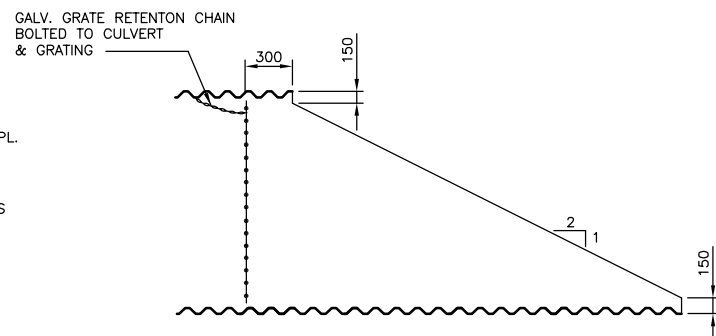
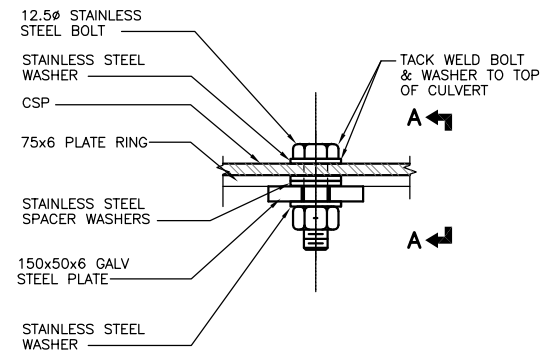


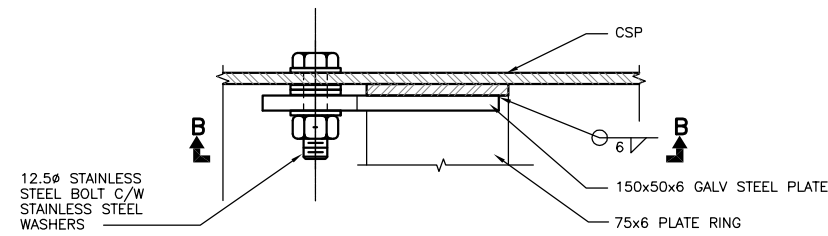
GRATING TYPE 'X'
SCALE: N.T.S.



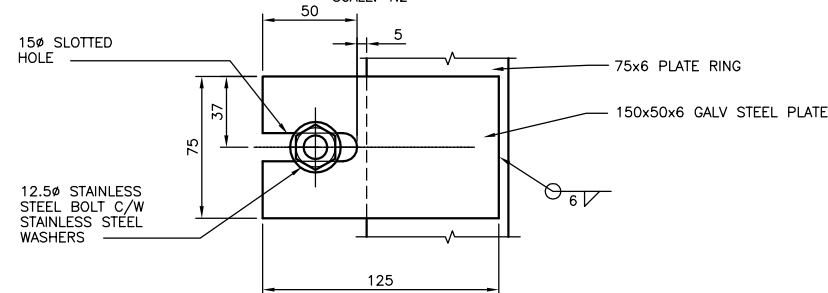
END CONDITION '1'
SCALE: N.T.S.



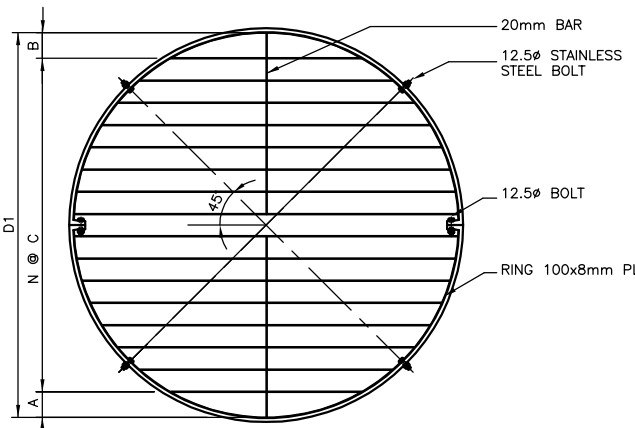
1 DETAIL
SCALE: 1:2



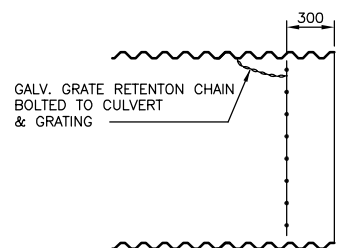
SECTION A-A
SCALE: 1:2



SECTION B-B
SCALE: 1:2



GRATING TYPE 'Y'
SCALE: N.T.S.

