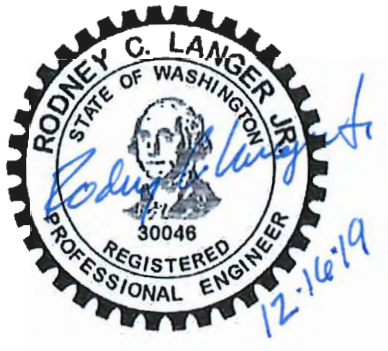
CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS

108th Ave NE Sewer and Water Replacement
Project No. 48-19-PW
CIP NO. CSS-0052/CWA-0052

Certificate of Engineer:
This addendum has been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer licensed to practice in the State of Washington, is affixed below.



Rodney Langer, P.E.
Project Manager

Approved for Construction:

Rod Steitzer, P.E.
Capital Projects Manager

To: All Holders of Specifications, Proposal and Contract Documents

This Addendum is hereby made a part of the contract documents to the same extent as though it were originally included therein.

This Addendum contains thirty-one (31) pages including this page and the cover page.

Issued this 16th day of December 2019.

Bidders must acknowledge receipt of this addendum in the space provided on the Bid Proposal (Bid Proposal, Page 6). Failure to do so may subject the bidder to disqualification.

Invitation to Bid

Revise the last line of the Project Description for Invitation to Bid to read as follows:

The estimated cost for all three schedules is $5,500,000 to $6,200,000, not including sales tax where applicable.

Bid Proposal

The Bid Schedules have been modified with the following changes:

1. Bid Item A-6: Estimated Quantity is changed
2. New Bid Item following A-7 and renumber following bid items. Add Structural Shoring item, by SF
3. Bid Item A-13: Remove Bid Item A-13
4. Bid Item A-14: Renumber as Bid Item A-13
5. Bid Item A-14: Add new bid item – 54" Sanitary Sewer Manhole
6. Bid Item A-15: Estimated Quantity is changed
7. Bid Item A-25: Estimated Quantity is changed
8. Bid Item A-26: Estimated Quantity is changed
9. Bid Item A-28: Estimated Quantity is changed
10. Bid Item A-29: Estimated Quantity is changed
11. New Bid Item following A-29 and renumber following bid items. Add Controlled Density Fill (lean concrete) by CY
12. Bid Item A-30: Estimated Quantity is changed
13. Bid Item A-31: Estimated Quantity is changed
14. Bid Item A-36: Fixed Amount is changed.
15. Bid Item B-2: Estimated Quantity is changed
16. Bid Item B-12: Estimated Quantity is changed
17. Bid Item C-4: Estimated Quantity is changed

The Revised Proposal Form, Pages Proposal -5- through Proposal -12- as attached to this Addendum, shall be used for submittal of a proposal rather than the Proposal Form included in the original Proposal Documents.

Special Provisions

The Special Provisions have been modified with the following changes:

1. Supplement project special provisions Section 1-02.4(2) with the following:

   The subsurface information included in Appendix B of the Specifications, Proposal and Contract Documents for 108th Ave NE Sewer and Water Replacement project shall be included as an appendix to the Special Provisions, as referenced above.

2. Supplement project special provisions Section 1-07.17 with the following:

   Add the following contact and phone number to the Transit/King County Metro listing: David Freeman, Construction Coordinator, (206) 477-1140.

3. Supplement project special provisions Section 7-08.3(1)B with the following:

   Where the use of structural shoring such as sheet piles and/or piles and timber lagging is necessary as determined by the Contractor and agreed as necessary by the Contracting Agency, the Contractor shall submit a shoring/excavation plan and design by a Washington State registered professional engineer, for review and acceptance by the Contracting Agency. Such submittal shall be made a minimum of 10 working days prior to implementation of the shoring/excavation plan.

4. Delete project special provisions Section 7-05.4 and replace it with the following:

   7-05.4 Measurement

   Revise the first paragraph to read:

   > Manholes shall be measured per each, regardless of height from rim to lowest sewer invert. Excavation for manholes shall be incidental to the manhole bid item. Sewer drop inlet connections shall be incidental to the manhole bid item.

5. Supplement project special provisions Section 7-08.3(1)A with the following:

   Contractor shall protect, maintain in service and temporarily support as necessary all existing utilities, including all mains and service lines, exposed within the trench, and adjacent thereto, while water main and services and sewer main and services trench and pipe work is completed.

6. Revise project special provisions Section 7-08.4 and 7-08.5 to read as follows:

7-08.4 Measurement

Revise the first paragraph of this Section to read:

Imported material for trench foundation restoration shall be crushed surfacing base course per Section 9-03.9(3) and shall be measured by the ton.

Revise the last paragraph of this Section to read:

Trench Safety Systems (Shoring) shall be measured per linear foot, as measured along the centerline of completed pipe system main installed per this Contract from center of manhole to center of manhole and along replacement and along the centerline of completed side sewer from connection to sewer main to connection to existing side sewer at property line or along full length of water main and fire hydrant lateral trench. Length or payment shall be regardless of depth and regardless of need to provide shoring around or beyond center of manhole at start or end of sewer main or side sewer, or beyond end of replacement water main or fire hydrant. This item shall not include Structural Shoring such as sheet piles and/or piles and timber lagging.

Structural Shoring shall be measured per square foot of structural shoring measures such as sheet piles and/or piles and timber lagging where installed as approved in advance as necessary by the Contracting Agency. Such measurement shall be limited to the horizontal length of shoring installed multiplied by the average depth of trench or manhole excavation necessary for pipe bedding or foundation material, with such average depth measured at intervals of no more than 25 feet along the length of installed shoring. Such shoring shall be measured independently for each side of the trench, if installed on both sides of the trench, or for each side of the manhole excavation.

(******)

7-08.5 Payment

Revise the ninth paragraph of this Section to read:

"Trench Safety Systems (Shoring)", per lineal foot.

Supplement the Section with the following:

"Structural Shoring", per square foot.

7. Supplement project special provisions Section 7-09.3(6) with the following:

Contractor shall protect, maintain in service and temporarily support as necessary all existing utilities, including all mains and service lines, exposed within the trench, and adjacent thereto, while water main and services trench and pipe work is completed.

8. Delete project special provisions Section 7-09.5 and replace it with the following:

7-09.5 Payment

Replace the second, third and fourth paragraphs of this Section with the following paragraphs:

"Ductile Iron Pipe for Water Main __ In. Diameter", per linear foot

The unit Contract price per linear foot for "Ductile Iron Pipe for Water Main __ In. Diameter" shall be full pay for all Work to complete the installation of the water main, of the size indicated, including but not limited to, coordination with the Engineer, City Public Works Department, notice to water system customers impacted by the Work, trench excavation, dewatering, bedding, furnishing, laying and jointing pipe and all fittings as indicated in the Plans, connection and transition to existing piping, removing and handling of existing asbestos cement water pipe, backfilling, concrete thrust blocking, testing, disinfecting the pipeline, flushing, pressure testing, coordination sampling for water quality analysis and all related work at each connection, flushing, dechlorination of water used for flushing and cleanup.

The unit Contract Price for water main shall also include all fittings and accessories as shown on the Plans for temporary and permanent pipe, fitting and/or valve connections. Tees for fire hydrant assemblies shall be included in the fire hydrant bid item.

Payment for restoration will be made under the applicable items shown in the Proposal. If no pay items for restoration are included in the Proposal, restoration shall be considered incidental to the Work of constructing the replacement water main, and aII costs thereof shall, be included in the unit Contract price Bid for "Ductile Iron Pipe for Water Main __ In. Diameter".

Supplement the section with the following:

"Connection to Existing Water Main (8"/12"/18")", per each.

