SPECIFICATIONS, PROPOSAL AND CONTRACT DOCUMENTS

Contract No. 2022-02; Sewer Repair Project

Northshore Utility District
King County, Washington

NOVEMBER 2022
C2102

NORTHSHORE UTILITY DISTRICT
King County, Washington

District Commissioners

D. Bruce Gardiner, President
Suzanne Greathouse, Secretary
Thomas D. Mortimer
Trudy Rolla
Matt Breysse

General Manager

Alan G. Nelson

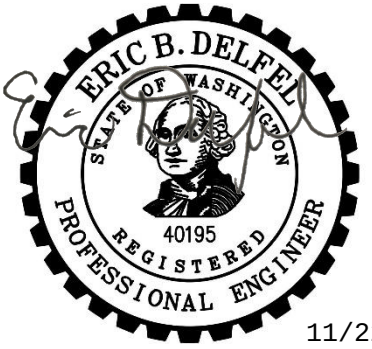
District Office

6830 NE 185th Street
Kenmore, WA 98028
Phone (425) 398-4400
Fax (425) 398-4430
www.nud.net

CERTIFICATE OF ENGINEER

Unless noted otherwise, these Contract Documents have been prepared or assembled by Northshore Utility District under the direction of the following registered professional engineers, licensed in accordance with the laws of the State of Washington, to practice in the State of Washington.

Specification Section(s) listed below were developed by, or under the direct supervision of Eric Delfel, P.E., Gray & Osborne, Inc.



11/22/2022

Specification Section(s):

1.1 Project Description
2.2 Contract Plans
2.7 Safety Plan
3.6 Cured-in-Place Pipe Service Connection (T-Liner)
3.7 Steel Driven Piles
4.0 Measurement and Payment
5.0 Proposal – Bid Schedules A-D

NORTHSHORE UTILITY DISTRICT

6830 NE 185TH STREET
KENMORE, WASHINGTON 98028-2684

SPECIFICATIONS, PROPOSAL AND CONTRACT DOCUMENTS

FOR
CONTRACT 2022-02
Sewer Repair Project

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NORTHSHORE UTILITY DISTRICT

6830 NE 185TH STREET
KENMORE, WASHINGTON 98028-2684

CALL FOR BIDS

Notice is hereby given that Northshore Utility District ("District") will receive sealed bids for the following construction project. Bids will be received at the District office, located at 6830 - NE 185th Street, Kenmore, Washington, by mail or other courier up to the hour of **2:00 PM on Wednesday, December 14, 2022**, after which all bids will be publicly opened and read to determine the apparent lowest bidder. The public bid opening will be conducted remotely and bidders may attend the Bid Opening online by using the following Microsoft Teams link or by dialing into the conference call at the phone number listed below:

Microsoft Teams meeting

Join on your computer, mobile app or room device

Click here to join the meeting<https://teams.microsoft.com/l/meetup-join/19%3ameeting_N2JiMjlkOGItYjFjZC00ZTY5LTlkNjYtMzM0MGJjOWRhZWM0%40thread.v2/0?context=%7b%22Tid%22%3a%2212be7aec-d322-415c-ade4-47fe173f2e89%22%2c%22Oid%22%3a%22a06502fc-d4b2-4352-82c3-001b22565af0%22%7d>

Meeting ID: 256 522 682 180
Passcode: M5HqdU
Download Teams<https://www.microsoft.com/en-us/microsoft-teams/download-app> | Join on the web<https://www.microsoft.com/microsoft-teams/join-a-meeting>

Or call in (audio only)
+1 253-328-7749,,869019920#<tel:+12533287749,,869019920#> United States, Tacoma
Phone Conference ID: 869 019 920#
Find a local number<https://dialin.teams.microsoft.com/0cd938c2-89bf-43b8-95c3-41358c7a6922?id=869019920> | Reset PIN<https://dialin.teams.microsoft.com/usp/pstnconferencing>

Please contact the District's IT Department at 425-521-3714 if you experience any issues.

Learn More<https://aka.ms/JoinTeamsMeeting> |

Help<https://nud.sharepoint.com/IT/helpdest/Lists/Tickets/NewForm.aspx?Source=https%3A%2F%2Fnud%2Esharepoint%2Ecom%2FIT%2Fhelpdest%2F&RootFolder=%2FIT%2Fhelpdest%2FLists%2FTickets> | Meeting options<https://teams.microsoft.com/meetingOptions/?organizerId=a06502fc-d4b2-4352-82c3-001b22565af0&tenantId=12be7aec-d322-415c-ade4-47fe173f2e89&threadId=19_meeting_N2JiMjlkOGItYjFjZC00ZTY5LTlkNjYtMzM0MGJjOWRhZWM0@thread.v2&messageId=0&language=en-US>

Project Description

Contract 2022-02; Sewer Repair Project

The project consists of the following work:

Schedule A: 55th Avenue NE Sewer Replacement. The project will consist of bypass pumping, installing a new manhole and installation of approximately 100 LF of new 12-inch pipe to the existing downstream manhole, connection of two side sewers to the new main, and asphalt restoration.

Schedule B: Casa Juanita Sewer Main Repair. This schedule consists of bypass pumping, installation of one new manhole and approximately 100 LF of 8-inch ductile iron sewer main, connection of three side sewers to the new main, and connection to the existing system. The project requires trenching underneath an existing pile-supported structure that is 6-feet wide with 24-inch casing. The casing will be approximately 15-feet long. Due to soil conditions, the proposed manhole and sewer main will be pile-supported. The proposed order of work: 1. Install TESC; 2. Set up by pass pumping; 3. Install pipe piles; 4. Install new down stream SMH; 5. Install 24-inch Casing under causeway; 6. Install new sewer main and connect side sewers; and 7. Restoration.

Schedule C: 55th Avenue NE and 60th Avenue NE Side Sewer Repairs. This project includes repair of side sewer services in a neighborhood experiencing root intrusion. The repair will include removal of the roots, installation of a LMK Tee-liner system, and installation of cleanouts. There are nine side sewer, six services will require a new cleanout for District access at the right of way.

Schedule D: 124th Avenue Manhole Adjustments. This project includes replacing damaged sewer frame, cover and adjustment rings. Thirteen structures will replace the grade rings, frame and cover. Six structures will require a new manhole section, new cone, adjustment rings, frame and cover in order to bring it up to district standards. the project will include excavation and road restoration. This portion of the work must be completed by March 15, 2023, in order for the City of Kirkland to overlay the road.

Approximate locations of the proposed improvements are shown on the project construction plans.

The engineer's construction cost estimate is $679,000.00 including sales tax.

Free-of-charge access to project bid documents (plans, specifications, addenda, and Bidders List) is provided to Prime Bidders, Subcontractors, and Vendors by going to www.bxwa.com and clicking on "Posted Projects", "Public Works", and "Northshore Utility District". This online plan room provides Bidders with fully usable online documents with the ability to: download, view, print, order full/partial plan sets from numerous reprographic sources, and a free online digitizer/take-off tool. It is recommended that Bidders "Register" in order to receive automatic email notification of future addenda and to place themselves on the "Self-Registered Bidders List". Bidders that do not register will not be automatically notified of addenda and will need to periodically check the on-line plan room for addenda issued on this project. Contact Builders Exchange of Washington at (425) 258-1303 should you require assistance with access or registration.

Bid documents (in PDF format) are also directly available from the District's website at the following address:

https://www.nud.net/permits-construction/rfp-posts-list/

Each bid must be submitted on the "Proposal" forms provided in Section 5 of the "Specifications, Proposal and Contract Documents" and shall be accompanied by a bi proposal deposit in the form of a surety bond, postal money order, cashier's check or certified check made payable to King County Treasurer, King County, Washington for a sum of not less than 5 per cent of the total bid. A bid shall not be considered unless accompanied by such bid proposal deposit.

CONTRACT AWARD

A contract, if awarded, will be based upon the lowest responsive and responsible bid or bids as defined in more detail in the bid documents.

Northshore Utility District reserves the right to reject any and all bids, to delete portions or all of the work, to substitute alternative bid item prices for base bid item prices, to waive any informality in bidding, and to make the award deemed to be in the best interest of the District.

Proposals received after the time announced for the opening will not be considered. No bidder may withdraw its bid after the time announced for the opening or before the award and execution of the contract(s) unless the award is delayed for a period exceeding sixty (60) calendar days.

Advertised in the Daily Journal of Commerce on Monday, November 28, 2022, and Monday, December 05, 2022.

NORTHSHORE UTILITY DISTRICT
Suzanne Greathouse, Secretary
Board of Commissioners

INSTRUCTIONS TO BIDDERS

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SECTION 1

INSTRUCTIONS TO BIDDERS

Section 1 - Instructions to Bidders

1.0 GENERAL

Plans and specifications are on file at:

Northshore Utility District
6830 NE 185th Street
Kenmore, WA 98028

Free-of-charge access to project bid documents (plans, specifications, addenda, and Bidders List) is provided to Prime Bidders, Subcontractors, and Vendors by going to Builders Exchange of Washington's web site at the following address: http://www.bxwa.com/bxwa_toc/pub/827.html. This online plan room provides Bidders with fully usable online documents with the ability to: download, view, print, order full/partial plan sets from numerous reprographic sources, and a free online digitizer/take-off tool. It is recommended that Bidders "Register" in order to receive automatic email notification of future addenda and to place themselves on the "Self-Registered Bidders List". Bidders that do not register will not be automatically notified of addenda and will need to periodically check the online plan room for addenda issued on this project. Contact Builders Exchange of Washington at (425) 258-1303 should you require assistance with access or registration.

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1.1 PROJECT DESCRIPTION

Contract 2022-02; Sewer Repair Project
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1.2 EXAMINATION OF PLANS, SPECIFICATIONS AND SITE

Bidders shall satisfy themselves as to construction conditions by personal examination of the plans, specifications and site of the proposed work and by any other examination and investigation, which they may desire to make as to the nature of the work, estimate of quantities and difficulties to be encountered. Bidders shall consider Federal, State, and local laws and regulations that may affect cost, progress, or performance of the work.

The Bidders are hereby notified that geotechnical investigations were not conducted by the District for this project.

Before submitting a bid, each bidder will, at the bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the work in which the bidder deems necessary to determine its bid for performing the work in accordance with the time, price, and other terms and conditions of the Specifications, Proposal and Contract Documents. The bidder shall be responsible for all costs associated with these additional examinations including all restoration work and damages which may be a result of such investigation.

1.3 PROPOSALS

Proposals shall be made on the forms included herewith under the “Proposal” section and shall be provided to the District in a sealed envelope addressed as follows:

Northshore Utility District
6830 NE 185th Street
Kenmore, WA 98028
Attention: Proposal Enclosed

Proposals shall arrive not later than Wednesday, December 14, 2022, at 2:00 PM, at which time and place they will be opened and publicly read aloud. No proposal may be withdrawn after the time stated above or before award of contract unless said award is delayed for a period exceeding sixty (60) calendar days.

1.4 BID PROPOSAL DEPOSIT

As a guarantee of good faith and as required by law, each bid shall be accompanied by a bid proposal deposit in the form of a certified check, cashier's check, postal money order or surety bond payable to the order of the King County Treasurer, King County Washington for an amount not less than five per cent (5%) of the total amount of the bid. The deposits of the three low bidders will be retained until a contract has been entered into between the successful bidder and the District and until a performance bond in an amount of 100 percent of the contract price has been filed as required under these contract documents. The deposits of other bidders will be returned as soon as it is determined that they are not one of the three low bidders.

1.5 BIDDING ERRORS

The District will not consider a claim of error in a proposal unless such claim is made to the District within eight (8) business hours after the time of bid opening as stated in the “Call for Bids” and unless supporting evidence of such claim, including cost breakdown sheets, is delivered to the District within ten (10) business hours after the time of bid opening as stated in the “Call for Bids.”

If the District is, at its sole determination, convinced that the bidder has committed an unintentional error, the bidder will be allowed to withdraw, but not correct, its bid.

1.6 COMPLETION TIME AND LIQUIDATED DAMAGES

Subject to time lost due to inclement weather and delay in delivery of materials, should such delay not be the result of the Bidder's actions, the Bidder must agree to complete all of the work in 100 calendar days, all beginning with the date of written "Notice to Proceed" with the work.

In summary, the District's intended schedule for the project is as follows:

Contract Award	Monday, December 19, 2022
Execute Contract	Tuesday, January 03, 2023
Receive & Review Material Submittals	Monday, January 16, 2023
Preconstruction Conference	Wednesday, February 01, 2023
Issue Notice to Proceed	Wednesday, February 01, 2023
Complete Construction	Friday, May 12, 2023

The Bidder agrees to complete the work within the contract time as above-specified plus any Extension as provided for herein ("Completion Time"). Such Extension and events producing them shall not be grounds for claim by the Bidder of damages or for additional costs, expenses, overhead, profit or other compensation. It is the responsibility of the Bidder to complete the work within the Completion Time. The District makes no promise or representation that this can or will be done.

The District and the Bidder recognize that time is of the essence of this Contract and that the District will suffer financial loss if the work is not completed within Completion Time. They also recognize the delays, expense, and difficulties in proving the actual loss suffered by the District if the work is not completed on time. Accordingly, instead of requiring any such proof, the District and the bidder agree that as liquidated damages for delay (but not as a penalty) the bidder shall pay the District $1,400.00 for each day that expires after Completion Time.

1.7 AWARD OF CONTRACT AND NOTICE TO PROCEED

A contract will not be awarded until the District is satisfied that (1) the successful bidder is reasonably familiar with the class of work contemplated and has the necessary capital, tools and experience to satisfactorily perform the work within the time stated, (2) the successful bidder meets the mandatory responsibility criteria identified in RCW 39.04.350 (for prime contractors) and RCW 39.06.020 (for first tier subcontractors and subcontractors of any tier that are hired by other subcontractors), and (3) the successful bidder demonstrates its compliance with any Supplemental Bidder Responsibility Criteria or requirements identified herein. Completion of the work within Completion Time

is essential and prior commitments of the bidder, failure to complete other work on time, or reasonable doubt as to whether the bidder would complete the work on time, would also be cause for the rejection of any bidder as not responsible.

The right is reserved by the District to waive any immaterial bid errors or irregularities in the bidding and reserves the right to correct arithmetical errors or discrepancies between unit prices and extended amounts if the intended bid is ascertainable from the face of the bid. Bidders are also advised that the District may reject any bid or proposal or all bids or proposals for any or no reason, including (1) any bid or proposal that in the opinion of the District is unbalanced or that contains unit prices that fail to reflect the actual cost of construction, (2) any bid or proposal that lacks necessary detail or specificity or is otherwise found to be non-responsive, and (3) any bid that violates the terms of these instructions. Bidders acknowledge that they are not entitled to any compensation, costs or damages related to bid preparation or resulting from District's decision to cancel the procurement, reject any or all bids or otherwise refuse to execute a contract. District, in its sole discretion, may re-advertise for new proposals or to otherwise carry out the work. The District further reserves the right to delete portions or all of the work or schedules of the work in its sole discretion and thereafter to award a contract to the successful bidder on the remaining portions of the work.

1.8 FAILURE TO EXECUTE CONTRACT

In the event the successful bidder fails to furnish an approved bond and to sign the contract within ten days after notification by the District, an amount equal to 5 percent of the amount of the bid shall be forfeited to the District as liquidated damages. Said liquidated damages shall be paid from the certified check or bid bond submitted with the bid. Other proposals will then be reconsidered for award by the District.

1.9 CORRECTIONS, INTERPRETATIONS AND ADDENDA

Any omissions, discrepancies or need for interpretations or explanations of the Contract Documents shall be in the form of an addendum and no oral statements by the District, District Engineer, District's Consulting Engineer, or other representative of the District shall, in any way, modify these contract documents, whether made before or after letting the contract.

1.10 ENGINEER AND NOTICES

Notices as required shall be mailed to the attention of the project engineer as follows:

Northshore Utility District
Attention: Brandon Humphrey
6830 NE 185th Street
Kenmore, WA 98028

1.11 BIDDER RESPONSIBILITY CRITERIA

Bidder must meet the following Bidder Responsibility Criteria (RCW 39.04.350) to be considered a responsible bidder. Bidder will be required to complete and submit the Bidder Responsibility Checklist, included with the "Proposal" section of this document, with the bid. The bidder must:

(a) 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;

(b) Have a current Washington Unified Business Identifier (UBI) number;

(c) Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;

(d) Have a Washington Employment Security Department number, as required in Title 50 RCW;

(e) Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW.

(f) Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

1.12 SUB-CONTRACTORS

Consistent with RCW 39.30.060, each bidder on a project in excess of $1,000,000 is required to submit the completed "Proposed Subcontractors" list included in the "Proposal" section either with the bid or within one hour of the required bid submittal time as stated in the Call for Bids or by written addendum. The completed list must identify each subcontractor who will perform heating, ventilation and air-conditioning, or plumbing as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW, or the contractor must name itself for the work. The form may be submitted in person or by facsimile (FAX number (425) 398-4430) to:

Northshore Utility District
Attention: Brandon Humphrey
6830 NE 185th Street
Kenmore, WA 98028

Receipt of the form by Northshore Utility District within the time prescribed is the responsibility of the bidder.

The bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the bidder must indicate which subcontractor will be used for which alternates.

Failure of the bidder to submit as part of the bid the names of such subcontractors, or name itself to perform such work, or the naming of two or more subcontractors to perform the work, shall render the bidder's bid as nonresponsive and therefore void.

1.13 SUBCONTRACTOR RESPONSIBILITY CRITERIA

To comply with RCW 39.06.020, the following is required:

(a) The successful bidder shall provide documentation to District demonstrating that the first-tier subcontractor meets the Subcontractor Responsibility Criteria below. The requirements of this subsection apply to all subcontractors regardless of tier.

(b) At the time of subcontract execution, the successful bidder to whom the Contract is to be awarded 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 Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
4. A Washington Employment Security Department number, as required in Title 50 RCW;
5. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
6. An electrical contractor license, if required by Chapter 19.28 RCW;

7. An elevator contractor license, if required by Chapter 70.87 RCW.
8. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3).

(c) Bidder will be required to complete and submit the "Subcontractor Responsibility Criteria" form, included in the "Proposal" section of this document, either with the bid or within two hours of the required bid submittal time.

1.14 NON-COLLUSION DECLARATION

Submit the non-collusion declaration as part of the bid. No person, firm, or corporation shall be allowed to make, file, or be interested in more than one proposal for the same work, unless alternative proposals are invited. A person, firm, or corporation who has submitted a sub-proposal to a bidder, or who has quoted prices on materials to a bidder, is not thereby disqualified from submitting a proposal, or quoting prices to other bidders.

Reasonable grounds for believing that any bidder is interested in more than one proposal for the work will cause the rejection of all proposals in which said bidder is interested. If there is reason to believe that collusion exists among the bidders, none of the participants in such collusion will be considered.

SPECIAL PROVISIONS

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SECTION 2

SPECIAL PROVISIONS

Section 2 – Special Provisions

2.1 OBSERVATION OF THE WORK

Work will not be allowed on Saturdays, Sundays or legally recognized holidays without written permission from the Engineer. If the Contractor is granted permission for such work, then the District may, at the District's sole discretion, deduct moneys from the Contractor in the amount of One Thousand Four Hundred Dollars ($1,400) per day or fraction thereof for reimbursement to the District for its reasonable inspection and engineering fees.

District Holidays

- New Year's Day..... January 1
- Martin Luther King Day..... Third Monday in January
- President's Day ..... Third Monday in February
- Memorial Day ..... Last Monday in May
- Juneteenth..... June 19
- Independence Day ..... July 4
- Labor Day..... First Monday in September
- Veteran's Day..... November 11
- Thanksgiving Day..... Fourth Thursday in November
- Day After Thanksgiving ..... Fourth Friday in November
- Christmas Day..... December 25

2.2 THE CONTRACT PLANS

The Contract Plans consist of the following sheets:

Sheet Number	Sheet Title
1	Cover Sheet, Vicinity Map and Sheet Index
2	Survey Control Data
3	Legend, TESC Details and Notes
4	Sch. A 55th Avenue Sewer Replacement
5	Sch. B Casa Juanita Sewer Replacement
6	Sch. C Lateral Rehabilitation 60th Ave North
7	Sch. C Lateral Rehabilitation 60th Ave North
8	Sch. C Lateral Rehabilitation 58th Ave
9	Sch. D Manhole Grade Adjustment – MH-168-167-166A
10	Sch. D Manhole Grade Adjustment – MH-166-165-G600
11	Sch. D Manhole Grade Adjustment – MH-164-163
12	Sch. D Manhole Grade Adjustment – MH-162-161
13	Sch. D Manhole Grade Adjustment – MH-160-159
14	Sch. D Manhole Grade Adjustment – MH-H722-158

Sheet Number	Sheet Title
15	Sch. D Manhole Grade Adjustment – MH-156A-156
16	Sch. D Manhole Grade Adjustment – MH-1-41-42
17	General Details
18	General Details
19	General Details
20	Traffic Control – 55th Ave NE
21	Traffic Control – 124th
22	Traffic Control – 124th
23	Traffic Control – 124th
24	Traffic Control – 124th
25	Traffic Control – 124th
26	Traffic Control – 124th
27	Traffic Control – 124th
28	Traffic Control – 124th
29	Traffic Control – 124th
30	Traffic Control – 124th
31	Traffic Control – 60th

2.3 PERMITS, FRANCHISES AND EASEMENTS

The District has obtained the Right-of-Way and Grading permits from the following public agencies:

- City of Kenmore
- City of Lake Forest Park
- City of Kirkland

The permits are included in the Appendix B. The Contractor shall comply with the requirements of the permits.

The Contractor shall confirm that all permits, franchises, and easements have been obtained and are in effect prior to commencing work on the portion of the Project covered by such instruments.

2.4 STAKING

All work done under this Contract shall be done to the lines and grades shown on the Plans. The District will provide one set of construction stakes. Stakes removed or destroyed will be replaced by the District at the Contractor's request and expense.

The Contractor shall notify the District a minimum of 10 working days in advance of the need for staking.

2.5 CERTIFICATE OF INSURANCE

The Contractor shall specifically note and comply with the limits of liability amounts, additional insured named and terms of cancellation included in Subsection 8.9 of the General Conditions. Additional insureds shall include Northshore Utility District, its agents and representatives, City of Kirkland, City of Lake Forest Park, and the City of Kenmore. All Risk Builders' Risk coverage will not be required for this Project.

The Insurance Questionnaire and Endorsement included at the end of this section must be completed in addition to the Certificate of Insurance.

2.6 PAYMENT FOR MATERIALS ON HAND

Payment for materials on hand will not be provided for this project.

Insurance Coverage Questionnaire

This Questionnaire must be completed and attached to Certificate of Insurance.

Name of Contractor: .....

Contract Number: Contract 2022-02; Sewer Repair Project

Project Owner: Northshore Utility District

Are the following coverage's and/or conditions in effect?

Please circle "yes" or "no" regarding the applicable policy		
This Policy Form is ISO Commercial General Liability form CG 00 01 or CG 00 02 (circle one). If no, attach a copy of the policy with required coverage clearly identified.	Yes	No
Products and Completed Operation Coverage	Yes	No
Cross Liability Clause (or equivalent wording)	Yes	No
Personal Injury Liability Coverage (with Employee Exclusion Deleted)	Yes	No
Broad Form Property Damage with X, C, U Hazards Included	Yes	No
Blanket Contractual Liability Coverage Applying to this Contract	Yes	No
Employers Liability - Stop Gap	Yes	No

	GL	AL	Excess
Deductibles or SIR's			
Insurer's A.M. Best Rating			

This Questionnaire is issued as a matter of information. This questionnaire is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies indicated on the attached Certificate of Insurance.

Agency/Broker	COMPLETED BY (PRINT NAME)
Address	Completed by (signature)
Name of Person to Contact	Phone Number

Property Owner's Approval of Restoration

CONTRACT _____

I, (We), the undersigned Owner(s) of property identified as:

_____

Address: _____

_____

Property Description Or Tax Lot Number: _____

do hereby approve and accept the restoration work done on, over and across my, (our), property by:

_____,the

Contractor for the Contract 2022-02; Sewer Repair Project

SIGNED: _____ Date: _____

SIGNED: _____ Date: _____

DETAIL SPECIFICATIONS

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SECTION 3

DETAIL SPECIFICATIONS

Section 3 – Detail Specifications

3.0 GENERAL

This specification covers the furnishing of all labor, materials, tools and equipment necessary and incidental for the installation of water and sewer mains together will all appurtenances and all restoration.

Facilities shall be constructed as shown on the Construction Plans and in accordance with these specifications and pertinent sections of the "Engineering Specifications" except as amended or changed in the Detail Specifications. Manufacturer's equipment shall be installed in compliance with the specifications of the manufacturer, except where a higher quality of workmanship is required by the Contract Plans and Specifications. All material and work shall be in strict accordance with any applicable regulations of State and local authorities. The Contractor shall arrange for such inspection by these agencies as may be required and shall submit evidence of their approval, if requested by the Engineer.

The Contractor shall cut existing asphalt to a neat line prior to excavation. No debris will be piled or dumped in the proximity of the project. Surface waters shall be confined to the site so that dirt and debris is not washed into existing storm drains, ditches or creeks.

All existing utilities disturbed shall be re-routed, reconnected and kept in service at all times. The Contractor shall request location marking of all utilities prior to start of excavation.

After the new utilities have been installed, the Contractor shall restore the existing surface, paved or pervious, to an existing or better condition, as shown on the Plans and per the requirements of the permitting agency right-of-way permits.

3.1 EXISTING FACILITIES

There now exist along the construction route, and within the boundaries thereof, above-ground and underground improvements. A portion of these, where known, is shown on the Plans. However, whether they are shown on the Plans or later marked in the field, responsibility for damage and repair shall be determined in accordance with RCW Chapter 19.122, Underground Utilities.

The Contractor shall inform each property owner in ample time so that the property owner and the Contractor may take any precautions necessary to facilitate construction in the vicinity and thereby protect existing property and any underground water lines, drain lines, and/or power lines or other utility lines.

Where the Contractor is allowed to use private property adjacent to the work, the property so used shall be returned to its original or superior condition. A signed release from the property owner shall be furnished to the District by the Contractor prior to project acceptance. See Special Provisions for the *Property Owner's Approval of Restoration* form.

Wherever existing drainage channels, culverts or structures are disturbed, the Contractor shall provide suitable means for diverting and maintaining all flows during construction in that area at his expense. After the construction has been completed, all channels, culverts, or structures shall be returned to a condition that is equal to or better than existed prior to construction.

The Contractor shall adequately protect and preserve from damage, destruction, and interference with the use of all property or its appurtenances on or in the vicinity of the work, which is not ordered or provided for removal or destruction under this contract. This applies to all items occupying the right-of-way, trees, monuments, pipes, conduits, water mains and blocking, underground structures, culverts, bridges, fences, rockeries, docks, bulkheads, and property of all descriptions. Wherever such property is damaged, destroyed or the use thereof is interfered with due to the operation of the Contractor, it shall be immediately restored to its former condition by the Contractor, at the Contractor's expense.

No separate payment will be made for the protection and/or repairing of existing facilities and any cost and expense incurred in protection and/or repairing these facilities shall be included in the price bid for the several items as indicated in the proposal.

3.2 TRAFFIC MAINTENANCE AND PROTECTION

The work shall be done under a schedule approved by the District with a minimum of interruption or inconvenience to vehicular and foot traffic. Traffic maintenance and protection shall be at the Contractor's expense and must meet the Manual of Uniform Traffic Control Devices (MUTCD) Standards and the permitting agency's requirements.

A traffic control plan shall be submitted to the District for review and approval in accordance with the Engineering Specifications. All signs required by the approved traffic control plan(s) as well as any other signs as may be required during construction or as required by the District or permitting agency will be furnished by the Contractor.

The Contractor shall provide flaggers to control traffic during construction operations in accordance with Section 1-10.3 of the current Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

The District will provide notification to schools, school districts, fire districts, utility districts, other service districts and all other persons and services which will be affected by this project.

3.3 TRENCH BACKFILL

For trenches deeper than 8 feet in depth, the top 4 feet of trench (below the base course material) shall be imported backfill material conforming to Section 9.6 (c) of the Materials of Construction.

Regardless of governing jurisdiction allowances, all transverse trenches shall be backfilled with 1-1/4 inch Minus Crushed Rock, full-depth, per Sections 9.7 (a) of the Materials of Construction and 10.25 (b) of the Methods of Construction.

3.4 DEWATERING PLAN

The Contractor shall review the actual field conditions and any other available resources to determine the extent and volume of groundwater to be expected. The Contractor shall submit a dewatering plan to the District for review prior to dewatering activities. The dewatering plan shall show specific locations, in plan and section, where dewatering is expected as well as general discussion of methods should water be encountered in other locations. The plan should also indicate the location and methods for removing groundwater, proper sediment removal and disposal of groundwater.

Review by the District of the design, materials, method, installation, and operation and maintenance details submitted by the Contractor shall not in any way relieve the Contractor from responsibility for errors/omissions therein or from the entire responsibility for complete and adequate design, materials, inspection, operation, maintenance and performance of the dewatering system. The Contractor shall bear sole responsibility for proper design, installation, operation, maintenance, and any failure of any component of the dewatering system for the duration of this Contract.

3.5 TELEVISION INSPECTION

Preconstruction television inspection shall be perform by the Contractor and consist of a complete television inspection of all existing sewer mains identified for replacement/rehabilitation as shown on the Plans.

Sewer mains to be replaced with CIPP shall be carefully inspected to determine the location of any conditions that may prevent proper installation of the impregnated tube, such as protruding side sewers, root intrusions, collapsed or crushed pipe, and dropped joints, and to identify and locate all active and non-active side sewers. The Contractor shall inform the Owner if the inspection

reveals any obstruction that cannot be removed by conventional sewer cleaning equipment.

All sewer main television inspections shall identify points of interest including, but not limited to, pipe defects, debris, sediment, and side sewer connections. The inspections shall identify and locate all active and non-active side sewers.

The Contractor shall also perform complete television inspection of all existing side sewers connected to sewer mains identified for replacement/rehabilitation with HDPE pipe, PVC pipe, and CIPP, as shown on the Plans.

Side sewer television inspection shall be performed to identify side sewer pipe type and condition, identify and locate any unknown connections, confirm side sewer replacement methods, and electronically locate the alignment of each side sewer from the sewer main to within 5 feet of the building foundation. Upon completion of the side sewer television inspection, the Contractor shall electronically locate and mark the alignment of each side sewer from the sewer main to within 5 feet of the building foundation. Electronic location of existing side sewers constructed of ABS, CIPP, HDPE, or PVC will be required only if defects (infiltration, separated joints, root intrusions, holes, cracks, or similar defects) or improper connections (foundation drains, sump pump discharges, or roof drain connections) were discovered during the television inspection and if a new building sewer cleanout is proposed as shown on the Plans. If no defects are found on side sewers made of these materials and if no new building sewer cleanout is proposed, no electronic location will be required.

3.6 CURED IN PLACE PIPE SERVICE CONNECTION (T-LINER)

The work specified in this Section includes the reconstruction of existing sanitary sewer mains and side sewers by the installation of a resin-impregnated flexible tube cured in-place using either pressurized hot water, UV cure, or steam.

The installed liner shall be continuous over the entire length between right-of-way cleanouts and sewer mains (for side sewer relining), and shall conform to the walls of the existing pipe. The side sewer product shall include a seal at the connection of the side sewer to the main line. The product shall be the LMK T-Liner or approved equal. The installed liner shall be free from visual defects such as tears, foreign inclusions, and pinholes.

The installation shall be performed by a Contractor fully licensed by the lining manufacturer. The Contractor shall have a minimum of 5 years experience installing cured in place pipe and shall have relined no less than 5,000 feet of sewer pipe.

The tube shall be a plastic-coated, polyester felt fiber compatible with the resin system used, in accordance with Section 5.1 of ASTM F1216.

The tube manufacturer shall provide to the Contractor the minimum pressure required to hold the tube tight against the host pipe, and the maximum allowable pressure so as not to damage the tube, and shall submit same to the Owner.

Unless otherwise specified, the tube shall be fabricated to a size that when installed will tightly fit the internal circumference of the original conduit to be lined. The Contractor shall be responsible for insuring that the material is the correct circumference and length based on the preconstruction television inspection.

The cured-in-place pipe shall meet the requirements of Section 5.2 of ASTM F1216. The Contractor shall furnish a polyester resin and a compatible catalyst system as specified by the resin manufacturer. The Contractor shall submit documentation from the resin manufacturer specifically describing the chemical characteristics of the resin system, including allowable mixing, impregnations, and handling time, transportation and storage time, and recommended curing cycle including temperatures, pressures, and times. The resin manufacturer's documentation shall also include maximum allowable time for handling the impregnated tube prior to inversion and the maximum allowable elapsed time from inversion to exotherm. If remedial measures are available to extend either of the maximum allowable times indicated above, without affecting the physical properties of the resin, the resin manufacturer shall describe these measures and the time limits beyond which even these measures will not prevent alteration of the physical properties of the resin.

The CIPP liner material shall be designed in accordance with ASTM F1216.

Design of the new pipe shall be based on the condition of the existing pipe which shall be classified as Fully Deteriorated Gravity Pipe: Pipe failing structurally due to severe corrosion, cracking, or large sections of missing pipe. The new pipe shall be designed as a stand-alone pipe capable of sustaining live and dead loads. In addition, the new pipe shall have a maximum of 2 percent ovality in the circumference. The design shall incorporate depth of cover over the pipes and H-20 traffic loading.

Calculations to determine wall thickness requirements of the new pipe shall be submitted to the Owner for approval prior to construction. Designs shall be based on the use of standard flexible pipe equations and shall account for the effects of ovality.

Materials handling shall be in accordance with the manufacturer's recommendations.

All sand, gravel, grease, mud, sludge, and other debris shall be removed from the pipe invert to permit proper pipe installation. If required, sewer cleaning shall also include the cutting and removal of root intrusions to the extent necessary to effectively line the entire pipe.

The method of installation shall be compatible with the manufacturer's recommended practices.

The Contractor shall designate a location where the felt tube shall be impregnated ("wetted out") with resin using distribution rollers and vacuum, to thoroughly saturate the felt tube prior to its dispatch for installation. The Contractor shall inform the Owner a minimum of 24 hours in advance of each wet out process.

The Contractor shall transport and store the wetted out tube in a refrigerated truck until it is inserted through an existing manhole by the technique/process noted herein. The transport and storage time shall comply with submittals received.

The pressure required to hold the flexible tube tight against the host pipe, per manufacturer's submittal, shall be maintained until the cure has been completed. Should the pressure deviate more than the manufacturer's recommendation, the installed tube shall be removed from the host conduit, at the Contractor's expense. The Contractor shall provide the Owner with a continuous log of pressure during cure.

Segments of liner that have been resin-impregnated and placed in the host conduit and then are found to be too short shall be removed without curing and discarded at the Contractor's expense. Removal of the uncured, resin-impregnated liner shall be accomplished in such a way as to minimize the amount of resin allowed to escape. The Contractor shall be responsible for cleanup of all escaped resin. The Contractor shall submit a plan for the process of removing resin-impregnated, uncured line from the host conduit, including protection of the host system from escaping resin, to the Owner for approval prior to the first installation process.

After insertion of the wetted out tube is complete, the Contractor shall use a hot water recirculation system capable of delivering desired heat uniformly throughout the section, for a consistent cure of the resin. The curing temperatures shall comply with submittals. The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing heat

source. Another such gauge shall be placed between the impregnated tube and the invert of the host pipe at the manhole(s) to determine the temperatures during the resin cure process. Initial cure may be considered completed when the exposed portions of the felt tube appear to be hard, and the remote sensing device indicates the temperatures to be adequate, as recommended by the resin Manufacturer. Curing temperatures and duration shall comply with previously submitted data and information.

The Contractor shall cool the hardened pipe to a temperature below 100^{o} F before relieving the water column (pressure). Care shall be taken in the release of the water column so that a vacuum will not be developed that could damage the newly installed CIPP. Coupon samples shall be obtained for testing.

The finished CIPP shall be continuous over the entire length and be free from visual defects such as foreign inclusions, dry spots, lifts, delaminations, wrinkles, pinholes, and other deformities.

Liner that is found to be too small or too large in circumference when curing is completed shall be considered failed liner. Correction, removal, or repair of the failed liners shall be the responsibility of the Contractor, at no extra cost to the Owner. Indicators include, but are not limited to, gaps between the liner and the host conduit, cracks in the liner and wrinkles/folds in the liner. Acceptable methods of correction, removal or repair shall be approved in writing by the Owner, with prior field demonstration if required by the Owner.

3.7 STEEL DRIVEN PILES

A. SUBMITTALS

1. Manufacturer or fabricator of steel pipe piling, product data including proof of certification by Steel Plate Fabricators Association (SPFA) and recommended installation instructions for submitted pile hammer.

2. List of equipment and procedure intended to be utilized in pile driving, noting hammer types and sizes, lead lengths, crane capacities, and cushions for each pile type.

3. Order lengths for steel pipe piling.

4. Mill certifications for steel pipe piling.

5. Preliminary schedule for pile driving.

6. Pile load test procedure

7. Pile load test results.

B. PILE LAYOUT

Layout of piles is the responsibility of the Contractor and shall be in accordance with the Plans. The Contractor shall be responsible to maintain the necessary grid alignment points and for maintaining construction staking and all costs of resetting stake, nails, etc.

C. QUALITY ASSURANCE

Keep complete and accurate as-built records of all piles. Indicate the pile location, date, diameter, length, type and size, hammer used, rated hammer energy pile cushion used, elevation of tip and top of pile. Record and report immediately to the Owner any unusual conditions encountered during pile installation.

Pile installer shall be regularly engaged in the installation of piles similar to the requirements of this project for at least 5 years. Provide documentation demonstrating same.

Design deviations shall provide an installation equivalent to the basic intent without incurring additional cost to the Owner.

D. COORDINATION

Coordinate work with Owner regarding maintaining their ongoing operations. Coordinate the installation of piles with erection of concrete formwork and placement of form accessories.

E. MATERIALS

1. Steel Pipe

   ASTM A53, Type A Schedule 40.

2. Portland Cement Concrete

   As specified on the Plans.

F. FABRICATION

1. General

The diameter of piles shall be as specified on the Plans. Pipe shall be fabricated with a full penetration groove weld with a maximum 1/16-inch offset between welded edges is required.

2. Welding Construction

Comply with AWS Code for procedures, appearance, and quality of welds, and methods used in correcting the welding work. Assemble and weld built-up sections where indicated by methods which will produce true alignment of axes without warp.

3. Corrosion Protection

Steel pipe piles shall be zinc galvanized by the “hot-dip” method in accordance with ASTM A123.

G. STORAGE AND HANDLING

The Contractor shall store and handle piles in ways that protect them from damage.

H. STEEL CASINGS AND STEEL PILES

The Owner will reject bent, deformed, or kinked piles that cannot be straightened without damaging the metal.

I. PILE DRIVING EQUIPMENT

Prior to driving any piles, the Contractor shall submit to the Owner for approval the details of each proposed pile driving system. The Contractor shall verify the equipment can drive piles to the required ultimate driving resistance without damage or without requiring an excessive amount of time to achieve the required tip elevation and capacity before mobilizing pile driver to site.

J. PREPARATION

Notify the Owner of any conflicts between the designated position of piles and the locations of existing piles from previous construction, existing

utilities, old foundations, or other potential conflicts. The Owner will designate new pile locations as required.

K. INSTALLATION

1. Location

Drill and install piles from the existing ground surfaces as shown on the Plans. Locate piles where indicated on the Plans. The maximum permissible variation of the center of each pile from the required location is 3 inches. Installed piles which are damaged, mislocated, not true or straight, or out of alignment beyond the maximum tolerance specified or which are unsuitable for other reasons shall be abandoned and replaced with additional piles placed at no additional cost to the Owner.

2. Tolerances in Driving Piles

a. Maximum permissible tolerance in driving shall be as follows:

(1) Plumb Piles

Deviation from plumb shall not be more than 1/8 inch per foot of pile length.

b. Pulling, pushing, or manipulation of piles to force them into position will not be permitted. Any piling that deviates more than the limits specified may be rejected by the Engineer. Rejected piles will not be paid for by the Owner. At no additional cost to the Owner, rejected piles shall be removed and redriven, or cut off below the finish grade, and a new pile shall be driven in a location determined by the Engineer. Design and construction costs resulting from rejected piling, including modifications to pile caps or bulkheads, shall be borne by the Contractor.

3. Splicing

All pipe splices shall be made with standard couplers as shown in the Plans.

4. Refusal Criteria

All pilings shall be driven to refusal. The criterion for driving refusal is defined as the minimum amount of time (in seconds) required to achieve a 1-inch penetration, and it varies with the size of hammer used for pile

driving. The driving criteria will be determined by the Engineer based on the actual hammer size selected by the Contractor and the static load test program.

It is the Contractor's responsibility to demonstrate to the Owner's satisfaction that the design load can be achieved based on the Contractor's selected equipment and the driving criteria.

L. PILE LOAD TEST

A minimum 3 percent of the piles should be load tested to verify the design capacities. All load tests shall be performed in accordance with the procedure outlined in ASTM D1143. The maximum test load shall be two times the design load. The location of the test piles shall be proposed by the Contractor and approved by the Owner.

M. PILE LENGTHS

Based on the Geotechnical Report, it is estimated that the average pile lengths may be about 40 to 50 feet. The actual pile lengths shall be determined in the field based on actual driving conditions.

N. CUTTING AND CAPPING PILES

Remove all damaged material from the top of the piles.

Weld pile cap to pile.

Keep sides of piles at least 9 inches away from the nearest edge of pile cap for adjacent piles.

Cut off piles with clean, straight-line cuts at a right angle to the pile axis.

Level all irregularities before placing concrete for pile caps and grade beams.

3.8 ASPHALT PLANING

Asphalt planning in preparation for asphalt overlay shall be to a depth of 2" tapered to 0" with minimum widths as follows:

- Street transitions, 20 feet
- Driveway transitions, 6 feet
- Adjacent to curb and gutter, 6 feet

If full-width asphalt planning is required in preparation for asphalt overlay, planning shall be to a depth of 2” to the limits shown on the Plans.

3.9 ASPHALT TRENCH PATCH AND OVERLAY

If the utility construction is completed in the fall or winter season and the permanent trench patch and final asphalt overlay cannot be completed until the following spring due to weather related paving restrictions, the Contractor shall provide and maintain a 1-inch minimum compacted thickness temporary asphalt trench patch, per the asphalt specifications of the permitting agency. The trench patch shall provide a smooth, drivable surface. The Contractor shall monitor and repair, as necessary and as directed, the temporary trench patch until the final trench patch and asphalt overlay can be completed.

3.10 GENERAL RESTORATION

Restoration of affected areas not paid for under other items shall be considered general restoration. This restoration includes rockery, fences, lawn areas, planter areas, maintenance of existing trees and shrubs and replanting or replacement of trees and shrubs as allowed under the contract. Grassy areas, including road prism areas in the right-of-way, shall be restored with sod as directed by the District. The Contractor shall specifically note that where an area has a distinctive surface treatment (grass, bark, sand or such), that surface treatment must be replaced in kind unless other restorative treatment is allowed in writing by the property owner.

All pavement markings such as stop bars, crosswalk, lane line reflectors, lane stripes, or such, shall be restored in kind following final paving.

Areas damaged by the Contractor which are not specifically allowed for under the Contract shall be repaired or replaced by the Contractor at the Contractor’s expense. Contractor shall provide the District a written release from the owner for any private property damaged by the Contractor.

3.11 RESTORATION SCHEDULING

In order to avoid having large areas awaiting restoration and, in an effort to finish the work in a timely manner, all restoration shall immediately follow pipeline installation and testing. Once started, restoration shall be vigorously pursued until completed. All work pertaining to individual schedules of work, including restoration, must be completed to the satisfaction of the District before commencing work on the next schedule of work.

3.12 WORKING WITH ASBESTOS CEMENT PIPE

When working with asbestos cement pipe, the Contractor is required to maintain workers' exposure to asbestos material at or below the exposure limit to asbestos material as prescribed in WAC 296-62-07705 State/Federal Guidelines and Certification. All requirements regarding asbestos cement pipe handling by OSHA, WISHA and PSAPCO must be followed. Power tools shall not be used in the cutting of any asbestos cement pipe.

3.13 TEMPORARY SEWER BYPASSING

A. GENERAL

Work covered in this section includes the requirements for the temporary sewer bypass system.

The Contractor shall provide a power source or generating facilities for the temporary sewer bypass system. Power sources' noise levels shall not exceed the noise level of the governing agencies' noise levels and requirements.

The Contractor shall provide backup equipment and systems for all ordinary emergencies, including pump failure and power outages. Equipment replacement parts, pipe, fittings and other materials shall be onsite for normal operation and maintenance and emergency repairs. Competent workers shall be available at all times for the continuous and successful operation of the temporary sewer bypass system. The Contractor shall not disable or shut-down the temporary sewer bypass system between shifts, weekends, holidays or work stoppages without the District's approval. The Contractor is responsible for electrical power necessary for operation of the temporary sewer bypass system.

B. SUBMITTALS

Contractor shall submit the following information:

1. Detailed explanation of, and plan and any necessary details showing, the proposed pumping and sewer bypassing system for each location requiring sewer bypassing, including sequencing, and assistance required of the District to effect the bypassing plan.

2. Proposed pumping equipment.

3. Engineering analysis and calculations for bypassing system.

4. A contact list of personnel for operation and maintenance including 24-hour contact information.

C. PRECAUTIONS AND PROTECTIVE MEASURE

1. Review existing sewer system plans with the District.

2. Verify the size and location of connecting laterals and side sewers.

3. Provide pumps with sufficient capacity and head.

4. Provide pumping equipment redundancy and/or standby equipment that can be readily deployed.

5. Investigate upstream manholes.

6. Check and test pumping equipment and bypass system.

7. Provide suitably experienced person(s) and training of personnel (more than one individual) for operation and maintenance of system, including dealing with emergencies. A list of said person(s) and 24-hour contact information shall be provided to the District.

8. Check upstream manhole surcharging after bypassing operations have commenced.

9. Properly monitor, log, and maintain system during operation.

D. QUALITY ASSURANCE

1. Temporary sewer bypass systems shall be designed by a registered professional engineer in the State of Washington. Engineer shall have demonstrated experience in the design of pumping systems of comparable size and complexity.

2. Before commencement of any bypassing operation, the temporary sewer bypass pumping system shall work continuously without error for 48-hours and the Contractor shall obtain the District's acceptance of the design, equipment and materials, installation, operation and maintenance.

3. “Contractor shall provide a copy of written procedures for backup operations that shall be stored on site and on equipment for emergency personnel use during emergency operations.”

E. SEWER BYPASSING

1. Contractor shall provide suitable and reliable temporary sewer bypass pumping and piping. Two pumps and standby power shall be provided at all times. Pumping system shall have automatic start/stop controls.

2. Contractor will be responsible for properly operating, protecting, maintaining and servicing the pumping equipment for the duration of the temporary bypass. Contractor shall be responsible for bypass pumping equipment electrical service and fuel.

3. Noise levels of equipment shall meet the requirements of King County and Washington State noise level requirements. Depending on the pumping equipment that is used, meeting the noise level requirements may require the use of sound attenuating enclosures as well as other provisions and measures. Depending on the situation and subject to the approval of the District, the only possible exception or relaxation of this requirement will be in cases where the bypassing equipment will only be operated:

   a. During the work week;

   b. During normal working hours and;

   c. Period of bypass operation will be less than one week.

4. Temporary pumping shall be continuously provided from the time that the existing system's operation is disturbed, until the new system is in place, tested and accepted by the District. By sewer flows were calculated with information from the District's Wastewater Comprehensive Plans.

5. **Schedule A:** Estimated average peak flow into DMH-1 from the North is approximately 128 gpm. If the contractor chooses they may install the proposed new MH first then bypass pump from the new MH to MH-7013 while laying new pipe.

   Schedule B: MH-5 to MH-2. Estimated average peak flow from MH-5 to MH-2 is 15 gpm.

   Schedule C: Bypass pumping will be as needed for CIP Tee-liner installation.

Schedule D: Bypass pumping is not required for manhole riser replacement. The existing sewer system shall be protected from debris during installation of the new riser sections.

6. Maintain on site sufficient equipment, extra parts, extra fittings, materials and fuel to ensure continuous and uninterrupted operation of the bypass system. A minimum of 24-hours of fuel shall be maintained on-site. Standby pumps and generators shall be fueled and operational at all times. During the winter months of October through March, the bypass pumps shall be equipped with heaters to prevent freezing. Contractor's personnel shall be knowledgeable and trained on how to operate and maintain the bypass equipment.

