

# UNIVERSITY OF MINNESOTA

## ENGINEERING & UTILITIES

### STANDARD PLATES DIRECTORY

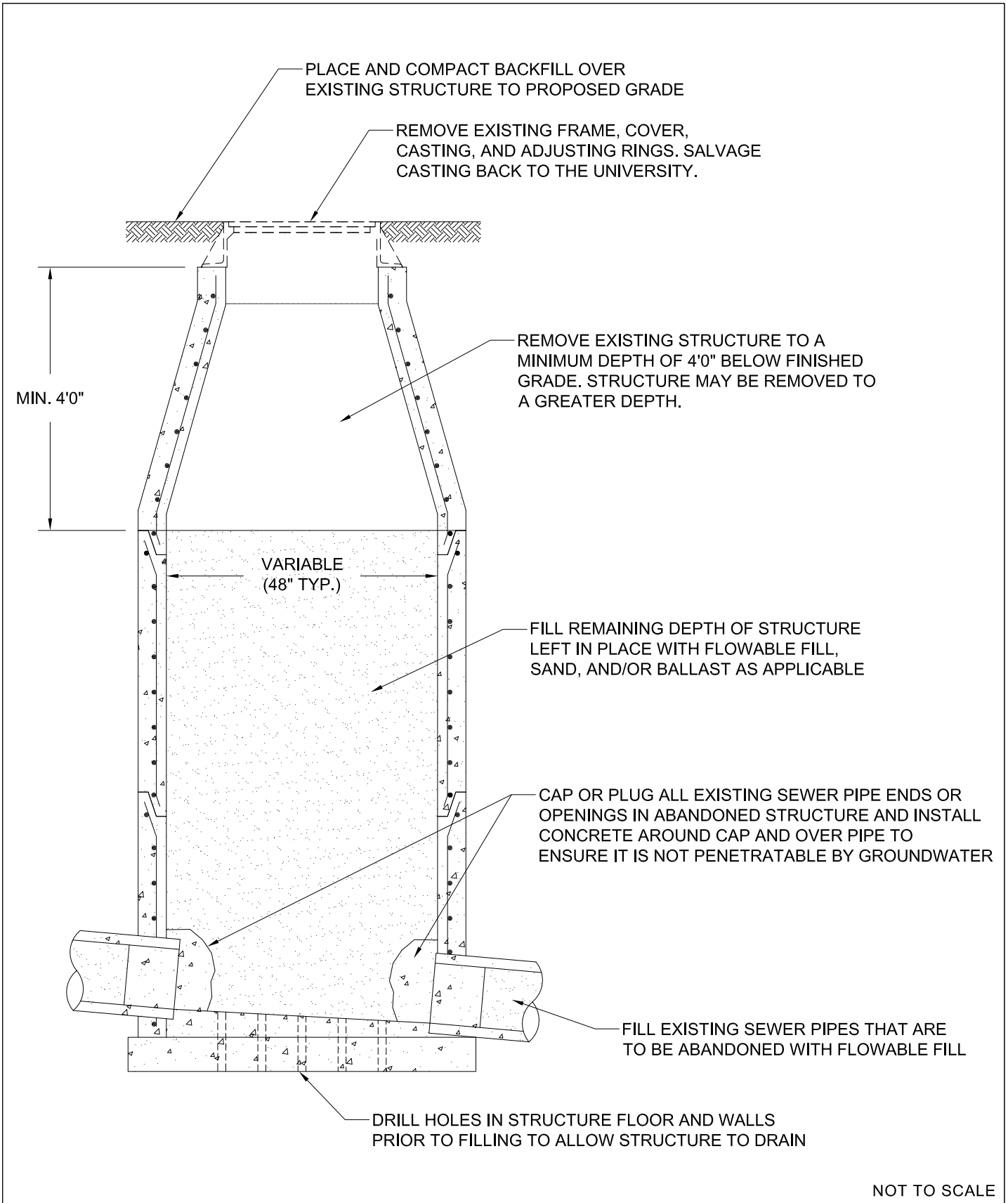
NOTE: The following standard plates establish minimum engineering design guidance. All designs shall use engineering judgement and are the responsibility of the Engineer of Record.

