

**NOTES**

- DESCRIPTION OF STRUCTURE  
PRECAST CONCRETE PORTAL CULVERT UNITS ON REINFORCED STRIP FOOTINGS. A REINFORCED CONCRETE SLAB IS SUPPORTED BY SUPPORT WALLS.
- DESIGN CRITERIA  
THE CULVERT HAS BEEN DESIGNED IN ACCORDANCE WITH TMH 7 PARTS 1, 2 & 3 (AS AMENDED 1989).  
LIVE LOAD : NA
- STRUCTURAL ANALYSIS & PARAMETERS  
THE STRUCTURE HAS BEEN DESIGNED USING ELASTIC ANALYSIS & LIMIT STATE DESIGN METHODS IN ACCORDANCE WITH TMH 7
  - 3.1 DENSITIES : CONCRETE : 2550 kg/m<sup>3</sup>
  - 3.2 LATERAL EARTH PRESSURE : 5,6 kN/m<sup>2</sup>/m
  - 3.3 YOUNGS MODULUS : CONCRETE : 30 MPa ; 28 GPa  
STEEL : 40 MPa ; 31 GPa ; 200 GPa
- QUALITY OF MATERIALS
  - 4.1 REINFORCING STEEL OF SABS 920  
CHARACTERISTIC STRENGTH : 250 MPa  
MILD STEEL : 450 MPa  
HIGH YIELD STEEL : 450 MPa
  - 4.3 CONCRETE
 

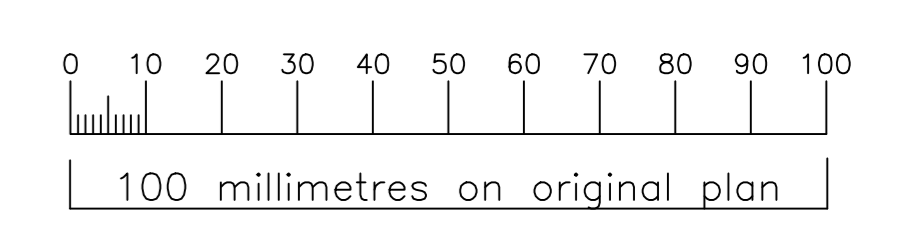
CLASS	CHARACTERISTIC STRENGTH
BLINDING 15/19 MPa/mm	15 MPa
STRIP FOOTINGS 30/19 MPa/mm	30 MPa
SUPPORT WALLS 30/19 MPa/mm	30 MPa
DECK 30/19 MPa/mm	30 MPa
BOLLARDS 30/19 MPa/mm	30 MPa
  - 4.4 FOUNDING MATERIAL : ROCK (TILLITE)  
ALLOWABLE BEARING PRESSURE : 500 kPa
- CONSTRUCTION REQUIREMENTS
  - 5.1 FINISHES  
ALL UNEXPOSED FORMED SUBSTRUCTURE SURFACES : F1  
ALL EXPOSED FORMED SUBSTRUCTURE SURFACES : F2  
ALL FORMED DECK SURFACES : F3  
BOLLARDS : F3
  - 5.2 CONCRETE COVER
 

STRIP FOOTINGS	: 40mm
SUPPORT WALLS	: 30mm
DECK	: 30mm
BOLLARDS	: 30mm
  - 5.3 CHAMFERS ON ALL SHARP EDGES  
GENERALLY : 25mm x 25mm  
BOLLARDS : 10mm x 10mm

SETTING-OUT CO-ORDINATES WG 31'			
STATION	INTERNATIONAL METRES		TOP OF BLINDING ELEVATION
	Y	X	
SOP 1	31 040.107	3 095 413.047	1189.635
SOP 2	31 040.769	3 095 406.169	1189.635
SOP 3	31 037.917	3 095 412.836	1189.635
SOP 4	31 038.580	3 095 405.958	1189.635
SOP 5	31 035.727	3 095 412.626	1189.635
SOP 6	31 036.390	3 095 405.747	1189.635
SOP 7	31 033.537	3 095 412.415	1189.635
SOP 8	31 034.200	3 095 405.537	1189.635
SOP 9	31 031.348	3 095 412.204	1189.635
SOP 10	31 032.010	3 095 405.326	1189.635
SOP 11	31 029.158	3 095 411.993	1189.635
SOP 12	31 029.820	3 095 405.115	1189.635
SOP 13	31 026.968	3 095 411.782	1189.635
SOP 14	31 027.630	3 095 404.904	1189.635

CO-ORDINATES WG 31'			
Elevations based on : TRIG GPS			
Station	Y	X	Z
BM1	30 946.252	3 095 429.250	1201.839
BM2	30 950.970	3 095 356.522	1205.176
BM3	31 030.794	3 095 547.964	1191.856
BM4	31 058.764	3 095 356.899	1196.082



Description	Checked	Signed
AMENDMENTS		

**AS BUILT**  
Supervising Engineer: \_\_\_\_\_ Date: \_\_\_\_\_  
Supervising Authority: \_\_\_\_\_

CAD File Ref:--  
File Ref:--  
Designed by : T. MBONA  
Checked by : R.PURCHASE  
Drawn by : T. MBONA  
Checked by : R.PURCHASE



Designed by : \_\_\_\_\_  
Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Head: Municipality

Y = -9 221.627  
X = +3 176 216.233  
**EZINGADINI RIVER CULVERT**  
GENERAL ARRANGEMENT

Staked km distance  
Scale: AS SHOWN  
Sheet : 1 of : 3  
Plan No : 6/4/1/87 2012 - 01