7. All monitoring shall be fully functional during bypassing.

8. If the bypass system is to be operated when the Contractor is not on-site, the system shall be provided with a monitoring and alarm system that notifies the Contractor and District 24 hours a day of a system failure. In the event of a failure of the primary bypass system, the backup bypass pumping system shall automatically turn on and be operational without any physical changes required to the system. The Contractor shall respond immediately and fix the cause of the problem to the primary bypass system. Contractor shall be on-call 24 hours a day and be able to respond within 30 minutes at all times during sewer bypassing. The Contractor will be required to demonstrate to the satisfaction of the District that this requirement can be met and that responsible and appropriately trained personnel will be able to deal with emergencies that could arise. The Contractor is encouraged to consider retaining a company or individual(s) that specialize in the operation and maintenance of sewer systems for bypasses that require unattended operation.

9. Sewer bypassing shall not cause backup of sewage into residences or any other side sewer line, private or publicly owned or maintained. Depth of surcharge upstream shall be kept to the minimum necessary. The Contractor will be responsible for repairing any damage to upstream property due to excessive surcharging of the system.

10. All sewer pipes and manholes' that were surcharged shall be properly cleaned and flushed to remove accumulated sewage material after service is restored. Removed accumulated sewage material shall be removed from the collection system and not flushed down stream.

11. If minor assistance from District personnel is anticipated or required, 2 hours or less of one individual, Contractor shall provide a minimum of 3 working days advance notice. If major assistance from District personnel is anticipated or required, more than one individual or more than 2 hours of one individual, Contractor shall provide 6 working days advanced notice.

12. If damaged, restore bypass areas to equal or better pre-existing conditions.

F. SPILLS

1. Contractor is fully responsible for any damage that may result from an inadequate or improper installation, maintenance or operation, or failure of any kind of the bypass system.

2. Spills or bypasses of sewage to surface waters or drainage courses is prohibited. In the event of sewage spills, the Contractor shall immediately take whatever actions are deemed necessary to stop a spill. Should the Contractor not take immediate action, the District will be entitled to take whatever actions are deemed necessary to stop a spill.

3. Costs incurred by the Contractor or District, including penalties imposed on the District as a result of any sewage spill caused by the Contractor, its employees, or subcontractors, shall be borne in full by the Contractor, including legal fees and other expenses to the Contractor or District resulting directly or indirectly from the spill

G. INSPECTION

Allow the District at all times to:

a. Enter the premises where an effluent source or disposal system is located or where any records associated with this system are kept.

b. Have access to any required records. At no time can wastewater effluent data be concealed or held as confidential information.

c. Inspect and evaluate any monitoring equipment or monitoring methods required by this Section.

d. Sample any discharge to the sewer system.

H. RECORDS RETENTION

Retain all records of monitoring activities, results, and calibration and maintenance for a minimum of three years. This retention period is extended during the course of any unresolved litigation pertaining to the discharge or whenever it is requested by the District, King County, DOE, or EPA.

3.13 MANHOLE BASE LINERS

A. Replace "Section 9.3 Manholes (b) Base Liners" as follows:

(b) BASE LINERS

All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP). The base liner shall be integrally cast and adequately anchored inside new precast concrete manhole base sections during the concrete casting process at the manhole suppliers manufacturing facility. The base liner shall be cast integral with the precast concrete manhole base section in accordance with the liner manufacturer's specifications. The liner must be fully supported during the casting process and lifting devices shall not penetrate the base liner.

The manhole base liner shall be prefabricated from a one-piece homogeneous composite and/or thermoplastic with a minimum thickness of 0.12-inch (3 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section and be a non-load-bearing component, which is resistant to the chemical environment normally found in wastewater collection systems. The outer surface of the liner shall be coated with aggregate and/or PP pellets bonded to the outer surface and have perforated PP I-beam "bonding bridge" anchors bonded to the outer surface in order to ensure adequate anchoring to concrete base sections to pass vacuum testing with 10-inch of negative pressure.

The inside liner surfaces shall be free of bulges, dents and other defects that result in a variation of inside diameter of more than ¼-inch (7 mm) for base liner flow channel and pipe connections. The precast concrete pipe penetration joint surfaces shall be free of excess concrete at external and internal surfaces to insure a proper seal between the pipe connection and the liner.

The manhole base liner shall include full flow channels with sidewalls to the crown of the pipe. The inner surface of the bench shall be provided with an anti-skid pattern. Watertight gasketed pipe bell connections to suit specific

pipe types, grade, and alignment, shall be monolithically attached to the base liners.

If PP base liner is utilized, a minimum slope of 0.06 foot is acceptable across the invert channel. The FRP base liner shall require the District standard minimum slope of 0.1 foot across the invert channel.

Base liner properties shall be in accordance with the following:

MATERIALS	
Polypropylene (PP):	100% Copolymer
Minimum thickness:	3mm
Hardness:	75 Shore D
Density:	56.8 lb/ft^3 (0.91 g/cm^3)
Color:	Dull mustard/goldenrod
Fiberglass Reinforced Plastic (FRP):	Polyurethane Hybrid Composite
Glass fiber:	Type E, min fiber length of 0.625-inch (16mm), 10 - 12% content by weight
Inert filler:	10 - 13% content by weight
Minimum thickness:	3mm
Hardness:	85 Shore D
Density:	73.0 lb/ft^3 (1.17 g/cm^3)
Color:	Dull mustard/goldenrod
Aggregate bonding medium:	Processed sand containing crushed & uncrushed dry and cleaned semi-round particles in the 0.08 - 0.12-inch (2 - 3mm) size range
Gaskets:	Polyisoprene, EPDM, or as otherwise approved
Hardness:	50 - 55 Shore A
PHYSICAL PROPERTIES	
Percolation Test:	Water absorption of top surface - 0.032%
Thermal shock (CSA-B45-M93):	100 thermal cycles - no sign of surface defects

Chemical Resistance (ASTM D1308):

Selected Reagents

Reagent	Result
Nitric Acid 69%	No surface Degradation - Surface Staining
Hydrochloric Acid 60%	No surface Degradation
Ammonia 28%	No surface Degradation
Sodium Hydroxide 5.25%	No surface Degradation
Sulfuric Acid 50%	No surface Degradation
Sulfuric Acid 70%	No surface Degradation
Sulfuric Acid 80%	No surface Degradation
Acetone	No surface Degradation
Unleaded Gasoline	No surface Degradation
Turpentine	No surface Degradation
Acetone Immersion (ASTM D2152)	No Attack

Base liners shall be manufactured and supplied by Geneva Pipe and Precast, a Northwest Pipe Company, of Orem, UT.

MEASUREMENT AND PAYMENT

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SECTION 4

MEASUREMENT AND PAYMENT

Section 4 - Measurement and Payment

Bid Item Introduction

It is the intent of these Specifications that the performance of all work under the bid items shall result in the complete construction, in proper operating condition, of the facilities described. It is understood that any additional material or work required to place the facilities in operating condition shall be provided by the Contractor as work covered by the listed bid items and shall be considered incidental thereto.

Submittals, shop drawings, calculations, start-up, testing, training, warranties, and operation and maintenance manuals as required shall be considered incidental to the various items of work and no additional compensation will be allowed.

Mobilization

The lump sum price bid for mobilization shall be full compensation for all labor, equipment, tools and materials required for preparatory work and operations, including, but not limited to the following items:

1. The movement of personnel, equipment, supplies and incidentals to the project site as related to project mobilization, demobilization and cleanup.

2. The establishment of field offices and material storage areas.

3. Purchase, delivery and storage of pipe, fittings, appurtenances, and all other materials required for the project.

4. Insurance, bonding, submittals and other work and operations that must be performed or costs incurred before beginning contract work.

5. Mobilization costs for subcontracted work.

Payment for mobilization will be made monthly based upon the following partitions:

1. 10% of the original Contract amount for each schedule of work, but not more than 100% of the amount bid for mobilization, will be paid as part of the first monthly pay estimate.

2. When 75% of the original contract amount for each schedule of work is earned, 100% of the amount bid for mobilization will be paid.

Trench Safety System

The lump sum price bid for trench excavation protection shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to providing a safe trench excavation. This item shall include, but not be limited to, the following:

1. Design, installation, proper use and removal of all sheeting, shoring, cribbing, boxes or other trench protection methods.

2. Excavation, backfill, compaction and other work required if extra excavation is used in lieu of trench box, shoring, cribbing or other trench protection. If imported backfill gravel is required for backfilling within the limits of the sewer or water line excavation, it shall also be required as backfill material for the extra excavation and shall be provided at the Contractor's expense.

3. All barricades, warning lights, signs, flaggers or other devices needed to warn and protect the public.

The Contractor shall be solely responsible for the safety of his crew and public, and the District assumes no responsibility. The District will not be responsible for determining the adequacy of any system used by the Contractor and payment for protection systems will not imply District's approval of adequacy.

Temporary Erosion Control and Sedimentation Control

The lump sum price bid for Temporary Erosion and Sediment Control shall be full compensation for all labor, materials, tools and equipment necessary and incidental to install, maintain and remove the TESC facilities. This item shall include, but not be limited to, the following: filter fabric fence, filter bags, storm drain inlet protection, straw bales, plastic sheeting, construction entrance mat, and street sweeping.

Temporary Sewer Bypass Pumping

The lump sum price bid for Temporary Sewer Bypass Pumping shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to construction. This item shall include, but not be limited to, the following:

1. Creating and furnishing a Temporary Sewer Bypass Pumping Plan.

2. Obtain and maintain all required private property authorization.

3. Designing, furnishing, installing, and maintaining pumps, floats and controls, auto-dialer, piping, fittings and appurtenances.

4. Maintaining and operating the bypass system during construction activities.

5. Furnishing, installing and maintaining, electrical source and backup power sources.

6. Decommissioning system upon abandonment of identified existing sanitary sewer system, completion and testing of new sanitary sewer system.

7. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

48-Inch Saddle Manhole
48-Inch Sewer Manhole

The unit price bid per each for 48-Inch Manhole shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to construction of the manholes as shown on the Standard Sewer Details and in accordance with the Engineering Specifications. Items of work include, but are not limited to, the following items:

1. Clearing, grubbing and disposal of cleared materials, where required, including trees, stumps, and large rocks.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Dewatering and proper disposal of water as required.

4. Hauling away and disposing of any excess material, including securing approved disposal site.

5. Furnishing and installing FRP base liner by “Geneva Pipe and Precast” and precast sections, including adjustment of frame and cover to final grade, vacuum testing, replacement, repair and retesting, if required or as directed by the District.

6. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill and all other crushed rock or gravel material, native or imported.

7. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing sewer main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed sewer main improvements and appurtenances.

8. Temporary cold mix patch, asphalt treated base, or trench patch as required, placed immediately after trench backfill and subsequent removal.

9. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement up to, and including, 6" in thickness. In the event the Contractor encounters pavement exceeding 6" in thickness, the Contractor will be compensated for the saw cutting, removal and disposal of the excess pavement according to the schedule as outlined in the Proposal section.

10. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

Payment will be based on the number of manholes actually installed.

48-Inch Sewer Manhole – Additional Depth

The unit price bid per vertical foot for 48-inch Sewer Manhole – Additional Depth shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to providing and installing additional sections for manhole depths over 8 feet as measured from the invert of the manhole outlet to the top of manhole rim.

Imported Foundation Gravel
Crushed Rock

The unit price bid per ton for imported foundation gravel, imported backfill gravel, and crushed rock shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to furnishing the materials in the trench, under asphalt trench, in the shoulder, asphalt road and under the sidewalk, curb and gutter or elsewhere as required or as directed by the District, and proper disposal

of excavated materials. These items shall include, but not be limited to, the following:

1. Over-excavation or extra depth excavation as may be required by the District, or field conditions, which dictate such excavation, as approved by the District.

2. Grading, preparation and compaction of existing subgrade.

3. Proper disposal of excavated materials.

Payment for gravel and rock materials will be made based on the actual number of tons of material furnished and placed. Quantities shall be based on certified weight tickets signed by the driver and collected by the inspector at the time and place of delivery. Loads of material for which a certified weight ticket has not been given to the inspector shall not be paid for.

Gravel and rock materials will be paid for by the ton as substantiated by certified scale tickets, up to the maximum quantity calculated for the volume within the neat lines of the trench as specified in the specifications and standard details. A conversion factor of 1.85 Tons/CY will be used to convert cubic yards of material to tons.

It will be the Contractor's responsibility to see that a ticket is given to the Inspector for each truckload of material delivered. Duplicate tally tickets shall be prepared to accompany each truckload of material delivered on the project. The tickets shall bear at least the following information:

1. Truck number.

2. Quantity delivered in cubic yards and tons.

3. Driver's name and date.

4. Location of delivery - by job name and stationing on each job.

5. Place for receipting by the inspector.

8-Inch DI Sewer Main
12-Inch DI Sewer Main

The unit price per lineal foot for sewer line shall be full compensation for all labor, material, tools and equipment necessary and incidental to furnishing, excavating and laying, testing and placing in proper operating condition, all sewer pipe. Payment shall be made according to the lineal feet of pipe installed from centerline

of manholes or cleanouts. Items of work include, but are not limited to, the following items:

1. Clearing, grubbing and disposal of cleared materials, where required, including trees, stumps, and large rocks.

2. Excavation of all materials of whatever nature encountered, including solid rock.

3. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

4. Tree fencing and any other tree protection measures as identified on the plans.

5. Dewatering and proper disposal of water as required.

6. Hauling away and disposing of any excess material, including securing approved disposal site.

7. Furnishing and placing pipe bedding gravel to the limits shown on the Standard Sewer Details and called for in the Specifications.

8. Furnishing and installing all sewer pipe, fittings, bends and plugs, including thrust blocks and flushing and testing.

9. Handling, hauling, placing and mechanical compaction of foundation gravel, and all other crushed rock or gravel material, native or imported.

10. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specifications, including locating the existing sewer main, or other utilities, by potholing or by the use of other approved methods, prior to constructing the proposed sewer main improvements and appurtenances.

11. Maintaining, and if necessary repairing existing sewer services or coordinating temporary sewer service with the District for individual homes, during sewer line construction.

12. Furnishing and installing all required fittings and materials for side sewer services, including tees, bends, plugs, clean outs, locator tape and marker posts.

13. Temporary cold mix patch, asphalt treated base, or trench patch as required, placed immediately after trench backfill and subsequent removal.

14. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement up to, and including, 6 inches in thickness. In the event the Contractor encounters pavement exceeding 6 inches in thickness, the Contractor will be compensated for the saw cutting, removal and disposal of the excess pavement according to the schedule as outlined in the Proposal section.

15. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

Connection to Existing Sewer System

The unit price bid per each for connection to existing sewer system shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to providing a watertight connection to the District's existing sewer system as shown on the Plans, including but not limited to the following items, as necessary: traffic control measures, sawcutting, potholing and locating the existing sewer main or other utilities, excavation, core drilling, Kor-N-Seal boot, transition coupling, removal and replacement of existing concrete channel or modifying and repairing existing FRP manhole base, and maintenance of existing sewer service including bypass pumping.

Side Sewer Connection

The unit price bid per each for side sewer connection shall be full compensation for all labor materials, tools, and equipment necessary and incidental to furnish, installing and connecting an existing side sewer in accordance with specification. This item shall be measured and paid for by each connection made. Items of the work include, but are not limited to the following:

1. Safety measures and traffic control.

2. Locating sewer side service and maintain flows while service is not connected.

3. The use of a transition coupling to make connection.

4. Furnishing and installing all required fittings and materials for side sewer services, including tees, bends, plugs, detectable marking tape, locator wire and marker posts.

5. Temporary cold mix patch, asphalt treated base, or trench patch as required, placed immediately after trench backfill and subsequent removal.

6. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement up to, and including, 6” in thickness. In the event the Contractor encounters pavement exceeding 6" in thickness, the Contractor will be compensated for the saw cutting, removal and disposal of the excess pavement according to the schedule as outlined in the Proposal section.

7. Excavation of all materials of whatever nature encountered, including solid rock.

8. Excavation and grading to reshape finished grade where shown on the plans and as required by field conditions.

9. Dewatering and proper disposal of water as required.

10. Hauling away and disposing of any excess material, including securing approved disposal site.

11. Furnishing and placing pipe bedding gravel to the limits shown on the Standard Sewer Details and called for in the Specifications.

Asphalt Trench Patch

The unit price bid per ton for Asphalt Trench Patch shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to furnishing and placing asphalt pavement in paved areas where cutting the surface pavement is necessary for open cut trenching or as shown on the construction plans. Asphalt pavement shall include, but not be limited to, the following:

1. Preparation and compaction of existing base or subgrade, and preparation of existing pavement edges.

2. Sawcut, removal, and proper disposal of asphalt or cement concrete pavement up to, and including, 6” in thickness. In the event the Contractor encounters pavement exceeding 6" in thickness, the Contractor will be compensated for the saw cutting, removal and disposal of the excess pavement according to the schedule as outlined in the Proposal section.

3. Furnishing, placing and compacting asphalt, per the asphalt specifications of the permitting agency, including sealing. Asphalt shall be compacted in 2" lifts.

4. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

5. Temporary striping required to maintain traffic lanes prior to Asphalt Overlay.

6. Re-striping of the traffic lanes, including thermoplastic striping and all road lines and arrows, and replacement of signs and traffic buttons, if any, outside of the Trench Patch area.

7. Top seal in areas not located in Asphalt Overlay area.

8. Contractor to provide truck tickets to District.

9. Compliance with local city standards.

Payment will be made based on the actual number of tons of asphalt pavement placed. Any other asphalt damaged by the Contractor's operations will be the Contractor's responsibility and will be considered incidental to water pipe construction and must be restored by the Contractor to the satisfaction of the governing jurisdiction.

Crushed rock base for trench patch will be measured and paid for under the bid item for crushed rock.

Asphalt Planing

The unit price bid per square yard of Asphalt Planing, shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental for planing of asphalt surface in preparation of overlay shown on the Plans and details. This shall include, but not be limited to the following:

1. Lowering of existing utility covers to below the proposed planing depth prior to planing.

2. Surface preparation, including removal and lawful disposal of ground asphalt as necessary.

3. Planing to a depth of 2 inches along a neat and straight line to the limits shown on the Plans where full width planning is required.

4. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, and setup and maintenance of the Traffic Control Measures.

Payment will be made based on the actual number of square yard of asphalt removed within the limits shown on the plans. Any other asphalt damaged by the Contractor's operations will be the Contractor's responsibility and will be considered incidental to construction and must be restored by the Contractor to the satisfaction of the District and the governing jurisdiction.

HMA Overlay

The unit price bid per ton for HMA Overlay shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to HMA overlay shown on the plans and required in the field. This item shall include, but not be limited to the following:

1. Surface preparation prior to overlay.

2. Furnishing, placing and compacting asphalt, per the overlay specification of the permitting agency. Asphalt shall be compacted in 2-inch lifts.

3. Traffic Control Measures including all signs, barricades, steel plates, temporary patching flaggers, uniformed police officer and police vehicle and setup and maintenance of the Traffic Control Measures.

4. Adjusting all valve boxes, grating, monument cases, sewer manhole, catch basin and other improvement to the final grade of the completed pavement.

5. Replacement of asphalt edges, asphalt berms and speed humps along the project alignment.

6. Restriping of the traffic lanes, including thermoplastic striping and all road lines, arrows, and replacement of signs and traffic buttons if any outside of the asphalt overlay area.

Payment will be made based on the actual number of tons of asphalt based on truck tickets, required for HMA overlay within the limits shown on the plans. Any other asphalt damaged by the contractor’s operation will be the contractor’s responsibility and will be considered incidental to the Contract and must be

restored by the Contractor to the satisfaction of the property owner or appropriate governing jurisdiction. It shall be the responsibility of the contractor to provide truck tickets to the inspector.

General Restoration

The lump sum price bid for general restoration shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to restore disturbed ground surfaces and existing improvements to their pre-construction condition or better, not including work covered by other bid items. This item shall include, but not be limited to, the following:

1. Furnishing and placing of new topsoil, sod, bark, decorative rock or other surface treatment consistent with the adjacent undisturbed ground surface.

2. Excavation, grading and preparation of the areas to be restored.

3. Removal, storage and replacement of any existing decorative shrubs, hedges or trees.

4. Restoration of fences, rockeries, utilities or other structures.

5. Protection or replacement of existing culverts and asphalt lined ditches.

6. Protection of existing trees and improvements not to be removed.

7. Hydroseeding, seeding, mulching, plantings or other erosion control measures as required in rights-of-way, easement, or landscaped areas.

8. Asphalt or concrete pavement required beyond the limits allowed for payment described herein.

9. Removal and replacement of existing landscaping or irrigation system as required.

Payment shall be based on completion of the restoration satisfactory to the individual property owners or agency having jurisdiction over the affected property.

24-Inch Steel Casing

The unit price bid per linear foot for furnishing and installing the steel casing pipe will be based on the horizontal distance lineal feet of pipe as determined from the construction record drawings and measured from end of end of casing pipe. This item shall include payment for all labor and materials required to install the pipe in accordance with the plans and specification, including but not limited to the following:

1. Excavation of all materials of whatever nature encountered, including solid rock.

2. Excavation and grading to reshape finished grade where shown on the plans and as required by field condition.

3. Additional exaction shoring and backfill to install the casing pipe.

4. Hauling away and disposing of any excess material including securing approved disposal site.

5. Backfill under the walkway and shown on plans shall be CDF paid under a different pay item. Other backfill shall be foundation gravel and paid under this pay item.

6. Furnishing and installing the casing pipe.

7. Installation and placement of the casing spacers.

8. Manufactured end seals to block the ends of the casing pipe.

9. Handling hauling, placing and mechanical compaction of the foundation gravel trench backfill and all other crushed rock gravel material native or imported.

Payment for the carrier pipe and CDF backfill will be measured and paid under a separate bid item.

CIPP Service Connection (T-Liner)

The unit price bid per lineal foot for Cured-In-Place Service Connection shall be full compensation for all labor materials, tools, and equipment necessary and incidental to furnishing, installing and placing in approved service a cured-in-place pipe in accordance with the specifications. This item shall be measured and paid for by the linear foot of pipe actually installed in the field. Measurement for length shall be made along the centerline of the pipe and actual linear feet of

CIPP installed. Items of the work include, but are not limited to, the following items:

1. Safety measures and traffic control.

2. Pre-installation Cleaning and Closed Circuit Television (CCTV) Inspection of service to be lined.

3. Root cutting and clearing main of any protrusion/obstruction that might prevent the insertion of the liner.

4. Trimming of CIPP at structure and the reinstatement of side sewers and in-line cleanouts.

5. All testing and post-installation CCTV inspection of all CIPP installed, including a electronic copy of all CCTV inspection of the District at the completion of the project.

Sewer Cleanout

The unit price bid per each for Sewer Cleanout Shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to furnishing the materials required to install the cleanouts in accordance with the Plans and Specification including, but not limited to the following:

1. Excavation of all materials of whatever nature encountered, including solid rock.

2. Excavation and grading to reshape finished grade where shown on the plans and as required by field excavations.

3. Removal and waste haul of existing pipe as required to install inline cleanout.

4. Cut existing AC pipe and move cut piece elsewhere in trench in order to install inline cleanout. Excess AC pipe shall crushed prior to backfill.

5. Furnishing and installing in-line cleanout the necessary pipes, fittings, materials, flushing and resetting.

6. Handling, hauling, placing and mechanical compaction of foundation gravel, trench backfill and all other crushed rock or gravel material, native or imported.

7. Maintenance and restoration of construction area and of other utilities affected by construction in accordance with the Plans and Specification.

8. Maintaining and, if necessary, repairing existing utility services for individual homes, during in-line cleanout construction.

9. Temporary cold mix patch, asphalt treated base, or trench patch as required, placed immediately after trench backfill and subsequent removal.

10. Saw cut, removal, and proper disposal of asphalt or cement concrete pavement.

11. Traffic Control Measures including all signs, barricades, flaggers, and setup and maintenance of the traffic control Measures.

Type A: Remove and Replace Manhole Frame and Cover

The unit price bid per each for Sewer Manhole Grade adjustments shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to remove the existing manhole frame, cover and adjustment rings, required to meet District standards and to install new concrete adjustment rings, frame, cover and adjust to final grade. Included in this bid item shall be the disposal of all removed materials. This bid item applies to existing manholes that are not modified under other bid items. This item shall include, but not limited to, the following:

1. Wastehauling existing materials, frame cover and concrete.

2. Cleaning the cone surface before installing new adjustment rings.

3. Furnish and install frame, cover and adjustment rings as identified on the Plans.

4. Grout adjustment rings with a smooth finish.

5. Removing debris from the manhole if material fall during the duration of the work.

6. Installation of HMA to repair the existing roadway. HMA will match the existing depth or be a minimum of 3" applied in 2" compacted lifts. The roadway shall be repaired prior to the end of each working day.

7. Replacing street markings and line striping is incidental to this pay item.

8. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

9. Structural backfill and mechanical compaction.

Type B: Add Manhole Section, Replace Cone, Frame, Cover, and Adjustment Rings

The unit price bid per each of Add Manhole Section, Replace Cone, Frame, Cover and Adjustment Rings shall constitute full compensation for all labor, material, tools and equipment necessary and incidental to remove the existing manhole frame, cover, cone, and adjustment rings required to meet District standards and to install new manhole section, cone, adjustment rings, frame, cover and adjust to final grade. Included in this bid item shall be the disposal of all removed materials. This bid item applies to existing manholes that are not modified under other bid items. This item shall include but not limited to, the following:

1. Waste hauling existing material, frame, cover, and concrete.

2. Cleaning the manhole section surface before installing new section, cone, adjustment rings, frame, and cover.

3. Field verification of cone and riser section key way.

4. Furnish and install manhole section, cone, adjustment rings, frame, and cover as identified on the Plans.

5. If the keyway does not match the new manhole section, saw cutting existing keyway and modifying riser sections to provide reliable connection as shown on the plane.

6. Labor, tool, equipment and materials required to modify manhole sections, including mastic, bolts, epoxy and steel plates to modify manhole sections.

7. Grouting the inside and outside of the manhole section joints, with a smooth finish.

8. Protecting manhole channel from falling debris and removing debris from the manhole if material falls during the duration of the work.

9. Structural back fill and mechanical compaction around the manhole section, cone and adjustment rings.

10. Installation of HMA to repair the existing roadway. HMA will march the existing depth or be a minimum of 3" applied in 2" compacted lifts. The roadway shall be repaired prior to the end of each working day.

11. Replacing street markings and line striping is incidental to this pay item.

12. Traffic control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

Controlled Density Fill

The unit price bid per cubic yard of CDF shall constitute full compensation for all labor, materials, tools and equipment necessary and incidental to placement of the CDF as required in the construction drawings and/or as directed by the District. Trench and CDF dimensions shall conform to the minimum required trench dimensions as shown in the drawing details for the respective facilities. This item shall include, but not be limited to, the following:

1. Furnishing and placing the CDF.

2. Removal and disposal of excess material.

3. Forming to control the volume of CDF used in the respective locations.

4. Furnishing, placing and maintaining steel plates as required for CDF cure.

5. Traffic Control Measures including all signs, barricades, steel plates, temporary patching, flaggers, uniformed police officer and police vehicle, and setup and maintenance of the Traffic Control Measures.

4-Inch Steel Driven Piles

The unit price bid per linear foot of 4-Inch Steel Driven Piles shall constitute full compensation for all labor, materials, tools, and equipment necessary and incidental to placement of the 4-inch steel driven piles as required in the construction drawings, geotechnical report and/or as directed by the District. The

linear foot shall be measured from finished cut at top of pile. This item shall include, but not limited to, the following:

1. Safety measures.
2. Site preparation for construction equipment and purposes.
3. Furnishing and placing 4-inch piles.
4. Pile location staking.
5. Pile connections and splicing.
6. Excavation, removal and wastehauling of material in order to install the pile cap and pipe/manhole connection as shown in the construction drawings.
7. Protection of steel piles before cap and pipe/manhole connections are completed.
8. Pile cap and pipe/manhole/casing connections as shown in the construction drawings.
9. Removal and disposal of excess pile material.
10. Handling, hauling, placing and mechanical compaction of foundation gravel material around the piles that is not included in the pipe bedding.
11. Pile strength testing.

Replace Cast-In-Place Monument

The unit price bid per each of Replace Cast-in-Place Monument shall constitute full compensation for all labor, materials, tools, and equipment required to furnish and install cast-in-place monument to the State's and local jurisdiction specifications. This item shall include, but not limited to, the following:

1. Concrete monument, base concrete collar, sand cushion, case and cover.
2. Brass plug marker.
3. Coordination with Contracting Agency for the survey and punching of the brass plug marker.

Remove and Disposal of AC Pipe

The unit price per linear foot of removal and disposal of asbestos cement (AC) Pipe shall be fully compensation for all labor, material, tools, transportation, fees, bags, and equipment necessary and incidental to cut, bag, remove and dispose of AC pipe. The pipe shall be handled in accordance with National Emission Standards for Hazardous Air Pollutants, (NESHAP), WAC 296-65, National Standards for Asbestos, Puget Sound Clean Air Agency, Labor and Industries, and all local State and Federal Agencies having jurisdiction. Contractor shall receive approval from the Contracting Agency prior to removing any AC pipe. The contractor shall provide receipts indicating the final location of AC pipe disposal.

The unit linear foot shall be measured in the field of actual pipe removed.

PROPOSAL

SECTION 5

Proposal

Honorable Commissioners
Northshore Utility District
King County, Washington

Dear Members of the Board:

The undersigned has examined the site, specifications, plans, laws and ordinances covering the improvements contemplated. In accordance with the terms, provisions and requirements of the foregoing, the following lump sums and unit prices are tendered as an offer to perform the work and furnish the equipment, materials, appurtenances and guarantees, where required, complete in place, in good working order.

As evidence of good faith, cash, bid bond, cashier's check, certified check, or postal money order made payable to the King County Treasurer is attached hereto. The undersigned understands and here agrees that, should this offer be accepted and the undersigned fail or refuse to enter into a contract and furnish the required construction performance bond and necessary liability insurance, the undersigned will forfeit to the District an amount from the "good faith token", equal to five percent (5%) of the amount bid as liquidated damages, all as provided for in the specifications.

The undersigned hereby proposes to undertake and complete the work embraced in this improvement, in accordance with the terms of the specifications and contract documents, at the following lump sum and unit prices.

Please find attached the itemized listing for said lump sum and unit prices, receipt of addenda, non-collusion declaration, the bidder responsibility checklist, the subcontractor responsibility checklist, the statement of bidder’s qualifications, and the proposed subcontractors list for Contract 2022-02; Sewer Repair Project.

ATTACHMENTS

2022-02; SEWER REPAIR PROJECT

Schedule A: 55th Avenue Sewer

Item	Item Description	Units	Quantity	Unit Price	Amount
1.	Mobilization	LS	1	$ Lump Sum	$
2.	Trench Safety System	LS	1	$ Lump Sum	$
3.	Temporary Erosion and Sediment Control	LS	1	$ Lump Sum	$
4.	Temporary Sewer Bypass Pumping	LS	1	$ Lump Sum	$
5.	48-Inch Saddle Sewer Manhole	EA	1	$	$
6.	48-Inch Sewer Manhole – Additional Depth	FT	12	$	$
7.	Imported Foundation Gravel	TN	10	$	$
8.	Crushed Rock	TN	780	$	$
9.	12-Inch DI Sewer Main	LF	95	$	$
10.	Connection to Existing Sewer System	EA	1	$	$
11.	Side Sewer Connection	EA	2	$	$
12.	Asphalt Trench Patch	TN	15	$	$
13.	Asphalt Planing	SY	510	$	$
14.	HMA Overlay	TN	30	$	$
15.	General Restoration	LS	1	$ Lump Sum	$
16.	Replace Cast-In-Place Monument	EA	1	$	$
17.	Removal and Disposal of AC Pipe	LF	20	$	$
				Subtotal Schedule A	$
				City of Lake Forest Park Sales Tax (10.1%)	$
				Total Schedule A	$

Schedule B: Casa Juanita Sewer Replacement

Item	Item Description	Units	Quantity	Unit Price	Amount
1.	Mobilization	LS	1	$ Lump Sum	$
2.	Trench Safety System	LS	1	$ Lump Sum	$
3.	Temporary Erosion and Sediment Control	LS	1	$ Lump Sum	$
4.	Temporary Sewer Bypass Pumping	LS	1	$ Lump Sum	$
5.	48-Inch Sewer Manhole	EA	1	$	$
6.	Imported Foundation Gravel	TN	10	$	$
7.	8-Inch DI Sewer Main	LF	100	$	$
8.	Connection to Existing Sewer System	EA	1	$	$
9.	Side Sewer Connection	EA	3	$	$
10.	24-Inch Steel Casing	LF	15	$	$
11.	Controlled Density Fill	CY	10	$	$
12.	4-Inch Steel Driven Piles	LF	500	$	$
13.	General Restoration	LS	1	$ Lump Sum	$
14.	Removal and Disposal of AC Pipe	LF	100	$	$
				Subtotal Schedule B	$
				City of Kirkland Sales Tax (10.2%)	$
				Total Schedule B	$

Schedule C: Lateral Rehabilitation

Item	Item Description	Units	Quantity	Unit Price	Amount
1.	Mobilization	LS	1	$ Lump Sum	$
2.	Trench Safety System	LS	1	$ Lump Sum	$
3.	Temporary Erosion and Sediment Control	LS	1	$ Lump Sum	$
4.	Temporary Sewer Bypass Pumping	LS	1	$ Lump Sum	$
5.	Crushed Rock	TN	10	$	$
6.	CIPP Service Connection (T-Liner)	LF	80	$	$
7.	Sewer Cleanout	EA	6	$	$
8.	General Restoration	LS	1	$ Lump Sum	$
				Subtotal Schedule C	$
				City of Kenmore Sales Tax (10.1%)	$
				Total Schedule C	$

Schedule D: 124th Avenue NE

Item	Item Description	Units	Quantity	Unit Price	Amount
1.	Mobilization	LS	1	$ Lump Sum	$
2.	Trench Safety System	LS	1	$ Lump Sum	$
3.	Temporary Erosion and Sediment Control	LS	1	$ Lump Sum	$
4.	Type A: Remove and Replace Manhole Frame and Cover	EA	13	$	$
5.	Type B: Add Manhole Section, Replace Cone, Frame, Cover, and Adjustment Rings	EA	6	$	$
6.	Crushed Rock	TN	150	$	$
7.	General Restoration	LS	1	$ Lump Sum	$
8.	Replace Cast-In-Place Monument	EA	1	$	$
				Subtotal Schedule D	$
				City of Kirkland Sales Tax (10.2%)	$
				Total Schedule D	$

2022-02; SEWER REPAIR PROJECT

Schedule A	$
Schedule B	$
Schedule C	$
Schedule D	$
Total Bid	$

Extra Depth Asphalt or Concrete Removal and Disposal

In the event the Contractor encounters asphalt or concrete pavement exceeding 6" thickness, the Contractor will be compensated for the saw cutting, removal and disposal of the excess asphalt or concrete according to the following schedule:

ASPHALT DEPTH	PRICE PER LF
6"	$0
7”	$2.00
8"	$4.00
9"	$6.00
10"	$8.00
11"	$10.00
12"	$12.00

Add $2.00 per inch at depth per lineal foot for all depths that exceed 12 inches.

Prices shown are per foot of trench length.
Payment will not be cumulative.

Receipt of Addenda

Receipt of Addenda No(s). _____ to the Contract Documents is hereby acknowledged:

Note: Failure to acknowledge receipt of the addenda will be considered an irregularity in the proposal.

BIDDER RESPONSIBILITY CHECKLIST

The following checklist is used in documenting that a bidder meets the mandatory Bidder Responsibility Criteria. Please print a copy of documentation from the appropriate website to be included with the submittal.

General Information	
Project Name: Contract 2022-02; Sewer Repair Project.	Project Number: C2102
Bidder's Business Name:	Bid Submittal Deadline:
Contractor Registration	
License Number:	Status: Active: Yes ☐ No ☐
Effective Date (must be effective on or before Bid Submittal Deadline):	Expiration Date:
Contractor and Plumber Infraction List	
Is Bidder on Infraction List?	Yes ☐ No ☐
Current UBI Number	
UBI Number:	Account Closed: Open ☐ Closed ☐
Industrial Insurance Coverage	
Account Number:	Account Current: Yes ☐ No ☐
Employment Security Department Number	
Employment Security Department Number:	
Please provide a copy of your latest correspondence, containing your account number, with Employment Security Department. Please do not provide document containing personal information such as social security numbers.	
State Excise Tax Registration Number	
Tax Registration Number:	Account Closed: Open ☐ Closed ☐
Not Disqualified from Bidding	
Is the Bidder listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries?	Yes ☐ No ☐
Contractor Public Works Training (RCW 39.04.350 & RCW 39.06.020)	
Has the Bidder satisfied the PW training requirements?	Yes ☐ No ☐
Information Supplied by:	
Print Name of Bidder Representative:	Date:
Verified by:	
Signature of District Employee:	Date:

SUBCONTRACTOR RESPONSIBILITY CHECKLIST

The following checklist is used in documenting that a subcontractor of any tier meets the subcontractor responsibility Criteria. Bidder must complete one of these forms for each of the first-tier subcontractor. Please print a copy of the documentation from the appropriate website to be included with the submittal.

General Information	
Project Name: Contract 2022-02; Sewer Repair Project.	Project Number: C2102
Subcontractor's Business Name:	Subcontract Execution Date:
Contractor Registration	
License Number:	Status: Active: Yes ☐ No ☐
Effective Date (must be effective on or before Subcontract Bid Submittal Deadline):	Expiration Date:
Contractor and Plumber Infraction List	
Is Subcontractor on Infraction List?	Yes ☐ No ☐
Current UBI Number	
UBI Number:	Account Closed: Open ☐ Closed ☐
Industrial Insurance Coverage	
Account Number:	Account Current: Yes ☐ No ☐
Employment Security Department Number	
Employment Security Department Number:	
• Has Subcontractor provided account number on the Bid Form?	Yes ☐ No ☐
• And/or have you asked the Subcontractor for documentation from Employment Security Department on account number?	Yes ☐ No ☐
State Excise Tax Registration Number	
Tax Registration Number:	Account Closed: Open ☐ Closed ☐
Not Disqualified from Bidding	
Is the Subcontractor listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries?	Yes ☐ No ☐
Contractor Licenses	
Electrical: If required by Chapter 19.28 RCW, does the Subcontractor have an Electrical Contractor's License? Yes ☐ No ☐	Elevator: If required by Chapter 70.87 RCW, does the Subcontractor have an Elevator Contractor's License? Yes ☐ No ☐
Contractor Public Works Training (RCW 39.04.350 & RCW 39.06.020)	
Has the Subcontractor satisfied the PW training requirements?	Yes ☐ No ☐
Information Supplied by:	
Print Name of ☐ Contractor ☐ Subcontractor Representative:	Date:
Verified by:	
Signature of District Employee:	Date:

STATEMENT OF BIDDER'S QUALIFICATIONS

Contracting Firm Name:
Number of years Contractor has been in the construction business under the present firm name:
Present gross dollar amount of work under contract: $
Present gross dollar amount of contracts not yet completed: $
General type of work performed by firm:

List the five major pieces of equipment to be used on this project:	Owned	Leased	Rented
1.			
2.			
3.			
4.			
5.			

List the general superintendents or other supervisory employees at your firm:	# of Years at Firm
Employee 1:	
Employee 2.:	
Employee 3:	

Bank Reference:
Have you changed bonding companies within the last three years?
If so, why? (optional)

PROPOSED SUBCONTRACTORS

Consistent with RCW 39.30.060, each bidder on a project in excess of $1,000,000 is required to submit the completed Subcontractors list included in the proposal section with the bid. The completed list must identify each subcontractor who will perform heating, ventilation and air-conditioning (HVAC), or plumbing work as described in Chapter 18.106 RCW, electrical work as described in Chapter 19.28 RCW, or the contractor must name itself for the work. The requirement to name the bidder's proposed HVAC, plumbing and electrical subcontractor applies only to those subcontractors who will contract directly with the bidder (i.e. first-tier subcontractors only, even if that first-tier subcontractor intends to hire a sub-tier contractor to perform all or part of the HVAC, plumbing or electrical work

The bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the bidder must indicate which subcontractor will be used for which alternates.

Failure of the bidder to submit as part of the bid the names of such subcontractors, or name itself to perform such work, or the naming of two or more subcontractors to perform the work, shall render the bidder's bid it nonresponsive and therefore void.

In completing the form, bidders are advised that: 1) Ventilation is typically required to meet safety requirements for enclosed spaces and tunnels or certain shafts, but it may be incidental to other parts of the work, and may be required for the temporary construction facilities; 2) No plumbing work within buildings (as described in Chapter 18.106 RCW) has been specified in the contract, however plumbing work may be required for the temporary construction facilities and elsewhere in the contract documents; 3) Electrical work may be incidental to the work such as encountered with traffic control systems, electrical service to buildings and street lights, distribution wiring, conduit and junction box installation, generators, temporary electrical service and wiring for construction equipment and dewatering systems. In each instance above, the bidder should list the work in the table(s) above. Other areas may be identified by the bidder in the contract documents as well.

The subcontractors list for may be submitted with the Bid, or separately within one hour of the time and date for Bid submittal stated in the Call for Bids or by addendum. The form may be submitted in person or by facsimile (FAX number (425) 398-4430) to:

Northshore Utility District
Attention: Brandon Humphrey
6830 NE 185th St
Kenmore, WA 98028

HVAC SUBCONTRACTOR	
Firm Name:	% of Project:
Contact Person:	
Address:	
City, State, Zip Code:	
Phone #:	Fax #:
E-mail Address:	

PLUMBING SUBCONTRACTOR	
Firm Name:	% of Project:
Contact Person:	
Address:	
City, State, Zip Code:	
Phone #:	Fax #:
E-mail Address:	

ELECTRICAL SUBCONTRACTOR	
Firm Name:	% of Project:
Contact Person:	
Address:	
City, State, Zip Code:	
Phone #:	Fax #:
E-mail Address:	

Subject to the time lost due to inclement weather and delay in delivery of materials, should such delay not be the result of the undersigned's actions, the undersigned agrees to complete all of the work embraced in this contract in 100 calendar days, all beginning with the date of written Notice to Proceed with the work.

The undersigned fully understands and agrees to the provisions of the Information for Bidders and herewith further agrees that the liquidated damages shall be $1,400.00 per day for each and every working day required beyond the construction time allowed above to complete this project.

Contractor Name:	
Contact Name:	
Mailing Address:	
Office Phone #:	
Cell Phone #:	
E-mail:	

NON-COLLUSION DECLARATION

I, by signing the proposal, hereby declare, under penalty of perjury under the laws of the United States that the following statements are true and correct:

1. That the undersigned person(s), firm, association or corporation has (have) not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project for which this proposal is submitted.
2. That by signing the signature page of this proposal, I am deemed to have signed and to have agreed to the provisions of this declaration.

Signature: _____

Print Name: _____

Title: _____

Date Signed: _____

BID BOND FORM

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

SIGN HERE_____

BID BOND for Contract: Contract 2022-02; Sewer Repair Project.

KNOW ALL MEN BY THESE PRESENTS: That we, _____, as Principal, and _____, as Surety are held and firmly bound unto the King County Treasurer, King County, Washington, as Obligee in the penal sum of _____ for the payment of which the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The conditions of the obligation are such that, if the Obligee shall make any award to the Principal for _____, according to the terms of said proposal or bid and award and shall give bond for the faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure so to do, 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____.

By_____
Principal

By_____
Surety

Received return of deposit in the sum of $_____,

on_____, 20____.

BIDDER'S CHECKLIST

This checklist is intended to assist the Bidder in completing the Proposal. The Bidder should carefully review the Proposal form and Contract Documents to ensure a responsive bid is submitted.

- ☐ Bidders must bid on all items contained in the Proposal. Fill in the bid proposal form(s) included in this section, entering the unit price and total amount for each bid item. Verify all math.
- ☐ Only use the bid proposal form(s) included in this document or those issued with an addenda.
- ☐ Acknowledge receipt of any addenda.
- ☐ Read the *Non-Collusion Declaration* and include the form with the proposal.
- ☐ Fill out the *Bidder Responsibility Checklist*.
- ☐ Fill out the *Subcontractor Responsibility Checklist*.
- ☐ Fill out the *Statement of Bidder's Qualifications*.
- ☐ Fill out the *Proposed Subcontractors* list.
- ☐ Sign and date the proposal on the final page of the proposal and include all of the contact information as indicated.
- ☐ Submit the bid security (in the form of a certified check, cashier's check, cash or bid bond, with amount is not less than 5% of the bid total) with the proposal and fill out the Bid Bond Form.
- ☐ Submit the entire Proposal section from the contract documents as your bid documents.

CONTRACT

SECTION 6

Contract

THIS CONTRACT is dated this _____ day of _____, 20___, by and between Northshore Utility District, ("District"), a Washington municipal corporation, and _____ ("Contractor"), a _____.

In consideration of the mutual covenants hereinafter set forth, District and Contractor agree as follows:

ARTICLE 1. DESCRIPTION OF WORK.

The Contractor shall complete the work as specified under the Bid Schedule(s) of Section 5 – Proposal & Bid Bond of the District's Contract Documents entitled Contract 2022-02; Sewer Repair Project. The work is generally described as follows:

Project Description

Contract 2022-02; Sewer Repair Project

The project consists of the following work:

Schedule A: 55th Avenue NE Sewer Replacement. The project will consist of bypass pumping, installing a new manhole and installation of approximately 100 LF of new 12-inch pipe to the existing downstream manhole, connection of two side sewers to the new main, and asphalt restoration.

Schedule B: Casa Juanita Sewer Main Repair. This schedule consists of bypass pumping, installation of one new manhole and approximately 100 LF of 8-inch ductile iron sewer main, connection of three side sewers to the new main, and connection to the existing system. The project requires trenching underneath an existing pile-supported structure that is 6-feet wide with 24-inch casing. The casing will be approximately 15-feet long. Due to soil conditions, the proposed manhole and sewer main will be pile-supported. The proposed order of work: 1. Install TESC; 2. Set up by pass pumping; 3. Install pipe piles; 4. Install new down stream SMH; 5. Install 24-inch Casing under causeway; 6. Install new sewer main and connect side sewers; and 7. Restoration.

Schedule C: 55th Avenue NE and 60th Avenue NE Side Sewer Repairs. This project includes repair of side sewer services in a neighborhood experiencing

root intrusion. The repair will include removal of the roots, installation of a LMK Tee-liner system, and installation of cleanouts. There are nine side sewer, six services will require a new cleanout for District access at the right of way.

Schedule D: 124th Avenue Manhole Adjustments. This project includes replacing damaged sewer frame, cover and adjustment rings. Thirteen structures will replace the grade rings, frame and cover. Six structures will require a new manhole section, new cone, adjustment rings, frame and cover in order to bring it up to district standards. the project will include excavation and road restoration. This portion of the work must be completed by March 15, 2023, in order for the City of Kirkland to overlay the road.

ARTICLE 2. WORK COMPLETION TIME.

The work shall be completed within 100 calendar days from the commencement date stated in the "Notice to Proceed" as described in Section 7 – Definitions and Abbreviations.

ARTICLE 3. LIQUIDATED DAMAGES.

District and the Contractor recognize that time is of the essence of this Contract and that the District will suffer financial loss if the work is not completed within the time period specified in Article 2 herein, plus any Extension thereof allowed in accordance with Section 8 – General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding, the actual loss suffered by the District if the work is not completed on time. Accordingly, instead of requiring any such proof, the District and the Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay the District $1,400.00 for each day that expires after the work completion time specified in Article 2 herein.

ARTICLE 4. CONTRACT PRICE

District shall pay Contractor for completion of the work in accordance with the Contract Documents in current funds the amount set forth in the Bid Schedule(s) of Section 5 – Proposal & Bid Bond.

ARTICLE 5. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between District and Contractor concerning the work consist of this Contract and the following attachments to this Contract:

- Section 1 Instructions to Bidders
- Section 2 Special Provisions

- Section 3 Detail Specifications
- Section 4 Measurement and Payment
- Section 5 Proposal & Bid Bond
- Section 6 Contract & Performance, Payment and Guaranty Bond
- Section 7 Definitions and Abbreviations
- Section 8 General Conditions
- Section 9 Engineering Specifications, Materials of Construction
- Section 10 Engineering Specifications, Methods of Construction
- Plans consisting of 31 sheets, as listed in the Special Provisions.
- Addenda numbers _____ inclusive.
- Change Orders, which may be delivered or issued after the date of this Contract, are not attached hereto.
- Permit and easement stipulations.

There are no Contract Documents other than those listed in this Article.

ARTICLE 6. MISCELLANEOUS.

An assignment by a party hereto of any rights under or interests in the Contract Documents will not be binding on the other party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent, and unless specifically stated to the contrary in any written consent to an assignment, an assignment will not release or discharge the assignor from any duty or responsibility under the Contract Documents.

