

REMARKS: _____

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

CONT No 97-30
WP No 609-89-00

HWY. 427 WIDENING
HIGH MAST LIGHTING POLE
FOOTING DETAILS V1

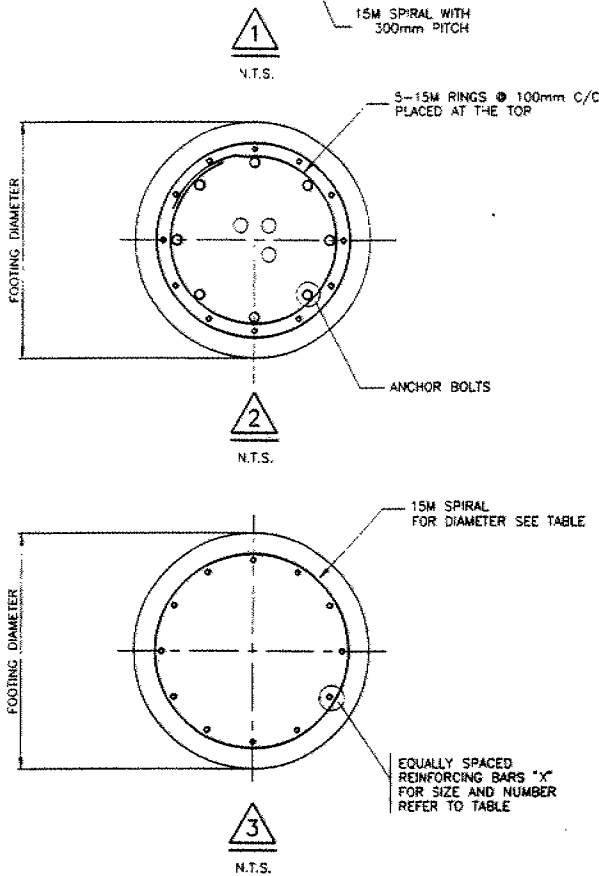
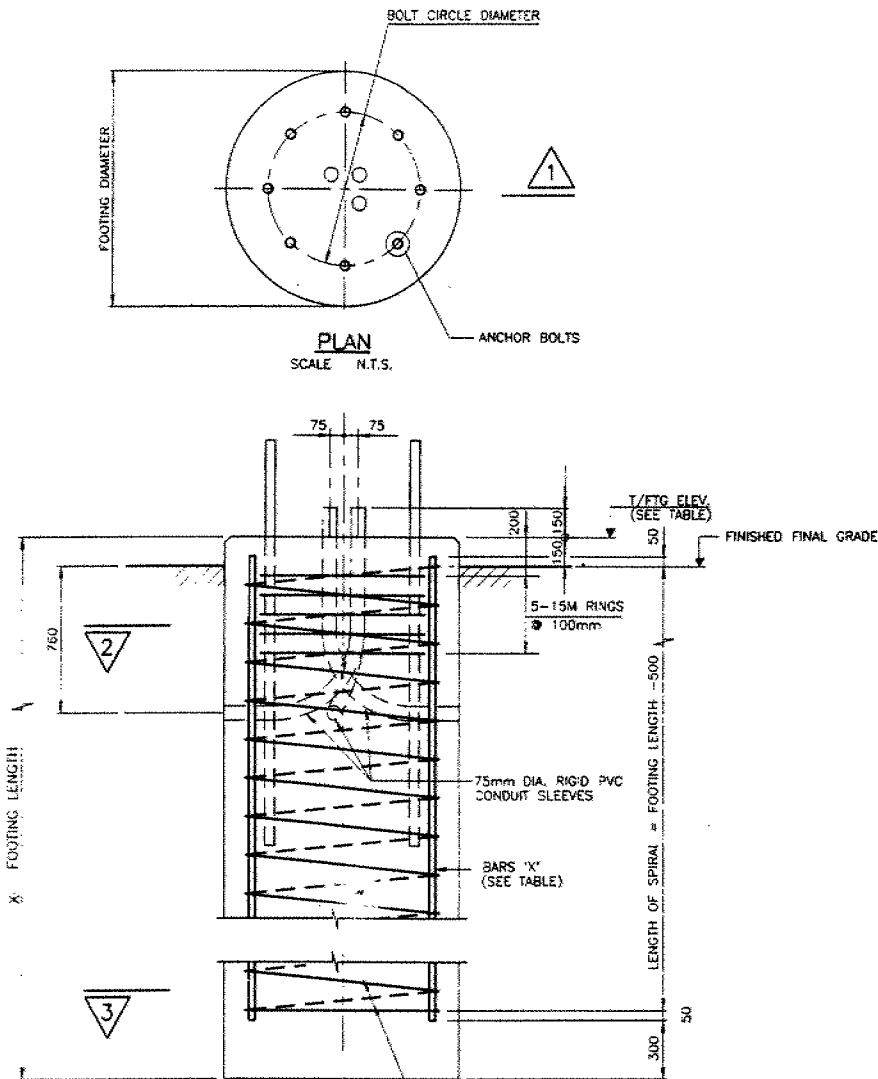
SHEET
165

NOTES

- 1 CLASS OF CONCRETE SHALL BE 30 MPa.
 - 2 CLEAR COVER TO REINFORCING STEEL SHALL BE 100 ± 25 mm
 - 3 REINFORCING STEEL SHALL BE GRADE 400.
 - 4 ANCHOR BOLTS ARE ROUND BARS, QUENCHED AND TEMPERED MEDIUM CARBON STEEL WITH MINIMUM YIELD OF 517 MPa (MIN. TENSILE STRENGTH OF 725 MPa) AND SHALL SATISFY CHARPY V-NOTCH REQUIREMENTS OF 20 JOULES AT MINUS 30°C
 - 5 EACH ANCHORAGE ASSEMBLY SHALL BE PROVIDED WITH A WOODEN TEMPLATE.
 - 6 ANCHORAGE ASSEMBLY SHALL BE INSTALLED VERTICALLY. NO ADJUSTMENTS SHALL BE ALLOWED AFTER CONCRETE IS PLACED IN FOOTING
 - 7 FOR FINISHED GRADE ELEVATION, REFER TO GRADING DRAWINGS.
- * BASED ON THE FOUNDATION INVESTIGATION AND DESIGN REPORT ACTUAL FOOTING DEPTH TO BE DETERMINED IN THE FIELD.

