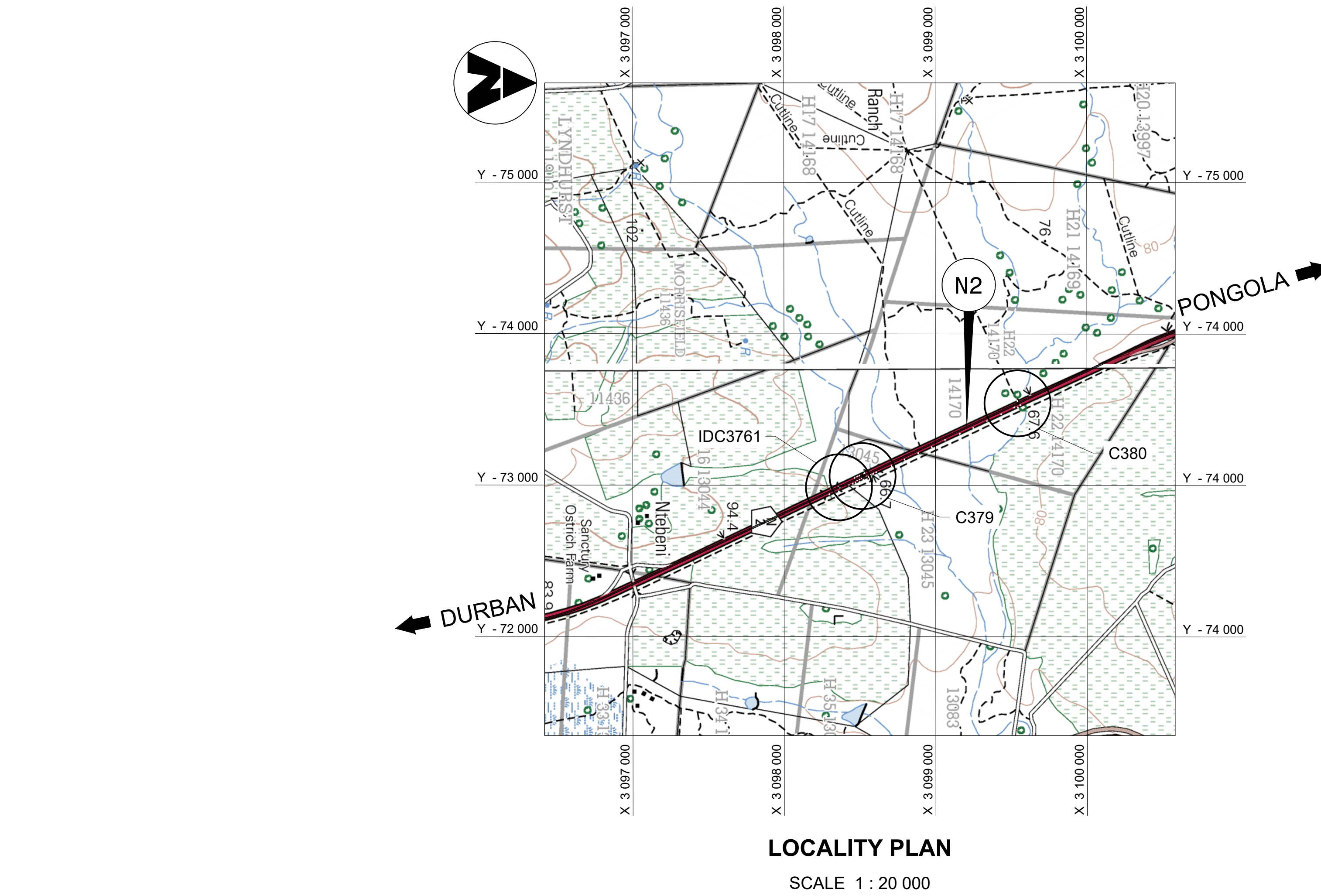