The Contract unit price for "Connection to Existing Water Main (8"12"/18")" shall constitute full compensation for all labor, materials, tools and equipment necessary for a complete connection between the proposed water main and the existing water main as shown on the Plans and outlined above and specified herein including but not limited gaskets, bolts, all pipe for which a specific bid item has not been provided, nipples, adapters, couplings, fittings

as shown on the Plans, restrained joints (Mega-Lug or similar), thrust blocking, dewatering, excavation, compaction, pressure and purity testing, and temporary blow-offs necessary for testing.

Water used in placing and compacting surfacing materials shall be considered incidental to the material being placed.

"Additional Ductile Iron Fittings", per pound.

The Contract unit price for "Additional Ductile Iron Fittings" per pound shall constitute full compensation for all labor, materials and equipment necessary for additional ductile iron fittings, including mechanical joint follower glands, bolts, nuts, and gaskets where directed by the City or as required and approved by the City to address a revised connection of water system pipe.

9. Revise the project special provisions listing of Section 7-18.3(1) to be 7-18.3(2).

10. Supplement project special provisions Section 7-18.3(2) with the following:

    Fittings for change of alignment of side sewer from wye at main per Pre-Approved Plans and for connection of replacement side sewer in right of way to private sewer stub shall be incidental to the bid items for PVC Sanitary Sewer Pipe 6 In. Diam. or 8 In. Diam., per Section 7-17.4.

11. Delete project special provisions Sections 7-18.4 and 7-18.5.

12. Supplement project special provisions Section 7-19.4 with the following:

    Costs for labor, materials and equipment necessary for restoration of all landscaping and other public or private improvements disturbed for installation of cleanouts, with the exception of asphalt pavement, cement concrete and/or concrete curb and gutter, shall be considered incidental to the Sewer Cleanout bid item.

13. Supplement project special provisions Section 8-22.4 with the following:

    All pavement markings not associated with the "MMA Green Bicycle Lane Treatment" are to be incidental to the corresponding HMA Bid item per Section 5-04.4.

14. Supplement project special provisions Section 8-22.5 with the following:

    All pavement markings not associated with the "MMA Green Bicycle Lane Treatment" are to be incidental to the corresponding HMA Bid item per Section 5-04.4.

Appendix A: Plans

The Contract Plans have been modified with the following changes:

On Sheet 1 (Cover Sheet):

- Under CONTACT PERSONNEL, revise the phone number for the King County Metro Construction Coordinator to 206.477.1140.

On Sheet 3:

- Revise "Key Notes – Water" as follows:
  - Revise Pre-approved Plan references in Notes 1, 2, 3 and 4 from CK-W-21, CK-W-23, CK-W-22 and CK-W-25 to CK-W.21, CK-W.23, CK-W.22 and CK-W.25, respectively.
- Revise "Key Notes – Sewer" as follows:
  - Revise Key Note 1 to read as follows: Not Used
  - Revise Key Note 2 to read as follows: REPLACE EXISTING SIDE SEWER WITH 6" PVC (UNLESS EXISTING IS 8" THEN WITH 8") TO PROPERTY LINE AND RECONNECT AT SEWER MAIN OR MANHOLE. ADD CLEANOUT AT PROPERTY LINE IF NOT EXISTING. RECONNECT TO EXISTING SIDE SEWER AT PROPERTY LINE PER DETAIL 1, SHEET 21. CONNECT TO SEWER MANHOLE AS REQUIRED FOR SEWER MAIN CONNECTIONS TO MANHOLES. SIDE SEWER, CLEANOUT AND CONCRETE/PAVEMENT RESTORATION PER PRE-APPROVED PLANS, AS MODIFIED HEREIN. RESTORE EXISTING LANDSCAPING TO MATCH EXISTING CONDITIONS.
  - Add Key Note 8: RECONNECT EXISTING LATERAL SEWERS WITH INSIDE DROP CONNECTION PER PRE-APPROVED PLAN CK-S.12.

On Sheet 10:

- In Plan view at side sewer from east into SSMH 1835, change Key Note callout from 7 to 2 (sewer in hexagon).
- In Profile view at 0+96 upstream of SSMH 1834 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 1+45 upstream of SSMH 1834 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)

On Sheet 11:

- In Profile view at 1+45 upstream of SSMH 1834 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 2+45 upstream of SSMH 1833 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)

- In Profile view at the relocated SSMH 1830 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)

On Sheet 12:

- In Profile view at the relocated SSMH 1830 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 0+63 upstream of SSMH 1827 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 0+90 upstream of SSMH 1827 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 0+18 upstream of SSMH 1824 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 0+29 upstream of SSMH 1824 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Plan and Profile views, add callouts at 0+15 upstream of SSMH 1825 as follows: Key Note 4 (sewer in hexagon) 0+15 TO 0+59

On Sheet 13:

- In Plan view, show existing UG TEL at 25' L from approximately Station 30+75 to Station 33+50
- In Plan and Profile views, add callout at 0+23 upstream of SSMH 1824 as follows: Key Note 4 (sewer in hexagon) 0+23 TO 0+27
- In Profile view at 0+18 upstream of SSMH 1824 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 0+29 upstream of SSMH 1824 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)
- In Profile view at 1+17 upstream of SSMH 1824 replace Key Note 1 (sewer in hexagon) with Key Note 2 (sewer in hexagon)

On Sheet 14:

- In Plan view, show existing UG TEL at 25' L from approximately Station 33+50 to Station 38+50, passing through the two existing telephone structures along this alignment
- In the Plan view, add a callout at NE Corner of NE 59th St. as follows: SEE CURB RAMP DETAIL, SHEET 20A (SCHEDULE C).
- In the Plan view, add a callout at SE NE 59th St. Corner as follows: SEE CURB RAMP DETAIL, SHEET 20A (SCHEDULE C).
- In the Plan view, add a callout at NE Corner of university driveway as follows: SEE CURB RAMP DETAIL, SHEET 20B (SCHEDULE C).
- In the Plan view, add an existing fire hydrant and lateral crossing 108th Ave NE. beginning at the existing water valve at Station 37+22 (+/-), 20' R, to a hydrant at the same station, 22' L.

- In the Profile view, add an EX. WATER crossing at Station 37+22 (+/-)

On Sheet 15:

- In Plan view, show existing UG TEL at 25' L from approximately Station 38+50 to Station 39+00
- Add a callout at NE Corner of university driveway as follows: SEE CURB RAMP DETAIL, SHEET 20B (SCHEDULE C).
- At SSMH 1808: Add Key Note 8 (sewer in hexagon) at east side and west side of SSMH 1808 in Plan view, and at two drop inlet elevation callouts in Profile view.
- In Plan and Profile views, add callout at 0+91 upstream of SSMH 1813 as follows: 0+91 TO 0+93.5 METAL PATCH ON MAINLINE
- In Plan and Profile view, add callout at SSMH 1808: REPLACE 48" MANHOLE WITH 54" MANHOLE PER PRE-APPROVED PLANS CK-S.12 AND CK-S.09.

On Sheet 16:

- In Plan and Profile view, add callout at SSMH 1808: REPLACE 48" MANHOLE WITH 54" MANHOLE PER PRE-APPROVED PLANS CK-S.12 AND CK-S.09.
- At SSMH 1808: Add Key Note 8 (sewer in hexagon) at east side and west side of SSMH 1808 in Plan view, and at two drop inlet elevation callouts in Profile view.
- At SSMH 1804: add a callout in Profile view as follows: CITY CONSTRUCTION RECORDS INDICATE THAT SOME OR ALL BACKFILL AROUND SSMH 1804 IS CONTROLLED DENSITY FILL FOR FULL DEPTH OF STRUCTURE. CONTRACTOR SHALL REMOVE WHERE NECESSARY TO COMPLETE THE WORK OF THIS PROJECT AND BACKFILL WITH GRAVEL BORROW AND CRUSHED SURFACING BASE COURSE AS FOR SEWER TRENCH.