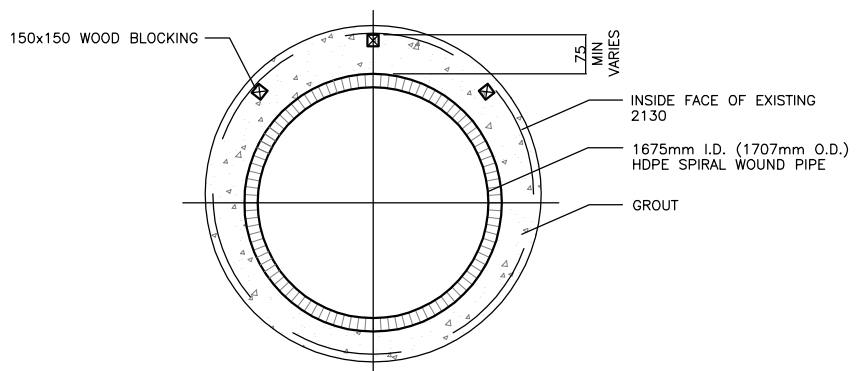


END CONDITION '2'
SCALE: N.T.S.

| OUTFALL DEBRIS GRATING | | | | | | | | | | | |
|------------------------|------------|----------|---------------|-------------|------|---------|-----|-----|-----|----|--------------|
| LOCATION | PIPE | | END CONDITION | GRATING | | | | | | | WEIGHT (lbs) |
| | DIAMETER D | MATERIAL | | DIAMETER D1 | TYPE | BAR DIA | A | B | C | N | |
| HAWTHORNE (RR-98) | 2130 | SPCSP | 1 | 2085± | Y | 25 | 140 | 140 | 140 | 13 | 319 |

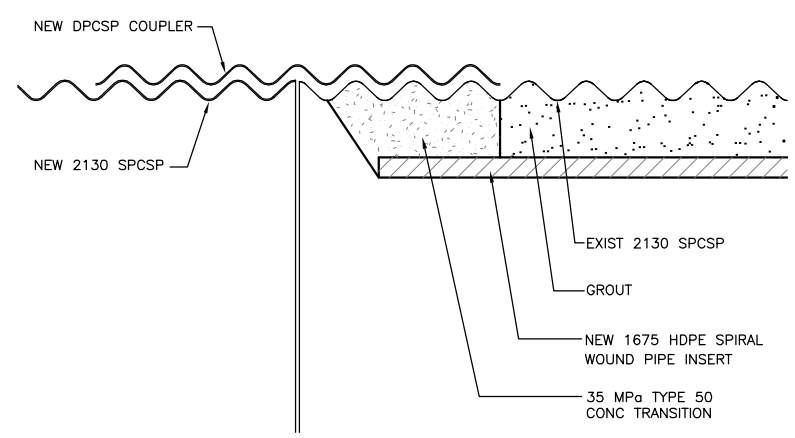
- NOTE:
 1. ALL PLATES AND BARS ARE CSA G40.21-300W.
 2. ALL COMPONENTS ARE GALVANIZED.
 3. ALL BOLTS TO BE TYPE 316 STAINLESS STEEL CONFORMING TO ASTM A320 GRADE B8M

STANDARD GRATING AND END CONDITION DETAILS

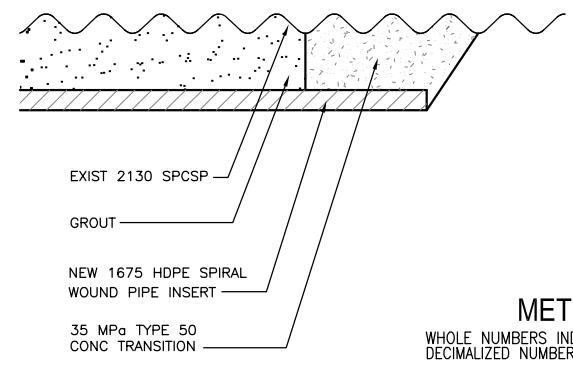


A SECTION
SCALE: NTS

NOTE:
 INSTALLATION OF HDPE SPIRAL WOUND PIPE REQUIRES SPACERS TO INSURE LINER REMAINS IN DESIGNED POSITION. (SPACERS TO BE DESIGNED BY THE CONTRACTOR)



1 DETAIL
SCALE: 1:5



2 DETAIL
SCALE: 1:5

METRIC
 WHOLE NUMBERS INDICATE MILLIMETRES
 DECIMALIZED NUMBERS INDICATE METRES

APEGM
 Certificate of Authorization
 KGS Group
 No. 245 Expiry: April 30, 2006

LOCATION APPROVED UNDERGROUND STRUCTURES
 SUPV. U/G STRUCTURES COMMITTEE DATE
 NOTE:
 LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

| B.M. ELEV. | NO. | REVISIONS | DATE | BY |
|------------|-----|-------------------------|----------|-----|
| | 0 | ISSUED FOR CONSTRUCTION | 05/12/07 | RJH |
| | | | 05/10/25 | |

KGS GROUP
 CONSULTING ENGINEERS & PROJECT MANAGERS
 WINNIPEG (204) 896-1209
 THUNDER BAY (807) 345-2233
 DESIGNED BY: RJH
 CHECKED BY: RJH
 DRAWN BY: DW
 APPROVED BY:
 HOR. SCALE: AS NOTED
 VERTICAL: RELEASED FOR CONSTRUCTION: DATE

ENGINEER'S SEAL
 ORIGINAL SIGNED BY R.J. HOUSTON 05/12/07
 CONSULTANT DRAWING NO. 05-107-13_02

THE CITY OF WINNIPEG
 WATER & WASTE DEPARTMENT
HAWTHORNE FLOOD PUMPING STATION UPGRADE
DEBRIS GRATE DETAILS
 SHEET 02 OF 24
 CAD FILE DRAWING NUMBER 05-0107-13_02
 CITY DRAWING NUMBER LD-3239