

GeoCres No:
30M14-191

FOUNDATION INVESTIGATION REPORT
For
High Mast Lighting
Highway 401 Eastbound Express Lanes, Yonge Street to Hwy. 404
W.P. 4-98-04, Central Region

The detailed soil stratigraphy encountered at each borehole location is shown on the Specific Record of Borehole Sheets included in the Appendix. The approximate borehole locations are also shown on the attached plates.

For construction planning purposes, the condition at each HML pole should be inferred from the nearest borehole.

The groundwater elevation relative to the ground surface should be as noted in the following table.

It is recommended that the foundations for the HML poles in this project should consist of 1.2m diameter caissons. The lengths should be as noted below.

Pole No.	Location	GeoCres No.	Borehole No.	Groundwater Level	Caisson Length
51	Median	30M14-95	4	Within 3 m	8 m
52	Median	30M 14-95	2	Within 3 m	8 m
53	Median	30M 14-95	2	Within 3 m	8 m
54	Median	30M 14-95	12	"	10 m
55	Median	30M 14-191	1-5	"	12 m*
56	Median	30M 14-191	1-3	"	12 m*
57	Median	30M 14-191	1-1	"	12 m*
58	Slope/Fill	30M 14-91	211	"	10 m*
59	Slope/Fill	30M 14-91	211	"	10 m*
60	Slope/Fill	30M 14-92	16	Within 5 m	10 m
61	Slope/Fill	30M 14-91	211	Within 3 m	10 m
62	Slope/Fill	30M14-92	16	Within 5 m	10 m
63	Median	30M14-182	1	Within 1 m	12 m
64	Median	30M14-182	2	Within 1 m	12 m
65	Median	30M14-182	2	Within 5 m	12 m
66	Median	30M14-191B	7	Within 4 m	10 m
67	Median	30M14-191B	6	"	10 m
68	Median	30M14-191B	6	"	10 m
69	Median	30M14-191B	5	"	10 m
70	Median	30M14-191B	4	"	10 m
71	Median	30M14-191B	4	"	10 m
72	Median	30M14-191B	4	"	10 m
73	Median	30M14-81	2	Within 6 m	8 m

74	Slope/Fill	30M14-81	2	"	8 m
75	Slope/Fill	30M14-81	2	"	8 m
78	Slope/Fill	30M14-81	2	"	8 m

- * Advancing caissons at these locations will be difficult, given the significant depths of fill and poor soils conditions; the contractor should be alerted to this and advised that the caissons should be advanced using mud-drilling techniques.

MISCELLANEOUS

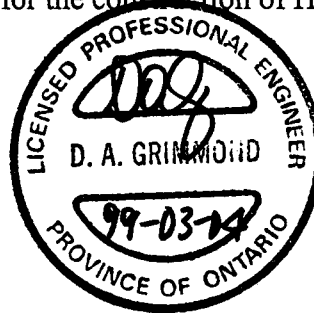
This report was prepared by D. Grimmond, Geotechnical Trainee Engineer, assisted by the Foundation Engineering Group and reviewed by K. Ganesh Geotechnical Engineer.

CONSTRUCTION CONSIDERATIONS

It is recommended that the latest special provision for the construction of HML foundations be incorporated into the contract.



D. Grimmond,
Geotechnical Trainee Engineer





K. Ganesh,
Geotechnical Engineer

APPENDIX

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METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

