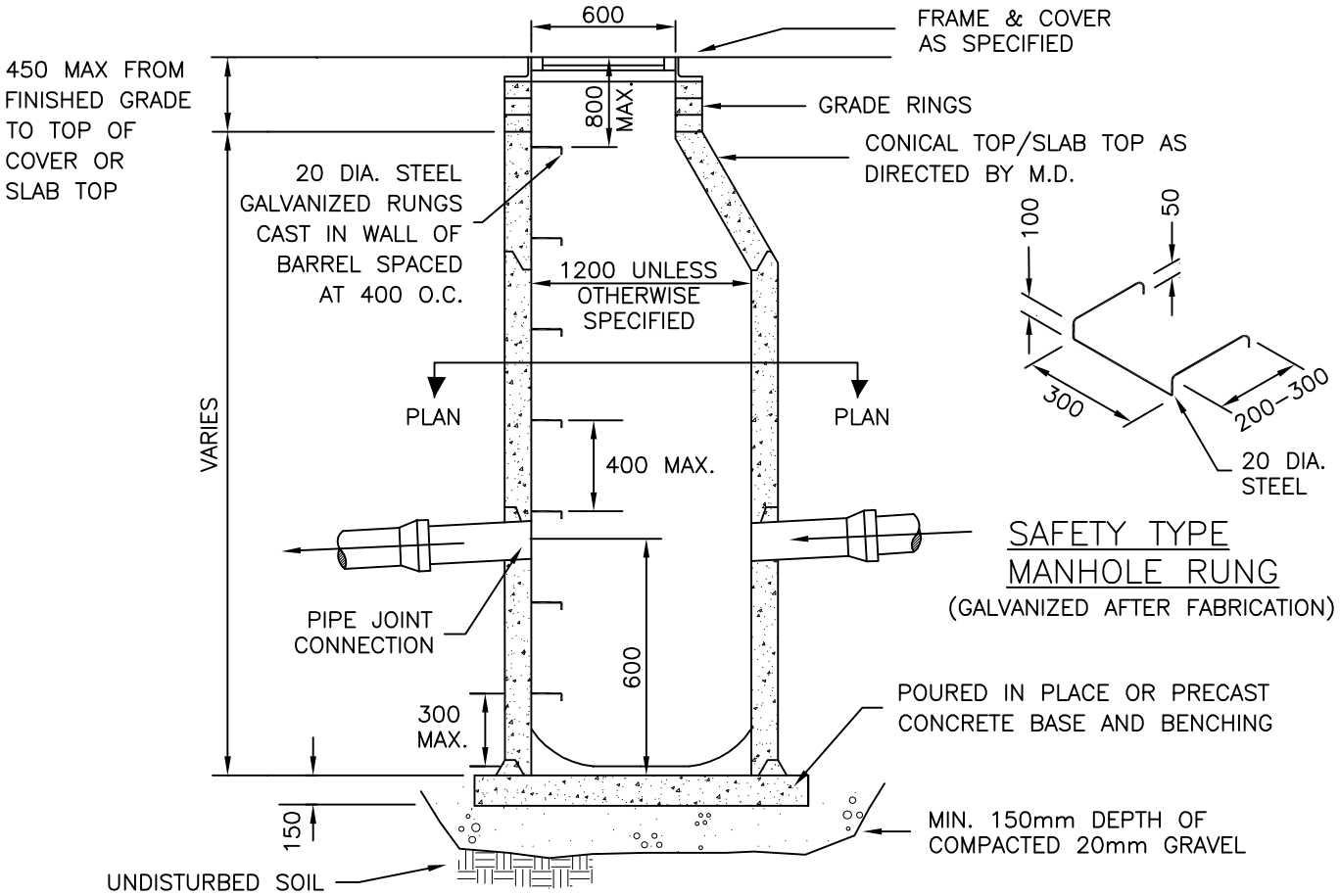
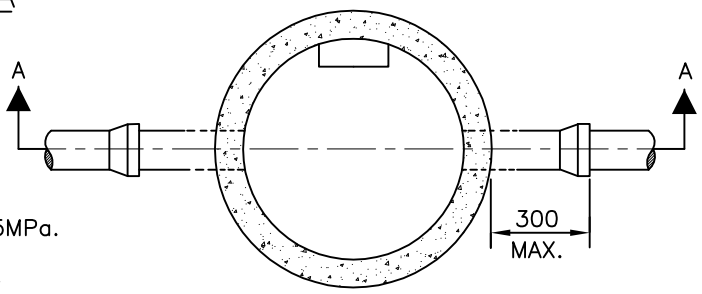


SAFETY TYPE MANHOLE RUNG
(GALVANIZED AFTER FABRICATION)

