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<td>Special Manhole T-Riser for Sewers of 1050 Dia. or Larger</td>
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<td>Drop Manhole</td>
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<td>Precast Manhole Catchbasin 1050mm Dia. Detail</td>
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<td>Cul-de-sac Service Connections</td>
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<td>Grated Floating Manhole/Catchbasin Frame &amp; Cover</td>
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<td>Storm Sewer Outlet</td>
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<td>Precast Concrete Manhole End Section 1050 Dia. Manhole</td>
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<td>Establishment of Grade for Sewer Construction</td>
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<td>Impervious Material Barriers for Utility Service Trenches</td>
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<td>Manhole Frame &amp; Cover for 1200 mm Dia. Manholes</td>
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<td>Hi-Capacity Catchbasin Frame and Grate</td>
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<td>Gabion Basket and Wire Mesh detail</td>
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<td>Gabion Installation</td>
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<td>Sump with Pumped Discharge to Surface</td>
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<td>Foundation Drain Discharge to Standpipe</td>
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<td>City Utility Protective Cover</td>
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<td>U-2</td>
<td>City Utility Excavation Guidelines</td>
<td>Nov/16</td>
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Pre-Cast Manhole
1050 Dia.
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
2. REFER TO DRAWING S-29 FOR MANHOLE FRAME AND COVER
NOTE

1. INSTALL RUNG 150mm BELOW TOP EDGE OF FIRST RISER
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
3. DEEP MANHOLE REFERS TO A MANHOLE WITH DEPTH > 5m

MANHOLE BASE, PRECAST OR Poured IN PLACE.
Special Manhole T-Riser

for Sewers of 1050Ø or Larger

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

STANDARDS MANHOLE AS PER STANDARD DRAWING S-2

REINFORCED CONCRETE PIPE SECTION C/W INTEGRAL MANHOLE RISER (SHOP FABRICATED)

SET MANHOLE WALL ON TANGENT WITH SEWER PIPE

GRANULAR BEDDING

200 MIN.
300 MAX.
PVC CROSS
3 SPIGOT ENDS
1 BELL END TO FIT OVER IN FLOW PIPE

BRANCH OR MAIN INLET PIPE 200mm (TYP.)

BELL END ON DROP PIPE

25mm STAINLESS STL STRAPS (TYP.)

DROP PIPE (P.V.C.)

LOWEST END OF DROP PIPE FLUSH WITH BENCHEING

1050mm

NOTES
1. DROP PIPE AND CROSS TO BE SAME DIAMETER AS INLET SEWER.
2. FOR INLET SEWERS GREATER THAN 300mm OR WITH MORE THAN ONE INLET, DROP STRUCTURES ARE TO BE APPROVED BY THE ENGINEER.
3. INSTALL STRAPS TO MANHOLE WALL WITH 15.875 X 56.350 SLEEVE ANCHORS TYPE SLE HEX. NUT ZINC CHROMATE PLATED.
4. REPAIR DAMAGE CAUSED BY ANCHOR INSTALLATION.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTE:

1) MAXIMUM PIPE DIAMETER, 4500mm
2) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

CONSTRUCTION STANDARDS
Pre-Cast Manhole Catch Basin
1050Ø Detail

Designed By: Stella Madsen
Approved: Stella Madsen

City of Regina | Regina
Infinite Horizons

STDS-5C.dwg
NOTE:
1) Lay pipe across bottom of manhole and extend stub beyond. Pour concrete floor of manhole up to the pipe springsline. Break top half off of the pipe.
2) All dimensions are in millimeters unless otherwise noted.

200x150° - 45° Wye Fitting
200x150° Increaser Coupling

SECTION B-B

1/2 pipe dia.

