

GEOCRES No. _____

DIST. 6 REGION _____

W.P. No. _____

CONT. No. _____

W. O. No. 92-11014

STR. SITE No. _____

HWY. No. 10

LOCATION Sewer Crossing

Perth Street, Brampton

No of PAGES - 1

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OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. _____

REMARKS: _____

memorandum



To: H. Wendland
Utility Coordinator
Engineering Services
District 6

From: Foundation Design Section
Room 315, Central Bldg.

Re: Perth Street Tunnel
FDS WO 92-11014, Site NA
Hwy. 10, District 6, Toronto

Date: 92 10 14


As requested in your memo of October 8, 1992, we have reviewed the proposal to tunnel-blast (2.5 m diameter) under Hwy 10.

Based on the subsurface provided (BH#1 and BH#5), we have assumed in our assessment that the tunnel obvert is more 6 m below ground surface and more than 1.5m below bedrock surface. In our opinion this should provide adequate cover provided that careful tunnelling procedures are followed.

We have also reviewed the blasting proposal and in our opinion the VME report, detailing vibration control considerations and assessing blasting procedures, is complete and reasonable. Your attention is drawn to the report's consideration of reducing the advance of each blast section in order to minimize vibrations.

In summary, we concur with the proposal and recommend that it is acceptable for your approval.

If there are any questions, please call.


D. Dundas, P. Eng.
Sr. Foundation Engineer

250 —

249 —

248 —

247 —

246 —

245 —

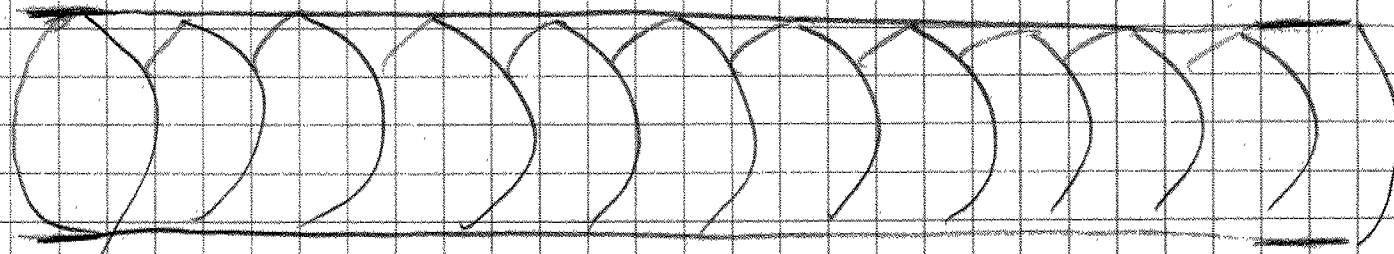
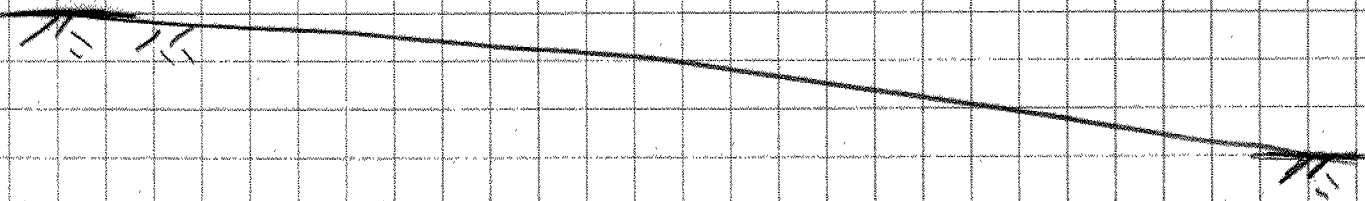
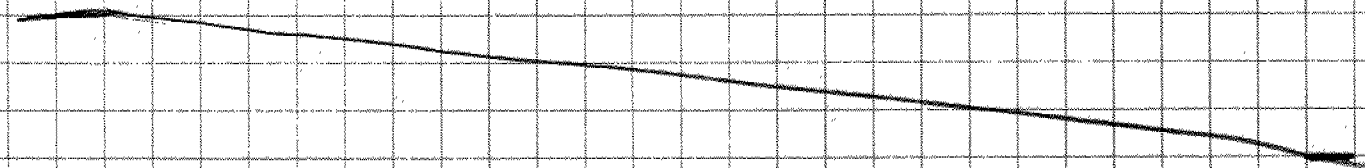
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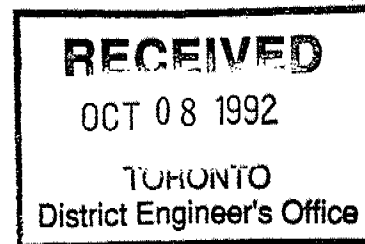