SECTION A–A
N.T.S



PLAN
N.T.S

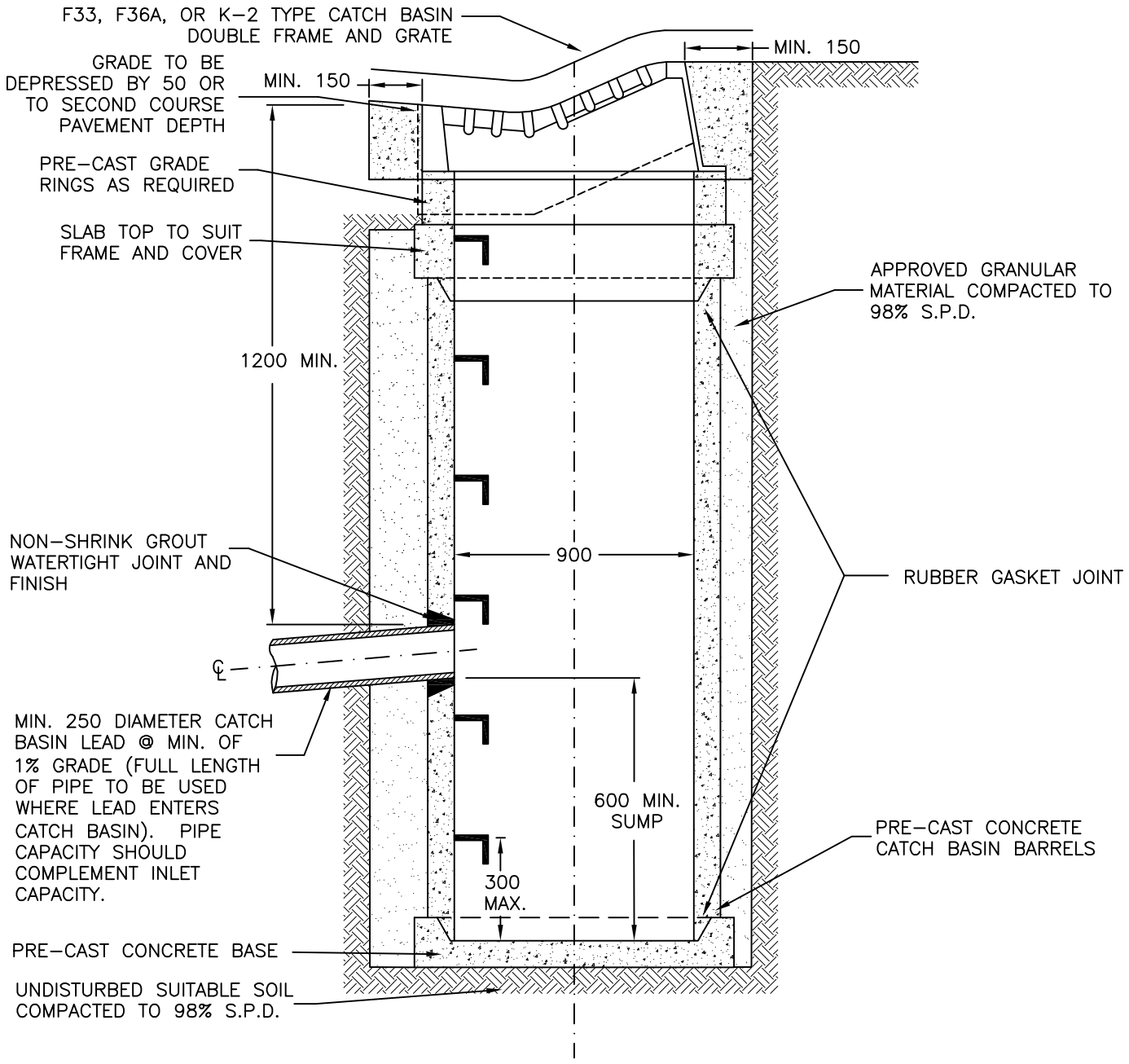
NOTES:

1. ALL PRE–CAST MANHOLES MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
2. POURED–IN–PLACE CONCRETE SHALL HAVE A 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25MPa.
3. ALL JOINTS TO BE SET WITH RUBBER GASKETS AND SET WITH NON–SHRINK GROUT, INSIDE AND OUT, FOR THE FULL CIRCUMFERENCE.
4. FORM FLOW TROUGH IN PARTIALLY SET CONCRETE AND TROWEL SMOOTH.
5. PIPES TO BE FLUSH WITH WALL.
6. MAX. DIST. FROM RIM TO TOP RUNG IS 800mm.
7. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIAL AND COMPACT TO 98% S.P.D.
8. FLAT TOP SECTION TO BE USED FOR MANHOLES UP TO 1.8m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0m IN DEPTH OR GREATER, A SAFETY PLATFORM SHALL BE INSTALLED.
11. MANHOLES TO MEET REQUIREMENTS OF MANHOLE DETAILS AND SPECIFICATIONS.
12. DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
13. CHANNELING AND BENCHING TO BE FINISHED TO TROWEL SMOOTHNESS.
14. SAFETY STEPS TO BE PROVIDED, SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BASE.

TITLE:

CATCH BASIN MANHOLE

STANDARD DETAILS	
SCALE: N.T.S.	
DATE: SEPTEMBER 2010	
STD. DWG NO.	7–100



NOTES:

1. SAFETY STEPS TO BE SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BENCHING.
2. PRE-CAST CONCRETE COMPONENTS TO MEET CURRENT A.S.T.M. C478 STANDARDS.
3. CAST-IN-PLACE-CONCRETE TO BE 25MPa AT 28 DAYS.
4. ALL JOINTS TO BE WATERTIGHT; SET WITH RUBBER GASKET WITH NON-SHRINK GROUT INSIDE AND OUTSIDE FOR THE FULL CIRCUMFERENCE. THIS INCLUDES JOINTS BETWEEN GRADE RINGS, GRADE RINGS AND FRAMES, AND BETWEEN GRADE RINGS AND SLAB TOPS.
5. PRE-CAST CONCRETE BASE THICKNESS AND REINFORCEMENT MUST BE DESIGNED FOR THE SPECIFIC CATCHBASIN DEPTH ANS SOIL CONDITIONS.
6. JOINTS BETWEEN GRADE RINGS, GRADE RINGS AND CONES, AND RINGS AND FRAMES MUST BE WATERTIGHT. RAM NECK MATERIAL FINISHED MATERIAL FINISHED WITH NON-SHRINK GROUT MAY BE USED IF WATERTIGHT JOINTS CAN BE ACHEIVED.
7. WICK DRAINS TO CONNECT TO CATCH BASIN SUCH AS TO ENSURE WATERTIGHT JOINTS.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

TITLE:

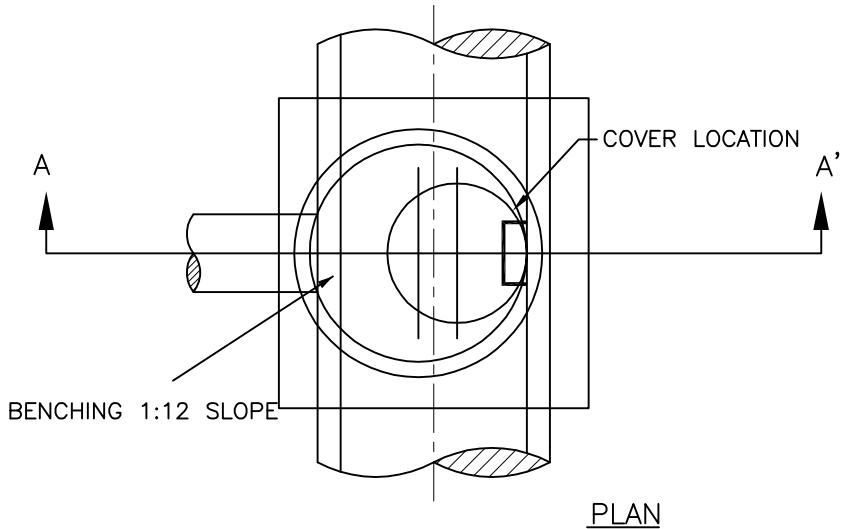
CATCH BASIN TYPICAL 900mm

STANDARD DETAILS

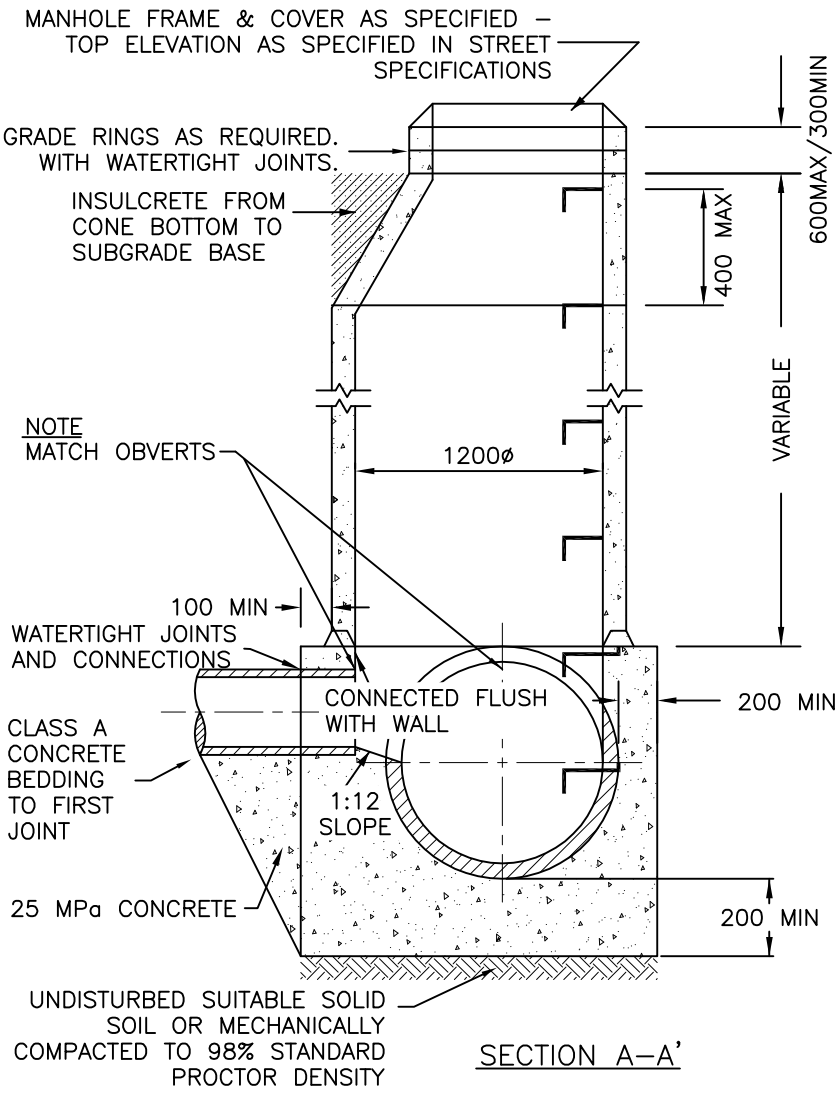
SCALE: N.T.S.

DATE: SEPTEMBER 2010

STD. DWG NO. 7-101



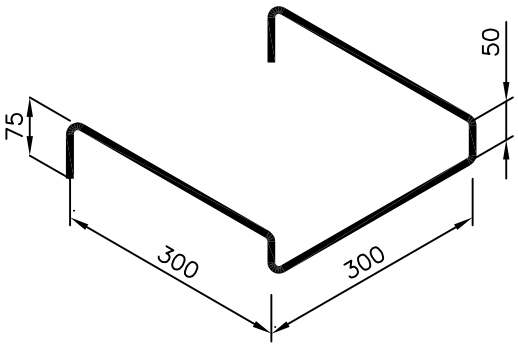
PLAN



SECTION A–A'

NOTES:

1. PRE–CAST CONCRETE COMPONENTS MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
2. POURED–IN–PLACE CONCRETE TO HAVE 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25MPa.
3. ALL JOINTS TO BE SET WITH RUBBER GASKET AND FINISHED WITH NON–SHRINK GROUT, INSIDE AND OUTSIDE, FOR THE FULL CIRCUMFERENCE.
4. FORM FLOW TROUGH IN PARTIALLY SET CONCRETE AND TROWEL SMOOTH.
5. ALL DIMENSIONS GIVEN IN MILLIMETRES UNLESS OTHERWISE STATED.
6. MAX. DIST. FROM RIM TO TOP RUNG IS 800.
7. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIAL COMPACT TO 98% S.P.D.
8. FLAT TOP SECTION TO BE USED FORMANHOLES UP TO 1.8m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0m IN DEPTH OR GREATER, A SAFETY PLATFORM SHALL BE INSTALLED.
11. MANHOLES TO MEET REQUIREMENTS OF MANHOLE DETAILS AND SPECIFICATIONS.
12. SAFETY STEPS TO BE SPACED AT 400 MAX. DISTANCE. FIRST STEP TO BE 150 MAX. BELOW FRAME, LAST STEP TO BE 300 MAX. ABOVE BENCHING.
13. CHANNELLING AND BENCHING TO BE FINISHED TO TROWEL SMOOTHNESS.