District and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, District and Contractor have caused this Contract to be executed the day and year first above written.

DISTRICT	CONTRACTOR
By Alan G. Nelson,	By _____
its General Manager	its: _____
Address for giving notices:	Address for giving notices:
6830 NE 185th Street, Kenmore, WA 98028	
	License No.:

MANAGEMENT OF RETAINED PERCENTAGE

The Contractor shall declare an option for management of statutory retained percentage of this Contract by initialing and dating the applicable box below:

Option 1 ☐

The Contractor hereby elects to have the retained percentage of this Contract held in a non-interest bearing fund by Northshore Utility District until sixty (60) days (minimum) following formal Acceptance of the work. The time of release of the retained percentage shall depend upon final receipt by the District of all required releases from the State of Washington.

Option 2 ☐

The Contractor hereby elects to have Northshore Utility District place the retained percentage of the Contract in escrow from time to time as such retained percentage accrues. Contractor hereby designates the following bank or trust company as the repository for said funds:

Name of Financial Institution: _____

Address of Financial Institution: _____

Escrow Account Number: _____

The Contractor understands that the District will issue a check or checks representing the retained percentage payable to the financial institutions and the Contractor jointly. This check shall be converted into bonds and securities chosen by the Contractor and approved by the District and the bonds and securities shall be held in escrow. Interest on the bonds and securities shall be paid to the Contractor as the interest accrues. Contractor agrees to be fully responsible for payment of all costs or fees incurred as a result of placing said retained percentage in escrow and investing it as authorized by statute. Northshore Utility District shall not be responsible for any cost, fees or loss in connection therewith.

Option 3 ☐

The Contractor hereby elects to have Northshore Utility District place the retained percentage of the Contract in an interest bearing account in a bank, mutual savings bank or savings and loan association. Contractor hereby designates the following bank or trust company as the repository for said funds:

Name of Financial Institution: _____

Address of Financial Institution: _____

Escrow Account Number: _____

Interest on moneys deposited into said fund by the District shall be paid to the Contractor. Contractor agrees to be fully responsible for payment of all costs or fees incurred as a result of placing said retained percentage in said account. Northshore Utility District shall not be responsible for any cost, fees or loss in connection therewith.

Option 4 ☐

Contractor hereby elects to post a retainage bond in the amount of 5% of the total bid, not including tax, in lieu of Northshore Utility District withholding the retained percentage from the monies earned by the Contractor. Contractor hereby designates the following surety company as bondholder (a copy of the bond must be attached to this form):

Name of Financial Institution: _____

Contact Name and Phone No.: _____

Address of Financial Institution: _____

_____ _____

Contractor's Signature Date

PERFORMANCE, PAYMENT & GUARANTY BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____, the Contractor named in the contract hereinafter referred to as Principal, and _____, as SURETY, are held and firmly bound unto the NORTHSHORE UTILITY DISTRICT, hereinafter called and also being the DISTRICT named in said contract,

Contract 2022-02; Sewer Repair Project. in the full sum of _____ Dollars, ($_____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bond ourselves, our heirs, executors, assigns, administrators and successors jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, **WHEREAS**, the Principal entered into a certain contract with the District, dated _____, 20____ for construction of sanitary sewers and appurtenances including restoration, in connection with the District's construction of **Contract 2022-02; Sewer Repair Project** in the County of King, State of Washington.

NOW, THEREFORE, if the Principal shall well and truly and faithfully perform all of the provisions and fulfill all of the undertakings, covenants, terms, conditions and agreements of said contract during the period of the original contract and any Extension thereof that may be granted by the District, with or without notice to the Surety; and during the life of any guaranty required under the contract; and shall also well and truly perform and fulfill all of the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made; notice of which modifications to the Surety being hereby waived; and furthermore shall pay all laborers, mechanics and subcontractors and material men and all persons who shall supply such person or persons and such Principal or subcontractors with provisions and supplies for the carrying on of such work, shall indemnify and save harmless District from all cost and damage by reason of the Principal's default or failure to do so, and shall pay the State of Washington sales and use taxes, and amounts due said State pursuant to Titles 50 and 51 of the Revised Code of Washington, then this obligation to be void; otherwise to remain in full force and effect.

THIS BOND shall be continued in force for a period of two (2) years after completion of the contract and acceptance by the District, and thereafter for such additional period as shall be required for the performance by the Contractor under this guaranty provision, or otherwise, of the contract.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under their separate seals this _____ day of _____, 20____, the name and corporate seal of each corporate party hereto affixed, and these presents duly signed by its undersigned representatives pursuant to authority of its governing body.

Principal	Surety
By	By
Title	Title
Attest: (If Corporation)	Address:
By	
Title	
	Corporate Seal:

Witness 1: _____

Witness 2: _____

Certificate as to Corporate Seal

I hereby certify that I am the (Assistant) Secretary of the Corporation named as Principal in the within Bond; that _____, who signed the said Bond on behalf of the Principal, was _____ (title) of said Corporation; that I know its signature thereto is genuine and that said Bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of its governing body.

_____

Secretary or Assistant Secretary

DEFINITIONS AND ABBREVIATIONS

SECTION 7

Definitions and Abbreviations

DEFINITIONS

The following terms as used in this Contract shall be defined and interpreted as follows:

Acceptance - The District's formal, written notice acknowledging completion and acceptance of the Work. Acceptance commences the time for submission of any third-party claims against performance or payment bonds under Chapter 39.08 RCW and statutory retention under Chapter 60.28 RCW.

Addendum - A written or graphic document issued by the District prior to the Proposal opening date that clarifies, corrects, or changes a document contained or referenced within the Bid Documents.

Adjusted Contract Work - The Contract Work as adjusted by any additive or deductive Change Orders executed prior to the District's termination of the Work or any portion thereof for convenience in accordance with Section 8.31 of the General Conditions.

As-Built Plans - A neatly and legibly marked set of Plans that reflect the manner in which the Work has been performed in the field. The requirements for the As-Built Plans are separately set forth in the Specifications.

Bidder - An entity that submits a Proposal for potential award of the Contract.

Bid Documents - All Contract Documents, excluding Change Orders, but including the Call for Bids.

Change Order - A document which is signed by Contractor and District and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Time, issued on or after the effective date of the Contract.

Claim - A written demand or assertion by the Contractor in accordance with Section 8.23 of the General Conditions after denial of a Request for Change Order seeking, as a matter of right, adjustment of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract.

Contract Documents - The Contract Documents shall consist of the following and, in case of conflicting provisions, the first mentioned shall have precedence:

- Change Orders
- Addenda
- Contract
- Measurement and Payment
- Special Provisions
- General Conditions
- Detail Specifications
- Engineering Specifications – Materials of Construction
- Engineering Specifications – Methods of Construction
- Reference Specifications
- Plans
- Instructions To Bidders
- Bid Proposal
- Permit and easement stipulations
- Performance, Payment, and Guaranty Bond

Contractor - The entity contracting to do the Work under these Contract Documents.

Contractor's Equipment - All equipment remaining in the Contractor's ownership and removed from the Site upon completion of the Project.

Contract - The written form executed by the District and Contractor that binds the Contractor to perform the Work in accordance with the Contract Documents.

Contract Price - The total amount payable by the District to the Contractor for performance of the Work in accordance with the Contract Documents.

Contract Time - The time allotted in the Contract for the Substantial Completion of the Work. The Contract Time begins upon Notice to Proceed and ends on the date of Substantial Completion of the Work by the Contractor.

Day - The term Day shall mean a calendar day unless otherwise specifically designated.

District - The entity that is a party to the Contract, contracting under the official name Northshore Utility District.

Engineer - The person identified in the Invitation to Bid responsible for administration of the Contract for the benefit of the District in accordance with the Contract Documents.

Equipment - The machinery, accessories, appurtenances, and manufactured articles to be furnished and/or installed under the Contract.

Inspector - A representative of the Engineer that is assigned to make inspections and record the progress of Contractor's performance of the Work. The Inspector has no authority to bind the District to any modification of the Contract Documents or liabilities of any kind.

Materials - Manufactured articles, materials of construction (fabricated or otherwise) and any other classes of material to be furnished in connection with the Contract**.**

Notice of Award - The official notice from the District that it intends to execute the Contract with the selected responsible, responsive Bidder.

Notice to Proceed - Written notice issued by the District that indicates that the Contractor can mobilize on the Site and begin all, or a designated part, of the Work. Notice to Proceed starts the running of the Contract Time.

Or Equal - Equal or better function, quality and performance to that specified in the Contract Documents. An item is not Or Equal if it is materially different, with respect to other constraints or requirements in the Contract Documents, in size, weight or other aspect from the item specified in the Contract Documents. Similarly, an item is not Or Equal if it is expected to have significantly higher total cost of ownership over the life of the completed Work.

Permit - Any and all permits required to comply with local, State, and Federal laws and regulations in performance of the Work.

Physical Completion - The time at which all of the Work has progressed to the point where (a) Contractor has achieved Substantial Completion, (b) the Contractor has completed all items identified on the Punch List to the District's satisfaction and (c) the Contractor has submitted and the District has accepted all required As-Built Plans.

Plans - All official drawings or reproductions of drawings made or to be made pertaining to the Work provided for in the Contract.

Project - The Work to be constructed in whole or in part through the performance of the Contract.

Project Records - All records that document the performance and/or cost of the Work as well as any materials as more fully defined in Section 8.7 of the General Conditions.

Proposal - The offer of a Bidder, on the prescribed bid form, properly executed, setting forth the price or prices for the Work to be performed.

Punch List - A list(s) of the physical construction that remains to be completed after the achievement of Substantial Completion of the Work, which must be satisfactorily completed in order to attain Physical Completion.

Reference Specifications - The technical specifications of other agencies incorporated or referred to herein.

Request for Information (RFI) - The written document by which the Contractor requests clarification, verification or information concerning a portion of the Work.

Responsible - A responsible Contractor or Subcontractor who complies with the requirements of RCW 39.04.010, 39.04.350, and 39.06.020 and any requirements of any applicable supplemental bidder responsibility criteria and who is determined to have: adequate financial resources to perform the Contract; the ability to comply with the required delivery or performance schedule; a satisfactory performance record; a satisfactory record of integrity; the necessary organization, experience, accounting and operational controls, and technical skills; the necessary construction equipment and facilities; and be otherwise qualified and eligible to be awarded the Contract under applicable laws and regulations.

Schedule - The plan prepared by the Contractor in accordance with the requirements of the Contract and reviewed by the Engineer setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract. The Schedule includes updates – whether by progress schedule(s), recovery schedule(s) or otherwise – required by the Contract.

Shop Drawing - All shop details of structural steel, pipe, machinery, equipment, schedules and bending diagrams of reinforcing steel, and other detail drawings furnished by the Contractor as required and provided for in the Submittal requirements of the Contract Documents.

Site - The location(s) where the Work will be performed or constructed by the Contractor as set forth in the Plans and Specifications. The Site may at the District's option include areas identified by the District for Contractor's logistics or staging but does not include any areas separately secured by the Contractor, a Subcontractor of any tier, or supplier for use in connection with the Work (e.g. Contractor's home office, an off-site fabrication plant, etc.).

Specifications - The written requirements for contract administration, Materials, Equipment, systems, standards, and workmanship for the Work and for the performance of any related services.

Subcontractor - A business entity that has a direct contract with the Contractor to perform a portion of the Work. Unless the context clearly requires otherwise, the term Subcontractor includes all of the Subcontractor's authorized representatives.

Submittal - Written or graphic document (including electronic) or sample that is required by the Contract Documents and is prepared for the Work by the Contractor or a Subcontractor or supplier at any tier, and submitted to the District by the Contractor, including Shop Drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.

Substantial Completion - The stage in the progress of the Work where:

1. The District has full and unrestricted use and benefit of the facilities for the purpose intended;

2. All the systems and parts of the Work are functional;

3. Utilities are connected and operate normally;

4. Only minor incidental Work or correction or repair remains to complete all applicable Contract requirements; and,

5. At the District's option, the Contractor has provided all applicable occupancy Permits and easement releases.

As provided in the Contract, the District at its sole option may also require or grant Substantial Completion to specific Schedules, milestones or subsystems or portions of the Work. The date(s) of Substantial Completion shall be determined, in writing, by the District.

Surety - Any firm or corporation executing a surety bond or bonds payable to the District, securing the performance of the Contract, either in whole or in part.

Work - The construction to be completed under the terms of this Contract as detailed more fully in the Plans and Specifications. Work specifically includes the furnishing of all labor, Materials, Equipment, and all incidentals necessary to the successful completion of the construction, whether expressly required by or reasonably inferable from the Contract Documents, whether they are temporary or permanent, and whether they are incorporated into the finished Work or not. Work also includes all other obligations imposed on the Contractor by the Contract. The Work is sometimes generally referred to as the "Project."

Usage of Certain Words and Phrases - Whenever the words, "as directed", "as required", "as permitted", or words of like effect are used, it shall be understood that the direction, requirement or permission of the District and Engineer is intended. The words, "sufficient", "necessary", "proper", and the like shall mean sufficient, necessary or proper in the judgment of the District and Engineer. The words, "approved", "acceptable", "satisfactory", or words of like import shall mean approved by or acceptable to the District and Engineer.

ABBREVIATIONS

Whenever the following abbreviations are used on the Plans, Specifications, Proposal and Contract, they shall be construed to mean the words and terms as listed below:

A	Acre
AC	Asbestos Cement
AF	Acre-Feet
Adj	Adjust
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AITC	American Institute of Timber Construction
APWA	American Public Works Association
Asp. Pav.	Asphalt Pavement
Asp.Conc.Pav.	Asphalt Concrete Pavement
ASTM	American Society of Testing and Material
ATB	Asphalt Treated Base
AVE	Avenue
AWS	American Welding Society
AWWA	American Water Works Association
Blvd	Boulevard
BO	Blow Off
BTU	British Thermal Unit
CB	Catch Basin
CB Inlet	Curb Inlet
CFS	Cubic Feet per Second
CI	Cast Iron
CIP	Cast Iron Pipe
CL	Centerline
CMP	Corrugated Metal Pipe
CMU	Concrete Mason Unit
Conc	Concrete
Conc. Cb.	Concrete Curb
Conc. Pav.	Concrete Pavement
Conc.Ret.Wall	Concrete Retaining Wall
Conc. Swr	Concrete Sewer
Cond.	Conduit
Conn	Connect
Cr	Cross
CTB	Cement Treated Base
Cu	Cubic

ABBREVIATIONS

Continued

DFPA	Douglas Fir Plywood Association
DI	Ductile Iron
Dr	Drive or Driveway
E	East
Elev.	Elevation
Exist.	Existing
Exc	Excavation
FBM	Foot Board Measure
FH	Fire Hydrant
FL	Flange
FT, FT^2, FT^3	Foot, Square Feet, Cubic Feet
GIP	Galvanized Iron Pipe
GPAD	Gallons Per Acre Day
GPH	Gallons Per Hour
GPM	Gallons per Minute
G Stl P	Galvanized Steel Pipe
GV	Gate Valve
Hyd	Hydrant
Hyd Ext	Hydrant Extension
ID	Inside Diameter
In, In^2, In^3	Inch, Square Inch, Cubic Inch
L	Length
Lbs	Pounds
LF	Lineal Feet
Max	Maximum
Mon	Monument Case
Min	Minimum
MG	Million Gallons
MGD	Million Gallons per Day
MH	Manhole
MJ	Mechanical Joint
N	North
NIC	Not in Contract
No.	Number
NRS	Non Rising Stem
OD	Outside Diameter
Pav	Pavement
PC	Point of Curvature
PJM	Premolded Expansion Joint Material

ABBREVIATIONS

Continued

PL	Property Line
Pl	Place
Plk	Planking
Pos	Position
PP	Power Pole
Pri	Primary
Prop	Proposed
PS	Permastran
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PT	Point of Tangency
PVC	Polyvinyl chloride
R	Radius
RC	Reinforced Concrete
RCP	Reinforced Concrete Pipe
Rem	Remove
Repl	Replace
RS	Rising Stem
S	South
Sec	Secondary
Swr	Sewer
Sp	Special
Sq	Square
SS	Side Sewer
SSPC	Steel Structure Painting Council
Std	Standard
Stl	Steel
Temp	Temporary
Trans	Transformer
VC	Vertical Curve
W	West
WM	Water Main
Yd	Yard

GENERAL CONDITIONS

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SECTION 8

GENERAL CONDITIONS

Section 8 – General Conditions

8.1 EXECUTION, CORRELATION AND INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intent of the Contract Documents is to prescribe the complete Work. The Contractor shall furnish all labor, Materials, Equipment and incidentals necessary to complete all parts of the Work. Where the Contractor is directed to provide something as part of the Work, that term specifically includes everything necessary to furnish, install, connect, adjust, test and make ready for use or occupancy. Compensation for the cost of the complete Work and for full performance of the Contract is included in the Contract Price. Materials, Equipment, or Work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

It is intended that Work not covered under any heading, section, branch, class or trade of the Specifications shall be supplied if it is shown on Plans or is reasonably inferable as being necessary to produce the intended results. Minor items of Work, Materials, or Equipment omitted from the original Plans or Specifications, but clearly inferable from the information presented and which are called for by accepted good practice shall be provided and/or performed by the Contractor as part of its original cost.

Where the Contract Documents refer to Reference Specifications, such specifications shall be applicable to technical provisions only, unless otherwise designated.

The Contract represents the entire and integrated agreement between the District and the Contractor. It supersedes all prior discussions, negotiations, representations or agreements pertaining to the Work, whether written or oral.

8.2 PLANS AND SPECIFICATIONS - OMISSIONS AND DISCREPANCIES

Upon receipt of Notice of Award of the Contract, the Contractor shall carefully study and compare all Plans, Specifications and other instructions and shall, prior to ordering Materials or performing Work, report in writing to the Engineer any error, inconsistency or omission in respect to design, mode of construction or cost which the Contractor may discover. If the Contractor, in the course of this study or in the accomplishment of the Work, finds any discrepancy between the Plans and the physical condition of the locality as represented in the Plans, or any such errors or omissions in respect to design, mode of construction or cost in Plans or in the layout as given by points and instructions, it shall be its duty to provide timely notice thereof in accordance with Section 8.23 below. The Contractor shall

make all reasonable efforts to mitigate any impact resulting from such error, inconsistency, omission or variance. Any Work done after such discovery, until correction of Plans or authorization of extra Work is given, if the Engineer finds that extra Work is involved, will be done at the Contractor's risk. If extra Work is involved, the procedure shall be as provided in Section 8.23 below.

8.3 EXAMINATION OF SITE OF WORK

Before submitting its bid, the Contractor shall examine the Site of the Work and ascertain for itself all the physical conditions in relation thereto. In making a Proposal under these Contract Documents, the Contractor represents and warrants that it has satisfied itself as to construction conditions by personal examination of the Plans, Specifications and Site of the proposed Work, and by appropriate examination and investigation as to the nature of the soil and construction problems which may be encountered by reason thereof. Contractor also warrants and represents itself to be experienced and an expert in the construction contemplated. Contractor further understands that, in making the Contract award, District is relying upon the representations and warranties of Contractor herein contained.

Contractor's failure to examine the Plans, Specifications, and Site shall not relieve the Contractor from entering into a Contract nor excuse it from performing the Work in strict accordance with the terms of the Contract and Specifications. The Contractor will not be entitled to additional compensation if it subsequently finds the conditions to require other methods or equipment that it did not anticipate in making its Proposal. Any statement or representation (whether written or oral) made by an officer, agent or employee of the District (or by any third party consultant of the District) with respect to the physical or geotechnical conditions at the Site of the Work shall not be binding upon the District.

8.4 STATUS OF ENGINEER

(a) The Engineer shall act as advisor and consultant to the District in engineering matters relating to the Contract; provided, however, nothing contained herein or elsewhere in the Contract Documents shall be construed as requiring or authorizing the Engineer to direct the method or manner of performing any Work by the Contractor under this Contract. The Engineer has authority to stop the Work whenever, in its opinion, such stoppage may be necessary to ensure the proper execution of the Contract. The Engineer may reject all Work, Materials, or Equipment which, in its opinion, do not conform to the Contract.

(b) It is understood and agreed by and between the parties hereto that the Work included in the Contract is to be done to the complete satisfaction of the Engineer, and that the decision of the Engineer as to the true construction and meaning of the Contract, Plans, Specifications and estimates, and as to all questions arising as to proper performance of the

Work shall be final. The Engineer shall determine the unit quantities and the classification of all Work done and Materials and Equipment furnished under the provisions of this Contract and its determination thereof shall be final and conclusive and binding upon the Contractor.

(c) The Engineer shall decide any and all questions which may arise as to the quality or acceptability of Materials and Equipment furnished and Work performed and as to the rate of progress of the Work, and all questions as to acceptable fulfillment and performance of the Contract on the part of the Contractor and as to compensation. The decision of the Engineer in such matters shall be final.

(d) The Engineer shall have authority to make changes in the Work, not inconsistent with the purpose of the Work. Except in any emergency endangering life or property, no extra Work or change shall be made unless pursuant to a Change Order executed by the Engineer. If the District or Contractor believes that a Change Order justifies an adjustment in the Contract Price and/or Contract Time, the value of any such extra Work shall be determined as set forth in Sections 8.22 and 8.23.

(e) The Engineer has no authority to waive the obligation of the Contractor to perform the Work in accordance with the Contract Documents. Failure or omission on the part of the Engineer to reject unsuitable, inferior or defective Work and/or labor or Materials or Equipment furnished under the Contract shall not release the Contractor or its bond from performing the Work in accordance with the Contract Documents.

8.5 INSPECTION AND TESTS

(a) All Work and all Materials and Equipment furnished shall be subject to inspection by the Engineer and/or Inspector. The Engineer and/or Inspector shall, at all times, have access to the Work to observe the progress and quality wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for necessary inspection and testing. If any Work should be covered up without approval or consent of the Engineer or Inspector, it must, if required by the Engineer, be uncovered for inspection at the Contractor’s expense.

(b) The Contractor shall make reasonable tests of the Work at the Contractor’s expense upon Engineer’s request and shall maintain a record of such tests. Prior to the time scheduled for a performance test to be observed by the Engineer, the Contractor shall make whatever preliminary tests are necessary to assure that the Work is in accordance with the Specifications. If, for any reason, the test observed by the Engineer is unsatisfactory, the Contractor shall pay all costs incurred by the Engineer for the inspection of the unsatisfactory test.

(c) Inspections, tests, measurements, or other acts or functions performed for or by the District are recognized as being solely to assist the Engineer in determining that the Work complies with the Contract requirements. Such activities shall in no manner whatsoever be construed to relieve the Contractor from the responsibility for performing its own inspections and tests as necessary to ensure compliance with the Contract. In addition, any inspection, test or measurement by or for the District does not constitute or imply acceptance of the Work by the District or waive any rights of the District to require the Work be completed in strict accordance with the Contract and does not impair the District's authority to reject non-conforming Work or evoke any remedy to which it may be entitled.

(d) The Work may be subject to inspection by various governmental agencies or utility owners. The Contractor shall cooperate and make the Site available for all such persons or agencies with regard to their inspections, including providing access for inspection by way of safe and proper facilities. Such inspection shall in no way make such agencies or persons parties to this Contract and shall not constitute an interference with the Work or the rights of either the District or the Contractor. In its scheduling and planning the Contractor shall allow sufficient time for such inspections. Required certificates of inspection by any authority other than the Engineer shall be secured by the Contractor.

(e) Except as provided herein, the District will at its cost observe performance of the Work during normal working days or hours during the Contract Time and any modification or extension of the Contract Time authorized by the District in approved Change Orders. If the Contractor is authorized by the District to work more than 8 hours per Day, or more than 5 Days per week, or on holidays, during the course of the Contract Time, then Section 2.1 of the Special Provisions governs.

8.6 PLANS, SPECIFICATIONS, SUBMITTALS, AND SHOP DRAWINGS ACCESSIBLE; RFIs

The Contractor shall keep at least one copy of the Plans, Specifications, Submittals, and Shop Drawings constantly accessible at the construction Site.

If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is a conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply to the Engineer for such further written explanation(s) as may be necessary using a Request for Information (RFI) form to be provided or approved by the Engineer. The Engineer will address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. The Contractor shall also plan its Work in an efficient manner so as to allow for timely

responses to RFIs. If requested by the Engineer, the Contractor shall prioritize its RFIs and explain the reasons for such priority. District will reply to the RFI with reasonable promptness which on average is defined to mean twenty (20) Days. If Contractor submits an RFI on an activity and reasonably believes that a response from District within up to twenty (20) Days will cause a delay to the Work, Contractor shall denominate such particular RFI as “Priority” and indicate Contractor’s preferred reasonable response date. Responses by the District to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed Work or causes an adverse impact to performance of the Work or construction schedule, the Contractor is required to submit a request for change in accordance with the requirements of the Contract.

8.7 AUDIT RECORDS

a) The Contractor and all Subcontractors shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor’s Proposal and Project cost accounting records for this Contract, for an audit period of six (6) years. The Project Records shall include, but are not limited to, Contract Documents, subcontracts, purchase orders, employment records, payrolls, Project cost accounting records, prevailing wage records, Plans, Specifications, Addenda, Submittals, Shop Drawings, Change Orders and all working documents leading to Change Orders, field test records, quality control documents, daily construction logs by all field supervisors and Project management personnel, correspondence relating to the Contract, and As-Built Plans.

b) Contractor and its Subcontractors shall segregate and separately record at the time incurred all costs resulting in any way from any event, act, omission or condition for which Contractor or its Subcontractors seek an adjustment to the Contract Price, Contract Time and/or monetary compensation of any kind. Any costs claimed to be delay or impact costs, acceleration costs, loss of productivity or inefficiency costs, increased costs of onsite or home office overhead or any similar costs shall be separately recorded at the time and shall be fairly and accurately allocated to each such event, act, omission or condition and to other causes of such costs. The Contractor shall be entitled to make a Claim or obtain extra compensation for any such event, act, omission or condition only to the extent the Project Records are kept in full compliance with all Contract requirements and the cost allocations support entitlement to such compensation.

c) The Contractor and Subcontractors shall permit the District to audit, inspect, examine, and copy the Project Records and/or other documents related to any Claim or issue related to performance of the Work maintained by Contractor (including all Proposal documentation) or any affiliated company involved in the project (collectively, “Audit Records”) at any reasonable time

and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Audit Records in any manner whatsoever for six (6) years after final payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this subsection.

8.8 OWNERSHIP OF DOCUMENTS; NO WARRANTIES BY THE DISTRICT

All Plans, Specifications and copies thereof prepared or furnished by the District are its property. They are not to be used on other work.

The Reference Documents and any other information, records, or reports that may be made available by the District to the Contractor are provided solely for the convenience of the Contractor. The District makes no representations or warranties, express or implied, regarding the content of the Reference Documents or any other information, records, or reports. No information derived from inspection of Reference Documents or other information, records, or reports will in any way relieve the Contractor from its responsibility to properly perform its obligations under the Contract. The Contractor shall make its own conclusions and interpretations from the data supplied, information available from other sources, and the Contractor's own observations.

8.9 INSURANCE

The Contractor shall obtain and keep in force during the term of the Contract, Commercial General Liability insurance policies with insurance companies which have an A.M. Best's rating of A VII or better and who are approved by the Insurance Commissioner of the State of Washington pursuant to Title 48 RCW.

Prior to the execution of the Contract, the Contractor shall purchase and maintain during the term of this project a Commercial General Liability insurance policy meeting the requirements set forth herein. The Contractor shall file with the District either a certified copy of all policies with endorsements attached, or a certificate of insurance with endorsements attached as are necessary to comply with these specifications. Failure of the Contractor to fully comply with the requirements regarding insurance will be considered a material breach of Contract.

The Contractor shall not begin Work under the Contract or under any special condition until all required insurances have been obtained and until such insurances have been approved by the District. Said insurance shall provide coverage for the Contractor, its Subcontractors and the District. The coverage so provided shall protect against claims from bodily injuries, including accidental death, as well as claims for property damage which may arise from any act or

omission of the Contractor, its Subcontractors, or by anyone directly or indirectly employed by either of them.

The insurance policies shall specifically name the District, its elected or appointed officials, officers, employees, volunteers and King County (or as needed – City of Kenmore, Bothell, Kirkland, Lake Forest Park, etc.), as insured(s) with regard to damages and defense of claims arising from:

- Activities performed by or on behalf of the Contractor; and
- Products and completed operations of the Contractor; and
- Premises owned leased or used by the Contractor.

It is hereby understood and agreed that Northshore Utility District, its commissioners, officers, and employees, while acting within the scope of their duties as such, are named as additional insured. The insurance shall be maintained in full force and effect at the Contractor's expense throughout the term of the Contract and for any extended period after Acceptance as may be required hereunder.

The District shall be given at least 45 Days' written notice of cancellation, non-renewal, material reduction or modification of coverage. Such notice shall be by certified mail to the District.

The coverages provided by the Contractor's insurance policies are to be primary to any insurance maintained by the District. Any insurance that might cover this Contract which is maintained by the District shall be in excess of the Contractor's insurance and shall not contribute with the Contractor's insurances.

The Contractor's insurance policies shall protect each insured in the same manner as though a separate policy had been issued to each. The inclusion of more than one insured shall not affect the rights of any insured as respects any claim, suit or judgment made or brought by or for any other insured or by or for any employee of any other insured. However, this provision shall not increase the limits of the insurer's liability.

The General Aggregate provision of the Contractor's insurance policies shall be amended to show that the General Aggregate Limit of the policies applies separately to this Project.

The Contractor's insurance policies shall not contain deductibles or self-insured retentions in excess of $10,000 (unless approved by the District) and Contractor shall be responsible for any such deductible or SIR if the loss arises from its operations or those of its Subcontractors or suppliers at any tier.

The Contractor's insurance policies shall contain a provision that the District has no obligation to report events which might rise to a claim until a claim has been filed with the District's Board of Commissioners.

Types and Limits of Insurance Required:

Commercial General Liability

- $1,000,000 each occurrence Bodily Injury and Property Damage Liability.
- $2,000,000 annual aggregate
- Employees and volunteers as Additional Insured(s)
- Premises and operations
- Broad form property damage including:
- Underground
- Explosion
- Collapse Hazards (XCU)
- Products completed operations
- Blanket contractual
- Subcontractors
- Personal injury with employee exclusion deleted
- Employers liability (Stop gap)

Automobile Liability

- $1,000,000 per accident bodily injury and property damage liability, including:
- any owned automobiles,
- hired automobiles,
- non-owned automobile.

Umbrella Liability

- $2,000,000 per occurrence
- $2,000,000 aggregate

Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" policy form in the amount of the Contract Price, as adjusted by Change Orders. This insurance shall include interests of the District, the Contractor and Subcontractors on the Project. Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage,

theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements. Maximum deductible shall be $10,000 and Contractor shall be responsible for such deductible if the loss arises from its operations of those of any Subcontractor.

District, Contractor and Subcontractors waive all rights against each other for damages caused by fire or other causes of loss to the extent of proceeds actually paid by property insurance obtained pursuant to this Section 8.9 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the District as fiduciary. The District or Contractor, as appropriate, shall require Subcontractors, by appropriate agreements, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

As an alternative to the above indicated Commercial General Liability and Umbrella Liability insurance policies the Contractor may provide the District with an Owners and Contractors Protective (OCP) policy with a limit of coverage of $5,000,000 on terms and conditions acceptable to the District.

The Contractor shall additionally provide the District with evidence that the District has been named as additional insured on the Contractor's Commercial General Liability Policy through Acceptance plus six (6) additional years (inclusive of completed operations coverage).

Providing of coverage on the stated amounts shall not be construed to relieve the Contractor from liability in excess of such limits.

In addition, the Contractor shall have its insurance agent/representative complete the Insurance Coverage Questionnaire contained in the Special Provisions and attach it to the Certificate of Insurance for District's approval. The Contractor shall maintain Workers Compensation insurance and/or Longshore and Harbor Workers insurance as required by State or Federal statute for all of its employees to be engaged in Work on the Project under this Contract and, in case any such Work is sublet, the Contractor shall require the Subcontractor similarly to provide Workers Compensation insurance and/or Longshore and Harbor Workers Insurance for all of the latter's employees to be engaged in such Work. The Contractor's Department of Labor & Industries account number shall be noted on the certificate of insurance.

In the event any class of employees engaged in the Work under this Contract is not covered under Workers Compensation insurance or Longshore and Harbor Workers insurance as required by State and Federal statute, the Contractor shall

maintain and cause each Subcontractor to maintain, Employers Liability insurance for limits of at least $1,000,000 each employee for disease or accident, and shall furnish the District with satisfactory evidence of such.

The contractual coverage of the Contractor's policy shall be sufficiently broad enough to insure the provisions of the HOLD HARMLESS AND INDEMNIFICATION AGREEMENT of this Contract.

Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from its operations under this Contract.

8.10 SCHEDULE AND PRE-CONSTRUCTION CONFERENCE

(a) The Schedule shall set forth the order in which the Contractor plans to perform the Work. The Schedule and any supplemental Schedule shall show:

1. Substantial Completion of all Work within the specified Contract Time,
2. The proposed order of Work, and
3. Projected starting and completion times for major phases of the Work and for the total Project.

The Schedule shall also reflect any phasing, sequencing, or timing restrictions set forth in the Contract Documents.

The District allocates resources to a Contract based on the total time allowed in the Contract. The District will accept a Schedule indicating an early Substantial Completion date, but cannot guarantee the District's resources will be available to meet the accelerated Schedule. No additional compensation will be allowed if the Contractor is not able to meet its accelerated Schedule due to the unavailability of the District's resources or for other reasons beyond the District's control.

The Contractor shall submit supplemental Schedules when requested by the Engineer or as required by any provision of the Contract. The supplemental Schedules shall reflect any changes in the proposed order of Work, any construction delays, or other conditions that may affect the progress of the Work. The Contractor shall provide the Engineer with the supplemental Schedules within ten (10) Days of receiving written notice of the request.

The original and all supplemental Schedules shall not conflict with any time and order-of-work requirement in the Contract.

If the Engineer deems that the original or any necessary supplemental Schedule does not provide the information required in this subsection, the District may withhold progress payments until a Schedule containing the required information has been submitted by the Contractor and approved by the Engineer.

(b) The Schedule may be in graph or tabular form and shall include the date of submission for approval of Plans as may be required, starting dates for construction of the several parts of the Work, and estimated completion dates of such parts, and completion date of the Project. Review by the Engineer of the Schedule shall not in any event excuse the Contractor of the obligation to complete the Work within the time specified in the Contract or of complying with all terms, conditions and provisions of the Contract Documents. Failure of the Contractor to follow the Schedule submitted and accepted, including revisions thereof, shall relieve the District of any and all responsibility for furnishing and making available all or any portion of the Site from time to time and will relieve the District of any responsibility for delays to Contractor in the performance of the Work.

(c) A pre-construction conference shall be held at a time and place fixed by the Engineer which will generally be within one month from date of Notice of Award. The Contractor must be prepared for a thorough discussion and review of the following:

- Schedule
- Materials and Equipment
- Traffic Control
- Job Procedures
- Inspection Procedures
- Plans and Specifications
- Shop Drawings
- Schedule of Values of Lump Sum Work
- Safety
- Other Matters pertaining to Performance of the Work

8.11 SCHEDULE OF VALUES OF LUMP SUM WORK

If payments are to be made on lump sum items, the Contractor shall submit a schedule of values of the various parts of the Work, including quantities, aggregating the total Contract Price. When approved by the Engineer, the schedule of values shall be used as the basis for certificates for payment unless it is found to be in error. In applying for payments for lump sum Work, the Contractor shall submit estimates of the percentage of Work completed and payment will be based upon the schedule of values for lump sum Work.

8.12 MATERIALS AND EQUIPMENT FURNISHED BY CONTRACTOR

The Contractor shall furnish all Materials and Equipment for the completion of the Work to be performed under this Contract and shall be fully responsible for all Materials and Equipment until the completed Project is delivered to and accepted by the District.

The Contractor shall, at its own expense, secure and maintain a storage place for Materials and Equipment. Contractor shall protect Materials and Equipment against damage from careless handling, exposure to weather, mixture with foreign matter, and all other causes. The District will reject and refuse to test Materials and Equipment improperly handled or stored.

(a) All Materials and Equipment required to be incorporated into the Work shall be new and in accordance with the Plans and Specifications, except as otherwise provided in the Contract Documents. All such Materials and Equipment shall be applied, installed, connected, erected, used, cleaned, maintained and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processor, except as otherwise provided in the Contract Documents. Upon the request of the Engineer, the Contractor shall furnish satisfactory evidence as to the kind, quality and manufacturer of Materials and Equipment. The Contractor shall furnish the District with copies of the supplier's warranty and adopt the same as the warranty of the Contractor and shall also be liable thereon to the District.

(b) The Contractor shall furnish for approval all samples as directed by the Contract Documents. The finished Work shall be in accordance with approved samples. Approval of samples by the Engineer does not relieve the Contractor of performance of the Work in accordance with the Contract Documents.

(c) Substitutions requested by the Contractor will be subject to the District's prior written acceptance and at the District's sole discretion. For each proposed substitution, the Contractor shall submit samples, descriptive and technical data, and reports of tests to the District for approval. The Contractor shall also indicate the difference in Contract Price and/or Contract Time by reason of the proposed substitutions. All costs of any redesign or modification to other systems, parts, equipment or components of the Project or Work, which result from the substitution, shall be borne by the Contractor.

(d) When the District approves a substitution proposed by the Contractor, the Contractor shall guarantee the substituted Materials or Equipment to be equal to, or better than, those originally specified and shall be compatible with all other systems, parts, Materials, Equipment, or components of the Project and Work. The District has the right to order an unaccepted,

substituted article removed and replaced without additional cost to the District.

(e) When Materials or Equipment are specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall, unless otherwise expressly stated, be understood as if followed by the words Or Equal whether or not such words appear. If the Contractor proposes to furnish Or Equal Materials or Equipment, then Contractor shall demonstrate (1) conformance to the specified performance, testing, quality, life-cycle or dimensional requirements and (2) suitability of the Materials or Equipment for the use intended. Intended use of any Or Equal Materials or Equipment shall be specifically identified as part of the submittal process, and the Engineer must accept the Contractor's proposed Or Equal Materials or Equipment before it may be used. Any such acceptance shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality, life-cycle or dimensional requirements and suitability of any accepted the Or Equal Materials or Equipment for the use intended under this Contract.

(f) In the event that the Contractor proposes an alternate design or designs for some portion of the Work, the District may at its option allow the Contractor to proceed on the condition that the Contractor assume full responsibility for the alternate design.

8.13 MATERIALS AND EQUIPMENT FURNISHED BY DISTRICT

(a) Unless otherwise specifically provided in the Contract Documents, if the Contract requires that the Contractor install Materials and Equipment provided by the District, in the absence of a reasonably apparent defect, such Materials and Equipment shall be considered compliant with the Contract Documents.

(b) If the Contractor discovers defects in the District-furnished Materials or Equipment the Contractor shall immediately notify the District in writing.

(c) After such discovery, the Contractor shall not proceed with Work involving such District-furnished Materials and Equipment unless otherwise authorized in writing by the District.

(d) Contractor's failure to provide immediate written notice of any defects in District-furnished Materials or Equipment shall constitute acceptance of such Materials and Equipment as fit for incorporation into the Work.

(e) Contractor shall be responsible for any damages or delays resulting from Contractor's failure to provide timely written notice or Contractor's improper

incorporation of such defective District-furnished Materials or Equipment into the Work.

8.14 SUBMITTALS

(a) The Contractor shall perform no portion of the Work requiring Submittals until the Submittals have been reviewed and returned by the District with one of the following annotations: (1) “No Exception Taken” or (2) “Make Corrections Noted” or (3) “Revise and Resubmit” or (4) “Rejected” or (5) “Submit Specified Item”.

(b) Prior to furnishing the Submittals to the District, the Contractor shall: (1) review all Contractor and Subcontractor Submittals for accuracy, completeness, and compliance with the Contract; (2) coordinate all Submittals with all Contract Work by other trades and with field measurements; and (3) indicate approval on the Submittals as a representation that it has complied with its obligation to review and coordinate Submittals. Where required by law or by the Contract, an appropriate licensed professional shall stamp Submittals. Submittals lacking required stamps or evidence of Contractor review and approval will be returned without review by the District for resubmission. Submittals shall be sequentially numbered.

(c) When submitting information, the Contractor shall identify and state reasons for any alteration, variation, addition, deviation, or omission from the Contract. The Contractor shall not perform work that alters, varies, adds, deviates, or omits Work without prior specific written acceptance by the District.

(d) The Contractor shall provide Submittals with reasonable promptness and in such sequence as to facilitate the timely completion of the Contract. The Contractor shall prepare and keep current, for review by the District, a schedule of Submittals which is coordinated with the Contractor’s Project Schedule and allows the District reasonable time for review.

(e) The District shall review the Contractor’s Submittals and respond in writing with reasonable promptness. Unless otherwise agreed, no delay to the Contractor’s Work shall be attributable to the failure by the District to respond to a Submittal until thirty (30) Days after the Submittal is received by the District, and then only if failure by the District to respond is unreasonable and affects the Substantial Completion date.

(f) If the Contractor is required to resubmit a Submittal, any revisions on resubmittals, shall be specifically identified in writing and the resubmitted Submittal shall be sequentially alpha denoted and note revisions in numerical order. The cost of the review of the initial Submittal and the first revised Submittal shall be borne by the District. The costs of all additional

revised Submittals shall be charged to the Contractor. The cost of review shall include, without limitation, administrative, design, and engineering activities directly related to review of Submittals. The District may deduct these costs from any amounts due the Contractor.

(g) The District shall review the Contractor's Submittals only for conformance with the design of the Work and compliance with the Contract Documents. Review of the Submittals are not conducted to verify the accuracy of dimensions, quantities, or calculations, the performance of Materials, systems, or Equipment, or construction means, methods, techniques, sequences, or procedures, all of which remain the Contractor's responsibility. Failure by the District to take exception to a Submittal shall not relieve the Contractor from any duty, including its responsibility for errors or omissions in Submittals, its duty to make Submittals and its duty to perform the Work according to the requirements of the Contract. The District's review of a Submittal shall not alter or waive the requirements of the Contract unless the District has issued prior written approval of such change or alteration of the Contract requirements.

(h) The Contractor's failure to identify any error, deviation, or omission and subsequent acceptance of the Submittal by the District shall not relieve the Contractor from the obligation to comply with the all requirements in the Contract Documents.

8.15 LABOR AND FACILITIES

(a) The Contractor shall provide and pay for all labor, water, tools, light, power, transportation and other facilities necessary for the execution and completion of the Work, except as otherwise stipulated in the Contract Documents.

(b) Necessary sanitation conveniences for the use of workmen on the Site, properly secluded from public observation, shall be provided and maintained by the Contractor.

(c) The Contractor shall, at all times, enforce strict discipline and good order among its employees and shall not employ on the Work any person unfit or not skilled in the Work assigned to him. At the Engineer's written request, the Contractor shall immediately remove and replace any incompetent, careless, or negligent employee.

(d) The Contractor shall remain onsite whenever the Work is under way. Before the Work begins, the Contractor shall name in writing an experienced superintendent who understands the Contract and is able to continuously supervise the Work. This superintendent shall have full authority to represent and act for the Contractor. Any superintendent who repeatedly fails to follow the Engineer's written or oral orders, directions, instructions, or determinations shall be subject to removal from the Project.

Upon the written request of the Engineer, the Contractor shall immediately remove such superintendent and name a replacement in writing.

(e) During the term of this Contract, neither party shall employ nor hire any employee of the other party, nor of the Engineer, without the written consent of the other party or of the Engineer. The Contractor shall not use any Work performed or any information obtained from any employee hired in violation of this provision in making a claim against the District or Engineer and shall also be liable to the District as liquidated damages in an amount equal to double the amount of salary or wages paid to any such employee so hired in violation hereof.

8.16 ROYALTIES AND PATENTS

The Contractor shall be liable for all suits brought against the District by reason of infringement of patent rights or licenses on any Materials, Equipment, or process used on the Work or incorporated into the finished Project, except where specifically exempted by the Special Provisions. Prices named in the Proposal shall include payment of royalties, if any. Contractor shall defend and hold District harmless from any such suit, costs of defense and any judgment which may be made or entered against District thereon.

8.17 PROJECT SITE; PERMITS, LAWS, AND REGULATIONS

The District will furnish the Site and rights-of-way necessary for carrying out this Contract and completion of the Work herein contemplated and will use due diligence in acquiring said lands and rights-of-way as speedily as possible. If the District's right of access to any lands for the Site, Permits, or rights-of-way is delayed for any reason, Contractor shall exercise reasonable efforts to mitigate consequences and work around the delay. If Contractor believes it is entitled to a change in the Contract Time and/or Contract Price by reason of such delay, Contractor shall comply with the notice and Claim requirements provided in Section 8.23. Nothing in this section shall limit the District's right to terminate as provided in Section 8.31.

Contractor's Work shall be confined to the District's premises, including easements and construction Permit limits. The Contractor shall not enter upon or place Materials or Equipment on other property except by written consent of the individual property owners and the Contractor shall save District harmless from all suits and actions of every kind and description that might result from its use of property other than that of the District.

The Contractor shall be responsible for obtaining all Permits except those specified herein or in the Special Provisions.

The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, Federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of

the Work or the Materials and Equipment used in the Work, or which in any way affect those employed to work in connection with the Project, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract Documents (collectively, the "Governmental Requirements"). The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such Governmental Requirements, and shall indemnify, defend and hold harmless District and all of its commissioners, officers, agents, and employees against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such Governmental Requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such Governmental Requirements, the Contractor shall immediately report the same to the Engineer in writing.

Wherever the law of the place of construction requires a sales, consumer, use or similar tax, the Contractor shall pay such tax.

8.18 PAYMENT OF PREVAILING WAGES

The wage rates to be paid all laborers, workers and mechanics who perform any part of this Contract shall meet or exceed the prevailing wage rates as required by Chapter 39.12 of the Revised Code of Washington, as amended. This requirement applies to laborers, workers and mechanics whether they are employed by the Contractor, Subcontractors, sub-Subcontractors, or any other person who performs a portion of the Work contemplated by this Contract.

The current prevailing wage rates as provided to the District by the Industrial Statistician of the Washington State Department of Labor and Industries are available at the following location: https://lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/. In referencing such rates, the District does not imply or warrant that the Contractor will find labor available at those rates. It is the Contractor's sole responsibility to determine the wage rates it will actually have to pay.

In case any dispute arises as to what are the prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the State and the Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute, as provided for by Section 39.12.060 of the Revised Code of Washington, as amended.

In connection with this Contract, the Contractor will be required, pursuant to Section 39.12.040 of the Revised Code of Washington to file with the District a "Statement of Intent to Pay Prevailing Wages" and an "Affidavit of Wages Paid" for

itself and all Subcontractors and sub-Subcontractors. The Statements require the "approval" of, and the Affidavits the "certification" of, the industrial statistician of the State Department of Labor and Industries before the Statements or Affidavits are to be presented to the District. The Department of Labor and Industries charges a fee for such approval and certification, which fee shall be paid by the Contractor. Any change in the fee will not be grounds for revision in Contract Price.

All workers delivering fill, sand, gravel, crushed rock, transit/concrete mix, asphalt or other similar Materials and all workers removing any Materials from the Site as required by the Specifications are subject to the provisions of RCW Chapter 39.12 and are entitled to the appropriate prevailing wage rate. For purposes of this Contract, such Materials are for specified future use and per WAC 296-127-018, delivery and pick-up of the above listed Materials constitutes incorporation.

The Contractor is required to include this provision in all subcontracts and shall require that it be placed in all sub-subcontracts at any tier.

8.19 PROTECTION OF WORK, PERSONS, AND PROPERTY

The Contractor shall be solely and completely responsible for conditions of the Site, including protecting all persons and property, during performance of the Work. The Contractor shall maintain the Site and perform the Work in a manner which meets all statutory and common law requirements or other specific contractual requirements for the provision of a safe place to work and which adequately protects the safety of all persons and property on or near the Site. This obligation shall apply continuously and shall not be limited to normal working hours. The District's inspection of the Work or presence at the Site does not and shall not be construed to include review of the adequacy of the Contractor's safety measures in, on or near the site of the Work.

Unless otherwise required in the Contract Documents, the Contractor shall protect and be responsible for any damage or loss to the Work, or to the Materials and Equipment associated with the Work until the date of Substantial Completion. The Contractor remains responsible for any damage or loss caused directly or indirectly by the acts or omissions of the Contractor, Subcontractors, suppliers or third parties authorized or allowed on the Site by the Contractor until Acceptance. The Contractor shall repair or replace without cost to the District any damage or loss that may occur, except damages or loss caused by the acts or omissions of the District.