PetoMacCallum Ltd.
CONSULTING ENGINEERS

October 7, 1992

Our Ref: 92P076

Mr. R. Baldesarra, P.Eng.
RAND Engineering Corporation
5285 Solar Drive
Mississauga, Ontario
L4W 5B8



Dear Mr. Baldesarra

Snelgrove Externals
Highway #10 and Conservation Drive
Brampton, Ontario

Subsequent to our recent discussions and meetings, we are pleased to present a complete package of engineering assessment and recommended monitoring program for the proposed rock removal procedure for review, comment and approval by all copied parties. This engineering package, as attached, has been prepared by our blasting consultant, an expert well respected in the field of explosives and blasting.

As is evident from the details of the package, we trust that the requirements of all parties concerned, especially those of M.T.O. and Consumers Gas, will be met. The full monitoring and survey program will further ensure that disturbance to the neighbourhood will be kept to an absolute minimum.

For convenience of reference, the available subsurface geotechnical data is also attached. This includes eight boreholes carried out by others in January of 1986 for the subdivision development in general and three confirmation boreholes put down by ourselves in September, 1992, at the specific locations of sewer crossing.

R. Baldesarra, October 7, 1992, P. 2

92P076

If required, we, along with our blasting consultant, shall be pleased to meet to clarify/elaborate any further concern you or others may have, in order to expedite the approval process.

Sincerely

Peto MacCallum Ltd.



Philip Sun, P.Eng.

