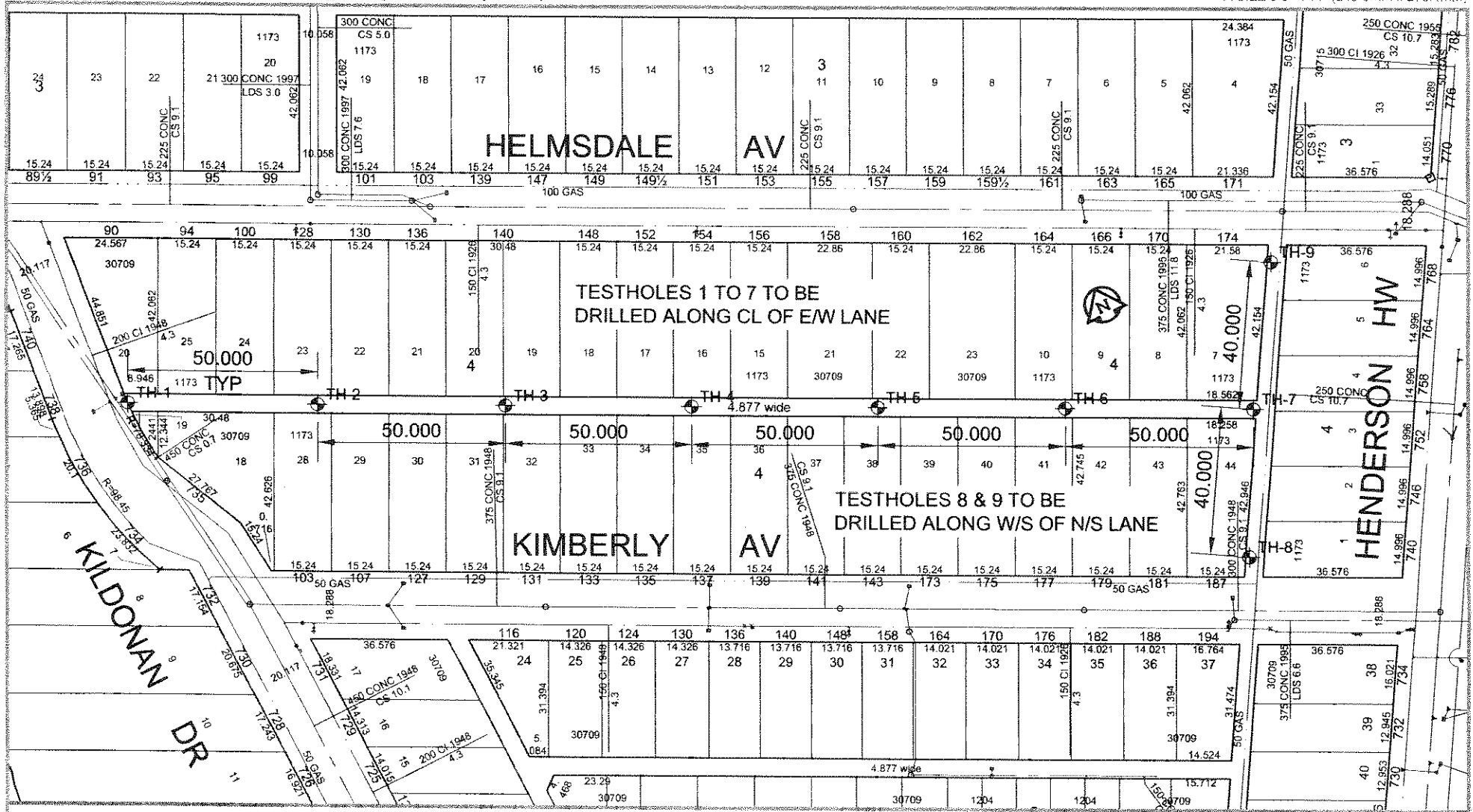


KIMBERLY/HELMSDALE ALLEY

KILDONAN DRIVE TO HENDERSON HIGHWAY

2006 STREET RENEWAL PROGRAM

GEOTECHNICAL INVESTIGATION



The City of Winnipeg
 Public Works Department-Engineering Division
 2006 Residential Street Renewal Program

