

Purchasing Division Finance Department

Room 120 411 West First Street Duluth, Minnesota 55802



# Addendum 2 Solicitation 22-99618 Brighton Beach Shoreline Stabilization

This addendum serves to notify all bidders of the following changes to the solicitation documents:

- 1. The deadline to ask questions is close of business **Wednesday**, **August 24**, **2022**. Answers will be issued in the form of an addendum by Friday, August 26, 2022.
- 2. The pre-bid meeting sign-in sheet has been uploaded to the City website (<a href="https://www.duluthmn.gov/purchasing/bids-and-request-for-proposals/">https://www.duluthmn.gov/purchasing/bids-and-request-for-proposals/</a>) and the Bid Express solicitation.
- 3. See additional information in the attachments.

Please acknowledge receipt of this Addendum by checking the acknowledgment box within the www.bidexpress.com solicitation.

Posted: 08/24/2022



# **ADDENDUM NO. 02, AUGUST 24, 2022**

RE: Brighton Beach Resiliency Plan - Shoreline Restoration Work: Phase I

LHB Project No. 210260

To: All Planholders

From: LHB, Inc.

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated August 18, 2022 and Addendum No. 01, dated August 19, 2022. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of 2 pages and the following attachment (s):

#### General

Pre-bid Meeting Attendance Sheet Pre-bid Meeting Agenda Soil Boring Log Report

### **Drawings**

Shoreline Restoration: CH2.5.0

### **Changes to Prior Addenda**

a. None

### **Questions and Answers**

- Q1. Construction schedule timeline clarification.
- A1. All work in the water must be complete by October 15 2022.
- **Q2.** Who is moving site furnishings, picnic tables and benches?
- A2. Owner will remove picnic tables prior to construction. Contractor to remove and return benches to owner.
- **Q3.** What will happen to the excess fill and stones removed?
- A1. Excess fill and stones to be sorted and stockpiled on site for use in the future phase. Stockpiles to be located in existing gravel parking areas, exact parking areas to be determined with owner once alternates are selected.
- **Q4.** Clarify the tree protection intent.
- A4. The intent is to protect all trees not impacted by grading, with the main goal for the shore to be protected from erosion and to be naturalized. If trees called out to be protected interfere with grading work removal of existing trees to be protected will be allowed with owner approval.
- Q5. Will rock pining to bedrock be required for the toe stones.

- A5. There is not intended to be any toe stone anchoring to the bedrock in this phase. Contractor shall expect minor rock pinning for the armor stone steps (see CH2.5.0 Detail 3).
- **Q6.** What is required to be removed during construction.
- A6. Contractor shall remove misc. concrete debris along the shoreline as well as the asphalt that is incidental to the grading work.

#### **General**

2. A copy of the attendance sheet(s) from the pre-bid conference held on August 23, 2022 is attached for reference.

### **Changes to Drawings**

3. Replace Sheet CH2.5.0 in its entirety.

## **END OF ADDENDUM NO. 02**



### **PRE-BID MEETING AGENDA**

Brighton Beach Resiliency Plan – Shoreline Restoration Work: Phase I City of Duluth

Tuesday, August 23, 2022 at 8:00 AM, Brighton Beach

- Introductions
  - a. (Mandatory) Pre-Bid Meeting, please sign in.
  - b. Owner
  - c. Design Team
- 2. Summary of Work
  - a. Project Scope
  - b. Phasing
  - c. Alternates
  - d. Owner provided materials or work
  - e. Work by others
  - f. Owner occupancy during construction
  - g. Special project goals, requirements, or certifications
  - h. Permits secured and paid for by Owner
    - i. DNR and Federal Permits
  - i. Permits secured and paid for by Contractor
    - i. City grading/stormwater permits
    - ii. State stormwater permits
    - iii. SWPPP
  - j. Special Inspections and Testing
    - i. Secured by Owner
    - ii. Contracted with the Owner
    - iii. Paid by Owner
  - k. Hazardous Materials
- 3. Instructions to Bidders
  - a. Document Availability:
    - Documents are available to download for free at <u>www.bidexpress.com</u> and have been sent to the Minnesota and Wisconsin Builder's Exchanges.
  - b. Bid Date, Time, and Place
    - i. Bid Date and Time: Wednesday, August 31, 2022 at 2:00 PM CST
    - ii. Submit bids to:
      - 1) All bids must be submitted electronically through www.bidexpress.com.
    - iii. Bids will be publicly opened and read aloud. A link to the bid opening is available at <a href="https://www.duluthmn.gov/purchasing/bids-request-for-proposals/">https://www.duluthmn.gov/purchasing/bids-request-for-proposals/</a>
  - c. Subcontracting requirements
  - d. Insurance
    - i. Bid Bond or Surety

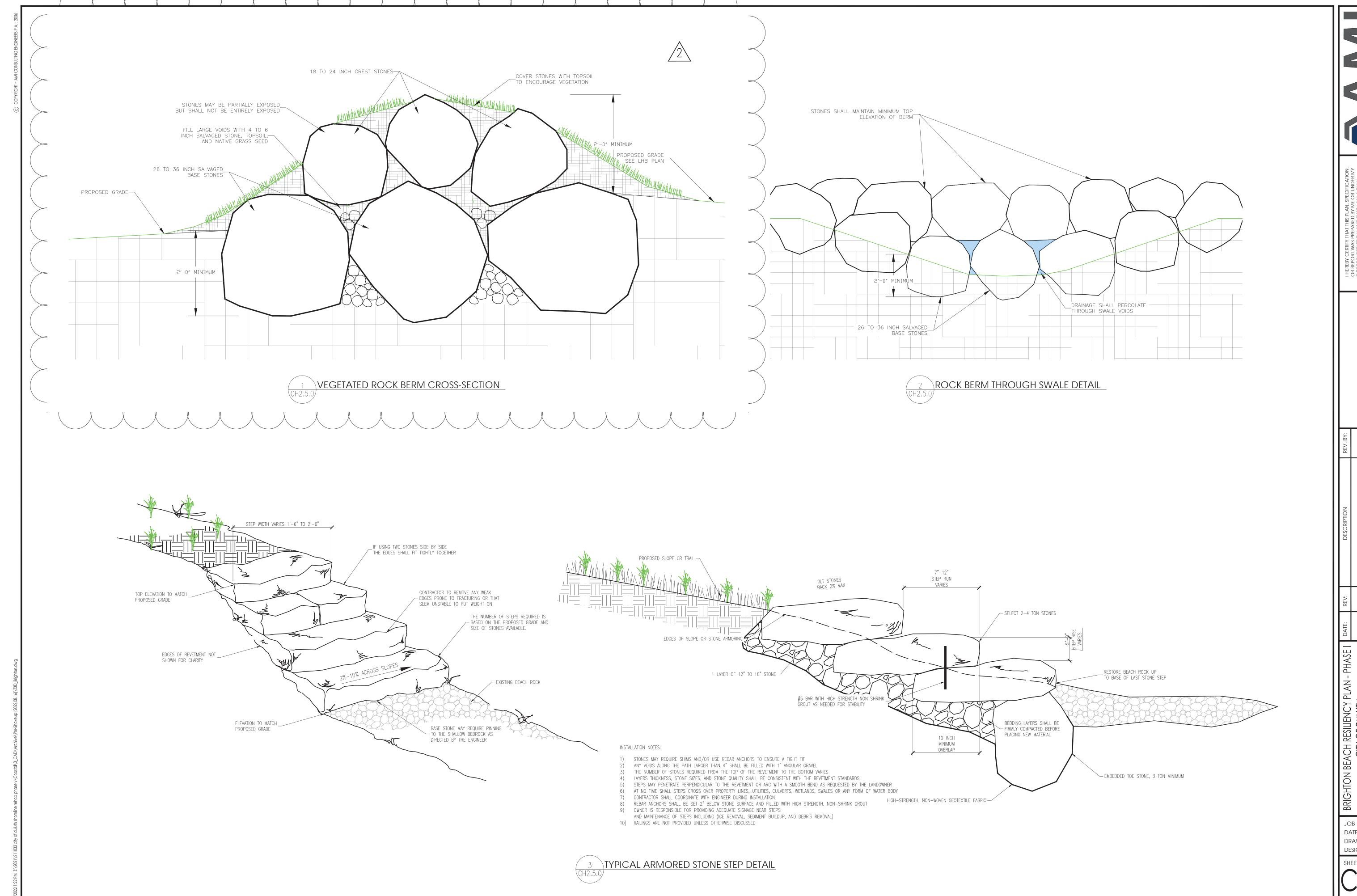
- ii. Performance and Payment Bonds
- iii. Insurance Requirements
- e. Prevailing wages are required and a project labor agreement will be required for projects over \$150k.
- f. Communications
  - Questions should be directed to purchasing@duluthmn.gov
    - 1) Email: purchasing@duluthmn.gov
    - 2) Phone calls are not acceptable.
    - 3) Last day for questions is close of business Wednesday, August 24, 2022.
  - Substitution Requests must be submitted using the form provided in the spec with supporting information attached.
    - Substitution Request forms are due Thursday, August 25, 2022 NOTE: Plant material substitution requests may be submitted in the spring.
  - iii. Response by Addendum: Acknowledge all addenda on the Bid Form provided.
- 4. Agreement Forms and Procedures
  - a. Applications for Payment
    - i. Partial lien release waivers
    - ii. Certified Payroll Reports
    - iii. Affidavits and Certificates of Insurance for off-site stored materials
- 5. Construction Schedule
  - a. Construction Start Date: September 14, 2022. Coordinate date with the Owner.

