PRECAST INVERT MUST BE 1/2 DIAMETER OF THE PIPE AND BENCHES SLOPED 2" TOWARD THE INVERT.

MANHOLE STEPS SHALL BE PLACED SO THAT OFFSET VERTICAL PORTION OF CONE IS FACING DOWNSTREAM.

CASTING AND ADJUSTMENT RINGS AS SPECIFIED.

MANHOLE STEPS, NEENAH R1981J OR EQUAL, 16" ON CENTER.

ALL JOINTS IN MANHOLE SHALL CONFORMING TO ASTM 443.

WRAP EACH MANHOLE BARREL JOINT WITH 12" MASTIC SEAL, OR RING JOINTS W/ 3/4" RAM - NEK BITUMINOUS ROPE.

PIPE SHALL BE CUT 2" INSIDE FACE OF WALL AT MID-POINT OF PIPE AND HAVE A WATER TIGHT SEAL.

NOTE: KOR-N-SEAL OR PSX DIRECT DRIVE MANHOLE CONNECTOR CONSIDERED ACCEPTABLE ALTERNATES.

ALL DOG HOUSES SHALL BE GROUTED ON INSIDE AND OUTSIDE.

MINIMUM THICKNESS OF INTEGRAL PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14'.

STANDARD DETAILS
SANITARY SEWER MANHOLE

CHISAGO CITY

Revised
1/2019
SAN-1
PRECAST INVERT MUST BE 1/2 DIAMETER OF PIPE AND BENCHES SHOULD BE SLOPED 2" TOWARD INVERT.

MANHOLE STEPS SHALL BE PLACED SO THAT OFFSET VERTICAL PORTION OF CONE IS FACING DOWNSTREAM.

CASTING AND ADJUSTMENT RINGS AS SPECIFIED.

MANHOLE STEPS, NEENAH R1981J OR EQUAL, 16" ON CENTER.

ALL JOINTS IN MANHOLE SHALL CONFORM TO ASTM 443.

WRAP EACH MANHOLE BARREL JOINT WITH 12" MASTIC SEAL, OR RING JOINTS W/ 3/4" RAM - NEK BITUMINOUS ROPE.

PIPE SHALL BE CUT 2" INSIDE FACE OF WALL AT MID-POINT OF PIPE AND HAVE A WATER TIGHT SEAL.

NOTE: KOR-N-SEAL OR PSX DIRECT DRIVE MANHOLE CONNECTOR CONSIDERED ACCEPTABLE ALTERNATES.

ALL DOG HOUSES SHALL BE GROUTED ON INSIDE AND OUTSIDE.

MINIMUM THICKNESS OF INTEGRAL PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14'.
HORSESHOE DETAILS

20' MIN OR 2X DEPTH OF DROP WHICHEVER IS GREATER SHALL BE DIP

* DIP MUST BE POLYETHYLENE, POLYURETHANE, OR EPOXY LINED

PIPE SHALL BE CUT 2" INSIDE FACE OF WALL AT MID-POINT OF THE PIPE AND HAVE A WATER TIGHT SEAL.

NOTE: KOR-N-SEAL MANHOLE OR EQUAL CONSIDERED ACCEPTABLE ALTERNATE.

ALL DOG HOUSES SHALL BE GROUTED ON INSIDE AND OUTSIDE.

PRECAST INVERT SHOULD BE 1/2 DIAMETER OF PIPE AND BENCHES SLOPED 2" TOWARD INVERT.

MINIMUM THICKNESS OF INTEGRAL PRECAST BASE IS 6" FOR 14' DEEP OR LESS, AND INCREASES 1" IN THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14'.

MANHOLE STEPS, NEENAH R1981J OR EQUAL, 16" ON CENTER. MANHOLE STEPS SHALL BE PLACED SO THAT OFFSET VERTICAL PORTION OF CONE IS FACING DOWNSTREAM.

ALL JOINTS IN MANHOLE SHALL CONFORM TO ASTM 443

WRAP EACH MANHOLE BARREL JOINT WITH 12" MASTIC SEAL, OR RING JOINTS W/ 3/4" RAM - NEK BITUMINOUS ROPE.

CASTING AND ADJUSTMENT RINGS AS SPECIFIED.

STANDARD DETAILS
SANITARY SEWER
DROP INLET MANHOLE

Revised 1/2019
Standard Plate No. SAN-3
NOTE:
INSIDE DROP SHALL BE
INTRAFLOW LOW PROFILE DROP
AS MANUFACTURED BY ROYAL
ENTERPRISES OR AN APPROVED
EQUAL.

DIRECT PIPE TO FLOW
DOWNSTREAM.
SANITARY SEWER OR WATER MAIN PIPE SUPPORT IN CASING, PLASTIC SPACERS

PHOENIX PLASTIC CASING SPACER OR APPROVED EQUAL

CASING

CARRIER PIPE

FILL VOID AREA WITH SAND (TYP)

MAX 2' FROM END OF PIPE

MAX 8' EQUALLY SPACED

MAX 8' EQUALLY SPACED

MAX 2' FROM END OF PIPE

NOT TO SCALE

STANDARD DETAILS

PIPE CASING TYPICAL INSTALLATION

CHISAGO CITY

Revised 1/2019

Standard Plate No. SAN-5
NEENAH R-3067V CATCH BASIN FRAME AND GRATE SHALL BE FURNISHED WITH CURB INLET BOX AND 3" DIA. FRONT FACE AND 4" MAXIMUM OPENING.