FOOTING DATA

POLE No.	CO-ORDINATES		T/FTG ELEVATION (m)	POLE HEIGHT (m)	FOOTING DIAMETER (m)	FOOTING LENGTH (m)	REINFORCING BARS "X"	
	NORTH	EAST					SIZE	No. REQ'D
P1	4 836 528.0	297 572.0	157.000	35	1.370	6.7	30M	12
P2	4 836 530.0	297 678.0	160.500	35	1.370	6.7	30M	12
P3	4 836 536.0	297 534.0	160.500	35	1.370	6.7	30M	12
P4	4 836 306.0	297 444.0	162.500	35	1.370	6.7	30M	12
P5	4 836 522.0	297 391.0	164.500	30	1.220	6.1	30M	10

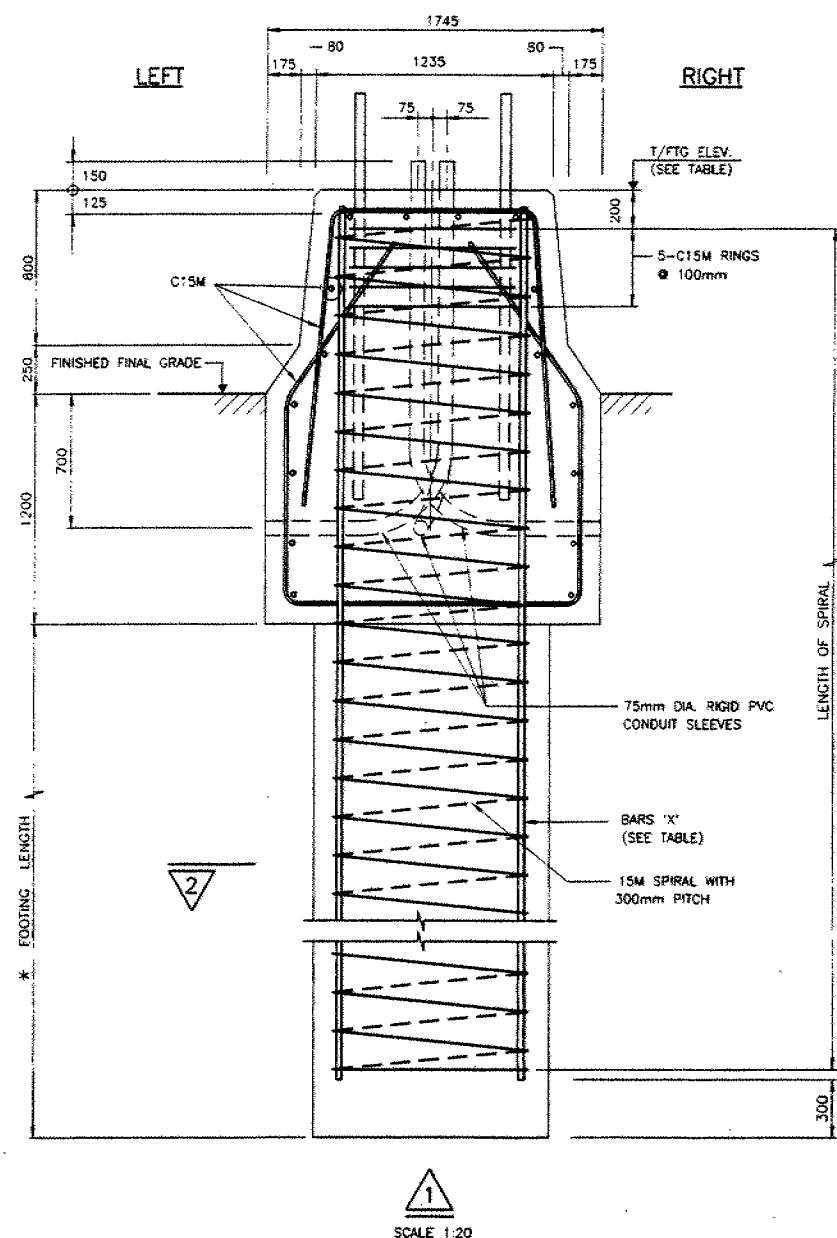
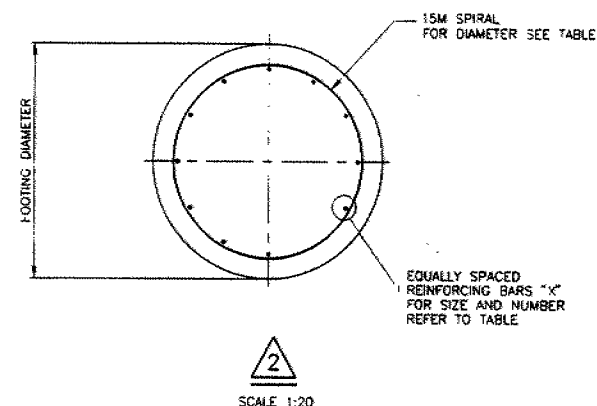
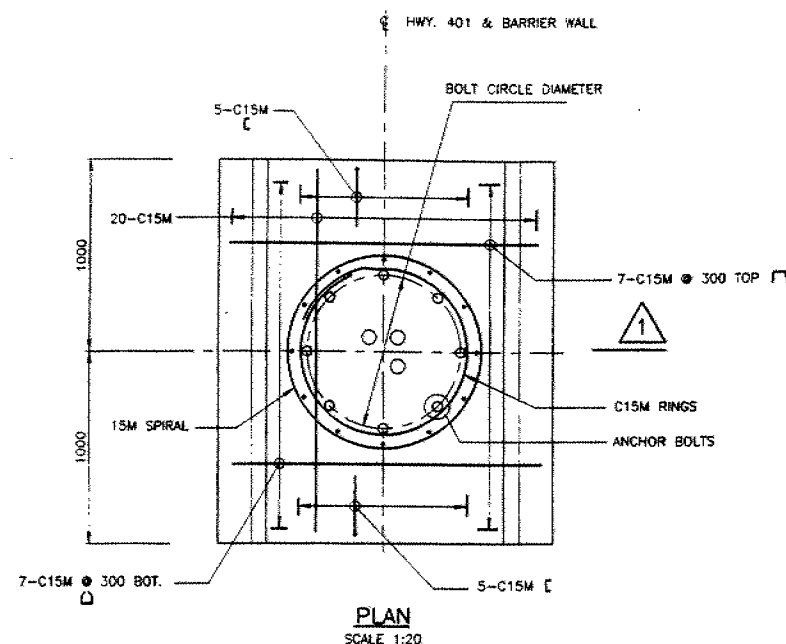


DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

APPLICABLE STANDARD DRAWINGS

OPSD 2456.01

REVISIONS	DESCRIPTION	DATE
DESIGN J.L.	CHK	CODE
DRAWN B.G.	CHK	B.S. SITE
ISTRUCT	SCHEME	DWG



NOTES

- 1 CLASS OF CONCRETE SHALL BE 30 MPa.
 - 2 CLEAR COVER TO REINFORCING STEEL SHALL BE 100 ± 25mm
 - 3 REINFORCING STEEL SHALL BE GRADE 400. BARS SUFFIXED WITH 'C' DENOTES EPOXY COATED BARS.
 - 4 ANCHOR BOLTS ARE ROUND BARS, QUENCHED AND TEMPERED MEDIUM CARBON STEEL WITH MINIMUM YIELD OF 517 MPa (MIN. TENSILE STRENGTH OF 725 MPa) AND SHALL SATISFY CHARPY V-NOTCH REQUIREMENTS OF 20 JOULES AT MINUS 30°C
 - 5 EACH ANCHORAGE ASSEMBLY SHALL BE PROVIDED WITH A WOODEN TEMPLATE.
 - 6 ANCHORAGE ASSEMBLY SHALL BE INSTALLED VERTICALLY. NO ADJUSTMENTS SHALL BE ALLOWED AFTER CONCRETE IS PLACED IN FOOTING
 - 7 FOR FINISHED GRADE ELEVATION, REFER TO GRADING DRAWINGS.
- * BASED ON THE FOUNDATION INVESTIGATION AND DESIGN REPORT ACTUAL FOOTING DEPTH TO BE DETERMINED IN THE FIELD.

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

CONT No 97-30
WP No 609-89-00

HWY. 427 WIDENING
HIGH MAST LIGHTING POLE
FOOTING DETAILS VII
TOP BARRIER WALL MOUNTED

SHEET
166

FOOTING DATA

POLE No.	CO-ORDINATES		T/FTG ELEVATION (m)	POLE HEIGHT (m)	FOOTING DIAMETER (m)	FOOTING LENGTH (m)	REINFORCING BARS "X"	
	NORTH	EAST					SIZE	No. REQ'D
P140	4 838 317.5	296 618.5	173.000	25	1.220	6.1	30M	8
P141	4 838 421.0	296 567.5	172.000	25	1.220	6.1	30M	8
P148	4 838 531.2	296 519.9	171.000	30	1.220	6.1	30M	8



DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

APPLICABLE STANDARD DRAWINGS

OPSD 2456.01

REVISIONS	DESCRIPTION
DESIGN J.L. CHK	CODE OHBC - 91 DATE JAN. 1997
DRAWN B.G. CHK B.S. SITE	STRUCT SCHEME DWG.



Ministry
of
Transportation

*FILE
Copy*

FOUNDATION DESIGN SECTION

foundation investigation and design report

**ENGINEERING MATERIALS OFFICE
FOUNDATION DESIGN SECTION**

WP 609-89-00 REGION Central
HWY 427 STR SITE -

CONT 97-30

High Mast Lighting

Hwy. 427 from Hwy. 401 to Campus Rd./Fasken Dr.

DISTRIBUTION

V.F. Boehnke (2)
D. Billings
W. Peck (2)
B. Peltier (3)
M. Holowka
J. Robinson
E.A. Joseph
F. Bacchus (Cover Only)
File

GEOCRES 30M12-225

DATE APR 10 1995

FOUNDATION INVESTIGATION REPORT
For
High Mast Lighting
Hwy 427, From Hwy 401 to Campus Rd./Fasken Dr
W.P. 609-89-00
Hwy. 427, Central Region

INTRODUCTION

This report presents soil information for the proposed eight high mast lights (P1 through P8) at the above mentioned site. Soil information was obtained from previous subsurface investigations in the area (Geocres 30M11-43, 30M11-48 and 30M12-52). This report is produced at the request of Central Region Structural Section.

SUBSURFACE CONDITIONS

The appended three Record of Borehole sheets have been selected from previous projects to represent the soil conditions for this project. The native soil in general is a competent cohesive and non cohesive soil basically of glacial origin. The consistency of the material in general is very dense or hard (N-values ranging from 15 blows to more than 100 blows/0.3m, with average N-value of 30 to 60 blows/0.3m. The closest boreholes (listed below) should be referred for the soil condition at the HML locations.

<u>Boreholes</u>	<u>Co-ordinates</u>	<u>Geocres No</u>
BH 1	N 4,836,388.1; E 297,405.6	30M11-43
BH 3	N 4,838,593.0; E 296,497.8	30M12-52
BH 7	N 4,837,170.8; E 297,337.3	30M11-48

The location of the boreholes are shown on Drawings 6098900-A and 6098900-B.

DISCUSSION AND RECOMMENDATIONS

It is proposed to install eight high mast lighting poles (P1 through P8) on Hwy 427, between Hwy 401 and Campus Rd./Fasken Drive.

