APPENDIX ‘A’

GEOTECHNICAL REPORT

APPENDIX 'A' – GEOTECHNICAL REPORT

The geotechnical report is provided to aid in the Contractor's evaluation of the existing pavement structure and/or soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in pavement structure and/or soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commence.

H. MANALO CONSULTING LTD.

1402 Notre Dame Ave.
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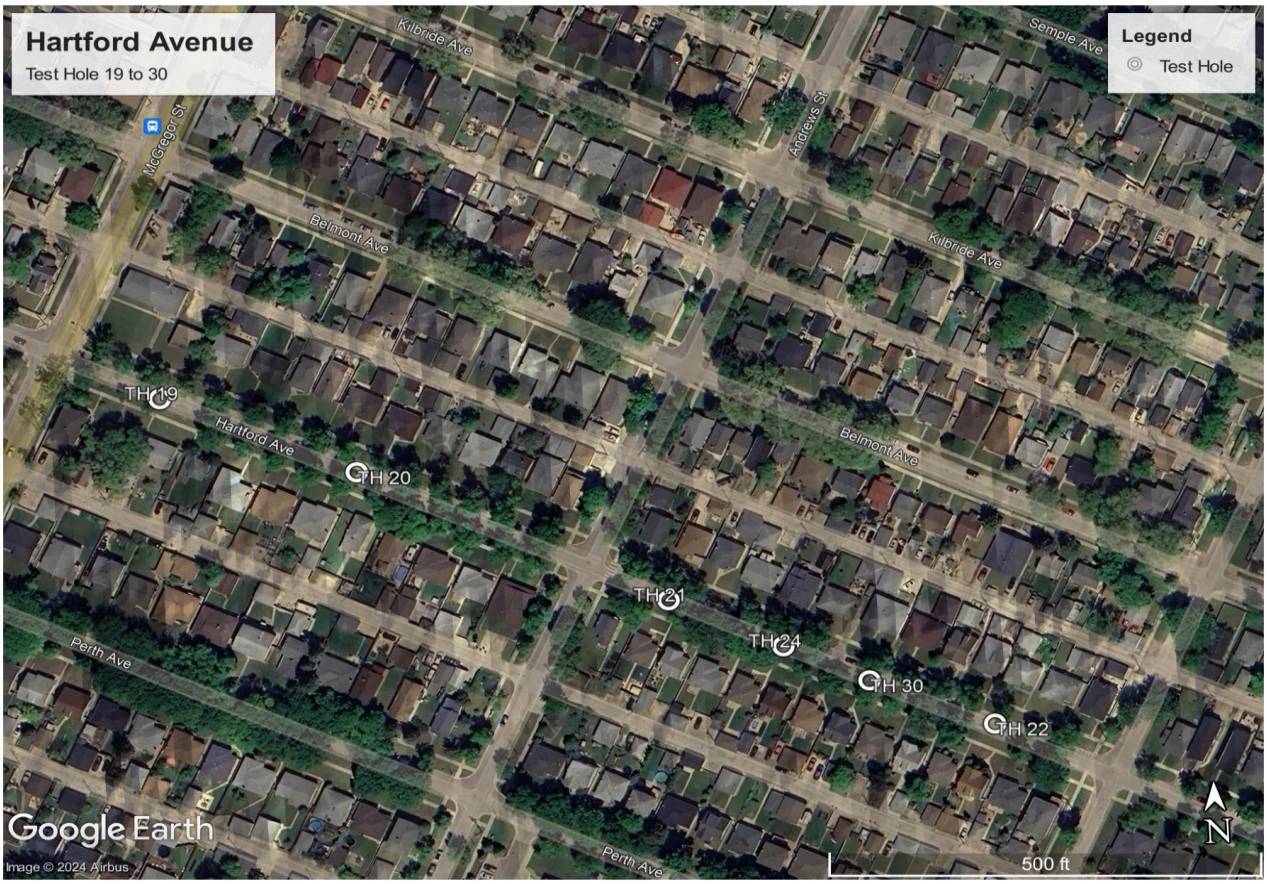
Phone: (204) 697-3854

Hartford Avenue - McGregor St / Salter St.

