performed on the Contract as defined by RCW 39.04.310. Labor Hours are determined based on the scope of work performed by the individuals, rather than the title of their occupations in accordance with WAC 296-127.
6. State-approved Apprenticeship Training Program is an apprenticeship training program approved by the Washington State Apprenticeship Council.
7. Apprentice Wage Rates are the applicable wage rates that are to be paid for an apprentice registered in a training program, separate from Journey Level rates, as set by the Washington State Apprenticeship Training Council and Washington State Department of Labor and Industries (L&I).

Electronic Reporting

The Contractor shall use the PWIA System to submit the "Apprentice Utilization Plan". Reporting instructions are available in the application.

The Contractor and contactors of every tier level shall utilize Sound Transit's LCP Tracker software to track, monitor, and collect all workforce data through the collection of certified payroll information. Sound Transit will provide project level access to LCP Tracker, training on its use, assistance with information extraction, and electronic copies of the certified payrolls submitted by all contractors on the project.

Apprentice Utilization Plan

The Contractor shall submit an "Apprentice Utilization Plan" by filling out the Apprentice Utilization Plan Form (WSDOT Form 424-004) within 30 calendar days of execution, however no later than the preconstruction meeting, demonstrating how and when they intend to achieve the Apprentice Utilization Requirement. The Plan shall be in sufficient detail for the Engineer to track the Contractor's progress in meeting the utilization requirements. An Apprentice Utilization Plan shall be updated and resubmitted as the Work progresses or when requested by the Engineer.

If the Contractor is unable to demonstrate the ability to meet the Apprentice Utilization Requirement with their initial Apprentice Utilization Plan submission, an effort must be made to find additional registered apprentices to perform on the contract. If after attempts have been made at every tier and every scope, the Contractor must submit GFE documentation to the Contracting Agency. The Contractor shall actively seek out opportunities to meet the Apprentice Utilization Requirement during the construction Work.

1
2 **Contacts**

3 The Contractor may obtain information on State-approved Apprenticeship Training
4 Programs by using the [Apprentice Registration and Tracking System \(ARTS\)](https://secure.ini.wa.gov/arts-public/#/program-search)
5 <https://secure.ini.wa.gov/arts-public/#/program-search> or contacting the Department of
6 Labor and Industries directly at:
7

8 Specialty Compliance and Services Division, Apprenticeship Section, P.O. Box 44530,
9 Olympia, WA 98504-4530 or by phone at (360) 902-5320.
10

11 **Compliance**

12 The Contractor is expected to make attempts to employ Apprentices and shall include
13 the requirement in any subcontracts at any tier. In the event that the Contractor is unable
14 to achieve the Apprentice Utilization Requirement, the Contractor shall submit GFE
15 documentation demonstrating the efforts and attempts they made. Final GFE
16 documentation shall be submitted to the Contracting Agency after Substantial
17 Completion but no later than 30 days after Physical Completion.
18

19 If the Contractor fails to actively attempt to employ Apprentices, submit GFE
20 documentation, or if the Engineer does not approve the GFE, the Contractor will be
21 assessed a penalty. The Engineer will provide the Contractor with a written notice at
22 Final Acceptance of the project informing the Contractor of the failure to comply with this
23 specification which will include a calculation of the penalty to be assessed as provided
24 for in the Payment section in this special provision.
25

26 If the Contractor achieves the required Apprentice Utilization an incentive will be
27 assessed with Final Payment.
28

29 **Good Faith Efforts**

30 The GFE shall document the attempts (efforts) the Contractor (and any subcontractor at
31 any tier) made to meet the Apprentice Utilization Requirement. Emails, letters, or other
32 written communications with letterhead, titles, and contact information are required.
33

34 Documentation must include one or more of the following accepted GFEs:
35

- 36 1. Demonstrated Lack of Availability of Apprentices. Correspondence from State-
37 approved Apprenticeship Training Program(s), with project specific responses
38 confirming there is a lack of availability of Apprentices for this project.
39
- 40 2. Demonstrated Disproportionate Ratio of Material/Equipment/Products to Labor
41 Hours. Documentation explaining the bid includes a disproportionate high cost
42 of material/equipment/products to Labor Hours. (E.g., a \$2 M estimated contract
43 includes \$1 M or more in procurement costs of equipment to be installed.)
44
- 45 3. Demonstrated Lack of Necessary Labor Hours. Correspondence from a State-
46 approved Apprentice Training Programs confirming there is not enough time in
47 the project to meet required journey level to apprentice training ratios.
48
- 49 4. Demonstrated Lack of Available Approved Programs. Correspondence from
50 State-approved Apprentice Training Programs, confirming there are no programs
51 that train for the scopes included/anticipated on the project. Contractor and state

1 programs to submit training program detail needs and details that could be used
2 for future program creation.

- 3
- 4 5. Funding Precedent. Documentation that shows conflicting, more restrictive, or
5 precedent requirements for other training on the Project. Examples include, but
6 are not limited to, Tribal Employment Rights (TERO), Federal Training Hours, or
7 Special Training that affect the ability to use state-registered apprentices.
8
- 9 6. Warranty Work. Documentation from Original Equipment Manufacturers, or
10 similar, confirming that work performed must only be completed by certified
11 journey-level installers or risk voiding warranty, or similar.
12
- 13 7. Other Effort. The Contractor may submit other evidence, documentation, or
14 rationale for not being able to achieve the required Apprentice Utilization that are
15 not covered in the other efforts named. Other efforts will still need to be
16 corroborated by an independent, knowledgeable third-party.
17

18 Contractors may receive a GFE credit for graduated Apprentice hours through the end
19 of the calendar year for all projects worked on as long as the Apprentice remains
20 continuously employed with the same Contractor/subcontractor they were working for
21 when they graduated. If an Apprentice graduates during employment on a project of
22 significant duration, they may be counted towards a GFE credit for up to one year after
23 their graduation or until the end of the project (whichever comes first). Determination of
24 whether Contract requirements were met in good faith will be made by subtracting the
25 hours from the journeyman total reported hours for the project and adding them to the
26 apprentice hour total. If the new utilization percentage meets the Contract requirement,
27 the Contractor will be reported as meeting the requirement in good faith.
28

29 **Approving Good Faith Efforts**

30 The Contracting Agency will review submitted Good Faith Efforts and issue a
31 determination. The Engineer may request additional information, documentation,
32 evidence or similar in order to approve such efforts. A determination by the Engineer is
33 final. The approved Good Faith Efforts will be loaded into the PWIA system by the
34 Contracting Agency.
35

36 **Payment**

37 Payment will be made for the following Bid Items:
38

39 “Apprenticeship Incentive”, by calculation

40 An incentive of \$5,000 will be assessed with the Final Payment for Contractors who meet
41 the Apprentice Utilization Requirement without a reduction by Good Faith Effort. For the
42 purpose of providing a common proposal for all bidders, the Contracting Agency has
43 entered an amount in the proposal to become a part of the total bid by the Contractor.
44

45 “Apprenticeship Penalty”, by calculation.

46 Apprenticeship Hours will be measured for each hour of work performed by an
47 apprentice as shown on the Monthly Apprentice Utilization Report, based on certified
48 payrolls or the affidavits of wages paid, whichever is least. The percentage is not
49 rounded up. For the purpose of providing a common proposal for all bidders, the
50 Contracting Agency has entered an amount in the proposal to become a part of the total
51 bid by the Contractor.

1
2 When the Contractor fails to meet the Apprenticeship goal of 15%, a penalty will be
3 assessed for each hour that is not achieved, unless a Good Faith Effort is approved by
4 the Contracting Agency.

5
6 Apprenticeship Utilization Penalty will be calculated as described below:
7

Percent of goal met	Penalty per hour of unmet goal
100%	\$0.00
90% to 99%	\$2.00
75% to 89%	\$3.50
50% to 74%	\$5.00
1% to 49%	\$7.50
0%	\$10.00

8
9 The Contractor shall include all related costs in the unit Bid prices of the Contract,
10 included but not limited to implementing, developing, documenting, and administering
11 an apprenticeship utilization program, recording and reporting hours and all other costs
12 to comply with this provision

13 **1-07.9(5)A Required Documents**

14 *(July 8, 2024 APWA GSP)*

15
16 This section is revised to read as follows:
17

18 All Statements of Intent to Pay Prevailing Wages, Affidavits of Wages Paid and Certified
19 Payrolls, including a signed Statement of Compliance for Federal-aid projects, shall be
20 submitted to the Engineer and to the State L&I online Prevailing Wage Intent & Affidavit
21 (PWIA) system. When apprenticeship is a requirement of the contract, include in PWIA
22 all apprentices.
23

24 **1-07.11(2) Contractual Requirements**

25 *(November 25, 2024 APWA GSP)*

26 Delete item 11 of the first paragraph of Section 1-07.11(2).
27

28 **1-07.14 Responsibility for Damage**

29 **(January 1, 2016 COK GSP)**

30 Section 1-07.14 is supplemented with the following:

31 The Contractor further agrees that it is waiving immunity under Industrial Insurance Law
32 Title 51 RCW for any claims brought against the City by its employees. In the event
33 Contractor fails, after receipt of timely notice from the City, to appear, defend, or pay as
34 required by the first paragraph of this section, then in that event and in that event only, the
35 City may in its sole discretion, deduct from the progress payments to the Contractor and
36 pay any amount sufficient to pay any claim, of which the City may have knowledge and
37 regardless of the informalities of notice of such claim, arising out of the performance of
38 this contract, provided the City has theretofore given notice of receipt of such claim to the
39 Contractor and the Contractor has failed to act thereon.

1 **1-07.15 Temporary Water Pollution/Erosion Control**

2 **1-07.15(1) Spill Prevention, Control, and Countermeasures Plan**

3 Add the following paragraph under the second paragraph of this section:

4 **(January 10, 2019 COK GSP)**

5 In the event the Contractor uses an SPCC Plan template that either follows the WSDOT
6 SPCC Plan Template or contains the same or similar content and/or format, the following
7 changes shall be required:

- 8 1. Replace all references to “WSDOT” as either the Contracting Agency or project owner
9 with “City of Kirkland”, except where indicated in this Section.
- 10 2. Add into all Spill Reporting and related section(s): “The City of Kirkland Spill
11 Response Hotline at (425) 587-3900 shall be the first point of contact in the event of
12 a spill. Notification to the City of Kirkland Spill Response Hotline shall precede the
13 spill notifications to federal and state agencies.”
- 14 3. Delete all references to the “WSDOT Environmental Compliance Assurance
15 Procedure” (ECAP) in the SPCC.

16
17 Supplement the following referenced SPCC Plan Element Requirements in this Section as
18 follows:

19
20 For SPCC Plan Element Requirement Number 2, add the following: “The City of Kirkland Spill
21 Response Hotline at (425) 587-3900 shall be the first point of contact in the event of a spill.”

22
23 For SPCC Plan Element Requirement Number 8, add the following: “As part of Contractor spill
24 response procedure, the Contractor shall contact the City of Kirkland Spill Response Hotline at
25 (425) 587-3900 to report the spill regardless of whether or not the Contractor has fully contained,
26 controlled, and/or cleaned up the spill.”

27
28 **1-07.16 Protection and Restoration of Property**

29 **1-07.16(3) Fences, Mailboxes, Incidentals**

30
31 Section 1-07.16(3) is supplemented with the following:

32 **(January 1, 2016 COK GSP)**

33
34 **U.S. Postal Service Collection Boxes, Mail Receptacles, and other Structures:**

35 For U.S. Postal Service collection box and other Structures requiring temporary
36 relocation to accommodate construction, the Contractor shall contact the Kirkland
37 Postmaster at (425) 889-8282, at least five (5) working days in advance for
38 coordination. Only the U.S. Post Office will move Postal Service-owned property;
39 relocations could be under 1-09.6 as approved by the Project Engineer and with
40 coordinated efforts by the Contractor with the Postal Service.

41
42 **1-07.17 Utilities and Similar Facilities**

43 Section 1-07.17 is supplemented with the following:

1 (*****)

2 Locations and dimensions shown in the Plans for existing facilities are in accordance with
3 available information obtained without uncovering, measuring, or other verification.

4 The Contractor is alerted to the existence of Chapter 19.122 RCW, a law relating to
5 underground utilities. Any cost to the Contractor incurred as a result of this law shall be at
6 the Contractor's expense.

7 No excavation shall begin until all known facilities in the vicinity of the excavation area have
8 been located and marked.

9 The Contractor shall give advance notice to all utility companies involved where work is to
10 take place and in all other respects comply with the provisions of Chapter 19.122 RCW.
11 Notice shall include, but not be limited to, the following utility companies:

- 12 1. Water, sewer, storm, streets – minimum two working days in advance
- 13 2. Power (Electric) – minimum 48 hours in advance
- 14 3. Telephone – minimum 30 days in advance
- 15 4. Natural Gas – minimum 7 days in advance
- 16 5. Cable Television – minimum 48 hours in advance
- 17 6. King County Wastewater Treatment Division – minimum 5 working days in advance
- 18 7. Transit – refer to Section 1-07.23(1)

19
20 The following is a list of some utilities serving the Kirkland area. This is not intended or
21 represented to be a complete list and is provided for the Contractor's convenience.

Utility	Agency/Company	Address	Contact	Phone
Water/Sewer	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Tom Chriest	(425) 587-3900
Storm Drainage	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Jason Osborn	(425) 587-3900
Water / Sewer (North area of Kirkland)	Northshore Utility District	6380 NE 185th St Kenmore, WA 98028	George Matote Kelly Nesbitt	(425) 398-4400 (425) 521-3750
Sewer	King County Wastewater Treatment Division	201 S Jackson St #500 Seattle, WA 98104	Robert Hanlon	(206) 714-7198
Street	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Ryan Fowler	(425) 587-3909
Natural Gas	Puget Sound Energy	P.O. Box 97034 EST-11W Bellevue, WA 98009-9734	Kiara Skye Al Tejada	(425) 213-9205 (425) 754-4165
Electric	Puget Sound Energy	35131 SE Center St	Kiara Skye	(425) 213-9205

		Snoqualmie, WA 98065		
Telephone/ FIOS	Zply Fiber	P.O. Box 1127 Everett, WA 98206	Cheryl Schneider	(425) 949-0230
FIOS	Astrobound/Wave Broadband		Richard Hays	(360) 631-4134
FIOS	CenturyLink/Lumen	22817 SE Issaquah- Fall City Rd, WA, 98027	Kayvan Fassnacht	(425) 213-9378
FIOS	Zayo	22651 83 rd Ave. S. Kent, WA 98032	Rusty Perdieu	(706) 889-6967
Cable Television	Comcast	1525 - 75th St SW, Suite 200 Everett, WA 98203	Chris Combs	(425) 273-7832
Network	Verizon/MCI	11311 NE 120 th St Kirkland, WA 98034	Brad Landis Scott Christenson	(425) 201-0901 (425) 471-1079
School District Transportation	Lake Washington School District	15212 NE 95th St Redmond, WA 98052	Laura DeGooyer	(425) 936-1133
Transit	King County METRO	MS SVQ-TR-0100 1270 6th Ave S Seattle, WA 98134	David Freeman Refer to other contacts in Section 1- 07.23(1)	(206) 477-1140 (206) 477-0438
Water (Northeast area of Kirkland)	Woodinville Water District	17238 NE Woodinville Duvall Road, Woodinville, WA 98072	Ken McDowell	(425) 487-4104
Olympic Pipeline	BP		Kenneth Metcalf Joseph Stone	(425) 981-2575 (425) 981-2506

1
2
3
4
5
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11

Note that most utility companies may be contacted for locations through the “One Call” system, 1-800-424-5555. In the event of a gas emergency, call 911 and then the PSE hotline at 1-888-225-5773 (1-888-CALL-PSE).

The Contractor shall coordinate the work with these utilities and shall notify the Engineer in advance of any conflicts affecting the work schedule. The utility companies shall witness or perform all shutdowns, connections or disconnections.

Wherever in the course of the construction operation it becomes necessary to cause an outage of utilities, it shall be the Contractor's responsibility to notify the affected users not less than twenty-four (24) hours in advance of the creation of such outage. The Contractor shall make reasonable effort to minimize the duration of outages.

1 The Contractor shall be responsible for any breakage of utilities or services resulting from
2 its operations and shall hold the City and its agents harmless from any claims resulting from
3 disruption of, or damage to, same.

4 **Other Notifications**

5 Service Area Turn Off: All service area turn off notices must be distributed to affected parties
6 two working days in advance of any scheduled shut off. City to provide door hangers and
7 affected service area map. The contractor shall fill in all required information prior to hanging
8 door hanger.

9 Entry onto Private Property: Each property owner shall be given two working days advance
10 Written Notice prior to entry by the Contractor.

11 Loop Detection Systems: Where an excavation is to take place through a signal loop
12 detector system, the Contractor shall provide at least five (5) Working Days advance notice
13 to the City Signal Shop at (425) 587-3920 to coordinate temporary signal wire disconnect
14 and installation of temporary signal detection equipment.

15 Survey Monuments: When proposed pavement removal is close to existing survey
16 monumentation, or proposed pavement removal includes existing survey monumentation,
17 the Contractor shall provide a minimum 4 Working Days advance notice to the Engineer to
18 allow survey crews to tie the monument out and reset the monument after pavement
19 installation.
20

21 **King County Wastewater Treatment Division**

22 The Contractor shall contact King County Wastewater Treatment Division LPA at
23 LPA.Team@Kingcounty.gov and (206) 477-5414 a minimum of five (5) working
24 days in advance of the pre-construction construction conference for this project,
25 and a minimum of five (5) working days in advance of construction within 50 feet
26 of the King County Wastewater/Metro sewer line. A King County monitor shall be
27 on site at all times while construction is taking place over or within 50 feet of the
28 sewer line.
29

30 The Contractor shall survey and document existing top of pipe elevation through
31 potholing, and complete settlement monitoring for the King County Wastewater
32 Treatment Division 78-inch sewer where crossing the project site prior to the start
33 of any construction within 50 feet of the sewer pipe.
34

35 The Contractor shall document the locations of survey points and as-found
36 elevations for a comparative post-construction survey.
37

38 Upon completion of the pier installation and pedestrian bridge placement, the
39 Contractor shall collect elevation data and verify that settlement of the pipe has
40 not exceeded 0.25 inches. If elevations exceed this threshold, the Contractor shall
41 coordinate a post-construction CCTV inspection of the subject section of sewer
42 pipe to assess disturbance of joints and/or damage to the pipe.
43

44 The Contractor shall provide elevation data and survey results to the King County
45 LPA inspector and project contact.
46

1 Payment will be made for the following Bid item when included in the Proposal:

2
3 “King County Sewer Potholing”, lump sum.

4 The lump sum Contract price for “King County Sewer Potholing” shall be full pay for
5 performing the Work as specified to pothole, survey, and document locations of the King
6 County Wastewater Treatment Division 78-inch sewer pipe on the project, including
7 contacting King County Wastewater Treatment Division LPA, coordination with the King
8 County monitor, collection of elevation data, coordinating a post-construction CCTV
9 inspection if required, and providing elevation data and survey results to the King County
10 LPA inspector and project contact.
11

12 **Potholing**

13 Potholing at selected locations has been conducted by an agent of the Contracting
14 Agency. This information is available in the appendices of this Project Manual.
15 Potholing has been included in the Bid item list for the purposes of determining
16 the location of additional existing utilities in advance of the Contractor’s operations.
17 The Engineer shall approve of all potholing requests from the Contractor.
18 Additionally, the Contractor shall provide potholes at the Engineer’s request.
19

20 “Owner-Directed Potholing” Bid item (per each) is provided for utility crossing
21 investigations for utilities as shown in the Plans, or for information required at the
22 Engineer’s discretion, and shall be approved by the Engineer.
23

24 Payment shall be made for the following Bid item when included in the Proposal:
25 “Owner-Directed Potholing”, per each.
26

27 **1-07.17(2) Utility Construction, Removal or Relocation by Others**

28 Section 1-07.17(2) is supplemented with the following:

29 **(January 1, 2016 COK GSP)**

30 Under no circumstances will discrepancies in location or incompleteness in description of
31 existing utilities or improvements, whether they are visible from the surface, buried, or
32 otherwise obscured, be considered as a basis for additional compensation to the
33 Contractor.

34 **1-07.18 Public Liability and Property Damage Insurance**

35
36 Delete this section in its entirety, and replace it with the following:
37

38 **1-07.18 Insurance**

39 **(January 4, 2024 APWA GSP)**

40
41 **1-07.18(1) General Requirements**

42 A. The Contractor shall procure and maintain the insurance described in all subsections of
43 section 1-07.18 of these Special Provisions, from insurers with a current A. M. Best rating of
44 not less than A-: VII and licensed to do business in the State of Washington. The

1 Contracting Agency reserves the right to approve or reject the insurance provided, based on
2 the insurer's financial condition.
3

- 4 B. The Contractor shall keep this insurance in force without interruption from the
5 commencement of the Contractor's Work through the term of the Contract and for thirty (30)
6 days after the Physical Completion date, unless otherwise indicated below.
7
- 8 C. If any insurance policy is written on a claims-made form, its retroactive date, and that of all
9 subsequent renewals, shall be no later than the effective date of this Contract. The policy
10 shall state that coverage is claims made and state the retroactive date. Claims-made form
11 coverage shall be maintained by the Contractor for a minimum of 36 months following the
12 Completion Date or earlier termination of this Contract, and the Contractor shall annually
13 provide the Contracting Agency with proof of renewal. If renewal of the claims made form of
14 coverage becomes unavailable, or economically prohibitive, the Contractor shall purchase
15 an extended reporting period ("tail") or execute another form of guarantee acceptable to the
16 Contracting Agency to assure financial responsibility for liability for services performed.
17
- 18 D. The Contractor's Automobile Liability, Commercial General Liability and Excess or Umbrella
19 Liability insurance policies shall be primary and non-contributory insurance as respects the
20 Contracting Agency's insurance, self-insurance, or self-insured pool coverage. Any insurance,
21 self-insurance, or self-insured pool coverage maintained by the Contracting Agency shall be
22 excess of the Contractor's insurance and shall not contribute with it.
23
- 24 E. The Contractor shall provide the Contracting Agency and all additional insureds with written
25 notice of any policy cancellation, within two business days of their receipt of such notice.
26
- 27 F. The Contractor shall not begin work under the Contract until the required insurance has
28 been obtained and approved by the Contracting Agency
29
- 30 G. Failure on the part of the Contractor to maintain the insurance as required shall constitute a
31 material breach of contract, upon which the Contracting Agency may, after giving five
32 business days' notice to the Contractor to correct the breach, immediately terminate the
33 Contract or, at its discretion, procure or renew such insurance and pay any and all premiums
34 in connection therewith, with any sums so expended to be repaid to the Contracting Agency
35 on demand, or at the sole discretion of the Contracting Agency, offset against funds due the
36 Contractor from the Contracting Agency.
37
- 38 H. All costs for insurance shall be incidental to and included in the unit or lump sum prices of
39 the Contract and no additional payment will be made.
40
- 41 I. Under no circumstances shall a wrap up policy be obtained, for either initiating or
42 maintaining coverage, to satisfy insurance requirements for any policy required under this
43 Section. A "wrap up policy" is defined as an insurance agreement or arrangement under
44 which all the parties working on a specified or designated project are insured under one
45 policy for liability arising out of that specified or designated project.
46

47 **1-07.18(2) Additional Insured**

48 All insurance policies, with the exception of Workers Compensation, and of Professional Liability
49 and Builder's Risk (if required by this Contract) shall name the following listed entities as
50 additional insured(s) using the forms or endorsements required herein:

- 1 ▪ the Contracting Agency and its officers, elected officials, employees, agents, and
- 2 volunteers
- 3 ▪ Sound Transit (Must also reference the following from Section 13.2 Certificate of
- 4 Insurance: “GA 0303-19 Funding Agreement Between Sound Transit and the City of
- 5 Kirkland for the NE 85th Street Arterial Improvements”)

6
7 The above-listed entities shall be additional insured(s) for the full available limits of liability
8 maintained by the Contractor, irrespective of whether such limits maintained by the Contractor
9 are greater than those required by this Contract, and irrespective of whether the Certificate of
10 Insurance provided by the Contractor pursuant to 1-07.18(4) describes limits lower than those
11 maintained by the Contractor.

12
13 For Commercial General Liability insurance coverage, the required additional insured
14 endorsements shall be at least as broad as ISO forms CG 20 10 10 01 for ongoing operations
15 and CG 20 37 10 01 for completed operations.

16
17 **1-07.18(3) Subcontractors**

18 The Contractor shall cause each subcontractor of every tier to provide insurance coverage that
19 complies with all applicable requirements of the Contractor-provided insurance as set forth herein,
20 except the Contractor shall have sole responsibility for determining the limits of coverage required
21 to be obtained by subcontractors.

22
23 The Contractor shall ensure that all subcontractors of every tier add all entities listed in
24 1-07.18(2) as additional insureds, and provide proof of such on the policies as required by that
25 section as detailed in 1-07.18(2) using an endorsement as least as broad as ISO CG 20 10 10
26 01 for ongoing operations and CG 20 37 10 01 for completed operations.

27
28 Upon request by the Contracting Agency, the Contractor shall forward to the Contracting
29 Agency evidence of insurance and copies of the additional insured endorsements of each
30 subcontractor of every tier as required in 1-07.18(4) Verification of Coverage.

31
32 **1-07.18(4) Verification of Coverage**

33 The Contractor shall deliver to the Contracting Agency a Certificate(s) of Insurance and
34 endorsements for each policy of insurance meeting the requirements set forth herein when the
35 Contractor delivers the signed Contract for the work. Failure of Contracting Agency to demand
36 such verification of coverage with these insurance requirements or failure of Contracting Agency
37 to identify a deficiency from the insurance documentation provided shall not be construed as a
38 waiver of Contractor’s obligation to maintain such insurance.

39
40 Verification of coverage shall include:

- 41 1. An ACORD certificate or a form determined by the Contracting Agency to be equivalent.
- 42 2. Copies of all endorsements naming Contracting Agency and all other entities listed in
- 43 1-07.18(2) as additional insured(s), showing the policy number. The Contractor may submit
- 44 a copy of any blanket additional insured clause from its policies instead of a separate
- 45 endorsement.
- 46 3. Any other amendatory endorsements to show the coverage required herein.
- 47 4. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these
- 48 requirements – actual endorsements must be submitted.

1 Upon request by the Contracting Agency, the Contractor shall forward to the Contracting
2 Agency a full and certified copy of the insurance policy(s). If Builders Risk insurance is required
3 on this Project, a full and certified copy of that policy is required when the Contractor delivers
4 the signed Contract for the work.

5
6 **1-07.18(5) Coverages and Limits**

7 The insurance shall provide the minimum coverages and limits set forth below. Contractor's
8 maintenance of insurance, its scope of coverage, and limits as required herein shall not be
9 construed to limit the liability of the Contractor to the coverage provided by such insurance, or
10 otherwise limit the Contracting Agency's recourse to any remedy available at law or in equity.

11
12 All deductibles and self-insured retentions must be disclosed and are subject to approval by the
13 Contracting Agency. The cost of any claim payments falling within the deductible or self-insured
14 retention shall be the responsibility of the Contractor. In the event an additional insured incurs a
15 liability subject to any policy's deductibles or self-insured retention, said deductibles or self-
16 insured retention shall be the responsibility of the Contractor.

17
18 **1-07.18(5)A Commercial General Liability**

19 Commercial General Liability insurance shall be written on coverage forms at least as broad as
20 ISO occurrence form CG 00 01, including but not limited to liability arising from premises,
21 operations, stop gap liability, independent contractors, products-completed operations, personal
22 and advertising injury, and liability assumed under an insured contract. There shall be no
23 exclusion for liability arising from explosion, collapse or underground property damage.

24
25 The Commercial General Liability insurance shall be endorsed to provide a per project general
26 aggregate limit, using ISO form CG 25 03 05 09 or an equivalent endorsement.

27
28 Contractor shall maintain Commercial General Liability Insurance arising out of the Contractor's
29 completed operations for at least three years following Substantial Completion of the Work.

30
31 Such policy must provide the following minimum limits:

- 32 \$2,000,000 Each Occurrence
- 33 \$3,000,000 General Aggregate
- 34 \$3,000,000 Products & Completed Operations Aggregate
- 35 \$2,000,000 Personal & Advertising Injury each offence
- 36 \$2,000,000 Stop Gap / Employers' Liability each accident

37
38 **1-07.18(5)B Automobile Liability**

39 Automobile Liability shall cover owned, non-owned, hired, and leased vehicles; and shall be
40 written on a coverage form at least as broad as ISO form CA 00 01. If the work involves the
41 transport of pollutants, the automobile liability policy shall include MCS 90 and CA 99 48
42 endorsements.

43
44 Such policy must provide the following minimum limit:

- 45 \$1,000,000 Combined single limit each accident

46
47 **1-07.18(5)C Workers' Compensation**

1 The Contractor shall comply with Workers' Compensation coverage as required by the Industrial
2 Insurance laws of the State of Washington.

3
4 **1-07.18(5)D Excess or Umbrella Liability**
5 **(January 4, 2016 APWA GSP)**
6

7 The Contractor shall provide Excess or Umbrella Liability insurance with limits of not less than \$3
8 million each occurrence and annual aggregate. This excess or umbrella liability coverage shall
9 be excess over and as least as broad in coverage as the Contractor's Commercial General and
10 Auto Liability insurance.

11
12 All entities listed under Section 1-07.18(2) of these Special Provisions shall be named as
13 additional insureds on the Contractor's Excess or Umbrella Liability insurance policy.

14
15 This requirement may be satisfied instead through the Contractor's primary Commercial General
16 and Automobile Liability coverages, or any combination thereof that achieves the overall required
17 limits of insurance.

18
19 **1-07.18(5)I Builder's Risk**
20 **(December 30, 2022 APWA GSP)**
21

22 Contractor shall purchase and maintain Builder's Risk insurance covering interests of the
23 Contracting Agency, Sound Transit, the Contractor, and subcontractors of every tier, as Named
24 Insureds, in the Work. An Installation Floater instead of Builders Risk is acceptable for renovation
25 projects. Builder's Risk insurance shall be on a special form policy, and shall insure against the
26 perils of fire and extended coverage and physical loss or damage, theft, vandalism, malicious
27 mischief and collapse; and flood and earthquake when shown below. The Builder's Risk insurance
28 shall include coverage for temporary buildings, debris removal, and damage to materials in transit
29 or stored off-site. Such insurance shall cover resulting "soft costs" including but not limited to
30 design costs, licensing fees, architect's and engineer's fees, and costs due to delay in completion.

31
32 Builder's Risk insurance shall be written in the amount of the completed value of the project, with
33 no coinsurance provisions. Such policy must provide coverage and deductibles that comply with
34 the following:

35
36 **Coverage:**

37 Max. Loss of Project to be Insured: \$5,000,000

38 Soft Costs: \$500

39 Earthquake: \$2,500,000
40

41 **Deductibles not to exceed:**

42 Flood: 2% of the Value at Time of Loss, subject to a \$250,000 Minimum

43 Earthquake: 5% of the Value at Time of Loss, subject to a \$250,000 Minimum

44 Earth Movement: 5% of the Value at Time of Loss, subject to a \$250,000 Minimum

45 All Other Perils: \$50,000

46 Soft Costs: \$50,000, with no more than 7-day waiting period
47

1 The Builders Risk insurance covering the work shall have maximum deductibles as listed above
2 for each occurrence. The deductible(s) shall be the responsibility of the Contractor.
3

4 The Contractor shall provide the Contracting Agency with a full and certified copy of the insurance
5 policy when the Contractor delivers the signed Contract for the work. Failure of Contracting
6 Agency to demand such verification of coverage with these insurance requirements or failure of
7 Contracting Agency to identify a deficiency from the insurance documentation provided shall not
8 be construed as a waiver of Contractor's obligation to maintain such insurance.
9

10 The Builders Risk insurance shall be maintained until final acceptance of the Work by the
11 Contracting Agency.
12

13 The Contractor and the Contracting Agency waive all rights against each other and any of their
14 subcontractors of every tier, agents, and employees, officers, and officials, for damages caused
15 by fire or other perils to the extent covered by Builder's Risk insurance or other property insurance
16 applicable to the work. The policies shall provide such waivers by endorsement.
17
18

19 **1-07.18(5)J Pollution Liability**
20 *(January 4, 2016 APWA GSP)*
21

22 The Contractor shall provide a Contractors Pollution Liability policy, providing coverage for
23 claims involving bodily injury, property damage (including loss of use of tangible property that
24 has not been physically injured), cleanup costs, remediation, disposal or other handling of
25 pollutants, including costs and expenses incurred in the investigation, defense, or settlement
26 of claims, arising out of any one or more of the following:

- 27 1. Contractor's operations related to this project.
- 28 2. Remediation, abatement, repair, maintenance or other work with lead-based paint or
29 materials containing asbestos.
- 30 3. Transportation of hazardous materials away from any site related to this project.
31

32 All entities listed under 1-07.18(2) of these Special Provisions shall be named by endorsement
33 as additional insureds on the Contractors Pollution Liability insurance policy.
34

35 Such Pollution Liability policy shall provide the following minimum limits:

36	\$1,000,000	per each occurrence
37	\$2,000,000	annual aggregate

38
39 **1-07.18(5)K Professional Liability**
40 *(December 30, 2022 APWA GSP)*
41

42 The Contractor and/or its subcontractor(s) and/or its design consultant providing construction
43 management, value engineering, or any other design-related non-construction professional
44 services shall provide evidence of Professional Liability insurance covering professional errors
45 and omissions.
46

47 Such policy shall provide the following minimum limits:

48	\$1,000,000	per each occurrence
----	-------------	---------------------

1 \$2,000,000 annual aggregate

2
3 If the scope of such design-related professional services includes work related to pollution
4 conditions, the Professional Liability insurance shall include coverage for Environmental
5 Professional Liability.

6
7 If insurance is on a claims-made form, its retroactive date, and that of all subsequent renewals,
8 shall be no later than the effective date of this Contract.

9
10 **1-07.23 Public Convenience and Safety**

11 Section 1-07.23 is supplemented with the following:

12 **(January 1, 2016 COK GSP)**

13 No road or street shall be closed to the public except as permitted in these plans and
14 specifications or with the approval of the Engineer and proper governmental authority.
15 Fire hydrants on or adjacent to the work shall be kept accessible to fire fighting equipment
16 at all times. Provision shall be made by the Contractor to ensure the proper functioning of
17 all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water
18 courses, and storm sewer facilities throughout the project. Temporary interruption of
19 service will be allowed only with the permission of the Engineer.

20 The Kirkland Police Department and Kirkland Fire Department shall be notified at least
21 four (4) hours in advance of any actions by the Contractor that may affect the functions of
22 either the Police Department or Fire Department.

23 The Contractor shall conduct its work and take preventative measures so that dust or
24 other particulate matter in the project area shall not become objectionable to the adjacent
25 property owners or general public. Should the Owner determine the Contractor is not
26 fulfilling its obligation in this regard; the Owner reserves the right to take such action as
27 may be necessary to remedy the objectionable condition and to charge the Contractor
28 with any cost that may be incurred in such remedial action. All work shall be carried on
29 with due regard for the safety of the public. No driveway, whether public, commercial, or
30 private, may be closed without prior approval of the Owner, project supervisor, or
31 Engineer unless written authority has been given by the affected property owner. The
32 Contractor shall be responsible for notifying the affected property owners 24 hours in
33 advance of scheduled interruptions to access.

34 **1-07.23(1) Construction Under Traffic**

35
36 Section 1-07.23(1) is supplemented with the following:
37 **(July 19, 2022 COK SP)**

38 Vehicle Traffic

39 The Contractor shall maintain access to driveways to adjacent businesses at all
40 times. The Contractor shall maintain access to all transit stops and coordinate with
41 Transit Agencies to maintain their operations. The Contractor shall maintain at
42 minimum, one (1) lane of traffic to be operational in each direction (two [2] lanes
43 total). Short duration road closures may be acceptable with approved Traffic Control
44 measures (devices, flaggers, signage, etc), as approved prior by the Engineer. Steel
45 plates shall not be permitted for use during weekends.
46

1
2 Coordination with Transit Agencies

3 Any construction or installation activities affecting King County Metro Transit Operations or
4 Facilities must be coordinated through the KCM System Impacts workgroup. The Contractor
5 shall provide at least five (5) business days notification for bus stop impacts and at least ten
6 (10) business days notification for bus reroutes.

7
8 For notification information and guidelines refer to:

9 [https://kingcounty.gov/depts/transportation/metro/about/construction-contractors/transit-](https://kingcounty.gov/depts/transportation/metro/about/construction-contractors/transit-system-impacts.aspx)
10 [system-impacts.aspx](https://kingcounty.gov/depts/transportation/metro/about/construction-contractors/transit-system-impacts.aspx) or phone 206.477.1140 or 206.477.1150 for Trolley-related activities.

11
12 To schedule bus shelter removal, the Contractor shall contact plansreview@kingcounty.gov
13 to schedule removal. The Contractor shall provide at least three (3) weeks notification prior
14 to removal.

15
16 Prior to construction of Metro footings and facilities, the Contractor shall contact Metro
17 inspectors and construction at busstopinspections@kingcounty.gov or by phone at 206-263-
18 2381. The Contractor shall provide at least three (3) weeks notification in advance to schedule
19 an inspection. All Metro footings must be inspected and approved by Metro inspectors before
20 any concrete is poured.

21
22 After shelter footing inspection and completed construction, the Contractor shall contact
23 plansreview@kingcounty.gov to schedule shelter frame installation and bus stop flagpost
24 installation.

25
26 For additional engineering design questions, the contacts for King County Metro Transit are:

27
28 Kale Chang Yuen
29 Engineer
30 Phone: (206) 263-0885

31
32 Colin Asquith
33 Engineer
34 Phone: (206) 477-5984

35
36 Before Notice to Proceed is issued, the Contractor shall invite the Construction Coordinator
37 (construction.coord@kingcounty.gov) and the area Transit Route Facilities planner to pre-
38 construction meetings between the Contractor(s) and construction management firms.

39
40
41 **1-07.23(4) Pedestrian Control and Protection**

42 Section 1-07.23(4) is added as follows:

43 (*****)

44
45 If no alternative is proposed within the Contract Plans, all existing pedestrian routes
46 and access points within the project limits, including sidewalks, paths, trails, and
47 crosswalks, shall remain open and clear at all times. In the event Work interferes with
48 an existing pedestrian route, an alternate accessible route shall be provided by the
49 Contractor. The Contractor shall submit to the Engineer for approval a Pedestrian
50 Traffic Control Plan (PTCP) that complies with the MUTCD, ADA requirements, and
51 these Special Provisions. Contractor proposed PTCPs detailing the alternative

1 accessible pedestrian route shall be approved by the Engineer prior to implementation.
2 The Engineer will have a 8-working day review period. Each time the plan is returned
3 for correction, an additional 5-working day review period may be necessary.
4

5 When the Engineer allows Work areas to encroach upon a sidewalk or crosswalk area,
6 and minimum clear width of 48-inches cannot be maintained for pedestrian use, an
7 alternative accessible pedestrian route shall be provided. Separation of pedestrians
8 from the Work area and vehicular traffic is required.
9

10 Protective barricades, fencing, and bridges, together with warning and guidance
11 devices and signs, shall be utilized so that the passageway for pedestrians is safe, well
12 defined and accessible. Whenever pedestrian walkways are provided across
13 excavations, they shall be provided with suitable handrails. Foot bridges shall be safe,
14 strong, and free of bounce and sway, have a slip resistant coating, and be free of
15 cracks, holes and irregularities that could cause tripping. Ramps, with a maximum
16 slope of 8.3%, shall be provided at the entrance and exit of all raised footbridges. The
17 maximum cross slope shall be 2.0%. When the existing facility is illuminated or
18 PTCP's requires illumination, illumination shall be provided during the hours of
19 darkness. Retroreflective delineation shall be provided during hours of darkness.
20

21 Trail users access to and along the Cross Kirkland Corridor (CKC) trail or an equivalent
22 detour route shall be maintained at all times. If construction activities necessitate the
23 closure of the CKC for public safety (e.g., for work above trail users), then traffic
24 control plans including a pedestrian detour route shall be developed in accordance
25 with these specifications and approved by City Transportation Division staff prior to
26 implementation. Disruptions of trail traffic, where the trail is temporarily impassible to
27 trail users, shall not be allowed without a trail and/or pedestrian detour route in place
28 with proper public noticing in accordance with the contract plans and specifications.
29 Construction vehicles shall not enter the CKC without first detouring trail user traffic in
30 accordance with the contract plans and specifications. Any damage to the CKC caused
31 by the contractor shall be repaired to equivalent or better conditions at the contractor's
32 sole expense.
33

34 Where the Engineer allows accessible pedestrian routes to be closed during
35 construction, an alternate accessible pedestrian route shall be provided that complies
36 with the MUTCD, ADA requirements and these Provisions. The alternate accessible
37 pedestrian route shall not have abrupt changes in grade or terrain. Barriers and
38 channelizing devices shall be detectable to pedestrians who have visual disabilities.
39 Where it is necessary to divert pedestrians into the Roadway, barricading or
40 channelizing devices shall be provided to separate the pedestrian route from the
41 adjacent vehicular traffic lane, as detailed in the Plans. Barricading or channelizing
42 devices used to separate pedestrian and vehicular traffic shall be crashworthy and,
43 when struck by vehicles, present a minimum threat to pedestrians, workers, and
44 occupants of impacting vehicles. At no time shall pedestrians be diverted into a portion
45 of the street used concurrently by moving vehicular traffic.
46

47 Revisions to traffic control or pedestrian control Plans shall be in accordance with 1-
48 10.2.
49

50 In addition, the PTCPs shall address the following:
51

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- All pedestrians, including persons with disabilities, shall be provided with a safe and accessible route.
- The width of the existing pedestrian facility shall be maintained if possible. When it is not possible to maintain a minimum width of 60-inches throughout the entire length of the pedestrian route, a minimum width of 48-inches shall be provided with 60-inch x 60-inch passing zones spaced at maximum intervals of 200-feet to allow individuals in wheelchairs to pass.
- Traffic control devices and other construction materials and features shall not intrude into the usable width of the sidewalk, alternate accessible pedestrian route, or other pedestrian facility.
- Signs and other devices mounted lower than 84-inches above the temporary accessible pedestrian route shall not project more than 4-inches into the accessible pedestrian route.
- A smooth, continuous hard surface shall be provided throughout the entire length and width of the pedestrian route throughout construction. There shall be no curbs or vertical elevation changes greater than 1/2-inch in grade or terrain that could cause tripping or be a barrier to wheelchair use. Vertical elevation differences between 1/4-inch and 1/2-inch shall be beveled at a maximum 2:1 slope.
- When channelization is used to delineate a pedestrian pathway, a continuous detectable edging shall be provided throughout the length of the facility such that pedestrians using a cane can follow it. Edging shall protrude at least 6-inches above the surface of the sidewalk or pathway with the bottom of the edging a maximum of 2-1/2 inches above the surface.
- Temporary ramps shall be provided when an alternate accessible pedestrian route crosses a curb and no permanent curb ramps are in place. The width of the curb ramp shall be a minimum of 48-inches and the maximum slope of the ramp shall be 8.3%. The maximum cross slope shall be 2.0%. The bottom of the curb ramp shall be flush with the Roadway. Temporary detectable warning mats shall be installed at street crossings.
- When possible, an alternate accessible pedestrian route shall be provided on the same side of the street as the disrupted route. When it is not possible, the alternate route shall be clearly identified at the nearest intersection crossing prior to the closure area.
- Information regarding closed pedestrian routes, alternate crossings, and sign and signal information shall be communicated to pedestrians with visual disabilities by providing devices such as audible information devices, accessible pedestrian signals, or barriers and channelizing devices that are detectable to the pedestrians traveling with the aid of a cane or who have low vision.

- It is desirable that pedestrians cross to the opposite side of the Roadway at intersections rather than mid-block. Appropriate signing shall be placed at the intersections prior to any pedestrian route closure.
- At locations where adjacent alternate walkways cannot be provided, appropriate signs shall be posted at the limits of construction and in advance of the closure at the nearest crosswalk or intersection, to divert pedestrians across the street. Physical barricades shall be installed to prevent visually impaired people from inadvertently entering a closed area.

Measurement

No specific unit of measurement will apply to the lump sum item for Pedestrian Traffic Control.

Payment

Payment will be made for the following Bid item when included in the Proposal:

“Pedestrian Traffic Control”, lump sum.

The lump sum Contract payment for “Pedestrian Traffic Control” shall be full compensation for all Work necessary to provide pedestrian control and protection as specified including preparation of PTCP, installation, maintenance and removal of temporary pedestrian routes, protective barricades, fencing, detours, signs and bridges, warning and guidance devices, and temporary pavement surfacing as needed to perform Work.

1-07.24 Rights of Way

Delete this section and replace it with the following:

(July 23, 2015 APWA GSP)

Street Right of Way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor’s construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor’s attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public Right of Way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted in the Plans. The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that

1 the right of entry has been received. If the Contractor is delayed due to acts of omission on
2 the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the
3 Contractor will be entitled to an extension of time. The Contractor agrees that such delay
4 shall not be a breach of contract.

5
6 Each property owner shall be given 48 hours notice prior to entry by the Contractor. This
7 includes entry onto easements and private property where private improvements must be
8 adjusted.

9
10 The Contractor shall be responsible for providing, without expense or liability to the
11 Contracting Agency, any additional land and access thereto that the Contractor may desire
12 for temporary construction facilities, storage of materials, or other Contractor needs.
13 However, before using any private property, whether adjoining the work or not, the
14 Contractor shall file with the Engineer a written permission of the private property owner,
15 and, upon vacating the premises, a written release from the property owner of each property
16 disturbed or otherwise interfered with by reasons of construction pursued under this
17 contract. The statement shall be signed by the private property owner, or proper authority
18 acting for the owner of the private property affected, stating that permission has been
19 granted to use the property and all necessary permits have been obtained or, in the case of
20 a release, that the restoration of the property has been satisfactorily accomplished. The
21 statement shall include the parcel number, address, and date of signature. Written releases
22 must be filed with the Engineer before the Completion Date will be established.

23 **(January 1, 2016 COK GSP)**

24 The Contractor shall file with the Engineer signed property release forms (in the format as
25 detailed below) for all properties disturbed or damaged by the Contractor's operations.

26 **PROPERTY RELEASE**

27 _____
28 _____
29 _____
30 *(Contractor's name and address)*

31
32
33 DATE: _____
34 I, _____ owner
35 of _____, hereby release _____,
36 _____ *(Contractor's name)*
37 from any property damage or personal injury resulting from construction on or adjacent to my
38 property located at _____
39 during construction of the _____. My signature below
40 is my acknowledgment and acceptance that my property, as identified above, was returned to
41 a satisfactory condition.

42
43 Signed: _____
44 Name: _____
45 Address: _____
46 _____
47 Phone: _____

48
49 **1-08 PROSECUTION AND PROGRESS**

1
2 Add the following new Section:
3

4 **1-08.0 Preliminary Matters**
5 **(May 25, 2006 APWA GSP)**
6

7 Add the following new Section:
8

9 **1-08.0(1) Preconstruction Conference**
10 **(July 8, 2024 APWA GSP)**
11

12 Prior to the Contractor beginning the work, a preconstruction conference will be held
13 between the Contractor, the Engineer and such other interested parties as may be invited.

14 The purpose of the preconstruction conference will be:

- 15 1. To review the initial progress schedule;
- 16 2. To establish a working understanding among the various parties associated or affected
17 by the work;
- 18 3. To establish and review procedures for progress payment, notifications, approvals,
19 submittals, etc.;
- 20 4. To review DBE Requirements, Training Plans, and Apprenticeship Plans, when
21 applicable.
- 22 5. To establish normal working hours for the work;
- 23 6. To review safety standards and traffic control; and
- 24 7. To discuss such other related items as may be pertinent to the work.

25
26
27 The Contractor shall prepare and submit at the preconstruction conference the following:

- 28 1. A breakdown of all lump sum items;
- 29 2. A preliminary schedule of working drawing submittals; and
- 30 3. A list of material sources for approval if applicable.

31
32 Add new Section 1-08.0(2).

33 **1-08.0(2) Hours of Work**

34 **(January 1, 2021 COK GSP, Modified September 23, 2024)**

35 Except in the case of emergency, unless otherwise indicated in the Contract Documents,
36 or unless otherwise approved by the Contracting Agency in advance, the allowable working
37 hours for this Contract Work shall be any consecutive 8-hour period between 7:00 a.m. and
38 6:00 p.m. of a working day. A maximum 1-hour lunch break is allowable between 7:00 a.m.
39 and 6:00 p.m. and does not count for purposes of the 8-hour working period. The Contract
40 assumes a 5-day work week, exclusive of weekends and holidays observed by the City of
41 Kirkland and identified in Section 1-08.5 of the Standard Specifications.

42 The normal straight time 8-hour working period for the contract shall be established at the
43 preconstruction conference or prior to the Contractor commencing the Work.

44 Except in the event of an emergency, unless otherwise indicated in the Contract
45 Documents, or unless otherwise approved in advance by the Contracting Agency (including

1 the Contractor obtaining approval for all applicable City of Kirkland permits as required by
2 the City of Kirkland Zoning Code), no Work shall be allowed between the hours of 6:00 p.m.
3 and 7:00 a.m., during weekends (except driveway construction), or during holidays
4 observed by the City of Kirkland and identified in Section 1-08.5 of the Standard
5 Specifications.

6 The Contracting Agency may consider specific and limited requests by the Contractor to
7 allow Work during one or more periods in which Work is not allowed by this Section, but
8 approval of these requests is solely at the discretion of the Contracting Agency as a benefit
9 to the general public. Contractor shall submit a request in writing to the Engineer, including
10 a full and accurate explanation of the type(s) of work to be performed, the period or periods
11 of time outside normal Work hours, and the explanation(s) for why this work cannot be
12 performed during the allowable Work hours.

13
14 The Engineer will consider requests and determine conditions and limitations as the
15 Engineer deems necessary, in conformance with the conditions of support for local
16 permitting described in Section 1-07.6 of the Standard Specifications and these Special
17 Provisions. These conditions and limitations are additional to any conditions or limitations
18 that may be required by Contracting Agency permits and/or variances. These conditions
19 may include, but are not limited to:

- 20 1. Require the Engineer or such assistants as the Engineer may deem necessary to
21 be present during the Work, including (but not limited to):
 - 22 a. Survey crews
 - 23 b. Personnel from the Contracting Agency's material testing laboratory
 - 24 c. Inspectors
 - 25 d. City operations and maintenance staff
 - 26 e. Police, fire, or other public safety officials
 - 27 f. Any other Contracting Agency employees who, in the opinion of the
28 Engineer, are a necessary presence for the Work outside of the allowable
29 working hours;
- 30 2. Require the Contractor to reimburse the Contracting Agency for all additional
31 costs and expenses in excess of straight-time costs incurred for Contracting
32 Agency employees and expenses during such times;
- 33 3. Measure Work performed on nights, weekend days, and holidays as working days
34 with regards to the Contract Time; and/or,
- 35 4. Consider multiple work shifts (such as a sequential 8-hour day period followed by
36 an 8-hour night period) as multiple working days with respect to Contract Time,
37 even if those multiple shifts occur in a single 24-hour period.

38 If the Engineer approves the Contractor's written request and all conditions and/or
39 restrictions the Engineer applies to that approval are acceptable by the Contractor, the

Contractor shall be responsible for obtaining work hours and noise variances as required by Section 1-07.6. The Contractor shall apply to the City of Kirkland Planning and Building Department using <http://mybuildingpermit.com>. The Engineer can provide supporting documentation, as deemed appropriate by the Engineer, to the Contractor for submission with this application.

Unless otherwise indicated in the Contract Documents or indicated by the Engineer in writing, no claims for equitable adjustments of Contract will be allowed for review and approval time frames for the Contractor to obtain approval for requests to Work outside the approved working hours in this Section. No claims for equitable adjustments of the Contract will be allowed for requirements, including limitations, in approvals to work outside of the allowed working hours in this Section.

Approved Work outside the allowable working hours in this Section is subject to additional noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency’s noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor’s operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.

Arterial Streets

No work will be performed on arterial streets during the peak traffic hours of 7:00 a.m. – 9:00 a.m. and 3:00 p.m. – 6:00 p.m., except emergency work to restore services, unless a City-approved traffic control plan allows work during the peak hours, *or unless otherwise noted*. The following streets are classified as arterials:

STREET	FROM	TO
Central Way/NE 85th St	Market St	132nd Ave NE
Juanita Dr NE /NE Juanita Dr	NE 143 rd St (City Limits)	98th Ave NE
Juanita Woodinville Way	100 th Ave NE	NE 145 th St (City Limits)
Lake St/Lake Washington Blvd/Northup Wy	Central Way	Northup Way (City Limits)
Kirkland Ave/Kirkland Way	Lake St	NE 85 th St
Lakeview Dr /NE 68th St/NE 70th St	Lake Washington Blvd	132nd Ave NE
Market St/98th Ave NE/100th Ave NE	Central Way	NE 145 th St (City Limits)
NE 116th St	98th Ave NE	Slater Ave NE
NE 120th St/132nd Ave NE	Slater Ave NE	NE 60th St (City Limits)
NE 124th St	100th Ave NE	East City Limits
NE 128th St	116 th Ave NE/116 th Way NE	120 th Ave NE
Simonds Rd NE	92 nd Ave NE (City Limits)	100 th Ave NE
Slater Ave NE	NE 116 th St	NE 124 th St

Totem Lake Blvd	NE 132nd St	124th Ave NE
3 rd Street/State Street	Central Way	NE 68 th Street/Lakeview Dr.
6 th St/6 th St S/108 th Ave NE (see note below this Table)	Central Way/NE 85 th St	South City Limits
90 th Ave NE/NE 131st Way/NE 132nd St	NE 134 th St	132nd Ave NE
120 th Ave NE/116 th Ave NE/116 th Way NE	NE 112 th St	NE 132 nd St
124th Ave NE	NE 85th St	NE 124th St
124th Ave NE	NE 132 nd St	NE 145 th PI (City Limits)

Work performed on 6th St between Central Way/NE 85th St and Kirkland Way will only be allowed between the hours of 7:30 a.m. – 3:30 p.m.

1-08.1 Subcontracting

Section 1-08.1 is supplemented with the following:
(January 1, 2016 COK GSP)

A Subcontractor or an Agent to the Subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (form 421-012).
2. Statement of Intent to Pay Prevailing Wages (Form 700-029-000).

The Contractor's records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Department during the life of the contract and for a period of not less than three years after the date of acceptance of the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all Subcontractors and Agents shall be open to similar inspection or audit for the same period.

1-08.1(7) Payments to Subcontractors and Lower-Tier Subcontractors

1-08.1(7)A Payment Reporting
(November 25, 2024 APWA GSP)

Delete this section and replace it with the following:

1-08.1(7)A VACANT

1-08.1(8) Required Subcontract Clauses

1-08.1(8)B Clauses Required in Subcontracts of All Tiers
(November 25, 2024 APWA GSP)

Delete item 8 of the second paragraph of Section 1-08.1(8)B.

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1-08.3 Progress Schedule

(January 1, 2016 COK GSP)

The order of work will be at the Contractor's option, in keeping with good construction practice and the terms of the contract. All work shall be carried out in accordance with the requirements of the City of Kirkland in compliance with the plans and specifications. However, the Contractor shall so schedule the work within the time constraints noted in the various contract documents, including any permits. The Contractor is cautioned to review said documents and permits and schedule the work appropriately as no additional compensation will be made to the Contractor due to the time constraints imposed by such documents.

1-08.3(2) General Requirements

**1-08.3(2)B Type B Progress Schedule
(January 4, 2024 APWA GSP)**

Revise the first paragraph to read:

The Contractor shall submit a preliminary Type B Progress Schedule at or prior to the preconstruction conference. The preliminary Type B Progress Schedule shall comply with all of these requirements and the requirements of Section 1-08.3(2), except that it may be limited to only those activities occurring within the first 60-working days of the project.

Revise the first sentence of the second paragraph to read:

The Contractor shall submit 3 copies of a Type B Progress Schedule depicting the entire project no later than 21-calendar days after the preconstruction conference.

Section 1-08.3(2) is supplemented with the following:
(*****)

Special Schedule Limitations

No work or equipment staging may occur on this project in the vicinity of and on the accesses to the Cross Kirkland Corridor Trail during the following events:

- Saturday, March 15, 2025 – Kirkland Shamrock Run
- Sunday, May 4, 2025 – Kirkland Half Marathon
- Saturday, October 18, 2025 – Lake Washington Half
- Sunday, November 16, 2025 – Kirkland Turkey Trot
- Sunday, December 14, 2025 – 12k's of Christmas

All trails, sidewalks, and ramps shall be open and accessible to pedestrians, and all bike routes shall be clear and safe.

**1-08.4 Prosecution of Work
(July 23, 2015 APWA GSP)**

Delete this section in its entirety, and replace it with the following:

1 **1-08.4 Notice to Proceed and Prosecution of Work**

2 Notice to Proceed will be given after the contract has been executed and the contract bond
3 and evidence of insurance have been approved and filed by the Contracting Agency. The
4 Contractor shall not commence with the work until the Notice to Proceed has been given by
5 the Engineer. The Contractor shall commence construction activities on the project site on
6 the date identified on the Notice to Proceed, unless otherwise approved in writing. The
7 Contractor shall diligently pursue the work to the physical completion date within the time
8 specified in the contract. Voluntary shutdown or slowing of operations by the Contractor
9 shall not relieve the Contractor of the responsibility to complete the work within the time(s)
10 specified in the contract.

11
12 When shown in the Plans, the first order of work shall be the installation of high visibility
13 fencing to delineate all areas for protection or restoration, as described in the Contract.
14 Installation of high visibility fencing adjacent to the roadway shall occur after the placement
15 of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon
16 construction of the fencing, the Contractor shall request the Engineer to inspect the fence.
17 No other work shall be performed on the site until the Contracting Agency has accepted the
18 installation of high visibility fencing, as described in the Contract.

19 **1-08.5 Time for Completion**

20
21 ***(November 25, 2024 APWA GSP, Option B)***

22 Revise the third and fourth paragraphs to read:

23
24 Contract time shall begin on the first working day following the tenth (10th) calendar day
25 after the Notice to Proceed date. If the Contractor starts work on the project at an earlier
26 date, then contract time shall begin on the first working day when onsite work begins.

27
28 Each working day shall be charged to the contract as it occurs, until the contract work is
29 physically complete. If substantial completion has been granted and all the authorized
30 working days have been used, charging of working days will cease. Each week the Engineer
31 will provide the Contractor a statement that shows the number of working days: (1) charged
32 to the contract the week before; (2) specified for the physical completion of the contract; and
33 (3) remaining for the physical completion of the contract. The statement will also show the
34 nonworking days and all partial or whole days the Engineer declares as unworkable. The
35 statement will be identified as a Written Determination by the Engineer. If the Contractor
36 does not agree with the Written Determination of working days, the Contractor shall pursue
37 the protest procedures in accordance with Section 1-04.5. By failing to follow the
38 procedures of Section 1-04.5, the Contractor shall be deemed as having accepted the
39 statement as correct. If the Contractor is approved to work 10 hours a day and 4 days a
40 week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would
41 ordinarily be charged as a working day, then the fifth day of that week will be charged as a
42 working day whether or not the Contractor works on that day.

43
44 Revise the sixth paragraph to read:

45
46 The Engineer will give the Contractor written notice of the completion date of the contract
47 after all the Contractor’s obligations under the contract have been performed by the
48 Contractor. The following events must occur before the Completion Date can be
49 established:

- 1 1. The physical work on the project must be complete; and
- 2 2. The Contractor must furnish all documentation required by the contract and required
- 3 by law, to allow the Contracting Agency to process final acceptance of the contract.
- 4 The following documents must be received by the Project Engineer prior to
- 5 establishing a completion date:
- 6 a. Certified Payrolls (per Section 1-07.9(5)).
- 7 b. Material Acceptance Certification Documents
- 8 c. Monthly Reports in DMCS of the amounts paid including the final
- 9 payment confirmation to all firms required by Section 1-08.1(7)A if applicable
- 10 d. Final Contract Voucher Certification
- 11 e. Copies of the approved "Affidavit of Prevailing Wages Paid" for the
- 12 Contractor and all subcontractors
- 13 f. A copy of the Notice of Termination sent to the Washington State
- 14 Department of Ecology (Ecology); the elapse of 30 calendar days from the date
- 15 of receipt of the Notice of Termination by Ecology; and no rejection of the Notice
- 16 of Termination by Ecology. This requirement will not apply if the Construction
- 17 Stormwater General Permit is transferred back to the Contracting Agency in
- 18 accordance with Section 8-01.3(16).
- 19 g. Property owner releases per Section 1-07.24
- 20

21 **(January 1, 2016 COK GSP)**

22 Section 1-08.5 is supplemented with the following:

23 This project shall be physically completed in its entirety within **200** working days.

24 **1-08.9 Liquidated Damages**

25 ***(March 3, 2021 APWA GSP, Option B)***

26

27 Revise the second and third paragraphs to read:

28

29 Accordingly, the Contractor agrees:

- 30
- 31 1. To pay (according to the following formula) liquidated damages for each working
- 32 day beyond the number of working days established for Physical Completion,
- 33 and
- 34
- 35 2. To authorize the Engineer to deduct these liquidated damages from any money
- 36 due or coming due to the Contractor.
- 37

38 **Liquidated Damages Formula**

39

40 $LD=0.15C/T$

41

42 Where:

43 LD = liquidated damages per working day (rounded to the nearest dollar)

44 C = original Contract amount

45 T = original time for Physical Completion

1
2 When the Contract Work has progressed to Substantial Completion as defined in the
3 Contract, the Engineer may determine the Contract Work is Substantially Complete. The
4 Engineer will notify the Contractor in writing of the Substantial Completion Date. For
5 overruns in Contract time occurring after the date so established, the formula for liquidated
6 damages shown above will not apply. For overruns in Contract time occurring after the
7 Substantial Completion Date, liquidated damages shall be assessed on the basis of direct
8 engineering and related costs assignable to the project until the actual Physical Completion
9 Date of all the Contract Work. The Contractor shall complete the remaining Work as
10 promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a
11 written schedule for completing the physical Work on the Contract.
12

13 **1-09 MEASUREMENT AND PAYMENT**

14 **1-09.2 Weighing Equipment**

15 16 **1-09.2(1) General Requirements for Weighing Equipment** 17 **(November 25, 2024 APWA GSP, Option B)** 18

19 Revise item 4 of the fifth paragraph to read:

- 20
21 4. Test results and scale weight records for each day's hauling operations are provided to
22 the Engineer daily. Reporting shall utilize WSDOT form 422-027LP, Scaleman's Daily
23 Report, unless the printed ticket contains the same information that is on the Scaleman's
24 Daily Report Form. The scale operator must provide AM and/or PM tare weights for
25 each truck on the printed ticket.
26

27 **(January 1, 2016 COK GSP)** 28

29 The sixth paragraph of Section 1-09.2(1) is supplemented with the following:

- 30 7. Ticket serial number
31 8. Date and hour of weighing
32 9. Weigher's identification
33

34 Duplicate tally tickets shall be prepared to accompany each truckload of materials
35 delivered to the project.
36

37 It is the responsibility of the Contractor to see that tickets are given to the Inspector on the
38 project for each truckload of material delivered. Pay quantities will be prepared on the
39 basis of said tally tickets, delivered to the Inspector at time of delivery of materials.
40

Tickets not collected at the time of delivery will not be honored for payment.

41 **1-09.2(5) Measurement** 42 **(December 30, 2022 APWA GSP)** 43

44 Revise the first paragraph to read:
45

46 **Scale Verification Checks** – At the Engineer's discretion, the Engineer may perform
47 verification checks on the accuracy of each batch, hopper, or platform scale used in
48 weighing contract items of Work.

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1-09.6 Force Account

(December 30, 2022 APWA GSP)

Supplement this section with the following:

The Contracting Agency has estimated and included in the Proposal, dollar amounts for all items to be paid per force account, only to provide a common proposal for Bidders. All such dollar amounts are to become a part of Contractor's total bid. However, the Contracting Agency does not warrant expressly or by implication, that the actual amount of work will correspond with those estimates. Payment will be made on the basis of the amount of work actually authorized by the Engineer.

1-09.7 Mobilization

*(*****)*

Supplement this section with the following:

The item of Mobilization includes all costs necessary for installing and removing up to three City-provided informational signs at or near the two ends of the project's geographic limits. The informational signs will be chloroplast or aluminum signs up to 72 inches wide and 48 inches tall. The Contractor shall mount chloroplast signs to plywood sheets of the same size. This mounting can be skipped for aluminum signs. The Contractor shall install signs by setting two 4" x 4" x 10' posts (per sign) 36" below grade, set apart consistent with the width of the sign, and backfilling with soil at a location agreed upon by the City and the Contractor. The Contractor shall secure the sign so the top is 7' above ground level. The Contractor shall remove the sign(s) at substantial completion and deliver the signs to the City Maintenance Yard.

*(*****)*

1-09.8 Payment for Material on Hand

The last paragraph of Section 1-09.8 is revised to read:

(August 3, 2009 WSDOT GSP)

The Contracting Agency will not pay for material on hand when the invoice cost is less than \$2,000. As materials are used in the Work, credits equaling the partial payments for them will be taken on future estimates. Each month, no later than the estimate due date, the Contractor shall submit a letter to the Project Engineer that clearly states: 1) the amount originally paid on the invoice (or other record of production cost) for the items on hand, 2) the dollar amount of the material incorporated into each of the various Work items for the month, and 3) the amount that should be retained in material on hand items. If Work is performed on the items and the Contractor does not submit a letter, all of the previous material on hand payment will be deducted on the estimate. Partial payment for materials on hand shall not constitute acceptance. Any material will be rejected if found to be faulty even if partial payment for it has been made.

1 **1-09.9 Payments**
2 **(July 8, 2024, APWA GSP, Option B)**
3

4 Delete the fourth paragraph and replace it with the following:
5

6 Progress payments for completed work and material on hand will be based upon progress
7 estimates prepared by the Engineer. A progress estimate cutoff date will be established at
8 the preconstruction conference.
9

10 The initial progress estimate will be made not later than 30 days after the Contractor
11 commences the work, and successive progress estimates will be made every month
12 thereafter until the Completion Date. Progress estimates made during progress of the work
13 are tentative, and made only for the purpose of determining progress payment. The
14 progress estimates are subject to change at any time prior to the calculation of the Final
15 Payment.
16

17 The value of the progress estimate will be the sum of the following:

- 18 1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of
19 work completed multiplied by the unit price.
- 20 2. Lump Sum Items in the Bid Form — based on the approved Contractor's lump sum
21 breakdown for that item, or absent such a breakdown, based on the Engineer's
22 determination.
- 23 3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or
24 other storage area approved by the Engineer.
- 25 4. Change Orders — entitlement for approved extra cost or completed extra work as
26 determined by the Engineer.
27

28 Progress payments will be made in accordance with the progress estimate less:

- 29 1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
- 30 2. The amount of Progress Payments previously made; and
- 31 3. Funds withheld by the Contracting Agency for disbursement in accordance with the
32 Contract Documents.
33

34 Progress payments for work performed shall not be evidence of acceptable performance or
35 an admission by the Contracting Agency that any work has been satisfactorily completed.
36 The determination of payments under the contract will be final in accordance with Section
37 1-05.1.
38

39 **Supplement this Section with the following:**
40 **(January 1, 2016 COK GSP)**
41

42 Unless otherwise agreed to by both parties, the work period shall coincide with the
43 calendar month. A check will be mailed or made available to the Contractor no later than
44 thirty (30) days following the last day of the work period.
45

46 **1-09.9(1) Retainage**

47 Section 1-09.1(1) content and title is deleted and replaced with the following:

1
2 (June 27, 2011 WSDOT GSP)
3 Vacant
4

5 **1-09.11 Disputes and Claims**
6

7 **1-09.11(3) Time Limitation and Jurisdiction**
8 **(December 30, 2022 APWA GSP)**
9

10 Revise this section to read:

11
12 For the convenience of the parties to the Contract it is mutually agreed by the parties that all
13 claims or causes of action which the Contractor has against the Contracting Agency arising
14 from the Contract shall be brought within 180 calendar days from the date of final acceptance
15 (Section 1-05.12) of the Contract by the Contracting Agency; and it is further agreed that all
16 such claims or causes of action shall be brought only in the Superior Court of the county where
17 the Contracting Agency headquarters is located, provided that where an action is asserted
18 against a county, RCW 36.01.050 shall control venue and jurisdiction. The parties understand
19 and agree that the Contractor's failure to bring suit within the time period provided, shall be a
20 complete bar to all such claims or causes of action. It is further mutually agreed by the parties
21 that when claims or causes of action which the Contractor asserts against the Contracting
22 Agency arising from the Contract are filed with the Contracting Agency or initiated in court, the
23 Contractor shall permit the Contracting Agency to have timely access to all records deemed
24 necessary by the Contracting Agency to assist in evaluating the claims or action.
25

26 **1-09.13 Claims Resolution**
27

28 **1-09.13(1) Conditions Precedent to Binding Arbitration or Litigation**
29

30 **1-09.13(1)A General**
31 **(December 30, 2022 APWA GSP)**
32

33 Revise this section to read:

34
35 Prior to seeking claims resolution through arbitration or litigation, the Contractor shall proceed
36 in accordance with Sections 1-04.5 and 1-09.11. The provisions of Sections 1-04.5 and 1-
37 09.11 must be complied with in full as a condition precedent to the Contractor's right to seek
38 claim resolution through binding arbitration or litigation.
39

40 Any claims or causes of action which the Contractor has against the Contracting Agency
41 arising from the Contract shall be resolved, as prescribed herein, through binding arbitration
42 or litigation.
43

44 The Contractor and the Contracting Agency mutually agree that those claims or causes of
45 action which total \$1,000,000 or less, which are not resolved by mediation, shall be resolved
46 through litigation unless the parties mutually agree in writing to resolve the claim through
47 binding arbitration.
48

49 The Contractor and the Contracting Agency mutually agree that those claims or causes of
50 action in excess of \$1,000,000, which are not resolved by mediation, shall be resolved through

1 litigation unless the parties mutually agree in writing to resolve the claim through binding
2 arbitration.

3
4 **1-09.13(3) Arbitration**

5
6 **1-09.13(3)A Arbitration General**
7 **(January 19, 2022 APWA GSP)**

8
9 Revise the third paragraph to read:

10
11 The Contracting Agency and the Contractor mutually agree to be bound by the decision of the
12 arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the
13 Superior Court of the county in which the Contracting Agency's headquarters is located,
14 provided that where claims subject to arbitration are asserted against a county, RCW
15 36.01.050 shall control venue and jurisdiction of the Superior Court. The decision of the
16 arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the
17 Contract as a basis for decisions.

18
19 **1-09.13(4) Venue for Litigation**
20 **(December 30, 2022 APWA GSP)**

21
22 Revise this section to read:

23
24 Litigation shall be brought in the Superior Court of the county in which the Contracting
25 Agency's headquarters is located, provided that where claims are asserted against a county,
26 RCW 36.01.050 shall control venue and jurisdiction of the Superior Court. It is mutually agreed
27 by the parties that when litigation occurs, the Contractor shall permit the Contracting Agency
28 to have timely access to all records deemed necessary by the Contracting Agency to assist in
29 evaluating the claims or action.

30
31 **1-10 TEMPORARY TRAFFIC CONTROL**

32 **1-10.2 Traffic Control Management**

33
34 **1-10.2(1) General**

35 Section 1-10.2(1) is supplemented with the following:

36
37 **(October 3, 2022 WSDOT GSP)**

38 The Traffic Control Supervisor shall be certified by one of the following:

39
40 The Northwest Laborers-Employers Training Trust
41 27055 Ohio Ave.
42 Kingston, WA 98346
43 (360) 297-3035
44 <https://www.nwlett.edu>

45
46 Evergreen Safety Council
47 12545 135th Ave. NE
48 Kirkland, WA 98034-8709
49 1-800-521-0778

1 <https://www.esc.org>

2
3 The American Traffic Safety Services Association
4 15 Riverside Parkway, Suite 100
5 Fredericksburg, Virginia 22406-1022
6 Training Dept. Toll Free (877) 642-4637
7 Phone: (540) 368-1701
8 <https://atssa.com/training>

9
10 Integrity Safety
11 13912 NE 20th Ave.
12 Vancouver, WA 98686
13 (360) 574-6071
14 <https://www.integritysafety.com>

15
16 US Safety Alliance
17 (904) 705-5660
18 <https://www.ussafetyalliance.com>

19
20 K&D Services Inc.
21 2719 Rockefeller Ave.
22 Everett, WA 98201
23 (800) 343-4049
24 <https://www.kndservices.nethttps://www.ussafetyalliance.com/>
25

26 **1-10.2(2)Traffic Control Plans**

27 The first and second sentences of Section 1-10.2(2) are deleted and replaced with the
28 following:

29 The Contractor shall submit a traffic control plan or plans showing a method of handling traffic
30 including pedestrian and bicycle traffic not already shown in the contract documents. All
31 construction signs, flaggers, spotters and other traffic control devices shall be shown on the
32 traffic control plan(s) except for emergency situations.

33 The Contractor shall utilize City of Kirkland Pre-Approved Plans Policy R-29 for traffic control
34 plan requirements and guidelines.

35 Section 1-10.2(2) is supplemented with the following:

36 The Contractor shall provide a minimum of two (2) flaggers, one (1) traffic control supervisor,
37 and at least one (1) PCMS board during all working hours when temporary traffic control or
38 permanent lane closures are in place. This shall be included in the lump sum Bid item "Project
39 Temporary Traffic Control".

40
41 **1-10.3 Traffic Control Labor, Procedures, and Devices**
42

1 **1-10.3(1) Traffic Control Labor**
2

3 **1-10.3(1)B Other Traffic Control Labor**
4 **(November 25, 2024, APWA GSP Modified)**
5

6 Section 1-10.3(1)B is supplemented with the following:
7

8 **Uniformed Police Officer**
9

10 Definitions:

11 Uniformed Police Officer as used in this specification is a “General Authority Washington
12 Peace Officer” as defined by RCW 10.93.020 (4), or a “Specially Commissioned Washington
13 Peace Officer” as defined by RCW 10.93.020(11).

14 Law Enforcement Agency as used in this specification is a “General Authority Washington
15 Law Enforcement Agency” as defined by RCW 10.93.020(3).
16

17 The Contractor shall arrange for off-duty Uniformed Police Officers to be present for the
18 following activities:

- 19 1. At the commissioning of a new traffic signal, or the recommissioning of an existing
20 traffic signal which has been upgraded.
- 21 2. Countermanding a traffic signal indication at a signalized intersection.
- 22 3. Directing vehicle and pedestrian traffic when a traffic signal indication is turned off or
23 is inoperative.
- 24 4. Where the Engineer deems it necessary for safety, including work during hours of
25 darkness.

26
27 It shall be the Contractor’s responsibility to secure the off duty Uniformed Police Officer as
28 required by the contract, including the costs to arrange, coordinate, and supervise.
29

30 The services provided by the Uniformed Police Officer shall be considered a subcontractor
31 with the attendant requirements and responsibilities.
32

33 The Contractor must obtain prior approval for use of off-duty Uniformed Police Officers
34 through an Approved Traffic Control Plan and approved amendments to the contract traffic
35 control Plans. The off-duty Uniformed Police Officer shall be in addition to all other
36 personnel required for flagging according to the approved traffic control plan.
37

38 A Uniformed Police Officer shall be provided in the event of accidental power outages or
39 disruption of a signalized intersection as a result of Contractor’s Work and remain in place
40 until the intersection becomes satisfactorily operational as determined by Agency Engineer or
41 his/her representative.
42

43 The UPO shall be capable of issuing legal tickets for offenders and providing their Agency
44 Police Vehicle with active light bars for night visibility.
45

1 Uniformed Police Officers shall be included in the lump sum Bid item "Project Temporary
2 Traffic Control".
3
4

5

END OF DIVISION 1

**DIVISION 2
EARTHWORK**

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.3 Construction Requirements

2-01.3(5) Removal of Trees and Tree Stumps

Section 2-01.3(5) is added as follows:

(*****)

Numerous locations along NE 85th ST require tree and stump removal. Tree removal shall consist of cutting and disposing of tree limbs and trunks. Tree stump grinding shall consist of grinding the stumps of the removed trees. The Contractor shall grind the stumps to a minimum of 6 inches below existing ground surface elevation. In areas of the sidewalk path and retaining wall, trees and tree stumps shall be removed in their entirety.

As feasible, stumps from removed trees outside of the construction activities area shall be retained. It is expected that the bigleaf maple trees and other species will regenerate from retained stumps. In addition, leaving the stumps in place may protect retained trees from outside of the project area from impacts to their critical root zone from stump removal work.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

Section 2-02.3 is supplemented with the following:

(*****)

Removal of Obstructions

The following items shall be included in the lump sum item "Removal of Structures and Obstructions":

Item	Location	Approximate Quantity
Roadway Light Pole	14+10 RT	1 EA
Roadway Light Pole	17+79 RT	1 EA
Roadway Light Pole	30+75 RT	1 EA
Bin Wall	27+64 – 27+61 RT	10 LF
Chain Link Fence	26+60 – 26+91 RT	71 LF
Chain Link Fence	27+99 – 28+06 RT	58 LF
Raised Pavement Markers	16+75 – 17+50	120 EA

These quantities are not guaranteed accurate or to be all the necessary items of Work as required in Section 2-02 of the Standard Specifications and as modified herein. Quantities are for the Contractor's convenience and should be verified by the Contractor prior to Bidding.

1 **2-02.3(2) Removal of Bridges, Box Culverts, and other Drainage Structures**

2 Section 2-02.3(2) is supplemented with the following:

3
4 (*****)

5 **Removal of Drainage Structures and Pipes**

6 Where shown in the Plans, or at other locations as determined by the Engineer, the
7 Contractor shall remove catch basins, regardless of the size or type, and storm drain
8 pipe. Each catch basin or storm drain pipe shall be removed in its entirety.

9
10 Pipe removal shall include removal of caps, flanges, fittings, and associated
11 components.

12
13 Voids left by catch basin or storm drain pipe removal shall be backfilled and compacted
14 in accordance with Section 2-03.3(14)C.

15
16 All materials removed shall become the property of the Contractor and shall be disposed
17 of outside the project limits.

18
19 **2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters**

20 Section 2-03.3(3) is supplemented with the following:

21
22 (*****)

23 All full-depth sawcuts shall be continuous, and shall be made with saws specifically
24 equipped for the purpose. No skip cutting or jack hammering will be allowed unless
25 specifically approved otherwise in writing by the Engineer. The location of all pavement
26 cuts shall be where shown in the Plans or as approved by the Engineer in the field before
27 cutting commences.

28
29 All sawcutting performed in the Contract shall provide for and include removal and
30 disposal of slurry created from water cooling/lubrication, in accordance with the
31 Washington State Department of Ecology regulations. Waste material (slurry) shall not
32 be allowed to enter drainage systems, ditches, or streams.

33
34 **Removal of Asphalt Concrete Pavement**

35 The approximate thickness of the asphalt concrete pavement is 9 inches on NE 85th
36 Street.

37
38 **Removal of Cement Concrete Pavement**

39 The approximate thickness of the cement concrete pavement is 8.5 inches on NE 85th
40 Street.

41
42 **Removal of Curb, Gutter and Sidewalk**

43 The Contractor shall use a sawcut to delineate curbing, gutters, ramps, pedestrian curbs,
44 and sidewalk to be removed from curbs, gutters, ramps, pedestrian curbs, pole
45 foundations, and sidewalk to remain. The Contractor shall take care to avoid damaging
46 adjacent curbs, gutters, pedestrian curbs, pole foundations, and sidewalk to remain. Any
47 damage caused to the curbs, gutters, pedestrian curbs, pole foundations, and sidewalk
48 to remain, as a result of the Contractor's operations, shall be repaired to the satisfaction
49 of the Engineer at no additional cost to the Contracting Agency.

50
51 **2-02.3(4) Sawcutting**

52 Section 2-02.3(4) is added as follows:

1
2 (*****)

3 The Contractor shall be responsible for ensuring that special precautions are undertaken
4 so that no concrete or concrete by-products, or products and by-products used in the
5 sawcut of asphalt or concrete, are discharged into any storm drain or surface water
6 system.
7

8 In accordance with the Department of Ecology guidelines, wastewater from Portland
9 cement concrete, masonry, and asphalt concrete cutting operations shall not be
10 discharged to storm drainage systems or surface waters. Cutting operations increase
11 the pH of wastewater, therefore, filtering prior to discharge is **NOT** acceptable.
12

13 To thoroughly clean sawcuts where necessary, the Contractor shall use high pressure
14 water (high pressure water is considered greater than 1400 psi).
15

16 All wastewater shall be collected using a wet-dry vacuum or pumped into drums for
17 disposal. Disposal of the waste liquid may be to soil or other porous surfaces away from
18 storm drains and surface water, only if the Contractor collects and disposes of remaining
19 sediment after water has filtered into soil or evaporated. Impervious surfaces
20 contaminated with sediment and grit from cutting operations shall be cleaned by
21 sweepers to prevent contaminants from entering the storm drainage system or surface
22 waters when it rains.
23

24 **2-02.4 Measurement**

25 Section 2-02.4 is supplemented with the following:
26

27 (*****)

28 Removal of existing drainage pipe will be measured by the linear foot along the line and slope
29 of the drainage pipe prior to removal.
30

31 Removal of drainage structures will be measured per each for each drainage Structure
32 removed.
33

34 Sawcutting will be measured per linear foot of saw cut, regardless of depth, to remove
35 existing improvements, except for sawcutting the Contractor chooses to use for storm
36 drainage removals. No additional measurement will be made if the Contractor is required to
37 make more than one saw cut to achieve the required saw cut depth.
38

39 Removing cement concrete sidewalk will be measured by the square yard, exclusive of
40 adjacent curbs and gutters and/or roadway asphalt or roadway concrete.
41

42 Removing asphalt concrete curb will be measured by the linear foot along the line and slope
43 of the existing curb prior to removal.
44

45 Removing cement concrete curb and gutters will be measured by the linear foot along the
46 line and slope of the existing curb prior to removal.
47

48 **2-02.5 Payment**

49 Section 2-02.5 is supplemented with the following:
50

51 (*****)

1 The lump sum Contract price for "Removal of Structures and Obstructions" shall include all
2 costs for the Work required to completely remove items; furnish and place backfill material;
3 compact the voids; and dispose of items not to be salvaged or reinstalled.

4
5 "Removing Existing Drainage Pipe," per linear foot.

6 The unit Contract price per linear foot for "Removing Existing Drainage Pipe" shall be full pay
7 for performing the Work as specified, including saw cutting and disposal.

8
9 "Removing Drainage Structure", per each.

10 The unit Contract price per each for "Removing Drainage Structure" shall be full pay to
11 perform the Work as specified, including completely removing items, furnishing and placing
12 backfill material, compacting the voids, saw cutting, and disposing of the items.

13
14 "Sawcutting Existing Pavement", per linear foot.

15 The unit Contract price per linear foot for "Sawcutting Existing Pavement" shall be full
16 compensation for all Work to sawcut to remove existing improvements, regardless of material
17 type or depth being sawcut, including collection, removal, and disposal of slurry. No additional
18 payment will be made if the Contractor is required to make more than one sawcut to achieve
19 the required sawcut depth, including due to conditions of layering of different types of
20 pavement materials. No separate payment for sawcutting will be made when sawcutting is
21 included in the unit Contract price of other Bid items.

22
23 "Removing Cement Conc. Sidewalk," per square yard.

24 The unit Contract price per square yard for "Removing Cement Conc. Sidewalk" shall be full
25 compensation for performing the Work as specified, including disposal.

26
27 "Removing Asphalt Conc. Curb," per linear foot.

28 The unit Contract price per linear foot for "Removing Asphalt Conc. Curb" shall be full pay for
29 performing the Work as specified, including disposal.

30
31 "Removing Cement Conc. Curb," per linear foot.

32 The unit Contract price per linear foot for "Removing Cement Conc. Curb" shall be full pay
33 for performing the Work as specified, including disposal.

34
35 "Removing Cement Conc. Curb and Gutter," per linear foot.

36 The unit Contract price per linear foot for "Removing Cement Conc. Curb and Gutter" shall
37 be full pay for performing the Work as specified, including disposal.

38 39 40 **2-03 ROADWAY EXCAVATION AND EMBANKMENT**

41 42 **2-03.4 Measurement**

43 Section 2-03.4 is supplemented with the following:

44
45 (March 13, 1995 WSDOT GSP)

46 Only one determination of the original ground elevation will be made on this
47 project. Measurement for Roadway excavation and embankment will be based on the
48 original ground elevations recorded previous to the Award of this Contract.

1 If discrepancies are discovered in the ground elevations which will materially affect the
2 quantities of earthwork, the original computations of earthwork quantities will be adjusted
3 accordingly.
4

5 Earthwork quantities will be computed, either manually or by means of electronic data
6 processing equipment, by use of the average end area method or by the finite element
7 analysis method utilizing digital terrain modeling techniques.
8

9 (*****)

10 The Contractor has the option of accepting the plan quantities in the original Bid Proposal for
11 Roadway Excavation Including Haul. If the Contractor elects to choose this option, then the
12 Contractor shall notify the Contracting Agency in writing before any construction activity
13 occurs that the Contractor is accepting the plan quantities in the original Bid Proposal for
14 Roadway Excavation Including Haul. Once the Contractor chooses to accept the original
15 plan quantities in the original Bid Proposal, there shall be no adjustment allowed in those Bid
16 Proposal quantities. In addition, if the Contractor chooses to accept the original plan
17 quantities in the Bid Proposal, the Contractor is not required to conduct a survey to create
18 either an Existing Ground DTM or a Maximum Excavation DTM, as defined in Special
19 Provision 1-05.4.
20

21 Where the Plans indicate removal of existing pavements, those items shall be included in the
22 measurement of roadway excavation and not measured separately.
23

24 **2-03.5 Payment**

25 Section 2-03.5 is supplemented with the following:
26

27 (*****)

28 If the Contractor elects to accept the quantities in the original Bid Proposal for Roadway
29 Excavation Incl. Haul, then the payments shall be made to the Contractor in two installments:
30 50% of the Roadway Excavation Including Haul quantity will be paid when the Contractor
31 completes half of the roadway excavation schedule as defined in the Type A Progress
32 Schedule and the remaining 50% of the quantity after all roadway excavation is completed.
33
34

35 **END OF DIVISION 2**
36
37

**DIVISION 4
BASES**

4-04 BALLAST AND CRUSHED SURFACING

4-04.2 Materials

Section 4-04.2 is supplemented with the following:

(*****)

Crushed Surfacing for Trail Mix – shall be manufactured from 100% ledge rock in accordance with Section 3-01. The materials shall be uniform in quality and substantially free from wood, roots, bark and other extraneous materials and shall meet the following requirements:

<u>Sieve</u>	<u>Specification</u>
3/8" (9.5mm)	100-100
#4 (4.75mm)	85-100
#10 (2mm)	40-65
#16 (1.18mm)	30-75
#30 (0.6mm)	15-40
#200 (75um)	5-15
% Fracture	100%

The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

For approval of Source the Contractor shall supply one sample of material and test reports shown the product meets the above requirements.

Acceptance by the Engineer will be based on non-statistical evaluation as described in Section 3-04.3(5)

4-04.3 Construction Requirements

4-04.3(5) Shaping and Compaction

Section 4-04.3(5) is supplemented with the following:

(*****)

Crushed surfacing for trail mix shall be compacted to at least 95 percent of the standard density as required by this Section in the Standard Specifications.

END OF DIVISION 4

1
2 **DIVISION 5**
3 **SURFACE TREATMENTS AND PAVEMENTS**
4

5 **5-04 HOT MIX ASPHALT**
6 *(January 31, 2023 APWA GSP)*
7

8 Delete Section 5-04, Hot Mix Asphalt, and replace it with the following:
9

10 **5-04.1 Description**

11 This Work shall consist of providing and placing one or more layers of plant-mixed hot mix
12 asphalt (HMA) on a prepared foundation or base in accordance with these Specifications
13 and the lines, grades, thicknesses, and typical cross-sections shown in the Plans. The
14 manufacture of HMA may include warm mix asphalt (WMA) processes in accordance with
15 these Specifications. WMA processes include organic additives, chemical additives, and
16 foaming.

17
18 HMA shall be composed of asphalt binder and mineral materials as may be required, mixed
19 in the proportions specified to provide a homogeneous, stable, and workable mixture.
20

21 **5-04.2 Materials**

22 Materials shall meet the requirements of the following sections:

23	Asphalt Binder	9-02.1(4)
24	Cationic Emulsified Asphalt	9-02.1(6)
25	Anti-Stripping Additive	9-02.4
26	HMA Additive	9-02.5
27	Aggregates	9-03.8
28	Recycled Asphalt Pavement (RAP)	9-03.8(3)B, 9-03.21
29	Reclaimed Asphalt Shingles (RAS)	9-03.8(3)B, 9-03.21
30	Mineral Filler	9-03.8(5)
31	Recycled Material	9-03.21

32
33 The Contract documents may establish that the various mineral materials required for the
34 manufacture of HMA will be furnished in whole or in part by the Contracting Agency. If the
35 documents do not establish the furnishing of any of these mineral materials by the
36 Contracting Agency, the Contractor shall be required to furnish such materials in the
37 amounts required for the designated mix. Mineral materials include coarse and fine
38 aggregates, and mineral filler.

39
40 The Contractor may choose to utilize recycled asphalt pavement (RAP) in the production of
41 HMA. The RAP may be from pavements removed under the Contract, if any, or pavement
42 material from an existing stockpile.

43
44 The Contractor may use up to 20 percent RAP by total weight of HMA with no additional
45 sampling or testing of the RAP.

1
2 If the Contractor wishes to utilize High RAP/Any RAS, the design must be listed on the
3 WSDOT Qualified Products List (QPL).

4
5 The grade of asphalt binder shall be as required by the Contract. Blending of asphalt binder
6 from different sources is not permitted.

7
8 The Contractor may only use warm mix asphalt (WMA) processes in the production of HMA
9 with 20 percent or less RAP by total weight of HMA. The Contractor shall submit to the
10 Engineer for approval the process that is proposed and how it will be used in the
11 manufacture of HMA.

12
13 Production of aggregates shall comply with the requirements of Section 3-01.
14 Preparation of stockpile site, the stockpiling of aggregates, and the removal of aggregates
15 from stockpiles shall comply with the requirements of Section 3-02.

16
17 **5-04.2(1) How to Get an HMA Mix Design on the QPL**

18 If the Contractor wishes to submit a mix design for inclusion in the Qualified Products List
19 (QPL), please follow the WSDOT process outlined in Standard Specification 5-04.2(1).

20
21 **5-04.2(1)A Vacant**

22
23 **5-04.2(2) Mix Design - Obtaining Project Approval**

24 No paving shall begin prior to the approval of the mix design by the Engineer.

25
26 **Nonstatistical** evaluation will be used for all HMA not designated as Commercial HMA in
27 the Contract documents.

28
29 **Commercial** evaluation will be used for Commercial HMA and for other classes of HMA in
30 the following applications: sidewalks, road approaches, ditches, slopes, paths, trails, gores,
31 prelevel, temporary pavement, and pavement repair. Other nonstructural applications of
32 HMA accepted by commercial evaluation shall be as approved by the Project Engineer.
33 Sampling and testing of HMA accepted by commercial evaluation will be at the option of the
34 Project Engineer. The Proposal quantity of HMA that is accepted by commercial evaluation
35 will be excluded from the quantities used in the determination of nonstatistical evaluation.

36
37 **Nonstatistical Mix Design.** Fifteen days prior to the first day of paving the Contractor shall
38 provide one of the following mix design verification certifications for Contracting Agency
39 review;

- 40
41
- 42 • The WSDOT Mix Design Evaluation Report from the current WSDOT QPL, or one of
43 the mix design verification certifications listed below.
 - 44 • The proposed HMA mix design on WSDOT Form 350-042 with the seal and
45 certification (stamp & signature) of a valid licensed Washington State Professional
46 Engineer.
 - 47 • The Mix Design Report for the proposed HMA mix design developed by a qualified
City or County laboratory that is within one year of the approval date.

1
2 The mix design shall be performed by a lab accredited by a national authority such as
3 Laboratory Accreditation Bureau, L-A-B for Construction Materials Testing, The Construction
4 Materials Engineering Council (CMEC's) ISO 17025 or AASHTO Accreditation Program
5 (AAP) and shall supply evidence of participation in the AASHTO: resource proficiency
6 sample program.

7
8 Mix designs for HMA accepted by Nonstatistical evaluation shall:
9

- 10 • Be designed for *** 21.202 *** million equivalent single axle loads (ESALs).
- 11 • Have the aggregate structure and asphalt binder content determined in accordance
12 with WSDOT Standard Operating Procedure 732 and meet the requirements of
13 Sections 9-03.8(2), except that Hamburg testing for ruts and stripping are at the
14 discretion of the Engineer, and 9-03.8(6).
- 15 • Have anti-strip requirements, if any, for the proposed mix design determined in
16 accordance with AASHTO T 283 or T 324 or based on historic anti-strip and
17 aggregate source compatibility from previous WSDOT lab testing.
18

19 At the discretion of the Engineer, agencies may accept verified mix designs older than 12
20 months from the original verification date with a certification from the Contractor that the
21 materials and sources are the same as those shown on the original mix design.
22

23 **Commercial Evaluation Mix Design.** Approval of a mix design for “Commercial Evaluation”
24 will be based on a review of the Contractor’s submittal of WSDOT Form 350-042 (for
25 commercial mixes, AASHTO T 324 evaluation is not required) or a Mix Design from the
26 current WSDOT QPL or from one of the processes allowed by this section. Testing of the
27 HMA by the Contracting Agency for mix design approval is not required.

28
29 For the Bid Item Commercial HMA, the Contractor shall select a class of HMA and design
30 level of ESALs appropriate for the required use.
31

32 **5-04.2(2)B Using Warm Mix Asphalt Processes**

33 The Contractor may elect to use additives that reduce the optimum mixing temperature or
34 serve as a compaction aid for producing HMA. Additives include organic additives, chemical
35 additives and foaming processes. The use of Additives is subject to the following:
36

- 37 • Do not use additives that reduce the mixing temperature more than allowed in Section
38 5-04.3(6) in the production of mixtures.
- 39 • Before using additives, obtain the Engineer’s approval using WSDOT Form 350-076
40 to describe the proposed additive and process.
41

42 **5-04.3 Construction Requirements**

43 **5-04.3(1) Weather Limitations**

44 Do not place HMA for wearing course on any Traveled Way beginning October 1st through
45 March 31st of the following year without written concurrence from the Engineer.
46

1
2 Do not place HMA on any wet surface, or when the average surface temperatures are less
3 than those specified below, or when weather conditions otherwise prevent the proper
4 handling or finishing of the HMA.

5
6 **Minimum Surface Temperature for Paving**

Compacted Thickness (Feet)	Wearing Course	Other Courses
Less than 0.10	55°F	45°F
0.10 to .20	45°F	35°F
More than 0.20	35°F	35°F

7
8 **5-04.3(2) Paving Under Traffic**

9 When the Roadway being paved is open to traffic, the requirements of this Section
10 shall apply.

11
12 The Contractor shall keep intersections open to traffic at all times except when paving the
13 intersection or paving across the intersection. During such time, and provided that there has
14 been an advance warning to the public, the intersection may be closed for the minimum time
15 required to place and compact the mixture. In hot weather, the Engineer may require the
16 application of water to the pavement to accelerate the finish rolling of the pavement and to
17 shorten the time required before reopening to traffic.

18
19 Before closing an intersection, advance warning signs shall be placed, and signs shall also
20 be placed marking the detour or alternate route.

21
22 During paving operations, temporary pavement markings shall be maintained throughout the
23 project. Temporary pavement markings shall be installed on the Roadway prior to opening
24 to traffic. Temporary pavement markings shall be in accordance with Section 8-23.

25
26 All costs in connection with performing the Work in accordance with these requirements,
27 except the cost of temporary pavement markings, shall be included in the unit Contract
28 prices for the various Bid items involved in the Contract.

29
30 **5-04.3(3) Equipment**

31
32 **5-04.3(3)A Mixing Plant**

33 Plants used for the preparation of HMA shall conform to the following requirements:

- 34
35 1. **Equipment for Preparation of Asphalt Binder** – Tanks for the storage of asphalt
36 binder shall be equipped to heat and hold the material at the required temperatures.
37 The heating shall be accomplished by steam coils, electricity, or other approved

1 means so that no flame shall be in contact with the storage tank. The circulating
2 system for the asphalt binder shall be designed to ensure proper and continuous
3 circulation during the operating period. A valve for the purpose of sampling the
4 asphalt binder shall be placed in either the storage tank or in the supply line to the
5 mixer.
6

7 **2. Thermometric Equipment** – An armored thermometer, capable of detecting
8 temperature ranges expected in the HMA mix, shall be fixed in the asphalt binder
9 feed line at a location near the charging valve at the mixer unit. The thermometer
10 location shall be convenient and safe for access by Inspectors. The plant shall also
11 be equipped with an approved dial-scale thermometer, a mercury actuated
12 thermometer, an electric pyrometer, or another approved thermometric instrument
13 placed at the discharge chute of the drier to automatically register or indicate the
14 temperature of the heated aggregates. This device shall be in full view of the plant
15 operator.
16

17 **3. Heating of Asphalt Binder** – The temperature of the asphalt binder shall not exceed
18 the maximum recommended by the asphalt binder manufacturer nor shall it be below
19 the minimum temperature required to maintain the asphalt binder in a homogeneous
20 state. The asphalt binder shall be heated in a manner that will avoid local variations
21 in heating. The heating method shall provide a continuous supply of asphalt binder to
22 the mixer at a uniform average temperature with no individual variations exceeding
23 25°F. Also, when a WMA additive is included in the asphalt binder, the temperature
24 of the asphalt binder shall not exceed the maximum recommended by the
25 manufacturer of the WMA additive.
26

27 **4. Sampling and Testing of Mineral Materials** – The HMA plant shall be equipped
28 with a mechanical sampler for the sampling of the mineral materials. The mechanical
29 sampler shall meet the requirements of Section 1-05.6 for the crushing and
30 screening operation. The Contractor shall provide for the setup and operation of the
31 field-testing facilities of the Contracting Agency as provided for in Section 3-01.2(2).
32

33 **5. Sampling HMA** – The HMA plant shall provide for sampling HMA by one of the
34 following methods:
35

- 36 a. A mechanical sampling device attached to the HMA plant.
- 37
- 38 b. Platforms or devices to enable sampling from the hauling vehicle without
39 entering the hauling vehicle.
40

41 **5-04.3(3)B Hauling Equipment**

42 Trucks used for hauling HMA shall have tight, clean, smooth metal beds and shall have a
43 cover of canvas or other suitable material of sufficient size to protect the mixture from
44 adverse weather. Whenever the weather conditions during the work shift include, or are
45 forecast to include precipitation or an air temperature less than 45°F or when time from
46 loading to unloading exceeds 30 minutes, the cover shall be securely attached to protect the
47 HMA.

1
2 The Contractor shall provide an environmentally benign means to prevent the HMA mixture
3 from adhering to the hauling equipment. Excess release agent shall be drained prior to filling
4 hauling equipment with HMA. Petroleum derivatives or other coating material that
5 contaminate or alter the characteristics of the HMA shall not be used. For live bed trucks,
6 the conveyer shall be in operation during the process of applying the release agent.
7

8 **5-04.3(3)C Pavers**

9 HMA pavers shall be self-contained, power-propelled units, provided with an internally
10 heated vibratory screed and shall be capable of spreading and finishing courses of HMA
11 plant mix material in lane widths required by the paving section shown in the Plans.
12

13 The HMA paver shall be in good condition and shall have the most current equipment
14 available from the manufacturer for the prevention of segregation of the HMA mixture
15 installed, in good condition, and in working order. The equipment certification shall list the
16 make, model, and year of the paver and any equipment that has been retrofitted.
17

18 The screed shall be operated in accordance with the manufacturer's recommendations and
19 shall effectively produce a finished surface of the required evenness and texture without
20 tearing, shoving, segregating, or gouging the mixture. A copy of the manufacturer's
21 recommendations shall be provided upon request by the Contracting Agency. Extensions
22 will be allowed provided they produce the same results, including ride, density, and surface
23 texture as obtained by the primary screed. Extensions without augers and an internally
24 heated vibratory screed shall not be used in the Traveled Way.
25

26 When specified in the Contract, reference lines for vertical control will be required. Lines
27 shall be placed on both outer edges of the Traveled Way of each Roadway. Horizontal
28 control utilizing the reference line will be permitted. The grade and slope for intermediate
29 lanes shall be controlled automatically from reference lines or by means of a mat
30 referencing device and a slope control device. When the finish of the grade prepared for
31 paving is superior to the established tolerances and when, in the opinion of the Engineer,
32 further improvement to the line, grade, cross-section, and smoothness can best be achieved
33 without the use of the reference line, a mat referencing device may be substituted for the
34 reference line. Substitution of the device will be subject to the continued approval of the
35 Engineer. A joint matcher may be used subject to the approval of the Engineer. The
36 reference line may be removed after the completion of the first course of HMA when
37 approved by the Engineer. Whenever the Engineer determines that any of these methods
38 are failing to provide the necessary vertical control, the reference lines will be reinstalled by
39 the Contractor.
40

41 The Contractor shall furnish and install all pins, brackets, tensioning devices, wire, and
42 accessories necessary for satisfactory operation of the automatic control equipment.
43

44 If the paving machine in use is not providing the required finish, the Engineer may suspend
45 Work as allowed by Section 1-08.6. Any cleaning or solvent type liquids spilled on the
46 pavement shall be thoroughly removed before paving proceeds.
47

1
2 **5-04.3(3)D Material Transfer Device or Material Transfer Vehicle**

3 A Material Transfer Device/Vehicle (MTD/V) shall only be used with the Engineer's approval,
4 unless otherwise required by the Contract.

5
6 Where an MTD/V is required by the Contract, the Engineer may approve paving without an
7 MTD/V, at the request of the Contractor. The Engineer will determine if an equitable
8 adjustment in cost or time is due.

9
10 When used, the MTD/V shall mix the HMA after delivery by the hauling equipment and prior
11 to laydown by the paving machine. Mixing of the HMA shall be sufficient to obtain a uniform
12 temperature throughout the mixture. If a windrow elevator is used, the length of the windrow
13 may be limited in urban areas or through intersections, at the discretion of the Engineer.

14
15 To be approved for use, an MTV:

- 16
17 1. Shall be self-propelled vehicle, separate from the hauling vehicle or paver.
- 18
19 2. Shall not be connected to the hauling vehicle or paver.
- 20
21 3. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.
- 22
23 4. Shall mix the HMA after delivery by the hauling equipment and prior to placement
24 into the paving machine.
- 25
26 5. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the
27 mixture.

28
29 To be approved for use, an MTD:

- 30
31 1. Shall be positively connected to the paver.
- 32
33 2. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.
- 34
35 3. Shall mix the HMA after delivery by the hauling equipment and prior to placement
36 into the paving machine.
- 37
38 4. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the
39 mixture.

40
41 **5-04.3(3)E Rollers**

42 Rollers shall be of the steel wheel, vibratory, oscillatory, or pneumatic tire type, in good
43 condition and capable of reversing without backlash. Operation of the roller shall be in
44 accordance with the manufacturer's recommendations. When ordered by the Engineer for

1 any roller planned for use on the project, the Contractor shall provide a copy of the
2 manufacturer's recommendation for the use of that roller for compaction of HMA. The
3 number and weight of rollers shall be sufficient to compact the mixture in compliance with
4 the requirements of Section 5-04.3(10). The use of equipment that results in crushing of the
5 aggregate will not be permitted. Rollers producing pickup, washboard, uneven compaction
6 of the surface, displacement of the mixture or other undesirable results shall not be used.

7 8 **5-04.3(4) Preparation of Existing Paved Surfaces**

9 When the surface of the existing pavement or old base is irregular, the Contractor shall bring
10 it to a uniform grade and cross-section as shown on the Plans or approved by the Engineer.

11
12 Preleveling of uneven or broken surfaces over which HMA is to be placed may be
13 accomplished by using an asphalt paver, a motor patrol grader, or by hand raking, as
14 approved by the Engineer.

15
16 Compaction of preleveling HMA shall be to the satisfaction of the Engineer and may require
17 the use of small steel wheel rollers, plate compactors, or pneumatic rollers to avoid bridging
18 across preleveled areas by the compaction equipment. Equipment used for the compaction
19 of preleveling HMA shall be approved by the Engineer.

20
21 Before construction of HMA on an existing paved surface, the entire surface of the
22 pavement shall be clean. All fatty asphalt patches, grease drippings, and other objectionable
23 matter shall be entirely removed from the existing pavement. All pavements or bituminous
24 surfaces shall be thoroughly cleaned of dust, soil, pavement grindings, and other foreign
25 matter. All holes and small depressions shall be filled with an appropriate class of HMA. The
26 surface of the patched area shall be leveled and compacted thoroughly. Prior to the
27 application of tack coat, or paving, the condition of the surface shall be approved by the
28 Engineer.

29
30 A tack coat of asphalt shall be applied to all paved surfaces on which any course of HMA is
31 to be placed or abutted; except that tack coat may be omitted from clean, newly paved
32 surfaces at the discretion of the Engineer. Tack coat shall be uniformly applied to cover the
33 existing pavement with a thin film of residual asphalt free of streaks and bare spots at a rate
34 between 0.02 and 0.10 gallons per square yard of retained asphalt. The rate of application
35 shall be approved by the Engineer. A heavy application of tack coat shall be applied to all
36 joints. For Roadways open to traffic, the application of tack coat shall be limited to surfaces
37 that will be paved during the same working shift. The spreading equipment shall be
38 equipped with a thermometer to indicate the temperature of the tack coat material.

39
40 Equipment shall not operate on tacked surfaces until the tack has broken and cured. If the
41 Contractor's operation damages the tack coat it shall be repaired prior to placement of the
42 HMA.

43
44 The tack coat shall be CSS-1, or CSS-1h emulsified asphalt. The CSS-1 and CSS-1h
45 emulsified asphalt may be diluted once with water at a rate not to exceed one-part water to
46 one-part emulsified asphalt. The tack coat shall have sufficient temperature such that it may

1 be applied uniformly at the specified rate of application and shall not exceed the maximum
2 temperature recommended by the emulsified asphalt manufacturer.

3 **5-04.3(4)A Crack Sealing**

4 When the Proposal includes a pay item for crack sealing, seal cracks in accordance with
5 Section 5-03.

6
7 **5-04.3(4)B Vacant**

8
9 **5-04.3(4)C Pavement Repair**

10 The Contractor shall excavate pavement repair areas and shall backfill these with HMA in
11 accordance with the details shown in the Plans and as marked in the field. The Contractor
12 shall conduct the excavation operations in a manner that will protect the pavement that is to
13 remain. Pavement not designated to be removed that is damaged as a result of the
14 Contractor's operations shall be repaired by the Contractor to the satisfaction of the
15 Engineer at no cost to the Contracting Agency. The Contractor shall excavate only within
16 one lane at a time unless approved otherwise by the Engineer. The Contractor shall not
17 excavate more area than can be completely finished during the same shift, unless approved
18 by the Engineer.

19
20 Unless otherwise shown in the Plans or determined by the Engineer, excavate to a depth of
21 1.0 feet. The Engineer will make the final determination of the excavation depth required.
22 The minimum width of any pavement repair area shall be 40 inches unless shown otherwise
23 in the Plans. Before any excavation, the existing pavement shall be sawcut or shall be
24 removed by a pavement grinder. Excavated materials will become the property of the
25 Contractor and shall be disposed of in a Contractor-provided site off the Right of Way or
26 used in accordance with Sections 2-02.3(3) or 9-03.21.

27
28 Asphalt for tack coat shall be required as specified in Section 5-04.3(4). A heavy application
29 of tack coat shall be applied to all surfaces of existing pavement in the pavement repair
30 area.

31
32 Placement of the HMA backfill shall be accomplished in lifts not to exceed 0.35-foot
33 compacted depth. Lifts that exceed 0.35-foot of compacted depth may be accomplished with
34 the approval of the Engineer. Each lift shall be thoroughly compacted by a mechanical
35 tamper or a roller.

36
37 **5-04.3(5) Producing/Stockpiling Aggregates and RAP**

38 Aggregates and RAP shall be stockpiled according to the requirements of Section 3-02.
39 Sufficient storage space shall be provided for each size of aggregate and RAP. Materials
40 shall be removed from stockpile(s) in a manner to ensure minimal segregation when being
41 moved to the HMA plant for processing into the final mixture. Different aggregate sizes shall
42 be kept separated until they have been delivered to the HMA plant.

43
44 **5-04.3(5)A Vacant**

45
46 **5-04.3(6) Mixing**

1 After the required amount of mineral materials, asphalt binder, recycling agent and anti-
2 stripping additives have been introduced into the mixer the HMA shall be mixed until
3 complete and uniform coating of the particles and thorough distribution of the asphalt binder
4 throughout the mineral materials is ensured.

5
6 When discharged, the temperature of the HMA shall not exceed the optimum mixing
7 temperature by more than 25°F as shown on the reference mix design report or as approved
8 by the Engineer. Also, when a WMA additive is included in the manufacture of HMA, the
9 discharge temperature of the HMA shall not exceed the maximum recommended by the
10 manufacturer of the WMA additive. A maximum water content of 2 percent in the mix, at
11 discharge, will be allowed providing the water causes no problems with handling, stripping,
12 or flushing. If the water in the HMA causes any of these problems, the moisture content shall
13 be reduced as directed by the Engineer.

14
15 Storing or holding of the HMA in approved storage facilities will be permitted with approval of
16 the Engineer, but in no event shall the HMA be held for more than 24 hours. HMA held for
17 more than 24 hours after mixing shall be rejected. Rejected HMA shall be disposed of by the
18 Contractor at no expense to the Contracting Agency. The storage facility shall have an
19 accessible device located at the top of the cone or about the third point. The device shall
20 indicate the amount of material in storage. No HMA shall be accepted from the storage
21 facility when the HMA in storage is below the top of the cone of the storage facility, except
22 as the storage facility is being emptied at the end of the working shift.

23
24 Recycled asphalt pavement (RAP) utilized in the production of HMA shall be sized prior to
25 entering the mixer so that a uniform and thoroughly mixed HMA is produced. If there is
26 evidence of the recycled asphalt pavement not breaking down during the heating and mixing
27 of the HMA, the Contractor shall immediately suspend the use of the RAP until changes
28 have been approved by the Engineer. After the required amount of mineral materials, RAP,
29 new asphalt binder and asphalt rejuvenator have been introduced into the mixer the HMA
30 shall be mixed until complete and uniform coating of the particles and thorough distribution
31 of the asphalt binder throughout the mineral materials, and RAP is ensured.

32
33 **5-04.3(7) Spreading and Finishing**

34 The mixture shall be laid upon an approved surface, spread, and struck off to the grade and
35 elevation established. HMA pavers complying with Section 5-04.3(3) shall be used to
36 distribute the mixture. Unless otherwise directed by the Engineer, the nominal compacted
37 depth of any layer of any course shall not exceed the following:

38

39 HMA Class 1"	0.35 feet
40 HMA Class ¾" and HMA Class ½"	
41 wearing course	0.30 feet
42 other courses	0.35 feet
43 HMA Class ⅜"	0.15 feet

44

45 On areas where irregularities or unavoidable obstacles make the use of mechanical
46 spreading and finishing equipment impractical, the paving may be done with other
47 equipment or by hand.

1
2 When more than one JMF is being utilized to produce HMA, the material produced for each
3 JMF shall be placed by separate spreading and compacting equipment. The intermingling of
4 HMA produced from more than one JMF is prohibited. Each strip of HMA placed during a
5 work shift shall conform to a single JMF established for the class of HMA specified unless
6 there is a need to make an adjustment in the JMF.
7

8 **5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA**

9 For HMA accepted by nonstatistical evaluation, the aggregate properties of sand equivalent,
10 uncompacted void content, and fracture will be evaluated in accordance with Section 3-04.
11 Sampling and testing of aggregates for HMA accepted by commercial evaluation will be at
12 the option of the Engineer.
13

14 **5-04.3(9) HMA Mixture Acceptance**

15 Acceptance of HMA shall be as provided under nonstatistical, or commercial evaluation.
16

17 Nonstatistical evaluation will be used for the acceptance of HMA unless Commercial
18 Evaluation is specified.
19

20 Commercial evaluation will be used for Commercial HMA and for other classes of HMA in
21 the following applications: sidewalks, road approaches, ditches, slopes, paths, trails, gores,
22 prelevel, temporary pavement, and pavement repair. Other nonstructural applications of
23 HMA accepted by commercial evaluation shall be as approved by the Engineer. Sampling
24 and testing of HMA accepted by commercial evaluation will be at the option of the Engineer.
25

26 The mix design will be the initial JMF for the class of HMA. The Contractor may request a
27 change in the JMF. Any adjustments to the JMF will require the approval of the Engineer
28 and may be made in accordance with this section.
29

30 **HMA Tolerances and Adjustments**

- 31 1. **Job Mix Formula Tolerances** – The constituents of the mixture at the time of
32 acceptance shall be within tolerance. The tolerance limits will be established as
33 follows:
34

35 For Asphalt Binder and Air Voids (Va), the acceptance limits are determined by
36 adding the tolerances below to the approved JMF values. These values will also
37 be the Upper Specification Limit (USL) and Lower Specification Limit (LSL)
38 required in Section 1-06.2(2)D2
39

Property	Non-Statistical Evaluation	Commercial Evaluation
Asphalt Binder	+/- 0.5%	+/- 0.7%
Air Voids, Va	2.5% min. and 5.5% max	N/A

40
41 For Aggregates in the mixture:
42

1 a. First, determine preliminary upper and lower acceptance limits by applying the
 2 following tolerances to the approved JMF.
 3

Aggregate Percent Passing	Non-Statistical Evaluation	Commercial Evaluation
1", ¾", ½", and 3/8" sieves	+/- 6%	+/- 8%
No. 4 sieve	+/-6%	+/- 8%
No. 8 Sieve	+/- 6%	+/-8%
No. 200 sieve	+/- 2.0%	+/- 3.0%

4
 5 b. Second, adjust the preliminary upper and lower acceptance limits determined
 6 from step (a) the minimum amount necessary so that none of the aggregate
 7 properties are outside the control points in Section 9-03.8(6). The resulting
 8 values will be the upper and lower acceptance limits for aggregates, as well
 9 as the USL and LSL required in Section 1-06.2(2)D2.

10
 11 2. Job Mix Formula Adjustments – An adjustment to the aggregate gradation or asphalt
 12 binder content of the JMF requires approval of the Engineer. Adjustments to the JMF
 13 will only be considered if the change produces material of equal or better quality and
 14 may require the development of a new mix design if the adjustment exceeds the
 15 amounts listed below.

16
 17 a. **Aggregates** –2 percent for the aggregate passing the 1½", 1", ¾", ½", ⅜", and the
 18 No. 4 sieves, 1 percent for aggregate passing the No. 8 sieve, and 0.5 percent for
 19 the aggregate passing the No. 200 sieve. The adjusted JMF shall be within the
 20 range of the control points in Section 9-03.8(6).

21
 22 b. **Asphalt Binder Content** – The Engineer may order or approve changes to
 23 asphalt binder content. The maximum adjustment from the approved mix design
 24 for the asphalt binder content shall be 0.3 percent.

25
 26 **5-04.3(9)A Vacant**

27
 28 **5-04.3(9)B Vacant**

29
 30 **5-04.3(9)C Mixture Acceptance – Nonstatistical Evaluation**

31 HMA mixture which is accepted by Nonstatistical Evaluation will be evaluated by the
 32 Contracting Agency by dividing the HMA tonnage into lots.

33
 34 **5-04.3(9)C1 Mixture Nonstatistical Evaluation – Lots and Sublots**

35 A lot is represented by randomly selected samples of the same mix design that will be
 36 tested for acceptance. A lot is defined as the total quantity of material or work produced for
 37 each Job Mix Formula placed. Only one lot per JMF is expected. A subplot shall be equal to
 38 one day's production or 800 tons, whichever is less except that the final subplot will be a
 39 minimum of 400 tons and may be increased to 1200 tons.
 40

1 All of the test results obtained from the acceptance samples from a given lot shall be
2 evaluated collectively. If the Contractor requests a change to the JMF that is approved, the
3 material produced after the change will be evaluated on the basis of the new JMF for the
4 remaining sublots in the current lot and for acceptance of subsequent lots. For a lot in
5 progress with a CPF less than 0.75, a new lot will begin at the Contractor's request after the
6 Engineer is satisfied that material conforming to the Specifications can be produced.

7
8 Sampling and testing for evaluation shall be performed on the frequency of one sample per
9 subplot.

10
11 **5-04.3(9)C2 Mixture Nonstatistical Evaluation Sampling**

12 Samples for acceptance testing shall be obtained by the Contractor when ordered by the
13 Engineer. The Contractor shall sample the HMA mixture in the presence of the Engineer
14 and in accordance with AASH-TO T 168. A minimum of three samples should be taken for
15 each class of HMA placed on a project. If used in a structural application, at least one of the
16 three samples shall be tested.

17
18 Sampling and testing HMA in a structural application where quantities are less than 400 tons
19 is at the discretion of the Engineer.

20
21 For HMA used in a structural application and with a total project quantity less than 800 tons
22 but more than 400 tons, a minimum of one acceptance test shall be performed. In all cases,
23 a minimum of 3 samples will be obtained at the point of acceptance, a minimum of one of
24 the three samples will be tested for conformance to the JMF:

- 25
26
 - If the test results are found to be within specification requirements, additional testing
27 will be at the Engineer's discretion.
 - If test results are found not to be within specification requirements, additional testing
28 of the remaining samples to determine a CPF shall be performed.
29

30
31 **5-04.3(9)C3 Mixture Nonstatistical Evaluation – Acceptance Testing**

32 Testing of HMA for compliance of V_a will at the option of the Contracting Agency. If tested,
33 compliance of V_a will use WSDOT SOP 731.

34
35 Testing for compliance of asphalt binder content will be by WSDOT FOP for AASHTO T
36 308.

37
38 Testing for compliance of gradation will be by FOP for WAQTC T 27/T 11.

39
40 **5-04.3(9)C4 Mixture Nonstatistical Evaluation – Pay Factors**

41 For each lot of material falling outside the tolerance limits in 5-04.3(9), the Contracting
42 Agency will determine a CPF using the following price adjustment factors:

1
2

Table of Price Adjustment Factors	
Constituent	Factor “f”
All aggregate passing: 1½", 1", ¾", ½", ⅜" and No.4 sieves	2
All aggregate passing No. 8 sieve	15
All aggregate passing No. 200 sieve	20
Asphalt binder	40
Air Voids (Va) (where applicable)	20

3
4
5
6
7
8
9
10
11
12
13

Each lot of HMA produced under Nonstatistical Evaluation and having all constituents falling within the tolerance limits of the job mix formula shall be accepted at the unit Contract price with no further evaluation. When one or more constituents fall outside the nonstatistical tolerance limits in the Job Mix Formula shown in Table of Price Adjustment Factors, the lot shall be evaluated in accordance with Section 1-06.2 to determine the appropriate CPF. The nonstatistical tolerance limits will be used in the calculation of the CPF and the maximum CPF shall be 1.00. When less than three sublots exist, backup samples of the existing sublots or samples from the Roadway shall be tested to provide a minimum of three sets of results for evaluation.

14 **5-04.3(9)C5 Vacant**

15

16 **5-04.3(9)C6 Mixture Nonstatistical Evaluation – Price Adjustments**

17 For each lot of HMA mix produced under Nonstatistical Evaluation when the calculated CPF
18 is less than 1.00, a Nonconforming Mix Factor (NCMF) will be determined. The NCMF
19 equals the algebraic difference of CPF minus 1.00 multiplied by 60 percent. The total job
20 mix compliance price adjustment will be calculated as the product of the NCMF, the quantity
21 of HMA in the lot in tons, and the unit Contract price per ton of mix.

22

23 If a constituent is not measured in accordance with these Specifications, its individual pay
24 factor will be considered 1.00 in calculating the CPF.

25

26 **5-04.3(9)C7 Mixture Nonstatistical Evaluation - Retests**

27 The Contractor may request a subplot be retested. To request a retest, the Contractor shall
28 submit a written request within 7 calendar days after the specific test results have been
29 received. A split of the original acceptance sample will be retested. The split of the sample
30 will not be tested with the same tester that ran the original acceptance test. The sample will
31 be tested for a complete gradation analysis, asphalt binder content, and, at the option of the
32 agency, V_a. The results of the retest will be used for the acceptance of the HMA in place of
33 the original subplot sample test results. The cost of testing will be deducted from any monies
34 due or that may come due the Contractor under the Contract at the rate of \$500 per sample.

35

1
2
3 **5-04.3 (9)D Mixture Acceptance – Commercial Evaluation**

4 If sampled and tested, HMA produced under Commercial Evaluation and having all
5 constituents falling within the tolerance limits of the job mix formula shall be accepted at the
6 unit Contract price with no further evaluation. When one or more constituents fall outside the
7 commercial tolerance limits in the Job Mix Formula shown in 5-04.3(9), the lot shall be
8 evaluated in accordance with Section 1-06.2 to determine the appropriate CPF. The
9 commercial tolerance limits will be used in the calculation of the CPF and the maximum CPF
10 shall be 1.00. When less than three sublots exist, backup samples of the existing sublots or
11 samples from the street shall be tested to provide a minimum of three sets of results for
12 evaluation.

13
14 For each lot of HMA mix produced and tested under Commercial Evaluation when the
15 calculated CPF is less than 1.00, a Nonconforming Mix Factor (NCMF) will be determined.
16 The NCMF equals the algebraic difference of CPF minus 1.00 multiplied by 60 percent. The
17 Job Mix Compliance Price Adjustment will be calculated as the product of the NCMF, the
18 quantity of HMA in the lot in tons, and the unit Contract price per ton of mix.

19
20 If a constituent is not measured in accordance with these Specifications, its individual pay
21 factor will be considered 1.00 in calculating the CPF.

22
23 **5-04.3(10) HMA Compaction Acceptance**

24 HMA mixture accepted by nonstatistical evaluation that is used in traffic lanes, including
25 lanes for intersections, ramps, truck climbing, weaving, and speed change, and having a
26 specified compacted course thickness greater than 0.10-foot, shall be compacted to a
27 specified level of relative density. The specified level of relative density shall be a CPF of not
28 less than 0.75 when evaluated in accordance with Section 1-06.2, using a LSL of 92.0
29 (minimum of 92 percent of the maximum density). The maximum density shall be
30 determined by WSDOT FOP for AASHTO T 729. The specified level of density attained will
31 be determined by the evaluation of the density of the pavement. The density of the
32 pavement shall be determined in accordance with WSDOT FOP for WAQTC TM 8, except
33 that gauge correlation will be at the discretion of the Engineer, when using the nuclear
34 density gauge and WSDOT SOP 736 when using cores to determine density.

35
36 Tests for the determination of the pavement density will be taken in accordance with the
37 required procedures for measurement by a nuclear density gauge or Roadway cores after
38 completion of the finish rolling.

39
40 If the Contracting Agency uses a nuclear density gauge to determine density the test
41 procedures FOP for WAQTC TM 8 and WSDOT SOP T 729 will be used on the day the mix
42 is placed and prior to opening to traffic.

43
44 Roadway cores for density may be obtained by either the Contracting Agency or the
45 Contractor in accordance with WSDOT SOP 734. The core diameter shall be 4-inches
46 minimum, unless otherwise approved by the Engineer. Roadway cores will be tested by the
47 Contracting Agency in accordance with WSDOT FOP for AASHTO T 166.

1
2 If the Contract includes the Bid item "Roadway Core", the cores shall be obtained by the
3 Contractor in the presence of the Engineer on the same day the mix is placed and at
4 locations designated by the Engineer. If the Contract does not include the Bid item
5 "Roadway Core", the Contracting Agency will obtain the cores.
6

7 For a lot in progress with a CPF less than 0.75, a new lot will begin at the Contractor's
8 request after the Engineer is satisfied that material conforming to the Specifications can be
9 produced.
10

11 HMA mixture accepted by commercial evaluation and HMA constructed under conditions
12 other than those listed above shall be compacted on the basis of a test point evaluation of
13 the compaction train. The test point evaluation shall be performed in accordance with
14 instructions from the Engineer. The number of passes with an approved compaction train,
15 required to attain the maximum test point density, shall be used on all subsequent paving.
16

17 HMA for preleveling shall be thoroughly compacted. HMA that is used for preleveling wheel
18 rutting shall be compacted with a pneumatic tire roller unless otherwise approved by the
19 Engineer.
20

21 **Test Results**

22 For a subplot that has been tested with a nuclear density gauge that did not meet the
23 minimum of 92 percent of the reference maximum density in a compaction lot with a CPF
24 below 1.00 and thus subject to a price reduction or rejection, the Contractor may request
25 that a core be used for determination of the relative density of the subplot. The relative
26 density of the core will replace the relative density determined by the nuclear density gauge
27 for the subplot and will be used for calculation of the CPF and acceptance of HMA
28 compaction lot.
29

30 When cores are taken by the Contracting Agency at the request of the Contractor, they shall
31 be requested by noon of the next workday after the test results for the subplot have been
32 provided or made available to the Contractor. Core locations shall be outside of wheel paths
33 and as determined by the Engineer. Traffic control shall be provided by the Contractor as
34 requested by the Engineer. Failure by the Contractor to provide the requested traffic control
35 will result in forfeiture of the request for cores. When the CPF for the lot based on the results
36 of the HMA cores is less than 1.00, the cost for the coring will be deducted from any monies
37 due or that may become due the Contractor under the Contract at the rate of \$200 per core
38 and the Contractor shall pay for the cost of the traffic control.
39

40 **5-04.3(10)A HMA Compaction – General Compaction Requirements**

41 Compaction shall take place when the mixture is in the proper condition so that no undue
42 displacement, cracking, or shoving occurs. Areas inaccessible to large compaction
43 equipment shall be compacted by other mechanical means. Any HMA that becomes loose,
44 broken, contaminated, shows an excess or deficiency of asphalt, or is in any way defective,
45 shall be removed and replaced with new hot mix that shall be immediately compacted to
46 conform to the surrounding area.
47

1 The type of rollers to be used and their relative position in the compaction sequence shall
2 generally be the Contractor's option, provided the specified densities are attained. Unless
3 the Engineer has approved otherwise, rollers shall only be operated in the static mode when
4 the internal temperature of the mix is less than 175°F. Regardless of mix temperature, a
5 roller shall not be operated in a mode that results in checking or cracking of the mat. Rollers
6 shall only be operated in static mode on bridge decks.

7
8 **5-04.3(10)B HMA Compaction - Cyclic Density**

9 Low cyclic density areas are defined as spots or streaks in the pavement that are less than
10 90 percent of the theoretical maximum density. At the Engineer's discretion, the Engineer
11 may evaluate the HMA pavement for low cyclic density, and when doing so will follow
12 WSDOT SOP 733. A \$500 Cyclic Density Price Adjustment will be assessed for any 500-
13 foot section with two or more density readings below 90 percent of the theoretical maximum
14 density.

15
16 **5-04.3(10)C Vacant**

17
18 **5-04.3(10)D HMA Nonstatistical Compaction**

19
20 **5-04.3(10)D1 HMA Nonstatistical Compaction - Lots and Sublots**

21 HMA compaction which is accepted by nonstatistical evaluation will be based on acceptance
22 testing performed by the Contracting Agency dividing the project into compaction lots.

23
24 A lot is represented by randomly selected samples of the same mix design that will be
25 tested for acceptance. A lot is defined as the total quantity of material or work produced for
26 each Job Mix Formula placed. Only one lot per JMF is expected. A subplot shall be equal to
27 one day's production or 400 tons, whichever is less except that the final subplot will be a
28 minimum of 200 tons and may be increased to 800 tons. Testing for compaction will be at
29 the rate of 5 tests per subplot per WSDOT T 738.

30
31 The subplot locations within each density lot will be determined by the Engineer. For a lot in
32 progress with a CPF less than 0.75, a new lot will begin at the Contractor's request after the
33 Engineer is satisfied that material conforming to the Specifications can be produced.

34
35 HMA mixture accepted by commercial evaluation and HMA constructed under conditions
36 other than those listed above shall be compacted on the basis of a test point evaluation of
37 the compaction train. The test point evaluation shall be performed in accordance with
38 instructions from the Engineer. The number of passes with an approved compaction train,
39 required to attain the maximum test point density, shall be used on all subsequent paving.

40
41 HMA for preleveling shall be thoroughly compacted. HMA that is used to prelevel wheel ruts
42 shall be compacted with a pneumatic tire roller unless otherwise approved by the Engineer.

43
44 **5-04.3(10)D2 HMA Compaction Nonstatistical Evaluation – Acceptance Testing**

45 The location of the HMA compaction acceptance tests will be randomly selected by the
46 Engineer from within each subplot, with one test per subplot.

1
2 **5-04.3(10)D3 HMA Nonstatistical Compaction – Price Adjustments**

3 For each compaction lot with one or two sublots, having all sublots attain a relative density
4 that is 92 percent of the reference maximum density the HMA shall be accepted at the unit
5 Contract price with no further evaluation. When a subplot does not attain a relative density
6 that is 92 percent of the reference maximum density, the lot shall be evaluated in
7 accordance with Section 1-06.2 to determine the appropriate CPF. The maximum CPF shall
8 be 1.00, however, lots with a calculated CPF in excess of 1.00 will be used to offset lots with
9 CPF values below 1.00 but greater than 0.90. Lots with CPF lower than 0.90 will be
10 evaluated for compliance per 5-04.3(11). Additional testing by either a nuclear moisture-
11 density gauge or cores will be completed as required to provide a minimum of three tests for
12 evaluation.

13
14 For compaction below the required 92%, a Non-Conforming Compaction Factor (NCCF) will
15 be determined. The NCCF equals the algebraic difference of CPF minus 1.00 multiplied by
16 40 percent. The Compaction Price Adjustment will be calculated as the product of CPF, the
17 quantity of HMA in the compaction control lot in tons, and the unit Contract price per ton of
18 mix.

19
20 **5-04.3(11) Reject Work**

21
22 **5-04.3(11)A Reject Work General**

23 Work that is defective or does not conform to Contract requirements shall be rejected. The
24 Contractor may propose, in writing, alternatives to removal and replacement of rejected
25 material. Acceptability of such alternative proposals will be determined at the sole discretion
26 of the Engineer. HMA that has been rejected is subject to the requirements in Section 1-
27 06.2(2) and this specification, and the Contractor shall submit a corrective action proposal to
28 the Engineer for approval.

29
30 **5-04.3(11)B Rejection by Contractor**

31 The Contractor may, prior to sampling, elect to remove any defective material and replace it
32 with new material. Any such new material will be sampled, tested, and evaluated for
33 acceptance.

34
35 **5-04.3(11)C Rejection Without Testing (Mixture or Compaction)**

36 The Engineer may, without sampling, reject any batch, load, or section of Roadway that
37 appears defective. Material rejected before placement shall not be incorporated into the
38 pavement. Any rejected section of Roadway shall be removed.

39
40 No payment will be made for the rejected materials or the removal of the materials unless
41 the Contractor requests that the rejected material be tested. If the Contractor elects to have
42 the rejected material tested, a minimum of three representative samples will be obtained
43 and tested. Acceptance of rejected material will be based on conformance with the
44 nonstatistical acceptance Specification. If the CPF for the rejected material is less than 0.75,
45 no payment will be made for the rejected material; in addition, the cost of sampling and
46 testing shall be borne by the Contractor. If the CPF is greater than or equal to 0.75, the cost
47 of sampling and testing will be borne by the Contracting Agency. If the material is rejected

1 before placement and the CPF is greater than or equal to 0.75, compensation for the
2 rejected material will be at a CPF of 0.75. If rejection occurs after placement and the CPF is
3 greater than or equal to 0.75, compensation for the rejected material will be at the calculated
4 CPF with an addition of 25 percent of the unit Contract price added for the cost of removal
5 and disposal.
6

7 **5-04.3(11)D Rejection - A Partial Sublot**

8 In addition to the random acceptance sampling and testing, the Engineer may also isolate
9 from a normal sublot any material that is suspected of being defective in relative density,
10 gradation or asphalt binder content. Such isolated material will not include an original
11 sample location. A minimum of three random samples of the suspect material will be
12 obtained and tested. The material will then be statistically evaluated as an independent lot in
13 accordance with Section 1-06.2(2).
14

15 **5-04.3(11)E Rejection - An Entire Sublot**

16 An entire sublot that is suspected of being defective may be rejected. When a sublot is
17 rejected a minimum of two additional random samples from this sublot will be obtained.
18 These additional samples and the original sublot will be evaluated as an independent lot in
19 accordance with Section 1-06.2(2).
20

21 **5-04.3(11)F Rejection - A Lot in Progress**

22 The Contractor shall shut down operations and shall not resume HMA placement until such
23 time as the Engineer is satisfied that material conforming to the Specifications can be
24 produced:
25

- 26 1. When the CPF of a lot in progress drops below 1.00 and the Contractor is taking no
27 corrective action, or
- 28 2. When the Pay Factor (PF) for any constituent of a lot in progress drops below 0.95
29 and the Contractor is taking no corrective action, or
- 30 3. When either the PF for any constituent or the CPF of a lot in progress is less than
31 0.75.
32

33 **5-04.3(11)G Rejection - An Entire Lot (Mixture or Compaction)**

34 An entire lot with a CPF of less than 0.75 will be rejected.
35

36 **5-04.3(12) Joints**

37
38 **5-04.3(12)A HMA Joints**

39
40 **5-04.3(12)A1 Transverse Joints**

41 The Contractor shall conduct operations such that the placing of the top or wearing course is
42 a continuous operation or as close to continuous as possible. Unscheduled transverse joints
43 will be allowed, and the roller may pass over the unprotected end of the freshly laid mixture
44 only when the placement of the course must be discontinued for such a length of time that
45 the mixture will cool below compaction temperature. When the Work is resumed, the

1 previously compacted mixture shall be cut back to produce a slightly beveled edge for the
2 full thickness of the course.

3
4 A temporary wedge of HMA constructed on a 20H:1V shall be constructed where a
5 transverse joint as a result of paving or planing is open to traffic. The HMA in the temporary
6 wedge shall be separated from the permanent HMA by strips of heavy wrapping paper or
7 other methods approved by the Engineer. The wrapping paper shall be removed and the
8 joint trimmed to a slightly beveled edge for the full thickness of the course prior to
9 resumption of paving.

10
11 The material that is cut away shall be wasted and new mix shall be laid against the cut.
12 Rollers or tamping irons shall be used to seal the joint.

13
14 **5-04.3(12)A2 Longitudinal Joints**

15 The longitudinal joint in any one course shall be offset from the course immediately below by
16 not more than 6 inches nor less than 2 inches. All longitudinal joints constructed in the
17 wearing course shall be located at a lane line or an edge line of the Traveled Way. A
18 notched wedge joint shall be constructed along all longitudinal joints in the wearing surface
19 of new HMA unless otherwise approved by the Engineer. The notched wedge joint shall
20 have a vertical edge of not less than the maximum aggregate size or more than $\frac{1}{2}$ of the
21 compacted lift thickness and then taper down on a slope not steeper than 4H:1V. The
22 sloped portion of the HMA notched wedge joint shall be uniformly compacted.

23
24 **5-04.3(12)B Bridge Paving Joint Seals**

25 Bridge Paving Joint Seals shall be in accordance with Section 5-03.

26
27 **5-04.3(13) Surface Smoothness**

28 The completed surface of all courses shall be of uniform texture, smooth, uniform as to
29 crown and grade, and free from defects of all kinds. The completed surface of the wearing
30 course shall not vary more than $\frac{1}{8}$ inch from the lower edge of a 10-foot straightedge placed
31 on the surface parallel to the centerline. The transverse slope of the completed surface of
32 the wearing course shall vary not more than $\frac{1}{4}$ inch in 10 feet from the rate of transverse
33 slope shown in the Plans.

34
35 When deviations in excess of the above tolerances are found that result from a high place in
36 the HMA, the pavement surface shall be corrected by one of the following methods:

- 37
38 1. Removal of material from high places by grinding with an approved grinding machine,
39 or
40 2. Removal and replacement of the wearing course of HMA, or
41 3. By other method approved by the Engineer.

42
43 Correction of defects shall be carried out until there are no deviations anywhere greater than
44 the allowable tolerances.

1 Deviations in excess of the above tolerances that result from a low place in the HMA and
2 deviations resulting from a high place where corrective action, in the opinion of the
3 Engineer, will not produce satisfactory results will be accepted with a price adjustment. The
4 Engineer shall deduct from monies due or that may become due to the Contractor the sum
5 of \$500.00 for each and every section of single traffic lane 100 feet in length in which any
6 excessive deviations described above are found.

7
8 When utility appurtenances such as manhole covers and valve boxes are located in the
9 traveled way, the utility appurtenances shall be adjusted to the finished grade prior to
10 paving. This requirement may be waived when requested by the Contractor, at the
11 discretion of the Engineer or when the adjustment details provided in the project plan or
12 specifications call for utility appurtenance adjustments after the completion of paving.

13
14 Utility appurtenance adjustment discussions will be included in the Pre-Paving and Pre-
15 Planing Briefing (5-04.3(14)B3). Submit a written request to waive this requirement to the
16 Engineer prior to the start of paving.

17 18 **5-04.3(14) Planing Bituminous Pavement**

19 The planing plan must be approved by the Engineer and a pre-planing meeting must be held
20 prior to the start of any planing. See Section 5-04.3(14)B2 for information on planing
21 submittals.

22
23 Where planing an existing pavement is specified in the Contract, the Contractor must
24 remove existing surfacing material and to reshape the surface to remove irregularities. The
25 finished product must be a prepared surface acceptable for receiving an HMA overlay.

26
27 Use the cold milling method for planing unless otherwise specified in the Contract. Do not
28 use the planer on the final wearing course of new HMA.

29
30 Conduct planing operations in a manner that does not tear, break, burn, or otherwise
31 damage the surface which is to remain. The finished planed surface must be slightly
32 grooved or roughened and must be free from gouges, deep grooves, ridges, or other
33 imperfections. The Contractor must repair any damage to the surface by the Contractor's
34 planing equipment, using an Engineer approved method.

35
36 Repair or replace any metal castings and other surface improvements damaged by planing,
37 as determined by the Engineer.

38
39 A tapered wedge cut must be planed longitudinally along curb lines sufficient to provide a
40 minimum of 4 inches of curb reveal after placement and compaction of the final wearing
41 course. The dimensions of the wedge must be as shown on the Drawings or as specified by
42 the Engineer.

43
44 A tapered wedge cut must also be made at transitions to adjoining pavement surfaces (meet
45 lines) where butt joints are shown on the Drawings. Cut butt joints in a straight line with

1 vertical faces 2 inches or more in height, producing a smooth transition to the existing
2 adjoining pavement.

3
4 After planing is complete, planed surfaces must be swept, cleaned, and if required by the
5 Contract, patched and preleveled.

6
7 The Engineer may direct additional depth planing. Before performing this additional depth
8 planing, the Contractor must conduct a hidden metal in pavement detection survey as
9 specified in Section 5-04.3(14)A.

10
11 **5-04.3(14)A Pre-Planing Metal Detection Check**

12 Before starting planing of pavements, and before any additional depth planing required by
13 the Engineer, the Contractor must conduct a physical survey of existing pavement to be
14 planed with equipment that can identify hidden metal objects.

15
16 Should such metal be identified, promptly notify the Engineer.

17
18 See Section 1-07.16(1) regarding the protection of survey monumentation that may be
19 hidden in pavement.

20
21 The Contractor is solely responsible for any damage to equipment resulting from the
22 Contractor's failure to conduct a pre-planing metal detection survey, or from the Contractor's
23 failure to notify the Engineer of any hidden metal that is detected.

24
25 **5-04.3(14)B Paving and Planing Under Traffic**

26
27 **5-04.3(14)B1 General**

28 In addition, the requirements of Section 1-07.23 and the traffic controls required in Section
29 1-10, and unless the Contract specifies otherwise or the Engineer approves, the Contractor
30 must comply with the following:

31
32 1. Intersections:

33 a. Keep intersections open to traffic at all times, except when paving or planing
34 operations through an intersection requires closure. Such closure must be kept to
35 the minimum time required to place and compact the HMA mixture, or plane as
36 appropriate. For paving, schedule such closure to individual lanes or portions
37 thereof that allows the traffic volumes and schedule of traffic volumes required in
38 the approved traffic control plan. Schedule work so that adjacent intersections are
39 not impacted at the same time and comply with the traffic control restrictions
40 required by the Traffic Engineer. Each individual intersection closure or partial
41 closure must be addressed in the traffic control plan, which must be submitted to
42 and accepted by the Engineer, see Section 1-10.2(2).

43
44 b. When planing or paving and related construction must occur in an intersection,
45 consider scheduling and sequencing such work into quarters of the intersection, or

1 half or more of an intersection with side street detours. Be prepared to sequence
2 the work to individual lanes or portions thereof.

3
4 c. Should closure of the intersection in its entirety be necessary, and no trolley
5 service is impacted, keep such closure to the minimum time required to place and
6 compact the HMA mixture, plane, remove asphalt, tack coat, and as needed.

7
8 d. Any work in an intersection requires advance warning in both signage and a
9 number of Working Days advance notice as determined by the Engineer, to alert
10 traffic and emergency services of the intersection closure or partial closure.

11
12 e. Allow new compacted HMA asphalt to cool to ambient temperature before any
13 traffic is allowed on it. Traffic is not allowed on newly placed asphalt until approval
14 has been obtained from the Engineer.

15
16 2. Temporary centerline marking, post-paving temporary marking, temporary stop
17 bars, and maintaining temporary pavement marking must comply with Section 8-
18 23.

19
20 3. Permanent pavement marking must comply with Section 8-22.

21
22 **5-04.3(14)B2 Submittals - Planing Plan and HMA Paving Plan**

23 The Contractor must submit a separate planing plan and a separate paving plan to the
24 Engineer at least 5 Working Days in advance of each operation's activity start date. These
25 plans must show how the moving operation and traffic control are coordinated, as they will
26 be discussed at the pre-planing briefing and pre-paving briefing. When requested by the
27 Engineer, the Contractor must provide each operation's traffic control plan on 24 x 36 inch
28 or larger size Shop Drawings with a scale showing both the area of operation and sufficient
29 detail of traffic beyond the area of operation where detour traffic may be required. The scale
30 on the Shop Drawings is 1 inch = 20 feet, which may be changed if the Engineer agrees
31 sufficient detail is shown.

32
33 The planing operation and the paving operation include, but are not limited to, metal
34 detection, removal of asphalt and temporary asphalt of any kind, tack coat and drying,
35 staging of supply trucks, paving trains, rolling, scheduling, and as may be discussed at the
36 briefing.

37
38 When intersections will be partially or totally blocked, provide adequately sized and
39 noticeable signage alerting traffic of closures to come, a minimum 2 Working Days in
40 advance. The traffic control plan must show where police officers will be stationed when
41 signalization is or may be, countermanded, and show areas where flaggers are proposed.

42
43 At a minimum, the planing and the paving plan must include:

- 44
45 1. A copy of the accepted traffic control plan, see Section 1-10.2(2), detailing each
46 day's traffic control as it relates to the specific requirements of that day's planing and

1 paving. Briefly describe the sequencing of traffic control consistent with the proposed
2 planing and paving sequence, and scheduling of placement of temporary pavement
3 markings and channelizing devices after each day's planing, and paving.

- 4
- 5 2. A copy of each intersection's traffic control plan.
- 6
- 7 3. Haul routes from supplier facilities, and locations of temporary parking and staging
8 areas, including return routes. Describe the complete round trip as it relates to the
9 sequencing of paving operations.
- 10
- 11 4. Names and locations of HMA supplier facilities to be used.
- 12
- 13 5. List of all equipment to be used for paving.
- 14
- 15 6. List of personnel and associated job classification assigned to each piece of paving
16 equipment.
- 17
- 18 7. Description (geometric or narrative) of the scheduled sequence of planing and of
19 paving and intended area of planing and of paving for each day's work, must include
20 the directions of proposed planing and of proposed paving, sequence of adjacent
21 lane paving, sequence of skipped lane paving, intersection planing and paving
22 scheduling and sequencing, and proposed notifications and coordinations to be
23 timely made. The plan must show HMA joints relative to the final pavement marking
24 lane lines.
- 25
- 26 8. Names, job titles, and contact information for field, office, and plant supervisory
27 personnel.
- 28
- 29 9. A copy of the approved Mix Designs.
- 30
- 31 10. Tonnage of HMA to be placed each day.
- 32
- 33 11. Approximate times and days for starting and ending daily operations.
- 34

35 **5-04.3(14)B3 Pre-Paving and Pre-Planing Briefing**

36 At least 2 Working Days before the first paving operation and the first planing operation, or
37 as scheduled by the Engineer for future paving and planing operations to ensure the
38 Contractor has adequately prepared for notifying and coordinating as required in the
39 Contract, the Contractor must be prepared to discuss that day's operations as they relate to
40 other entities and to public safety and convenience, including driveway and business
41 access, garbage truck operations, transit operations and working around energized
42 overhead wires, school and nursing home and hospital and other accesses, other
43 Contractors who may be operating in the area, pedestrian and bicycle traffic, and
44 emergency services. The Contractor, and Subcontractors that may be part of that day's
45 operations, must meet with the Engineer and discuss the proposed operation as it relates to

1 the submitted planing plan and paving plan, approved traffic control plan, and public
2 convenience and safety. Such discussion includes, but is not limited to:

- 3
- 4 1. General for both the Paving and Planing:
- 5
- 6 a. The actual times of starting and ending daily operations.
- 7
- 8 b. In intersections, how to break up the intersection, and address traffic control and
9 signalization for that operation, including use of peace officers.
- 10
- 11 c. The sequencing and scheduling of paving operations and of planing operations, as
12 applicable, as it relates to traffic control, public convenience and safety, and other
13 Contractors who may operate in the Project limits.
- 14
- 15 d. Notifications required of Contractor activities and coordinating with other entities
16 and the public as necessary.
- 17
- 18 e. Description of the sequencing of installation and types of temporary pavement
19 markings as it relates to planning and paving.
- 20
- 21 f. Description of the sequencing of installation of, and the removal of, temporary
22 pavement patch material around exposed castings and as may be needed.
- 23
- 24 g. Description of procedures and equipment to identify hidden metal in the pavement,
25 such as survey monumentation, monitoring wells, streetcar rail, and castings,
26 before planing as per Section 5-04.3(14)B2.
- 27
- 28 h. Description of how flaggers will be coordinated with the planing, paving, and
29 related operations.
- 30
- 31 i. Description of sequencing of traffic controls for the process of rigid pavement base
32 repairs.
- 33
- 34 j. Other items the Engineer deems necessary to address.
- 35
- 36 2. Paving – additional topics:
- 37
- 38 a. When to start applying tack and coordinating with paving.
- 39
- 40 b. Types of equipment and numbers of each type of equipment to be used. If more
41 pieces of equipment than personnel are proposed, describe the sequencing of the
42 personnel operating the types of equipment. Discuss the continuance of operator
43 personnel for each type of equipment as it relates to meeting Specification
44 requirements.

- 1
- 2 c. Number of JMFs to be placed, and if more than one JMF is used, how the
- 3 Contractor will ensure different JMFs are distinguished, how pavers and how
- 4 MTVs are distinguished, and how pavers and MTVs are cleaned so that one JMF
- 5 does not adversely influence the other JMF.
- 6
- 7 d. Description of contingency plans for that day's operations such as equipment
- 8 breakdown, rain out, and supplier shutdown of operations.
- 9
- 10 e. Number of sublots to be placed, sequencing of density testing, and other sampling
- 11 and testing.
- 12

13 **5-04.3(15) Sealing Pavement Surfaces**

14 Apply a fog seal where shown in the plans. Construct the fog seal in accordance with

15 Section 5-02.3. Unless otherwise approved by the Engineer, apply the fog seal prior to

16 opening to traffic.

17

18 **5-04.3(16) HMA Road Approaches**

19 Construct HMA approaches at the locations shown in the Plans or where staked by the

20 Engineer, in accordance with Section 5-04.

21

22 **5-04.4 Measurement**

23 HMA Cl. ___ PG ___, HMA for ___ Cl. ___ PG ___, and Commercial HMA will be measured

24 by the ton in accordance with Section 1-09.2, with no deduction being made for the weight

25 of asphalt binder, mineral filler, or any other component of the mixture. If the Contractor

26 elects to remove and replace mix as allowed by Section 5-04.3(11), the material removed

27 will not be measured.

28

29 Roadway cores will be measured per each for the number of cores taken.

30

31 Pavement repair excavation will be measured by the square yard of surface marked prior to

32 excavation.

33

34 Planing bituminous pavement will be measured by the square yard.

35

36 **5-04.5 Payment**

37 Payment will be made for each of the following Bid items that are included in the Proposal:

38

39 "HMA Cl. ___ PG ___", per ton.

40

41 "HMA for Approach Cl. ___ PG ___", per ton.

42

43 "HMA for Preleveling Cl. ___ PG ___", per ton.

1 "HMA for Pavement Repair Cl. ___ PG ___", per ton.

2

3 "Commercial HMA", per ton.

4

5 The unit Contract price per ton for "HMA Cl. ___ PG ___", "HMA for Approach Cl. ___
6 PG ___", "HMA for Preleveling Cl. ___ PG ___", "HMA for Pavement Repair Cl. ___ PG
7 ___", and "Commercial HMA" shall be full compensation for all costs, including anti-
8 stripping additive, incurred to carry out the requirements of Section 5-04 except for those
9 costs included in other items which are included in this Subsection and which are
10 included in the Proposal.

11

12 "Pavement Repair Excavation Incl. Haul", per square yard.

13

14 The unit Contract price per square yard for "Pavement Repair Excavation Incl. Haul"
15 shall be full payment for all costs incurred to perform the Work described in Section 5-
16 04.3(4) with the exception, however, that all costs involved in the placement of HMA
17 shall be included in the unit Contract price per ton for "HMA for Pavement Repair Cl. ___
18 PG ___", per ton.

19

20 "Asphalt for Prime Coat", per ton.

21

22 The unit Contract price per ton for "Asphalt for Prime Coat" shall be full payment for all
23 costs incurred to obtain, provide and install the material in accordance with Section 5-
24 04.3(4).

25

26 "Prime Coat Agg.", per cubic yard, or per ton.

27

28 The unit Contract price per cubic yard or per ton for "Prime Coat Agg." shall be full pay
29 for furnishing, loading, and hauling aggregate to the place of deposit and spreading the
30 aggregate in the quantities required by the Engineer.

31

32 "Planing Bituminous Pavement", per square yard.

33

34 The unit Contract price per square yard for "Planing Bituminous Pavement" shall be full
35 payment for all costs incurred to perform the Work described in Section 5-04.3(14).

36

37 "Job Mix Compliance Price Adjustment", by calculation.

38

39 "Job Mix Compliance Price Adjustment" will be calculated and paid for as described in
40 Section 5-04.3(9)C6.

41

42 "Compaction Price Adjustment", by calculation.

43

1 "Compaction Price Adjustment" will be calculated and paid for as described in Section 5-
2 04.3(10)D3.

3
4 "Roadway Core", per each.

5
6 The Contractor's costs for all Work associated with the coring (e.g., traffic control) shall
7 be incidental and included in the unit Bid price per each.

8
9 "Cyclic Density Price Adjustment", by calculation.

10
11 "Cyclic Density Price Adjustment" will be calculated and paid for as described in Section
12 5-04.3(10)B.

13
14 **(January 13, 2021 WSDOT GSP)**

15 **Asphalt Cost Price Adjustment**

16 The Contracting Agency will make an Asphalt Cost Price Adjustment, either a credit or a
17 payment, for qualifying changes in the reference cost of asphalt binder. The adjustment will
18 be applied to partial payments made according to Section 1-09.9 for the following bid items
19 when they are included in the proposal:

20
21 "HMA Cl. ____ PG ____"

22 "HMA for Approach Cl. ____ PG ____"

23 "HMA for Preleveling Cl. ____ PG ____"

24 "HMA for Pavement Repair Cl. ____ PG ____"

25 "Commercial HMA"

26
27 The adjustment is not a guarantee of full compensation for changes in the cost of asphalt
28 binder. The Contracting Agency does not guarantee that asphalt binder will be available at
29 the reference cost.

30
31 The Contracting Agency will establish asphalt binder reference costs twice each month and
32 post the information on the Agency website at: [https://wsdot.wa.gov/business-
33 wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-
34 cost](https://wsdot.wa.gov/business-wsdot/contracts/about-public-works-contracts/payments-reporting/asphalt-binder-reference-cost). The reference cost will be determined using posted prices furnished by Poten &
35 Partners, Inc. If the selected price source ceases to be available for any reason, then the
36 Contracting Agency will select a substitute price source to establish the reference cost.

37
38 Price adjustments will be calculated one time per month. No price adjustment will be made if
39 the Current Reference Cost is within +/-5% of the Base Cost. Reference costs for projects
40 located in Eastern versus Western Washington shall be selected from the column in the
41 WSDOT website table labeled "Eastern", or "Western", accordingly. The adjustment will be
42 calculated as follows:

43
44 If the reference cost is greater than or equal to 105% of the base cost, then
45 Asphalt Cost Price Adjustment = (Current Reference Cost – (1.05 x Base Cost)) x (Q x
46 0.056).

47
48 If the reference cost is less than or equal to 95% of the base cost, then

1 Asphalt Cost Price Adjustment = (Current Reference Cost – (0.95 x Base Cost)) x (Q x
2 0.056).

3
4 Where: **Current Reference Cost** is selected from the website table based on the
5 “Date Effective” that immediately precedes the current month’s progress
6 estimate end date. For work completed after all authorized working days
7 are used, the adjustment will be based on the posted reference cost during
8 which contract time was exhausted.

9
10 **Base Cost** is selected from the website table based on the “Date Effective”
11 that immediately precedes the contract bid opening date, and shall be a
12 constant for all monthly adjustments.

13
14 **Q** = total tons of all classes of HMA paid in the current month’s progress
15 payment.

16
17 “Asphalt Cost Price Adjustment”, by calculation.

18 “Asphalt Cost Price Adjustment” will be calculated and paid for as described in this section.
19 For the purpose of providing a common proposal for all bidders, the Contracting Agency has
20 entered an amount in the proposal to become a part of the total bid by the Contractor.

21 22 **5-05 CEMENT CONCRETE PAVEMENT**

23 24 **5-05.1 Description**

25 Supplement this section with the following:

26
27 This work shall include constructing Stamped Concrete Pavement within the landscape strip,
28 as shown on the Plans, in conformity with the lines, grades, thicknesses, and typical cross-
29 section as detailed on the Plans.

30 31 **5-05.2 Materials**

32 Supplement this section with the following:

33
34 Stamped cement concrete pavement shall be constructed with a Class 4000 Portland
35 Cement Concrete mix conforming to the requirements of Section 6-02.

36
37 Epoxy Coated Dowel Bars 9-07.5(1) Standard Specifications

38
39 The reference to Section 9-07.5(2) Corrosion Resistant Dowel Bars is deleted.

40 41 **5-05.3 Construction Requirements**

42 Supplement this section with the following:

43
44 Contraction/control joints shall be constructed with 12-foot max spacing or as approved by
45 the Engineer.

46
47 Stamped Cement Concrete Pavement shall be installed flush with adjacent cement concrete
48 curb.

1 Antique release and sealer shall be applied evenly to the surface of fresh concrete according
2 to the manufacturer's specifications.

3
4 Qualifications

5
6 Qualified and competent workman shall have a minimum five (5) years of work experience
7 for same paving type installation of stamped concrete.

8
9 Stamped Cement Concrete Pavement Installer's Additional Qualifications: Installer shall
10 provide a list of five (5) successfully installed projects that include stamped concrete work
11 within the Western United States. Include the following information: Address/ name of project;
12 square footage; date of installation; contact name and phone number; up to two (2) photos
13 of each project.

14
15 Submittals

16
17 Catalog product cut sheets for stamping tools, antique release and sealer shall be submitted
18 to the Engineer for approval prior to providing mock-up samples.

19
20 Contractor to provide pavement and joint layout for the Engineer's approval prior to
21 installation. Layout shall be determined in field and approved by the Engineer.

22
23 Mock-Up Sample(s)

24
25 Prior to the start of concrete pavement work, the Contractor shall provide a minimum (4) four
26 feet by (4) four feet (16 square feet) mock-up sample of Stamped Cement Concrete
27 Pavement showing stamped pattern, release agent and sealer per these special provisions
28 and design plans.

29
30 Completed work not meeting the visual quality of the approved sample shall be removed and
31 replaced by the Contractor at no additional cost to the Owner.

32
33 The final approved sample shall be the standard for the balance of the rest of the 'Stamped
34 Cement Concrete Pavement' work installed in the median and shall be protected from
35 damage until final acceptance and approval. Mock-up sample(s) provided for approval by the
36 Engineer shall be incidental to and included in the unit bid price for "Stamped Cement Conc.
37 Pavement" per these Special Provisions.

38
39 No additional concrete shall be placed prior to the test panel being approved by the Engineer.

40
41 **5-05.3(1) Concrete Mix Design for Paving**

42 Section 5-05.3(1) is deleted and replaced with the following:

43
44 The Contractor shall provide a concrete mix design for each design of concrete specified
45 in the Contract. The Contractor shall use ACI 211.1 as a guide to determine proportions.
46 Concrete strength, placability, and workability shall be the responsibility of the
47 Contractor. Following approval of the Contractor's proposal, all other requirements of
48 Section 5-05 shall apply.

- 49
50 1. Materials. Materials shall conform to Section 5-05.2. Fine aggregate shall
51 conform to Section 9-03.1(2), Class 1. Coarse aggregate shall conform to

1 Section 9-03.1(4) and shall conform to Section 9-03.1(4)C AASHTO grading No.
2 467 or an alternate gradation which has a minimum of 5 percent retained on the
3 1½-inch square sieve. Fly ash, if used, shall conform to Section 9-23.9 and
4 shall be limited to Class F with a maximum CaO content of 15 percent by weight.
5 The fly ash shall be limited to 20 percent by weight, of the total cementitious
6 material. As an alternative to the use of fly ash and cement as separate
7 components, a blended hydraulic cement may be used. Blended hydraulic
8 cement shall conform to ASTM C 595 Type IP(MS).

9
10 In making calculations relative to cement factor or allowable water/cement ratio,
11 the total cementitious material shall be taken as the weight of Portland cement
12 plus the weight of fly ash.

- 13
14 2. Submittals. The Contractor's submittal for approval shall include the mix
15 proportions per cubic yard and the proposed sources for all ingredients including
16 the power plant that generated the fly ash. The mix shall be capable of providing
17 a minimum flexural strength of 650 psi at 14 days. Evaluation of strength shall
18 be based on statistically analyzed results of 5 beam specimens and
19 demonstrate a quality level of not less than 80 percent analyzed in accordance
20 with Section 1-06.2(2)D. In addition the Contractor shall fabricate, cure, and
21 test 5 sets of cylinders using the same mixture as used in fabrication of the
22 beams. Compressive strength (14 day strength) data shall be submitted to the
23 Engineer for use in determination of a conversion factor of flexural strength to
24 compressive strength, which will be used by the Engineer for strength
25 acceptance testing.

26
27 Mix designs submitted by the Contractor shall provide a unique identification for
28 each proposal and shall include test data confirming that concrete made in
29 accordance with the proposed design will meet the requirements of these
30 Specifications. Test data shall be from an independent testing lab or from a
31 commercial concrete producer's lab. If the test data is developed at a
32 producer's lab, the Engineer or a representative may witness all testing.

- 33
34 3. Mix Design Modifications. The Contractor may initiate minor adjustments to the
35 approved mix proportions. A plus or minus 100 pound variation in both the
36 coarse and fine aggregate target weight will be allowed from the approved
37 Contractor provided mix design weight as a modification without re-submittal.
38 The Contractor shall notify the Engineer in writing of any such proposed
39 modification.

40
41 **5-05.3(10) Tie Bars and Corrosion Resistant Dowel Bars**

42 All references to corrosion resistant dowel bars in Section 5-05.3(10) are deleted for this
43 Project.

44
45 **5-05.3(11) Finishing**

46 Supplement this section with the following:

47
48 Stamped Cement Concrete Pavement noted in the Plans within the median shall receive
49 stamp pattern and finish.

1 Finish of Stamped Cement Concrete Pavement shall be achieved using 'Cobblestone'
2 pattern -BST5000 textured mats and Chiseled Slate - BST7618 touch-up skins as well as
3 Chiseled Slate -BSTR0976 touch-up roller sleeve available from Butterfield Color, phone 1-
4 800-282-3388, or approved equal. Cobblestone pattern surface texture shall be achieved
5 using imprinting texture, stencils, detailing tools to create a running bond pattern of square
6 and rectangular shapes with grout lines. Edges, corners and texture shall be as shown on
7 the Plans. Stamped Cement Concrete Pavement shall receive antiquing release agent and
8 sealer (including additive) application, as follows:
9

- 10 • Butterfield Color® #PT12 Penna-Tique Antiquing Agent- Storm Gray
- 11 • Butterfield Color® Clear-Guard™ Cure & Seal

12 **5-05.4 Measurement**

13 The first paragraph, including numbered list, and second paragraph of Section 5-05.4 are deleted
14 and replaced with the following:
15

16 Cement concrete pavement will be measured by the square yard placed.

17 Stamped cement concrete pavement will be measured per square yard of completed
18 stamped cement concrete pavement surface.
19

20 **5-05.5 Payment**

21 The second and third paragraphs of Section 5-05.5 are replaced with the following:
22

23 "Cement Conc. Pavement", per square yard.

24 The unit Contract price per square yard for "Cement Conc. Pavement" shall be full pay for all
25 costs incurred to perform the Work as specified.
26

27 "Stamped Cement Conc. Pavement" per square yard.

28 The unit Contract price for "Stamped Cement Conc. Pavement" shall be full compensation
29 for all costs necessary and incidental to installing stamped cement concrete pavement,
30 including but not limited to excavation; procuring, placing and compacting crushed surfacing
31 top course; forming, procuring and placing concrete, joint materials, stamping, curing and
32 sealing. The stamping tools shall become the property of the City at the end of the project,
33 and the Contractor shall clean, maintain, and deliver all tools to the City Maintenance Yard.
34 Failure to adequately maintain and deliver the stamping tools to the City Maintenance Yard
35 after project completion shall be deemed reasonable grounds for the Engineer to adjust the
36 payment made under this bid item. Said adjustment shall be determined solely by the
37 Engineer and is not negotiable except at the Engineer's discretion.
38
39
40
41

42 **END OF DIVISION 5**

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**DIVISION 6
STRUCTURES**

6-02 CONCRETE STRUCTURES

6-02.3 Construction Requirements

Section 6-02.3 is supplemented with the following:

6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D

The first line item of Section 6-02.3(2)A1 is revised with the following:

(*****)

1. Aggregate shall use combined gradation in accordance with Section 9-03.1(5) with a nominal maximum aggregate size of 3/4 inches.

6-02.3(10)D5 Bridge Deck Concrete Finishing and Texturing

The fourth paragraph of Section 6-02.3(10)D5 is revised with the following:

(*****)

The Contractor shall texture the concrete bridge deck surface in a transverse direction, perpendicular with centerline. The Contractor shall texture the bridge deck surface to within 3- inches minimum and 9-inches maximum of the edge of concrete at expansion joints, within 12- inches minimum and 15-inches maximum of the curb line, and within 3-inches minimum and 6- inches maximum of the perimeter of local dishing at bridge drain assemblies as shown in the Plans.

6-02.3(12) Construction Joints

Section 6-02.3(12) is supplemented with the following:

(*****)

6-02.3(12)C Control Joints

Control Joint Preparation and Installation Procedure

Control joints are shallow saw cuts made transversely across the bridge deck as described in the Plans. The control joints shall be filled with sealant as described in the Plans. The Contractor shall submit a Type 1 Working Drawing consisting of the sealant manufacturer's recommended deck control joint preparation and installation procedure.

Placing Deck Control Joint Sealant

The Contractor shall have the services of a qualified sealant manufacturer's technical representative physically present at the job site to train the Contractor's personnel installing the joint sealant, assist in assuring the proper installation of the rapid cure sealant, provide technical assistance for the use of the joint sealant, and to observe and inspect the installation of at least 10% of the completed control joints.

Contractor shall use Sika Sikaflex Concrete Fix one-component polyurethane sealant or approved equivalent.

1 **6-02.3(14) Finishing Concrete Surfaces**

2
3 **6-02.3(14)C Pigmented Sealer for Concrete Surfaces**

4 Section 6-02.3(14)C is supplemented with the following:

5
6 **(*****)**

7 The color of the pigmented sealer shall be Mt. St. Helens Gray, except the interior of the
8 columns which shall be Mt. Baker Green (see Plans for location).

9
10 Unless noted otherwise, all exposed concrete faces, except the top of deck, shall
11 receive pigmented sealer as shown in the Plans.

12
13 **6-02.3(24) Reinforcement**

14 Section 6-02.3(24) is supplemented with the following:

15
16 Prior to fabricating any reinforcing steel, the Contractor shall submit Type 2 Working
17 Drawings (placing drawings and bending lists) for review by the Engineer. Working Drawings
18 shall be prepared in accordance with the CRSI Manual of Standard Practice and the ACI
19 Detailing Manual. Placing drawings shall show the location of all concrete construction joints
20 and rebar lap splices.

21
22 **6-02.4 Measurement**

23 Section 6-02.4 is supplemented with the following:

24
25 “Deck (NE 85th Pedestrian Bridge)” contains the following approximate quantities of materials
26 and work, but does not represent all work included in this item:

27	CIP Concrete Overlay (Class 4000D)	81 CY
28	<i>(Includes deck and diaphragms at abutments and piers)</i>	
29	Epoxy-Coated Steel Reinforcing Bar Gr. 60 (Deck/Diaphragms)	21,700 LB
30	Deck Drains	2 EA
31	Bridge Jump Slab CIP Concrete (Class 4000A)	10 CY
32	Epoxy-Coated Steel Reinforcing Bar Gr. 60 (Jump Slab)	1,900 LB
33		

34
35 Voided slab girders will be measured by the linear foot of slab girder specified in the Proposal.
36 Temporary shoring for the girders at the pier locations shall be included in the cost of the
37 girders.

38
39 Elastomeric bearings will be measured per each.

40
41 Pigmented sealer will be measured by the square yard surface area of sealer applied.

42
43 The quantities are listed only for the convenience of the Contractor to assist in determining
44 the volume of work involved and are not guaranteed to be accurate. The prospective bidders
45 must verify these quantities before submitting a bid. No adjustments other than for approved
46 changes will be made in the lump sum contract price for “Deck (NE 85th Pedestrian Bridge)”
47 even though the actual quantities required may deviate from those listed.

48
49
50 **6-02.5 Payment**

1 Section 6-02.5 is supplemented with the following:
2

3 The unit price for "Conc. Class 4000 – Piers" shall include any costs associated with
4 retaining the slope at Pier P3 to allow for construction of the pier column.

5
6 "Voided Slab Girders (Includes Temporary Shoring)", per linear foot.
7

8 "Elastomeric Bearings", per each.
9

10 "Pigmented Sealer", per square yard.
11

12 "Deck (NE 85th Pedestrian Bridge)", lump sum.

13 The lump sum contract price for "Deck (NE 85th Pedestrian Bridge)" shall be full pay for
14 constructing the reinforced concrete portions of the bridge superstructure, including
15 miscellaneous items as described in 6-02.4.
16

17 For the purposes of payment, such bridge and structures items such as drainage grates, etc,
18 for which there is no pay item included in the proposal, are considered as bridge and
19 structures minor items. All costs in connection with furnishing and installing these bridge and
20 structures minor items as shown and noted in the Plans and as outlined in these
21 specifications and in the Standard Specifications shall be included in "Deck (NE 85th
22 Pedestrian Bridge)".
23

24 **6-06 BRIDGE RAILINGS**

25 **6-06.1 Description**

26 6-06.1 is supplemented with the following:
27

28 (*****)
29

30 The Work consists of constructing railings along the bridge spans and jump slabs. This Work
31 includes the primary pipe railings and posts, steel pipe balusters, splice connections, base
32 plates/brackets, related accessories, anchor bolts/welds, and special end posts as required.
33 This Work also consists of fabricating and installing the railing, fasteners and anchors as
34 specified herein and as shown in the Plans.
35

36 **6-06.2 Materials**

37 6-06.2 is supplemented with the following:
38

39 (*****)
40

41 Bridge railing material, fasteners, and anchors shall be as specified on the Plans. Provide
42 materials with smooth surfaces unless otherwise indicated. For metal fabrications exposed to
43 view in the completed Work, provide materials without seam marks, identification markings, or
44 blemishes.
45

46 **6-06.3 Construction Requirements**

47 **6-06.3(2) Metal Railings**

48 Section 6-06.3(2) is supplemented with the following:
49

(*****)

1
2 The Contractor shall shop fabricate the bridge railing as indicated in the Plans. Prior to
3 shipping bridge railing materials, the Contractor shall review and be thoroughly
4 knowledgeable with the fabricator's care and handling recommendations.

5
6 A mockup shall be prepared to demonstrate the method of installation using the same
7 materials and components that will be used into the final work. It is acceptable for the mockup
8 to be incorporated into the bridge.

9
10 On-site storage of bridge railing elements shall be in a location and manner as to avoid
11 damage. Stacking shall be done in a manner that will prevent bending. Keep handling on site
12 to a minimum and exercise caution to avoid damage to railing finish. Components with
13 damage shall be replaced or repaired to the satisfaction of the Engineer.

14
15 **6-06.4 Measurement**

16 Section 6-06.4 is supplemented with the following:

17
18 "Bridge Railing - Superstr." will be measured per linear foot (LF).

19
20 **6-06.5 Payment**

21 Section 6-06.4 is supplemented with the following:

22
23 The per LF bid price for "Bridge Railing - Superstr." shall be full compensation for costs of all
24 labor, tools, equipment, and materials necessary for furnishing and constructing the finished
25 railings for the bridge. This includes all costs for providing and erecting the railings in
26 accordance with the Plans, the Standard Specifications, these Special Provisions and the
27 manufacturer's installation instructions.

28
29 **6-11 REINFORCED CONCRETE WALLS**

30 **6-11.4 Measurement**

31 6-11.4 is supplemented with the following:

32
33 (*****)

34
35 Gravel backfill for wall including haul will be measured as specified in Section 2-09.4.

36
37 **6-11.5 Payment**

38 6-11.5 is supplemented with the following:

39
40 (*****)

41
42 "Conc. Class 4000 For Median Retaining Wall", per cubic yard.

43
44 All costs in connection with furnishing and installing PVC pipe for weep holes, geotextile, drain
45 rock, premolded joint filler, grout, exterior surface finish, and pigmented seater (when
46 specified), shall be included in the unit Contract price per cubic yard for "Conc. Class 4000 For
47 Median Retaining Wall".

48
49 "St. Reinf. Bar for Median Retaining Wall", per pound.

1 “Gravel Backfill for Wall Incl. Haul”, per cubic yard.
2 The unit Contract price per cubic yard for “Gravel Backfill for Wall Incl. Haul” shall be full
3 payment for all costs to perform the Work in connection with furnishing and placing backfill for
4 reinforced concrete or median wall, including hauling and compacting the backfill.
5
6

7 **6-13 STRUCTURAL EARTH WALLS**

8 9 **6-13.2 Materials**

10 Section 6-13.2 is supplemented with the following:
11

12 *(January 2, 2018 WSDOT GSP)*

13 **Concrete Block Faced Structural Earth Wall Materials**

14 **General Materials**

15 **Concrete Block**

16 Acceptability of the blocks will be determined based on the following:
17

- 18 1. Visual inspection.
- 19 2. Compressive strength tests, conforming to Section 6-13.3(4).
- 20 3. Water absorption tests, conforming to Section 6-13.3(4).
- 21 4. Manufacturer’s Certificate of Compliance in accordance with Section 1-
22 06.3.
- 23 5. Freeze-thaw tests conducted on the lot of blocks produced for use in this
24 project, as specified in Section 6-13.3(4).
- 25 6. Copies of results from tests conducted on the lot of blocks produced for
26 this project by the concrete block fabricator in accordance with the quality
27 control program required by the structural earth wall manufacturer.
28
29

30
31
32
33
34 The blocks shall be considered acceptable regardless of curing age when
35 compressive test results indicate that the compressive strength conforms to the 28-
36 day requirements, and when all other acceptability requirements specified above
37 are met.
38

39 Testing and inspection of dry cast concrete blocks shall conform to ASTM C 140,
40 and shall include block fabrication plant approval by WSDOT prior to the start of
41 block production for this project.
42

43 **Mortar**

44 Mortar shall conform to ASTM C 270, Type S, with an integral water repellent
45 admixture as accepted by the Engineer. The amount of admixture shall be as
46 recommended by the admixture manufacturer. To ensure uniform color, texture,
47 and quality, all mortar mix components shall be obtained from one manufacturer for
48 each component, and from one source and producer for each aggregate.
49

1 **Geosynthetic Soil Reinforcement**

2 Geogrid reinforcement shall conform to Section 9-33.1, and shall be a product listed
3 in Appendix D of the current WSDOT Qualified Products List (QPL). The values of
4 T_{ai} and T_{ult} as listed in the QPL for the products used shall meet or exceed the values
5 required for the wall manufacturer's reinforcement design as specified in the
6 structural earth wall design calculation and working drawing submittal.

7
8 The minimum ultimate tensile strength of the geogrid shall be a minimum average
9 roll value (the average test results for any sampled roll in a lot shall meet or exceed
10 the values shown in Appendix D of the current WSDOT QPL). The strength shall
11 be determined in accordance with ASTM D 6637, for multi-rib specimens.

12
13 The ultraviolet (UV) radiation stability, in accordance with ASTM D 4355, shall be a
14 minimum of 70 percent strength retained after 500 hours in the weatherometer.

15
16 The longitudinal (i.e., in the direction of loading) and transverse (i.e., parallel to the
17 wall or slope face) ribs that make up the geogrid shall be perpendicular to one
18 another. The maximum deviation of the cross-rib from being perpendicular to the
19 longitudinal rib (skew) shall be no more than 1 inch in 5 feet of geogrid width. The
20 maximum deviation of the cross-rib at any point from a line perpendicular to the
21 longitudinal ribs located at the cross-rib (bow) shall be 0.5 inches.

22
23 The gap between the connector and the bearing surface of the connector tab cross-
24 rib shall not exceed 0.5 inches. A maximum of 10 percent of connector tabs may
25 have a gap between 0.3 inches and 0.5 inches. Gaps in the remaining connector
26 tabs shall not exceed 0.3 inches.

27
28 The Engineer will take random samples of the geogrid materials at the job site.
29 Acceptance of the geogrid materials will be based on testing of samples from each
30 lot. A "lot" shall be defined as all geogrid rolls sent to the project site produced by
31 the same manufacturer during a continuous period of production at the same
32 manufacturing plant having the same product name. The Contracting Agency will
33 require 14 calendar days maximum for testing the samples after their arrival at the
34 WSDOT Materials Laboratory in Tumwater, WA.

35
36 The geogrid samples will be tested for conformance to the specified material
37 properties. If the test results indicate that the geogrid lot does not meet the specified
38 properties, the roll or rolls which were sampled will be rejected. Two additional rolls
39 for each roll tested which failed from the lot previously tested will then be selected
40 at random by the Engineer for sampling and retesting. If the retesting shows that
41 any of the additional rolls tested do not meet the specified properties, the entire lot
42 will be rejected. If the test results from all the rolls retested meet the specified
43 properties, the entire lot minus the roll(s) which failed will be accepted.

44
45 All geogrid materials which have defects, deterioration, or damage, as determined
46 by the Engineer, will be rejected. All rejected geogrid materials shall be replaced at
47 no expense to the Contracting Agency.

48
49 Except as otherwise noted, geogrid identification, storage and handling shall
50 conform to the requirements specified in Section 2-12.2. The geogrid materials
51 shall not be exposed to temperatures less than -20F and greater than 122F.

1
2 **Drainage Geosynthetic Fabric**

3 Drainage geosynthetic fabric shall be a non-woven geosynthetic conforming to the
4 requirements in Section 9-33.1, for Construction Geotextile for Underground
5 Drainage, Moderate Survivability, Class B.
6

7 **Proprietary Materials**

8 **Allan Block Wall**

9 Wall backfill material placed in the open cells of the precast concrete blocks and
10 placed in the one to three foot zone immediately behind the precast concrete blocks
11 shall be crushed granular material conforming to Section 9-03.9(3).
12

13 **GEO WALL Structural Earth Retaining Wall System**

14 Connection pins shall be fiberglass conforming to the requirements of Basalite
15 Concrete Products, LLC.
16

17 **KeyGrid Wall**

18 KeyStone connection pins shall be fiberglass conforming to the requirements of
19 Keystone Retaining Wall Systems, Inc.
20

21 **Landmark Retaining Wall**

22 Lock bars shall be made of a rigid polyvinyl chloride polymer conforming to the
23 following requirements:
24

Property	Value	Specification
Specific Gravity	1.4 minimum	ASTM D 792
Tensile Strength at yield	2,700 psi minimum	ASTM D 638

25
26 Lock bars shall remain sealed in their shipping containers until placement into the
27 wall. Lock bars exposed to direct sunlight for a period exceeding two months shall
28 not be used for construction of the wall.
29

30 **Mesa Wall**

31 Block connectors for block courses with geogrid reinforcement shall be glass fiber
32 reinforced high-density polypropylene conforming to the following minimum material
33 specifications:
34

Property	Specification	Value
Polypropylene	ASTM D 4101	
	Group 1 Class 1 Grade 2	73 ± 2 percent
Fiberglass Content	ASTM D 2584	25 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.08 ± 0.04
Tensile Strength at yield	ASTM D 638	8,700 ± 1,450 psi
Melt Flow Rate	ASTM D 1238	0.37 ± 0.16 ounces/10 min.

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44
45 Block connectors for block courses without geogrid reinforcement shall be glass
46 fiber reinforced high-density polyethylene (HDPE) conforming to the following
47 minimum material specifications:
48

<u>Property</u>	<u>Specification</u>	<u>Value</u>
HDPE	ASTM D 1248	
	Type III Class A Grade 5	68 ± 3 percent
Fiberglass Content	ASTM D 2584	30 ± 3 percent
Carbon Black	ASTM D 4218	2 percent minimum
Specific Gravity	ASTM D 792	1.16 ± 0.06
Tensile Strength at yield	ASTM D 638	8,700 ± 725 psi
Melt Flow Rate	ASTM D 1238	0.11 ± 0.07 ounces/10 min.

(*****)

Concrete blocks shall be a gray color as approved by the Engineer.

Crushed Surfacing 9-03.9(3)

6-13.3 Construction Requirements

Section 6-13.3 is supplemented with the following:

(January 2, 2018 WSDOT GSP)

Concrete Block Faced Structural Earth Wall

Concrete block faced structural earth walls shall be constructed of only one of the following wall systems. The Contractor shall make arrangements to purchase the concrete blocks, soil reinforcement, attachment devices, joint filler, and all necessary incidentals from the source identified with each wall system:

Allan Block Wall

Allan Block Wall is a registered trademark of the Allan Block Corporation

Allan Block Corporation
7424 W 78th Street
Bloomington, MN 55439
(800) 899-5309
FAX (952) 835-0013
www.allanblock.com

GEO WALL Structural Earth Retaining Wall System

GEO WALL is a registered trademark of Basalite Concrete Products, LLC

Basalite Concrete Products LLC
3299 International Place
Du Pont, WA 98327-7707
(800) 964-9424
FAX: (253) 964-5005
www.basalite.com

Redi-Rock Positive Connection System

Redi-Rock Positive Connection System is a registered trademark of Redi-Rock International, LLC

Redi-Rock International, LLC

1 05481 US 31 South
2 Charlevoix, MI 49720
3 (866) 222-8400
4 FAX (231) 237-9521
5 www.redi-rock.com
6

7 Mesa Wall

8 Mesa Wall is a registered trademark of Tensar Corporation
9

10 Tensar Corporation
11 2500 Northwinds Parkway Suite 500
12 Atlanta, GA 30009
13 (770) 334-2090
14 FAX (678) 281-8546
15 www.tensarcorp.com
16

17 Landmark Retaining Wall System

18 Landmark Retaining Wall System is a registered trademark of Anchor Wall Systems,
19 Inc.
20

21 Anchor Wall Systems, Inc.
22 5959 Baker Road, Suite 390
23 Minnetonka, MN 55345-5996
24 (877) 295-5415
25 FAX (952) 979-8454
26 www.anchorwall.com
27

28 KeyGrid Wall

29 KeyGrid is a registered trademark of Keystone Retaining Wall Systems, Inc.
30

31 Keystone Retaining Wall Systems, Inc.
32 4444 West 78th Street
33 Minneapolis, MN 55435
34 (800) 747-8971
35 FAX (952) 897-3858
36 www.keystonewalls.com
37

38 **6-13.3(2) Submittals**

39 Section 6-13.3(2) is supplemented with the following:
40

41 (January 3, 2011 WSDOT GSP)

42 The following geotechnical design parameters shall be used for the design of the
43 structural earth wall(s):

44 Wall Name or No.: *** Wall West of Bridge and Wall East of Bridge ***

45 Soil	46 Wall	47 Retained	48 Foundation
49 Properties	50 Backfill	51 Soil	Soil
46 Unit Weight			
47 (pcf)	***135***	***135***	***135***
48 Friction Angle			
49 (deg)	***36***	***36***	***36***

Cohesion (psf) ***0*** ***0*** ***0***

For the Service Limit State, the wall shall be designed to accommodate a differential settlement of *** 1 inch *** per 100 feet of wall length.

For the Extreme Event I Limit State, the wall shall be designed for a horizontal seismic acceleration coefficient k_h of *** 0.237 *** g and a vertical seismic acceleration coefficient k_v of *** 0.0 *** g.

(*****)

Design of the structural earth wall shall also take into account the future sign bridge loading at the shaft location (approx. Station 29+58 RT). The structural earth wall shall be designed assuming the loads provided below from Station 29+43 to 29+73.

Factored Loads at Top of Sign Bridge Shaft

Load	Strength 1	Extreme Event, Minimum Dead Load	Extreme Event, Maximum Dead Load	Service 1
V _x (K)	0.00	33.63	33.63	13.18
V _y (K)	21.37	18.43	21.85	18.29
P _z (K)	-36.40	-26.44	-32.26	-29.21
M _x (K-ft)	208.10	187.61	220.90	181.28
M _y (K-ft)	0.00	938.70	938.70	367.96
T _z (K-ft)	0.00	246.23	246.23	96.52

Load	Fatigue Load – Temperature Gradient	Fatigue Load – Natural Wind Gust	Fatigue Load – Galloping Vertical Wind
V _x (K)	4.48	5.36	0.00
V _y (K)	0.41	0.49	11.13
P _z (K)	-0.03	-0.04	-16.60
M _x (K-ft)	5.03	6.02	108.43
M _y (K-ft)	124.93	149.69	0.00
T _z (K-ft)	32.77	39.26	0.00

Notes: V_x = Shear Load in X Direction
V_y = Shear Load in Y Direction
P_z = Vertical Load
M_x = Moment Force in X Direction
M_y = Moment Force in Y Direction
T_z = Torsional Force

1
2 **6-13.3(5) Precast Concrete Facing Panel and Concrete Block Erection**

3 Section 6-13.3(5) is supplemented with the following:

4
5 **(April 2, 2012 WSDOT GSP)**

6 **Specific Erection Requirements for Precast Concrete Block Faced Structural**
7 **Earth Walls**

8 **Landmark Retaining Wall**

9 When placing each course of concrete blocks, the Contractor shall pull the blocks
10 towards the front face of the wall until the male key of the bottom face of the upper
11 block contacts and fits into the female key of the top face of the supporting block
12 below.

13
14 A maximum gap of 1/8-inch is allowed between adjacent concrete blocks, except
15 for the base course set of concrete blocks placed on the leveling pad. A maximum
16 gap of 1-inch is allowed between adjacent base course concrete blocks, provided
17 geosynthetic reinforcement for drains is in place over the gap at the back face of
18 the concrete blocks.

19 Lock bars shall be installed in the female key of the top face of all concrete block
20 courses receiving geogrid reinforcement. Gaps between adjacent lock bars in the
21 key shall not exceed 3-inches. The lock bar shall be installed flat side up, with the
22 angled side to the back of the concrete block, as shown in the shop drawings.

23
24 Geogrid reinforcement shall be placed and connected to concrete block courses
25 specified to receive soil reinforcement. The leading edge of the geogrid
26 reinforcement shall be maintained within 1-inch of the front face of the supporting
27 concrete blocks below. Geogrid panels shall be abutted for 100 percent backfill
28 coverage with less than a 4-inch gap between adjacent panels.

29
30 Backfill shall be placed and compacted level with the top of each course of concrete
31 blocks, and geogrid reinforcement placed and connected to concrete block courses
32 specified to receive soil reinforcement, before the Contractor may continue placing
33 the next course of concrete blocks.

34
35 **Mesa Wall**

36 For all concrete block courses receiving geogrid reinforcement, the fingers of the
37 block connectors shall engage the geogrid reinforcement apertures, both in the
38 connector slot in the block, and across the block core. For all concrete block
39 courses with intermittent geogrid coverage, a #3 steel reinforcing bar shall be
40 placed, butt end to butt end, in the top block groove, with the butt ends being placed
41 at a center of a concrete block.

42
43 **6-13.3(10) Sidewalk Coping**

44 Section 6-13.3(10) is added as follows:

45
46 Within the horizontal limits of the walls where sidewalks are present, the Contractor shall
47 construct sidewalk coping as detailed in the Plans.

48
49 **6-13.5 Payment**

50 Section 6-13.5 is supplemented with the following:

1
2 The unit Contract price per square foot for “Structural Earth Wall” shall also include all costs
3 to perform the Work for the crushed surfacing leveling pad, geogrid reinforcing, construction
4 geotextile for underground drainage, gravel backfill for drains, wall finishing, compaction, wall
5 pipe blockouts, and Working Drawing submittals.
6

7 **6-19 SHAFTS**

8 **6-19.3 Construction Requirements**

9 Section 6-19.3 is supplemented with the following:

10
11 **(*****)**

12
13 Contractor shall verify the location of all utilities to confirm no conflicts are present between
14 utility locations and proposed site work. The Contractor shall be responsible for any repair
15 and/or replacement to damaged utility lines during construction.
16

17 **6-19.3(3) Shaft Excavation**

18
19 **6-19.3(3)B Temporary and Permanent Shaft Casing**

20 Section 6-19.3(3)B is supplemented with the following:

21
22 **(*****)**

23 The Contractor shall furnish and install casings as prescribed in the Plans.

24
25 When installing required permanent casings between the upper and lower elevation limits
26 specified above, the casing shall be advanced prior to or concurrently with the excavation.
27 In no case shall shaft excavation and/or casing placement extend below the bottom of
28 shaft elevation prescribed in the Plans.
29

30 Shaft casing shall be equipped with cutting teeth or a cutting shoe and installed by oscillating
31 the casing. Installing the casing by vibratory means will not be allowed.
32

33 To offset the effects of artesian groundwater conditions, the water level in the shaft
34 excavation must be always maintained at 10ft above the existing ground surface during
35 construction of the shafts and curing of the shaft concrete.
36

37 **END DIVISION 6**
38

**DIVISION 7
DRAINAGE STRUCTURES, STORM SEWERS, SANITARY
SEWERS, WATER MAINS, AND CONDUITS**

7-01 DRAINS

7-01.1 Description

Section 7-01.1 is supplemented with the following:

(*****)

This Work consists of constructing drain cleanouts in accordance with the Plans, Standard Plan CK-D.05B, and these Specifications, at the locations staked.

7-01.2 Materials

Section 7-01.2 is supplemented with the following:

(*****)

Ductile Iron Pipe (for Drain Cleanout)	9-30.1(1)
Concrete (for Drain Cleanout)	6-02.3(2)B
Iron Ring and Cover (for Drain Cleanout)	9-05.15
Crushed Surfacing Top Course (for Drain Cleanout)	9-03.9(3)
Screw Plug with Raised Hex Nut (for Drain Cleanout)	9-05.1(5)

7-01.3 Construction Requirements

Section 7-01.3 is supplemented with the following:

(*****)

PVC pipe for drain cleanouts shall be constructed in accordance with Section 7-01.3(1) for PVC drain pipe. Drain cleanouts shall be constructed in accordance with City of Kirkland Standard Plan CK-D.05B.

7-01.4 Measurement

Section 7-01.4 is supplemented with the following:

(*****)

Drain cleanouts will be measured per each drain cleanout furnished and installed.

7-01.5 Payment

Section 7-01.5 is supplemented with the following:

(*****)

The unit Contract price per linear foot for "Drain Pipe ____ In. Diam." shall be full pay for all Work to complete the installation, including excavation, native or imported trench backfill, compaction, and disposal of native excavated materials not used for backfill.

"Cleanout 6 In. Diam.", per each.

The unit Contract price per each for "Cleanout 6 In. Diam." shall be full pay for all Work to complete the installation, including excavation, native or imported trench backfill, compaction, and disposal of native excavated materials not used for backfill.

1 **7-04 STORM SEWERS**

2
3 **7-04.1 Description**

4 Section 7-04.1 is supplemented with the following:

5
6 This work includes furnishing and installing pipe anchors and connections to secure pipes
7 the slope as shown in the Plans.
8

9 **7-04.2 Materials**

10 Section 7-04.2 is supplemented with the following:

11
12 (*****)

13 The materials list in Section 7-04.2 is modified as follows:

14 Acceptable pipe materials within City of Kirkland right of way are:

15		
16		
17	Solid Wall PVC Storm Sewer Pipe	9-05.12(1)
18	PVC Pressure Pipe	9-30.1(5)
19	Ductile Iron Pipe	9-30.1(1)
20	Restrained Joints	9-30.2(6)
21		

22 Pipe Anchor materials shall be used as identified on the Plans.
23

24 **7-04.3 Construction Requirements**

25
26 **7-04.3(1) Cleaning and Testing**

27 Section 7-04.3(1) is supplemented with the following:

28
29 (COK GSP)

30 Cleaning and testing of the sewer system is required prior to placing the new section
31 into service and shall be incidental to the sanitary sewer pipe and structures, unless
32 otherwise specified under bid items herewith. Such tests shall be conducted in
33 accordance with the reference material specification for the material being used. Tests
34 on the completed installation shall be made as specified below.
35

36 **Cleaning and Flushing**

37 All gravity sewer pipes shall be cleaned and flushed after side sewer installation and
38 after backfilling and compaction. The pipe shall be cleaned and flushed by passing an
39 inflatable rubber ball through the completed section or using a flush truck. Any
40 obstruction, such as cemented grout or debris found in the completed section, shall be
41 removed.
42

43 **Alignment and Grade**

44 Alignment and grade will be inspected by lamping each completed section. Any section
45 which appears to exceed the allowance for variance in line or grade shall be further
46 inspected by an approved video monitoring system (TV inspection). If this inspection
47 confirms that the section does not meet the specified requirements for the line and
48 grade, the sections or portion not in compliance shall be re-excavated and re-laid at
49 Contractor's expense.
50

1 All costs incurred for TV inspection shall be considered incidental to and included in
2 various related bid item included in the proposal.
3

4 **Deflection Test for Gravity Sewer Pipe**

5 All gravity sewer pipes shall be tested for deflection at least 30 days after completion of
6 trench backfill and compaction in accordance with requirements of Section 7-17.3(2)G
7 of the Standard Specifications.
8

9 **Leakage Tests**

10 All gravity sewers, including all connected side sewers, shall be tested for water
11 tightness in accordance with the provisions of Section 7-17.3(2)F (Low Pressure Air Test)
12 of the Standard Specifications.
13

14 Acceptable water tightness testing criteria is revised as follows: Air testing will require a
15 minimum pressure of 4 psi for 15 minutes with no pressure drop. No other test
16 procedures will be allowed except by written approval of the Project Engineer. Whenever
17 ground water is encountered in the sewer construction, an approved water level
18 monitoring device shall be installed at each manhole. The device shall be used in the
19 conduct of the sewer testing to determine the water pressure above the sewer being
20 tested.
21

22 **(COK GSP)**

23 **7-04.3(2) Existing Utilities**

24 Section 7-04.3(2) is added as follows:
25

26 Existing utilities of record are shown on the Plans. These are shown for convenience
27 only, and the Engineer assumes no responsibility for improper locations or failure to
28 show utility locations on the Plans. When utility services occupy the same space as the
29 new storm sewer main, the Contractor shall complete necessary excavation to fully
30 expose such services. The Contractor shall protect said services, and work around them
31 during excavating and pipe laying operations. Any damages to services resulting from
32 the Contractor's operation shall be reported to the appropriate utility. Such damage shall
33 be repaired at the Contractor's expense.
34

35 The Contractor shall anticipate the potential for crossing over or under an occasional
36 shallow existing side sewers and roof drains that are not part of the one-call utility locate.
37 If such a side sewer or drain is encountered, the Contractor shall immediately notify the
38 Owner's on-site representative and then take the necessary steps to determine whether
39 or not the side sewer is active. If a side sewer is damaged by construction activity, the
40 Contractor is responsible for repairing the side sewer. All costs associated with
41 determining the viability and repair of the existing side sewer shall be considered
42 incidental to the cost of the storm sewer pipe and no additional payment will be made.
43

44 **7-04.3(3) Pipe Anchor**

45 Section 7-04.3(3) is added as follows:
46

47 Pipe anchors shall be installed at the ductile iron pipe as identified on the Plans.
48

49 **7-04.4 Measurement**

50 Section 7-04.4 is supplemented with the following:

1
2 (*****)

3 Pipe anchors will be measured per each.
4

5 **7-04.5 Payment**

6 Section 7-04.5 is supplemented with the following:
7

8 (*****)

9 "Ductile Iron Storm Sewer Pipe ___ In. Diam.", per linear foot.
10

11 The unit contract prices for Storm Sewer Pipe, regardless of size and material, shall be full
12 compensation for all labor, material, tools and equipment necessary for and incidental to
13 furnish and install the storm sewer as shown on the plans and as specified herein, including
14 the following:
15

- 16 1. Removal, loading, hauling, and disposal of existing asphalt concrete pavement as
17 necessary for trench excavations in paved areas. This shall include removal of
18 existing pavement beyond the trench as necessary and as indicated on the drawings
19 prior to final pavement patch.
- 20 2. Trench and structure excavation (including through existing duct banks as noted in
21 the Plans) and dewatering, furnishing and installation of pipe on line and grade, wyes,
22 tees, special fittings, manhole adapters.
- 23 3. Removal, loading, hauling, and disposal of native excavation material.
- 24 4. Pipe bedding material, native backfill installation, and compaction.
- 25 5. Furnishing and installing non-native (imported) backfill when required per City of
26 Kirkland Standard Plan CK-D.02 shall be paid as "Crushed Surfacing Top Course"
27 per Section 4-04. However, if the non-native crushed surfacing top course was
28 previously installed in the location of the trench by the Contractor as part of prior
29 earthwork or grading activities, the re-installation of the non-native material volume is
30 incidental to and included in the unit Contract price per linear foot for storm sewer
31 pipe.
- 32 6. Steel sheeting for covering excavations as necessary.
- 33 7. Maintenance, restoration and/or relocation, if required, of existing culverts, storm
34 drainage pipe, other utilities and structures affected by construction that are to remain.
- 35 8. Cleaning and testing of all storm sewers and catch basins including CCTV inspection
36 of the mains.
- 37 9. Placing and maintaining temporary cold mix asphalt concrete patching consisting of
38 a minimum 3-inches of cold asphalt mix over compacted backfill within existing paved
39 areas, and removal of the temporary cold mix asphalt mix prior to placement of trench
40 patch (patching paid for under "HMA Class 1/2-inch, PG 58H-22").
- 41 10. Restraining joints as indicated on the Plans and as specified herein.
42

43 "Pipe Anchor", per each.
44

45 The unit Contract price per each for "Pipe Anchor" shall be full pay for all labor, materials,
46 tools, equipment, necessary to furnish and install the pipe anchors and connections in
47 accordance with the plans, Standard Specifications, and Special Provisions and as
48 directed by the Engineer, and no additional compensation will be made.

1
2
3 **7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS**
4

5 **7-05.1 Description**

6 Section 7-05.1 is supplemented with the following:
7

8 (*****)

9 This Work consists of providing and installing locking solid metal covers and frames,
10 adjusting drainage Structures to finished grade, connecting existing drainage Structures to
11 new drainage Structures, connecting new drainage Structures to existing drainage Structures
12 in accordance with the Plans, these Specifications, and the Standard Plans, in conformity
13 with the lines and grades staked.
14

15 This Work shall also consist of constructing a Flow Control Structure in accordance with the
16 Plans and these Specifications.
17

18 This Work shall also consist of constructing a Stormwater Detention Vault in accordance with
19 the Plans and these Specifications.
20

21 **7-05.2 Materials**

22 Section 7-05.2 is supplemented with the following:
23

24 Joint sealant 9-04
25

26 **7-05.3 Construction Requirements**

27 Section 7-05.3 is supplemented with the following:
28

29 (*****)

30 **Frames, Grates, and Covers**

31 The Contractor shall provide and install vaned frames and grates in accordance with City of
32 Kirkland Standard Plan CK-D.15 and CK-D.16. Solid locking covers shall be provided and
33 installed in accordance with City of Kirkland Standard Plan CK-D.18 and CK-D.18A.
34

35 Flow Restrictor

36 The riser and connecting horizontal pipe shall be welded together creating a single unit, and
37 shall be free of leaks and cracks.
38

39 The flow restrictor Shop Drawings shall be submitted to the Engineer for approval seven days
40 prior to fabrication.
41

42 **7-05.3(1) Adjusting Manholes and Catch Basins to Grade**

43 Section 7-05.3(1) is supplemented with the following:
44

45 (*****)

46 Catch basins and similar structures shall be brought to finished grades by methods of
47 construction as required in Section 7-05 and City of Kirkland Pre-Approved Plans. Steel
48 risers are not allowed. Patch adjacent pavement with HMA Class 1/2-inch, PG 58H-22.
49 Seal joint with AR4000W and dry sand after patching.
50

1 "Adjust Catch Basin" shall be constructed in accordance with the Plans.

2
3 Any damage to existing catch basins resulting from the Contractor's operations shall be
4 repaired at the Contractor's expense.

5
6 (COK GSP)

7 Contractor shall install Agency supplied storm drain markers and adhesive on any new or
8 altered catch basins that have a vaned grate and/or inlet. To install, follow the "Storm Drain
9 Marking" instruction sheet supplied with the storm drain markers. Any Work associated with
10 installation of storm drain markers is incidental to other Bid items.

11
12 **7-05.3(5) Connections to Existing Structures**

13 Section 7-05.3(5) is added as follows:

14
15 (*****)

16 Where shown in the Plans, the Contractor shall connect new drainage pipe to existing
17 drainage Structures such as catch basins, manholes, and inlets, or shall connect new
18 drainage Structures such as catch basins, manholes, and inlets to existing drainage
19 pipe.

20
21 **7-05.4 Measurement**

22 The sixth paragraph of Section 7-05.4 is deleted and replaced with the following:

23
24 (*****)

25 Connections to existing drainage Structures will be measured per each Structure, regardless
26 of the number of pipes requiring connection.

27
28 Section 7-05.4 is supplemented with the following:

29
30 (*****)

31 Frames, grates, and solid covers installed on new drainage Structures will not be measured.

32
33
34 **7-05.5 Payment**

35 Section 7-05.5 is supplemented with the following:

36
37 (COK GSP)

38 Precast adjusting rings/risers, bricks, grout, HMA Class 1/2-inch PG 58H-22 for pavement
39 patching, and AR4000W asphalt shall be considered **incidental** and included in the unit
40 Contract price for other Bid items in this section.

41
42 (*****)

43 The unit Contract price per each for manholes, inlets and catch basins of the kind and size
44 specified shall be full pay for all Work to complete the installation, including excavation,
45 bedding material, native or imported backfill, compaction, epoxy coating for scour protection,
46 and disposal of native excavated materials not used for backfill.

47
48 "Catch Basin Type 2 72 In. Diam. with Flow Restrictors", per each.

49 The unit Contract price per each for "Catch Basin Type 2 72 In. Diam. with Flow

1 Restrictors” shall be full compensation for all labor, materials, and equipment necessary for
2 constructing and installing the flow restrictor pipes and fittings, providing and placing the
3 catch basin Type 2, constructing all appurtenances and hardware, as shown in the Plans.
4 The unit price also includes excavation, backfill and backfill material for constructing the Flow
5 Control Structure.
6

7 The unit Contract price per each for “Catch Basin Type ___” shall include excavation,
8 dewatering, backfill, backfill material, compaction, and adjustments to finish grade.
9

10 The unit Contract price per each for “Connection to Drainage Structure” shall be full for all
11 costs necessary to connect new drainage pipe to existing drainage Structures such as catch
12 basins, manholes, and inlets or to connect new drainage Structures such as catch basins,
13 manholes, and inlets to existing drainage pipe.
14

15 **7-08 GENERAL PIPE INSTALLATION REQUIREMENTS**

16 **7-08.3(4) Plugging Existing Pipe**

17 Section 7-08.3(4) is supplemented with the following:
18

19 **(*****)**

20 Where it is required that an existing pipe be abandoned (or portions of pipe installed as part
21 of this project which are to be abandoned as shown in the Plans), for concrete and ductile iron
22 pipe, both ends of the abandoned pipe and all lateral connections to the pipe shall be plugged
23 for a distance of two-diameters with cement-based grout. Corrugated Metal Pipe (CMP) and
24 all other existing pipe material types shall be plugged for a distance of two-diameters with
25 commercial cement concrete.
26
27

28 Abandoned concrete and ductile iron pipes shall be filled with a Controlled Density Fill (CDF)
29 and brick. Abandoned CMP and all other existing pipe material types shall be filled with CDF.
30
31

32 **7-09 WATER MAINS**

33 **7-09.3 Construction Requirements**

34 **7-09.3(7) Trench Excavation**

35 **7-09.3(7)D AirSpade Excavation**

36 Section 7-09.3(7) is supplemented by adding the following new section:
37

38 **(*****)**

39 This work shall consist of existing subgrade soil removal for pipe installation using
40 AirSpade and vector truck equipment where identified on Plans. Use air compressed
41 AirSpade tool to fracture subgrade soil to 2’ depth for removal with vector truck. Do not
42 use water jetting techniques in combination with AirSpade for excavation. Take care to
43 avoid damaging existing trees and their root structures, including root sheath. Do not
44 allow exposed roots to dry out, maintain exposed roots in a moist condition by wrapping
45 with wet burlap or canvas. AirSpade work shall be conducted by an ISA certified arborist.
46
47
48
49
50

1 **7-09.5 Payment**

2 Section 7-09.5 is supplemented with the following:

3
4 (*****)

5 “Water Connection to Irrigation”, lump sum.

6
7 All costs for furnishing, installing, connecting, and testing the water main from the 1” water
8 service meter to the irrigation point of connection as detailed in the Plans, and herein
9 specified, shall be included in the lump sum price for the complete water connection. This
10 includes all costs for trench excavation, AirSpade excavation, bedding, laying and jointing 2”
11 PVC pipe and fittings, 4” PVC sleeve, backfilling, compaction, testing, disinfecting the
12 pipeline, flushing, dechlorination of water used for flushing, and cleanup.

13
14
15 **7-15 SERVICE CONNECTIONS**

16
17 **7-15.1 Description**

18 Section 7-15.1 is supplemented with the following:

19
20 (*****)

21 This Work consists of installing new water meters, meter setters, appurtenances, meter
22 boxes, and providing slip-resistant covers.

23
24 **7-15.3 Construction Requirements**

25 Section 7-15.3 is supplemented with the following:

26
27 (*****)

28 The water system improvements shall be constructed as shown in the Plans and in
29 accordance with current City of Kirkland Pre-Approved Plans, Section 2 – Water System,
30 available at [http://www.kirklandwa.gov/depart/Public_Works/Development/Pre-](http://www.kirklandwa.gov/depart/Public_Works/Development/Pre-Approved_Plans)
31 [Approved_Plans](http://www.kirklandwa.gov/depart/Public_Works/Development/Pre-Approved_Plans).

32
33 **7-15.5 Payment**

34 Section 7-15.5 is supplemented with the following:

35
36 (*****)

37 “Service Connection _ In. Diam.”, per each.
38 The unit Contract price per each for “Service Connection _ In. Diam.” shall be full pay for all
39 Work to install the service connection, including but not limited to, excavating, tapping the
40 main, laying and jointing the pipe and fittings and appurtenances, backfilling, testing, flushing,
41 disinfection of the service connection, coordination with the City of Kirkland Water
42 Department, new meter boxes, providing slip-resistant water meter box covers, and
43 connecting new service piping or fittings between the water meter box and the existing water
44 main.

45
46 **7-20 DETENTION VAULT**

47 Section 7-20 is added as follows:

1 (*****)

2 **7-20.1 Description**

3 This Work consists of constructing a stormwater vault which includes a chamber, concrete baffle,
4 outlet control Structure, ladders, pipes, fittings, and appurtenances within the chamber in
5 accordance with these Specifications and in accordance with the Plans or as established by the
6 Engineer.

7
8 It is understood that the Plans are schematic and do not show all details of the Work required. It
9 shall be the Contractor's responsibility to determine the full extent of all labor, materials and
10 equipment required to accomplish the intent of the Plans and to accomplish said intent in
11 accordance with accepted trade practices.

12
13 **7-20.2 Materials**

14
15 **7-20.2(1) General**

16 This Section is a partial list of materials needed for the stormwater vault. It shall be the
17 Contractor's responsibility to determine the full extent of all materials required to provide a
18 complete and operational stormwater vault, which is in accordance with the Plans, applicable
19 State requirements, and these Specifications.

20
21 **7-20.2(2) Vault**

22 The stormwater vault shall be a precast concrete Structure manufactured by:

23
24 Oldcastle Precast, Inc.

25
26 or approved equivalent, and subject to the requirements in the Plans and these
27 Specifications.

28
29 Formwork for fabrication: Provide forms and, where required, form facing materials of metal,
30 plastic, wood or another acceptable material that is nonreactive with concrete and will
31 produce smooth finish surfaces.

32
33 **Vault Design**

34 Loads: AASHTO H20-44 wheel loading and traffic loading because the vault shall be
35 located beneath a maintenance drive subject to vehicular traffic. Minimum of 30%
36 impact loading. Other loading: 80 pcf E.F.P. lateral soil pressure due to potential high
37 water table.

38
39 Standards: ASTM C857, *Standard Practice for Minimum Structural Design Loading for*
40 *Underground Precast Concrete Utility Structures*, and ACI-318-02 Building Code

41
42 **Reinforcement**

43 Reinforcing Bars: ASTM A615M, *Standard Specification for Deformed and Plain*
44 *Carbon-Steel Bars for Concrete Reinforcement*, Grade 60 (ASTM A 615M, Grade 40),
45 deformed.

46
47 Steel-Welded Wire Fabric: ASTM A185M, *Standard Specification for Steel Welded Wire*
48 *Reinforcement, Plain, for Concrete*, plain, cold drawn.

1 Supports for Reinforcement: Provide supports for reinforcement, including bolsters,
2 chairs, spacers and other devices for spacing, supporting and fastening reinforcing,
3 complying with CRSI recommendations.
4

5 **Concrete Materials**

6 Portland Cement: ASTM C150M, *Standard Specification for Portland Cement*, Type III.
7

8 Use only one brand and type of cement throughout the project, unless otherwise
9 acceptable to the Engineer.
10

11 Normal-Weight Aggregates: ASTM C33M, *Standard Specification for Concrete*
12 *Aggregates*, Class 5S. Provide aggregates from a single source.
13

14 Water: Potable.
15

16 Admixtures, General: Provide admixtures for concrete that contain not more than 0.1
17 percent chloride ions by mass of Portland cement or cementitious material.
18

19 Air-Entraining Admixture: ASTM C260M, *Standard Specification for Air-Entraining*
20 *Admixtures for Concrete*, certified by manufacturer to be compatible with other required
21 admixtures.
22

23 Water-Reducing Admixture: ASTM C494M, *Standard Specification for Chemical*
24 *admixtures for Concrete*, Type A.
25

26 High-Range, Water-Reducing Admixture: ASTM C494M, Type F.
27

28 Water-Reducing and Accelerating Admixture: ASTM C494M, Type E.
29

30 Water-Reducing and Retarding Admixture: ASTM C494M, Type D.
31

32 **7-20.2(3) Ladders and Steps**

33 Materials and construction shall be in accordance with Standard Specifications 7-05 and City
34 of Kirkland Standard Plan CK-S.14, and made of non-corrosive materials.
35

36 **7-20.2(4) Outlet Control Structure, Pipes and Fittings**

37 All metal parts shall be corrosion resistant, either aluminum or stainless steel
38

39 **7-20.3 Construction Requirements**

40 **7-20.3(1) Structural Plans**

41 The Contractor shall coordinate the design of the precast concrete vault manufacturer, and
42 shall have Structural Plans of the vault prepared and stamped by a licensed Structural
43 Engineer. The Structural Plans and calculations shall be submitted to the Engineer, and the
44 Contractor shall obtain approval from the Engineer prior to factory construction of the precast
45 vault. Submittal of Working Drawings shall be in accordance with Section 6-01.9. Six sets
46 of Working Drawings shall be submitted unless otherwise directed by the Engineer.
47
48

1 **7-20.3(2) Vaults**

2 The vault when constructed shall be free of leaks and construction joints shall be provided
3 with water stops.

4
5 **Concrete Mixes for Vault**

6 Prepare design mixes for each type of concrete required. Limit use of fly ash and silica
7 fume to not exceed, in aggregate, 25 percent of the Portland cement by weight. Design
8 mixes may be prepared by qualified precast manufacturing plant personnel or at the
9 precast fabricator's option, a qualified independent testing agency. Normal-Weight
10 Concrete: Proportion mixes by either laboratory trial batch or field test data methods
11 according to ACI 211.1 and ACI 301, using materials to be used on the project, to provide
12 normal-weight concrete with the following properties: Compressive Strength (28-Day):
13 4500 psi (41.4 Mpa) minimum.

14
15 Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight
16 concrete at point of placement having an air content as follows, with a tolerance of plus
17 or minus 1-1/2 percent: Air Content: 5 percent for 3/4-inch minus (19-mm) maximum
18 aggregate.

19
20 Other Admixtures: Use water-reducing, high-range water-reducing, water reducing and
21 accelerating, or water-reducing and retarding admixtures according to manufacturer's
22 directions.

23
24 Concrete-Mix Adjustments: Concrete-mix design adjustments may be proposed when
25 characteristics of materials, project conditions, weather, test results, or other
26 circumstances warrant.

27
28 **Fabrication of Precast Concrete Vault**

29 Formwork: Accurately construct forms, mortar tight, of sufficient strength to withstand
30 pressures due to concrete placing operations and temperature changes. Maintain
31 formwork to provide completed precast concrete units of shapes, lines, and dimensions
32 indicated.

33
34 Reinforcement: Comply with the recommendations of CRSI's "Manual of Standard
35 Practice" for fabricating, placing, and supporting reinforcement. Clean reinforcement of
36 loose rust and mill scale, earth, and other materials that reduce or destroy the bond with
37 concrete. Accurately position, support and secure reinforcement against displacement
38 by formwork, construction, or concrete placement operations. Locate and support
39 reinforcement by metal chairs, runners, bolsters, spacers and hangers, as required.
40 Place reinforcement to obtain at least the minimum coverages for concrete protection.
41 Arrange, space, and securely tie bars and bar supports to hold reinforcement in position
42 while placing concrete. Set wire ties so ends are directed into concrete, not toward
43 exposed concrete surfaces. Install welded wire fabric in lengths as long as practicable.
44 Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of
45 adjoining widths to prevent continuous laps in either direction.

46
47 Concrete Mixing: Comply with requirements and with ASTM C94M, *Standard*
48 *Specification for Ready-Mixed Concrete*. Following concrete batching, no additional
49 water may be added.

1 Concrete Placement: Place concrete in a continuous operation to prevent seams or
2 planes of weakness from forming in precast units. Comply with requirements of ACI
3 304R for measuring, mixing, transporting, and placing concrete. Thoroughly consolidate
4 placed concrete by internal and external vibration without dislocating or damaging
5 reinforcement and built-in items. Use equipment and procedures complying with ACI
6 309R

7
8 Identify pickup points of precast concrete units and orientation in Structure with
9 permanent markings, complying with markings indicated on final Shop Drawings.
10 Imprint casting date on each precast unit on a surface that will not show in the finished
11 Structure.

12
13 Finish formed surfaces of precast concrete as indicated for each type of unit, and as
14 follows:

15
16 Standard Finish: Normal plant-run finish produced in forms that impart a smooth finish
17 to concrete. Small surface holes caused by air bubbles, normal color variations, and
18 form joint marks, and minor chips and spalls will be tolerated. Major or unsightly
19 imperfections, honeycombs, irregular surfaces, or structural defects are not permitted.
20

21 **Examination**

22 Prior to installation of the precast concrete vault, the Contractor shall examine the vault
23 for compliance with dimensional and size requirements, including installation tolerances,
24 true and level bearing surfaces, and other conditions affecting performance of precast
25 concrete units. Any dimensional sizes and finishes not in accordance with the
26 requirements shall be corrected by the Contractor prior to installation.
27

28 **Excavation for Vault and Installation**

29 The excavated area for the vault shall be dug with a minimum of 3 feet clearance around
30 all walls to avoid obstructions when setting the vault. Temporary shoring or extra
31 excavation shall be provided by the Contractor in accordance with Section 7-08.3(1)B of
32 the Standard Specifications. All shoring used for the installation of the vault shall be
33 paid as the "Shoring or Extra Excavation Class A – Detention Vault" Bid item in Section
34 2-09. Extra care shall be taken to protect the nearby water main from damage or
35 disturbance.
36

37 The vault shall be placed upon 12 inches minimum compacted thickness of crushed
38 surfacing top course, or if water is present, on clean 2-inch minus railroad ballast, as a
39 gravel foundation. Install precast units level, plumb, square, and true. Shore and brace
40 precast concrete units to maintain location, stability, and alignment until permanent
41 connections are installed. The correct placement of the storm vault is important in order
42 to form a smooth surface.
43

44 Backfill around vaults should consist of pea gravel. In no case shall the material be
45 saturated soil, or contain rocks in excess of 1-1/2" size, or organic materials. No voids
46 should remain between the vault walls and backfill material.
47

48 Backfilling should be done after vault is completely assembled making certain to
49 compact the backfill progressively from the bottom to the top surface. Compaction of
50 backfill shall be in accordance with Section 2-03.3(14)C, Method C, of the Standard
51 Specifications.

1
2 Grouting of all risers, covers, conduit of specific sections of vaults is the responsibility of
3 the Contractor. A recommended cement grout consists of two parts sand and one part
4 cement and sufficient water to form a plastic slurry. Apply in a manner to ensure filling of
5 all voids in the joint being sealed. Add sufficient water to form a plastic slurry.
6

7 **7-20.4 Measurement**

8
9 No specific unit of measurement will apply for the lump sum item stormwater detention vault but
10 will be the sum total of all items for a complete system to be furnished and installed.
11

12 Shoring or extra excavation for the stormwater detention vault will be measured as specified in
13 Section 2-09.4.
14

15 **7-20.5 Payment**

16 Payment will be made in accordance with Section 1-04.1 for the following Bid items in the
17 Proposal:
18

19 “Detention Vault”, per lump sum.

20 The lump sum Contract payment for “Detention Vault” shall be full compensation for
21 furnishing all labor, materials, and equipment necessary to provide a complete and functional
22 stormwater vault. This includes but is not limited to, design, construction of the pre-cast
23 concrete vault and gravel foundation, baffle, pipes, riser, ladders, fittings and appurtenances
24 within the vault, the access openings and lids, testing of the vault, and all Work necessary to
25 provide a complete and functional vault, including, dewatering, foundation, backfill, and
26 compaction, and temporary erosion control.
27

28 All costs for dewatering, treatment, and all related BMP’s required to remove excess water
29 from the vault site, in compliance with these Special Provisions, shall be included in the
30 applicable vault excavation items of Work.
31

32 Payment for structure excavation for the vault shall be by the unit Contract price per cubic
33 yard for “Structure Excavation Class A Incl. Haul”.

34
35 Payment for “Shoring or Extra Excavation Cl. A – Detention Vault”, lump sum will be as
36 specified in Section 2-09.5.
37

38
39
40 **END OF DIVISION 7**
41

1 **DIVISION 8**
2 **MISCELLANEOUS CONSTRUCTION**

3
4 **8-01 EROSION CONTROL AND WATER POLLUTION CONTROL**

5
6 **8-01.1 Description**

7 Section 8-01.1 is supplemented with the following:

8
9 *(June 20, 2017 COK GSP)*

10 Implementation of appropriate TESC BMP's at the appropriate construction phases is very
11 important to prevent siltation of the subgrade, aggregate courses, and final permeable
12 pavement. The Contractor shall install and maintain all temporary and permanent erosion
13 control measures and Best Management Practices (BMPs) in accordance with the Contract
14 Documents, Standard Specifications, Permit Conditions, the Contractors "Stormwater
15 Pollution Prevention Plan" (SWPPP) and as directed by the Engineer prior to clearing,
16 grubbing, or grading or as necessary, as clearing and grading progress. Such measures shall
17 include, but are not necessarily limited to:

- 18
19
 - Commercial construction entrances per CK-E.02.
 - Quarry Spall outfall pads for temporary erosion control
 - Rock, Wattle, Compost sock check dams
 - Straw mulch, netting and tackifier
 - Concrete wash
 - Baker tanks and/or Settling ponds
 - Stabilized construction entrance / exit
 - Inlet protection on existing and proposed drainage structures
 - Reinforced silt fencing
 - Plastic Covering
 - Temporary pipe slope drains
 - Temporary HMA Curb
 - Disposal of sediments and materials
 - TESC seeding
 - Maintenance of BMPs including in the event of emergencies and as weather and field conditions dictate; and also including installation of additional BMPs which may become required as field and weather conditions evolve.
 - Street sweeping and Cleaning
 - ESC Lead per 8-01 of the Standard Specifications
 - All materials, tools and equipment necessary to meet these requirements

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39
40 The Contractor shall provide erosion control as required for all stockpiled materials at no cost
41 to the Contracting Agency. The Engineer, in the event of an emergency, and as weather and
42 field conditions dictate, may require additional erosion controls and BMPs.

43
44 **Site Specific BMPs and SWPPP Plan**

45 Temporary Erosion / Water Pollution Control notes and performance criteria are noted in the
46 Contract Documents. The Contractor shall submit his or her own Storm Water Pollution
47 Prevention Plan (SWPPP) to the Contracting Agency for review and approval prior to the
48 commencement of clearing, grubbing, or grading activities.

1 Water quality testing and discharge volume reporting required by the project permits shall be
2 performed by the Contractor and is a condition of approval of the SWPPP. The reporting data
3 shall be provided to the Engineer as soon as practical, at regular intervals and prior to
4 reporting deadlines established in the permits. The Contractor will provide a copy of the
5 reporting information within 24 hours of a request to do so by the Engineer. All costs to
6 perform these reporting requirements are to be included in the lump sum contract price for
7 "Erosion/Water Pollution Control".
8

9 **8-01.3 Construction Requirements**

10 Section 8-01.3 is supplemented with the following:

11
12 *(June 20, 2017 COK GSP)*

13 The Contractor shall bear sole responsibility for damage to completed portions of the project
14 and to property located off the project caused by erosion, siltation, runoff, or other related
15 items during the construction of the project. The Contractor shall also bear sole responsibility
16 for any pollution of rivers, streams, groundwater, or other water that may occur as a result of
17 construction operations.
18

19 Any area not covered with established, stable vegetation where no further work is anticipated
20 for a period of 15 days, shall be immediately stabilized with the approved erosion and
21 sedimentation control methods (e.g., seeding and mulching, straw). Where seeding for
22 temporary erosion control is required, fast germinating grasses shall be applied at an
23 appropriate rate (e.g., perennial rye applied at approximately 80 pounds per acre).
24

25 At no time shall more than 1 foot of sediment be allowed to accumulate within a catch basin.
26 All catch basins and conveyance lines shall be cleaned at a time designated by the
27 Contracting Agency Construction Inspector.
28

29 The cleaning operation shall not flush sediment-laden water into the downstream system.
30 The cleaning shall be conducted using an approved vacuum truck capable of jet rodding the
31 lines. The collection and disposal of the sediment shall be the responsibility of the Contractor
32 at no cost to the Contracting Agency.
33

34 **8-01.3(1) General**

35 **8-01.3(1)A Submittals**

36 Section 8-01.3(1)A is supplemented with the following:

37
38
39 *(*****)*

40 **Stormwater Pollution Prevention Plan**

41 The Contractor shall prepare a Construction Stormwater Pollution Prevention Plan
42 (CSWPPP) in accordance with Department of Ecology and City of Kirkland
43 requirements.
44

45 The Contractor shall incorporate the CSWPPP implementation schedule into the
46 Contractor's progress schedule. The CSWPPP and implementation schedule shall
47 be submitted in accordance with Sections 1-05.3 and 1-08.3.
48

49 In addition, the CSWPPP shall outline the procedures to be used to prevent high
50 pH stormwater. The plan shall include how the pH of the water will be maintained

1 between pH 6.5 and pH 8.5 prior to being discharged from the project or entering
2 surface waters. Prior to beginning any concrete or grinding work, the Contractor
3 shall submit the plan, for the Engineer’s review and approval.
4

5 The CSWPPP template can be found at the following link:
6

7 [https://www.kirklandwa.gov/Government/Departments/Public-Works-
8 Department/PW-Forms/CSWPPP](https://www.kirklandwa.gov/Government/Departments/Public-Works-Department/PW-Forms/CSWPPP)
9

10 The CSWPPP is considered a “living” document that shall be revised to account for
11 additional erosion control/pollution prevention BMPs as they become necessary
12 and are implemented in the field during project construction. A copy of the most
13 current CSWPPP shall remain on-site at all times and an additional copy shall be
14 forwarded to the Engineer. At the Contractor’s preference, revisions to the
15 CSWPPP may be forwarded to the Engineer rather than submitting a complete
16 document. Revisions to the CSWPPP may be kept on-site in a file along with the
17 original CSWPPP document.
18

19 ***(June 20, 2017 COK GSP)***

20 **8-01.3(1)B Erosion and Sediment Control (ESC) Lead**

21 Supplement this the second paragraph with the following:
22

23 3. Inspecting all on-site erosion and sediment control BMPs at least once every
24 five working days and within 24 hours of every runoff event. A SWPPP
25 Inspection report or form shall be prepared for each inspection and shall be
26 included in the SWPPP file. A copy of each SWPPP Inspection report or form
27 shall be submitted to the Engineer no later than the end of the next working day
28 following the inspection. The report or form shall include, but not be limited to
29 the following:

- 30 a. When, where, and how BMPs were installed, maintained, modified,
31 and removed.
- 32 b. Observations of BMP effectiveness and proper placement.
- 33 c. Recommendations for improving future BMP performance with
34 upgraded or replacement BMPs when inspections reveal SWPPP
35 inadequacies.
- 36 d. Approximate amount of precipitation since last inspection and when
37 last inspection was performed.

38
39 4. Updating and maintaining a SWPPP file on site that includes, but is not limited
40 to the following:

- 41 a. SWPPP Inspection Reports or Forms.
- 42 b. SWPPP narrative.
- 43 c. Other applicable permits.

44
45 ***(June 20, 2017 COK GSP)***

46 **8-01.3(1)C Water Management**

47 Section 8-01.3(1)C is supplemented with the following:
48

49 The Contractor will be responsible for meeting the SWPPP requirements.
50

1 The Bid Item "Erosion/Water Pollution Control" shall include the cost of
2 providing temporary detention/retention facilities as illustrated in the
3 Contractor's SWPPP Plan as well as modifications, additions and removals of
4 such facility as dictated by the Contractor's sequence of work and may include,
5 but are not limited to:
6

- 7 1. Temporary detention/retention facilities such as ponds, Baker Tanks, or
8 other facilities.
- 9 2. If any permanent stormwater facilities are utilized, such as the detention
10 vault, for SWPPP compliance, the Contractor shall remove
11 accumulated sediment and clean the facility prior to final acceptance at
12 no additional cost to the Contracting Agency.
- 13 3. Temporary facilities such as wheel wash stations or similar.
- 14 4. Temporary construction entrances.

15
16 No additional compensation shall be made for construction, alteration, removal,
17 maintenance, and any additional requirements necessary for "Erosion/Water
18 Pollution Control". No additional compensation shall be made for conflicts with
19 existing or proposed improvements or construction sequencing of work when
20 facilities are utilized to meet permit requirements.
21

22 (*****)

23 **8-01.3(1)F Stormwater Sampling**

24 Section 8-01.3(1)F is added as follows:
25

26 Stormwater sampling shall be performed by the Contractor or authorized
27 representative at the frequencies required in the Construction Stormwater General
28 Permit (weekly at minimum). Samples shall be analyzed for turbidity and pH in
29 accordance with the Construction Stormwater General Permit. Sampling shall be
30 conducted in accordance with the EPA 180.1 analytical method and the Washington
31 State Department of Ecology's *How to do Stormwater Monitoring: A guide for*
32 *construction sites*, available online at <http://www.ecy.wa.gov/pubs/0610020.pdf>.
33 Samples shall be taken at the point of discharge from the site. Reports of the
34 sampling results shall be recorded in the project SWPPP and shall be submitted
35 monthly to the Contracting Agency and the Washington State Department of
36 Ecology. The DMR forms are mailed to permittees when permit coverage is granted
37 for the project. If there are no discharges during the month, the Contractor is still
38 required to submit a form stating "no discharge". The sampling results shall be
39 submitted via mail to:
40

41 Department of Ecology
42 Water Quality Program - Construction Stormwater
43 PO Box 47696
44 Olympia, Washington 98504-7696
45

46 Ecology must receive DMR's within 15 days after the end of each month. If the
47 permittee monitors more frequently than required by the permit, these results also
48 need to be submitted in the DMR.
49

50 Corrective measures shall be taken if benchmark values are exceeded.
51

1 The key benchmark turbidity value is 25 nephelometric turbidity units (NTU) for the
2 downstream receiving water body. If the 25 NTU benchmark is exceeded in any
3 sample collected from the discharge point, the following steps will be conducted:
4

- 5 a. Ensure all BMPs specified in this SWPPP are installed and functioning as
6 intended.
- 7
- 8 b. Assess whether additional BMPs should be implemented, and document
9 modified BMPs in the SWPPP as necessary.
- 10
- 11 c. Sample discharge daily until the discharge is 25 NTU or lower.
- 12

13 If the turbidity exceeds 250 NTU at any time, the following steps will be conducted:
14

- 15 a. Notify Ecology by phone within 24 hours of analysis.
- 16
- 17 b. Continue sampling daily until the discharge is 25 NTU or lower. Initiate
18 additional treatment BMPs such as off-site treatment, infiltration, filtration
19 and chemical treatment within 24 hours, and implement those additional
20 treatment BMPs as soon as possible, but within a minimum of 7 days.
21
- 22 1. Describe inspection results and remedial actions taken in the site log
23 book and in monthly discharge monitoring reports.
- 24

25 Sampling and monitoring for pH will occur during the phase of construction when
26 concrete pouring will be conducted until fully cured (3 weeks from pour). Samples
27 will be collected weekly at all discharge points prior to discharge to surface water.
28 Samples will be analyzed for pH using a calibrated pH meter and recorded in the
29 site log book.
30

31 The key benchmark pH value for stormwater is a maximum of 8.0. If a pH greater
32 than 8.0 is measured at a discharge point that has the potential to discharge to
33 surface water, the following steps will be conducted:
34

- 35 a. Assess whether additional BMPs should be implemented and whether
36 associated revisions to the SWPPP are necessary.
- 37
- 38 b. Stop (detain) all discharges from leaving the site and entering surface
39 waters or storm drains if the pH is greater than 8.5.
- 40
- 41 c. Sample sedimentation pond the following day, and if the pH exceeds 8.0 for
42 the second consecutive day, implement CO₂ sparging treatment.
- 43
- 44 d. Sample and measure pH daily until there are 3 consecutive pH
45 measurements less than 8.0.
- 46
- 47 e. If there are 3 consecutive pH measurements greater than 8.0, notify the
48 Washington Department of Ecology by phone within 24 hours of the 3rd
49 measurement exceeding a pH of 8.0 and initiate discussions with Ecology
50 regarding additional treatment BMPs.
- 51

1 f. Describe inspection results and remedial actions that are taken in the site
2 log book and in monthly Discharge Monitoring Reports.
3

4 **8-01.5 Payment**

5 Section 8-01.5 is supplemented with the following:
6

7 (*****)

8 "Erosion/Water Pollution Control", lump sum.

9 "Erosion/Water Pollution Control" shall also be full pay for all Work and materials necessary
10 to develop and implement the SWPPP and achieve the runoff turbidity and pH levels
11 compliant with the identified benchmarks and permit requirements, as approved by the
12 Engineer. All erosion control measures are included in "Erosion/Water Pollution Control",
13 except as otherwise noted in the Contract Documents.
14

15 **8-02 ROADSIDE RESTORATION**

16 **8-02.1 Description**

17 Section 8-02.1 is supplemented by deleting the first paragraph and replacing with the following:
18

19 (*****)

20 This work shall consist of furnishing and installing Topsoil Type A, compost, wood chip mulch,
21 soil amendments, trees, shrubs, groundcovers, sod lawn installation, root barrier, watering,
22 controlling weeds and performing plant establishment and property restoration activities in
23 accordance with these Specifications and as shown in the Plans or as directed by the
24 Engineer.
25
26

27 **8-02.2 Materials**

28 Section 8-02.2 is supplemented by adding the following:
29

30 Materials shall meet the requirements of the following sections:
31

32	Topsoil Type A	9-14.2
33	Fertilizer	9-14.4
34	Mulch and Amendments	9-14.5
35	Plant Materials	9-14.7
36	Stakes, Guys, and Wrapping	9-14.8
37	Root Barrier	9-14.9
38	Soil Cell	9-37

39 **8-02.3 Construction Requirements**

40 **8-02.3(1) Responsibility During Construction**

41 Section 8-02.3(1) is supplemented with the following:
42

43 (*****)

44 The Contractor shall provide all plants of the size, species, variety, and quality noted and
45 specified. If unavailable, the Contractor shall notify the Engineer in writing immediately
46 and provide the names and telephone numbers of five (5) nursery suppliers that have
47 been contacted. If substitution should be permitted, it can be made only with the prior
48 written approval by the Engineer.
49
50

1
2 The Contractor shall report to the Engineer all deviation and/or conflicts between
3 Contract Documents and site conditions. Extra Work arising from failure to do so shall
4 be done at the Contractor's expense.

5
6 Contractor is responsible for ensuring positive drainage in all landscape areas.
7

8 **8-02.3(2) Work Plans**

9 Section 8-02.3(2) is supplemented with the following:

10
11 (*****)

12 The Contractor shall provide all plants of the size, species, variety, and quality noted and
13 specified. If unavailable, the Contractor shall notify the Engineer in writing immediately
14 and provide the names and telephone numbers of five (5) nursery suppliers that have
15 been contacted. If substitution should be permitted, it can be made only with the prior
16 written approval by the Engineer.
17

18 Submit documentation of hand watering and/or temporary irrigation methods required to
19 establish and maintain plant materials in a healthy growing condition.
20

21 **8-02.3(4) Topsoil**

22 The last sentence of the last paragraph of Section 8-02.3(4) is deleted and replaced with the
23 following:

24
25 (*****)

26 After the topsoil has been spread, all large clods, hard lumps and rocks one (1) inch in
27 diameter and larger, and litter shall be raked up, removed, and disposed of by the
28 Contractor.
29

30 **8-02.3(5) Roadside Seeding, Lawn, and Planting Area Preparation**

31 Section 8-02.3(5) is supplemented with the following:

32
33 (*****)

34 Tree, shrub and groundcover planting areas shall be brought to a uniform finish grade
35 of 3-inches below adjacent walks, curbs, junction and valve boxes, catch basins, and
36 driveways. Sod lawn installation areas shall be brought to a uniform finish grade of 1-
37 inch below adjacent walks, curbs, junction and valve boxes, catch basins, and
38 driveways. Wood chip mulch installation areas shall be brought to a uniform grade at 3-
39 inches below adjacent walks, curbs, junction and valve boxes, catch basins and
40 driveways. Finish grade is defined as top of topsoil prior to installation of mulch or sod.
41

42 **8-02.3(5)B Lawn Area Preparation**

43 Section 8-02.3(5)B is supplemented by deleting the entire section and replacing with the
44 following:

45
46 (*****)

47 Prepare subgrade and soil as shown on the Plans.

48 All grades shall flow smoothly into one another and produce positive stormwater
49 drainage. The Contractor is responsible for any adverse drainage conditions that may

1 affect plant growth unless the Contractor contacts the Engineer immediately, indicating
2 any possible problem.

3
4 All sod lawn areas shall be finish graded and accepted by the Engineer before
5 commencement of planting. Drag to even grade, remove debris and rocks larger than
6 one (1) inch in diameter, and roll for firmness prior to planting.

7
8 **8-02.3(6) Mulch and Amendments**

9
10 **8-02.3(6)B Fertilizers**

11 Section 8-02.3(6)B is supplemented as follows:

12 (*****)

13 Submit fertilizer analysis and manufacturers recommendations for application for
14 Engineer review prior to installation.

15
16 Install 10-20-20 lawn starter fertilizer at the rate of 10 pounds per 1000 square feet in
17 sod lawn areas.

18
19 **8-02.3(7) Layout of Planting, Lawn and Seeding Areas**

20 Section 8-02.3(7) is supplemented by deleting entire section and revising by adding the
21 following:

22 (*****)

23
24 Field stake or otherwise mark the planting location of all trees and the perimeter of all
25 planting areas for approval by the Engineer prior to installation.

26
27 Tree locations shown in the Plans shall be considered approximate unless shown with
28 stationing, offset distance or other layout references.