The High Mast Lighting poles will be founded on single reinforced concrete caissons. The foundations for HML should be designed in accordance with the methods described by B.B. Broms in the following two papers:

Broms, B.B.; Lateral Resistance of Piles in Cohesive Soils,
Journal of the Soil Mechanics and Foundations Division,
ASCE, Vol.90, No.SM2, Paper 3825, March 1964.

Broms, B.B.; Lateral Resistance of Piles in Cohesionless Soils,
Journal of the Soil Mechanics and Foundations Division,
ASCE, Vol.90, No.SM3, Paper 3909, May 1964.

There will be minor grade changes at the HML pole locations. Generally, the grade will be raised about 0.25m to 0.5m.

There are two options for the design of the HML foundations:

Option 1 (Preferred)

Assume that the soil condition at any HML pole location is similar to the soil condition in the borehole logs closest to the proposed HML location. The closest boreholes to be used for design are as follows:

<u>Boreholes</u>	<u>Co-ordinates</u>	<u>Geocres No</u>
BH 1	N 4,836,388.1; E 297,405.6	30M11-43
BH 3	N 4,838,593.0; E 296,497.8	30M12-52
BH 7	N 4,837,170.8; E 297,337.3	30M11-48

Use the following soil parameters for design:

For Non Cohesive Soil Layers:

ϕ = Angle of Internal Friction = 32°
 γ = Unit Weight = 21.2 kN/m^3
 Water Level = As shown on the log sheet closest to the HML location.

For Cohesive Soil Layers:

Q_u = Unconfined Compressive Strength = 250 kPa
 γ = Unit Weight = 21.2 kN/m^3
 Water Level = As shown on the log sheet closest to the HML location.

For any existing fill overlying the native soil following parameters should be used taking into consideration that only half of the fill height would provide lateral support:

ϕ = 30°
 γ = 20 kN/m^3

It should be assumed that soil in the zone of frost penetration does not provide any lateral resistance. The depth of frost penetration at this site is 1.2m.

Option 2

If the project schedule does not permit for a detailed design of the foundation using these parameters, then all the caisson foundations should be 8m deep.

It is recommended that a non-standard special provision for the construction of HML foundations, should be incorporated in the contract. A copy of the latest NSSP from other project is also attached with this memo.

Construction Consideration:

It is recommended that a non-standard special provision for the construction of HML foundations, should be incorporated in the contract. A copy of the latest NSSP from other project is appended in this report (Appendix 'A') for reference. The contractor should be advised that variable types of subsurface material may be encountered at the high mast light pole locations; and that the soil descriptions in this report are generalized and not site specific. For construction planning purposes it may be assumed that;

- Groundwater is at or near the surface.
- Cohesionless material may be encountered and it would be susceptible to disturbance under conditions of unbalanced hydrostatic head.
- Glacial deposits are anticipated and there is a probability that occasional cobbles and boulders may be encountered within the deposit.

The Contractor is responsible for constructing the high mast pole foundations without disturbing the material at the sides or bases of the foundations. His proposal should be capable of dealing with the above-noted site condition. The Contractor shall submit eight copies of his proposed construction method to the Engineer for review a minimum of 15 working days prior to the commencement of construction of these foundation elements.

Miscellaneous

The soil information for this project was obtained from previous Foundation Investigation in this area (Geocres 30M11-43, 30M11-48 and 30M12-52). This report was prepared by K.S.Q. Ahmad, Foundation Engineer, reviewed and approved by D. Dundas, Senior Foundation Engineer.



A handwritten signature in cursive script, reading "K.S.Q. Ahmad".

K.S.Q. Ahmad, P. Eng.
Foundation Engineer



A handwritten signature in cursive script, reading "D. Dundas".

D. Dundas, P. Eng.
Senior Foundation Engineer

APPENDIX 'A'

NSSP FOR HIGH MAST POLE CONSTRUCTION

(AN EXAMPLE FROM ANOTHER REPORT)

NON STANDARD SPECIAL PROVISION

Sheet _____ of _____

DATE _____

SP NO 368-87-00 CONTRACT NO _____ DISTRICT NO 6 HWY NO 407
LOCATION 407/427 Interchange TYPE OF WORK _____

This SP is new (✓) ☐This SP replaces No N/A

Remarks:

Explanation of Intent:

To define High Mast Pole foundation construction

Item No	Spec No	Title or Item Description
45	631	CONCRETE FOOTING FOR HIGH MAST POLES

CONSTRUCTION

The Contractor is advised that variable types of subsurface material may be encountered at the high mast light pole locations; for additional information regarding soil conditions the Contractor is referred to the Foundation Investigation Report.

For bidding purposes it may be assumed that:

- Ground water is at or near the surface.
- If cohesionless material is encountered, it would be susceptible to disturbance under conditions of unbalanced hydrostatic head.
- If glacial deposits are encountered, there is a probability that occasional cobbles and boulders may be encountered within the deposit.

The Contractor is responsible for constructing the high mast pole foundations without disturbing the material at the sides or bases of the foundations. The Contractor shall submit eight copies of the proposed construction method to the Engineer for review a minimum of 15 working days prior to the commencement of construction of these foundation elements.

BASIS OF PAYMENT

Payment at the contract price for the above tender item shall be full compensation for all labour, equipment and materials required to do the work.

