

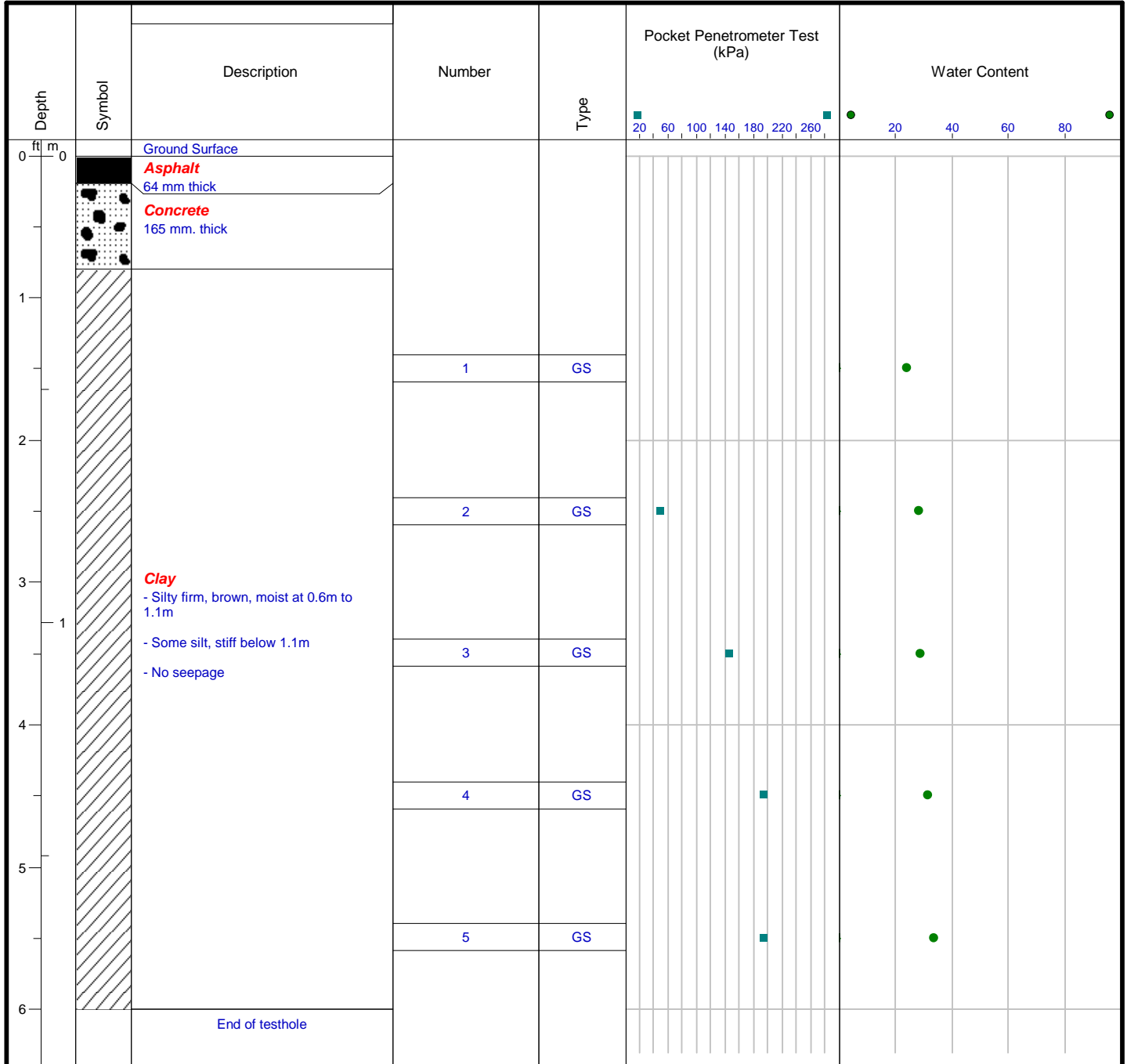
APPENDIX 'G'

GEOTECHNICAL REPORT

Lipton St. - Trans Canada Hwy to Palmerston Ave

Core Location





Drill Method: Auger Boring

Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Project No: 112-2310

Project: Local Streets Package 24-R-05

Client: AECOM Canada Ltd

Location: 208 Lipton Street

TP1-2

Logged By: ET

Engineer:

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
					20 60 100 140 180 220 260	20 40 60 80
0		Ground Surface				
		Asphalt 100 mm thick				
		Concrete - 128 mm. thick				
		Sand and Gravel - with gravel, 38mm dia. - some clay				
1		Clay -Black, organic, some roots, some stones, moist -some silt at 0.5 to 0.6m	1	GS		
2			2	GS		
3			3	GS		
4			4	GS		
5		Clay - some silty, brown, stiff, moist	5	GS		
6		End of testhole				

Drill Method: Auger Boring

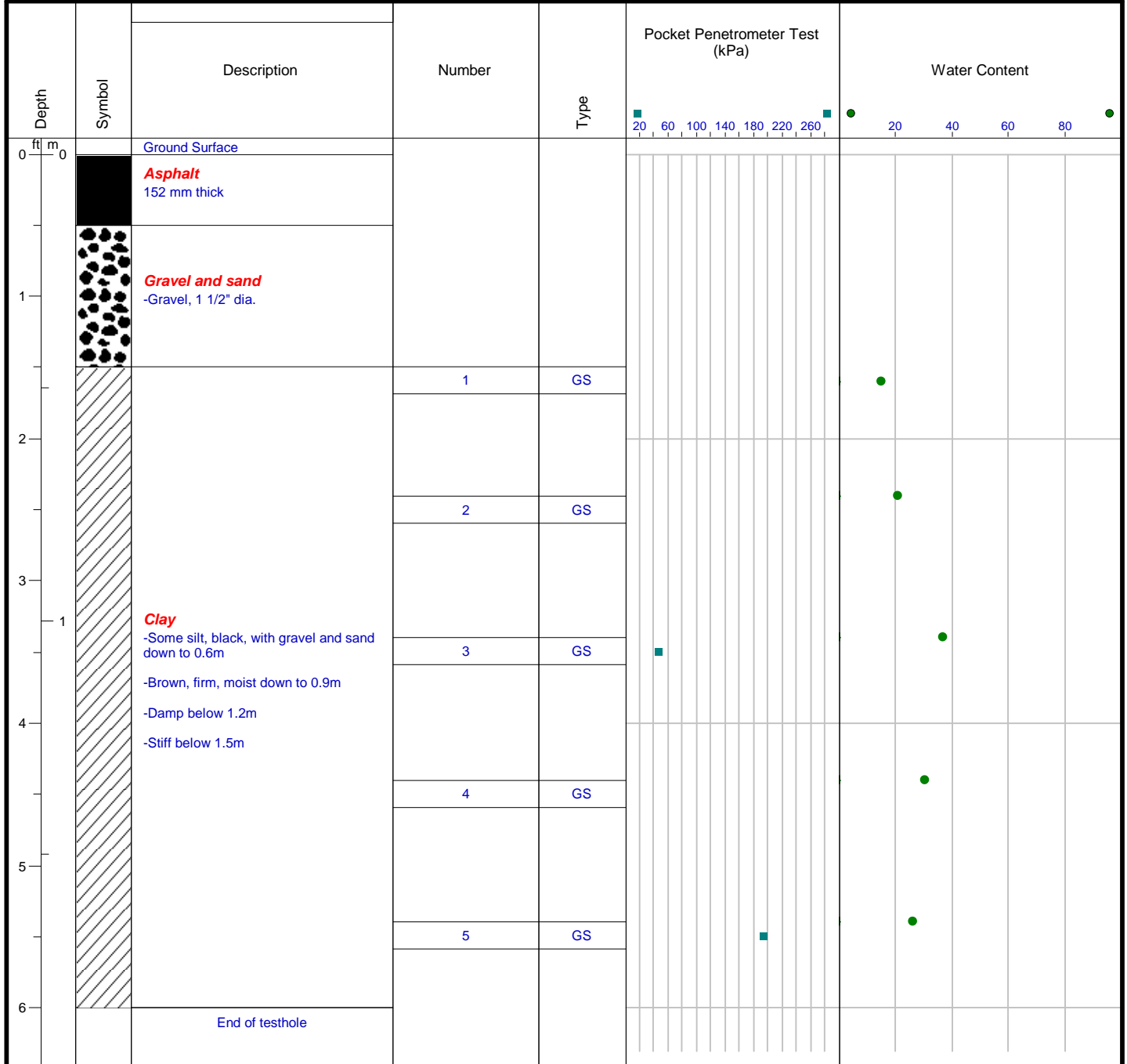
Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Boring

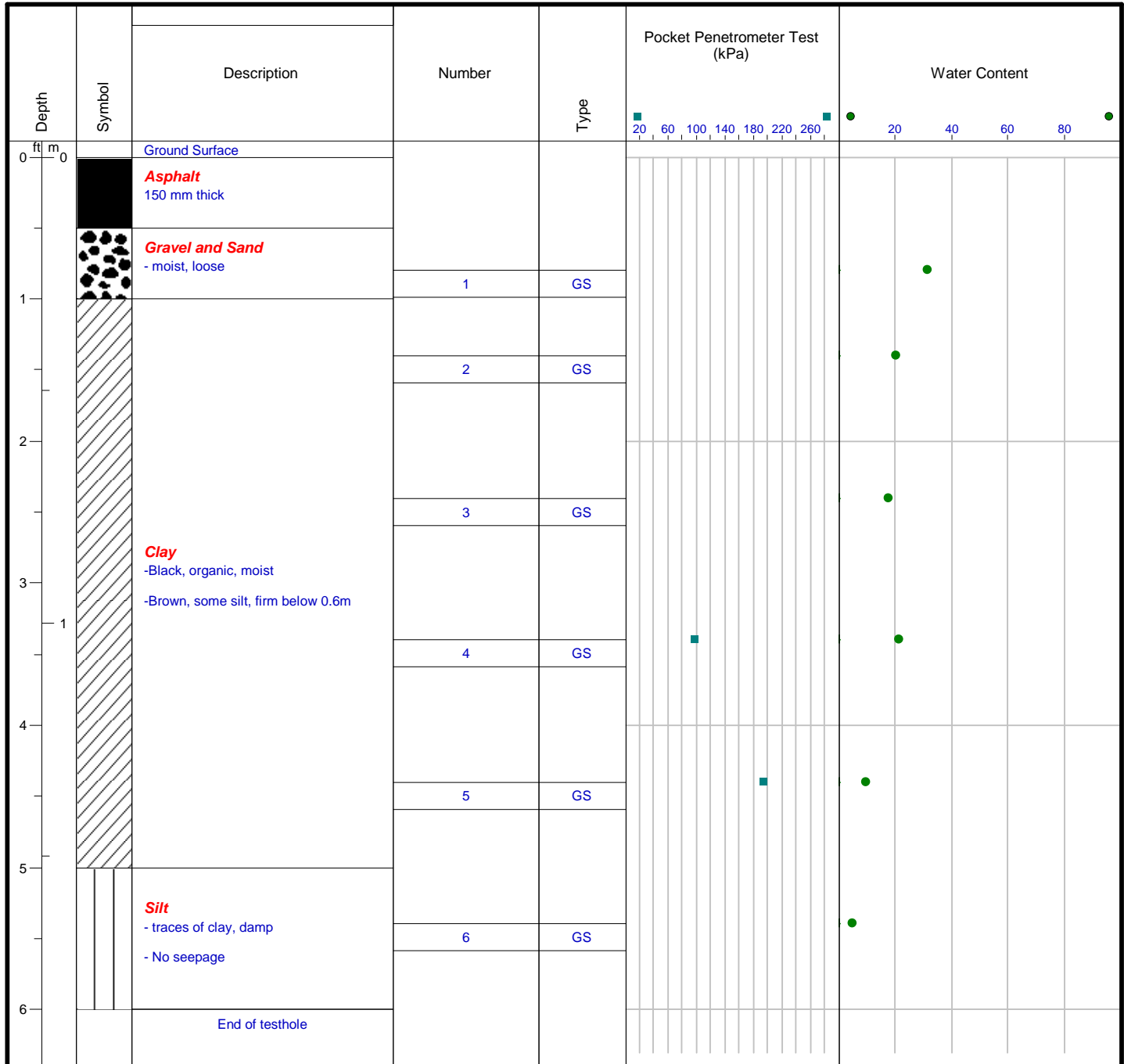
Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Boring

Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Project No: 112-2310

Project: Local Streets Package 24-R-05

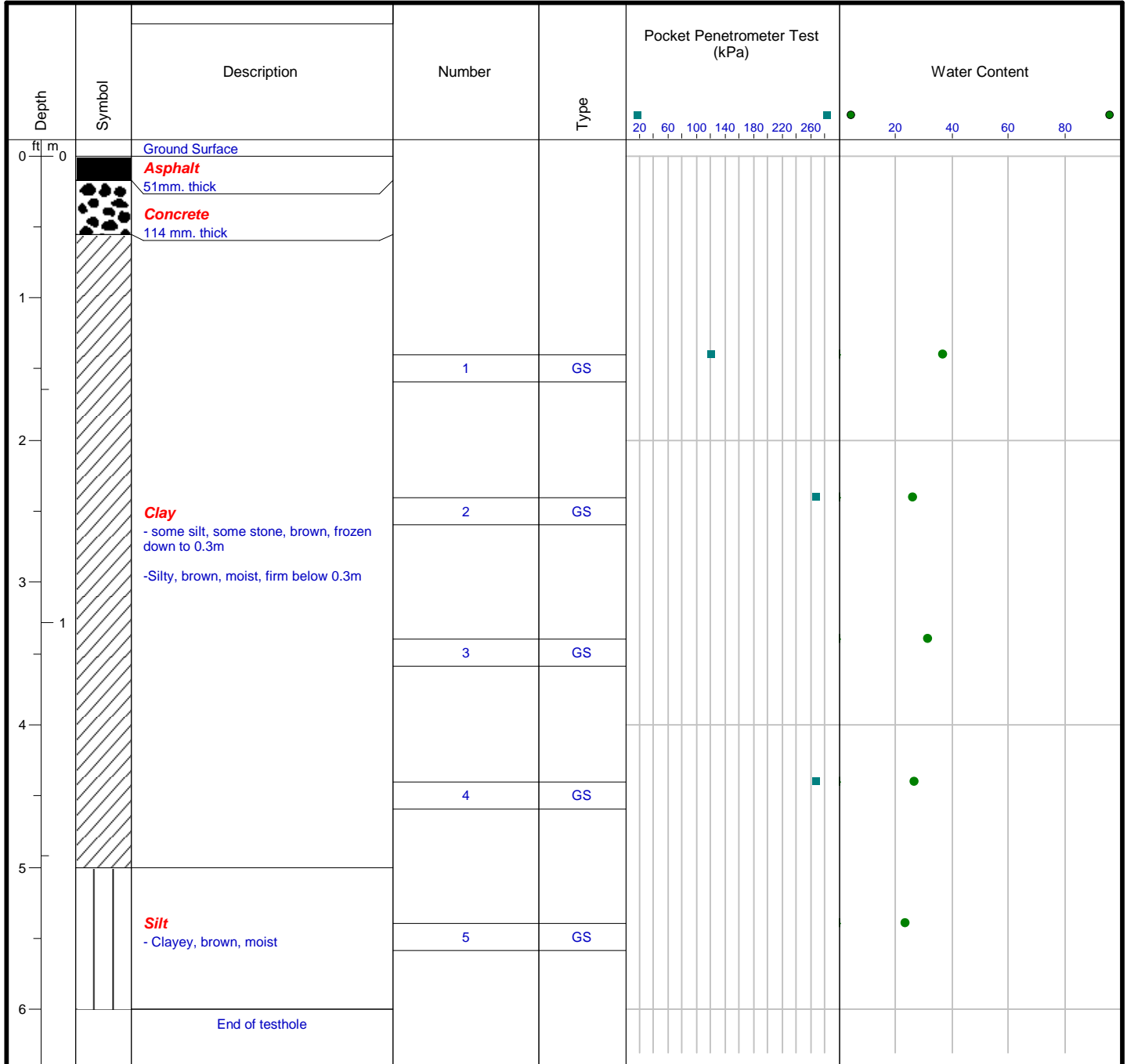
Client: AECOM Canada Ltd

Location: 55 Lipton Street

TP1-5

Logged By: ET

Engineer:



Drill Method: Auger Boring

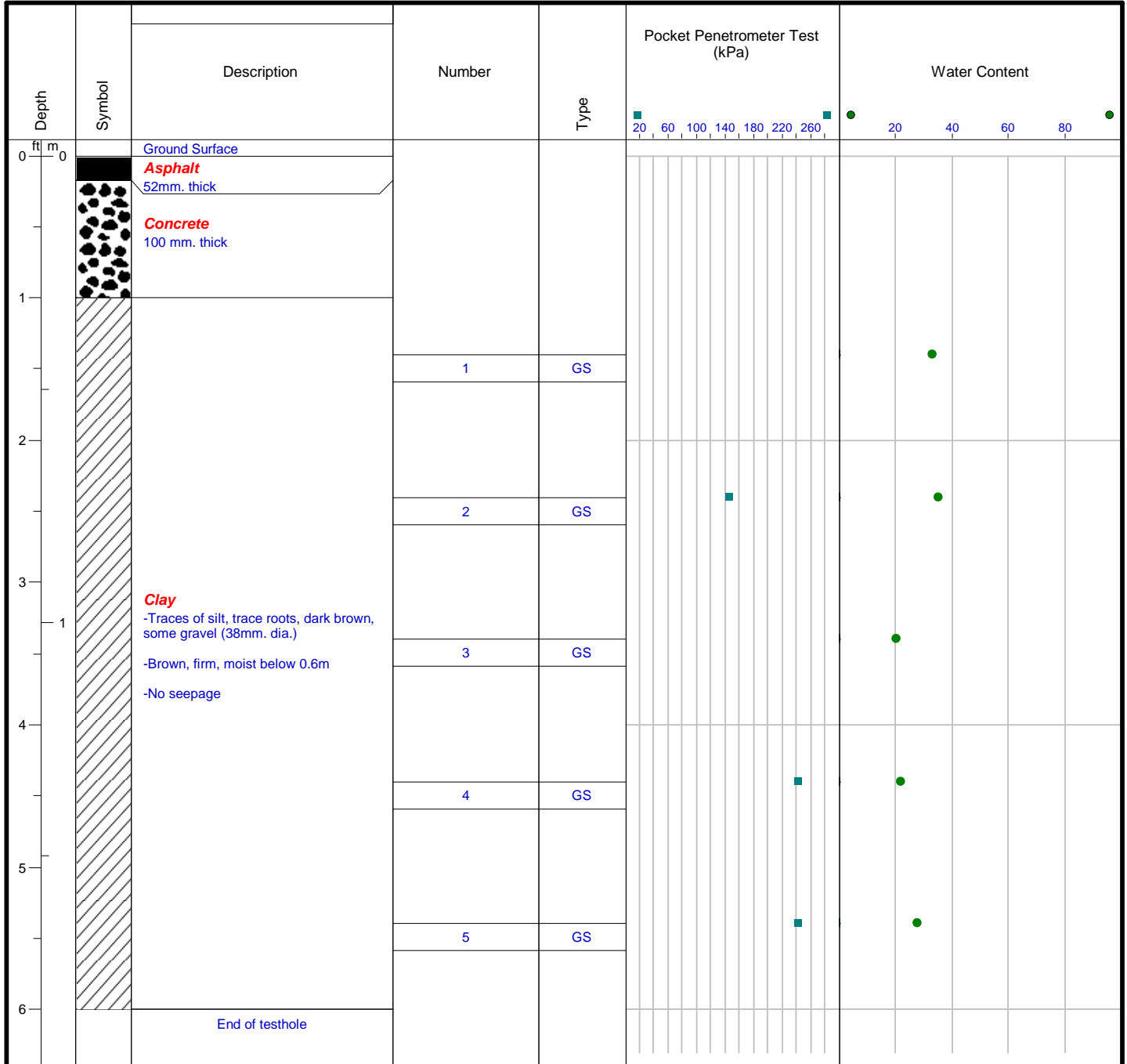
Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Boring

Drill Date: January 29, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

Lipton St. - Trans Canada Hwy to Palmerston Ave

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
31	NBL	63.5	165.1
32	SBL	100.4	128.2
33	NBL	152.4	-
34	SBL	150.0	-
35	NBL	51.0	114.1
36	SBL	52.0	100.4



Lipton St, NBL, Core 31
(Asphalt Thk 63.5mm; Conc Thk 165.1mm)



Lipton St, SBL, Core 32
(Asphalt Thk 100.4mm; Conc Thk 128.2mm)



Lipton St, NBL, Core 33
(Asphalt Thk 152.4mm)



Lipton St, SBL, Core 34
(Asphalt Thk 150mm)



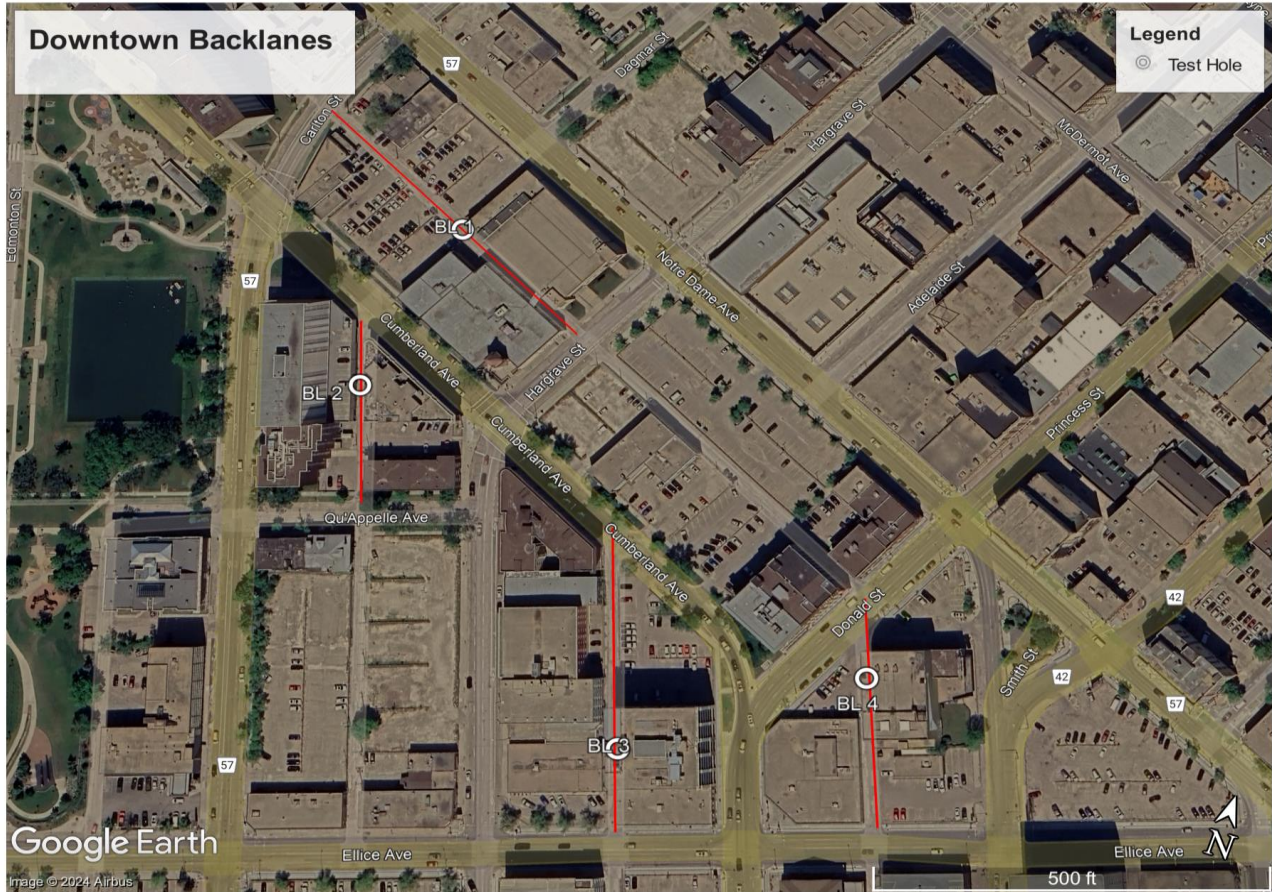
Lipton St, NBL, Core 35
(Asphalt Thk 51mm; Conc Thk 114.1mm)



Lipton St, SBL, Core 36
(Asphalt Thk 52mm; Conc Thk 100.4mm)

Downtown Backlanes

Test Hole Location





Project No: 112-2310

Project: Local Streets Package 24-R-05

Client: AECOM Canada Ltd

Location: Backlane, south of Notre Dame Ave.

BL-1

Logged By: ET

Engineer: SSU

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
					20 60 100 140 180 220 260	20 40 60 80
0		Ground Surface				
0		Asphalt 40 mm. thick				
0		Concrete 165 mm. thick				
1		Clay -silty, black, moist, firm -brownish below 0.9m	1	GS	~70	~45
2			2	GS	~70	~45
3			3	GS	~70	~45
4			4	GS	~70	~45
5		Silt - trace clay, soft, light brown/tan, moist to wet	5	GS	~70	~45
6			6	GS	~70	~45
7		Clay -silty, brown, stiff, moist	7	GS	~70	~45
8						
9		Silt -light brown, silty, moist to wet, some seepage				
10		End of testhole				

Drill Method: Auger Boring

Drill Date: April 9, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Boring

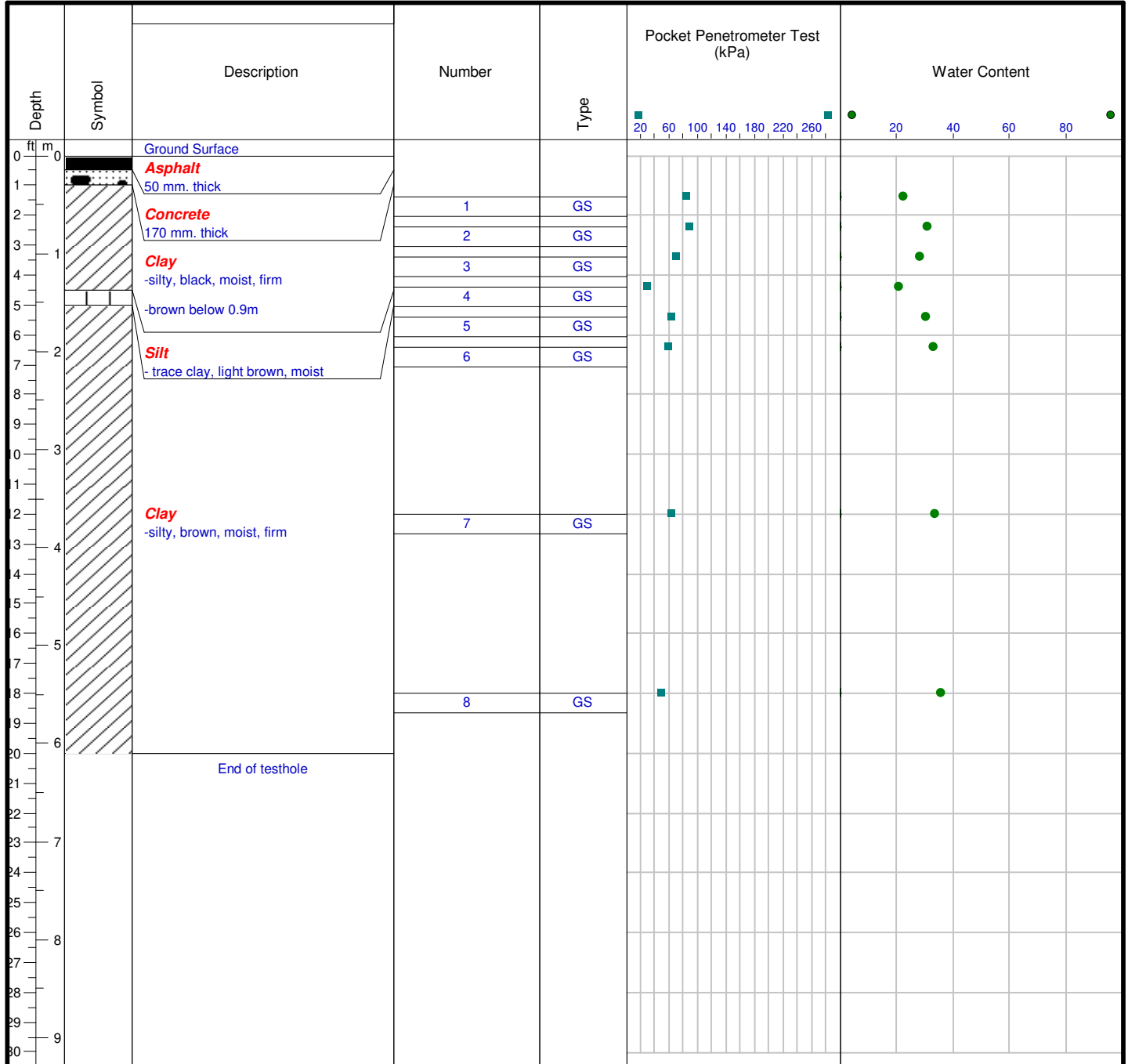
Drill Date: April 9, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1