20ø GALVANIZED IRON MANHOLE USAFETY STEPS

TITLE:

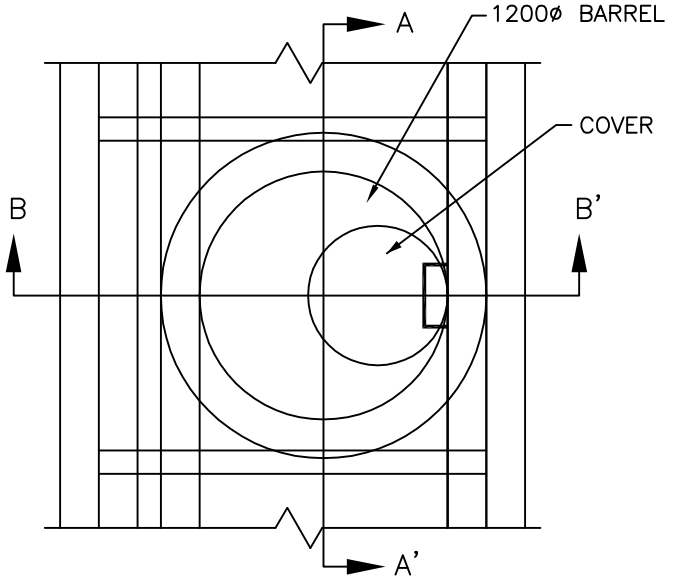
TYPICAL PERCHED MANHOLE FOR 600 TO 1050mm DIAMETER PIPES

STANDARD DETAILS

SCALE: N.T.S.

DATE: SEPTEMBER 2010

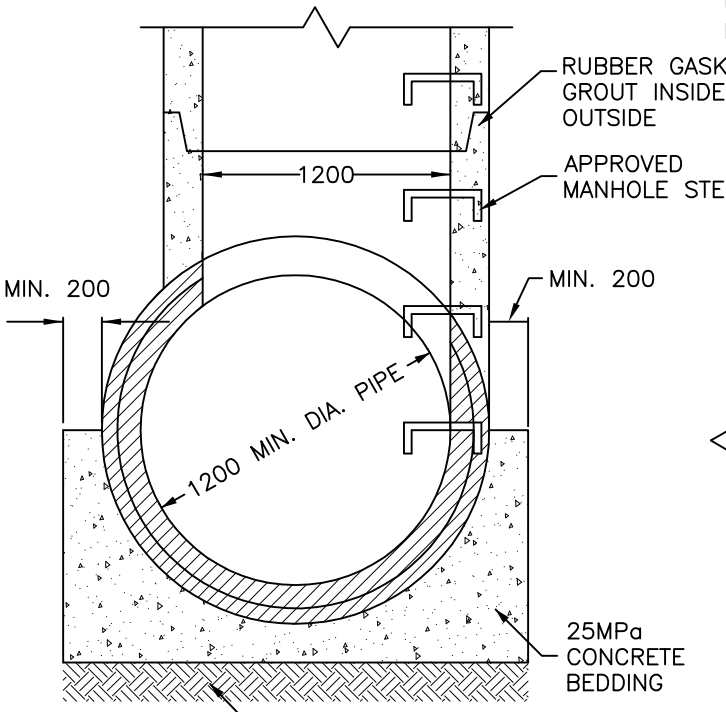
STD. DWG NO. 7–102



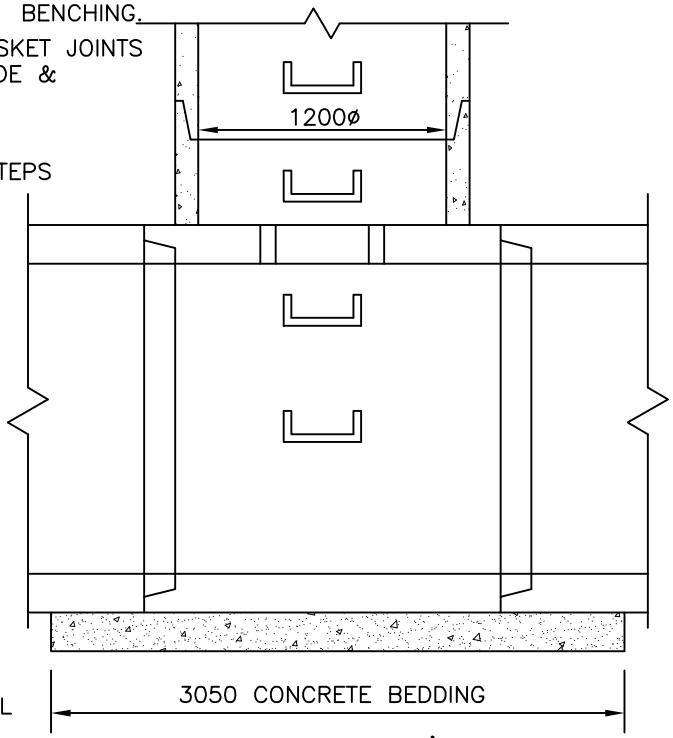
PLAN

NOTES:

1. THIS TYPE OF MANHOLE IS TO BE BUILT ONLY ON MAINS OF 1200 DIAMETER OR LARGER AND WHERTHERE IS NO CHANGE IN DIRECTION OF FLOW.
2. ALL PRE-CAST MANHOLES MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
3. POURED-IN-PLACE CONCRETE SHALL HAVE A 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25MPa.
4. ALL JOINTS TO BE SET WITH RUBBER GASKETS AND SET WITH NON-SHRINK GROUT, INSIDE AND OUT, FOR THE FULL CIRCUMFERENCE.
5. FORM FLOW TROUGH IN PARTIALLY SET CONCRETE AND TROWEL SMOOTH.
6. ALL DIMENSIONS GIVEN IN MILLIMETRES UNLESS OTHERWISE STATED.
7. MAX. DIST. FROM RIM TO TOP RUNG IS 800mm.
8. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIALS AND COMPACT TO 98% S.P.D.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0m IN DEPTH OR GREATER, A SAFETY PLATFORM SHALL BE INSTALLED.
11. MANHOLES TO MEET REQUIREMENTS OF MANHOLE DETAILS AND SPECIFICATIONS.
12. SEE DETAIL C-4 FOR TOP OF MANHOLE AND STEP DETAILS.
13. SAFETY STEPS TO BE SPACED AT 400 MAX. DISTANCE. FIRST STEP TO BE 150 MAX. BELOW FRAME, LAST STEP TO BE MAX. 300 ABOVE BENCHING.