Structural Section

D. Wong

Initiated by _____

Detailed by _____

Approved by _____

CO-ORDS. N 4,838,593.0; E 296,497.8 (METRIC)

GEOCRES 30M12-52

DEPARTMENT OF HIGHWAYS- ONTARIO		RECORD OF BOREHOLE No. 3		FOUNDATION SECTION	
MATERIALS & TESTING OFFICE					
JOB 72-11006	LOCATION Co-ords. 15,874,649 N; 972,762 E.	ORIGINATED BY VK			
W.P. 273-66	BORING DATE Jan. 5, 1972	COMPILED BY TT			
DATUM Geodetic	BOREHOLE TYPE Penn Drill and Diamond Drill	CHECKED BY <i>ML</i>			

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w		BULK DENSITY Y P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.		WATER CONTENT %			
515.3	Ground Level						<input type="checkbox"/> UNCONFINED <input type="checkbox"/> FIELD VANE <input type="checkbox"/> QUICK TRIAXIAL <input type="checkbox"/> LAB. VANE					
0.0	Het. mix. of clayey silt, sand & gravel		1	SS	30	515						GR SA SI, CL
	Glacial Till		2	SS	28	510						Feb. 4/72
	occ. clayey silt seams		3	SS	61							512.3
	Very Stiff to Hard		4	SS	73							3 29 50 18
	Brown		5	SS	12	530						5 32 16 17
	Grey		6	SS	59							
			7	SS	31							
			8	SS	29	520						
			9	SS	70							
			10	SS	72	510						
			11	SS	95							8 34 10 18
			12	SS	81	500						
			13	SS	100 126"							
472.3						490						
73.0	Shale Bedrock		14	EX	15%	470						
464.3	weathered		15	EX	25%							
81.0	sound		16	EX	95%							
457.8			17	EX	100%	460						
87.5	End of Borehole											

20
15 5 % STRAIN AT FAILURE
10

GEOCRES 30M11-43

CO-ORD. N 4,836,388.1; E 297,405.6 (METRIC)

GEOTECHNICAL DATA SHEET FOR BOREHOLE . . .

OUR REFERENCE NO. 7 - 1 - 14

Your Ref. No. W.P. 201-62-2

CLIENT D. H. O.

PROJECT HWY 27 RICHVIEW EXPY. WAY & RENFORTH DR. INTERCHANGE

LOCATION 867,415 N ; 975,740 E

DATUM ELEVATION G.S.C.

METHOD OF BORING AUGERING

DIAMETER OF BOREHOLE 4"

DATE FEB 13, 1967

ENCLOSURE NO.

ELEVATION ft	DEPTH ft	STRATIFICATION DESCRIPTION	STRATIFICATION SYMBOL	SAMPLES			PENETRATION RESISTANCE blows per foot				CONSISTENCY water content %		REMARKS
				NUMBER	TYPE	1 2 3 4 5 6 7 8 9 10 11	2,0	4,0	6,0	8,0	10,0	PL	
528.3	0	GROUND SURFACE											
525	3	Very Dense CLAYEY SILT above EI 525 ft.		1	S.S.	59							
520	10	Brown to Grey SILT with some fine sand and a trace of clay.		2	S.S.	89							
516.3	12.0			3	S.S.	139							
515	15	Very Dense Grey GRAVELLY SAND with some silt		4	S.S.	78/6							
510	20			5	S.S.	94							
505	23.0			6	S.S.	70/3							
500	30	Hard, Grey CLAYEY SILT with some sand and a trace of gravel and embedded shale fragments.		7	S.S.	100/2							
495	35			8	S.S.	100/2							
490	38.0			9	S.S.	90/2							
485	45	Grey, Soft WEATHERED SHALE		10	S.S.	40/2							
480	50	END OF BOREHOLE		11	S.S.	80/0							
475													

VERTICAL SCALE: 1 IN TO 5 FT

DOMINION SOIL INVESTIGATION LIMITED

MADE D. A. M. CHD. 572

EXPLANATION OF TERMS USED IN REPORT

N VALUE: THE STANDARD PENETRATION TEST (SPT) N VALUE IS THE NUMBER OF BLOWS REQUIRED TO CAUSE A STANDARD 51mm O.D SPLIT BARREL SAMPLER TO PENETRATE 0.3m INTO UNDISTURBED GROUND IN A BOREHOLE WHEN DRIVEN BY A HAMMER WITH A MASS OF 63.5kg, FALLING FREELY A DISTANCE OF 0.76m. FOR PENETRATIONS OF LESS THAN 0.3m N VALUES ARE INDICATED AS THE NUMBER OF BLOWS FOR THE PENETRATION ACHIEVED. AVERAGE N VALUE IS DENOTED THUS \bar{N} .

DYNAMIC CONE PENETRATION TEST: CONTINUOUS PENETRATION OF A CONICAL STEEL POINT (51mm O.D. 60° CONE ANGLE) DRIVEN BY 475 J IMPACT ENERGY ON 'A' SIZE DRILL RODS. THE RESISTANCE TO CONE PENETRATION IS MEASURED AS THE NUMBER OF BLOWS FOR EACH 0.3m ADVANCE OF THE CONICAL POINT INTO THE UNDISTURBED GROUND.

SOILS ARE DESCRIBED BY THEIR COMPOSITION AND CONSISTENCY OR DENSENESS.

CONSISTENCY: COHESIVE SOILS ARE DESCRIBED ON THE BASIS OF THEIR UNDRAINED SHEAR STRENGTH (c_u) AS FOLLOWS:

c_u (kPa)	0 - 12	12 - 25	25 - 50	50 - 100	100 - 200	> 200
	VERY SOFT	SOFT	FIRM	STIFF	VERY STIFF	HARD

DENSENESS: COHESIONLESS SOILS ARE DESCRIBED ON THE BASIS OF DENSENESS AS INDICATED BY SPT N VALUES AS FOLLOWS:

N (BLOWS/0.3m)	0 - 5	5 - 10	10 - 30	30 - 50	> 50
	VERY LOOSE	LOOSE	COMPACT	DENSE	VERY DENSE

ROCKS ARE DESCRIBED BY THEIR COMPOSITION AND STRUCTURAL FEATURES AND / OR STRENGTH.

RECOVERY: SUM OF ALL RECOVERED ROCK CORE PIECES FROM A CORING RUN EXPRESSED AS A PERCENT OF THE TOTAL LENGTH OF THE CORING RUN.

