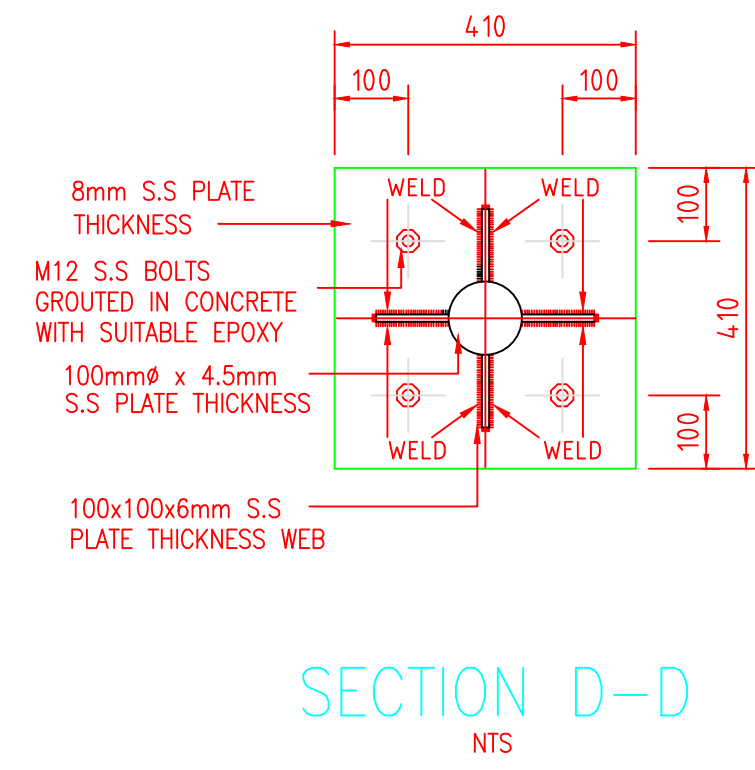
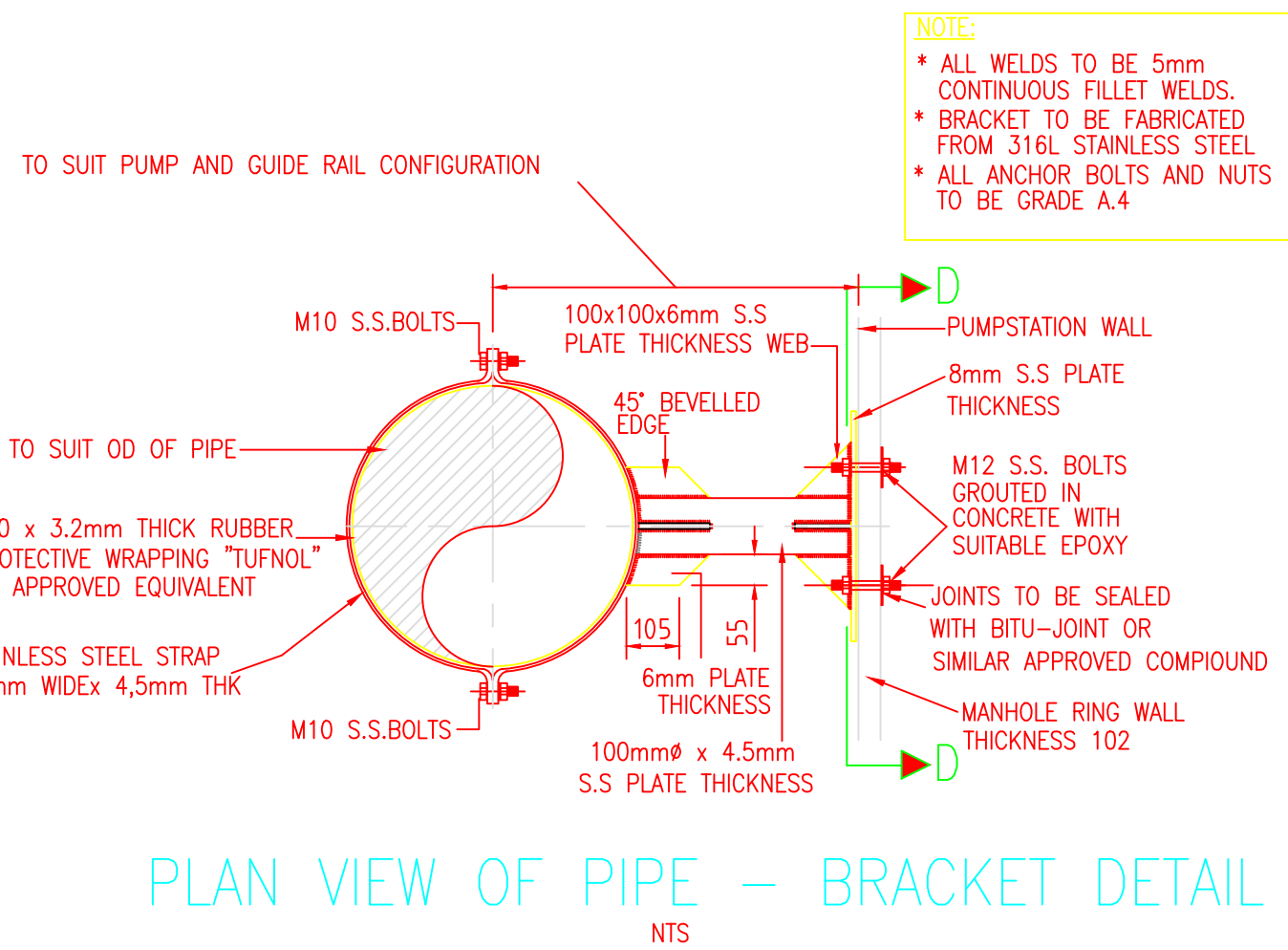
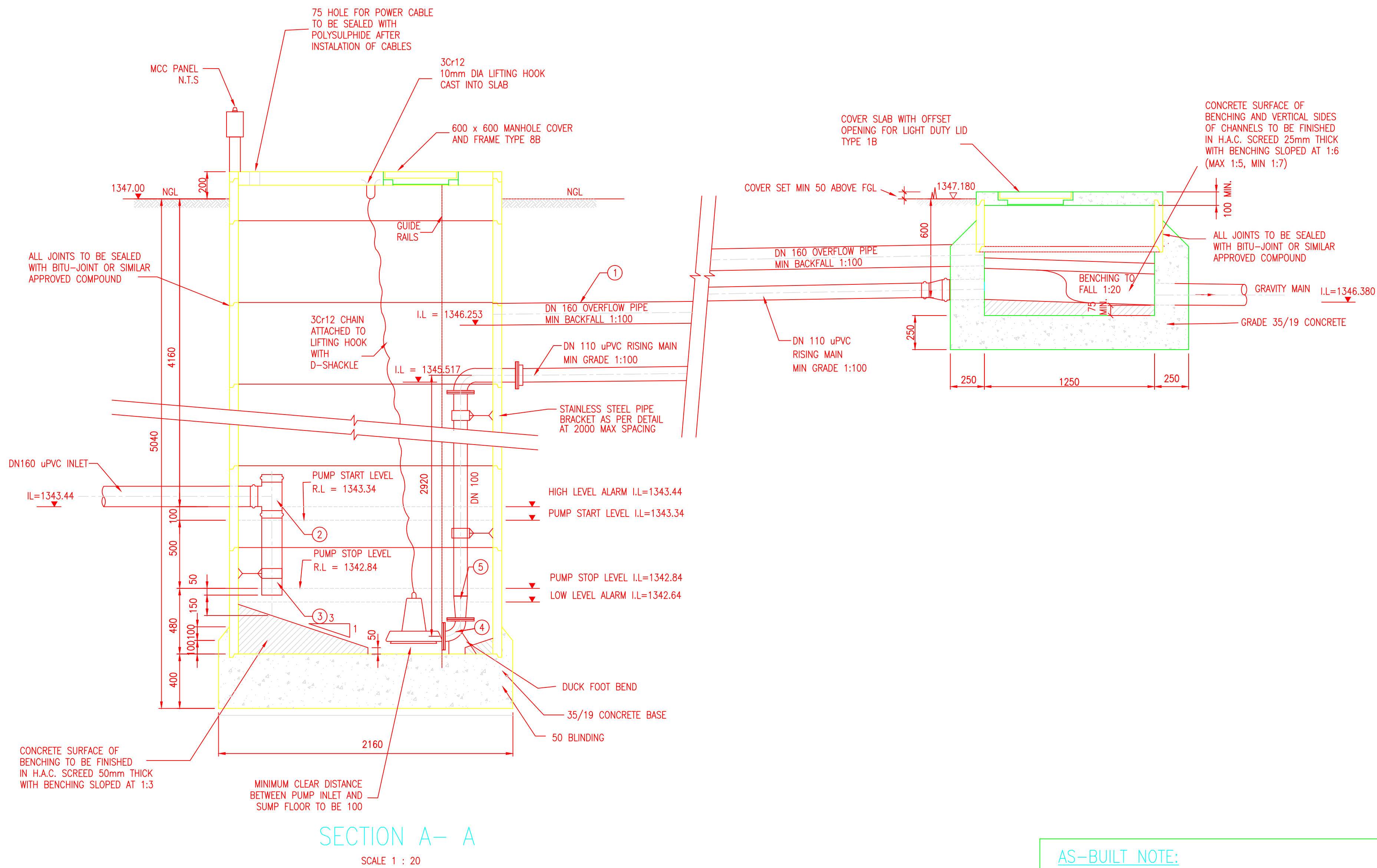
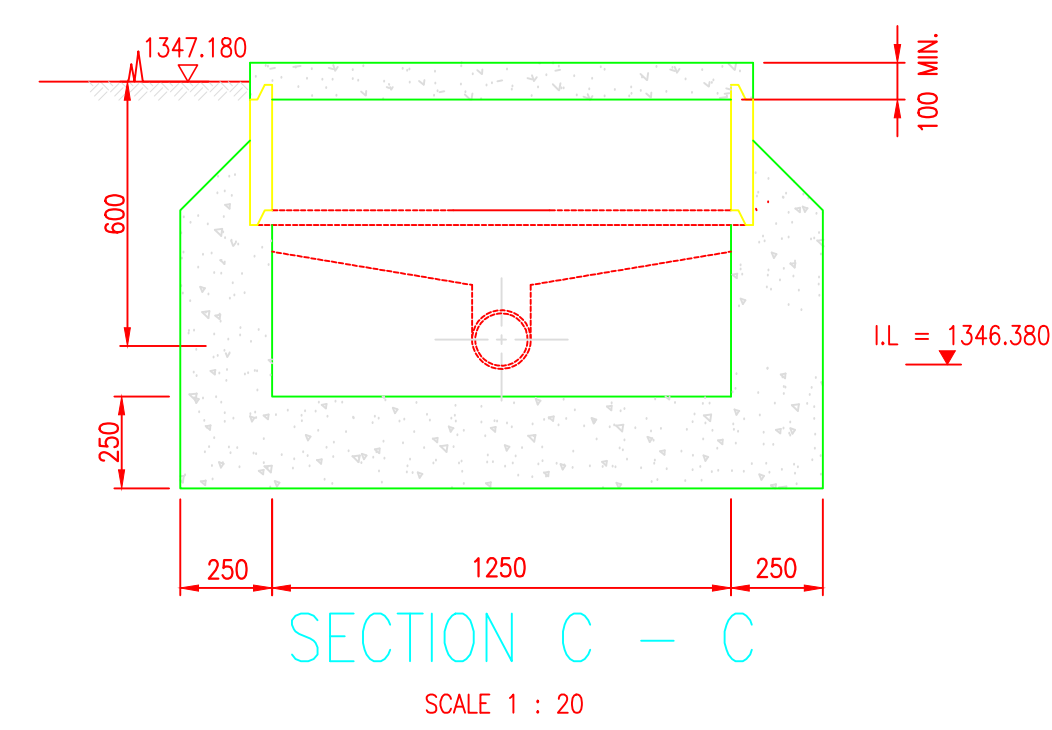
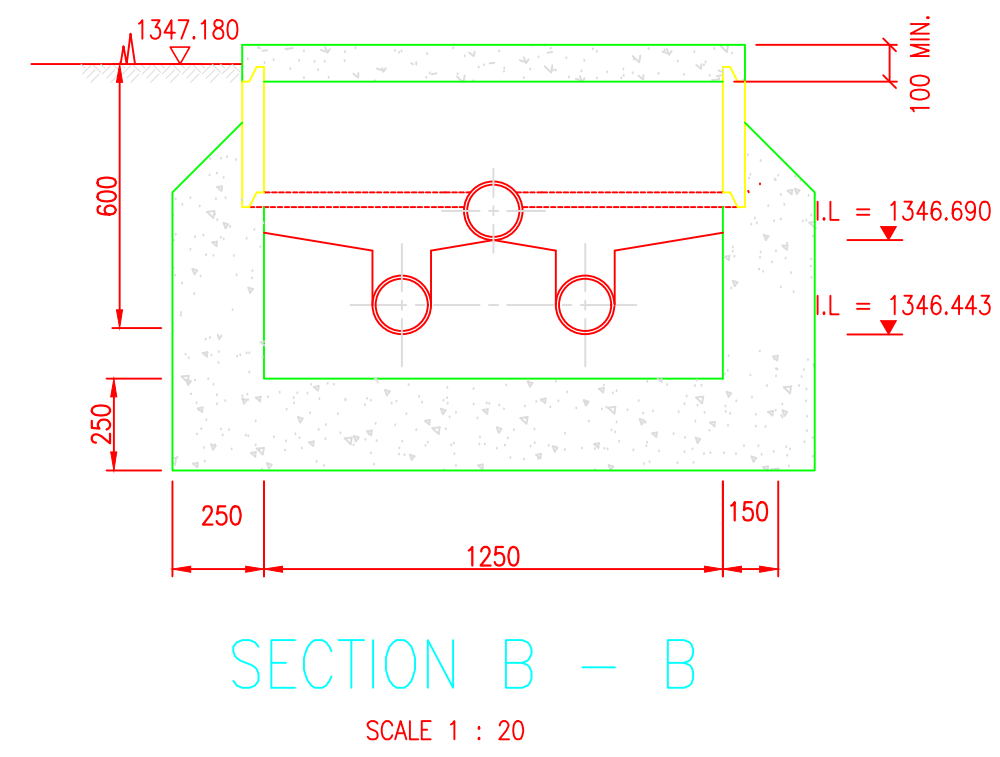
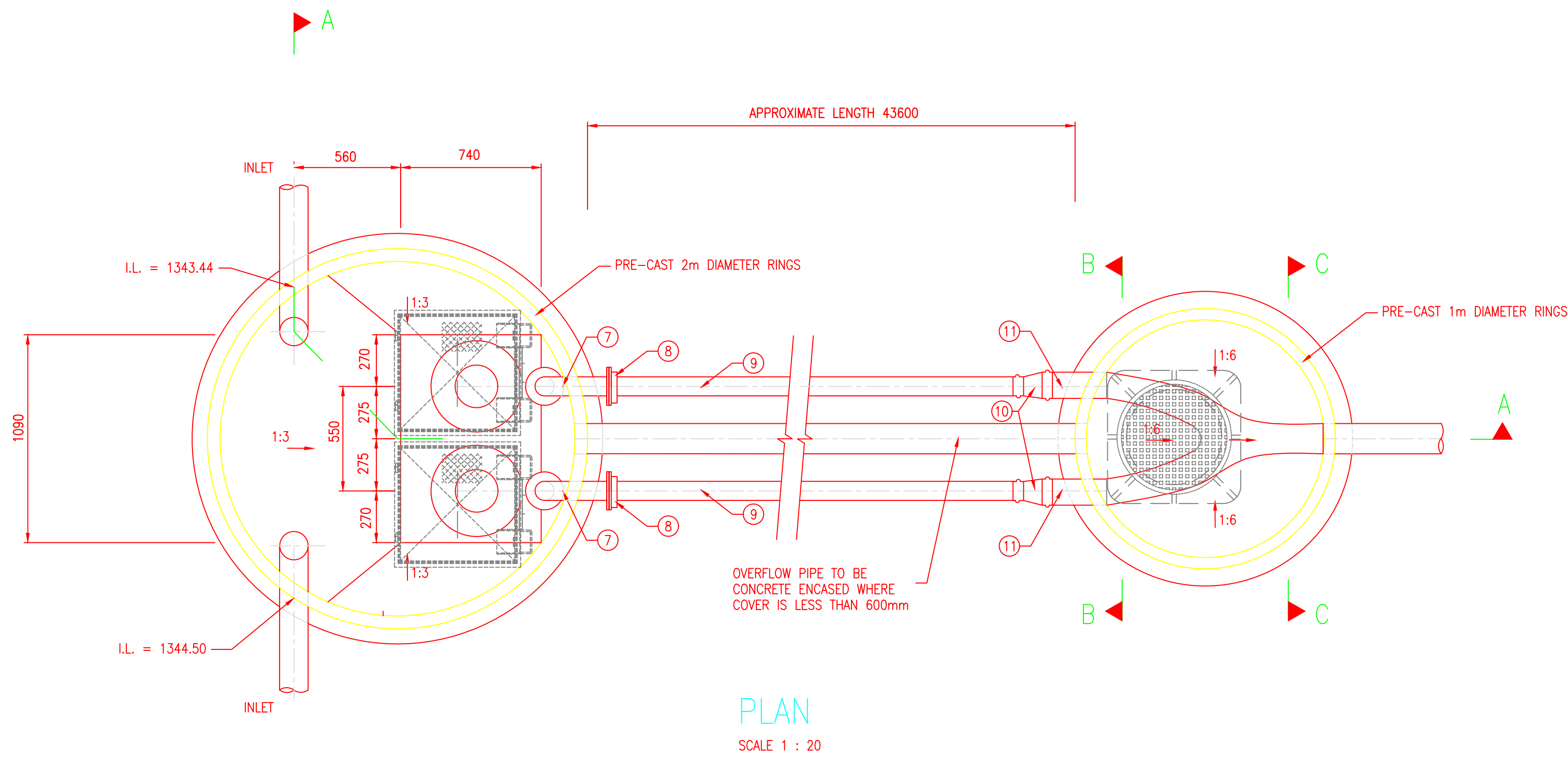




ITEM	DESCRIPTION	No. OFF
1	DN 160 CLASS 9 uPVC PIPE	43.6m
2	DN 160 CI SOCKETED TEE	2
3	DN 160 uPVC PIPE, APPROX 0.6m LONG	2
4	DN 80 x 90° D/FL STAINLESS STEEL DUCKFOOT BEND, 125mm C/F	2
