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WEIGHT 298 LBS | MATL. GRAY IRON CLASS 350
WEIGHT 122 LBS | TOTAL WEIGHT 420 LBS | SPEC. ASTM A-48-74

NOTE: SUITABLE FOR HS25 WHEEL LOADS

(1) SPECIAL OPEN LIFT HOLE

2-3/4"

(1) OPEN PICKHOLE
1-1/2" X 2-1/2"

3-1/4"

2" RAISED LETTERS FLUSH W/ LID SURFACE DESIGN

5-1/2"

NOTE: T/CAST SHALL BE .03" BELOW FINISHED PAVEMENT SURFACE.

DETAIL OF SPECIAL LIFT HOLE

1-1/8"

1-1/2"

26"

1"

1/4"

2-1/2"

1-7/8"

3/8"

2-1/8"

1 1/8" DIA.

1" DIA.

9/8" DIA.

STORM MANHOLE CASTING

STORM

REVISED/APPROVED 02/01/2013

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE
(4) ½” DIA. HOLES ON A 3S 1/8” DIA. B.C.

12”

17”

12”

23” X 23”

18-3/4”

19”

12-9/16”

8-7/8”

3/4”

2-1/8”

4-1/4”

MHD 816

MADE IN USA

(2) ¾” DIA. HOOK HOLES

38” DIAMETER

20-1/4”

22-3/4” X 22-3/4”

24-1/4” X 24-1/4”

1 ½” GRATE

1 ½” FRAME

8” DIA.

20-1/2” X 20-1/2”

23-1/2” X 23-1/2”

38” DIAMETER

20-1/2” X 20-1/2”

23-1/2” X 23-1/2”

DRILL AND TAP ½” – 13 NC ½” DEEP (2 PLACES) REMOVE CAP SCREWS AFTER CONCRETE CURB HAS SET.

NOTES:
1. COMPONENT NO’S: FRAME 5002, GRATE MHD 816 (STD PLATE 4154), CURB BOX 823A (STD PLATE 4160).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME APPROX. 257#, GRATE 131#, CURB BOX 105#.
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

CATCH BASIN/CURB BOX CASTINGS

REVISED/APPROVED 04/05/2019

CITY OF DULUTH STANDARD DETAIL

DEPT. OF PUBLIC WORKS AND UTILITIES

STRM-2

NO SCALE
NOTES:
1. COMPONENT NO'S: FRAME 5002, GRATE MHD 814A (STD PLATE 4152), CURB BOX 823A (STD PLATE 4160).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME APPROX. 257#, GRATE 131#, CURB BOX 105#.
4. ALL CUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.
(4) ½" DIA. HOLES ON A 3½" DIA. B.C.

(2) ½" DIA. HOOK HOLES

24" X 24"

23" X 23"
FRAME OPENING

22-3/4" X 22-3/4" GRATE

1-1/2" FRAME & GRATE

8-7/8"

23-1/2" X 23-1/2"

38" DIAMETER

23-1/2"

NOTES:
1. COMPONENT NO'S: FRAME 5005, GRATE 817 (STD PLATE 4155).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 358
3. WEIGHT: FRAME 262#, GRATE 131#
4. ALL CUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

CATCH BASIN CASTINGS – ADA

REVIEWED/APPROVED 04/05/2019
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE
NOTES:
1. COMPONENT NO’S: FRAME 5005, GRATE 814A (STD PLATE 4152).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#, GRATE 131#
4. ALL CUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.
Wrap geotextile fabric (Type 5 non-woven) entirely around hoop adjusting rings and top of flange (tape in place and backfill). Required on all catch basins (incidental).

NOTE: Tracer wire required on all plastic storm sewer pipes.
TOP OF CASTING ELEVATION SHALL BE 8" BELOW FINISHED GRADE

CASTING FLANGE TO REST DIRECTLY ON ADJUSTING RING (NO SHIMS)

HOPE ADJUSTING RINGS AS REQUIRED

TYPE 5 NON-WOVEN GEOTEXTILE FABRIC WRAP ENTIRELY AROUND, WITH 1 FT OVERLAP FROM TOP OF STRUCTURE. (TAPE TOP OF FABRIC TO CASTING THEN BACKFILL) REQUIRED ON ALL STORM MANHOLE (INCIDENTAL)

TRACER WIRE

NOTE:
TRACER WIRE REQUIRED ON ALL PLASTIC STORM SEWER PIPE
NOTES:
1. CONCRETE (MIX NO. 3052) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
2. TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT.
3. CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE.
4. FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
5. MAINTAIN 3.5" COVER ON REINFORCEMENT.

\[\text{INSET A}\]
TRAFFIC FLOW

3' TRANSITION

6.0%

11.0%

22.0%

3'

6' TRANSITION

6.0%

FACE CUTOFF

FACE CURB

BACK CURB

PLAN VIEW

SECTION VIEW

SEE STANDARD PLATE 4021 FOR CATCH BASIN CONSTRUCTION DETAILS.

GUTTER SWALE

REVIEWED/APPROVED 04/05/2019

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

STRM-6
GUTTER STAMP TO BE PLACED A MAXIMUM OF 18" FROM CATCH BASIN ORATE ON UPHILL SIDE AND CENTERED IN GUTTER

GUTTER STAMP TO BE OBTAINED FROM CITY OF DULUTH BY CONTRACTOR.
CONTRACTOR SUPPLIED MAGNETIZED TRACER BOX WITH GREEN TOP. WIRE CONNECTED TO TRACER BOX TERMINAL.

LEAVE SLACK IN WIRE

CONNECT SEWER SERVICE 4' 4" OR 6" PVC SEWER SERVICE PIPE VARIES

2% MINIMUM SLOPE COARSE FILTER AGGREGATE SPEC. 3149.24

ANGLE VARIES TO MATCH EXISTING SERVICE PIPE PVC SEWER PIPE

NEOPRENE SLEEVE WITH STAINLESS STEEL BANDS ADAPT TO EXISTING PIPE MATERIAL (INCIDENTAL)

MAGNESIUM ANODE (1# MIN) REQUIRED WHERE NO TRACER IS INSTALLED ON MAIN

NEW SERVICE ON EXISTING MAIN

NOTES
1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
2. CONNECT SEWER SERVICE INCLUDES 4" OR 6" PVC SEWER SERVICE PIPE (TO 4" FROM C/L) AND ALL FITTINGS
3. 4" OR 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.
NOTES
1. PROVIDE AND INSTALL INSERTA TEE (INCIDENTAL).
2. CONNECT SEWER SERVICE INCLUDES 4" OR 6" PVC SEWER SERVICE PIPE (TO 4' FROM C/L) AND ALL FITTINGS
3. 4" OR 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

PRIVATE STORM SERVICE - TYPE B

REVIEWED/APPROVED 04/05/2019
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE
NOTES
1. CONNECT SEWER SERVICE INCLUDES 4" OR 6" PVC SEWER SERVICE PIPE (TO 4' FROM STRUCTURE) AND ALL FITTINGS
2. 4" & 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE STRUCTURE OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
3. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
4. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SEWER SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
5. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP
6. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.
NOTES
1. CONNECT SEWER SERVICE INCLUDES 4" OR 6" PVC SEWER SERVICE PIPE (TO 4" FROM END) AND ALL FITTINGS
2. 4" OR 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE END OF THE SERVICE TO A POINT DESIGNATED BY THE ENGINEER
3. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SEWER SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
4. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE END AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
5. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.