1 500 sq. conc. footing

NOTE:
Maximum of 2-45° Wye fittings and an Increaser Coupling if required. (Allows for 3 service connections to a manhole)
Grated Floating Manhole/Catch Basin
Frame and Cover

1. Frame and cover shall be reinforced concrete, HDPE, or other material as approved.

2. All dimensions are in millimeters unless otherwise noted.

Material Specification:
- Ductile iron grade B60-60-03
- Bearing surface shall be machined to prevent rocking
- Cover weight: 48.0 Kg.
- Frame weight: 53.0 Kg.
Floating Manhole Frame and Cover

**NOTES:**

1. FRAME AND COVER SHALL BE NON-CORRODING MATERIAL. TITAN TF-80 OR APPROVED EQUAL.

2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

**MATERIAL SPECIFICATION:**

DUCTILE IRON GRADE 80-60-03

BEARING SURFACE SHALL BE MACHINED TO PREVENT ROCKING

COVER WEIGHT 48.0 Kg.

FRAME WEIGHT 53.0 Kg.
SEWER CONSTRUCTION STANDARDS

Designed By: Dustin McCall
Approved: Jan/18
Date: NTS
Scale: S-11

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
2. PLUG STUB WITH BURNT CLAY DISC OR EQUAL APPROVED BY CITY
NOTE:

1. FOR Poured IN PLACE BASE
   SET O.B. BARREL IN WET CONCRETE

2. ALL DIMENSIONS ARE IN MILLIMETERS
   UNLESS OTHERWISE NOTED.
PLAN OF COVER

SECTION A-A

SECTION C-C

PLAN OF FRAME

SECTION B-B

SECTION D-D

NOTE
1. FRAME AND COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTE
1. FRAME AND COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
1. FRAME, GRATE AND SIDE INLET TO BE AS INDICATED IN THE APPROVED PRODUCTS LIST.

2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTES:

1. END FRAME SEAT DISHED TO CONFORM WITH COVER.

2. FRAME & COVER SHALL BE AS INDICATED IN THE APPROVED PRODUCTS LIST OR APPROVED EQUAL.

3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTES:

1) CONNECTION TO JOIN MAIN WITH SLOPE BETWEEN 10' AND 45'

2) RISER REQ'D WHERE DEPTH OF MAIN IS 4250 OR GREATER

3) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
PIPE POSITION

THE SERVICE PIPES IN EACH TRENCH SHALL BE POSITIONED AS FOLLOWS WHEN FACING THE BUILDING:

- DOMESTIC SEWER IN CENTRE
- WATER ON RIGHT SIDE OF DOMESTIC SEWER
- STORM, IF ANY, ON LEFT SIDE OF DOMESTIC SEWER

NOTE:
1. STORM SEWER SERVICE NOT ALLOWED FOR SINGLE FAMILY DWELLING.
2. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.
PIPE POSITION

THE SERVICE PIPES IN EACH TRENCH SHALL BE POSITIONED AS FOLLOWS WHEN FACING THE BUILDING

- DOMESTIC SEWER IN CENTRE
- WATER ON RIGHT SIDE OF DOMESTIC SEWER
- STORM, IF ANY, ON LEFT SIDE OF DOMESTIC SEWER

NOTE
1. STORM SEWER SERVICE NOT ALLOWED FOR SINGLE FAMILY DWELLING
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTE

1. BACKFILL COMPACITION TO BE A MINIMUM OF 95% STANDARD PROCTOR DENSITY.

2. INSITU BACKFILL MOISTURE CONTENT TO BE +/- 3% OF ADJACENT UNDISTURBED TRENCH SIDE.

3. SIDE CLEARANCE MUST BE ADEQUATE TO PERMIT COMPACTION OF BACKFILL AT SIDE OF PIPE

4. THE GUIDELINE MINIMUM FOR COMPACTION TESTING IS ONE TEST FOR EACH 1000m² FOR EACH LIFT IN THE PIPE BEDDING ZONE AND TRENCH BACKFILL ZONE.