29
30 **8-02.3(10) Lawn Installation**

31
32 **8-02.3(10)B Lawn Seeding and Sodding**

33 Section 8-02.3(10)B is supplemented as follows:

34 (*****)

35
36 Ensure that the soil immediately ahead of sod installer is moist. Sod shall be laid tight
37 with no gaps. Allowance shall be made for shrinkage. Lay sod with long edges
38 perpendicular to primary slope. Roll sod with a 200-pound roller after installation to
39 ensure proper contact between soil and sod. Final rolling must provide a uniform surface.
40 After final rolling, the sod lawn installation shall be watered.

41
42 **8-02.3(11) Mulch**

43 Section 8-02.3(11) is supplemented as follows:

44 (*****)

45
46 Install top of mulch flush to top of adjacent junction and valve boxes, curbs, and paving
47 edges.

48
49 **8-02.3(11)D Wood Chip Mulch**

50 Section 8-02.3(11)D is added as follows:

1
2 (*****)

3 The Contractor shall apply wood chip mulch to the depth specified and where shown in
4 the Plans or as specified in the Special Provisions.
5

6 The Contractor shall complete final grading and placement/incorporation of soil
7 amendments within the planting area prior to placement of mulch. Areas receiving wood
8 chip mulch shall be bare soil or vegetation free before application, except where trees
9 and other plants are specifically identified in the Plans or designated by the Engineer to
10 be saved and protected.

11
12 Wood chip mulch shall be placed to a uniform non-compacted depth of 3 inches over all
13 planting areas unless otherwise specified. Mulch shall be feathered to the base of the
14 plant and flush to curbs and pavement edges.
15

16 Any contamination of the mulch due to the Contractor's operations shall be corrected to
17 its former condition at no additional cost to the Contracting Agency. Mulch placed to a
18 thickness greater than specified shall be at no additional cost to the Contracting agency.
19

20 The Contractor shall keep plant material crowns, runners, and branches free of mulch
21 at all times.
22

23 **8-02.3(17) Property Restoration**

24 Section 8-02.3(17) is added as follows:
25

26 (*****)

27 The Contractor shall blend the new construction into developed private property adjacent
28 to the project using similar materials to those existing, (e.g. sod shall be used to match
29 into lawn areas, bark shall be used to match into planting areas, topsoil shall be used to
30 match into garden areas, Crushed Surfacing for Trail Mix in accordance with Section 4-
31 04 shall be used to match the Cross Kirkland Corridor Trail (CKC), etc.).
32

33 If the items used for the restoration have pay items in the Contract, they will be paid
34 under those items.
35

36 The Contractor shall repair and restore existing irrigation system damaged by
37 construction. Repair and restoration work shall be as directed by Engineer.
38

39 The Contractor shall verify and document, in the presence of the adjacent property
40 owner and Engineer, operation, location, and continuity of existing private irrigation
41 system prior to excavation and removal.
42

43 Prior to the commencement of the Contractor's Work on the pedestrian bridge, walls,
44 and utilities adjacent to the CKC, the Contractor shall take a photographic record of the
45 existing condition of the CKC in the presence of the Engineer. Following completion of
46 Work adjacent to the CKC, the Contractor shall repair and restore the CKC to an
47 equivalent condition or better as approved by the Engineer.
48

49 **8-02.3(18) Root Barrier**

50 Section 8-02.3(18) is added as follows:

1
2 (*****)

3 Install root barrier as shown on Plans and per manufacturers written recommendations.
4 Top of root barrier shall be installed 2-inches below top of adjacent paving and abut
5 paving edge without undermining adjacent pavement.
6

7 **8-02.3(19) Project Conditions**

8 Section 8-02.3(19) is added as follows:

9 Before proceeding with Work in this Section, the Contractor shall carefully check and
10 verify all dimensions, quantities, and grade elevations, and inform the Engineer
11 immediately of any discrepancies.
12

13 The Contractor shall also carefully examine the civil and survey Plans to become familiar
14 with the existing underground conditions before digging. All locations of aboveground
15 and underground utility lines, infrastructure and other improvements shall be verified,
16 and proper precautions shall be taken as necessary to avoid damage to such
17 improvements during construction.
18

19 In the event of conflict between existing and new improvements notify the Engineer in
20 writing and obtain written confirmation of any changes to the Work prior to proceeding.
21

22 When new or previously existing utility lines are encountered during the course of
23 excavation, notify the Engineer in writing and make recommendations as to remedial
24 action. Proceed with Work in that area only upon approval of appropriate remedial
25 action.
26

27 **8-02.4 Measurement**

28 Section 8-02.4 is supplemented with the following:

29
30 (*****)

31 Topsoil Type A will be measured by cubic yard in the haul conveyance at point of delivery.
32

33 Wood Chip Mulch will be measured by cubic yard in the haul conveyance at point of
34 delivery.
35

36 Root Barrier will be measured by the linear foot.
37

38 **8-02.5 Payment**

39 Section 8-02.5 supplement by adding the following:

40
41 (*****)

42 "Topsoil Type A" per cubic yard.
43

44 The unit contract price per cubic yard shall be full pay for providing the material loading,
45 hauling, stockpiling, weed control, placing, spreading, cultivation and compacting Topsoil
46 Type A. The cost for soil tests soil amendments and fertilizer are incidental to the "Topsoil
47 Type A" contract bid amount.
48

49 "Wood Chip Mulch" per cubic yard.
50

1 The unit contract price per cubic yard shall be full pay for providing material, loading,
2 hauling, placing, spreading, and compacting Wood Chip Mulch.

3
4 “_ Depth Root Barrier,” per linear foot.

5
6 The unit price for “_ Depth Root Barrier” shall be full pay for providing and installing the
7 root barrier as shown on Plans.

8
9 “Property Restoration”, lump sum.

10
11 The lump sum Contract price for “Property Restoration” shall be full pay for the labor,
12 materials, and equipment necessary to restore areas adjacent to new construction as
13 described above. All additional materials and labor called for herein and which are
14 required to restore areas shall be included in the lump sum Contract price.

15 16 **8-03 IRRIGATION SYSTEMS**

17 18 **8-03.2 Materials**

19 Section 8-03.2 is supplemented by deleting entire section and revising by adding the
20 following:

21
22 (*****)

23 Materials shall meet the requirements of Sections 9-08.9, 9-15 and 9-29

24 25 **8-03.3 Construction Requirements**

26 27 **8-03.3(3) Piping**

28 Section 8-03.3(3) is revised by deleting the 4th sentence of the first paragraph and replacing
29 with:

30
31 (*****)

32 Irrigation sleeves shall extend a minimum of 1 (one) foot beyond the limits of pavement.

33 34 **8-03.3(5) Installation**

35 Section 8-03.3(5) is revised by deleting the first sentence and replacing with:

36
37 (*****)

38 No galvanized piping shall be used for conveyance of water in the irrigation system.

39 40 41 **8-04 CURBS, GUTTERS, AND SPILLWAYS**

42 43 **8-04.3 Construction Requirements**

44 45 **8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways**

46 Section 8-02.3(1) is supplemented with the following:

47
48 (*****)

49 Cement Concrete Curb and Gutter shall be constructed in accordance with City of
50 Kirkland Pre-Approved Plan CK-R.17.

1
2 Extruded Curb shall be constructed in accordance with City of Kirkland Pre-Approved
3 Plan CK-R.19.

4
5 Type 410C Cement Conc. Curb shall be constructed in accordance with the details
6 shown in the Plans.

7
8 **8-04.5 Payment**

9 Section 8-04.5 is supplemented with the following:

10
11 (*****)

12 "Cement Conc. Curb and Gutter", per linear foot.

13 "Extruded Curb", per linear foot.

14 "Type 410C Cement Conc. Curb", per linear foot.

15
16 **8-12 CHAIN LINK FENCE AND WIRE FENCE**

17
18 **8-12.3 Construction Requirements**

19 Section 8-12.3 is supplemented with the following:

20
21 (*****)

22 Chain link sidewalk safety rail shall be constructed at locations shown in the Plans in
23 accordance with City of Kirkland Pre-Approved Plan No. CK-R.51A. The panel height shall
24 be 4 feet high.

25
26 **8-12.4 Measurement**

27 Section 8-12.4 is supplemented with the following:

28
29 (*****)

30 Chain link sidewalk safety rail will be measured by the linear foot of completed rail, along the
31 ground line.

32
33 **8-12.3 Payment**

34 Section 8-12.3 is supplemented with the following:

35
36 (*****)

37 "Chain Link Sidewalk Safety Rail", per linear foot.

38
39 The unit Contract price per linear foot for "Chain Link Sidewalk Safety Rail" shall be full
40 payment for all costs for the specified Work including shop drawings, powder coating, cutting,
41 haul, welding, furnishing materials and installation on the walls.

42
43 **8-14 CEMENT CONCRETE SIDEWALKS**

44
45 **8-14.1 Description**

46 Section 8-14.1 is replaced with the following:

47
48 (*****)

49 This Work consists of constructing cement concrete sidewalks, depressed sidewalks,
50 transition sidewalks, thickened edge sidewalk, detectable warning surfaces, sidewalk coping,

1 cement concrete landing pad, and ADA ramps, in accordance with details shown in the
2 Plans, Standard Plans, these Specifications, the *Accessibility Guidelines for Pedestrian*
3 *Facilities in the Public Right-of-Way* August 8, 2023 (commonly referred to as the 2023
4 PROWAG), and in conformity to lines and grades shown in the Plans or as established by
5 the Engineer.
6

7 **8-14.2 Materials**

8 Section 8-14.2 is supplemented with the following:
9

10 **(*****)**

11 Cement concrete sidewalk, sidewalk coping, and thickened edge sidewalk shall be
12 constructed in accordance with Section 8-14 and Section 6-13 of these Specifications and
13 as shown on the Standard Details and details shown on the Plans.
14

15 **8-14.3 Construction Requirements**

16 The first paragraph of Section 8-14.3 is deleted and replaced with the following:
17

18 **(*****)**

19 The concrete in the sidewalks, the transitions, and curbs shall be air entrained concrete Class
20 4000 in accordance with the requirements of Section 6-02. No color or tint shall be added.
21

22 Section 8-14.3 is supplemented with the following:
23

24 *(April 3, 2017 WSDOT GSP)*

25 The Contractor shall request a pre-construction meeting with the Engineer to be held two to
26 five working days before any work can start on cement concrete sidewalks, curb ramps or
27 other pedestrian access routes to discuss construction requirements. Those attending shall
28 include:
29

- 30 1. The Contractor and Subcontractor in charge of constructing forms, and placing, and
31 finishing the cement concrete.
32
- 33 2. Engineer (or representative) and Project Inspectors for the cement concrete
34 sidewalk, curb ramp or pedestrian access route Work.
35

36 Items to be discussed in this meeting shall include, at a minimum, the following:
37

- 38 1. Slopes shown on the Plans.
- 39 2. Inspection
- 40
- 41 3. Traffic control
- 42
- 43 4. Pedestrian control, access routes and delineation
- 44
- 45 5. Accommodating utilities
- 46
- 47 6. Form work
- 48
- 49 7. Installation of detectable warning surfaces
50

1 8. Contractor ADA survey and ADA Feature as-built requirements

2
3 9. Cold Weather Protection

4
5 **(January 7, 2019 WSDOT GSP)**
6 **Layout and Conformance to Grades**

7 Using the information provided in the Contract documents, the Contractor shall lay out, grade,
8 and form each new curb ramp, sidewalk, and curb and gutter.

9
10 **8-14.3(3) Placing and Finishing Concrete**

11 The fourth paragraph of Section 8-14.3(3) shall be replaced with the following:

12 (December 28, 2006 COK GSP)

13 Sidewalk ramps shall be of the type specified in the Plans. The detectable warning
14 pattern shall have the truncated dome shape shown in the Standard Plans and shall be
15 installed by adding a manufactured material before the concrete has cured. Acceptable
16 manufacturers' products are shown on the Qualified Products List.

17
18 Section 8-14.3(3) is supplemented with the following:

19
20 (*****)

21 The Contractor shall submit a detailed Jointing Plan to the Engineer for review and
22 approval. The Jointing Plan shall include jointing around Structures and other surface
23 features. The Jointing Plan shall identify all types of joints.

24
25 Sidewalk and curb and gutter cannot be poured monolithically. An expansion joint will
26 be required when concrete sidewalk is surrounded by other hard surfaces (for example
27 driveways) or as directed by the Engineer.

28
29 Sidewalk shall not be poured in the rain, in accordance with City of Kirkland Policy R-8,
30 placing concrete or asphalt in adverse weather conditions.

31
32 **8-14.4 Measurement**

33 Section 8-14.4 is supplemented with the following:

34
35 (*****)

36 Cement concrete curb ramps will be measured per square yard for the complete curb ramp
37 type installed and includes the installation of the detectable warning surface.

38
39 **8-14.5 Payment**

40 Section 8-14.5 is supplemented with the following:

41
42 (*****)

43
44 The unit Contract price per square yard for "Cement Conc. Sidewalk" shall be full
45 compensation to furnish all labor, materials, equipment, and incidentals to complete the Work
46 as specified and shown in the plans including concrete class 4000, thickened edge sidewalk,
47 sidewalk coping, excavation, formwork, finishing, and detectable warning strips.

48
49 "Cement Conc. Curb Ramp Type _____", per square yard.

1 The unit Contract price per square yard for “Cement Conc. Curb Ramp Type Perpendicular”
2 shall be full compensation to furnish all labor, materials, equipment, and incidentals to
3 complete the Work as specified and shown in the plans including concrete class 4000,
4 excavation, formwork, finishing, and detectable warning strips.
5

6 **8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, INTELLIGENT** 7 **TRANSPORTATION SYSTEMS, AND ELECTRICAL**

8 9 **8-20.1 Description**

10 Section 8-20.1 is supplemented with the following:
11

12 **(*****)**

13 This Work shall consist of the following:
14

- 15 • Installation of new pedestrian lighting along NE 85th St.
- 16 • Installation of radar detection at the intersection of NE 85th St and 6th St.
- 17 • Removal and replacement of existing roadway lighting along NE 85th St.
- 18 • Removal and replacement of the pedestrian push button at the intersection of NE 85th
19 St and 6th St.
- 20 • Removal and replacement of the Eastbound outbound signal loops at the intersection
21 of NE 85th St and 6th St.
- 22 • Temporary roadway lighting along NE 85th St.
- 23 • Temporary signal modifications at the intersections of NE 85th St and 6th St and NE
24 85th St and 114th Ave SE.
25

26 All Work shall be performed as shown in the Plans in accordance with applicable Standard
27 Specifications, Standard Plans, Amendments, City Standards, and the following Special
28 Provisions.
29

30 The Work involves, but shall not be limited to, the following:
31

- 32 • Signal controller and equipment
- 33 • Cabinets and bases
- 34 • Signal interconnect fiber system modifications
- 35 • Pedestrian and bicycle push buttons
- 36 • Junction boxes
- 37 • Loop and video detection
- 38 • Conduit and wire
- 39 • Electrical service, enclosures, connections, and bases
- 40 • Subsurface exploration
- 41 • Utility locates
42
43

44 The Work shall include testing existing traffic signal and lighting equipment prior to
45 construction. The Work shall also include the supply, testing and installation of all traffic signal
46 hardware including the communication cable and interface system, and when specified, the
47 modification of such an existing system.
48

1 The Work shall also include removing existing traffic signal and illumination equipment,
2 junction boxes, loop detectors, and all necessary associated equipment where applicable to
3 complete the Work.
4

5 This Work consists of furnishing, installing, and field testing all materials and equipment
6 necessary to complete in place, fully functional pedestrian crossing systems in accordance
7 with approved methods, the Plans, WSDOT Standard Drawings, the Special Provisions,
8 these Specifications, and the *Public Right-of-Way Accessibility Guidelines, August 8, 2023*
9 (commonly referred to as the 2023 PROWAG).
10

11 Unless otherwise noted, the location of signals, controllers, standards, and appurtenances
12 shown in the Plans are approximate; and the exact location will be established by the
13 Engineer in the field.
14

15 This Work includes furnishing, installing and field-testing all materials necessary to provide a
16 complete and operational illumination system that includes, but not limited to conduits, wiring,
17 junction boxes, luminaires, luminaire poles, luminaire pole slip-bases, and foundations. This
18 Work also includes designing, furnishing, maintaining, cabinets and removing a temporary
19 illumination system.
20

21 ***(WSDOT NWR ITS February 11, 2002)***
22 ***Communication Conduit System***

23 This Work shall consist of furnishing and installing the facilities used to mechanically
24 accommodate the communication components of the ITS System. The Contractor shall be
25 responsible for interfacing with the existing communications system and satisfying system
26 compatibility with regard to the existing facilities and this communications system extension.
27 Conduit shall be supplied as a system from a single manufacturer providing all of the steel
28 and PVC conduit; all required fittings, terminations, and other installation accessories; all in
29 accordance with the Plans, the Standard Specifications and these Special Provisions.
30

31 ***8-20.1(1) Regulations and Codes***

32 Section 8-20.1(1) is supplemented with the following:
33

34 ***(*****)***

35 Prior to start of Work, all necessary licenses, permits, and approvals shall be obtained.
36 The Contractor shall comply with all laws, ordinances, rules, orders, and regulations
37 relating to the performance of the Work, the protection of adjacent property, and the
38 maintenance of all other facilities. The Contractor will be required to comply with all the
39 provisions of these instruments and shall save and hold the Contracting Agency
40 harmless from any damage that may be incurred as a result of the Contractor's failure
41 to comply with all the terms of these permits.
42

43 ***8-20.1(2) Industry Codes and Standards***

44 Section 8-20.1(2) is supplemented with the following:
45

46 ***(*****)***

47 National Electrical Safety Code (NESC), PO Box 1331, 445 Hoes Lane,
48 Piscataway, New Jersey.

1 (*****)

2 **8-20.1(3) Errors and Omissions**

3 Section 8-20.1(3) is added as follows:

4
5 The Contractor shall immediately notify the Engineer upon discovery of any errors or
6 omissions in the Contract Documents, in the layout as given by survey points and
7 instructions, or of any discrepancy between the Contract Documents and the physical
8 conditions of the locality. If deemed necessary, the Engineer will rectify the matter and
9 advise the Contractor accordingly. Any Work done after such discovery without
10 authorization by the Engineer shall be done at the Contractor's risk.

11
12 **8-20.2 Materials**

13 Section 8-20.2 is supplemented with the following:

14
15 (*****)

16 **General**

17 All materials for the completion of the Work described herein and in the Plans shall be
18 furnished by the Contractor.

19
20 The Engineer reserves the right to inspect the manufacturing process of all materials. Final
21 inspection of the installed materials will not be given until final installation and testing has
22 been completed on the systems. Approval to install materials and equipment must be
23 obtained from the Engineer at the job site before installation.

24
25 **8-20.2(1) Equipment List and Drawings**

26 Section 8-20.1(1) is supplemented with the following:

27
28 (*****)

29 **Proposed Material Specifications for All Traffic Signal, Illumination, ITS and**
30 **Communication System Components**

31
32 This shall include, but not be limited to, poles, junction boxes, conduit, cabling, splice
33 materials, signal heads, push buttons, luminaries, all signal and communication system
34 hardware, including cabinets and cabinet- contained hardware. Submittals shall be neat,
35 legible, and orderly, submitted with an index or transmittal form listing all submittal contents.
36 Submittals without an index or transmittal form listing all contents will be rejected. Neatly
37 organize each package of submittal data and separate by hardware item. Where catalogue
38 sheets are copied listing multiple items, all items proposed for use on this project shall be
39 highlighted to distinguish from items not proposed for use on the project. A detailed fiber optic
40 material listing and installation procedure including the following:

- 41 • Manufacturer's complete specifications for all communication system cabling, splice
- 42 enclosures and associated electronics.
- 43 • Fiber optic cable cutting lengths reflecting the cable order and reel allocations.

44
45 Contractor shall submit cable pulling plan which shall state the exact operational procedures
46 to be utilized and which identifies the physical locations for equipment placement, proposed
47 equipment setup at each location, pulling tension on all cables for each pull, staffing, and the
48 pulling methodology for each type of cable.

49
50 Thirty (30) days prior to start of installation of items in this Section, the Contractor shall

1 provide submittals for each type of product noted in the Plans or in these Specifications.
2 Manufacturer's product literature, including operations and maintenance manuals, shall
3 be submitted with technical data sufficient to demonstrate that the product meets these
4 Specifications for Engineer review and approval. The Contractor shall provide
5 supplemental operations and maintenance input.
6

7 (WSDOT GSP March 13, 1995)

8 Pole base to light source distances (H1) for lighting standards with pre-approved plans
9 shall be as noted in the Plans.

10
11 Pole base to light source distances (H1) for lighting standards without pre-approved
12 plans will be furnished by the Engineer as part of the final approved shop drawings, prior
13 to fabrication.
14

15 ***Equipment List And Drawings***

16 Section 8-20.2(1) is supplemented with the following:
17

18 (WSDOT GSP March 13, 1995)

19 Pole base to light source distances (H1) for lighting standards with pre-approved plans
20 will be determined or verified by the Engineer at the request of the Contractor prior to
21 fabrication.
22

23 Pole base to light source distances (H1) for lighting standards without pre-approved
24 plans and for combination traffic signal and lighting standards will be furnished by the
25 Engineer as part of the final approved shop drawings prior to fabrication.
26

27 **8-20.3 Construction Requirements**

28
29 Section 8-20.3(1) is supplemented with the following:
30

31 ***(WSDOT NWR February 11, 2013)***

32 **Fiber Optic Cable Installation**

33 When installing new fiber optic cable or reinstalling existing fiber optic cable into new or
34 existing cable vaults or pull boxes, the installation method shall ensure that the cable is
35 free of dirt and debris as it enters the conduit and that no dirt or debris enters the conduit
36 receiving the cable prior to the conduit being plugged or sealed.
37

38 When installing fiber optic cable, the installation method shall prevent the fiber cable
39 from direct contact with the ground or pavement between pulls or prior to the installation
40 of the fiber cable into the conduit.
41

42 ***(WSDOT NWR May 15, 2000)***

43 **Energized Equipment**

44 Work shall be coordinated so that electrical equipment, with the exception of the service
45 cabinet, is energized within 72 hours of installation.
46

47 ***(WSDOT NWR June 20, 1995)***

48 **Pole Removal**

49 Poles designated for removal shall not be removed prior to approval of the Engineer.
50

1 **(WSDOT NWR October 31, 2005)**

2 **Construction Core Installation**

3 The Contractor shall coordinate installation of construction cores with Contracting
4 Agency maintenance staff through the Engineer. The Contractor shall provide written
5 notice to the Engineer, a minimum of seven working days in advance of proposed
6 installation. The Contractor shall advise the Engineer in writing when construction cores
7 are ready to be removed.

8
9 **(WSDOT NWR May 15, 2000)**

10 **Electrical Equipment Removals**

11 Removals associated with the electrical system shall not be stockpiled within the job site
12 without the Engineer's approval.

13
14 **(WSDOT NWR April 11, 2001)**

15 **Wire Removal**

16 Remove all wires from salvaged light and signal standards.

17
18 **(WSDOT NWR September 20, 1995)**

19 **Controller Cabinet Removal**

20 Controller cabinets shall not be removed until all associated electronic equipment is
21 removed by Contracting Agency signals personnel. All other equipment shall be
22 removed by the Contractor and delivered within 24 hours following removal to the
23 Contracting Agency.

24
25 **(WSDOT NWR August 5, 1996)**

26 **Pole Shaft and Mast Arm Identification**

27 All removed mast arms and pole shafts shall be identified by paper identification tags
28 recording pole number, intersection location (such as SR XXX, Jct XXX), and mast arm
29 length.

30
31 Four inch by six inch (minimum) tags shall be taped to corresponding pole shafts and
32 mast arms. Information on the mast arm tag shall match the information on the
33 corresponding pole shaft tag. Each tag shall be entirely covered with clear acetate tape.
34 The tape shall be wrapped one full circle around the shaft or arm with a 1/2 inch minimum
35 overlap at the ends and sides.

36
37 The Contractor shall bundle the complete signal standard assembly together. The
38 assembly consists of pole shaft, mast arm, and connecting bolts. Connecting bolts shall
39 be attached to the original mast arm base plate.

40
41 **(WSDOT NWR April 11, 2001)**

42 **Contractor Owned Removals**

43 All removals associated with an electrical system, which are not designated to remain
44 the property of the Contracting Agency, shall become the property of the Contractor and
45 shall be removed from the project.

46
47 The Contractor shall:

48
49 Remove all wires for discontinued circuits from the conduit system.

50
51 Remove elbow sections of abandoned conduit entering junction boxes.

1
2 Abandoned conduit encountered during excavation shall be removed to the nearest
3 outlets or as directed by the Engineer.
4

5 Remove foundations entirely, unless the Plans state otherwise.
6

7 Backfill voids created by removal of foundations and junction boxes. Backfilling and
8 compaction shall be performed in accordance with Section 2-09.3(1)E.
9

10 **8-20.3(2) Excavating and Backfilling**

11 Section 8-20.3(2) is supplemented with the following:
12

13 (*****)

14 All adjacent surfaces damaged by the Contractor's operations shall be repaired at its
15 expense. The Contractor shall protect all private and public utilities from damage
16 resulting from the Work.
17

18 All conduit shall be in place prior to placement of the base course of the final pavement.
19

20 **Conduit Trench Construction**

21 To avoid conflicts with other utilities, the trench may be sloped or drifted.
22

23 When open trench construction is used on existing surfaces which will not be resurfaced,
24 the pavement shall be removed and replaced as detailed in the Plans.
25

26 When open trenching is allowed, trench construction shall conform to the following:
27

- 28 1. The pavement shall be saw cut a minimum of 3 inches deep. The cuts shall
29 be parallel to each other and extend 12 inches beyond each edge of the trench.
- 30 2. Pavement shall be removed in an approved manner.
- 31 3. Trench depth shall provide 2 feet minimum cover over conduits.
- 32 4. Trench width shall be the conduit diameters plus 2 inches between conduits
33 plus 2 inches on each side of trench.
- 34 5. Trenches located within paved Roadway areas shall be backfilled with
35 controlled density fill (CDF) meeting the requirements of Section 2-09.3(1)E, and
36 including non-chloride accelerating admixtures in accordance with Section 9-
37 23.6. The controlled density fill shall be placed level to, and at the bottom of the
38 existing pavement. The pavement shall be replaced with paving material that
39 matches the existing pavement.
- 40 6. No steel sheets will be allowed over weekends or holidays observed by the
41 Contracting Agency.
42

43 Where minimum cover of 24" cannot be maintained, as determined by the Engineer, the
44 Contractor shall be required to place a concrete cap over the conduits.
45

46 **8-20.3(3) Removing and Replacing Improvements**

47 Section 8-20.3(3) is supplemented with the following:
48

49 (*****)

1 Salvaged light standards shall be stockpiled and/or delivered to a location as designated
2 by the Engineer.
3

4 The Contractor shall remove all nonessential, unused junction boxes. The Contractor
5 shall remove all foundations that are not to be reused to a depth of at least three (3) feet
6 below the existing or finished grade, whichever is lower, or removed entirely, unless
7 otherwise noted in the Plans. The conduits connecting to the foundation shall be cut off
8 and capped or removed as designated by the Engineer. Any such foundation or conduit
9 left below the surface shall be noted on the As-Built Plans provided to the Contracting
10 Agency by the Contractor.
11

12 The Contractor shall be responsible for disposing of all other waste created by the
13 required salvage and/or removal of items shown in the Plans or specified herein.
14

15 **8-20.3(4) Foundations**

16 Section 8-20.3(4) is supplemented with the following:
17

18 (*****)

19 Foundations for streetlight poles and service cabinets shall be as specified in the Plans,
20 in these Special Provisions, and in the Standard Plans and Specifications.
21

22 Concrete shall be placed against undisturbed earth where possible. Prior to placing the
23 concrete, the Contractor shall block out around any other underground utilities that may
24 lie in the excavated base to prevent foundation adherence to the utility line. Concrete
25 foundations shall be troweled, brushed, edged and finished. Exposed anchor bolts and
26 conduits shall be promptly cleaned of any concrete after installation.
27

28 All permanent casing shall be a smooth wall non-corrugated structure of steel base
29 metal. All permanent casing shall be of ample strength to resist damage and
30 deformation from transportation and handling, installation stresses, and all pressures
31 and forces acting on the casing. The casing shall be clean prior to placement in the
32 excavation. The permanent casing may be telescoped, but the outside diameter of the
33 casing shall not be less than the specified diameter of the shaft.
34

35 Foundation locations indicated in the Plans may be slightly revised in the field by the
36 Engineer to improve effectiveness or due to unforeseen conflicts with existing facilities.
37 Prior to foundation excavation, all locations shall be approved by the Engineer.
38

39 Pole foundations in sidewalks shall be placed flush with the finished surface of the
40 sidewalk unless otherwise shown in the Plans. The foundation and sidewalk shall be
41 separated by a 3/4-inch expansion joint such that the foundation can be removed without
42 damage to the surrounding sidewalk. The top four (4) inches of all foundations shall be
43 square with sides equal to the diameter.
44

45 The void between the foundation and the pole flange shall be no larger than four (4)
46 inches and shall be completely filled around the conduit(s) with dry pack mortar and
47 neatly troweled. A plastic drain, 1/2-inch diameter, shall be placed in the mortar to
48 provide drainage from the interior of the pole to the exterior. The plastic drain pipe shall
49 be neatly trimmed flush with the surfaces.
50

1 The dry pack mortar shall consist of a 1:3 cement to fine sand mixture with enough water
2 to allow the mixture to stick together when molded into a ball by hand, but will not exude
3 water when pressed.
4

5 All concrete on the anchor bolts shall be immediately removed following pouring of the
6 foundation. Conduits shall be temporarily capped during the pour to prevent concrete
7 from entering.
8

9 **8-20.3(5) Conduit**

10 Section 8-20.3(5) is supplemented with the following:

11 **(*****)**

12 The conduit runs shown in the Plans are schematic, however, they shall be followed as
13 closely as site conditions will allow and may be revised, as directed by the Engineer, to
14 allow for unforeseen obstructions. Conduits installed under paved Roadway shall be
15 located approximately parallel to the curb line, unless otherwise indicated in the Plans
16 or directed by the Engineer.
17

18 All conduit in Roadways shall be placed prior to any pavement construction.
19

20 Each conduit run shall contain a 200-pound breaking strength polyolefin pull cord, which
21 shall be tied off at both ends.
22

23 All conduit installed underground shall have polyethylene underground hazard marking
24 tape, six (6) inches wide, red, legend "Caution-Electric Line Buried Below," placed
25 approximately twelve (12) inches above the conduit.
26

27 Conduits installed for future use shall be prepared as follows: After final assembly in
28 place, the conduit shall be blown clean with compressed air. Then, in the presence of
29 the Engineer, a cleaning mandrel correctly sized for each size of conduit shall be pulled
30 through to ensure that the conduit has not been deformed. As soon as the mandrel has
31 been pulled through, both ends of the conduit shall be sealed with conduit caps. All
32 conduits scheduled for future use shall originate in a foundation or junction box as
33 detailed in the Plans and terminate in a junction box. All equipment grounding
34 conductors, and the bonding conductor for metallic conduits shall be bonded in all
35 junction boxes in accordance with Section 8-20.3(9).
36

37 Existing conduit in place scheduled to receive new conductors shall have any existing
38 conductors removed and a cleaning mandrel sized for the conduit shall be pulled
39 through.
40

41 **Detectable Pull Tape**

42 For all conduits that do not contain electrical conductors, the Contractor shall add a
43 detectable pull tape in one of the conduits in the same trench. All other spare conduit
44 may utilize non-detectable pull tape.
45

46 **Temporary Trench Patch**

47 The Contractor shall be required to provide either a temporary cold mix trench patch, or
48 permanent paving, at the end of the working day following installation of utilities crossing
49 an operational Roadway. Cold mix patches shall be compacted, rolled, and maintained
50 to a smooth surface until permanent paving is accomplished.
51

1
2 **8-20.3(5)B Conduit Type**

3 The first paragraph of Section 8-20.3(5)B is revised to read as follows:

4
5 Conduit type for this project, where underground, shall be PVC or high density
6 polyethylene (HDPE).
7

8 **8-20.3(6) Junction Boxes, Cable Vaults, and Pull Boxes**

9 Section 8-20.3(6) is supplemented with the following:

10
11 **(*****)**

12 The locations of the junction boxes as shown in the Plans are approximate and the exact
13 locations shall be determined in the field. Junction boxes shall be located outside the
14 Traveled Way, wheelchair ramps and landings, and driveways, unless otherwise
15 approved by the Engineer. The new junction box shall not interfere with any other
16 previous or relocated installation. The lid shall also be flush with its frame and with the
17 surrounding area whether it is Shoulder, sidewalk, or other surface.
18

19 When junction boxes are installed within cement concrete areas, the Contractor shall
20 adjust junction boxes to grade prior to pouring the cement concrete.
21

22 When junction boxes are installed or adjusted prior to construction of finished grade,
23 pre-molded joint filler for expansion joints may be placed around the junction boxes. The
24 joint filler shall be removed prior to adjustment to finished grade.
25

26 Adjustments involving raising or lowering the junction boxes shall require conduit
27 modification if the resultant clearance between top of conduit and the junction box lid
28 becomes less than 9-inches as shown in the junction box details in the Plans. Wiring
29 shall be replaced if sufficient slack as specified in Section 8-20.3(8) of the Standard
30 Specifications is not maintained.
31

32 The Contractor shall not damage any existing conduits when replacing or excavating
33 existing junction boxes. The Contractor is to maintain the integrity of all junction boxes
34 during reconfiguration of the conduits, installation of new conduits or when excavating.
35

36 The Contractor shall reconfigure conduits in existing junction boxes as shown in the
37 details in the Plans where the minimum bend radius of the fiber is not achievable. The
38 integrity of the junction box shall be maintained. If damage occurs, the Engineer shall be
39 contacted immediately.
40

41 Prior to the use of any existing junction box, the Contractor shall verify that sufficient
42 bending radius, as defined by the Code, is available both approaching and within the
43 box for the cable being installed. If such is not the case, the Contractor shall notify the
44 Engineer, who shall be the sole judge of whether new conduit bends or a new junction
45 box shall be installed.

46 Damage to the junction boxes, pull boxes, cable vaults and the associated conduit
47 system, or wiring resulting from the Contractor's operations, shall be replaced at no
48 additional cost to the Contracting Agency.
49

1 When using an existing junction box, the Contractor shall modify the junction box such
2 that it will be bonded to the grounding system.

3
4 Junction boxes requiring adjustment within walking areas shall include replacement of
5 non-slip resistant lids with approved slip resistant lids as determined by the Engineer.
6

7 **8-20.3(6)A Adjusting Junction Box**

8 Section 8-20.3(6)A is added as follows:
9

10 Existing junction box locations may be required to be adjusted horizontal and/or
11 vertically. Distance between the top of conduit and bottom of new junction box lid
12 shall be maximized but not exceed 12 inches. Existing conduits coming into and/or
13 leaving a junction box shall be exposed and adjusted as required to fit into new
14 junction box location. Hand digging shall be required during these adjustments.
15

16 **8-20.3(8) Wiring**

17 Section 8-20.3(8) is supplemented with the following:
18

19 (*****)

20 For installing new cables in existing occupied or empty conduit, the Contractor shall be
21 responsible for the following steps: 1) Install a new pull rope using a rod/fish tape in the
22 conduit for pulling in the new cabling if a pull rope does not already exist. 2) If the
23 Contractor cannot get the rod/fish tape to pass through the conduit, the Contractor shall
24 blow air through the conduit to remove any debris blocking the rod/fish tape path. The
25 Contractor shall be careful not to blow air into controller or service cabinets. 3) If the
26 rod/fish tape still does not pass through the conduit after blowing air, the Contractor shall
27 disconnect a single existing wire as agreed to by the Engineer (if the conduit is occupied)
28 and use that wire to pull the new wiring plus a new cable to replace the existing cable
29 that is being used for pulling. 4) If no existing wire can be used to pull in the new wire,
30 the Contractor shall try another conduit run if one exists, or pull out all existing wiring
31 from the conduit and use to pull in the new wiring plus all new cabling to replace existing
32 cabling. Rodding, fish taping, blowing air, and disconnecting/ reconnecting cable shall
33 be the Contractor's cost responsibility. In an event that none of these steps led to
34 successful wire installation, the Contractor shall install new conduit as directed by the
35 Engineer.
36

37 When removing existing cabling, if the cable won't initially move, the Contractor shall
38 attempt to blow air through the conduit to loosen debris around the cable. Blowing air
39 into the conduit is included in the cost of cable removal. If the cable will not move after
40 blowing air into the conduit, the Contractor shall contact the Engineer.
41

42 Terminal strips in cabinets, or when used as a connecting device between conductors
43 shall bear the circuit numbers.
44

45 **(WSDOT NWR April 14, 2003)**

46 **Wire Labels**

47 At each junction box, all illumination wires, power supply wires, and communication
48 cable shall be labeled with a PVC marking sleeve. For illumination and power supply
49 circuits the sleeve shall bear the circuit number. For communication cable the sleeve
50 shall be marked "Comm."
51

1 **(WSDOT NWR March 13, 1995)**

2 **Wire Splices**

3 All splices shall be made in the presence of the Engineer.

4
5 **(WSDOT NWR May 1, 2006)**

6 **Illumination Circuit Splices**

7 Temporary splices shall be the heat shrink type.

8
9 **(March 13, 1995)**

10 **Field Wiring Chart**

11 501 AC+ Input 516-520 Railroad Pre-empt
12 502 AC- Input 5A1-5D5 Emergency Pre-empt
13 503-510 Control-Display 541-580 Coordination
14 511-515 Sign Lights 581-599 Spare

Movement Number	1	2	3	4	5	6	7	8	9
Vehicle Head									
Red	611	621	631	641	651	661	671	681	691
Yellow	612	622	632	642	652	662	672	682	692
Green	613	623	633	643	653	663	673	683	693
Spare	614	624	634	644	654	664	674	684	694
Spare	615	625	635	645	655	665	675	685	695
AC-	616	626	636	646	656	666	676	686	696
Red Auxiliary	617	627	637	647	657	667	677	687	697
Yellow Auxiliary	618	628	638	648	658	668	678	688	698
Green Auxiliary	619	629	639	649	659	669	679	689	699
Pedestrian Heads & Dets.									
Hand	711	721	731	741	751	761	771	781	791
Man	712	722	732	742	752	762	772	782	792
AC-	713	723	733	743	753	763	773	783	793
Detection	714	724	734	744	754	764	774	784	794
Common-Detection	715	725	735	745	755	765	775	785	795
Spare	716	726	736	746	756	766	776	786	796
Spare	717	727	737	747	757	767	777	787	797
Spare	718	728	738	748	758	768	778	788	798
Spare	719	729	739	749	759	769	779	789	799
Detection									
AC+	811	821	831	841	851	861	871	881	891
AC-	812	822	832	842	852	862	872	882	892
Common-Detection	813	823	833	843	853	863	873	883	893
Detection A	814	824	834	844	854	864	874	884	894
Detection B	815	825	835	845	855	865	875	885	895
Loop 1 Out	816	826	836	846	856	866	876	886	896
Loop 1 In	817	827	837	847	857	867	877	887	897
Loop 2 Out	818	828	838	848	858	868	878	888	898
Loop 2 In	819	829	839	849	859	869	879	889	899
Supplemental Detection									
Loop 3 Out	911	921	931	941	951	961	971	981	991
Loop 3 In	912	922	932	942	952	962	972	982	992
Loop 4 Out	913	923	933	943	953	963	973	983	993

1	Loop 4 In	914	924	934	944	954	964	974	984	994
2	Loop 5 Out	915	925	935	945	955	965	975	985	995
3	Loop 5 In	916	926	936	946	956	966	976	986	996
4	Loop 6 Out	917	927	937	947	957	967	977	987	997
5	Loop 6 In	918	928	938	948	958	968	978	988	998
6	Spare	919	929	939	949	959	969	979	989	999

7

8 **8-20.3(9) Bonding, Grounding**

9 Section 8-20.3(9) is supplemented with the following:

10 All electrical vaults supplied for this project must be supplied with embedded grounds.
 11 All electrical vaults that are to be adjusted must be grounded.

12

13

14 **8-20.3(10) Service, Transformer, and Intelligent Transportation System (ITS)**
 15 **Cabinet**

16 Section 8-20.3(10) is supplemented with the following:

17

18 **(WSDOT NWR March 4, 2009)**

19 **Cabinet Construction Core**

20 A green construction core shall be installed for each cabinet core lock. Upon Contract
 21 completion, two master keys for each cabinet shall be delivered to the Engineer.

22

23 **(*****)**

24 A 3-wire electrical service shall be used at 120/240 volts, single phase, 60-hertz AC
 25 between the power source and the service cabinet. The unfused power shall enter the
 26 service cabinet through a separate conduit.

27

28 The Contractor shall install a service cabinet as specified. The service cabinet shall be
 29 mounted on a concrete base with anchor bolts fastening to the inside of the base of the
 30 cabinet. The illumination components shall be connected to the 240-volt, 60-hertz power.

31

32 The Contractor shall have the service inspected by the City of Kirkland Electrical
 33 Inspector and shall be solely responsible for coordination with the power company to
 34 have the service energized.

35

36 Existing electrical service shall remain energized until the switchover to new illumination
 37 and signal systems is completed and fully functional.

38

39 **8-20.3(11) Testing**

40 Section 8-20.3(11) is supplemented with the following:

41

42 **(*****)**

43 The Contractor shall notify the Engineer three (3) working days prior to conducting the
 44 testing.

45

46 Prior to scheduling a turn-on date, the Contractor shall verify with the Engineer that:

- 47
- 48 • Field Test Nos. 1, 2, and 3, as specified in Section 8-20.3(11), have been
 49 completed.

- The Contractor shall have completed all required inspections for permits including, but not limited to ground, conduit, wiring connections and final.
- The Contractor shall conduct tests to assure proper intended operation of the pedestrian hybrid beacon system. The Contractor shall provide the Engineer a minimum of five (5) working days advance notices of the proposed pedestrian hybrid beacon system turn-on date and time for approval. The pedestrian hybrid beacon turn-on procedure shall not begin until all required channelization, pavement markings, and signs are installed. The Contractor shall provide traffic control to stop all traffic from entering the intersection or affected street segment and shall then turn the pedestrian hybrid beacon system to its flash mode to verify proper flash indications. The Engineer will verify proper flash pattern and rate is implemented. The Contractor shall then conduct functional tests to demonstrate that each part of the pedestrian hybrid beacon system functions as intended consistent with plans, project Specifications, and manufacturers Specifications. This demonstration shall be conducted in the presence of the Engineer. The Engineer may introduce additional testing to assess full functions of the system as intended. Based on the results of the turn-on, the Engineer will direct the Contractor to either keep the pedestrian hybrid beacon system on normal operation or to turn the system off and cover all lighted displays until necessary corrections by the Contractor are completed.

8-20.3(13) Illumination Systems

(*****)

Section 8-20.3(13)D is added as follows:

8-20.3(13)D Temporary Illumination Systems

The existing illumination system will be removed as part of the project construction. Prior to removal of the existing illumination system, the Contractor shall design, install and maintain a temporary lighting system where existing street illumination has been removed or reduced. This system shall be provided for general public safety and shall operate continuously during all hours when street lights surrounding the project area are in operation.

The Contractor shall provide an initial plan, including the proposed lighting levels, for the temporary illumination system for review and approval by the Contracting Agency. Throughout the duration of the project, the Contractor shall make adjustments to the lighting as necessary due to closures or changes in the project traffic control, or as directed by the Engineer to accommodate public safety.

Temporary overhead conductors for the temporary illumination system shall be confined within the construction fencing to the maximum extent possible, and the security of the temporary illumination system shall be the Contractor's responsibility. Light fixtures for the temporary illumination system shall not be installed below the tops of adjacent business windows and shall be positioned so light does not shine into those windows. In areas not adjacent to existing business windows, the Contractor shall not install light fixtures below 7 vertical feet above the adjacent pedestrian surface.

The Contractor shall provide all necessary electrical power for the Temporary Illumination System, including all necessary fees and payments for power consumption

1 by this system. The use of on-site generators or other systems that create noise outside
2 of approved working hours will not be allowed.

3
4 As the new illumination system becomes operational and is providing full and
5 unobstructed illumination of the roadway, the Contractor shall remove the temporary
6 system and all materials shall become the property of the Contractor.

7
8 The roadway light levels provided by the temporary illumination system shall be
9 acceptable equivalent or better light levels as approved by the Contracting Agency and
10 the Engineer.

11 **8-20.3(14) Signal Systems**

12 **8-20.3(14)D Test for Induction Loops and Lead-in Cable**

13 Section 8-20.3(14)D is supplemented with the following:

14 (December 9, 2004 COK GSP)

15 Prior to installing the loop sealant material the Contractor shall perform the required
16 inductance testing. The inductance of the loop shall be measured and the
17 inductance reading shall be between 60 and 120 microhenries. After the sealant
18 has been installed, and prior to connection to the lead-in cables, the inductance
19 shall be measured again. If any of the installations fails to pass all tests, the
20 installation shall be repaired or replaced and retested until satisfactory results area
21 obtained. The results shall be submitted to the Engineer prior to signal turn-on.

22 (**WSDOT NWR February 11, 2013**)

23 **Loop Sealant**

24 Loop sealants shall be installed per manufacturer's recommendations.

25
26 3M Black 5000 sealant shall be installed so that the sealant is protected from wheel
27 tracking prior to the sealant being fully cured. When 3M Black 5000 loop sealant is
28 installed below the final lift of an HMA installation, a minimum of 5 consecutive days
29 of cure time is required before the final lift is installed.

30 (*****)

31 **8-20.3(14)E Preformed Detector Loop**

32 Section 8-20.3(14)E is added as follows:

33 The Contractor must mark out proposed loop detector locations for the Engineer's
34 approval at least 3 Working Days before the concrete placement.

35
36 Preformed loop detectors must be placed per plan above the concrete reinforcing
37 steel, when present, and just above the neutral axis of the panel. Detectors located
38 in panels without rebar must be secured onto poly insert tees at 2-foot spacing to
39 hold the preformed loop with a minimum of 3-inch clearance from the top and
40 bottom surface of the concrete. A minimum of 6-foot of lead-in slack must be placed
41 in a neat coil in the handhole. If the loop is not to be spliced as part of this contract,
42 the ends must be taped and the wire marked with the loop number per the plan
43 using permanent waterproof tags.

1 Preformed loop detectors must be installed and tested before the pavement being
2 placed. Before the paving operation begins, the Engineer will conduct inductance
3 tests per Section 8-20.3(14)D. Tests will be performed again after the pavement
4 has been placed, and before turn-on or cut-over. The Contractor must perform he
5 test as specified in Section 8-20.3(14)D, in the presence of the Engineer, if the
6 preformed detector loop is connected to the controller cabinet. The pavement must
7 be poured making certain not to disturb the loop cable. The lead-in cable shall be
8 protected during construction. If the preformed loop or lead-in cable is not
9 functional during the final test or is damaged during construction the Contractor
10 must provide replace and retest the preformed loop or lead-in cable at the
11 Contractor's sole expense.

12
13 Multiple installations of lead-in wire shall not be considered additional length.
14
15

16 **8-20.3(17) As-Built Plans**

17 Section 8-20.3(17) is supplemented with the following:
18

19 (*****)

20 The Contractor shall keep current "pencil redline" as-built drawings for any traffic signal
21 installation and/or modification. As-built drawings shall be available to the Engineer upon
22 request and must be submitted to the Engineer.
23

24 **8-20.4 Measurement**

25 Section 8-20.4 is supplemented with the following:
26

27 Measurement for preformed detector loops will be by each complete installation.
28

29 (*WSDOT NWR August 10, 2009 GSP*)

30 When the following is shown as lump sum in the Plans or in the Proposal, no specific unit of
31 measurement will apply, but measurement will be for the sum total of all items for a complete
32 system to be furnished and installed.
33

34 (*WSDOT NWR August 10, 2009 GSP*)

35 Illumination System
36

37 (*****)

38 Temporary Traffic Signal System
39

40 (*****)

41 Temporary Lighting
42

43 (*****)

44 Traffic Signal System
45

46 (*WSDOT NWR August 10, 2009 GSP*)

47 Loop replacements will be measured per each complete installation.
48

49 **8-20.5 Payment**

50 Section 8-20.5 is supplemented with the following:

1
2 (*****)

3 "Temporary Traffic Signal System ____", lump sum.

4 The lump sum Contract price for "Temporary Traffic Signal System ____" shall be full pay for
5 designing and altering an existing traffic signal system as required during construction,
6 including rewiring, removing and reinstalling signal heads, bagging signal heads, procuring
7 and installing new equipment and wiring as required, salvaging materials after
8 decommissioning of the temporary traffic signal systems, restoring facilities destroyed or
9 damaged during construction, and for making all required tests. All additional materials and
10 labor, not shown in the Plans or called for herein and which are required to complete the
11 temporary electrical system, shall be included in the lump sum Contract price.
12

13 (*****)

14 "Temporary Illumination System", lump sum.

15 The lump sum Contract price for "Temporary Illumination System" shall be full compensation
16 for the costs of all tools, equipment, materials, and labor necessary or incidental to provide a
17 complete and operational temporary illumination system, including but not limited to: design,
18 submittals, conductors, light fixtures, electrical power and fees, adjustments, protection and
19 maintenance, and all other Work as specified and shown in the Plans. Removal of the temporary
20 illumination system, which includes all the work installed as part of this bid item, is considered
21 incidental to this lump sum Contract price.
22

23 (*WSDOT NWR August 10, 2009 GSP*)

24 The lump sum Contract price for each of the following items shall be full pay for the
25 construction of the complete electrical system, modifying existing systems, or both, including
26 sign lighting systems, as described below and as shown in the Plans and herein specified
27 including excavation, backfilling concrete foundations, conduit, wiring, restoring facilities
28 destroyed or damaged during construction, salvaging existing materials, and for making all
29 required tests. All additional materials and labor, not shown in the Plans or called for herein
30 and which are required to complete the electrical systems, shall be included in the lump sum
31 Contract price.
32

33 "Traffic Signal System ____", lump sum.

34 The lump sum Contract price for "Traffic Signal System ____" shall be for the costs of all tools,
35 equipment, materials, and labor necessary or incidental to provide a complete and operational
36 Traffic Signal system, including but not limited to: removal and salvage of the existing system,
37 including but not limited to conduits, wiring, existing loops, junction boxes, signal equipment,
38 signal poles, controller cabinets, service cabinets, and associated foundations. Installation of
39 conduits, wiring, junction boxes, signal equipment, signal poles, controller cabinets, service
40 cabinets, and associated foundations. Protection and maintenance or replacement of conduit
41 as necessary to facilitate other Work activities in the Contract, all required submittals, and all
42 other Work as specified and shown in the Plans.
43

44 "Illumination System Complete", per lump sum.

45 The lump sum Contract price for "Illumination System Complete" shall be full compensation
46 for the costs of all tools, equipment, materials, and labor necessary or incidental to provide a
47 complete and operational illumination system, including but not limited to: removal and salvage
48 of the existing system, conduits, wiring, junction boxes, luminaires, luminaire poles, and
49 foundations, protection and maintenance or replacement of conduit as necessary to facilitate
50 other Work activities in the Contract, all required submittals, and all other Work as specified and
51 shown in the Plans.

1
2 (NWR March 22, 2010 WSDOT GSP, *modified*)

3 "Adjusting Existing Junction Box", per each

4 The unit Contract price per each for "Adjusting Existing Junction Box" shall be full pay for the
5 Work as specified, including but not limited to adjusting the elevation of the junction box,
6 installation or replacement of the gravel pad, adjustment of conduit placement within the
7 junction box, and replacement of non-slip resistant lids with approved slip resistant lids. All
8 Work shall conform to the requirements of Standard Plans J-40-10-04, J-40.20-03 and J-
9 40.30-04.

10
11 When the replacement or modification of electrical or communication system cables, wiring
12 or conductors or other associated Work, not identified as Work in the Contract Plans, is
13 required as a result of the adjustment of existing junction boxes, all costs associated with
14 those modifications shall be paid in accordance with Section 1-04.4.

15
16 (*****)

17 "Performed Detector Loop Type 3", per each

18 All costs for the Work required to install the preformed loop cable and suspension system
19 and conduit complete to the first handhole from the loop, including pavement fillers, splices,
20 and hardware, shall be included in the unit Contract price per each for "Preformed Detector
21 Loop Type 3".

22
23 All newly installed traffic loops shall be tested as described within these special provisions. If
24 any loops fail testing requirements per these Special Provisions, the loops shall be replaced
25 and retested at no additional cost to the Contracting Agency.

26 27 **8-21 PERMANENT SIGNING**

28 29 **8-21.3 Construction Requirements**

30 31 ***8-21.3(5) Sign Relocation***

32
33 (*****)

34 ***8-21.3(5)A Sign Replacement***

35 Section 8-21.3(5)A is added as follows:

36
37 Where shown in the Plans, existing signs shall be removed and replaced with new signs by
38 the Contractor at the location noted. If the sign is noted in the Plans as a custom sign type,
39 sign details will be provided by the Contracting Agency during construction. Sign panel sizes
40 shown in the Plans are approximate and shall be confirmed with the Engineer prior to the
41 Contractor procuring the sign panels. Sign removal and sign installation shall conform to the
42 requirements in this Section.

43 44 45 **8-35 SOIL CELLS**

46 47 ***8-35.1 Description***

48 This Section includes requirements for furnishing and installing the following:

49
50 (*****)

1 Soil Cell system, including: geotextile, geogrids, aggregates, sub base material, backfill,
2 drainage system, and the installation of Topsoil Type A.
3

4 **8-35.2 Materials**

5 Materials shall meet the requirements of the following sections:

6 Soil Cells	9-37.2
7 Anchoring Spikes	9-37.3
8 Geogrid	9-37.4
9 Geotextile	9-37.5
10 Crushed Surfacing Base Course Below Cell Frame	
11	9-37.6
12 Crushed Surfacing Top Course Above Cell Deck	
13	9-37.7
14 Backfill Material Adjacent to Soil Cells	9-37.8
15 Topsoil Type A	9-14.2
16	

17 **8-35.3 Construction Requirements**

18 **8-35.3(1) References**

- 19 A. This Section incorporates by reference the latest revisions of the following
20 documents.
21
- 22 1. ASTM International (ASTM)
 - 23 a. ASTM D698 Standard Test Methods for Laboratory Compaction
24 Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³ (600 kN-
25 m/m³))
 - 26 b. ASTM D1241 Standard Specification for Materials for Soil-Aggregate
27 Subbase, Base, and Surface Courses
 - 28 c. ASTM D3786 Standard Test method for Bursting Strength of Textile
29 Fabrics – Diaphragm Bursting Strength Tester Method
 - 30 d. ASTM D4491 Standard Test Methods for Water Permeability of
31 Geotextiles by Permittivity
 - 32 e. ASTM D4533 Standard Test Method for Trapezoid Tearing Strength of
33 Geotextiles
 - 34 f. ASTM D4632/D4632M Standard Test Method for Grab Breaking Load
35 and Elongation of Geotextiles
 - 36 g. ASTM D4751 Standard Test Method for Determining Apparent Opening
37 Size of Geotextile
 - 38 h. ASTM D4833/D4833M Standard Test Method for Index Puncture
39 Resistance of Geomembranes and Related Products
 - 40 i. ASTM D5262 Standard Test Method for Evaluating the Unconfined
41 Tension Creep and Creep Rupture Behavior of Geosynthetics
 - 42 j. ASTM D6241 Standard Test Method for Static Puncture Strength of
43 Geotextiles and Geotextile-Related Products using a 50-mm Probe
 - 44 k. ASTM D6637 Standard Test Method for Determining Tensile Properties
45 of Geogrids by the Single or Multi-Rib Tensile Method
 - 46 2. Geosynthetic Research Institute (GRI)
 - 47 a. GRI GG-4 Determination of the Long-Term Design Strength of
48 Geogrids
- 49

1 **8-35.3(2) Definitions**

- 2 A. Crushed Surfacing Base Course/ Aggregate Sub Base (CSBC, below Cell
3 frame): Aggregate material between the bottom of the Soil Cell frame and the
4 compacted subgrade below, designed to distribute loads from the frame to the
5 subgrade.
6 B. Crushed Surfacing Top Course (CSTC, above Cell deck): Aggregate material
7 between the paving and the top of the Soil Cell deck below designed to distribute
8 loads across the top of the deck.
9 C. Backfill: The earth used to replace or the act of replacing earth in an excavation
10 beside the Soil Cell frames to the excavation extents.
11 D. Geogrid: Net-shaped synthetic polymer-coated fibers that provide a stabilizing
12 force within soil structure as the fill interlocks with the grid.
13 E. Root package: The earthen package containing the root system of the tree as
14 shipped from the nursery.
15 F. Soil Cells: modular, structural, cellular system, designed to be filled with Topsoil
16 Type A for tree rooting, stormwater management, and support of vehicle loaded
17 pavements. The term Soil Cell can be used to refer to a single Soil Cell or a
18 stack of Soil Cells.
19 G. Soil Cell Topsoil Type A: Soil that meets the requirements of Topsoil Type A.
20

21 **8-35.3(3) Submittals and Transmittals**

- 22 A. Submit the following:
23 1. Soil Cell System Mock-Up:
24 a. Prior to the installation of Soil Cells, construct a mock-up of the
25 complete installation at the site. The installation of the mock up shall be
26 in the presence of the Engineer.
27 b. The mock-up shall be for one complete tree well installation and
28 include the complete Soil Cell system installation with sub base
29 compaction, drainage installation, base coarse aggregate and
30 geotextile as required, geogrids, backfill, Topsoil Type A with
31 compaction, decks, top geotextile and all necessary accessories.
32 c. The mock-up area may remain as part of the installed work at the end
33 of the project provided that it remains in good condition and meets all
34 the conditions of the specifications.
35 B. Transmit the following:
36 1. Product Data: For each type of product, provide manufacturer's product
37 literature with technical data sufficient to demonstrate that the product
38 meets these specifications.
39 a. For bulk materials, including soils and aggregates include analysis of
40 the materials by a recognized laboratory made that demonstrates that
41 the material meets the specification requirements.
42 b. Soil Cell manufacturer's letter of review and approval of the project,
43 plans, details and specifications for compliance with product
44 installation requirements.
45 2. Compaction testing results: Provide results of all compaction testing
46 required by the specifications including the bulk density test of the mock up
47 and installed soil to the Engineer for approval.
48 3. Qualification Data: Provide documentation of the qualifications of the Soil
49 Cell installer sufficient to demonstrate that the installer meets the Contract
50 requirements.

- 1 4. Supplier certificate for backfill material adjacent to soil cells meeting
2 requirements of this specification.
3

4 **8-35.3(4) Sequencing and Scheduling**

- 5 A. General: Prior to the start of Work, prepare a detailed schedule of the work for
6 coordination with other trades.
7 B. Schedule all utility installations prior to beginning work in this Section.
8 C. Where possible, schedule the installation of Soil Cells after the area is no longer
9 required for use by other trades and work. Protect installed Soil Cells from
10 damage in the event that work must occur over or adjacent to the completed Soil
11 Cells.
12

13 **8-35.3(5) Quality Assurance**

- 14 A. Installer Qualifications: Soil Cells and related products shall be installed by a
15 qualified installer whose work has resulted in successful installation of Topsoil
16 Type A, underground piping, chambers and vault structures.
17 1. Submit list of completed projects of similar scope and scale to the Engineer,
18 demonstrating capabilities and experience as supplemental bidder
19 information.
20 2. The installer shall have completed three projects with similar scope.
21 3. Installer's Field Supervision: Installer is required to maintain an experienced
22 full-time supervisor on Project site when work is in progress. This person
23 shall be identified during the Pre-installation Conference, with appropriate
24 contact information provided, as necessary. The same supervisor shall be
25 utilized throughout the Project, unless a substitution is submitted to and
26 approved in writing by the Engineer.
27

28 **8-35.3(6) Layout and Elevation Control**

- 29 A. The Contractor shall provide layout and elevation control during installation of Soil
30 Cells. Utilize grade stakes, benchmarks, surveying equipment and other means
31 and methods to assure that layout and elevations conform to the layout and
32 elevations indicated on the plans.
33

34 **8-35.3(7) Permits and Code Compliance**

- 35 A. Comply with applicable requirements of the laws, codes, ordinances and regulations
36 of Federal, State and Municipal authorities having jurisdiction. Obtain necessary
37 permits/approvals from all such authorities.
38

39 **8-35.3(8) Delivery, Storage and Handling**

- 40 A. Packaged Materials: Deliver packaged materials in original, unopened
41 containers showing weight, certified analysis, name and address of
42 manufacturer, and indication of conformance with state and federal laws, if
43 applicable. Protect materials from deterioration during delivery and while on the
44 project site.
45 B. Bulk Materials:
46 1. Do not deliver or place backfill, soils and soil amendments in frozen, wet, or
47 muddy conditions.
48 2. Provide protection including tarps, plastic and or matting between all bulk
49 materials and any finished surfaces sufficient to protect the finish material.

- C. Provide erosion-control measures to prevent erosion or displacement of bulk materials and discharge of soil-bearing water runoff or airborne dust to adjacent properties, water conveyance systems, and walkways. Provide additional sediment control to retain excavated material, backfill, soil amendments and planting mix within the project limits as needed.
- D. Soil Cells: Protect Soil Cells from damage during delivery, storage and handling.
 - 1. Store under tarp to protect from sunlight when time from delivery to installation exceeds one (1) week. Storage should occur on smooth surfaces, free from dirt, mud and debris.
 - 2. Handling is to be performed with equipment appropriate to the size (height) of Cells and site conditions, and may include, hand, handcart, forklifts, extension lifts, or small cranes, with care given to minimize damage to Soil Cell frames, decks and adjacent Soil Cells.

8-35.3(9) Project Conditions

- A. Verification of Existing Conditions and Protection of New or Existing Improvements: Before proceeding with work in this section, the Installer shall carefully check and verify all dimensions, quantities, and grade elevations, and inform the Engineer immediately of any discrepancies.
 - 1. Carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging. Verify the location of all aboveground and underground utility lines, infrastructure, other improvements, and existing trees, shrubs, and plants to remain including their root system, and take proper precautions as necessary to avoid damage to such improvements and plants.
 - 2. When new or previously existing utility lines are encountered during the course of excavation, notify the Engineer in writing and make recommendations as to remedial action. Proceed with work in that area only upon approval of appropriate remedial action. Coordinate all work with the appropriate utility contractors, utility company or responsible public works agency.
- B. Weather Limitations: Do not proceed with work when subgrades, soils and Topsoil Type A are in a saturated, muddy or frozen condition.
- C. Protect partially completed Soil Cell installation against damage from other construction traffic with highly visible construction tape, fencing, or other means until construction is complete. Prevent all non-installation related construction traffic over the completed Soil Cell installation; allowing only loads less than the design loads.

8-35.3(10) Protection

- A. Protect open excavations and partially completed Soil Cell installation from access and damage when work is in progress, and following completion with highly visible construction tape, fencing, or other means until all construction is complete.

8-35.3(11) Warranty

- A. Soil Cell manufacturer's product warranty shall apply. Provide manufacturer's product warranty.

1 **8-35.3(12) Project Work**

- 2 A. Coordinate installation with all other work that may impact the completion of the
3 work.
4

5 **8-35.3(13) Preconstruction Teleconference and Meeting**

- 6 A. Prior to the start of the installation of Soil Cells, Engineer, Contractor and the Soil
7 Cells installer to schedule and attend an installation training teleconference
8 provided by Soil Cell manufacturer to ensure proper installation techniques are
9 followed and common installation pitfalls are avoided.
10 B. After attendance in Soil Cell manufacturer's installation training teleconference,
11 meet at the site with the Engineer, Contractor and the Soil Cells installer to review
12 installation layout, procedures, means and methods.
13

14 **8-35.3(14) Layout Approval**

- 15 A. Prior to the start of work, layout and stake the limits of excavation and horizontal
16 and vertical control points sufficient to install the Soil Cells and required drainage
17 features in the correct locations.
18

19 **8-35.3(15) Excavation**

- 20 A. Excavate to the depths and shapes indicated on the drawings. Base of
21 excavation shall be smooth soil, level and free of lumps or debris.
22 B. Do not over-excavate existing soil beside or under the limits of excavation
23 required for the installation. If soil is over-excavated, install compactable fill
24 material in lifts not more than 8 inches deep and compact to the required density.
25 C. Confirm that the depth of the excavation is accurate to accommodate the depths
26 and thickness of materials required throughout the extent of the excavation.
27 D. Confirm that the width and length of the excavation is a minimum of 6 inches, in
28 all directions, beyond the edges of the Soil Cells.
29

30 **8-35.3(16) Subgrade Compaction**

- 31 A. Check compaction of the subgrade below the Soil Cells and confirm that the
32 subgrade soil is compacted to a minimum of 95 percent of maximum dry density
33 at optimum moisture content in accordance with ASTM D698 Standard Proctor
34 Method.
35 B. Compact the subgrade with a minimum of three passes of a suitable vibrating
36 compacting machine or apply other compaction forces as needed to achieve the
37 required subgrade compaction rate.
38 C. Apply additional compaction forces at optimum water levels.
39

40 **8-35.3(17) Installation of Geotextile Over Subgrade**

- 41 A. Where indicated on drawings, install geotextile over compacted subgrade.
42 B. Install the geotextile with a minimum joint overlap of 18 inches between sections
43 of material. Ensure geotextile is laid flat with no folds or creases.
44

45 **8-35.3(18) Installation of Aggregate Sub Base Below Soil Cell Frame**

- 46 A. Install aggregate sub base to the depths indicated on the drawings, under the
47 first layer of Soil Cell frames. Sub base aggregate shall extend a minimum of 6
48 inches beyond the edge of the Cell frames.
49 B. Compact aggregate sub base layer to a minimum of 95 percent of maximum dry
50 density at optimum moisture content in accordance with ASTM D698 Standard

1 Proctor Method. Compact the subgrade with a minimum of three passes of a
2 suitable vibrating compacting machine or apply other compaction forces as
3 needed to achieve the required subgrade compaction rate.

- 4 C. The maximum slope on the surface of the sub base shall be 5 percent. Where
5 proposed grades on finished paving are greater than 5 percent, the Cells shall
6 be stepped to maintain proper relationships to the finished grade.
7 D. The grade and elevations of the base under the Soil Cells shall be approved by
8 the Engineer prior to proceeding with the installation of the Soil Cells.
9

10 **8-35.3(19) Installation of Soil Cells, Topsoil Type A, Geogrid, and Backfill**

- 11 A. Identify the outline layout of the structure and the edges of paving around tree
12 planting areas on the floor of the excavation, using spray paint or chalk line.
13 B. Lay out the first layer of Soil Cell frames on the sub base. Verify that the layout
14 is consistent with the required locations and dimensions of paving edges to be
15 constructed over the Soil Cells.
16 C. Check each Soil Cell frame unit for damage prior to placing in the excavation.
17 Any cracked or chipped unit shall be rejected.
18 D. Place frames no less than 1 inch and no more than 3 inches apart at base. In the
19 event that spacing between Cells exceeds 3 inches, bridging slab details and
20 methods shall be used to span these gaps.
21 E. Install Soil Cell frames around, over, or under existing or proposed utility lines as
22 indicated on plans.
23 F. Where any two adjacent Soil Cell frames must be installed at different elevations,
24 the upper frame shall be supported by aggregate sub base with a maximum
25 slope of 1:1. This may require installation of aggregate sub base within the
26 adjacent lower Cell frame. No two frames shall differ in elevation by more than
27 15 inches.
28 G. Assure that each frame sits solidly on the surface of the sub base. Frames shall
29 not rock or bend over any stone or other obstruction protruding above the surface
30 of the sub base material. Frames shall not bend into dips in the sub base
31 material. The maximum tolerance for deviations in the plane of the sub base
32 material under the bottom of the horizontal beams of each Soil Cell frame shall
33 be 1/4 inch in 4 feet.
34 H. Adjust sub base material including larger pieces of aggregate under each frame
35 to provide a solid base of support.
36 1. Anchor each Soil Cell into sub base with two-10-inch spikes, driven through
37 the molded holes in the Cell frame base. The purpose of the anchoring
38 system is to maintain cell spacing and layout during the installation of Topsoil
39 Type A and backfill.
40 I. If required, install the second layer of Soil Cell frames on top of the first layer.
41 Comply with manufacturer's requirements to correctly register and connect the
42 Cell frames together.
43 J. Register each frame on top of the lower frame post. Rotate each frame
44 registration arrow in the opposite direction from the frame below to assure that
45 connector tabs firmly connect. Each frame shall be solidly seated on the one
46 below.
47 K. Build layers as stacks of frames set one directly over the other. Do not set any
48 frame half on one Cell frame below and half on an adjacent frame.
49 L. Install strongbacks on top of the Soil Cell frames prior to installing Topsoil Type
50 A and backfill.

- 1 1. Strongbacks are required only during the installation and compaction of the
- 2 Topsoil Type A and backfill.
- 3 2. Strongbacks should be moved as the work progresses across the
- 4 installation.
- 5 3. Strongbacks shall be removed prior to the installation of Soil Cell decks.
- 6 M. Install Topsoil Type A, geogrid and backfill as indicated on the drawings. The
- 7 process of installation requires that these three materials be installed and
- 8 compacted together in several alternating operations to achieve correct
- 9 compaction relationships within the system.
- 10 N. Where required, place the geogrid curtain along the outside of the limit of the Soil
- 11 Cell frames.
- 12 1. Geogrid curtains are required between the edge of the Soil Cells and any
- 13 soils to be compacted to support paving beyond the area of Soil Cells. Do
- 14 not place geogrid curtains between the edge of the Cells and any planting
- 15 area adjacent to the Cells.
- 16 2. Pre-cut the geogrid to allow for 6 inches minimum under lapping below
- 17 backfill, and 12 inches minimum overlapping top of Soil Cell stack.
- 18 3. Where Soil Cell layout causes a change in direction in the plane of the
- 19 geogrid, slice the top and bottom flaps of the material so that it lies flat on
- 20 the top of the cell deck and aggregate base course along both planes.
- 21 4. Provide a minimum of 12-inch overlaps between different sheets of geogrid.
- 22 5. Place the geogrid in the space between the Soil Cell frames and the sides
- 23 of the excavation. Attach the geogrid to the Soil Cell frames using 3/16-inch
- 24 x 14-inch zip ties. Attach with zip ties at every cell and at Cell Deck.
- 25 O. Install no more than two layers of Soil Cell frames before beginning to install
- 26 Topsoil Type A and backfill. Compact the Topsoil Type A within the Soil Cell
- 27 frames and the backfill material outside the frames in alternating lifts until the
- 28 desired elevations and density is achieved in both Topsoil Type A and backfill.
- 29 P. Install and compact backfill material in the space between the Soil Cells and the
- 30 sides of the excavation in lifts that do not exceed 8 inches.
- 31 1. Compact backfill to 95 percent of maximum dry density using a powered
- 32 mechanical compactor. Use a pneumatic compacting tool or narrow foot
- 33 jumping jack compactor for spaces less than 12 inches wide and a 12-inch
- 34 wide jumping jack compactor or larger equipment in wider spaces.
- 35 2. Maintain the geogrid curtain between the Soil Cells frames and the backfill
- 36 material.
- 37 3. Install backfill in alternating lifts with the Topsoil Type A inside the Soil Cells.
- 38 Q. Fill the first layer or layers of frames with Topsoil Type A.
- 39 1. Bring Topsoil Type A to the site using equipment and methods that do not
- 40 overly mix and further damage soil peds within the soil mix. Soil mixes shall
- 41 not be blown or pumped into the Cells using soil blowing equipment.
- 42 2. Install in lifts that do not exceed 16 inches. Lightly compact the soil inside
- 43 the frames at each lift to remove air pockets and settle the soil within the
- 44 frames.
- 45 3. Do not compact greater than 80 percent of maximum dry density. Check
- 46 the soil compaction with a penetrometer or densiometer to achieve similar
- 47 compaction levels provided in the mock up.
- 48 4. If the Topsoil Type A becomes overly compacted, remove the soil and
- 49 reinstall. Use hand tools or other equipment that does not damage the Soil
- 50 Cell frames.
- 51 5. Do not walk directly on horizontal beams of the frames.

- 1 6. Work soil under the horizontal frame beams of the second level of Cell
2 frames and between columns eliminating air pockets and voids. Fill each
3 frame such that there is a minimum of 10 inches of soil over the top of
4 horizontal frame beams before beginning compaction.
- 5 7. The top 1-2 inches of each frame post should remain exposed above the
6 soil to allow the placement of the next frame or deck.
- 7 R. After the first two layers of Soil Cell frames have been installed, filled with Topsoil
8 Type A and backfilled, proceed to install the third layer, if required, of Soil Cells
9 frames. Comply with manufacturer's requirements to correctly register and
10 connect the Cell frames together.
- 11 S. Remove the Strongbacks. Sweep any soil from tops before adding the next layer
12 of frames.
- 13 T. Register each frame on top of the lower frame post. Rotate each frame
14 registration arrow in the opposite direction from the frame below to assure that
15 connector tabs firmly connect. Each frame shall be solidly seated on the one
16 below.
- 17 U. Build layers as stacks of frames set one directly over the other. Do not set any
18 frame half on one Cell frame below and half on an adjacent frame.
- 19 V. Continue to install and compact the Topsoil Type A within the Soil Cell frames
20 and the backfill material outside the frames in alternating lifts until the desired
21 elevations and density is achieved in both soils.
- 22 W. The Topsoil Type A shall be brought to level with the bottom of the Soil Cell deck
23 when installed.
- 24 X. Obtain final approval by the Engineer of soil installation prior to installation of the
25 Soil Cell deck.
- 26 Y. Remove Strongbacks after Topsoil Type A and backfill has been compacted to
27 the top of the entire set of Soil Cells.
- 28

29 **8-35.3(21) Soil Cell Deck Install**

- 30 A. Install the Soil Cell Decks over the top of each frame stack. Clean dirt from the
31 tops of the Soil Cell frame columns. Register the deck and make connections as
32 recommended by the manufacturer to secure the deck to the top of the Soil Cell
33 Frame. Assure that each deck is seated firmly on the frame top with all
34 connectors attached.
- 35 B. Install and compact remaining backfill material such that the soil outside the limits
36 of the Soil Cells is flush with the top of the installed deck.
- 37

38 **8-35.3(22) Installation of Geotextile, Geogrid, and Aggregate over the Deck**

- 39 A. Overlap geogrid from the sides of the Soil Cells over the top of the Soil Cell
40 Decks, with minimum of 12 inches overlap.
- 41 B. Place geotextile over the top of the deck and where indicated on the drawings,
42 extending beyond the outside edge of the excavation by at least 18 inches. Any
43 joints must be overlapped by a minimum of 18 inches.
- 44 C. Install the Crushed Surfacing Top Course (CSTC) over the geotextile
45 immediately after completing the installation of the fabrics. Work the aggregate
46 from one side of the deck to the other to assure that the fabric and aggregate
47 conforms to the cell deck contours. Do not apply aggregate in several positions
48 at the same time.
- 49 D. CSTC shall be a minimum of 4 inches thick under poured in place concrete
50 paving.

- 1 E. Load the aggregate from equipment that is outside the limits of the excavated
- 2 area. Work over material already in place.
- 3 F. For large or confined areas, where aggregate cannot easily be placed from the
- 4 edges of the excavated area, obtain approval for the installation procedure and
- 5 types of equipment to be used in the installation from the Soil Cell manufacturer.
- 6 G. Compact aggregate base course(s) in lifts not to exceed 6 inches in depth, to 95
- 7 percent of maximum dry density. Utilize a roller or plate compactor with a
- 8 maximum weight of 1000 pounds. Make sufficient passes with the compacting
- 9 equipment to attain the required compaction.

10
11 **8-35.3(23) Installation of Paving Above the Soil Cell System**

- 12 A. Place paving material over Soil Cell system per project specifications. Take care
- 13 when placing paving or other backfill on top of Soil Cell system not to damage
- 14 the system components.
- 15 B. Turn down edge of all concrete paving to Cell deck along the edges of all planting
- 16 areas to retain the aggregate base course.

17
18 **8-35.3(24) Installation of Root Barrier at Soil Cell**

- 19 A. Install root barrier per plans and detail.

20
21 **8-35.3(25) Installation of Topsoil Type A within the Tree Well Planting Area**

- 22 A. Prior to planting trees, install additional Topsoil Type A, to the depths indicated,
- 23 within the tree opening adjacent to paving supported by Soil Cells.
- 24 B. Remove all rubble, debris, dust and silt from the top of the Topsoil Type A that
- 25 may have accumulated after the initial installation of the Topsoil Type A within the
- 26 Soil Cells.
- 27 C. Assure that the Topsoil Type A under the tree root ball is compacted for the entire
- 28 soil depth to 90 percent to prevent settlement of the root ball.
- 29 D. The Topsoil Type A within the tree opening shall be the same soil as in the
- 30 adjacent Soil Cells.

31
32 **8-35.3(26) Repair of Cut Geotextile**

- 33 A. In the event that any geotextile over subgrades or the Soil Cell decks must be
- 34 cut during or after installation, repair the seam with a second piece of geotextile
- 35 that overlaps the edges of the cut by a minimum of 12-inches in all directions
- 36 prior to adding aggregate material.

37
38 **8-35.3(27) Protection**

- 39 A. Ensure that all construction traffic is kept away from the limits of the Soil Cells
- 40 until the final surface materials are in place. No vehicles shall drive directly on
- 41 the Soil Cell deck or aggregate base course.
- 42 B. Provide fencing and other barriers to keep vehicles from entering into the area
- 43 with Soil Cell supported pavement.
- 44 C. Maintain a minimum of 4 inches of aggregate base course over the geotextile
- 45 material during construction.
- 46 D. When vehicle must cross Soil Cells that does not have final paving surfaces
- 47 installed, use construction mats designed to distribute vehicle loads to levels that
- 48 would be expected at the deck surface once final paving has been installed. Use
- 49 only low impact track vehicles with a maximum surface pressure under the

1 vehicle of 4 pounds per square inch, on top of the mats over Soil Cells prior to
2 the installation of final paving.
3

4 **8-35.3(28) Clean Up**

5 Perform cleanup during the installation of work and upon completion of the work.
6 Maintain the site free of soil and sediment, free of trash and debris. Remove from site
7 all excess soil materials, debris, and equipment. Repair any damage to adjacent
8 materials and surfaces resulting from installation of this work.
9

10 **8-35.4 Measurement**

11 Add the following as a new section:

12
13 (*****)

14 "Soil Cell" will be measured per each.
15

16 **8-35.5 Payment**

17 Add the following as a new section:

18
19 (*****)

20 "Soil Cell," per each.
21

22 The unit price for Soil Cell shall be full payment for providing and installing soil cells as
23 shown on Plans per the contract requirements, and includes but not limited to the
24 geotextile, geogrid, Topsoil Type A within the Soil Cell, and decking material.
25
26

27 **END OF DIVISION 8**
28

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**DIVISION 9
MATERIALS**

9-05 DRAINAGE STRUCTURES AND CULVERTS

9-05.2 Underdrain Pipe

Section 9-05.2(9) is added as follows:
(*****)

9-05.2(9) Slotted Underdrain Pipe

Slotted underdrain pipe shall be PVC pipe meeting the requirements of ASTM D1785, SCH 40. The minimum size pipe shall be 6 inches in diameter.

Slots should be cut perpendicular to the long axis of the pipe and be 0.04 to 0.069 inches wide by 1 inch long and be spaced 0.25 inches apart (spaced longitudinally). Slots should be arranged in four rows spaced on 45-degree centers and cover one half of the circumference of the pipe.

9-05.15 Metal Castings

Section 9-05.15 is supplemented with the following:

(*****)

Solid Locking Covers

Castings for rings and solid locking covers shall be ductile iron in accordance with ASTM A536, *Standard Specifications for Ductile Iron Castings* and City of Kirkland Pre-Approved Plan CK-D.18 or CK-S.16.

The covers shall be gasketed, have "STORM" or "SEWER" imprinted on the top surface, and have a diamond patterned slip-resistant top surface. The covers shall include a stainless steel cam lock, and a multi-tool pickbar.

9-08 PAINTS AND RELATED MATERIALS

Section 9-08.9 is added as follows:

(*****)

9-08.9 Caulking Sealant

Hybrid sealant shall conform to ASTM D412; CTM2 98B; TT-S-00230C or higher and be water resistant after curing.

9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.2 Topsoil

9-14.2(1) Topsoil Type A

Section 9-14.2(1) is supplemented with the following:

(*****)

Topsoil Type A shall be a four-way mix soil of Sandy Loam, Medium Compost, Backfill for Sand Drains and Biochar. Topsoil Type A mix shall be 50-percent Sandy Loam, 25-percent

1 Backfill for Sand Drains, 15-20 percent Medium Compost by volume, and 5-10 percent
2 Biochar by volume, thoroughly mixed together.

3
4 Medium Compost shall comply with the requirements of Section 9-14.5(8).

5
6 Backfill for Sand Drains shall comply with the requirements of Section 9-03.13.

7
8 Biochar shall be classified as 'Class 1' following the International Biochar Initiative (IBI)
9 guidelines (IBI 2015).

10
11 Sandy Loam shall meet the following requirements:

- 12
13 1. Sandy Loam must be topsoil as defined by the United States Department of
14 Agriculture Classification system and have a texture analysis of 60-70% sand, 15-
15 30% silt and 0-15% clay.
16
17 2. Sandy Loam must consist of loose, moderately well-drained, and friable soil. And be
18 free of stones, debris, and/or similar objects.
19
20 3. Sandy Loam must be free of pests, toxic substances and other undesirable material
21 harmful or detrimental to ornamental plant growth. Sandy Loam must not contain any
22 viable seeds, roots or rhizomes capable of sprouting any State-listed noxious weeds
23 or invasive root propagating plants including but limited to horsetail, English ivy,
24 clematis, knotweed, etc. Remove soil found to contain these prohibited viable plant
25 materials and replaced at the Contractor's expense.
26
27 4. Sandy Loam must have a pH between 5.0 to 7.0 and organic matter percentage of
28 2% min. – 10% max. (by weight). Particle Size must meet the following sieve
29 requirements:

30
31

<u>Sieve Size</u>	<u>Percent Passing</u>
32 1"	100
33 1/2"	> 90
34 #10	60 - 70
35 #100	20-30
36 #200	<30
37 #270	<25

38

39 Biochar shall meet the following gradation:

40
41

<u>Sieve Size</u>	<u>Percent Passing</u>
42 #6	100%
43 #100	10% (Max.)

44

45 Topsoil Type A must have pH range of 5.0 to 7.0 with dolomite limestone, calcium
46 carbonate limestone or soil sulfur added as necessary to attain this range. Organic
47 content must be between 8% and 12% by weight as tested by the Loss on Ignitions
48 method.
49

1 Contractor shall send minimum of one representative sample of Topsoil Type A to an
2 approved soil-testing laboratory (state or commercial laboratory) for approval prior to
3 use on the project site. The Contractor shall be responsible for whatever Topsoil
4 additives may be required, as recommended by the testing laboratory. The cost for
5 testing and Topsoil additives shall be borne by the Contractor. Testing shall be performed
6 in accordance with the most current edition of Methods of Soil Analysis published by the
7 Soil Science Society of America, Inc. The soil test analysis reports and
8 recommendations for Topsoil additives shall include the following:
9

- 10 1. Fertility Analysis
11 Extractable analyses: nitrate-nitrogen, ammoniacal-nitrogen,
12 phosphorous, potassium, calcium, magnesium, copper, zinc, manganese
13 and iron.
14 Saturation extract values: calcium, magnesium, potassium, sodium,
15 boron, sulfate, pH, qualitative lime, salinity and sodium adsorption ratio
16 (SAR).
17
- 18 2. Organic Content and Particle Size Appraisal
19 Percent dry weight organic matter and USDA particle size
20 appraised to include USDA soil classification.
21
- 22 3. Cation Exchange Capacity (CEC).
23
- 24 4. Laboratory Recommendations.
25

26 Written statement from the soil-testing laboratory that they have reviewed the
27 project planting plans and the planting specifications, and that their
28 recommendations respond to the specific needs of the Contract.
29

30 Submit soil laboratory tests for Topsoil Type A and supplier's certification of Medium
31 Compost, Backfill for Sand Drains, and Biochar for Engineer's review and approval prior
32 to installing Topsoil Type A.
33

34 **9-14.4 Fertilizer**

35 Section 9-14.4 is supplemented with the following:
36

37 (*****)

38 Fertilizer for trees shall be 21-gram Agriform tablets 20-10-5 or acceptable equal.
39

40 Fertilizer for sod lawn shall be granular fertilizer containing the following percentages by
41 weight, 10-20-20 or acceptable equal.
42

43 **9-14.5 Mulch and Amendments**

44 **9-14.5(10) Wood Chip Mulch**

45 Add the following as a new section:
46

47 (*****)

48 Wood chip mulch shall be derived from fir, pine, or hemlock species. It shall not contain
49 resin, tannin, or other compounds that would be detrimental to plant life. Sawdust shall
50

1 not be used as mulch. Mulch produced from finished wood products or construction
2 debris will not be allowed.

3
4 Wood chips when tested shall be in accordance with WSDOT T 123 and shall meet the
5 following loose volume gradation:
6

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	95	100
No. 4	0	30

7
8 **9-14.7 Plant Materials**

9
10 **9-14.7(2) Quality**

11 Section 9-14.7(2) is supplemented with the following:

12
13 **(*****)**

14 The review and preliminary approval of all plant materials by the Engineer prior to
15 planting is mandatory. The Contractor has 3 options to secure approval of plant
16 materials:

- 17
18 1. Submit plant samples to the Engineer's office and/or have samples available at
19 the project site for review during scheduled visits.
- 20
21 2. Submit color photographs of representative specimens of each type of plant on
22 the plant schedule. Photos shall be minimum 3 x 5 inches and minimum 150 DPI
23 if digital format. Photographs shall be taken from an angle that depicts the
24 condition of foliage, branching pattern, the rootball, and the size of each typical
25 plant to be furnished. A scale rod or other measuring devise shall be included in
26 the photograph. For species where more than 20 plants are required, include a
27 minimum of 3 photos that show the average plant, the best quality plant, and the
28 worst quality plant to be provided. Label each photograph with the plant name,
29 plant size, and name of the growing nursery.
- 30
31 3. Have Engineer review plants at the place of growth at the Contractor's expense.

32
33 **9-14.7(4) Sod**

34 Section 9-14.7(4) is supplemented with the following:

35
36 **(*****)**

37 Sod Lawn shall be comprised of 70-percent Perennial Turf Type Ryegrass and 30-
38 percent Fine Fescue and contain no more than 1-percent other grasses or acceptable
39 equal.

40
41 Sod Lawn available from or acceptable equal:

42
43 Emerald Turfgrass Farms
44 Tacoma, Washington
45 Tel: (800) 722-3369
46 Web: www.emeraldurfgrass.com

43 JB Instant Lawn
44 Redmond, Washington
45 Tel: (425) 821-0444
46 Web: www.jbinstantlawn.net

1
2 Sod shall be premium quality, free of all weeds, pests, disease, Poa Annua and other
3 undesirable material.

4
5 Sod shall not be cut from the field more than 1-day prior to delivery to the project site.
6

7 **9-14.8 Stakes, Guys, and Wrapping**

8 Section 9-14.8 is supplemented by adding the following:
9

10 Tree stakes shall be 2" diameter, 8'-0" high wooden peel poles with conical pointed
11 bottom.
12

13 **9-14.9 Root Barrier**

14 Section 9-14.9 is new by adding the following section:
15

16 DeepRoot Root Barrier: UB-18-2 for trees in sod planting areas or when adjacent to
17 curbs, and UB-12-2 for trees with soil cells, or acceptable equal. Root barrier shall be
18 made of polypropylene with 24-inch wide panels.
19

20 Root Barrier available from:

21 Berkey Supply Inc.
22 13280 NE Spring Blvd
23 Bellevue, WA 98005
24 Web: www.deeproot.com
25
26

27 **9-15 IRRIGATION SYSTEM**
28

29 **9-15.1(1) Galvanized Pipe and Fittings**

30 Delete section and replace with the following:
31

32 No galvanized pipe or fittings shall be allowed as part of the irrigation system.
33

34 **9-15.4(A) Irrigation Root Watering System**

35 Section 9-15.4(A) is new by adding the following:
36

37 Root watering system shall be 36" deep and include one 0.25 gallon per minute emitter
38 per body, and one cap per body. The cap and body shall be made of UV resistant ABS
39 material. Each root watering system shall have an adjustable check valve.
40

41 Root Watering System shall be per plans or approved equal.
42

43 **9-29 Illumination, Signal, Electrical**

44 Section 9-29 is supplemented with the following:
45

46 (*****)

47 **General**

48 All bolts, nuts, washers, and other fasteners shall be stainless steel unless otherwise
49 specified herein.

1
2 Where applicable, all materials, equipment, and installation procedures shall conform to the
3 current requirements and standards of the State of Washington Department of Labor and
4 Industries.

5
6 **Conduit, Innerduct, and Outerduct**

7 Section 9-29.1 is supplemented with the following:

8
9 ***(WSDOT NWR August 10, 2009)***

10 **Conduit Sealing**

11 Mechanical plugs for cabinet conduit sealing shall be one of the following:

- 12
13 1. Tyco Electronics - TDUX
14 2. Jackmoon – Triplex Duct Plugs
15 3. O-Z Gedney – Conduit Sealing Bushings

16 The mechanical plug shall withstand a minimum of 5 psi of pressure.

17
18 **9-29.2 Junction Boxes, Cable Vaults, and Pull Boxes**

19 Section 9-29.2 is supplemented with the following:

20
21 ***(*****)***

22 Type 1 and Type 2 junction boxes shall be as noted in the Plans and in conformance with
23 WSDOT Standard Plan J-40.10-03.

24
25 Junction boxes shall be marked for their use in accordance with the following schedule:

26

<u>System Type</u>	<u>Legend</u>
Illumination	SL
Traffic Signal	TS
Interconnect	IT

27
28 Junction boxes shall have metallic lids. All frames and lids shall be hot-dipped galvanized
29 and bonded to the ground system. All junction boxes installed in the sidewalks shall have
30 non-skid lids. The non-skid surface shall be made of slip resistant steel plate and be 5/16
31 inch in thickness.

32
33 **9-29.2 Junction Boxes, Cable Vaults, and Pull Boxes**

34
35 ***9-29.2(1) Standard Duty and Heavy Duty Junction Boxes***
36 ***(November 13, 2018 COK GSP)***

37
38 Section 9-29.2(1) is supplemented with the following:

39
40 Junction boxes with metal lids located in pedestrian walkway or sidewalk areas shall have
41 non-slip lids provided and installed. Retrofit or replacement lids shall be non-slip.

42
43 ***9-29.2 (1) A2 Non – Concrete Junction Boxes***

44 Non-concrete junction boxes shall not be accepted in the City of Kirkland.

1 **9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable**

2 Section 9-29.3 is supplemented with the following:

3
4 **(*****)**

5 Chemically cross-linked polyethylene type USE shall be used for insulation of conductors in
6 raceways. No alternate will be allowed.

7
8 **Electrical Conductors and Cable**

9 Section 9-29.3(2) is supplemented with the following:

10
11 **(WSDOT NWR October 5, 2009)**

12 **Video Detection Cable**

13 Coaxial cable or combination (composite/Siamese) cable for video detection shall be
14 RG59/U with a manufacturer’s rating of 600 Volts (Non UL - manufacturer’s voltage
15 rating of the insulation is acceptable). Combination cable shall be in accordance with the
16 video detection system manufacturer’s recommendations for the length of cable
17 required.

18
19 **(December 9, 2004 COK GSP)**

20 **Detector Loop Wire**

21 Item 8 of Section 9-29.3 is replaced with the following:

22
23 Detector loop wire shall be No. 12 AWG Class B stranded copper wire with cross-linked
24 polyethylene type USE insulation of code thickness. Loop lead-in wire shall be IMSA
25 Loop cable specification 50-2-1984, #14 AWG.

26
27 A one-part loop sealant manufactured by Craftco “MSI”, or approved equal, shall be used
28 to embed the loop wire into the pavement.

29
30 **9-29.6 Light and Signal Standards**

31
32 Section 9-29.6 is supplemented with the following:

33
34 **(*****)**

35 **Light Standards with Type 1 Luminaire Arms**

36 Lighting standards shall be fabricated in conformance with the methods and materials
37 specified on the pre-approved Plans listed below, provided the following requirements
38 have been satisfied:

39
40 (a) Light source to pole base distance (H1) shall be as noted in the Plans.
41 Verification of H1 distances by the Engineer, prior to fabrication, is not required.
42 Fabrication tolerance shall be ± 6 inches.

43
44 (b) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50

Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	G	30, 35, 40, and 50

Light Standards with Type 1 Luminaire Arms

Lighting standards shall be fabricated in conformance with the methods and materials specified on the pre-approved plans listed below, provided the following requirements have been satisfied:

- (a) Mounting heights shall be as specified in the Plans.
- (b) Light source to pole base distances (H1) shall be determined or verified by the Engineer prior to fabrication. Fabrication tolerance shall be ± 6 inches.
- (c) All other requirements of the Special Provisions have been satisfied.

Fabricator	Pre-Approved Drawing No.	Rev.	Mounting Height(s) (feet)
Valmont Ind., Inc.	DB01164, Sheets 1-5 of 5	B	30, 35, 40, and 50
Ameron Pole Products Division	WA15LT3721, Sheets 1 and 2 of 2	A	20, 25, 30, 35, 40, 45, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-BB, Sheets 1 and 2 of 2	H	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-ELBOW, Sheets 1-3 of 3	J	30, 35, 40, and 50
Millerbend Manufacturing Co.	74515-WA-LP1-SB, Sheets 1-3 of 3	G	30, 35, 40, and 50

Traffic Signal Standards

Traffic signal standards shall be furnished and installed in accordance with the methods and materials noted in the applicable Standard Plans, pre-approved plans, or special design plans.

1 All welds shall comply with the latest AASHTO Standard Specifications for Structural
2 Supports for Highway Signs, Luminaires and Traffic Signals. Welding inspection shall
3 comply with Section 6-03.3(25)A Welding Inspection.
4

5 Hardened washers shall be used with all signal arm connecting bolts instead of
6 lockwashers. All signal arm ASTM F 3125 Grade A325 connecting bolts tightening shall
7 comply with Section 6-03.3(33).
8

9 Traffic signal standard types, applicable characteristics, and foundation types are as
10 follows:
11

12 **Type PPB**

13 Pedestrian push button posts shall conform to Standard Plan J-20.15 or to one of
14 the following pre-approved plans:
15

Fabricator	Pre-Approved Drawing No.
Valmont Ind., Inc.	DB01165 Rev. B (4 sheets)
Ameron Pole Products Division	WA15TR10-1 Rev. C (1 sheet) and WA15TR10-3 Rev. B (1 sheet)
Millerbernd Manufacturing, Co.	74514-WA-PED-PPB Rev J (2 sheets)

16 Foundations shall be as noted in Standard Plan J-20.15
17
18

19 **9-29.7 Luminaire Fusing and Electrical Connections at Light Standard Bases,
20 Cantilever Bases, and Sign Bridge Bases**

21 Section 9-29.7 is supplemented with the following:
22

23 (*****)

24 Luminaire fusing shall conform to Standard Specification Section 9-29.7. Fuses shall be
25 Bussman Type FNM, Reliance MEN, Gould-Shawmut TRM, or approved equal and shall be
26 10 A.
27

28 Fuse connectors shall be installed at every traffic mast arm pole containing a luminaire. Every
29 conductor above ground potential shall be served by a quick-disconnect fused connector.
30 Every conductor at ground potential shall be serviced by a single pin connector. Fuse
31 connectors shall be per Standard Specification Section 9-29.7.
32

33 The fuse holders shall be readily accessible from the adjacent junction box with the servicing
34 conductors and have 18 inches of slack in the conductors.
35

36 **9-29.10 Luminaires**

37 Section 9-29.10 is supplemented with the following:
38

39 (*****)

40 Decorative Pedestrian Luminaire

- 41 1. LUMEC CAND1-65W42LED3K-PC-C-RLE5-240-GN8

- 1 2. Powder coated and clear coated with a polyurethane finish to match Dark Green
2 GN8.
3

4 Luminaire Arm

- 5 1. LUMEC CN1-1A-GN8 bracket arm
6 2. Powder coated and clear coated with a polyurethane finish to match Dark Green
7 GN8.
8

9 Anchor Base

- 10 1. LUMEC LBC2 base cover.
11 2. Powder coated and clear coated with a polyurethane finish to match Dark Green
12 GN8.
13

14 Shaft

- 15 1. LUMEC APR4U-12-GFI-PSS16.
16 2. Powder coated and clear coated with a polyurethane finish to match Dark Green
17 GN8.
18

19 **9-29.12 Electrical Splice Materials**

20
21 **9-29.12(1) Illumination Circuit Splices**

22 Section 9-29.12(1) is supplemented with the following:
23

24 (*****)

25 All splices for the illumination circuit shall be made in the junction box employing a C-
26 Tap (copper crimp), 3M 2000 Mastic Cover, and 3M Super 88 Tape type splice kit as
27 specified in COK Plan No. CK-R.47.
28

29 This section is revised to read:
30

31 Underground illumination circuit splices shall be solderless crimped connections capable of
32 securely joining the wires, both mechanically and electrically, as defined in Section 8-20.3(8).
33 Aerial illumination splices shall be solderless crimp connectors or split bolt vice-type
34 connectors.
35

36 **9-29.12(1)A Heat Shrink Splice Enclosure**

37 This section is deleted in its entirety.
38

39 **9-29.12(1)B Molded Splice Enclosure**

40 This section is deleted in its entirety.
41

42 **9-29.12(2) Traffic Signal Splice Material**

43 This section is revised to read:
44

45 Induction loop splices and magnetometer splices shall use an uninsulated barrel-type
46 crimped connector capable of being soldered.
47

1 **9-29.12(3) Splice Enclosures**

2 **9-29.12(3)A Heat Shrink Splice Enclosure**

3 Heat shrink splice enclosures shall be medium or heavy wall cross-linked polyolefin,
4 meeting the requirements of AMS-DTL-23053/15, with thermoplastic adhesive sealant.
5 Heat shrink splices used for “wye” connections require rubber electrical mastic tape.
6

7 **9-29.12(3)B Molded Splice Enclosure**

8 Molded splice enclosures shall use epoxy resin in a clear rigid plastic mold. The material
9 used shall be compatible with the insulation material of the insulated conductor or cable.
10 The component materials of the resin insulation shall be packaged ready for convenient
11 mixing without removing from the package.
12

13 **9-29.12(4) Re-Enterable Splice Enclosure**

14 Re-enterable splice enclosures shall use either dielectric grease or a flexible resin contained
15 in a two-piece plastic mold. The mold shall either snap together or use stainless steel hose
16 clamps.
17

18 **9-29.12(5) Vinyl Electrical Tape for Splices**

19 Vinyl electrical tape in splicing applications shall meet the requirements of MIL-I-24391C.
20

21 **9-29.18 Vehicle Detector**

22 Section 9-29.18 is supplemented with the following:

23
24 *(*****)*

25 **Preformed Loops**

26 Detectors must be used for actuating traffic actuated controllers and sample stations. A
27 complete detector loop installation must consist of loop wire and lead in cable from the loop
28 to the amplifier. Loop wires and lead-in cables must be 600 volt rated.
29

30 Loop wire in concrete pavement must be either IMSA 51-3 or IMSA 51-7. Loop wire in asphalt
31 pavement must be IMSA 51-7 with either PVE or polyethylene tube.
32

33 The lead in from the detector junction box to the controller cabinet or remote amplifier cabinet
34 must be either 3 pair #16 AWG 7 x 24, or 6 pair #16 AWG 7 x 24 stranded tinned copper,
35 polyvinyl chloride/nylon individual insulated, overall PVC jacketed, twisted pair cable with
36 aluminum foil polyester shield. The 3 pair and the 6 pair lead in cables must have a #18 AWG
37 stranded tinned copper drain wire. The conductors must be twisted together approximately 3
38 turns per foot. Connections of the loop wire to the lead in wire must be made only in a
39 handhole with a waterproof splice.
40

41 Loop sealant for use on concrete bridge decks and PCC pavement shall be one of the
42 following:

- 43 1. 3M Black 5000
- 44 2. Gold Label Flex 1P
- 45 3. QCM EAS-14
- 46

47 *(Kirkland)*

48 **Non-Intrusive Vehicle Detector**
49

1 The Contractor shall provide, install, and connect non-intrusive vehicle detector units in traffic
2 signal locations as shown in the Plans. The Non-Intrusive Vehicle Detector shall be
3 manufactured Vantage NEXT, With the following parts:
4

Part #	Description
5850010110	CAMERA/RADAR SYSTEM (VECTOR-NEXT) 115VAC ITERIS (COLOR)
5850040730	VANTAGE NEXT CCU UNIT W/SHIP KIT (SHELF MOUNT) TS2 VERSION; MAX 4 SENSORS
0630010020	CABLE CAT5E OUTDOOR RATED 1000FT ROLL

5 6 **9-29.19 Pedestrian Push Buttons**

7
8 Section 9-29.19 is supplemented with the following:
9

10 **(*****)**

11 Pedestrian push buttons shall be Polara Engineering iNavigator 2-wire push button. Product
12 number is iN2-3-T-N-0-G.
13

14 Pedestrian push buttons shall be delivered to the City of Kirkland Signal Shop for testing and
15 programming. The 2-conductor pedestrian cable shall be continuous between the button and
16 the cabinet. The Contractor shall perform ohm test(s) of wires per the manufacturer's
17 installation manual. Upon satisfactory ohm test(s), Contracting Agency Signal Technicians
18 will land wires in the cabinet.
19

20 Signs shall conform to Section 9-29.19 of the Standard Specifications and Standard Plan J-
21 20.26-01.
22

23 Bicycle push buttons shall be the same as pedestrian push buttons with the following
24 exceptions:

- 25 • Vibro-tactile element is disabled.
- 26 • Sign mounted to the push button shall be MUTCD R10-24 in accordance with the
27 Plans.
28

29 **9-29.24(2) Electrical Circuit Breakers and Contactors**

30 This section is revised to read:
31

32 **(*****)**

33 All circuit breakers shall be bolt-on type, with the RMS-symmetrical interrupting capacity
34 described in this Section. Circuit breakers for 120/240/277 volt circuits shall be rated at 240
35 or 277 volts, as applicable, with an interrupting capacity of not less than 10,000 amperes.
36 Circuit breakers for 480 volt circuits shall be rated at 480 volts, and shall have an interrupting
37 capacity of not less than 14,000 amperes.
38

39 Lighting contactors shall be rated for tungsten or ballasted (such as sodium vapor, mercury
40 vapor, metal halide, and fluorescent) lamp loads. Contactors for 120/240/277 volt circuits
41 shall be rated at 240 volts maximum line to line voltage, or 277 volts maximum line to neutral

1 voltage, as applicable. Contactors for 480 volt circuits shall be rated at 480 volt maximum
2 line to line voltage.
3

4 Section 9-29.27 is added as follows:

5 (*****)

6 **9-29.27 Detectable Pull Tape**

7 The Contractor shall furnish and install a flat polyester woven pre-lubed tape that contains a
8 22- gauge wire.
9

10 The tape shall be marked with sequential footage markings and be continuous.

11
12 The tape shall meet or exceed a breaking strength of 900 lb., with a width of 1/2-inch.
13

14 **9-37 SOIL CELLS**

15
16 **9-37.1 Materials**

17 Comply with Manufacturer's recommendations. Where these may be in conflict with Plans,
18 the more stringent requirements prevail.
19

20 **9-37.2 Soil Cells**

- 21 A. The term Soil Cell shall be used to refer to a single Soil Cell or a stack of Soil
22 Cells.
23 B. Soil Cells shall be modular, structural systems.
24 C. Each Soil Cell shall be structurally-independent from all adjacent Soil Cells.
25 D. Soil Cells shall be specifically designed and tested for the purpose of growing
26 healthy trees and providing stormwater management.
27 E. Soil Cells shall be capable of supporting loads up to and including AASHTO H-
28 20, when used in conjunction with approved pavement profiles.
29 F. Soil Cells shall be open on all vertical faces and horizontal planes (that connect
30 stacked Soil Cells) and shall have no interior walls or diaphragms. Soil Cells shall
31 be capable of providing a large, contiguous, continuous volume of Topsoil Type
32 A that does not inhibit or prevent the following:
33 a) Movement and growth of roots within the provided soil volume.
34 b) Movement of water within the provided soil volume, including lateral capillary
35 movement.
36 c) Placement of Topsoil Type A.
37 d) Compaction testing of Topsoil Type A, once in place.
38 e) Installation and maintenance of utilities within, adjacent to, or below the Soil
39 Cell.
40 G. Soil Cells shall be manufactured by: DeepRoot Green Infrastructure, L.P. (Deep
41 Root); 530 Washington Street, San Francisco, CA 94111; 415.781.9700;
42 800.458.7668; fax 415.781.0191; www.deeproot.com, or approved equal.
43

44 **9-37.3 Anchoring Spikes**

- 45 A. 10 inches long by 19/64-inch diameter, spiral, galvanized timber spikes. Utilize 2
46 spikes in each frame on the first layer of Soil Cells to anchor the frames to the
47 aggregate sub base.
48

1 **9-37.4 Geogrid**

- 2 A. Geogrid shall be woven polyester fabric with PVC coating, Uni-axial or biaxial
3 geogrid, inert to biological degradation, resistant to naturally occurring
4 chemicals, alkalis, acids.
5 1. Tensile strength at ultimate: 1850 lbs/ft minimum by ASTM D6637 test
6 method.
7 2. Creep reduced strength: 1000 lbs/ft minimum by ASTM D5262 test method.
8 3. Long term allowable design load: 950 lbs/ft minimum by GRI GG-4 test
9 method.
10 4. Grid aperture size (MD): 0.8 inch minimum.
11 5. Grid aperture size (CD): 1.28 inch maximum.
12 6. Roll size: 6 feet width is preferred, up to 18 feet .
13 B. Products meeting this specification:
14 1. Miragrid 2XT as manufactured by Ten Cate Nicolon, Norcross, GA,
15 <http://www.tencate.com>.
16 2. Fortrac 35 Geogrid as manufactured by Huesker, Charlotte, NC,
17 <http://www.hueskerinc.com>.
18 3. SF 20 Biaxial Geogrid, as manufactured by Synteen, Lancaster, SC,
19 <http://www.synteen.com>.
20 4. Stratagrid SG 150, by Strata, Cumming, GA, <http://www.geogrid.com>.

21
22 **9-37.5 Geotextile**

- 23 A. Geotextile shall be nonwoven polypropylene fibers, inert to biological
24 degradation and resistant of naturally occurring chemicals, alkalis and acids.
25 1. Grab tensile strength: 200 lbs minimum (ASTM D4632/D4632M test
26 method).
27 2. Elongation: 50 percent minimum (ASTM D4632/D4632M test method).
28 3. Trapezoid tear strength: 80 lbs minimum (ASTM D4533 test method).
29 4. Mullen burst strength: 350 psi minimum (ASTM D3786 test method)
30 5. Puncture strength: 110 lbs minimum (ASTM D4833/D4833M test method).
31 6. CBR puncture strength: 500 lbs minimum (ASTM D6241 test method)
32 7. Apparent opening size: 80 sieve maximum (ASTM D4751 test method).
33 8. Flow rate: 95 gal/min/sq ft minimum (ASTM D4491 test method)
34 9. UV Resistance (at 500 hours): 70 percent strength retained
35 B. Products meeting this specification:
36 1. Mirafi 180 N as manufactured by Ten Cate Nicolon, Norcross, GA,
37 <http://www.tencate.com>.
38 2. Geotex 801 as manufactured by Propex Geosynthetics, Chattanooga, TN,
39 <http://www.geotextile.com>.
40 3. Or approved equal.

41
42 **9-37.6 Crushed Surfacing Base Course Below Cell Frame**

- 43 A. Aggregate meeting the following specifications:
44 1. ASTM D1241, Type 1, Gradation B
45 a. Type I mixtures shall consist of stone, gravel, or slag with natural or
46 crushed sand and fine mineral particles passing a No. 200 sieve.

47
48

<u>Sieve</u>	<u>Percent Passing</u>
1.5 inches	100
1-inch	75-95

49
50

1	3/8-inch	40-75
2	No. 4	30-60
3	No. 10	20-45
4	No. 40	15-30
5	No. 200	5-15
6		

7 **9-37.7 Crushed Surfacing Top Course Above Cell Deck**

8 A. Crushed Surfacing Top Course per 9-03.9(3).

9
10 **9-37.8 Backfill Material Adjacent to Soil Cells**

11 A. Clean, compactable, Gravel Borrow soil meeting the requirements of the Unified
12 Soil Classification system for soil type GW, GP, GC with less than 30 percent
13 fines, SW, and SC with less than 30 percent fines. Backfill material shall be free
14 of organic material, trash and other debris, and shall be free of toxic material
15 injurious to plant growth.

16
17 **END OF DIVISION 9**
18
19

1 **APPENDICES**
2 **(WSDOT GSP January 2, 2012)**

3 The following appendices are attached and made a part of this contract:

4
5 *** APPENDIX A:
6 City of Kirkland Pre-Approved Plans / WSDOT Standard Plans

7
8 APPENDIX B:
9 Permits

10
11 APPENDIX C:
12 Summary of Geotechnical Conditions.

13
14 APPENDIX D:
15 Stormwater TIR

16
17 APPENDIX E:
18 Critical Areas Report

19
20 APPENDIX F:
21 Arborist Report

22
23 APPENDIX G:
24 Cultural Resource Report and Inadvertent Discovery Plan

25
26 APPENDIX H:
27 Pothole Logs

28
29
30 **(WSDOT GSP November 4, 2024)**
31 **Standard Plans**

32 The Washington State Department of Transportation *Standard Plans* M21-01, published
33 September 2024, is made a part of this Contract with the following revisions:

34
35 A-10.30

36 RISER RING detail (Including SECTION view and RISER RING DIMENSIONS table): The
37 RISER RING detail is deleted from the plan.

38
39 INSTALLATION detail, SECTION A: The "1/4"" callout is revised to read "+/- 1/4" (SEE
40 CONTRACT ~ Note: The + 1/4" installation is shown in the Section A view)"

41
42 A-40.20

43 Sheet 1, NOTES 1, 2, 3, and 4 are replaced with the following:

- 44
45 1. Use the ½ inch joint details for bridges with expansion length less than 100 feet and
46 for bridges with L type abutments. Use the 1 inch joint details for other applications.
47
48 2. Use detail 5, 6, 7 on steel trusses and timber bridges with concrete bridge deck
49 panels.

- 1
2 3. For details 1, 2, 3, and 4, the item "HMA Joint Seal at Bridge End" shall be used for
3 payment. For details 5 and 6, the item "HMA Joint Seal at Bridge Deck Panel Joint"
4 shall be used for payment. For detail 7, the item "Clean and Seal Bridge Deck Panel
5 Joint" shall be used for payment.
6

7 Sheet 2, Detail 8 reference to "6-09.3(6)" is revised to read "6-21.3(7)".
8

9 A-50.40

10 Sheet 1, Plan View: The callout "BEAM GUARDRAIL TYPE 31 TRANSITION SECTION
11 TYPE 21 OR TYPE 24 (SEE STANDARD PLAN C-25.20 OR C-25.30)" is revised to read
12 "BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21, 24, OR 25 (SEE
13 STANDARD PLAN C-25.20, C-25.30, OR C-25.32)"
14

15 A-60.40

16 Note 2 reference to "6-09.3(6)" is revised to read "6-21.3(7)".
17

18 B-90.40

19 Valve Detail – DELETED
20

21 C-23.70

22 Sheet 2, ANCHOR BRACKET ASSEMBLY DETAIL, dimension, "R. 5/16" is revised to read;
23 R. 15/16"
24 ANCHOR PLATE DETAIL, weld callout (fillet), 1/4" is revised to read; 3/16"
25

26 C-60.20

27 Sheet 1, Plan view, callout – "1/2" (IN) DIAMETER X 6 1/2" (IN) LONG ANCHOR BOLT ~
28 PER STD. SPEC. SECT. 9-06.5(4) (TYPICAL) (SEE NOTE 7)" is revised to read: "5/8"
29 DIAMETER x 6 1/2" (IN) LONG ANCHOR BOLT ~ PER STD. SPEC. SECT. 9-06.5(4)
30 (TYPICAL) (SEE NOTE 7)"
31

32 C-81.15

33 Sheet 1, General Notes, Add Note 7, to read;"7. The concrete class for the moment slab
34 shall be class 4000 typically and class 4000A when the top of the slab is used as the roadway,
35 or sidewalk, surface. The concrete class for the barrier is defined in Standard Specification
36 Section 6-10.3."
37

38 C-85.11

39 On Section B, the callout "3" EXPANDED POLYSTYRENE AROUND COLUMN (TYP.)" is
40 revised to read "3" EXPANDED POLYSTYRENE OR POLYETHYLENE FOAM AROUND
41 COLUMN (TYP.)"
42

43 D-3.09

44 Sheet 1, Geosynthetic Wall with 2 FT Traffic Surcharge detail, callout – "BARRIER ON WALL
45 ~ SEE Standard Plan D-3.15 or D-3.16" is revised to read: "BARRIER ON WALL ~ SEE
46 Standard Plan C-81.10 and/or C-81.15"
47

48 D-3.10

49 Sheet 1, Typical Section, callout – "FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER.
50 USE THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.15" is revised to
51 read; "FOR WALLS WITH SINGLE SLOPE TRAFFIC BARRIER, SEE CONTRACT PLANS"

1 Sheet 1, Typical Section, callout – “FOR WALLS WITH F-SHAPE TRAFFIC BARRIER. USE
2 THE DETAILS ABOVE THE MATCH LINE ON STANDARD PLAN D-3.16” is revised to read;
3 “FOR WALLS WITH F-SHAPE TRAFFIC BARRIER, SEE CONTRACT PLANS”
4

5 D-3.11

6 Sheet 1, Typical Section, callout – “”B” BRIDGE APPROACH SLAB (SEE BRIDGE PLANS)
7 OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE STANDARD PLANS D-3.15
8 OR D-3.16” is revised to read; ”B” BRIDGE APPROACH SLAB OR MOMENT SLAB (SEE
9 CONTRACT PLANS)

10 Sheet 1, Typical Section, callout – “TYPICAL BARRIER ON BRIDGE APPROACH SLAB
11 (SEE BRIDGE PLANS) OR PERMANENT GEOSYNTHETIC WALL BARRIER ~ SEE
12 STANDARD PLANS D-3.15 OR D-3.16” is revised to read; “TYPICAL BARRIER ON BRIDGE
13 APPROACH SLAB OR MOMENT SLAB (SEE CONTRACT PLANS)
14

15 D-10.10

16 Note 7, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30”
17 is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced
18 Concrete Retaining Wall Type 1 and 1SW”.
19

20 D-10.15

21 Note 7, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30”
22 is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced
23 Concrete Retaining Wall Type 2 and 2SW”.
24

25 D-10.30

26 Wall Type 5 may be used in all cases.
27

28 D-10.35

29 Wall Type 6 may be used in all cases.
30

31 D-10.40

32 Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30”
33 is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced
34 Concrete Retaining Wall Type 7”.
35

36 D-10.45

37 Note 5, “If Traffic Barriers are required, See Standard Plans D-15.10, D-15.20 and D-15.30”
38 is revised to read “Traffic Barriers shall not be structurally connected to the Reinforced
39 Concrete Retaining Wall Type 8”.
40

41 F-10.18

42 General Note 1; “Construct curb joints at concrete pavement transverse joint locations. If all
43 adjacent pavement is HMA, see Standard Plan F-30.10 for Curb Expansion and Contraction
44 Joint Spacing.” Is revised to read – “See Standard Plan F-30.10 and Standard Specification
45 Section 8-04.3 for Curb Expansion and Contraction Joint details and spacing.”
46

47 F-30.10

48 All five instances of the “2.0% MAX.” are replaced with “2.1% MAX.”
49

50 F-40.12

51 The one instance of “2.0% MAX.” is replaced with “2.1% MAX.”

1 Note 7 is replaced with the following:

2 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein.
3 If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details.
4 Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do
5 not include the abutting landing in the Curb Ramp length measurement. When a ramp is
6 constructed on a radius, the Curb Ramp length is measured on the inside radius along the
7 back of the walkway.

8 Section B is amended as follows:

9 Delete: "15' – 0" MAX. (TYP.)"

10 Section C is amended as follows:

11 Delete: "15' – 0" MAX. (TYP.)"

12
13 F-40.14

14 The one instance of "2.0% MAX." is replaced with "2.1% MAX."

15 Note 7 is replaced with the following:

16 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein.
17 If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details.
18 Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do
19 not include the abutting landing in the Curb Ramp length measurement. When a ramp is
20 constructed on a radius, the Curb Ramp length is measured on the inside radius along the
21 back of the walkway.

22 Section A is amended as follows:

23 Delete: "15' – 0" MAX. (TYP.)"

24 Section C is amended as follows:

25 Delete: "15' – 0" MAX. (TYP.)"

26
27 F-40.15

28 The one instance of "2.0% MAX." is replaced with "2.1% MAX."

29 Note 7 is replaced with the following:

30 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein.
31 If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details.
32 Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do
33 not include the abutting landing in the Curb Ramp length measurement.

34 Section A is amended as follows:

35 Delete: "15' – 0" MAX. (TYP.)"

36
37 F-40.16

38 The one instance of "2.0% MAX." is replaced with "2.1% MAX."

39 Note 8 is replaced with the following:

40 7. The running slope of curb ramps shall not exceed 8.3% maximum except as noted herein.
41 If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for details.
42 Use a single constant slope from bottom of ramp to top of ramp to match into the landing. Do
43 not include the abutting landing in the Curb Ramp length measurement.

44 Section A is amended as follows:

45 Delete: "15' – 0" MAX. (TYP.)"

46 Section B is amended as follows:

47 Delete: "15' – 0" MAX. (TYP.)"

48
49 F-80.10

50 The one instance of "2.0% MAX." is replaced with "2.1% MAX."

51 Note 6 is replaced with the following:

1 The running slope of the Pedestrian Ramp shall not exceed 8.3% maximum except as noted
2 herein. If the 8.3% running slope creates a ramp that exceeds 15ft, see contract plans for
3 details. Use a single constant slope from bottom of ramp to top of ramp to match into the
4 sidewalk.

5 Section A is amended as follows:
6 Delete: "15" Max."

7
8 J-10.10

9 Sheet 4 of 6, "Foundation Size Reference Table", PAD WIDTH column, Type 33xD=6' – 3" is
10 revised to read: 7' – 3". Type 342LX / NEMA P44=5' – 10" is revised to read: 6' – 10"

11 Sheet 5 of 6, Plan View, "FOR EXAMPLE PAD SHOWN HERE:", "first bullet" item, "-SPACE
12 BETWEEN TYPE B MOD. CABINET AND 33x CABINET IS 6" (IN)" IS REVISED TO READ:
13 "SPACE BETWEEN TYPE B MOD. CABINET (BACK OF ALL CHANNEL STEEL) AND 33x
14 CABINET IS 6" (IN) (CHANNEL STEEL ADDS ABOUT 5" (IN))"

15
16 J-10.16

17 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

18
19 J-10.17

20 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

21
22 J-10.18

23 Key Note 1, Standard Plan J-10.30 revised to Standard Plan J-10.14

24
25 J-20.10

26 DELETED

27
28 J-20.11

29 DELETED

30
31 J-20.26

32 Add Note 1, "1. One accessible pedestrian pushbutton station per pedestrian pushbutton
33 post."

34 Add General Note 2, to read: "Signs shown are for locations with pedestrian signal displays
35 (Accessible Pedestrian Signals/APS). Accessible information device (AID) pushbuttons
36 signs not shown."

37 Revise View Titles (Both Sheets) to read: "ACCESSIBLE PEDESTRIAN PUSHBUTTON
38 ASSEMBLY"

39
40 J-20.16

41 View A, callout, was – LOCK NIPPLE, is revised to read; CHASE NIPPLE

42
43 J-21.10

44 Sheet 1, Anchor Bolt Template, callout; "9" (IN) BOLT CIRCLE" is revised to read: "9" (IN)
45 DIA.BOLT CIRCLE"

46 Base Plate Detail, callout; "3/4" (IN) STEEL PLATE WITH HOLE = POLE BASE + 1/6" (IN)"
47 IS REVISED TO READ; "3/4" (IN) STEEL PLATE WITH HOLE = POLE BASE + 1/16" (IN)"

48 Flat Foundation Detail – Elevation, callout; "ANCHOR BOLTS ~ 3/4" (IN) x 30" (IN) FULL
49 THREAD ~ THREE REQ'D. PER ASSEMBLY" is revised to read; "ANCHOR BOLTS ~ 3/4"
50 (IN) x 30" (IN) FULL THREAD ~ FOUR REQ'D. PER ASSEMBLY"

1 Flat Foundation Detail – Elevation, dimension; 4' – 0" is revised to read; "4' – 0" ROUND OR
2 3' – 0" SQUARE"

3
4 J-21.15

5 Partial View, callout, was – LOCK NIPPLE ~ 1 ½" DIAM., is revised to read; CHASE NIPPLE
6 ~ 1 ½" (IN) DIAM.

7
8 J-28.30

9 General Note 13 – "See Standard Plans C-8b and C-85.14 for steel light standards on traffic
10 barrier" is revised to read; "See Standard Plan C-85.15 for steel light standards on traffic
11 barrier."

12
13 J-40.10

14 Sheet 2 of 2, Detail F, callout, "12 – 13 x 1 ½" S.S. PENTA HEAD BOLT AND 12" S. S. FLAT
15 WASHER" is revised to read; "12 – 13 x 1 ½" S.S. PENTA HEAD BOLT AND 1/2" (IN) S. S.
16 FLAT WASHER"

17
18 J-40.36

19 Note 1, second sentence; "Finish shall be # 2B for backbox and # 4 for the cover." Is revised
20 to read; "Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and Pickled)
21 for the cover.

22
23 J-40.37

24 Note 1, second sentence; "Finish shall be # 2B for backbox and # 4 for the cover." Is revised
25 to read; "Finish shall be # 2B for barrier box and HRAP (Hot Rolled Annealed and Pickled)
26 for the cover.

27
28 J-75.20

29 Key Notes, note 16, second bullet point, was: "1/2" (IN) x 0.45" (IN) Stainless Steel Bands",
30 add the following to the end of the note: "Alternate: Stainless steel cable with stainless steel
31 ends, nuts, bolts, and washers may be used in place of stainless steel bands and associated
32 hardware."

33
34 J-75.55

35 Notes, Note A1, Revise reference, was – G-90.29, should be – G-90.20.

36
37 L-5.10

38 Add new general Note 9 on sheet 1 – "9. The top of wall in Section A on Sheet 1 shall be
39 located as follows: 1) flush with the finished grade when placed within the deflection distance
40 of the long span guardrail system (Std. Plan C-20.40), 2) Two inches maximum above
41 finished grade when placed behind a box culvert guardrail steel post system (Std. Plan C-
42 20.41 or C-20.43), 3) Six inches minimum for all other applications. The bottom rail shall be
43 located at mid height between the top rail and the top of structure."

44
45 M-20.30

46 Wide Dotted Lane Line Detail, reference below title, (SEE NOTE 6) is revised to read: (SEE
47 NOTE 5)

48
49 M-40.10

50 Guide Post Type ~ Reflective Sheeting Applications Table, remove reference - "(SEE NOTE
51 5)"

1
2
3
4
5
6

The following are the Standard Plan numbers applicable at the time this project was advertised. The date shown with each plan number is the publication approval date shown in the lower right-hand corner of that plan. Standard Plans showing different dates shall not be used in this contract.

7

A-10.10-00 8/7/07	A-30.35-00 10/12/07	A-50.10-02 7/18/24
A-10.20-00 10/5/07	A-40.00-01 7/6/22	A-50.40-01 8/17/21
A-10.30-00 10/5/07	A-40.10-04 7/31/19	A-60.10-03 12/23/14
A-20.10-00 8/31/07	A-40.15-00 8/11/09	A-60.20-03 12/23/14
A-30.10-00 11/8/07	A-40.20-04 1/18/17	A-60.30-01 6/28/18
A-30.30-01 6/16/11	A-40.50-03 9/12/23	A-60.40-00 8/31/07

8

B-5.20-03 9/9/20	B-30.50-03 2/27/18	B-75.20-03 8/17/21
B-5.40-02 1/26/17	B-30.60-00 9/9/20	B-75.50-02 3/15/22
B-5.60-02 1/26/17	B-30.40-03 2/27/18	B-70.60-01 1/26/17
B-10.20-03 8/23/23	B-30.70-04 2/27/18	B-75.60-00 6/8/06
B-10.40-02 8/17/21	B-30.80-01 2/27/18	B-80.20-00 6/8/06
B-10.70-03 8/23/23	B-30.90-02 1/26/17	B-80.40-00 6/1/06
B-15.20-01 2/7/12	B-35.20-00 6/8/06	B-85.10-01 6/10/08
B-15.40-01 2/7/12	B-35.40-01 8/23/23	B-85.20-00 6/1/06
B-15.60-02 1/26/17	B-40.20-00 6/1/06	B-85.30-00 6/1/06
B-20.20-02 3/16/12	B-40.40-02 1/26/17	B-85.40-00 6/8/06
B-20.40-04 2/27/18	B-45.20-01 7/11/17	B-85.50-01 6/10/08
B-20.60-03 3/15/12	B-45.40-01 7/21/17	B-90.10-00 6/8/06
B-25.20-02 2/27/18	B-50.20-00 6/1/06	B-90.20-00 6/8/06
B-25.60-03 8/23/23	B-55.20-03 8/17/21	B-90.30-00 6/8/06
B-30.05-00 9/9/20	B-60.20-02 9/9/20	B-90.40-01 1/26/17
B-30.10-03 2/27/18	B-60.40-01 2/27/18	B-90.50-00 6/8/06
B-30.15-00 2/27/18	B-65.20-01 4/26/12	B-95.20-02 8/17/21
B-30.20-04 2/27/18	B-65.40-00 6/1/06	B-95.40-01 6/28/18
B-30.30-03 2/27/18	B-70.20-01 3/15/22	

C-1 9/8/22	C-23.70-01 10/16/23	C-70.10-04 10/16/23
C-1b 10/12/23	C.24.10-05 7/21/24	C-70.15-01 7/21/24
C-1d 10/31/03	C-24.15-00 3/15/22	C-75.10-02 9/16/20
C-6a 9/8/22	C-25.20-07 8/20/21	C-75.20-03 8/20/21
C-7 9/8/22	C-25.22-06 8/20/21	C-75.30-03 8/20/21
C-7a 9/8/22	C-25.26-05 8/20/21	C-80.10-03 10/16/23
C-20.10-09 10/12/23	C-25.30-01 8/20/21	C-80.20-01 6/11/14
C-20.14-05 9/8/22	C-25.32-00 7/29/24	C-80.30-02 8/20/21
C-20.15-03 10/12/23	C-25.80-05 8/12/19	C-80.40-01 6/11/14
C-20.18-04 9/8/22	C-60.10-04 7/21/24	C-85.10-00 4/8/12
C-20.40-10 10/12/23	C-60.15-01 7/21/24	C-85.11-01 9/16/20
C-20.41-05 7/18/24	C-60.20-01 9/8/22	C-85.15-03 10/17/23
C-20.43-01 7/18/24	C-60.30-02 7/21/24	C-85-18-03 9/8/22
C-20.44-00 8/13/24	C-60.40-01 7/21/24	C-81.10-00 9/12/23
C-20.45-03 9/8/22	C-60.45-01 7/21/24	C-81.15-00 9/12/23
C-20.55-00 7/30/24	C-60.50-01 7/21/24	
C-22.16-08 10/17/23	C-60.60-01 7/21/24	
C-22.40-11 7/21/24	C-60.70-01 9/8/22	

1	C-22.45-07 7/21/24	C-60.80-02..... 7/21/24	
	D-2.36-03 6/11/14	D-3.11-03.....6/11/14	D-10.25-018/7/19
	D-2.46-02 8/13/21	D-4.....12/11/98	D-10.30-007/8/08
	D-2.84-00 11/10/05	D-6.....6/19/98	D-10.35-007/8/08
	D-2.92-01 4/26/22	D-10.10-01..... 12/2/08	D-10.40-01 12/2/08
	D-3.09-00 5/17/12	D-10.15-01..... 12/2/08	D-10.45-01 12/2/08
	D-3.10-01 5/29/13	D-10.20-01..... 8/7/19	D-20.10-00 10/9/23
2	E-1 2/21/07	E-4..... 8/27/03	E-20.10-00.....9/12/23
	E-2 5/29/98	E-4a..... 8/27/03	E-20.20-00..... 10/4/23
3	F-10.12-04 9/24/20	F-10.62-02 4/22/14	F-40.15-049/25/20
	F-10.16-00 12/20/06	F-10.64-03 4/22/14	F-40.16-036/29/16
	F-10.18-04 6/28/24	F-30.10-04 9/25/20	F-45.10-056/4/24
	F-10.40-04 9/24/20	F-40.12-03 6/29/16	F-80.10-047/15/16
	F-10.42-00 1/23/07	F-40.14-03 6/29/16	
4	G-10.10-00 9/20/07	G-24.50-05 8/7/19	G-90.10-037/11/17
	G-20.10-03 8/20/21	G-24.60-05 6/28/18	G-90.20-057/11/17
	G-22.10-04 6/28/18	G-25.10-05 9/16/20	G-90.30-047/11/17
	G-24.10-00 11/8/07	G-26.10-00 7/31/19	G-95.10-026/28/18
	G-24.20-01 2/7/12	G-30.10-04 6/23/15	G-95.20-036/28/18
	G-24.30-02 6/28/18	G-50.10-03 6/28/18	G-95.30-036/28/18
	G-24.40-07 6/28/18		
5	H-10.10-01 6/2/24	H-30.10-0010/12/07	H-70.10-02 8/17/21
	H-10.11-00 6/2/24	H-32.10-00 9/20/07	H-70.20-02 8/17/21
	H-10.15-01 6/2/24	H-60.10-01 7/3/08	
	H-10.16-00 6/2/24	H-60.20-01 7/3/08	
6	I-10.10-01 8/11/09	I-30.20-00 9/20/07	I-40.20-009/20/07
	I-30.10-02 3/22/13	I-30.30-02 6/12/19	I-50.20-027/6/22
	I-30.15-02 3/22/13	I-30.40-02 6/12/19	I-60.10-016/10/13
	I-30.16-01 7/11/19	I-30.60-02 6/12/19	I-60.20-016/10/13
	I-30.17-01 6/12/19	I-40.10-00 9/20/07	I-80.10-027/15/16
7	J-05.50-00 8/30/22	J-26.10-03 7/21/16	J-50.05-007/21/17
	J-10 7/18/97	J-26.15-01 5/17/12	J-50.10-017/31/19
	J-10.10-04 9/16/20	J-26.20-01 6/28/18	J-50.11-027/31/19
	J-10.12-00 9/16/20	J-27.10-01 7/21/16	J-50.12-028/7/19
	J-10.14-00 9/16/20	J-27.15-00 3/15/12	J-50.13-018/30/22
	J-10.15-01 6/11/14	J-28.01-00 8/30/22	J-50.15-017/21/17
	J-10.16-02 8/18/21	J-28.10-02 8/7/19	J-50.16-01 3/22/13
	J-10.17-02 8/18/21	J-28.22-00 8/07/07	J-50.18-008/7/19
	J-10.18-02 8/18/21	J-28.24-02 9/16/20	J-50.19-008/7/19
	J-10.20-04 8/18/21	J-28.26-0112/02/08	J-50.20-006/3/11
	J-10.21-02 8/18/21	J-28.30-04 6/18/24	J-50.25-006/3/11
	J-10.22-03 10/4/23	J-28.40-026/11/14	J-50.30-006/3/11
	J-10.25-01 6/21/24	J-28.42-016/11/14	J-60.05-017/21/16
	J-10.26-00 8/30/22	J-28.43-01 6/28/18	J-60.11-005/20/13

J-12.15-00..... 6/28/18	J-28.45-03 7/21/16	J-60.12-00 5/20/13
J-12.16-00..... 6/28/18	J-28.50-03 7/21/16	J-60.13-00 6/16/10
J-15.10-01..... 6/11/14	J-28.60-03 8/27/21	J-60.14-01 7/31/19
J-15.15-02..... 7/10/15	J-28.70-04 8/30/22	J-75.10-02 7/10/15
J-20.01-01..... 6/21/24	J-29.10-02 8/26/22	J-75.20-01 7/10/15
J-20.05-00..... 6/21/24	J-29.15-01 7/21/16	J-75.30-02 7/10/15
J-20.10-05..... 10/4/23	J-29.16-02 7/21/16	J-75.50-00 8/30/22
J-20.11-03 7/31/19	J-30.10-01 8/26/22	J-75.55-00 8/30/22
J-20.15-04 6/21/24	J-40.01-00 8/30/22	J-80.05-00 8/30/22
J-20.16-02 6/30/14	J-40.05-00 7/21/16	J-80.10-01 8/18/21
J-20.20-02 5/20/13	J-40.10-04 4/28/16	J-80.12-00 8/18/21
J-20.26-01 7/12/12	J-40.20-03 4/28/16	J-80.15-00 6/28/18
J-21.10-05 6/21/24	J-40.30-04 4/28/16	J-81.10-02 8/18/21
J-21.15-01 6/10/13	J-40.35-01 5/29/13	J-81.12-00 9/3/21
J-21.16-02 6/21/24	J-40.36-02 7/21/17	J-84.05-00 8/30/22
J-21.17-01 6/10/13	J-40.37-02 7/21/17	J-86.10-00 6/28/18
J-21.20-01 6/10/13	J-40.38-01 5/20/13	J-90.10-03 6/28/18
J-22.15-03 6/21/24	J-40.39-00 5/20/13	J-90.20-03 6/28/18
J-22.16-03 7/10/15	J-40.40-02 7/31/19	J-90.21-02 6/28/18
J-22.17-00 6/21/24	J-45.36-00 7/21/17	J-90.50-00 6/28/18

1

K-70.20-01 6/1/16	K-80.32-00 8/17/21	K-80.35-01 9/16/20
K-80.10-02 9/25/20	K-80.34-00 8/17/21	K-80.37-01 9/16/20

2

L-5.10-02..... 6/5/24	L-20.10-03 7/14/15	L-40.20-02 6/21/12
L-5.15-00..... 9/19/22	L-30.10-02 6/11/14	L-70.10-01 5/21/08
L-10.10-02..... 6/21/12	L-40.15-01 6/16/11	L-70.20-01 5/21/08

3

M-1.20-04..... 9/25/20	M-9.60-00 2/10/09	M-24.66-00 7/11/17
M-1.40-03..... 9/25/20	M-11.10-04..... 8/2/22	M-40.10-04 10/17/23
M-1.60-03..... 9/25/20	M-12.10-04 6/28/24	M-40.20-00 10/12/07
M-1.80-03..... 6/3/11	M-15.10-02 7/17/23	M-40.30-01 7/11/17
M-2.20-03..... 7/10/15	M-17.10-02 7/3/08	M-40.40-00 9/20/07
M-2.21-00..... 7/10/15	M-20.10-04 8/2/22	M-40.50-00 9/20/07
M-3.10-04..... 9/25/20	M-20.20-02 4/20/15	M-40.60-00 9/20/07
M-3.20-04..... 8/2/22	M-20.30-05 6/28/24	M-60.10-01 6/3/11
M-3.30-04..... 9/25/20	M-20.40-03 6/24/14	M-60.20-03 8/17/21
M-3.40-04..... 9/25/20	M-20.50-02 6/3/11	M-65.10-03 8/17/21
M-3.50-03..... 9/25/20	M-24.20-02 4/20/15	M-80.10-01 6/3/11
M-5.10-03..... 9/25/20	M-24.40-02 4/20/15	M-80.20-00 6/10/08
M-7.50-01..... 1/30/07	M-24.60-04 6/24/14	M-80.30-00 6/10/08
M-9.50-02..... 6/24/14	M-24.65-00 7/11/17	

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5

PREVAILING WAGE RATES

State of Washington
 Department of Labor & Industries
 Prevailing Wage Section - Telephone 360-902-5335
 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 2/5/2025

King County

Trade^	Job Classification	Wage	Holiday	Overtime	Note
<u>Asbestos Abatement Workers</u>	Journey Level	\$63.87	5D	1H	
<u>Boilermakers</u>	Journey Level	\$76.89	5N	1C	
<u>Brick Mason</u>	Journey Level	\$71.82	7E	1N	
<u>Brick Mason</u>	Pointer-Caulker-Cleaner	\$71.82	7E	1N	
<u>Building Service Employees</u>	Janitor	\$30.33	5S	2F	
<u>Building Service Employees</u>	Traveling Waxer/Shampooer	\$30.78	5S	2F	

<u>Building Service Employees</u>	Window Cleaner (Non-Scaffold)	\$32.93	5S	2F	
<u>Building Service Employees</u>	Window Cleaner (Scaffold)	\$33.93	5S	2F	
<u>Cabinet Makers (In Shop)</u>	Journey Level	\$22.74		1	
<u>Carpenters</u>	Acoustical Worker	\$78.96	15J	11U	
<u>Carpenters</u>	Bridge Dock and Wharf Carpenter	\$80.50	15J	11U	9L
<u>Carpenters</u>	Floor Layer & Floor Finisher	\$78.96	15J	11U	
<u>Carpenters</u>	General Carpenter	\$78.96	15J	11U	
<u>Carpenters</u>	Scaffold Erector	\$78.96	15J	11U	
<u>Cement Masons</u>	Application of all Composition Mastic	\$77.30	15J	4U	
<u>Cement Masons</u>	Application of all Epoxy Material	\$76.78	15J	4U	
<u>Cement Masons</u>	Application of all Plastic Material	\$77.30	15J	4U	
<u>Cement Masons</u>	Application of Sealing Compound	\$76.78	15J	4U	
<u>Cement Masons</u>	Application of Underlayment	\$77.30	15J	4U	
<u>Cement Masons</u>	Building General	\$76.78	15J	4U	

<u>Cement Masons</u>	Composition or Kalman Floors	\$77.30	15J	4U
<u>Cement Masons</u>	Concrete Paving	\$76.78	15J	4U
<u>Cement Masons</u>	Curb & Gutter Machine	\$77.30	15J	4U
<u>Cement Masons</u>	Curb & Gutter, Sidewalks	\$76.78	15J	4U
<u>Cement Masons</u>	Curing Concrete	\$76.78	15J	4U
<u>Cement Masons</u>	Finish Colored Concrete	\$77.30	15J	4U
<u>Cement Masons</u>	Floor Grinding	\$77.30	15J	4U
<u>Cement Masons</u>	Floor Grinding/Polisher	\$76.78	15J	4U
<u>Cement Masons</u>	Green Concrete Saw, self- powered	\$77.30	15J	4U
<u>Cement Masons</u>	Grouting of all Plates	\$76.78	15J	4U
<u>Cement Masons</u>	Grouting of all Tilt-up Panels	\$76.78	15J	4U
<u>Cement Masons</u>	Guniting Nozzleman	\$77.30	15J	4U
<u>Cement Masons</u>	Hand Powered Grinder	\$77.30	15J	4U
<u>Cement Masons</u>	Journey Level	\$76.78	15J	4U
<u>Cement Masons</u>	Patching Concrete	\$76.78	15J	4U
<u>Cement Masons</u>	Pneumatic Power Tools	\$77.30	15J	4U

<u>Cement Masons</u>	Power Chipping & Brushing	\$77.30	15J	4U	
<u>Cement Masons</u>	Sand Blasting Architectural Finish	\$77.30	15J	4U	
<u>Cement Masons</u>	Screed & Rodding Machine	\$77.30	15J	4U	
<u>Cement Masons</u>	Spackling or Skim Coat Concrete	\$76.78	15J	4U	
<u>Cement Masons</u>	Troweling Machine Operator	\$77.30	15J	4U	
<u>Cement Masons</u>	Troweling Machine Operator on Colored Slabs	\$77.30	15J	4U	
<u>Cement Masons</u>	Tunnel Workers	\$77.30	15J	4U	
<u>Divers & Tenders</u>	Bell/Vehicle/Submersible Operator (not under pressure)	\$156.25	15J	11T	9I
<u>Divers & Tenders</u>	Dive Supervisor	\$157.75	15J	11T	9I
<u>Divers & Tenders</u>	Diver	\$156.25	15J	11T	9I
<u>Divers & Tenders</u>	Diver Tender	\$86.86	15J	11T	9I
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	\$109.76	15J	11U	
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$118.99	15J	11U	

31.01-44.00 PSI

<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$128.22	15J	11U	
	44.01 - 54.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$137.45	15J	11U	
	54.01 - 60.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$146.67	15J	11U	
	60.01 - 64.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$155.90	15J	11U	
	64.01 - 68.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$165.13	15J	11U	
	68.01 - 70.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$174.36	15J	11U	
	70.01 - 72.00 PSI				
<u>Divers & Tenders</u>	Hyperbaric Worker - Compressed Air Worker	\$183.59	15J	11U	
	72.01 - 74.00 PSI				
<u>Divers & Tenders</u>	Lead Diver (Dive Master)	\$101.32	15J	11T	9I
<u>Divers & Tenders</u>	Manifold Operator (Life Support Technician)	\$86.86	15J	11T	9I

<u>Divers & Tenders</u>	Remote Operated Vehicle Operator/Technician	\$86.86	15J	11T	9I
<u>Divers & Tenders</u>	Remote Operated Vehicle Operator/Technician	\$86.86	15J	11T	9I
<u>Divers & Tenders</u>	Remote Operated Vehicle Tender	\$80.55	15J	11T	9I
<u>Divers & Tenders</u>	Stand-by Diver	\$96.32	15J	11T	9I
Dredge Workers	Assistant Engineer	\$83.92	5D	3F	
Dredge Workers	Assistant Mate (Deckhand)	\$83.28	5D	3F	
Dredge Workers	Boatmen	\$83.92	5D	3F	
Dredge Workers	Engineer Welder	\$85.53	5D	3F	
Dredge Workers	Leverman, Hydraulic	\$87.24	5D	3F	
Dredge Workers	Mates	\$83.92	5D	3F	
Dredge Workers	Oiler	\$83.28	5D	3F	
<u>Drywall Applicator</u>	Journey Level	\$78.76	150	11S	
<u>Drywall Tapers</u>	Journey Level	\$78.76	150	11S	
<u>Electrical Fixture Maintenance Workers</u>	Journey Level	\$38.69	5L	1E	
<u>Electricians - Inside</u>	Cable Splicer	\$112.00	7C	4E	

<u>Electricians - Inside</u>	Cable Splicer (tunnel)	\$120.33	7C	4E
<u>Electricians - Inside</u>	Certified Welder	\$110.21	7C	4E
<u>Electricians - Inside</u>	Certified Welder (tunnel)	\$116.17	7C	4E
<u>Electricians - Inside</u>	Construction Stock Person	\$51.53	7C	4E
<u>Electricians - Inside</u>	Journey Level	\$104.42	7C	4E
<u>Electricians - Inside</u>	Journey Level (tunnel)	\$112.00	7C	4E
<u>Electricians - Motor Shop</u>	Journey Level	\$48.68	5A	1B
<u>Electricians - Powerline Construction</u>	Cable Splicer	\$97.76	5A	4D
<u>Electricians - Powerline Construction</u>	Certified Line Welder	\$89.71	5A	4D
<u>Electricians - Powerline Construction</u>	Groundperson	\$56.79	5A	4D
<u>Electricians - Powerline Construction</u>	Heavy Line Equipment Operator	\$89.71	5A	4D
<u>Electricians - Powerline Construction</u>	Journey Level Lineperson	\$89.71	5A	4D
<u>Electricians - Powerline Construction</u>	Line Equipment Operator	\$77.13	5A	4D
<u>Electricians - Powerline Construction</u>	Meter Installer	\$56.79	5A	4D 8W

<u>Electricians - Powerline Construction</u>	Pole Sprayer	\$89.71	5A	4D	
<u>Electricians - Powerline Construction</u>	Powderperson	\$66.84	5A	4D	
<u>Electronic Technicians</u>	Journey Level	\$67.16	7E	1E	
<u>Elevator Constructors</u>	Mechanic	\$111.26	7D	4A	
<u>Elevator Constructors</u>	Mechanic In Charge	\$120.27	7D	4A	
<u>Fabricated Precast Concrete Products</u>	All Classifications - In-Factory Work Only	\$21.34	5B	1R	
<u>Fence Erectors</u>	Fence Erector	\$54.65	15J	11P	8Y
<u>Fence Erectors</u>	Fence Laborer	\$54.65	15J	11P	8Y
<u>Flaggers</u>	Journey Level	\$54.65	15J	11P	8Y
<u>Glaziers</u>	Journey Level	\$82.16	7L	1Y	
<u>Heat & Frost Insulators And Asbestos Workers</u>	Journey Level	\$91.81	15H	11C	
<u>Heating Equipment Mechanics</u>	Journey Level	\$99.92	7F	1E	
<u>Hod Carriers & Mason Tenders</u>	Journey Level	\$67.38	15J	11P	8Y
<u>Industrial Power Vacuum Cleaner</u>	Journey Level	\$16.66		1	
<u>Inland Boatmen</u>	Boat Operator	\$61.41	5B	1K	

<u>Inland Boatmen</u>	Cook	\$56.48	5B	1K
<u>Inland Boatmen</u>	Deckhand	\$57.48	5B	1K
<u>Inland Boatmen</u>	Deckhand Engineer	\$58.81	5B	1K
<u>Inland Boatmen</u>	Launch Operator	\$58.89	5B	1K
<u>Inland Boatmen</u>	Mate	\$57.31	5B	1K
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	Cleaner Operator	\$51.27	15M	110
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	Foamer Operator	\$51.27	15M	110
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	Grout Truck Operator	\$51.27	15M	110
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	Head Operator	\$49.20	15M	110
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	Technician	\$42.99	15M	110
<u>Inspection/Cleaning/Sealing Of Sewer & Water Systems By Remote Control</u>	TV Truck Operator	\$46.10	15M	110
<u>Insulation Applicators</u>	Journey Level	\$78.96	15J	11U

<u>Ironworkers</u>	Journeyman	\$90.82	15K	11N	
<u>Laborers</u>	Air, Gas Or Electric Vibrating Screed	\$63.87	15J	11P	8Y
<u>Laborers</u>	Airtrac Drill Operator	\$65.75	15J	11P	8Y
<u>Laborers</u>	Ballast Regular Machine	\$63.87	15J	11P	8Y
<u>Laborers</u>	Batch Weighman	\$54.65	15J	11P	8Y
<u>Laborers</u>	Brick Pavers	\$63.87	15J	11P	8Y
<u>Laborers</u>	Brush Cutter	\$63.87	15J	11P	8Y
<u>Laborers</u>	Brush Hog Feeder	\$63.87	15J	11P	8Y
<u>Laborers</u>	Burner	\$63.87	15J	11P	8Y
<u>Laborers</u>	Caisson Worker	\$65.75	15J	11P	8Y
<u>Laborers</u>	Carpenter Tender	\$63.87	15J	11P	8Y
<u>Laborers</u>	Cement Dumper-paving	\$64.98	15J	11P	8Y
<u>Laborers</u>	Cement Finisher Tender	\$63.87	15J	11P	8Y
<u>Laborers</u>	Change House Or Dry Shack	\$63.87	15J	11P	8Y
<u>Laborers</u>	Chipping Gun (30 Lbs. And Over)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Chipping Gun (Under 30 Lbs.)	\$63.87	15J	11P	8Y

<u>Laborers</u>	Choker Setter	\$63.87	15J	11P	8Y
<u>Laborers</u>	Chuck Tender	\$63.87	15J	11P	8Y
<u>Laborers</u>	Clary Power Spreader	\$64.98	15J	11P	8Y
<u>Laborers</u>	Clean-up Laborer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Concrete Dumper/Chute Operator	\$64.98	15J	11P	8Y
<u>Laborers</u>	Concrete Form Stripper	\$63.87	15J	11P	8Y
<u>Laborers</u>	Concrete Placement Crew	\$64.98	15J	11P	8Y
<u>Laborers</u>	Concrete Saw Operator/Core Driller	\$64.98	15J	11P	8Y
<u>Laborers</u>	Crusher Feeder	\$54.65	15J	11P	8Y
<u>Laborers</u>	Curing Laborer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Demolition: Wrecking & Moving (Incl. Charred Material)	\$63.87	15J	11P	8Y
<u>Laborers</u>	Ditch Digger	\$63.87	15J	11P	8Y
<u>Laborers</u>	Diver	\$65.75	15J	11P	8Y
<u>Laborers</u>	Drill Operator (Hydraulic, Diamond)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Dry Stack Walls	\$63.87	15J	11P	8Y

<u>Laborers</u>	Dump Person	\$63.87	15J	11P	8Y
<u>Laborers</u>	Epoxy Technician	\$63.87	15J	11P	8Y
<u>Laborers</u>	Erosion Control Worker	\$63.87	15J	11P	8Y
<u>Laborers</u>	Faller & Bucker Chain Saw	\$64.98	15J	11P	8Y
<u>Laborers</u>	Fine Graders	\$63.87	15J	11P	8Y
<u>Laborers</u>	Firewatch	\$54.65	15J	11P	8Y
<u>Laborers</u>	Form Setter	\$64.98	15J	11P	8Y
<u>Laborers</u>	Gabian Basket Builders	\$63.87	15J	11P	8Y
<u>Laborers</u>	General Laborer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Grade Checker & Transit Person	\$67.38	15J	11P	8Y
<u>Laborers</u>	Grinders	\$63.87	15J	11P	8Y
<u>Laborers</u>	Grout Machine Tender	\$63.87	15J	11P	8Y
<u>Laborers</u>	Groutmen (Pressure) Including Post Tension Beams	\$64.98	15J	11P	8Y
<u>Laborers</u>	Guardrail Erector	\$63.87	15J	11P	8Y
<u>Laborers</u>	Hazardous Waste Worker (Level A)	\$65.75	15J	11P	8Y

<u>Laborers</u>	Hazardous Waste Worker (Level B)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Hazardous Waste Worker (Level C)	\$63.87	15J	11P	8Y
<u>Laborers</u>	High Scaler	\$65.75	15J	11P	8Y
<u>Laborers</u>	Jackhammer	\$64.98	15J	11P	8Y
<u>Laborers</u>	Laserbeam Operator	\$64.98	15J	11P	8Y
<u>Laborers</u>	Maintenance Person	\$63.87	15J	11P	8Y
<u>Laborers</u>	Manhole Builder-Mudman	\$64.98	15J	11P	8Y
<u>Laborers</u>	Material Yard Person	\$63.87	15J	11P	8Y
<u>Laborers</u>	Mold Abatement Worker	\$63.87	15J	11P	8Y
<u>Laborers</u>	Motorman-Dinky Locomotive	\$67.48	15J	11P	8Y
<u>Laborers</u>	nozzleman (concrete pump, green cutter when using combination of high pressure air & water on concrete & rock, sandblast, gunite, shotcrete, water blaster, vacuum blaster)	\$67.38	15J	11P	8Y
<u>Laborers</u>	Pavement Breaker	\$64.98	15J	11P	8Y

<u>Laborers</u>	Pilot Car	\$54.65	15J	11P	8Y
<u>Laborers</u>	Pipe Layer (Lead)	\$67.38	15J	11P	8Y
<u>Laborers</u>	Pipe Layer/Tailor	\$64.98	15J	11P	8Y
<u>Laborers</u>	Pipe Pot Tender	\$64.98	15J	11P	8Y
<u>Laborers</u>	Pipe Reliner	\$64.98	15J	11P	8Y
<u>Laborers</u>	Pipe Wrapper	\$64.98	15J	11P	8Y
<u>Laborers</u>	Pot Tender	\$63.87	15J	11P	8Y
<u>Laborers</u>	Powderman	\$65.75	15J	11P	8Y
<u>Laborers</u>	Powderman's Helper	\$63.87	15J	11P	8Y
<u>Laborers</u>	Power Jacks	\$64.98	15J	11P	8Y
<u>Laborers</u>	Railroad Spike Puller - Power	\$64.98	15J	11P	8Y
<u>Laborers</u>	Raker - Asphalt	\$67.38	15J	11P	8Y
<u>Laborers</u>	Re-timberman	\$65.75	15J	11P	8Y
<u>Laborers</u>	Remote Equipment Operator	\$64.98	15J	11P	8Y
<u>Laborers</u>	Rigger/Signal Person	\$64.98	15J	11P	8Y
<u>Laborers</u>	Rip Rap Person	\$63.87	15J	11P	8Y

<u>Laborers</u>	Rivet Buster	\$64.98	15J	11P	8Y
<u>Laborers</u>	Rodder	\$64.98	15J	11P	8Y
<u>Laborers</u>	Scaffold Erector	\$63.87	15J	11P	8Y
<u>Laborers</u>	Scale Person	\$63.87	15J	11P	8Y
<u>Laborers</u>	Sloper (Over 20")	\$64.98	15J	11P	8Y
<u>Laborers</u>	Sloper Sprayer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Spreader (Concrete)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Stake Hopper	\$63.87	15J	11P	8Y
<u>Laborers</u>	Stock Piler	\$63.87	15J	11P	8Y
<u>Laborers</u>	Swinging Stage/Boatswain Chair	\$54.65	15J	11P	8Y
<u>Laborers</u>	Tamper & Similar Electric, Air & Gas Operated Tools	\$64.98	15J	11P	8Y
<u>Laborers</u>	Tamper (Multiple & Self- propelled)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Timber Person - Sewer (Lagger, Shorer & Cribber)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Toolroom Person (at Jobsite)	\$63.87	15J	11P	8Y
<u>Laborers</u>	Topper	\$63.87	15J	11P	8Y

<u>Laborers</u>	Track Laborer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Track Liner (Power)	\$64.98	15J	11P	8Y
<u>Laborers</u>	Traffic Control Laborer	\$58.20	15J	11P	9C
<u>Laborers</u>	Traffic Control Supervisor	\$61.47	15J	11P	9C
<u>Laborers</u>	Truck Spotter	\$63.87	15J	11P	8Y
<u>Laborers</u>	Tugger Operator	\$64.98	15J	11P	8Y
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 0-30 psi	\$200.40	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	\$205.43	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	\$209.11	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	\$214.81	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	\$216.93	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	\$222.03	15J	11P	9B

<u>Laborers</u>	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	\$223.93	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	\$225.93	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	\$227.93	15J	11P	9B
<u>Laborers</u>	Tunnel Work-Guage and Lock Tender	\$67.48	15J	11P	8Y
<u>Laborers</u>	Tunnel Work-Miner	\$67.48	15J	11P	8Y
<u>Laborers</u>	Vibrator	\$64.98	15J	11P	8Y
<u>Laborers</u>	Vinyl Seamer	\$63.87	15J	11P	8Y
<u>Laborers</u>	Watchman	\$49.97	15J	11P	8Y
<u>Laborers</u>	Welder	\$64.98	15J	11P	8Y
<u>Laborers</u>	Well Point Laborer	\$64.98	15J	11P	8Y
<u>Laborers</u>	Window Washer/Cleaner	\$49.97	15J	11P	8Y
<u>Laborers - Underground Sewer & Water</u>	General Laborer & Topman	\$63.87	15J	11P	8Y
<u>Laborers - Underground Sewer & Water</u>	Pipe Layer	\$64.98	15J	11P	8Y

<u>Landscape Construction</u>	Landscape Construction/Landscaping Or Planting Laborers	\$49.97	15J	11P	8Y
<u>Landscape Construction</u>	Landscape Operator	\$86.05	15J	11G	8X
<u>Landscape Maintenance</u>	Groundskeeper	\$17.87		1	
<u>Lathers</u>	Journey Level	\$78.76	15O	11S	
<u>Marble Setters</u>	Journey Level	\$71.82	7E	1N	
<u>Metal Fabrication (In Shop)</u>	Fitter/Certified Welder	\$42.17	15I	11E	
<u>Metal Fabrication (In Shop)</u>	General Laborer	\$30.07	15I	11E	
<u>Metal Fabrication (In Shop)</u>	Mechanic	\$43.63	15I	11E	
<u>Metal Fabrication (In Shop)</u>	Welder/Burner	\$39.28	15I	11E	
<u>Millwright</u>	Journey Level	\$80.28	5A	1B	
Modular Buildings	Cabinet Assembly	\$16.66		1	
Modular Buildings	Electrician	\$16.66		1	
Modular Buildings	Equipment Maintenance	\$16.66		1	
Modular Buildings	Plumber	\$16.66		1	
Modular Buildings	Production Worker	\$16.66		1	
Modular Buildings	Tool Maintenance	\$16.66		1	

Modular Buildings	Utility Person	\$16.66		1	
Modular Buildings	Welder	\$16.66		1	
<u>Painters</u>	Journey Level	\$54.71	6Z	11J	
<u>Pile Driver</u>	Crew Tender	\$86.81	15J	11U	9L
<u>Pile Driver</u>	Journey Level	\$80.50	15J	11U	9L
<u>Plasterers</u>	Journey Level	\$73.54	7Q	1R	
<u>Plasterers</u>	Nozzleman	\$77.54	7Q	1R	
<u>Playground & Park Equipment Installers</u>	Journey Level	\$16.66		1	
<u>Plumbers & Pipefitters</u>	Journey Level	\$105.59	6Z	1G	
<u>Power Equipment Operators</u>	Asphalt Plant Operators	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Assistant Engineer	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Barrier Machine (zipper)	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Batch Plant Operator: concrete	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Boat Operator	\$87.82	7A	11H	8X
<u>Power Equipment Operators</u>	Bobcat	\$82.29	15J	11G	8X

<u>Power Equipment Operators</u>	Brokk - Remote Demolition Equipment	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Brooms	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Bump Cutter	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Cableways	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Chipper	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Compressor	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Concrete Finish Machine - Laser Screed	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Concrete Pump - Mounted Or Trailer High Pressure Line Pump, Pump High Pressure	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Concrete Pump: Truck Mount With Boom Attachment Over 42 M	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Concrete Pump: Truck Mount With Boom Attachment Up To 42m	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Conveyors	\$86.05	15J	11G	8X

<u>Power Equipment Operators</u>	Cranes Friction: 200 tons and over	\$90.46	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes, A-frame: 10 tons and under	\$82.59	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	\$88.67	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: 20 tons through 44 tons with attachments	\$87.03	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	\$89.60	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: 300 tons and over or 300' of boom including jib with attachments	\$90.46	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	\$87.82	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: Friction cranes through 199 tons	\$89.60	7A	11H	8X
<u>Power Equipment Operators</u>	Cranes: through 19 tons with attachments, a-frame over 10 tons	\$86.36	7A	11H	8X

<u>Power Equipment Operators</u>	Crusher	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Deck Engineer/Deck Winches (power)	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Derricks, On Building Work	\$87.82	7A	11H	8X
<u>Power Equipment Operators</u>	Dozers D-9 & Under	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Drill Oilers: Auger Type, Truck Or Crane Mount	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Drilling Machine	\$88.36	15J	11G	8X
<u>Power Equipment Operators</u>	Elevator and man-lift: permanent and shaft type	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Forklift: 3000 lbs and over with attachments	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Forklifts: under 3000 lbs. with attachments	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Gradechecker/Stakeman	\$82.29	15J	11G	8X

<u>Power Equipment Operators</u>	Guardrail Punch	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Hard Tail End Dump Articulating Off- Road Equipment 45 Yards. & Over	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Hard Tail End Dump Articulating Off-road Equipment Under 45 Yards	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Horizontal/Directional Drill Locator	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Horizontal/Directional Drill Operator	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Hydralifts/Boom Trucks Over 10 Tons	\$86.36	7A	11H	8X
<u>Power Equipment Operators</u>	Hydralifts/boom trucks: 10 tons and under	\$82.59	7A	11H	8X
<u>Power Equipment Operators</u>	Leverman	\$89.27	15J	11G	8X
<u>Power Equipment Operators</u>	Loader, Overhead, 6 Yards. But Not Including 8 Yards	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Loaders, Overhead Under 6 Yards	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Loaders, Plant Feed	\$86.71	15J	11G	8X

<u>Power Equipment Operators</u>	Loaders: Elevating Type Belt	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Locomotives, All	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Material Transfer Device	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Mechanics: All (Leadmen - \$0.50 per hour over mechanic)	\$88.36	15J	11G	8X
<u>Power Equipment Operators</u>	Motor Patrol Graders	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Mucking Machine, Mole, Tunnel Drill, Boring, Road Header And/or Shield	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Oil Distributors, Blower Distribution & Mulch Seeding Operator	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Outside Hoists (Elevators and Manlifts), Air Tuggers, Strato	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Overhead, bridge type Crane: 20 tons through 44 tons	\$87.03	7A	11H	8X
<u>Power Equipment Operators</u>	Overhead, bridge type: 100 tons and over	\$88.67	7A	11H	8X

<u>Power Equipment Operators</u>	Overhead, bridge type: 45 tons through 99 tons	\$87.82	7A	11H	8X
<u>Power Equipment Operators</u>	Pavement Breaker	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Pile Driver (other Than Crane Mount)	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Plant Oiler - Asphalt, Crusher	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Posthole Digger, Mechanical	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Power Plant	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Pumps - Water	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Quad 9, Hd 41, D10 And Over	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Quick Tower: no cab, under 100 feet in height base to boom	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Remote Control Operator On Rubber Tired Earth Moving Equipment	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Rigger and Bellman	\$82.59	7A	11H	8X
<u>Power Equipment Operators</u>	Rigger/Signal Person, Bellman(Certified)	\$86.36	7A	11H	8X

<u>Power Equipment Operators</u>	Rollagon	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Roller, Other Than Plant Mix	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Roller, Plant Mix Or Multi-lift Materials	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Roto-mill, Roto-grinder	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Saws - Concrete	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Scraper, Self Propelled Under 45 Yards	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Scrapers - Concrete & Carry All	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Scrapers, Self-propelled: 45 Yards And Over	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Service Engineers: Equipment	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Shotcrete/Gunite Equipment	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Shovel, Excavator, Backhoe, Tractors Under 15 Metric Tons	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Shovel, Excavator, Backhoe: Over 30 Metric Tons To 50 Metric Tons	\$87.49	15J	11G	8X

<u>Power Equipment Operators</u>	Shovel, Excavator, Backhoes, Tractors: 15 To 30 Metric Tons	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Shovel, Excavator, Backhoes: Over 50 Metric Tons To 90 Metric Tons	\$88.36	15J	11G	8X
<u>Power Equipment Operators</u>	Shovel, Excavator, Backhoes: Over 90 Metric Tons	\$89.27	15J	11G	8X
<u>Power Equipment Operators</u>	Slipform Pavers	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Spreader, Topsider & Screedman	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Subgrader Trimmer	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Tower Bucket Elevators	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Tower Crane: over 175' through 250' in height, base to boom	\$89.60	7A	11H	8X
<u>Power Equipment Operators</u>	Tower crane: up to 175' in height base to boom	\$88.67	7A	11H	8X
<u>Power Equipment Operators</u>	Tower Cranes: over 250' in height from base to boom	\$90.46	7A	11H	8X
<u>Power Equipment Operators</u>	Transporters, All Track Or Truck Type	\$87.49	15J	11G	8X

<u>Power Equipment Operators</u>	Trenching Machines	\$86.05	15J	11G	8X
<u>Power Equipment Operators</u>	Truck Crane Oiler/Driver: 100 tons and over	\$87.03	7A	11H	8X
<u>Power Equipment Operators</u>	Truck crane oiler/driver: under 100 tons	\$86.36	7A	11H	8X
<u>Power Equipment Operators</u>	Truck Mount Portable Conveyor	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Vac Truck (Vactor Guzzler, Hydro Excavator)	\$86.71	15J	11G	8X
<u>Power Equipment Operators</u>	Welder	\$87.49	15J	11G	8X
<u>Power Equipment Operators</u>	Wheel Tractors, Farmall Type	\$82.29	15J	11G	8X
<u>Power Equipment Operators</u>	Yo Yo Pay Dozer	\$86.71	15J	11G	8X
<u>Power Equipment Operators- Underground Sewer & Water</u>	Asphalt Plant Operators	\$87.49	15J	11G	8X
<u>Power Equipment Operators- Underground Sewer & Water</u>	Assistant Engineer	\$82.29	15J	11G	8X
<u>Power Equipment Operators- Underground Sewer & Water</u>	Barrier Machine (zipper)	\$86.71	15J	11G	8X

<u>Power Equipment</u>	Batch Plant Operator,				
<u>Operators- Underground</u>	Concrete	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Boat Operator	\$87.82	7A	11H	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Bobcat	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Brokk - Remote	\$82.29	15J	11G	8X
<u>Operators- Underground</u>	Demolition Equipment				
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Brooms	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Bump Cutter	\$86.71	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Cableways	\$87.49	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Chipper	\$86.71	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Compressor	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					

<u>Power Equipment</u>	Concrete Finish Machine -				
<u>Operators- Underground</u>	Laser Screed	\$82.29	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Concrete Pump - Mounted				
<u>Operators- Underground</u>	Or Trailer High Pressure	\$86.05	15J	11G	8X
<u>Sewer & Water</u>	Line Pump, Pump High Pressure				
<u>Power Equipment</u>	Concrete Pump: Truck				
<u>Operators- Underground</u>	Mount With Boom	\$87.49	15J	11G	8X
<u>Sewer & Water</u>	Attachment Over 42 M				
<u>Power Equipment</u>	Concrete Pump: Truck				
<u>Operators- Underground</u>	Mount With Boom	\$86.71	15J	11G	8X
<u>Sewer & Water</u>	Attachment Up To 42m				
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Conveyors	\$86.05	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Cranes Friction: 200 tons and over	\$90.46	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Cranes, A-frame: 10 tons and under	\$82.59	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Cranes: 100 tons through 199 tons, or 150' of boom (including jib with attachments)	\$88.67	7A	11H	8X
<u>Sewer & Water</u>					

<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: 20 tons through 44 tons with attachments	\$87.03	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: 200 tons- 299 tons, or 250' of boom including jib with attachments	\$89.60	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: 300 tons and over or 300' of boom including jib with attachments	\$90.46	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: 45 tons through 99 tons, under 150' of boom(including jib with attachments)	\$87.82	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: Friction cranes through 199 tons	\$89.60	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Cranes: through 19 tons with attachments, a-frame over 10 tons	\$86.36	7A	11H	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Crusher	\$86.71	15J	11G	8X
<u>Power Equipment</u> <u>Operators- Underground</u> <u>Sewer & Water</u>	Deck Engineer/Deck Winches (power)	\$86.71	15J	11G	8X

<u>Power Equipment</u>	Derricks, On Building Work	\$87.82	7A	11H	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Dozers D-9 & Under	\$86.05	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Drill Oilers: Auger Type, Truck Or Crane Mount	\$86.05	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Drilling Machine	\$88.36	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Elevator and man-lift: permanent and shaft type	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Finishing Machine, Bidwell And Gamaco & Similar Equipment	\$86.71	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Forklift: 3000 lbs and over with attachments	\$86.05	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Forklifts: under 3000 lbs. with attachments	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Grade Engineer: Using Blue Prints, Cut Sheets, Etc	\$86.71	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					

<u>Power Equipment</u>					
<u>Operators- Underground</u>	Gradechecker/Stakeman	\$82.29	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Guardrail Punch	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Hard Tail End Dump				
<u>Operators- Underground</u>	Articulating Off- Road	\$87.49	15J	11G	8X
<u>Sewer & Water</u>	Equipment 45 Yards. & Over				
<u>Power Equipment</u>	Hard Tail End Dump				
<u>Operators- Underground</u>	Articulating Off-road	\$86.71	15J	11G	8X
<u>Sewer & Water</u>	Equipment Under 45 Yards				
<u>Power Equipment</u>	Horizontal/Directional Drill				
<u>Operators- Underground</u>	Locator	\$86.05	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Horizontal/Directional Drill				
<u>Operators- Underground</u>	Operator	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Hydralifts/boom trucks: 10				
<u>Operators- Underground</u>	tons and under	\$82.59	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Hydralifts/boom trucks:				
<u>Operators- Underground</u>	over 10 tons	\$86.36	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Leverman	\$89.27	15J	11G	8X
<u>Operators- Underground</u>					

Sewer & WaterPower EquipmentOperators- UndergroundSewer & Water

Loader, Overhead, 6 Yards.
But Not Including 8 Yards

\$87.49

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Loaders, Overhead Under
6 Yards

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Loaders, Plant Feed

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Loaders: Elevating Type
Belt

\$86.05

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Locomotives, All

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Material Transfer Device

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Mechanics: All (Leadmen -
\$0.50 per hour over
mechanic)

\$88.36

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Motor Patrol Graders

\$87.49

15J**11G****8X**Power EquipmentOperators- Underground

Mucking Machine, Mole,
Tunnel Drill, Boring, Road

\$87.49

15J**11G****8X**

<u>Sewer & Water</u>	Header And/or Shield				
<u>Power Equipment</u>	Oil Distributors, Blower				
<u>Operators- Underground</u>	Distribution & Mulch	\$82.29	15J	11G	8X
<u>Sewer & Water</u>	Seeding Operator				
<u>Power Equipment</u>	Outside Hoists (Elevators				
<u>Operators- Underground</u>	and Manlifts), Air Tuggers,	\$86.05	15J	11G	8X
<u>Sewer & Water</u>	Strato				
<u>Power Equipment</u>	Overhead, bridge type				
<u>Operators- Underground</u>	Crane: 20 tons through 44	\$87.03	7A	11H	8X
<u>Sewer & Water</u>	tons				
<u>Power Equipment</u>	Overhead, bridge type:				
<u>Operators- Underground</u>	100 tons and over	\$88.67	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Overhead, bridge type: 45				
<u>Operators- Underground</u>	tons through 99 tons	\$87.82	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Pavement Breaker	\$82.29	15J	11G	8X
<u>Operators- Underground</u>					
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Pile Driver (other Than				
<u>Operators- Underground</u>	Crane Mount)	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Plant Oiler - Asphalt,				
<u>Operators- Underground</u>	Crusher	\$86.05	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>	Posthole Digger,	\$82.29	15J	11G	8X
<u>Operators- Underground</u>	Mechanical				

Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Power Plant	\$82.29	15J	11G	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Pumps - Water	\$82.29	15J	11G	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Quad 9, Hd 41, D10 And Over	\$87.49	15J	11G	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Quick Tower: no cab, under 100 feet in height	\$86.71	15J	11G	8X
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Sewer & Water

base to boom

Power Equipment

<u>Operators- Underground</u>	Remote Control Operator On Rubber Tired Earth	\$87.49	15J	11G	8X
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Sewer & Water

Moving Equipment

Power Equipment

<u>Operators- Underground</u>	Rigger and Bellman	\$82.59	7A	11H	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Rigger/Signal Person, Bellman(Certified)	\$86.36	7A	11H	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Rollagon	\$87.49	15J	11G	8X
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Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Roller, Other Than Plant Mix	\$82.29	15J	11G	8X
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Sewer & WaterPower EquipmentOperators- UndergroundSewer & WaterRoller, Plant Mix Or Multi-
lift Materials

\$86.05

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Roto-mill, Roto-grinder

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & Water

Saws - Concrete

\$86.05

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & WaterScraper, Self Propelled
Under 45 Yards

\$86.71

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & WaterScrapers - Concrete &
Carry All

\$86.05

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & WaterScrapers, Self-propelled:
45 Yards And Over

\$87.49

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & WaterShotcrete/Gunite
Equipment

\$82.29

15J**11G****8X**Power EquipmentOperators- UndergroundSewer & WaterShovel, Excavator,
Backhoe, Tractors Under
15 Metric Tons

\$86.05

15J**11G****8X**Power EquipmentOperators- UndergroundShovel, Excavator,
Backhoe: Over 30 Metric

\$87.49

15J**11G****8X**

<u>Sewer & Water</u>	Tons To 50 Metric Tons				
<u>Power Equipment</u>	Shovel, Excavator,				
<u>Operators- Underground</u>	Backhoes, Tractors: 15 To	\$86.71	15J	11G	8X
<u>Sewer & Water</u>	30 Metric Tons				
<u>Power Equipment</u>	Shovel, Excavator,				
<u>Operators- Underground</u>	Backhoes: Over 50 Metric	\$88.36	15J	11G	8X
<u>Sewer & Water</u>	Tons To 90 Metric Tons				
<u>Power Equipment</u>	Shovel, Excavator,				
<u>Operators- Underground</u>	Backhoes: Over 90 Metric	\$89.27	15J	11G	8X
<u>Sewer & Water</u>	Tons				
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Slipform Pavers	\$87.49	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Spreader, Topsider &	\$87.49	15J	11G	8X
<u>Sewer & Water</u>	Screedman				
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Subgrader Trimmer	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Tower Bucket Elevators	\$86.05	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Tower Crane: over 175'	\$89.60	7A	11H	8X
<u>Sewer & Water</u>	through 250' in height, base to boom				
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Tower crane: up to 175' in	\$88.67	7A	11H	8X
<u>Sewer & Water</u>	height base to boom				

<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Tower Cranes: over 250' in height from base to boom	\$90.46	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Transporters, All Track Or Truck Type	\$87.49	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Trenching Machines	\$86.05	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Truck Crane Oiler/Driver: 100 tons and over	\$87.03	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Truck crane oiler/driver: under 100 tons	\$86.36	7A	11H	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Truck Mount Portable Conveyor	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Vac Truck (Vactor Guzzler, Hydro Excavator)	\$86.71	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Welder	\$87.49	15J	11G	8X
<u>Sewer & Water</u>					
<u>Power Equipment</u>					
<u>Operators- Underground</u>	Wheel Tractors, Farmall Type	\$82.29	15J	11G	8X

Sewer & WaterPower Equipment

<u>Operators- Underground</u>	Yo Yo Pay Dozer	\$86.71	15J	11G	8X
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Sewer & Water

<u>Power Line Clearance Tree Trimmers</u>	Journey Level In Charge	\$61.73	5A	4A	
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<u>Power Line Clearance Tree Trimmers</u>	Spray Person	\$58.44	5A	4A	
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<u>Power Line Clearance Tree Trimmers</u>	Tree Equipment Operator	\$61.73	5A	4A	
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<u>Power Line Clearance Tree Trimmers</u>	Tree Trimmer	\$55.14	5A	4A	
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<u>Power Line Clearance Tree Trimmers</u>	Tree Trimmer Groundperson	\$41.68	5A	4A	
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<u>Refrigeration & Air Conditioning Mechanics</u>	Journey Level	\$98.07	6Z	1G	
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Residential Brick Mason	Journey Level	\$71.82	7E	1N	
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Residential Carpenters	Journey Level	\$36.44		1	
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Residential Cement Masons	Journey Level	\$46.64		1	
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Residential Drywall Applicators	Journey Level	\$78.76	15J	4C	
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Residential Drywall Tapers	Journey Level	\$36.36		1	
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Residential Electricians	Journey Level	\$48.80		1	
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Residential Glaziers	Journey Level	\$28.93		1
Residential Insulation Applicators	Journey Level	\$28.18		1
Residential Laborers	Journey Level	\$29.73		1
Residential Marble Setters	Journey Level	\$27.38		1
Residential Painters	Journey Level	\$23.47		1
Residential Plumbers & Pipefitters	Journey Level	\$45.40		1
Residential Refrigeration & Air Conditioning Mechanics	Journey Level	\$99.92	7F	1E
Residential Sheet Metal Workers	Journey Level	\$99.92	7F	1E
Residential Soft Floor Layers	Journey Level	\$59.52	5A	3J
Residential Sprinkler Fitters (Fire Protection)	Journey Level	\$63.61		1
Residential Stone Masons	Journey Level	\$71.82	7E	1N
Residential Terrazzo Workers	Journey Level	\$67.51	7E	1N
Residential Terrazzo/Tile Finishers	Journey Level	\$24.39		1
Residential Tile Setters	Journey Level	\$21.04		1

<u>Roofers</u>	Journey Level	\$64.45	5A	3H
<u>Roofers</u>	Using Irritable Bituminous Materials	\$67.39	5A	3H
<u>Sheet Metal Workers</u>	Journey Level (Field or Shop)	\$99.92	7F	1E
Shipbuilding & Ship Repair	New Construction Boilermaker	\$58.93	7X	4J
Shipbuilding & Ship Repair	New Construction Carpenter	\$51.85	7X	4J
Shipbuilding & Ship Repair	New Construction Crane Operator	\$43.00	7V	1
Shipbuilding & Ship Repair	New Construction Electrician	\$58.98	7X	4J
Shipbuilding & Ship Repair	New Construction Heat & Frost Insulator	\$91.81	15H	11C
Shipbuilding & Ship Repair	New Construction Laborer	\$58.60	7X	4J
Shipbuilding & Ship Repair	New Construction Machinist	\$58.79	7X	4J
Shipbuilding & Ship Repair	New Construction Operating Engineer	\$43.00	7V	1
Shipbuilding & Ship Repair	New Construction Painter	\$58.72	7X	4J
Shipbuilding & Ship Repair	New Construction Pipefitter	\$59.07	7X	4J

Shipbuilding & Ship Repair	New Construction Rigger	\$58.93	7X	4J
Shipbuilding & Ship Repair	New Construction Sheet Metal	\$58.68	7X	4J
Shipbuilding & Ship Repair	New Construction Shipwright	\$51.85	7X	4J
Shipbuilding & Ship Repair	New Construction Warehouse/Teamster	\$43.00	7V	1
Shipbuilding & Ship Repair	New Construction Welder / Burner	\$58.93	7X	4J
Shipbuilding & Ship Repair	Ship Repair Boilermaker	\$58.93	7X	4J
Shipbuilding & Ship Repair	Ship Repair Carpenter	\$51.85	7X	4J
Shipbuilding & Ship Repair	Ship Repair Crane Operator	\$45.06	7Y	4K
Shipbuilding & Ship Repair	Ship Repair Electrician	\$58.98	7X	4J
Shipbuilding & Ship Repair	Ship Repair Heat & Frost Insulator	\$91.81	15H	11C
Shipbuilding & Ship Repair	Ship Repair Laborer	\$58.60	7X	4J
Shipbuilding & Ship Repair	Ship Repair Machinist	\$58.79	7X	4J
Shipbuilding & Ship Repair	Ship Repair Operating Engineer	\$45.06	7Y	4K
Shipbuilding & Ship Repair	Ship Repair Painter	\$58.72	7X	4J
Shipbuilding & Ship Repair	Ship Repair Pipefitter	\$59.07	7X	4J

Shipbuilding & Ship Repair	Ship Repair Rigger	\$58.93	7X	4J
Shipbuilding & Ship Repair	Ship Repair Sheet Metal	\$58.68	7X	4J
Shipbuilding & Ship Repair	Ship Repair Shipwright	\$51.85	7X	4J
Shipbuilding & Ship Repair	Ship Repair Warehouse / Teamster	\$45.06	7Y	4K
<u>Sign Makers & Installers</u> (Electrical)	Journey Level	\$58.04	0	1
<u>Sign Makers & Installers</u> (Non-Electrical)	Journey Level	\$37.08	0	1
<u>Soft Floor Layers</u>	Journey Level	\$63.29	15J	4C
<u>Solar Controls For Windows</u>	Journey Level	\$16.66		1
<u>Sprinkler Fitters (Fire Protection)</u>	Journey Level	\$96.99	5C	1X
<u>Stage Rigging Mechanics</u> (Non Structural)	Journey Level	\$16.66		1
<u>Stone Masons</u>	Journey Level	\$71.82	7E	1N
<u>Street And Parking Lot Sweeper Workers</u>	Journey Level	\$19.09		1
<u>Surveyors</u>	Assistant Construction Site Surveyor	\$86.36	7A	11H 8X
<u>Surveyors</u>	Chainman	\$82.59	7A	11H 8X

<u>Surveyors</u>	Construction Site Surveyor	\$87.82	7A	11H	8X
<u>Surveyors</u>	Drone Operator (when used in conjunction with survey work only)	\$82.59	7A	11H	8X
<u>Surveyors</u>	Ground Penetrating Radar Operator	\$82.59	7A	11H	8X
<u>Telecommunication Technicians</u>	Journey Level	\$67.16	7E	1E	
<u>Telephone Line Construction - Outside</u>	Cable Splicer	\$41.35	5A	2B	
<u>Telephone Line Construction - Outside</u>	Hole Digger/Ground Person	\$27.31	5A	2B	
<u>Telephone Line Construction - Outside</u>	Telephone Equipment Operator (Light)	\$34.53	5A	2B	
<u>Telephone Line Construction - Outside</u>	Telephone Lineperson	\$39.07	5A	2B	
<u>Terrazzo Workers</u>	Journey Level	\$67.51	7E	1N	
<u>Tile Setters</u>	Journey Level	\$65.51	7E	1N	
<u>Tile, Marble & Terrazzo Finishers</u>	Finisher	\$56.34	7E	1N	
<u>Traffic Control Stripers</u>	Journey Level	\$92.44	15L	1K	
<u>Truck Drivers</u>	Asphalt Mix Over 16 Yards	\$79.40	15J	11M	8L

<u>Truck Drivers</u>	Asphalt Mix To 16 Yards	\$78.56	15J	11M	8L
<u>Truck Drivers</u>	Dump Truck	\$78.56	15J	11M	8L
<u>Truck Drivers</u>	Dump Truck & Trailer	\$79.40	15J	11M	8L
<u>Truck Drivers</u>	Other Trucks	\$79.40	15J	11M	8L
<u>Truck Drivers - Ready Mix</u>	Transit Mix	\$79.40	15J	11M	8L
<u>Well Drillers & Irrigation Pump Installers</u>	Irrigation Pump Installer	\$17.71		1	
<u>Well Drillers & Irrigation Pump Installers</u>	Oiler	\$16.66		1	
<u>Well Drillers & Irrigation Pump Installers</u>	Well Driller	\$18.00		1	

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Asbestos Abatement
 Workers Trade for the Effective Date: 2/5/2025

King County Asbestos Abatement Workers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Asbestos Abatement/Western WA	\$44.38	5D	1H	
2	1001	2000	Asbestos Abatement/Western WA	\$49.25	5D	1H	
3	2001	3000	Asbestos Abatement/Western WA	\$54.12	5D	1H	
4	3001	4000	Asbestos Abatement/Western WA	\$56.56	5D	1H	

5	4001	5000	Asbestos Abatement/Western WA	\$59.00	5D	1H
6	5001	6000	Asbestos Abatement/Western WA	\$61.43	5D	1H

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Apprentice Level Prevailing Wage Rates for King County and Boilermakers Trade for the
 Effective Date: 2/5/2025

King County Boilermakers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Boilermaker (Field Const/Repair)	\$64.14	5N	1C	
2	1001	2000	Boilermaker (Field Const/Repair)	\$66.26	5N	1C	
3	2001	3000	Boilermaker (Field Const/Repair)	\$68.39	5N	1C	
4	3001	4000	Boilermaker (Field Const/Repair)	\$70.51	5N	1C	

5	4001	5000	Boilermaker (Field Const/Repair)	\$72.64	5N	1C
6	5001	6000	Boilermaker (Field Const/Repair)	\$74.76	5N	1C

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Apprentice Level Prevailing Wage Rates for King County and Brick Mason Trade for the
 Effective Date: 2/5/2025

King County Brick Mason

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Brick Layer	\$46.32	7E	1N	
2	751	2250	Brick Layer	\$48.96	7E	1N	
3	2251	3000	Brick Layer	\$51.60	7E	1N	
4	3001	3750	Brick Layer	\$54.24	7E	1N	
5	3751	4500	Brick Layer	\$56.88	7E	1N	
6	4501	5250	Brick Layer	\$59.52	7E	1N	

7	5251	6000	Brick Layer	\$64.79	7E	1N
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1	1	750	Pointer/Cleaner/Caulker	\$46.32	7E	1N
<hr/>						
2	751	2250	Pointer/Cleaner/Caulker	\$48.96	7E	1N
<hr/>						
3	2251	3000	Pointer/Cleaner/Caulker	\$51.60	7E	1N
<hr/>						
4	3001	3750	Pointer/Cleaner/Caulker	\$54.24	7E	1N
<hr/>						
5	3751	4500	Pointer/Cleaner/Caulker	\$56.88	7E	1N
<hr/>						
6	4501	5250	Pointer/Cleaner/Caulker	\$59.52	7E	1N
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7	5251	6000	Pointer/Cleaner/Caulker	\$64.79	7E	1N
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Apprentice Level Prevailing Wage Rates for King County and Building Service Employees
 Trade for the Effective Date: 2/5/2025

King County Building Service Employees

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

WA Public School Employees / Facilities Custodial Services Technician I ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Janitor, Shampooer or Waxer	\$22.34	5S	2F	
2	1001	2000	Janitor, Shampooer or Waxer	\$28.09	5S	2F	

3	2001	3000	Janitor, Shampooer or Waxer	\$28.48	5S	2F
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Carpenters Trade for the
 Effective Date: 2/5/2025

King County Carpenters

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Carpenter	\$47.43	15J	11U	
2	1001	2000	Carpenter	\$57.42	15J	11U	
3	2001	3000	Carpenter	\$60.50	15J	11U	
4	3001	4000	Carpenter	\$63.58	15J	11U	
5	4001	5000	Carpenter	\$66.65	15J	11U	
6	5001	6000	Carpenter	\$69.73	15J	11U	

7	6001	7000	Carpenter	\$72.81	15J	11U	
8	7001	8000	Carpenter	\$75.88	15J	11U	
1	1	1000	Piledriver	\$48.36	15J	11U	9L
2	1001	2000	Piledriver	\$58.42	15J	11U	9L
3	2001	3000	Piledriver	\$61.58	15J	11U	9L
4	3001	4000	Piledriver	\$64.73	15J	11U	9L
5	4001	5000	Piledriver	\$67.88	15J	11U	9L
6	5001	6000	Piledriver	\$71.04	15J	11U	9L
7	6001	7000	Piledriver	\$74.19	15J	11U	9L
8	7001	8000	Piledriver	\$77.35	15J	11U	9L

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Apprentice Level Prevailing Wage Rates for King County and Cement Masons Trade for
 the Effective Date: 2/5/2025

King County Cement Masons

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	900	Cement Mason Indentured On or After 4/21/2011	\$54.58	15J	4U	
2	901	1800	Cement Mason Indentured On or After 4/21/2011	\$57.35	15J	4U	
3	1801	2700	Cement Mason Indentured On or After 4/21/2011	\$60.13	15J	4U	
4	2701	3600	Cement Mason Indentured On or After 4/21/2011	\$65.68	15J	4U	

5	3601	4500	Cement Mason Indentured On or After 4/21/2011	\$71.23	15J	4U
6	4501	5400	Cement Mason Indentured On or After 4/21/2011	\$74.01	15J	4U
7	5401	6400	Cement Mason Indentured On or After 4/21/2011	\$76.78	15J	4U
1	1	900	Cement Mason Indentured Prior to 4/21/2011	\$54.58	15J	4U
2	901	1800	Cement Mason Indentured Prior to 4/21/2011	\$57.35	15J	4U
3	1801	2700	Cement Mason Indentured Prior to 4/21/2011	\$60.13	15J	4U
4	2701	3600	Cement Mason Indentured Prior to 4/21/2011	\$65.68	15J	4U
5	3601	4500	Cement Mason Indentured Prior to 4/21/2011	\$71.23	15J	4U
6	4501	5400	Cement Mason Indentured Prior to 4/21/2011	\$74.01	15J	4U

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Apprentice Level Prevailing Wage Rates for King County and Dredge Workers Trade for
 the Effective Date: 2/5/2025

King County Dredge Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Dredge Worker Apprentice	\$63.26	5D	3F	
2	1001	2000	Dredge Worker Apprentice	\$66.12	5D	3F	
3	2001	3000	Dredge Worker Apprentice	\$68.98	5D	3F	
4	3001	4000	Dredge Worker Apprentice	\$71.84	5D	3F	

5	4001	5000	Dredge Worker Apprentice	\$77.56	5D	3F
6	5001	6000	Dredge Worker Apprentice	\$80.42	5D	3F

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Apprentice Level Prevailing Wage Rates for King County and Drywall Applicator Trade for
 the Effective Date: 2/5/2025

King County Drywall Applicator

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Drywall Applicator/Western WA	\$46.55	150	11S	
2	1001	2000	Drywall Applicator/Western WA	\$57.49	150	11S	
3	2001	3000	Drywall Applicator/Western WA	\$60.53	150	11S	
4	3001	4000	Drywall Applicator/Western WA	\$63.57	150	11S	

5	4001	5000	Drywall Applicator/Western WA	\$66.61	150	11S
6	5001	6000	Drywall Applicator/Western WA	\$69.65	150	11S
7	6001	7000	Drywall Applicator/Western WA	\$72.68	150	11S
8	7001	8000	Drywall Applicator/Western WA	\$75.72	150	11S

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Apprentice Level Prevailing Wage Rates for King County and Drywall Tapers Trade for the
 Effective Date: 2/5/2025

King County Drywall Tapers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Drywall Finisher (Taper)/Western WA	\$42.47	150	11S	
2	1001	2000	Drywall Finisher (Taper)/Western WA	\$54.46	150	11S	
3	2001	3000	Drywall Finisher (Taper)/Western WA	\$59.32	150	11S	
4	3001	4000	Drywall Finisher (Taper)/Western WA	\$64.18	150	11S	

5	4001	5000	Drywall Finisher (Taper)/Western WA	\$69.04	150	11S
6	5001	6000	Drywall Finisher (Taper)/Western WA	\$73.90	150	11S

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Apprentice Level Prevailing Wage Rates for King County and Electrical Fixture
 Maintenance Workers Trade for the Effective Date: 2/5/2025

King County Electrical Fixture Maintenance Workers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Electrical / Construction Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Electrician	\$16.66	5L	1E	
2	1001	2000	Construction Electrician	\$17.41	5L	1E	

3	2001	3000	Construction Electrician	\$19.35	5L	1E
4	3001	4000	Construction Electrician	\$21.28	5L	1E
5	4001	5000	Construction Electrician	\$25.14	5L	1E
6	5001	6000	Construction Electrician	\$29.01	5L	1E
7	6001	7000	Construction Electrician	\$30.95	5L	1E
8	7001	8000	Construction Electrician	\$32.89	5L	1E

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Apprentice Level Prevailing Wage Rates for King County and Electrical Fixture
 Maintenance Workers Trade for the Effective Date: 2/5/2025

King County Electrical Fixture Maintenance Workers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprentice Program from the dropdown below.

Select a program to see its rates:

Choose Apprentice Program

I.E.C. of Washington / Construction Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Electrician	\$16.66	5L	1E	
2	1001	2000	Construction Electrician	\$19.35	5L	1E	

3	2001	3500	Construction Electrician	\$21.28	5L	1E
4	3501	5000	Construction Electrician	\$25.16	5L	1E
5	5001	6500	Construction Electrician	\$29.02	5L	1E
6	6501	8000	Construction Electrician	\$32.89	5L	1E

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Apprentice Level Prevailing Wage Rates for King County and Electrical Fixture
 Maintenance Workers Trade for the Effective Date: 2/5/2025

King County Electrical Fixture Maintenance Workers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprentice Program from the dropdown below.

Select a program to see its rates:

Choose Apprentice Program

SW WA Electrical JATC / Inside Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman	\$16.66	5L	1E	
2	1001	2000	Inside Wireman	\$17.62	5L	1E	

3	2001	3500	Inside Wireman	\$23.21	5L	1E
4	3501	5000	Inside Wireman	\$26.59	5L	1E
5	5001	6500	Inside Wireman	\$29.98	5L	1E
6	6501	8000	Inside Wireman	\$33.35	5L	1E

State of Washington
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Electricians - Inside Trade
 for the Effective Date: 2/5/2025

King County Electricians - Inside

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman	\$45.30	7C	4E	
2	1001	2000	Inside Wireman	\$49.09	7C	4E	
3	2001	3500	Inside Wireman	\$60.53	7C	4E	
4	3501	5000	Inside Wireman	\$72.40	7C	4E	
5	5001	6500	Inside Wireman	\$81.57	7C	4E	
6	6501	8000	Inside Wireman	\$90.70	7C	4E	

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Electricians - Powerline
 Construction Trade for the Effective Date: 2/5/2025

King County Electricians - Powerline Construction

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Lineman	\$56.34	5A	4D	
2	1001	2000	Construction Lineman	\$58.35	5A	4D	
3	2001	3000	Construction Lineman	\$61.02	5A	4D	
4	3001	4000	Construction Lineman	\$64.38	5A	4D	

5	4001	5000	Construction Lineman	\$68.40	5A	4D
6	5001	6000	Construction Lineman	\$73.78	5A	4D
7	6001	7000	Construction Lineman	\$76.45	5A	4D

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Electronic Technicians Trade
 for the Effective Date: 2/5/2025

King County Electronic Technicians

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	800	Limited Energy/Sound & Comm Tech	\$43.64	7E	1E	
2	801	1600	Limited Energy/Sound & Comm Tech	\$46.57	7E	1E	
3	1601	2400	Limited Energy/Sound & Comm Tech	\$49.51	7E	1E	
4	2401	3200	Limited Energy/Sound & Comm Tech	\$52.47	7E	1E	

5	3201	4000	Limited Energy/Sound & Comm Tech	\$55.39	7E	1E
6	4001	4800	Limited Energy/Sound & Comm Tech	\$58.31	7E	1E

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Apprentice Level Prevailing Wage Rates for King County and Elevator Constructors Trade
 for the Effective Date: 2/5/2025

King County Elevator Constructors

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Elevator Constructor Mechanic	\$32.44	7D	4A	
2	1001	1700	Elevator Constructor Mechanic	\$78.12	7D	4A	
3	1701	3400	Elevator Constructor Mechanic	\$85.20	7D	4A	
4	3401	5100	Elevator Constructor Mechanic	\$88.73	7D	4A	

5	5101	6800	Elevator Constructor Mechanic	\$95.81	7D	4A
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Flaggers Trade for the
 Effective Date: 2/5/2025

King County Flaggers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Flagger/Western WA	\$44.38	15J	11P	8Y
2	1001	2000	Flagger/Western WA	\$49.26	15J	11P	8Y
3	2001	3000	Flagger/Western WA	\$54.65	15J	11P	8Y
4	3001	4000	Flagger/Western WA	\$54.65	15J	11P	8Y

5	4001	5000	Flagger/Western WA	\$54.65	15J	11P	8Y
6	5001	6000	Flagger/Western WA	\$54.65	15J	11P	8Y

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Apprentice Level Prevailing Wage Rates for King County and Glaziers Trade for the
 Effective Date: 2/5/2025

King County Glaziers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Commercial Glazier/Northwest WA	\$45.55	7L	1Y	
2	1001	2000	Commercial Glazier/Northwest WA	\$49.20	7L	1Y	
3	2001	3000	Commercial Glazier/Northwest WA	\$52.86	7L	1Y	
4	3001	4000	Commercial Glazier/Northwest WA	\$56.53	7L	1Y	

5	4001	5000	Commercial Glazier/Northwest WA	\$60.19	7L	1Y
6	5001	6000	Commercial Glazier/Northwest WA	\$63.85	7L	1Y
7	6001	7000	Commercial Glazier/Northwest WA	\$67.51	7L	1Y
8	7001	8000	Commercial Glazier/Northwest WA	\$74.84	7L	1Y

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Apprentice Level Prevailing Wage Rates for King County and Heat & Frost Insulators And
 Asbestos Workers Trade for the Effective Date: 2/5/2025

King County Heat & Frost Insulators And Asbestos Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	2000	Asbestos Worker/Western WA	\$56.51	15H	11C	
2	2001	4000	Asbestos Worker/Western WA	\$63.78	15H	11C	
3	4001	6000	Asbestos Worker/Western WA	\$71.04	15H	11C	
4	6001	8000	Asbestos Worker/Western WA	\$78.31	15H	11C	

5	8001	10000	Asbestos Worker/Western WA	\$85.57	15H	11C
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Heating Equipment
 Mechanics Trade for the Effective Date: 2/5/2025

King County Heating Equipment Mechanics

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1800	HVAC Service Tech	\$46.23	7F	1E	
2	1801	2700	HVAC Service Tech	\$61.07	7F	1E	
3	2701	3600	HVAC Service Tech	\$64.55	7F	1E	
4	3601	4500	HVAC Service Tech	\$68.04	7F	1E	
5	4501	5400	HVAC Service Tech	\$71.53	7F	1E	
6	5401	6300	HVAC Service Tech	\$75.02	7F	1E	

7	6301	7200	HVAC Service Tech	\$78.50	7F	1E
8	7201	8100	HVAC Service Tech	\$81.99	7F	1E
9	8101	9000	HVAC Service Tech	\$85.47	7F	1E

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Apprentice Level Prevailing Wage Rates for King County and Hod Carriers & Mason
 Tenders Trade for the Effective Date: 2/5/2025

King County Hod Carriers & Mason Tenders

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Hod Carriers & Mason Tenders/Western WA	\$44.38	15J	11P	8Y
2	1001	2000	Hod Carriers & Mason Tenders/Western WA	\$49.26	15J	11P	8Y
3	2001	3000	Hod Carriers & Mason Tenders/Western WA	\$54.13	15J	11P	8Y
4	3001	4000	Hod Carriers & Mason Tenders/Western WA	\$56.56	15J	11P	8Y

5	4001	5000	Hod Carriers & Mason Tenders/Western WA	\$59.00	15J	11P	8Y
6	5001	6000	Hod Carriers & Mason Tenders/Western WA	\$61.43	15J	11P	8Y

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Apprentice Level Prevailing Wage Rates for King County and Insulation Applicators Trade
 for the Effective Date: 2/5/2025

King County Insulation Applicators

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Insulation Applicator	\$41.28	15J	11U	
2	1001	2000	Insulation Applicator	\$54.34	15J	11U	
3	2001	3000	Insulation Applicator	\$63.58	15J	11U	
4	3001	4000	Insulation Applicator	\$72.81	15J	11U	

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Apprentice Level Prevailing Wage Rates for King County and Ironworkers Trade for the
 Effective Date: 2/5/2025

King County Ironworkers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	0	750	Ironworker/Western WA	\$50.71	15K	11N	
2	751	1500	Ironworker/Western WA	\$53.54	15K	11N	
3	1501	2250	Ironworker/Western WA	\$76.71	15K	11N	
4	2251	3000	Ironworker/Western WA	\$79.53	15K	11N	

5	3001	3750	Ironworker/Western WA	\$82.35	15K	11N
6	3751	4500	Ironworker/Western WA	\$85.18	15K	11N
7	4501	5250	Ironworker/Western WA	\$85.18	15K	11N
8	5251	6000	Ironworker/Western WA	\$88.00	15K	11N

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Apprentice Level Prevailing Wage Rates for King County and Laborers Trade for the
 Effective Date: 2/5/2025

King County Laborers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Laborer/Western WA	\$44.39	15J	11P	8Y
2	1001	2000	Laborer/Western WA	\$49.26	15J	11P	8Y
3	2001	3000	Laborer/Western WA	\$54.13	15J	11P	8Y
4	3001	4000	Laborer/Western WA	\$56.56	15J	11P	8Y
5	4001	5000	Laborer/Western WA	\$59.00	15J	11P	8Y
6	5001	6000	Laborer/Western WA	\$61.43	15J	11P	8Y

1	1	1000	Window Washer, Cleaner/Western WA	\$44.39	15J	11P	8Y
2	1001	2000	Window Washer, Cleaner/Western WA	\$49.26	15J	11P	8Y
3	2001	3000	Window Washer, Cleaner/Western WA	\$49.97	15J	11P	8Y
4	3001	4000	Window Washer, Cleaner/Western WA	\$49.97	15J	11P	8Y
5	4001	5000	Window Washer, Cleaner/Western WA	\$49.97	15J	11P	8Y
6	5001	6000	Window Washer, Cleaner/Western WA	\$49.97	15J	11P	8Y

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Laborers - Underground
 Sewer & Water Trade for the Effective Date: 2/5/2025

King County Laborers - Underground Sewer & Water

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Laborers Underground Sewer/Western WA	\$44.38	15J	11P	8Y
2	1001	2000	Laborers Underground Sewer/Western WA	\$49.26	15J	11P	8Y
3	2001	3000	Laborers Underground Sewer/Western WA	\$54.13	15J	11P	8Y
4	3001	4000	Laborers Underground Sewer/Western WA	\$56.56	15J	11P	8Y

5	4001	5000	Laborers Underground Sewer/Western WA	\$59.00	15J	11P	8Y
6	5001	6000	Laborers Underground Sewer/Western WA	\$61.43	15J	11P	8Y

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Landscape Construction
 Trade for the Effective Date: 2/5/2025

King County Landscape Construction

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Landscape Operator	\$65.23	15J	11G	8X
2	1001	2000	Landscape Operator	\$68.21	15J	11G	8X
3	2001	3000	Landscape Operator	\$71.18	15J	11G	8X
4	3001	4000	Landscape Operator	\$74.15	15J	11G	8X
5	4001	5000	Landscape Operator	\$80.10	15J	11G	8X
6	5001	6000	Landscape Operator	\$83.08	15J	11G	8X

1	1	1000	Landscaping Or Planting Laborer	\$44.39	15J	11P	8Y
2	1001	2000	Landscaping Or Planting Laborer	\$49.26	15J	11P	8Y
3	2001	3000	Landscaping Or Planting Laborer	\$49.97	15J	11P	8Y
4	3001	4000	Landscaping Or Planting Laborer	\$49.97	15J	11P	8Y
5	4001	5000	Landscaping Or Planting Laborer	\$49.97	15J	11P	8Y
6	5001	6000	Landscaping Or Planting Laborer	\$49.97	15J	11P	8Y

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Apprentice Level Prevailing Wage Rates for King County and Lathers Trade for the
 Effective Date: 2/5/2025

King County Lathers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Lather/Western WA	\$46.55	150	11S	
2	1001	2000	Lather/Western WA	\$57.49	150	11S	
3	2001	3000	Lather/Western WA	\$60.53	150	11S	
4	3001	4000	Lather/Western WA	\$63.57	150	11S	
5	4001	5000	Lather/Western WA	\$66.61	150	11S	

6	5001	6000	Lather/Western WA	\$69.65	150	11S
7	6001	7000	Lather/Western WA	\$72.68	150	11S
8	7001	8000	Lather/Western WA	\$75.72	150	11S

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Apprentice Level Prevailing Wage Rates for King County and Marble Setters Trade for the
 Effective Date: 2/5/2025

King County Marble Setters

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Marble Setter	\$46.32	7E	1N	
2	751	2250	Marble Setter	\$48.96	7E	1N	
3	2251	3000	Marble Setter	\$51.60	7E	1N	
4	3001	3750	Marble Setter	\$54.24	7E	1N	
5	3751	4500	Marble Setter	\$56.88	7E	1N	
6	4501	5250	Marble Setter	\$59.52	7E	1N	

7	5251	6000	Marble Setter	\$64.79	7E	1N
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Millwright Trade for the
 Effective Date: 2/5/2025

King County Millwright

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Millwright/Western & Central WA	\$44.97	5A	1B	
2	1001	2000	Millwright/Western & Central WA	\$60.05	5A	1B	
3	2001	3000	Millwright/Western & Central WA	\$62.94	5A	1B	
4	3001	4000	Millwright/Western & Central WA	\$65.83	5A	1B	

5	4001	5000	Millwright/Western & Central WA	\$68.72	5A	1B
6	5001	6000	Millwright/Western & Central WA	\$71.61	5A	1B
7	6001	7000	Millwright/Western & Central WA	\$74.50	5A	1B
8	7001	8000	Millwright/Western & Central WA	\$77.39	5A	1B

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Apprentice Level Prevailing Wage Rates for King County and Painters Trade for the
 Effective Date: 2/5/2025

King County Painters

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1166	Painter and Decorator	\$41.38	6Z	11J	
2	1167	2333	Painter and Decorator	\$42.18	6Z	11J	
3	2334	3499	Painter and Decorator	\$44.57	6Z	11J	
4	3500	4666	Painter and Decorator	\$45.42	6Z	11J	
5	4667	5833	Painter and Decorator	\$46.26	6Z	11J	

6	5834	7000	Painter and Decorator	\$47.11	6Z	11J
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Pile Driver Trade for the
 Effective Date: 2/5/2025

King County Pile Driver

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Piledriver	\$48.36	15J	11U	9L
2	1001	2000	Piledriver	\$58.42	15J	11U	9L
3	2001	3000	Piledriver	\$61.58	15J	11U	9L
4	3001	4000	Piledriver	\$64.73	15J	11U	9L
5	4001	5000	Piledriver	\$67.88	15J	11U	9L
6	5001	6000	Piledriver	\$71.04	15J	11U	9L

7	6001	7000	Piledriver	\$74.19	15J	11U	9L
8	7001	8000	Piledriver	\$77.35	15J	11U	9L

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Apprentice Level Prevailing Wage Rates for King County and Plasterers Trade for the
 Effective Date: 2/5/2025

King County Plasterers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	500	Nozzleman/Western WA	\$45.86	7Q	1R	
2	501	1000	Nozzleman/Western WA	\$48.40	7Q	1R	
3	1001	2000	Nozzleman/Western WA	\$62.32	7Q	1R	
4	2001	3000	Nozzleman/Western WA	\$64.85	7Q	1R	

5	3001	4000	Nozzleman/Western WA	\$67.39	7Q	1R
6	4001	5000	Nozzleman/Western WA	\$69.93	7Q	1R
7	5001	6000	Nozzleman/Western WA	\$72.47	7Q	1R
8	6001	7000	Nozzleman/Western WA	\$75.00	7Q	1R
1	1	500	Plasterer/Western WA	\$41.86	7Q	1R
2	501	1000	Plasterer/Western WA	\$44.40	7Q	1R
3	1001	2000	Plasterer/Western WA	\$58.32	7Q	1R
4	2001	3000	Plasterer/Western WA	\$60.85	7Q	1R
5	3001	4000	Plasterer/Western WA	\$63.39	7Q	1R
6	4001	5000	Plasterer/Western WA	\$65.93	7Q	1R
7	5001	6000	Plasterer/Western WA	\$68.47	7Q	1R
8	6001	7000	Plasterer/Western WA	\$71.00	7Q	1R

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Plumbers & Pipefitters Trade
 for the Effective Date: 2/5/2025

King County Plumbers & Pipefitters

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	2000	Pipefitter/Western WA	\$55.85	6Z	1G	
2	2001	4000	Pipefitter/Western WA	\$66.61	6Z	1G	
3	4001	6000	Pipefitter/Western WA	\$73.15	6Z	1G	
4	6001	8000	Pipefitter/Western WA	\$79.69	6Z	1G	
5	8001	10000	Pipefitter/Western WA	\$92.77	6Z	1G	

1	1	2000	Plumber/Western WA	\$55.85	6Z	1G
2	2001	4000	Plumber/Western WA	\$66.61	6Z	1G
3	4001	6000	Plumber/Western WA	\$73.15	6Z	1G
4	6001	8000	Plumber/Western WA	\$79.69	6Z	1G
5	8001	10000	Plumber/Western WA	\$92.77	6Z	1G

State of Washington
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Power Equipment Operators
 Trade for the Effective Date: 2/5/2025

King County Power Equipment Operators

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Constr Equipment Operator	\$65.23	15J	11G	8X
2	1001	2000	Constr Equipment Operator	\$68.21	15J	11G	8X
3	2001	3000	Constr Equipment Operator	\$71.18	15J	11G	8X
4	3001	4000	Constr Equipment Operator	\$74.15	15J	11G	8X

5	4001	5000	Constr Equipment Operator	\$80.10	15J	11G	8X
6	5001	6000	Constr Equipment Operator	\$83.08	15J	11G	8X
1	1	1000	Heavy Duty Repair Mechanic	\$65.23	15J	11G	8X
2	1001	2000	Heavy Duty Repair Mechanic	\$68.21	15J	11G	8X
3	2001	3000	Heavy Duty Repair Mechanic	\$71.18	15J	11G	8X
4	3001	4000	Heavy Duty Repair Mechanic	\$74.15	15J	11G	8X
5	4001	5000	Heavy Duty Repair Mechanic	\$80.10	15J	11G	8X
6	5001	6000	Heavy Duty Repair Mechanic	\$83.08	15J	11G	8X
1	1	1000	Hoisting Engineer	\$65.43	7A	11H	8X
2	1001	2000	Hoisting Engineer	\$68.42	7A	11H	8X
3	2001	3000	Hoisting Engineer	\$71.41	7A	11H	8X
4	3001	4000	Hoisting Engineer	\$74.40	7A	11H	8X
5	4001	5000	Hoisting Engineer	\$80.38	7A	11H	8X
6	5001	6000	Hoisting Engineer	\$83.37	7A	11H	8X

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Power Equipment Operators-
 Underground Sewer & Water Trade for the Effective Date: 2/5/2025

King County Power Equipment Operators- Underground Sewer & Water

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Constr Equipment Operator	\$65.23	15J	11G	8X
2	1001	2000	Constr Equipment Operator	\$68.21	15J	11G	8X
3	2001	3000	Constr Equipment Operator	\$71.18	15J	11G	8X
4	3001	4000	Constr Equipment Operator	\$74.15	15J	11G	8X

5	4001	5000	Constr Equipment Operator	\$80.10	15J	11G	8X
6	5001	6000	Constr Equipment Operator	\$83.08	15J	11G	8X
1	1	1000	Heavy Duty Repair Mechanic	\$65.23	15J	11G	8X
2	1001	2000	Heavy Duty Repair Mechanic	\$68.21	15J	11G	8X
3	2001	3000	Heavy Duty Repair Mechanic	\$71.18	15J	11G	8X
4	3001	4000	Heavy Duty Repair Mechanic	\$74.15	15J	11G	8X
5	4001	5000	Heavy Duty Repair Mechanic	\$80.10	15J	11G	8X
6	5001	6000	Heavy Duty Repair Mechanic	\$83.08	15J	11G	8X
1	1	1000	Hoisting Engineer	\$65.43	7A	11H	8X
2	1001	2000	Hoisting Engineer	\$68.42	7A	11H	8X
3	2001	3000	Hoisting Engineer	\$71.41	7A	11H	8X
4	3001	4000	Hoisting Engineer	\$74.40	7A	11H	8X
5	4001	5000	Hoisting Engineer	\$80.38	7A	11H	8X
6	5001	6000	Hoisting Engineer	\$83.37	7A	11H	8X

State of Washington
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Power Line Clearance Tree Trimmers Trade for the Effective Date: 2/5/2025

King County Power Line Clearance Tree Trimmers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	500	Tree Trimmer	\$43.74	5A	4A	
2	501	1000	Tree Trimmer	\$45.81	5A	4A	
3	1001	2000	Tree Trimmer	\$47.87	5A	4A	
4	2001	4000	Tree Trimmer	\$49.93	5A	4A	

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Refrigeration & Air Conditioning Mechanics Trade for the Effective Date: 2/5/2025

King County Refrigeration & Air Conditioning Mechanics

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	2000	Refrigeration/Western WA	\$51.06	6Z	1G	
2	2001	4000	Refrigeration/Western WA	\$61.21	6Z	1G	
3	4001	6000	Refrigeration/Western WA	\$67.40	6Z	1G	
4	6001	8000	Refrigeration/Western WA	\$73.57	6Z	1G	

5	8001	10000	Refrigeration/Western WA	\$85.96	6Z	1G
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Brick Mason
 Trade for the Effective Date: 2/5/2025

King County Residential Brick Mason

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Brick Layer	\$46.32	7E	1N	
2	751	2250	Brick Layer	\$48.96	7E	1N	
3	2251	3000	Brick Layer	\$51.60	7E	1N	
4	3001	3750	Brick Layer	\$54.24	7E	1N	
5	3751	4500	Brick Layer	\$56.88	7E	1N	
6	4501	5250	Brick Layer	\$59.52	7E	1N	

7	5251	6000	Brick Layer	\$64.79	7E	1N
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1	1	750	Pointer/Cleaner/Caulker	\$46.32	7E	1N
<hr/>						
2	751	2250	Pointer/Cleaner/Caulker	\$48.96	7E	1N
<hr/>						
3	2251	3000	Pointer/Cleaner/Caulker	\$51.60	7E	1N
<hr/>						
4	3001	3750	Pointer/Cleaner/Caulker	\$54.24	7E	1N
<hr/>						
5	3751	4500	Pointer/Cleaner/Caulker	\$56.88	7E	1N
<hr/>						
6	4501	5250	Pointer/Cleaner/Caulker	\$59.52	7E	1N
<hr/>						
7	5251	6000	Pointer/Cleaner/Caulker	\$64.79	7E	1N
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Carpenters
 Trade for the Effective Date: 2/5/2025

King County Residential Carpenters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Washington State UBC JATC / Carpenter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Carpenter/Central WA	\$21.89		1	
2	1001	2000	Carpenter/Central WA	\$26.50		1	
3	2001	3000	Carpenter/Central WA	\$27.92		1	

4	3001	4000	Carpenter/Central WA	\$29.34	1
5	4001	5000	Carpenter/Central WA	\$30.76	1
6	5001	6000	Carpenter/Central WA	\$32.18	1
7	6001	7000	Carpenter/Central WA	\$33.60	1
8	7001	8000	Carpenter/Central WA	\$35.02	1
1	1	1000	Carpenter/Columbia Valley Area	\$26.22	1
2	1001	2000	Carpenter/Columbia Valley Area	\$27.50	1
3	2001	3000	Carpenter/Columbia Valley Area	\$28.77	1
4	3001	4000	Carpenter/Columbia Valley Area	\$30.06	1
5	4001	5000	Carpenter/Columbia Valley Area	\$31.33	1
6	5001	6000	Carpenter/Columbia Valley Area	\$32.61	1
7	6001	7000	Carpenter/Columbia Valley Area	\$33.88	1
8	7001	8000	Carpenter/Columbia Valley Area	\$35.16	1
1	1	1000	Carpenter/Eastern WA	\$21.31	1

2	1001	2000	Carpenter/Eastern WA	\$27.30	1
3	2001	3000	Carpenter/Eastern WA	\$28.61	1
4	3001	4000	Carpenter/Eastern WA	\$29.92	1
5	4001	5000	Carpenter/Eastern WA	\$31.22	1
6	5001	6000	Carpenter/Eastern WA	\$32.52	1
7	6001	7000	Carpenter/Eastern WA	\$33.83	1
8	7001	8000	Carpenter/Eastern WA	\$35.14	1
1	1	1000	Carpenter/Spokane Area	\$20.54	1
2	1001	2000	Carpenter/Spokane Area	\$21.82	1
3	2001	3000	Carpenter/Spokane Area	\$28.77	1
4	3001	4000	Carpenter/Spokane Area	\$30.06	1
5	4001	5000	Carpenter/Spokane Area	\$31.33	1
6	5001	6000	Carpenter/Spokane Area	\$32.61	1
7	6001	7000	Carpenter/Spokane Area	\$33.88	1
8	7001	8000	Carpenter/Spokane Area	\$35.16	1
1	1	1000	Carpenter/Western WA	\$21.89	1
2	1001	2000	Carpenter/Western WA	\$26.50	1

3	2001	3000	Carpenter/Western WA	\$27.92	1
4	3001	4000	Carpenter/Western WA	\$29.34	1
5	4001	5000	Carpenter/Western WA	\$30.76	1
6	5001	6000	Carpenter/Western WA	\$32.18	1
7	6001	7000	Carpenter/Western WA	\$33.60	1
8	7001	8000	Carpenter/Western WA	\$35.02	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Carpenters
 Trade for the Effective Date: 2/5/2025

King County Residential Carpenters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Carpenter / Carpenter ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Carpenter	\$21.87		1	
2	1001	2000	Carpenter	\$23.68		1	
3	2001	3000	Carpenter	\$25.51		1	

4	3001	4000	Carpenter	\$27.33	1
5	4001	5000	Carpenter	\$29.15	1
6	5001	6000	Carpenter	\$30.98	1
7	6001	7000	Carpenter	\$32.79	1
8	7001	8000	Carpenter	\$34.62	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Carpenters
 Trade for the Effective Date: 2/5/2025

King County Residential Carpenters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

INC/AGC - Carpenters / Carpenter ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Carpenter	\$21.86		1	
2	1001	2000	Carpenter	\$23.69		1	
3	2001	3000	Carpenter	\$25.51		1	

4	3001	4000	Carpenter	\$27.34	1
5	4001	5000	Carpenter	\$29.15	1
6	5001	6000	Carpenter	\$30.98	1
7	6001	7000	Carpenter	\$32.80	1
8	7001	8000	Carpenter	\$34.63	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Carpenters
 Trade for the Effective Date: 2/5/2025

King County Residential Carpenters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Washington State UBC JATC / Residential Carpenter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Residential Carpenter	\$22.59		1	
2	1001	2000	Residential Carpenter	\$23.89		1	
3	2001	3000	Residential Carpenter	\$26.39		1	

4	3001	4000	Residential Carpenter	\$27.69	1
5	4001	5000	Residential Carpenter	\$29.56	1
6	5001	6000	Residential Carpenter	\$30.87	1
7	6001	7000	Residential Carpenter	\$33.83	1
8	7001	8000	Residential Carpenter	\$35.14	1
1	1	1000	Residential Carpenter/Western WA	\$23.43	1
2	1001	2000	Residential Carpenter/Western WA	\$26.60	1
3	2001	3000	Residential Carpenter/Western WA	\$28.01	1
4	3001	4000	Residential Carpenter/Western WA	\$29.41	1
5	4001	5000	Residential Carpenter/Western WA	\$30.82	1
6	5001	6000	Residential Carpenter/Western WA	\$32.22	1
7	6001	7000	Residential Carpenter/Western WA	\$33.63	1
8	7001	8000	Residential Carpenter/Western WA	\$35.03	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Cement Masons
 Trade for the Effective Date: 2/5/2025

King County Residential Cement Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Cement Masons Apprenticeship / Cement Mason ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	900	Cement Mason Indentured Prior to 4/21/2011	\$33.16		1	
2	901	1800	Cement Mason Indentured Prior to 4/21/2011	\$34.84		1	

3	1801	2700	Cement Mason Indentured Prior to 4/21/2011	\$36.52	1
4	2701	3600	Cement Mason Indentured Prior to 4/21/2011	\$39.90	1
5	3601	4500	Cement Mason Indentured Prior to 4/21/2011	\$43.27	1
6	4501	5400	Cement Mason Indentured Prior to 4/21/2011	\$44.96	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Cement Masons
 Trade for the Effective Date: 2/5/2025

King County Residential Cement Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Cement Masons Apprenticeship / Cement Mason ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	900	Cement Mason Indentured On or After 4/21/2011	\$33.16		1	
2	901	1800	Cement Mason Indentured On or After 4/21/2011	\$34.84		1	

3	1801	2700	Cement Mason Indentured On or After 4/21/2011	\$36.52	1
4	2701	3600	Cement Mason Indentured On or After 4/21/2011	\$39.90	1
5	3601	4500	Cement Mason Indentured On or After 4/21/2011	\$43.27	1
6	4501	5400	Cement Mason Indentured On or After 4/21/2011	\$44.96	1
7	5401	6400	Cement Mason Indentured On or After 4/21/2011	\$46.64	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Cement Masons
 Trade for the Effective Date: 2/5/2025

King County Residential Cement Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Cement Masons Apprenticeship / Cement Mason ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Cement Finisher/Asotin	\$34.38		1	
2	1001	2000	Cement Finisher/Asotin	\$37.45		1	
3	2001	3000	Cement Finisher/Asotin	\$40.51		1	

4	3001	4000	Cement Finisher/Asotin	\$43.58	1
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1	1	1000	Cement Finisher/Eastern WA/Registered Prior to 10/17/2013	\$33.60	1
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2	1001	2000	Cement Finisher/Eastern WA/Registered Prior to 10/17/2013	\$36.85	1
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3	2001	3000	Cement Finisher/Eastern WA/Registered Prior to 10/17/2013	\$40.12	1
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4	3001	4000	Cement Finisher/Eastern WA/Registered Prior to 10/17/2013	\$43.38	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Cement Masons
 Trade for the Effective Date: 2/5/2025

King County Residential Cement Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Cement Masons Apprenticeship / Cement Mason ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1600	Cement Finisher/Eastern WA/Registered On or After 10/17/2013	\$33.60		1	

2	1601	3200	Cement Finisher/Eastern WA/Registered On or After 10/17/2013	\$36.85	1
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3	3201	4800	Cement Finisher/Eastern WA/Registered On or After 10/17/2013	\$40.12	1
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4	4801	6400	Cement Finisher/Eastern WA/Registered On or After 10/17/2013	\$43.38	1
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Drywall
 Applicators Trade for the Effective Date: 2/5/2025

King County Residential Drywall Applicators

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Drywall Applicators	\$46.55	15J	4C	
2	1001	2000	Drywall Applicators	\$57.49	15J	4C	
3	2001	3000	Drywall Applicators	\$60.53	15J	4C	
4	3001	4000	Drywall Applicators	\$63.57	15J	4C	
5	4001	5000	Drywall Applicators	\$66.61	15J	4C	

6	5001	6000	Drywall Applicators	\$69.65	15J	4C
7	6001	7000	Drywall Applicators	\$72.68	15J	4C
8	7001	8000	Drywall Applicators	\$75.72	15J	4C

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Electrical / Construction Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Electrician	\$19.52		1	
2	1001	2000	Construction Electrician	\$21.96		1	

3	2001	3000	Construction Electrician	\$24.40	1
4	3001	4000	Construction Electrician	\$26.84	1
5	4001	5000	Construction Electrician	\$31.72	1
6	5001	6000	Construction Electrician	\$36.60	1
7	6001	7000	Construction Electrician	\$39.04	1
8	7001	8000	Construction Electrician	\$41.48	1

State of Washington
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 Prevailing Wage Section - Telephone 360-902-5335
 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

I.E.C. of Washington / Construction Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Electrician	\$19.43		1	
2	1001	2000	Construction Electrician	\$24.41		1	

3	2001	3500	Construction Electrician	\$26.84	1
4	3501	5000	Construction Electrician	\$31.73	1
5	5001	6500	Construction Electrician	\$36.60	1
6	6501	8000	Construction Electrician	\$41.48	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Puget Sound Electrical JATC / Residential Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	900	Residential Wiremen	\$26.55		1	
2	901	1800	Residential Wiremen	\$28.28		1	
3	1801	2700	Residential Wiremen	\$30.01		1	

4	2701	4000	Residential Wiremen	\$31.73	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

I.E.C. of Washington / Residential Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Residential Electrician	\$31.96		1	
2	1001	2000	Residential Electrician	\$31.96		1	

3	2001	3000	Residential Electrician	\$36.59	1
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4	3001	4000	Residential Electrician	\$43.91	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Empire Electrical Training / Residential Electrician ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Residential Electrician	\$34.26		1	
2	1001	2000	Residential Electrician	\$36.09		1	

3	2001	3000	Residential Electrician	\$37.95	1
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4	3001	4000	Residential Electrician	\$41.63	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

NECA-IBEW Electrical JATC / Inside Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Electrician	\$23.17		1	
2	1001	2000	Inside Electrician	\$24.86		1	
3	2001	3500	Inside Electrician	\$29.35		1	

4	3501	5000	Inside Electrician	\$33.30	1
5	5001	6500	Inside Electrician	\$37.27	1
6	6501	8000	Inside Electrician	\$43.21	1
1	1	1000	Inside Electrician	\$20.54	1
2	1001	2000	Inside Electrician	\$22.20	1
3	2001	3500	Inside Electrician	\$28.10	1
4	3501	5000	Inside Electrician	\$32.28	1
5	5001	6500	Inside Electrician	\$36.46	1
6	6501	8000	Inside Electrician	\$42.73	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Area 1 Inside Electrical JATC / Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Electrician	\$19.52		1	
2	1001	2000	Electrician	\$24.40		1	
3	2001	3000	Electrician	\$26.84		1	

4	3001	4000	Electrician	\$29.27	1
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5	4001	5000	Electrician	\$31.72	1
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6	5001	6000	Electrician	\$34.16	1
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7	6001	7000	Electrician	\$36.59	1
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8	7001	8000	Electrician	\$39.03	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Puget Sound Electrical JATC / Inside Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman	\$21.17		1	
2	1001	2000	Inside Wireman	\$22.94		1	
3	2001	3500	Inside Wireman	\$28.29		1	

4	3501	5000	Inside Wireman	\$33.84	1
5	5001	6500	Inside Wireman	\$38.12	1
6	6501	8000	Inside Wireman	\$42.39	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Empire Electrical Training / Inside Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Electricians	\$25.07		1	
2	1001	2000	Inside Electricians	\$26.89		1	
3	2001	3000	Inside Electricians	\$28.71		1	

4	3001	4000	Inside Electricians	\$32.75	1
5	4001	5000	Inside Electricians	\$34.76	1
6	5001	5600	Inside Electricians	\$36.77	1
7	5601	6200	Inside Electricians	\$38.77	1
8	6201	6800	Inside Electricians	\$40.78	1
9	6801	7400	Inside Electricians	\$42.78	1
10	7401	8000	Inside Electricians	\$44.78	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Residential Wireman/LESCT / Residential Wireman ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	0	800	Residential Electricians	\$26.84		1	
2	801	1800	Residential Electricians	\$29.28		1	

3	1801	2700	Residential Electricians	\$34.16	1
4	2701	4000	Residential Electricians	\$39.04	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

LU 112 - NECA Electrical / Inside Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	0	1600	Inside Wireman	\$20.05		1	
2	1601	2500	Inside Wireman	\$25.57		1	
3	2501	3500	Inside Wireman	\$27.68		1	

4	3501	5000	Inside Wireman	\$34.01	1
5	5001	6500	Inside Wireman	\$40.35	1
6	6501	8000	Inside Wireman	\$42.46	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

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Select a program to see its rates:

Choose Apprenticeship Program

NECA-IBEW Electrical JATC / Inside Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Electrician	\$28.54		1	
2	1001	2000	Inside Electrician	\$30.23		1	
3	2001	3000	Inside Electrician	\$37.38		1	

4	3001	4000	Inside Electrician	\$39.34	1
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5	4001	5000	Inside Electrician	\$43.25	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

NW WA Electrical Industry JATC / Residential Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Residential Wireman	\$32.56		1	
2	1001	2000	Residential Wireman	\$35.61		1	
3	2001	3000	Residential Wireman	\$39.03		1	

4	3001	4000	Residential Wireman	\$44.18	1
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5	4001	5000	Residential Wireman	\$44.18	1
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1	1	1000	Residential Wireman	\$32.56	1
<hr/>					
2	1001	2000	Residential Wireman	\$35.61	1
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3	2001	3000	Residential Wireman	\$39.03	1
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4	3001	4000	Residential Wireman	\$44.18	1
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5	4001	5000	Residential Wireman	\$44.18	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

SW WA Electrical JATC / Inside Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman	\$20.39		1	
2	1001	2000	Inside Wireman	\$22.22		1	
3	2001	3500	Inside Wireman	\$29.28		1	

4	3501	5000	Inside Wireman	\$33.54	1
5	5001	6500	Inside Wireman	\$37.81	1
6	6501	8000	Inside Wireman	\$42.07	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Tradesmen Apprenticeship & Comprehensive Training / Inside Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	0	1000	Inside Electrician	\$19.52		1	
2	1001	2000	Inside Electrician	\$21.96		1	
3	2001	3000	Inside Electrician	\$24.40		1	

4	3001	4000	Inside Electrician	\$27.33	1
5	4001	5000	Inside Electrician	\$30.26	1
6	5001	6000	Inside Electrician	\$33.67	1
7	6001	7000	Inside Electrician	\$37.09	1
8	7000	8000	Inside Electrician	\$41.97	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

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Select a program to see its rates:

Choose Apprenticeship Program

LU 112 - NECA Electrical / Residential Electrician ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	2000	Residential Wireman	\$34.16		1	
2	2001	3001	Residential Wireman	\$39.66		1	
3	3001	4000	Residential Wireman	\$43.30		1	

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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

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Select a program to see its rates:

Choose Apprenticeship Program

SW WA Electrical JATC / Residential Wireman ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Residential Wireman	\$33.32		1	
2	1001	2000	Residential Wireman	\$37.41		1	
3	2001	3000	Residential Wireman	\$40.67		1	

4	3001	4000	Residential Wireman	\$43.51	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

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Select a program to see its rates:

Choose Apprenticeship Program

NW WA Electrical Industry JATC / Inside Wireman (Reg After 09/01/2024) ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman Registered on or after 9/1/2024	\$18.14		1	
2	1001	2000	Inside Wireman Registered on or after 9/1/2024	\$22.14		1	

3	2001	3000	Inside Wireman Registered on or after 9/1/2024	\$28.01	1
4	3001	4000	Inside Wireman Registered on or after 9/1/2024	\$30.21	1
5	4001	5000	Inside Wireman Registered on or after 9/1/2024	\$34.57	1
6	5001	6000	Inside Wireman Registered on or after 9/1/2024	\$38.64	1
7	6001	7000	Inside Wireman Registered on or after 9/1/2024	\$40.67	1
8	7001	8000	Inside Wireman Registered on or after 9/1/2024	\$42.70	1
1	1	1000	Inside Wireman Registered on or after 9/1/2024	\$18.14	1
2	1001	2000	Inside Wireman Registered on or after 9/1/2024	\$22.14	1
3	2001	3000	Inside Wireman Registered on or after 9/1/2024	\$28.01	1
4	3001	4000	Inside Wireman Registered on or after 9/1/2024	\$30.21	1
5	4001	5000	Inside Wireman Registered on or after 9/1/2024	\$34.57	1
6	5001	6000	Inside Wireman Registered on or after 9/1/2024	\$38.64	1

7	6001	7000	Inside Wireman Registered on or after 9/1/2024	\$40.67	1
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8	7001	8000	Inside Wireman Registered on or after 9/1/2024	\$42.70	1
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Apprentice Level Prevailing Wage Rates for King County and Residential Electricians
 Trade for the Effective Date: 2/5/2025

King County Residential Electricians

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Select a program to see its rates:

Choose Apprenticeship Program

NW WA Electrical Industry JATC / Inside Wireman ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Inside Wireman- Registered before 9/1/2024	\$22.15		1	
2	1001	2000	Inside Wireman- Registered before 9/1/2024	\$25.48		1	

3	2001	3500	Inside Wireman- Registered before 9/1/2024	\$30.50	1
4	3501	5000	Inside Wireman- Registered before 9/1/2024	\$34.57	1
5	5001	6500	Inside Wireman- Registered before 9/1/2024	\$38.64	1
6	6501	8000	Inside Wireman- Registered before 9/1/2024	\$42.70	1
1	1	1000	Inside Wireman- Registered before 9/1/2024	\$22.15	1
2	1001	2000	Inside Wireman- Registered before 9/1/2024	\$25.48	1
3	2001	3500	Inside Wireman- Registered before 9/1/2024	\$30.50	1
4	3501	5000	Inside Wireman- Registered before 9/1/2024	\$34.57	1
5	5001	6500	Inside Wireman- Registered before 9/1/2024	\$38.64	1
6	6501	8000	Inside Wireman- Registered before 9/1/2024	\$42.70	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Glaziers Trade
 for the Effective Date: 2/5/2025

King County Residential Glaziers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA & N ID Painters & Allied Trades / Glazier ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Glazier	\$19.09		1	
2	1001	2000	Glazier	\$20.27		1	
3	2001	3000	Glazier	\$21.45		1	

4	3001	4000	Glazier	\$22.63	1
5	4001	5000	Glazier	\$25.00	1
6	5001	6000	Glazier	\$27.38	1
1	1	1000	Glazier	\$21.93	1
2	1001	2000	Glazier	\$22.52	1
3	2001	3000	Glazier	\$23.10	1
4	3001	4000	Glazier	\$23.68	1
5	4001	5000	Glazier	\$24.26	1
6	5001	6000	Glazier	\$25.43	1
7	6001	7000	Glazier	\$26.60	1
8	7001	8000	Glazier	\$27.76	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Glaziers Trade
 for the Effective Date: 2/5/2025

King County Residential Glaziers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Glaziers, Arch Metal & Glass Comm / Commercial Glazier ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Commercial Glazier/Northwest WA	\$16.66		1	
2	1001	2000	Commercial Glazier/Northwest WA	\$17.32		1	

3	2001	3000	Commercial Glazier/Northwest WA	\$18.61	1
4	3001	4000	Commercial Glazier/Northwest WA	\$19.90	1
5	4001	5000	Commercial Glazier/Northwest WA	\$21.19	1
6	5001	6000	Commercial Glazier/Northwest WA	\$22.48	1
7	6001	7000	Commercial Glazier/Northwest WA	\$23.77	1
8	7001	8000	Commercial Glazier/Northwest WA	\$26.35	1
1	1	1000	Commercial Glazier/Southwest WA	\$17.77	1
2	1001	2000	Commercial Glazier/Southwest WA	\$18.90	1
3	2001	3000	Commercial Glazier/Southwest WA	\$20.01	1
4	3001	4000	Commercial Glazier/Southwest WA	\$21.13	1
5	4001	5000	Commercial Glazier/Southwest WA	\$22.24	1
6	5001	6000	Commercial Glazier/Southwest WA	\$23.36	1

7	6001	7000	Commercial Glazier/Southwest WA	\$24.47	1
8	7001	8000	Commercial Glazier/Southwest WA	\$26.70	1

State of Washington
 Department of Labor & Industries
 Prevailing Wage Section - Telephone 360-902-5335
 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Glaziers Trade
 for the Effective Date: 2/5/2025

King County Residential Glaziers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Glaziers, Arch Metal & Glass Resident / Residential Glazier ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Residential Glazier	\$17.95		1	
2	1001	2000	Residential Glazier	\$19.17		1	
3	2001	3000	Residential Glazier	\$20.39		1	

4	3001	4000	Residential Glazier	\$21.62	1
5	4001	5000	Residential Glazier	\$24.05	1
6	5001	6000	Residential Glazier	\$26.49	1

State of Washington
 Department of Labor & Industries
 Prevailing Wage Section - Telephone 360-902-5335
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Insulation
 Applicators Trade for the Effective Date: 2/5/2025

King County Residential Insulation Applicators

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Washington State UBC JATC / Insulation Applicator ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Insulation Applicator/Central WA	\$16.66		1	
2	1001	2000	Insulation Applicator/Central WA	\$19.39		1	

3	2001	3000	Insulation Applicator/Central WA	\$22.69	1
4	3001	4000	Insulation Applicator/Central WA	\$25.98	1
1	1	1000	Insulation Applicator/Eastern WA	\$16.66	1
2	1001	2000	Insulation Applicator/Eastern WA	\$20.48	1
3	2001	3000	Insulation Applicator/Eastern WA	\$23.50	1
4	3001	4000	Insulation Applicator/Eastern WA	\$26.53	1
1	1	1000	Insulation Applicators	\$16.66	1
2	1001	2000	Insulation Applicators	\$19.39	1
3	2001	3000	Insulation Applicators	\$22.69	1
4	3001	4000	Insulation Applicators	\$25.98	1
1	1	1000	Insulation Applicators	\$16.66	1
2	1001	2000	Insulation Applicators	\$19.39	1
3	2001	3000	Insulation Applicators	\$22.69	1
4	3001	4000	Insulation Applicators	\$25.98	1

State of Washington
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 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Laborers Trade
 for the Effective Date: 2/5/2025

King County Residential Laborers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Northwest Laborers Apprenticeship / Laborer ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Laborer/Eastern WA Pasco Area	\$22.07		1	
2	1001	2000	Laborer/Eastern WA Pasco Area	\$23.99		1	

3	2001	3000	Laborer/Eastern WA Pasco Area	\$25.90	1
4	3001	4000	Laborer/Eastern WA Pasco Area	\$26.86	1
5	4001	5000	Laborer/Eastern WA Pasco Area	\$27.82	1
6	5001	6000	Laborer/Eastern WA Pasco Area	\$28.78	1
1	1	1000	Laborer/Eastern WA Spokane Area	\$21.63	1
2	1001	2000	Laborer/Eastern WA Spokane Area	\$23.65	1
3	2001	3000	Laborer/Eastern WA Spokane Area	\$25.68	1
4	3001	4000	Laborer/Eastern WA Spokane Area	\$26.69	1
5	4001	5000	Laborer/Eastern WA Spokane Area	\$27.70	1
6	5001	6000	Laborer/Eastern WA Spokane Area	\$28.72	1
1	1	1000	Laborer/SW WA	\$25.94	1
2	1001	2000	Laborer/SW WA	\$28.64	1
3	2001	3000	Laborer/SW WA	\$29.73	1

4	3001	4000	Laborer/SW WA	\$29.73	1
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5	4001	5000	Laborer/SW WA	\$29.73	1
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6	5001	6000	Laborer/SW WA	\$29.73	1
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Laborers Trade
 for the Effective Date: 2/5/2025

King County Residential Laborers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Northwest Laborers Apprenticeship / Laborer ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Laborer / SW WA	\$25.94		1	
2	1001	2000	Laborer / SW WA	\$28.64		1	
3	2001	3000	Laborer / SW WA	\$29.73		1	

4	3001	4000	Laborer / SW WA	\$29.73	1
5	4001	5000	Laborer / SW WA	\$29.73	1
6	5001	6000	Laborer / SW WA	\$29.73	1
1	1	1000	Residential Laborer / Western WA	\$21.92	1
2	1001	2000	Residential Laborer / Western WA	\$23.56	1
3	2001	3000	Residential Laborer / Western WA	\$25.62	1
4	3001	4000	Residential Laborer / Western WA	\$26.64	1
5	4001	5000	Residential Laborer / Western WA	\$27.67	1
6	5001	6000	Residential Laborer / Western WA	\$28.70	1

State of Washington
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Marble Setters
 Trade for the Effective Date: 2/5/2025

King County Residential Marble Setters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Northwest Masonry / Brick Layer ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Brick Layer/Registered On or After 4/1/2012	\$16.66		1	
2	751	2250	Brick Layer/Registered On or After 4/1/2012	\$19.43		1	

3	2251	3000	Brick Layer/Registered On or After 4/1/2012	\$20.32	1
4	3001	3750	Brick Layer/Registered On or After 4/1/2012	\$22.08	1
5	3751	4500	Brick Layer/Registered On or After 4/1/2012	\$23.85	1
6	4501	5250	Brick Layer/Registered On or After 4/1/2012	\$25.61	1
7	5251	6000	Brick Layer/Registered On or After 4/1/2012	\$26.50	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Painters Trade
 for the Effective Date: 2/5/2025

King County Residential Painters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Painter / Painter and Decorator ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Painter and Decorator	\$16.66		1	
2	1001	2000	Painter and Decorator	\$16.66		1	

3	2001	3000	Painter and Decorator	\$17.61	1
4	3001	4000	Painter and Decorator	\$18.78	1
5	4001	5000	Painter and Decorator	\$19.95	1
6	5001	6000	Painter and Decorator	\$22.30	1

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Painters Trade
 for the Effective Date: 2/5/2025

King County Residential Painters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA & N ID Painters & Allied Trades / Painter and Decorator ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Painter and Decorator	\$16.66		1	
2	1001	2000	Painter and Decorator	\$17.21		1	

3	2001	3000	Painter and Decorator	\$18.00	1
4	3001	4000	Painter and Decorator	\$20.32	1
5	4001	5000	Painter and Decorator	\$21.11	1
6	5001	6000	Painter and Decorator	\$22.69	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Painters Trade
 for the Effective Date: 2/5/2025

King County Residential Painters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W OR - SW WA Painters JATC / Painter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Commercial Painter	\$16.66		1	
2	1001	2000	Commercial Painter	\$16.66		1	
3	2001	3000	Commercial Painter	\$17.10		1	

4	3001	4000	Commercial Painter	\$21.05	1
5	4001	5000	Commercial Painter	\$21.86	1
6	5001	6000	Commercial Painter	\$22.67	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Painters Trade
 for the Effective Date: 2/5/2025

King County Residential Painters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Painting, Decorating & Drywall / Painter and Decorator ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1166	Painter and Decorator	\$17.75		1	
2	1167	2333	Painter and Decorator	\$18.10		1	
3	2334	3499	Painter and Decorator	\$19.12		1	

4	3500	4666	Painter and Decorator	\$19.48	1
5	4667	5833	Painter and Decorator	\$19.84	1
6	5834	7000	Painter and Decorator	\$20.21	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

CITC of WA - Plumber / Plumber ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Plumbers & Pipefitters	\$18.16		1	
2	1001	2000	Plumbers & Pipefitters	\$20.43		1	

3	2001	3000	Plumbers & Pipefitters	\$22.70	1
4	3001	4000	Plumbers & Pipefitters	\$27.24	1
5	4001	5000	Plumbers & Pipefitters	\$31.78	1
6	5001	6000	Plumbers & Pipefitters	\$34.05	1
7	6001	7000	Plumbers & Pipefitters	\$36.32	1
8	7001	8000	Plumbers & Pipefitters	\$38.59	1
9	8001	9000	Plumbers & Pipefitters	\$40.86	1
10	9001	10000	Plumbers & Pipefitters	\$43.13	1

State of Washington
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Seattle Area Plbr/Pipeftr/HVAC/Refrig / Plumber ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	2000	Plumber/Eastern WA	\$24.13		1	
2	2001	4000	Plumber/Eastern WA	\$28.97		1	
3	4001	6000	Plumber/Eastern WA	\$31.73		1	

4	6001	8000	Plumber/Eastern WA	\$34.49	1
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5	8001	10000	Plumber/Eastern WA	\$40.00	1
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1	1	2000	Plumber/Western WA	\$24.01	1
<hr/>					
2	2001	4000	Plumber/Western WA	\$28.64	1
<hr/>					
3	4001	6000	Plumber/Western WA	\$31.45	1
<hr/>					
4	6001	8000	Plumber/Western WA	\$34.26	1
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5	8001	10000	Plumber/Western WA	\$39.89	1
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA - NE OR Pipe Trades / Plumber ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Plumber/Registered Prior to 6/1/2013	\$24.01		1	
2	1001	2000	Plumber/Registered Prior to 6/1/2013	\$25.96		1	

3	2001	3000	Plumber/Registered Prior to 6/1/2013	\$27.90	1
4	3001	4000	Plumber/Registered Prior to 6/1/2013	\$29.85	1
5	4001	5000	Plumber/Registered Prior to 6/1/2013	\$31.79	1
6	5001	6000	Plumber/Registered Prior to 6/1/2013	\$33.73	1
7	6001	7000	Plumber/Registered Prior to 6/1/2013	\$35.68	1
8	7001	8000	Plumber/Registered Prior to 6/1/2013	\$37.62	1
9	8001	9000	Plumber/Registered Prior to 6/1/2013	\$39.57	1
10	9001	10000	Plumber/Registered Prior to 6/1/2013	\$39.57	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Empire Plumbing & Pipefitting / Plumber ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Plumber/Zone 1	\$29.80		1	
2	1001	2000	Plumber/Zone 1	\$31.60		1	
3	2001	3000	Plumber/Zone 1	\$32.51		1	

4	3001	4000	Plumber/Zone 1	\$33.42	1
5	4001	5000	Plumber/Zone 1	\$35.22	1
6	5001	6000	Plumber/Zone 1	\$37.03	1
7	6001	7000	Plumber/Zone 1	\$38.84	1
8	7001	8000	Plumber/Zone 1	\$40.65	1
9	8001	9000	Plumber/Zone 1	\$42.46	1
10	9001	10000	Plumber/Zone 1	\$44.27	1
1	1	1000	Plumber/Zone 2	\$29.27	1
2	1001	2000	Plumber/Zone 2	\$31.06	1
3	2001	3000	Plumber/Zone 2	\$31.96	1
4	3001	4000	Plumber/Zone 2	\$32.86	1
5	4001	5000	Plumber/Zone 2	\$34.65	1
6	5001	6000	Plumber/Zone 2	\$36.44	1
7	6001	7000	Plumber/Zone 2	\$38.23	1
8	7001	8000	Plumber/Zone 2	\$40.02	1
9	8001	9000	Plumber/Zone 2	\$41.81	1
10	9001	10000	Plumber/Zone 2	\$43.61	1

State of Washington
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program
 Seattle Area Plbr/Pipeftr/HVAC/Refrig / Housing Plumber ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Residential Plumber & Pipefitter/Eastern WA	\$23.82		1	
2	1001	2000	Residential Plumber & Pipefitter/Eastern WA	\$34.38		1	

3	2001	4000	Residential Plumber & Pipefitter/Eastern WA	\$36.00	1
4	4001	6000	Residential Plumber & Pipefitter/Eastern WA	\$39.21	1
1	1	1000	Residential Plumber/Western Washington	\$23.82	1
2	1001	2000	Residential Plumber/Western Washington	\$34.38	1
3	2001	4000	Residential Plumber/Western Washington	\$36.00	1
4	4001	6000	Residential Plumber/Western Washington	\$39.21	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program
E WA - NE OR Pipe Trades / Steamfitter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Steamfitter/Registered Prior to 6/1/2013	\$24.01		1	
2	1001	2000	Steamfitter/Registered Prior to 6/1/2013	\$25.96		1	

3	2001	3000	Steamfitter/Registered Prior to 6/1/2013	\$27.90	1
4	3001	4000	Steamfitter/Registered Prior to 6/1/2013	\$29.85	1
5	4001	5000	Steamfitter/Registered Prior to 6/1/2013	\$31.79	1
6	5001	6000	Steamfitter/Registered Prior to 6/1/2013	\$33.73	1
7	6001	7000	Steamfitter/Registered Prior to 6/1/2013	\$35.68	1
8	7001	8000	Steamfitter/Registered Prior to 6/1/2013	\$37.62	1
9	8001	9000	Steamfitter/Registered Prior to 6/1/2013	\$39.57	1
10	9001	10000	Steamfitter/Registered Prior to 6/1/2013	\$39.57	1

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Empire Plumbing & Pipefitting / Steamfitter ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Steamfitter/Zone 1	\$29.80		1	
2	1001	2000	Steamfitter/Zone 1	\$31.60		1	
3	2001	3000	Steamfitter/Zone 1	\$32.51		1	

4	3001	4000	Steamfitter/Zone 1	\$33.42	1
5	4001	5000	Steamfitter/Zone 1	\$35.22	1
6	5001	6000	Steamfitter/Zone 1	\$37.03	1
7	6001	7000	Steamfitter/Zone 1	\$38.84	1
8	7001	8000	Steamfitter/Zone 1	\$40.65	1
9	8001	9000	Steamfitter/Zone 1	\$42.46	1
10	9001	10000	Steamfitter/Zone 1	\$44.27	1
1	1	1000	Steamfitter/Zone 2	\$29.27	1
2	1001	2000	Steamfitter/Zone 2	\$31.06	1
3	2001	3000	Steamfitter/Zone 2	\$31.96	1
4	3001	4000	Steamfitter/Zone 2	\$32.86	1
5	4001	5000	Steamfitter/Zone 2	\$34.65	1
6	5001	6000	Steamfitter/Zone 2	\$36.44	1
7	6001	7000	Steamfitter/Zone 2	\$38.23	1
8	7001	8000	Steamfitter/Zone 2	\$40.02	1
9	8001	9000	Steamfitter/Zone 2	\$41.81	1
10	9001	10000	Steamfitter/Zone 2	\$43.61	1

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program
 Inland Empire Plumbing & Pipefitting / Residential Plumber ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Residential Plumber/Zone 1	\$30.33		1	
2	1001	2000	Residential Plumber/Zone 1	\$32.00		1	

3	2001	3000	Residential Plumber/Zone 1	\$33.68	1
4	3001	4000	Residential Plumber/Zone 1	\$35.36	1
5	4001	5000	Residential Plumber/Zone 1	\$37.03	1
6	5001	6000	Residential Plumber/Zone 1	\$38.71	1
7	6001	7000	Residential Plumber/Zone 1	\$40.37	1
8	7001	8000	Residential Plumber/Zone 1	\$43.73	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA - NE OR Pipe Trades / Plumber ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Plumber/Registered On or After 6/1/2013	\$24.01		1	
2	1001	2000	Plumber/Registered On or After 6/1/2013	\$25.96		1	

3	2001	3000	Plumber/Registered On or After 6/1/2013	\$27.90	1
4	3001	4000	Plumber/Registered On or After 6/1/2013	\$29.85	1
5	4001	5000	Plumber/Registered On or After 6/1/2013	\$31.79	1
6	5001	6000	Plumber/Registered On or After 6/1/2013	\$33.73	1
7	6001	7000	Plumber/Registered On or After 6/1/2013	\$35.68	1
8	7001	8000	Plumber/Registered On or After 6/1/2013	\$37.62	1
9	8001	9000	Plumber/Registered On or After 6/1/2013	\$39.57	1
10	9001	10000	Plumber/Registered On or After 6/1/2013	\$39.57	1

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Plumbers & Pipefitters Trade for the Effective Date: 2/5/2025

King County Residential Plumbers & Pipefitters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA - NE OR Pipe Trades / Steamfitter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Steamfitter/Registered On or After 6/1/2013	\$24.01		1	
2	1001	2000	Steamfitter/Registered On or After 6/1/2013	\$25.96		1	

3	2001	3000	Steamfitter/Registered On or After 6/1/2013	\$27.90	1
4	3001	4000	Steamfitter/Registered On or After 6/1/2013	\$29.85	1
5	4001	5000	Steamfitter/Registered On or After 6/1/2013	\$31.79	1
6	5001	6000	Steamfitter/Registered On or After 6/1/2013	\$33.73	1
7	6001	7000	Steamfitter/Registered On or After 6/1/2013	\$35.68	1
8	7001	8000	Steamfitter/Registered On or After 6/1/2013	\$37.62	1
9	8001	9000	Steamfitter/Registered On or After 6/1/2013	\$39.57	1
10	9001	10000	Steamfitter/Registered On or After 6/1/2013	\$39.57	1

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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Residential Refrigeration & Air Conditioning Mechanics Trade for the Effective Date: 2/5/2025

King County Residential Refrigeration & Air Conditioning Mechanics

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

SW WA Pipe Trades Apprenticeship / HVAC/Refrigeration Mechanic ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Residential Refrigeration Mechanic	\$49.71	7F	1E	

2	1001	2000	Residential Refrigeration Mechanic	\$53.30	7F	1E
3	2001	3000	Residential Refrigeration Mechanic	\$65.26	7F	1E
4	3001	4000	Residential Refrigeration Mechanic	\$69.63	7F	1E
5	4001	5000	Residential Refrigeration Mechanic	\$73.94	7F	1E
6	5001	6000	Residential Refrigeration Mechanic	\$78.29	7F	1E
7	6001	7000	Residential Refrigeration Mechanic	\$82.63	7F	1E
8	7001	8000	Residential Refrigeration Mechanic	\$86.95	7F	1E
9	8001	10000	Residential Refrigeration Mechanic	\$91.29	7F	1E

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Refrigeration & Air Conditioning Mechanics Trade for the Effective Date: 2/5/2025

King County Residential Refrigeration & Air Conditioning Mechanics

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprentice Program from the dropdown below.