<b>GENERAL</b>		
<b>NUMBER</b>	<b>TITLE</b>	<b>PUBLISHED</b>
GEN-0001	Abandoned Structure	3/17/2023
GEN-0002	Concrete Encased Casting Collar	3/17/2023

<b>WATER</b>		
<b>NUMBER</b>	<b>TITLE</b>	<b>PUBLISHED</b>
WTR-1001	Water Structure Cover Casting	3/17/2023

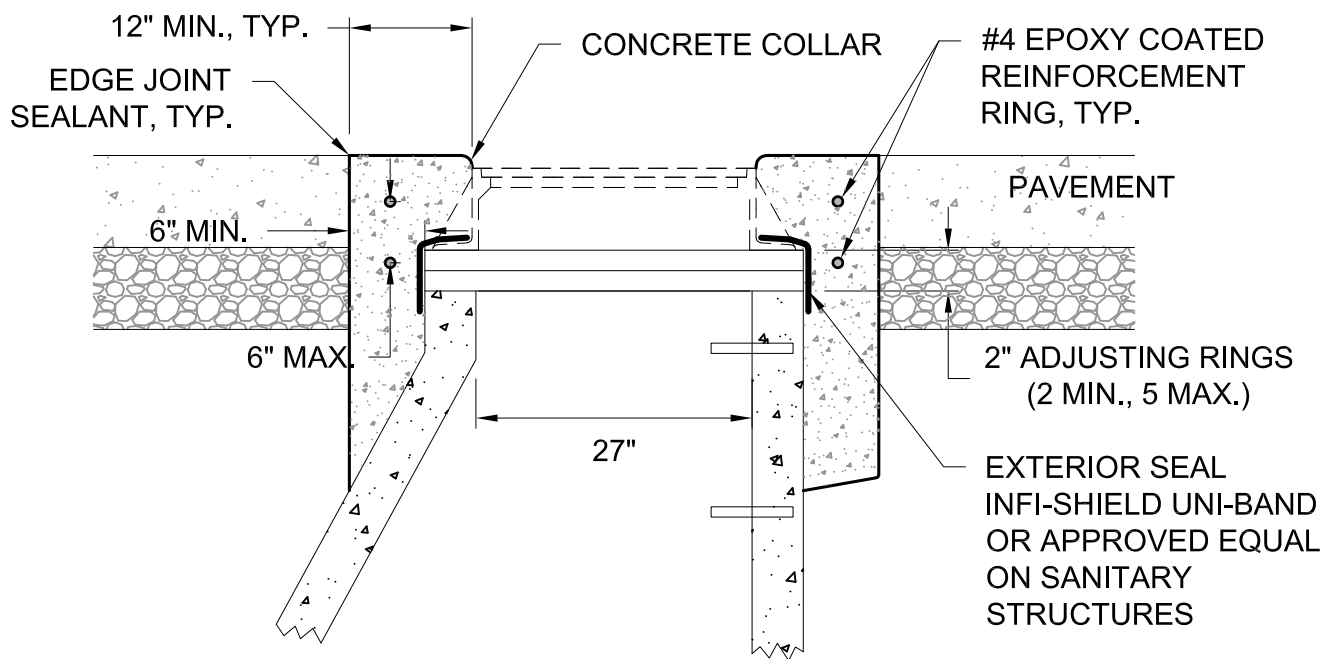
<b>SANITARY SEWER</b>		
<b>NUMBER</b>	<b>TITLE</b>	<b>PUBLISHED</b>
SAN-0001	Sanitary Sewer Structure Standard 48" Eccentric Cone	3/17/2023
SAN-0002	Precast Manhole Inside Drop Eccentric Cone	3/17/2023
SAN-0003	Sanitary Sewer Cleanout in Paved Areas	3/17/2023
SAN-1001	Sanitary Sewer Structure Cover Casting	3/17/2023

