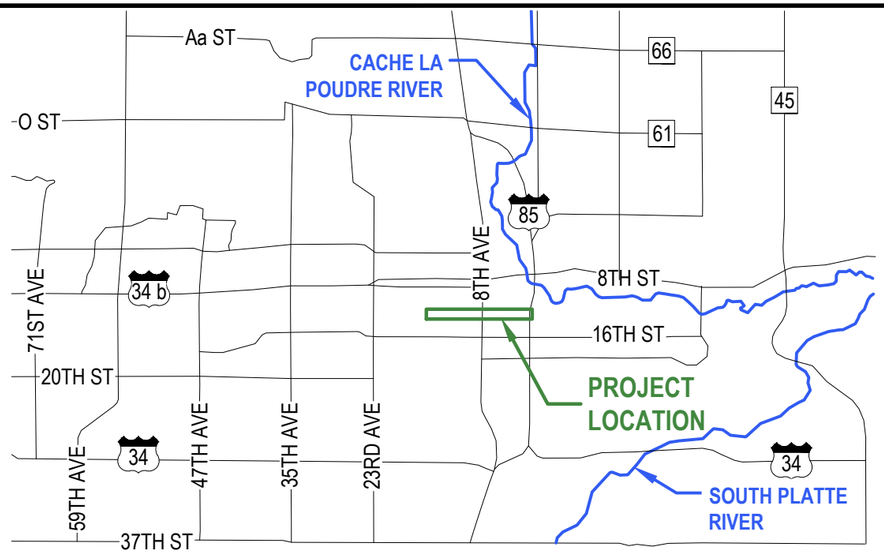
Addendum #1

Capital Project Committee

Project Information	
Project Name:	12th Street Storm Outfall: Phase 2-4 - 2nd Avenue to 8th Avenue Design
RFP Number:	F22-10-090
Date:	November 21, 2022
Project Manager:	Andrew T. Fisher

Addendum Items	
Item 1:	**Q1: Was any cobble discovered during the Geotechnical Investigation in borings near the railroad?** *A1: Select boring logs from the 2019 Lithos Engineering Geotechnical Data Report have been included with this addendum. Boring logs provided are along the alignment within the scope of this project. The largest particle size logged was 1.25" in the boring just west of the railroad.*
Item 2:	**Q2: Does the Proposal Acknowledgement Form count against the allowed page total?** *A2: Proposal Acknowledgement form is exempt from the page allowance.*
Item 3:	**Q3: In section E.II. Approach to Scope, Item 5, you ask for a list of the number of employees that can commit to working on the project and the amount of time each is expected to spend on the project. Is it your intention for us to report on each employee's percentage of available time? Are you asking for a detailed breakdown of time that each employee is going to spend? Do you just want a total number of employees and totals hours?** *A3: Please do not tabulate total hours. Please provide the percent level of commitment and availability of assigned staff, not a task-informed estimate of hours. This is a qualification based selection - the City is seeking to validate the qualifications of the personnel assigned to perform work on the project in conjunction with their level of anticipated utilization.*
Item 4:	**Q4: Similarly in section E.I.5 you request the amount of time for each subcontractor. Would you like this reported as a total number of hours or a percentage of the total work?** *A4: Please do not tabulate total hours. Please provide the percent level of commitment and availability of assigned subcontractor, not a task-informed estimate of hours. This is a qualification based selection - the City is seeking to validate the qualifications of subcontractors assigned to perform work on the project in conjunction with their level of anticipated utilization.*
Item 5:	**Q5: Section D.5 requests hourly rates throughout the project. Since the project could last for up to 4 years, can we provide standard rates for year 1 of the contract and a percent escalation for subsequent years, or would you prefer one standard rate to apply for the entire duration?** *A5: Please provide 2023 billing rates only and anticipated annual escalation. This will be negotiated with the successful consultant.*
Item 6:	**Q6: Would you like us to include the sample Certificate of Insurance provided in Exhibit 3 -OR- would you like us to include our Matrix sample Certificate of Insurance?** *A6: No Certificate of Insurance is needed in the proposal submission.*
Item 7:	Notice: The Inquiry Deadline was on November 18, 2022. This is anticipated to be the final addendum.
Item 8:	Reminder: Proposals are due via email to purchasing@greeleygov.com by 3:00 PM MST on Wednesday, November 30, 2022.
Item 9:	Reminder: Interviews are tentatively scheduled on December 21-22, 2022. The City anticipates notifying consultants by December 15 if interviews are to be scheduled.