PLATE No

CONT No

WP No 4-98-04



ELECTRICAL LAYOUT

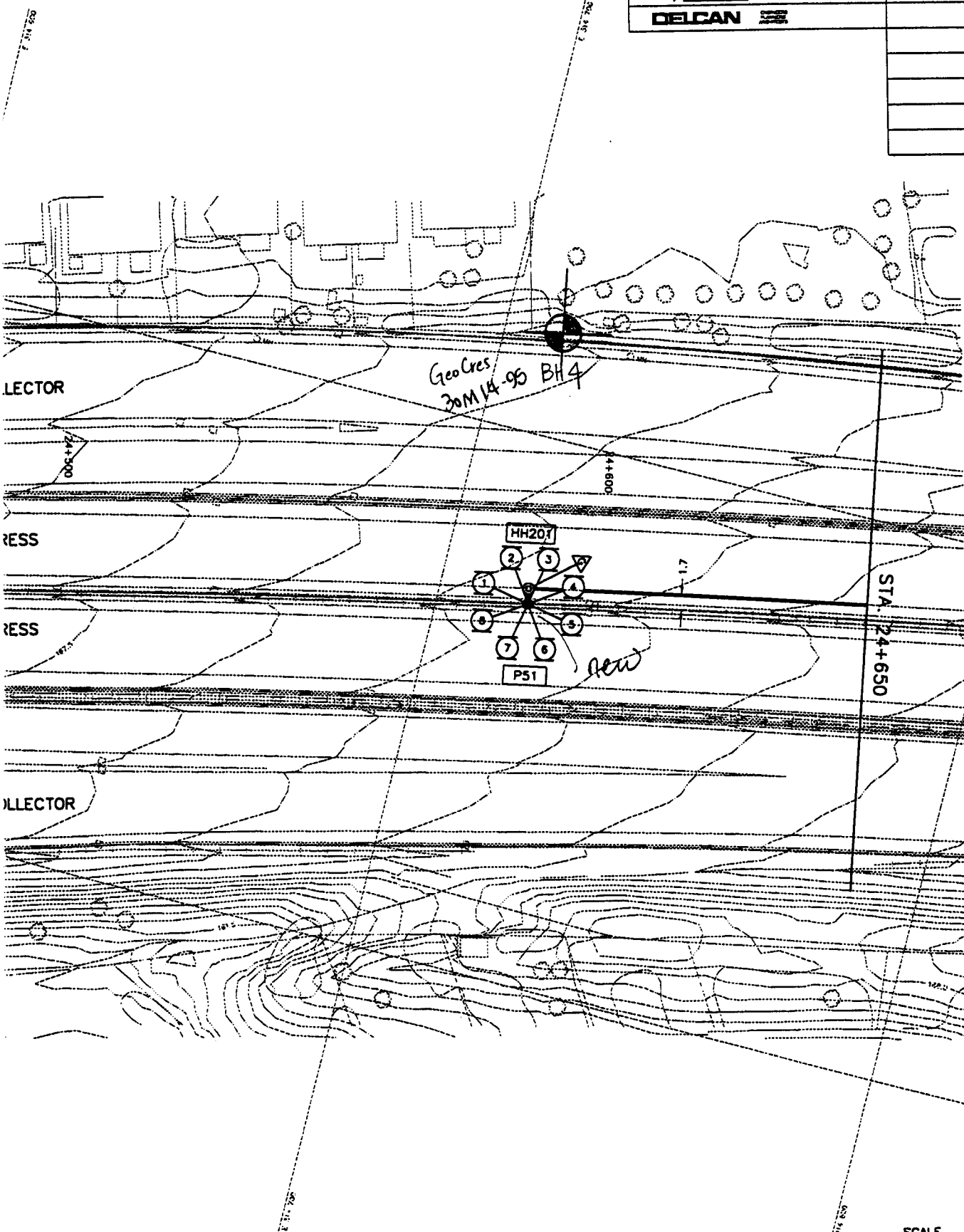
STA. 24+300 TO STA. 24+650

Survey _____ Revised _____

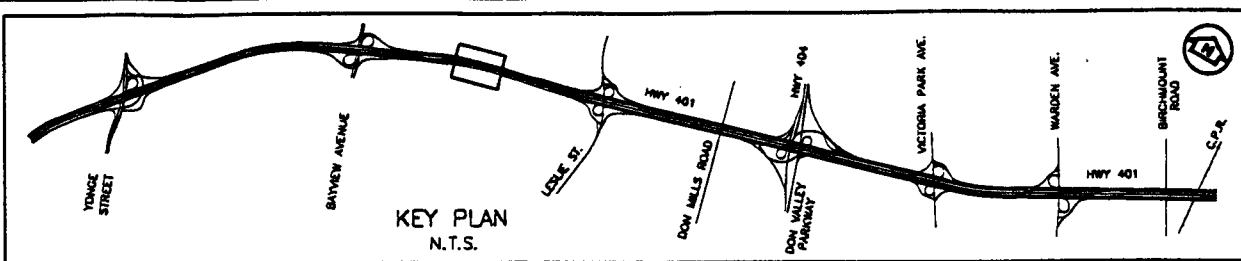
DELCAN

SHEET

E11

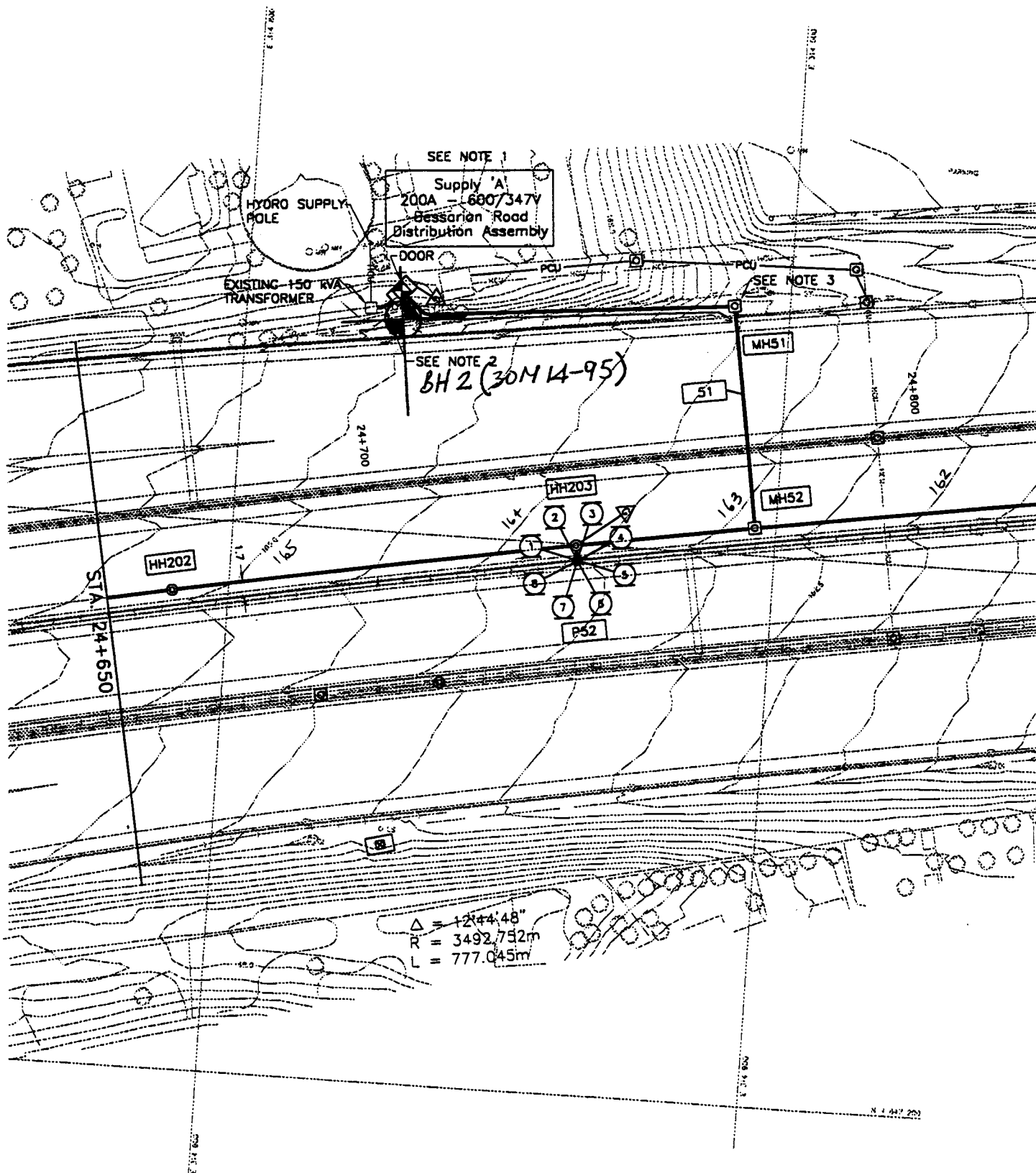


SCALE
5m 10m



NOTES

1. PRO CON
2. CO-DIST PER: PAD