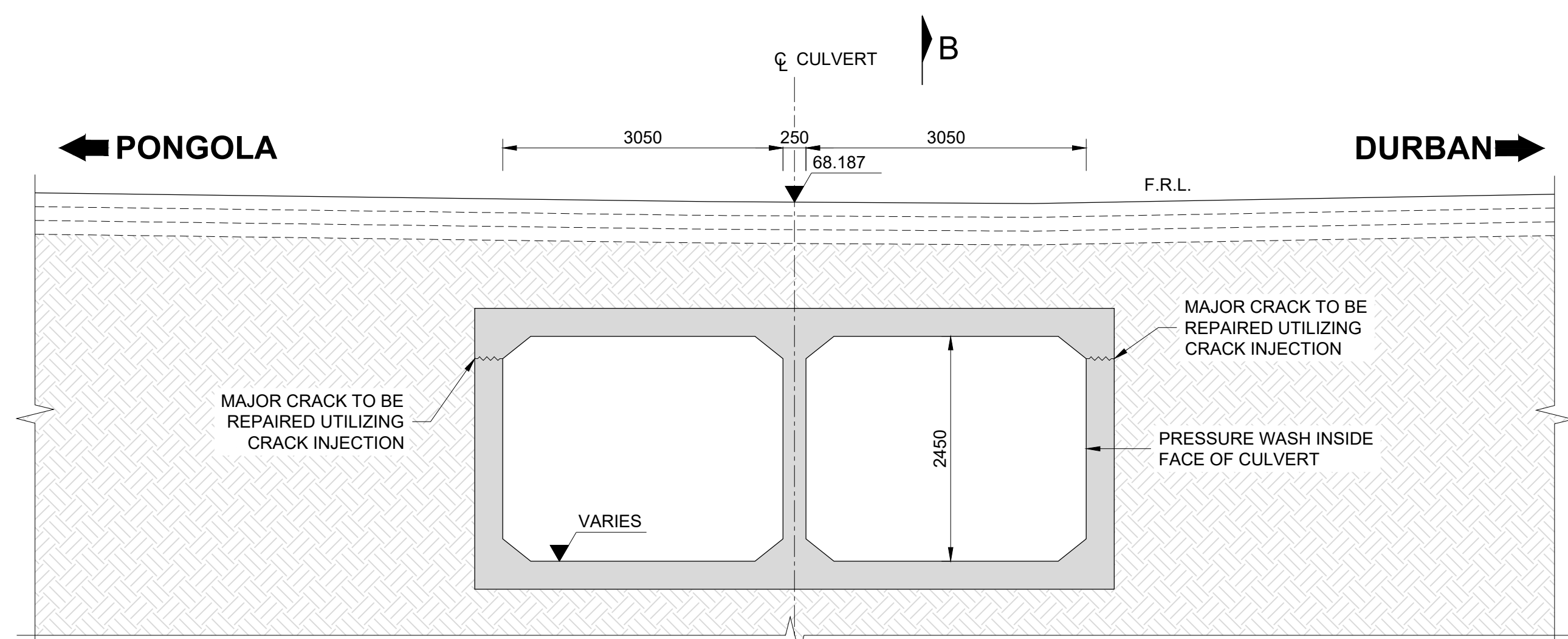


