

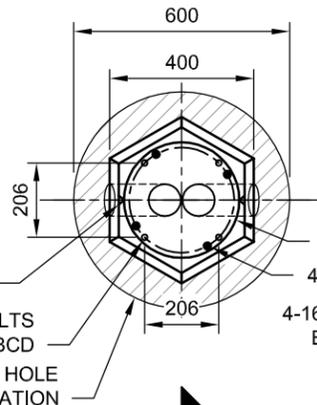
# **APPENDIX 'D'**

## **TRAFFIC SIGNALS STANDARD DETAILS**

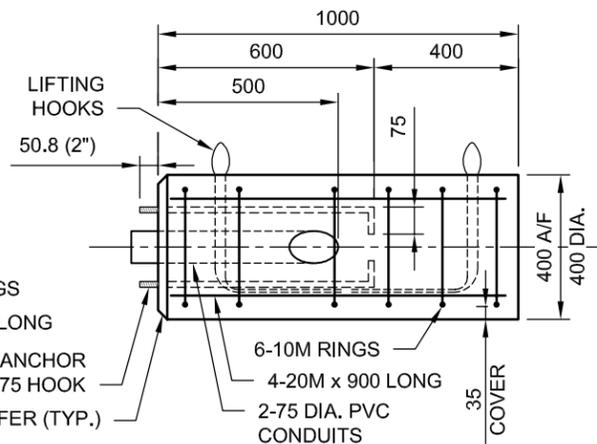
**OPTION A**  
(400 A/F HEX. SHAPE)

20 mm DEEP "V" GROOVE ON CHAMFER INDICATING LOCATION OF ACCESS HOLES (2 LOCATIONS)

4-16 DIA. ANCHOR BOLTS AT 292 BCD  
600 DIA. AUGERED HOLE OR 800 x 800 EXCAVATION



6-10M RINGS  
4-20M x 900 LONG  
4-16 DIA. x 725 ANCHOR BOLTS C/W 75 HOOK  
25 CHAMFER (TYP.)

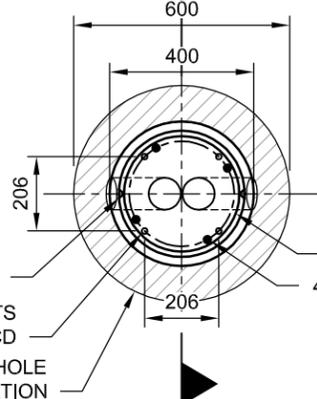


**SECTION A-A (TYP.)**  
1:20

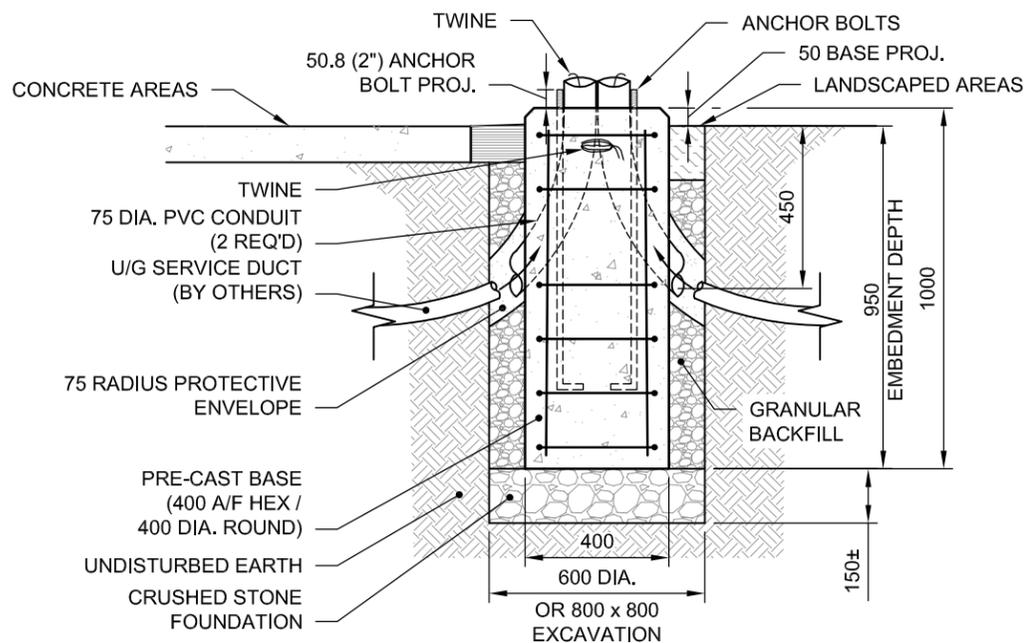
**OPTION B**  
(400 DIA. ROUND SHAPE)