**NOTE:** Due to the short construction timeframe, bidders are requested to have their payment and performance bonds, insurance certificate, signed contract and project labor agreement, approved community benefits best efforts plan and any other required documentation to the Purchasing Office by Monday, September 12. The intent is that if council approves the project on September 12, a notice to proceed could be issued by September 13 or 14.

- b. Substantial Completion Date: December 31, 2022
- c. Final Completion Date: May 31, 2023
  - i. Liquidated Damages? No daily charge; will be charged actual damages
- d. Contractor to establish a master schedule to be provided to Owner and Architect 30 days after letter of intent or Agreement with Owner.
- e. Construction progress meetings held every other week.
- 6. Platform for Distribution of Project Information
  - Electronic form via Newforma Info Exchange or Owner preferred method.
- 7. Temporary Facilities
  - Security Barriers
  - b. Restrooms
  - c. Utilities
  - d. Staging
  - e. Access Control
  - f. Site Safety
  - g. Dumpsters

- h. Parking
- 8. Closeout Procedures
  - a. Forms
    - i. Consent of Surety
    - ii. Contractor's Affidavit
    - iii. IC-134
  - b. O&M Manuals
  - c. Warranties and Bonds
  - d. As-Built set of Documents
- 9. Other / Questions
- 10. Tour Existing Conditions
- c: LHB Project No. 210260

q:\21proj\210260\200 communication\meetings\pre-bid meeting\210260 20220823 pre-bid meeting agenda.docx



Consulting Engineers P.A. 91 MAIN STREET SUPERIOR, WI 715-718-2193 - amiengineers.com

LICENSED PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF MINNESOTA

IE:

RYAN DAGGER

IATURE:

| 1 | ADDENDUM 1 | ELK IV | EL

ITON BEACH RESILIENCY PLAN - PHASE I DATE: TO SULTY OF DULUTH

BRIGHTON BEACH

DULUTH, MN

COASTAL DETAILS

JOB No: 211033 DATE: 08/18/2022 DRAWN BY: AMD DESIGNED BY: RRD

CH2.5.0

# Geotechnical • Environmental • Materials Engineering

539 Garfield Avenue Duluth, Minnesota 55802

(218) 727-1239 (218) 727-1248 fax

February 11<sup>th</sup>, 2020 EPC# 20G1433

City of Duluth - Engineering Division 411 West First Street - City Hall Room 211 Duluth, MN 55802

Attn: Mr. Patrick Loomis, PE

Re: Soil Boring Log Report

Lakewalk Trail Extension - Brighton Beach

Duluth, MN

Dear Mr. Loomis

This letter report is in regard to the 20 soil borings performed by EPC on January 22<sup>nd</sup> and January 23<sup>rd</sup>, 2020. All work was performed at the direction of yourself and according to EPC's proposal dated December 23<sup>rd</sup>, 2019. All borings were staked and numbered in the field by the City of Duluth. Boring surface elevations were determined by the City of Duluth. Six (6) standard penetration tests borings and fourteen (14) flyte auger borings were performed with EPC's CME 850 Track mounted drill rig, soil Borings 12 & 17 were cancelled. Additional Soil borings 19 through 22 were completed and the approximate locations of the additional borings were marked on the soil boring map by EPC.

Generally speaking soils consisted of one to two feet of Silty Gravel with Sand, Clayey Sand, or Silty Sand with Gravel fill over Sandy, Silty, or Gravelly Clay to substantial auger refusal depths of 3.5 to 14.9 feet below existing grade (BEG). Several borings reached the instructed voluntary termination depths of 5 to 10 feet BEG. Water was not recorded during the drilling process.

EPC was directed to test aggregate fill from either Borings 8 & 15 or Borings 7 & 16. EPC tested the aggregate fill from Borings 7 & 14 due to no samples from Borings 15 or 16. The aggregate fill consisted of Silty Gravel with Sand and Clayey Sand in Borings 7 & 14 respectively. Laboratory testing results are included in the appendix.

Please refer to the table below and the boring logs in the appendix for details.

Boring Number	Surface Elevation (ft)	Depth of Boring (ft)	Elevation of Bottom of Boring (ft)
SB-20-01	621.264	6.25	615.0
SB-20-02	613.371	5.25	608.1
SB-20-03	613.957	3.5	610.5
SB-20-04	612.928	5.5	607.4
SB-20-05	613.723	5.5	608.2

SB-20-06	616.481	6	610.5
SB-20-07	617.785	6	611.8
SB-20-08	621.155	4.25	616.9
SB-20-09	616.253	10	606.3
SB-20-10	615.510	8.5	607.0
SB-20-11	616.728	10*	606.7
SB-20-13	613.464	5*	608.5
SB-20-14	612.819	13.5	599.3
SB-20-15	621.347	14.9	606.4
SB-20-16	643.045	5*	638.0
SB-20-18	617.611	6	611.6
SB-20-19	620.141	10.5*	609.6
SB-20-20	619.245	8	611.2
SB-20-21	613.313	9.5	603.8
SB-20-22	612.140	8	604.1

<sup>\*</sup>Voluntary Boring Termination

If the refusal depths are deemed critical, bedrock cores and/or test pits should be performed to confirm the identity of the refusal material.

This report completes EPC's work on this project to date. We must caution you that this report, prepared for soils classification and refusal depth information only, is not a complete geotechnical engineering report. EPC cannot be responsible for possible misinterpretation of the contents of the boring logs, or the strengths of the soils described in them. Soil samples from this project will be saved for two months from the date of this report unless EPC is directed in writing to do otherwise.

We would like to thank you for allowing EPC to be of service to you on this project. If you have any questions or comments, please call us at (218) 727-1239 (w) or (218) 341-4536 (c).

Sincerely,

Reviewed by:

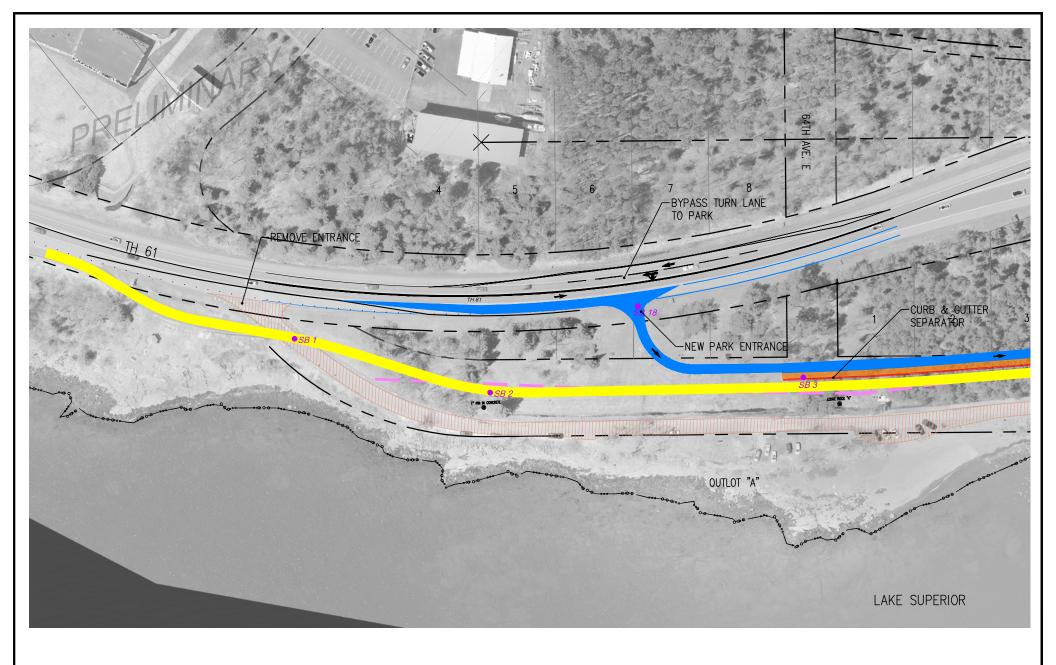
Logan Tuura, EIT

**Engineer in Training** 

Chad Lowney, Sr. Tech.