Core Location



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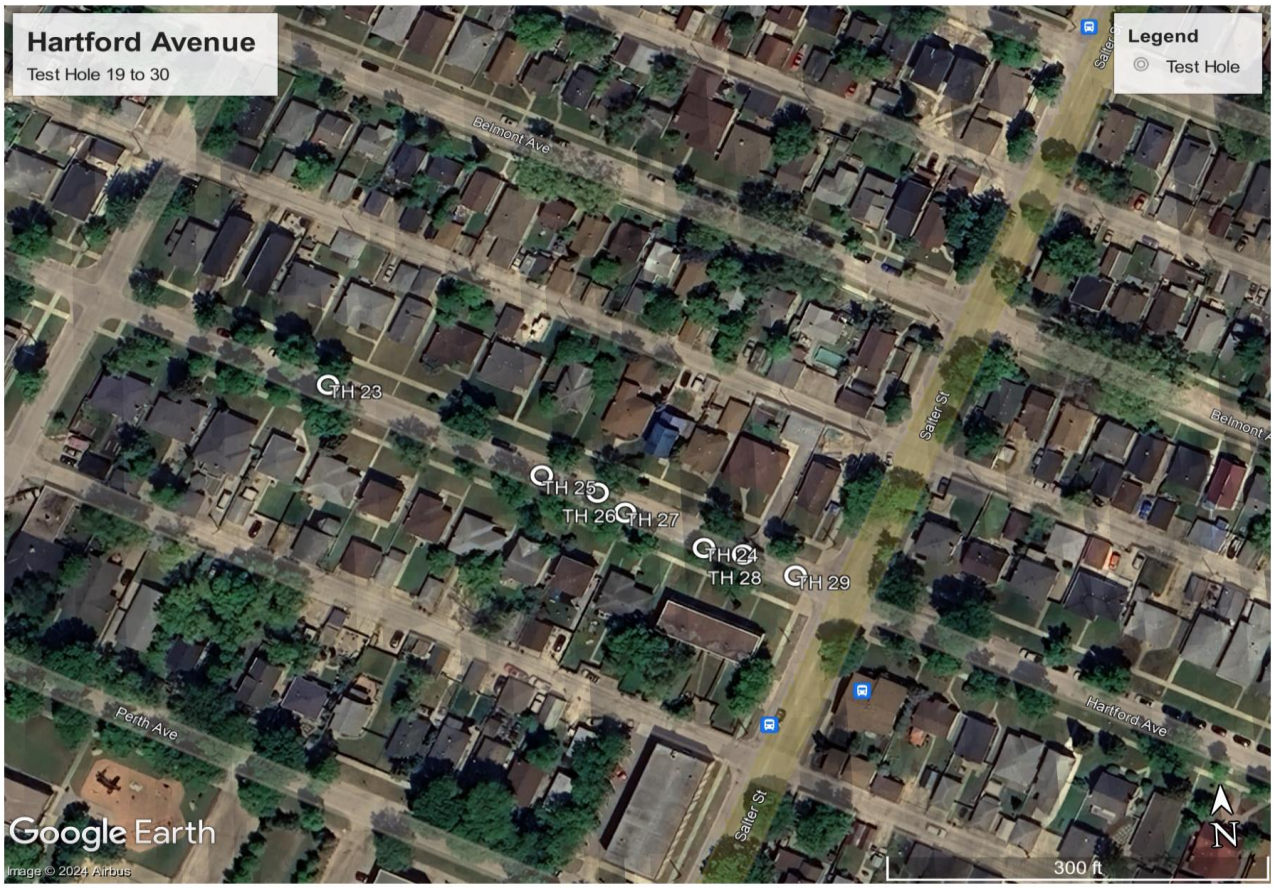
Hartford Avenue - McGregor St / Salter St.

Core Location



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Hartford Avenue - McGregor St / Salter St.

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
19	EBL Mid Slab	50.8	133.4
20	WBL Mid Slab	69.9	87.9
21	WBL Mid Slab	44.5	152.2
22	EBL Joint	50.8	165.1
23	WBL Mid Slab	76.2	120.7
24	WBL Mid Slab	57.2	139.7
25	EBL on crack	50.8	127.0
26	EBL 1m from gutter	50.8	127.0
27	WBL Mid Slab	63.5	139.7
28	EBL Mid Slab	82.6	158.7
29	EBL Mid Slab	63.5	146.1
30	Center on Joint	114.3	139.7

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Hartford Ave, EBL, Core 19
(Asphalt Thk 50.8mm; Conc Thk 133.4)

Hartford Ave, WBL, Core 20
(Asphalt Thk 69.9mm; Conc Thk 87.93)

Hartford Ave, WBL, Core 21
(Asphalt Thk 44.5mm, Conc Thk 152.2mm)

Hartford Ave, EBL, Core 22
(Asphalt Thk 50.8mm, Conc Thk 165.1)

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Hartford Ave, WBL, Core 23
(Asphalt Thk 76.2mm, Conc Thk 120.7mm)

Hartford Ave, EBL, Core 24
(Asphalt Thk 57.2mm, Conc Thk 139.7mm)

Hartford Ave, EBL, Core 25
(Asphalt Thk 50.8mm, Conc Thk 127mm)

Hartford Ave, WBL, Core 26
(Asphalt Thk 50.8mm, Conc Thk 127mm)

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Hartford Ave, WBL,Core 27
(Asphalt Thk 63.5mm; Conc Thk 139.7mm)

Hartford Ave, WBL, Core 28
(Asphalt Thk 82.6mm; Conc Thk 158.7mm)

Hartford Ave, WBL, Core 29
(Asphalt Thk 63.5mm; Conc Thk 146.1mm)

Hartford Ave, WBL, Core 30
(Asphalt Thk 114.3mm; Conc Thk 139.7)

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Core Location

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Email: hermie@hmanalo.ca

Table 1. Core Location and Thickness of Pavement

Core No	Core Location (Coordinates)	Depth of Concrete (mm)	Depth of Asphalt (mm)
	Sanford St - Wellington Ave/Sargent Ave		
1	SBL, 49.900821°, -97.193432°	200	30
2	SBL, 49.900719°, -97.193404°	200	60
3	NBL, 49.900538°, -97.193344°	200	30
4	NBL, 49.900166°, -97.193426°	200	60
5	SBL, 49.900014°, -97.193517°	200	30
6	SBL, 49.899771°, -97.193516°	170	60
7	NBL, 49.899651°, -97.193451°	170	80
8	NBL, 49.899498°, -97.193464°	170	60
9	NBL, 49.899111°, -97.193498°	230	60
10	NBL, 49.899009°, -97.193492°	150	60
11	SBL, 49.898892°, -97.193589°	230	60
12	SBL, 49.898463°, -97.193639°	200	30
13	NBL, 49.898065°, -97.193581°	150	50
14	NBL, 49.898031°, -97.193598°	170	100

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Core 1 – Sanford (SBL)

Figure 1. Core 1 pavement surface showing void existed between pavement and subsurface

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Core 2 – Sanford (SBL)

Figure 2. Photos showing Core 2 pavement surface for compressive strength

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Core 3 – Sanford (NBL)

Figure 3. Photos showing Core 3 pavement showing shear stress deterioration of concrete and void between pavement and base surface

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Core 4 – Sanford (NBL)

Figure 4. Photos showing Core 4 pavement for compressive strength test. Rebar present in concrete core. Compressive strength can not be done in this core.

