

SITE LOCATION

Proposed Warehouse and Office Buildings ■ Carlsbad, NM
April 23, 2019 ■ Terracon Project No. A4195074



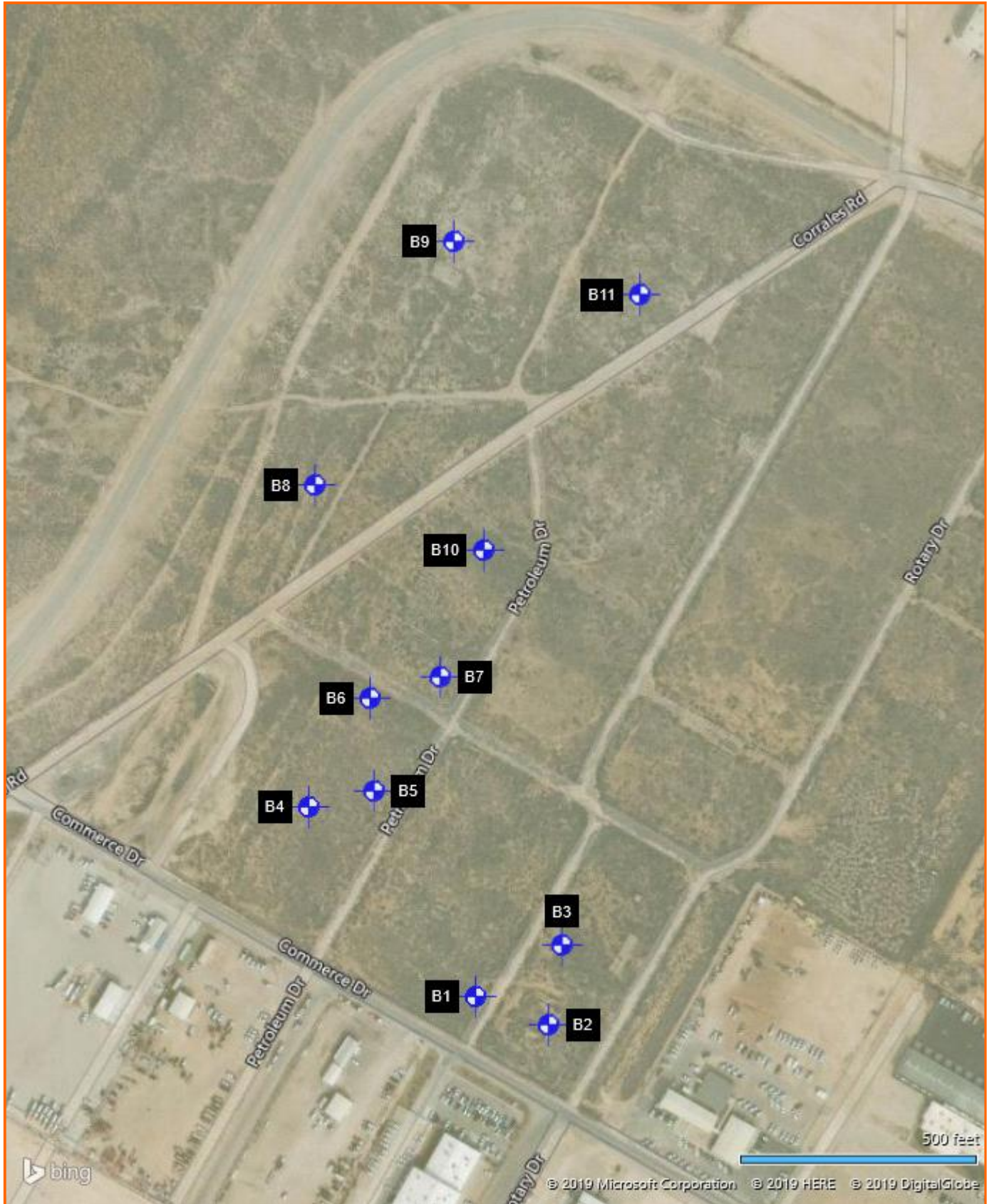
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

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EXPLORATION PLAN

Proposed Warehouse and Office Buildings ■ Carlsbad, NM

April 23, 2019 ■ Terracon Project No. A4195074



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Proposed Warehouse and Office Buildings ■ Carlsbad, NM
April 23, 2019 ■ Terracon Project No. A4195074