3. PRO AND



METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

PLATE No

CONT No

WP No 4-98-04



ELECTRICAL LAYOUT

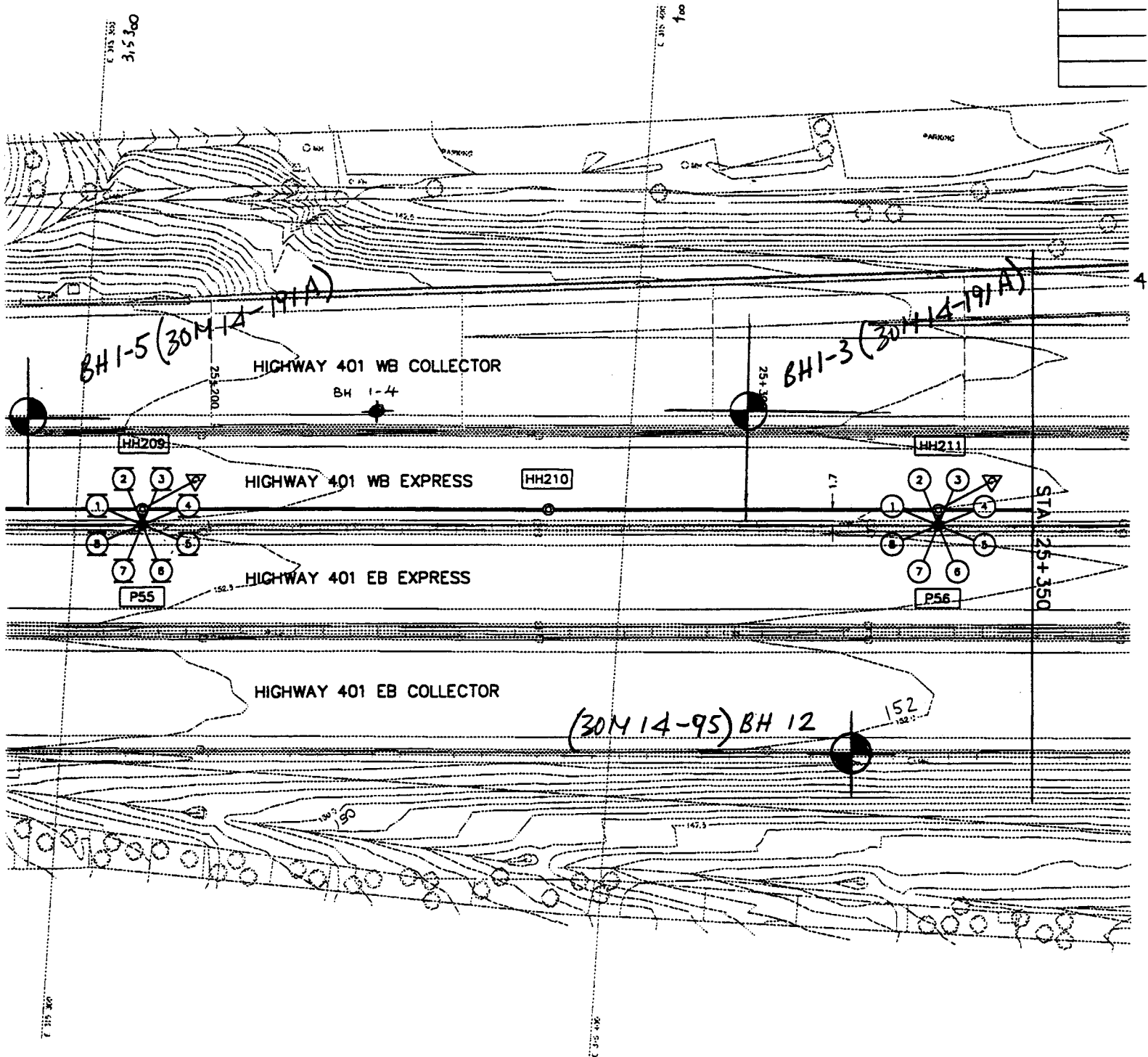
STA. 25+000 TO STA. 25+350

Survey _____ Revised _____

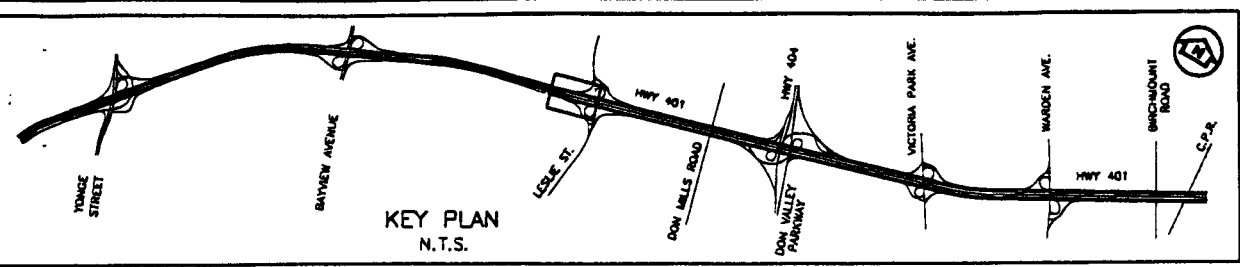
DELCAN

SHEET

E13



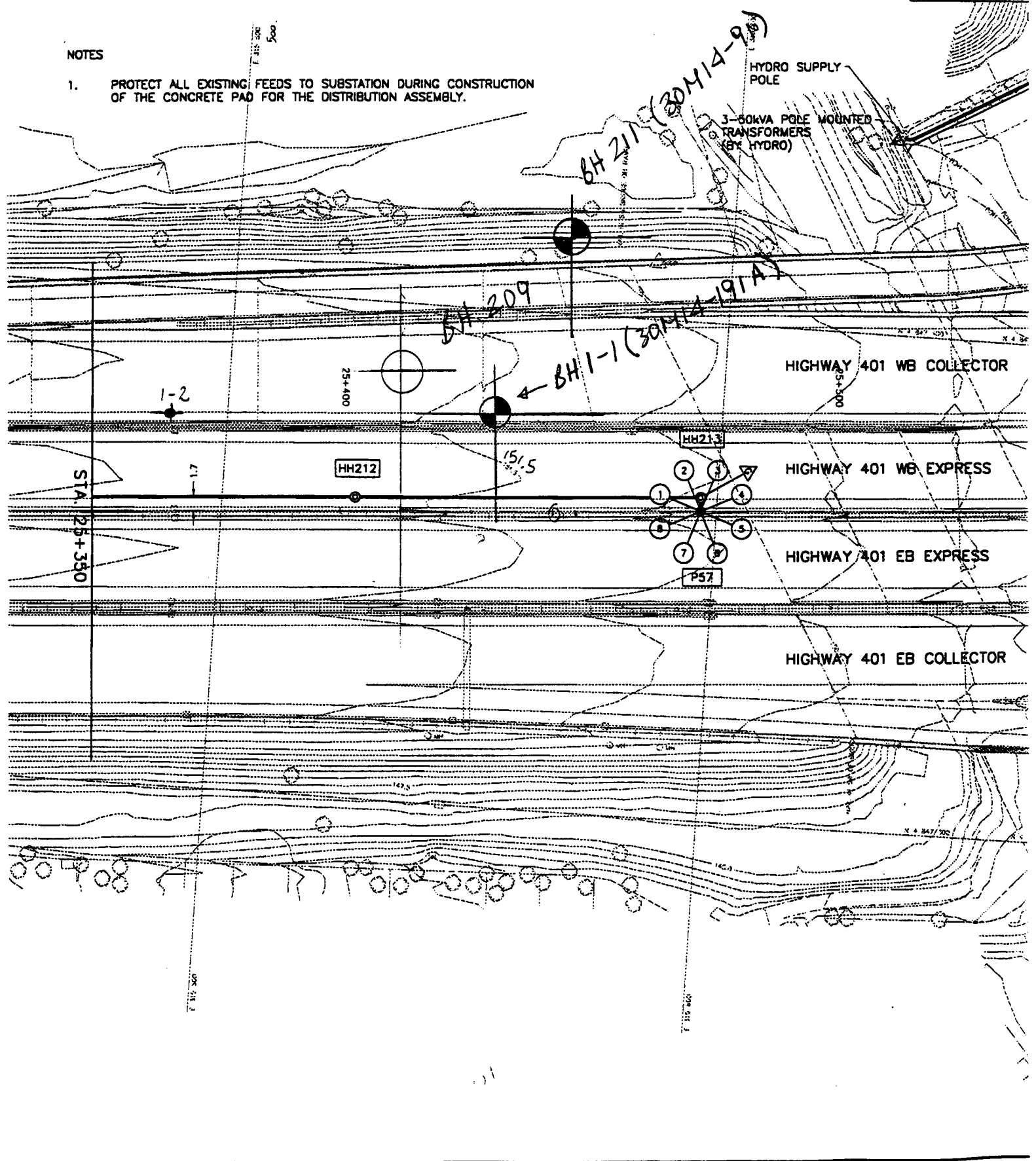