MODIFIED RECOVERY: SUM OF THOSE INTACT CORE PIECES, 100mm+ IN LENGTH EXPRESSED AS A PERCENT OF THE LENGTH OF THE CORING RUN. THE ROCK QUALITY DESIGNATION (RQD), FOR MODIFIED RECOVERY, IS:

RQD (%)	0 - 25	25 - 50	50 - 75	75 - 90	90 - 100
	VERY POOR	POOR	FAIR	GOOD	EXCELLENT

JOINTING AND BEDDING:

SPACING	50mm	50 - 300mm	0.3m - 1m	1m - 3m	> 3m
JOINTING	VERY CLOSE	CLOSE	MOD. CLOSE	WIDE	VERY WIDE
BEDDING	VERY THIN	THIN	MEDIUM	THICK	VERY THICK

ABBREVIATIONS AND SYMBOLS

FIELD SAMPLING

S S	SPLIT SPOON	T P	THINWALL PISTON
W S	WASH SAMPLE	O S	OSTERBERG SAMPLE
S T	SLOTTED TUBE SAMPLE	R C	ROCK CORE
B S	BLOCK SAMPLE	P H	T W ADVANCED HYDRAULICALLY
C S	CHUNK SAMPLE	P M	T W ADVANCED MANUALLY
T W	THINWALL OPEN	F S	FOIL SAMPLE

MECHANICAL PROPERTIES OF SOIL

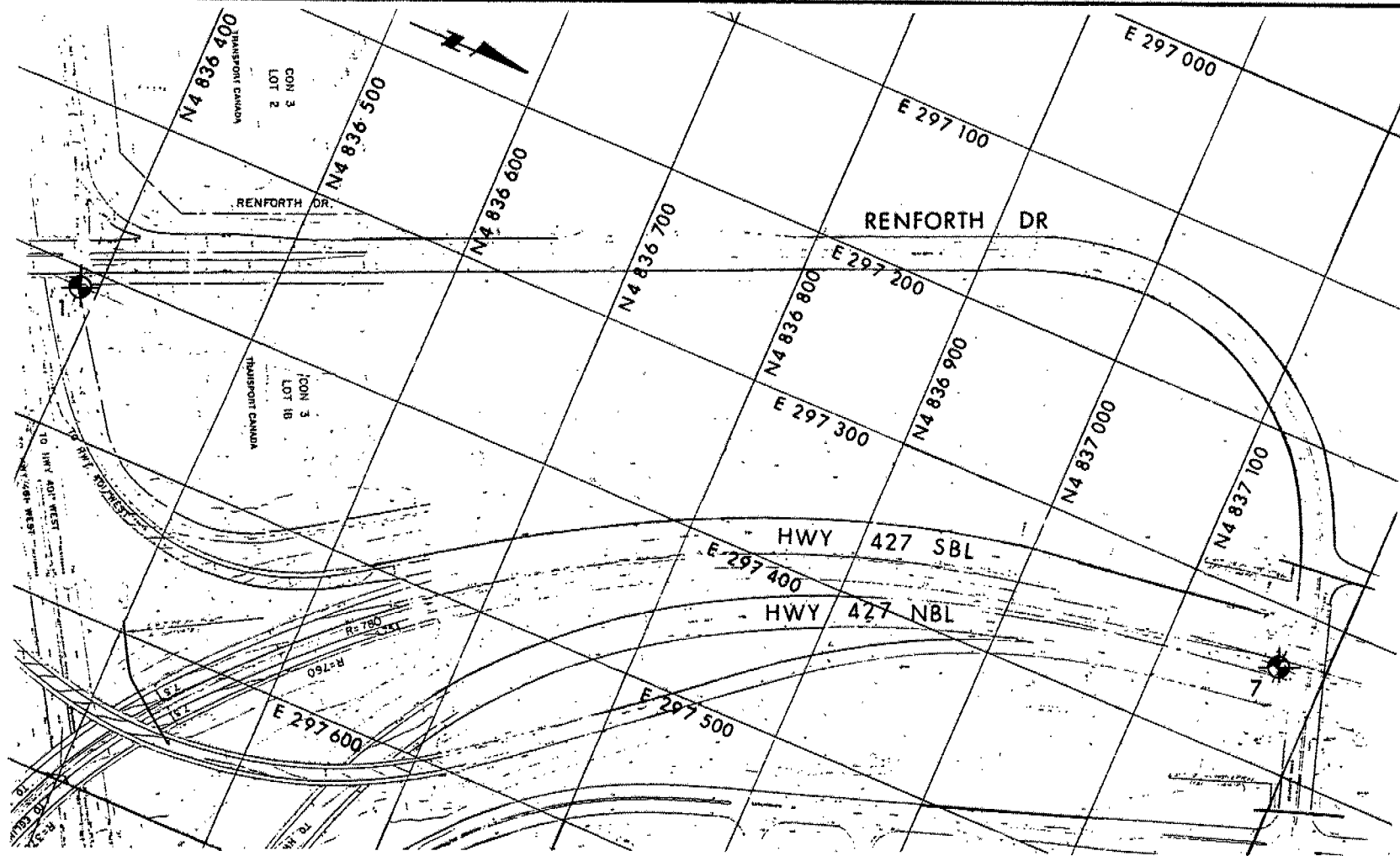
m_v	kPa^{-1}	COEFFICIENT OF VOLUME CHANGE
C_c	1	COMPRESSION INDEX
C_s	1	SWELLING INDEX
C_α	1	RATE OF SECONDARY CONSOLIDATION
c_v	m^2/s	COEFFICIENT OF CONSOLIDATION
H	m	DRAINAGE PATH
T_v	1	TIME FACTOR
U	%	DEGREE OF CONSOLIDATION
σ'_{vo}	kPa	EFFECTIVE OVERBURDEN PRESSURE
σ'_p	kPa	PRECONSOLIDATION PRESSURE
τ_f	kPa	SHEAR STRENGTH
c'	kPa	EFFECTIVE COHESION INTERCEPT
ϕ'	-°	EFFECTIVE ANGLE OF INTERNAL FRICTION
c_u	kPa	APPARENT COHESION INTERCEPT
ϕ_u	-°	APPARENT ANGLE OF INTERNAL FRICTION
τ_R	kPa	RESIDUAL SHEAR STRENGTH
τ_r	kPa	REMOULDED SHEAR STRENGTH
S_t	1	SENSITIVITY = $\frac{c_u}{\tau_r}$