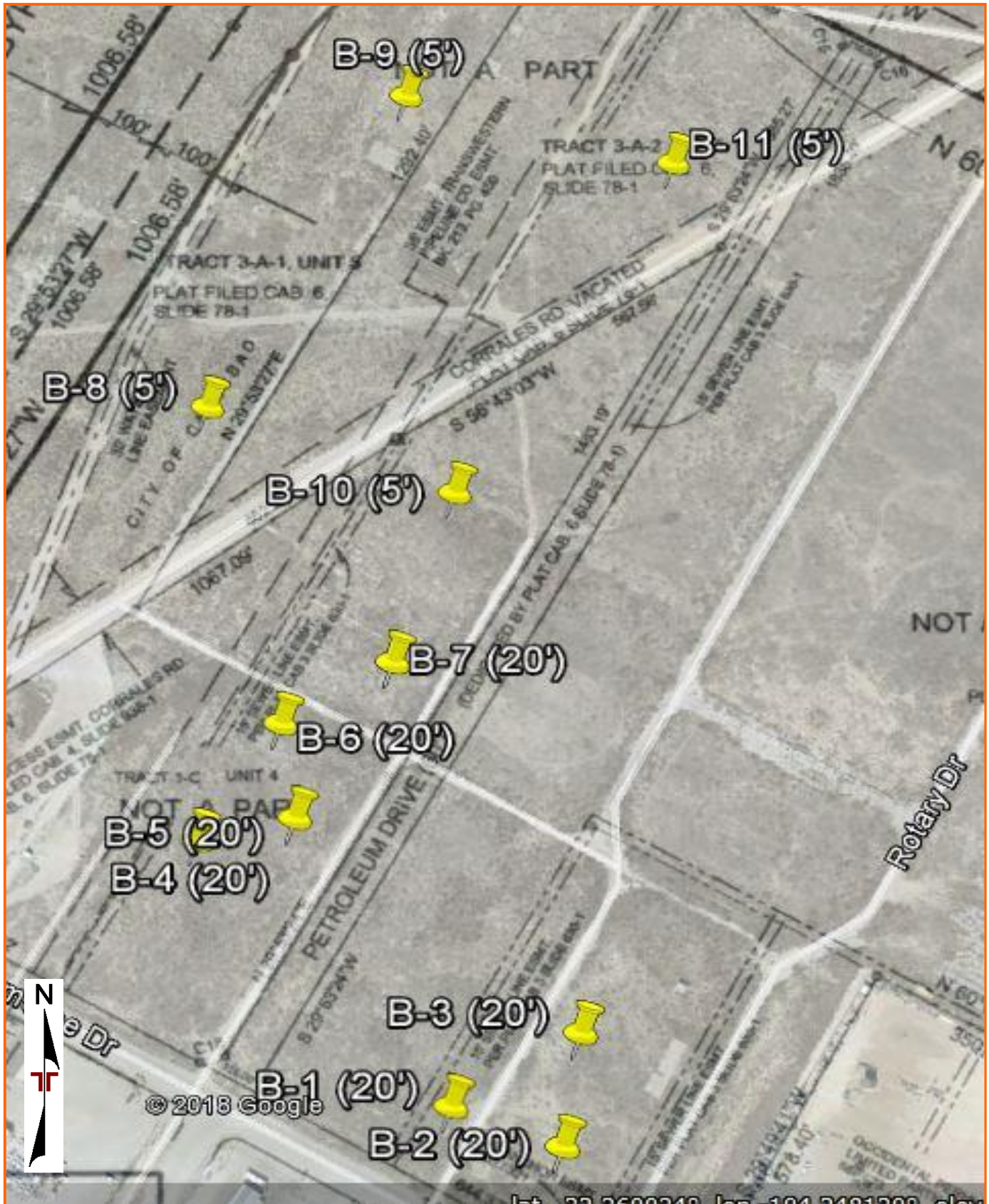


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AERIAL PHOTOGRAPHY PROVIDED BY GOOGLE EARTH

BORING LOG NO. B1

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
	Latitude: 32.3561° Longitude: -104.2494°						Approximate Surface Elev.: 3223 (Ft.) +/- ELEVATION (Ft.)	LL-PL-PI	
GRAPHIC LOG DEPTH	SANDY LEAN CLAY (CL) , light brown to white, stiff -very stiff at 2' -stiff at 4' -very stiff between 6' and 18.5' -hard material locally called caliche encountered below 18.5'	5		X	5-4-4 N=8				
				X	8-10-9 N=19				
				X	5-5-5 N=10	7	30-16-14	66	
				X	6-8-13 N=21				
				X	8-9-8 N=17				
				X	7-8-8 N=16				
				X	37-50/6"				
	Boring Terminated at 20 Feet 20.0	20							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

*No groundwater encountered
Dry at completion*



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ MODEL LAYER.GPJ 4/23/19

BORING LOG NO. B2

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS	PERCENT FINES	
	Latitude: 32.3559° Longitude: -104.2489°						LL-PL-PI		
DEPTH	Approximate Surface Elev.: 3220 (Ft.) +/- ELEVATION (Ft.)								
SANDY LEAN CLAY (CL), brown to tan, medium stiff -stiff between 2' and 8.5' -very stiff at 8.5' -hard below 13.5'		5		X	3-3-3 N=6	8	26-17-9	69	
				X	5-4-6 N=10				
				X	4-5-5 N=10				
				X	3-8-4 N=12				
			10		X	6-7-10 N=17			
				X	22-22-11 N=33				
		15		X	19-39-46 N=85				
	Boring Terminated at 20 Feet	20							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