**Kimberly/Helmsdale Alley
 From Kildonan Drive to Henderson Highway**

**City of Winnipeg
2006 Street Renewal Program
Geotechnical Investigation**

Testhole No.	Testhole Location	Pavement Surface		Pavement Structure Material		Sample Description	Sample Depth (m)	Moisture Content (%)	Particle Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Limit
1	Kimberley/Helmsdale	NA	0	Granular	250	Silty Clay	1.2	30.2	0.0	4.8	33.1	62.1	77	21	56
2	Kimberley/Helmsdale	NA	0	Granular	250										
3	Kimberley/Helmsdale	NA	0	Granular	225										
4	Kimberley/Helmsdale	NA	0	Granular	300										
5	Kimberley/Helmsdale	NA	0	Granular	300										
6	Kimberley/Helmsdale	NA	0	Granular	460										
7	Kimberley/Helmsdale	NA	0	Granular	490										
8	Kimberley/Helmsdale	NA	0	Granular	225										
9	Kimberley/Helmsdale	NA	0	Granular	250	Silt	1.9	21.5	0	3.1	84.2	12.7	22	14	8

TESTHOLE TH1



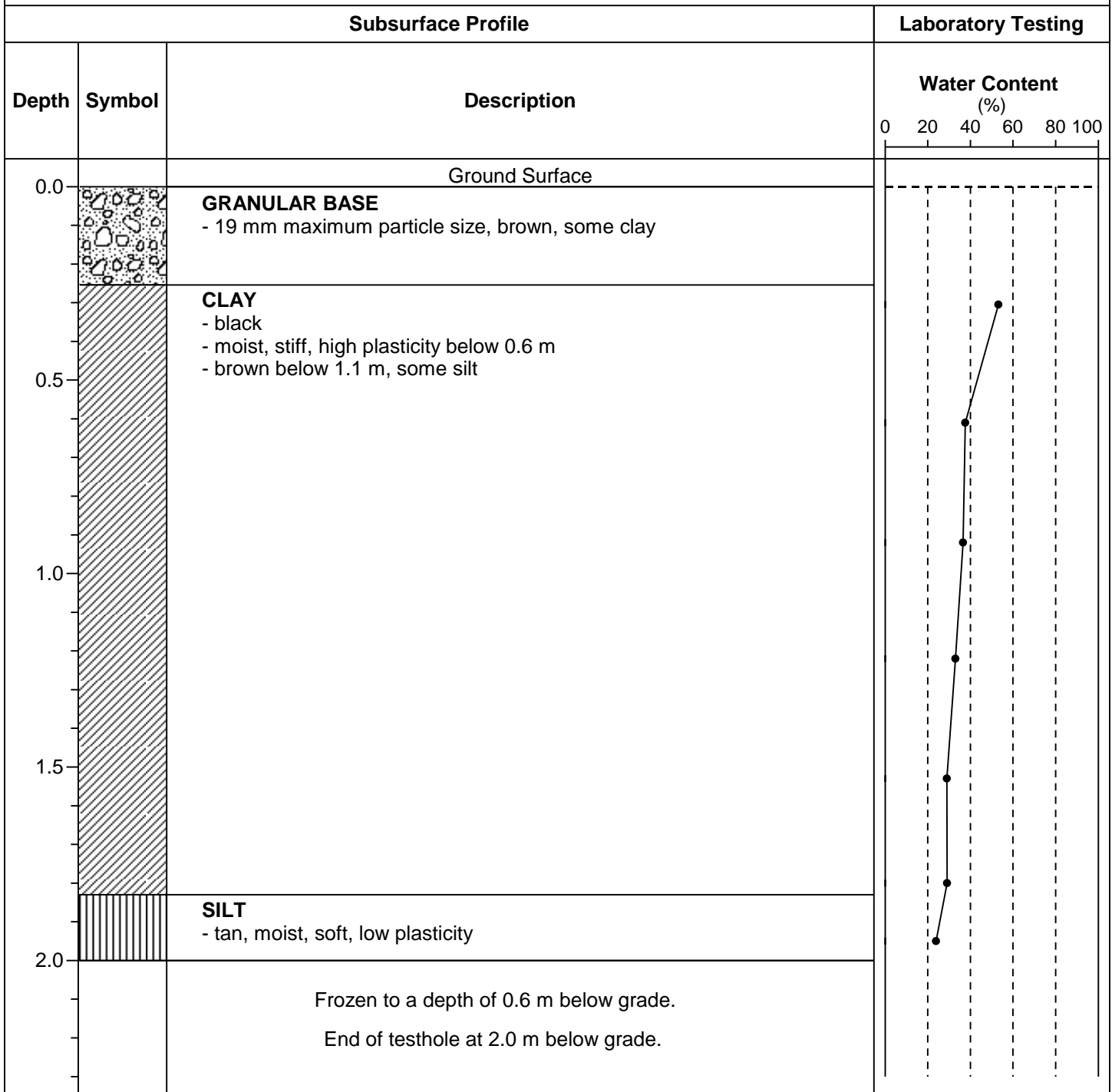
Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 94 Helmsdale Ave., south building line