Select a program to see its rates:

Choose Apprentice Program

Seattle Area Plbr/Pipeftr/HVAC/Refrig / HVAC/Refrigeration Mechanic ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	2000	HVAC/Refrigeration Mechanic	\$53.14	7F	1E	

2	2001	4000	HVAC/Refrigeration Mechanic	\$70.18	7F	1E
3	4001	6000	HVAC/Refrigeration Mechanic	\$76.15	7F	1E
4	6001	8000	HVAC/Refrigeration Mechanic	\$80.11	7F	1E
5	8001	10000	HVAC/Refrigeration Mechanic	\$88.02	7F	1E
1	1	2000	Refrigeration/Western WA	\$52.02	7F	1E
2	2001	4000	Refrigeration/Western WA	\$62.36	7F	1E
3	4001	6000	Refrigeration/Western WA	\$68.68	7F	1E
4	6001	8000	Refrigeration/Western WA	\$74.96	7F	1E
5	8001	10000	Refrigeration/Western WA	\$87.58	7F	1E

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Apprentice Level Prevailing Wage Rates for King County and Residential Sheet Metal
 Workers Trade for the Effective Date: 2/5/2025

King County Residential Sheet Metal Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1800	Sheet Metal Worker/Western WA	\$46.23	7F	1E	
2	1801	2700	Sheet Metal Worker/Western WA	\$61.07	7F	1E	
3	2701	3600	Sheet Metal Worker/Western WA	\$64.55	7F	1E	
4	3601	4500	Sheet Metal Worker/Western WA	\$68.04	7F	1E	

5	4501	5400	Sheet Metal Worker/Western WA	\$71.53	7F	1E
6	5401	6300	Sheet Metal Worker/Western WA	\$75.02	7F	1E
7	6301	7200	Sheet Metal Worker/Western WA	\$78.50	7F	1E
8	7201	8100	Sheet Metal Worker/Western WA	\$81.99	7F	1E
9	8101	9000	Sheet Metal Worker/Western WA	\$85.47	7F	1E

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Apprentice Level Prevailing Wage Rates for King County and Residential Soft Floor Layers
 Trade for the Effective Date: 2/5/2025

King County Residential Soft Floor Layers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Soft Floor Layer	\$33.08	5A	3J	
2	1001	2000	Soft Floor Layer	\$40.18	5A	3J	
3	2001	3000	Soft Floor Layer	\$45.65	5A	3J	
4	3001	4000	Soft Floor Layer	\$47.95	5A	3J	
5	4001	5000	Soft Floor Layer	\$50.24	5A	3J	
6	5001	6000	Soft Floor Layer	\$52.54	5A	3J	

7	6001	7000	Soft Floor Layer	\$54.84	5A	3J
8	7001	8000	Soft Floor Layer	\$57.13	5A	3J

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Sprinkler Fitters
 (Fire Protection) Trade for the Effective Date: 2/5/2025

King County Residential Sprinkler Fitters (Fire Protection)

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprentice Program from the dropdown below.

Select a program to see its rates:

Choose Apprentice Program

Seattle & Vicinity Sprinkler Fitters / Sprinkler Fitter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Sprinkler Fitter	\$26.21		1	
2	1001	2000	Sprinkler Fitter	\$26.21		1	

3	2001	3000	Sprinkler Fitter	\$27.05	1
4	3001	4000	Sprinkler Fitter	\$28.31	1
5	4001	5000	Sprinkler Fitter	\$35.37	1
6	5001	6000	Sprinkler Fitter	\$37.48	1
7	6001	7000	Sprinkler Fitter	\$39.75	1
8	7001	8000	Sprinkler Fitter	\$41.02	1
9	8001	9000	Sprinkler Fitter	\$45.56	1
10	9001	10000	Sprinkler Fitter	\$47.67	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Sprinkler Fitters
 (Fire Protection) Trade for the Effective Date: 2/5/2025

King County Residential Sprinkler Fitters (Fire Protection)

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Empire Fire Protection / Sprinkler Fitter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	0	1000	Sprinkler Fitter	\$41.98		1	
2	1001	2000	Sprinkler Fitter	\$44.53		1	

3	2001	3000	Sprinkler Fitter	\$46.44	1
4	3001	4000	Sprinkler Fitter	\$48.34	1
5	4001	5000	Sprinkler Fitter	\$50.89	1
6	5001	6000	Sprinkler Fitter	\$52.80	1
7	6001	7000	Sprinkler Fitter	\$54.70	1
8	7001	8000	Sprinkler Fitter	\$57.25	1
9	8001	9000	Sprinkler Fitter	\$59.16	1
10	9001	10000	Sprinkler Fitter	\$61.07	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Sprinkler Fitters
 (Fire Protection) Trade for the Effective Date: 2/5/2025

King County Residential Sprinkler Fitters (Fire Protection)

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Sprinkler Fitters Apprenticeship / Sprinkler Fitter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Sprinkler Fitter/District 1	\$26.63		1	
2	1001	2000	Sprinkler Fitter/District 1	\$28.74		1	

3	2001	3000	Sprinkler Fitter/District 1	\$40.53	1
4	3001	4000	Sprinkler Fitter/District 1	\$42.62	1
5	4001	5000	Sprinkler Fitter/District 1	\$44.93	1
6	5001	6000	Sprinkler Fitter/District 1	\$47.03	1
7	6001	7000	Sprinkler Fitter/District 1	\$49.12	1
8	7001	8000	Sprinkler Fitter/District 1	\$51.23	1
9	8001	9000	Sprinkler Fitter/District 1	\$53.32	1
10	9001	10000	Sprinkler Fitter/District 1	\$55.42	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Sprinkler Fitters
 (Fire Protection) Trade for the Effective Date: 2/5/2025

King County Residential Sprinkler Fitters (Fire Protection)

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Sprinkler Fitters Apprenticeship / Sprinkler Fitter ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Sprinkler Fitter/District 21	\$26.51		1	
2	1001	2000	Sprinkler Fitter/District 21	\$28.52		1	

3	2001	3000	Sprinkler Fitter/District 21	\$41.05	1
4	3001	4000	Sprinkler Fitter/District 21	\$43.06	1
5	4001	5000	Sprinkler Fitter/District 21	\$45.30	1
6	5001	6000	Sprinkler Fitter/District 21	\$47.31	1
7	6001	7000	Sprinkler Fitter/District 21	\$49.31	1
8	7001	8000	Sprinkler Fitter/District 21	\$51.32	1
9	8001	9000	Sprinkler Fitter/District 21	\$53.33	1
10	9001	10000	Sprinkler Fitter/District 21	\$55.34	1

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Apprentice Level Prevailing Wage Rates for King County and Residential Stone Masons
 Trade for the Effective Date: 2/5/2025

King County Residential Stone Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Northwest Masonry / Brick Layer ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Brick Layer/Registered On or After 4/1/2012	\$35.77	7E	1N	
2	751	2250	Brick Layer/Registered On or After 4/1/2012	\$50.96	7E	1N	

3	2251	3000	Brick Layer/Registered On or After 4/1/2012	\$53.29	7E	1N
4	3001	3750	Brick Layer/Registered On or After 4/1/2012	\$57.92	7E	1N
5	3751	4500	Brick Layer/Registered On or After 4/1/2012	\$62.55	7E	1N
6	4501	5250	Brick Layer/Registered On or After 4/1/2012	\$67.18	7E	1N
7	5251	6000	Brick Layer/Registered On or After 4/1/2012	\$69.51	7E	1N

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Apprentice Level Prevailing Wage Rates for King County and Residential Terrazzo
 Workers Trade for the Effective Date: 2/5/2025

King County Residential Terrazzo Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Terrazzo Worker	\$45.53	7E	1N	
2	1001	2500	Terrazzo Worker	\$48.02	7E	1N	
3	2501	3500	Terrazzo Worker	\$50.51	7E	1N	
4	3501	4500	Terrazzo Worker	\$53.00	7E	1N	
5	4501	5500	Terrazzo Worker	\$55.49	7E	1N	
6	5501	6250	Terrazzo Worker	\$60.48	7E	1N	

7	6251	7000	Terrazzo Worker	\$62.97	7E	1N
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Residential Tile Setters
 Trade for the Effective Date: 2/5/2025

King County Residential Tile Setters

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Masonry Trades Apprenticeship / Tile Setter ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Tile Setters	\$16.66		1	
2	1001	2500	Tile Setters	\$16.66		1	
3	2501	3500	Tile Setters	\$16.66		1	

4	3501	4500	Tile Setters	\$16.66	1
5	4501	5500	Tile Setters	\$17.31	1
6	5501	6250	Tile Setters	\$18.85	1
7	6251	7000	Tile Setters	\$19.61	1

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Apprentice Level Prevailing Wage Rates for King County and Roofers Trade for the
 Effective Date: 2/5/2025

King County Roofers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Roofer	\$40.55	5A	3H	
2	1001	2000	Roofer	\$42.95	5A	3H	
3	2001	3000	Roofer	\$47.75	5A	3H	
4	3001	4000	Roofer	\$54.85	5A	3H	
5	4001	5000	Roofer	\$59.65	5A	3H	
1	1	1000	Roofer/Waterproofers	\$40.55	5A	3H	

2	1001	2000	Roofer/Waterproofer	\$42.95	5A	3H
3	2001	3000	Roofer/Waterproofer	\$47.75	5A	3H
4	3001	4000	Roofer/Waterproofer	\$54.85	5A	3H
5	4001	5000	Roofer/Waterproofer	\$59.65	5A	3H

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Apprentice Level Prevailing Wage Rates for King County and Sheet Metal Workers Trade
 for the Effective Date: 2/5/2025

King County Sheet Metal Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1800	HVAC Controls Technician	\$46.23	7F	1E	
2	1801	2700	HVAC Controls Technician	\$61.07	7F	1E	
3	2701	3600	HVAC Controls Technician	\$64.55	7F	1E	
4	3601	4500	HVAC Controls Technician	\$68.04	7F	1E	

5	4501	5400	HVAC Controls Technician	\$71.53	7F	1E
6	5401	6300	HVAC Controls Technician	\$75.02	7F	1E
7	6301	7200	HVAC Controls Technician	\$78.50	7F	1E
8	7201	8100	HVAC Controls Technician	\$81.99	7F	1E
9	8101	9000	HVAC Controls Technician	\$85.47	7F	1E
1	1	1800	HVAC Service Tech	\$46.23	7F	1E
2	1801	2700	HVAC Service Tech	\$61.07	7F	1E
3	2701	3600	HVAC Service Tech	\$64.55	7F	1E
4	3601	4500	HVAC Service Tech	\$68.04	7F	1E
5	4501	5400	HVAC Service Tech	\$71.53	7F	1E
6	5401	6300	HVAC Service Tech	\$75.02	7F	1E
7	6301	7200	HVAC Service Tech	\$78.50	7F	1E
8	7201	8100	HVAC Service Tech	\$81.99	7F	1E
9	8101	9000	HVAC Service Tech	\$85.47	7F	1E
1	1	1800	Sheet Metal Worker/Western WA	\$46.23	7F	1E

2	1801	2700	Sheet Metal Worker/Western WA	\$61.07	7F	1E
3	2701	3600	Sheet Metal Worker/Western WA	\$64.55	7F	1E
4	3601	4500	Sheet Metal Worker/Western WA	\$68.04	7F	1E
5	4501	5400	Sheet Metal Worker/Western WA	\$71.53	7F	1E
6	5401	6300	Sheet Metal Worker/Western WA	\$75.02	7F	1E
7	6301	7200	Sheet Metal Worker/Western WA	\$78.50	7F	1E
8	7201	8100	Sheet Metal Worker/Western WA	\$81.99	7F	1E
9	8101	9000	Sheet Metal Worker/Western WA	\$85.47	7F	1E

State of Washington
 Department of Labor & Industries
 Prevailing Wage Section - Telephone 360-902-5335
 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Shipbuilding & Ship Repair
 Trade for the Effective Date: 2/5/2025

King County Shipbuilding & Ship Repair

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	New Construction Boilermaker / Rigger	\$45.87	7X	4J	
2	1001	2000	New Construction Boilermaker / Rigger	\$48.05	7X	4J	
3	2001	3000	New Construction Boilermaker / Rigger	\$50.21	7X	4J	
4	3001	4000	New Construction Boilermaker / Rigger	\$52.39	7X	4J	

5	4001	5000	New Construction Boilermaker / Rigger	\$54.57	7X	4J
6	5001	6000	New Construction Boilermaker / Rigger	\$56.75	7X	4J
1	1	1000	New Construction Electrician	\$42.77	7X	4J
2	1001	2000	New Construction Electrician	\$44.81	7X	4J
3	2001	3000	New Construction Electrician	\$46.84	7X	4J
4	3001	4000	New Construction Electrician	\$48.88	7X	4J
5	4001	5000	New Construction Electrician	\$50.92	7X	4J
6	5001	6000	New Construction Electrician	\$53.04	7X	4J
1	1	1000	New Construction Operator / Warehouse Teamster	\$32.72	7V	1
2	1001	2000	New Construction Operator / Warehouse Teamster	\$34.44	7V	1
3	2001	3000	New Construction Operator / Warehouse Teamster	\$36.14	7V	1
4	3001	4000	New Construction Operator / Warehouse Teamster	\$37.86	7V	1

5	4001	5000	New Construction Operator / Warehouse Teamster	\$39.58	7V	1
6	5001	6000	New Construction Operator / Warehouse Teamster	\$41.28	7V	1
1	1	1200	New Construction Sheet Metal	\$46.41	7X	4J
2	1201	2400	New Construction Sheet Metal	\$50.50	7X	4J
3	2401	4000	New Construction Sheet Metal	\$54.59	7X	4J
1	1	2000	New Construction or Ship Repair / Heat and Frost Insulator	\$56.51	15H	11C
2	2001	4000	New Construction or Ship Repair / Heat and Frost Insulator	\$63.78	15H	11C
3	4001	6000	New Construction or Ship Repair / Heat and Frost Insulator	\$71.04	15H	11C
4	6001	8000	New Construction or Ship Repair / Heat and Frost Insulator	\$78.31	15H	11C
5	8001	10000	New Construction or Ship Repair / Heat and Frost Insulator	\$85.57	15H	11C

1	1	1000	Ship Repair Boilermaker/Rigger	\$45.87	7X	4J
2	1001	2000	Ship Repair Boilermaker/Rigger	\$48.05	7X	4J
3	2001	3000	Ship Repair Boilermaker/Rigger	\$50.21	7X	4J
4	3001	4000	Ship Repair Boilermaker/Rigger	\$52.39	7X	4J
5	4001	5000	Ship Repair Boilermaker/Rigger	\$54.57	7X	4J
6	5001	6000	Ship Repair Boilermaker/Rigger	\$56.75	7X	4J
1	1	1000	Ship Repair Electrician	\$42.77	7X	4J
2	1001	2000	Ship Repair Electrician	\$44.81	7X	4J
3	2001	3000	Ship Repair Electrician	\$46.84	7X	4J
4	3001	4000	Ship Repair Electrician	\$48.88	7X	4J
5	4001	5000	Ship Repair Electrician	\$50.92	7X	4J
6	5001	6000	Ship Repair Electrician	\$53.04	7X	4J
1	1	1000	Ship Repair Laborer	\$16.66	7X	4J
2	1001	2000	Ship Repair Laborer	\$16.66	7X	4J
3	2001	3000	Ship Repair Laborer	\$16.66	7X	4J

4	3001	4000	Ship Repair Laborer	\$16.66	7X	4J
1	1	1856	Ship Repair Machinist	\$16.66	7X	4J
2	1857	3712	Ship Repair Machinist	\$16.66	7X	4J
3	3713	5568	Ship Repair Machinist	\$16.66	7X	4J
1	1	1000	Ship Repair Painter	\$43.94	7X	4J
2	1001	2000	Ship Repair Painter	\$44.71	7X	4J
3	2001	3000	Ship Repair Painter	\$45.49	7X	4J
4	3001	4000	Ship Repair Painter	\$46.26	7X	4J
5	4001	5000	Ship Repair Painter	\$47.03	7X	4J
6	5001	6000	Ship Repair Painter	\$47.80	7X	4J
1	1	1000	Ship Repair Pipefitter	\$45.40	7X	4J
2	1001	2000	Ship Repair Pipefitter	\$47.68	7X	4J
3	2001	3000	Ship Repair Pipefitter	\$49.95	7X	4J
4	3001	4000	Ship Repair Pipefitter	\$52.23	7X	4J
5	4001	5000	Ship Repair Pipefitter	\$54.52	7X	4J
6	5001	6000	Ship Repair Pipefitter	\$56.79	7X	4J
1	1	1200	Ship Repair Sheet Metal	\$46.41	7X	4J

2	1201	2400	Ship Repair Sheet Metal	\$50.50	7X	4J
3	2401	4000	Ship Repair Sheet Metal	\$54.59	7X	4J
1	1	1000	Ship Repair Shipwright	\$38.47	7X	4J
2	1001	2000	Ship Repair Shipwright	\$40.14	7X	4J
3	2001	3000	Ship Repair Shipwright	\$41.82	7X	4J
4	3001	4000	Ship Repair Shipwright	\$43.49	7X	4J
5	4001	5000	Ship Repair Shipwright	\$45.16	7X	4J
6	5001	6000	Ship Repair Shipwright	\$46.83	7X	4J
7	6001	7000	Ship Repair Shipwright	\$48.51	7X	4J
8	7001	8000	Ship Repair Shipwright	\$50.18	7X	4J

State of Washington
 Department of Labor & Industries
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 PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Soft Floor Layers Trade for the Effective Date: 2/5/2025

King County Soft Floor Layers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

E WA & N ID Painters & Allied Trades / Carpet/Linoleum/Resilient Tile ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Soft Floor Layer/Eastern WA	\$38.94	15J	4C	
2	1001	2000	Soft Floor Layer/Eastern WA	\$41.35	15J	4C	

3	2001	3000	Soft Floor Layer/Eastern WA	\$43.79	15J	4C
4	3001	4000	Soft Floor Layer/Eastern WA	\$48.66	15J	4C
5	4001	5000	Soft Floor Layer/Eastern WA	\$53.54	15J	4C
6	5001	6000	Soft Floor Layer/Eastern WA	\$58.42	15J	4C

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Apprentice Level Prevailing Wage Rates for King County and Soft Floor Layers Trade for the Effective Date: 2/5/2025

King County Soft Floor Layers

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

W WA Carpet, Linoleum & Soft Tile / Carpet, Linoleum & Soft Tile Layer ▼

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Soft Floor Layer	\$35.18	15J	4C	
2	1001	2000	Soft Floor Layer	\$42.73	15J	4C	
3	2001	3000	Soft Floor Layer	\$48.54	15J	4C	

4	3001	4000	Soft Floor Layer	\$50.99	15J	4C
5	4001	5000	Soft Floor Layer	\$53.42	15J	4C
6	5001	6000	Soft Floor Layer	\$55.87	15J	4C
7	6001	7000	Soft Floor Layer	\$58.32	15J	4C
8	7001	8000	Soft Floor Layer	\$60.75	15J	4C

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Apprentice Level Prevailing Wage Rates for King County and Sprinkler Fitters (Fire Protection) Trade for the Effective Date: 2/5/2025

King County Sprinkler Fitters (Fire Protection)

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Sprinkler Fitter	\$39.96	5C	1X	
2	1001	2000	Sprinkler Fitter	\$39.96	5C	1X	
3	2001	3000	Sprinkler Fitter	\$41.24	5C	1X	
4	3001	4000	Sprinkler Fitter	\$43.17	5C	1X	
5	4001	5000	Sprinkler Fitter	\$53.94	5C	1X	
6	5001	6000	Sprinkler Fitter	\$57.15	5C	1X	

7	6001	7000	Sprinkler Fitter	\$60.61	5C	1X
8	7001	8000	Sprinkler Fitter	\$62.54	5C	1X
9	8001	9000	Sprinkler Fitter	\$69.47	5C	1X
10	9001	10000	Sprinkler Fitter	\$72.68	5C	1X

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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Stone Masons Trade for the
 Effective Date: 2/5/2025

King County Stone Masons

Multiple Apprenticeship Programs available for the selected County and Trade. Please select an Apprenticeship Program from the dropdown below.

Select a program to see its rates:

Choose Apprenticeship Program

Inland Northwest Masonry / Brick Layer ▼

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	750	Brick Layer/Registered On or After 4/1/2012	\$35.77	7E	1N	
2	751	2250	Brick Layer/Registered On or After 4/1/2012	\$50.96	7E	1N	

3	2251	3000	Brick Layer/Registered On or After 4/1/2012	\$53.29	7E	1N
4	3001	3750	Brick Layer/Registered On or After 4/1/2012	\$57.92	7E	1N
5	3751	4500	Brick Layer/Registered On or After 4/1/2012	\$62.55	7E	1N
6	4501	5250	Brick Layer/Registered On or After 4/1/2012	\$67.18	7E	1N
7	5251	6000	Brick Layer/Registered On or After 4/1/2012	\$69.51	7E	1N

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Apprentice Level Prevailing Wage Rates for King County and Surveyors Trade for the
 Effective Date: 2/5/2025

King County Surveyors

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Construction Site Surveyor	\$65.43	7A	11H	8X
2	1001	2000	Construction Site Surveyor	\$68.42	7A	11H	8X
3	2001	3000	Construction Site Surveyor	\$71.41	7A	11H	8X
4	3001	4000	Construction Site Surveyor	\$74.40	7A	11H	8X

5	4001	5000	Construction Site Surveyor	\$80.38	7A	11H	8X
6	5001	6000	Construction Site Surveyor	\$83.37	7A	11H	8X

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Apprentice Level Prevailing Wage Rates for King County and Telecommunication Technicians Trade for the Effective Date: 2/5/2025

King County Telecommunication Technicians

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	800	Limited Energy/Sound & Comm Tech	\$43.64	7E	1E	
2	801	1600	Limited Energy/Sound & Comm Tech	\$46.57	7E	1E	
3	1601	2400	Limited Energy/Sound & Comm Tech	\$49.51	7E	1E	
4	2401	3200	Limited Energy/Sound & Comm Tech	\$52.47	7E	1E	

5	3201	4000	Limited Energy/Sound & Comm Tech	\$55.39	7E	1E
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6	4001	4800	Limited Energy/Sound & Comm Tech	\$58.31	7E	1E
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State of Washington
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Terrazzo Workers Trade for
 the Effective Date: 2/5/2025

King County Terrazzo Workers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Terrazzo Worker	\$45.53	7E	1N	
2	1001	2500	Terrazzo Worker	\$48.02	7E	1N	
3	2501	3500	Terrazzo Worker	\$50.51	7E	1N	
4	3501	4500	Terrazzo Worker	\$53.00	7E	1N	
5	4501	5500	Terrazzo Worker	\$55.49	7E	1N	
6	5501	6250	Terrazzo Worker	\$60.48	7E	1N	

7	6251	7000	Terrazzo Worker	\$62.97	7E	1N
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Tile Setters Trade for the
 Effective Date: 2/5/2025

King County Tile Setters

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	1	1000	Tile Setters	\$44.33	7E	1N	
2	1001	2500	Tile Setters	\$46.72	7E	1N	
3	2501	3500	Tile Setters	\$49.11	7E	1N	
4	3501	4500	Tile Setters	\$51.50	7E	1N	
5	4501	5500	Tile Setters	\$53.89	7E	1N	
6	5501	6250	Tile Setters	\$58.68	7E	1N	

7	6251	7000	Tile Setters	\$61.07	7E	1N
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State of Washington
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Washington State Prevailing Wage

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Apprentice Level Prevailing Wage Rates for King County and Tile, Marble & Terrazzo
 Finishers Trade for the Effective Date: 2/5/2025

King County Tile, Marble & Terrazzo Finishers

Step	Starting Hours	Ending Hours	Occupation [^]	Wage	Holiday	Overtime	Note
1	0	1000	Tile/Terrazzo/Marble Finisher	\$43.93	7E	1N	
2	1001	2500	Tile/Terrazzo/Marble Finisher	\$46.82	7E	1N	
3	2501	3500	Tile/Terrazzo/Marble Finisher	\$49.21	7E	1N	
4	3501	4500	Tile/Terrazzo/Marble Finisher	\$51.60	7E	1N	

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Apprentice Level Prevailing Wage Rates for King County and Traffic Control Stripers Trade
 for the Effective Date: 2/5/2025

King County Traffic Control Stripers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	500	Traffic Control Painter	\$43.05	15L	1K	
2	501	1166	Traffic Control Painter	\$59.32	15L	1K	
3	1167	2333	Traffic Control Painter	\$63.46	15L	1K	
4	2334	3499	Traffic Control Painter	\$71.74	15L	1K	
5	3500	4666	Traffic Control Painter	\$80.02	15L	1K	

6	4667	5833	Traffic Control Painter	\$84.17	15L	1K
7	5834	7000	Traffic Control Painter	\$88.30	15L	1K

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Apprentice Level Prevailing Wage Rates for King County and Truck Drivers Trade for the
 Effective Date: 2/5/2025

King County Truck Drivers

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Truck Driver	\$63.54	15J	11M	8L
2	1001	2000	Truck Driver	\$68.82	15J	11M	8L
3	2001	3000	Truck Driver	\$74.11	15J	11M	8L

State of Washington
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Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Apprentice Level Prevailing Wage Rates for King County and Truck Drivers - Ready Mix
 Trade for the Effective Date: 2/5/2025

King County Truck Drivers - Ready Mix

Step	Starting Hours	Ending Hours	Occupation^	Wage	Holiday	Overtime	Note
1	1	1000	Truck Driver	\$63.54	15J	11M	8L
2	1001	2000	Truck Driver	\$68.82	15J	11M	8L
3	2001	3000	Truck Driver	\$74.11	15J	11M	8L

Washington State Department of Labor and Industries
Policy Statement
(Regarding the Production of "Standard" or "Non-standard" Items)

Below is the department's (State L&I's) list of criteria to be used in determining whether a prefabricated item is "standard" or "non-standard". For items not appearing on WSDOT's predetermined list, these criteria shall be used by the Contractor (and the Contractor's subcontractors, agents to subcontractors, suppliers, manufacturers, and fabricators) to determine coverage under RCW 39.12. The production, in the State of Washington, of non-standard items is covered by RCW 39.12, and the production of standard items is not. The production of any item outside the State of Washington is not covered by RCW 39.12.

1. Is the item fabricated for a public works project? If not, it is not subject to RCW 39.12. If it is, go to question 2.
2. Is the item fabricated on the public works jobsite? If it is, the work is covered under RCW 39.12. If not, go to question 3.
3. Is the item fabricated in an assembly/fabrication plant set up for, and dedicated primarily to, the public works project? If it is, the work is covered by RCW 39.12. If not, go to question 4.
4. Does the item require any assembly, cutting, modification or other fabrication by the supplier? If not, the work is not covered by RCW 39.12. If yes, go to question 5.
5. Is the prefabricated item intended for the public works project typically an inventory item which could reasonably be sold on the general market? If not, the work is covered by RCW 39.12. If yes, go to question 6.
6. Does the specific prefabricated item, generally defined as standard, have any unusual characteristics such as shape, type of material, strength requirements, finish, etc? If yes, the work is covered under RCW 39.12.

Any firm with questions regarding the policy, WSDOT's Predetermined List, or for determinations of covered and non-covered workers shall be directed to State L&I at (360) 902-5330.

**WSDOT's
Predetermined List for
Suppliers - Manufactures - Fabricator**

Below is a list of potentially prefabricated items, originally furnished by WSDOT to Washington State Department of Labor and Industries, that may be considered non-standard and therefore covered by the prevailing wage law, RCW 39.12. Items marked with an X in the "YES" column should be considered to be non-standard and therefore covered by RCW 39.12. Items marked with an X in the "NO" column should be considered to be standard and therefore not covered. Of course, exceptions to this general list may occur, and in that case shall be evaluated according to the criteria described in State and L&I's policy statement.

ITEM DESCRIPTION	YES	NO
1. Metal rectangular frames, solid metal covers, herringbone grates, and bi-directional vaned grates for Catch Basin Types 1, 1L, 1P, and 2 and Concrete Inlets. See Std. Plans		X
2. Metal circular frames (rings) and covers, circular grates, and prefabricated ladders for Manhole Types 1, 2, and 3, Drywell Types 1, 2, and 3 and Catch Basin Type 2. See Std. Plans		X
3. Prefabricated steel grate supports and welded grates, metal frames and dual vaned grates, and Type 1, 2, and 3 structural tubing grates for Drop Inlets. See Std. Plans.		X
4. Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes smaller than 60 inch diameter.		X
5. Concrete Pipe - Plain Concrete pipe and reinforced concrete pipe Class 2 to 5 sizes larger than 60 inch diameter.		X
6. Corrugated Steel Pipe - Steel lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, 1 thru 5.		X
7. Corrugated Aluminum Pipe - Aluminum lock seam corrugated pipe for culverts and storm sewers, sizes 30 inch to 120 inches in diameter. May also be treated, #5.		X

ITEM DESCRIPTION	YES	NO
8. Anchor Bolts & Nuts - Anchor Bolts and Nuts, for mounting sign structures, luminaries and other items, shall be made from commercial bolt stock. See Contract Plans and Std. Plans for size and material type.		X
9. Aluminum Pedestrian Handrail - Pedestrian handrail conforming to the type and material specifications set forth in the contract plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).	X	
10. Major Structural Steel Fabrication - Fabrication of major steel items such as trusses, beams, girders, etc., for bridges.	X	
11. Minor Structural Steel Fabrication - Fabrication of minor steel Items such as special hangers, brackets, access doors for structures, access ladders for irrigation boxes, bridge expansion joint systems, etc., involving welding, cutting, punching and/or boring of holes. See Contact Plans for item description and shop drawings.	X	
12. Aluminum Bridge Railing Type BP - Metal bridge railing conforming to the type and material specifications set forth in the Contract Plans. Welding of aluminum shall be in accordance with Section 9-28.14(3).		X
13. Concrete Piling--Precast-Prestressed concrete piling for use as 55 and 70 ton concrete piling. Concrete to conform to Section 9-19.1 of Std. Spec..	X	
14. Precast Manhole Types 1, 2, and 3 with cones, adjustment sections and flat top slabs. See Std. Plans.		X
15. Precast Drywell Types 1, 2, and with cones and adjustment Sections. See Std. Plans.		X
16. Precast Catch Basin - Catch Basin type 1, 1L, 1P, and 2 With adjustment sections. See Std. Plans.		X

ITEM DESCRIPTION	YES	NO
17. Precast Concrete Inlet - with adjustment sections, See Std. Plans		X
18. Precast Drop Inlet Type 1 and 2 with metal grate supports. See Std. Plans.		X
19. Precast Grate Inlet Type 2 with extension and top units. See Std. Plans		X
20. Metal frames, vaned grates, and hoods for Combination Inlets. See Std. Plans		X
21. Precast Concrete Utility Vaults - Precast Concrete utility vaults of various sizes. Used for in ground storage of utility facilities and controls. See Contract Plans for size and construction requirements. Shop drawings are to be provided for approval prior to casting		X
22. Vault Risers - For use with Valve Vaults and Utilities X Vaults.		X
23. Valve Vault - For use with underground utilities. See Contract Plans for details.		X
24. Precast Concrete Barrier - Precast Concrete Barrier for use as new barrier or may also be used as Temporary Concrete Barrier. Only new state approved barrier may be used as permanent barrier.		X
25. Reinforced Earth Wall Panels – Reinforced Earth Wall Panels in size and shape as shown in the Plans. Fabrication plant has annual approval for methods and materials to be used. See Shop Drawing. Fabrication at other locations may be approved, after facilities inspection, contact HQ. Lab.	X	
26. Precast Concrete Walls - Precast Concrete Walls - tilt-up wall panel in size and shape as shown in Plans. Fabrication plant has annual approval for methods and materials to be used	X	

ITEM DESCRIPTION	YES	NO
27. Precast Railroad Crossings - Concrete Crossing Structure Slabs.	X	
28. 12, 18 and 26 inch Standard Precast Prestressed Girder – Standard Precast Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
29. Prestressed Concrete Girder Series 4-14 - Prestressed Concrete Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
30. Prestressed Tri-Beam Girder - Prestressed Tri-Beam Girders for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
31. Prestressed Precast Hollow-Core Slab – Precast Prestressed Hollow-core slab for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A.	X	
32. Prestressed-Bulb Tee Girder - Bulb Tee Prestressed Girder for use in structures. Fabricator plant has annual approval of methods and materials to be used. Shop Drawing to be provided for approval prior to casting girders. See Std. Spec. Section 6-02.3(25)A	X	
33. Monument Case and Cover See Std. Plan.		X

ITEM DESCRIPTION	YES	NO
34. Cantilever Sign Structure - Cantilever Sign Structure fabricated from steel tubing meeting AASHTO-M-183. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
35. Mono-tube Sign Structures - Mono-tube Sign Bridge fabricated to details shown in the Plans. Shop drawings for approval are required prior to fabrication.	X	
36. Steel Sign Bridges - Steel Sign Bridges fabricated from steel tubing meeting AASHTO-M-138 for Aluminum Alloys. See Std. Plans, and Contract Plans for details. The steel structure shall be galvanized after fabrication in accordance with AASHTO-M-111.	X	
37. Steel Sign Post - Fabricated Steel Sign Posts as detailed in Std Plans. Shop drawings for approval are to be provided prior to fabrication		X
38. Light Standard-Prestressed - Spun, prestressed, hollow concrete poles.	X	
39. Light Standards - Lighting Standards for use on highway illumination systems, poles to be fabricated to conform with methods and materials as specified on Std. Plans. See Special Provisions for pre-approved drawings.	X	
40. Traffic Signal Standards - Traffic Signal Standards for use on highway and/or street signal systems. Standards to be fabricated to conform with methods and material as specified on Std. Plans. See Special Provisions for pre-approved drawings	X	
41. Precast Concrete Sloped Mountable Curb (Single and DualFaced) See Std. Plans.		X

ITEM DESCRIPTION	YES	NO
42. Traffic Signs - Prior to approval of a Fabricator of Traffic Signs, the sources of the following materials must be submitted and approved for reflective sheeting, legend material, and aluminum sheeting. NOTE: *** Fabrication inspection required. Only signs tagged "Fabrication Approved" by WSDOT Sign Fabrication Inspector to be installed	X	X
	Custom Message	Std Signing Message
43. Cutting & bending reinforcing steel		X
44. Guardrail components	X	X
	Custom End Sec	Standard Sec
45. Aggregates/Concrete mixes	Covered by WAC 296-127-018	
46. Asphalt	Covered by WAC 296-127-018	
47. Fiber fabrics		X
48. Electrical wiring/components		X
49. treated or untreated timber pile		X
50. Girder pads (elastomeric bearing)	X	
51. Standard Dimension lumber		X
52. Irrigation components		X

ITEM DESCRIPTION	YES	NO
53. Fencing materials		X
54. Guide Posts		X
55. Traffic Buttons		X
56. Epoxy		X
57. Cribbing		X
58. Water distribution materials		X
59. Steel "H" piles		X
60. Steel pipe for concrete pile casings		X
61. Steel pile tips, standard		X
62. Steel pile tips, custom	X	

Prefabricated items specifically produced for public works projects that are prefabricated in a county other than the county wherein the public works project is to be completed, the wage for the offsite prefabrication shall be the applicable prevailing wage for the county in which the actual prefabrication takes place.

It is the manufacturer of the prefabricated product to verify that the correct county wage rates are applied to work they perform.

See RCW [39.12.010](#)

(The definition of "locality" in RCW [39.12.010](#)(2) contains the phrase "wherein the physical work is being performed." The department interprets this phrase to mean the actual work site.

WSDOT's List of State Occupations not applicable to Heavy and Highway Construction Projects

This project is subject to the state hourly minimum rates for wages and fringe benefits in the contract provisions, as provided by the state Department of Labor and Industries.

The following list of occupations, is comprised of those occupations that are not normally used in the construction of heavy and highway projects.

When considering job classifications for use and / or payment when bidding on, or building heavy and highway construction projects for, or administered by WSDOT, these Occupations will be excepted from the included "Washington State Prevailing Wage Rates For Public Work Contracts" documents.

- Building Service Employees
- Electrical Fixture Maintenance Workers
- Electricians - Motor Shop
- Heating Equipment Mechanics
- Industrial Engine and Machine Mechanics
- Industrial Power Vacuum Cleaners
- Inspection, Cleaning, Sealing of Water Systems by Remote Control
- Laborers - Underground Sewer & Water
- Machinists (Hydroelectric Site Work)
- Modular Buildings
- Playground & Park Equipment Installers
- Power Equipment Operators - Underground Sewer & Water
- Residential *** ALL ASSOCIATED RATES ***
- Sign Makers and Installers (Non-Electrical)
- Sign Makers and Installers (Electrical)
- Stage Rigging Mechanics (Non Structural)

The following occupations may be used only as outlined in the preceding text concerning "WSDOT's list for Suppliers - Manufacturers - Fabricators"

- Fabricated Precast Concrete Products
- Metal Fabrication (In Shop)

Definitions for the Scope of Work for prevailing wages may be found at the Washington State Department of Labor and Industries web site and in WAC Chapter 296-127.

Washington State Department of Labor and Industries
Policy Statements
(Regarding Production and Delivery of Gravel, Concrete, Asphalt, etc.)

WAC 296-127-018 Agency filings affecting this section

Coverage and exemptions of workers involved in the production and delivery of gravel, concrete, asphalt, or similar materials.

(1) The materials covered under this section include but are not limited to: Sand, gravel, crushed rock, concrete, asphalt, or other similar materials.

(2) All workers, regardless of by whom employed, are subject to the provisions of chapter 39.12 RCW when they perform any or all of the following functions:

(a) They deliver or discharge any of the above-listed materials to a public works project site:

(i) At one or more point(s) directly upon the location where the material will be incorporated into the project; or

(ii) At multiple points at the project; or

(iii) Adjacent to the location and coordinated with the incorporation of those materials.

(b) They wait at or near a public works project site to perform any tasks subject to this section of the rule.

(c) They remove any materials from a public works construction site pursuant to contract requirements or specifications (e.g., excavated materials, materials from demolished structures, clean-up materials, etc.).

(d) They work in a materials production facility (e.g., batch plant, borrow pit, rock quarry, etc.) which is established for a public works project for the specific, but not necessarily exclusive, purpose of supplying materials for the project.

(e) They deliver concrete to a public works site regardless of the method of incorporation.

(f) They assist or participate in the incorporation of any materials into the public works project.

(3) All travel time that relates to the work covered under subsection (2) of this section requires the payment of prevailing wages. Travel time includes time spent waiting to load, loading, transporting, waiting to unload, and delivering materials. Travel time would include all time spent in travel in support of a public works project whether the vehicle is empty or full. For example, travel time spent returning to a supply source to obtain another load of material for use on a public works site or returning to the public works site to obtain another load of excavated material is time spent in travel that is subject to prevailing wage. Travel to a supply source, including travel from a public works site, to obtain materials for use on a private project would not be travel subject to the prevailing wage.

(4) Workers are not subject to the provisions of chapter 39.12 RCW when they deliver materials to a stockpile.

(a) A "stockpile" is defined as materials delivered to a pile located away from the site of incorporation such that the stockpiled materials must be physically moved from the stockpile and transported to another location on the project site in order to be incorporated into the project.

(b) A stockpile does not include any of the functions described in subsection (2)(a) through (f) of this section; nor does a stockpile include materials delivered or distributed to multiple locations upon the project site; nor does a stockpile include materials dumped at the place of incorporation, or adjacent to the location and coordinated with the incorporation.

(5) The applicable prevailing wage rate shall be determined by the locality in which the work is performed. Workers subject to subsection (2)(d) of this section, who produce such materials at an off-site facility shall be paid the applicable prevailing wage rates for the county in which the off-site facility is located. Workers subject to subsection (2) of this section, who deliver such materials to a public works project site shall be paid the applicable prevailing wage rates for the county in which the public works project is located.

[Statutory Authority: Chapter 39.12 RCW, RCW 43.22.051 and 43.22.270. 08-24-101, § 296-127-018, filed 12/2/08, effective 1/2/09. Statutory Authority: Chapters 39.04 and 39.12 RCW and RCW 43.22.270. 92-01-104 and 92-08-101, § 296-127-018, filed 12/18/91 and 4/1/92, effective 8/31/92.]

Benefit Code Key – Effective 8/31/2024 thru 3/4/2025

Overtime Codes

Overtime calculations are based on the hourly rate actually paid to the worker. On public works projects, the hourly rate must be not less than the prevailing rate of wage minus the hourly rate of the cost of fringe benefits actually provided for the worker.

1. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.
 - B. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - C. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - D. The first two (2) hours before or after a five-eight (8) hour workweek day or a four-ten (10) hour workweek day and the first eight (8) hours worked the next day after either workweek shall be paid at one and one-half times the hourly rate of wage. All additional hours worked and all worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
 - G. The first ten (10) hours worked on Saturdays and the first ten (10) hours worked on a fifth calendar weekday in a four-ten hour schedule, shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - H. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions or equipment breakdown) shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
 - I. All hours worked on Sundays and holidays shall also be paid at double the hourly rate of wage.
 - J. The first two (2) hours after eight (8) regular hours Monday through Friday and the first ten (10) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage.
 - K. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
 - M. All hours worked on Saturdays (except makeup days if work is lost due to inclement weather conditions) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

1. N. All hours worked on Saturdays (except makeup days) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- O. The first ten (10) hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays, holidays and after twelve (12) hours, Monday through Friday and after ten (10) hours on Saturday shall be paid at double the hourly rate of wage.
- P. All hours worked on Saturdays (except makeup days if circumstances warrant) and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- Q. The first two (2) hours after eight (8) regular hours Monday through Friday and up to ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of ten (10) hours per day Monday through Saturday and all hours worked on Sundays and holidays (except Christmas day) shall be paid at double the hourly rate of wage. All hours worked on Christmas day shall be paid at two and one-half times the hourly rate of wage.
- R. All hours worked on Sundays and holidays shall be paid at two times the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays (except Labor Day) shall be paid at two times the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage.
- V. All hours worked on Sundays and holidays (except Thanksgiving Day and Christmas day) shall be paid at one and one-half times the hourly rate of wage. All hours worked on Thanksgiving Day and Christmas day shall be paid at double the hourly rate of wage.
- W. All hours worked on Saturdays and Sundays (except make-up days due to conditions beyond the control of the employer) shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at double the hourly rate of wage.
- X. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked over twelve (12) hours Monday through Saturday, Sundays and holidays shall be paid at double the hourly rate of wage. When holiday falls on Saturday or Sunday, the day before Saturday, Friday, and the day after Sunday, Monday, shall be considered the holiday and all work performed shall be paid at double the hourly rate of wage.
- Y. All hours worked outside the hours of 5:00 am and 5:00 pm (or such other hours as may be agreed upon by any employer and the employee) and all hours worked in excess of eight (8) hours per day (10 hours per day for a 4 x 10 workweek) and on Saturdays and holidays (except labor day) shall be paid at one and one-half times the hourly rate of wage. (except for employees who are absent from work without prior approval on a scheduled workday during the workweek shall be paid at the straight-time rate until they have worked 8 hours in a day (10 in a 4 x 10 workweek) or 40 hours during that workweek.) All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and Labor Day shall be paid at double the hourly rate of wage.
- Z. All hours worked on Saturdays and Sundays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid the straight time rate of pay in addition to holiday pay.

Overtime Codes Continued

2. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- B. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.
- F. The first eight (8) hours worked on holidays shall be paid at the straight hourly rate of wage in addition to the holiday pay. All hours worked in excess of eight (8) hours on holidays shall be paid at double the hourly rate of wage.
- M. This code appears to be missing. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage.
- R. All hours worked on Sundays and holidays and all hours worked over sixty (60) in one week shall be paid at double the hourly rate of wage.
- U. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked over 12 hours in a day or on Sundays and holidays shall be paid at double the hourly rate of wage.

3. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- F. All hours worked on Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sunday shall be paid at two times the hourly rate of wage. All hours worked on paid holidays shall be paid at two and one-half times the hourly rate of wage including holiday pay.
- H. All work performed on Sundays between March 16th and October 14th and all Holidays shall be compensated for at two (2) times the regular rate of pay. Work performed on Sundays between October 15th and March 15th shall be compensated at one and one half (1-1/2) times the regular rate of pay.
- J. All hours worked between the hours of 10:00 pm and 5:00 am, Monday through Friday, and all hours worked on Saturdays shall be paid at a one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- K. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the eight (8) hours rest period.

Overtime Codes Continued

4. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

- A. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturdays, Sundays and holidays shall be paid at double the hourly rate of wage
- C. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay. On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay. All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.
- D. All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at double the hourly rate of wage. All hours worked on Saturday, Sundays and holidays shall be paid at double the hourly rate of pay. Rates include all members of the assigned crew.

EXCEPTION:

On all multipole structures and steel transmission lines, switching stations, regulating, capacitor stations, generating plants, industrial plants, associated installations and substations, except those substations whose primary function is to feed a distribution system, will be paid overtime under the following rates:

The first two (2) hours after eight (8) regular hours Monday through Friday of overtime on a regular workday, shall be paid at one and one-half times the hourly rate of wage. All hours in excess of ten (10) hours will be at two (2) times the hourly rate of wage. The first eight (8) hours worked on Saturday will be paid at one and one-half (1-1/2) times the hourly rate of wage. All hours worked in excess of eight (8) hours on Saturday, and all hours worked on Sundays and holidays will be at the double the hourly rate of wage.

All overtime eligible hours performed on the above described work that is energized, shall be paid at the double the hourly rate of wage.

- E. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one and one half (1½) times the regular shift rate for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- G. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- I. The First eight (8) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) per day on Saturdays shall be paid at double the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. J. The first eight (8) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked in excess of eight (8) hours on a Saturday shall be paid at double the hourly rate of wage. All hours worked over twelve (12) in a day, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- K. All hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage, so long as Saturday is the sixth consecutive day worked. All hours worked over twelve (12) in a day Monday through Saturday, and all hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- L. The first twelve (12) hours worked on a Saturday shall be paid at one and one-half times the hourly rate of wage. All hours worked on a Saturday in excess of twelve (12) hours shall be paid at double the hourly rate of pay. All hours worked over twelve (12) in a day Monday through Friday, and all hours worked on Sundays shall be paid at double the hourly rate of wage. All hours worked on a holiday shall be paid at one and one-half times the hourly rate of wage, except that all hours worked on Labor Day shall be paid at double the hourly rate of pay.
- S. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, work performed in excess of (10) hours shall be paid at one and one half (1-1/2) times the hourly rate of pay. On Monday through Friday, work performed outside the normal work hours of 6:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations).
- All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. When an employee returns to work without at least eight (8) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.
- Multiple Shift Operations: When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. Special Shifts: The Special Shift Premium is the basic hourly rate of pay plus \$2.00 an hour. When due to conditions beyond the control of the employer or when an owner (not acting as the contractor), a government agency or the contract specifications require more than four (4) hours of a special shift can only be performed outside the normal 6am to 6pm shift then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid the special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday).
- U. The first four (4) hours after eight (8) regular hours Monday through Friday and the first twelve (12) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. (Except on makeup days if work is lost due to inclement weather, then the first eight (8) hours on Saturday may be paid the regular rate.) All hours worked over twelve (12) hours Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.

Overtime Codes Continued

4. X. All hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays and holidays shall be paid at double the hourly rate of wage. Work performed outside the normal shift of 6 am to 6pm shall be paid at one and one-half the straight time rate, (except for special shifts or three shift operations). All work performed on Sundays and holidays shall be paid at double the hourly rate of wage. Shifts may be established when considered necessary by the Employer.

The Employer may establish shifts consisting of eight (8) or ten (10) hours of work (subject to WAC 296-127-022), that shall constitute a normal forty (40) hour work week. The Employer can change from a 5-eight to a 4-ten hour schedule or back to the other. All hours of work on these shifts shall be paid for at the straight time hourly rate. Work performed in excess of eight hours (or ten hours per day (subject to WAC 296-127-022) shall be paid at one and one-half the straight time rate.

When due to conditions beyond the control of the Employer, or when contract specifications require that work can only be performed outside the regular day shift, then by mutual agreement a special shift may be worked at the straight time rate, eight (8) hours work for eight (8) hours pay. The starting time shall be arranged to fit such conditions of work.

When an employee returns to work without at a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Overtime Codes Continued

11. ALL HOURS WORKED IN EXCESS OF EIGHT (8) HOURS PER DAY OR FORTY (40) HOURS PER WEEK SHALL BE PAID AT ONE AND ONE-HALF TIMES THE HOURLY RATE OF WAGE.

B After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

C The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other overtime hours worked, except Labor Day, and all hours on Sunday shall be paid at double the hourly rate of wage. All hours worked on Labor Day shall be paid at three times the hourly rate of wage. All non-overtime and non-holiday hours worked between 4:00 pm and 5:00 am, Monday through Friday, shall be paid at a premium rate of 15% over the hourly rate of wage.

D. All hours worked on Saturdays and holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

E. The first two (2) hours after eight (8) regular hours Monday through Friday, the first ten (10) hours on Saturday, and the first ten (10) hours worked on Holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked over ten (10) hours Monday through Saturday, and Sundays shall be paid at double the hourly rate of wage.

After an employee has worked eight (8) hours, all additional hours worked shall be paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours or more.

Overtime Codes Continued

11. F. The first two (2) hours after eight (8) regular hours Monday through Friday and the first eight (8) hours on Saturday shall be paid at one and one-half times the hourly rate of wage. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- On a four-day, ten-hour weekly schedule, either Monday thru Thursday or Tuesday thru Friday schedule, all hours worked after ten shall be paid at double the hourly rate of wage. The Monday or Friday not utilized in the normal four-day, ten hour work week, and Saturday shall be paid at one-half times the hourly rate of wage for the first eight (8) hours. All other hours worked Monday through Saturday, and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- G. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.
- All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of nine (9) hours or more. When an employee returns to work without at least nine (9) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the nine (9) hours rest period.
- H. Work performed in excess of eight (8) hours of straight time per day, or ten (10) hours of straight time per day when four ten (10) hour shifts are established, or forty (40) hours of straight time per week, Monday through Friday, or outside the normal 5 am to 6pm shift, and all work on Saturdays shall be paid at one and one-half times the hourly rate of wage.
- All work performed after 6:00 pm Saturday to 5:00 am Monday and Holidays, and all hours worked in excess of twelve (12) hours in a single shift shall be paid at double the hourly rate of wage.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of ten (10) hours or more. When an employee returns to work without at least ten (10) hours time off since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until he/she shall have the ten (10) hours rest period.
- J. All hours worked on holidays shall be paid at double the hourly rate of wage.
- K. On Monday through Friday hours worked outside 4:00 am and 5:00 pm, and the first two (2) hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked over 10 hours per day Monday through Friday, and all hours worked on Saturdays, Sundays, and Holidays worked shall be paid at double the hourly rate of wage.
- L. An employee working outside 5:00 am and 5:00 pm shall receive an additional two dollar (\$2.00) per hour for all hours worked that shift. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage. All hours worked on holidays shall be paid at one and one-half times the hourly rate of wage.

Overtime Codes Continued

11. M. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.
- Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of a multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 am to 6:00 pm, then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shift shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten shifts.
- On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay. All work performed after 6:00 pm Saturday to 5:00 am Monday, all work performed over twelve (12) hours, and all work performed on holidays shall be paid at double the straight time rate of pay.
- Shift Pay Premium: In an addition to any overtime already required, all hours worked between the hours of 6:00 pm and 5:00 am shall receive an additional two dollars (\$2.00) per hour.
- N. All work performed over twelve hours in a shift and all work performed on Sundays and Holidays shall be paid at double the straight time rate.
- Any time worked over eight (8) hours on Saturday shall be paid double the straight time rate, except employees assigned to work six 10-hour shifts per week shall be paid double the straight time rate for any time worked on Saturday over 10 hours.
- O. All work performed on Saturdays, Sundays, and Holidays shall be paid at one and one half (1-1/2) times the straight time rate of pay.

Overtime Codes Continued

11. P. Work performed in excess of ten (10) hours of straight time per day when four ten (10) hour shifts are established and all work on Saturdays, except for make-up days shall be paid at time and one-half (1 ½) the straight time rate.
- Work performed outside the normal work hours of 5:00 a.m. and 6:00 p.m. shall be paid at one and one-half (1-1/2) times the straight time rate, (except for special shifts or multiple shift operations). When the first shift of multiple shift (a two or three shift) operation is started at the basic straight time rate or at a specific overtime rate, all shifts of that day's operation shall be completed at that rate. When due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift of 5:00 a.m. to 6:00 p.m., then a special shift may be worked at the straight time rate, plus the shift pay premium when applicable. The starting time of work will be arranged to fit such conditions of work. Such shifts shall consist of eight (8) hours work for eight (8) hours pay or ten (10) hours work for ten (10) hours pay for four ten-hour shifts.
- In the event the job is down due to weather conditions, then Saturday may, be worked as a voluntary make-up day at the straight time rate. However, Saturday shall not be utilized as a make-up day when a holiday falls on Friday. All work performed on Sundays and holidays and work in excess of twelve (12) hours per day shall be paid at double (2x) the straight time rate of pay.
- After an employee has worked eight (8) hours at an applicable overtime rate, all additional hours shall be at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.
- When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.
- Q. All hours worked between the hours of 6:00 pm and 6:00 am, Monday through Saturday, shall be paid at a premium rate of 35% over the hourly rate of wage. Work performed on Sundays shall be paid at double time. All hours worked on holidays shall be paid at double the hourly rate of wage.
- R. On Monday through Saturday hours worked outside 6:00 am and 7:00 pm, and all hours after eight (8) hours worked shall be paid at one and one-half times the hourly rate. All hours worked on Sundays and Holidays shall be paid at double the hourly rate of wage.
- When a holiday falls on a Saturday, the Friday before shall be the observed holiday. When a holiday falls on a Sunday, the following Monday shall be the observed holiday.
- S. The first ten (10) hours worked on Saturdays shall be paid at one and one-half times the hourly rate of wage. In the event the job is down due to weather conditions, or other conditions beyond the control of the Employer, then Saturday may be worked at the straight time rate, for the first eight (8) hours, or the first ten (10) hours when a four day ten hour workweek has been established.
- All hours worked Monday through Saturday over twelve (12) hours and all hours worked on Sundays and holidays shall be paid at double the hourly rate of wage.
- When an employee returns to work without a break of eight (8) hours since their previous shift, all such time shall be a continuation of shift and paid at the applicable overtime rate until such time as the employee has had a break of eight (8) hours.

Benefit Code Key – Effective 8/31/2024 thru 3/4/2025

11. T. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.
- On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay.
- All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.
- U. On Monday through Friday, the first four (4) hours of overtime after eight (8) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay, unless a four (4) day ten (10) hour workweek has been established. On a four (4) day ten (10) hour workweek scheduled Monday through Thursday, or Tuesday through Friday, the first two (2) hours of overtime after ten (10) hours of straight time work shall be paid at one and one half (1-1/2) times the straight time rate of pay.
- On Saturday, the first twelve (12) hours of work shall be paid at one and one half (1-1/2) times the straight time rate of pay, except that if the job is down on Monday through Friday due to weather conditions or other conditions outside the control of the employer, the first ten (10) hours on Saturday may be worked at the straight time rate of pay.
- All hours worked over twelve (12) hours in a day and all hours worked on Sunday and Holidays shall be paid at two (2) times the straight time rate of pay.
- If, due to conditions beyond the control of the Employer or when contract specifications require that work can only be performed outside the regular day shift, then a Special Shift may be worked, Monday through Friday, at the straight-time rate. The starting time of work for the Special Shift will be arranged to fit such conditions of work. Such Special Shift shall consist of eight (8) hours of work for eight (8) hours of pay or ten (10) hours of work for ten(10) hours of pay on a four-ten workday schedule.

Holiday Codes

5. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, and Christmas Day (7).
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, the day before Christmas, and Christmas Day (8).
- C. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).
- D. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8).
- H. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Day after Thanksgiving Day, And Christmas (6).

Holiday Codes Continued

- 5. I. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- K. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9).
- L. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (8).
- N. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, The Friday After Thanksgiving Day, And Christmas Day (9).
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday And Saturday After Thanksgiving Day, The Day Before Christmas, And Christmas Day (9). If A Holiday Falls On Sunday, The Following Monday Shall Be Considered As A Holiday.
- Q. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6).
- R. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Day After Thanksgiving Day, One-Half Day Before Christmas Day, And Christmas Day. (7 1/2).
- S. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, And Christmas Day (7).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8).

Holiday Codes Continued

- 6. G. Paid Holidays: New Year's Day, Martin Luther King Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and Christmas Eve Day (11).
- H. Paid Holidays: New Year's Day, New Year's Eve Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday After Thanksgiving Day, Christmas Day, The Day After Christmas, And A Floating Holiday (10).
- T. Paid Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Last Working Day Before Christmas Day, And Christmas Day (9).
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). If a holiday falls on Saturday, the preceding Friday shall be considered as the holiday. If a holiday falls on Sunday, the following Monday shall be considered as the holiday.

Holiday Codes Continued

7. A. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any Holiday Which Falls On A Sunday Shall Be Observed As A Holiday On The Following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- B. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- C. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- D. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (8). Unpaid Holidays: President's Day. Any paid holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any paid holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- E. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- F. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the last working day before Christmas day and Christmas day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Holiday Codes Continued

7. G. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- J. Holidays: New Year's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day and Christmas Day (6). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.

Holiday Codes Continued

7. K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- L. Holidays: New Year's Day, Memorial Day, Labor Day, Independence Day, Thanksgiving Day, the Last Work Day before Christmas Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. When Christmas falls on a Saturday, the preceding Friday shall be observed as a holiday.
- P. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, And Christmas Day (7). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- Q. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- S. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, the Day after Christmas, and A Floating Holiday (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- V. Holidays: New Year's Day, President's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, the day before or after Christmas, and the day before or after New Year's Day. If any of the above listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- W. Holidays: New Year's Day, Day After New Year's, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day, Christmas Day, the day after Christmas, the day before New Year's Day, and a Floating Holiday.
- X. Holidays: New Year's Day, Day before or after New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Day, and the day before or after Christmas day. If a holiday falls on a Saturday or on a Friday that is the normal day off, then the holiday will be taken on the last normal workday. If the holiday falls on a Monday that is the normal day off or on a Sunday, then the holiday will be taken on the next normal workday.
- Y. Holidays: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. (8) If the holiday falls on a Sunday, then the day observed by the federal government shall be considered a holiday and compensated accordingly.
- Z. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, Christmas Eve, and Christmas Day (9). Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday. Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

Holiday Codes Continued

15. G. New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, the last scheduled workday before Christmas, and Christmas Day (9). If any of the listed holidays falls on a Sunday, the day observed by the Nation shall be considered a holiday and compensated accordingly.
- H. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, the Last Working Day before Christmas Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- I. Holidays: New Year's Day, President's Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, The Friday After Thanksgiving Day, The Day Before Christmas Day And Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- J. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- K. Holidays: New Year's Day, Memorial Day, Independence Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, And Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. Any holiday which falls on a Saturday shall be observed as a holiday on the preceding Friday.
- L. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- M. Holidays: New Year's Day, Martin Luther King Jr. Day, Independence Day, Memorial Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, Christmas Eve Day and Christmas Day (9). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday. If any of the listed holidays falls on a Saturday, the preceding Friday shall be a regular work day.
- N. Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day (8). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.
- O. Holidays: New Year's Day, Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday and Saturday after Thanksgiving Day, the day before Christmas day, and Christmas Day (10). Any holiday which falls on a Sunday shall be observed as a holiday on the following Monday.

Benefit Code Key – Effective 8/31/2024 thru 3/4/2025

Note Codes

8. D. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.
- L. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$0.75, Level B: \$0.50, And Level C: \$0.25.
- M. Workers on hazmat projects receive additional hourly premiums as follows: Levels A & B: \$1.00, Levels C & D: \$0.50.
- N. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- S. Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.
- T. Effective August 31, 2012 – A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. This classification is only effective on or after August 31, 2012.
- U. Workers on hazmat projects receive additional hourly premiums as follows – Class A Suit: \$2.00, Class B Suit: \$1.50, And Class C Suit: \$1.00. Workers performing underground work receive an additional \$0.40 per hour for any and all work performed underground, including operating, servicing and repairing of equipment. The premium for underground work shall be paid for the entire shift worked. Workers who work suspended by a rope or cable receive an additional \$0.50 per hour. The premium for work suspended shall be paid for the entire shift worked. Workers who do “pioneer” work (break open a cut, build road, etc.) more than one hundred fifty (150) feet above grade elevation receive an additional \$0.50 per hour.
8. V. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.
- Depth premiums apply to depths of fifty feet or more. Over 50' to 100' - \$2.00 per foot for each foot over 50 feet. Over 101' to 150' - \$3.00 per foot for each foot over 101 feet. Over 151' to 220' - \$4.00 per foot for each foot over 220 feet. Over 221' - \$5.00 per foot for each foot over 221 feet.
- Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25' to 300' - \$1.00 per foot from entrance. 300' to 600' - \$1.50 per foot beginning at 300'. Over 600' - \$2.00 per foot beginning at 600'.
- W. Meter Installers work on single phase 120/240V self-contained residential meters. The Lineman/Groundmen rates would apply to meters not fitting this description.

Note Codes Continued

- X. Workers on hazmat projects receive additional hourly premiums as follows - Class A Suit: \$2.00, Class B Suit: \$1.50, Class C Suit: \$1.00, and Class D Suit: \$0.50. Special Shift Premium: Basic hourly rate plus \$2.00 per hour.

When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications requires that work can only be performed outside the normal 5 am to 6pm shift, then the special shift premium will be applied to the basic hourly rate. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in OT or Double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

- Y. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

Swinging Stage/Boatswains Chair: Employees working on a swinging state or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

- Z. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.

Special Shift Premium: Basic hourly rate plus \$2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as a contractor), a government agency or the contract specifications require that more than (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they will be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Note Codes Continued

9. A. Workers working with supplied air on hazmat projects receive an additional \$1.00 per hour.

Special Shift Premium: Basic hourly rate plus \$2.00 per hour. When due to conditions beyond the control of the Employer or when an owner (not acting as the contractor), a government agency or the contract specifications require that more than four (4) hours of a special shift can only be performed outside the normal 6 am to 6pm shift, then the special shift premium will be applied to the basic straight time for the entire shift. When an employee works on a special shift, they shall be paid a special shift premium for each hour worked unless they are in overtime or double-time status. (For example, the special shift premium does not waive the overtime requirements for work performed on Saturday or Sunday.)

Certified Crane Operator Premium: Crane operators requiring certifications shall be paid \$0.50 per hour above their classification rate.

Boom Pay Premium: All cranes including tower shall be paid as follows based on boom length:

(A) – 130’ to 199’ – \$0.50 per hour over their classification rate.

(B) – 200’ to 299’ – \$0.80 per hour over their classification rate.

(C) – 300’ and over – \$1.00 per hour over their classification rate.

Note Codes Continued

9. B. The highest pressure registered on the gauge for an accumulated time of more than fifteen (15) minutes during the shift shall be used in determining the scale paid.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

- C. Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay. Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.

Effective August 31, 2012 – A Traffic Control Supervisor shall be present on the project whenever flagging or spotting or other traffic control labor is being utilized. A Traffic Control Laborer performs the setup, maintenance and removal of all temporary traffic control devices and construction signs necessary to control vehicular, bicycle, and pedestrian traffic during construction operations. Flaggers and Spotters shall be posted where shown on approved Traffic Control Plans or where directed by the Engineer. All flaggers and spotters shall possess a current flagging card issued by the State of Washington, Oregon, Montana, or Idaho. These classifications are only effective on or after August 31, 2012.

- D. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, bridges, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.
- E. Heavy Construction includes construction, repair, alteration or additions to the production, fabrication or manufacturing portions of industrial or manufacturing plants, hydroelectric or nuclear power plants and atomic reactor construction. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$1.00, Level B: \$0.75, Level C: \$0.50, And Level D: \$0.25.
- F. Industrial Painter wages are required for painting within industrial facilities such as treatment plants, pipelines, towers, dams, power generation facilities and manufacturing facilities such as chemical plants, etc., or anywhere abrasive blasting is necessary to prepare surfaces, or hazardous materials encapsulation is required.
- H. One (1) person crew shall consist of a Party Chief. (Total Station or similar one (1) person survey system). Two (2) person survey party shall consist of a least a Party Chief and a Chain Person. Three (3) person survey party shall consist of at least a Party Chief, an Instrument Person, and a Chain Person.

Benefit Code Key – Effective 8/31/2024 thru 3/4/2025

9. I. In addition to the hourly wage and fringe benefits, the following depth and enclosure premiums shall be paid. The premiums are to be calculated for the maximum depth and distance into an enclosure that a diver reaches in a day. The premiums are to be paid one time for the day and are not used in calculating overtime pay.

Depth premiums apply to depths of fifty feet or more. Over 50' to 100' - \$2.00 per foot for each foot over 50 feet. Over 101' to 150' - \$3.00 per foot for each foot over 101 feet. Over 151' to 220' - \$4.00 per foot for each foot over 220 feet. Over 221' - \$5.00 per foot for each foot over 221 feet.

Enclosure premiums apply when divers enter enclosures (such as pipes or tunnels) where there is no vertical ascent and is measured by the distance travelled from the entrance. 25' to 300' - \$1.00 per foot from entrance. 300' to 600' - \$1.50 per foot beginning at 300'. Over 600' - \$2.00 per foot beginning at 600'.

Employees may be required to perform any combination of work within the Diving team/crew, (with the exception of dive Supervisor) provided they are paid at the highest rate at which he/she has worked for the shift.

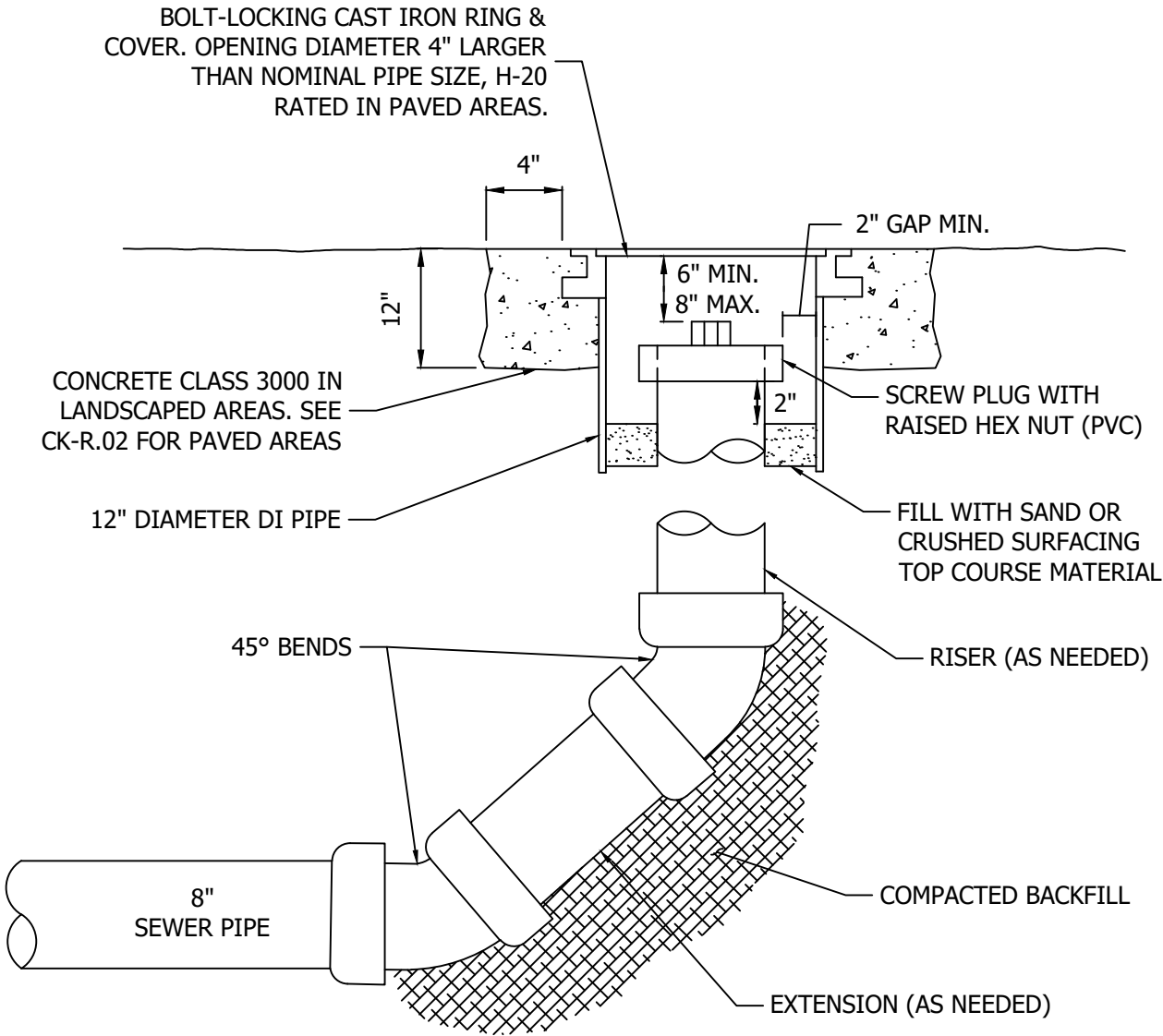
- L. Workers on hazmat projects receive additional hourly premiums as follows -Level A: \$0.75, Level B: \$0.50, And Level C: \$0.25.

Tide Work: When employees are called out between the hours of 6:00 p.m. and 6:00 a.m. to work on tide work (work located in the tide plane) all time worked shall be at one and one-half times the hourly rate of pay.

Swinging Stage/Boatswains Chair: Employees working on a swinging stage or boatswains chair or under conditions that require them to be tied off to allow their hands to be free shall receive seventy-five cents (\$0.75) per hour above the classification rate.


APPENDICES

**APPENDIX A:
PRE-APPROVED PLANS AND
STANDARD DETAILS**

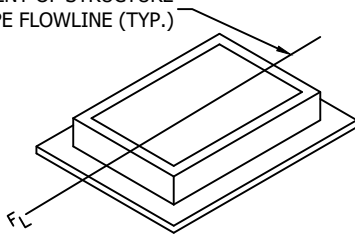


NOTES:

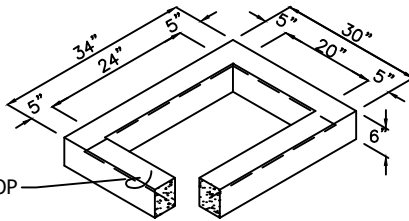
1. CAST IRON COVER SHALL READ EITHER "STORM" OR "DRAIN".
2. LOCKING BOLTS FOR COVER SHALL BE 5/8" -11 NC STAINLESS STEEL TYPE 304 SOCKET (ALLEN) HEAD BOLTS, 2 INCHES LONG.
3. ALL FITTINGS AND PIPE SHALL BE GASKETED (NOT GLUED). PIPE AND FITTING MATERIAL SHALL BE SDR 35.
4. WYE CONFIGURATION ONLY ALLOWED FOR PRIVATELY MAINTAINED SYSTEMS.

CITY OF KIRKLAND	
PLAN NO. CK - D.05B	
	CLEANOUT

ALIGNMENT OF STRUCTURE TO PIPE FLOWLINE (TYP.)

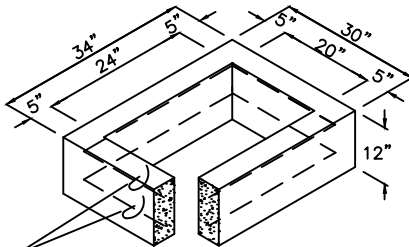


FRAME AND GRATE
(SEE STANDARD DETAILS D.11 THROUGH D.16A)



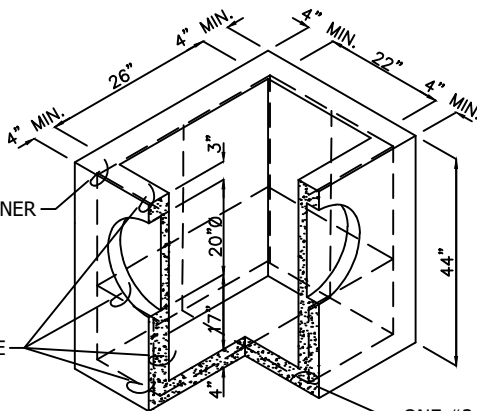
ONE #3 BAR HOOP

6" RISER SECTION



TWO #3 BAR HOOPS

12" RISER SECTION



#3 BAR EACH CORNER

#3 BAR EACH SIDE

ONE #3 BAR EACH WAY

PRECAST BASE SECTION
(MEASUREMENT AT THE TOP OF THE BASE)

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" PER FOOT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE SHALL BE INSTALLED WITH FLANGE DOWN.
11. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.
12. ACCEPTABLE PIPE SIZES ARE 8", 12" OR 15". 6" PIPE IS ONLY ACCEPTABLE ON PRIVATE SYSTEMS.
13. ROUND SOLID LIDS REQUIRED WHENEVER CATCH BASIN DOES NOT COLLECT SURFACE WATER. SEE CK-D.18 AND CK-D.18A FOR REFERENCE.
14. ROUND CONCRETE RISERS ARE REQUIRED FOR ROUND SOLID LOCKING LIDS.
15. ALL NEW PVC PIPES SHALL BE INSTALLED WITH SAND COLLARS AND A NON-SHRINK GROUT. JETSET OR SPEED CRETE RED LINE GROUT NOT ALLOWED.
16. 1", 2", AND 4" RISERS ACCEPTED AS NEEDED.
17. MINIMUM 10' FROM ADJACENT TREES, UNLESS OTHERWISE APPROVED.
18. CLEAN SURFACE AND BOTTOM AREA. PROVIDE UNIFORM CONTACT. THE SURFACE AREA OF THE BASE SECTION MUST BE MORTARED TO THE BOTTOM AREA OF THE RISER SECTION.

CITY OF KIRKLAND

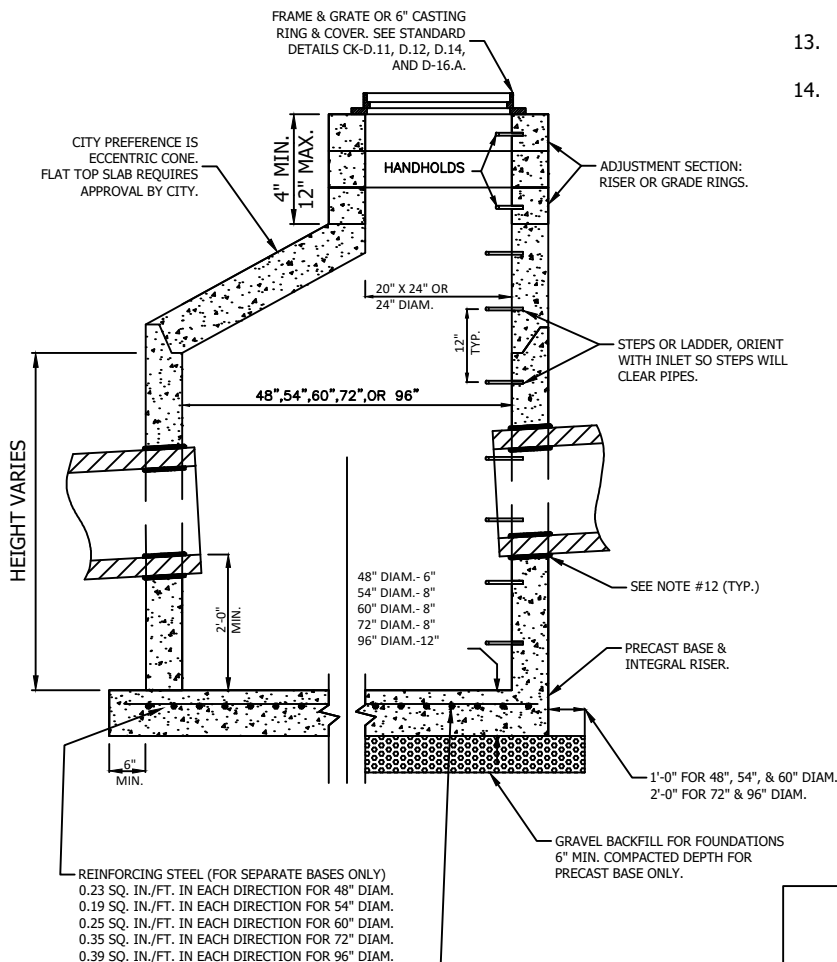
PLAN NO. CK - D.07



CATCH BASIN
TYPE 1

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. SEE STD. DTL. NO. CK-D.12, CATCH BASIN DETAILS. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE FINISHED GRADE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
6. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
7. MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
8. FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE STD. DTLs. NO. CK-D.12 AND CK-S.14.
9. ALL MANHOLE JOINTS SHALL USE A CONFINED RUBBER GASKET AND GROUTED (INSIDE AND OUT) TO MEET ASTM C-443 SPECIFICATIONS.
10. ROUND SOLID LOCKING LIDS REQUIRED WHENEVER CATCH BASIN DOES NOT COLLECT SURFACE WATER, OR WHEN LOCATED IN SIDEWALK AND PLANTER AREAS. SEE CK-D.18, CK-D.18A, AND CK-D.18B FOR REFERENCE.
11. ROUND CONCRETE RISERS ARE REQUIRED FOR ROUND SOLID LOCKING LIDS.
12. ALL NEW PIPES SHALL BE INSTALLED WITH EITHER A KOR-N-SEAL BOOT, OR SAND COLLARS AND A NON-SHRINK GROUT. JETSET OR SPEED CRETE RED LINE GROUT NOT ALLOWED.
13. MINIMUM 10' FROM ADJACENT TREES, UNLESS OTHERWISE APPROVED.
14. ALL RISERS WILL BE WET SET IN GROUT, AND SMOOTHED INSIDE AND OUT PRIOR TO BEING BURIED.




ACCEPTABLE PIPE SIZES:

Basin Type	Pipe Size								
	6"	8"	12"	15"	18"	24"	30"	36"	48"
Type II-48" CB	X	X	X	X	X	X	X		
Type II-54" CB	X	X	X	X	X	X	X	X	
Type II-60" CB	X	X	X	X	X	X	X	X	X
Type II-72" CB	X	X	X	X	X	X	X	X	X
Type II-96" CB	X	X	X	X	X	X	X	X	X

CITY OF KIRKLAND

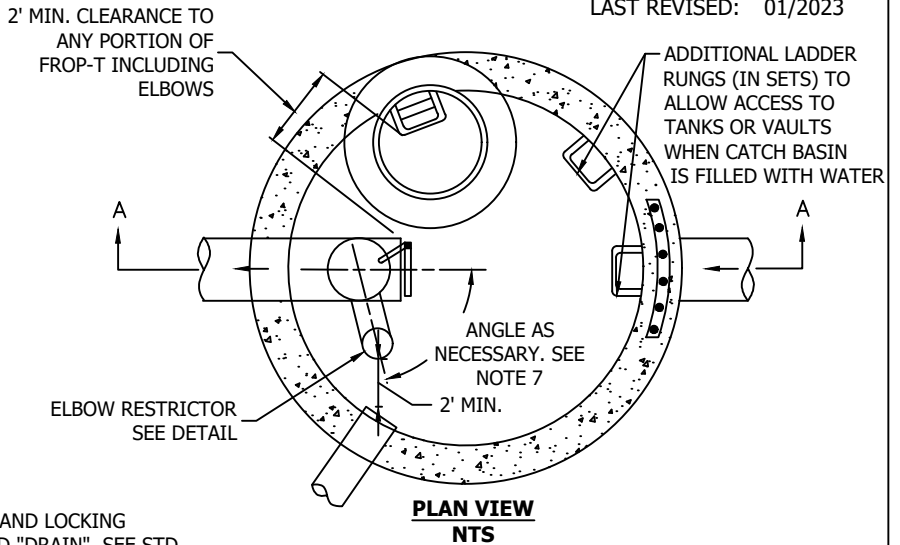
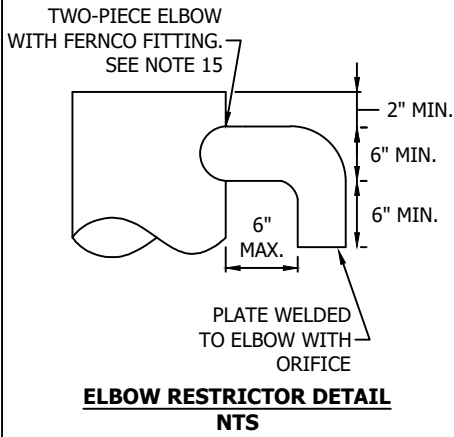
PLAN NO. CK - D.09



CATCH BASIN

TYPE 2

48", 54", 60", 72", 96"



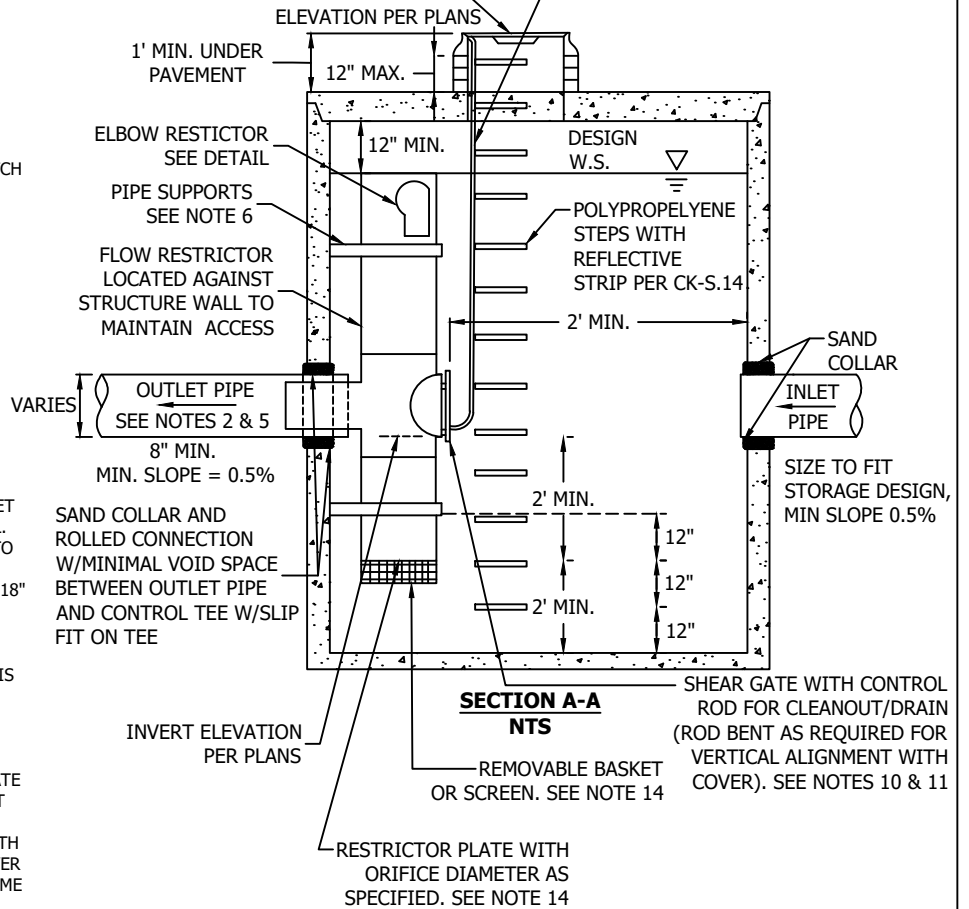
SHEAR GATE NTS

FRAME GRATE AND LOCKING COVER MARKED "DRAIN". SEE STD. DWG. CK-D.18, -D.18A, OR -D.18B. OFFSET MANHOLE OR CATCH BASIN LID SO THAT RESTRICTOR/SEPARATOR DEVICE IS 75% VISIBLE.

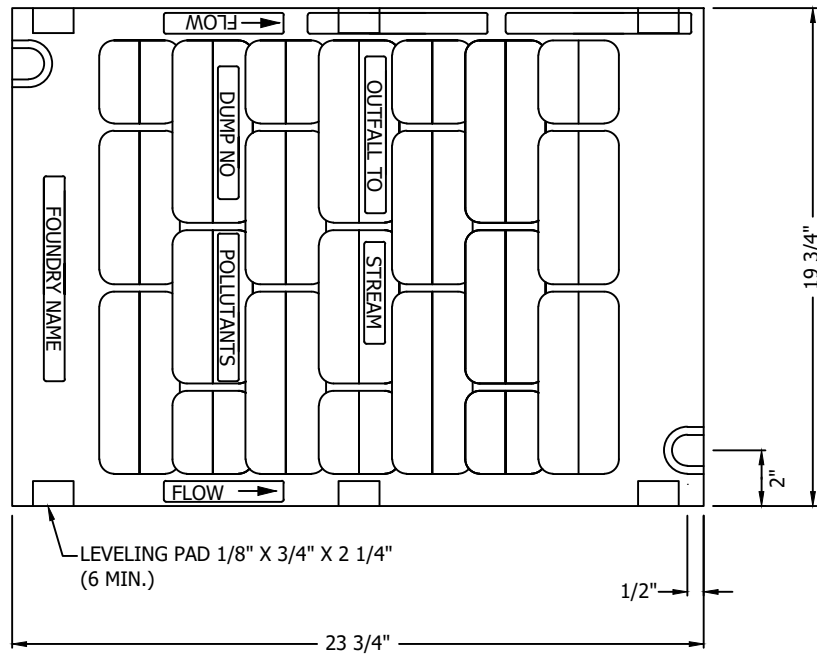
SECURE HANDLE OUT OF WAY OF LADDER. TO BE FIELD ADJUSTED PER MANUFACTURER

NOTES:

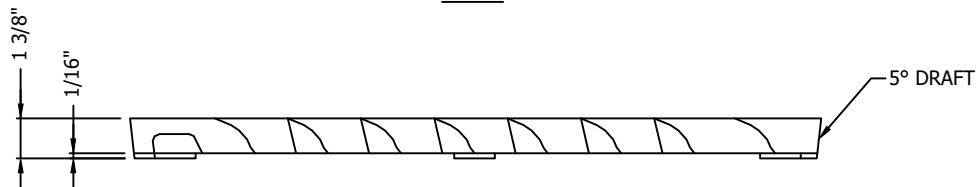
1. USE A MINIMUM OF A 54" DIAMETER TYPE-II CATCH BASIN.
2. OUTLET CAPACITY: 100-YEAR DEVELOPED PEAK FLOW.
3. METAL PARTS SHALL BE CORROSION RESISTANT, EITHER ALUMINUM OR STAINLESS STEEL. RISER STRUCTURE MATERIAL SHALL BE ALUMINUM. FASTENERS MAY BE STAINLESS STEEL.
4. FRAME & LADDER OR STEPS TO OFFSET SO:
 - A. CLEANOUT GATE IS VISIBLE FROM TOP.
 - B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
 - C. FRAME IS CLEAR OF CURB.
5. IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE: OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
6. PROVIDE TWO 3" X 0.100 GAGE SUPPORT BRACKET BOLTED OR EMBEDDED 2" INTO CONCRETE WALL.
7. LOCATE ELBOW RESTRICTOR(S) AS NECESSARY TO PROVIDE MINIMUM CLEARANCE AS SHOWN.
8. TOP HAND HOLD SHALL BE LOCATED LESS THAN 18" BELOW FINISHED GRADE.
9. LOCATE ADDITIONAL LADDER RUNGS IN STRUCTURES USED AS ACCESS TO TANKS OR VAULTS TO ALLOW ACCESS WHEN CATCH BASIN IS FILLED WITH WATER.
10. SHEAR GATE SHALL BE PRODUCT MADE OF CAST ALUMINUM (NO CAST IRON).
11. GATE SHALL BE 8" OR LARGER IN DIAMETER FOR OUTLET PIPES SMALLER THAN 23" DIAMETER. GATE SHALL BE 12" OR LARGER DIAMETER FOR OUTLET PIPES 24" DIAMETER AND LARGER.
12. LIFT ROD: AS SPECIFIED BY MANUFACTURER. WITH HANDLE TENDING TO WITHIN ONE FOOT OF COVER AND ADJUSTABLE HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.
13. FILL CATCH BASIN TO INVERT LEVEL OF OUTFLOW PIPE TO PREVENT ANY OIL ESCAPING.
14. REMOVABLE BASKET OR SCREEN REQUIRED REGARDLESS OF BOTTOM ORIFICE SIZE. ALUMINUM MESH, 8" DEPTH, MIN. 3 STAINLESS STEEL SCREWS, 0.5" EXPANDED SHEET MESH TYPICAL.
15. CITY OF KIRKLAND REQUIRES ELBOW AND FERNCO, INDIANA SEAL OR EQUIVALENT TO BE REMOVABLE.
16. ALL NEW PVC PIPES SHALL BE INSTALLED WITH SAND COLLARS AND A NON-SHRINK GROUT. JETSET OR SPEED CRETE RED LINE GROUT NOT ALLOWED.
17. MINIMUM 10' FROM ADJACENT TREES, UNLESS OTHERWISE APPROVED.



CITY OF KIRKLAND	
PLAN NO. CK - D.10	
	CATCH BASIN-TYPE 2 W/OIL SEPARATOR FLOW RESTRICTOR




PLAN

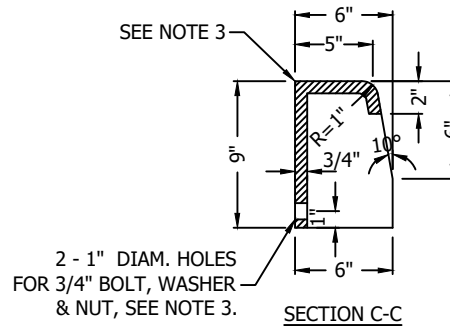
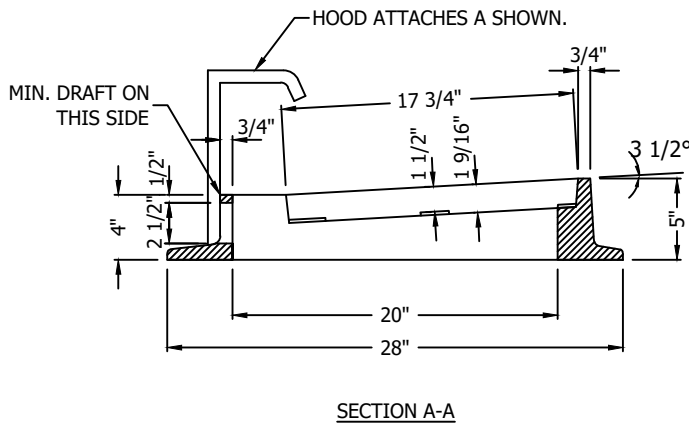
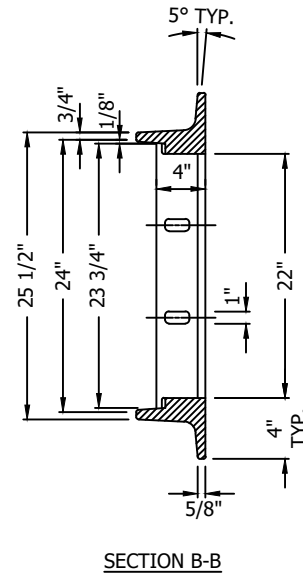
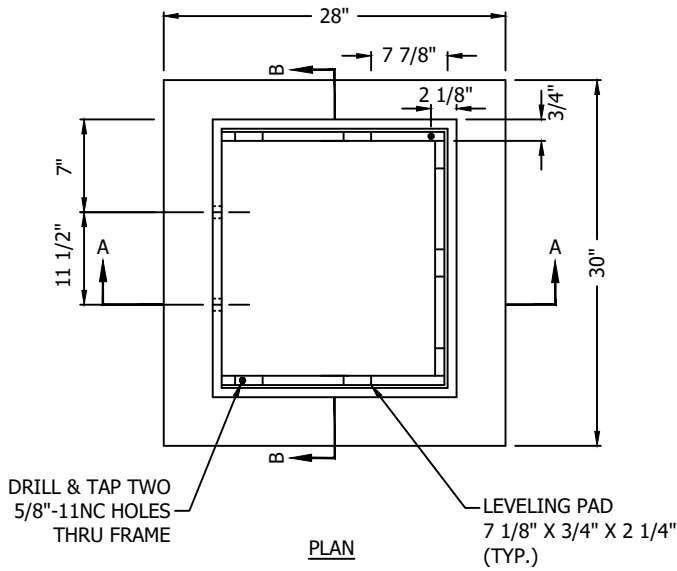


ELEVATION

NOTES:

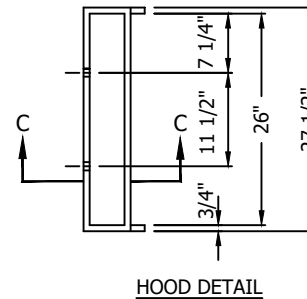
1. USE EAST JORDAN IRON WORKS OR EQUAL TWO BOLT LOCK CAPABILITY THAT MEETS WSDOT SPEC. MANUFACTURER SUBJECT TO APPROVAL BY CITY.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. FRAMES SHALL INCLUDE THREADS AS DROP-OUT REPLACEABLE NUTS.
3. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06.
4. "OUTFALL TO STREAM DUMP NO POLLUTANTS" MAY BE LOCATED ON BORDER AREA.
5. SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
6. WELDING IS NOT PERMITTED.
7. EDGES SHALL HAVE 0.125" RADIUS, 0.125" CHAMBER OR COMPLETE DEBURRING.
8. USE A BI-DIRECTIONAL VANED GRATE AT ANY LOW POINT OR WHEN FLOWS COME FROM MULTIPLE DIRECTIONS.
9. NO EXPANSION MATERIAL IN THE FLOW LINE, WHERE CONCRETE COMES TO FRAME.
10. FRAME AND COVER SHALL BE H-20 LOADING RATED IF INSTALLED IN ROADWAY.
11. MUST BE MADE IN USA.


CITY OF KIRKLAND	
PLAN NO. CK - D.14	
	VANED GRATE FOR CATCH BASIN AND INLET

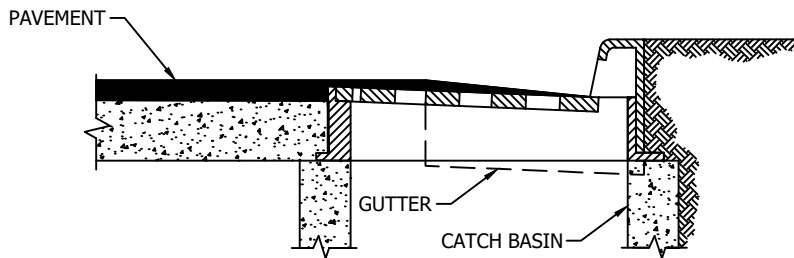
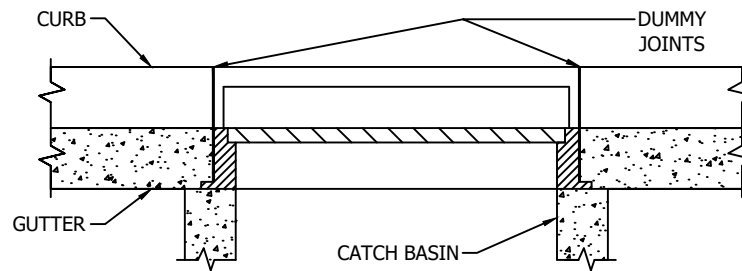
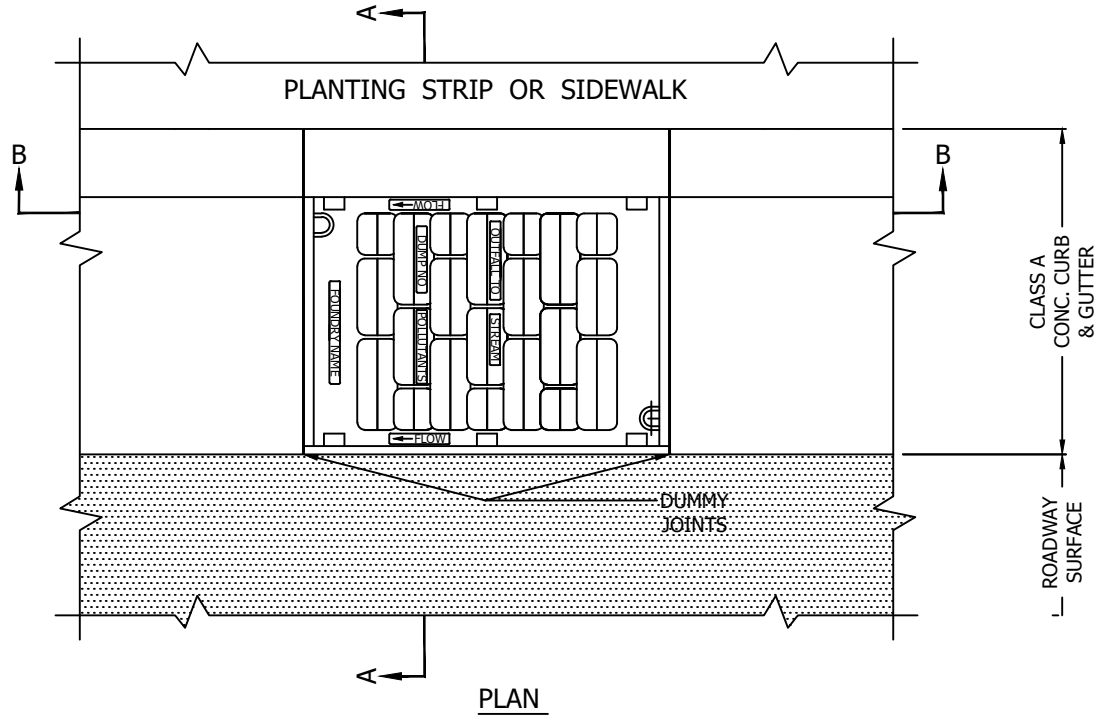


NOTES:

1. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS OR EQUAL, SUBJECT TO APPROVAL BY CITY. MATERIAL SHALL CONFORM TO SECTION 9-05.15(2) OF THE STANDARD SPECIFICATION.
2. PATTERN ON TOP SURFACE SHALL SPECIFY THE FISH LOGO AND DUMP NO POLLUTANTS (NO DIAMOND PATTERN).
3. BOLT, WASHER, AND NUT SHALL BE GALVANIZED OR CORROSION RESISTANT. BOLTS SHALL BE INSERTED INTO THE FACE OF THE HOOD WITH WASHER AND NUT SECURED TO THE BACK SIDE OF THE HOOD.
4. USE APPROPRIATE GRATE DEPENDING ON THE DIRECTION OF FLOW.
5. NO HORIZONTAL CROSS BAR IN THE OPENING.
6. 18" X 24" VANED OR BI-VANED LID. APPLICATION OF THIS DETAIL NOT TO REPLACE FUNCTION OF CK-D.14.
7. MUST BE MADE IN THE USA.
8. TROWELED EDGE MUST BE IN CONTACT WITH FRAME (RATHER THAN EXPANSION JOINT).




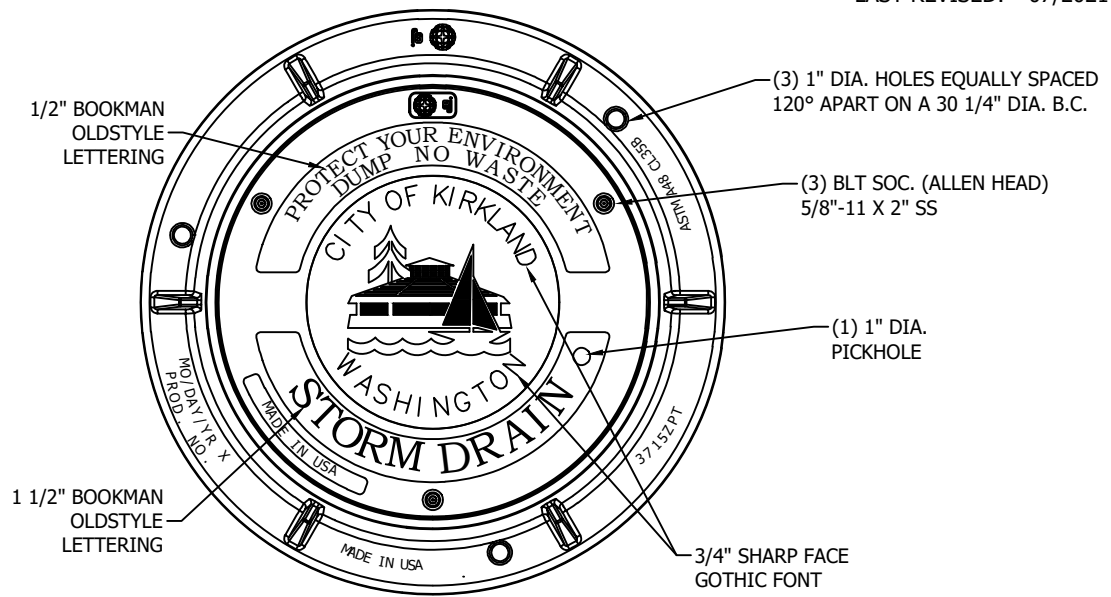
CITY OF KIRKLAND	
PLAN NO. CK - D.15	
	OPEN CURB FACE FRAME AND GRATE DETAILS



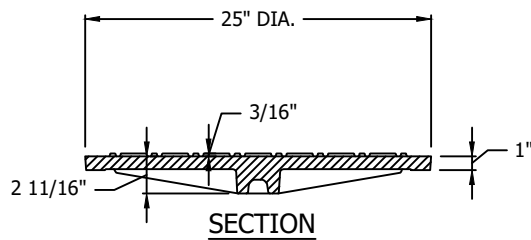
NOTES:

1. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS OR EQUAL, SUBJECT TO APPROVAL BY CITY. SEE CK-D.15.
2. PATTERN ON TOP SHALL SPECIFY FISH LOGO AND DUMP NO POLLUTANTS (NO DIAMOND PATTERN).
3. CASTING MUST BE SET 0.5" BELOW FINAL ROAD/GUTTER GRADE.
4. HOOD SHALL MATCH TOP OF CURB ELEVATION.
5. NO HORIZONTAL CROSS BAR IN THE OPENING.
6. TROWELED EDGE MUST BE IN CONTACT WITH FRAME (RATHER THAN EXPANSION JOINT).
7. MUST BE MADE IN THE USA.

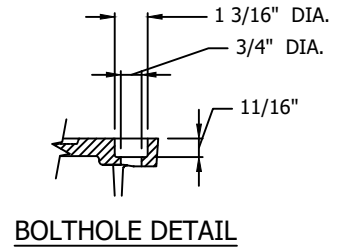
CITY OF KIRKLAND	
PLAN NO. CK - D.16	
	THROUGH-CURB INLET FRAME AND GRATE WITH VERTICAL CURB INSTALLATION



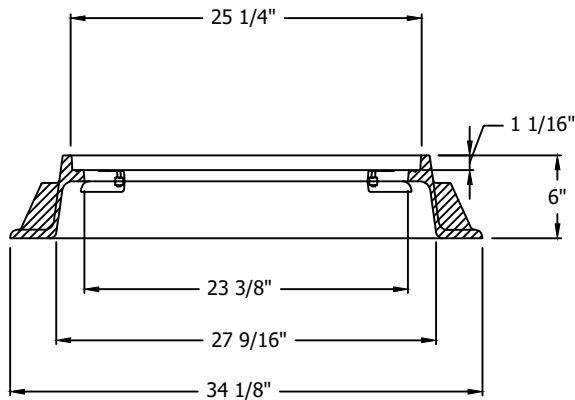
PLAN VIEW



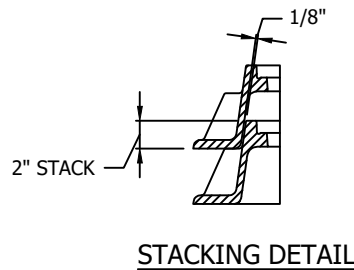
SECTION



BOLTHOLE DETAIL




SECTION

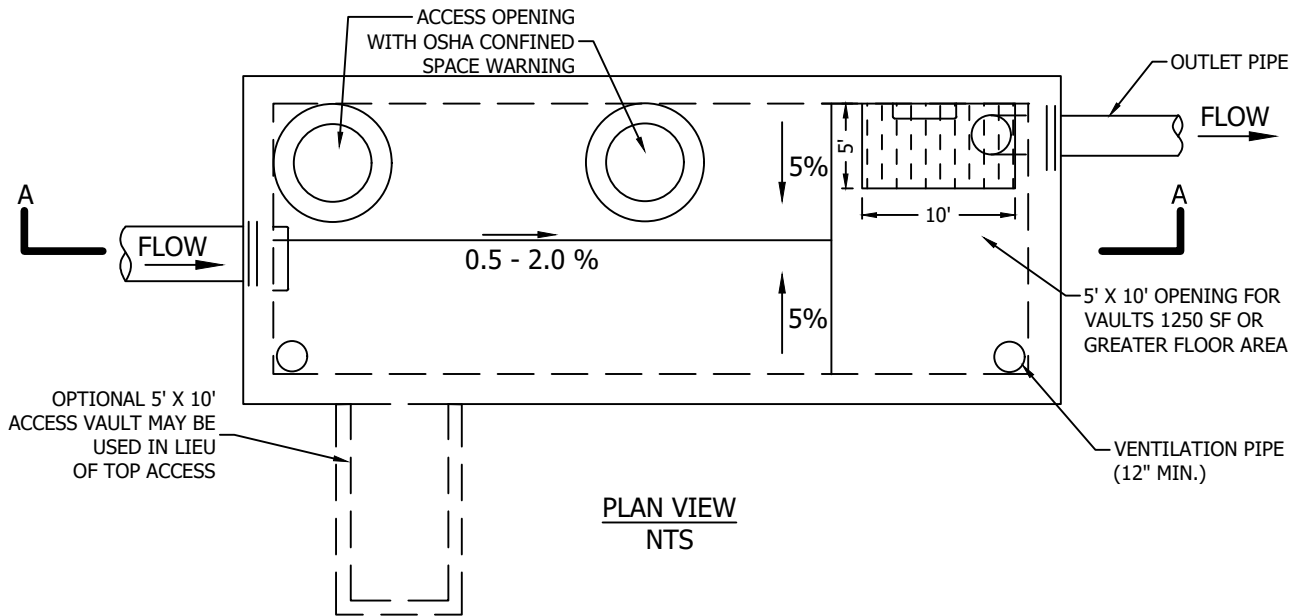


STACKING DETAIL

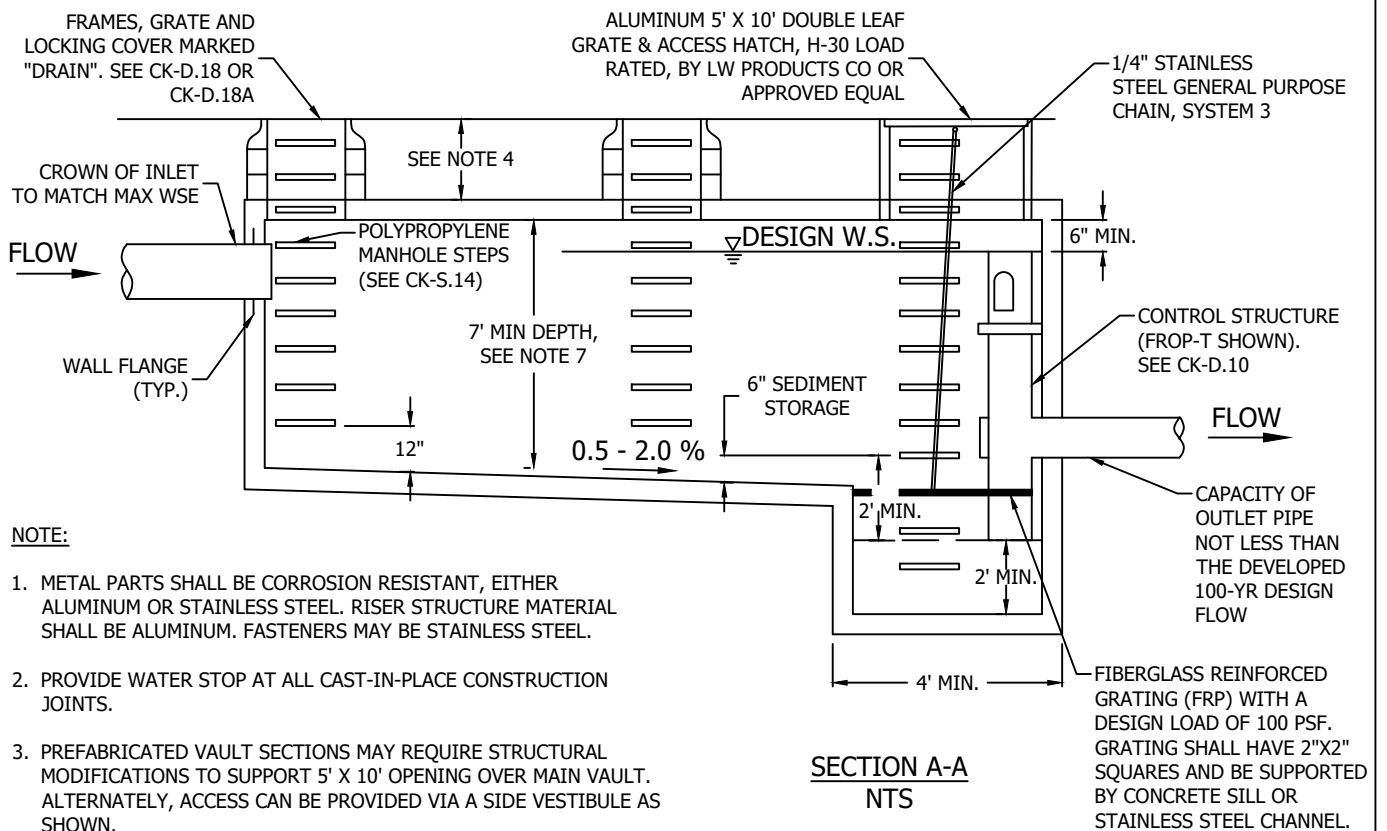
NOTES:

1. COVERS SHALL BE GRAY IRON, LOCKING, WITH A MINIMUM WEIGHT OF 141 LBS.
2. MINIMUM WEIGHT OF FRAME SHALL BE 134 LBS.
3. PRODUCT SUPPLIED BY EJ GROUP, INC., APPROVED EQUAL.
4. CITY OF KIRKLAND LOGO REQUIRED
5. THIS SPEC SHOULD NOT BE USED IN THE ROADWAY.
6. MUST BE MADE IN THE USA.

CITY OF KIRKLAND	
PLAN NO. CK - D.18	
	24" MANHOLE FRAME W/LOCKING COVER AND LOGO




PLAN VIEW
NTS

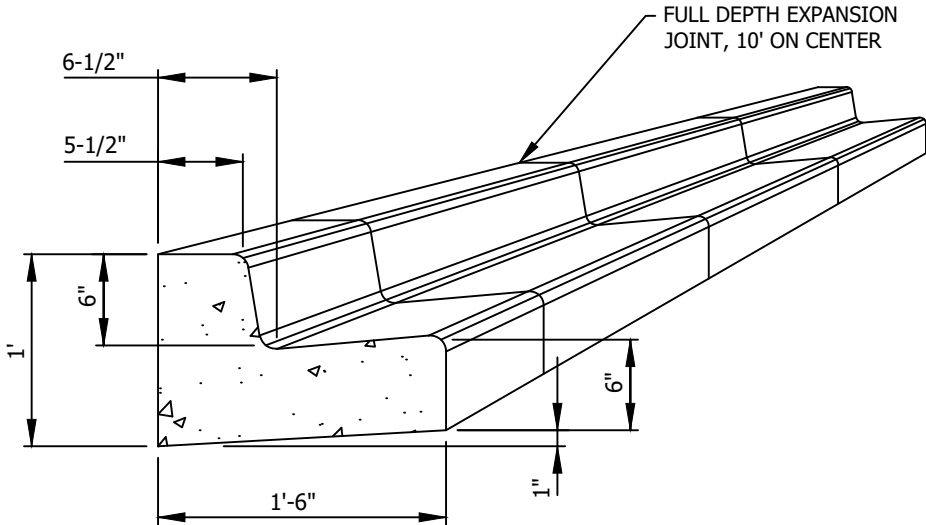


SECTION A-A
NTS

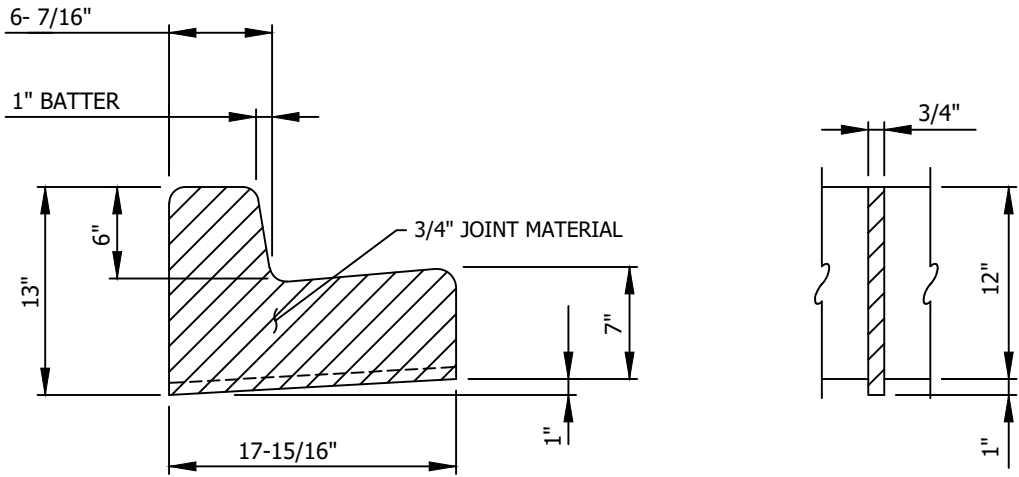
NOTE:

1. METAL PARTS SHALL BE CORROSION RESISTANT, EITHER ALUMINUM OR STAINLESS STEEL. RISER STRUCTURE MATERIAL SHALL BE ALUMINUM. FASTENERS MAY BE STAINLESS STEEL.
2. PROVIDE WATER STOP AT ALL CAST-IN-PLACE CONSTRUCTION JOINTS.
3. PREFABRICATED VAULT SECTIONS MAY REQUIRE STRUCTURAL MODIFICATIONS TO SUPPORT 5' X 10' OPENING OVER MAIN VAULT. ALTERNATELY, ACCESS CAN BE PROVIDED VIA A SIDE VESTIBULE AS SHOWN.
4. SEE CK-D.35A FOR VAULT ACCESS REQUIREMENTS.
5. ACCESS MANHOLES SHALL BE POSITIONED 50' MAX FROM ANY POINT WITHIN THE STRUCTURE.
6. PROVIDE WATER STOP AT ALL CAST-IN-PLACE CONSTRUCTION POINTS. PRECAST VAULTS SHALL HAVE APPROVED RUBBER GASKET SYSTEMS, WITH JOINTS GROUTED AFTER INSTALL.
7. DEPTH MAY BE REDUCED TO A 4-FOOT MINIMUM FOR PROJECTS THAT QUALIFY AS 4-LOT PLATS OR LESS, WITH APPROVAL OF CITY ENGINEER.

CITY OF KIRKLAND	
PLAN NO. CK - D.35	
	DETENTION VAULT




TYPICAL SECTION FOR CURB & GUTTER, TYPE A

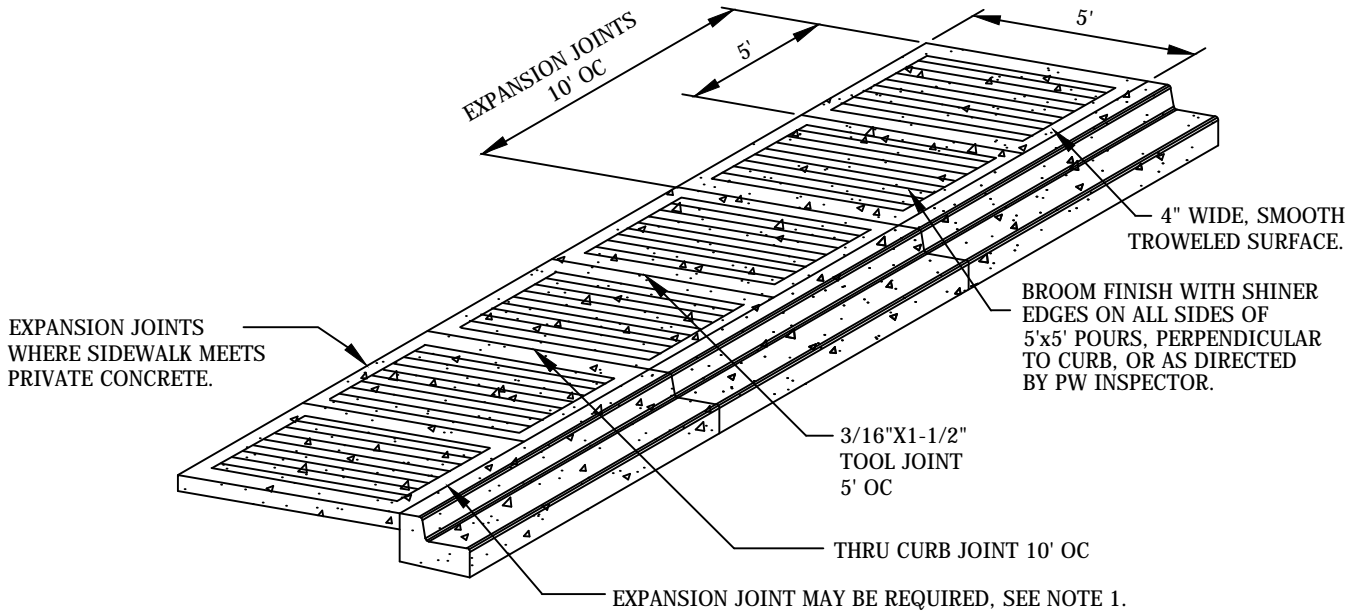


JOINT DETAIL

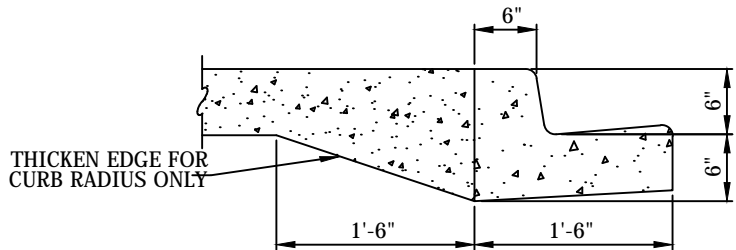
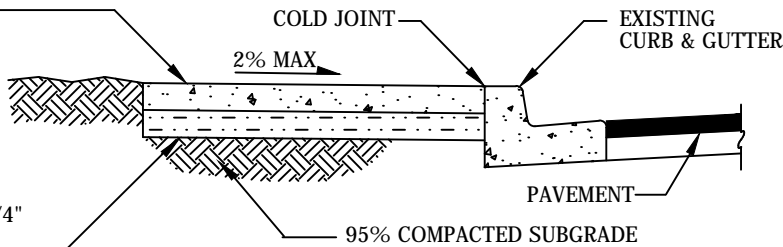
NOTES:

1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION IS REQUIRED PRIOR TO PLACEMENT OF CONCRETE) UNLESS SPECIFIED DIFFERENTLY BY CITY PROJECT ENGINEER.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000.
3. BASE COURSE SHALL BE 4" OF 5/8" MINUS CRUSHED ROCK.
4. SURVEY REQUIRED FOR CURB ALIGNMENT.

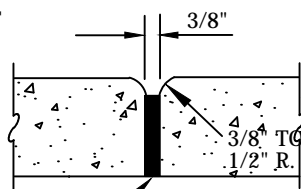
CITY OF KIRKLAND	
PLAN NO. CK-R.17	
	<p>CONCRETE CURB AND GUTTER, TYPE "A"</p>



5' WIDE CONCRETE SIDEWALK
4" MIN THICKNESS (6" AT DRIVEWAYS)
BROOM FINISH

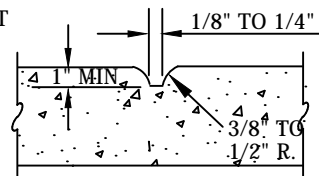


EXPANSION JOINT



PREMOLDED JOINT FILLER FULL DEPTH

CONTRACTION JOINT



NOTES:

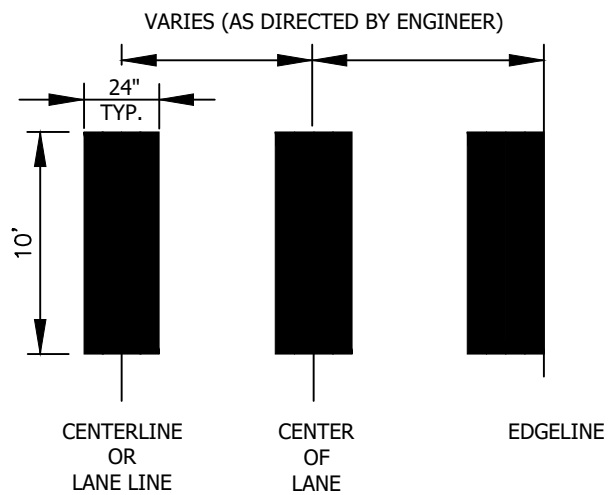
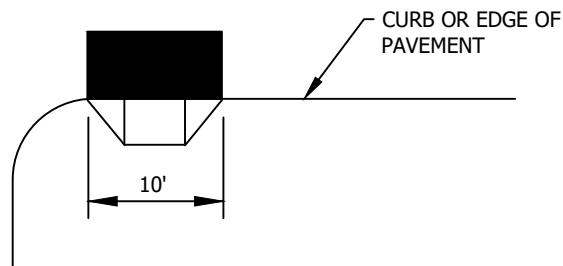
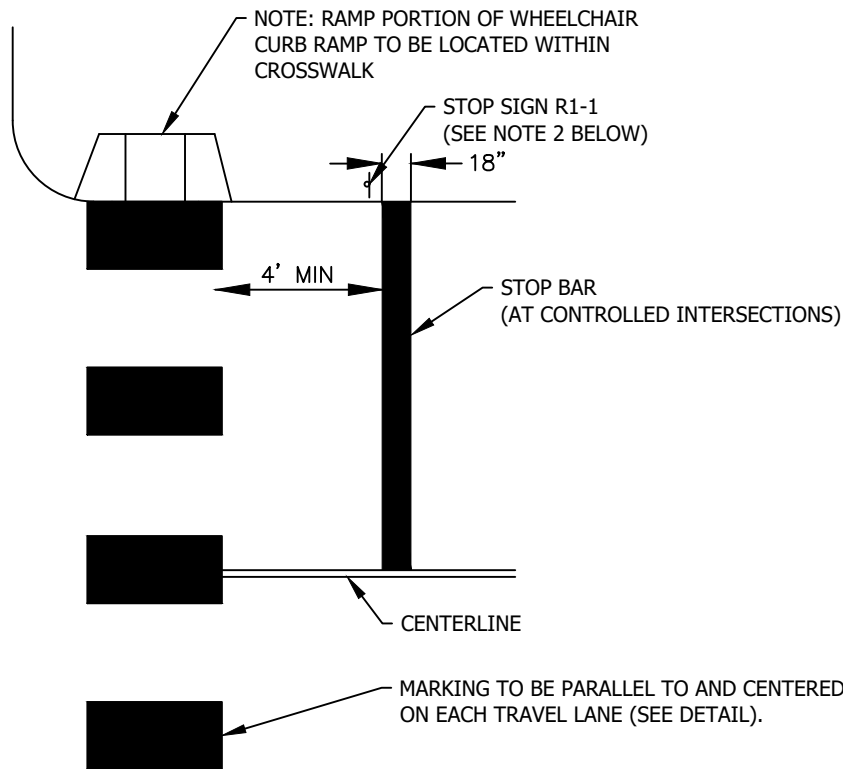
1. SIDEWALK AND CURB & GUTTER CANNOT BE POURED MONOLITHICALLY. EXPANSION JOINT WILL BE REQUIRED WHEN CONCRETE SIDEWALK IS SURROUNDED BY OTHER HARD SURFACES (E.G., DRIVEWAY); OR AS DIRECTED BY PW INSPECTOR.
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 4000 PSI MINIMUM, WITH AIR ENTRAINMENT. NO COLOR OR TINT SHALL BE ADDED.
3. FORMS SHALL BE SET TRUE TO LINE AND GRADE AND SHALL BE STEEL UNLESS OTHERWISE APPROVED BY INSPECTOR.
4. SIDEWALK SHALL NOT BE POURED IN THE RAIN. SEE POLICY R-8, PLACING CONCRETE OR ASPHALT IN ADVERSE WEATHER CONDITIONS.

CITY OF KIRKLAND

PLAN NO. CK- R.23




SIDEWALK SECTION

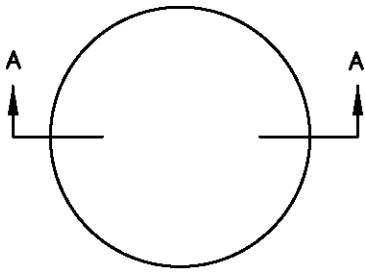


DETAIL

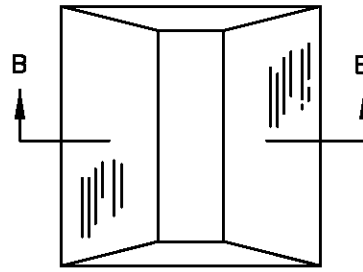
NOTES:

1. MARKINGS SHALL BE THERMOPLASTIC.
2. STOP SIGN LOCATION ADJACENT TO STOP BAR, OR AS DIRECTED BY ENGINEER

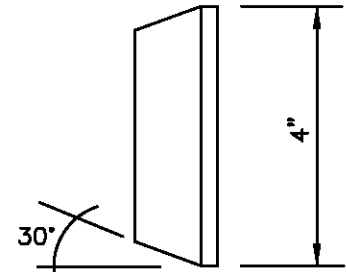
CITY OF KIRKLAND	
PLAN NO. CK-R.28	
	CROSSWALK AND STOP BAR DETAIL



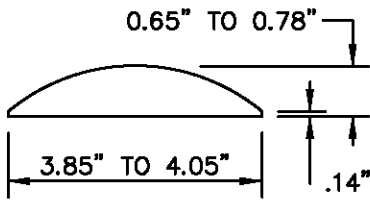
PLAN



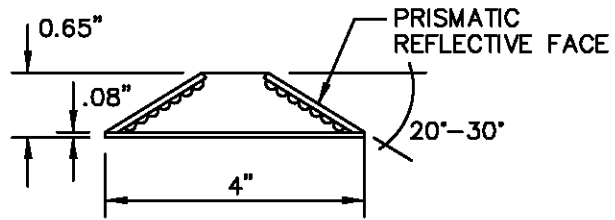
PLAN
DIRECTION OF TRAFFIC



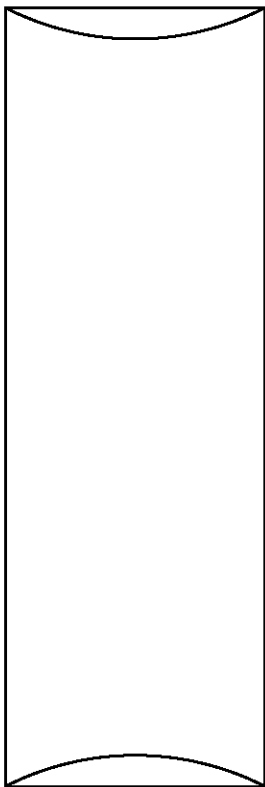
SIDE VIEW



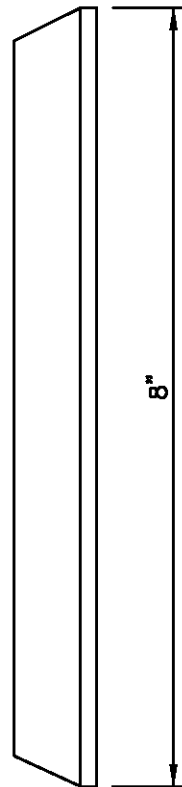
TYPE 1
SECTION A-A



TYPE 2
SECTION B-B



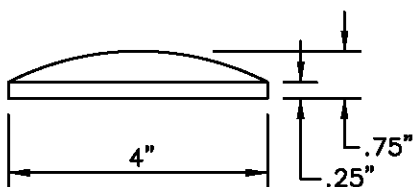
PLAN



SIDE VIEW

NOTES

1. TYPE C PAVEMENT MARKERS TO BE USED ONLY UPON APPROVAL BY TRAFFIC ENGINEER.
2. NOT TO BE USED ON EDGELINES.



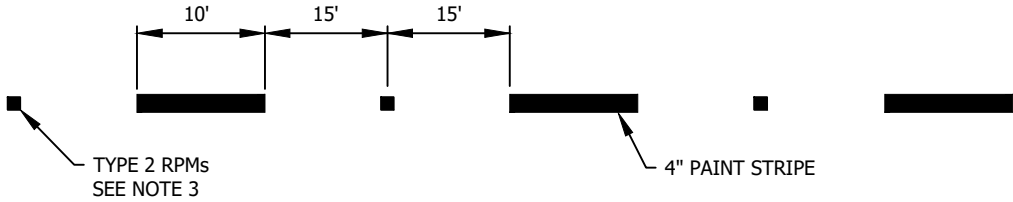
TYPE C

CITY OF KIRKLAND

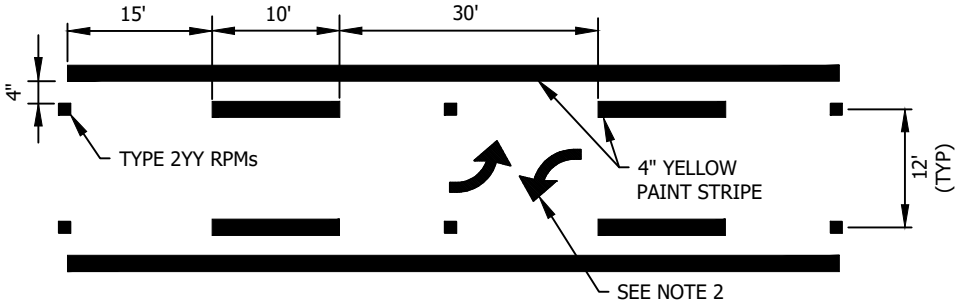
PLAN NO. CK-R.29



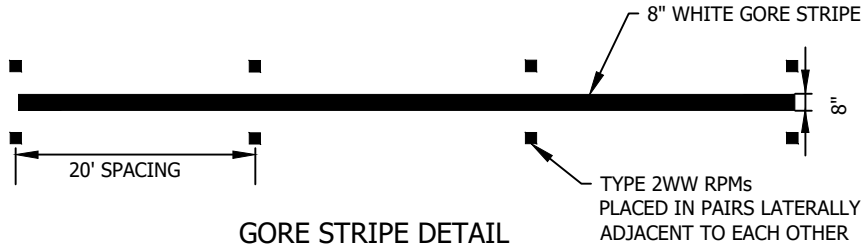
LANE MARKERS
(DIMENSIONS)



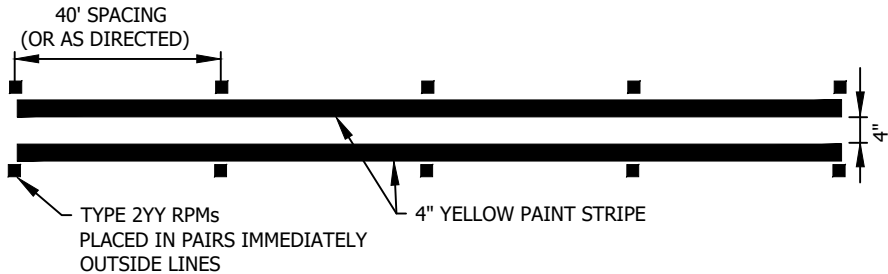
SKIP CENTER & LANE STRIPE DETAIL



TWO-WAY LEFT TURN DETAIL




GORE STRIPE DETAIL

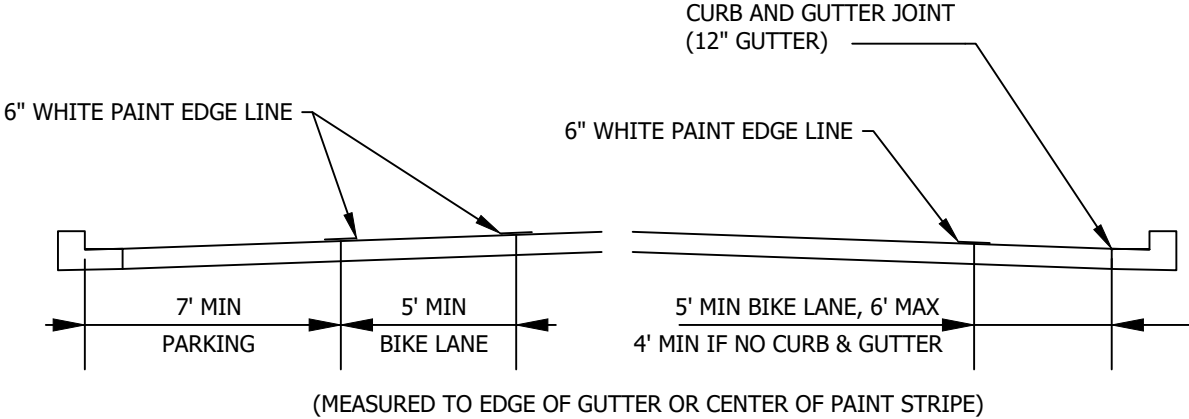


DOUBLE YELLOW CENTER DETAIL

NOTES:

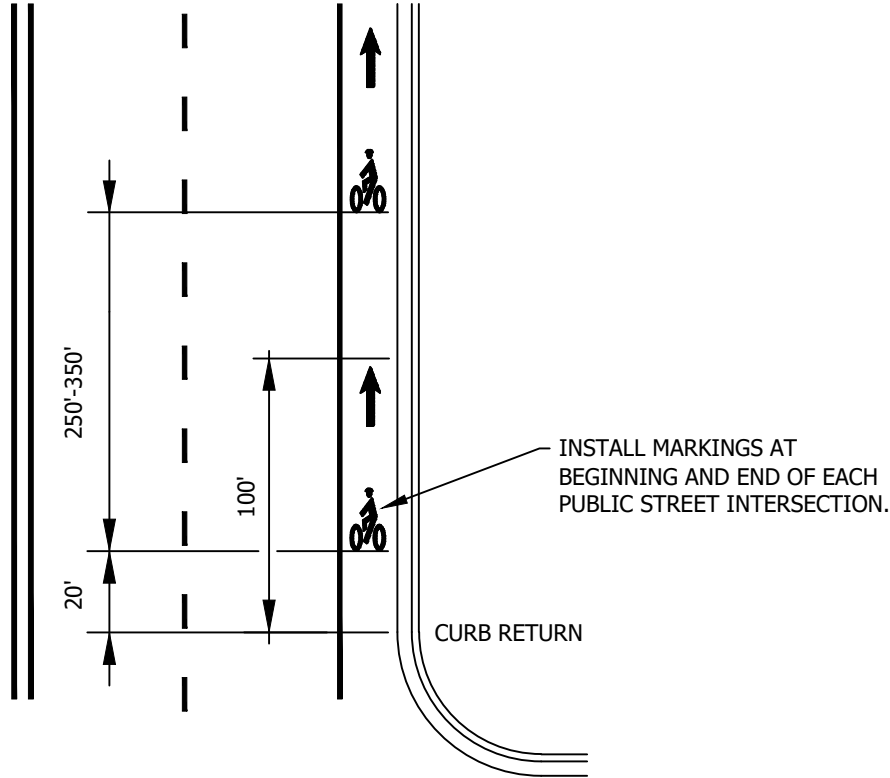
1. MATCH EXISTING PAVEMENT MARKING DIMENSIONS.
2. SEE CK-R.30 FOR TWO-WAY LEFT TURN ARROW PLACEMENT.
3. RAISED PAVEMENT MARKER BODY AND LENS COLOR SHALL CONFORM TO THE COLOR OF THE MARKING FOR WHICH THEY SUPPLEMENT, SUBSTITUTE FOR, OR SERVE AS A POSITIONING GUIDE FOR.

CITY OF KIRKLAND	
PLAN NO. CK-R.31	
	PAVEMENT MARKING DETAIL




BICYCLE LANE WITH PARKING

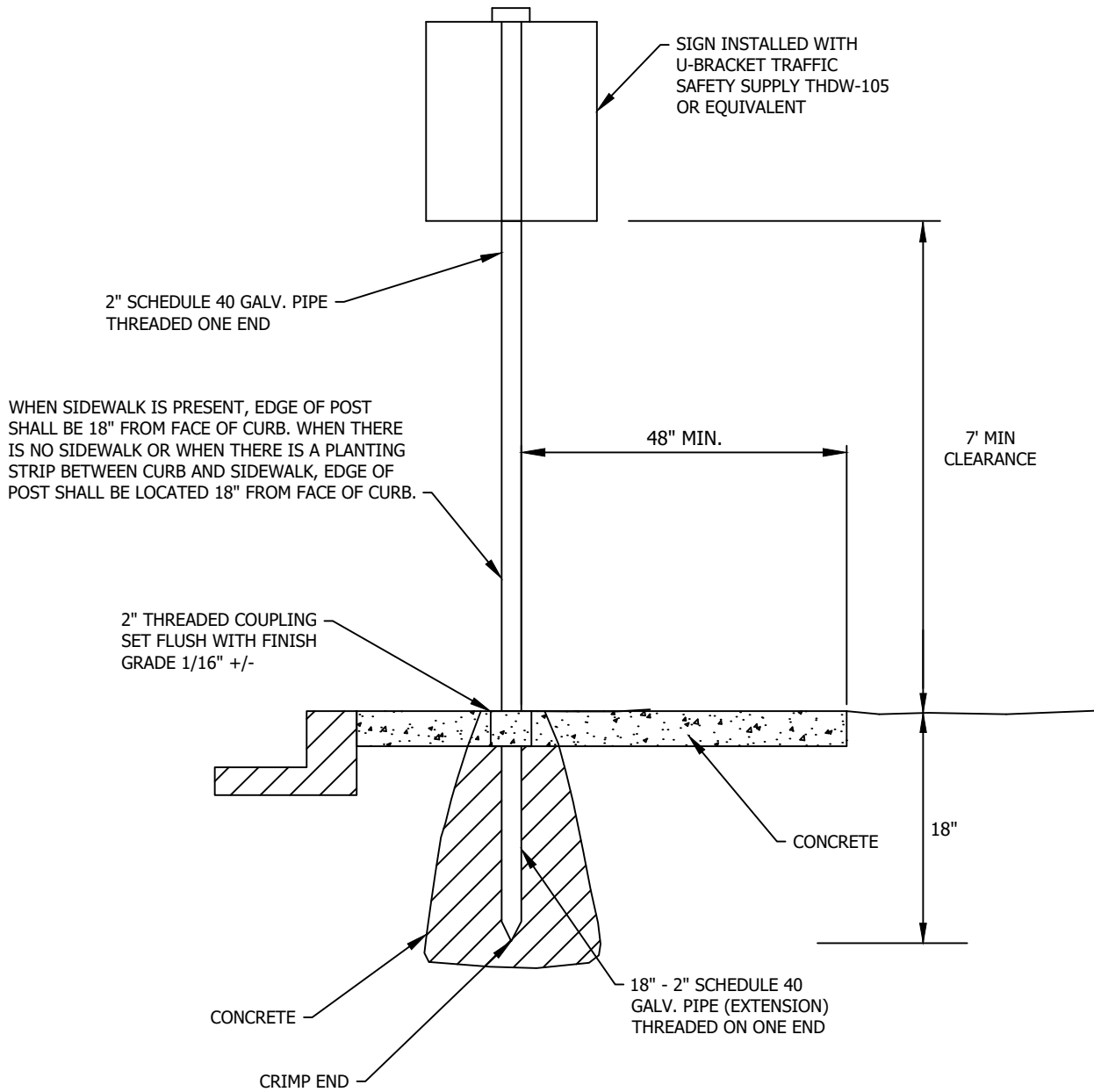
BICYCLE LANE WITHOUT PARKING



NOTES:


- 1. SEE MUTCD FOR MORE INFORMATION AND SPECIFICATIONS.
- 2. PER SEC. 9B.04 2009 MUTCD, DO NOT USE R3-17 SIGNS.
- 3. BICYCLIST AND PEDESTRIAN SYMBOLS PER CK-R.34B
- 4. 4' BIKE LANE WIDTH MAY BE CONSIDERED IN CONSTRAINED LOCATIONS.

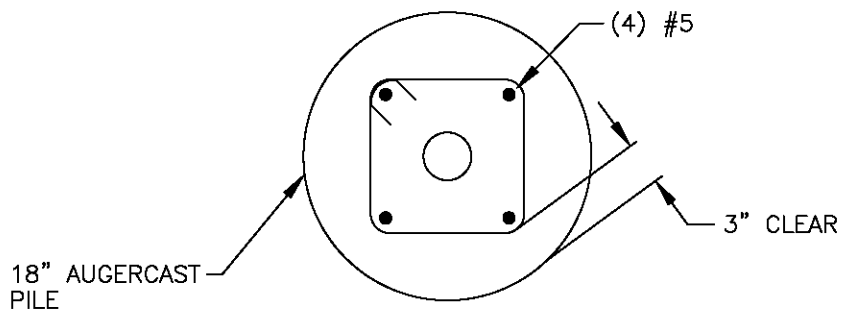
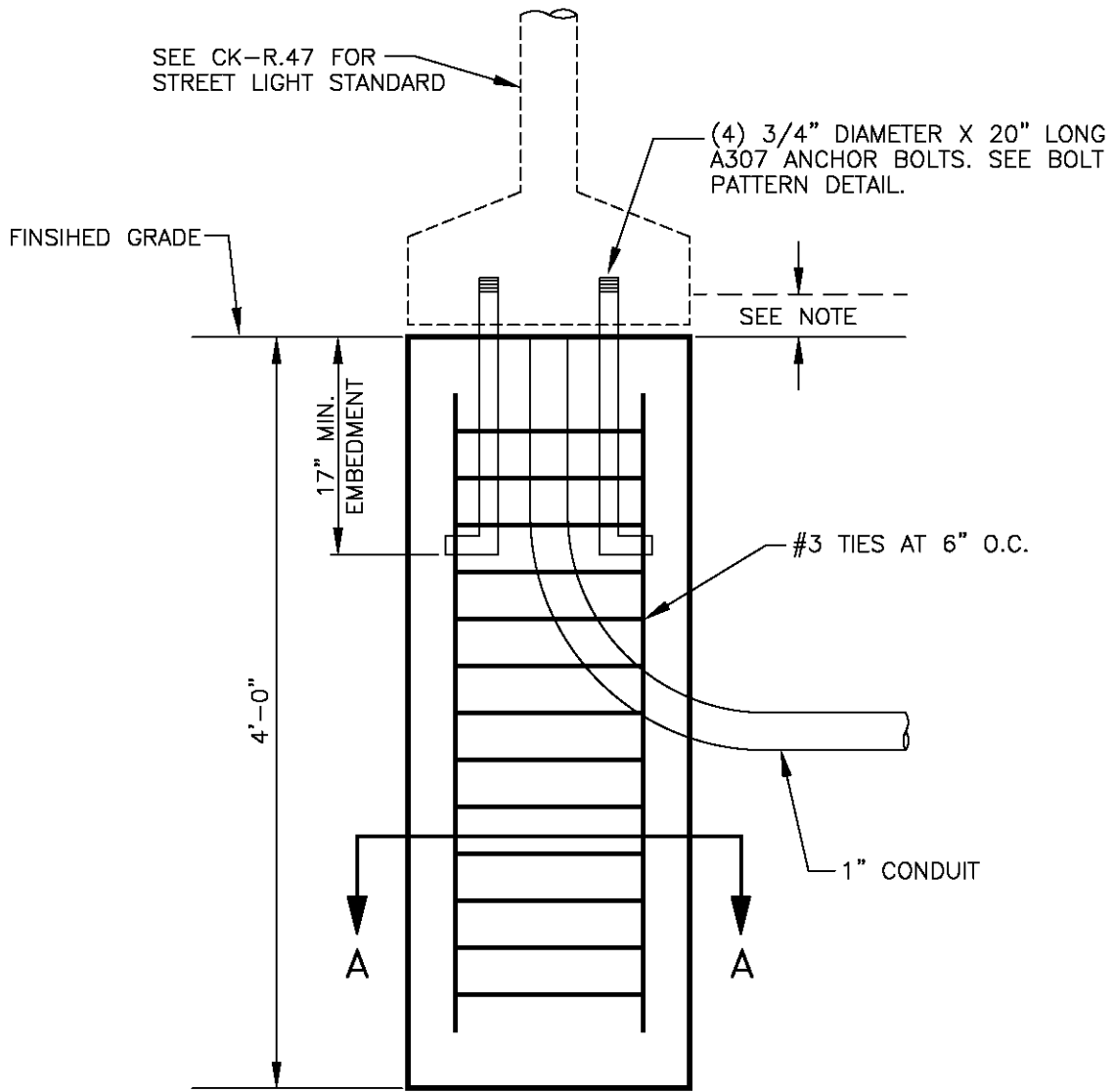
CITY OF KIRKLAND	
PLAN NO. CK- R.35	
	TYPICAL BICYCLE LANE - WIDTH, SIGNING & MARKING



NOTES:


1. IF SIGN MUST BE PLACED IN EXISTING CONCRETE, CORE HOLE SHALL BE 8" DIAMETER.
2. S1-1 SIGNS SHALL BE BLACK ON FLUORESCENT GREEN.
3. W11-2 SIGNS SHALL BE BLACK ON YELLOW.
4. ALL SIGNS SHALL HAVE ANTI-GRAFFITI COATING. SEE CONTACT SPECIAL PROVISIONS FOR MORE INFORMATION.

CITY OF KIRKLAND	
PLAN NO. CK-R.43	
	STANDARD SIGN INSTALLATION



SECTION A-A

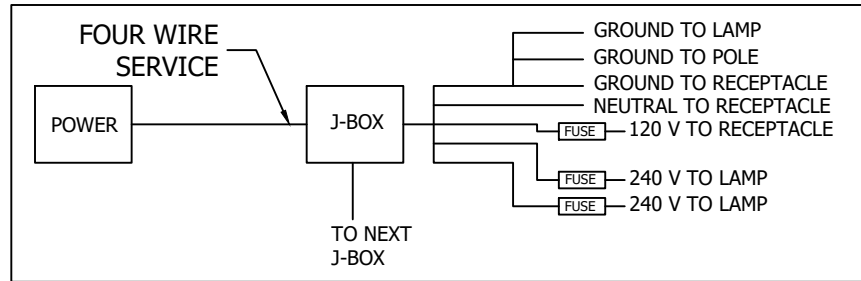
NOTE:
IF SLOPE OF GRADE EXCEEDS 2% THEN FLAT TOP OF PILE WILL EXTEND ABOVE GRADE AROUND ALL OF IT'S CIRCUMFERENCE.

CITY OF KIRKLAND	
PLAN NO. CK-R.47A	
	POLE BASE DETAIL

NOTE:

ALL SPLICE CONNECTIONS IN J-BOX SHALL BE MADE USING:

- A. C-TAP (COPPER CRIMP)
- B. 3M 2000 MASTIC COVER
- C. 3M SUPER 88 TAPE



120 V & 240 V POWER SOURCES TO BE PROVIDED BY DEVELOPER

J-BOX PLACED A MAXIMUM OF 3.0' AWAY FROM LIGHT POLE WITH HAND HOLE FACING J-BOX

ELECTRICAL J-BOX
WSDOT STANDARD PLAN J-40.10-01 TYPE 1
USE NON-SLIP COVER PER POLICY G-2

CONDUIT 24" BELOW GRADE (TYP.)

2" PVC CONDUIT

DOWNTOWN STREET LIGHT

LIGHT POLE BASE MUST BE PLACED 3.5' - 4.0' AWAY FROM BACK OF CURB TO ALLOW FOR LIGHT OVERHAND OR LIGHT MUST BE TURNED TO OVERHAND SIDEWALK, PLACED 2' AWAY FROM BACK OF CURB.




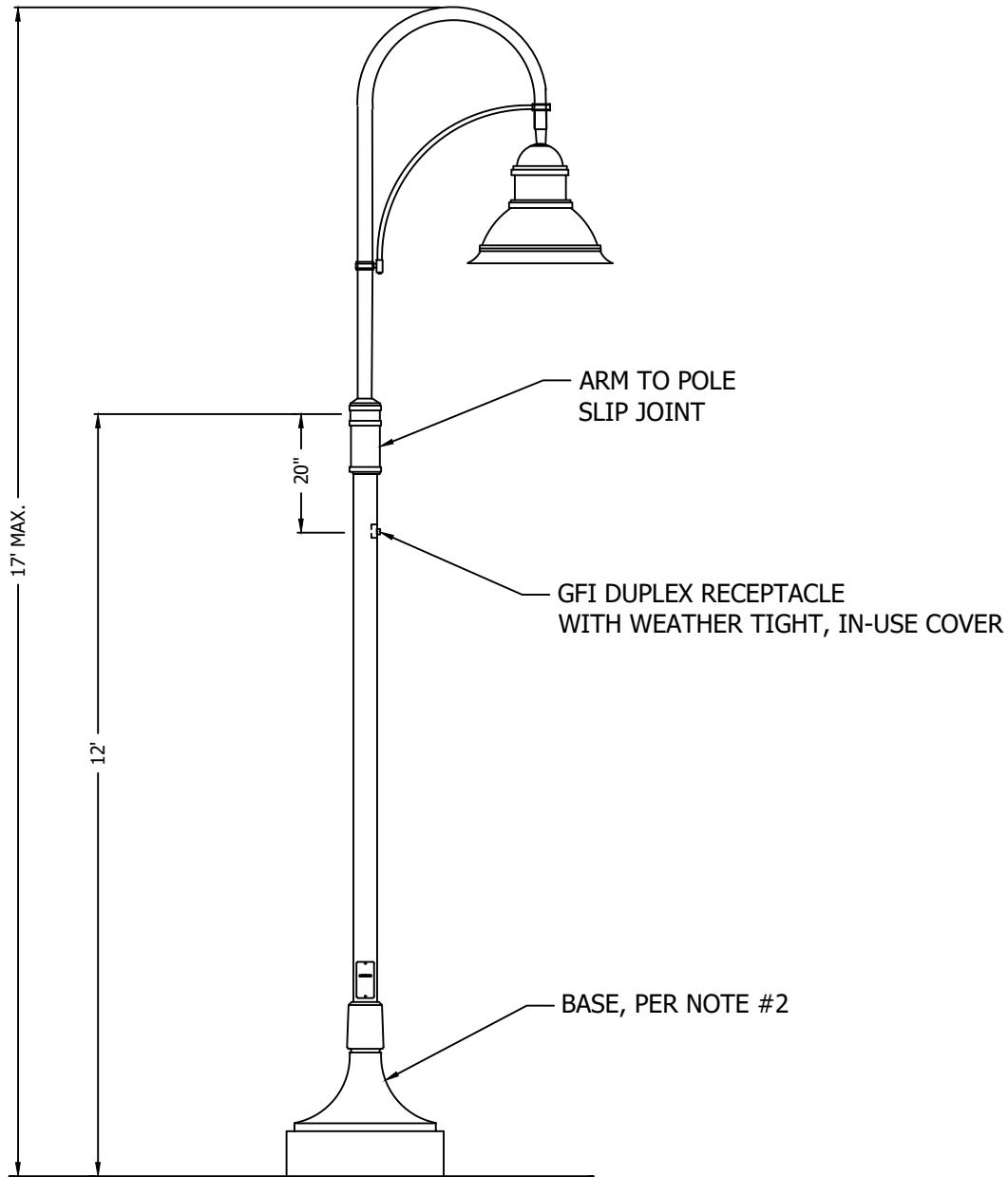
PLAN NO. CK - R.47B

CITY OF KIRKLAND

STREET LIGHT
PLAN LAYOUT

MANUFACTURER	PHILIPS LUMEC
MODEL	DOMUS SMALL (DOS-DBB-1A)
COLOR	RD4TX 'TEXTURED SCARLET' (PER SUBMITTAL REVIEW)
BASE COVER	LBC4C
FUSE CONNECTOR KIT	VERIFY WITH TECHNICIANS
FUSES	VERIFY WITH TECHNICIANS
POLE HEIGHT	12 FEET
POLE TYPE	APR4U-12
REQUIRED OPTIONS	N/A
PHOTOELECTRIC SWITCH	IN ELECTRICAL SERVICE CABINET OR IN THE FIRST POLE IN THE SERIES, PROVIDED BY POLE MANUFACTURER
OPTICAL SYSTEM	PER PLANS
SPACING	PER PLANS
UTILITY BOX	PER PLANS
POWER	PER PLANS
CONDUIT	PER PLANS
LAMP	LED, WATTAGE PER PLANS
WIRING	PER PLANS
PERMIT	A SEPARATE ELECTRICAL PERMIT FROM THE CITY IS REQUIRED.
SPLICE CONNECTIONS	USE: C-TAP (COPPER CRIMP), 3M 2000 MASTIC WATERPROOFING, 3M SUPER 88 TAPE.


CITY OF KIRKLAND	
PLAN NO. CK - R.47K	
	NE 85TH ST STREET LIGHT SPECIFICATIONS

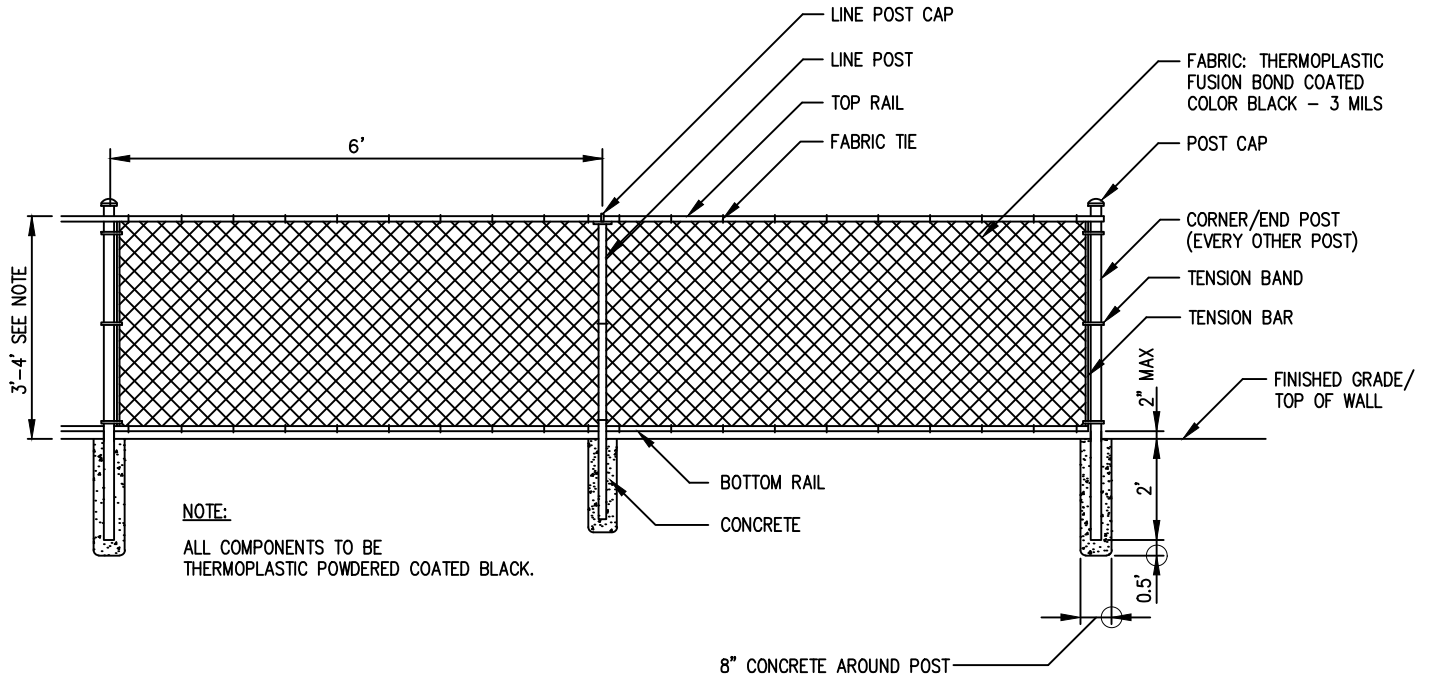


NOT TO SCALE

NOTES:

1. CONNECTION PER MANUFACTURER'S WIRING SCHEDULE.
2. BASE PER MANUFACTURER'S CUT SHEET.
3. SIDEWALK LOCATION PER PLAN.
4. WITH SLOPED SIDE WALKS, THE POLE BASE MUST PROTRUDE ABOVE FINISHED GRADE SO THAT BASE COVER WILL SIT LEVEL.
5. ALL SPLICE CONNECTIONS IN J-BOX SHALL BE MADE USING:
 - A. C-TAP (COPPER CRIMP)
 - B. 3M 2000 MASTIC COVER
 - C. 3M SUPER 88 TAPE

CITY OF KIRKLAND	
PLAN NO. CK - R.47L	
 CITY OF KIRKLAND WASHINGTON	NE 85TH ST STREET LIGHT STANDARD



PIPE SCHEDULE

(ALL DIMENSIONS I.D.)

BOTTOM RAIL	CORNER/END POST	LINE POST
1.25"	2.5"	2"

NOTES

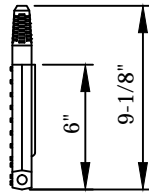
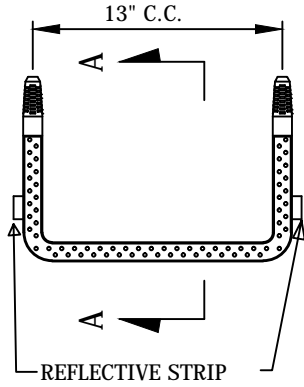
1. ALL FENCING MATERIALS SHALL COMPLY WITH THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9-16 CLASS 1 MATERIAL. INSTALLATIONS PER MANUFACTURER'S RECOMMENDATIONS.
2. SHOP DRAWINGS OF RAILING SHALL BE SUBMITTED FOR APPROVAL SHOWING COMPLETE DIMENSIONS AND DETAILS OF FABRICATION AND INCLUDING AN ERECTION DIAGRAM. MATERIALS BEING USED SHALL BE SPECIFIED IN THE SHOP DRAWINGS.
3. ALL STEEL PARTS SHALL BE GIVEN A BLACK ULTRAVIOLET-INSENSITIVE THERMOPLASTIC POWDER COATING AT LEAST 3 MILS THICK AND SHALL HAVE A UNIFORM FINISH.
4. CUTTING SHALL BE DONE BY SAWING OR MILLING AND ALL CUTS SHALL BE TRUE AND SMOOTH. FLAME CUTTING WILL NOT BE PERMITTED.
5. ALL MATERIALS SHALL BE ADEQUATELY WRAPPED TO ENSURE SURFACE PROTECTION DURING HANDLING AND TRANSPORTATION TO THE JOB SITE.
6. ANY WELDING OF STEEL SHALL BE IN ACCORDANCE WITH THE LATEST AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
7. PANEL HEIGHT: 3 FEET FOR PEDESTRIAN USES
4 FEET FOR COMBINED BICYCLE AND PEDESTRIAN USES

CITY OF KIRKLAND

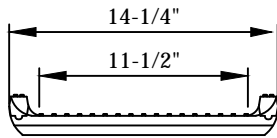
PLAN NO. CK-R.51A



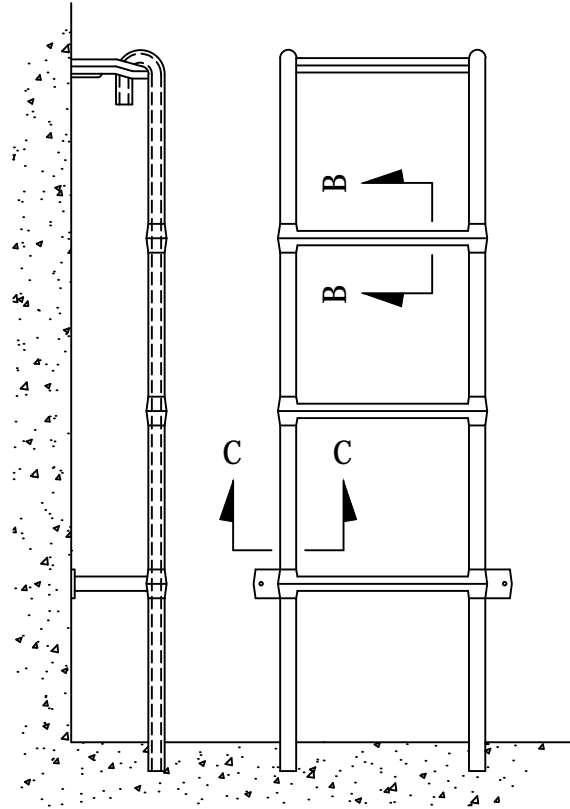
CHAIN LINK
 SIDEWALK
 SAFETY RAIL



SECTION A-A



**P-14938
POLYPROPYLENE STEP**



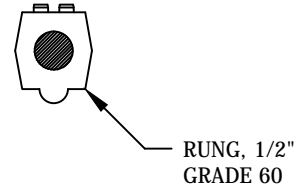
SPECIFICATIONS:

1. ALL STEPS SHALL MEET THE REQUIREMENTS OF ASTM C-478, AASHTO M-199, WISHA AND ALL ASHA SPECIFICATION.
2. THE POLYPROPYLENE SHALL CONFORM TO ASTM D-4101. ASTM D-4101.
3. THE 1/2" GRADE 60 DEFORMED REINFORCING BAR SHALL MEET ASTM A-615.
4. STEP REFLECTORS OR BRIGHT COLORED STEPS REQUIRED.

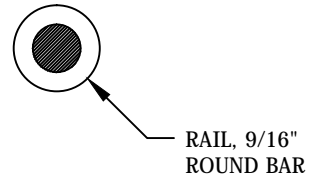
INSTALLATION:

1. THE STEP CAN BE CAST IN PLACE.
2. DRIVEN INTO PREFORMED HOLES WITH CONCRETE CURED TO 3,000 PSI MINIMUM.
3. DRIVEN INTO 2 PARALLEL 1" DIAMETER HOLES DRILLED 13" OR 10" ON CENTER, 3-1/2" DEEP.
4. DRILL 2 1-1/8" OR 1-1/4" HOLES, 3-1/2" DEEP, APPLY CURRENT WSDOT EPOXY SPECIFICATION IN THE HOLE AND AROUND THE BARBS OF THE STEP. PUSH THE STEP INTO THE HOLES ALLOWING THE EPOXY TO FLOW OUT TO THE SQUARE SHOULDER OF THE STEP.

ANY OF THE ABOVE METHODS WILL RESIST A PULLOUT FORCE OF OVER 1,500 LBS.



SECTION B-B



SECTION C-C

CITY OF KIRKLAND

PLAN NO. CK-S.14



**LADDER AND
MANHOLE STEPS**

PHOTOCELL
OR SHORTING CAP
(WHEN REQUIRED)

LUMINAIRE ARM
LENGTH

MAST ARM CONNECTION VARIES PER
POLE TYPE / MASTARM, SEE
PROJECT SPECIALS

SEE LUMINAIRE SCHEDULE FOR
POLE LOCATION AND OFFSET

CONSTRUCTION CL

HANDHOLE

PLANTING AREA
OR SIDEWALK

TYPE 2 JUNCTION BOX
WITH NON-SKID ON 6"
FREE DRAINING GRAVEL.

SEC FUSE KIT

CONDUIT

3'
MIN.

5'-0"

2" CL

6" MIN.

24" MIN.

2 1/2" CL

1" x 36" ANCHOR BOLTS

CLASS 3000 CONCRETE

8 #5

5 #4 TIE

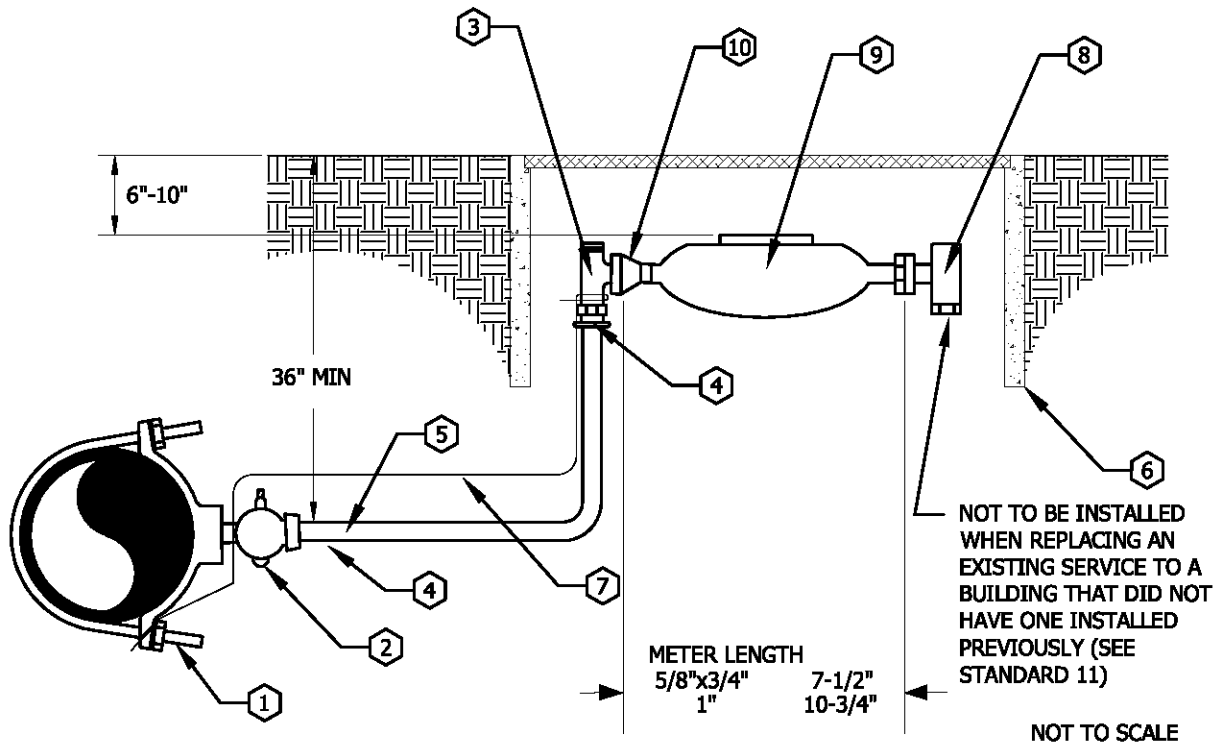
30" Ø

CITY OF KIRKLAND

PLAN NO. CK-TS.08



ROADWAY LIGHTING
DETAIL



WATER SERVICE STANDARDS

DESCRIPTION	MAKER OR TYPE	1"
1. SINGLE STRAP SADDLE	STAINLESS ROMAC OR EQUAL	101 1PT
2. CORP STOP	FORD OR EQUAL	FB1101-4-G-NL
3. ANGLE STOP	FORD OR EQUAL	BA63-444W-G-NL
4. INSERTS	FORD OR EQUAL	#72 STAINLESS STEEL
5. POLY PIPE	POLYETHYLENE ASTM D2239	IPS-SDR-7(PE3408)
6. METER BOX	CARSON OR EQUAL	CK-W.21 (OR W.23 W/APPROVAL)
7. TRACER WIRE	CU SOLID WIRE	14 GAUGE
8. CHECK VALVE	-----	CITY TO INSTALL*
9. METER	-----	CITY TO INSTALL*
10. 1" x 3/4" METER ADAPTOR (FOR 5/8 x 3/4" MTR)	FORD OR EQUAL #A24	CITY TO INSTALL UNLESS A CIP PROJECT
11. 1" METER	FORD OR EQUAL L31-44	CONTRACTOR TO INSTALL
3/4" METER	FORD OR EQUAL L31-24	

*UNLESS A CIP PROJECT

NOTES:

- ALL FITTINGS MUST BE FORD OR EQUAL.
- TRACER WIRE FROM MAIN TO SERVICE METER MUST BE INSTALLED IN ALL INSTALLATIONS. WIRE MUST BE WRAPPED AROUND ANGLE STOP AND THE CORPORATION STOP, WITH LAST 8" STRIPPED.
- POLY SERVICE LINE IS TO BE CONTINUOUS FROM MAIN TO METER-NO SPLICES OF ANY KIND.
- POLY PIPE TO BE 1" FROM MAIN TO METER.
- METERS SHALL NOT BE LOCATED IN CONCRETE OR ASPHALT PAVING UNLESS UNAVOIDABLE.
- THE ANGLE STOP SHALL BE IN A POSITION THAT RESULTS IN THE METER BEING CENTERED DIRECTLY BENEATH THE METER READING LID.

CITY OF KIRKLAND	
PLAN NO. CK-W.18	
	5/8" x 3/4" & 1" WATER METER SERVICE INSTALLATION

CITY OF KIRKLAND

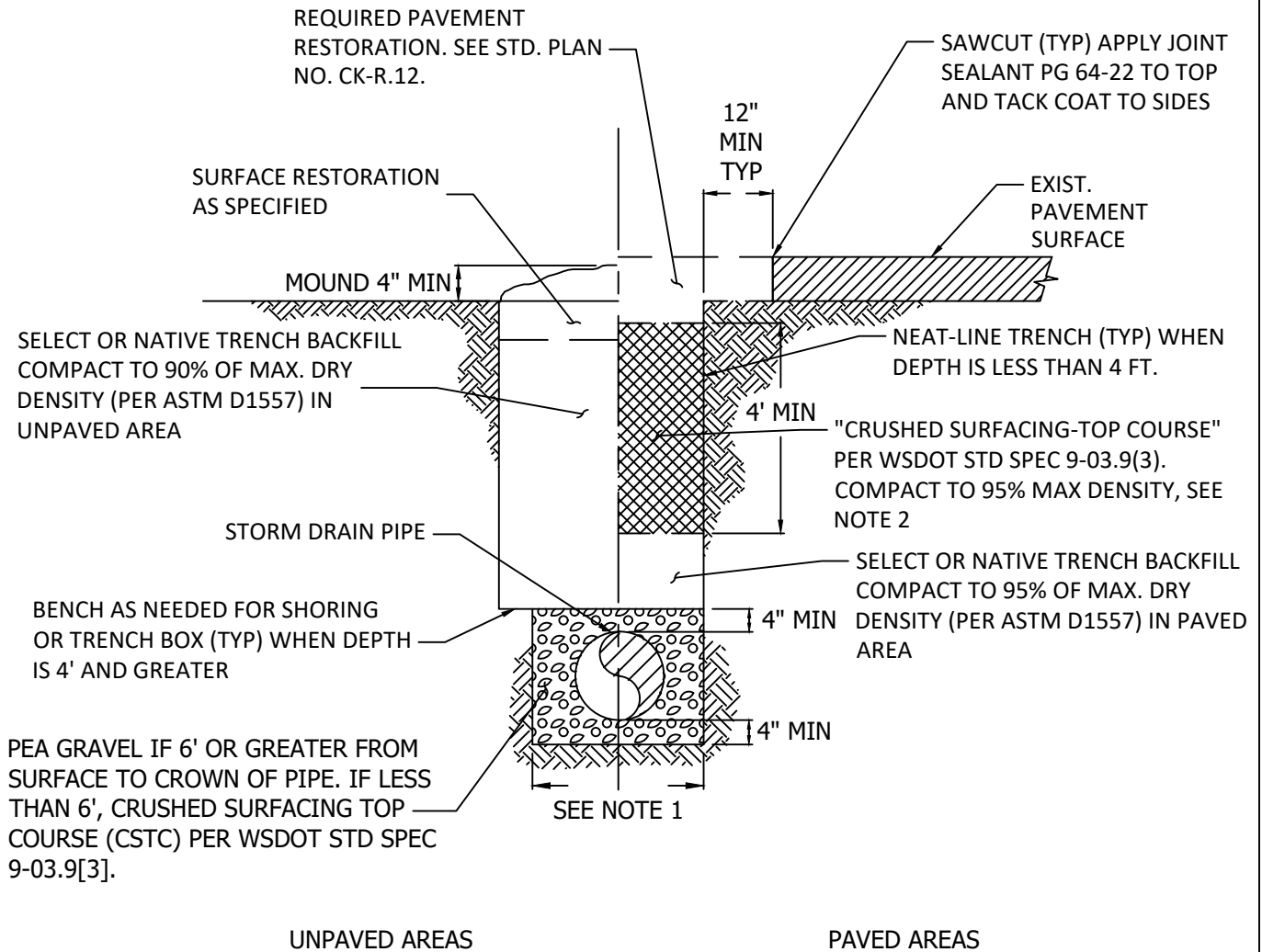
123 FIFTH AVENUE • KIRKLAND, WASHINGTON 98033-6189 • (425) 587-3800

DEPARTMENT OF PUBLIC WORKS PRE-APPROVED PLANS POLICY

Policy G-2: NON-SLIP COVERS FOR ALL UTILITIES IN PEDESTRIAN AREAS


Catch basin and j-box solid covers shall have non-slip covers when placed in sidewalks, pathways, crosswalks, or other pedestrian use areas. The non-slip surface shall be a non-grit, metallic alloy surface with a hardness of up to 62 on the Rockwell "C" scale, SlipNOT or equal. Diamond or checker plate surfaces are not considered equal.

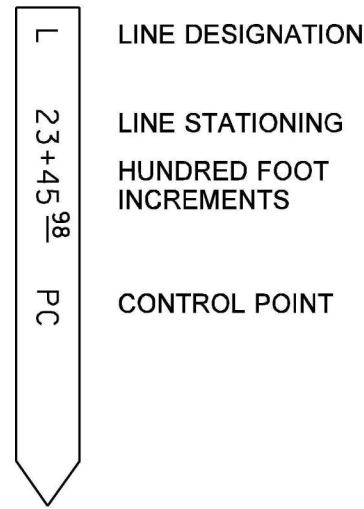
Manhole covers shall have non-slip low profile tread when placed in sidewalks, pathways, crosswalks, or other pedestrian use areas.



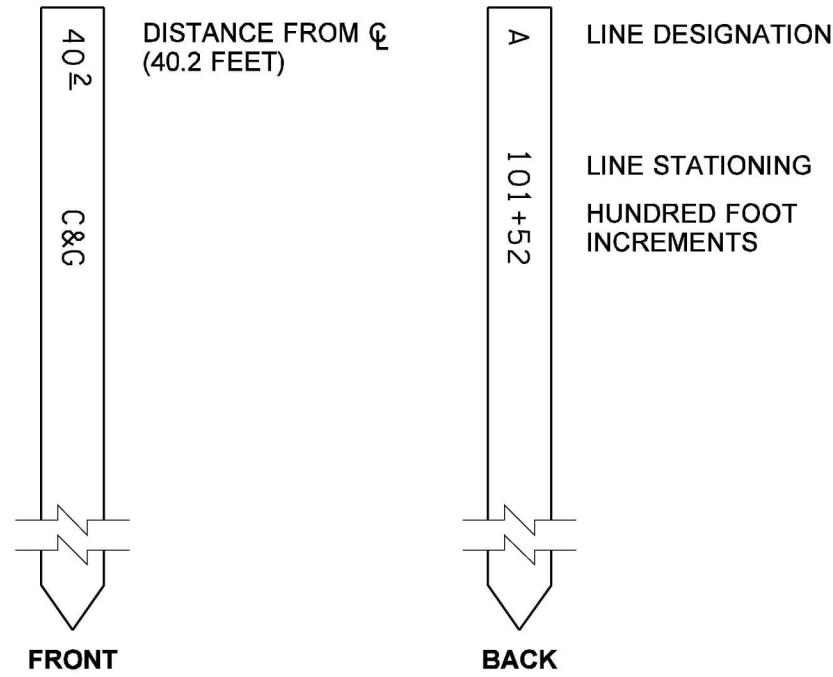
NOTES:

1. MAXIMUM WIDTH OF TRENCH AT TOP OF PIPE
 * 30" FOR PIPE UP TO AND INCLUDING 12" NOMINAL DIAMETER.
 * OD PLUS 16" FOR PIPE LARGER THAN 12" NOMINAL DIAMETER.
2. WHERE TRENCH IS PERPENDICULAR TO TRAVELED LANES, BACKFILL FULL DEPTH WITH CRUSHED SURFACING-TOP COURSE. WHERE TRENCH IS PARALLEL TO TRAVELED LANES, BACKFILL THE TOP 4' OF TRENCH TO SUBGRADE WITH CRUSHED SURFACING-TOP COURSE. SUITABLE EXCAVATED MATERIAL MAY BE USED PROVIDED 95% MAX. COMPACTION DENSITY (ASTM D1557) CAN BE ACHIEVED.
3. SEE OVERLAY POLICY R-7.
4. USE OF RECYCLED CONCRETE IS PROHIBITED, UNLESS APPROVED BY THE CITY. SEE POLICY D-16.

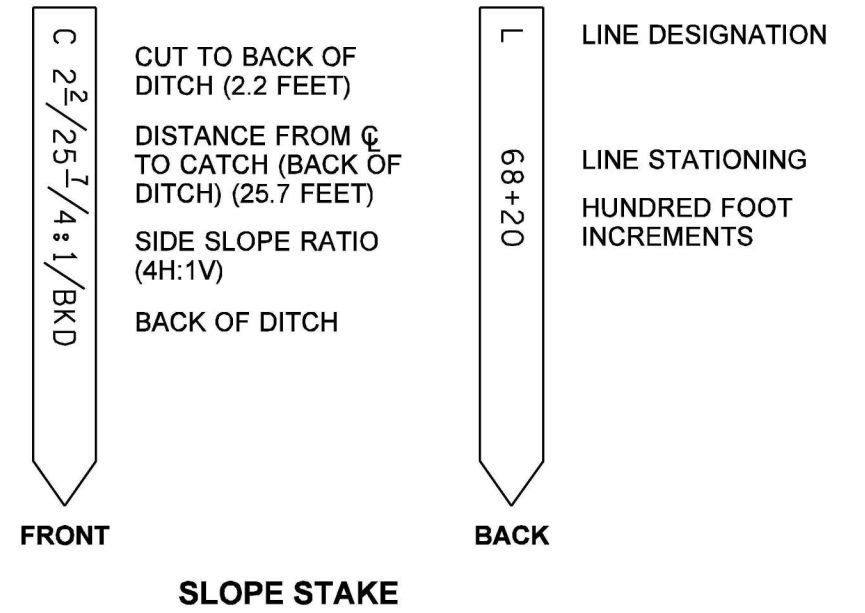
CITY OF KIRKLAND	
PLAN NO. CK - D.02	
	STORM TRENCH DETAIL



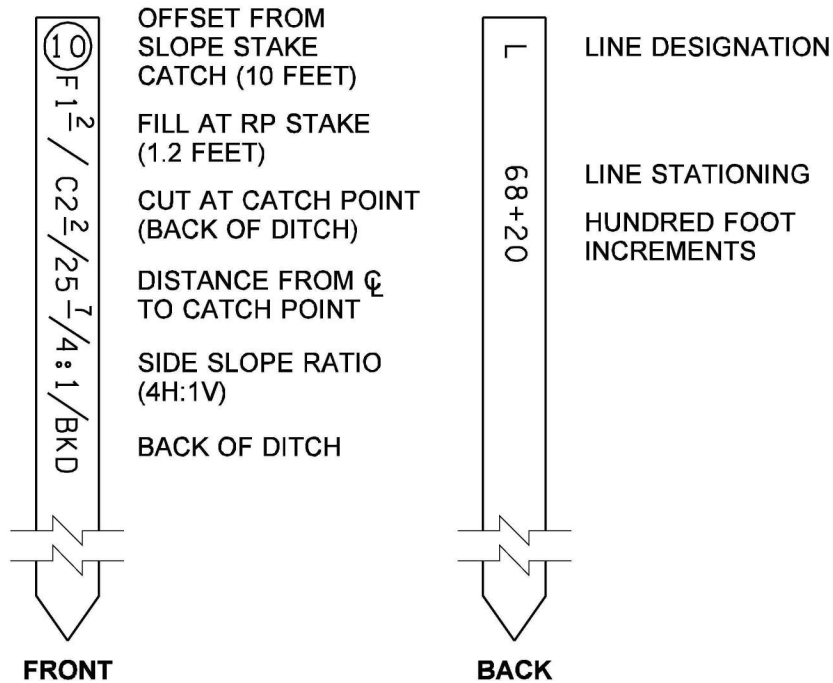
ALIGNMENT STAKE
STAKE EVERY 100 FEET ON TANGENTS,
EVERY 25 FEET ON CURVES



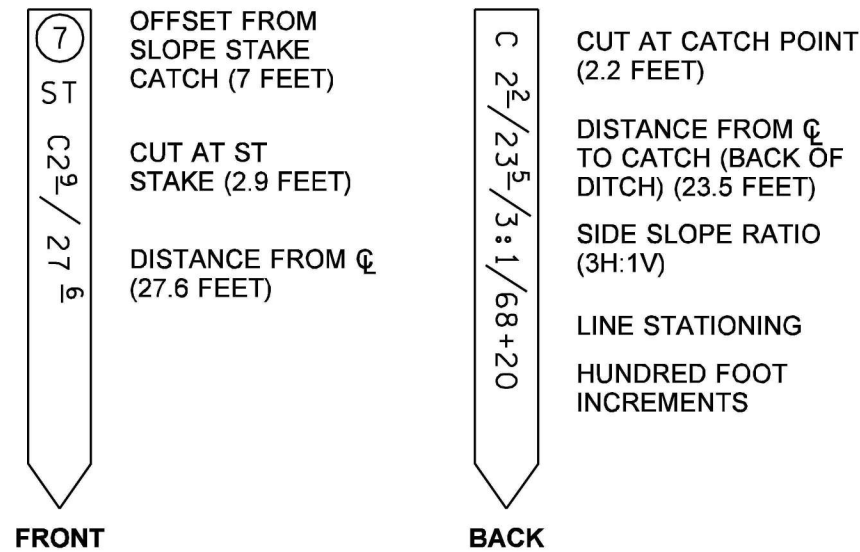
CLEARING/GRUBBING (C&G) LATH
STAKE AT EACH FULL STATION,
100 FEET ON TANGENTS,
EVERY 25 FEET ON CURVES.
NO HUB NECESSARY.



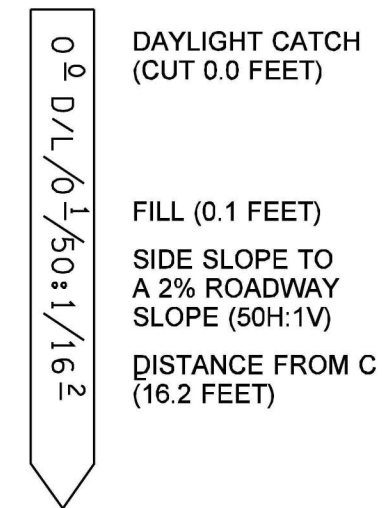
SLOPE STAKE



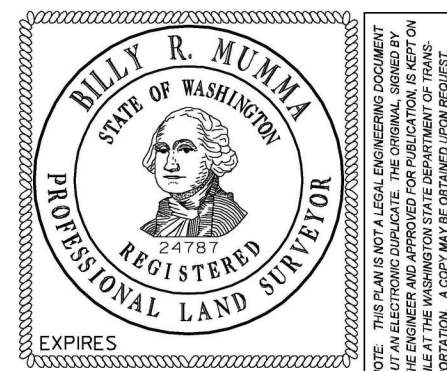
LATH FOR SLOPE REFERENCES



**SLOPE TREATMENT (ST) STAKE
FOR CUT SECTIONS**



DAYLIGHT (D/L) STAKE



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

SURVEY STAKES

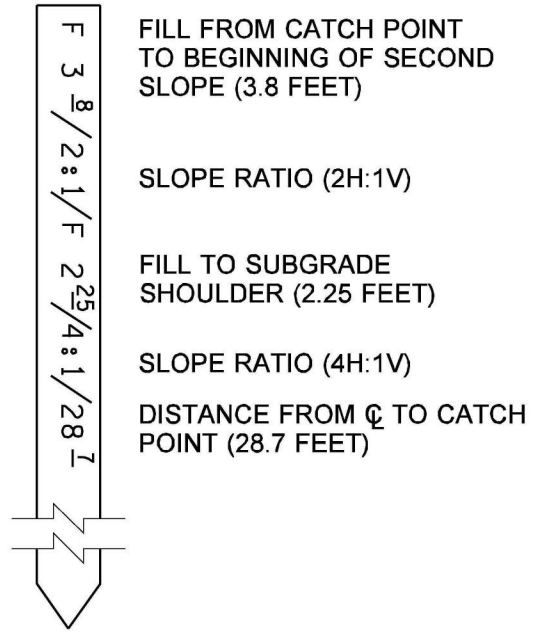
STANDARD PLAN A-10.10-00

SHEET 1 OF 2 SHEETS

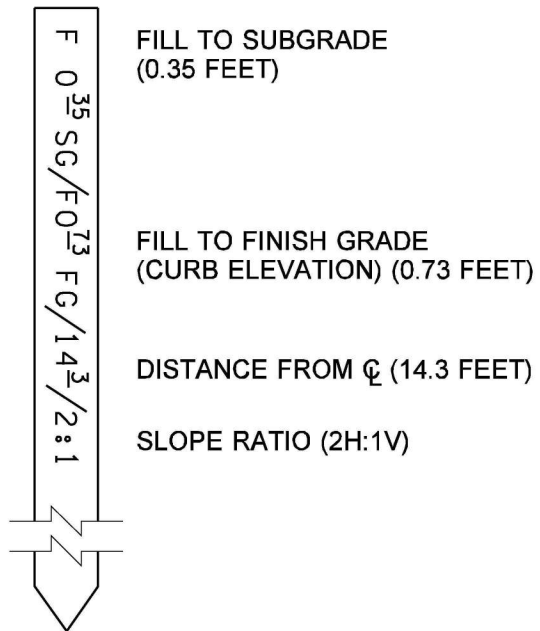
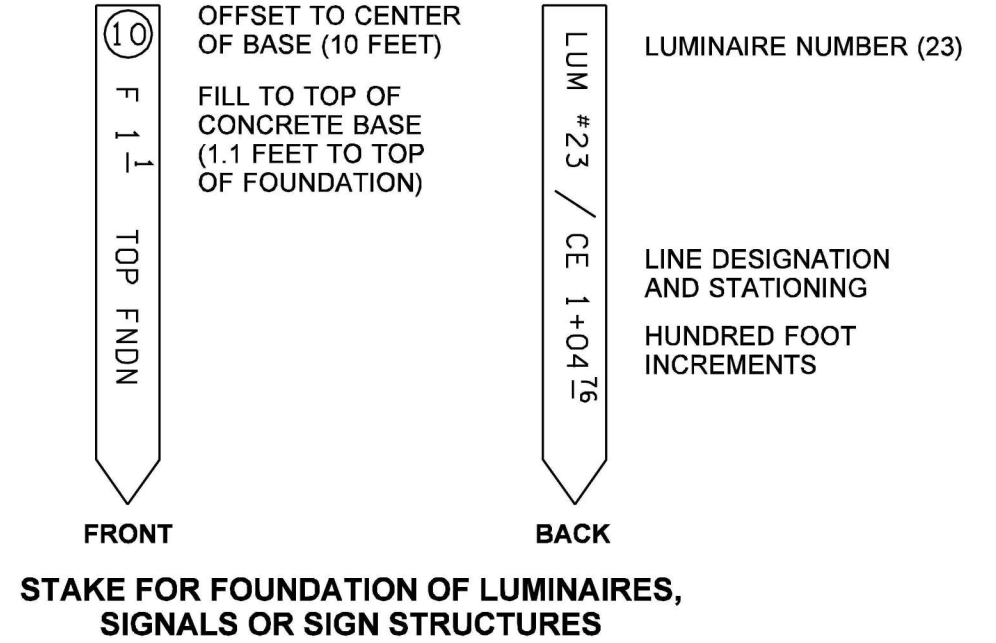
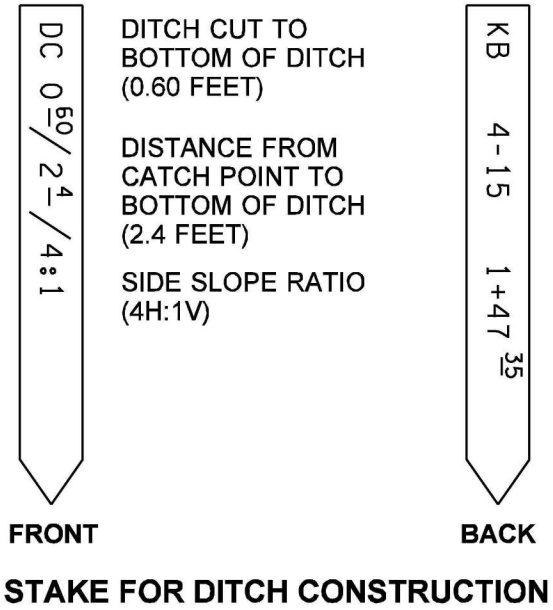
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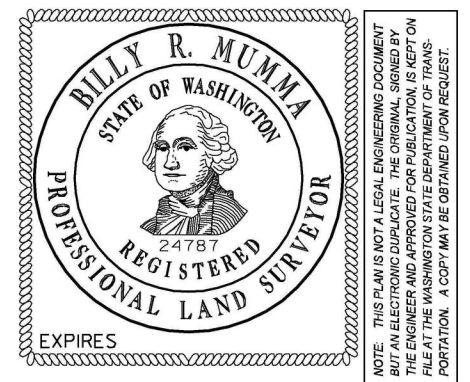
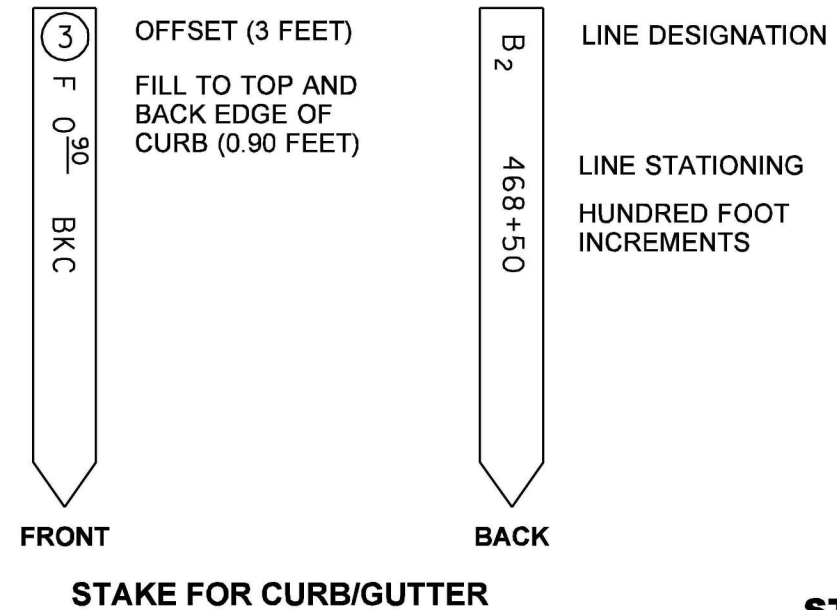
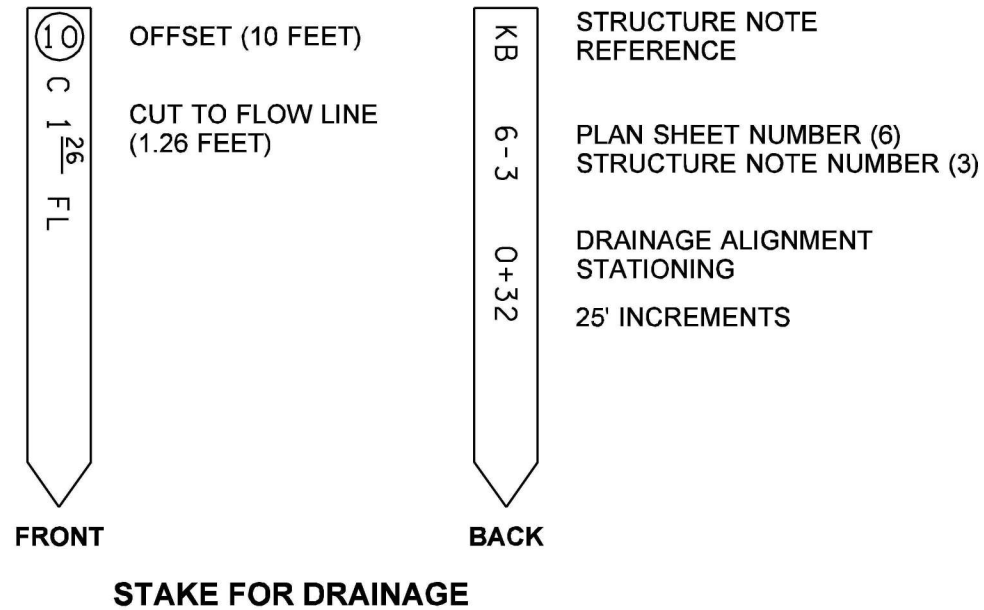
STATE DESIGN ENGINEER DATE



COMPOUND SLOPE LATH



SLOPE LATH FOR CURB SECTION



SURVEY STAKES

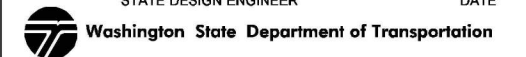
STANDARD PLAN A-10.10-00

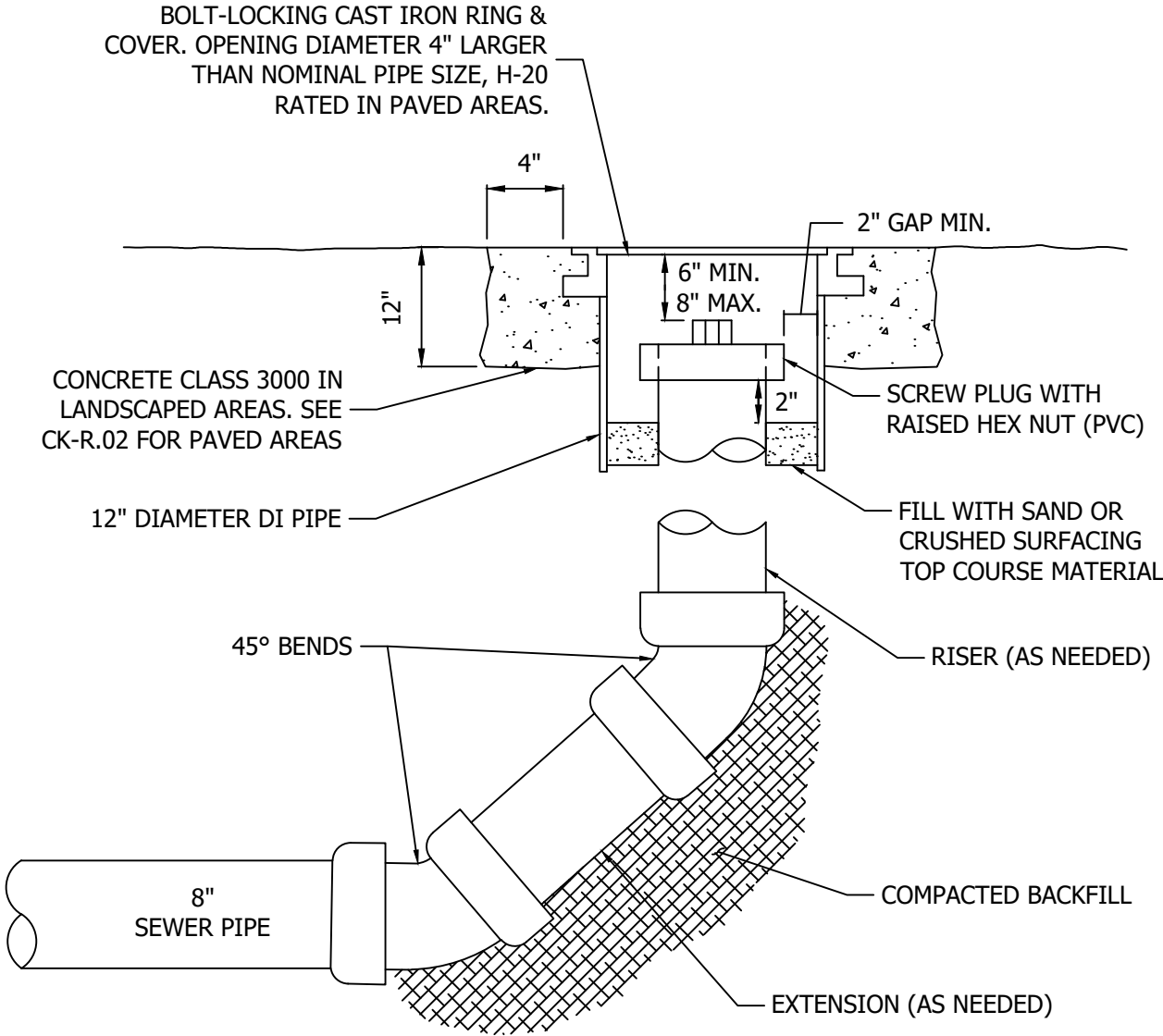
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

Pasco Bakotich III 08-07-07


STATE DESIGN ENGINEER DATE

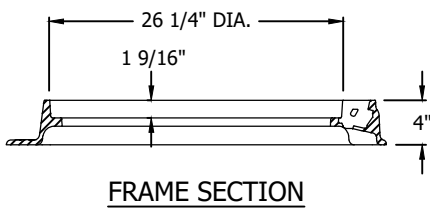
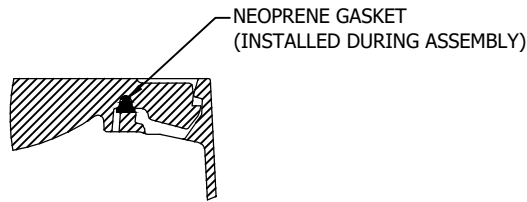
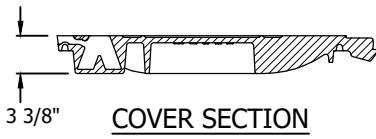
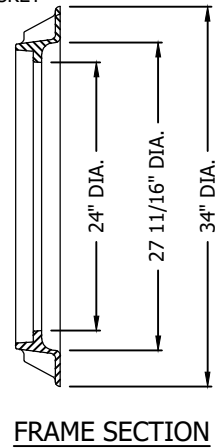
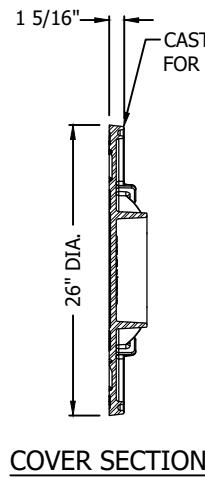
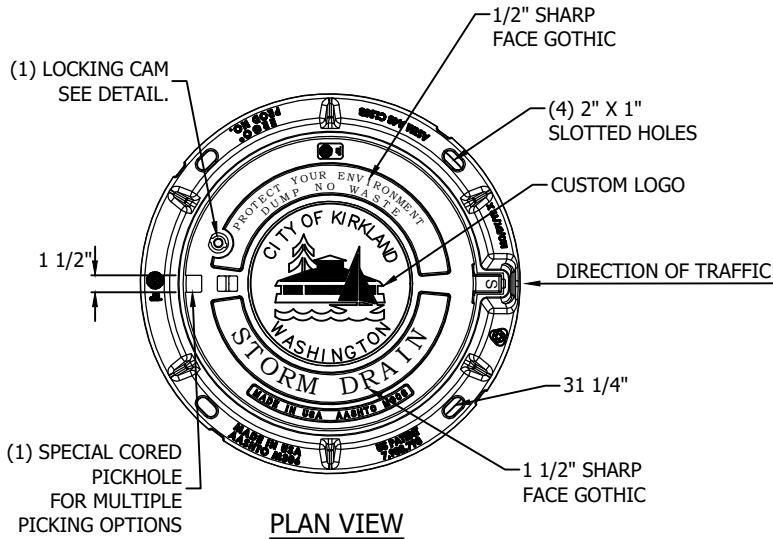




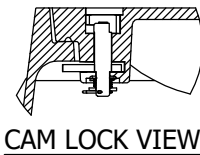
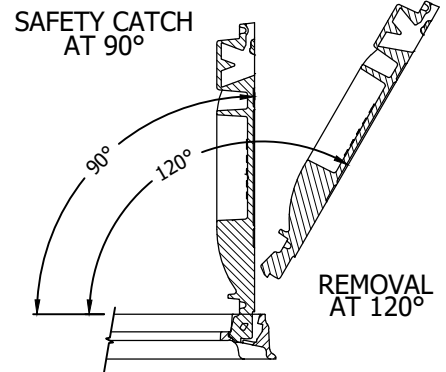
NOTES:

1. CAST IRON COVER SHALL READ EITHER "STORM" OR "DRAIN".
2. LOCKING BOLTS FOR COVER SHALL BE 5/8" -11 NC STAINLESS STEEL TYPE 304 SOCKET (ALLEN) HEAD BOLTS, 2 INCHES LONG.
3. ALL FITTINGS AND PIPE SHALL BE GASKETED (NOT GLUED). PIPE AND FITTING MATERIAL SHALL BE SDR 35.
4. WYE CONFIGURATION ONLY ALLOWED FOR PRIVATELY MAINTAINED SYSTEMS.

CITY OF KIRKLAND	
PLAN NO. CK - D.05B	
	CLEANOUT




HINGE & GASKET VIEW

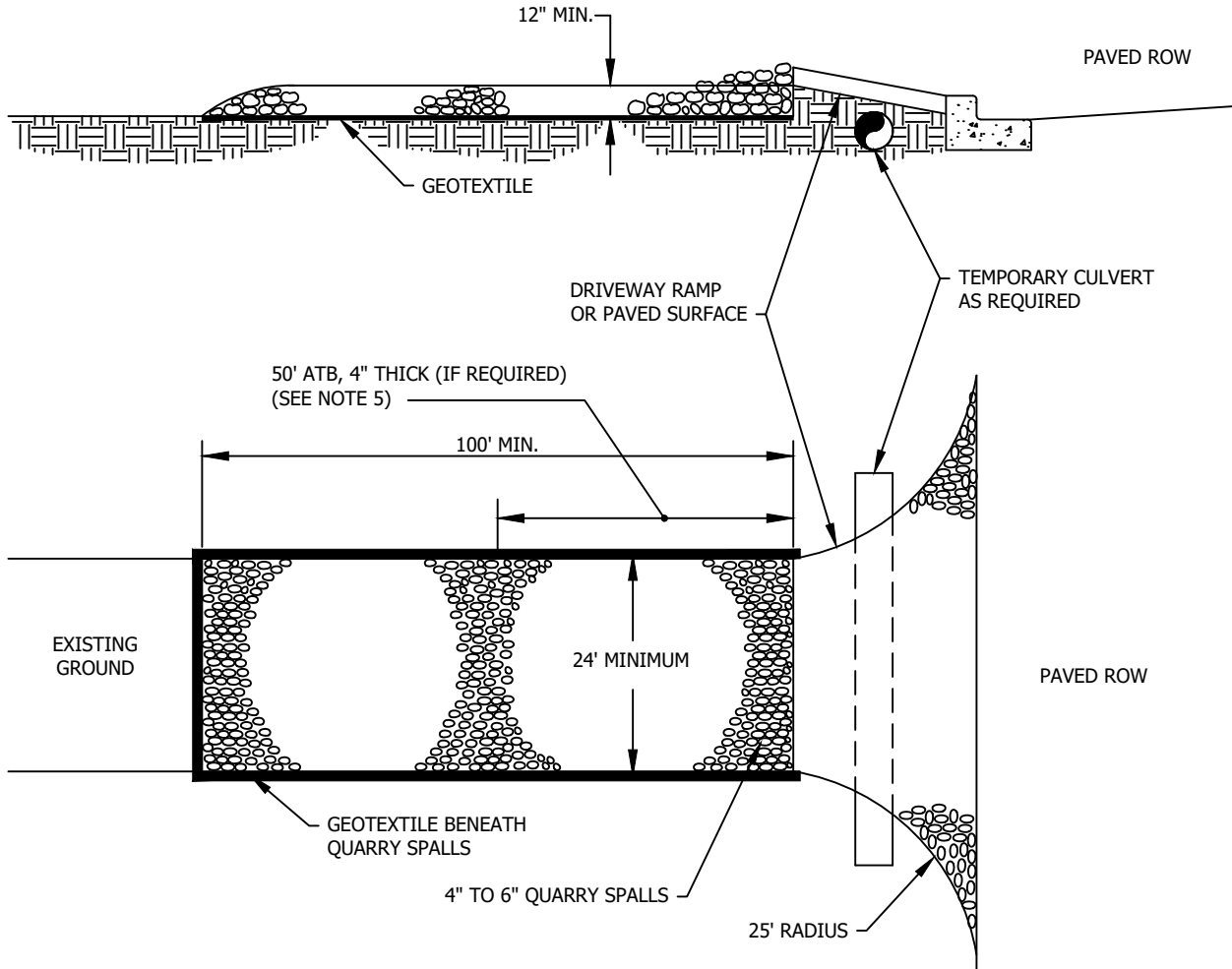


HINGE POSITIONS

NOTES:

1. VERIFY SLOTTED FRAMES ARE THOROUGHLY FILLED IN WITH MORTAR FOR EFFICIENT INTERACTION WITH IRON AND STRUCTURE.
2. VERIFY BEDDING MORTAR IS NOT IN CONTACT WITH AREA UNDER LID FLANGE THAT WILL INTERFERE WITH CAMLOCK.
3. INSTALL PLUG IN LOCK HOLE TO KEEP LOCK FREE OF FOREIGN MATERIAL.
4. 24 INCH MANHOLE LID IS FITTED WITH AN INFILTRATION PLUG LOCATED IN THE HINGE HOUSING OF THE FRAME. VERIFY PLUG IS PROPERLY INSTALLED BEFORE INSTALLING THE FRAME.
5. REQUIRED ON ALL ARTERIALS, COLLECTORS OR ANY TIME THAT THE IRON WILL BE WITHIN THE TRAVEL LANE.
6. LID SHALL BE MARKED "STORM DRAIN".
7. CITY OF KIRKLAND LOGO REQUIRED.
8. LID MUST BE COVERED WITH TAR PAPER BEFORE OVERLAY.
9. PRODUCT SUPPLIED BY EAST JORDAN IRON WORKS, OR APPROVED EQUAL.
10. FRAME AND COVER SHALL BE H-20 LOADING RATED AND BE AT MINIMUM 7" TALL IF INSTALLED IN ROADWAY.
11. 7" TALL ERGO CASTING REQUIRED FOR CONCRETE ROADWAYS.
12. MUST BE MADE IN THE USA.


CITY OF KIRKLAND	
PLAN NO. CK - D.18A	
	MODIFIED 24" MANHOLE FRAME W/ HINGED COVER

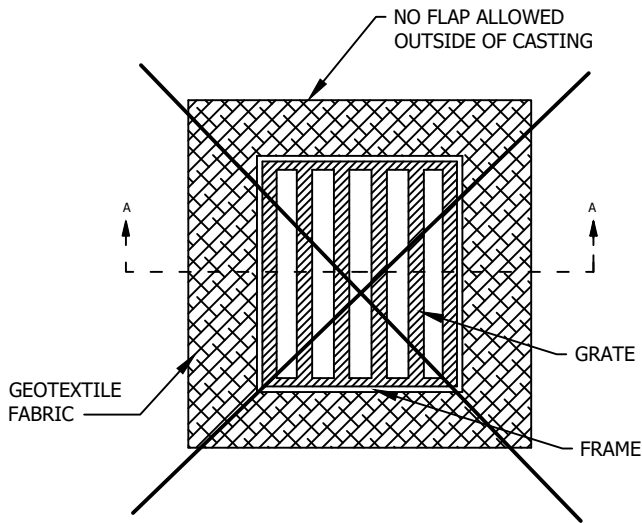


PLAT/COMMERCIAL

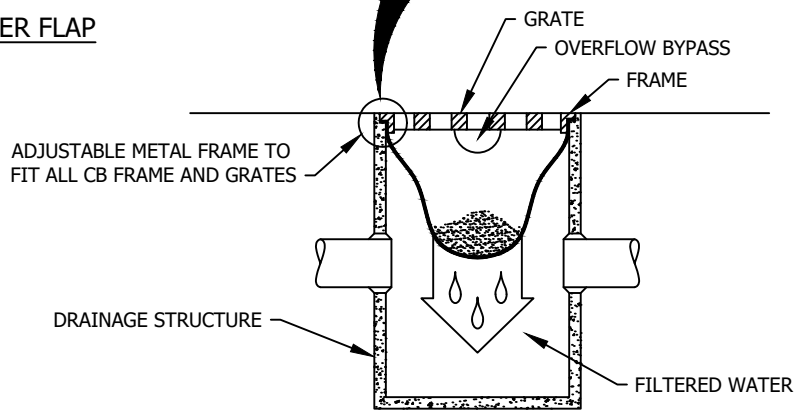
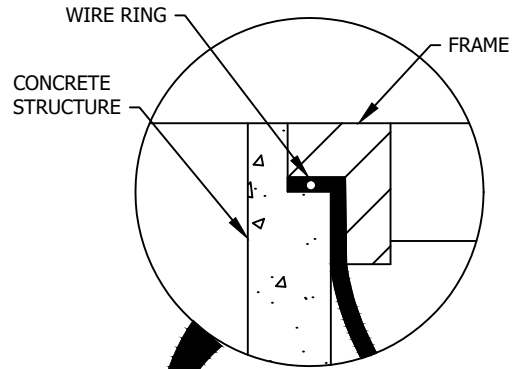
NOTES:

1. PAD SHALL BE REMOVED AND REPLACED WHEN SOIL IS EVIDENT ON THE SURFACE OF THE PAD OR AS DIRECTED BY THE CITY CLEARING AND GRADING INSPECTOR.
2. PAD SHALL BE INSTALLED IN PLANTING STRIP AS APPROPRIATE.
3. PAD THICKNESS SHALL BE INCREASED IF SOIL CONDITIONS DICTATE AND/OR PER THE DIRECTION OF THE CITY CLEARING AND GRADING INSPECTOR.
4. CONTRACTOR RESPONSIBLE FOR CURB & GUTTER CONDITION.
5. ATB MAY BE REQUIRED PER PW INSPECTOR.
6. RECYCLED CONCRETE SHALL NOT BE USED FOR THE CONSTRUCTION ENTRANCE DUE TO HIGH LEVELS OF PH.
7. ALTERNATIVE DESIGN ALLOWABLE WITH PUBLIC WORKS APPROVAL.

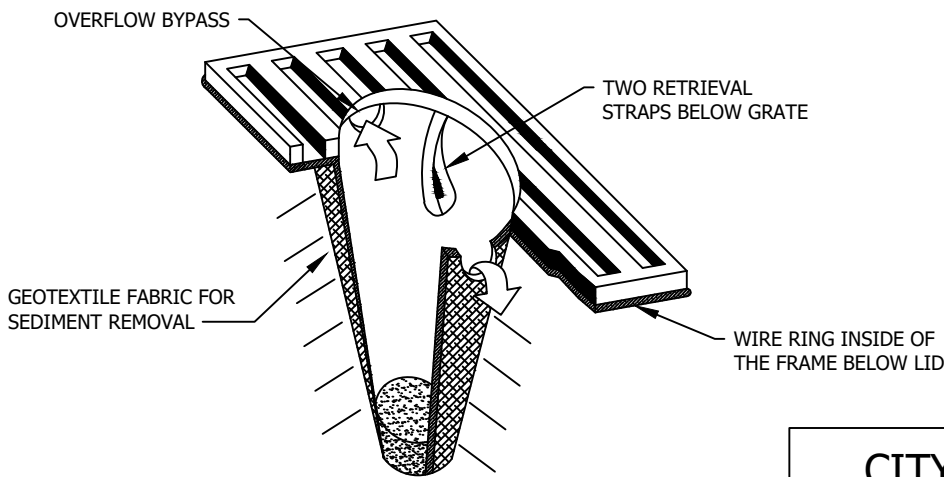
CITY OF KIRKLAND	
PLAN NO. CK-E.02	
	TEMPORARY PLAT/COMMERCIAL CONST. ENTRANCE



PROTECTION INSERT WITH OUTER FLAP
(NOT ALLOWED)



STORM DRAIN PROTECTION
INSERT SECTION A-A



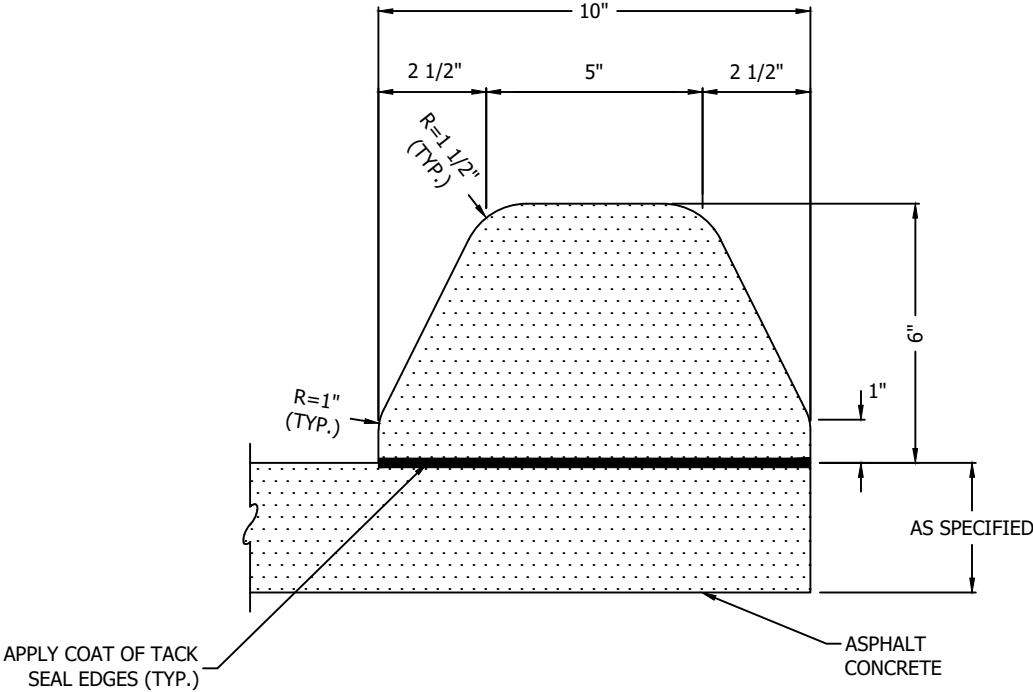
STORM DRAIN PROTECTION INSERT
ISOMETRIC VIEW (TYP.)

CITY OF KIRKLAND

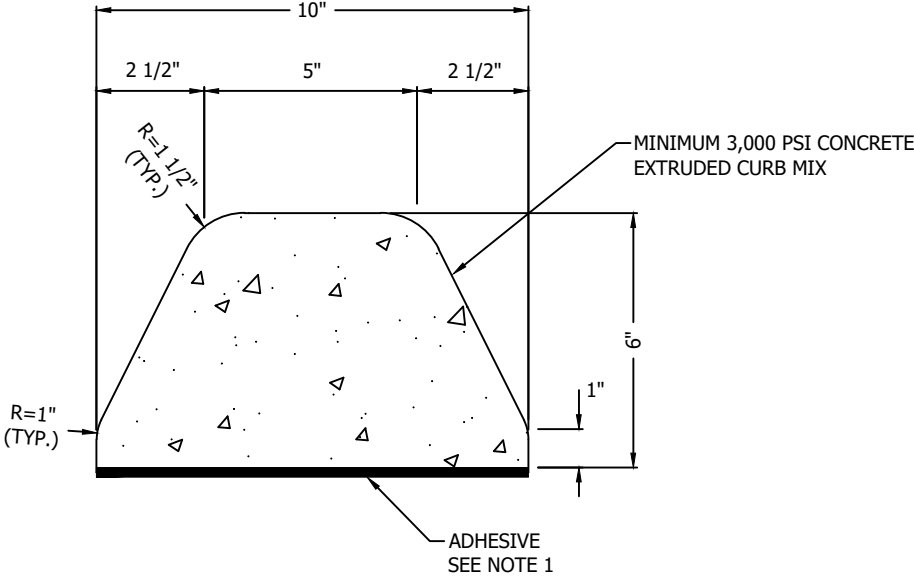
PLAN NO. CK- E.11



STORM DRAIN
PROTECTION INSERT




EXTRUDED ASPHALT CONCRETE CURB

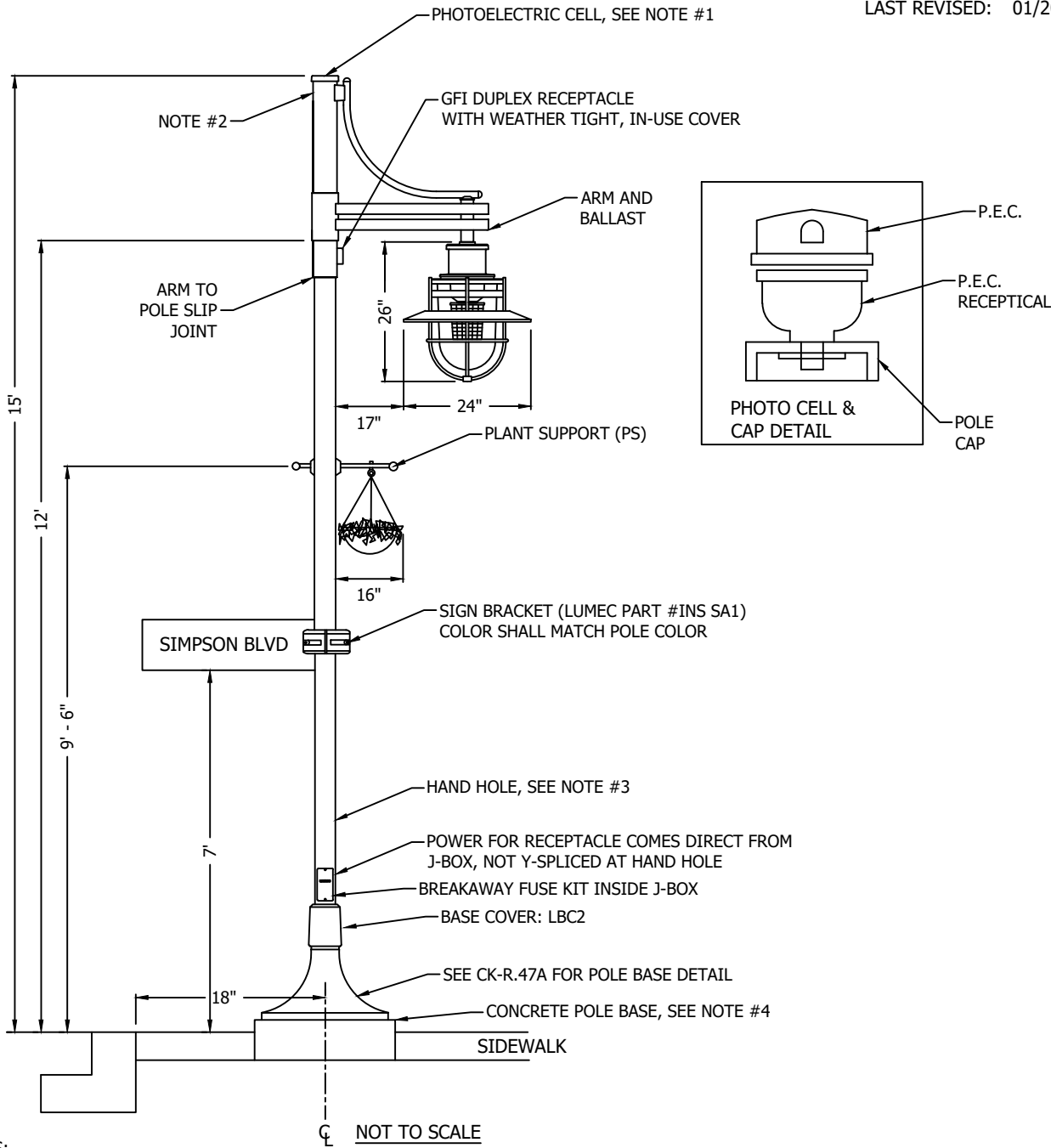


EXTRUDED CEMENT CONCRETE CURB

NOTES:


- 1. THE ADHESIVE SHALL MEET THE REQUIREMENTS OF WSDOT SSRBC SECTION 9-26.1 FOR TYPE-II EPOXY BONDING AGENT.
- 2. APPLY SUFFICIENT AMOUNT OF ADHESIVE TO ENSURE SQUEEZE OUT ALONG ALL EDGES.