20 mm DEEP "V" GROOVE ON CHAMFER INDICATING LOCATION OF ACCESS HOLES (2 LOCATIONS)

4-16 DIA. ANCHOR BOLTS AT 292 BCD  
600 DIA. AUGERED HOLE OR 800 x 800 EXCAVATION



**PLAN**  
1:20



**PRE-CAST BASE INSTALLATION**  
1:20

**NOTES:**

**ANCHOR BOLTS**

- 4-16 mm DIA. ANCHOR BOLTS 725 LONG C/W 75 mm HOOK
- CAN/CSA G40.21-GR.300W
- TOP 125 mm THREADED UNC CLASS 2A
- HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
- BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
- BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
- THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

- CAN/CSA SPECIFICATION: CAN3-A23.4-09
- CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
- CONCRETE STRENGTH: 35 MPa AT 28 DAYS
- MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
- 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
- CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
- CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
- INDENT THE NUMBER "SD-315.A (1.0 m)" ON THE TOP OF THE BASE.
- LIFTING HOOKS: 5 mm 7 x 19 STAINLESS STEEL CABLE
- WEIGHT OF PRE-CAST BASE: 302 kg

**REINFORCING STEEL**

- CAN/CSA G30.18-GR.400W
- ALL BARS TO BE HOT DIP GALVANIZED.
- CLEAR COVER 35 mm

**BACKFILL MATERIAL**

- CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
- BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