<b>STORM SEWER</b>		
<b>NUMBER</b>	<b>TITLE</b>	<b>PUBLISHED</b>
STM-0002	Storm Sewer Structure Standard 48" Eccentric Cone	2/4/2022
STM-0003	Catch Basin Standard 2'x3'	2/4/2022
STM-0004	Catch Basin Standard 27"	2/4/2022
STM-0005	Precast Manhole - 48" Standard Sump	2/4/2022
STM-0020	Box Culvert Watertight Joint	2/4/2022
STM-0022	Fabric Wrapped Casting	2/4/2022
STM-1001	Storm Sewer Structure Solid Cover Casting	3/17/2023
STM-4001	Catch Basin Gutter Stamp - UMD Campus Only	4/13/2023



NOT TO SCALE

	<p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING &amp; UTILITIES</p> <p>PUBLISHED: 03/17/2023</p>	<p><b>ABANDONED STRUCTURE</b></p>	<p>STANDARD PLATE NO.</p> <p><b>GEN-0001</b></p>
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## NOTES:

1. CONCRETE COLLAR TO ENCASE CASTING AND ADJUSTING RINGS
2. CONCRETE COLLAR SHALL BE CIRCULAR OR SQUARE LAYOUT
3. SEAL JOINT BETWEEN PAVEMENT AND COLLAR
4. MAINTAIN  $3\frac{1}{2}$ " COVER ON REINFORCEMENT

NOT TO SCALE



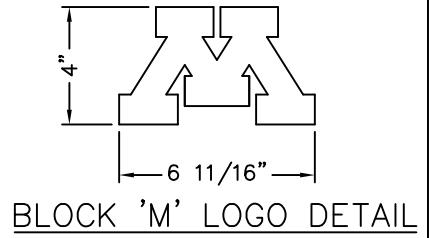
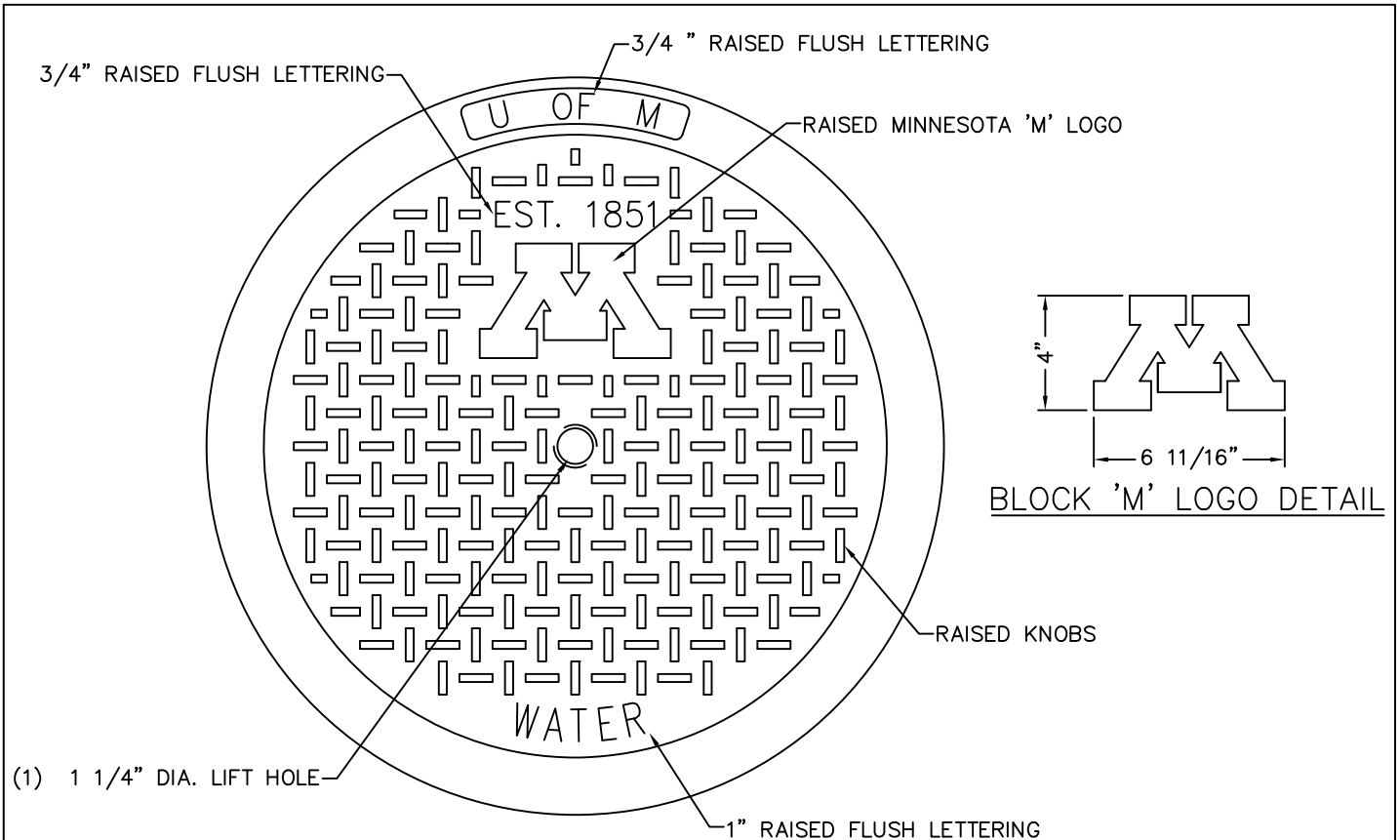
UNIVERSITY OF MINNESOTA  
FACILITIES MANAGEMENT  
ENGINEERING & UTILITIES