5	DN 100 FL/PE STAINLESS STEEL PIPE 2920mm LONG WITH DN 80 x DN 100 FL/PE (FL ON THE DN 80) REDUCER WELDED ONTO THE DN 100 PIPE	2
7	DN 100 x 90° D/FL STAINLESS STEEL SMOOTH RADIUS BEND, ONE LEG 125mm C/F OTHER LEG 405mm C/F	2
8	DN 110 CI FLANGE ADAPTOR COUPLING	2
9	DN 110 CLASS 9 uPVC PIPE	86m
10	DN 110 x DN 160 CI REDUCER	2
11	DN 160 CLASS 9 uPVC PIPE	2m

AS-BUILT NOTE:
ALL LEVELS & INVERT LEVELS INDICATED ON THIS DRAWING ARE AS PER DESIGNED STAGE ONLY

- NOTES:**
1. PIPEWORK
 - 1.1 ALL PIPEWORK INSIDE MANHOLE TO BE STAINLESS STEEL WITH FLANGED ENDS
 - 1.2 ALL FLANGES TO BE SABS 1123 TABLE 1000/3
 - 1.3 ALL BURIED INTER CONNECTING PIPEWORK TO BE CLASS 9 uPVC
 - 1.4 ALL PIPEWORK DIMENSIONS TO BE CHECKED ON SITE PRIOR TO FABRICATION
 - 1.5 ALL BURIED FLANGES TO BE WRAPPED WITH APPROVED MASTIC AND BITUMASTIC TAPE
 - 1.6 BEDDING AND BACKFILL TO BE COMPACTED TO 93% MOD AASHTO
 - 1.7 BEDDING AND BACKFILL UNDERNEATH ROADS TO BE COMPACTED TO 95% MOD AASHTO
 2. PUMPS