On Sheet 35:

- In Title Block, delete "2" as a suffix of TRAFFIC CONTROL PLAN
- In TRAFFIC CONTROL PLAN GENERAL NOTES: Revise last sentence of Note 14 to read: POINT OF CONTACT IS DAVID FREEMAN, 206-477-1140.

On Sheet 36:

- In Title Block, delete "3" as a suffix of TRAFFIC CONTROL PLAN
- In NOTES: Revise last sentence of Note 1 to read: LANE SHIFT OR LANE CLOSURE SHALL BE CONSIDERED A TRAFFIC INTERRUPTION.
- In TRAFFIC CONTROL PLAN GENERAL NOTES: Revise last sentence of Note 14 to read: POINT OF CONTACT IS DAVID FREEMAN, 206-477-1140.

Add Sheets 20A and 20B as attached, to include additional curb ramp replacement details and City of Kirkland Pre-approved Plan CK-S.12.

Appendix B: Geotechnical Evaluation Report

Appendix B has been modified with the following changes:

Add the geotechnical Project Memorandum from HWA GeoSciences Inc. dated December 16, 2019 as attached to Appendix B. (The Memorandum reports that a manhole box was used on a previous project at the intersection of 108th Ave. NE and NE 53rd St. Sheet piles may have been used in addition to or in lieu of the manhole box as summarized therein.)

CITY OF KIRKLAND
BID PROPOSAL

108th Ave NE Sewer and Water Replacement
CIP NO. CSS-0052/CWA-0052
JOB NO. 48-19-PW

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

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

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

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

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

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

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

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

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

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

The evaluation of bid and determination of the low responsive bid shall be based on the Base Bid (Schedules A + B + C) from the bid schedules.

The undersigned bids and agrees to complete all construction of the **108th Ave NE Sewer and Water Replacement; JOB NO. 48-19-PW** for the following:

Schedule	**Subtotal Bid Price**	**Sales Tax (Rule 170)**	**Total Bid Price**
A – Sanitary Sewer Main – 108th Ave NE from NE 68th St to NE 53rd St	$_____	$_____	$_____
B – Water Main – 108th Ave NE from NE 68th St to NE 60th St	$_____	$_____	$_____
C – Road Overlay and ADA Ramp Replacement	$_____	$ N/A	$_____
	TOTAL BASE BID with tax (*in figures*)		$_____

TOTAL BASE BID with tax (*in words*)

_____

_____

_____

To be considered responsible, the bidder shall submit a price on each and every item of work included in Schedules A, B, and C.

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

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

CONTRACTOR (Firm Name)	Location or Place Executed: (City, State)
By	Name and title of person signing
(Indicate whether Contractor is Partnership, Corporation, or Sole Proprietorship)	Date
Washington State Contractor's Registration Number	Contractor's Industrial Insurance Account Number
Employment Security Identification Number	Uniform Business Identification (UBI) Number

Contractor's Address:

	Telephone Number
	Fax Number
	EMAIL

** Bid proposal to be submitted in a **sealed envelope** marked "**Bid Enclosed**" for **108th Ave NE Sewer and Water Replacement, JOB NO. 48-19-PW.**

CITY OF KIRKLAND
BID SCHEDULE

108th Ave NE Sewer and Water Replacement
JOB NO. 48-19-PW

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

BID SCHEDULE A: Sanitary Sewer Main – 108th Ave NE from NE 68th St to NE 53rd St

Item No.	Item Description	Spec Ref.	Est. Qty.	Unit	Unit Price	Amount
A-1	Mobilization / Demobilization - Schedules A and B	1-09	1	LS		
A-2	Type B Progress Schedule – Schedules A and B (min. Bid $5,000.00)	1-08	1	LS		
A-3	SWPPP – All Schedules (min. Bid $5,000.00)	8-01	1	LS		
A-4	SPCC Plan – All Schedules (min. Bid $5,000.00)	1-07	1	LS		
A-5	Project Temporary Traffic Control (min. Bid $10,000.00)	1-10	1	LS		
A-6	Other Traffic Control Labor – Off Duty Police (min. Bid $75/HR)	1-10	160	HR		
A-7	Trench Safety Systems (Shoring)	7-08	5,153	LF		
A-8	Structural Shoring	7-08	4,000	SF		
A-9	Water Pollution/Erosion Control (min. Bid $5,000.00)	8-01	1	LS		
A-10	Construction Surveying	1-05	1	LS		
A-11	PVC Sanitary Sewer Pipe 8 In. Diam.	7-17	1,285	LF		
A-12	PVC Sanitary Sewer Pipe 12 In. Diam.	7-17	2,847	LF		
A-13	PVC Sanitary Sewer Pipe 6 In. Diam.	7-18	1,020	LF		
A-14	Sewer Cleanout	7-19	33	EA		
A-15	54" Sanitary Sewer Manhole	7-05	1	EA		
A-16	48" Sanitary Sewer Manhole	7-05	18	EA		
A-17	Connection to Existing Sewer Main	7-05	13	EA		
A-18	Cement Concrete Crossing with Detectable Warning Surface	8-14	2	EA		
A-19	Remove and Replace Cement Conc. Sidewalk	8-14	129	SY		
A-20	Remove and Replace Cement Conc. Traffic Curb and Gutter	8-04	883	LF		
A-21	Remove and Replace Cement Conc. Driveway Entrance	8-06	5	EA		
A-22	Median Island 1 Replacement (all other work)	8-02	1	EA		

A-23	Median Island 2 Replacement (all other work)	8-02	1	EA		
A-24	Median Island 3 Replacement (all other work)	8-02	1	EA		
A-25	PSIPE - Cambridge Pear (1.5" Caliper, Branched at 6')	8-02	5	EA		
A-26	Gravel Borrow	9-03	9,100	TN		
A-27	Sawcutting Pavement - Up to 9.5" Thick	2-02	12,508	LF		
A-28	Unsuitable Foundation Excavation including Haul	8-02	110	CY		
A-29	Crushed Surfacing Base Course	9-03	2,500	TN		
A-30	Crushed Surfacing Top Course	9-03	9,700	TN		
A-31	Controlled Density Fill (Lean Concrete)	6-02	250	CY		
A-32	HMA Cl. 1/2" PG 64-22 for Trench Restoration (Temporary)	5-04	450	TN		
A-33	HMA Cl. 1/2" PG 64-22 for Trench Restoration (Permanent)	5-04	2,700	TN		
A-34	HMA Cl. 1/2" PG 64-22 for Traffic Island Restoration	5-04	22	TN		
A-35	Decommission Monitoring Well	2-02	2	EA		
A-36	Reference and Replace Survey Monument	8-13	8	EA		
A-37	Record Drawings – All Schedules (min. Bid $5,000.00)	1-05	1	LS		
A-38	Miscellaneous Work	1-09	1	FA	$100,000	$100,000