*No groundwater encountered
Dry at completion*



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

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BORING LOG NO. B3

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3564° Longitude: -104.2488° Approximate Surface Elev.: 3222 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
GRAPHIC LOG DEPTH	<p>SANDY LEAN CLAY (CL), brown to tan, medium stiff</p> <p>-stiff between 2' and 6'</p> <p>-very stiff at 6'</p> <p>-stiff at 8.5'</p> <p>-very stiff at 13.5'</p> <p>-hard below 18.5'</p>			X	3-3-3 N=6				
				X	7-7-7 N=14	7	30-17-13	67	
				X	5-4-5 N=9				
				X	8-11-13 N=24				
				X	7-4-7 N=11				
				X	13-10-11 N=21	9	35-17-18	62	
		X	12-18-16 N=34						
	<p>Boring Terminated at 20 Feet</p>	20.0							3202+/-

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

No groundwater encountered
Dry at completion



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

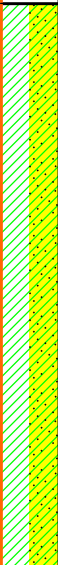
THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ MODEL LAYER.GPJ 4/23/19

BORING LOG NO. B4

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3572° Longitude: -104.2505° Approximate Surface Elev.: 3226 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
	<p>LEAN CLAY WITH SAND (CL), brown to tan, medium stiff</p> <p>-stiff between 2' and 6'</p> <p>-very stiff between 6' and 13.5'</p> <p>-hard material locally called caliche encountered below 13.5'</p>	0		X	2-2-3 N=5				
		5		X	5-6-8 N=14				
		6		X	6-5-6 N=11				
		8		X	8-10-16 N=26	7	32-16-16	75	
		10		X	13-10-9 N=19				
		15		X	17-50/5"				
		20		X	24-50/3"				
<p>Boring Terminated at 20 Feet</p>		20							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

No groundwater encountered
Dry at completion



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ 4/23/19

BORING LOG NO. B5

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ MODEL LAYER.GPJ 4/23/19

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3573° Longitude: -104.2501° Approximate Surface Elev.: 3225 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
	LEAN CLAY WITH SAND (CL) , brown to tan, stiff			X	4-4-5 N=9				
	-very stiff at 4'	5		X	5-6-8 N=14				
	-stiff at 6'			X	6-7-9 N=16				
	-very stiff at 8.5'			X	7-6-8 N=14				
	-hard material locally called caliche encountered below 13.5'	10		X	16-15-14 N=29	7	32-15-17	75	
	-hard material locally called caliche encountered below 13.5'	15		X	23-50/6"				
	20.0	20			50/0"				
Boring Terminated at 20 Feet		3205+/-							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

No groundwater encountered
Dry at completion



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

BORING LOG NO. B6

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3578° Longitude: -104.2501° Approximate Surface Elev.: 3225 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
DEPTH	LEAN CLAY WITH SAND (CL) , brown, medium stiff -stiff between 2' and 13.5'	5		X	2-3-4 N=7				
				X	5-5-10 N=15				
				X	5-5-5 N=10				
				X	9-9-8 N=17	7	34-16-18	76	
				X	6-5-6 N=11				
	-hard material locally called caliche encountered below 13.5'			X	26-50/2"				
				X	20-50/3"				
	Boring Terminated at 20 Feet	20							
Stratification lines are approximate. In-situ, the transition may be gradual.									Hammer Type: Automatic

Advancement Method: Hollow Stem Auger	See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any). See Supporting Information for explanation of symbols and abbreviations. Google Earth	Notes:
Abandonment Method: Boring backfilled with auger cuttings upon completion.		
WATER LEVEL OBSERVATIONS	Terracon 10400 State Highway 191 Midland, TX	Boring Started: 04-14-2019 Drill Rig: Mobile B-59 Project No.: A4195074
No groundwater encountered Dry at completion		Boring Completed: 04-14-2019 Driller: Chris

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ 4/23/19

DRAFT

BORING LOG NO. B7

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3579° Longitude: -104.2496° Approximate Surface Elev.: 3222 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
GRAPHIC LOG DEPTH SANDY LEAN CLAY (CL), brown, medium stiff -very stiff at 2' -stiff between 4' and 13.5' -very stiff at 13.5' -hard below 18.5' 20.0									
					3-3-3 N=6				
					8-8-8 N=16	8	30-18-12	60	
			5		5-6-8 N=14				
					4-4-6 N=10				
			10		4-4-4 N=8				
					7-10-9 N=19				
		15							
				13-14-17 N=31					
		20							
Boring Terminated at 20 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