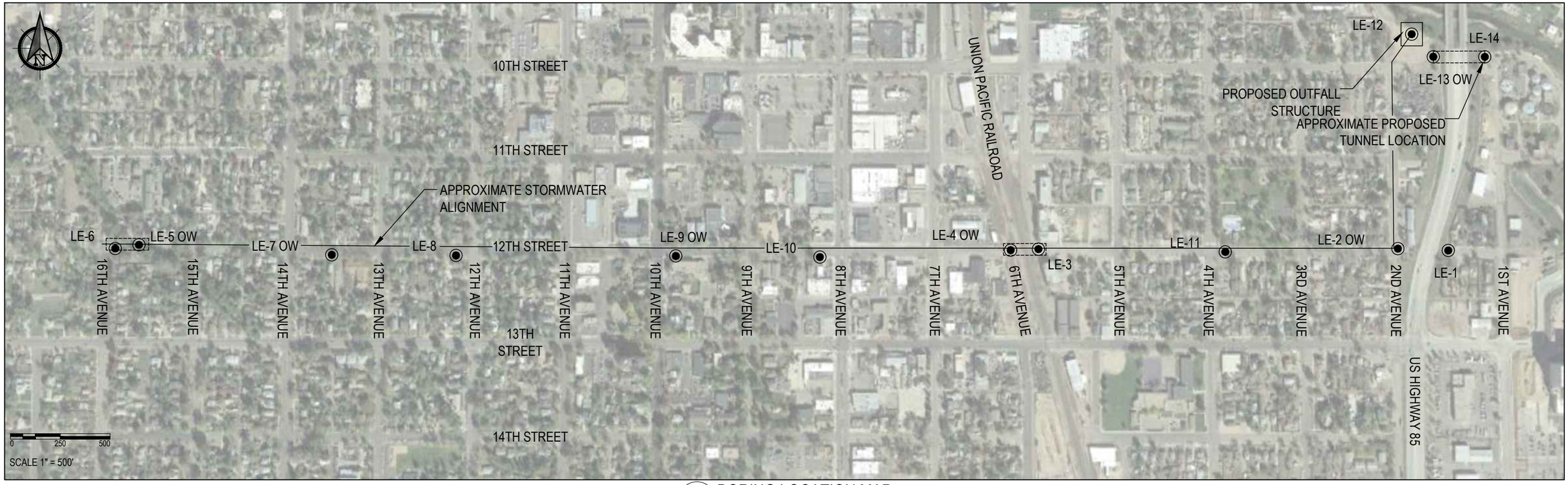
SITE VICINITY MAP

LEGEND:

LE-X — APPROXIMATE BORING LOCATION

APPROXIMATE PROPOSED TUNNEL LOCATION

APPROXIMATE STORM SEWER ALIGNMENT



BORING LOCATION MAP

LITHOS ENGINEERING
2625 REDWING ROAD, SUITE 160
FORT COLLINS, COLORADO 80526
970.373.3195

PROJECT TITLE	12TH STREET OUTFALL
DRAWING TITLE	SITE VICINITY MAP

OWNER: City of Greeley | CLIENT: HDR | FIGURE NUMBER: 1

PROJECT NO.:	18026	DRAWN BY:	DF
LOCATION:	GREELEY, CO	DESIGNED BY:	LH
DATE:	01/17/19	CHECKED BY:	RD

=22-10-090 11/21/2022

APPENDIX – A

Boring Logs

BORING LOG KEY

STANDARD GEOTECHNICAL DRILLING

Soil Classifications:

Clear Square Sieve Openings				U.S. Standard Series Sieve Sizes			
12"	3"	3/4"	4	10	40	200	
Boulders	Cobbles	Gravel		Sand			Silts and Clays
		Coarse	Fine	Coarse	Medium	Fine	
300mm	75mm	19mm	4.75mm	2.0mm	0.42mm	0.075mm	

Gradation Estimates by Field Observation	
Description	**Quantity (%)**
Trace	<5
Few	5 to 10
Little	15 to 25
Some	30 to 45
Mostly	> 50