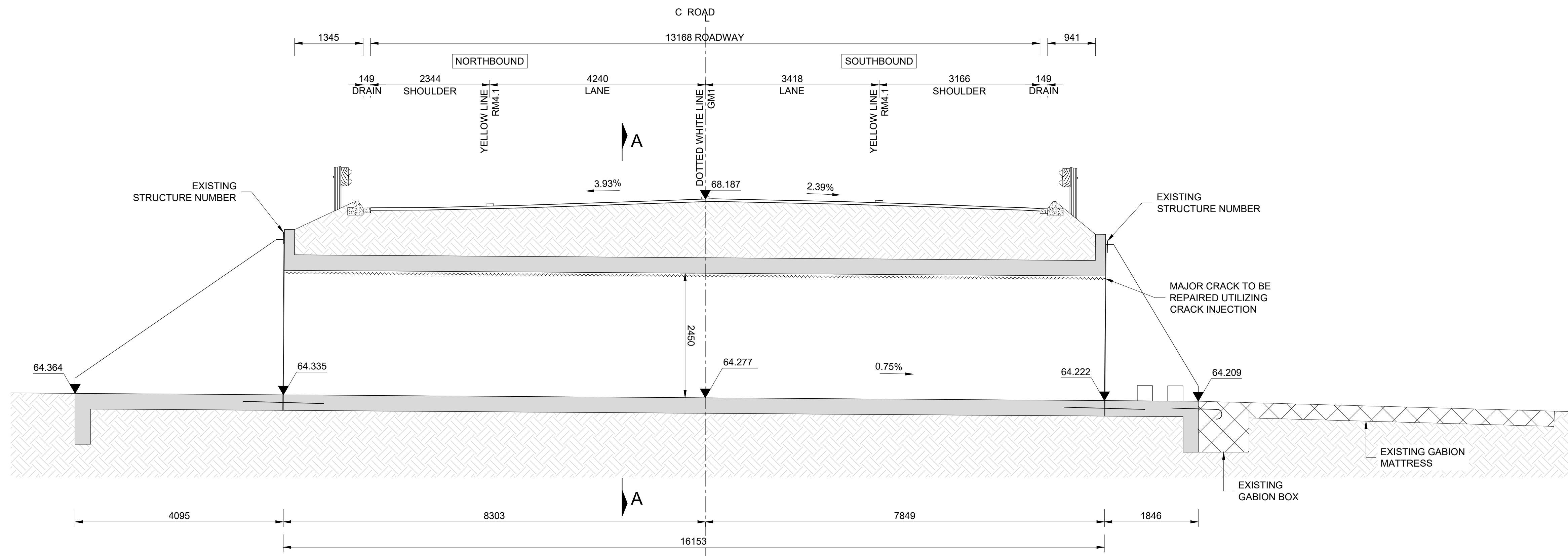
PLAN
SCALE 1:100



LOCALITY PLAN
SCALE 1 : 20 000



SECTION A-A
SCALE 1:50



SECTION B-B
SCALE 1:50

- GENERAL NOTES
- DESCRIPTION
THE PROPOSED CULVERT CONSISTS OF A SINGLE SPAN REINFORCED CONCRETE CONTINUOUS CELL WITH INTERNAL DIMENSIONS 3.6 x 2.5 m. THE OUTLET CONSISTS OF REINFORCED CONCRETE WINGWALLS PLAYED AT 30°.
 - DESIGN CRITERIA
2.1 THE CULVERT HAS BEEN DESIGNED FOR THE LOADS SPECIFIED IN TMH 7 PARTS 1 AND 2 (AS AMENDED 1988)
2.2 THE STRUCTURE HAS BEEN DESIGNED USING ELASTIC ANALYSIS AND THE LIMIT STATE APPROACH IN ACCORDANCE WITH TMH 7, PART 3.
 - STRUCTURAL ANALYSIS AND PARAMETERS
3.1 SOFTWARE PACKAGES USED FOR ANALYSIS AND DESIGN : PROKON
3.2 DENSITIES
CONCRETE : 2400kg / m³
FILL MATERIAL : 2000kg / m³
3.3 LATERAL EARTH PRESSURE : 6.66 kPa/m DEPTH
3.4 YOUNG'S MODULUS : CONCRETE (SHORT TERM) : 28GPa
STEEL REINFORCEMENT : 200GPa
3.5 STRESS DISTRIBUTION UNDER BASES : LINEAR
3.6 PREMIX : 100mm THICK FOR DESIGN PURPOSES
3.7 MAXIMUM FILL HEIGHT 2300mm
 - QUALITY OF MATERIALS
4.1 REINFORCING STEEL (TO SANS 920)
MILD STEEL : 250 MPa
HIGH YIELD STRESS STEEL : 450 MPa
4.2 CONCRETE
4.2.1 DURABILITY CONCRETE (CLASS W) - CLASS DENOTES (CONCRETE STRENGTH / AGGREGATE SIZE) MEMBERS CLASS CHARACTERISTIC STRENGTH (MPa)
FLOOR SLABS W30/19 30
WALLS W30/19 30
WINGWALLS W30/19 30
4.2.2 NORMAL CONCRETE - CLASS DENOTES (CONCRETE STRENGTH / AGGREGATE SIZE) DECK SLAB & HEADWALLS 30/19
SCREED 15/19
MASS CONCRETE 20/19
 - FOUNDING MATERIAL :
5.1.1 ALLOWABLE BEARING PRESSURE : 300 kPa
5.1.2 ACTUAL BEARING PRESSURE : 90 kPa
5.2 EARTH PRESSURE BEHIND WALLS : 6.6 kPa/m DEPTH
5.3 DENSITY OF FILL : 2000 kg/m³
5.4 INTERNAL ANGLE OF FRICTION : 30°
 - CONSTRUCTION REQUIREMENTS
6.1 BACKFILLING MUST BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES OF THE STRUCTURE AFTER THE DECKS HAVE BEEN CAST AND THE CONCRETE HAS ATTAINED A STRENGTH OF GREATER THAN 2/3 OF THE SPECIFIED 28 DAY CHARACTERISTIC STRENGTH MAXIMUM LEVEL