Subsurface Profile			Laboratory Testing							
Depth (m)	Symbol	Description	Moisture Content (%)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL	0	25				
0.0		Ground Surface								
		GRANULAR BASE - 19 mm maximum particle size, brown								
		CLAY - black - moist, stiff, high plasticity below 0.5 m - brown below 1.0 m								
0.5										
1.0										
1.5										
2.0										
		Frozen to a depth of 0.5 m below grade. End of testhole at 2.0 m below grade.								
							0.0	4.8	33.1	62.1

TESTHOLE TH2



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 3.0 m S of 103 Kimberley Ave. north lot line.

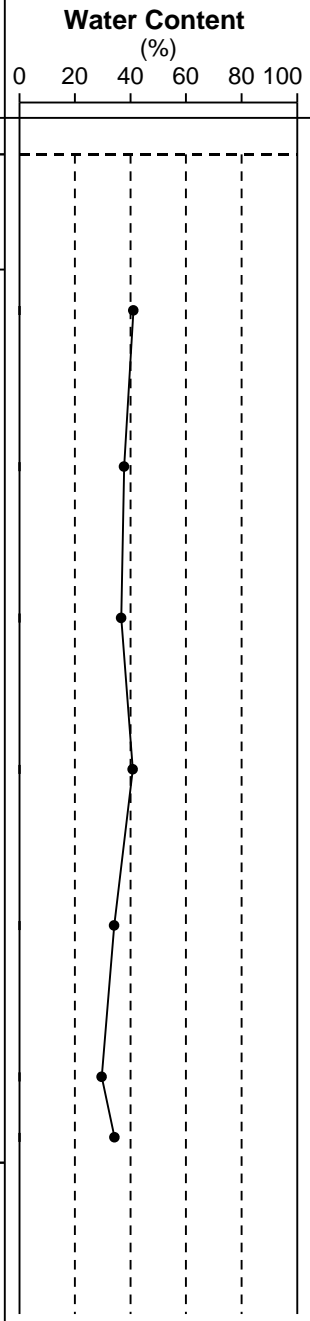


TESTHOLE TH3



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 131 Kimberley Ave., 1.0 m N of south lot line