5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
WHEELED COMPACTION EQUIPMENT MAY NOT BE USED UNTIL BACKFILL IS COMPACTED TO THIS POINT

150 MIN

INSITU BACKFILL IN MAXIMUM COMPACTED LIFT DEPTH OF 150mm

TRENCH EDGE

INSITU BACKFILL IN MAXIMUM COMPACTED LIFT DEPTH OF 150mm

GRANULAR MATERIAL OR BEDDING MATERIAL IN MAXIMUM COMPACTED LIFT DEPTH OF 150mm

UNDISTURBED NATURAL SOIL

300 MAX

COMPACTED PIPE BEDDING LAYER

100 MIN

NOTE

1. BACKFILL COMPACTION TO BE MINIMUM OF 95% STANDARD PROCTOR DENSITY.

2. INSITU BACKFILL MOISTURE CONTENT TO BE +/- 3% OF ADJACENT UNDISTURBED TRENCH SIDE.

3. SIDE CLEARANCE MUST BE ADEQUATE TO PERMIT COMPACTION OF BACKFILL MATERIAL AT THE SIDE OF PIPE.

4. THE GUIDELINE MINIMUM REQUIREMENT FOR COMPACTION TESTING IS ONE TEST FOR EACH 1000m² FOR EACH LIFT IN THE PIPE BEDDING ZONE AND TRENCH BACKFILL ZONE.

5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
**NOTE**

1. RAP TO BE UNDERLAIN BY MEDIUM THICKNESS GEOTEXTILE FILTER CLOTH THAT IS KEYED INTO NATIVE MATERIAL AT ALL EDGES OF CLOTH.

2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

---

**OUTLET**

**SECTION A-A**

**TOP VIEW**

- Geotextile Cloth
- Size of Rock: 0.15m to 0.30m
- Not to project more than 0.15m above plane of slope
- Not to project more than 0.08m above ground surface
- Ground Level
- Minimum size of rock to be 1/3 apron depth

**FRONT VIEW**

- A
- D
- 3D

---

**INLET**

**SECTION A-A**

**TOP VIEW**

- Geotextile Cloth
- Size of Rock: 0.15m to 0.30m
- Not to project more than 0.08m above ground surface
- Ground Level

**FRONT VIEW**

- A
- D
- 3D
- 1.5D

---

**TOTAL QUANTITIES OF RIP-RAP IN CUBIC METRES**

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**CONSTRUCTION STANDARDS**

**Erosion Control at Culverts**

**Designed By:** Stella Madsen

**Approved:**

**Date** | **Revisions** | **By**
---|---|---
JAN03 | TITLE BLOCK | MLG
NOV05 | TITLE BLOCK | BW
JUL10 | TITLE BLOCK | JJA
Pre-Cast Concrete Manhole
Integral Base and Thru-Pipe Type
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

1) SHALL COMPLY WITH DESIGN REQUIREMENTS FOR CLASS IV REINFORCED PIPE
2) PIPE LEADS INTO MANHOLE END SECTION TO SUITE PARTICULAR SITUATION
3) ADD BRICKS, FRAME AND COVER TO FINISHED GRADE
4) ADD RISERS
NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
NOTE

1. FOR UTILITY SERVICES AND BEDDING MATERIAL, REFER TO CITY SPECIFICATIONS, SECTION 01390 AND 02315

IMPERVIOUS MATERIAL BARRIERS FOR UTILITY SERVICE TRENCHES AT THE PROPERTY LINES SHOULD BE WELL MIXED, CONSISTING OF 20% BENTONITE CLAY AND 80% PIPE BEDDING MATERIAL.

ANY OTHER DESIGNS ARE TO BE SUBMITTED FOR REVIEW AND APPROVAL TO THE ENGINEER.
SPECIFICATIONS

- Frame and cover shall be Norwood F-40, Titan TF-40 or approved equal.
- Manhole frames and covers shall be grey cast iron construction.
- Weight of frame shall be at least 115 Kg.
- Weight of cover shall be at least 110 Kg.

NOTE:

1. All dimensions are in millimeters unless otherwise noted.
NOTE:
FRAME AND GRATE SHALL BE AS INDICATED
IN THE APPROVED PRODUCTS LIST
OR APPROVED EQUAL.