No groundwater encountered
Dry at completion



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

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BORING LOG NO. B8

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
	Latitude: 32.3591° Longitude: -104.2505°						LL-PL-PI		
DEPTH	Approximate Surface Elev.: 3224 (Ft.) +/- ELEVATION (Ft.)								
5.0	<p>SANDY LEAN CLAY (CL), brown, medium stiff</p> <p>-very stiff at 2'</p> <p>-stif below 4'</p>	5			<p>3-3-3 N=6</p> <p>4-7-10 N=17</p> <p>4-4-5 N=9</p>	6	29-17-12	59	
<p>Boring Terminated at 5 Feet</p>									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

*No groundwater encountered
Dry at completion*



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ MODEL LAYER.GPJ 4/23/19

BORING LOG NO. B9

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3605° Longitude: -104.2495° Approximate Surface Elev.: 3218 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
5.0	SANDY LEAN CLAY (CL) , brown, medium stiff -very stiff at 2' -medium stiff below 4'	5		X	3-3-3 N=6				
				X	4-7-9 N=16	6	29-17-12	65	
				X	4-3-4 N=7				
	Boring Terminated at 5 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

No groundwater encountered
Dry at completion



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

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DRAFT

BORING LOG NO. B10

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 32.3587° Longitude: -104.2493° Approximate Surface Elev.: 3222 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS		PERCENT FINES
							LL-PL-PI		
5.0	<p>SANDY SILTY CLAY (CL-ML), brown, medium stiff</p> <p>-stiff below 2'</p> <p>Boring Terminated at 5 Feet</p>	5		X	<p>3-3-3 N=6</p> <p>4-5-6 N=11</p> <p>4-4-4 N=8</p>	7	24-17-7	64	

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

Google Earth

WATER LEVEL OBSERVATIONS

*No groundwater encountered
Dry at completion*



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

Driller: Chris

Project No.: A4195074

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL - A4195074 PROPOSED WAREHOUSE.GPJ MODEL LAYER.GPJ 4/23/19

BORING LOG NO. B11

PROJECT: Proposed Warehouse and Office Buildings

CLIENT: PDG Architects
Houston, TX

SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

GRAPHIC LOG	LOCATION See Exploration Plan	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)	ATTERBERG LIMITS	PERCENT FINES
	Latitude: 32.3602° Longitude: -104.2482°						LL-PL-PI	
DEPTH	Approximate Surface Elev.: 3217 (Ft.) +/- ELEVATION (Ft.)							
5.0	<p>SANDY LEAN CLAY (CL), brown, medium stiff</p> <p>-very stiff at 2'</p> <p>-stiff below 4'</p> <p>Boring Terminated at 5 Feet</p>	5			<p>3-2-3 N=5</p> <p>4-8-9 N=17</p> <p>5-6-6 N=12</p>	6	27-17-10	65