PUBLISHED: 03/17/2023

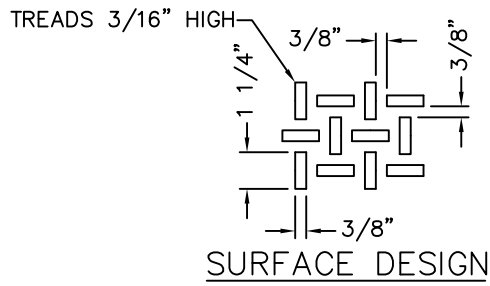
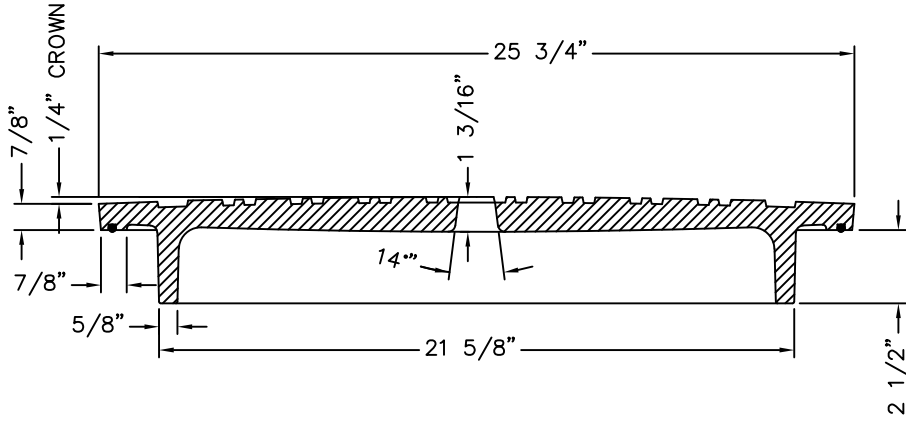
### CONCRETE ENCASED CASTING COLLAR

STANDARD  
PLATE NO.