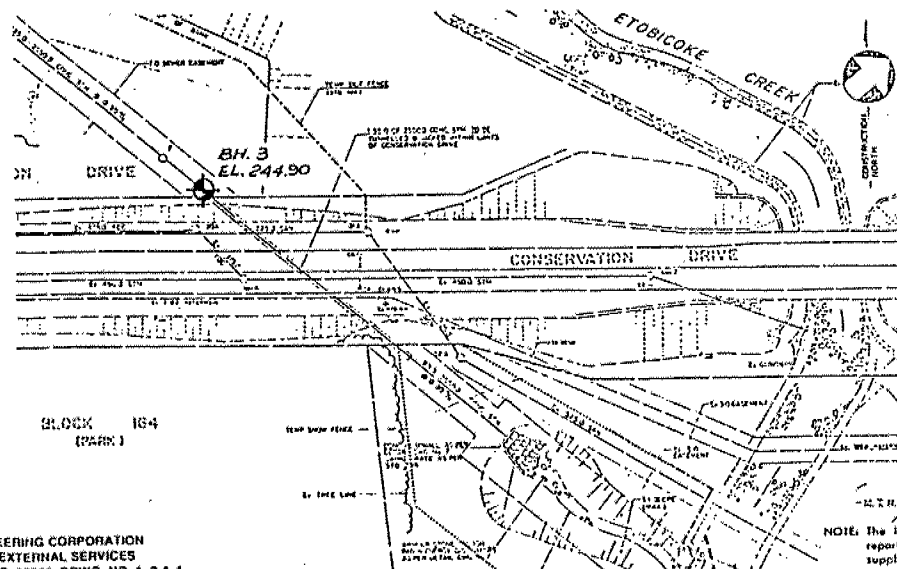
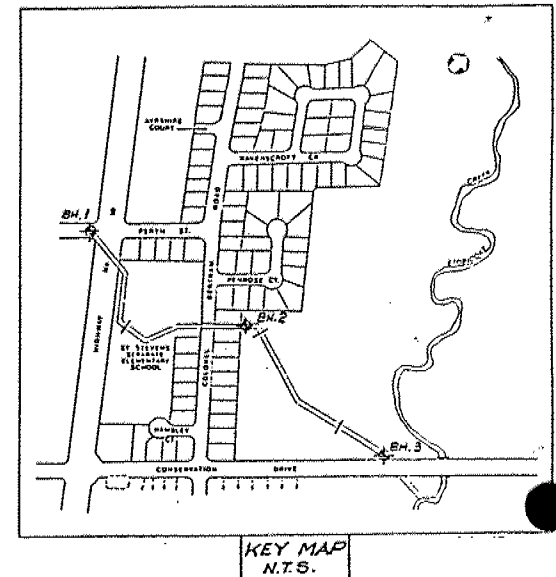
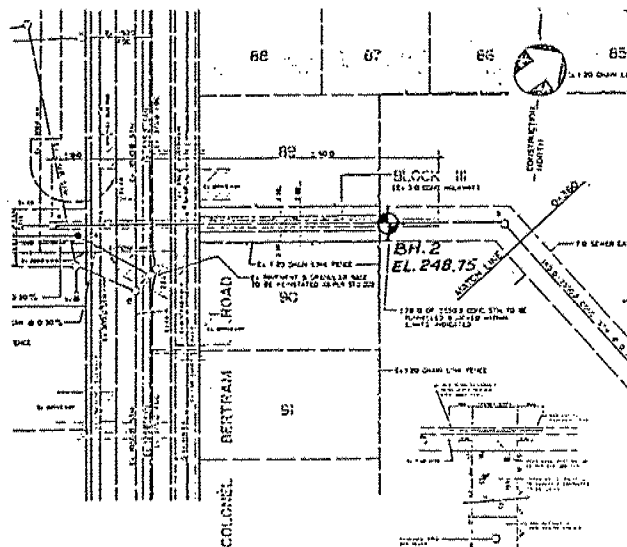
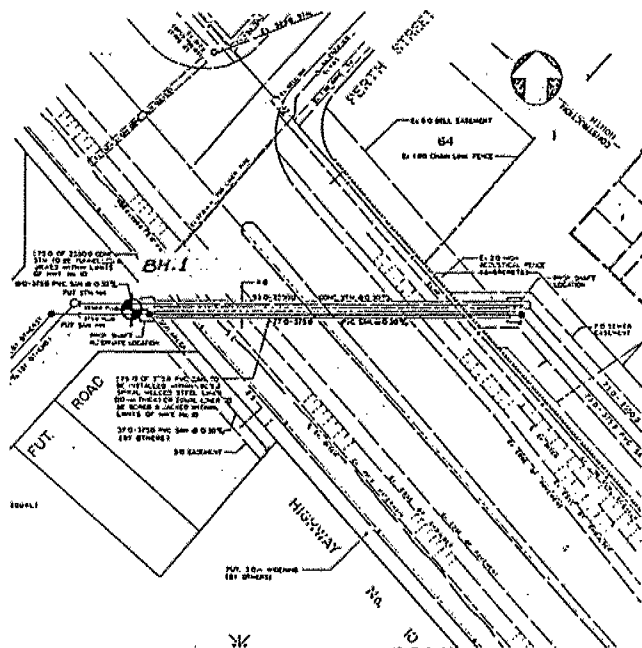
Manager

Inspection and Testing

Metro Toronto

PS:mi

cc: Bell Canada
cc: Brampton Hydro
cc: Consumers Gas
cc: Region of Peel
cc: City of Brampton; Mr. R. Bino, P.Eng.
cc: Ministry of Transportation; Mr. H. Wendland



REFERENCE:
RAIND ENGINEERING CORPORATION
SNELGROVE EXTERNAL SERVICES
CONTRACT NO. 90266, DRWG. NO. 1, 3 & 4
FEB. 1992

NOTE: The inferred stratigraphy referred to in the report is based on data from these boreholes, supplemented by geological evidence, and the actual stratigraphy may vary from that shown, at other points between the borings.

BOREHOLE LOCATION PLAN

SNELGROVE EXTERNALS
BRAMPTON, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN	DATE	SCALE	JOB NO.	DRAWING NO.
KK	SEPT. 1992	1:1000	92 TFO54	1
CHECKED				
APPROVED				

PetoMacCallum Ltd.

CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 1

PROJECT SNELGROVE EXTERNAL

LOCATION Highway 10 and Conservation Drive, Brampton, Ontario

BORING DATE Aug. 27, 1992

OUR PROJECT NO. 92P076

ENGINEER A.E.G.

BORING METHOD Continuous Flight Solid Stem Augers

TECHNICIAN C.B.

