



COUNTY OF LETHBRIDGE  
MUNICIPAL SERVICES  
#100, 905 4<sup>TH</sup> AVENUE SOUTH

CONSTRUCTION  
COMPLETION  
CERTIFICATE  
FORM A-101

Development Application No: \_\_\_\_\_

Developer: \_\_\_\_\_

Contractor: \_\_\_\_\_

Municipal Improvement: \_\_\_\_\_

Location of Municipal Improvement: \_\_\_\_\_  
(Or see attached location plan)

Date of Application for Construction Completion: \_\_\_\_\_

PURSUANT TO THE DEVELOPMENT AGREEMENT, I \_\_\_\_\_ OF THE FIRM \_\_\_\_\_  
"CONSULTING ENGINEERS", HEREBY CERTIFY COMPLIANCE WITH THE SERVICING STANDARDS AS SET OUT IN THE DEVELOPMENT  
AGREEMENT, AND I HEREBY RECOMMEND APPROVAL FOR THE MUNICIPAL IMPROVEMENTS.

\_\_\_\_\_  
Project Engineer (Consulting Engineering Firm)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signing Officer (Consulting Engineering Firm)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Authorized County Inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date Approved

\_\_\_\_\_  
Director of Municipal Services

\_\_\_\_\_  
Date Conditionally Approved

\_\_\_\_\_  
Director of Municipal Services

Reason for conditional approval: (see attached report) \_\_\_\_\_

\_\_\_\_\_  
Date Rejected

\_\_\_\_\_  
Director of Municipal Services

Reason for rejection: (see attached report) \_\_\_\_\_

I HEREBY CERTIFY THAT THE ITEMS LISTED AS REASONS FOR CONDITIONAL APPROVAL OR FOR REJECTION HAVE BEEN CORRECTED.

\_\_\_\_\_  
Project Engineer (Consulting Engineering Firm)

\_\_\_\_\_  
Date

Approved: \_\_\_\_\_  
Director of Municipal Services

\_\_\_\_\_  
Date

Date Maintenance Period to Start: \_\_\_\_\_

Scheduled Maintenance Expiry Date: \_\_\_\_\_



COUNTY OF LETHBRIDGE  
MUNICIPAL SERVICES  
#100, 905 4<sup>TH</sup> AVENUE SOUTH

FINAL  
ACCEPTANCE  
CERTIFICATE  
FORM A-102

Development Application No: \_\_\_\_\_

Developer: \_\_\_\_\_

Contractor: \_\_\_\_\_

Municipal Improvement: \_\_\_\_\_

Location of Municipal Improvement: \_\_\_\_\_  
(Or see attached location plan)

Date of Application for Final Acceptance: \_\_\_\_\_

Scheduled Maintenance Expiry Date: \_\_\_\_\_

PURSUANT TO THE DEVELOPMENT AGREEMENT, I \_\_\_\_\_ OF THE FIRM \_\_\_\_\_  
"CONSULTING ENGINEERS", HEREBY CERTIFY THAT AS OF THE ABOVE DATE, THE SAID MUNICIPAL IMPROVEMENT MEETS ALL THE  
REQUIREMENTS FOR FINAL ACCEPTANCE AS SPECIFIED BY DEVELOPMENT AGREEMENT, AND I HEREBY RECOMMEND THIS  
MUNICIPAL IMPROVEMENT FOR FINAL ACCEPTANCE.

\_\_\_\_\_  
Project Engineer (Consulting Engineering Firm)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signing Officer (Consulting Engineering Firm)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Authorized County Inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date Approved

\_\_\_\_\_  
Director of Municipal Services

\_\_\_\_\_  
Date Rejected

\_\_\_\_\_  
Director of Municipal Services

Reason for rejection: (see attached report) \_\_\_\_\_

I HEREBY CERTIFY THAT THE ITEMS LISTED AS REASONS FOR REJECTION HAVE BEEN CORRECTED.

\_\_\_\_\_  
Project Engineer (Consulting Engineering Firm)

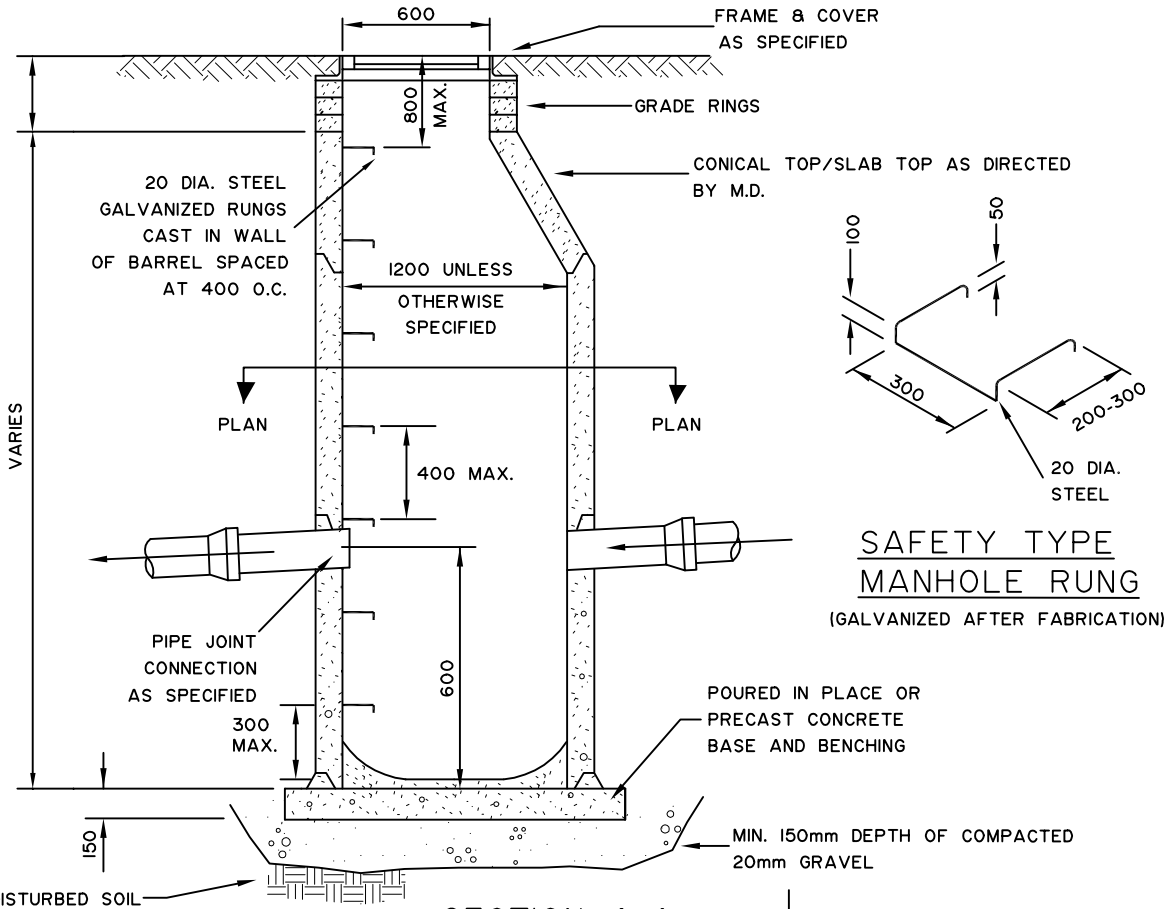
\_\_\_\_\_  
Date

Approved: \_\_\_\_\_  
Director of Municipal Services

\_\_\_\_\_  
Date

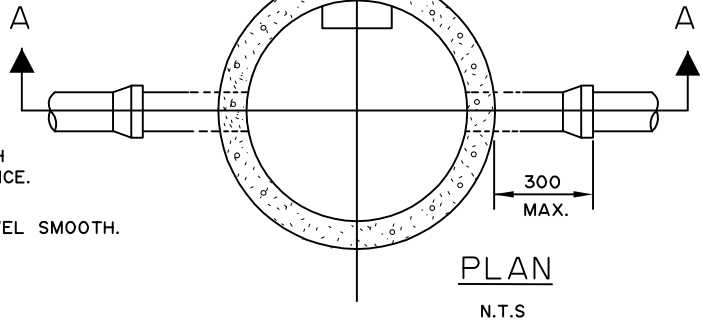
Date Maintenance Period to Expire: \_\_\_\_\_

450 MAX FROM FINISHED GRADE TO TOP OF COVER OR SLAB TOP



**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 25 MPa.
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 800 mm.
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 1.8 m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0 m 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