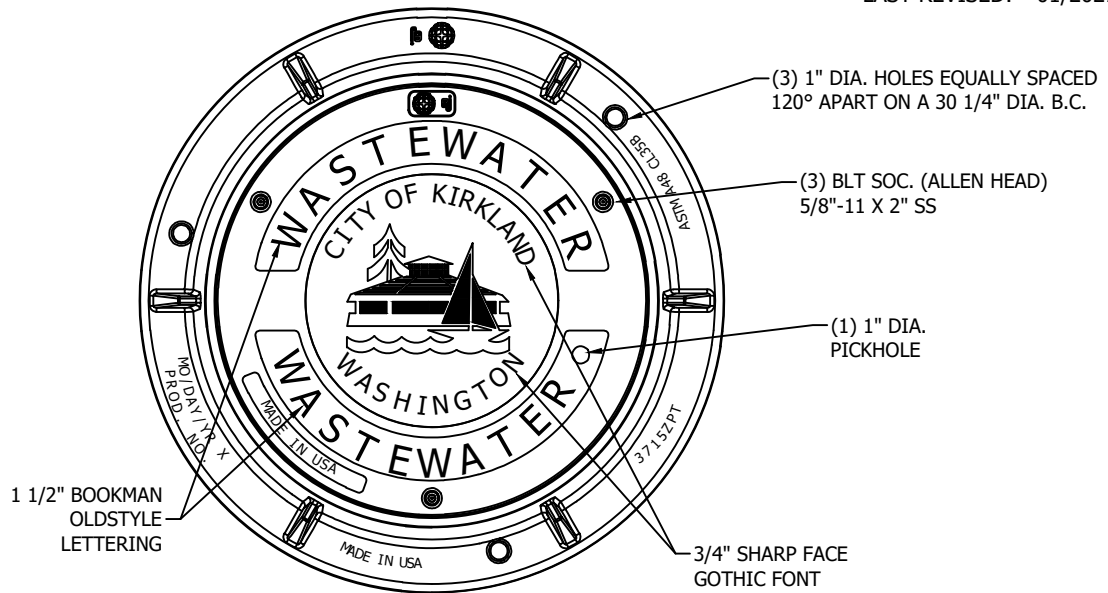
CITY OF KIRKLAND	
PLAN NO. CK - R.19	
	EXTRUDED CURB



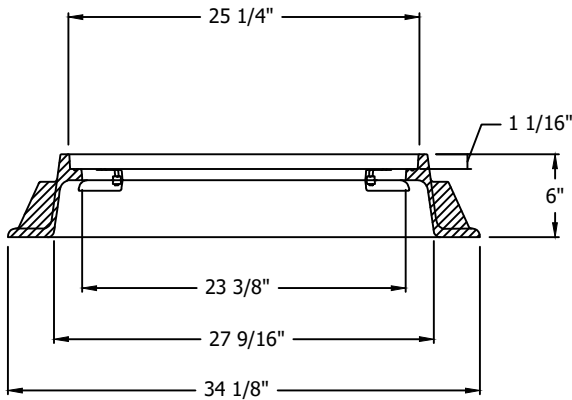
NOTES:

1. INSTALL PHOTO ELECTRIC CELL (P.E.C.) ON POLE CAP. USE TWISTLOCK TYPE, SEE DETAIL. SEE CITY OF KIRKLAND INSPECTOR FOR PART NUMBERS OR EQUIVALENT. FACTORY INSTALLED P.E.C. IS NOT ACCEPTABLE.
2. WIRES FROM J-BOX, OUTLET, AND BALLAST WILL BE CONNECTED AT THIS AREA; NOT BY THE SLIP JOINT.
3. THE ONLY CONNECTION MADE AT HAND HOLE IS THE POLE GROUNDING CONNECTION.
4. WITH SLOPED SIDE WALKS, THE POLE BASE MUST PROTRUDE ABOVE FINISHED GRADE SO THAT BASE COVER WILL SIT LEVEL.
5. PS ORIENTATION UNDERNEATH LIGHT UNLESS OTHERWISE DESIGNATED.
6. LIGHTS SHALL BE GENERALLY SPACED AT 60' ON CENTER.
7. ALL PEDESTRIAN LIGHTS SHALL HAVE 1 SIGN BRACKET.
8. ALL SPLICE CONNECTIONS IN J-BOX SHALL BE MADE USING:
 - A. C-TAP (COPPER CRIMP)
 - B. 3M 2000 MASTIC COVER
 - C. 3M SUPER 88 TAPE

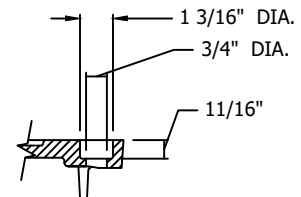
CITY OF KIRKLAND	
PLAN NO. CK - R.47	
	CENTRAL BUSINESS DISTRICT STREET LIGHT STANDARD



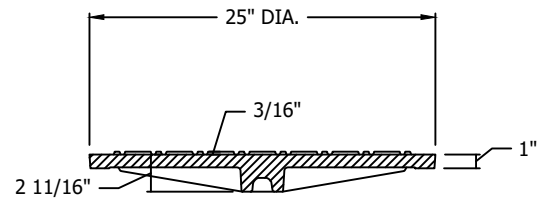
PLAN VIEW



FRAME SECTION



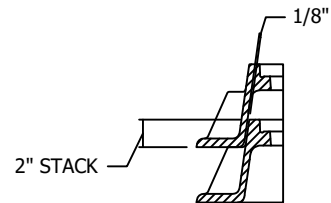
BOLTHOLE DETAIL




COVER SECTION

NOTES:

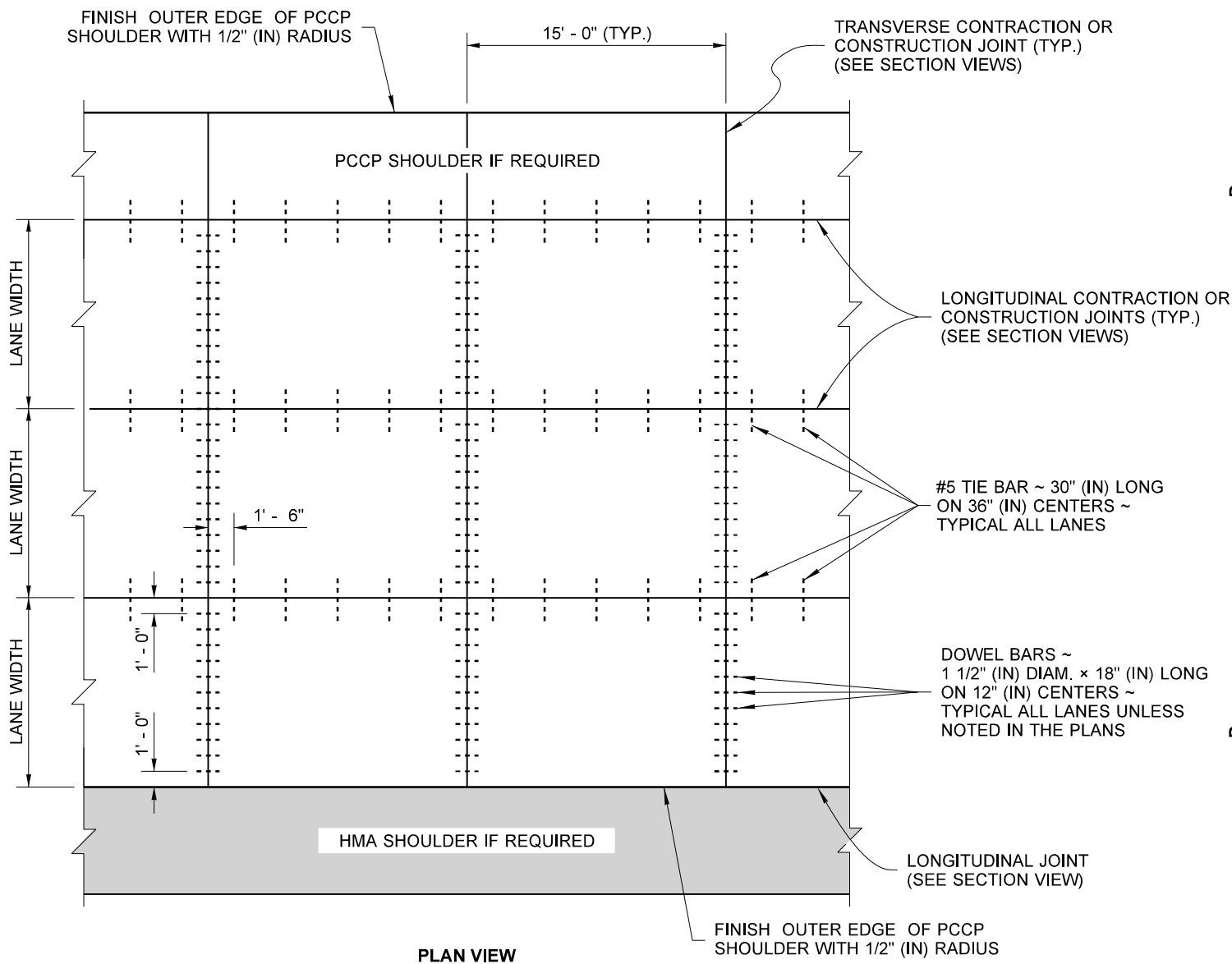
1. VERIFY SLOTTED FRAMES ARE THOROUGHLY FILLED IN WITH MORTAR FOR EFFICIENT INTERACTION WITH IRON AND STRUCTURE.
2. REQUIRED ON ALL ARTERIALS, COLLECTORS OR ANY TIME THAT THE IRON WILL BE WITHIN THE TRAVEL LANE.
3. LID SHALL BE MARKED "WASTEWATER".
4. CITY OF KIRKLAND LOGO REQUIRED.
5. LID MUST BE COVERED WITH TAR PAPER BEFORE OVERLAY.
6. USE WITH THREE LOCKING BOLTS 5/8"-11 BOLT SOCKET (ALLEN HEAD), 2" LONG DRILL HOLES SPACED 120° APART ON 23-1/16" DIA. B.C.
7. COVER MATERIAL IS DUCTILE IRON ASTM A48 CL35B, WITH A MINIMUM WEIGHT OF 141 LBS.
8. FRAME MATERIAL IS DUCTILE IRON ASTM A48 CL35B, WITH A MINIMUM WEIGHT OF 134 LBS.
9. DRILL AND TAP THREE 5/8"-11 NC HOLES THROUGH RING AT 120° AND 23-1/16" DIA. B.C.
10. PRODUCT SUPPLIED BY EJ, OR APPROVED EQUAL.
11. FRAME AND COVER SHALL BE H-20 LOADING RATED IF INSTALLED IN ROADWAY.



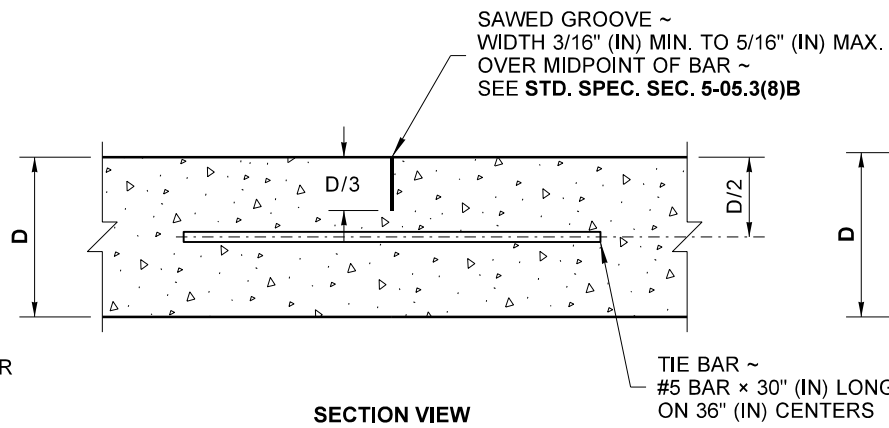
STACKING DETAIL

CITY OF KIRKLAND	
PLAN NO. CK - S.16	
	24" MANHOLE FRAME W/LOCKING COVER AND LOGO

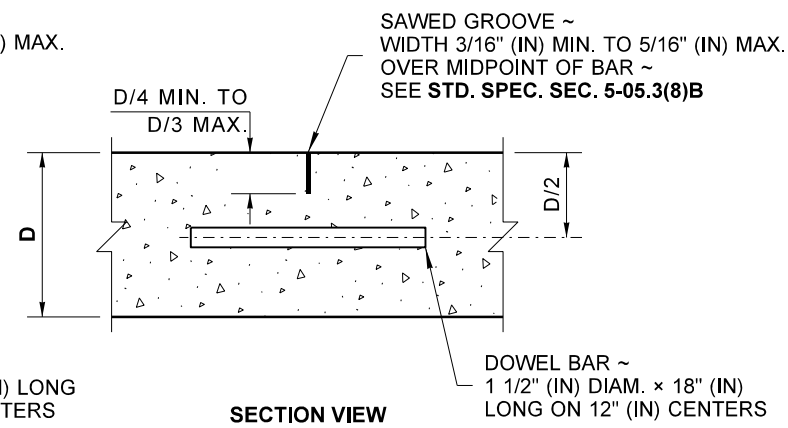
DRAWN BY: FERN LIDDELL



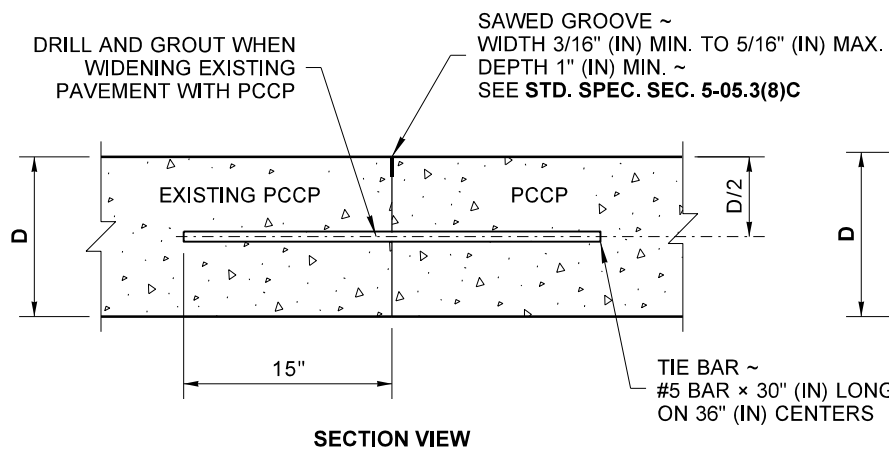
PLAN VIEW



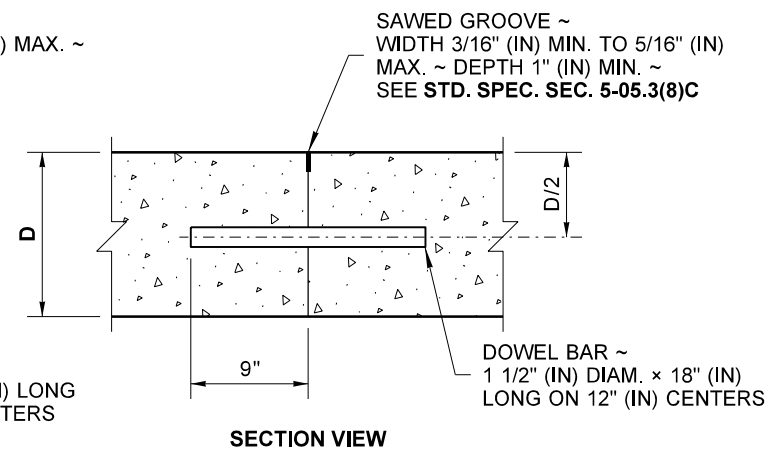
SECTION VIEW
LONGITUDINAL CONTRACTION JOINT



SECTION VIEW
TRANSVERSE CONTRACTION JOINT

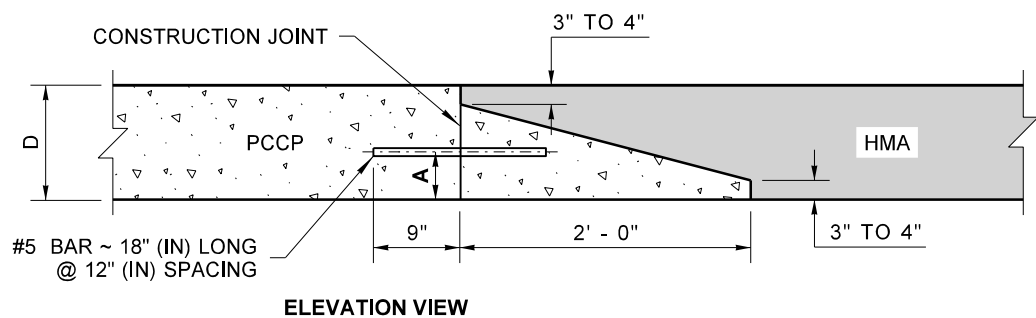


SECTION VIEW
PCCP TO PCCP
LONGITUDINAL CONSTRUCTION JOINT



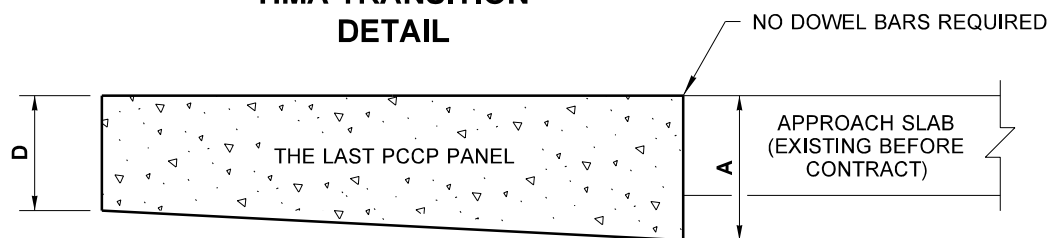
SECTION VIEW
TRANSVERSE CONSTRUCTION JOINT

SLAB THICKNESS (D)	A
12"	5"
D	D/2 - 1"

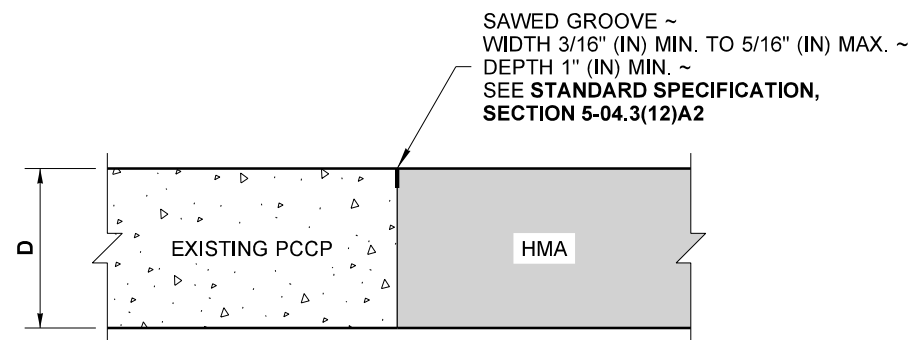


ELEVATION VIEW
HMA TRANSITION
DETAIL

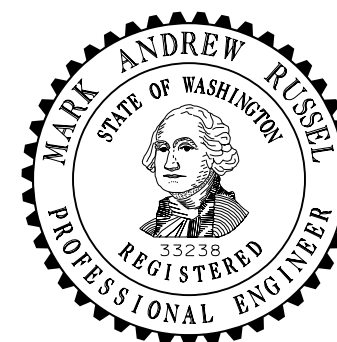
DEPTH OF PCCP (D)	A
12"	15"
D	1.25 x D



ELEVATION VIEW
EXISTING APPROACH SLAB TRANSITION
DETAIL



SECTION VIEW
PCCP TO HMA
LONGITUDINAL JOINT



**CEMENT CONCRETE
PAVEMENT JOINTS**

STANDARD PLAN A-40.10-04

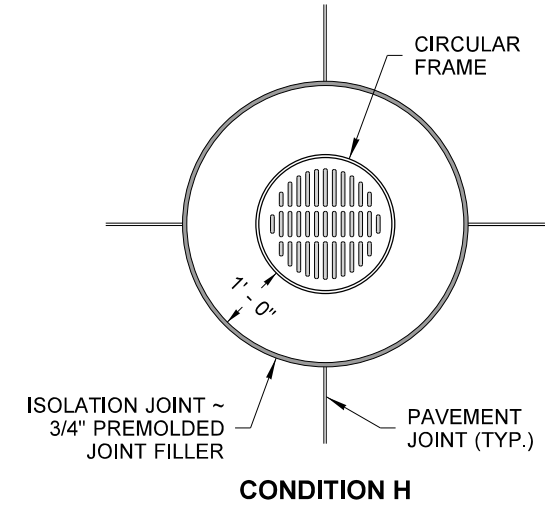
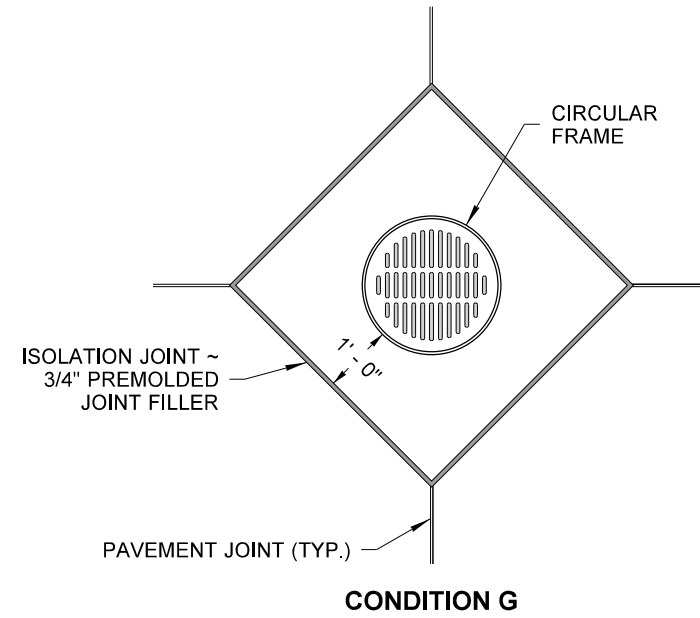
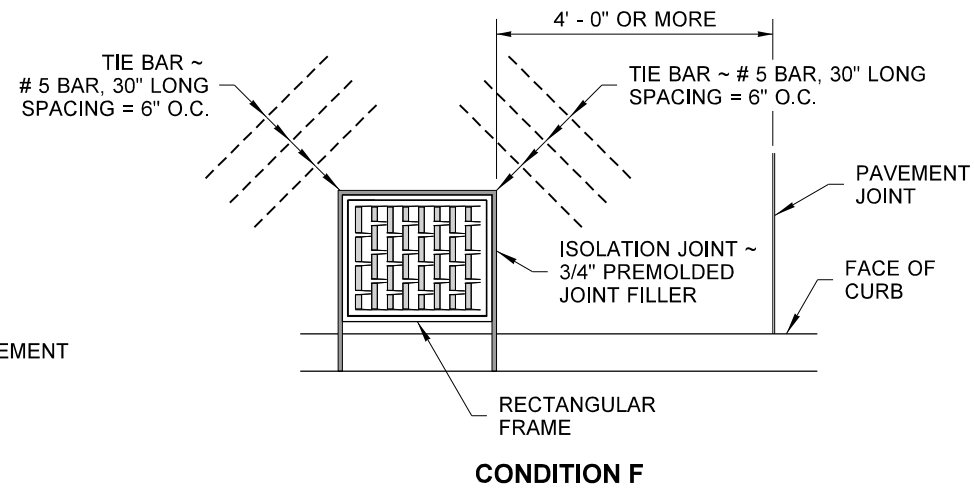
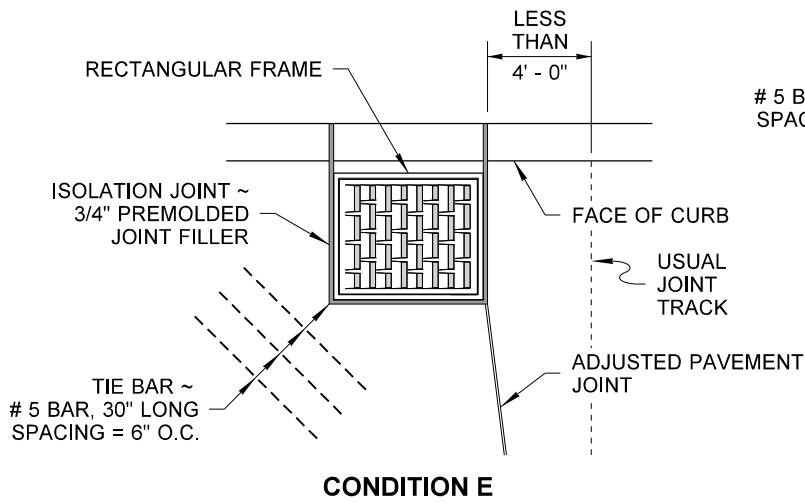
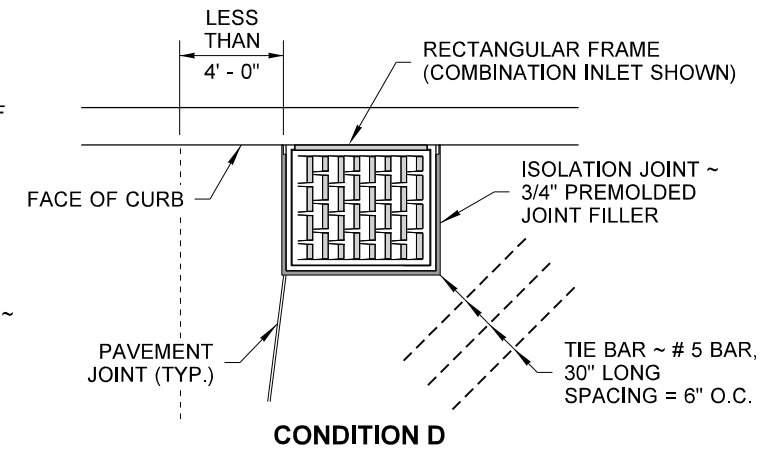
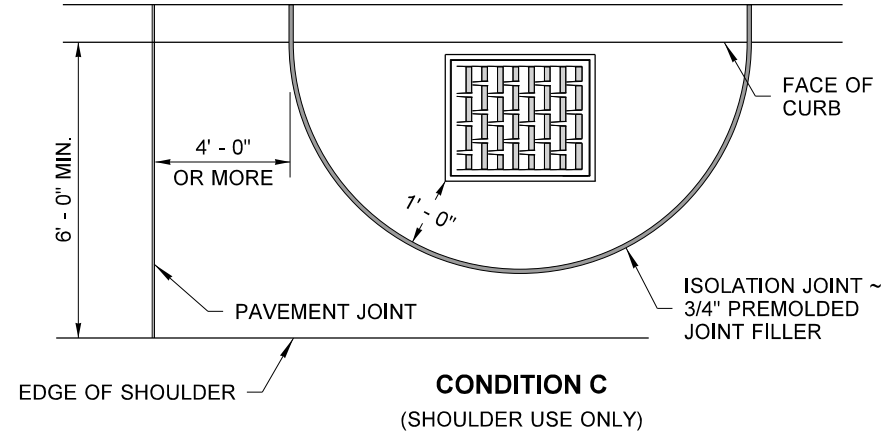
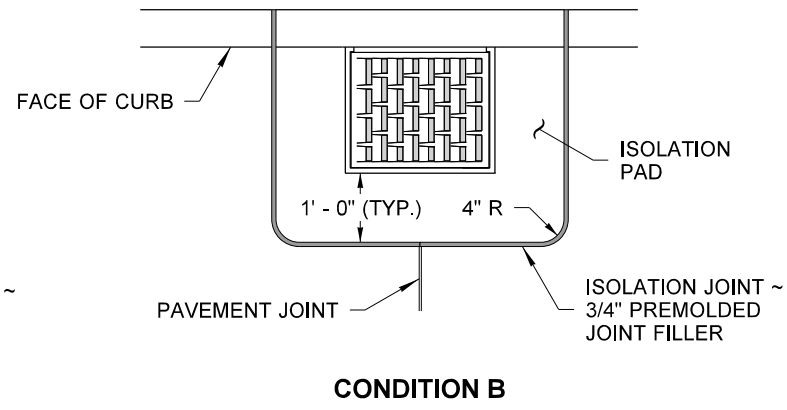
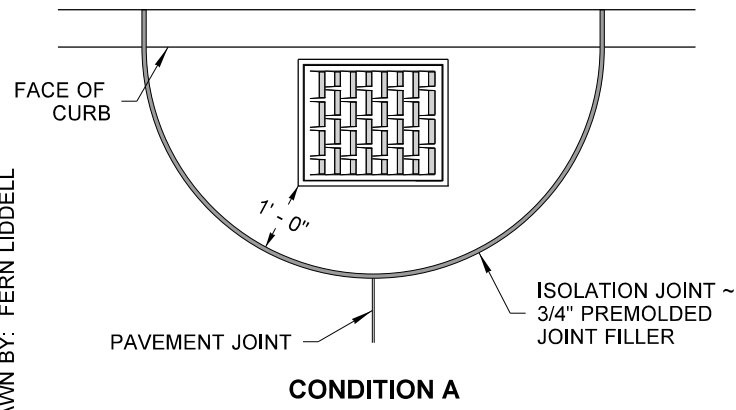
SHEET 1 OF 1 SHEET

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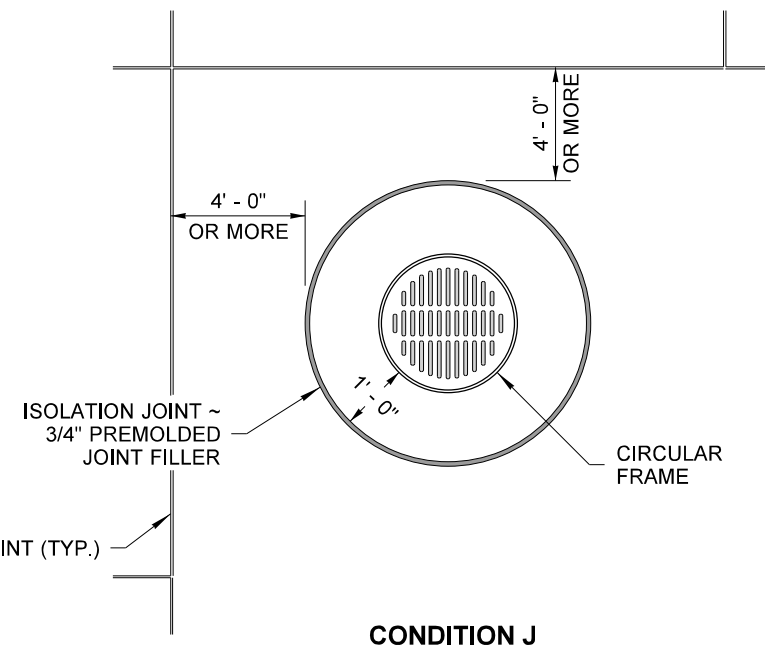
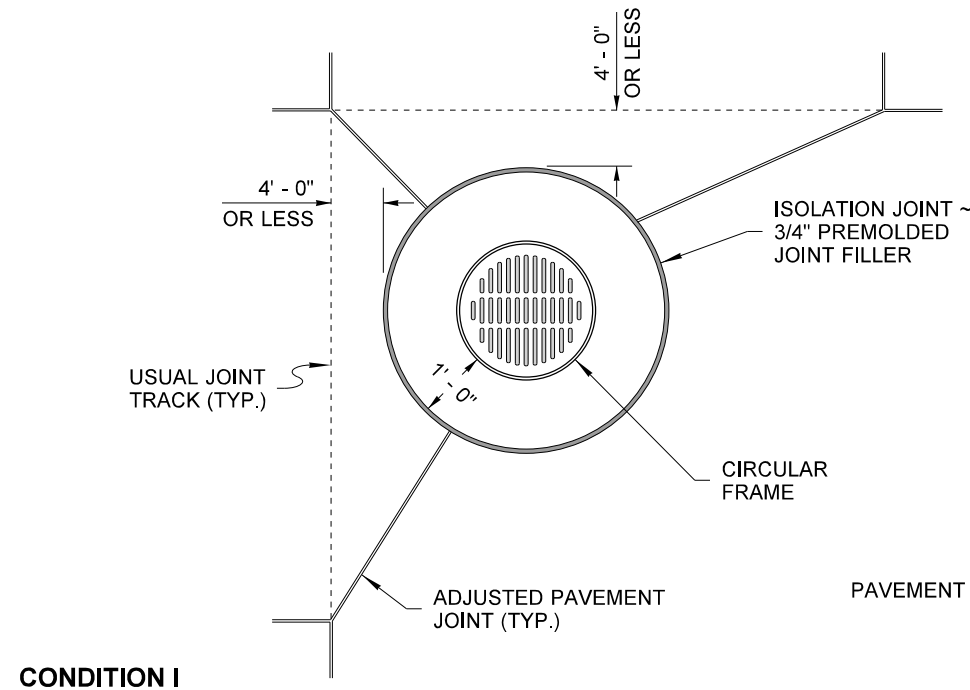
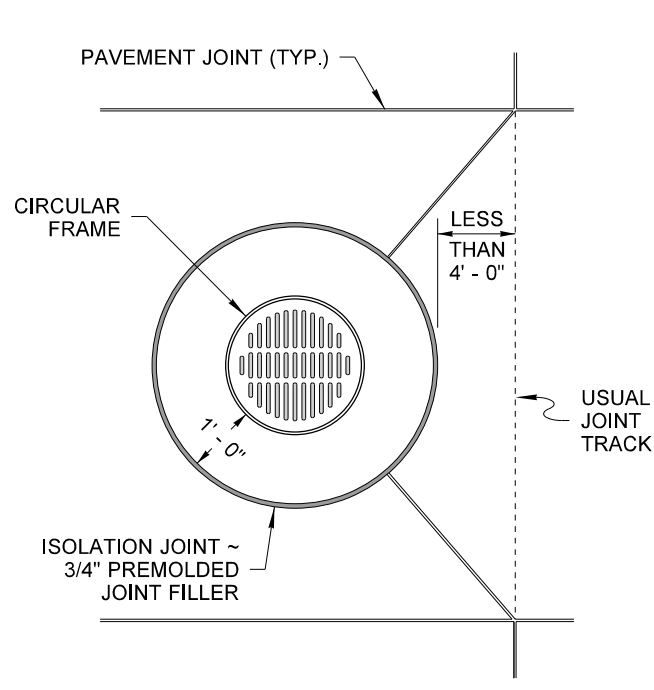
STATE DESIGN ENGINEER
Washington State Department of Transportation

USE ON GRANULAR BASES ONLY ~
NO TAPER REQUIRED ON ASPHALT BASES

DRAWN BY: FERN LIDDELL



NOTE
ALL CONDITIONS ARE SHOWN IN PLAN VIEW.



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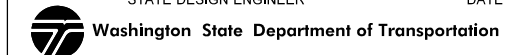
PCC PAVEMENT ISOLATION JOINTS
STANDARD PLAN A-40.15-00

SHEET 1 OF 2 SHEETS

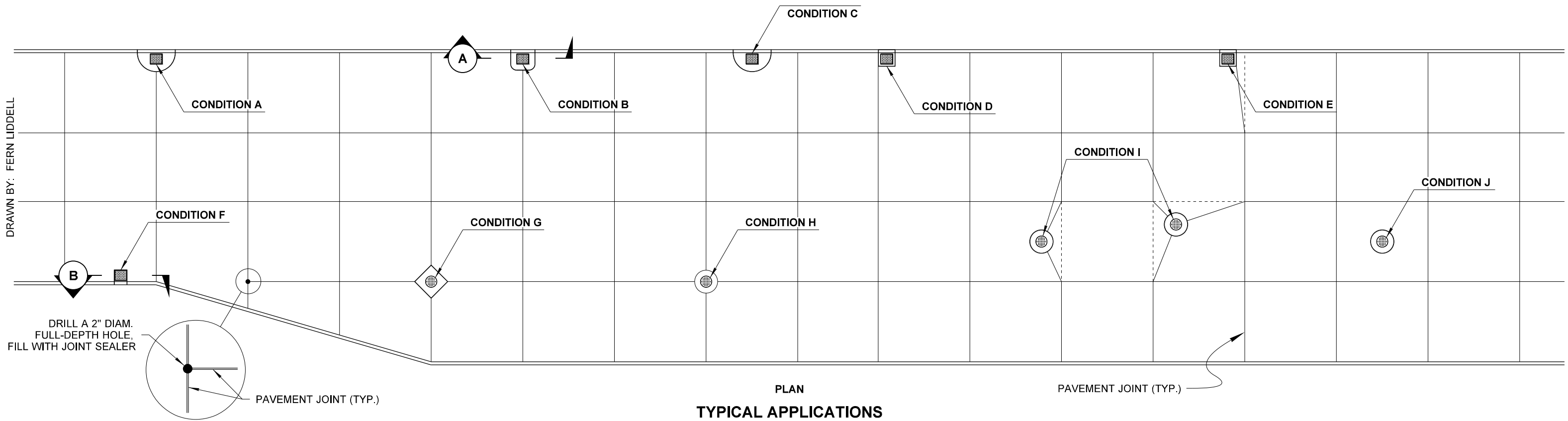
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Pasco Bakotich III 08-11-09

STATE DESIGN ENGINEER DATE



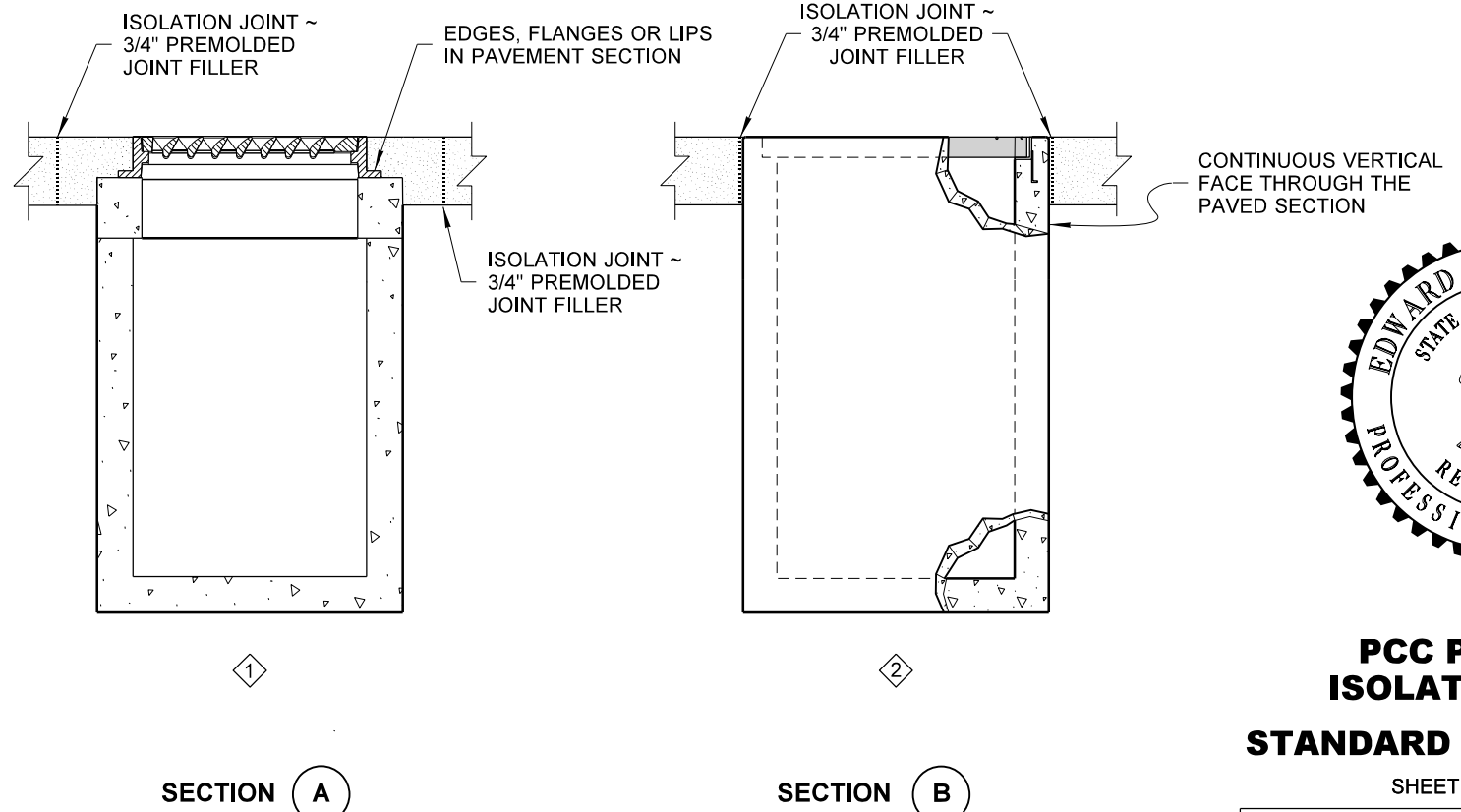
DRAWN BY: FERN LIDDELL



T - JOINT DETAIL

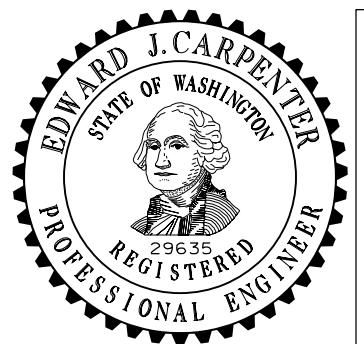
TYPICAL APPLICATIONS

TYPICAL ISOLATION JOINT GUIDELINES				
CONDITION	FEATURE	EDGES, FLANGES OR LIPS IN THE PAVEMENT SECTION	CONTINUOUS VERTICAL FACE THROUGH THE PAVEMENT SECTION	DISTANCE FROM NEAREST TRANSVERSE JOINT
		①	②	
A	CATCH BASIN OR COMBINATION GRATE	USE	----	----
B	CATCH BASIN OR COMBINATION GRATE	USE	----	----
C	CATCH BASIN OR COMBINATION GRATE	USE	----	> 4 FT FROM JOINT
D	GRATE INLET, CATCH BASIN OR CONCRETE INLET *	----	USE	< 4 FT FROM JOINT
E	GRATE INLET, CATCH BASIN OR CONCRETE INLET *	----	USE	< 4 FT FROM JOINT
F	GRATE INLET, CATCH BASIN OR CONCRETE INLET *	----	USE	> 4 FT FROM JOINT
G	MANHOLE OR CATCH BASIN TYPE 2	USE	----	----
H	MANHOLE OR CATCH BASIN TYPE 2	USE	----	----
I	MANHOLE OR CATCH BASIN TYPE 2	USE	----	< 4 FT FROM JOINT
J	MANHOLE OR CATCH BASIN TYPE 2	USE	----	> 4 FT FROM JOINT



SECTION A

SECTION B



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PCC PAVEMENT ISOLATION JOINTS
STANDARD PLAN A-40.15-00

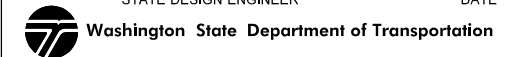
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

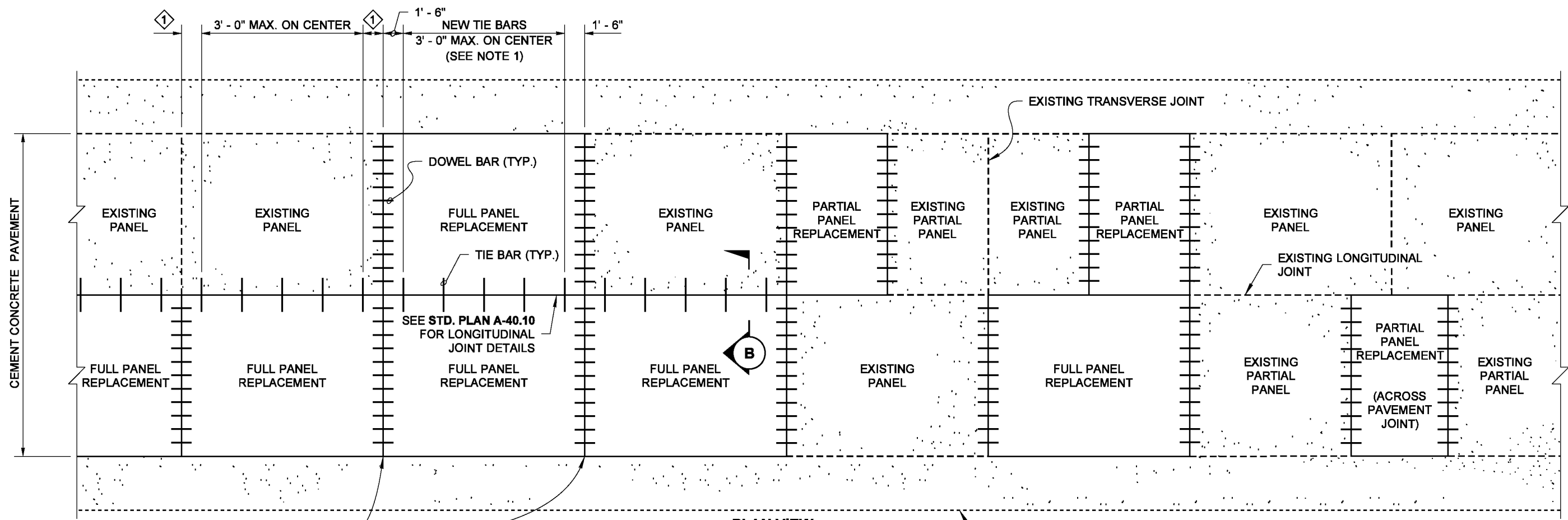
Pasco Bakotich III 08-11-09

STATE DESIGN ENGINEER

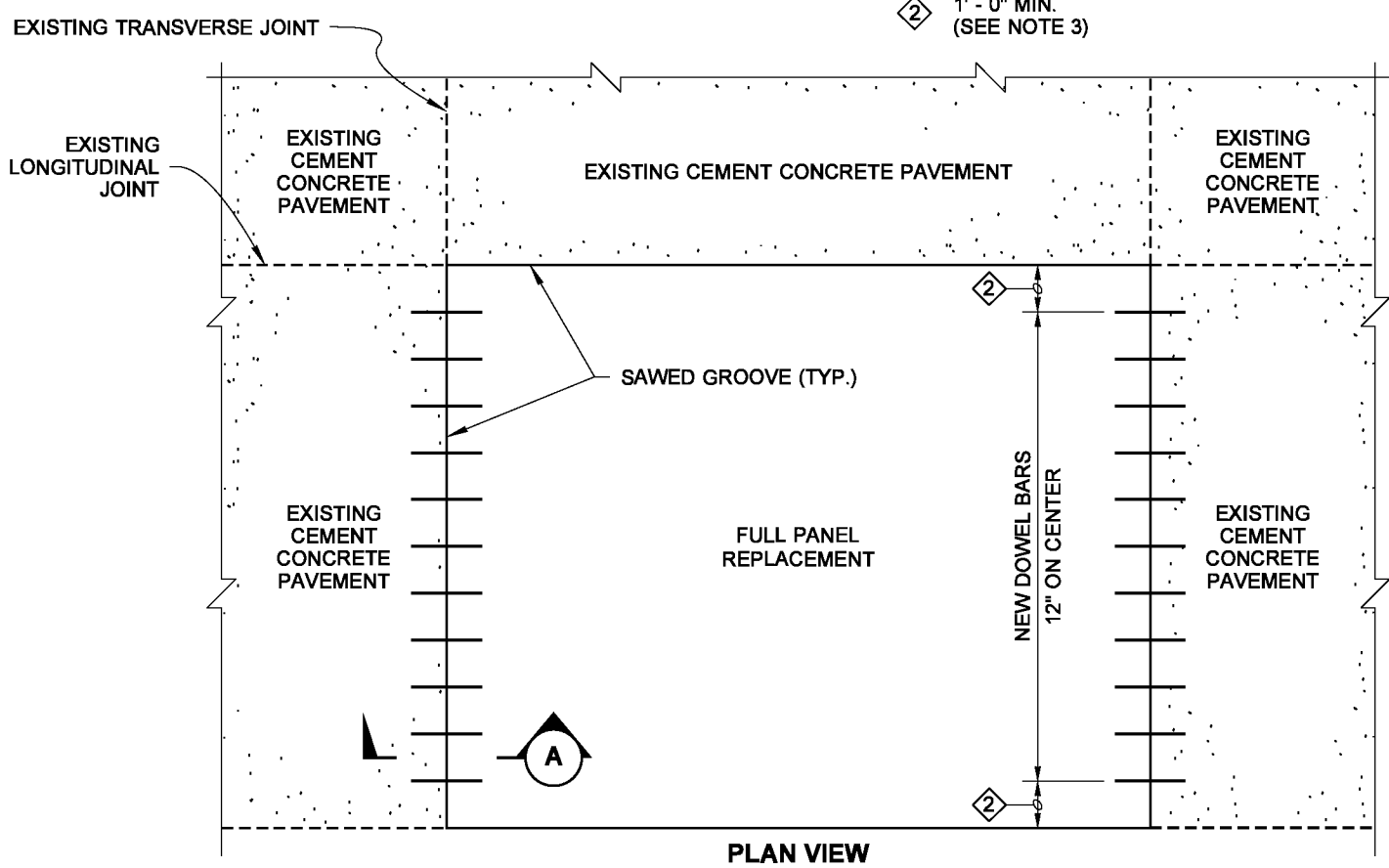
DATE



* WITH RECTANGULAR GRATE CAST INTO ADJUSTMENT SECTION.



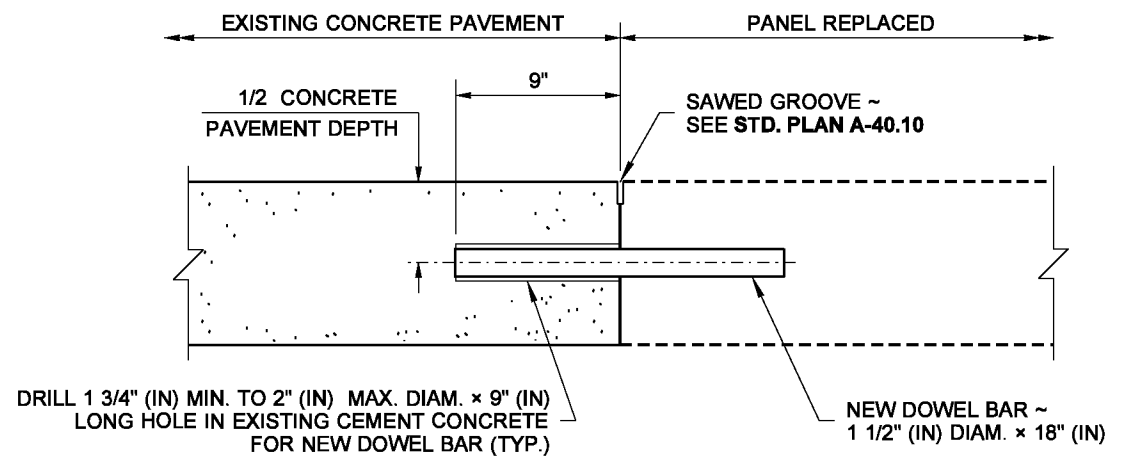
**PLAN VIEW
PANEL REPLACEMENT**



**PLAN VIEW
FULL PANEL REPLACEMENT DETAIL**

NOTES

1. Install tie bars across longitudinal joints between new panels (complete and partial) and existing cement concrete pavement lane or shoulder when four or more adjacent panels are replaced. Place new tie bars between existing tie bars. Tie bars are not installed between cement concrete pavement and hot mix asphalt shoulders.
2. Place a bond-breaking material such as polyethylene film, roofing paper, or other material approved by the Engineer along all existing concrete surfaces and between the bottom of the slab and bases prior to placing concrete.
3. Place new dowel bars between existing dowel bars. The 1' - 0" dimension from the edge of the panel may be increased by 6" (in) to avoid bar in existing panel.
4. Bars shall meet the requirements of **Standard Specification 9-07.5(1) or 9-07.5(2)**.



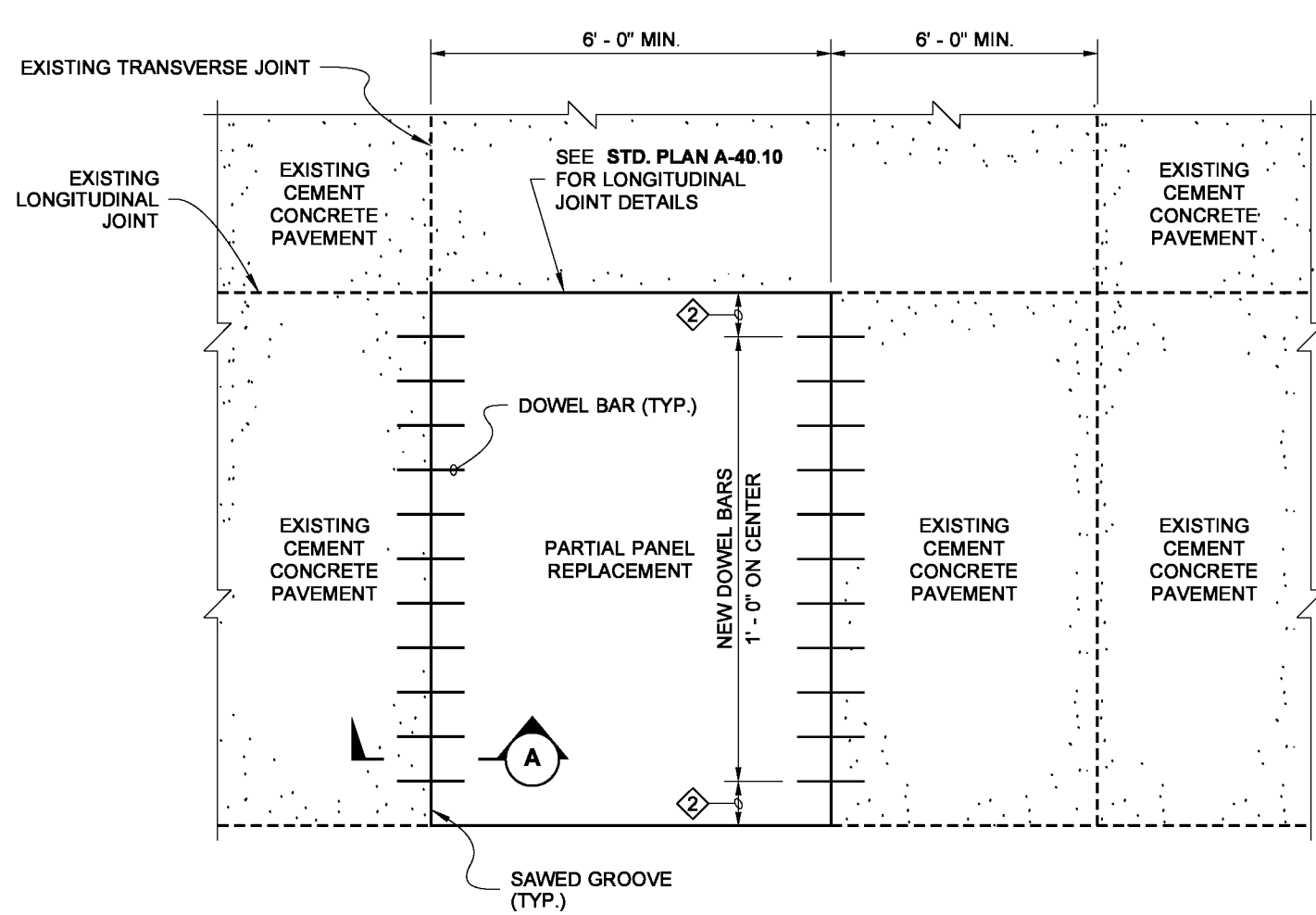
SECTION A



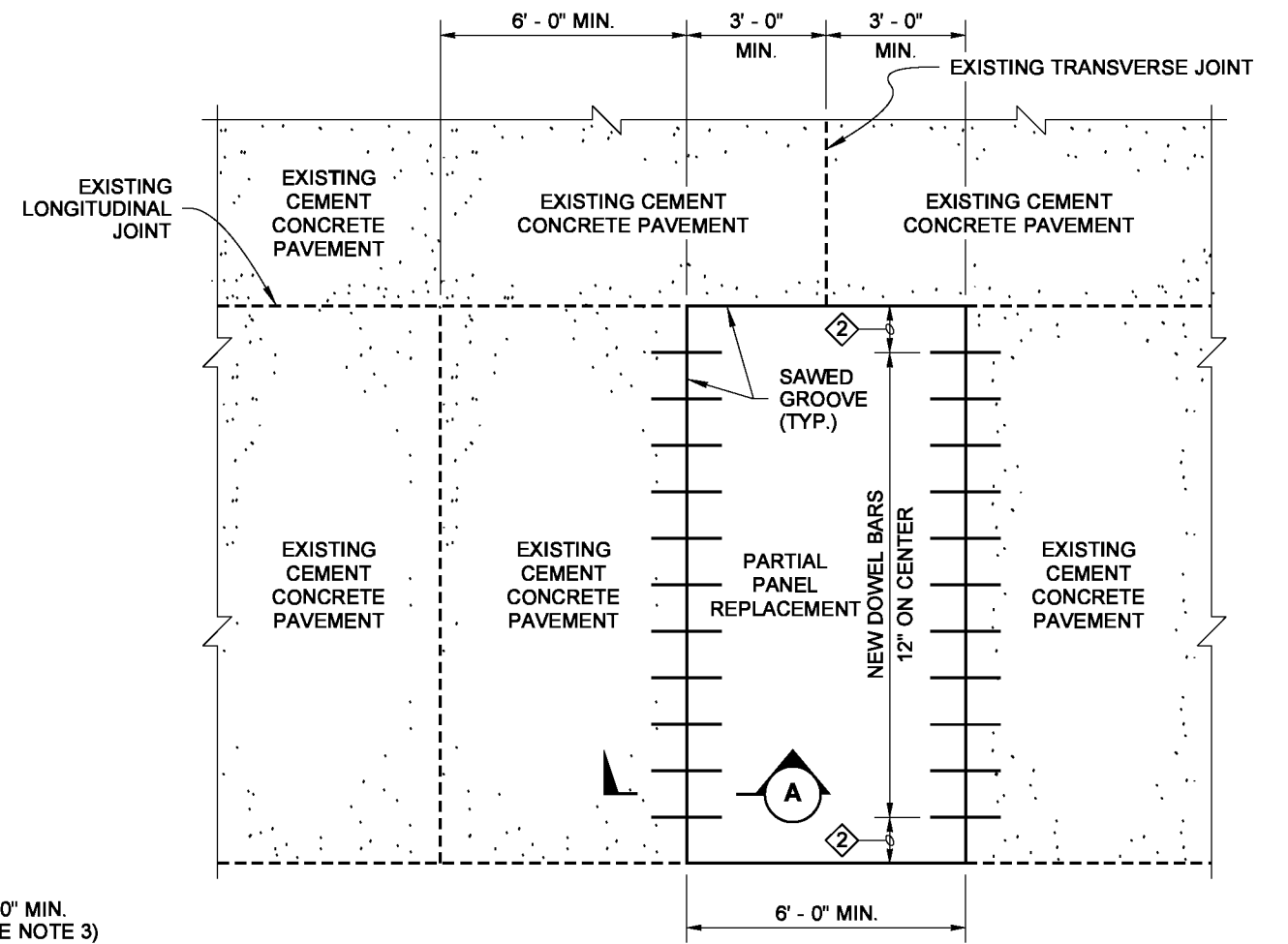
**CEMENT CONCRETE
PAVEMENT
REHABILITATION
STANDARD PLAN A-60.10-03**

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

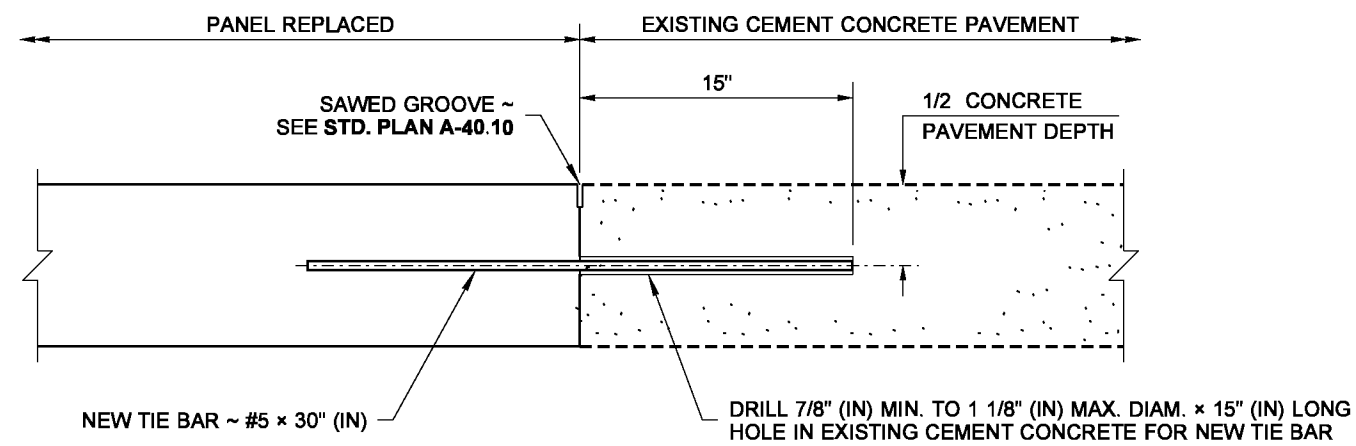


PLAN VIEW
PARTIAL PANEL REPLACEMENT
WITHOUT JOINT REPLACEMENT

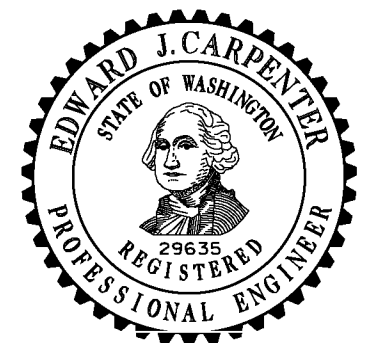


PLAN VIEW
PARTIAL PANEL REPLACEMENT
WITH JOINT REPLACEMENT

② 1'-0" MIN.
(SEE NOTE 3)



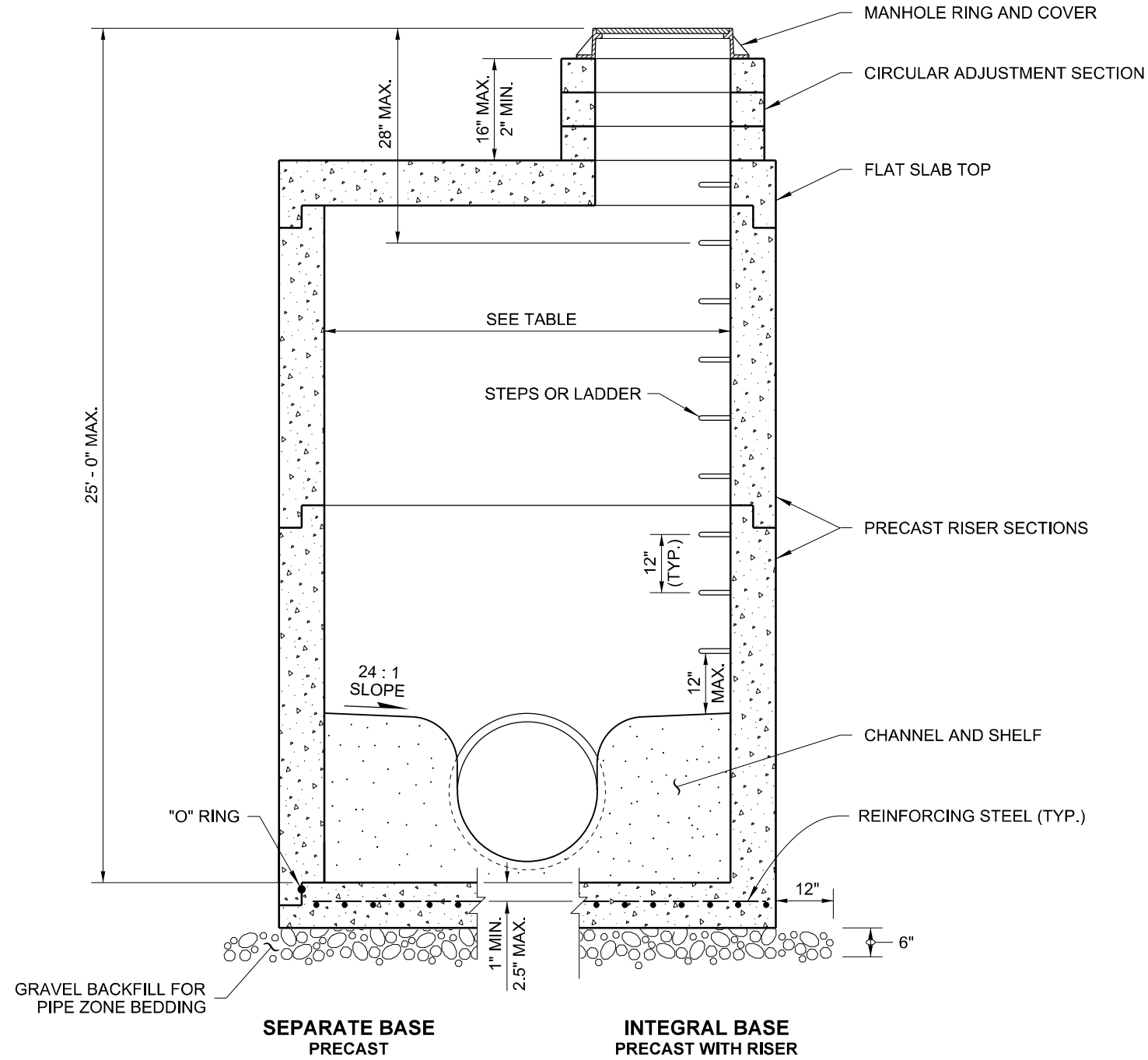
SECTION B



CEMENT CONCRETE PAVEMENT REHABILITATION STANDARD PLAN A-60.10-03

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION



NOTES

1. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum.
2. For pipe allowances, see **Standard Plan B-10.20**.
3. No steps are required when height is 4' (ft) or less.

MANHOLE DIMENSION TABLE				
DIAM.	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"



Heilman, Julie
Jan 25 2017 2:58 PM
cosign

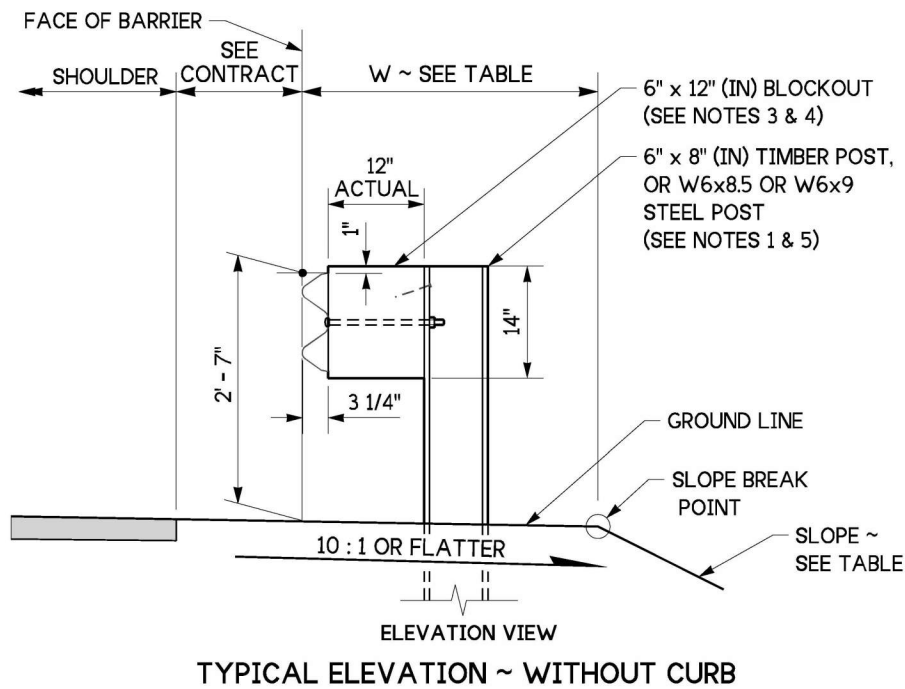
MANHOLE TYPE 3

STANDARD PLAN B-15.60-02

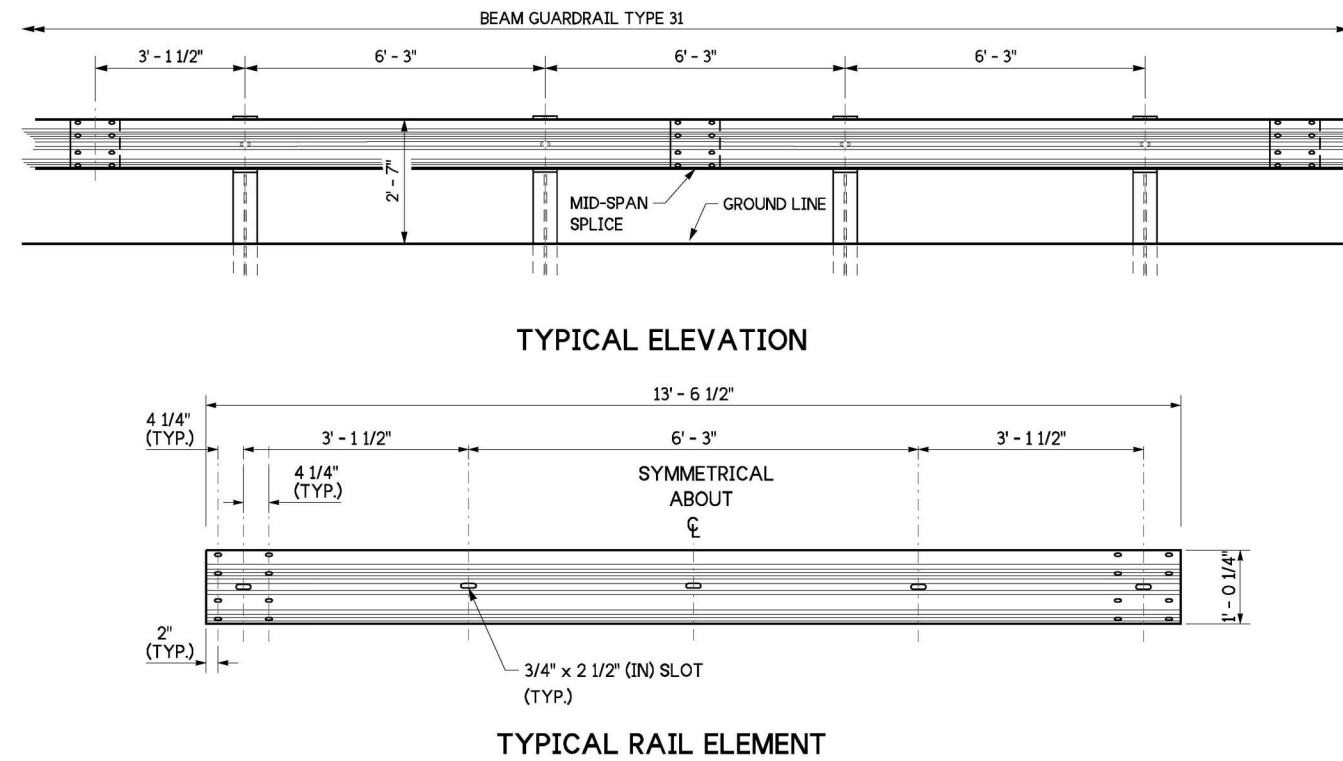
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Jan 26 2017 6:50 AM
cosign

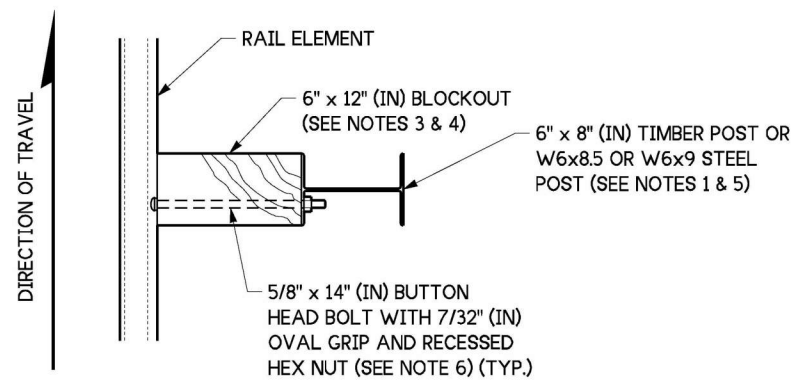
STATE DESIGN ENGINEER
Washington State Department of Transportation



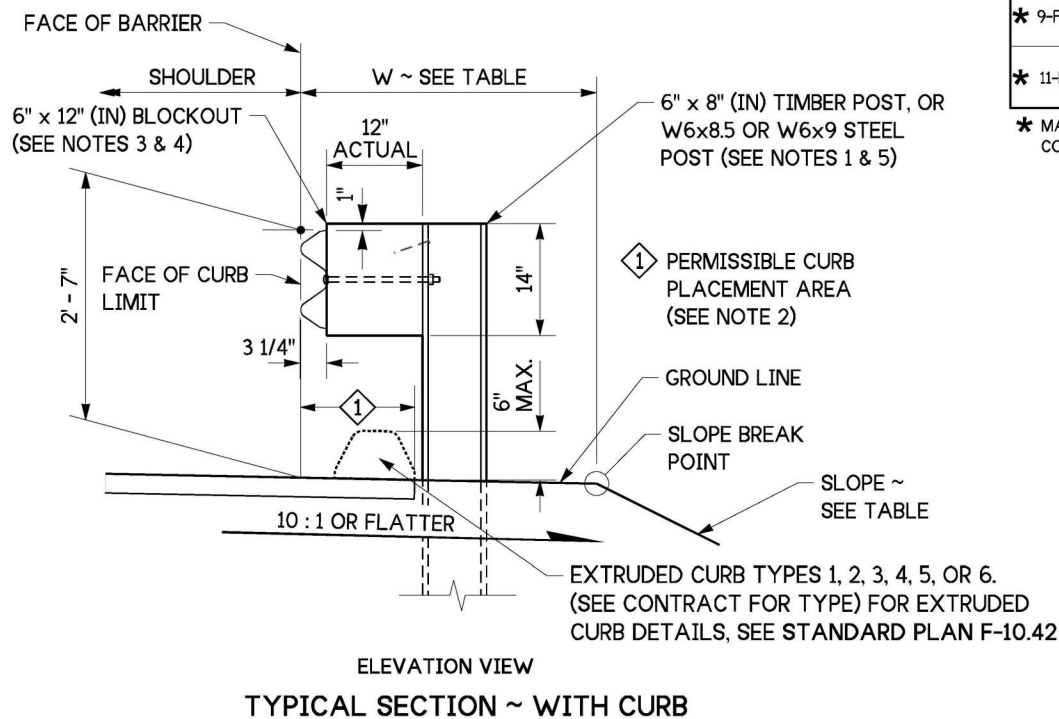
TYPICAL ELEVATION ~ WITHOUT CURB



TYPICAL RAIL ELEMENT



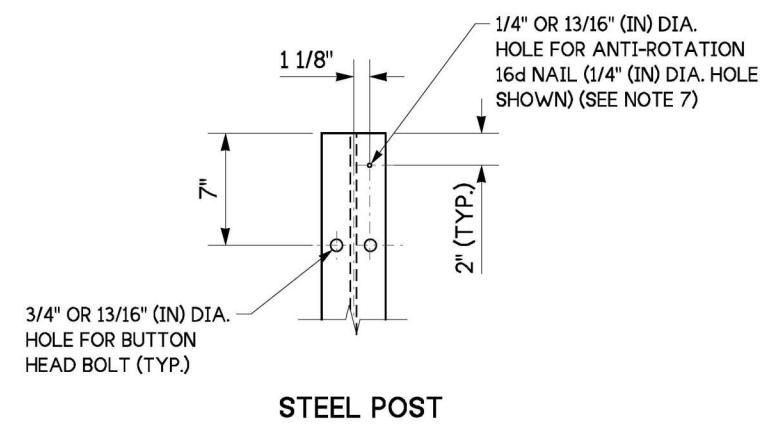
PLAN VIEW



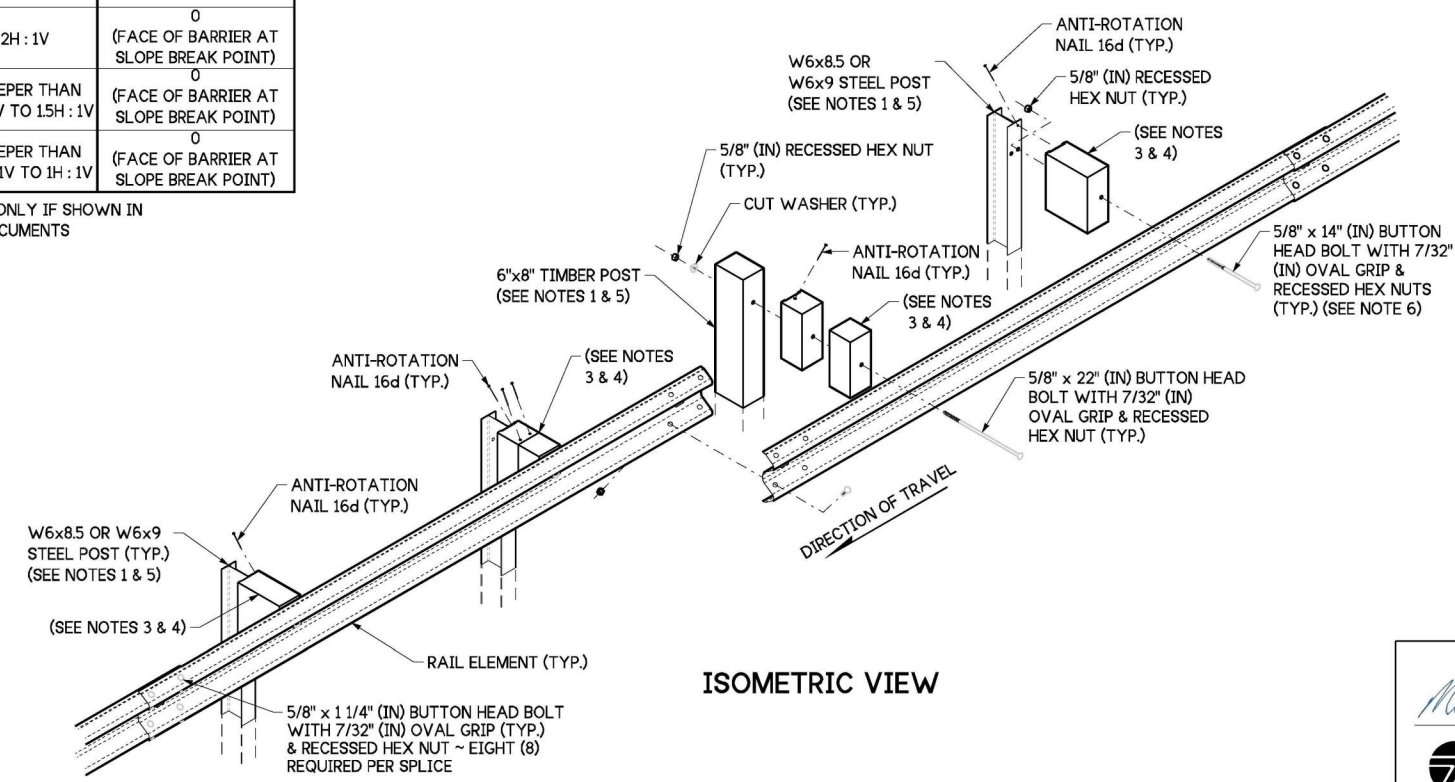
TYPICAL SECTION ~ WITH CURB

SLOPE/EMBANKMENT TABLE FOR 6', 8', 9', AND 11' LONG POSTS		
POST LENGTH	SLOPE	W (FT)
6-FOOT	2H:1V OR FLATTER	25 MIN.
6-FOOT	1H:1V OR FLATTER	4.0 MIN.
8-FOOT	STEEPER THAN 2H:1V TO 1H:1V	25 MIN.
8-FOOT	2H:1V	(FACE OF BARRIER AT SLOPE BREAK POINT)
* 9-FOOT	STEEPER THAN 2H:1V TO 1.5H:1V	(FACE OF BARRIER AT SLOPE BREAK POINT)
* 11-FOOT	STEEPER THAN 1.5H:1V TO 1H:1V	(FACE OF BARRIER AT SLOPE BREAK POINT)

* MAY BE USED ONLY IF SHOWN IN CONTRACT DOCUMENTS



STEEL POST



ISOMETRIC VIEW

NOTES

1. Refer to Standard Plan C-1b for additional details not shown on this plan.
2. Extend shoulder pavement to provide a base for the extruded curb. See Contract Plans for exceptions to distances shown.
3. Use a single block or combination of blocks (no more than two (2) to achieve the actual 12" (in) offset. See Standard Specification Section 9-16.3(2). Wood blocks shall be secured to the posts with anti-rotation nails. If combination blocks are used, the adjacent blocks shall be toenailed with two 16d galvanized nails to prevent block rotation.
4. Wood blocks are shown. Blocks of an approved alternative material may be used. See Standard Specification Section 9-16.3(2).
5. All posts for any standard barrier run shall be of the same type; timber or steel.
6. Attach blockouts to steel posts using bolt holes on approaching traffic side of post web.
7. Anti-rotation holes in steel posts are not required when using blocks with anti-rotation features (e.g., routed blocks).



Oct 12, 2023

BEAM GUARDRAIL TYPE 31

STANDARD PLAN C-20.10-09

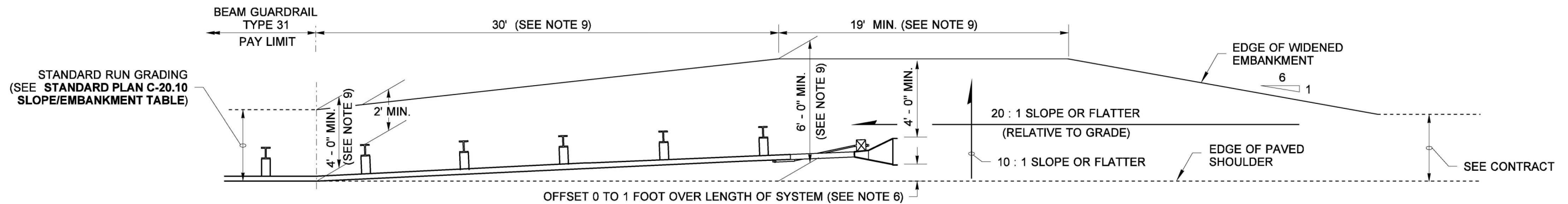
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

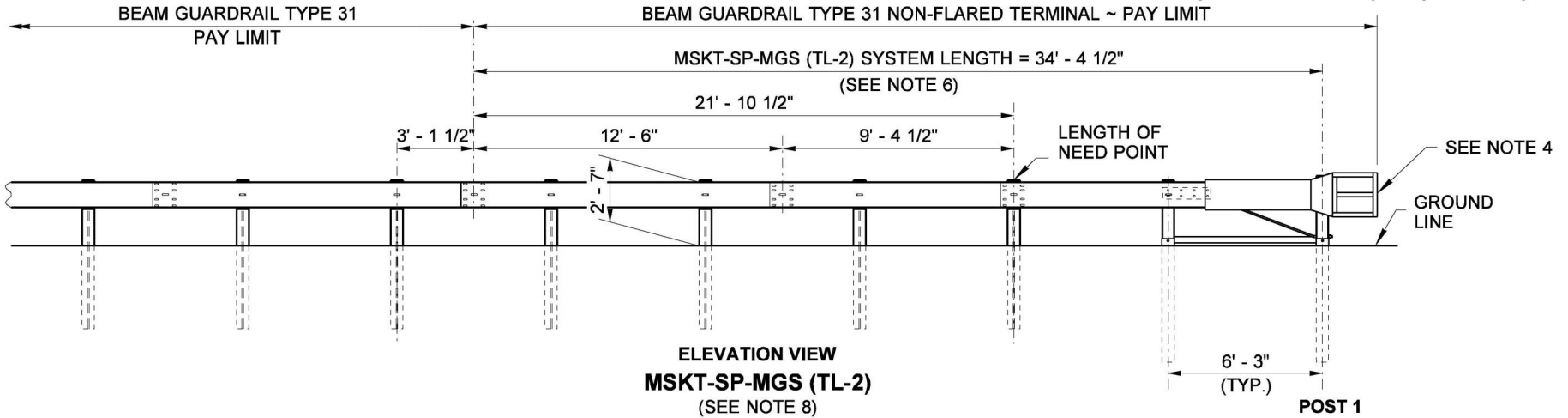
Mark A. Davis Oct 12, 2023

STATE DESIGN ENGINEER

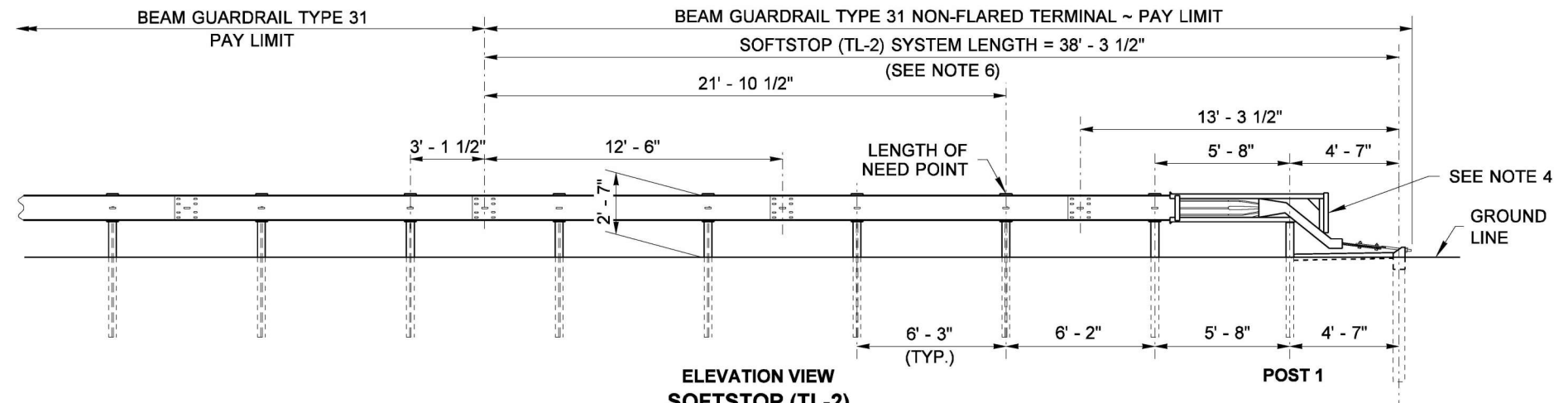
Washington State Department of Transportation



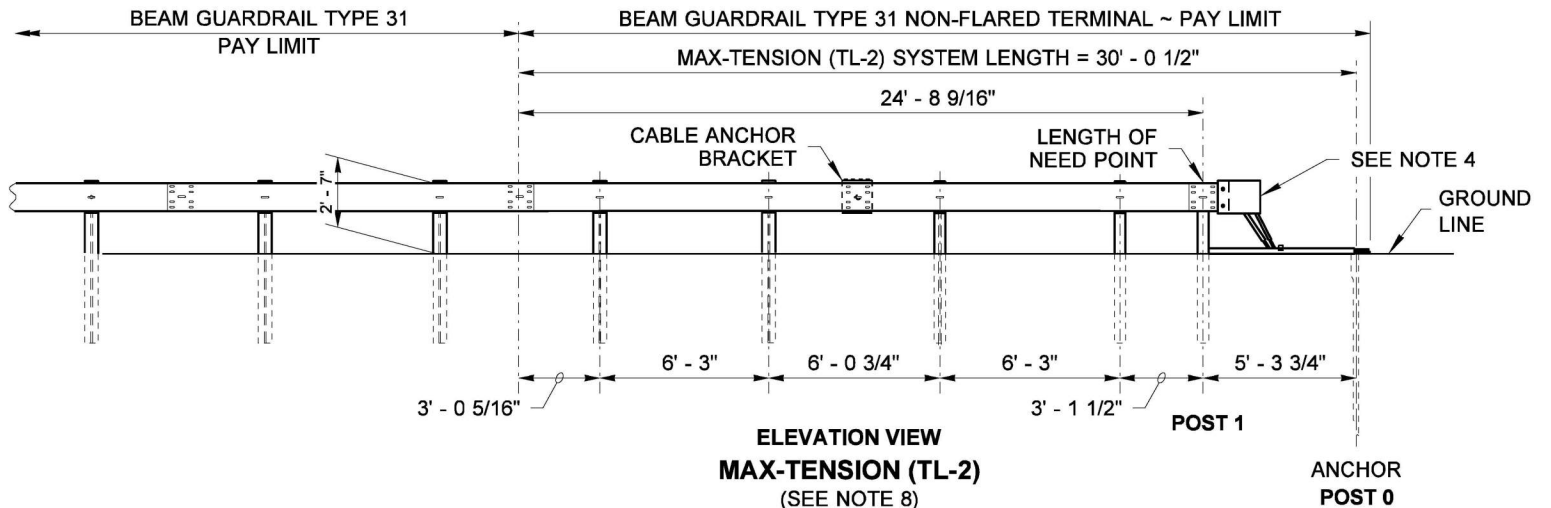
**PLAN VIEW
(MSKT-SP-MGS (TL-2) SHOWN)**



**ELEVATION VIEW
MSKT-SP-MGS (TL-2)
(SEE NOTE 8)**



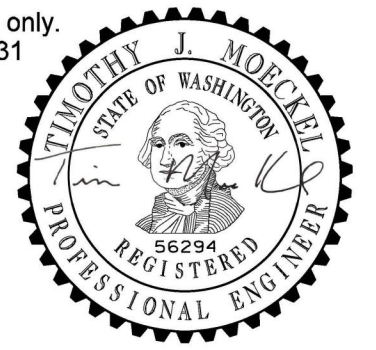
**ELEVATION VIEW
SOFTSTOP (TL-2)
(SEE NOTE 8)**



**ELEVATION VIEW
MAX-TENSION (TL-2)
(SEE NOTE 8)**

NOTES

1. The Implementation of the Manual for Assessment of Safety Hardware (MASH) criteria may result in the acceptance of guardrail terminal systems currently not shown on this plan. Non-Flared terminals shall be selected from the WSDOT Qualified Products List (QPL) or approved through the WSDOT Request for Approval of Materials (RAM) process.
2. This terminal is MASH compliant at Test Level Two (TL-2) and may be used in applications with posted speed of 45 mph or less.
3. An MSKT-SP-MGS (TL-2) as manufactured by Road Systems, Inc, SOFTSTOP (TL-2) as manufactured by Trinity Highway Products, LLC, or MAX-TENSION (TL-2) as manufactured by Lindsay Transportation Solutions, shall be installed according to manufacturer's recommendations.
4. A reflectorized object marker shall be installed according to manufacturer's recommendations.
5. Snow load rail washers are not allowed.
6. Provide an offset between 0 to 1 foot so that the impact head does not encroach onto the paved shoulder. The offset is provided over the length of the terminal system from the center of the last post splice to either: (1) The face of the impact head at its leading edge (MSKT-SP-MGS), or (2) The center of anchor Post 0 (Softstop or Max-Tension). Provide the maximum offset where practicable.
7. For terminal details, see WSDOT approved manufacturer's drawings.
8. These terminals are supplied with steel posts only. They can be used with beam guardrail Type 31 runs, composed of steel or wood guardrail posts.
9. The widened embankment dimensions shown on this plan will satisfy the installation requirements of all 3 guardrail terminal systems shown on this plan.



Jul 18, 2024

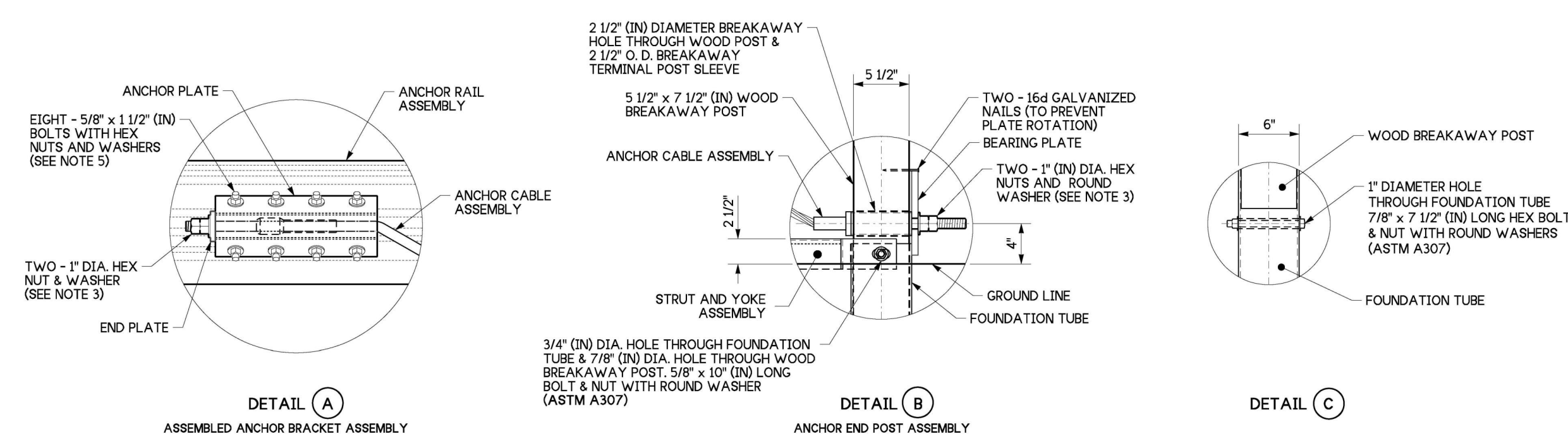
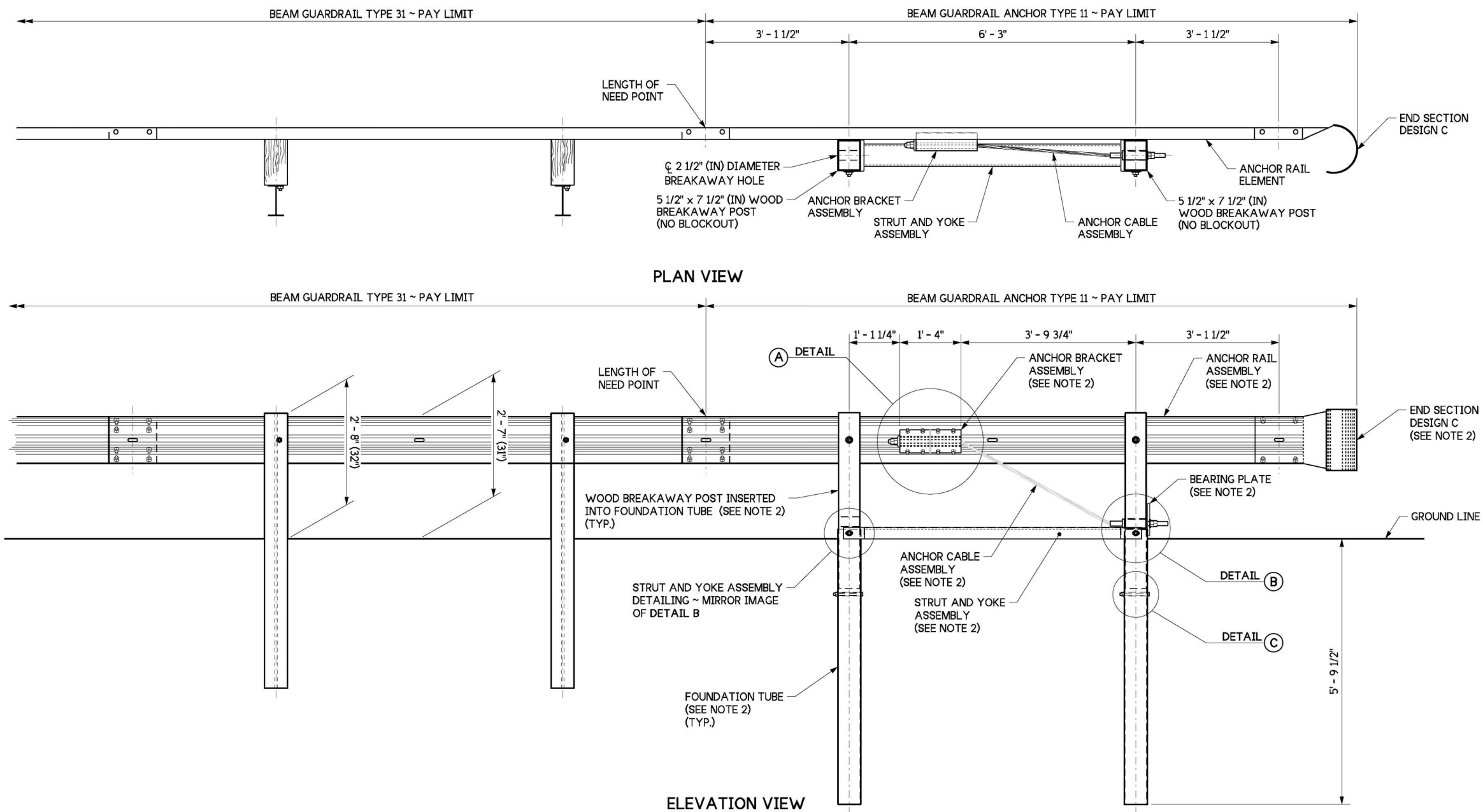
**BEAM GUARDRAIL TYPE 31
NON-FLARED TERMINAL
(POSTED SPEED
45 MPH AND BELOW)
STANDARD PLAN C-22.45-07**

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Mark A. Daines Jul 21, 2024
STATE DESIGN ENGINEER

Washington State Department of Transportation



NOTES

1. For typical rail element and post details not shown on this plan refer to Standard Plans C-20.10 and C-1b.
2. For additional details not shown, see Sheet 2 of this Plan.
3. Fasten the Anchor Cable using two 1" (in) nuts and washer, at both ends of cable. Outside nut shall be torqued against inside nut a minimum of 100 ft.-lbs.
4. It is permissible to fabricate the anchor plate from 1/4" (in) thick plates welded to equal strength and dimensions as shown.
5. Eight 5/8" x 1 1/2" (in) machine bolts with hex nut and washer. Place washer on face side of rail.
6. Galvanizing of Anchor metal components shall be in accordance with Standard Specification Section 9-16.3(5).
7. See Standard Plans C-20.14 or C-20.18 for proper placement of Type 11 Anchors in front of fixed features.



Oct 13, 2023

BEAM GUARDRAIL TYPE 31 ~ ANCHOR TYPE 11

STANDARD PLAN C-23.70-01

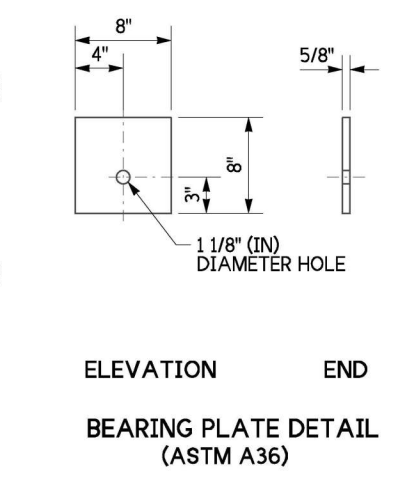
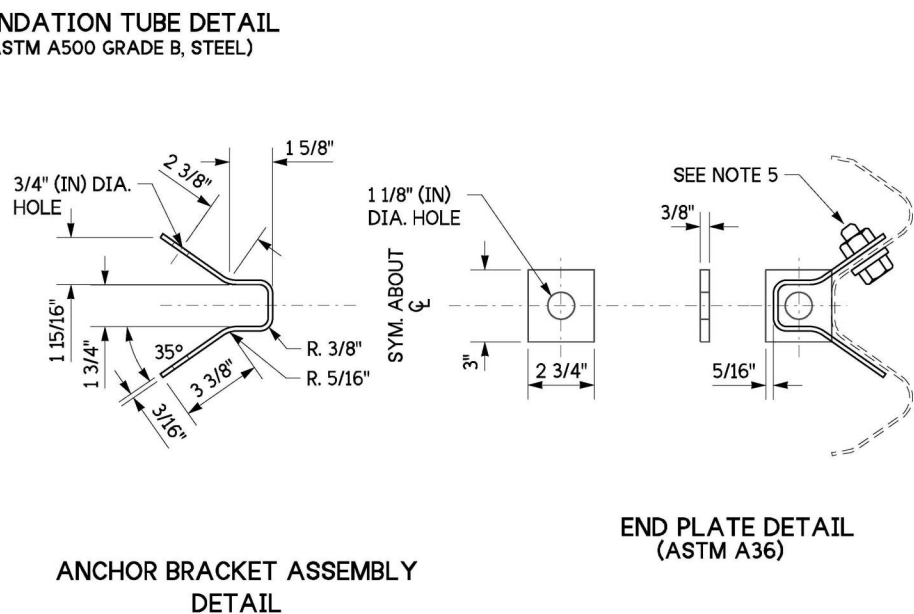
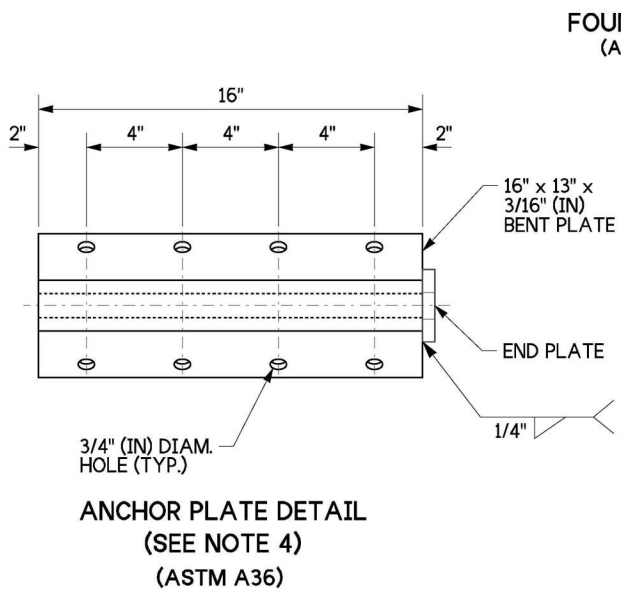
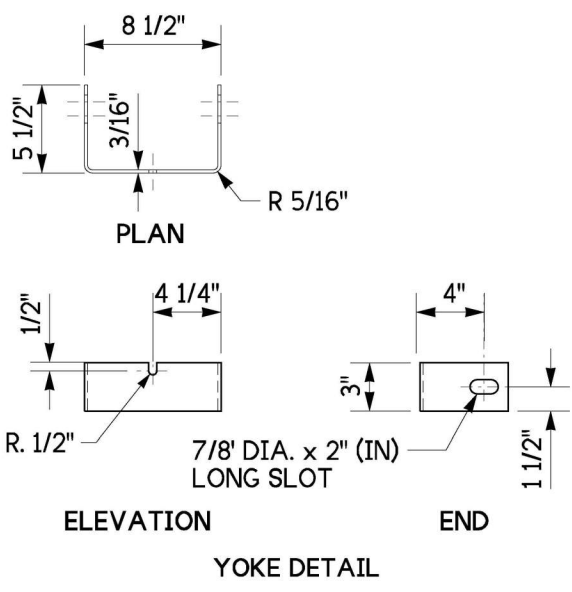
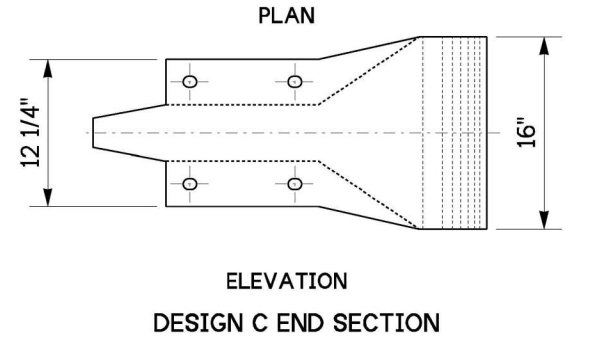
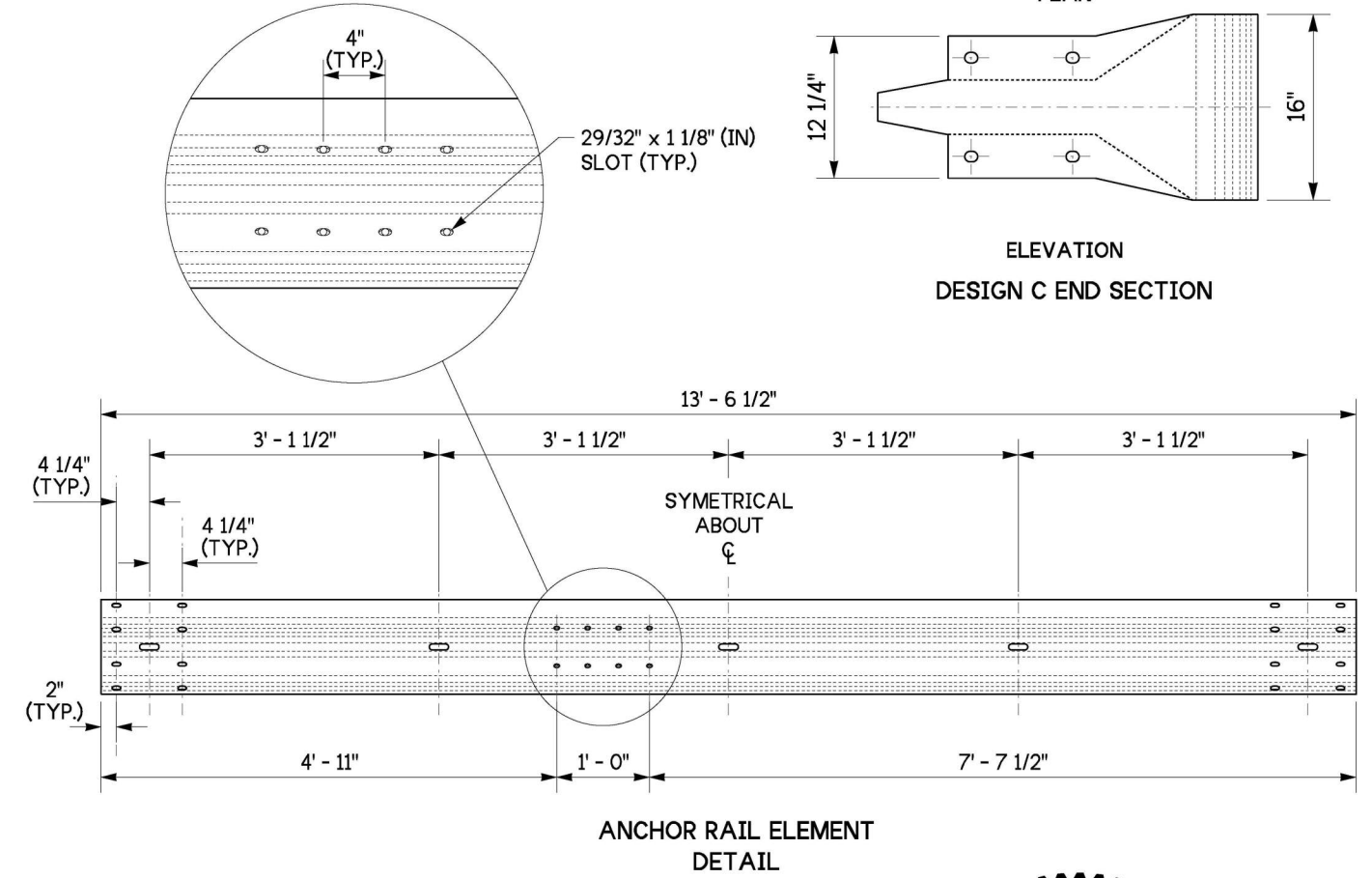
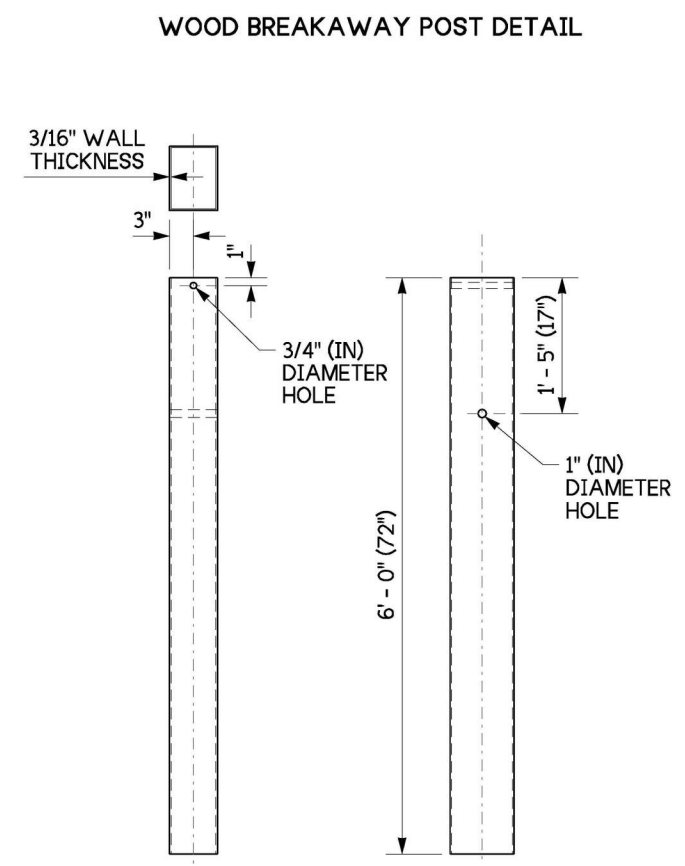
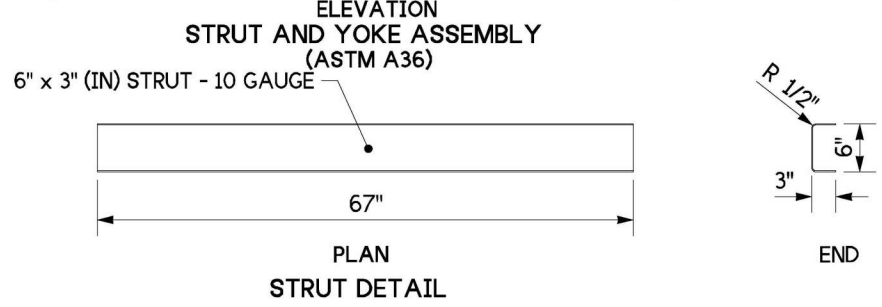
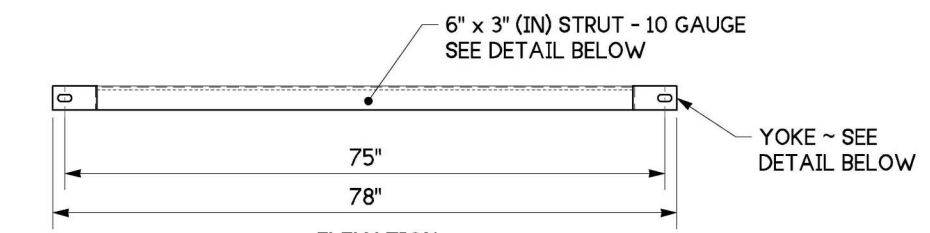
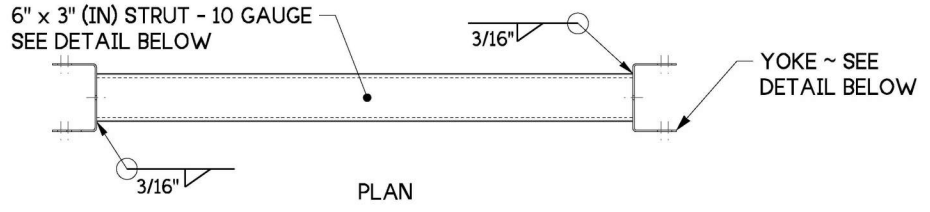
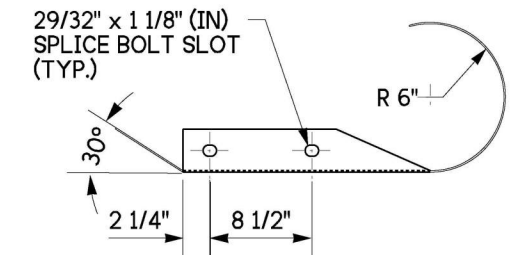
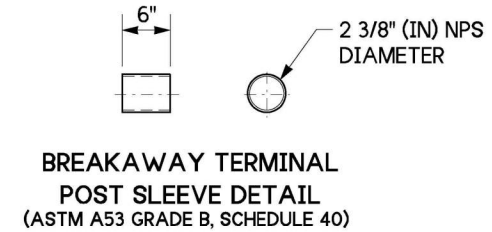
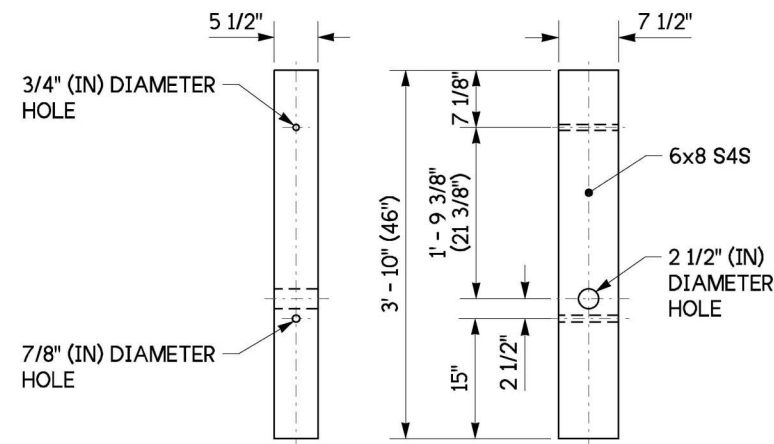
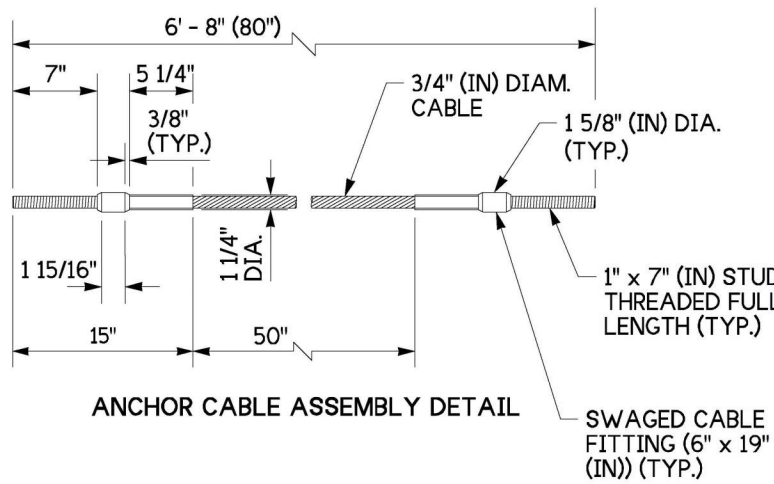
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

Mark A. Raines Oct 16, 2023

STATE DESIGN ENGINEER

Washington State Department of Transportation



Oct 13, 2023

BEAM GUARDRAIL TYPE 31 ~ ANCHOR TYPE 11

STANDARD PLAN C-23.70-01

SHEET 2 OF 2 SHEETS

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Mark A. Davis

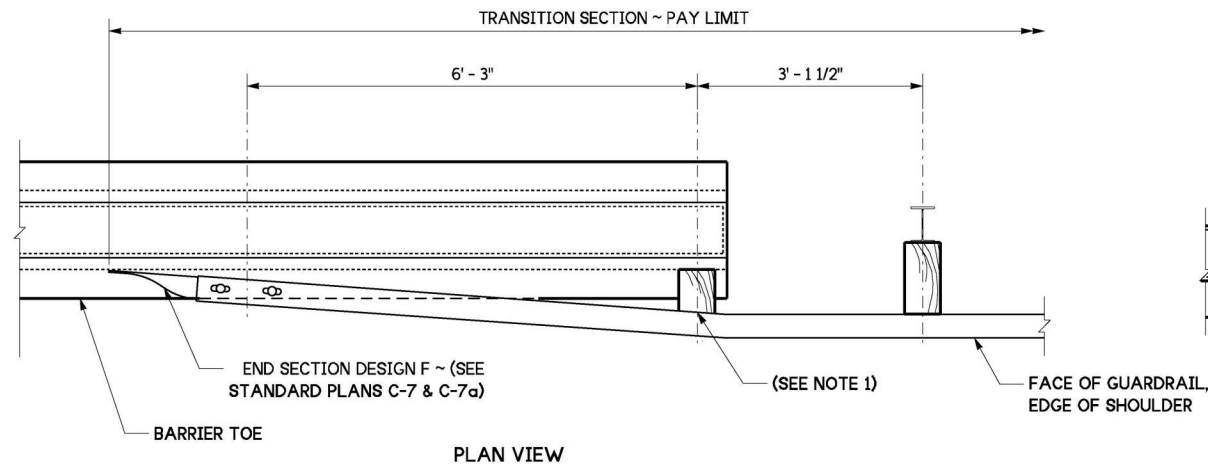
Oct 16, 2023

STATE DESIGN ENGINEER

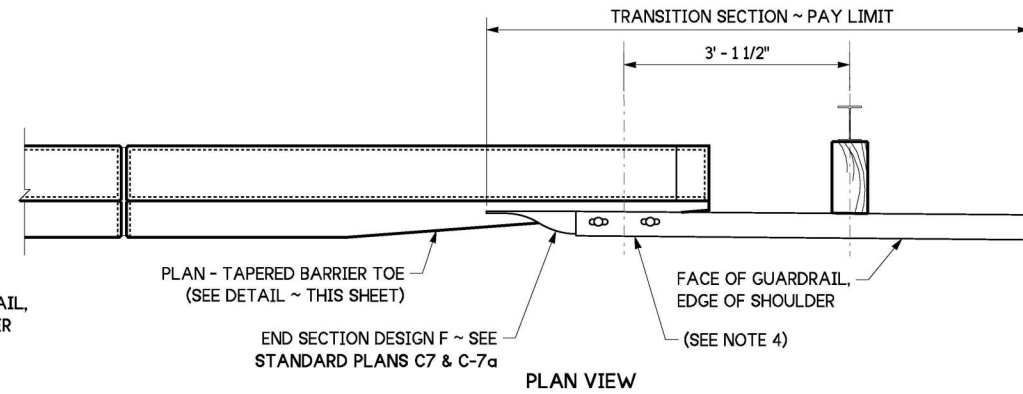


NOTES

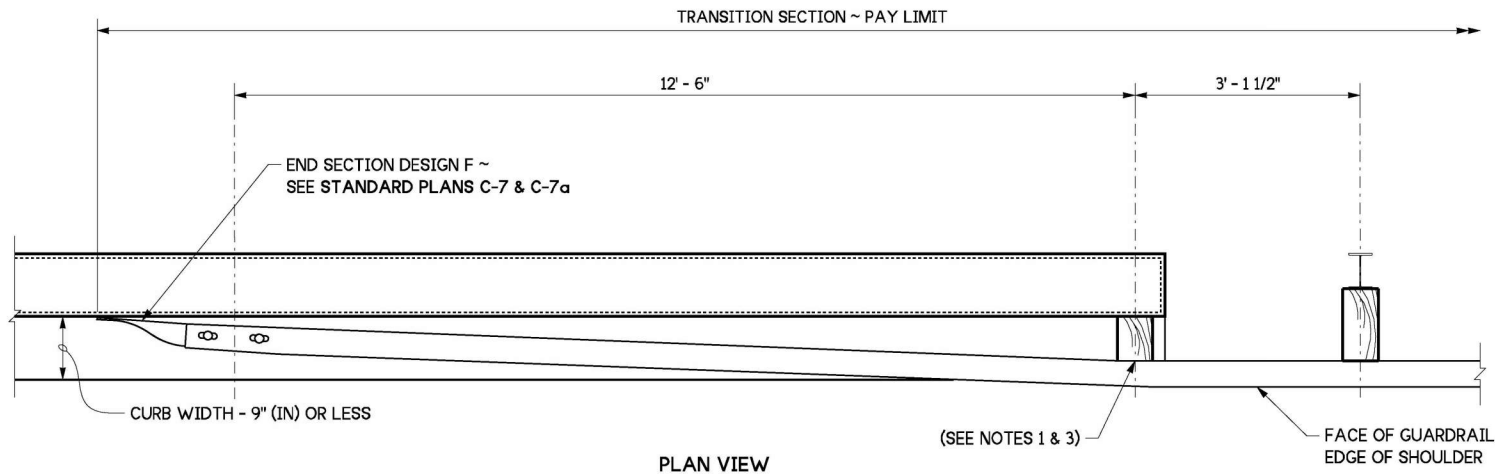
1. Attach guardrail to bridge rail or concrete barrier with 7/8" (in) diameter bolts with resin-bonded anchors per Standard Specification, Section 9-06.4.
2. Do not damage existing reinforcement. Core drilling allowed if existing reinforcement is located prior to drilling. Roughen edges of core drilled holes.
3. If the last guardrail post is 3" (in) or less from the end of the bridge barrier, this attachment and blockout is not necessary.
4. See Bridge Plans for additional connection details.
5. Wood blocks shown. Blocks of alternate material may be used. See Standard Specification, Section 9-16.3 (2).
6. Steel posts shown. Timber posts may be used.



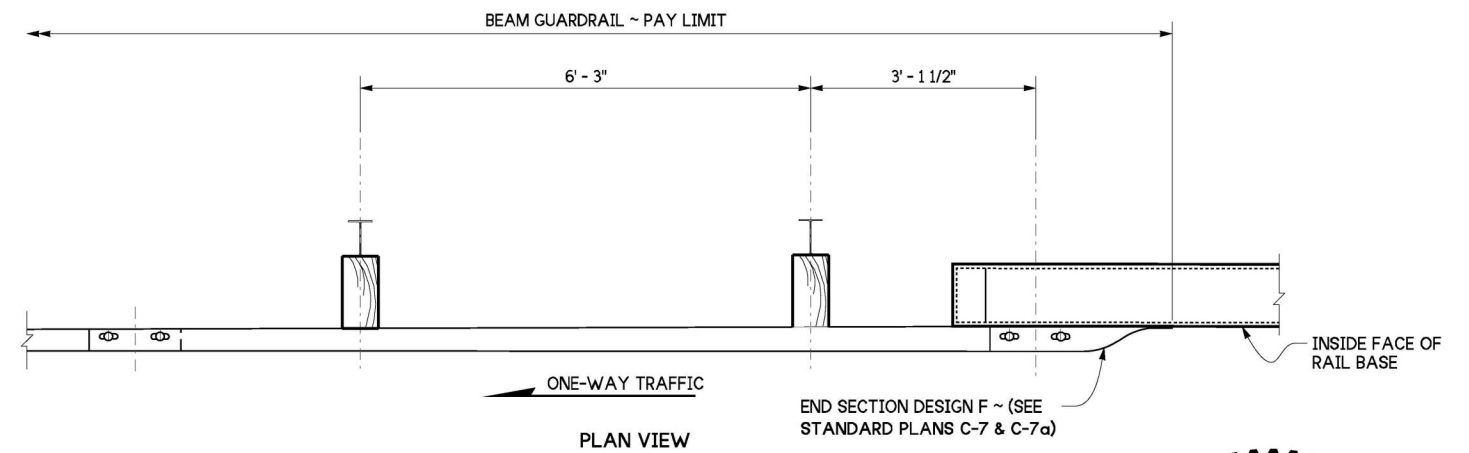
A CONNECTION
FOR UNRESTRAINED PRECAST CONCRETE BARRIER (TYPE F, TYPE 2)
(TYPE F SHOWN)



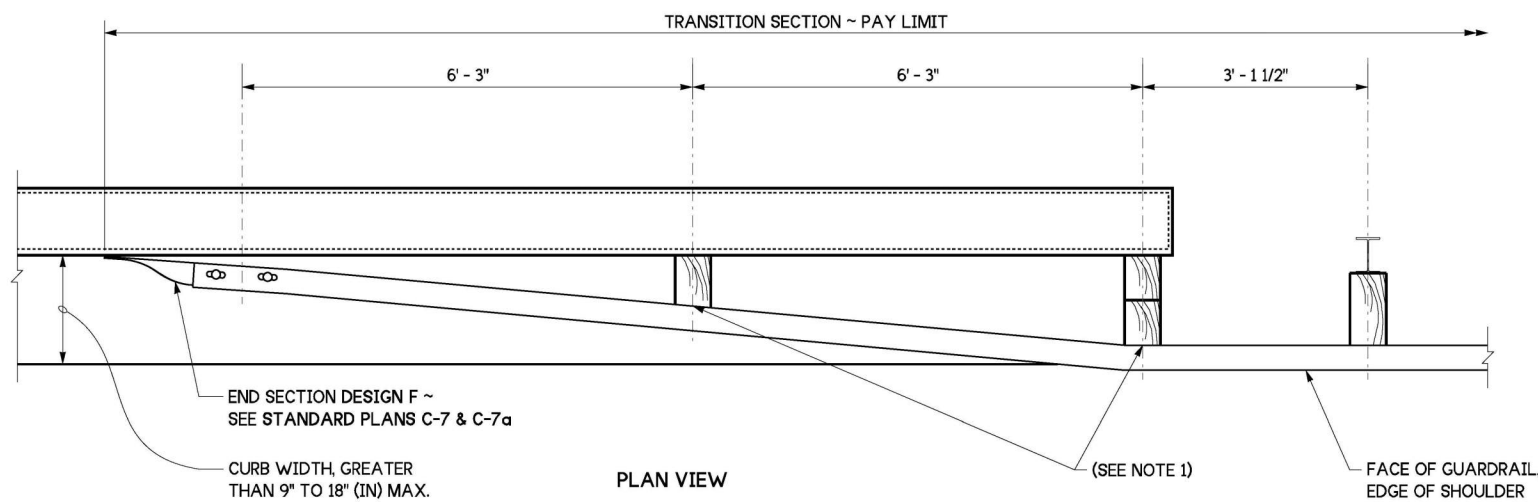
D CONNECTION
FOR VERTICAL WALLS, SINGLE SLOPE BRIDGE RAIL, SINGLE SLOPE CONCRETE BARRIER, TAPERED SAFETY SHAPE BRIDGE RAIL (TYPE F OR TYPE 2), AND TAPERED SAFETY SHAPE CONCRETE BARRIER WITH ANCHORS (TYPE F, TYPE 2) (TAPERED SAFETY SHAPE BARRIER SHOWN)



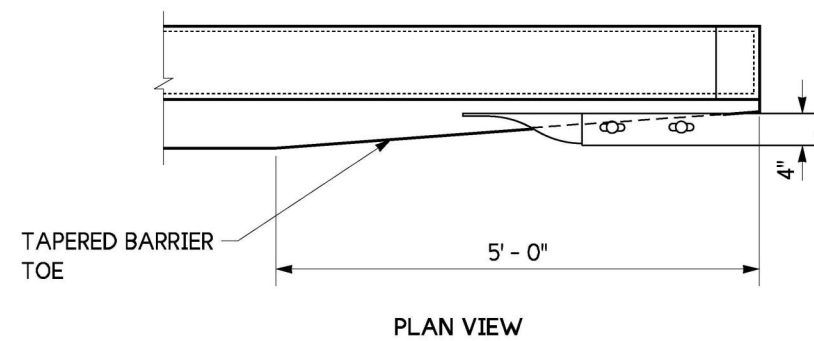
B CONNECTION
FOR BRIDGE RAILS WITH CURBS 9" (IN) OR LESS, UNTAPERED SAFETY SHAPE BRIDGE RAIL (TYPE F, TYPE 2), AND UNTAPERED SAFETY SHAPE CONCRETE BARRIER WITH ANCHORS (TYPE F, TYPE 2).



F CONNECTION
FOR ALL BRIDGE RAIL AND CONCRETE BARRIER TYPES LOCATED ON TRAILING ENDS OF ONE-WAY TRAFFIC ROADWAYS



C CONNECTION
FOR BRIDGE RAILS WITH CURBS BETWEEN 9" AND 18" (IN)



TAPERED BARRIER TOE DETAIL



Jul 18, 2024

GUARDRAIL CONNECTION TO BRIDGE RAIL OR CONCRETE BARRIER
STANDARD PLAN C-24.10-05

SHEET 1 OF 1 SHEET

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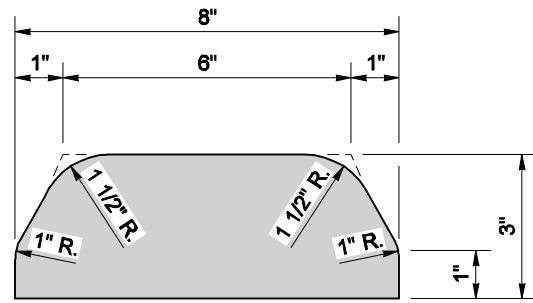
Mark A. Poirier

Jul 21, 2024

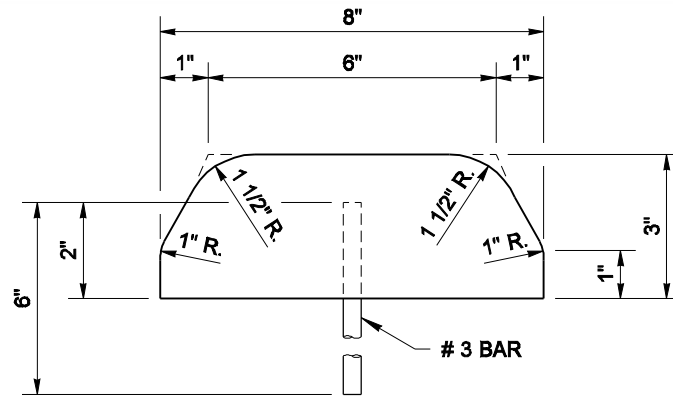
STATE DESIGN ENGINEER



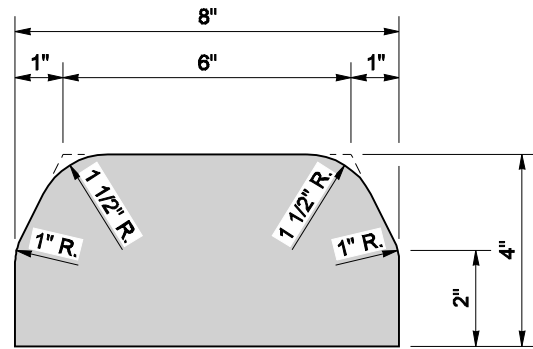
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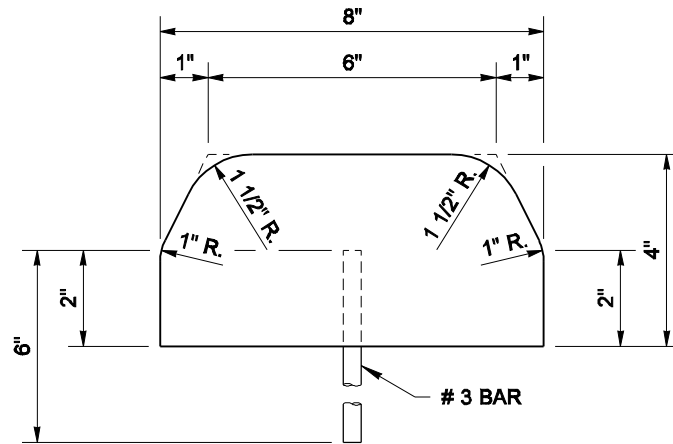
TYPE 1
(HOT MIX ASPHALT)



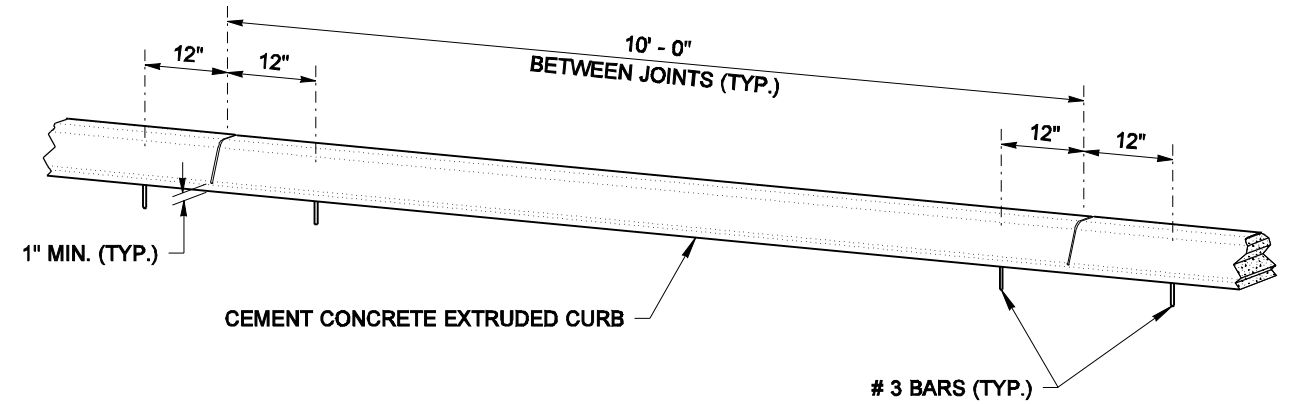
TYPE 4
(CEMENT CONCRETE)



TYPE 2
(HOT MIX ASPHALT)



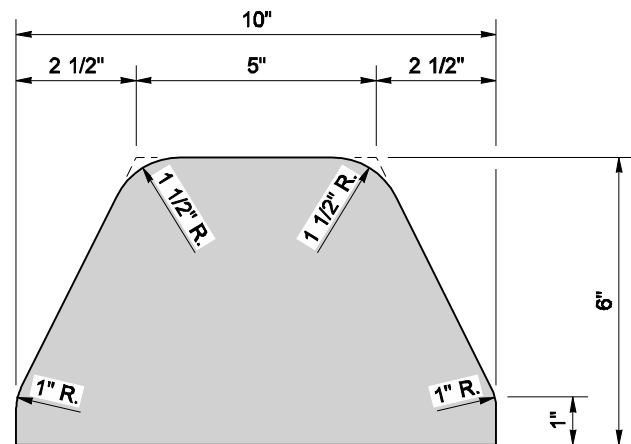
TYPE 5
(CEMENT CONCRETE)



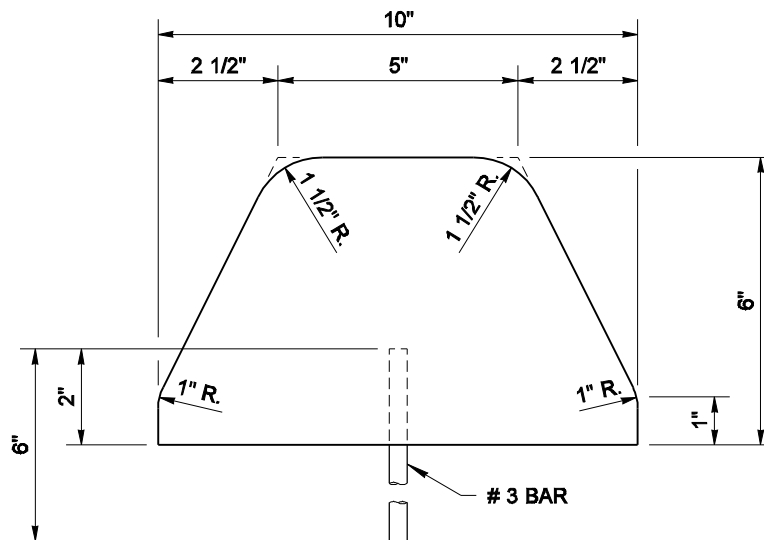
SPACING OF ANCHOR BARS
(FOR TYPES 4, 5, AND 6)

NOTE

JOINTS MAY BE FORMED DURING INSTALLATION USING A RIGID DIVIDER OR SAWCUT AFTER CONCRETE CURES TO MINIMUM STRENGTH.



TYPE 3
(HOT MIX ASPHALT)



TYPE 6
(CEMENT CONCRETE)



EXPIRES AUGUST 26, 2007

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

EXTRUDED CURB

STANDARD PLAN F-10.42-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Ken L. Smith

STATE DESIGN ENGINEER

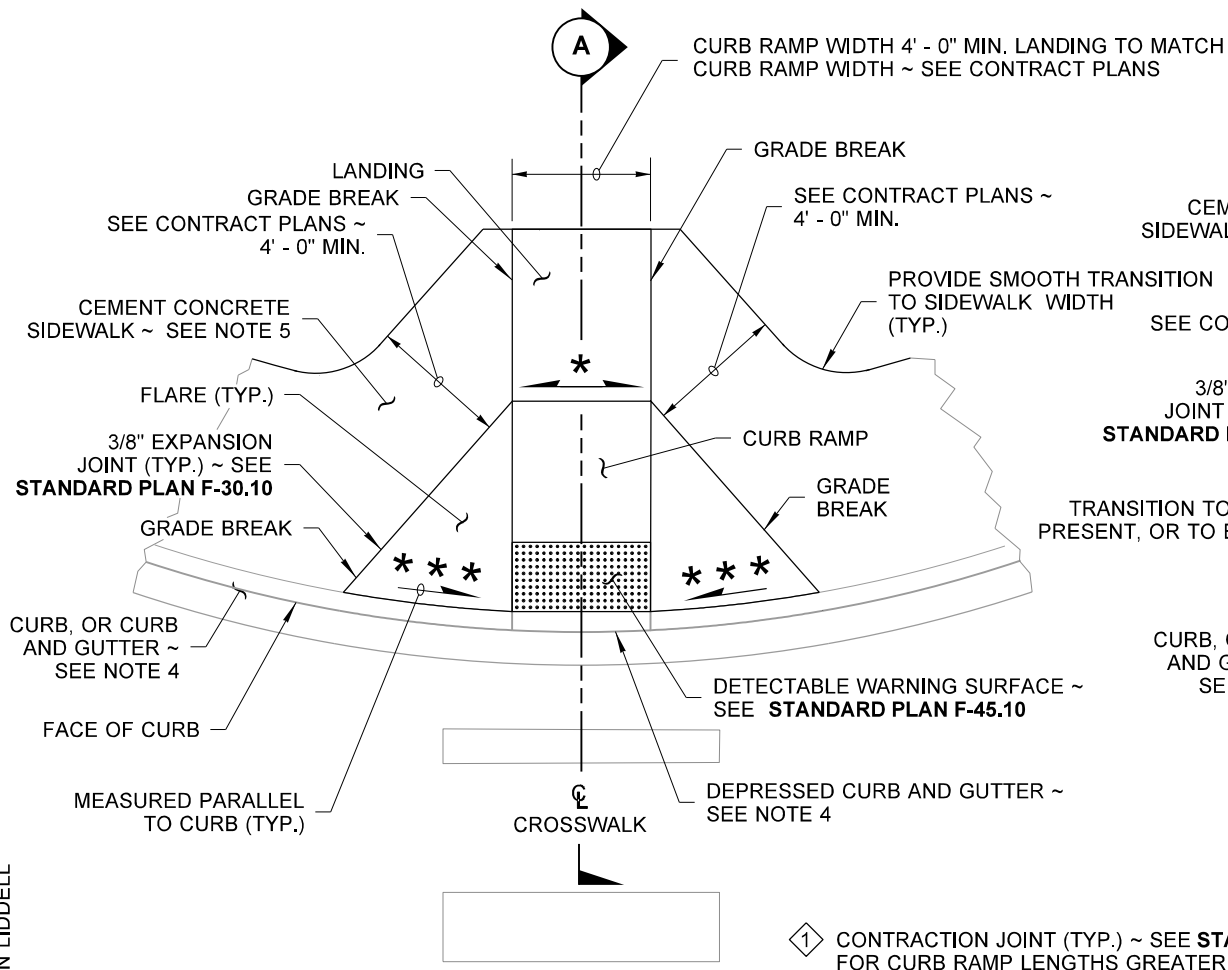
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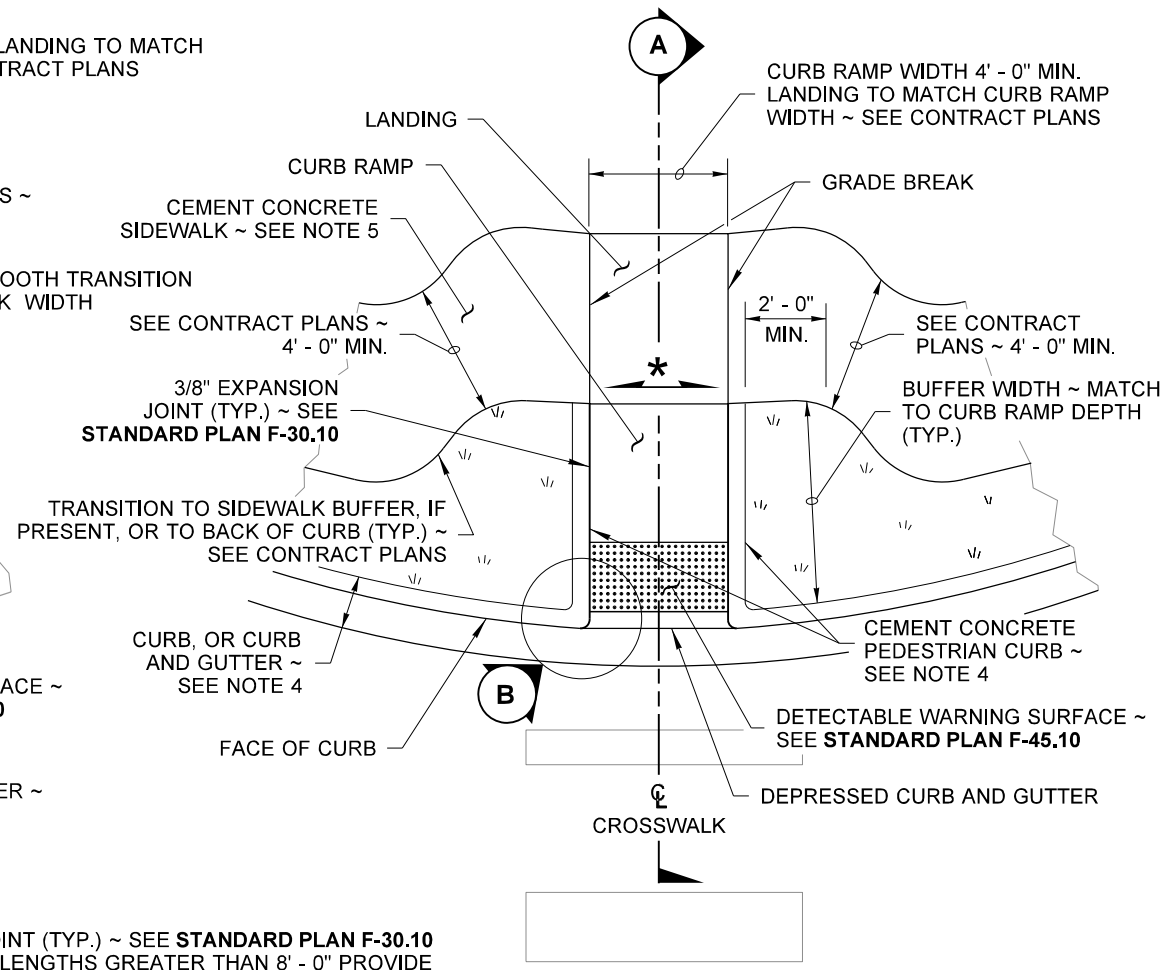


Washington State Department of Transportation

DRAWN BY: FERN LIDDELL

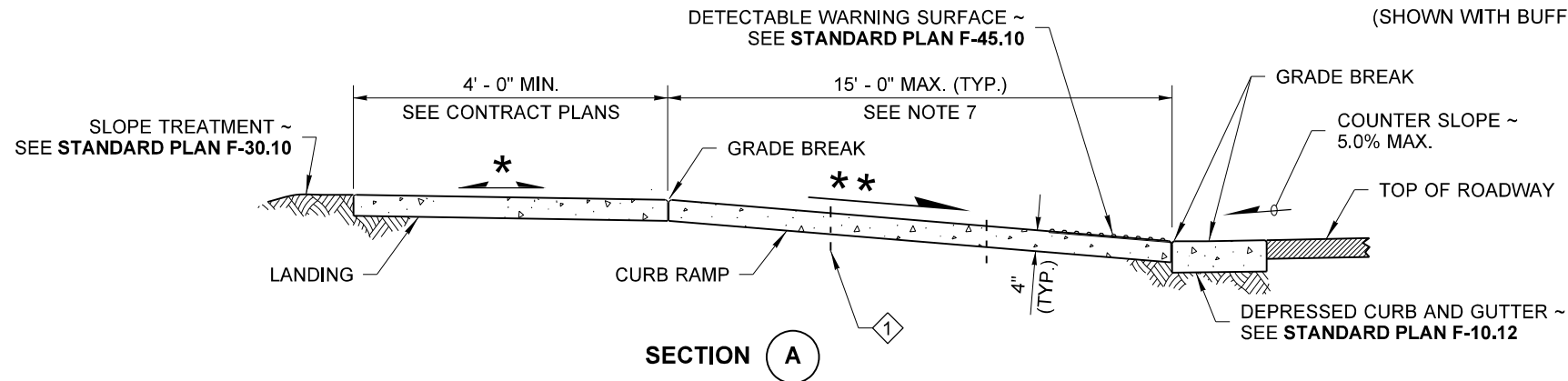


**PLAN VIEW
TYPE PERPENDICULAR A**

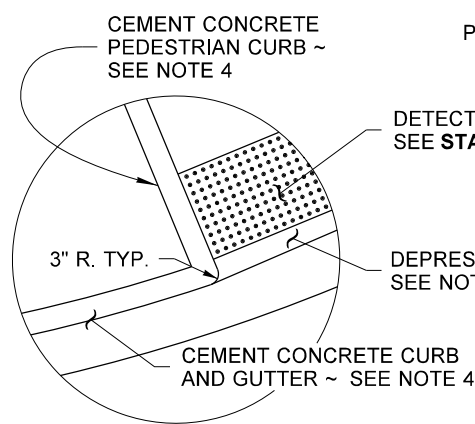


**PLAN VIEW
TYPE PERPENDICULAR B
(SHOWN WITH BUFFER)**

1 CONTRACTION JOINT (TYP.) ~ SEE STANDARD PLAN F-30.10 FOR CURB RAMP LENGTHS GREATER THAN 8' - 0" PROVIDE CONTRACTION JOINT EQUALLY SPACED 4' - 0" MIN. OC.

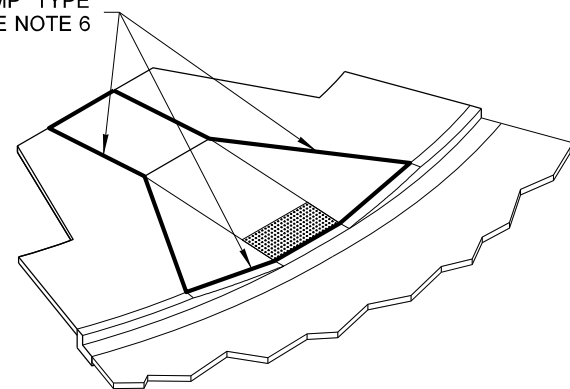


SECTION A



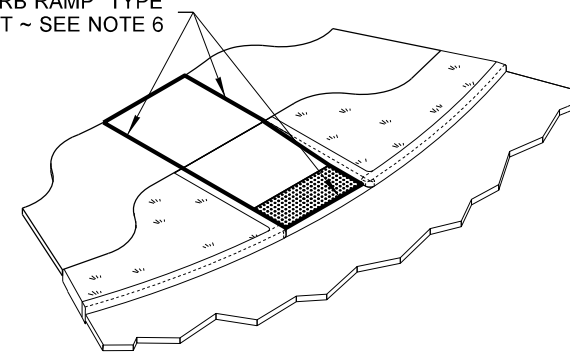
CURB RADIUS DETAIL B

CEMENT CONCRETE CURB RAMP "TYPE PERPENDICULAR "A" PAY LIMIT ~ SEE NOTE 6



**ISOMETRIC VIEW
TYPE PERPENDICULAR A PAY LIMIT**

CEMENT CONCRETE CURB RAMP "TYPE PERPENDICULAR "B" PAY LIMIT ~ SEE NOTE 6



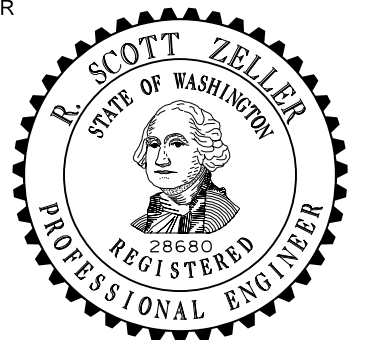
**ISOMETRIC VIEW
TYPE PERPENDICULAR B PAY LIMIT**

NOTES

1. At marked crosswalks, the connection between the curb ramp and the roadway must be contained within the width of the crosswalk markings.
2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing, or in front of the Curb Ramp where it connects to the roadway.
4. See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
5. See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
6. The Bid Item "Cement Concrete Curb Ramp Type ___" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
7. The Curb Ramp length is not required to exceed 15 feet (unless shown otherwise in the Contract Plans). When applying the 15-foot max. length, the running slope of the Curb Ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the landing over a horizontal distance of 15 feet. Do not include the abutting landing in the 15-foot max. measurement.
8. Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14**.
9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will not be material to retain.

LEGEND

- SLOPE IN EITHER DIRECTION
- * 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX.)
- ** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX.)
- *** 9.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (10% MAX.)

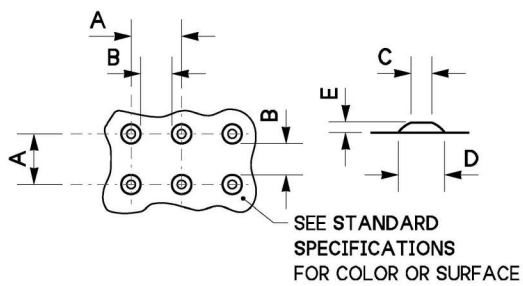


Digitally signed by R. Scott Zeller
Date: 2020.09.22 13:23:53 -07'00'

**PERPENDICULAR
CURB RAMP
STANDARD PLAN F-40.15-04**

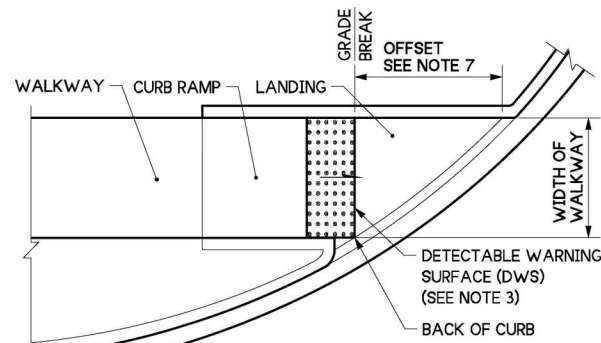
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Date: 2020.09.25
14:44:37 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation

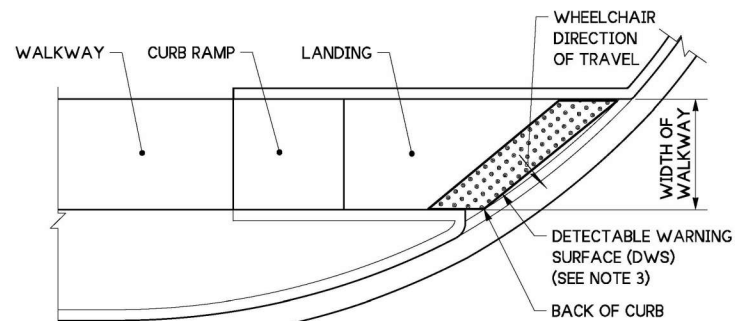


	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	
C	0.45"	0.90"
D	0.90"	1.40"
E	0.20"	0.20"

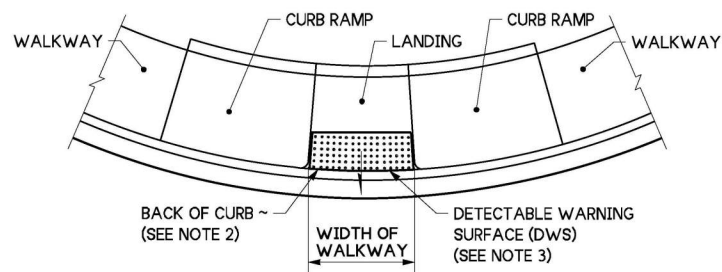
TRUNCATED DOME DETAILS
(SEE NOTE 3)



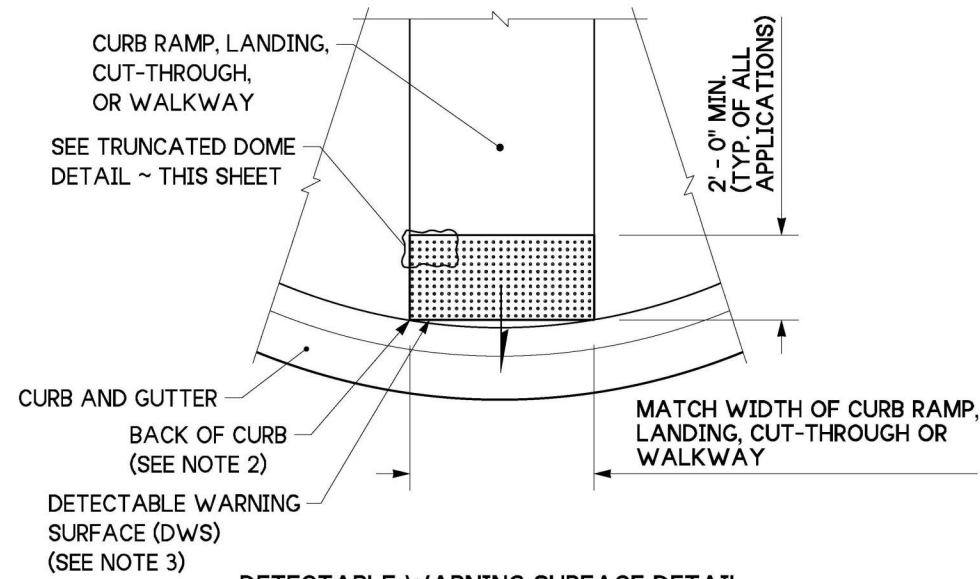
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING < 5 FEET FROM BACK OF CURB)
(SEE NOTE 5)



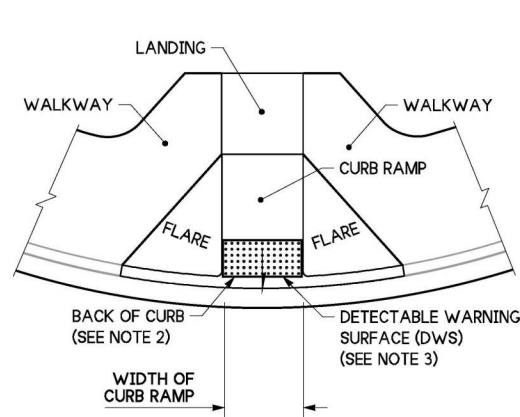
SINGLE DIRECTION CURB RAMP
(GRADE BREAK BETWEEN CURB AND LANDING > 5 FEET FROM BACK OF CURB)
(SEE NOTE 5)



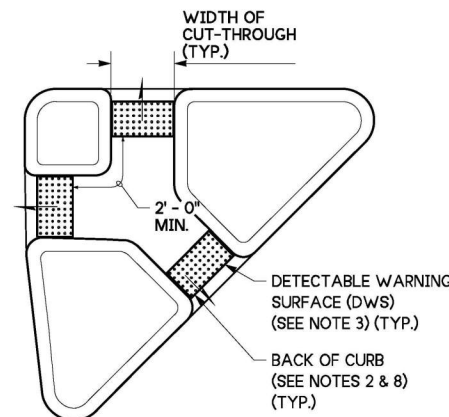
PARALLEL CURB RAMP
(SEE NOTE 6)



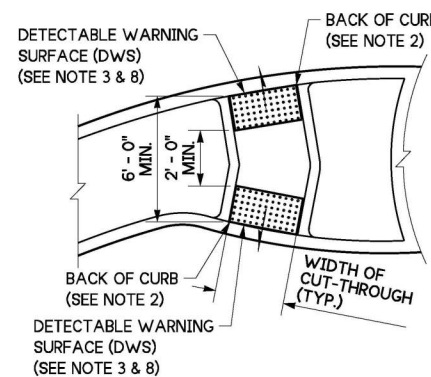
DETECTABLE WARNING SURFACE DETAIL



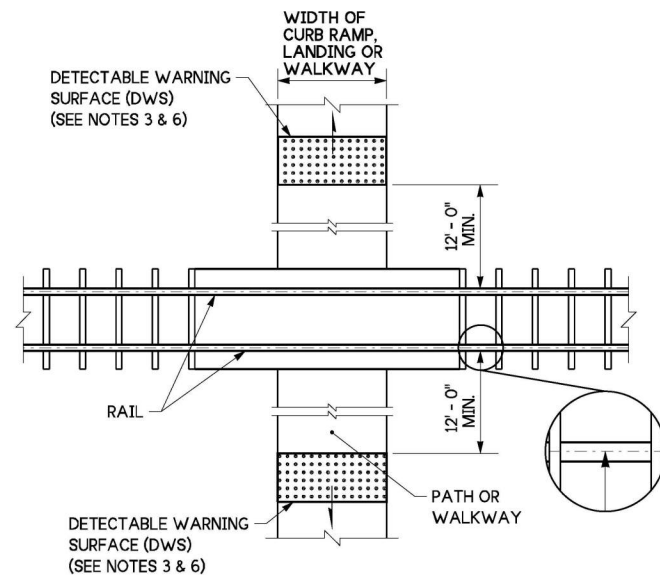
PERPENDICULAR CURB RAMP
(SEE NOTE 6)



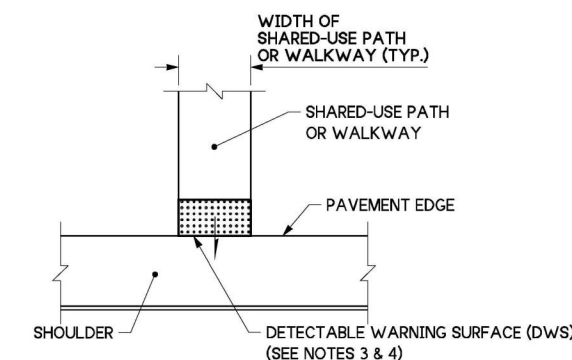
ISLAND CUT-THROUGH



ROUNDBOUT SPLITTER ISLAND



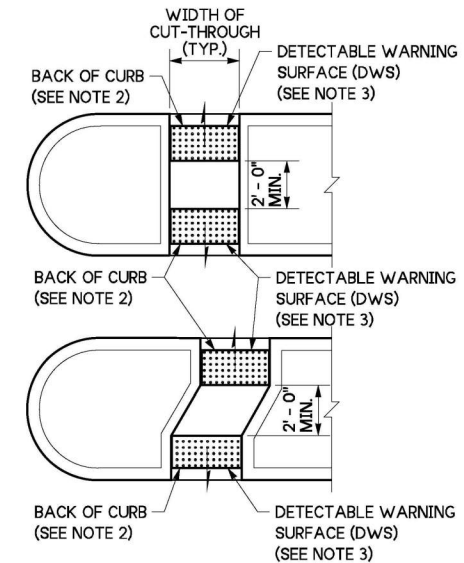
PEDESTRIAN RAILROAD CROSSING



SHARED-USE PATH CONNECTION

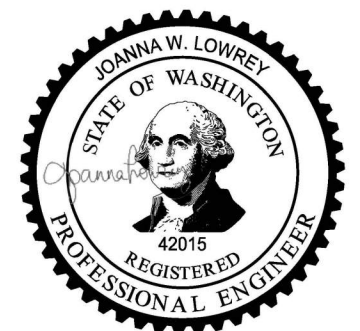
NOTES:

1. Permanent Detectable Warning Surfaces (DWS) shall extend the full width of the curb ramp, landing, or other roadway entrance as applicable. Exception: If the manufacturer of the DWS requires a concrete border around the DWS, a variance of up to 2" (in) on each side of the DWS is permitted.
2. Permanent Detectable Warning Surfaces (DWS) shall be placed on a minimum 4" (in) thick concrete pad. The DWS panel shall be placed adjacent to the back of the curb and with no more than a 2" (in) gap between the DWS and the back of the curb measured at the center of the DWS panel. Exception: If the Manufacturer of the selected DWS requires a concrete border around the DWS, a variance of up to 2" (in) from the back of the curb is permitted (measured at the leading corners of the DWS panel).
3. The rows of truncated domes shall be aligned to be parallel to the direction of travel, and perpendicular to the grade break at the back of curb.
4. If curb and gutter are not present, such as a shared-use path connection, the Detectable Warning Surface shall be placed at the pavement edge.
5. See Standard Plans for sidewalk and curb ramp details.
6. If a curb ramp is required, the location of the Detectable Warning Surface must be at the bottom of the ramp and within the required distance from the rail crossing.
7. When the grade break between the curb ramp and the landing is less than or equal to 5 feet from the back of curb at all points, place the Detectable Warning Surface on the bottom of the curb ramp directly above the grade break.
8. Glued or stick down Detectable Warning Surfaces are allowed only for temporary work zone applications.



MEDIAN CUT-THROUGH

LEGEND
—> DIRECTION OF TRAVEL



Jun 4, 2024

DETECTABLE WARNING SURFACE

STANDARD PLAN F-45.10-05

SHEET 1 OF 1 SHEET

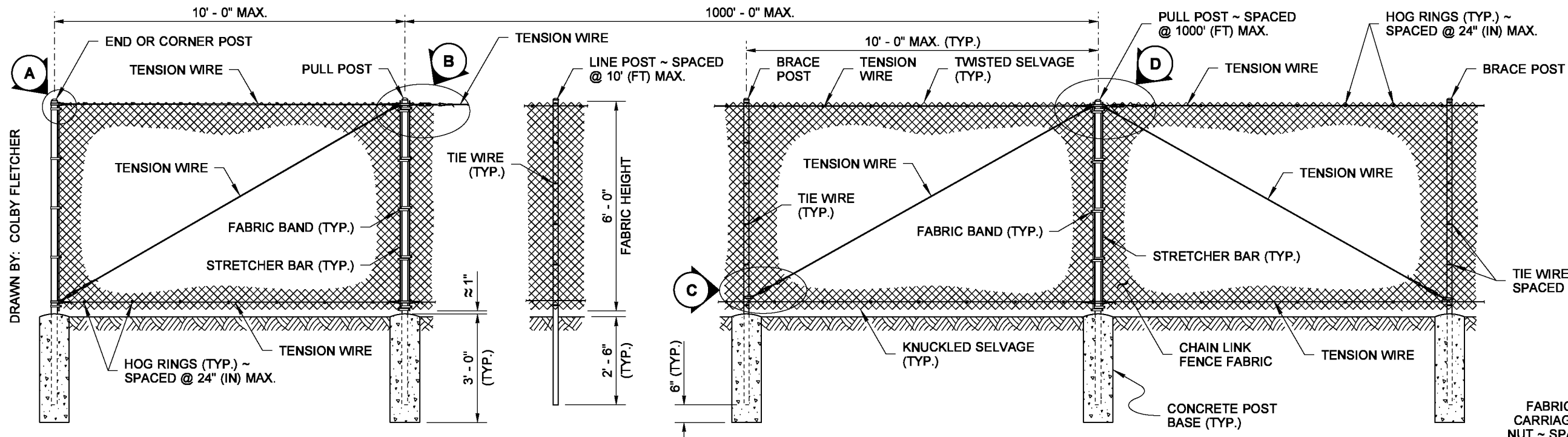
APPROVED FOR PUBLICATION

Mark A. Davies

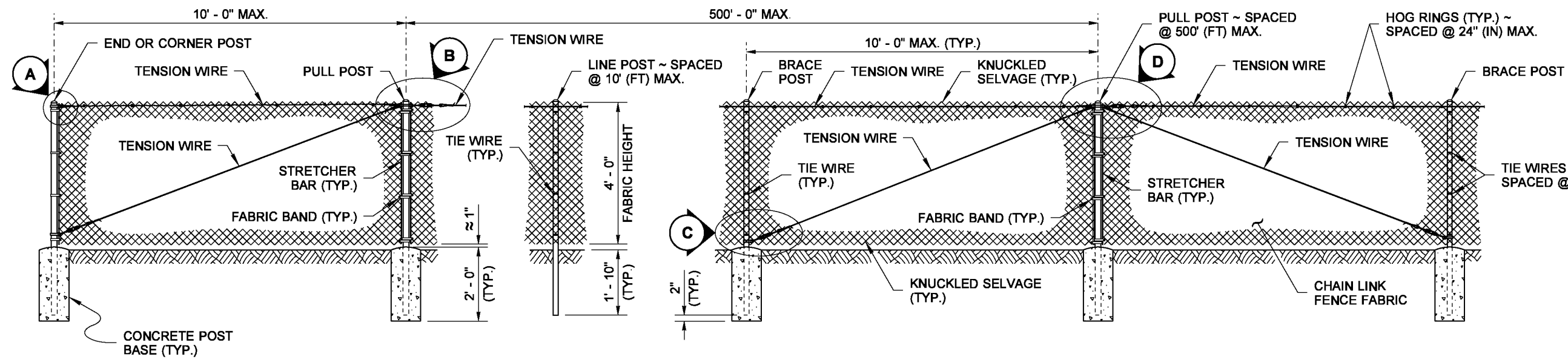
Jun 4, 2024

STATE DESIGN ENGINEER





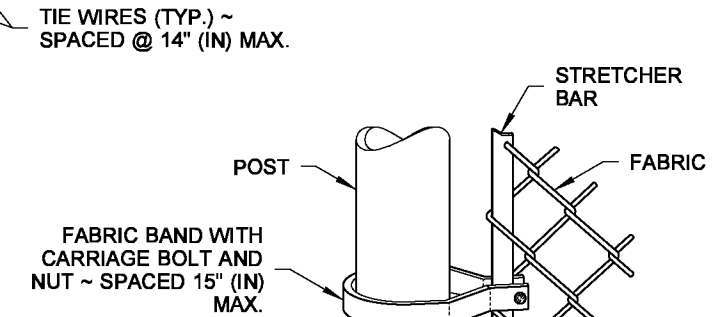
TYPE 3



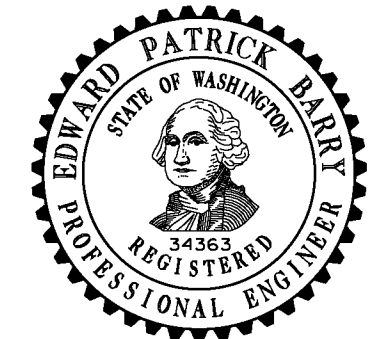
TYPE 4

NOTES

1. All concrete post bases shall be 10" (in) minimum diameter.
2. Along the top and bottom, using Hog Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first full fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.



METHOD OF FASTENING STRETCHER BAR TO POST



**CHAIN LINK FENCE
TYPES 3 AND 4
STANDARD PLAN L-20.10-03**

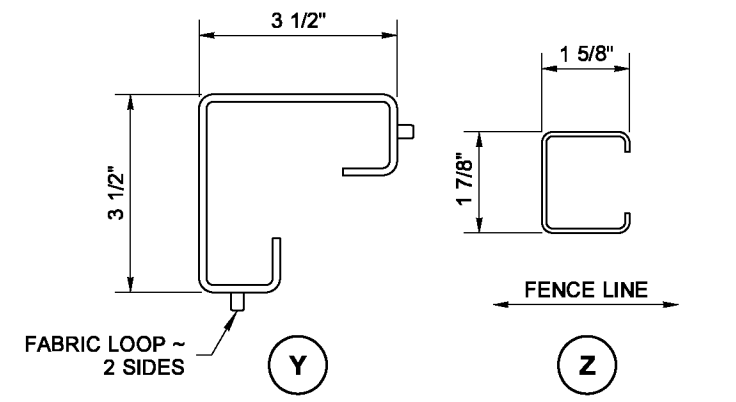
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

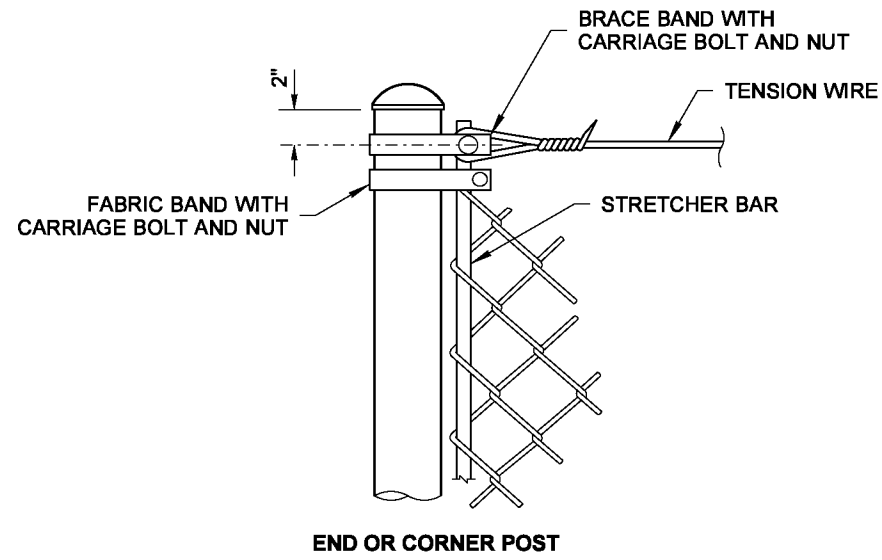
STATE DESIGN ENGINEER
Washington State Department of Transportation

POST AND RAIL SPECIFICATIONS

POST	PIPE	ROLL FORMED	
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2 1/2" DIAM.	(Y)	5.10
LINE OR BRACE POST	2" DIAM.	(Z)	1.85

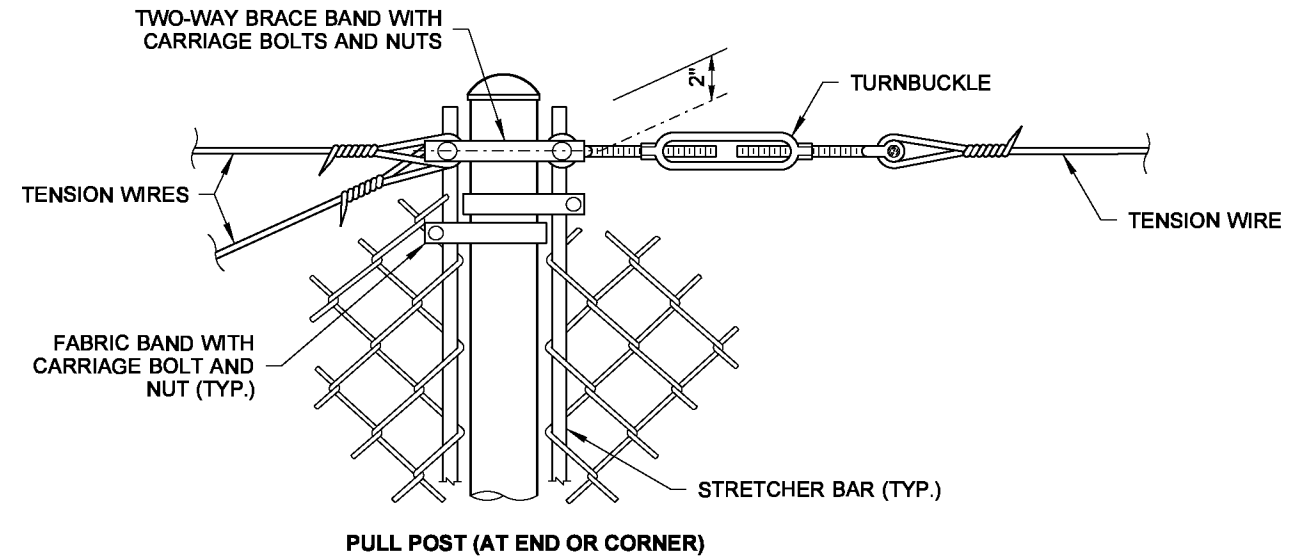


DRAWN BY: COLBY FLETCHER



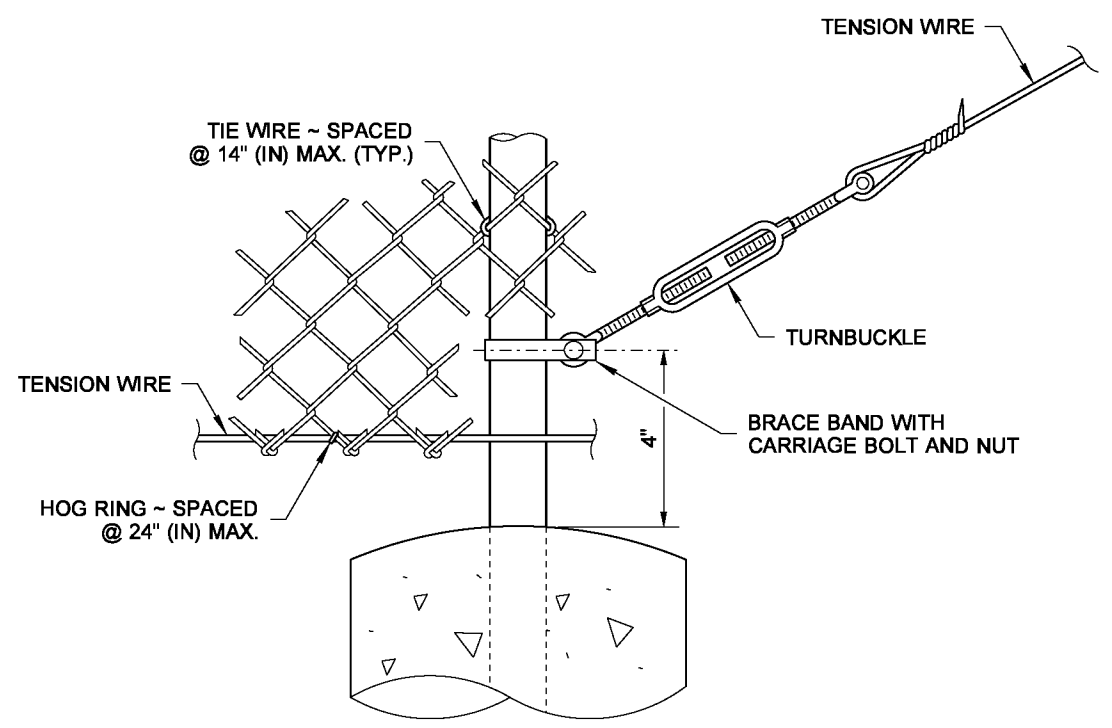
END OR CORNER POST

DETAIL A



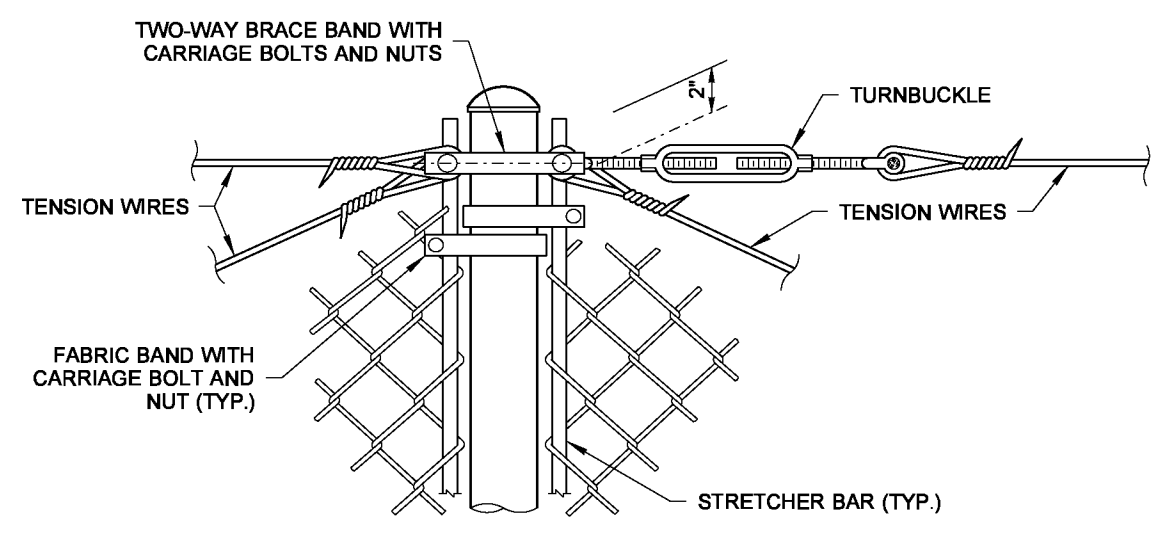
PULL POST (AT END OR CORNER)

DETAIL B



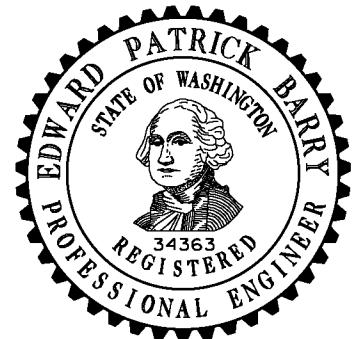
BRACE POST

DETAIL C



PULL POST (WITHIN RUN)

DETAIL D

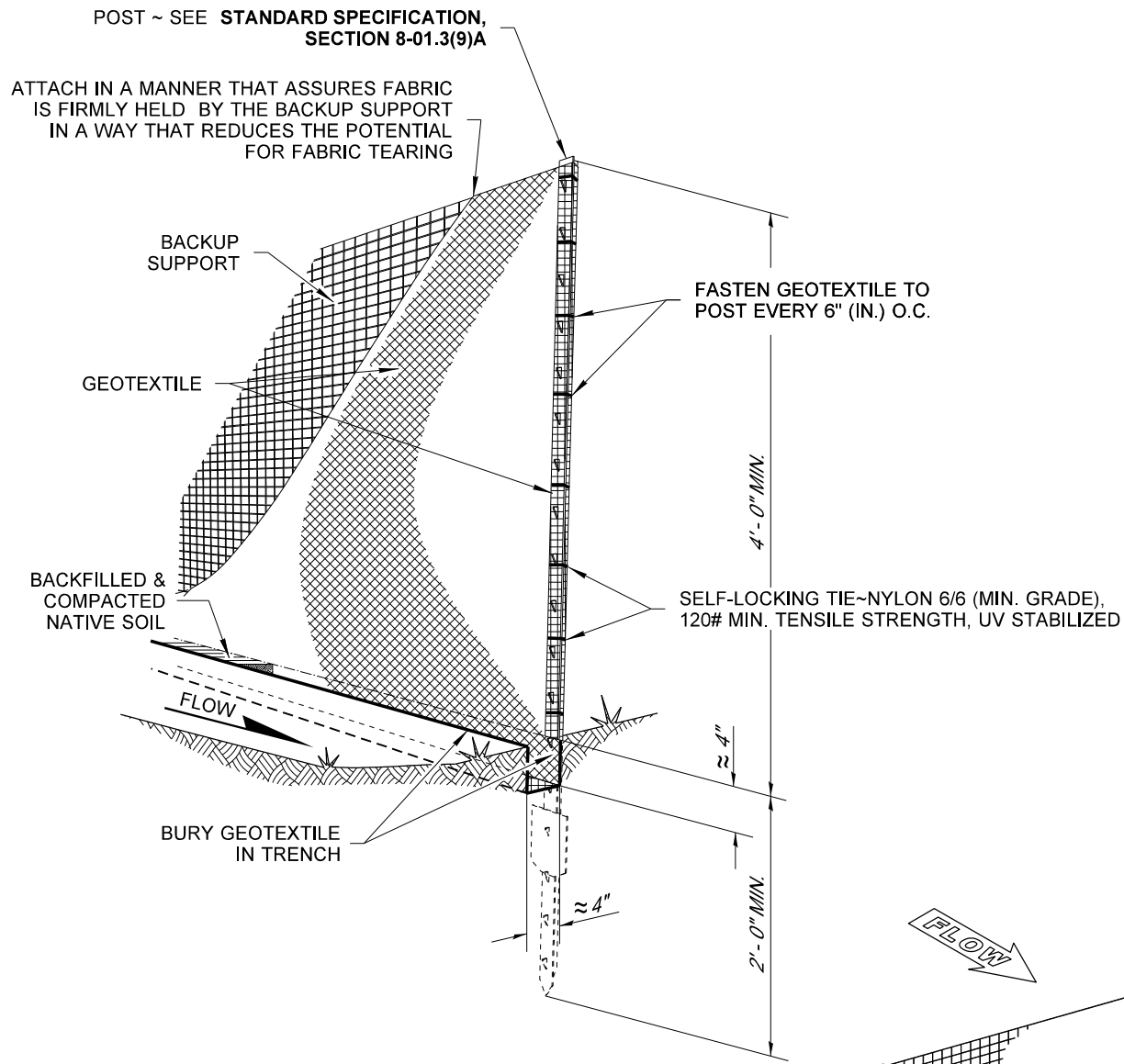


**CHAIN LINK FENCE
TYPES 3 AND 4
STANDARD PLAN L-20.10-03**

SHEET 2 OF 2 SHEETS

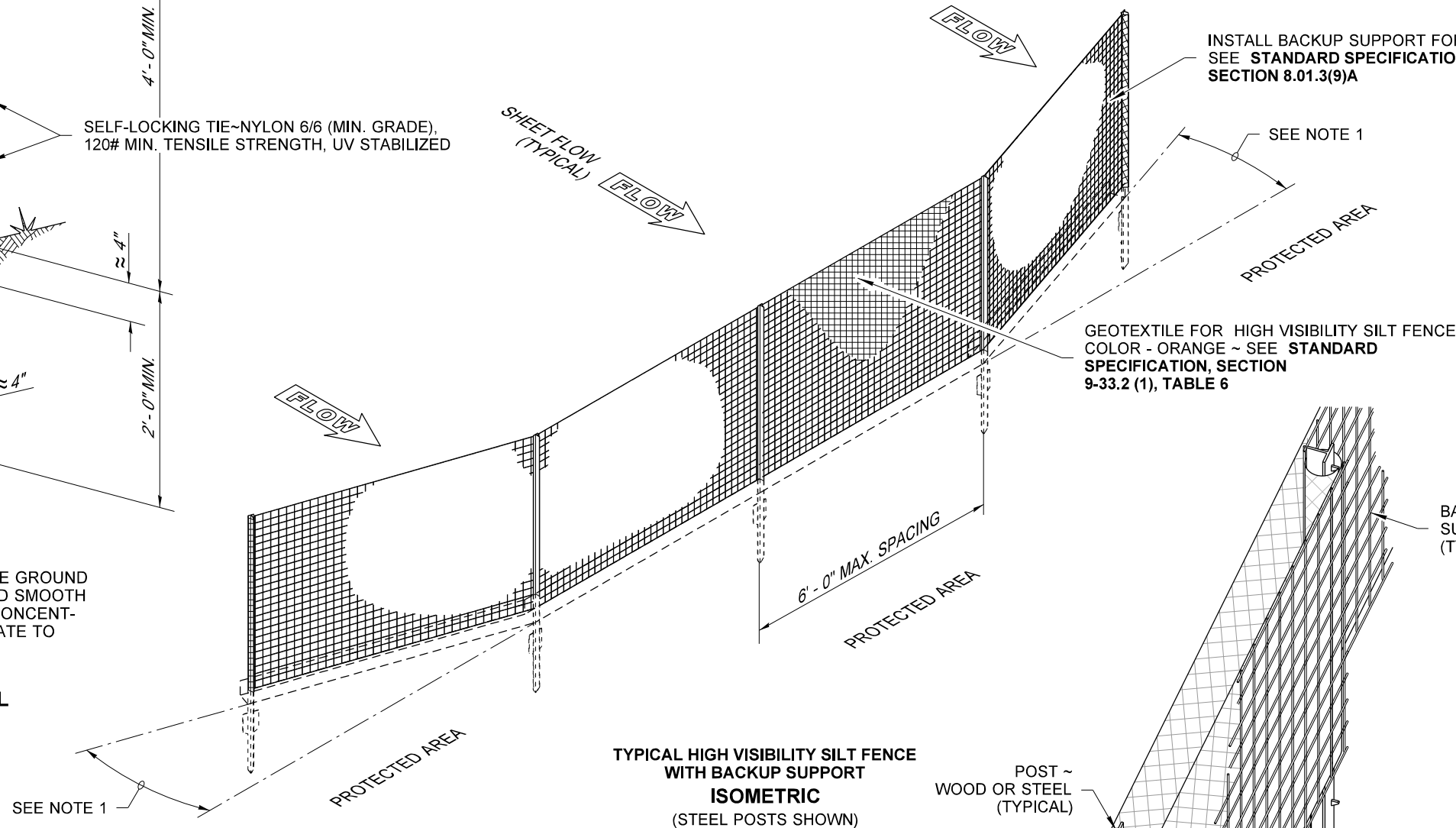
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STATE DESIGN ENGINEER
 Washington State Department of Transportation

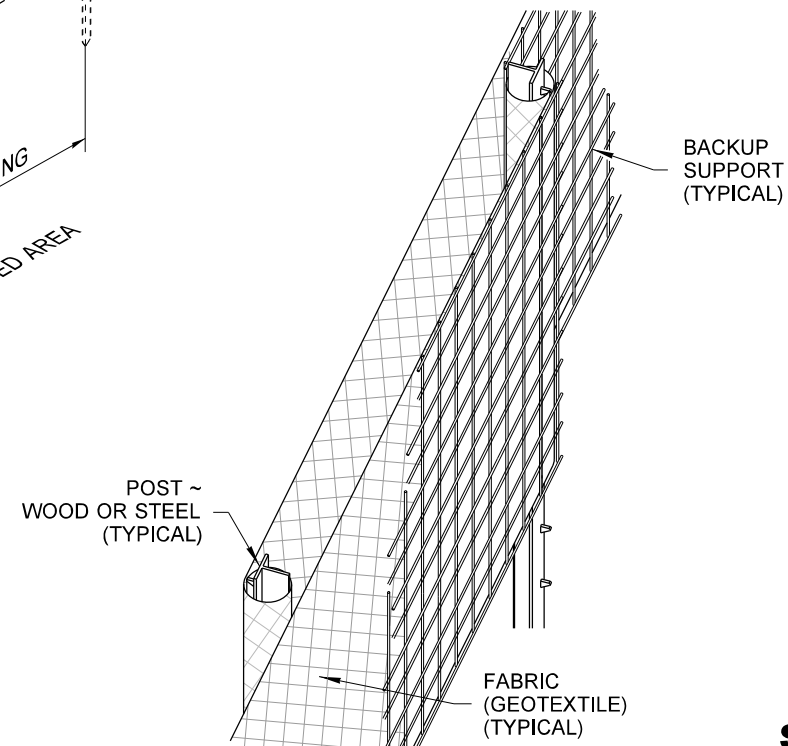


NOTE
 DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

TYPICAL INSTALLATION DETAIL
 (STEEL POSTS SHOWN)



TYPICAL HIGH VISIBILITY SILT FENCE WITH BACKUP SUPPORT ISOMETRIC
 (STEEL POSTS SHOWN)



SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP.

SPLICE DETAIL
 (STEEL POSTS SHOWN)

NOTES

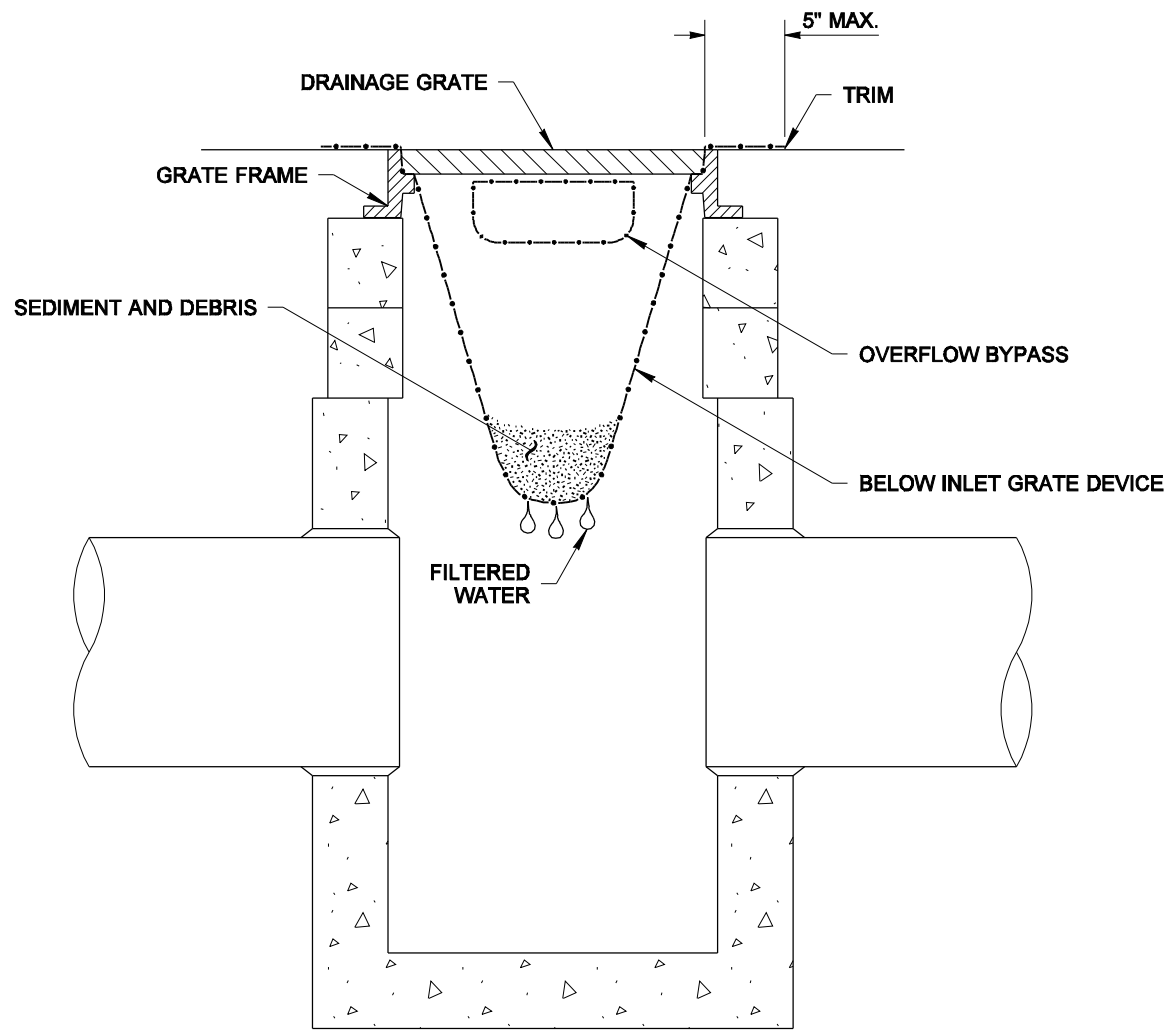
1. Angle high visibility silt fence terminal end uphill 24" (in) to 48" (in) to prevent sediment from flowing around the end of the fence.
2. Perform maintenance in accordance with **Standard Specification, Sections 8-01.3(9)A and 8-01.3(15)**.
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.



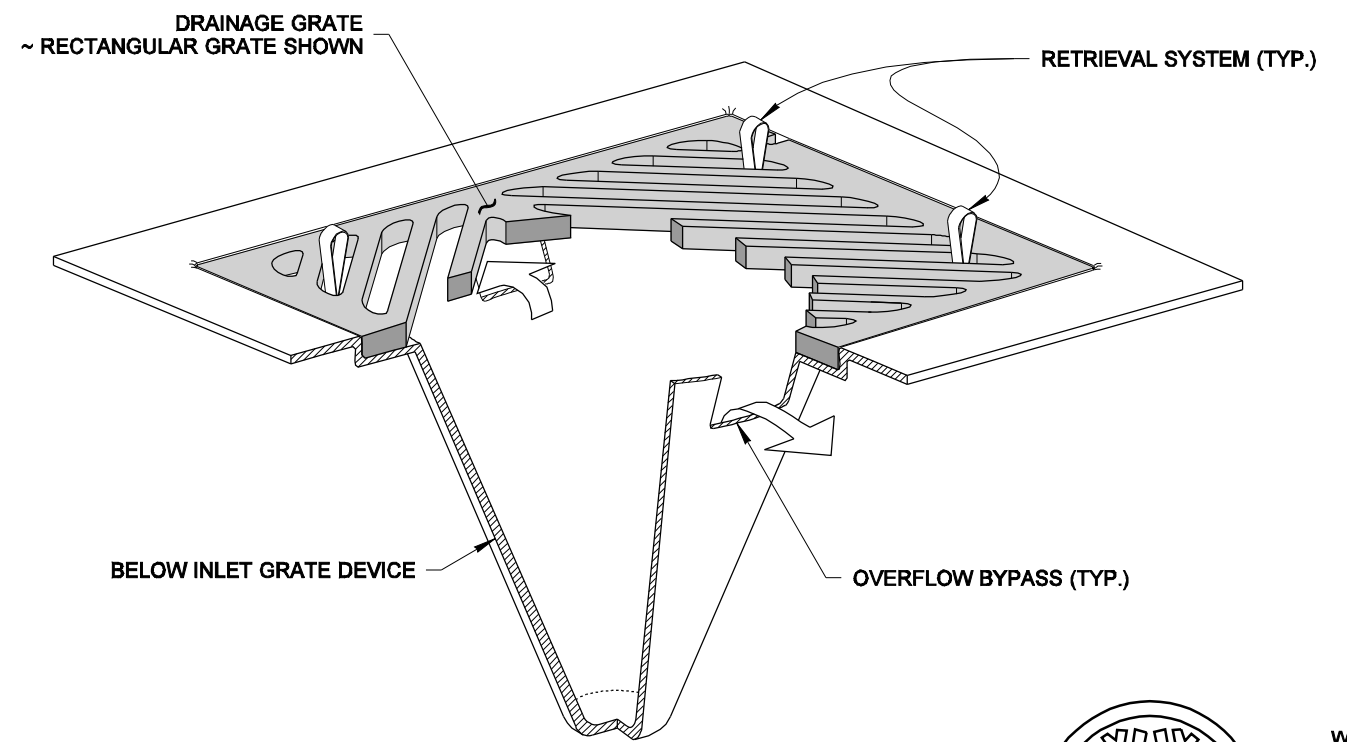
HIGH VISIBILITY SILT FENCE WITH BACKUP SUPPORT
STANDARD PLAN I-30.16-01

SHEET 1 OF 1 SHEET
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STATE DESIGN ENGINEER
 Washington State Department of Transportation



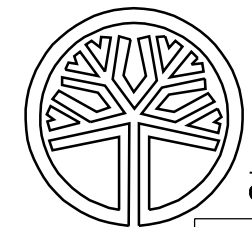
SECTION VIEW
NOT TO SCALE



ISOMETRIC VIEW

NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).



STATE OF
WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

MARK W. MAURER
CERTIFICATE NO. 000598

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**STORM DRAIN
INLET PROTECTION
STANDARD PLAN I-40.20-00**

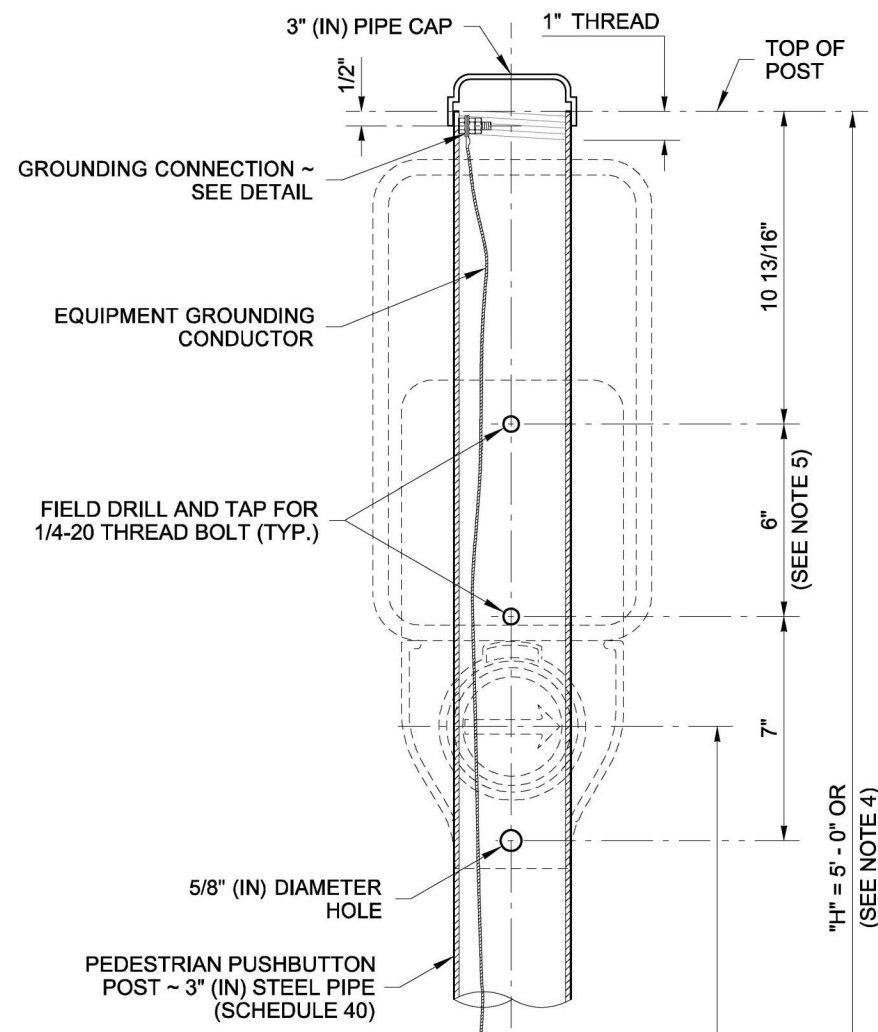
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

Pasco Bakotich III 09-20-07
STATE DESIGN ENGINEER DATE



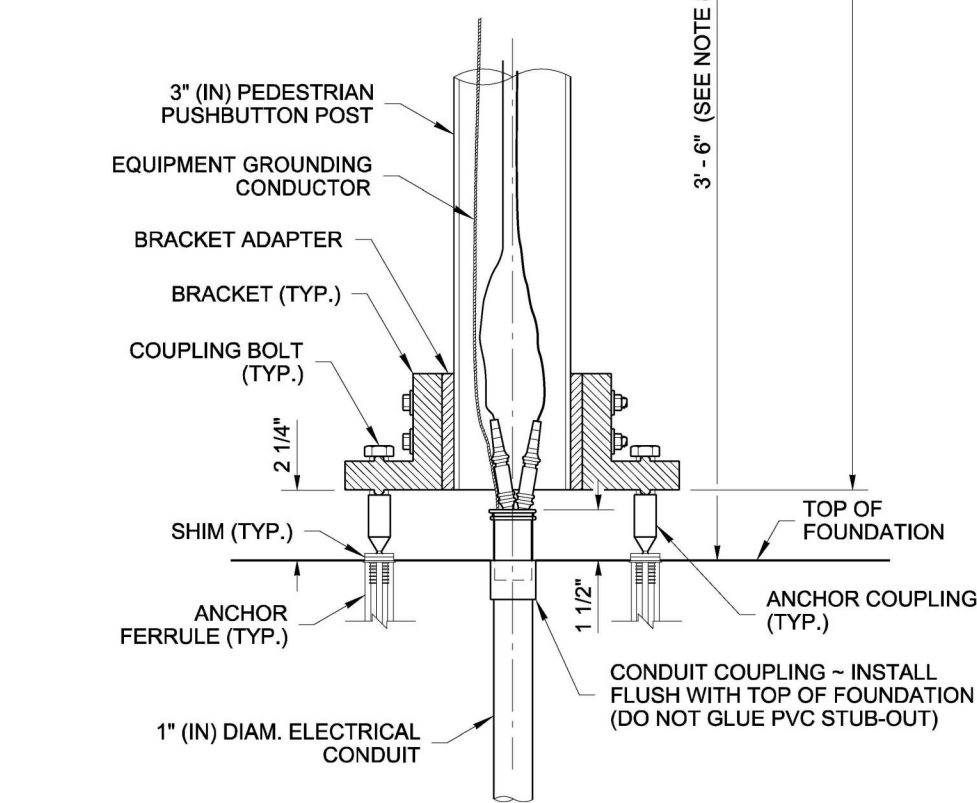
Washington State Department of Transportation



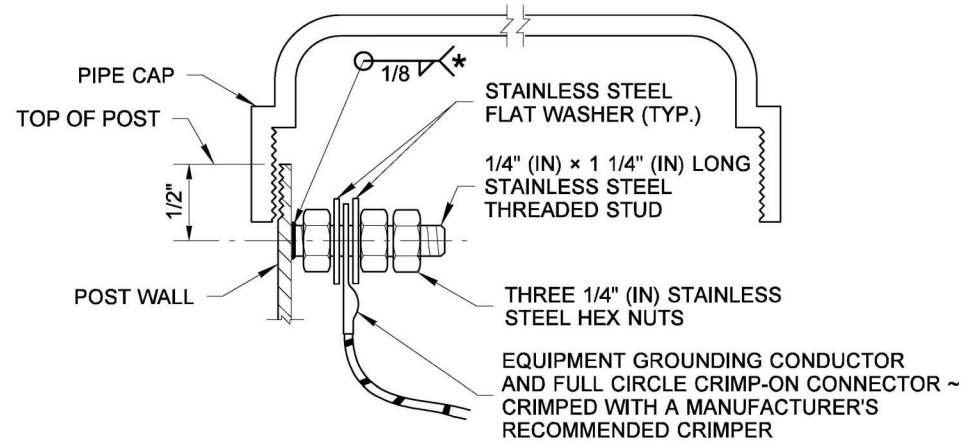
POST DETAIL

"H" = 5' - 0" OR
(SEE NOTE 4)

3' - 6" (SEE NOTE 8)



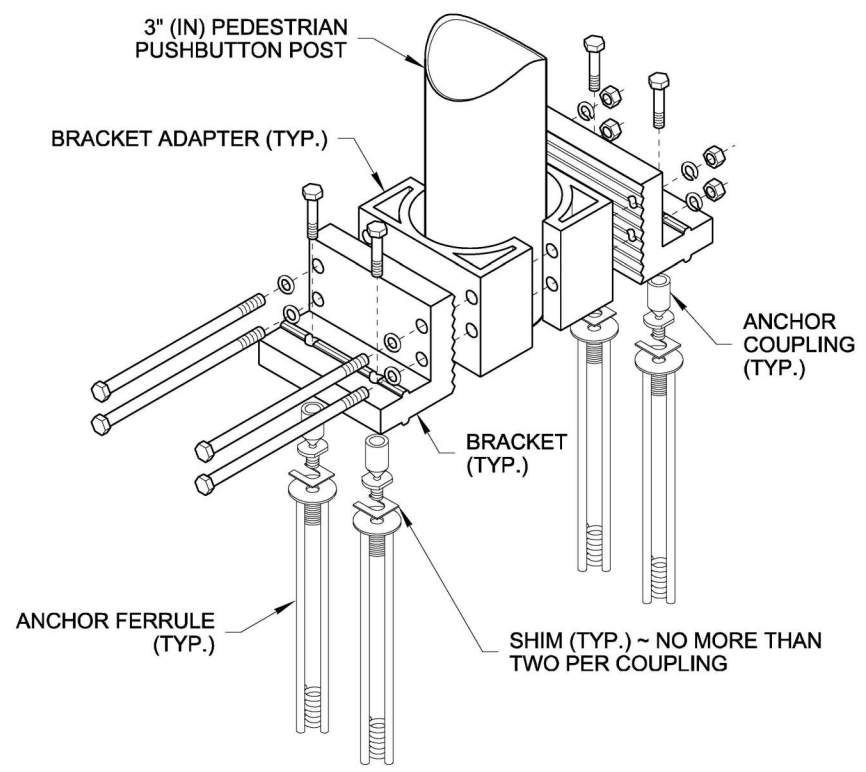
DETAIL A



GROUNDING CONNECTION DETAIL

* WELD STUD TO POLE WALL TO MAXIMUM EXTENT POSSIBLE ~ 1/2" (IN) MINIMUM WELD

CONFIGURATIONS VARY AMONG DIFFERENT MANUFACTURERS (SHOWN EXPLODED FOR CLARITY)



**EXPLODED VIEW
BREAKAWAY BASE CONNECTOR
(SEE NOTE 1)**

NOTES:

1. See **Standard Specification Section 9-06.16** for Breakaway Base Connection details. Dimensions for the parts used to assemble the base connections are intentionally not shown. Base connections are patented manufactured products that are in compliance with NCHRP 350 crash test criteria. The Breakaway Base Connection details are only shown on this plan to illustrate how parts are assembled.
2. See **Standard Plan J-20.26** for Accessible Pedestrian Pushbutton (APS) details; Audible Information Device (AID) pedestrian pushbutton similar.
3. Secure conductor in adjacent Junction Box per detail in **Standard Plan J-28.70**.
4. Where shown in the plans, install plaque (R10-32P) "PUSH BUTTON FOR 2 SECONDS FOR EXTRA CROSSING TIME" above the Accessible Pedestrian Signal (APS) assembly. Add 14" (in) to post height to accommodate plaque and leave a 2" (in) space between signs.
5. Mounting distances vary between manufacturers. See manufacturer's recommendations for mounting information.
6. Junction Box serving the Standard shall preferably be located 5' - 0" (10' - 0" Max.) from the Standard.
7. Two button installation may require adaptor(s) or extension(s).
8. Pushbutton height is measured from the walking surface to the center of the actual pushbutton circle.



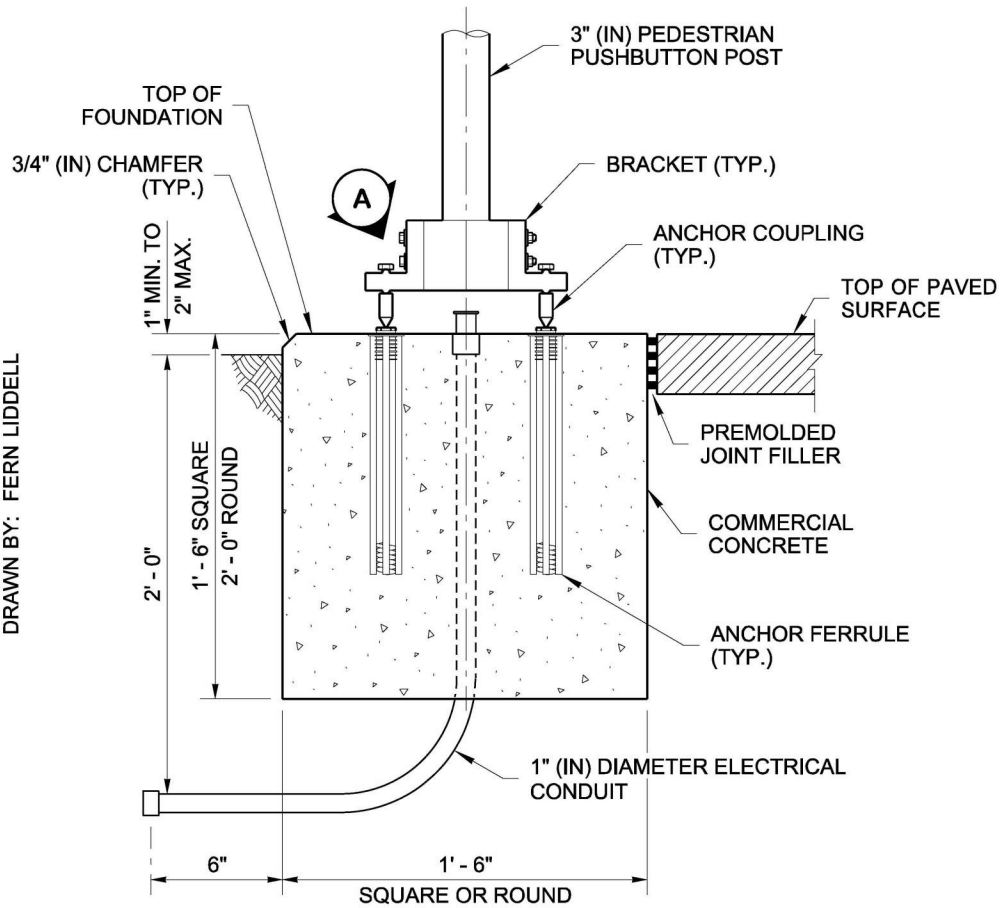
Jun 20, 2024

**PEDESTRIAN PUSHBUTTON (PPB) POST AND FOUNDATION
STANDARD PLAN J-20.15-04**

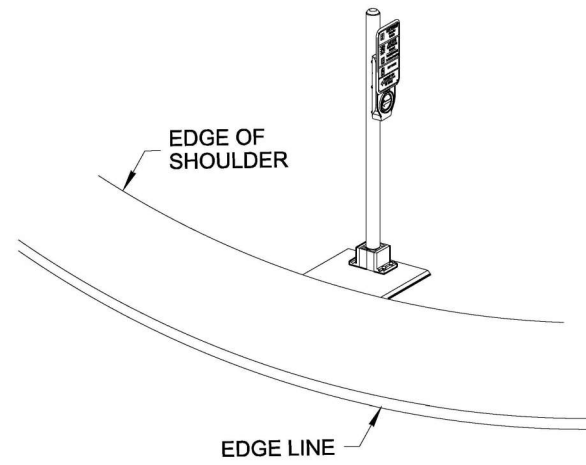
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION
Mark A. Daines Jun 21, 2024
 STATE DESIGN ENGINEER
 Washington State Department of Transportation

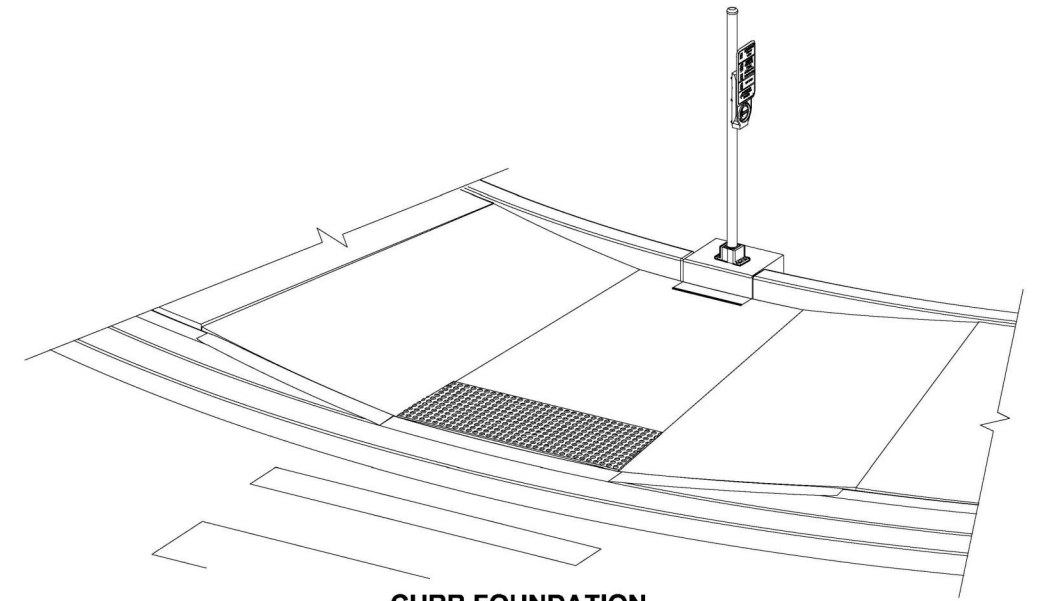
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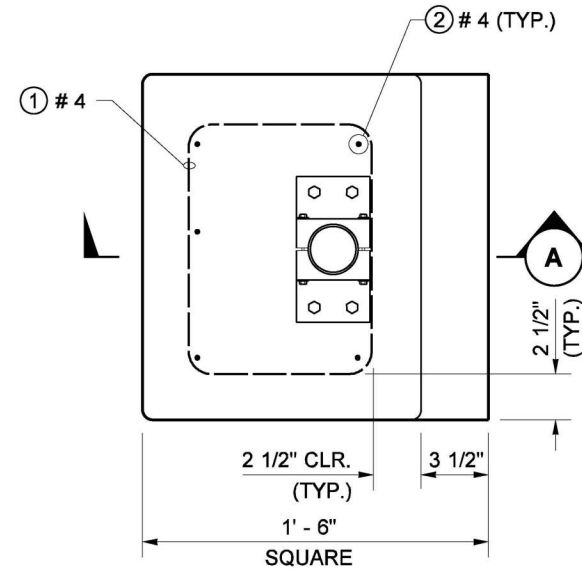
FLAT FOUNDATION DETAIL ELEVATION VIEW



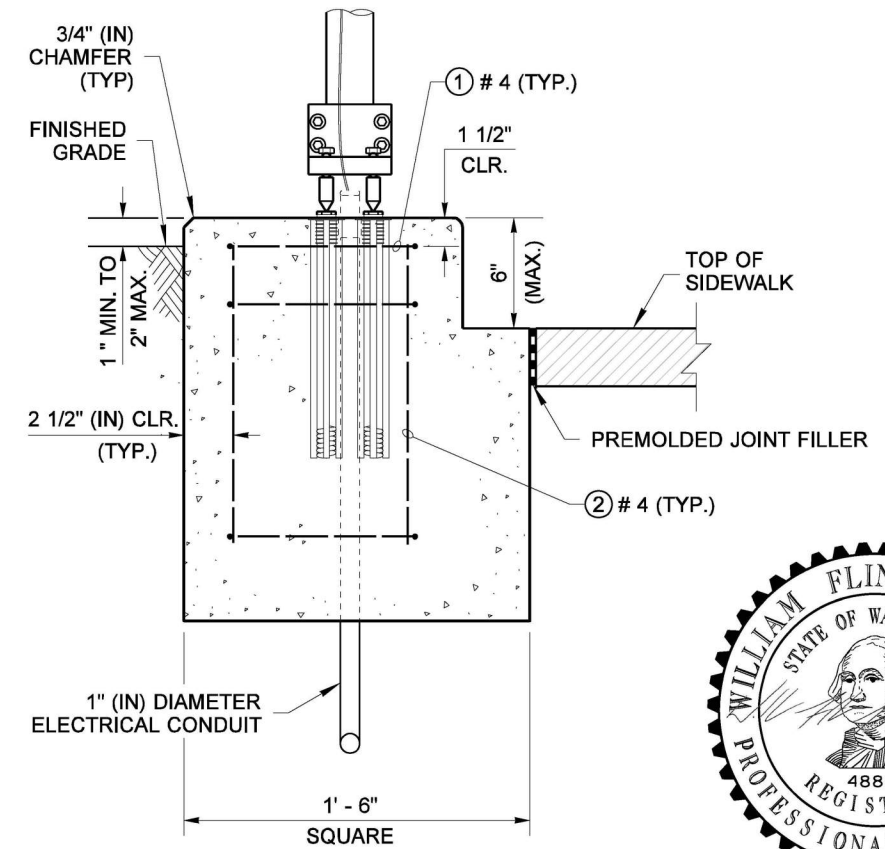
FLAT FOUNDATION PERSPECTIVE VIEW



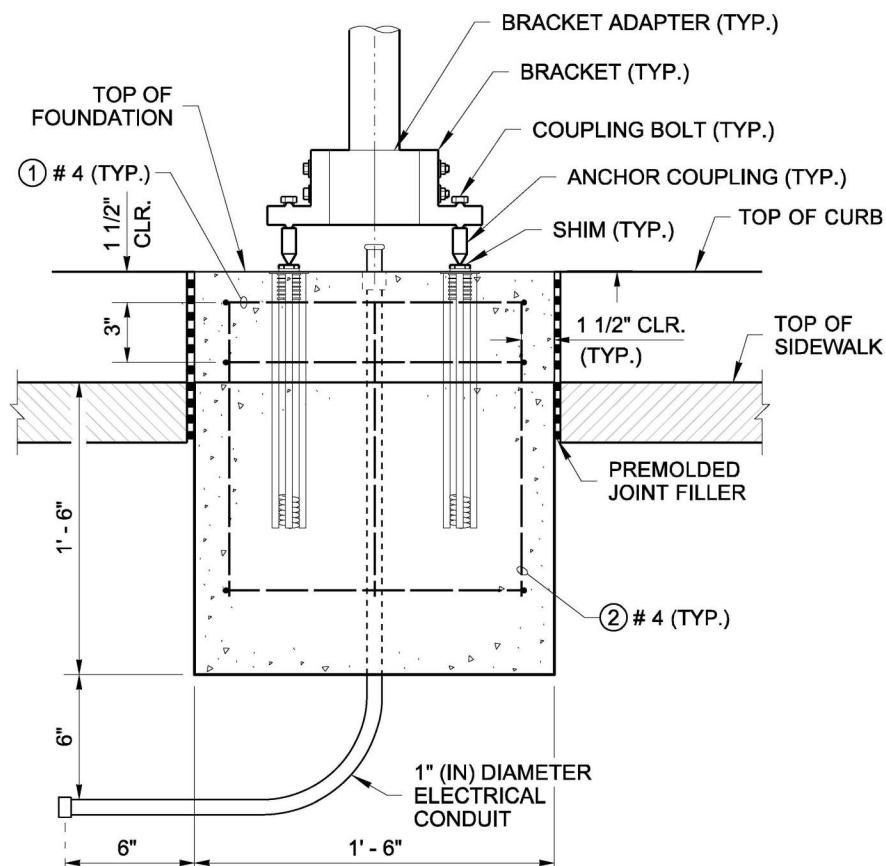
CURB FOUNDATION PERSPECTIVE VIEW (SKIRT NOT SHOWN)



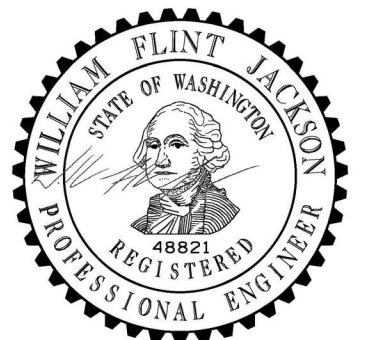
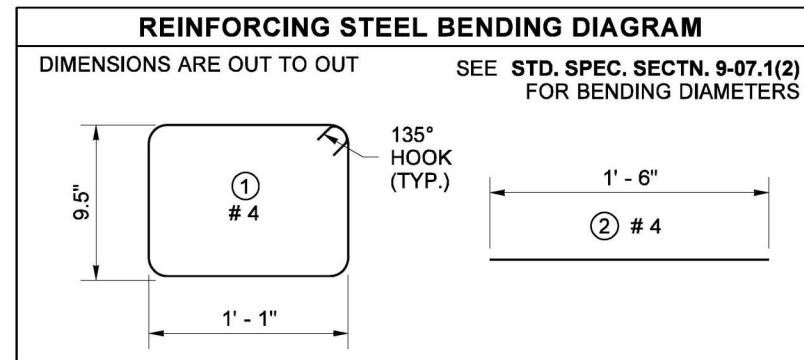
CURB FOUNDATION PLAN VIEW



SECTION A



CURB FOUNDATION DETAIL ELEVATION VIEW



Jun 20, 2024

PEDESTRIAN PUSHBUTTON (PPB) POST AND FOUNDATION STANDARD PLAN J-20.15-04

SHEET 2 OF 2 SHEETS

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Mark A. Davis

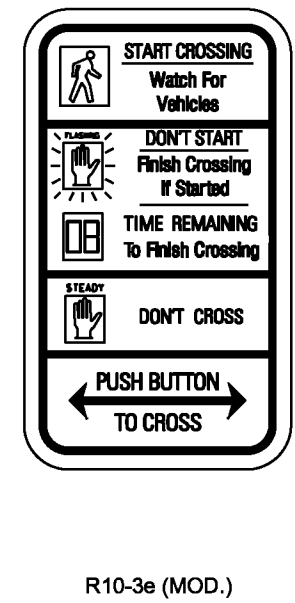
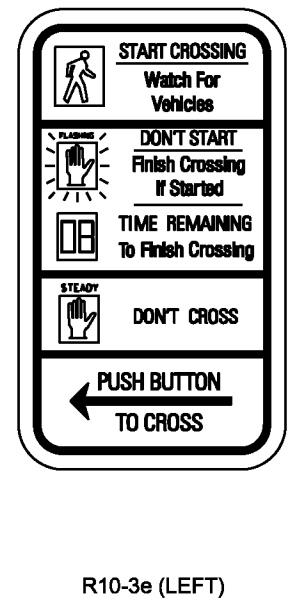
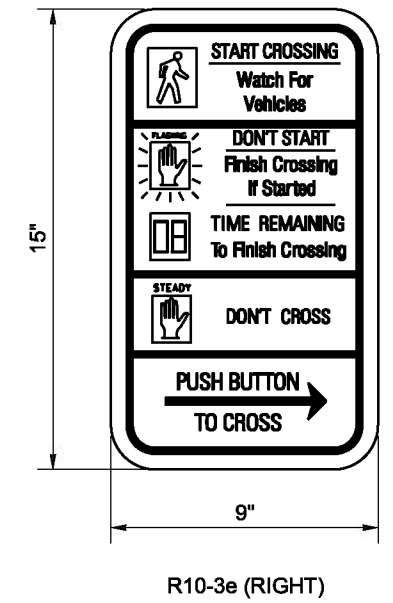
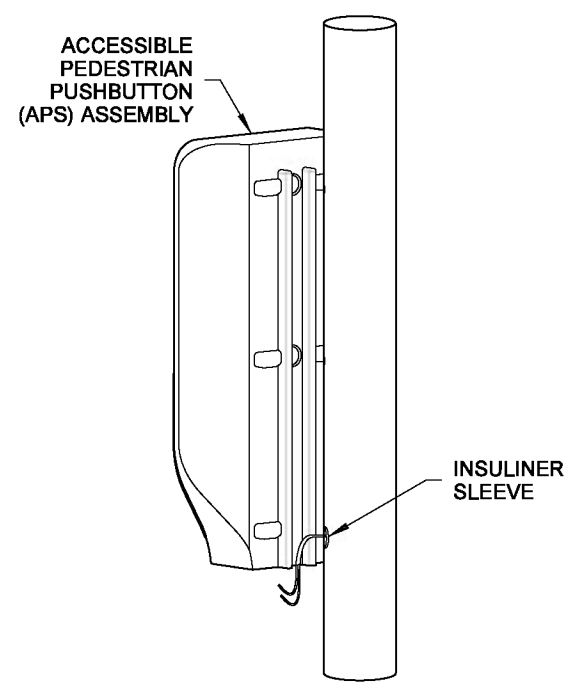
Jun 21, 2024

STATE DESIGN ENGINEER

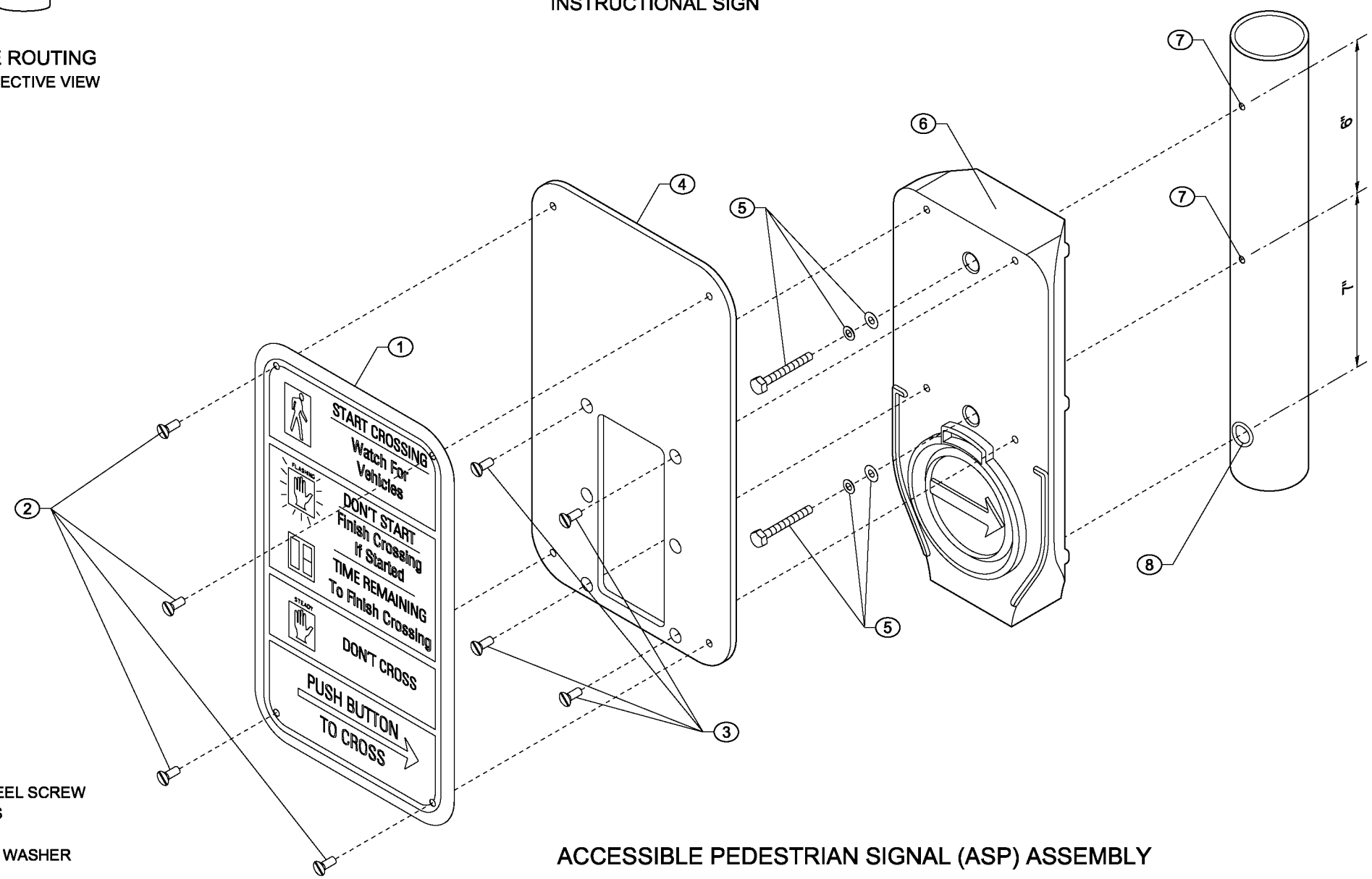
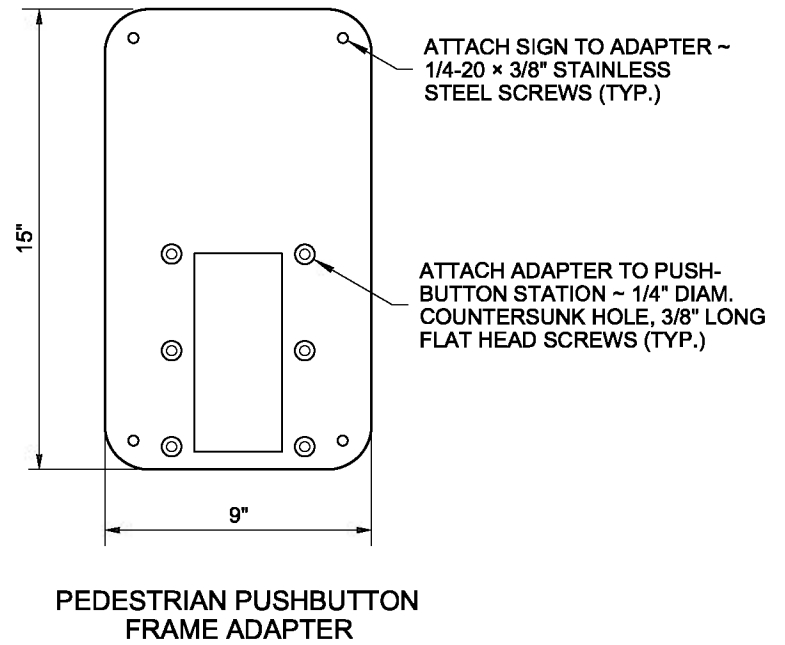


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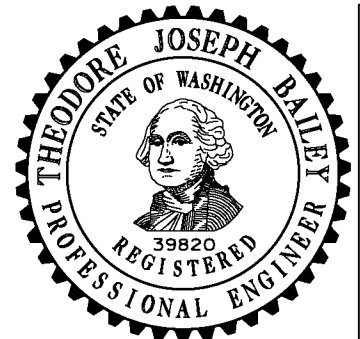
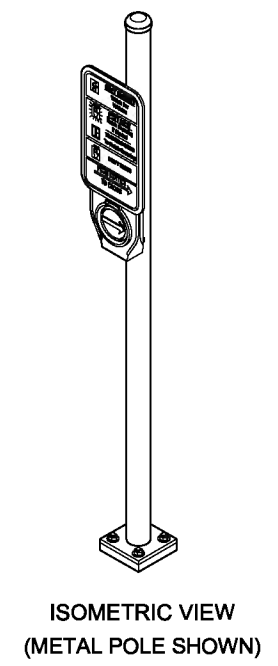
DRAWN BY: LISA CYFORD



PEDESTRIAN PUSHBUTTON INSTRUCTIONAL SIGN



- KEY**
- ① FACE PLATE
 - ② 1/4-20 x 3/8" LONG STAINLESS STEEL SCREW
 - ③ 1/4-20 STAINLESS STEEL SCREWS
 - ④ PUSHBUTTON FRAME ADAPTER
 - ⑤ 1/4-20 STAINLESS STEEL BOLT W/ WASHER AND LOCK WASHER
 - ⑥ PUSHBUTTON STATION
 - ⑦ DRILL AND TAP SHAFT FOR 1/4" DIAM. BOLT
 - ⑧ DRILL AND TAP SHAFT FOR 5/8" WIRE GUIDE HOLE - ADD INSULINER



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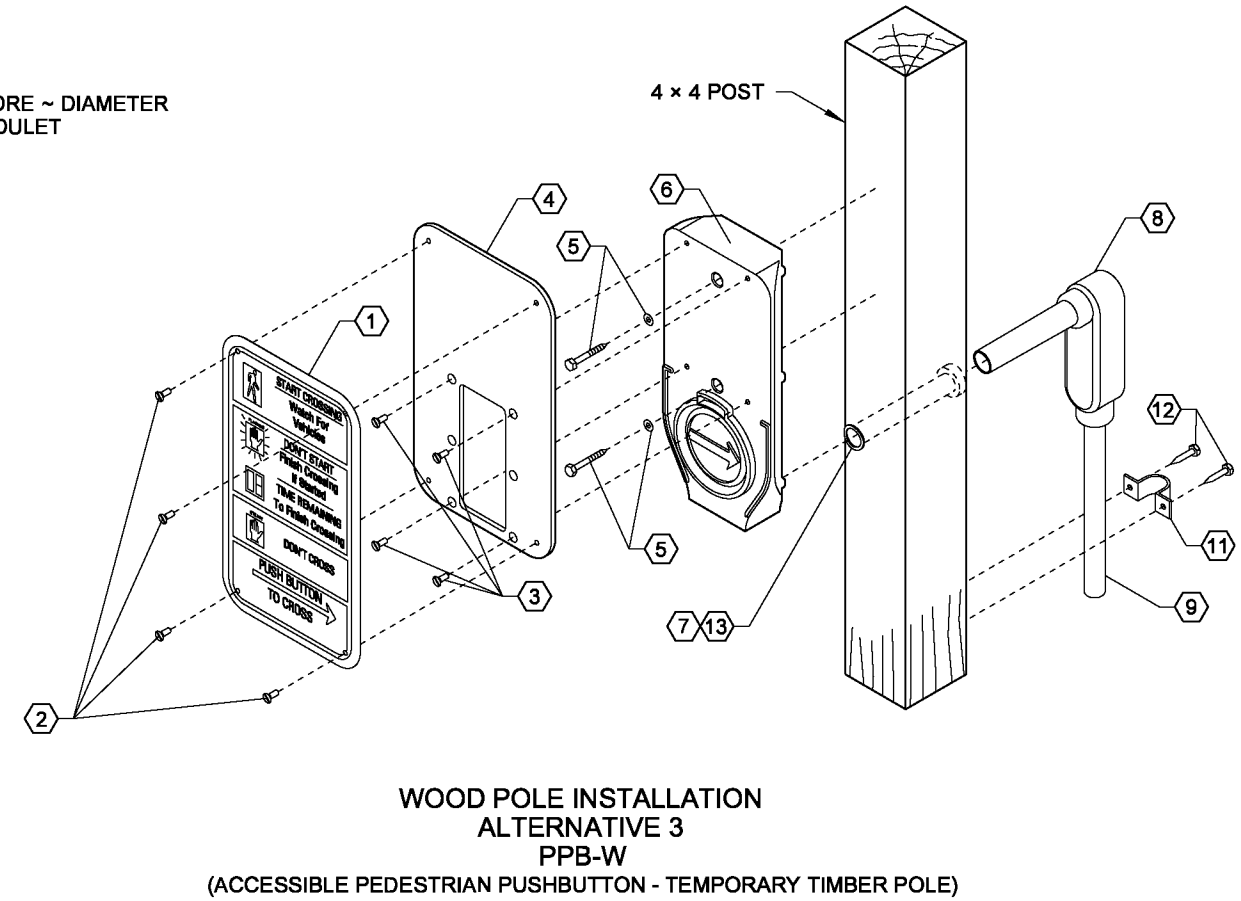
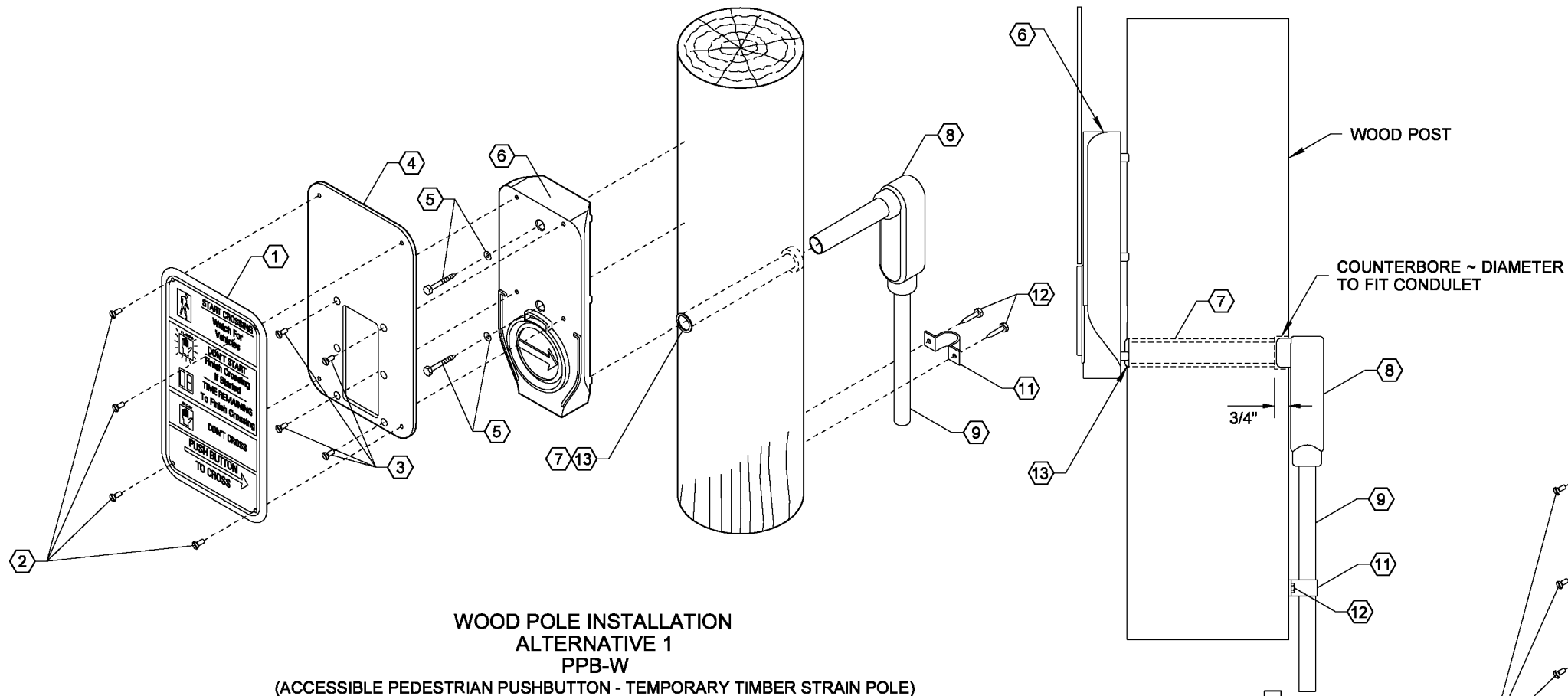
ACCESSIBLE PEDESTRIAN PUSHBUTTON (PPB) DETAILS
STANDARD PLAN J-20.26-01

SHEET 1 OF 2 SHEETS

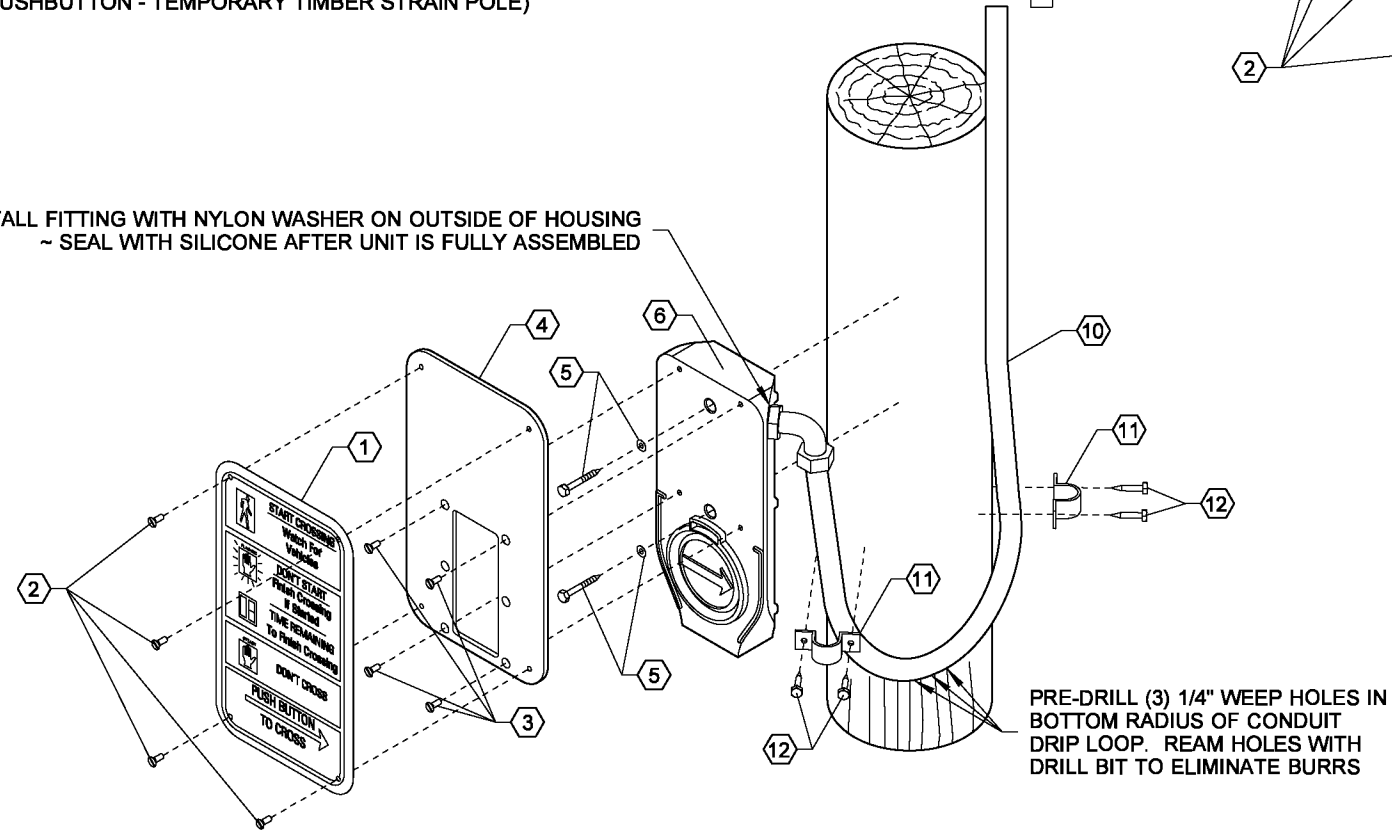
APPROVED FOR PUBLICATION

Pasco Bakotich III 7/12/12
STATE DESIGN ENGINEER DATE

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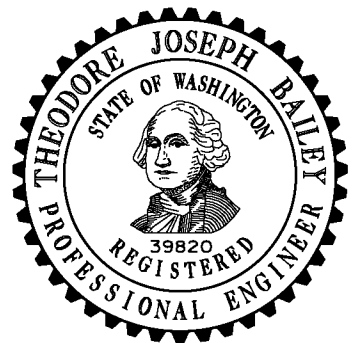


INSTALL FITTING WITH NYLON WASHER ON OUTSIDE OF HOUSING
~ SEAL WITH SILICONE AFTER UNIT IS FULLY ASSEMBLED



KEY

- 1 FACE PLATE
- 2 1/4-20 x 3/8" LONG STAINLESS STEEL SCREW
- 3 1/4-20 STAINLESS STEEL SCREWS
- 4 PUSHBUTTON FRAME ADAPTER
- 5 LAG BOLT WITH WASHER
- 6 PUSHBUTTON STATION
- 7 CONDUIT DIAMETER + 1/8" HOLE THRU POLE
- 8 CONDULET
- 9 3/4" CONDUIT
- 10 LIQUID-TITE FLEX CONDUIT
- 11 ONE PIECE TWO HOLE CLAMP
- 12 LAG BOLT
- 13 INSULINER SLEEVE



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**ACCESSIBLE PEDESTRIAN
PUSHBUTTON (PPB)
DETAILS
STANDARD PLAN J-20.26-01**

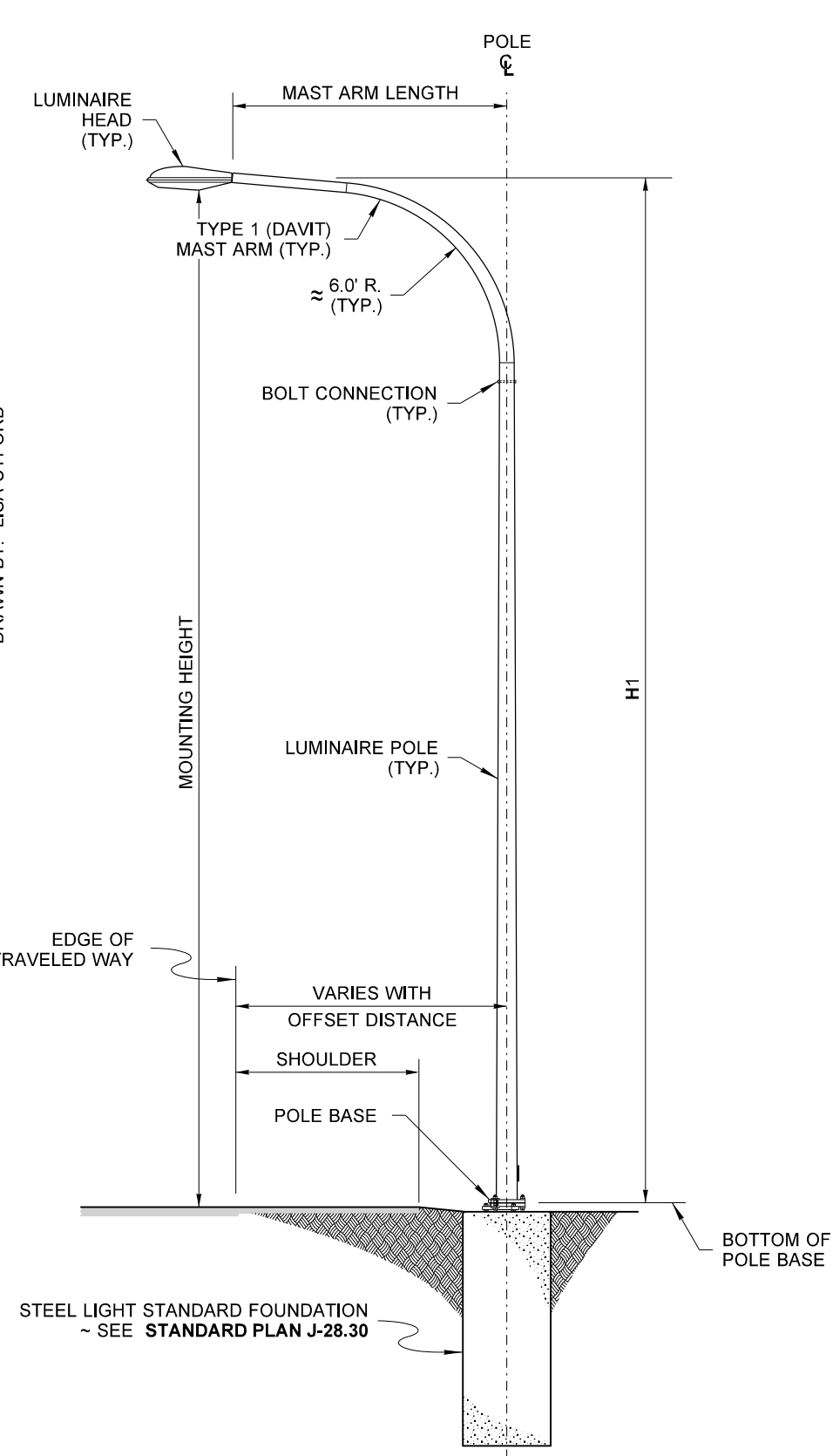
SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

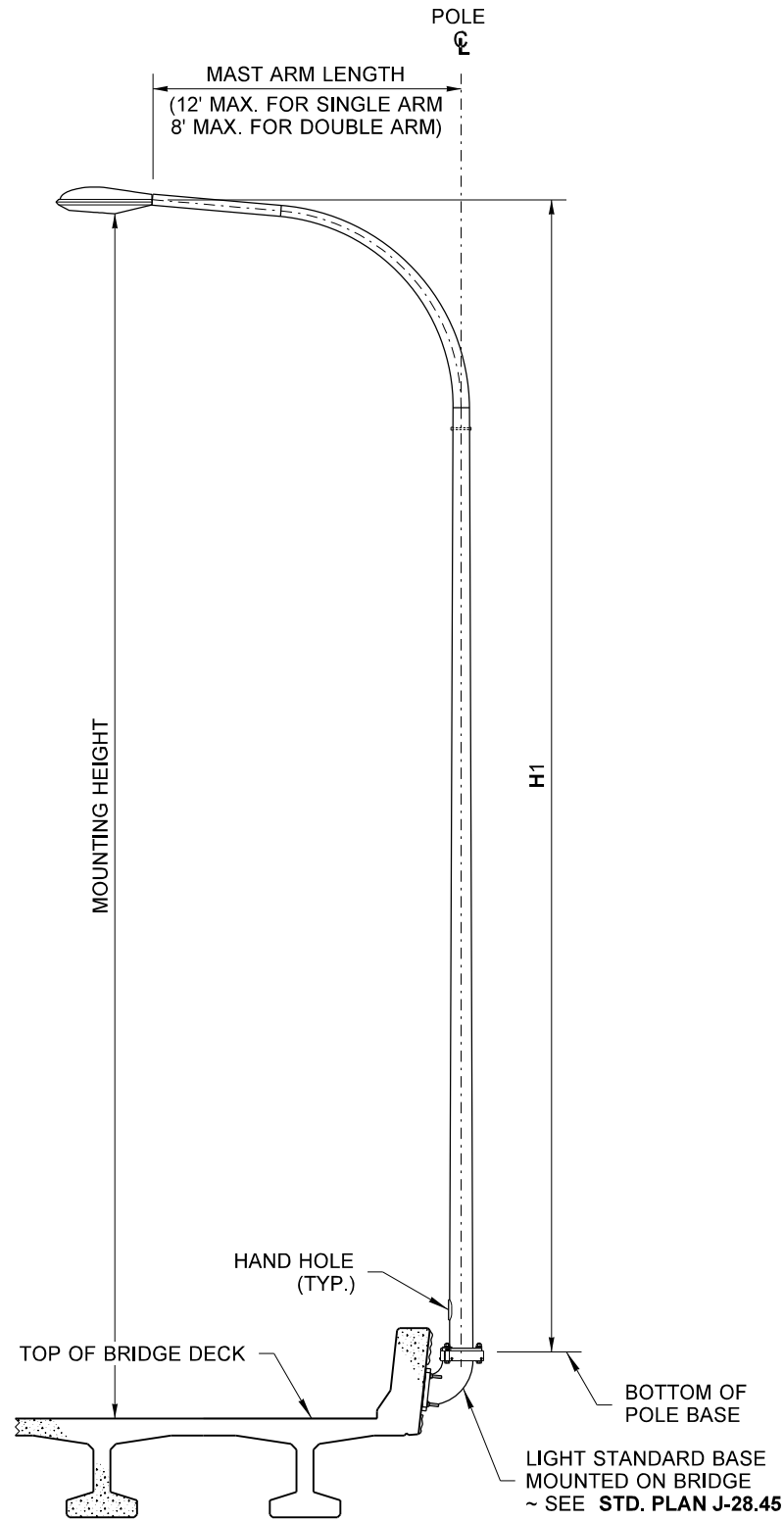
Pasco Bakotich III 7/12/12
STATE DESIGN ENGINEER DATE



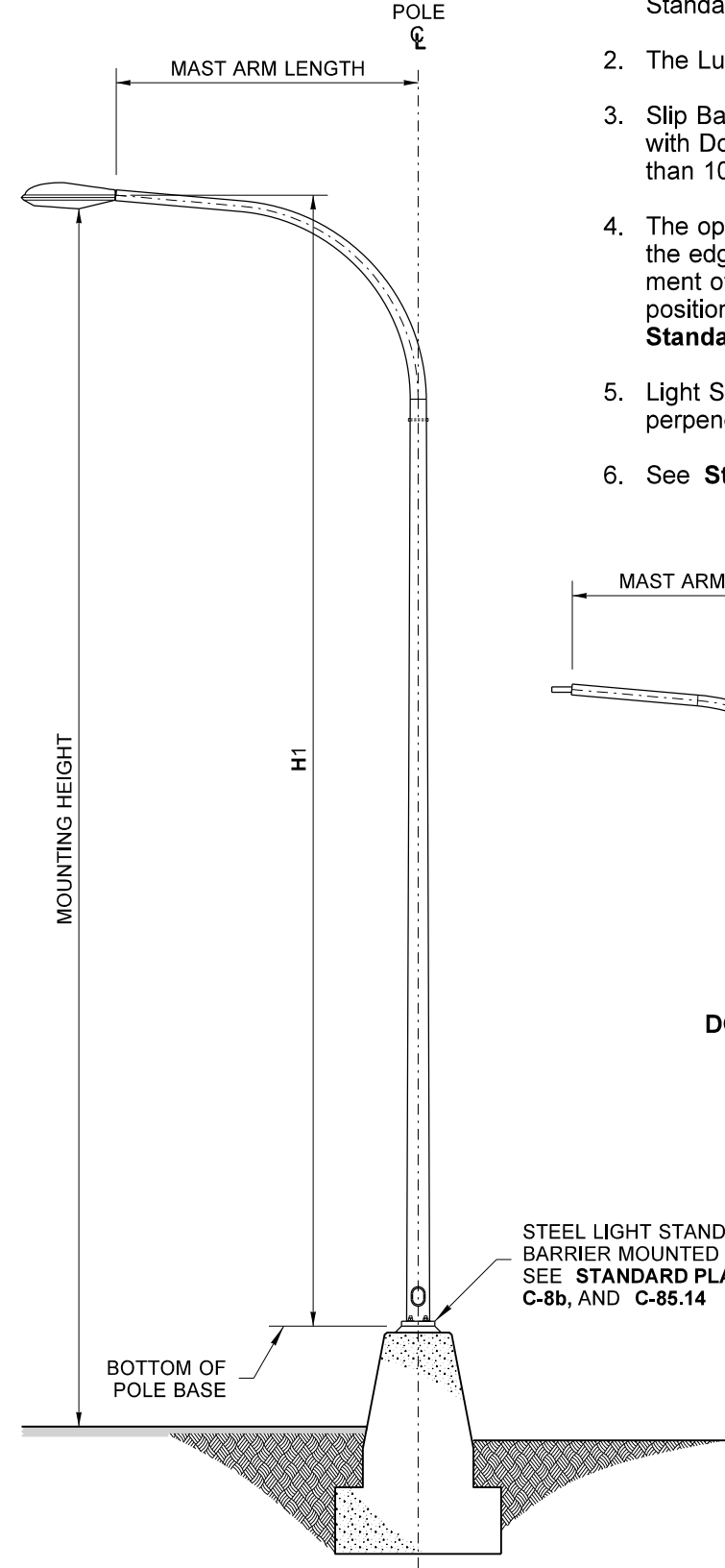
DRAWN BY: LISA CYFORD



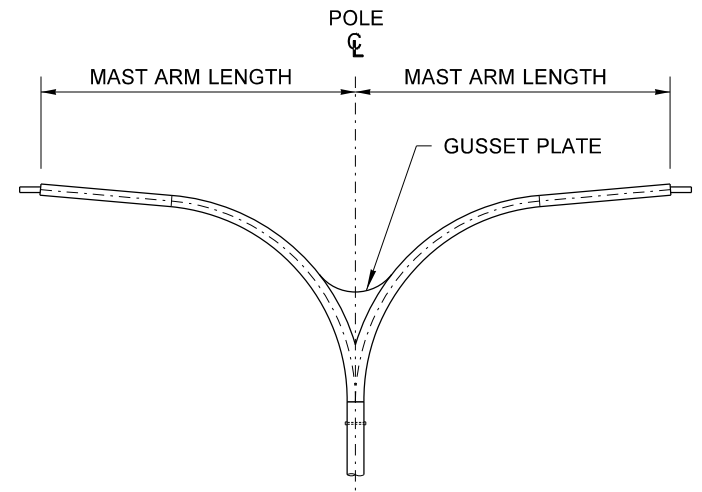
STANDARD GROUND MOUNT
(SLIP BASE SHOWN)



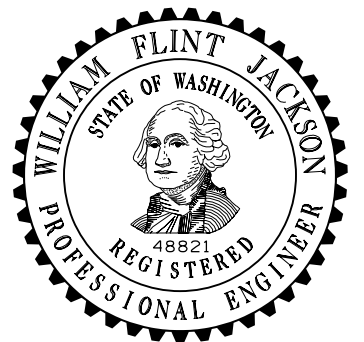
BARRIER ELBOW MOUNT
(BRIDGE BARRIER SHOWN)



TOP OF BARRIER MOUNT



DOUBLE TYPE 1 MAST ARM



NOTES

1. This plan depicts the Steel Light Standard types and terms commonly referred to in the Contract. All Steel Light Standards are fabricated in accordance with the Standard Specifications and the Contract Provisions.
2. The Luminaire Pole height shall not exceed 50' (ft)(H1).
3. Slip Bases shall not be installed on 50' (ft)(H1) poles with Double Mast Arms, nor on poles weighing more than 1000 lbs.
4. The optimal location of the Luminaire head is over the edge of the traveled way. Based on the placement of the Steel Light Standard foundation, the position of the Luminaire head may vary. See **Standard Plan J-28.22**.
5. Light Standard mast arm orientation is typically perpendicular to roadway centerline.
6. See **Standard Plan J-28.50** for Hand Hole details.

