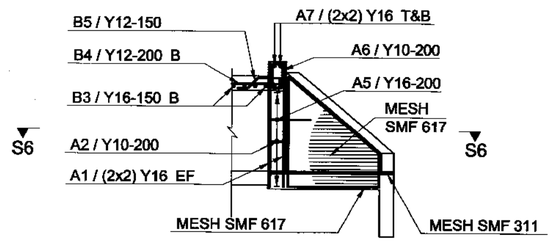
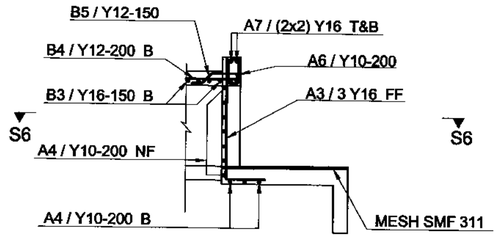


SECTION S1-S1 - INLET / OUTLET WING WALLS HEADWALL & COLUMNS - REINFORCEMENT

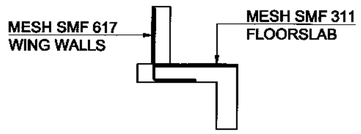


SECTION S2-S2 - INLET / OUTLET WING WALLS HEADWALL & WING WALLS - REINFORCEMENT

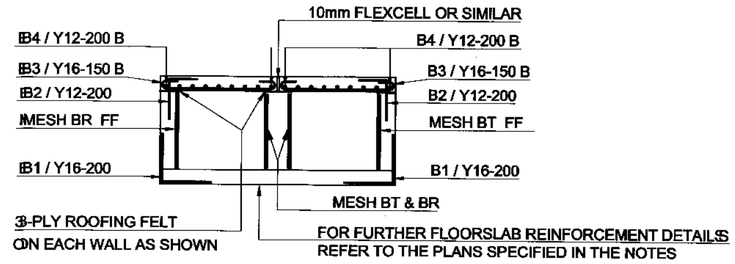


SECTION S3-S3 - INLET / OUTLET WING WALLS HEADWALL & COLUMNS - REINFORCEMENT

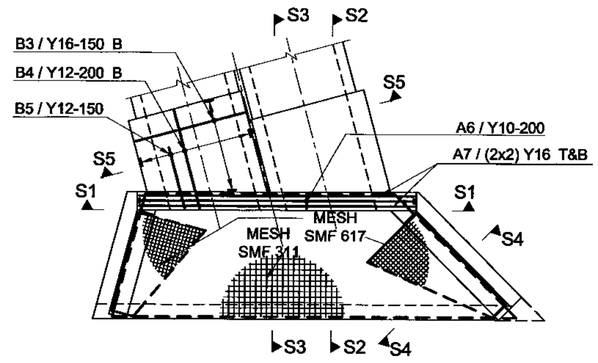
NOTE:
MESH REINFORCEMENT ONLY
FOR CULVERTS WHERE
VERTICAL OPENING, JA > 900



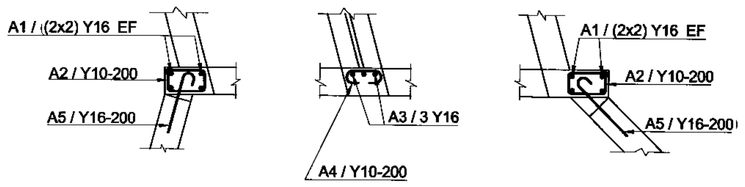
SECTION S4-S4 - INLET / OUTLET WING WALLS WING WALLS & FLOORSLAB - REINFORCEMENT



SECTION S5-S5 - INLET / OUTLET WING WALLS INSITU BARREL (BOX CULVERTS ONLY) - REINFORCEMENT



TYPICAL REINFORCEMENT PLAN OF INLET / OUTLET WING WALLS - MAX Ø = 30°



SECTION S6-S6 - INLET/OUTLET WING WALLS HEADWALL COLUMNS - REINFORCEMENT

NOTES FOR INLET / OUTLET WING WALLS:

1. DESIGN CRITERIA

1.01 THE WING WALLS ARE DESIGNED AS CANTILEVERS FIXED TO THE BASE AND SUPPORTED BY THE HEADWALL.
1.02 THE WING WALLS ARE DESIGNED FOR A SURCHARGE OF 750mm AND A MAXIMUM SLOPE OF 1:1,5 FOR ANY FILL HEIGHT.
1.03 THE DENSITY OF SOIL = 20 kN/m.
1.04 SOIL PRESSURES DETERMINED USING RANKINE'S THEORY.
1.05 CONCRETE:

	WING WALL	INSITU BARREL
CHARACTERISTIC STRENGTH (MPa)	30	30
CLASS CONCRETE	30 / 19	30 / 19

1.06 REINFORCEMENT ACCORDING TO SABS 920 - LATEST REVISION.
CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL = 450 MPa.
CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL MESH = 450 MPa.
1.07 A LINEAR SOIL PRESSURE DISTRIBUTION IS ASSUMED.
1.08 THE INSITU BARREL IS DESIGNED FOR SNABC TRAFFIC LOADING IN ACCORDANCE WITH TMH 7 PARTS 1,2&3 (AS AMENDED 1988) "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA".

2. GENERAL

2.01 THE REQUIRED CLASS OF SURFACE FINISH IS F2 FOR ALL VISIBLE SURFACES.
2.02 ALL VISIBLE CORNERS MUST HAVE A 25 x 25 mm CHAMFER.
2.03 TWO 150 mm LAYERS OF APPROVED MATERIAL, COMPACTED TO 93% MODIFIED A.A.S.H.T.O. DENSITY, ARE REQUIRED UNDER THE INLETS AND OUTLETS.
2.04 MINIMUM CONCRETE COVER TO REINFORCEMENT IS 40mm.
2.05 FURTHER INFORMATION REGARDING SPECIFIC CULVERTS APPEAR ON THE DRAINAGE SCHEDULES, OF THE ROAD.
2.06 THE INLET AND OUTLET UNITS ARE DESIGNED TO ACT AS INDEPENDENT UNITS WHEN USED TOGETHER WITH PIPES, PRECAST BARRELS, AS WELL AS INSITU BARREL UNITS.
2.07 REINFORCEMENT DETAILS OF THE FLOOR SLAB SUPPORTING THE CULVERT BARRELS APPEAR ON THE TYPICAL PLAN FOR PRECAST PORTAL CULVERTS BASE SLABS.
2.08 THE HEADWALLS MUST BE ALIGNED PARALLEL TO THE ROAD SHOULDER.

FOR LATEST VERSION CHECK www.nra.co.za

No.	DATE	VERSION / REVISION	APPROVED
V1	SEPT 2014	ORIGINAL VERSION	

SANRAL TYPICAL DRAWINGS

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APPROVED
DATE: 2015/06/26

TYPICAL DRAWINGS - DRAINAGE

PRECAST CULVERT WING WALLS REINFORCEMENT SHEET 2 OF 2

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SANRAL DOC. No. (DWG) **1797643**
SANRAL DRAWING No. **TD-D-WW-1002-V1**