



Purchasing Division
Finance Department
Room 120
411 West First Street
Duluth, Minnesota 55802

218-730-5340
purchasing@duluthmn.gov

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 (<https://www.duluthmn.gov/purchasing/bids-and-request-for-proposals/>) 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

1. 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:
 - i. Documents are available to download for free at www.bidexpress.com 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 <https://www.duluthmn.gov/purchasing/bids-request-for-proposals/>
 - 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
 - i. 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.**
 - ii. Substitution Requests must be submitted using the form provided in the spec with supporting information attached.
 - 1) 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.

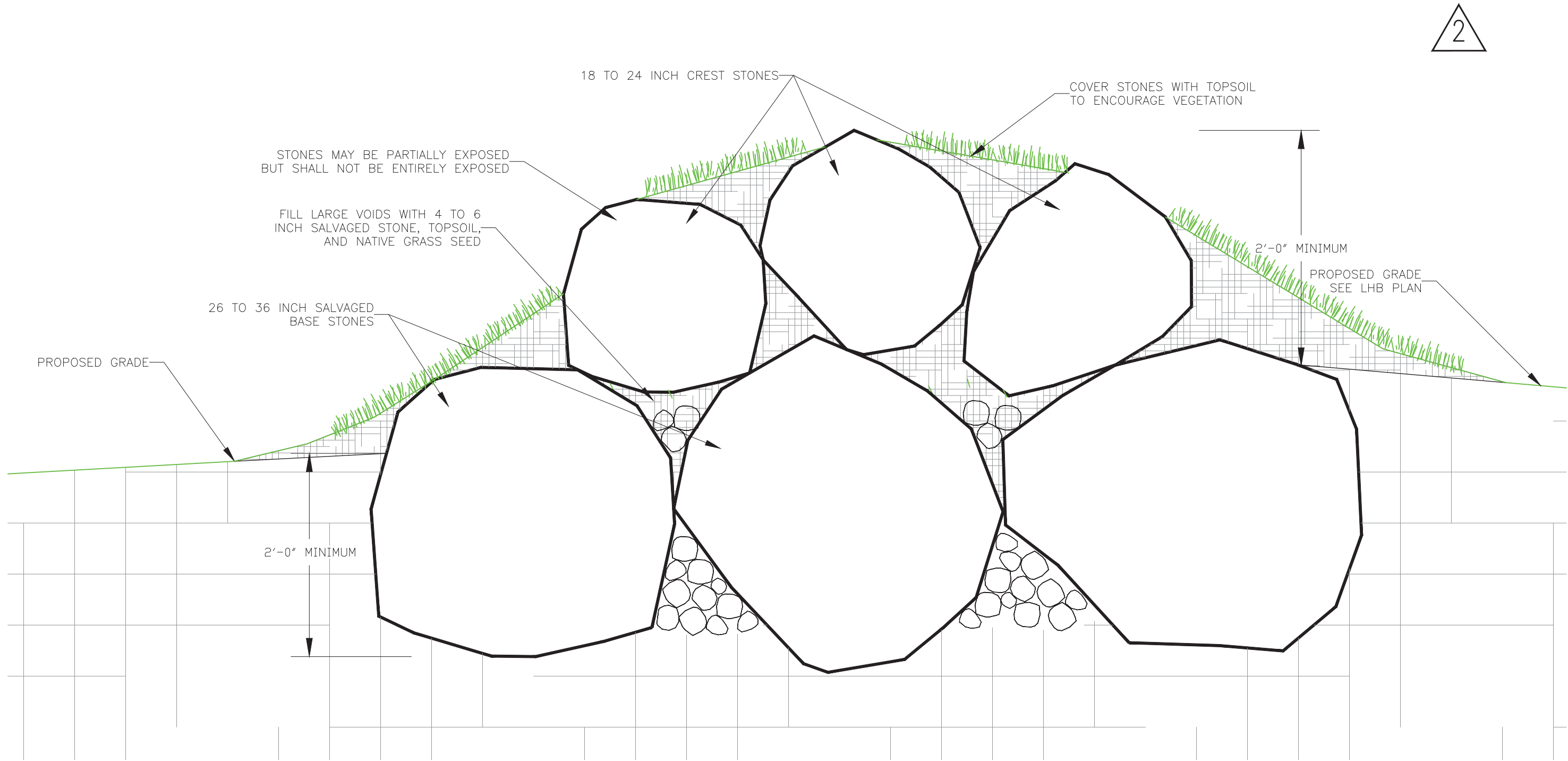
NOTE: Due to the short construction timeframe, bidders are requested to have their payment and performance bonds, insurance certificate, signed contract and project labor agreement, approved community benefits best efforts plan and any other required documentation to the Purchasing Office by Monday, 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
 - a. Electronic form via Newforma Info Exchange or Owner preferred method.
- 7. Temporary Facilities
 - a. 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

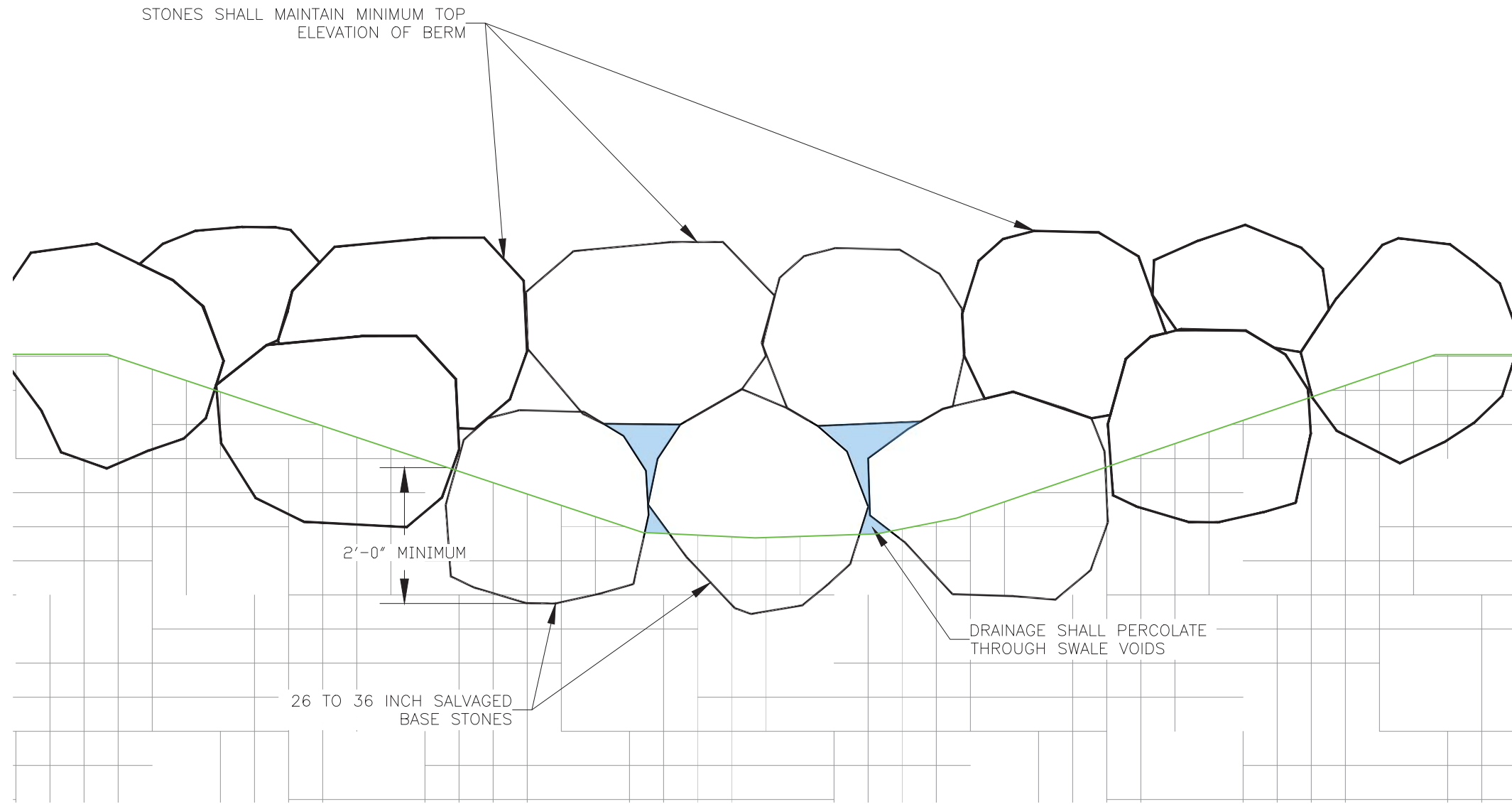
c: LHB Project No. 210260

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



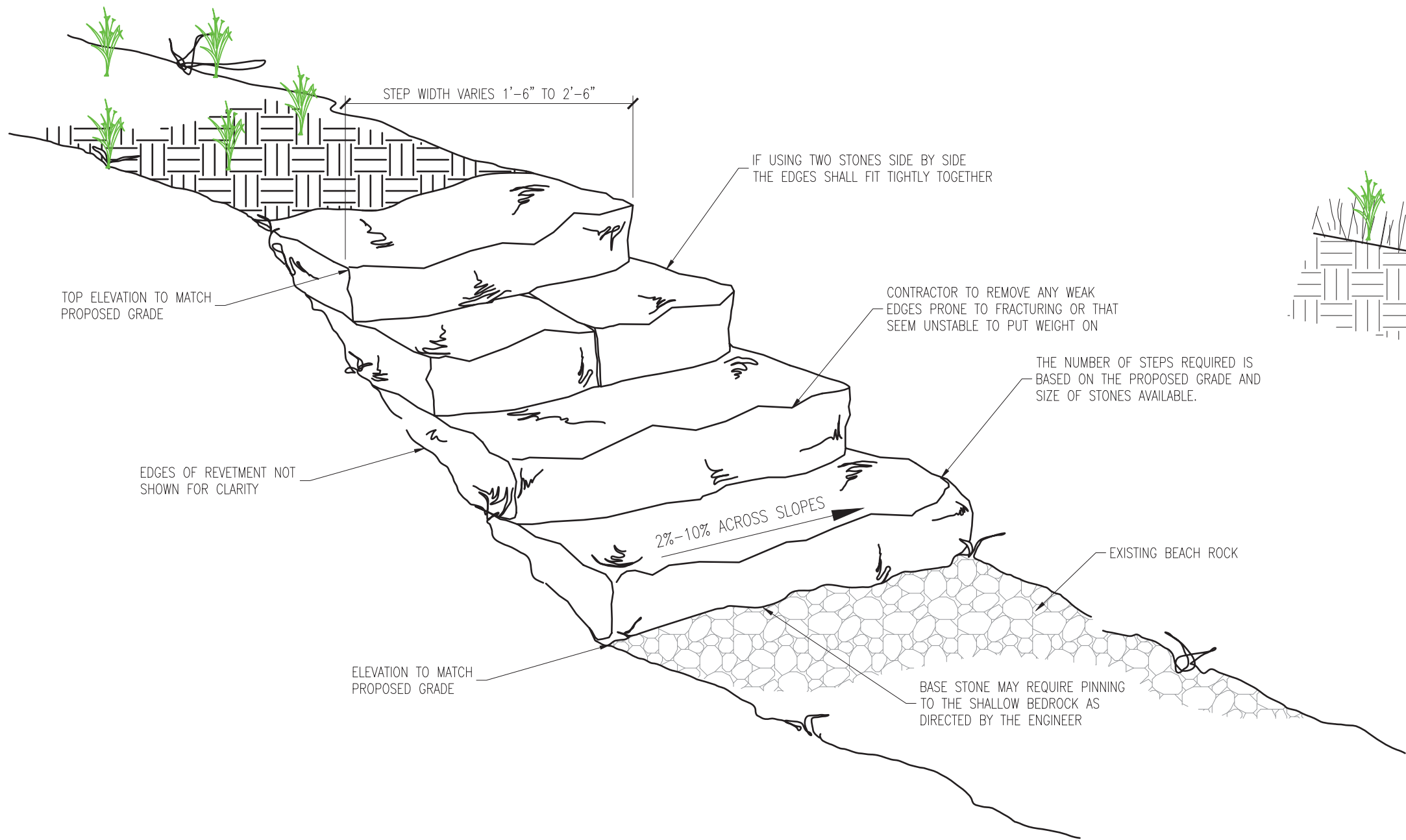
1
CH2.5.0

VEGETATED ROCK BERM CROSS-SECTION



2
CH2.5.0

ROCK BERM THROUGH SWALE DETAIL



INSTALLATION NOTES:

- 1) STONES MAY REQUIRE SHIMS AND/OR USE REBAR ANCHORS TO ENSURE A TIGHT FIT
- 2) ANY VOIDS ALONG THE PATH LARGER THAN 4" SHALL BE FILLED WITH 1" ANGULAR GRAVEL
- 3) THE NUMBER OF STONES REQUIRED FROM THE TOP OF THE REVETMENT TO THE BOTTOM VARIES
- 4) LAYERS THICKNESS, STONE SIZES, AND STONE QUALITY SHALL BE CONSISTENT WITH THE REVETMENT STANDARDS
- 5) STEPS MAY PENETRATE PERPENDICULAR TO THE REVETMENT OR ARC WITH A SMOOTH BEND AS REQUESTED BY THE LANDOWNER
- 6) AT NO TIME SHALL STEPS CROSS OVER PROPERTY LINES, UTILITIES, CULVERTS, WETLANDS, SWALES OR ANY FORM OF WATER BODY
- 7) CONTRACTOR SHALL COORDINATE WITH ENGINEER DURING INSTALLATION
- 8) REBAR ANCHORS SHALL BE SET 2" BELOW STONE SURFACE AND FILLED WITH HIGH STRENGTH, NON-SHRINK GROUT
- 9) OWNER IS RESPONSIBLE FOR PROVIDING ADEQUATE SIGNAGE NEAR STEPS AND MAINTENANCE OF STEPS INCLUDING (ICE REMOVAL, SEDIMENT BUILDUP, AND DEBRIS REMOVAL)
- 10) RAILINGS ARE NOT PROVIDED UNLESS OTHERWISE DISCUSSED

3
CH2.5.0

TYPICAL ARMORED STONE STEP DETAIL

REV. BY:	DESCRIPTION	REV.	DATE
ELIV	ISSUED FOR BID	0	08/18/2022
ELIV	ADDENDUM 1	1	08/19/2022
ELIV	ADDENDUM 2	2	08/23/2022

BRIGHTON BEACH RESILIENCY PLAN - PHASE I	
CITY OF DULUTH	
BRIGHTON BEACH	
DULUTH, MN	
COASTAL DETAILS	

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

SHEET:
CH2.5.0

EPC Engineering & Testing
Geotechnical • Environmental • Materials Engineering

539 Garfield Avenue
Duluth, Minnesota 55802

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

February 11th, 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 22nd and January 23rd, 2020. All work was performed at the direction of yourself and according to EPC's proposal dated December 23rd, 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

*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.