SOIL PROFILE				SAMPLES			SHEAR STRENGTH C_u		LIQUID LIMIT W_L PLASTIC LIMIT W_P WATER CONTENT W		GROUND WATER OBSERVATIONS AND REMARKS
DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	DYNAMIC CONE PENETRATION * STANDARD PENETRATION TEST *				
							BLOWS/0.3M 20 40 60 80				
	GROUND ELEVATION						WATER CONTENT % 10 20 30				
	SILT TILL: hard brown clayey silt, trace sand and gravel, moist to wet			1	SS	34					
1.50											
	SAND: very dense brown silty sand, trace gravel, moist to wet			2	SS	50/100mm					
3.05											
	SILT: very dense grey silt, trace sand and gravel, moist			3	SS	79/200mm					
3.90											
	SHALE: red shale of the Queenston formation, weathered at top, becoming sound with occasional weathered seams. beds of blocky siltstone noted.			4	SS	50/50mm					
4.5											
				5	SS	50/0mm					
6.0											
				6	SS	60/125mm					
				7	SS	50/0m					
				8	SS	50/0m					
7.5											
7.60	BOREHOLE TERMINATED AT 7.60 m			9	SS	50/0m					
								</			

NOTES

CHECKED *[Signature]*

LOG OF BOREHOLE NO. 2

PROJECT SNELGROVE EXTERNAL

LOCATION Highway 10 and Conservation Drive, Brampton, Ontario

BORING DATE Aug. 28, 1992

OUR PROJECT NO. 92P076

ENGINEER A.E.G.

BORING METHOD Continuous Flight Solid Stem Augers

TECHNICIAN C.B.

SOIL PROFILE				SAMPLES		SHEAR STRENGTH C_u		LIQUID LIMIT W_L PLASTIC LIMIT W_P WATER CONTENT W		GROUND WATER OBSERVATIONS AND REMARKS			
DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	DYNAMIC CONE PENETRATION * STANDARD PENETRATION TEST *		WATER CONTENT % W_P W W_L				
	GROUND ELEVATION 248.75						20	40	60	80	10	20	30
	FILL: brown silt, some sand to sandy, trace to some clay in areas trace gravel		248	1	SS	17							
1.50	TOPSOIL: dark grey clayey silt topsoil scattered wood fragments		247	2	SS	22							
2.00	SILT TILL: very dense brown silt, trace to some sand (sandy in layers) trace gravel, moist		246										
3.00				3	SS	75							
			245										
4.50	becoming dense to very dense, some sand to sandy silt, trace gravel		244	4	SS	50mm							
5.35	some clay		243	5	SS	39							
6.10													
	SHALE: red shale of the Queenston formation, weathered at top, becoming sound with occasional weathered seams, beds of blocky siltstone noted.		242	6	SS	50/75mm							
7.50			241	7	SS	89/275mm							
				8	SS	54/150mm							
			240										
9.00				9	SS	50/75mm							
9.20	BOREHOLE TERMINATED UPON SPOON REFUSAL AT 9.20 m												
10.50													
12.00													
13.50													
15.00													
16.50													

NOTES

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LOG OF BOREHOLE NO. 3

PROJECT SNELGROVE EXTERNAL

LOCATION Highway 10 and Conservation Drive, Brampton, Ontario



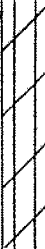
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE Aug. 28, 1992

OUR PROJECT NO. 928076

ENGINEER A.E.G.

TECHNICIAN C.B.

SOIL PROFILE				SAMPLES		SHEAR STRENGTH C_u		LIQUID LIMIT W_L PLASTIC LIMIT W_P WATER CONTENT W		GROUND WATER OBSERVATIONS AND REMARKS
DEPTH in METRES	DESCRIPTION	LEGEND	ELEVATION	NUMBER	TYPE	BLOWS/0.3m N - VALUES	DYNAMIC CONE PENETRATION * STANDARD PENETRATION TEST *	WATER CONTENT % W_P W W_L		
	GROUND ELEVATION 244.9						20 40 60 80	10 20 30		
	FILL: brown clayey silt, some sand, trace gravel, moist to wet		244	1	SS	13				
1.20										
1.5	SILT TILL: dense brown silt, trace to some sand, trace gravel moist		243	2	SS	36				
			242							
3.0				3	SS	38				
			241							
4.5			240	4	SS	54				
5.20										
6.0	SILTY CLAY: hard grey silty clay trace sand and gravel, moist DTPL, scattered sand and gravel seams		239	6	SS	60				
			238							
7.5			237							
8.05	BOREHOLE TERMINATED AT 8.05 m									
9.0										
10.5										
12.0										
13.5										
15.0										
16.5										