Relative Density or Consistency of Non-cohesive and Cohesive Soils			
Non-cohesive Soils		**Cohesive Soils**	
Classification	**Blows per 12 in**	**Classification**	**Blows per 12 in**
Very Loose	0 to 4	Very Soft	0 to 2
Loose	4 to 10	Soft	2 to 4
Medium Dense	10 to 30	Stiff	8 to 16
Dense	30 to 50	Very Stiff	16 to 32
Very Dense	>50	Hard	>32

Color: Sample colors are in general accordance with basic brown, red, yellow, and gray combinations

Description of Moisture	
Description	**Criteria**
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil below the groundwater table

Plasticity	
Description	**Criteria**
Nonplastic	A $\frac{1}{8}$" diameter thread cannot be rolled
Low	A $\frac{1}{8}$" in diameter thread can be rolled with difficulty; a lump cannot be formed at a moisture lower than the plastic limit
Medium	A $\frac{1}{8}$" in diameter thread can be rolled easily; a crumbly lump can be formed at a moisture lower than the plastic limit
High	A $\frac{1}{8}$" in diameter thread can be rolled very easily; a lump can be formed at a moisture lower than the plastic limit

Description of Odor	
Description	**Criteria**
No Organic Odor	Organic odor is not present
Trace Organic Odor	Mild organic odor; mixture of soil and organics
Strong Organic Odor	Prominent organic odor; sample is primarily organic

Cementation	
Description	Criteria
Weak	Crumbles with light finger pressure
Moderate	Crumbles with considerable finger pressure
Strong	Will not crumble with finger pressure

Rock Descriptions:

Weathering	
Description	**Criteria**
Fresh	No visible sign of rock material weathering: perhaps slight discoloration on major discontinuity surfaces.
Slightly Weathered	Discoloration of rock material on discontinuity surfaces.
Moderately Weathered	Less than half of the rock material is decomposed and/or disintegrated to soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly Weathered	More than half of the rock material is decompsed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones
Completely Weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.

Texture	
Description	**Criteria**
Very Fine Grained	Grains not individually visible to the unaided eye
Fine Grained	Grains barely visible to the unaided eye, up to $\frac{1}{16}$" diameter
Medium Grained	Grain diameter between $\frac{1}{16}$" and $\frac{3}{16}$"
Coarse Grained	Grains diameter between $\frac{3}{16}$" and $\frac{1}{4}$"
Very Coarse Grained	Grains larger than $\frac{1}{4}$" in diameter

Field Hardness	
Description	**Criteria**
Very Hard	Cannot be scratched with a knife or sharp pick.
Hard	Can be scratched with a knife or pick only with difficulty
Medium	Can be gouged $\frac{1}{16}$" deep by firm pressure on knife or pick point
Soft	Can be grooved or gouged readily with knife or pick point
Very Soft	Can be carved with knife and scratched readily by fingernail

Geologic Interpretation:

A ***Geologic Interpretation*** of encountered soil and bedrock units is provided for each specific ***Visual Material Description***. Examples of geologic interpretations for soil that may be presented include: FILL, ALLUVIUM, AEOLIAN, AND GLACIAL TILL, AND RESIDUUM. Rock geologic interpretations are referenced based on a combination of field classifications and applicable geologic maps.

Sample Graphics and Descriptions:

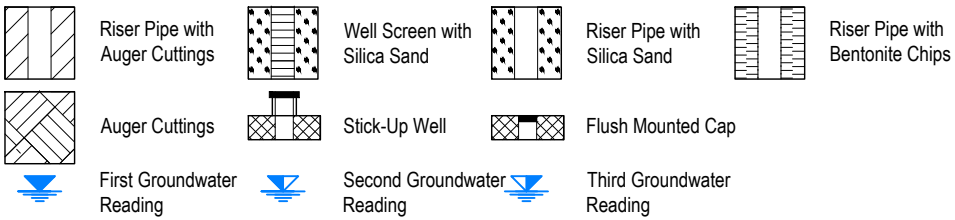
California Barrel Sampler: Barrel sampler loaded with sample liners and driven to collect a relatively representative and intact specimen of soil or weak rock.