Project Manager

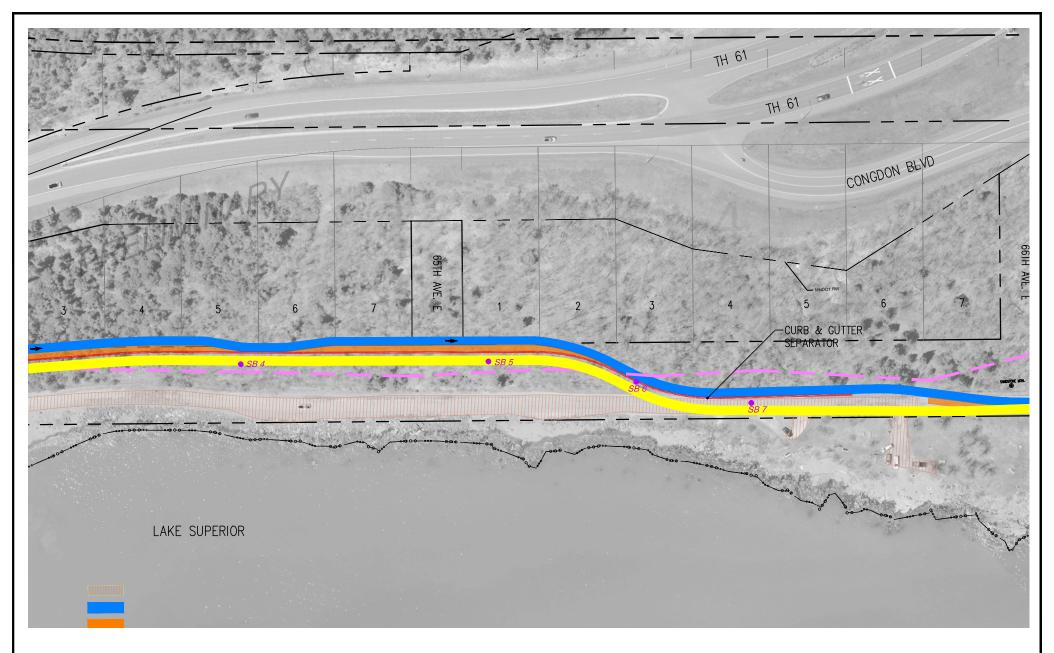
Enclosures: Location Maps, Boring Logs, and Lab Tests







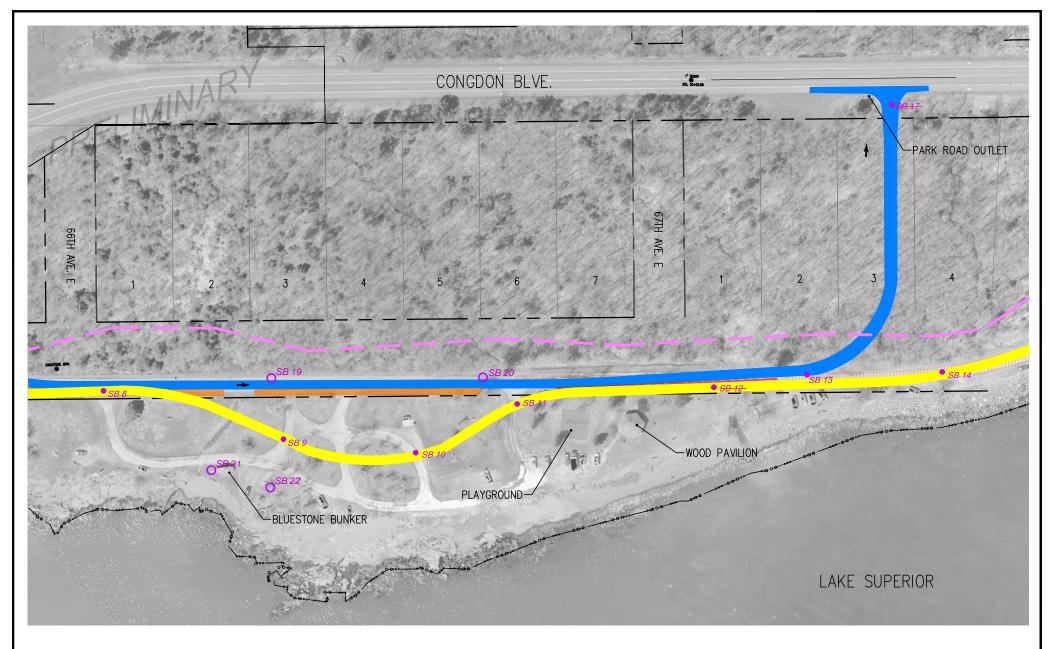














LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)