SCALE
5m 10m

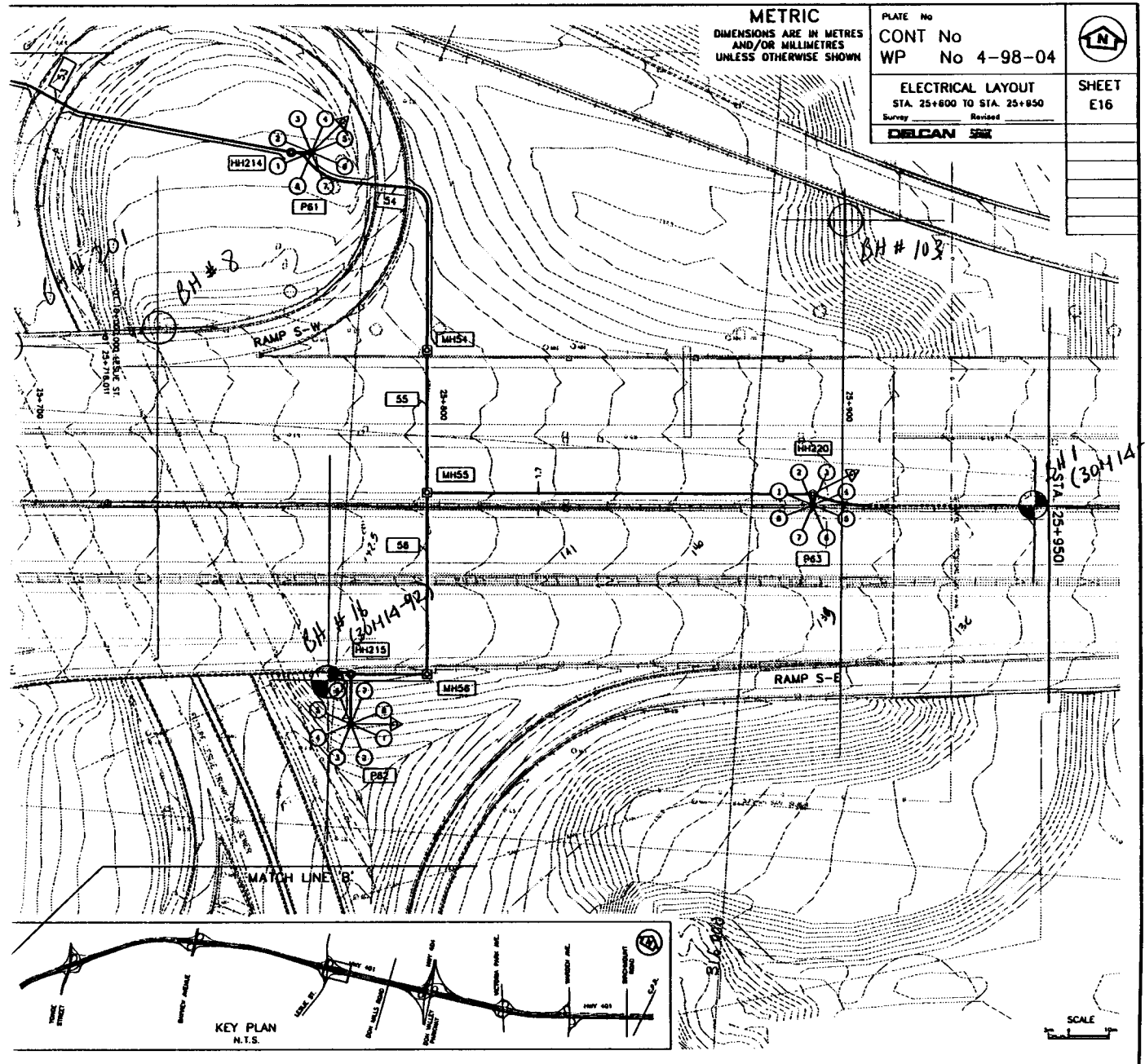


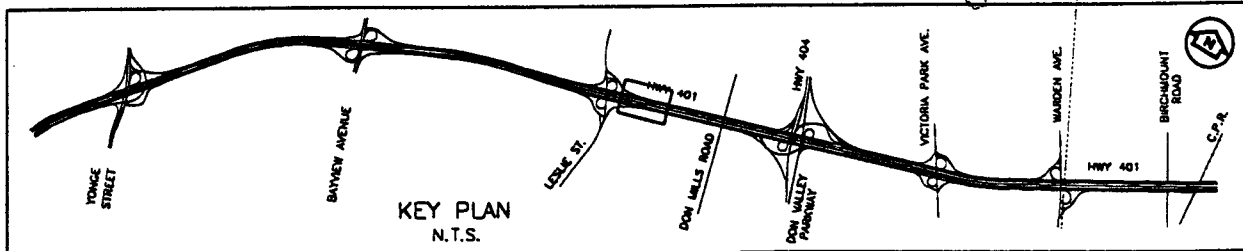
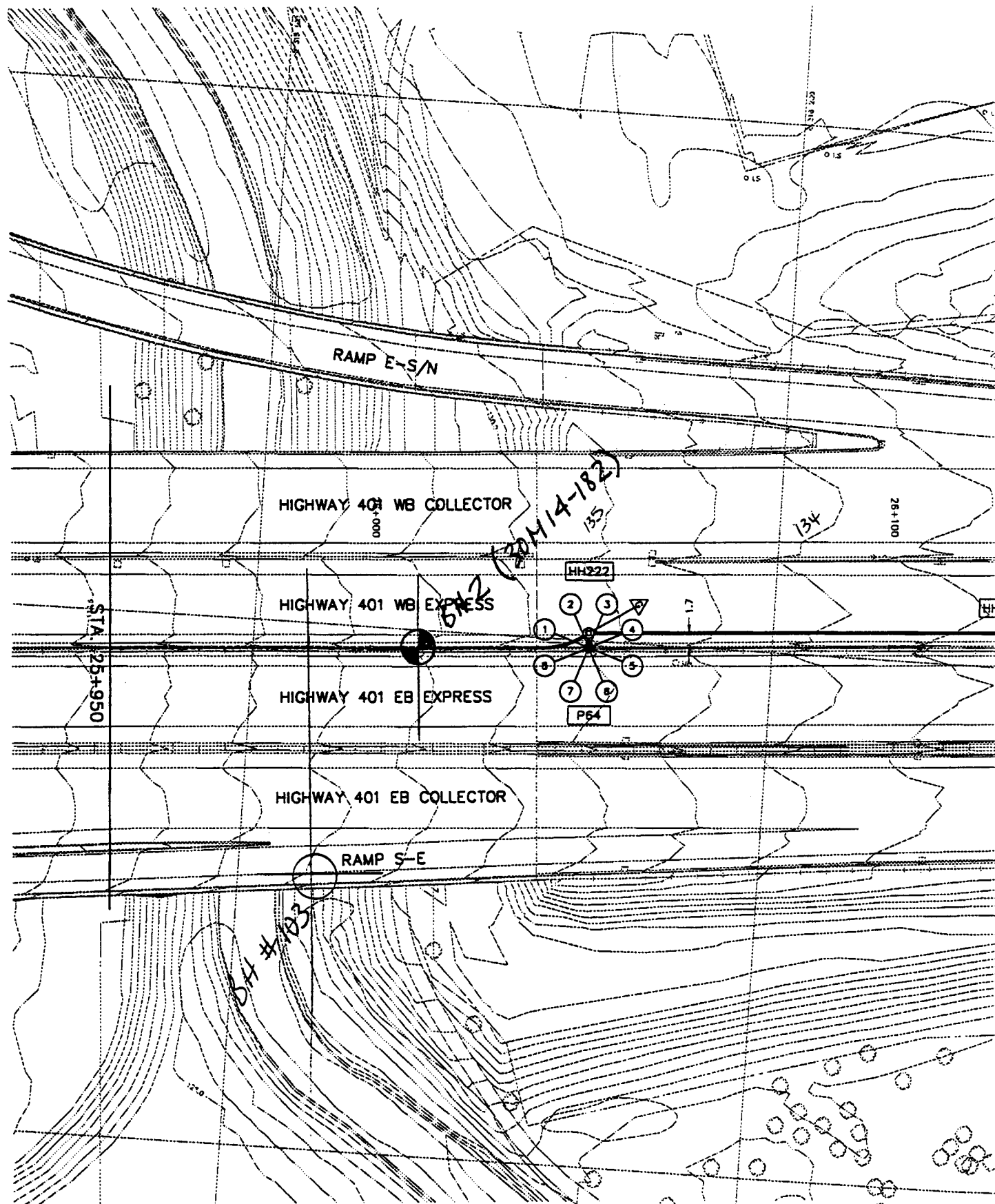
SEE NOTE 1
 Supply 'B'
 200A - 600/3
 Leslie Street
 Distribution Asse

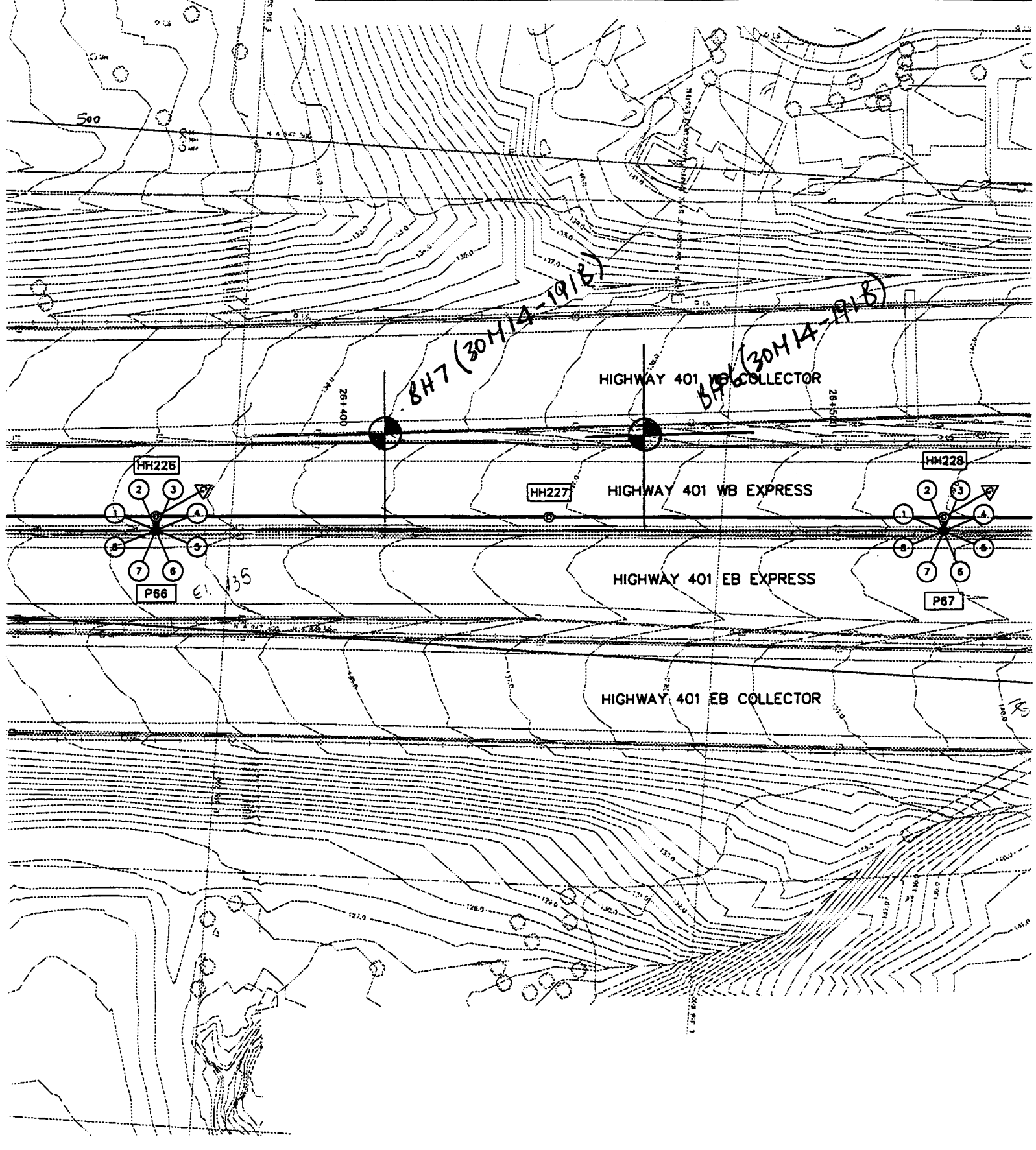
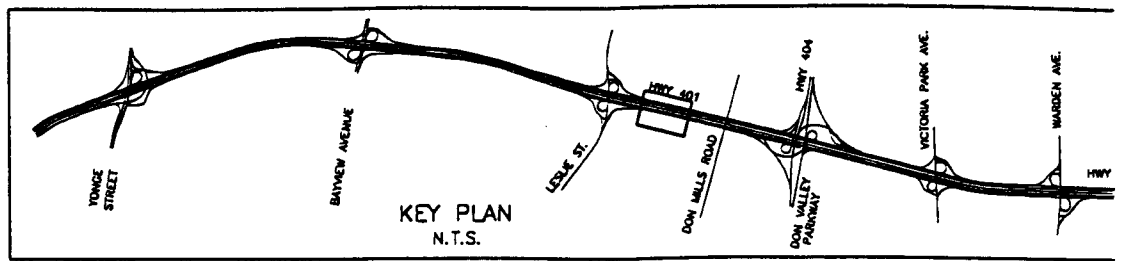
NOTES

