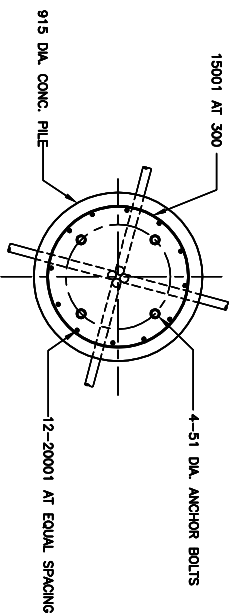
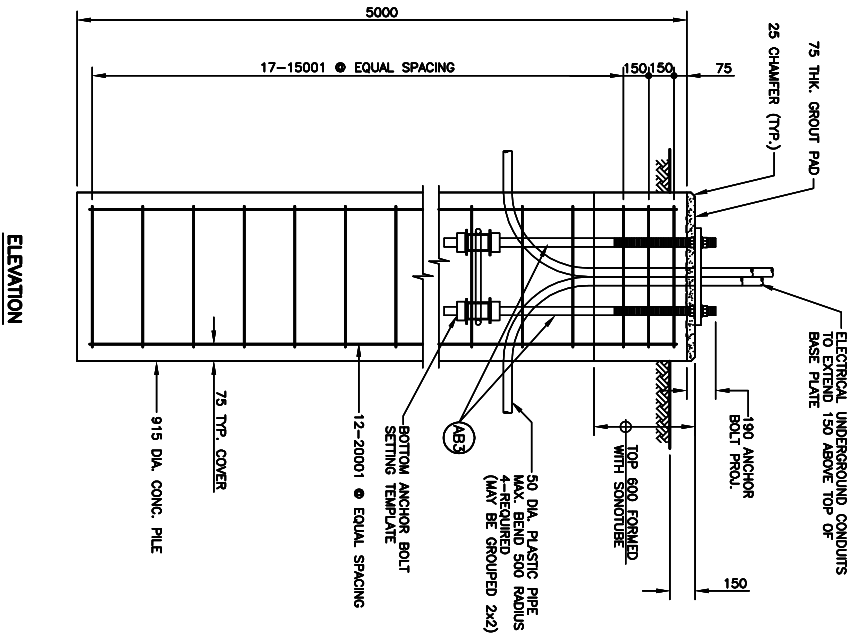


ANCHOR BOLTS LAYOUT



PLAN / CONCRETE SECTION



ELEVATION

FOUNDATION DETAIL
N.T.S.

GENERAL NOTES:

CONCRETE FOUNDATION PILES

1. PRIOR TO DRILLING PILES, CONTRACTOR SHALL ENSURE THERE ARE NO CONFLICTING SURFACE OR SUBSURFACE UTILITIES.
2. DRILL PILES TO INDICATED DEPTHS ENSURING THAT SHAFTS ARE DRY AND FREE OF DEBRIS UNTIL CONCRETE IS PLACED.
3. CONCRETE

- 1) CSA A23.1 EXPOSURE CLASS S-1
- 2) COMPRESSIVE STRENGTH ϕ 28 DAYS = 35 MPa
- 3) AIR CONTENT: CATEGORY 1

4. NOTIFY THE OWNER AND TESTING FIRM A MINIMUM OF TWENTY FOUR HOURS PRIOR TO COMMENCEMENT TO CONCRETE OPERATIONS.
5. REFER TO SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS.

6. REINFORCING STEEL TO BE GRADE 400M, DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO CSA G30.18.
7. ANCHOR BOLTS, NUTS AND WASHERS WILL BE SUPPLIED BY THE DEPARTMENT AND SET BY THE CONTRACTOR.

8. THE ANCHOR BOLTS SHALL BE ALIGNED WITH TOP AND BOTTOM SETTING TEMPLATES MATCHING THE BOLT HOLE LAYOUT. THE TOP SETTING TEMPLATE SHALL BE HELD IN PLACE BY THE NUTS SUPPLIED WITH THE ANCHOR BOLTS. PLACEMENT OF ANCHOR BOLTS WITHOUT THE SETTING TEMPLATES WILL NOT BE PERMITTED.

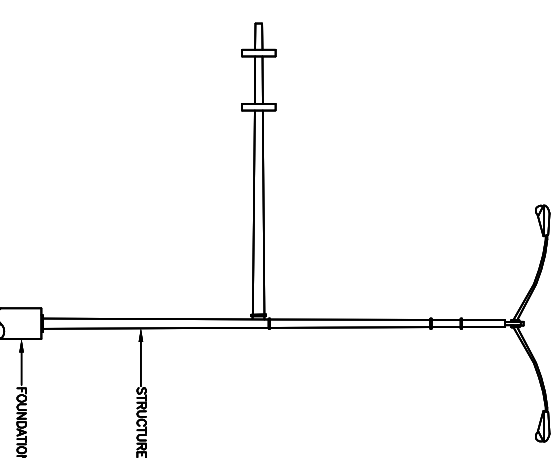
TOP SETTING TEMPLATE

- 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.

BOTTOM SETTING TEMPLATE

- PERMANENT HOT DIP GALVANIZED STEEL ASSEMBLY FABRICATED FROM CSA G40.21 GRADE 300W AND ASTM A53 GR. B, SCH. 40 PIPE MATERIAL.
- SUPPLIED BY THE DEPARTMENT, SEE DETAIL ON THIS SHEET.