Contractor shall take adequate precautions to protect existing lawns, trees and shrubs, sidewalks, curbs, pavements, adjoining property, and structures, and to avoid damage thereto. The Contractor shall, at its own expense, completely repair any damage thereto caused by its operations to the satisfaction of the Engineer, except as otherwise provided elsewhere in the Contract Documents. The Contractor shall be solely and completely responsible for damages arising from the Work that affect property adjacent to the Site.

Whenever it is necessary in the course of construction to remove or disturb culverts, driveways, roadways, pipelines, or other existing improvements, without limiting the generality thereof and whether on private or public property, they shall be replaced to a condition equal to that existing before they were so removed and disturbed and all such costs for this replacement shall be borne by the Contractor and considered incidental to the construction and Work covered by the Contract Documents.

The Contractor shall erect and maintain adequate signs, fencing, barricades, lights or security measures and persons to protect the Work until the Engineer authorizes in writing the removal of signs, fencing, barricades, lights or security measures.

8.20 SAFETY

The Contractor shall take all reasonable precautions for the safety of all employees working on this Contract and all other persons who may be affected by such Work. The Contractor shall designate a responsible member of its organization at the Site whose duty shall be to manage and coordinate the Safety Programs and to prevent accidents of the Contractor and Subcontractor and suppliers.

Except as otherwise stated in the Contract, if the Contractor encounters on the Site material reasonably believed to be Hazardous Material including but not limited to asbestos, lead, or polychlorinated biphenyl (PCB), the Contractor shall immediately stop Work in the area affected and give notice of the condition to the District. Work in the affected area shall not be resumed without written direction by the District.

In order to protect the lives and health of persons performing Work under this Contract, the Contractor shall comply with the Federal Occupational Safety and Health Act of 1970 (OSHA), including all revisions, amendments and regulations issued thereunder, and the provisions of the Washington Industrial Safety Act of 1973 (WISHA), including all revisions, amendments and regulations issued thereunder by the Washington State Department of Labor and Industries. The WISHA regulations shall apply, without limitation, to all excavation, tunneling, trenching and ditching operations. In case of conflict between any such requirements, the more stringent regulation or requirement shall apply. There is no acceptable deviation from these safety requirements, regardless of practice in the construction industry. Any violation of OSHA, WISHA or other safety requirements applicable to the Work may be considered a breach of this Contract.

8.21 UTILITIES

In connection with any underground and utility Work, the Contractor shall strictly comply with Chapter 19.122 of the Revised Code of Washington. Any cost or

scheduling impact resulting from the Contractor's failure to comply with these statutory provisions shall be borne by the Contractor.

Unless specified otherwise by the Contract, Contractor shall plan and execute its Work to prevent outages in existing utilities or disruption of service. Where removal or relocation of known or disclosed utilities or temporary utility connections are necessary to accommodate the Work, such removal, relocation or temporary connections shall be performed at the Contractor's sole expense unless it is specified in the Contract Documents that it will be performed by the District or by others.

The District or utility owner may enter the Site from time to time to make changes as may be necessary for the relocation of utilities or to make necessary connections or repairs. Where the utility owner is identified as being responsible for removing or relocating utilities, the Contractor shall make timely arrangements with the utility owner to schedule such work to accommodate the Work. The Contractor shall also cooperate with and facilitate any necessary access to or on the Site by the forces engaged in such work and shall conduct its operations in such a manner as to avoid delay or hindrance to the work being performed by such other forces.

Contractor shall not commence any excavations until existing utilities have been staked or marked by the utility owner. The District will provide utility locates for District-owned utilities. The Contractor may encounter underground utilities adjacent to their Work operations. It shall be the Contractor's responsibility to protect these utilities from damage. If the Contractor discovers the presence of any unknown/unidentified utilities at the Site, the Contractor shall provide the District oral or written notice promptly (and in no event more than 24 hours after discovery). If any underground utility not identified in the Contract Documents must be relocated to accommodate the Project, the Engineer will either arrange for the relocation of such utility or provide a Change Order to the Contractor to do such work. If the Contractor asserts that the discovery entitles it to a change in Contract Price and/or Time, written notification shall be made in accordance with Section 8.24.

The Contractor may request District approval for changes or rearrangement to any utility for the Contractor's convenience in order to facilitate construction of the Work. The District shall be the sole judge of whether the proposed change or rearrangement is acceptable. The Contractor shall be responsible for any delay or cost resulting from this request.

Loss of time, if any, suffered by the Contractor due to delays in removal or relocation of any utilities by others may be considered in relation to a request by the Contractor for an adjustment to the Contract Time in accordance with Sections 8.23 and 8.26.

Utilities damaged by the Contractor shall be repaired by the Contractor to their original condition at the Contractor's expense. The Contractor shall notify the Engineer of any such damage promptly (and in no event more than 24 hours after the damage occurs) and shall begin repairs immediately and work continuously until the utility is restored to the satisfaction of the Engineer.

8.22 DISTRICT-INITIATED CHANGES IN THE WORK

(a) The District, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the Work. The District reserves the right to make such alterations in the Plans or in the quantities of Work as may be considered necessary. Such alterations shall be in writing by the District and shall not be considered a waiver of any condition of the Contract nor invalidate any of the provisions thereof.

(b) All such changes in the Work shall be authorized and directed by Change Order.

(c) Unless the District in its sole discretion agrees otherwise in writing by way of Change Order, an alteration that only increases or decreases the quantity of bid item units to be installed shall not modify or adjust the unit prices set forth in the Proposal or contained in the Contract Price.

(d) Subject to the limitation set forth above in (c), any modification to the Contract Price due to such changed Work shall be determined, in order of precedence, in the following methods:

1. By unit or lump sum prices set by the Contract.
2. If method (1) does not apply, by prices mutually agreed upon.
3. If no agreement is reached under method (2), such Work will be paid for under Force Account rules established pursuant to Section 8.25 of these General Conditions. In such cases, the Contractor shall keep and present in such form as the Engineer may direct a correct account of such costs, together with supporting time cards and vouchers. The Engineer shall evaluate and determine the amount due Contractor.

(e) This Section 8.22 applies only to District-initiated changes in the Work.

8.23 CONTRACTOR REQUESTS FOR CHANGE / CLAIMS

If the Contractor believes it is entitled to any additional compensation or time extension for any reason, the Contractor shall comply with the terms and conditions of this Section 8.23. In general, as described further below, the Contractor must adhere to a three-step process in making any request for additional compensation and/or time extension: (1) a timely written Notice of Intent

(2) a timely and properly documented Request for Change Order and, if such Request is denied (3) a timely and properly documented submission of a Claim.

Step 1: If the Contractor claims that the cost to perform the Work has been increased through any act or omission believed to be the District's responsibility (including without limitation District instructions, Plans, Site conditions or any alleged interference or impact by the District) the Contractor shall give the Engineer written Notice of Intent within five (5) Days after the receipt of any such instructions, or occurrence of any other act, omission or impact, and in any event before proceeding to execute the Work (except in emergency endangering life or property). The Notice of Intent shall describe (1) the date, circumstances, and source of the direction, instruction, interpretation, determination by the District and/or the event or impact to the Project (2) reasonable order of magnitude estimate of the change to the Contract Price (3) reasonable order of magnitude estimate of the time impact to the Contract Time; and (4) Contract provisions and substantive basis to support entitlement. Contractor's failure to provide the Notice of Intent as required by this Section 8.23 will act as a waiver of any right to bring any Claim related to the act, omission or impact in question.

Step 2: Within no more than 14 Days of submitting its Notice of Intent, The Contractor shall provide a detailed Request for Change Order to the Engineer. The Request for a Change Order shall include:

- Specific dollar amount covering all costs associated with the requested Change Order calculated in accordance with the Contract;
- Specific request for time extension (number of days);
- All documentation supporting the Request for a Change Order, including but not limited to all cost records and any schedule analysis.

Contractor's failure to provide the Request for Change Order as required by this Section 8.23 will act as a waiver of any right to bring any Claim related to the act, omission or impact in question.

The District will review each submitted Request for Change Order within thirty (30) Days after receipt and will respond in writing approving or denying the Request.

Step 3: If the Request for Change Order is denied, the Contractor within no more than thirty (30) Days of the denial shall file a written Claim. At a minimum, a fully documented Claim must contain the following information:

- A detailed statement of the Claim providing all necessary details, locations, and items of Work affected;
- The date on which the incident arose that gave rise to the Claim;

- The name of each person employed or associated with the Contractor, Subcontractors, suppliers, and/or the District with knowledge about the event or condition which gave rise to the Claim;

- Copies of documents and a written description of the substance of any oral communications that concern or relate to the Claim;

- The specific provisions of the Contract Documents on which the Claim is based;

- If an adjustment in the Contract Price is sought, the exact amount sought, calculated in accordance with the Contract and accompanied by all records supporting the Claim;

- If an adjustment in the Contract Time is sought, the specific days and dates for which it is sought; the specific reason the Contractor believes an adjustment in the Contract Time should be granted; and the Contractor's analyses of its Schedule, any specific Schedule analysis as required by the Contract Documents, and all updates to demonstrate the reason for the adjustment in Contract Time; and,

- A statement certifying, under penalty of perjury, that after the exercise of reasonable diligence and investigation the Claim is made in good faith, that the supporting cost and pricing data are true and accurate to the best of the Contractor's knowledge and belief, that the Claim is fully supported by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Price or Contract Time for which the Contractor believes the District is liable.

Failure to comply with the time requirements set for filing a Claim shall constitute acceptance by the Contractor, on behalf of itself and its Subcontractors and suppliers, of the District's denial of a Request for Change Order. Such acceptance shall be considered complete, full, and final settlement of all costs, damages, and Claims related to or arising from the Request for Change Order.

Any modification to the Contract made on account of any Request for Change Order or Claim shall be determined, in order of precedence, in the following ways:

1. By unit or lump sum prices set by the Contract.

2. If method (1) does not apply, by prices mutually agreed upon.

3. If no agreement is reached under method (2), payment for the Request for Change Order or Claim will be made under Force Account rules established pursuant to Section 8.25 of these General Conditions. In such cases, the Contractor shall keep and present in such form as the Engineer may direct a correct account of such costs, together with supporting time cards and vouchers.

After the Contractor has submitted a fully documented Claim that complies with this provision, the District shall respond, in writing, to the Contractor within thirty

(30) Days from the date of receipt of the fully documented Claim. If the District denies the Claim, the Contractor's sole remedy is as set forth in Section 8.46 (Venue/Limitation).

8.24 DIFFERING SITE CONDITIONS

If the Notice of Intent, Request for Change Order or Claim arises from an alleged Differing Site Condition, the requirements of this Section will apply in addition to those set forth in Section 8.23. In the event this Section imposes requirements, deadlines or rules more stringent than those set forth in Section 8.23, the requirements, deadlines or rules of this Section will govern.

The Contractor shall within 24 hours of discovery notify the Engineer in writing of: (1) pre-existing subsurface or latent physical conditions differing materially from those indicated in the Contract, or (2) pre-existing unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in the Contract. This 24-hour Notice of Intent is in place of the 5 Day Notice of Intent listed in Section 8.23. Provided Contractor complies with this 24 hour Notice of Intent requirement and wishes to pursue relief, it must then comply with Step 2 and Step 3 set forth in Section 8.23. Contractor shall at all times preserve (and not dispose) the physical conditions or materials constituting the alleged Differing Site Condition and upon request make them available to the District for review and/or inspection.

Any geotechnical reports provided to Contractor shall have the following order of precedence: (1) Geotechnical Baseline Report (GBR) and/or Geotechnical Baselines described in the Specifications; (2) Geotechnical Data Report (GDR); (3) Geotechnical Design Report; (4) other soils reports, borings, test pits or additional investigative data. Baseline statements in the GBR and/or Geotechnical Baselines described in the Specifications shall take absolute precedence over any data in the GDR or elsewhere (or any inference or interpolation from such data) even if the baseline statements exceed the physical conditions identified in the data.

8.25 FORCE ACCOUNT

Except as provided herein, Force Account will be paid under the terms and conditions of Section 1-09.6 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Notwithstanding the foregoing, the following provisions for Contractor Owned Equipment and Standby shall apply to all Force Account work performed under this contract:

> Contractor Owned Equipment: For equipment owned by the Contractor, payment shall be made on the basis of Actual Cost. The term Actual Cost means the ownership and operating cost of the equipment as determined

by the District based on records made available by the Contractor. The District in determining Actual Cost may consider the equipment's acquisition cost, the equipment's useful life, any indirect costs associated with ownership of the equipment, depreciation and other commercially reasonable factors. It is the responsibility of the Contractor to provide cost records to the District upon request to assist with determining the Actual Cost for the equipment. If the Contractor did not keep and maintain such cost records or fails to comply with the document request made by the District, the District may at its option make a reasonable determination of the Actual Cost. If the Contractor disagrees with this determination, it must file a written Notice of Intent and pursue a Request for Change Order as set forth in Section 8.23.

Standby: Payment for equipment during any standby time or shutdown caused by the District shall be paid at: (i) 25% of Actual Cost (for owned equipment) or (ii) 100% of the applicable rental rate (for rental equipment) for a period not to exceed ten (10) Days.

8.26 DELAYS AND EXTENSION OF TIME

(a) If the Contractor seeks an extension of the Contract Time or additional compensation due to an allegedly compensable impact to the Contract Time, its sole remedy is to comply with the Notice of Intent / Request for Change Order / Claim process identified in Section 8.23. The remainder of this Section 8.26 describes the general rules applicable to any timely-filed Notice of Intent / Request for Change Order / Claim related to Contract Time.

(b) Non-Excusable and Non-Compensable Delays. Delays in the prosecution of the Work that could have been avoided by the exercise of due care, coordination and diligence on the part of the Contractor, its Subcontractors or its suppliers at any tier are neither excusable nor compensable under the Contract. No extension of Contract Time or increase in the Contract Price shall be allowed for any claimed delay that is caused by or results from the breach, fault, negligence, or collusion of the Contractor, or its Subcontractors, sub-Subcontractors, or suppliers.

(c) Excusable and Non-compensable Delays. The Contract Time may be extended without compensation by the District for a period equivalent to the time that the Engineer determines that the Contractor was delayed in the Work by one or more of the following causes, beyond the control of the District and the Contractor, occurring during the performance of the Work:

1. Fire or other casualty for which the Contractor is not at fault or otherwise responsible;
2. Riot, war, or civil disorder;

3. Unusual and severe weather

4. General industry strikes or labor disputes beyond the reasonable control of Contractor,

5. Unreasonable delay in issuance of a permit by the agency having jurisdiction, and

6. Delay to the Work resulting from causes beyond the control of Contractor and District and that could not have been avoided by Contractor with the exercise of coordination, foresight and diligence.

Such non-compensable extensions of Contract Time will be allowed only to the extent that Substantial Completion of the Work is unreasonably delayed through no fault of the Contractor, which must in all cases be substantiated by impact to the Work on the Schedule. Any extension of the Contract Time by the District will be set forth in a Change Order, which shall specify the Days by which the Contract Time is to be increased.

(d) Excusable and Compensable Delays. The Contract Time may be extended and the Contract Price increased in the event that:

1. The Work was delayed by reason of changes made by the District or by any unreasonable act or omission of the District,

2. The Contractor was not concurrently responsible for the delay in the Work,

3. The Contractor has suffered actual losses as a result of the delay in the Work,

4. The delay in the Work could not have been mitigated despite the Contractor taking reasonable work-around actions, and

5. The delay in the Work was not within the contemplation of the Contract.

In that event, the Contract Time will be extended for a period equivalent to the time that the Engineer determines that the Contractor was delayed in the Work and the Contract Price will be increased to compensate the Contractor for its loss from such delay and associated disruption. Any extension of the Contract Time and increase in the Contract Price by the District will be set forth in a Change Order, which shall specify the Days by which the Contract Time is to be increased and the amount by which the Contract Price is to be increased.

8.27 COMPLETION AND/OR CORRECTION OF WORK

(a) If the Contractor should neglect to prosecute the Work properly and/or fail to perform any provision of this Contract, the District, after five (5) Days' written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and deduct the cost thereof from payments then or thereafter due the Contractor.

(b) The Contractor shall promptly remove from the construction Site all Materials and/or Equipment rejected by the Engineer as failing to conform to the Contract, whether incorporated in the Work or not; and the Contractor shall promptly replace and re-execute its own Work in accordance with the intent of the Contract and without expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. If the Contractor does not remove such rejected Work and Materials and/or Equipment and commence re-execution of the Work within five (5) Days of notice from the Engineer, the District may correct the same as otherwise provided herein.

(c) If the Contractor does not remove such rejected Work and Materials and/or Equipment within the period herein above described, the District may remove and store any such Materials and/or Equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal within ten (10) Days from the notice to Contractor of the fact of such removal, the District may, upon an additional ten (10) Days' written notice, sell such Materials and/or Equipment at public or private sale, and deduct all costs and expenses incurred, including costs of sale, accounting to the Contractor for the net proceeds remaining, and District may bid at any such sale. Contractor shall be liable to District for the amount of deficiency remaining between the costs incurred and the proceeds of sale. District may deduct the costs of such removal, storage and sale and/or remaining deficiency from any funds otherwise due the Contractor.

8.28 DEFECTS ARISING IN TWO YEARS AND REMEDIES

(a) The Contractor shall be responsible for correcting all defects in workmanship and Materials and/or Equipment within two (2) years after Acceptance. When corrections of defects are made, Contractor shall be responsible for correcting all defects in workmanship and/or Materials and Equipment in the corrected Work for two years after proper completion of the correction. The Contractor shall start work to remedy such defects within seven (7) Days of mailing notice of discovery thereof by District and shall complete such work within a reasonable time. In emergencies, where damage may result from delay or where loss of service may result, such corrections may be made by the District, in which case the cost shall be borne by the Contractor. In the event the Contractor does not accomplish

corrections at the time specified, the Work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

(b) The Contractor shall be liable for any costs, losses, expenses, or damages, including consequential damages suffered by the District resulting from defects in the Work including, but not limited to, cost of Materials and labor extended by District in making emergency repairs and cost of engineering, inspection and supervision by District or Engineer. The Contractor shall hold the District harmless from any and all claims which may be made against the District as a result of any defective Work and the Contractor shall defend any such claims at its own expense.

8.29 SUSPENSION OF WORK

(a) The District may order the Contractor, in writing, to suspend all or any part of the Work of this Contract for the period of time that the District determines appropriate for the convenience of the District. The Contractor shall not suspend the Work without written direction from the District specifically authorizing the suspension of Work.

(b) Upon receipt of a written notice suspending the Work, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize costs attributable to such suspension. The District may require the Contractor to furnish temporary roads, patches, safety barricades, restorative work, or other measures to protect the Work, the Site, property adjacent to the Site, and public safety. Within a period up to 120 Days after the suspension notice is received by the Contractor, or within any extension of that period which the District requires, the District shall either:

1. Cancel the written notice suspending the Work; or
2. Terminate the Work for either Default or Convenience as provided in Sections 8.30 and 8.31.

(c) If a written notice suspending the Work is canceled or the period of the Suspension or any extension thereof expires, the Contractor shall resume Work as required by the District.

(d) If the performance of all or any part of the Work is, for an unreasonable period of time, suspended by the written direction of the District, and if the cause of the suspension is not the fault, breach or negligence of the Contractor or those for whom Contractor is responsible, the Contractor may be entitled to an adjustment in the Contract Price and/or Contract Time for increases in the time or cost of performance directly attributable to such unreasonably long suspension and provided that the Contractor sufficiently documents all costs and time impacts attributable to the suspension. No adjustments to Contract Price and/or Contract Time shall be allowed unless

the Contractor can demonstrate that the unreasonable period of suspension caused by the District impacted the Work and delayed the Contractor from completing the Work within the Contract Time. The Contractor shall comply with the requirements of Sections 8.23 and 8.26 in seeking an adjustment. Any sums paid to Contractor on account of suspension shall be determined in accordance with the order of precedence described in Section 8.23. Failure to comply with these requirements shall constitute a waiver of Contractor's rights to any adjustment in Contract Time and/or Contract Price.

(e) No adjustment shall be made under this provision for any suspension to the extent that (1) Contractor's performance would have been suspended, delayed, or interrupted as a result of actions, omissions, fault or negligence caused, in whole or in part, by the Contractor or any of its Subcontractors and suppliers, (2) Contractor failed to diligently pursue the Work before the suspension, (3) the District suspended the Work due to Contractor's failure to comply with the Contract or the Engineer's orders, or (4) an equitable adjustment is provided for or excluded under any other provision of the Contract.

(f) When ordered by the Engineer to suspend or resume Work, the Contractor shall do so immediately.

(g) Before and during any suspension the Contractor shall protect the Work from damage or deterioration. Suspension shall not relieve the Contractor from anything the Contract requires unless this section states otherwise.

8.30 DISTRICT'S RIGHT TO TERMINATE CONTRACT FOR DEFAULT

(a) The District may terminate the Contract and take possession of the premises and of all Materials and Equipment thereon and finish the Work by whatever methods it may deem expedient, upon the occurrence of any one or more of the events hereafter specified, and receipt of the certificate by the Engineer that sufficient cause exists to justify such action:

- If the Contractor is insolvent, files a petition for bankruptcy protections, is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency.
- If the Contractor fails to supply a sufficient number of properly skilled workmen or proper Materials or Equipment for completion of the Work.
- If the Contractor fails to prosecute the Work or any portion thereof with such diligence as will ensure Substantial Completion within the original Contract Time and any extensions of time which may have been granted to the Contractor by Change Order or otherwise.

- If the Contractor fails to prosecute the Work or any portion thereof with such diligence as will ensure Physical Completion of the Work in a timely manner.
- If the Contractor fails in a material way to repair, replace, or correct Work not in conformance with the Contract.
- If the Contractor fails to make prompt payment to its employees or Subcontractors and suppliers.
- If the Contractor disregards laws, ordinances, rules, codes, regulations, orders or similar requirements of any public entity having jurisdiction over the Contractor, the Work, or the Site.
- If Contractor fails to comply with any Contract safety requirement.
- If the Contractor otherwise materially breaches any provisions or requirements of the Contract or persistently disregards instructions of Engineer.

District shall give Contractor five (5) Days' written notice to cure the default and, if not cured to the satisfaction of District as certified by Engineer, the District may, upon three (3) Days' written notice, elect to so terminate. Any such termination shall be without prejudice to any other right or remedy which District may have against Contractor.

(b) If Contractor fails to cure the default to the District's satisfaction within the five (5) Day cure period, or if the Contractor abandons the Work undertaken under the Contract, District may, at its option, upon ten (10) Days' written notice to the Surety and without any written notice to Contractor, transfer the employment of said Work from Contractor to Surety. Upon receipt of such notice, the Surety shall enter upon the premises and take possession of all Materials, Equipment, tools and appliances thereon for the purpose of completing the Work included under this Contract and employ, by contract or otherwise, any person or persons to finish the Work and provide the Materials and Equipment therefore, without termination of the continuing full force and effect of the Contract. In case of transfer of such employment to the Surety, the Surety shall be paid in its own name on estimates covering the Work subsequently performed under the terms of the Contract and according to the terms hereof, without any right of Contractor to make any claim for the same or any part thereof.

(c) In the event that the Contract is terminated for default by the District, Contractor shall not be entitled to receive any further balance of the amount to be paid under this Contract until the Work shall have been fully finished. At such time, if the unpaid balance of the amount to be paid under this Contract exceeds the expense incurred by District in finishing the Work, and all damages sustained or which may be sustained by District by reason of such refusal, neglect, failure of discontinuance of employment, such excess

shall be paid by District to Contractor. If such expense and damages shall exceed the unpaid balance, Contractor and its Surety and each thereof shall be jointly and severally liable therefore to District and shall pay the difference to District. Such expense and damage shall include all reasonable legal costs incurred by District in the employment of attorneys to protect the rights and interests of District under the Contract.

8.31 DISTRICT'S RIGHT TO TERMINATE CONTRACT FOR CONVENIENCE

(a) Upon written notice to the Contractor, the District may terminate the Work, or any part of it, without prejudice to any right or remedy of the District inclusive of all audit rights in the Contract, for the convenience of the District.

(b) If the District terminates the Work or any portion thereof for convenience, Contractor shall be entitled to be paid, at applicable Contract rates and prices, for Adjusted Contract Work executed in conformance with the Contract and completed prior to the effective date of the termination.

(c) Termination for Convenience shall not enlarge, expand, modify, alter or in any way subsume or convert the rights or remedies (if any) of Contractor with respect to any Claim, Request for Change Order, Notice of Intent or other request for any revision to the Contract Price or Contract Time asserted or accrued at the time of the termination (collectively, "Pending Requests"). Without limiting the foregoing, the termination for convenience shall not have the effect of converting the Pending Requests into no-fault or assumed liabilities of the District. Following any Termination for Convenience, Contractor's rights or remedies (if any) to any extra compensation, change in the Contract Price or additional Contract Time for any Pending Requests shall continue to be subject to and governed by the same Contract provisions, legal rules and processes, defenses and burdens of proof that would apply but for the termination.

(d) Except as provided for above in Section 8.31(b) or (c), the Contractor shall not be entitled to any other costs or damages whatsoever (including without limitation profit or overhead on the terminated Work). The total sum payable upon termination shall also not exceed the Contract Price reduced by prior payments.

(e) If it appears that due to any cause or reason the Contractor would have incurred a loss on the entire Contract had it been completed, the District shall not reimburse Contractor for any indirect costs for the Adjusted Contract Work completed and shall reduce the settlement to reflect the indicated rate of loss.

(f) If the payments made by the District prior to the effective date of the termination exceed the reasonable direct cost of the Adjusted Contract

Work completed as of the effective date of the termination (as in, for example, a mobilization payment that exceeds direct mobilization costs or other similar front-loaded payments), the District shall at its option be entitled to a credit for the overpayment. The Contractor shall cooperate with any audit the District elects to conduct pursuant to the terms of the Contract.

(g) The rights and remedies of the District in this provision are in addition to any other rights and remedies provided by law or under this Contract, inclusive specifically of all audit rights.

8.32 CONTRACTOR'S OBLIGATIONS DURING TERMINATION

Unless the District directs otherwise, after receipt of a written notice of Termination for Default or Termination for Convenience, Contractor shall promptly:

(a) Stop performing Work on the date and as specified in the notice of termination;

(b) Place no further orders or subcontracts for Materials, Equipment, services or facilities, except as may be necessary for completion of such portion of the Work not terminated;

(c) Cancel all orders and subcontracts, upon terms acceptable to the District, to the extent that they relate to the performance of Work terminated;

(d) Assign as specifically requested by the District all of the rights, title, and interest of Contractor in all orders and subcontracts;

(e) Take such action as may be necessary or as directed by the District to preserve and protect the Site and any other property related to this Project in the possession of Contractor in which the District has an interest;

(f) Continue performance of the Work only to the extent not terminated;

(g) If notified to do so by the District, promptly remove any part or all of its Equipment, Materials, and supplies from the Site; and,

(h) Take any other steps required by the District with respect to the Project.

If Contractor fails to remove its Equipment, Materials, or supplies within three (3) Days of District's notice to do so, District shall have the right to remove such Equipment, Materials, and supplies at the expense of Contractor, deducting the cost thereof from any funds otherwise due Contractor.

8.33 USE OF COMPLETED PORTION OF WORK

District shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding that the time may not have expired for completing the entire Work. Such taking possession and use shall not be deemed to be completion of the Contract in respect to such Work nor shall the same be deemed to be Acceptance of the Work.

8.34 APPLICATION FOR PAYMENT

On or about the first business day of each month, the Contractor shall submit to the District an Application for Payment. Each application shall be on a form acceptable to the District and designated as an "Application for Payment." The Contractor shall include with each Application for Payment:

1. Current schedule of values reflecting the Work done since the last Application for Payment and the cumulative Work completed to date;

2. Project Schedule and the most current updates; and,

3. Affidavits signed by all Subcontractors performing Work as of the last Application for Payment, stating that each of them has been paid, less earned retainage, as their interests appeared in the last Application For Payment.

The Contractor is not entitled to payment for any Work unless the Application for Payment includes all required documentation. The District reserves the right to withhold payment pursuant to Section 8.38 if it is subsequently determined that all required documentation was not provided by the Contractor or any of the documentation provided by the Contractor was inaccurate or otherwise objectionable. At the District's option, no payments will be made after the date of expiration of the Contract Time, as established in the Contract, until final payment.

The Application for Payment shall correlate the amount requested with the schedule of values and with the state of completion of the Work, as measured by the current Project Schedule. In addition to Work performed by the Contractor, Applications for Payment may include the cost of Materials suitably stored on the Site in accordance with Section 8.35.

The District shall comply with RCW 39.76, as amended, and promptly review each Application for Payment and identify in writing any cause for disapproval within eight (8) working days. In addition to withholding payment for unsatisfactory performance or failure to comply with Contract requirements, if the Contractor's Application for Payment fails to recognize any back-charges, off-sets, credits, change orders, or deductions in payment made in accordance with Section 8.35, the District shall have the right to revise or disapprove Contractor's Application For

Payment because the Application For Payment is not considered a properly completed invoice.

8.35 PROGRESS PAYMENTS

Progress payments will be made no more often than monthly following Contractor's Application for Payment. Payment shall be based upon the actual quantities of Work performed as verified and agreed by the Engineer according to the Contract Documents. Payment shall be based upon invoices approved by the Engineer. Progress payments will be made within forty-five (45) Days of the District's receipt of the properly prepared invoice (Application for Payment). Monthly progress payments will be made to the Contractor during the working period but not after the Substantial Completion date. Five per cent (5%) of the amount of the estimated progress payment will be retained by the District as provided in Chapter 60.28 RCW. The statutory retained percentage shall be managed by the District as specified by the Contractor in the Proposal form of the Bid Documents.

The Contractor is required to make payment to all Subcontractors and suppliers for all Work included within the progress payment within ten (10) Days from the receipt of the progress payment. Furthermore, the Contractor shall require all subcontracts issued under this contract to all Subcontractors and suppliers at all tiers to also make all due payments within ten (10) Days of their receipt of payment. The Contractor must justify to the District in writing any intent to withhold payment of monies due to any Subcontractor or supplier.

The cost of Materials, properly stored, protected and insured at the Site of the Work, will be paid on monthly estimates only when provided for in the Special Provisions, and then only for the specific Materials listed therein for partial payment. In preparing the monthly estimates, advancement will be made therein for ninety per cent (90%) of the cost of such Materials, as evidenced by invoices to Contractor. Advances will not be made for any item of Material amounting to less than five hundred dollars ($500.00). All Materials must conform to the requirements of the Specifications. However, advancement for Materials will not constitute acceptance of same, and any faulty Materials will be condemned although advancement may have been made for same in the estimates. Deductions at the same rates and equal in amount to the advancements, will be made on the estimates as the Materials are used. All Materials for which costs are allowed under this subparagraph must be substantiated by written documentation from the Material supplier that the Material has been paid for.

8.36 FINAL PAYMENT

The District will make final payment, excluding held retention, to the Contractor following (1) Physical Completion and (2) final resolution by settlement, mediation or litigation of all Requests for Change Orders or Claims. Final payment shall include the entire sum found to be due hereunder after deducting therefrom such

amounts as the terms of the Contract permit. Prior estimates and payments, including those relating to unit price Work, extra Work or Work omitted, shall be subject to review and correction by the final payment. Final payment will be made only for Materials actually incorporated in the Work; and, all Materials remaining for which progress payments have been made shall revert to the Contractor, unless otherwise agreed, and progress payments made for these items shall be deducted from the final payment for the Work.

By accepting final payment, the Contractor shall be deemed thereby to have released the District from all claims of Contractor and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of the District and others relating to or arising out of the Work, other than release and held retention. Final payment by the District shall not release the Contractor or its Surety from any obligation under the Contract or under the performance and payment bonds or under any warranty obligations.

Neither the final payment nor any part of the retained percentage shall become due until Contractor, if requested, shall deliver to District a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and, if required in either case, an affidavit that so far as it has knowledge or information, the release and receipts include all labor and Material for which a lien could be filed; but Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to Engineer to indemnify District against any lien. If any lien remains unsatisfied after all payments are made, Contractor shall reimburse to District all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable engineer's and attorney's fees.

8.37 ACCEPTANCE AND RELEASE OF RETAINAGE

Following issuance of the Notice of Physical Completion and the completion of all closeout administrative requirements, the District will formally accept the Project. Once the District determines that the Contractor has fulfilled these requirements, the Engineer will issue a formal Notice of Acceptance.

Promptly following Acceptance, the District will prepare the Notice of Completion of Public Works Contract and submit it to the relevant Washington State agencies.

Release of the retainage will be made no sooner than sixty (60) Days after issuing the Notice of Completion of a Public Works Contract provided the following conditions are met:

1. On Contracts totaling more than $35,000, a release has been obtained from the Washington State Department of Revenue (RCW 60.28.051);

2. Receipt of a certificate of Payment of Contributions Penalties and Interest on Public Works Contract from the Washington State Employment Security Department;

3. Receipt of a certificate from Washington State Department of Labor and Industries showing the Contractor is current with payments of industrial insurance and medical aid premiums;

4. All claims, as provided by law, filed against the retainage have been resolved. In the event claims are filed and provided the conditions of 1 through 3 above are met, the Contractor will be paid such retained percentage less an amount sufficient to pay any such claims together with a sum determined by the District sufficient to pay the cost of foreclosing on claims and to cover attorney's fees.

It is the responsibility and a condition of this Contract that Contractor promptly notifies all Subcontractors and suppliers of the commencement of the period and of the final day for submitting any liens. As a further condition of this Contract the Contractor is required to place within all subcontracts a clause that states that this shall be done. The Contractor shall by letter inform the District of the compliance with this provision. Failure of the Contractor to comply with this provision may be used by the District as a basis to withhold retainage to ensure payment to uninformed Subcontractors. Failure to comply will also be made a matter of record for future determinations of Bidder responsibility.

8.38 DISTRICT'S RIGHT TO WITHHOLD PAYMENTS

In addition to moneys retained pursuant to RCW 60.28 and without waiver of any other available remedies, the District at its sole option has the right to recapture, withhold, nullify, or back-charge, in whole or in part, any payments due to Contractor or payments made to the Contractor on the following grounds:

1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;

2. The Contractor's pay request does not contain the required documentation or is otherwise not in conformance with the requirements of the Contract;

3. There is a good faith dispute over all or a portion of the amount due, in accordance with 39.04.250 RCW;

4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, Materials, or Equipment;

5. Failure of the Contractor to submit Schedule(s), schedule(s) of value or update any schedules as required by the Contract;

6. Failure to prosecute progress of the Work in a timely manner or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;

7. A reasonable doubt that the Contract can be completed for the balance then unpaid;

8. Cost or liability that may occur to the District as the result of the Contractor's or Subcontractor's acts, omissions, fault, or negligence;

9. Failure of the Contractor to repair damaged materials, equipment, property, or Work;

10. Imposition of any liquidated or other delay damages under the Contract;

11. Payments made by mistake; or

12. Payments made erroneously and/or in excess of the sum actually due under the Contract.

The withholding, nullification, or back-charge of any payment(s) by the District shall in no way relieve the Contractor of any of its obligations under this Contract. In the event the District withholds all or a part of a payment for deficiencies in either performance, or in a payment request, the District will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.

8.39 HOLD HARMLESS AGREEMENT

The Contractor shall protect, defend, indemnify and hold harmless the District, its officers, officials, separate contractors, employees, agents, and successors and assigns, (collectively "the Indemnified Parties") from any and all liability, claims, demands, suits, penalties, losses, damages, judgments, or costs of any kind whatsoever (hereinafter "claims"), arising out of or in any way, whether direct, indirect or consequential (including, but not limited to, attorneys' and consultants' fees and other expenses of litigation or arbitration) resulting from the Contractor's and/or Subcontractor's and supplier's of all tiers acts or omissions, performance or failure to perform this Contract, to the maximum extent permitted by law or as defined by RCW 4.24.115, now enacted or as hereinafter amended; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Contract are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor and its Subcontractors, agents or employees. This Paragraph shall not be construed so as to require the Contractor to defend, indemnify, or hold harmless the District from such claims, damages, losses or expenses caused by or resulting from the sole negligence of the District or its agents.

The Contractor specifically assumes potential liability for actions brought by the Contractor's own employees or former employees against any Indemnified Party, and for that purpose the Contractor specifically waives all immunity and limitations on liability under the workers compensation act, RCW Title 51, or any industrial insurance act, disability benefit act or other employee benefit act of any jurisdiction

that would otherwise be applicable in the case of such claim. The Contractor recognizes that this waiver was specifically entered into and was the subject of mutual negotiation. Provided, however, the Contractor's waiver of immunity by the provisions of this paragraph extends only to claims against the Contractor by District, and does not include, or extend to, any claims by the Contractor's employee directly against the Contractor.

The District may, in its sole discretion, (1) withhold amounts sufficient to pay the amount of any claim for injury, and/or (2) pay any claim for injury of which the District may have knowledge, regardless of the formalities of notice of such claim, arising out of the performance of this Contract. Any amount withheld will be held until the Contractor secures a written release from the claimant, obtains a court decision that such claim is without merit, or satisfies any judgment on such claim. In addition, the Contractor shall reimburse and otherwise be liable for claims costs incurred by the District, including, without limitation, attorneys' fees and costs and costs for claims adjusting services, engineering, and administration.

In the event the District incurs any judgment, award, and/or costs arising therefrom, including attorneys' fees, to enforce the provisions of this article, all such fees, expenses, and costs shall be recoverable from the Contractor.

The foregoing indemnities and duties to defend shall survive the termination of this Contract and final payment hereunder, and are in addition to any other rights or remedies which District and/or any of the Indemnified Parties may have by law or under this Contract.

8.40 PERFORMANCE AND PAYMENT BOND

The Contractor shall furnish a surety bond in compliance with RCW 39.08 in the full amount of the Contract Price which shall guarantee the faithful performance of the Contract and the payment of all labor, mechanics, Subcontractors and Material suppliers. This bond shall remain in force until all obligations of the Contract are extinguished or until the expiration of all applicable statutes of repose or limitation, whichever is later. Without limiting the foregoing, this bond shall cover, for a period of two (2) years after Physical Completion, all faulty workmanship and Materials or items of Work warranted by Contractor. This bond shall be furnished by a corporate surety company rated A-VII or higher by A. M. Best, authorized to do business in the State of Washington, acceptable to the District, and subject to the approval of the District's attorney as to form.

8.41 ASSIGNMENT AND SUBCONTRACTING

(a) Contractor shall not assign the Contract in whole or in part without the written consent of District, nor shall Contractor assign any moneys due or to become due to him hereunder without the prior written consent of District.

(b) Contractor agrees that it is fully responsible to District for the acts or omissions of Subcontractors and persons either directly or indirectly employed by Subcontractors, as well as for the acts and omissions of persons directly employed by Contractor. District's consent to subcontracting parts of the Work shall in no way release Contractor from responsibility for performance of the Work. Contractor will be held, in all aspects, accountable for subcontracted Work as if no consent had been given. Contractor shall be required to give its personal attention to the Work that is subcontracted. Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and District.

8.42 SEPARATE CONTRACT - INTERFERENCE WITH OTHER CONTRACTORS

(a) District reserves the right to perform work with its own forces or to let other contracts for work under similar general conditions in connection with this Project, of which the work awarded to one or more contractors under separate contracts is a part. Contractor shall afford District and other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their respective work and shall properly connect and coordinate its Work with theirs.

(b) If the performance of any contract for the Project is likely to be interfered with by the simultaneous execution of some other contract or contracts, Engineer shall decide which contractor shall cease work temporarily and which contractor shall continue or whether the work under the contractor can be coordinated so that the contractors may proceed simultaneously. District shall not be responsible for any damages suffered or extra costs incurred by Contractor resulting directly or indirectly from the award, performance, or attempted performance of any other contract or contracts on the Project or caused by any decision or omission of Engineer respecting the order of precedence in the performance of the contractors other than for an extension of Contract Time.

8.43 CLEANUP

(a) During performance of the Work, Contractor shall frequently clean up all refuse, rubbish, scrap material and debris caused by its operations. The Site of the Work shall present a neat, orderly and workmanlike appearance at all times.

(b) Upon completion of the Work, Contractor shall remove all rubbish, scrap material, tools, scaffolding and surplus Materials and Equipment used in and about the Work. Before the Contract shall be considered complete and prior to final payment, Contractor shall remove all surplus Materials and Equipment, falseworks, temporary structures, including foundations thereof, plants of any description, and debris of every nature, resulting from its

operations, shall clean out all ditches that may have been filled during the Work, replace damaged surfacing, and put the Site in a neat, orderly condition and, in respect to structures, shall clean all windows and leave buildings broom clean.

8.44 PROPERTY RESTORATION RELEASE

The Contractor shall obtain a written release from each property owner upon whose property Work has been performed or Materials stored. A sample form of such release is included in the Special Provisions section.

8.45 PREVENTION OF ENVIRONMENTAL POLLUTION

The Contractor shall comply with all Federal, State and local statutes, ordinances and regulations dealing with the prevention of environmental pollution and preservation of public human resources that affect or are affected by this Project including, but not limited to, the State Environmental Policy Act of 1971, the National Environmental Policy Act of 1969, King County Council Ordinance No. 1700, King County Council Motion 1335, and any current amendments thereto which are hereby incorporated into the Contract as if written herein in full. All costs for compliance shall be included in the unit or lump sum prices bid for the several items of Work as indicated in the Proposal.

8.46 VENUE/LIMITATION

The exclusive venue for any litigation arising from or relating to this Contract or the Project is King County Superior Court, Seattle, Washington. This Contract and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington.

No legal action against the District may be filed on account of a Claim or other liability arising out of or related to this Contract unless:

1. The requirements of Sections 8.23, 8.24, and 8.26 have been strictly complied with;

2. The procedures of Sections 8.23 and 8.24 have been exhausted; and,

3. The lawsuit is filed in the exclusive venue specified above and served on the District within 180 Days of the date of Substantial Completion.

The Contractor’s failure to strictly comply with all requirements of this Section shall be a complete bar to any lawsuit.

Northshore Utility District
King County, Washington

2022 ENGINEERING SPECIFICATIONS

MATERIALS OF CONSTRUCTION

February, 2022

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ENGINEERING SPECIFICATIONS
Materials of Construction

Section 9 – Engineering Specifications Materials of Construction

9.1 GENERAL

The type and class of materials to be used shall be as shown on the project plans. Where no specific reference is shown, the following specifications shall govern the materials used. All materials shall be new and undamaged of a known brand, with replacement parts readily available from the general Seattle area.

Prior to the installation of any of the facilities required on the project, all materials shall be approved by the District.

All reference specifications herein shall be of the latest revision.

9.2 SEWER PIPE AND FITTINGS

Sewer pipe material shall be of the following type unless otherwise specified or as indicated on the Plans:

Locations with less than four (4) feet or more than eighteen (18) feet of cover from finished grade	Class 52 Ductile Iron Pipe
Locations with between four (4) feet and eighteen (18) feet of cover from finished grade	PVC Pipe, ASTM 3034, SDR 35
As indicated on the Plans	High Density Polyethylene (HDPE) Pipe

(a) DUCTILE IRON SEWER PIPE AND FITTINGS

1. Ductile iron pipe shall be new, Class 52, cement-lined, conforming to AWWA C151.

2. Ductile iron pipe shall be push-on joint. Pipe shall be furnished with a single rubber ring gasket lubricated to effect the seal.

3. Restrained joint pipe shall be U.S. Pipe “TR Flex” or push-on joint pipe restrained with U.S. Pipe “Field Lok” gaskets, or equal. Each length of pipe shall be clearly marked with the manufacturer’s identification, year, thickness, class of pipe and weight.

4. The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the

specified tests have been made and the results thereof comply with the requirements of this standard.

5. Ductile iron fittings shall be short body with a 350-psi pressure rating for mechanical joint fittings and 250-psi for flanged fittings. All fittings shall be cement lined and shall be in conformance with AWWA C153. All fittings shall be domestic and made in the United States of America.

(b) PVC SEWER PIPE AND FITTINGS (ASTM D3034)

All PVC pipe and fittings shall be integral wall bell and spigot, rubber gasket joint, unplasticized polyvinyl chloride (PVC) pipe in conformance with ASTM D3034 and shall have a maximum SDR of 35. PVC pipe shall have a minimum "pipe stiffness" of 46 psi at 5 percent deflection when tested in accordance with ASTM Designation D2412 and a minimum impact strength of 210 foot-pounds based upon ASTM D3034.

All pipes shall be clearly marked with the manufacturer's identification, year, and class of pipe.

All fittings and accessories shall be manufactured and furnished by the pipe supplier, or shall be District approved equal.

Pipe joints shall use flexible elastomeric gaskets conforming to ASTM D3212.

Connections for side sewer stubs shall be 6 inches inside diameter tee fittings. Wye branches shall be used where the sewer line size is less than 8-inch inside diameter.

(c) HIGH DENSITY POLYETHYLENE (HDPE) SEWER PIPE

High Density Polyethylene (HDPE) sewer pipe shall be PE 4710 high density conforming to ASTM D3350 cell classification PE445474C or higher, with a DR of 11 unless otherwise specified.

The workmanship shall be of the highest level compatible with current commercial practice. The PE pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, or other injurious defects. It shall be uniform in color, opacity, density, and other physical properties.

Butt fusion of pipes and fittings shall be performed in accordance with the pipe manufacturer's recommendations as to equipment and technique. The pipe shall be fused by a certified installer who has a demonstrated ability to fuse polyethylene pipe in the manner recommended by the pipe supplier and/or the fusion manufacturer.

The pipe shall be Phillips 66 Driscopipe 8700 or District approved equal.

(d) FLEXIBLE COUPLING ADAPTERS

Flexible coupling adapters shall meet the specifications set forth in the AWWA Standard C219 coupling specification and be rated for working pressures up to 250 psi. Flexible coupling adapters shall be Romac XR501, or District approved equal.

(e) POLYETHYLENE PIPE ENCASEMENT

Ductile iron pipe shall be encased with polyethylene encasement (8 mil thickness). Material and installation shall be in accordance with AWWA C105. Installation shall be in accordance with AWWA C105, Method A or Method C.

In Method A, polyethylene encasement tubes are used and in Method C, polyethylene sheets are used. In Method A, one length of polyethylene encasement tube is used for each length of pipe. In Method C, every section of pipe is completely wrapped with a flat sheet of polyethylene encasement. In both Methods, the polyethylene is overlapped at the joints and taped.

During the sewer main installation and/or side sewer installation, repair all rips, tears, or other damage to the polyethylene encasement with adhesive tape (i.e. Christy's Pipe Wrap Tape), per the manufacturer's recommendation.

9.3 MANHOLES

Manholes shall be of the offset type, shall be precast concrete sections with a precast base, and shall be made from 3,000 psi structural concrete. All manhole joints shall be watertight and shall be confined O-ring type. They shall be constructed in full compliance with the Standard Details and as further specified herein.

Manhole materials and manufacturing shall be in accordance with ASTM C478.

Minimum standard manhole depth is eight (8) feet and maximum depth is eighteen (18) feet. Depths other than within this range shall require special design and approval by the District.

The base sections and risers of the manholes shall be arranged so no pipes pass through the manhole joints.

(a) Manhole Sections

Manhole sections shall be placed and aligned so as to provide plumb vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension and be watertight. The ladder shall be rigidly attached to the side of the manhole.

Manhole grade rings shall be reinforced 3,000 psi structural concrete, 24 inches in diameter and 4 inches high. Grade rings shall be set in a full-width bed of cement grout. Provide grout between rings and between upper ring and casting. Inside rings shall be troweled smooth with 1/2-inch (minimum) of grout in order to provide a watertight surface.

In addition to the O-ring rubber gaskets, all new manhole joints shall be sealed with a flexible butyl joint sealant conforming to ASTM C990-96 and Federal Specification SS-S-210. The flexible butyl joint sealant shall be "Kent Seal #2" as manufactured by Hamilton-Kent Company or "Ram-Nek" as manufactured by K.T. Snyder Company.

Steel lifting loops or hooks for precast manhole components shall be removed to a minimum depth of one (1) inch below the surface and the remaining hole packed with grout. Precast sections with damaged joint surfaces or with cracks or other damage that may permit infiltration will not be allowed.

Reinforcement for precast manholes shall be in accordance with ASTM C 478-97.

(b) BASE LINERS

All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP). The base liner shall be integrally cast and adequately anchored inside new precast concrete manhole base sections during the concrete casting process at the manhole suppliers manufacturing facility. The base liner shall be cast integral with the precast concrete manhole base section in accordance with the liner manufacturer's specifications. The liner must be fully supported during the casting process and lifting devices shall not penetrate the base liner.