Drill Method: Auger Boring

Drill Date: April 9, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

Depth ft m	Symbol	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
					20 60 100 140 180 220 260	20 40 60 80
0		Ground Surface				
0		Concrete 165 mm. thick				
1		Silt -clayer, light brown, trace fine sand, moist, soft -wet below 0.5m	1	GS		
2			2	GS		
3		Clay -silty, mottled dark brown and black, moist, firm -dark brown below 0.6 m	3	GS		
4			4	GS		
5			5	GS		
6			6	GS		
7			Silt -some clay, light brown, moist, soft	7	GS	
8		Silt and Clay -mottled light and dark brown, moist, firm to soft	8	GS		
9		End of testhole				
10						

Drill Method: Auger Boring

Drill Date: April 10, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipe MB R3P 0Y7	Project No:	112-2310
Attention:	Blair Cockrell	Test No.:	BL-1
Project:	Local Streets Package 24-R-(Winnipeg, MB	Lab No.:	HM 88
		Date Sampled / By:	April 9, 2024 ET/ PB
		Date Received:	April 9, 2024
		Date Tested / By:	May 2, 2024 Mehdi Abbasi

Test Hole No.	BL 1-1	BL 1-2a	BL 1-2b	BL 1-3	BL 1-4
Depth	1.4	2.4	3.4	4.4	5.5
Tare No.	M19	M27	M23	M49	5-23
Wt Wet Sample + Tare	234.2	233.4	254.1	227.2	234.8
Wt Dry Sample + Tare	161.3	157.9	181.1	164.9	180.7
Wt Water	72.9	75.5	73.0	62.3	54.1
Wt Tare	4.5	4.5	4.5	4.5	4.5
Wt Dry Sample	156.8	153.4	176.6	160.4	176.2
Moisture Content (%)	46.5	49.2	41.3	38.8	30.7
Test Hole No.	BL 1-5	BL 1-6			
Depth	6.5	8.0			
Tare No.	M37	M4			
Wt Wet Sample + Tare	250.4	251.2			
Wt Dry Sample + Tare	189.4	187.2			
Wt Water	61.0	64.0			
Wt Tare	4.5	4.5			
Wt Dry Sample	184.9	182.7			
Moisture Content (%)	33.0	35.0			

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipe MB R3P 0Y7	Project No:	112-2310
Attention:	Blair Cockrell	Test No.:	BL-2
Project:	Local Streets Package 24-R-(Winnipeg, MB	Lab No.:	HM 89
		Date Sampled / By:	April 9, 2024 ET/ PB
		Date Received:	April 9, 2024
		Date Tested / By:	May 2, 2024 Mehdi Abbasi

Test Hole No.	BL 2-1	BL 2-2	BL 2-3	BL 2-4	BL 2-5
Depth	1.4	2.4	3.4	4.4	5.4
Tare No.	A19	A20	A21	A22	A23
Wt Wet Sample + Tare	235.1	224.8	269.1	274.1	213.5
Wt Dry Sample + Tare	152.4	147.7	191.8	223.2	164.4
Wt Water	82.7	77.1	77.3	50.9	49.1
Wt Tare	4.5	4.5	4.5	4.5	4.5
Wt Dry Sample	147.9	143.2	187.3	218.7	159.9
Moisture Content (%)	55.9	53.8	41.3	23.3	30.7
Test Hole No.	BL 2-6	BL 2-7			
Depth	6.40	7.40			
Tare No.	A21	A7			
Wt Wet Sample + Tare	233.8	294.2			
Wt Dry Sample + Tare	176.4	229.6			
Wt Water	57.4	64.6			
Wt Tare	4.5	4.5			
Wt Dry Sample	171.9	225.1			
Moisture Content (%)	33.4	28.7			

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipe MB R3P 0Y7	Project No:	112-2310
Attention:	Blair Cockrell	Test No.:	BL-3
Project:	Local Streets Package 24-R-(Winnipeg, MB	Lab No.:	HM 90
		Date Sampled / By:	April 9, 2024 ET/ PB
		Date Received:	April 9, 2024
		Date Tested / By:	May 2, 2024 Mehdi Abbasi

Test Hole No.	BL 3-1	BL 3-2	BL 3-3	BL 3-4	BL 3-5
Depth	1.4	2.4	3.4	4.4	5.4
Tare No.	BT1	BB0	B54	B34	B44
Wt Wet Sample + Tare	235.1	224.8	269.1	274.1	213.5
Wt Dry Sample + Tare	192.7	172.7	210.7	227.3	164.4
Wt Water	42.4	52.1	58.4	46.8	49.1
Wt Tare	4.5	4.5	4.5	4.5	4.5
Wt Dry Sample	188.2	168.2	206.2	222.8	159.9
Moisture Content (%)	22.5	31.0	28.3	21.0	30.7
Test Hole No.	BL 3-6	BL 3-7	BL 3-8		
Depth	6.4	12.0	18.0		
Tare No.	B1	B5	B54		
Wt Wet Sample + Tare	233.8	294.2	241		
Wt Dry Sample + Tare	176.4	220.7	178.7		
Wt Water	57.4	73.5	62.3		
Wt Tare	4.5	4.5	4.5		
Wt Dry Sample	171.9	216.2	174.2		
Moisture Content (%)	33.4	34.0	35.8		

MOISTURE CONTENT OF SOIL (ASTM D2216)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipe MB R3P 0Y7	Project No:	112-2310
Attention:	Blair Cockrell	Test No.:	BL-4
Project:	Local Streets Package 24-R-(Winnipeg, MB	Lab No.:	HM 91
		Date Sampled / By:	10-Apr-24 MK
		Date Received:	10-Apr-24
		Date Tested / By:	May 2, 2024 Mehdi Abbasi

Test Hole No.	BL 4-1	BL 4-2	BL 4-3	BL 4-4	BL 4-5
Depth	1.2	2.0	3.4	4.4	5.4
Tare No.	A15	A5	A20	A14	A33
Wt Wet Sample + Tare	234	257.1	256.3	278.4	250.8
Wt Dry Sample + Tare	198.2	211.5	202.1	221.0	201.5
Wt Water	35.8	45.6	54.2	57.4	49.3
Wt Tare	4.5	4.5	4.5	4.5	4.5
Wt Dry Sample	193.7	207.0	197.6	216.5	197.0
Moisture Content (%)	18.5	22.0	27.4	26.5	25.0
Test Hole No.	BL 4-7	BL 4-8			
Depth	6.4	7.0			
Tare No.	A01	A7			
Wt Wet Sample + Tare	260.7	263.9			
Wt Dry Sample + Tare	223.1	207.3			
Wt Water	37.6	56.6			
Wt Tare	4.5	4.5			
Wt Dry Sample	218.6	202.8			
Moisture Content (%)	17.2	27.9			

Summary of Laboratory Results

Sample ID	Moisture Content (%)	CBR		GRAIN SIZE				ATTERBERG LIMITS		
		2.5mm	5.1mm	GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	LL	PL	PI
Lipton St.										
HM 26 - TP1-1	30.9	1.8	1.4	-	8.0	54.7	37.3	46	16	30
HM 30 - TP1-5	29.1	2.6	2.2	-	5.6	53.3	41.1	48	18	30
Ruby St. and Lenore St. Backlane										
HM 33 - TP2-2	32.3	5.2	3.9	-	9.6	44.9	45.5	60	24	36
Langside St. and Young St. Backlane										
HM 35 - TP3-1	36.8	3.1	2.4	-	3.2	42.3	54.6	72	27	45
Carlton St. and Hargrave St. and Cumberland Ave. and Notre Dame Ave. Backlane										
HM 88 - BL-1	38.8	2.4	1.8	-	6.3	33.9	59.9	63	27	36
Cumberland Ave. and Qu'Appelle Ave. and Carlton St. and Hargrave St. Backlane										
HM 89 - BL-2	41.3	3.2	2.8	-	7.8	38.3	53.8	66	26	40
Hargrave St. and Donald St. and Cumberland Ave. and Ellice Ave. Backlane										
HM 90 - BL-3	34	3.7	3.2	-	8.5	39.9	51.7	67	27	41
Donald St. and Smith St and Donald St. and Ellice Ave. Backlane										
HM 91 - BL-4	26.5	2.2	2.1	-	8.2	36.1	55.7	66	26	40

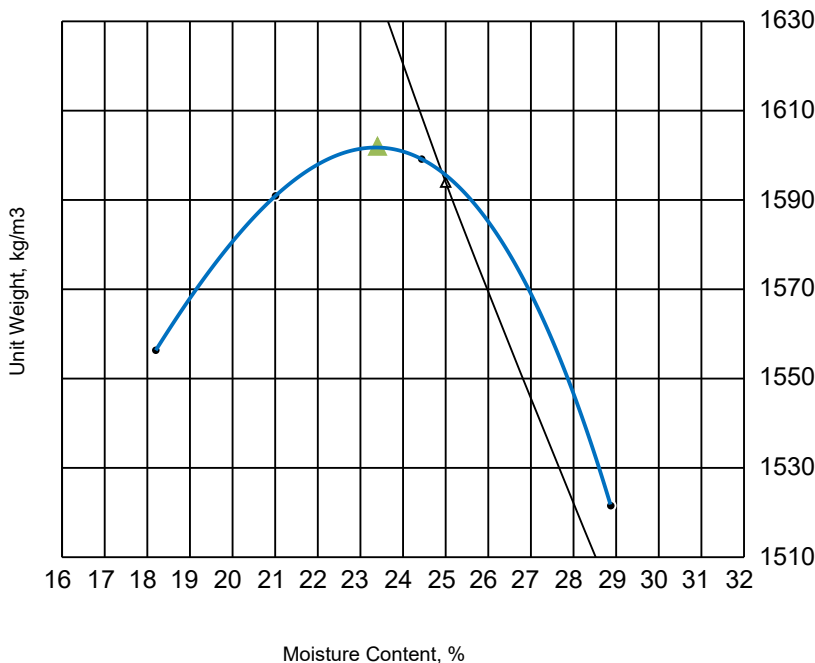
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 26
PROJECT:	Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Proctor Test No.:	1

Date Sampled:	January 29, 20	Date Received:	January 30, 2024	PROCEDURE	A	
Sampled By:	JJ	Date Tested:	February 1, 2024		PREPARATION	Dry
MATERIAL INFORMATION					COMPACTION METHOD	Manual
Material Type:	Clay				BLOWS PER LAYER	25
Material Use:		Material Supplier:		NO. OF LAYERS	3	
Maximum Size:		Material Source:		MOLD SIZE	100	
				MOLD VOLUME	935	
				WEIGHT OF HAMMER	2.5 kg	

	Test No.	1	2	3	4
Wet Density		1840	1925	1990	1961
Moisture Content		18.2	21.0	24.4	28.9
Dry Density		1556	1591	1599	1522

Moisture - Density Relationship



Maximum Dry Density (MDD):
_____ 1602 kg/m³
Optimum Moisture Content
_____ 23.4 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
_____ %
Corrected Moisture:
_____ 23.4 %
Corrected Maximum Dry Density:
_____ 1602 kg/m³

Remarks:

P. Bevel

Tested by: Jaehang Jeong

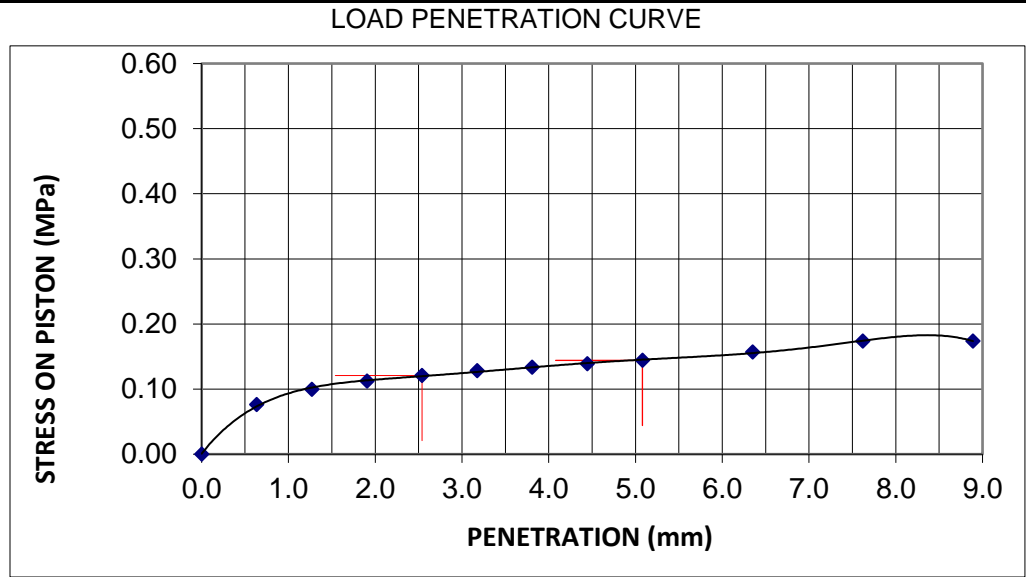
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 26
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: January 29, 2024
Location: Winnipeg, MB	Date Received: January 30, 2024
	Date Tested /By: February 5, 2 Jaehang Jeong


SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking / After Testing
Source:		Moisture Content (MC), %	23.2 / 27.1
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 23.4 %		Dry Density, kg/m ³	1547 / 1547
Maximum Dry Density: 1602 kg/cm ³		Compaction, %	97%
Method of Compaction: Standard Proctor		CBR, %	1.8 / 1.4
Tested by:	Date Tested:	Swell, %	0.03

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.08
1.27	0.10
1.91	0.11
2.54	0.12
3.18	0.13
3.81	0.13
4.45	0.14
5.08	0.14
6.35	0.16
7.62	0.17
8.89	0.17



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.12	0.12	1.8	-
5.08	10.3	0.14	0.14	-	1.4

Remarks:


 Reviewed by: Paul Bevel

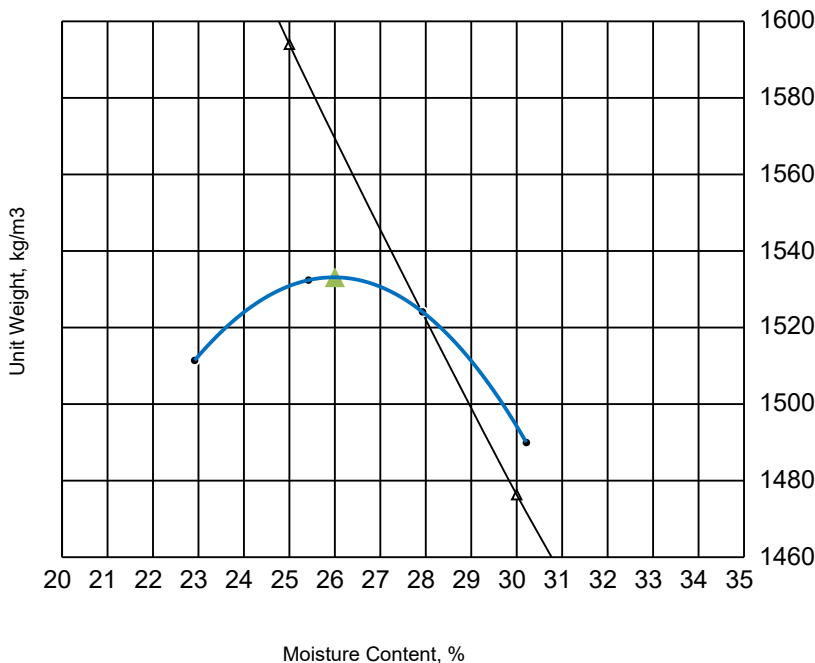
MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 30
PROJECT:	Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Proctor Test No.:	2