1. PROTECT ALL EXISTING FEEDS TO SUBSTATION DURING CONSTRUCTION OF THE CONCRETE PAD FOR THE DISTRIBUTION ASSEMBLY.









METRIC

DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

PLATE No

CONT No

WP No 4-98-04



ELECTRICAL LAYOUT

STA. 26+650 TO STA. 26+950

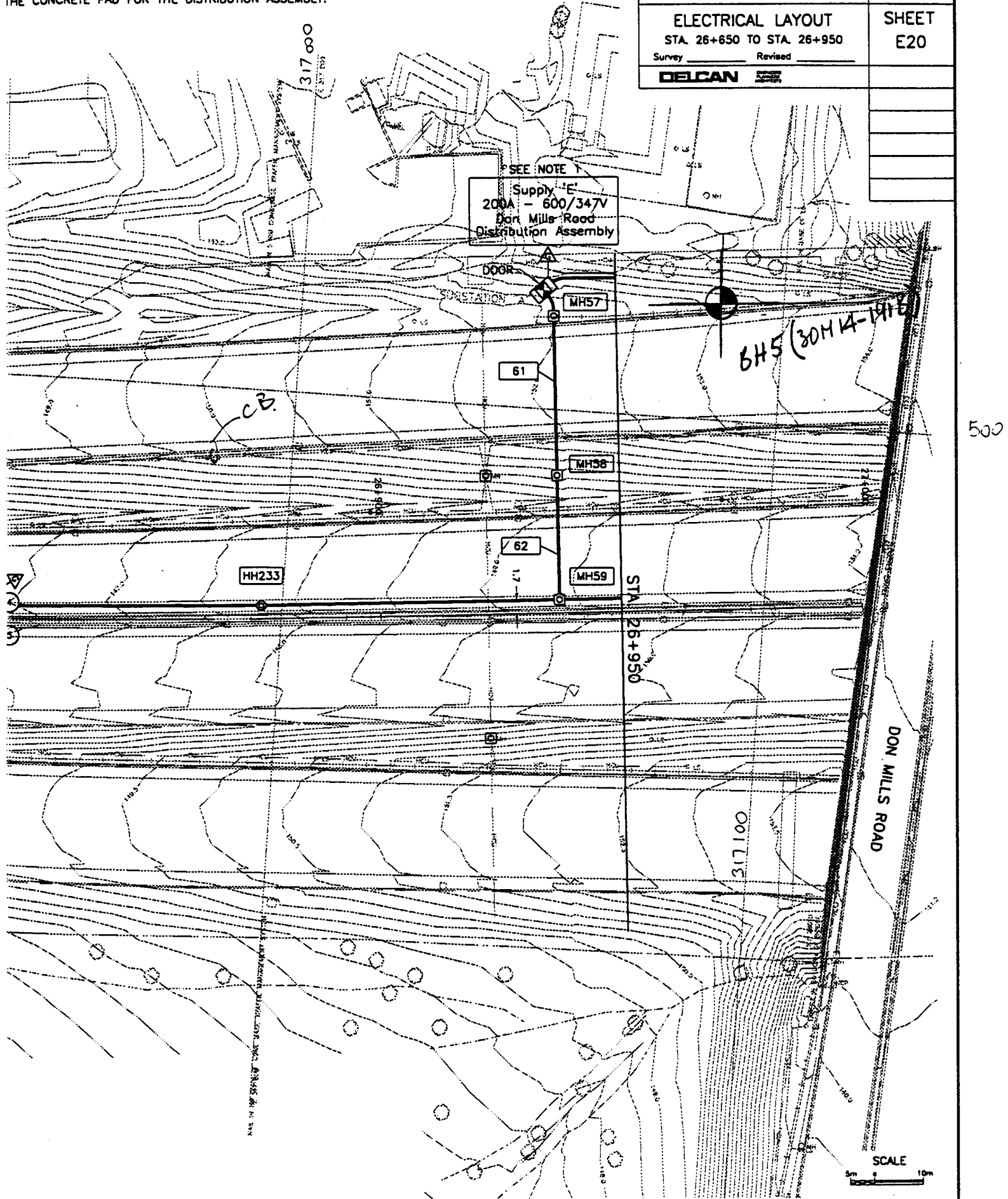
Survey

Revised

DELCAN

SHEET
E20

TECT ALL EXISTING FEEDS TO SUBSTATION DURING CONSTRUCTION
THE CONCRETE PAD FOR THE DISTRIBUTION ASSEMBLY.



NOTES

1. TORONTO HYDRO AND INSTALL A
2. CO-ORDINATE DUCTS AND CABLES AND THE TRANSMISSION LINE TO BE SITUATED IN THE
3. REMOVE EXISTING UP TO THE NEW CONDUIT COUPLINGS. CABLES IN EXISTING

150 KVA TRANSFORMER
BY TORONTO HYDRO
SEE NOTES 1 & 2

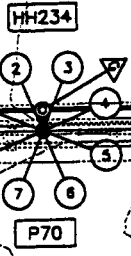
BH4 (300KVA-191B)