 - 2.1 SUBMERSIBLE PUMPS TO SUIT PERFORMANCE SPECIFICATION OF Q=14/s AND H=5m (KSB AMAREX KRT F 80-210 @ 1450rpm OR SIMILAR APPROVED)
 - 2.2 PUMPS TO OPERATE ON A SINGLE DUTY AND STANDBY BASIS
 3. ELECTRICAL
 - 3.1 GENERAL MCC REQUIREMENTS:
 - 3.1.1 CONTRACTOR RESPONSIBLE FOR THE DESIGN OF THE PANEL, IN ACCORDANCE WITH PUMP SIZES, FAULT LEVELS, ETC
 - 3.1.2 PANEL TO BE OF THE OUTDOOR, WEATHERPROOF, PLINTH MOUNTED, IP65, DOUBLE DOOR SYSTEM TYPE
 - 3.1.3 PANEL TO BE MANUFACTURED FROM 3CR12, 1.6MM, POWDER COATED ELECTRIC ORANGE
 - 3.1.4 MCC TO BE OF FORM 3B OR 4A
 - 3.1.5 ENGINEER TO APPROVE SHOP DRAWINGS (TO BE SUBMITTED BY CONTRACTOR) PRIOR TO MANUFACTURE
 - 3.1.6 COMPARTMENTS REQUIRED
 - 3.1.6.1 INCOMER COMPARTMENT
 - 3.1.6.2 PUMP 1 COMPARTMENT
 - 3.1.6.3 PUMP 2 COMPARTMENT
 - 3.1.6.4 CONTROLS COMPARTMENT
 - 3.1.7 CLASS 1 AND 2 SURGE PROTECTION DEVICES TO BE INSTALLED IN INCOMER
 - 3.2 STARTER REQUIREMENTS (FOR EACH PUMP):
 - 3.2.1 DOL WITH THERMAL OVERLOAD PROTECTION, INCORPORATING PHASE.