GEN-0002



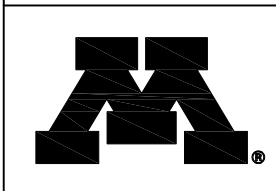
(1) 1 1/4" DIA. LIFT HOLE



**NOTES**

NEENAH FOUNDRY CASTING NO. R-1733-0806 OR SIMILAR  
 EQUIPMENT NOS.: NEW COPE AND DRAG  
 MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B  
 FINISH: NO PAINT UNLESS SPECIFIED ON PURCHASE ORDER  
 WEIGHT: APPROX. 150 LBS.

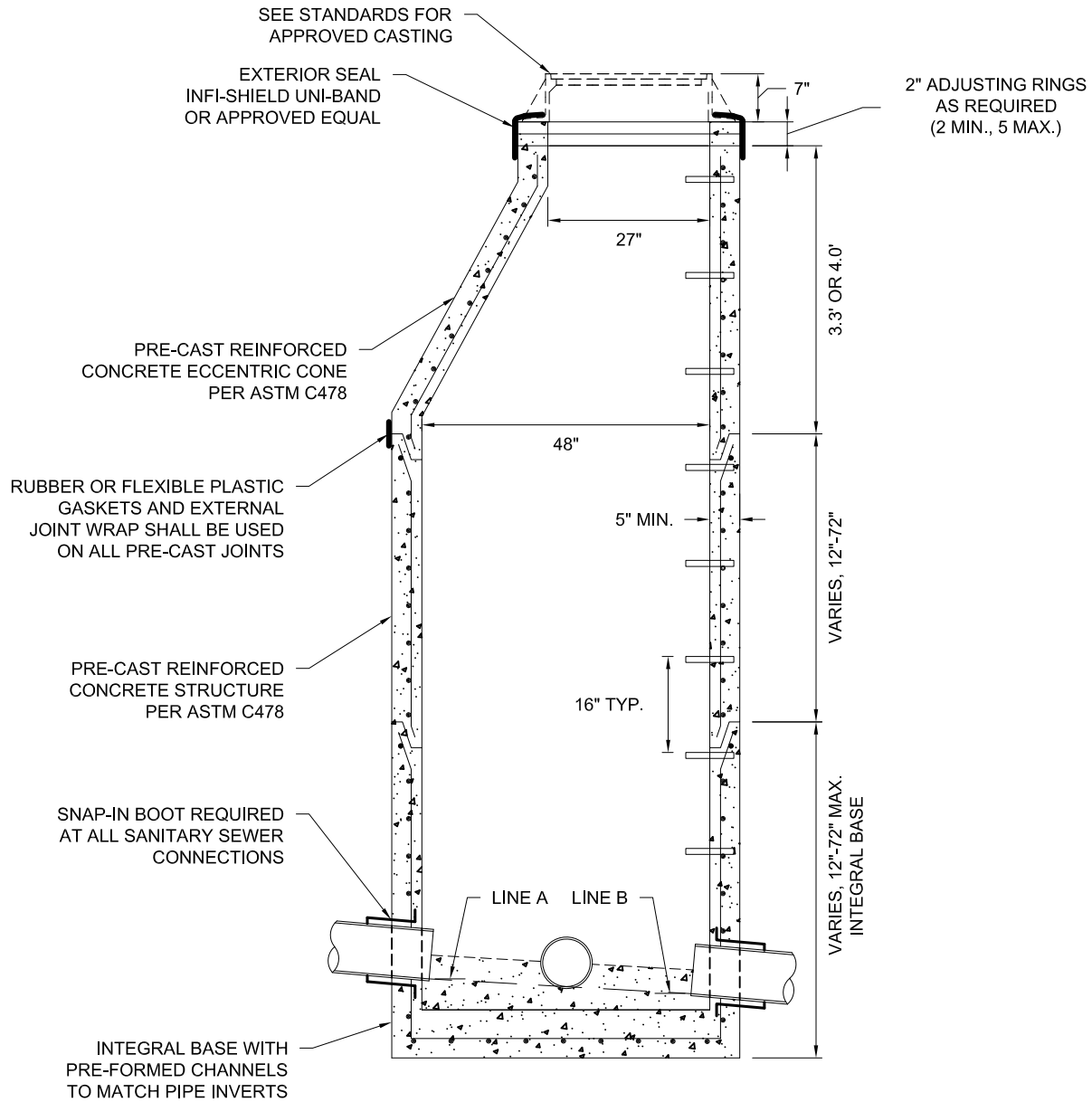
NOT TO SCALE



**UNIVERSITY OF MINNESOTA**  
 FACILITIES MANAGEMENT  
 ENGINEERING & UTILITIES  
 PUBLISHED: 03/17/2023