BH3

BH5

14-191B

BH # 107

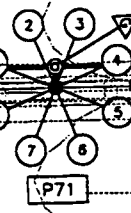


HH235

HH236

HH237

HH238



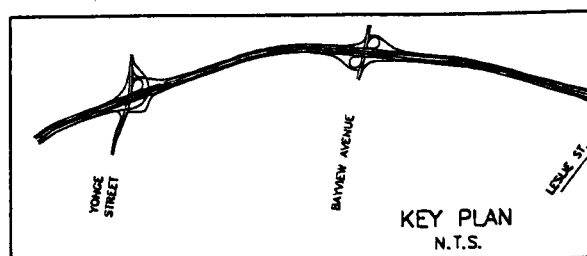
BRIDGE PIERS
SEE NOTE 3

DON MILLS ROAD SOUTH

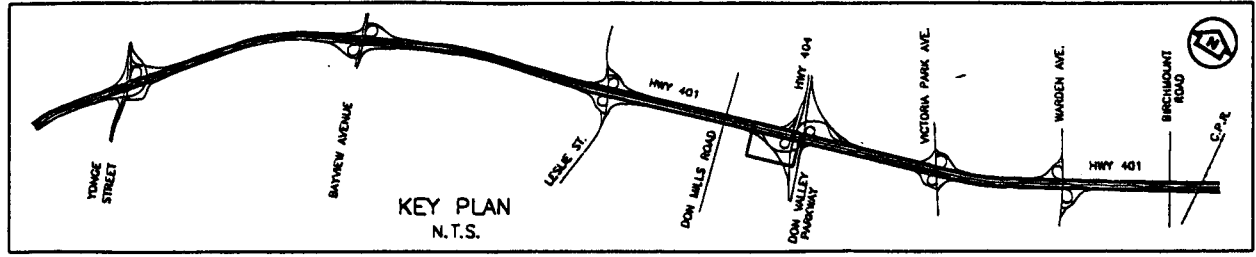
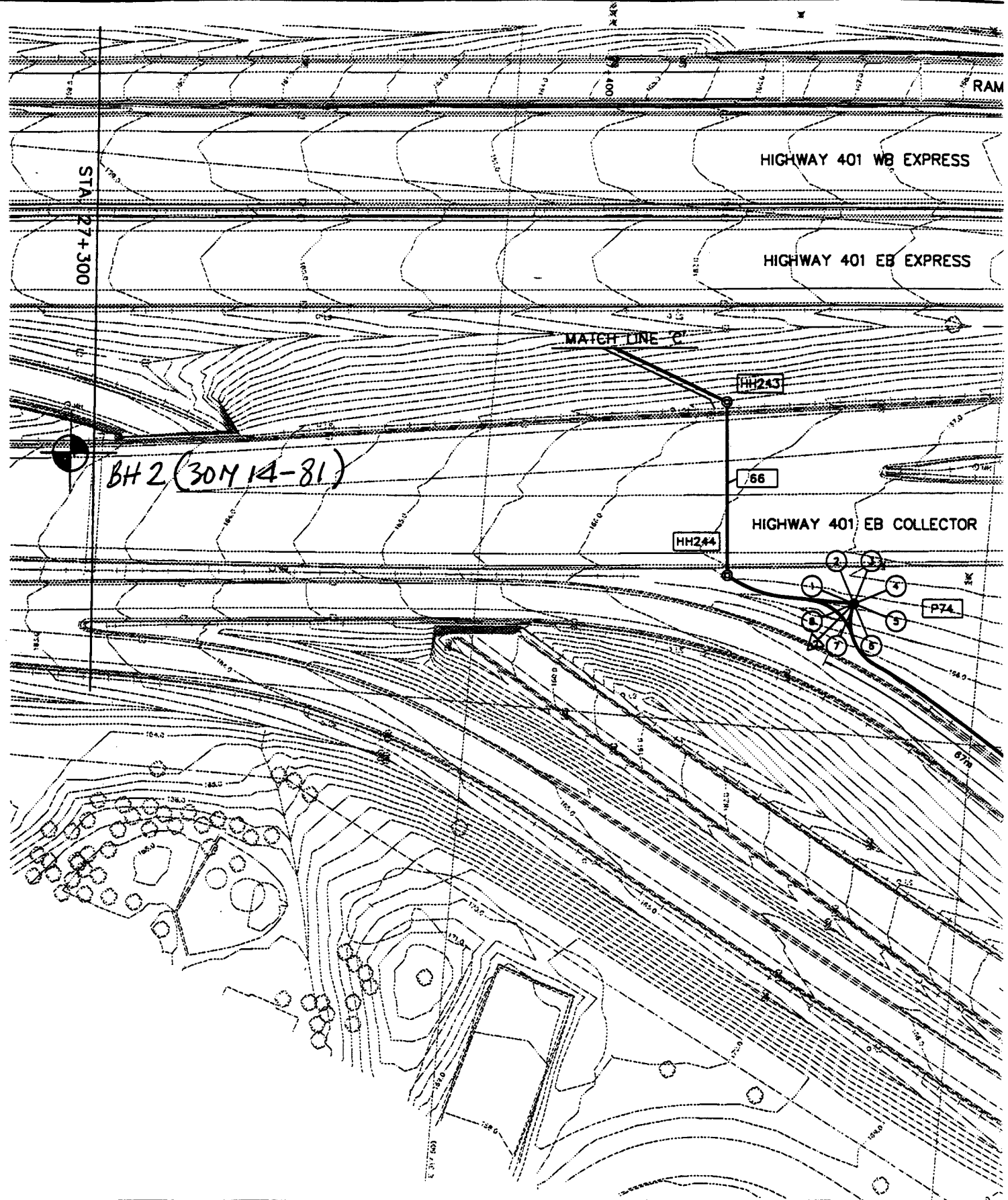
DON MILLS ROAD NORTH

317100

317200



KEY PLAN
N.T.S.



RECORD OF BOREHOLE NO. 4

FOUNDATION SECTION

64-7-8

LOCATION Retaining Wall on Hwy. 401, near Leslie St.

ORIGINATED BY B.M.O.

BORING DATE February 19, 1964

COMPILED BY B.M.O.

STATION 0+8.0

BOREHOLE TYPE Washboring using RX Casing.

CHECKED BY A.O.S.

SOIL PROFILE			SAMPLES		ELEV SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — L			BULK DENSITY	REMARKS
DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE		BLOWS / FOOT	SHEAR STRENGTH P.S.F.	PLASTIC LIMIT — P	WATER CONTENT — W	WATER CONTENT %		
536.5	Topsoil									15 30 45	PC F	
530.6	Glacial Till. (Heterogeneous mixt. of clayey silt, sand and trace of fine gravel with pockets of silty sand).		1	SS	58	535						
			2	SS	15	530						
	Compact to dense and hard.		3	SS	38	525						Clay-silt - 65% Sand - 29% Gravel - 6%
	Brown changing to grey at El. 531.		4	SS	57	520						Clay-silt - 79% Sand - 19% Gravel - 2%
			5	SS	>100							
517.0			6	SS	89							
21.6	End of borehole.					515						

Gravel 30 M/L

30M14-95

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

JOB 64-7-B

LOCATION Retaining Wall on Hwy. 401, near Leslie St.

ORIGINATED BY B.H.G.

W.P. -

BORING DATE February 19, 1964.

COMPILED BY B.H.G.

DATUM G.S.G.

BOREHOLE TYPE Washboring using BX Casing.

CHECKED BY A.G.B.

SOIL PROFILE			SAMPLES		DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT		BULK DENSITY	REMARKS
ELEV	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE	BLOWS / FOOT	PLASTIC LIMIT		
535.5										
535.0	Glacial Till. (Heterogeneous mixt. of clayey silt, sand and trace of gravel with occasional seams of silty fine sand). Hard and v. dense. Brown changing to grey at El. 533.5.		1	SS	28	535				
			2	SS	56	530				
			3	SS	95	525				
			4	SS	61	520				
			5	SS	69	515				
514.2			6	SS	>100	515				
521.3	End of borehole.									

Clay-silt
64%
Sand - 36%

142

RECORD OF BOREHOLE NO. 12

FOUNDATION SECTION

JOB 64-P-8 LOCATION Retaining Wall on Hwy. 401 near Leslie St. ORIGINATED BY B.M.G.
W.P. - BORING DATE February 24, 1964. COMPILED BY B.M.G.
DATUM G.S.C. BOREHOLE TYPE Pennsylvania Type Auger - 3 1/2" Ø CHECKED BY A.G.S.

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE			LIQUID LIMIT ——— "L" PLASTIC LIMIT ——— "P" WATER CONTENT ——— "W"			BULK DENSITY PCF	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE	BLOWS / FOOT	SHEAR STRENGTH PSF	"P"	"L"	WATER CONTENT %		
519.5	Topsoil										15 30 45		
0.6	Silty fine sand and sandy silt.		1	SS	46	515							
	Dense to v. dense. Brown.		2	SS	80								
512.2	Glacial Till.		3	SS	98	510							
7.4	(Clayey silt and trace of fine sand).		4	SS	>100								
	Hard.		5	SS	>100	505							
	Grey.		6	SS	>100	500							
499.0	End of borehole.					495							
20.6													

Geotechnical No. 30M 4-95

RECORD OF BOREHOLE No 1-5

1 OF 1

METRIC

W.P. 260-86-01/A LOCATION Co-ors. N 4 847 137.2; E 315 290.6 ORIGINATED BY MS
DIST 5 HWY 401 BOREHOLE TYPE Hallow Stem Auger, Cone Test COMPILED BY KA
DATUM Ceodetic DATE 88 06 09 CHECKED BY DD

[illegible]

RECORD OF BOREHOLE No 1-3

1 OF 2

METRIC

W.P. 260-86-01/A LOCATION Co-ords. N 4 847 145.9; E 315 420.7 ORIGINATED BY MS
DIST 5 HWY 401 BOREHOLE TYPE Hollow Stem Auger, Cone Test COMPILED BY KA
DATUM Geodetic DATE 88 06 01-02-03 CHECKED BY DD