The manhole base liner shall be prefabricated from a one piece homogeneous composite and/or thermoplastic with a minimum thickness of 0.12-inch (3 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section and be a non load-bearing component, which is resistant to the chemical environment normally found in wastewater collection systems. The outer surface of the liner shall be coated with aggregate and/or PP pellets bonded to the outer surface and have perforated PP I-beam "bonding bridge" anchors bonded to the outer surface in order to insure adequate anchoring to concrete base sections to pass vacuum testing with 10-inch of negative pressure.

The inside liner surfaces shall be free of bulges, dents and other defects that result in a variation of inside diameter of more than ¼-inch (7 mm) for base liner flow channel and pipe connections. The precast concrete pipe penetration joint surfaces shall be free of excess concrete at external and

internal surfaces to insure a proper seal between the pipe connection and the liner.

The manhole base liner shall include full flow channels with sidewalls to the crown of the pipe. The inner surface of the bench shall be provided with an anti-skid pattern. Watertight gasketed pipe bell connections to suit specific pipe types, grade, and alignment, shall be monolithically attached to the base liners and shall extend to the outside profile of the precast concrete structure.

If PP base liner is utilized, a minimum slope of 0.06 foot is acceptable across the invert channel. The FRP base liner shall require the District standard minimum slope of 0.1 foot across the invert channel.

Base liner properties shall be in accordance with the following:

MATERIALS

Polypropylene (PP):	100% Copolymer
Minimum thickness:	3mm
Hardness:	75 Shore D
Density:	56.8 lb/ft^3 (0.91 g/cm^3)
Color:	Dull mustard/goldenrod
Fiberglass Reinforced Plastic (FRP):	Polyurethane Hybrid Composite
Glass fiber:	Type E, min fiber length of 0.625-inch (16mm), 10 - 12% content by weight
Inert filler:	10 - 13% content by weight
Minimum thickness:	3mm
Hardness:	85 Shore D
Density:	73.0 lb/ft^3 (1.17 g/cm^3)
Color:	Dull mustard/goldenrod
Aggregate bonding medium:	Processed sand containing crushed & uncrushed dry and cleaned semi-round particles in the 0.08 - 0.12-inch (2 - 3mm) size range
Gaskets:	Polyisoprene, unless otherwise specified
Hardness:	50 - 55 Shore A

PHYSICAL PROPERTIES

Percolation Test:	Water absorption of top surface - 0.032%

Thermal shock (CSA-B45-M93): 100 thermal cycles - no sign of surface defects

Chemical Resistance (ASTM D1308):

Selected Reagents

Reagent	Result
Nitric Acid 69%	No surface Degradation - Surface Staining
Hydrochloric Acid 60%	No surface Degradation
Ammonia 28%	No surface Degradation
Sodium Hydroxide 5.25%	No surface Degradation
Sulfuric Acid 50%	No surface Degradation
Sulfuric Acid 70%	No surface Degradation
Sulfuric Acid 80%	No surface Degradation
Acetone	No surface Degradation
Unleaded Gasoline	No surface Degradation
Turpentine	No surface Degradation
Acetone Immersion (ASTM D2152)	No Attack

Base liners shall be manufactured and supplied by Predl Systems North America of Burnaby, B.C.

(c) MANHOLE STEPS

Manhole steps shall be made of 1/2-inch Grade 60 Steel reinforcing bars coated with copolymer polypropylene, equal to Lane International Manhole Step #P-14938.

The steps shall be installed at the manhole manufacturer's yard in conformance with the step manufacturer requirements. At a minimum, the step ends shall be coated with non-shrink epoxy grout and driven into pre-drilled holes with dimensions of 1-inch diameter and 3-1/2-inch depth. The pre-drilled holes shall not penetrate the exterior manhole wall.

(d) GRADE ADJUSTMENT

The depth of the 24-inch diameter manhole neck from the top of the frame to the top of the cone shall be from between 14-inch and 26-inch.

(e) CHANNELS

All new manholes shall be provided with fiberglass reinforced plastic base liners per Subsection 9.3.b of these specifications, unless otherwise indicated

on the plans or approved by the District. Manholes approved for cement concrete channels shall conform to this subsection of the specifications.

Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well-rounded junctions, subject to approval by the District.

Channels shall consist of commercial grade concrete, minimum Class 3000 in accordance with Section 6-02 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

The channels shall be field poured after the inlet and outlet pipes have been laid and firmly grouted into place at the proper elevation. Allowances shall be made for a minimum of one-tenth foot (0.1 foot) drop in elevation across the manhole in the direction of flow. The maximum allowable drop in inlet elevation across the manhole in the direction of flow shall be 0.5 foot. Channel sides shall be carried up vertically from the invert to three-quarters of the diameter of the various pipes. The concrete bench shall be warped evenly and sloped two percent (2%) to drain. Rough, uneven surfaces will not be permitted. Channels shall be constructed to allow the installation and use of a mechanical plug of the appropriate size.

(f) PIPE CONNECTIONS

All pipe entering or leaving the manhole shall be placed on firmly compacted bedding. Special care shall be taken to see that the openings through which pipes enter the structure are completely and firmly filled with mortar from the outside to insure water tightness. All PVC pipe connections to manholes shall be made with GPK PVC Manhole Adapters (also known as “sand collars”) with an external abrasive silica layer or Kor-N-Seal Connector manufactured by NPC. Inc.

All stubbed out sewer pipes placed through manhole walls for future connections shall be suitably plugged and blocked in a manner acceptable to the District.

(g) SHELF REPAIRS

Shelf repairs at connections to the existing manholes shall be class 3000 commercial grade cement in accordance with the Engineering Specifications.

(h) GROUT

Grout for all uses including, but not limited to, shelves, pick-holes, and adjusting rings, shall be cement based, nonshrink, noncorrrosive, and nonmetallic grout conforming to ASTM C 1107. Grout shall be Dayton Superior 1107 Advantage Grout, Basalite Non-Shrink Grout - Fast Set,

SpecChem SC Multipurpose Grout, or Quikrete Commercial Grade FastSet Non-Shrink Grout. The District may sample and test grout to determine conformance with the specifications.

(i) DROP MANHOLES

Drop manholes shall, in all respects, be constructed as a standard manhole with the exception of the drop connection as shown on the Standard Detail.

(j) LIFT HOLES

All lift holes shall be completely filled smooth with grout both inside and out in order to insure water-tightness.

(k) MANHOLE CERTIFICATION

The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. A Manufacturer's Certificate of Compliance shall be provided for each manhole delivered to the project and shall include the manufacturer's name and address, the District's manhole number, reference to the applicable project specifications being used, the design mix and 28-day strength of the cement concrete used, drawings indicating reinforcing steel details, such as size and location, results of materials testing conducted by the manufacturer and the signature of a responsible corporate official of the manufacturer.

The District may test manholes and materials used at any time, including after installation, and any manhole not conforming to the specifications shall be rejected by the District and replaced with a conforming manhole provided and installed by the Contractor.

9.4 MANHOLE AND CLEANOUT FRAME AND COVERS

Frames and covers shall be cast iron and conform to the Standard Details and these specifications. Castings shall conform to the requirements of ASTM A-48, Class 30 and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects that would impair serviceability. Repair of defects by welding, or by the use of smooth-on or similar material, will not be permitted. Frames and covers shall be machine-finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers.

All manhole frames and covers will be locking type. Manhole frame and cover shall be East Jordan Ergo Assembly, Part No. 001040105L01.

Cleanout frame and cover shall be locking type equal to Armorcast Polymer Concrete Box Assembly with Pentahead locking bolt style and “CO” imprinted on cover, part number A6001423TA (see NUD Standard Sewer Detail #9).

9.5 WATER MAIN PIPE AND APPURTENANCES

(a) DUCTILE IRON WATER PIPE

Ductile iron pipe shall be new, restrained joint, Class 52, cement-lined, conforming to AWWA C151.

Ductile iron pipe shall be U.S. Pipe “TR Flex” or push-on joint pipe restrained with U.S. Pipe “Field Lok” gaskets, or equal. Each length of pipe shall include temporary transportation pipe plugs and shall be clearly marked with the manufacturer’s identification, year, thickness, class of pipe and weight.

The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of this standard.

(b) GALVANIZED IRON WATER PIPE AND FITTINGS

Galvanized iron pipe where specified for use shall be Schedule 40 hot dipped, zinc-coated (galvanized) welded and seamless steel pipe for ordinary uses (ASTM A-120). Fittings shall be screwed malleable iron galvanized per USA Standard B16.3.

(c) CROSS-LINKED POLYETHYLENE (PEXa 3306) SERVICE PIPE

Service pipe shall be MUNICIPEX® from REHAU Construction, LLC. Pipe shall be crosslinked polyethylene (PEXa 3306), using the high-pressure peroxide extrusion method. The pipe shall meet or exceed the requirements of ASTM F876, CSA B137.5 and PPI TR-3, and is certified to NSF Standards 14 and 61, and AWWA C904. No substitutions will be allowed.

(d) POLYETHYLENE PIPE ENCASEMENT

Ductile iron pipe shall be encased with polyethylene encasement (8 mil thickness). Material and installation shall be in accordance with AWWA C105. Installation shall be in accordance with AWWA C105, Method A or Method C.

In Method A, polyethylene encasement tubes are used and in Method C, polyethylene sheets are used. In Method A, one length of polyethylene encasement tube is used for each length of pipe. In Method C, every section of pipe is completely wrapped with a flat sheet of polyethylene encasement. In both Methods, the polyethylene is overlapped at the joints and taped.

During the water main installation and/or water service installation, repair all rips, tears, or other damage to the polyethylene encasement with adhesive tape (i.e. Christy's Pipe Wrap Tape), per the manufacturer's recommendation.

(e) DUCTILE IRON FITTINGS

Ductile iron fittings shall be short body with a 350-psi pressure rating for mechanical joint fittings and 250-psi for flanged fittings. All fittings shall be cement lined and shall be in conformance with AWWA C153 for mechanical joint fittings and AWWA C110 for flanged fittings.

All mechanical joint fittings shall be restrained with EBAA Iron, Inc. "Mega-Lug" mechanical joint restraints, or equal.

Megalug fittings are prohibited for use on cast iron pipe. Restrained joint connections to existing cast iron water main shall be made with Romac Alpha Couplings and fittings only.

All deactivated water mains shall be capped with Romac EC501 End Cap Coupling or equal.

(f) FIRE HYDRANTS

Fire hydrants shall conform to AWWA Standard Specification C502 and be one of the following types:

- Mueller Super Centurion
- American Darling B-62-B
- Clow Medallion
- M&H 129 or 129S
- East Jordan Iron Works WaterMaster 5CD250

They shall be a rising stem compression-type which opens counterclockwise and closes with the pressure. The minimum main valve opening diameter shall be 5-1/4-inch unless otherwise specified. The hydrant seat and hydrant seat retaining ring shall be bronze. All external bolts, nuts and studs shall be cadmium plated in accordance with ASTM A165 Type HS or rust proofed by some other process approved by the District. Gaskets shall be of rubber composition.

Fire hydrants shall be equipped with one 5-inch pumper connection (Seattle Standard Thread) with Storz Adapter (integral or non-integral) as required by those jurisdictions shown on the Standard Details. The hydrant shall include two 2-1/2-inch NST hose ports. Pentagon nuts or caps and operating stem shall measure 1-1/4-inch point to flat and shall open by turning to the left. Nozzle shall be fitted with renewable bronze nipples locked in place.

Fire hydrants shall be set plumb and ports shall be oriented as directed by the Fire Protection District having jurisdiction over said area.

Fire hydrant piping from the main line valve to the hydrant base shall be restrained joint pipe or shall be restrained with stainless steel shackle rods and nuts.

The hydrants shall be coated with enamel paint in accordance with the Standard Details.

See the Standard Detail for additional requirements.

(g) GATE VALVES

Gate valves shall be ductile iron body valves with resilient wedge conforming to the latest revision of AWWA Standard C515 and shall be NSF 61 approved. Valves shall have epoxy coating fusion bonded to all internal and external surfaces of the valve body and bonnet in compliance with AWWA C550. The wedge shall be fully encapsulated in rubber. The valves shall be non-rising stem, open to the left, equipped with standard 2-inch square operating nuts and O-ring seals at all joints. Resilient wedge gate valves shall be American Flow Control Series 2500, Clow model 2638, Mueller 2360 series, Kennedy 7000 series, East Jordan FlowMaster or M&H Style 7000.

(h) BUTTERFLY VALVES

Butterfly valves shall be ductile iron body of the tight closing rubber seat type with rubber seat either bonded to the body or mechanically retained in the body with no fasteners or retaining hardware in the flow stream. The valves shall be epoxy coated inside and outside. The valves shall meet the full requirements of AWWA C504, class 150 B, except the valves shall be able to withstand 200 psi differential pressure without leakage. The valves shall be equal to Pratt "Groundhog" or Mueller Lineseal III.

Butterfly valves to be installed underground shall have sealed mechanical operators and 2-inch standard square operating nuts. Complete manufacturer's Specifications for the valves proposed for use shall be submitted to the District for approval.

(i) VALVE BOXES

Valve boxes shall be two-piece, cast iron, East Jordan Iron Works:

- Valve box cover, 06800209
- Valve box top, 85557016U
- Valve box bottom, 85556036U

(j) FIRE HYDRANT GUARD POSTS

Concrete fire hydrant guard posts, if required as directed by the District, shall be made of precast reinforced concrete, nine (9) inches in diameter, six (6) feet long, or 8-inch x 6-inch x 6 feet long. The guard posts shall be coated white with enamel paint in accordance with the Fire Hydrant Assembly Standard Detail.

(k) METER BOXES

The meter boxes shall be according to the Standard Details.

(l) SERVICE SADDLES

For ductile iron and cast iron water mains larger than 4-inch diameter, direct tapping of 1-inch standard corporation stop threaded tap will be required. Saddles will not be allowed on ductile iron and cast-iron pipe larger than 4-inch diameter for 1-inch water services.

Service taps for all other water main sizes and materials shall be as follows:

1. Service saddles for 1-inch, 1-1/2-inch, and 2-inch standard corporation stop threaded tap, shall be single strap and shall be equal to Mueller Company DR1S, Ford Meter Box Company FC101, or Romac Industries, Inc. 101NS.

2. Saddles for PVC pipe shall be stainless steel, double strap type and shall be equal to Mueller Company DR2S, Ford Meter Box Company FCD202, or Romac Industries, Inc. 202NS.

On existing water mains that are live and connected to the existing system; the Contractor shall furnish and install all parts of the water service and reconnection as required, except the tap. The District will provide all parts necessary to perform the tap (including but not limited to the corporation stop and saddle) and the Contractor shall repair the polyethylene encasement material per manufacturer's recommendations and per the District's Standard Detail.

On new water mains installed and not yet connected to the existing system; the Contractor shall provide all parts and equipment necessary to tap the new main and repair the polyethylene encasement material per manufacturer's recommendations and per the District's Standard Detail.

(m) SERVICE MATERIALS

Service materials including valves, pipe and fittings be as specified on the Standard Details. All brass appurtenances shall be "lead free" and conform to NSF/ANSI 372 and NSF/ANSI 61 standards. 2-inch ball valves shall be

furnished with a slotted operator, and with an adapting 2-inch-square operating nut (Ford Cat. QT-67) secured with a stainless-steel cotter pin.

(n) RESIDENTIAL DOMESTIC AND FIRE SPRINKLER SERVICES

Combination service for residential domestic and fire sprinkler systems shall be according to the Standard Detail.

(o) BLOW-OFFS AND AIR & VACUUM RELIEF VALVES

2-inch Blow-offs and 2-inch Air & Vacuum Relief Valves shall be installed for 12-inch diameter pipe and smaller in accordance with the standard detail. Blow-offs for pipe larger than 12-inch in diameter shall be as directed by the District.

(p) STAINLESS STEEL TAPPING SLEEVE

Tapping sleeve shall be constructed of stainless steel with ductile or carbon steel flange and removable, replaceable bolts and coated nuts to prevent galling. Gaskets shall provide a full circumferential seal. Tapping sleeve shall be Romac SST, JCM 462, or Ford FAST stainless steel tapping sleeve.

9.6 STEEL CASING

Steel casing pipe shall meet ASTM A-53, having a minimum tensile strength of 60,000 psi and a minimum yield strength of 35,000 psi. Wall thickness shall be sufficient to withstand jacking forces without deformation, with minimum wall thickness of 0.375-inches for casing pipe diameters up to 22-inches. For casing pipe diameters larger than 22-inches, please see the table at the end of this subsection. All joints shall be welded. All field-welded joints shall comply with AWS Code for procedures of manual shielded metal arc welding.

The carrier pipe shall be installed with casing spacers. Spacers shall be placed in accordance with the Methods of Construction and shall be at least 12-inches wide. Spacers shall be designed to provide a maximum space of 1-inch between the upper runners and the inside of the steel casing. The spacers shall prevent the pipe bells from touching the inside of the casing. Metal components of casing spacers shall be Type 304 (18-8) 14-gauge (minimum) stainless steel. The liner shall be neoprene rubber or PVC, and the runners shall be polyethylene with a low friction factor. Casing spacers shall be designed for center restraint. Casing spacers shall be Model CCS by Cascade Waterworks manufacturing, or District approved equal.

Where casing spacers must be custom designed to account for a specific grade of the carrier pipe inside the casing, submittals must be provided which include drawings and dimensions for each of the casing spacers and the respective location of each of the spacers relative to the casing and carrier pipe.

Casing end seals shall be 1/8-inch thick synthetic rubber with two stainless steel bands and clamps. The end seal shall be Model S by Pipeline Seal and Insulator, or APS Model AC, or approved equal.

Steel Casing Pipe Wall Thickness Table	
Diameter of Casing Pipe	Minimum Thickness
22 or Less	0.3750”
Over 22” – 28”	0.4375”
Over 28” – 34”	0.5000”
Over 34” – 42”	0.5625”
Over 42” – 48”	0.6250”
Over 48”	Review Required

9.7 FOUNDATION, BEDDING AND BACKFILL MATERIALS FOR TRENCHES

Recycled concrete will not be allowed as foundation gravel, pipe bedding, or trench backfill material for any Ductile Iron (DI water or sewer main installation).

(a) FOUNDATION MATERIALS

Foundation gravel shall consist of clean, granular material free from objectionable materials such as organic matter or other deleterious substances with at least 90 percent coarse material ranging from 1-inch in diameter to 3-inch in diameter and 100 percent 3-inch in diameter or less, unless otherwise specified or approved by the District.

(b) BEDDING MATERIALS

Water Main Pipe:

Bedding material shall consist of crushed surfacing top course, or controlled density fill as indicated on the plans or as directed by the District.

Water Service Pipe:

Bedding material shall consist of 100% clean sand. Native material will not be allowed by the District.

Sewer Main and Lateral Pipe:

Bedding material shall consist of clean, granular, manufactured pea gravel conforming to the following gradation:

U. S. Standard Sieve Size	% Passing by Weight
1/2-inch	100
3/8-inch	85 – 95
No. 4	5 – 15
No. 8	0 – 2

(c) TRENCH BACKFILL

Native material may be used for trench backfill if the material meets the requirements of Section 9-03.14(2) of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation for Select Borrow. Native material shall be free from wood waste, organic waste, coal, charcoal, and other extraneous or objectionable materials and shall have no material larger than 2-inch in diameter. The material shall be non-plastic and shall not contain more than 3 percent organic material by weight.

Imported gravel backfill shall be a granular material conforming to Section 9-03.14(1) of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

Where designated on the Contract Drawings, as required by the roadway permitting agency or as directed by the District, the trench backfill shall be controlled density fill (CDF), as manufactured by Cadman Inc., product #110021, “Pro-Flow Trench Five Hour”, or District approved equal.

9.8 REPLACING ROAD SURFACE

(a) CRUSHED SURFACING

Crushed surfacing material shall be 1-1/4-inch base course and 3/4-inch minus top course crushed gravel and shall be manufactured from ledge rock, talus or gravel in accordance with the provisions of Section 9-03.9(3) of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(b) GRAVEL BASE

All gravel base shall conform to the requirements of Section 9-03.10 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(c) HOT MIX ASPHALT SURFACING

Hot mix asphalt surfacing or repair shall be as required by the roadway permitting agency, and shall conform to Section 5-04 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and the Standard Specification Drawing for Typical Trench Section.

(d) CEMENT CONCRETE PAVEMENT

Cement concrete pavement shall be in accordance with Section 5-05 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall be furnished only by manufacturers who are members of the Portland Cement Association. All reinforcing steel shall conform with and be placed in accordance with Section 5-05 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall conform to the requirements of ASTM Designation A-15 and A-305, latest revisions.

(e) RIGID-TYPE PAVEMENTS RESURFACED WITH HOT MIX ASPHALT

Hot mix asphalt surface mat to be placed over Portland cement concrete base shall be as required by the roadway permitting agency; both the base and the surface mat shall be carefully prepared, placed and cured in full compliance with Section 5-04.3 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

9.9 GRASS SEEDING AND SOD

(a) TOPSOIL

Topsoil shall be Type B or C in accordance with Section 9-14.2(2) or 9-14.2(3) of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall provide a topsoil material submittal to the District for review and approval prior to construction.

(b) SEED

Seed material, storage and certification shall conform to Section 9-14.3 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Seed shall be “Certified” grade seed or better. The Contractor shall provide a seed mix material submittal to the District for review and approval prior to construction.

(c) FERTILIZER

Fertilizer shall be commercial grade in conformance with Section 9-14.4 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall provide a fertilizer material submittal to the District for review and approval prior to construction.

(d) MULCH AND AMENDMENTS

Mulch shall be approved by the District and shall be certified grass hay or straw or wood cellulose fiber for hydroseeding. Wood cellulose fiber shall be in accordance with Section 9-14.5(2) of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(e) SOD

The Contractor shall provide grass mixtures to the District for review and approval prior to construction.

Sod shall be field grown one year or older, have a well-developed root structure and be free of all weeds, disease, and insect damage.

Prior to cutting, the sod shall be green, in an active and vigorous state of growth and mowed to a height not exceeding 1-inch.

The sod shall be cut with a minimum of 1-inch of soil adhering.

Northshore Utility District
King County, Washington

2022 ENGINEERING SPECIFICATIONS

METHODS OF CONSTRUCTION

July, 2022

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SECTION 10

ENGINEERING SPECIFICATIONS
Methods of Construction

Section 10 – Engineering Specifications Methods of Construction

10.1 GENERAL

A pre-construction conference will be held at the District office prior to the start of construction.

The Contractor shall notify the District a minimum of 5 days in advance of contemplated construction to allow for review of materials to be used on the job.

For construction staking on District Capital Improvement Program (CIP) Projects, the District will provide one set of construction stakes. Stakes removed or destroyed will be replaced by the District at the Contractor's request and expense. The Contractor shall coordinate with the District a minimum of 10 days in advance of the need for staking for any CIP project.

For Developer Extension (DE) Projects, the Contractor shall provide their own construction staking per the lines and grades shown on the approved DE Plans. Cutsheets for the staking shall be provided to the District for review prior to the start of any construction on the DE project.

Except as otherwise noted herein, all work shall be accomplished with adopted standards and specifications of Northshore Utility District and according to the recommendations of the manufacturer of the material or equipment used. The Contractor shall have a copy of the plans and specifications on the jobsite at all times.

10.2 CLEARING AND GRUBBING

Clearing and grubbing shall consist of the removal of all trees, stumps, brush, and debris and shall be confined within the limits of the easements obtained for the construction of this project and/or existing public rights-of-way. Removal of clearing and grubbing debris shall be subject to the approval of the District and shall, in no way, constitute a hazard to the continuous operation of any existing utilities. Any damage to the existing utilities shall be repaired by the respective utility company, at the expense of the Contractor.

Within the limits described, all growth and organic matter such as trees, shrubs, brush, logs, fences, upturned stumps and roots of down trees and other similar items, shall be removed and disposed. All trees shall be felled within the area to be cleared. Where the tree limb structure interferes with utility wires or where the trees to be felled are in close proximity to utility wires, the tree shall be taken down in sections to eliminate the possibility of damage to the utility. Any damage that does occur shall be the responsibility of the Contractor.

All fences adjoining any excavation or embankment that may be damaged or buried shall be carefully removed and temporarily erected on the adjoining property or stored for reinstallation as directed by the District.

No debris of any kind shall be deposited in any stream or body of water or in any street or alley.

Trees, shrubbery, and flower beds designated by the District shall be left in place and care shall be taken by the Contractor not to damage or injure such trees, shrubbery, or flower beds by any of its operations.

The refuse resulting from the clearing operation shall be hauled to an approved waste site secured by the Contractor and shall be disposed of in such a manner as to meet all requirements of State, County and municipal regulations regarding health, safety and public welfare.

NO burning is allowed.

In no case, shall any material be left on the project, shoved onto abutting private properties, or be buried in embankments or sewer trenches on the project.

Where trees exist in planting areas and are not to be removed, it shall be the Contractor's responsibility to trim low limbs which will interfere with the normal operation of its equipment and paint or seal pruned areas with an approved pruning tar or paint. The trimming shall be performed in a professional manner by competent personnel prior to its machine operations and in such a manner as the District and/or the property owner may direct.

The Contractor shall be responsible for all damages to existing improvements resulting from its operations.

10.3 DEWATERING AND CONTROL OF WATER

Groundwater in underground utility construction is a widely known, and not unusual, condition. The Contractor shall review the actual field conditions and any other available resources to determine the extent and volume of groundwater to be expected. The Contractor shall submit a dewatering plan to the District for review prior to dewatering activities. The dewatering plan shall show specific locations, in plan and section, where dewatering is expected as well as general discussion of methods should water be encountered in other locations. The plan should also indicate the location and methods for removing groundwater, proper sediment removal and disposal of groundwater.

Review by the District of the design, materials, method, installation, and operation and maintenance details submitted by the Contractor shall not in any way relieve the Contractor from responsibility for errors/omissions therein or from the entire responsibility for complete and adequate design, materials, inspection, operation, maintenance and performance of the dewatering system. The

Contractor shall bear sole responsibility for proper design, installation, operation, maintenance, and any failure of any component of the dewatering system.

The Contractor shall dewater and dispose of the water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public and shall meet all regulatory agency requirements.

The control of groundwater shall be such that softening of the bottom of excavations or formation of "quick" conditions or "boils" shall be prevented. Dewatering systems shall be designed and operated so as to prevent the removal of the natural soils.

During excavating, installing, placing of trench backfill and the placing and setting of concrete, excavations shall be kept free of water. The static water level shall be drawn down below the bottom of the excavation so as to maintain the undisturbed state of the natural soils and allow the placement of backfill to the required density. The dewatering system shall be installed and operated so that the ground water level outside the excavation is not reduced to the extent that would damage or endanger adjacent structures or property.

The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures and pipelines.

In carrying out the work within the limits of streams or an area that will drain into a stream, the Contractor is required to comply with the regulations of the appropriate local, State and Federal agencies.

The Contractor shall contact the above referenced departments and secure such permits as may be necessary to cover its proposed method of operation within the areas described above. If no permit is necessary and, if requested by the District, the Contractor shall provide written approval from the appropriate agency.

10.4 TEMPORARY EROSION & SEDIMENTATION CONTROL (TESC)

The Contractor shall comply with all applicable permit conditions and recommendations of the geotechnical report, if available.

The detrimental effects of erosion and sedimentation are to be minimized in conformance with the following general principles:

- Leaving soil exposed for the shortest possible time.
- Reducing the velocity and controlling the flow of runoff.
- Detaining runoff in an approved on-site temporary sedimentation control facility to trap sediment.
- Releasing runoff safely to downstream areas.

- Installing temporary filter fabric fence.
- Protecting existing catch basins.

In applying these principles, the Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop material, providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; properly controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

(a) TEMPORARY EROSION & SEDIMENTATION CONTROL (TESC)

The Contractor shall provide, install, and maintain TESC facilities to protect the existing surface waters, drainage systems and adjacent properties.

The TESC facilities must be constructed prior to the start of construction to ensure that the transport of sediment to surface waters, drainage systems and adjacent properties is minimized.

The TESC facilities shown on the plan are the minimum requirements for anticipated site conditions. During the construction periods, these TESC facilities shall be upgraded as needed for unexpected storm events and modified to account for changing site conditions (e.g., additional sump pumps, relocation of ditches and silt fences, etc.).

The TESC facilities shall be inspected daily by the contractor/TESC supervisor and maintained to ensure proper functioning. Written records shall be kept of weekly reviews of the TESC facilities during the wet season (Oct. 1 to March 31) and of monthly reviews during the dry season (April 1 to Sept. 30).

Any areas of exposed soils, including roadway embankments, that will not be disturbed for two days during the wet season or seven days during the dry season shall be immediately stabilized with the approved TESC methods (e.g., seeding, mulching, plastic covering, etc.).

The TESC facilities shall be inspected and maintained within 24 hours following a storm event.

At no time shall more than one (1) foot of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment-laden water into the downstream system.

(b) TRENCH MULCHING

Where, in the opinion of the District, there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, material shall be held in place by covering the disturbed area with straw and holding it in place with a covering of jute matting or wire mesh anchored down with wooden stakes, or as directed by the District.

(c) COVER CROP SEEDING

A cover crop shall be in place in all areas excavated or disturbed during construction that were not paved, landscaped, and/or covered prior to construction. Areas landscaped prior to construction shall be restored to their prior condition. The Contractor shall be responsible for protecting all areas from erosion until the cover in place affords such protection.

Cover-crop seeding shall follow backfilling operations.

The Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be reseeded, if required, and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.

During winter months, the Contractor may postpone seeding at the direction of the District, if conditions are such that the seed will not germinate and grow. The Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

Submittals shall be provided for cover crop seed, mulch and fertilizer as specified herein.

10.5 SEWER PIPE INSTALLATION

Unless specified otherwise, a 10-foot horizontal separation and an 18-inch vertical separation must be maintained between all sanitary sewer mains and water mains in accordance with the Department of Ecology criteria.

Where it is necessary to cross an existing asbestos-cement water line, the District may require that the asbestos-cement pipe be removed and replaced with ductile iron pipe in accordance with the Standard Detail on a case-by-case basis. All other non-metallic water main crossings shall be backfilled with CDF per NUD Standard Sewer Details.

(a) CONNECT TO EXISTING SYSTEM

Connections to existing manholes shall be made by core-drilling. Invert of manhole shall be rechannelized as necessary to accommodate flow

directions and provide a minimum of 0.10 foot drop from the inlet to the outlet. Connections shall be watertight. If connection is made to an existing manhole with a fiberglass reinforced plastic baseliner, the disturbed channel must be re-glassed by a District approved contractor.

(b) PLUG(S) FOR EXISTING SYSTEM

The Contractor shall furnish and install a plug at the time the project is connected to the District's sewer system. The plug(s) must remain in position to prevent debris and water from entering the existing sewer system until such time as the sewer system within the project has been accepted by the District for maintenance and operation. A $2,000.00 fine will be levied against the Contractor when a sewer mainline plug is removed at any time during the work. The Contractor will also be accountable for all expenses incurred to clean and flush sanitary sewer mainlines as a result of said plug removal.

(c) PIPE LAYING

The sewer pipe, unless otherwise approved by the District, shall be installed upgrade from point of connection on the existing sewer or from a designated starting point to line and grade per approved plans. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug.

3-inch wide, green metallic sewer detector tape shall be laid 24-inch above the pipe bedding, for the entire length of the sewer main between manholes. Identification on the tape shall include the words "Sanitary Sewer".

(d) PIPE JOINTING

All extensions, additions, and revisions to the sewer system, unless otherwise indicated, shall be made with sewer pipe joined by means of a flexible gasket which shall be fabricated and installed in accordance with these specifications.

All joints shall be made up in strict compliance with the manufacturer's directions and all sewer pipe manufacturing and handling shall meet or exceed the current revisions of the ASTM recommended specifications.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, re-lubricated, if required, and replaced before the re-joining is attempted.

Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially

supported by hand, sling, or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer.

10.6 SIDE SEWER STUBS

A side sewer stub is considered to be that portion of a sewer line that will be constructed between a main sewer line and a property line or easement limit.

All applicable specifications given herein for sewer construction shall be held to apply to side sewer stubs.

3-inch wide, green metallic side sewer detector tape shall be laid 24-inch above the pipe bedding, for the entire length of the side sewer which is 8 feet deep or less continuing up the side sewer 2-inch x 4-inch marker post. Identification on the tape shall include the words "Sanitary Sewer".

Side sewers shall be single and installed according to the Standard Details. In no case may the specified side sewers be changed without the approval of the District.

Side sewers shall be connected to the tee provided in the sewer main where such is available utilizing approved fittings or adapters. The side sewer slope shall be a maximum of 100 percent (45°) and a minimum of 2 percent.

The maximum bend permissible at any one fitting shall not exceed 45º. Bends exceeding 45° with any combination of two fittings shall have a straight pipe of not less than two (2) feet in length installed between such adjacent fittings, unless one of such fittings be a wye branch with a cleanout provided on the straight leg. The maximum length of 6-inch sewer stub shall be 100 feet; minimum length shall be 5 feet unless otherwise approved by the District.

Where there are no basements, the minimum side sewer depth shall be six (6) feet below final grade at the property line. The Contractor shall provide for each 6-inch stub a 2-inch x 4-inch wooden post that extends from the invert of the 6-inch stub to a point 18 inches (minimum) and 2 feet (maximum) above the existing ground. The exposed area of this post shall be painted white and shall have marked thereon the letters S/S. The elevations of the side sewer connections shall be of sufficient depth to serve all existing and possible future structures.

Where no tee is provided or available at the sewer main, connection shall be made by machine-made tap and suitable saddle, or otherwise as approved by the District Engineer.

10.7 TESTING GRAVITY SEWERS

Before sewer lines are accepted and/or connected to the existing system for use, all lines shall be inspected for line and grade, air tightness, deflection, and television inspection. Any corrections required shall be made at the expense of the Contractor.

The first section of pipe not less than 300 feet in length installed by each crew shall be tested, in order to qualify the crew and/or the material. A successful installation of this first section shall be a prerequisite to further pipe installation by the crew. At the Contractor's option, crew and/or material qualification testing may be performed at any time during the construction process after at least three feet of backfill has been placed over the pipe.

(a) PREPARATION FOR TESTING

Prior to testing the Contractor shall clean and flush all sewer lines.

The Contractor shall conduct preliminary tests to confirm that the section to be tested is in an acceptable condition before requesting the District to witness the test. The manner and time of testing shall be subject to approval of the District.

(b) LINE AND GRADE

Variance from established line and grade shall not be greater than one thirty-second (1/32) of an inch per inch of pipe diameter and not to exceed one-half (1/2) inch, provided that such variation does not result in a level or reverse sloping invert; provided, also, that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe interior surfaces, does not exceed one sixty-fourth (1/64) of an inch per inch of pipe diameter, or one-half (1/2) inch maximum.

(c) LOW PRESSURE AIR TEST

Gravity sewers shall be tested with low pressure air, by the pressure drop method in accordance with Section 7-17.3(2)F, *Low Pressure Air Test for Sanitary Sewers Constructed of Non Air-Permeable Materials*, of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. The Contractor shall furnish all facilities and personnel for conducting the air test under the supervision of the District. The Contractor may desire to make an air test prior to backfilling for its own purposes. However, the acceptance air test shall be made after backfilling has been completed and compacted.

All wyes, tees or the end of the side sewer stubs shall be plugged with flexible joint caps, or acceptable alternative, securely fastened to withstand the internal test pressures. Such plugs or caps shall be readily removable and

their removal shall provide a socket suitable for making a flexible, jointed lateral connection or extension. No double plugs shall be allowed.

Immediately following the pipe cleaning, the pipe installation shall be tested with low pressure air. A maximum reach to be tested shall be the reach between two consecutive manholes. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches 4.0 pounds per square inch greater than the average back pressure of any groundwater above the center of the pipe being tested. At least two minutes shall be allowed for temperature stabilization before proceeding further.

The requirements of this specification shall be considered satisfied if the time required in seconds for the pressure to decrease from 3.5 to 2.5 lbs. per square inch greater than the average back pressure of any groundwater that may submerge the pipe is not less than the listed values shown in the following table:

Allowable Time for Pressure Drop Method

Diameter (inches)	Minimum Test Times for Length of Main (seconds)							
	50'	100'	150'	200'	250'	300'	350'	400'
8	144	286	428	570	712	854	908	908
10	222	444	666	888	1110	1134	1134	1134
12	320	640	960	1280	1360	1360	1360	1462
15	500	1000	1500	1700	1700	1714	1998	2284
18	720	1440	2040	2040	2056	2468	2878	3290
24	1280	2558	2720	2924	3654	4386	5116	5846

According to the following:

$T = 4*K$, for $C < 1$

$T = 4*(K/C)$, for $1 \leq C < 1.75$

$T = 4*(K/1.75)$, for $C \geq 1.75$

Where: $C = 0.0003918*d*L$

$K = 0.0111*d^2*L$

d = Pipe diameter (inches)

L = Pipe length (feet)

T = Minimum test time (seconds)

Note: All test times in the above table are rounded up to the nearest even number.

The use of air pressure for testing sewer lines creates hazards that must be recognized. The Contractor shall be certain that all plugs are securely blocked to prevent blowouts. The air testing apparatus shall be equipped with a pressure release device such as a rupture disc or a pressure relief valve designed to relieve pressure in the pipe under test at greater than 6 lbs. per square inch.

Precautions shall be taken to prevent any damage caused by testing. Any damage resulting shall be repaired by the Contractor at its own expense.

All visible leaks showing flowing water in pipelines or manholes shall be stopped even if the test results fall within the allowable leakage.

(d) DEFLECTION TESTING

If required by the District, all PVC sewer pipes shall be tested for deflection not less than 30 days after the trench has been backfilled and compaction has been completed. The testing shall be conducted by pulling a properly sized mandrel through the pipe in accordance with Section 7-17.3(2)G of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(e) TELEVISION INSPECTION

All sanitary sewers shall be inspected by the use of a Closed-Circuit Television (CCTV) camera. The CCTV footage and corresponding inspection file database (media, mdf, ldf files) shall be exported and provided to the District on a USB flash storage device (thumb drive) or uploaded to a OneDrive folder provided to the Contractor by the District. CCTV files shall be provided to the District before final acceptance of the project. No VHS tapes or DVD-R Discs will be accepted. All inspections shall be conducted in accordance with NASSCO PACP methods, done in Granite Net Version 2.7.2.24 or older, and coded in CUES Basic format with uploadable capability to the District's Granite Net database.

At the beginning of each sewer main inspection, the following information shall be electronically generated and displayed on the CCTV footage:

1. Date of inspection
2. Contractor Company Name
3. Operator Name
4. Upstream Manhole number to downstream manhole number
5. Direction of inspection (upstream or downstream)
6. Pipe material and size

During inspections, the following information shall be electronically generated, automatically updated, and displayed on the CCTV footage:

1. Inspection location in the sewer line in feet from adjusted zero
2. Manhole number to manhole number (with direction of travel US/DS)
3. Date of inspection
4. Elapsed time of inspection

Each individual sewer main inspection, from manhole-to-manhole, shall be recorded on one digital file. If a pipe reach cannot be recorded to a single digital file due to extreme pipe length or obstructions in the pipe, multiple digital files for a single pipe are acceptable. On the other hand, multiple sewer main inspections recorded on a single digital file shall not be accepted.

For all projects (District or private development), CCTV inspections shall be furnished by the Contractor. Contractor shall utilize 1-inch target or ball and sewer inspection dye during CCTV recording. Contractor shall use the pipe ID number as shown on the Plans when conducting post-construction CCTV as referenced in the requirements above.

This CCTV inspection will be performed prior to final restoration of the street or easement. The Contractor shall inform the District ahead of time when and which lines are ready to be inspected.

The Contractor shall bear all costs incurred in correcting any deficiencies found during the CCTV inspection including the cost of any additional CCTV inspection that may be required by the District to verify the correction of said deficiency.

The project will not be accepted by the District until the CCTV inspection has been performed.

10.8 TESTING SANITARY SEWER FORCE MAINS

(a) TEST SPECIFICATIONS

Before sewer forcemains are accepted and/or connected to the existing system for use, all lines shall be inspected for line and grade and air tightness. Any corrections required shall be made at the expense of the Contractor.

The pressure tests shall be performed in the following manner:

Water shall be pumped into the main, bringing the pressure in the main equal to, or greater than, 1.5 times the design operating pressure. After a period of thirty minutes, water shall again be pumped into the main to bring the pressure up to the required test pressure and the quantity of water used during the test shall be accurately measured through a standard water service meter with a sweep unit hand that registers one gallon per revolution. The

meter shall be approved by the District prior to testing. The allowable water consumption shall not exceed the quantities given by the following formula:

$$L = \frac{N \times D \times P}{1{,}850}$$

Where:
L = allowable leakage in gallons per hour
N = number of pipe joints
D = pipe diameter in inches
P = test pressure in pounds per square inch

A positive displacement type pump shall be furnished by the Contractor for the testing. Feed for the pump shall be from a container wherein the actual amount of "make-up" water can be measured.

Any leakage caused by defective workmanship or materials shall be repaired and the line shall again be tested to full compliance at the Contractor's expense. Concrete thrust blocking for fittings shall be in place and the concrete strength is sufficiently to withstand the test pressure before starting the test. Where permanent blocking is not required, the Contractor shall furnish and install temporary blocking and remove it after testing. The test pressure shall be applied at the low end of the section of pipe being tested. Air in the pipe shall be vented at all high points.

All field equipment for testing as above described shall be furnished and operated by the Contractor, subject to approval by the District.

The Contractor shall conduct preliminary tests and assure itself that the section to be tested is in an acceptable condition before requesting the District Engineer to witness the test.

(b) FORCE MAIN THRUST BLOCKS

All fittings, such as bends, shall be blocked with concrete in order to prevent movement and separation of pipe joints in accordance with the Water Standard Details for concrete thrust blocking. Sufficient time shall be allowed for the concrete to attain sufficient strength before commencement of pressure tests.

10.9 MANHOLE VACUUM TESTING

Before sewer manholes are accepted and/or connected to the existing system for use, all manholes shall be inspected for air tightness. Any corrections required shall be made at the expense of the Contractor.

All manholes shall be vacuum tested in accordance with ASTM C1244-05 to verify water tightness. All manhole penetrations shall be blocked or sealed and braced prior to the testing in order to prevent pipes, boots, gaskets, or any other

materials from being drawn into the manhole. A vacuum of ten (10) inches of Hg shall be drawn on the manhole and the vacuum pump shut off. The time for the vacuum on the manhole to drop from ten (10) inches of Hg to nine (9) shall be measured and the manhole shall have passed the vacuum test if the time measured is greater than shown in the following table:

Minimum Test Times for MH Vacuum Testing

MH Diameter (inches)	Depth (feet)									
	8 or less	10	12	14	16	18	20	22	24	26
	Time (seconds)									
48	20	25	30	35	40	45	50	55	59	64
54	23	29	35	41	46	52	53	64	64	75

If the time required for the pressure to drop from 10 inches of Hg to 9 inches of Hg is less than the value indicated in the table, the manhole shall be rejected by the District and shall be repaired or replaced and re-tested by the Contractor.

10.10 LAYING DUCTILE IRON WATER MAIN

All pipes shall be installed in accordance with these specifications and the instructions of the manufacturer subject to the approval of the District.

Unless otherwise indicated on the plans, minimum cover shall be 3 feet for 8-inch diameter pipe and smaller, and 4 feet for pipe that is larger than 8-inch in diameter.

Potholing for all existing utilities crossing proposed alignment shall be performed a minimum of 200 feet in advance of water main installation. Additional cost in association with any adjustments to alignment and depth of cover due to insufficient potholing will be performed at the expense of the Contractor.

All pipe ends shall be square with the longitudinal axis of the pipe and any damage to the ends shall be cut off before installation, if approved by the District. Where necessary to cut the pipe, the pipe shall be cut with approved cutting tools.

The pipe shall be laid in a straight grade through localized breaks in grade, the excavation shall be deepened gradually at changes in the street grades so that there are no abrupt changes in pipeline grade. To maintain the required alignment, use short lengths and deflect the joints or use necessary bends.

Each pipe section shall be carefully lowered into place in the ditch after inspecting it for defects and removing any gravel or dirt, etc., from the interior of the pipe.

Where it is necessary to cross sanitary sewer or storm sewer trenches, all trench backfill shall be removed and replaced with mechanically compacted pit run material or CDF in order to provide a uniform support for the full length of the pipe.

A 10-foot horizontal separation must be maintained between all sanitary sewer lines and water lines, unless otherwise approved. A 3-foot minimum horizontal separation shall be maintained between other underground utilities, unless otherwise approved.

All pipe shall be kept free of gravel, dirt, and other contaminants. Temporary pipe plugs must be installed at all exposed pipe ends at the end of each working day. The pipe plug must be a watertight, mechanical device, and shall be cleaned thoroughly prior to installation.

10.11 GALVANIZED IRON PIPE

Galvanized iron pipe and fittings shall be threaded. Joints shall be made up in accordance with good plumbing practice. All threads shall be coated with pipe thread sealer before connecting.

10.12 CONCRETE BLOCKING

Concrete blocking shall be 2500 psi minimum strength, cast in place and have a minimum of 1/2 square foot bearing against the fitting. Blocking shall bear against fittings only and shall be clear of joints so as to permit taking up or dismantling joint. The Contractor shall install blocking which is adequate to withstand full test pressure as well as to continuously stand operating pressures under all conditions of service. For concrete blocking based upon a 250-psi test pressure, see the Standard Details.

10.13 FIRE HYDRANT INSTALLATION

Correct bury depth shall be determined by contractor, fire hydrant shall be set as shown in the Standard Detail. Fire hydrant extensions will not be allowed on new fire hydrant installations. Mega-lugs or stainless-steel tie rods shall be used to restrain the ductile iron pipe between the hydrant foot and the 6-inch hydrant valve.

The location of the fire hydrant shall be shown on the plans to determine length of hydrant run required. The hydrant shall be set on a solid concrete block 4-inch x 8-inch x16-inch and a minimum of 6 cubic feet of 1-1/2” washed rock shall be placed around the base of the hydrant for a drain pocket.

Fire hydrants shall be set plumb and with the ports oriented as directed by the Fire Protection District having jurisdiction over said area.

In some instances, it may be necessary to make a cut or provide a fill to set a hydrant. Where this occurs, the area for at least a three (3) foot radius around the hydrant shall be graded and leveled, and the cut slopes or fill slopes shall be neatly graded by hand, unless otherwise approved by the District and the Fire Chief.

No tool other than an approved hydrant-operating wrench shall be used when operating hydrants.

Fire hydrants shall be prime-coated and finish coated in accordance with the Standard Detail.

10.14 GUARD POST INSTALLATION

Fire hydrant guard posts shall be installed if indicated on the plans or specified by the District. Guard posts shall be set with the top of the guard posts level with the bonnet flange of the fire hydrant. They shall be plumb, and where two posts are used at a hydrant; they shall be set with their tops at the same elevation. The posts shall be coated in the same manner and with the same color as the fire hydrants.

10.15 GATE VALVE AND BUTTERFLY VALVE INSTALLATION

Gate and butterfly valves shall be set in the ground vertically and shall be opened and shut under pressure to check operation and, at the same time, show no leakage. Valves 8-inches and larger that are not flanged to other fittings shall be blocked in accordance with the Standard Blocking Details.

10.16 VALVE BOX INSTALLATION

Valve boxes shall be set flush to the adjacent finished grade.

For valves located outside of paved areas, a cement or asphalt pad for the valve box shall be constructed according to the Standard Detail. The cement or asphalt pad shall be provided for all valves, unless otherwise directed.

10.17 AIR AND VACUUM RELIEF VALVE INSTALLATION

Air and vacuum relief valve assembly shall be installed as shown on the Standard Detail.

Location of the air release valves shall be at the high points of the line. Water line must be constructed so that the air release valve may be installed in a convenient location.

10.18 2-INCH BLOW-OFF INSTALLATION

2-inch Blow-offs shall be installed for 12-inch diameter pipe and smaller in accordance with the Standard Detail.

10.19 TRACER WIRE

All water mains and water services installed shall have blue 14-gauge solid copper wire with polyethylene insulation. Wire shall be placed in the trench on top of the water main and the ends brought into the valve boxes, per the Standard Detail. Tracer wire shall also be wrapped around the water service line and brought up into the meter box. All connections or splicing shall be made with District approved split-bolt wire connectors.

10.20 WATER SERVICE INSTALLATION

All service installations shall be according to the Standard Details.

For ductile iron and cast iron water mains larger than 4-inch diameter, direct tapping of 1-inch standard corporation stop threaded tap will be required, saddles will not be allowed on ductile iron and cast iron pipe larger than 4-inch diameter for 1-inch water services.

Where an existing water service is being replaced with a new water service, the Contractor shall pothole the private, customer side of the existing meter box prior to any water service disruption in order to determine the fittings required for the reconnection and to determine the final location of the new meter box.