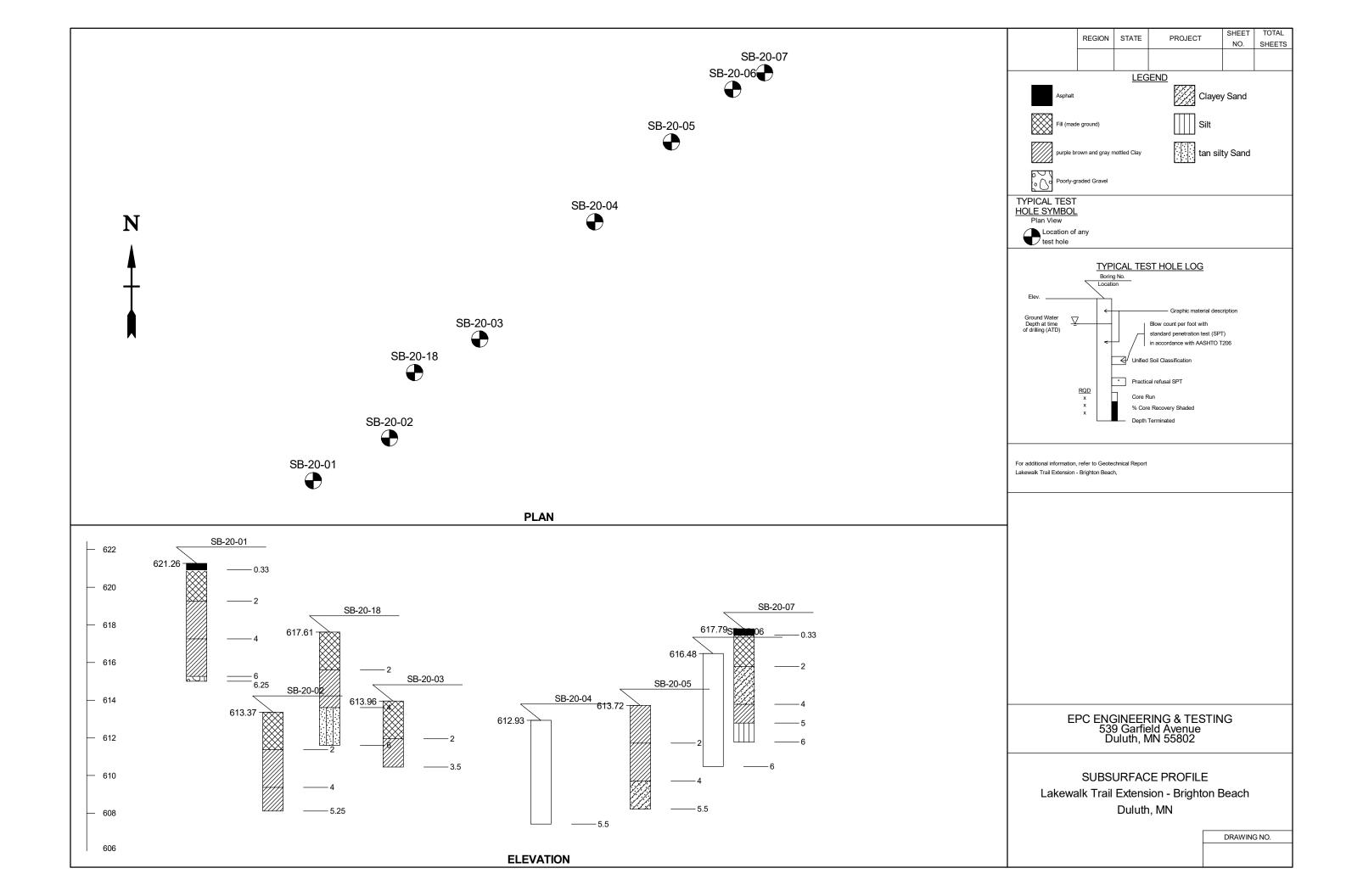


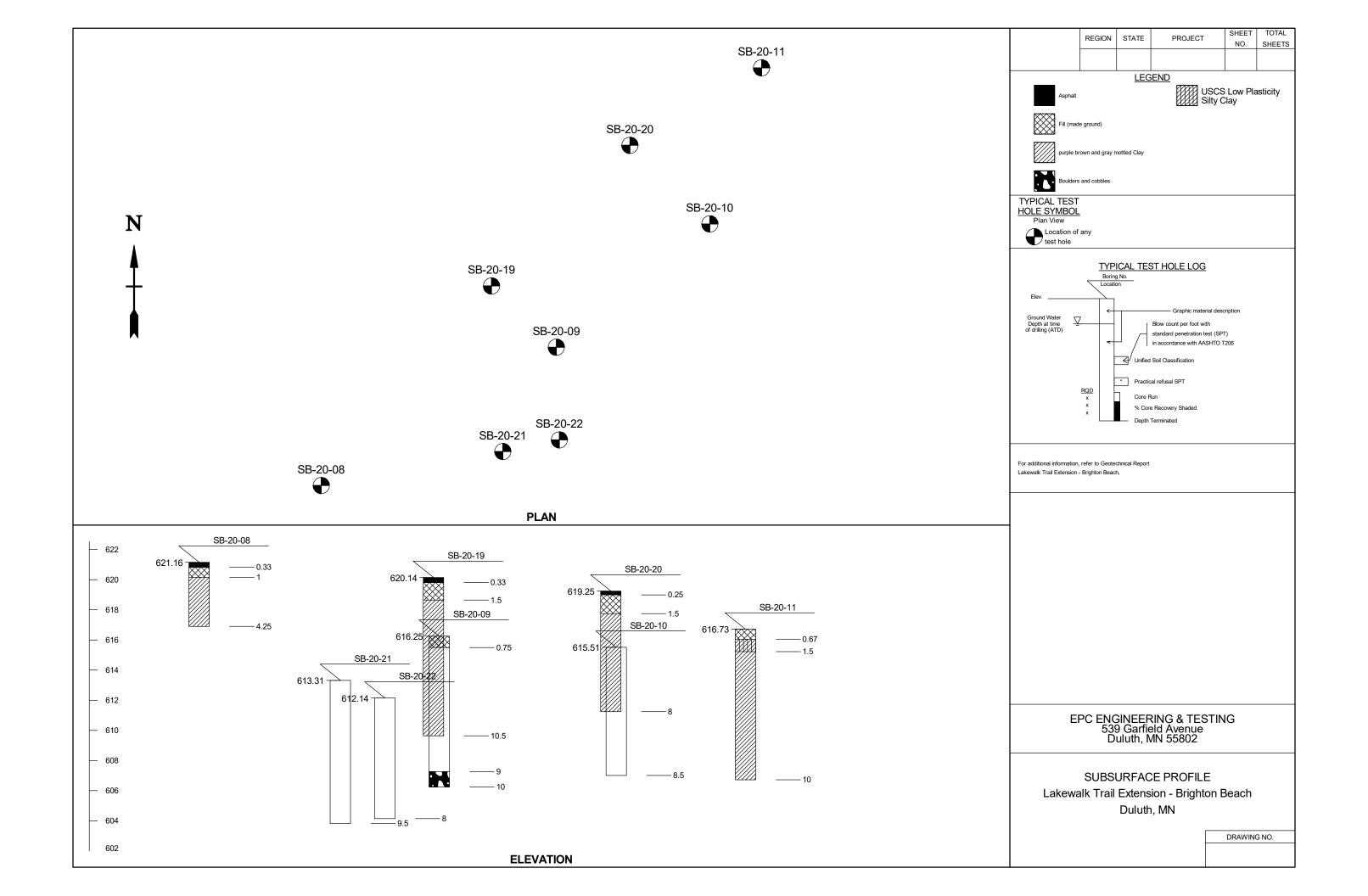


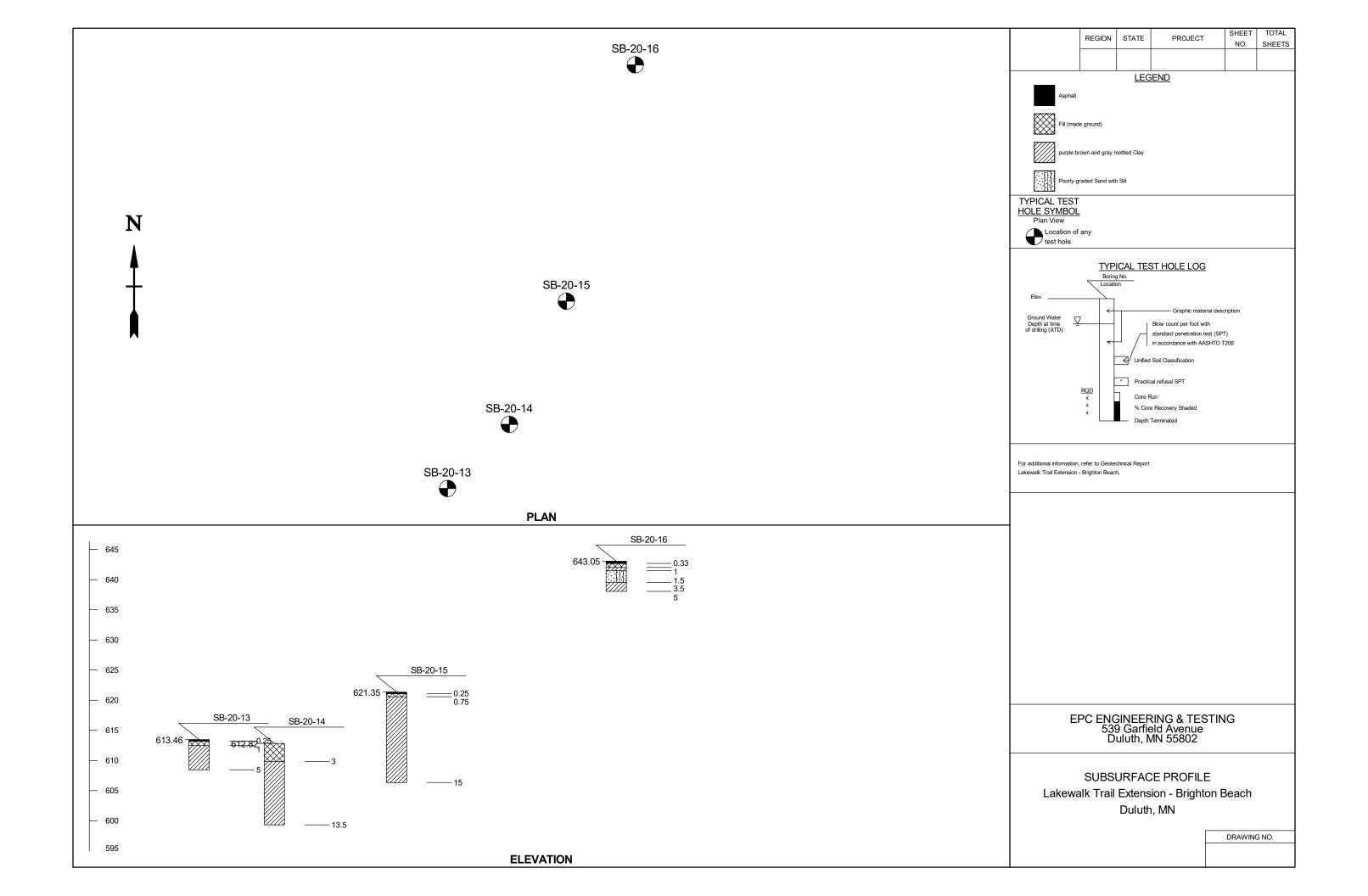
LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)



SCALE : 1" = 125'