TOTAL COMPUTED PRICE – Bid Schedule A (Base Bid): $_____

Sales Tax at 10.1%: $_____

Total with Sales Tax: $_____

BID SCHEDULE B: Water Main – NE 68th St to NE 60th St						
ITEM NO.	**Item Description**	**Spec Ref.**	**Est. Qty.**	**Unit**	**Unit Price**	**Amount**
B-1	Project Temporary Traffic Control (min. Bid $10,000.00)	1-10	1	LS		
B-2	Other Traffic Control Labor – Off Duty Police (min. Bid $75/HR)	1-10	160	HR		
B-3	Water Pollution/Erosion Control (min. Bid $5,000.00)	8-01	1	LS		
B-4	Trench Safety Systems (Shoring)	7-08	2,535	LF		
B-5	Construction Surveying	1-05	1	LS		
B-6	Ductile Iron Pipe for Water Main 8 In. Diameter	7-09	260	LF		
B-7	Ductile Iron Pipe for Water Main 12 In. Diameter	7-09	2,152	LF		
B-8	Ductile Iron Pipe for Water Main 18 In. Diameter	7-09	37	LF		
B-9	Fire Hydrant Assembly	7-14	7	EA		
B-10	Gate Valve 8 in.	7-12	6	EA		
B-11	Gate Valve 12 in.	7-12	21	EA		
B-12	Connection to Existing Water Main (8"/12"/18")	7-09	9	EA		
B-13	Additional Ductile Iron Fittings	7-09	3,000	LB		
B-14	Service Connection 1 in. Diam. Near Side	7-15	15	EA		
B-15	Service Connection 1.5" in. Diam. Near Side	7-15	3	EA		
B-16	Service Connection 1 in. Diam. Far Side	7-15	34	EA		
B-17	Remove and Replace Cement Conc. Sidewalk	8-14	93	SY		
B-18	Remove and Replace Cement Conc. Traffic Curb and Gutter	8-04	390	LF		
B-19	Remove and Replace Cement Conc. Driveway Entrance	8-06	5	EA		
B-20	Sawcutting Pavement - Up to 9.5" Thick	2-02	5,540	LF		
B-21	Crushed Surfacing Base Course	9-03	590	TN		

B-22	Crushed Surfacing Top Course	9-03	2,000	TN		
B-23	HMA Cl. 1/2" PG 64-22 for Trench Restoration (Temporary)	5-04	110	TN		
B-24	HMA Cl. 1/2" PG 64-22 for Trench Restoration (Permanent)	5-04	1,100	TN		
B-25	Miscellaneous Work	1-09	1	FA	$50,000	$50,000

TOTAL COMPUTED PRICE – Bid Schedule B (Base Bid): $_____

Sales Tax at 10.1%: $_____

Total with Sales Tax: $_____

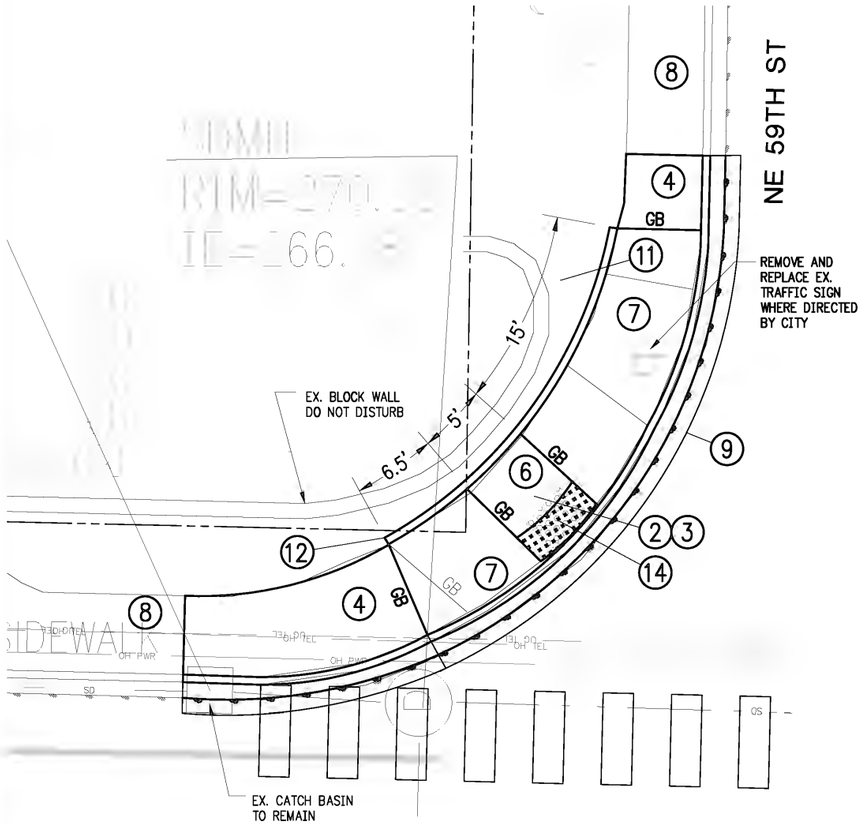
BID SCHEDULE C: Road Overlay and ADA Ramp Replacement						
ITEM NO.	**Item Description**	**Spec Ref.**	**Est. Qty.**	**Unit**	**Unit Price**	**Amount**
C-1	Mobilization / Demobilization	1-09	1	LS		
C-2	Type B Progress Schedule - Supplement (min. Bid $2,000.00)	1-08	1	LS		
C-3	Project Temporary Traffic Control (min. Bid $10,000.00)	1-10	1	LS		
C-4	Other Traffic Control Labor – Off Duty Police (min. Bid $75/HR)	1-10	160	HR		
C-5	Water Pollution/Erosion Control (min. Bid $5,000.00)	8-01	1	LS		
C-6	Construction Surveying	1-05	1	LS		
C-7	Remove and Replace Cement Conc. Sidewalk	8-14	20	SY		
C-8	Remove and Replace Cement Conc. Traffic Curb and Gutter	8-04	186	LF		
C-9	Cement Conc. Pedestrian Curb	8-04	288	LF		
C-10	ADA Curb Ramp Replacement	8-14	9	EA		
C-11	Sawcutting Pavement - Up to 9.5" Thick	2-02	310	LF		
C-12	Crushed Surfacing Base Course	9-03	50	TN		
C-13	Planing Bituminous Pavement	5-04	18,200	SY		
C-14	HMA Cl. 1/2" PG 64-22 for 3" Overlay	5-04	3,100	TN		
C-15	HMA Cl. 1/2" PG 64-22 for Curb Ramp Restoration	5-04	20	TN		
C-16	MMA Green Bicycle Lane Treatment	9-34	1,100	SF		
C-17	Traffic Signal Induction Loops	8-20	5	EA		
C-18	Miscellaneous Work	1-09	1	FA	$30,000	$30,000