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100					
151.7	Ground Surface																
0.0	Asphalt																
	Sand, Some Gravel		1	SS	37		150										
			2	SS	14		148										0 18 45 37
	Sandy Silt with Irregular Layers of Clayey Silt and Sand Compact to Dense (Fill)		3	SS	35		146										
			4	SS	34		144										
144.4			5	SS	23		142										0 32 43 25
7.3	Trace Organics		6	SS	36		140										
			7	SS	36		138										
	Clayey Silt (CL) to Silty Clay (CI) Frequently Varved (1 cm) Some Sand, Trace Gravel Occ. Silt, Sand Zones and Boulders		8	SS	14		136										2 31 45 22
			9	SS	19		134										3 33 40 24
			10	SS	11		132										
			11	SS	8		130										
	Sandy Silt Loose to Compact		12	SS	6		128										1 25 50 24
			13	SS	13		126										6 38 44 12
			14	SS	14		124										
			15	SS	11		122										
			16	SS	9												
			17	SS	8												
			18	SS	5												
			19	SS	8												
128.8			20	TW	PH												10 18 63 9
22.9			21	SS	33												1 32 53 14
			22	SS	57												
	Heterogeneous Mixture Sandy Silt to Silty Sand Some Clay, Trace Gravel Occ. Clayey Silt Zones Occ. Boulders Dense to Very Dense		23	SS	100	/25cm											1 20 72 7
			24	SS	25												

Continued

Continued

RECORD OF BOREHOLE No 1-3

2 OF 2

METRIC

W.P. 260-86-01/A LOCATION Co-ords. N 4 847 145.9; E 315 420.7 ORIGINATED BY MS
 DIST 6 HWY 401 BOREHOLE TYPE Hollow Stem Auger, Cone Test COMPILED BY KA
 DATUM Geodetic DATE 88 06 01-02-03 CHECKED BY DD

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	UNIT WEIGHT 7 kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL				
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			'N' VALUES	20	40	60	80						100			
30.5	Continued		25	SS	70															
119.7																				
32.0	End of Borehole																			
	*** Heterogeneous Mixture Sandy Silt to Silty Sand Some Clay, Trace Gravel Occ. Clayey Silt Zones Occ. Boulders Very Dense																			
W.L. Recorded on 88-06-10 • GROUND WATER CONDITIONS <table border="1"> <tr> <th>PIEZO. NO.</th> <th>GROUND WATER ELEVATION (Metres)</th> </tr> <tr> <td>1</td> <td>149.6</td> </tr> </table>																	PIEZO. NO.	GROUND WATER ELEVATION (Metres)	1	149.6
PIEZO. NO.	GROUND WATER ELEVATION (Metres)																			
1	149.6																			

RECORD OF BOREHOLE No 1-1

1 OF 1

METRIC

W.P. 260-86-01/A LOCATION Co-ords. N 4 847 154.1; E 315 554.4 ORIGINATED BY MS

DIST 6 HWY 401 BOREHOLE TYPE Solid Stem Auger, Cone Test COMPILED BY KA

DATUM Geodetic DATE 88 05 26-27 CHECKED BY DD

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT	PLASTIC LIMIT	NATURAL MOISTURE CONTENT	LIQUID LIMIT	UNIT WEIGHT 7 kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20 40 60 80 100	w _p	w	w _L		
								SHEAR STRENGTH kPa ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100	WATER CONTENT (%) 10 20 30				
150.8	Ground Surface												
0.0	Asphalt Sand, Some Gravel		1	SS	32								
			2	SS	16								
			3	SS	6								
			4	SS	8								
			5	TW	PH								
			6	SS	8								
			7	SS	14								
	Sandy Silt with Irregular Layers of Clayey Silt and Sand Loose to Dense (Fill)		8	SS	19								
			9	SS	37								
			10	SS	14								
			11	SS	18								
139.2			12	SS	14								
11.6	Trace Organics		13	SS	24								
	Silty Sand Compact to Dense		14	SS	31								
			15	SS	15								
			16	SS	9								
			17	SS	5								
	Clayey Silt (CL) to Silty Clay (CI) Frequently Varved (1 cm) Some Sand, Trace Gravel Occ. Silt, Sand Zones and Boulders Firm to Very Stiff		18	TW	PH								
			19	SS	13								
			20	SS	6								
125.5													
25.3	Heterogeneous Mixture Sandy Silt to Silty Sand Some Clay, Trace Gravel Occ. Clayey Silt Zones Occ. Boulders Very Dense		21	SS	100								
123.1													
27.7	End of Borehole												

* W.L. Recorded on 88-06-10

PILE TEST SITE # 21				RECORD OF BOREHOLE No 211				METRIC			
W P 266-61		LOCATION Hwy. 401 & Leslie Street (Toronto)		ORIGINATED BY B.M.G.							
DIST 6 HWY 401		BOREHOLE TYPE Washboring - HX & BX Casing & Cone Test		COMPILED BY B.M.G./G.P.							
DATUM Geodetic		DATE 1963 11 28		CHECKED BY J.P.							
SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		NATURAL MOISTURE CONTENT		UNIT WEIGHT	REMARKS & GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER			TYPE	'N' VALUES	20 40 60 80 100	W _p W W _L		
141.0	Ground Level										
0.0	Topsoil										
0.4	Traces of Organics		1	SS	29						
	Silty Fine Sand		2	SS	23						
137.9	Compact Brown to Brown Grey		3	SS	14						
3.1			4	TW	PM						
			5	TW	PM						
	Silty Clay, Trace of Fine Sand		6	TW	PM						
	Soft to Firm		7	TW	PM						
	Grey		8	TW	PM						
			9	TW	PM						
			10	TW	PM						
	Occ. 150 mm to 230 mm Layers of Sand & Gravel up to 25 mm ϕ		11	TW	PM						
125.9			12	SS	55						
15.1	Heterogeneous Mixture of Clayey Silt, Sand & Gravel, Grey (Glacial Till)		13	SS	74						
	Hard		14	SS	1107	0.05 m					
			15	SS	172						
121.0	150 mm Boulders		16	SS	1007	0.18 m					
20.0	End of Borehole										

OFFICE REPORT ON SOIL EXPLORATION

30M14-92

OFFICE REPORT SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS - ONTARIO
MATERIALS & RESEARCH DIVISION

RECORD OF BOREHOLE NO. 16

FOUNDATION SECTION

JOB 64-P-41 LOCATION Stn. 134+15 and 143' Rte. of Hwy. 401 ORIGINATED BY B.H.G.
W.P. 252-61-3 BORING DATE June 18, 1964 COMPILED BY B.H.G.
DATUM G.S.G. BOREHOLE TYPE Washboring using BX casing. CHECKED BY M.D.

SOIL PROFILE		SAMPLES		ELEV SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER		BLOWS / FOOT	SHEAR STRENGTH P.S.F.	WATER CONTENT	PLASTIC LIMIT		
15.0	Ground level									
16.0	Silty fine sand, trace of clay and fine gravel. Brown.			450						
17.0	Silt and trace of fine sand. Grey.			440						
22.0	Silty clay with some sand. Grey.			430						
				420						
				410						
				400						
				390						
64-10	Heterogeneous mixt. of clayey silt, silt, sand & trace of gravel up to 1/2". (Glacial till) V. dense Grey.		1 39 63	380						
			2 39 108							
			3 39 102							
			4 39 64							
269.5			5 39 91	370						
271.6	End of borehole.									