## **SUBSURFACE DIAGRAM EPC** Engineering & Testing Geotechnical • Environmental • Materials Engineering 539 Garfield Avenue Duluth, Minnesota 55802 **CLIENT** City of Duluth PROJECT NAME Lakewalk Trail Extension - Brighton Beach PROJECT NUMBER 20G1433 PROJECT LOCATION Duluth, MN 1,000 1,500 2,000 3,000 3,500 4,000 SB-20-16 640 640 635 630 625 Elevation (ft) SB-20-15 SB-20-01 SB-20-08 SB-20-19 620 620 SB-20-07 SB-20-18 SB-20-13 SB-20-14 615 SB-20-03 SB-20-05 SB-20-02 SB-20-04 SB-20-22 610 610 605 605 600 600

2,000

Distance Along Baseline (ft)

2,500

3,000

3,500

595

1,000

1,500

# **SUBSURFACE DIAGRAM EPC** Engineering & Testing Geotechnical • Environmental • Materials Engineering 539 Garfield Avenue Duluth, Minnesota 55802 **CLIENT** City of Duluth PROJECT NAME Lakewalk Trail Extension - Brighton Beach PROJECT NUMBER 20G1433 PROJECT LOCATION Duluth, MN 200 400 600 1,000 1,200 1,400 1,600 1,800 2,000 622 SB-20-06 616 4.GPJ GINT US LAB.GDT Elevation (ft) SB-20-03 614 614 SB-20-02 SB-20-04 612 612 610 608 606 200 400 600 800 1,600 1,000 1,200 1,400 1,800 Distance Along Baseline (ft)

Geotechnical • Environmental • Materials Engineering

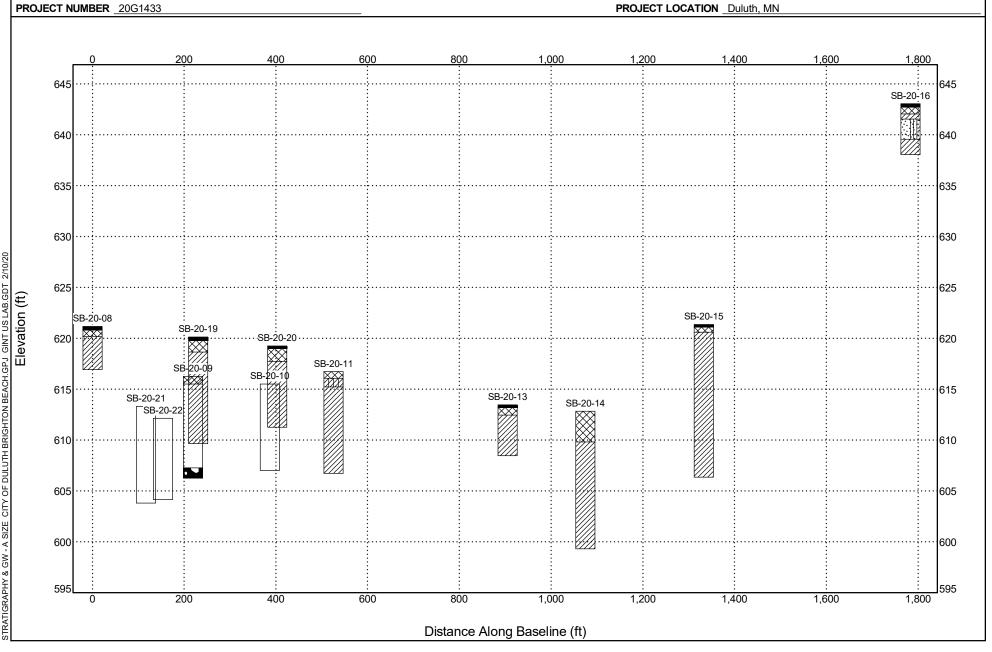
539 Garfield Avenue Duluth, Minnesota 55802

**CLIENT** City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

**SUBSURFACE DIAGRAM** 

PROJECT LOCATION Duluth, MN



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			CME 850 Track with HSA and SPT Cal. to N68				LING Non					_
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620.0			SAND W/ SILT & GRAVEL (SP-SM), brown , moist,		SS 1	100	50/4"			•	,	>> <b>/</b>
617.5	2.5		SANDY CLAY (CL), some organics, brown, moist, st consistency		SS 2	79	6-9-3-12 (12)			17.5		
- ·	5.0		SANDY CLAY (CL), little gravel, brown, moist, mediu consistency	m	SS 3	33	2-3-5-5 (8)		7	15.8		
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20			GRAVEL (GP), little clay, little sand, very dense relati Substantial auger refusal at 6.3 feet.  Bottom of hole at 6.3 feet.	ve density	SS 4	33	50/3"		7	•		>>1

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 	5.0		CLAY W/ SAND (CL), little gravel, reddish brown, moconsistency  Substantial auger refusal at 5.3 feet.	oist, hard	$\mathbb{N}$	SS 3	60	2-7-50/3"	4.5		16.2			>>/
			Bottom of hole at 5.3 feet.											

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2.5		CLAYEY density	SAND (CL), reddish brown, moist, loose i	relative	SS 2	67	2-2	-		21.7		
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-			R _20G1433		TL	OCAT	ION _	Duluth, MN						
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612.5			SANDY CLAY (CL), some gravel, some organics, moist, stiff consistency			SS 1	92	4-5-4-2 (9)			19.7:			
610.0	2.5		GRAVELY CLAY to CLAYEY GRAVEL (CL to GC brown, wet, very stiff consistency to dense relative	), with sand, density		SS 2	17	4-9-10-20 (19)			20.9			
 	5.0		CLAYEY SAND W/ GRAVEL (SC), brown, wet, verelative density	ry dense	$\bigvee$	SS 3	39	4-48-50 (98)			9.9			
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20			Bottom of hole at 5.5 feet.											

		BORING NUMBER SB-20-06 PAGE 1 OF 1							
CLIENT _City of Du	luth	PROJECT NAM	<b>VIE</b> Lake	walk Trail Ex	tensio	n - Brig	ghton Beach		
PROJECT NUMBER		PROJECT LOC							
	1/22/20 <b>COMPLETED</b> 1/22/20					HOLE	SIZE 4"		
	ACTOR EPC Engineering & Testing	<del></del>							
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<b>Geo</b> 539	<mark>techni</mark> Garfie	ical • E eld Ave	ering & Testing Convironmental • Materials Engineering mue ta 55802				BORI	NG	NU	MBER		- <b>20-0</b> E 1 OF	
CLIEN	IT Cit	y of Dul	uth	PROJEC	T NAME	Lake	valk Trail Ex	tensio	n - Bri	ghton Beach			
PROJI	ECT N	UMBER	20G1433		T LOCAT	ION _	Duluth, MN						
DATE	STAR	TED _1	/22/20 <b>COMPLETED</b> 1/22/20		D ELEVA	TION _	617.785 ft		HOLE	SIZE _7.25	,"		
DRILL	ING C	ONTRA	CTOR EPC Engineering & Testing	GROUN	O WATER	LEVE	LS:						
DRILL	ING M	ETHOD	CME 850 Track with HSA and SPT Cal. to N68	_ A	TIME OF	- DRIL	LING None	е					
LOGG	ED BY	RH_	CHECKED BY LT	_ A	END OF	DRILL	.ING None	)					
NOTE	s			_ AI	TER DRI	LLING	None						
ELEVATION (ft)	O DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4 FINES	CONTE	0 80 LL 0 80	
617.5	 		4" Bituminous  SILTY GRAVEL W/ SAND (GM) (FILL), brown, mo	ist, frozen	× ss 1	50	50/4"			13.7			>>
 615.0 	2.5		CLAYEY SAND W/ GRAVEL (SC), dark brown, more relative density	sist, dense	SS 2	50	7-18-15-8 (33)			22.7			
612.5	5.0		SANDY CLAY (CL), little gravel, brown to dark brow stiff consistency  SANDY SILT (ML), brown, moist, stiff consistency	vn, moist,	SS 3	89	4-7-8 (15)			23.8			
	   		Bottom of hole at 6.0 feet.					-		•			

<b>Geo</b> 539	otechni Garfie	i <mark>cal • I</mark> ld Ave		ng Materials Engineering				BORI	ING	NU	MBER		<b>20-09</b> 1 OF 1
CLIE	NT Cit	y of Dul	luth		PROJEC	T NAME	Lakev	valk Trail Ex	densio	n - Briç	ghton Beach		
			20G1433		PROJEC			Ouluth, MN					
				<b>COMPLETED</b> 1/23/20						HOLE	SIZE 4"		
				neering & Testing									
				with Flyte Auger CHECKED BY LT				LING <u>None</u> .ING None					
				CHECKED BY ET		TER DRI		·					
											▲ SD	T N VAL	
ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 1 20 4	MC 40 60 40 60 CONTEI	80 LL I 80 NT (%) □
-	0.0		9" Silty sand w	/ gravel		Ь					20 4	<u>40 60</u> : :	<u>80</u> :
	2.5		Overburden										
  <u>610.0</u>	5.0	-				AU							
DT 2/11/20	7.5	-											
0.00	-     		Weathered roo	k									
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20      9	10.0		Substantial au	ger refusal at 10.0 feet.  Bottom of hole at 10.0 feet.									