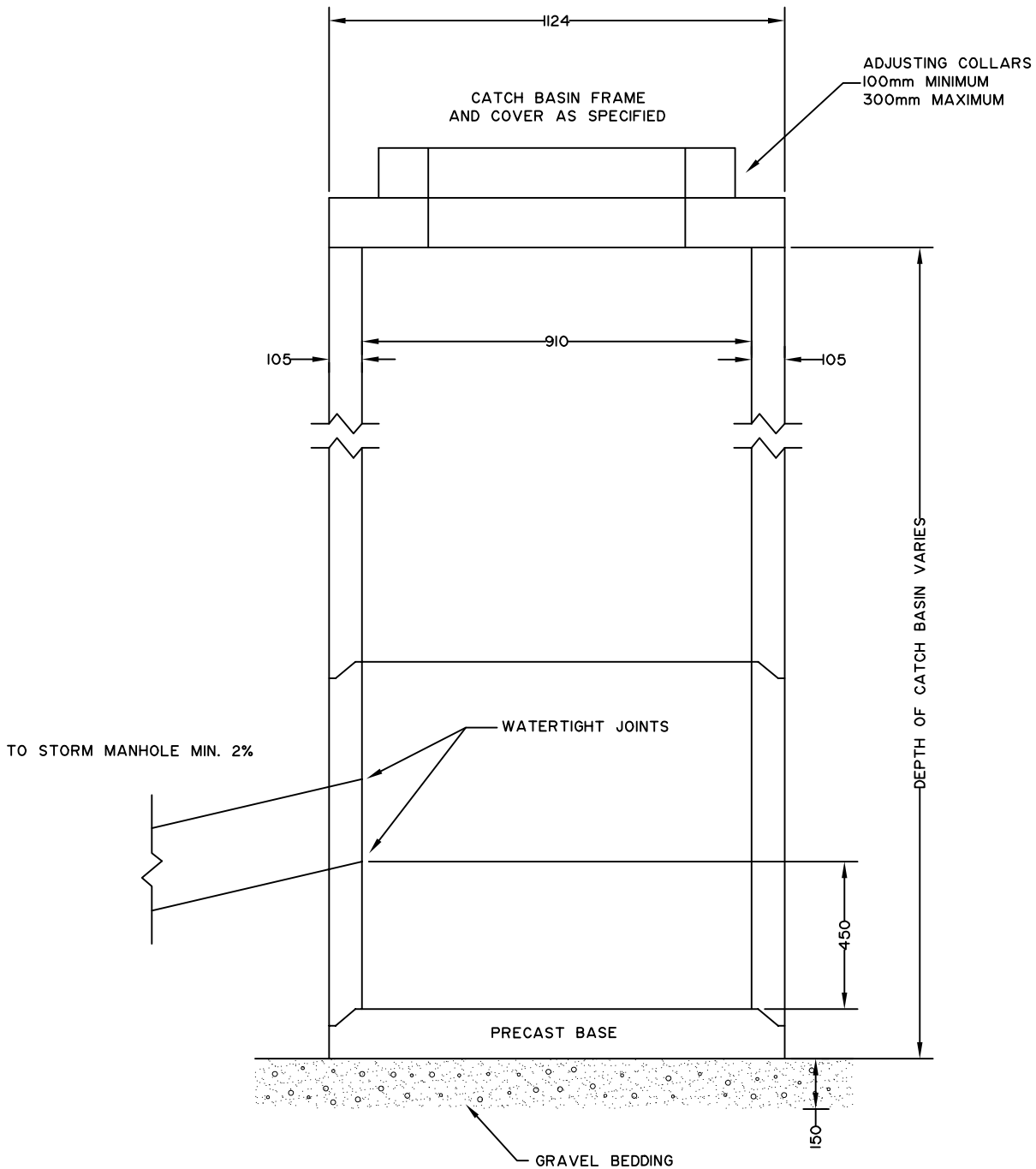
SCALE: N.T.S.

DATE: FEBRUARY 2009

STD. DWG NO. C-101

APPROVED BY:

DIRECTOR OF MUNICIPAL SERVICES



**NOTES:**

1. SAFETY STEPS TO BE PROVIDED, SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME; LAST STEP 300 MAX. ABOVE BASE.
2. PRE-CAST CONCRETE COMPONENTS MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
3. POURED-IN-PLACE CONCRETE SHALL HAVE A 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25 MPa.
4. ALL JOINTS TO BE SET WITH RUBBER GASKETS AND NON-SHRINK GROUT, INSIDE AND OUT, FOR THE FULL CIRCUMFERENCE.
5. ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED.
6. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.



TITLE:

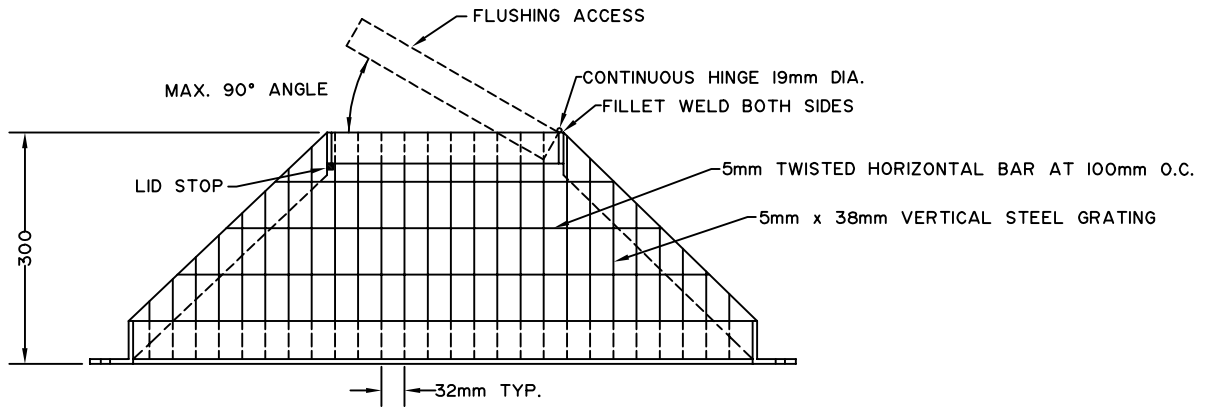
STORM CATCH BASIN ASSEMBLY  
c/w 450mm SUMP

SCALE: N.T.S.

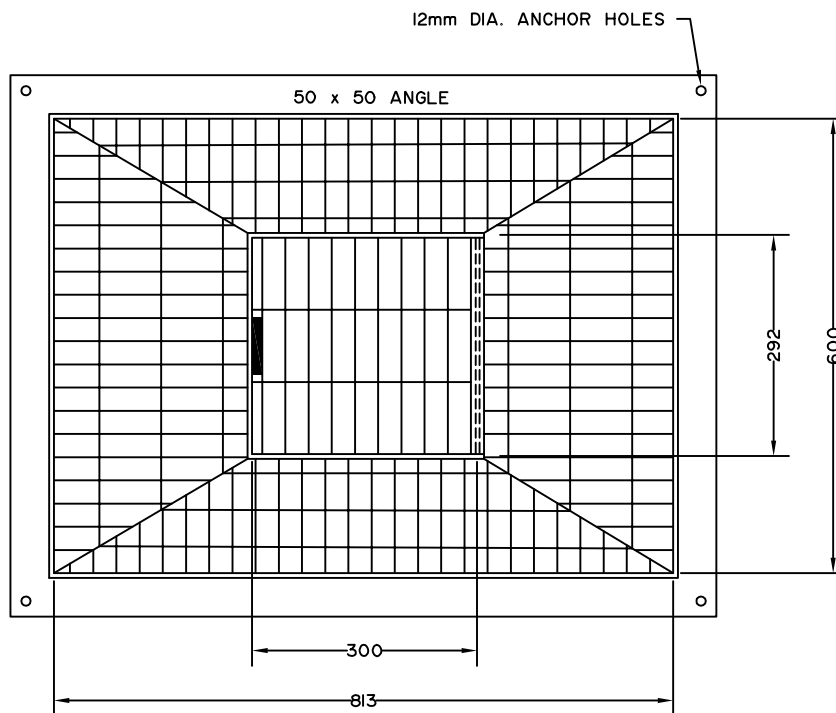
DATE: FEBRUARY, 2009

STD. DWG NO. C-102

APPROVED BY:  DIRECTOR OF MUNICIPAL SERVICES



PROFILE



PLAN VIEW

**NOTES:**

I. DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.



TITLE:

TRASH GRATE INLET

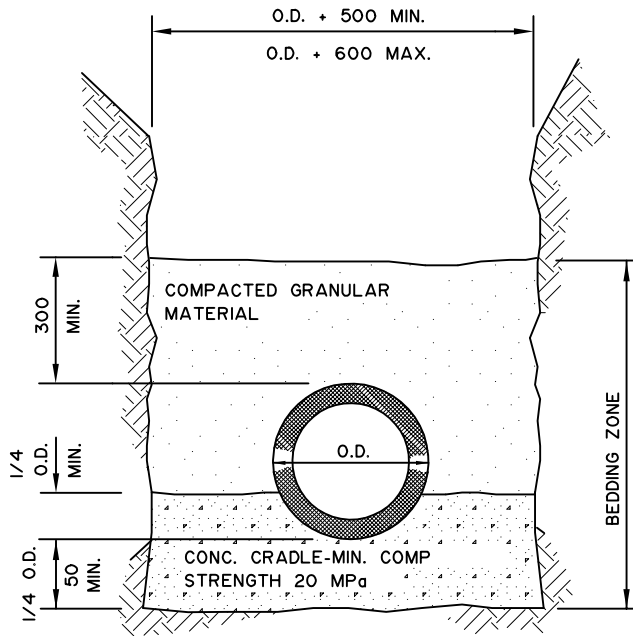
SCALE: N.T.S.