STRESS AND STRAIN

u_w	kPa	PORE WATER PRESSURE
r_u	1	PORE PRESSURE RATIO
σ	kPa	TOTAL NORMAL STRESS
σ'	kPa	EFFECTIVE NORMAL STRESS
τ	kPa	SHEAR STRESS
$\sigma_1, \sigma_2, \sigma_3$	kPa	PRINCIPAL STRESSES
ϵ	%	LINEAR STRAIN
$\epsilon_1, \epsilon_2, \epsilon_3$	%	PRINCIPAL STRAINS
E	kPa	MODULUS OF LINEAR DEFORMATION
G	kPa	MODULUS OF SHEAR DEFORMATION
μ	1	COEFFICIENT OF FRICTION

PHYSICAL PROPERTIES OF SOIL

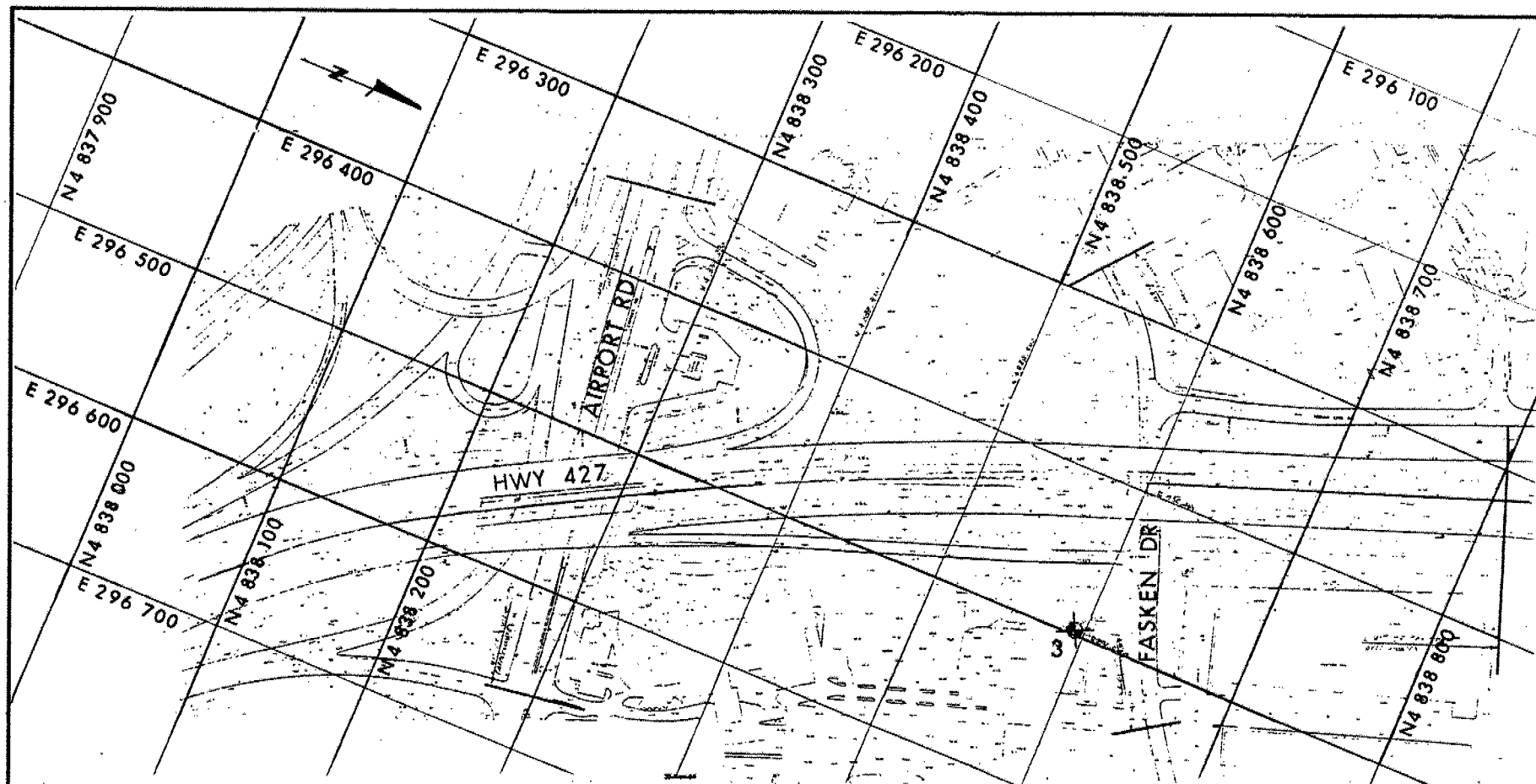
ρ_s	kg/m^3	DENSITY OF SOLID PARTICLES	e	1, %	VOID RATIO	e_{\min}	1, %	VOID RATIO IN DENSEST STATE
γ_s	kN/m^3	UNIT WEIGHT OF SOLID PARTICLES	n	1, %	POROSITY	I_D	1	DENSITY INDEX = $\frac{e_{\max} - e}{e_{\max} - e_{\min}}$
ρ_w	kg/m^3	DENSITY OF WATER	w	1, %	WATER CONTENT	D	mm	GRAIN DIAMETER
γ_w	kN/m^3	UNIT WEIGHT OF WATER	S_r	%	DEGREE OF SATURATION	D_n	mm	n PERCENT - DIAMETER
ρ	kg/m^3	DENSITY OF SOIL	w_L	%	LIQUID LIMIT	C_u	1	UNIFORMITY COEFFICIENT
γ	kN/m^3	UNIT WEIGHT OF SOIL	w_p	%	PLASTIC LIMIT	h	m	HYDRAULIC HEAD OR POTENTIAL
ρ_d	kg/m^3	DENSITY OF DRY SOIL	w_s	%	SHRINKAGE LIMIT	q	m^3/s	RATE OF DISCHARGE
γ_d	kN/m^3	UNIT WEIGHT OF DRY SOIL	I_p	%	PLASTICITY INDEX = $w_L - w_p$	v	m/s	DISCHARGE VELOCITY
ρ_{sat}	kg/m^3	DENSITY OF SATURATED SOIL	I_L	1	LIQUIDITY INDEX = $\frac{w - w_p}{I_p}$	i	1	HYDRAULIC GRADIENT
γ_{sat}	kN/m^3	UNIT WEIGHT OF SATURATED SOIL	I_C	1	CONSISTENCY INDEX = $\frac{w_L - w}{I_p}$	k	m/s	HYDRAULIC CONDUCTIVITY
ρ'	kg/m^3	DENSITY OF SUBMERGED SOIL	e_{\max}	1, %	VOID RATIO IN LOOSEST STATE	j	kN/m^2	SEEPAGE FORCE
γ'	kN/m^3	UNIT WEIGHT OF SUBMERGED SOIL						