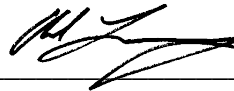
We would like to thank you for allowing EPC to be of service to you on this project. If you have any questions or comments, please call us at (218) 727-1239 (w) or (218) 341-4536 (c).

Sincerely,

Reviewed by:

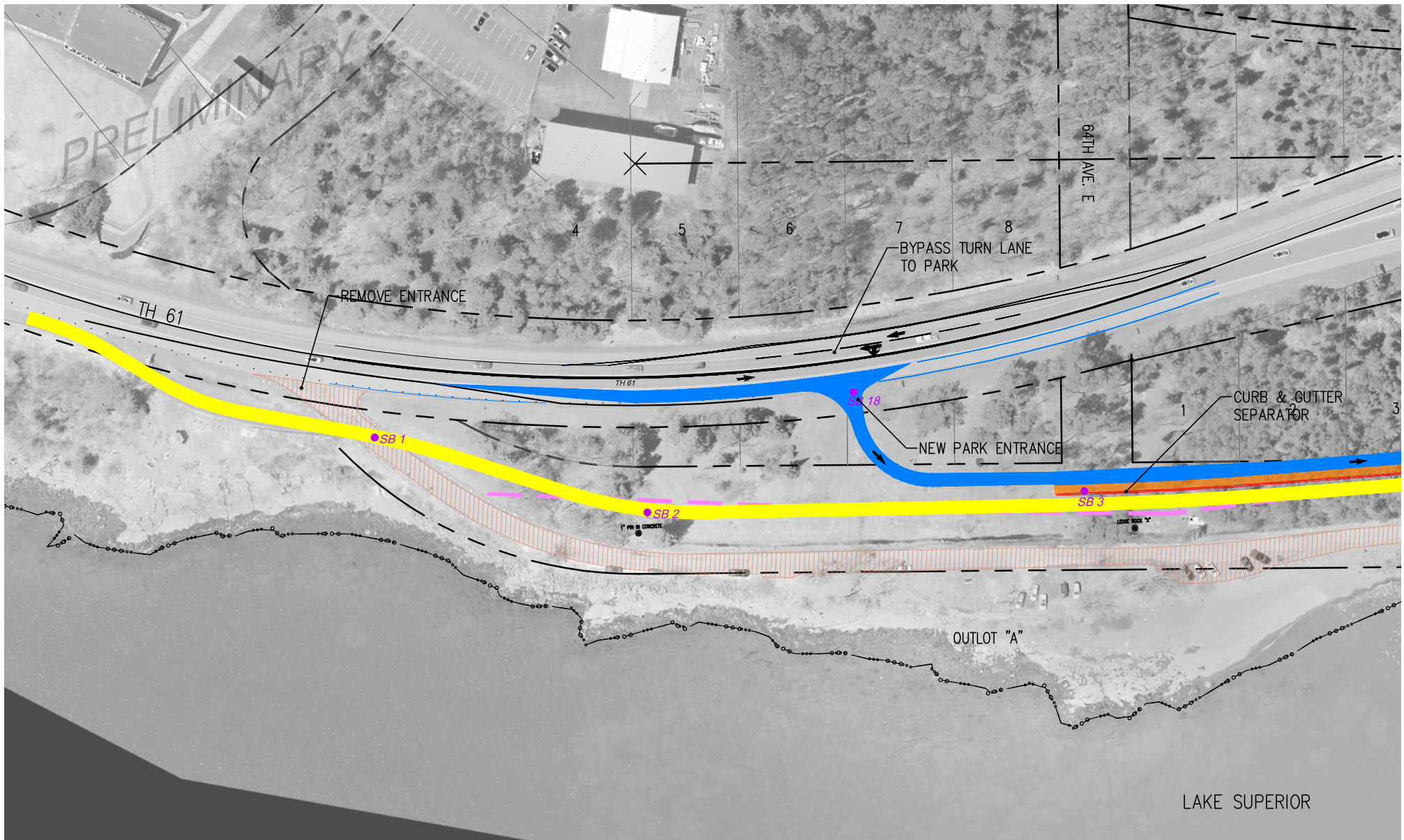


Logan Tuura, EIT
Engineer in Training



Chad Lowney, Sr. Tech.
Project Manager

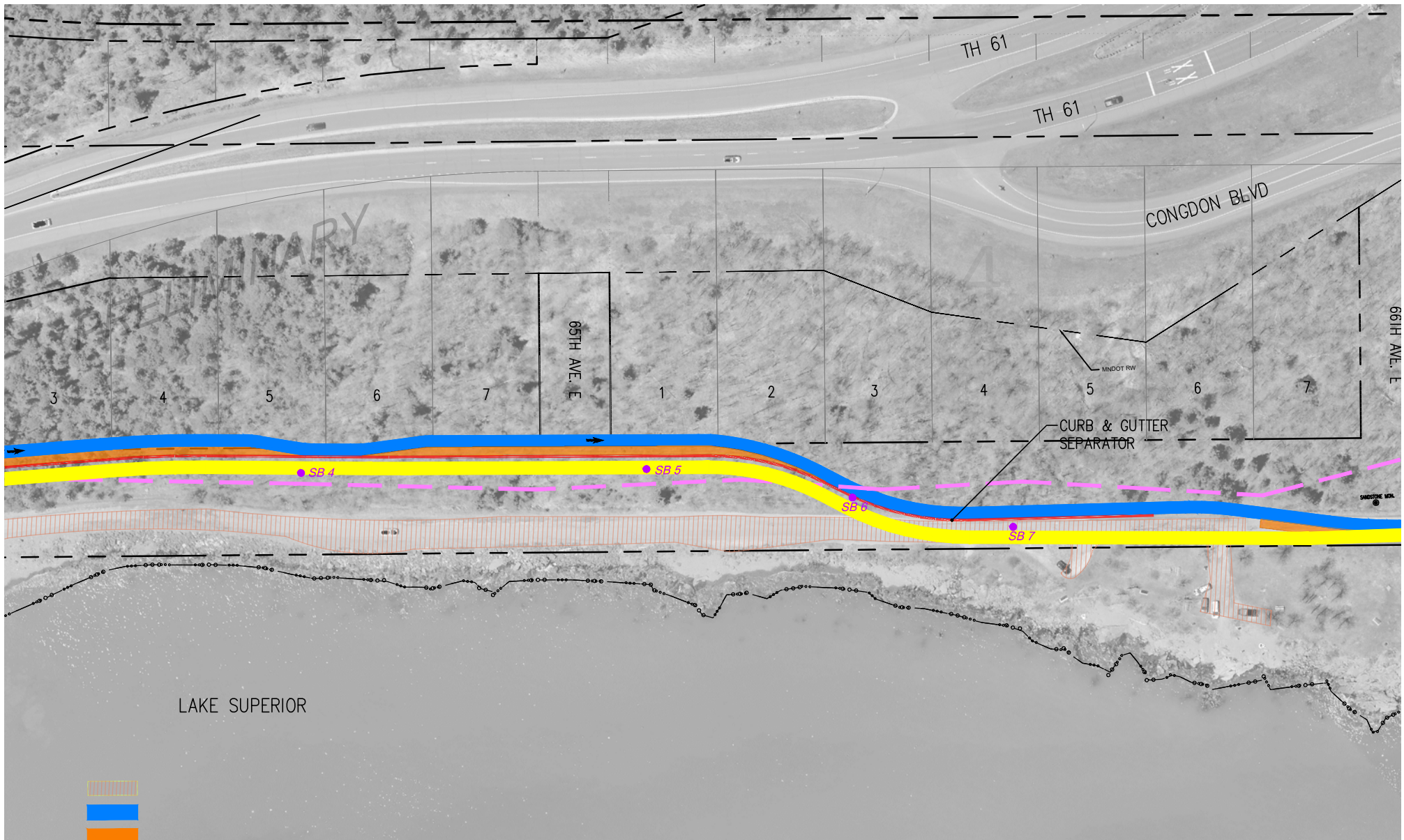
Enclosures: Location Maps, Boring Logs, and Lab Tests



LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)

SCALE : 1" = 125'

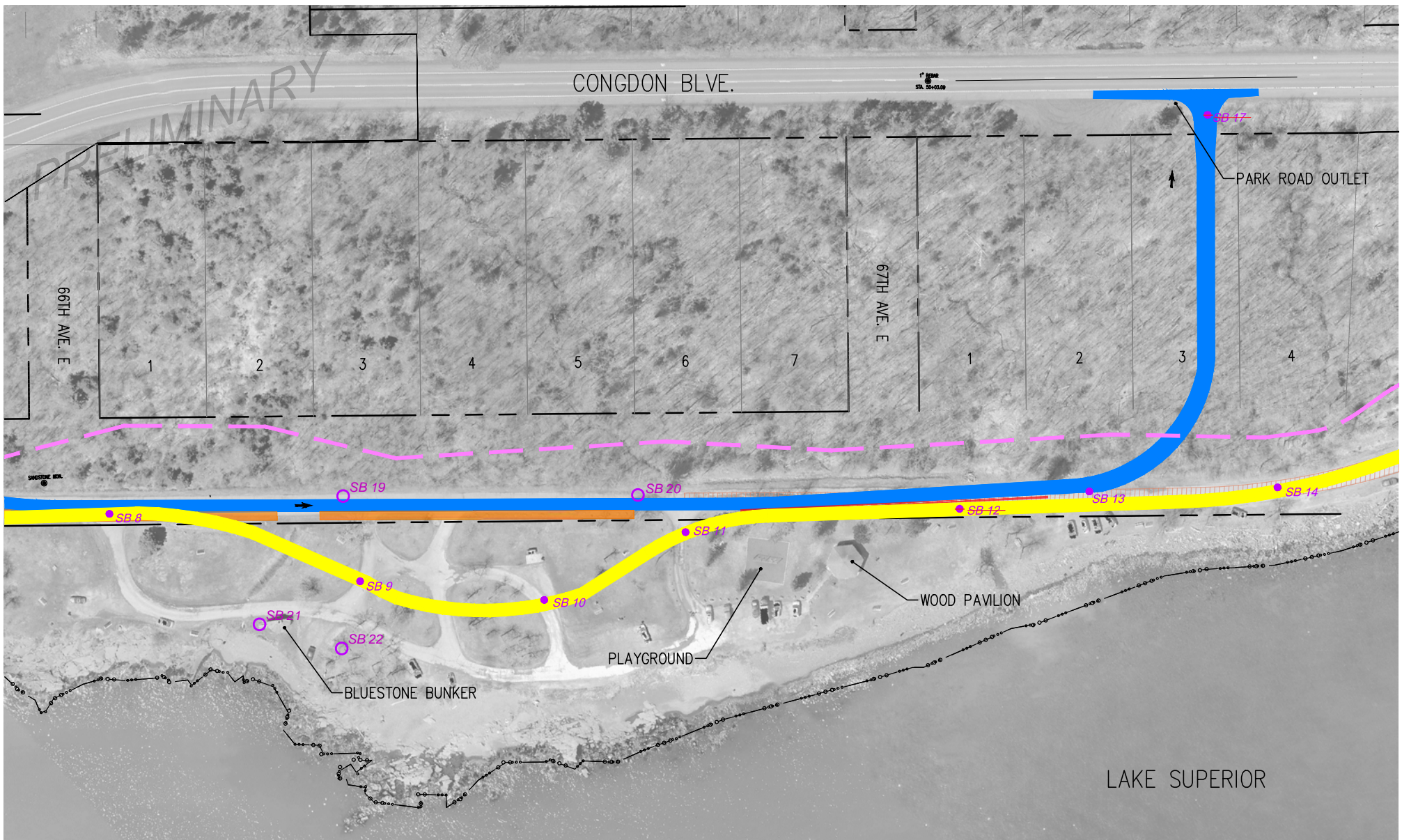




LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)