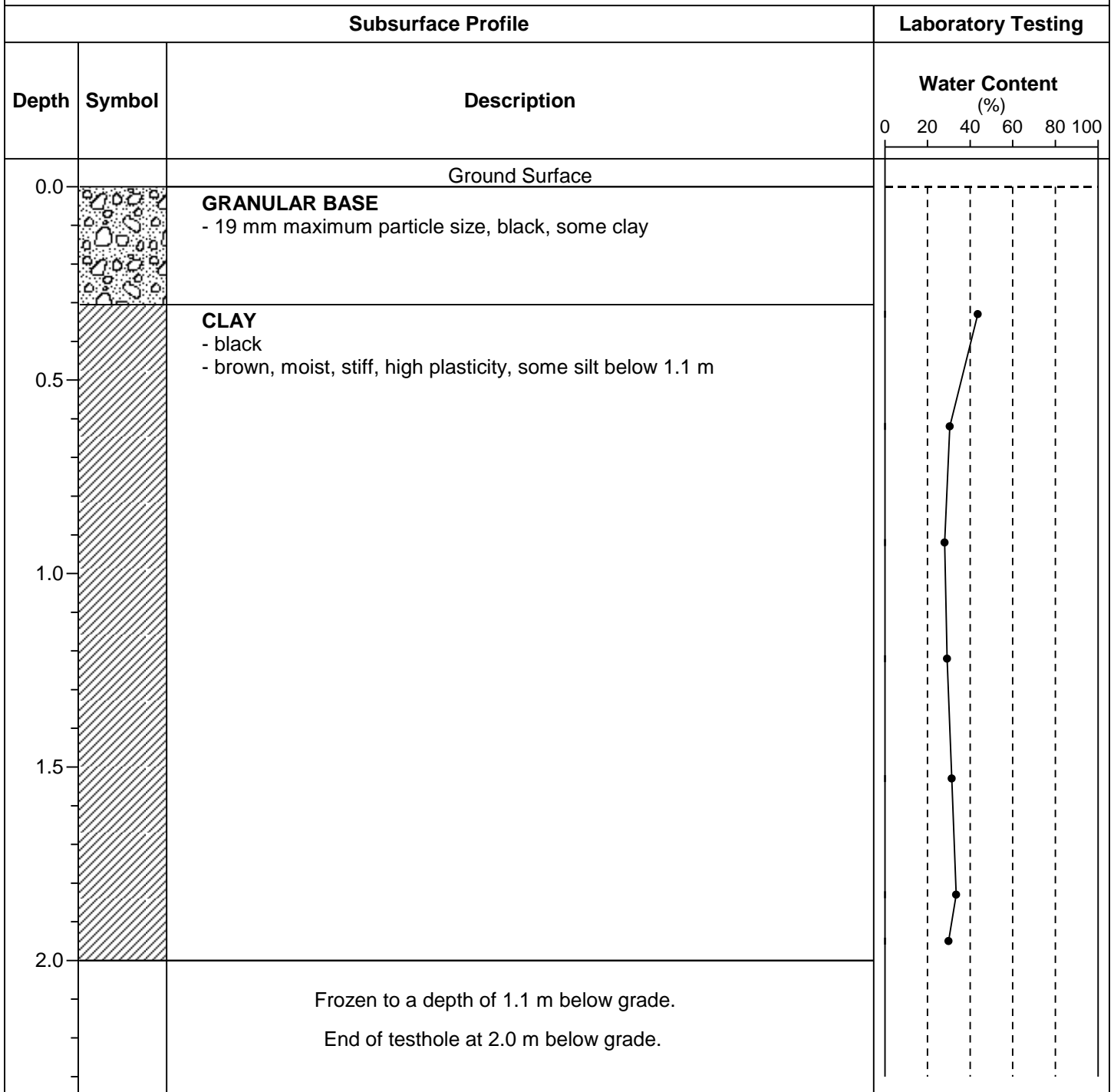
Subsurface Profile			Laboratory Testing
Depth	Symbol	Description	Water Content (%)
0.0		Ground Surface	
		GRANULAR BASE - 19 mm maximum particle size, brown, some clay	
0.5		CLAY - black - moist, stiff, high plasticity below 0.8 m - brown below 1.4 m, some silt - with silt below 1.7 m	
1.0			
1.5			
2.0		Frozen to a depth of 0.8 m below grade. End of testhole at 2.0 m below grade.	