Split-Spoon Sampler: Split-barrel sampler driven in accordance with ASTM D1586 used to provide visual material descriptions and collect a disturbed specimen.

Shelby Tube Sampler: Thin wall tube hydraulically pushed into the subsurface to collect a representative and intact specimen of soil.

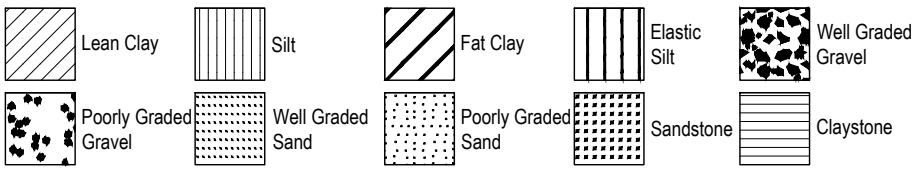
Bulk Sample: Bulk or bagged sample taken from auger cuttings.

Groundwater Monitoring Well Graphics:



Boring Graphics:

Below are the primary boring log graphics. Any classification combinations will result in a combination of graphics.



LITHOS ENGINEERING

F22-10-090 11/21/2022

BORING: LE-2 OW

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 07/26/18

Drilling and Sampling Methods

Drill Make and Model: CME 75
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in / 2.0 in

LITHOS ENGINEERING

Boring Location: West of Highway 85
Boring Elevation: 4651.29-feet
Notes: Boring elevation data taken from survey data collected

Visual Material Description

Soil:
-GEOLOGIC INTERPRETATION-
USCS Classification (group symbol), particle sizes, density or consistency, color, moisture, odor, other descriptions

Rock:
-GEOLOGIC INTERPRETATION-
Bedrock Classification, hardness, weather, color, texture, joint size, other descriptions

Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Visual Material Description	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
0	4650				**PAVEMENT SECTION** Asphalt - 4 inches; Base Course - 3 inches											
					0.6 ft. **COARSE ALLUVIUM**											
			2 2 2	5	Poorly Graded Sand (SP), mostly medium sand, trace coarse sand, trace coarse gravel, maximum particle size 1 inch, very loose, light brown, moist											
6	4644															
			3 5 3	6	Silty Sand (SM), mostly fine sand, little silt, few coarse sand, loose, brown, moist						23					
12			6 12 17	14	Poorly Graded Sand with Silt and Gravel (SP-SM), mostly fine to medium sand, little fine to coarse gravel, few silt, maximum particle size 0.75 inches, medium dense, brown, moist											
	4638		18 19 19	12	As above except dense				28	65	8					
			19 37	12	As above except very dense	7	112		19	75	7					
18																
	4632		17 24 26	12	As above											
24			11 14	12	Well Graded Sand (SW), mostly fine to coarse sand, medium dense, brown, wet											
	4626															
			14 12 24	10	As above except dense, fractured gravel											
30					30.5 ft. **END OF EXPLORATION**											
	4620															
36																

Groundwater Depth / Monitoring Well Configuration: 22.8 ft; 23.7 ft

General Notes:
1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
07/26/18	15 min	23.7-feet
07/26/18	1.5 hours	22.8-feet

BORING: LE-3

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 07/26/18

Drilling and Sampling Methods

Drill Make and Model: CME 75
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in / 2.0 in

LITHOS ENGINEERING

Boring Location: East of Railroad
Boring Elevation: 4654.85-feet
Notes: Boring elevation data taken from survey data collected

Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Geologic Graphic	Visual Material Description	Groundwater Depth / Monitoring Well Configuration	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
0						**PAVEMENT SECTION** Asphalt - 2 inches Base Course - 5 inches 0.6 ft.												
						COARSE ALLUVIUM												
	4650		3 3 6	10		Well Graded Sand (SW), mostly fine to coarse sand, few fine gravel, maximum particle size 0.75 inches, loose, brown, moist												
6			13 14 13	10		Poorly Graded Sand (SP), mostly medium sand, few coarse sand, trace fine gravel, maximum particle size 0.5 inches, medium dense, brown, moist												
			8 12 13	10		As above except few to little coarse sand												
	4644																	
12			20 30 35	14		Poorly Graded Sand with Silt and Gravel (SP-SM), mostly medium sand, some fine gravel, few silt, maximum particle size 0.5 inches, very dense, brown, moist, fractured		2			38	56	6					
			11 13 17	14		As above except trace to few coarse sand, medium dense, rounded		3					5					
	4638		12 15 18	13		Poorly Graded Sand with Silt (SP-SM), mostly medium sand, few fine gravel, few silt, maximum particle size 0.5 inches, dense, brown, moist	(17.8 ft.)				9	86	5					
18			11 17	12		Well Graded Sand (SW), mostly fine to coarse sand, trace fine gravel, maximum particle size 0.5 inches, medium dense, brown, wet		16	115									
	4632																	
24			15 26	12		As above except dense												
	4626																	
30			12 17 27	14		As above except few fine to coarse gravel, maximum particle size 1 inch												
	4620		8 15 21	16		As above except trace fine to coarse gravel												
36																		