**WATER STRUCTURE  
 COVER CASTING**

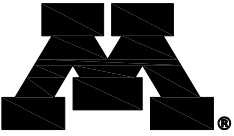
STANDARD  
 PLATE NO.  
**WTR-1001**

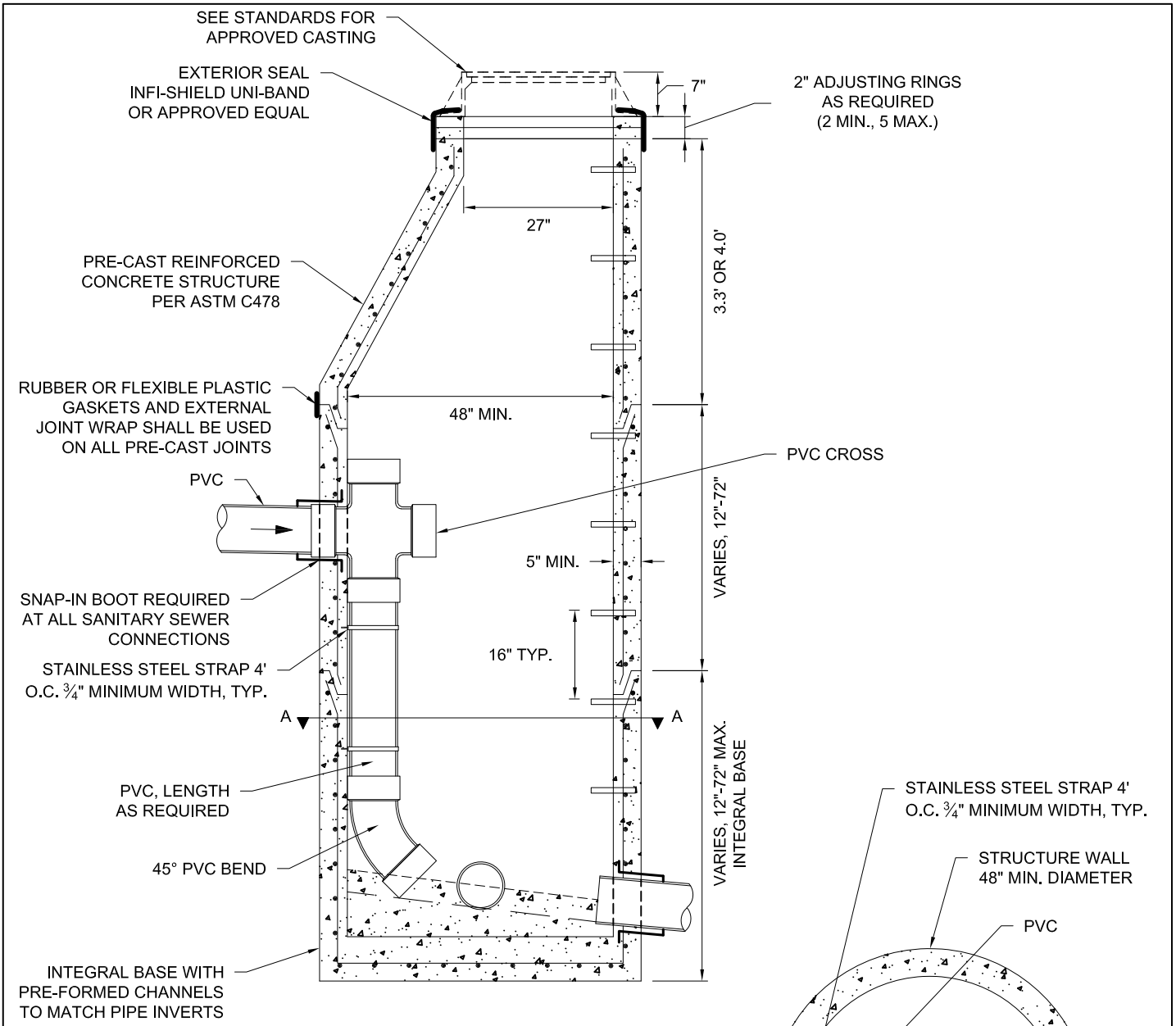


**NOTES:**

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE
3. THE ELEVATION OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B
4. STEPS REQUIRED IN MANHOLE STRUCTURES MORE THAN 4' DEEP. STRUCTURE STEPS SHALL BE SPACED 16" ON CENTER OVER DOWNSTREAM OUTLET. NEENAH R-1980E OR SIMILAR.