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

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Google Earth

WATER LEVEL OBSERVATIONS

*No groundwater encountered
Dry at completion*



Boring Started: 04-14-2019

Boring Completed: 04-14-2019

Drill Rig: Mobile B-59

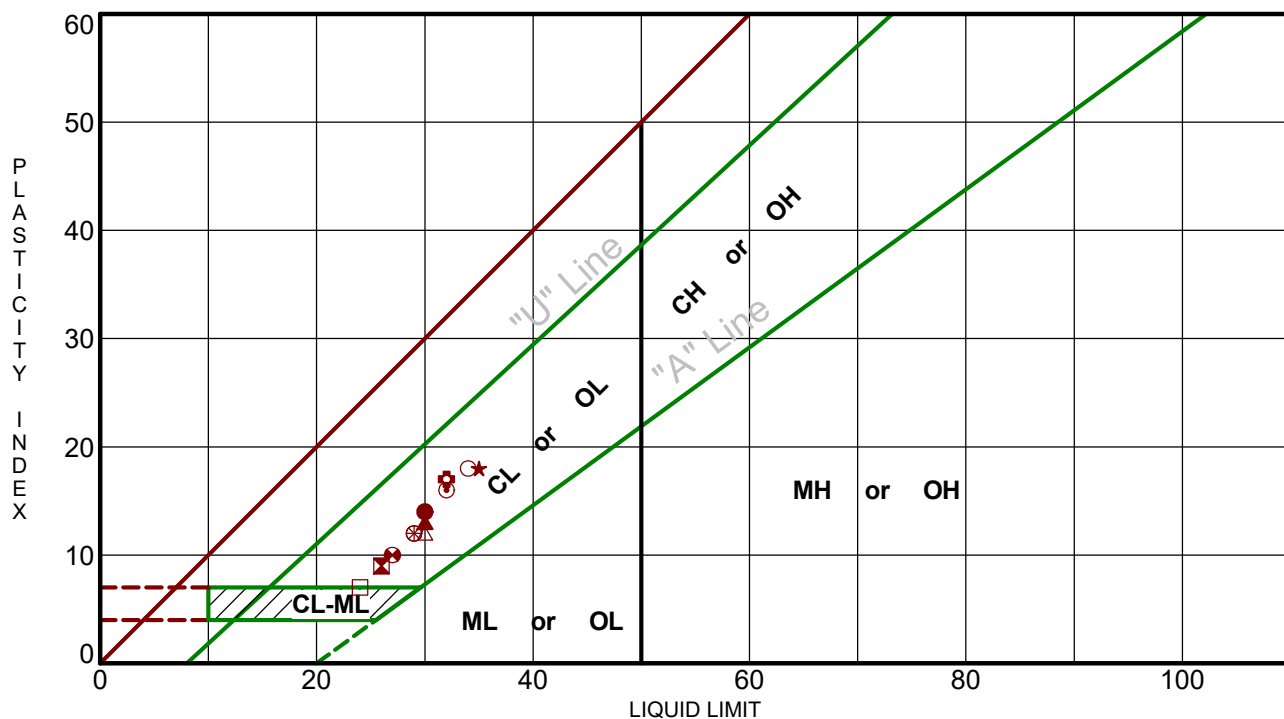
Driller: Chris

Project No.: A4195074

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ATTERBERG LIMITS RESULTS

ASTM D4318



LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS A4195074 PROPOSED WAREHOUSE.GPJ TERRACON_DATA\TEMPLATE.GDT 4/23/19

Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
● B1	4 - 5.5	30	16	14	66	CL	SANDY LEAN CLAY
▣ B2	0 - 1.5	26	17	9	69	CL	SANDY LEAN CLAY
▲ B3	2 - 3.5	30	17	13	67	CL	SANDY LEAN CLAY
★ B3	13.5 - 15	35	17	18	62	CL	SANDY LEAN CLAY
⊙ B4	6 - 7.5	32	16	16	75	CL	LEAN CLAY with SAND
⊕ B5	8.5 - 10	32	15	17	75	CL	LEAN CLAY with SAND
○ B6	6 - 7.5	34	16	18	76	CL	LEAN CLAY with SAND
△ B7	2 - 3.5	30	18	12	60	CL	SANDY LEAN CLAY
⊗ B8	4 - 5.5	29	17	12	59	CL	SANDY LEAN CLAY
⊕ B9	2 - 3.5	29	17	12	65	CL	SANDY LEAN CLAY
□ B10	0 - 1.5	24	17	7	64	CL-ML	SANDY SILTY CLAY
⊕ B11	0 - 1.5	27	17	10	65	CL	SANDY LEAN CLAY

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SITE: W. of Commerce Drive and Arrouyo Drive
Carlsbad, NM