CATCH BASIN STRUCTURE WITH TOP SLAB OR 2' X 3' BOX.

INFA-SHIELD SEAL OR APPROVED EQUAL

NEENAH R-1642B MANHOLE FRAME AND COVER SHALL BE FURNISHED WITH 2 CONCEALED PICK HOLES AND STAMPED "SANITARY SEWER" OR "STORM SEWER".

MANHOLE STRUCTURE WITH TOP SLAB OR CONE SECTION.

CONCRETE ADJUSTMENT RINGS. MIN. OF 4", MAX. OF 12". FULL BED OF MORTAR BETWEEN CASTING AND RINGS. (NON-SHRINK GROUT) PLASTER INSIDE AND OUT OF RINGS. NO CONCRETE COLLAR

NOTES:
1. NO SHIMS TO BE USED OTHER THAN MORTAR OR BRICK WHEN ADJUSTING RINGS AND CASTING.
6" ABOVE THE PIPE

SECTION A-A

1. High Density Polyethylene Rigid Insulation Placement
2. Compact Backfill
3. Undisturbed Soil
4. 2 Layers of 2" (Min.) High Density Polyethylene Rigid Insulation 4' x 8' Sheets. Seams Shall Be Staggered.
5. Extend 6' Beyond Curb Line
6. Future Curb & Gutter
7. Bituminous Roadway
8. Gravel Base

PROPOSED SANITARY SEWER
NOTES:
1. HDPE PIPE SHALL BE DUCTILE IRON PIPE SIZES (DIPS).
2. CONTRACTOR SHALL PROVIDE AND INSTALL #12 AWG SOLID (0.0808" DIAMETER) CCS EXTRA HIGH STRENGTH HARD DRAWN HORIZONTAL DRILL TRACER WIRE MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC OR APPROVED EQUAL.
3. TRACER WIRE SHALL HAVE A MINIMUM 45 MIL HDPE, 30 VOLT MINIMUM RATING, AND A 1150 POUND MINIMUM AVERAGE BREAK STRENGTH.
4. TRACER WIRE SHALL BE BLUE FOR WATERMAIN AND GREEN FOR SANITARY SEWER.
5. ATTACH TRACER WIRE TO PIPE IN A MANNER THAT ENSURES IT REMAINS INTACT THOUGHOUT THE ENTIRE INSTALLATION PROCESS.
6. TRACER WIRE TO BE BROUGHT TO SURFACE AT GATE VALVE AND/OR HYDRANT LOCATIONS AND AIR RELEASE MANHOLES.
7. TRACER WIRE BROUGHT TO THE SURFACE SHALL BE MARKED AND IDENTIFIED WITH A TRI-VIEW FLEX TEST STATION CONTAINING TWO INTERNAL TERMINALS MANUFACTURED BY RHINO MARKING AND PROTECTION SYSTEMS OR APPROVED EQUAL. TEST STATION FOR WATER SHALL BE BLUE WITH RHINO PART #TVTI72BB2 OR APPROVED EQUAL AND CONTAIN ONE DECAL ON EACH SIDE OF TEST STATION WITH RHINO PART #GD8-1332K OR APPROVED EQUAL. TEST STATIONS FOR SEWER SHALL BE GREEN WITH RHINO PART #TVTI72GB2 OR APPROVED EQUAL AND CONTAIN ONE DECAL ON EACH SIDE OF THE TEST STATION WITH RHINO PART #GD8-1316K OR APPROVED EQUAL.
8. TRANSITION FROM HDPE TO DIP SHALL BE MADE AT THE EXTREMITIES OF HYDRANT CONNECTIONS, WATERMAIN CROSSINGS AND SERVICES.
9. HDPE TO DUCTILE IRON FITTING CONNECTIONS SHALL BE MADE WITH ONE OF THE FOLLOWING, UNLESS APPROVED BY THE CITY ENGINEER:
   - MJ ADAPTORS (FUSED TO HDPE PIPE) APPROVED BY THE CITY
   - MEGALUGS AND STAINLESS STEEL PIPE STIFFENERS SHALL BE MODEL CPS AS MANUFACTURED BY CASCADE WATERWORKS MFG. OR APPROVED EQUAL.
Neenah R-3067V Catch Basin Frame and Grate shall be furnished with Curb Inlet Box and 3" Dia. Front Face and 4" maximum opening.

High density polyethylene (HDPE) adjustment rings. Min. of 4", max. of 8". Set bottom ring in mortar and glue remaining rings with approved sealant. No concrete collar.

Catch Basin Structure with top slab or 2' x 3' box.

Non-woven filter fabric.

Neenah R-1642B Manhole Frame and Cover shall be furnished with 2 concealed pick holes and stamped "sanitary sewer" or "storm sewer".

Manhole Structure with top slab or cone section.

High density polyethylene (HDPE) adjustment rings. Min. of 4", max. of 8". Set bottom ring in mortar and glue remaining rings with approved sealant. No concrete collar.

Manhole Adjustment HDPE rings.