PROJECT NAME   Lakewark Trail Estension - Brighton Seach	<b>Geo</b> 539	techn Garfie	ical • ]	eering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-10 PAGE 1 OF 1									
PROJECT NUMBER					PROJEC	T NAME	Lakev	valk Trail Ex	ctensio	n - Briç	ghton Beach			
DRILLING CONTRACTOR _EPC Engineering & Testing	PROJ	ECT N	UMBEF	R _20G1433	PROJEC	T LOCAT	ION _	Ouluth, MN						
DRILLING METHOD   CME 850 Track with Flyte Auger   LOGGED BY RH   CHECKED BY LT   AT TIME OF DRILLING   None										HOLE	SIZE 4"			
AT END OF DRILLING   None														
NOTES														
NO   H   H   H   H   H   H   H   H   H								·						
0.0   20 40 60 80   615.0							%		Pocket netrometer	' UNIT WT. (pcf)	▲ SP <sup>-</sup> 20 <sup>2</sup> PL 20 <sup>2</sup>	40 60 MC	) 80 LL 	
615.0 Overburden  2.5 612.5  5.0 610.0 Boulders at 5.5 feet and 7.5 feet			O			SAN	REC	02	Per	DR	☐ FINES			
	612.5	2.5		Boulders at 5.5 feet and 7.5 feet  Substantial auger refusal at 8.5 feet.		AU					20 2	HO 600	) 80	
											:	<u>: :</u>	<u> </u>	

<b>Geo</b> 539	techni Garfie	ical • ]	eering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-11 PAGE 1 OF 1									
	NT Cit			PROJEC	T NAME	Lakev	valk Trail Ex	ctensio	n - Brig	ghton Beach			
- 1			R 20G1433				Duluth, MN						
DATE	STAR	TED _	1/23/20 <b>COMPLETED</b> 1/23/20	GROUNI	ELEVA1	LION _	616.728 ft		HOLE	SIZE _4"			
			ACTOR EPC Engineering & Testing										
			O CME 850 Track with Flyte Auger				LING None						
			CHECKED BY LT	<del></del>	END OF		.ING None	•					
1012										A CD	T NI \/AI		
ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4		80 LL I 80 NT (%) $\square$	
	0.0		CLAYEY SAND (SC) (FILL), brown, moist							20 4	10 60 : :	80 :	
	  		SILTY CLAY (CL-ML), some gravel, brown, moist							22.2			
615.0	2.5		SILTY CLAY (CL-ML), brown, moist										
612.5													
	5.0				AU 1								
610.0	7.5												
AB.GDT 2/1													
607.5	-   												
일 -	10.0		Voluntary boring termination at 10.0 feet.			-					<u> </u>		
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LABGDT 2/11/20  109   10   10   10   10   10   10   10			Bottom of hole at 10.0 feet.										
GEOTE												<u> </u>	

CLIENT _City of Duluth PROJECT NAME _Lakewalk Trail Extension - Brighton Beach PROJECT NUMBER _20G1433 PROJECT LOCATION _Duluth, MN  DATE STARTED _1/23/20 COMPLETED _1/23/20 GROUND ELEVATION _613.464 ft HOLE SIZE _4"  DRILLING CONTRACTOR _EPC Engineering & Testing GROUND WATER LEVELS:  DRILLING METHOD _CME 850 Track with Flyte Auger AT TIME OF DRILLING _None  LOGGED BY _RH CHECKED BY _LT AT END OF DRILLING _None  NOTES	<b>Geo</b> 539	techni Garfie	ical • ] ld Ave	eering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-13 PAGE 1 OF 1								
PROJECT NUMBER 20G1433  DATE STARTED 1/23/20  COMPLETED 1/23/20  GROUND ELEVATION 613.464 ft HOLE SIZE 4"  GROUND MATER ILEVELS:  AT TIME OF DRILLING None  AT END OF DRILLING None  AFTER DRILLING None  AFTER DRILLING None  MATERIAL DESCRIPTION  3" Bituminous  Sility sand w/ gravel  Clay  Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.					PROJEC	T NAME	Lakev	valk Trail Ex	tensio	n - Brig	ghton Beach		
DRILLING CONTRACTOR FPC Engineering & Testing DRILLING METHOD OME 850 Track with Flyte Auger LOGGED BY RH CHECKED BY LT NOTES  AT TIME OF DRILLING None  AT END OF DRILLING None  AFTER DRILLING None  AFTER DRILLING None  AFTER DRILLING None  AFTER DRILLING None  AS SPT N VALUE OF DRILLING NONE  AS	PROJ	ECT N	JMBEF			T LOCAT	ION _	Duluth, MN					
DRILLING METHOD CME 850 Track with Flyte Auger LOGGED BY RH CHECKED BY LT AFTER DRILLING None  AFTER DRILLING NONE	DATE	STAR	TED _	1/23/20 <b>COMPLETED</b> 1/23/20	GROUNE	ELEVA1	LION _	613.464 ft		HOLE	SIZE 4"		
NOTES  AFTER DRILLING None  AFTER DRILLING None  AFTER DRILLING None  AFTER DRILLING None  ASPT N VALUE 20 40 60  PL MC 20 40 60  FINES CONTENT 20 40 60  FINES CONTENT 20 40 60  Clay  Clay  AU  AU  Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.						WATER	LEVE	LS:					
NOTES  AFTER DRILLING None    AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   AFTER DRILLING None   ASPT N VALUE   20 40 60   PL MC   20 40 60   FINES CONTENT   20 40 60   FINES CONTENT   20 40 60   AU   AU   AU   AU   AU   AU   ASPT N VALUE   AU OF AU   AU													
MATERIAL DESCRIPTION    A SPT N VALUE								<del></del>	<del>)</del>				
MATERIAL DESCRIPTION	NOTE	s			AF	TER DRI	LLING	None			I		
3" Bituminous Silty sand w/ gravel  Clay  Clay  Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.	ELEVATION (ft)		GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE		BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4	MC MC 40 60 CONTE	80 LL I 80 NT (%) $\Box$
Clay  Clay  AU  610.0  Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.		0.0	××××								:	: :	<u>;</u>
Clay  2.5  610.0  5.0  Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.	612.5	-		Silty sand w/ gravel		III							
610.0  Solution of hole at 5.0 feet.  Bottom of hole at 5.0 feet.	012.5	-		Clay		1							
610.0  5.0 Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.	-	-											i
610.0  Solution of hole at 5.0 feet.  Bottom of hole at 5.0 feet.	-	-				1							
Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.	-	2.5				AU					:	: :	<del></del>
Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.	-	-											
Bottom of hole at 5.0 feet.	610.0	<u> </u>											
Bottom of hole at 5.0 feet.	-	ļ .									:		
Bottom of hole at 5.0 feet.	L .	L.				1					:		
Bottom of hole at 5.0 feet.		5.0		Valuntary baring termination at 5.0 fact									
HPIOIS CITY OF DULUIH BRIGHTON BEACH GPJ GINI US LAB GDI 2311/20													
HATOLS CITY OF DOLIOH BRIGHTON BEACHGAT GIN US URB GOT ZTAZO													
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	7/11/										:		:
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	AB.C												
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		BORING NUMBER SB-20-14 PAGE 1 OF 1								
CLIENT City of Du		PROJECT NAME _Lakewalk Trail Extension - Brighton Beach								
PROJECT NUMBER	R _20G1433	PROJECT LOCATION Duluth, MN								
		GROUND ELEVATION 612.819 ft HOLE SIZE 4"								
	ACTOR EPC Engineering & Testing									
	CME 850 Track with Flyte Auger  CHECKED BY LT									
		AFTER DRILLING None								
ELEVATION (ft) DEPTH (ft) GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER NUMBER NUMBER (RQD)  BLOW COUNTS (N VALUE)  OF 05  DRY UNIT WT.  (PCf)  (PCf)  DRY UNIT WT.								
ELE OO DI GR		Panal   Pana								
612.5 	CLAYEY SAND (SC) (FILL), trace gravel, brown, m  Clay  Clay  Substantial auger refusal at 13.5 feet.  Bottom of hole at 13.5 feet.	FA 1								