Date Sampled:	January 29, 20	Date Received:	January 30, 2024	PROCEDURE	A	
Sampled By:	JJ	Date Tested:	February 1, 2024		PREPARATION	Dry
MATERIAL INFORMATION					COMPACTION METHOD	Manual
Material Type:	Clay				BLOWS PER LAYER	25
Material Use:		Material Supplier:		NO. OF LAYERS	3	
Maximum Size:		Material Source:		MOLD SIZE	100	
				MOLD VOLUME	935	
				WEIGHT OF HAMMER	2.5 kg	

	Test No.	1	2	3	4
Wet Density		1858	1922	1950	1940
Moisture Content		22.9	25.4	27.9	30.2
Dry Density		1511	1532	1524	1490

Moisture - Density Relationship



Maximum Dry Density (MDD):
_____ 1533 kg/m³

Optimum Moisture Content
_____ 26.0 %

STONE CORRECTION (ASTM D 4718)

Retained on 4.75mm sieve:
_____ %

Corrected Moisture:
_____ 26.0 %

Corrected Maximum Dry Density:
_____ 1533 kg/m³

Remarks:

P. Bevel

Tested by: Jaehang Jeong

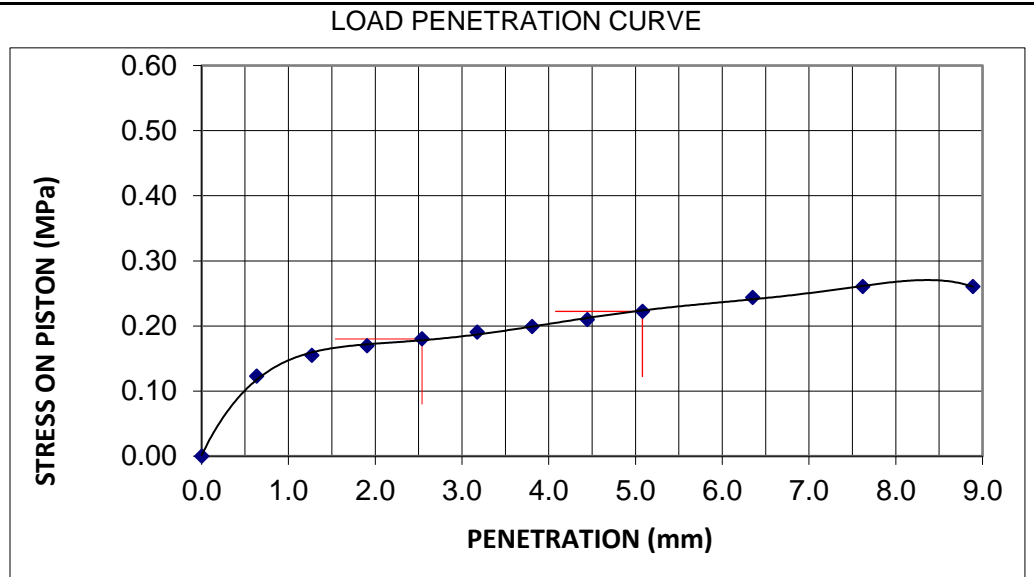
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 30
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: January 29, 2024
Location: Winnipeg, MB	Date Received: January 30, 2024
	Date Tested /By: February 5, 2 Jaehang Jeong

SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking After Testing
Source:		Moisture Content (MC), %	26.0 26.8
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 26.0 %		Dry Density, kg/m ³	1516 1542
Maximum Dry Density: 1533 kg/cm ³		Compaction, %	99%
Method of Compaction: Standard Proctor		CBR, %	2.6 2.2
Tested by: JJ	Date Tested: 1-Feb-24	Swell, %	0.06

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.15
1.91	0.17
2.54	0.18
3.18	0.19
3.81	0.20
4.45	0.21
5.08	0.22
6.35	0.24
7.62	0.26
8.89	0.26



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.18	0.18	2.6	-
5.08	10.3	0.22	0.22	-	2.2

Remarks:

Reviewed by: *P. Bevel*
Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 88
PROJECT:	Local Streets Package 24-R-05 (751-2023.5)	Proctor Test No.:	5

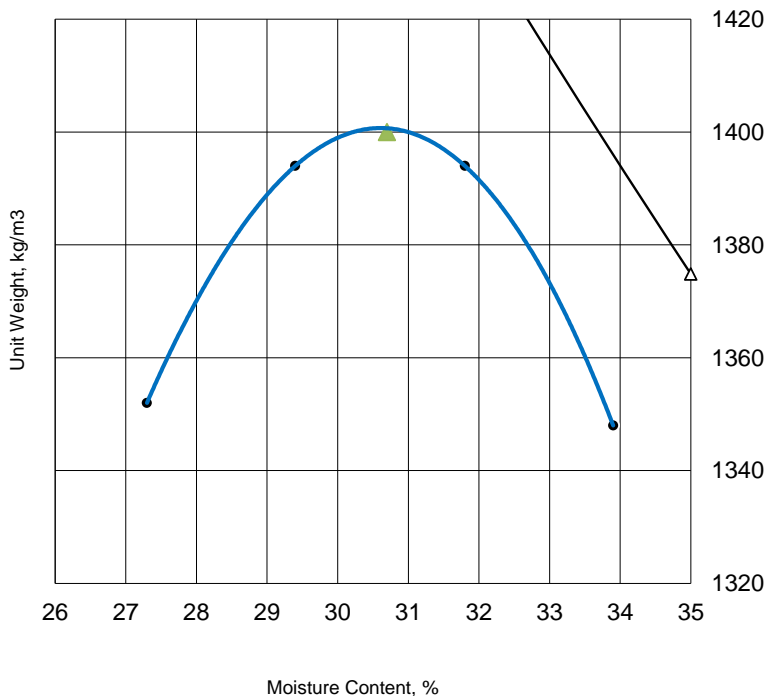
Date Sampled:	9-Apr-24	Date Received:	9-Apr-24	PROCEDURE	A
Sampled By:	ET/MK	Date Tested:	10-Apr-24	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	Clay	BLOWS PER LAYER	25
Material Use:		NO. OF LAYERS	3
Material Supplier:		MOLD SIZE	100
Maximum Size:		MOLD VOLUME	935
Material Source:	440 Hargrave Backlan	WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
Wet Density		1721	1804	1837	1805
Moisture Content		27.3	29.4	31.8	33.9
Dry Density		1352	1394	1394	1348

Moisture - Density Relationship



Maximum Dry Density (MDD):
1400 kg/m³
Optimum Moisture Content
30.7 %

STONE CORRECTION (ASTM D 4718)

4.75mm 0 %
Corrected Moisture:
30.7 %
Corrected Maximum Dry Density:
1400 kg/m³

Remarks:

Tested by: Jaehang Jeong

P. Bevel

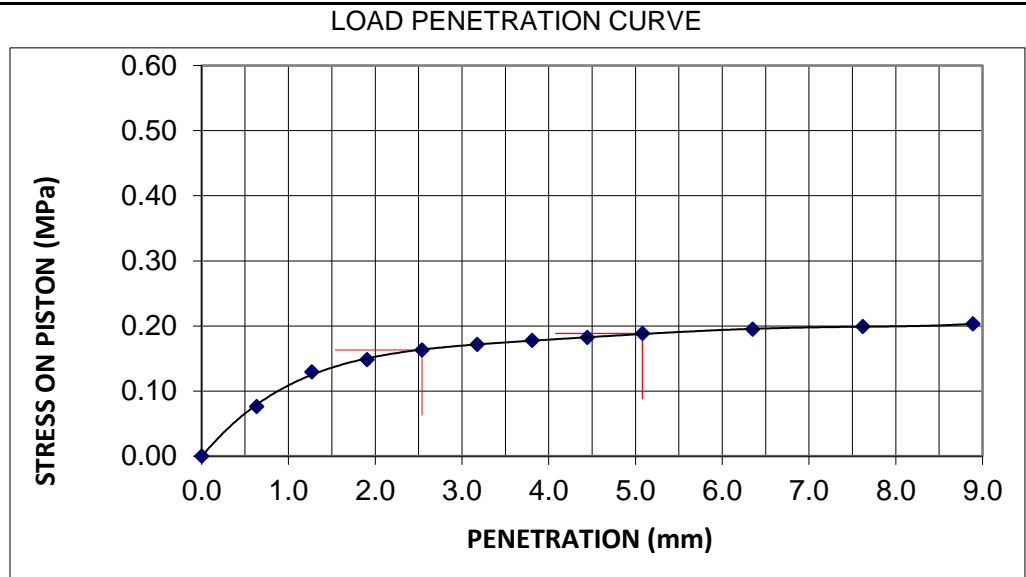
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 88
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: 9-Apr-24
Location: Winnipeg, MB	Date Received: 9-Apr-24
	Date Tested /By: 2-May-24 Jaehang Jeong

SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking After Testing
Source: 440 Hargrave Backlane		Moisture Content (MC), %	35.8 37.5
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 30.7 %		Dry Density, kg/m ³	1341 1355
Maximum Dry Density: 1400 kg/cm ³		Compaction, %	96%
Method of Compaction: Standard Proctor		CBR, %	2.4 1.8
Tested by: JJ	Date Tested: 9-Apr-24	Swell, %	0.05

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.08
1.27	0.13
1.91	0.15
2.54	0.16
3.18	0.17
3.81	0.18
4.45	0.18
5.08	0.19
6.35	0.19
7.62	0.20
8.89	0.20



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.16	0.16	2.4	-
5.08	10.3	0.19	0.19	-	1.8

Remarks:

P. Bevel

Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 89
PROJECT:	Local Streets Package 24-R-05 (751-2023.5)	Proctor Test No.:	6

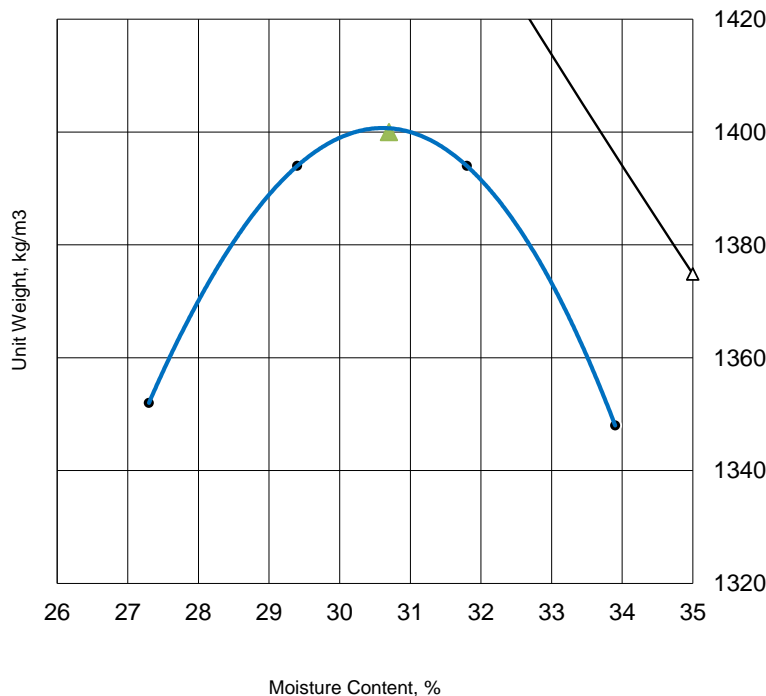
Date Sampled:	9-Apr-24	Date Received:	9-Apr-24	PROCEDURE	A
Sampled By:	ET/MK	Date Tested:	10-Apr-24	PREPARATION	Dry
				COMPACTION METHOD	Manual

MATERIAL INFORMATION

Material Type:	Clay	BLOWS PER LAYER	25
Material Use:		NO. OF LAYERS	3
Material Supplier:		MOLD SIZE	100
Material Source:	397 Carlton St. Backlane	MOLD VOLUME	935
Maximum Size:		WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
Wet Density		1721	1804	1837	1805
Moisture Content		27.3	29.4	31.8	33.9
Dry Density		1352	1394	1394	1348

Moisture - Density Relationship



Maximum Dry Density (MDD):
1400 kg/m³
Optimum Moisture Content
30.7 %

STONE CORRECTION (ASTM D 4718)

4.75mm 0 %
Corrected Moisture:
30.7 %
Corrected Maximum Dry Density:
1400 kg/m³

Remarks:

Tested by: Jaehang Jeong

P. Bevel

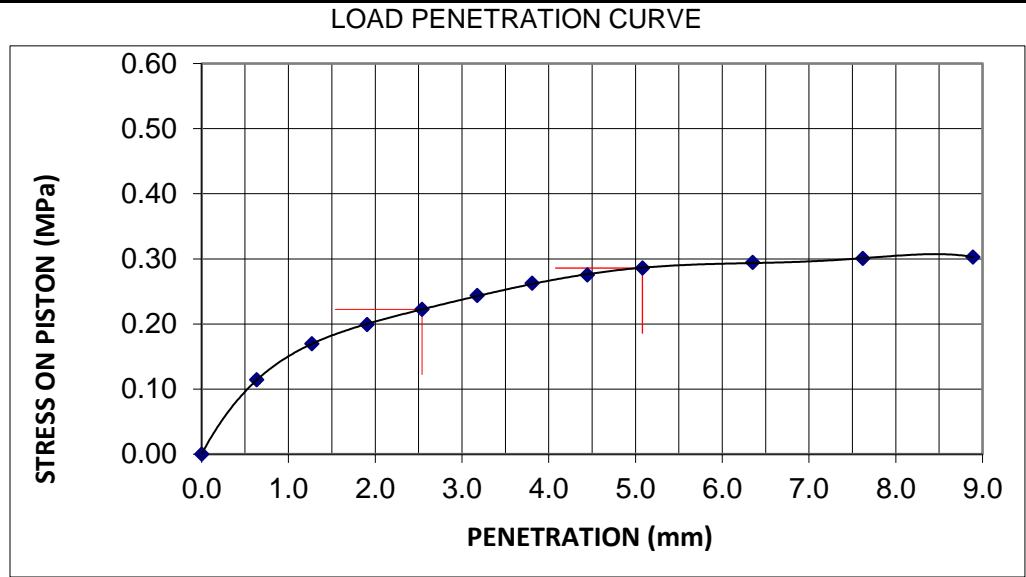
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 89
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: 9-Apr-24
Location: Winnipeg, MB	Date Received: 9-Apr-24
	Date Tested /By: 2-May-24 Jaehang Jeong

SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking After Testing
Source: 397 Carlton St. Backlane		Moisture Content (MC), %	35.8 37.5
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 28.9 %		Dry Density, kg/m ³	1341 1355
Maximum Dry Density: 1452 kg/cm ³		Compaction, %	92%
Method of Compaction: Standard Proctor		CBR, %	3.2 2.8
Tested by: JJ	Date Tested: 9-Apr-24	Swell, %	0.05

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.11
1.27	0.17
1.91	0.20
2.54	0.22
3.18	0.24
3.81	0.26
4.45	0.28
5.08	0.29
6.35	0.29
7.62	0.30
8.89	0.30



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.22	0.22	3.2	-
5.08	10.3	0.29	0.29	-	2.8

Remarks:

P. Bevel

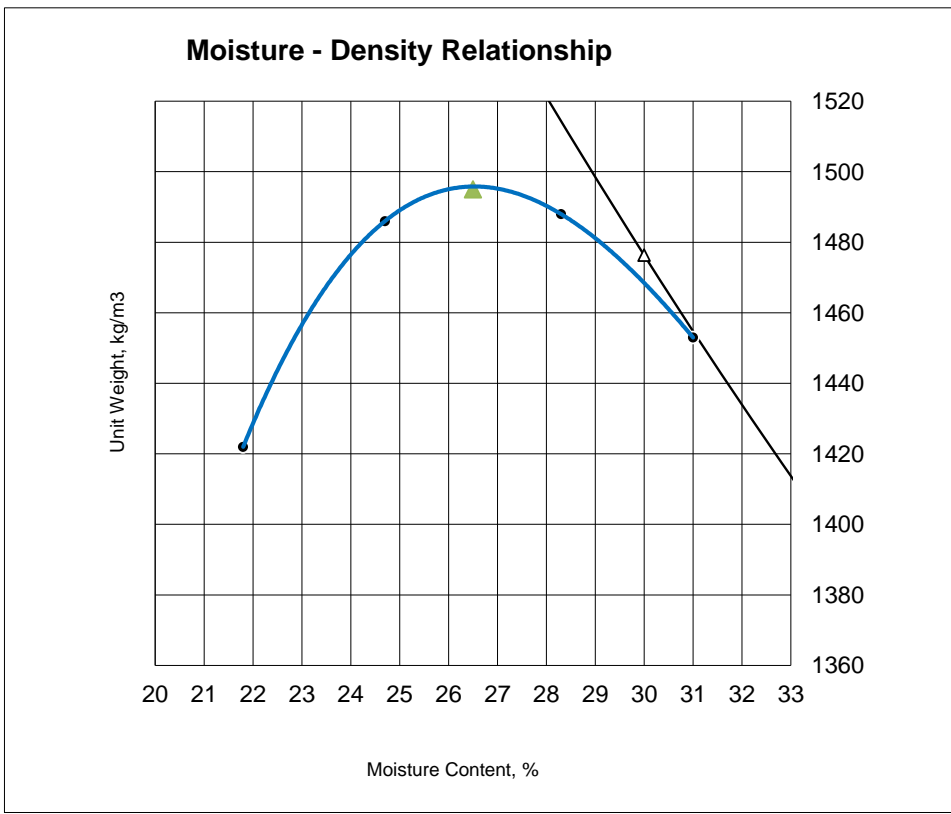
Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 90
PROJECT:	Local Streets Package 24-R-05 (751-2023.5)	Proctor Test No.:	7

Date Sampled:	9-Apr-24	Date Received:	9-Apr-24	PROCEDURE	A
Sampled By:	ET/MK	Date Tested:	10-Apr-24	PREPARATION	Dry
MATERIAL INFORMATION				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
Material Type:	Clay	NO. OF LAYERS	3	MOLD SIZE	100
Material Use:	Material Supplier:	MOLD VOLUME	935	WEIGHT OF HAMMER	2.5 kg
Maximum Size:	Material Source: 325 Ellice Ave. Backlane				

	Test No.	1	2	3	4
Wet Density		1732	1853	1909	1903
Moisture Content		21.8	24.7	28.3	31.0
Dry Density		1422	1486	1488	1453



Maximum Dry Density (MDD):
1495 kg/m³

Optimum Moisture Content
26.5 %

STONE CORRECTION (ASTM D 4718)

4.75mm 0 %

Corrected Moisture:
26.5 %

Corrected Maximum Dry Density:
1495 kg/m³

Remarks:

Tested by: Jaehang Jeong

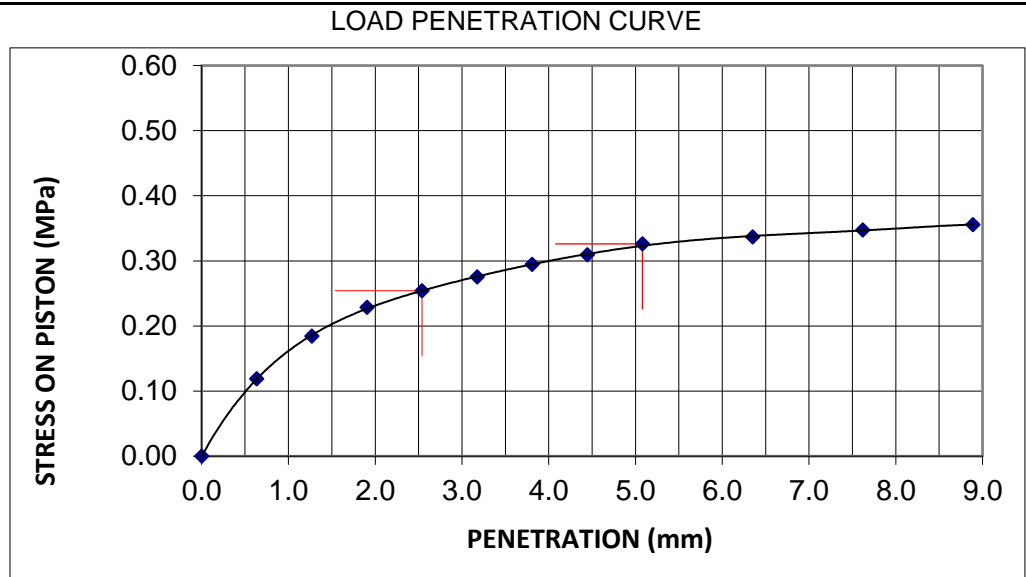
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 90
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: 9-Apr-24
Location: Winnipeg, MB	Date Received: 9-Apr-24
	Date Tested /By: 2-May-24 Jaehang Jeong

SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking After Testing
Source: 325 Ellice Ave Backlane		Moisture Content (MC), %	35.8 37.5
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 26.5 %		Dry Density, kg/m ³	1341 1355
Maximum Dry Density: 1495 kg/cm ³		Compaction, %	90%
Method of Compaction: Standard Proctor		CBR, %	3.7 3.2
Tested by: JJ	Date Tested: 9-Apr-24	Swell, %	0.05

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.12
1.27	0.18
1.91	0.23
2.54	0.25
3.18	0.28
3.81	0.29
4.45	0.31
5.08	0.33
6.35	0.34
7.62	0.35
8.89	0.36



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.25	0.25	3.7	-
5.08	10.3	0.33	0.33	-	3.2

Remarks:

P. Bevel

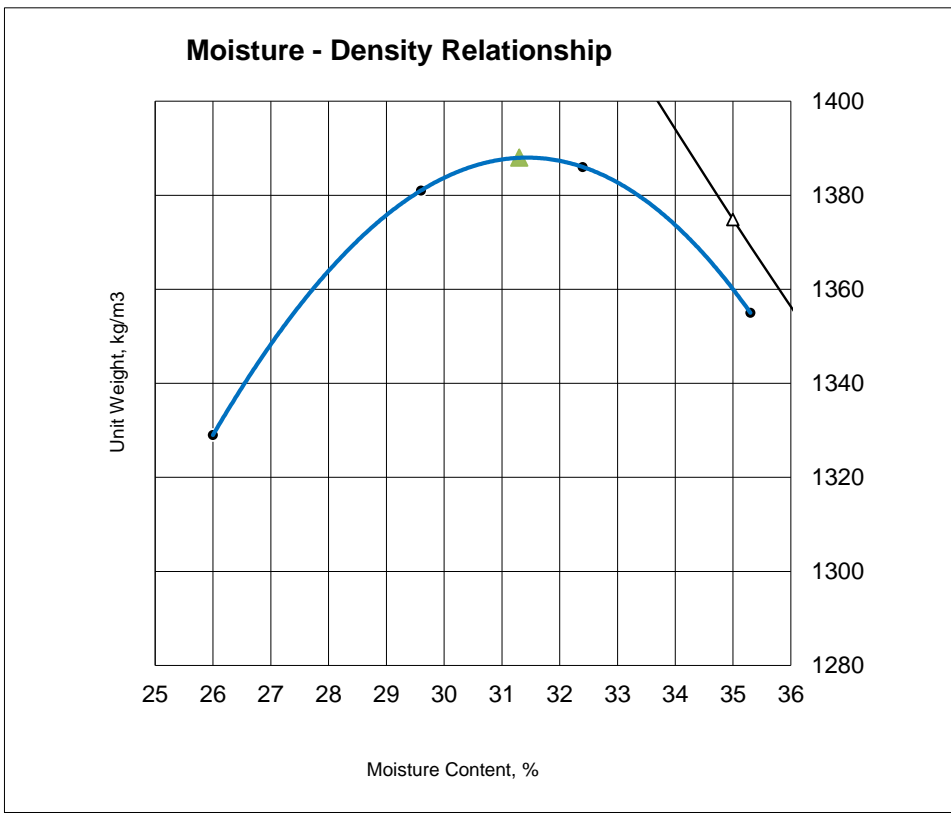
Reviewed by: Paul Bevel

MAXIMUM DRY DENSITY AND MOISTURE CONTENT - Proctor Method (ASTM D698)

CLIENT	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
ATTENTION:	Blair Cockrell	Lab No.:	HM 91
PROJECT:	Local Streets Package 24-R-05 (751-2023.5)	Proctor Test No.:	8

Date Sampled:	January 19, 2023	Date Received:	January 19, 2023	PROCEDURE	A
Sampled By:	ET/MK	Date Tested:	January 30, 2023	PREPARATION	Dry
MATERIAL INFORMATION				COMPACTION METHOD	Manual
				BLOWS PER LAYER	25
Material Type:	Clay	NO. OF LAYERS	3	MOLD SIZE	100
Material Use:		MATERIAL SUPPLIER:		MOLD VOLUME	935
Maximum Size:		MATERIAL SOURCE:	345 Donald St. Backlane	WEIGHT OF HAMMER	2.5 kg

	Test No.	1	2	3	4
Wet Density		1675	1790	1835	1833
Moisture Content		26.0	29.6	32.4	35.3
Dry Density		1329	1381	1386	1355



Maximum Dry Density (MDD):
1388 kg/m³

Optimum Moisture Content
31.3 %

STONE CORRECTION (ASTM D 4718)

4.75mm 0 %

Corrected Moisture:
31.3 %

Corrected Maximum Dry Density:
1388 kg/m³

Remarks:

P. Bevel

Tested by: Jaehang Jeong

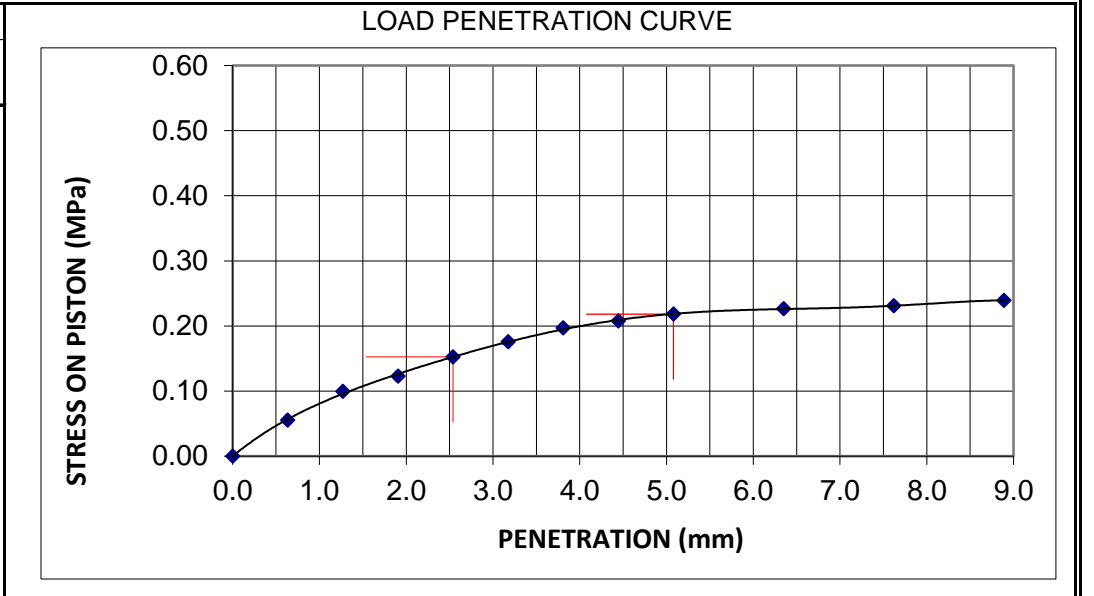
Reviewed by: Paul Bevel

CALIFORNIA BEARING RATIO (CBR) TEST - ASTM D 1883

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No: 112-2310
Attention: Blair Cockrell	Lab No: HM 91
Project Local Streets Package 24-R-05 (751-2023.5)	Date sampled: 10-Apr-24
Location: Winnipeg, MB	Date Received: 10-Apr-24
	Date Tested /By: 2-May-24 Jaehang Jeong

SAMPLE DATA		SPECIMEN DATA	
Sample Type: Clay		DESCRIPTION	Before Soaking After Testing
Source: 345 Donald St. Backlane		Moisture Content (MC), %	35.8 37.5
Sampled by: JJ		MC of top 25mm layer, %	
Optimum Moisture Content: 31.2 %		Dry Density, kg/m ³	1341 1355
Maximum Dry Density: 1388 kg/cm ³		Compaction,%	97%
Method of Compaction: Standard Proctor		CBR, %	2.2 2.1
Tested by: JJ	Date Tested: 9-Apr-24	Swell, %	0.05