CONSTRUCTION STANDARDS
High Capacity Catch basin
Frame and Grate

Designed By: Dustin McCall
Approved: Dustin McCall

Date | Revisions | By
--- | --- | ---
JAN'03 | TITLE BLOCK | MLG
NOV'05 | TITLE BLOCK | BW
JUL'10 | TITLE BLOCK | JJA
JAN'17 | SPEC REVISIONS | BW

City of Regina
REGINA
Infinite Horizons

S-30B
SECTION A-A
TYPICAL INSTALLATION
HI-CAPACITY CATCHBASIN
Gabion Basket
and Wire Mesh detail

Mesh Wire Typical

Double Twisted

SELVEDGE\CORNER WIRE

100mm

80mm

L

W

Max 1.5m WIDE

H

Diaphragm

Lid

End

Back

Front
NOTES:
1. The ends of a lacing wire will be secured by looping it thru the mesh and twisting. Proceed to lace with alternate two loops and one loop at approximately 4 inch intervals.
2. Other lacing methods may be used if recommended by the manufacturer and approved by the engineer/inspector.
3. The "X" shaped inner tie may be twisted at the "X" to tighten, if placed too loosely.
DISCHARGE ON SPLASH PAD
SET AT MIN. 10% SLOPE.
DISCHARGE AT LEAST 2m
FROM PROPERTY LINE AND
AT LEAST 1m FROM BUILDING

NOTE: PUMP TO BE WIRED TO MEET
ELECTRICAL CODE

FLOOR JOIST

**CONCEPTUAL DRAWING
SANITARY SERVICE LINE MAY
VARY IN EACH HOME

TOP & SIDE COVERED WITH
MIN. 150mm OF GRANULAR
DRAINAGE MATERIAL

GROUND LEVEL

WEEPING TILE & TEE
MIN 100mm

WEARING TEE & TEE TO SUMP

MIN. 100mm ABS PIPE OR
WEARING TILE TO SUMP

CHECK VALVE

SERVICABLE COUPLING
SEALED TO PREVENT SEEPAGES
FROM OTHER AREAS BELOW FLOOR

ACCESS COVER

SANITARY SERVICE LINE

CODE REFERENCE ON SUMP:
NATIONAL BUILDING CODE SECTION 9.14.2
FOUNDATION DRAINAGE
9.14.5.2 SUMP PITS

WHERE A SUMP PIT IS PROVIDED IT SHALL BE:
A) NOT LESS THAN 750mm DEEP.
B) NOT LESS THAN 0.25sq.m IN AREA, AND
C) PROVIDED WITH A COVER.

SUMP PIT MAY BE CONSTRUCTED OF:
A) CONCRETE
B) CORROSION RESISTANT STEEL
C) PLASTIC
NOTES:

1. REFER TO CITY OF REGINA STANDARD CONSTRUCTION SPECIFICATION 2240 FOR CONCRETE BASE AND 2500 FOR SUPPLY OF PORTLAND CEMENT CONCRETE AND FOR LOW SHRINK BACKFILL. (AVAILABLE AT WWW.REGINA.CA/CITY PLANNING/DEVELOPMENT MANUALS)

2. STEEL PLATE SHALL BE TO C.S.A. G40.21M TYPE G.

3. WIDTH OF PLATE (W) SHALL BE 1000mm FOR NOMINAL PIPE SIZES (D) UP TO AND INCLUDING 250mm. FOR D GREATER THAN 250mm W = D + 750mm.

SECTION A-A
WATER, SANITARY AND STORM MAINS:

PROVIDE ENGINEERED SHORING SYSTEM ON SIDE ADJACENT TO MAIN AS FOLLOWS:

- IF \( V_1 \geq D_1 - 0.5\)m AND \( H_1 \leq D_1 \).
- IF ACTUAL DEPTH OF MAIN IS UNKNOWN, ASSUME \( D_1 = 2.5\)m

OR OBTAIN WRITTEN ADVICE FROM GEOTECHNICAL ENGINEER TO CONFIRM SHORING IS NOT REQUIRED.

NOTE: ASSUMES TYPICAL REGINA CLAY. IF SILT OR OTHER MATERIALS ARE ENCOUNTERED OBTAIN ADVICE FROM GEOTECHNICAL ENGINEER.