STEEL LIGHT STANDARD
STANDARD PLAN J-28.10-02

SHEET 1 OF 1 SHEET

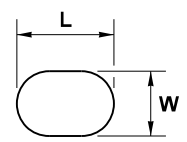
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Washington State Department of Transportation

BASE TABLE				
ADAPTOR TYPE	ANCHOR BOLT (IN)	BOLT CIRCLE DIAMETER (IN) "BC"	EXISTING BASE TYPE	LUMINAIRE HEIGHT (± 2' - 6")
A-1	1"	11"	WELDED PLATE	3'
A-2	1"	12 1/4"	CAST ALUMINUM	3'
A-3	1"	12 3/4"	STEEL TRANSFORMER	3'
A-4	1 1/8"	14 1/8"	2-PC. ALUM. CLAMP	4'
A-5	1 1/4"	14 1/8"	2-PC. ALUM. CLAMP	40'

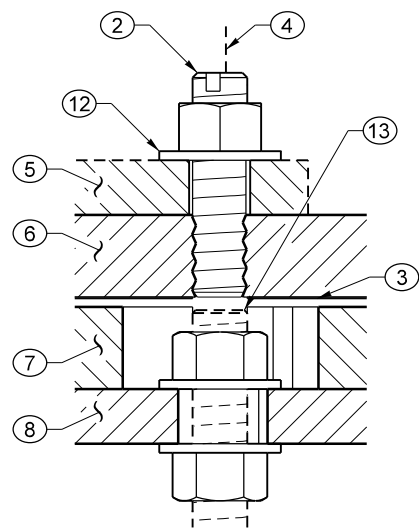
- ① USE MATCHING DIAMETER FOR THREADED STUDS.
- ② CONTRACTOR SHALL VERIFY BOLT CIRCLE "BC" IN THE FIELD BEFORE ORDERING. IF "BC" OR ANCHOR BOLT SIZES DIFFER FROM THOSE LISTED, CONTACT HQ BRIDGE AND STRUCTURES OFFICE.
- ③ 40' (FT) LUMINAIRE W/ 1 x 16' (FT) (MAX.) MAST ARM OR 35' (FT) LUMINAIRE W/ 2 x 16' (FT) MAST ARMS.
- ④ 50' (FT) LUMINAIRE W/ 1 x 16' (FT) (MAX.) MAST ARM OR 40' (FT) LUMINAIRE W/ 2 x 16' (FT) MAST ARMS - TOTAL WEIGHT 1000 LBS (MAX.).

DRAWN BY: COLBY FLETCHER



ANCHOR PLATE SLOT DETAIL

ANCHOR PLATE SLOT TABLE		
ANCHOR BOLT DIAMETER (IN)	SIZE	
	W (IN)	L (IN)
1"	1 1/4"	2"
1 1/8"	1 1/4"	2"
1 1/4"	1 1/2"	2 1/4"



DETAIL A (TYP. OF FOUR PLACES)

CONSTRUCTION NOTES

- ① Wire brush existing threads.
- ② Apply two coats of galvanizing paint (per **Standard Specification Section 9-08.1(2)B**).
- ③ Tighten bolt by "Turn of Nut" method (per **Standard Specification Section 6-03.3(33)**).

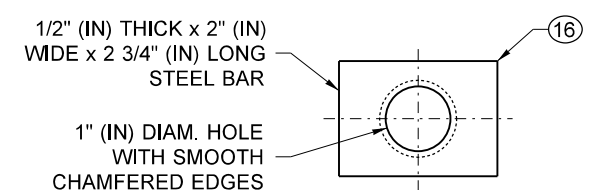
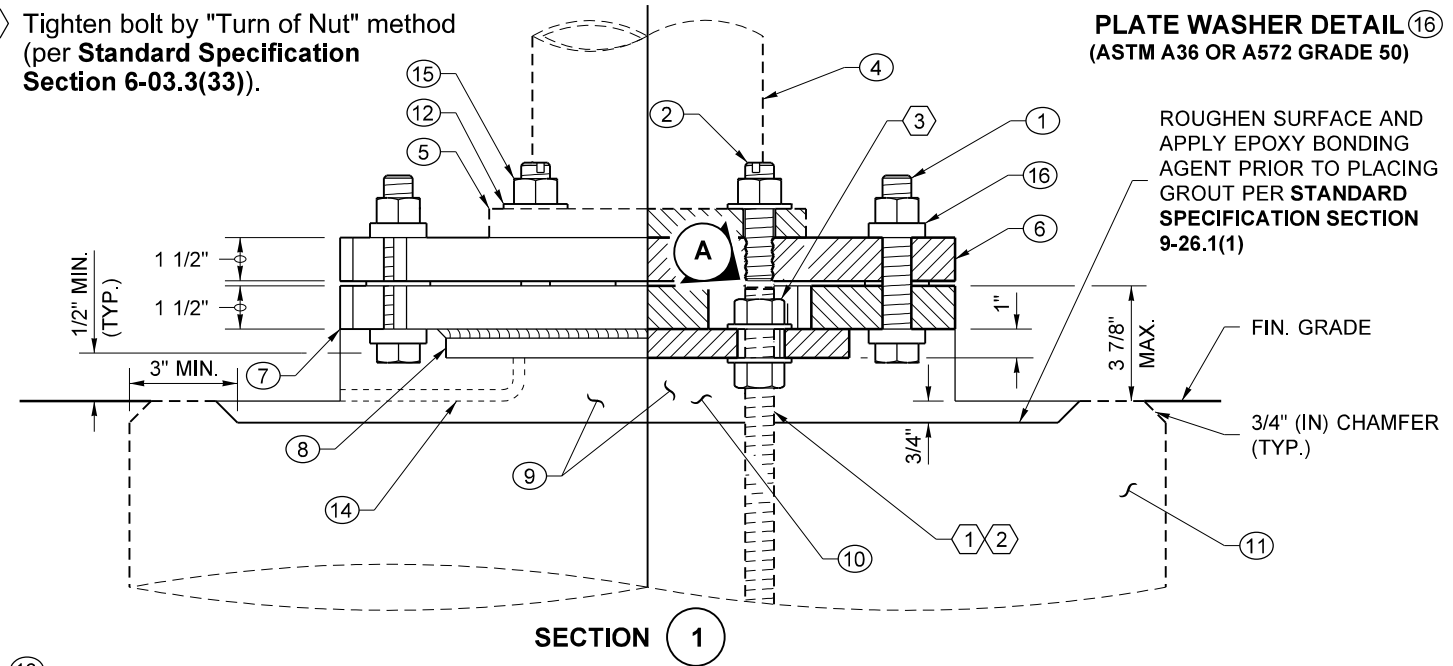
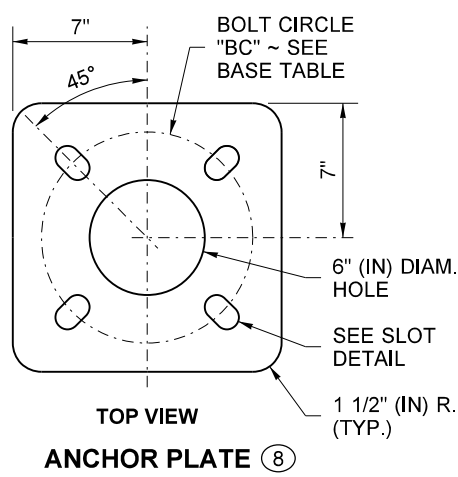


PLATE WASHER DETAIL (16) (ASTM A36 OR A572 GRADE 50)

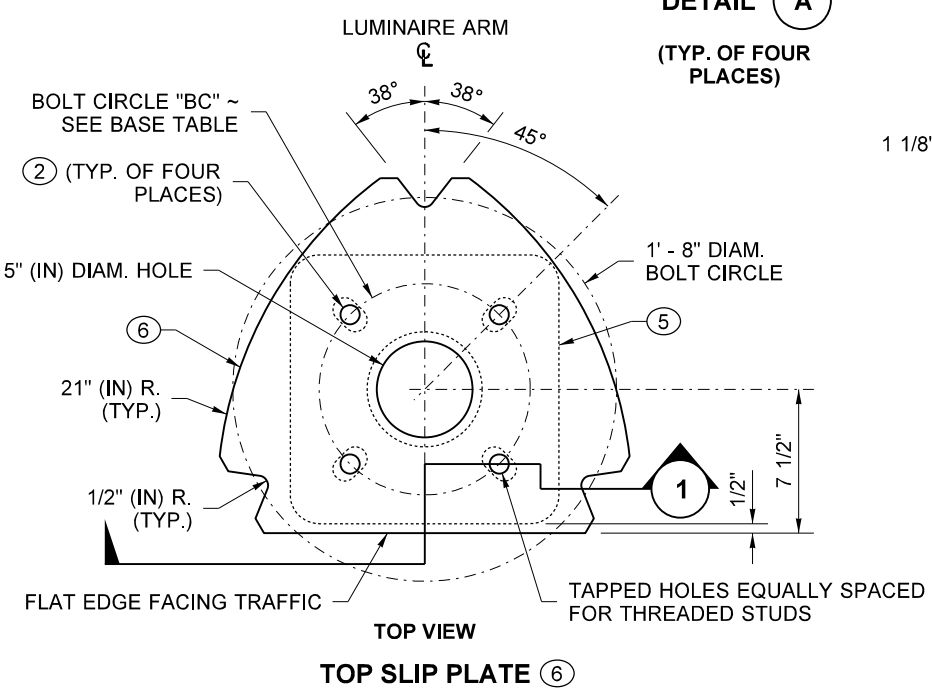
ROUGHEN SURFACE AND APPLY EPOXY BONDING AGENT PRIOR TO PLACING GROUT PER STANDARD SPECIFICATION SECTION 9-26.1(1)



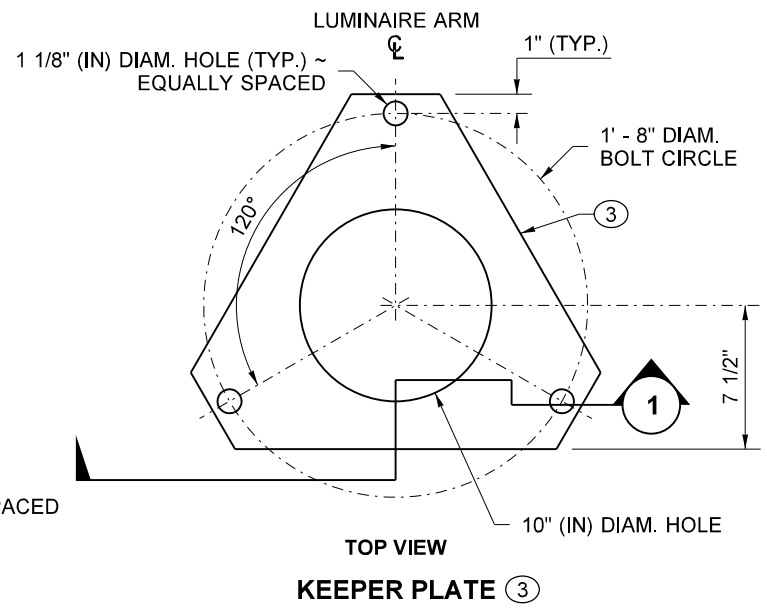
TOP VIEW ANCHOR PLATE (8)

KEY

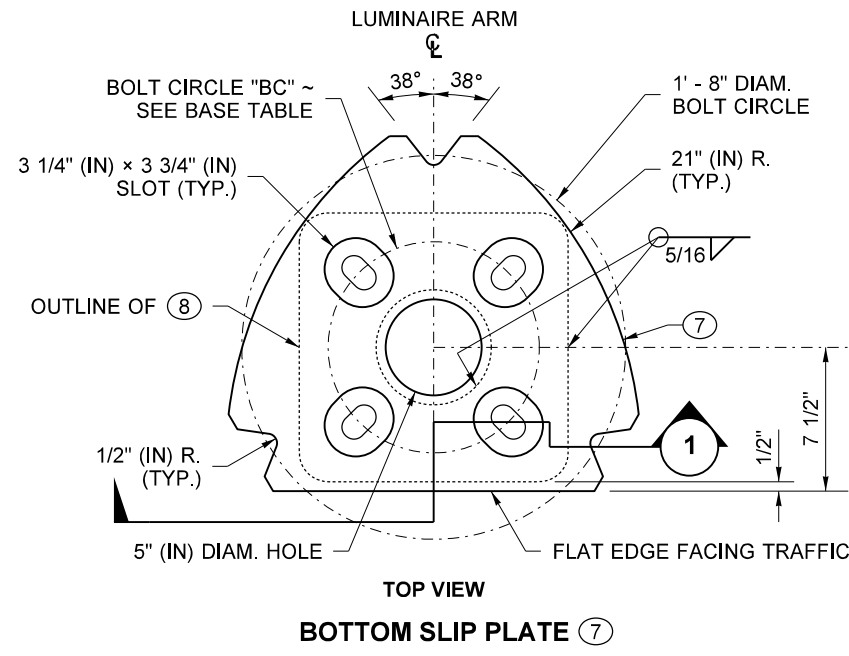
- ① CLAMPING BOLTS, 7/8" (IN) DIAM. HEX HEAD BOLT AND NUT, TWO PLATE WASHERS, ONE HARDENED ROUND WASHER, 87 FT-LBS TORQUE (THREE CLAMPING BOLT ASSEMBLIES PER SLIP BASE) (PER ASTM F3125 GRADE A325)
- ② THREADED SLOTTED STUD ~ SEE BASE TABLE FOR DIAMETER, HARDENED WASHER, AND HEAVY HEX NUT (FOUR PER BASE PLATE) INSERT STUD AND CENTER PUNCH AT BOTTOM PERIPHERY TO LOCK TAPPED STUD IN PLACE PRIOR TO GALVANIZING (PER ASTM F1554 GRADE 105)
- ③ KEEPER PLATE ~ 0.0149" (IN) 28 GAGE PLATE (PER ASTM A653 COATING DESIGNATION G90)
- ④ POLE WALL (EXISTING)
- ⑤ POLE BASE PLATE (EXISTING)
- ⑥ TOP SLIP PLATE (PER ASTM A572 GR. 50 OR A588)
- ⑦ BOTTOM SLIP PLATE (PER ASTM A572 GR. 50 OR A588)
- ⑧ ANCHOR PLATE (PER ASTM A572 GR. 50 OR A588)
- ⑨ REMOVE GROUT (EXISTING WITH DRAIN)
- ⑩ NEW GROUT PAD WITH DRAIN
- ⑪ FOUNDATION (EXISTING)
- ⑫ HARDENED WASHER (PER ASTM F436)
- ⑬ ANCHOR BOLT (EXISTING) ~ TRIM TO CLEAR SLIP PLATE BY 1/8" (IN) MIN.
- ⑭ 3/8" (IN) DIAM DRAIN TUBE (PER STANDARD SPECIFICATION SECTION 9-29.2(3))
- ⑮ HEAVY HEX NUT (TYP.) (PER ASTM A563 GRADE DH)
- ⑯ PLATE WASHER (ASTM A36)



TOP VIEW TOP SLIP PLATE (6)



TOP VIEW KEEPER PLATE (3)



TOP VIEW BOTTOM SLIP PLATE (7)

NOTES

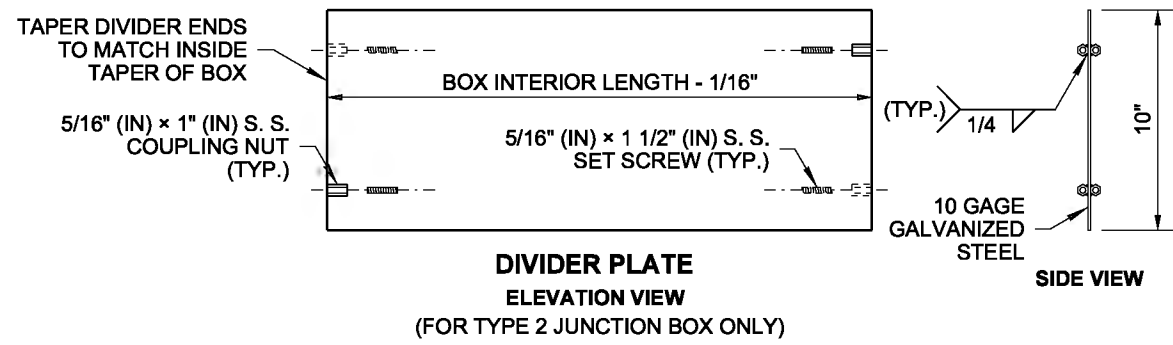
- 1. The purpose of this plan is to provide the details for retrofitting a 4-bolt frangible base with a slip base assembly.
- 2. Existing anchor bolts shall be inspected for corrosion, thread damage, and galvanizing. To minimize galvanic corrosion between dissimilar metals, ensure galvanizing remains intact while installing aluminum luminaire.
- 3. After bolting the bottom slip plate assembly to the foundation, fill the slotted bolt holes with mastic per **Standard Specification Section 9-08.7**.
- 4. Grade around the foundation to ensure the stub height does not exceed 3 7/8" (in). For grading requirements, see **Standard Plan J-28.22**.
- 5. Removal of the frangible base from the existing base plate is required.
- 6. Misaligned anchor bolts shall be removed and replaced.
- 7. This adaptor shall be used only on luminaire poles that contain a handhole. Replace standards and foundation when the handhole is located in the frangible base.
- 8. Galvanize the anchor plate, bottom slip plate, and top slip plate after fabrication according to **ASTM A123**.
- 9. Galvanize all hardware according to **ASTM F2329**.



SLIP BASE ADAPTOR FOR 4-BOLT LIGHT STANDARD BASE STANDARD PLAN J-28.43-01

SHEET 1 OF 1 SHEET
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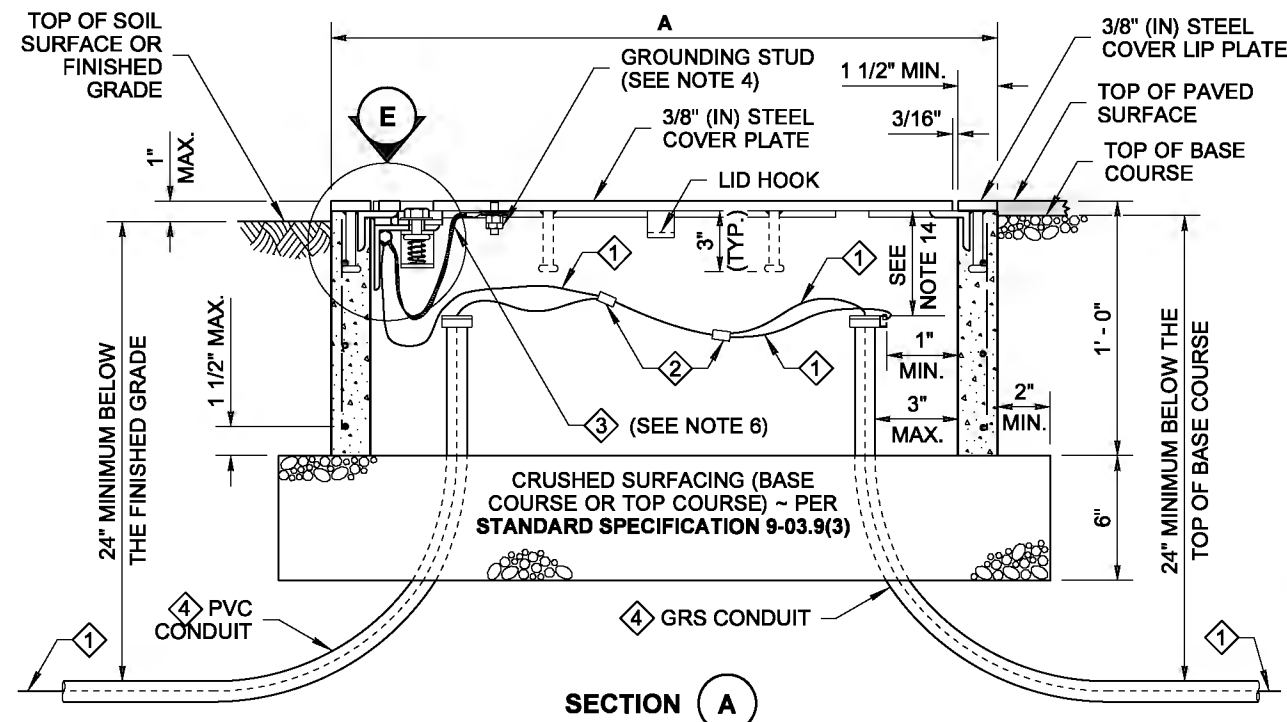
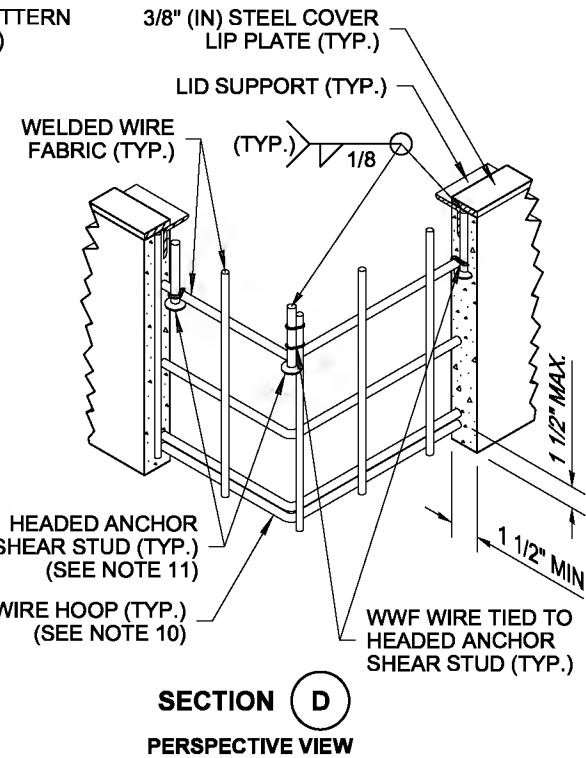
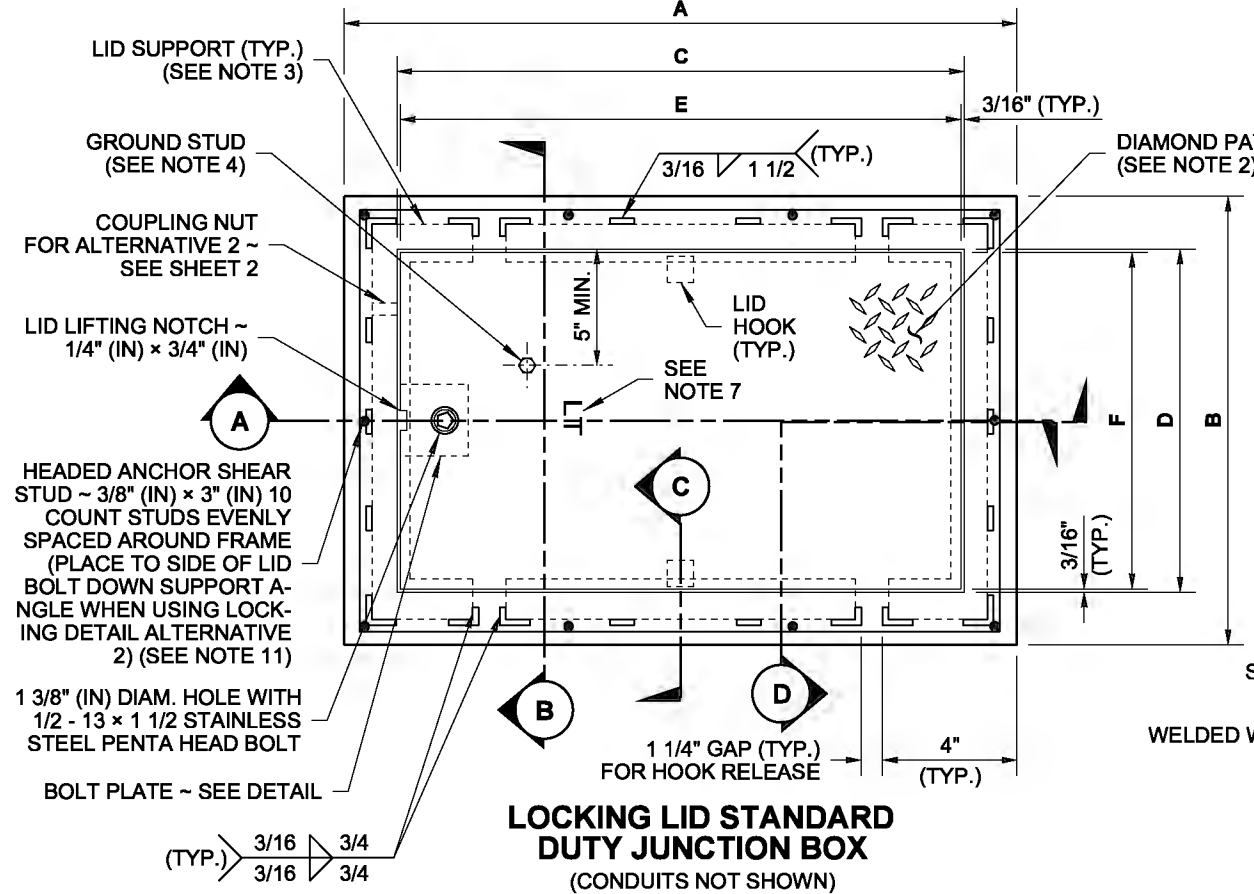
DRAWN BY: LISA CYFORD



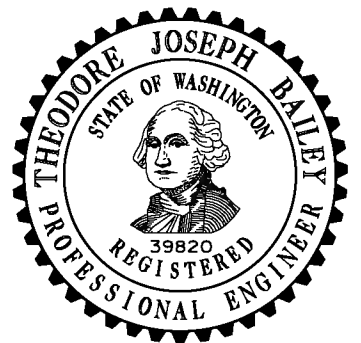
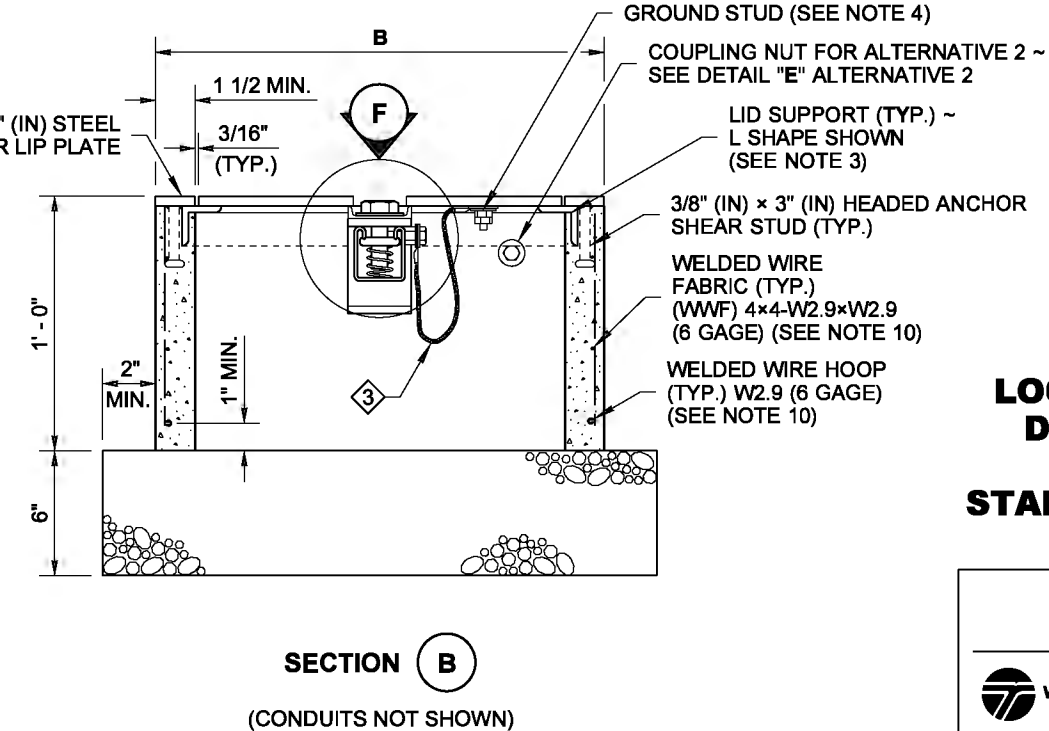
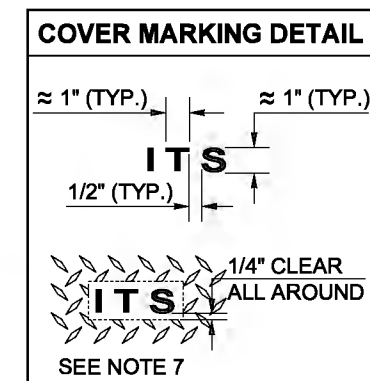
JUNCTION BOX DIMENSION TABLE			
MARK	ITEM	BOX TYPE	
		TYPE 1	TYPE 2
A	OUTSIDE LENGTH OF JUNCTION BOX	22"	33"
B	OUTSIDE WIDTH OF JUNCTION BOX	17"	22 1/2"
C	INSIDE LENGTH OF JUNCTION BOX	18" ~ 19"	28" ~ 29"
D	INSIDE WIDTH OF JUNCTION BOX	13" ~ 14"	17" ~ 18"
E	LID LENGTH	17 5/8"	28 5/8"
F	LID WIDTH	12 5/8"	18 1/8"
CAPACITY ~ CONDUIT DIAMETER		6"	12"

NOTES

- All box dimensions are approximate. Exact configurations vary among manufacturers.
- Minimum lid thickness shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate, and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
- Lid support members shall be 3/16" (in) minimum thick steel C, L, or T shape, welded to the frame.
- A 1/4-20 NC x 3/4" (in) stainless steel ground stud shall be welded to the bottom of the lid; include (2) stainless steel nuts and (2) stainless steel flat washers.
- Bolts and nuts shall be liberally coated with anti-seize compound.
- Equipment Bonding Jumper shall be # 8 AWG min. x 4' (ft) of tinned braided copper.
- The System Identification letters shall be 1/8" (in) line thickness formed with a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. For System Identification details, see **Standard Specification 9-29.2(4)**.
- When required in the Contract, provide a 10" (in) x 27 1/2" (in), 10 gage divider plate, complete, with fasteners, in each Type 2 Junction Box where specified.
- When required in Contract, provide a 12" (in) deep extension for each Type 2 Junction Box where specified.
- See the **Standard Specifications** for alternative reinforcement and class of concrete.
- Headed Anchor Shear Studs must be welded to the Steel Cover Lip Plate and wire tied in two places to the vertical Welded Wire Fabric when in contact with each other. Wire tie all other Headed Anchor Shear Studs to the horizontal Welded Wire Fabric.
- Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawings for specifics.
- Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults, and Pull Boxes shall not be placed within the sidewalks, walkways, shared use paths, traveled ways or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty.
- Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



- ① Equipment Grounding Conductor
- ② Copper Solderless Crimp Connector
- ③ Equipment Bonding Jumper (See Note 6)
- ④ See Contract for conduit size and number

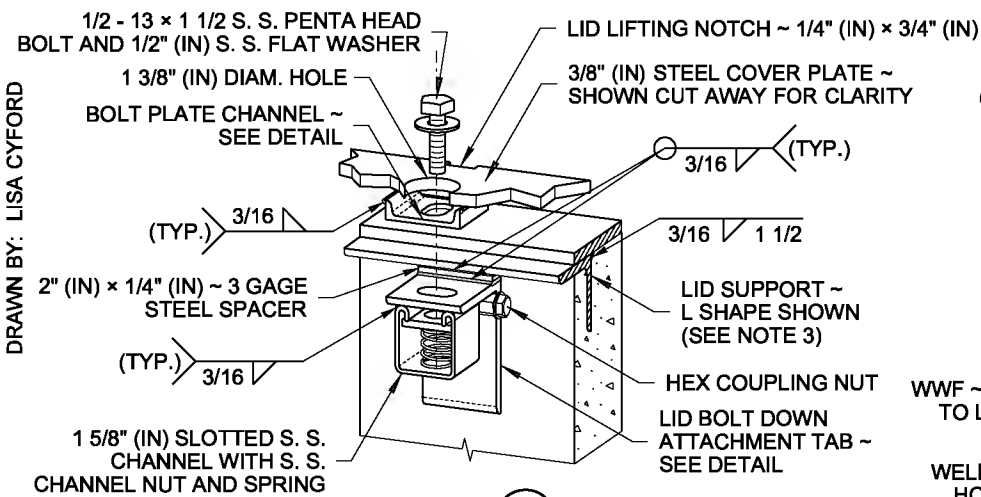


**LOCKING LID STANDARD
DUTY JUNCTION BOX
TYPES 1 & 2
STANDARD PLAN J-40.10-04**

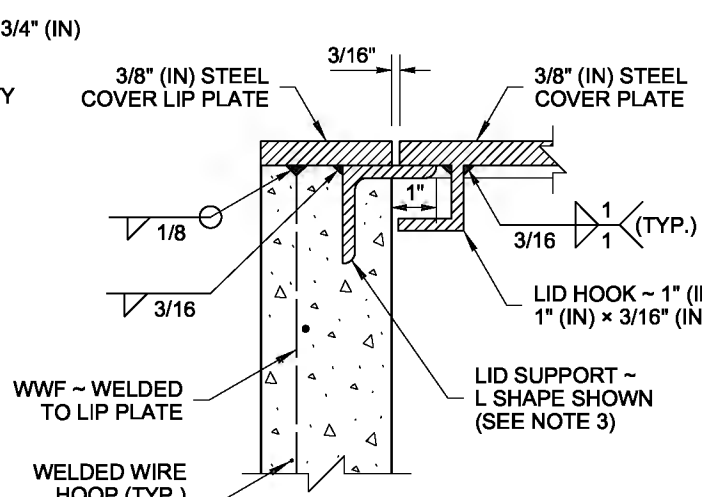
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

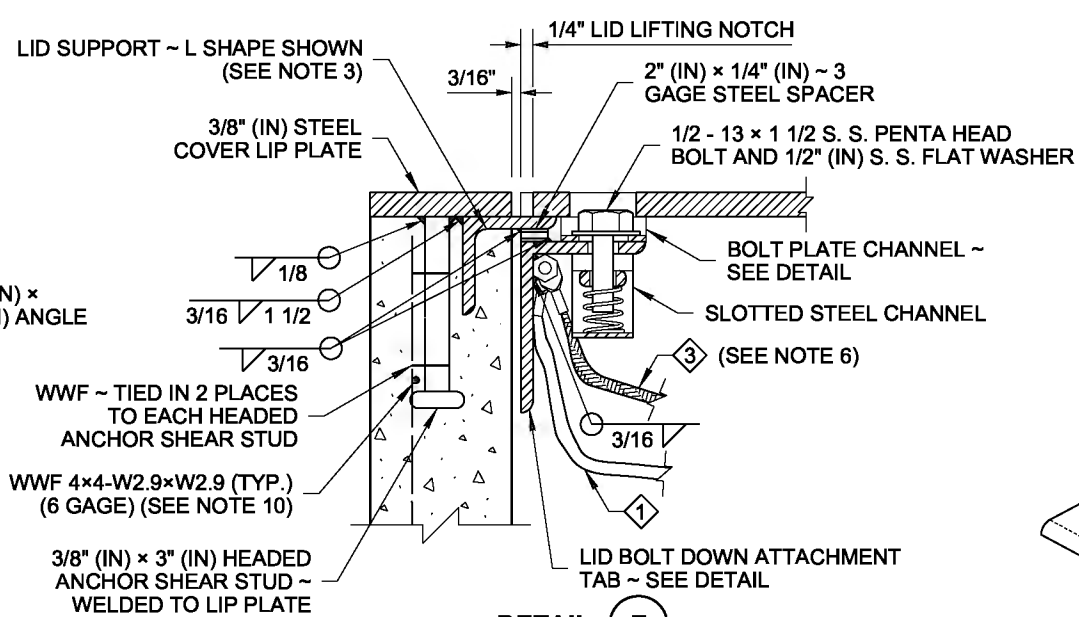
DRAWN BY: LISA CYFORD



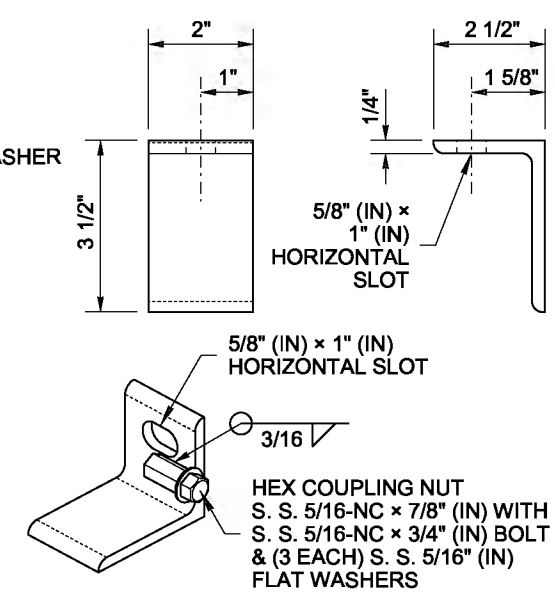
DETAIL F
ALTERNATIVE 1 SHOWN
PERSPECTIVE VIEW



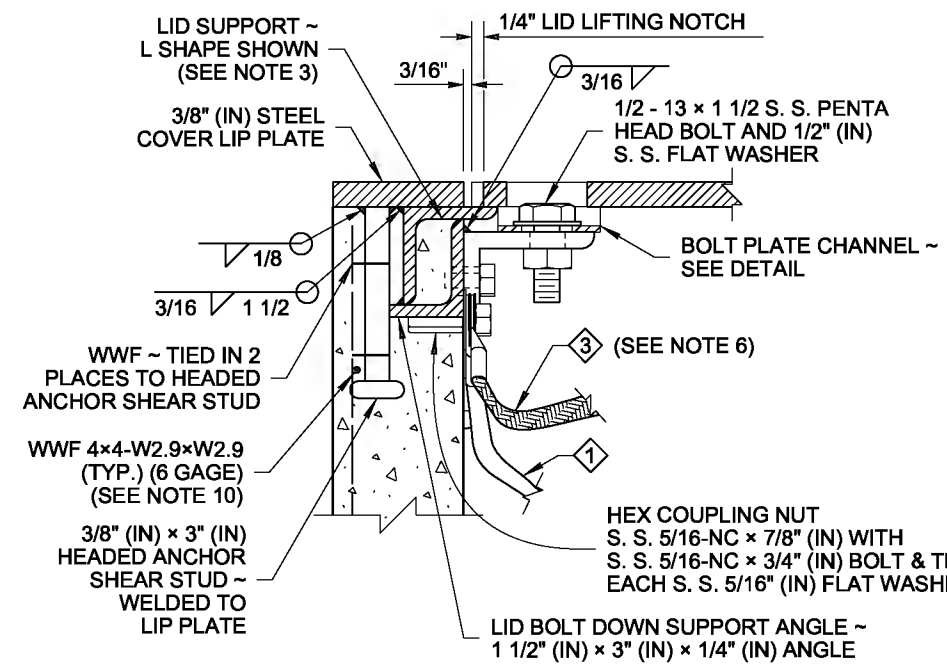
SECTION C



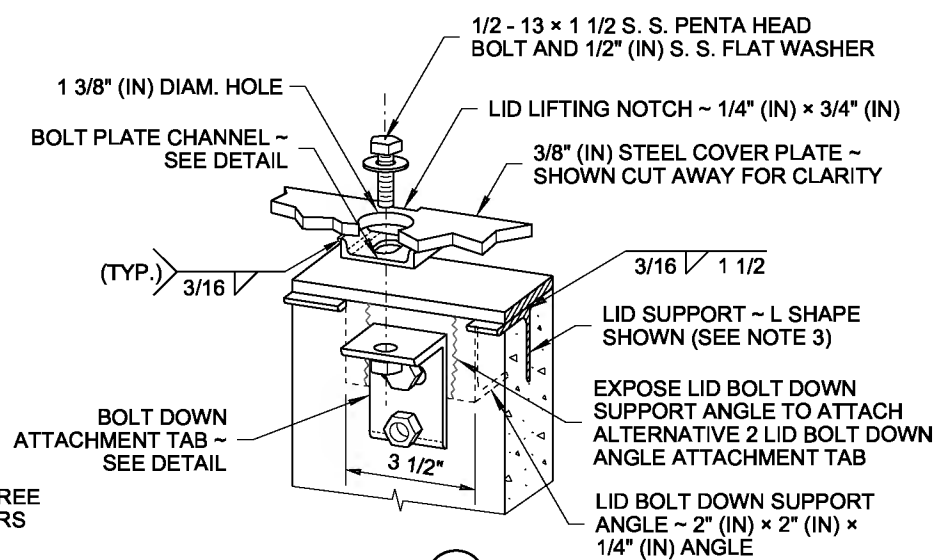
DETAIL E
ALTERNATIVE 1 SHOWN



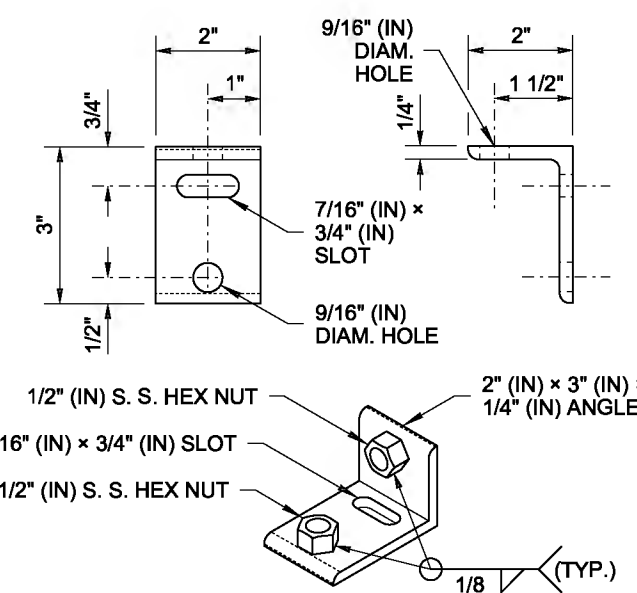
ALTERNATIVE 1
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)



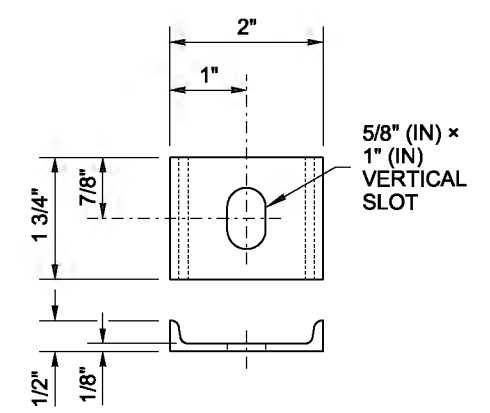
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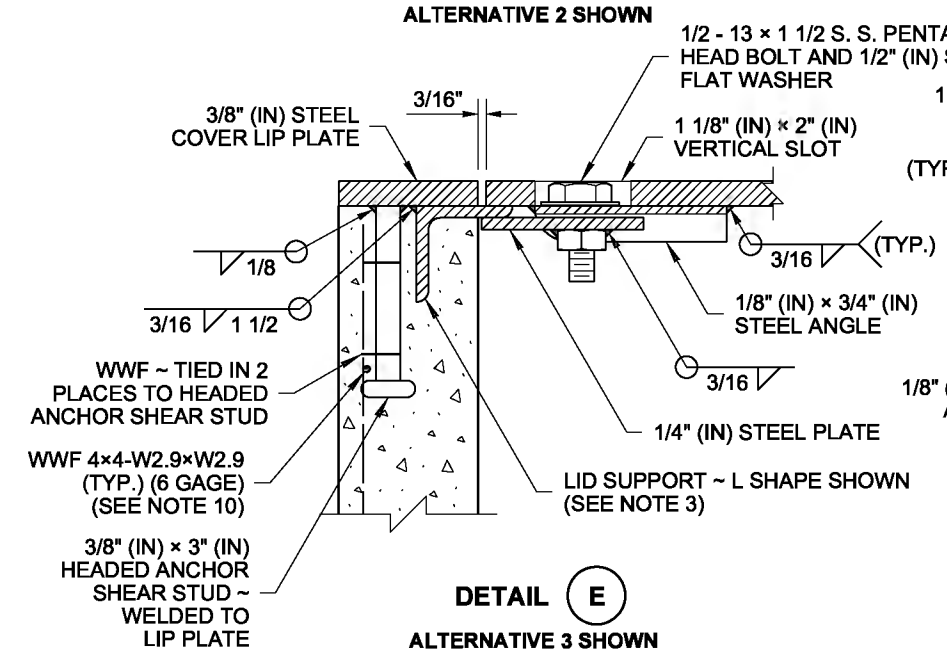
DETAIL F
ALTERNATIVE 2 SHOWN
PERSPECTIVE VIEW



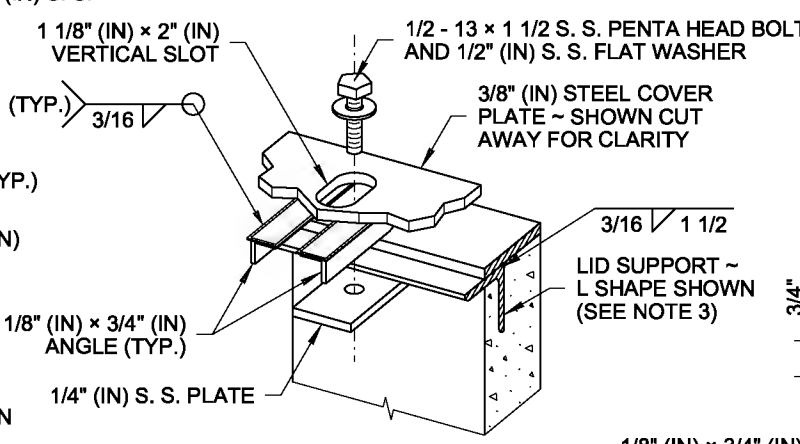
ALTERNATIVE 2
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)



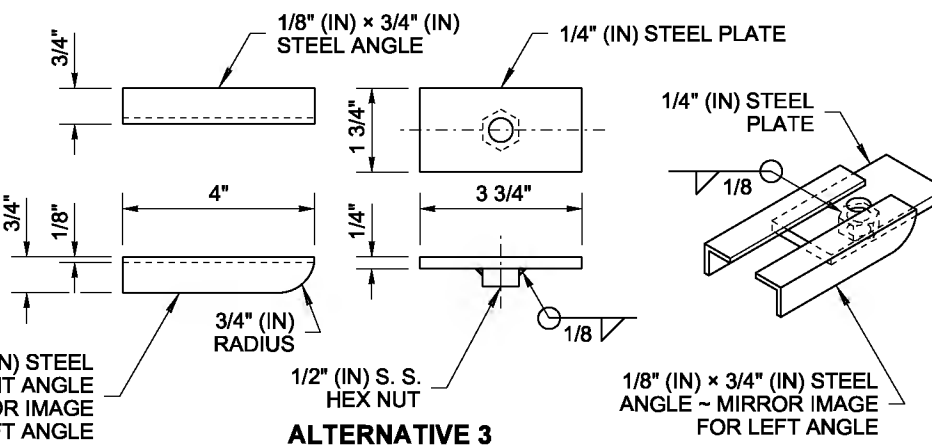
BOLT PLATE CHANNEL



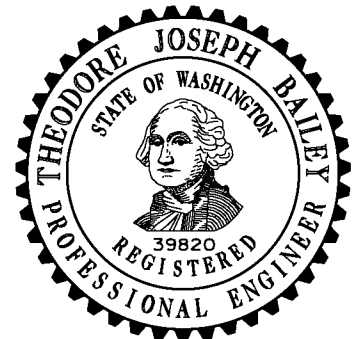
DETAIL E
ALTERNATIVE 3 SHOWN



DETAIL F
ALTERNATIVE 3 SHOWN
PERSPECTIVE VIEW



ALTERNATIVE 3
LID BOLT DOWN ATTACHMENT TAB
(SEE NOTE 12)

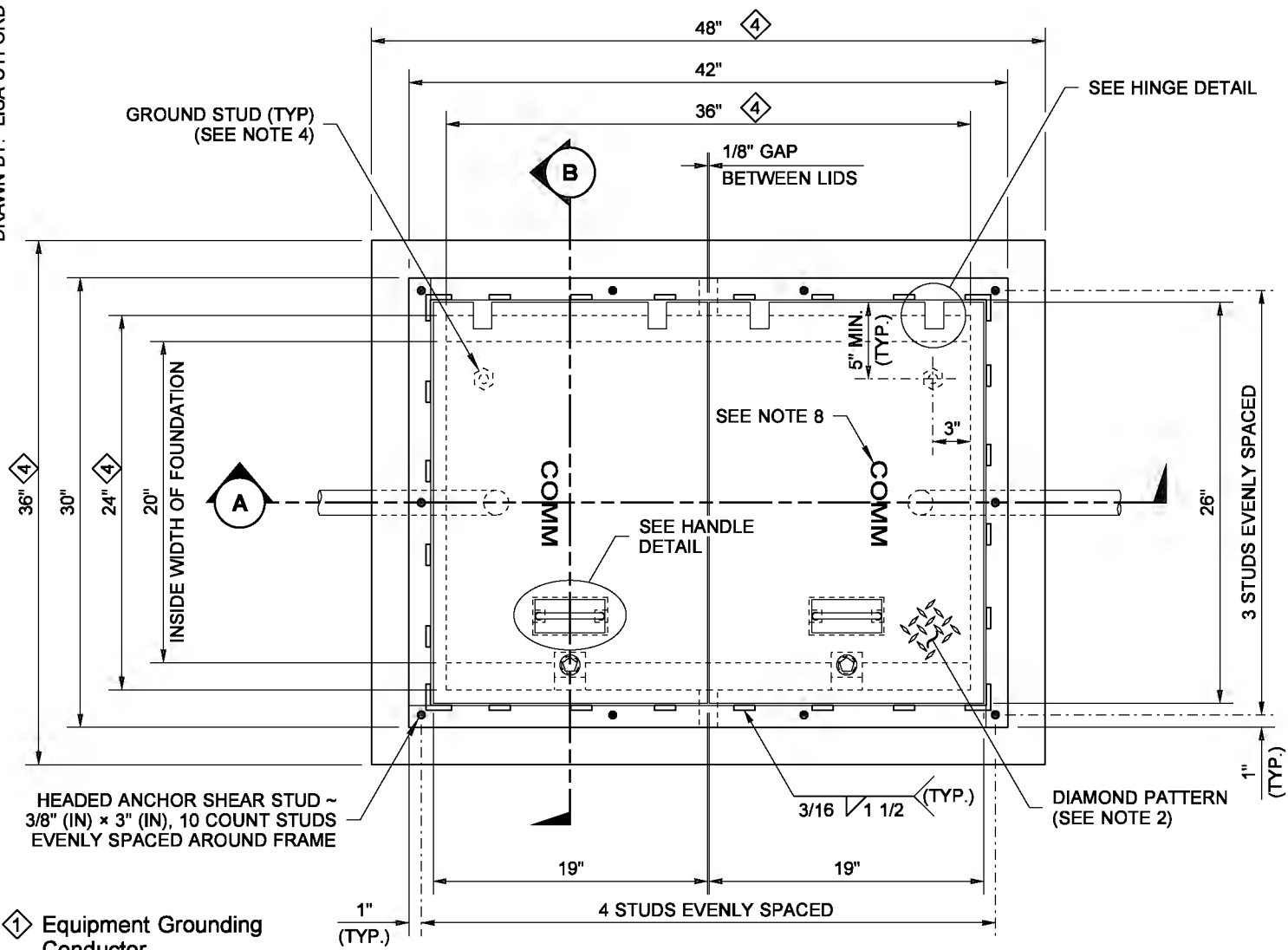


**LOCKING LID STANDARD
DUTY JUNCTION BOX
TYPES 1 & 2
STANDARD PLAN J-40.10-04**

SHEET 2 OF 2 SHEETS

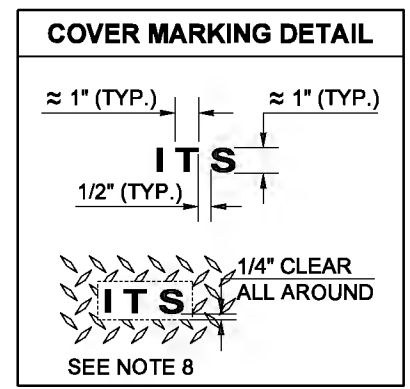
APPROVED FOR PUBLICATION

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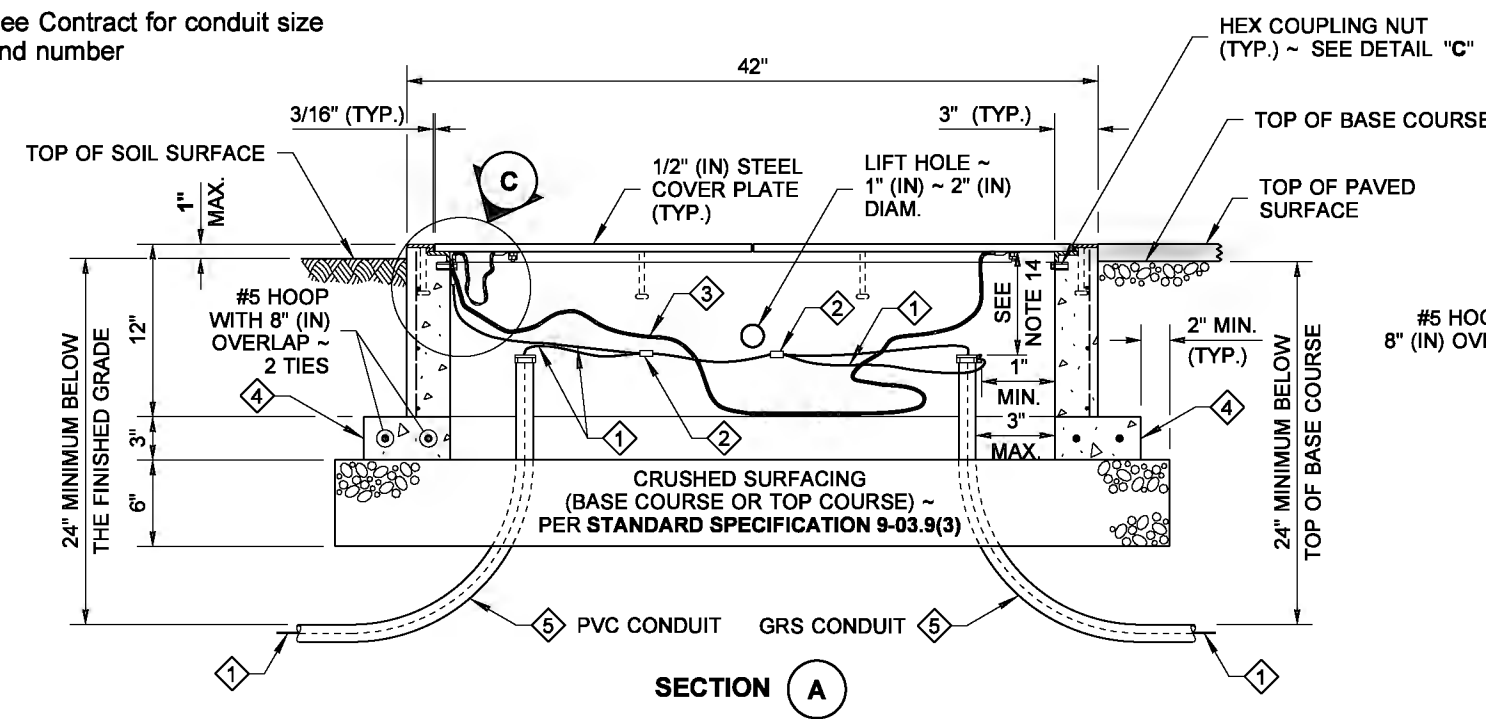
LOCKING LID STANDARD DUTY JUNCTION BOX

- ① Equipment Grounding Conductor
- ② Copper Solderless Crimp Connector
- ③ Equipment Bonding Jumper
- ④ Foundation
- ⑤ See Contract for conduit size and number

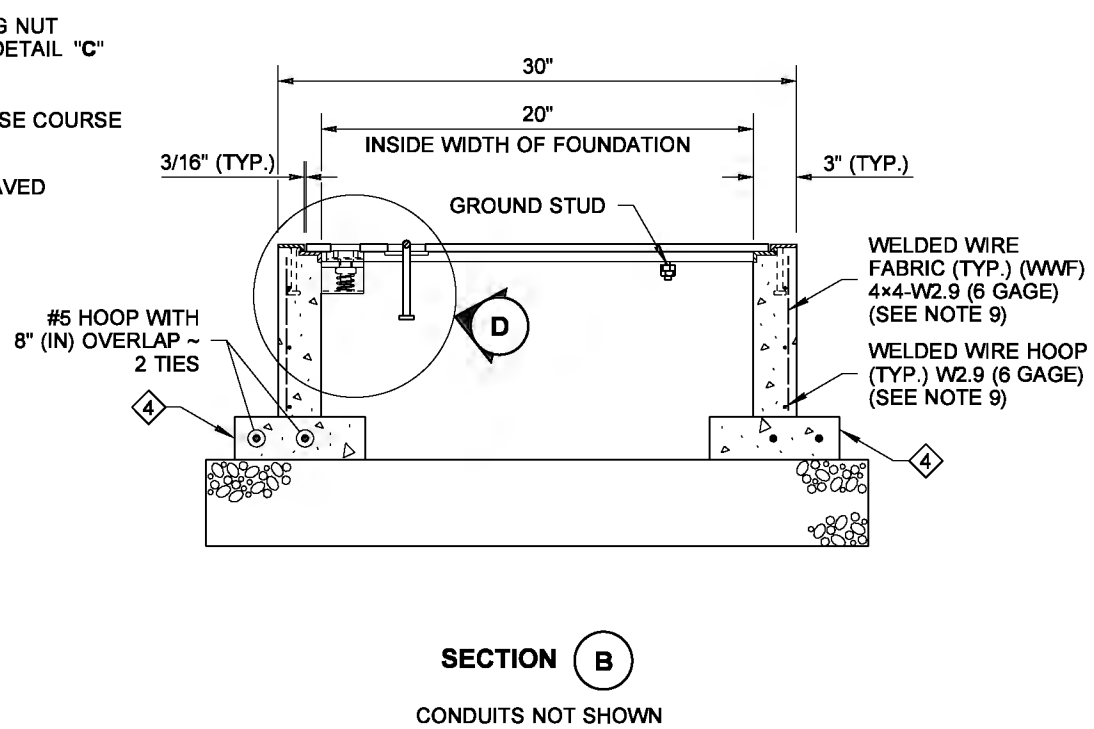


NOTES

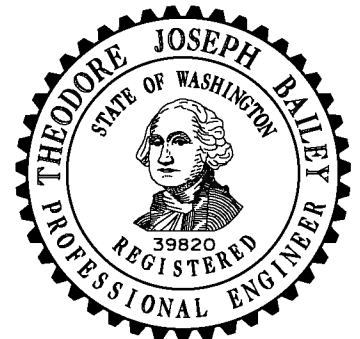
1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thicknesses are shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) min. thick steel C, L, or T shape, welded to the frame. Exact configurations vary among manufacturers.
4. A 1/4-20 NC x 3/4" (in) S. S. ground stud shall be welded to the bottom of each lid; include (2) S. S. nuts and (2) S. S. flat washers.
5. The hinges shall allow the lids to open 180°.
6. Bolts and nuts shall be liberally coated with anti-seize compound.
7. Connect Equipment Bonding Jumper to ground stud on lid. As an alternative to the ground stud connection, the Equipment Bonding Jumper shall be attached to the front face of the hinge pocket with a 5/16-20 NC x 3/4" (in) S. S. bolt, (2) each S. S. nuts, and (2) each S. S. flat washers. Equipment Bonding Jumper shall be #8 AWG min. x 4' (ft) of tinned braided copper.
8. The System Identification letters shall be 1/8" (in) line thickness formed by a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. See **Standard Specification 9-29.2(4)** for details.
9. See the **Standard Specifications** for alternative reinforcement and class of concrete.
10. See **Standard Plan J-40.10** for Welded Wire Fabric and Headed Anchor Shear Stud attachment details.
11. Capacity ~ conduit diameter = 24" (in)
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawing for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults and Pull Boxes shall not be placed within the sidewalk, walkway, shared use path, traveled way or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



SECTION A



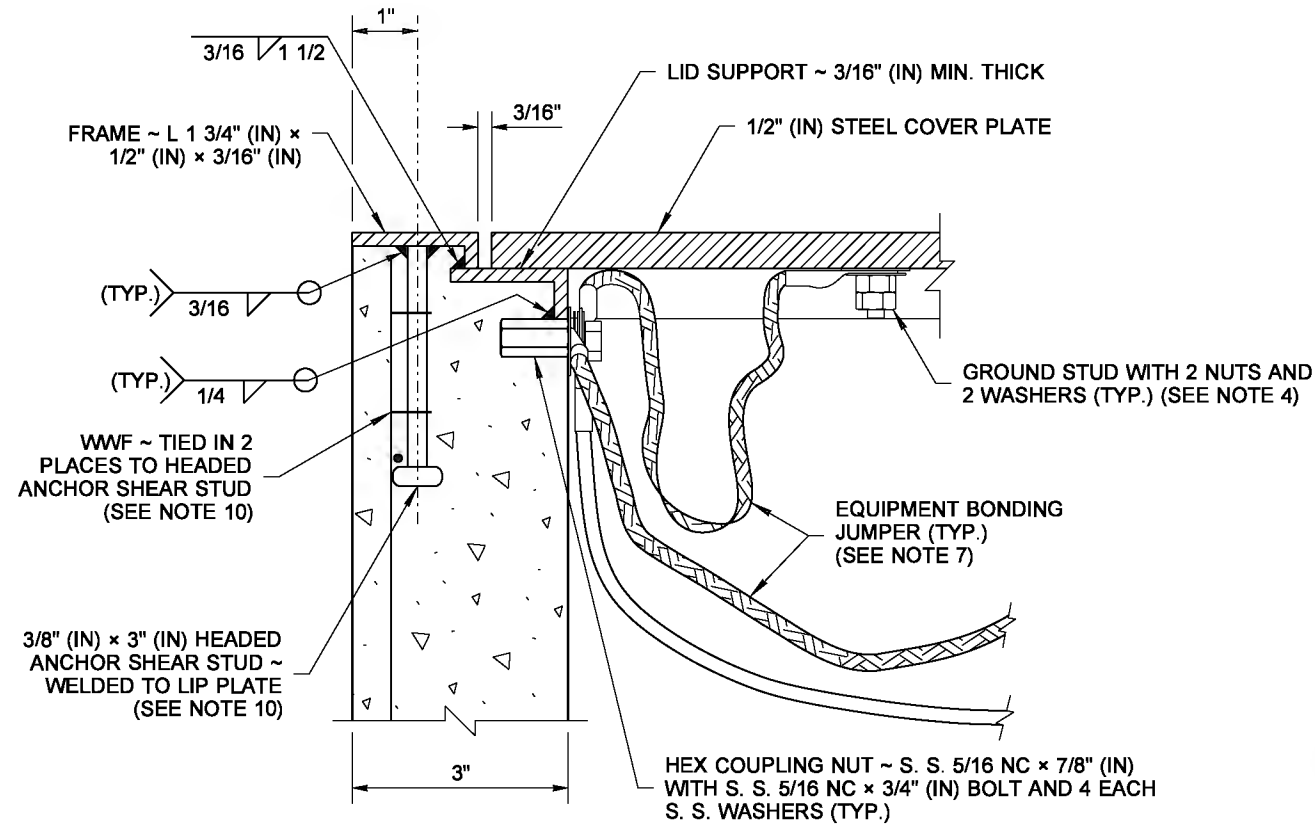
SECTION B
CONDUITS NOT SHOWN



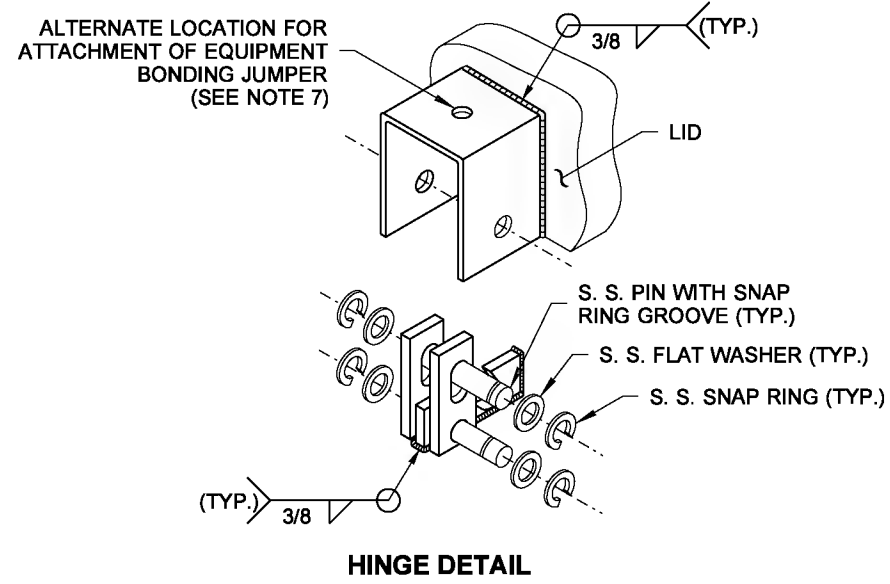
LOCKING LID STANDARD DUTY JUNCTION BOX TYPE 8
STANDARD PLAN J-40.30-04

SHEET 1 OF 2 SHEETS
APPROVED FOR PUBLICATION

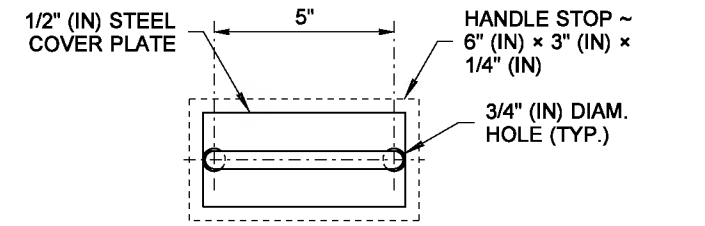
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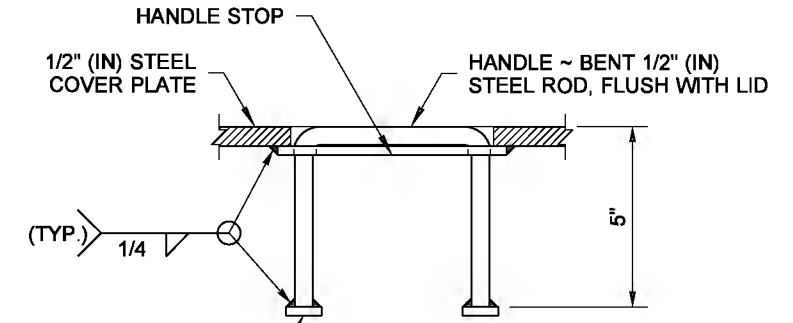
DETAIL C



HINGE DETAIL

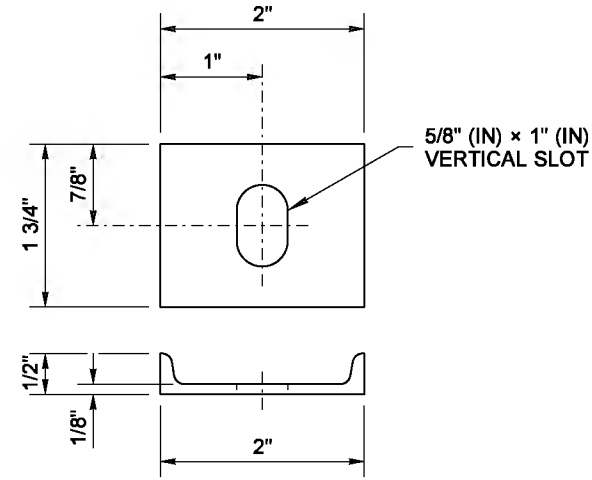


TOP VIEW

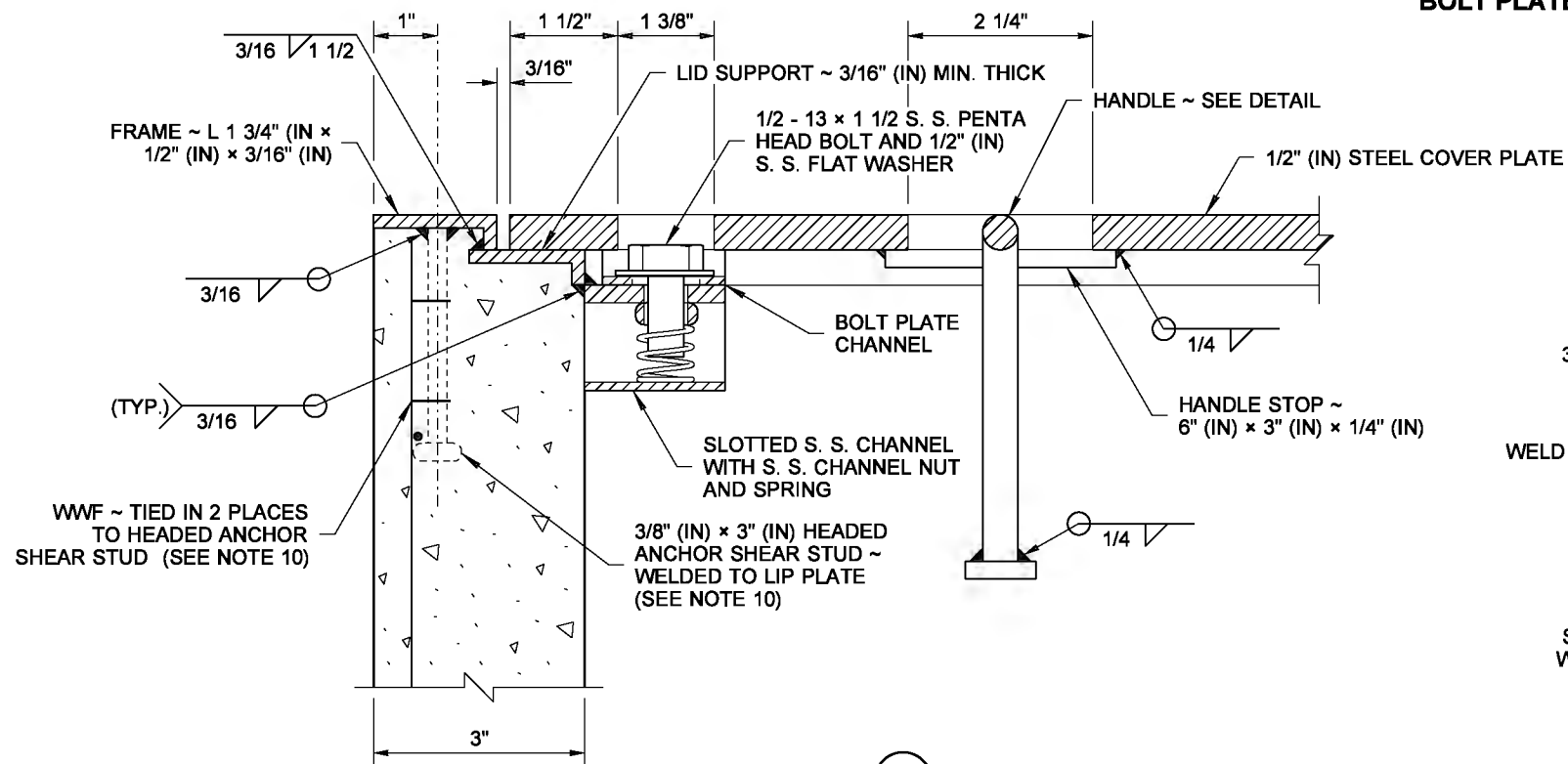


FRONT VIEW

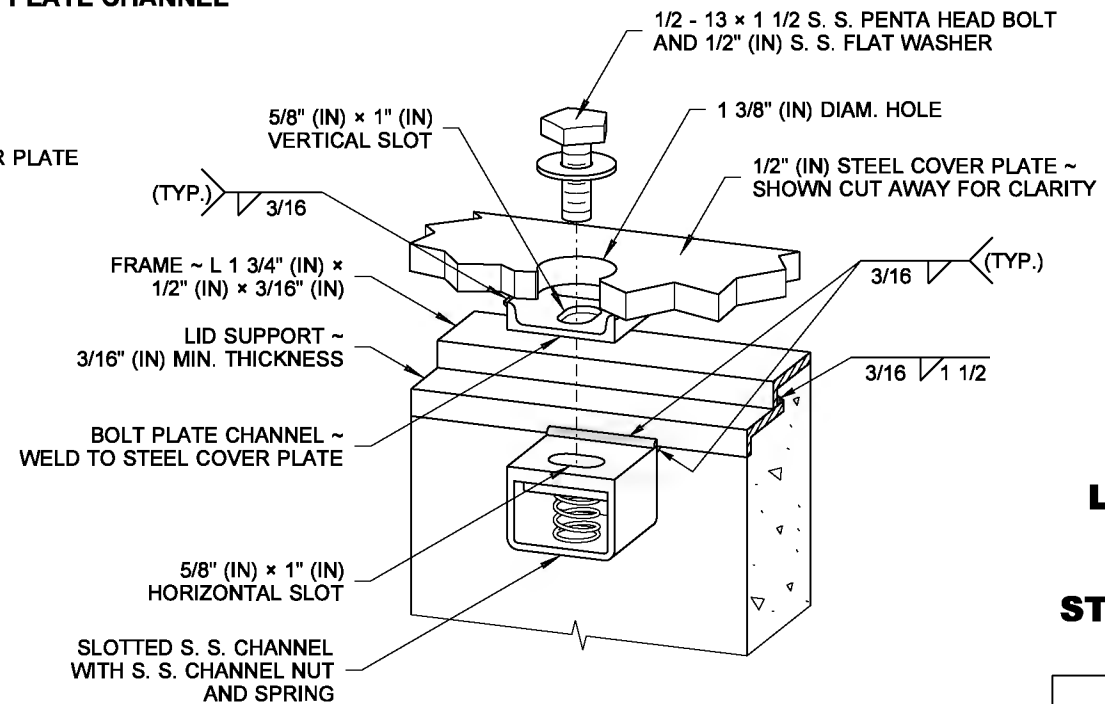
HANDLE DETAIL



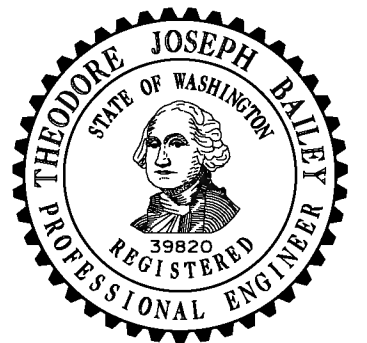
BOLT PLATE CHANNEL



DETAIL D



DETAIL D ISOMETRIC VIEW

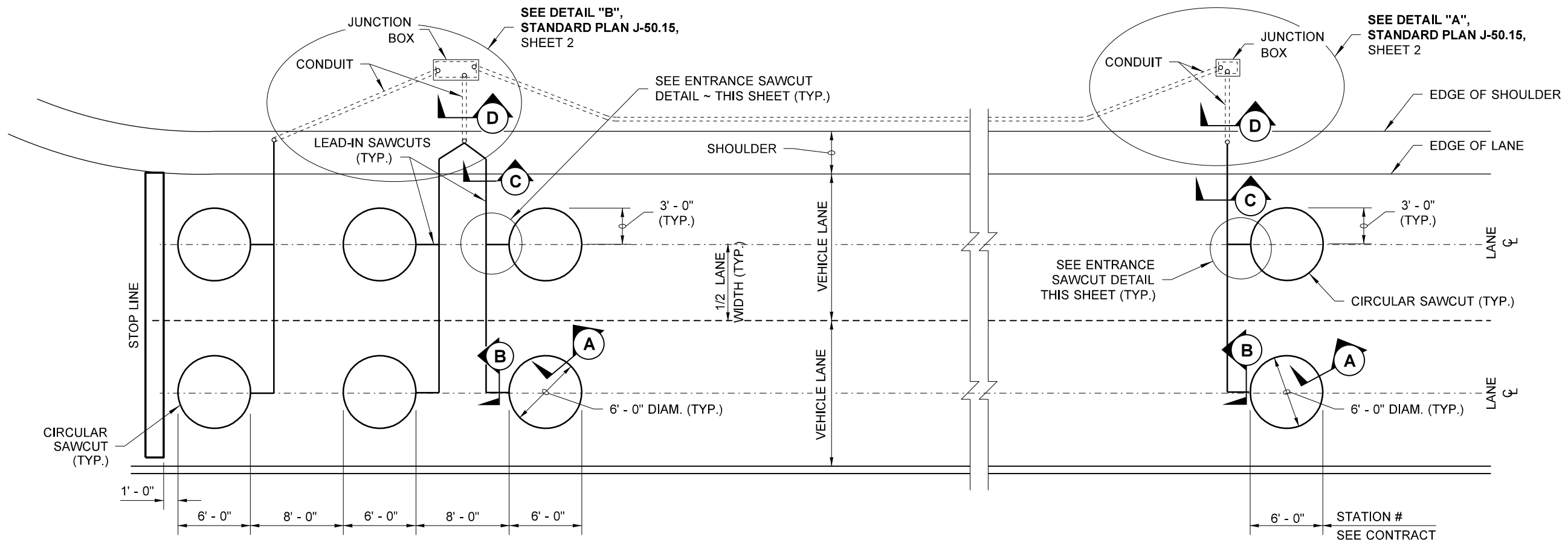


**LOCKING LID STANDARD
DUTY JUNCTION BOX
TYPE 8
STANDARD PLAN J-40.30-04**

SHEET 2 OF 2 SHEETS

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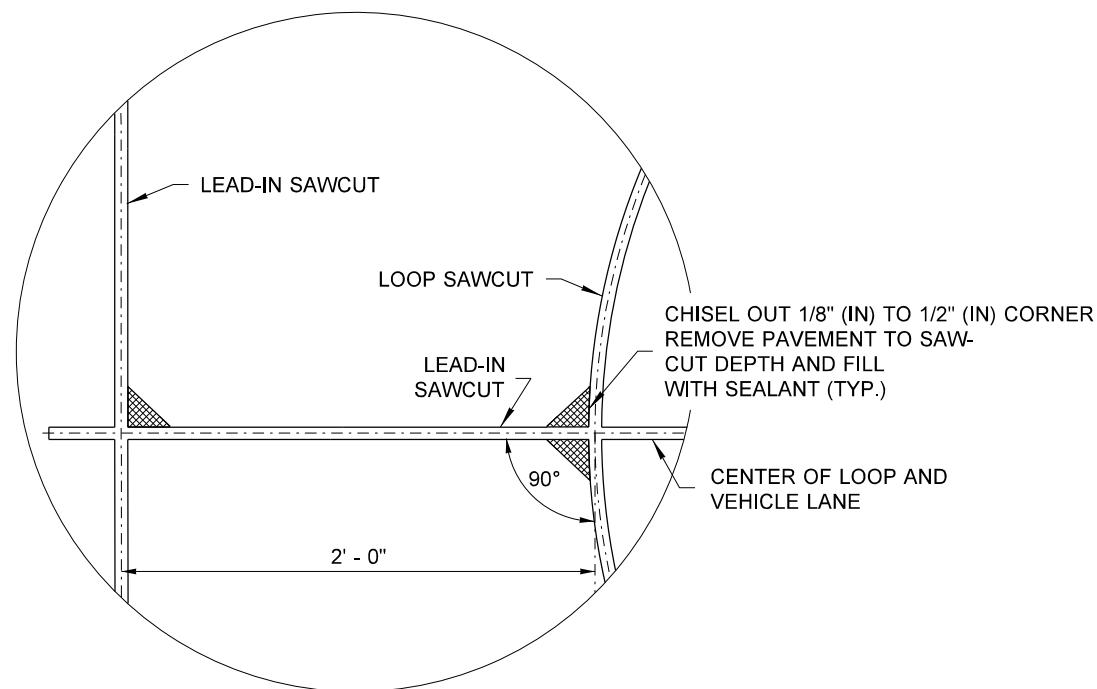
DRAWN BY: FERN LIDDELL



TYPE 3S (STOP LINE) LOOP ARRAY

TYPE 3A (ADVANCE) LOOPS

PLAN



ENTRANCE SAWCUT DETAIL

NOTES

1. For Installation Notes and Details see **Standard Plan J-50.15**.
2. For **Sections A, B, C, and D**, see **Standard Plan J-50.15**.
3. All of the loop lead-in wires shall return to the Junction Box
4. For additional Induction Loop Details, see **Standard Plan J-50.15**.



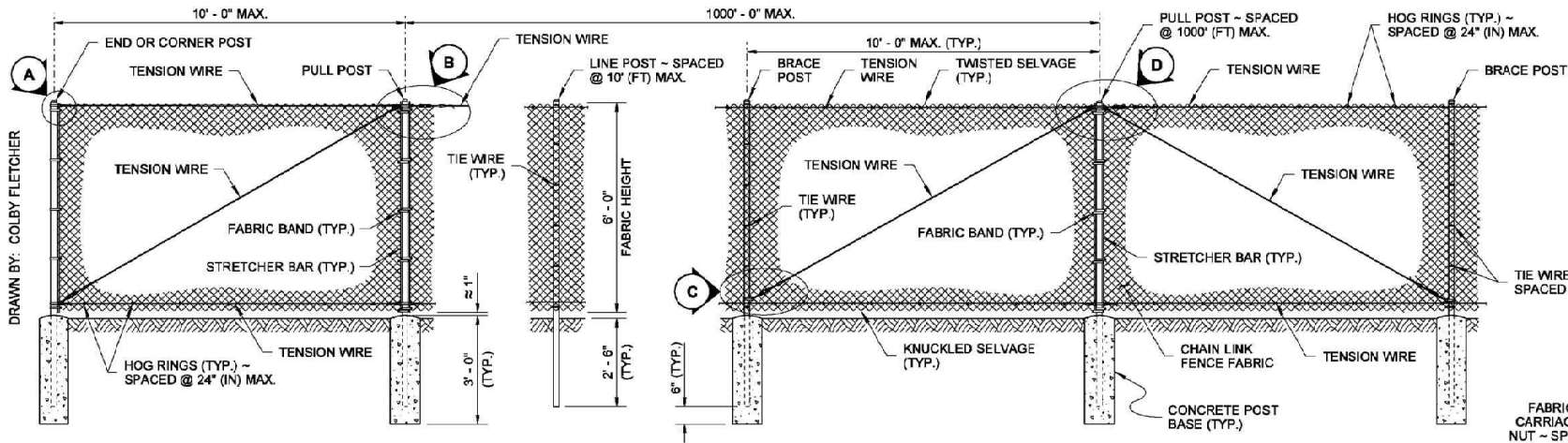
**TYPE 3 INDUCTION LOOP
STANDARD PLAN J-50.12-02**

SHEET 1 OF 1 SHEET

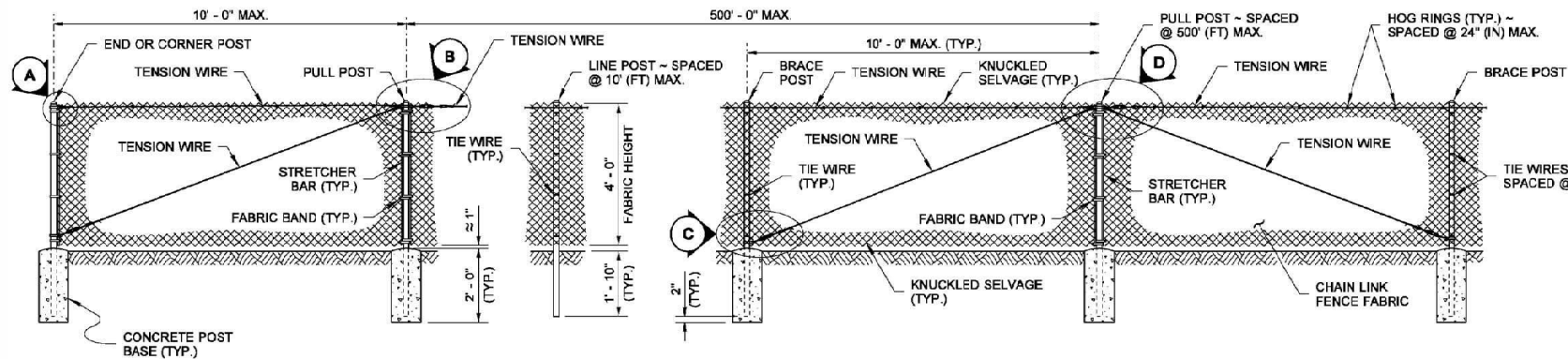
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STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: COLBY FLETCHER



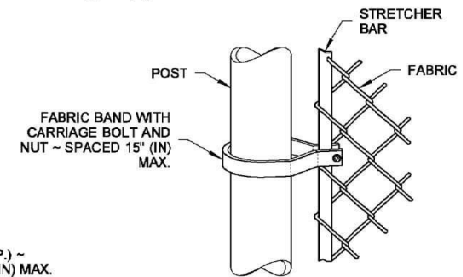
TYPE 3



TYPE 4

NOTES

1. All concrete post bases shall be 10" (in) minimum diameter.
2. Along the top and bottom, using Hog Rings, fasten the Chain Link Fence Fabric to the Tension Wire within the limits of the first full fabric weave.
3. Details are illustrative and shall not limit hardware design or post selection of any particular fence type.
4. Fencing shall be used for security and boundary delineation only.



METHOD OF FASTENING STRETCHER BAR TO POST



Carl Perry
Barry, Ed
Jul 14 2015 11:14 AM
CSign

CHAIN LINK FENCE TYPES 3 AND 4

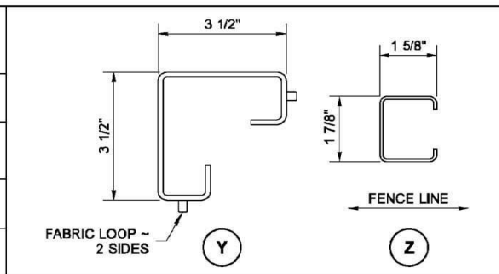
STANDARD PLAN L-20.10-03

SHEET 1 OF 2 SHEETS

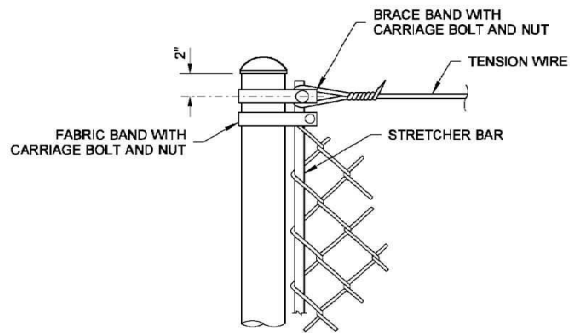
APPROVED FOR PUBLICATION
Carpenter, Jeff
Jul 14 2015 11:24 AM
STATE DESIGN ENGINEER



POST AND RAIL SPECIFICATIONS			
POST	PIPE	ROLL FORMED	
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2 1/2" DIAM.	(Y)	5.10
LINE OR BRACE POST	2" DIAM.	(Z)	1.85

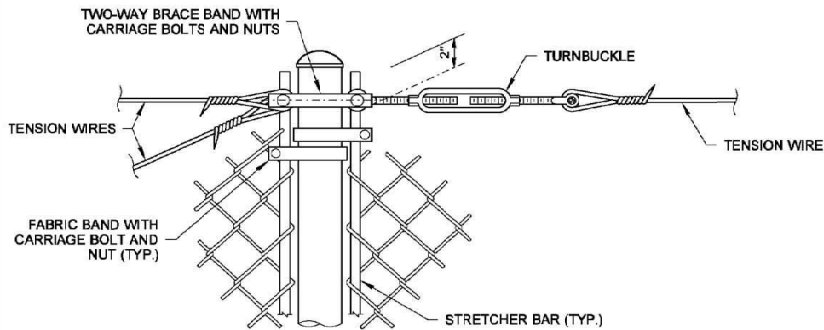


DRAWN BY: COLBY FLETCHER



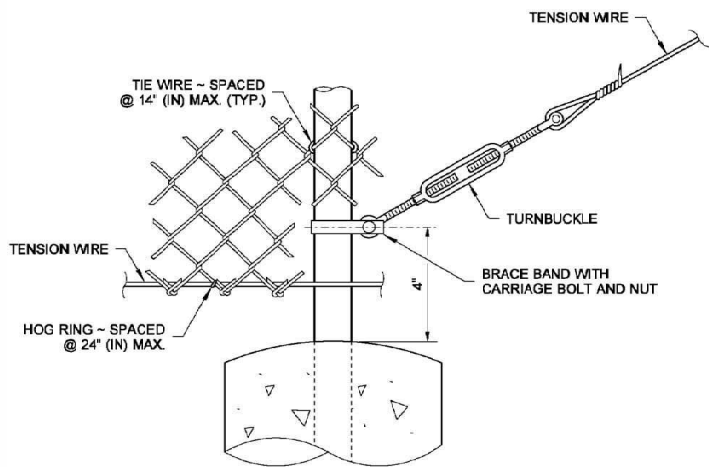
END OR CORNER POST

DETAIL A



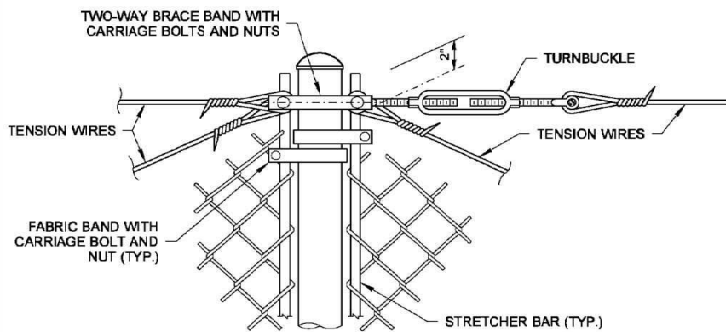
PULL POST (AT END OR CORNER)

DETAIL B



BRACE POST

DETAIL C



PULL POST (WITHIN RUN)

DETAIL D



Ed Barry
 Barry, Ed
 Jul 14 2015 11:14 AM

**CHAIN LINK FENCE
 TYPES 3 AND 4**

STANDARD PLAN L-20.10-03

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

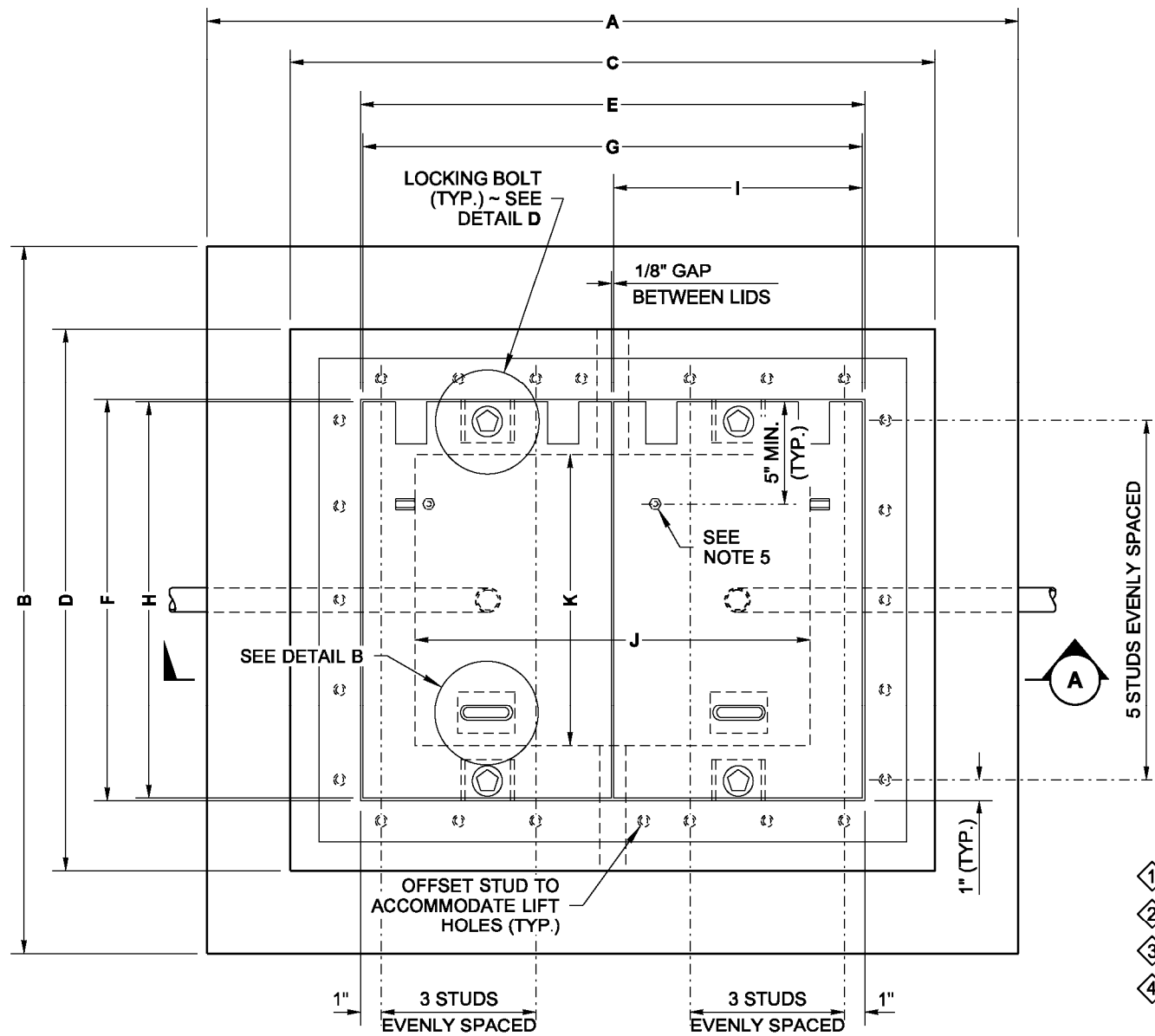
Jeff Carpenter
 Carpenter, Jeff
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STATE DESIGN ENGINEER



Washington State Department of Transportation

DRAWN BY: LISA CYFORD



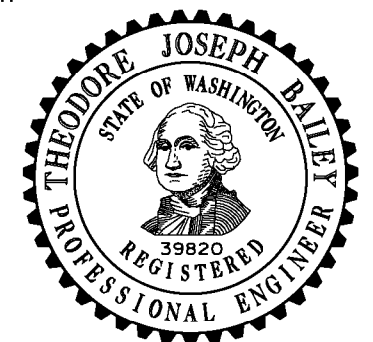
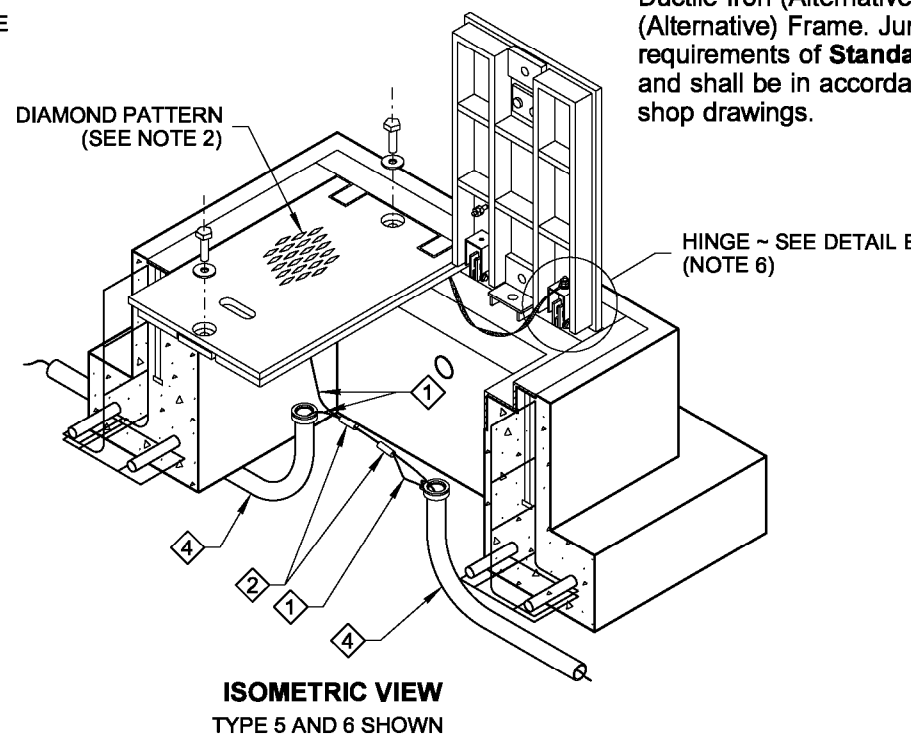
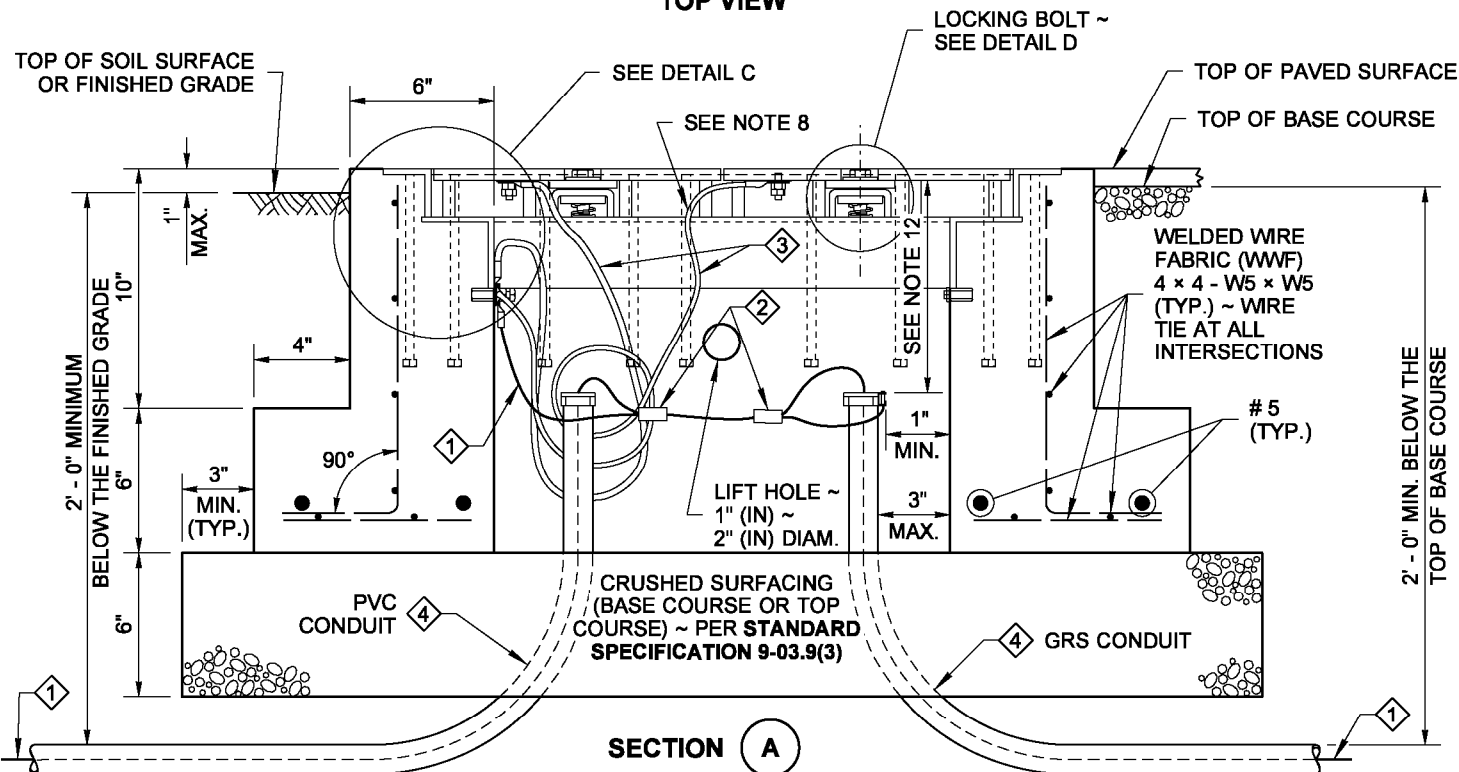
JUNCTION BOX DIMENSION TABLE				
MARK	ITEM	BOX TYPE		
		TYPE 4	TYPE 5	TYPE 6
A	OVERALL LENGTH	39"	48"	56"
B	OVERALL WIDTH	34"	37"	44"
C	JUNCTION BOX LENGTH	31"	40"	48"
D	JUNCTION BOX WIDTH	26"	29"	36"
E	LID OPENING LENGTH	24"	33 1/8"	41 1/8"
F	LID OPENING WIDTH	19"	22 1/8"	29 1/4"
G	TYPE 4 LID LENGTH	24"	—	—
H	TYPE 4, 5 & 6 LID WIDTH	19"	21 7/8"	29"
I	TYPE 5 & 6 LID LENGTH	—	16 3/8"	20 3/8"
J	INSIDE BOX LENGTH	19"	28"	36"
K	INSIDE BOX WIDTH	14"	17"	24"
X	STIFFENER SPACING	VARIABLES	VARIABLES	VARIABLES
Y	STIFFENER SPACING	VARIABLES	VARIABLES	VARIABLES
Z	STIFFENER LENGTH	18 1/4"	21 1/8"	28 1/4"
CAPACITY ~ CONDUIT DIAM.		6"	12"	24"

NOTES

- All box dimensions are approximate. Exact configurations vary among manufacturers.
- All lid thicknesses are minimum.
- Lid perimeter shall bear on frame. Mill to bearing seat and lid perimeter for full even contact after fabrication of frame and lid. Lid and frame units with uneven bearing will be rejected.
- The installed lid and frame shall fit with full even contact around the perimeter of a junction box after installation. Care shall be taken to prevent debris accumulation on the contact surfaces.
- A 1/4-20 NC x 1" (in) S. S. ground stud shall be welded to the bottom of each lid: include (2) each S. S. nuts and (3) each S. S. flat washers.
- The hinges shall allow the lids to open 180°. When lid assembly is Ductile Iron (Alternative) and equipped with Safety Bars, lids shall open 110°.
- Bolts and nuts shall be liberally coated with anti-seize compound.
- Connect Equipment Bonding Jumper to ground stud on lid. As an alternative to ground stud connection, the Equipment Bonding Jumper shall be attached to the front face of the hinge pocket with a 5/16-20 NC x 1" (in) S. S. bolt, (2) each S. S. nuts, and (3) each S. S. flat washers. Equipment bonding jumper shall be #8 AWG min. x 4' (ft) of tinned braided copper.
- The System Identification letters shall be 1/8" (in) line thickness formed by a mild steel weld bead. See Cover Marking details. Grind off diamond pattern before forming letters. Ductile iron lid lettering shall be recessed, 1/8" (in) line thickness. See **Standard Specification 9-29.2(4)** for details.
- See **Standard Specification 9-29.2(1)B** for class of concrete.

- ① Equipment Grounding Conductor
- ② Copper Solderless Crimp Connector
- ③ Equipment Bonding Jumper (See Note 8)
- ④ See Contract Plans and Special Provisions for conduit size and number

- Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults, and Pull Boxes shall not be placed within the traveled way or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be Heavy-Duty. Heavy-Duty Junction Boxes shall not be installed in sidewalks, walkways, and shared use paths.
- Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max., for final grade of new construction only. See **Standard Specification 8-20.3(5)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.
- Junction Box Types 4, 5, or 6 may be equipped with Ductile Iron (Alternative) Lid(s) and a Cast Iron (Alternative) Frame. Junction box shall meet the requirements of **Standard Specification 9-29.2** and shall be in accordance with approved shop drawings.



Theodore Joseph Bailey Bailey, Ted
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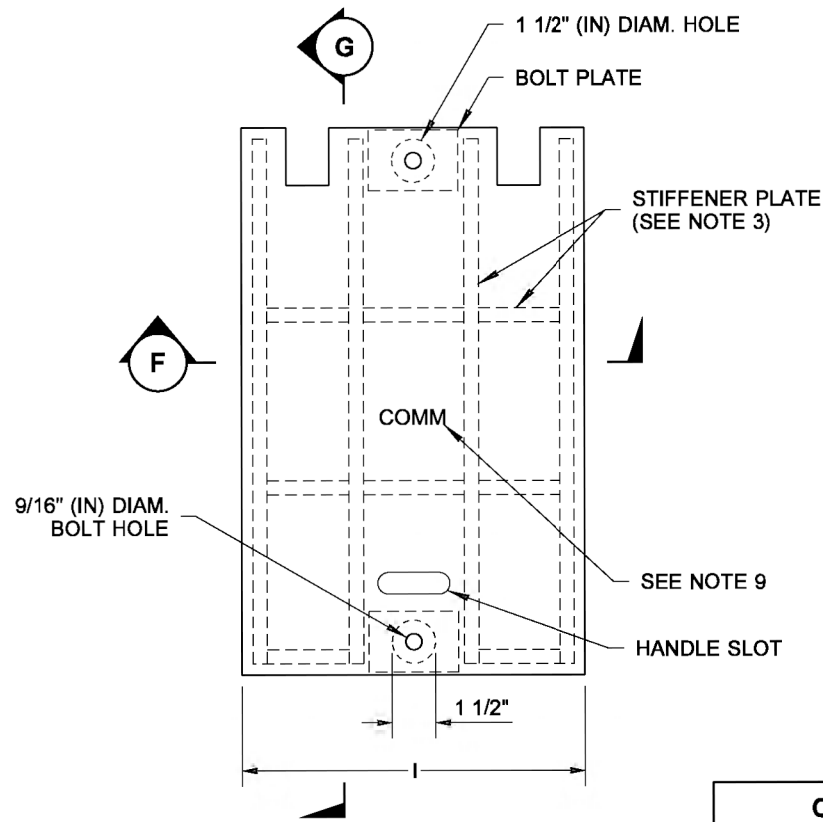
HEAVY-DUTY JUNCTION BOX TYPES 4, 5, & 6
STANDARD PLAN J-40.20-03

SHEET 1 OF 2 SHEETS

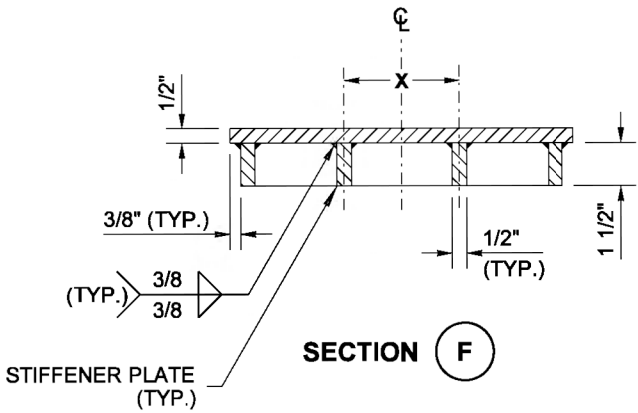
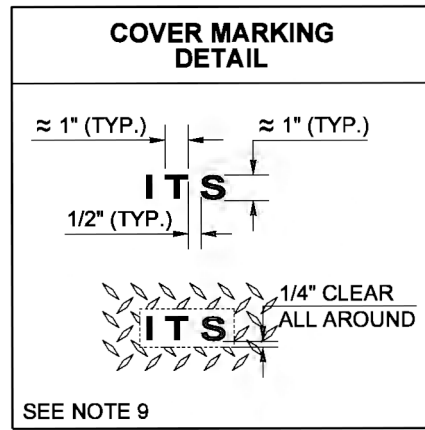
APPROVED FOR PUBLICATION
Carpenter, Jeff Carpenter, Jeff
Apr 28 2016 3:15 PM

STATE DESIGN ENGINEER
Washington State Department of Transportation

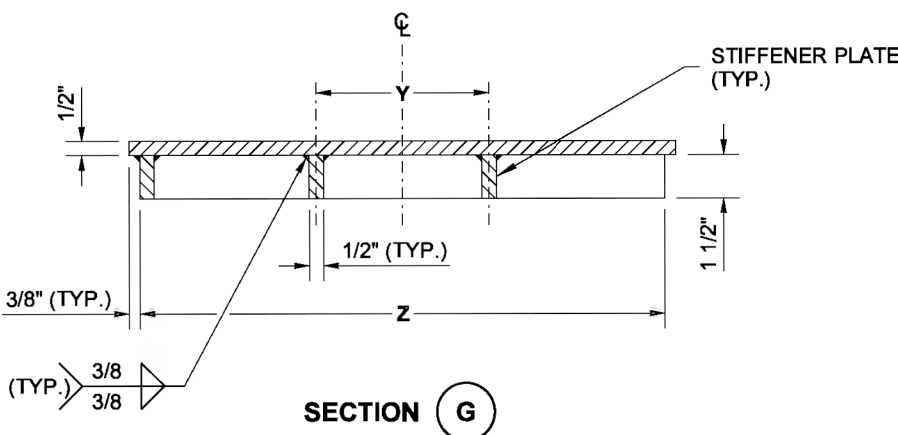
DRAWN BY: LISA CYFORD



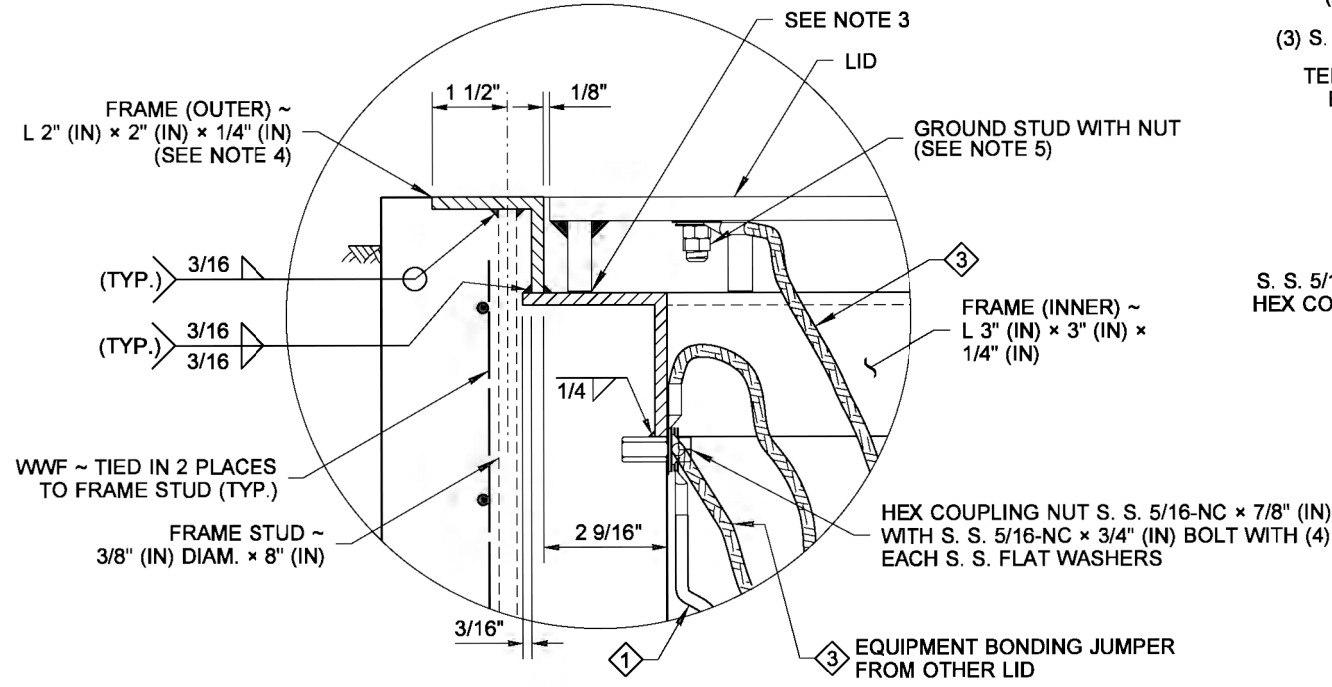
PLAN VIEW LID TYPE 5 AND 6 SHOWN



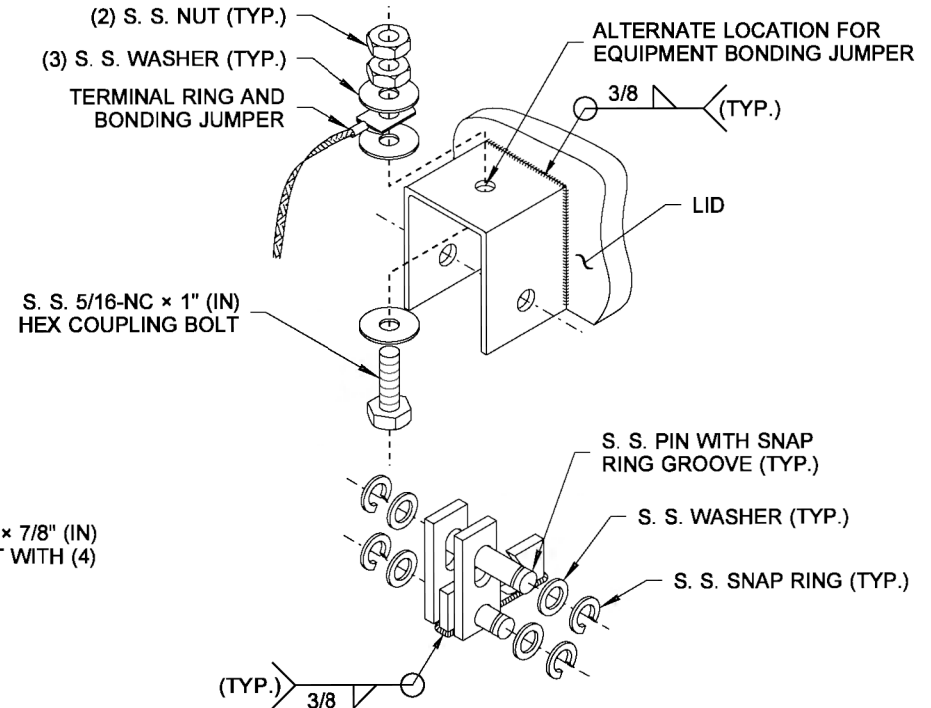
SECTION F



SECTION G

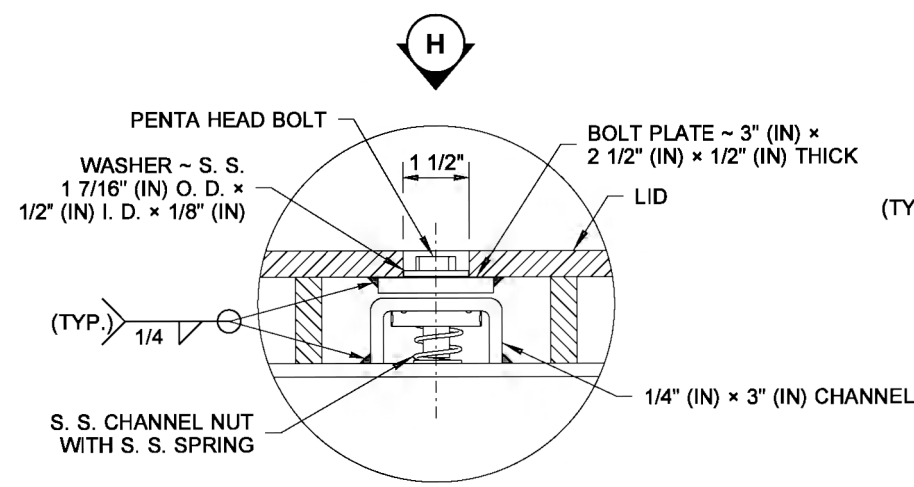


DETAIL C



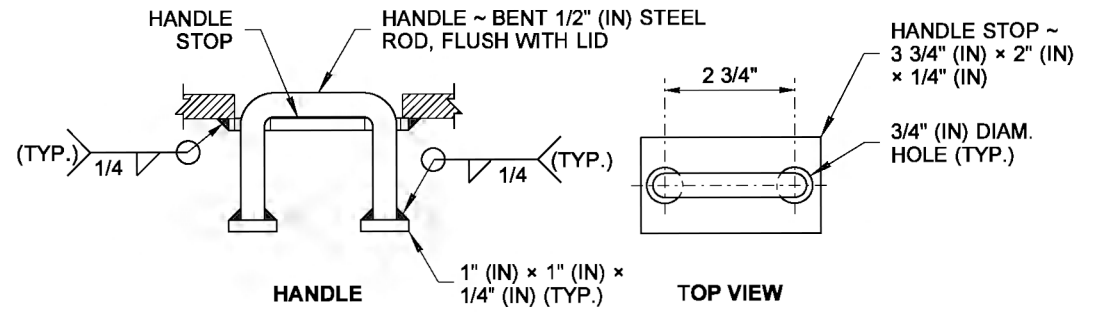
DETAIL E

HINGE

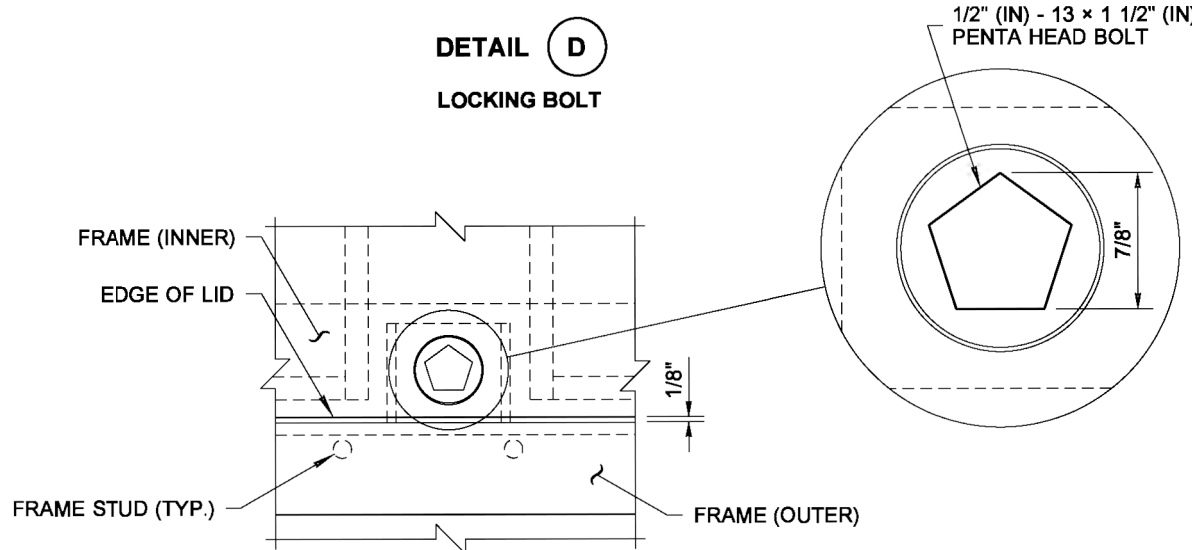


DETAIL D

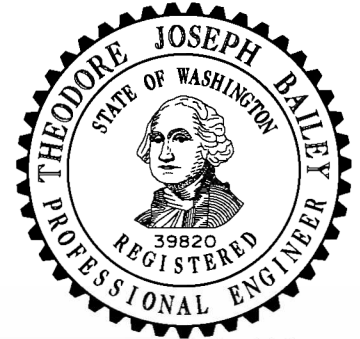
LOCKING BOLT



DETAIL B



VIEW H



Theodore Joseph Bailey
Bailey, Ted
Apr 25 2016 5:09 PM
cosign

HEAVY-DUTY JUNCTION BOX TYPES 4, 5, & 6

STANDARD PLAN J-40.20-03

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION
Carpenter, Jeff
STATE DESIGN ENGINEER
Washington State Department of Transportation
Carpenter, Jeff
Apr 28 2016 3:15 PM
cosign

APPENDIX B: PERMITS



HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

Issued Date: November 13, 2024
Project End Date: November 12, 2029

Permit Number: 2024-4-643+01
FPA/Public Notice Number: N/A
Application ID: 35990

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
City of Kirkland ATTENTION: Cody Antos 123 5th Ave Kirkland, WA 98033-6121	

Project Name: NE 85th St Ped-Bike Connection 114th Ave NE to 6th St

Project Description: The proposal will create a pedestrian/bike connection on the south side of NE 85th Street between 114th Avenue NE and 6th Street. Elements of this project will include the details and plans for the pedestrian and bicycle improvements, storm drainage conveyance systems, a bridge crossing of the Cross Kirkland Corridor (CKC), illumination, landscaping, public outreach, environmental permitting and documentation, and R/W acquisition services (if R/W is needed).

PROVISIONS

1. This STANDARD Hydraulic Project Approval (HPA) is issued for:
 - A. Abandonment and filling of four existing stormwater outfalls discharging into an unnamed tributary of Lake Washington.
 - B. Excavation and installation of a new stormwater system crossing approximately 40 feet above the existing regulated pipe system.
 - i. Installation of the new stormwater system is approved via open trench method.
 - C. One new stormwater connection to the regulated pipe system at CB #7905, approximately 3.5 feet above the crest of the stream pipe.

Note: This project occurs above an unnamed tributary of Lake Washington, which is known to support fish species including Sokeye, Coho, Steelhead, Sea Run Cutthroat, and Resident Trout.

2. TIMING LIMITATION: You may begin the project immediately and you must complete the project by November 12, 2029, provided no work within the OHWL will occur.
3. APPROVED PLANS: You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, entitled "85th_90pcnt_Plans_2024-06-20 Part 1 and Part 2," dated September 9, 2024. and all supporting documents, except as modified by this Hydraulic Project Approval. You must have a copy of these plans available on-site during all phases of the project construction.
4. INVASIVE SPECIES CONTROL: Follow Method 1 for low risk locations (i.e. clean/drain/dry). Thoroughly remove visible dirt and debris from all equipment and gear (including drive mechanisms, wheels, tires, tracks, buckets, and undercarriage) before arriving and leaving the job site to prevent the transport and introduction of invasive species. For contaminated or high risk sites please refer to the Method 2 Decontamination protocol. Properly dispose of any water and chemicals used to clean gear and equipment. You can find this and additional information in the Washington Department of Fish and Wildlife's "Invasive Species Management Protocols", available online at



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<https://wdfw.wa.gov/species-habitats/invasive/prevention>.

NOTIFICATION REQUIREMENTS

5. PRE-POST NOTIFICATION REQUIREMENT: you, your agent, or your contractor must contact the Washington Department of Fish and Wildlife by e-mail at HPAapplications@dfw.wa.gov; mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work, and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date for work or date the work was completed, and the permit number. The Washington Department of Fish and Wildlife may conduct inspections during and after construction; however, the Washington Department of Fish and Wildlife will notify you or your agent before conducting the inspection.

6. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS, AND EQUIPMENT

7. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

8. Retain all natural habitat features on the bed or banks including large woody material and boulders. You may move these natural habitat features during construction but you must place them near the preproject location before leaving the job site.

9. Station and operate equipment used for this project landward of the ordinary high water line.

10. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

11. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

12. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.

13. Stop all hydraulic project activities except those needed to control erosion and siltation, if flow conditions arise that will result in erosion or siltation of waters of the state.

14. Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.

UTILITY CROSSING (Stormwater pipe)

15. Align the conduit as perpendicular as possible to the watercourse.

16. Install the new stormwater pipe above the regulated piped crossing. The stormwater pipe will be approximately 40 feet above the crest of the existing stream culvert crossing, per the approved plans entitled "85th_90pcnt_Plans_2024-06-20 Part 1 and Part 2," dated September 9, 2024.

17. Avoid areas of groundwater upwelling or locations within one hundred feet upstream of documented fish spawning areas.

18. Construction and installation of new stormwater pipe is approved utilizing an open trench excavation:



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- a. Trench widths should be as narrow as feasible to accommodate the pipe/line and achieve the depth specified in the approved plan;
- b. Plowing, placement, and covering must occur in a single pass of the equipment;
- c. Limit disturbance, backfill trenches with approved materials, and return the bed to pre-project condition;
- d. Dispose of excess spoils upland or on a barge so they will not reenter the waters of the state.

OUTFALL

19. This approval creates one new stormwater connection within CB #7905. The bottom of the new stormwater connection will be approximately 3.5 feet above the crest of the regulated piped stream.

The project must follow what is stated within the approved plans entitled "85th_90pcnt_Plans_2024-06-20 Part 1 and Part 2," dated September 9, 2024.

20. Abandonment and creation of stormwater outfalls constructed during the dry or in isolation from the river flow area.

21. Ensure all catch basins, culverts, energy dissipation devices, and pipeline outfalls are free of obstructions for the life of the project to ensure proper functioning of the stormwater management system.

22. The stormwater outfall must be configured to minimize both erosion of bed materials and adverse impacts to the stream habitat.

23. Use the maximum diameter pipe connection to limit increases in outfall discharge velocities.

DEMOBILIZATION AND CLEANUP

24. Replace native riparian zone and aquatic vegetation, and wetland vascular plants (except noxious weeds) damaged or destroyed by construction using a proven methodology.

25. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

26. Remove temporary erosion and sediment control methods after job site is stabilized or within three months of project completion, whichever is sooner.

LOCATION #1:	Site Name: NE 85th St Ped-Bike Connection 114th Ave NE to 6th St , Kirkland, WA 98033					
WORK START:	November 13, 2024			WORK END:	November 12, 2029	
<u>WRIA</u>	<u>Waterbody:</u>			<u>Tributary to:</u>		
08 - Cedar - Sammamish	Lake Washington			Ship Canal		
<u>1/4 SEC:</u>	<u>Section:</u>	<u>Township:</u>	<u>Range:</u>	<u>Latitude:</u>	<u>Longitude:</u>	<u>County:</u>
	05	25 N	05 E	47.679417	-122.192110	King
<u>Location #1 Driving Directions</u>						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS



HYDRAULIC PROJECT APPROVAL

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Project End Date: November 12, 2029

FPA/Public Notice Number: N/A

Application ID: 35990

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in civil action against you, including, but not limited to, a stop work order or notice to comply, and/or a gross misdemeanor criminal charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.



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Application ID: 35990

MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.



HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
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Issued Date: November 13, 2024
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Permit Number: 2024-4-643+01
FPA/Public Notice Number: N/A
Application ID: 35990

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist Jesse.dykstra@dfw.wa.gov
Jesse Dykstra 564-200-3689

for Director
WDFW



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

December 9, 2024

Cody Antos
City of Kirkland
123 5th Ave
Kirkland, WA 98033
Sent by email only: cantos@kirklandwa.gov

RE: Coverage under the Construction Stormwater General Permit

Permit number: WAR314109
Site Name: NE 85th Street Pedestrian Bike Connection
Location: NE 85th Street between 114th Avenue to 6th Street
Kirkland County: King
Disturbed Acres: 2.35

Dear Cody Antos:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology's Construction Stormwater General Permit (CSWGP). This is your permit coverage letter. Your permit coverage is effective December 9, 2024.

Retain this letter as an official record of permit coverage for your site. You may keep your records in electronic format if you can easily access them from your construction site. You can get the CSWGP, permit forms, and other information at Ecology's [CSWGP eCoverage Packet webpage](#)¹. Contact your Permit Administrator, listed below, if you want a copy of the CSWGP mailed to you. Please read the permit and contact Ecology if you have any questions.

Electronic Discharge Monitoring Reports (WQWebDMR)

This permit requires you to submit monthly discharge monitoring reports (DMRs) for the full duration of permit coverage (from the first full month of coverage to termination). Your first sampling and reporting period will be for the month of **January, 2025** and your first DMR must be submitted by **February 15, 2025**.

You must submit your DMRs electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to Ecology's [WQWebPortal guidance webpage](#)². If you have

¹ <http://www.ecology.wa.gov/eCoverage-packet>

² <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance>

questions, contact the portal staff at (360) 407-7097 (Olympia area), or (800) 633-6193/Option 3, or email WQWebPortal@ecy.wa.gov.

Appeal Process

You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB). Appeals must be filed within 30 days of the date of receipt of this letter. Any appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2). For more information regarding your right to appeal, please reference Ecology's Focus Sheet: [Appeal of General Permit Coverage](#)³.

Annual Permit Fees

RCW 90.48.465 requires Ecology to recover the costs of managing the permit program. Permit fees are invoiced annually until the permit is terminated. Termination conditions are described in the permit. For permit fee related questions, please contact the Water Quality Fee Unit at wqfeeunit@ecy.wa.gov or (800) 633-6193/Option 2. You can also visit [Water Quality Permit Fees Webpage](#)⁴ for more information.

Ecology Field Inspector Assistance

If you have questions regarding stormwater management at your construction site, please contact your Regional Inspector, Luis Buen Abad of Ecology's Northwest Regional Office in Shoreline at luis.buenabad@ecy.wa.gov, or (425) 256-0891.

Questions or Additional Information

Ecology is here to help. Please review our [Construction Stormwater General Permit webpage](#)⁵ for more information. If you have questions about the Construction Stormwater General Permit, please contact your Permit Administrator, Alyssa Brewer at alyssa.brewer@ecy.wa.gov or (564) 669-4922.

Sincerely,



Jeff Killelea, Manager
Permit and Technical Services Section
Water Quality Program

³ <https://apps.ecology.wa.gov/publications/summarypages/1710007.html>

⁴ <https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-permits/Fees>

⁵ www.ecology.wa.gov/constructionstormwaterpermit

APPENDIX C: GEOTECHNICAL REPORT

**FINAL GEOTECHNICAL REPORT
NE 85th Street Pedestrian/Bike Connection
Kirkland, Washington**

HWA Project No. 2022-044-21

**Prepared for
Pertect**

October 22, 2024



GEOSCIENCES INC.

DBE/MWBE

**Geotechnical Engineering
Pavement Engineering
Geoenvironmental
Hydrogeology
Inspection & Testing**



October 22, 2024
HWA Project No. 2022-044-21

Perteet
2707 Colby Avenue, Suite 900
Everett, WA 98201

Attention: Peter De Bolt, P.E.
Subject: **FINAL GEOTECHNICAL REPORT**
NE 85th Street Pedestrian/Bike Connection
Kirkland, Washington

Dear Peter,

We are pleased to present this final geotechnical report prepared in support of the proposed improvements related to the City of Kirkland NE 85th Street Pedestrian/Bike Connection 114th Avenue to 6th Street project in Kirkland, Washington. The purpose of this study was to evaluate the soil and groundwater conditions along the project alignment and to provide geotechnical recommendations in support of the proposed improvements.

We appreciate the opportunity to provide geotechnical engineering services on this project. If you have any questions regarding this report or require additional information or services, please contact us at your convenience.

Sincerely,

HWA GEOSCIENCES INC.

Joe Westergreen, P.E.
Geotechnical Engineer

Donald Huling, P.E.
Geotechnical Engineer, Principal

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FINAL GEOTECHNICAL REPORT
NE 85TH STREET PEDESTRIAN/BIKE CONNECTION
KIRKLAND, WASHINGTON

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of a geotechnical engineering study performed by HWA GeoSciences Inc. (HWA) in support of the NE 85th Street Pedestrian/Bike Connection 114th Avenue NE to 6th Street project in Kirkland, Washington. The purpose of this study was to evaluate the soil and groundwater conditions along the alignment to aid in development of project improvements along the corridor. The approximate location of the project site is shown on the Vicinity Map, [Figure 1](#), and on the Site and Exploration Plan, [Figures 2A](#) through [2C](#).

Our work for this project included review of available geotechnical information, performing a site reconnaissance, preparing and conducting a site investigation program, performing geotechnical engineering analyses, and providing recommendations for geotechnical aspects of design. Our work also included a geotechnical critical area review in accordance with City of Kirkland critical areas code.

Field work included drilling four (4) machine-drilled borings in support of the bridge foundations for the new pedestrian/bike crossing of the Cross Kirkland Corridor (CKC), and ten (10) limited access machine drilled borings along the southern slope of the NE 85th Street embankment in support of proposed retaining walls.

Appropriate laboratory tests were conducted on selected soil samples from our explorations to determine relevant engineering properties of the subsurface soils. In this report, we present a summary of the subsurface and groundwater conditions observed, as well as geotechnical recommendations for the proposed improvements.

1.2 PROJECT UNDERSTANDING

It is our understanding that the City of Kirkland (City) would like to create a pedestrian/bike connection on the south side of NE 85th Street between 114th Avenue NE and 6th Street, with funding provided by Sound Transit. We understand that the roadway cross-section on NE 85th street will remain four-lanes (two in each direction) with the existing additional left-turn lanes at the intersections of 114th Avenue NE and 6th Street. Therefore, construction of the pedestrian/bike connection will require retaining walls along the existing embankment slope and a bridge to cross the CKC. Additional improvements will include storm drainage conveyance systems, a new stormwater detention vault, and luminaires. We understand that no overhead or underground utility relocations are planned as part of the project improvements.

2. FIELD INVESTIGATION AND LABORATORY TESTING

2.1 SUBSURFACE EXPLORATIONS

Our geotechnical exploration program included a surface reconnaissance of the alignment and drilling fourteen (14) machine-drilled borings, designated BH-1 through BH-14. The approximate boring locations are shown on the Site and Exploration Plan, [Figures 2A](#) through [2C](#). Soils were classified in general accordance with the classification system described on [Figure A-1](#), which also provides a key to the exploration log symbols. The exploration logs are presented in [Figures A-2](#) through [A-15](#). The stratigraphic contacts shown on the individual logs represent the approximate boundaries between soil types. Actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported, and therefore, are not necessarily representative of other locations and times. Each exploration phase is described below.

2.1.1 Phase 1 Explorations

Phase 1 of the exploration program consisted of drilling two borings, designated BH-1 and BH 2, in the outside eastbound travel lane of NE 85th Street located just east and west the existing bridge approach slabs, as shown in [Figure 2C](#). The explorations were advanced by Holocene Drilling, Inc. of Puyallup, Washington, using a truck mounted drill rig. The borings were advanced into the ground using the hollow-stem drilling technique to depths between approximately 51 and 51.5 feet below ground surface (bgs).

Standard Penetration Testing (SPT) was performed in the borings using a 2-inch outside diameter, split-spoon sampler driven by a 140-pound automatic hammer. During the test, a sample was obtained by driving the sampler 18 inches into the soils with a hammer free-falling 30 inches. The number of blows required for each 6 inches of sampler penetration was recorded. The N-value (or resistance in terms of blows per foot) is defined as the number of blows recorded to drive the sampler the final 12 inches. If a total of 50 blows was recorded within a 6-inch-interval, the test was terminated, and the blow count was recorded as 50 blows for the number of inches of penetration achieved. This resistance, or N-value provides an indication of the relative density of granular soils and the relative consistency of cohesive soils. A staff geotechnical engineer from HWA supervised and logged the explorations and recorded pertinent information, including sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence.

2.1.2 Phase 2 Explorations

Phase 2 of the exploration program consisted of drilling two geotechnical borings, designated BH-3 and BH-4, near the CKC trail to support of intermediate bridge piers as shown in [Figure 2C](#). The Phase 2 explorations were drilled by Holocene Drilling, Inc. of Puyallup, Washington, using a D-70 rubber track mounted drill rig. The borings were advanced in the ground using the

hollow-stem drilling technique to depths between 31 and 41.5 feet bgs. A staff geotechnical engineer from HWA supervised and logged the explorations and recorded pertinent information, including sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence. SPT testing was conducted as described in [Section 2.1.1](#) of this report. A groundwater monitoring well was installed in boring BH-3 to monitor seasonal groundwater fluctuations.

2.1.3 Phase 3 Explorations

Phase 3 of the exploration program consisted of drilling four limited access borings, designated BH-5 through BH-8. These borings were located along the embankment slope, on the south side of NE 85th Street in the vicinity of proposed retaining walls to support the pedestrian/bike connection, as shown in [Figures 2A](#) and [2B](#). The limited access borings were drilled by Geologic Drill Partners, Inc. of Fall City, Washington under subcontract to HWA using a small rubber tracked limited access drill rig. Borings BH-6 and BH-8 were drilled along the top of the slope to the south of the guardrail. Borings BH-5 and BH-7 were drilled on the slope from a temporary work platform that was set into place with an excavator.

A staff geotechnical engineer from HWA supervised and logged the explorations and recorded pertinent information, including sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence. SPT testing was performed in the borings using same procedure described in [Section 2.1.1](#), with the exception that the 2-inch outside diameter split-spoon sampler was driven by a 140-pound cathead and pulley hammer, instead of an automatic hammer.

2.1.4 Phase 4 explorations

Phase 4 of the exploration program consisted of drilling six additional limited access borings, designated BH-9 through BH-14. These additional borings were located along the southern embankment slope to supplement the Phase 3 explorations, and to meet Sound Transit requirements of a boring approximately every 200 for proposed retaining walls. The boring locations are shown in [Figures 2A](#) through [2C](#). The limited access borings were drilled by Geologic Drill Partners, Inc. of Fall City, Washington under subcontract to HWA using a small rubber tracked limited access drill rig. Borings BH-13 and BH-9 were drilled by tracking in along the top of the slope. Borings BH-10 through BH-12 and BH-14 were drilled on the slope from a temporary work platform that was set into place with an excavator.

A staff geotechnical engineer from HWA supervised and logged the explorations and recorded pertinent information, including sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence. SPT testing was performed in the borings using same procedure described in [Section 2.1.1](#), with the exception that the 2-inch outside diameter split-spoon sampler was driven by a 140-pound cathead and pulley hammer, instead of an automatic hammer.

2.2 PREVIOUS GEOTECHNICAL INVESTIGATIONS

HWA reviewed the project corridor for previous explorations advanced for previous projects in the area. This review included a search of available online databases and HWA's project library. This review yielded a previous geotechnical report that HWA generated for Sound transit (HWA, 2020). The report included three machine drilled borings, designated HWA-1 through HWA-3 that were drilled through the NE 85th Street roadway embankment. The approximate locations of these borings are shown on the Site and Exploration Plan, [Figures 2A](#) and [2B](#). The explorations logs and relevant direct shear test results are presented in [Appendix C](#) of this report. In addition, HWA reviewed a geotechnical data report prepared by WSDOT for the I-405, NE 85th Street Interchange and Inline Freeway Station project, the data report is included in [Appendix F](#) of this Report. We understand the design team is looking into using material from this nearby project as a potential borrow site.

2.3 LABORATORY TESTING

Laboratory tests were conducted on selected samples retrieved from the explorations to characterize relevant engineering properties and index parameters of the soils encountered at the site. The tests included visual classification, natural moisture content determination, grain size distribution analysis, and Atterberg Limits. The tests were conducted in the HWA laboratory in general accordance with appropriate American Society of Testing and Materials (ASTM) standards and are discussed in further detail in [Appendix B](#). The test results are also presented in [Appendix B](#), and/or displayed on the exploration logs in [Appendix A](#), as appropriate.

3. SITE CONDITIONS

3.1 SURFACE CONDITIONS

The project area extends about 0.5 miles along the south side of NE 85th Street between 6th Street and 114th Avenue NE. Within the project corridor NE 85th Street generally increases in grade from west to east with elevations ranging from about 85 feet at 6th Street to about 225 feet at 114th Avenue NE. The existing roadway consists of 2 travel lanes in each direction and left turn lanes at the intersections. No sidewalk or bike lanes are currently present within the project area.

The existing southern embankment slope is covered with light vegetation generally consisting of Himalayan blackberries, western sword ferns, and deciduous trees. The embankment starts near the intersection with 6th Street and increases to vertical heights of about 60 feet between Stations 20+50 and 24+00. Then the embankment decreases in height down to 114th Avenue NE. The gradient of the slope is fairly consistent with inclinations between about 1.6H:1V to 2.1H:1V.

The existing NE 85th Street bridge that crosses the CKC has small cast in place concrete wing walls at each end extending from the bridge abutments. Below the existing bridge abutments,

the existing slopes are armored with quarry spalls, and a short metal retaining wall is present at the toe of the slope on the east side of the CKC trail.

3.2 GENERAL GEOLOGIC CONDITIONS

The project alignment is located within the Puget Lowland. The Puget Lowland has repeatedly been occupied by a portion of the continental glaciers that developed during the ice ages of the Quaternary period. During at least four periods, portions of the ice sheet advanced south from British Columbia into the lowlands of Western Washington. The southern extent of these glacial advances was near Olympia, Washington. Each major advance included numerous local advances and retreats, and each advance and retreat resulted in its own sequence of erosion and deposition of glacial lacustrine, outwash, till, and drift deposits. Between and following these glacial advances, sediments from the Olympic and Cascade Mountains accumulated in the Puget Lowland. As the most recent glacier retreated, it uncovered a sculpted landscape of elongated, north-south trending hills and valleys between the Cascade and Olympic Mountain ranges, composed of a complex sequence of glacial and interglacial deposits. Specific geologic information for the project area was obtained from the *Geologic Map of the Kirkland Quadrangle* (Minard, 1983). The geologic map indicates that the project area is mapped as glacial till with deposits of modified land, advance outwash, and transitional beds mapped nearby. A portion of the geologic map is shown in [Figure 3](#).

3.3 SUBSURFACE CONDITIONS

The results of our subsurface explorations indicate that the project corridor is underlain by fill over glacially consolidated soil. The glacially consolidated soil consists of glacial till, advance outwash, and glaciolacustrine. Our interpretation of geologic conditions at the proposed bridge crossing are shown on Geologic Cross Section A-A', [Figure 4A](#). Our interpretation of geologic conditions along the embankment slope are shown on Geologic Cross Sections B-B' and C-C', shown in [Figures 4B](#) and [4C](#), respectively. The soil units encountered are described in more detail below:

- **Fill:** Fill was encountered in all our borings, except BH-9. Along NE 85th Street the embankment fill extended to depths between 10 and 35 feet bgs, and the maximum depths explored in BH-6, BH-8, and BH-11 of 20.5, 21.5, and 21.5 feet bgs, respectively. Fill soils generally consisted of medium dense to very dense sands and gravels with varying silt content. The material was likely placed during construction of the existing roadway embankment.

In borings BH-3 and BH-4, completed below the roadway embankment near the elevation of the CKC trail, fill extended to depths of about 8 to 12 feet bgs and generally consisted of very loose to medium dense silty sand with gravel and soft sandy silt with gravel.

- **Glacial Till:** Glacial till was encountered below the fill in borings BH-1 through BH-4 and BH-10. Glacial till was encountered in BH-9 below the topsoil. The glacial till extends to the maximum depths explored in BH-1 through BH-3, BH-10, and BH-9 of between 21.5 and 51.5 feet bgs. In BH-4 to glacial till extends to about 36 feet bgs. The glacial till generally consisted of very dense silty sand with variable amounts of gravel, sand with silt and variable amounts gravel, and hard silt with variable amounts of sand. Although, not observed in our borings, cobbles and occasional boulders are common in local glacial till deposits.
- **Advance Outwash:** Advance outwash was encountered underlying the glacial till in boring BH-4 and underlying the fill in borings BH-5, BH-7, and BH-14. The advance outwash extended to the maximum depths explored in the borings of about 31.5 to 41.5 feet bgs. The material consisted of sand with silt with variable amounts of gravel and silty sand with variable amounts of gravel. Based on SPT blow counts, the material is generally dense to very dense. A thin approximately 1-foot-thick layer of hard silt was encountered in BH-14 at about 25 feet between the sand layers. In addition, advance outwash was previously encountered in borings HWA-1 and HWA-2 underlying the fill and extended to the maximum depths explored of 79 and 81.5 feet bgs, respectively.
- **Glaciolacustrine:** Glaciolacustrine was encountered underlying the fill in borings BH-12 and BH-13 to the maximum depths explored of about 31.5 and 21.5 feet bgs, respectively. The material consisted of hard clay and silt with some sand lenses. Glaciolacustrine deposits were also previously encountered in boring HWA-3 below the fill soils. Glaciolacustrine consists of fine-grained (silt and clay) soils that were deposited in a standing water environment that were subsequently glacially overridden resulting in a hard consistency. Boring HWA-3 was terminated in this deposit at a depth of 51.5 feet.

3.4 GROUNDWATER

Based on our explorations and groundwater monitoring, the project site appears to be underlain by three distinct groundwater tables. The upper groundwater table appears to consist of perched water within the fill on top of the underlying glacial till soils, in the vicinity of the trail undercrossing. The perched groundwater is expected to fluctuate over both time and distance, and conditions noted at time of drilling might not be indicative of those during construction. Perched groundwater was encountered while drilling, in borings BH-2 through BH-4 and BH-10, near the top of the glacial till soils. In addition, samples in the near surface fill, within BH-4, were observed to be wet starting at a depth of about 5 feet bgs. We expect this near surface groundwater is perched within the fill on top of the glacial till, and at BH-4 is influenced by surface water flow along a drainage ditch located near the boring. Standing water was observed in the drainage ditch at the time of our exploration. Evidence of perched groundwater was also encountered while drilling within a sandy zone of the fill in BH-11 at about 10 feet bgs.

The intermediate groundwater table was encountered within the glacial till soils and appears to be under hydrostatic pressure. In boring BH-3, groundwater was observed while drilling at 20 feet bgs. A groundwater monitoring well was installed in the boring and screened from approximately 20 to 30 feet bgs. Pressure transducers were installed to monitor groundwater fluctuations in the well. Since installation of the pressure transducers groundwater depths in the monitoring well have stabilized between about 3 to 7 feet bgs indicating hydrostatic pressure conditions. As the underlying advance outwash soils in this area were not observed to be saturated, we expect that the hydrostatic pressure is isolated to sandy layers within the glacial till soils. The volume of water under hydrostatic pressure is currently unclear. Additional pumping tests could be conducted within the well at BH-3 to provide more information with respect to artesian conditions. Prospective contractors should expect to encounter artesian groundwater conditions while drilling the proposed bridge foundations. Plots of groundwater depths from January 14, 2023, through November 30, 2023, obtained from the pressure transducers in the monitoring well, are included in [Figure 5](#). Groundwater levels in the monitoring well will continue to be recorded for up to one year since the date installed.

Signs of perched groundwater were also observed while drilling within thin sandy layers in the glacial till in BH-1, BH-4, BH-9 at depths of about 40, 25, 16.5 feet bgs, respectively. In addition, a thin layer of perched groundwater was encountered while drilling within the glaciolacustrine within a sandy silt layer in BH-13 at about 12.5 feet bgs. Perched groundwater was also observed while drilling within BH-14 at about 20 feet bgs above the hard silt layer within the advance outwash deposit.

The lower groundwater table was observed within the lower reaches of the advance outwash layer. Evidence of this water table were encountered at a depth of 74 feet in previous exploration HWA-1. We do not expect this groundwater table to affect design or construction of the proposed improvements.

4. GEOLOGIC CRITICAL AREAS STUDY

4.1 GENERAL

The City of Kirkland Zone Code (KZC) defines geologically hazardous areas in Chapter 85 – *Critical Areas: Geologically Hazardous Areas*. The purpose of the code is to thoroughly evaluate development activities in geologically hazardous areas using best available science to protect human life, property, and the environment. Kirkland’s Code designates three geologically hazardous areas to evaluate: erosion hazard areas, seismic hazard areas, and landslide hazard areas. We understand that seismic hazards are evaluated based on a seismic event with a 2 percent probability of exceedance in 50 years (equal to a return period of 2,475 years). Each of the geological hazardous areas are discussed in the following sections.

4.2 SEISMIC PARAMETERS FOR GEOLOGIC ASSESSMENT

For evaluation of geologic hazards including liquefaction susceptibility and slope instability, seismic parameters were developed in accordance with the 2018 *International Building Code* (IBC) (ICC, 2018), as required by KZC Chapter 85. The selection of seismic design parameters for geologic hazard assessment conforms to Section 1613 of the 2018 *IBC*, which also references the *ASCE 7-16* code. Per the 2018 *IBC* and *ASCE 7-16*, the selection of seismic design parameters is based on the maximum considered earthquake (MCE), which corresponds to an event with a 2% probability of exceedance in 50 years, (i.e. an event with a return period of 2,475 years).

For seismic analysis, the Site Class is required to be established and is determined based on the average soil properties in the upper 100 feet below the ground surface. Based on our explorations and understanding of the site geology, it is our opinion that the proposed alignment is underlain by soils consistent with Site Class D.

The mapped seismic design parameters for this site were obtained using the Applied Technology Council Seismic Hazard webtool, which incorporates the probabilistic seismic hazard maps developed by the USGS. The 2018 *IBC* and *ASCE 7-16* utilize the site parameters based on the 2014 Updates to the National Hazard Maps. For the maximum considered earthquake equal to the 2,475-year event, we utilized an earthquake magnitude of 7.1 determined from the United States Geological Survey Hazard tool. The $PGAM$ of 0.594g was used for liquefaction analysis. For seismic slope stability analysis, we used a horizontal seismic coefficient of 0.297g, which is one-half of the $PGAM$.

4.3 EROSION HAZARDS

Erosion hazards are defined by the KZC as those areas containing soils which, according to the United States Department of Agriculture (USDA) Natural Resource Conservation Services (NRCS) Web Soil Survey, may experience severe to very severe erosion hazards.

The *Soil Survey of King County Area Washington* (United States Department of Agriculture Soil Conservation Service, 1973), indicates that the project alignment is generally mapped as Alderwood gravelly sandy loam, 8-15 percent slopes. In addition, the lower portion of the existing southern embankment slope is mapped as Indianola loamy sand, 5 to 15 percent slopes. A portion of the USDA soil classification map for the project area is shown in [Figure 6](#).

Alderwood gravelly sandy loam generally has moderately rapid permeability in the surface layer and subsoil and very slow permeability in the substratum. Runoff is defined in the Soil Survey of King County as slow to medium, and the hazard of erosion is moderate for 8 to 15 percent slopes. For 15 to 30 percent slopes runoff is medium and the erosion hazard is high.

Indianola loamy sand generally has rapid permeability. For 5 to 15 percent slopes runoff is slow to medium, and the erosion hazard is slight to moderate. For 15 to 30 percent slopes runoff is medium and the erosion hazard is moderate to severe.

Based on our subsurface explorations thick deposits of fill has been placed over the native soils within the project area. The fill generally consists of sands and gravels with variable amounts of silt that are medium dense to very dense. Based on the density of the material it appears to have been placed as structural fill as part of legal grading activities during the construction of NE 85th Street. With the implementation of proper erosion control Best Management Practices (BMPs) we do not expect erosion to be an issue for the proposed improvements.

The susceptibility to erosion will increase during construction, and therefore during construction stormwater and erosion BMPs will be required to control and limit erosion. To limit erosion, we recommend the proposed work be conducted during the drier months of the year. Erosion control BMPs required by the Plans and the City of Kirkland should be implemented, and revegetation of the site completed after construction.

4.4 SEISMIC HAZARDS

Seismic hazards are defined in KZC Chapter 85 as those areas subject to severe risk of earthquake damage as a result of seismically induced ground shaking, slope failure, settlement or liquefaction. City of Kirkland's critical area maps indicate that the project alignment generally has a low to medium potential for liquefaction, with the exception of a narrow area within the existing CKC where liquefaction potential is high. A portion of the City's Liquefaction Potential Map is included in [Figure 7](#).

4.4.1 Liquefaction

Liquefaction is a temporary loss of soil shear strength due to earthquake shaking. Loose, saturated cohesionless soils are highly susceptible to earthquake-induced liquefaction; however, recent experience and research has shown that certain silts and low-plasticity clays are also susceptible. Primary factors controlling the development of liquefaction include the intensity and duration of strong ground motions, the characteristics of subsurface soils, in-situ stress conditions and the depth to groundwater.

The liquefaction susceptibility of the soils along the project alignment was determined utilizing the simplified procedure originally developed by Seed and Idriss (1971) and updated by Youd et al. (2001) and Idriss and Boulanger (2004, 2006). The simplified procedure is a semi-empirical approach which compares the cyclic resistance ratio (CRR) required to initiate liquefaction of the material to the cyclic shear stress ratio (CSR) induced by the design earthquake. The factor of safety relative to liquefaction is the ratio of the CRR to the CSR; where this ratio is computed to be less than one, the analysis would indicate that liquefaction is likely to occur during the design earthquake. The CRR is primarily dependent on soil density, with the current practice being to base it on the SPT N-value, corrected for energy consideration, fines content and earthquake

magnitude. CSR is generally determined by the formulation developed by Seed and Idriss (1971) and relates equivalent shear stress caused in the soil at any depth to the effective stress at that depth and the peak ground acceleration at the surface.

Based on our subsurface explorations the site is underlain by fill over glacially consolidated soil. Based on our analysis, the glacially consolidated soil is dense to very dense or hard and not susceptible to liquefaction induced settlement. The embankment fill is generally medium dense to very dense and above the groundwater table. Our explorations suggest that the soils underlying the majority of the project alignment are not susceptible to liquefaction as a result of the 2,475-return period earthquake. The exception is two isolated pockets of potentially liquifiable soil at the base of the fill where the material was observed to be wet while drilling in borings BH-2, BH-4, and BH-10.

In BH-2 we observed wet medium dense silty sand fill between about 30 to 35 feet, and in BH-10 we observed a layer of wet loose slightly silty sand with gravel between about 20 to 23 feet bgs that our analysis shows could be susceptible to liquefaction as a result of the 2,475-year design earthquake. This pocket is expected to be isolated and not expected to impact the proposed improvements or surrounding areas, upon liquefaction. In addition, at boring BH-4 drilled near the edge of CKC, we encountered a wet soft layer of sandy silt with gravel between about 5 and 7.5 feet bgs that our analysis indicated could liquify during the design earthquake. Surface water was observed while drilling in the ditch adjacent to the boring. The perched water is anticipated to be seasonal. Our analysis indicates that liquefaction within this isolated area will not affect the proposed improvements or surrounding environment.

Based on our subsurface explorations, the pockets of potentially liquefiable soil are isolated, and are not anticipated to result in damaging settlements or liquefaction induced slope instability. Our liquefaction Output Files are included in [Appendix D](#). The location and interpreted orientation of identified pockets of potentially liquefiable soils are shown in [Figure 8](#).

4.5 LANDSLIDE HAZARDS

4.5.1 General

Landslide hazard areas are defined by KZC as areas at risk of mass movement due to a combination of geologic, topographic, and hydrogeologic factors. Landslide hazard areas include both moderate and high landslide hazard categories. The landside hazard categories are defined below.

High Landslide Hazard Areas

High landslide hazard areas are areas that meet the following criteria:

1. Areas that have shown movement (from 10,000 years ago to the present) or that are underlain or covered by mass wastage debris
2. Areas with both of the following characteristics:

- a) Slopes steeper than 15 percent that intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment; and
- b) Areas with springs
3. Areas potentially unstable because of rapid stream incision, stream bank erosion, or undercutting by wave action
4. Any area with a slope of 40 percent or steeper over a height of at least 10 feet.

Moderate Landslide Hazard Areas

Moderate landslide hazard areas are areas with slopes between 15 percent and 40 percent which do not meet the definition of high landslide hazard area.

4.5.2 Existing Slope Conditions

Per the City of Kirkland's critical area code, Chapter 85, HWA has evaluated the slopes along the project alignment. Review of the *Kirkland Landslide Susceptibility Map* (Kirkland, 2020) indicates that no known landslide areas, exhibiting recent movement, are mapped along the project alignment. However, the embankment slope is mapped as moderate to high susceptibility to land sliding due to the steep grades and height of the embankment.

Topographic contours along the alignment and associated adjacent slopes are provided in [Figures 2A](#) through [Figure 2C](#), based on the project survey. Using the site survey, we identified the slopes that are between 15 to 40 percent, and the slopes that are greater than 40 percent. These areas are shown in [Figure 2A](#) through [2C](#).

HWA's slope reconnaissance and geotechnical explorations did not identify areas exhibiting recent slope instability. The existing embankment slope is covered with light vegetation generally consisting of Himalayan blackberries, western sword ferns, and deciduous trees. HWA did not observe evidence of recent land sliding, sloughing, or soil creep. The inclination of the slope is fairly consistent with inclinations between about 1.6H:1V to 2.1H:1V and reversed slope benches were not observed. Seepage was also not observed from the slopes along the project alignment during our reconnaissance. As discussed, based on our explorations, the embankments appear to have been constructed of well compacted sands and gravels.

4.5.3 LIDAR Imagery Review

HWA has reviewed the LIDAR imagery of the project alignment in search of evidence of past slope instability and features that may negatively affect the proposed improvements. A copy of the LIDAR imagery is included in [Figure 9A](#) through [Figure 9C](#).

The lidar imagery shows some possible previous erosion near the toe of the embankment on the north side of NE 85th Street to the east of the CKC. This appears to be from a previous stream channel that was located to the north of NE 85th Street, as this area is outside of the area of project improvements it is not anticipated to impact the project. The LIDAR imagery along the southern embankment slope and near the proposed bridge crossing does not indicate signs of past instability.

4.5.4 Slope Stability Analysis - Existing Conditions

HWA performed global slope stability analysis for the existing embankment slopes along critical slope cross sections within the areas of proposed improvements. The stability of the embankments was performed using the computer program SLIDE 8.032 (Rocscience, 2020). Limit equilibrium methods consider force (or moment) equilibrium along potential failure surfaces. Results are provided in terms of a factor of safety, which is computed as the ratio of the summation of the resisting forces to the summation of the driving forces. Both Spencer's method and GMW/Morgenstern-Price's methods for circular and non-circular failure surfaces were considered. Where the factor of safety is less than 1.0, instability is predicted. With limit equilibrium, the shear strength available is assumed to mobilize at the same rate at all points along the failure surface. As a result, the factor of safety is constant over the entire failure surface.

Stability analysis of existing conditions was performed along the proposed bridge crossing for both embankment slopes (East Slope and West Slope), the surface geometry and geologic conditions are shown on Geologic Cross Section A-A', [Figure 4A](#). Stability analysis was also completed for the existing conditions along the south embankment in the area of the proposed improvements at two critical cross sections and shown on Geologic Cross Sections B-B' and C-C', presented in [Figures 4B](#) and [4C](#), respectively. The locations and orientations of the slope stability cross-sections evaluated are shown in [Figures 2A](#) through [2C](#).

Global slope stability was evaluated using limit equilibrium methods for static loading and pseudo-static earthquake loading conditions. Generally, slopes that have a factor of at least 1.5 for static conditions and at least 1.1 for seismic conditions are considered to be stable.

Based on our subsurface explorations we used the soil parameters in [Table 1](#) to evaluate the stability of the existing slopes. We used cohesion in our slope stability modeling based on direct shear testing that HWA previously completed in 2020 for a preliminary slope stability evaluation (HWA, 2020). The boring logs and direct shear test results are included in [Appendix C](#). To account for reductions in soil strength from weathering along the slopes, we used reduced strengths near the surface. These zones are shown on the stability output models in [Appendix E](#) as "Weathered Fill" and "Weathered Advance Outwash".

Table 1.
Soil Parameters Used in Slope Stability Analyses of Existing Conditions

Unit Name	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (degrees)
Weathered Fill	135	50	36
Weathered Advance Outwash	135	50	36
Embankment Fill	135	100	38
Advance Outwash	140	150	40
Glacial Till	135	200	40
Glaciolacustrine	130	300	26

Static Stability Analysis

The static global stability of each critical cross section, under existing conditions, were evaluated with Spencer’s method and GME/Morgenstern-Price method using circular and non-circular failure planes. In our analysis a surcharge load of 250 pounds per square foot (psf) was used to account for traffic loading in accordance with WSDOT requirements. Based on our analysis the existing embankments are stable under existing conditions with factors of safety calculated between 1.557 and 2.218, static slope stability results are presented in [Figures E-1](#) through [E-4](#).

Pseudo-Static Slope Stability Analysis

The pseudo-static stability of each critical cross section, under existing conditions, were evaluated with Spencer’s method and GME/Morgenstern-Price method using circular and non-circular failure planes. In the pseudo-static earthquake loading analysis, a constant horizontal acceleration of one-half of the peak horizontal ground acceleration of the “Maximum Considered Design Earthquake Event,” or 0.297g, was applied to the slope. In our analysis a surcharge load of 125 psf was used to account for traffic loading in accordance with WSDOT requirements. We calculated factors of safety between 0.916 and 1.248 under seismic loading conditions. The factor of safety was below 1.1 at Cross Section C-C’ and at the east embankment of Cross-Section A-A’. Based on our analysis the core of the slopes are expected to be stable, however shallow slope failures are anticipated following the design earthquake. Pseudo-Static Slope Stability results are presented in [Figures E-5](#) through [E-8](#).

Post Liquefaction Slope Stability Analysis

Based on our liquefaction analysis, isolated pockets of potentially liquifiable soil were encountered in borings BH-2, BH-4, and BH-10 near the base of the fill due to isolated areas of perched water. The areas are highlighted in [Figure 8](#).

Upon initiation of liquefaction, the shear strength of the liquefiable soils will be reduced to a residual shear strength while the excess pore pressure within the soil dissipates. For this project, residual shear strengths were estimated using a weighted average of the results of the Tokimatsu and Seed (1987), Seed and Harder (1990), Olson and Stark (2002), Idriss and Boulanger (2007) and Kramer (2008) relationships. The residual shear strengths were assigned as reduced friction angle materials and are estimated as a function of the equivalent clean sand SPT value, $(N_1)_{60cs}$, the potential for void redistribution, and the initial effective overburden stress. The residual shear strengths were then used to evaluate the potential for liquefaction induced slope failures.

As the onset of liquefaction is not expected along the western slopes of cross section A-A', along cross section B-B', or C-C' we only conducted post liquefaction stability analysis along the eastern slope of cross section A-A'. Along the eastern slope of A-A' we calculated a factor of safety of 2.612 extending through the potentially liquefied zones, as shown in [Figure E-9](#). Based on our analysis the isolated pockets of potentially liquifiable soil are not anticipated to result in slope instability.

Summary of Stability Analysis

Based on our slope stability modeling of existing conditions, the existing embankments are stable under static loading conditions. Following the design earthquake, some instability could occur. However, the slope failures are anticipated to be shallow as the core of the embankment consists of well compacted sands and gravels.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

The corridor of the proposed improvements is generally underlain by embankment fill over glacially consolidated soil. We recommend the bridge be founded on deep foundations that bear into the underlying dense to very dense/hard glacially consolidated soil. Due to the potential artesian pressures and vibration concerns with the steep slopes; we recommend that drilled shafts be constructed using the oscillator casing method. Shaft construction may require temporary working platforms, temporary cut slopes, shoring, or walls to construct abutment foundations.

We understand that the proposed improvements will require widening of the NE 85th Street embankment to the south. This widening will require the construction of retaining walls along the side slopes of the existing roadway embankment. Our analysis indicates that these walls can be constructed using Structural Earth Walls (SEWs) with a minimum grid length of 1.0 times the proposed retained height and a toe embedment equivalent to 3-feet.

The presence of existing embankment slopes and relatively impermeable subsurface soils preclude the use of onsite infiltration, as a means of stormwater management, across most of the project alignment. Based on review of the 60 percent design plans, we understand that stormwater will be conveyed to a new detention vault at the west end of the project alignment.

Our analysis suggests that liquefaction, as a result of the design earthquake, will be limited to small, isolated pockets of soil near the undercrossing of the CKC. These isolated pockets of liquefiable soil are not expected to impact the design or function of the proposed improvements.

5.2 SEISMIC CONSIDERATIONS

5.2.1 Design Parameters

Earthquake loading for the project was developed in accordance with the General Procedure provided in Section 3.4 of the *AASHTO Guide Specifications for LRFD Seismic Bridge Design*, 2nd Edition, 2011, and the Washington State Department of Transportation (WSDOT) amendments to the AASHTO Guide Specifications provided in the *Bridge Design Manual (LRFD)* (BDM) (WSDOT, 2022). For seismic analysis, the Site Class is required to be established and is determined based on the average soil properties in the upper 100 feet below the ground surface. Based on our subsurface explorations and understanding of site geology, it is our opinion that the site is underlain by soils that are consistent with Site Class D.

The design parameters for the design level event, which has a probability of exceedance of 7 percent in 75 years (equal to a return period of 1,033 years), were obtained using BridgeLink, a program developed by WSDOT to incorporate the probabilistic seismic hazard parameters from the *2014 Updates to the National Hazard Maps* (Peterson, et al., 2014) as well as adopt the site coefficients provided in ASCE 7-16. [Table 2](#) presents the design coefficients to use assuming Site Class D for the site.

Table 2.
Seismic Coefficients Using AASHTO Guide Specifications
Calculated by USGS Seismic Uniform Hazard Tool
Location: Lat. 47.6793; Long. -122.1901

Site Class	Peak Horizontal Bedrock Acceleration PBA, (g)	Spectral Bedrock Acceleration at 0.2 sec S_s , (g)	Spectral Bedrock Acceleration at 1.0 sec S_1 , (g)	Site Coefficients			Peak Horizontal Acceleration PGA (A_s), (g)
				F_{pga}	F_a	F_v	
D	0.393	0.890	0.259	1.207	1.144	2.081	0.474

The spectral acceleration coefficient at 1-second period (S_{D1}) is greater than 0.5; therefore, the Seismic Design Category D should be used.

5.2.2 Liquefaction

Liquefaction is a temporary loss of soil shear strength due to earthquake shaking. Loose, saturated cohesionless soils are highly susceptible to earthquake-induced liquefaction; however, recent experience and research has shown that certain silts and low-plasticity clays are also susceptible. Primary factors controlling the development of liquefaction include the intensity and duration of strong ground motions, the characteristics of subsurface soils, in-situ stress conditions and the depth to groundwater.

The liquefaction susceptibility of the soils along the project alignment was determined utilizing the simplified procedure originally developed by Seed and Idriss (1971) and updated by Youd et al. (2001) and Idriss and Boulanger (2014). The simplified procedure is a semi-empirical approach which compares the cyclic resistance ratio (CRR) required to initiate liquefaction of the material to the cyclic shear stress ratio (CSR) induced by the design earthquake. The factor of safety relative to liquefaction is the ratio of the CRR to the CSR; where this ratio is computed to be less than one, the analysis would indicate that liquefaction is likely to occur during the design earthquake. The CRR is primarily dependent on soil density, with the current practice being to base it on the SPT N-value, corrected for energy consideration, fines content and earthquake magnitude. CSR is generally determined by the formulation developed by Seed and Idriss (1971) and relates equivalent shear stress caused in the soil at any depth to the effective stress at that depth and the peak ground acceleration at the surface.

Based on our subsurface explorations the site is underlain by fill over glacially consolidated soil. Based on our analysis, the glacially consolidated soil is dense to very dense or hard and not susceptible to liquification induced settlement. The embankment fill is generally medium dense

to very dense and above the groundwater table. Our explorations suggest that the soils underlying the majority of the project alignment are not susceptible to liquefaction as a result of the 1,033-year design earthquake. The exception is two isolated pockets of potentially liquifiable soil at the base of the fill.

One isolated pocket was observed in borings BH-2 and BH-10, and the second was observed in BH-4 where the material was observed to be wet while drilling. We observed a pocket of wet medium dense silty sand fill in BH-2 between about 30 to 35 feet and a wet loose slightly silty sand zone between about 20 to 23 feet in BH-10 that could be susceptible to liquefaction as a result of the 1,033-year design earthquake. This pocket of soil is expected to be isolated to this area and not expected to impact the proposed improvements or surrounding areas, upon liquefaction. In addition, at boring BH-4 drilled near the edge of CKC, we encountered a wet soft layer of sandy silt with gravel between about 5 and 7.5 feet bgs that our analysis indicated could liquify during the design earthquake. Surface water was observed while drilling in the ditch adjacent to the boring. The perched water is anticipated to be seasonal. Our analysis indicates that liquefaction within this isolated area will not affect the proposed improvements or surrounding environment.

Based on our subsurface explorations, the pockets of potentially liquifiable soil are isolated, and are not anticipated to result in damaging settlements or liquefaction induced slope instability. We calculate less than a ½ inch of liquefaction induced settlement is possible in the wet zone encountered in BH-2, about 1 inch of liquefaction induced settlement is possible in the wet zone encountered in BH-10, and less than 1 inch of liquefaction induced settlement is possible in the wet zone in BH-4. The location and interpreted orientation of identified pockets of potentially liquifiable soils are shown in [Figure 8](#). In our opinion, liquefaction and lateral spreading are not design considerations for the project.

5.3 BRIDGE FOUNDATIONS

5.3.1 Bridge Foundation Type

HWA evaluated the subsurface conditions at the proposed bridge abutments and pier locations. Due to anticipated excavation impacts to the existing structure, associated with shallow foundations, we recommend that the bridge abutments and piers be supported on deep foundations that bear in the underlying very dense glacially consolidated soil (advance outwash or glacial till) at both abutment locations and at the intermediate piers. To limit potentially damaging vibrations on the slope and due to the potential artesian water pressures, we recommend that the drilled shafts be installed using the oscillating casing method. We understand that 4-foot diameter shafts are planned for the abutments, and 5-foot diameter drilled shafts are planned for the internal piers. The proposed drilled shaft locations are included in [Figure 2C](#). We understand that permanent casing will be used in the upper portions of the shafts.

The casing at the abutments will be necessary to protect the top of the slope from blowout during shaft installation and concrete setup. The permanent casing at the piers will be used to combat potential artesian pressures.

For the purpose of our design, we have assumed that the proposed top of shaft elevation for the western bridge abutment will be about 185 feet and the top of the shaft elevation of the eastern bridge abutment will be about 198 feet. Additionally, we have assumed an approximate elevation of about 169 feet and 170 for the western and eastern interior piers, respectively.

5.3.2 Drilled shaft Axial Capacity

Axial shaft capacities were evaluated using Load and Resistance factor Design (LRFD) methods in general conformance with the procedures referenced in the FHWA Drilled Shafts Manual, 8th Edition (Brown, et al. 2018). This method provides a revised method to the Reese and O'Neill method (1989). Axial shaft capacities will be derived from both shaft friction and end bearing. Nominal axial shaft capacities versus embedment depths for the western and eastern abutments as well as the two interior piers are presented in [Figures 10 through 13](#).

As indicated on these figures, resistance factors (ϕ) of 0.55 and 0.45 should be applied to the nominal side resistance, for the Strength I Limit State for cohesionless and cohesive soils, respectively. Resistance factors of 0.5 and 0.4 should be applied to the nominal base resistance for Strength I Limit State design for cohesionless and cohesive soils, respectively. For the Extreme I and the Service I Limit States, the resistance factor (ϕ) should be 1.0 for both shaft friction and end bearing.

It should be noted that the friction capacity at each foundation location was neglected from the existing ground surface to depth of 5 feet to account for unraveling of near surface soils or loosening of material over the design life of the structure.

For the Service I Limit State, total shaft resistance (i.e., friction plus end bearing) is provided for an allowable settlement of 1 inch. If a Service I Limit State capacity for a different settlement value (e.g. 2 inches or ½ inch) is needed, we should be contacted to revise our calculations.

It's our understanding that each pier will be founded with a single drilled shaft. Therefore, capacity reductions due to pile group effects is not required. If this assumption is not correct, we should be contacted to provide reduction factors to account for pile group effects.

5.3.3 Drilled Shaft Lateral Loading

Based on the soil conditions along the bridge alignment, we recommend that the drilled shafts extend through the existing fill into the very dense/hard glacially consolidated soils. Lateral loading on the foundation system can be resisted by the lateral capacity of the surrounding soils as well as the structural stiffness of the shaft. As requested by the project team, we performed

analysis using the computer program LPILE. This involved an iterative process with the project structural engineer to evaluate the lateral response and shaft stiffness for different design loading conditions. The structural loads and LPILE parameters used in the analysis, along with the resulting deflection, moment, shear capacity curves, and stiffness springs are included in [Appendix G](#).

5.3.4 Drilled Shaft Construction Considerations

The abutment drilled shafts will be drilled through thick deposits of embankment fill consisting of medium dense to very dense sands and gravels and into dense to very glacial till soils. The interior piers will extend through variable fill and shallow perched water and into the underlying very dense glacially consolidated soil. Although not encountered in our geotechnical borings, glacial soils are known to contain cobbles and boulders. Therefore, the drilled shaft contractor should be prepared for difficult drilling conditions.

Potential artesian pressures were encountered within sand layers within the glacial till. Due to artesian pressures, difficult drilling conditions, and steep slopes; we recommend installing the shafts with the oscillating casing method. To offset the effects of artesian groundwater conditions, we recommend that the water level in the shaft excavation be maintained at least 5 feet above the existing ground surface while drilling the internal piers. This water head should be maintained at all times during construction of the shafts and curing of the shaft concrete for the internal piers. This will require the use of permanent casing at the top of the shafts. We recommend the permanent casing at the piers extend at least 2 feet into the glacial till to prevent blow out of the shaft concrete during construction and allow for the maintenance of a water head to offset artesian pressures.

Due to the slope geometry, we also recommend the use of permanent casing at the abutments to prevent blow out of the shafts at the top of the slopes. We recommend the permanent casing as the abutments extend at least 15 below the pile caps.

The contractor should be prepared to construct the shafts below the groundwater level and to mitigate the wet conditions. Once below the water table, the drilling spoils excavated from the shafts will be saturated. These soils will need to be transported on a nearby facility for decanting or be loaded into special sealed dump trucks for transport off site.

Drilled shaft bottoms should be cleaned to the extent practical using appropriate excavation methods to provide for a relatively undisturbed shaft base. After the shaft bottoms are cleaned, concrete should be placed by the tremie method into the shafts. Temporary casing should be withdrawn such that the level of concrete is always maintained above the bottom of the casing.

Depending on the contractor's means and methods, construction of the proposed bridge abutment foundations may require construction of a temporary work trestle, temporary shoring, or

retaining walls to access the shaft locations. If a work trestle is required, the design and construction of this temporary work trestle should be the responsibility of the prospective contractor. Due to the sensitivity of the existing slope, we recommend that driven pile or other vibration inducing foundations not be allowed for support of temporary structures. Therefore, drilled or screw-in foundations will be required to support any temporary work trestle. To limit potential of breaching the underlying artesian groundwater layer, we recommend that drilled work trestles foundation not use high pressure air during drilling. If a temporary work trestle is required, all foundations should remain in place after construction and be cut off 2 feet below grade. Removal of temporary foundations could result in future slope instability.

We understand that the interior Pier locations may be positioned part of the way up the existing embankment side slopes. If this is the case, we recommend that the trail grade be raised to access the pier locations with drilling equipment rather than the walls being installed to access the drilling location.

5.3.5 Abutment Lateral Loading

Design lateral earth pressures for abutment walls assume that the walls are backfilled with properly compacted Structural Fill, as described in [Section 6.1](#). It should be assumed that the walls will be free to deflect by at least $0.001H$, where H is the retained height of the wall, to allow active conditions to develop. Using these assumptions, an equivalent fluid pressure of 35 pounds per cubic foot can be assumed for static loading condition. Under earthquake loading conditions, the retaining walls are also anticipated to yield an adequate amount to allow development of active conditions. The evaluation of the active pressures experienced during a seismic event can be approximated using the Mononobe-Okabe method utilizing 0.5 times the PGA for the site that yields $0.237g$. For design purposes, a design active-plus-seismic equivalent fluid pressure of 55 pounds per cubic foot may be assumed. These earth pressures assume no accumulation of water behind the wall. Proper wall drainage should be constructed to ensure that hydrostatic pressures do not develop behind the wall structure.

We recommend that that passive pressure in front of the abutment wall be neglected, assuming soils move away from the wall over the design life of the structure, and resistance of the above-described loading be provided by the lateral capacity of the drilled shaft foundations.

5.4 RETAINING WALLS

Construction of a pedestrian/bike connection along the south side of NE 85th Street will require the construction of retaining walls along the existing side slope of the embankment. Our explorations indicate that the embankment soils underlying the southern side slope of NE 85th Street are of good quality and compacted to a dense condition. Properly prepared, these soils will support structural earth walls (SEW) to facilitate construction of the proposed pedestrian/bike facility. Based on conceptual plans, to account for 6-foot-wide planter strip and

12-foot-wide pedestrian/bike path, we anticipate that the wall face will be approximately 18 feet from the southern edge of the existing roadway pavement. Based on the existing embankment geometry we anticipate exposed wall heights up to about 10 feet. The exposed wall height extends from the top of the wall to final ground surface, and does not include embedment of the toe of the wall into the slope that will be necessary to satisfy global stability. The anticipated wall height does not include the mixed-use path that will be constructed on top of the wall.

5.4.1 Wall Design Parameters

We assume that SEW walls will consist of a proprietary wall system that the wall supplier will design for internal stability. The walls should be designed in accordance with the most current version of the AASHTO *LRFD Bridge Design Manual* and Section 6.13 of the WSDOT *Standard Specifications* (WSDOT, 2023). We recommend that the walls be designed using the parameters presented in [Table 3](#). We understand that the design for these walls will be performed using LRFD. Appropriate AASHTO resistance factors should be used for design of all retaining walls.

For the Extreme Event I Limit State, the walls shall be designed for a horizontal seismic acceleration coefficient K_h of one-half the peak ground acceleration or 0.237g and vertical seismic coefficient K_v of 0.0g (assuming the wall is free to move during a seismic event). Extreme Event I Limit State is defined in the AASHTO Standard Specifications as a safety check involving an extreme load even resulting from an earthquake in combination with the dead load and a fraction of the live loads.

Table 3. Recommended Design Parameters for SEW Walls

Soil Properties	Reinforced soil	Retained Soil	Foundation Soil
Unit Weight (pcf)	135	135	135
Friction Angle (deg)	36	36	36
Cohesion (psf)	0	0	0
		Strength Limit State (EP+LL)	Extreme Limit State (EP+EQ)
Ultimate Bearing Resistance (ksf)		5.0	5.0
Horizontal Seismic Acceleration Coefficient (k_h) (g)		N/A	0.237

An unfactored coefficient of friction of 0.5 times the effective stress at the base of the wall can be used for sliding resistance.

5.4.2 Wall Settlement

The onsite embankment soils are coarse grained and not expected to undergo consolidation settlement due to construction of retaining walls. If the wall subgrade is prepared as recommended in [Section 5.4.3](#), the total wall settlement is not expected to exceed 1 inch. Most of the wall settlement is expected to occur during construction, as the loads are applied.

5.4.3 Wall Foundation Depth and Excavation

Due to the potential for the near surface soils along the existing embankment slope to weather over time, we recommend that the proposed SEW wall be founded a minimum 3-feet below existing ground surface, measured at the toe of the wall. Based on the topography of the existing slopes, the 3-feet of vertical embedment for the toe of the wall will result in the toe of the wall being at least 4 feet horizontally away from the face of the slope. Alternatively, a wall embedment of 1-foot, measured at the toe of the wall, could be used if flat bench is constructed along the base of the wall and the bench has a minimum horizontal width of at least 3 feet. Flat is defined as a 5H:1V slope or flatter.

Construction of a SEW along the south side of NE 85th street will require an excavation sufficient to allow for construction of the wall and the associated geogrid reinforcing. Our slope stability analysis indicated that a minimum geogrid length of 1.0 times the retained height of the wall is required to satisfy global stability requirements. We also evaluated the stability for temporary cuts that will be required during construction, based on our analysis temporary excavations within the existing embankment fill can be sloped at a maximum temporary slope of 1.0H:1.0V. We recommend that the design team evaluate the limits of anticipated excavations and determine the temporary impacts to traffic along NE 85th Street.

5.4.4 Subgrade Preparation

Subgrade preparation is important to limit differential settlement of walls and maintain stability. All organic material should be removed from beneath the entire footprint of walls. The exposed subgrade should be inspected by the geotechnical engineer, or their representative, and any loose or unsuitable soils should be over-excavated as directed by the engineer or inspector on site.

Once the subgrade has been approved, the walls should be founded on a leveling pad consisting of compacted Crushed Surfacing Base Course (CSBC), as described in Section 9-03.9(3) of the *WSDOT Standard Specifications* (WSDOT, 2023), compacted to at least 95% of the laboratory maximum dry density as determined by ASTM D 1557. Leveling pads should be graded to establish proper wall batter. We recommend that the leveling pads for the SEW walls be a minimum of 6 inches thick.

5.4.5 Wall Global Stability

HWA performed global slope stability analysis of the proposed SEW geometry along the existing roadway embankment, required to support the pedestrian/bike connection. HWA evaluated the stability of the proposed SEW wall using limit equilibrium methods utilizing the computer program SLIDE 8.032 (Rocscience, 2020). Global slope stability was evaluated under both static loading and pseudo-static loading conditions along geologic cross sections B-B' and C-C.'

Static Stability Analysis

HWA evaluated the static stability along geologic cross section B-B' and C-C' assuming the proposed SEW wall geometry. Our analysis assumed a 250 pounds per square foot (psf) surcharge to account for traffic loading in accordance with WSDOT requirements. We assumed a minimum wall embedment depth of 3-feet. Under these conditions, our analysis shows that the proposed SEW configuration will possess a factor of safety greater than 1.5, the minimum required for static loading. The results of our static slope stability analysis are presented in [Figures E-10](#) and [E-11](#).

Pseudo-Static Slope Stability Analysis

HWA evaluated the pseudo-static stability along geologic cross section B-B' and C-C' assuming the proposed SEW wall geometry. For our pseudo-static analysis, HWA assumed a constant horizontal acceleration of one-half of the peak horizontal ground acceleration associated with the 1,033-year design earthquake, or 0.237g. We assumed a minimum wall embedment depth equivalent to 3-feet vertically at the face of the wall, and a minimum geogrid length of 1.0 times the height of the wall. The total wall height included the buried portion of the wall face and extends from the top of the leveling pad to the top of the wall face. Therefore, the total wall height should be at least 3 feet taller than the final exposed wall height. Based on the topography of the existing slopes, the 3-feet of vertical embedment into the slope will create a theoretical flat bench, with an inclination of less than 5H:1V, in front of the wall face that is at least 4 feet wide. We recommend that this minimum horizontal distance of at least 4 feet from the toe of the wall to the slope face be maintained along the wall alignment. Under these conditions, our pseudo-static analysis shows that the proposed SEW configuration will possess a factor of safety greater than 1.1, the minimum required for pseudo-static static loading. The results of our pseudo-static slope stability analysis are presented in [Figures E-12](#) and [E-13](#).

Summary of Wall Stability Analysis

Our analysis indicates that global stability will be adequate under static and pseudo-static loading conditions if wall embedment equivalent to 3 feet is maintained, a minimum geogrid length of 1.0 times the retained height of the wall is used, and subgrade preparation is completed as recommended in [Section 5.4.4](#).

Temporary Excavation Stability Analysis

HWA evaluated the temporary static stability along geologic cross section B-B' and C-C' assuming a temporary excavation at an inclination of up to 1H:1V during construction. Our analysis assumed a 250 pounds per square foot (psf) surcharge to account for traffic loading. Our analysis indicates that a temporary excavation with a maximum inclination of 1H:1V will possess a factor of safety of at least 1.5, the minimum required for static loading during the temporary cut condition. The results of our static slope stability analysis for the temporary excavation are presented in [Figures E-14](#) and [E-15](#).

5.4.6 Wall Drainage

Drainage should be provided behind all walls to prevent buildup of hydrostatic pressures and should consist of a 4- to 6-inch diameter, perforated, rigid plastic pipe, bedded and backfilled with Gravel Backfill for Drains, as specified in Section 9-03.12(4) of the WSDOT *Standard Specifications* (WSDOT, 2023). The drain rock should surround the drainpipe by at least 6 inches. The pipes should slope to drain to a suitable outlet.

5.4.7 Sign Bridge Foundation Considerations

We understand that following completion of the SEW, the 85th Street/I-405 design-builder will be installing a sign bridge with a foundation that will be adjacent to the subject SEW wall, in the landscape strip between the roadway and mixed-use path at approximate Station 29+58. Based on the sign bridge plans, the sign bridge drilled shaft will be 5 feet in diameter, about 21 feet deep, and will be at least 15 feet away from the face of the proposed retaining wall. At this location the SEW will have an exposed height of about 8.67 feet, with a total wall height of 11.67 feet including the required 3 feet of vertical embedment into the existing slope. Based on the provided information, we anticipate that the sign bridge will be outside of the grid reinforcement for the wall.

We recommend that the SEW designer take into account the future sign bridge loading at the shaft location (Station 29+58). In addition to designing the SEW using the recommended design parameters in [Table 3](#) in [Section 5.4.1](#) of this report, the wall designer should also design the wall to resist the sign bridge loads. Factored loads at the top of the sign bridge shaft provided by the 85th Street/I-405 design-builder are provided in [Table 4](#). We recommend that the proposed SEW wall be designed assuming the loads provided in [Table 4](#) from Station 29+43 to 29+73. The orientation of the sign bridge loading provided by the 85th Street/I-405 design-builder for use of the SEW designer is included in [Appendix H](#).

Table 4. Factored Loads at Top of Sign Bridge Shaft

Load	Strength 1	Extreme Event, Minimum Dead Load	Extreme Event, Maximum Dead Load	Service 1	Fatigue Load – Temperature Gradient	Fatigue Load – Natural Wind Gust	Fatigue Load – Galloping Vertical Wind
$V_x(K)$	0.00	33.63	33.63	13.18	4.48	5.36	0.00
$V_y(K)$	21.37	18.43	21.85	18.29	0.41	0.49	11.13
$P_z(K)$	-36.40	-26.44	-32.26	-29.21	-0.03	-0.04	-16.60
$M_x(K-ft)$	208.10	187.61	220.90	181.28	5.03	6.02	108.43
$M_y(K-ft)$	0.00	938.70	938.70	367.96	124.93	149.69	0.00
$T_z(K-ft)$	0.00	246.23	246.23	96.52	32.77	39.26	0.00

Notes: V_x = Shear Load in X Direction
 V_y = Shear Load in Y Direction
 P_z = Vertical Load
 M_x = Moment Force in X Direction
 M_y = Moment Force in Y Direction
 T_z = Torsional Force

5.5 LUMINAIRE FOUNDATIONS

It is our understanding that the project improvements will include new luminaires along the alignment. These luminaires will require the construction of new foundations, bearing within the existing near surface embankment fill soils. The embankment fill generally consists of sands and gravels and is well compacted.

According to the WSDOT GDM, for foundations installed in embankments constructed from select or gravel borrow compacted using Method B or C in the WSDOT Standard Specifications, it can generally be assumed that standard foundations can be used, as such embankments will generally have “N” value of 25 or more. Based on our explorations the embankment fill consistently has an “N” value greater than 25.

We expect that these improvements will be designed in accordance with WSDOT *Standard Plans* (WSDOT, 2018) for signal poles and luminaries. WSDOT *Standard Plan* foundation designs are based on allowable lateral bearing pressures of the subsurface soils. The allowable lateral bearing pressures, along the project alignment, were evaluated based on the results of our subsurface explorations program. Our explorations indicate that the subsurface soils along the

project alignment generally will provide an allowable lateral bearing pressure greater than 1,500 psf and standard foundation design can be used.

5.5.1 Luminaire Construction Considerations

The shaft excavations for the proposed luminaire locations will extend through medium dense to very dense fill soils containing varying amounts of sand and gravel. The material will be susceptible to caving, contractor should, therefore, be prepared to case the shaft excavations. Without careful casing placement and soil excavation, the loose to medium dense fill and weathered soils are susceptible to caving due to lack of cohesion resulting in detrimental loss of ground. Should this occur, it may be necessary to recover ground loss through immediate backfilling of the caved areas with controlled density fill (CDF), followed by re-drilling of the shaft(s) after the CDF has set sufficiently.

Should ground water seepage be encountered and standing water is present at the base of the excavation, concrete should be pumped to the base of the excavation by tremie rather than end-dumped from the surface, to facilitate displacement of the standing water.

All luminaire shaft locations should also be evaluated to confirm that the proposed excavations do not conflict with existing utilities.

5.6 STORMWATER MANAGEMENT

HWA has screened the project alignment for suitability of the subsurface soils to accept infiltration of stormwater. The majority of the project alignment is underlain by embankment fill. We do not recommend infiltrating stormwater into the existing embankment fill, as the addition of water could destabilize the existing embankment slopes. Based on review of the 100 percent design plans we understand that stormwater will be conveyed to a new detention vault near the western end of the project alignment.

5.7 DETENTION VAULT DESIGN PARAMETERS

Based on the 60 percent design plans we understand that the proposed detention vault will measure about 84 feet long, 12 feet wide, and the base of the vault will be at an elevation of about 68 feet. Based on our nearby borings (BH-12 and BH-13), we anticipate that excavation for the detention vault will extend through existing silty sand fill and will be founded on the underlying hard glaciolacustrine soils. For foundations bearing on the hard glaciolacustrine soils and allowable bearing pressure of 4,500 psf may be assumed for design of the vault structure.

We assume that the vault will be backfilled with compacted gravel borrow backfill possessing a unit weight of approximately 135 pcf. We assume that the vault will not be free to deform under static loading conditions (at rest earth pressures assumed for static loading) but will be free to deflect sufficiently to develop active loading conditions during the design earthquake.

Using these assumptions, an equivalent fluid pressure of 55 pounds per cubic foot can be assumed for static loading condition. Under earthquake loading conditions, the vault is anticipated to yield an adequate amount to allow development of active conditions. The evaluation of the active pressures experienced during a seismic event can be approximated using the Mononobe-Okabe method utilizing 0.5 times the PGA for the site that yields 0.237g. For design purposes, a design active-plus-seismic equivalent fluid pressure of 55 pounds per cubic foot may be assumed.

No groundwater seepage was encountered during our explorations in the vicinity of the vault. However, the fine-grained lacustrine material that was encountered below the existing fill is hard, fine-grained, and will have very low permeability. This can result in the vault excavation backfill filling with water overtime (bathtub effect), which will create buoyancy and hydrostatic forces. The 60 percent design plans indicate that 12-inch storm drainpipe will be installed about 3 feet above the base of the vault, and will flow to an existing City catch basin. Provided that the trench is backfilled with permeable trench backfill this should help reduce the amount of hydrostatic and buoyancy forces.

The vault should be designed to resist hydrostatic, and buoyancy forces up the highest-level water can raise to before flowing out through the surface, an underdrain, or through more permeable trench backfill extending from the vault excavation.

6. EARTHWORK

6.1 STRUCTURAL FILL

Materials used as backfill for the project are considered "Structural Fill". Structural fill should consist of imported clean, free-draining, granular soils free from organic matter or other deleterious materials. Such materials should be less than 4 inches in maximum particle dimension, with less than 7 percent fines (portion passing the U.S. Standard No. 200 sieve), as specified for Gravel Borrow in Section 9-03.14(1) of the 2020 WSDOT *Standard Specifications*. The fine-grained portion of structural fill soils should be non-plastic. Backfill within the reinforced zone of wing walls should consist of Gravel Borrow for Structural Earth Walls, as described in Section 9-03.14(4) of the *Standard Specifications* (WSDOT, 2022).

Based on correspondence with the design team, we understand there is a desire to use fill from the I-405, NE 85th Street Interchange and Inline Freeway Station project. We reviewed the geotechnical data report completed by WSDOT for the project, the report is included in [Appendix F](#) for reference. The near surface material in the borings is generally classified as sand with silt to silty sand with fines content between about 10 to 26 percent, and moisture contents between about 7 to 25 percent.

Due to the high fines content the silty sand will be moisture sensitive and will require moisture conditioning. With the limited project area due to the steep slopes and existing roadway we anticipate that moisture conditioning on site will be difficult.

6.2 COMPACTION

Structural fill soils should be moisture conditioned and compacted to the requirements specified in Section 2-03.3(14), Method C, of the 2022 WSDOT *Standard Specifications*, except that maximum dry densities should be obtained using ASTM D 1557 (Modified Proctor).

Achievement of proper density of a compacted fill depends on the size and type of compaction equipment, the number of passes, thickness of the layer being compacted, and soil moisture-density properties. In areas where limited space restricts the use of heavy equipment, smaller equipment can be used, but the soil must be placed in thin enough layers to achieve the required relative compaction.

In order to minimize subsequent settlement of the excavation backfill and new pavements, we recommended that backfill soils be placed in loose, lifts no thicker than 8 inches and each lift should be compacted to at least 95 percent of its Modified Proctor maximum density (ASTM D 1557). The procedure to achieve proper density of compacted fill depends on the size and type of compaction equipment, the number of passes, thickness of the layer being compacted, and soil moisture-density properties.

6.3 TEMPORARY EXCAVATION

We anticipate that the bridge approaches and associated wing walls may require the installation of temporary excavation slopes. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. All temporary excavations more than 4 feet in depth must be sloped in accordance with Part N of WAC (Washington Administrative Code) 296-155 or be shored. The existing 85th Street embankment fill is densely compacted and will classify as Type B soil, for which WAC requires that unsupported excavation must be inclined no steeper than 1.0H:1.0V. This assumes that adequate dewatering has been provided to maintain stable slopes during excavation. Flatter slopes may be necessary where near surface runoff or ground water impacts the stability of the temporary slopes. The slopes should be monitored, and slope angles adjusted in the field based on local subsurface conditions and the contractor's methods.

Based on our understanding of project improvements, open excavations will extend into the glacially consolidated soil underlying the site for construction of the stormwater detention vault. The underlying dense/hard glacially consolidated soils are classified as Type A soils. Temporary unsupported excavations within these soils may be sloped no steeper than 3/4H:1V (horizontal: vertical).

The design, installation, maintenance and removal of temporary shoring should be the responsibility of the contractor. The shoring system should be designed by a qualified and licensed engineer experienced with shoring design for deep excavations within similar soil conditions. We recommend that the design of the temporary shoring system be submitted by the contractor, for approval, prior to starting excavation. HWA should be allowed to review shop drawings and calculations for proposed shoring systems to check for consistency with the recommendations included in this report.

6.4 WET WEATHER EARTHWORK

General recommendations relative to earthwork performed in wet weather or in wet conditions are presented below. These recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation of unsuitable and/or softened soil should be followed promptly by placement and compaction of clean structural fill. The size and type of construction equipment used may need to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic.
- Material used as excavation backfill in wet weather should consist of clean granular soil with less than 5 percent passing the U.S. No. 200 sieve, based on wet sieving the fraction passing the ¾-inch sieve. The fines should be non-plastic. It should be noted this is an additional restriction on the structural fill materials specified.
- The ground surface within the construction area should be graded to promote surface water run-off and to prevent ponding.
- Within the construction area, the ground surface should be sealed on completion of each shift by a smooth drum vibratory roller, or equivalent, and under no circumstances should soil be left uncompacted and exposed to moisture infiltration.
- Excavation and placement of backfill materials should be monitored by a geotechnical engineer experienced in wet weather earthwork to determine that the work is being accomplished in accordance with the project specifications and the recommendations contained herein.

7. CONDITIONS AND LIMITATIONS

We have prepared this report for the City of Kirkland and the Pertee design team for use in evaluation of this project. The conclusions and interpretations presented in this report should not be construed as our warranty of subsurface conditions at the site. Experience has shown that soil

and ground water conditions can vary significantly over small distances and with time. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study of this scope and nature.

Within the limitations of approved scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, express or implied, is made.

HWA does not practice or consult in the field of safety engineering. We do not direct the contractor's operations and cannot be responsible for the safety of personnel other than our own on the site. As such, the safety of others is the responsibility of the contractor. However, the contractor should notify the owner if any of the recommended actions presented herein are considered unsafe.



We appreciate the opportunity to provide geotechnical services on this project. Should you have any questions or comments, or if we may be of further service, please do not hesitate to call.

Sincerely,

HWA GEOSCIENCES INC.