Sewer Obvert
Elev. 240.7

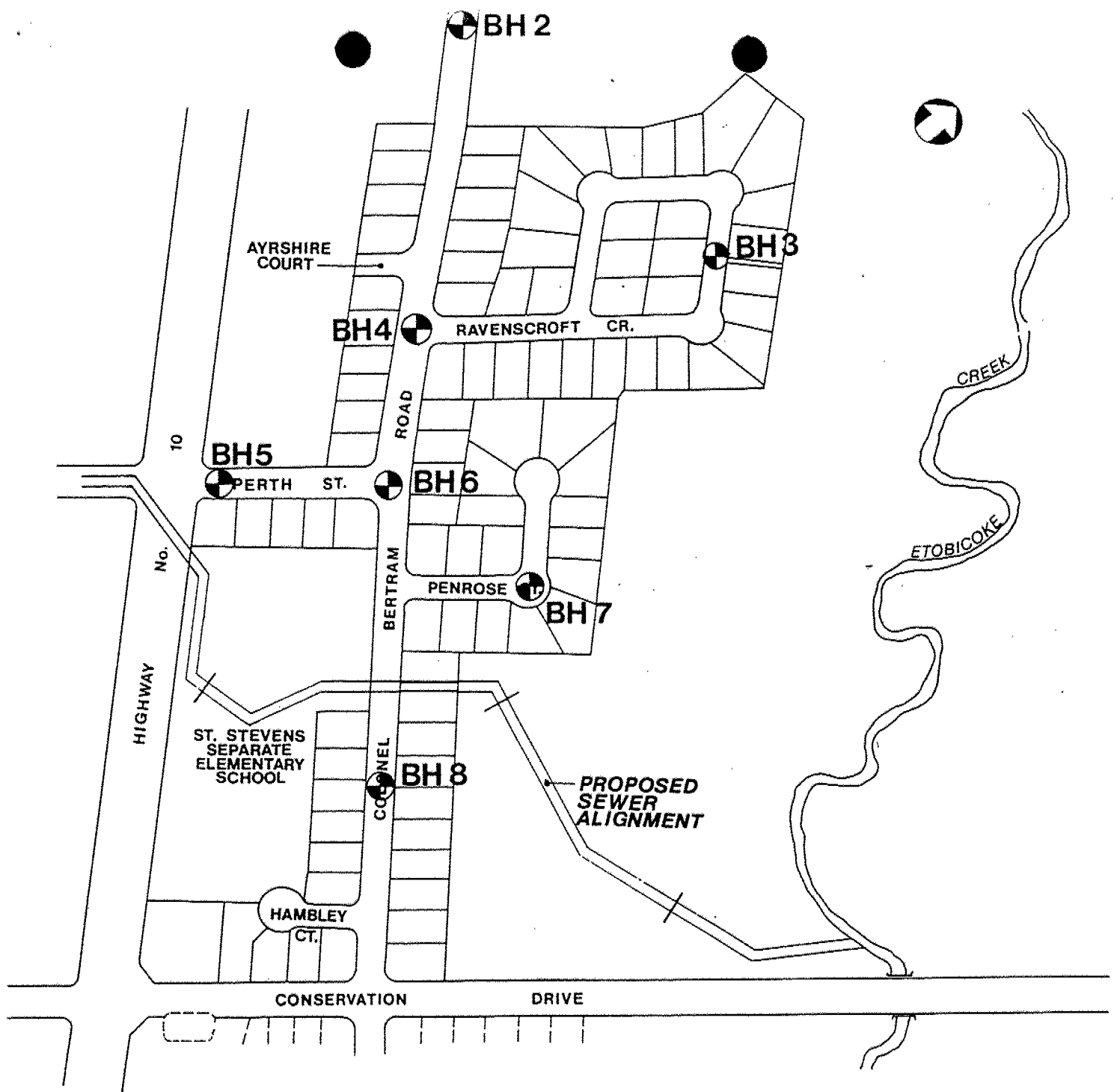
Sewer Invert
Elev. 238.15

Sewer Obvert
Elev. 239.0

Sewer Invert
Elev. 235.4

NOTES

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BOREHOLE LOCATION PLAN