6.2 DIFFERENCE BETWEEN BACKFILL HEIGHT ON OPPOSITE SIDES MUST NOT EXCEED 1.0m.
(a) FORMWORK AND SURFACE FINISH
(b) CLASS OF SURFACE FINISH SHOWN AS FOLLOWS:
F1 F2 U1 ETC.
(b) ALL EXTERNAL CORNERS TO BE GIVEN A 25mm CHAMFER
 - DRAINAGE BEHIND WALLS: NETLON DN1 STRIPS AND PERFORATED M65 NETLON PIPES WRAPPED IN BIDIM A5 AND SHEET OF BIDIM A5. SEE DWG No DD-1073.2-C0305-04.
 - ALL LEVELS, DIMENSIONS AND CO-ORDINATES TO BE CHECKED AND CONFIRMED ON SITE WITH THE ENGINEER BEFORE CONSTRUCTION COMMENCES. THE ENGINEER TO BE INFORMED OF ANY DISCREPANCIES AS SOON AS POSSIBLE.
 - HYDRAULIC INFORMATION :
AS PER CONCESSION AGREEMENT WHERE NO FLOODING PROBLEMS ARE EXPERIENCED, THE EXISTING SIZE STRUCTURE IS EXTENDED.

CONSTRUCTION RECORD (AS-BUILT)		
WORKS CONTRACT ENGINEER		
Name :		
Prof. Reg. No. :		
Date :		
SANRAL PROJECT MANAGER		
Name :		
Date :		
V2	SCANNED ORIGINAL WITH SIGNATURES	
V1	ORIGINAL VERSION	
No.	DATE	REVISION
		CONSULT. ENG.

DESIGNED BY	
NAME	
Prof. Reg. No.	
CHECKED BY	
NAME	
Prof. Reg. No.	
DRAWN BY	
NAME	

CONSULTANT APPROVAL	
Name :	
Prof. Reg. No. :	
Date :	

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ACCEPTANCE	
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING	
for the SA NATIONAL ROADS AGENCY SOC. LTD.	
Date:	

THE DESIGN AND CONSTRUCTION MONITORING OF PAVEMENT AND SETTLEMENT REPAIRS ON NATIONAL ROUTE 2, SECTION 30 FROM BUSHVELD RETREAT FARM (KM 47.00) TO HLUHLUWE INTERCHANGE (KM 55.00)	
NCEMANE RIVER TRIBUTARY 2 CULVERT (C380) ON THE N230 AT KM 50.255	
GENERAL ARRANGEMENT	
SCALE : AS SHOWN	

PROJECT NUMBER	N.002300-2020/1	
DRAWING LOCATION DATA	START	END
ROUTE	N2	N2
SECTION	30	30
DRAWING km DISTANCE	km 50.255	km 50.255
DRAWING TYPE	STRUCTURES - CULVERTS	
BRIDGE/STRUCTURE No.	C380	
CONSULTANT DRAWING No.	TP2113/ST/C380/01	
SANRAL DOCUMENT #	-	

FOR TENDER
(FOR TENDER PURPOSES ONLY)