DATE: FEBRUARY, 2009

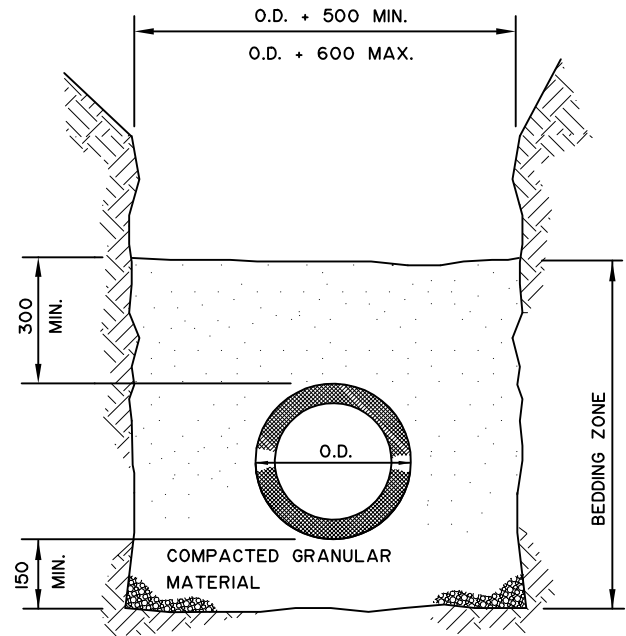
STD. DWG NO. C-103

APPROVED BY: *[Signature]* DIRECTOR OF MUNICIPAL SERVICES

### CLASS 'A' BEDDING



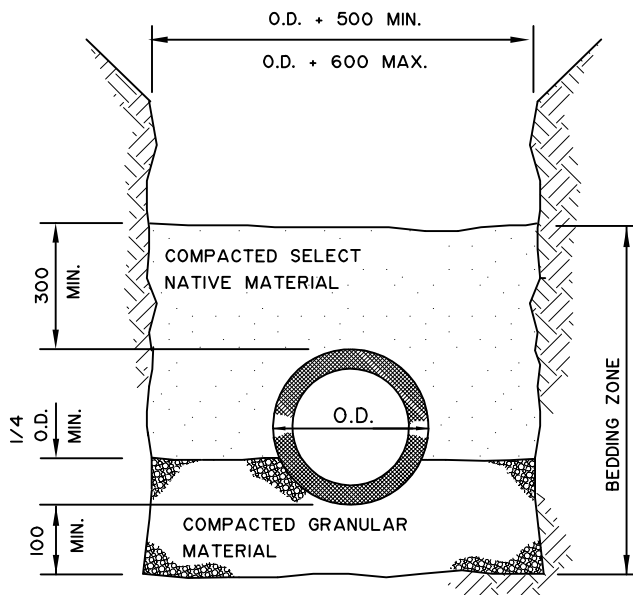
### CLASS 'B' BEDDING



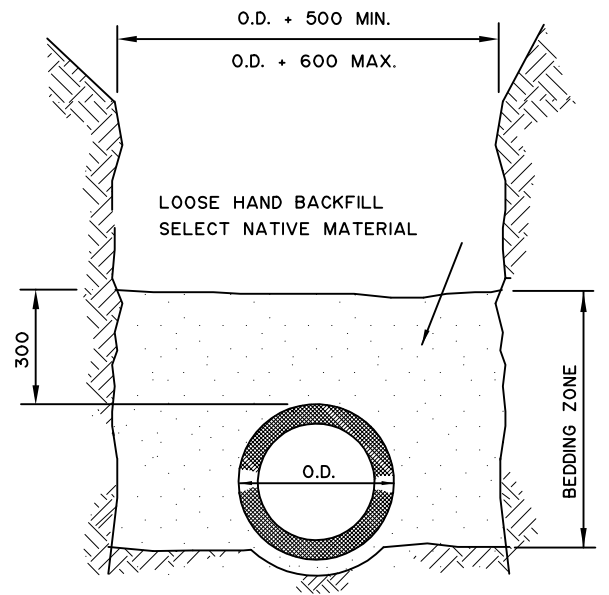
**NOTE:**

1. COMPACTION OF BEDDING ZONE SHALL BE AS PER SPECIFICATIONS. (MIN. 95% S.P.D.)
2. ALL DIMENSIONS ARE GIVEN IN MILLIMETRES UNLESS OTHERWISE STATED.
3. BACKFILL COMPACTION REQUIREMENTS WILL VARY. BACKFILL ABOVE PIPE ZONE TO BE APPROVED MATERIAL.
4. TRENCH SIDE SLOPES TO BE CONSISTENT WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS

### CLASS 'C' BEDDING



### CLASS 'D' BEDDING



TITLE:

PIPE BEDDING DETAILS

SCALE: N.T.S.

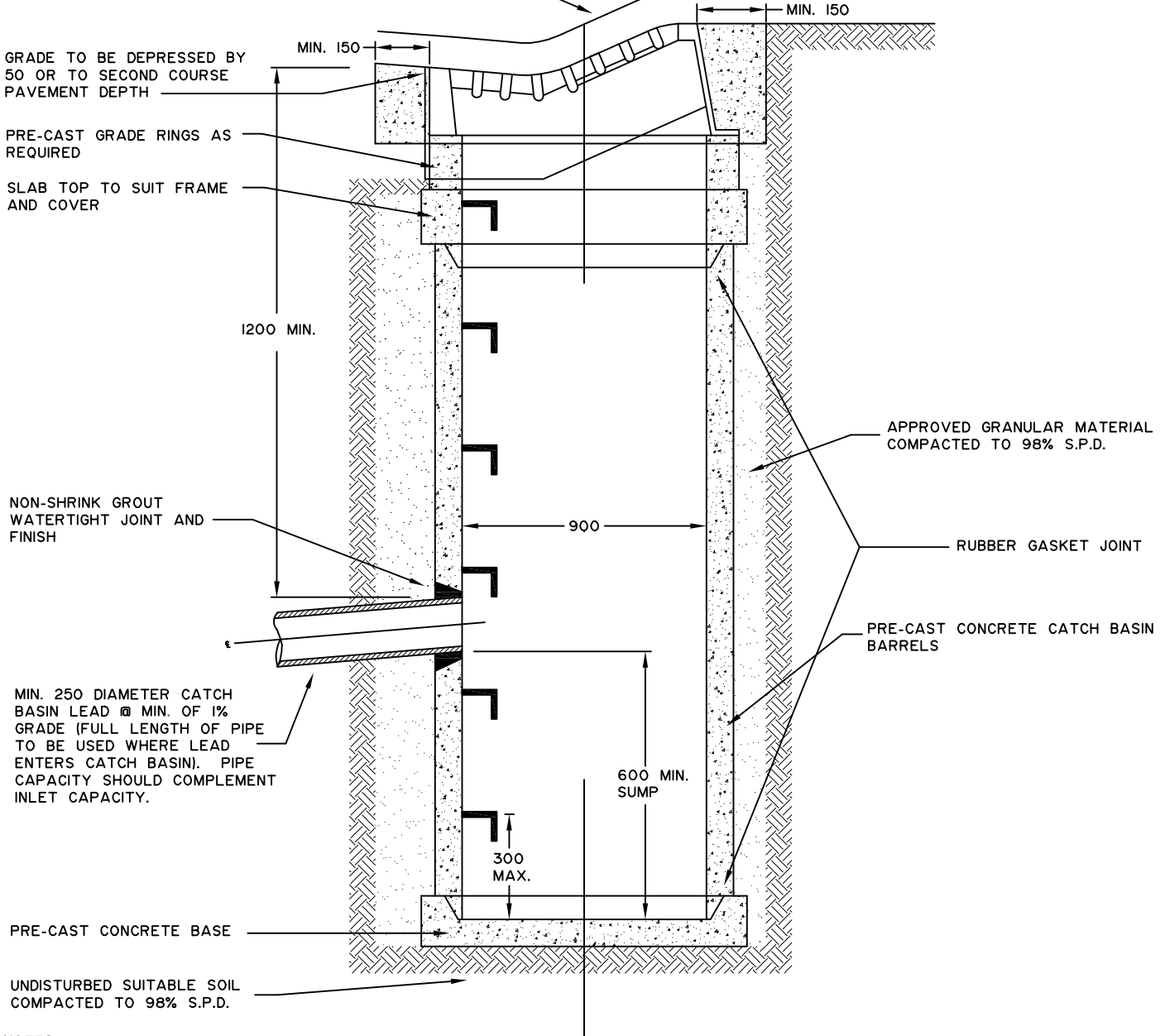
DATE: FEBRUARY, 2009

STD. DWG NO. C-104

APPROVED BY:

DIRECTOR OF MUNICIPAL SERVICES

F33, F36A, OR K-2 TYPE CATCH BASIN DOUBLE FRAME AND GRATE



**NOTES:**

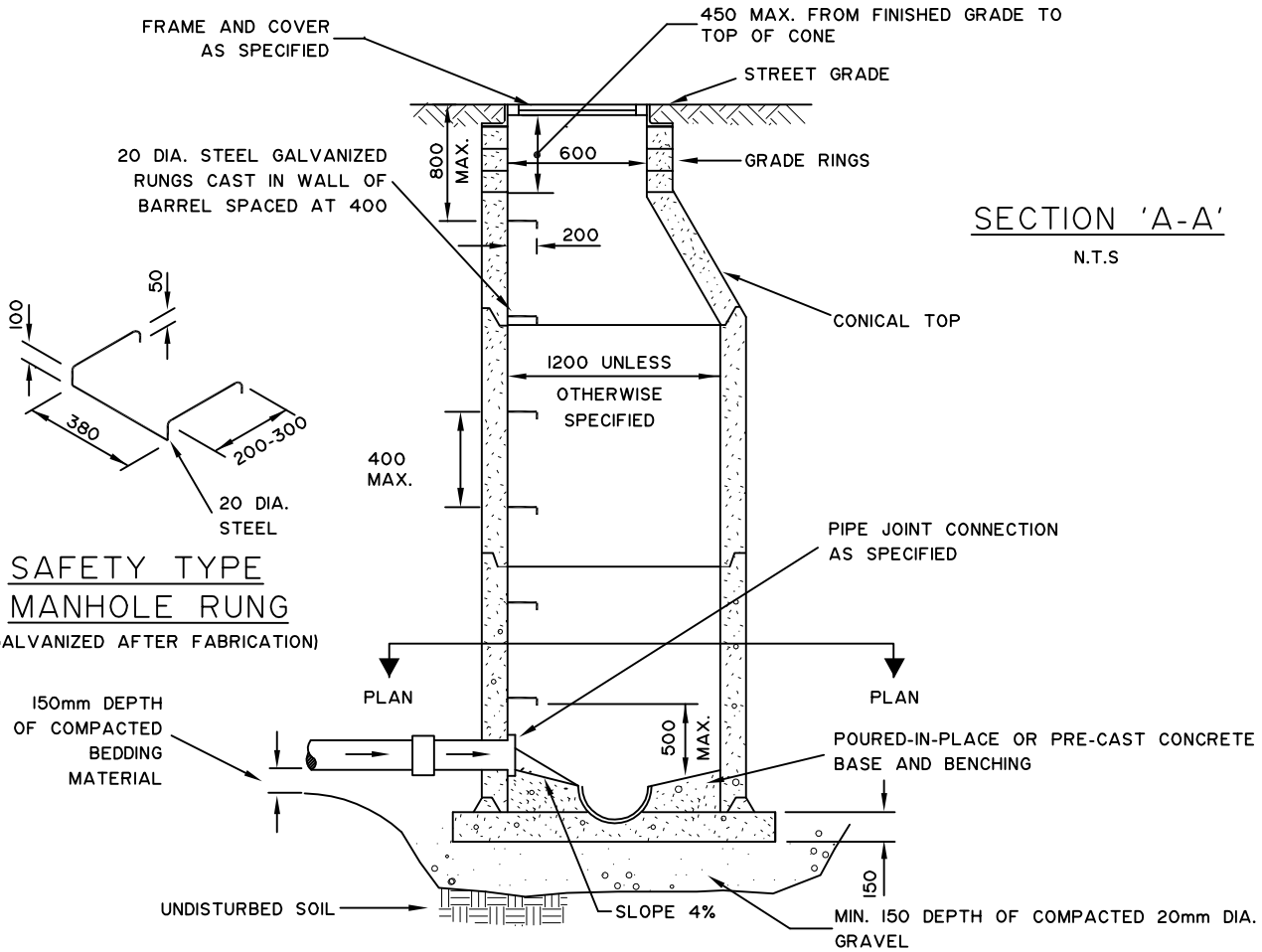
1. SAFETY STEPS TO BE SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BENCHING.
2. PRE-CAST CONCRETE COMPONENTS TO MEET CURRENT A.S.T.M. C478 STANDARDS.
3. CAST-IN-PLACE- CONCRETE TO BE 25 MPa AT 28 DAYS.
4. ALL JOINTS TO BE WATERTIGHT; SET WITH RUBBER GASKET WITH NON-SHRINK 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 AND SOIL CONDITIONS.
6. JOINTS BETWEEN GRADE RINGS, GRADE RINGS AND CONES, AND RINGS AND FRAMES MUST BE WATERTIGHT. RAM NECK MATERIAL FINISHED WITH NON-SHRINK GROUT MAY BE USED IF WATERTIGHT JOINTS CAN BE ACHIEVED.
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 900 mm

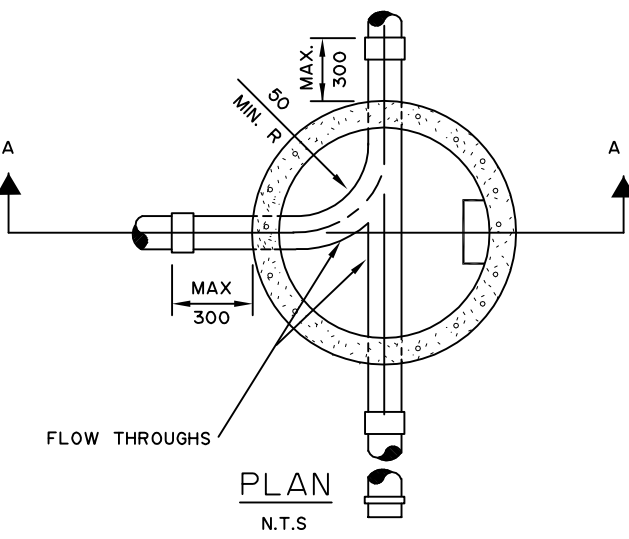
SCALE: N.T.S.	
DATE: FEBRUARY, 2009	
STD. DWG NO.	C-105
APPROVED BY:	DIRECTOR OF MUNICIPAL SERVICES



SECTION 'A-A'  
N.T.S

SAFETY TYPE  
MANHOLE RUNG  
(GALVANIZED AFTER FABRICATION)

150mm DEPTH OF COMPACTED BEDDING MATERIAL



NOTES:

1. ALL PRE-CAST MANHOLES MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
2. POURED-IN-PLACE CONCRETE SHALL HAVE 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25 MPa.
3. ALL JOINTS TO BE SET WITH RUBBER GASKET 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. ALL DIMENSIONS GIVEN IN MILLIMETRES UNLESS OTHERWISE STATED.
6. MAX. DIST. FROM RIM TO TOP RUNG IS 800 mm.
7. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIAL. COMPACT TO 98% S.P.D.
8. FLAT TOP SECTION TO BE USED FOR MANHOLES UP TO 1.8 m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0 m 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 PROVIDED, SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BASE.

