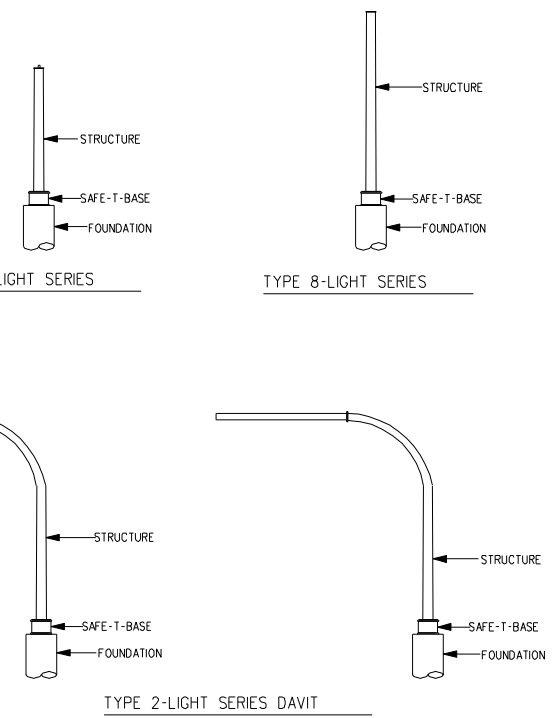


FOUNDATION DETAIL  
N.T.S.

**GENERAL NOTES:**

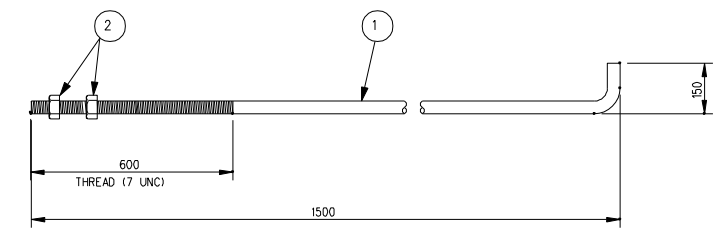
**CONCRETE FOUNDATION PILES**

- PRIOR TO DRILLING PILES, CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SURFACE OR SUBSURFACE UTILITIES.
- DRILL PILES TO INDICATED DEPTHS ENSURING THAT SHAFTS ARE DRY AND FREE OF DEBRIS UNTIL CONCRETE IS PLACED.
- CONCRETE  
PROPORTIONING OF FINE AGGREGATE, COARSE AGGREGATE, CEMENT, WATER, AND AIR ENTRAINING AGENT SHALL BE SUCH AS TO YIELD CONC. HAVING THE REQUIRED STRENGTH AND WORKABILITY AS FOLLOWS:  
 i) MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 35 MPa  
 ii) MAXIMUM WATER/CEMENT RATIO - 0.45  
 iii) MINIMUM CEMENT CONTENT - 340 kg/m<sup>3</sup>  
 iv) SLUMP - 80 ± 20 mm  
 v) AGGREGATE - 40 mm NOMINAL  
 vi) AIR CONTENT - 4.0 TO 7.0 PERCENT  
 vii) CEMENT - TYPE 50 SULPHATE RESISTANT CEMENT  
 SHOULD COMPATIBLE SUPERPLASTIZING ADMIXTURES BE APPROVED BY THE ENGINEER. THE SLUMP AFTER ADDITION OF THE SUPERPLASTICIZER SHALL BE 170 ± 40 mm.
- NOTIFY THE OWNER AND TESTING FIRM A MINIMUM OF TWENTY FOUR HOURS PRIOR TO COMMENCEMENT OF CONCRETE OPERATIONS.
- CAST FOUR CONCRETE TEST CYLINDERS FOR EVERY 50 CUBIC METRES OR LESS. ONE CYLINDER TO BE CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
- REINFORCING STEEL TO BE GRADE 40W, DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO CSA G30.18.
- ANCHOR BOLTS, NUTS AND WASHERS WILL BE SUPPLIED BY THE DEPARTMENT AND SET BY CONTRACTOR.
- THE ANCHOR BOLTS SHALL BE ALIGNED WITH A TOP SETTING TEMPLATE MATCHING THE BOLT HOLE LAYOUT. THE SETTING TEMPLATE SHALL BE HELD IN PLACE BY THE NUTS SUPPLIED WITH THE ANCHOR BOLTS. PLACEMENT OF ANCHOR BOLTS WITHOUT THE SETTING TEMPLATE WILL NOT BE PERMITTED.  
 TOP SETTING TEMPLATE  
 • TEMPORARY STEEL TEMPLATE LOANED TO THE CONTRACTOR BY THE DEPARTMENT.  
 • AFTER COMPLETION OF CONCRETE PILE FOUNDATION WORKS, THE CONTRACTOR SHALL CLEAN THE TEMPLATE BY SANDBLASTING AND RETURN IT TO THE DEPARTMENT.  
 • IF THE TEMPLATE IS DAMAGED DURING CONSTRUCTION DUE TO NEGLIGENCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING A NEW 10 mm THICK STEEL TEMPLATE TO THE DEPARTMENT AT HIS OWN EXPENSE.
- SOLS INFORMATION AT SITE IS AVAILABLE FROM THE OWNER.