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Core 5 – Sanford (SBL)

Figure 5. Photos showing Core 5 pavement showing deterioration of concrete and asphalt and void existed between pavement and base surface

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Core 6 – Sanford (SBL)

Figure 6. Photos showing Core 6 pavement showing void and deterioration of concrete at joint. Void existed between pavement and base surface

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Core 7 – Sanford (NBL)

Figure 7. Photos showing Core 7 pavement showing void and gap between asphalt and concrete

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Core 8 – Sanford (NBL)

Figure 8. Photo showing Core 8 pavement showing cold mix asphalt and deteriorated concrete. Void existed between the pavement and base surface

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Core 9 – Sanford (NBL)

Figure 9. Photo showing core 9 showing deterioration of asphalt and concrete at joint

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Core 10 – Sanford (NBL)

Figure 10. Photo showing core 10 showing deterioration and void space of asphalt and concrete. Void existed between the pavement and base surface

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Core 11 – Sanford (SBL)

Figure 11. Photo showing core 11 showing deterioration and void space of asphalt and concrete at joint

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Core 12 – Sanford (SBL)

Figure 12. Photos showing Core 12 pavement surface for compressive strength

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Core 13 – Sanford (NBL)

Figure 13. Core 13 showing deterioration of asphalt cold mix was present and concrete presented shear deterioration. Void existed between the pavement and base surface

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Core 14 – Sanford (NBL)

Figure 14. Core 14 showing shear deterioration of concrete and evidence of using cold mix asphalt. Void existed between pavement and base surface

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Phone: 204-697-3854 Cell: 204-997-1355 Email: hermie@hmanalo.ca

CONCRETE CORE COMPRESSIVE STRENGTH TEST REPORT (CSA A23.2-14C)

CLIENT: AECOM Canada Ltd.
99 Commerce Drive, Winnipeg
MB R3P 0Y7

ATTENTION:

PROJECT: Local Streets Package 24-R-05 (751-2023.5)
Sanford, Winnipeg, MB

STRUCTURE:

DATE: December 15, 2023
FILE NO: 112-2310
REPORT NO: 24-001
TECHNOLOGIST:
DATE CORES TAKEN: December 07, 2023
DOCUMENT NO: 23-3883
DATE RECEIVED IN LAB: December 07, 2023

Core Location	Length as Drilled (mm)	Core Diameter (mm)	Core Length (mm)	Length / Diameter (mm)	Correction Factor	Mass (grams)	Age at Break (days)	Date of Break	Type of Fracture	Comp. Strength as Calculated (MPa)	Comp. Strength as Corrected (MPa)
Core No. 2 - SBL 49.900719°, -97.193404°	200.00	94.20	178.00	1.89	0.99	2880.0		15-Dec	2	40.0	39.6
Core No. 12 - NBL 49.898463°, -97.193639°	200.00	94.20	178.00	1.89	0.94	2100.0		15-Dec	2	40.4	38.0

Remarks:

Reviewed by:

Edwin Timtiman
EIT

Approved by:

Paul Bevel, Manager
Field & Lab Testing Services

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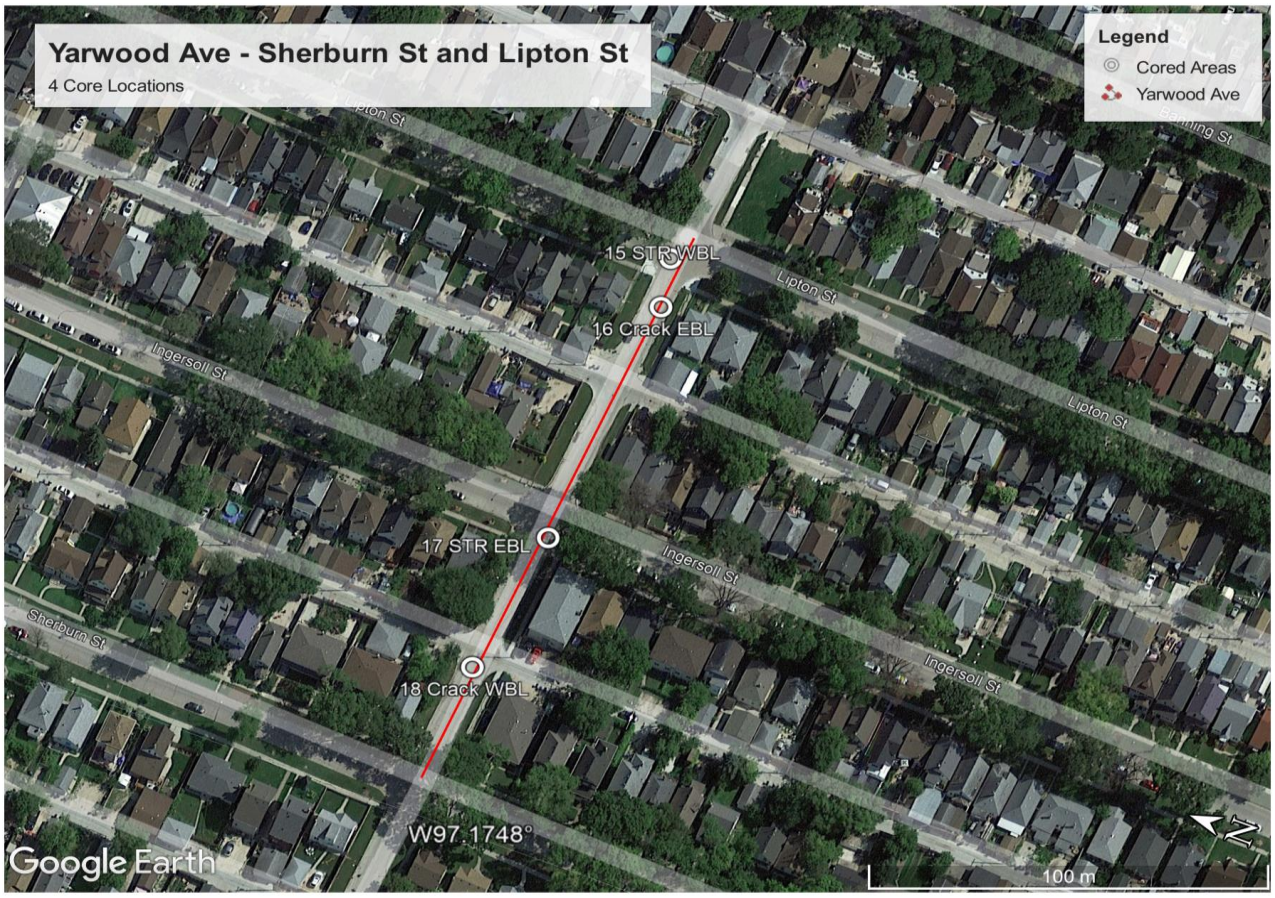
Yarwood Ave - Sherburn St/ Lipton St

Core Location



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Yarwood Ave - Sherburn St/ Lipton St

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
15	WBL Mid Slab	30.0	200.0
16	EBL on crack	-	175.0
17	EBL Mid Slab	-	180.0
18	WBL on crack	-	185.0

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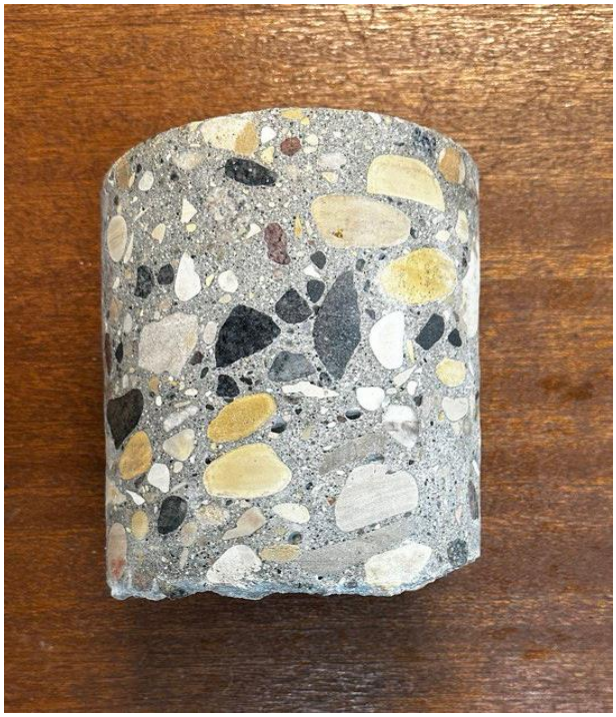
Yarwood Ave, WBL, Core 15
(Asphalt Thk 30mm; Conc Thk 200)

Yarwood Ave, EBL, Core 16
(Conc Thk 175)



Yarwood Ave, EBL, Core 17
(Conc Thk 180mm)

Yarwood Ave, WBL, Core 18
(Conc Thk 185)

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Langside St and Young St Backlanes

Core Location

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Project No: 112-2310

Project: Local Streets Package 24-R-05

Client: AECOM Canada Ltd

Location: Backlane of 538 Langside Avenue

TP3-1

Logged By: ET

Engineer:

Drill Method: Auger Boring

Drill Date: January 30, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

H. MANALO CONSULTING LTD.

Project No: 112-2310

Project: Local Streets Package 24-R-05

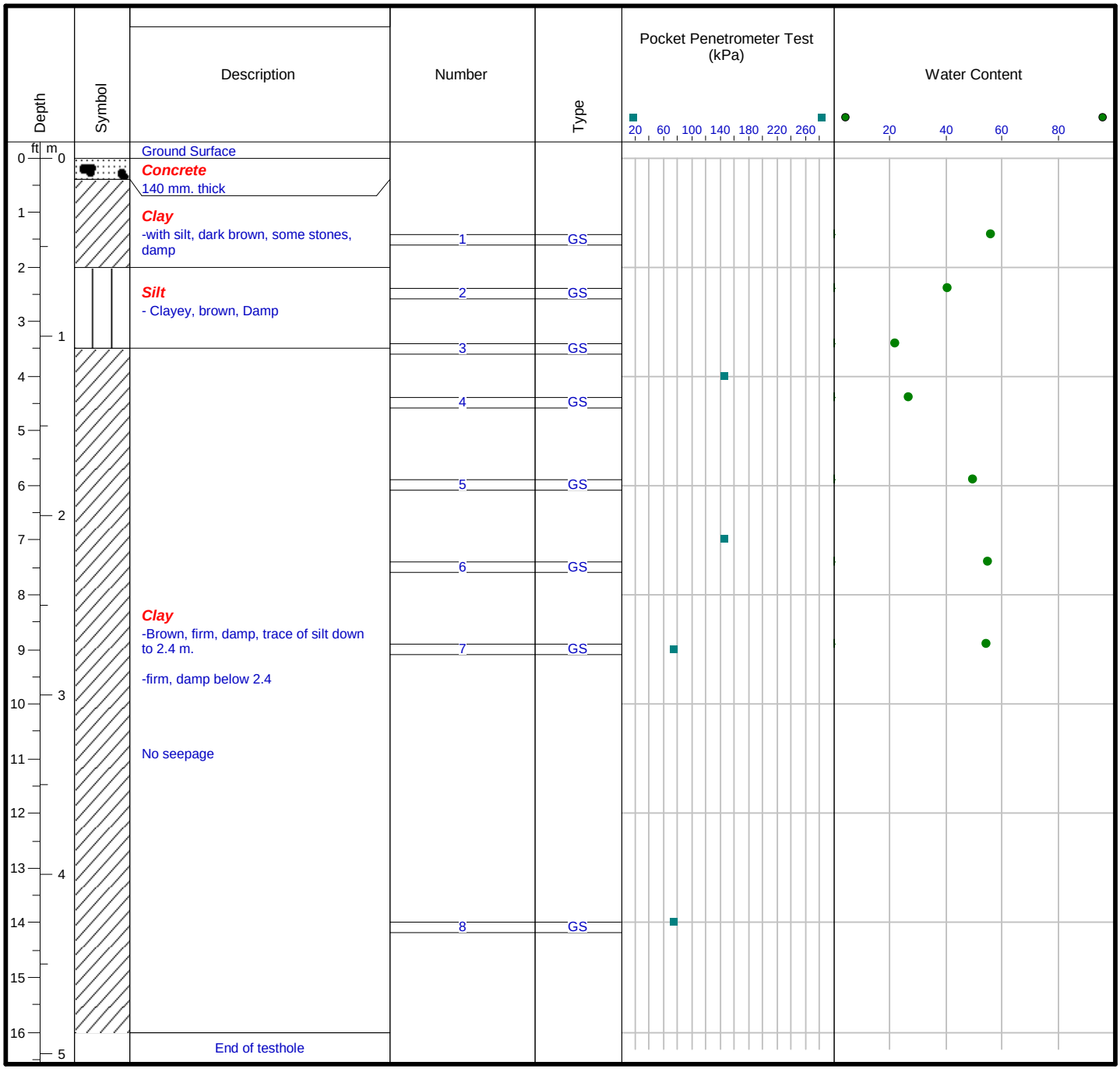
Client: AECOM Canada Ltd

Location: Backlane of 549 Langside Street

TP3-2

Logged By: ET

Engineer:



Drill Method: Auger Boring

Drill Date: January 30, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

H. MANALO CONSULTING LTD.

Project No: 112-2310

Project: Local Streets Package 24-R-05

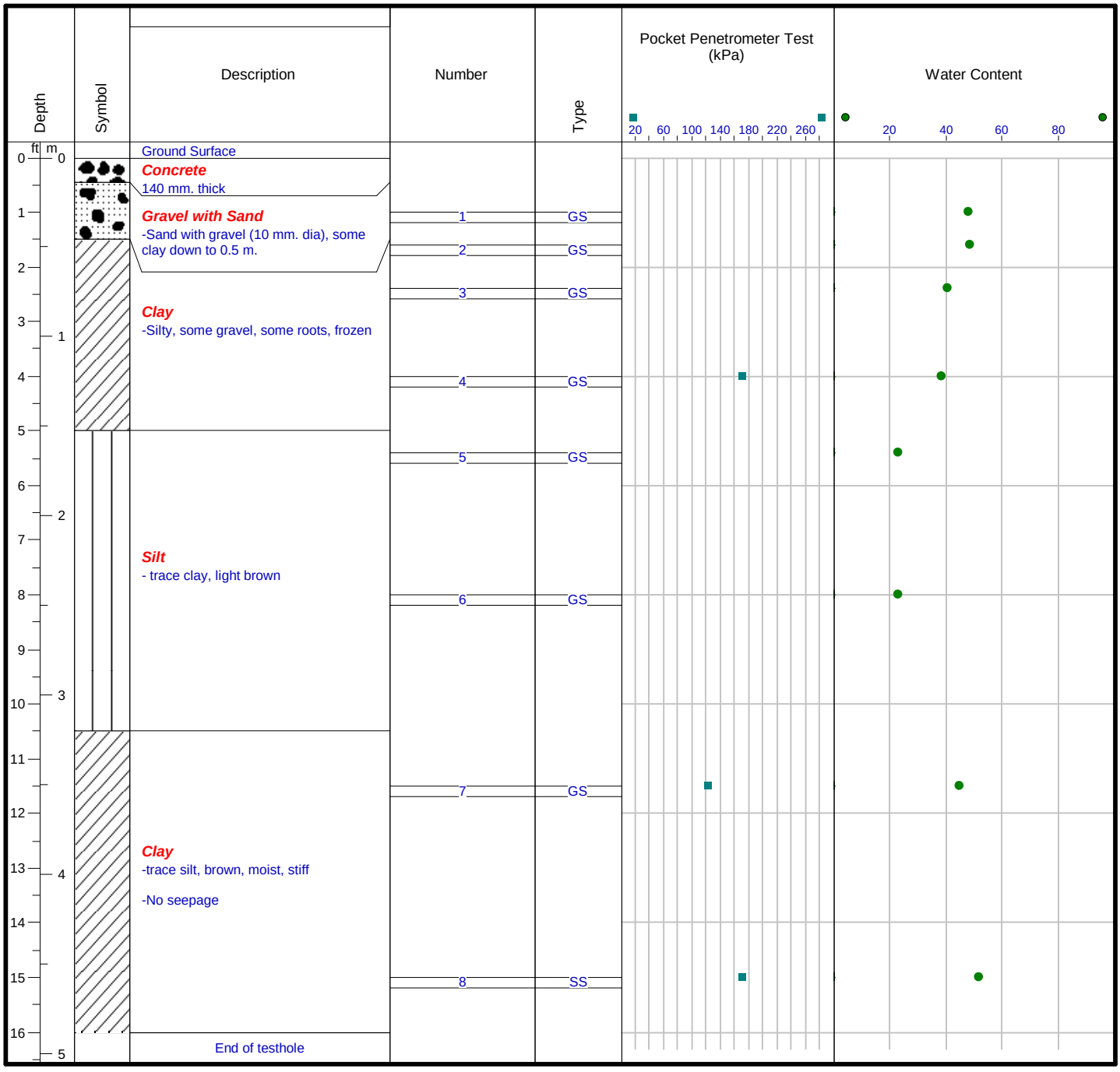
Client: AECOM Canada Ltd

Location: Backlane of 501 Langside Street

TP3-3

Logged By: ET

Engineer:



Drill Method: Auger Boring

Drill Date: February 12, 2024

Hole Size: 6-inches

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

H. MANALO CONSULTING LTD.

Project No: 112-2310

Project: Local Streets Package 24-R-05

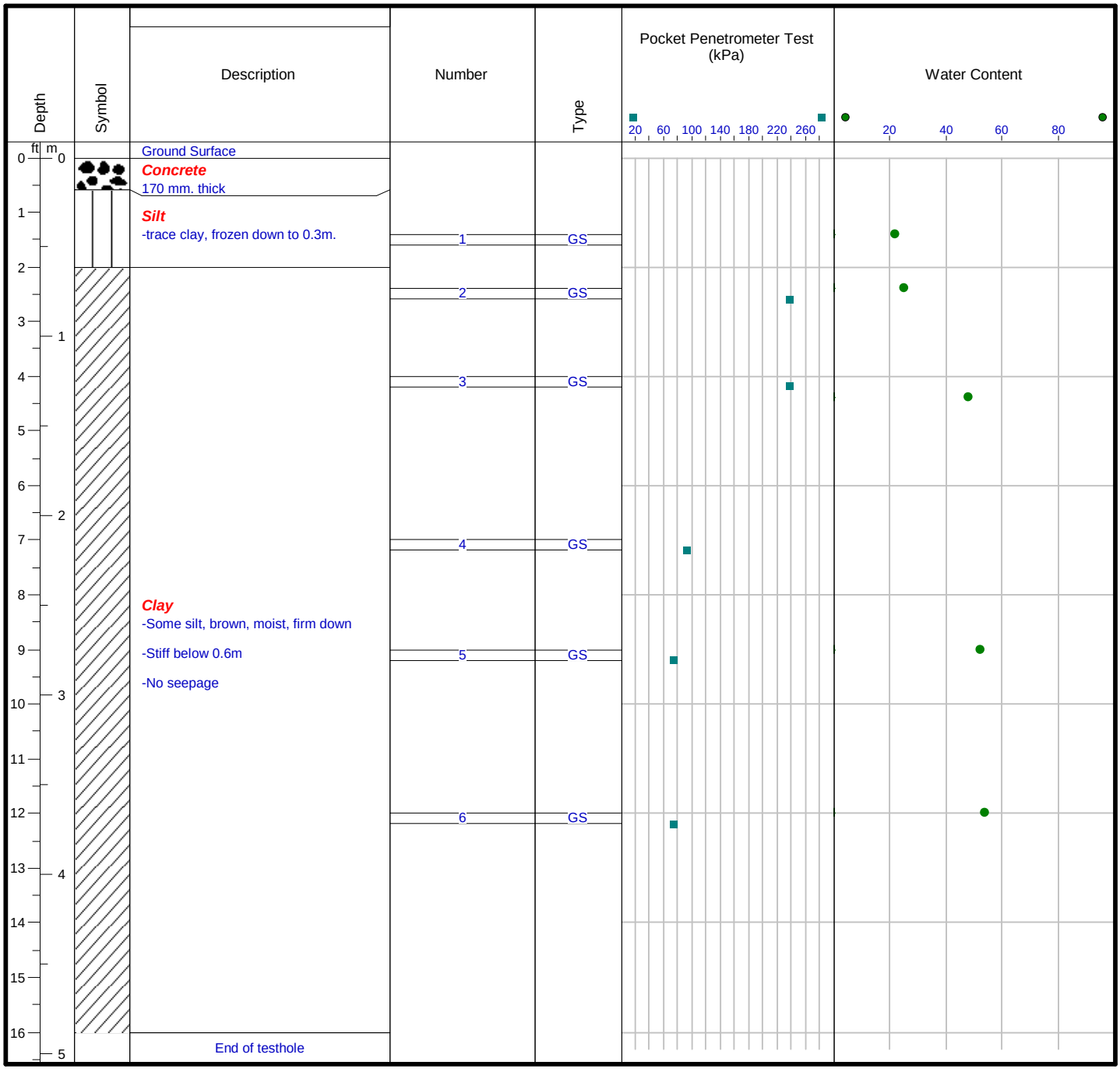
Client: AECOM Canada Ltd

Location: Backlane of 483 Langside Street

TP3-4

Logged By: ET

Engineer:



Drill Method: Auger Boring

Drill Date: January 30, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

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Langside St and Young St Backlanes

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
40	NBL	-	140.0
41	SBL	-	140.0
42	NBL	-	140.0
43	SBL	-	170.0

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Langside St and Young St Backlane NBL,
Core 40 (Conc Thk 140mm)

Langside St and Young St Backlane SBL,
Core 41 (Conc Thk 140mm)

Langside St and Young St Backlane NBL,
Core 42 (Conc Thk 140mm)

Langside St and Young St Backlane SBL,
Core 43 (Conc Thk 170mm)

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Ruby St and Lenore St Backlane

Core Location

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Project No: 112-2310

Project: Local Streets Package 24-R-05

Client: AECOM Canada Ltd

Location: Backlane of 225 Ruby Street

TP2-1

Logged By: ET

Engineer:

Depth (ft / m)	Description	Number	Type	Pocket Penetrometer Test (kPa)	Water Content
0 / 0	Ground Surface				
	Asphalt 180mm. thick				
	Clay -Mottled dark and light brown, moist, trace silt -Some stones 10mm to 25mm dia. down to 1.4m.	1	GS		
		2	GS		
1		3	GS		
	Silt - traces of clay, 75mm. layer	4	GS		
	Clay -Silty, mottled dark and light brown, moist -Some stones 5mm. dia. -No seepage	5	GS		
6	End of testhole				

Pocket Penetrometer Test (kPa): 20 60 100 140 180 220 260

Water Content: 20 40 60 80

Drill Method: Auger Boring

Drill Date: January 31, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

H. MANALO CONSULTING LTD.

Project No: 112-2310

Project: Local Streets Package 24-R-05

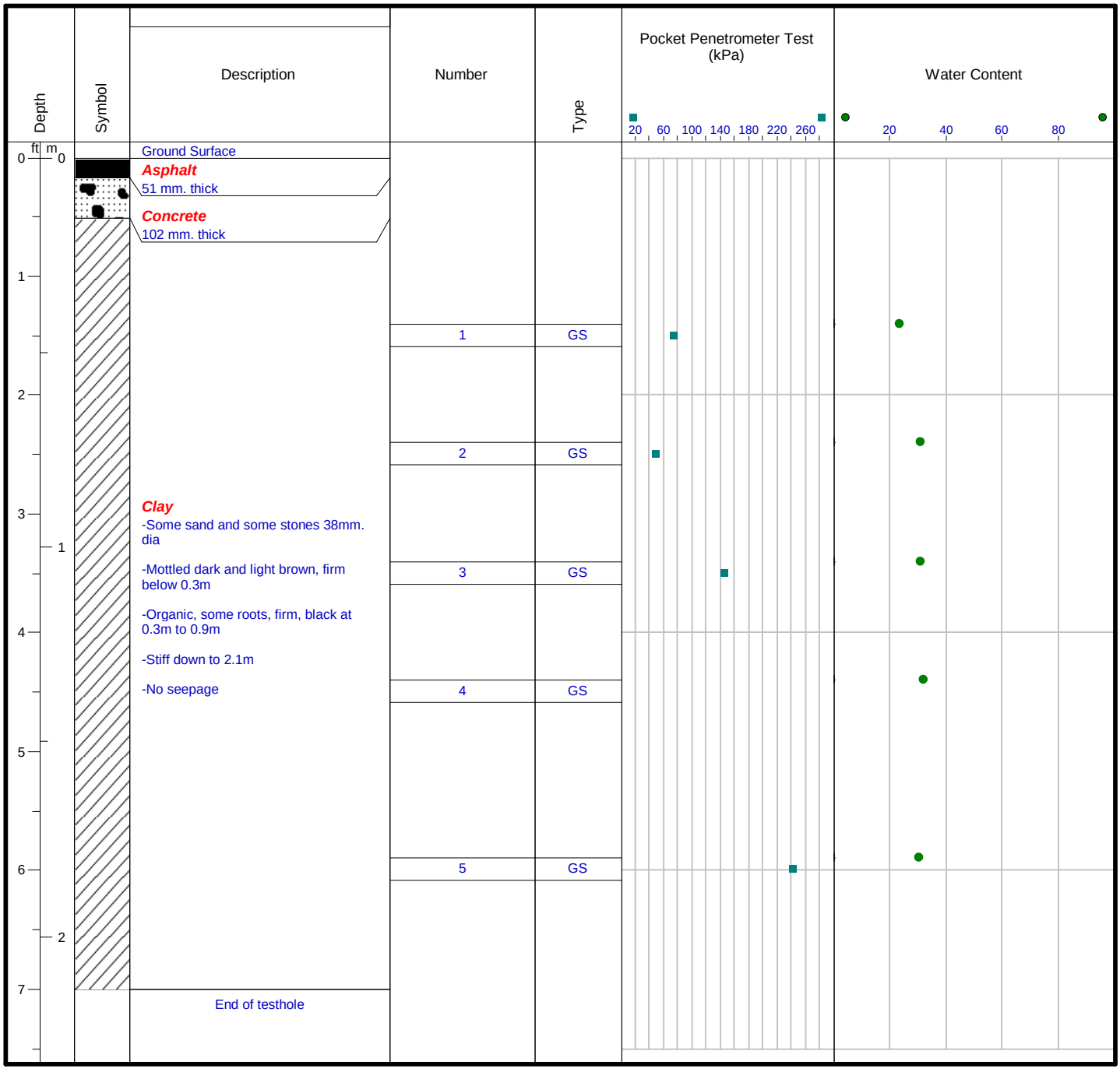
Client: AECOM Canada Ltd

Location: Backlane of 199 Ruby Street

TP2-2

Logged By: ET

Engineer:



Drill Method: Auger Boring

Drill Date: January 30, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

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Project No: 112-2310

Project: Local Streets Package 24-R-05

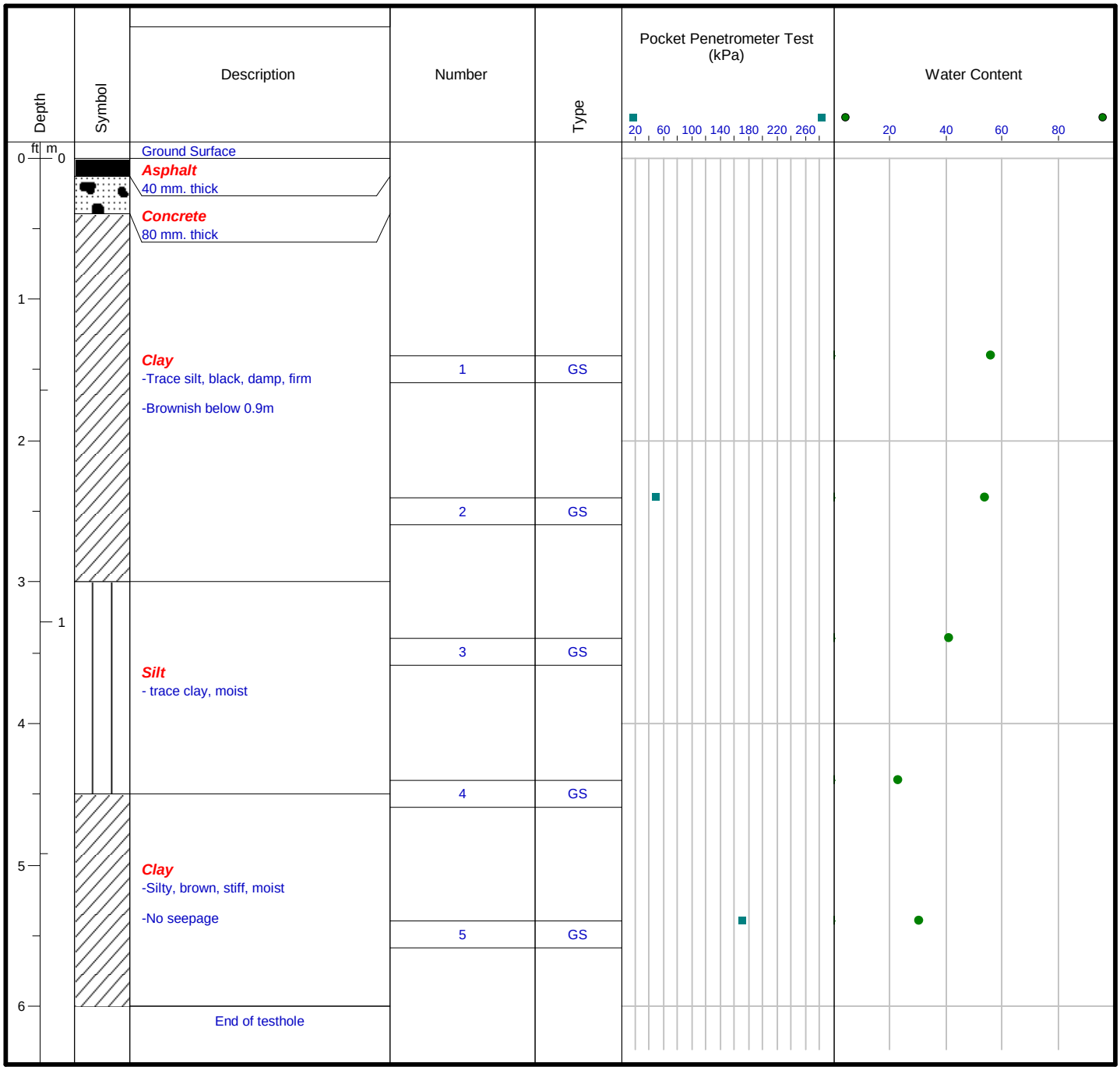
Client: AECOM Canada Ltd

Location: Backlane of 175 Ruby Street

TP2-3

Logged By: ET

Engineer:



Drill Method: Auger Boring

Drill Date: January 30, 2024

Hole Size: 6-inch

Datum:

Checked by: Paul Bevel

Sheet: 1 of 1

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Ruby St and Lenore St Backlane

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
37	NBL	180.0	-
38	NBL	51.0	102.0
39	SBL	40.0	80.0

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Ruby St - Lenore St Backlane, NBL, Core 37
(Asphalt Thk 180mm)

Ruby St - Lenore St Backlane, NBL, Core 38
(Asphalt Thk 51mm; Conc Thk 102)

Ruby St - Lenore St Backlane, SBL, Core 39
(Asphalt Thk 40mm; Conc Thk 80)