TOTAL COMPUTED PRICE – Bid Schedule C (Base Bid): $_____

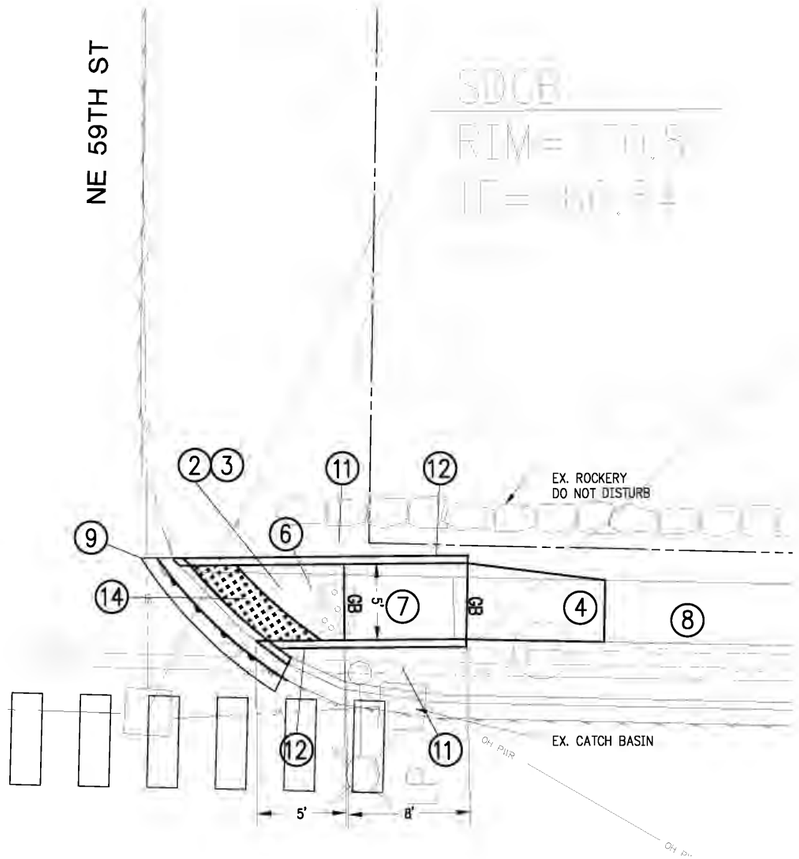
Sales Tax at 10.1%: $ n/a

Total with Sales Tax: $_____

A PORTION OF SECTION 8, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M., KING COUNTY, WASHINGTON

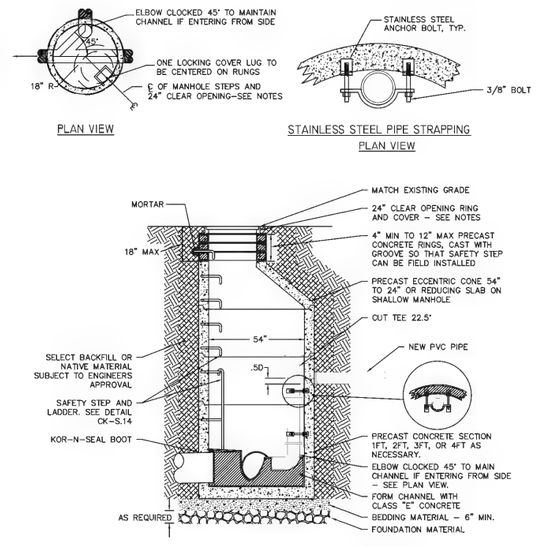


PLAN - NE CORNER



PLAN - SE CORNER

LAST REVISED:1/15/15



NOTES:

1. USE ONLY WHEN APPROVED BY PUBLIC WORKS.
2. NO EXTERNAL DROPS ALLOWED.

CITY OF KIRKLAND	
PLAN NO. CK–S.12	
CITY OF KIRKLAND WASHINGTON	SANITARY SEWER INTERNAL DROP CONNECTON

811 Know what's below. Call before you dig.

CHS ENGINEERS

CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS
123 FIFTH AVENUE KIRKLAND, WA 98033
(425) 587–3800 www.kirklandwa.gov

NO.	DATE	BY	APPR.	REVISION
1	12/16/19	BG	RL	ADDENDUM #1

RODNEY C. LANCHESTER JR. STATE OF WASHINGTON 36086 REGISTERED PROFESSIONAL ENGINEER 11/25/19

APPROVED BY:

DATE:

DF / CC / BG DESIGNED BY:	10 / 18 DATE
DJ DRAWN BY:	10 / 18 DATE
RL CHECKED BY:	10 / 19 DATE

108TH AVE NE SEWER AND WATER REPLACEMENT

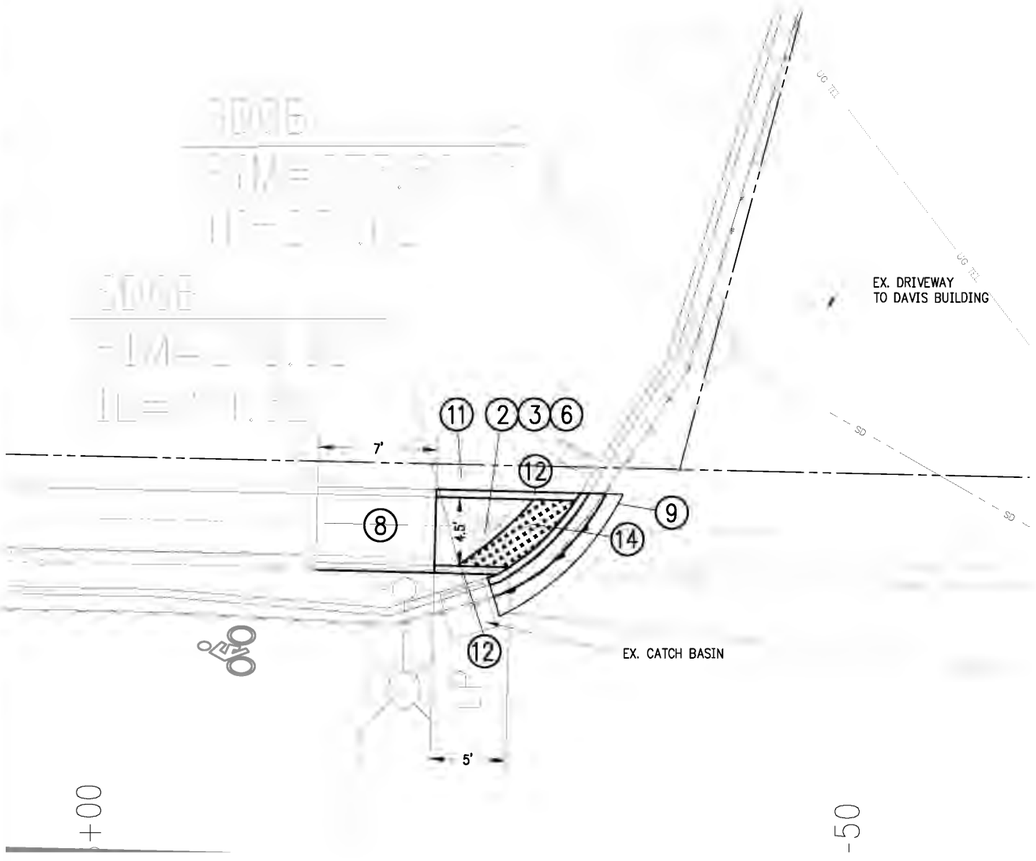
ADA CURB RAMP REPLACEMENT DETAILS

SHEET: 20A / 36

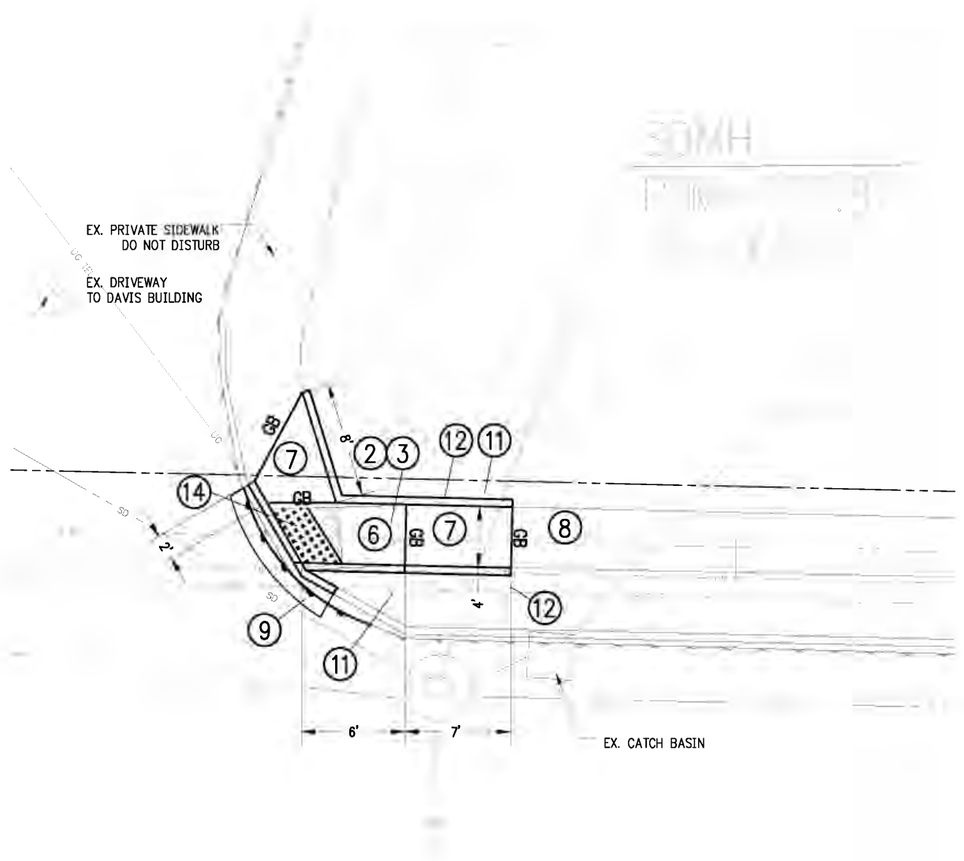
SCALE: SEE GRAPHIC SCALE

FILENAME: 801802 - DESIGN

A PORTION OF SECTION 8, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M., KING COUNTY, WASHINGTON



PLAN - NE CORNER



PLAN - SE CORNER

811 Know what's below. Call before you dig.

CHS ENGINEERS

CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS
123 FIFTH AVENUE KIRKLAND, WA 98033
(425) 587-3800 www.kirklandwa.gov

NO.	DATE	BY	APPR.	REVISION
1	12/16/19	BG	RL	ADDENDUM #1

RODNEY C. LANGER — STATE OF WASHINGTON — 21086 — REGISTERED PROFESSIONAL ENGINEER — 11/25/19

APPROVED BY:

DATE:

DF / CC / BG DESIGNED BY:	10 / 18 DATE
DJ DRAWN BY:	10 / 18 DATE
RL CHECKED BY:	10 / 19 DATE

108TH AVE NE SEWER AND WATER REPLACEMENT

ADA CURB RAMP REPLACEMENT DETAILS

SHEET: 20B / 36

SCALE: SEE GRAPHIC SCALE

FILENAME: 801802 - DESIGN

HWA GeoSciences Inc.

PROJECT MEMORANDUM

TO: Rodney Langer, P.E. / CHS Engineers

PREPARED BY: JoLyn Gillie, P.E. / HWA GeoSciences Inc.

SUBJECT: **ADDENDUM TO GEOTECHNICAL REPORT**
108th Avenue NE Sewer Main Replacement Project
Kirkland, Washington

PROJECT NO.: 2018-060-21

DATE: December 16, 2019

As requested, HWA GeoSciences Inc. (HWA) has reviewed information recently provided regarding a sewer main replacement project previously completed at the intersection of NE 53rd Street and 108th Avenue NE at the south end of the subject project. Based on our review we provide the following addendum to our recommendations and construction considerations provided in our Geotechnical Report, dated January 18, 2019 for excavation and shoring along the proposed sewer main replacement on 108th Avenue NE.

PROJECT DESCRIPTION

The current project will replace approximately 4,000 lineal feet of existing sewer main and manholes with excavation depths ranging from about 6 feet near the north end up to nearly 30 feet near the south end. At the south end of the alignment (within the intersection with NE 53rd Street) the sewer main will connect with an existing manhole installed for the previous NE 53rd Street Sewer Main Replacement project. The invert depth at this manhole is 25.6 feet below the existing ground surface.

ADDITIONAL INFORMATION REGARDING SUBSURFACE CONDITIONS

At the south end of the alignment for the 108th Avenue NE Sewer Main Replacement Project, a boring that was previously completed for the NE 53rd Street Sewer Main Replacement Project was recently provided to HWA for review. The boring EB-1, performed by AESI and included in their *Geotechnical Engineering Report,* dated March 30, 2012, was completed near the manhole at the intersection of NE 53rd Street and 108th Avenue NE (AESI report provided in Appendix A). The boring indicates that the soils at this location consist of very loose to loose, granular fill over the full depth of the boring, which was terminated at 25 feet below the ground surface due to refusal on what was interpreted to be concrete from previous work in the intersection. Additionally, City personnel indicated that a manhole box was used as shoring at

this location during the excavation for the manhole replacement. It was reported that significant sloughing occurred outside the box undermining the adjacent pavement, reducing the capacity of the soil to support traffic in the adjacent lane. As a precaution, Metro bus traffic was routed around the intersection for several days. The area was reportedly backfilled with Controlled Density Fill (CDF) to eliminate the need to perform compaction in the areas of the exposed sidewalls of the trench.

Information from the second boring from the AESI study, designated EB-2, located about 300 feet east of 108th Avenue NE, was reviewed and compared with the log of boring BH-1, completed by HWA for the 108th Avenue NE project. Boring EB-2 is more consistent with the HWA boring, indicating medium dense to dense outwash soils within 12½ feet of the ground surface. Based on this it appears that the very loose to loose conditions encountered at the manhole at NE 53rd Street are likely limited to some portion of the area between our boring BH-1 near NE 55th Street and the intersection at NE 53rd Street and 108th Avenue NE.

RECOMMENDATIONS AND CONCLUSIONS

Excavation and Temporary Shoring for Pipelines and Manholes

The proposed sewer will be installed using open cut methods and can be accomplished with conventional excavation equipment such as backhoes and trackhoes. Cuts will be made into soils ranging from very loose to medium dense fill materials to dense to very dense advance outwash soils. Excavation at the connection of the sewer to the southernmost manhole is likely to encounter CDF previously placed during the NE 53rd Street Sewer Main Replacement project.

Maintenance of safe working conditions, including temporary excavation stability is the responsibility of the contractor. All trench excavations shall have adequate safety systems for trench excavation that meet the requirements of the Washington Industrial Safety and Health Act (WISHA), Chapter 49.17 RCW. In accordance with Part N of Washington Administrative Code (WAC) 296-155, all temporary cuts in excess of 4 feet in height must be either sloped or shored prior to entry by personnel. Existing fill and weathered outwash soils are generally classified as Type C soils per WAC 296-155. Where shoring is not used, temporary cuts in Type C soils should be sloped no steeper than 1.5H:1V (horizontal: vertical). However, if groundwater is noted in the excavation shallower slopes may be necessary. and HWA should be allowed to assist in determining more appropriate safe cut slopes. If used, temporary cut slopes should be established at least 2 feet away from the cut edge of existing pavements to be preserved, utilities, or other structures. Given the location of the sewer line within 108th Avenue NE, we anticipate that shoring will be required to limit the extents of the excavations.

Trench support can typically be achieved using trench boxes, augmented as necessary with steel sheets and struts. The Contractor should be prepared for caving of the sidewalls and adjust shoring methods as necessary to limit caving so that it does not undermine the adjacent travel

lanes. The presence of very loose to loose soils is anticipated to be encountered over the full depth of the 20 to 30-foot excavations for some distance between NE 55th Street and NE 53rd Street and side slopes will readily experience sloughing which may induce large displacements or undermining of adjacent pavements, utilities or other structures. Where these conditions are encountered, the Contractor should be prepared to provide additional shoring measures besides trench boxes and steel sheets supported with struts. Due to concerns with respect to the potential for raveling of near surface soils HWA recommends the use of shoring methods that put direct pressure on the sidewalls of the trench, and/or filling of the annual space between the shoring system and exposed soil faces should be considered. These shoring measures could include use of vertical shoring such as sheet piles or soldier piles and lagging. Recommendations for design of temporary shoring systems are provided in the following section.