LOG OF BOREHOLE No. 1 and 2

Hwy. #10 North of 15th Side Road

JOB No.: 8601-S.10

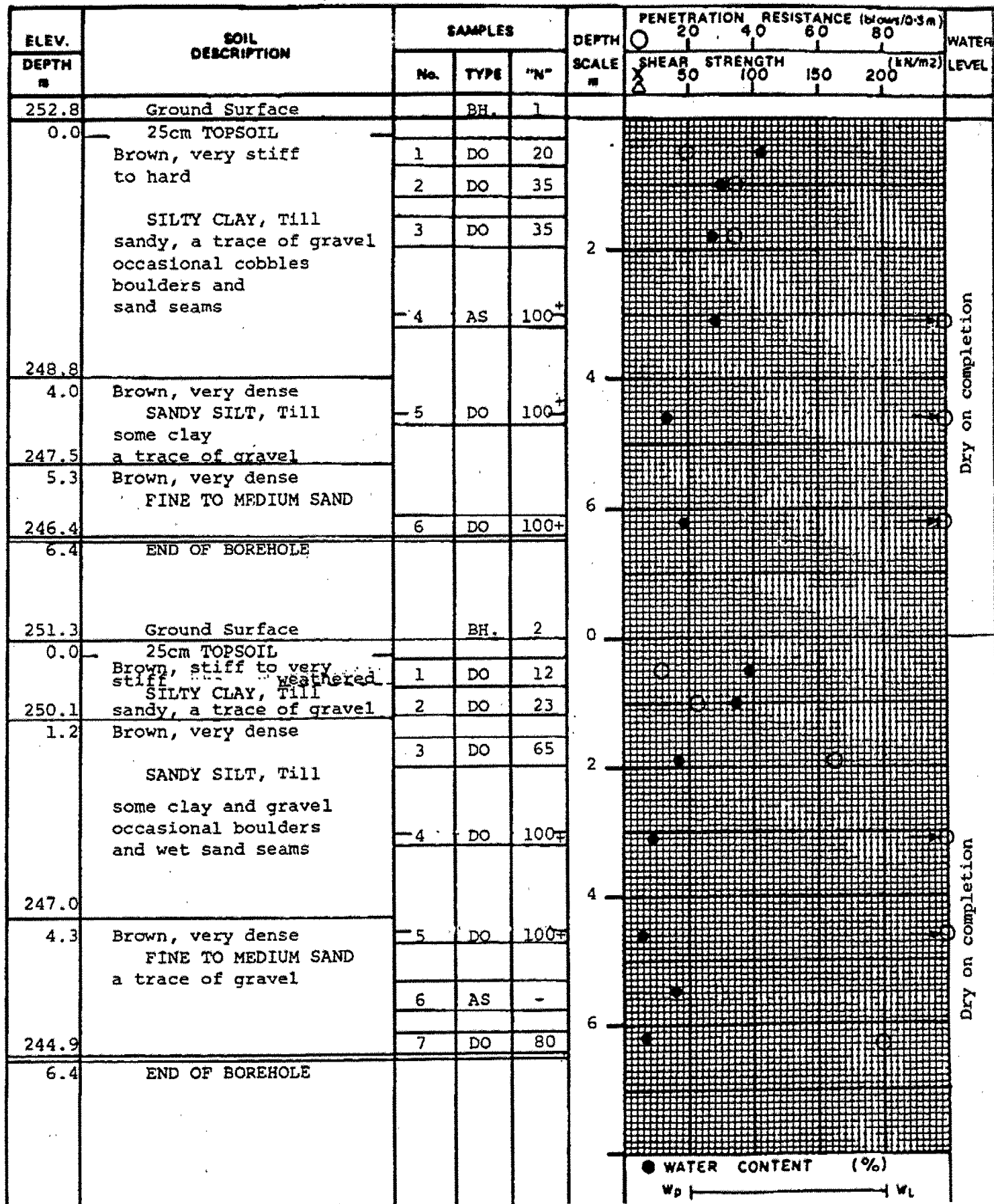
LOCATION: City of Brampton

FIG. No.: 1 & 2

JOB DESCRIPTION: Proposed Residential Subdivision