TESTHOLE TH4



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 137 Kimberley Ave., 1.7 m S of north building line of garage

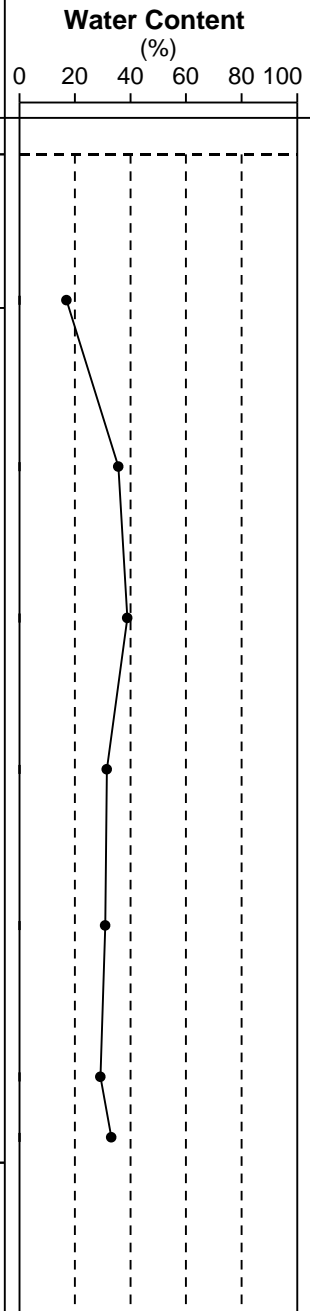


TESTHOLE TH5



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 158 Helmsdale Ave., 2.0 m N of north lot line

Subsurface Profile			Laboratory Testing
Depth	Symbol	Description	Water Content (%)
0.0		Ground Surface	
		GRANULAR BASE - 19 mm maximum particle size, brown, some clay	
0.5		CLAY - black - brown below 1.0 m, trace coarse grained gravel - moist, stiff, high plasticity, some silt below 1.0 m	
1.0			
1.5			
2.0		Frozen to a depth of 1.0 m below grade. End of testhole at 2.0 m below grade.	