Design for Temporary Shoring

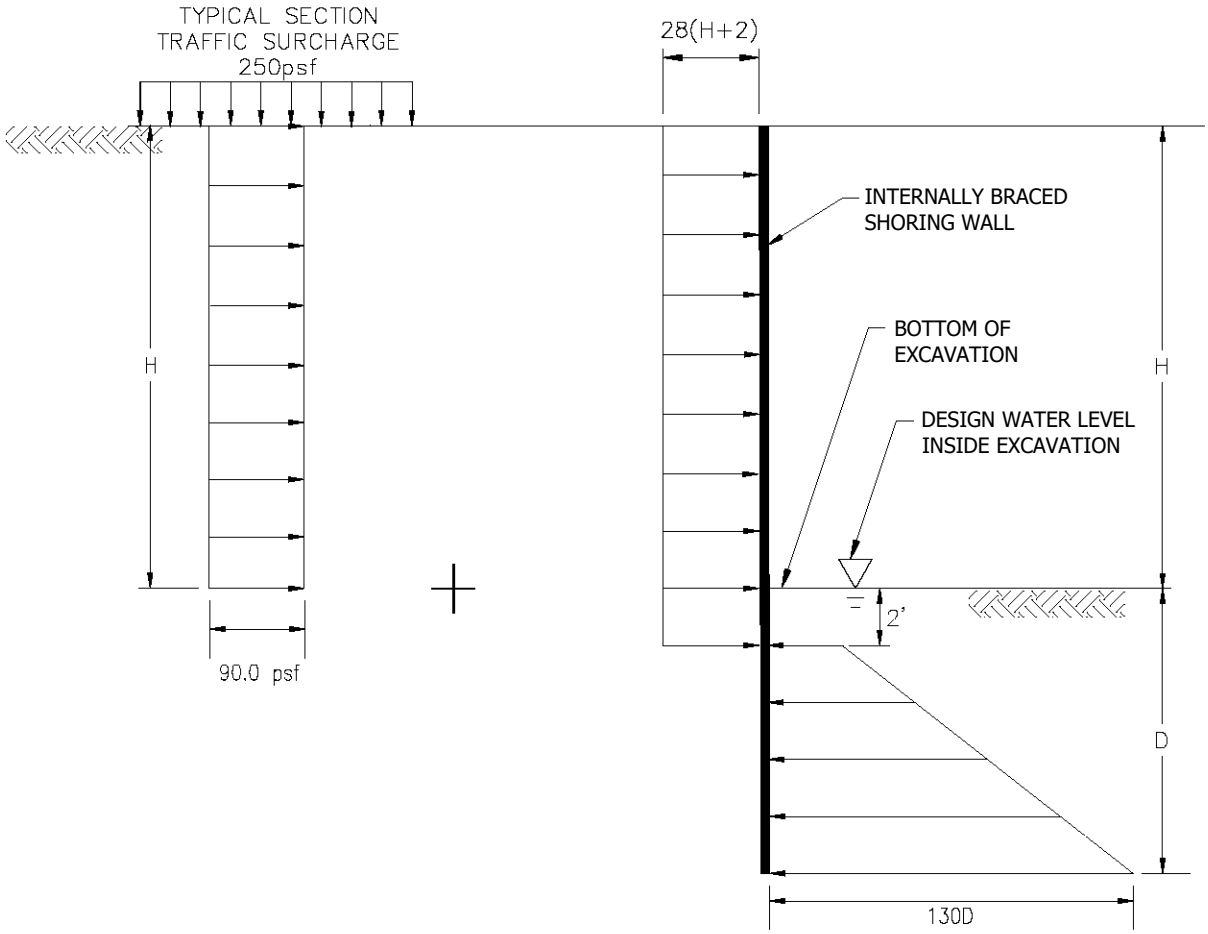
Where the soil conditions encountered require additional sidewall support other than trench boxes supplemented with steel sheets and struts, the shoring system implemented should be designed and constructed to support the lateral earth pressures exerted by the surrounding soil. The lateral earth pressures provided in Figure 1 can be used for design of braced temporary shoring and assumes the presence of very loose to loose fill materials over the full height of the shored excavation. This also assumes that the ground water level is at or lower than the base of the excavation, such that no hydrostatic pressure is able to build up behind the shoring or result in heave at the base of the excavation. A surcharge from lightly loaded vehicles is included and is equal to a surcharge of 2 feet of soil. Any additional surcharges from construction equipment, construction materials, or excavated soils should be included in the shoring design. We recommend that the contractor be required to submit a shoring/excavation plan for review prior to installation of the proposed system.

Backfill and Compaction

Recommendations for backfill and compaction are provided in Section 4.3 of our Geotechnical Report. Alternatively, Control Density Fill (CDF) could be used to backfill around the pipe and manholes where presence of ground water or caving soils make placement and compaction of materials difficult. If CDF is to be placed against shoring that is planned to be removed, the Contractor should install a bond breaker between the shoring and the CDF.

Attachments:

Figure 1 Lateral Earth Pressures for Temporary Braced Shoring
Appendix A Borings from AESI Geotechnical Engineering Report dated March 30, 2012



NOTES:

1. DESIGN PRESSURES ARE IN UNITS OF PSF; DISTANCES IN UNITS OF FEET.
2. EMBEDMENT (D) SHOULD BE DETERMINED BY SUMMATION OF MOMENTS BELOW THE LOWEST BRACE TO PROVIDE KICKOUT AND OVERTURNING RESISTANCE.
3. DIAGRAM INCLUDES POTENTIAL FOR GROUNDWATER TO BE AS HIGH AS THE BOTTOM OF THE EXCAVATION.
4. IF GROUNDWATER IS ENCOUNTERED ABOVE THE BASE OF THE EXCAVATION, IT IS ASSUMED THAT SHORING WALLS ARE SUITABLY DRAINED TO PREVENT BUILDUP OF HYDROSTATIC PRESSURE.
5. PASSIVE PRESSURE ACTS OVER TWICE THE DIAMETER OF THE SOLDIER PILES AND OVER THE WIDTH OF THE EXCAVATION FOR SHEET PILES.
6. PASSIVE PRESSURE IS IGNORED IN THE 2 FEET BELOW THE BASE OF THE EXCAVATION.
7. A FACTOR OF SAFETY HAS NOT BEEN APPLIED TO THE RECOMMENDED PASSIVE EARTH PRESSURE VALUES.
8. THE SURCHARGE LOAD INCLUDES LIGHT VEHICULAR TRAFFIC. ADDITIONAL SURCHARGE LOADS INCLUDING CONSTRUCTION EQUIPMENT SHOULD BE INCLUDED WHERE APPROPRIATE.

HWA GEOSCIENCES INC.

LATERAL EARTH PRESSURES
FOR TEMPORARY BRACED SHORING

108TH AVENUE NE
SEWER MAIN REPLACEMENT
KIRKLAND, WASHINGTON

DRAWN BY	BFM
CHECK BY	JG
DATE:	12.13.2019
FIGURE #	1
PROJECT #	2018-060-21

APPENDIX A

BORINGS FROM AESI GEOTECHNICAL ENGINEERING REPORT DATED MARCH 30, 2012

BASE MAP LEGEND

- SW Manhole
- SW Main
- SW Channel
- SW Tags
- SW Polys
  - Pond
  - Tank
  - Vault
- SS Lift Station
- SS Manhole
- SS Node
- SS Pipe
- SS Tags
- WA Hydrant
- WA Valve
  - PRV/PREL
  - Water Valve
  - Hydrant Valve
- WA Others
  - AirVac
  - Blow Off
  - Other
  - Sample Stand
- WA Fire Flow Node
- WA Main
- WA Tags
- Address
- City Limits
- Grid
- QQ Grid
- Railroad
- Streets
- Parcels
- ComPlace Names
- Buildings
- Lakes
- Parks
- Schools
- z_Image09
  - Red: Band_1
  - Green: Band_2
  - Blue: Band_3

N

0 75 150
FEET

REFERENCE: CITY OF KIRKLAND

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

Associated Earth Sciences, Inc.