METHOD OF BORING: Flight-Auger

DATE: January 20, 1986



LOG OF BOREHOLE No. 3 and 4

JOB No.: 8601-S.10

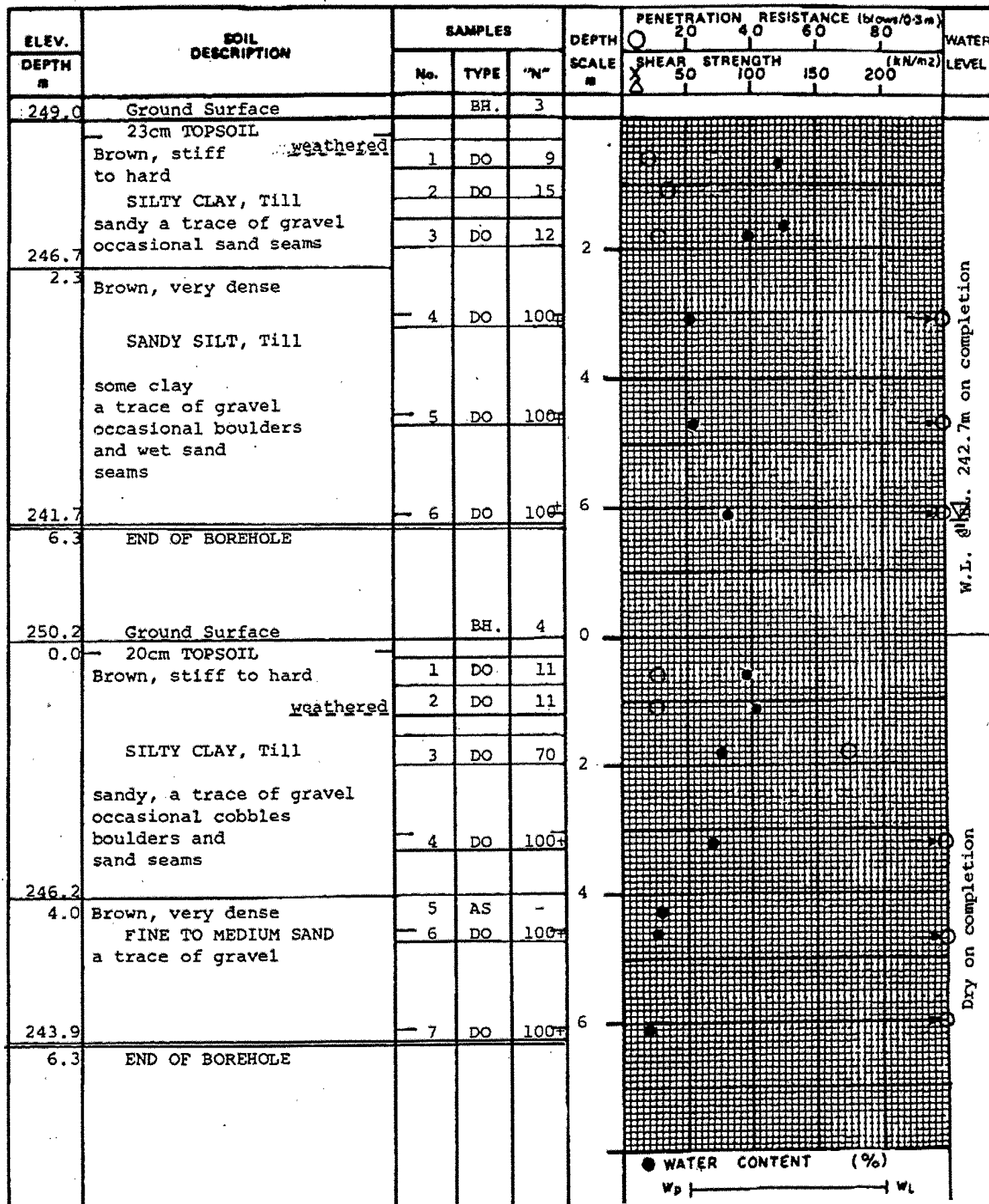
Hwy. #10 North of 15th Side Road
LOCATION: City of Brampton