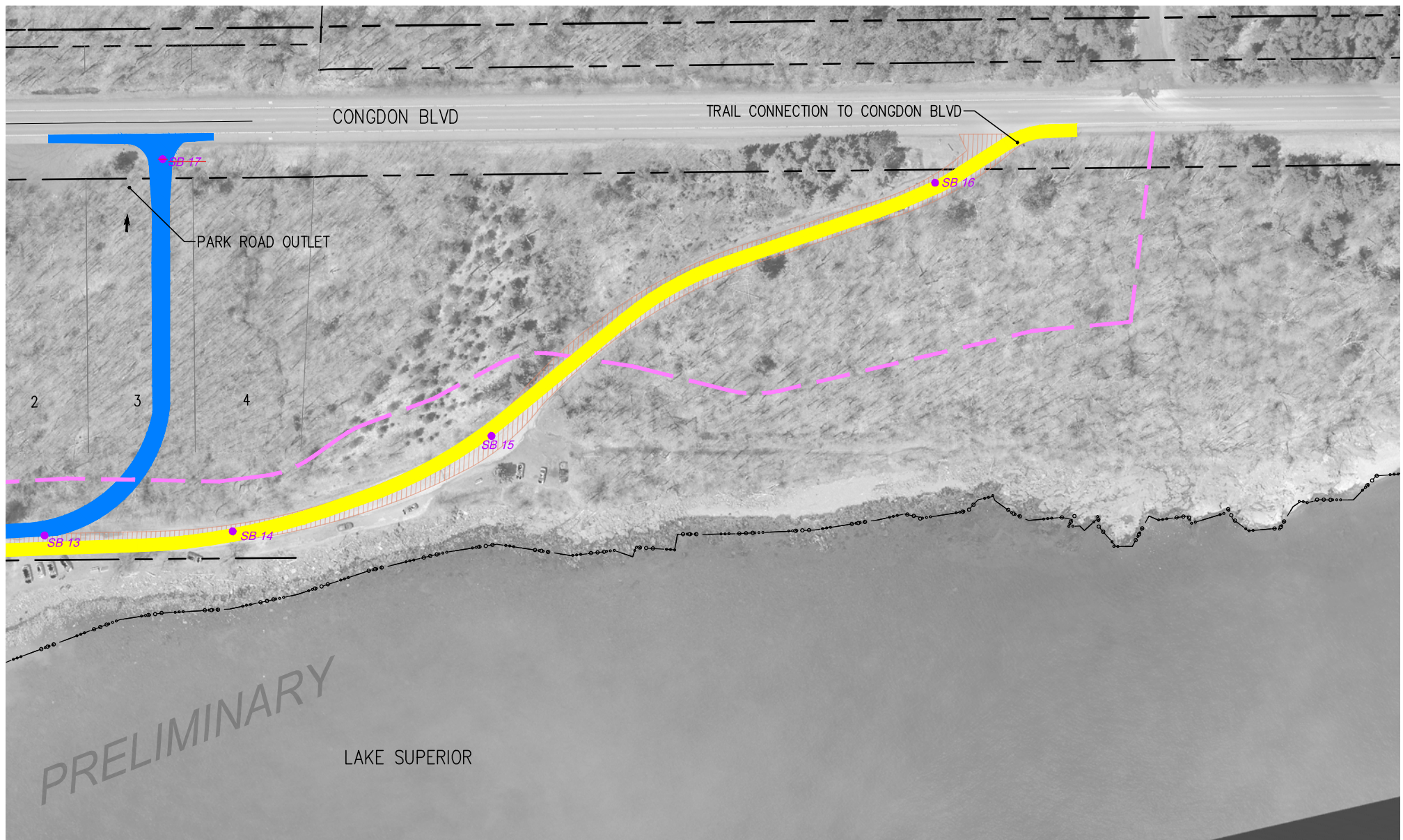
SCALE : 1" = 125'





LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)

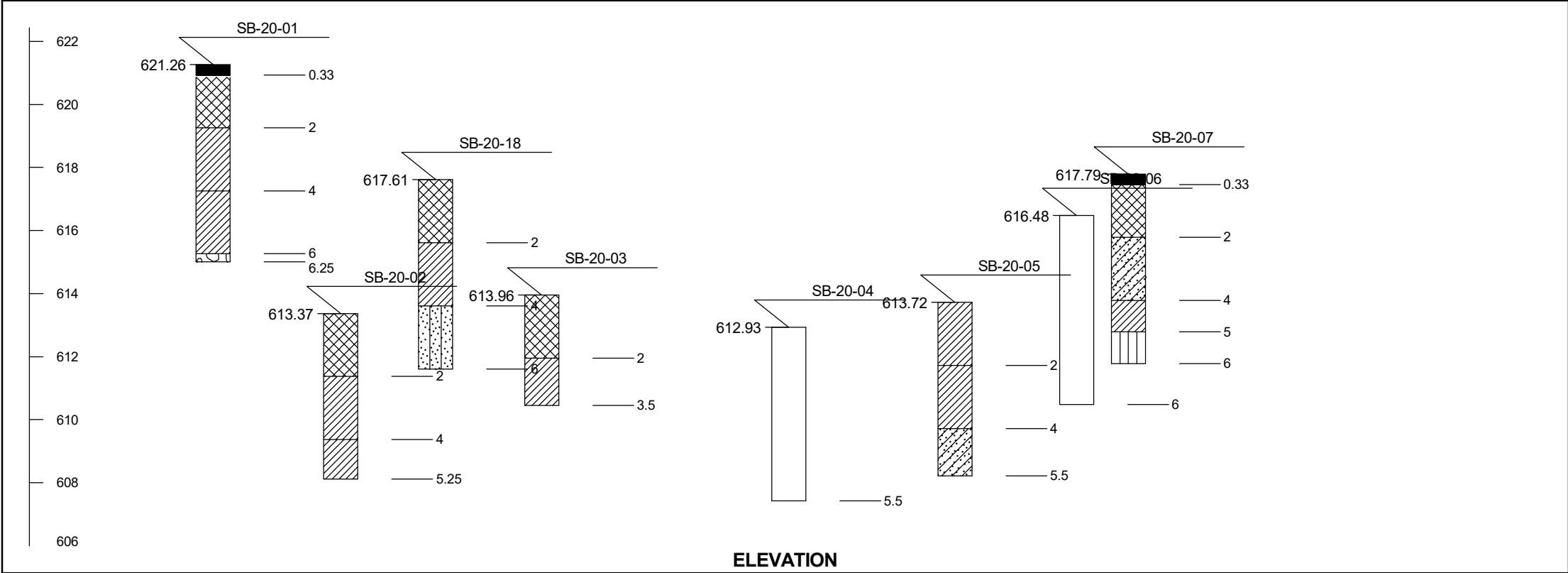
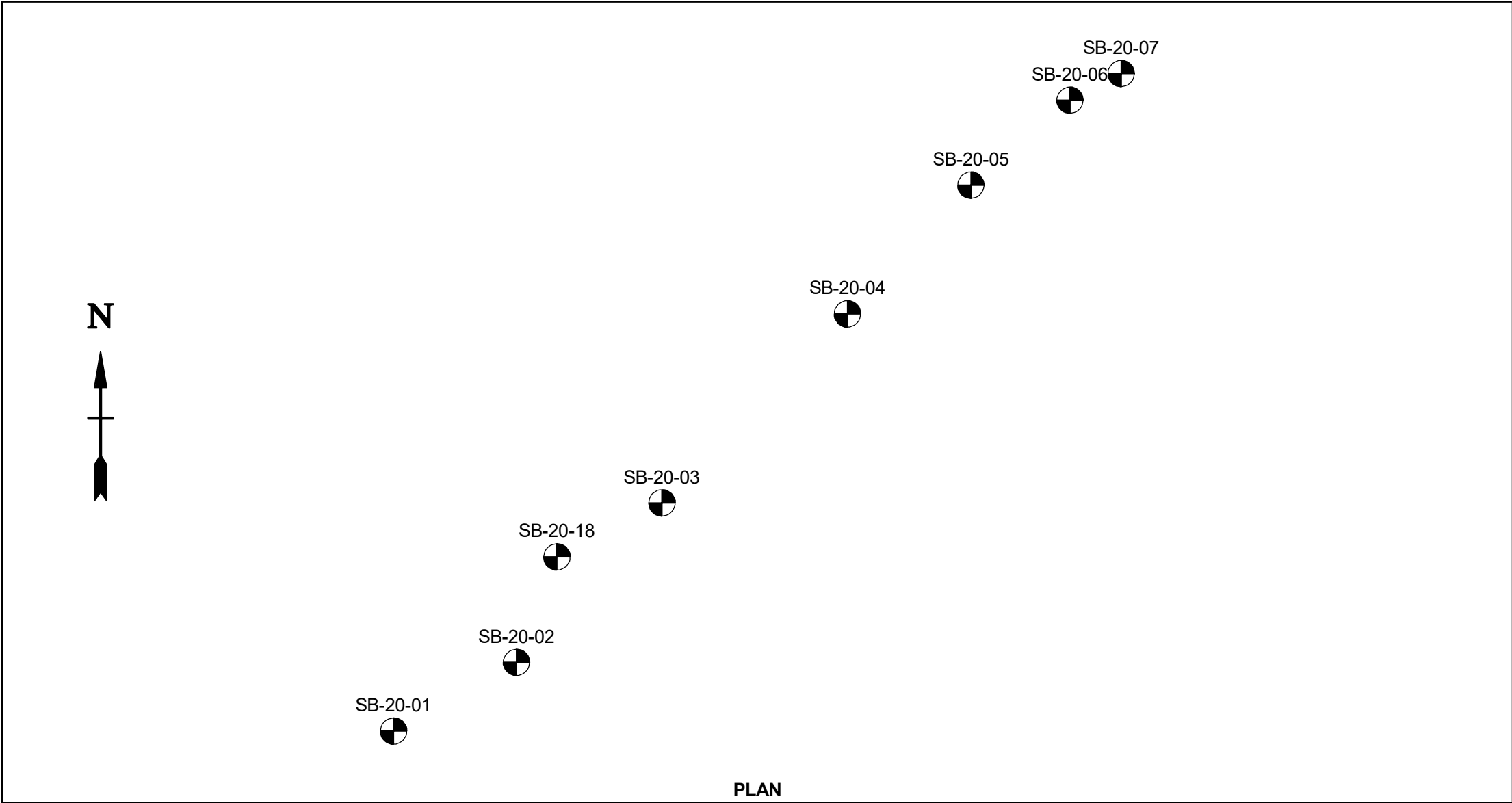




LAKEWALK TRAIL EXTENSION - (BRIGHTON BEACH)

SCALE : 1" = 125'





REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS

LEGEND

Asphalt	Clayey Sand
Fill (made ground)	Silt
purple brown and gray mottled Clay	tan silty Sand
Poorly-graded Gravel	