Borehole No	Co-ordinates	
	North	East
1	4 836 388.1	297 405.6
7	4 837 170.8	297 337.3

PLAN
SCALE
50m 0 50m

Geocres No 30M12-225
WP 609-89-00
Dist
Dwg No 6098900-A



Borehole No	Co-ordinates	
	North	East
3	4 837 170.8	297 337.3

PLAN

SCALE



Geocres No 30M12-225

WP 609-89-00

Dist

Dwg No 6098900-B



memorandum

To: V.F. Boehnke, P. Eng.
Head, Structural Section
Central Region

1995 03 09

Attn.: John K. Lam, P. Eng.

From: Pavements and Foundation Section
Room 315, Central Building
Downsview, Ontario

Re: Foundation Recommendations for HML Pole Footings
Highway 427, From Hwy 401 to Campus Rd./Fasken Dr.
W.P. 609-89-00, Hwy 427, Central Region

Further to your memo of December 2, 1994 please find enclosed Foundation Report for eight HML poles (P1 through P8) at the above mentioned site. We understand that the project is on an extremely tight schedule. Consequently, we are providing you the recommendations without carrying any Foundation investigation at the site. We have obtained soil information in that area from the Geocres system and are including with the report.

The report will be distributed shortly after the drawing for the borehole location is prepared.

A handwritten signature in cursive script, reading "K.S.Q. Ahmad".

K.S.Q. Ahmad, P. Eng.
Foundation Engineer

For

D.H. Dundas, P. Eng.
Senior Foundation Engineer

02-Dec-94

HIGH MAST POLE LOCATIONS

HWY 427 - HWY 401 to Fasken Drive

POLE No.	COORDINATES		POLE HEIGHT	O/G ELEVATION	FINAL ** ELEVATION	REMARKS
	NORTHING	EASTING				
P1	N 4,836,528.0	E 297,572.0	35m	156.50	157.00	6-750W , TYPE V-C LUMINAIRES
P2	N 4,836,630.0	E 297,678.0	35m	160.00	160.50	5-750W , TYPE V-C LUMINAIRES
P3	N 4,836,696.0	E 297,534.0	35m	160.00	160.50	6-750W , TYPE V-C LUMINAIRES
P4	N 4,836,806.0	E 297,444.0	35m	162.00	162.50	5-750W , TYPE V-C LUMINAIRES
P5	N 4,836,922.0	E 297,391.0	30m	163.50	163.75	8-400W , TYPE V-C LUMINAIRES
P6	N 4,838,317.5	E 296,518.5	25m	171.00	173.00 R	8-400W , TYPE V-C LUMINAIRES
P7	N 4,838,421.0	E 296,467.5	25m	169.70	172.00 R	8-400W , TYPE V-C LUMINAIRES
P8	N 4,838,530.0	E 296,421.0	25m	169.00	171.00 R	8-400W , TYPE V-C LUMINAIRES

** APPROXIMATE FINAL ELEVATION FOR TOP OF FOOTING (ALLOWING FOR ANY LOCAL GRADING)

ALL ELEVATIONS ABOVE MEAN SEA LEVEL

R REVISED TO INCLUDE THE HEIGHT OF TALL WALL BARRIER

02-Dec-94

HIGH MAST POLE LOCATIONS

HWY 427 - HWY 401 to Fasken Drive

POLE No.	COORDINATES		POLE HEIGHT	O/G ELEVATION	FINAL ** ELEVATION	REMARKS
	NORTHING	EASTING				
P1	N 4,836,528.0	E 297,572.0	35m	156.50	157.00	6-750W , TYPE V-C LUMINAIRES
P2	N 4,836,630.0	E 297,678.0	35m	160.00	160.50	5-750W , TYPE V-C LUMINAIRES
P3	N 4,836,696.0	E 297,534.0	35m	160.00	160.50	6-750W , TYPE V-C LUMINAIRES
P4	N 4,836,806.0	E 297,444.0	35m	162.00	162.50	5-750W , TYPE V-C LUMINAIRES
P5	N 4,836,922.0	E 297,391.0	30m	163.50	163.75	8-400W , TYPE V-C LUMINAIRES
P6	N 4,838,317.5	E 296,518.5	25m	171.00	173.00 R	8-400W , TYPE V-C LUMINAIRES
P7	N 4,838,421.0	E 296,467.5	25m	169.70	172.00 R	8-400W , TYPE V-C LUMINAIRES
P8	N 4,838,530.0	E 296,421.0	25m	169.00	171.00 R	8-400W , TYPE V-C LUMINAIRES

**** APPROXIMATE FINAL ELEVATION FOR TOP OF FOOTING (ALLOWING FOR ANY LOCAL GRADING)**
ALL ELEVATIONS ABOVE MEAN SEA LEVEL

R REVISED TO INCLUDE THE HEIGHT OF TALL WALL BARRIER