TESTHOLE TH6



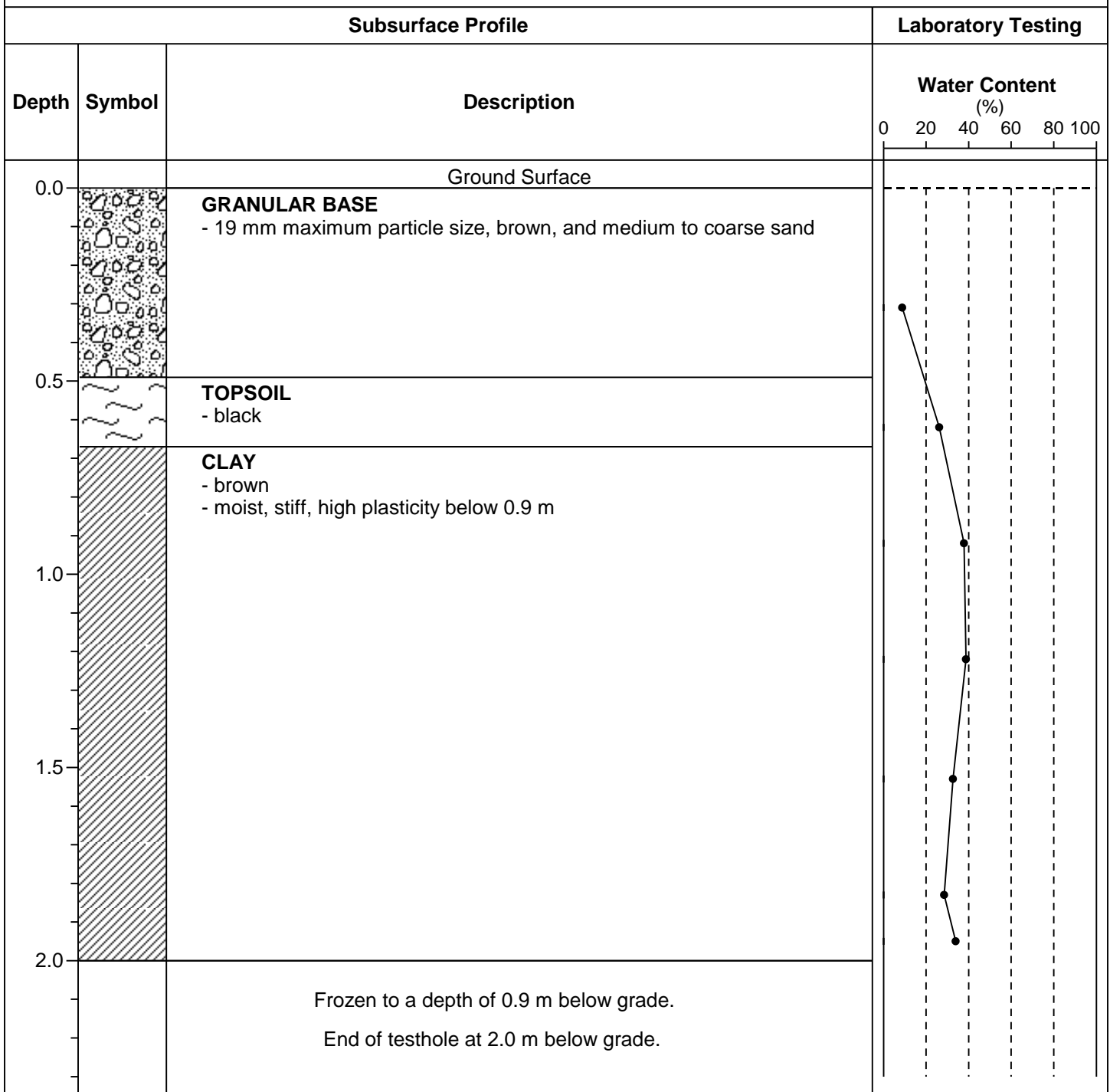
Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 177 Kimberley Ave., 4.0 m S of north lot line

Subsurface Profile			Laboratory Testing
Depth	Symbol	Description	Water Content (%)
0.0		Ground Surface	
0.0 - 0.45		GRANULAR BASE - 19 mm maximum particle size, brown, and medium to coarse sand	
0.45 - 2.0		CLAY - black - brown, moist, stiff, high plasticity, some silt below 0.8 m	
Frozen to a depth of 0.8 m below grade. End of testhole at 2.0 m below grade.			

TESTHOLE TH7



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 174 Helmsdale Ave., 2.2 m S of SE corner of garage