# **EPC** Engineering & Testing **BORING NUMBER SB-20-15** Geotechnical • Environmental • Materials Engineering PAGE 1 OF 1 539 Garfield Avenue Duluth, Minnesota 55802 CLIENT City of Duluth PROJECT NAME Lakewalk Trail Extension - Brighton Beach PROJECT NUMBER 20G1433 PROJECT LOCATION Duluth, MN DATE STARTED 1/23/20 **COMPLETED** 1/23/20 **GROUND ELEVATION** 621.347 ft HOLE SIZE 4" **DRILLING CONTRACTOR** EPC Engineering & Testing **GROUND WATER LEVELS:** DRILLING METHOD CME 850 Track with Flyte Auger AT TIME OF DRILLING None LOGGED BY RH CHECKED BY LT AT END OF DRILLING None **NOTES** AFTER DRILLING None ▲ SPT N VALUE ▲ SAMPLE TYPE NUMBER DRY UNIT WT. (pcf) ELEVATION (ft) Pocket Penetrometer GRAPHIC LOG RECOVERY (RQD) BLOW COUNTS (N VALUE) 40 60 DEPTH (ft) MC ĻĻ MATERIAL DESCRIPTION 80 60 40 20 ☐ FINES CONTENT (%) ☐ 0.0 40 60 3" Bituminous Silty Sand w/ gravel, likely fill 620.0 617.5 615.0 ΑU 612.5 610.0 607.5 Substantial auger refusal at 14.9 feet.

GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20

<b>Ge</b> 539	otechni Garfie	cal • ] ld Ave	eering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-16 PAGE 1 OF 1								
	NT Cit			PROJEC	T NAME	Lakev	valk Trail Ex	tensio	n - Brig	ghton Beach		
PRO	JECT N	JMBEF	R _20G1433		T LOCAT	ION _	Duluth, MN					
DAT	E STAR	TED _	1/23/20 <b>COMPLETED</b> 1/23/20	GROUNE	ELEVA1	LION _	643.045 ft		HOLE	SIZE 4"		
			ACTOR EPC Engineering & Testing									
			O CME 850 Track with Flyte Auger				LING None					
			CHECKED BY LT		END OF		.ING None	<u> </u>				
							140110			A CDT		
ELEVATION (ft)	O DEPTH	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4	F N VALU  10 60  MC  10 60  CONTEN  10 60	80 LL -1 80
040.6			4" Bituminous							:	: :	<u> </u>
642.5			8" Silty sand w/ gravel, likely fill									
-	+ -		Sandy clay									
+	+ -		Silty sand w/ gravel		1							
-	+ , -									:		
-	2.5				AU							
640.0	)											
+	+ -		Clay		<del>                                     </del>							
-	+ -											
ŀ	+ -		Valuatory boring termination at 5.0 fact									
	5.0		Voluntary boring termination at 5.0 feet.  Bottom of hole at 5.0 feet.			-				:	: :	-
			20.0.1, 51.10.0 0.00.0 100.1									
11/20												
DT 2/												
AB.G												
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GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20												
EOTE												
<u>ت</u>											<u>: :</u>	<u>:</u>

<b>Geo</b> 539	techni Garfiel	cal • I	ering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-18 PAGE 1 OF 1									
CLIE	NT City	of Du	luth	PROJEC	T N	IAME .	Lakev	valk Trail Ex	tensio	n - Bri	ghton Beacl	1	
			20G1433		T L	OCAT	ION _	Duluth, MN					
			1/22/20 <b>COMPLETED</b> 1/22/2				_	617.611 ft		HOLE	<b>SIZE</b> 7.2	5"	
			CTOR EPC Engineering & Testing										
1			CME 850 Track with HSA and SPT Cal. t					LING None					
			CHECKED BY LT					ING None	<del>)</del>				
NOTE	:S			AI	1		LING	None			Ι		
ELEVATION (ft)	O DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPT			SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 PL L 20 D FINES	PT N VALU 40 60 MC 40 60 CONTEN 40 60	80 LL 
			CLAYEY SAND (SC) (FILL), trace organological loose relative density			SS 1	33	1-1-2-3 (3)			21.8		
615.0	2.5		CLAY W/ SAND (CL), brown, wet, medi			SS 2	58	1-2-3-4 (5)			25.8		
612.5	5.0		SILTY SAND (SM), little gravel, brown, density.			SS 3	63	4-14-25-50 (39)			10.7		
	-		Voluntary boring termination at 6.0 feet.  Bottom of hole at 6.0			1			-				
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB,GDT 2/11/20													

<b>Geo</b> 539	otechni Garfie	cal • ] ld Av	ering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-19 PAGE 1 OF 1								
	NT Cit			_ PROJEC	T NAME	Lakev	valk Trail Ex	ktensio	n - Bri	ghton Beach		
PRO	JECT N	JMBEF	R _20G1433		T LOCAT	ION _	Duluth, MN					
			1/23/20 <b>COMPLETED</b> 1/23/20						HOLE	SIZE <u>4"</u>		
			ACTOR EPC Engineering & Testing									
			O CME 850 Track with Flyte Auger				LING Non					
			CHECKED BY LT				.ING None	•				
NOTE	=ວ ⊤			_ Ar	TER DRI	LLING	None			1		
ELEVATION (ft)	O DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4	T N VALU  40 60  MC  40 60  CONTENT	80 LL   80
620.0	0.0		4" Bituminous						6	.6 :	: :	:
			CLAYEY SAND (SC) (FILL), little gravel, brown, mo	pist	AU 1					11.5		
ļ.,	ļ		Clay									
617.5	2.5											
-	<u> </u>											
	-											
615.0	5.0											
<u> </u>	-				AU							
					2							
-	ļ .											
612.5	7.5										<u> </u>	
	ļ .											
	-											
ļ	-											
	10.0				II .							
610.0	10.0		Voluntary boring termination at 10.5 feet									
		*////	Voluntary boring termination at 10.5 feet.  Bottom of hole at 10.5 feet.			1						
												:
610.0												

<b>Geo</b> 539	o <mark>techn</mark> i Garfie	ical • Id Av	eering & Testing Environmental • Materials Engineering enue ta 55802	BORING NUMBER SB-20-20 PAGE 1 OF 1								
	NT Cit			_ PROJEC	T NAME	Lakev	valk Trail Ex	ctensio	n - Bri	ghton Beach		
PRO.	JECT N	JMBE	R _20G1433		T LOCAT	ION _[	Ouluth, MN					
			1/23/20 <b>COMPLETED</b> 1/23/20						HOLE	SIZE _4"		
			ACTOR EPC Engineering & Testing									
			CME 850 Track with Flyte Auger  CHECKED BY LT	_			LING None					
			GILONES ST LT		TER DRI		<u></u>	<u>,                                     </u>				
ELEVATION (ft)	DEPTH (ft)	()	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)		T N VALU 40 60 MC 40 60 CONTEN	80 LL —I 80
	0.0		3" Bituminous		0)	<u>"</u>				20 4	<u>10 60</u>	80
- ·	- - - 		CLAYEY SAND (SC) (FILL), little gravel, brown, mo	ist	FA 1,2				1	10.1 •		
617.5	2.5		CLAY (CL), trace sand, brown, moist		FA 3					25.7		
615.0	5.0				}							
612.5	 				FA							
	7.5		Substantial auger refusal at 8.0 feet.									
		(/////	Bottom of hole at 8.0 feet.									
GEOLECH BH FLOI'S CIIT OF DOLUIN BRIGHLON BEACH.GFJ GINI OS LAB.GDJ ZJIJZD												