W.L. at
El. 421.7

RECORD OF BOREHOLE No 1										METRIC			
W P 109-84-01/02		LOCATION Along Hwy. 401 E and Along Pier #1 E				ORIGINATED BY LP							
DIST 6 HWY 401		BOREHOLE TYPE Hollow Stem Auger				COMPILED BY LP							
DATUM Geodetic		DATE 86 09 02 and 03				CHECKED BY							
SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT Z		PLASTIC LIMIT W_p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W_L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			'N' VALUES	20 40 60 80 100					
129.4	Ground Surface												
0.0	Silty clay with sand, trace gravel (Fill)		1	SS	14								
			2	SS	9								
			3	TW	PH								
125.7			4	SS	12								
3.7	Silty fine sand trace gravel, organics (Fill)		5	SS	17								
124.2			6	SS	15								
5.2	with organics Silty fine sand trace clay Loose		7	SS	11								
122.4			8	SS	7								
7.0	Silty Clay of intermediate plasticity with occasional thin silt and sand seams Stiff		9	SS	8								
			10	SS	8								
			11	TW	PH								
			12	SS	6								
118.3			13	TW	PH								
11.1			14	SS	15								
			15	SS	21								
	Fine Silty Sand		16	SS	51								
			17	SS	25								
	Compact to Dense		18	SS	42								
			19	SS	63								
107.6	coarse sand and gravel Very Dense												
21.8	End of Borehole												
	* Sample SS 5 not taken												

OFFICE REPORT ON SOIL EXPLORATION

Ministry of
Transportation and
Communications

GEOCRESS 30K14 - 182

RECORD OF BOREHOLE No 2

METRIC

W P 109-84-01/02 LOCATION Along Hwy. 401 4 & 3 m E of Pier #4 ORIGINATED BY LP
DIST 6 HWY 401 BOREHOLE TYPE Hollow Stem Auger COMPILED BY LP
DATUM Geodetic DATE 86 09 14 and 15 CHECKED BY

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20	40	60	80	100					
128.7	0.2 m below ground sur.																
0.0	Silty Clay, some sand, trace gravel		1	SS	11		128										
	Stiff		2	SS	9												
125.1																	
2.4	Alternate Layers of clay of high plasticity and clay of intermediate plasticity		3	TW	PM		126										
			4	TW	PM												
			5	TW	PM												
	Occasional thin seams of silt and sand		6	TW	PM		124										
	Soft		7	TW	PM		122										
117.4							120										
11.3	Silty clay, some sand, some gravel		8	SS	47		118										
115.6	Hard																
13.1	Fine Silty Sand		9	SS	30		116										
	Dense to Very Dense																
113.0			10	SS	54		114										
15.7	End of Borehole																
	* Groundwater level measured 16 hours after borehole opened; may not be stabilized																

OFFICE REPORT ON SOIL EXPLORATION

RECORD OF BOREHOLE No 7										1 OF 1	METRIC		
W.P. 260-86-01/B			LOCATION Co-ords N 4 847 217.3; E 316 530.4				ORIGINATED BY MS						
DIST 6 HWY 401			BOREHOLE TYPE Solid Stem Auger				COMPILED BY KA						
DATUM Geodetic			DATE 88 05 25				CHECKED BY DD						
SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT γ kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			'N' VALUES	20 40 60 80 100					
136.1	Ground Surface												
0.0	Asphalt ----- Sand ----- Clayey Silt (CL) with Sand, Trace Gravel Occ. Organic Zone Stiff to Very Stiff (Fill)		1	SS	21								2 28 45 25
			2	SS	14								1 30 49 20
			3	SS	24								
			4	SS	18								
			5	SS	20								
			6	SS	21								
130.3	Sand -----		7	SS	21								
5.8	Clayey Silt (CL) Same Sand Occ. Silty Clay Zones Firm (Locustrine)		8	SS	6								1 32 42 25
			9	SS	8								0 5 44 51
127.6													
8.5	Silty Sand to Sandy Silt Loose to Very Dense (Locustrine)		10	SS	10								
			11	SS	8								
123.5			12	SS	67								
12.6	End of Borehole												

RECORD OF BOREHOLE No 6										1 OF 1		METRIC	
W.P. 260-86-01/B			LOCATION Co-ords N 4 847 220.7; E 316 583.8				ORIGINATED BY MS						
DIST 6 HWY 401			BOREHOLE TYPE Solid Stem Auger				COMPILED BY KA						
DATUM Geodetic			DATE 88 05 25				CHECKED BY DD						
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT NATURAL MOISTURE CONTENT		UNIT WEIGHT 7 kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20 40 60 80 100	20 40 60 80 100	W _p W W _L	WATER CONTENT (%)		
137.5	Ground Surface												
0.0	Asphalt Sand		1	SS	15								
	Clayey Silt (CL) with Sand, Trace Gravel Occ. Organic Zone Stiff to Very Stiff (Fill)		2	SS	14								3 11 31 55
			3	SS	9								3 34 43 20
133.5			4	SS	9								7 42 35 16
4.0			5	SS	4								1 17 42 40
	Clayey Silt (CL) Some Sand Occ. Silty Clay Zones Soft to Firm (Lacustrine)		6	SS	4								
			7	SS	4								
130.2													
7.3	Silty Sand to Sandy Silt Loose to Very Dense (Lacustrine)		8	SS	9								
			9	SS	10								
			10	SS	6								
			11	SS	31								
			12	SS	34								
			13	SS	100								
121.8						/25cm	122						
15.7	End of Borehole												

RECORD OF BOREHOLE No 5										1 OF 1		METRIC					
W.P. 260-86-01/B			LOCATION Co-ords. N 4 847 299.5; E 317 087.0			ORIGINATED BY MS											
DIST 6 HWY 401			BOREHOLE TYPE Solid Stem Auger			COMPILED BY KA											
DATUM Geodetic			DATE 88 05 24			CHECKED BY DD											
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT					PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT LIMIT			UNIT WEIGHT 7 kN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES			20 40 60 80 100	W _p	W	W _L	WATER CONTENT (%)	10 20 30				
153.3	Ground Surface																
152.3	Asphalt underlain by Sand (Fill)					*											
0.8	Clayey Si. to Silt (CL to CL-ML) with Sand, Trace Gravel Soft to Stiff (Glacial Till)		1	SS	4		132									3 29 44 24	
			2	SS	15												
			3	SS	10												
			4	SS	10		150										6 48 30 16
			5	SS	7												
			6	SS	7												
			7	SS	9		148										20 29 39 12
			8	SS	8												2 31 51 16
			9	SS	9		146										
			10	SS	11		144										
143.2	Silty Sand Trace Clay and Gravel Occ. Silt Zone Very Dense (Glacial Till)		11	SS	57		142										
10.1			12	SS	100		140										
			13	SS	60	/15cm											
			14	SS	100	/20cm	138										
137.7																	
15.6	End of Borehole																
	• Groundwater elevation was not determined																

RECORD OF BOREHOLE No 4

1 OF 1

METRIC

W.P. 260-86-01/B LOCATION Co-ords. N 4 847 310.7; E 317 196.5 ORIGINATED BY MS
DIST 6 HWY 401 BOREHOLE TYPE Solid Stem Auger, Cone Test COMPILED BY KA
DATUM Geodetic DATE 88 05 17-18 CHECKED BY DD

SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT 7 KN/m ³	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES		20 40 60 80 100	20 40 60 80 100					
156.5	Ground Surface												
0.0 155.7	Asphalt underlain by Sand (Fill)												
0.8	Clayey Si. to Silt (CL to CL-ML) with Sand, Trace Gravel Stiff (Glacial Till)		1	SS	11								10 31 39 20
			2	SS	14								9 29 48 14
			3	SS	11								
			4	SS	13								
			5	SS	10								
			6	SS	13								
			7	SS	11								
			8	SS	9								6 30 37 27
			9	SS	11								
148.0	Silty Sand Trace Clay and Gravel Occ. Silt Zone Loose to Very Dense (Glacial Till)		10	SS	33								
8.5			11	SS	36								
			12	SS	6								
			13	SS	77								
			14	SS	60	/15cm							
			15	SS	60	/10cm							
139.5													
17.0	End of Borehole												

30M14-81

4241 17 HIGHWAYS - ONTARIO
LABS & RESEARCH DIVISION

OFFICE REPORT SOIL EXPLORATION

RECORD OF BOREHOLE NO. 2

FOUNDATION SECTION

61-8-19

LOCATION 191475 (34' R.)

ORIGINATED BY Y.K.

BORING DATE March 4, 1962

COMPILED BY: Y.K.

Condition

BOREHOLE TYPE Powdrill (5" Ø Auger)

CHECKED BY H.D.

SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — "L"		BULK DENSITY	REMARKS
DESCRIPTION	STRAT PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV SCALE	BLOWS / FOOT	WATER CONTENT %		
								SHEAR STRENGTH P.S.F.	
						"P"			
						"L"			
						10 20 30			
552.50	Groundlevel								
550.5	Topsoil				550				
550.0	(Glacial Till)	1	39	22					
548.0	Heterogeneous mixture of clayey silt sand and gravel (Brown)	2	39	35					
547.0		3	39	42	540				
545.5		4	39	22					
543.0	" "	5	39	33	530				
541.5	(Grey) Compact to dense	6	39	49					
537.50		7	39	15	520				
535.0	Gravelly sands (Well graded, some clay)	8	39	87					
532.0		9	39	5100	510				
529.0	Gray sandy silt V. dense	10	39	5100					
527.5	End of borehole	11	39	5100	500				
					490				