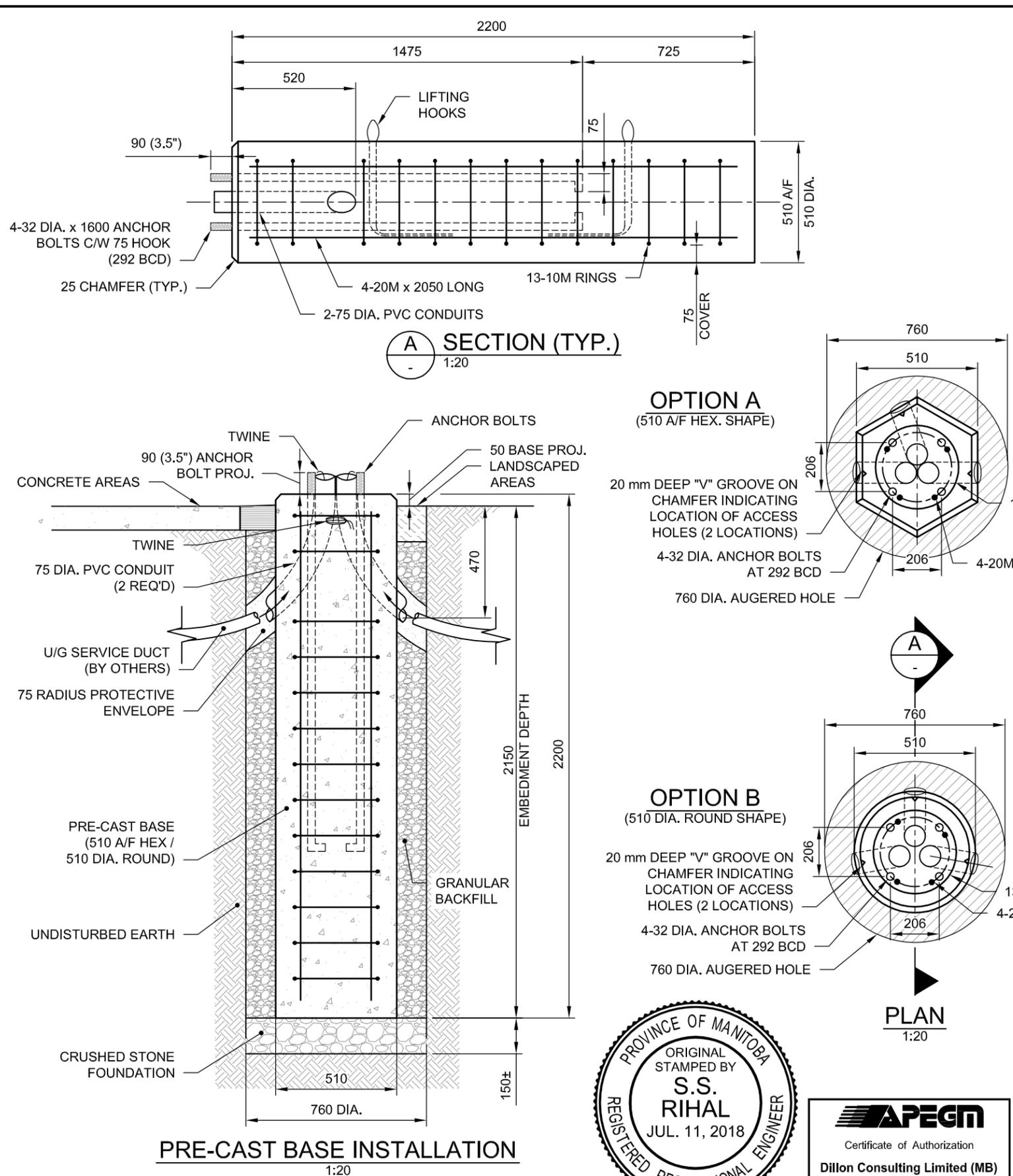
**INSTALLATION**

- MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
- OPEN CUT OR SOFT DIG/AUGER DRILL EXCAVATION.
- EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
- AUGER HOLE 600 DIA. OR EXCAVATION 800 x 800.
- PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
- VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
- SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
- SET UNIT TO PROPER ELEVATION, ±10 mm.
- BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
- PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
- PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
- FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- REMOVE SOILS OR STAINS FROM THE EXPOSED CONCRETE.



DIMENSIONS ARE IN MILLIMETRES  
(UNLESS OTHERWISE NOTED)

<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT		Revisions			
		No.	Date	Description	By
Reference Spec. No. CW 3620		2	07/11/18	GENERAL REVISIONS BY DILLON CONSULTING	KNL
		1	04/06/18	DESIGNED BY DILLON CONSULTING	KNL
SIGNAL POLE BASE-TYPE PM (PUSHBUTTON/SPEAKER-20 DIA. BOLTS)		Designed By:		Scale :	
		KNL		AS SHOWN	
		Checked By:		Date:	
SSR		07/11/2018		SD-315.A	
Approved:					



**NOTES:**

**ANCHOR BOLTS**

- 4-32 mm DIA. ANCHOR BOLTS 1600 LONG C/W 75 mm HOOK
- CAN/CSA G40.21-GR.300W
- TOP 125 mm THREADED UNC CLASS 2A
- HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
- BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
- BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
- THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

- CAN/CSA SPECIFICATION: CAN3-A23.4-09
- CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
- CONCRETE STRENGTH: 35 MPa AT 28 DAYS
- MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
- 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
- CONDUITS SHALL BE PLACED TO FIT IN HEX. SHAPE BASE SO THAT THEY EXIT THROUGH A FLAT SURFACE.
- CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
- CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
- INDENT THE NUMBER "SD-315.B" ON THE TOP OF THE BASE.
- LIFTING HOOKS: 8 mm 7 x 19 STAINLESS STEEL CABLE
- WEIGHT OF PRE-CAST BASE: 1080 kg

**REINFORCING STEEL**

- CAN/CSA G30.18-GR.400W
- ALL BARS TO BE HOT DIP GALVANIZED.
- CLEAR COVER 75 mm

**BACKFILL MATERIAL**

- CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
- BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