TESTHOLE TH8



Project Name: 2006 City of Winnipeg Streets Reconstruction

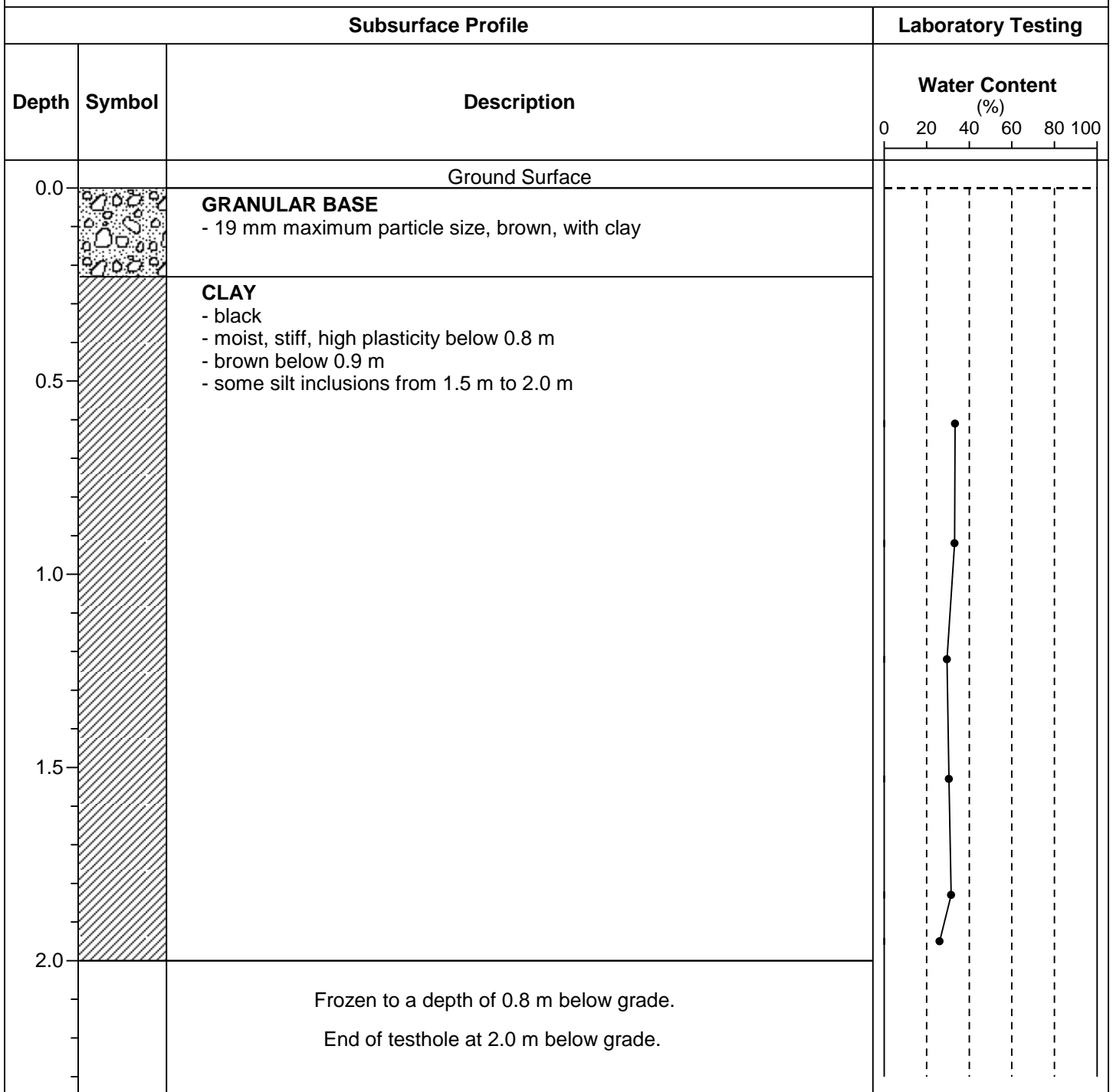
Date Drilled: January 13, 2006

Client: UMA Engineering Ltd.

Depth of Testhole: 2.0 m

Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. Logged by: Robert Brown

Testhole Location: Alley centreline at 740 Henderson Highway, 2.0 m S, 4.0 m W of SW corner of garage



TESTHOLE TH9



Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** January 13, 2006
Client: UMA Engineering Ltd. **Depth of Testhole:** 2.0 m
Site: Kimberley/Helmsdale Alley, Kildonan Dr. - Henderson Hwy. **Logged by:** Robert Brown
Testhole Location: Alley centreline at 768 Henderson Hwy., 3.4 m S, 2.2 m W of SW corner of garage

Subsurface Profile			Laboratory Testing							
Depth (m)	Symbol	Description	Moisture Content (%)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL	0	25				
0.0		Ground Surface								
		GRANULAR BASE - 19 mm maximum particle size, brown, with clay								
		CLAY - black - moist, stiff, high plasticity below 0.6 m - brown below 0.8 m, some silt								
		SILT - tan, moist, soft, low plasticity								
2.0		Frozen to a depth of 0.6 m below grade. End of testhole at 2.0 m below grade.								
							0.0	3.1	84.2	12.7