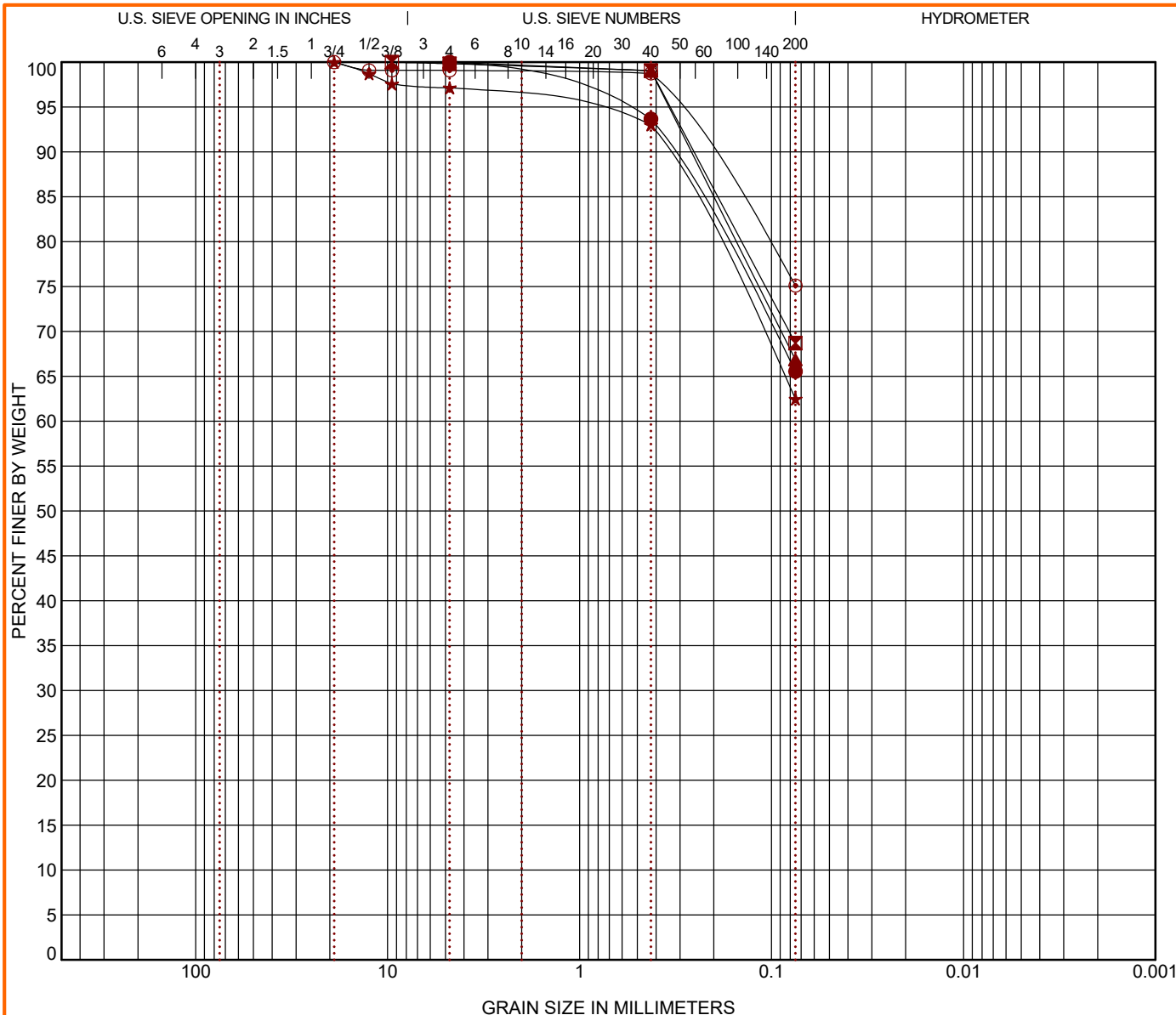


PROJECT NUMBER: A4195074

CLIENT: PDG Architects
Houston, TX

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification				WC (%)	LL	PL	PI	Cc	Cu
● B1	4 - 5.5	SANDY LEAN CLAY (CL)				7	30	16	14		
▣ B2	0 - 1.5	SANDY LEAN CLAY (CL)				8	26	17	9		
▲ B3	2 - 3.5	SANDY LEAN CLAY (CL)				7	30	17	13		
★ B3	13.5 - 15	SANDY LEAN CLAY (CL)				9	35	17	18		
⊙ B4	6 - 7.5	LEAN CLAY with SAND (CL)				7	32	16	16		

Boring ID	Depth	D ₁₀₀	D ₆₀	D ₃₀	D ₁₀	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B1	4 - 5.5	4.75				0.0	0.0	34.5		65.5	
▣ B2	0 - 1.5	9.5				0.0	0.2	31.1		68.7	
▲ B3	2 - 3.5	4.75				0.0	0.0	33.2		66.8	
★ B3	13.5 - 15	19				0.0	2.9	34.7		62.5	
⊙ B4	6 - 7.5	19				0.0	0.9	24.0		75.1	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 A4195074 PROPOSED WAREHOUSE.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

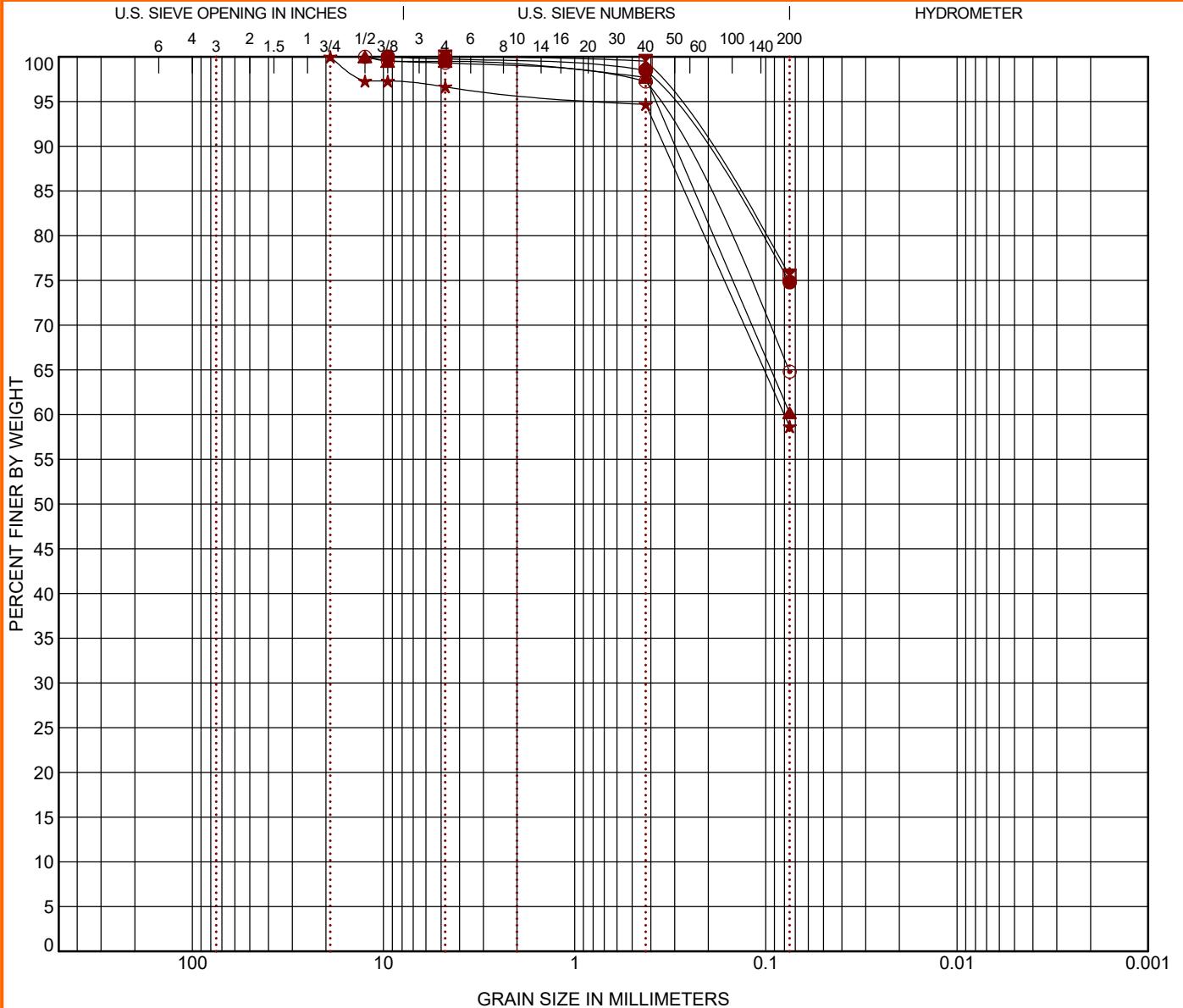
PROJECT: Proposed Warehouse and Office Buildings
 SITE: W. of Commerce Drive and Arroyo Drive
 Carlsbad, NM