SECTION B-B'



SECTION A-A'

TITLE:

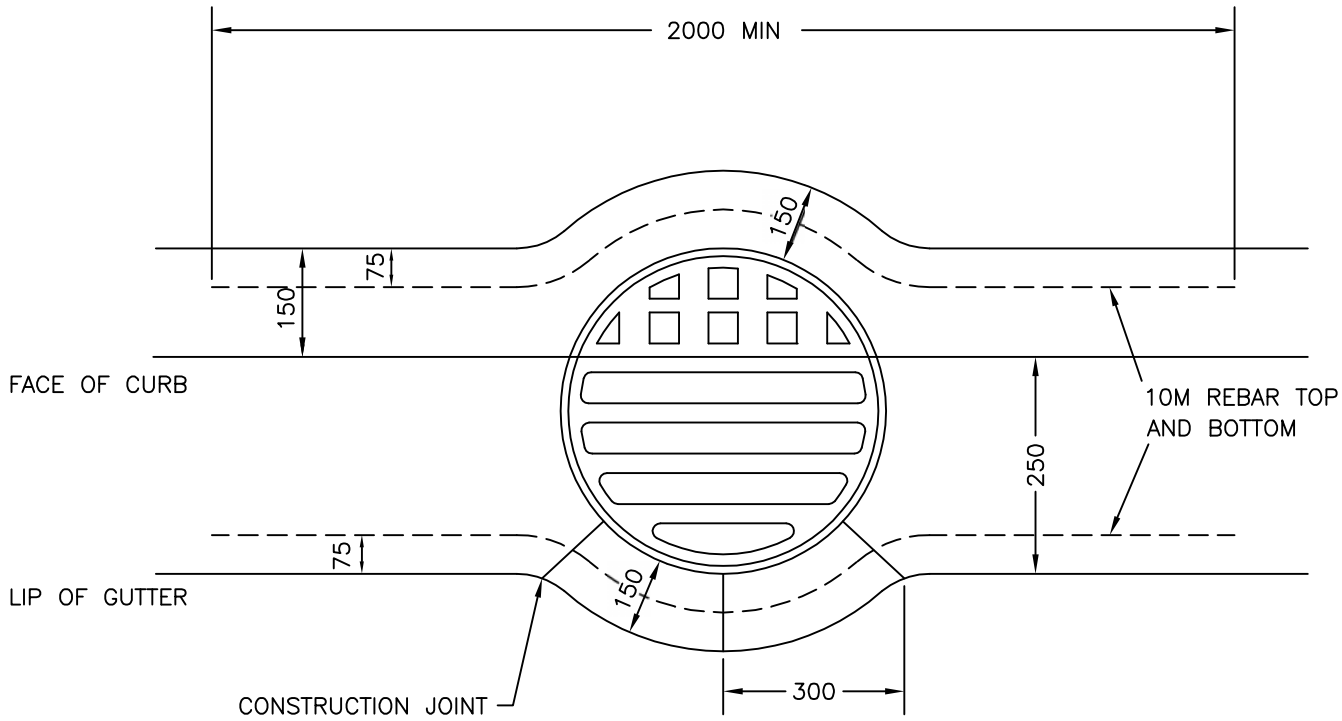
T-RISER MANHOLE FOR PIPES 1200mm AND LARGER

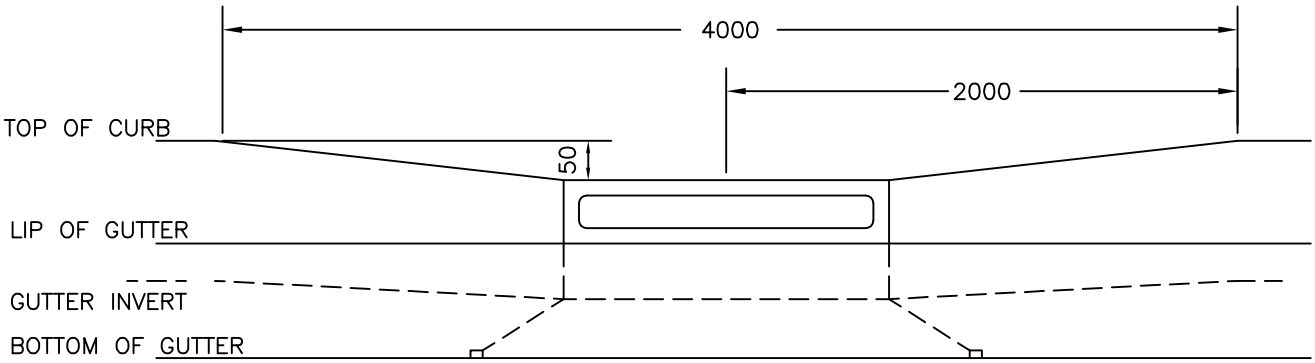
STANDARD DETAILS

SCALE: N.T.S.