**BILL OF MISCELLANEOUS METAL**

MK. NO.	QTY. REQ'D.	SIZE	MATERIAL	REMARKS	LINE NO.
1	4	ANCHOR BOLT	29 (1 1/8") DIA. x 1650	G40.21-M-300W GALV. FULL LENGTH	SEE DETAIL BELOW
2	8	HALF NUTS	29 (1 1/8") DIA.	ASTM A194 GRADE 2H	
					3
					4
					5



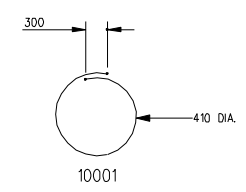
**NOTES:**

- ANCHOR BOLTS SHALL BE SOLID ROUNDS G40.21-M-300W.
- ALL PARTS OF ANCHOR BOLT ASSEMBLY SHALL BE HOT DIP GALVANIZED (FULL LENGTH) IN ACCORDANCE WITH C.S.A. STANDARD G164 WITH NET RETENTION OF 600 g/m.
- ALL NUTS SHALL BE TAPPED OVERSIZE.
- ALL NUTS AND WASHERS SHALL BE ASSEMBLED BY THE SUPPLIER PRIOR TO DELIVERY.

**BILL OF REINFORCING STEEL**

MK. NO.	SIZE	QTY. REQ'D.	LENGTH (mm)	MASS (kg)	LINE NO.
20001	20M	6	2850	40.27	1
10001	10M	10	1590	12.48	2
					3
					4
					5
					6
					7
					8
TOTAL MASS OF REINFORCING STEEL				52.75 kg.	
TOTAL VOLUME OF C.I.P. CONC. PILES				0.590 m <sup>3</sup>	

**BENDING DIAGRAM**



DATE	BY	DESCRIPTION

**TRAFFIC SIGNAL AND PEDESTRIAN CORRIDOR STRUCTURES**

FOUNDATION TYPE F1  
ANCHOR BOLTS, CONC. PILE, & PILE REINFORCEMENT



Manitoba Highways and Transportation  
Traffic Engineering Branch

PROJECT ENGINEER

DESIGN BY: S.S.R.  
CHECKED: S.S.R.

DETAILS BY: N.B.G.  
TRACED: N.B.G.  
CHECKED: S.S.R.

ACCEPTED BY:

TRAFFIC OPERATIONS ENGINEER DATE

APPROVED BY:

DIRECTOR OF TRAFFIC ENGINEERING DATE

SCALE: AS SHOWN

COMPONENT NO. F1

SHEET No. F1