LOAD DATA	
PENETRATION mm	STRESS MPa
0	0.00
0.64	0.06
1.27	0.10
1.91	0.12
2.54	0.15
3.18	0.18
3.81	0.20
4.45	0.21
5.08	0.22
6.35	0.23
7.62	0.23
8.89	0.24



PENETRATION mm	STANDARD LOAD MPa	TEST LOAD		BEARING RATIO (soaked)	
		ACTUAL MPa	CORRECTED MPa	at 2.5 mm penetration	at 5.1 mm penetration
2.54	6.9	0.15	0.15	2.2	-
5.08	10.3	0.22	0.22	-	2.1

Remarks:

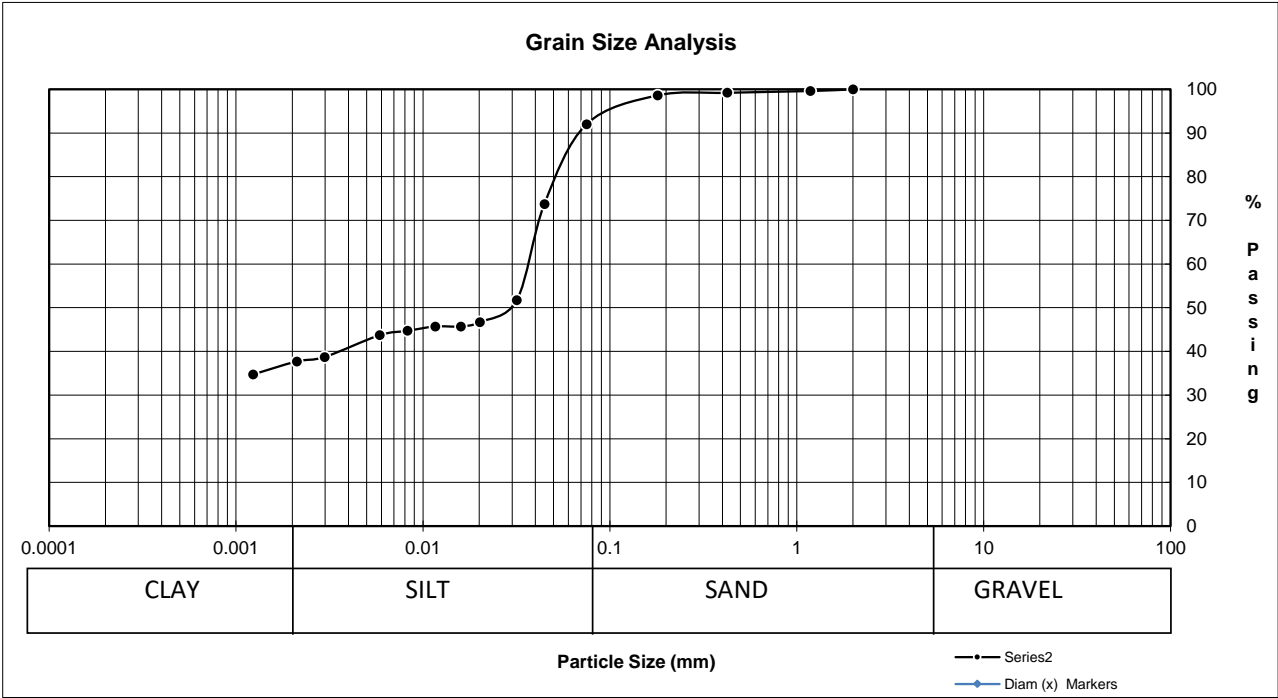
P. Bevel

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 1 Lab No.: HM 26
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Date Sampled: January 29, 2024	Date Received: January 30, 2024	Sieve Analysis		Hydrometer Analysis	
Sampled By: JJ	Date Tested: February 1, 2024	Sieve (mm)	% Passing	Diameter	% Finer
		50.00	100.0		
		37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
Material Identification B.H./T.H. No. TP1-1 Sample Source 271 Lipton Street		12.50	100.0	0.0446	73.7
		9.50	100.0	0.0318	51.7
		4.75	100.0	0.0202	46.7
		2.00	100.0	0.0159	45.7
		1.18	99.6	0.0116	45.7
		0.425	99.2	0.0083	44.7
		0.180	98.6	0.0059	43.7
		0.075	92.0	0.0012	34.7



		% Composition		D10	
		8.00	Gravel	D30	
		54.68	Sand	D60	0.04460
		37.32	Silt	Cu	
			Clay	Cc	

Remarks:
 TP1-1, 271 Lipton Street

P. Bevel

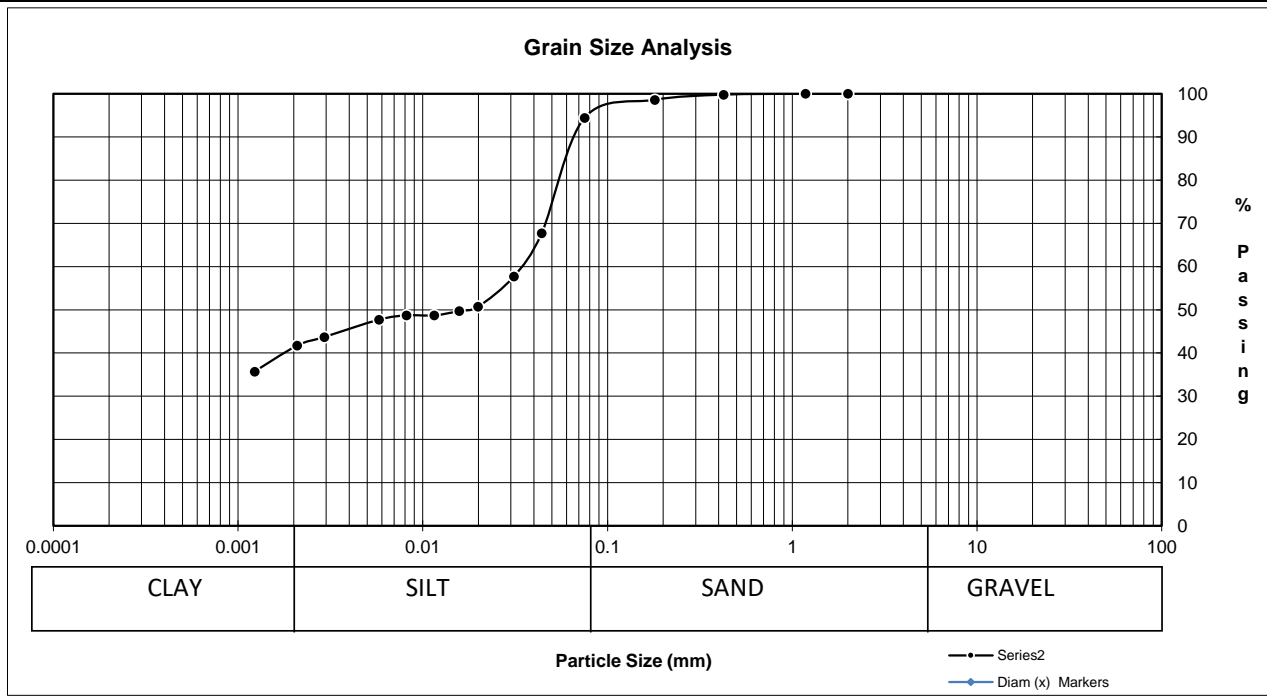
Technician: E. Santiago

Reviewed by Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 2 Lab No.: HM 30
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Date Sampled:	Jan 29, 2024	Date Received:	Jan 30, 2024	Sieve Analysis		Hydrometer Analysis	
Sampled By:	JJ	Date Tested:	Feb 1, 2024	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. TP1-5 Sample Source 55 Lipton Street				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
				12.50	100.0	0.0440	67.7
				9.50	100.0	0.0311	57.7
				4.75	100.0	0.0199	50.7
				2.00	100.0	0.0157	49.7
				1.18	100.0	0.0115	48.7
				0.425	99.8	0.0081	48.7
				0.180	98.6	0.0058	47.7
0.075	94.4	0.0012	35.7				



	% Composition	D10
	Gravel	D30
	Sand	D60
	Silt	Cu
	Clay	Cc
		0.04398

Remarks:
55 Lipton Street, (TP1-5)

P. Bevel

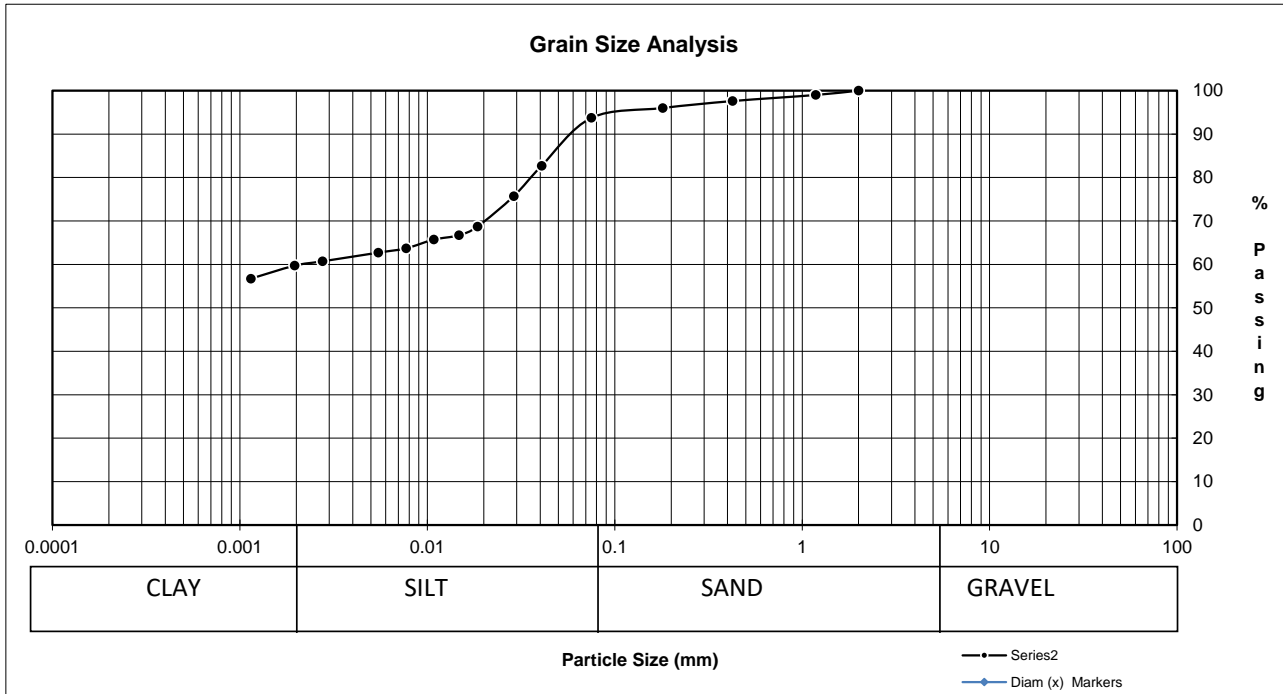
Technician: E. Santiago

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 5 Lab No.: HM 88
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Date Sampled:	Apr 9, 2024	Date Received:	Apr 9, 2024	Sieve Analysis		Hydrometer Analysis	
Sampled By:	ET	Date Tested:	May 2, 2024	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. BL-1 440 Hargrave Backlane Sample Source Sample 2				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
				12.50	100.0	0.0407	82.7
				9.50	100.0	0.0289	75.7
				4.75	100.0	0.0185	68.7
				2.00	100.0	0.0148	66.7
				1.18	99.0	0.0108	65.7
				0.425	97.6	0.0077	63.7
				0.180	96.0	0.0055	62.7
0.075	93.7	0.0011	56.7				



	% Composition			
		Gravel	D10	
	6.28	Sand	D30	
	33.86	Silt	D60	0.04303
	59.86	Clay	Cu	
			Cc	

Remarks:

P. Bevel

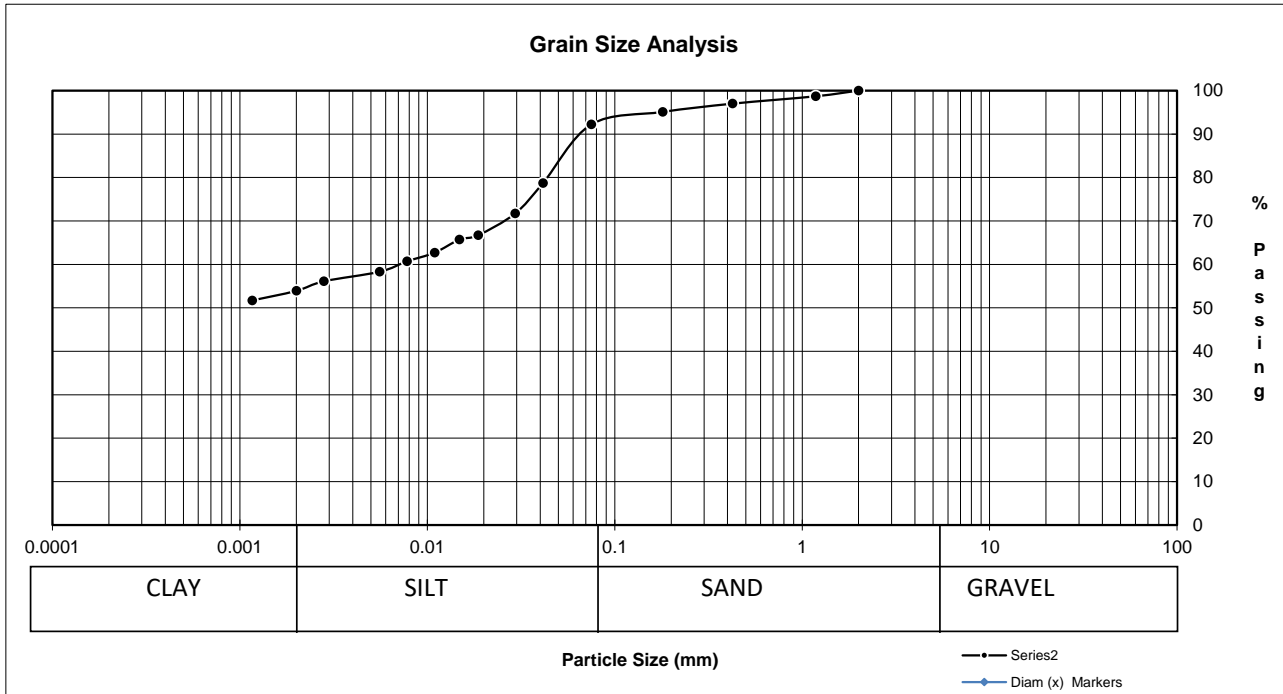
Technician:

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 6 Lab No.: HM 89
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Date Sampled:	Apr 9, 2024	Date Received:	Apr 9, 2024	Sieve Analysis		Hydrometer Analysis	
Sampled By:	ET	Date Tested:	May 2, 2024	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. BL-2 397 Carlton St. Backlane Sample Source Sample 2				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
				12.50	100.0	0.0414	78.7
				9.50	100.0	0.0294	71.7
				4.75	100.0	0.0187	66.7
				2.00	100.0	0.0148	65.7
				1.18	98.7	0.0109	62.7
				0.425	97.0	0.0078	60.7
				0.180	95.1	0.0056	58.3
0.075	92.2	0.0012	51.7				



% Composition		D10	
7.78	Gravel	D30	
38.31	Sand	D60	0.04303
53.91	Silt	Cu	
	Clay	Cc	

Remarks:

P. Bevel

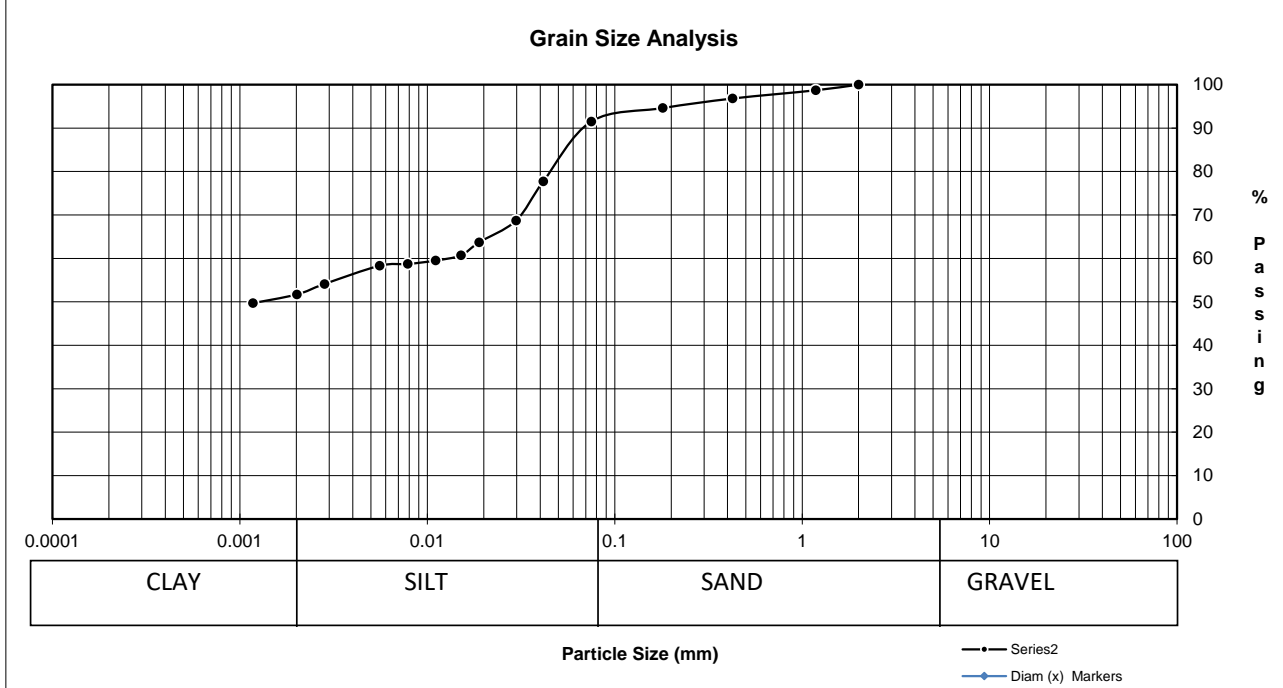
Technician:

Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 7 Lab No.: HM 90
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Date Sampled:	Date Received:	Sieve Analysis		Hydrometer Analysis	
Sampled By:	Date Tested:	Sieve (mm)	% Passing	Diameter	% Finer
Apr 9, 2024	Apr 9, 2024	50.00	100.0		
ET	May 2, 2024	37.50	100.0		
		25.00	100.0		
		19.00	100.0		
		16.00	100.0		
Material Identification		12.50	100.0	0.0416	77.7
B.H./T.H. No. BL-3		9.50	100.0	0.0297	68.7
325 Ellice Ave. Backlane		4.75	100.0	0.0189	63.7
Sample Source Sample 2		2.00	100.0	0.0151	60.7
		1.18	98.7	0.0111	59.5
		0.425	96.8	0.0079	58.7
		0.180	94.6	0.0056	58.3
		0.075	91.5	0.0012	49.7



	% Composition		D10	0.04303
		Gravel	D30	
	Sand	D60		
	Silt	Cu		
	Clay	Cc		

Remarks:

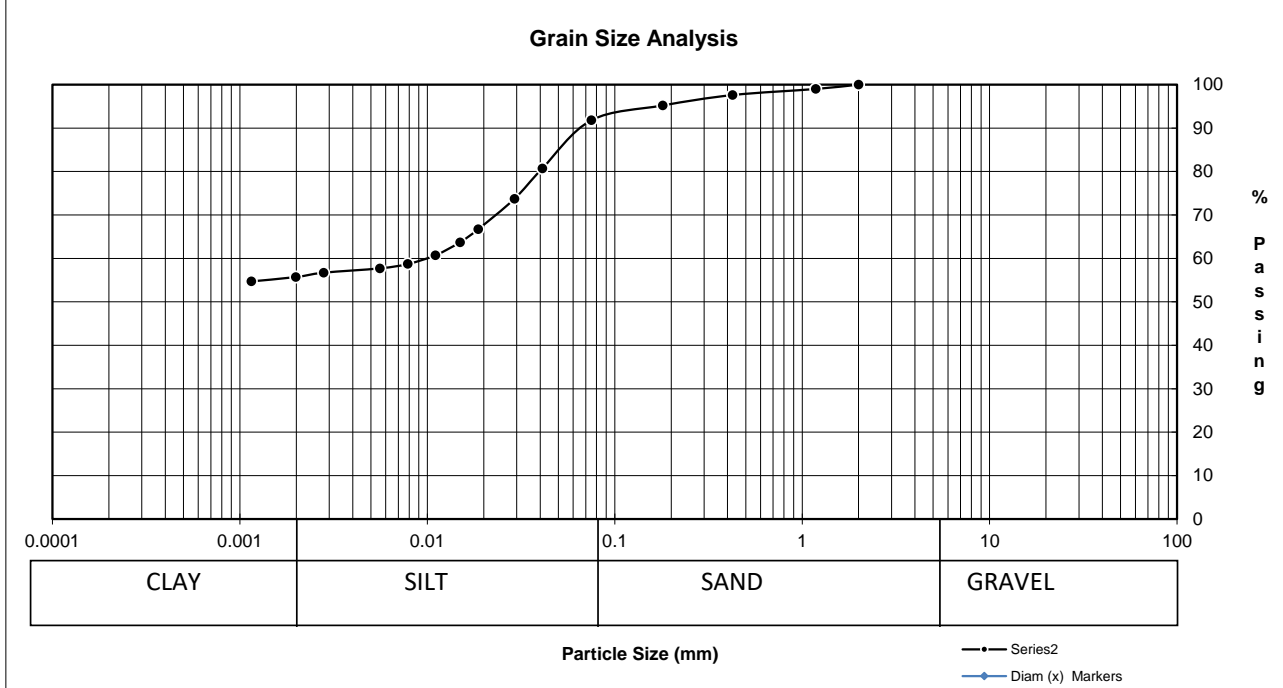
P. Bevel

Technician: _____ Reviewed by: Paul Bevel

PARTICLE SIZE ANALYSIS OF SOILS TEST REPORT

CLIENT: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 ATTENTION: Blair Cockrell PROJECT: Local Streets Package 24-R-05 (751-2023.5) Winnipeg, MB	Project No.: 112-2310 PSA Test No.: 8 Lab No.: HM 91
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Date Sampled:	Apr 10, 2024	Date Received:	Apr 10, 2024	Sieve Analysis		Hydrometer Analysis	
Sampled By:	ET	Date Tested:	May 2, 2024	Sieve (mm)	% Passing	Diameter	% Finer
Material Identification B.H./T.H. No. BL-4 345 Donald St. Backlane Sample Source Sample 3				50.00	100.0		
				37.50	100.0		
				25.00	100.0		
				19.00	100.0		
				16.00	100.0		
				12.50	100.0	0.0411	80.7
				9.50	100.0	0.0292	73.7
				4.75	100.0	0.0187	66.7
				2.00	100.0	0.0149	63.7
				1.18	99.0	0.0110	60.7
				0.425	97.6	0.0079	58.7
				0.180	95.2	0.0056	57.7
0.075	91.8	0.0012	54.7				



	% Composition			
		Gravel	D10	
	Sand	D30		
	Silt	D60	0.04303	
	Clay	Cu		
		Cc		

Remarks:
199 Ruby Street (TP2-2)

P. Bevel

Technician:

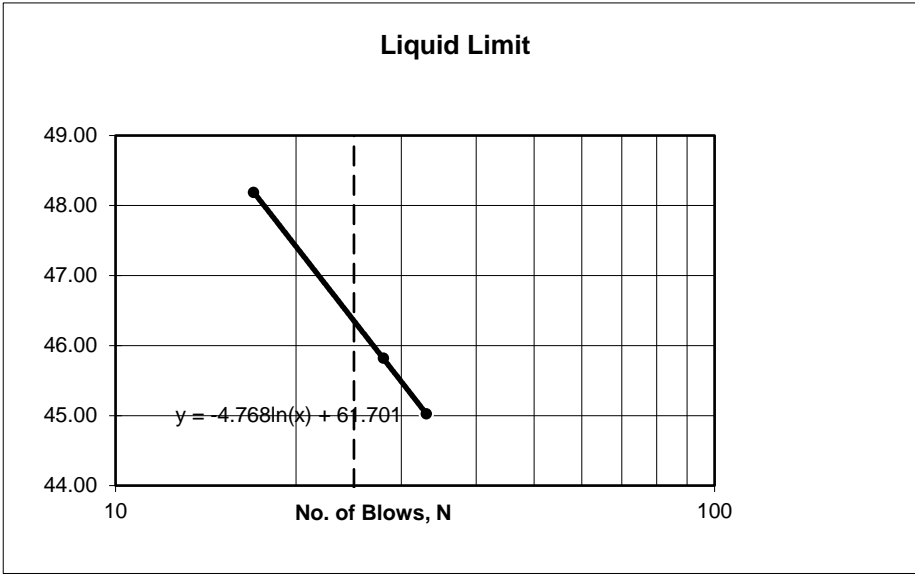
Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
Attention.:	Blair Cockrell	PI Test No.:	1
Project:	Local Streets Package 24-R-05 (751-2023). Winnipeg, MB	Lab No.:	HM 26
		Date Sampled/By:	Jan 29, 2024 J. Jeong
		Date Received:	Jan 30, 2024
		Date Tested / By:	Feb 2, 2024 G. Manalo

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	13.34	13.19	12.31		
Dry Soil + Dish:	10.58	10.45	9.78		
Moisture:	2.76	2.74	2.53		
Dish:	4.45	4.47	4.53		
Dry Soil:	6.13	5.98	5.25		
% Moisture:	45.02	45.82	48.19		
No. of Blows:	33	28	17		
Liquid Limit:					46



Material Identification:

TP1-1

271 Lipton St.
Depth:

Liquid Limit, %: **46**
Plastic Limit, %: **16**
Plasticity Index: **30**
(LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	10.62	10.57	10.64		
Dry Soil + Dish:	9.77	9.67	9.81		
Moisture:	0.85	0.90	0.83		
Dish:	4.42	4.25	4.53		
Dry Soil:	5.35	5.42	5.28		
% Moisture:	15.89	16.61	15.72		
				Average:	16

Test Method : ASTM: D4318, D2216

Remarks:
TP1-1, 271 Lipton Street



Reviewed by: Paul Bevel

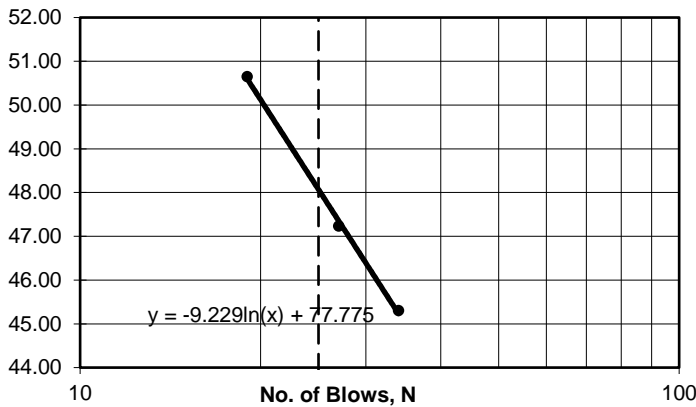
Atterberg Limits (ASTM D4318)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
Attention.:	Blair Cockrell	PI Test No.:	2
Project:	Local Streets Package 24-R-05 (751-2023). Winnipeg, MB	Lab No.:	HM 30
		Date Sampled/By:	Jan 29, 2024 J. Jeong
		Date Received:	Jan 30, 2024
		Date Tested / By:	Feb 2, 2024 G. Manalo

Liquid Limit Determination

Dish No.:	1	2	3	Liquid Limit 25 Blows
Wet Soil + Dish:	12.83	11.22	12.61	
Dry Soil + Dish:	10.03	9.00	9.89	
Moisture:	2.8	2.22	2.72	
Dish:	3.85	4.3	4.52	
Dry Soil:	6.18	4.7	5.37	
% Moisture:	45.31	47.23	50.65	
No. of Blows:	34	27	19	
Liquid Limit:				48

Liquid Limit



Material Identification:

**TP1-5
55 Lipton St.**

Depth:

Liquid Limit, %: **48**
Plastic Limit, %: **18**
Plasticity Index: **30**
(LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3	Average:
Wet Soil + Dish:	10.42	9.91	10.84	
Dry Soil + Dish:	9.49	9.05	9.89	
Moisture:	0.93	0.86	0.95	
Dish:	4.46	3.9	4.69	
Dry Soil:	5.03	5.15	5.2	
% Moisture:	18.49	16.70	18.27	
				18

Test Method : ASTM: D4318, D2216

Remarks:
55 Lipton St. (TP1-5)