9. SOILS INFORMATION AT SITE IS AVAILABLE FROM THE OWNER.

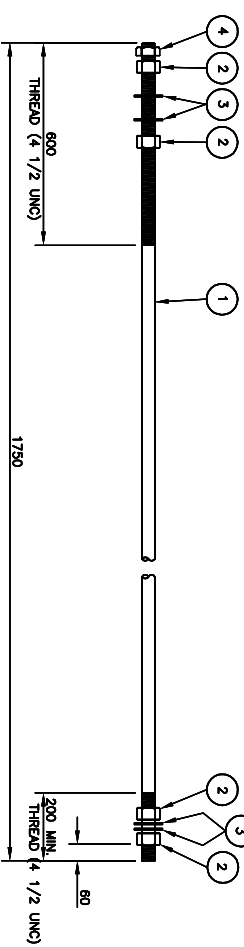


HEAVY SERIES COMBINATION CANTILEVER
(FOR ADVANCE WARNING SIGN & TRAFFIC SIGNS)

STRUCTURES FOR HEAVY SERIES FOUNDATION TYPE F5
N.T.S.

BILL OF MISCELLANEOUS METAL

LINE NO.	QTY. REQ'D.	DESCRIPTION	SIZE	MATERIAL	REMARKS
1	4	ANCHOR BOLT THREADED BOTH ENDS	51 (27) DIA. x 1750	AS1/S/AE 4140 GALV. FULL LENGTH	SEE DETAIL BELOW
2	16	HEAVY HEX NUT	51 (27) DIA.	ASTM A194 GRADE 2H	
3	16	HEAVY WASHER	51 (27) DIA.	G40.21-M-300W	
4	4	LOCK HEX NUT	51 (27) DIA.	ASTM A194 GRADE 2H	
5					
6					
7					



ANCHOR BOLT ASSEMBLY MK AB3
(STOCK CODE NO. 7585)

NOTES:

1. ANCHOR BOLTS SHALL BE SOLID ROUNDS AISI/AE 4140 STEEL IN THE ANNEALED CONDITION.
2. ALL PARTS OF ANCHOR BOLT ASSEMBLY SHALL BE HOT DIP GALVANIZED (FULL LENGTH) IN ACCORDANCE WITH ASTM A123-08 (PLUS LATEST REVISIONS) WITH NET RETENTION OF 610 g/m²
3. ALL NUTS SHALL BE TAPPED OVERSIZE PRIOR TO GALVANIZING.
4. ALL NUTS AND WASHERS SHALL BE ASSEMBLED BY THE SUPPLIER PRIOR TO DELIVERY.

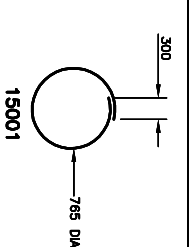
BILL OF REINFORCING STEEL

MK. NO.	SIZE	QTY. REQ'D.	LENGTH (mm)	MASS (kg)	LINE NO.
20001	20M	12	4850	137.06	1
15001	15M	19	2705	90.77	2
					3
					4
					5
					6

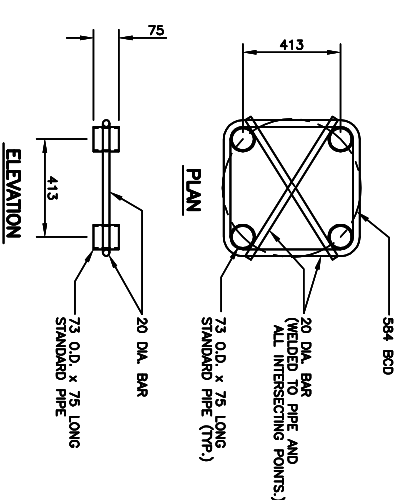
TOTAL MASS OF REINFORCING STEEL = 227.83 kg

TOTAL VOLUME OF C.I.P. CONC PILES = 3.32 m³

BENDING DIAGRAM



BOTTOM ANCHOR BOLT SETTING TEMPLATE



REVISIONS

DATE	BY	DESCRIPTION

TRAFFIC SIGNAL AND ADVANCE WARNING STRUCTURES
HEAVY SERIES FOUNDATION TYPE F5
ANCHOR BOLTS, CONC. PILE, & PILE REINFORCEMENT



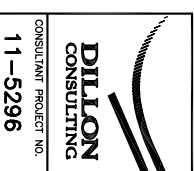
Manitoba
Infrastructure and Transportation

RELEASED FOR CONSTRUCTION
BY: _____

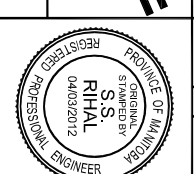


APEGIN
Certificate of Authorization
Dillon Consulting Limited (MB)
No. 1789 Date: 04/03/2012

REDUCED DRAWING
N.T.S.



DILLON CONSULTING
CONSULTANT PROJECT NO. 11-5296



PROVINCE OF MANITOBA
REGISTERED PROFESSIONAL ENGINEER
S.S. RIHAL
04/03/2012

DESIGN	CHECKER	DATE
DESIGN	SSR	
DETAILS	JMW	
	SSR	

COMPONENT NO. **F5**
SHEET No. **F4**