SITE AND EXPLORATION PLAN

NE 53RD ST SEWER MAIN REPLACEMENT
KIRKLAND, WASHINGTON

FIGURE 2

DATE 3/12

PROJ. NO. KE120060A

120060 NE 53rd St Sewer Immprv \ 120060 Site and Expl.cdr

Coarse-Grained Soils - More than 50%[1] Retained on No. 200 Sieve	Gravels - More than 50%[1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines[5]	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥15% Fines[5]	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50%[1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines[5]	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥15% Fines[5]	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50%[1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

	Density	SPT[2] blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50
	Consistency	**SPT[2] blows/foot**
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

[3] Estimated Percentage

Component	Percentage by Weight
Trace	<5
Few	5 to 10
Little	15 to 25
With	- Non-primary coarse constituents: ≥ 15% - Fines content between 5% and 15%

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch

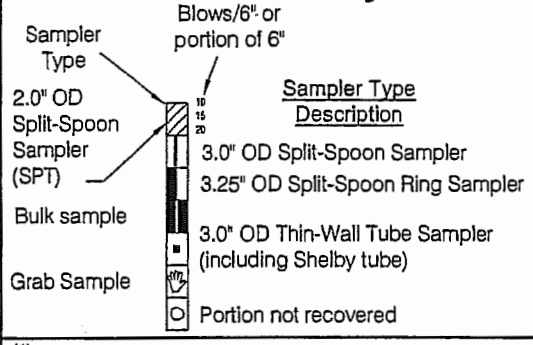
Slightly Moist - Perceptible moisture

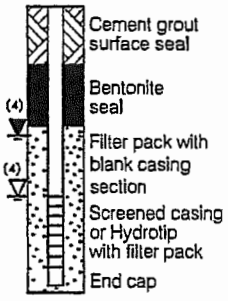
Moist - Damp but no visible water

Very Moist - Water visible but not free draining

Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
▼ ATD = At time of drilling
▽ Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 15%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Associated Earth Sciences, Inc.

EXPLORATION LOG KEY

FIGURE A1

blocksilog_key.dwg LAYOUT: Layout2

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
KE120060A	EB-1	1 of 1

Project Name: NE 53rd St Sewer Main Replacement
Location: Kirkland, WA
Driller/Equipment: Geologic Drill / XL / HSA
Hammer Weight/Drop: 140# / 30"

Ground Surface Elevation (ft): 305
Datum: Unknown
Date Start/Finish: 3/15/12,3/15/12
Hole Diameter (in): 7 inches

Depth (ft)	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot	Other Tests
			3.5 inches ACP / CRB					
			Fill					
	S-1		Very moist, tan, fine SAND, little silt, trace gravel (SP/SM); moderate organics.			4 3 2	▲5	
5	S-2		No organics			2 3 6	▲9	
	S-3					3 5 1	▲3	
	S-4					2 1 1	▲4	
10	S-5					1 2 2	▲3	
	S-6		Few silt (SP).			3 1 2	▲3	
15	S-7					1 2 1	1/12" ▲1	
	S-8		(Poor recovery.)			1 1 1	▲2	
20	S-9		No gravel.			1/42"		
25			Bottom of exploration boring at 25 feet Refusal at 25 feet (on concrete?). Ground water not encountered.					
30								
35								

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: TJP
Approved by:

AESIBOR 120060A.GPJ March 27, 2012

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
KE120060A	EB-2	1 of 1

Project Name: NE 53rd St Sewer Main Replacement
Location: Kirkland, WA
Driller/Equipment: Geologic Drill / XL / HSA
Hammer Weight/Drop: 140# / 30"

Ground Surface Elevation (ft): 319
Datum: Unknown
Date Start/Finish: 3/15/12,3/15/12
Hole Diameter (in): 7 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				2 inches ACP / CRB					
				Fill					
		S-1		Moist, tan, fine SAND, little silt, few fine gravel (SM/SP).			2 2 2	▲4	
5		S-2		Becomes very moist.			1 1 2	▲3	
		S-3		(Poor recovery.)			2 3 5	▲8	
		S-4		Trace organics.			2 2 3	▲5	
10				**Vashon Advance Outwash**					
		S-5		Moist, tan, fine SAND, few silt, little gravel (SP).			4 7 8	▲18	
		S-6		Becomes very moist and stratified, trace gravel			10 8 14	▲30	
		S-7					16 15 22 23	▲45	
15				Bottom of exploration boring at 15 feet					
20									
25									
30									
35									

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: TJP
Approved by:

AESIBOR 120060A.GPJ March 27, 2012

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
KE120060A	EB-3	1 of 1

Project Name: NE 53rd St Sewer Main Replacement
Location: Kirkland, WA
Driller/Equipment: Geologic Drill / XL / HSA
Hammer Weight/Drop: 140# / 30"

Ground Surface Elevation (ft): 334
Datum: Unknown
Date Start/Finish: 3/15/12,3/15/12
Hole Diameter (in): 7 inches

Depth (ft)	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
			4 inches ACP / CRB					
			Fill					
	S-1		Moist, tan, fine SAND, trace silt (SP).			3 2 2	▲4	
			Contains pockets of topsoil.			2 3 5		
5	S-2		**Vashon Recessional Outwash**			5 7 12	▲12	
			Trace roots at 5 to 5.5 feet.					
	S-3		Moist, tan, fine SAND, few silt (SP).			5 5 8	▲13	
	S-4		Trace silt.			8 5 7	▲16	
10			Becomes very moist.			9 9 5		
	S-5					8 9 12	▲17	
			Very moist to wet, tan and rusty brown (stratified), fine sandy SILT (ML).					
			Bottom of exploration boring at 12 feet					
15								
20								
25								
30								
35								

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: TJP
Approved by:

AESIBOR 120060A.GPJ March 27, 2012

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
KE120060A	EB-4	1 of 1

Project Name: NE 53rd St Sewer Main Replacement
Location: Kirkland, WA
Driller/Equipment: Geologic Drill / XL / HSA
Hammer Weight/Drop: 140# / 30"

Ground Surface Elevation (ft): 352
Datum: Unknown
Date Start/Finish: 3/15/12,3/15/12
Hole Diameter (in): 7 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				5 inches ACP / CRB					
				Fill					
		S-1		Moist, tan, fine SAND, few silt, trace fine gravel (SP).			2 1 2	▲3	
5		S-2		Trace organics.			1 1 1	▲2	
		S-3		Contains pockets of silty, reddish tan, fine sand at approximately 7.5 to 8.5 feet.			1 1 1	▲2	
10		S-4		Trace organics.			1 1 1	▲2	
		S-5		No organics.			1 1 3	▲4	
				Vashon Advance Outwash			3		
15		S-6		Very moist, gray, fine sandy SILT (ML).			2 7 7	▲14	
				Very moist, grayish tan, silty SAND, little gravel (SM).			8		
		S-7		Little silt (SM/SP).			12 21		▲56
		S-8					35 19 19	▲39	
				Moist, tan, fine SAND, few silt (SP).			20		
20		S-9		Little gravel.			11 18 23	▲41	
		S-10		Trace silt, trace gravel.			21 34 40		▲74
25				Bottom of exploration boring at 24 feet					
30									
35									

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level ()
Water Level at time of drilling (ATD)

Logged by: TJP
Approved by:

AESIBOR 120060A.GPJ March 27, 2012