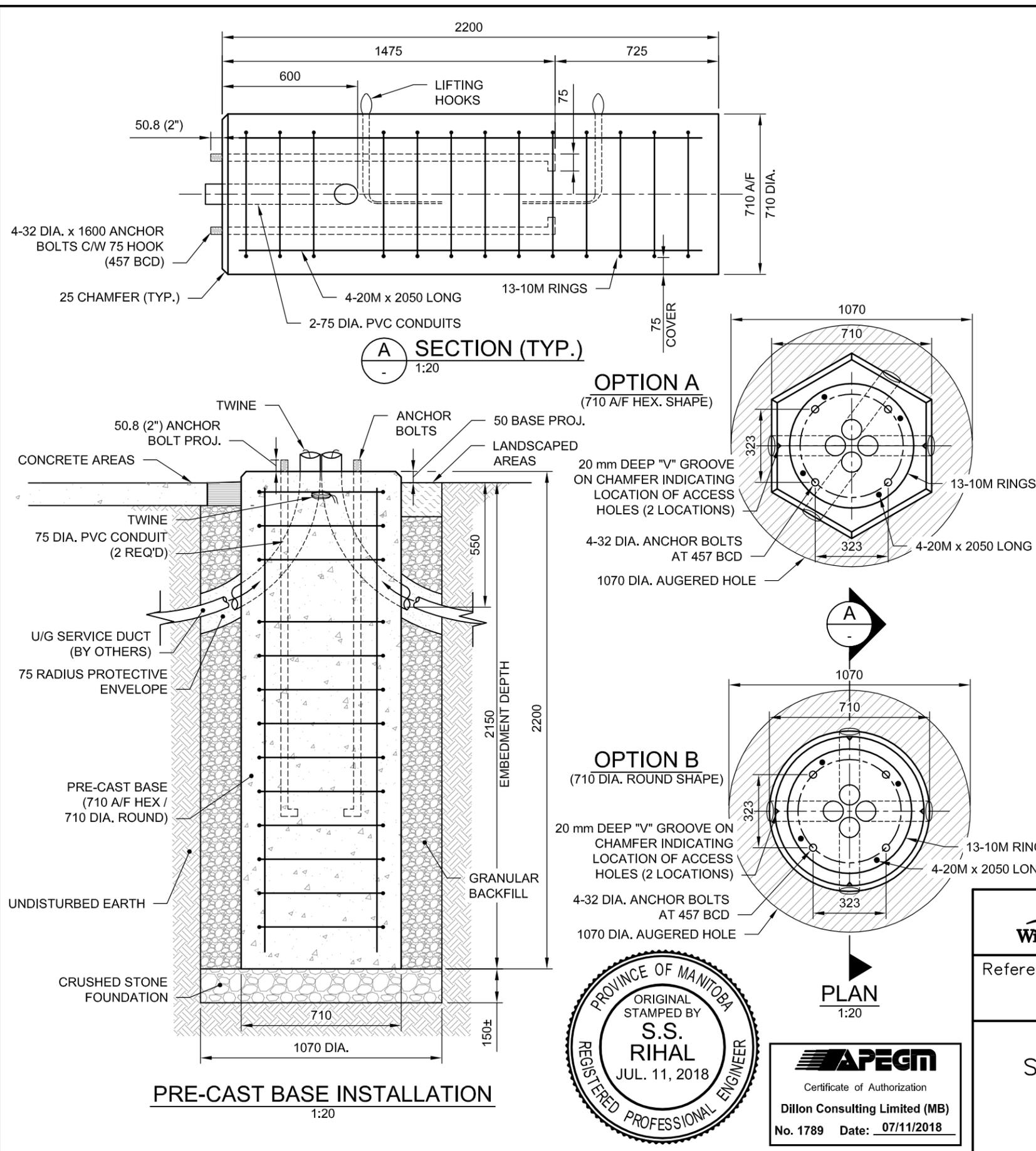
**INSTALLATION**

- MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
- SOFT DIG/AUGER DRILL EXCAVATION.
- EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
- AUGER HOLE 760 DIA.
- PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
- VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
- SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
- SET UNIT TO PROPER ELEVATION, ±10 mm.
- BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
- PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
- PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
- FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
- REMOVE SOILS OR STAINS FROM THE EXPOSED CONCRETE.