On existing water mains that are live and connected to the existing system, the contractor shall furnish and install all parts of the water service and reconnection required, except the tap. The Contractor shall coordinate with Northshore Utility District Maintenance & Operations Department to have them perform the tap on the water main. The District will provide all parts necessary to perform the tap and the Contractor shall repair the polyethylene encasement material per manufacturer’s recommendations and per the District’s Standard Detail.

On new water mains installed and not yet connected to the existing system, the Contractor shall provide all parts and equipment necessary to tap the new main and repair the polyethylene encasement material per manufacturer’s recommendations and per the District’s Standard Detail.

On new ductile iron water mains, multiple, adjacent direct taps shall be installed with a minimum 18" horizontal separation between services. Direct taps shall be made a minumum of 18" from pipe ends (bell or spigot).

Hand drills with hole saws, or other tools or methods, for the installation of service saddles will be allowed for all other water main sizes and materials. Additionally, for larger diameter water services (1-1/2-inch and 2-inch), saddles

will be required regardless of water main size or type. See the Standard Details and Material Specifications for additional information.

10.21 HYDROSTATIC TESTS

After backfilling the water main with sufficient material to prevent movement of the pipeline and allowing sufficient time for the concrete blocking to set, the water main shall be pressure tested in convenient lengths as directed by the District. In general, large sections of untested main will not be permitted to accumulate. Sections to be tested are limited to approximatley 1,500 feet or less, or as approved by the District. Testing against a closed valve is not permitted.

The Contractor shall make arrangements with the District for the necessary filling of the newly installed water main and appurtenances, a minimum of 48 hours notice to the District will be required. The pipeline shall be filled by the District with water slowly and air expelled from the pipeline prior to starting the test. All pipelines shall be tested at a hydrostatic pressure of 250 psi at high point. All necessary pump, valves, meter gauges, piping, 2-inch blow-offs, hose and labor required shall be furnished by the Contractor.

The pressure tests shall be performed in the following manner:

Water shall be pumped into the main, bringing the pressure in the main up to the required test pressure. The 250 psi test pressure must be held for 15 minutes with no drop in pressure in order for a passing hydrostatic test.

All visible leakage shall be corrected, and all new valves installed under these specifications shall be tight. Whenever repairs or corrections are necessary, the pressure test shall be repeated to provide acceptability.

Procedures for testing firelines shall be as described above for hydrostatic tests and per Section 10.22 for bacteriological tests. The testing limits of the portion of the fireline owned and maintained by the District, shall end at a temporary blow-off installed on the fireline, inside the Double Check Detector Assembly (DCDA) vault.

Testing of the private fire line between the DCDA vault and the building shall be per the Fire Marshall's requirements.

10.22 STERILIZATION AND FLUSHING OF WATER MAIN

Upon successful completion of the hydrostatic test, all new water mains, and repaired portions of, or extension to, mains shall be flushed and sampled for purity per AWWA C651-14. The District will collect two consecutive samples for testing taken 24 hours apart and will forward the bacteriological test results to the Contractor. Only upon receipt of two satisfactory bacteriological reports will the Contractor be allowed to make connections to the existing main.

Water supply for filling, testing, and flushing of the new mains will be available from the existing distribution system. The Contractor shall make arrangements with the District for the necessary flushing of the pipeline. The water main shall be flushed a minimum of 24 hours or a maximum of 48 hours from the initial time of the pipeline fill. Opening of valves and use of water from the District's system will be done by the District and water for flushing will be provided by the District.

Taps required by the Contractor for temporary or permanent release of air, chlorination or flushing purposes shall be provided by the Contractor as a part of the construction of water mains. See NUD Standard Water Detail #17 for more information.

(a) DECHLORINATION AND DISPOSAL OF TREATED WATER

Unless otherwise specified, for District Capital Improvement Program (CIP) Projects, the District shall be responsible for disposal of treated water flushed from mains and shall neutralize the wastewater for protection of aquatic life in the receiving water before disposal into any natural drainage channel.

For Developer Extension (DE) Projects, the Contractor shall develop a plan for the disposal of the treated water and submit it to the District for review. The plan shall show specific locations where, or methods by which, the treated water can be discharged. If the plan designates discharge to sanitary sewer, storm sewer or surface water faciltiies, the Contractor shall contact the jurisdiction(s) having authority and secure such permits as may be necessary to cover the proposed method of disposal. If no permit is necessary and, if requested by the District, the Contractor shall provide written approval from the appropriate agency.

The actual flushing and disposal of the treated water will be performed by the District.

(b) REQUIREMENT OF CHLORINE

Before being placed into service, all new mains and repaired portions of, or extensions to, existing mains shall be chlorinated by the Contractor so that a chlorine residual of not less than 10 ppm remains in the water after standing 24 hours in the pipe.

The initial chlorine content of the water shall be not less than 50 ppm (note that ppm = mg/L).

(c) FORM AND METHOD OF APPLIED CHLORINE

Chlorine shall be applied by one of the following methods, to give a dosage of not less than 50 ppm of available chlorine:

1. DRY CALCIUM HYPOCHLORITE

   As each length of pipe is laid, sufficient high test calcium hypochlorite (65-70% chlorine) shall be placed in the pipe to yield a dosage of not less than 50 ppm available chlorine, calculated on the volume of the water which the pipe and appurtenances will contain.

   The number of ounces of 65% test calcium hypochlorite required for a 20-foot length of pipe equals $0.008431D^2$, in which "D" is the diameter in inches.

2. LIQUID CHLORINE

   A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device, or the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solution of the chlorine gas, or the gas itself, must provide means for preventing the backflow of water into the chlorine.

3. CHLORINE-BEARING COMPOUNDS IN WATER

   A mixture of water and high-test calcium hypochlorite (65-70% Cl) may be substituted for the chlorine gas-water mixture. The dry powder shall first be mixed as a paste and then thinned to a 1 per cent chlorine solution by adding water to give a total quantity of 7.5 gallons of water per pound of dry powder. This solution shall be injected in one end of the section of main to be disinfected while filling the main with water (continuous-feed method, see below).

4. SODIUM HYPOCHLORITE

   Sodium hypochlorite, commercial grade (15% Cl) or in the form of liquid household bleach (5% Cl) may be substituted for the chlorine gas-water mixture.

   This liquid chlorine compound may be used full strength or diluted with water and injected into the main in correct proportion to the fill water so that dosage applied to the water will be at least 50 ppm.

The following methods and tables as outlined in AWWA C651-14 are included for reference. Note that ppm = mg/L.

- The continuous-feed method consists of completely filling the main with potable water, removing air pockets, then flushing the main at a minimum of 3.0 ft/sec to remove particulates, and refilling the main with potable water that has been chlorinated to 25 ppm. After a 24-hr

holding period in the main there shall be a free chlorine residual of not less than 10 ppm. Please see the table below and AWWA C651-14 for more information.

Table 4 Chlorine required to produce an initial 25-mg/L concentration in 100 ft (30.5 m) of pipe by diameter

Pipe Diameter		100% Chlorine		1% Chlorine Solution	
in.	*(mm)*	*lb*	*(g)*	*gal*	*(L)*
4	(100)	0.013	(5.9)	0.16	(0.6)
6	(150)	0.030	(13.6)	0.36	(1.4)
8	(200)	0.054	(24.5)	0.65	(2.5)
10	(250)	0.085	(38.6)	1.02	(3.9)
12	(300)	0.120	(54.4)	1.44	(5.4)
16	(400)	0.217	(98.4)	2.60	(9.8)

- The slug method consists of completely filling the main to eliminate air pockets, flushing the main at a minimum of 3.0 ft/sec to remove particulates, then slowly flowing a slug of water dosed with chlorine to a concentration of 100 ppm through the main. The slow rate of flow ensures that all parts of the main and its appurtenances will be exposed to the highly chlorinated water for a period of not less than 3 hours. Please see AWWA C651-14 for more information.

  The table below from Appendix B of AWWA C651-14 provides the amount of chemical required to produce a chlorine concentration of 200 ppm. In order to obtain the 100 ppm as outlined in the slug method, divide the amount of chemical required in the table (gallons or pounds) in half.

Table B.2 Amounts of chemicals required to produce chlorine concentration of 200 mg/L in various volumes of water*

Volume of Water		Liquid Chlorine Required		Sodium Hypochlorite Required						Calcium Hypochlorite Required	
				5% Available Chlorine		10% Available Chlorine		15% Available Chlorine		65% Available Chlorine	
gal	*L*	*lb*	*(g)*	*gal*	*(L)*	*gal*	*(L)*	*gal*	*(L)*	*lb*	*(g)*
10	(37.9)	0.02	(9.1)	0.04	(0.15)	0.02	(0.08)	0.02	(0.08)	0.03	(13.6)
50	(189.3)	0.10	(45.4)	0.20	(0.76)	0.10	(0.38)	0.07	(0.26)	0.15	(68.0)
100	(378.5)	0.20	(90.7)	0.40	(1.51)	0.20	(0.76)	0.15	(0.57)	0.30	(136.1)
200	(757.1)	0.40	(181.4)	0.80	(3.03)	0.40	(1.51)	0.30	(1.14)	0.60	(272.2)

*Amounts of sodium hypochlorite are based on concentrations of available chlorine by volume. For either sodium hypochlorite or calcium hypochlorite, extended or improper storage of chemicals may have caused a loss of available chlorine.

(d) PREVENTING REVERSE FLOW

During flushing, filling, and testing, the District shall make the connections to the existing distribution system and the new water pipelines and shall utilize a backflow prevention device approved by the State Department of Health.

(e) RETENTION PERIOD

Treated water shall be retained in the pipe for a minimum of 24 hours and a maximum of 48 hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least 10 parts per million.

(f) CHLORINATING VALVES AND HYDRANTS

In the process of chlorinating newly-laid pipe, all hydrant valves and other appurtenances shall be opened while the pipeline is filled with the chlorinating agent and under normal operating pressure.

(g) CHLORINATING FINAL CONNECTIONS TO EXISTING WATER MAINS AND SERVICE CONNECTIONS

The chlorinating procedure to be followed shall be as specified by AWWA. All closure fittings shall be swabbed with a 50-ppm minimum chlorine solution.

(h) FINAL FLUSHING AND TESTING

Before placing the lines into service, two (2) consecutive satisfactory bacteriological test reports shall be received.

(i) REPETITION OF FLUSHING AND TESTING

If the initial round of bacteriological testing, two consecutive tests as outlined in 10.22 (h) above, result in an unsatisfactory outcome, any repeat flushing and testing that is completed by the District shall be paid for by the contractor.

If the second round of bacteriological tests result in an unsatisfactory outcome, rechlorination of the installed water main will be required either by the continuous-feed method or slug method as outlined in AWWA C651-14 and Section 10.22 (c). The costs for subsequent redisinfection and testing shall also be the responsibility of the Contractor.

10.23 CONNECTION TO EXISTING WATER MAIN

The Contractor shall not operate any gate valves on the water system. Connections to the existing main shall not occur until satisfactory purity tests have been obtained and without approval of the District.

The Contractor shall make the necessary arrangements with the District for the connection to the existing water main.

Pre-digging and steel plating the connection location(s) shall be performed a minimum of one day prior to the date of connection. Pre-digging shall include potholing the existing water main at the point of connection, excavating between the temporary blow-off and the existing main to provide adequate access to each pipe, and verifying the necessary pipe and fittings to perform connection.

Water service outages shall be limited to the hours of 8:00 AM to 3:30 PM in order to minimize inconvenience to water users and maintain fire protection for the area. Once work is started on a connection, it shall proceed continuously without interruption and as rapidly as possible until completed. The Contractor shall provide a minimum of 72 hours notice to the District prior to the required shutdown. The District will alert affected property owners of the proposed service interruptions.

Existing mains shall be kept in operation until the new main has been constructed, satisfactorily tested and disinfected and is ready for operation. Connections to the existing system shall then be made.

The total length of pipe including fittings, and valve(s) required for the connection shall be in accordance with ANSI/AWWA C651-14, Sec. 4.10 and in no case shall exceed 20 feet.

All material used for the connection shall be thoroughly sterilized by swabbing the interior with a chlorine solution of 50 ppm.

10.24 WATER SERVICE TRANSFERS ON PARALLEL LIVE MAINS

After the new water main is connected to the existing water system, creating parallel live mains, the Contractor shall proceed immediately with all water service and meter transfers from the existing system to the new water main. The Contractor shall also proceed with all other work necessary to permanently abandon the existing water system; including but not limited to, removal and disposal of valve boxes, meter boxes and setters, miscellaneous fittings and pipe, and appurtenances.

Service transfers and the abandonment of the existing water system shall take place prior to the contractor proceeding with the installation of additional water main pipe per the Contract.

10.25 STEEL CASING

Steel casing shall be in accordance with the Materials of Construction and the Standard Details.

Sizing and wall thickness of casing shall be approved by the District.

Jacking and boring of casing pipe shall be accomplished in such a manner that there will be no damage to the existing improvements. Boring shall be accomplished by mechanical augering or drilling of the soil. The casing shall be jacked close enough behind the boring operation so there is no caving of soil from above. Removal of the material from the bored hole by washing or sluicing will not be permitted.

If excess voids are created around the casing, holes shall be drilled through the casing and the voids shall be pumped full of cement grout. All excess excavated material shall be disposed of in a manner acceptable to the District and permitting agencies.

The carrier pipe shall be supported on casing spacers at 10 foot maximum spacing and shall be installed with restrained joints. See the Engineering Specifications, Materials of Construction, and the Standard Detail for additional information.

10.26 EXCAVATION AND BACKFILL FOR UTILITY CONSTRUCTION

(a) TEMPORARY TRAFFIC CONTROL

The Contractor shall make suitable, safe, and adequate provision for necessary traffic around, over, or across the work in progress and shall schedule pavement patching to follow after backfill is completed as directed by regulatory agency.

The contractor shall submit a traffic control plan for review and approval by the District and the permitting agency prior to beginning work. Traffic control shall conform to Section 1-10 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

(b) EXCAVATING IN PAVED AREAS

Prior to excavating in paved areas, the existing road surface shall be cut a minimum of 1 foot back from the outer edge of the excavation with approved cutting equipment. The cuts are to be made in clean, straight lines to insure a minimum of damage to the existing pavements. All cuts in existing concrete pavement are to be made with a concrete saw, except that where the concrete has been overlaid with asphalt, the pavement may be drilled on three (3) inch centers 1 foot (minimum) from the outer edge of the excavation on each side of the trench section. If the Contractor fails to adequately protect the cut edges during construction, it will be required, at its own expense, to re-cut the edges a minimum of 1 foot back from the edge of excavation prior to repairing the pavement.

(c) TRENCH SAFETY AND EXCAVATION

Contractor shall provide and install trench safety systems such as shoring or trench boxes or shall employ construction techniques such back sloping that meet the applicable State and Federal safety regulations.

Use and removal of trench safety systems shall be accomplished in such a manner that there will be no damage to the work or to the other properties.

Maximum and minimum trench widths shall be in accordance with the dimensions shown on the Standard Details.

In all cases, trenches must be of sufficient width to permit proper joining of the pipe and backfilling of material along the sides of the pipe. Trench width at the surface of the ground shall be kept to the minimum amount necessary for proper installation of the work in a safe manner.

Trenches wider than the maximum specified may result in a greater load on the pipe and, consequently, if the maximum trench width is exceeded by the Contractor, the Contractor shall, at its own expense, provide pipe of higher strength classification or provide a higher class of bedding where necessary to assure that the pipe will not be overloaded.

The maximum length of open trench permissible on any line, in advance of pipe laying, will be 100 feet for sewer pipe and 250 feet for water mains, except at the end of each day's operations, there shall be no trench in which pipe laying, embedment and backfill have not been completed.

Upon completion of work each day, all open trenches shall be completely backfilled, leveled and temporarily patched, graveled, fenced, or sheeted as required by the regulatory agency and the District.

Excavation for manholes, valves, structures, and other appurtenances shall be sufficient to provide enough room for compaction equipment between the outside surfaces and the sides of the excavation.

All material excavated from trenches and stored adjacent to trench or in a roadway or public thoroughfare shall be maintained in such manner that will cause a minimum of inconvenience to public travel. Provision shall be made for traffic where such is necessary. Free access shall be provided to all fire hydrants, water valves, and meters and clearance shall be left to enable the free flow of storm water in all gutters, conduits, and natural water courses. Where the trench bottom is a material which is unsuitable for providing an adequate foundation or material which will make it difficult to obtain uniform bearing for the pipe such material shall be removed and replaced with “foundation gravel", as previously defined.

(d) PIPE BEDDING AND TRENCH BACKFILL

Recycled concrete will not be allowed as foundation gravel, pipe bedding, or trench backfill material for any Ductile Iron (DI water or sewer main installation).

The placement and compaction of the pipe bedding and trench backfill shall be in accordance with the requirements of the various applicable sections of these specifications and as shown on Standard Details.

Where excavated material is not approved for backfill or bedding, imported backfill gravel conforming to the Materials of Construction shall be provided

Where governmental agencies other than the District have jurisdiction over roadways, the backfill shall be in accordance with the agency's requirements.

Bedding material shall be carefully placed and firmly compacted to provide a firm, uniform cradle for the pipe. The minimum thickness of the layer of bedding material required shall be 4-inches under the bell for all pipe sizes of 27 inches diameter and smaller, 6-inches for all pipe sizes 30 inches diameter and larger and 6-inches under the bell of the pipe for all diameter pipes where rock is excavated. The Contractor shall provide firm, continuous support for the pipe.

After the pipe laying operation, additional bedding material shall be placed and compacted by hand tools for the full width of the trench to a height of 6" above the top of the pipe.

In backfilling the trench, the Contractor shall take all necessary precautions to protect the pipe and protective coating from any damage or shifting of the pipe.

No timber bracing, lagging, sheathing or other lumber shall be left in any excavation.

At all roadway and driveway crossings and within existing paved rights-of-way and in such additional locations as may be directed by the District, the trench shall be immediately backfilled after the pipe is installed and inspected and shall be immediately provided with a temporarily graveled surface and continually maintained on a daily basis until replaced with permanent repair as required.

The Contractor shall be responsible for restoring to a condition equal to the prior condition of any and all existing utilities, culverts, ditches, drains, landscaping, or other facilities which are damaged as a result of the Contractor's operation.

10.27 COMPACTION OF TRENCH BACKFILL

Recycled concrete will not be allowed as foundation gravel, pipe bedding, or trench backfill material for any Ductile Iron (DI water or sewer main installation).

The moisture content of all soils used shall be within 2% of optimum. All densities shall be determined by the ASTM D-1557 (Modified Proctor) test procedure. The District will conduct on-site materials sampling and in-place density testing for all District projects. For private development projects, all testing is to be provided and paid for by the developer; compaction reports shall be provided to the District. The Contractor shall coordinate the testing with the District and shall provide convenient and safe access to the site and the trench for sampling and testing.

(a) TRENCHING PARALLEL TO ROAD ALIGNMENT

All trench backfill under roadway shall be mechanically compacted to 95% of maximum dry density.

In any trench in which 95% density cannot be achieved with existing backfill, the existing backfill shall be replaced with imported gravel backfill as specified in the Engineering Specifications. The imported gravel backfill shall be mechanically compacted to 95% of maximum dry density for the full depth of the trench.

All backfill material shall be compacted in 24-inch maximum lifts using heavy machinery or 12-inch maximum lifts using hand equipment.

(b) TRENCHING TRANSVERSE TO ROAD ALIGNMENT

For transverse trenching locations, such as side sewers and intersections, the entire trench shall be backfilled with 1-1/4-inch minus crushed rock per the Engineering Specifications and placed in the maximum lifts listed above in Section 10.26 (a) and compacted to 95% of maximum dry density.

10.28 REPLACING ROAD SURFACE

The Contractor shall restore all roadway and driveway surfaces and features excavated or disturbed to a condition acceptable to the District and the governmental agency having control of the road.

All work in County right-of-way shall be subject to the approval of the King County. All work in the City street right-of-way shall be subject to approval of the City.

Paving restoration consists of two steps. The first step is installation of a temporary cold mix patch to be maintained until all work and other restoration is complete or up to 30 days. The second step is installation and sealing of the permanent pavement trench patch.

This work shall consist of the preparation, placing and compaction of subgrade and the patching of various types of pavement cuts to the complete resurfacing of roadways, the performance of which shall be in accordance with the requirements outlined herein. Roadway surface restoration and patching shall be in accordance with the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation, unless specifically directed otherwise by the District.

Before patching material is placed, all pavement cuts shall be trued so that marginal lines of the patch will form a rectangle with straight edges and vertical faces a minimum of one (1) foot back from the maximum trench width.

The Contractor shall maintain proper signs, barricades, lights, and other warning devices in accordance with the traffic control plan.

(a) GRAVEL BASE

Gravel base for road restoration shall conform to the Materials of Construction specifications and shall be placed and compacted in conformance with Sections 2 and 9 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Gravel base shall be placed and compacted before succeeding course material is placed.

Gravel base shall be used as shown on the plans or as directed by the District.

(b) HOT MIX ASPHALT SURFACING

Hot mix asphalt surfacing or repair shall conform to the Materials of Construction and shall be placed in accordance with Section 5-04 the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and the Standard Specification Drawing for Typical Trench Section . All lifts shall be free from ridges, ruts, humps, depressions, objectionable marks, and irregularities and shall conform to the line, grade, and cross-section shown in the plans. Each lift shall be subject to compaction testing. All edges and joints of hot mix asphalt pavement repair shall be sealed with asphalt cement. After pavement is in place, all joints shall be sealed with CSS-1, or equal.

(c) CEMENT CONCRETE PAVEMENT

Concrete shall be as specified in the Materials of Construction and shall be placed in accordance with Section 5-05 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation. Concrete cylinder samples will be taken by the District for the purpose of testing the compressive strength of the concrete to meet the standards as defined by the regulatory agency. Subgrades shall be prepared as shown on the plans and in compliance with the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

All reinforcing steel shall conform with and be placed in accordance with Section 5-05 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation and shall conform to the requirements of ASTM Designation A-15 and A-305, latest revisions.

(d) RIGID-TYPE PAVEMENTS RESURFACED WITH ASPHALT

Those areas that now have a Portland cement concrete base and are surfaced with the hot mix asphalt mat shall be replaced in kind. The surface of the cement concrete portion of the patch shall be left low enough to accommodate the asphalt portion of the patch. Brush finishing will not be required. Joints shall be placed as directed by the District. The hot mix asphalt surface mat and the Portland cement concrete base shall be as specified in the Materials of Construction. Both the base and the surface mat shall be carefully prepared, placed and cured in full compliance with Section 5-04.3 of the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

Hot mix asphalt or bituminous plant mix shall not be placed until the day after the cement concrete has been placed unless otherwise permitted by the District. The edges of the existing asphalt pavements and castings shall be painted with hot asphalt cement or asphalt emulsion immediately before placing the asphalt patching material. The hot mix asphalt pavement shall then be placed, leveled, and compacted to conform to the adjacent paved surface. Immediately thereafter, all joints between the new and original asphalt pavement shall be painted with hot asphalt or asphalt emulsion and be covered with dry paving sand before the asphalt solidifies.

(e) SHOULDER, GRAVEL SURFACES

Shoulders, gravel driveways, and all other gravel surfaced areas disturbed by construction shall be repaired with a minimum 2-inch lift of 3/4-inch minus crushed rock (top course crushed surfacing). Immediately prior to placement

of the gravel, the drainage ditch, shoulders and/or driveways shall be graded to the original smooth contours existing prior to construction. The gravel shall then be placed and compacted in accordance with the applicable Washington State Department of Transportation Specifications.

Crushed surfacing shall be in accordance with Materials of Construction.

Final crushed surfacing shall be placed within 30 days after construction disturbance unless otherwise specified or directed by the District.

10.29 ADJUSTMENT OF NEW AND EXISTING UTILITY STRUCTURES TO GRADE

This work consists of constructing and/or adjusting all new and existing utility structures encountered on the project to finished grade.

For asphalt overlay areas called for to be planed, all existing utility covers shall be lowered below the proposed planing depth prior to planing.

The castings shall not be adjusted to final grade until the pavement is completed, at which time the center of each casting shall be relocated from references previously established by the Contractor. The pavement shall be cut as further described and base material removed to permit removal of the casting. The casting shall then be brought to proper grade.

Prior to commencing manhole adjustments, a plywood and visqueen cover, as approved by the District, shall be placed over the manhole base and channel to protect them from debris.

The hot mix asphalt pavement shall be cut and removed to a neat circle, the diameter of which shall not exceed 6-inch from the outside diameter of the casting frame. The casting frame shall be brought up to desired grade, which shall conform to surrounding road surface. For manholes, adjustment to desired grade shall be made with the use of concrete adjustment rings or bricks. No iron adjustment rings will be allowed. An approved class of mortar (one-part cement to two-parts of plaster sand) shall be placed between adjustment rings or bricks and casting frame to completely fill all voids and to provide a watertight seal. No rough or uneven surfaces will be permitted inside or out. Adjustment rings or brick shall be placed and aligned so as to provide vertical sides and vertical alignment of ladder steps (if steps are necessary).

Check manhole specifications and the Standard Details for minimum and maximum manhole adjustment and step requirements. Special care shall be exercised in all operations in order not to damage the manhole, frames and lids or other existing facilities.

The annular space between the casting and the pavement shall be filled with crushed rock and compacted with hand tamper to within 6-inch of the top of the

frame. Asphalt concrete patching shall not be carried out during wet ground conditions or when air temperature is below 50° F. Hot mix asphalt must be at the temperature as specified by the regulatory agency when placed. Before making the hot mix asphalt repair, the edges of the existing hot mix asphalt pavement and the outer edge of the casting shall be tack coated with hot asphalt cement. The remaining 6-inch shall then be filled with Hot Mix Asphalt Class 1/2-inch and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be carefully painted with hot asphalt cement or asphalt emulsion and shall be immediately covered with dry paving sand before asphalt cement solidifies. Before acceptance of a job, castings shall be cleaned of all debris and foreign material. All ladders must be cleaned free of grout. Any damage occurring to the existing facilities due to the Contractor's operations shall be repaired at its own expense.

10.30 HAZARD OF ASBESTOS CEMENT PIPE REMOVAL

To remove existing asbestos cement pipe from the trench, permitting as determined by regulatory agencies is required.

10.31 RIGHT-OF-WAY MONUMENTS AND LOT MARKERS

Capital Improvement Program (CIP) Projects

For monuments identified to be removed or destroyed as shown on the CIP Plans, the District will schedule a Professional Land Surveyor (PLS) to file the required permit forms with the Department of Natural Resources (DNR), as required by RCW 58.09.130 and WAC 332-120. The District's PLS will set tie-out reference points for the monument(s) identified on the CIP Plans to be removed or destroyed. The contractor shall protect these reference points until the monument(s) have been reset. No construction work affecting monumentation shall commence until DNR has approved the permit. Upon completion of work affecting monumentation, the form "Completion Report for Monument Removal or Destruction" shall be signed by the District's PLS and submitted to DNR.

During construction, the Contractor shall take all necessary precautions to locate and protect existing markers, property corners, monuments and other reference points not identified on the CIP Plans to be removed or destroyed. Under no circumstances shall work be performed which would remove, adjust, or destroy any such markers without the DNR permit, as required by RCW 58.09.130 and WAC 332-120. In the event that the Contractor disturbs or destroys any existing marker, property corner, monument or other reference point not identified to be removed or destroyed on the CIP Plans, the Contractor shall bear any and all

costs for permitting, survey, resetting, legal claims and filing of State forms as required by RCW 58.09.130 and WAC 332-120.

Developer Extension Projects

Under no circumstances shall work be performed which would remove, adjust, destroy, or otherwise make a survey point or monument no longer visible or readily accessible without the DNR survey monument permit. The Developer's Contractor shall not remove or destruct any monument until the monument has been tied out and the Developer has provided the District with a copy the Department of Natural Resources (DNR) permit authorizing the removal or destruction of the monument in accordance with WAC 332-120.

The Developer's Contractor shall protect all monument tie-out reference points and witness monuments until the monument has been reset and the Developer has completed the DNRs report form, provided the District a copy, and forwarded it to the DNR in accordance with WAC 332-120.

10.32 RE-DESIGN OF LINES

Should interferences or obstructions create construction difficulties that the District determines shall require redesign or relocation of the lines, the District will require the necessary revised drawings.

10.33 GRASS SEEDING AND SOD

Areas of existing grass and all areas disturbed by construction which do not receive a specific type of restoration, such as paving, rock, or bark, shall be reseeded, or restored with sod as specified.

The Contractor shall be responsible for providing a finished grass area, which meets the approval of the property owner and the District.

The Contractor shall maintain the grass, including furnishing water and mowing, until project approval, unless otherwise specified.

(a) TOPSOIL

All areas to be seeded, reseeded, or sodded shall be provided with 4-inch minimum depth of topsoil. Topsoil used shall be imported and shall be subject to approval by the District. Prior to providing topsoil, all areas shall be raked smooth and all debris removed and disposed. The topsoil shall be tilled to a depth sufficient to key into the subsoil, raked to a smooth and even grade without low areas to trap water and compacted.

The Contractor shall notify the engineer not less than 24 hours in advance of any seeding or sodding operation and shall not begin seeding or sodding until areas prepared or designated have been approved by the District.

(b) SEEDING AND FERTILIZING

Prior to beginning seeding operations, the contractor shall submit seed mix and rate of application to the District for approval.

Seeding shall not be done during windy weather or when the ground is frozen, excessively wet, or otherwise untillable.

Seed and fertilizer may be sown by one of the following methods:

1. An approved hydroseeder in accordance with the latest published Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

2. Hand methods where allowed by the District in areas that are impossible to hydroseed. Seed shall be applied after the fertilizer and shall be raked into the top one (1) inch of the fertilized topsoil. Immediately following the raking of the seed into the soil, the total area shall be covered with District approved mulch and shall be rolled with a water-filled roller.

The seed shall have a tracer added to visibly aid uniform application. The tracer shall not be harmful to plant and animal life. If wood cellulose fiber is used as a tracer the application rate shall not exceed 250 lbs. per acre.

Fertilizer shall be provided and applied in accordance with the manufacturer's recommendations. The Contractor shall submit for approval a guaranteed fertilizer analysis label for the specified product.

Unless otherwise specified, seeding, fertilizing, and mulching shall be completed between April 15 to June 1 and August 15 to October 15.

(c) GRASS SOD

Sod shall be provided at all locations of established lawn disturbed by construction activities and at other locations as indicated on the plans.

Sod strips shall be placed within 48 hours of being cut. Placement shall be without voids and the end joints shall be staggered. The sod shall be rolled with a smooth roller following placement.

10.34 FINISHING AND CLEANUP

Before acceptance of the project, all pipes, manholes, catch basins, and other appurtenances shall be cleaned of all debris and foreign material. After all other work on the project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas

shall be neatly finished to the lines, grades and cross-sections shown on the plans and as hereinafter specified.

In undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that, upon completion, the area will present a uniform appearance, blending into the contour of the adjacent properties. All other requirements outlined previously shall be met. Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross-section and grade.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade as shown on the typical sections and as required by the District.

All rocks in excess of one (1) inch diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance, shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, well sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. All debris resulting from clearing and grubbing or grading operations shall be removed and disposed.

Drainage facilities, such as inlets, catch basins, culverts, and open ditches, shall be cleaned of all debris resulting from the Contractor's operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements, such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the District.

Castings for manholes, monuments, water valves, lamp poles, vaults, and other similar installations which have been covered with the asphalt material shall be cleaned to the satisfaction of the District.

APPENDIX A

PANGEO GEOTECHNICAL REPORT

PanGEO INCORPORATED
Geotechnical & Earthquake Engineering Consultants

June 14, 2022
Project No. 22-119

Mr. Eric Delfel, P.E.
Gray & Osborne, Inc.
1130 Rainier Avenue South, Suite #300
Seattle, WA 98144

Subject: Geotechnical Report
Proposed Sewer Line Replacement at Casa Juanita
9821 NE 122nd Street, Kirkland, Washington

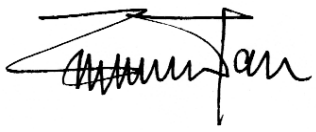
Dear Mr. Delfel:

Attached please find our geotechnical report for the proposed sewer line replacement at 9821 NE 122nd Street in Kirkland, Washington. We understand that the existing sewer line has settled significantly and has impacted its function.

In preparing this report, we drilled two test borings and conducted our engineering analyses. In summary, our subsurface explorations encountered about 15 to 20 feet of loose soil (fill, alluvium and peat) overlying medium dense to very dense sand (outwash). We also encountered groundwater as shallow as about four feet at the time of drilling. We believe that the observed pipe settlement was caused by the presence of peat and the new sewer line should be supported on piles.

We appreciate the opportunity to work on this project. Please call if there are any questions.

Sincerely,



Principal Geotechnical Engineer
(stan@pangeoinc.conm)

3213 Eastlake Avenue East, Suite B
Seattle, WA 98102
Tel (206) 262-0370
Fax (206) 262-0374

TABLE OF CONTENTS

LIST OF ATTACHMENTS

GEOTECHNICAL REPORT
SEWER LINE REPLACEMENT AT CASA JUANITA
9821 NE 122ND STREET, KIRKLAND, WASHINGTON

1.0 INTRODUCTION

This report presents the results of our geotechnical study that was undertaken to support the design and construction of the proposed sewer line replacement at 9821 NE 122nd Street in Kirkland, Washington. Our service scope included reviewing readily available geologic data, conducting a site reconnaissance, drilling two test borings, and developing the conclusions and recommendations presented in this report.

2.0 PROJECT AND SITE DESCRIPTION

The project alignment is located on the west side of the Casa Juanita building located at 9821 NE 122nd Street in Kirkland, Washington. The approximate location of the site is shown in Figure 1, and the pipe alignment is shown in Figure 2.

The subject alignment is about 99 feet long and consists of an 8-inch diameter sewer main that was installed in the 1970s when the housing development was constructed. The sagging of the sewer line has resulted in blockage of flows. This section of the sewer line is relatively shallow (less than 4 to 5 feet deep) and is bisected by a covered at-grade walkway. We understand that the existing adjacent building and the covered walkway are supported on timber piles.

We understand that the District plans to replace this section of the pipe. A new manhole will be installed to tie into the existing pipe section that will remain. We anticipate that cuts and fill for the proposed sewer line replacement will be up to about 6 feet deep.

Based on our field observations and review of the topographic map, the site grade in the general vicinity descends from east to west towards Juanita Creek with an average gradient of about 5 to 10%. The grade immediately along the subject pipe alignment slopes down from south to north with an average gradient of about 2%. The site is vegetated with lawns, planters, landscaping shrubs and trees. Views of the site taken at the time of our field explorations are provided as Plates 1 and 2 on the following page.

According to the City's GIS maps, the entire sewer alignment is mapped with medium or mixed liquefaction potential. The south end of the proposed sewer improvements is also mapped by the

City of Kirkland with moderate landslide susceptibility. Evaluation and mitigation of geologic hazards is beyond the scope of the current project because the current project is for maintenance and repair of an existing utility line.

Plate 1: *View of the existing causeway (top) and manhole (lower left) at north end of sewer segment to be replaced. Looking south.*

Plate 2: *View of existing causeway (top) and manhole (lower left) located 50 feet south of south end of sewer segment to be replaced. Looking north.*

The conclusions and recommendations in this report are based on our understanding of the proposed development, which is in turn based on the project information provided. If the above project description is incorrect, or the project information changes, we should be consulted to review the recommendations contained in this study and make modifications, if needed. In any

case PanGEO should be retained to provide a review of the final design to confirm that our geotechnical recommendations have been correctly interpreted and adequately implemented in the construction documents.

3.0 SUBSURFACE EXPLORATIONS

3.1 TEST BORINGS

On May 17, 2022, two test borings (PG-1 and PG-2) were drilled at the approximate locations shown on Figure 2. The borings were advanced to approximately 41 and 36½ feet below existing grades, respectively, using an RCT 60 track drill rig owned and operated by Boretec1, Inc. of Bellevue, Washington, using 6-inch outside diameter hollow stem augers.

Soil samples were obtained from the borings at 2½- and 5-foot depth intervals in conjunction with Standard Penetration Test (SPT) sampling methods in general accordance with ASTM test method D-1586, in which the samples are obtained using a 2-inch outside diameter (OD) split-spoon sampler. The 2-inch OD samplers were driven into the soil a distance of 18 inches below the auger tip using a 140-pound weight falling a distance of 30 inches. The number of blows required for each 6-inch increment of sampler penetration was recorded. The number of blows required to achieve the last 12 inches of sample penetration is defined as the SPT N-value. The N-value provides an empirical measure of the relative density of cohesionless soil, or the relative consistency of fine-grained soils.

A geologist from PanGEO was present during the field exploration to observe the drilling, to assist in sampling, and to describe and document the soil samples obtained from the borings. The soil samples were described using the system outlined on Figure A-1 in Appendix A. The summary boring logs are included in Appendix A. Photos of select soil samples are included in Appendix C.

3.2 LABORATORY TEST

Laboratory tests were performed on select soil samples to determine its in-situ moisture content and grain size distributions. The results of the moisture content tests are indicated on the boring logs in Appendix A. The results from the grain size distribution are summarized in Appendix B.

4.0 SUBSURFACE CONDITIONS

4.1 SITE GEOLOGY

Based on our review of the *Geologic Map of the Kirkland Quadrangle, Washington* (Minard, 1983), the subject site is underlain by Vashon recessional outwash (Qvr) with Vashon advance outwash (Qva) mapped to the south and east. According to more recent mapping by Brooks (2017), the site is underlain by alluvium (Qal) and Vashon recessional lacustrine deposits (Qvrl) with Vashon recessional outwash (Qvr) mapped in the vicinity. The characteristics of these mapped soil units are described below:

Alluvium (Qal) generally consists loose to medium dense sand and soft to medium stiff silt with occasional organic soil layers deposited by Juanita Creek.

Vashon recessional outwash (Qvr) generally consists of sediment deposited in front of a glacier as the ice sheet retreated from the margin during the Vashon stade of the Fraser glaciation, and typically consists of loose to dense sand and gravel with some silt lenses.

Vashon recessional lacustrine deposits (Qvrl) are a subunit of Vashon recessional outwash and consist of laminated silt and clay layers that have been deposited by slow-flowing meltwater streams. They also have not been glacially overridden and are typically soft to stiff.

Vashon advance outwash (Qva) consists of sand deposited by meltwater streams emerging from an advancing glacier. Advance outwash has been glacially overridden and as such is typically dense to very dense.

4.2 SOILS

Based on the conditions encountered in our test borings, we interpret the site is generally underlain by about 15 to 20 feet of loose fill and alluvium, in turn underlain by medium dense sand (recessional outwash). Dense to very dense sand (advance outwash) was encountered directly below the recessional outwash, at about 35 feet in boring PG-1 and 30 feet in boring PG-2.

An approximately 4-foot-thick peat layer was encountered in boring PG-2, between about 7 and 11 feet below the existing grade. The peat layer was not encountered in boring PG-1. The lateral extent of the peat layer is not readily known. If needed, additional test borings can be performed to delineate the extent of the peat.

The peat layer is water-bearing and soft and is considered highly compressible and is expected to continue to settle under its own weight due to decomposition of the organic matters.

Our subsurface descriptions are based on the conditions encountered at the time of our exploration. Soil conditions between our exploration locations may vary from those encountered. The nature and extent of variations between our exploratory locations may not become evident until construction. If variations do appear, PanGEO should be requested to reevaluate the recommendations in this report and to modify or verify them in writing prior to proceeding with earthwork and construction.

4.3 GROUNDWATER

At the time of drilling, groundwater was observed at about 4 feet deep in PG-1 and at about 6 feet deep in PG-2. This corresponds to a consistent water level elevation of about 41 feet.

It should be noted that groundwater levels will fluctuate depending on the season, amount of rainfall, surface water runoff, and other factors. Generally, the water level is higher and seepage rates are greater in the wetter, winter months (typically October through May).

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1 PIPE AND MANHOLE SUPPORT

Based on the subsurface conditions encountered at the site and our understanding of the planned improvements, it is our opinion that small diameter, driven steel pipe piles (pin piles) should be considered to support the new sewer main and manhole to mitigate the risk of future settlement. The piles should be designed to support the weight of the pipe and structure, and the soils above the pipe. The soils above the pipe should be calculated using a unit weight of 130 pcf, over three times the width of the pipe diameter.

Pin Pile Sizes - In our opinion, 3-, 4, or 6-inch diameter driven steel pipe piles may be used to support the at-grade foundations. Three-, four-, and six-inch diameter pin piles are typically installed using small hammers mounted on a small excavator. When selecting the pile diameter, the structural capacity of the piles should be considered to ensure that the piles will have adequate capacity to resist the buckling.

Pin Pile Capacity **-** The number of piles required depends on the magnitude of the design load. Allowable axial compression capacities of 12, 20, and 40 kips may be used for 3-, 4-, and 6-inch diameter steel pipe piles, respectively, with a factor of safety of 2.

Penetration resistance required to achieve the capacities will be determined based on the hammer used to install the piles as discussed in the following section. Tensile capacity of pin piles should be ignored in design calculations.

It is our experience that the driven pipe pile foundations should provide adequate support with total settlements on the order of ½-inch or less.

Driving Criteria: Three-, 4-, or 6-inch diameter piles are typically installed using small (approximately 850 to 3,000 pound) hammers mounted to an excavator. The criterion for driving refusal is defined as the minimum amount of time (in seconds) required to achieve one inch of penetration, and it varies with the size of hammer used for pile driving. Table 1 below is a summary of driving refusal criteria for different hammer sizes that are commonly used:

Table 1 - Summary of Commonly Accepted Driving Criteria

Hammer Model	Hammer Weight (lb) / Blows per minute	Refusal Criteria (seconds per inch of penetration)		
		3" Pile	4" Pile	6" Pile
Hydraulic TB 325	850 / 900	10	16	NA
Hydraulic TB 425	1,100 / 900	6	10	20
Hydraulic TB 725	2,000 / 600	3	4	10
Hydraulic TB 830	3,000 / 500	NA	NA	6

Please note that these refusal criteria were established empirically based on previous load tests on 3-, 4-, and 6-inch pin piles. Contractors may select a different hammer for driving these piles and propose a different driving criterion. In this case, it is the contractor's responsibility to demonstrate to the Engineer's satisfaction that the design load can be achieved based on their selected equipment and driving criteria.

The quality of a pin pile foundation is dependent, in part, on the experience and professionalism of the installation company. We recommend that a company with experienced personnel be selected to install the piles.

Pin Pile Specifications **-** We recommend that the following specifications be included on the foundation plan:

1. All piles shall consist of galvanized Schedule-40, ASTM A-53 Grade "A" pipe.

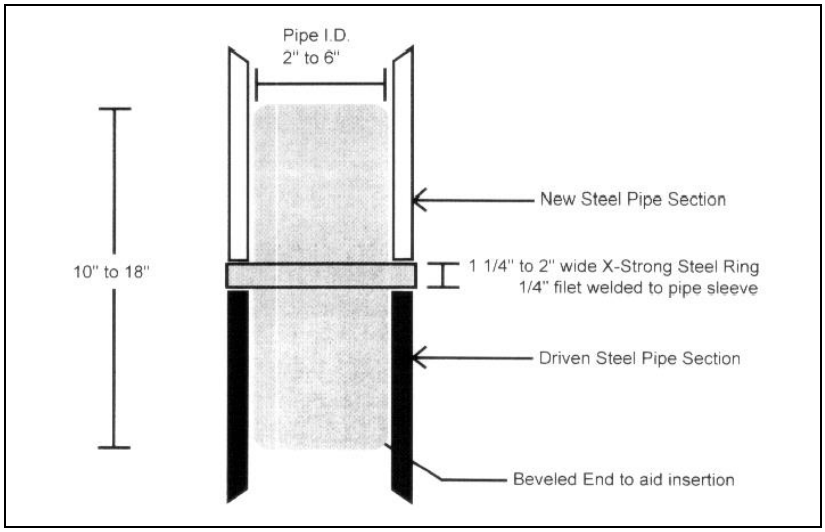
2. The pin piles shall be driven to refusal as shown in Table 1 above.

3. Piles shall be driven in nominal sections and connected with compression fitted sleeve couplers (see detail below – Courtesy of McDowell Pile King, Kent, WA).

4. A minimum 3% of the piles (1 minimum and up to 5 piles maximum) should be load tested to verify the design capacities. All load tests shall be performed in accordance with the procedure outlined in ASTM D1143. The maximum test load shall be 2 times the design load (i.e., 2 x 10 tons = 20 tons).

5. The geotechnical engineer of record or his/her representative shall provide full time observation of pile installation and testing to verify the driving refusal criteria.

6. Pile splices may be made with compression fitted sleeve pipe couplers (see Typical Splicing Detail below). Splicing using welding of pipe joints should not be used, as welds will typically be broken during driving.



Lateral Resistance - The capacity of pin pipes to resist lateral loads is very limited and should not be used in design. Therefore, lateral forces, if present, should be resisted by the passive earth pressures acting against the pile caps and below-grade walls or from battered piles (batter no steeper than 3(H):12(V)). *Friction at the base of pile-supported concrete grade beam should be ignored in the design calculations.*

Passive resistance may be determined using an equivalent fluid weight of 200 pounds per cubic foot (pcf), assuming relatively loose soils adjacent to the pile caps.

Estimated Pile Length – Based on the soil conditions at the site and our experience in the project area, for planning and cost estimating purposes, we estimate that average pile lengths may be about 40 to 50 feet.

Pile Installation Monitoring: The quality of a pipe pile foundation is dependent, in part, on the experience and professionalism of the installation company. We recommend that a company with personnel experienced in the successful installation of pipe piles be selected to install the piles.

As it is not possible to observe the completed pile below the ground, judgment and experience must be used as the basis for determining the acceptability of a pile. Therefore, all piles should be installed under the full-time observation of a representative of PanGEO. This will allow us to fully evaluate the contractor's operation, collect and interpret the installation data, and verify bearing stratum elevations. Furthermore, we will also understand the implications of variations from normal procedures with respect to the design criteria. The contractor's equipment and procedures should be reviewed by PanGEO before the start of construction.

5.2 PIPE BELOW COVERED SIDEWALK

A small section of the proposed pipe replacement will be installed below the existing covered sidewalk. We understand that the existing sidewalk is a structural element spanning between timber piles, and not supported on the soils below the sidewalk. As such, the excavation to install the pipe should not adversely impact the sidewalk.

Given the limited width of the sidewalk (approximately 5 to 6 feet) and depth (about 5 feet), it is our opinion that this portion of the replacement pipe can be hand-minded, from both sides of the sidewalk. The excavation should be properly shored to protect the workers.

Below the sidewalk, the trench excavation is likely to slough and the entry of personnel to below the sidewalk should be prohibited, unless proper safety measures are in place.

We anticipate piles will be installed on both side of the sidewalk to support this section of pipes.

The void below the sidewalk should be properly backfilled with a flowable lightweight material such as Cell-Crete (https://www.cell-crete.com/) or foam. The backfill should extend to the bottom of the sidewalk.

5.3 Design Pressure for Manhole Structure

We recommend that a lateral pressure based on an equivalent fluid unit weight of 90 pcf be used to design the manhole, this is based on the assumption that groundwater may be near the ground surface during period of significant precipitations.

The manhole should also be designed for buoyancy uplifts. Pin piles supported the manholes should not be relied upon for uplift resistance. The buoyancy should be resisted by the weight of the structure, and side frictions. A unit side friction of 25 psf may be used, assuming 6-foot-deep manhole and groundwater at the surface.

If needed, the base of the manhole may be extended beyond its edge, and the weight of the soil placed above the base can also be relied upon to resist the uplift. A buoyant/net soil unit weight of 50 pcf may be used in design calculation.

5.4 Temporary Excavations and Shoring

Based on the results of our test borings and the anticipated depth of about 6 feet below the existing grade, the trench excavation is anticipated to encounter about 5 feet of loose silty sand and gravel (fill) and loose silty sand (alluvium). Groundwater was encountered at 4 to 6 feet in our test borings at the time of drilling, and therefore the excavation is likely to encountered groundwater. The amount of water may vary seasonally.

The excavation method and equipment should be determined by the contractor. It is our opinion that conventional excavators are capable of proposed excavations based on the subsurface conditions encountered. Construction equipment, construction material, excavated soil, and vehicular traffic should not be allowed within a horizontal distance, measured from the edge of the excavation, equal to half the depth of the excavation, unless the shoring system has been designed

for the surcharge. All excavations should be conducted in accordance with all applicable federal, state, and other local safety requirements.