TYPICAL TEST HOLE SYMBOL
Plan View
 Location of any test hole

TYPICAL TEST HOLE LOG

Boring No. _____
Location _____

Elev. _____

Ground Water Depth at time of drilling (ATD) _____

Graphic material description _____

Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206 _____

Unified Soil Classification _____

Practical refusal SPT _____

RQD _____

x Core Run

x % Core Recovery Shaded

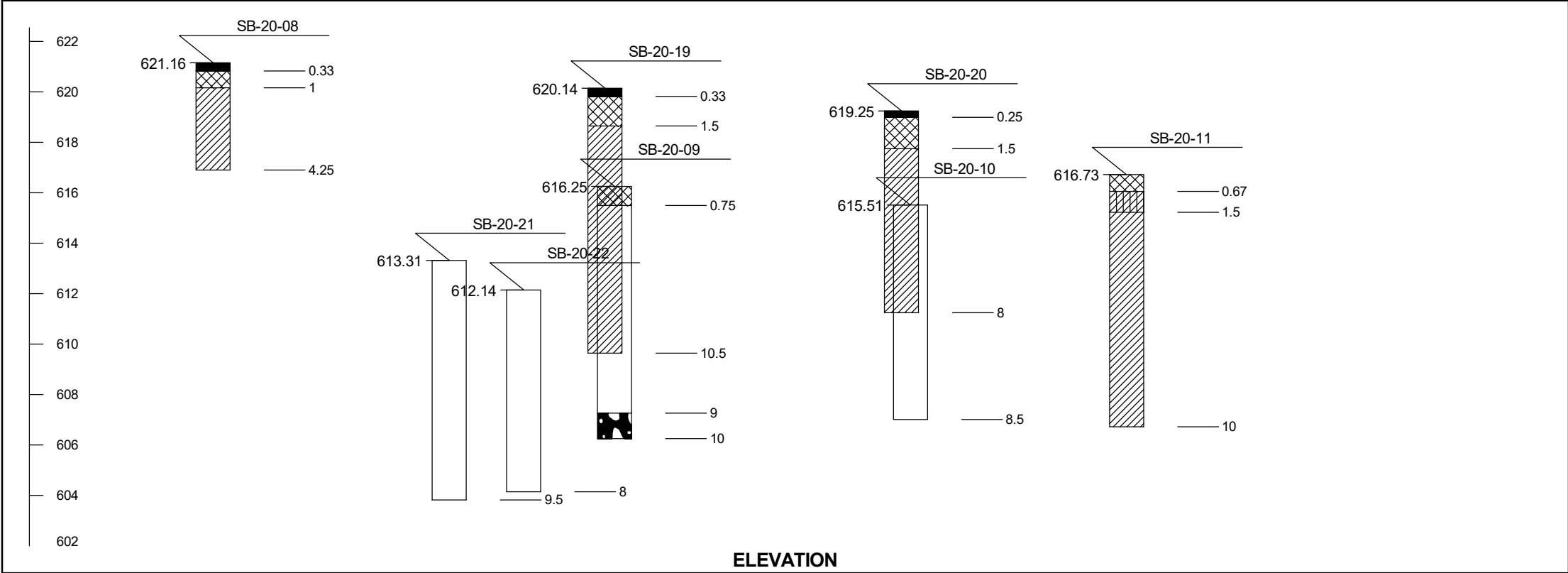
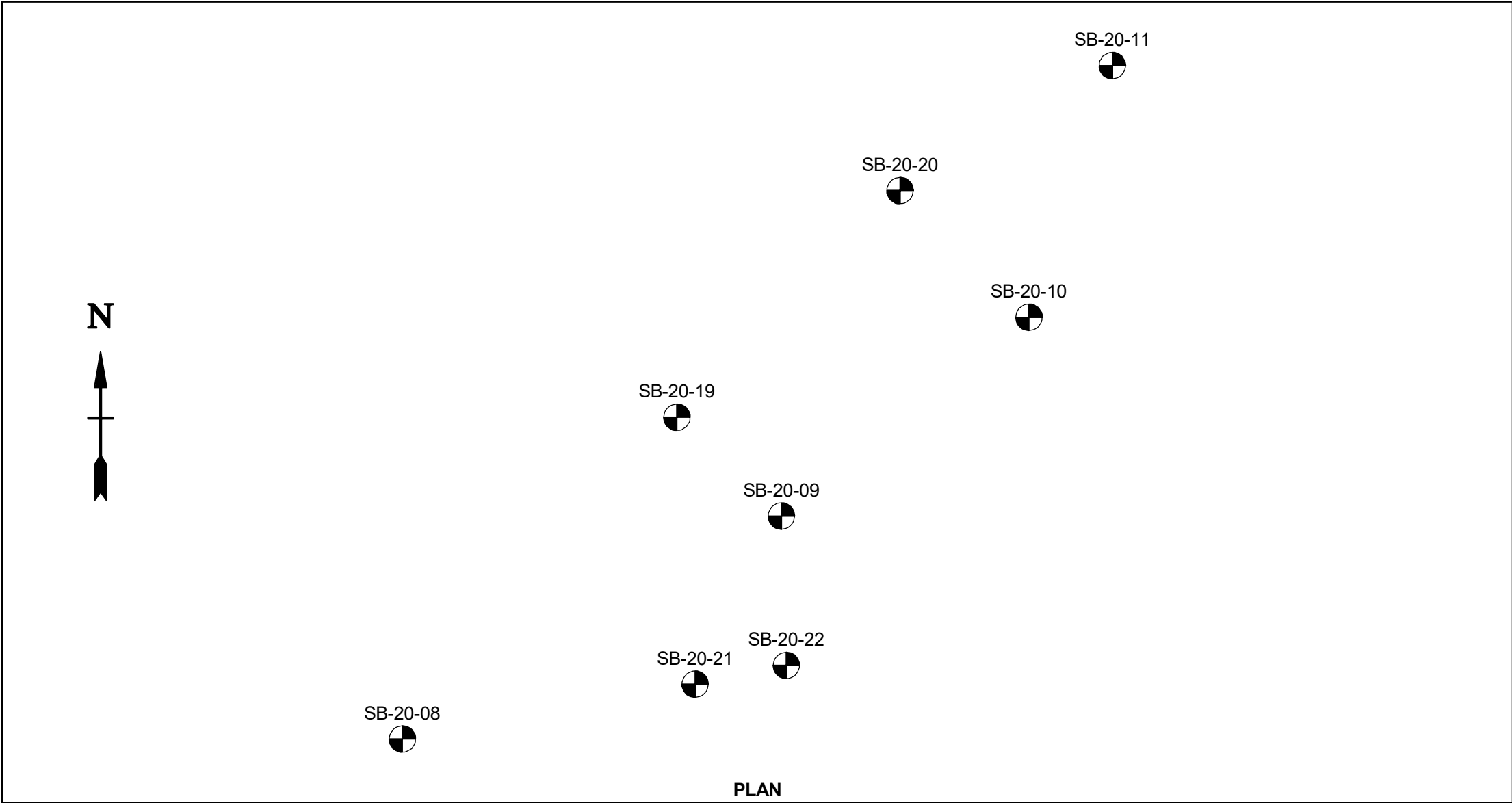
x Depth Terminated

For additional information, refer to Geotechnical Report
Lakewalk Trail Extension - Brighton Beach,

EPC ENGINEERING & TESTING
539 Garfield Avenue
Duluth, MN 55802

SUBSURFACE PROFILE
Lakewalk Trail Extension - Brighton Beach
Duluth, MN

DRAWING NO. _____



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS

LEGEND

- Asphalt
- Fill (made ground)
- purple brown and gray mottled Clay
- Boulders and cobbles
- USCS Low Plasticity Silty Clay

TYPICAL TEST HOLE SYMBOL
Plan View
Location of any test hole

TYPICAL TEST HOLE LOG

Boring No.
Location

Elev.

Ground Water Depth at time of drilling (ATD)

Graphic material description

Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206

Unified Soil Classification

Practical refusal SPT

Core Run
% Core Recovery Shaded
Depth Terminated

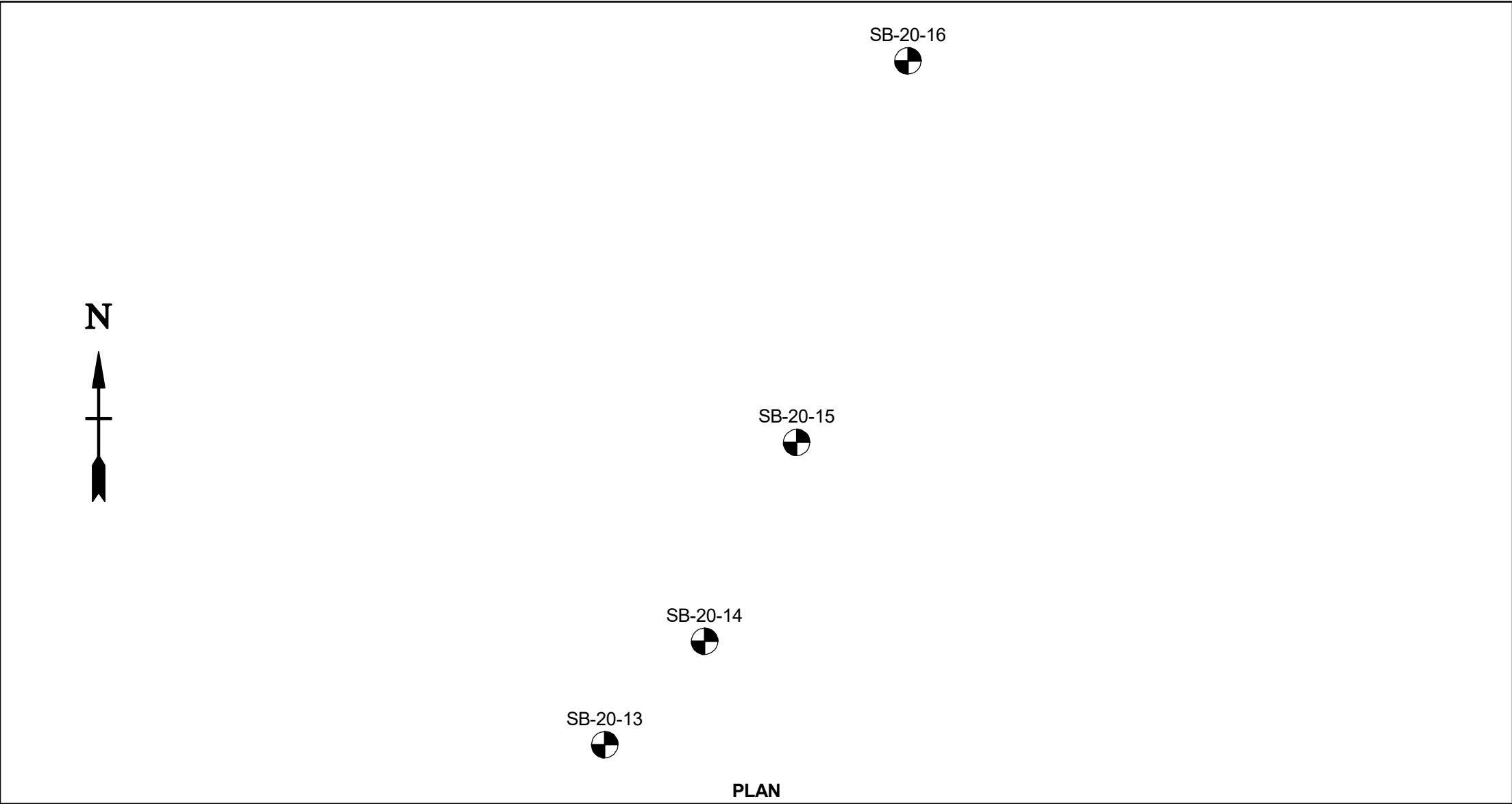
RQD
x
x
x

For additional information, refer to Geotechnical Report
Lakewalk Trail Extension - Brighton Beach,

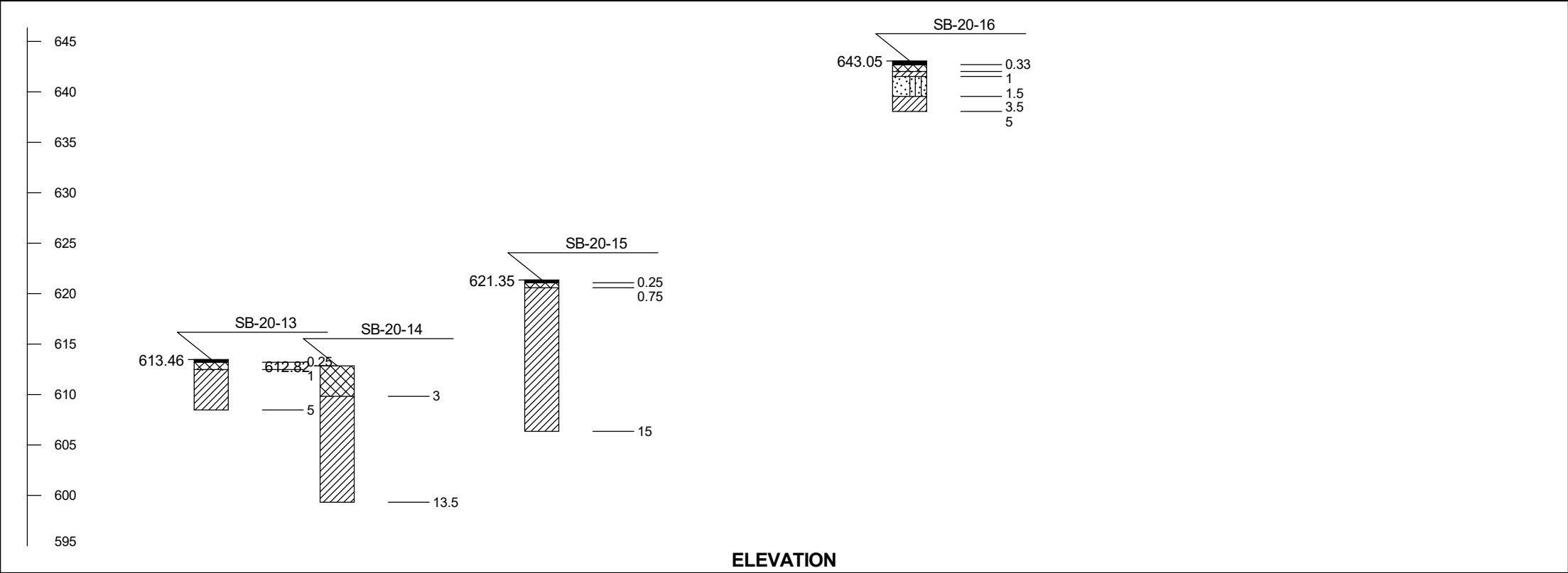
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Duluth, MN 55802

SUBSURFACE PROFILE
Lakewalk Trail Extension - Brighton Beach
Duluth, MN

DRAWING NO.



PLAN



ELEVATION

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS

LEGEND

- Asphalt
- Fill (made ground)
- purple brown and gray mottled Clay
- Poorly-graded Sand with Silt

TYPICAL TEST HOLE SYMBOL
Plan View
Location of any test hole

TYPICAL TEST HOLE LOG

Boring No.
Location

Elev.