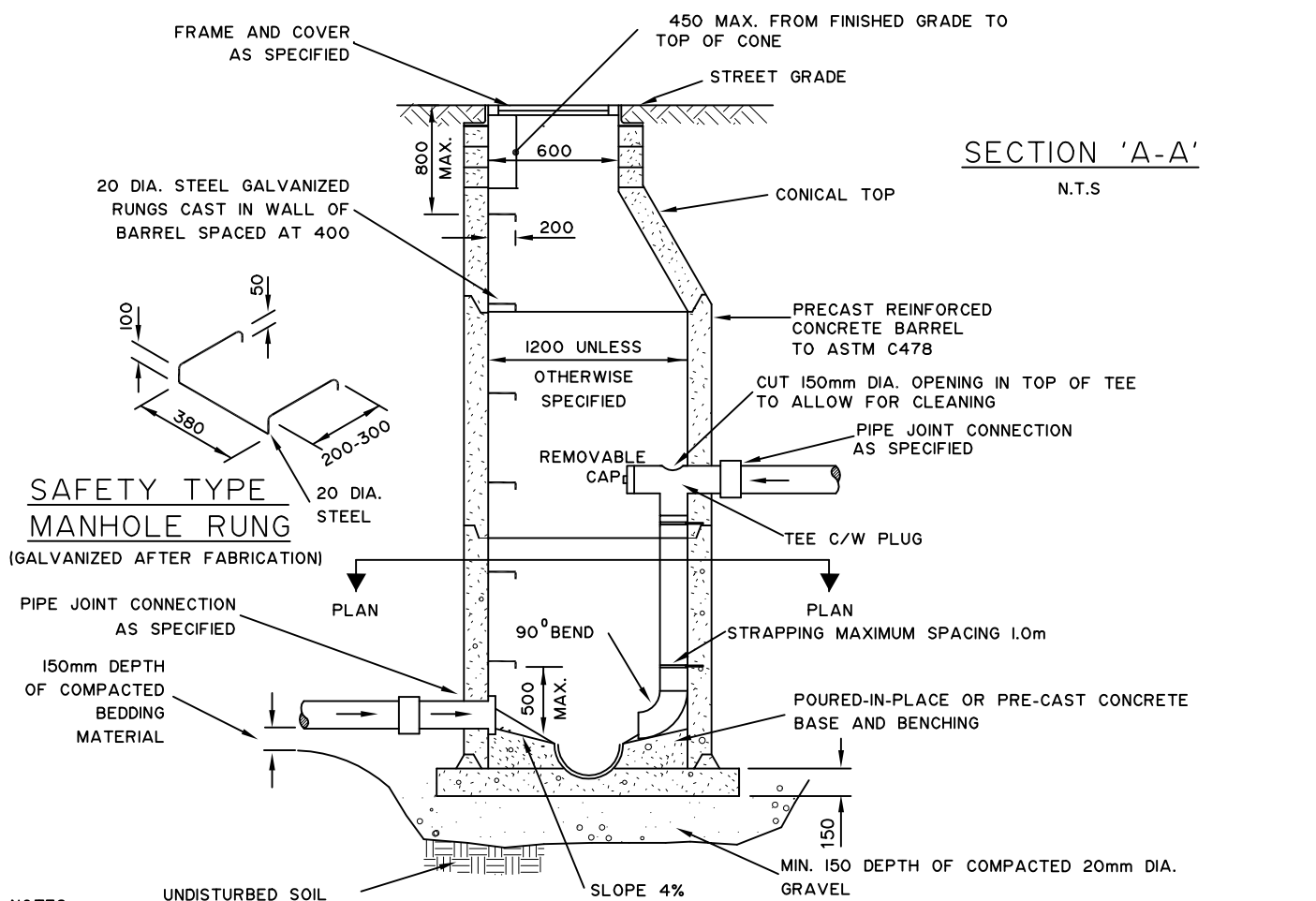


TITLE:  
  
MANHOLE DETAIL  
TYPE 5A PRE-CAST

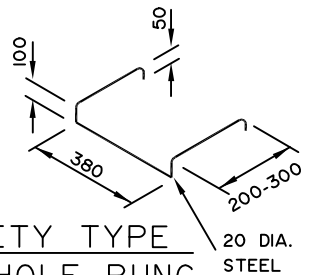
SCALE: N.T.S.  
DATE: FEBRUARY, 2009  
STD. DWG NO. | D-101  
APPROVED BY: *[Signature]* DIRECTOR OF MUNICIPAL SERVICES



SECTION 'A-A'  
N.T.S

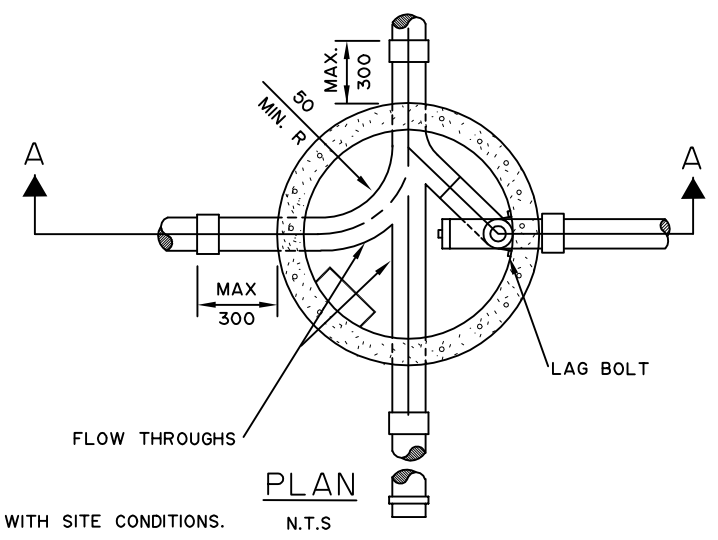


**SAFETY TYPE  
MANHOLE RUNG**  
(GALVANIZED AFTER FABRICATION)



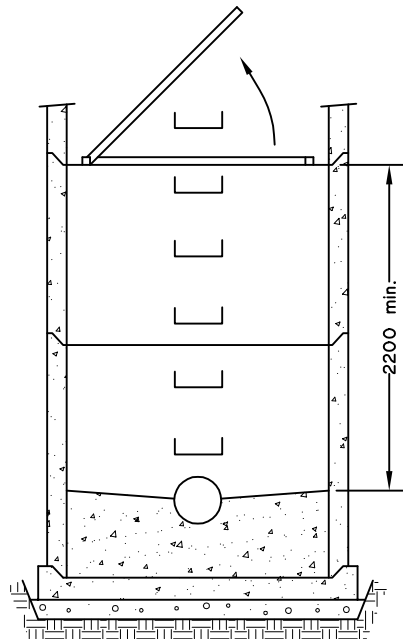
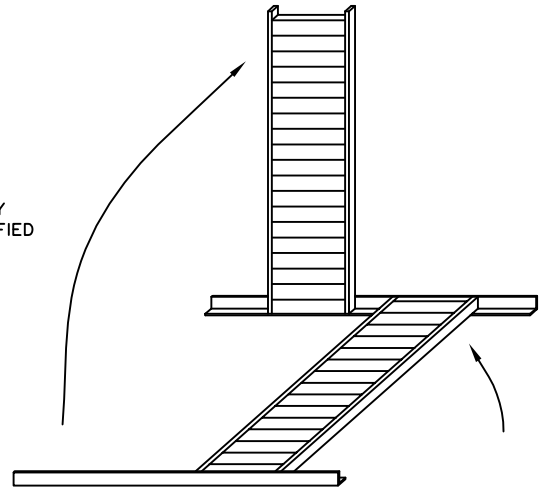
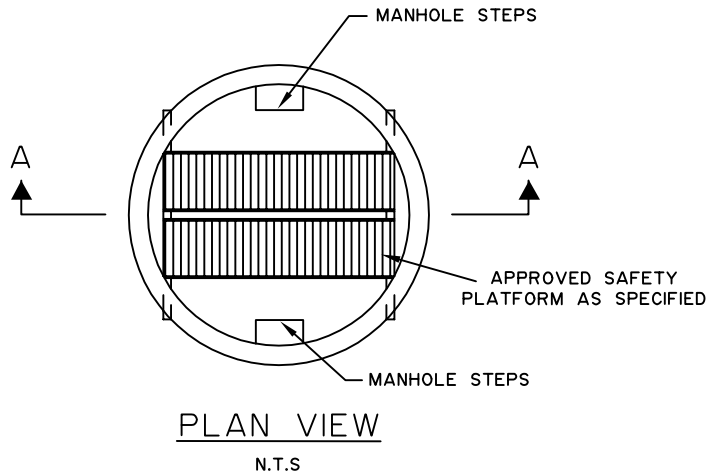
**NOTES:**

1. ALL PRE-CAST MANHOLES MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478.
2. POURED-IN-PLACE CONCRETE SHALL HAVE 28 DAYS COMPRESSIVE STRENGTH OF AT LEAST 25 MPa.
3. ALL JOINTS TO BE SET WITH RUBBER GASKET AND SET WITH NON-SHRINK GROUT, INSIDE AND OUT, FOR THE FULL CIRCUMFERENCE.
4. FORM FLOW THROUGH IN PARTIALLY SET CONCRETE AND TROWEL SMOOTH.
5. ALL DIMENSIONS ARE GIVEN IN MILLIMETRES UNLESS OTHERWISE STATED.
6. MAX. DIST. FROM RIM TO TOP RUNG IS 800 mm.
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 1.8 m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0 m IN DEPTH AND GREATER, A SAFETY PLATFORM SHALL BE INSTALLED.
11. MANHOLES TO MEET REQUIREMENTS OF MANHOLE DETAILS AND SPECIFICATIONS.
12. LAG BOLTS AND STRAPPING ARE TO BE INSTALLED IMMEDIATELY BELOW THE TEE AND A CONTINUAL 1.0 m VERTICAL SPACING TO THE BASE.
13. DIAMETER, SIZE, AND TYPE OF VERTICAL PIPE TO MATCH INLET PIPE.
14. SAFETY STEPS TO BE PROVIDED, SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BASE.