It is the contractor's responsibility to maintain safe working conditions, including temporary excavation stability. All excavations should be conducted in accordance with all applicable federal, state, and other local safety requirements. All excavations in excess of 4 feet in depth should be sloped in accordance with Washington Administrative Code (WAC) 296-155 or be shored. Even if space is available for unsupported open cut excavations, we anticipate that nearly vertical excavations with proper excavation support will be used for the project to reduce the disruption to the adjacent properties. Unsupported open cut excavations, if used, should be graded no steeper than 1H:1V.

In our opinion, trench boxes and/or steel plates with hydraulic braces are appropriate for the proposed project. As a minimum, all shoring systems should be designed to withstand a lateral earth pressure of 40 pcf. Where appropriate, a uniform lateral pressure of 85 psf should be used to account for a traffic surcharge. Lateral loads due to construction equipment traffic or sloping ground conditions adjacent to the excavations should also be added to the recommended earth pressures for design purposes.

Lateral loads due to construction equipment traffic, existing structures, or sloping ground conditions adjacent to the excavations should also be added to the recommended earth pressures for design purposes. Construction equipment, construction material, excavated soil, and vehicular traffic should not be allowed within a horizontal distance, measured from the edge of the excavation, equal to half the depth of the excavation, unless the shoring system has been designed for the surcharge. These conditions will need to be evaluated on a case-by-case basis.

During construction, the ground adjacent to excavations should be continuously monitored for cracks or dips and other indications of movements and possible sloughing of the excavation walls. Such monitoring is particularly critical in areas adjacent to existing structures and utilities.

5.5 DEWATERING

The bottom of the excavation may extend one to two feet into groundwater. If needed, we believe that a passive dewatering system consists of sumps and pumps will be adequate. Peat and organic soils could experience settlement due to dewatering. However, because the existing buildings are pile-supported, the existing buildings should not be impacted by the passive dewatering system.

5.6 PIPE AND MANHOLE SUBGRADE

Because the pipe and manhole will be supported on piles, the adequacy of its subgrade is not critical, as long as it can provide adequate support for the construction activities. We anticipate that about one foot of quarry spalls underlain by a geotextile may be needed to stabilize the subgrade for construction purposes, due to the high groundwater levels observed in our test borings and anticipated wet subgrade conditions.

5.7 TRENCH BACKFILL

The trench backfill above the pipe should be carefully placed to avoid over-stressing the pipe that will be pile supported. Excessive compaction between pile bents could damage the pipe.

Because the pipe alignment is located in a non-structural area (i.e., no pavements, slabs, etc.) and settlement of the trench backfill should not impact the use of this area, it is our opinion that the trench backfill may consist of non-structural fill by re-using the soils excavated from the trench. The backfill should be placed in maximum 8-inch loose lifts and compacted with handheld equipment to 90% of its maximum dry density, based on Standard Proctor Test.

It should be noted that it may be necessary to aerate the excavated soils prior to placement to permit compaction of the backfill material.

5.8 WET EARTHWORK RECOMMENDATIONS

It is our opinion that construction of the project can be accomplished during the wet season. However, performing earthwork activities during wet season is anticipated to be more costly than during dry weather conditions. General recommendations relative to earthwork performed in wet weather or in wet conditions are presented below:

- Earthwork should be performed in small areas to minimize subgrade exposure to wet weather.
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water.
- Geotextile silt fences should be strategically located to control erosion and the movement of soil. Erosion control measures should be installed along all the property boundaries.

- Excavation slopes and soils stockpiled on site should also be covered with plastic sheets.

6.0 LIMITATIONS

We have prepared this report for Gray & Osborne, Inc. and the project design team. Recommendations contained in this report are based on a site reconnaissance, a subsurface exploration program, review of pertinent subsurface information, and our understanding of the project. The study was performed using a mutually agreed-upon scope of work.

Variations in soil conditions may exist between the explorations and the actual conditions underlying the site. The nature and extent of soil variations may not be evident until construction occurs. If any soil conditions are encountered at the site that are different from those described in this report, we should be notified immediately to review the applicability of our recommendations. Additionally, we should also be notified to review the applicability of our recommendations if there are any changes in the project scope.

The scope of our work does not include services related to construction safety precautions. Our recommendations are not intended to direct the contractors' methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Additionally, the scope of our work specifically excludes the assessment of environmental characteristics, particularly those involving hazardous substances. We are not mold consultants nor are our recommendations to be interpreted as being preventative of mold development. A mold specialist should be consulted for all mold-related issues.

This report may be used only by the client and for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both off and on-site), or other factors including advances in our understanding of applied science, may change over time and could materially affect our findings. Therefore, this report should not be relied upon after 24 months from its issuance. PanGEO should be notified if the project is delayed by more than 24 months from the date of this report so that we may review the applicability of our conclusions considering the time lapse.

It is the client's responsibility to see that all parties to this project, including the designer, contractor, subcontractors, etc., are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

Any party other than the client who wishes to use this report shall notify PanGEO of such intended use and for permission to copy this report. Based on the intended use of the report, PanGEO may require that additional work be performed and that an updated report be reissued. Noncompliance with any of these requirements will release PanGEO from any liability resulting from the use this report.

Within the limitation of scope, schedule, and budget, PanGEO engages in the practice of geotechnical engineering and endeavors to perform its services in accordance with generally accepted professional principles and practices at the time the Report or its contents were prepared. No warranty, express or implied, is made.

We appreciate the opportunity to be of service to you on this project. Please feel free to contact our office with any questions you have regarding our study, this report, or any geotechnical engineering related project issues.

Sincerely,

PanGEO, Inc.

Bart Weitering, G.I.T.
Project Geologist

Siew L. Tan, P.E.
Principal Geotechnical Engineer

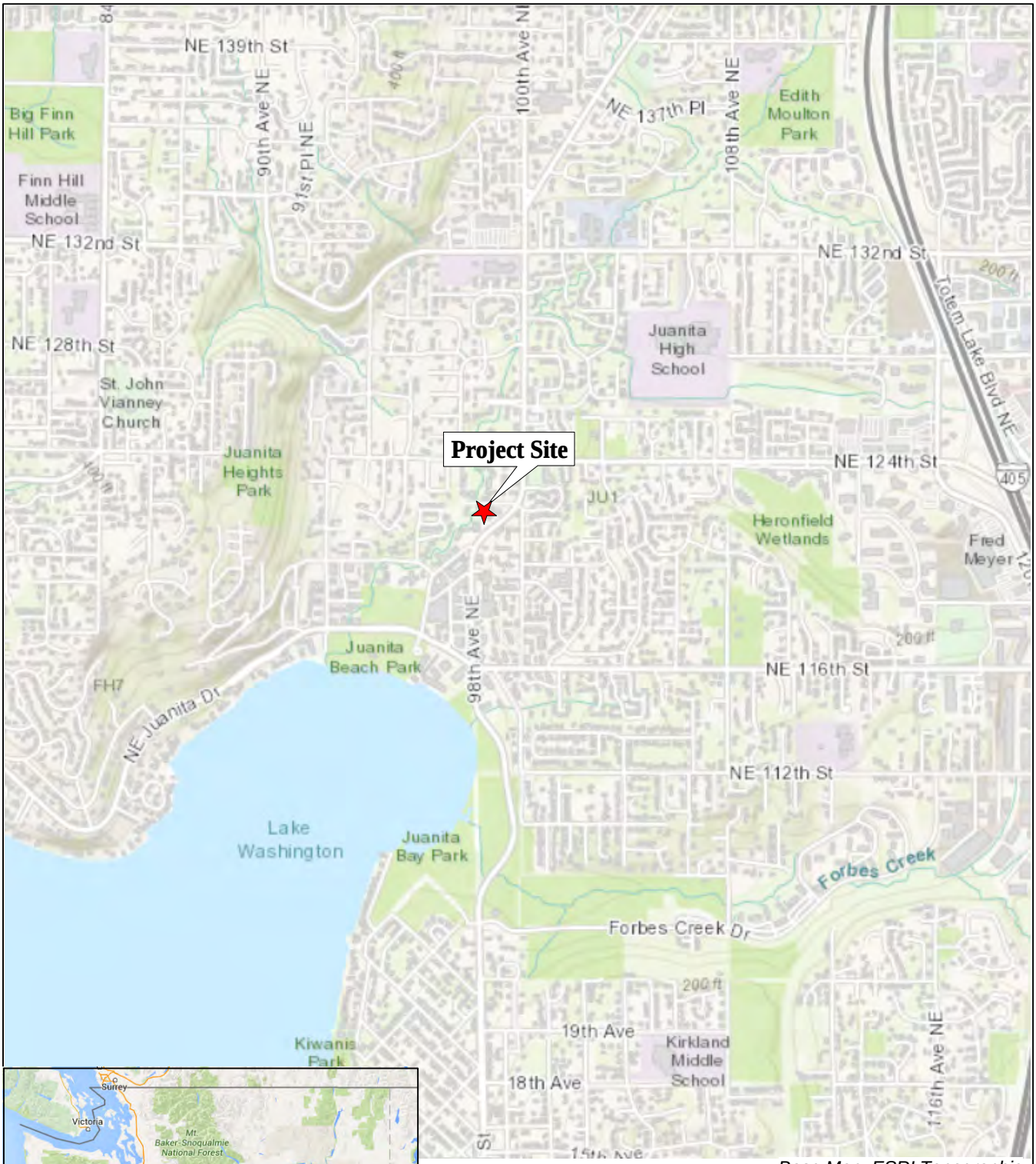
7.0 REFERENCES

Brooks, J.L., 2017. *Surficial Geology of the Newly Annexed Area of Kirkland, Washington King County, USA, scale 1:24,000*.

Minard, J.P., 1983, *Geologic Map of the Kirkland Quadrangle, Washington* – U. S. Geological Survey Miscellaneous Field Studies Map MF-1543, scale 1:24,000.

Washington Administrative Code (WAC), 2013, Chapter 296-155 - *Safety Standards for Construction Work, Part N - Excavation, Trenching, and Shoring*, Olympia, Washington.

WSDOT, 2022, *Standard Specifications for Road, Bridge and Municipal Construction, M 41-10, Washington State Department of Transportation.*



Base Map: ESRI Topographic

NORTH

Approx. Scale: Not to Scale

PanGEO INCORPORATED

Casa Juanita
Sewer Line Replacement
9821 NE 122nd Street
Kirkland, Washington

VICINITY MAP

Project No. **22-119**

Figure No. **1**

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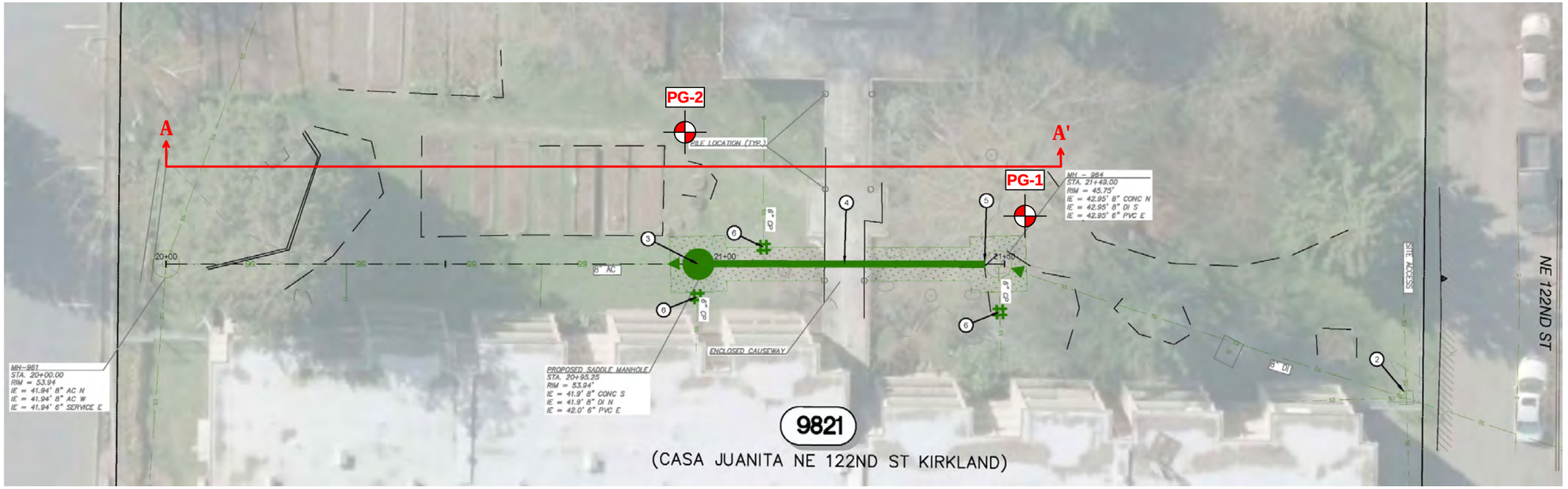


Approx. Scale
1" = 20'

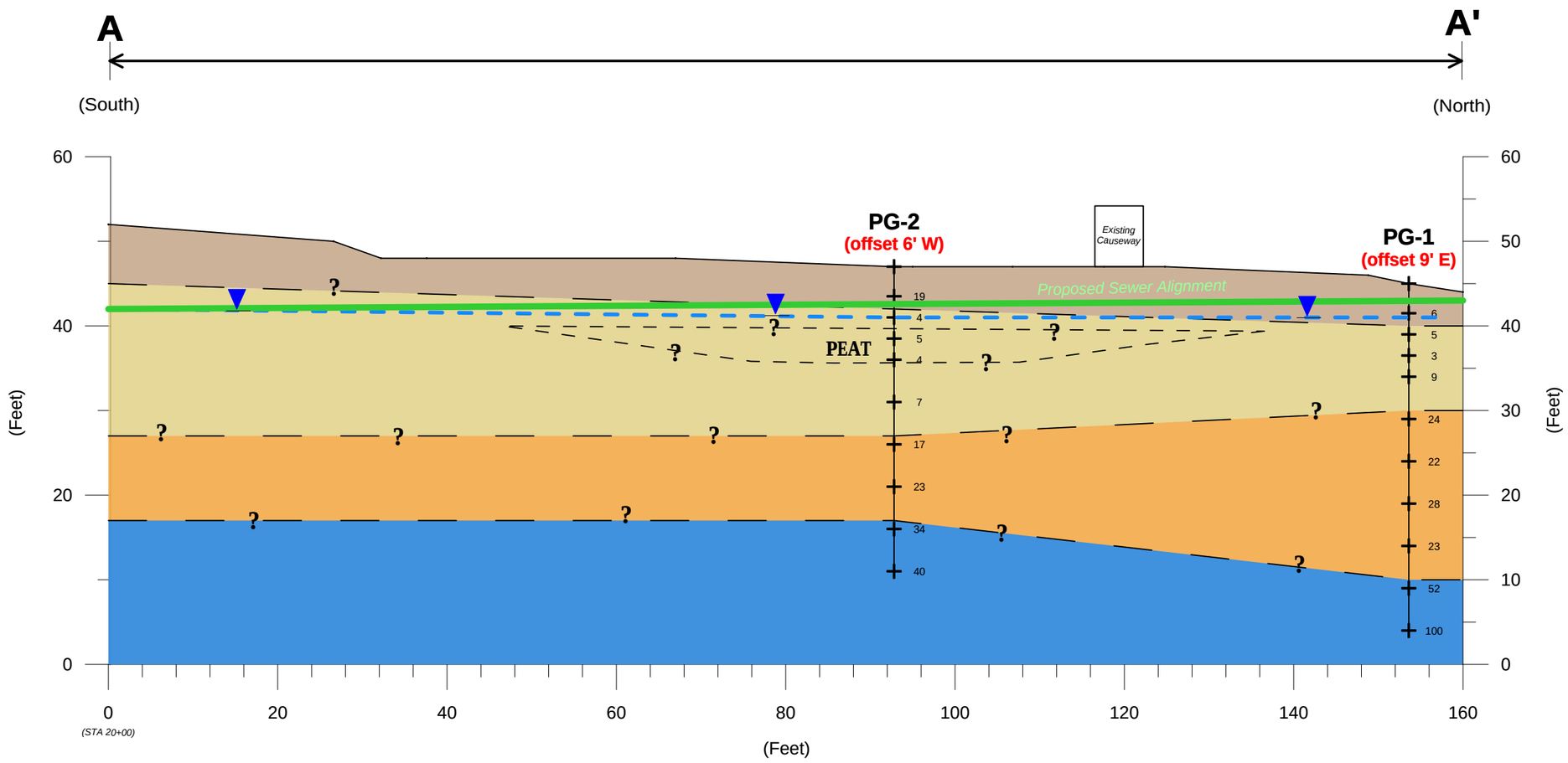
Legend:

Approx. Boring Location

Approx. Subsurface Profile A-A'
(see Figure 3)

Base map modified from Sheet C2102 - Base Map by Gray & Osborne, Inc. dated January 2022

PanGEO INCORPORATED	**Casa Juanita Sewer Line Replacement 9821 NE 122nd Street Kirkland, Washington**	**SITE AND EXPLORATION PLAN** Project No. **22-119** Figure No. **2**



Horizontal Scale
1" = 15'
Vertical Scale
1" = 15'

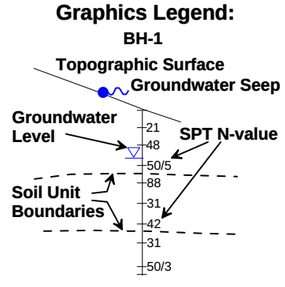
Unit 1 - Loose to medium dense, silty sandy GRAVEL to gravelly SAND with organics, disturbed (Fill)

Unit 2 - Very loose to loose and soft, interlayered silty SAND and sandy SILT with organics, peat *(Qal - Alluvium)*

Unit 3 - Medium dense fine SAND *(Qvr - Vashon Recessional Outwash)*

Unit 4 - Dense to very dense, interlayered SAND, silty SAND, and gravelly SAND *(Qva - Vashon Advance Outwash)*

Graphics Legend:



Notes:
1. Topography obtained *from Sheet C2102 - Base Map by Gray & Osborne, Inc. dated January 2022*.
2. See Figure 2 for location of Section A-A'.
3. See report text for additional discussions on subsurface conditions.
4. The generalized soil profile is based on widely-spaced borings. Soil conditions may vary over a small distance, and the actual subsurface conditions may be different from the generalized soil profile depicted in this figure.

PanGEO INCORPORATED

Casa Juanita
Sewer Line Replacement
9821 NE 122nd Street
Kirkland, Washington

GENERALIZED SUBSURFACE PROFILE A-A'

Project No. **22-119**

Figure No. **3**

22-119_Fig3_Sub_Profile.grf 6/11/22 (8:02:46) BW

APPENDIX A

SUMMARY TEST BORING LOGS

RELATIVE DENSITY / CONSISTENCY

SAND / GRAVEL			SILT / CLAY		
Density	SPT N-values	Approx. Relative Density (%)	Consistency	SPT N-values	Approx. Undrained Shear Strength (psf)
Very Loose	<4	<15	Very Soft	<2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250 - 500
Med. Dense	10 to 30	35 - 65	Med. Stiff	4 to 8	500 - 1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000 - 2000
Very Dense	>50	85 - 100	Very Stiff	15 to 30	2000 - 4000
			Hard	>30	>4000

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		GROUP DESCRIPTIONS	
Gravel 50% or more of the coarse fraction retained on the #4 sieve. Use dual symbols (eg. GP-GM) for 5% to 12% fines.	GRAVEL (<5% fines)	GW	Well-graded GRAVEL
		GP	Poorly-graded GRAVEL
	GRAVEL (>12% fines)	GM	Silty GRAVEL
		GC	Clayey GRAVEL
Sand 50% or more of the coarse fraction passing the #4 sieve. Use dual symbols (eg. SP-SM) for 5% to 12% fines.	SAND (<5% fines)	SW	Well-graded SAND
		SP	Poorly-graded SAND
	SAND (>12% fines)	SM	Silty SAND
		SC	Clayey SAND
Silt and Clay 50%or more passing #200 sieve	Liquid Limit < 50	ML	SILT
		CL	Lean CLAY
		OL	Organic SILT or CLAY
	Liquid Limit > 50	MH	Elastic SILT
		CH	Fat CLAY
		OH	Organic SILT or CLAY
Highly Organic Soils		PT	PEAT

Notes: 1. Soil exploration logs contain material descriptions based on visual observation and field tests using a system modified from the Uniform Soil Classification System (USCS). Where necessary laboratory tests have been conducted (as noted in the "Other Tests" column), unit descriptions may include a classification. Please refer to the discussions in the report text for a more complete description of the subsurface conditions.

2. The graphic symbols given above are not inclusive of all symbols that may appear on the borehole logs. Other symbols may be used where field observations indicated mixed soil constituents or dual constituent materials.

DESCRIPTIONS OF SOIL STRUCTURES

Layered: Units of material distinguished by color and/or composition from material units above and below

Laminated: Layers of soil typically 0.05 to 1mm thick, max. 1 cm

Lens: Layer of soil that pinches out laterally

Interlayered: Alternating layers of differing soil material

Pocket: Erratic, discontinuous deposit of limited extent

Homogeneous: Soil with uniform color and composition throughout

Fissured: Breaks along defined planes

Slickensided: Fracture planes that are polished or glossy

Blocky: Angular soil lumps that resist breakdown

Disrupted: Soil that is broken and mixed

Scattered: Less than one per foot

Numerous: More than one per foot

BCN: Angle between bedding plane and a plane normal to core axis

COMPONENT DEFINITIONS

COMPONENT	SIZE / SIEVE RANGE	COMPONENT	SIZE / SIEVE RANGE
Boulder:	> 12 inches	Sand	
Cobbles:	3 to 12 inches	Coarse Sand:	#4 to #10 sieve (4.5 to 2.0 mm)
Gravel		Medium Sand:	#10 to #40 sieve (2.0 to 0.42 mm)
Coarse Gravel:	3 to 3/4 inches	Fine Sand:	#40 to #200 sieve (0.42 to 0.074 mm)
Fine Gravel:	3/4 inches to #4 sieve	Silt	0.074 to 0.002 mm
		Clay	<0.002 mm

TEST SYMBOLS

for In Situ and Laboratory Tests listed in "Other Tests" column.

ATT	Atterberg Limit Test
Comp	Compaction Tests
Con	Consolidation
DD	Dry Density
DS	Direct Shear
%F	Fines Content
GS	Grain Size
Perm	Permeability
PP	Pocket Penetrometer
R	R-value
SG	Specific Gravity
TV	Torvane
TXC	Triaxial Compression
UCC	Unconfined Compression

SYMBOLS

Sample/In Situ test types and intervals

- 2-inch OD Split Spoon, SPT (140-lb. hammer, 30" drop)
- 3.25-inch OD Spilt Spoon (300-lb hammer, 30" drop)
- Non-standard penetration test (see boring log for details)
- Thin wall (Shelby) tube
- Grab
- Rock core
- Vane Shear

MONITORING WELL

- Groundwater Level at time of drilling (ATD)
- Static Groundwater Level
- Cement / Concrete Seal
- Bentonite grout / seal
- Silica sand backfill
- Slotted tip
- Slough
- Bottom of Boring

MOISTURE CONTENT

Dry	Dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water

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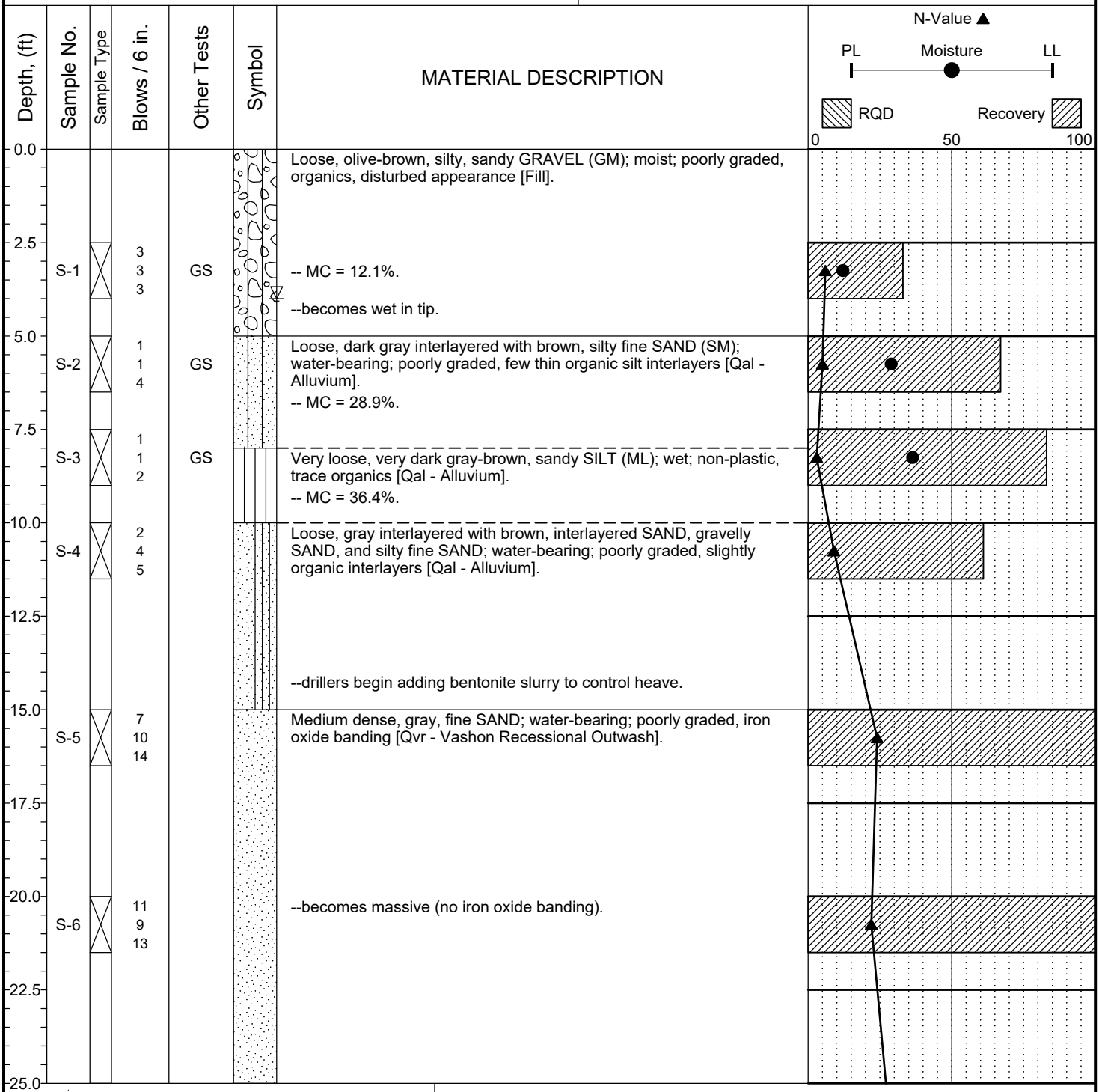
Phone: 206.262.0370

Terms and Symbols for Boring and Test Pit Logs

Figure A-1

Project:	Casa Juanita Sewer Line Replacement	Surface Elevation:	45.0ft
Job Number:	22-119	Top of Casing Elev.:	N/A
Location:	9821 NE 122nd St, Kirkland, WA	Drilling Method:	HSA
Coordinates:	Northing: 47.70955, Easting: -122.2098	Sampling Method:	SPT



Completion Depth:	40.8ft
Date Borehole Started:	5/17/22
Date Borehole Completed:	5/17/22
Logged By:	B. Weitering
Drilling Company:	Boretec

Remarks: Drilling was performed using an RTC 60 Track Drill. Standard Penetration Test (SPT) sampler driven with a 140 lb hammer using a rope and cathead dropping 30 inches per stroke. Elevations estimated from Kirkland GIS Maps.

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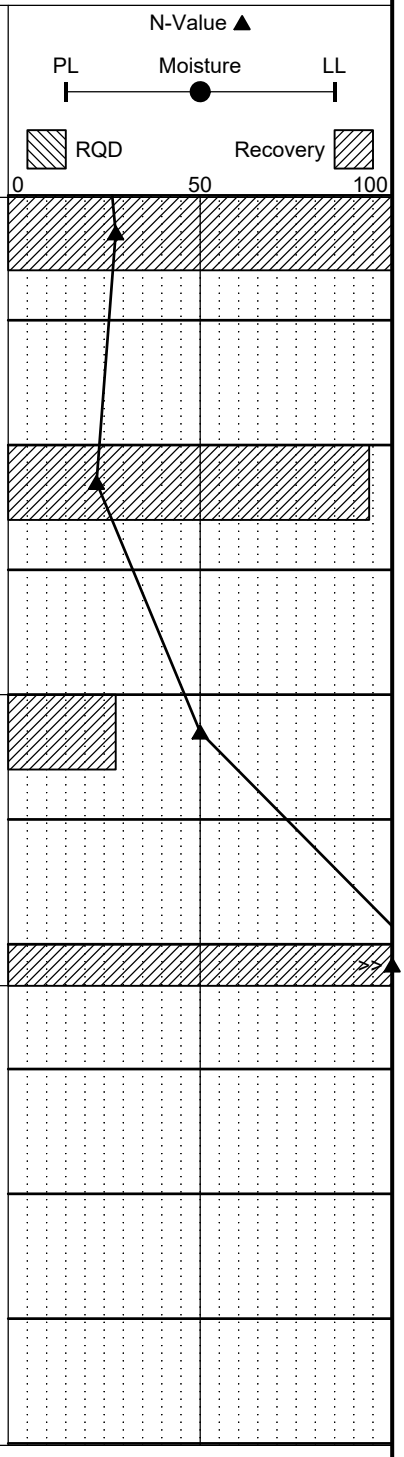
LOG OF TEST BORING PG-1

Figure A-2

The stratification lines represent approximate boundaries. The transition may be gradual.

Project:	Casa Juanita Sewer Line Replacement	Surface Elevation:	45.0ft
Job Number:	22-119	Top of Casing Elev.:	N/A
Location:	9821 NE 122nd St, Kirkland, WA	Drilling Method:	HSA
Coordinates:	Northing: 47.70955, Easting: -122.2098	Sampling Method:	SPT

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
25.0	S-7		8 12 16			Medium dense, gray, fine SAND; water-bearing; poorly graded, massive [Qvr - Vashon Recessional Outwash].
27.5						
30.0	S-8		6 9 14			
32.5						
35.0	S-9		10 18 32			Very dense, gray, interlayered SAND and silty SAND; moist; poorly graded [Qva - Vashon Advance Outwash].
37.5						
40.0	S-10		21 50/4			
						Boring terminated at about 40.83 feet below grade. Groundwater encountered at about 4 feet during drilling.
42.5						
45.0						
47.5						
50.0						



Completion Depth:	40.8ft
Date Borehole Started:	5/17/22
Date Borehole Completed:	5/17/22
Logged By:	B. Weitering
Drilling Company:	Boretec

Remarks: Drilling was performed using an RTC 60 Track Drill. Standard Penetration Test (SPT) sampler driven with a 140 lb hammer using a rope and cathead dropping 30 inches per stroke. Elevations estimated from Kirkland GIS Maps.

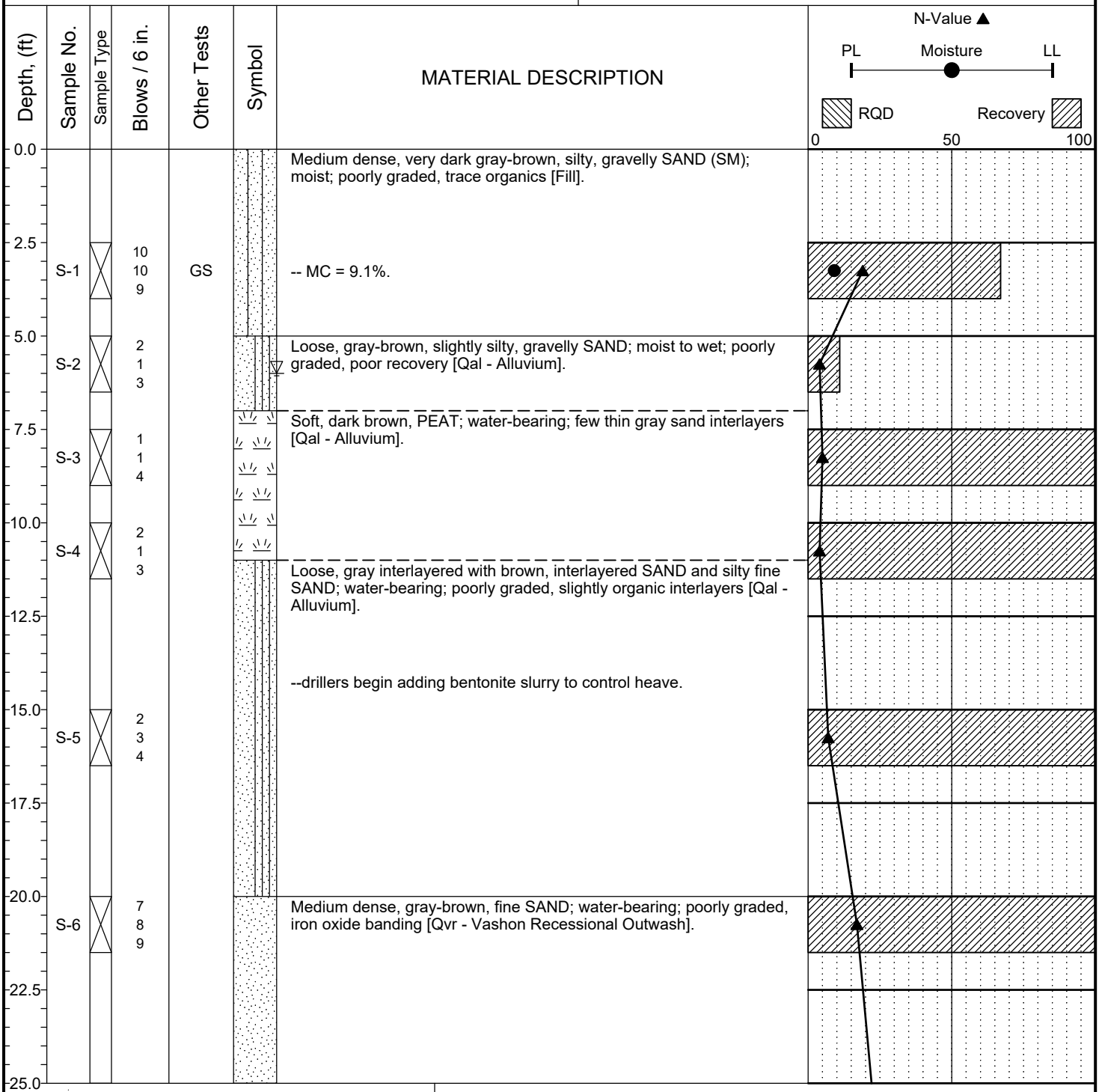
PanGEO INCORPORATED

LOG OF TEST BORING PG-1

Figure A-2

The stratification lines represent approximate boundaries. The transition may be gradual.

Project:	Casa Juanita Sewer Line Replacement	Surface Elevation:	47.0ft
Job Number:	22-119	Top of Casing Elev.:	N/A
Location:	9821 NE 122nd St, Kirkland, WA	Drilling Method:	HSA
Coordinates:	Northing: 47.70935, Easting: -122.20985	Sampling Method:	SPT



Completion Depth:	36.5ft
Date Borehole Started:	5/17/22
Date Borehole Completed:	5/17/22
Logged By:	B. Weitering
Drilling Company:	Boretec

Remarks: Drilling was performed using an RTC 60 Track Drill. Standard Penetration Test (SPT) sampler driven with a 140 lb hammer using a rope and cathead dropping 30 inches per stroke. Elevations estimated from Kirkland GIS Maps.

PanGEO INCORPORATED

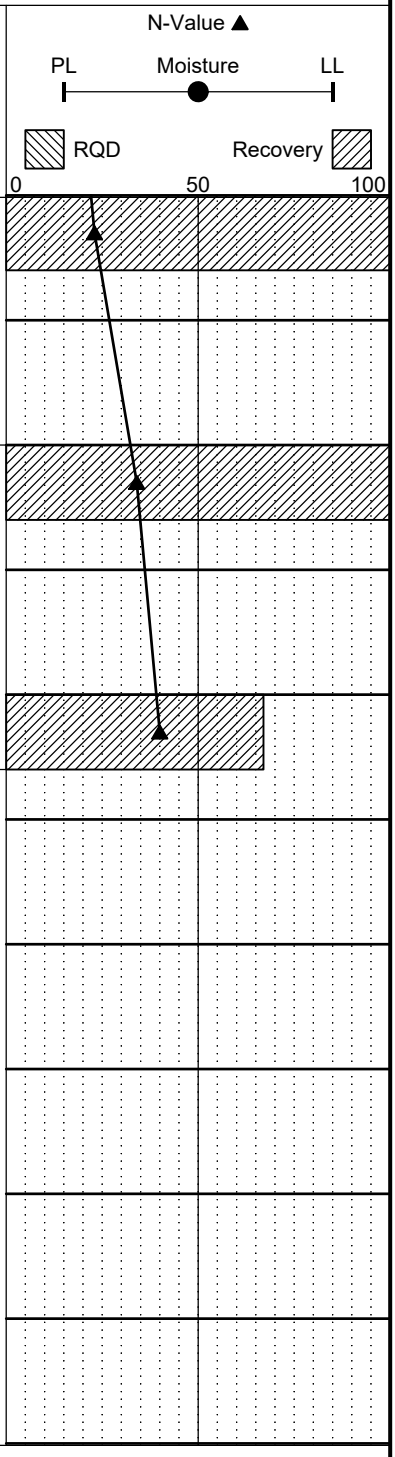
LOG OF TEST BORING PG-2

Figure A-3

The stratification lines represent approximate boundaries. The transition may be gradual.

Project:	Casa Juanita Sewer Line Replacement	Surface Elevation:	47.0ft
Job Number:	22-119	Top of Casing Elev.:	N/A
Location:	9821 NE 122nd St, Kirkland, WA	Drilling Method:	HSA
Coordinates:	Northing: 47.70935, Easting: -122.20985	Sampling Method:	SPT

Depth, (ft)	Sample No.	Sample Type	Blows / 6 in.	Other Tests	Symbol	MATERIAL DESCRIPTION
25.0	S-7		10 11 12			Medium dense, gray, fine SAND; water-bearing; poorly graded, massive [Qvr - Vashon Recessional Outwash].
27.5						
30.0	S-8		9 14 20			Dense, gray, slightly gravelly SAND; water-bearing; poorly graded [Qva - Vashon Advance Outwash].
32.5						
35.0	S-9		11 21 19			
37.5						Boring terminated at about 36.5 feet below grade. Groundwater encountered at about 6 feet during drilling.
40.0						
42.5						
45.0						
47.5						
50.0						



Completion Depth:	36.5ft
Date Borehole Started:	5/17/22
Date Borehole Completed:	5/17/22
Logged By:	B. Weitering
Drilling Company:	Boretec

Remarks: Drilling was performed using an RTC 60 Track Drill. Standard Penetration Test (SPT) sampler driven with a 140 lb hammer using a rope and cathead dropping 30 inches per stroke. Elevations estimated from Kirkland GIS Maps.

PanGEO INCORPORATED

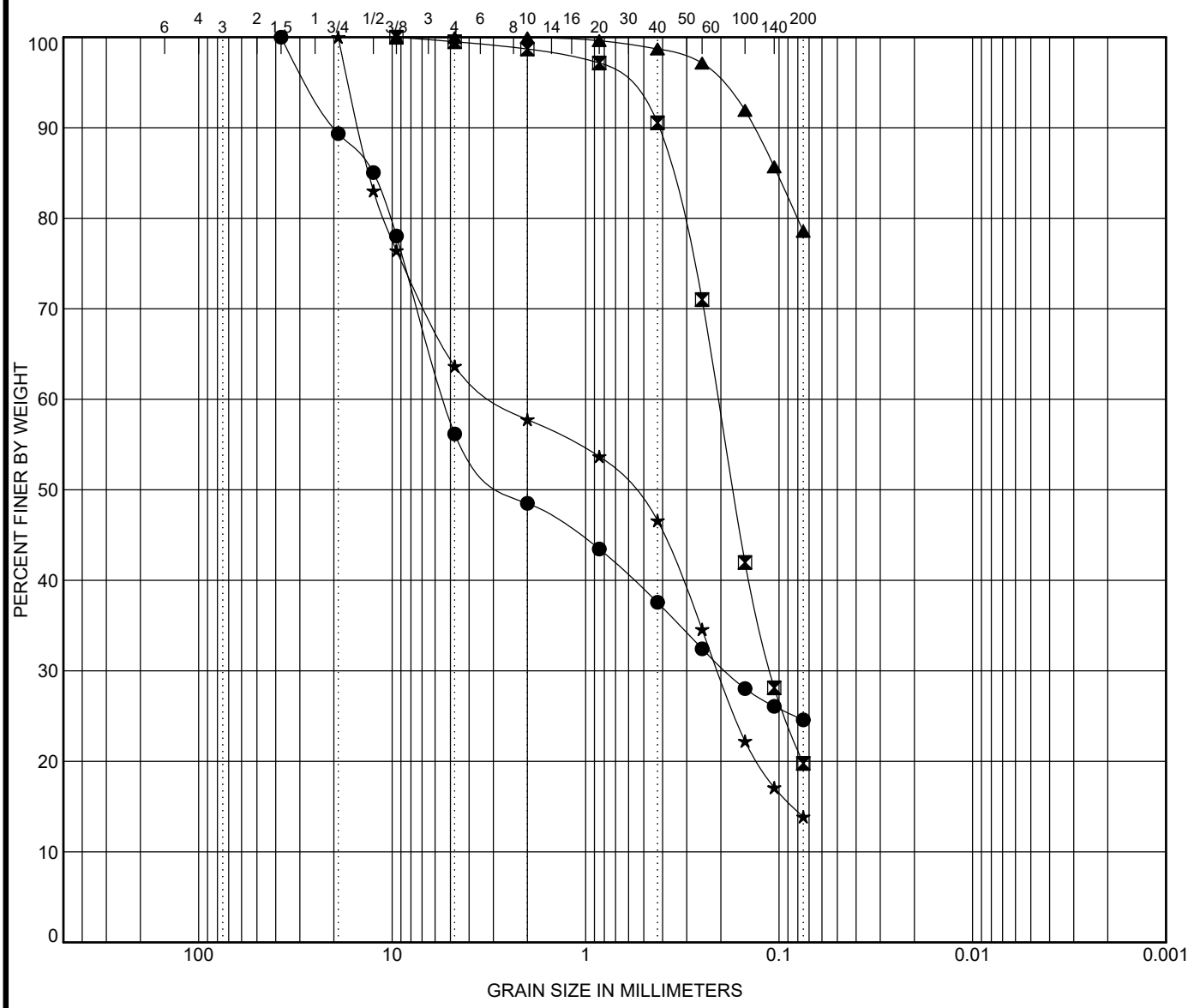
LOG OF TEST BORING PG-2

Figure A-3

The stratification lines represent approximate boundaries. The transition may be gradual.

APPENDIX B

SIEVE ANALYSIS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	PG-1	@ 2.5 ft.	SILTY GRAVEL with SAND (GM)					
⊠	PG-1	@ 5.0 ft.	SILTY SAND (SM)					
▲	PG-1	@ 7.5 ft.	SILT with SAND (ML)					
★	PG-2	@ 2.5 ft.	SILTY SAND with GRAVEL (SM)					

	Specimen Identification		D100	D90	D60	D10	%Gravel	%Sand	%Silt	%Clay
●	PG-1	2.5	37.5	19.81	5.363		43.8	31.6	24.6	
⊠	PG-1	5.0	9.5	0.419	0.206		0.5	79.7	19.8	
▲	PG-1	7.5	9.5	0.135			0.0	21.4	78.6	
★	PG-2	2.5	19	14.843	2.776		36.3	49.8	13.9	

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Phone: 206.262.0370

GRAIN SIZE DISTRIBUTION

Project: Casa Juanita Sewer Line Replacement
Job Number: 22-119
Location: 9821 NE 122nd St, Kirkland, WA

Figure B-1

GRAIN SIZE 22-119 BORING LOGS.GPJ PANGEO.GDT 6/10/22

APPENDIX C

PHOTOS OF SELECT SOIL SAMPLES

Project No.: 22-119
Casa Juanita Sewer
Kirkland, Washington

APPENDIX C
Photos of Select Soil Samples

PG-1; S-1: 2.5 feet

PG-1; S-2: 5 feet

Figure C-1

Project No.: 22-119
Casa Juanita Sewer
Kirkland, Washington

APPENDIX C
Photos of Select Soil Samples

PG-1; S-3: 7.5 feet

PG-1; S-5: 15 feet

Figure C-2

APPENDIX C
Photos of Select Soil Samples

PG-1; S-10: 40 feet

PG-2; S-2: 5 feet

Figure C-3

APPENDIX C
Photos of Select Soil Samples

PG-2; S-3: 7.5 feet

PG-2; S-4: 10 feet

Figure C-4

APPENDIX C
Photos of Select Soil Samples

PG-2; S-6: 20 feet

PG-2; S-9: 35 feet

Figure C-5

APPENDIX B

PERMITS

CITY OF LAKE FOREST PARK
17425 Ballinger Way NE
Lake Forest Park, WA 98155
206-368-5440

To schedule an inspection, *call the City of Lake Forest Park Building Department inspection line,* ***206-957-2835 by 3:00 PM the day prior, if called after 3:00 PM the inspection will be scheduled for the following day.***

RIGHT-OF-WAY PERMIT

Permit Number: 2022-ROW-0090	
Date of Issuance: 8/8/2022	**Date of Expiration: One Year from Issuance**

Project Description:

BYPASS PUMPING, STALLING A NEW MANHOLE AND INSTALLATION OF APPROX 100 LINEAR FEET OF NEW 12IN PIPE TO EXISTING DOWNSTREAM MANHOLE, CONNECTION OF 3 SIDE SEWERS TO THE NEW MAIN AND ASPHALT RESTORATION. THIS PROJECT ES EXPECTED TO BE COMPLETED IN THE SPRING OF 2023.

Owner:

Address of Work:
19804 55TH Ave KENMORE, WA 98028

Contractor:

NORTHSHORE UTILITY DISTRICT
City License Number: **State License Number:**
City License Expiration: **State License Expiration:**

Fees:

Total Fees: $472.50
Total PAID: $472.50

INDEMNITY AND HOLD HARMLESS: *The permittee agrees to indemnify and hold harmless Lake Forest Park as provided herein to the maximum extent possible under law. Accordingly, the permittee agrees for itself, its successors, and assigns, to defend, indemnify, and hold harmless Lake Forest Park, its appointed and elected officials, and employees from and against liability for all claims, demands, suits, and judgments, including costs of defense thereof, for injury to persons, death, or property damage which is caused by arises out of or is incidental to permittee's exercise of rights and privileges granted by this permit. The permittee's obligations under this permit shall include: (a) indemnification for such claims that arise from the negligence of either of the permittee, (b) the duty to promptly accept tender of defense and provide defense to the City at the permittee's own expense;(c) indemnification of claims made by the permittee's own employees or agents; and (d) waiver of the permittee's immunity under the industrial insurance provisions of Title 51 RCW which waiver has been mutually negotiated by the parties. In the event it is necessary for the City to incur attorney's fees, legal expenses, or other costs to enforce the provisions of this section, all such fees, expenses and costs shall be recoverable from the permittee. In the event it is determined that RCW 4.24.115 applied to this permit, the permittee agrees to defend, hold harmless and indemnify Lake Forest Park to the maximum extent permitted thereunder and specifically for its negligence concurrent with that of Lake Forest Park to the full extent of permittee's negligence. Permittee agrees to defend, indemnify and hold harmless the City for claims by permittee's employees and agrees to waiver of its immunity under Title 51 RCW, which waiver has been mutually negotiated by the parties.*

I hereby certify that I have read and examined this permit and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be completed whether specified or not. The granting of a permit does not presume to give authority to violate or cancel the provisions of any other state or local law regulating construction or the performance of construction.

Authorized Official

8/8/22
Date

Applicant Signature

Date

Please Sign and Date Permit Upon Receipt

Not Valid Unless Signed

**********ROW PERMIT INSPECTION RECORD**********

Inspection Type	Inspection Date	Date Approved	Comments
Progress			
Final			

To schedule an inspection call the City of Lake Forest Park Building Department inspection line

206-957-2835 by 3:00 PM the day prior.

PERMIT NUMBER: LSM22-05794
PROJECT NAME: NUD Casa Juanita Sewer Replacement

The permit mentioned above has been approved and is ready to be issued. ***Per KMC 21.06.245 this application will expire on 01/22/2024**. To avoid expiration, all required items below must be satisfied, permit fees paid, and permit issued by this date.

The following items are required prior to invoicing & issuance: **Please upload to MyBuildingPermit.com:** Exception: Do not upload notarized documents. Original notarized documents should be submitted to the drop box outside the entrance of City Hall.