Ground Water Depth at time of drilling (ATD)

Graphic material description

Blow count per foot with standard penetration test (SPT) in accordance with AASHTO T206

Unified Soil Classification

Practical refusal SPT

RQD
x
x
x

Core Run
% Core Recovery Shaded

Depth Terminated

For additional information, refer to Geotechnical Report
Lakewalk Trail Extension - Brighton Beach,

EPC ENGINEERING & TESTING
539 Garfield Avenue
Duluth, MN 55802

SUBSURFACE PROFILE
Lakewalk Trail Extension - Brighton Beach
Duluth, MN

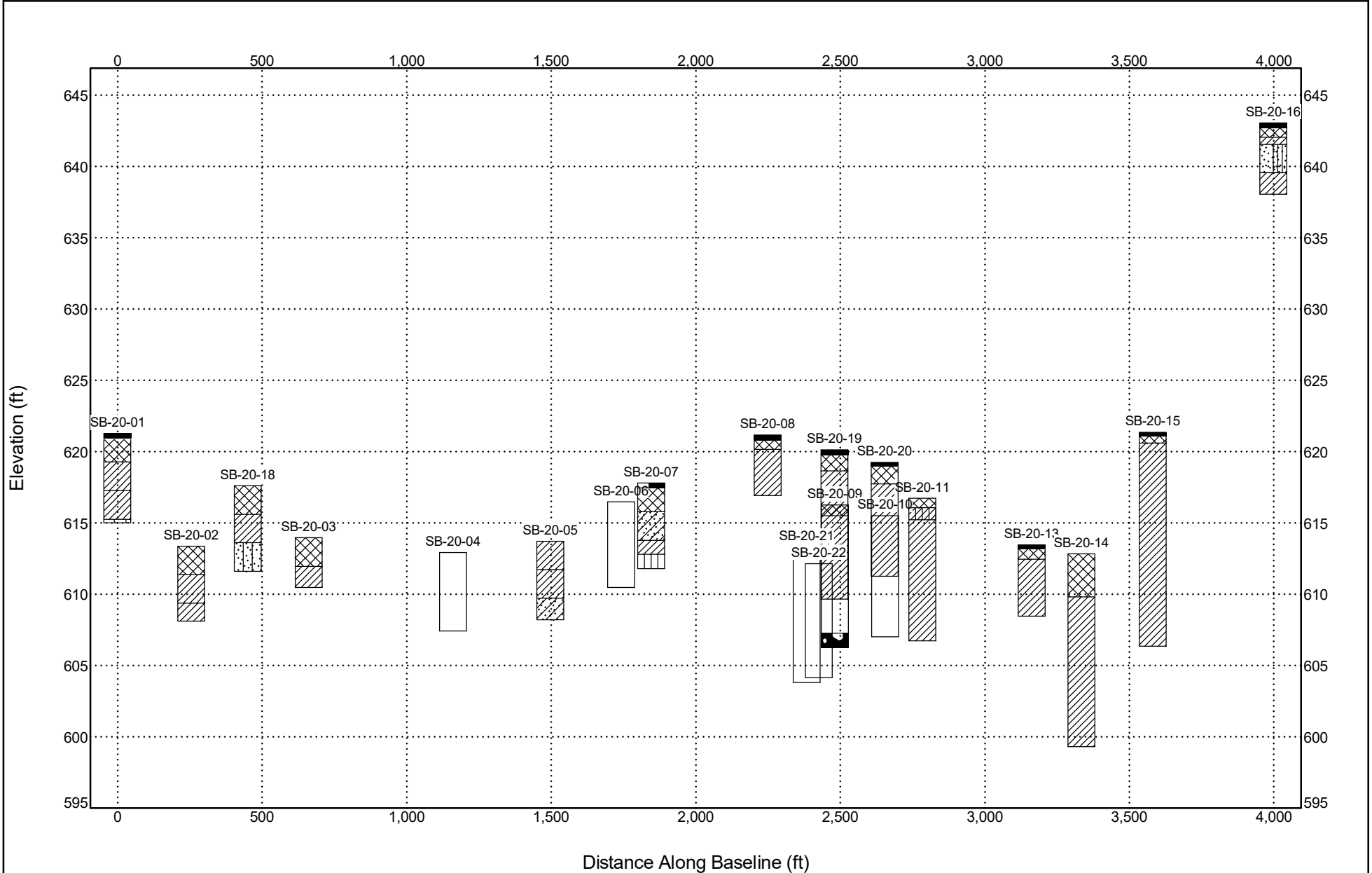
DRAWING NO.

CLIENT City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT NUMBER 20G1433

PROJECT LOCATION Duluth, MN



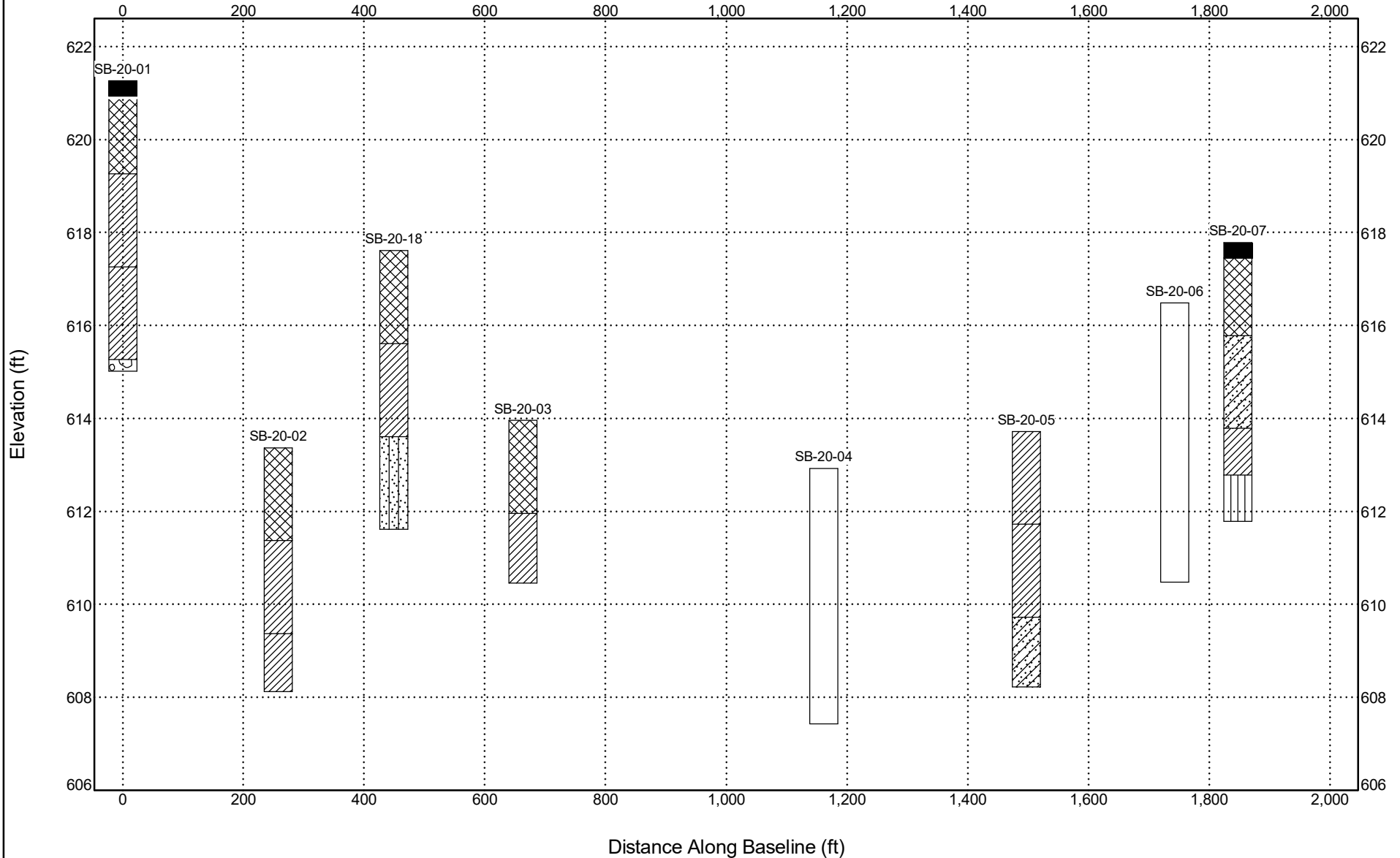
CLIENT City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT NUMBER 20G1433

PROJECT LOCATION Duluth, MN

STRATIGRAPHY & GW - A SIZE CITY OF DULUTH BRIGHTON BEACH.GPJ GINT US LAB.GDT 2/10/20

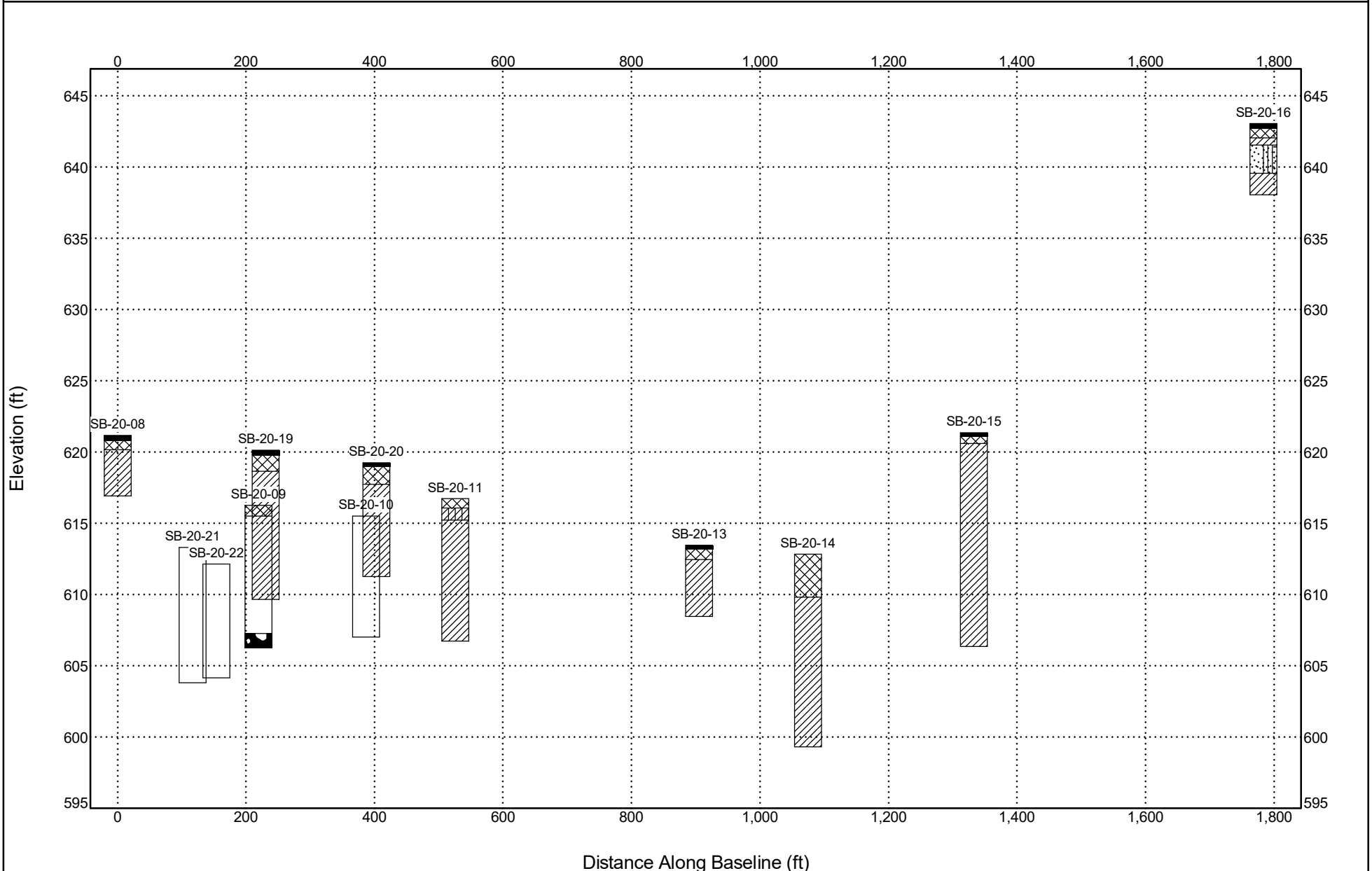


CLIENT City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT NUMBER 20G1433

PROJECT LOCATION Duluth, MN



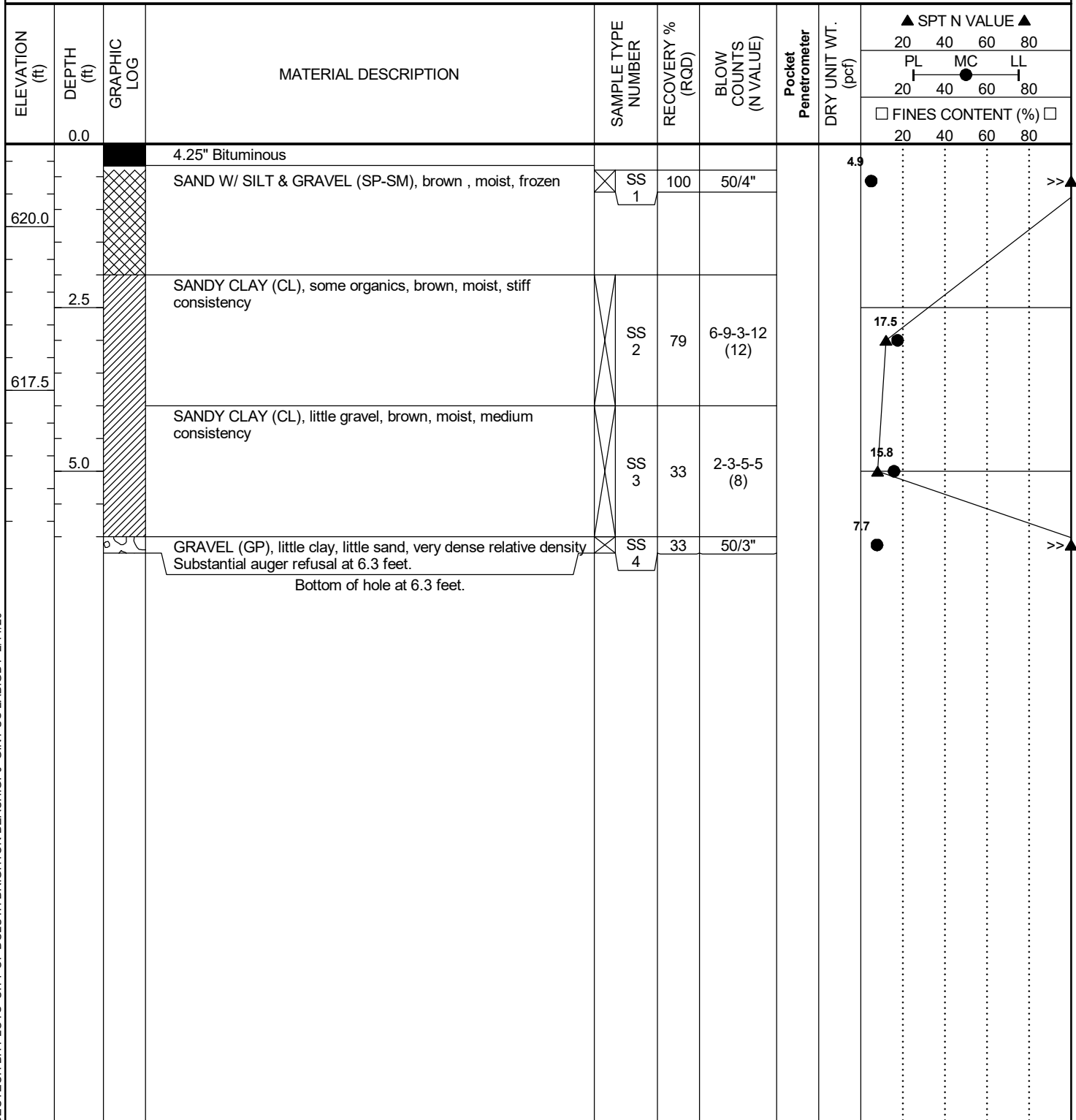
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Duluth, Minnesota 55802