PROJECT NUMBER: A4195074
 CLIENT: PDG Architects
 Houston, TX

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B5	8.5 - 10	LEAN CLAY with SAND (CL)	7	32	15	17		
☒ B6	6 - 7.5	LEAN CLAY with SAND (CL)	7	34	16	18		
▲ B7	2 - 3.5	SANDY LEAN CLAY (CL)	8	30	18	12		
★ B8	4 - 5.5	SANDY LEAN CLAY (CL)	6	29	17	12		
⊙ B9	2 - 3.5	SANDY LEAN CLAY (CL)	6	29	17	12		

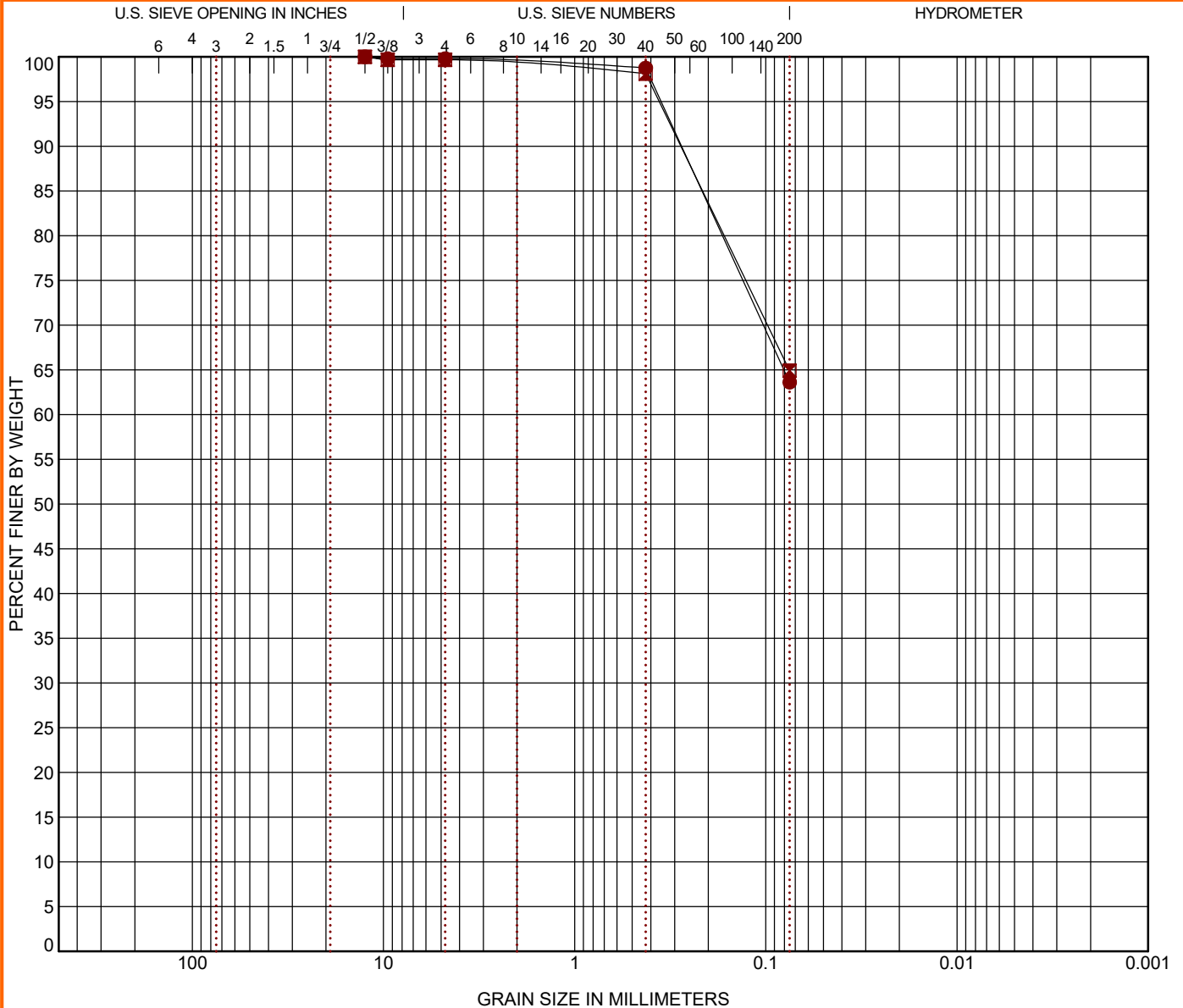
Boring ID	Depth	D ₁₀₀	D ₆₀	D ₃₀	D ₁₀	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B5	8.5 - 10	9.5				0.0	0.2	25.0		74.8	
☒ B6	6 - 7.5	4.75				0.0	0.0	24.5		75.5	
▲ B7	2 - 3.5	12.5				0.0	0.5	39.3		60.2	
★ B8	4 - 5.5	19	0.08			0.0	3.3	38.0		58.7	
⊙ B9	2 - 3.5	12.5				0.0	0.7	34.5		64.8	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 A4195074 PROPOSED WAREHOUSE.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