Joe Westergreen, P.E.
Geotechnical Engineer



Donald Huling, P.E.
Geotechnical Engineer, Principal

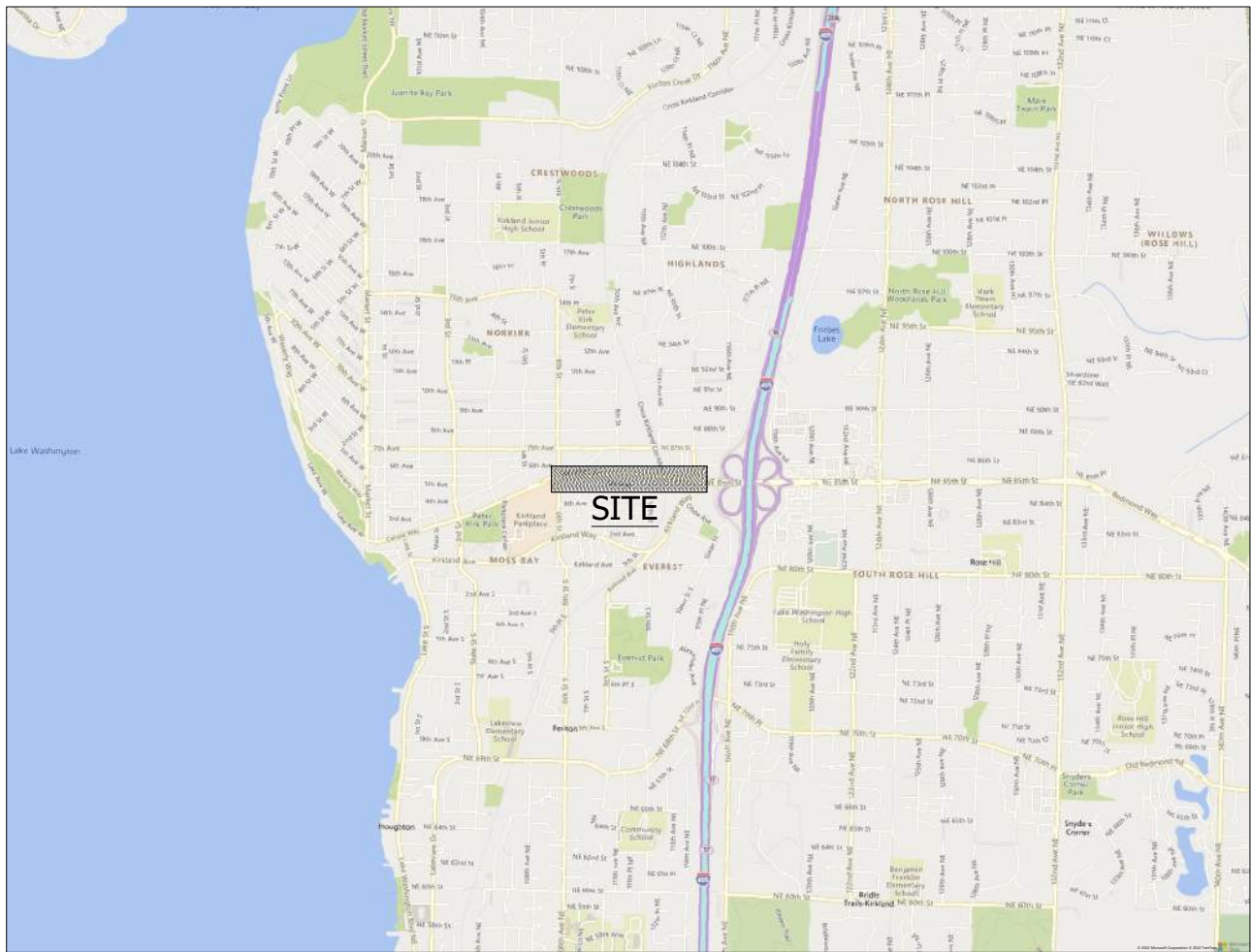
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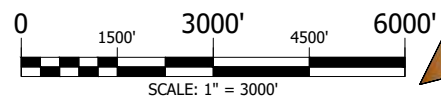
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SITE MAP



VICINITY MAP



SITE AND VICINITY MAP

**NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON**

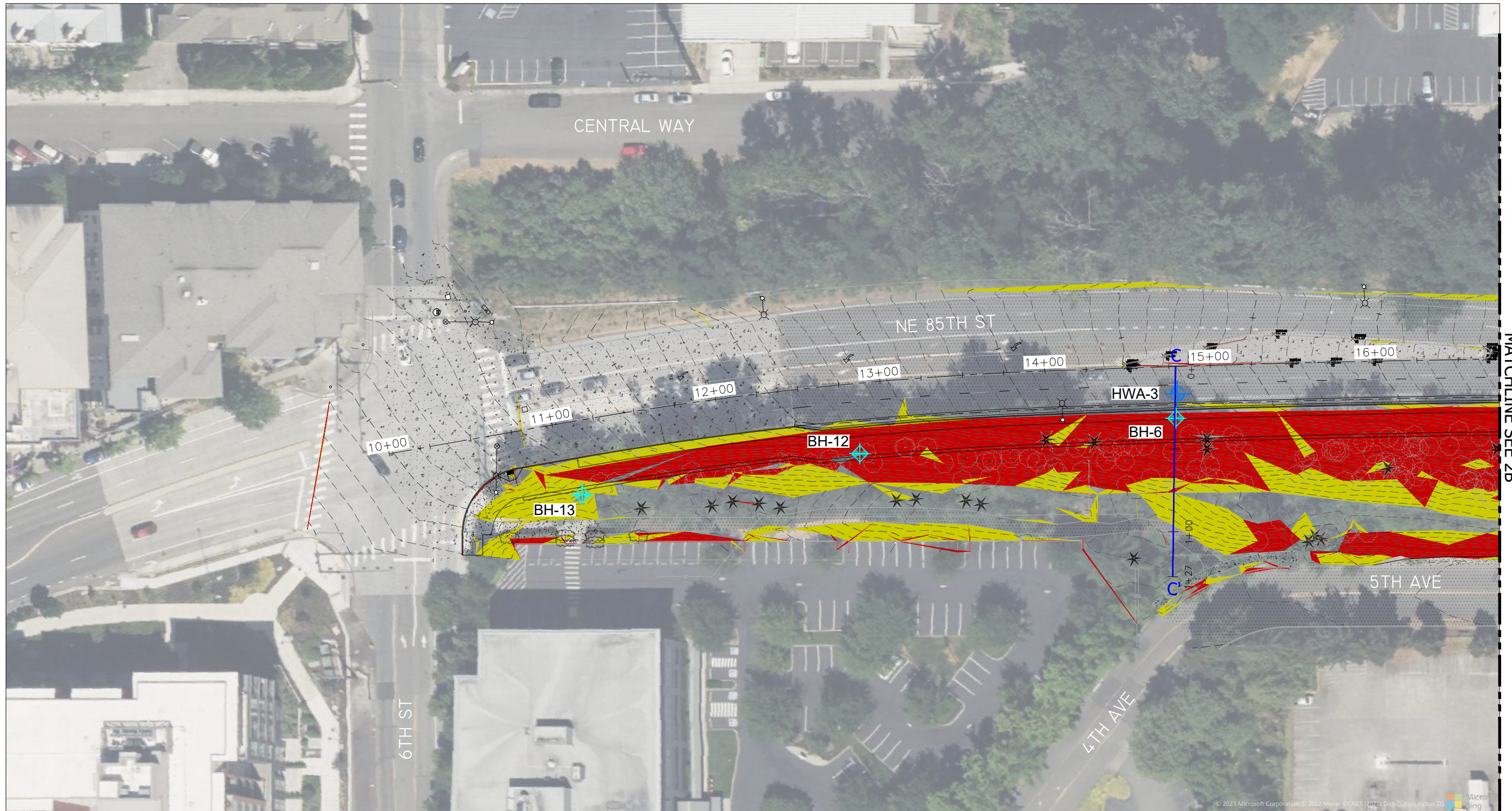
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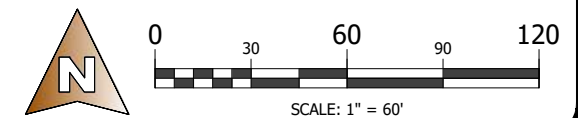
MATCHLINE SEE 2B

EXPLORATION LEGEND

- ◆ BH-6 BOREHOLE DESIGNATION AND APPROXIMATE LOCATION
- ◆ HWA-3 EXISTING BOREHOLE DESIGNATION AND APPROXIMATE LOCATION (HWA, 2020)
- SLOPES BETWEEN 15% AND 40%
- SLOPES GREATER THAN 40%

C ——— C'
GEOLOGIC CROSS SECTION

NE 85TH STREET
Scale: 1" = 60'-0"



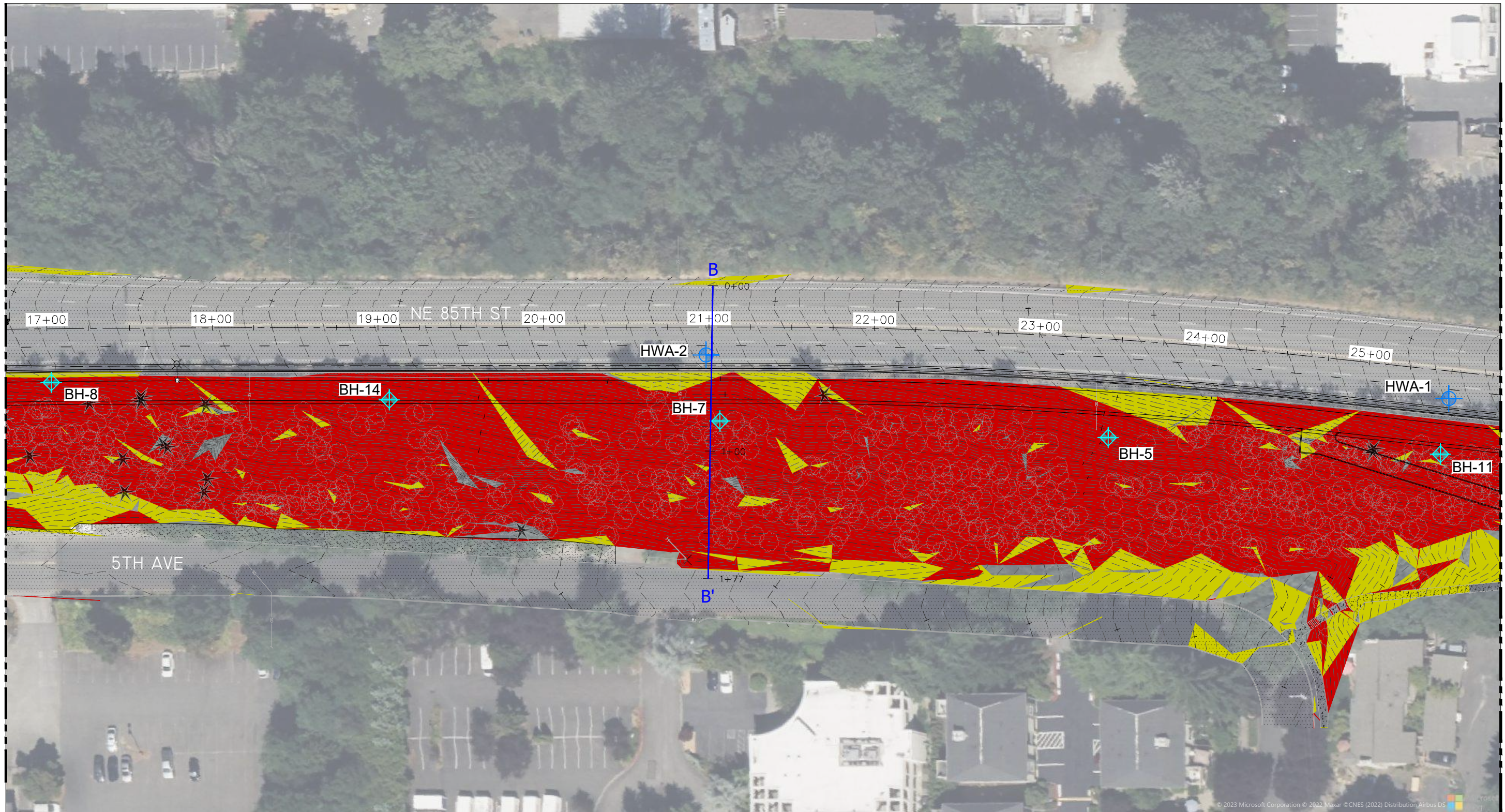
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

SITE &
EXPLORATION PLAN





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MATCHLINE SEE 2A

MATCHLINE SEE 2C

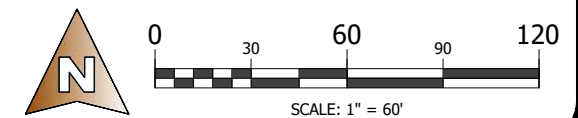


EXPLORATION LEGEND

- BH-5  BOREHOLE DESIGNATION AND APPROXIMATE LOCATION
- HWA-1  EXISTING BOREHOLE DESIGNATION AND APPROXIMATE LOCATION (HWA, 2020)
-  SLOPES BETWEEN 15% AND 40%
-  SLOPES GREATER THAN 40%

B ——— B'
GEOLOGIC CROSS SECTION

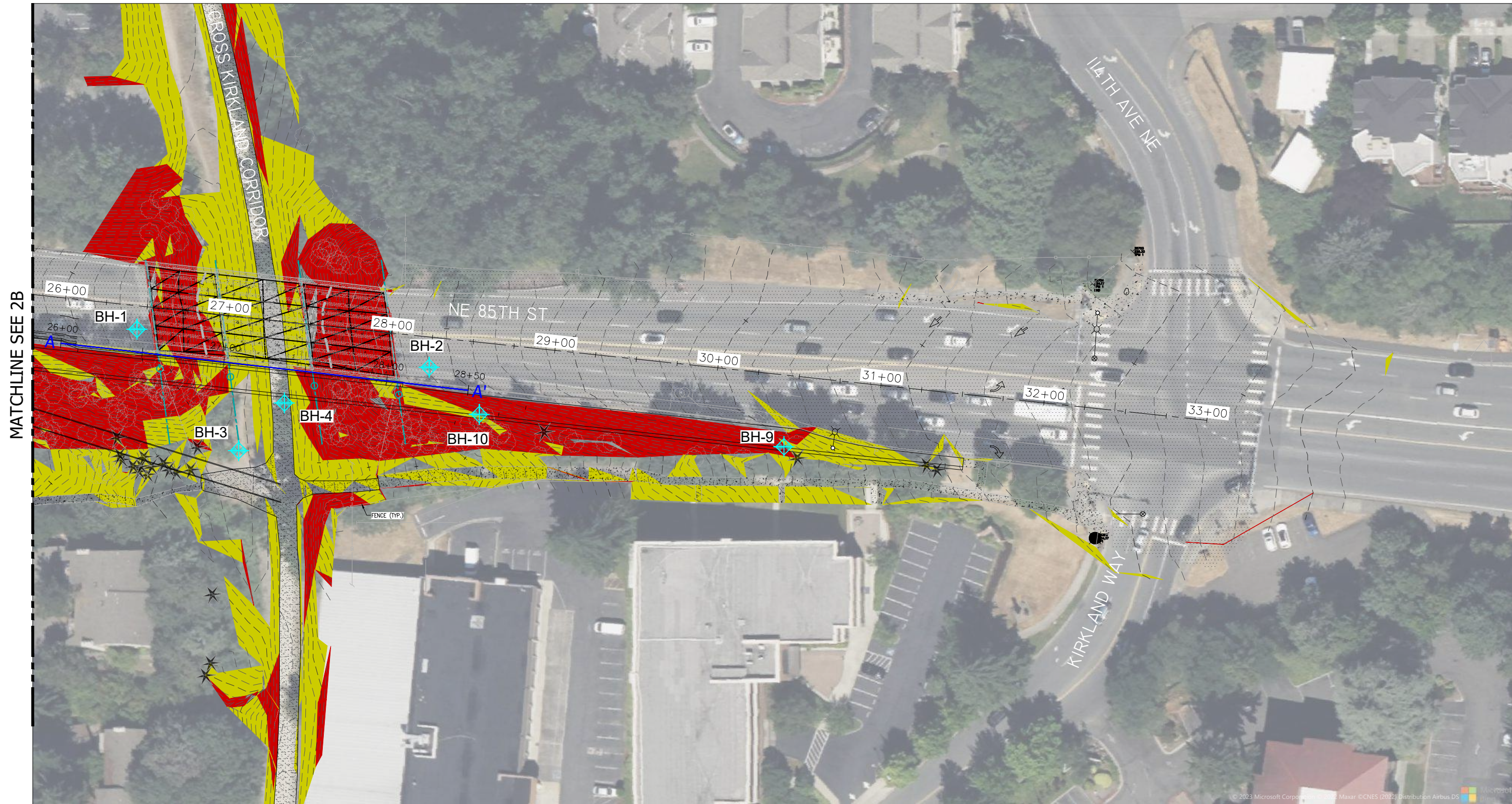
NE 85TH STREET
Scale: 1" = 60'-0"



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

SITE &
EXPLORATION PLAN

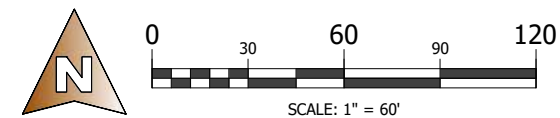
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NE 85TH STREET
Scale: 1" = 60'-0"

EXPLORATION LEGEND

- BH-1 BOREHOLE DESIGNATION AND APPROXIMATE LOCATION
- SLOPES BETWEEN 15% AND 40%
- SLOPES GREATER THAN 40%
- PROPOSED DRILLED SHAFT LOCATIONS



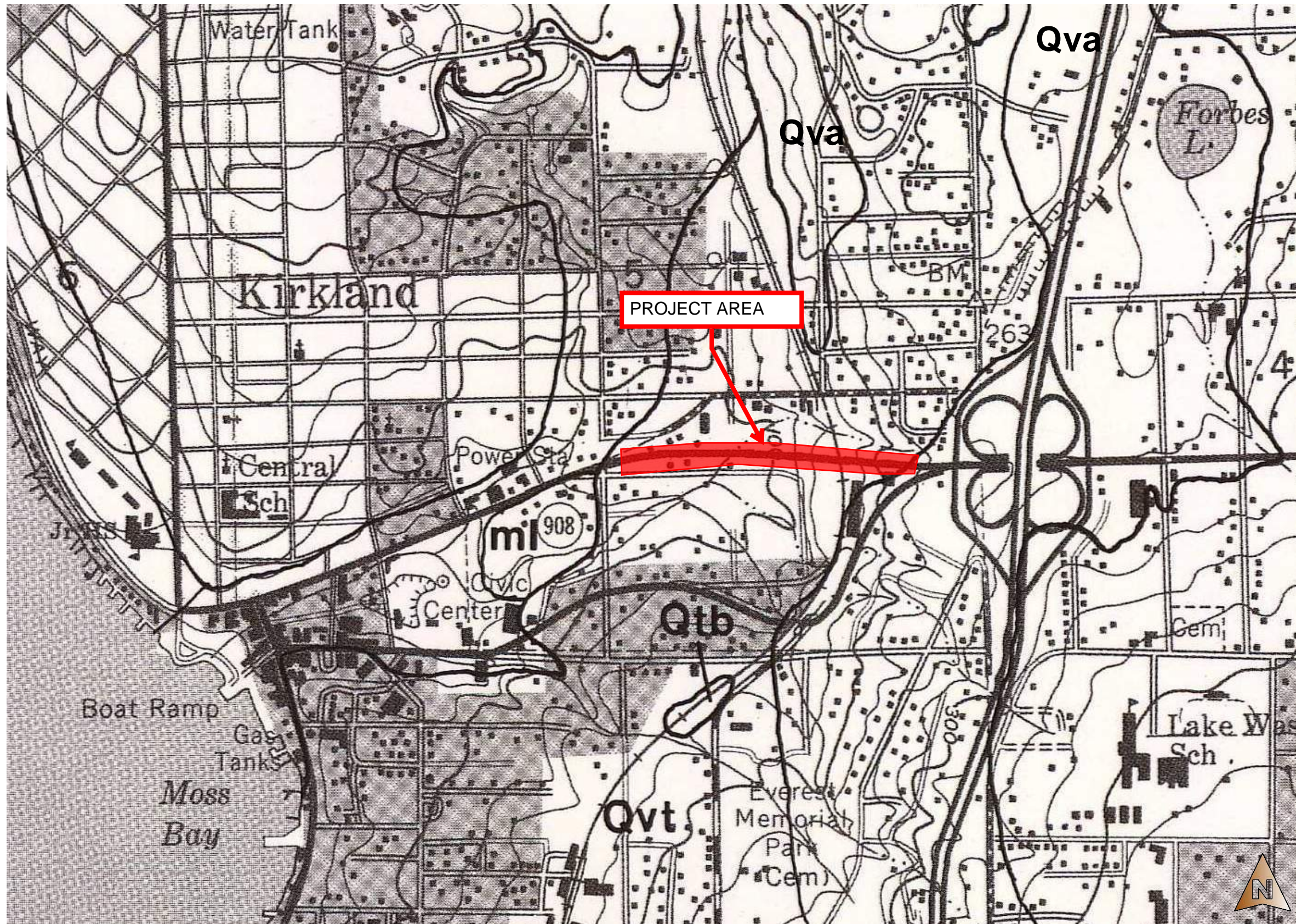
A ——— A'
GEOLOGIC CROSS SECTION



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

SITE &
EXPLORATION PLAN

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- mi - MODIFIED LAND (HOLOCENE)
- Qvt - TILL (FRASER GLACIATION)
- Qva - ADVANCE OUTWASH (FRASER GLACIATION)
- Qtb - TRANSITIONAL BEDS (FRASER GLACIATION TO PRE-FRASER)

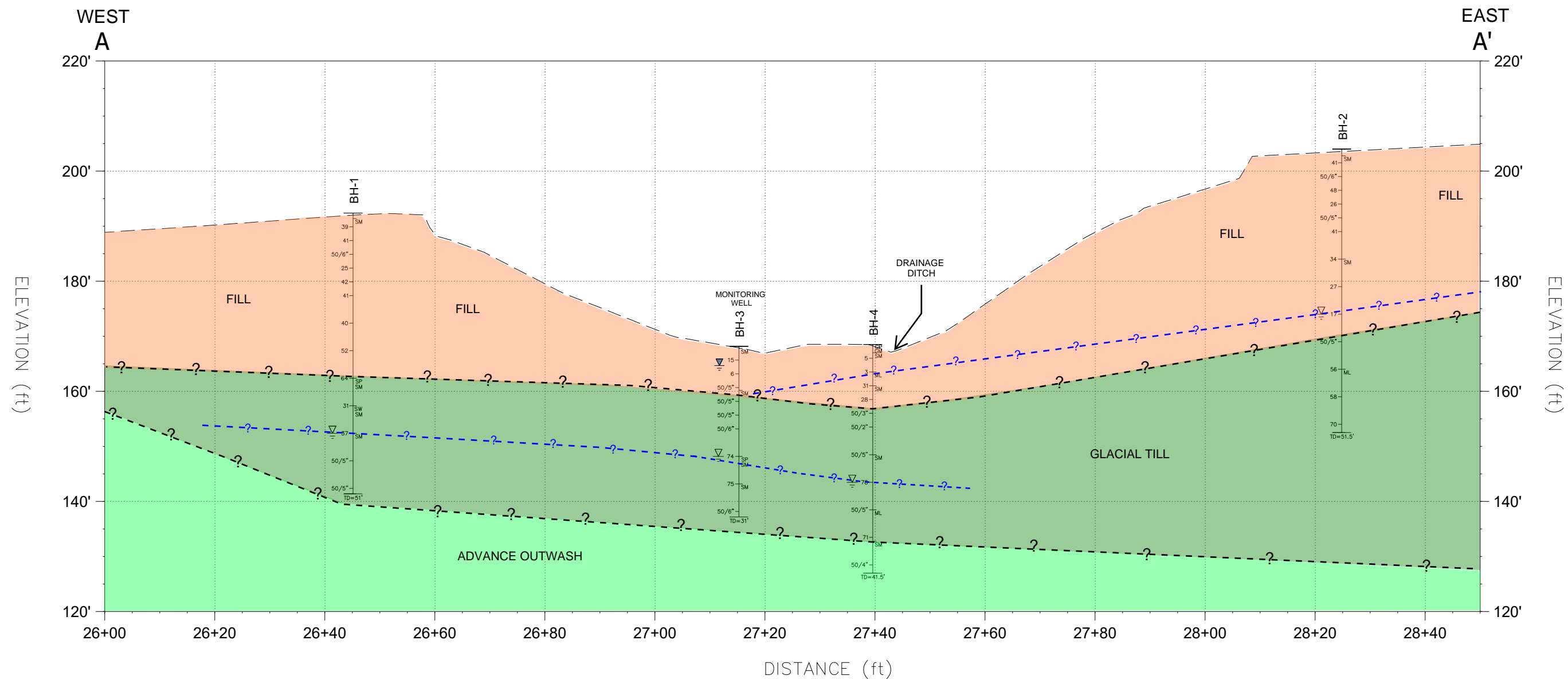
BASE MAP PROVIDED BY: DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY, MISCELLANEOUS FIELD STUDIES MAP MF-1543. GEOLOGIC MAP OF KIRKLAND QUADRANGLE, WASHINGTON BY JAMES P. MINARD, 1983



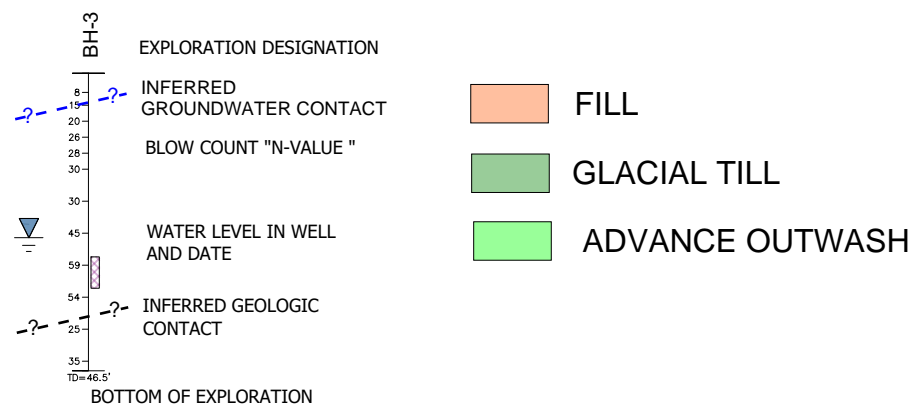
NE 85TH STREET PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

GEOLOGIC MAP

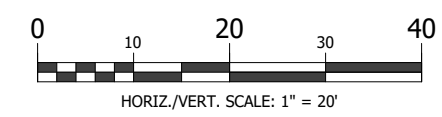
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BORE LEGEND



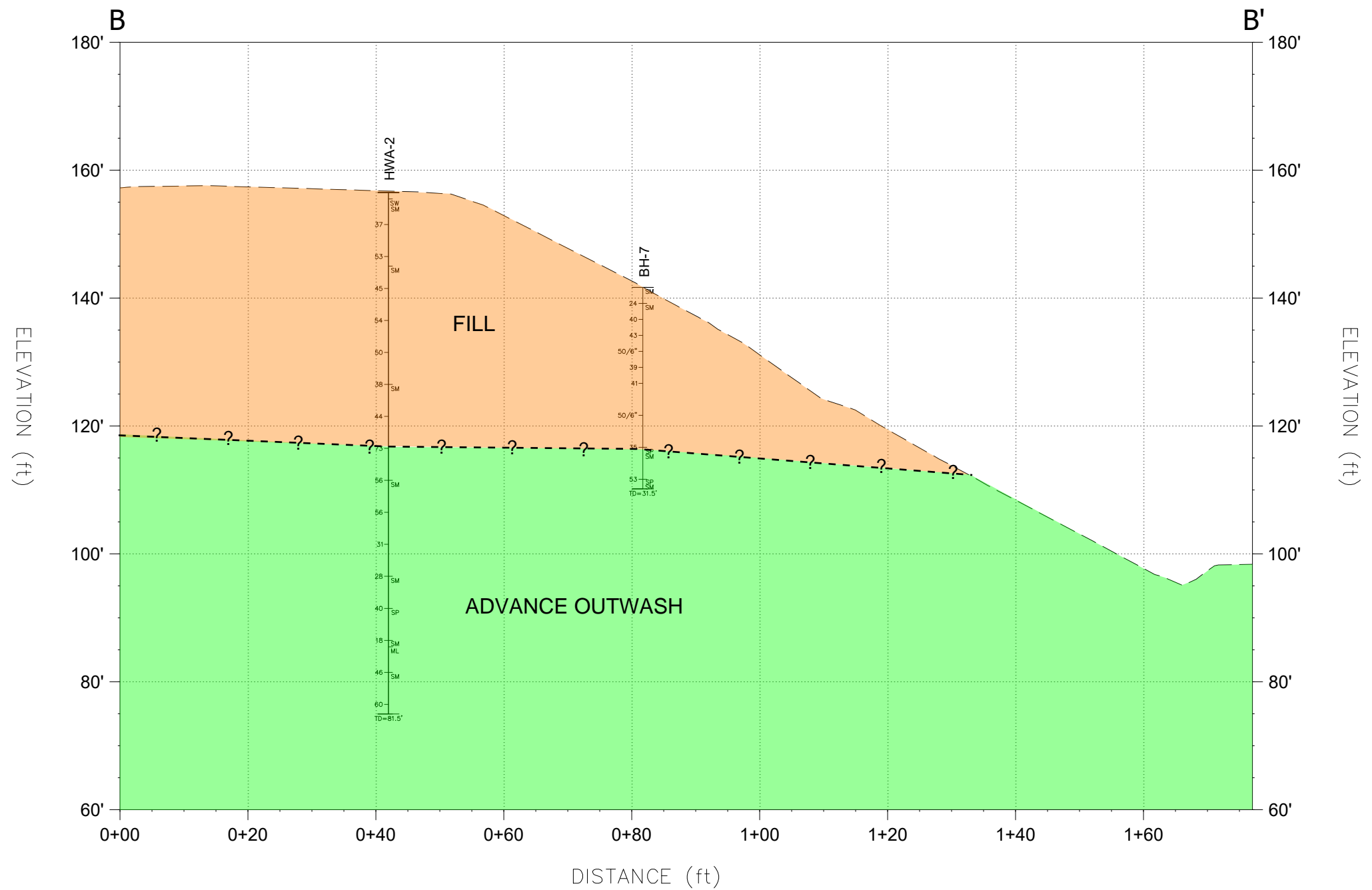
NOTE: THE SUBSURFACE CONDITIONS SHOWN ARE BASED ON WIDELY SPACED BORINGS AND SHOULD BE CONSIDERED APPROXIMATE. FURTHERMORE, THE CONTACT LINES SHOWN BETWEEN UNITS ARE INTERPRETIVE IN NATURE AND MAY VARY Laterally OR VERTICALLY OVER RELATIVELY SHORT DISTANCES ON SITE.



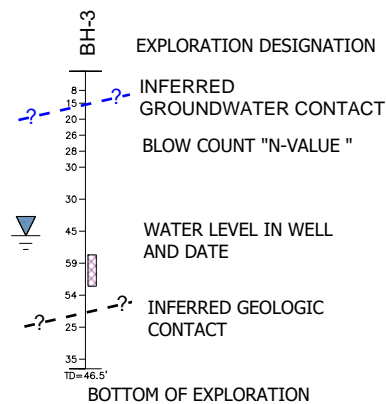
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

GEOLOGIC CROSS
SECTION A-A'

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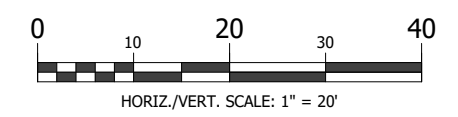


BORE LEGEND



FILL
 ADVANCE OUTWASH

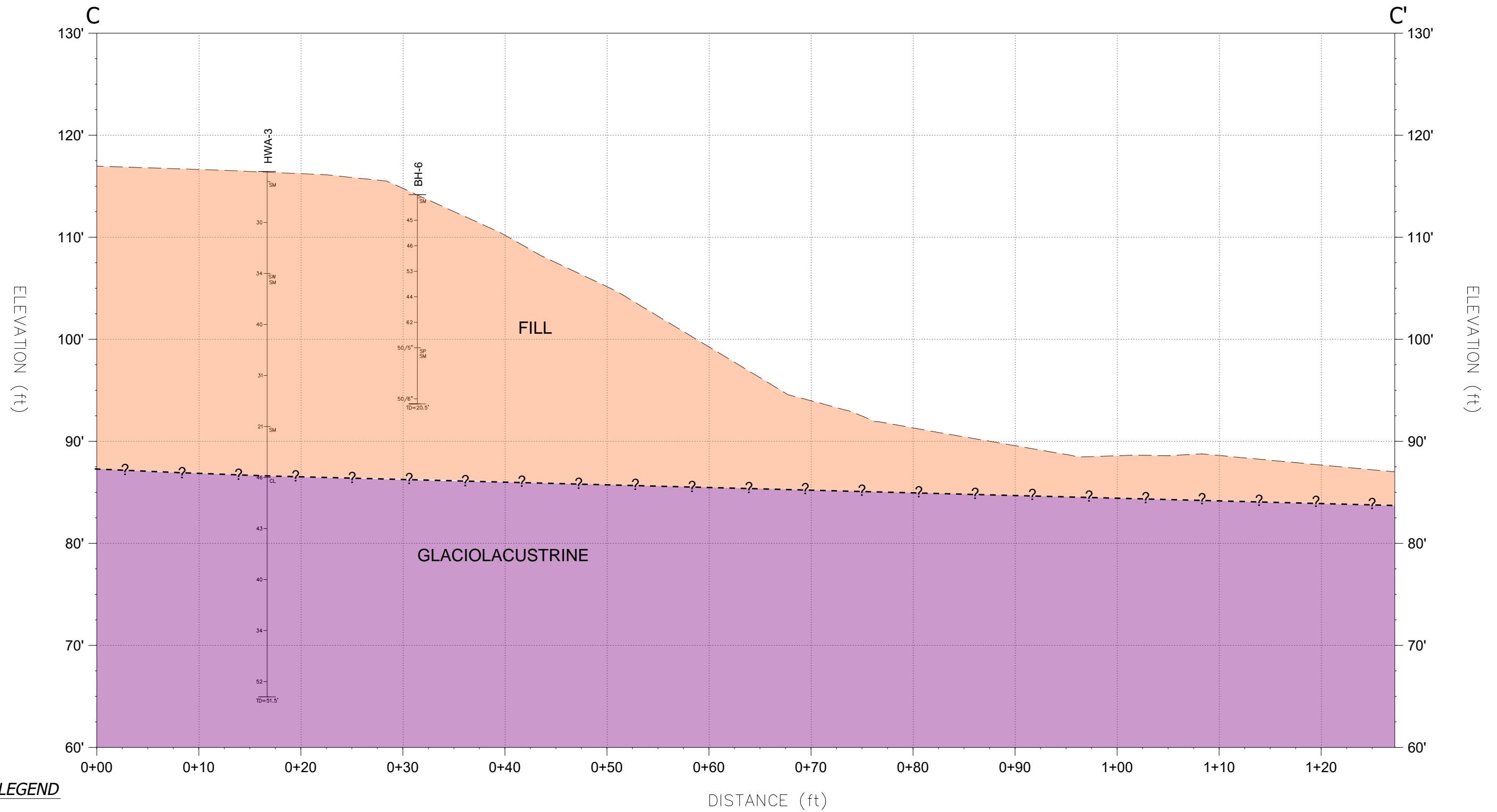
NOTE: THE SUBSURFACE CONDITIONS SHOWN ARE BASED ON WIDELY SPACED BORINGS AND SHOULD BE CONSIDERED APPROXIMATE. FURTHERMORE, THE CONTACT LINES SHOWN BETWEEN UNITS ARE INTERPRETIVE IN NATURE AND MAY VARY Laterally OR VERTICALLY OVER RELATIVELY SHORT DISTANCES ON SITE.



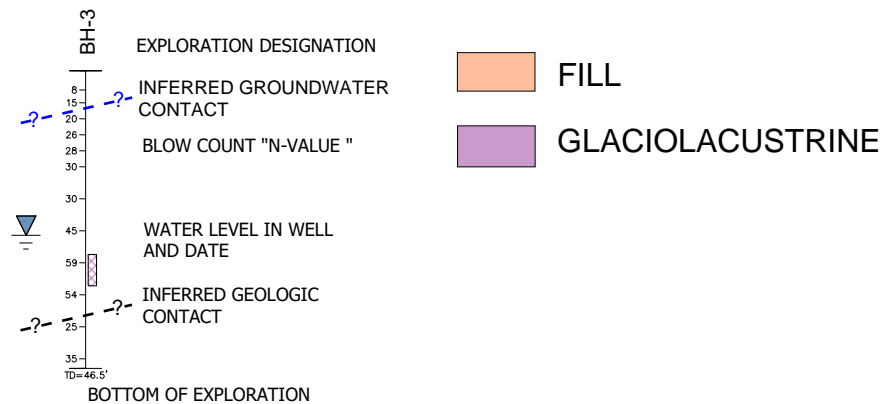
NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

GEOLOGIC CROSS
 SECTION B-B'

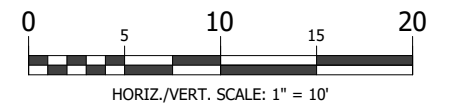
DRAWN BY: CF	FIGURE NO.: 4B
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21



BORE LEGEND



NOTE: THE SUBSURFACE CONDITIONS SHOWN ARE BASED ON WIDELY SPACED BORINGS AND SHOULD BE CONSIDERED APPROXIMATE. FURTHERMORE, THE CONTACT LINES SHOWN BETWEEN UNITS ARE INTERPRETIVE IN NATURE AND MAY VARY Laterally OR VERTICALLY OVER RELATIVELY SHORT DISTANCES ON SITE.

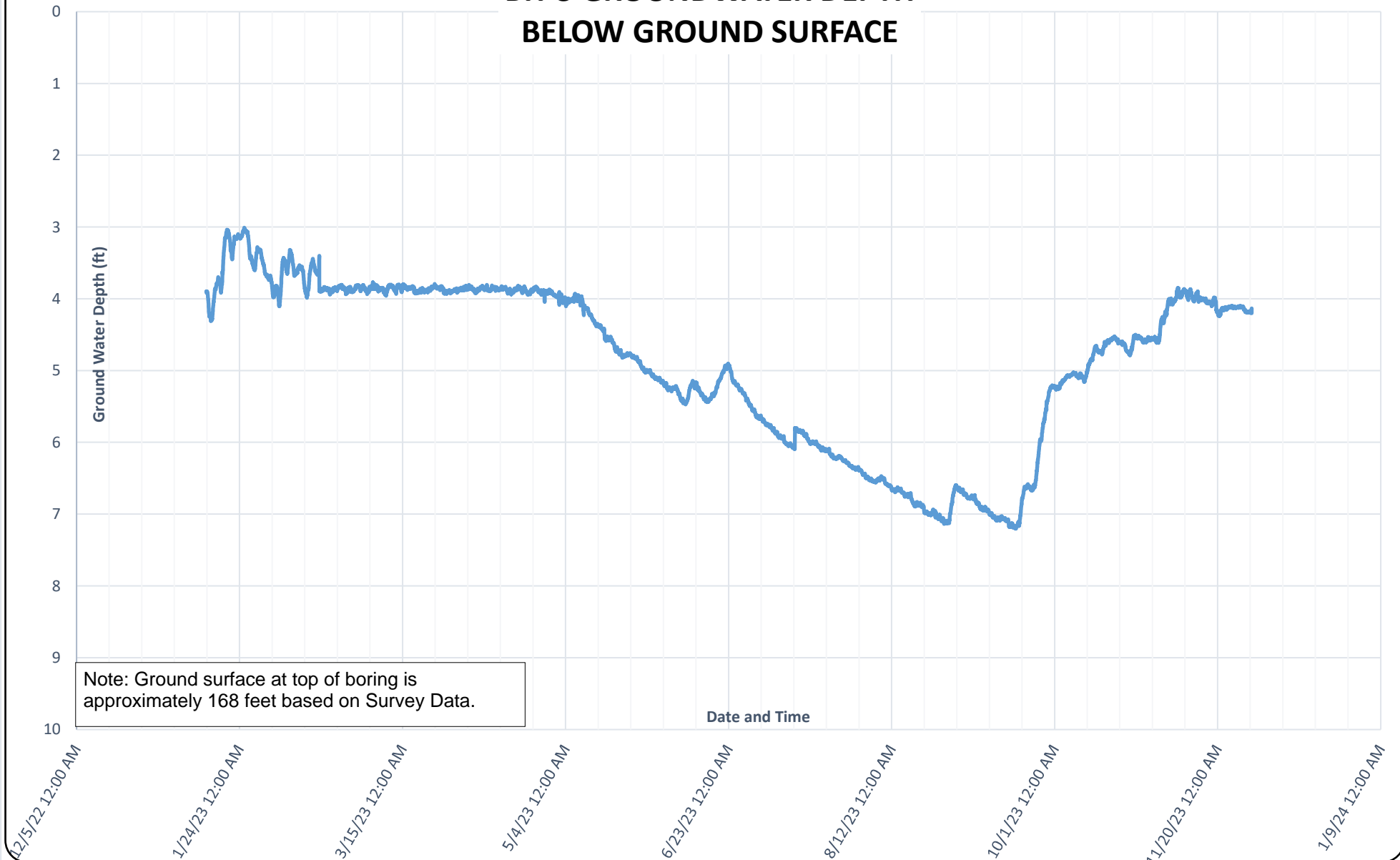


NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

GEOLOGIC CROSS
SECTION C-C'

DRAWN BY: CF	FIGURE NO.: 4C
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21

BH-3 GROUNDWATER DEPTH BELOW GROUND SURFACE



Note: Ground surface at top of boring is approximately 168 feet based on Survey Data.

BH-3 GROUNDWATER LEVEL READINGS

NE 85TH STREET PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

FIGURE NO.

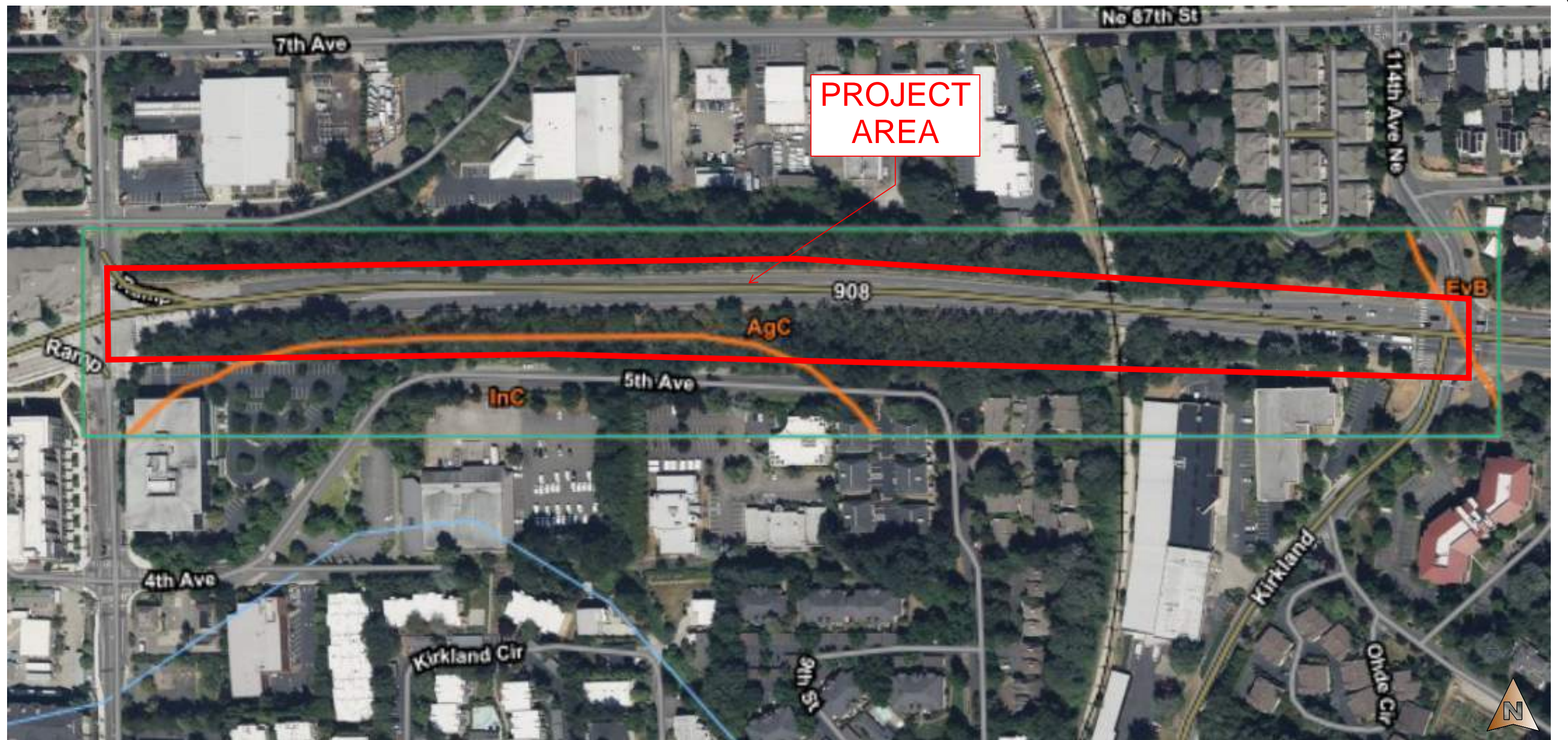
5

PROJECT NO.

2022-044-21



GEOSCIENCES INC.
DBE/MWBE



AgC - ALDERWOOD GRAVELLY SANDY LOAM, 8 TO 15 PERCENT SLOPES

EvB - EVERETT VERY GRAVELLY SANDY LOAM, 0 TO 8 PERCENT SLOPES

InC - INDIANOLA LOAMY SAND, 5 TO 15 PERCENT SLOPES

BASE MAP PROVIDED BY: UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) NATURAL RESOURCE CONSERVATION SERVICES (NRCS) WEB SOIL SURVEY.






NE 85TH STREET PED/BIKE
CONNECTION
KIRKLAND, WASHINGTON



USDA SOIL
CLASSIFICATION
MAP

DRAWN BY: JTW	FIGURE NO.: 6
CHECK BY: DJH	PROJECT NO.: 2022-044-21




Liquefaction Potential

-  High
-  Medium or Mixed
-  Low

Surficial Water

-  Water Observed at Ground Surface
-  High Flow Observed in Drainage






Modified Land and Colluvium

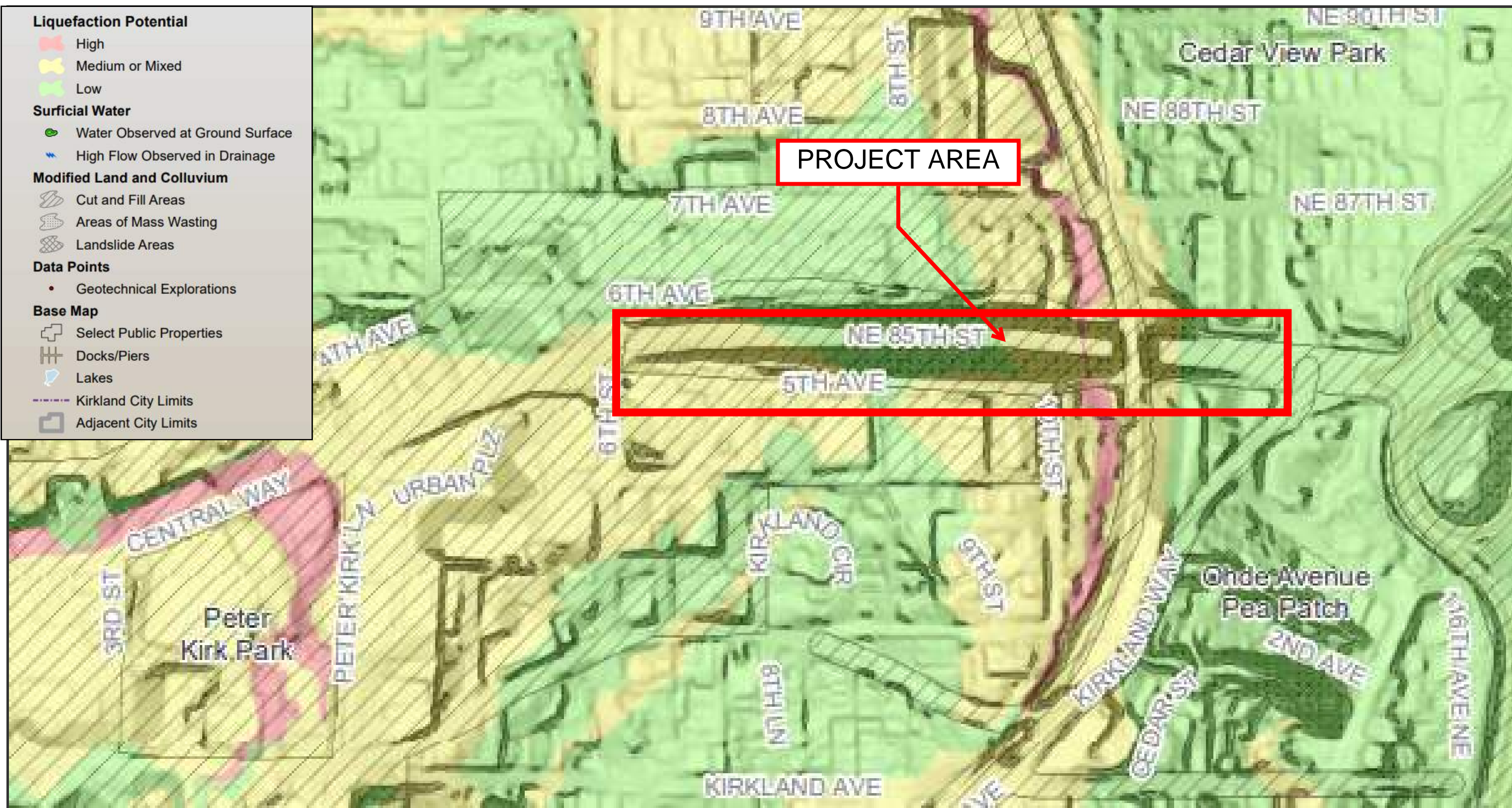
-  Cut and Fill Areas
-  Areas of Mass Wasting
-  Landslide Areas

Data Points

-  Geotechnical Explorations

Base Map

-  Select Public Properties
-  Docks/Piers
-  Lakes
-  Kirkland City Limits
-  Adjacent City Limits



NOT TO SCALE

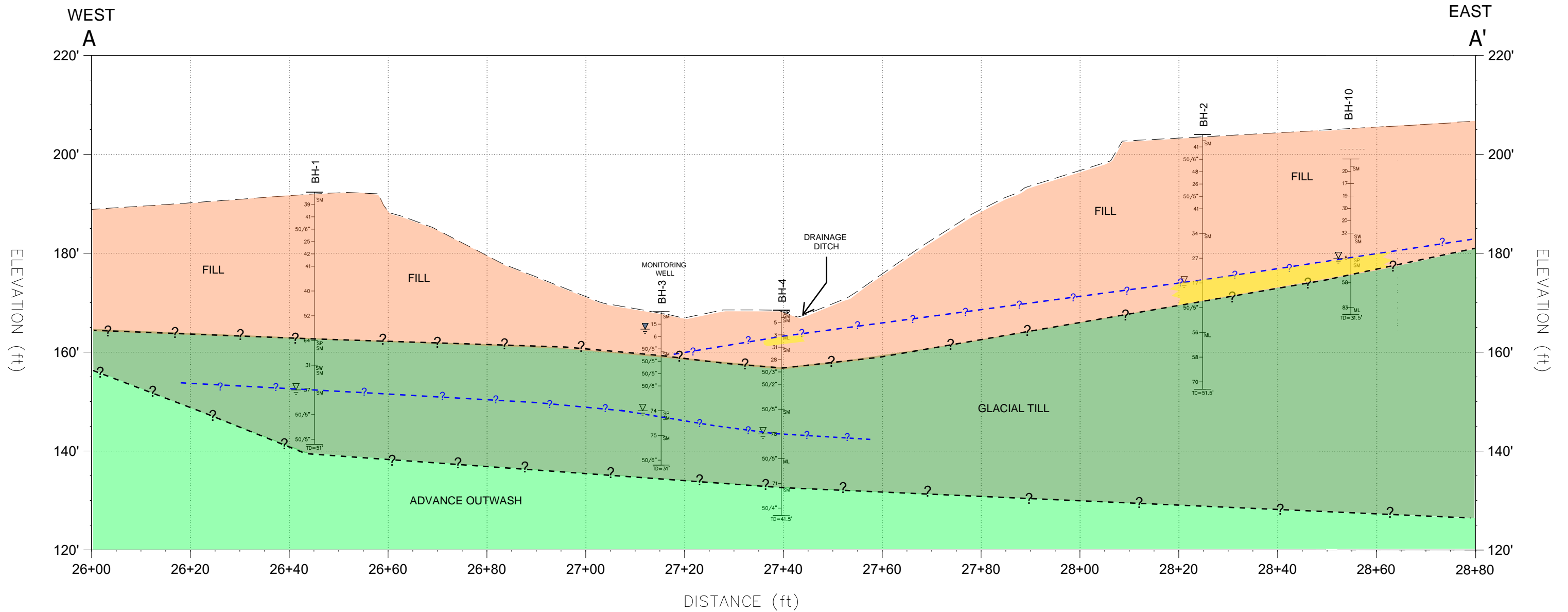
BASE MAP PROVIDED BY: CITY OF KIRKLAND, LIQUEFACTION MAP, 2022



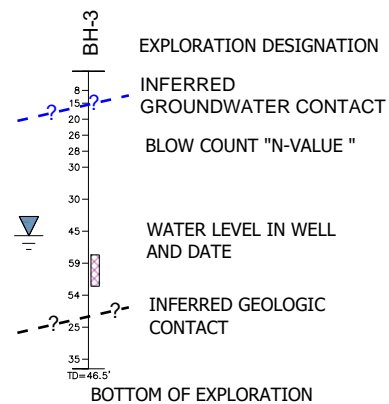
NE 85TH STREET PED/BIKE
CONNECTION
KIRKLAND, WASHINGTON

LIQUEFACTION
POTENTIAL
MAP

DRAWN BY:	FIGURE NO.:
JTW	7
CHECK BY:	PROJECT NO.:
DJH	2022-044-21

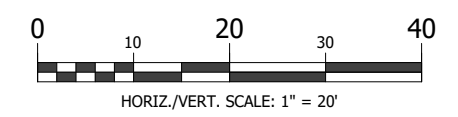


BORE LEGEND



- FILL
- GLACIAL TILL
- ADVANCE OUTWASH
- POTENTIALLY LIQUIFIABLE

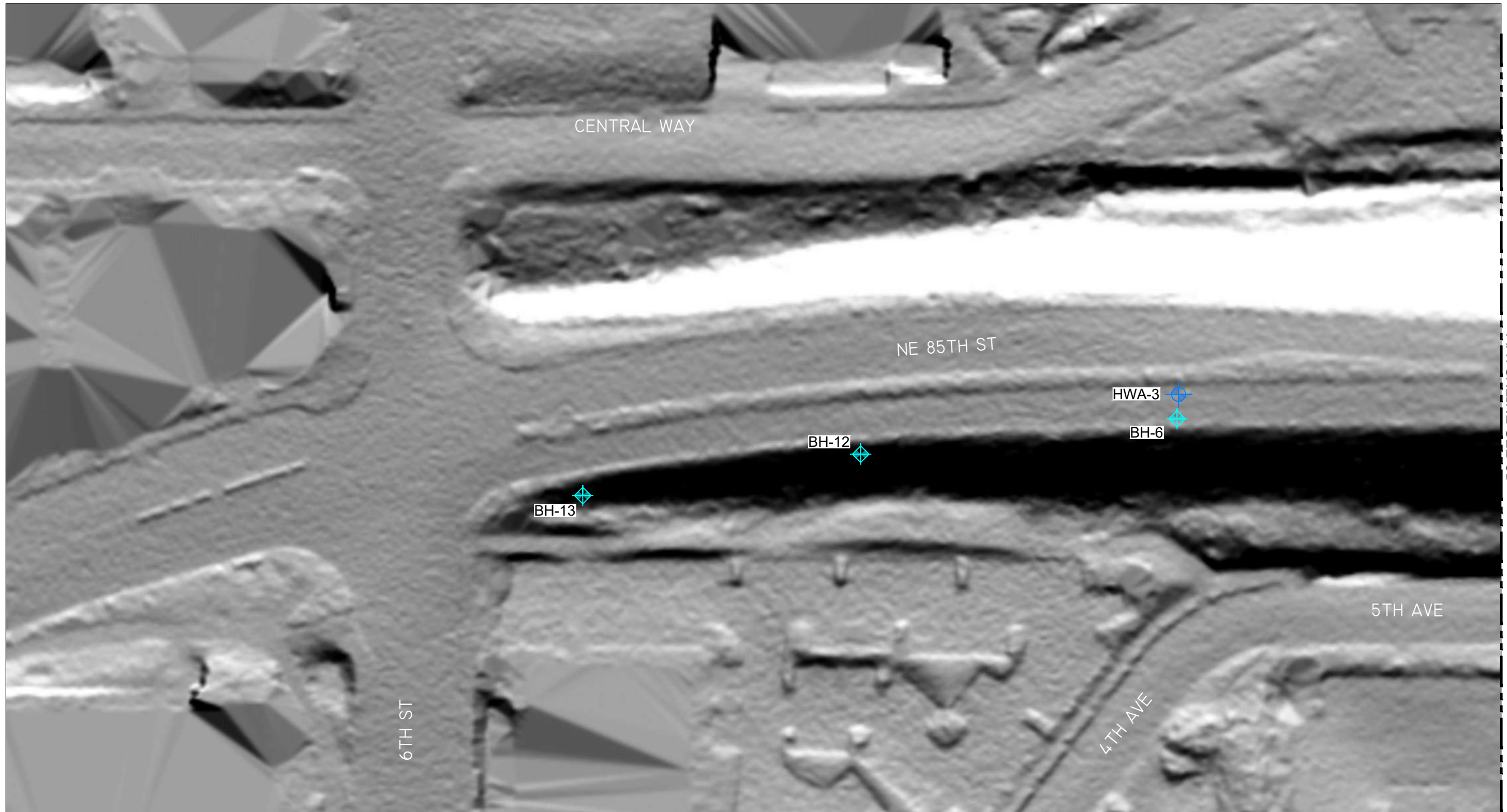
NOTE: THE SUBSURFACE CONDITIONS SHOWN ARE BASED ON WIDELY SPACED BORINGS AND SHOULD BE CONSIDERED APPROXIMATE. FURTHERMORE, THE CONTACT LINES SHOWN BETWEEN UNITS ARE INTERPRETIVE IN NATURE AND MAY VARY Laterally OR VERTICALLY OVER RELATIVELY SHORT DISTANCES ON SITE.



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

POTENTIALLY
LIQUIFIABLE SOILS

DRAWN BY: CF	FIGURE NO.: 8
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21

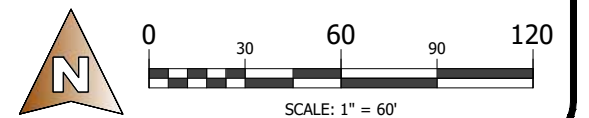


MATCHLINE SEE 8B

EXPLORATION LEGEND

- BH-6 BOREHOLE DESIGNATION AND APPROXIMATE LOCATION
- HWA-3 EXISTING BOREHOLE DESIGNATION AND APPROXIMATE LOCATION (HWA, 2020)

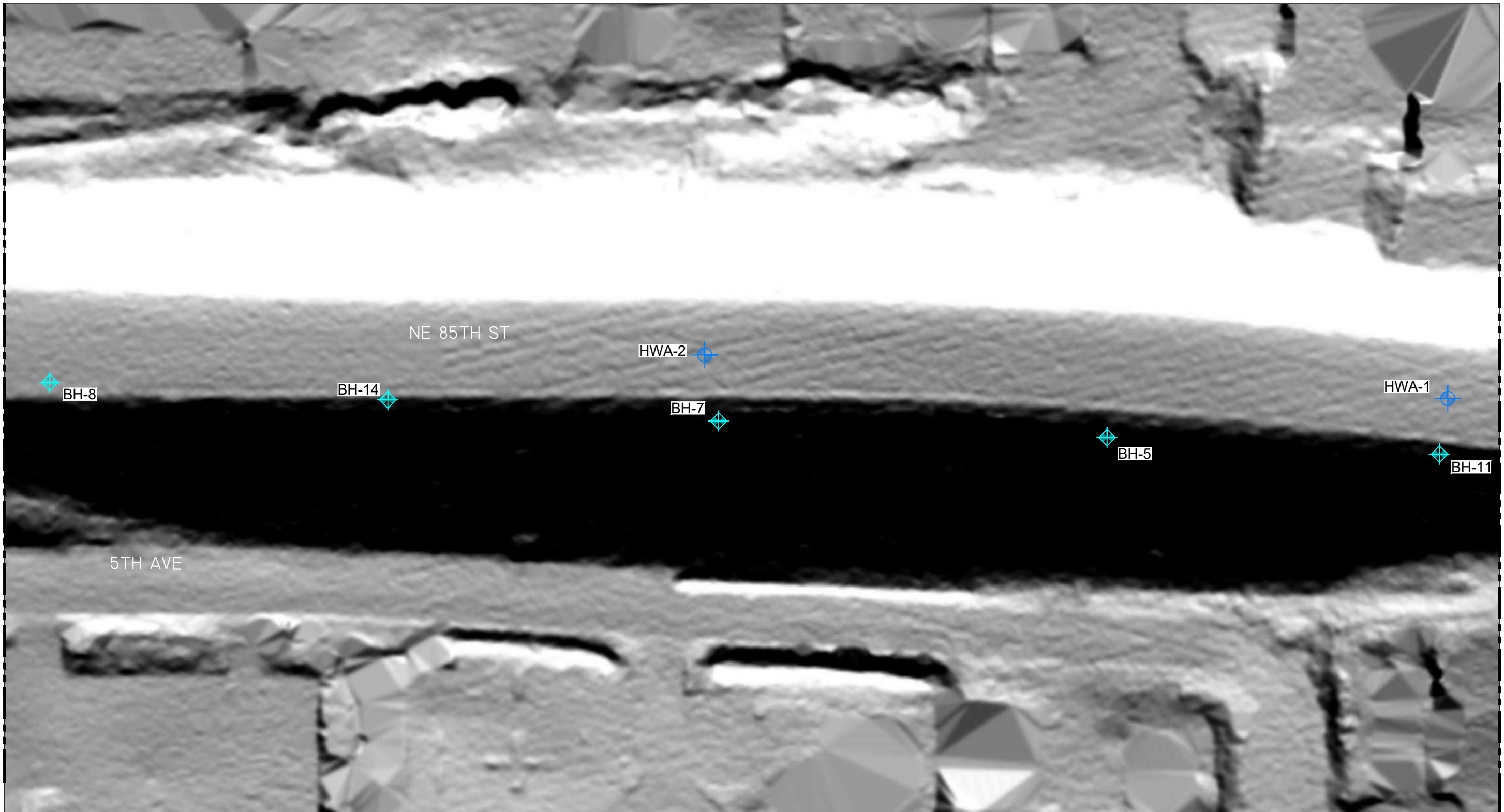
NE 85TH STREET
Scale: 1" = 60'-0"



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

LIDAR MAP

DRAWN BY: CF	FIGURE NO.: 9A
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21



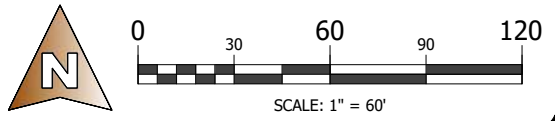
MATCHLINE SEE 8A

MATCHLINE SEE 8C

EXPLORATION LEGEND

- BH-5 BOREHOLE DESIGNATION AND APPROXIMATE LOCATION
- HWA-1 EXISTING BOREHOLE DESIGNATION AND APPROXIMATE LOCATION (HWA, 2020)

NE 85TH STREET
Scale: 1" = 60'-0"

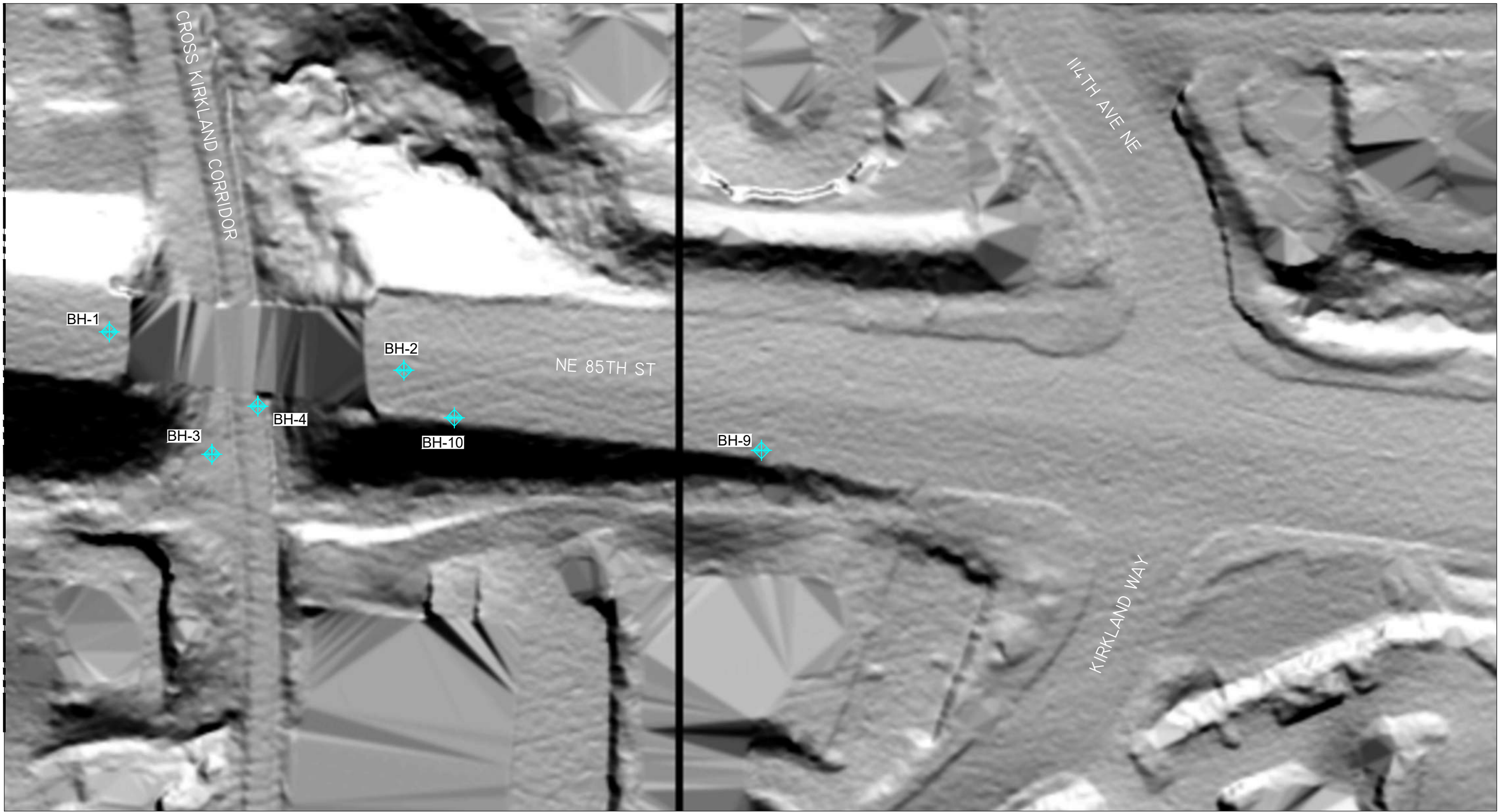


NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

LIDAR MAP

DRAWN BY: CF	FIGURE NO.: 9B
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21

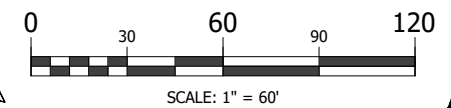
MATCHLINE SEE 8B



EXPLORATION LEGEND

BH-1 BOREHOLE DESIGNATION AND APPROXIMATE LOCATION

NE 85TH STREET
Scale: 1" = 60'-0"

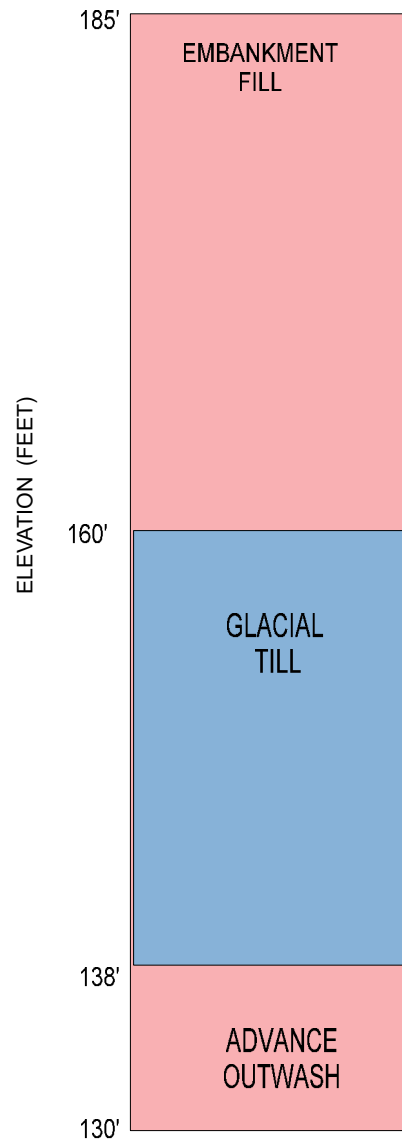


NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

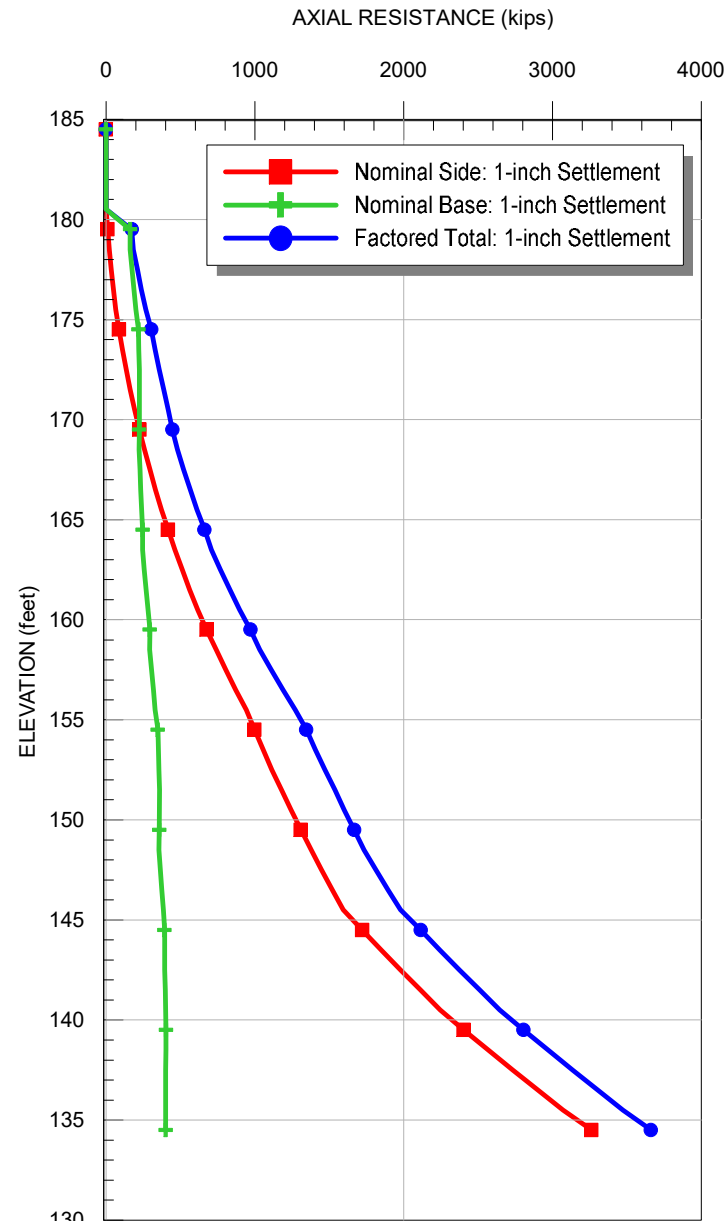
LIDAR MAP

DRAWN BY: CF	FIGURE NO.: 9C
CHECK BY: JTW/DJH	PROJECT NO.: 2022-044-21

**ASSUMED
SUBSURFACE
PROFILE**



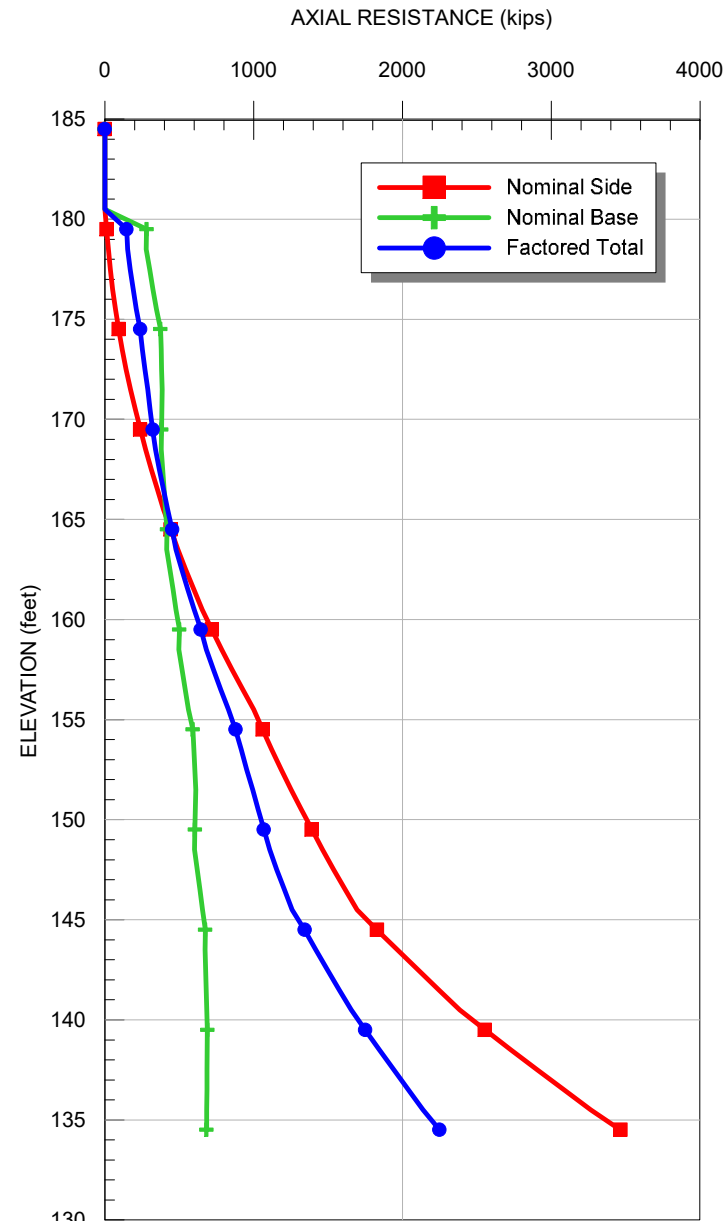
SERVICE LIMIT



SERVICE LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification is 1.0 for side resistance.
2. Settlements is based on a single shaft. No group action is considered.
3. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

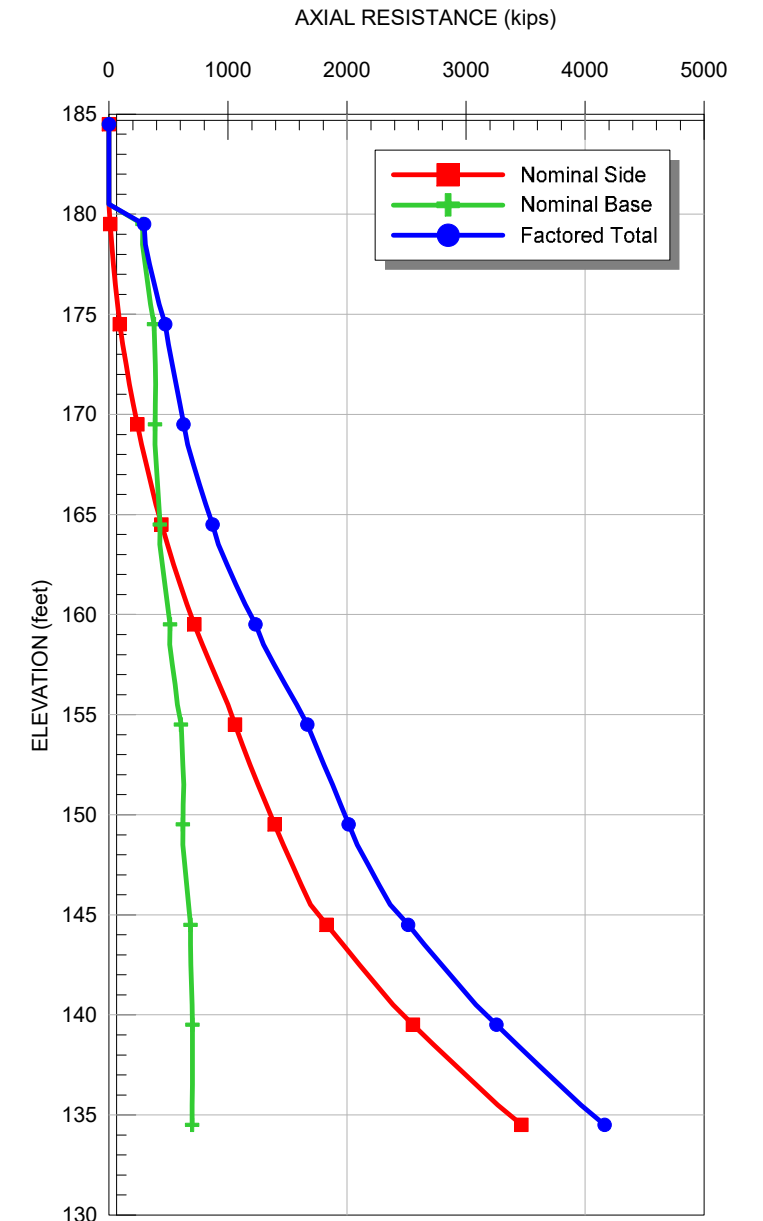
STRENGTH LIMIT



STRENGTH LIMIT NOTES:

1. Recommended resistance factors included in Factored Loads are 0.55 for cohesionless and 0.45 for cohesive for side resistance and 0.5 for cohesionless and 0.4 for cohesive for base resistance, as provided in AASHTO LRFD Bridge Design Specification.
2. Shaft uplift resistance can be estimated by using the nominal side resistance shown above and a recommended resistance factor of 0.35 (per AASHTO LRFD Bridge Design Specification).
3. Recommended load factor of 1.25 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

EXTREME EVENT LIMIT



EXTREME EVENT LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification for both side and base resistance are 1.0 for compression and 0.8 for uplift.
2. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

GENERAL NOTES:

1. The analyses were performed based on guidelines included in the AASHTO LRFD Bridge Design Specification and local experience. The analyses are based on a single shaft and do not consider group action of closely spaced shafts.
2. Factored total shaft resistance shown on plots include the summation of the shaft's nominal side and base resistances multiplied by the appropriate resistance factors as noted above.
3. The nominal side and base resistance values presented do not include the resistance factors.
4. The nominal base and total factored axial capacities provided have been reduced to account for the weight of drilled shafts with appropriate load factors applied for each limit state.
5. The weight of the drilled shafts is calculated from the proposed shaft top elevation presented on the assumed subsurface profile.



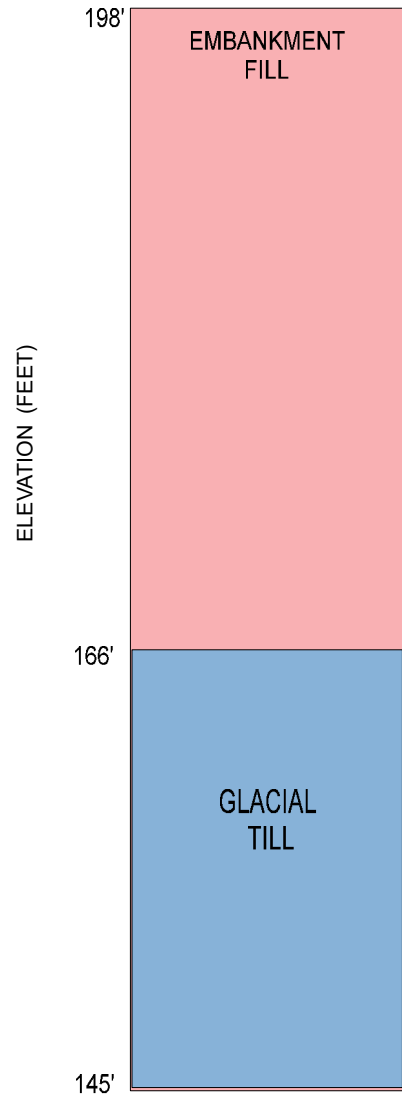
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

WEST BRIDGE ABUTMENT (BH-1)
AXIAL SHAFT CAPACITIES
4-FOOT DIAMETER SHAFT

DRAWN BY
JTJW
CHECKED BY
DJH
DATE
3.9.2023

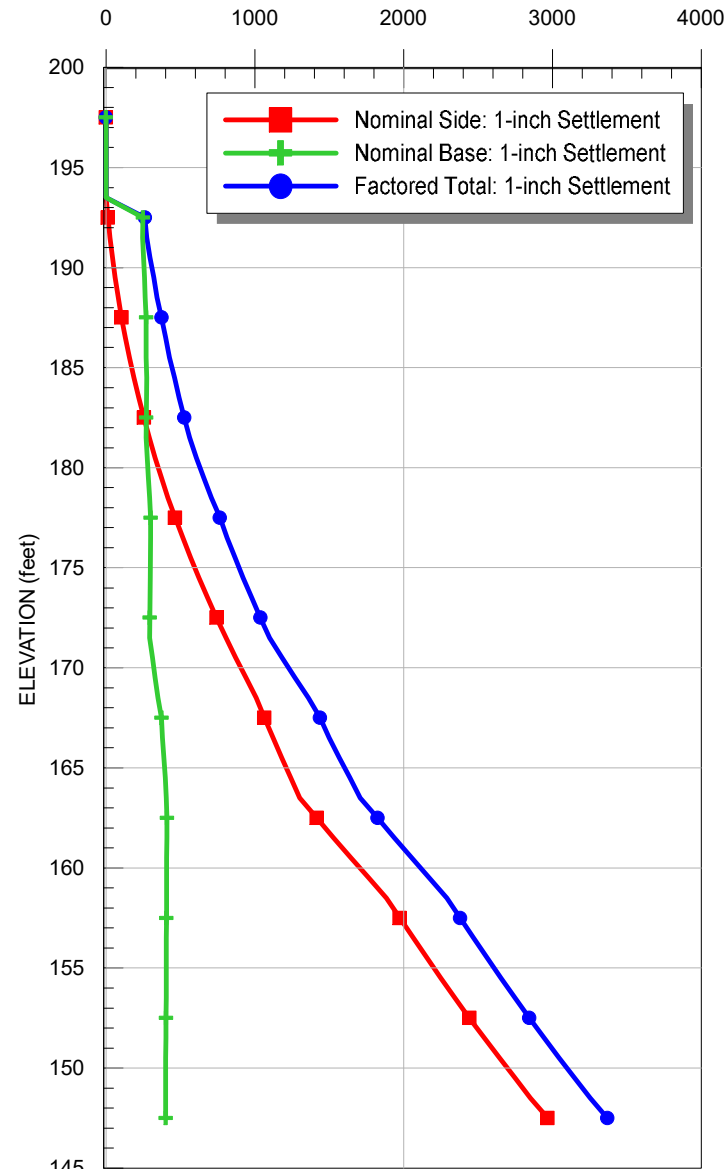
FIGURE NO.
10
PROJECT NO.
2022-044-21

**ASSUMED
SUBSURFACE
PROFILE**



SERVICE LIMIT

AXIAL RESISTANCE (kips)

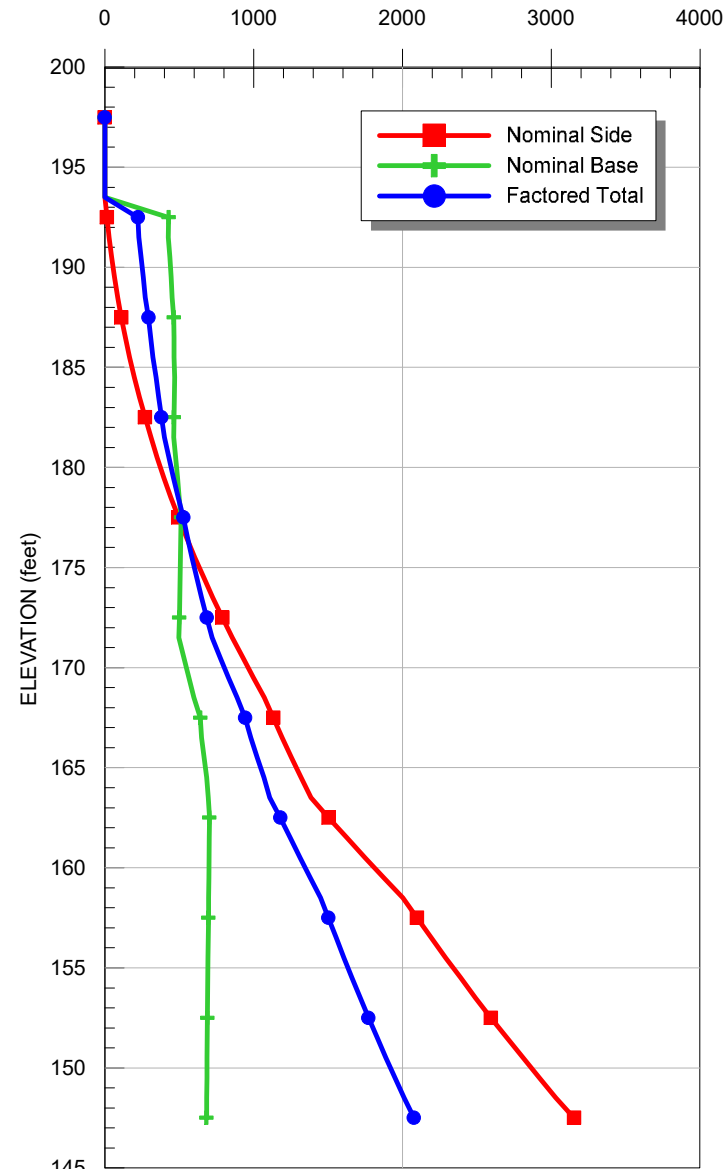


SERVICE LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification is 1.0 for side resistance.
2. Settlements is based on a single shaft. No group action is considered.
3. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

STRENGTH LIMIT

AXIAL RESISTANCE (kips)

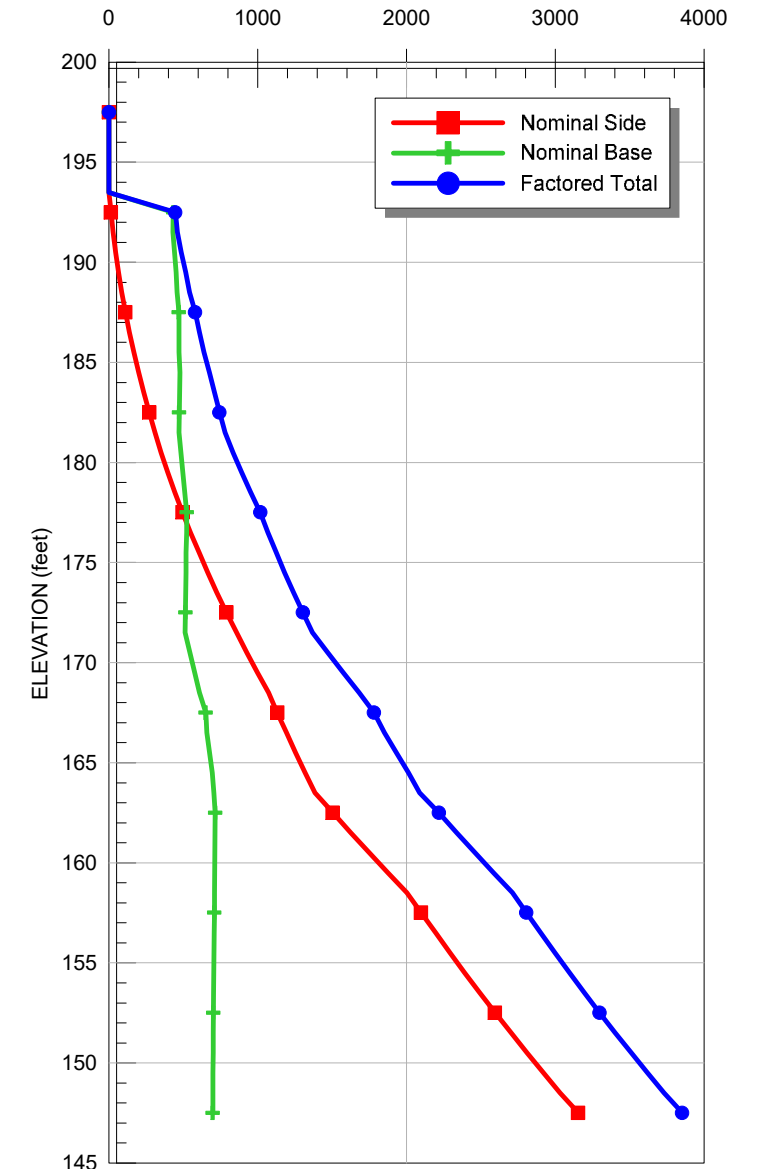


STRENGTH LIMIT NOTES:

1. Recommended resistance factors included in Factored Loads are 0.55 for cohesionless and 0.45 for cohesive for side resistance and 0.5 for cohesionless and 0.4 for cohesive for base resistance, as provided in AASHTO LRFD Bridge Design Specification.
2. Shaft uplift resistance can be estimated by using the nominal side resistance shown above and a recommended resistance factor of 0.35 (per AASHTO LRFD Bridge Design Specification).
3. Recommended load factor of 1.25 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

EXTREME EVENT LIMIT

AXIAL RESISTANCE (kips)



EXTREME EVENT LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification for both side and base resistance are 1.0 for compression and 0.8 for uplift.
2. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

GENERAL NOTES:

1. The analyses were performed based on guidelines included in the AASHTO LRFD Bridge Design Specification and local experience. The analyses are based on a single shaft and do not consider group action of closely spaced shafts.
2. Factored total shaft resistance shown on plots include the summation of the shaft's nominal side and base resistances multiplied by the appropriate resistance factors as noted above.
3. The nominal side and base resistance values presented do not include the resistance factors.
4. The nominal base and total factored axial capacities provided have been reduced to account for the weight of drilled shafts with appropriate load factors applied for each limit state.
5. The weight of the drilled shafts is calculated from the proposed shaft top elevation presented on the assumed subsurface profile.



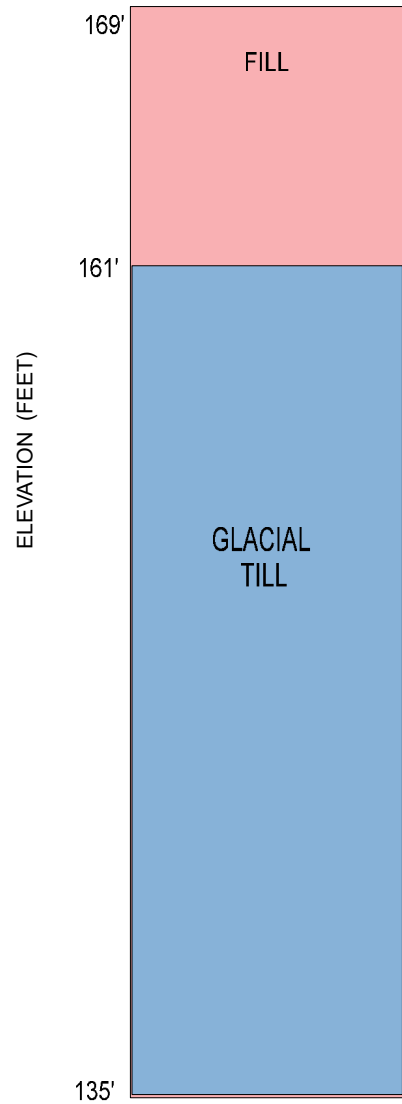
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

EAST BRIDGE ABUTMENT (BH-2)
AXIAL SHAFT CAPACITIES
4-FOOT DIAMETER SHAFT

DRAWN BY
JTJW
CHECKED BY
DJH
DATE
3.09.2023

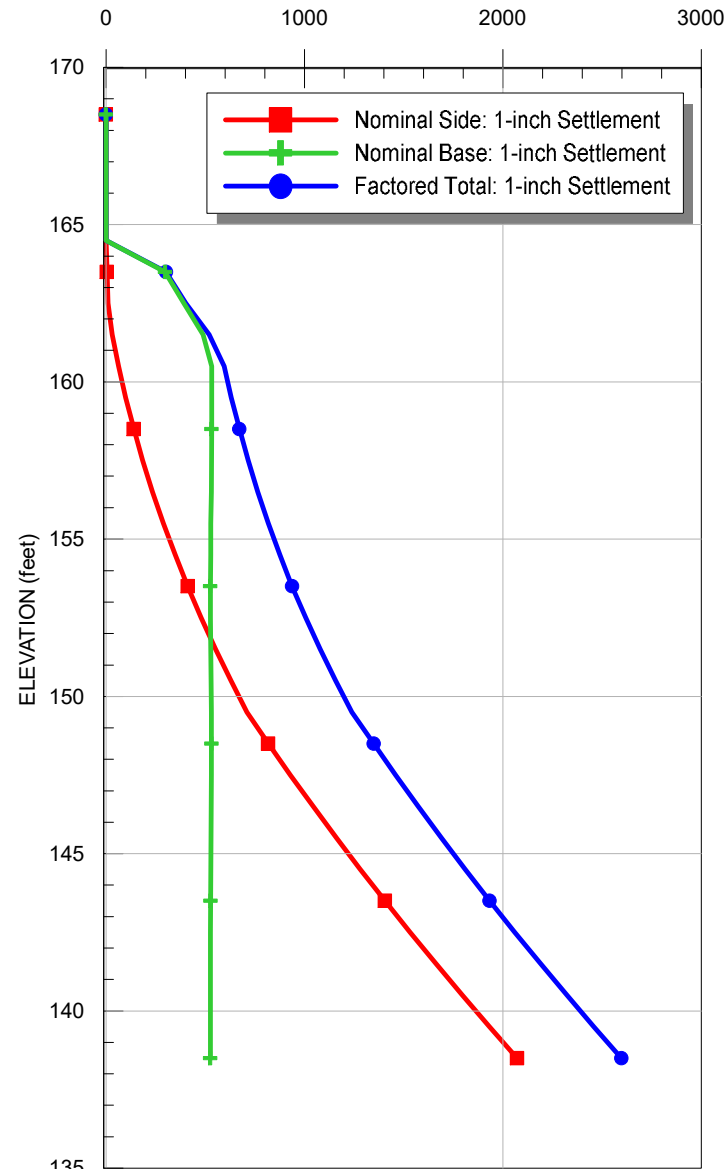
FIGURE NO.
11
PROJECT NO.
2022-044-21

**ASSUMED
SUBSURFACE
PROFILE**



SERVICE LIMIT

AXIAL RESISTANCE (kips)

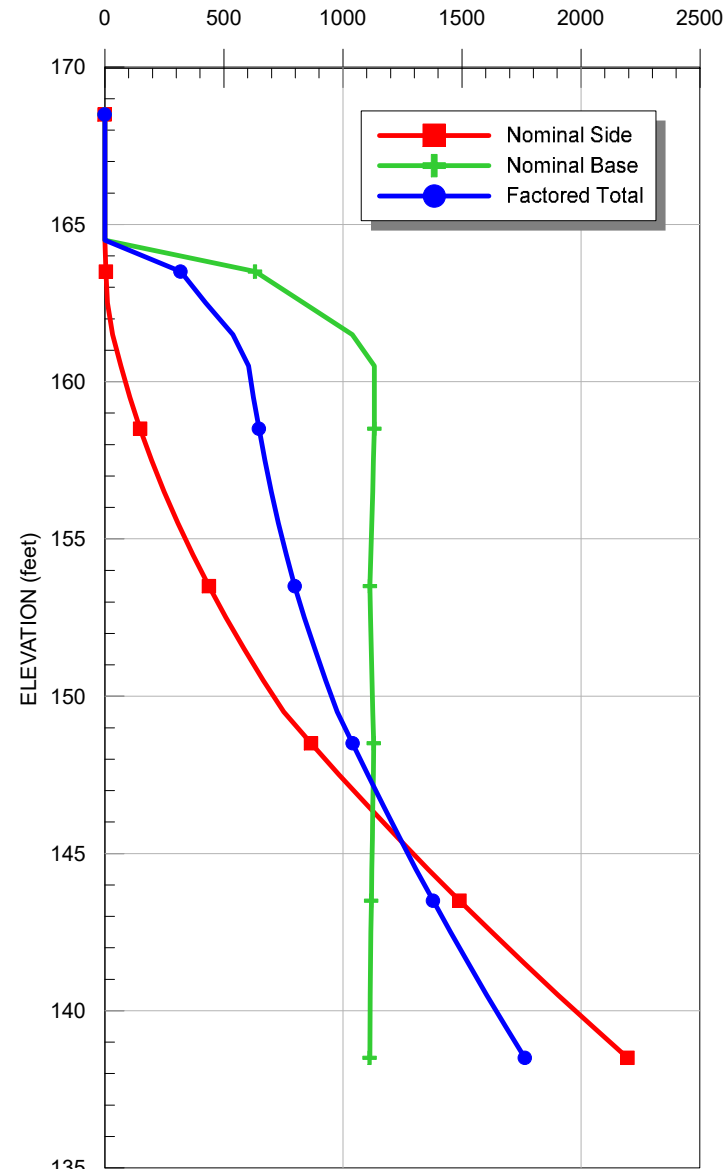


SERVICE LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification is 1.0 for side resistance.
2. Settlements is based on a single shaft. No group action is considered.
3. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

STRENGTH LIMIT

AXIAL RESISTANCE (kips)

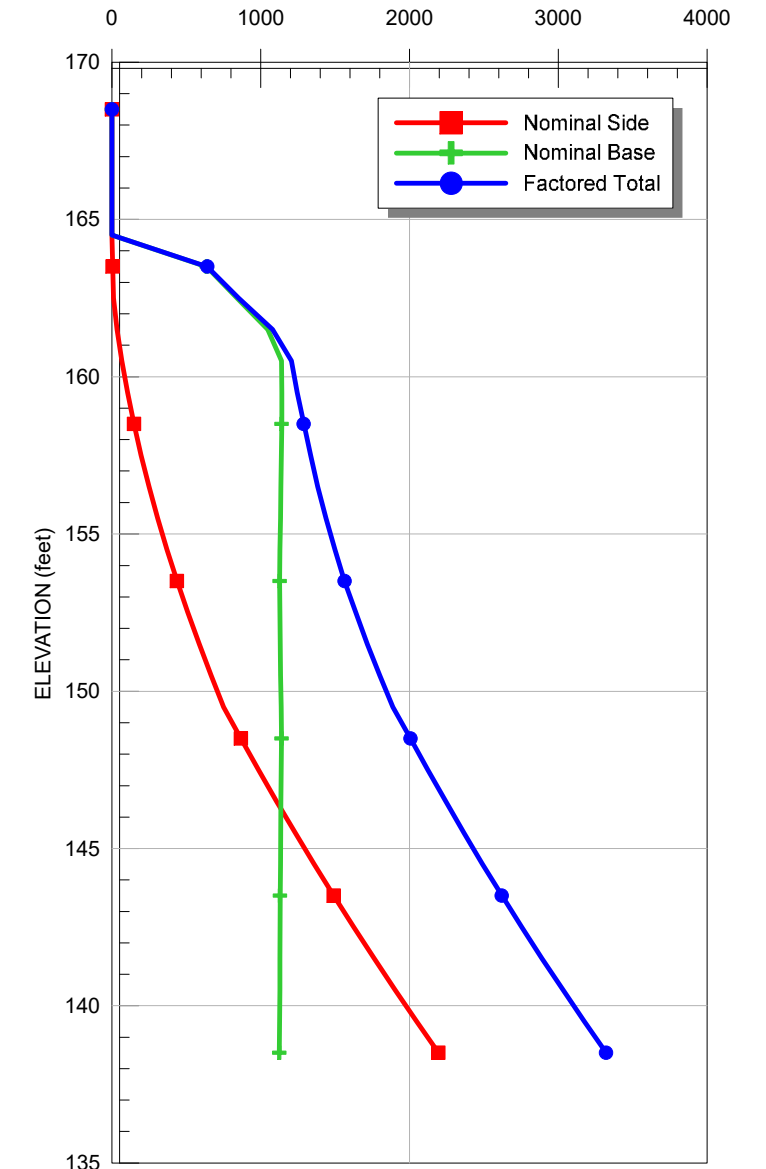


STRENGTH LIMIT NOTES:

1. Recommended resistance factors included in Factored Loads are 0.55 for cohesionless and 0.45 for cohesive for side resistance and 0.5 for cohesionless and 0.4 for cohesive for base resistance, as provided in AASHTO LRFD Bridge Design Specification.
2. Shaft uplift resistance can be estimated by using the nominal side resistance shown above and a recommended resistance factor of 0.35 (per AASHTO LRFD Bridge Design Specification).
3. Recommended load factor of 1.25 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

EXTREME EVENT LIMIT

AXIAL RESISTANCE (kips)



EXTREME EVENT LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification for both side and base resistance are 1.0 for compression and 0.8 for uplift.
2. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

GENERAL NOTES:

1. The analyses were performed based on guidelines included in the AASHTO LRFD Bridge Design Specification and local experience. The analyses are based on a single shaft and do not consider group action of closely spaced shafts.
2. Factored total shaft resistance shown on plots include the summation of the shaft's nominal side and base resistances multiplied by the appropriate resistance factors as noted above.
3. The nominal side and base resistance values presented do not include the resistance factors.
4. The nominal base and total factored axial capacities provided have been reduced to account for the weight of drilled shafts with appropriate load factors applied for each limit state.
5. The weight of the drilled shafts is calculated from the proposed shaft top elevation presented on the assumed subsurface profile.



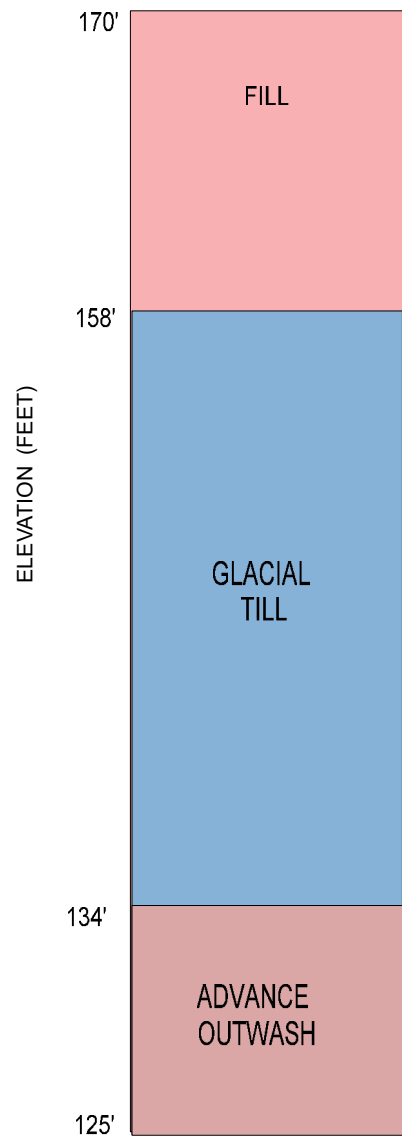
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

WEST INTERIOR PIER (BH-3)
AXIAL SHAFT CAPACITIES
5-FOOT DIAMETER SHAFT

DRAWN BY
JTW
CHECKED BY
DJH
DATE
3.09.2023

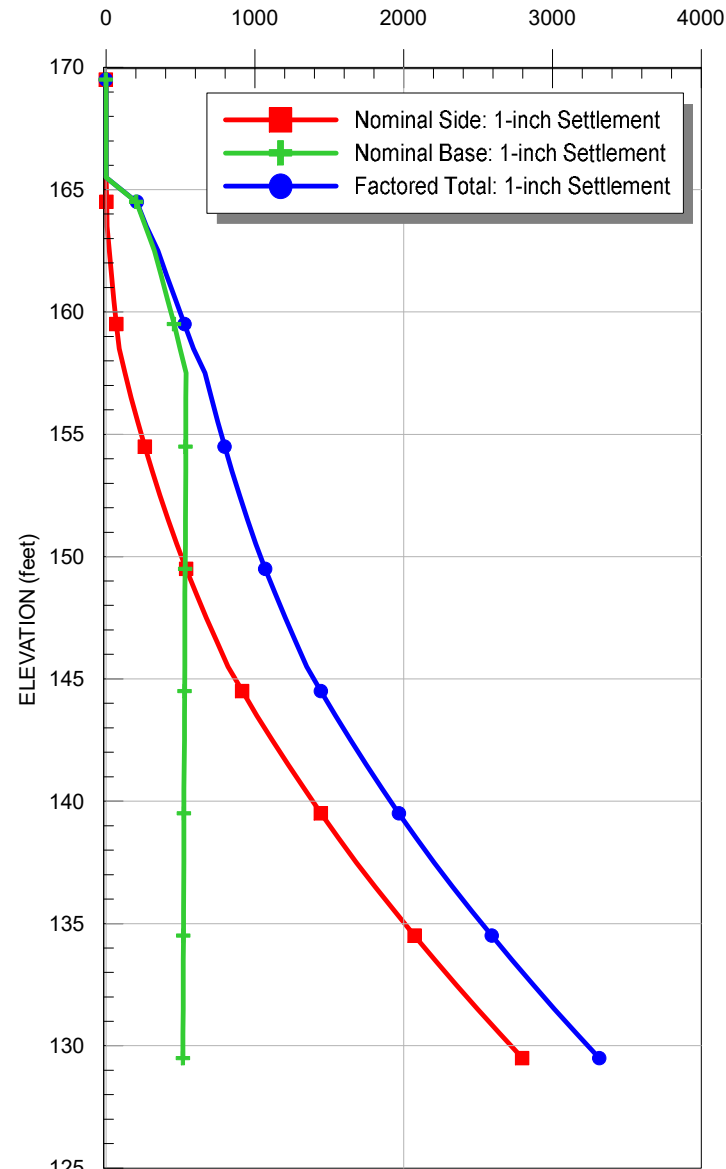
FIGURE NO.
12
PROJECT NO.
2022-044-21

**ASSUMED
SUBSURFACE
PROFILE**



SERVICE LIMIT

AXIAL RESISTANCE (kips)

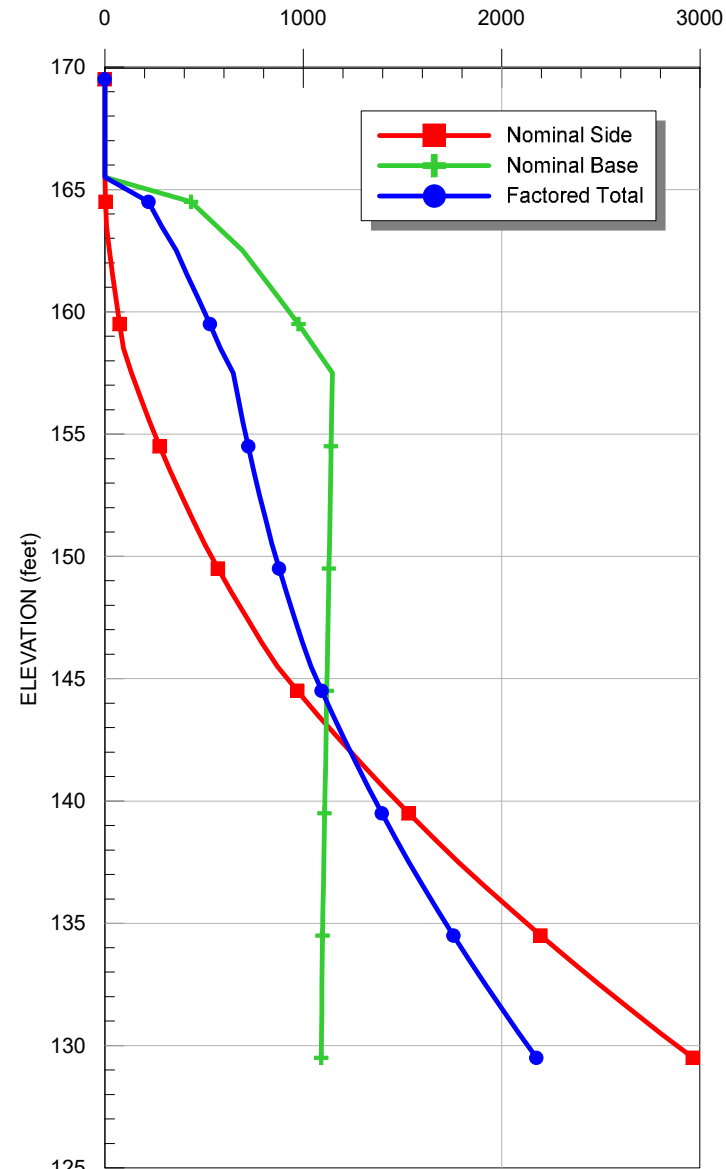


SERVICE LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification is 1.0 for side resistance.
2. Settlements is based on a single shaft. No group action is considered.
3. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

STRENGTH LIMIT

AXIAL RESISTANCE (kips)

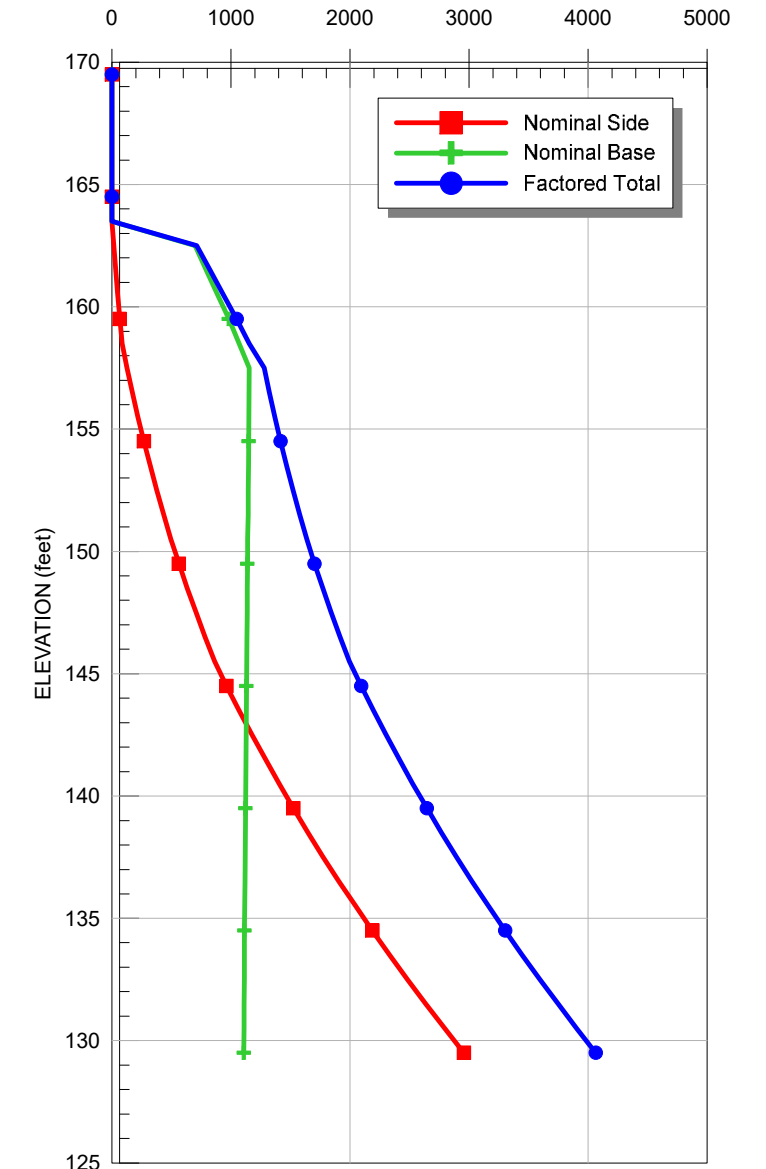


STRENGTH LIMIT NOTES:

1. Recommended resistance factors included in Factored Loads are 0.55 for cohesionless and 0.45 for cohesive for side resistance and 0.5 for cohesionless and 0.4 for cohesive for base resistance, as provided in AASHTO LRFD Bridge Design Specification.
2. Shaft uplift resistance can be estimated by using the nominal side resistance shown above and a recommended resistance factor of 0.35 (per AASHTO LRFD Bridge Design Specification).
3. Recommended load factor of 1.25 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

EXTREME EVENT LIMIT

AXIAL RESISTANCE (kips)



EXTREME EVENT LIMIT NOTES:

1. Recommended resistance factors per AASHTO LRFD Bridge Design Specification for both side and base resistance are 1.0 for compression and 0.8 for uplift.
2. Recommended load factor of 1.0 applied to weight of shaft per AASHTO LRFD Bridge Design Specifications.

GENERAL NOTES:

1. The analyses were performed based on guidelines included in the AASHTO LRFD Bridge Design Specification and local experience. The analyses are based on a single shaft and do not consider group action of closely spaced shafts.
2. Factored total shaft resistance shown on plots include the summation of the shaft's nominal side and base resistances multiplied by the appropriate resistance factors as noted above.
3. The nominal side and base resistance values presented do not include the resistance factors.
4. The nominal base and total factored axial capacities provided have been reduced to account for the weight of drilled shafts with appropriate load factors applied for each limit state.
5. The weight of the drilled shafts is calculated from the proposed shaft top elevation presented on the assumed subsurface profile.



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

EAST INTERIOR PIER (BH-4)
AXIAL SHAFT CAPACITIES
5-FOOT DIAMETER SHAFT

DRAWN BY
JTW
CHECKED BY
DJH
DATE
3.09.2023

FIGURE NO.
13
PROJECT NO.
2022-044-21

APPENDIX A

FIELD EXPLORATION

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

TEST SYMBOLS

- %F Percent Fines
- AL Atterberg Limits: PL = Plastic Limit
LL = Liquid Limit
- CBR California Bearing Ratio
- CN Consolidation
- DD Dry Density (pcf)
- DS Direct Shear
- GS Grain Size Distribution
- K Permeability
- MD Moisture/Density Relationship (Proctor)
- MR Resilient Modulus
- PID Photoionization Device Reading
- PP Pocket Penetrometer
Approx. Compressive Strength (tsf)
- SG Specific Gravity
- TC Triaxial Compression
- TV Torvane
Approx. Shear Strength (tsf)
- UC Unconfined Compression

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS			
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)		GW Well-graded GRAVEL		
		Gravel with Fines (appreciable amount of fines)		GP Poorly-graded GRAVEL		
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Sand and Sandy Soils	Clean Sand (little or no fines)		GM Silty GRAVEL	
			50% or More of Coarse Fraction Passing No. 4 Sieve		GC Clayey GRAVEL	
More than 50% Retained on No. 200 Sieve Size	Sand and Sandy Soils	Clean Sand (little or no fines)		SW Well-graded SAND		
		50% or More of Coarse Fraction Passing No. 4 Sieve		SP Poorly-graded SAND		
	Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%		SM Silty SAND	
			Liquid Limit 50% or More		SC Clayey SAND	
		50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit Less than 50%		ML SILT
				Liquid Limit 50% or More		CL Lean CLAY
Highly Organic Soils	Silt and Clay	Liquid Limit Less than 50%		OL Organic SILT/Organic CLAY		
		Liquid Limit 50% or More		MH Elastic SILT		
		Liquid Limit 50% or More		CH Fat CLAY		
				OH Organic SILT/Organic CLAY		
				PT PEAT		

SAMPLE TYPE SYMBOLS

- 2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
- Shelby Tube
- 3-1/4" OD Split Spoon with Brass Rings
- Small Bag Sample
- Large Bag (Bulk) Sample
- Core Run
- Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

- Groundwater Level (measured at time of drilling)
- Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

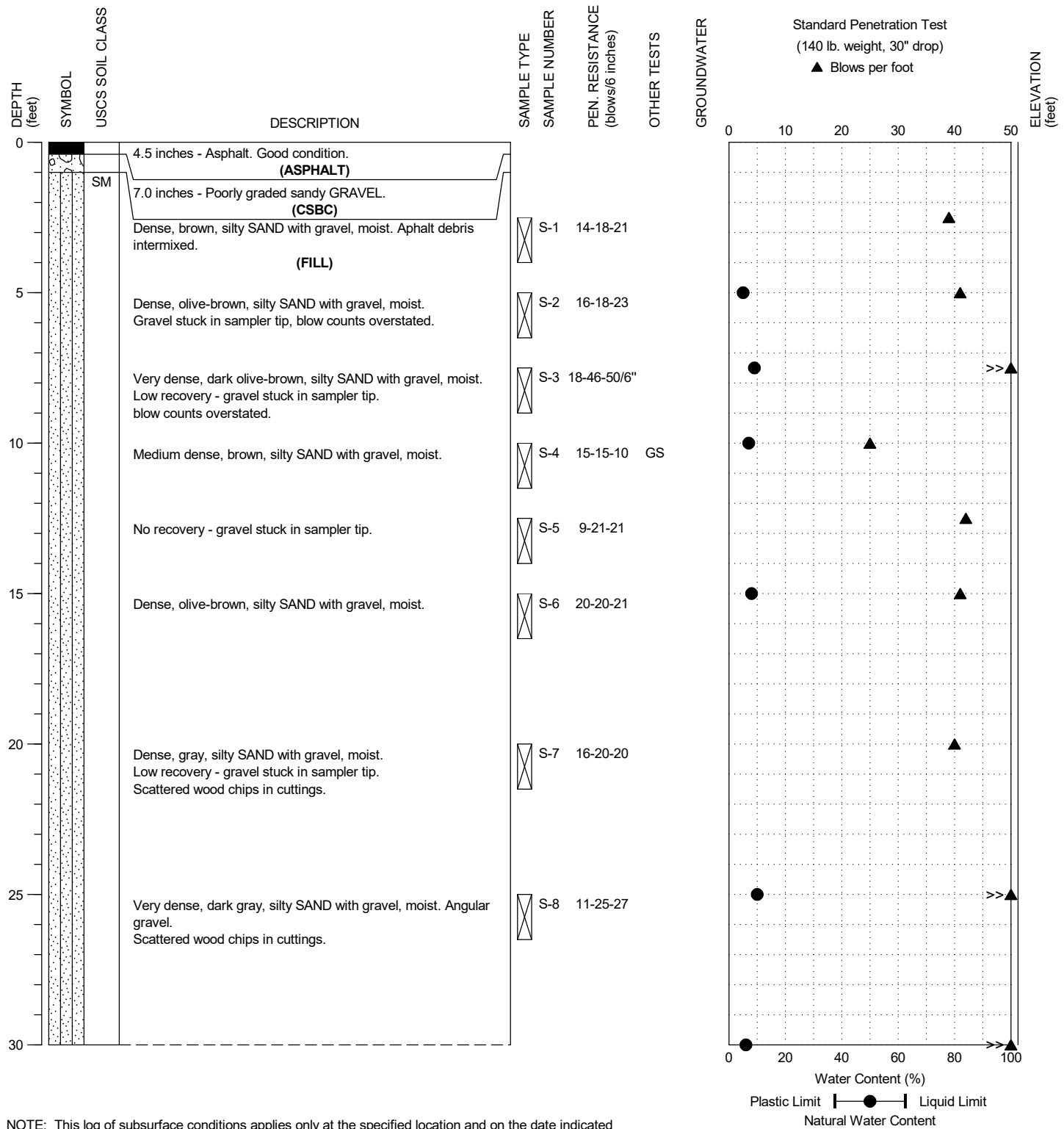
LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Truck Rig D-120
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679330, -122.190417

DATE STARTED: 12/13/2022
 DATE COMPLETED: 12/13/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



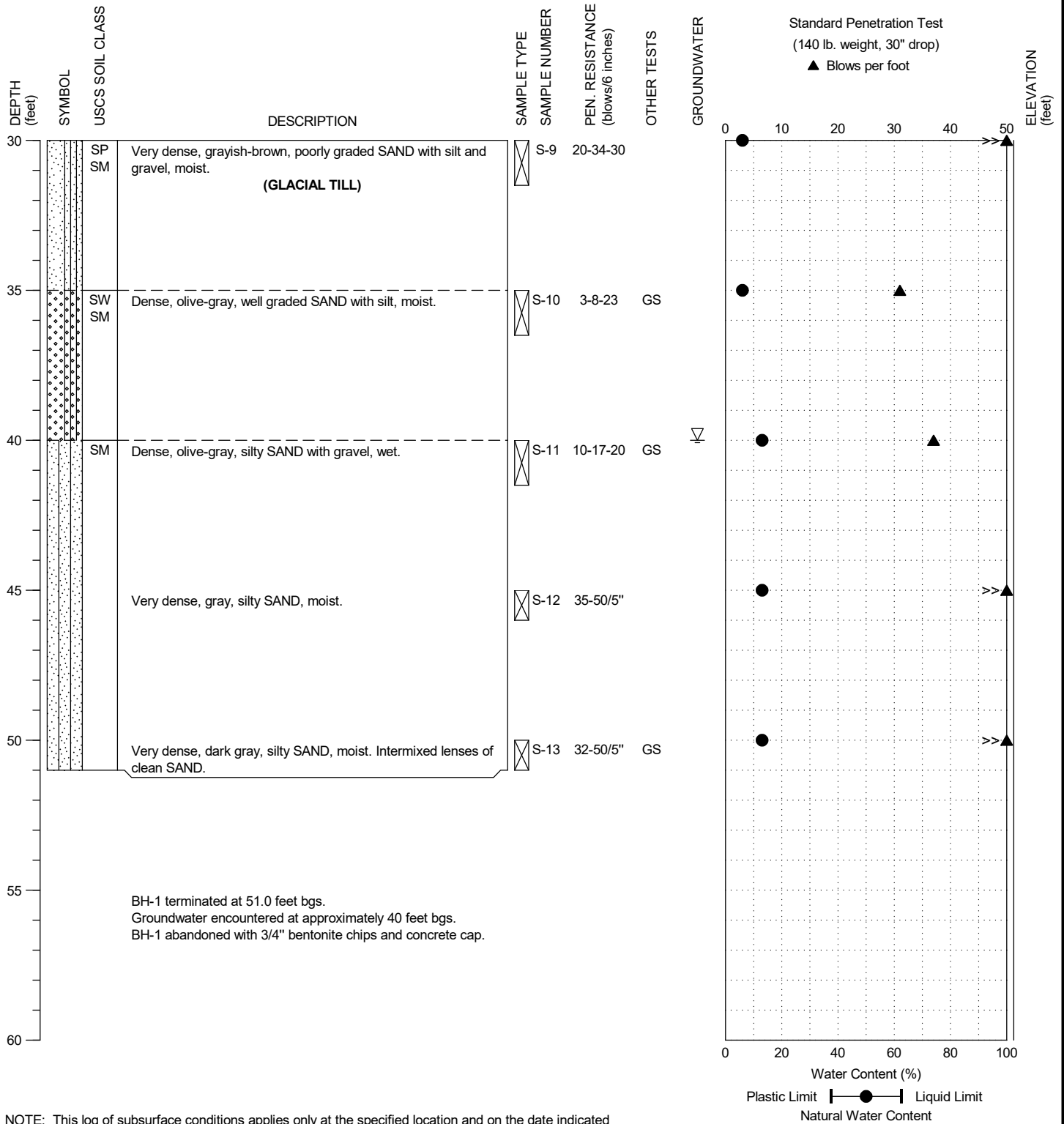
NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

BORING:
 BH- 1

PAGE: 1 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Truck Rig D-120
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679330, -122.190417

DATE STARTED: 12/13/2022
 DATE COMPLETED: 12/13/2022
 LOGGED BY: L. Cressler



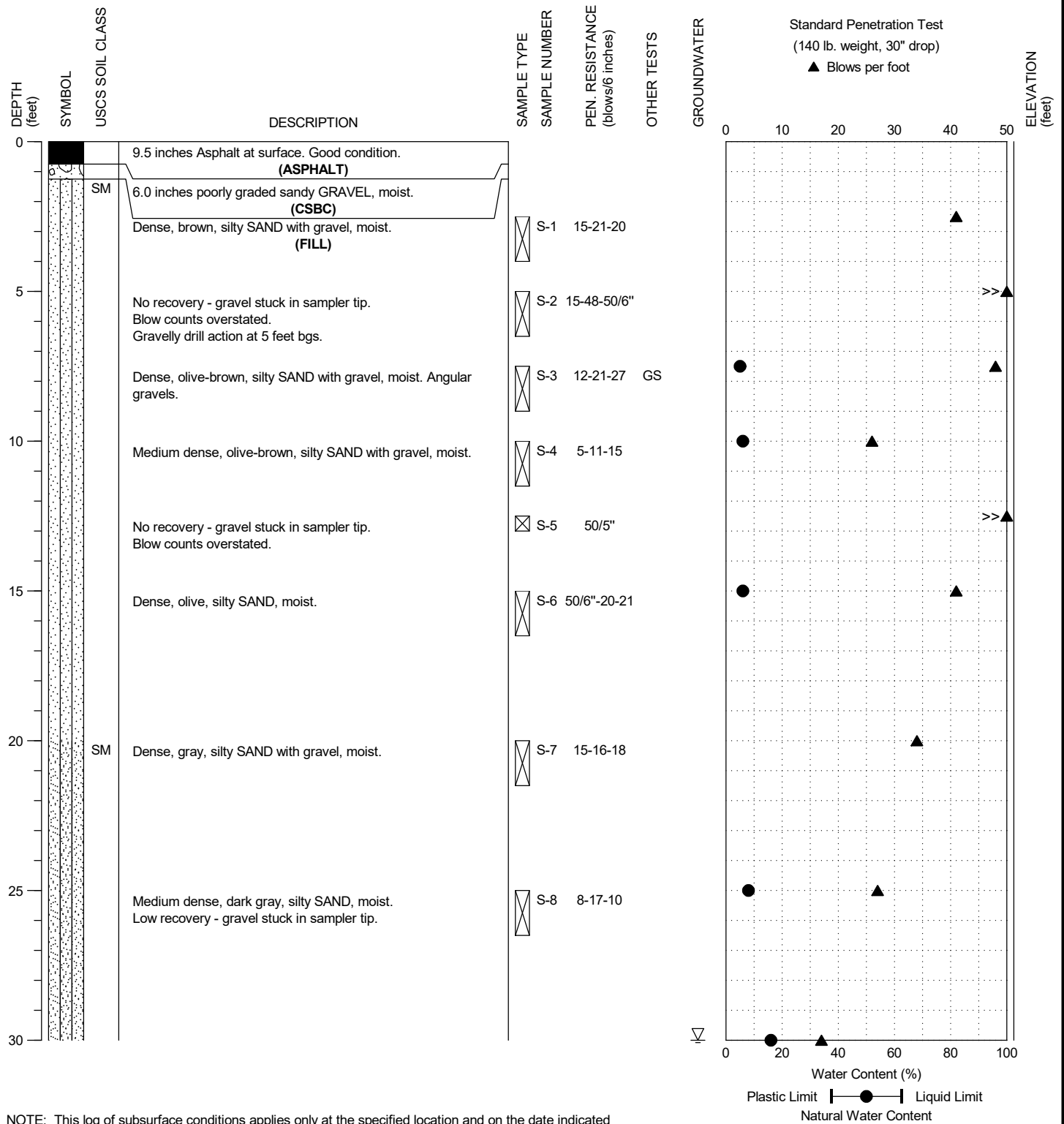
NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

BORING:
 BH- 1

PAGE: 2 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Truck Rig D-120
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679275, -122.189692

DATE STARTED: 12/13/2022
 DATE COMPLETED: 12/13/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



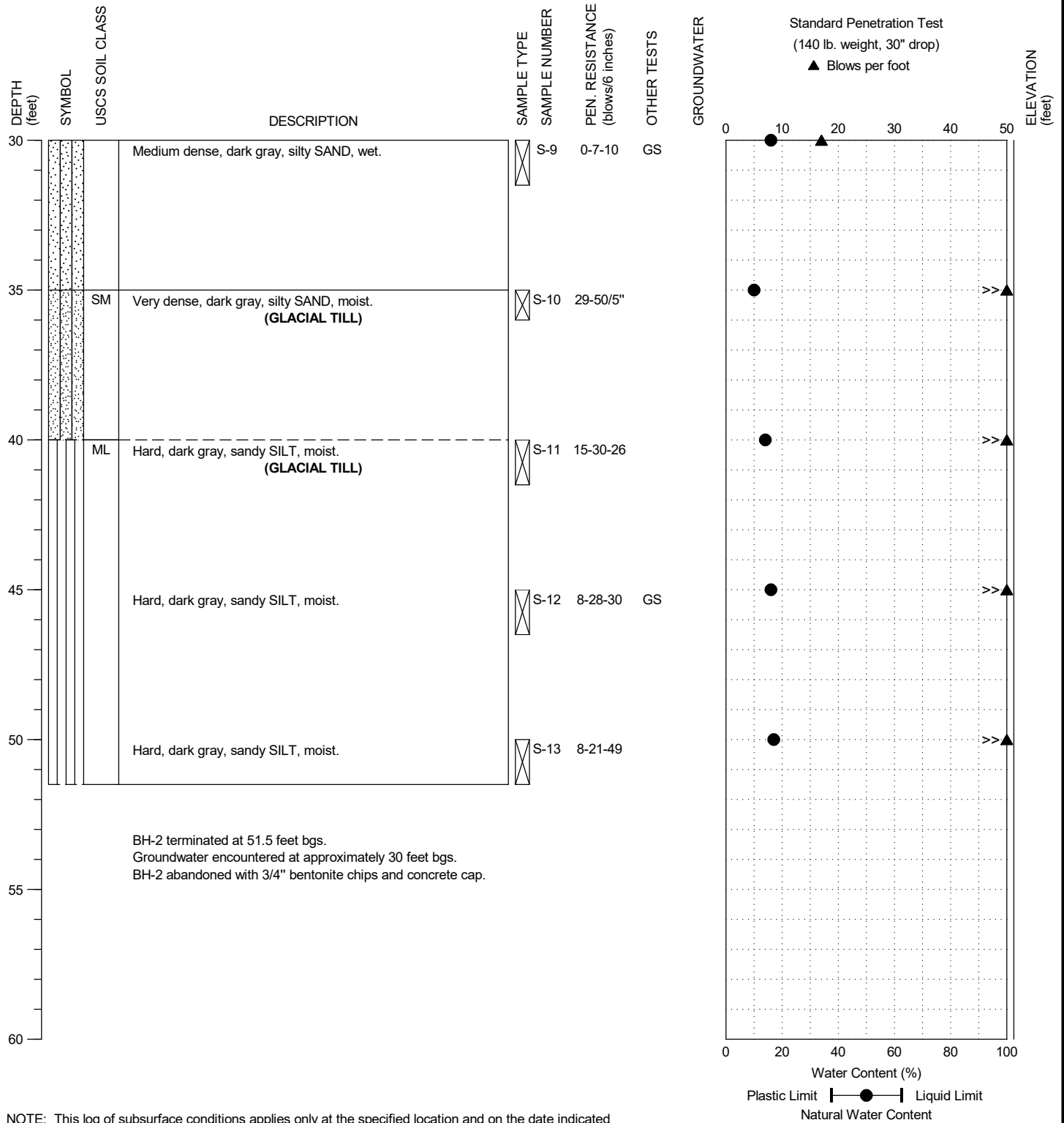
NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

BORING:
 BH- 2

PAGE: 1 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Truck Rig D-120
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679275, -122.189692

DATE STARTED: 12/13/2022
 DATE COMPLETED: 12/13/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

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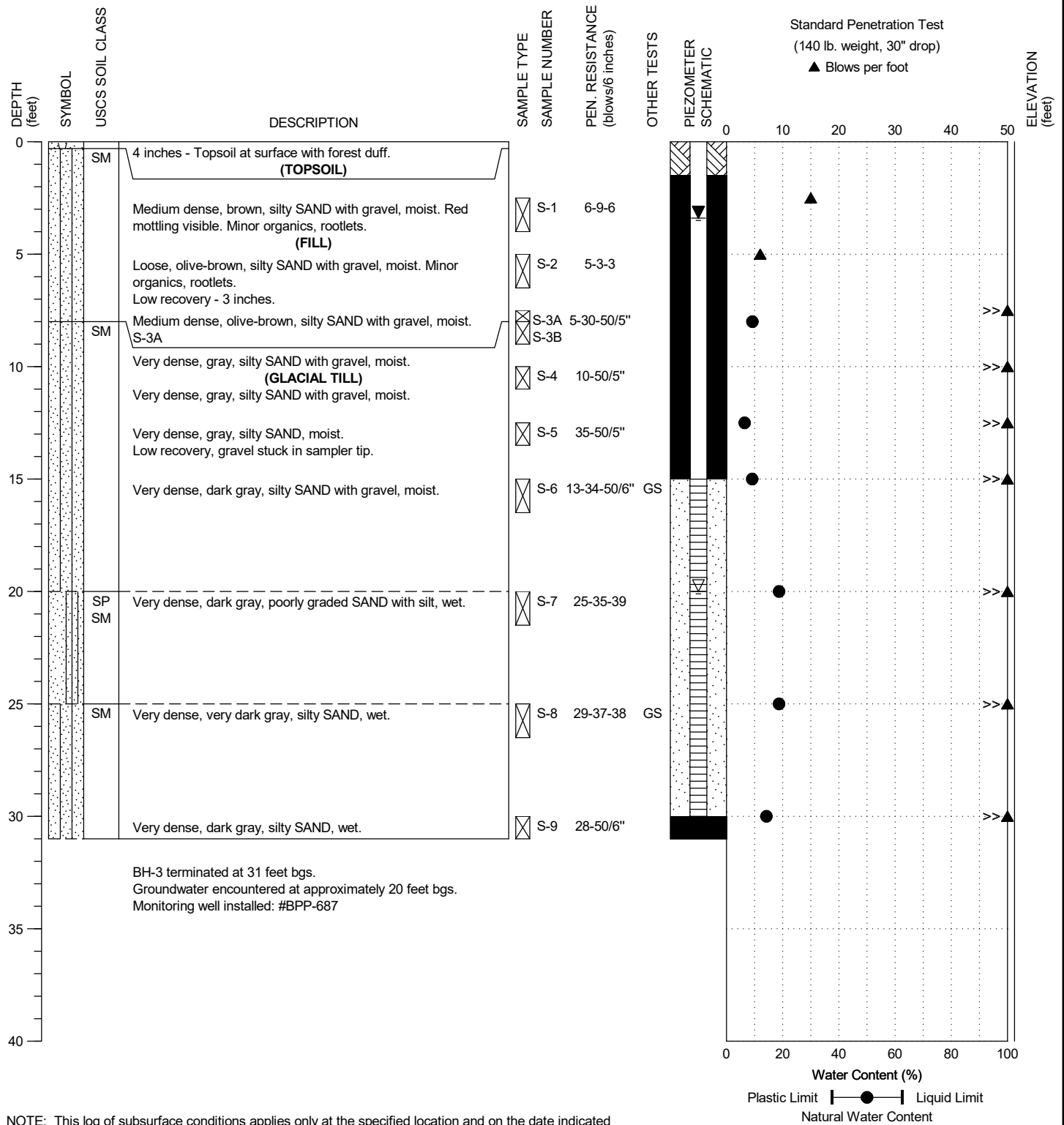
PROJECT NO.: 2022-044-21

FIGURE:

A-3

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Track Rig D-70
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679130, -122.190160

DATE STARTED: 12/14/2022
 DATE COMPLETED: 12/14/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

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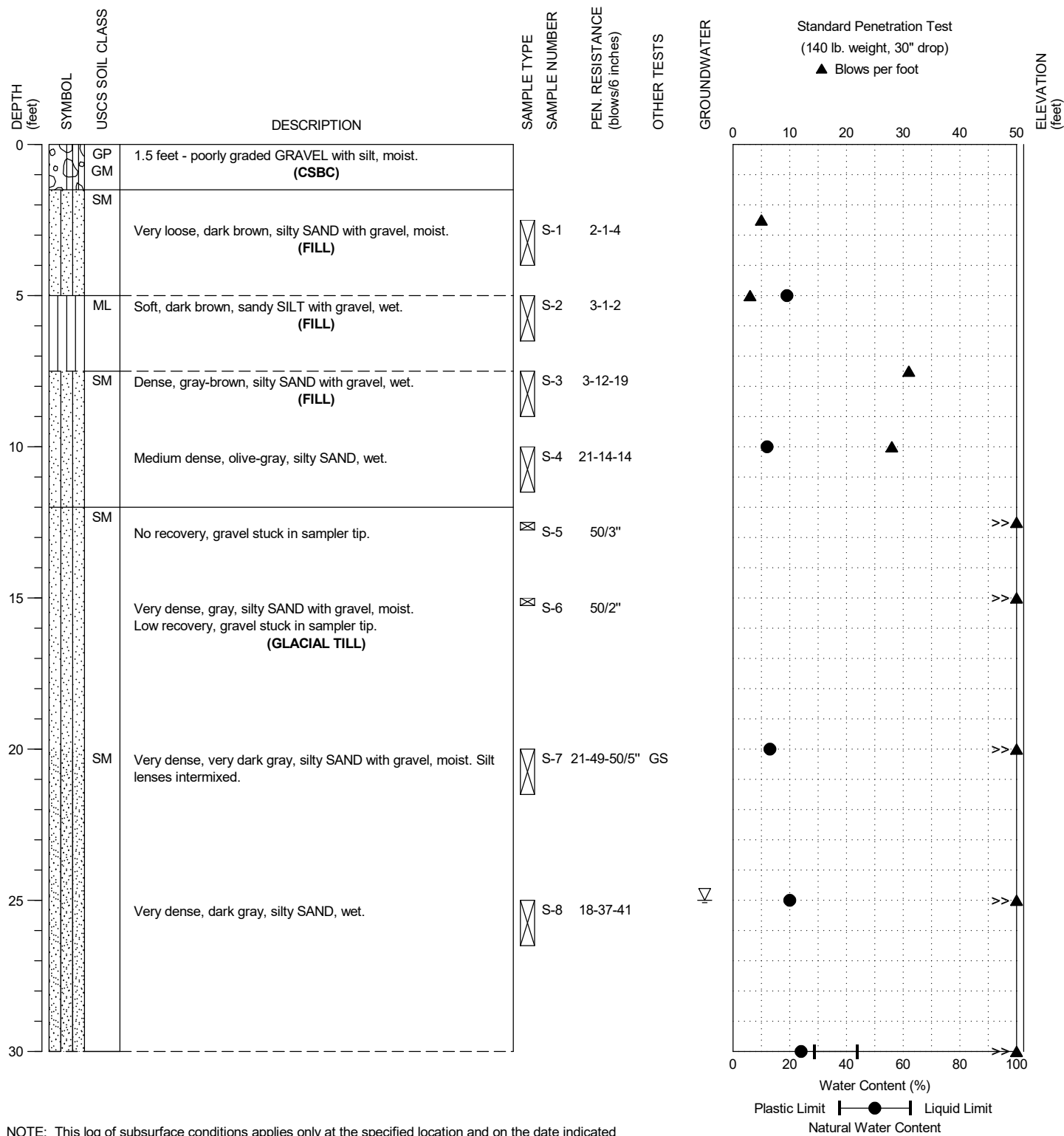
PROJECT NO.: 2022-044-21

FIGURE:

A-4

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Track Rig D-70
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679211, -122.190049

DATE STARTED: 12/14/2022
 DATE COMPLETED: 12/14/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



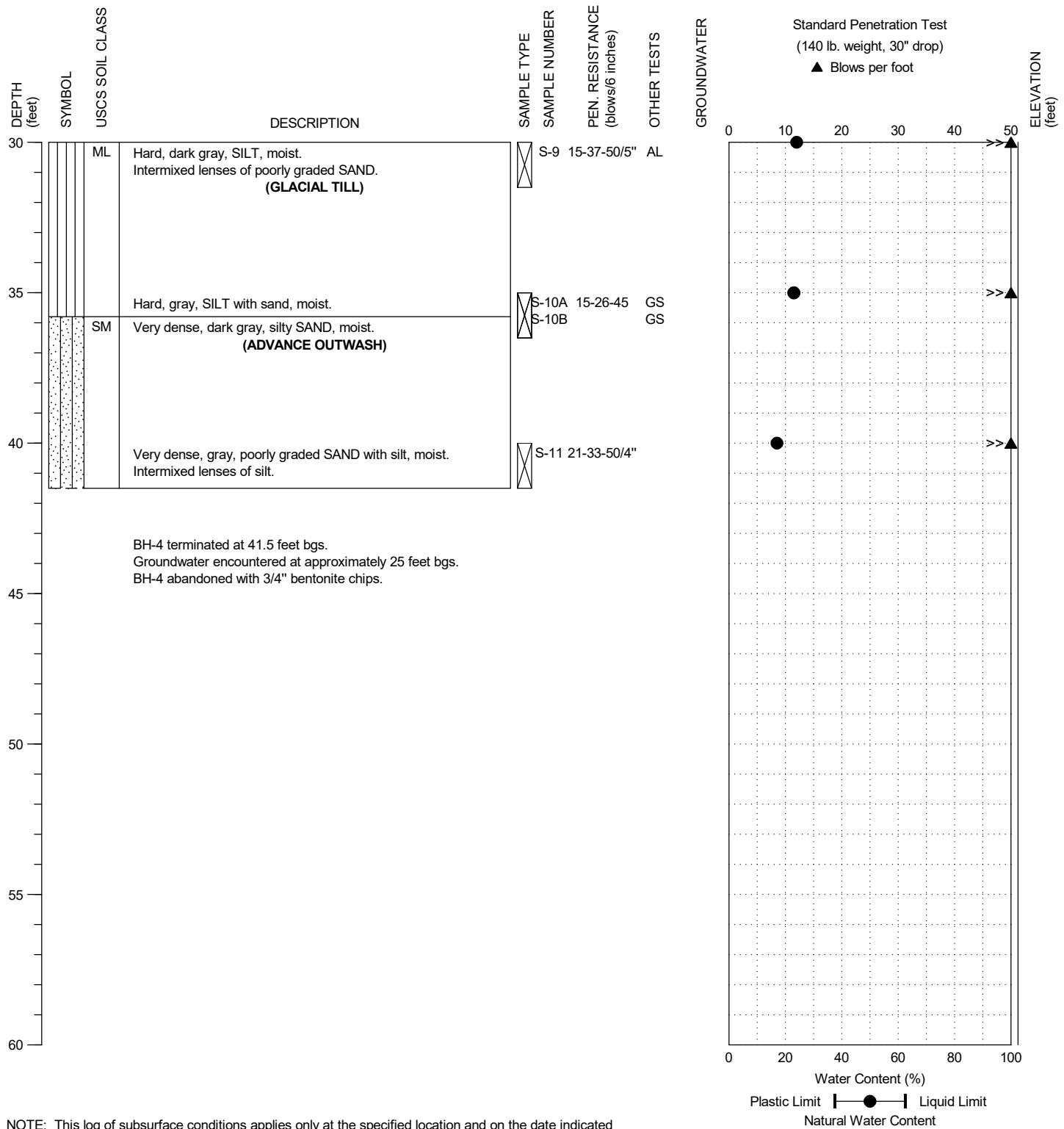
NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

BORING:
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PAGE: 1 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA-Track Rig D-70
 SAMPLING METHOD: SPT w/ Autohammer
 LOCATION: 47.679211, -122.190049

DATE STARTED: 12/14/2022
 DATE COMPLETED: 12/14/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

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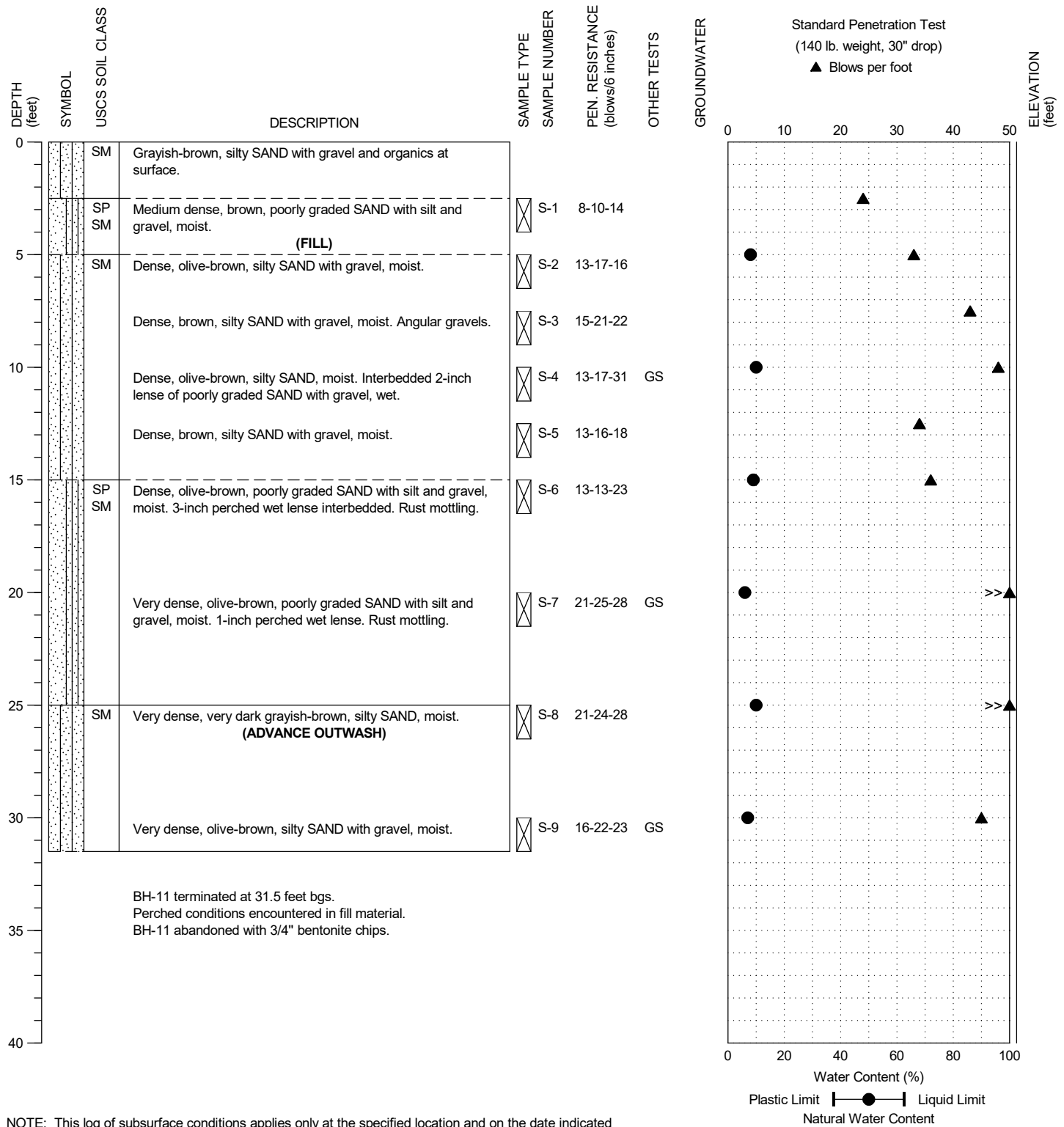
PROJECT NO.: 2022-044-21

FIGURE:

A-5

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679317, -122.191630

DATE STARTED: 1/10/2023
 DATE COMPLETED: 1/10/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



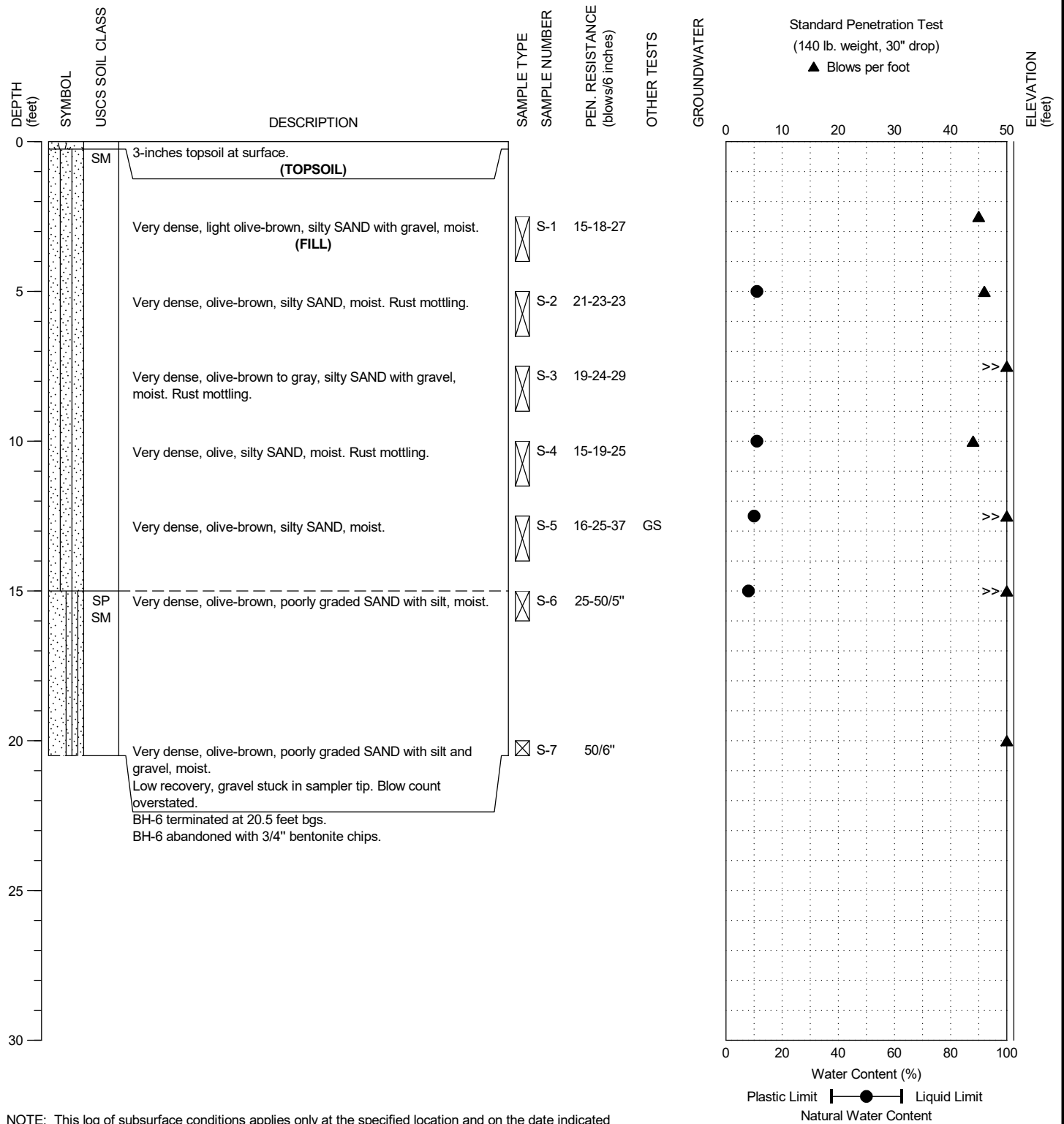
NE 85TH STREET
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 KIRKLAND, WASHINGTON

BORING:
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DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679263, -122.195139

DATE STARTED: 12/19/2022
 DATE COMPLETED: 12/19/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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 KIRKLAND, WASHINGTON

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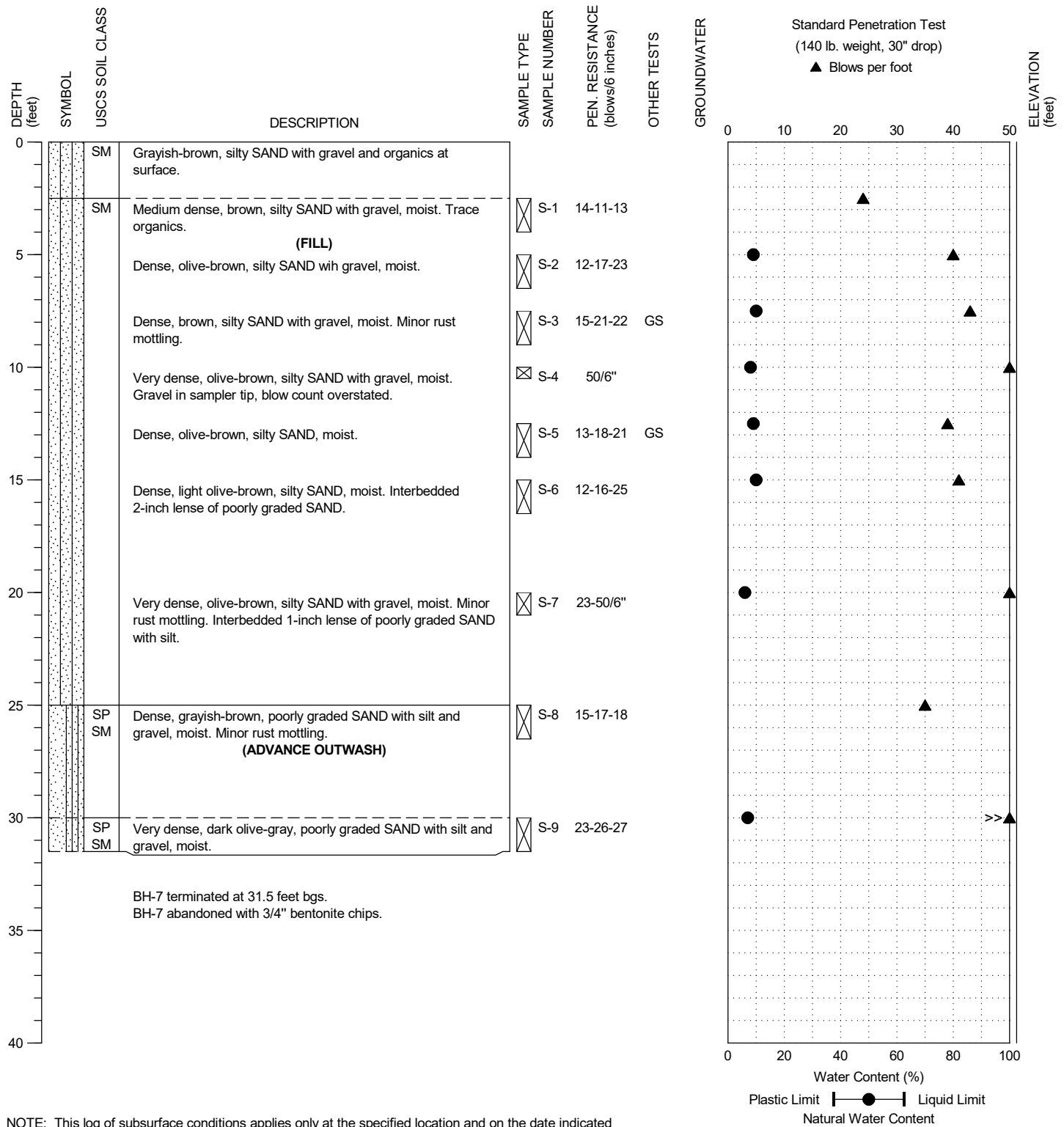
PROJECT NO.: 2022-044-21

FIGURE:

A-7

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679255, -122.192572

DATE STARTED: 1/10/2023
 DATE COMPLETED: 1/10/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



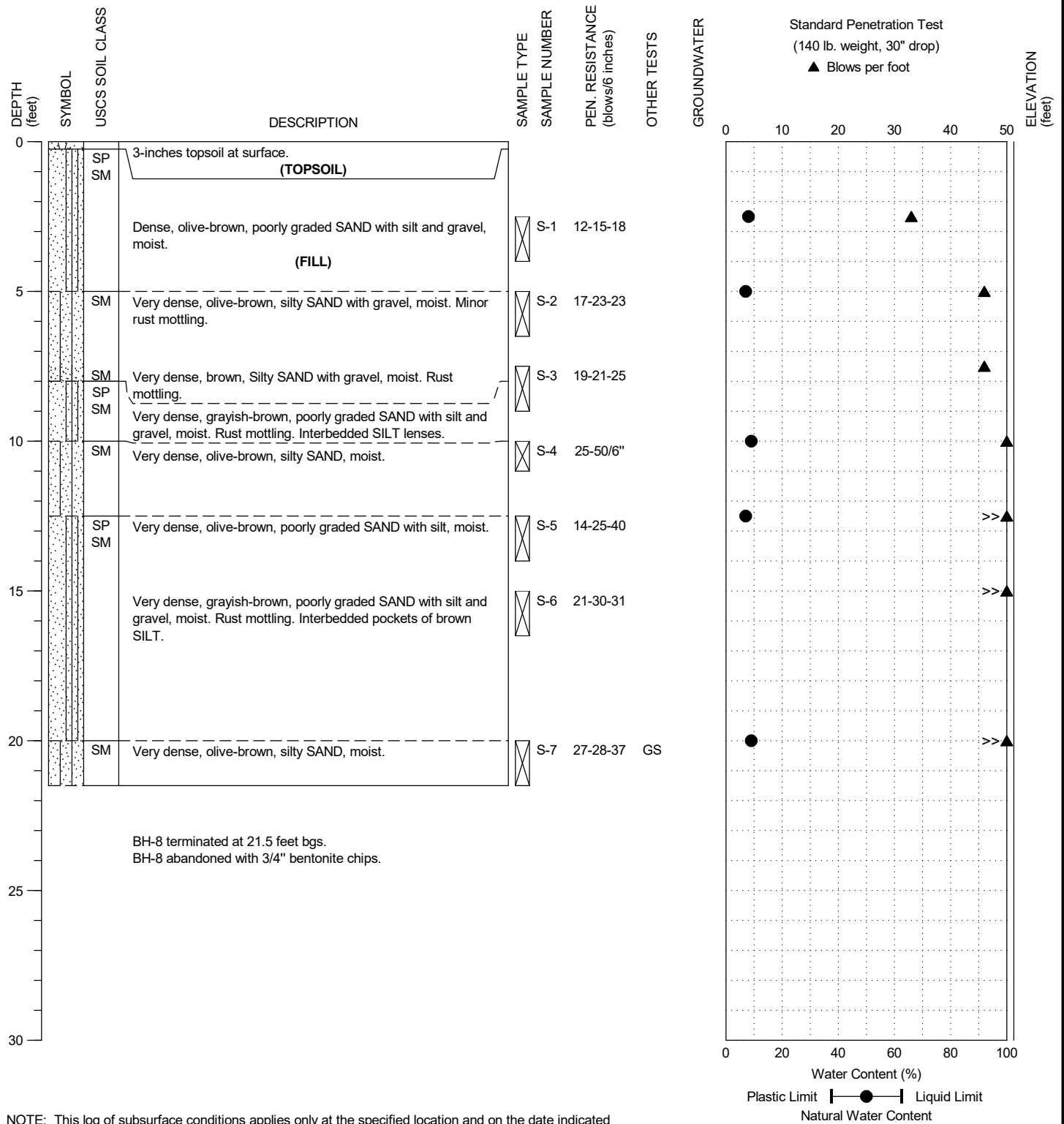
NE 85TH STREET
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DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679333, -122.194231

DATE STARTED: 12/19/2022
 DATE COMPLETED: 12/19/2022
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

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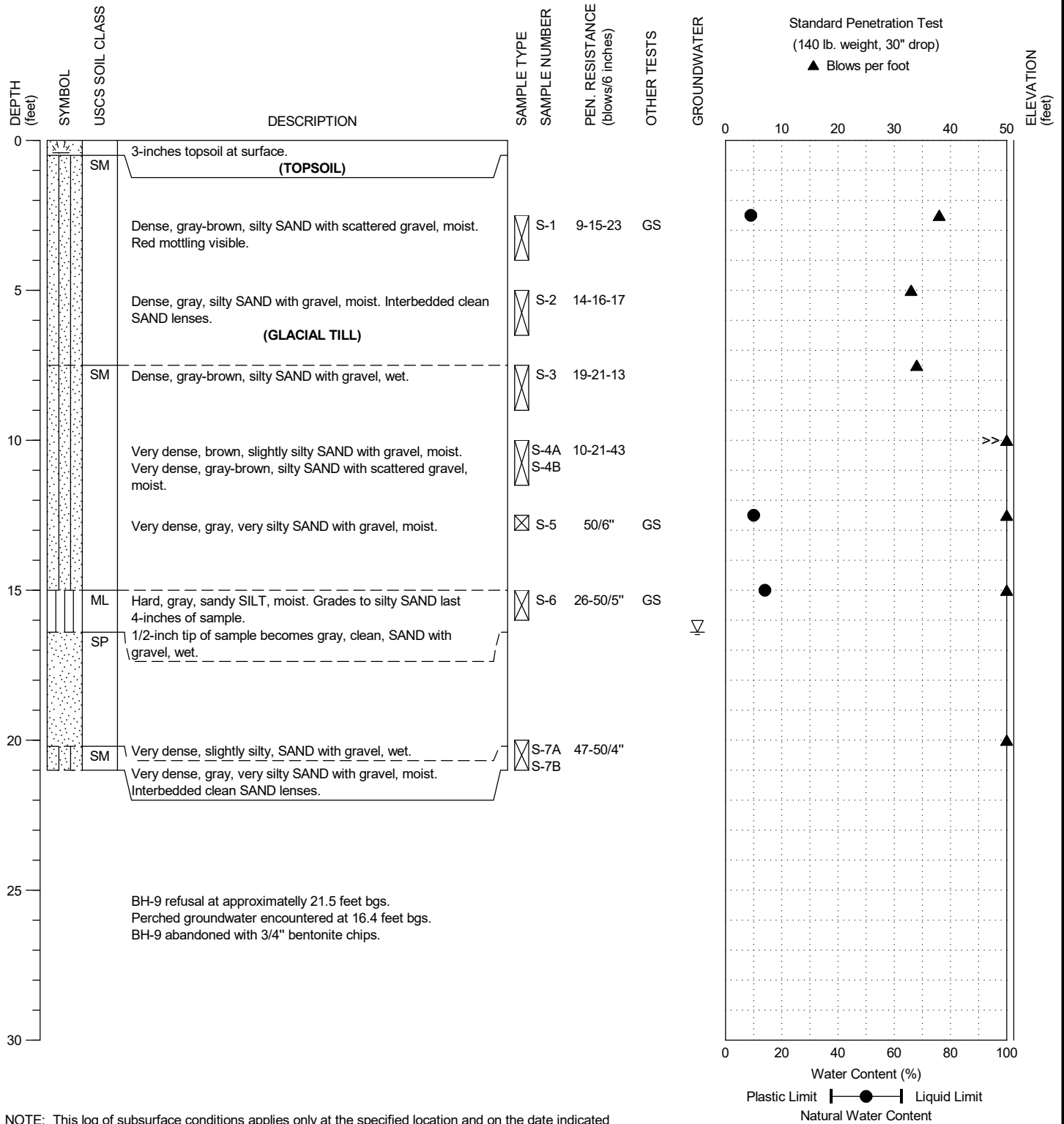
PROJECT NO.: 2022-044-21

FIGURE:

A-9

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679139, -122.188849

DATE STARTED: 4/25/2023
 DATE COMPLETED: 4/25/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

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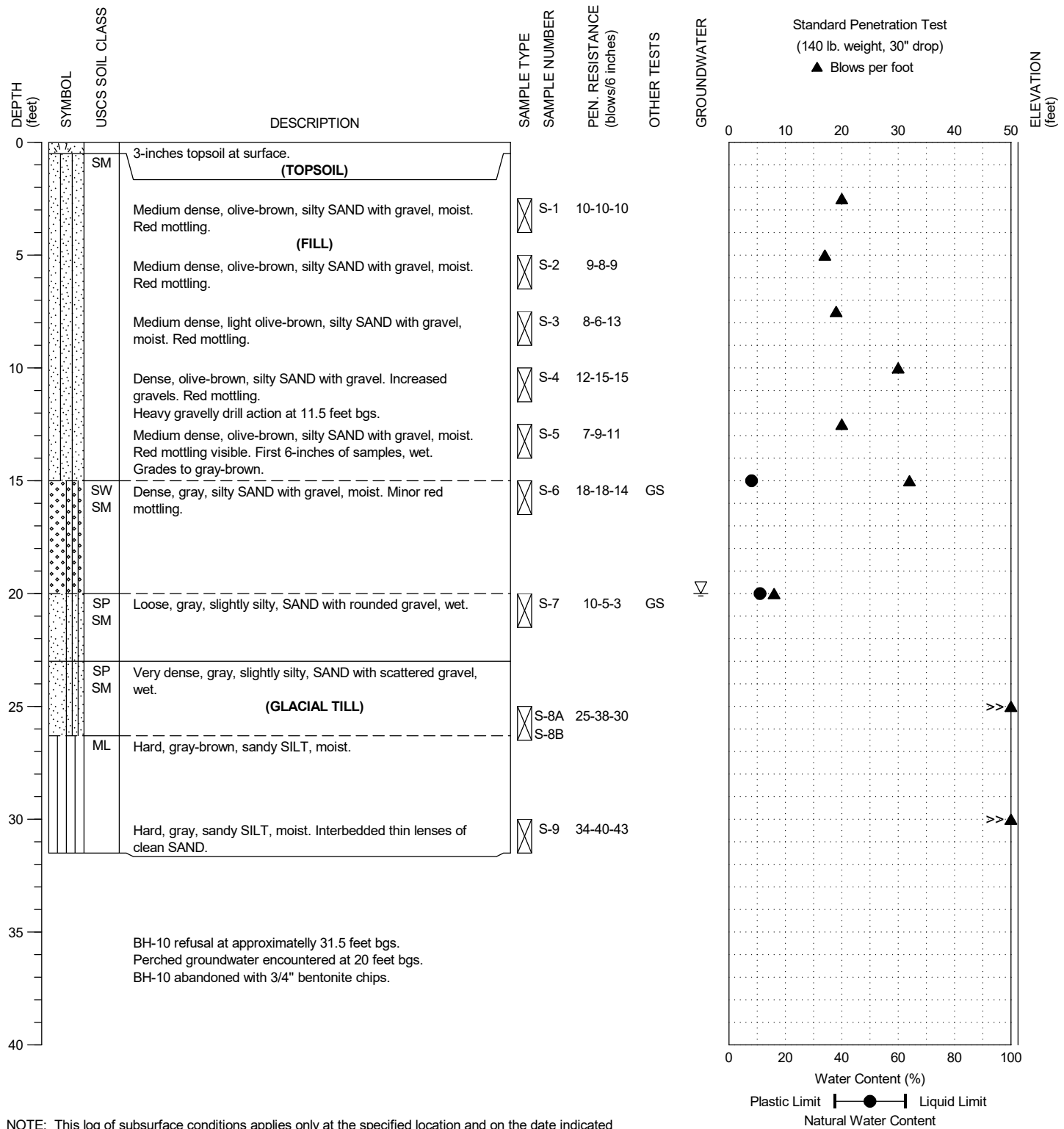
PROJECT NO.: 2022-044-21

FIGURE:

A-10

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679194, -122.189641

DATE STARTED: 4/25/2023
 DATE COMPLETED: 4/25/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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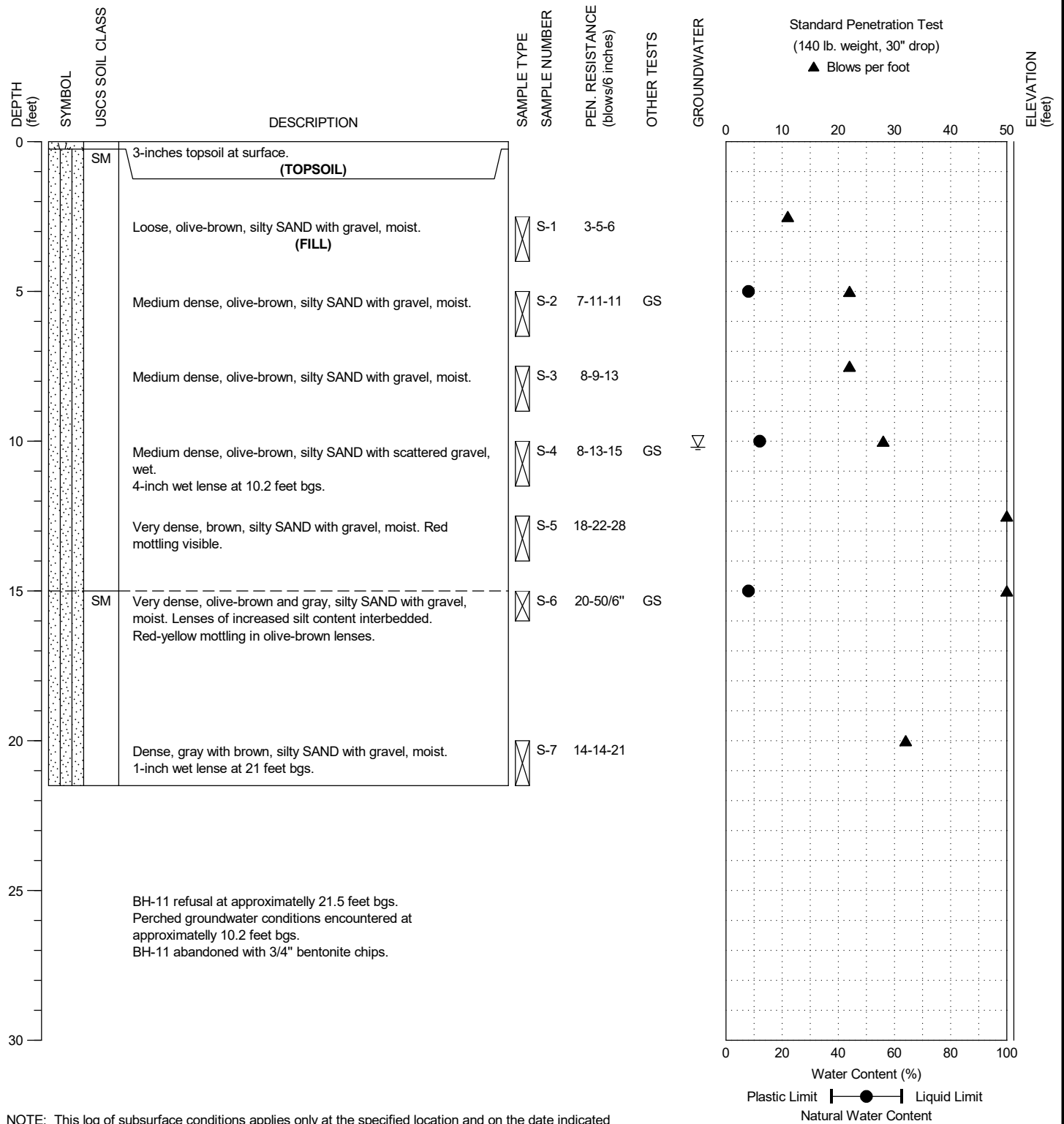
PROJECT NO.: 2022-044-21

FIGURE:

A-11

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679229, -122.190790

DATE STARTED: 4/24/2023
 DATE COMPLETED: 4/24/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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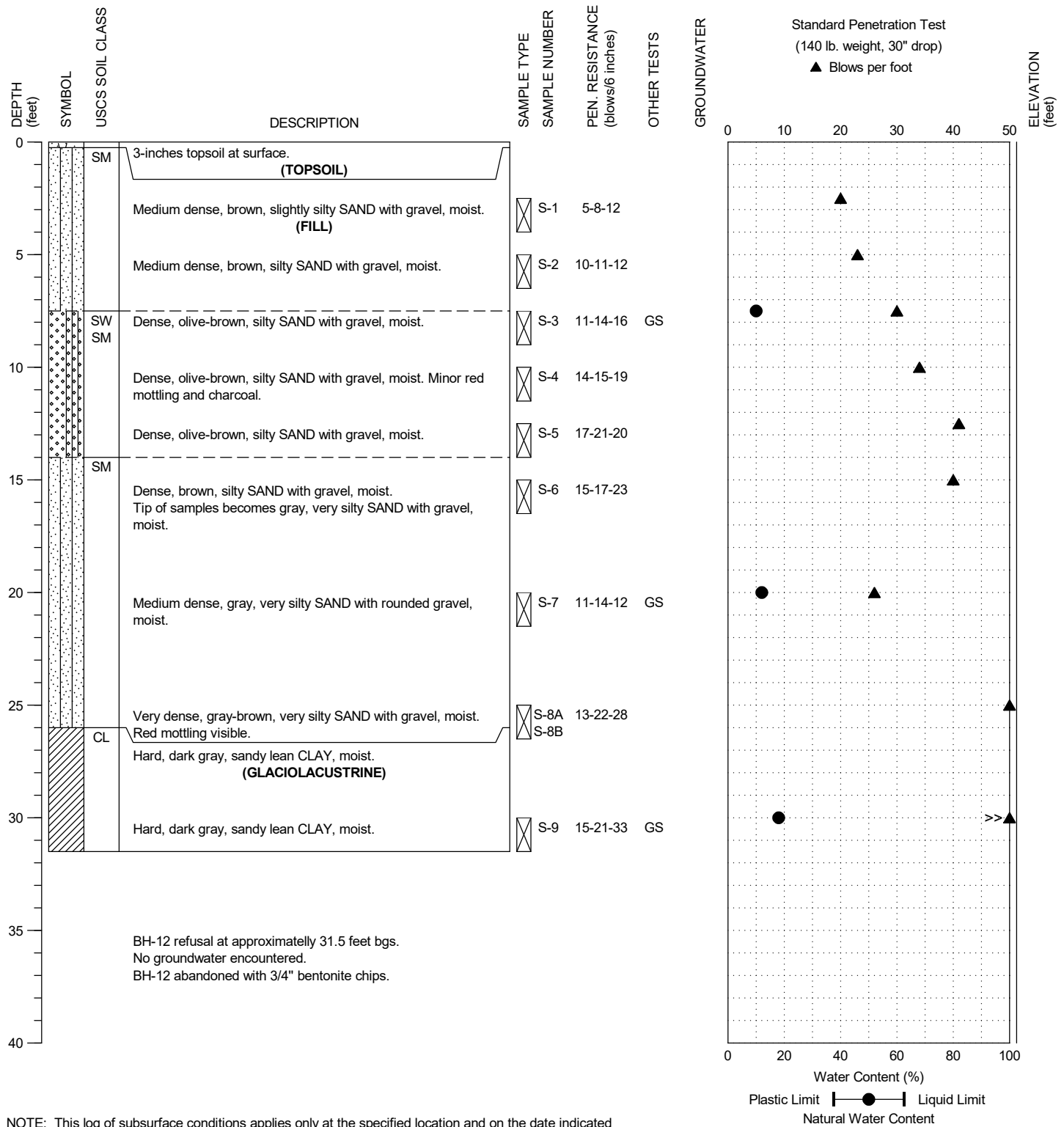
PROJECT NO.: 2022-044-21

FIGURE:

A-12

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679214, -122.195924

DATE STARTED: 4/24/2023
 DATE COMPLETED: 4/24/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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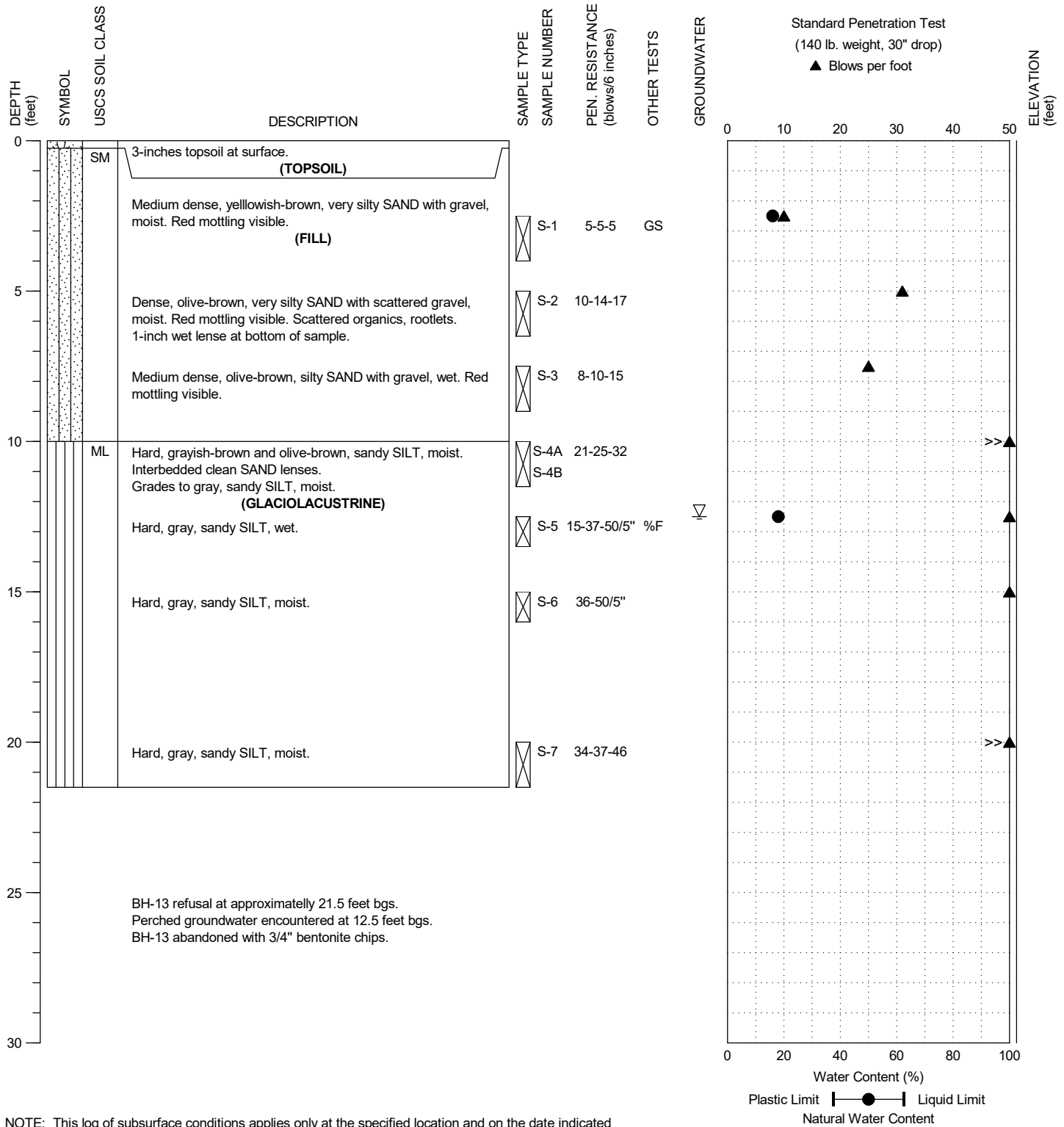
PROJECT NO.: 2022-044-21

FIGURE:

A-13

DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679149, -122.196696

DATE STARTED: 4/25/2023
 DATE COMPLETED: 4/25/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



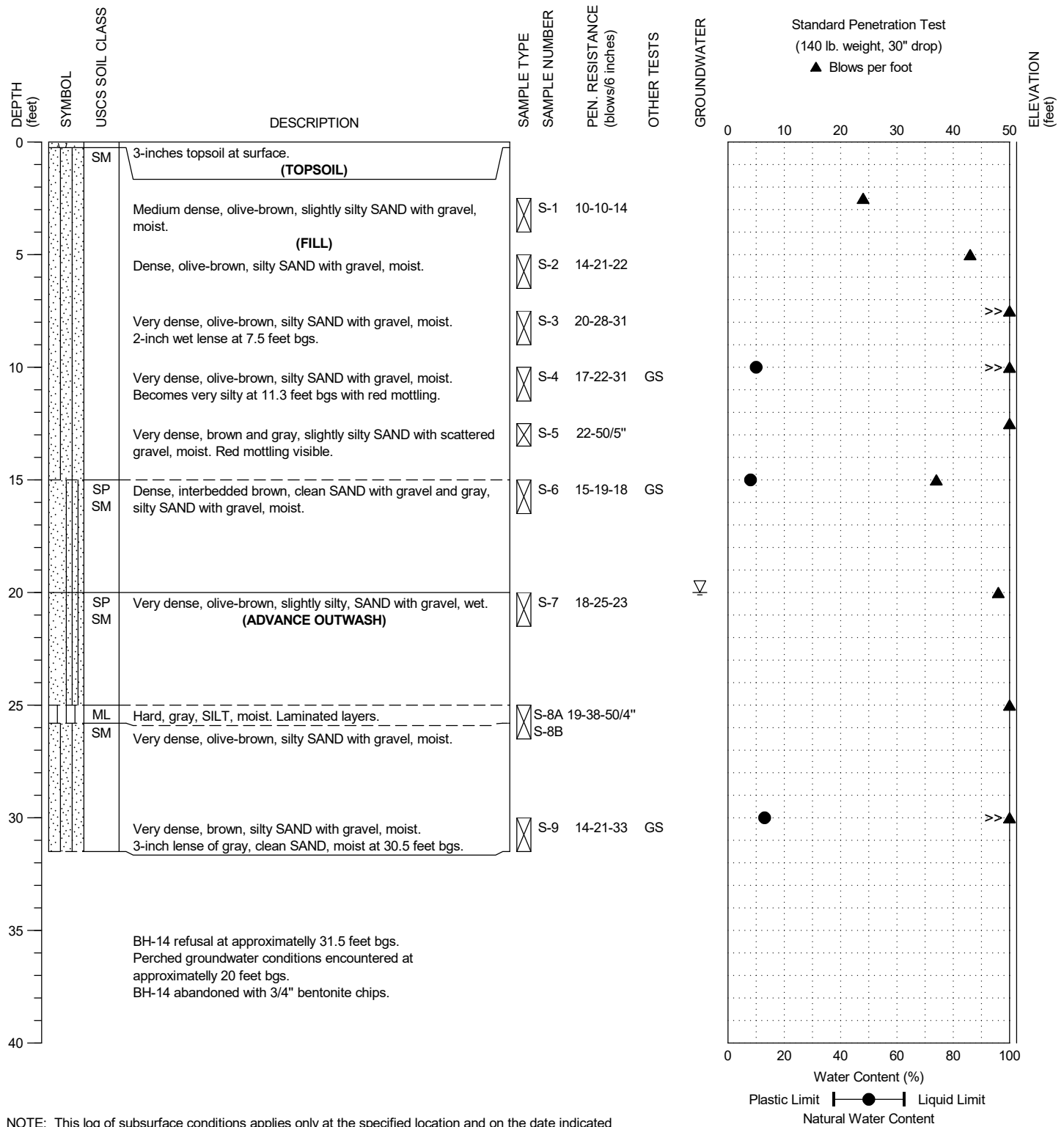
NE 85TH STREET
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DRILLING COMPANY: Geologic Drill Partners
 DRILLING METHOD: Mini-Bobcat Rig
 SAMPLING METHOD: SPT w/cathead
 LOCATION: 47.679333, -122.193375

DATE STARTED: 4/24/2023
 DATE COMPLETED: 4/24/2023
 LOGGED BY: L. Cressler



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



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FIGURE:

A-15

APPENDIX B

LABORATORY PROGRAM

APPENDIX B

LABORATORY PROGRAM

Representative soil samples obtained from our explorations were placed in plastic bags to prevent loss of moisture and transported to our Bothell, Washington, laboratory for further examination and testing. Laboratory tests were conducted on selected soil samples to characterize relevant engineering and index properties of the site soils. Laboratory testing was conducted as described below: A Summary of Material Properties is provided on [Figures B-1 and B-4](#).

MOISTURE CONTENT OF SOIL: Laboratory tests were conducted to determine the natural moisture content of selected soil samples, in general accordance with ASTM D-2216. Test results are indicated at the sampled intervals on the appropriate exploration logs in Appendix A and on the Summary of Materials Properties report, Figures B-1 through B-4.

PARTICLE SIZE ANALYSIS OF SOILS: Selected samples were tested to determine the particle size distribution of material in general accordance with ASTM 6913. The results are summarized on the attached Grain Size Distribution reports, [Figures B-5 through B-16](#), and provide information regarding the classification of the sample.

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS (ATTERBERG LIMITS): Selected samples were tested using method ASTM D 4318, multi-point method. The results are reported on the attached Liquid Limit, Plastic Limit, and Plasticity Index report, [Figure B-17](#).

EXPLORATION DESIGNATION	TOP DEPTH (feet)	BOTTOM DEPTH (feet)	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	SPECIFIC GRAVITY	ATTERBERG LIMITS (%)			% GRAVEL	% SAND	% FINES	ASTM SOIL CLASSIFICATION	SAMPLE DESCRIPTION
						LL	PL	PI					
BH- 1,S-2	5.0	6.5	4.6									SM	Olive-brown, silty SAND
BH- 1,S-3	7.5	9.0	8.6									SM	Dark olive-brown, silty SAND with gravel
BH- 1,S-4	10.0	11.5	6.7					26.3	60.3	13.4		SM	Olive-brown, silty SAND with gravel
BH- 1,S-6	15.0	16.5	7.7									SM	Olive-brown, silty SAND
BH- 1,S-8	25.0	26.5	10.4									SM	Dark gray, silty SAND
BH- 1,S-9	30.0	31.5	5.7									SP-SM	Grayish-brown, poorly graded SAND with silt and gravel
BH- 1,S-10	35.0	36.5	5.9					12.1	78.4	9.5		SW-SM	Olive-gray, well-graded SAND with silt
BH- 1,S-11	40.0	41.5	13.2					15.0	67.1	17.9		SM	Olive-gray, silty SAND with gravel
BH- 1,S-12	45.0	46.0	13.2									SM	Gray, silty SAND
BH- 1,S-13	50.0	51.0	12.5					7.4	67.0	25.6		SM	Dark gray, silty SAND
BH- 2,S-3	7.5	9.0	4.6					35.6	49.5	14.9		SM	Olive, silty SAND with gravel
BH- 2,S-4	10.0	11.5	5.6									SM	Olive-brown, silty SAND with gravel
BH- 2,S-6	15.0	16.5	6.2									SM	Olive, silty SAND
BH- 2,S-8	25.0	26.5	8.2									SM	Dark gray, silty SAND
BH- 2,S-9	30.0	31.5	15.5					14.2	65.8	20.0		SM	Dark gray, silty SAND
BH- 2,S-10	35.0	36.0	10.0									SM	Dark gray, silty SAND
BH- 2,S-11	40.0	41.5	13.8									ML	Dark gray, sandy SILT
BH- 2,S-12	45.0	46.5	15.9					1.2	43.8	54.9		ML	Dark gray, sandy SILT
BH- 2,S-13	50.0	51.5	16.8									ML	Dark gray, sandy SILT
BH- 3,S-3B	8.0	9.0	9.2									SM	Dark gray, silty SAND

Notes: 1. This table summarizes information presented elsewhere in the report and should be used in conjunction with the report test, other graphs and tables, and the exploration logs.
2. The soil classifications in this table are based on ASTM D2487 and D2488 as applicable.



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FIGURE: B-1

EXPLORATION DESIGNATION	TOP DEPTH (feet)	BOTTOM DEPTH (feet)	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	SPECIFIC GRAVITY	ATTERBERG LIMITS (%)			% GRAVEL	% SAND	% FINES	ASTM SOIL CLASSIFICATION	SAMPLE DESCRIPTION
						LL	PL	PI					
BH- 3,S-5	12.5	13.5	6.4									SM	Dark gray, silty SAND
BH- 3,S-6	15.0	16.5	9.1					21.7	45.6	32.7		SM	Dark gray, silty SAND with gravel
BH- 3,S-7	20.0	21.5	18.7									SP-SM	Dark gray, poorly graded SAND with silt
BH- 3,S-8	25.0	26.5	18.7						86.8	13.2		SM	Very dark gray, silty SAND
BH- 3,S-9	30.0	31.0	14.2									SM	Dark gray, silty SAND
BH- 4,S-2	5.0	6.5	18.7									ML	Dark brown, sandy SILT
BH- 4,S-4	10.0	11.5	12.1									SM	Olive-gray, silty SAND
BH- 4,S-7	20.0	21.5	12.7					8.4	57.2	34.4		SM	Very dark gray, silty SAND
BH- 4,S-8	25.0	26.5	19.6									SM	Dark gray, silty SAND
BH- 4,S-9	30.0	31.5	24.3			44	29	15				ML	Dark gray, SILT
BH- 4,S-10A	35.0	36.5	23.1						0.4	24.8	74.8	ML	Gray, SILT with sand
BH- 4,S-10B	35.0	36.5	23.2							84.7	15.3	SM	Dark gray, silty SAND
BH- 4,S-11	40.0	41.5	17.3									ML	Dark gray, sandy SILT
BH- 5,S-2	5.0	6.5	8.0									SM	Olive-brown, silty SAND with gravel
BH- 5,S-4	10.0	11.5	10.5					14.1	72.9	13.0		SM	Olive-brown, silty SAND
BH- 5,S-6	15.0	16.5	9.2									SP-SM	Olive-brown, poorly graded SAND with silt and gravel
BH- 5,S-7	20.0	21.5	6.5					33.5	58.6	7.9		SP-SM	Olive-brown, poorly graded SAND with silt and gravel
BH- 5,S-8	25.0	26.5	10.2									SM	Very dark grayish-brown, silty SAND
BH- 5,S-9	30.0	31.5	7.0					18.2	66.6	15.2		SM	Olive-brown, silty SAND with gravel
BH- 6,S-2	5.0	6.5	11.1									SM	Olive-brown, silty SAND

Notes: 1. This table summarizes information presented elsewhere in the report and should be used in conjunction with the report test, other graphs and tables, and the exploration logs.
2. The soil classifications in this table are based on ASTM D2487 and D2488 as applicable.



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FIGURE: B-2

EXPLORATION DESIGNATION	TOP DEPTH (feet)	BOTTOM DEPTH (feet)	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	SPECIFIC GRAVITY	ATTERBERG LIMITS (%)			% GRAVEL	% SAND	% FINES	ASTM SOIL CLASSIFICATION	SAMPLE DESCRIPTION
						LL	PL	PI					
BH- 6,S-4	10.0	11.5	10.9									SM	Olive, silty SAND
BH- 6,S-5	12.5	14.0	9.9					12.0	71.9	16.1		SM	Olive-brown, silty SAND
BH- 6,S-6	15.0	16.0	8.0									SP-SM	Olive-brown, poorly graded SAND with silt
BH- 7,S-2	5.0	6.5	9.2									SM	Olive-brown, silty SAND with gravel
BH- 7,S-3	7.5	9.0	10.0					15.0	65.9	19.1		SM	Olive-brown, silty SAND with gravel
BH- 7,S-4	10.0	10.5	7.7									SM	Olive-brown, silty SAND with gravel
BH- 7,S-5	12.5	14.0	9.2					13.2	68.8	18.0		SM	Olive-brown, silty SAND
BH- 7,S-6	15.0	16.5	10.0									SM	Light olive-brown, silty SAND
BH- 7,S-7	20.0	21.0	6.0									SM	Olive-brown, silty SAND with gravel
BH- 7,S-9	30.0	31.5	6.9									SP-SM	Dark olive-gray, poorly graded SAND with silt and gravel
BH- 8,S-1	2.5	4.0	8.0									SP-SM	Olive-brown, poorly graded SAND with silt and gravel
BH- 8,S-2	5.0	6.5	7.2									SM	Olive-brown, silty SAND with gravel
BH- 8,S-4	10.0	11.0	9.0									SM	Olive-brown, silty SAND
BH- 8,S-5	12.5	14.0	7.4									SP-SM	Olive-brown, poorly graded SAND with silt
BH- 8,S-7	20.0	21.5	8.9					8.5	78.8	12.7		SM	Olive-brown, silty SAND
BH- 9,S-1	2.5	4.0	8.5					7.6	72.1	20.3		SM	Light olive-brown, silty SAND
BH- 9,S-5	12.5	13.0	10.4					3.4	56.2	40.4		SM	Dark gray, silty SAND
BH- 9,S-6	15.0	16.0	14.2					3.2	20.8	76.0		ML	Gray, SILT with sand
BH-10,S-7	20.0	21.5	11.0					26.0	61.0	13.0		SM	Dark gray, silty SAND with gravel
BH-11,S-2	5.0	6.5	8.1					7.4	78.8	13.7		SM	Dark yellowish-brown, silty SAND

Notes: 1. This table summarizes information presented elsewhere in the report and should be used in conjunction with the report test, other graphs and tables, and the exploration logs.
2. The soil classifications in this table are based on ASTM D2487 and D2488 as applicable.



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KIRKLAND, WASHINGTON

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FIGURE: B-3

EXPLORATION DESIGNATION	TOP DEPTH (feet)	BOTTOM DEPTH (feet)	MOISTURE CONTENT (%)	ORGANIC CONTENT (%)	SPECIFIC GRAVITY	ATTERBERG LIMITS (%)			% GRAVEL	% SAND	% FINES	ASTM SOIL CLASSIFICATION	SAMPLE DESCRIPTION
						LL	PL	PI					
BH-11,S-4	10.0	11.5	11.6						2.0	84.6	13.4	SM	Dark olive-brown, silty SAND
BH-11,S-6	15.0	16.0	8.0						12.1	67.7	20.1	SM	Olive-brown, silty SAND
BH-12,S-3	7.5	9.0	10.3						11.6	76.9	11.5	SW-SM	Olive-brown, well-graded SAND with silt
BH-12,S-7	20.0	21.5	11.6						24.6	50.4	25.1	SM	Dark gray, silty SAND with gravel
BH-12,S-9	30.0	31.5	17.9						1.5	19.5	79.0	CL	Very dark gray, lean CLAY with sand
BH-13,S-1	2.5	4.0	16.1						14.7	53.8	31.5	SM	Light olive-brown, silty SAND
BH-13,S-5	12.5	13.5	18.4								88.5	ML	Dark gray, SILT
BH-14,S-4	10.0	11.5	9.5						19.3	62.0	18.7	SM	Olive-brown, silty SAND with gravel
BH-14,S-6	15.0	16.5	8.0						28.5	58.3	13.3	SM	Dark grayish-brown, silty SAND with gravel
BH-14,S-9	30.0	31.5	13.3						13.2	60.0	26.8	SM	Very dark gray, silty SAND

Notes: 1. This table summarizes information presented elsewhere in the report and should be used in conjunction with the report test, other graphs and tables, and the exploration logs.
2. The soil classifications in this table are based on ASTM D2487 and D2488 as applicable.



NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

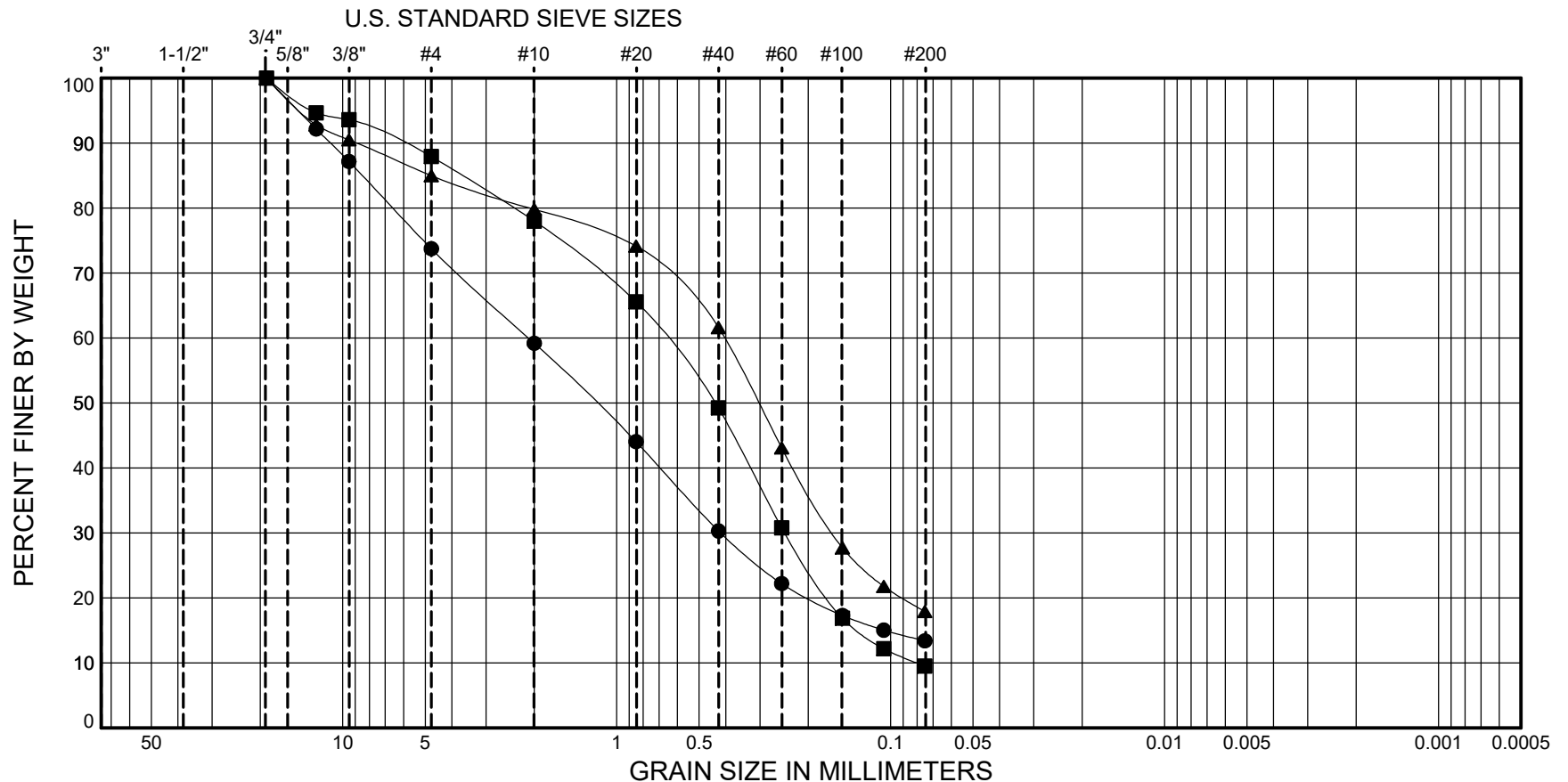
SUMMARY OF
MATERIAL PROPERTIES

PAGE: 4 of 4

PROJECT NO.: 2022-044-21

FIGURE: B-4

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 1	S-4	10.0 - 11.5	(SM) Olive-brown, silty SAND with gravel	7				26.3	60.3	13.4
■	BH- 1	S-10	35.0 - 36.5	(SW-SM) Olive-gray, well-graded SAND with silt	6				12.1	78.4	9.5
▲	BH- 1	S-11	40.0 - 41.5	(SM) Olive-gray, silty SAND with gravel	13				15.0	67.1	17.9



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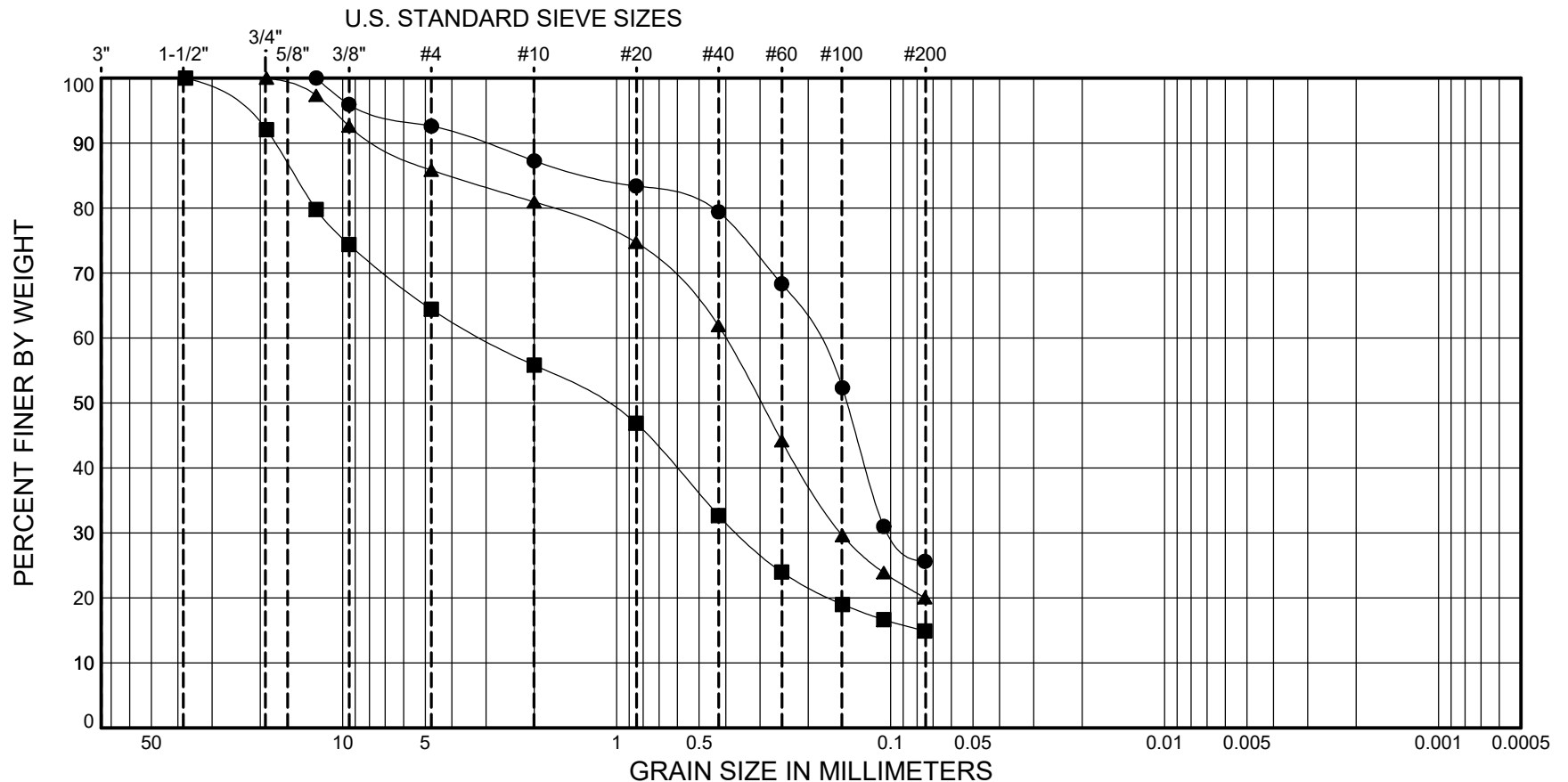
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-5

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 1	S-13	50.0 - 51.0	(SM) Dark gray, silty SAND	13				7.4	67.0	25.6
■	BH- 2	S-3	7.5 - 9.0	(SM) Olive, silty SAND with gravel	5				35.6	49.5	14.9
▲	BH- 2	S-9	30.0 - 31.5	(SM) Dark gray, silty SAND	16				14.2	65.8	20.0



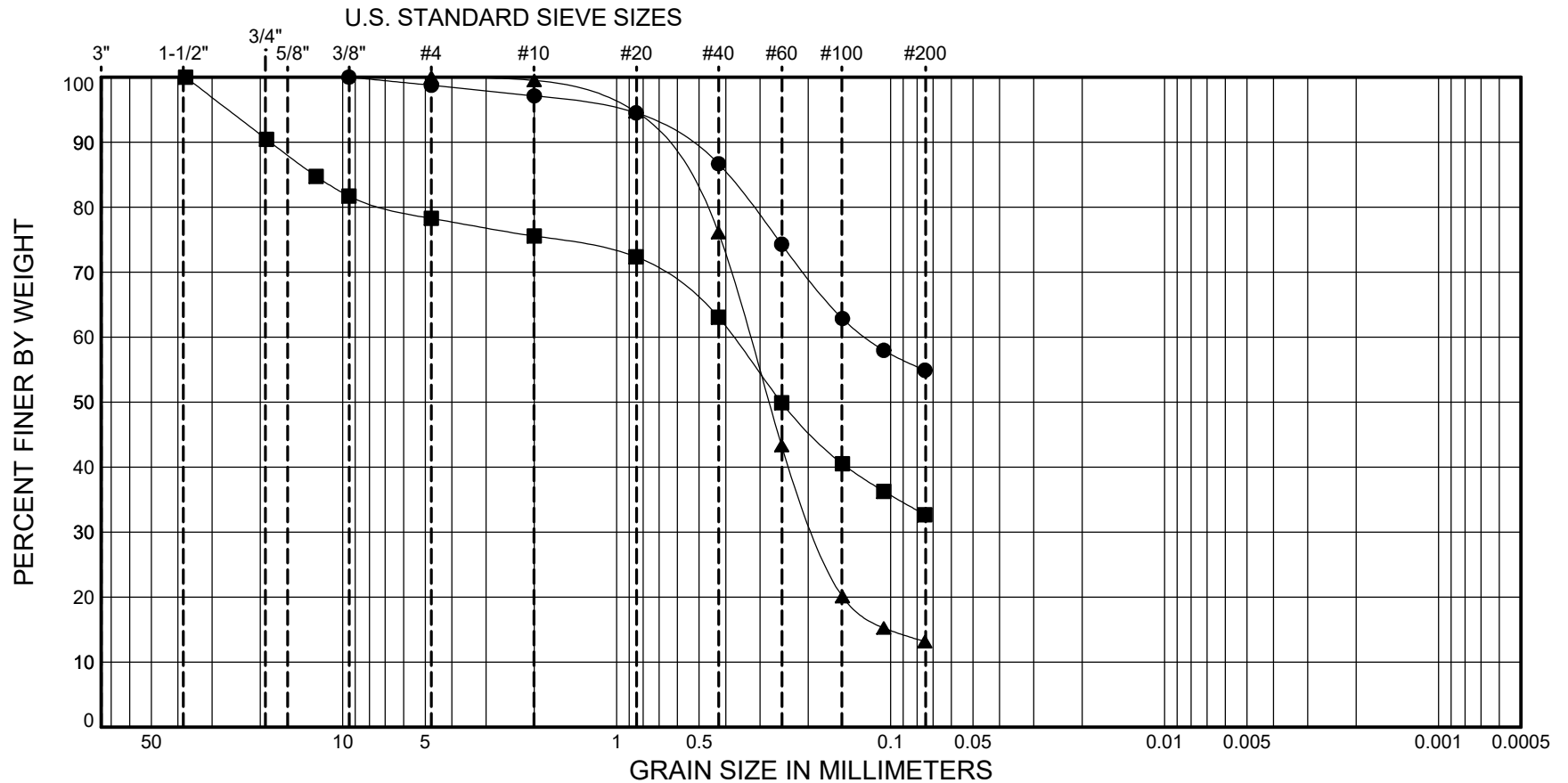
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-6

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



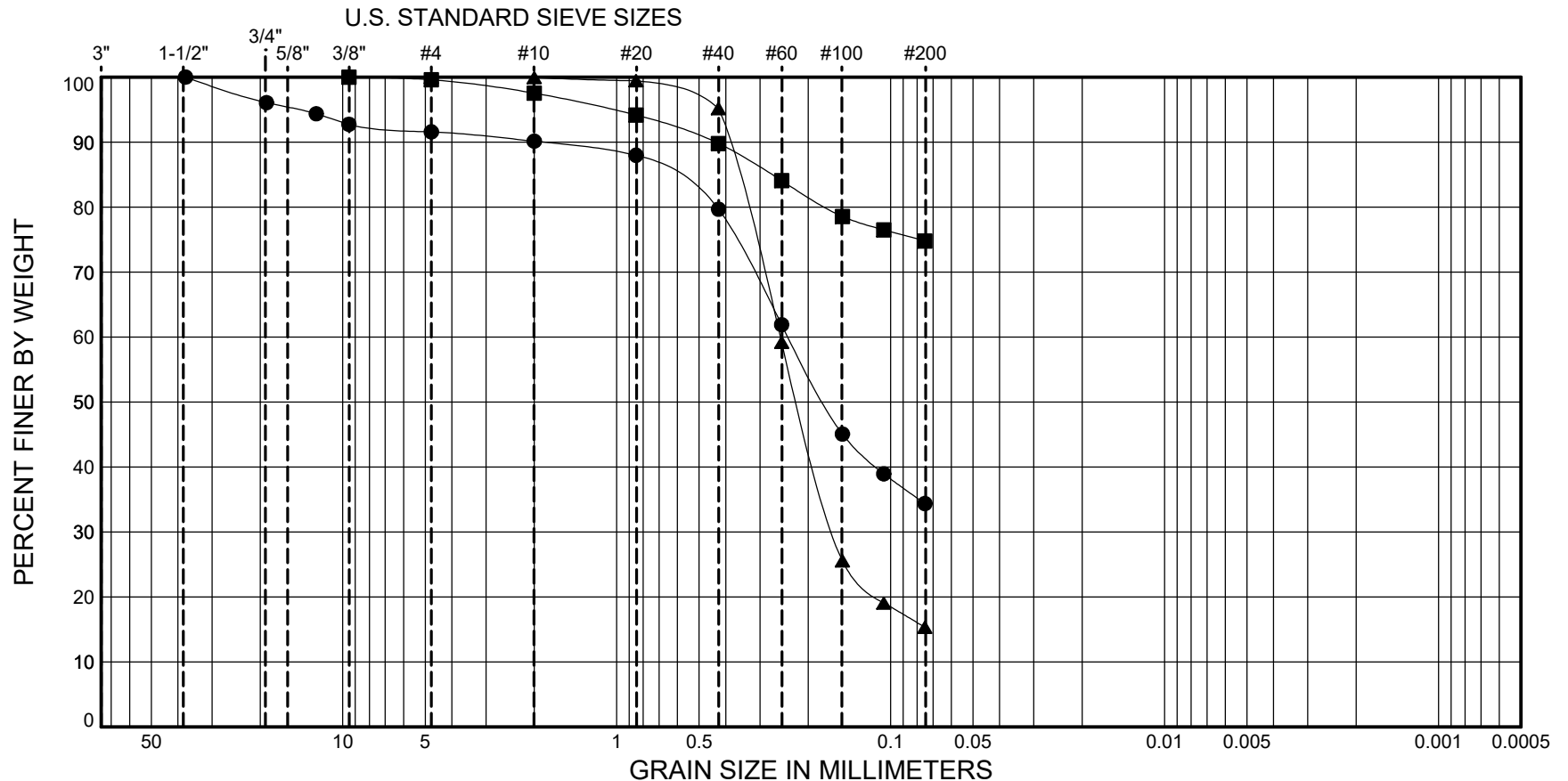
SYMBOL	SAMPLE	DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 2	S-12	45.0 - 46.5 (ML) Dark gray, sandy SILT	16				1.2	43.8	54.9
■	BH- 3	S-6	15.0 - 16.5 (SM) Dark gray, silty SAND with gravel	9				21.7	45.6	32.7
▲	BH- 3	S-8	25.0 - 26.5 (SM) Very dark gray, silty SAND	19					86.8	13.2



NE 85TH STREET
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PARTICLE-SIZE ANALYSIS
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METHOD ASTM D6913

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 4	S-7	20.0 - 21.5	(SM) Very dark gray, silty SAND	13				8.4	57.2	34.4
■	BH- 4	S-10A	35.0 - 36.5	(ML) Gray, SILT with sand	23				0.4	24.8	74.8
▲	BH- 4	S-10B	35.0 - 36.5	(SM) Dark gray, silty SAND	23					84.7	15.3



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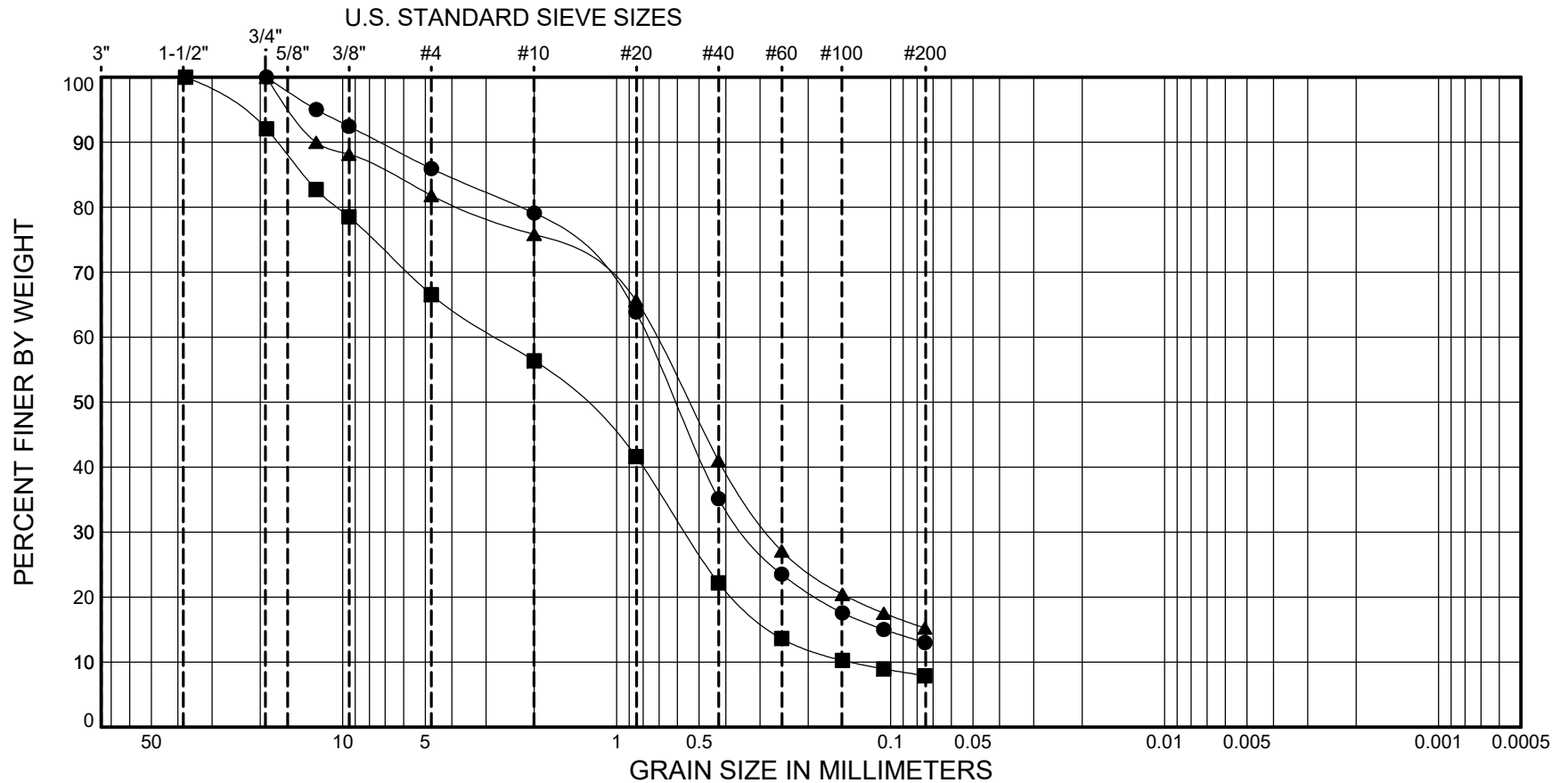
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-8

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



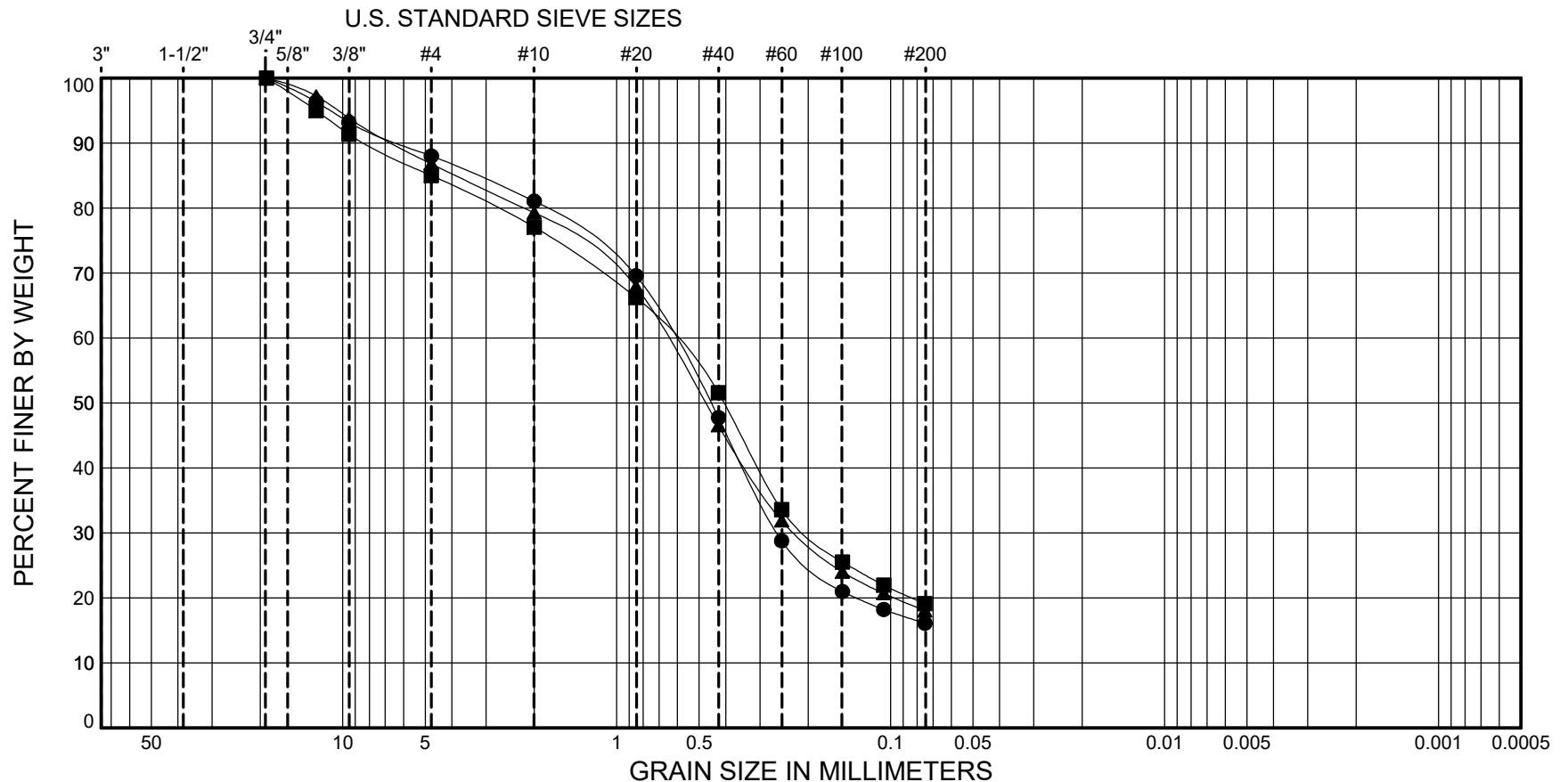
SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 5	S-4	10.0 - 11.5	(SM) Olive-brown, silty SAND	10				14.1	72.9	13.0
■	BH- 5	S-7	20.0 - 21.5	(SP-SM) Olive-brown, poorly graded SAND with silt and gravel	6				33.5	58.6	7.9
▲	BH- 5	S-9	30.0 - 31.5	(SM) Olive-brown, silty SAND with gravel	7				18.2	66.6	15.2



NE 85TH STREET
 PED/BIKE CONNECTION
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PARTICLE-SIZE ANALYSIS
 OF SOILS
 METHOD ASTM D6913

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 6	S-5	12.5 - 14.0	(SM) Olive-brown, silty SAND	10				12.0	71.9	16.1
■	BH- 7	S-3	7.5 - 9.0	(SM) Olive-brown, silty SAND with gravel	10				15.0	65.9	19.1
▲	BH- 7	S-5	12.5 - 14.0	(SM) Olive-brown, silty SAND	9				13.2	68.8	18.0



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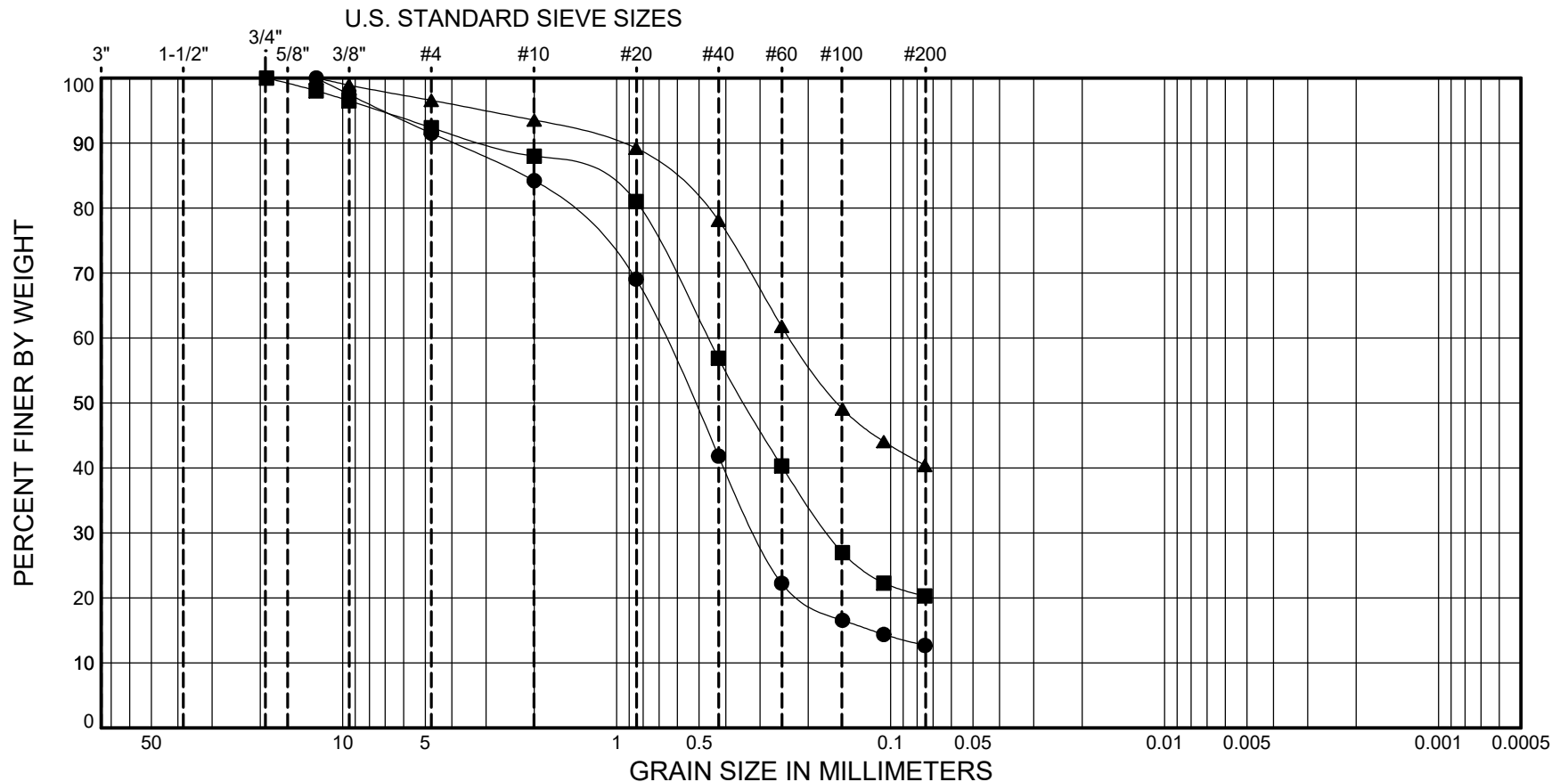
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-10

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE	DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 8	S-7	20.0 - 21.5 (SM) Olive-brown, silty SAND	9				8.5	78.8	12.7
■	BH- 9	S-1	2.5 - 4.0 (SM) Light olive-brown, silty SAND	9				7.6	72.1	20.3
▲	BH- 9	S-5	12.5 - 13.0 (SM) Dark gray, silty SAND	10				3.4	56.2	40.4



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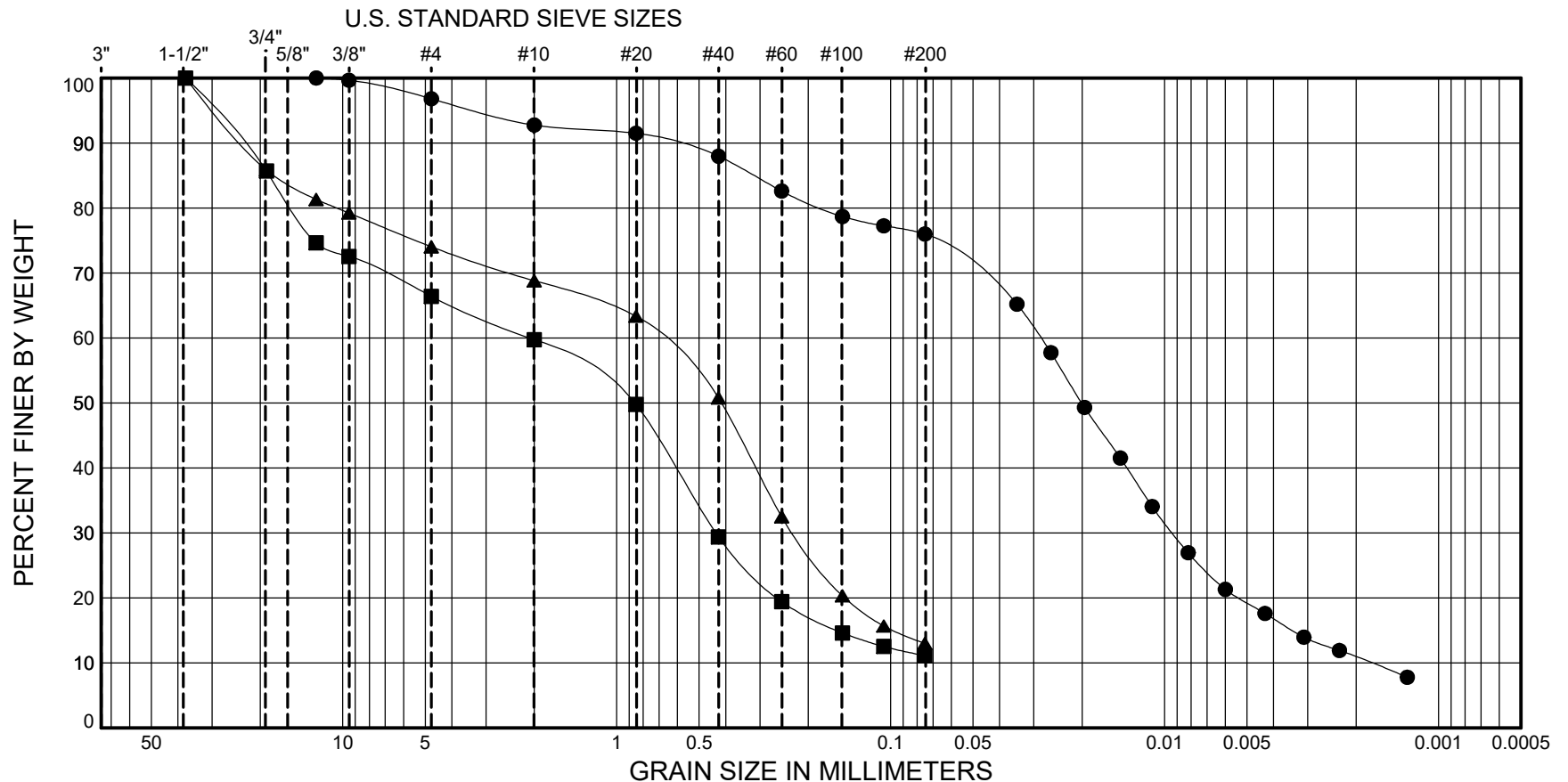
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PED/BIKE CONNECTION
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PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-11

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE	DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH- 9	S-6	15.0 - 16.0 (ML) Gray, SILT with sand	14				3.2	20.8	76.0
■	BH-10	S-6	15.0 - 16.5 (SW-SM) Dark olive-gray, well-graded SAND with silt and gravel	8				33.6	55.3	11.1
▲	BH-10	S-7	20.0 - 21.5 (SM) Dark gray, silty SAND with gravel	11				26.0	61.0	13.0



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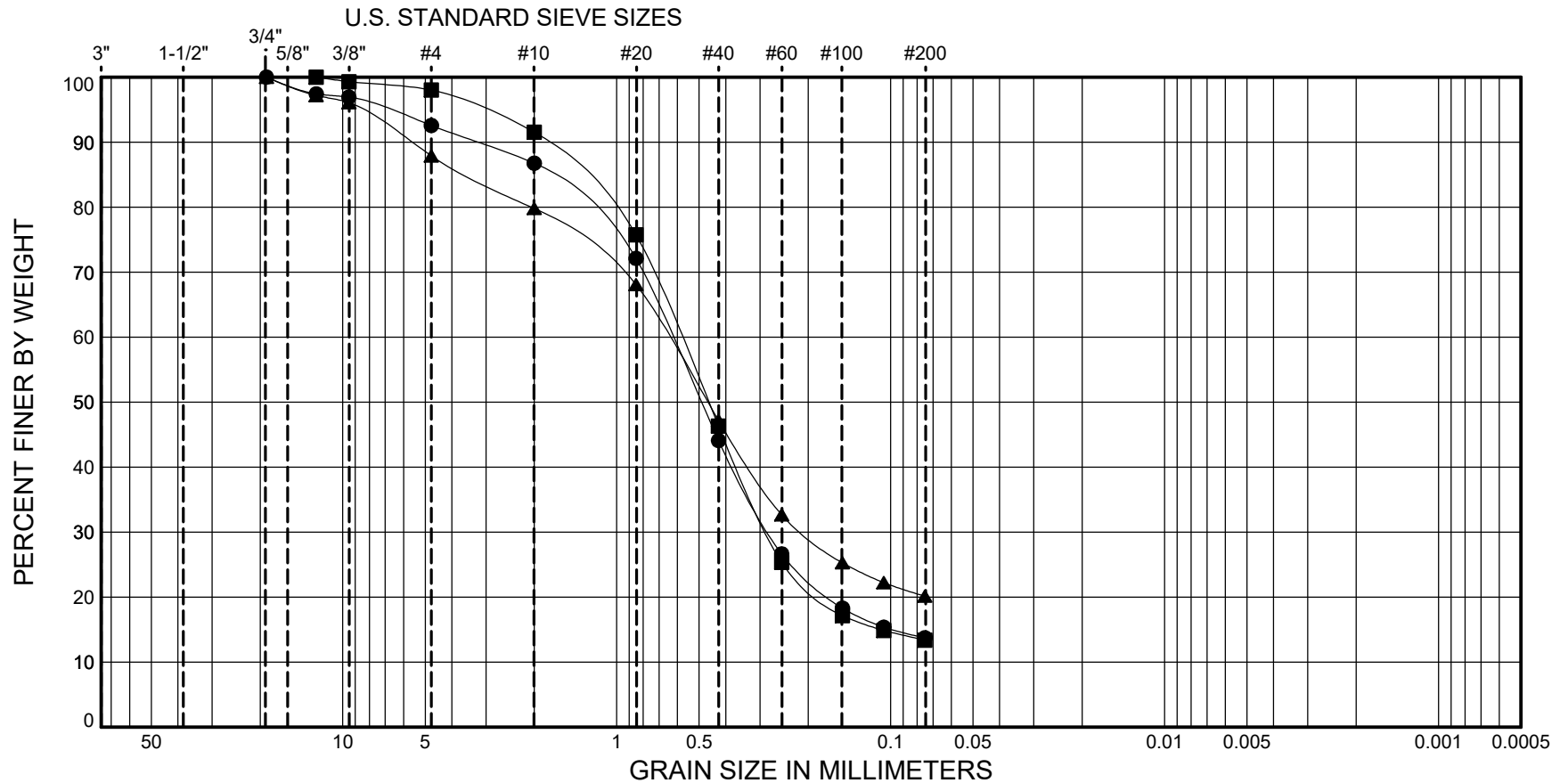
NE 85TH STREET
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PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-12

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH-11	S-2	5.0 - 6.5	(SM) Dark yellowish-brown, silty SAND	8				7.4	78.8	13.7
■	BH-11	S-4	10.0 - 11.5	(SM) Dark olive-brown, silty SAND	12				2.0	84.6	13.4
▲	BH-11	S-6	15.0 - 16.0	(SM) Olive-brown, silty SAND	8				12.1	67.7	20.1



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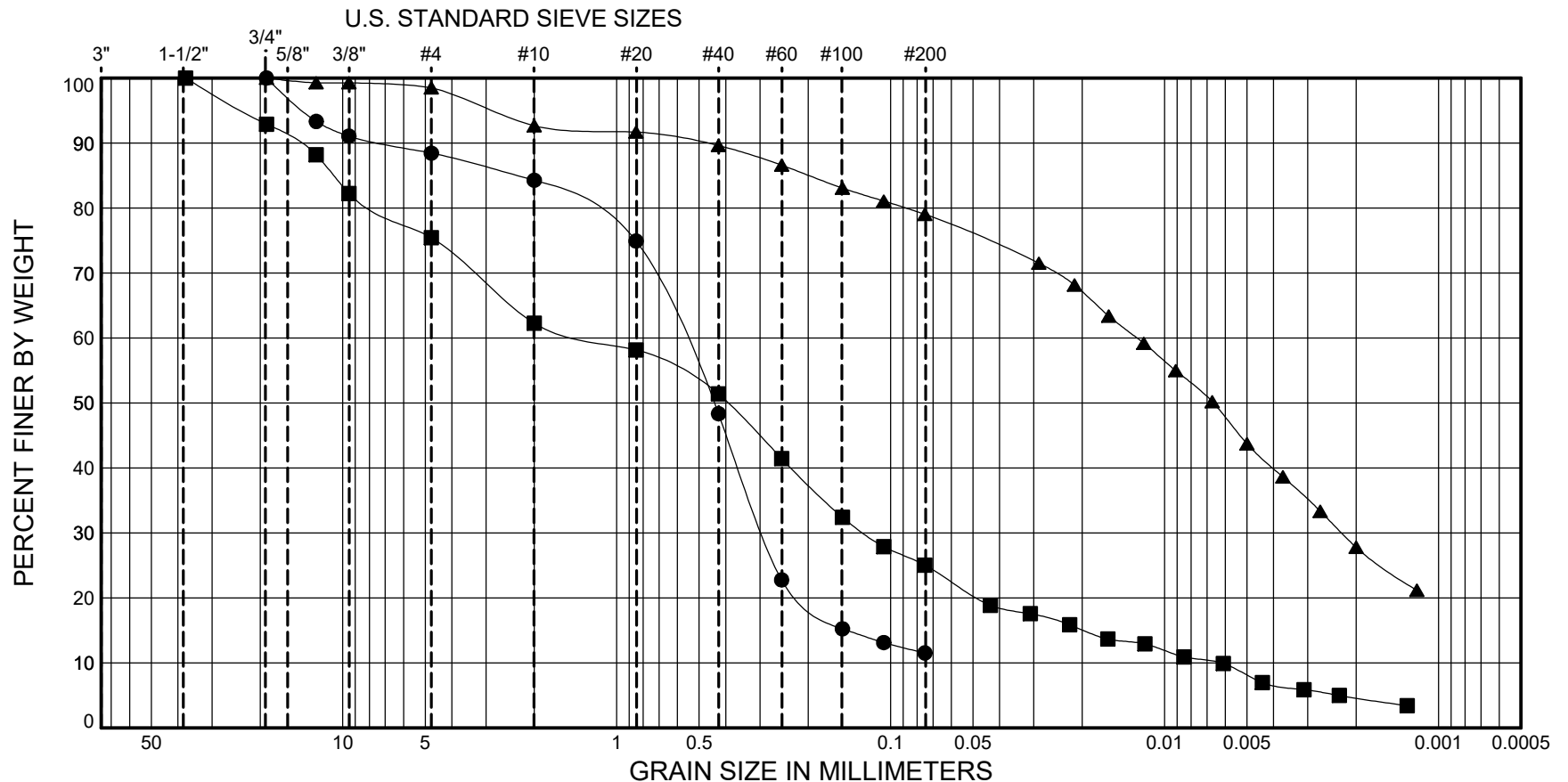
NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-13

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH-12	S-3	7.5 - 9.0	(SW-SM) Olive-brown, well-graded SAND with silt	10				11.6	76.9	11.5
■	BH-12	S-7	20.0 - 21.5	(SM) Dark gray, silty SAND with gravel	12				24.6	50.4	25.1
▲	BH-12	S-9	30.0 - 31.5	(CL) Very dark gray, lean CLAY with sand	18				1.5	19.5	79.0



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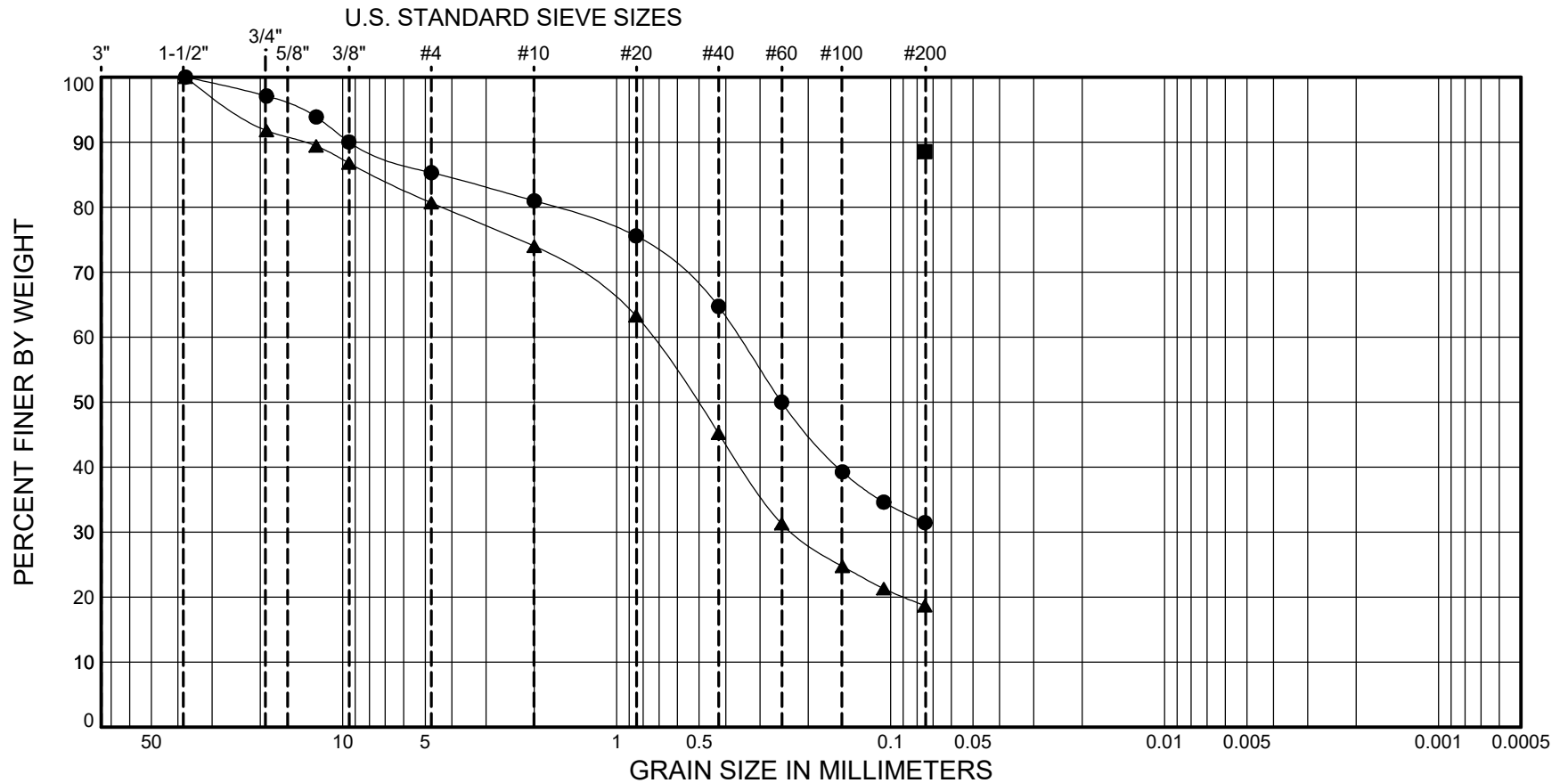
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PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-14

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



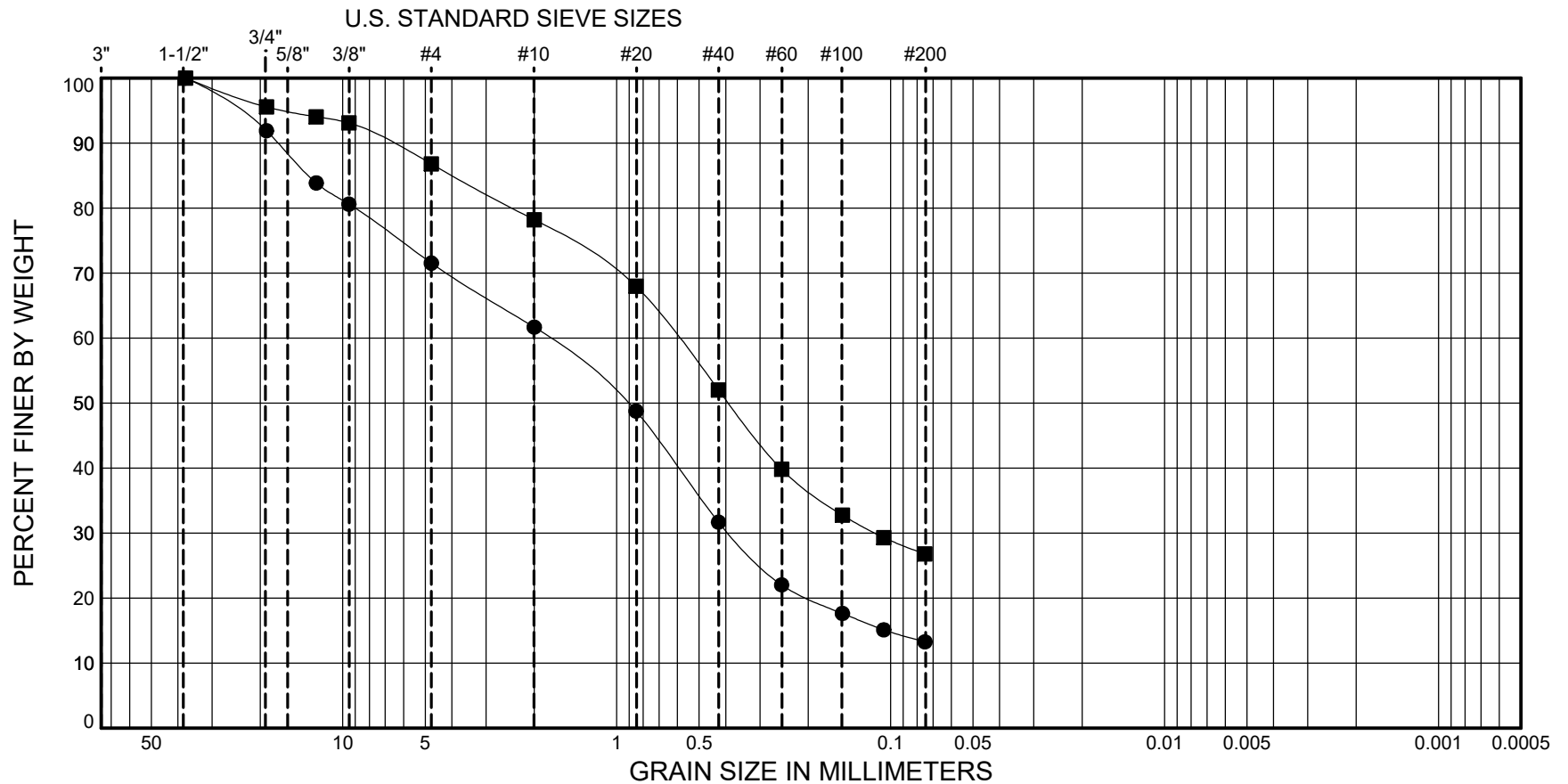
SYMBOL	SAMPLE	DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH-13 S-1	2.5 - 4.0	(SM) Light olive-brown, silty SAND	16				14.7	53.8	31.5
■	BH-13 S-5	12.5 - 13.5	(ML) Dark gray, SILT	18						88.5
▲	BH-14 S-4	10.0 - 11.5	(SM) Olive-brown, silty SAND with gravel	10				19.3	62.0	18.7



NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
 OF SOILS
 METHOD ASTM D6913

GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		



SYMBOL	SAMPLE		DEPTH (ft.)	CLASSIFICATION OF SOIL- ASTM D2487 Group Symbol and Name	% MC	LL	PL	PI	Gravel %	Sand %	Fines %
●	BH-14	S-6	15.0 - 16.5	(SM) Dark grayish-brown, silty SAND with gravel	8				28.5	58.3	13.3
■	BH-14	S-9	30.0 - 31.5	(SM) Very dark gray, silty SAND	13				13.2	60.0	26.8



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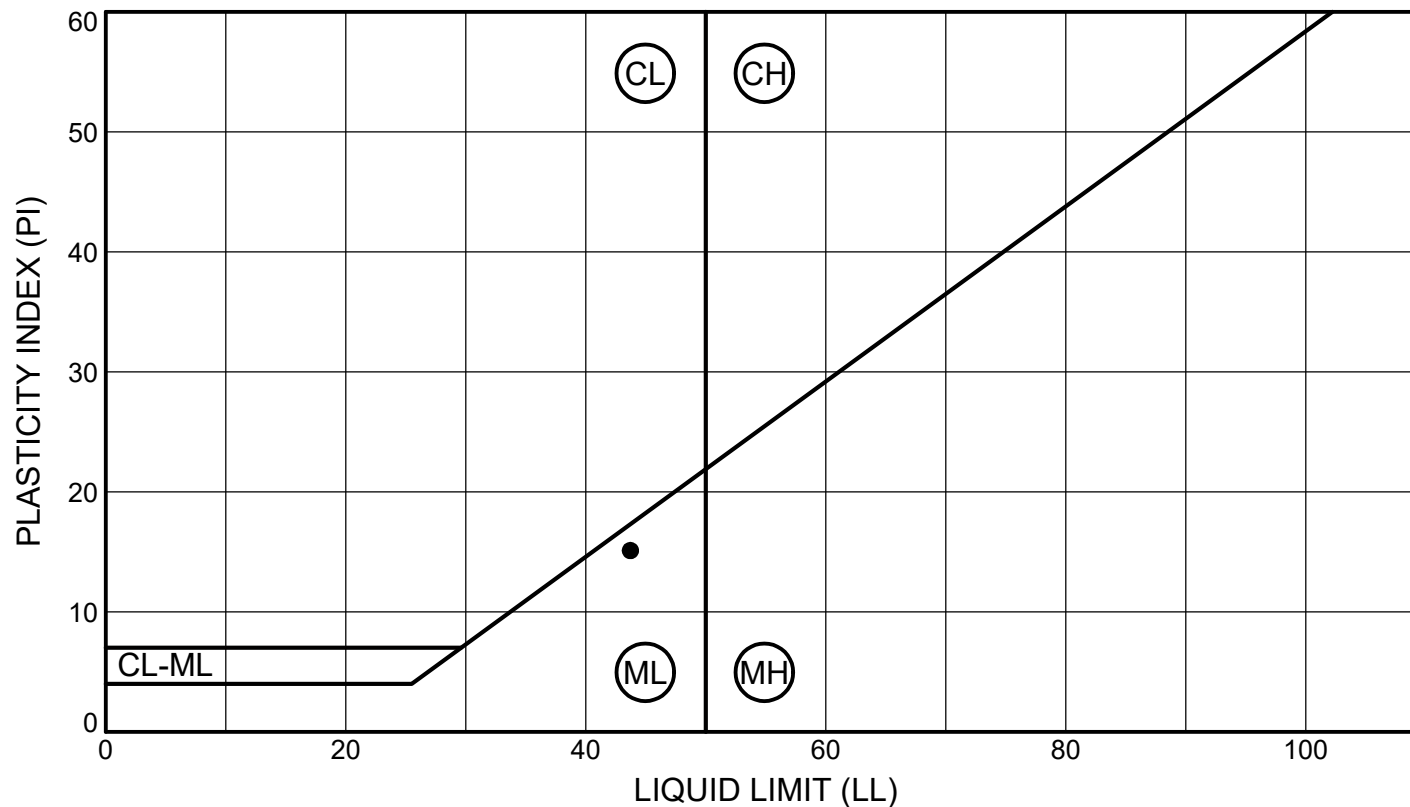
HWAGRSZ 2022-044-21.GPJ 7/27/23

NE 85TH STREET
PED/BIKE CONNECTION
KIRKLAND, WASHINGTON

PARTICLE-SIZE ANALYSIS
OF SOILS
METHOD ASTM D6913

PROJECT NO.: 2022-044-21

FIGURE: B-16



SYMBOL	SAMPLE		DEPTH (ft)	CLASSIFICATION	% MC	LL	PL	PI	% Fines
●	BH- 4	S-9	30.0 - 31.5	(ML) Dark gray, SILT	24	44	29	15	



NE 85TH STREET
 PED/BIKE CONNECTION
 KIRKLAND, WASHINGTON

LIQUID LIMIT, PLASTIC LIMIT AND
 PLASTICITY INDEX OF SOILS
 METHOD ASTM D4318

PROJECT NO.: 2022-044-21

FIGURE: B-17

APPENDIX C

PREVIOUS GEOTECHNICAL EXPLORATIONS BY HWA

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COHESIONLESS SOILS			COHESIVE SOILS		
Density	N (blows/ft)	Approximate Relative Density(%)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	35 - 65	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	over 30	>4000

TEST SYMBOLS

%F	Percent Fines
AL	Atterberg Limits: PL = Plastic Limit LL = Liquid Limit
CBR	California Bearing Ratio
CN	Consolidation
DD	Dry Density (pcf)
DS	Direct Shear
GS	Grain Size Distribution
K	Permeability
MD	Moisture/Density Relationship (Proctor)
MR	Resilient Modulus
PID	Photoionization Device Reading
PP	Pocket Penetrometer Approx. Compressive Strength (tsf)
SG	Specific Gravity
TC	Triaxial Compression
TV	Torvane Approx. Shear Strength (tsf)
UC	Unconfined Compression

USCS SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP DESCRIPTIONS		
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravel (little or no fines)		GW Well-graded GRAVEL	
		Gravel with Fines (appreciable amount of fines)		GP Poorly-graded GRAVEL	
	Sand and Sandy Soils	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Clean Sand (little or no fines)		GM Silty GRAVEL
			Sand with Fines (appreciable amount of fines)		GC Clayey GRAVEL
More than 50% Retained on No. 200 Sieve Size	Sand and Sandy Soils	Clean Sand (little or no fines)		SW Well-graded SAND	
		Sand with Fines (appreciable amount of fines)		SP Poorly-graded SAND	
	50% or More of Coarse Fraction Passing No. 4 Sieve	Silt and Clay	Liquid Limit Less than 50%		SM Silty SAND
			Liquid Limit 50% or More		SC Clayey SAND
Fine Grained Soils	Silt and Clay	Liquid Limit Less than 50%		ML SILT	
		Liquid Limit 50% or More		CL Lean CLAY	
	50% or More Passing No. 200 Sieve Size	Silt and Clay	Liquid Limit Less than 50%		OL Organic SILT/Organic CLAY
			Liquid Limit 50% or More		MH Elastic SILT
Highly Organic Soils		Liquid Limit 50% or More		CH Fat CLAY	
		Liquid Limit 50% or More		OH Organic SILT/Organic CLAY	
		Liquid Limit 50% or More		PT PEAT	

SAMPLE TYPE SYMBOLS

	2.0" OD Split Spoon (SPT) (140 lb. hammer with 30 in. drop)
	Shelby Tube
	3-1/4" OD Split Spoon with Brass Rings
	Small Bag Sample
	Large Bag (Bulk) Sample
	Core Run
	Non-standard Penetration Test (3.0" OD split spoon)

GROUNDWATER SYMBOLS

	Groundwater Level (measured at time of drilling)
	Groundwater Level (measured in well or open hole after water level stabilized)

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5 mm) to No. 200 (0.074 mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074mm)

COMPONENT PROPORTIONS

PROPORTION RANGE	DESCRIPTIVE TERMS
< 5%	Clean
5 - 12%	Slightly (Clayey, Silty, Sandy)
12 - 30%	Clayey, Silty, Sandy, Gravelly
30 - 50%	Very (Clayey, Silty, Sandy, Gravelly)
Components are arranged in order of increasing quantities.	