BORING NUMBER SB-20-01

PAGE 1 OF 1

CLIENT <u>City of Duluth</u> PROJECT NUMBER <u>20G1433</u> DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u> DRILLING CONTRACTOR <u>EPC Engineering & Testing</u> DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u> LOGGED BY <u>RH</u> CHECKED BY <u>LT</u> NOTES _____	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u> PROJECT LOCATION <u>Duluth, MN</u> GROUND ELEVATION <u>621.264 ft</u> HOLE SIZE <u>7.25"</u> GROUND WATER LEVELS: AT TIME OF DRILLING <u>None</u> AT END OF DRILLING <u>None</u> AFTER DRILLING <u>None</u>
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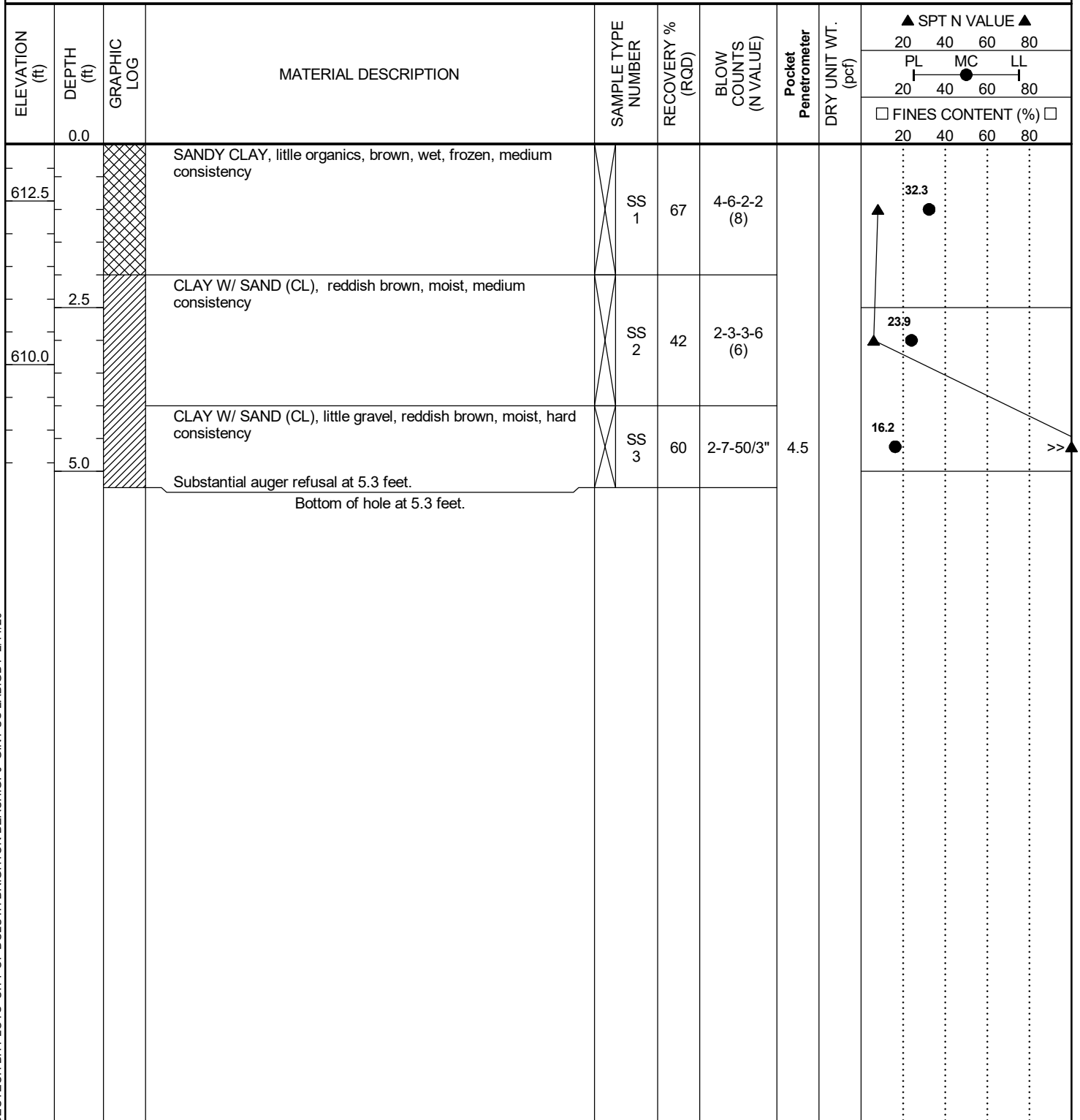
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Duluth, Minnesota 55802

BORING NUMBER SB-20-02

PAGE 1 OF 1

CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u>	GROUND ELEVATION <u>613.371 ft</u> HOLE SIZE <u>7.25"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES	AFTER DRILLING <u>None</u>



CLIENT <u>City of Duluth</u> PROJECT NUMBER <u>20G1433</u> DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u> DRILLING CONTRACTOR <u>EPC Engineering & Testing</u> DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u> LOGGED BY <u>RH</u> CHECKED BY <u>LT</u> NOTES _____	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u> PROJECT LOCATION <u>Duluth, MN</u> GROUND ELEVATION <u>613.957 ft</u> HOLE SIZE <u>7.25"</u> GROUND WATER LEVELS: AT TIME OF DRILLING <u>None</u> AT END OF DRILLING <u>None</u> AFTER DRILLING <u>None</u>
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ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
	0.0								20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
			TOPSOIL, some organics, dark brown, wet, frozen	SS 1	38	7-1-2-1 (3)						104.9
612.5												
	2.5		CLAYEY SAND (CL), reddish brown, moist, loose relative density	SS 2	67	2-2						21.7
			Substantial auger refusal at 3.5 feet. Bottom of hole at 3.5 feet.									

EPC Engineering & Testing
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539 Garfield Avenue
Duluth, Minnesota 55802

BORING NUMBER SB-20-05

PAGE 1 OF 1

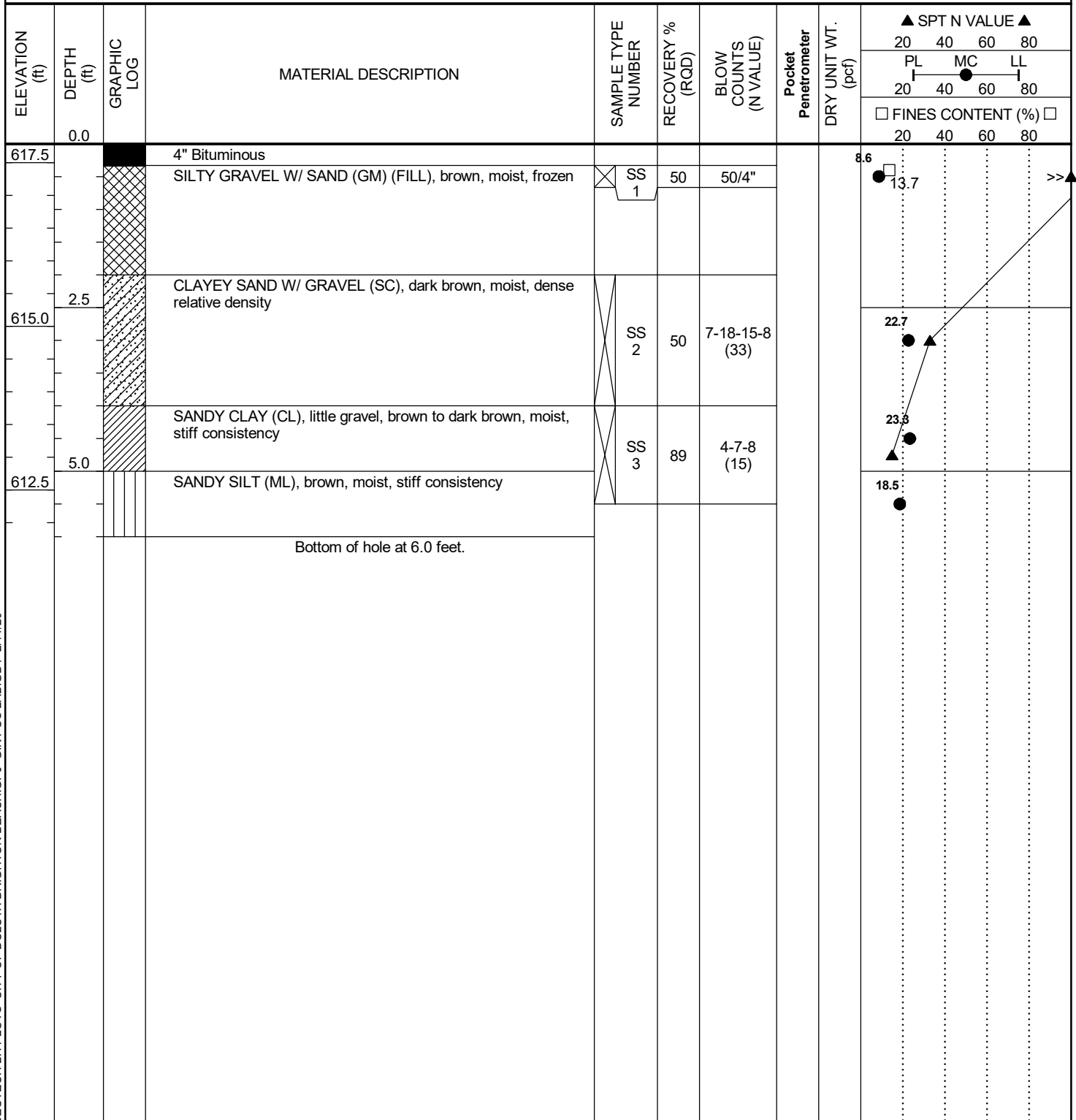
CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u>	GROUND ELEVATION <u>613.723 ft</u> HOLE SIZE <u>7.25"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
									20	40	60	80
									☐ FINES CONTENT (%) ☐			
									20	40	60	80
612.5	0.0		SANDY CLAY (CL), some gravel, some organics, brown, moist, stiff consistency	SS 1	92	4-5-4-2 (9)			19.7			
2.5	610.0		GRAVELY CLAY to CLAYEY GRAVEL (CL to GC), with sand, brown, wet, very stiff consistency to dense relative density	SS 2	17	4-9-10-20 (19)			20.9			
5.0			CLAYEY SAND W/ GRAVEL (SC), brown, wet, very dense relative density	SS 3	39	4-48-50 (98)			9.9			
			Bottom of hole at 5.5 feet.									

CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u>	GROUND ELEVATION <u>616.481 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
	0.0								20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
			Overburden									
615.0												
	2.5											
				AU								
612.5												
	5.0		Cobbles while drilling at 5.0 feet.									
			Substantial Auger Refual at 6.0 feet.									
			Bottom of hole at 6.0 feet.									



CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u>	GROUND ELEVATION <u>617.785 ft</u> HOLE SIZE <u>7.25"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</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
DRILLING CONTRACTOR	EPC Engineering & Testing	GROUND ELEVATION	621.155 ft
DRILLING METHOD	CME 850 Track with Flyte Auger	HOLE SIZE	4"
LOGGED BY	RH	CHECKED BY	LT
NOTES		GROUND WATER LEVELS:	
		AT TIME OF DRILLING	None
		AT END OF DRILLING	None
		AFTER DRILLING	None

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	<div style="text-align: center;">▲ SPT N VALUE ▲</div> <div style="text-align: center;">20 40 60 80</div> <div style="text-align: center;">PL MC LL</div> <div style="text-align: center;">20 40 60 80</div> <div style="text-align: center;">□ FINES CONTENT (%) □</div> <div style="text-align: center;">20 40 60 80</div>
	0.0								
			4" Bituminous						
			8" Silty Sand w/ Gravel						
620.0			Clay						
	2.5			AU					
617.5			Substantial auger refusal at 4.25 feet.						
			Bottom of hole at 4.3 feet.						

CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>616.253 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
									20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
	0.0		9" Silty sand w/ gravel									
615.0			Overburden									
	2.5											
612.5												
	5.0											
610.0												
	7.5											
607.5												
	10.0		Weathered rock									
			Substantial auger refusal at 10.0 feet. Bottom of hole at 10.0 feet.									

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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>615.51 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
	0.0								20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
615.0			Overburden									
	2.5											
612.5												
	5.0											
610.0			Boulders at 5.5 feet and 7.5 feet									
	7.5											
607.5												
			Substantial auger refusal at 8.5 feet. Bottom of hole at 8.5 feet.									