P. Bevel

Reviewed by: Paul Bevel

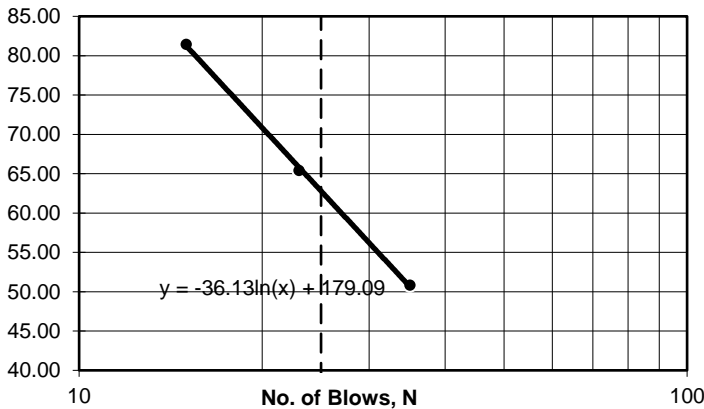
Atterberg Limits (ASTM D4318)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
Attention.:	Blair Cockrell	PI Test No.:	5
Project:	Local Streets Package 24-R-05 (751-2023.5 Winnipeg, MB	Lab No.:	HM 88
		Date Sampled/By:	April 9, 2024 J. Jeong
		Date Received:	April 9, 2024
		Date Tested / By:	April 10, 2024 Greg Manalo

Liquid Limit Determination

Dish No.:	1	2	3		Liquid Limit 25 Blows
Wet Soil + Dish:	16.55	19.93	18.74		
Dry Soil + Dish:	12.49	13.95	12.37		
Moisture:	4.05	5.98	6.37		
Dish:	4.52	4.81	4.56		
Dry Soil:	7.97	9.14	7.81		
% Moisture:	50.84	65.40	81.45		
No. of Blows:	35	23	15		
Liquid Limit:					

Liquid Limit



Material Identification:

BL-1
440 Hargrave Backlane

Depth:

Liquid Limit, %: **63**
Plastic Limit, %: **27**
Plasticity Index: **36**
(LL-PL)

Plastic Limit Determination

Dish No.:	1	2	3		
Wet Soil + Dish:	13.85	13.85	13.85		
Dry Soil + Dish:	11.84	11.84	11.86		
Moisture:	2.01	2.00	1.98		
Dish:	4.39	4.51	4.65		
Dry Soil:	7.45	7.33	7.21		
% Moisture:	27.00	27.30	27.50		
				Average:	27

Test Method : ASTM: D4318, D2216

Remarks:
440 Hargrave Backlane (BL-1)

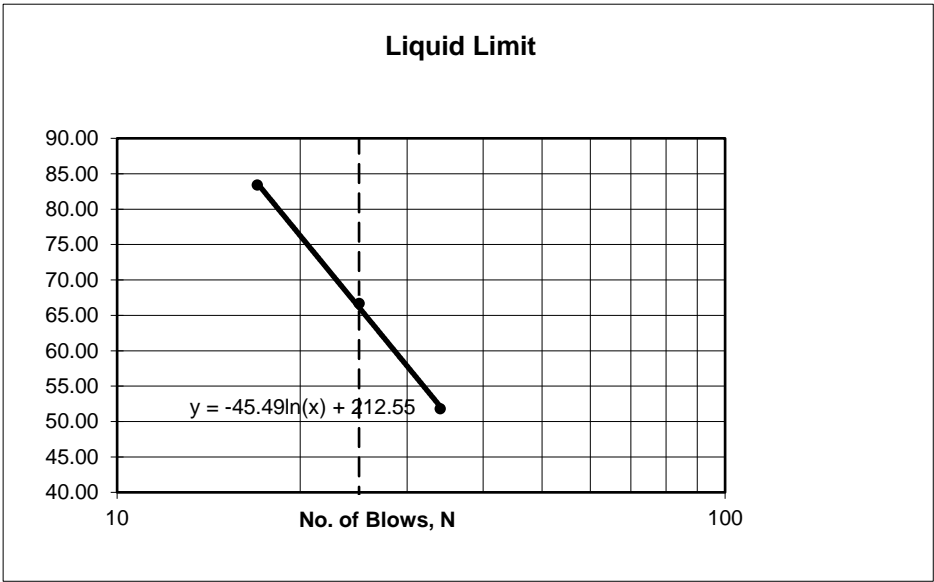


Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client:	AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7	Project No.:	112-2310
Attention.:	Blair Cockrell	PI Test No.:	6
Project:	Local Streets Package 24-R-05 (751-2023.5 Winnipeg, MB	Lab No.:	HM 89
		Date Sampled/By:	April 9, 2024 J. Jeong
		Date Received:	April 9, 2024
		Date Tested / By:	April 10, 2024 Greg Manalo

Liquid Limit Determination				Liquid Limit 25 Blows
Dish No.:	1	2	3	
Wet Soil + Dish:	16.75	18.64	15.95	
Dry Soil + Dish:	12.58	13.11	10.77	
Moisture:	4.17	5.53	5.18	
Dish:	4.52	4.81	4.56	
Dry Soil:	8.06	8.30	6.21	
% Moisture:	51.80	66.70	83.40	
No. of Blows:	34	25	17	
Liquid Limit:				66



Material Identification:
BL-2
397 Carlton St. Backlane

Depth:

Liquid Limit, %: **66**
Plastic Limit, %: **26**
Plasticity Index: **40**
(LL-PL)

Plastic Limit Determination				Average: 26
Dish No.:	1	2	3	
Wet Soil + Dish:	14.87	16.95	14.35	
Dry Soil + Dish:	12.68	14.24	12.32	
Moisture:	2.19	2.71	2.03	
Dish:	4.4	4.15	4.5	
Dry Soil:	8.28	10.09	7.82	
% Moisture:	26.40	26.80	26.00	

Test Method : ASTM: D4318, D2216

Remarks:
397 Carlton St. Backlane (BL-2)

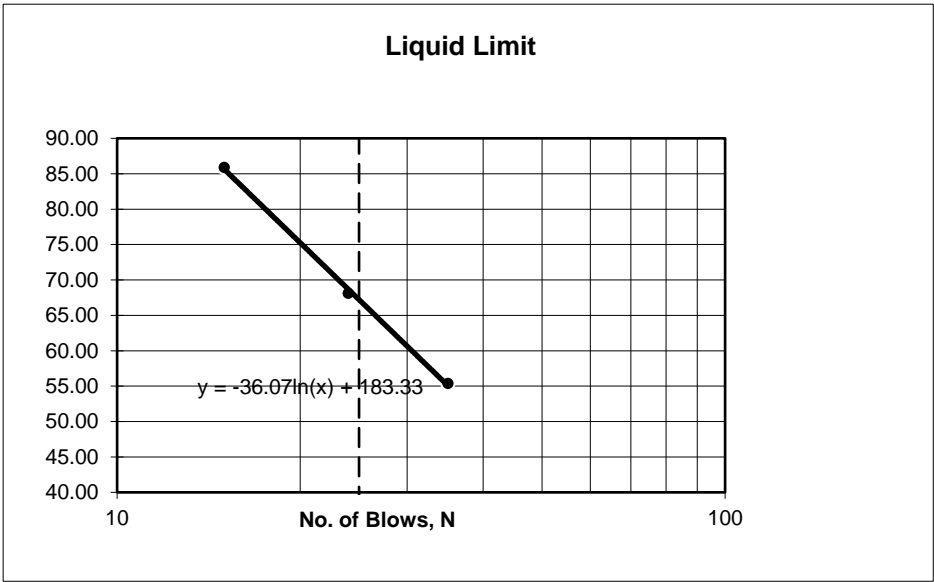
P. Bevel

Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 Attention.: Blair Cockrell Project: Local Streets Package 24-R-05 (751-2023.5 Winnipeg, MB	Project No.: 112-2310 PI Test No.: 7 Lab No.: HM 90 Date Sampled/By: April 9, 2024 J. Jeong Date Received: April 9, 2024 Date Tested / By: April 10, 2024 Greg Manalo
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Liquid Limit Determination				Liquid Limit 25 Blows
Dish No.:	1	2	3	
Wet Soil + Dish:	16.45	20.43	19.64	
Dry Soil + Dish:	12.20	14.10	12.67	
Moisture:	4.25	6.33	6.97	
Dish:	4.52	4.81	4.56	
Dry Soil:	7.68	9.29	8.11	
% Moisture:	55.40	68.10	85.90	
No. of Blows:	35	24	15	
Liquid Limit:				67



Material Identification:
BL-3
325 Ellice Ave Backlane

Depth:

Liquid Limit, %: **67**
 Plastic Limit, %: **27**
 Plasticity Index: **41**
 (LL-PL)

Plastic Limit Determination				
Dish No.:	1	2	3	
Wet Soil + Dish:	15.30	15.64	15.75	
Dry Soil + Dish:	13.02	13.22	13.37	
Moisture:	2.28	2.42	2.38	
Dish:	4.4	4.15	4.5	
Dry Soil:	8.62	9.07	8.87	
% Moisture:	26.50	26.70	26.90	
			Average:	27

Test Method : ASTM: D4318, D2216

Remarks:
 325 Ellice Ave Backlane (BL-3)

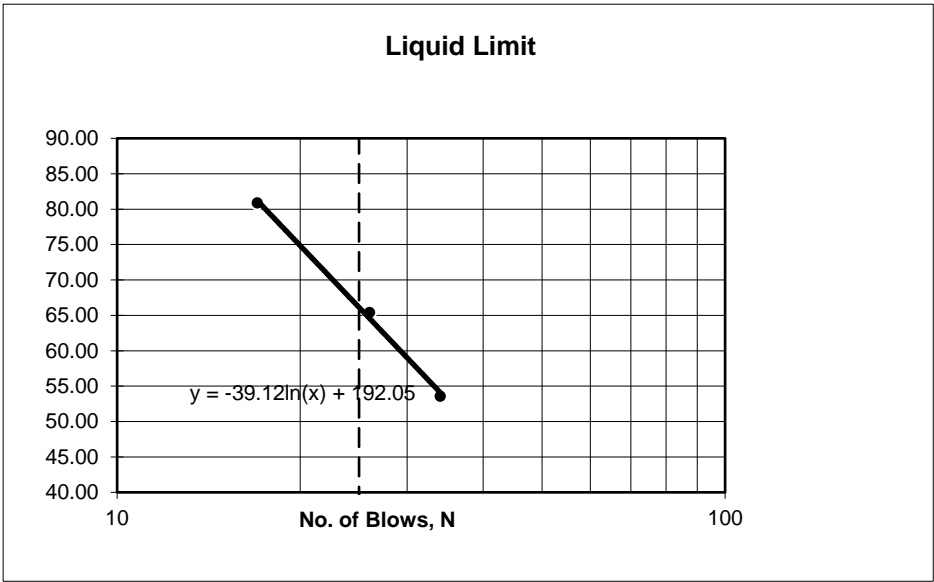


Reviewed by: Paul Bevel

Atterberg Limits (ASTM D4318)

Client: AECOM Canada Ltd. 99 Commerce Drive, Winnipeg MB R3P 0Y7 Attention.: Blair Cockrell Project: Local Streets Package 24-R-05 (751-2023.5 Winnipeg, MB	Project No.: 112-2310 PI Test No.: 8 Lab No.: HM 91 Date Sampled/By: April 10, 2024 M. Kawano Date Received: April 10, 2024 Date Tested / By: April 11, 2024 Greg Manalo
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Liquid Limit Determination				Liquid Limit 25 Blows
Dish No.:	1	2	3	
Wet Soil + Dish:	15.70	16.91	17.84	
Dry Soil + Dish:	11.80	12.13	11.90	
Moisture:	3.90	4.78	5.94	
Dish:	4.52	4.81	4.56	
Dry Soil:	7.28	7.32	7.34	
% Moisture:	53.60	65.40	80.90	
No. of Blows:	34	26	17	
Liquid Limit:				66



Material Identification:
BL-4
345 Donald St. Backlane

Depth:

Liquid Limit, %: **66**
 Plastic Limit, %: **26**
 Plasticity Index: **40**
 (LL-PL)

Plastic Limit Determination				
Dish No.:	1	2	3	
Wet Soil + Dish:	15.30	15.70	15.42	
Dry Soil + Dish:	13.06	13.29	13.16	
Moisture:	2.24	2.41	2.26	
Dish:	4.4	4.15	4.5	
Dry Soil:	8.66	9.14	8.66	
% Moisture:	25.90	26.30	26.10	
			Average:	26

Test Method : ASTM: D4318, D2216

Remarks:
 345 Donald St. Backlane (BL-4)



Reviewed by: Paul Bevel

Location	Core No.	Test Hole No.	Coordinates
Yarwood	15		49°54'8.80"N, 97°10'21.01"W
	16		49°54'8.71"N, 97°10'21.68"W
	17		49°54'8.81"N, 97°10'25.14"W
	18		49°54'8.96"N, 97°10'27.14"W
Hartford	19		49°56'24.58"N, 97° 7'49.63"W
	20		49°56'23.57"N, 97° 7'46.28"W
	21		49°56'21.80"N, 97° 7'40.96"W
	22		49°56'20.08"N, 97° 7'35.35"W
	23		49°56'18.49"N, 97° 7'30.50"W
	24		49°56'16.92"N, 97° 7'25.96"W
	25		49°56'17.61"N, 97° 7'27.91"W
	26		49°56'17.44"N, 97° 7'27.23"W
	27		49°56'17.25"N, 97° 7'26.91"W
	28		49°56'16.85"N, 97° 7'25.49"W
	29		49°56'16.64"N, 97° 7'24.86"W
	30		49°56'20.70"N, 97° 7'37.52"W
Lipton	31	TP 1-1	49°53'4.00"N, 97°10'25.35"W
	32	TP 1-2	49°52'59.44"N, 97°10'25.90"W
	33	TP 1-3	49°52'54.77"N, 97°10'26.46"W
	34	TP 1-4	49°52'49.71"N, 97°10'26.72"W
	35	TP 1-5	49°52'44.33"N, 97°10'27.02"W
	36	TP 1-6	49°52'39.51"N, 97°10'27.48"W

	37	TP 2-1	49°53'1.39"N, 97°10'19.53"W
Ruby St / Lenore St Alley	38	TP 2-2	49°52'57.58"N, 97°10'19.97"W
	39	TP 2-3	49°52'55.13"N, 97°10'20.26"W
	40	TP 3-1	49°53'46.73"N, 97° 9'19.29"W
Langside St/ Young St Alley	41	TP 3-2	49°53'42.21"N, 97° 9'19.51"W
	42	TP 3-3	49°53'37.94"N, 97° 9'19.81"W
	43	TP 3-4	49°53'35.60"N, 97° 9'18.51"W
Notre Dame Ave/ Cumberland Ave - Carlton St/Hargrave St		BL 1	49°53'49.23"N, 97° 8'49.05"W
Carlton St/ Hargrave St - Cumberland Ave / Qu'Appelle Ave		BL 2	49°53'46.63"N, 97° 8'49.80"W
Hargrave St/ Donald St - Cumberland Ave/Ellice Ave		BL 3	49°53'42.93"N, 97° 8'42.30"W
Donald St/ Smith St - Donald St/Ellice Ave		BL 4	49°53'44.84"N, 97° 8'38.15"W