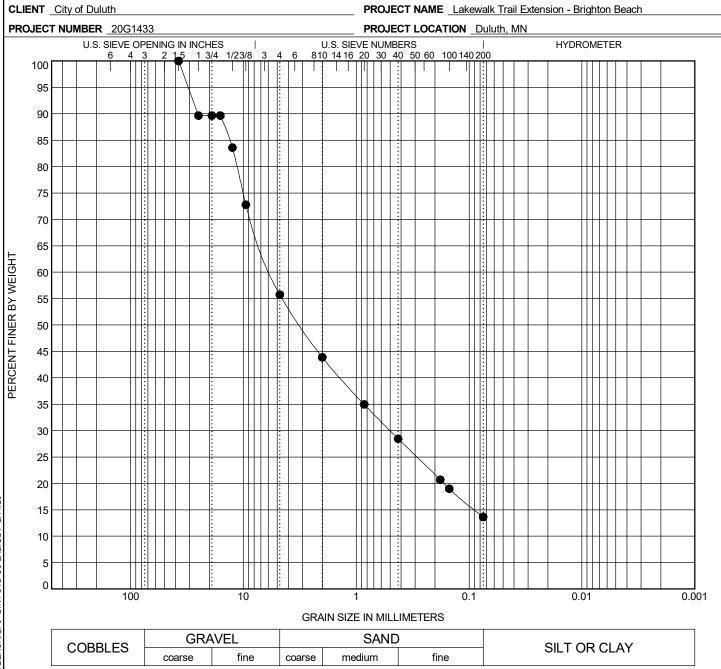
	Geo 539	techni Garfie	cal • 1 ld Ave		g Materials Engineering				BORI	ING	NU	MBER		<b>20-21</b> E 1 OF 1
		NT Cit				PROJEC	T NAME	Lakev	valk Trail Ex	ctensio	n - Briç	ghton Beach		
	PROJ	ECT N	JMBEF	20G1433			T LOCAT	ION _	Duluth, MN					
				1/23/20							HOLE	SIZE 4"		
	1				eering & Testing									
	l			CME 850 Track v					LING None					
				Sluestone Bunker	CHECKED BY LT		END OF		.ING None	•				
	NOTE	. <b>3</b> _000		idestorie Buriker		AI			None			4.00	T 111/41	
	ELEVATION (ft)	O DEPTH (ft)	GRAPHIC LOG		MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 20 4	T N VAL 40 60 MC 40 60 CONTE	0 80 LL 0 80 ENT (%) $\Box$
		0.0		Overburden								:	<del>i</del> :	<del>, 00</del> :
GEOTECH BH PLOTS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20	612.5  610.0  607.5  605.0	5.0		Cobbles at 1.5 f	er refusal at 9.5 feet.  Bottom of hole at 9.5 feet.		AU							
ЗЕОТЕСН ВН Р														

	<b>Geo</b> 539	<mark>techn</mark> i Garfie	i <mark>cal •</mark> ]	eering & Testing Environmental • Materials Engineering enue ta 55802				BOR	ING	NU	MBER		2 <b>0-22</b> 1 OF 1
		IT Cit			PROJEC	T NAME	Lakev	valk Trail Ex	xtensio	n - Briç	ghton Beach		
Р	ROJI	ECT N	JMBEF	R _20G1433		T LOCAT	ION _	Duluth, MN					
				1/23/20 <b>COMPLETED</b> 1/23/20						HOLE	SIZE 4"		
				ACTOR EPC Engineering & Testing									
- 1				CME 850 Track with Flyte Auger				LING Non					
				CHECKED BY LT  luestone Bunker		END OF		.ING None	9				
Ë	OIL	<u> </u>	IIIOID	nuestorie Durikei				None					
NOITAVAIA	(ft)	O DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER		BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	20 4 PL 1 20 4	T N VALU 40 60 MC 40 60 CONTEN 40 60	80 LL 
F	-			Overburden							:		
- - - 60	- - 110.0 - - - 007.5 - - - -	2.5		Boulder at 6.0 feet.  Weathered rock at 7 feet.  Substantial auger refusal at 8.0 feet.  Bottom of hole at 8.0 feet.		AU							
зеотесн Е													

Geotechnical • Environmental • Materials Engineering

539 Garfield Avenue Duluth, Minnesota 55802

**GRAIN SIZE DISTRIBUTION** 



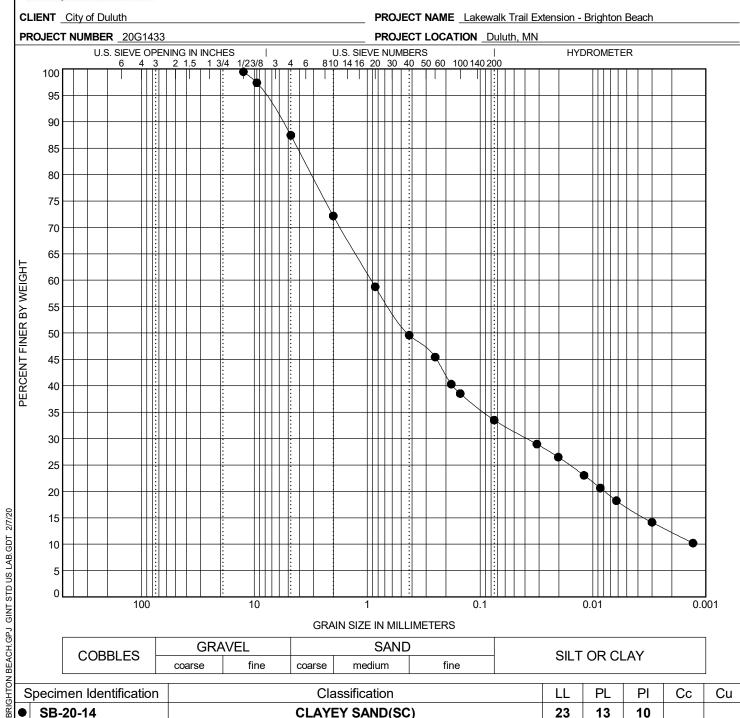
N BE			coarse		IIIIE	Coarse	medium	1	IIIIe	=						
CITY OF DULUTH BRIGHTON BE	Specimen Iden	tification				Cla	assificatio	n				LL	PL	PI	Сс	Cu
BR	● SB-20-07		SIL	.TY a	nd/or CL	<b>AYEY</b>	GRAVEL	W۱٦	TH SAND	) (GM/	GC)					
5			D10	00	D60		D30		D10	%Gr	avel	%Sand		%Silt	%0	Clay
E D			37.	5	5.644		0.501			44	.2	42.1		1	3.7	
2	SIEVE	% PA	SS	SPEC			SIEVE		% PASS		SF	PEC			TES	
티	3"						#10		44				SB-2	20-07 S	ample	1.
Sa	2"				#16											
M/N	1.5"	100	)				#20		35							
	1"	90					#30									
SPI	3/4"	90					#40		28							
Ħ[	5/8"	90					#50									
≱[	1/2"					#60										
SIZI	3/8"			•		#80		21		·	•		·		·	
GRAIN SIZE WITH SPEC BANDS	#4	56					#100		19		· ·			· ·		
98	#8					#200		13.7	<b>'</b>							

BRIGHTON BEACH GPJ GINT STD US LAB.GDT 2/11/20

Geotechnical • Environmental • Materials Engineering

539 Garfield Avenue

Duluth, Minnesota 55802



**GRAIN SIZE DISTRIBUTION** 

N			coarse		IIIIC	Coarse	modium	11111							J
CITY OF DULUTH BRIGHTON BI	Specimen Iden	tification				Cla	assification	า			LL	PL	PI	Сс	Cu
BRIG	● SB-20-14					CLAYI	EY SAND	(SC)			23	13	10		
틹			D1	00	D60		D30	D10	%Gr	avel	%Sand		%Silt	%(	Clay
F DU			12	.5	0.919	) (	0.038		12	.0	54.0		16.5	1	7.0
2	SIEVE	% PA	SS	SPEC			SIEVE	% PASS			EC			TES	
등	3"						#10 7					SB-	20-14 S	ample	1.
DS	2"			#16											
MM	1.5"						#20	59							
	1"						#30								
SPI	3/4"						#40	50							
텕	5/8"						#50								
<b>≥</b>	1/2"	99					#60	45							
SIZI	3/8"	97					#80	40							
GRAIN SIZE WITH SPEC BANDS	#4	87					#100	39							
GR.	8 #8						#200	33.5	5						

# **ATTERBERG LIMITS' RESULTS EPC** Engineering & Testing Geotechnical • Environmental • Materials Engineering 539 Garfield Avenue Duluth, Minnesota 55802 CLIENT City of Duluth PROJECT NAME Lakewalk Trail Extension - Brighton Beach PROJECT NUMBER 20G1433 PROJECT LOCATION Duluth, MN 60 (CL) (CH) 50 P L A S T I 40 Ċ 30 N D E X 20 10 CL-ML (ML) (MH)20 40 60 100 80 LIQUID LIMIT PI Fines | Classification Specimen Identification LL PL ● SB-20-14 1.5 23 13 10 **CLAYEY SAND (SC)** ATTERBERG LIMITS CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/11/20