TITLE:  
**INTERIOR DROP MANHOLE DETAIL**

SCALE: N.T.S.  
DATE: FEBRUARY, 2009  
STD. DWG NO. D-102  
APPROVED BY: *[Signature]* DIRECTOR OF MUNICIPAL SERVICES



SECTION 'A-A'

N.T.S

NOTES:

1. TO BE INSTALLED ON MANHOLES GREATER THAN 5.0m DEEP.
2. MAXIMUM SPACING BETWEEN PLATFORMS TO BE 5.0m.
3. ALUMINUM GRATES TO BE MSU MISSISSAUGA OR APPROVED EQUAL.
4. TO BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.



TITLE:

MANHOLE SAFETY PLATFORM

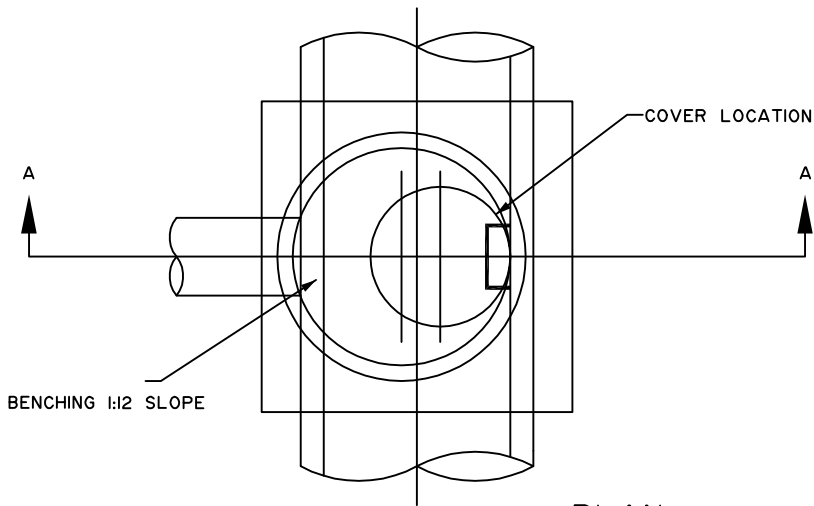
SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. | D-103

APPROVED BY:

DIRECTOR OF MUNICIPAL SERVICES



PLAN

MANHOLE FRAME & COVER  
AS SPECIFIED - TOP ELEVATION  
AS SPECIFIED IN STREET SPECIFICATIONS

GRADE RINGS AS REQUIRED.  
WITH WATERTIGHT JOINTS.

INSULCRETE FROM  
CONE BOTTOM TO  
SUBGRADE BASE

NOTE  
MATCH OBVERTS

WATERTIGHT JOINTS  
AND CONNECTIONS

CLASS A  
CONCRETE  
BEDDING TO  
FIRST JOINT

25 MPa CONCRETE

UNDISTURBED SUITABLE SOLID SOIL  
OR MECHANICALLY COMPACTED TO  
98% STANDARD PROCTOR DENSITY

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 25 MPa.
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 mm.
7. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIAL COMPACT TO 98% S.P.D.
8. FLAT TOP SECTION TO BE USED FOR MANHOLES UP TO 1.8 m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0 m 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.

600MAX/300MIN

400 MAX

VARIABLE

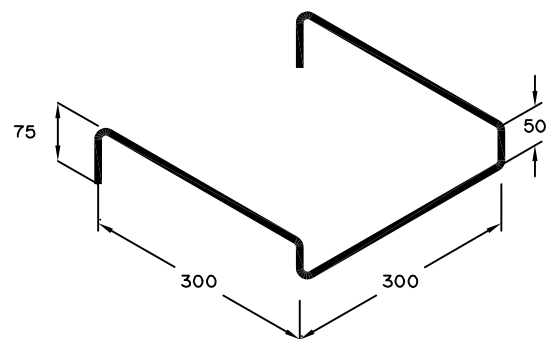
1200φ

CONNECTED FLUSH  
WITH WALL  
1:12 SLOPE

100 MIN

200 MIN

200 MIN



20φ GALVANIZED IRON MANHOLE  
SAFETY STEPS



TITLE:

TYPICAL PERCHED MANHOLE  
FOR 600 TO 1050 mm DIAMETER PIPES

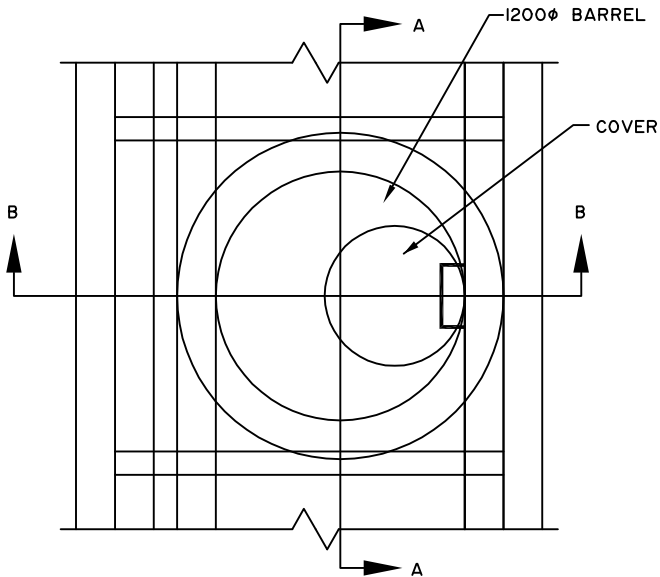
SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. D-104

APPROVED BY:

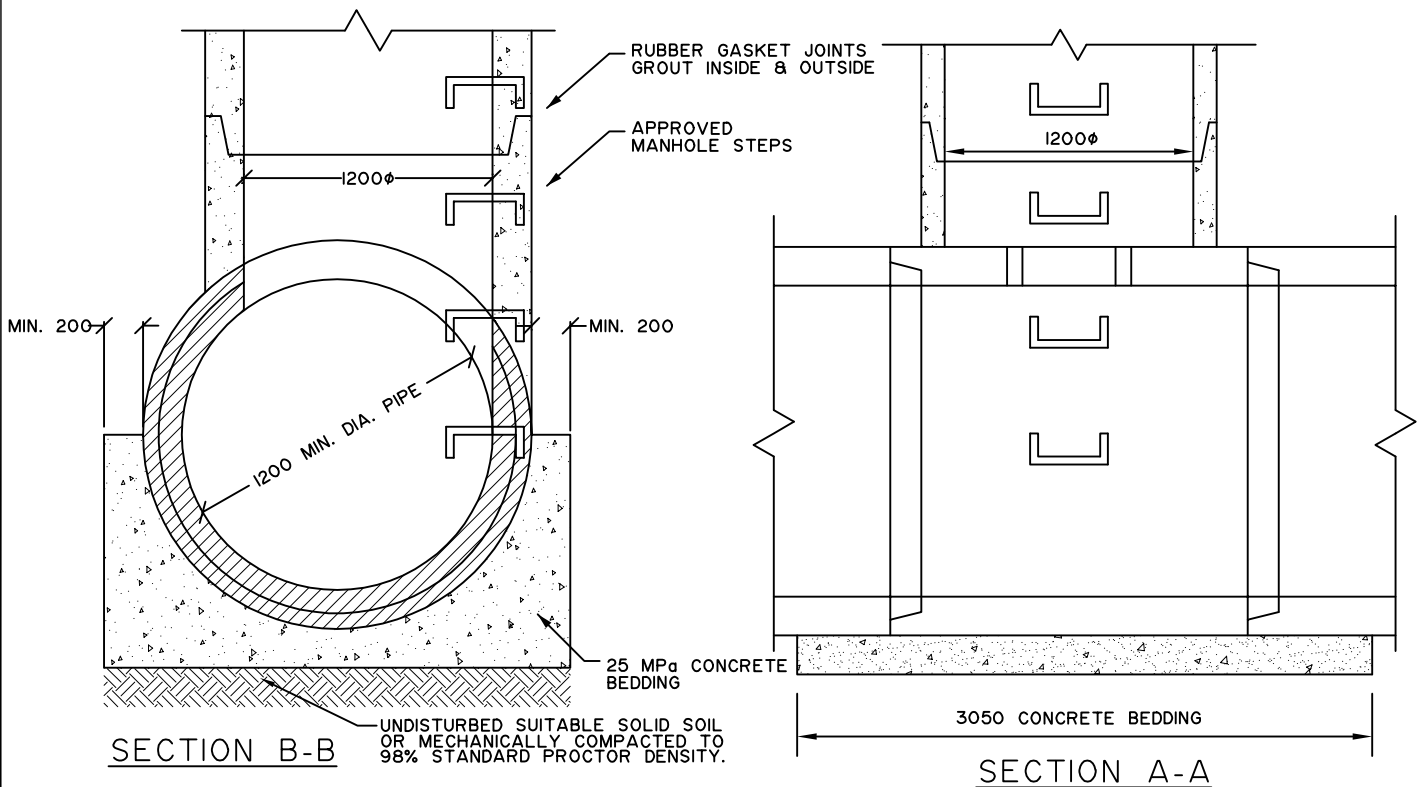
DIRECTOR OF  
MUNICIPAL  
SERVICES



PLAN

**NOTES:**

1. THIS TYPE OF MANHOLE IS TO BE BUILT ONLY ON MAINS OF 1200 mm DIAMETER OR LARGER AND WHERE THERE 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 25 MPa.
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 800 mm.
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 5.0 m 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 1200 mm AND LARGER

SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. D-105

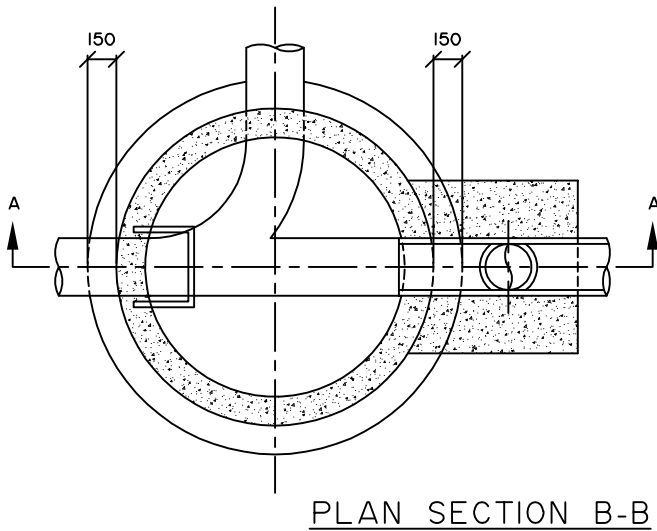
APPROVED BY:

A handwritten signature in blue ink, likely belonging to the Director of Municipal Services.

DIRECTOR OF  
MUNICIPAL  
SERVICES

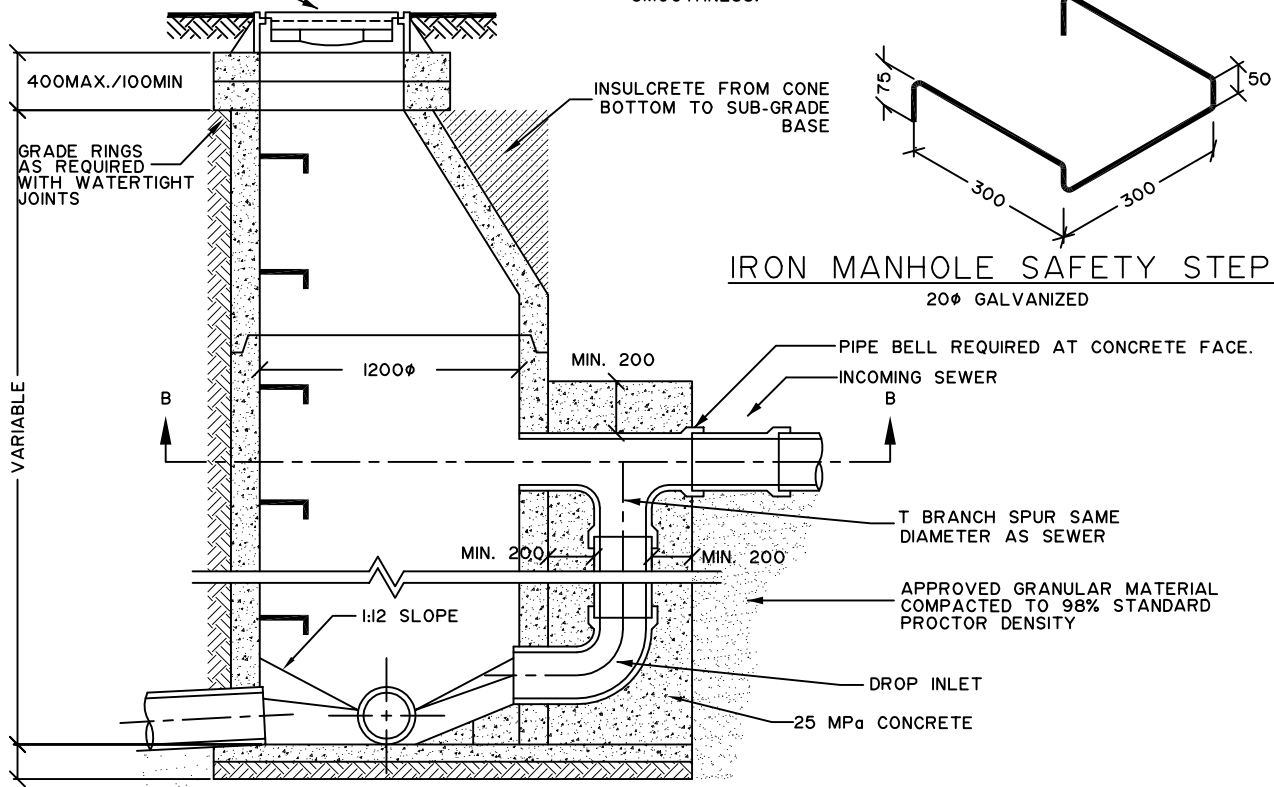
**NOTES:**

1. ALL PRE-CAST MANHOLES MUST CONFORM TO A.S.T.M. SPECIFICATIONS C478
2. POURED-IN-PLACE CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF AT LEAST 25 MPa.
3. ALL JOINTS TO BE SET WITH RUBBER GASKET AND SET WITH NON-SHRINK GROUT, INSIDE AND OUT, AROUND FULL CIRCUMFERENCE.
4. FORM FLOW TROUGH IN PARTIALLY SET CONCRETE AND TROWEL SMOOTH.
5. ALL DIMENSIONS GIVEN IN MILLIMETRES.
6. MAX. DIST. FROM RIM TO TOP RUNG IS 800 mm.
7. BACKFILL AROUND MH. WITH SELECT NATIVE MATERIAL COMPACT TO 98% S.P.D.
8. FLAT TOP SECTION TO BE USED FOR MANHOLES UP TO 1.8 m BURY.
9. ALL JOINTS TO BE WATERTIGHT. METHODS TO BE CONSISTENT WITH SITE CONDITIONS.
10. FOR MANHOLES 5.0 m 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 PROVIDED, SPACED AT 400 MAX. FIRST STEP 150 MAX. BELOW FRAME, LAST STEP 300 MAX. ABOVE BASE.
13. CHANNELING AND BENCHING TO BE FINISHED TO TROWEL SMOOTHNESS.



**PLAN SECTION B-B**

MANHOLE FRAME & COVER  
AS SPECIFIED - TOP ELEVATION  
AS SPECIFIED IN STREET SPECIFICATIONS



**IRON MANHOLE SAFETY STEPS**  
20φ GALVANIZED

**SECTION A-A**

UNDISTURBED SUITABLE SOLID SOIL  
OR MECHANICALLY COMPACTED TO  
98% STANDARD PROCTOR DENSITY

TITLE:

EXTERNAL DROP MANHOLE

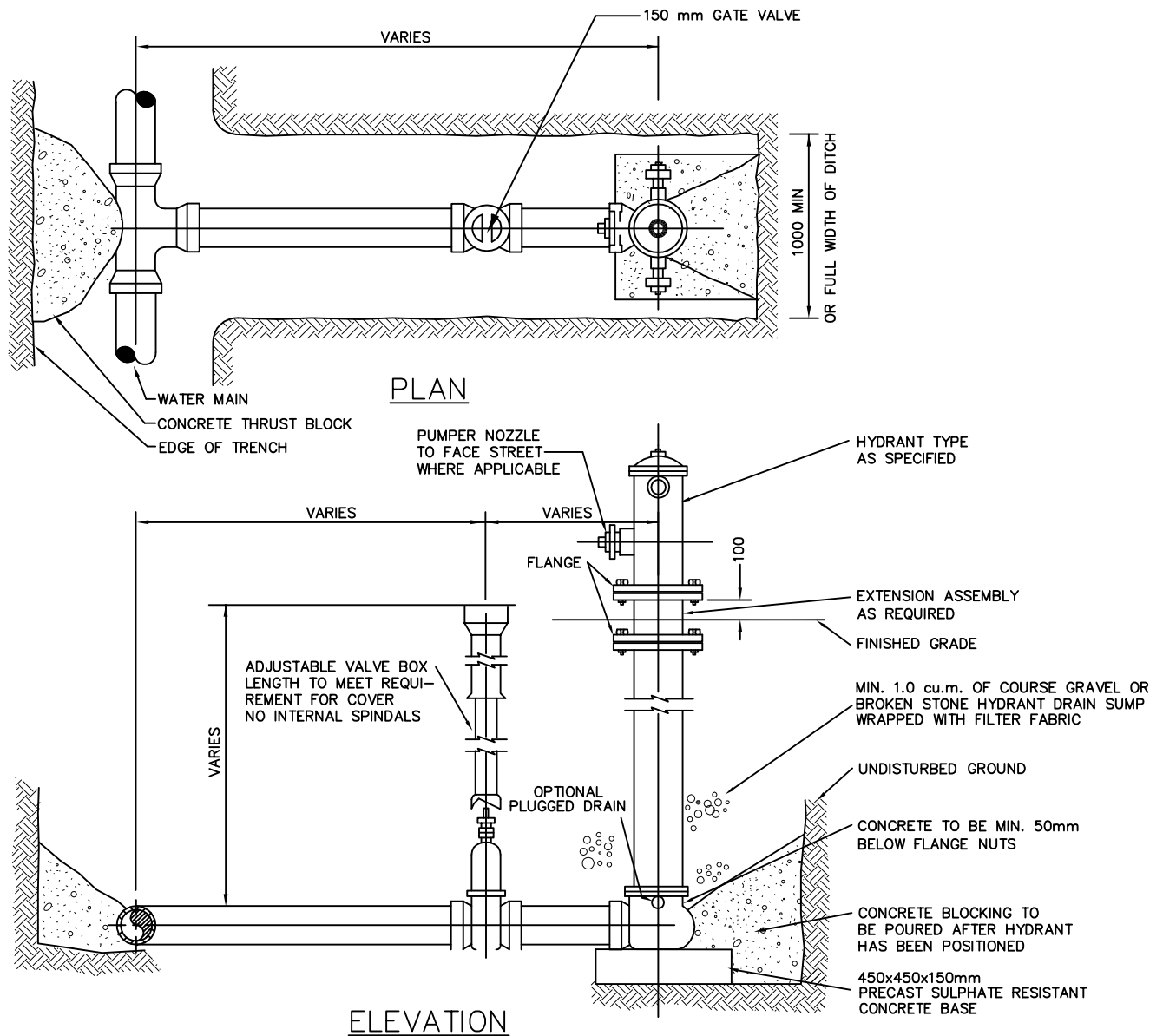
SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. D-106

APPROVED BY: *[Signature]* DIRECTOR OF MUNICIPAL SERVICES





**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. CONCRETE TO BE 25 MPa @ 28 DAYS.
3. HYDRANTS SHALL BE COMPRESSION TYPE CONFORMING TO AWWA C502 COMPLETE WITH OPTIONAL PLUGGED DRAINS, STAINLESS STEEL BOLTS AND ASPHALTIC COATED HYDRANT COMPONENTS.
4. PROVIDE CATHODIC PROTECTION AS SHOWN ON STD. DWG. NO. A-110
5. THRUST BLOCKS TO BE PLACED AGAINST UNDISTURBED GROUND HAVING A MINIMUM BEARING OF 7300 kg/m<sup>2</sup>
6. CONCRETE TO BE POURED CLEAR OF ALL FLANGES, JOINTS, AND HYDRANT DRAIN.
7. APPROVED BACKFILL TO BE COMPACTED TO A MINIMUM OF 98% SPD.
8. DO NOT ALLOW PONDING OR STANDING WATER AROUND HYDRANT
9. PLACEMENT OF HYDRANT AND ORIENTATION OF PUMPER NOZZLE TO BE APPROVED.




TITLE:

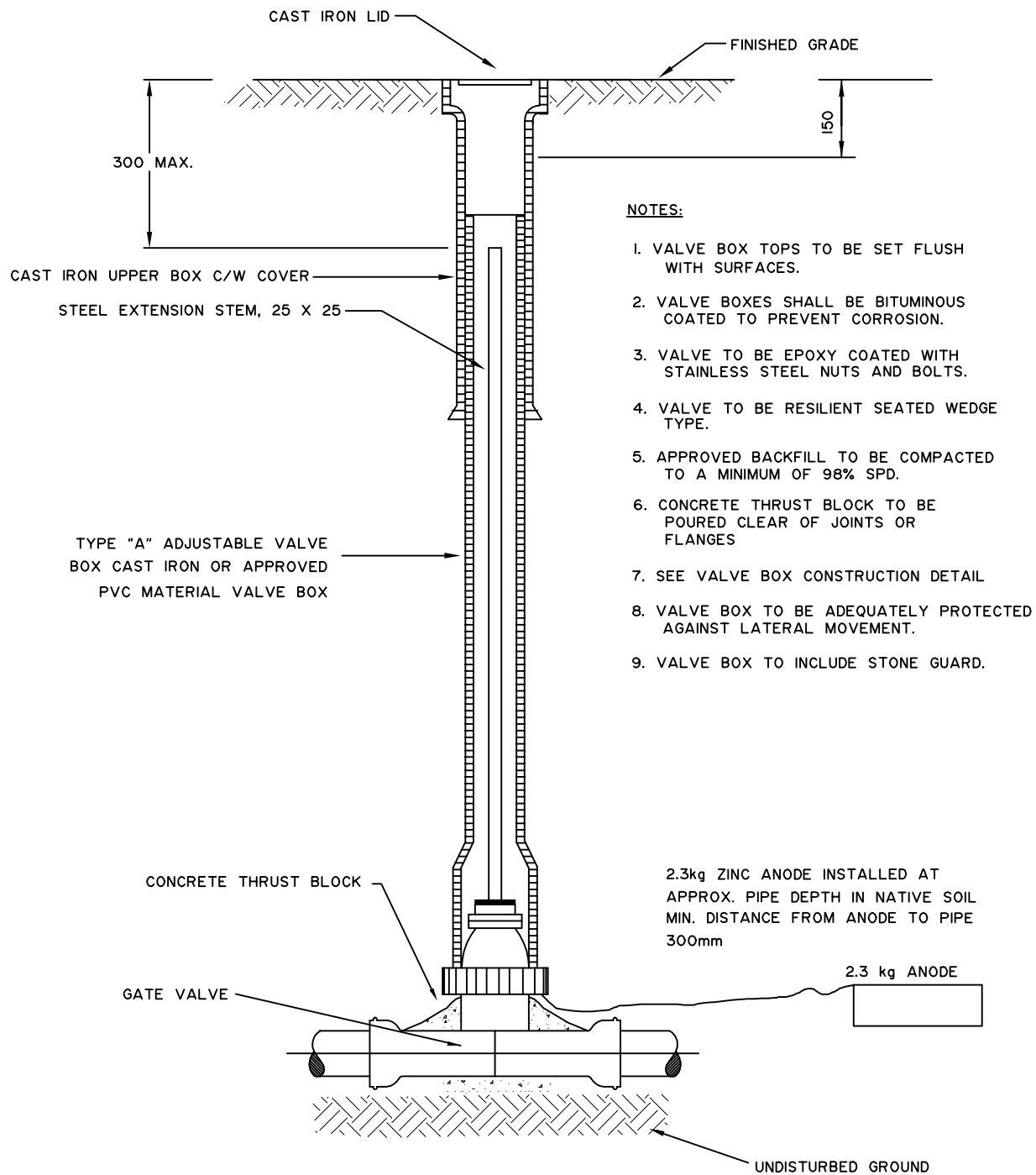
OFF-LINE HYDRANT DETAIL

SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. E-101

APPROVED BY:  DIRECTOR OF MUNICIPAL SERVICES



**NOTES:**

1. VALVE BOX TOPS TO BE SET FLUSH WITH SURFACES.
2. VALVE BOXES SHALL BE BITUMINOUS COATED TO PREVENT CORROSION.
3. VALVE TO BE EPOXY COATED WITH STAINLESS STEEL NUTS AND BOLTS.
4. VALVE TO BE RESILIENT SEATED WEDGE TYPE.
5. APPROVED BACKFILL TO BE COMPACTED TO A MINIMUM OF 98% SPD.
6. CONCRETE THRUST BLOCK TO BE POURED CLEAR OF JOINTS OR FLANGES
7. SEE VALVE BOX CONSTRUCTION DETAIL
8. VALVE BOX TO BE ADEQUATELY PROTECTED AGAINST LATERAL MOVEMENT.
9. VALVE BOX TO INCLUDE STONE GUARD.

2.3kg ZINC ANODE INSTALLED AT APPROX. PIPE DEPTH IN NATIVE SOIL MIN. DISTANCE FROM ANODE TO PIPE 300mm

2.3 kg ANODE



TITLE:

MAIN VALVE CASTING DETAIL

SCALE: N.T.S.

DATE: FEBRUARY, 2009

STD. DWG NO. E-102

APPROVED BY:

DIRECTOR OF MUNICIPAL SERVICES