PROJECT: Proposed Warehouse and Office Buildings SITE: W. of Commerce Drive and Arrouyo Drive Carlsbad, NM	10400 State Highway 191 Midland, TX	PROJECT NUMBER: A4195074 CLIENT: PDG Architects Houston, TX
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GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136







COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
● B10	0 - 1.5	SANDY SILTY CLAY (CL-ML)	7	24	17	7		
☒ B11	0 - 1.5	SANDY LEAN CLAY (CL)	6	27	17	10		

Boring ID	Depth	D ₁₀₀	D ₆₀	D ₃₀	D ₁₀	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
● B10	0 - 1.5	12.5				0.0	0.2	36.2		63.6	
☒ B11	0 - 1.5	12.5				0.0	0.3	34.7		64.9	

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS-2 A4195074 PROPOSED WAREHOUSE.GPJ TERRACON_DATATEMPLATE.GDT 4/23/19

PROJECT: Proposed Warehouse and Office Buildings SITE: W. of Commerce Drive and Arroyo Drive Carlsbad, NM	10400 State Highway 191 Midland, TX	PROJECT NUMBER: A4195074 CLIENT: PDG Architects Houston, TX
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SAMPLING	WATER LEVEL	FIELD TESTS
 Standard Penetration Test	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-ionization Detector (OVA) Organic Vapor Analyzer
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES	
Descriptive Term(s) of other constituents	Percent of Dry Weight	Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	<15	Trace	<5
With	15-29	With	5-12
Modifier	>30	Modifier	>12

GRAIN SIZE TERMINOLOGY		PLASTICITY DESCRIPTION	
Major Component of Sample	Particle Size	Term	Plasticity Index
Boulders	Over 12 in. (300 mm)	Non-plastic	0
Cobbles	12 in. to 3 in. (300mm to 75mm)	Low	1 - 10
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)	Medium	11 - 30
Sand	#4 to #200 sieve (4.75mm to 0.075mm)	High	> 30
Silt or Clay	Passing #200 sieve (0.075mm)		

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification					
				Group Symbol	Group Name ^B				
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	Cu ³ 4 and 1 £ Cc £ 3 ^E	GW	Well-graded gravel ^F				
			Cu < 4 and/or [Cc<1 or Cc>3.0] ^E	GP	Poorly graded gravel ^F				
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}				
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}				
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Cu ³ 6 and 1 £ Cc £ 3 ^E	SW	Well-graded sand ^I				
			Cu < 6 and/or [Cc<1 or Cc>3.0] ^E	SP	Poorly graded sand ^I				
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}				
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}				
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots on or above "A" line	CL	Lean clay ^{K, L, M}				
			PI < 4 or plots below "A" line ^J	ML	Silt ^{K, L, M}				
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}			
			Liquid limit - not dried			Organic silt ^{K, L, M, O}			
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}				
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}				
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}			
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}			
			Highly organic soils:			Primarily organic matter, dark in color, and organic odor	PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$E \text{ Cu} = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains ³ 15% sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains ³ 15% gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains ³ 30% plus No. 200 predominantly sand, add "sandy" to group name.

^M If soil contains ³ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

^N PI ³ 4 and plots on or above "A" line.

^O PI < 4 or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.