NOTES: Soil classifications presented on exploration logs are based on visual and laboratory observation. Soil descriptions are presented in the following general order:

Density/consistency, color, modifier (if any) GROUP NAME, additions to group name (if any), moisture content. Proportion, gradation, and angularity of constituents, additional comments. (GEOLOGIC INTERPRETATION)

Please refer to the discussion in the report text as well as the exploration logs for a more complete description of subsurface conditions.

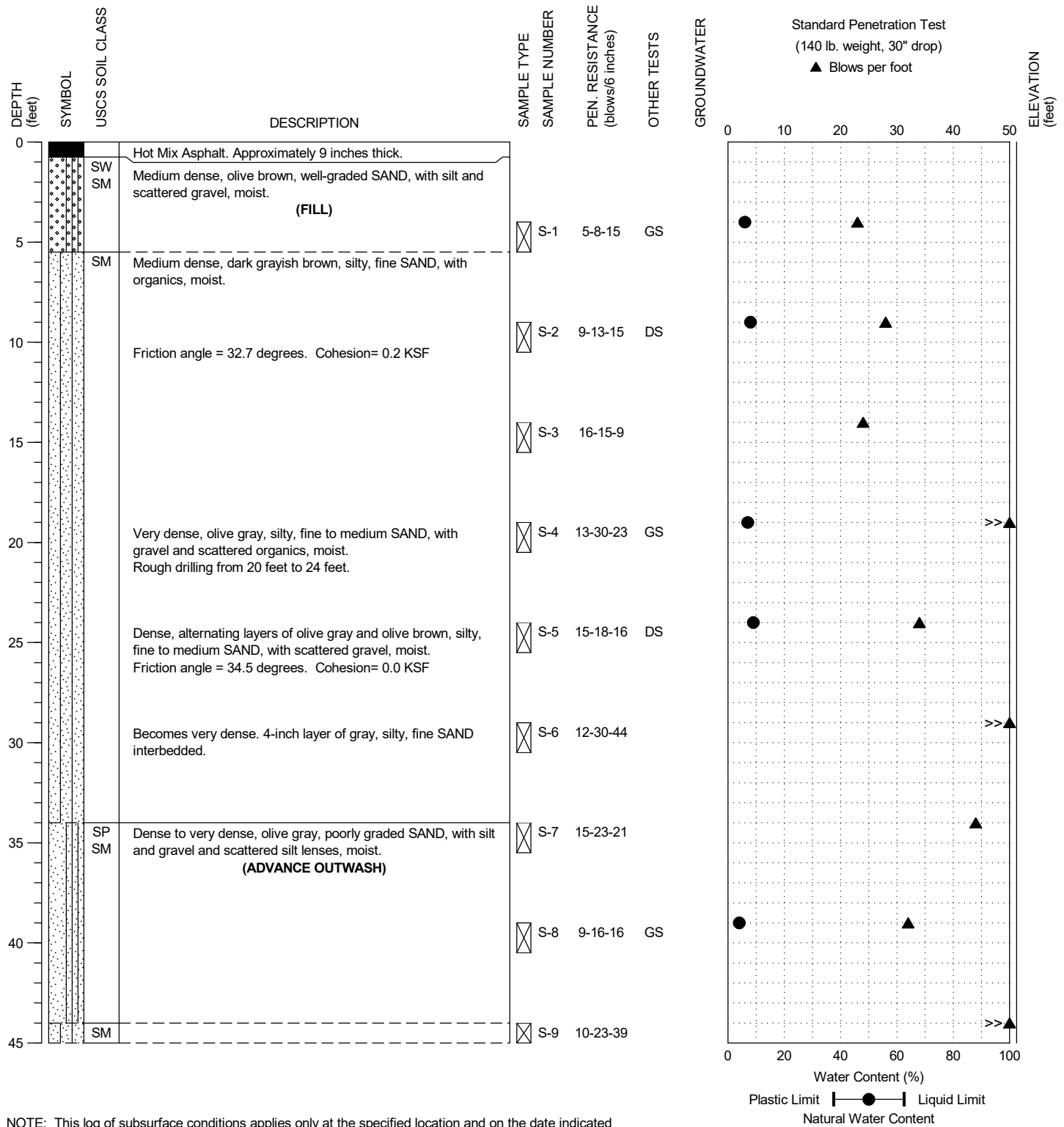
MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
MOIST	Damp but no visible water.
WET	Visible free water, usually soil is below water table.

LEGEND OF TERMS AND SYMBOLS USED ON EXPLORATION LOGS

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Diedrich D-120
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/15/2020
 DATE COMPLETED: 4/15/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-1

PAGE: 1 of 2

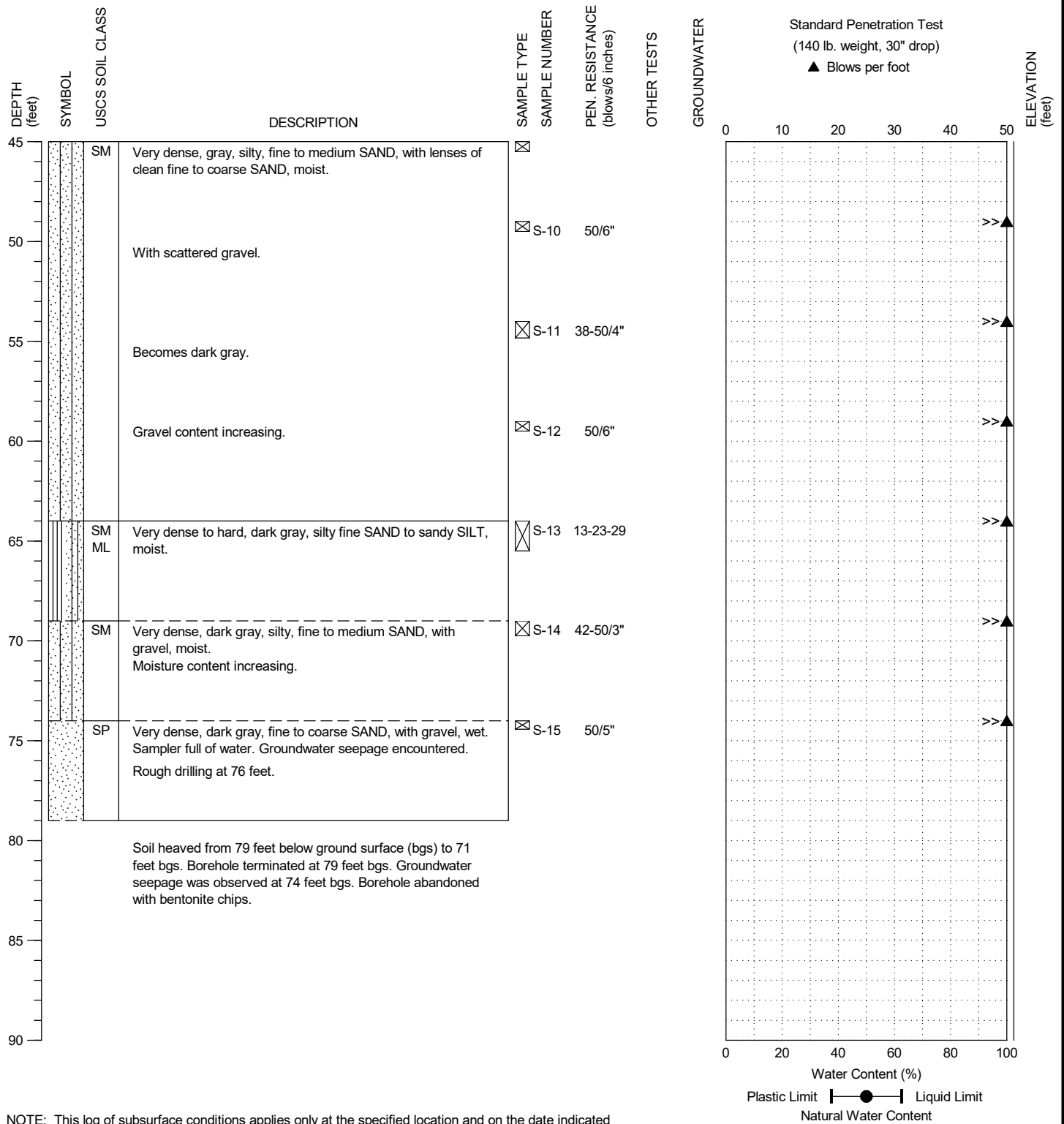
PROJECT NO.: 2017-135-21

FIGURE:

A-2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Diedrich D-120
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/15/2020
 DATE COMPLETED: 4/15/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-1

PAGE: 2 of 2

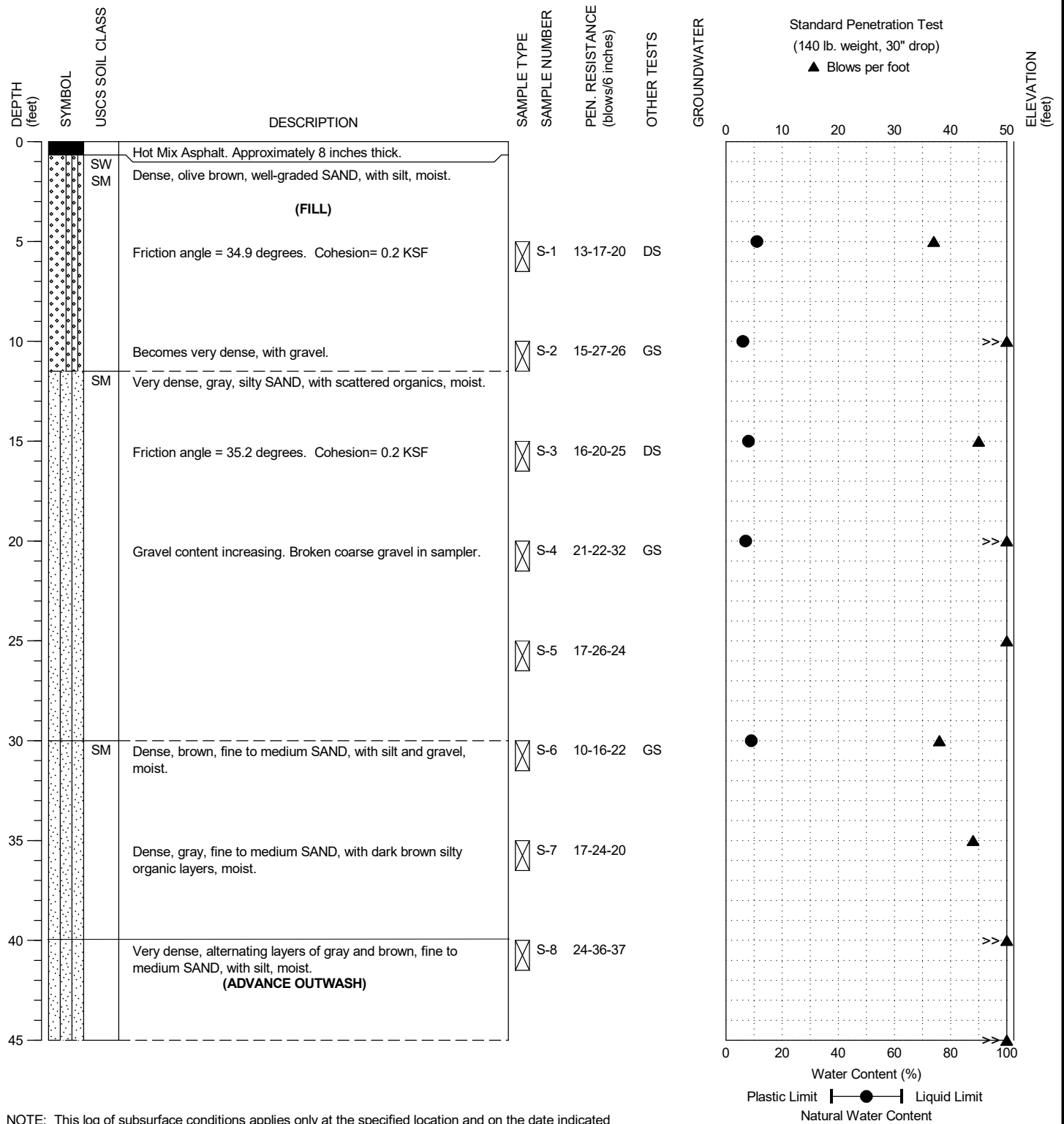
PROJECT NO.: 2017-135-21

FIGURE:

A-2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Mobile Drill Intl. B-58
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/14/2020
 DATE COMPLETED: 4/13/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



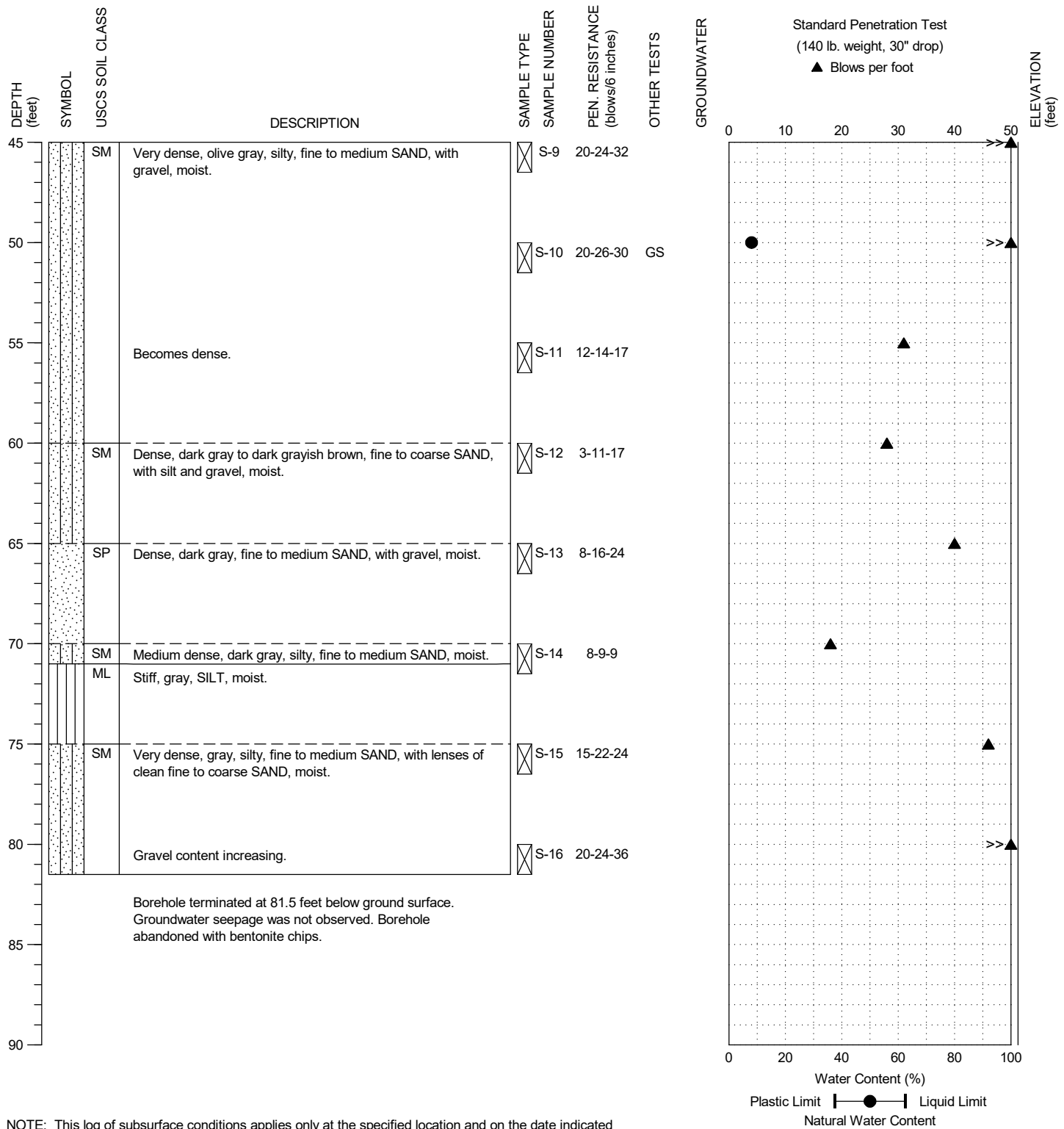
I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-2

PAGE: 1 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Mobile Drill Intl. B-58
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/14/2020
 DATE COMPLETED: 4/13/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



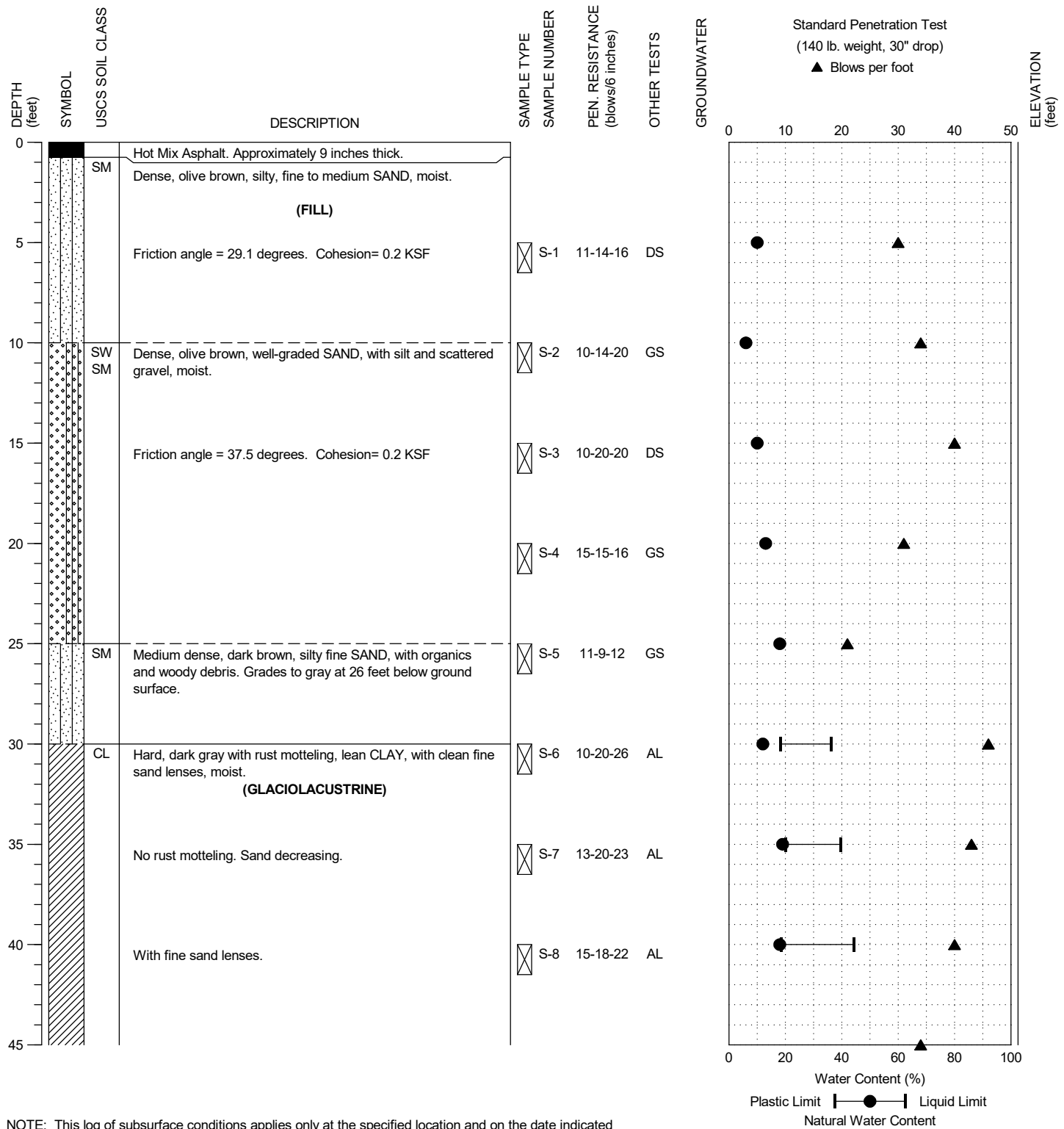
I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-2

PAGE: 2 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Mobile Drill Intl. B-58
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/13/2020
 DATE COMPLETED: 4/13/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



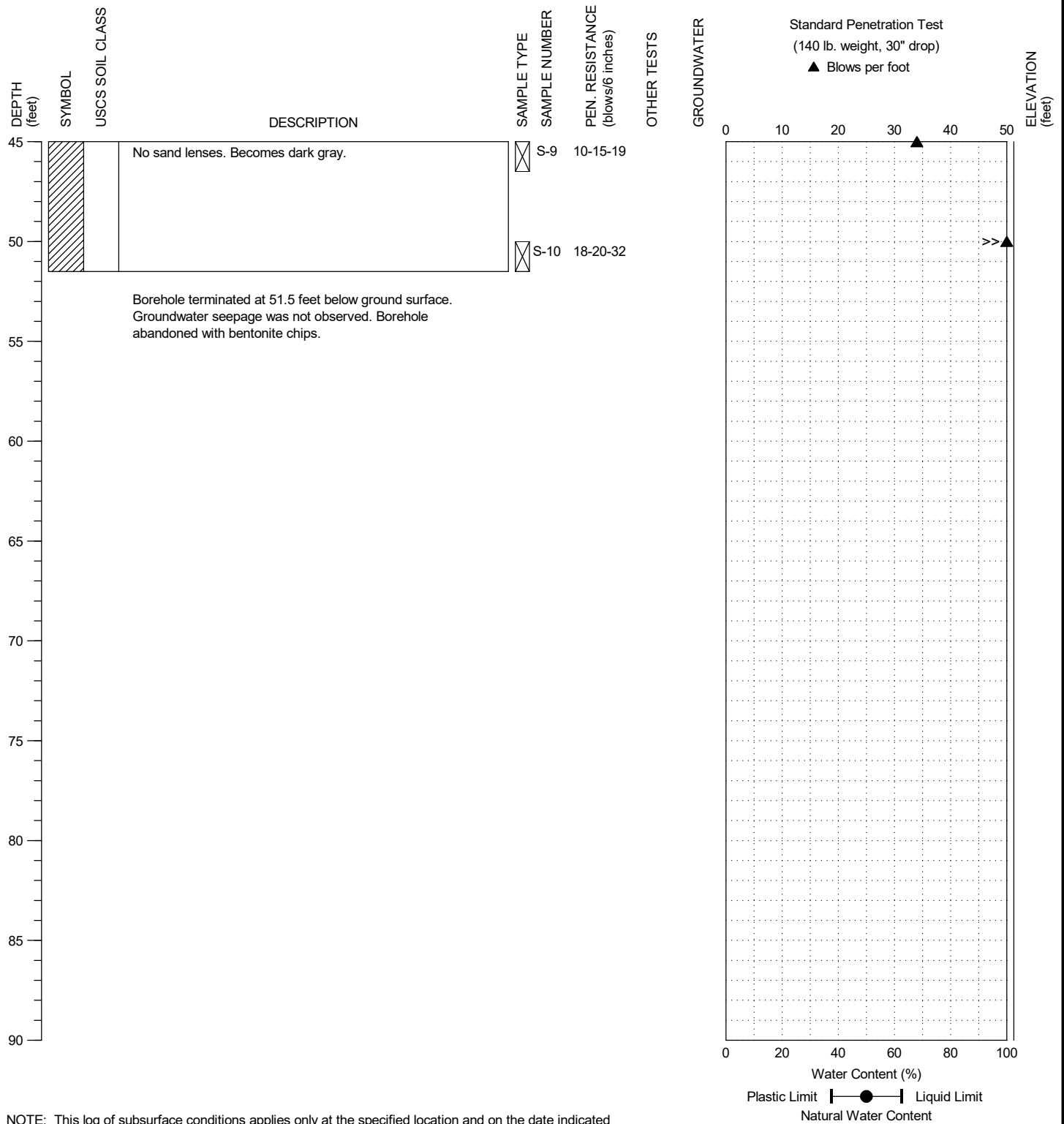
I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-3

PAGE: 1 of 2

DRILLING COMPANY: Holocene Drilling
 DRILLING METHOD: HSA with Mobile Drill Intl. B-58
 SAMPLING METHOD: SPT with Autohammer
 LOCATION: See Figure 2

DATE STARTED: 4/13/2020
 DATE COMPLETED: 4/13/2020
 LOGGED BY: V. Oskierko



NOTE: This log of subsurface conditions applies only at the specified location and on the date indicated and therefore may not necessarily be indicative of other times and/or locations.



I-405 BRT - NE 85th Street Slope Stability Analyses
 Kirkland, WA

BORING:
 HWA-3

PAGE: 2 of 2

PROJECT NO.: 2017-135-21

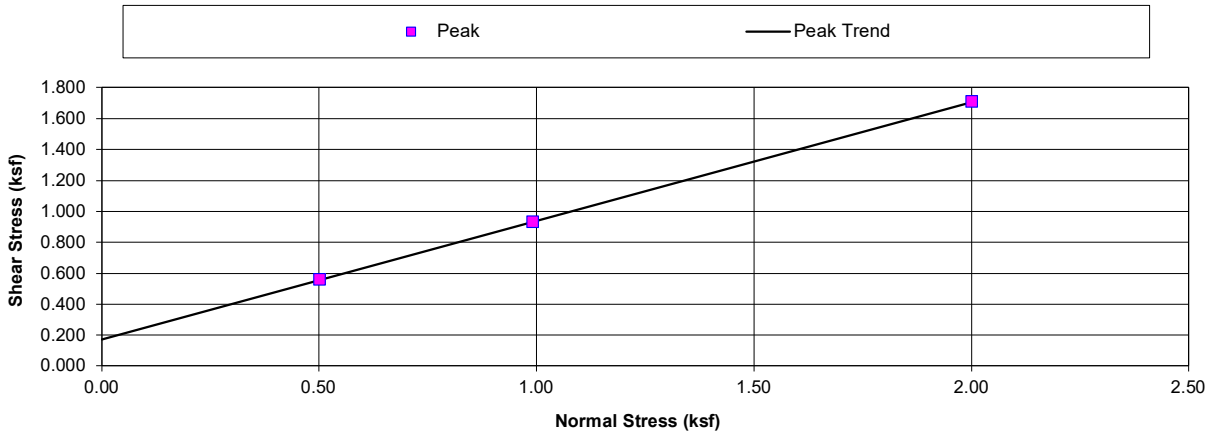
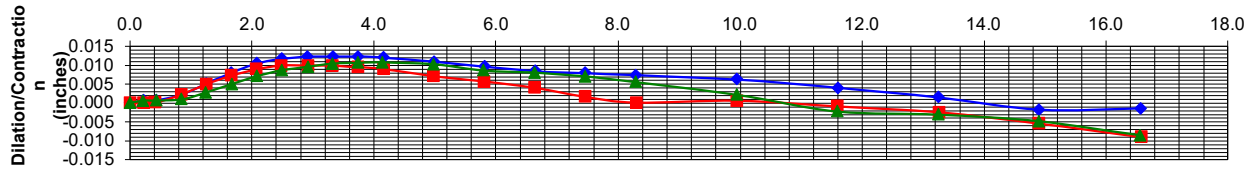
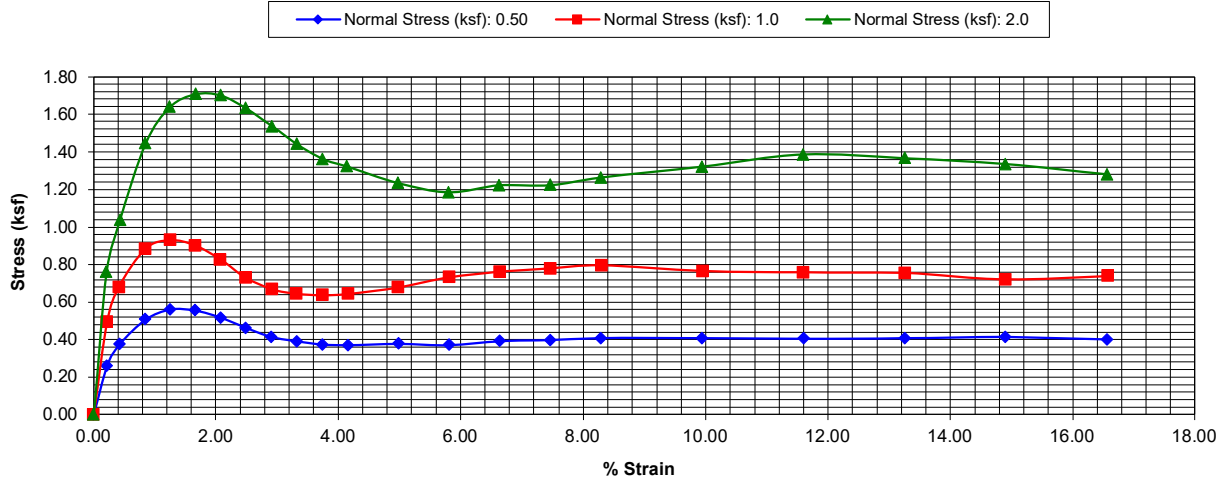
FIGURE:

A-4

HWA GEOSCIENCES INC. Materials Testing Laboratory

Direct Shear Test of Soils Under Consolidated Drained Conditions (ASTM D 3080)

Project Name:	I-405 BRT - NE 85th	Project Number:	2017-135				
Sample Point:	BH-3	Sample No.:	S-3				
Soil Description:	silty SAND		Sample Depth:	15-16.5 feet			
Soil Color:	Olive brown		Strain rate:	0.6 % per min.			
Soil Group Symbol:	SM		Soil Specific Gravity:	2.65 (assumed)			
Normal Stress (ksf)	0.50	0.99	2.00	Average	Indicated Strength Parameters		
Peak Stress (ksf)	0.559	0.929	1.707				
Initial Moisture Content (%)	9.7	9.7	9.7	9.7	Cohesion (ksf)	phi Angle (degrees)	
Wet Unit Weight (pcf)	134.9	134.8	134.4	134.7	Peak		0.2
Dry Unit Weight (pcf)	123.0	123.0	122.6	122.8			
Calculated Void Ratio	0.344	0.345	0.349	0.346			
Calculated Porosity	0.256	0.256	0.259	0.257			
Calculated Saturation (%)	74.3	74.2	73.3	73.9			
Final Moisture Content (%)	14.8	14.6	14.0	14.5			



Checked By:

S.GREENE

Figure B-12

APPENDIX D

LIQUEFACTION OUTPUT FILES

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-1

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Cetin et al. (2016)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

			Field Data	Fines Correction (Modifies Idriss and Boulanger N60)			CRR					CSR				Settlement											
Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	depth at midpoint of layer ft	Δ(N1)60		N _{1(60)CS}	CRR _{M=7.58σ^{0.1}}	Kσ		MSF/K _{MW}		CRR	rd Calculation			CSR Using 0.65 _{amax}	FS (CRR/CSR)	Is Liquefaction Anticipated?	Fα	V _{min}	V _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)	rd												
191.5	Fill	135	0.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
190.5	Fill	135	1.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
189.5	Fill	135	2.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
188.5	Fill	135	3.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
187.5	Fill	135	4.5	3.26	2.84	63	2.00	1.10	1.52	1.31	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
186.5	Fill	135	5.5	3.26	2.84	63	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
185.5	Fill	135	6.5	3.26	2.78	60	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.46	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
184.5	Fill	135	7.5	3.26	2.84	63	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
183.5	Fill	135	8.5	3.26	2.84	63	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
182.5	Fill	135	9.5	3.26	2.84	63	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
181.5	Fill	135	10.5	2.51	2.16	48	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-1.46	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
180.5	Fill	135	11.5	2.51	2.14	47	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-1.37	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
179.5	Fill	135	12.5	3.26	2.66	56	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.06	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
178.5	Fill	135	13.5	3.26	2.72	58	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.25	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
177.5	Fill	135	14.5	3.26	2.69	57	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
176.5	Fill	135	15.5	3.26	2.64	55	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-1.97	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
175.5	Fill	135	16.5	3.26	2.62	54	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-1.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
174.5	Fill	135	17.5	3.26	2.60	53	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-1.83	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
173.5	Fill	135	18.5	3.26	2.58	52	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-1.77	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
172.5	Fill	135	19.5	3.26	2.56	52	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-1.71	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
171.5	Fill	135	20.5	3.26	2.65	55	2.00	0.92	0.91	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-2.03	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
170.5	Fill	135	21.5	3.26	2.64	55	2.00	0.91	0.90	1.31	1.14	2.00	-0.38	0.04	0.93	0.36	5.59	No	-1.97	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
169.5	Fill	135	22.5	3.26	2.62	54	2.00	0.89	0.89	1.31	1.14	2.00	-0.41	0.05	0.92	0.36	5.62	No	-1.92	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
168.5	Fill	135	23.5	3.26	2.61	53	2.00	0.88	0.87	1.31	1.14	1.98	-0.43	0.05	0.92	0.35	5.60	No	-1.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
167.5	Fill	135	24.5	3.26	2.59	53	2.00	0.87	0.86	1.31	1.14	1.96	-0.46	0.05	0.91	0.35	5.55	No	-1.82	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
166.5	Fill	135	25.5	3.26	2.84	63	2.00	0.86	0.85	1.31	1.14	1.93	-0.48	0.05	0.91	0.35	5.51	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
165.5	Fill	135	26.5	3.26	2.84	63	2.00	0.85	0.84	1.31	1.14	1.90	-0.51	0.06	0.90	0.35	5.47	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
164.5	Fill	135	27.5	3.26	2.84	63	2.00	0.83	0.83	1.31	1.14	1.88	-0.54	0.06	0.90	0.35	5.43	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
163.5	Fill	135	28.5	3.26	2.84	63	2.00	0.82	0.82	1.31	1.14	1.86	-0.56	0.06	0.89	0.34	5.40	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
162.5	Fill	135	29.5	3.26	2.84	63	2.00	0.81	0.81	1.31	1.14	1.84	-0.59	0.07	0.89	0.34	5.37	No	-2.67	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
161.5	Till	135	30.5	1.15	1.89	62	2.00	0.80	0.80	1.31	1.14	1.82	-0.62	0.07	0.88	0.34	5.34	No	-2.59	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
160.5	Till	135	31.5	1.15	1.89	62	2.00	0.79	0.80	1.31	1.14	1.82	-0.65	0.07	0.88	0.34	5.37	No	-2.59	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
159.5	Till	135	32.5	1.15	1.89	62	2.00	0.78	0.80	1.31	1.14	1.82	-0.67	0.08	0.87	0.34	5.41	No	-2.59	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
158.5	Till	135	33.5	1.15	1.89	62	2.00	0.78	0.80	1.31	1.14	1.82	-0.70	0.08	0.87	0.33	5.44	No	-2.59	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
157.5	Till	135	34.5	1.15	1.89	62	2.00	0.77	0.80	1.31	1.14	1.82	-0.73	0.08	0.86	0.33	5.47	No	-2.59	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
156.5	Till	135	35.5	1.15	1.51	39	2.00	0.76	0.80	1.22	1.14	1.82	-0.76	0.08	0.85	0.33	5.51	No	-0.71	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
155.5	Till	135	36.5	1.15	1.51	38	2.00	0.75	0.80	1.22	1.14	1.82	-0.79	0.09	0.85	0.33	5.54	No	-0.69	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
154.5	Till	135	37.5	1.15	1.50	38	2.00	0.74	0.80	1.22	1.14	1.82	-0.82	0.09	0.84	0.33	5.58	No	-0.67	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
153.5	Till	135	38.5	1.15	1.50	38	2.00	0.73	0.80	1.21	1.14	1.82	-0.84	0.09	0.84	0.32	5.61	No	-0.65	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
152.5	Till	135	39.5	1.15	1.49	38	2.00	0.73	0.80	1.21	1.14	1.82	-0.87	0.10	0.83	0.32	5.65	No	-0.63	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
151.5	Till	135	40.5	4.09	2.89	46	2.00	0.72	0.80	1.31	1.14	1.82	-0.90	0.10	0.83	0.32	5.65	No	-1.25	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
150.5	Till	135	41.5	4.09	2.89	46	2.00	0.72	0.80	1.31	1.14	1.82	-0.93	0.10	0.82	0.32	5.63	No	-1.24	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
149.5	Till	135	42.5	4.09	2.88	46	2.00	0.71	0.80	1.30	1.14	1.82	-0.96	0.11	0.82	0.32	5.60	No	-1.23	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
148.5	Till	135	43.5	4.09	2.88	45	2.00	0.71	0.80	1.30	1.14	1.82	-0.99	0.11	0.81	0.33	5.58	No	-1.22	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
147.5	Till	135	44.5	4.09	2.88	45	2.00	0.71	0.80	1.30	1.14	1.82	-1.02	0.11	0.81	0.33	5.56	No	-1.								

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-2

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction Average Residual Friction Angle	0.604 inches 14.5 degrees

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer	Unit Type	Unit Weight	Field Data	Fines Correction (Modifies Idriss and Boulanger N60)				CRR					CSR			FS (CRR/CSR)	Is Liquefaction Anticipated?	Settlement									
				depth at midpoint of layer	Δ(N1)60		N _{1(60)CS}	CRR _{M=7.5&α=1}	K _σ		MSF/K _{MW}		CRR	rd Calculation				F _a	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
					Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)												rd
203.5	Fill	135	0.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
202.5	Fill	135	1.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
201.5	Fill	135	2.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
200.5	Fill	135	3.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
199.5	Fill	135	4.5	3.26	2.84	63	2.00	1.10	1.52	1.31	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
198.5	Fill	135	5.5	3.26	2.84	63	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
197.5	Fill	135	6.5	3.26	2.84	63	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
196.5	Fill	135	7.5	3.26	2.84	63	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
195.5	Fill	135	8.5	3.26	2.84	63	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
194.5	Fill	135	9.5	3.26	2.84	63	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
193.5	Fill	135	10.5	3.26	2.25	40	2.00	1.10	1.14	1.23	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-0.78	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
192.5	Fill	135	11.5	3.26	2.23	39	2.00	1.09	1.11	1.22	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-0.71	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
191.5	Fill	135	12.5	3.26	2.84	63	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
190.5	Fill	135	13.5	3.26	2.84	63	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
189.5	Fill	135	14.5	3.26	2.84	63	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
188.5	Fill	135	15.5	3.26	2.84	63	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
187.5	Fill	135	16.5	3.26	2.84	63	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
186.5	Fill	135	17.5	3.26	2.84	63	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
185.5	Fill	135	18.5	3.26	2.84	63	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
184.5	Fill	135	19.5	3.26	2.84	63	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
183.5	Fill	135	20.5	4.48	3.36	52	2.00	0.92	0.91	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-1.74	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
182.5	Fill	135	21.5	4.48	3.34	51	2.00	0.91	0.90	1.31	1.14	2.00	-0.38	0.04	0.93	0.36	5.59	No	-1.69	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
181.5	Fill	135	22.5	4.48	3.32	51	2.00	0.89	0.89	1.31	1.14	2.00	-0.41	0.05	0.92	0.36	5.62	No	-1.65	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
180.5	Fill	135	23.5	4.48	3.31	50	2.00	0.88	0.87	1.31	1.14	2.00	-0.43	0.05	0.92	0.35	5.65	No	-1.61	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
179.5	Fill	135	24.5	4.48	3.29	50	2.00	0.87	0.86	1.31	1.14	2.00	-0.46	0.05	0.91	0.35	5.68	No	-1.57	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
178.5	Fill	135	25.5	4.48	2.97	40	2.00	0.86	0.85	1.24	1.14	2.00	-0.48	0.05	0.91	0.35	5.71	No	-0.81	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
177.5	Fill	135	26.5	4.48	2.96	40	2.00	0.85	0.84	1.23	1.14	2.00	-0.51	0.06	0.90	0.35	5.75	No	-0.78	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
176.5	Fill	135	27.5	4.48	2.94	39	2.00	0.83	0.83	1.23	1.14	2.00	-0.54	0.06	0.90	0.35	5.78	No	-0.75	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
175.5	Fill	135	28.5	4.48	2.93	39	2.00	0.82	0.82	1.23	1.14	2.00	-0.56	0.06	0.89	0.34	5.81	No	-0.73	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
174.5	Fill	135	29.5	4.48	2.92	39	2.00	0.81	0.81	1.22	1.14	1.99	-0.59	0.07	0.89	0.34	5.81	No	-0.71	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
173.5	Fill	135	30.5	4.48	2.49	26	0.31	0.89	0.80	1.11	1.14	0.31	-0.62	0.07	0.88	0.34	0.90	Yes	0.18	0.08	0.04	0.010	1.016	1.0	0.044	0.0102	0.122
172.5	Fill	135	31.5	4.48	2.49	26	0.31	0.89	0.80	1.11	1.14	0.30	-0.65	0.07	0.88	0.35	0.88	Yes	0.18	0.08	0.05	0.011	1.066	1.0	0.046	0.0107	0.128
171.5	Fill	135	32.5	4.48	2.49	26	0.31	0.88	0.80	1.11	1.14	0.30	-0.67	0.08	0.87	0.35	0.86	Yes	0.19	0.08	0.05	0.011	1.115	1.0	0.048	0.0112	0.134
170.5	Fill	135	33.5	4.48	2.52	27	0.34	0.88	0.80	1.11	1.14	0.33	-0.70	0.08	0.87	0.35	0.93	Yes	0.13	0.07	0.04	0.009	0.900	1.0	0.040	0.0090	0.108
169.5	Fill	135	34.5	4.48	2.52	27	0.33	0.87	0.80	1.11	1.14	0.32	-0.73	0.08	0.86	0.35	0.92	Yes	0.13	0.07	0.04	0.009	0.940	1.0	0.042	0.0094	0.113
168.5	Till	135	35.5	4.48	3.78	64	2.00	0.78	0.80	1.31	1.14	2.00	-0.76	0.08	0.85	0.36	5.63	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
167.5	Till	135	36.5	4.48	3.78	64	2.00	0.78	0.80	1.31	1.14	2.00	-0.79	0.09	0.85	0.36	5.60	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
166.5	Till	135	37.5	4.48	3.78	64	2.00	0.77	0.80	1.31	1.14	2.00	-0.82	0.09	0.84	0.36	5.57	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
165.5	Till	135	38.5	4.48	3.78	64	2.00	0.77	0.80	1.31	1.14	2.00	-0.84	0.09	0.84	0.36	5.55	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
164.5	Till	135	39.5	4.48	3.78	64	2.00	0.76	0.80	1.31	1.14	1.99	-0.87	0.10	0.83	0.36	5.50	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
163.5</																											

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-3

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)		N _{1(60)CS}	CRR _{M=7.58σ¹}	CRR				CSR			FS (CRR/CSR)	Is Liquefaction Anticipated?	Settlement										
				Δ(N1)60				K _σ		MSF/K _{MW}		rd Calculation					CSR Using 0.65 _{amax}	F _a	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)	CRR	α(z)	β(z)													rd
167.5	Fill	125	0.5	5.07	3.48	35	1.15	1.10	1.60	1.19	1.14	1.51	0.01	0.00	1.01	0.39	3.88	No	-0.45	0.02	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
166.5	Fill	125	1.5	5.07	3.48	35	1.15	1.10	1.60	1.19	1.14	1.51	0.00	0.00	1.00	0.39	3.89	No	-0.45	0.02	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
165.5	Fill	125	2.5	5.07	3.45	34	0.98	1.10	1.60	1.18	1.14	1.27	-0.02	0.00	1.00	0.39	3.28	No	-0.39	0.02	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
164.5	Fill	125	3.5	5.07	3.34	32	0.63	1.10	1.60	1.16	1.14	0.81	-0.03	0.00	1.00	0.38	2.09	No	-0.22	0.04	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
163.5	Fill	125	4.5	5.07	3.27	30	0.50	1.10	1.56	1.14	1.14	0.62	-0.04	0.01	0.99	0.38	1.62	No	-0.10	0.05	0.01	0.002	0.167	1.0	0.008	0.0000	0.000
162.5	Fill	125	5.5	5.07	2.62	15	0.15	1.10	1.46	1.04	1.14	0.18	-0.06	0.01	0.99	0.38	0.46	No	0.77	0.29	0.29	0.029	2.930	1.0	0.287	0.0000	0.000
161.5	Fill	125	6.5	5.07	2.61	14	0.15	1.10	1.38	1.04	1.14	0.17	-0.08	0.01	0.99	0.38	0.45	No	0.79	0.30	0.30	0.030	2.989	1.0	0.300	0.0000	0.000
160.5	Fill	135	7.5	5.36	5.68	65	2.00	1.10	1.31	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
159.5	Fill	135	8.5	5.36	5.68	65	2.00	1.10	1.25	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
158.5	Fill	135	9.5	5.36	5.68	65	2.00	1.10	1.21	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
157.5	Fill	135	10.5	5.36	5.68	65	2.00	1.10	1.16	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
156.5	Fill	135	11.5	5.36	5.68	65	2.00	1.10	1.13	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
155.5	Fill	135	12.5	5.36	5.68	65	2.00	1.08	1.09	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
154.5	Fill	135	13.5	5.36	5.68	65	2.00	1.06	1.07	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
153.5	Fill	135	14.5	5.36	5.68	65	2.00	1.03	1.04	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
152.5	Fill	135	15.5	5.46	6.24	65	2.00	1.01	1.02	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
151.5	Fill	135	16.5	5.46	6.24	65	2.00	0.99	0.99	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
150.5	Fill	135	17.5	5.46	6.24	65	2.00	0.98	0.97	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
149.5	Fill	135	18.5	5.46	6.24	65	2.00	0.96	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
148.5	Fill	135	19.5	5.46	6.24	65	2.00	0.94	0.94	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
147.5	Fill	135	20.5	3.26	2.84	63	2.00	0.93	0.93	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.50	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
146.5	Fill	135	21.5	3.26	2.84	63	2.00	0.92	0.92	1.31	1.14	2.00	-0.38	0.04	0.93	0.37	5.41	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
145.5	Fill	135	22.5	3.26	2.84	63	2.00	0.92	0.91	1.31	1.14	2.00	-0.41	0.05	0.92	0.38	5.33	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
144.5	Fill	135	23.5	3.26	2.84	63	2.00	0.91	0.90	1.31	1.14	2.00	-0.43	0.05	0.92	0.38	5.25	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
143.5	Fill	135	24.5	3.26	2.84	63	2.00	0.90	0.89	1.31	1.14	2.00	-0.46	0.05	0.91	0.39	5.19	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
142.5	Fill	135	25.5	2.51	2.46	63	2.00	0.89	0.89	1.31	1.14	2.00	-0.48	0.05	0.91	0.39	5.13	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
141.5	Fill	135	26.5	2.51	2.46	63	2.00	0.89	0.88	1.31	1.14	2.00	-0.51	0.06	0.90	0.39	5.08	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
140.5	Fill	135	27.5	2.51	2.46	63	2.00	0.88	0.87	1.31	1.14	2.00	-0.54	0.06	0.90	0.40	5.04	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
139.5	Fill	135	28.5	2.51	2.46	63	2.00	0.87	0.87	1.31	1.14	2.00	-0.56	0.06	0.89	0.40	4.99	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
138.5	Fill	135	29.5	2.51	2.46	63	2.00	0.87	0.86	1.31	1.14	2.00	-0.59	0.07	0.89	0.40	4.96	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
137.5	Fill	135	30.5	3.26	2.84	63	2.00	0.86	0.85	1.31	1.14	2.00	-0.62	0.07	0.88	0.41	4.93	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-4

Maximum Considered Liquefaction Depth	60.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	0.879 inches
Average Residual Friction Angle	8.9 degrees

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data		Fines Correction (Modifies Idriss and Boulanger N60)				CRR					CSR				Settlement									
			depth at midpoint of layer ft	Δ(N1)60		N ₍₆₀₎ /CS	CRR _{M=7.56σ}	K _σ		MSF/K _{MSF}		CRR	rd Calculation			CSR Using 0.65 _{ama}	FS (CRR/CSR)	Is Liquefaction Anticipated?	F _a	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)	rd												
167.5	Fill	125	0.5	5.07	2.64	15	0.16	1.10	1.60	1.04	1.14	0.18	0.01	0.00	1.01	0.39	0.46	No	0.75	0.27	0.27	0.029	2.859	1.0	0.272	0.0000	0.000
166.5	Fill	125	1.5	5.07	2.64	15	0.16	1.10	1.60	1.04	1.14	0.18	0.00	0.00	1.00	0.39	0.47	No	0.75	0.27	0.27	0.029	2.859	1.0	0.272	0.0000	0.000
165.5	Fill	125	2.5	5.07	2.63	15	0.15	1.10	1.60	1.04	1.14	0.18	-0.02	0.00	1.00	0.39	0.46	No	0.76	0.28	0.28	0.029	2.896	1.0	0.280	0.0000	0.000
164.5	Fill	125	3.5	5.07	2.60	14	0.15	1.10	1.60	1.04	1.14	0.17	-0.03	0.00	1.00	0.38	0.44	No	0.79	0.31	0.31	0.030	3.015	1.0	0.306	0.0000	0.000
163.5	Fill	125	4.5	5.07	2.57	13	0.14	1.10	1.56	1.04	1.14	0.16	-0.04	0.01	0.99	0.38	0.43	No	0.81	0.33	0.33	0.031	3.102	1.0	0.325	0.0000	0.000
162.5	Fill	125	5.5	5.57	6.79	10	0.12	1.10	1.48	1.03	1.14	0.14	-0.06	0.01	0.99	0.40	0.34	Yes	0.91	0.45	0.45	0.037	3.651	1.0	0.453	0.0365	0.438
161.5	Fill	125	6.5	5.57	6.78	10	0.12	1.10	1.44	1.03	1.14	0.14	-0.08	0.01	0.99	0.43	0.31	Yes	0.91	0.46	0.46	0.037	3.675	1.0	0.459	0.0368	0.441
160.5	Fill	135	7.5	5.36	5.05	53	2.00	1.10	1.39	1.31	1.14	2.00	-0.09	0.01	0.98	0.46	4.39	No	-1.82	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
159.5	Fill	135	8.5	5.36	5.00	52	2.00	1.10	1.35	1.31	1.14	2.00	-0.11	0.01	0.98	0.47	4.21	No	-1.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
158.5	Fill	135	9.5	5.36	4.95	51	2.00	1.10	1.32	1.31	1.14	2.00	-0.13	0.01	0.98	0.49	4.07	No	-1.65	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
157.5	Fill	135	10.5	5.36	4.82	48	2.00	1.10	1.28	1.31	1.14	2.00	-0.15	0.02	0.97	0.50	3.97	No	-1.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
156.5	Fill	135	11.5	5.36	4.78	48	2.00	1.10	1.25	1.31	1.14	2.00	-0.17	0.02	0.97	0.52	3.88	No	-1.39	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
155.5	Till	135	12.5	5.36	5.68	65	2.00	1.10	1.23	1.31	1.14	2.00	-0.18	0.02	0.97	0.52	3.81	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
154.5	Till	135	13.5	5.36	5.68	65	2.00	1.10	1.20	1.31	1.14	2.00	-0.20	0.02	0.96	0.53	3.76	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
153.5	Till	135	14.5	5.36	5.68	65	2.00	1.10	1.18	1.31	1.14	2.00	-0.23	0.03	0.96	0.54	3.71	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
152.5	Till	135	15.5	5.36	5.68	65	2.00	1.10	1.16	1.31	1.14	2.00	-0.25	0.03	0.95	0.54	3.67	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
151.5	Till	135	16.5	5.36	5.68	65	2.00	1.10	1.14	1.31	1.14	2.00	-0.27	0.03	0.95	0.55	3.64	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
150.5	Till	135	17.5	5.36	5.68	65	2.00	1.10	1.12	1.31	1.14	2.00	-0.29	0.03	0.94	0.55	3.62	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
149.5	Till	135	18.5	5.36	5.68	65	2.00	1.09	1.10	1.31	1.14	2.00	-0.31	0.04	0.94	0.56	3.60	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
148.5	Till	135	19.5	5.36	5.68	65	2.00	1.07	1.09	1.31	1.14	2.00	-0.34	0.04	0.94	0.56	3.58	No	-2.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
147.5	Till	140	20.5	3.26	2.84	63	2.00	1.06	1.07	1.31	1.14	2.00	-0.36	0.04	0.93	0.56	3.57	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
146.5	Till	140	21.5	3.26	2.84	63	2.00	1.05	1.05	1.31	1.14	2.00	-0.38	0.04	0.93	0.56	3.57	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
145.5	Till	140	22.5	3.26	2.84	63	2.00	1.03	1.04	1.31	1.14	2.00	-0.41	0.05	0.92	0.56	3.56	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
144.5	Till	140	23.5	3.26	2.84	63	2.00	1.02	1.03	1.31	1.14	2.00	-0.43	0.05	0.92	0.56	3.56	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
143.5	Till	140	24.5	3.26	2.84	63	2.00	1.01	1.01	1.31	1.14	2.00	-0.46	0.05	0.91	0.56	3.56	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
142.5	Till	140	25.5	3.26	2.84	63	2.00	1.00	1.00	1.31	1.14	2.00	-0.48	0.05	0.91	0.56	3.56	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
141.5	Till	140	26.5	3.26	2.84	63	2.00	0.99	0.99	1.31	1.14	2.00	-0.51	0.06	0.90	0.56	3.57	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
140.5	Till	140	27.5	3.26	2.84	63	2.00	0.98	0.98	1.31	1.14	2.00	-0.54	0.06	0.90	0.56	3.57	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
139.5	Till	140	28.5	3.26	2.84	63	2.00	0.97	0.96	1.31	1.14	2.00	-0.56	0.06	0.89	0.56	3.58	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
138.5	Till	140	29.5	3.26	2.84	63	2.00	0.96	0.95	1.31	1.14	2.00	-0.59	0.07	0.89	0.56	3.59	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
137.5	Till	140	30.5	3.26	2.84	63	2.00	0.95	0.94	1.31	1.14	2.00	-0.62	0.07	0.88	0.56	3.60	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
136.5	Till	140	31.5	3.26	2.84	63	2.00	0.94	0.93	1.31	1.14	2.00	-0.65	0.07	0.88	0.55	3.61	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
135.5	Till	140	32.5	3.26	2.84	63	2.00	0.93	0.93	1.31	1.14	2.00	-0.67	0.08	0.87	0.55	3.62	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
134.5	Till	140	33.5	3.26	2.84	63	2.00	0.92	0.92	1.31	1.14	2.00	-0.70	0.08	0.87	0.55	3.63	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
133.5	Till	140	34.5	3.26	2.84	63	2.00	0.92	0.91	1.31	1.14	2.00	-0.73	0.08	0.86	0.55	3.64	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
132.5	Till	140	35.5	3.26	2.84	63	2.00	0.91	0.90	1.31	1.14	2.00	-0.76	0.08	0.85	0.55	3.66	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
131.5	Advance Outwash	140	36.5	3.26	2.84	63	2.00	0.90	0.89	1.31	1.14	2.00	-0.79	0.09	0.85	0.54	3.67	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
130.5	Advance Outwash	140	37.5	3.26	2.84	63	2.00	0.89	0.88	1.31	1.14	2.00	-0.82	0.09	0.84	0.54	3.69	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
129.5	Advance Outwash	140	38.5	3.26	2.84	63	2.00	0.88	0.88	1.31	1.14	2.00	-0.84	0.09	0.84	0.54	3.70	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
128.5	Advance Outwash	140	39.5	3.26	2.84	63	2.00	0.88	0.87	1.31	1.14	2.00	-0.87	0.10	0.83	0.54	3.72	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
127.5	Advance Outwash	140	40.5	3.26	2.84	63	2.00	0.87	0.86	1.31	1.14	2.00	-0.90	0.10	0.83	0.54	3.74	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-5

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data		Fines Correction (Modifies Idriss and Boulanger)							CRR					CSR				Settlement							
			depth at midpoint of layer ft	$\Delta(N1)60$		$N_{1(60)CS}$	$CRR_{M=7.5&\sigma=1}$	$K\sigma$		MSF/ K_{MW}		CRR	rd Calculation			CSR Using $0.65\sigma_{amax}$	FS (CRR/CSR)	Is Liquefaction Anticipated?	F_a	V_{min}	V_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd													
157.5	Fill	135	0.5	1.15	1.69	49	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-1.54	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
156.5	Fill	135	1.5	1.15	0.91	2	0.07	1.10	1.60	1.01	1.14	0.08	0.00	0.00	1.00	0.39	0.20	No	0.95	0.50	0.50	0.070	6.986	1.0	0.500	0.0000	0.000	
155.5	Fill	135	2.5	1.15	1.66	47	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-1.36	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
154.5	Fill	135	3.5	1.15	1.59	43	2.00	1.10	1.60	1.27	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-1.05	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
153.5	Fill	135	4.5	1.15	1.55	41	2.00	1.10	1.52	1.24	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-0.84	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
152.5	Fill	135	5.5	2.51	2.27	54	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-1.91	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
151.5	Fill	135	6.5	2.51	2.22	52	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-1.72	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
150.5	Fill	135	7.5	2.51	2.46	63	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
149.5	Fill	135	8.5	2.51	2.45	62	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.61	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
148.5	Fill	135	9.5	2.51	2.42	60	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.46	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
147.5	Fill	135	10.5	2.51	2.46	63	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
146.5	Fill	135	11.5	2.51	2.46	63	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
145.5	Fill	135	12.5	2.51	2.14	48	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-1.43	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
144.5	Fill	135	13.5	2.51	2.18	50	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-1.58	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
143.5	Fill	135	14.5	2.51	2.17	49	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-1.51	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
142.5	Fill	135	15.5	0.37	1.36	49	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-1.48	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
141.5	Fill	135	16.5	0.37	1.35	48	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-1.42	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
140.5	Fill	135	17.5	0.37	1.34	47	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-1.36	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
139.5	Fill	135	18.5	0.37	1.33	47	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-1.31	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
138.5	Fill	135	19.5	0.37	1.32	46	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-1.26	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
137.5	Fill	135	20.5	0.37	1.51	60	2.00	0.92	0.91	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-2.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
136.5	Fill	135	21.5	0.37	1.51	60	2.00	0.91	0.90	1.31	1.14	2.00	-0.38	0.04	0.93	0.36	5.59	No	-2.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
135.5	Fill	135	22.5	0.37	1.51	60	2.00	0.89	0.89	1.31	1.14	2.00	-0.41	0.05	0.92	0.36	5.62	No	-2.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
134.5	Fill	135	23.5	0.37	1.51	60	2.00	0.88	0.87	1.31	1.14	2.00	-0.43	0.05	0.92	0.35	5.65	No	-2.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
133.5	Fill	135	24.5	0.37	1.51	60	2.00	0.87	0.86	1.31	1.14	2.00	-0.46	0.05	0.91	0.35	5.68	No	-2.45	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
132.5	Advance Outwash	140	25.5		2.84	63	2.00	0.86	0.85	1.31	1.14	2.00	-0.48	0.05	0.91	0.35	5.71	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
131.5	Advance Outwash	140	26.5		3.26	63	2.00	0.84	0.84	1.31	1.14	2.00	-0.51	0.06	0.90	0.35	5.75	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
130.5	Advance Outwash	140	27.5		3.26	63	2.00	0.83	0.83	1.31	1.14	2.00	-0.54	0.06	0.90	0.35	5.78	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
129.5	Advance Outwash	140	28.5		3.26	63	2.00	0.82	0.82	1.31	1.14	2.00	-0.56	0.06	0.89	0.34	5.81	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
128.5	Advance Outwash	140	29.5		3.26	63	2.00	0.81	0.81	1.31	1.14	2.00	-0.59	0.07	0.89	0.34	5.84	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	
127.5	Advance Outwash	140	30.5		3.26	60	2.00	0.80	0.80	1.31	1.14	2.00	-0.62	0.07	0.88	0.34	5.88	No	-2.40	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000	

Project Name **85th Street Trail**
 Project No. **2022-044-21**
 Return Period **2,475 year**
 Boring **BH-6**

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)			CRR					CSR			Settlement												
				$\Delta(N1)_{60}$		$N_{(60)CS}$	$CRR_{w=7.5\&\sigma=1}$	$K\sigma$		MSF/K_{ww}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	$F\alpha$	Y_{min}	Y_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												CSR Using 0.65_{amax}
113.5	Fill	135	0.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
112.5	Fill	135	1.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
111.5	Fill	135	2.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
110.5	Fill	135	3.5	3.26	2.84	63	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
109.5	Fill	135	4.5	3.26	2.84	63	2.00	1.10	1.52	1.31	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
108.5	Fill	135	5.5	3.26	2.84	63	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
107.5	Fill	135	6.5	3.26	2.84	63	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
106.5	Fill	135	7.5	3.26	2.84	63	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
105.5	Fill	135	8.5	3.26	2.84	63	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
104.5	Fill	135	9.5	3.26	2.84	63	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
103.5	Fill	135	10.5	3.58	3.03	64	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
102.5	Fill	135	11.5	3.58	3.03	64	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
101.5	Fill	135	12.5	3.58	3.03	64	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
100.5	Fill	135	13.5	3.58	3.03	64	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
99.5	Fill	135	14.5	3.58	3.03	64	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.73	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
98.5	Fill	135	15.5	1.15	1.89	61	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
97.5	Fill	135	16.5	1.15	1.89	61	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
96.5	Fill	135	17.5	1.15	1.89	61	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
95.5	Fill	135	18.5	1.15	1.89	61	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
94.5	Fill	135	19.5	1.15	1.89	61	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-7

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)			CRR					CSR			Settlement												
				Δ(N1)60		N ₁₍₆₀₎ CS	CRR _{W=7.5&σ=1}	Kσ		MSF/K _{sw}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	Fα	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)	rd												CSR Using 0.65 _{amax}
142.5	Fill	135	0.5	4.30	3.22	52	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-1.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
141.5	Fill	135	1.5	4.30	3.22	52	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-1.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
140.5	Fill	135	2.5	4.30	3.15	50	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-1.61	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
139.5	Fill	135	3.5	4.30	3.03	46	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-1.30	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
138.5	Fill	135	4.5	4.30	2.94	44	2.00	1.10	1.52	1.28	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-1.09	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
137.5	Fill	135	5.5	4.30	3.59	64	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
136.5	Fill	135	6.5	4.30	3.58	64	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.76	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
135.5	Fill	135	7.5	4.30	3.59	64	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
134.5	Fill	135	8.5	4.30	3.58	64	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.77	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
133.5	Fill	135	9.5	4.30	3.53	62	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.62	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
132.5	Fill	135	10.5	4.30	3.59	64	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
131.5	Fill	135	11.5	4.30	3.59	64	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
130.5	Fill	135	12.5	4.09	3.17	56	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.11	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
129.5	Fill	135	13.5	4.09	3.23	58	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.29	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
128.5	Fill	135	14.5	4.09	3.20	57	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.20	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
127.5	Fill	135	15.5	4.09	3.26	59	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.35	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
126.5	Fill	135	16.5	4.09	3.23	58	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.27	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
125.5	Fill	135	17.5	4.09	3.20	57	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.20	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
124.5	Fill	135	18.5	4.09	3.18	57	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.14	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
123.5	Fill	135	19.5	4.09	3.16	56	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.08	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
122.5	Fill	135	20.5	4.09	3.41	64	2.00	0.92	0.91	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-2.78	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
121.5	Fill	135	21.5	4.09	3.41	64	2.00	0.91	0.90	1.31	1.14	2.00	-0.38	0.04	0.93	0.36	5.59	No	-2.78	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
120.5	Fill	135	22.5	4.09	3.41	64	2.00	0.89	0.89	1.31	1.14	2.00	-0.41	0.05	0.92	0.36	5.62	No	-2.78	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
119.5	Fill	135	23.5	4.09	3.41	64	2.00	0.88	0.87	1.31	1.14	2.00	-0.43	0.05	0.92	0.35	5.65	No	-2.78	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
118.5	Fill	135	24.5	4.09	3.41	64	2.00	0.87	0.86	1.31	1.14	2.00	-0.46	0.05	0.91	0.35	5.68	No	-2.78	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
117.5	Advance Outwash	140	25.5	1.15	1.66	47	2.00	0.86	0.85	1.31	1.14	2.00	-0.48	0.05	0.91	0.35	5.71	No	-1.36	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
116.5	Advance Outwash	140	26.5	1.15	1.65	47	2.00	0.84	0.84	1.31	1.14	2.00	-0.51	0.06	0.90	0.35	5.75	No	-1.33	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
115.5	Advance Outwash	140	27.5	1.15	1.64	46	2.00	0.83	0.83	1.31	1.14	2.00	-0.54	0.06	0.90	0.35	5.78	No	-1.29	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
114.5	Advance Outwash	140	28.5	1.15	1.64	46	2.00	0.82	0.82	1.31	1.14	2.00	-0.56	0.06	0.89	0.34	5.81	No	-1.26	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
113.5	Advance Outwash	140	29.5	1.15	1.63	45	2.00	0.81	0.81	1.30	1.14	2.00	-0.59	0.07	0.89	0.34	5.84	No	-1.22	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
112.5	Advance Outwash	140	30.5	1.15	1.89	61	2.00	0.80	0.80	1.31	1.14	2.00	-0.62	0.07	0.88	0.34	5.83	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 65th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-8

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)			CRR					CSR			Settlement												
				Δ(N1)60		N _{(60)CS}	CRR _{M=7.5&σ=1}	K _σ		MSF/K _{MW}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	F _α	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)	rd												CSR Using 0.65 _{amax}
142.5	F _{III}	135	0.5	1.15	1.89	61	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
141.5	F _{III}	135	1.5	1.15	1.89	61	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
140.5	F _{III}	135	2.5	1.15	1.89	61	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
139.5	F _{III}	135	3.5	1.15	1.86	59	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-2.34	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
138.5	F _{III}	135	4.5	1.15	1.79	55	2.00	1.10	1.52	1.31	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-2.02	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
137.5	F _{III}	135	5.5	3.26	2.84	63	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
136.5	F _{III}	135	6.5	3.26	2.84	63	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
135.5	F _{III}	135	7.5	3.26	2.84	63	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
134.5	F _{III}	135	8.5	3.26	1.68	17	0.18	1.07	1.23	1.05	1.14	0.20	-0.11	0.01	0.98	0.38	0.52	No	0.66	0.22	0.22	0.026	2.605	1.0	0.218	0.0000	0.000
133.5	F _{III}	135	9.5	3.26	1.67	17	0.17	1.06	1.18	1.05	1.14	0.19	-0.13	0.01	0.98	0.38	0.51	No	0.68	0.23	0.23	0.027	2.652	1.0	0.228	0.0000	0.000
132.5	F _{III}	135	10.5	3.26	1.69	17	0.18	1.05	1.14	1.05	1.14	0.19	-0.15	0.02	0.97	0.38	0.52	No	0.65	0.22	0.22	0.026	2.590	1.0	0.215	0.0000	0.000
131.5	F _{III}	135	11.5	3.26	1.68	17	0.17	1.04	1.11	1.05	1.14	0.19	-0.17	0.02	0.97	0.37	0.51	No	0.67	0.22	0.22	0.026	2.629	1.0	0.223	0.0000	0.000
130.5	F _{III}	135	12.5	1.15	1.11	15	0.15	1.02	1.08	1.04	1.14	0.16	-0.18	0.02	0.97	0.37	0.44	No	0.77	0.29	0.29	0.029	2.941	1.0	0.290	0.0000	0.000
129.5	F _{III}	135	13.5	1.15	1.12	15	0.16	1.02	1.05	1.04	1.14	0.17	-0.20	0.02	0.96	0.37	0.45	No	0.75	0.27	0.27	0.029	2.864	1.0	0.273	0.0000	0.000
128.5	F _{III}	135	14.5	1.15	1.12	15	0.15	1.01	1.03	1.04	1.14	0.16	-0.23	0.03	0.96	0.37	0.44	No	0.76	0.28	0.28	0.029	2.900	1.0	0.281	0.0000	0.000
127.5	F _{III}	135	15.5	1.15	1.89	61	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
126.5	F _{III}	135	16.5	1.15	1.89	61	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
125.5	F _{III}	135	17.5	1.15	1.89	61	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
124.5	F _{III}	135	18.5	1.15	1.89	61	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
123.5	F _{III}	135	19.5	1.15	1.89	61	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
122.5	F _{III}	135	20.5	2.51	2.46	63	2.00	0.92	0.91	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 65th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-9

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	No Lateral Spreading Anticipated
Distance to Free Face	Do Not Enter
Height of Free Face	Do Not Enter
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)			CRR					CSR			Settlement												
				Δ(N1)60		N _{(60)CS}	CRR _{M=7.58,σ=1}	K _σ		MSF/K _{MW}		CRR	rd Calculation			CSR Using 0.65 _{amax}	FS (CRR/CSR)	Is Liquefaction Anticipated?	F _α	Y _{min}	Y _{max}	ε _v	ε _v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		α(z)	β(z)	rd												
210.5	T _{III}	135	0.5	4.48	3.78	64	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
209.5	T _{III}	135	1.5	4.48	3.78	64	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
208.5	T _{III}	135	2.5	4.48	3.78	64	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
207.5	T _{III}	135	3.5	4.48	3.78	64	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
206.5	T _{III}	135	4.5	4.48	3.78	64	2.00	1.10	1.52	1.31	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
205.5	T _{III}	135	5.5	4.48	3.50	56	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.07	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
204.5	T _{III}	135	6.5	4.48	3.42	54	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-1.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
203.5	T _{III}	135	7.5	4.48	3.41	53	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-1.85	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
202.5	T _{III}	135	8.5	4.48	3.36	52	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-1.72	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
201.5	T _{III}	135	9.5	4.48	3.31	50	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-1.61	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
200.5	T _{III}	135	10.5	3.26	2.84	63	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
199.5	T _{III}	135	11.5	3.26	2.84	63	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
198.5	T _{III}	135	12.5	5.58	7.57	66	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.91	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
197.5	T _{III}	135	13.5	5.58	7.57	66	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.91	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
196.5	T _{III}	135	14.5	5.58	7.57	66	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.91	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
195.5	T _{III}	125	15.5	5.56	14.38	66	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
194.5	T _{III}	135	16.5	1.15	1.89	61	2.00	0.99	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
193.5	T _{III}	135	17.5	1.15	1.89	61	2.00	0.98	0.97	1.31	1.14	2.00	-0.29	0.03	0.94	0.37	5.34	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
192.5	T _{III}	135	18.5	1.15	1.89	61	2.00	0.97	0.96	1.31	1.14	2.00	-0.31	0.04	0.94	0.38	5.23	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
191.5	T _{III}	135	19.5	1.15	1.89	61	2.00	0.96	0.95	1.31	1.14	2.00	-0.34	0.04	0.94	0.39	5.14	No	-2.52	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
190.5	T _{III}	135	20.5	4.48	3.78	64	2.00	0.95	0.94	1.31	1.14	2.00	-0.36	0.04	0.93	0.40	5.06	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
189.5	T _{III}	135	21.5	4.48	3.78	64	2.00	0.94	0.94	1.31	1.14	2.00	-0.38	0.04	0.93	0.40	4.99	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-10

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	1.106 inches
Average Residual Friction Angle	7.1 degrees

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)		CRR						CSR			Settlement												
				$\Delta(N1)_{60}$		$N_{(60)CS}$	$CRR_{M=7.5, \sigma=1}$	$K\sigma$		MSF/K_{MW}		CRR	rd Calculation			CSR Using 0.65 σ_{max}	FS (CRR/CSR)	Is Liquefaction Anticipated?	F_a	Y_{min}	Y_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												
198.5	Fill	135	0.5	4.48	3.12	45	2.00	1.10	1.60	1.29	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-1.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
197.5	Fill	135	1.5	4.48	3.12	45	2.00	1.10	1.60	1.29	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-1.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
196.5	Fill	135	2.5	4.48	3.06	43	2.00	1.10	1.60	1.27	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-1.02	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
195.5	Fill	135	3.5	4.48	2.95	40	2.00	1.10	1.60	1.23	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-0.77	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
194.5	Fill	135	4.5	4.48	2.88	37	1.88	1.10	1.52	1.21	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-0.60	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
193.5	Fill	135	5.5	4.48	2.66	31	0.55	1.10	1.42	1.15	1.14	0.69	-0.06	0.01	0.99	0.38	1.81	No	-0.15	0.04	0.00	0.001	0.074	1.0	0.004	0.0000	0.000
192.5	Fill	135	6.5	4.48	2.63	30	0.47	1.10	1.34	1.14	1.14	0.59	-0.08	0.01	0.99	0.38	1.55	No	-0.07	0.05	0.01	0.002	0.209	1.0	0.010	0.0000	0.000
191.5	Fill	135	7.5	4.48	2.69	32	0.62	1.10	1.28	1.15	1.14	0.78	-0.09	0.01	0.98	0.38	2.06	No	-0.21	0.04	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
190.5	Fill	135	8.5	4.48	2.66	31	0.54	1.10	1.23	1.15	1.14	0.68	-0.11	0.01	0.98	0.38	1.81	No	-0.15	0.04	0.00	0.001	0.076	1.0	0.004	0.0000	0.000
189.5	Fill	135	9.5	4.48	2.64	30	0.49	1.10	1.18	1.14	1.14	0.61	-0.13	0.01	0.98	0.38	1.63	No	-0.09	0.05	0.01	0.002	0.164	1.0	0.008	0.0000	0.000
188.5	Fill	135	10.5	4.48	3.18	46	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-1.31	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
187.5	Fill	135	11.5	4.48	3.15	45	2.00	1.09	1.11	1.30	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-1.23	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
186.5	Fill	135	12.5	4.48	2.67	31	0.57	1.05	1.08	1.15	1.14	0.69	-0.18	0.02	0.97	0.37	1.85	No	-0.17	0.04	0.00	0.001	0.057	1.0	0.003	0.0000	0.000
185.5	Fill	135	13.5	4.48	2.71	32	0.68	1.03	1.05	1.16	1.14	0.81	-0.20	0.02	0.96	0.37	2.19	No	-0.25	0.03	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
184.5	Fill	135	14.5	4.48	2.69	32	0.63	1.02	1.03	1.15	1.14	0.73	-0.23	0.03	0.96	0.37	1.99	No	-0.21	0.04	0.00	0.000	0.005	1.0	0.000	0.0000	0.000
183.5	Fill	135	15.5	3.26	2.41	46	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-1.29	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
182.5	Fill	135	16.5	3.26	2.39	46	2.00	0.98	0.98	1.30	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-1.23	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
181.5	Fill	135	17.5	3.26	2.38	45	2.00	0.97	0.96	1.30	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-1.18	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
180.5	Fill	135	18.5	3.26	2.36	44	2.00	0.95	0.95	1.29	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-1.13	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
179.5	Fill	135	19.5	3.26	2.35	44	2.00	0.94	0.93	1.28	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-1.09	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
178.5	Fill	125	20.5	2.51	1.40	14	0.15	0.97	0.92	1.04	1.14	0.15	-0.36	0.04	0.93	0.36	0.40	Yes	0.80	0.32	0.32	0.031	3.062	1.0	0.317	0.0306	0.367
177.5	Fill	125	21.5	2.51	1.40	14	0.14	0.97	0.91	1.04	1.14	0.15	-0.38	0.04	0.93	0.37	0.40	Yes	0.81	0.32	0.32	0.031	3.072	1.0	0.319	0.0307	0.369
176.5	Fill	125	22.5	2.51	1.40	14	0.14	0.97	0.90	1.04	1.14	0.15	-0.41	0.05	0.92	0.38	0.39	Yes	0.81	0.32	0.32	0.031	3.082	1.0	0.321	0.0308	0.370
175.5	Till	135	23.5	2.51	2.46	63	2.00	0.90	0.90	1.31	1.14	2.00	-0.43	0.05	0.92	0.38	5.26	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
174.5	Till	135	24.5	2.51	2.46	63	2.00	0.90	0.89	1.31	1.14	2.00	-0.46	0.05	0.91	0.38	5.20	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
173.5	Till	135	25.5	2.51	2.46	63	2.00	0.89	0.88	1.31	1.14	2.00	-0.48	0.05	0.91	0.39	5.14	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
172.5	Till	135	26.5	4.48	3.78	64	2.00	0.88	0.88	1.31	1.14	2.00	-0.51	0.06	0.90	0.39	5.09	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
171.5	Till	135	27.5	4.48	3.78	64	2.00	0.88	0.87	1.31	1.14	2.00	-0.54	0.06	0.90	0.40	5.04	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
170.5	Till	135	28.5	4.48	3.78	64	2.00	0.87	0.86	1.31	1.14	2.00	-0.56	0.06	0.89	0.40	5.00	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
169.5	Till	135	29.5	4.48	3.78	64	2.00	0.86	0.86	1.31	1.14	2.00	-0.59	0.07	0.89	0.40	4.97	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
168.5	Till	135	30.5	4.48	3.78	64	2.00	0.86	0.85	1.31	1.14	2.00	-0.62	0.07	0.88	0.41	4.94	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-11

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)		CRR						CSR			Settlement												
				$\Delta(N1)60$		$N_{(60)CS}$	$CRR_{M=7.5, \sigma=1}$	$K\sigma$		MSF/K_{MW}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	$F\alpha$	Y_{min}	Y_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												CSR Using 0.65 σ_{max}
174.5	Fill	135	0.5	2.51	1.59	23	0.24	1.10	1.60	1.08	1.14	0.29	0.01	0.00	1.01	0.39	0.74	No	0.37	0.12	0.07	0.019	1.929	1.0	0.074	0.0000	0.000
173.5	Fill	135	1.5	2.51	1.59	23	0.24	1.10	1.60	1.08	1.14	0.29	0.00	0.00	1.00	0.39	0.75	No	0.37	0.12	0.07	0.019	1.916	1.0	0.074	0.0000	0.000
172.5	Fill	135	2.5	2.51	1.57	22	0.23	1.10	1.60	1.08	1.14	0.27	-0.02	0.00	1.00	0.39	0.70	No	0.43	0.13	0.10	0.022	2.155	1.0	0.096	0.0000	0.000
171.5	Fill	135	3.5	2.51	1.54	20	0.21	1.10	1.60	1.07	1.14	0.24	-0.03	0.00	1.00	0.38	0.63	No	0.52	0.16	0.16	0.023	2.301	1.0	0.158	0.0000	0.000
170.5	Fill	135	4.5	2.51	1.51	19	0.19	1.10	1.52	1.06	1.14	0.23	-0.04	0.01	0.99	0.38	0.59	No	0.57	0.18	0.18	0.024	2.411	1.0	0.180	0.0000	0.000
169.5	Fill	135	5.5	2.51	1.90	37	1.64	1.10	1.42	1.20	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-0.56	0.02	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
168.5	Fill	135	6.5	2.51	1.87	35	1.17	1.10	1.34	1.19	1.14	1.53	-0.08	0.01	0.99	0.38	4.02	No	-0.46	0.02	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
167.5	Fill	135	7.5	2.51	1.84	34	0.92	1.10	1.28	1.18	1.14	1.19	-0.09	0.01	0.98	0.38	3.13	No	-0.37	0.03	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
166.5	Fill	135	8.5	2.51	1.82	33	0.76	1.10	1.23	1.17	1.14	0.98	-0.11	0.01	0.98	0.38	2.59	No	-0.30	0.03	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
165.5	Fill	135	9.5	2.51	1.80	32	0.66	1.10	1.18	1.16	1.14	0.84	-0.13	0.01	0.98	0.38	2.23	No	-0.24	0.03	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
164.5	Fill	135	10.5	2.51	2.01	42	2.00	1.10	1.14	1.26	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-0.93	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
163.5	Fill	135	11.5	2.51	1.99	41	2.00	1.10	1.12	1.25	1.14	2.00	-0.17	0.02	0.97	0.38	5.24	No	-0.88	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
162.5	Fill	135	12.5	4.48	3.78	64	2.00	1.08	1.10	1.31	1.14	2.00	-0.18	0.02	0.97	0.39	5.07	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
161.5	Fill	135	13.5	4.48	3.78	64	2.00	1.07	1.08	1.31	1.14	2.00	-0.20	0.02	0.96	0.41	4.93	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
160.5	Fill	135	14.5	4.48	3.78	64	2.00	1.06	1.07	1.31	1.14	2.00	-0.23	0.03	0.96	0.42	4.81	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
159.5	Fill	135	15.5	4.48	3.78	64	2.00	1.05	1.05	1.31	1.14	2.00	-0.25	0.03	0.95	0.43	4.71	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
158.5	Fill	135	16.5	4.48	3.78	64	2.00	1.03	1.04	1.31	1.14	2.00	-0.27	0.03	0.95	0.43	4.62	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
157.5	Fill	135	17.5	4.48	3.78	64	2.00	1.02	1.03	1.31	1.14	2.00	-0.29	0.03	0.94	0.44	4.54	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
156.5	Fill	135	18.5	4.48	3.78	64	2.00	1.01	1.01	1.31	1.14	2.00	-0.31	0.04	0.94	0.45	4.48	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
155.5	Fill	135	19.5	4.48	3.78	64	2.00	1.00	1.00	1.31	1.14	2.00	-0.34	0.04	0.94	0.45	4.42	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
154.5	Fill	125	20.5	4.48	3.52	57	2.00	0.99	0.99	1.31	1.14	2.00	-0.36	0.04	0.93	0.46	4.37	No	-2.13	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
153.5	Fill	125	21.5	4.48	3.50	56	2.00	0.98	0.98	1.31	1.14	2.00	-0.38	0.04	0.93	0.46	4.32	No	-2.09	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-12

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)		CRR						CSR			Settlement												
				$\Delta(N1)_{60}$		$N_{(160)CS}$	$CRR_{M=7.58, \alpha=1}$	$K\sigma$		MSF/K_{MW}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	F_a	Y_{min}	Y_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												CSR Using 0.65 σ_{max}
94.5	Fill	135	0.5	4.48	3.12	45	2.00	1.10	1.60	1.29	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-1.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
93.5	Fill	135	1.5	4.48	3.12	45	2.00	1.10	1.60	1.29	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-1.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
92.5	Fill	135	2.5	4.48	3.06	43	2.00	1.10	1.60	1.27	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-1.02	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
91.5	Fill	135	3.5	4.48	2.95	40	2.00	1.10	1.60	1.23	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-0.77	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
90.5	Fill	135	4.5	4.48	2.88	37	1.88	1.10	1.52	1.21	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-0.60	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
89.5	Fill	135	5.5	4.48	3.50	56	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.07	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
88.5	Fill	135	6.5	4.48	3.42	54	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-1.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
87.5	Fill	135	7.5	2.07	1.93	45	2.00	1.10	1.28	1.30	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-1.20	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
86.5	Fill	135	8.5	2.07	1.90	44	2.00	1.10	1.23	1.28	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-1.09	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
85.5	Fill	135	9.5	2.07	1.88	43	2.00	1.10	1.18	1.27	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-0.99	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
84.5	Fill	135	10.5	2.07	2.02	50	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-1.56	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
83.5	Fill	135	11.5	2.07	2.00	49	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-1.47	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
82.5	Fill	135	12.5	2.07	2.17	57	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.16	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
81.5	Fill	135	13.5	2.07	2.21	59	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.35	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
80.5	Fill	135	14.5	5.07	4.51	60	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.40	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
79.5	Fill	135	15.5	5.07	4.47	59	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-2.32	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
78.5	Fill	135	16.5	5.07	4.43	58	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-2.24	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
77.5	Fill	135	17.5	5.07	4.40	57	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-2.18	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
76.5	Fill	135	18.5	5.07	4.37	56	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-2.11	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
75.5	Fill	135	19.5	5.07	4.34	56	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-2.05	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
74.5	Fill	135	20.5	5.07	3.74	41	2.00	0.92	0.91	1.25	1.14	2.00	-0.36	0.04	0.93	0.36	5.57	No	-0.90	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
73.5	Fill	135	21.5	5.07	3.72	41	2.00	0.91	0.90	1.25	1.14	2.00	-0.38	0.04	0.93	0.36	5.59	No	-0.87	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
72.5	Fill	135	22.5	5.07	3.70	40	2.00	0.89	0.89	1.24	1.14	2.00	-0.41	0.05	0.92	0.36	5.62	No	-0.84	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
71.5	Fill	135	23.5	5.07	3.69	40	2.00	0.88	0.87	1.24	1.14	2.00	-0.43	0.05	0.92	0.35	5.65	No	-0.81	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
70.5	Fill	135	24.5	5.07	3.67	40	2.00	0.87	0.86	1.23	1.14	2.00	-0.46	0.05	0.91	0.35	5.68	No	-0.78	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
69.5	Fill	135	25.5	5.07	4.73	65	2.00	0.86	0.85	1.31	1.14	2.00	-0.48	0.05	0.91	0.35	5.71	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
68.5	Glaciolacustrine	125	26.5	5.07	4.73	65	2.00	0.85	0.84	1.31	1.14	2.00	-0.51	0.06	0.90	0.35	5.75	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
67.5	Glaciolacustrine	125	27.5	5.07	4.73	65	2.00	0.84	0.83	1.31	1.14	2.00	-0.54	0.06	0.90	0.35	5.78	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
66.5	Glaciolacustrine	125	28.5	5.07	4.73	65	2.00	0.83	0.82	1.31	1.14	2.00	-0.56	0.06	0.89	0.34	5.81	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
65.5	Glaciolacustrine	125	29.5	5.07	4.73	65	2.00	0.82	0.81	1.31	1.14	2.00	-0.59	0.07	0.89	0.34	5.84	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
64.5	Glaciolacustrine	125	30.5	5.07	4.73	65	2.00	0.81	0.80	1.31	1.14	2.00	-0.62	0.07	0.88	0.34	5.88	No	-2.86	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2.475 year
 Boring BH-13

Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)			CRR						CSR			Settlement											
				$\Delta(N1)_{60}$			CRR _{M=7.5&D=1}	$K\sigma$		MSF/ K_{MW}		CRR	rd Calculation			CSR Using 0.65 _{amax}	FS (CRR/CSR)	Is Liquefaction Anticipated?	F _a	Y _{min}	Y _{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)
				Boulanger and Idriss (2014)	Cetin et al. (2016)	N _{1(60)CS}		Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												
83.5	Fill	135	0.5	5.43	3.92	26	0.30	1.10	1.60	1.10	1.14	0.37	0.01	0.00	1.01	0.39	0.95	No	0.20	0.08	0.04	0.009	0.918	1.0	0.039	0.0000	0.000
82.5	Fill	135	1.5	5.43	3.92	26	0.30	1.10	1.60	1.10	1.14	0.37	0.00	0.00	1.00	0.39	0.95	No	0.20	0.08	0.04	0.009	0.913	1.0	0.039	0.0000	0.000
81.5	Fill	135	2.5	5.43	3.87	25	0.28	1.10	1.60	1.10	1.14	0.34	-0.02	0.00	1.00	0.39	0.88	No	0.26	0.09	0.05	0.011	1.135	1.0	0.047	0.0000	0.000
80.5	Fill	135	3.5	5.43	3.72	23	0.25	1.10	1.60	1.09	1.14	0.30	-0.03	0.00	1.00	0.38	0.77	No	0.35	0.11	0.07	0.017	1.700	1.0	0.066	0.0000	0.000
79.5	Fill	135	4.5	5.43	3.72	22	0.23	1.10	1.52	1.08	1.14	0.27	-0.04	0.01	0.99	0.38	0.71	No	0.42	0.13	0.09	0.021	2.140	1.0	0.089	0.0000	0.000
78.5	Fill	135	5.5	5.43	3.72	54	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-1.89	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
77.5	Fill	135	6.5	5.43	5.31	52	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-1.72	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
76.5	Fill	135	7.5	5.43	4.76	41	2.00	1.10	1.28	1.25	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-0.90	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
75.5	Fill	135	8.5	5.43	4.70	40	2.00	1.10	1.23	1.24	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-0.81	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
74.5	Fill	135	9.5	5.43	4.65	39	2.00	1.10	1.18	1.23	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-0.74	0.01	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
73.5	Glaciolacustrine	125	10.5	5.52	16.84	66	2.00	1.10	1.15	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
72.5	Glaciolacustrine	125	11.5	5.52	16.84	66	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
71.5	Glaciolacustrine	125	12.5	5.52	16.84	66	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
70.5	Glaciolacustrine	125	13.5	5.52	16.84	66	2.00	1.06	1.07	1.31	1.14	2.00	-0.20	0.02	0.96	0.38	5.20	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
69.5	Glaciolacustrine	125	14.5	5.52	16.84	66	2.00	1.05	1.06	1.31	1.14	2.00	-0.23	0.03	0.96	0.40	5.06	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
68.5	Glaciolacustrine	125	15.5	5.52	16.84	66	2.00	1.04	1.05	1.31	1.14	2.00	-0.25	0.03	0.95	0.41	4.94	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
67.5	Glaciolacustrine	125	16.5	5.52	16.84	66	2.00	1.03	1.03	1.31	1.14	2.00	-0.27	0.03	0.95	0.41	4.83	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
66.5	Glaciolacustrine	125	17.5	5.52	16.84	66	2.00	1.02	1.02	1.31	1.14	2.00	-0.29	0.03	0.94	0.42	4.74	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
65.5	Glaciolacustrine	125	18.5	5.52	16.84	66	2.00	1.01	1.01	1.31	1.14	2.00	-0.31	0.04	0.94	0.43	4.66	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
64.5	Glaciolacustrine	125	19.5	5.52	16.84	66	2.00	1.00	1.00	1.31	1.14	2.00	-0.34	0.04	0.94	0.44	4.58	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
63.5	Glaciolacustrine	125	20.5	5.52	16.84	66	2.00	0.99	0.99	1.31	1.14	2.00	-0.36	0.04	0.93	0.44	4.52	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

Project Name 85th Street Trail
 Project No. 2022-044-21
 Return Period 2,475 year
 Boring BH-14

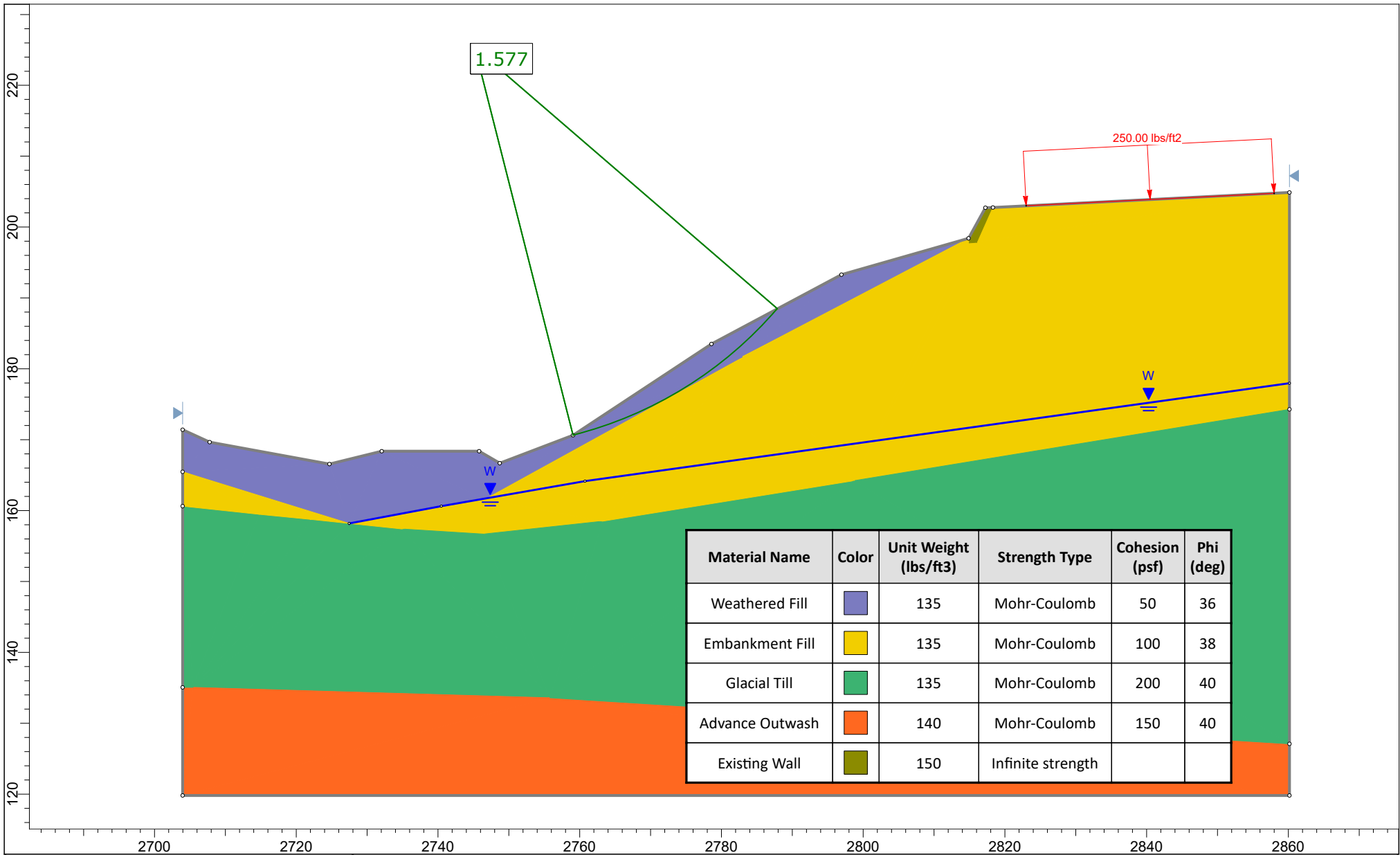
Maximum Considered Liquefaction Depth	80.0 feet
Liquefiable Silt Friction Angle	25.0 degrees
Liquefaction Triggering Method	Boulanger and Idriss (2014)
Total Estimated Liquefaction	No Liquefaction
Average Residual Friction Angle	No Liquefaction

Is Lateral Spreading Expected to Occur? How?	No
LDI Method	Zhang et al. (2004)
Distance to Free Face	40.0 feet
Height of Free Face	10.0 feet
Ground Slope	Do Not Enter
Total Estimated Lateral Displacement	No Lateral Displacement

Elevation at midpoint of layer ft	Unit Type	Unit Weight (pcf)	Field Data depth at midpoint of layer ft	Fines Correction (Modifies Idriss and Boulanger N60)		CRR						CSR			Settlement												
				$\Delta(N1)60$		$N_{(60)CS}$	$CRR_{M=7.5&e=1}$	$K\sigma$		MSF/K_{MW}		CRR	rd Calculation			FS (CRR/CSR)	Is Liquefaction Anticipated?	F_a	Y_{min}	Y_{max}	ϵ_v	ϵ_v (%)	H (ft)	Lateral Displacement (ft)	Settlement (ft)	Settlement (in)	
				Boulanger and Idriss (2014)	Cetin et al. (2016)			Boulanger and Idriss (2014)	Cetin et al. (2016)	Boulanger and Idriss (2014)	Cetin et al. (2016)		$\alpha(z)$	$\beta(z)$	rd												CSR Using 0.65 σ_{max}
135.5	Fill	135	0.5	4.48	3.39	53	2.00	1.10	1.60	1.31	1.14	2.00	0.01	0.00	1.01	0.39	5.15	No	-1.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
134.5	Fill	135	1.5	4.48	3.39	53	2.00	1.10	1.60	1.31	1.14	2.00	0.00	0.00	1.00	0.39	5.17	No	-1.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
133.5	Fill	135	2.5	4.48	3.31	50	2.00	1.10	1.60	1.31	1.14	2.00	-0.02	0.00	1.00	0.39	5.18	No	-1.62	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
132.5	Fill	135	3.5	4.48	3.18	47	2.00	1.10	1.60	1.31	1.14	2.00	-0.03	0.00	1.00	0.38	5.19	No	-1.31	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
131.5	Fill	135	4.5	4.48	3.09	44	2.00	1.10	1.52	1.28	1.14	2.00	-0.04	0.01	0.99	0.38	5.21	No	-1.10	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
130.5	Fill	135	5.5	4.48	3.78	64	2.00	1.10	1.42	1.31	1.14	2.00	-0.06	0.01	0.99	0.38	5.23	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
129.5	Fill	135	6.5	4.48	3.78	64	2.00	1.10	1.34	1.31	1.14	2.00	-0.08	0.01	0.99	0.38	5.24	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
128.5	Fill	135	7.5	4.48	3.78	64	2.00	1.10	1.28	1.31	1.14	2.00	-0.09	0.01	0.98	0.38	5.26	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
127.5	Fill	135	8.5	4.48	3.78	64	2.00	1.10	1.23	1.31	1.14	2.00	-0.11	0.01	0.98	0.38	5.28	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
126.5	Fill	135	9.5	4.48	3.78	64	2.00	1.10	1.18	1.31	1.14	2.00	-0.13	0.01	0.98	0.38	5.30	No	-2.81	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
125.5	Fill	135	10.5	4.30	3.59	64	2.00	1.10	1.14	1.31	1.14	2.00	-0.15	0.02	0.97	0.38	5.32	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
124.5	Fill	135	11.5	4.30	3.59	64	2.00	1.09	1.11	1.31	1.14	2.00	-0.17	0.02	0.97	0.37	5.34	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
123.5	Fill	135	12.5	4.30	3.59	64	2.00	1.07	1.08	1.31	1.14	2.00	-0.18	0.02	0.97	0.37	5.36	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
122.5	Fill	135	13.5	4.30	3.59	64	2.00	1.04	1.05	1.31	1.14	2.00	-0.20	0.02	0.96	0.37	5.39	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
121.5	Fill	135	14.5	4.30	3.59	64	2.00	1.02	1.03	1.31	1.14	2.00	-0.23	0.03	0.96	0.37	5.41	No	-2.79	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
120.5	Fill	135	15.5	2.51	2.24	52	2.00	1.00	1.00	1.31	1.14	2.00	-0.25	0.03	0.95	0.37	5.43	No	-1.77	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
119.5	Fill	135	16.5	2.51	2.22	51	2.00	0.98	0.98	1.31	1.14	2.00	-0.27	0.03	0.95	0.37	5.46	No	-1.70	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
118.5	Fill	135	17.5	2.51	2.20	51	2.00	0.97	0.96	1.31	1.14	2.00	-0.29	0.03	0.94	0.36	5.48	No	-1.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
117.5	Fill	135	18.5	2.51	2.19	50	2.00	0.95	0.95	1.31	1.14	2.00	-0.31	0.04	0.94	0.36	5.51	No	-1.58	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
116.5	Fill	135	19.5	2.51	2.17	49	2.00	0.94	0.93	1.31	1.14	2.00	-0.34	0.04	0.94	0.36	5.54	No	-1.53	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
115.5	Advance Outwash	135	20.5	2.51	2.46	63	2.00	0.92	0.92	1.31	1.14	2.00	-0.36	0.04	0.93	0.36	5.50	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
114.5	Advance Outwash	135	21.5	2.51	2.46	63	2.00	0.92	0.91	1.31	1.14	2.00	-0.38	0.04	0.93	0.37	5.41	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
113.5	Advance Outwash	135	22.5	2.51	2.46	63	2.00	0.91	0.90	1.31	1.14	2.00	-0.41	0.05	0.92	0.37	5.33	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
112.5	Advance Outwash	135	23.5	2.51	2.46	63	2.00	0.90	0.89	1.31	1.14	2.00	-0.43	0.05	0.92	0.38	5.26	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
111.5	Advance Outwash	135	24.5	2.51	2.46	63	2.00	0.89	0.89	1.31	1.14	2.00	-0.46	0.05	0.91	0.38	5.20	No	-2.64	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
110.5	Advance Outwash	125	25.5	5.53	16.08	66	2.00	0.89	0.88	1.31	1.14	2.00	-0.48	0.05	0.91	0.39	5.14	No	-2.90	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
109.5	Advance Outwash	135	26.5	5.21	5.11	65	2.00	0.88	0.87	1.31	1.14	2.00	-0.51	0.06	0.90	0.39	5.09	No	-2.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
108.5	Advance Outwash	135	27.5	5.21	5.11	65	2.00	0.87	0.87	1.31	1.14	2.00	-0.54	0.06	0.90	0.40	5.05	No	-2.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
107.5	Advance Outwash	135	28.5	5.21	5.11	65	2.00	0.87	0.86	1.31	1.14	2.00	-0.56	0.06	0.89	0.40	5.01	No	-2.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
106.5	Advance Outwash	135	29.5	5.21	5.11	65	2.00	0.86	0.85	1.31	1.14	2.00	-0.59	0.07	0.89	0.40	4.97	No	-2.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000
105.5	Advance Outwash	135	30.5	5.21	5.11	65	2.00	0.86	0.85	1.31	1.14	2.00	-0.62	0.07	0.88	0.40	4.94	No	-2.87	0.00	0.00	0.000	0.000	1.0	0.000	0.0000	0.000

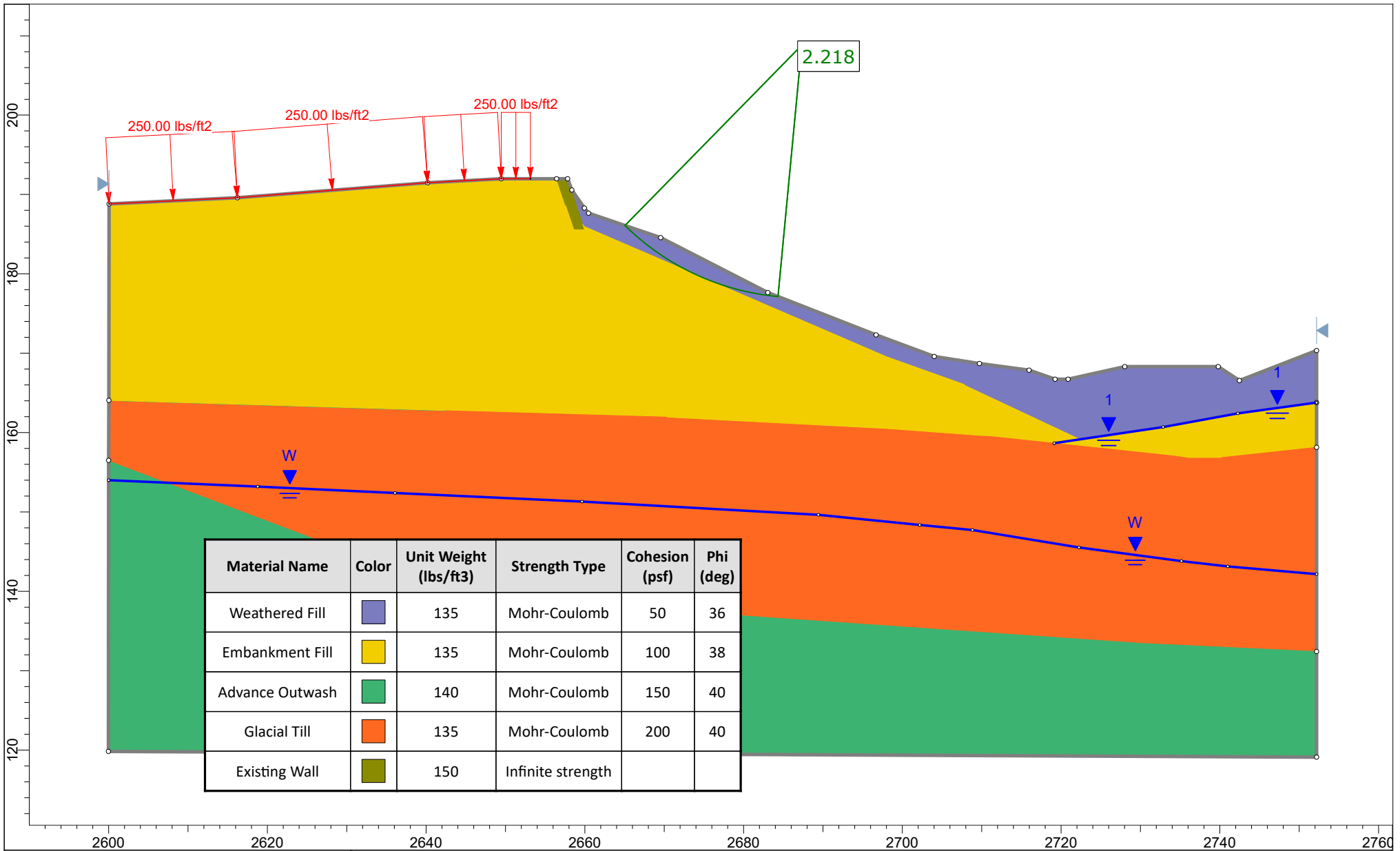
APPENDIX E

SLOPE STABILITY MODELING



SLIDEINTERPRET 8.032

Project		NE 85TH STREET PED/BIKE CONNECTION		E-1	
Analysis Description		STATIC STABILITY - CROSS SECTION A-A' (EAST SIDE) - EXISTING CONDITIONS			
Drawn By	JTW	Scale	1:225	Company	HWA GeoSciences, Inc.
Date	3/1/2023, 1:11:57 PM		File Name	Cross Section A-A' East Side - Existing - static-REV.slmd	

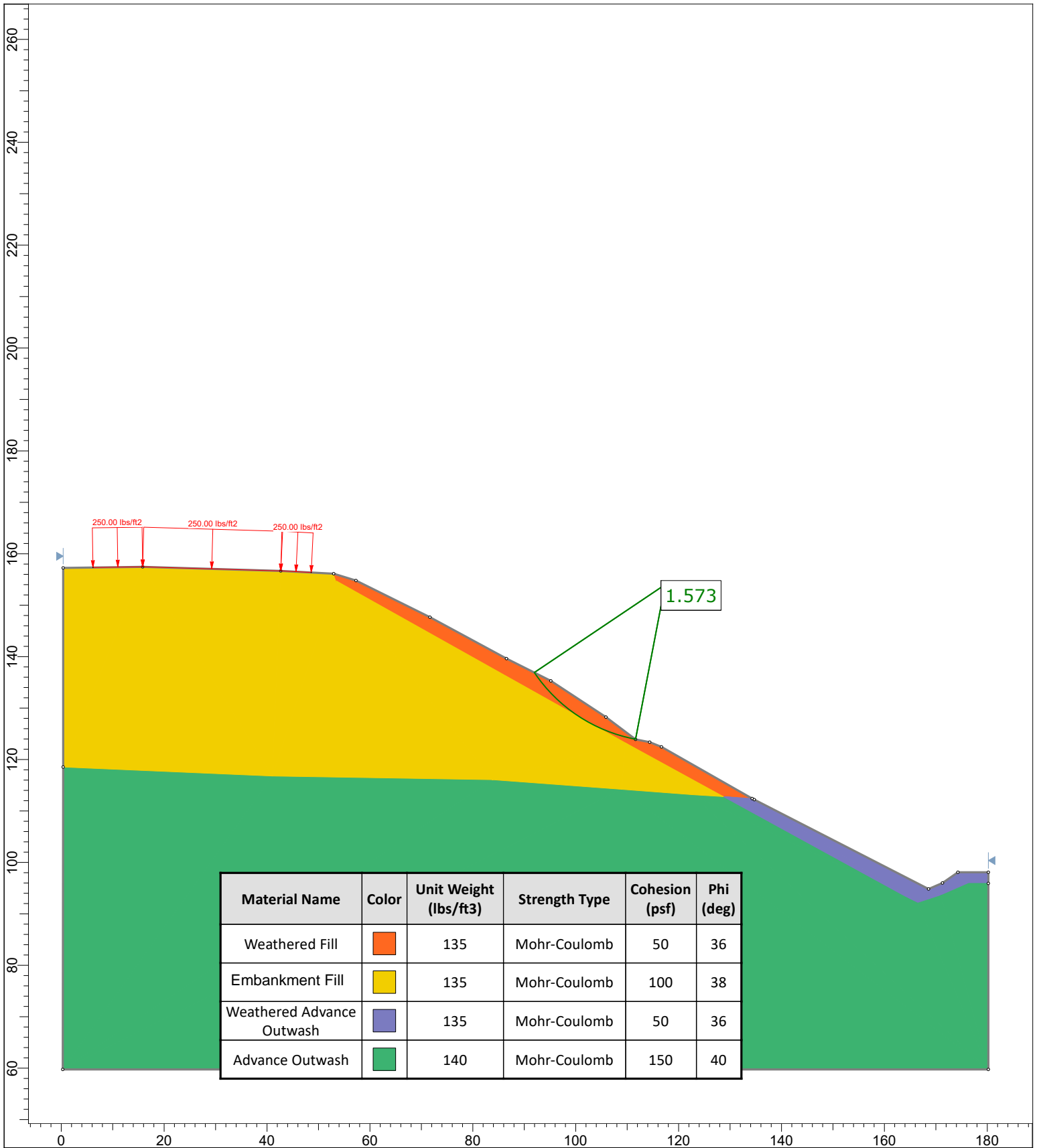


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	Blue	135	Mohr-Coulomb	50	36
Embankment Fill	Yellow	135	Mohr-Coulomb	100	38
Advance Outwash	Green	140	Mohr-Coulomb	150	40
Glacial Till	Orange	135	Mohr-Coulomb	200	40
Existing Wall	Olive	150	Infinite strength		



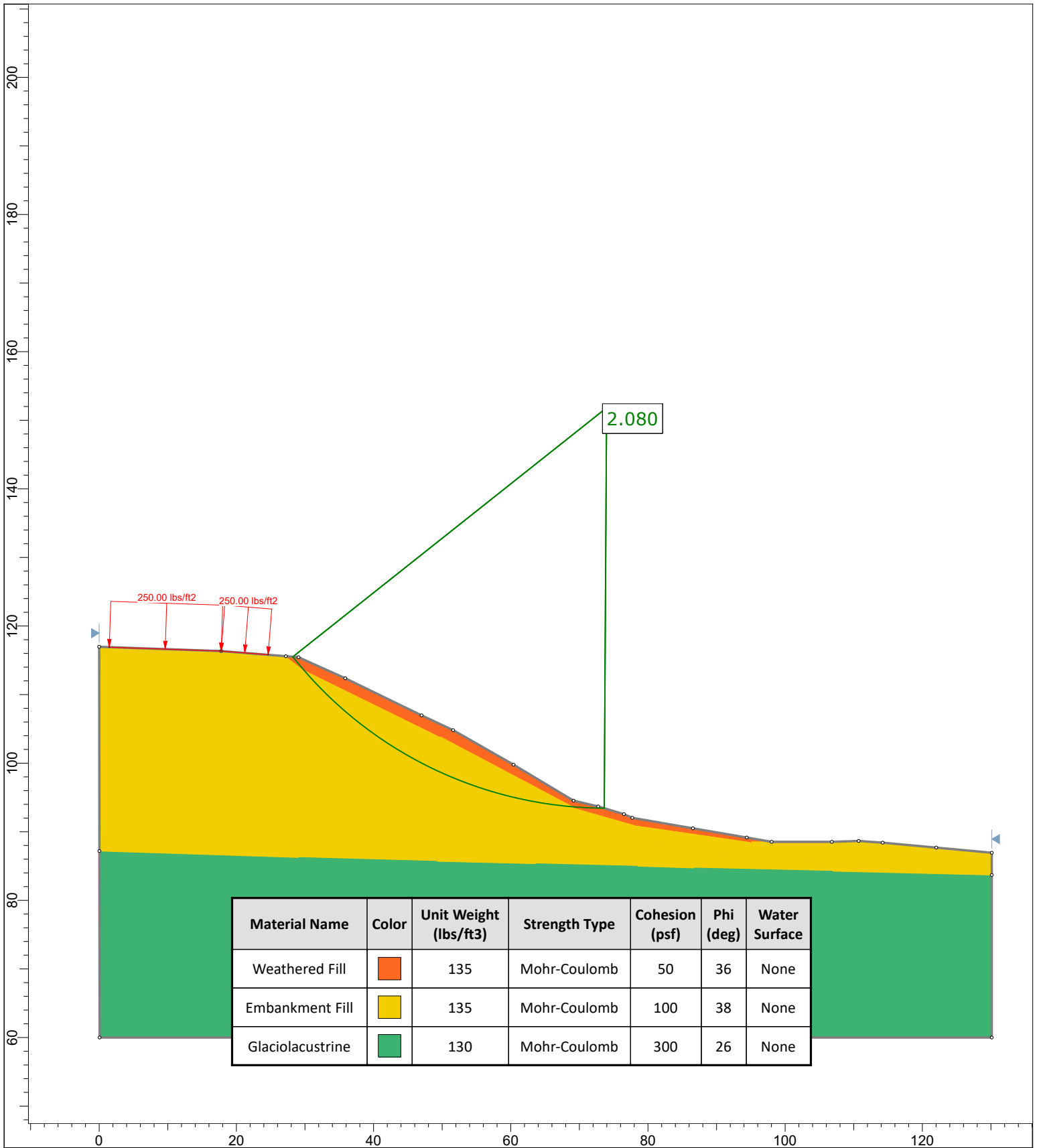
SLIDEINTERPRET 8.032




Project		NE 85TH STREET PED/BIKE CONNECTION		E-2	
Analysis Description		STATIC STABILITY - CROSS SECTION A-A' (WEST SIDE) - EXISTING CONDITIONS			
Drawn By	JTW	Scale	1:200	Company	HWA GeoSciences, Inc.
Date	3/1/2023, 12:51:41 PM		File Name	Cross Section A-A' West Side - Existing - Static.slmd	




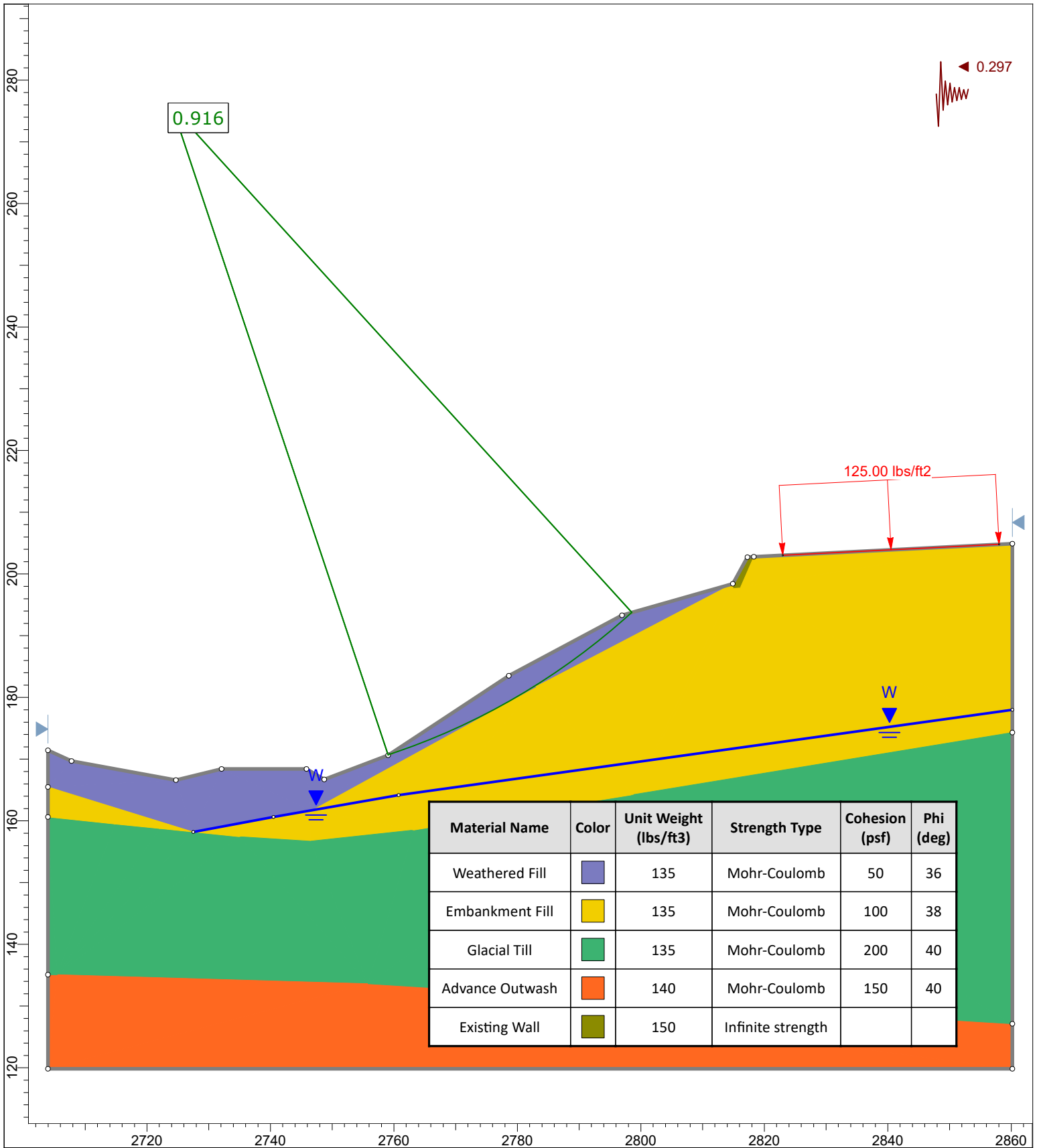
Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	Orange	135	Mohr-Coulomb	50	36
Embankment Fill	Yellow	135	Mohr-Coulomb	100	38
Weathered Advance Outwash	Purple	135	Mohr-Coulomb	50	36
Advance Outwash	Green	140	Mohr-Coulomb	150	40



	Project NE 85TH STREET PED/BIKE CONNECTION		E-3
	Analysis Description STATIC STABILITY - CROSS SECTION B-B' - EXISTING CONDITIONS		
	Drawn By JTW	Scale 1:300	Company HWA GeoSciences, Inc.
	Date 3/1/2023, 11:48:25 AM		File Name Cross Section B-B' Existing - Static.slmd




Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface
Weathered Fill		135	Mohr-Coulomb	50	36	None
Embankment Fill		135	Mohr-Coulomb	100	38	None
Glaciolacustrine		130	Mohr-Coulomb	300	26	None

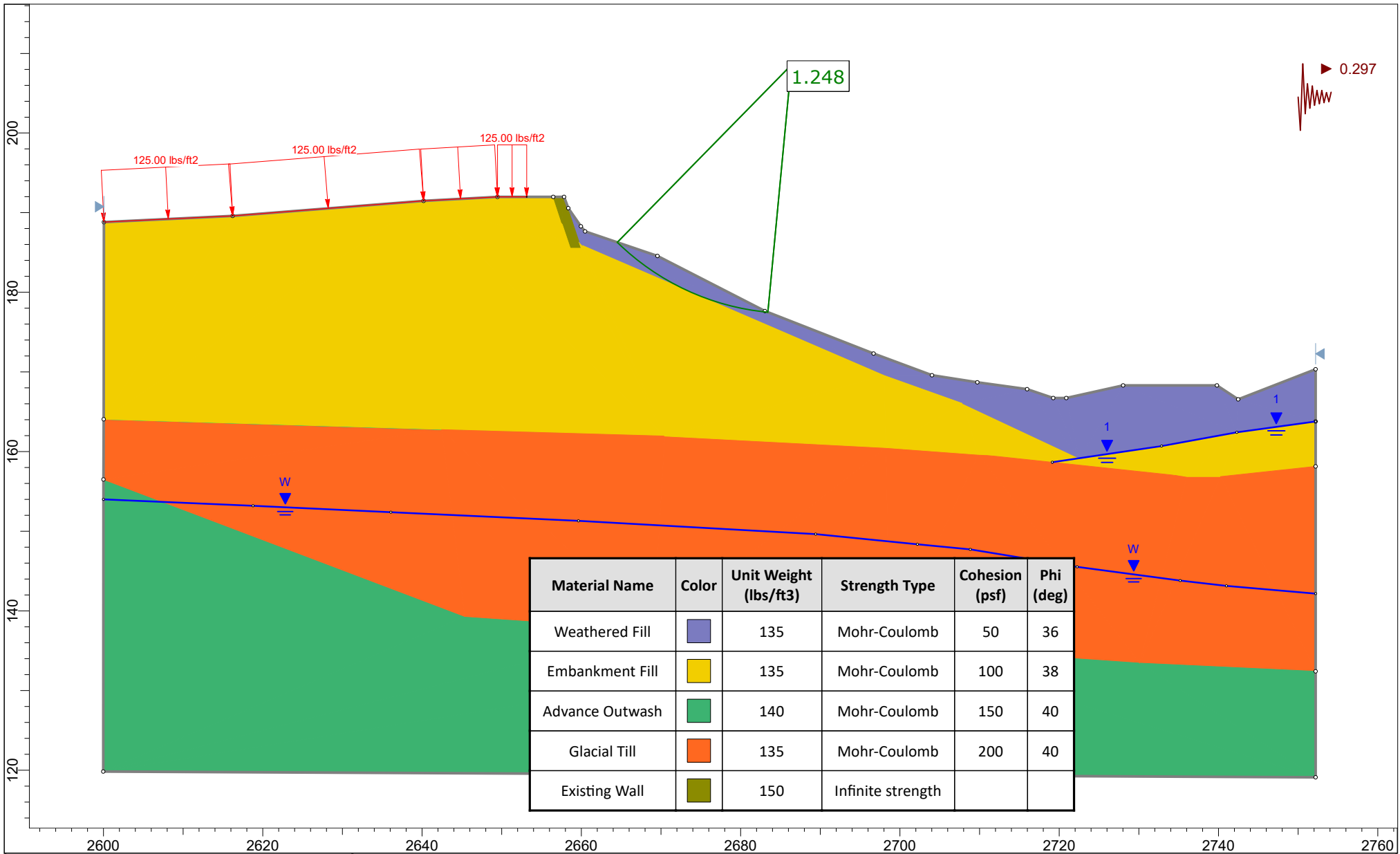
	Project		NE 85TH STREET PED/BIKE CONNECTION		E-4	
	Analysis Description		STATIC STABILITY - CROSS SECTION C-C' - EXISTING CONDITIONS			
	Drawn By	JTW	Scale	1:225	Company	HWA GeoSciences, Inc.
	Date	3/1/2023, 2:06:26 PM		File Name	Cross Section C-C'- Existing - Static updated.slm	



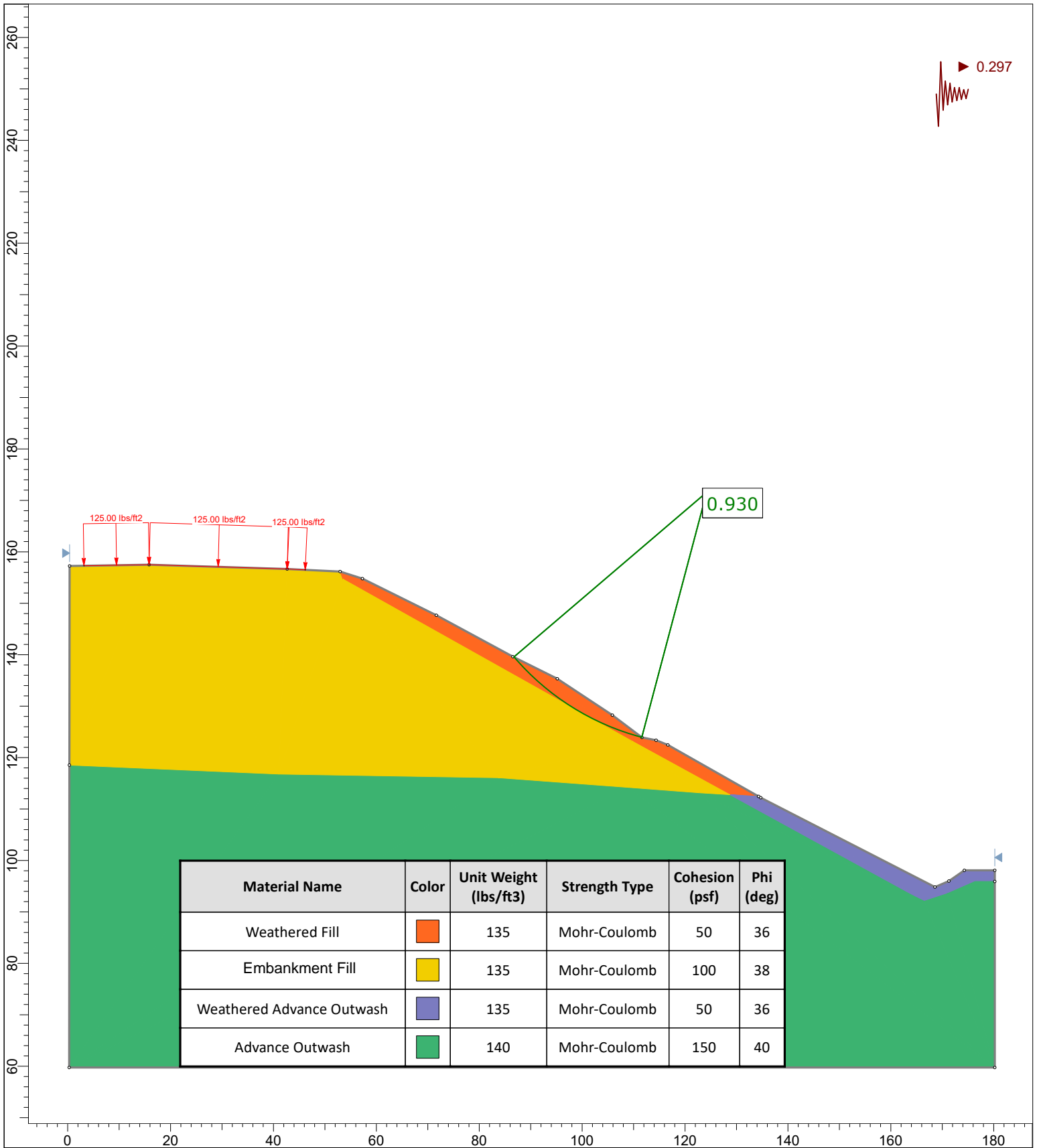
Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill		135	Mohr-Coulomb	50	36
Embankment Fill		135	Mohr-Coulomb	100	38
Glacial Till		135	Mohr-Coulomb	200	40
Advance Outwash		140	Mohr-Coulomb	150	40
Existing Wall		150	Infinite strength		


	Project		NE 85TH STREET PED/BIKE CONNECTION		E-5	
	Analysis Description					
	Drawn By		Scale		Company	
	Date		File Name		Analysis	

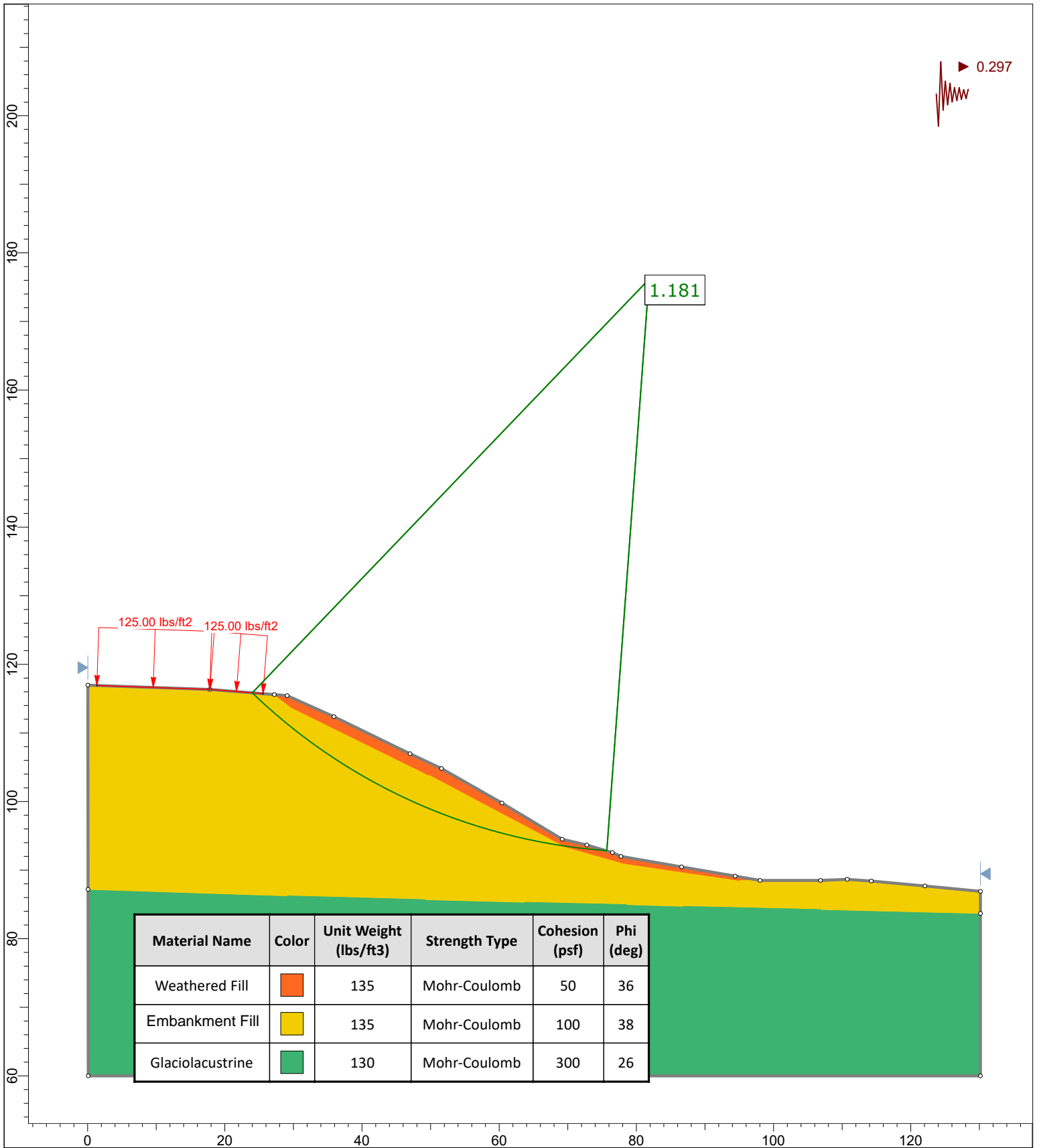
Analysis Description: STATIC STABILITY - CROSS SECTION C-C' - EXISTING CONDITIONS
 Drawn By: JTW Scale: 1:250 Company: HWA GeoSciences, Inc.
 Date: 3/1/2023, 1:11:57 PM File Name: CROSS Section A-A' East Side - Existing - psuedo static-REV slmd



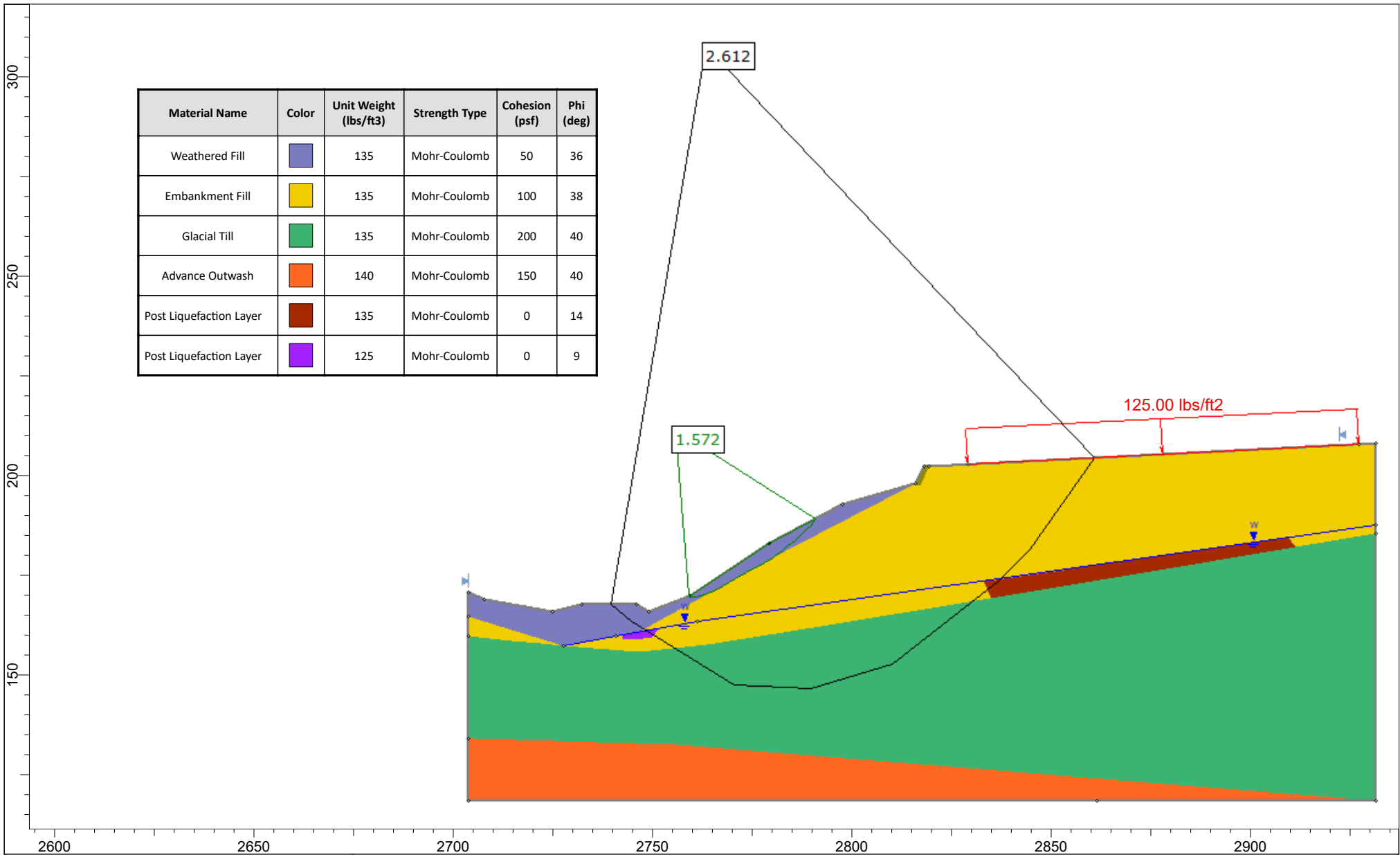
	Project NE 85TH STREET PED/BIKE CONNECTION			E-6
	Analysis Description			
	Drawn By JTW	Scale 1:200	Company HWA GeoSciences, Inc.	
	Date 3/1/2023, 12:51:41 PM		File Name Cross Section A-A' West Side - Existing -pseudo Static.slmd	



 <small>DBE/MWBE</small>	<i>Project</i> NE 85TH STREET PED/BIKE CONNECTION		E-7	
	<i>Analysis Description</i> PSEUDO STATIC STABILITY - CROSS SECTION B-B' - EXISTING CONDITIONS			
	<i>Drawn By</i> JTW	<i>Scale</i> 1:300		<i>Company</i> HWA GeoSciences, Inc.
	<i>Date</i> 3/1/2023, 11:48:25 AM			<i>File Name</i> Cross Section B-B' Existing - Pseudo Static.slmd

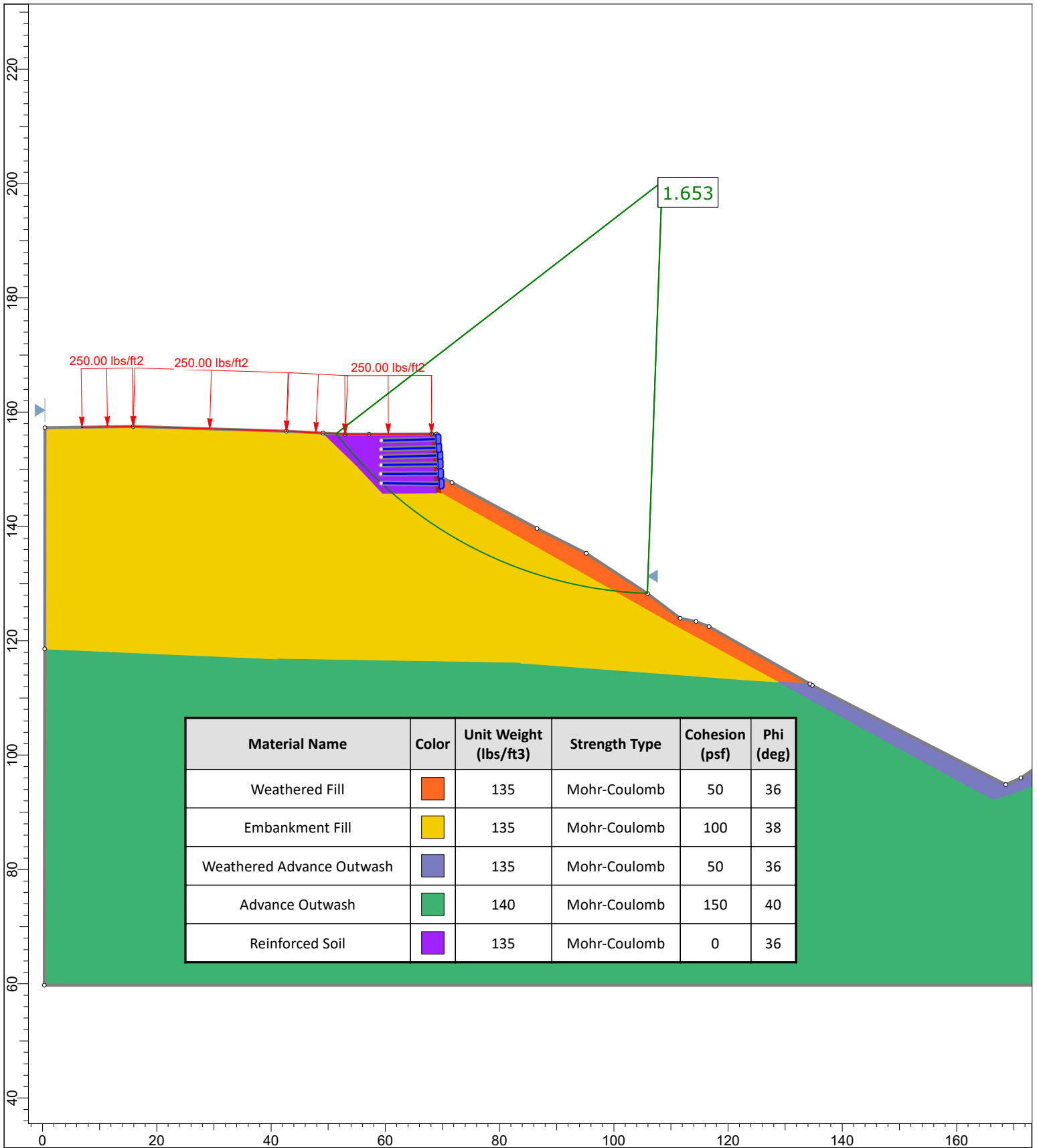


	Project		NE 85TH STREET PED/BIKE CONNECTION		E-8
	Analysis Description				
	PSEUDO STATIC STABILITY - CROSS SECTION B-B' - EXISTING CONDITIONS				
	Drawn By	JTW	Scale	1:225	Company
Date	3/1/2023, 2:06:26 PM			File Name	Cross Section C-C' - Existing - Pseudo Static.slmd



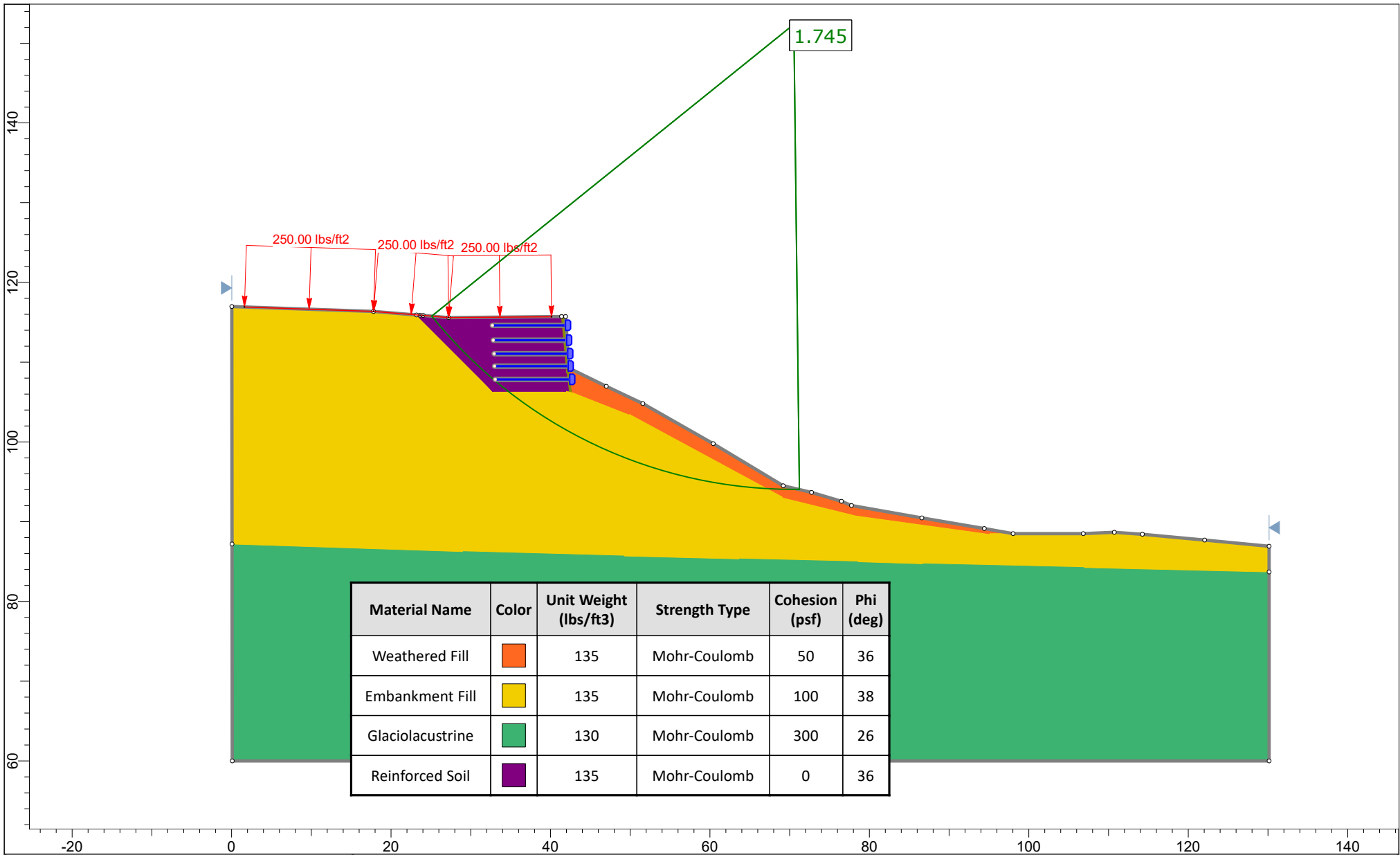
SLIDEINTERPRET 8.032

Project		NE 85TH STREET PED/BIKE CONNECTION		E-9	
Analysis Description					
POST LIQUEFACTION STABILITY - CROSS SECTION A-A' - EAST SIDE - EXISTING CONDITIONS					
Drawn By		JTW		Scale	
				1:400	
Date		12/4/2023, 3:12:00 PM		Company	
				HWA GeoSciences, Inc.	
				File Name	
				Cross Section A-A' East Side - Existing - psuedo static-REV.slm	



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	Orange	135	Mohr-Coulomb	50	36
Embankment Fill	Yellow	135	Mohr-Coulomb	100	38
Weathered Advance Outwash	Blue	135	Mohr-Coulomb	50	36
Advance Outwash	Green	140	Mohr-Coulomb	150	40
Reinforced Soil	Purple	135	Mohr-Coulomb	0	36

	Project		NE 85TH STREET PED/BIKE CONNECTION		E-10	
	Analysis Description		STATIC STABILITY - CROSS SECTION B-B' - PROPOSED CONDITIONS			
	Drawn By	JTW	Scale	1:270	Company	HWA GEOSCIENCES, INC.
	Date	3/1/2023, 11:48:25 AM		File Name	E-10 Section B-B' Proposed- Static 3ft embed 1H arid.sldm	

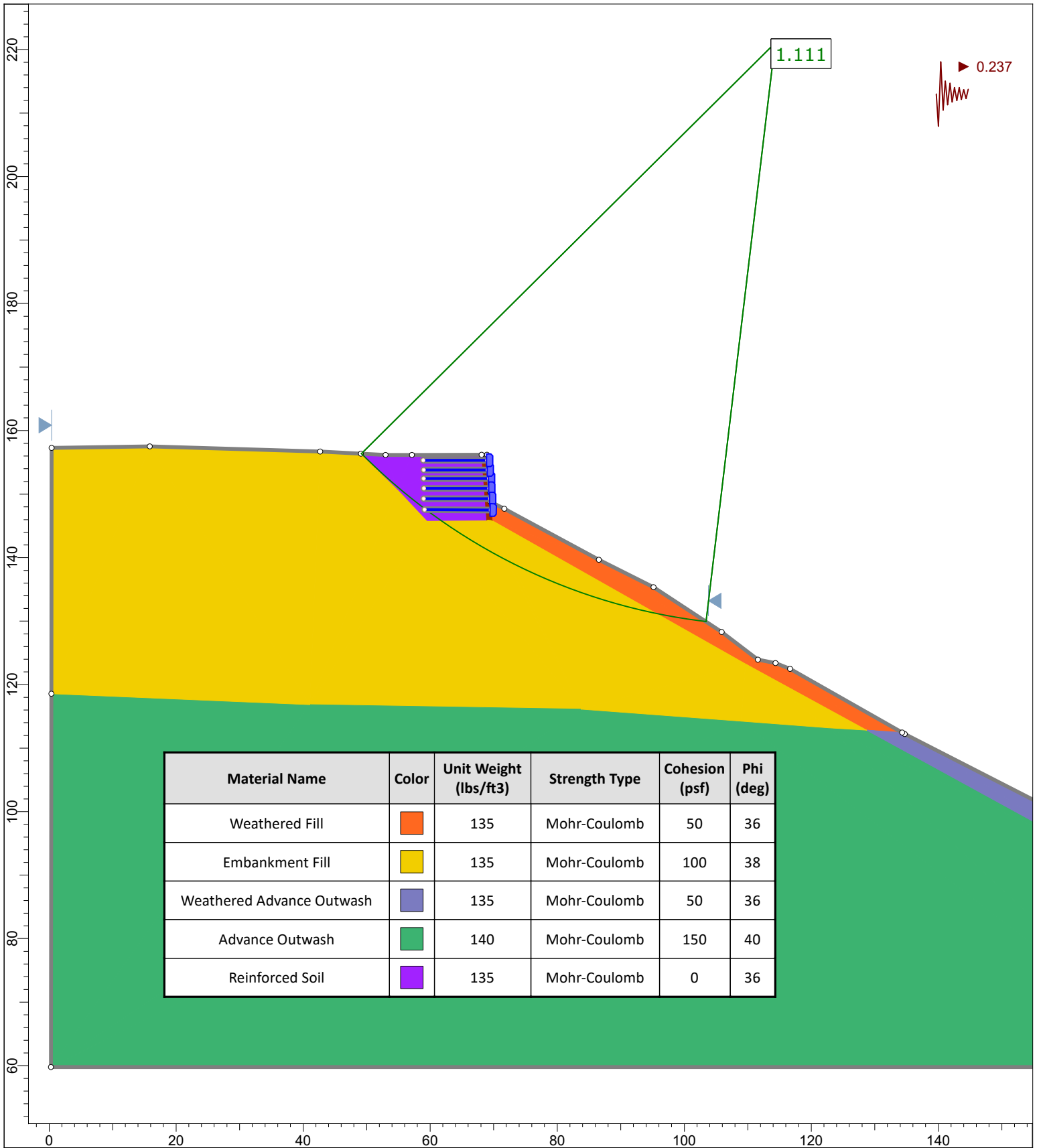


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	Orange	135	Mohr-Coulomb	50	36
Embankment Fill	Yellow	135	Mohr-Coulomb	100	38
Glaciolacustrine	Green	130	Mohr-Coulomb	300	26
Reinforced Soil	Purple	135	Mohr-Coulomb	0	36

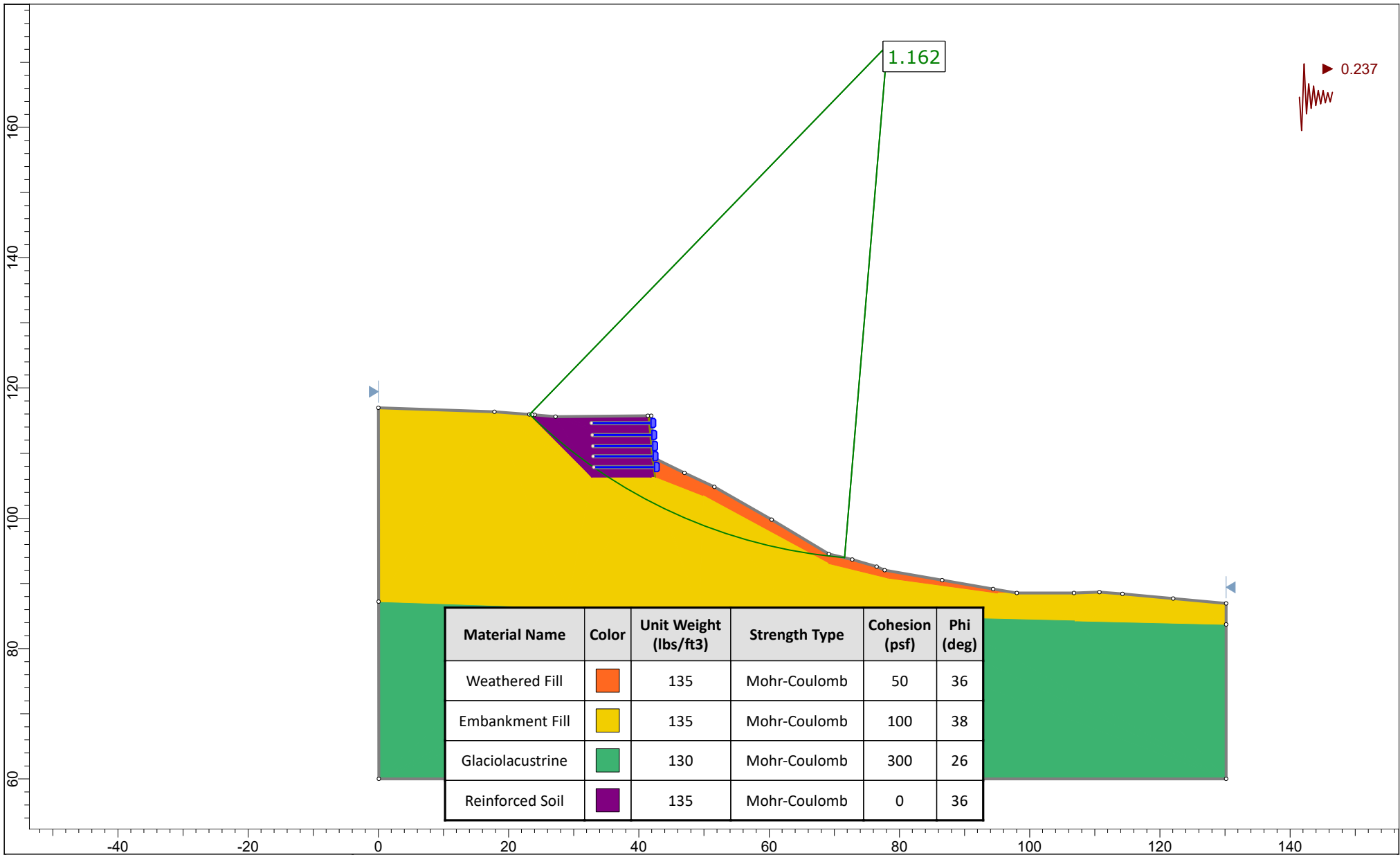






SLIDEINTERPRET 8.032

Project		NE 85TH STREET PED/BIKE CONNECTION		E-11	
Analysis Description		STATIC STABILITY - CROSS SECTION C-C' - PROPOSED CONDITIONS			
Drawn By	JTW	Scale	1:200	Company	HWA GEOSCIENCES, INC.
Date	3/1/2023, 2:06:26 PM		File Name	Cross Section C-C'- proposed- Static.slmd	



	Project		NE 85TH STREET PED/BIKE CONNECTION		E-12
	Analysis Description				
	PSEUDO STATIC STABILITY - CROSS SECTION B-B' - PROPOSED CONDITIONS				
	Drawn By	JTW	Scale	1:243	Company
Date	3/1/2023, 11:48:25 AM		File Name		

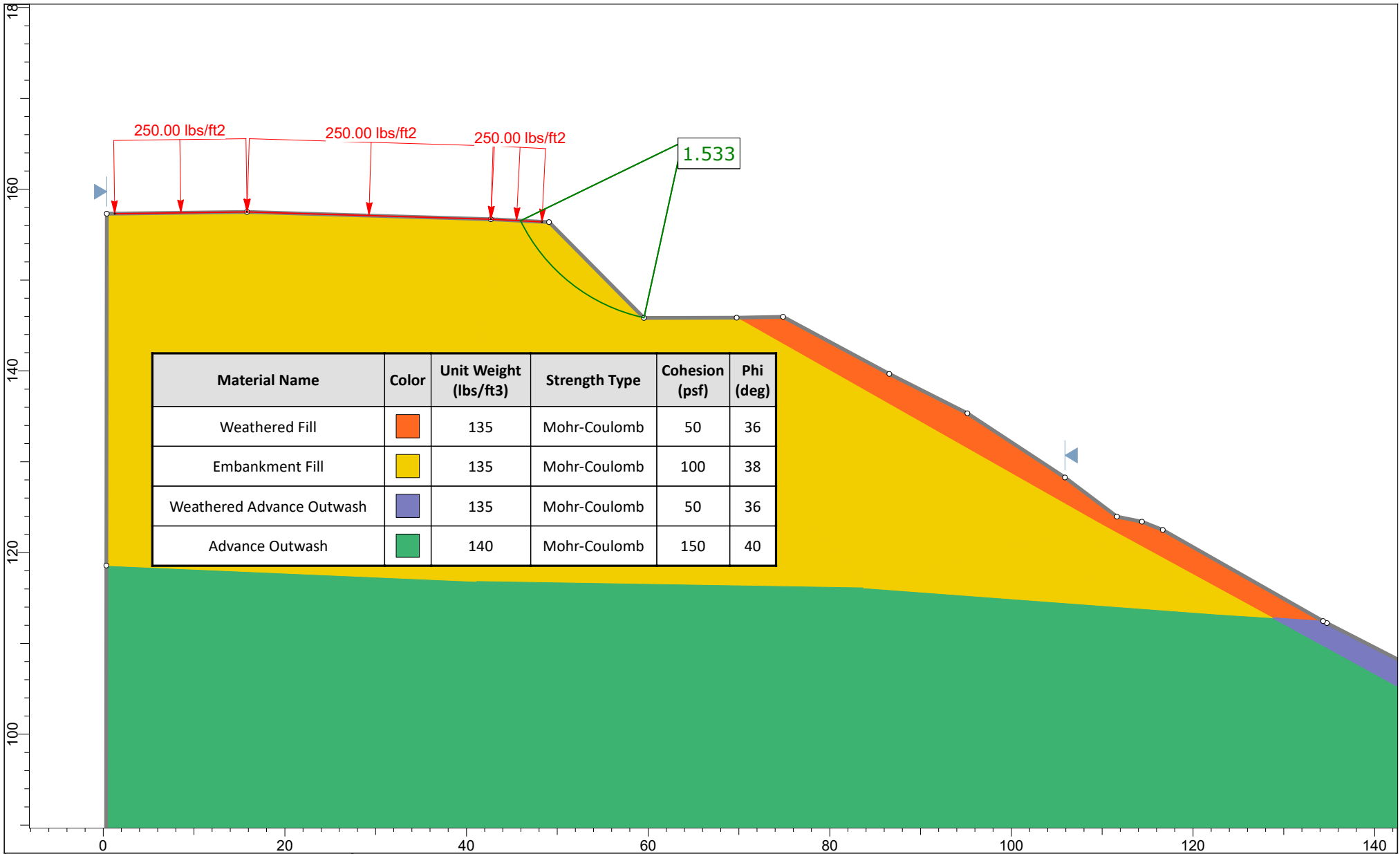


Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill		135	Mohr-Coulomb	50	36
Embankment Fill		135	Mohr-Coulomb	100	38
Glaciolacustrine		130	Mohr-Coulomb	300	26
Reinforced Soil		135	Mohr-Coulomb	0	36




SLIDEINTERPRET 8.032

Project		NE 85TH STREET PED/BIKE CONNECTION		E-13	
Analysis Description		PSEUDO STATIC STABILITY - CROSS SECTION C-C' - PROPOSED CONDITIONS			
Drawn By	JTW	Scale	1:245	Company	HWA GEOSCIENCES, INC.
Date	3/1/2023, 2:06:26 PM		File Name Cross Section C-C'- proposed- pseudo Static rev.slmd		



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	■	135	Mohr-Coulomb	50	36
Embankment Fill	■	135	Mohr-Coulomb	100	38
Weathered Advance Outwash	■	135	Mohr-Coulomb	50	36
Advance Outwash	■	140	Mohr-Coulomb	150	40

	Project		NE 85TH STREET PED/BIKE CONNECTION		E-14	
	Analysis Description					
	Drawn By			Scale	Company	
	Date			File Name		

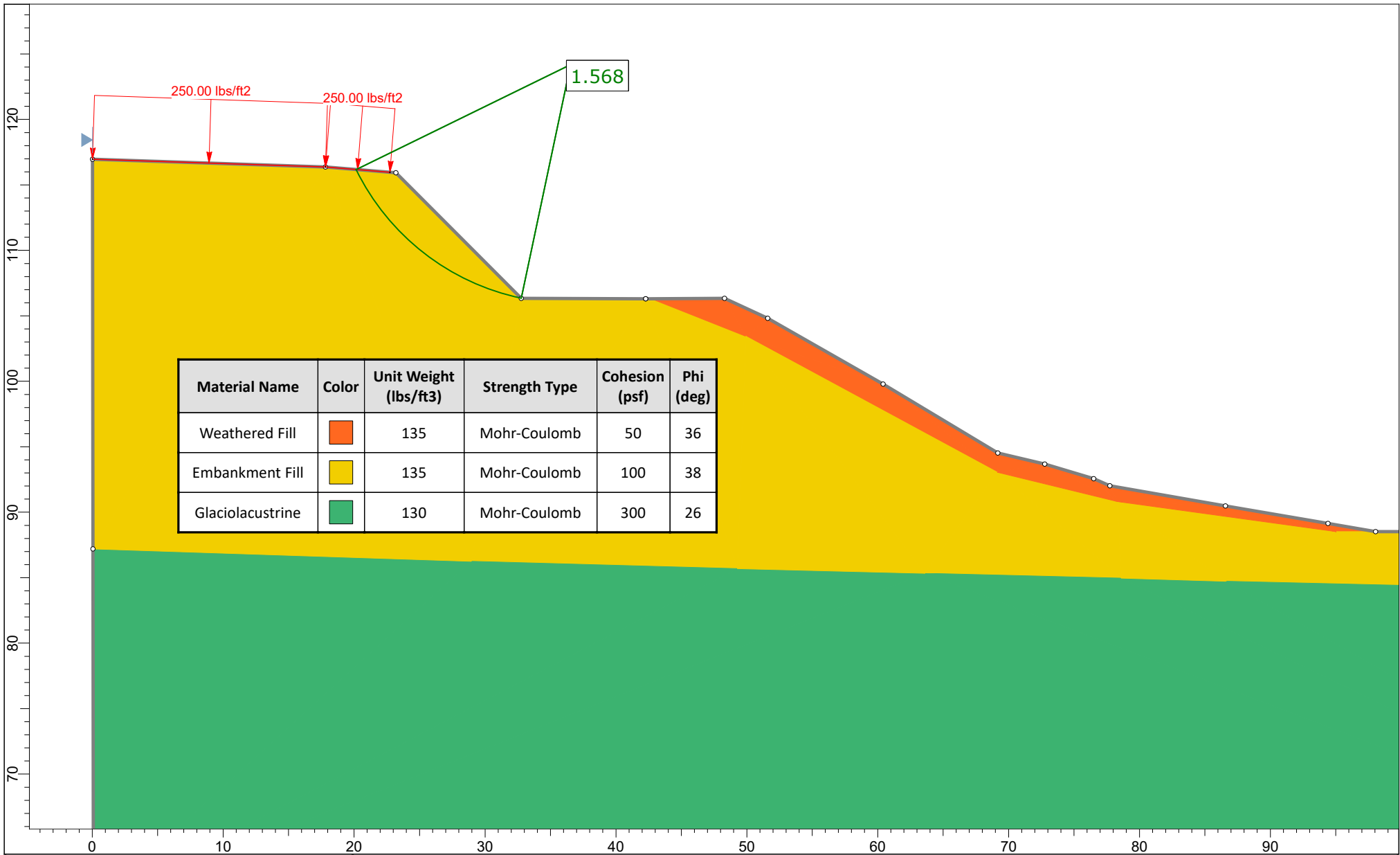
Analysis Description: TEMPORARY STATIC STABILITY - CROSS SECTION C-C' - TEMPORARY EXCAVATION

Scale: 1:175

Company: HWA GeoSciences, Inc.

Date: 10/18/2024 11:48:25 AM

File Name: Cross Section B-B' Proposed- 1H to 1V Temp Excavation updated.slmd



Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)
Weathered Fill	■	135	Mohr-Coulomb	50	36
Embankment Fill	■	135	Mohr-Coulomb	100	38
Glaciolacustrine	■	130	Mohr-Coulomb	300	26

	Project NE 85TH STREET PED/BIKE CONNECTION		E-15
	Analysis Description TEMPORARY STATIC STABILITY - CROSS SECTION C-C' - TEMPORARY EXCAVATION		
	Drawn By	Scale 1:122	Company HWA GeoSciences, Inc.
	Date 10/18/2024 2:06:26 PM		File Name Cross Section C-C'- proposed- Temp 1H to 1V Excavation.slmd

APPENDIX F

WSDOT GEOTECHNICAL DATA REPORT I- 405, NE 85TH STREET INTERCHANGE AND INLINE FREEWAY STATION

GEOTECHNICAL DATA REPORT
I-405, NE 85th Street Interchange and Inline
Freeway Station

XL5986, I-405, MP 17.4 – 18.9



Washington State Department of Transportation
Multimodal Development & Delivery
Construction Division
Geotechnical Office
1655 2nd Avenue SW
Tumwater, WA 98512-6951

May 18, 2022

This geotechnical data report (GDR) is issued as part of the Request for Proposals (RFP) for the subject project. The GDR has been prepared to provide geotechnical data for use by the Design-Builder as described in Chapter 1 of the RFP. It should not be used, in part or in whole, for other purposes, without contacting the WSDOT Geotechnical Office for a review of the applicability of such reuse.



Prepared by: Deborah Ladd, PE, LHg
Geotechnical Engineer

Reviewed by: Conrad W. Felice, PhD, PE
Geotechnical Design Manager

Agency Approval Authority: Andrew Fiske, PE
State Geotechnical Engineer

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1.2	PROJECT OVERVIEW.....	1
1.3	REFERENCE DOCUMENTS	2
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3	GEOTECHNICAL LABORATORY TESTS	3
4	GROUNDWATER INFORMATION.....	3
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FIGURES

- Figure 1: Vicinity Map
Figure 2: Geotechnical Explorations

APPENDICES

- Appendix A: Project Exploration Logs
Appendix B: Project Laboratory Test Results
Appendix C: Project Groundwater Monitoring Data

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This Geotechnical Data Report (GDR) was prepared by the I-405 Program to support the geotechnical design and construction of the I-405, NE 85th Street Interchange and Inline Freeway Station (Project). This GDR covers I-405 MP 17.4 to MP 18.9.

This report describes the data gathering procedures and presents the subsurface exploration logs, laboratory test data, and groundwater data assembled for this Project. The data in this GDR was used by WSDOT in developing the Geotechnical Baseline Report (GBR) and supporting conceptual designs while preparing the Request for Proposals (RFP).

This report also contains information from previously completed projects in the immediate vicinity of the proposed earth retaining structures (such as walls), noise walls, fish passages, and other Project features.

Geotechnical reference documents are provided in RFP Appendix G.

1.2 PROJECT OVERVIEW

The Project is in the City of Kirkland, Washington. A site vicinity map for the Project site is included as Figure 1. The Project extends along I-405 from MP 17.4 to MP 18.9.

Specific aspects of the Project are described in Chapter 2.1 General Information, of the RFP. The Project will replace the existing two-level cloverleaf interchange at NE 85th Street with a three-level interchange that will include an inline BRT station and direct access ramps in the median of I 405. The Project will also include a roundabout at the intersection of NE 85th Street and 114th Avenue NE/Kirkland Way and at the I 405/NE 85th Street interchange, will widen sidewalks, and will install tolling gantries and Intelligent Transportation System (ITS) elements with associated cabinets.

The Project includes the following primary improvements that are addressed in this GDR.

- Construction of a new three-level interchange at I-405 / NE 85th Street
- Construction of eight new bridges
- Construction of four new Express Toll Lanes direct access ramps
- Construction of new Bus Rapid Transit stations in the freeway median
- Construction of RapidRide stations along NE 85th Street
- Reconstruction, resurfacing, or widening of I-405 mainline from approximately NE 70th Place to NE 100th Street to accommodate interchange, inline station, and bus acceleration lanes
- Replacement of a portion of an existing noise wall

- Construction of a new fish passage crossing under I-405 near NE 70th Place

Additional Project features not included in the list above are not addressed by this GDR. The Project features are shown in Figure 2 as understood at the time of this GDR.

1.3 REFERENCE DOCUMENTS

There are additional publications that are issued as reference documents to the Contract from past or nearby construction projects. **Reference documents in the RFP are provided for information only and are not Contract documents.**

2 FIELD EXPLORATIONS

The geotechnical investigations completed along the Project alignment included in this GDR were planned, coordinated, and managed by WSDOT and by outside private firms. This work included subsurface borings, well installations, and groundwater monitoring.

The subsurface investigation for this Project was conducted for the purpose of providing the data needed for the Design-Builder to develop an informed cost proposal for the Work. The Design-Builder must be aware that the explorations contained in the GDR are not sufficient to comply with the WSDOT Geotechnical Design Manual (GDM) for the Project. The Design-Builder will need to perform additional explorations for Contract compliance.

2.1 TEST BORINGS

Eight new borings were completed for the Project to collect subsurface information.

The locations of the Project borings and associated instrumentation were surveyed by WSDOT crews. The boring datum is indicated on the logs. Figure 2 shows the locations of the Project explorations that are considered Contract data as identified by the baseline criteria described in the GBR. The boring logs also provide latitude and longitude; the latitude and longitude shall not be used for Contractual location of borings.

The Project explorations were continuously monitored, logs of subsurface conditions were maintained, and representative samples were collected. The soil samples collected were visually classified per the GDM based on modified procedures outlined in ASTM D-2488. Logs for the explorations including, a key for symbols and further description of the field exploration, are in Appendix A.

The Project explorations performed during conceptual plan development were based on anticipated locations of Project features and structures. As the conceptual plan development progressed and staging of contract delivery was developed, some adjustments to the Project were made after the explorations had been performed; therefore, some explorations are no longer relevant to the Project or to a Project feature.

3 GEOTECHNICAL LABORATORY TESTS

Soil index testing was conducted for the Project for the purpose of classifying soils according to the Unified Soil Classification System and for development of index properties. Soil testing for this geotechnical investigation consisted of Atterberg limits, moisture content testing, and gradation testing.

WSDOT's laboratory testing was performed at the WSDOT Materials Laboratory in accordance with the following test methods:

Laboratory Test	Test Method
Atterberg Limits	AASHTO ¹ T89/90
Moisture Content	AASHTO T265
Gradation	AASHTO T11/27
Organic Content	AASHTO T267
Soil pH and Resistivity	WSDOT T417

¹ AASHTO - American Association of State Highway and Transportation Officials

The laboratory test results are provided in Appendix B.

4 GROUNDWATER INFORMATION

One-inch diameter open standpipe piezometers were installed in eight (8) of the Project borings. Piezometer designs are shown on the right side of each test boring log in Appendix A.

Groundwater monitoring consisted of manual periodic measurements of groundwater elevations in piezometers and data acquisition from automated pressure transducer data loggers. Groundwater measurements have been compiled and are presented in Appendix C.

5 LIMITATIONS

This GDR has been prepared for the exclusive use of the Project team for specific application to the Project. The data contained herein is based on site conditions as they existed at the time of the field explorations. Within the limitations of the scope, schedule, and budget, the data presented in this report was collected and presented in accordance with generally accepted professional geotechnical practice in this area at the time this report was prepared. No other warranty, expressed or implied, is made.

This report was completed to provide prospective design-build bidders with geotechnical information. No design recommendations or interpretive information is provided herein.

The exploration program completed to date is not sufficient for final design. The design team will need to augment the geotechnical information in this report to support Project design and construction.

This report provides the geotechnical data obtained at certain exploration locations and is not a warranty of subsurface conditions across the Project area.

The GDR does not include environmental site assessments or evaluations regarding the presence or absence of hazardous or toxic materials in the soil, cultural resources, surface water, groundwater, or air, on or below the site, or for evaluation or disposal of contaminated soils or groundwater, should any be encountered

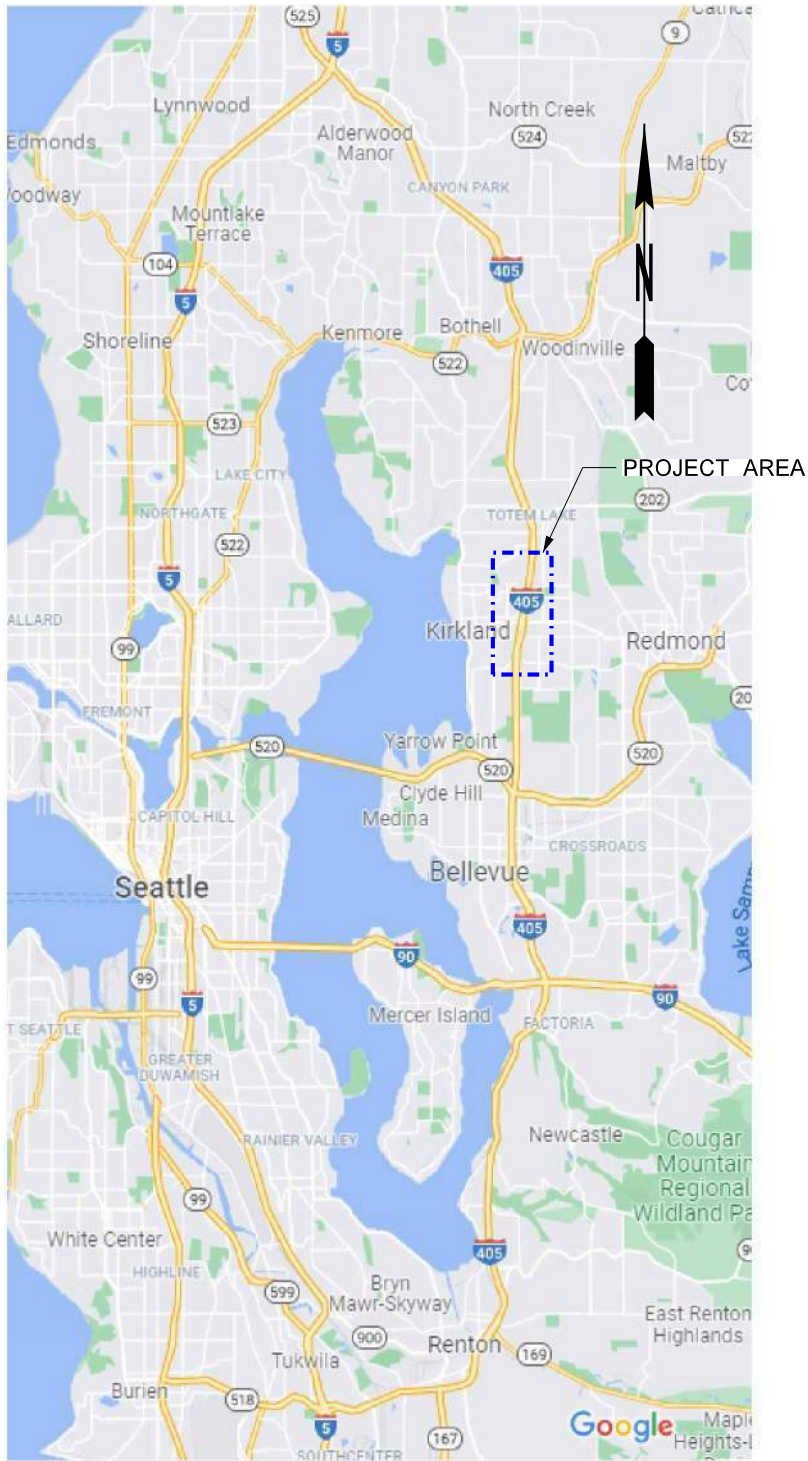
6 REFERENCES

American Association of State Highway and Transportation Officials, 2020, AASHTO Guide Specifications for LRFD Seismic Bridge Design 2nd Edition, American Association of State Highway and Transportation Officials, Washington, DC.

Washington State Department of Transportation, 2022, Geotechnical Design Manual. Publication M 46-03.16. Washington State Dept. of Transportation, Olympia, WA.

Washington State Department of Transportation, 2022, Standard Specifications for Road, Bridge, and Municipal Construction. Publication M 41-10. Washington State Dept. of Transportation, Olympia, WA.

FIGURES



VICINITY MAP
NOT TO SCALE

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Washington State
Department of Transportation

FIGURE 1: SITE VICINITY

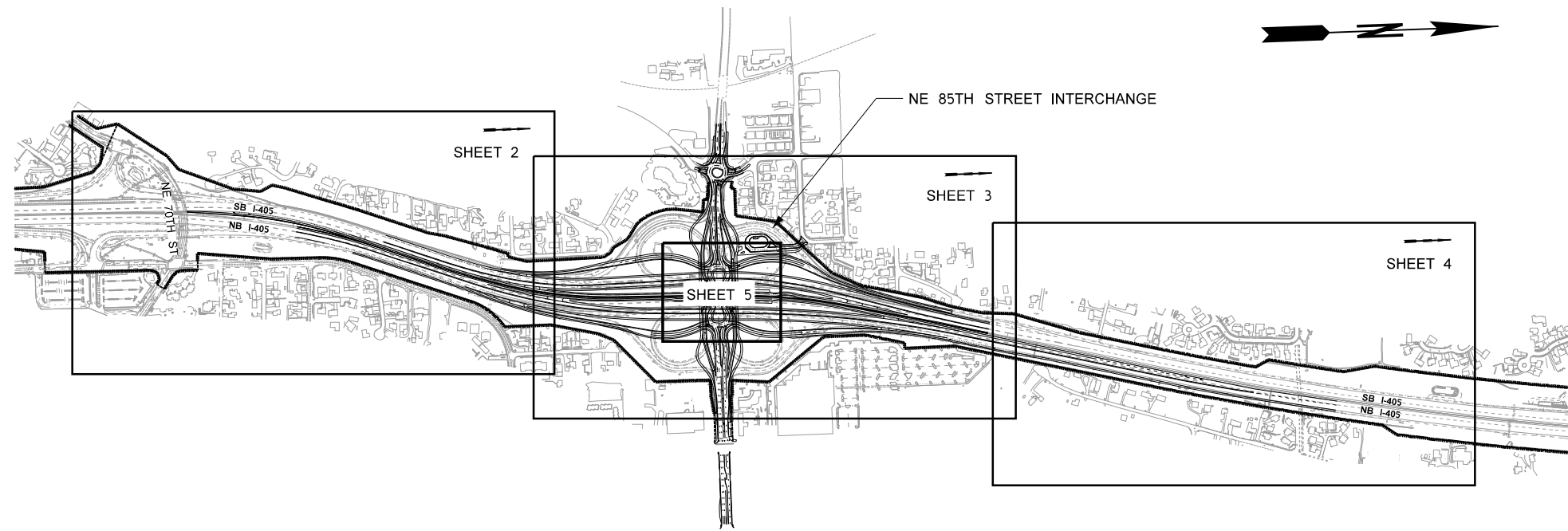
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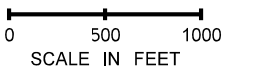
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LINE 1: I-405, NE 85TH STREET INTERCHANGE AND INLINE FREEWAY STATION


LINE 2:

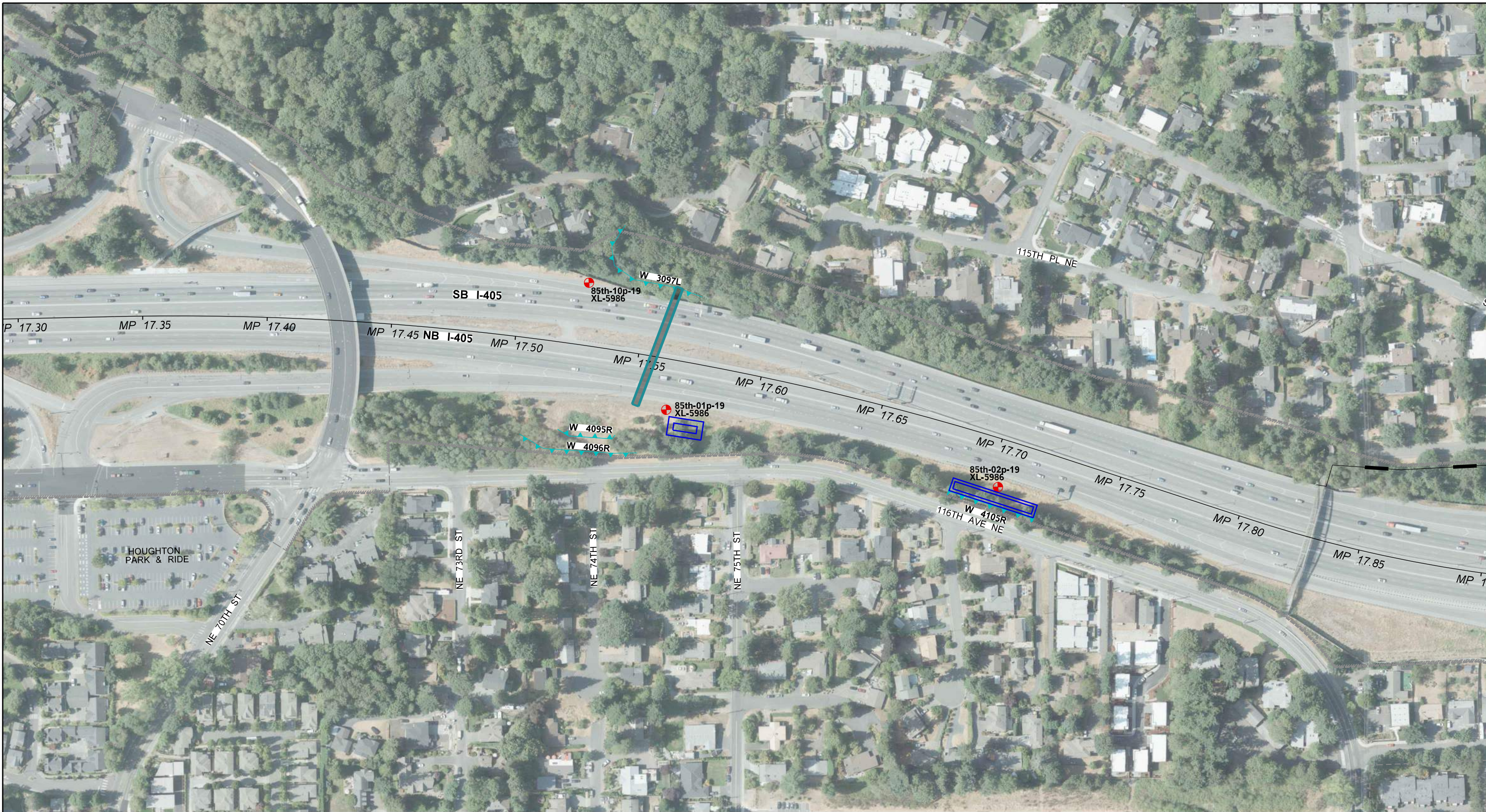


PROJECT AREA



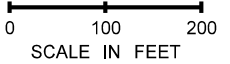
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 Washington State Department of Transportation	I-405 I-405, NE 85TH STREET INTERCHANGE AND INLINE FREEWAY STATION	SHEET 1 OF 5 SHEETS
	FIGURE 2: SITE AND EXPLORATION PLAN	



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LEGEND			
	LIMITED ACCESS & EXISTING ROW		FISH PASSAGE
	PROPOSED RIGHT OF WAY		DRAINAGE STRUCTURES
	NEW RETAINING WALL (FILL)		NEW BRIDGE (TOP LEVEL)
	NEW RETAINING WALL (CUT)		NEW BRIDGE (MID LEVEL)
	NEW RETAINING WALL (CUT/FILL)		CONTRACT PROJECT BOREHOLE
	NEW NOISE WALL		
	DETENTION POND		

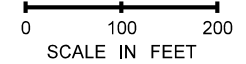


<p>Washington State Department of Transportation</p>	<p>I-405 I-405, NE 85TH STREET INTERCHANGE AND INLINE FREEWAY STATION</p>	<p>SHEET 2 OF 5 SHEETS</p>
	<p>FIGURE 2: SITE AND EXPLORATION PLAN</p>	



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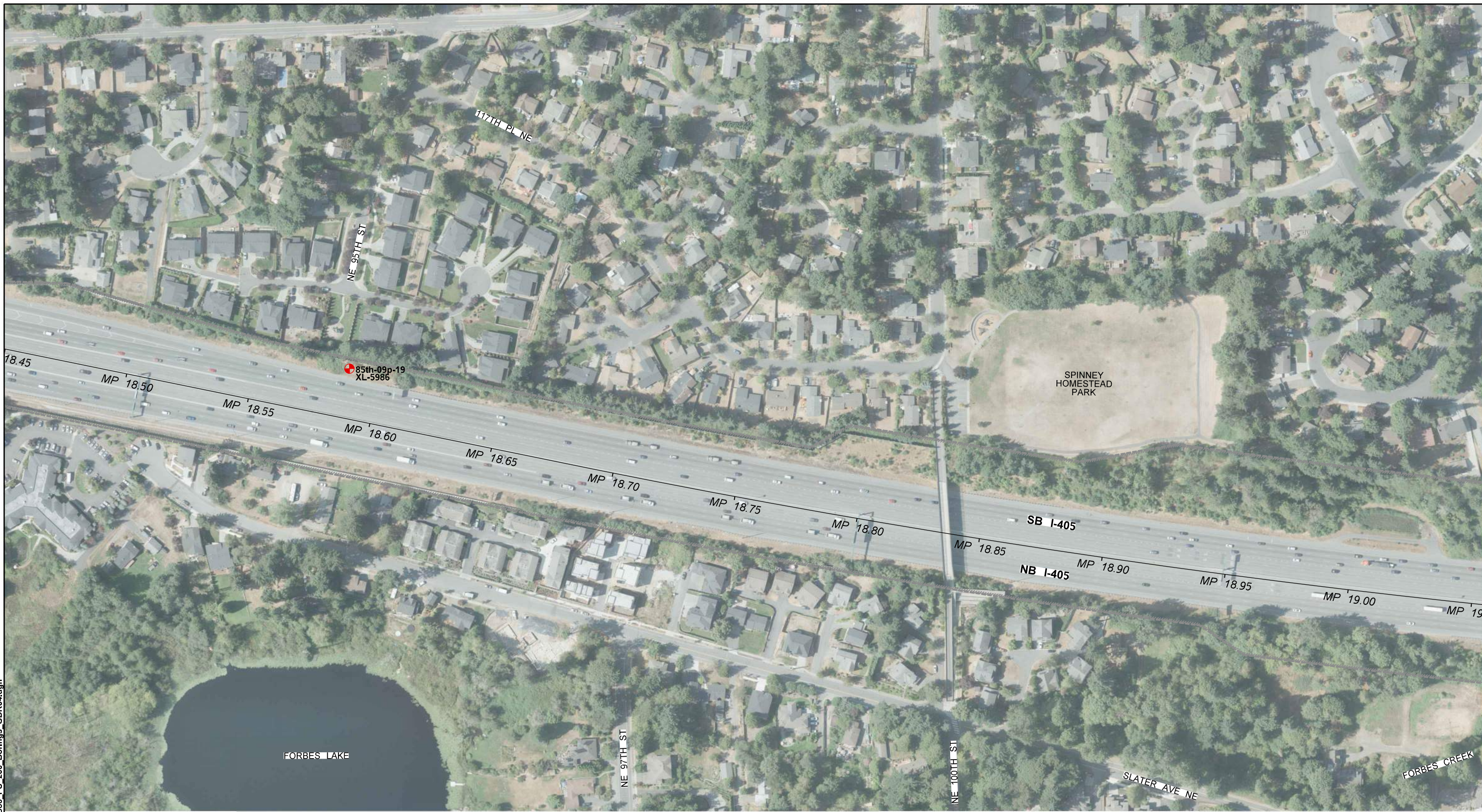
LEGEND	
	LIMITED ACCESS & EXISTING ROW
	PROPOSED RIGHT OF WAY
	NEW RETAINING WALL (FILL)
	NEW RETAINING WALL (CUT)
	NEW RETAINING WALL (CUT/FILL)
	NEW NOISE WALL
	DETENTION POND
	FISH PASSAGE
	DRAINAGE STRUCTURES
	NEW BRIDGE (TOP LEVEL)
	NEW BRIDGE (MID LEVEL)
	CONTRACT PROJECT BOREHOLE



I-405
 I-405, NE 85TH STREET INTERCHANGE
 AND INLINE FREEWAY STATION

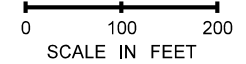
FIGURE 2: SITE AND EXPLORATION PLAN

SHEET
 3
 OF
 5
 SHEETS



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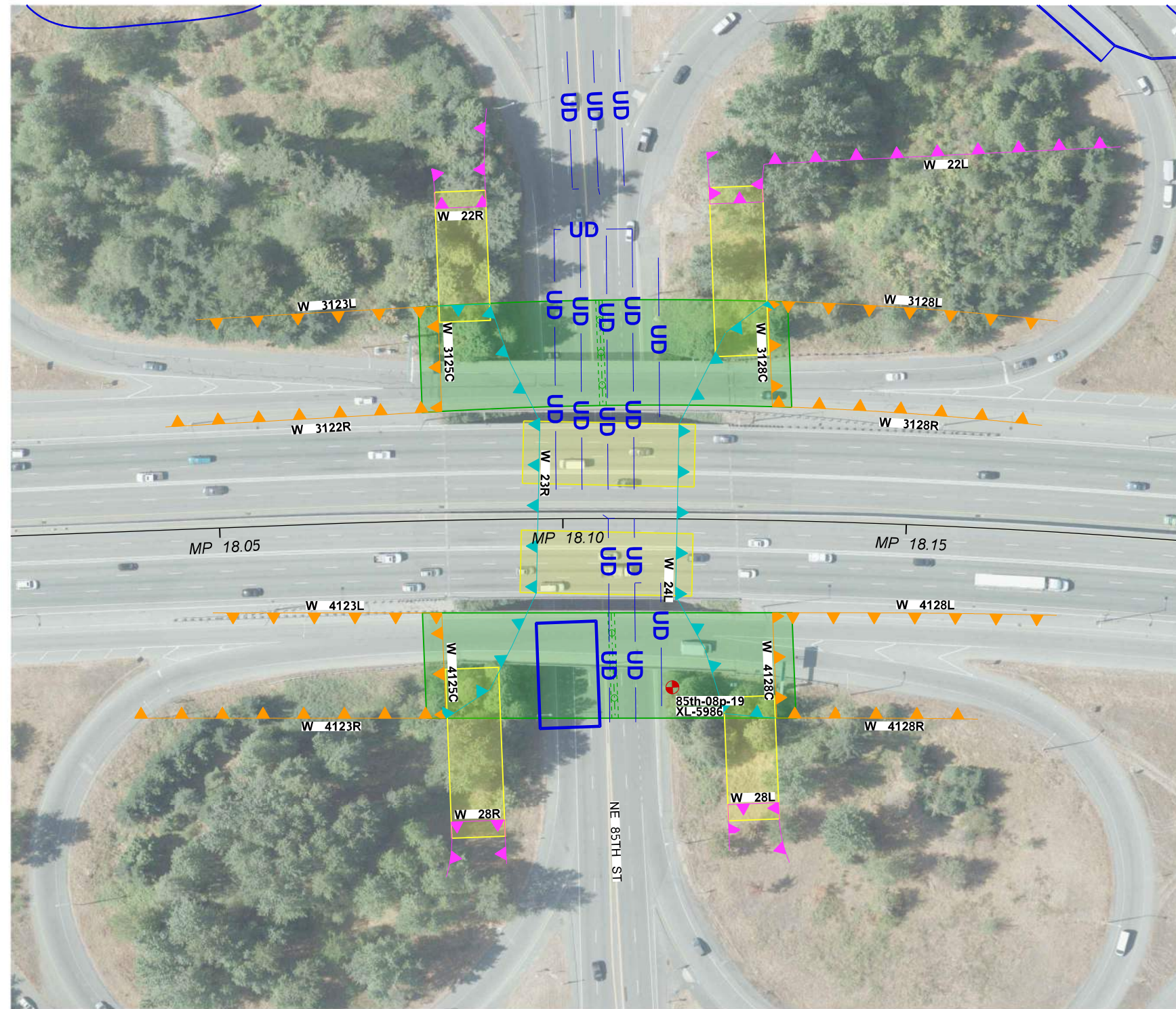
LEGEND			
	LIMITED ACCESS & EXISTING ROW		FISH PASSAGE
	PROPOSED RIGHT OF WAY		DRAINAGE STRUCTURES
	NEW RETAINING WALL (FILL)		NEW BRIDGE (TOP LEVEL)
	NEW RETAINING WALL (CUT)		NEW BRIDGE (MID LEVEL)
	NEW RETAINING WALL (CUT/FILL)		CONTRACT PROJECT BOREHOLE
	NEW NOISE WALL		
	DETENTION POND		



I-405
I-405, NE 85TH STREET INTERCHANGE
AND INLINE FREEWAY STATION

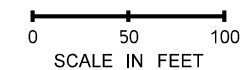
FIGURE 2: SITE AND EXPLORATION PLAN

SHEET
4
OF
5
SHEETS



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LEGEND			
	LIMITED ACCESS & EXISTING ROW		FISH PASSAGE
	PROPOSED RIGHT OF WAY		DRAINAGE STRUCTURES
	NEW RETAINING WALL (FILL)		NEW BRIDGE (TOP LEVEL)
	NEW RETAINING WALL (CUT)		NEW BRIDGE (MID LEVEL)
	NEW RETAINING WALL (CUT/FILL)		CONTRACT PROJECT BOREHOLE
	NEW NOISE WALL		
	DETENTION POND		



<p>Washington State Department of Transportation</p>	<p>I-405 I-405, NE 85TH STREET INTERCHANGE AND INLINE FREEWAY STATION</p>	<p>SHEET 5 OF 5 SHEETS</p>
	<p>FIGURE 2: SITE AND EXPLORATION PLAN</p>	

APPENDIX A – PROJECT EXPLORATION LOGS

Field Exploration Summary

Drilling Methods

The drill rigs used by the WSDOT Geotechnical Office are manufactured by Central Mine Equipment (CME) Company. Track mounted and skid type drills are often used on WSDOT's projects. The boring logs indicate what model of drill was used and the drilling method. Typically, wet rotary methods are used with water acting to remove cuttings, lubricate, and cool the bits. Depending on the soils encountered, polymer or bentonite slurry is used to control caving and heave. In addition to wet rotary methods, hollow stem augers may be used.

Disturbed Sampling of Soil

Disturbed samples are generally taken at 2 1/2- to 5-foot intervals in the borings to evaluate stratigraphy by visual examination and to obtain soil specimens for laboratory index testing. Disturbed samples are collected using split-barrel samplers following AASHTO T206 and ASTM D 1586 procedures for Standard Penetration Testing (SPT) of soil. The drill rigs used on this Project were equipped with CME automatic hammers with a chain mounted "dog" that lifts and repeatedly drops the 140-pound hammer from a height of 30 inches during SPT testing. SPT tests were generally driven 18 inches in three successive 6-inch long increments. The initial 6-inch increment is considered a seating drive and is typically ignored. The blows required for the second and third 6-inch increments are totaled to provide blows/foot. This total is referred to as the SPT resistance or "N-value". The blow counts recorded in the field are summarized on the boring logs for the Project and have not been corrected for overburden pressure, flexure of the rods, or silt content. Where the soils are very dense, the testing is terminated when the blows for a 6-inch increment exceed 50 blows per foot to avoid damaging the equipment. In this case, the blows are reported as 50 over the distance driven in 50 blows, such as 50/4 inches.

Undisturbed Sampling of Soil

Undisturbed soil samples are taken for performing laboratory strength and consolidation testing on generally cohesive soils ranging from soft to stiff consistency. Thin-walled, 3-inch, Shelby tubes are preferred for obtaining relatively undisturbed samples of the soils. However, if the soils are too stiff, a Washington Undisturbed Sample may be taken. The Washington Undisturbed Sample is a 2.5-inch Outside Diameter (O.D). split barrel sampler that is lined with brass tubes 1.98 inches in diameter by 4 inches in height. The sampler is pushed, but may be driven, to retrieve the sample. The boring logs indicate the sampler type used.

In Situ Sample and Test Symbols	
	Standard Penetration Test
	Non-standard Penetration Test
	Shelby Tube
	Piston Sampler
	WSDOT Undisturbed Sampler
	Core Sample
	Grab Sample
	California Sampler
	Vane Shear Test
	Pressuremeter Test

Backfill and Instrument Symbols	
	Cement Surface Seal
	Bentonite Chips
	Bentonite Cement Grout (BCM)
	Sand Filter Pack
	Slough (Hole Collapse)
	Pipe (Piezometer or Instrument) in BCM
	Well Screen in Sand Filter Pack
	Vibrating Wire Piezometer in BCM

Water Level Symbols	
	Water Level During Drilling
	Water Range in Piezometer
	Transducer Depth
	Water is Below Transducer

Laboratory Testing Codes	
AL	Atterberg Limits Test
CD	Consolidated Drained Triaxial Test
CN	1-Dimensional Consolidation Test
CSS	Cyclic Simple Shear Test
CU	Consolidated Undrained Triaxial Test
DG	Degradation Test
DN	Density Test
DS	Direct Shear Test
DSS	Direct Simple Shear Test
GS	Grain Size Distribution Test
HC	Hydraulic Conductivity Test
HT	Hydrometer Test
JS	Jar Slake Test
LA	LA Abrasion Test
LOI	Loss on Ignition Test
MC	Moisture Content Test
PH	pH Test
PT	Point Load Compressive Test
RES	Resistivity Test
RS	Torsional Ring Shear Test
SG	Specific Gravity Test
SL	Slake Durability Test
UC	Unconfined Compression Test
UU	Unconsolidated Undrained Triaxial Test

Soil Stratigraphy Symbols			
COARSE GRAINED		FINE GRAINED & ORGANIC	
	GW: Well-graded Gravel		CL: Lean Clay
	GP: Poorly graded Gravel		ML: Silt
	GM: Silty Gravel		CH: Fat Clay
	GC: Clayey Gravel		MH: Elastic Silt
	SW: Well-graded Sand		OL: Organic Silt
	SP: Poorly graded Sand		OH: Organic Clay
	SM: Silty Sand		CL-ML: Silty Clay (dual symbol)
	SC: Clayey Sand		PT: Peat or Highly Organic Soil

Soil classification is per Chapter 4.2 of the WSDOT Geotechnical Design Manual (GDM). The soil groups above contain less than 15% of other constituents. When more than 15% other constituents are observed, the soil group names are modified (e.g. Silty Gravel with Sand; Sandy, Elastic Silt with Gravel) per ASTM 2488. For dual classifications, a split symbol is used (e.g. CL-ML above). Refer to the Material Description column on the log for a complete description of the observed soil conditions.

Soil Density/Consistency			
COHESIONLESS SOILS		COHESIVE SOILS	
Blows/Ft	Density Term	Blows/Ft	Consistency Term
< 5	Very Loose	< 2	Very Soft
5 - 10	Loose	2 - 4	Soft
11 - 24	Medium Dense	5 - 8	Medium Stiff
25 - 50	Dense	9 - 15	Stiff
> 50	Very Dense	16 - 30	Very Stiff
		31 - 60	Hard
		> 60	Very Hard

(REF) is indicated on the log for any soil type when the penetration resistance exceeded 100 blows per foot (refusal conditions).

Soil Angularity	
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

Soil Moisture	
Dry	Absence of moisture, dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible Free Water

Soil Structure	
Stratified	Alternating layers of varying material or color with layers at least 0.25 inch thick
Laminated	Alternating layers of varying material or color with layers less than 0.25 inch thick
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into smaller angular lumps which resists further breakdown
Disrupted	Soil structure is broken and mixed. Infers that material has moved substantially - landslide debris
Homogeneous	Same color and appearance throughout
Cemented	Particles are held together by a binding agent

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2
 Northing: 247,875.2 feet Latitude: 47.671507 deg.
 Easting: 1,307,129.0 feet Longitude: -122.186161 deg.
 Elevation: 332.4 feet Collector: Region Survey
 Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88
 Started: July 22, 2019 Completed: July 22, 2019
 Remark: Detention Pond B2.1

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90
 Driller/Inspector: Walker, Robert (#2864) / Haller, Robert #2779
 Start Card: RE-17791 Well Tag: BMB-711 Instrument: 1" PVC
 Drilling Method: Casing Advancer Hole Diam.: 4 in
 Equipment: CME 55 (ID:9C7-1) Rod Type: AWJ
 Hammer Type: AutoHammer Historic Efficiency: 91.1%

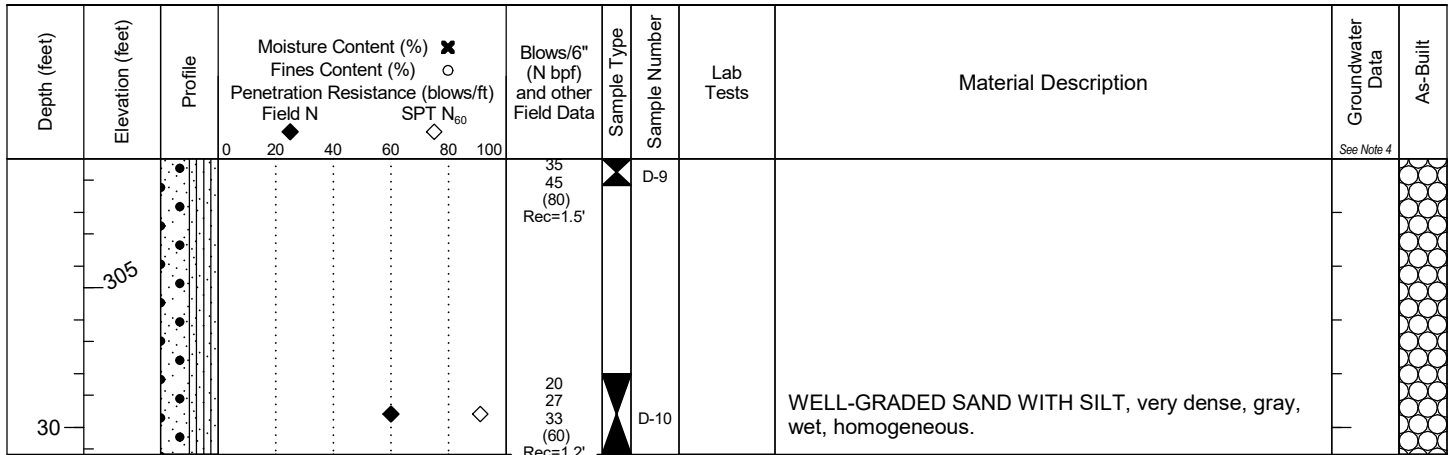
Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
330					2 6 10 (16) Rec=1.5'		D-1		WELL-GRADED SAND WITH SILT, medium dense, olive gray, moist, homogeneous.		
5					10 18 24 (42) Rec=1.0'		D-2	GS, AL, HT, SG	WELL-GRADED SAND WITH SILT, dense, olive gray, moist, homogeneous.		
325					10 18 22 (40) Rec=0.9'		D-3		POORLY GRADED SAND WITH SILT, dense, gray, moist, homogeneous.		
10					10 17 23 (40) Rec=0.8'		D-4	GS, AL, HT, SG	POORLY GRADED SAND WITH SILT, dense, gray, moist, homogeneous.		
320					14 21 26 (47) Rec=0.9'		D-5		POORLY GRADED SAND WITH SILT, dense, gray, moist, homogeneous.		
15					11 22 41 (63) Rec=0.9'		D-6		POORLY GRADED SAND WITH SILT, very dense, gray, wet, homogeneous.		
315					13 24 32 (56) Rec=0.8'		D-7		POORLY GRADED SAND WITH SILT, very dense, gray, wet, homogeneous.		
20					18 25 31 (56) Rec=1.3'		D-8	GS, AL	WELL-GRADED SAND WITH SILT, very dense, gray, wet, homogeneous.	DRY	
310							D-9		WELL-GRADED SAND WITH SILT, very dense, gray, wet, homogeneous.		
25					18						

STANDARD BORING LOG XL5986 405-NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 2/17/22

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Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
 Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90



HOLE ENDED AT 30.5 FEET ON 7-22-2019

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/20/2019 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Northing: 248,571.9 feet Latitude: 47.673425 deg.

Driller/Inspector: Walker, Robert (#2864) / Haller, Robert #2779

Easting: 1,307,318.5 feet Longitude: -122.185441 deg.

Start Card: RE-17791 Well Tag: BMB-712 Instrument: 1" PVC

Elevation: 331.3 feet Collector: Region Survey

Drilling Method: Casing Advancer Hole Diam.: 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88

Equipment: CME 55 (ID:9C7-1) Rod Type: AWJ

Started: July 23, 2019 Completed: July 23, 2019

Hammer Type: AutoHammer Historic Efficiency: 91.1%

Remark: Detention Pond B3.1

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%)			Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			Penetration Resistance (blows/ft) Field N	Fines Content (%)	SPT N ₆₀							
330			20	20	20	3 5 11 (16) Rec=1.4'	D-1	GS, AL, HT, SG	SILTY SAND, medium dense, olive gray, dry, homogeneous.			
5	325		40	40	40	16 22 16 (38) Rec=1.5'	D-2	GS, AL	SILTY SAND, dense, olive gray, moist, homogeneous.			
10	320		40	40	40	12 20 20 (40) Rec=1.3'	D-3	GS, AL, HT, SG	SILTY SAND, dense, olive gray, moist, homogeneous.			
10			40	40	40	12 18 21 (39) Rec=1.4'	D-4		SILTY SAND, dense, olive gray, moist, homogeneous.			
15	315		40	40	40	15 24 29 (53) Rec=1.5'	D-5	GS, AL, HT, SG	SILTY SAND, very dense, olive gray, moist, homogeneous.			
15			40	40	40	13 23 32 (55) Rec=1.5'	D-6		SILTY SAND, very dense, olive gray, moist, homogeneous.			
20	310		40	40	40	11 25 33 (58) Rec=1.5'	D-7		SILTY SAND, very dense, olive gray, moist, homogeneous.			
20			40	40	40	16 24 31 (55) Rec=1.5'	D-8	GS, AL	SILTY SAND, very dense, olive gray, moist, homogeneous.			
25			40	40	40	21	D-9		SILTY SAND, very dense, olive gray, moist, homogeneous.			

STANDARD BORING LOG XL5986 405 NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 2/17/22

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
 Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) ✕ Fines Content (%) ○ Penetration Resistance (blows/ft) Field N SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data <small>See Note 4</small>	As-Built
30.5	305		◆	32 28 (60) Rec=1.3'	▲	D-9				
30			◆	15 26 33 (59) Rec=1.4'	▲	D-10		SILTY SAND, very dense, gray, moist, homogeneous.		

HOLE ENDED AT 30.5 FEET ON 7-23-2019

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/20/2019 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2
 Northing: 250,351.8 feet Latitude: 47.678295 deg.
 Easting: 1,307,121.4 feet Longitude: -122.186368 deg.
 Elevation: 259.8 feet Collector: Region Survey
 Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88
 Started: July 25, 2019 Completed: July 25, 2019
 Remark: Detention Pond B4.1

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90
 Driller/Inspector: Walker, Robert (#2864) / Haller, Robert #2779
 Start Card: RE-17792 Well Tag: BMB-713 Instrument: 1" PVC
 Drilling Method: Casing Advancer Hole Diam.: 4 in
 Equipment: CME 55 (ID:9C7-1) Rod Type: AWJ
 Hammer Type: AutoHammer Historic Efficiency: 91.1%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
									-ASPHALT		
					7 12 13 (25) Rec=1.1'		D-1		SILTY SAND WITH GRAVEL, sub-rounded, dense, olive gray, moist, homogeneous.		
5	255				8 10 12 (22) Rec=1.1'		D-2	GS, AL, HT, SG	SILTY SAND, medium dense, gray, moist, homogeneous.		
					5 9 16 (25) Rec=0.9'		D-3		SILTY SAND, dense, olive brown, moist, homogeneous.		
10	250				15 30 47 (77) Rec=1.0'		D-4	GS, AL, HT, SG	SILTY SAND WITH GRAVEL, sub-rounded, very dense, olive, moist, homogeneous, FeO Staining Present.		
					13 50/5" (REF) Rec=1.0'		D-5		SILTY SAND WITH GRAVEL, rounded, very dense, olive gray, moist, homogeneous.		
15	245				17 32 50/4" (REF) Rec=1.1'		D-6		SILTY SAND WITH GRAVEL, rounded, very dense, olive gray, moist, homogeneous.		
					45 50/2" (REF) Rec=0.8'		D-7	GS, AL	SILTY SAND, very dense, olive gray, moist, homogeneous.		
20	240				50/5" (REF) Rec=0.4'		D-8		SILTY SAND, very dense, olive gray, moist, homogeneous.		
25	235				50/5" (REF) Rec=0.3'		D-9		SILTY SAND, very dense, gray, moist, homogeneous.		

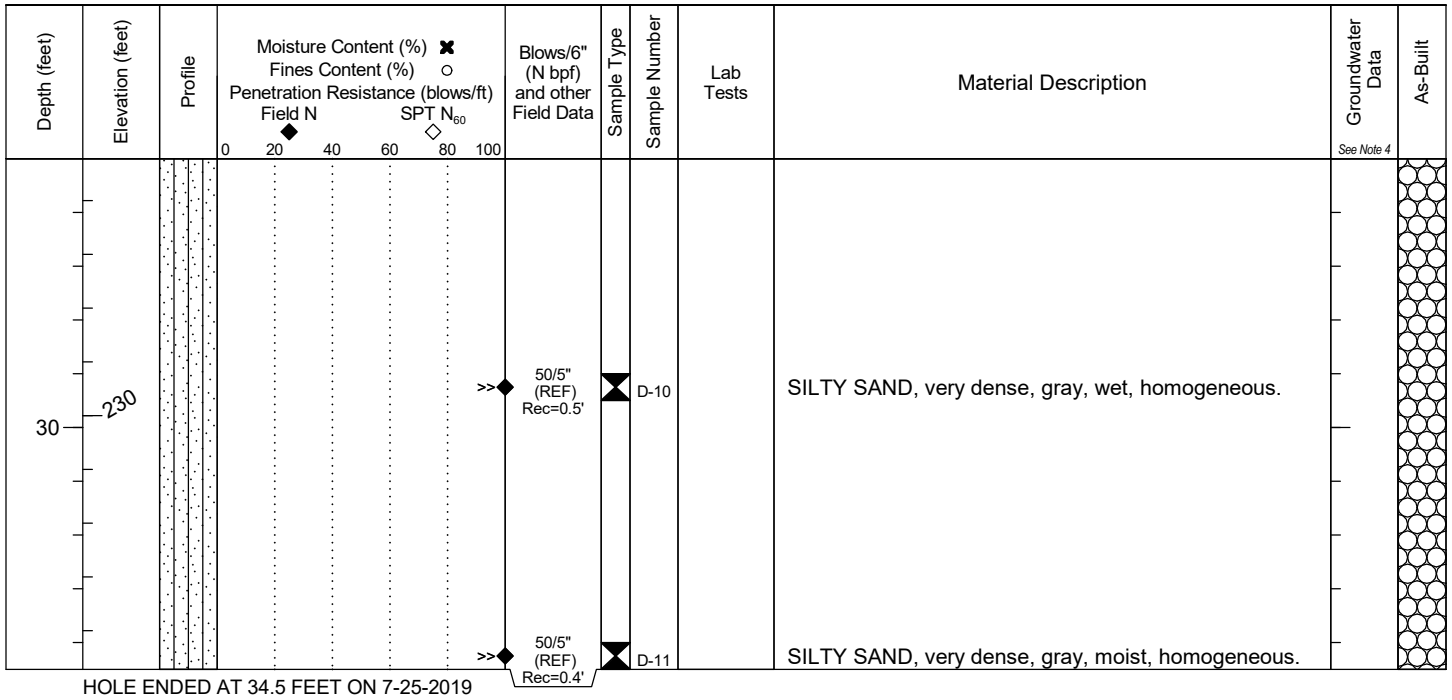
STANDARD BORING LOG XL5986 405 NE 85TH INTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 2/17/22

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VERSION 1
FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90



HOLE ENDED AT 34.5 FEET ON 7-25-2019

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/20/2019 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

BAIL-RECHARGE TEST RESULTS:

Test Date: July 25, 2019
Hole Depth / Casing Depth: 34.5 feet / 34.0 feet
Water Depth Before Bailing: 5.5 feet

ELAPSED TIME (minutes)	WATER DEPTH (feet)
0	30.6
1	27.5
2	25.8
3	24.8
4	24.8
5	24.8
10	22.2
15	21.0
20	20.0
25	20.0
30	20.0

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2
 Northing: 250,908.5 feet Latitude: 47.679823 deg.
 Easting: 1,307,170.5 feet Longitude: -122.186209 deg.
 Elevation: 245.0 feet Collector: Region Survey
 Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88
 Started: July 24, 2019 Completed: July 24, 2019
 Remark: Detention Pond B4.2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90
 Driller/Inspector: Walker, Robert (#2864) / Haller, Robert #2779
 Start Card: RE-17792 Well Tag: BMB-710 Instrument: 1" PVC
 Drilling Method: Casing Advancer Hole Diam.: 4 in
 Equipment: CME 55 (ID:9C7-1) Rod Type: AWJ
 Hammer Type: AutoHammer Historic Efficiency: 91.1%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
									-ASPHALT		
					10 22 20 (42) Rec=1.0'		D-1		SILTY SAND WITH GRAVEL, sub-angular, dense, gray, moist, homogeneous.		
5	240				10 14 18 (32) Rec=1.0'		D-2	GS, AL, HT, SG	SILTY SAND, dense, gray, moist, homogeneous.	07-24-19-14	
					9 17 22 (39) Rec=1.4'		D-3	GS, AL, HT, SG	SILTY SAND WITH GRAVEL, sub-rounded, dense, olive gray, wet, homogeneous.		
10	235				12 10 34 (44) Rec=1.3'		D-4		SILTY SAND, dense, olive gray, wet, homogeneous.		
					>> 40 50/4" (REF) Rec=0.9'		D-5		SILTY SAND WITH GRAVEL, sub-rounded, very dense, olive gray, wet, homogeneous.		
					>> 50/5" (REF) Rec=0.3'		D-6		SILTY SAND WITH GRAVEL, sub-rounded, very dense, gray, moist, homogeneous.		
15	230				>> 50/4" (REF) Rec=0.5'		D-7	GS, AL	SILTY SAND WITH GRAVEL, sub-rounded, very dense, gray, moist, homogeneous.	07-24-19-14	
					>> 50/3" (REF) Rec=0.2'		D-8		SILTY SAND WITH GRAVEL, sub-rounded, very dense, gray, moist, homogeneous.		
20	225				>> 50/3" (REF) Rec=0.4'		D-9		SILTY SAND WITH GRAVEL, sub-rounded, very dense, gray, moist, homogeneous.		
25											

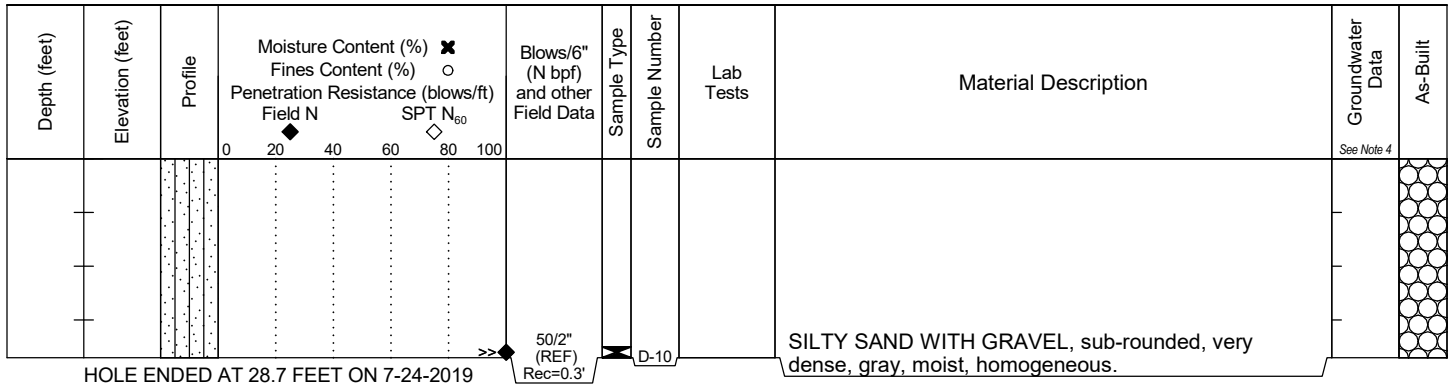
STANDARD BORING LOG XL5986 405-NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 2/17/22

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VERSION 1
FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
 Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90


NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/20/2019 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

BAIL-RECHARGE TEST RESULTS:

 Test Date: July 24, 2019
 Hole Depth / Casing Depth: 28.7 feet / 28.0 feet
 Water Depth Before Bailing: 3.0 feet

ELAPSED TIME (minutes)	WATER DEPTH (feet)
0	22.7
1	22.2
2	21.8
3	21.2
4	20.8
5	20.1
10	18.1
15	16.0
20	14.8

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Northing: 250,722.1 feet Latitude: 47.679338 deg.

Driller/Inspector: Peterson, Trevor (#3008) / Cooper, Kerry #2552

Easting: 1,307,714.7 feet Longitude: -122.183986 deg.

Start Card: RE17792 Well Tag: BMB-708 Instrument: 1" PVC

Elevation: 268.1 feet Collector: Region Survey

Drilling Method: Casing Advancer Hole Diam.: 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88

Equipment: CME 45 (ID:9C4-4) Rod Type: AWJ

Started: December 7, 2019 Completed: December 9, 2019

Hammer Type: AutoHammer Historic Efficiency: 88.3%

Remark: NB405 Mainline Bridge and Cut-Fill Wall 24L

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%)		Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			×	○									
0	268.1												
2.5	265.5						2 6 21 (27) Rec=1.3'	D-1			SANDY SILT, dense, grayish brown, dry, homogeneous.		
5	260		×	○			14 29 31 (60) Rec=1.4'	D-2	GS, AL		SILTY SAND, very dense, gray, moist, homogeneous.		
7.5	260		×	○			22 50/6" (REF) Rec=0.9'	D-3	GS, AL		SILTY SAND, very dense, grayish brown, moist, homogeneous.		
10	255						27 50/4" (REF) Rec=0.5'	D-4			SILTY SAND, very dense, grayish brown, moist, homogeneous.		
12.5	255						50/4" (REF) Rec=0.4'	D-5			SILTY SAND, very dense, grayish brown, moist, homogeneous.		
15	250						50/6" (REF) Rec=0.5'	D-6			SILTY SAND, very dense, grayish brown, moist, homogeneous.		
17.5	250						47 50/2" (REF) Rec=0.6'	D-7			SILTY SAND, very dense, grayish brown, moist, homogeneous.		
20	245						21 35 47 (82) Rec=1.2'	D-8			SILTY SAND, very dense, grayish brown, wet, homogeneous.		
22.5	245		×	○			30 43 50 (93) Rec=1.4'	D-9	GS, AL		SILTY SAND, very dense, grayish brown, moist, homogeneous.		
25	240						16 33 43 (76) Rec=1.5'	D-10			SILTY SAND, very dense, grayish brown, wet, stratified, FeO stains present.		
27.5	240						30 50/6" (REF) Rec=1.0'	D-11			SILTY SAND, very dense, grayish brown, moist, homogeneous.		
30	240												

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VERSION 1
FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	Blows/6" (N bpf) and other Field Data	Sample Type Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			0 20 40 60 80 100 ◆ ○ Field N SPT N ₆₀					See Note 4	
	235			>> 25 41 50/3" (REF) Rec=1.1'	D-12		SILTY SAND, very dense, gray, wet, homogeneous.		
35	230		◆ ◆ ◆ ○	19 23 27 (50) Rec=1.5'	D-13	GS, AL	SILT, dense, gray, moist, homogeneous.		
40	225		◆ ○ ◆ ◆	10 17 23 (40) Rec=1.4'	D-14	GS, AL	SILTY SAND, dense, gray, wet, homogeneous, with wood.		
45	220			>> 35 50/6" (REF) Rec=1.2'	D-15		SILTY SAND, very dense, gray, moist, homogeneous.		
50	215			>> 50/5" (REF) Rec=0.5'	D-16		POORLY GRADED SAND, very dense, gray, moist, homogeneous.		
55	210			>> 50/4" (REF) Rec=0.3'	D-17		POORLY GRADED SAND, very dense, gray, moist, homogeneous.		
60	205			>> 33 50/3" (REF) Rec=0.5'	D-18		POORLY GRADED SAND, very dense, gray, wet, homogeneous.		
65				>> 50/4" (REF) Rec=0.4'	D-19		SILTY SAND, very dense, gray, wet, homogeneous.		

STANDARD BORING LOG XL5986 405 NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 5/10/22

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%)		Penetration Resistance (blows/ft) Field N	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
			×	○								
200												
70	195		35			17 42 50/2" (REF) Rec=1.0'	D-20	AL, LOI	SANDY SILT, very dense, gray, moist, homogeneous, with organics.			
75	190					29 50/3" (REF) Rec=0.6'	D-21		SILT, very dense, gray, wet, homogeneous.			
80	185		35			38 50/2" (REF) Rec=0.6'	D-22	GS, AL	SILT, very dense, gray, wet, homogeneous.			
85												
90	180		35			21 42 36 (78) Rec=1.5'	D-23	AL	SILT, very dense, dark gray, wet, homogeneous.			
95	175											
100	170					50/5" (REF) Rec=0.5'	D-24		SANDY SILT, very dense, gray, wet, homogeneous.			

STANDARD BORING LOG XL5986 405/NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 5/10/22

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
105	165										
110	160										
111					32 44 50/4" (REF) Rec=1.4'		D-25		SANDY SILT, very dense, gray, wet, homogeneous.		
115											
120					23 36 50/2" (REF) Rec=1.0'		D-26		SANDY SILT, very dense, gray, wet, homogeneous.		
125											
130			✘	○	20 50/6" (REF) Rec=0.9'		D-27	GS, AL	SANDY SILT, very dense, gray, wet, homogeneous.		

HOLE ENDED AT 131.0 FEET ON 12-9-2019

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 1/6/2020 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Northing: 253,189.8 feet Latitude: 47.686115 deg.

Driller/Inspector: Shepherd, Robert (#2710) / Shepherd, Robert #2710

Easting: 1,307,966.1 feet Longitude: -122.183142 deg.

Start Card: RE-17790 Well Tag: BMB-709 Instrument: 1" PVC

Elevation: 278.4 feet Collector: Region Survey

Drilling Method: Casing Advancer Hole Diam.: 4 in

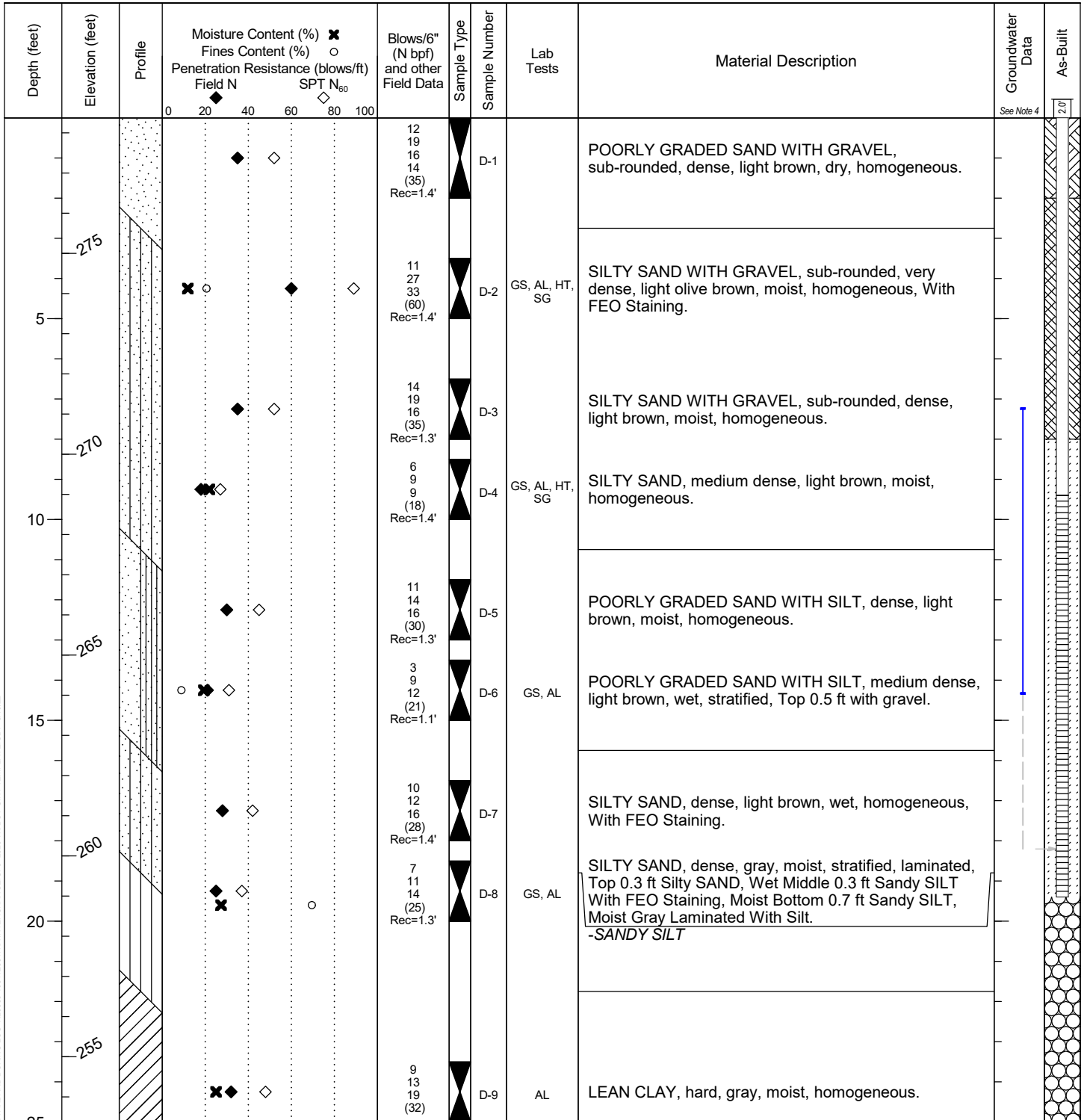
Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88

Equipment: CME 850 (ID:9A2-523) Rod Type: AWJ

Started: July 30, 2019 Completed: July 30, 2019

Hammer Type: AutoHammer Historic Efficiency: 89.4%

Remark: Detention Pond C2A.1



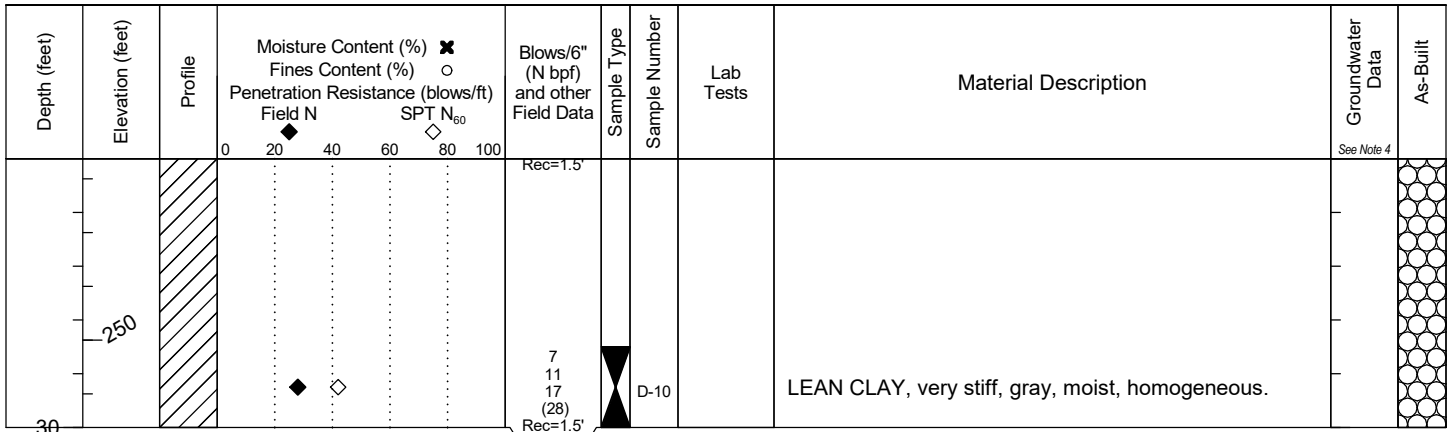
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VERSION 1 FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
 Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90



HOLE ENDED AT 30.0 FEET ON 7-30-2019

NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/20/2019 and 10/21/2020. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Northing: 247,721.6 feet Latitude: 47.671072 deg.

Driller/Inspector: Wilson, Jamie (#2941) / Fetterly, Jamie #2507

Easting: 1,306,853.8 feet Longitude: -122.187266 deg.

Start Card: RE18050 Well Tag: BMB-725 Instrument: 1" PVC

Elevation: 341.0 feet Collector: Region Survey

Drilling Method: Casing Advancer Hole Diam.: 4 in

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88

Equipment: CME 55 (ID:9C7-1) Rod Type: AWJ

Started: October 1, 2019 Completed: October 1, 2019

Hammer Type: AutoHammer Historic Efficiency: 91.1%

Remark: Culvert UNT to Everest Creek at MP 17.54 (935005)

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N	SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type	Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
340											
5	335		◆	◇	8 14 15 (29) Rec=1.1'	D-1			SILTY SAND WITH GRAVEL, sub-angular, dense, brown, moist, homogeneous.		
			◆	◇	10 15 15 (30) Rec=1.3'	D-2			SILTY SAND WITH GRAVEL, sub-angular, dense, brown, moist, homogeneous.		
10	330		◆	◇	13 14 20 (34) Rec=1.0'	D-3		GS, AL	SILTY SAND WITH GRAVEL, sub-angular, dense, gray, moist, homogeneous.		
			◆	◇	21 50/5" (REF) Rec=0.2'	D-4			WELL-GRADED GRAVEL, sub-angular, very dense, gray, wet, homogeneous.		
15	325		◆	◇	3 3 5 (8) Rec=1.2'	D-5			SILTY SAND, loose, dark gray, moist, homogeneous.		
			◆	◇	6 7 (16) Rec=1.2'	D-6		GS, AL	SILTY SAND, medium dense, dark brown, moist, homogeneous.		
20	320		○	◇	5 14 19 (33) Rec=1.4'	D-7		GS, AL	POORLY GRADED SAND WITH SILT, dense, brown, moist, homogeneous.		
			◆	◇	14 18 19 (37) Rec=1.3'	D-8			WELL-GRADED SAND WITH SILT, dense, brown, moist, homogeneous.		
25	315		◆	◇	12 19 20 (39) Rec=1.2'	D-9			WELL-GRADED SAND WITH SILT, dense, dark brown, moist, homogeneous.		
30			○	◇	9	D-10		GS, AL	WELL-GRADED SAND WITH SILT, dense, dark brown, moist, homogeneous.		

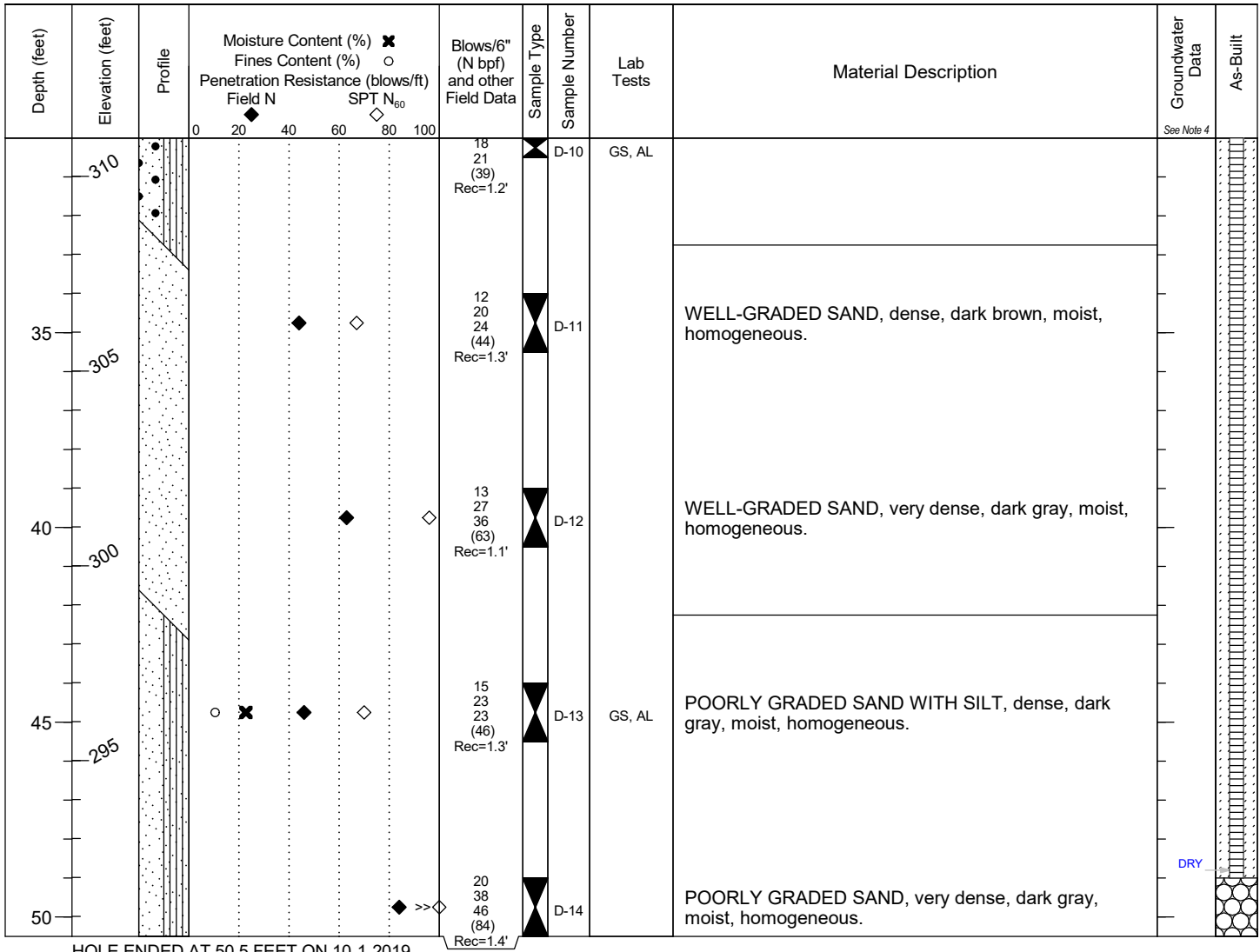
STANDARD BORING LOG XL5986 405/NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 5/10/22

CONTINUED NEXT PAGE (see last page for notes)

VERSION 1
FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90



NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 10/7/2019 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Northing: 251,129.3 feet Latitude: 47.680429 deg.