General Notes:
1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
07/26/18	15 min	17.8-feet

BORING: LE-3

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 07/26/18

Drilling and Sampling Methods

Drill Make and Model: CME 75
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in / 2.0 in

LITHOS ENGINEERING

Boring Location: East of Railroad
Boring Elevation: 4654.85-feet
Notes: Boring elevation data taken from survey data collected

Sampling Data						Visual Material Description		Laboratory Testing Results												
								In-Situ States			Index Data						Strength & Compressibility			
Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Geologic Graphic	**Soil:** **-GEOLOGIC INTERPRETATION-** USCS Classification (group symbol), particle sizes, density or consistency, color, moisture, odor, other descriptions **Rock:** **-GEOLOGIC INTERPRETATION-** Bedrock Classification, hardness, weather, color, texture, joint size, other descriptions	Groundwater Depth / Monitoring Well Configuration	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
42	4614		15 16 18	16		As above except few coarse gravel, maximum particle size 1.25 inches, fractured 40.5 ft. **END OF EXPLORATION**														
48	4608																			
54	4602																			
60	4596																			
66	4590																			
72	4584																			

General Notes:

1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
07/26/18	15 min	17.8-feet

BORING: LE-4 OW

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 07/27/18

Drilling and Sampling Methods

Drill Make and Model: CME 75
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in / 2.0 in

LITHOS ENGINEERING

Boring Location: West of Railroad
Boring Elevation: 4655.02-feet
Notes: Soil heaved during well installation.
Boring elevation data taken from survey data

Visual Material Description

Soil:
-GEOLOGIC INTERPRETATION-
USCS Classification (group symbol), particle sizes, density or consistency, color, moisture, odor, other descriptions

Rock:
-GEOLOGIC INTERPRETATION-
Bedrock Classification, hardness, weather, color, texture, joint size, other descriptions

Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Visual Material Description	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
0					**PAVEMENT SECTION** Asphalt - 6 inches Base Course - 3 inches 0.8 ft.											
					COARSE ALLUVIUM											
	4650		8 12 12	12	Poorly Graded Sand (SP), mostly medium sand, few fine gravel, maximum particle size 0.75 inches, medium dense, tan, moist											
6			6 7 9	12	As above											
			10 15 21	12	Poorly Graded Sand with Silt and Gravel (SP-SM), mostly medium sand, some fine gravel, maximum particle size 0.75 inches, dense, tan, moist	2			41	53	6					
	4644															
12			18 25 31	11	As above except few coarse gravel, maximum particle size 1.25 inches, very dense, fractured											
			15 20 18	14	As above except little fine gravel, dense, rounded				22	72	6					
	4638		13 16	8	Well Graded Sand (SW), mostly fine to coarse sand, few fine gravel, maximum particle size 0.75 inches, medium dense, brown, moist to wet	4										
18					▼ 18.6 ft.											
			7 21	12	Silty Sand (SM), mostly fine sand, some silt, medium dense, brown, wet											
	4632															
24			10 15 15	0	No recovery with sand catcher											
	4626		8 9 6	3	Poorly Graded Sand (SP), mostly medium sand, medium dense, light brown, wet											
30					30.5 ft.											
					END OF EXPLORATION											
	4620															
36																

General Notes:
1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
07/27/18	30 min	18.6-feet

BORING: LE-10

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 09/25/2018

Drilling and Sampling Methods

Drill Make and Model: Truck Mount / CME 55
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting-Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in. / 2.0 in.