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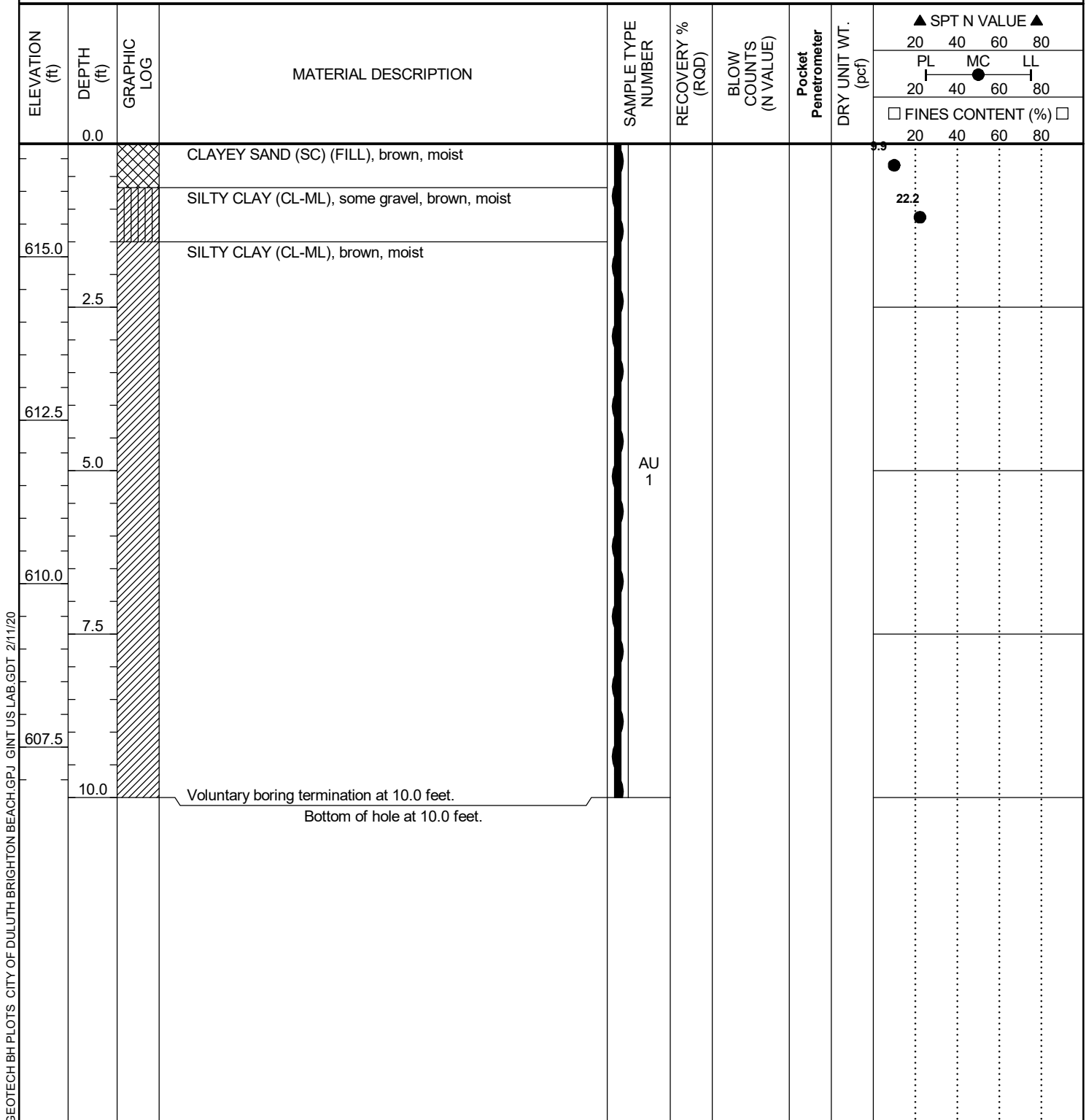
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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>616.728 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES	AFTER DRILLING <u>None</u>



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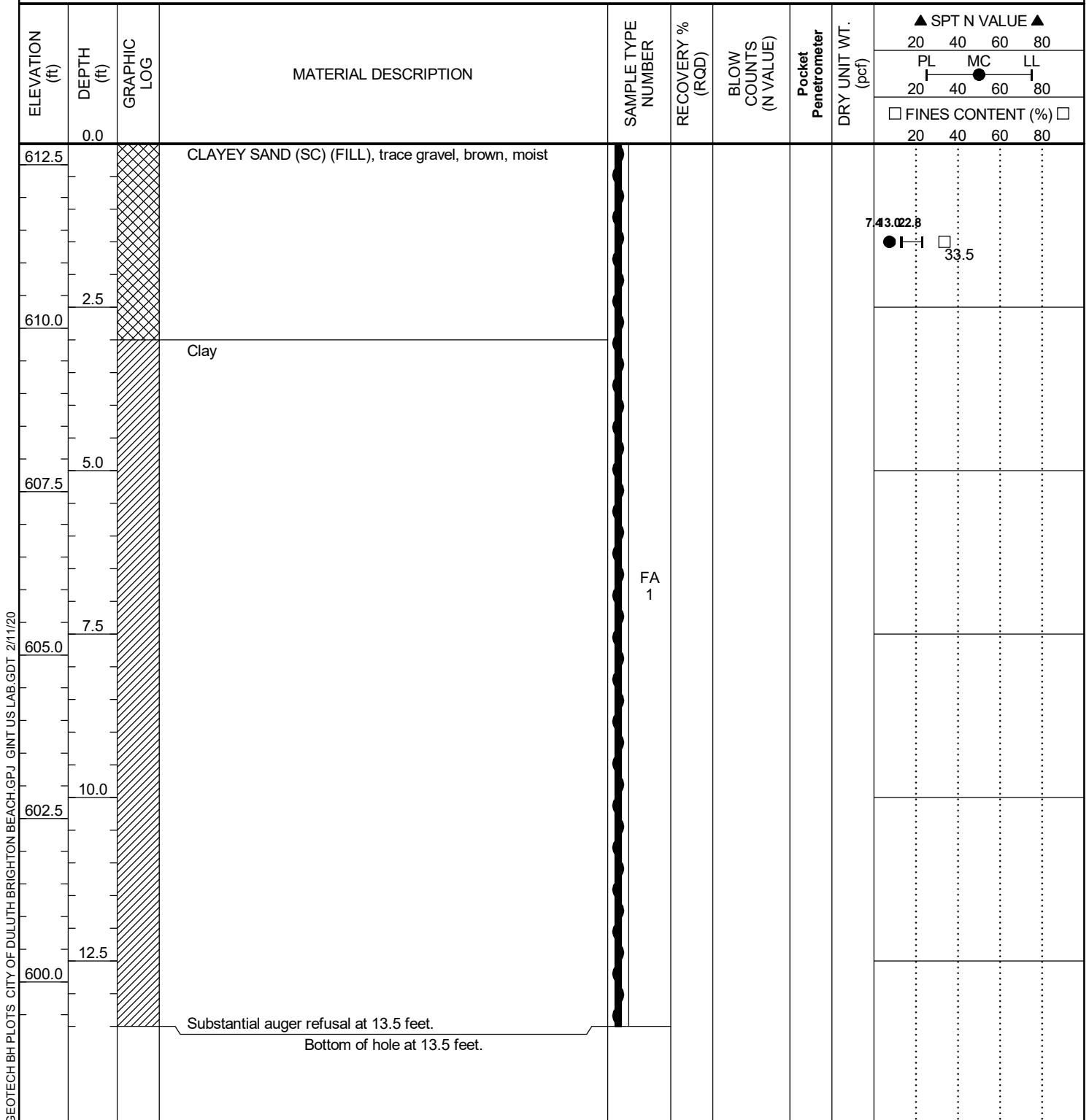
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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>613.464 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
									20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
	0.0											
			3" Bituminous									
			Silty sand w/ gravel									
612.5			Clay									
	2.5											
				AU								
610.0												
	5.0		Voluntary boring termination at 5.0 feet.									
			Bottom of hole at 5.0 feet.									

CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>612.819 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES	AFTER DRILLING <u>None</u>



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PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT LOCATION Duluth, MN

GROUND ELEVATION 621.347 ft **HOLE SIZE** 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING None

AT END OF DRILLING None

AFTER DRILLING None

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Bottom of hole at 14.9 feet.

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT LOCATION Duluth, MN

GROUND ELEVATION 643.045 ft **HOLE SIZE** 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING None

AT END OF DRILLING None

AFTER DRILLING None

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

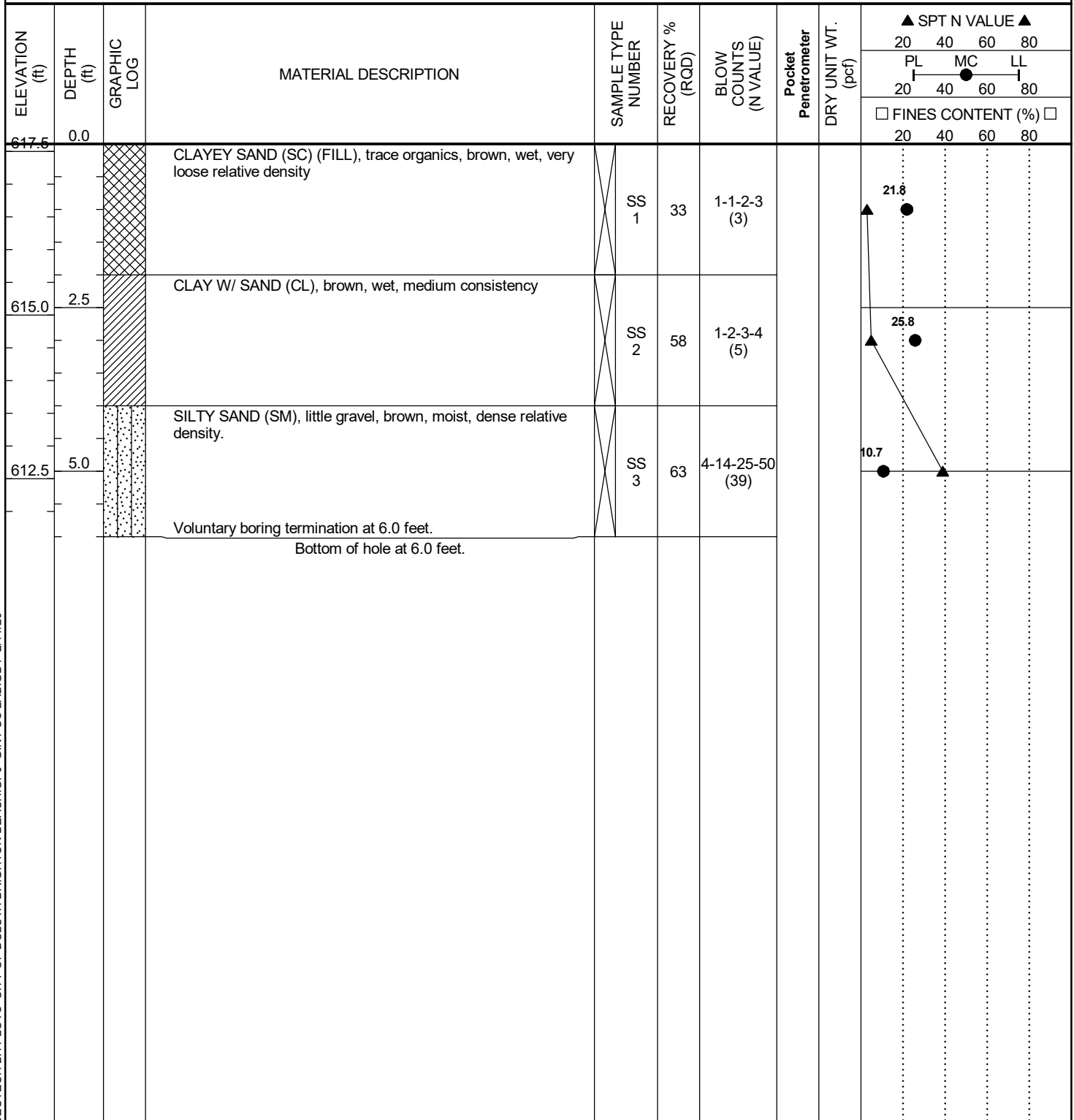
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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/22/20</u> COMPLETED <u>1/22/20</u>	GROUND ELEVATION <u>617.611 ft</u> HOLE SIZE <u>7.25"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with HSA and SPT Cal. to N68</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>