Easting: 1,307,185.1 feet Longitude: -122.186165 deg.

Elevation: 256.4 feet Collector: Region Survey

Horizontal/Vertical Datum: NAD 83/91 HARN, SPN / NAVD88

Started: July 21, 2020 Completed: July 22, 2020

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90

Driller/Inspector: Peterson, Trevor (#3008) / Henderson, Danny #2742

Start Card: RE19116 Well Tag: BMB-776 Instrument: 1" PVC

Drilling Method: Casing Advancer Hole Diam.: 4 in

Equipment: CME 850 (ID:9C2-5) Rod Type: AWJ

Hammer Type: AutoHammer Historic Efficiency: 81.3%

Depth (feet)	Elevation (feet)	Profile	Moisture Content (%) Fines Content (%) Penetration Resistance (blows/ft) Field N SPT N ₆₀	Blows/6" (N bpf) and other Field Data	Sample Type Sample Number	Lab Tests	Material Description	Groundwater Data	As-Built
255			◆	5 6 10 (16) Rec=0.9'	D-1		POORLY GRADED SAND WITH SILT AND GRAVEL, subrounded, medium dense, light olive brown, dry, homogeneous. -at 2ft drilling indicated gravels		
5	250		◆	15 19 20 (39) Rec=1.3'	D-2		SILTY SAND WITH GRAVEL, subrounded, dense, grayish brown, dry, homogeneous.		
			◆	10 10 7 (17) Rec=1.3'	D-3		SILTY SAND, medium dense, olive brown, wet, homogeneous.		
10	245		◆	6 6 (12) Rec=1.3'	D-4	GS, AL, HT, SG	SILTY SAND WITH GRAVEL, subrounded, medium dense, olive brown, wet, homogeneous.		
			◆	6 8 18 (26) Rec=1.3'	D-5	GS, AL, HT, SG	SILTY SAND WITH GRAVEL, subrounded, dense, olive brown, wet, homogeneous.		
15	240		◆	>> 50/3" (REF) Rec=0.7'	D-6		SILTY SAND WITH GRAVEL, subrounded, very dense, dark grayish brown, wet, homogeneous, FEO staining.		
			◆	>> 50/4" (REF) Rec=0.3'	D-7	GS, AL, HT, SG	SILTY SAND, very dense, dark grayish brown, wet, homogeneous.		
20	235		◆	>> 50/4" (REF) Rec=0.2'	D-8		SILTY SAND WITH GRAVEL, subrounded, very dense, dark gray, moist, homogeneous.		
25	230		◆	>> 50/5" (REF) Rec=0.3'	D-9	GS, AL, HT, SG	SILTY SAND, very dense, dark gray, moist, homogeneous.		
30			◆	>> 50/3" (REF) Rec=0.2'	D-10		SILTY SAND, very dense, dark gray, moist, homogeneous.		

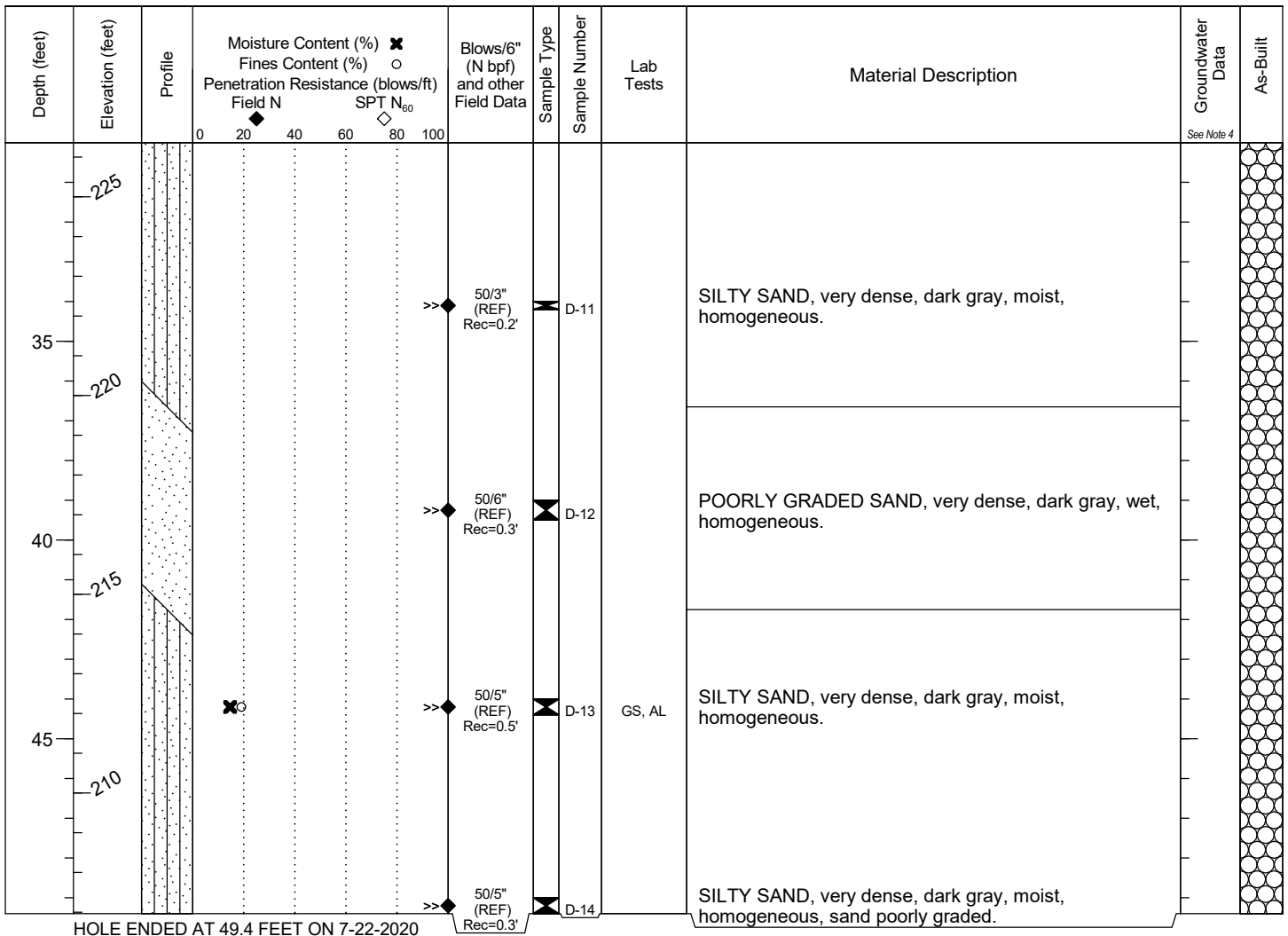
STANDARD BORING LOG XL5986 405/NE85THSTINTERCHANGE.GPJ 2020 WSDOT GINT TEMPLATE.GDT 5/10/22

CONTINUED NEXT PAGE (see last page for notes)

VERSION 1
FINAL

Project: I-405/NE 85th St. Interchange & In-Line Fwy Station
Phase 2

Job Number: XL5986 Route & MP Range: SR 405 MP 17.40 - 18.90



NOTES:

1. This is a summary log of the boring. Soil/rock descriptions are derived from visual field identifications and laboratory test data (where tested). See exploration log legend for explanation of graphics and abbreviations.
2. The implied accuracy of the location information displayed on this log is typically sub-meter(X,Y) when collected using GPS methods by the Geotechnical Office and sub-centimeter (X,Y,Z) when collected by the Region survey crew.
3. Where oversized samplers were used, a correction was made to the N-value per the AASHTO Manual on Subsurface Investigations, 1988. Blow counts per 6-inch increment have not been corrected.
4. The groundwater level range shown on this log represents data collected between 8/5/2020 and 10/18/2021. The line between the minimum and maximum values represents the data points, typically collected at 6-hour intervals.

APPENDIX B – PROJECT LABORATORY TEST RESULTS

Table B-1 Geotechnical Laboratory Test Summary _HQ Materials Laboratory I-405, NE 85th Street Interchange and Inline Freeway Station

Sample Information				Soil Index & Other										Soil/Rock Description (USCS)
Boring Designation	Sample Number	for Soil/Testing Depth Range for Rock (ft)	Sample Type	Water Content (%)	Atterberg Limits (%)			Wet Unit Weight	Specific Gravity of Soils	Sieve Analysis			Hydrometer Analysis	
					Liquid Limit	Plastic Limit	Plastic Index			Percent Gravel	Percent Sand	Percent Fines		
85th-01p-19	D-2	4.0	SPT	14	NP	NP	NA		2.72	4.3	86.4	9.3	Y	SW-SM Well-Graded SAND with silt
85th-01p-19	D-4	9.0	SPT	16	NP	NP	NA		2.79	9.1	83.7	7.2	Y	SP-SM Poorly-Graded SAND with silt
85th-01p-19	D-8	19.0	SPT	20	NP	NP	NA			1.9	89.9	8.2		SW-SM Well-Graded SAND with silt
85th-02p-19	D-1	0.0	SPT	11	NP	NP	NA		2.77	13.2	65.0	21.8	Y	SM Silty SAND
85th-02p-19	D-2	4.0	SPT	21	12	NP	NA			7.5	57.1	35.4		SM Silty SAND
85th-02p-19	D-3	7.0	SPT	19	NP	NP	NA		2.76	0.0	78.5	21.5	Y	SM Silty SAND
85th-02p-19	D-5	12.0	SPT	22	NP	NP	NA		2.76	3.2	81.7	15.1	Y	SM Silty SAND
85th-02p-19	D-8	19.0	SPT	21	NP	NP	NA			0.0	86.2	13.8		SM Silty SAND
85th-03p-19	D-2	4.0	SPT	---	NP	NP	NA		2.70	14.6	60.7	24.8	Y	SM Silty SAND
85th-03p-19	D-4	9.0	SPT	13	NP	NP	NA		2.72	15.4	59.1	25.5	Y	SM Silty SAND with gravel
85th-03p-19	D-7	17.0	SPT	14	NP	NP	NA			9.5	58.4	32.1		SM Silty SAND
85th-04p-19	D-2	3.5	SPT	---	NP	NP	NA		2.79	12.3	66.2	21.5	Y	SM Silty SAND
85th-04p-19	D-3	6.5	SPT	---	NP	NP	NA		2.68	16.8	56.8	26.4	Y	SM Silty SAND with gravel
85th-04p-19	D-7	16.5	SPT	16	NP	NP	NA			21.7	62.1	16.1		SM Silty SAND with gravel
85th-08p-19	D-2	5.0	SPT	13	NP	NP	NA			14.4	58.8	26.8		SM Silty SAND
85th-08p-19	D-3	8.0	SPT	16	NP	NP	NA			13.0	60.8	26.2		SM Silty SAND
85th-08p-19	D-9	23.0	SPT	20	NP	NP	NA			5.2	71.4	23.4		SM Silty SAND
85th-08p-19	D-13	35.0	SPT	29	NP	NP	NA			0.0	13.8	86.2		ML SILT
85th-08p-19	D-14	40.0	SPT	24	NP	NP	NA			1.4	67.3	31.3		SM Silty SAND
85th-09p-19	D-2	3.5	SPT	12	NP	NP	NA		2.77	20.2	59.2	20.6	Y	SM Silty SAND with gravel
85th-09p-19	D-4	8.5	SPT	22	NP	NP	NA		2.71	0.2	80.0	19.8	Y	SM Silty SAND
85th-09p-19	D-6	13.5	SPT	19	NP	NP	NA			7.3	83.9	8.9		SP-SM Poorly-Graded SAND with silt
85th-09p-19	D-8-C	19.2	SPT	27	NP	NP	NA			0.6	29.9	69.5		ML Sandy SILT
85th-09p-19	D-9	23.5	SPT	25	34	21	13							MC & AL only
85th-10p-19	D-3	7.0	SPT	13	NA	NP	NA			17.2	66.9	15.9		SM Silty SAND with gravel
85th-10p-19	D-6	14.0	SPT	18	NA	NP	NA			1.4	77.6	21.1		SM Silty SAND
85th-10p-19	D-7	17.0	SPT	20	NA	NP	NA			0.5	88.9	10.5		SP-SM Poorly-Graded SAND with silt

Table B-1 Geotechnical Laboratory Test Summary _HQ Materials Laboratory I-405, NE 85th Street Interchange and Inline Freeway Station

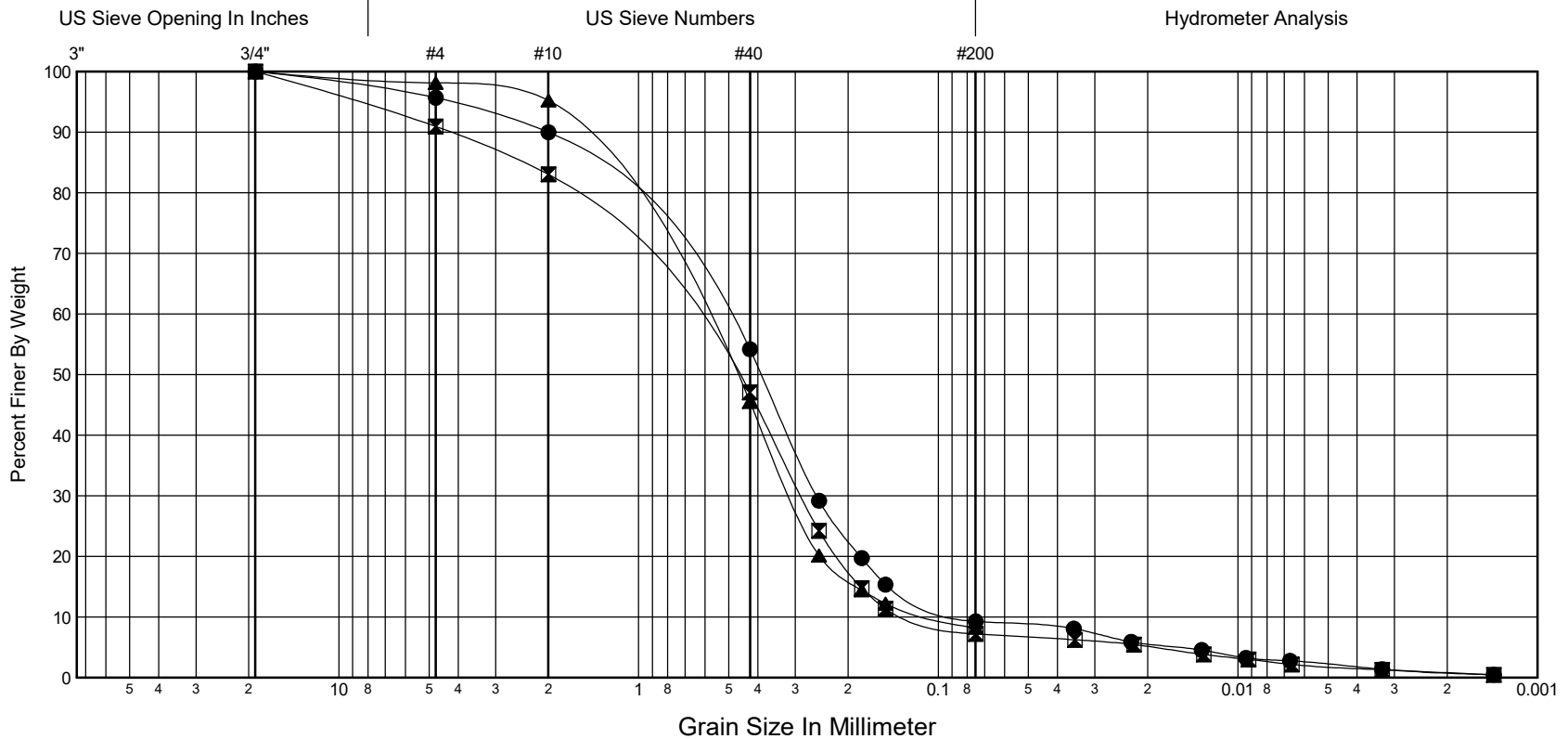
Sample Information				Soil Index & Other									Soil/Rock Description (USCS)	
Boring Designation	Sample Number	for Soil/Testing Depth Range for Rock (ft)	Sample Type	Water Content (%)	Atterberg Limits (%)			Wet Unit Weight	Specific Gravity of Soils	Sieve Analysis				Hydrometer Analysis
					Liquid Limit	Plastic Limit	Plastic Index			Percent Gravel	Percent Sand	Percent Fines		
85th-10p-19	D-10	29.0	SPT	17	NA	NP	NA			8.9	83.9	7.2		SW-SM Well-Graded SAND with silt
85th-10p-19	D-13	44.0	SPT	23	NA	NP	NA			0.0	89.5	10.5		SP-SM Poorly-Graded SAND with silt
85th-11p-20	D-4	9.0	SPT	14	NA	NP	NA		2.75	18.4	55.8	25.7	Y	SM Silty SAND with gravel
85th-11p-20	D-5	12.0	SPT	12	NA	NP	NA		2.75	19.6	58.5	21.9	Y	SM Silty SAND with gravel
85th-11p-20	D-7	17.0	SPT	13	NA	NP	NA		2.72	12.1	70.2	17.7	Y	SM Silty SAND
85th-11p-20	D-9	24.0	SPT	11	NA	NP	NA		2.69	10.8	61.5	27.7	Y	SM Silty SAND
85th-11p-20	D-13	44.0	SPT	15	NA	NP	NA			29.2	51.7	19.1		SM Silty SAND with gravel

Job No. **XL5986** Date **August 15, 2019**
 Hole No. **85th-01p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 4.0	D-2	SW-SM	WELL-GRADED SAND with SILT	14	NA	NP	NA		2.72	4.3	86.4	9.3	1.5	6.7	0.547	0.39	0.25	0.18	0.082
☒ 9.0	D-4	SP-SM	POORLY GRADED SAND with SILT	16	NA	NP	NA		2.79	9.1	83.7	7.2	0.9	6.2	0.742	0.48	0.29	0.22	0.120
▲ 19.0	D-8	SW-SM	WELL-GRADED SAND with SILT	20	NA	NP	NA			1.9	89.9	8.2	1.4	6.5	0.668	0.49	0.31	0.25	0.102



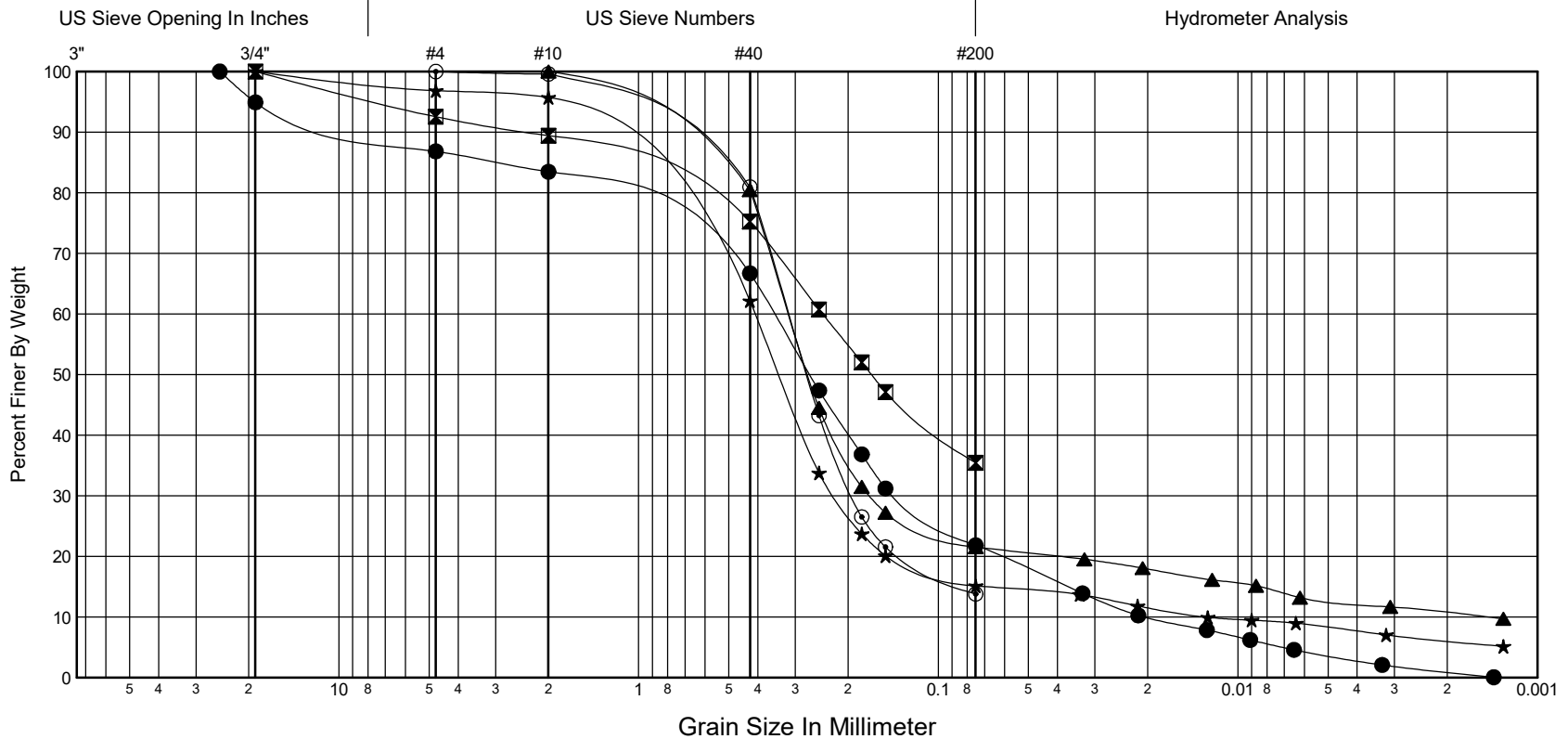
XL5986 405 NE 85TH ST INTERCHANGE.GPJ PUBLIC-COMMON LIBRARY.GLB 8/15/19

Job No. **XL5986** Date **August 16, 2019**
 Hole No. **85th-02p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 0.0	D-1	SM	SILTY SAND	11	NA	NP	NA		2.77	13.2	65.0	21.8	2.6	17.4	0.354	0.27	0.14	0.06	0.020
☒ 4.0	D-2	SM	SILTY SAND	21	12	NP	NA			7.5	57.1	35.4			0.243	0.17			
▲ 7.0	D-3	SM	SILTY SAND	19	NA	NP	NA		2.76	0.0	78.5	21.5	61.1	211.5	0.314	0.27	0.17	0.04	0.001
★ 12.0	D-5	SM	SILTY SAND	22	NA	NP	NA		2.76	3.2	81.7	15.1	9.3	31.8	0.408	0.34	0.22	0.15	0.013
◎ 19.0	D-8	SM	SILTY SAND	21	NA	NP	NA			0.0	86.2	13.8			0.316	0.27	0.19	0.13	



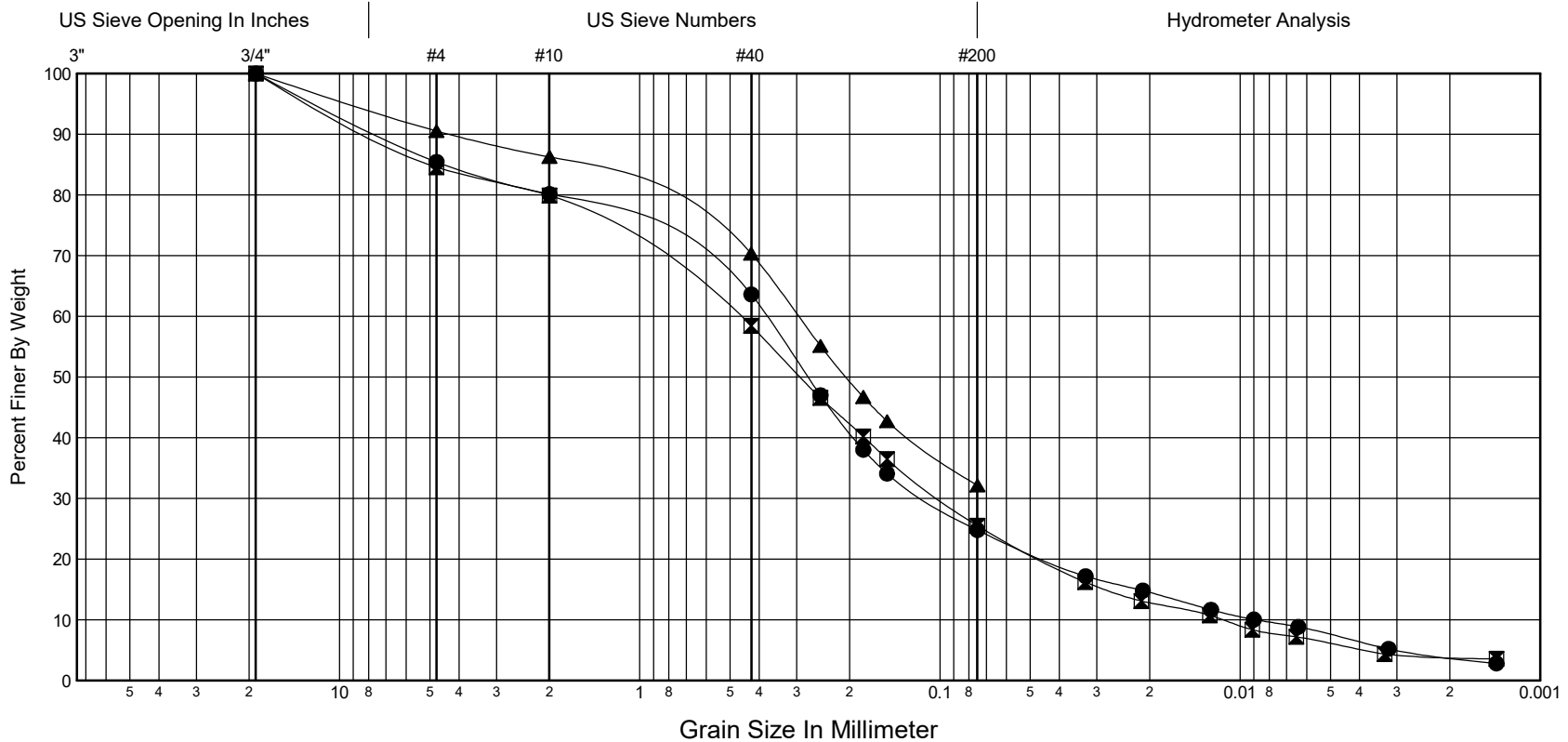
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **August 19, 2019**
 Hole No. **85th-03p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 4.0	D-2	SM	SILTY SAND		NA	NP	NA		2.70	14.6	60.7	24.8	3.6	42.7	0.379	0.28	0.11	0.04	0.009
☒ 9.0	D-4	SM	SILTY SAND with GRAVEL	13	NA	NP	NA		2.72	15.4	59.1	25.5	1.8	41.7	0.476	0.29	0.10	0.05	0.011
▲ 17.0	D-7	SM	SILTY SAND	14	NA	NP	NA			9.5	58.4	32.1			0.296	0.20			



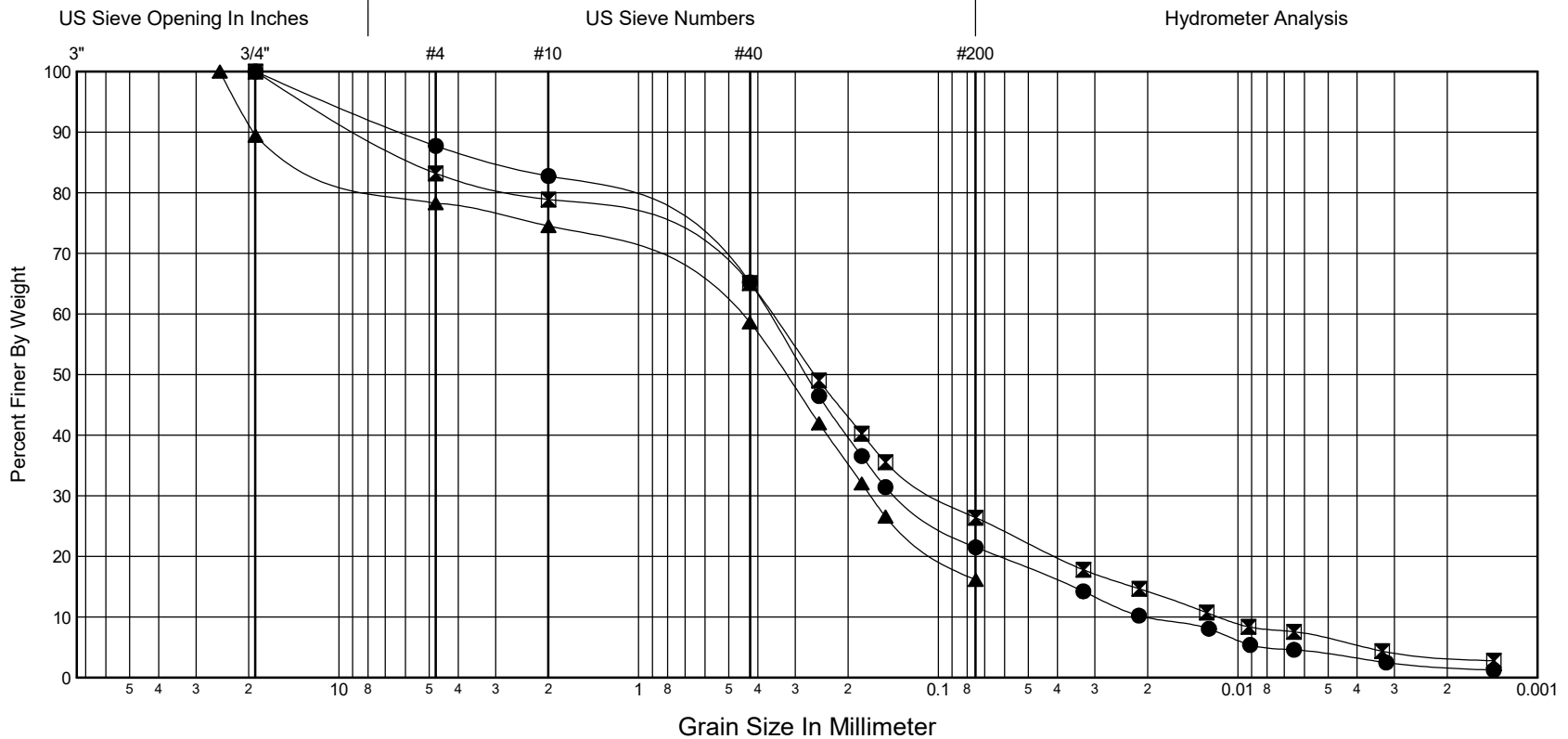
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **August 19, 2019**
 Hole No. **85th-04p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 3.5	D-2	SM	SILTY SAND		NA	NP	NA		2.79	12.3	66.2	21.5	2.5	18.1	0.367	0.28	0.14	0.06	0.020
☒ 6.5	D-3	SM	SILTY SAND with GRAVEL		NA	NP	NA		2.68	16.8	56.8	26.4	2.4	31.2	0.359	0.26	0.10	0.04	0.012
▲ 16.5	D-7	SM	SILTY SAND with GRAVEL	16	NA	NP	NA			21.7	62.1	16.1			0.487	0.32	0.17	0.10	



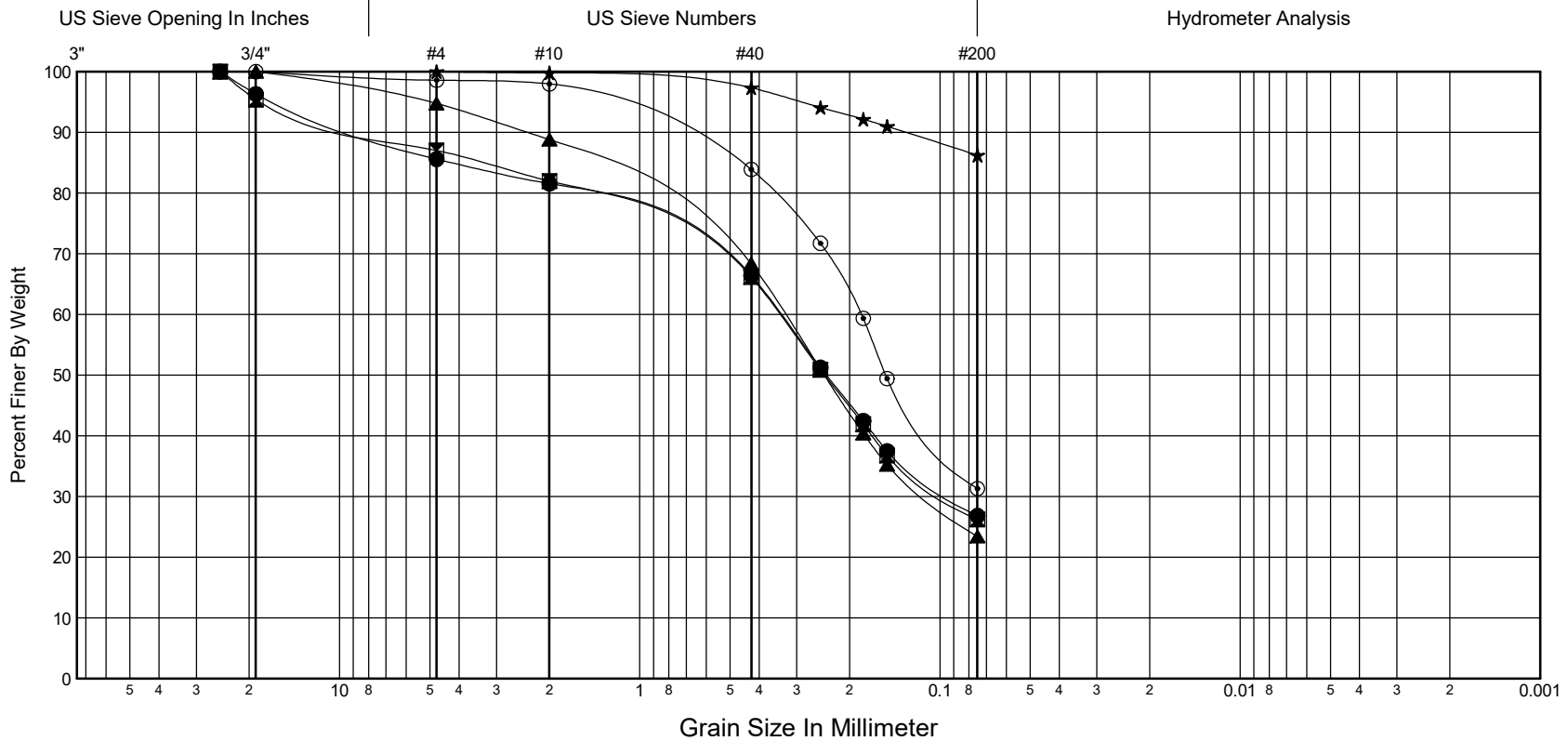
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **January 8, 2020**
 Hole No. **85th-08p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 5.0	D-2	SM	SILTY SAND	13	NA	NP	NA			14.4	58.8	26.8			0.340	0.24	0.09		
☒ 8.0	D-3	SM	SILTY SAND	16	NA	NP	NA			13.0	60.8	26.2			0.343	0.24	0.10		
▲ 23.0	D-9	SM	SILTY SAND	20	NA	NP	NA			5.2	71.4	23.4			0.329	0.24	0.11		
★ 35.0	D-13	ML	SILT	29	NA	NP	NA			0.0	13.8	86.2							
◎ 40.0	D-14	SM	SILTY SAND	24	NA	NP	NA			1.4	67.3	31.3			0.183	0.15			



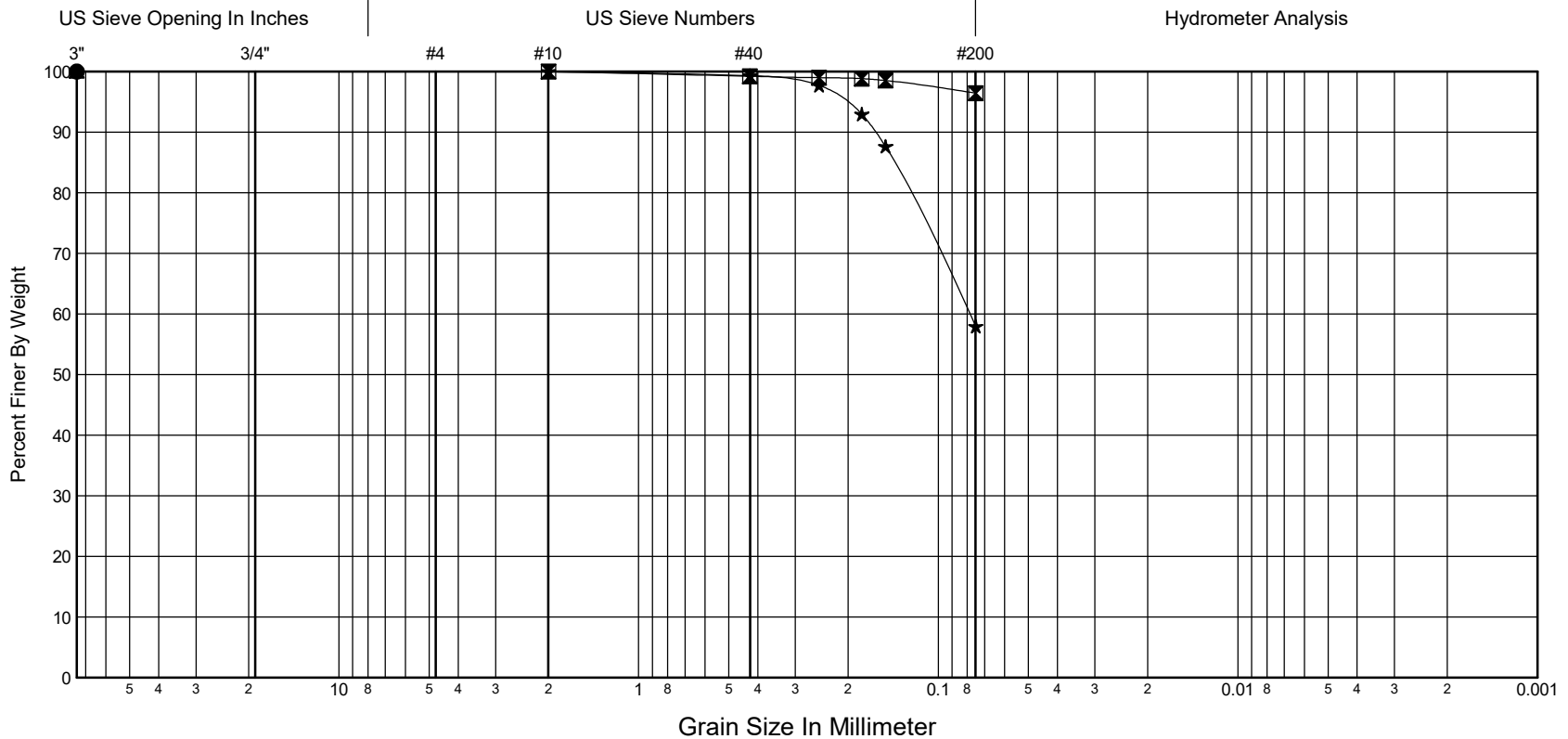
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **January 8, 2020**
 Hole No. **85th-08p-19** Sheet **2**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10	
● 70.0	D-20		MC & LOI Only	30																
☒ 80.0	D-22	ML	SILT	32	NA	NP	NA			0.0	3.6	96.4								
▲ 90.0	D-23		MC & AL Only	36	NA	NP	NA													
★ 130.0	D-27	ML	SANDY SILT	27	NA	NP	NA			0.0	42.0	58.0			0.079					



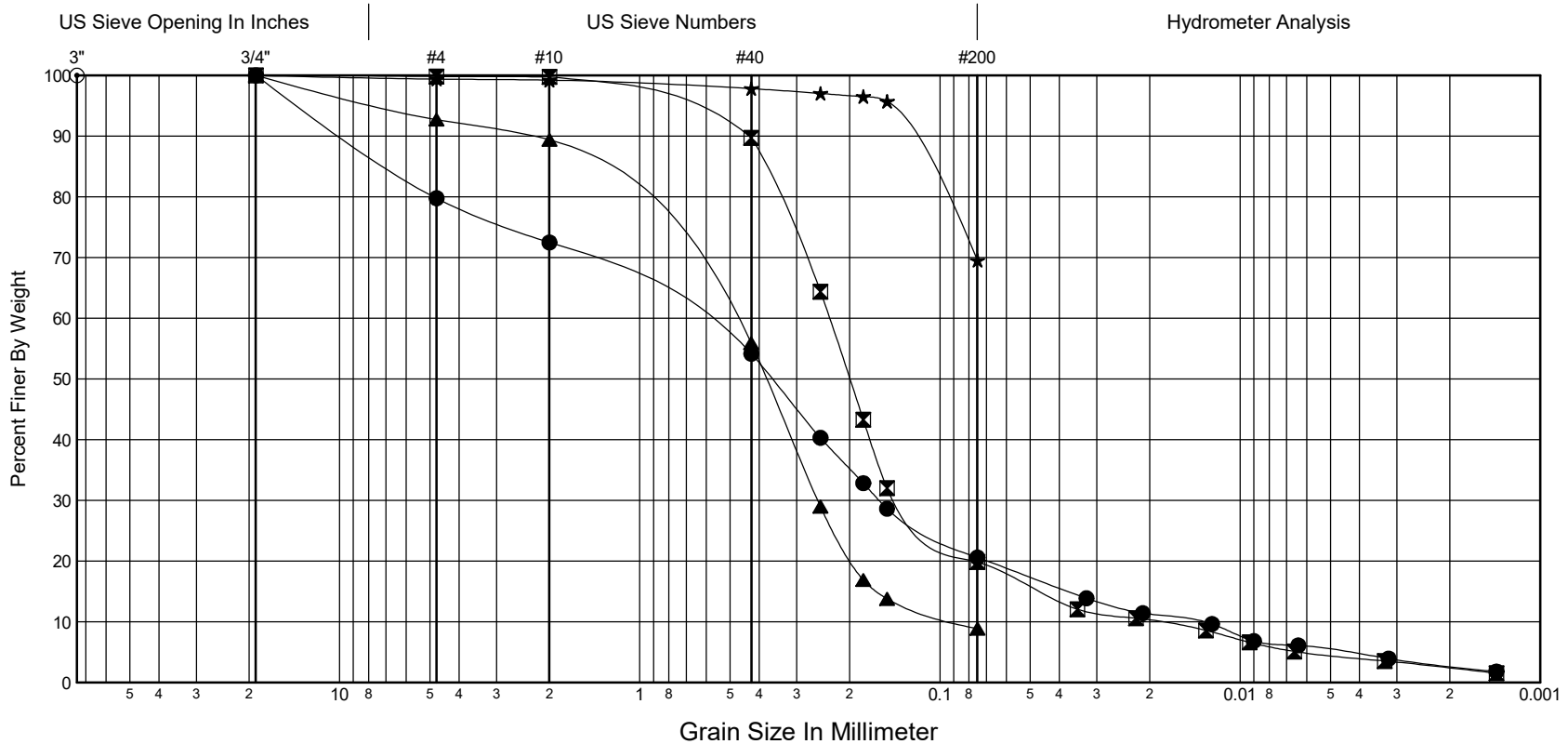
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **November 4, 2019**
 Hole No. **85th-9p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
● 3.5	D-2	SM	SILTY SAND with GRAVEL	12	NA	NP	NA		2.77	20.2	59.2	20.6	2.6	50.5	0.697	0.36	0.16	0.07	0.014
☒ 8.5	D-4	SM	SILTY SAND	22	NA	NP	NA		2.71	0.2	80.0	19.8	4.0	12.3	0.234	0.20	0.13	0.08	0.019
▲ 13.5	D-6	SP-SM	POORLY GRADED SAND with SILT	19	NA	NP	NA			7.3	83.9	8.9	1.4	5.8	0.513	0.38	0.26	0.20	0.088
★ 19.2	D-8-C	ML	SANDY SILT	27	NA	NP	NA			0.6	29.9	69.5							
◎ 23.5	D-9		MC & AL Only	25	34	21	13												



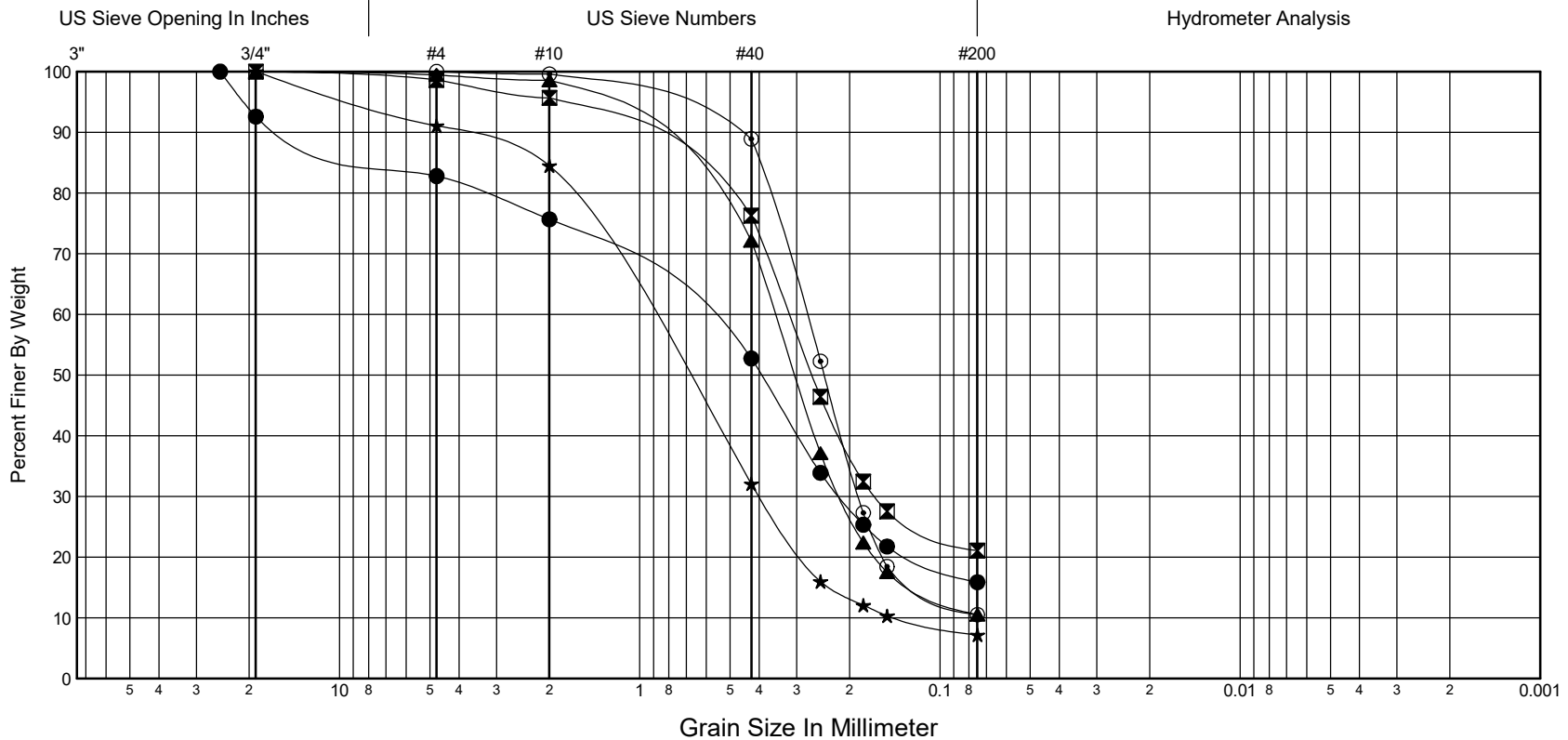
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **October 29, 2019**
 Hole No. **85th-10p-19** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
7.0	D-3	SM	SILTY SAND with GRAVEL	13	NA	NP	NA			17.2	66.9	15.9			0.694	0.39	0.22	0.12	
14.0	D-6	SM	SILTY SAND	18	NA	NP	NA			1.4	77.6	21.1			0.318	0.27	0.16		
17.0	D-7	SP-SM	POORLY GRADED SAND with SILT	20	NA	NP	NA			0.5	88.9	10.5	1.8	5.0	0.353	0.30	0.21	0.16	
29.0	D-10	SW-SM	WELL-GRADED SAND with SILT	17	NA	NP	NA			8.9	83.9	7.2	1.2	6.9	0.970	0.72	0.40	0.29	0.140
44.0	D-13	SP-SM	POORLY GRADED SAND with SILT	23	NA	NP	NA			0.0	89.5	10.5	1.7	3.9	0.280	0.24	0.19	0.15	



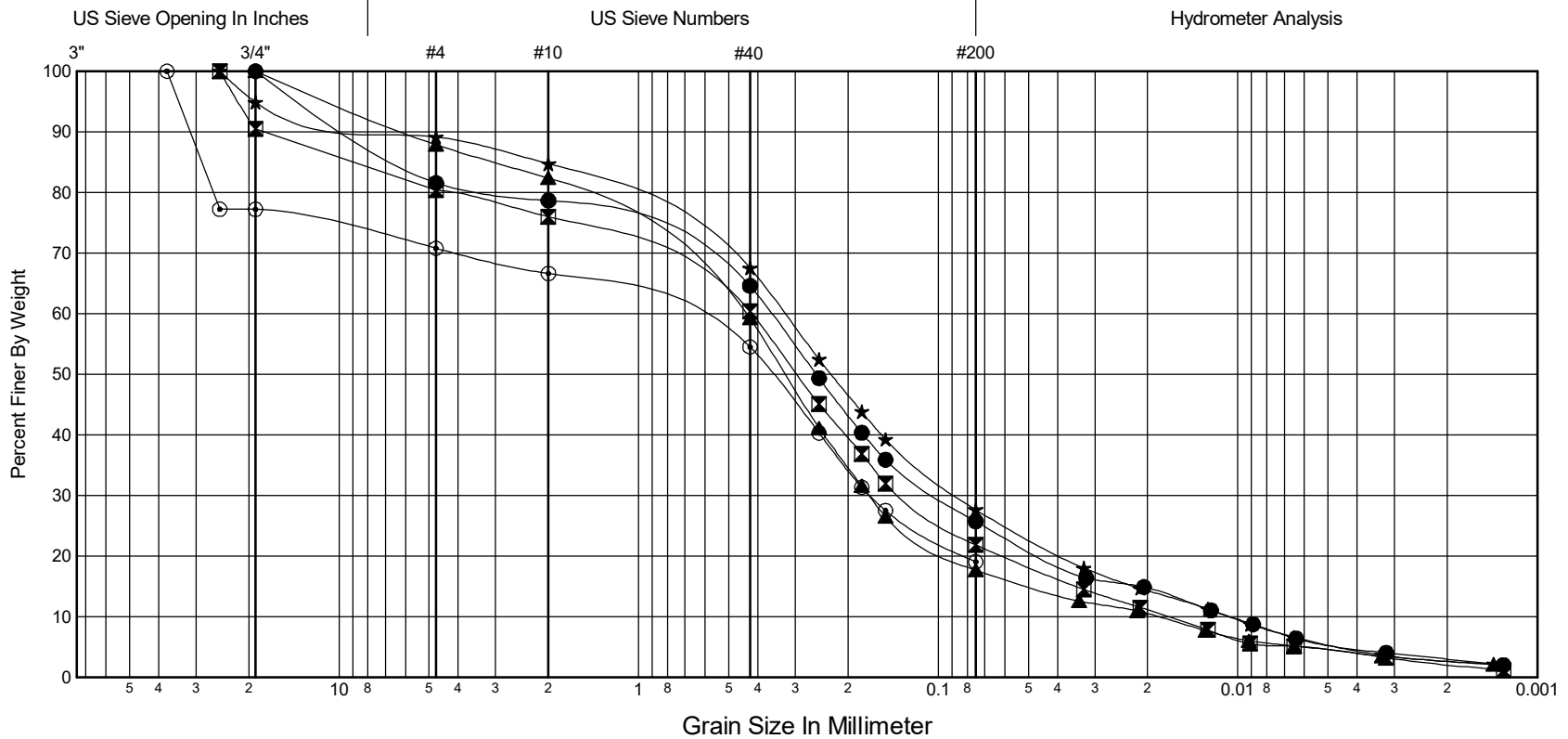
Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

Job No. **XL5986** Date **October 12, 2020**
 Hole No. **85th-11p-20** Sheet **1**
 Project **I-405/NE 85th St. Interchange & In-Line Fwy Station Phase 2**

Laboratory Summary



Depth (ft)	Sample No.	USCS	Description	MC%	LL	PL	PI	Moist Density (lbs/ft ³)	Specific Gravity	Gravel (%)	Sand (%)	Fines (%)	Cc	Cu	D60	D50	D30	D20	D10
9.0	D-4	SM	SILTY SAND with GRAVEL	14	NA	NP	NA		2.75	18.4	55.8	25.7	2.6	34.1	0.362	0.26	0.10	0.04	0.011
12.0	D-5	SM	SILTY SAND with GRAVEL	12	NA	NP	NA		2.75	19.6	58.5	21.9	2.4	24.5	0.420	0.30	0.13	0.06	0.017
17.0	D-7	SM	SILTY SAND	13	NA	NP	NA		2.72	12.1	70.2	17.7	3.5	24.0	0.447	0.32	0.17	0.09	0.019
24.0	D-9	SM	SILTY SAND	11	NA	NP	NA		2.69	10.8	61.5	27.7	2.1	30.5	0.326	0.23	0.09	0.04	0.011
44.0	D-13	SM	SILTY SAND with GRAVEL	15	NA	NP	NA			29.2	51.7	19.1			0.857	0.36	0.17	0.08	



Gravel	Sand			Silt			Clay
	Coarse	Medium	Fine	Coarse	Medium	Fine	

APPENDIX C – PROJECT GROUNDWATER MONITORING DATA

Table C-1 Summary of Groundwater Manual Readings I-405, NE 85th Interchange and Inline Freeway Station

Boring ID	Boring Ground Surface Elev. (ft)	Reading Date	Groundwater Depth from Ground Surface (ft)	Groundwater Level Elevation (ft)	Comments
85th-01p-19	332.4	08-20-19	19.4	313.0	
	332.4	10-08-19	DRY	DRY	
85th-02p-19	331.3	08-20-19	17.1	314.2	
	331.3	10-08-19	16.9	314.4	
85th-03p-19	259.8	08-20-19	13.4	246.4	
	259.8	10-08-19	12.8	247.0	
85th-04p-19	245.0	08-20-19	4.0	241.0	
	245.0	10-08-19	3.9	241.2	
85th-08p-19	268.1	01-06-20	6.9	261.2	
	268.1	03-10-20	6.8	261.3	
85th-09p-19	278.4	08-20-19	14.1	264.3	
	278.4	10-08-19	13.9	264.5	
85th-10p-19	341.0	10-07-19	DRY	DRY	
	341.0	11-21-19	DRY	DRY	
85th-11p-19	256.4	08-05-20	9.50	246.9	
	256.4	10-21-20	9.20	247.2	

Notes:

1. Refer to boring logs for the well construction details.
2. Borings 85th-05p-19, 85th-06p-19, 85th-07p-19 not drilled.

Table C-2 Summary of Observation Well Groundwater Monitoring Results, I-405, NE 85th Interchange and Inline Freeway Station

Boring ID	Sensor Elev. (ft)	Water Level Elevation (ft)				Reading Period	
		Min.	Max.	Average	Standard Deviation (SD)	From	To
85th-01p-19	312.9	312.9	313.1	313.0	0.04	08-20-19	10-18-21
85th-02p-19	312.2	312.2	324.2	314.2	1.60	08-20-19	10-18-21
85th-03p-19	244.6	244.6	251.8	248.3	1.95	08-20-19	10-18-21
85th-04p-19	240.2	240.2	244.8	241.9	0.98	08-20-19	10-18-21
85th-08p-19	259.0	259.0	262.2	260.6	0.78	01-06-20	10-18-21
85th-09p-19	264.0	264.0	271.1	266.1	1.58	08-20-19	10-21-20
85th-10p-19	292.0	292.0	292.2	292.1	0.03	10-07-19	10-18-21
85th-11p-19	239.0	245.3	251.8	247.7	1.67	08-05-20	10-18-21

Notes:

1. Refer to boring logs for the well construction details.
2. Borings 85th-05p-19, 85th-06p-19, 85th-07p-19 not drilled.

**Figure C-1. Groundwater Elevation Versus Time
85th-01p-19**

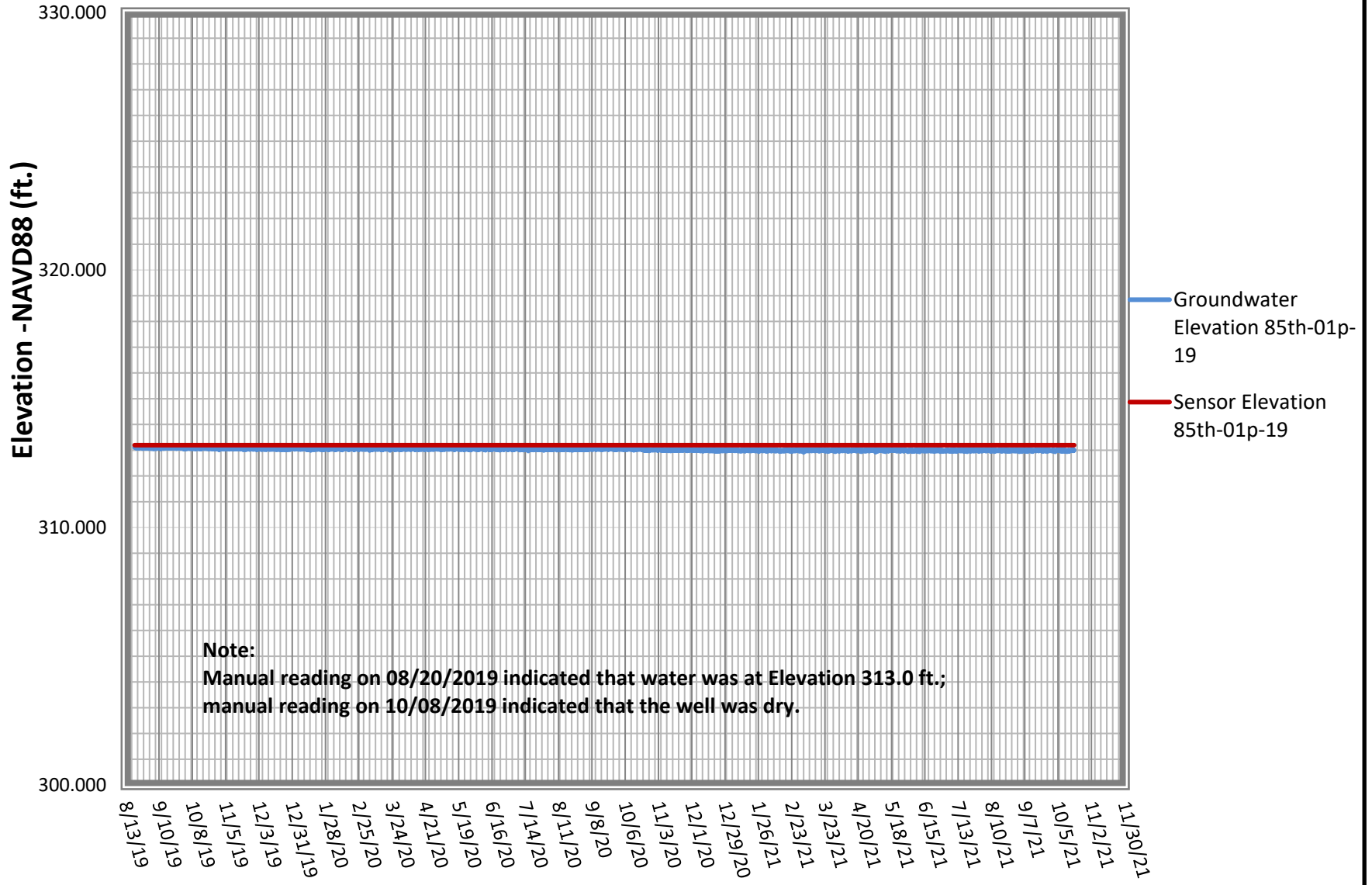


Figure C-2. Groundwater Elevation Versus Time
85th-02p-19

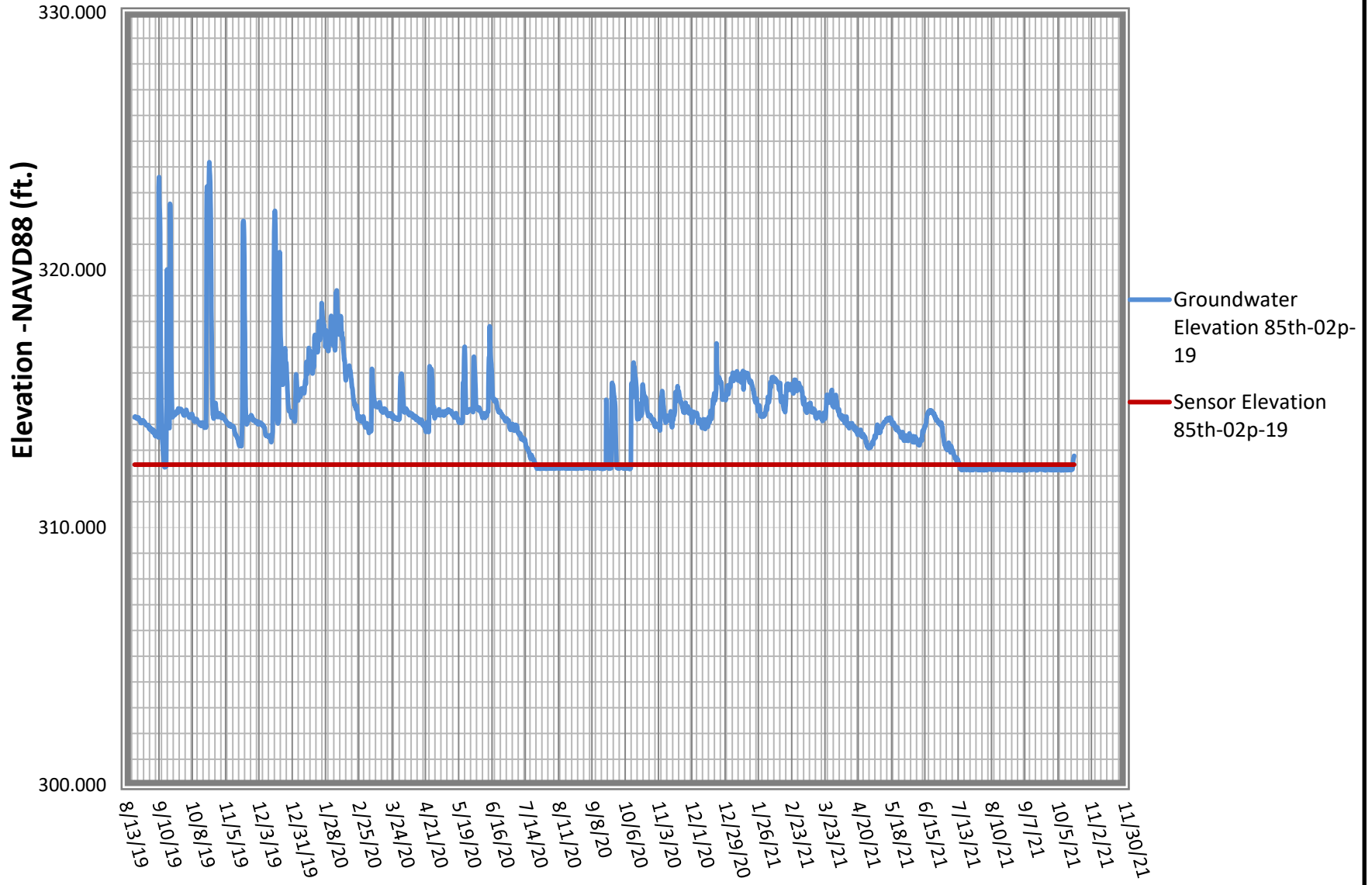
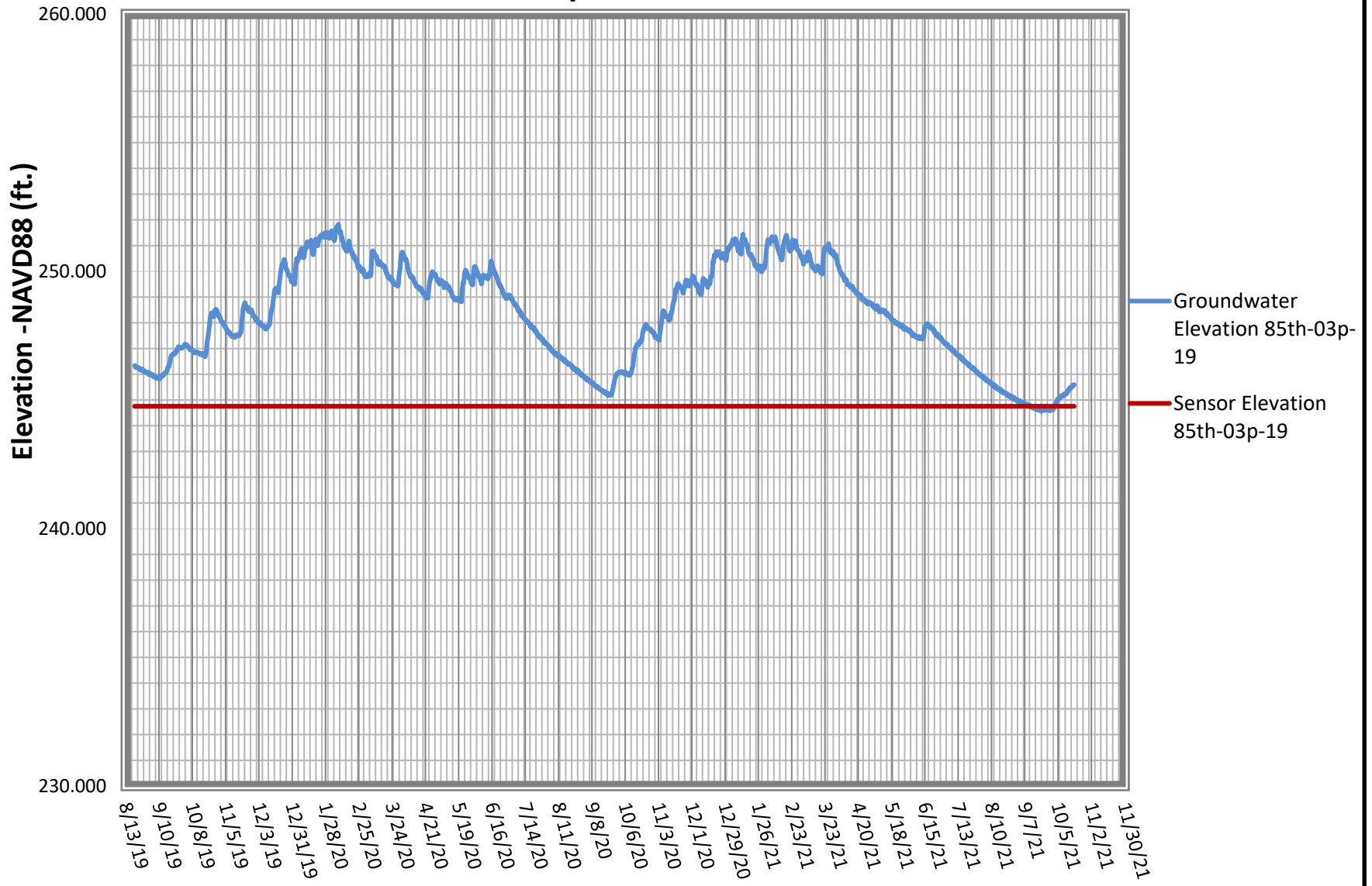
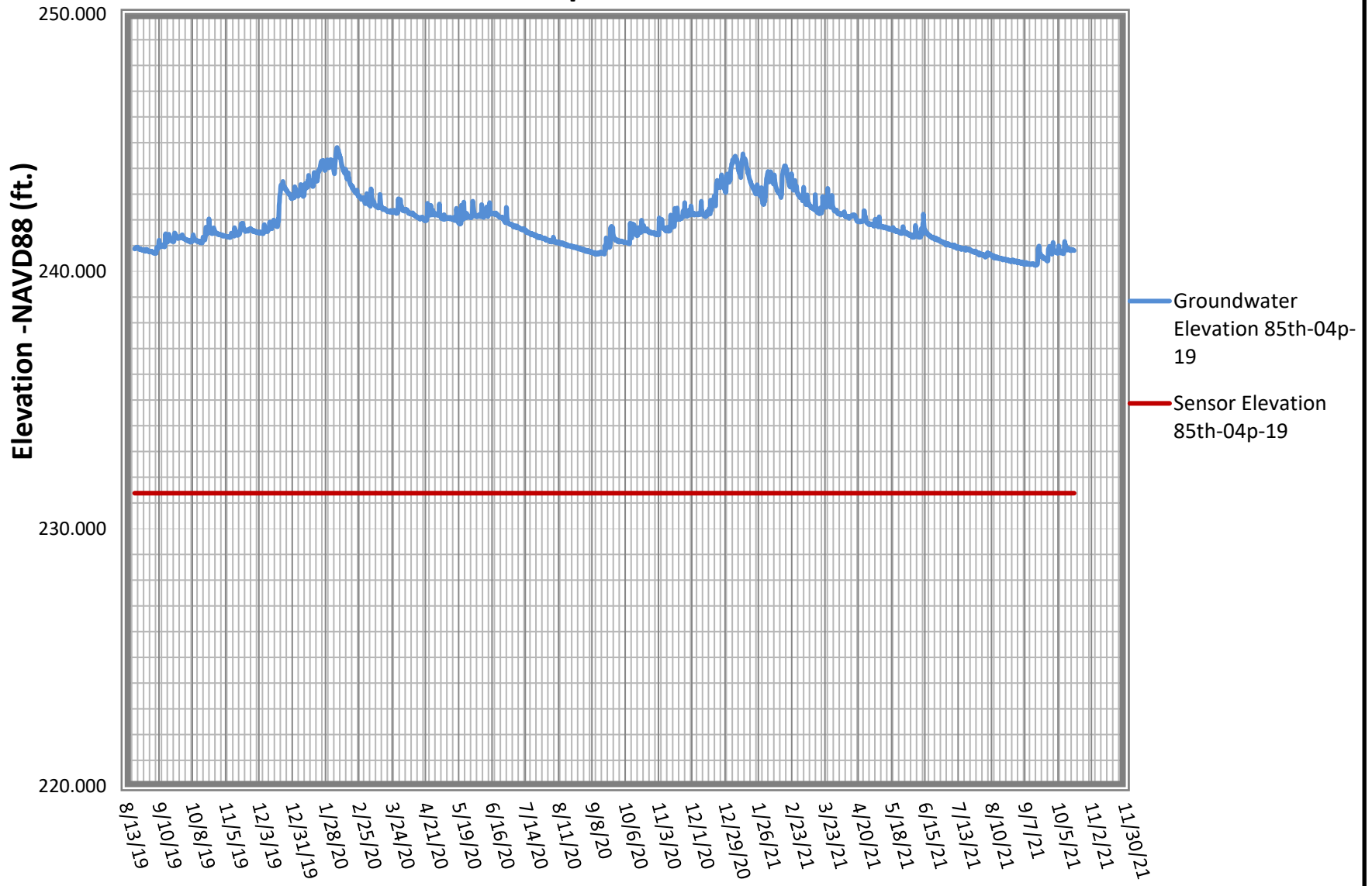


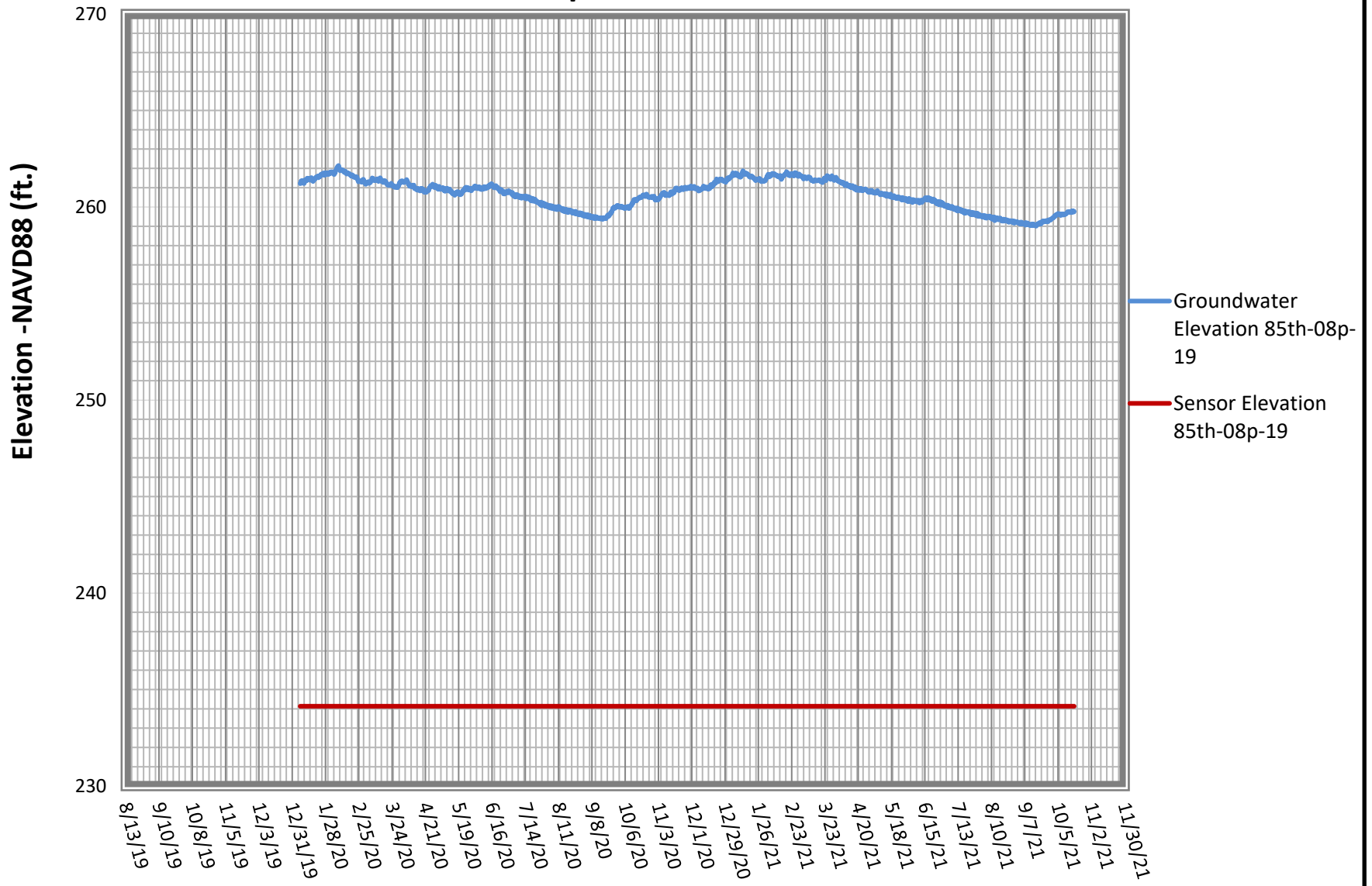
Figure C-3. Groundwater Elevation Versus Time
85th-03p-19



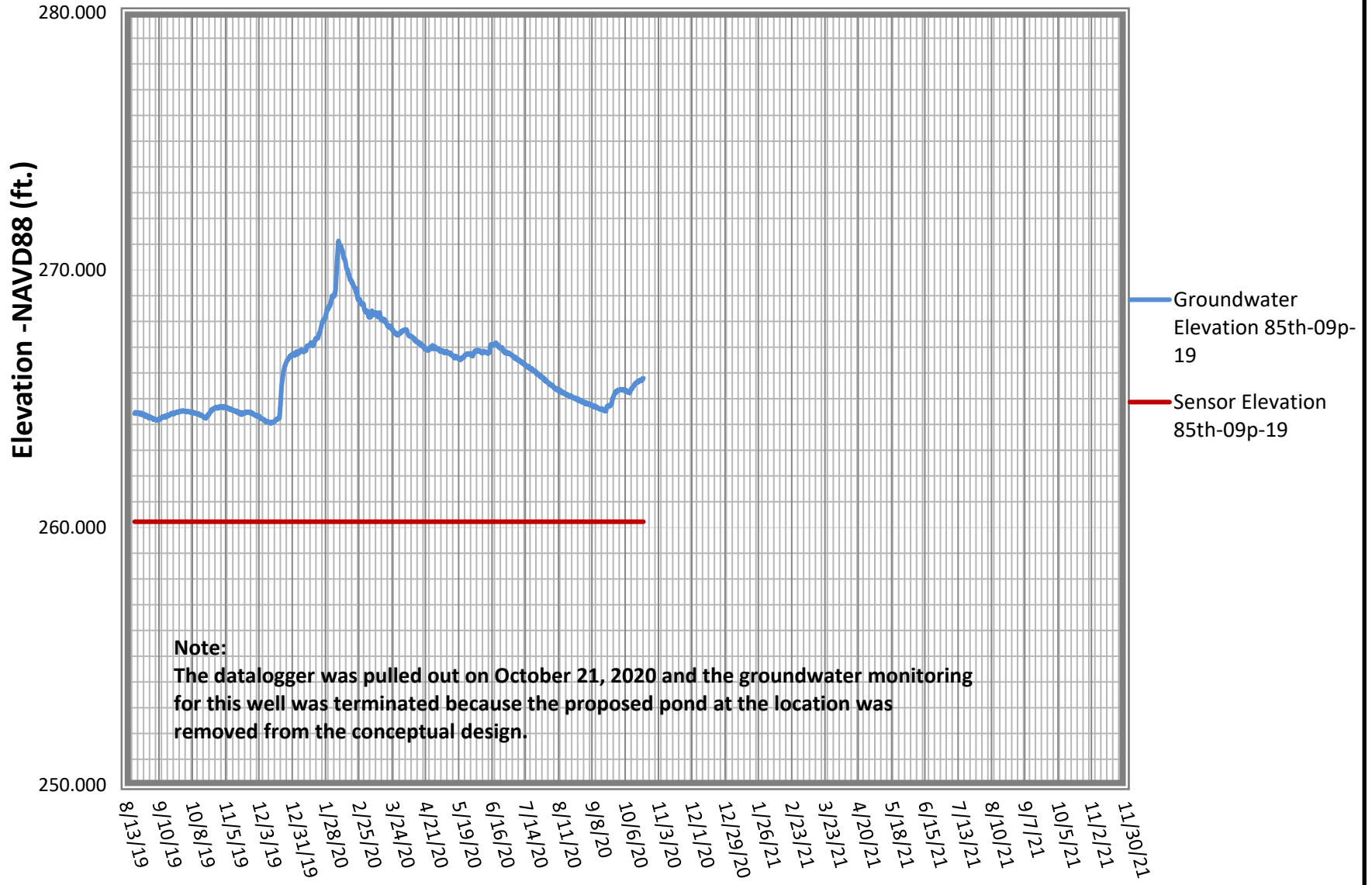
**Figure C-4. Groundwater Elevation Versus Time
85th-04p-19**



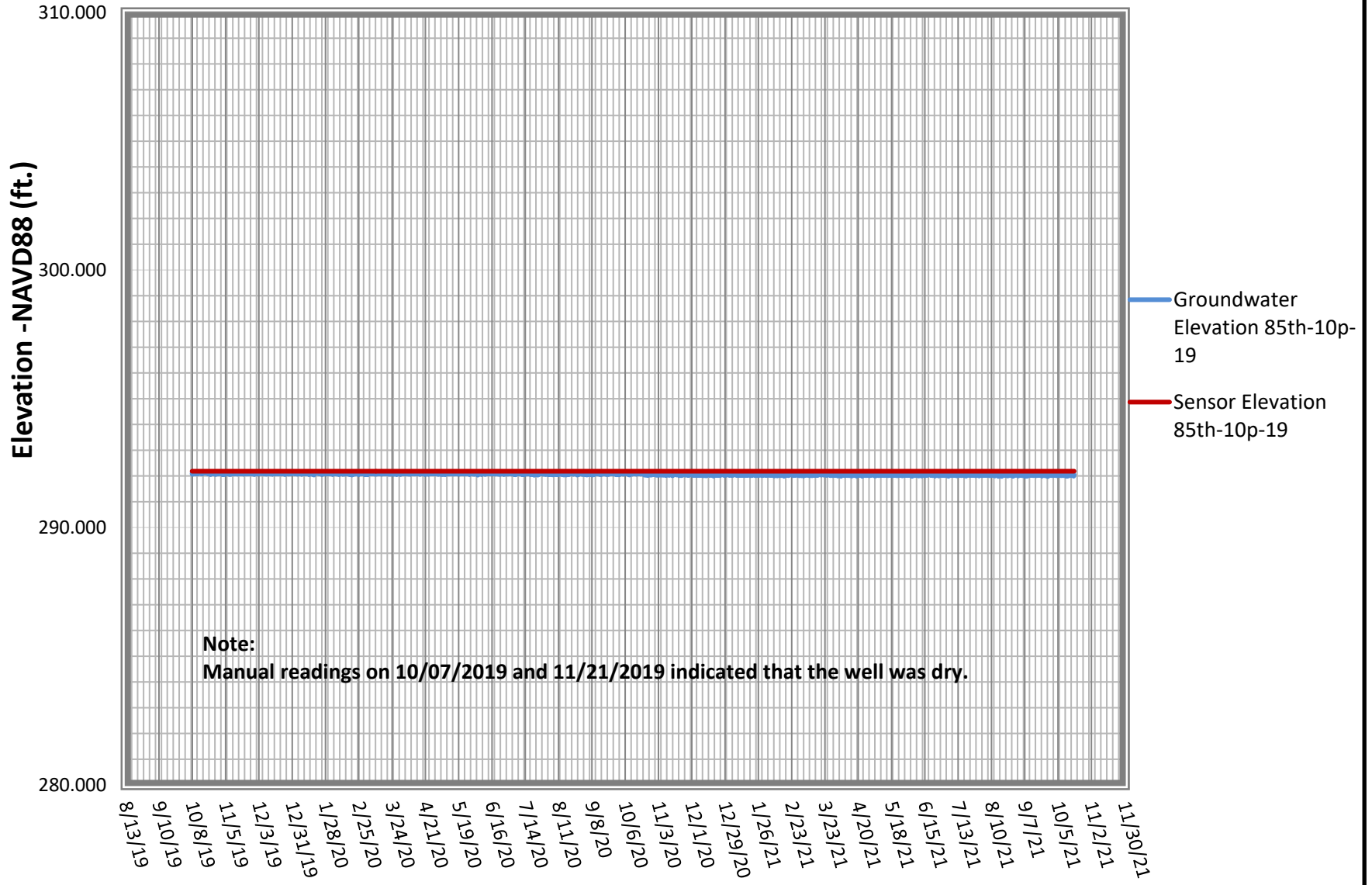
**Figure C-5. Groundwater Elevation Versus Time
85th-08p-19**



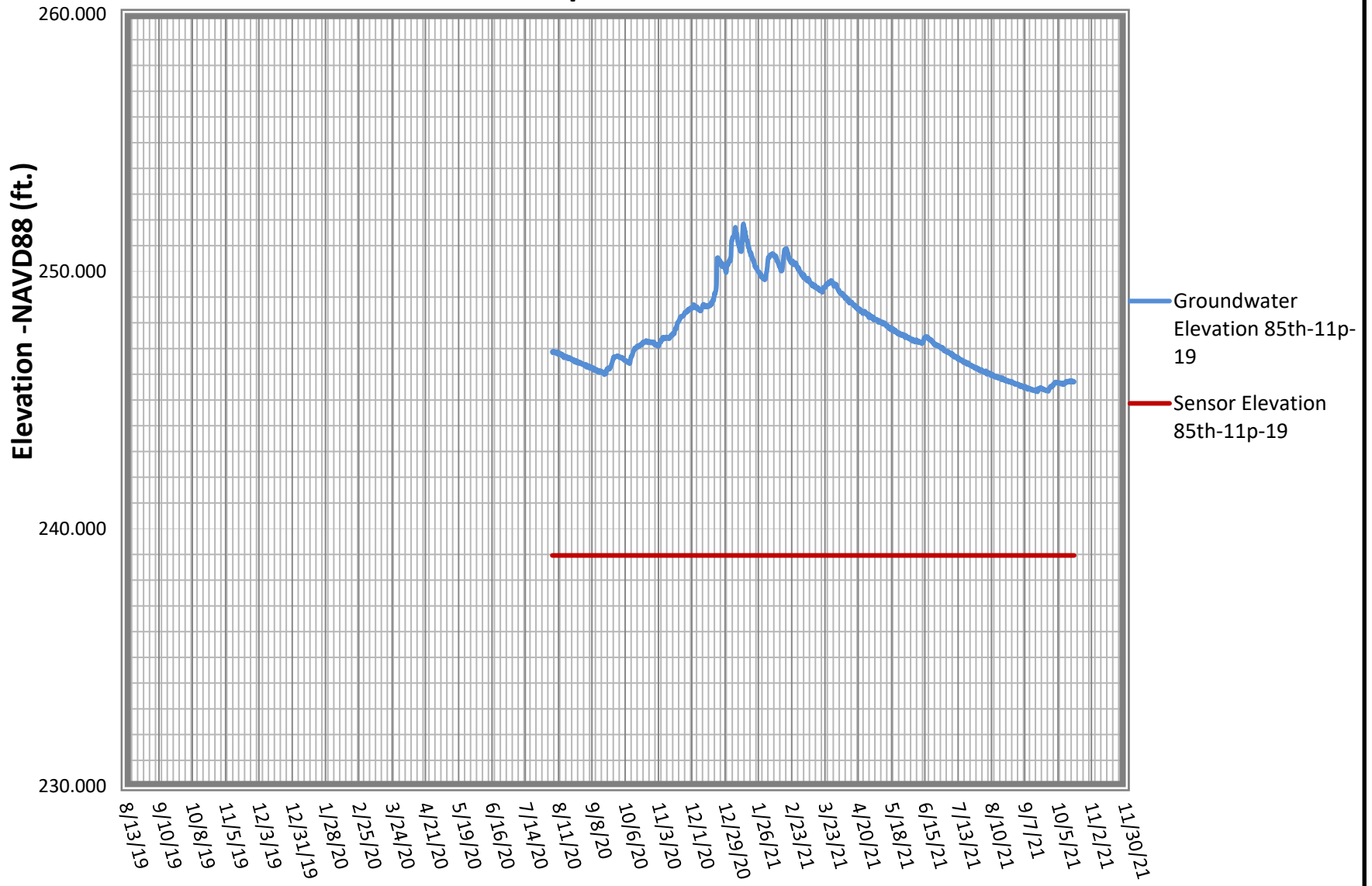
**Figure C-6. Groundwater Elevation Versus Time
85th-09p-19**



**Figure C-7. Groundwater Elevation Versus Time
85th-10p-19**



**Figure C-8. Groundwater Elevation Versus Time
85th-11p-19**



APPENDIX G

RESULTS OF LATERAL PILE ANALYSIS

West Abutment (Abutment A-1; Boring BH-1) - LPILE Parameters

Top Shaft Elevation: 185.22 feet (4-foot diameter shaft)

Soil Layer	Soil Type (p-y model)	Top of Layer (ft)	Bottom of Layer (ft)	Effective Unit Wt, γ' (pcf) ¹	Friction Angle (deg)	Undrained Shear Strength C_u (psf) ²	p-y Modulus Static, k (pci)	p-y Modulus Seismic, k (pci)	Strain Factor, ϵ_{50} (dim)
Embankment Fill	Sand (Reese)	0		135	38	--	200	200	--
			22.5	135	38	--	200	200	--
Glacial Till (Above Groundwater)	Sand (Reese)	22.5		135	40	--	225	225	--
			33	135	40	--	225	225	--
Glacial Till (Below Groundwater)	Sand (Reese)	33		73	40	--	125	125	--
			46	73	40	--	125	125	--
Advance Outwash (Below Groundwater)	Sand (Reese)	46		78	40	--	125	125	--
			53	78	40	--	125	125	--

*Lateral Resistance ignored for upper 4 feet due to softening of surface material and adjacent slope face.

East Abutment (Abutment A-4; Boring BH-2) - LPILE Parameters

Top Shaft Elevation 194.785 feet (4-foot diameter shaft)

Soil Layer	Soil Type (p-y model)	Top of Layer (ft)	Bottom of Layer (ft)	Effective Unit Wt, γ' (pci) ¹	Friction Angle (deg)	Undrained Shear Strength C_u (psf) ²	p-y Modulus Static, k (pci)	p-y Modulus Seismic, k (pci)	Strain Factor, ϵ_{50} (dim)
Embankment Fill (Above Groundwater)	Sand (Reese)	0		135	38	--	200	200	--
			20	135	38	--	200	200	--
Embankment Fill (Below Groundwater)	Sand (Reese)	20		73	38	--	100	100	--
			24.5	73	38	--	100	100	--
Glacial Till (Below Groundwater)	Sand (Reese)	24.5		73	40	--	125	125	--
			52	73	40	--	125	125	--

*Lateral Resistance ignored for upper 4 feet due to softening of surface material and adjacent slope face.

East Pier (Pier P2; Boring BH-3) - LPILE Parameters

Top Shaft Elevation: 167.117 feet (5-foot diameter shaft)

Soil Layer	Soil Type (p-y model)	Top of Layer (ft)	Bottom of Layer (ft)	Effective Unit Wt, γ' (pcf) ¹	Friction Angle (deg)	Undrained Shear Strength C_u (psf) ²	p-y Modulus Static, k (pci)	p-y Modulus Seismic, k (pci)	Strain Factor, ϵ_{50} (dim)
Fill (Above Groundwater)	Sand (Reese)	0		130	34	--	30	30	--
			7.5	130	34	--	30	30	--
Glacial Till (Below Groundwater)	Sand (Reese)	7.5		73	40	--	125	125	--
			32.5	73	40	--	125	125	--
Advance Outwash (Below Groundwater)	Sand (Reese)	32.5		78	40	--	125	125	--
			50	78	40	--	125	125	--

*Lateral Resistance ignored for upper 2 feet due to softening of surface material.

West Pier (Pier P3; Boring BH-4) - LPILE Parameters

Top Shaft Elevation: 167.791 feet (5-foot diameter shaft)

Soil Layer	Soil Type (p-y model)	Top of Layer (ft)	Bottom of Layer (ft)	Effective Unit Wt, γ' (pcf) ¹	Friction Angle (deg)	Undrained Shear Strength C_u (psf) ²	p-y Modulus Static, k (pci)	p-y Modulus Seismic, k (pci)	Strain Factor, ϵ_{50} (dim)
Fill (Above Groundwater)	Sand (Reese)	0		130	34	--	30	30	--
			4.5	130	34	--	30	30	--
Fill (Below Groundwater)	Sand (Reese)	4.5		68	34	--	60	60	--
			11	68	34	--	60	60	--
Glacial Till (Below Groundwater)	Sand (Reese)	11		73	40	--	125	125	--
			35	73	40	--	125	125	--
Advance Outwash (Below Groundwater)	Sand (Reese)	35		78	40	--	125	125	--
			50	78	40	--	125	125	--

*Lateral Resistance ignored for upper 2 feet due to softening of surface material.

¹: Total Unit Weight (pcf) = Effective Unit Weight + 62.4 (for layers below water table)

²: Undrained Shear Strength, $C = C_u = S_u$



Summary for LPile Inputs

Material Properties Per Load Case

Service and Strength Load Case(s)

Reinforcing (fy)	=	60	ksi
Concrete (f'c)	=	5	ksi
Steel Casing (Fy)	=	50	ksi

Extreme Load Case(s) - Expected Material Properties

Reinforcing (fye)	=	68	ksi
Concrete (f'ce)	=	6.5	ksi
Steel Casing (Fye)	=	55	ksi

Abutment(s) - Shaft Geometry

Slip Casing Outer Diameter	=	40.09	in	<i>*Note, slip casing used at abutments</i>
Uncased Section Outer Diameter	=	47.25	in	
Wall Thickness	=	0.375	in	
Corrosion Allowance	=	0.110	in	
Wall Thickness for Design	=	0.265	in	<i>*Includes corrosion allowance. To be used for all load cases</i>
Cased Length	=	15	ft	
Total Length	=	35	ft	<i>*Was previously 50ft, but based on axial demands and draft geotech report 35ft is acceptable</i>

Pier(s) - Shaft Geometry

Permanent Casing Outer Diameter	=	59.04	in	<i>*Note, permanent casing used at piers</i>
Uncased Section Outer Diameter	=	59.04	in	
Wall Thickness	=	1.375	in	
Corrosion Allowance	=	0.110	in	
Wall Thickness for Design	=	1.265	in	<i>*Includes corrosion allowance. To be used for all load cases</i>
Cased Length	=	18	ft	
Total Length	=	35	ft	<i>*Was previously 50ft, but based on axial demands and draft geotech report 35ft is acceptable</i>

Loading

Load Case	Location		Longitudinal Shear	Transverse Shear	Vertical Load	Moment Transverse	Moment Longitudinal	
			(Kips)	(Kips)	(Kips)	(K*ft)	(K*ft)	
Service	Pier 2	=	13	6	311	145	222	
	Pier 3	=	13	7	343	157	215	
	Abut 1	=	5	2	239	70	20	
	Abut 4	=	5	2	249	78	22	
Strength	Pier 2	=	7	14	378	271	119	
	Pier 3	=	7	17	421	291	117	
	Abut 1	=	4	3	257	151	15	
	Abut 4	=	4	4	276	162	16	
Extreme	Pier 2	=	82	82	271	2068	2068	<i>*Shear and moment from column overstrength calculations</i>
	Pier 3	=	74	74	307	2068	2068	<i>*Shear and moment from column overstrength calculations</i>
	Abut 1	=	80	80	145	500	0	
	Abut 4	=	80	80	162	500	0	

Top of Shaft Loading:

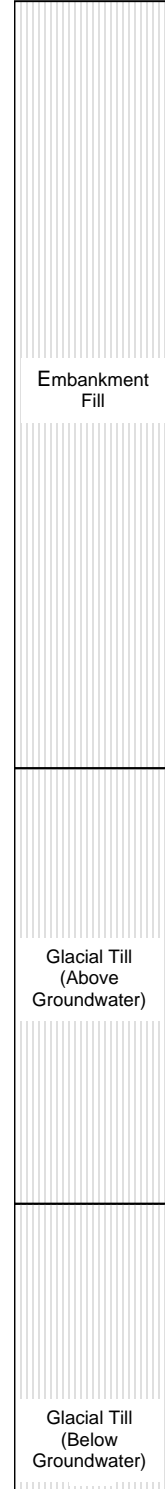
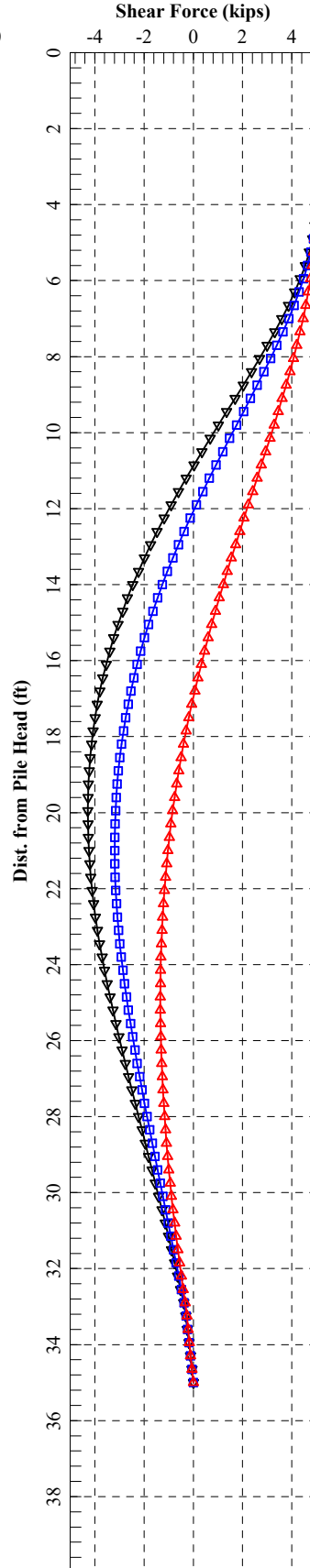
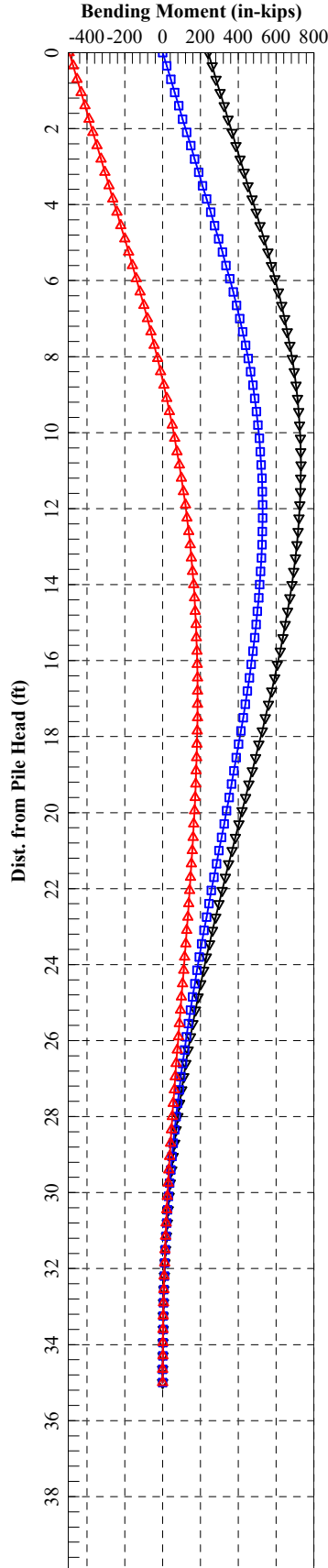
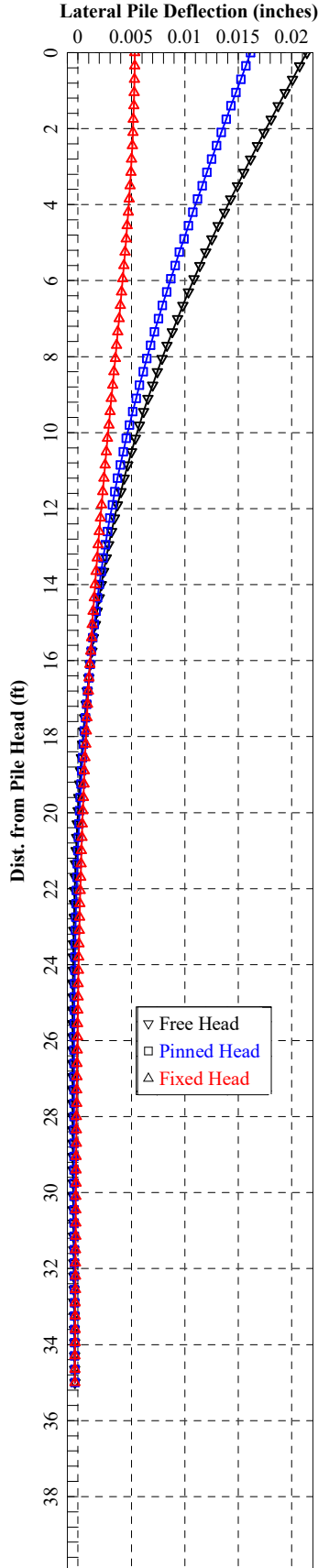
Longitudinal Shear = 5 Kips
Vertical Load = 239 Kips
Moment Longitudinal = 20 Kip-Ft

Abutment 1

Service Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:

K22 = 943 Kips/in
K32 = 93,328 Kip-lb/in
K23 = 93,324 Kips/rad
K33 = 13,755,000 Kip-lb/rad



Top of Shaft Loading:

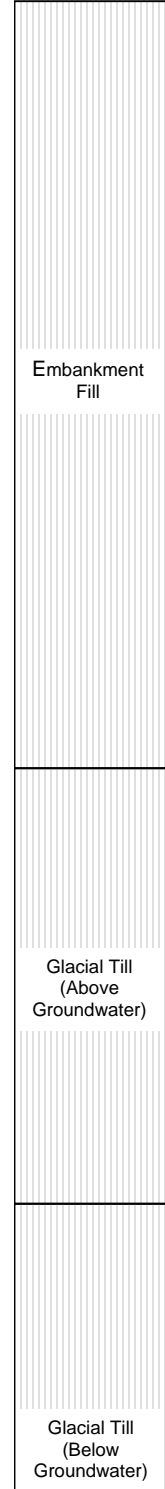
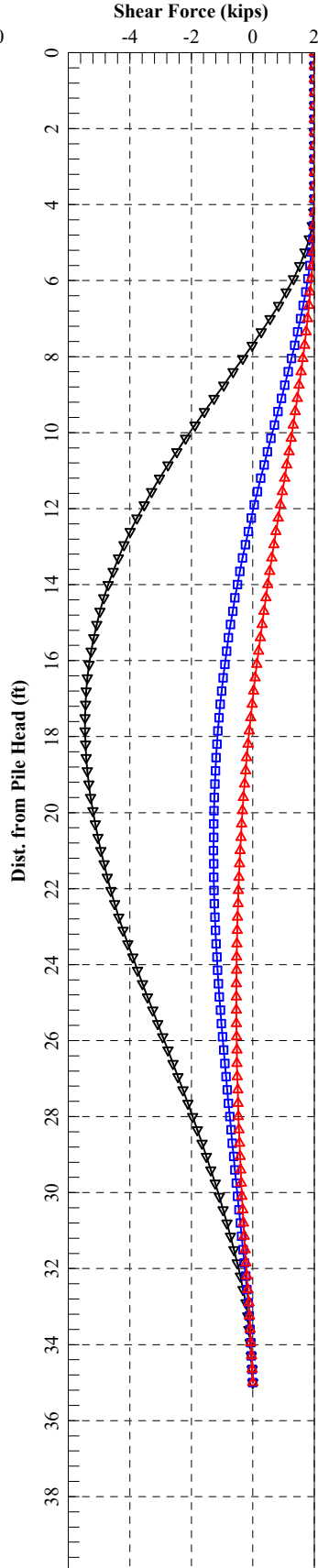
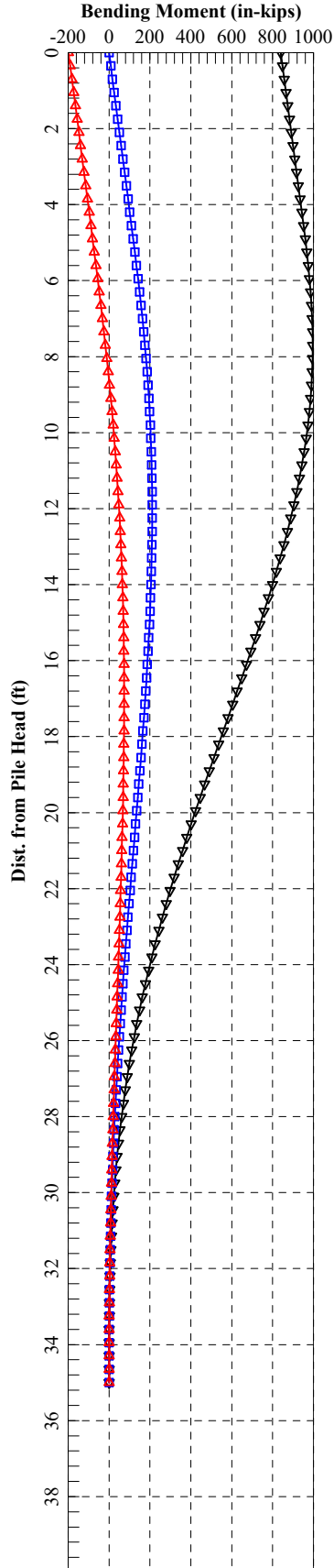
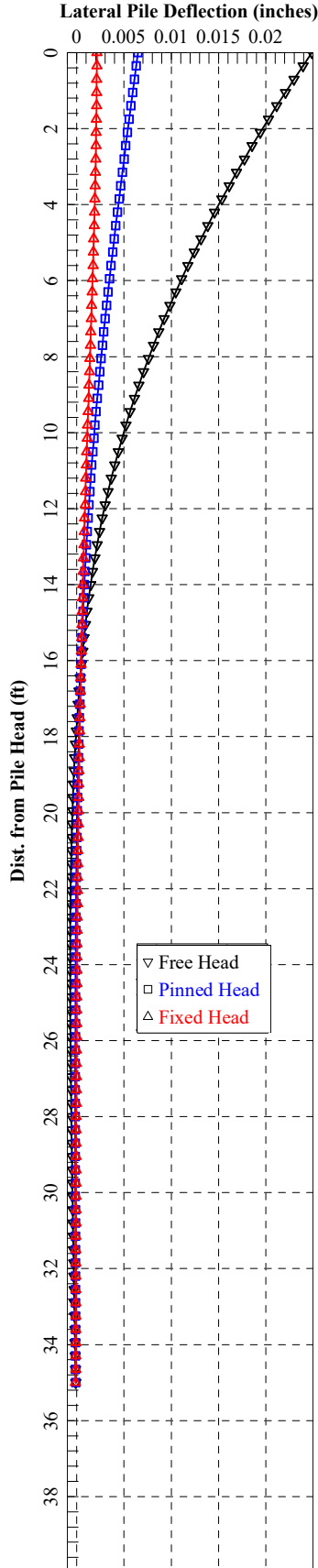
Longitudinal Shear = 2 Kips
Vertical Load = 239 Kips
Moment Longitudinal = 70 Kip-Ft

Abutment 1

Service Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

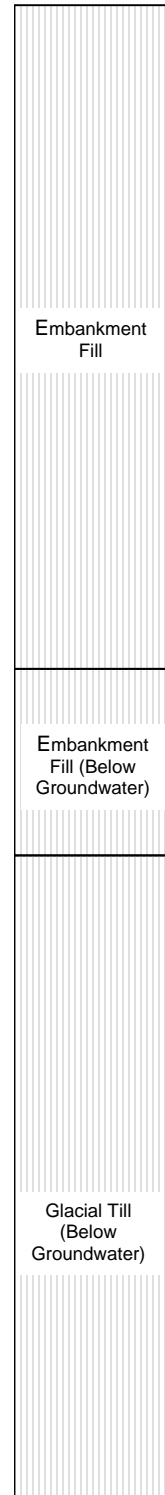
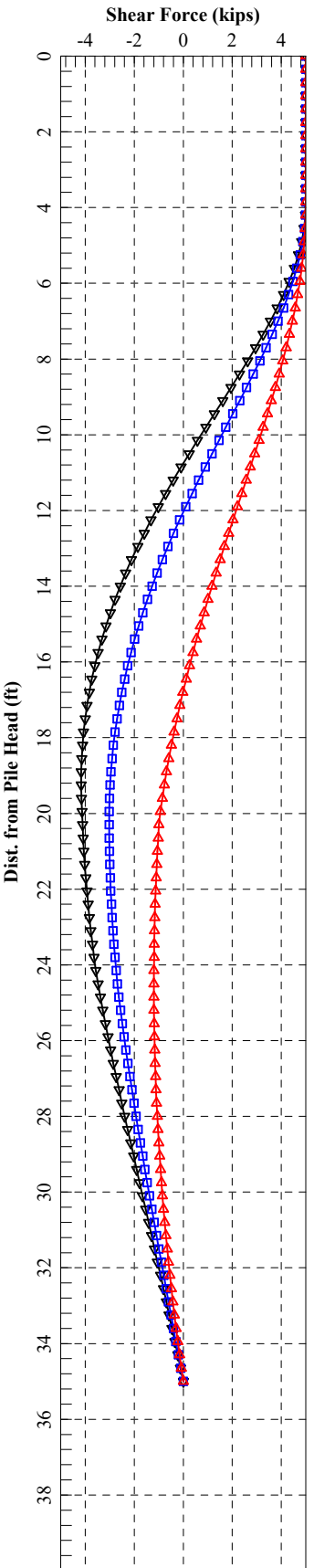
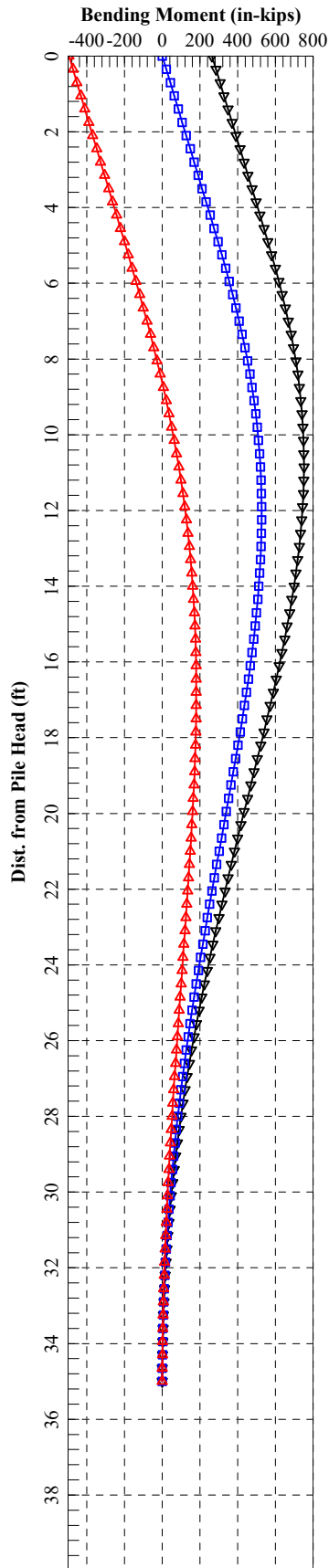
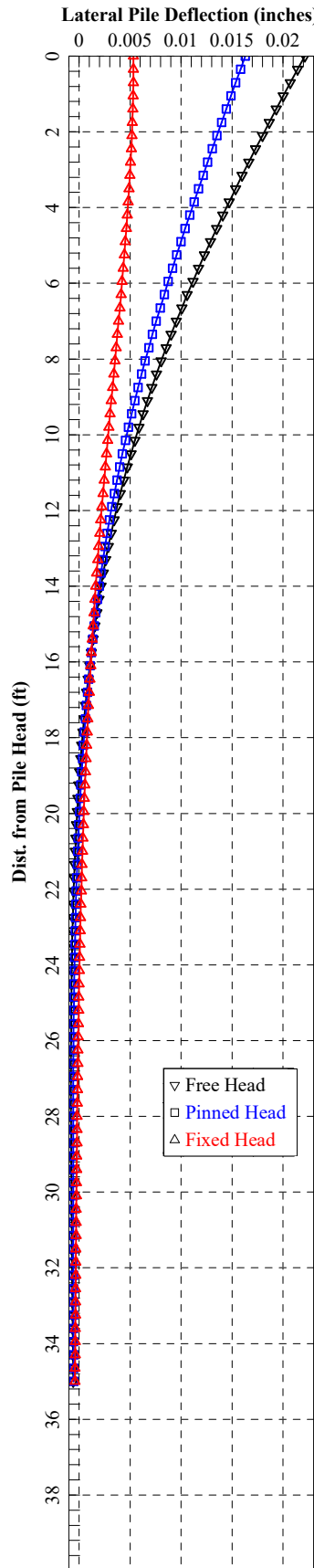
K22 = 943 Kips/in
K32 = 93,324 Kip-lb/in
K23 = 93,292 Kips/rad
K33 = 13,750,000 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 5 Kips
 Vertical Load = 249 Kips
 Moment Longitudinal = 22 Kip-Ft

Abutment 4 Service Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:
 K22 = 936 Kips/in
 K32 = 92,735 Kip-lb/in
 K23 = 92,731 Kips/rad
 K33 = 13,660,300 Kip-lb/rad



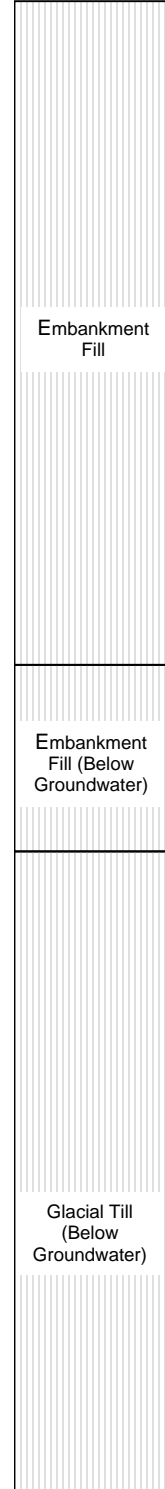
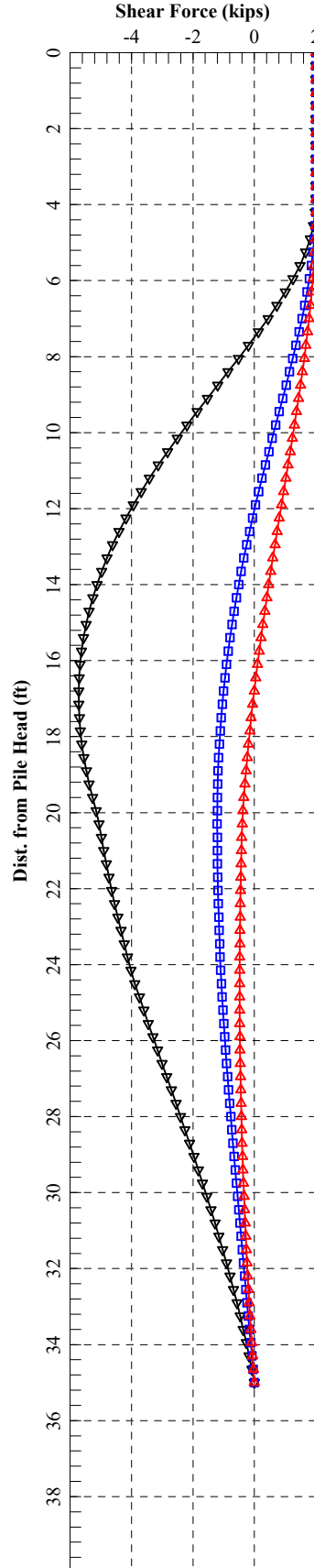
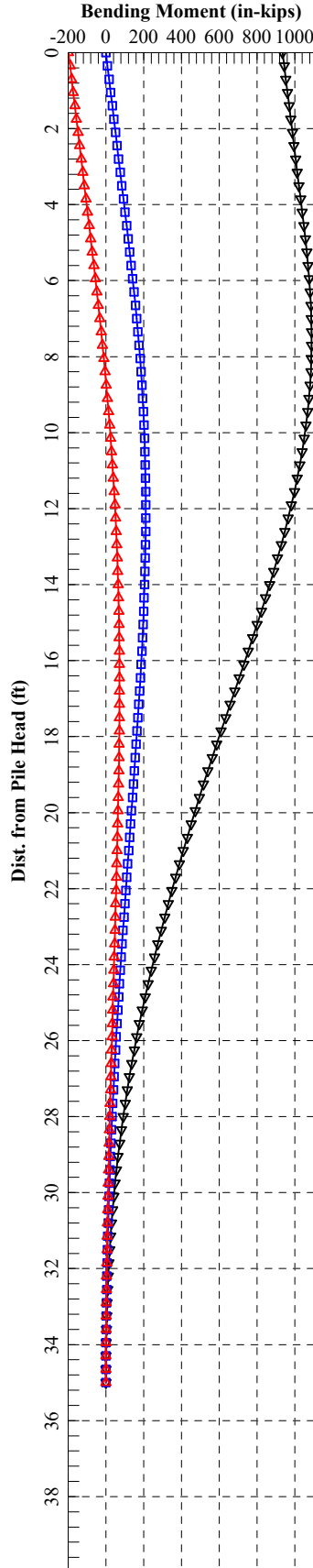
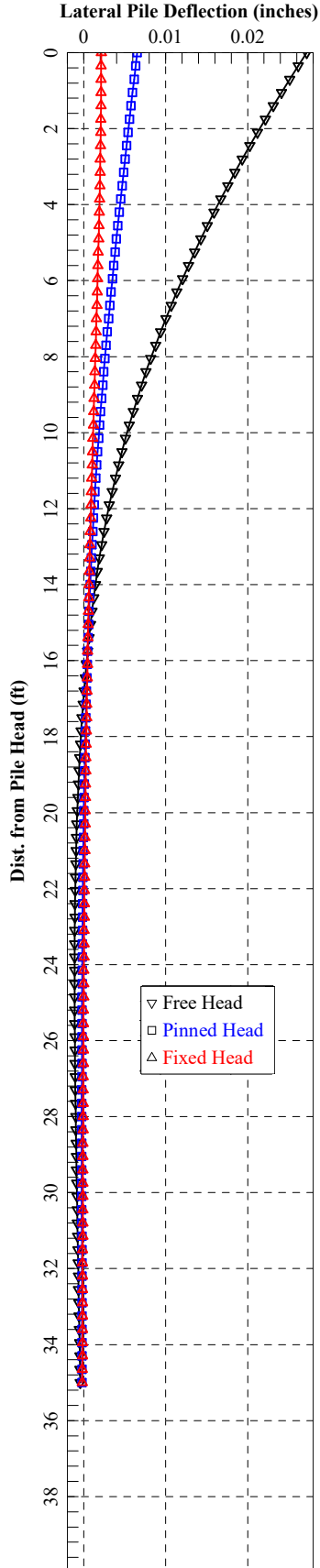
Top of Shaft Loading:

Longitudinal Shear = 2 Kips
Vertical Load = 249 Kips
Moment Longitudinal = 78 Kip-Ft

Abutment 4 Service Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

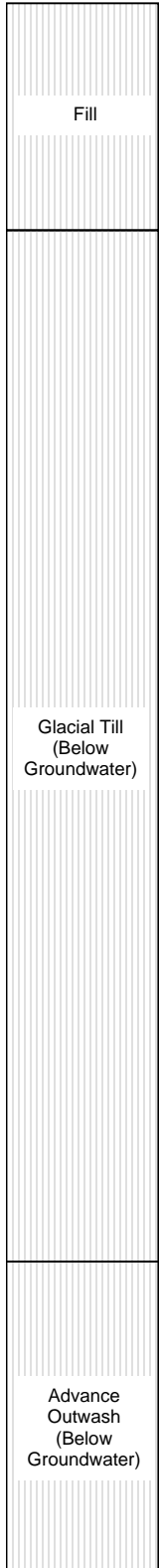
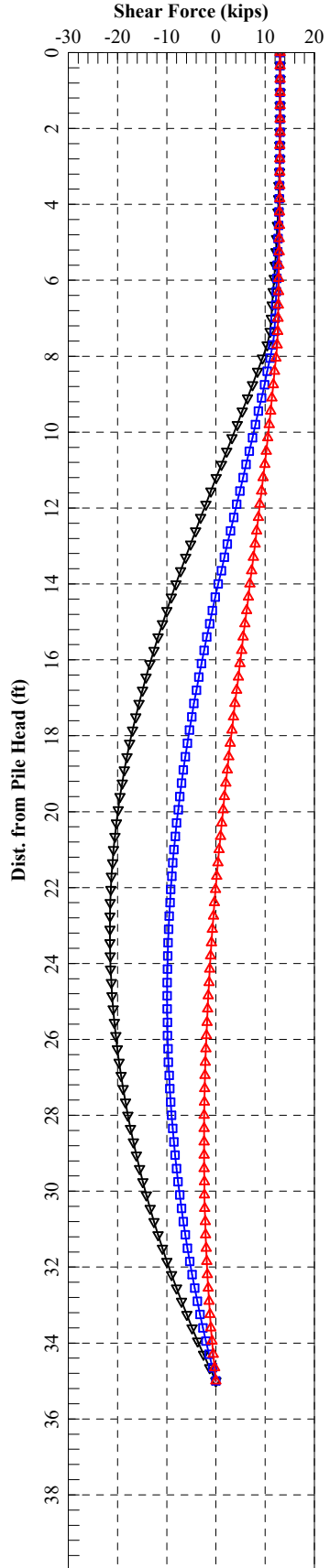
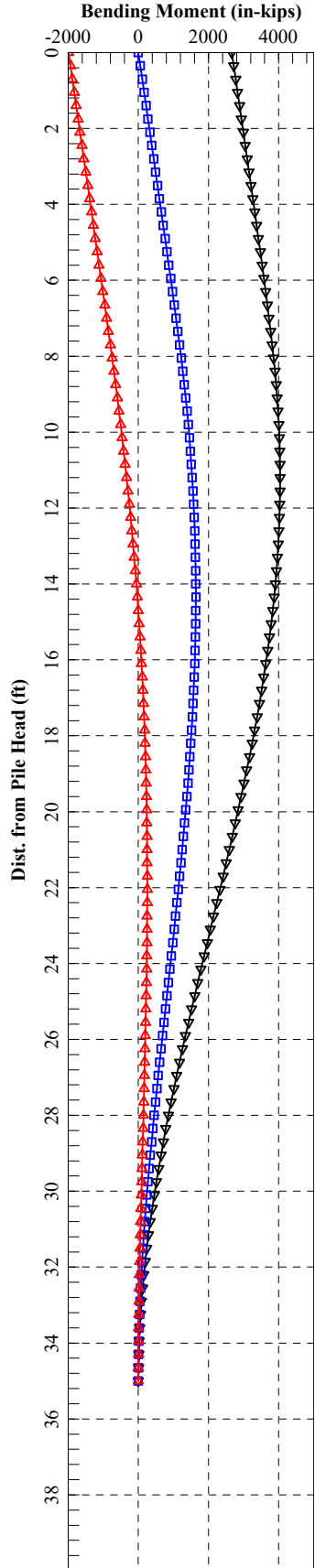
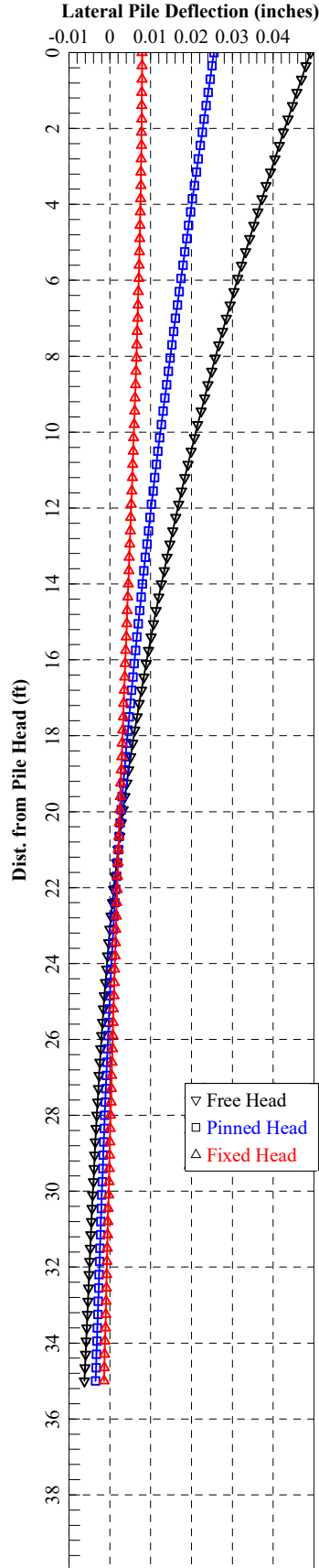
K22 = 936 Kips/in
K32 = 92,729 Kip-lb/in
K23 = 92,691 Kips/rad
K33 = 13,653,800 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 13 Kips
 Vertical Load = 311 Kips
 Moment Longitudinal = 222 Kip-Ft

Pier 2 Service Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,649 \text{ Kips/in}$
 $K_{32} = 252,450 \text{ Kip-lb/in}$
 $K_{23} = 252,314 \text{ Kip/rad}$
 $K_{33} = 55,871,900 \text{ Kip-lb/rad}$

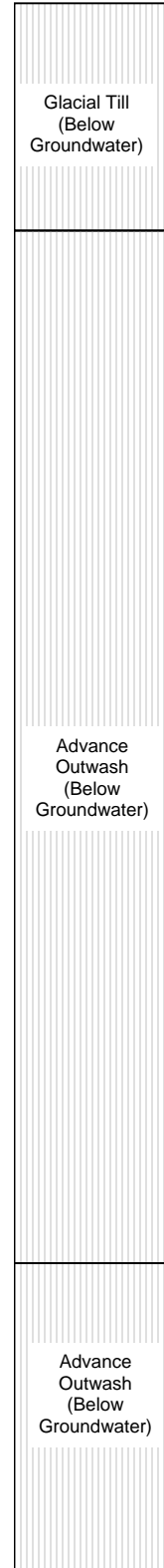
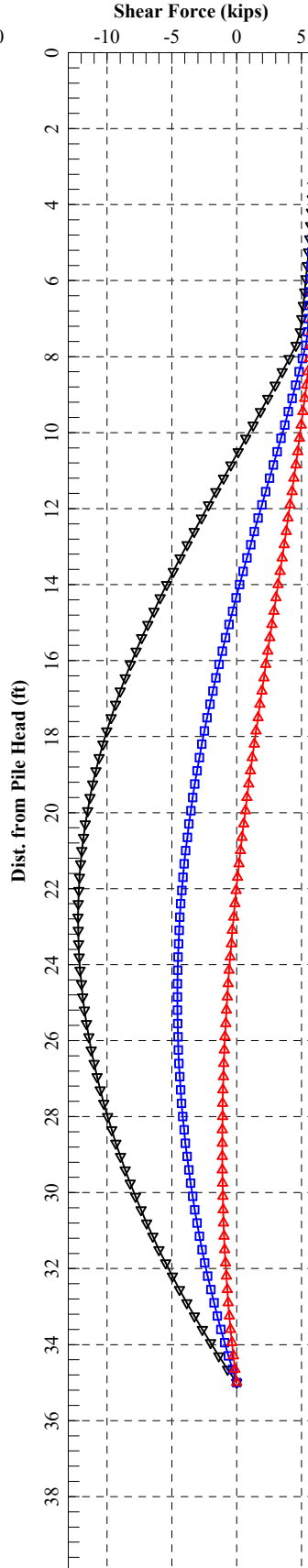
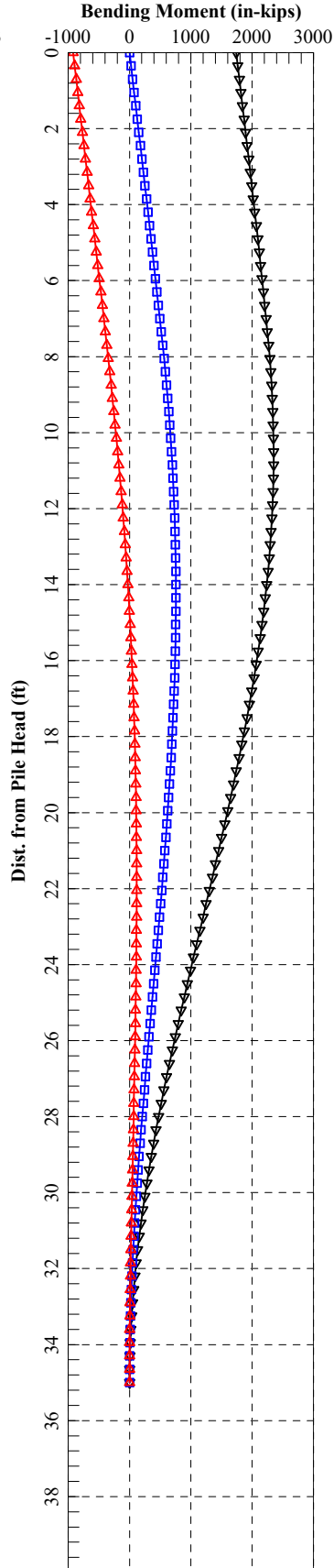
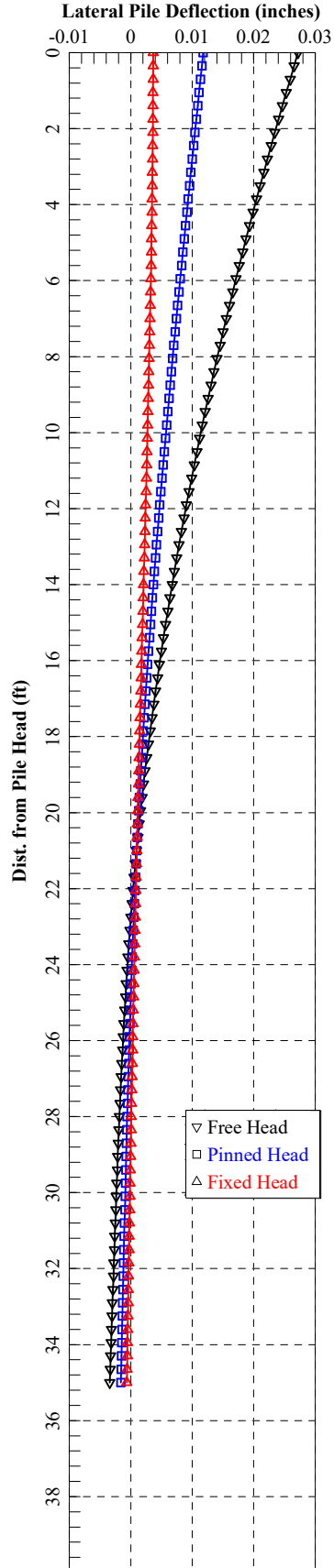


Top of Shaft Loading:
 Longitudinal Shear = 6 Kips
 Vertical Load = 311 Kips
 Moment Longitudinal = 145 Kip-Ft

Pier 2 Service Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

K22 = 1,650 Kips/in
 K32 = 252,585 Kip-lb/in
 K23 = 252,534 Kip/rad
 K33 = 55,926,600 Kip-lb/rad

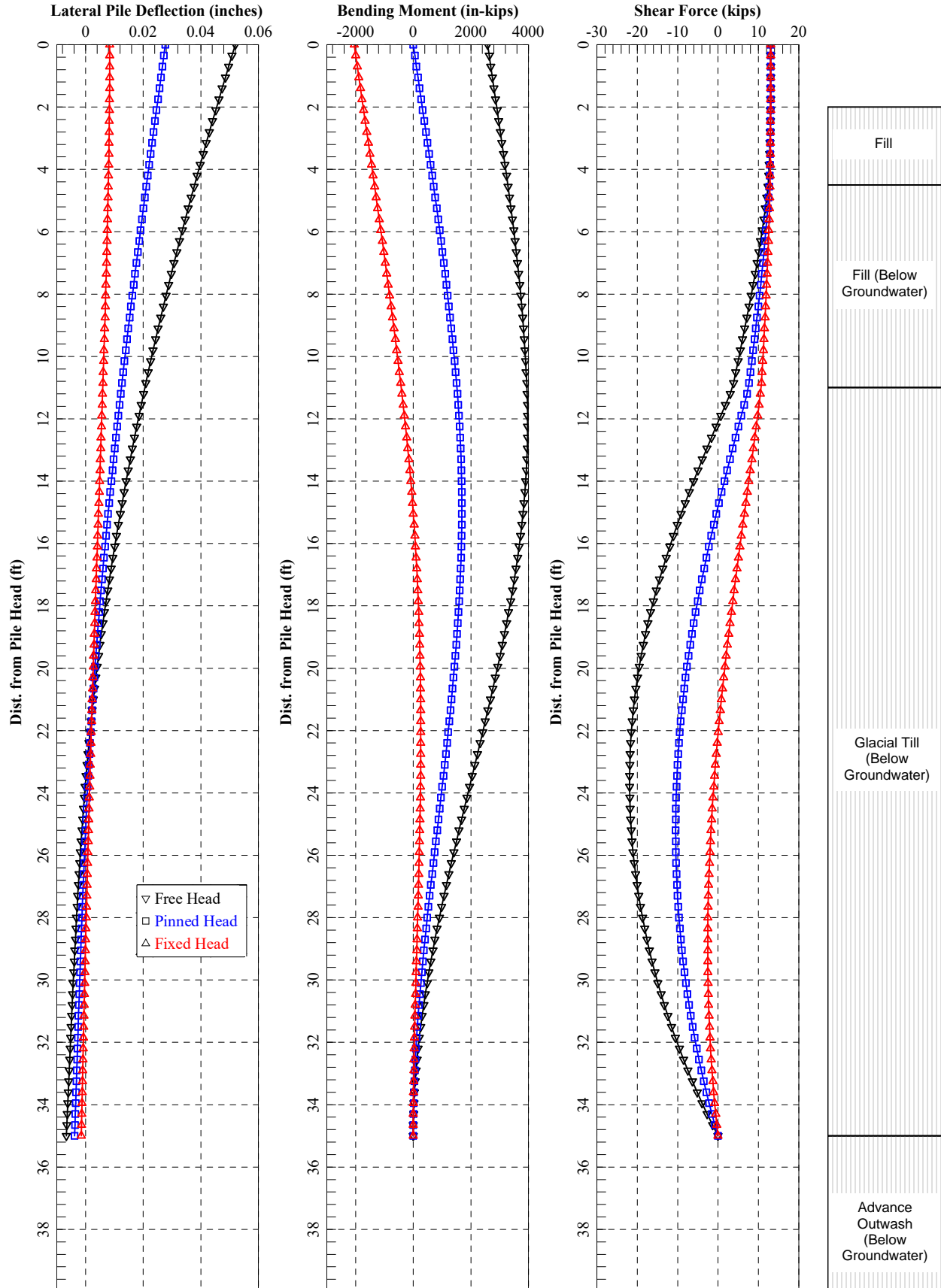


Top of Shaft Loading:

Longitudinal Shear = 13 Kips
 Vertical Load = 343 Kips
 Moment Longitudinal = 215 Kip-Ft

Pier 3**Service Loading - Longitudinal Direction****Shaft Head Stiffness Matrix Values:**

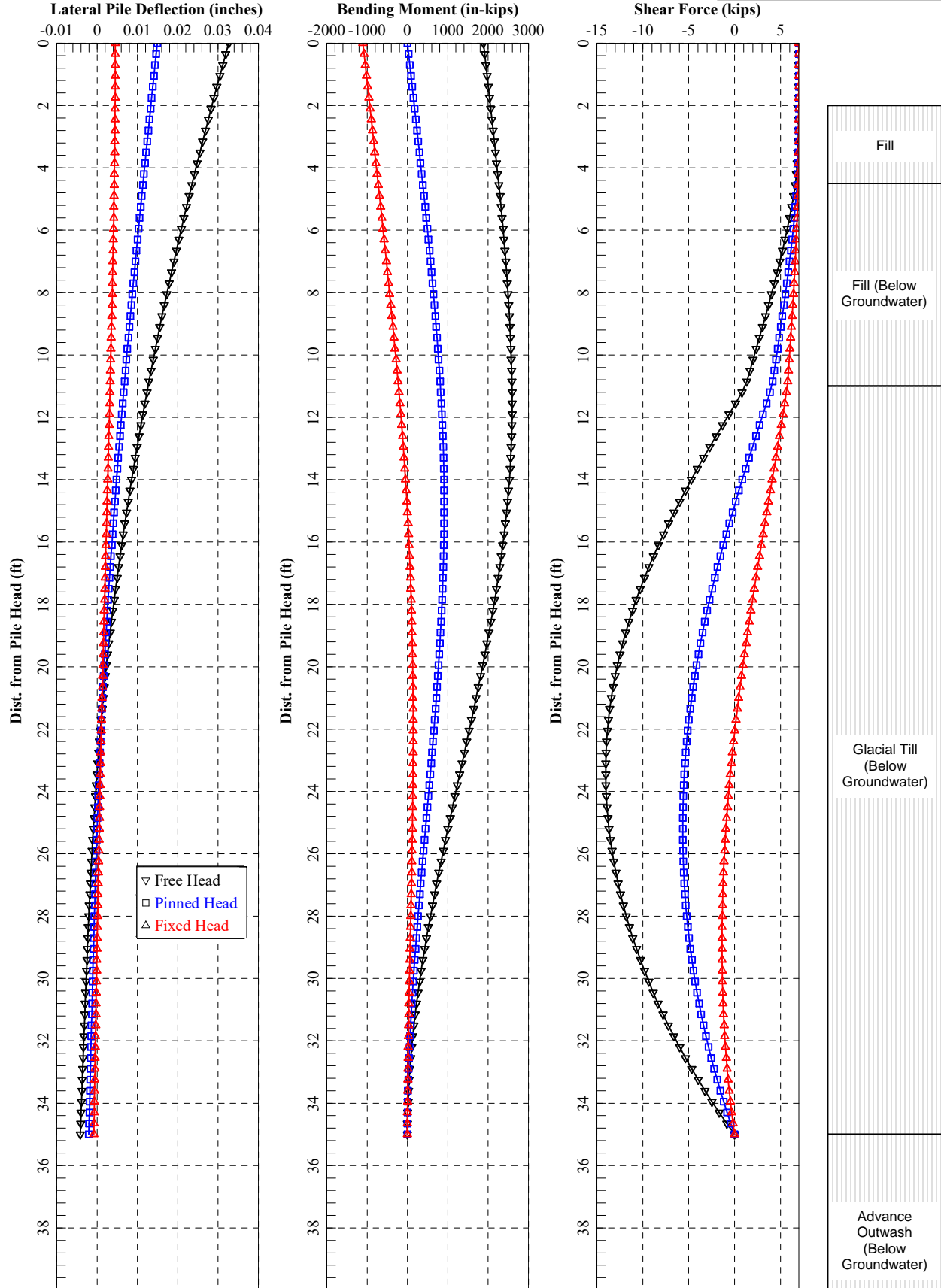
K22 = 1,548 Kips/in
 K32 = 244,111 Kip-lb/in
 K23 = 243,987 Kips/rad
 K33 = 55,196,800 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 7 Kips
 Vertical Load = 343 Kips
 Moment Longitudinal = 157 Kip-Ft

Pier 3 Service Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,549$ Kips/in
 $K_{32} = 244,222$ Kip-lb/in
 $K_{23} = 244,165$ Kips/rad
 $K_{33} = 55,241,900$ Kip-lb/rad

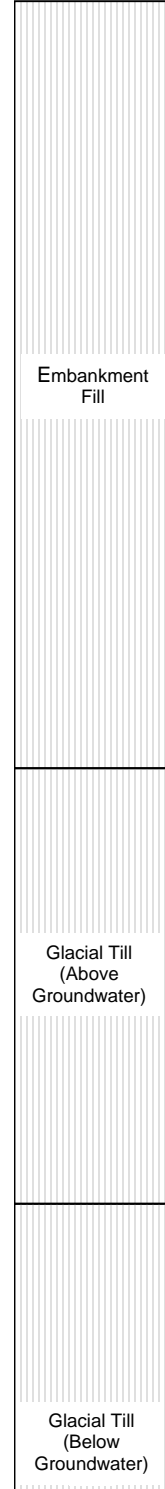
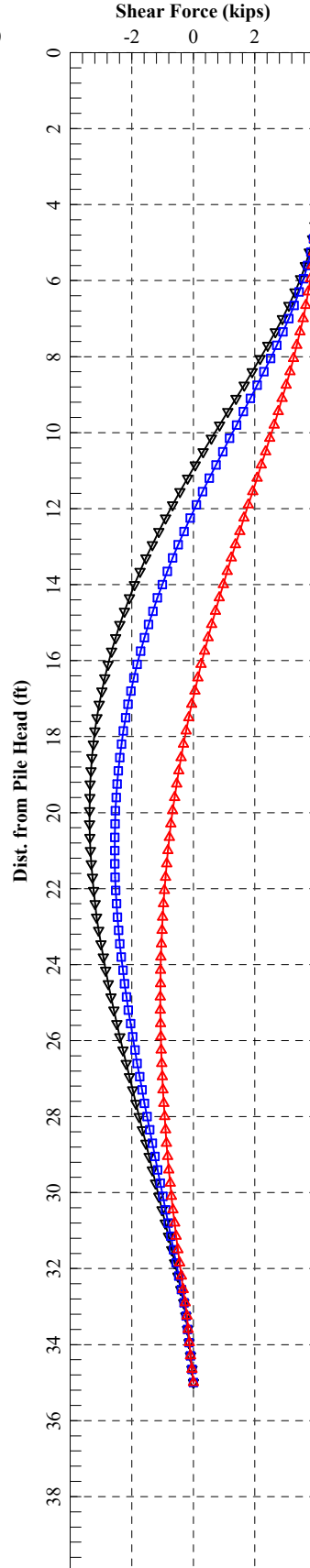
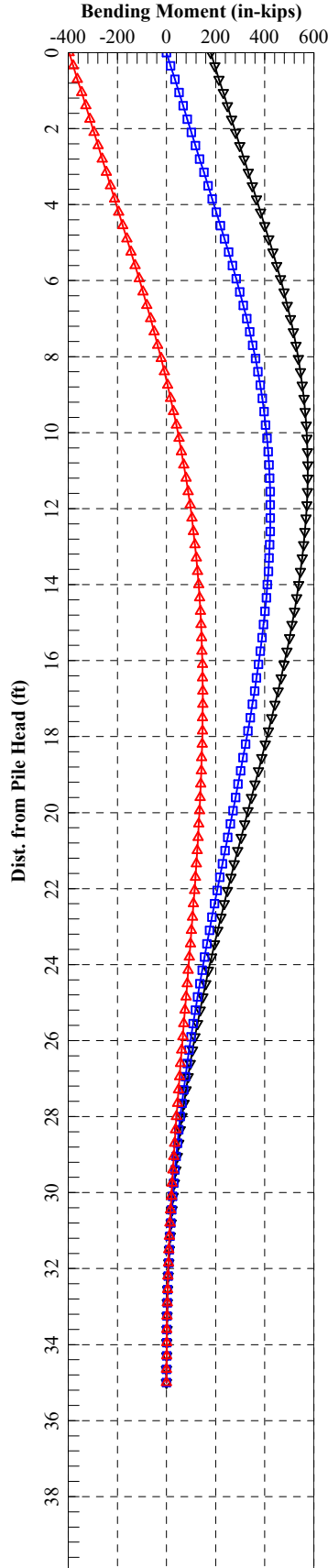
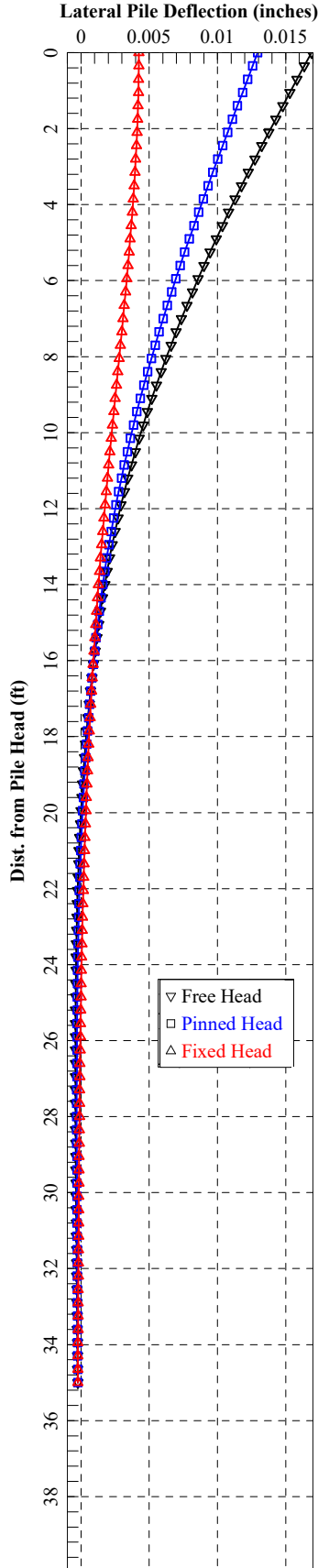


Top of Shaft Loading:
 Longitudinal Shear = 4 Kips
 Vertical Load = 257 Kips
 Moment Longitudinal = 15 Kip-Ft

Abutment 1 Strength Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:

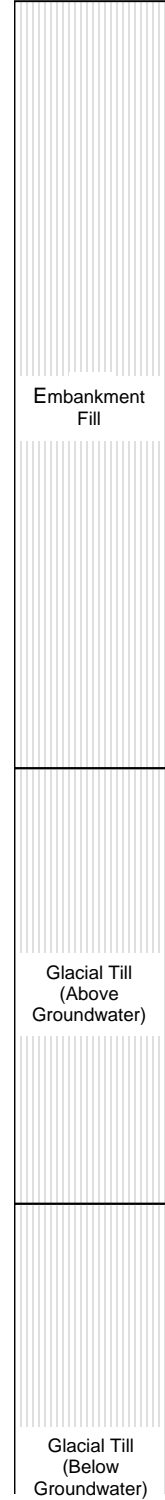
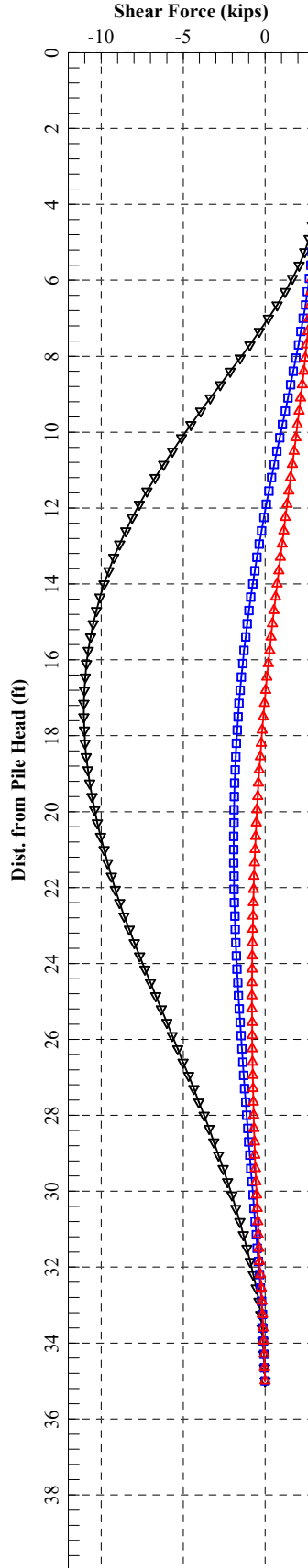
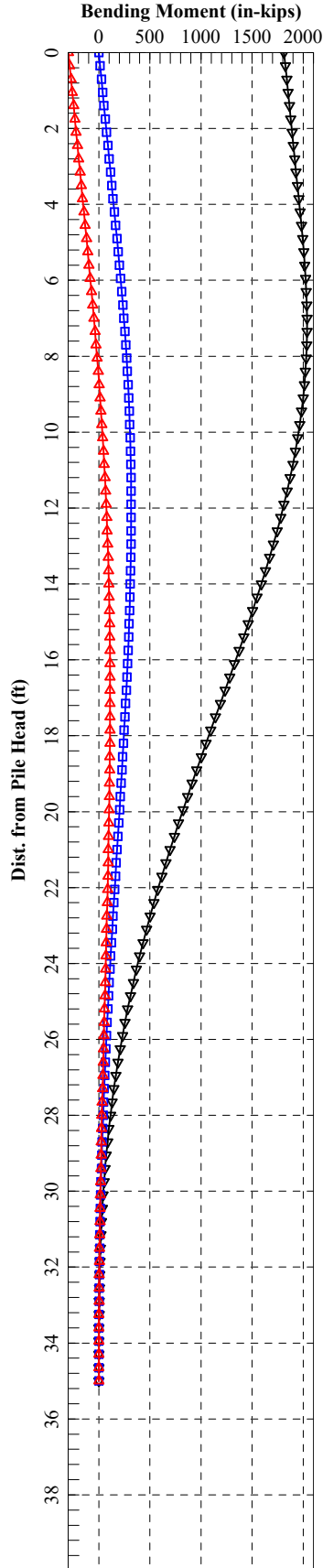
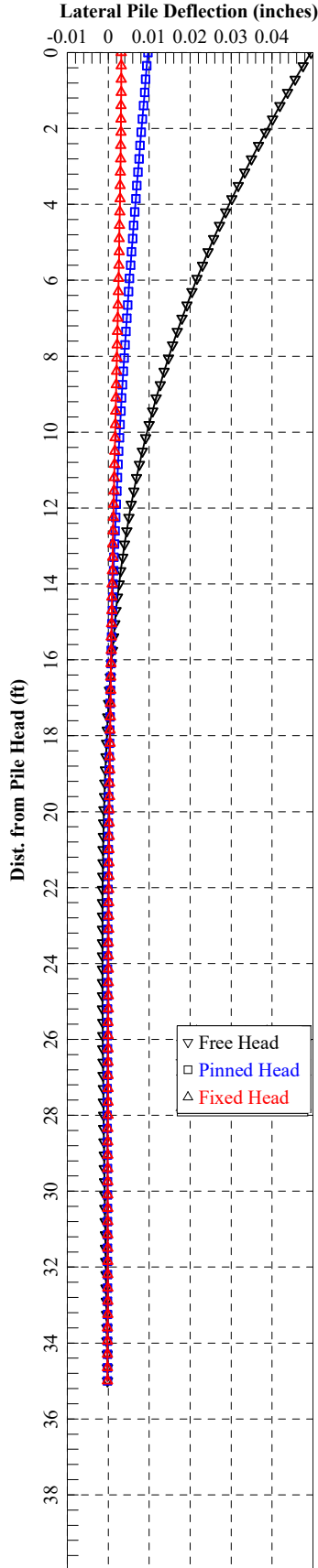
K22 = 942 Kips/in
 K32 = 93,285 Kip-lb/in
 K23 = 93,285 Kips/rad
 K33 = 13,747,100 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 3 Kips
 Vertical Load = 257 Kips
 Moment Longitudinal = 151 Kip-Ft

Abutment 1 Strength Loading - Transverse Direction

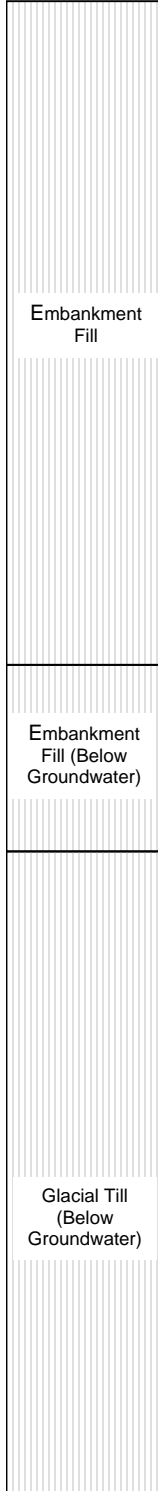
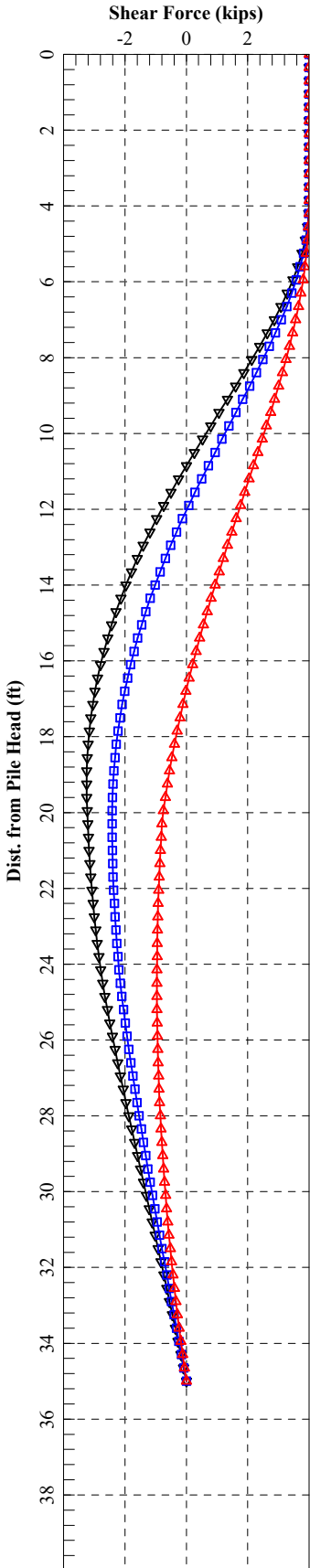
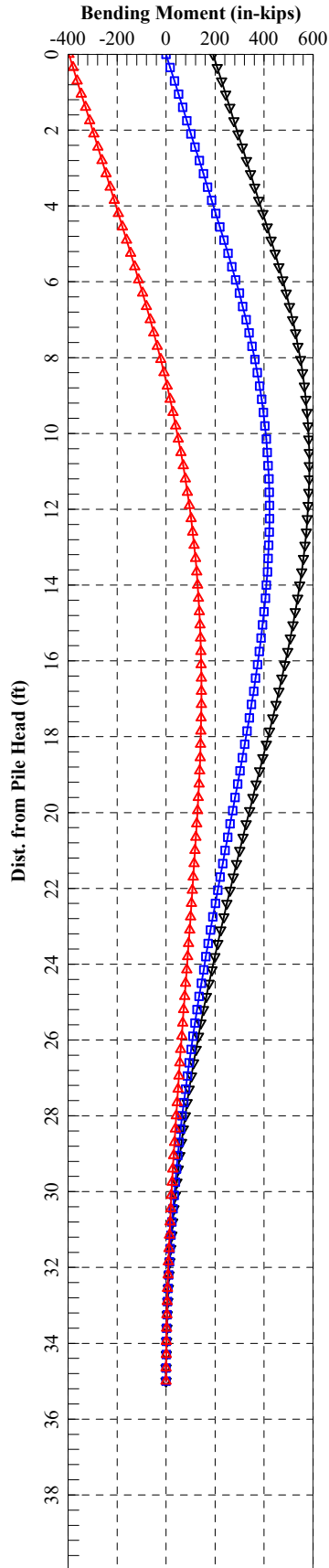
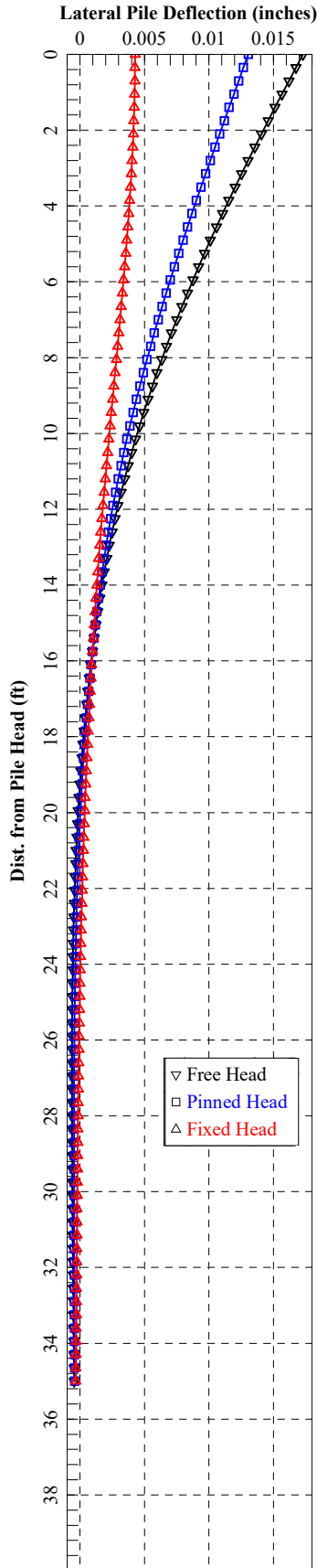
Shaft Head Stiffness Matrix Values:
 K22 = 942 Kips/in
 K32 = 93,195 Kip-lb/in
 K23 = 85,954 Kips/rad
 K33 = 12,637,700 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 4 Kips
 Vertical Load = 276 Kips
 Moment Longitudinal = 16 Kip-Ft

Abutment 4 Strength Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:
 $K_{22} = 936 \text{ Kips/in}$
 $K_{32} = 92,672 \text{ Kip-lb/in}$
 $K_{23} = 92,672 \text{ Kips/rad}$
 $K_{33} = 13,648,300 \text{ Kip-lb/rad}$

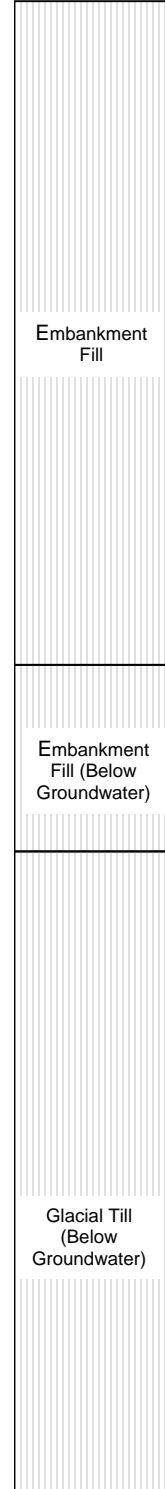
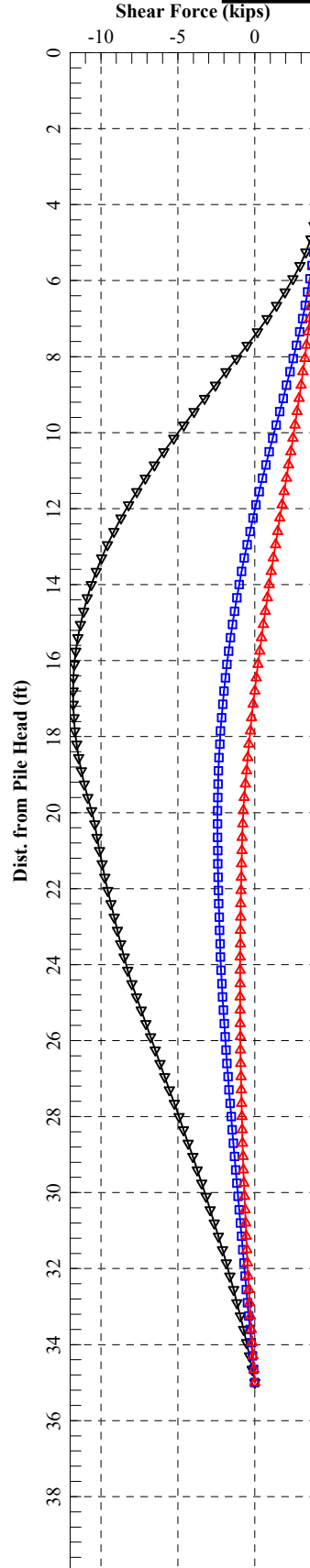
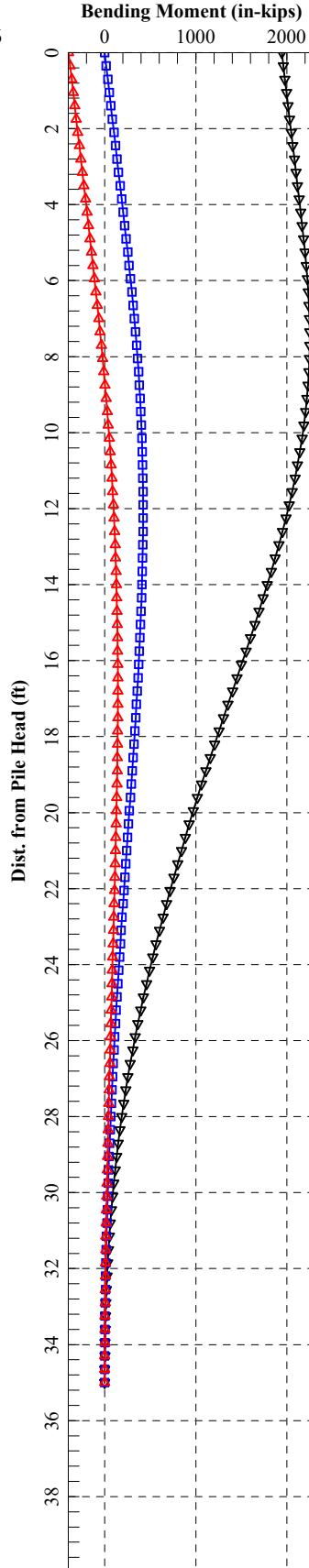
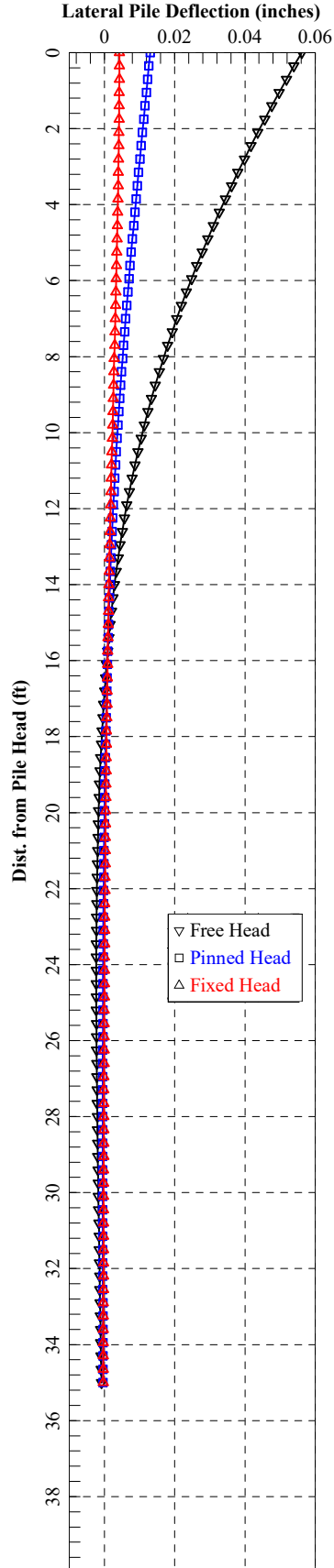


Top of Shaft Loading:
 Longitudinal Shear = 4 Kips
 Vertical Load = 276 Kips
 Moment Longitudinal = 162 Kip-Ft

Abutment 4 Strength Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

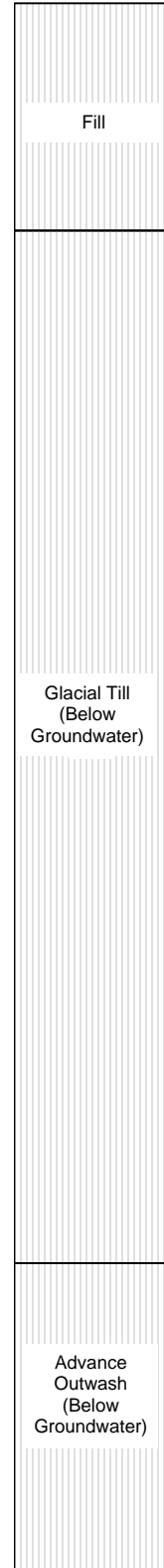
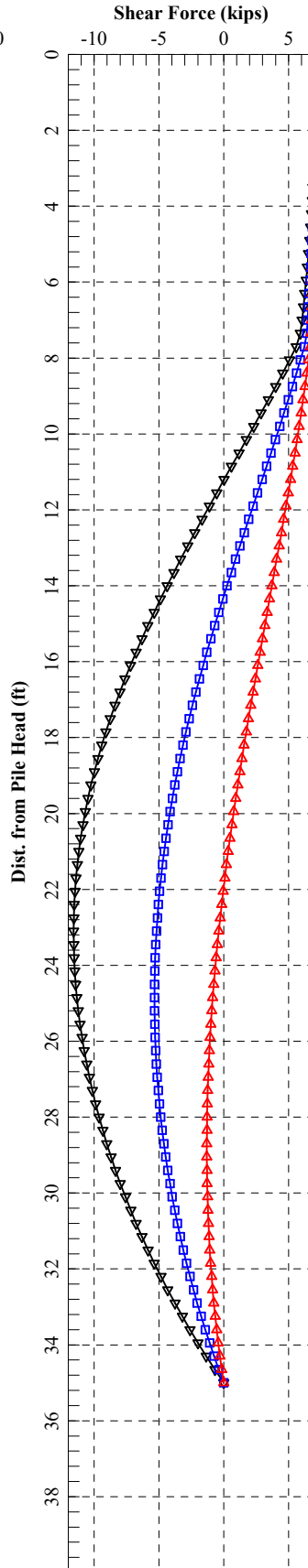
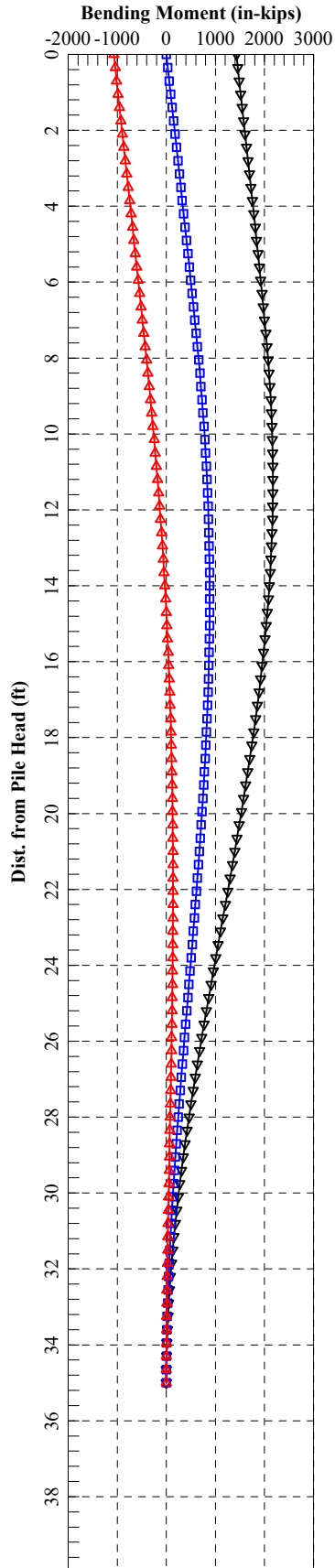
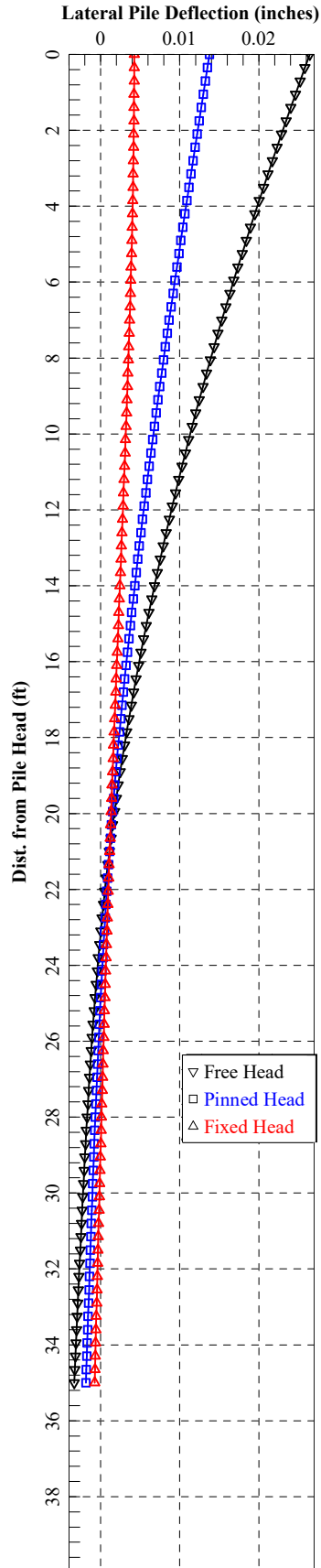
K22 = 935 Kips/in
 K32 = 92,562 Kip-lb/in
 K23 = 84,672 Kips/rad
 K33 = 12,434,500 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 7 Kips
 Vertical Load = 378 Kips
 Moment Longitudinal = 119 Kip-Ft

Pier 2 Strength Loading - Longitudinal Direction

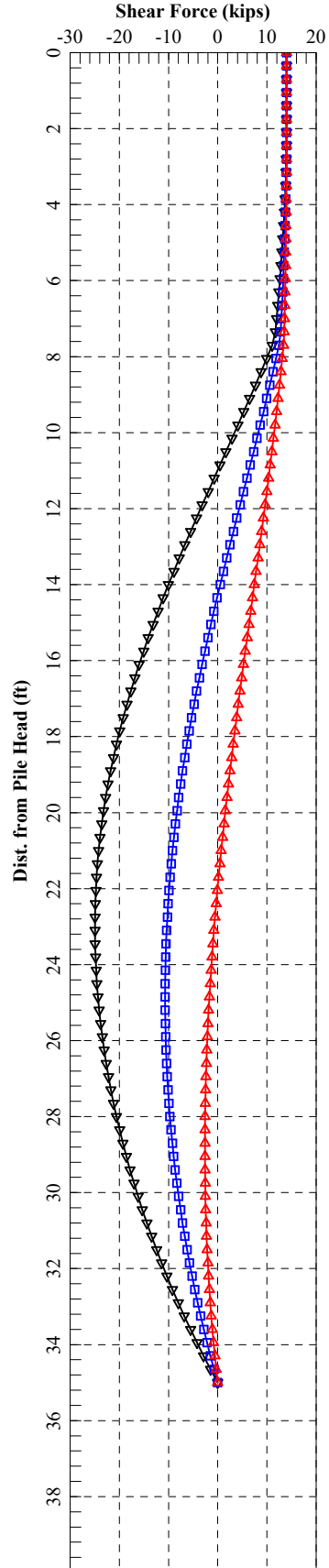
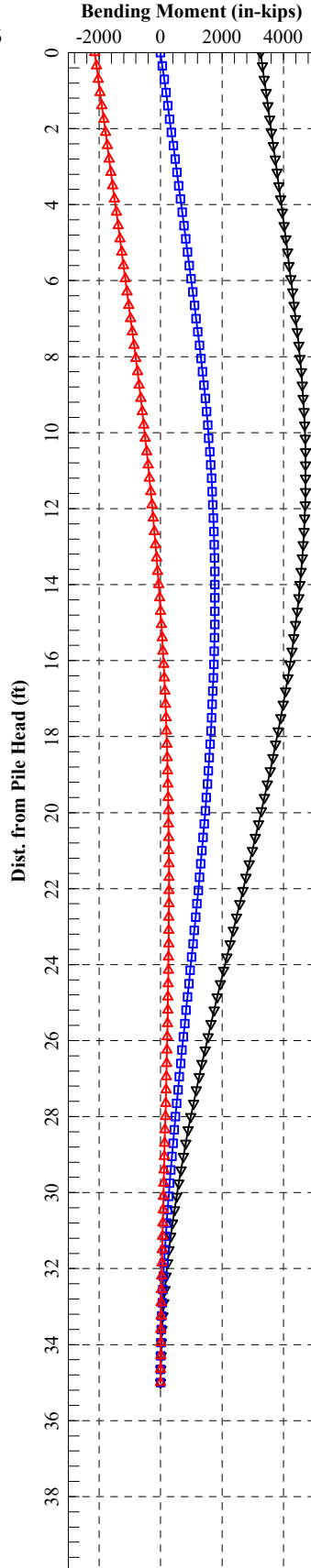
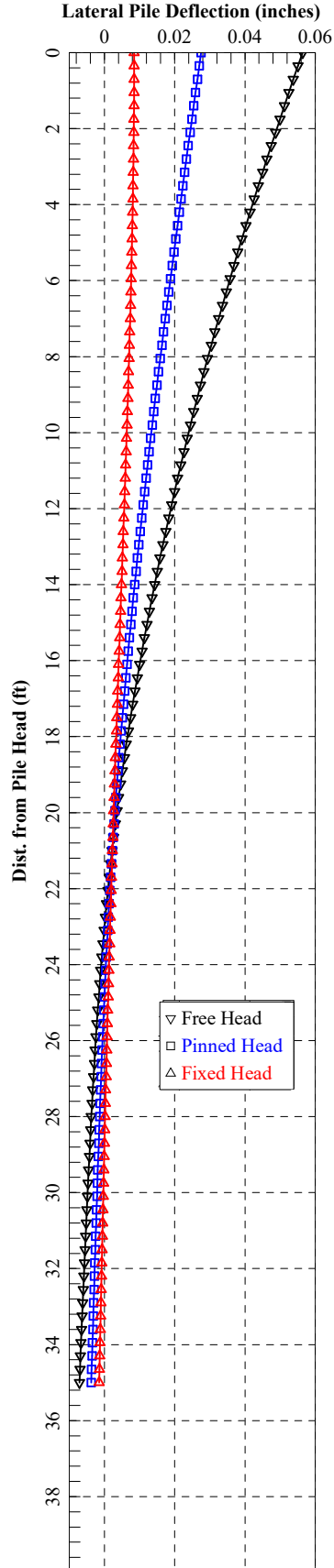
Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,649$ Kips/in
 $K_{32} = 252,490$ Kip-lb/in
 $K_{23} = 252,463$ Kips/rad
 $K_{33} = 55,900,900$ Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 14 Kips
 Vertical Load = 378 Kips
 Moment Longitudinal = 271 Kip-Ft

Pier 2 Strength Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,648$ Kips/in
 $K_{32} = 252,330$ Kip-lb/in
 $K_{23} = 252,171$ Kips/rad
 $K_{33} = 55,828,500$ Kip-lb/rad

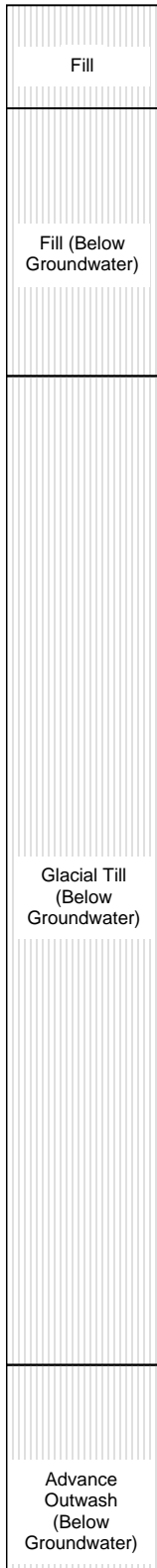
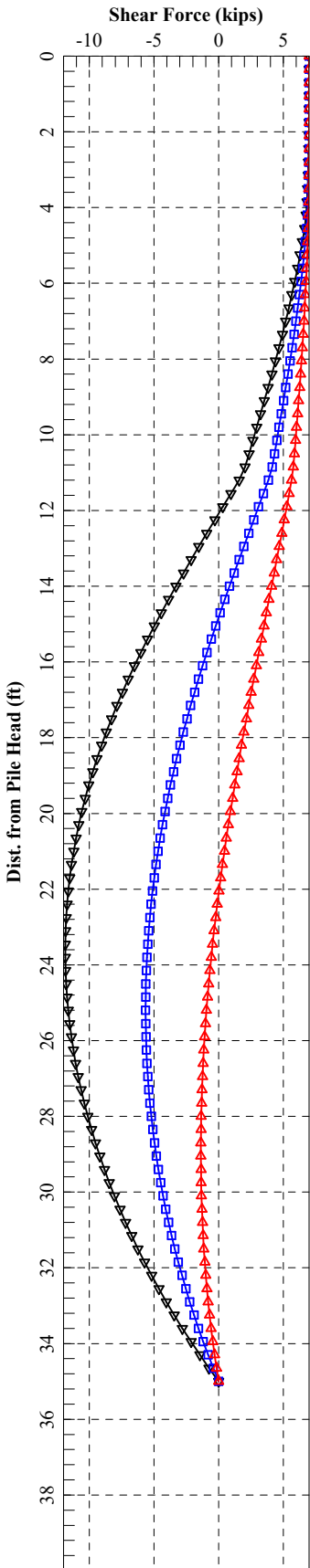
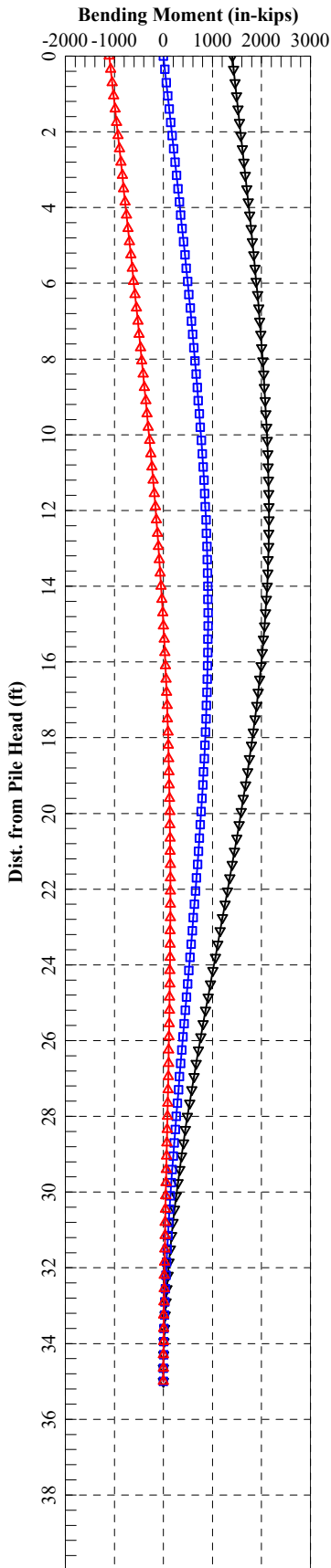
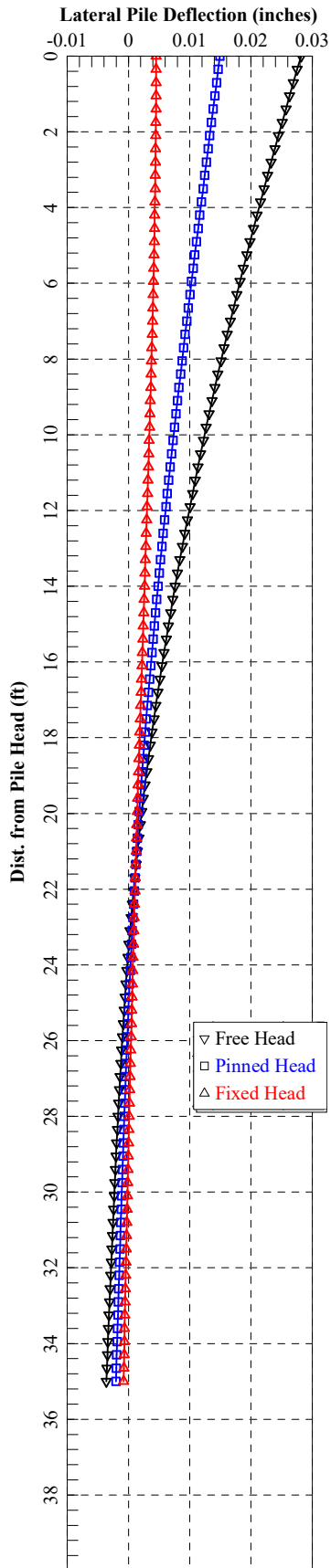


Top of Shaft Loading:
 Longitudinal Shear = 7 Kips
 Vertical Load = 421 Kips
 Moment Longitudinal = 117 Kip-Ft

Pier 3

Strength Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:
 K22 = 1,548 Kips/in
 K32 = 244,124 Kip-lb/in
 K23 = 244,102 Kips/rad
 K33 = 55,216,500 Kip-lb/rad

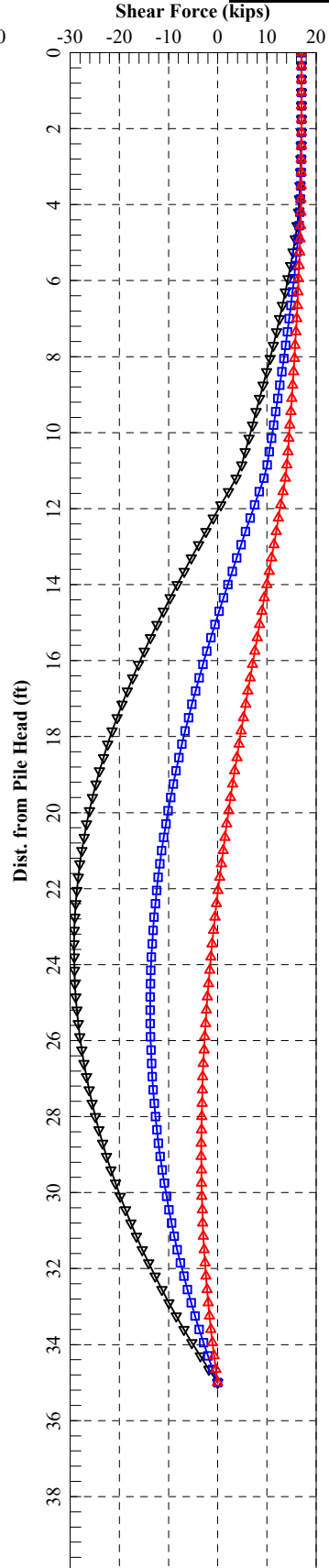
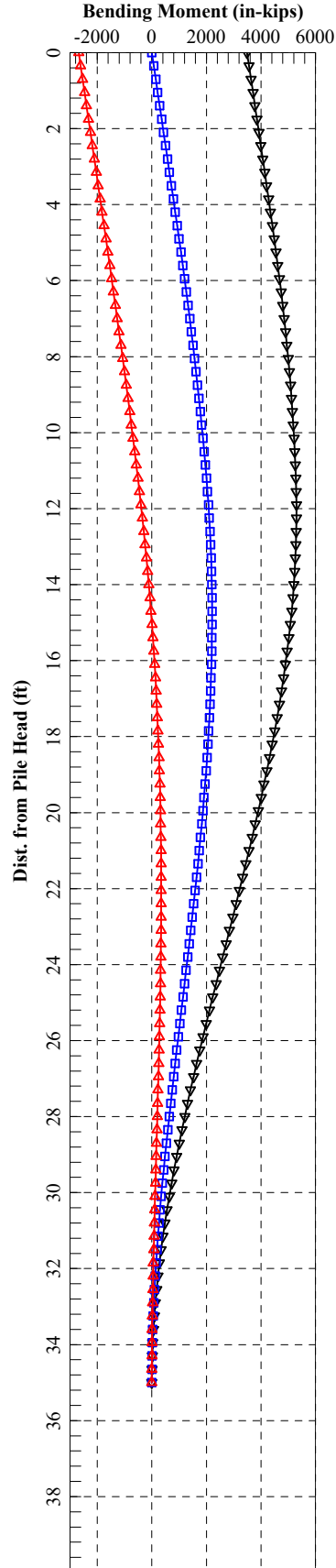
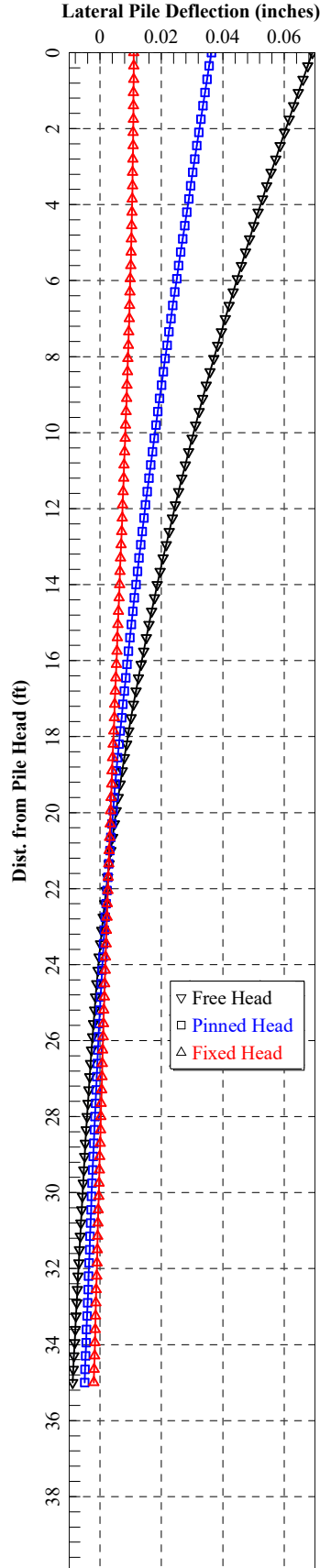


Top of Shaft Loading:
 Longitudinal Shear = 17 Kips
 Vertical Load = 421 Kips
 Moment Longitudinal = 291 Kip-Ft

Pier 3 Strength Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

K22 = 1,547 Kips/in
 K32 = 243,913 Kip-lb/in
 K23 = 241,126 Kips/rad
 K33 = 54,531,100 Kip-lb/rad

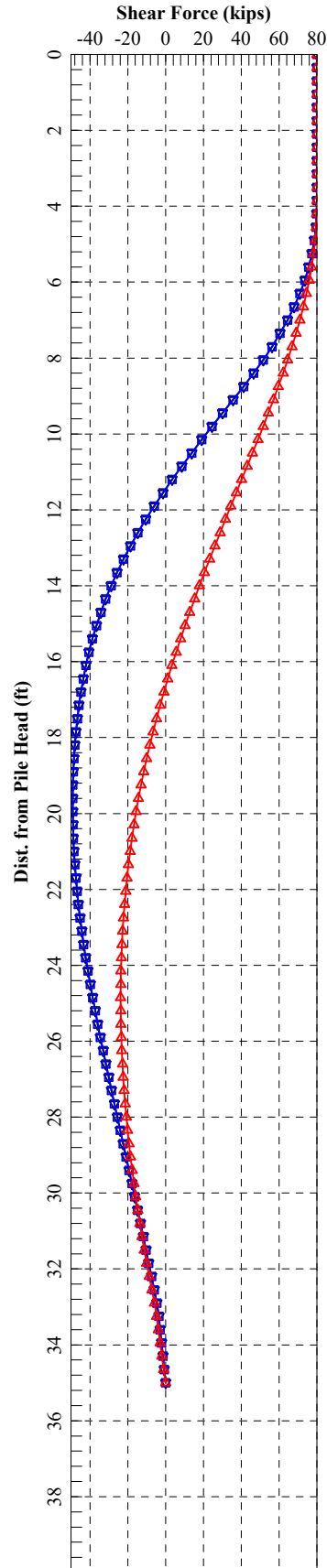
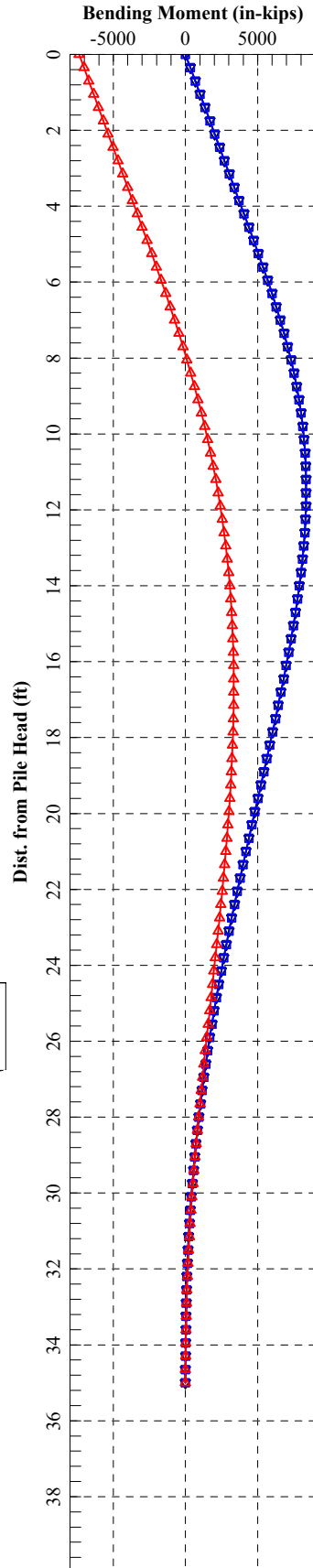
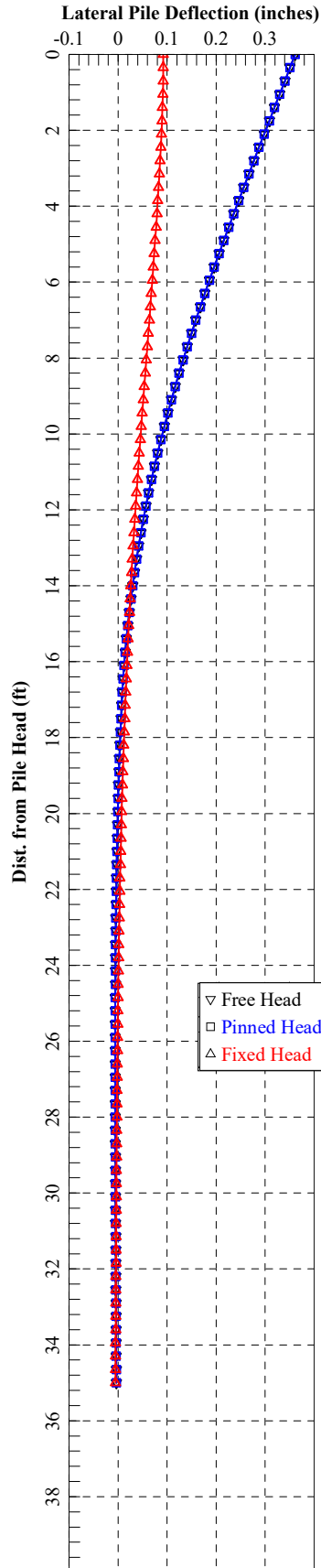


Top of Shaft Loading:
 Longitudinal Shear = 80 Kips
 Vertical Load = 145 Kips
 Moment Longitudinal = 0 Kip-Ft

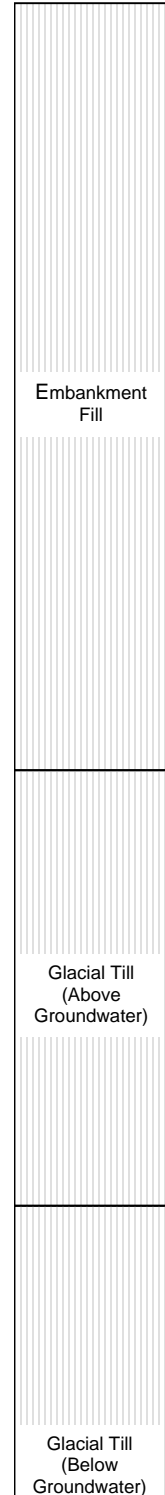
Abutment 1 Extreme Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:

K22 = 590 Kips/in
 K32 = 58,955 Kip-lb/in
 K23 = 66,824 Kips/rad
 K33 = 8,957,218 Kip-lb/rad



▽ Free Head
 □ Pinned Head
 △ Fixed Head



Top of Shaft Loading:

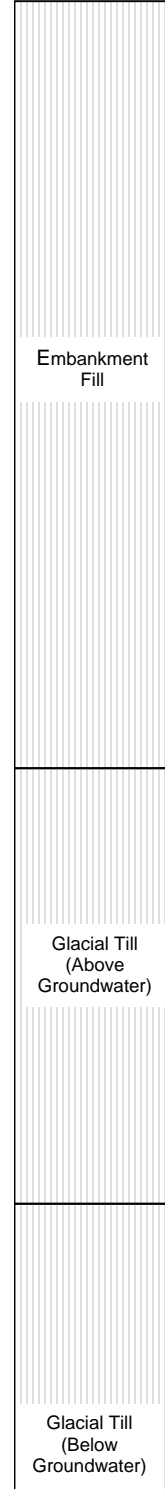
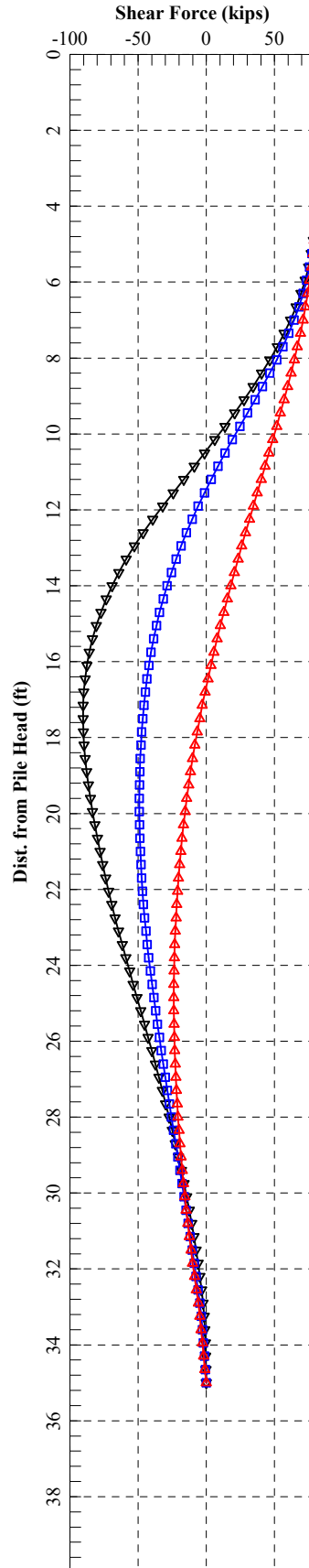
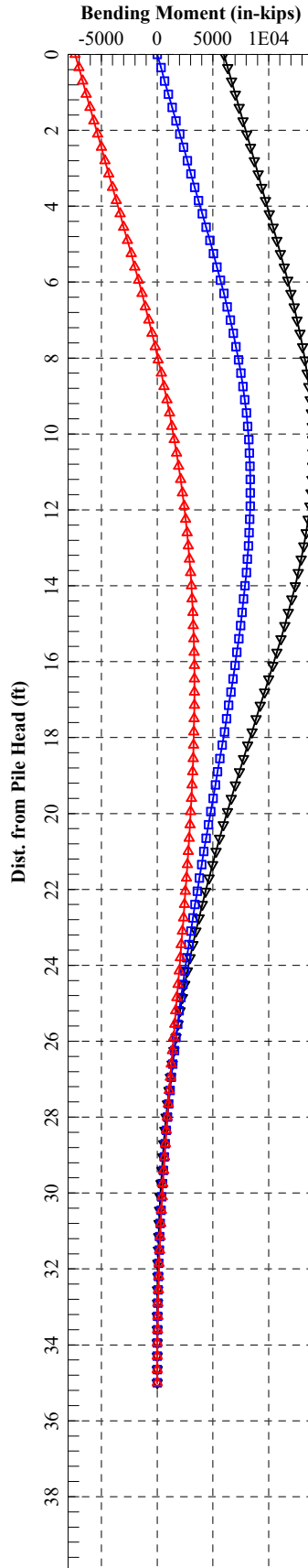
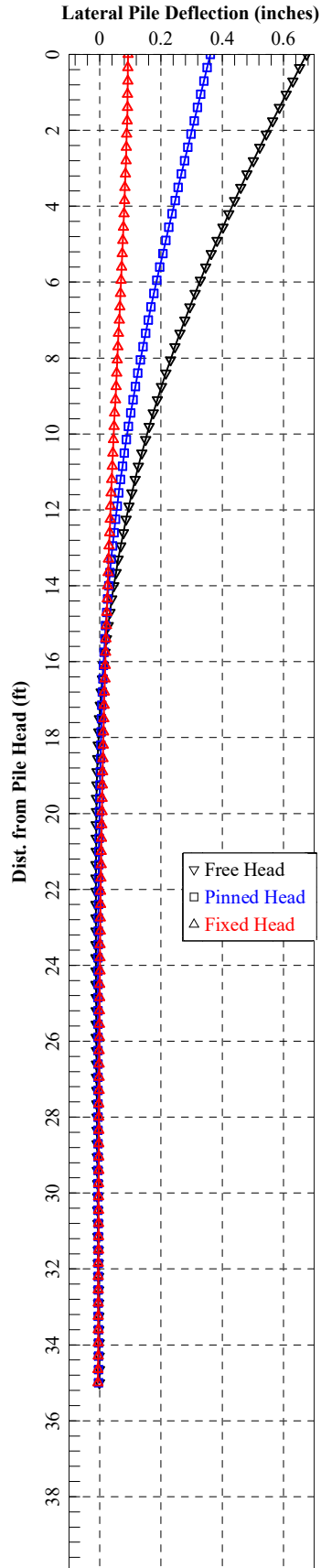
Longitudinal Shear = 80 Kips
 Vertical Load = 145 Kips
 Moment Longitudinal = 500 Kip-Ft

Abutment 1

Extreme Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:

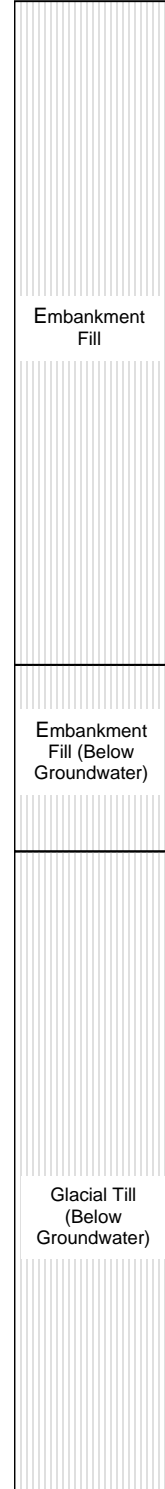
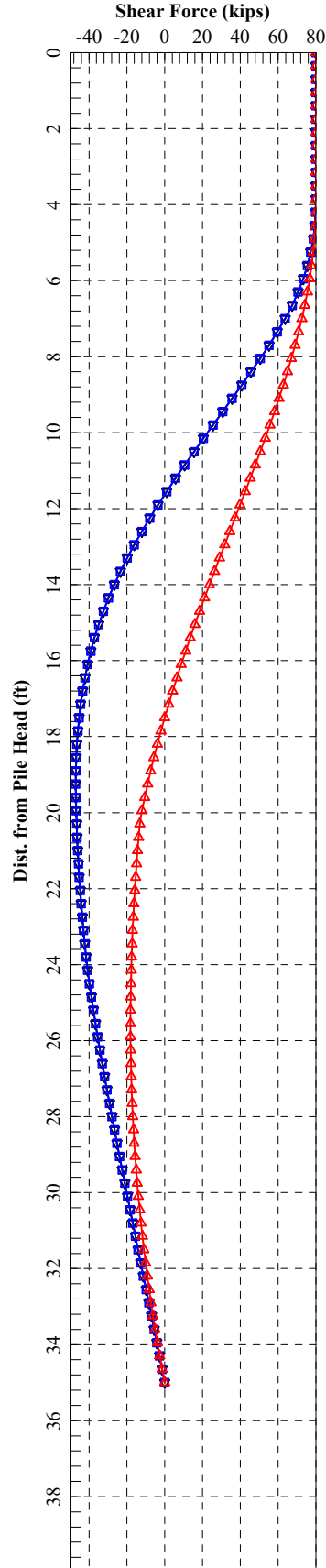
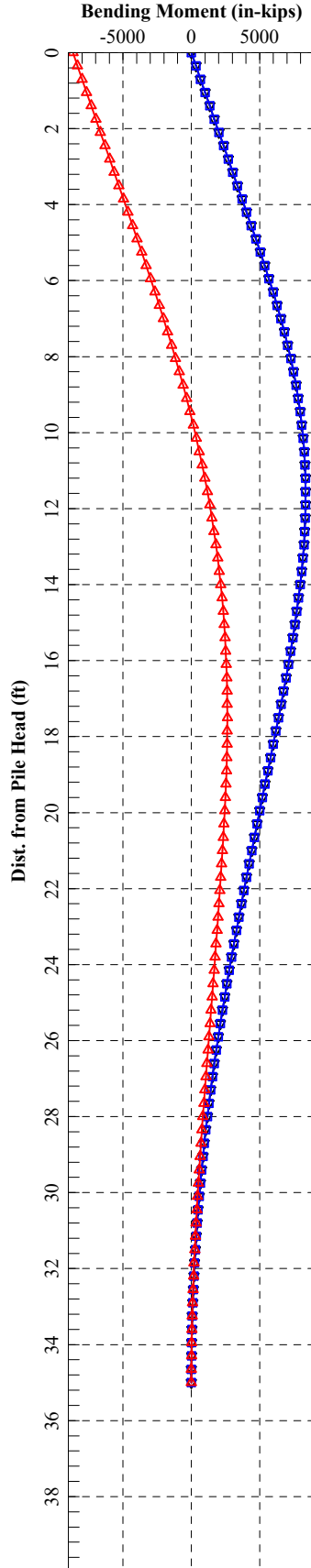
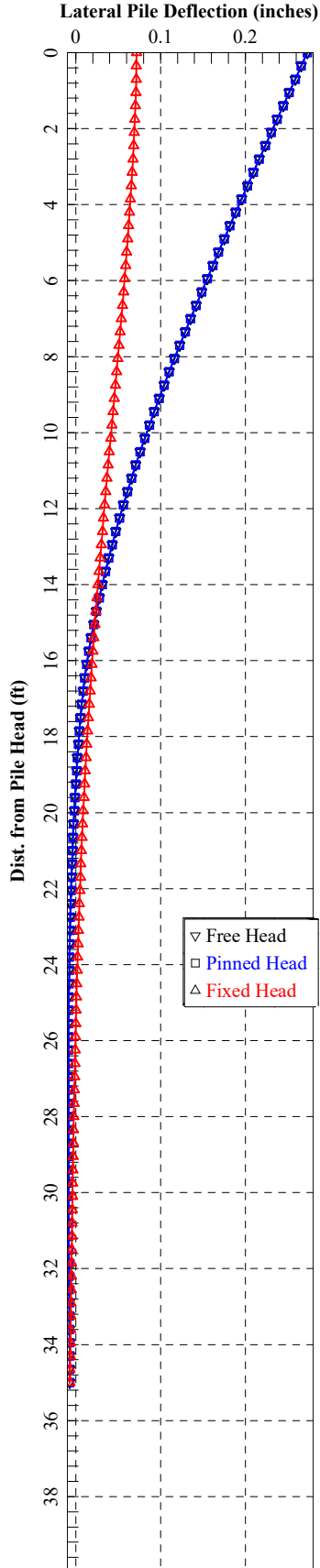
$K_{22} = 462$ Kips/in
 $K_{32} = 49,813$ Kip-lb/in
 $K_{23} = 57,748$ Kips/rad
 $K_{33} = 8,108,812$ Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 80 Kips
 Vertical Load = 162 Kips
 Moment Longitudinal = 0 Kip-Ft

Abutment 4 Extreme Loading - Longitudinal Direction

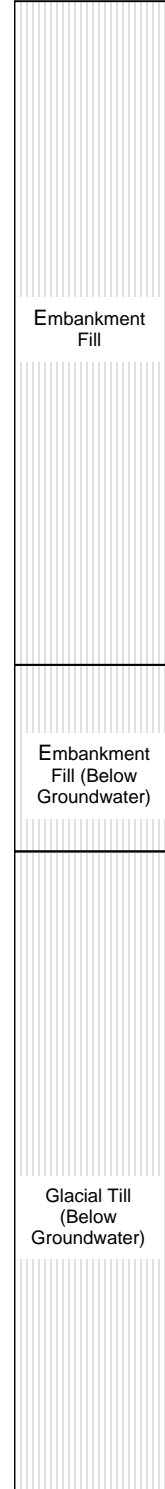
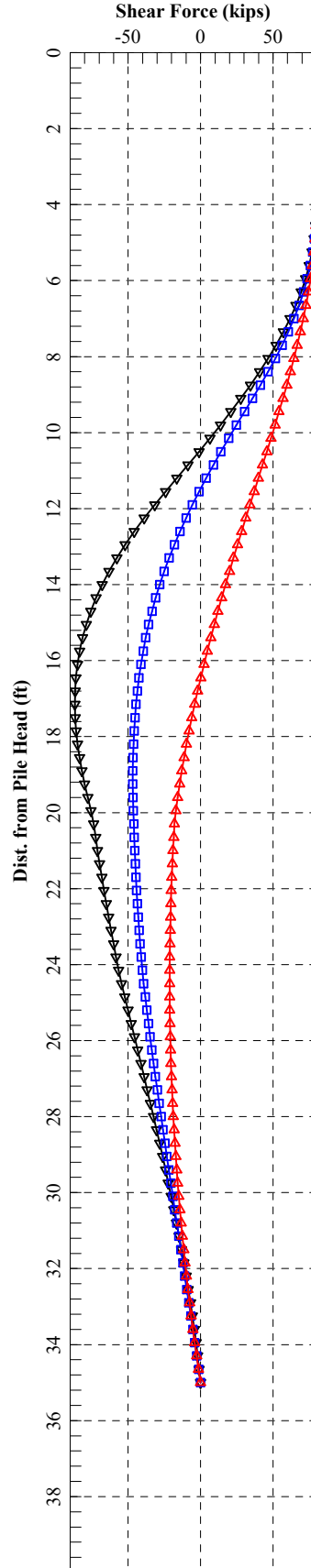
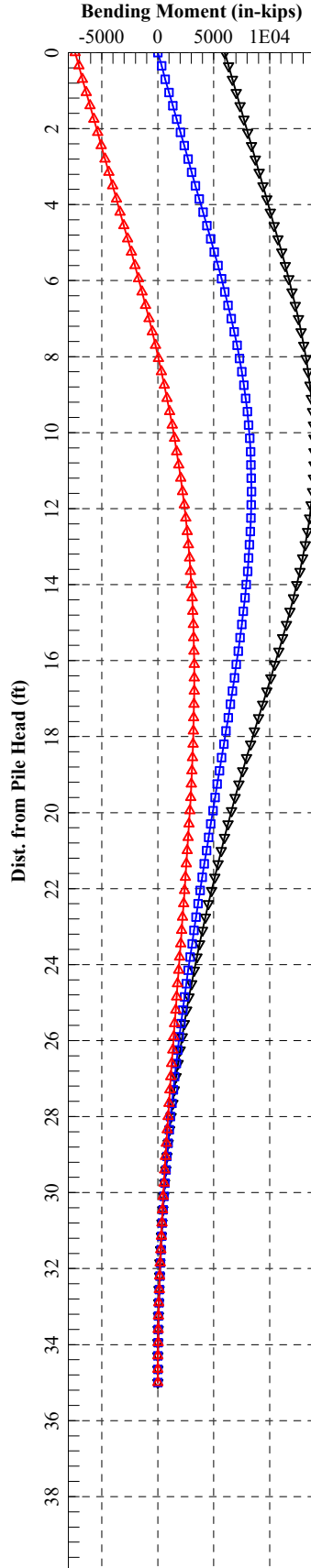
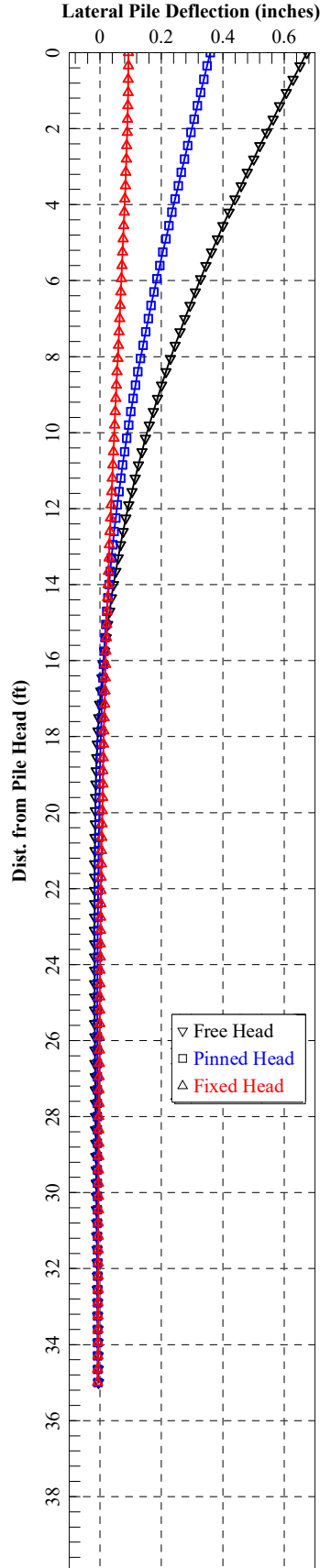
Shaft Head Stiffness Matrix Values:
 K22 = 826 Kips/in
 K32 = 87,289 Kip-lb/in
 K23 = 89,646 Kips/rad
 K33 = 13,556,000 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 80 Kips
 Vertical Load = 162 Kips
 Moment Longitudinal = 500 Kip-Ft

Abutment 4 Extreme Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:
 K22 = 463 Kips/in
 K32 = 49,855 Kip-lb/in
 K23 = 57,992 Kips/rad
 K33 = 8,108,818 Kip-lb/rad

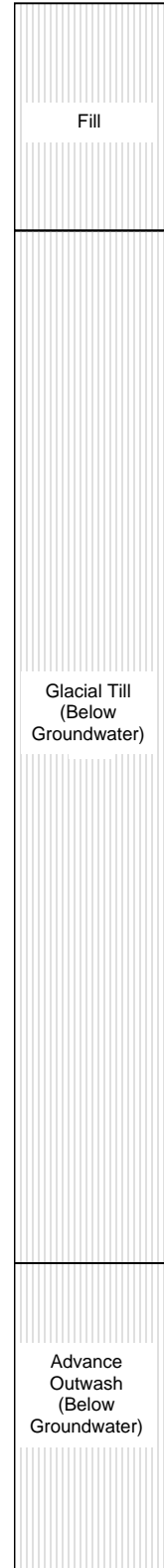
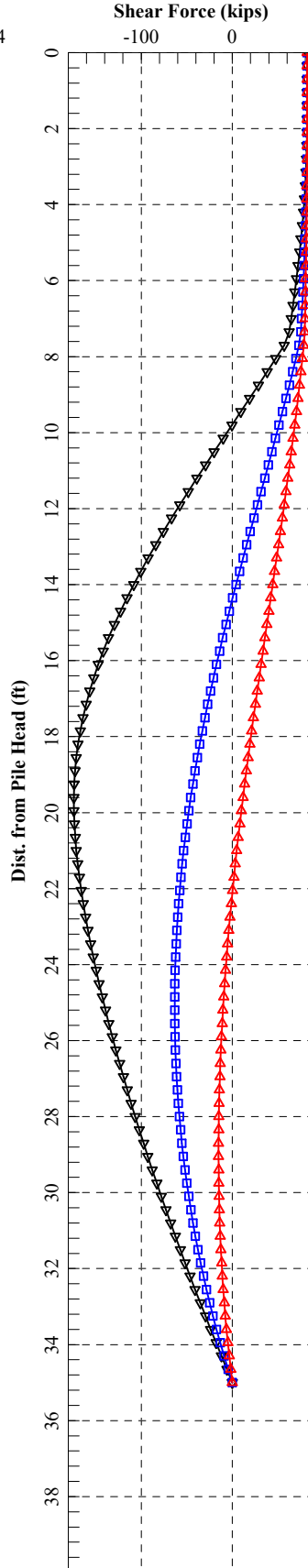
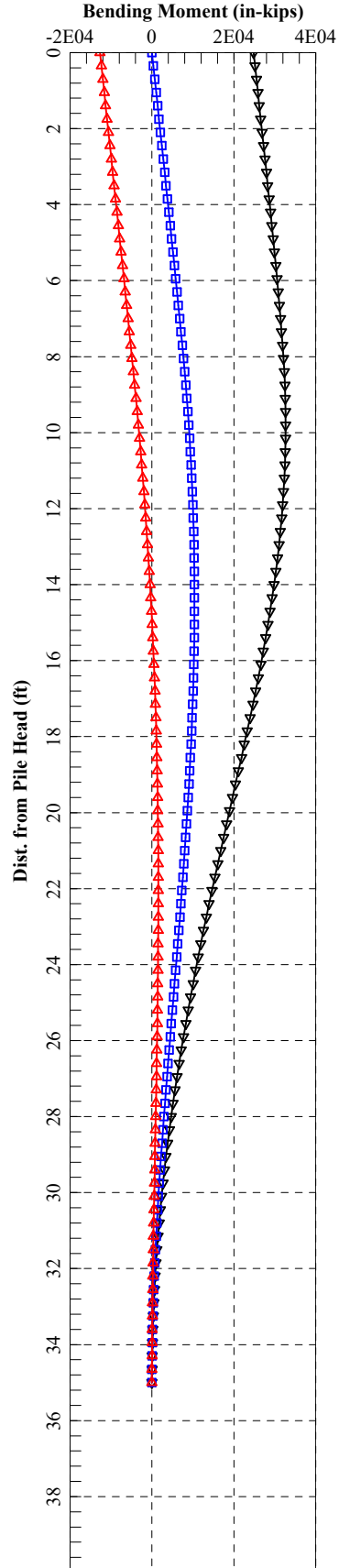
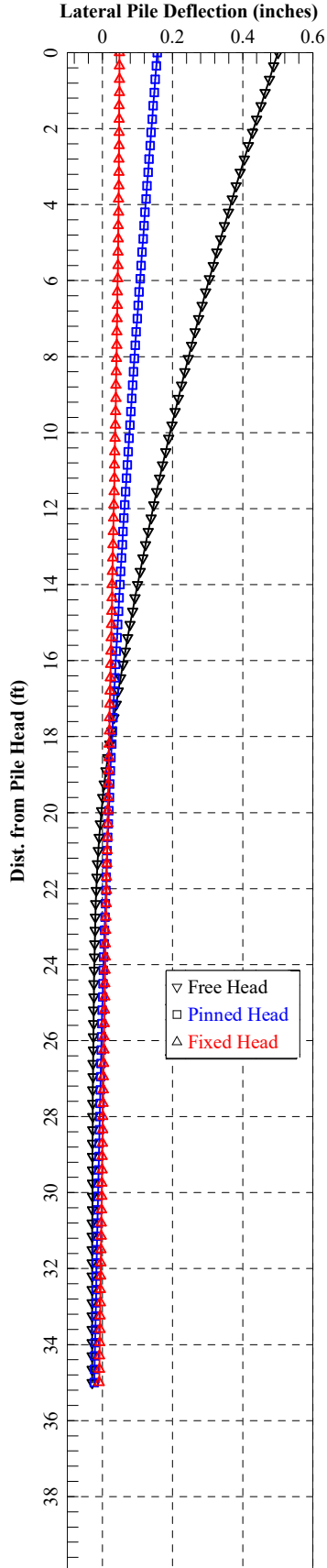


Top of Shaft Loading:
 Longitudinal Shear = 82 Kips
 Vertical Load = 271 Kips
 Moment Longitudinal = 2,068 Kip-Ft

Pier 2 Extreme Loading - Longitudinal Direction

Shaft Head Stiffness Matrix Values:

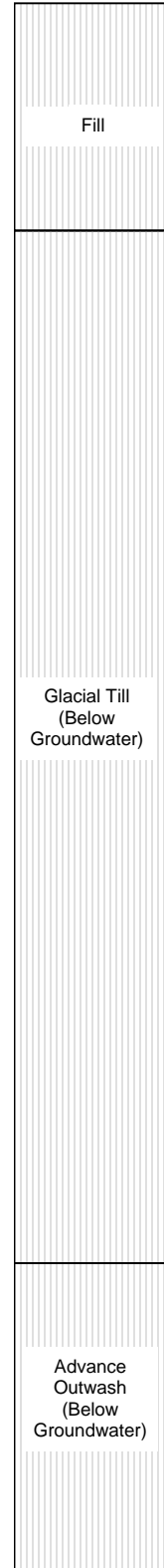
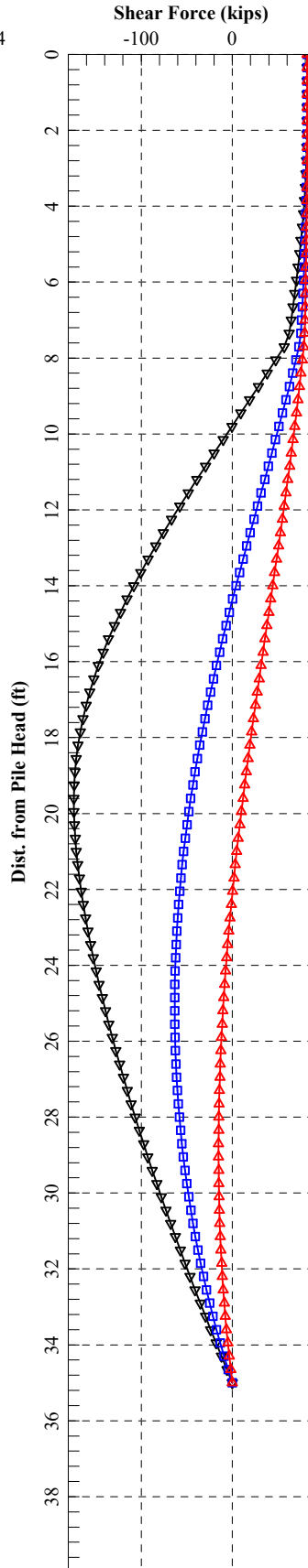
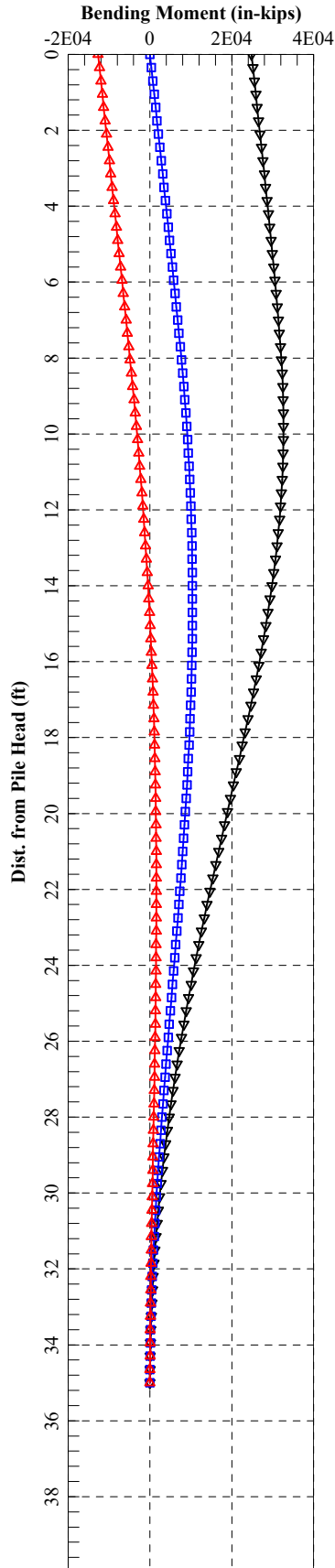
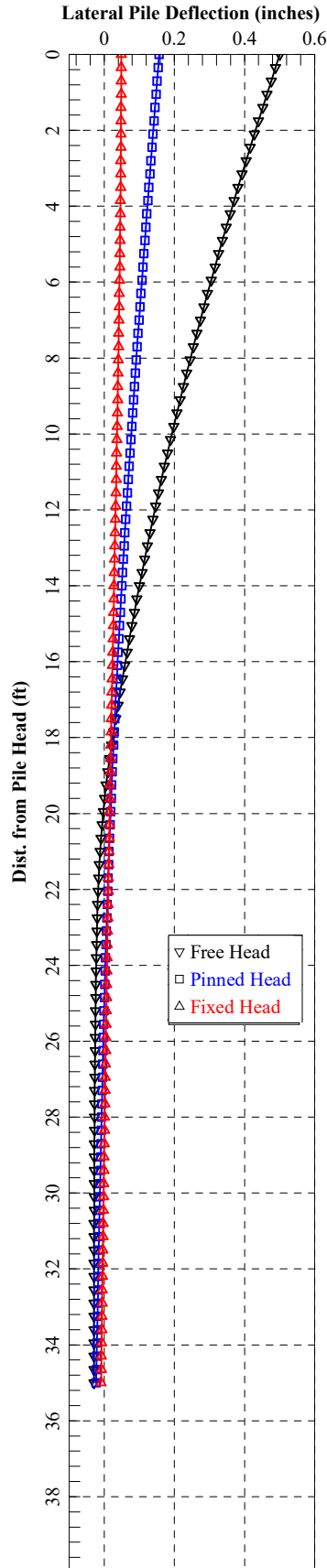
K22 = 1,309 Kips/in
 K32 = 198,165 Kip-lb/in
 K23 = 207,338 Kips/rad
 K33 = 43,578,600 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 82 Kips
 Vertical Load = 271 Kips
 Moment Longitudinal = 2,068 Kip-Ft

Pier 2 Extreme Loading - Transverse Direction

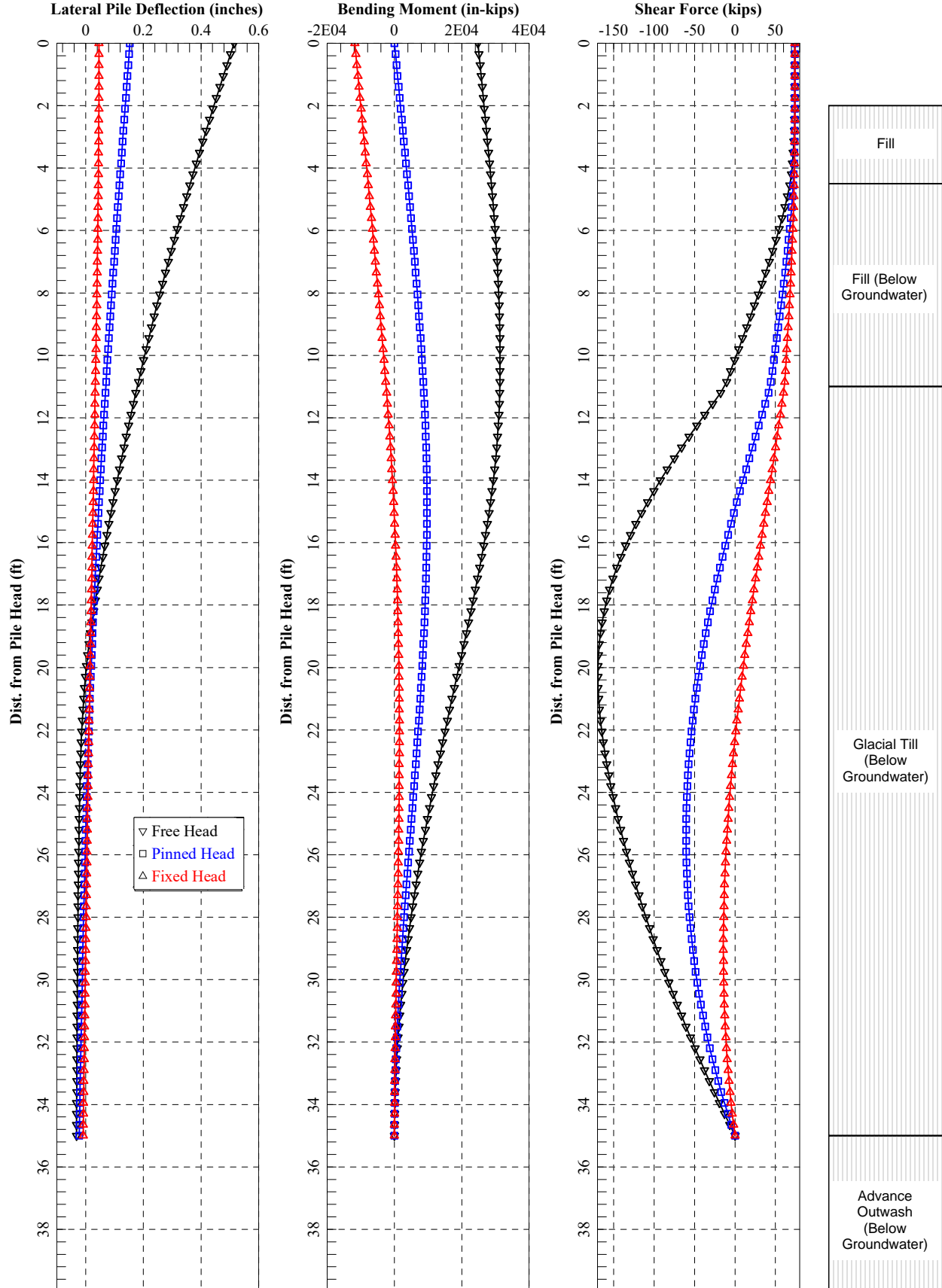
Shaft Head Stiffness Matrix Values:
 K22 = 1,309 Kips/in
 K32 = 198,165 Kip-lb/in
 K23 = 207,338 Kips/rad
 K33 = 43,578,600 Kip-lb/rad



Top of Shaft Loading:
 Longitudinal Shear = 74 Kips
 Vertical Load = 307 Kips
 Moment Longitudinal = 2,068 Kip-Ft

Pier 3 Extreme Loading - Longitudinal Direction

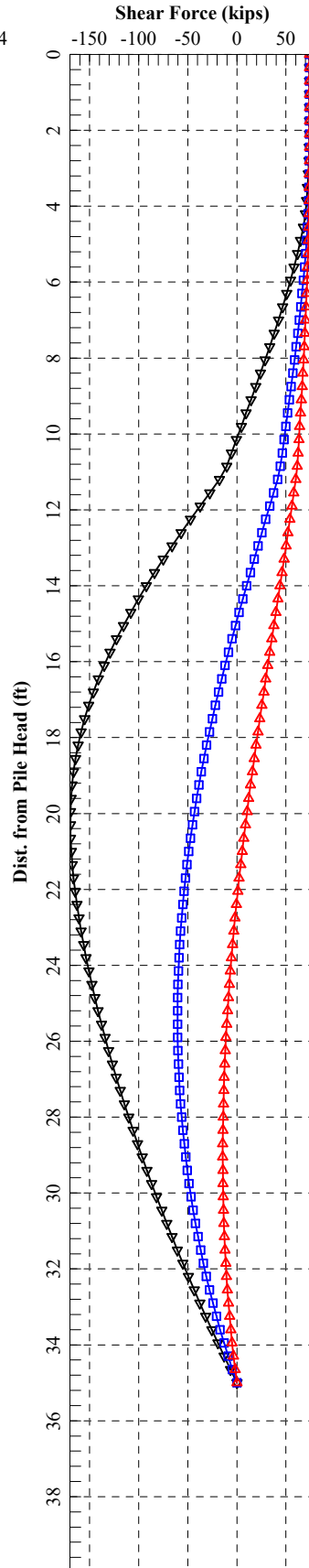
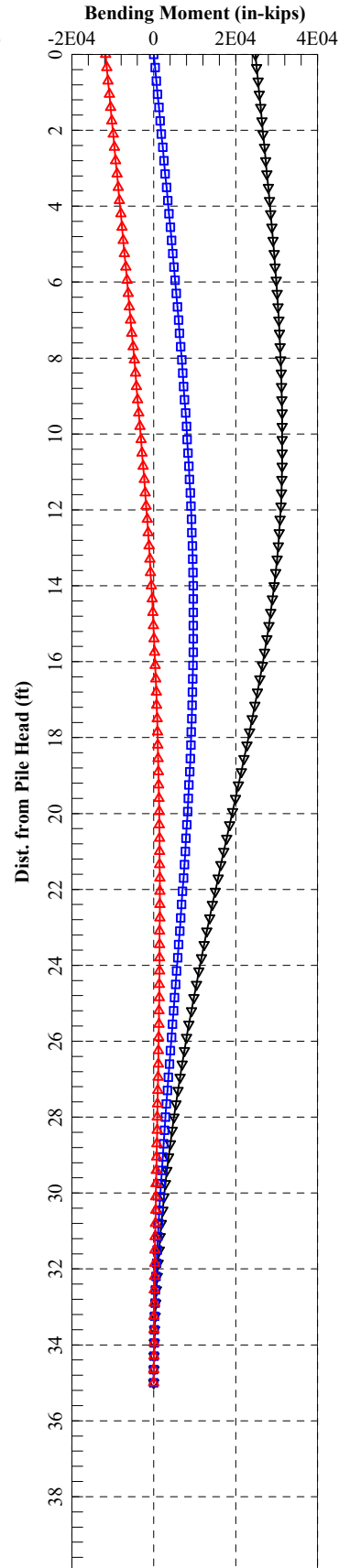
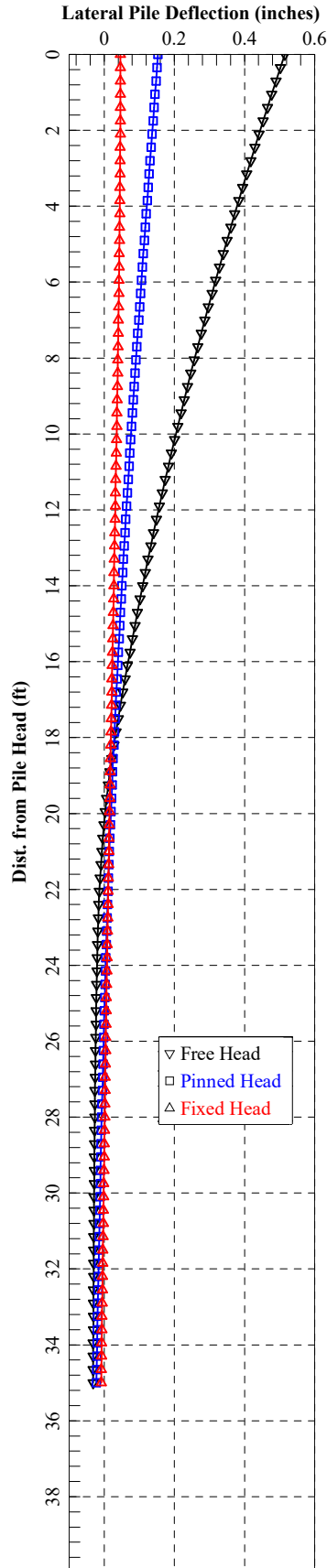
Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,146 \text{ Kips/in}$
 $K_{32} = 178,156 \text{ Kip-lb/in}$
 $K_{23} = 194,866 \text{ Kips/rad}$
 $K_{33} = 42,203,900 \text{ Kip-lb/rad}$



Top of Shaft Loading:
 Longitudinal Shear = 74 Kips
 Vertical Load = 307 Kips
 Moment Longitudinal = 2,068 Kip-Ft

Pier 3 Extreme Loading - Transverse Direction

Shaft Head Stiffness Matrix Values:
 $K_{22} = 1,146$ Kips/in
 $K_{32} = 178,156$ Kip-lb/in
 $K_{23} = 194,866$ Kips/rad
 $K_{33} = 42,203,900$ Kip-lb/rad

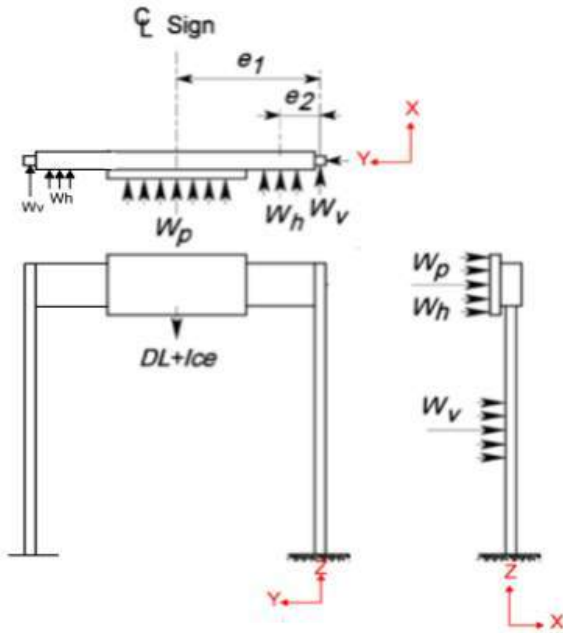


APPENDIX H

SIGN BRIDGE LOADING PROVIDED BY 85TH STREET/I-405 DESIGN-BUILDER

Design Code utilized to determined loads

SIGN SPEC AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 2020 Interim Revisions to First Edition 2015



Coordinate Orientation

Unfactored Loads at the bottom of post / top of foundation
 DC = DEAD LOAD
 LL = LIVE LOAD
 W = WIND
 TrG = TEMPERATURE GRADIENT
 NWG = NATUREAL WIND GUST
 GVW = GALLOPING VERTICAL WIND

Load	Unfactored Loads At Bottom of Post					
	V _X (K)	V _Y (K)	P _Z (K)	M _X (K-ft)	M _Y (K-ft)	T _Z (K-ft)
DC	0.00	17.09	-29.12	166.48	0.00	0.00
LL	0.0	0.0	0.0	0.0	0.0	0.0
W	33.63	3.05	-0.23	37.78	938.70	246.23
TrG	33.63	3.05	-0.23	37.78	938.70	246.23
NWG	33.63	3.05	-0.23	37.78	938.70	246.23
GVW	0.00	11.13	-16.60	108.43	0.00	0.00

Location	Load	Factored Loads						
		STR I	EXT 1 (Min DC)	EXT 1 (Max DC)	SER I	FA I (TrG)	FA I (NWG)	FA I (GVW)
Bottom of Post	V _X (K)	0.00	33.63	33.63	13.18	4.48	5.36	0.00
	V _Y (K)	21.37	18.43	21.85	18.29	0.41	0.49	11.13
	P _Z (K)	-36.40	-26.44	-32.26	-29.21	-0.03	-0.04	-16.60
	M _X (K-ft)	208.10	187.61	220.90	181.28	5.03	6.02	108.43
	M _Y (K-ft)	0.00	938.70	938.70	367.96	124.93	149.69	0.00
	T _Z (K-ft)	0.00	246.23	246.23	96.52	32.77	39.26	0.00

STR1 - STRENGTH 1 | EXT 1 (MIN. DC) = EXTREME EVENT, MINIMUM DEAD LOAD | EXT 1 (MAX. DC) = EXTREME EVENT, MAXIMUM DEAD LOAD | SER1 = SERVICE 1 | FAT = FATIGUE LOADS (LIKELY NOT REQUIRED FOR COK)