FIG. No.: 3 & 4

JOB DESCRIPTION: Proposed Residential Subdivision

METHOD OF BORING: Flight-Auger

DATE: January 20, 1986



LOG OF BOREHOLE No. 5 and 6

Hwy. #10 North of 15th Side Road

JOB No.: 8601-S.10

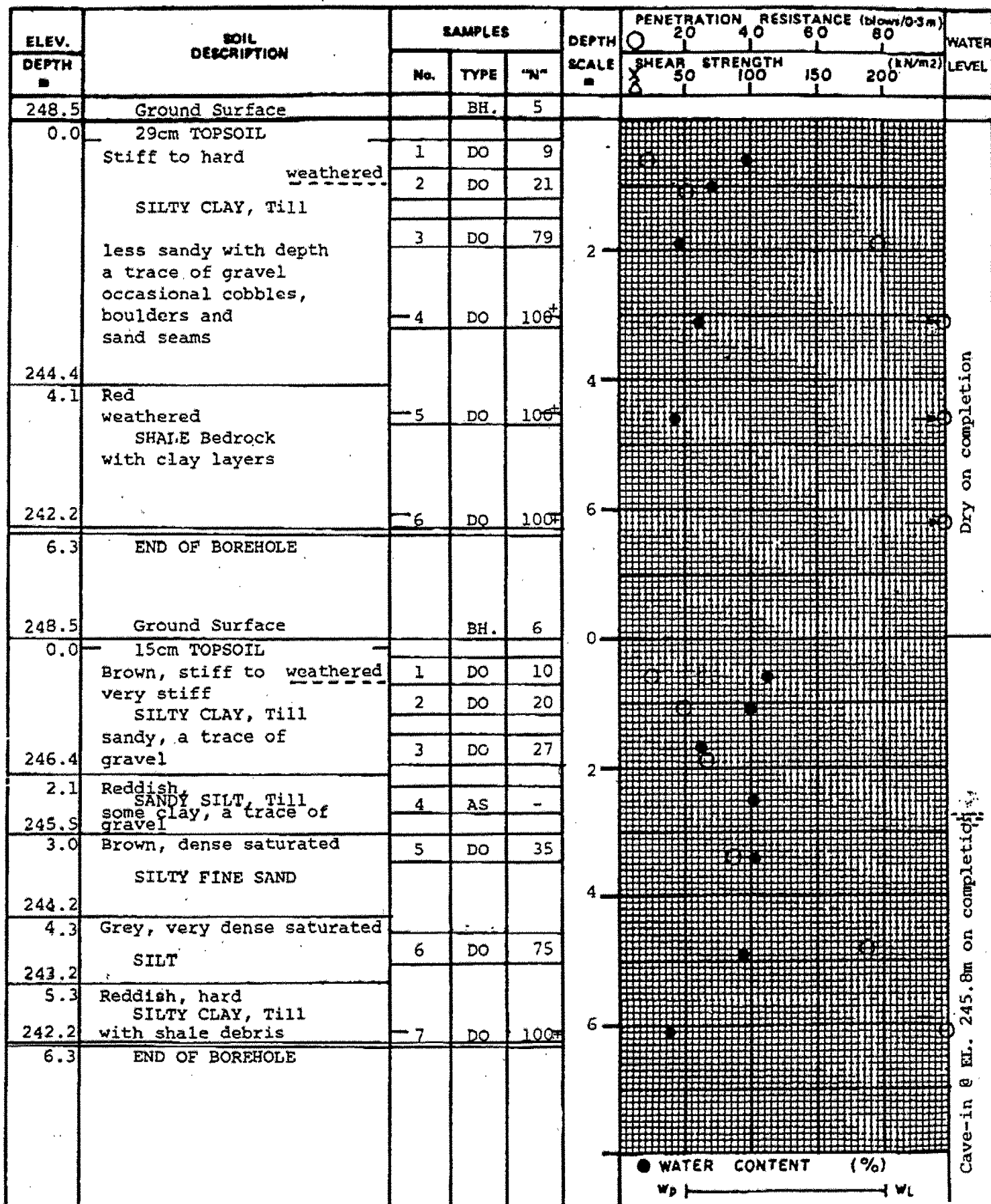
LOCATION: City of Brampton

FIG. No.: 5 & 6

JOB DESCRIPTION: Proposed Residential Subdivision

METHOD OF BORING: Flight-Auger

DATE: January 20, 1986



LOG OF BOREHOLE No. 7 and 8

JOB No.: 8601-S.10

LOCATION: Hwy. #10 North of 15th Side Road
City of Brampton

FIG. No.: 7 & 8

JOB DESCRIPTION: Proposed Residential Subdivision

METHOD OF BORING: Flight-Auger

DATE: January 20, 1986