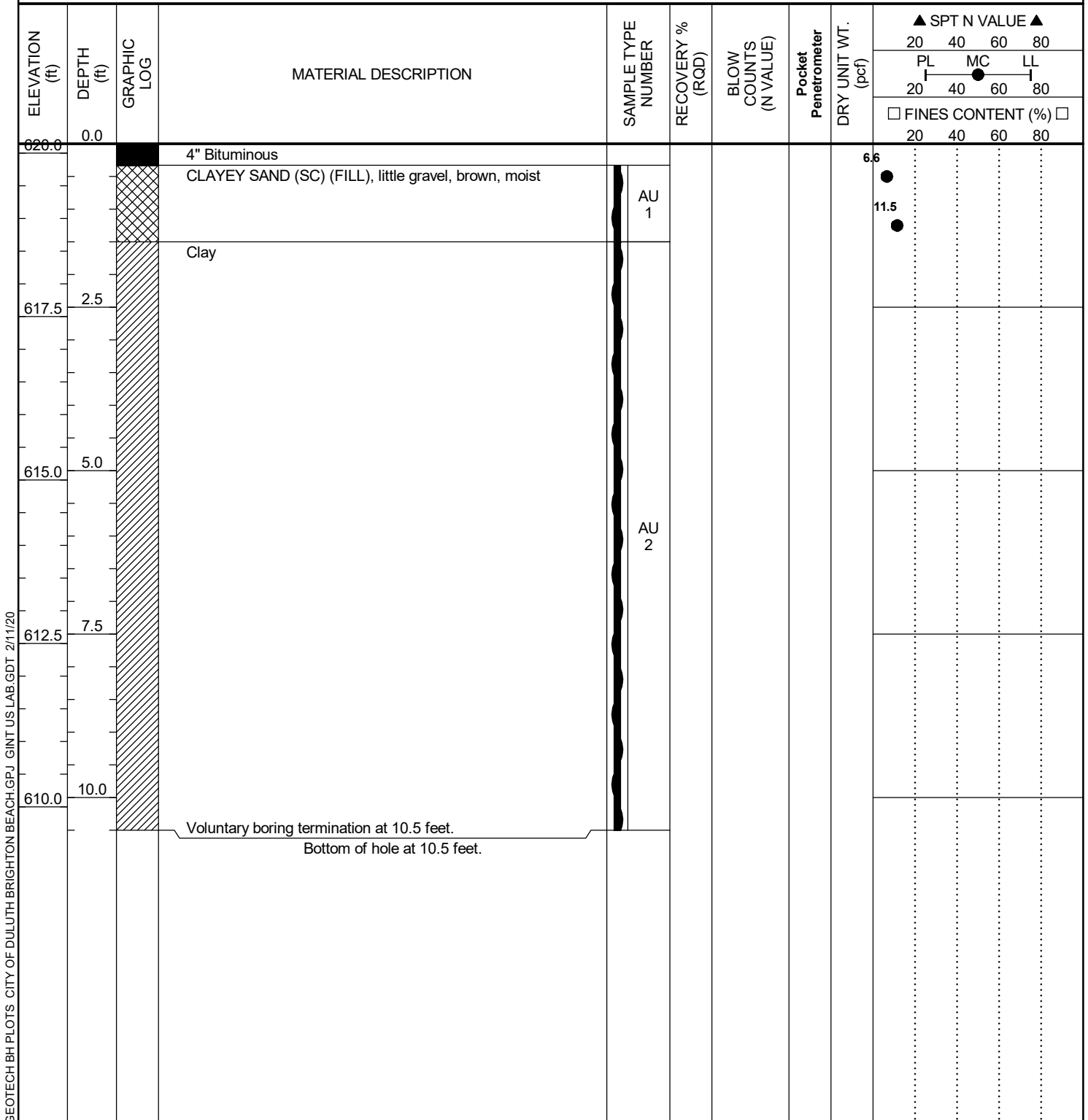
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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>620.141 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES	AFTER DRILLING <u>None</u>



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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>619.245 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES _____	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
									20	40	60	80
☐ FINES CONTENT (%) ☐												
20	40	60	80									

	0.0		3" Bituminous						
			CLAYEY SAND (SC) (FILL), little gravel, brown, moist	FA 1,2				8.7	
617.5			CLAY (CL), trace sand, brown, moist					10.1	
	2.5			FA 3				25.7	
615.0									
	5.0			FA					
612.5									
	7.5								
			Substantial auger refusal at 8.0 feet.						
			Bottom of hole at 8.0 feet.						

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CLIENT <u>City of Duluth</u>	PROJECT NAME <u>Lakewalk Trail Extension - Brighton Beach</u>
PROJECT NUMBER <u>20G1433</u>	PROJECT LOCATION <u>Duluth, MN</u>
DATE STARTED <u>1/23/20</u> COMPLETED <u>1/23/20</u>	GROUND ELEVATION <u>613.313 ft</u> HOLE SIZE <u>4"</u>
DRILLING CONTRACTOR <u>EPC Engineering & Testing</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CME 850 Track with Flyte Auger</u>	AT TIME OF DRILLING <u>None</u>
LOGGED BY <u>RH</u> CHECKED BY <u>LT</u>	AT END OF DRILLING <u>None</u>
NOTES <u>South of Bluestone Bunker</u>	AFTER DRILLING <u>None</u>

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	Pocket Penetrometer	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲			
									20	40	60	80
									PL	MC	LL	
	0.0								20	40	60	80
									□ FINES CONTENT (%) □			
									20	40	60	80
			Overburden									
612.5												
			Cobbles at 1.5 feet.									
	2.5											
610.0												
	5.0											
607.5												
	7.5											
605.0												
			Substantial auger refusal at 9.5 feet.									
			Bottom of hole at 9.5 feet.									

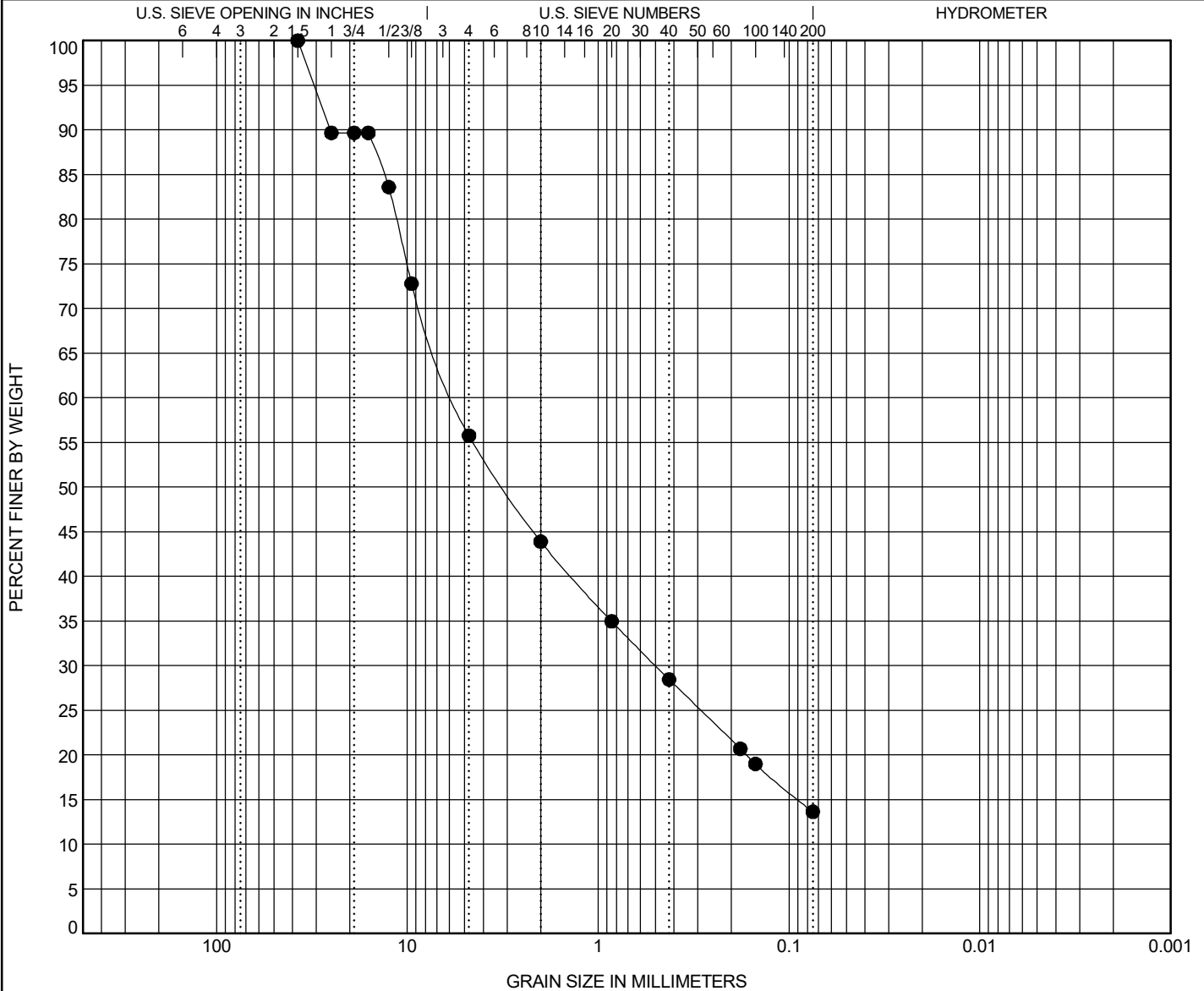
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CLIENT City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT NUMBER 20G1433

PROJECT LOCATION Duluth, MN



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

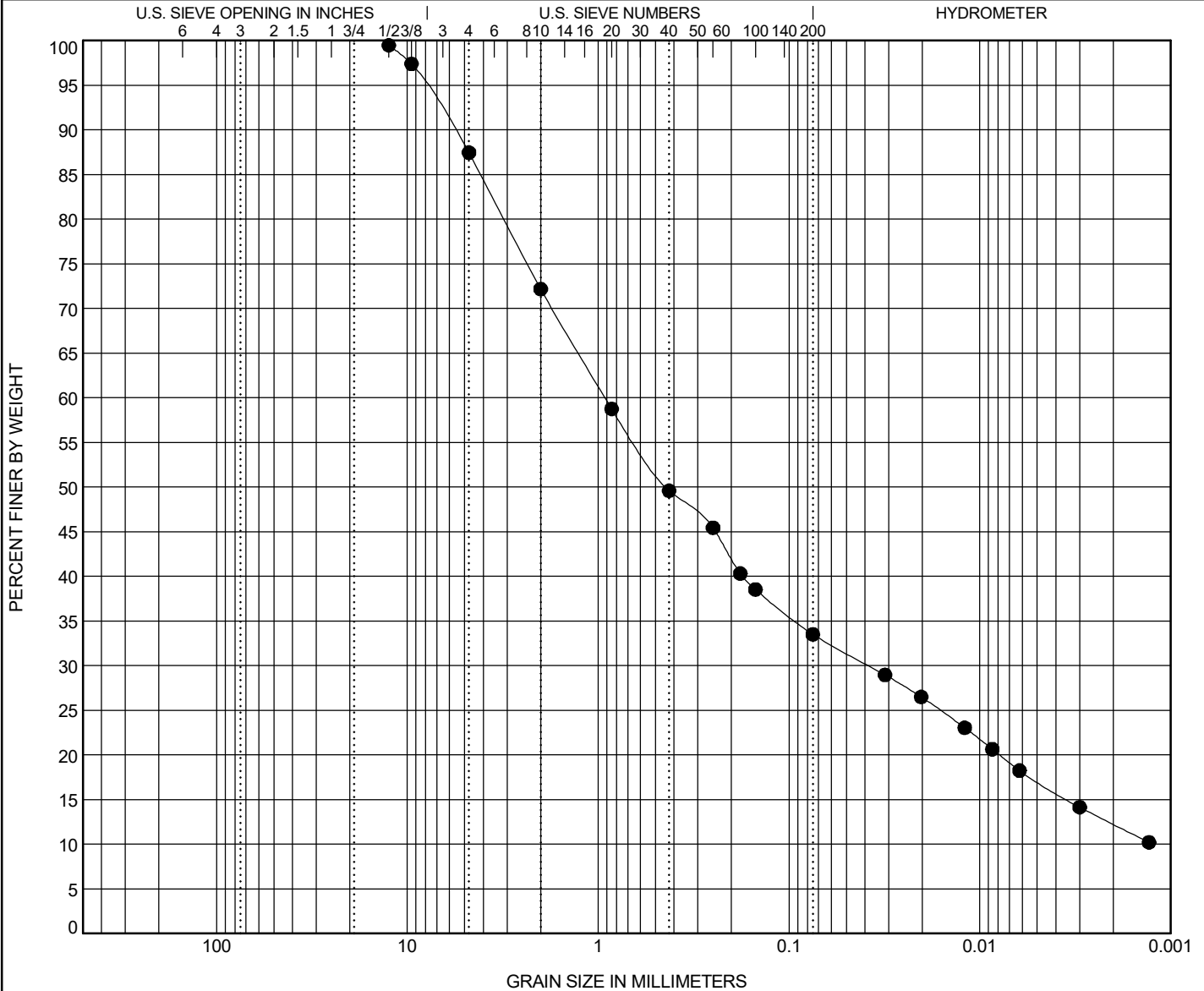
Specimen Identification		Classification					LL	PL	PI	Cc	Cu
●	SB-20-07	SILTY and/or CLAYEY GRAVEL WITH SAND (GM/GC)									
		D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
		37.5	5.644	0.501		44.2	42.1	13.7			
SIEVE	% PASS	SPEC		SIEVE	% PASS	SPEC		NOTES			
3"				#10	44			SB-20-07 Sample 1.			
2"				#16							
1.5"	100			#20	35						
1"	90			#30							
3/4"	90			#40	28						
5/8"	90			#50							
1/2"	84			#60							
3/8"	73			#80	21						
#4	56			#100	19						
#8				#200	13.7						

CLIENT City of Duluth

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT NUMBER 20G1433

PROJECT LOCATION Duluth, MN



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification						LL	PL	PI	Cc	Cu
●	SB-20-14	CLAYEY SAND(SC)						23	13	10		
		D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay		
		12.5	0.919	0.038		12.0	54.0	16.5		17.0		
SIEVE	% PASS	SPEC		SIEVE	% PASS	SPEC		NOTES				
3"				#10	72			SB-20-14 Sample 1.				
2"				#16								
1.5"				#20	59							
1"				#30								
3/4"				#40	50							
5/8"				#50								
1/2"	99			#60	45							
3/8"	97			#80	40							
#4	87			#100	39							
#8				#200	33.5							

PROJECT NAME Lakewalk Trail Extension - Brighton Beach

PROJECT LOCATION Duluth, MN