- Provide a Rodent Abatement Letter from a qualified contractor (abatement must begin at least 2 weeks prior to permit issuance)
- Provide Contractor information (name, full address, State Contractor License, UBI#, phone number)
- Contractor must have a current City of Kirkland Business License (contact Business Licensing at license@kirklandwa.gov or 425-587-3140)

Once all requirements have been met please notify the Building Department by emailing **permittechnicians@kirklandwa.gov.**

We will send your final invoice through MyBuildingPermit.com, and once the payment has been received, we will upload the permit documents there.

City of Kenmore Right of Way Utility Permit # 22190

Permits – Engineering Department
18120 68th Ave NE
Kenmore, WA 98028

Job Starts/Inspections Email:
utilitypermit@kenmorewa.gov

APPLICANT: Northshore Utility District DATE August 23, 2022

CONTRACTOR LICENSE NO. N/A PHONE NO. 425-398-4403

ADDRESS: 6830 NE 185th St. EMAIL knesbitt@nud.net

Kenmore, WA 98028 UTILITY JOB NO. Contract 2022-03

ENVIRONMENTAL ASSESSMENT
- ☒ Categorically Exempt
- ☐ Mitigation Determination of Non Significance
- ☐ Determination of Non Significance
- ☐ EIS

BOND AMOUNT N/A

EMERGENCY CONTACT NAME Brandon Humphrey

EMERGENCY CONTACT PHONE 425-375-9253

JOB DESCRIPTION: Repair of side sewer services in a neighborhood experiencing root intrusion. Includes: removal of roots, install of a LMK Tee-liner system, and install of cleanouts. There are nine side sewer, six services will require a new cleanout for City access at the right of way. A sewer manhole will be stalled to provide access for a long sewer service.

LOCATION OF WORK: 55th Ave NE and 60th Ave NE

See attached Special Conditions.

THIS PERMIT IS FOR CITY OF KENMORE RIGHT OF WAY ONLY
GIVE DISTANCE BY STREET OR ROAD WITH AN "ON, FROM AND TO" DESCRIPTION
ALL WATER MAIN EXTENSIONS MUST HAVE APPROVAL FROM THE FIRE MARSHALL
ALL UNDERGROUND UTILITY LINES MUST HAVE A MINIMUM 36" COVER
ALL WORK TO BE DONE SUBJECT TO THE APPROVAL OF THE CITY MANAGER/DESIGNEE
ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE STREET STANDARDS

All work to be done in conformity with conditions and requirements of City of Kenmore Code 12.50, 12.55, 12.58 and 12.60 and the petitioner agrees to prosecute with all diligence and speed with due regard for the rights, interests and convenience of the public. If at the end of 6 months after issuance of permit the grantee shall not have in operation said utilities, then the rights herein conferred shall cease and terminate, unless specific written provisions are made for a renewal or extension.

The undersigned, its successors and assigns, agrees if granted the above permit, to comply with the provision, conditions, requirements, regulations and recommendations herein contained and as may apply to any utility franchise granted the applicant and under whose provisions same is issued. It will respect and protect all property contracts, persons and rights that might be affected by it.

INDEMNITY AND HOLD HARMLESS: The Permittee agrees to indemnify and hold harmless the City of Kenmore as provided herein to the maximum extent possible under law. Accordingly, the Permittee agrees for itself, its successors, and assigns, to defend, indemnify, and hold harmless its appointed and elected officials and employees from and against liability for all claims, demands, suits, and judgments, including cost of defense thereof, for injury to persons, death, or property damage which is caused by, arises out of, or is incidental to Permittee's exercise of rights and privileges granted by this permit. The Permittee's obligations under this permit shall include: (a) Indemnification for such claims whether or not they arise from the sole negligence of either the City or the Permittee, the concurrent negligence of both parties, or the negligence of one or more third parties; (b) The duty to promptly accept tender of defense and provide defense to the City at the Permittee's own expense; (c) Indemnification of claims made by the Permittee's own employees or agents; and (d) Waiver of the Permittee's immunity under the industrial insurance provisions of Title 51 RCW, which waiver has been mutually negotiated by the parties. In the event it is necessary for the City to incur attorney's fees, legal expenses, or other costs to enforce the provisions of this section, all such fees, expenses, and costs shall be recoverable from the Permittee. In the event it is determined that RCW 4.24.115 applies to this permit, the Permittee agrees to defend, hold harmless, and indemnify the City of Kenmore to the maximum extent permitted thereunder, and specifically for its negligence concurrent with that of the City of Kenmore to the full extent of Permittee's negligence. Permittee agrees to defend, indemnify, and hold harmless the City for claims by Permittee's employees and agrees to waiver of its immunity under Title 51 RCW, which waiver has been mutually negotiated by the parties. In lieu of signature, a job start notification shall be construed to be an acknowledgement and acceptance of all conditions contained herein.

APPLICATION RECEIVED August 1, 2022 ENTERED BY Janet Quinn PERMIT FEES $ 215.00 + Hourly

PERMIT ISSUED August 23, 2022 (Date) PERMIT NO. 22190 PERMIT EXPIRATION February 23, 2023 (Date)

The application is granted subject to the requirements and conditions thereof as listed below and on back of page, and in attached Special Conditions.

1. A City of Kenmore inspector will be assigned to the project for inspection of adherence to permit conditions and inspection of road restoration. Costs of inspection applicable to the project will be reimbursed to the City of Kenmore by applicant within 30 days of receipt of invoice. Permittee is required to notify City of Kenmore Engineering Department at utilitypermit@kenmorewa.gov prior to 10am two business days before starting work and prior to 10am two business days before each required inspection. Failure to give required notice or commencement of work without a job start confirmation will result in the assessment of an Accelerated Job Start charge against the Permittee. ($500.00 per occurrence in 2020. See Annual Fee Schedule for current amount.) This assessment is in addition to any other remedy available under law or equity which the City may wish to pursue and shall not be construed as an election of remedies by the City. (Accelerated Job Start charge does not apply to Emergency Permits.)
2. All hard surfaced roads to be jacked or bored in compliance with the Special Conditions of the permit. Exceptions will be on a case-by-case basis with the express permission of the City of Kenmore Department of Public Works.
3. At least one lane of traffic shall be open at all times. Signs and traffic control will be in accordance with the manual on uniform traffic control devices for streets and highways.
4. Asphalt to be neat line cut 1 foot back from trench and in compliance with the Special Conditions of the permit.. Restoration as a minimum shall include 2" of crushed surfacing top course and 6" asphalt Class "B": or replaced to original condition.
5. It is the responsibility of the grantee to notify all utility districts and private property owners when such property is liable to injury or damage through the performance of the above work.
6. Call 811 or 1-800-424-5555 forty-eight (48) hours in advance for underground utility location. This instruction does not relieve the grantee from required notification of City inspectors as specified in paragraph 1, above.

Approved by Tobin Bennett-Gold, 8/23/2022
Acting City Engineer

(SEE REVERSE SIDE)

DIRECTIONS REGARDING PERMITS

Note: Right of way shall mean any Street, Avenue, Alley, Road or Lane
Public Place shall mean any Bridge, Trestle, or Wharf.
Within this permit, the term “City Manager” shall mean the City Manager or designee.

Applicants for permits to occupy City property with utilities, or holders of granted franchise rights, who are planning construction work upon, along, over, under or across any City right of way or public place must file an application with the City of Kenmore Department of Land Development and Permitting, 18120 68th Avenue NE, Kenmore, WA 98028.

The application shall be accompanied by drawings drawn to working scale, commonly 50 to 100 feet per inch. It shall describe the nature of the work, and show the location of same on a map, giving names, or numbers, and width of roads and streets. It must also show location of work with reference to platted subdivisions, and section, township and range, and must show the location of work relative to existing utility facilities which may be affected. Review of the application must conform to the City of Kenmore Environmental Policy (City of Kenmore Code 19.35).

Applicants shall specify the type of construction in detail by submitting plans which show the class of material and equipment to be used. All such material and equipment shall be of the highest quality. The manner of excavation, filling, construction, installation, erection of temporary structures, traffic turn outs, road obstruction and barricades, shall conform to City standards and shall be approved by the City Manager in advance of work.

Signs and barricades and traffic control in the vicinity of any work shall conform to the current edition of the Manual of Uniform Traffic Control Devices for Streets and Highways.”

Nonpayment of fees relating to this permit may impact permittee’s ability to acquire future permits. Fees include labor charges for examination, inspection and supervision of work in progress by field personnel.

Any deviation from the proposed plan, resulting in what is commonly known as the "As Built" location must be approved in advance by the City Manager. Change notice must show "As Built" position relative to grade line and centerline of right of way and any other installations in the right of way.

PERMIT – Terms and Conditions

1. The grantee, its successors and assigns, is given and granted the right and authority to enter upon the right of way or public place for the purpose of performing the work described in this permit and approved by the City Manager.

2. Before any work commences the site must be inspected and approved by the City Manager with respect to:

   a. location
   b. type of construction
   c. materials and equipment to be installed
   d. manner of erection or construction
   e. Mode of operation of the installed facility
   f. Manner of maintenance of installed facility
   g. Method of safeguarding public traffic both during working hours and during non-working hours while the project is under construction

3. After the installation, operation, maintenance, or removal of a utility or facility the grantee shall restore all rights of way and public places to the condition which is equivalent in all respects to the condition they were in before starting work. All work to meet the approval of the City Manager.

4. In the event that any damage of any kind is caused by the grantee in the course of performing work authorized by this permit, the grantee will repair said damage at its sole cost and expense. Repair work shall begin without delay and continue without interruption until completed. If damage is extensive, the time allowed for repair will be prescribed by the City Manager.

5. The City Manager may at any time, do, order, or have done any and all work considered necessary to restore to a safe condition any area left by the grantee in a condition dangerous to life or property and upon demand the grantee shall pay to the City all costs of such work, materials, etc.

6. When the City deems it advisable to change the alignment or grade of any right of way or public place or structure by widening, grading, regrading, paving, improving, altering or repairing same, the grantee upon written notice by the City Manager will at its own sole cost and expense, raise, lower, move, change or reconstruct such installations to conform with the plans of work contemplated or ordered by the City according to a time schedule contained in the written notice.

7. Penalties up to One Thousand ($1,000) dollars per day may be imposed by the City Manager, if the grantee delays relocation of facilities beyond the time limits prescribed by the City Manager. The City Manager reserves the right to order its own agents or representatives to accomplish the desired change, and all costs of relocation or removal shall be borne by the grantee.

8. All such changes, reconstruction or relocation by the grantee shall be done in such manner as will cause the least interference with any of the City's work. The grantee shall have seventy-two (72) hours written notice by the City Manager of any blasting contiguous to the grantee's permit rights in order that it may protect its interests.

9. This grant or privilege shall not be deemed or construed to be an exclusive franchise. It does not prohibit the City from granting other permits or franchise rights of like nature to other public or private utilities, nor shall it prevent the City from using any of its roads, streets, public places for any and all public use, or affect its jurisdiction over all or any part of them.

10. All the provisions, conditions, requirements and regulations herein contained shall be binding upon the successors and assigns of the grantee and all privileges of the grantee shall be given to such successors and assigns as if they were specifically mentioned.

11. The City Manager may unilaterally revoke, annul, or terminate, revise or amend this permit without cause and for any reason including, but not limited to:

    a. Grantee's failure to comply with any provision, requirement, or regulation herein set forth;
    b. Grantee's willful neglect of, or failure to heed or comply with, notices given it;
    c. Grantee's facilities are not installed, operated, or maintained in conformity with conditions herein set forth;
    d. Grantee's failure to conform to any applicable law or regulation as currently exists or may hereafter be enacted, adopted or amended.

12. Grantee by accepting this permit agrees to obtain information from all utility departments regarding location and current status of their installations before starting work. Private property owners adjoining, or in proximity to the right of way shall be notified when such property is exposed to the possibility of injury or damage through performance of this project. The grantee shall make all advance arrangements necessary to protect such property and/or utility from injury or damage.

13. The issuance of this permit to the grantee does not in any way relieve the grantee of any other applicable law in performing the work subject to this permit.

14. In all hiring or employment made possible resulting from the granting of this permit, there shall be no discrimination against any employee or applicant for employment because of age, sex, marital status, sexual orientation, race, creed, color, national origin, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability, unless based upon a bona fide occupational qualification, and this requirement shall apply to but not be limited to the following: employment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

    No person shall be denied or subjected to discrimination in receipt of the benefit of any services or activities made possible by or resulting from the granting of this permit on the ground of age, sex, marital status, sexual orientation, race, creed, color, national origin, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability, unless based upon a bona fide occupational qualification.

    Any violation of this provision shall be considered a violation of this permit and shall be grounds for cancellation, termination or suspension in whole or in part of the permit by the City and may result in ineligibility for further City permits.

    The permittee shall make the best efforts to make opportunities for employment and/or contracting services available to women and minority persons.

    The permittee recognizes that the City has a policy of promoting affirmative action, equal opportunity and has resources available to assist permittee in these efforts.

15. This permit and any underlying franchise agreement does not authorize the cutting of trees with a trunk diameter greater than four (4) inches unless such authorization is specifically granted in writing by the City of Kenmore.

16. If the permittee fails to perform its obligations herein, vacate the premises, remove its facilities, restore the property as required, or comply with any condition or applicable regulation or law, the City shall have, at their option, the right to pursue any remedy or remedies available at law or equity including, but not limited to, the right to proceed under the provisions of Title 59 of the Revised Code of Washington.

Special Conditions

Right of Way Utility Permit Number: 22190

- No work on Weekends or Holidays (recognized by the City of Kenmore) or work outside of the normal work hours (Monday through Friday 7am-4pm) is allowed without approval. Holidays falling on a Saturday are observed on the previous Friday and holidays falling on Sunday are observed on the following Monday.
- We will need 100% of the design plan and will need to re-review prior to a job start being approved.
- Open cut crossing will require a full width grind and overlay. Overlays shall be 20' feet in both directions measured from the edge of the trench.
- Door hangars or mailers with a description of the project shall be given to the properties in the work zone. A copy of the notices shall be given to us prior to the job start.
- Any revision to the approved plans shall be approved by the City before being implemented Kenmore Road Standards (KRS) 4.01.
- It is the responsibility of the permit holder to notify all utility districts and private property owners when such property is liable to suffer injury or damage through the performance of the above work.
- Provide erosion control as required in the King County Surface Water Design Manual or as specified by other guidelines and/or regulatory requirements, KRS 10.06.
- Underground installation of electric and telecommunication utilities is required in new urban development, KRS 11.01.
- Utilities are subject to the KMC and policies relating to drainage, erosion/sedimentation control and sensitive areas as set forth in KMC 13.35 and the Surface Water Design Manual.
- Roads shall be cleaned and swept both during and after installation work, KRS 4.12.
- Disturbed soils shall be final graded, seeded and mulched after installation of utility. In limited areas seeding and mulching by hand, using approved methods, will be acceptable, KRS 4.12.
- Ditch lines with erodible soil and subject to rapid flows may require seeding, matting, netting, or rock lining to control erosion, KRS 4.12.
- Any silting or accumulation of construction debris of downstream drainage facilities, whether ditches or pipe and catch basins, which resulted from the construction activity shall be cleaned out and the work site restored to a stable condition as part of site cleanup, KRS 4.12.
- Remove all temporary erosion and sediment control materials and fencing and dispose of properly, KRS 4.12.
- Contractor is required to utilize redlined & approved TCP provided by the City of Kenmore for traffic control.
- Contractor is required to adhere to additional conditions/comments contained in the Redlined Site Plan provided by the City of Kenmore.
- Utility is required to provide a minimum of 48 hours advance notification to residents whose service or ingress/egress will be disrupted by the work of this permit.

APPENDIX C

CASA JUANITA AS-BUILT

job no. A-12-69
design SEADMAN
drawn EAM
checked A.M.
date 10-17-69
revised 10-1-69

McCOOL - McDONALD and ASSOCIATES - ARCHITECTS
451 yolch ave. west, seattle, washington 98119 · at 4-1651

REGISTERED ARCHITECT
ELAINE McCOOL STATE OF WASHINGTON

AN 80 UNIT APARTMENT BUILDING FOR SENIOR CITIZENS
FOR THE HOUSING AUTHORITY OF THE COUNTY OF KING, WASH. 221
N.E. 120TH PLACE & 100TH AVE. N.E. JUANITA, WASHINGTON
DEVELOPER: S. & G. CONTRACTORS, INC.

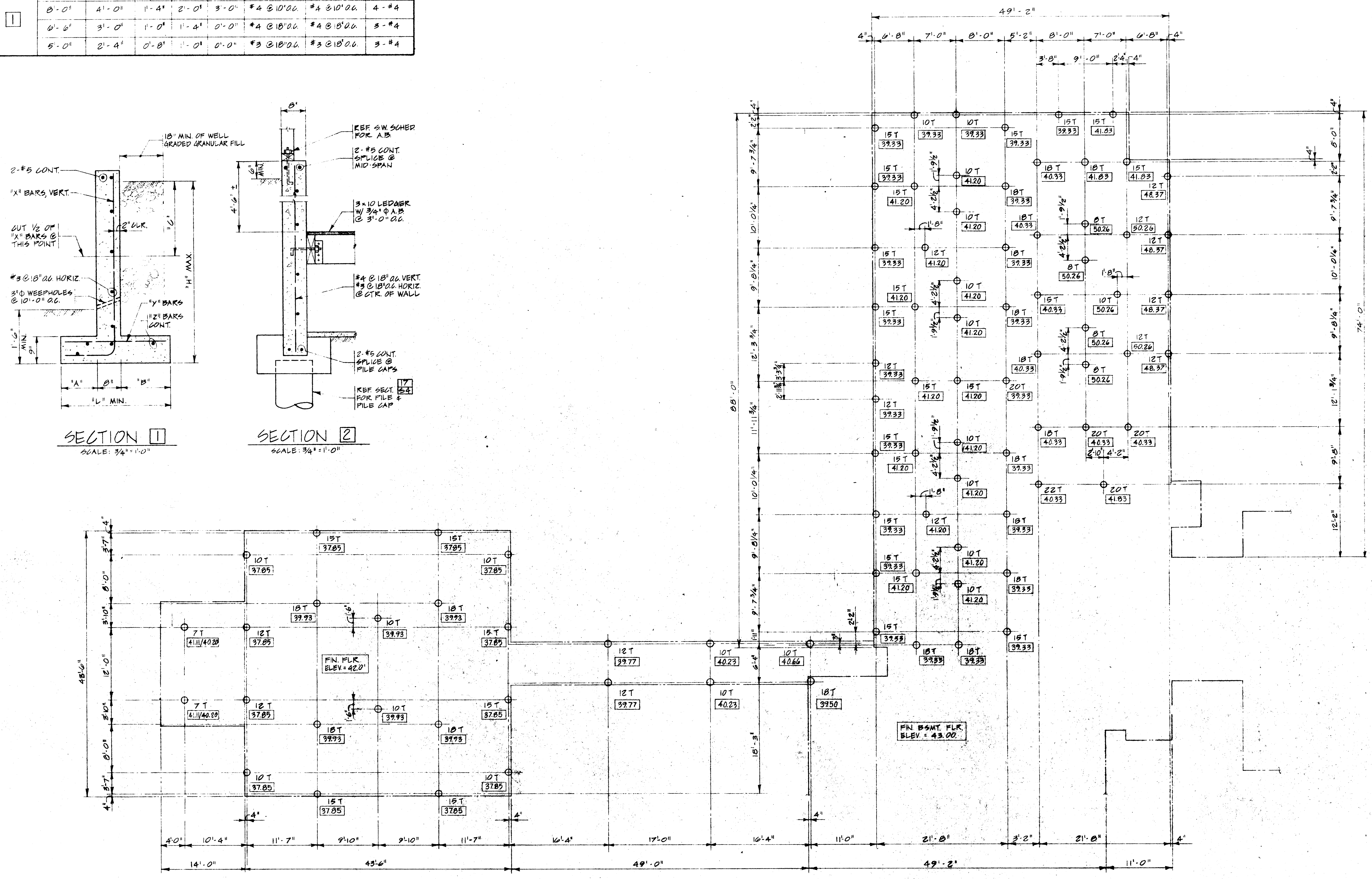
NORTH & SOUTH ELEVATIONS

7

A KITCHEN SERVING COUNTER
3/4" PLYWOOD
PLASTIC LAMINATE TOP, EDGES, BACKSPLASH
5/8" GYPSUM WALLBOARD
B SINK COUNTER 1½" = 1'-0"
PLASTIC LAMINATE TOP, EDGE, AND 4" BACKSPLASH
C HOBBY WORK COUNTER
PLASTIC LAMINATE TOP, EDGE, BACKSPLASH
2x4 BRACES 2'-6" O.C. MAX.
2x4 CONT. LEDGER ABOVE HEAT UNIT
WALL HEAT EQUIPM'T
MEN
HOBBY
STORAGE
WORK COUNTER
5 SHELVES 30" W. x 24" DEEP
2'-0" x 2'-6" CRAWL SPACE ACCESS
"ALLENCO" FIRE EXTINGUISHER
SHELF & POLE
COATS
FOLDING PARTITION
LIMIT STOP FOR MIN. 3'-0" CLEAR OPENING
3 TREADS
2x3 G.I. DOWNSPOUT
DECK
EXIT
2 SHUFFLEBOARDS ARMSTRONG EXCELON TILE INSETS
CLEAR STORY LINE
WALKWAY (CANOPY OVER)
HANDRAIL-1ST BAY
SEE DETAILS #17, 18, SHT. #17, AND SHTS. # S-1, S-8 FOR CANOPY & WALKWAY
WOMEN
LAV.
W.C.
SERVING COUNTER
KITCHEN
REFR.
DW.
SINK
RANGE
NORTH
COMMUNITY CENTER FLOOR PLAN 1/4" = 1'-0"
MAIN BUILDING
NOTE: ALL COUNTER TOPS, EDGES, BACKSPLASHES, SIDESPLASHES TO BE PLASTIC LAMINATE
5 MEN (WOMEN SIMILAR)
METAL TOILET PARTITIONS, TYP.
4 WOMEN
GRAB BAR
T.P.
W.C.
MIRROR
LITE
SOAP
PAPER TOWELS
ELEC OUTLET
LAV.
3 MEN
SERVICE SINK
URINAL
2 KITCHEN
30" REFR.
ELEC OUTLETS
4" BACKSPLASH
DWR.
DISH-WASHER
WATER HEATER
4" TOE SPACE
1 KITCHEN 1/2" = 1'-0"
OPEN TO MULTI-PURPOSE
30" RANGE
MOVE WATER HEATER, INSTALL SERVICE SINK, ELIMINATE VANITY TOP IN MENS ROOM & CHANGE LAVATORY TO WALL HANG.
BLDG. DEPT. CORR.
job no. A 1269
design HEADMAN
drawn BECKER
checked A.M.
date 10-17-69
McCOOL - McDONALD and ASSOCIATES - ARCHITECTS
401 elliott ave. west seattle, washington 98119 at 4-1651
REGISTERED ARCHITECT
AN 80 UNIT APARTMENT BUILDING for SENIOR CITIZENS FOR THE HOUSING AUTHORITY of THE COUNTY of KING - WASH. 2-21
N.E. 120TH PLACE & 100TH AVE. N.E. JUANITA, WASHINGTON
DEVELOPER: S. & S. CONTRACTORS, INC.
COMMUNITY CENTER - PLAN, INTERIOR ELEV, DETAILS
15
DIETERICH-POST CO.

RETAINING WALL SCHEDULE

MARK	SIZE					REINFORCING		
	"H" MAX.	"L" MIN.	"A"	"B"	"C"	"X" BARS	"Y" BARS	"Z" BARS
1	9'-6"	5'-0"	1'-8"	2'-8"	3'-6"	#5 @ 9" O.C.	#5 @ 9" O.C.	4-#4
	8'-0"	4'-0"	1'-4"	2'-0"	3'-0"	#4 @ 10" O.C.	#4 @ 10" O.C.	4-#4
	6'-6"	3'-0"	1'-0"	1'-4"	0'-0"	#4 @ 18" O.C.	#4 @ 18" O.C.	3-#4
	5'-0"	2'-4"	0'-8"	1'-0"	0'-0"	#3 @ 18" O.C.	#3 @ 18" O.C.	3-#4



SECTION 1
SCALE: 3/4" = 1'-0"

SECTION 2
SCALE: 3/4" = 1'-0"

PILING PLAN
SCALE: 1/8" = 1'-0"

STRUCTURAL NOTES

CODE:
THE UNIFORM BUILDING CODE (U.B.C.) 1967 EDITION

LIVE LOADS:

ROOF	25 P.S.F.	RETAINING WALLS (EQUIV. FLUID PRESS)	30 P.S.F.
APARTMENTS	40 P.S.F.	WIND	20 P.S.F.
CORRIDORS	60 P.S.F.	EARTHQUAKE PER U.B.C.	ZONE 3
STAIRS	100 P.S.F.		
COMMUNITY CENTER	100 P.S.F.		

FOUNDATION:
EXTEND FOOTINGS TO FIRM UNDISTURBED SOIL OF 4000 P.S.F. MIN. BEARING CAPACITY 1'-6" MIN. BELOW ADJACENT FINISHED GRADE, OR BEAR ON PILINGS.

COMPACTED FILL: (UNDER SLAB ON GRADE ONLY)
REMOVE ALL TOP SOIL & ORGANIC MATERIAL. PLACE WELL GRADED GRANULAR FILL IN LIFTS OF 8" MAX. LOOSE THICKNESS & COMPACT TO 95% OF THE MAX. DENSITY AS DETERMINED BY THE MODIFIED AASHO COMPACTION TEST PROCEDURE.

PILING:
PILING SHALL BE DOUGLAS FIR COAST REGION CONFORMING TO U.B.C. STD. 25-14 WITH A MIN. TIP DIA. OF 8". ALL PILES SHALL BE PRESSURE TREATED TO A MIN. RETENTION OF 12 P.C.F. IN ACCORDANCE WITH THE U.B.C. AND DRIVEN THROUGH ANY FILL OR SOFT MATERIAL INTO THE DENSE BEARING SOIL BELOW TO A MIN. BEARING CAPACITY AS NOTED ON THE PLANS COMPUTED IN ACCORDANCE WITH PAR. 2809 OF THE U.B.C. PAINT CUT-OFFS WITH 3 COATS OF HOT CREOSOTE. VARIFY EXTENT OF SOFT AREA IN THE FIELD AND SUBMIT DRIVING RECORD TO THE ENGINEER FOR APPROVAL PRIOR TO POURING PILE CAPS.

CONCRETE:
f'c = 2000 P.S.I. @ 28 DAYS, fc = 900 P.S.I. MIN. 5 1/2 SACKS OF CEMENT PER CU. YD. OF CONCRETE & MAX. 6 3/4 GAL. OF WATER PER 94# SACK OF CEMENT.
CONCRETE COVER ON REINFORCING STEEL:

WALLS (EARTH FACE)	2"
WALLS (WEATHER FACE)	1 1/2"
WALLS (INSIDE FACE)	3/4"
FOOTINGS	3"
SLAB ON GRADE	2"

ADD PLASTOCRETE OR POZZOLITH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO ALL STRUCTURAL CONCRETE. PLACE ALL CONCRETE IN FOOTINGS AND WALLS IN A MONOLITIC POUR UNLESS SHOWN OTHERWISE OR AS APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.

CONCRETE TOPPING:
LIGHT WEIGHT CONC. ON 1ST, 2ND & 3RD FLOOR EXCEPT VIEW BALCONIES. MAX. WEIGHT TO BE 105 P.C.F. MINIMUM WEIGHT 100 P.C.F. f'c = 2,000 P.S.I. STANDARD CONCRETE f'c = 2,000 P.S.I. ON VIEW BALCONIES. REINFORCE WITH 2" HEXAGONAL 18 GA. GALV. WIRE MESH. MESH MAY BE OMITTED IN CARPETED AREAS.

REINFORCING STEEL:
DEFORMED BILLET STEEL ASTM A-615, GRADE 40, fs = 20,000 P.S.I. LAP ALL SPLICES 30 DIA. PROVIDE ELBOW BARS TO LAP HORIZONTAL STEEL AT WALL CORNERS & INTERSECTIONS. PROVIDE 2-#5 ALL SIDES & 1-#5 × 4'-0" DIAG. @ CORNERS OF ALL WALL OPENINGS GREATER THAN 2'-0" IN EITHER DIRECTION. EXTEND BARS 2'-0" BEYOND OPENING OR HOOK.

STRUCTURAL STEEL:
STRUCTURAL GRADE ASTM A-36, fs = 22000 P.S.I. ALL WELDS SHALL BE 3/16" MIN. CONT. FILLET WELDS, UNLESS OTHERWISE NOTED AND PERFORMED BY QUALIFIED WELDERS USING ASTM A-233, CLASS E-70 ELECTRODES. ALL STEEL NOT EMBEDED IN CONCRETE SHALL RECEIVE ONE SHOP COAT OF AN APPROVED PRIMER PAINT. SUBMIT SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION.

STRUCTURAL LUMBER & TIMBER:
DOUGLAS FIR COAST REGION STANDARD GRADE 1200 f UNLESS OTHERWISE NOTED ON THE PLANS. K.D. HEMLOCK OF EQUAL STRESS GRADE MAY BE SUBSTITUTED EXCEPT FOR LAMINATED BEAMS. 2" × 6" T & G ROOF DECKING TO BE COMMERCIAL DEX. fb = 1200 P.S.I. ALL PLYWOOD TO BE D.F.P.A. STANDARD GRADE W/ EXTERIOR GLUE.

GLUE-LAMINATED LUMBER:
DOUGLAS FIR COAST REGION COMBINATION "C" fb = 2200 P.S.I. LAID UP WITH AN APPROVED CASEIN GLUE FOR MEMBERS PROTECTED FROM THE WEATHER & AN APPROVED WATERPROOF GLUE FOR MEMBERS EXPOSED TO THE WEATHER. APPEARANCE GRADE SHALL BE ARCHITECTURAL FOR EXPOSED MEMBERS & INDUSTRIAL FOR CONCEALED MEMBERS & BEAMS IN CRAWL SPACES. FABRICATION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT A.I.T.C. COMMERCIAL STANDARD FOR STRUCTURAL GLU-LAM TIMBER. SUBMIT SHOP DRAWINGS WITH AN A.I.T.C. CERTIFICATE TO VERIFY CONFORMANCE WITH A.I.T.C. STANDARDS TO THE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION.

MISCELLANEOUS:
VERIFY ALL DIMENSIONS IN THE FIELD. PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS & STIFFENING IS INSTALLED.

LEGEND

Symbol	Meaning
(hatched wall)	STUD BEARING WALL (LOAD BRNG. S.W.)
SW (dashed)	NON-BEARING SHEAR WALL (SW)
□	WOOD COLUMN (2 STUDS UNLESS NOTED)
—□—	BEAM OR HEADER NOT CONTINUOUS OVER COLUMN
—⊟—	BEAM OR HEADER CONTINUOUS OVER COLUMN
F.B.	FLUSH BEAM (2 JOISTS UNLESS NOTED)
HDR.	HEADER (2-2×10 OR 1-4×10 UNLESS NOTED)
○	WOOD PILE
10T	PILE CAPACITY
39.50	PILE CUT-OFF ELEVATION
←→	DIRECTION OF JOIST SPAN
↕	EXTENT OF JOISTS SPANING A GIVEN DIRECTION

80 UNIT APARTMENT BUILDING FOR SENIOR CITIZENS
FOR THE HOUSING AUTHORITY OF THE COUNTY OF KING, WASH. 221
N.E. 120TH PLACE & 100TH AVE. N.E., JUANITA, WASHINGTON
DEVELOPER: S & S CONTRACTORS

PILING PLAN & STRUCTURAL NOTES

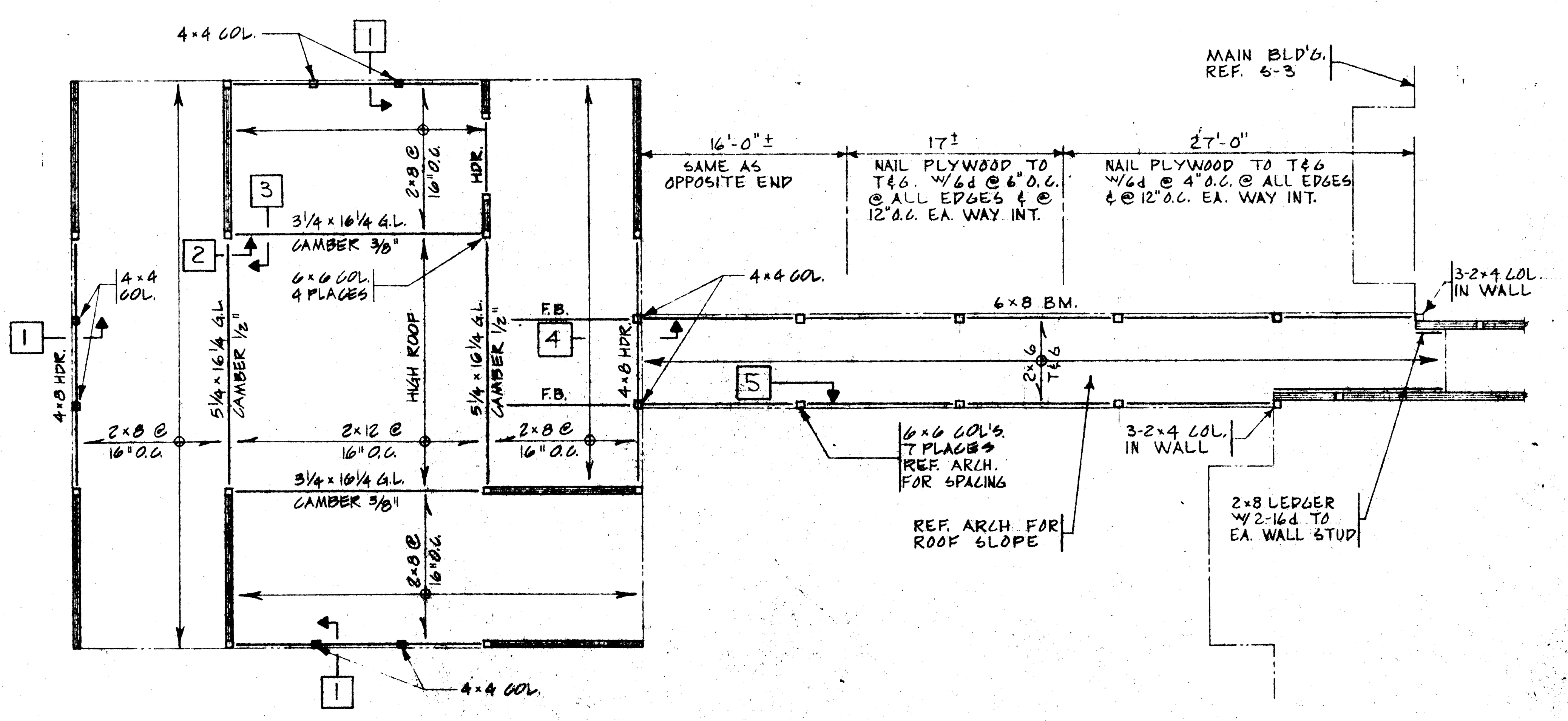
S-8

McCOOL-McDONALD and ASSOCIATES-ARCHITECTS
401 elliott ave. west, seattle, washington 98119, at 4-1651

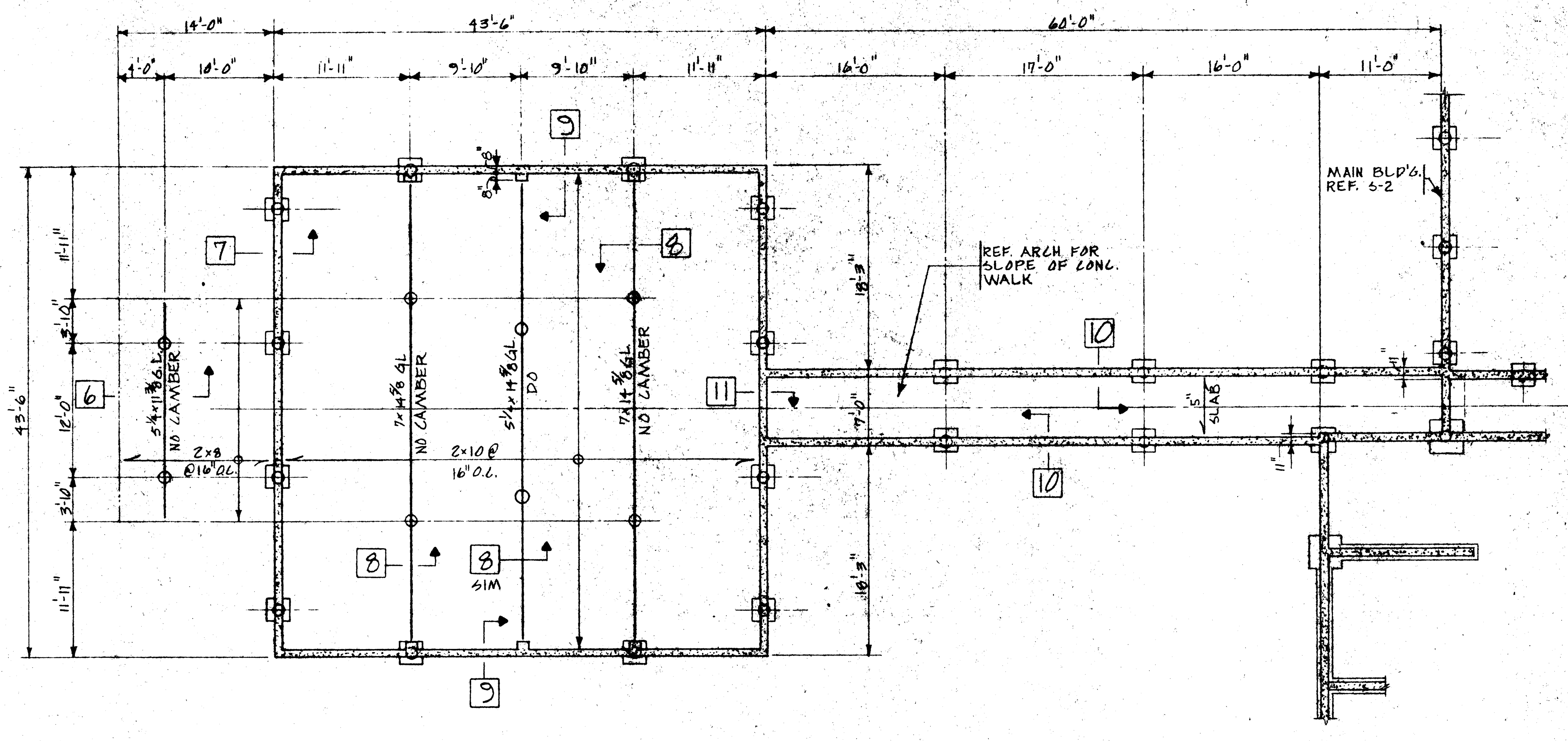
job no. A-12-69 S-69-165
design K. STAVE
drawn G. BOX
checked H. DODD
date 10-17-69

REGISTERED ARCHITECT — BLAINE McCOOL — STATE OF WASHINGTON

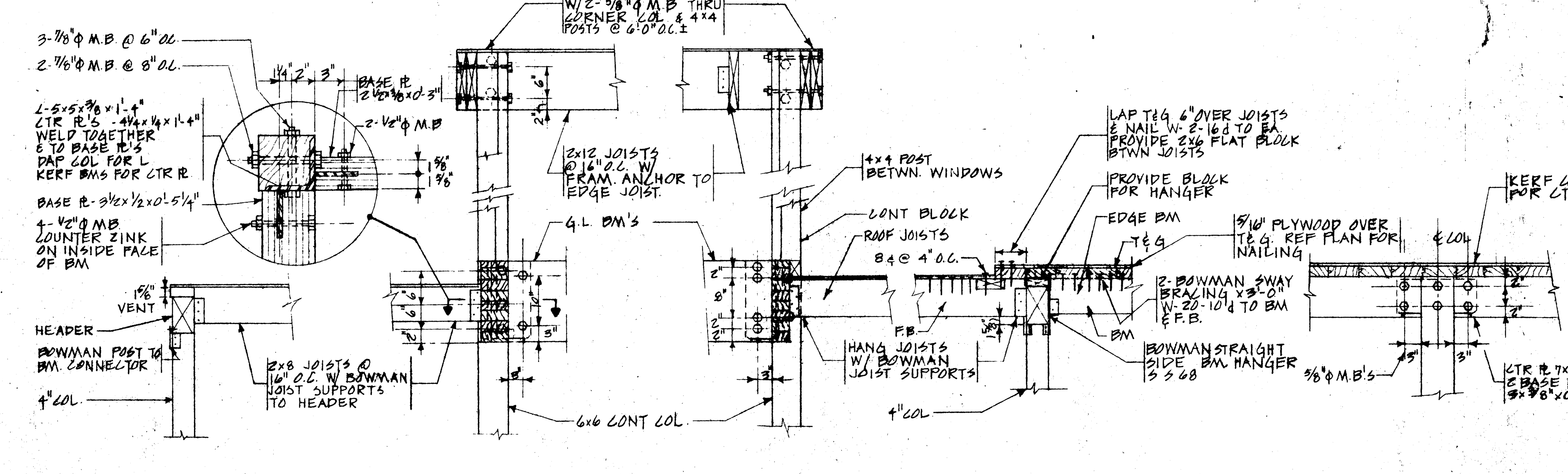
HARVEY R. DODD — REGISTERED PROFESSIONAL ENGINEER



ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"



FIRST FLOOR FRAMING & FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



SECTION 1
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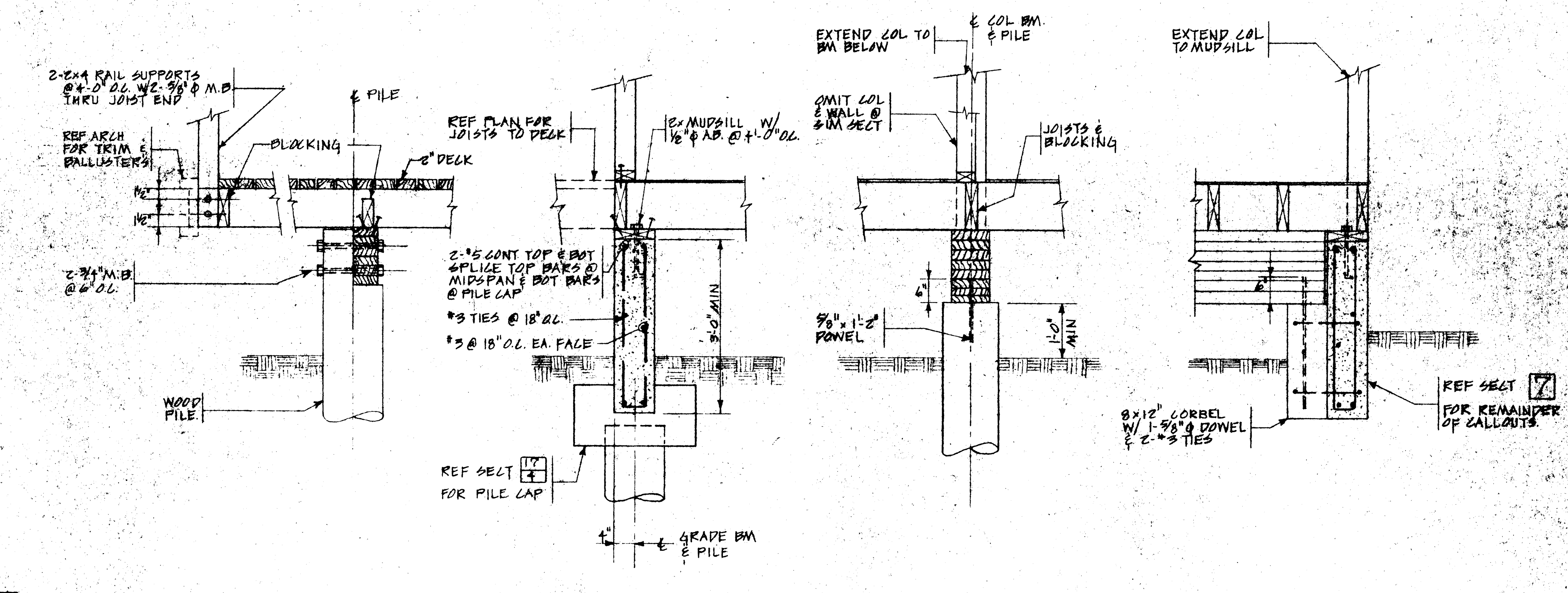
SECTION 2
SCALE: 3/4" = 1'-0"

SECTION 3
SCALE: 3/4" = 1'-0"

SECTION 4
SCALE: 3/4" = 1'-0"

SECTION 5
SCALE: 3/4" = 1'-0"

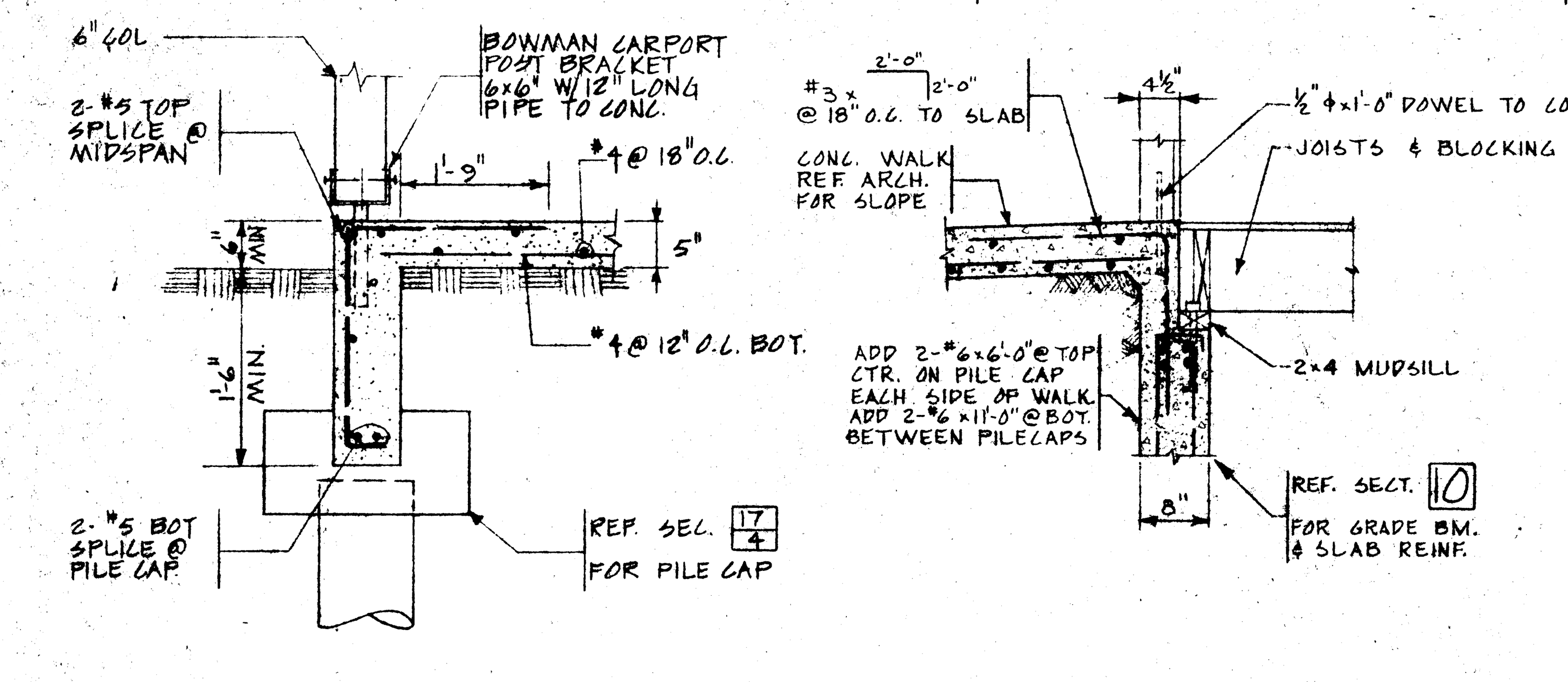


SECTION 6
SCALE: 3/4" = 1'-0"

SECTION 7
SCALE: 3/4" = 1'-0"

SECTION 8
SCALE: 3/4" = 1'-0"

SECTION 9
SCALE: 3/4" = 1'-0"



SECTION 10
SCALE: 3/4" = 1'-0"

SECTION 11
SCALE: 3/4" = 1'-0"

McCOOL-McDONALD
and ASSOCIATES-ARCHITECTS
401 elliott ave. west seattle, washington 98119 at 4-1551

60 UNIT APARTMENT BUILDING FOR SENIOR CITIZENS
COMMUNITY CENTER FRAMING PLANS & SECTIONS

S8