LITHOS ENGINEERING

Boring Location: 12th St & 8th Ave
Boring Elevation: 4663-feet
Notes: Boring elevations taken from Google Earth.

Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Geologic Graphic	Visual Material Description	Groundwater Depth / Monitoring Well Configuration	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
0						**PAVEMENT SECTION** Asphalt - 6 inches Base Course - 3 inches 0.8 ft.												
	4660					**COARSE ALLUVIUM**												
5			2 5	10		Silty Sand (SM), mostly fine sand, some silt, loose, brown, moist		9	108				47	NP	NP			
	4655																	
10			5 10 8	12		Poorly Graded Sand (SP), mostly medium sand, trace to few coarse sand, trace to few coarse gravel, maximum particle size 1.5 inches, medium dense, light brown, moist, fractured												
	4650																	
15			13 17 14	12		Poorly Graded Sand with Silt and Gravel (SP-SM), mostly medium to coarse sand, some fine gravel, few silt, maximum particle size 1 inch, dense, light brown, moist					31	61	8					
	4645						(18.5 ft.) ▼											
20			4 28	6		As above, except wet		10			29	61	11					
	4640																	
25			3 5 8	12		As above except medium dense												
						25.5 ft. **END OF EXPLORATION**												
	4635																	
30																		

General Notes:

1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
09/25/18	0 min	18.5-feet

BORING: LE-11

Project Name: 12th Street Outfall
Project Number: 18026
Client's Name: HDR Engineering
Owner's Name: City of Greeley
Drilling Subcontractor: Various Drilling Subs
Lithos Representative: Dylan Fawaz
Date(s) of Drilling: 09/25/2018

Drilling and Sampling Methods

Drill Make and Model: Truck Mount / CME 55
Drilling Method: Hollow-Stem Auger
Bit Type: Cutting-Head
Casing Description: Hollow-Stem Auger
Hammer Weight (lbs)/Fall (in): 140 lbs. / 30 in.
Sampler Type(s): Split Spoon / California
Sampler Diameter(s): 1.4 in. / 2.0 in.

LITHOS ENGINEERING

Boring Location: 12th St & 4th Ave
Boring Elevation: 4651.57-feet
Notes: Boring elevation data taken from survey data collected

Sampling Data						Visual Material Description		Laboratory Testing Results												
								In-Situ States			Index Data						Strength & Compressibility			
Depth (ft)	Elevation (ft)	Sample Identification	Blow Count/6 in	Rec. (in) / RQD (%) / Rate (min)	Geologic Graphic	**Soil: -GEOLOGIC INTERPRETATION-** USCS Classification (group symbol), particle sizes, density or consistency, color, moisture, odor, other descriptions **Rock: -GEOLOGIC INTERPRETATION-** Bedrock Classification, hardness, weather, color, texture, joint size, other descriptions	Groundwater Depth / Monitoring Well Configuration	Moisture Content (%)	Dry Unit Weight (pcf)	Water Soluble Sulfates (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Liquid Limit (%)	Plasticity Index (%)	UCS (psf)	Swell Pressure (psf)	Swell Percent (%)
0	4650					**PAVEMENT SECTION** Asphalt - 6 inches Base Course - 3 inches 0.8 ft. **COARSE ALLUVIUM**														
5	4645		4 8	12		Poorly Graded Sand with Silt (SP-SM), mostly medium sand, trace to few fine gravel, maximum particle size 0.75 inches, medium dense, tan, moist					10	82	8							
10	4640		5 12	10		As above except maximum particle size 2 inches														
15	4635		6 15 18	12		As above except trace gravel, maximum particle size 1 inch, dense														
20	4630		11 14 16	14		As above except no gravel	(20.2 ft.)						7							
25	4625		6 22 21	14		Well Graded Sand (SW), mostly fine to coarse sand, trace gravel, maximum particle size 1.5 inches, dense, red-brown, wet 25.5 ft. **END OF EXPLORATION**														
30																				

General Notes:

1) Soil classifications are in general accordance with ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
2) The maximum particle size identified in the material description is dependent on sampler dimensions.
3) Additional information is provided on the Boring Log Key.

Groundwater Data:

Date:	Elapsed Time:	Depth to Groundwater:
09/25/18	0 min	20.2-feet