DATE: SEPTEMBER 2010

STD. DWG NO. 7-103





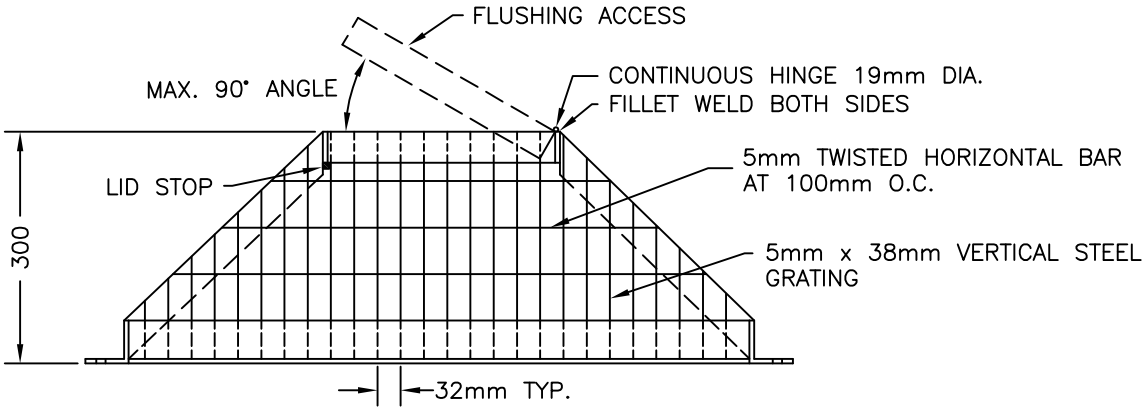
NOTE:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

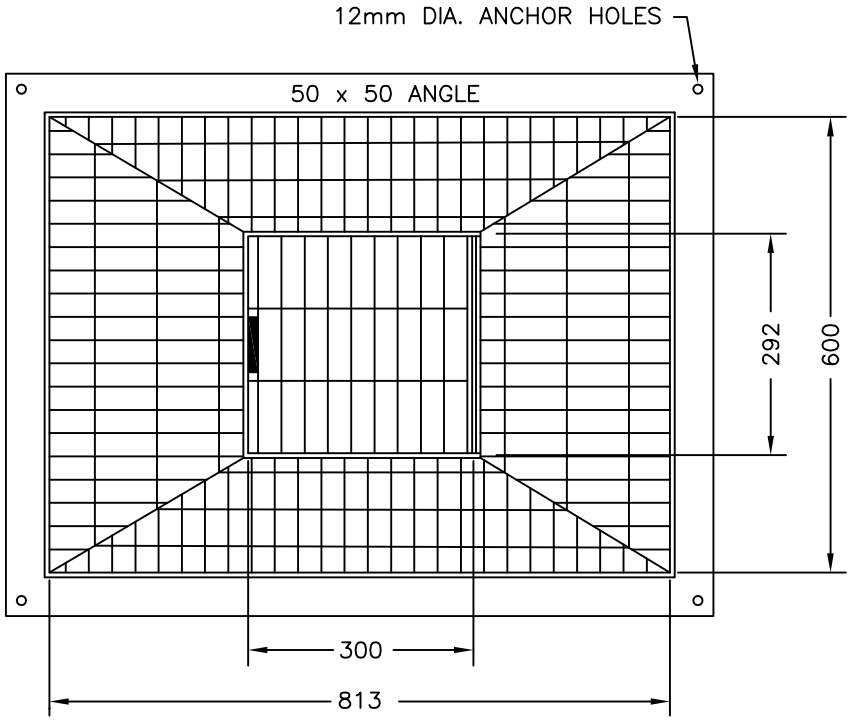
TITLE:

TYPICAL CATCH BASIN INSTALLATION 150 CURB & 250 GUTTER

STANDARD DETAILS	
SCALE: N.T.S.	
DATE: SEPTEMBER 2010	
STD. DWG NO.	7–200



PROFILE



PLAN VIEW

NOTES:

1. DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. GALVANIZED STEEL MATERIAL.

TITLE:

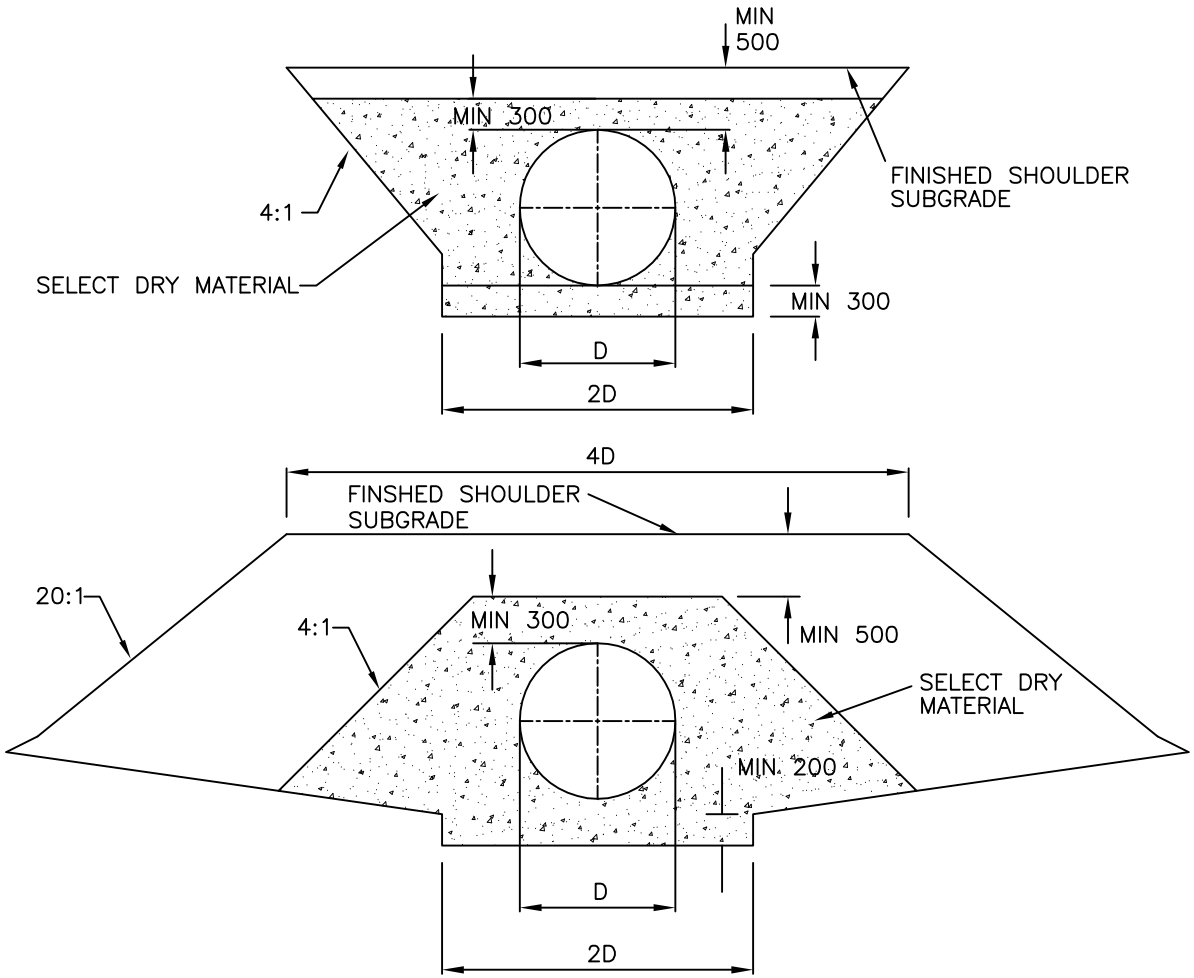
TRASH GRATE INLET

STANDARD DETAILS

SCALE: N.T.S.

DATE: SEPTEMBER 2010

STD. DWG NO. 7-300



1. SELECT DRY MATERIAL SHALL BE PLACED IN 150mm COMPACTED LIFTS. A 600mm CLAY PLUG SHALL BE PLACED ON INLET AND OUTLET ENDS OF THE PIPE.
2. IN SOFT WET AREAS (IE MUSKEG) DEPTH OF SUBCUT BELOW THE PIPE WILL BE DETERMINED BY THE DEVELOPERS ENGINEER AS APPROVED BY THE DIRECTOR.
3. WHEN PIPES ARE PLACED PRIOR TO EMBANKMENT CONSTRUCTION, A MINIMUM OF 1000mm OF MATERIAL SHALL BE PLACED OVER TOP OF PIPES FOR PROTECTION DURING CONSTRUCTION.
4. ALL CULVERT INVERTS WILL BE STAKED IN THE FIELD BY THE DEVELOPERS ENGINEER.
5. GEOTEXTILE FABRIC TO BE WOVEN POLYPROPYLENE MONOFILAMENT WHICH FORMS A DIMENSIONALLY STABLE CONSTRUCTION FABRIC AND WITH A MINIMUM OPEN PERCENTAGE OF 10%.

ALL UNITS ARE mm UNLESS OTHERWISE NOTED

TITLE:

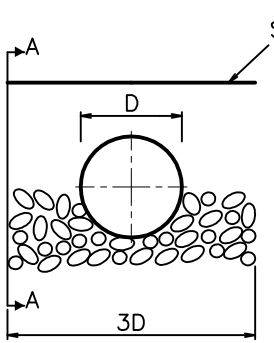
TYPICAL CULVERT INSTALLATION

STANDARD DETAILS

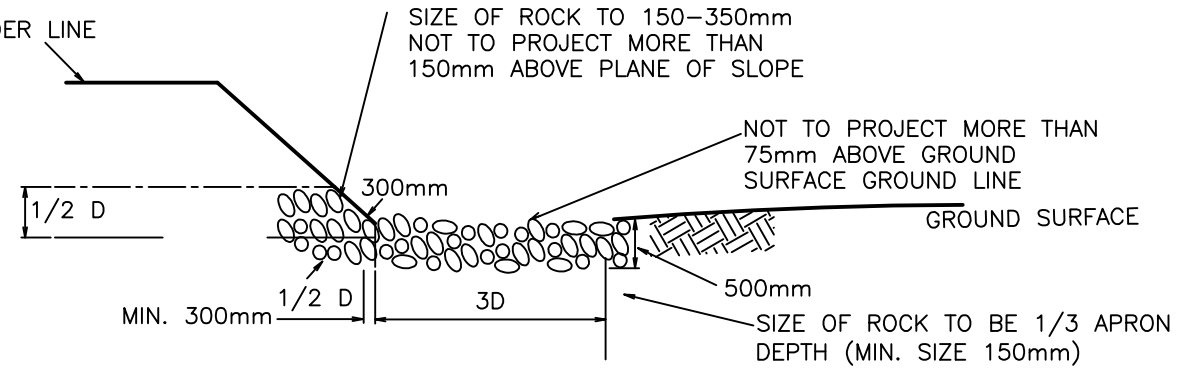
SCALE: N.T.S.

DATE: SEPTEMBER 2010

STD. DWG NO. 7-301

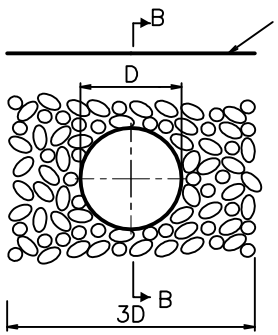


FRONT ELEVATION – OUTLET

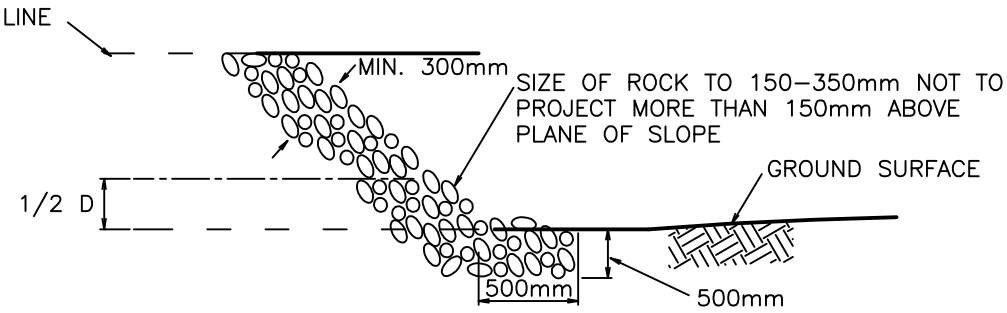


SECTION A–A

OUTLET



FRONT ELEVATION – INLET



SECTION B–B

INLET

D	400	500	600	700	800	900	1000	1200
APRON DEPTH	500					600		

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS

TITLE:

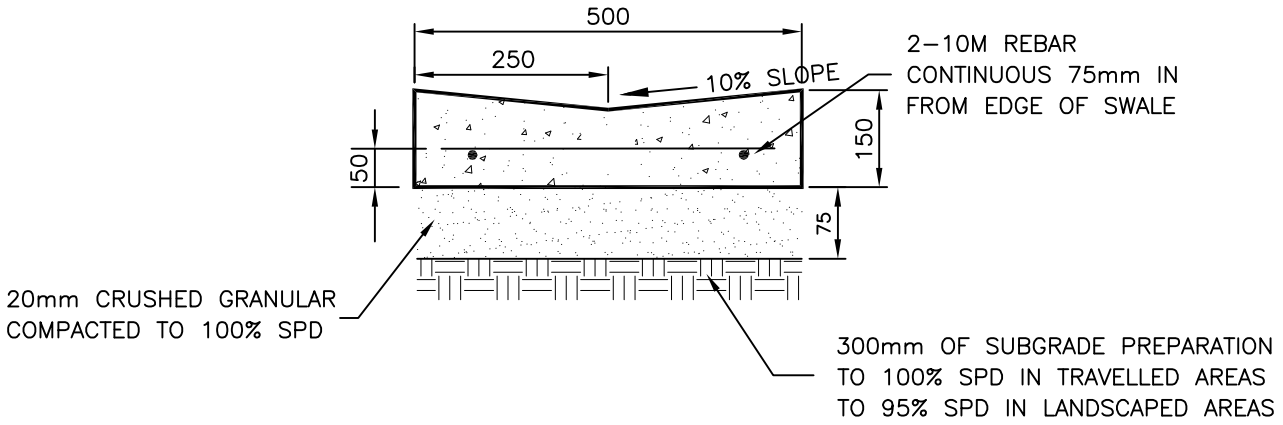
TYPICAL RIP–RAP FOR CULVERT SIZE 400–1200 DIA

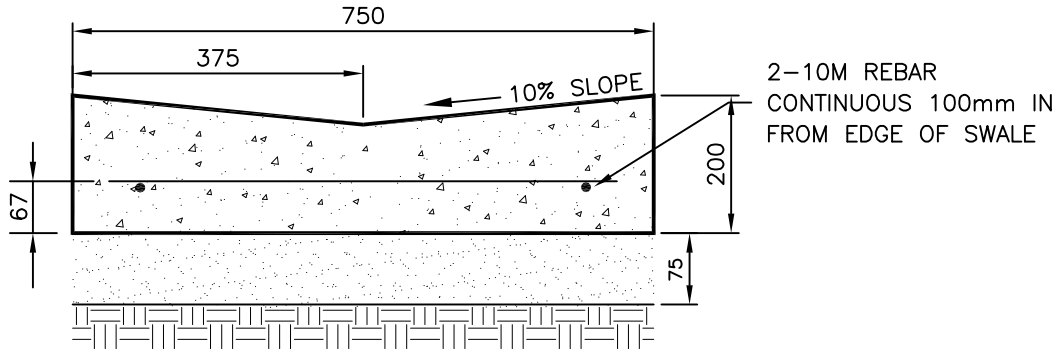
STANDARD DETAILS

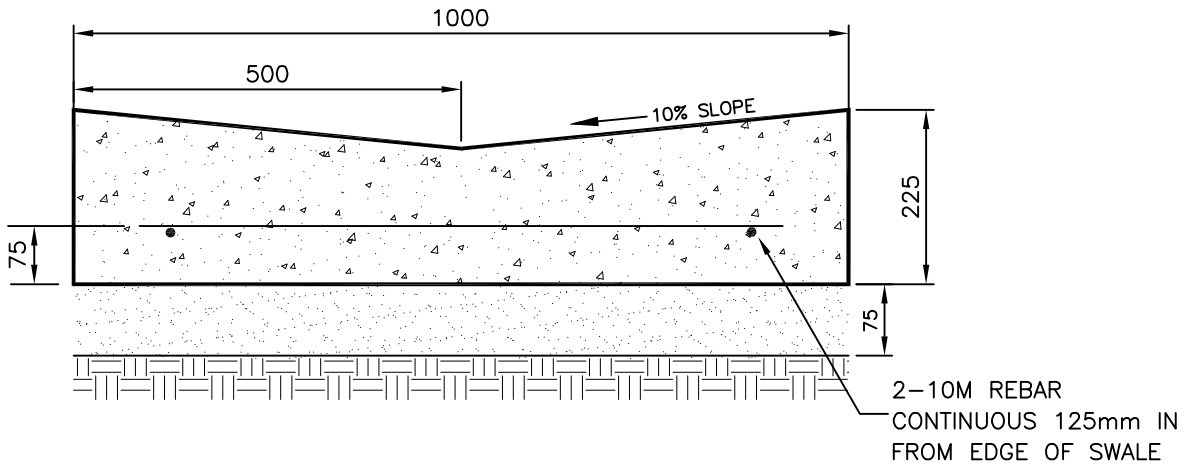
SCALE: N.T.S.

DATE: SEPTEMBER 2010

STD. DWG NO. 7–302







NOTES:

1. REINFORCING BARS ARE REQUIRED AT CONSTRUCTION JOINTS AND FUTURE TIE–IN LOCATIONS.
2. REINFORCING BARS SHALL EXTEND INTO CONCRETE A MINIMUM OF 300mm.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. CONCRETE TO MEET REQUIREMENTS OF SPECIFICATIONS.

TITLE:

CONCRETE DRAINAGE SWALE

STANDARD DETAILS	
SCALE: N.T.S.	
DATE: SEPTEMBER 2010	
STD. DWG NO.	7–400