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(UNLESS OTHERWISE NOTED)

<b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT		Revisions			
Reference Spec. No. CW 3620		1	07/11/18	DESIGNED BY DILLON CONSULTING	KNL
<b>SIGNAL POLE BASE-TYPE PG</b> (MEDIUM DUTY-32 DIA. BOLTS)		No.	Date	Description	By
		Designed By:		Drawn By:	
			KNL		KNL
		Checked By:		Date:	
			SSR		07/11/18
		Approved:			
					Scale : AS SHOWN
					Drawing No. SD-315.B





**NOTES:**

**ANCHOR BOLTS**

- 4-32 mm DIA. ANCHOR BOLTS 1600 LONG C/W 75 mm HOOK
- CAN/CSA G40.21-GR.300W
- TOP 125 mm THREADED UNC CLASS 2A
- HOT DIP GALVANIZED FULL LENGTH TO ASTM A153 CLASS C
- BCD = BOLT CIRCLE DIAMETER TO CENTER OF BOLT GROUP
- BOLTS SHALL BE HELD IN PLACE ACCURATELY WITH A STEEL TEMPLATE.
- THREADED PORTION OF ANCHOR BOLTS SHALL BE PROTECTED FROM FOULING PRIOR TO CONCRETE POUR.

**PRE-CAST CONCRETE BASE**

- CAN/CSA SPECIFICATION: CAN3-A23.4-09
- CEMENT: TYPE HS SULPHATE RESISTANT, S2 EXPOSURE
- CONCRETE STRENGTH: 35 MPa AT 28 DAYS
- MAXIMUM AGGREGATE: 20 mm, AIR CONTENT 3-6%
- 25 mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- PVC CONDUITS: 75 (3") DIA. LONG RADIUS (24") SWEEP ELBOW (90°)
- CONDUITS SHALL BE PLACED TO FIT IN HEX. SHAPE BASE SO THAT THEY EXIT THROUGH A FLAT SURFACE.
- CONDUITS SHALL BE HELD SECURELY IN CENTER OF BASE PRIOR TO CONCRETE POUR.
- CUT CONDUITS FLUSH AT TOP AND SIDES OF CONCRETE BASE AFTER CURING.
- INDENT THE NUMBER "SD-XXX" ON THE TOP OF THE BASE.
- LIFTING HOOKS: 10 mm 7 x 19 STAINLESS STEEL CABLE
- WEIGHT OF PRE-CAST BASE: 2090 kg

**REINFORCING STEEL**

- CAN/CSA G30.18-GR.400W
- ALL BARS TO BE HOT DIP GALVANIZED.
- CLEAR COVER 75 mm

**BACKFILL MATERIAL**

- CRUSHED STONE FOUNDATION: TYPE 3 AS PER CW 2030 2.1.2 AND 2.1.5.
- BACKFILL: GRANULAR BACKFILL TYPE 2 AS PER CW 2030 2.1.2 TO 2.1.5.

**INSTALLATION**

- MARK THE CENTER AND OFFSET LOCATIONS BEFORE EXCAVATING.
- SOFT DIG/AUGER DRILL EXCAVATION.
- EXCAVATION DEPTH EQUALS THE EMBEDMENT DEPTH PLUS 150 mm ± FOR CRUSHED STONE FOUNDATION.
- AUGER HOLE 1070 DIA.
- PLACE, LEVEL, AND COMPACT CRUSHED STONE FOUNDATION TO EDGE OF EXCAVATION.
- VERIFY ORIENTATION OF PRE-CAST BASE ANCHOR BOLTS AND CONDUIT HOLES TO SITE LAYOUT DRAWINGS.
- SET BASE UNIT WHILE IN A PLUMB ORIENTATION INTO FINAL LOCATION (DO NOT TILT UP).
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- BRACE BASE AS REQUIRED TO MAINTAIN UNIT IS LEVEL, TRUE, AND PLUMB UNTIL BACKFILL HAS BEEN PLACED AND CONSOLIDATED.
- PLACE AND COMPACT GRANULAR BACKFILL UNIFORMLY AROUND PERIMETER OF THE BASE IN 150 mm LIFTS.
- PAUSE BACKFILLING AT BOTTOM OF CONDUIT TRENCH, THEN INSTALL BELOW GRADE ELECTRICAL CONNECTIONS.
- FINISH BACKFILLING AND COMPACTING IN 150 mm LIFTS TO THE ROUGH GRADE OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
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Reference Spec. No. CW 3620		1	07/11/18	DESIGNED BY DILLON CONSULTING	KNL
<b>SIGNAL POLE BASE—TYPE POD</b> (MEDIUM DUTY—32 DIA. BOLTS)		No.	Date	Description	By
		Designed By:	Drawn By:	Scale :	
		KNL	KNL	AS SHOWN	
		Checked By:	Date:	Drawing No.	
		SSR	07/11/18	SD-315.C	
		Approved:			