 - 3.2.2 EARTH LEAKAGE PROTECTION REQUIRED
 - 3.3 CONTROLS:
 - 3.3.1 MANUAL/OFF/AUTO SELECTION
 - 3.3.1.1 MANUAL: CONTROL VIA START AND STOP PUSH BUTTONS
 - 3.3.1.2 AUTO: CONTROL VIA LEVEL ELECTRODES AND LEVEL CONTROLLER
 - 3.3.2 DUTY SELECTOR SWITCH
 - 3.4 INDICATIONS
 - 3.4.1 INCOMER COMPARTMENT
 - 3.4.1.1 MAINS ON (WHITE)
 - 3.4.1.2 PHASE FAILURE (BLUE)
 - 3.4.1.3 96 X 96 VOLTMETER WITH 7 WAY SELECTOR SWITCH
 - 3.4.1.4 3 OFF 96 X 96 AMMETER FOR EACH PHASE
 - 3.4.2 PUMP COMPARTMENT
 - 3.4.2.1 PUMP RUNNING
 - 3.4.2.2 PUMP OFF
 - 3.4.2.3 PUMP TRIPPED
 - 3.4.2.4 MOISTURE INGRESS
 - 3.4.2.5 RUN HOUR METER
 - 3.4.2.6 72 X 72 AMMETER
 - 3.4.3 GENERAL
 - 3.4.3.1 STROBOSCOPIC ALARMS INDICATOR WITH SIREN FOR ALL FAULTS AND TRIPS
 - 3.5 INSTRUMENTATION
 - 3.5.1 THREE LEVEL SS316 LEVEL ELECTRODES TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR (COMMON, LOW, HIGH)
 - 3.6 CONTRACTOR TO PROVIDE CERTIFICATE OF COMPLIANCE ON COMPLETION OF INSTALLATION

No.	DATE	REVISION	CONSULT. ENG.
1	13/05/2014	CONSTRUCTION RECORD DRAWING	THUSO CONSULTING
2	15/02/2013	REVISED LEVELS	
3	07/12/2012	ISSUED FOR CONSTRUCTION	
4	02/11/2012	ISSUED FOR TENDER PURPOSES	



DESIGNED BY
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DESIGNED BY	APPROVED
S.S.	Name : DOMING COLLETT
DRAWN BY	Prof. Reg. No. : 200178907
R.M.	Date : FEB 2013
CHECKED BY	CONSTRUCTION RECORD DRAWING
D.C.	Name : Prof. Reg. No. : Date :



ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR HOWEVER ARISING
AIRPORTS COMPANY SOUTH AFRICA
Date:

PROJECT DESCRIPTION
CONSTRUCTION OF NEW WATER AND DRAINAGE SERVICES AT BLOEMFONTEIN AIRPORT

DRAWING DESCRIPTION
SEWER PUMP STATION NO.2

CONTRACT NUMBER	BL13/29/AU/02
DRAWING LOCATION DATA	START
ROUTE	-
SECTION	-
DRAWING km DISTANCE	-
DRAWING TYPE	WATER RELATED
DRAWING NUMBER	TBFN90 DP 03 S
REV	2