5. EXTERNAL CHIMNEY SEALS SHALL EXTEND FROM THE CASTING TO THE CONE

NOT TO SCALE

	<b>UNIVERSITY OF MINNESOTA</b> FACILITIES MANAGEMENT ENGINEERING & UTILITIES	<b>SANITARY SEWER STRUCTURE          STANDARD 48"          ECCENTRIC CONE</b>	STANDARD PLATE NO.  <b>SAN-0001</b>
	PUBLISHED: 03/17/2023		

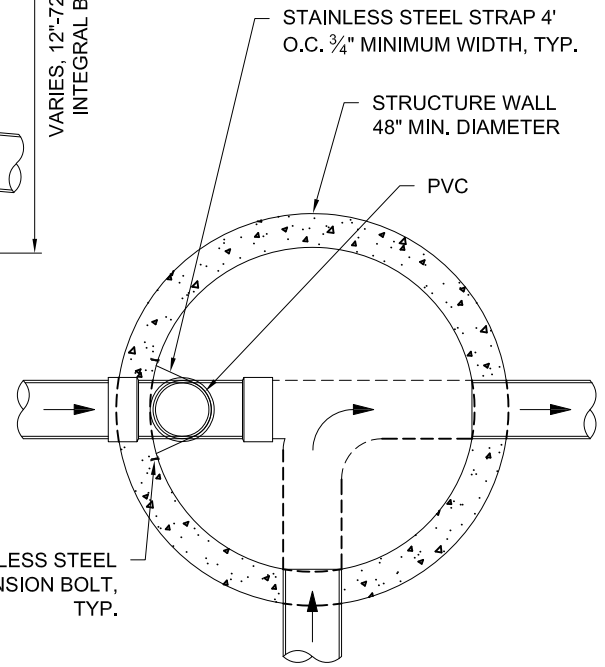


2" ADJUSTING RINGS AS REQUIRED (2 MIN., 5 MAX.)

3.3' OR 4.0'

VARIABLES: 12"-72"

VARIABLES: 12"-72" MAX. INTEGRAL BASE

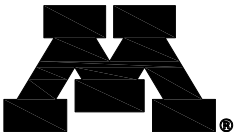


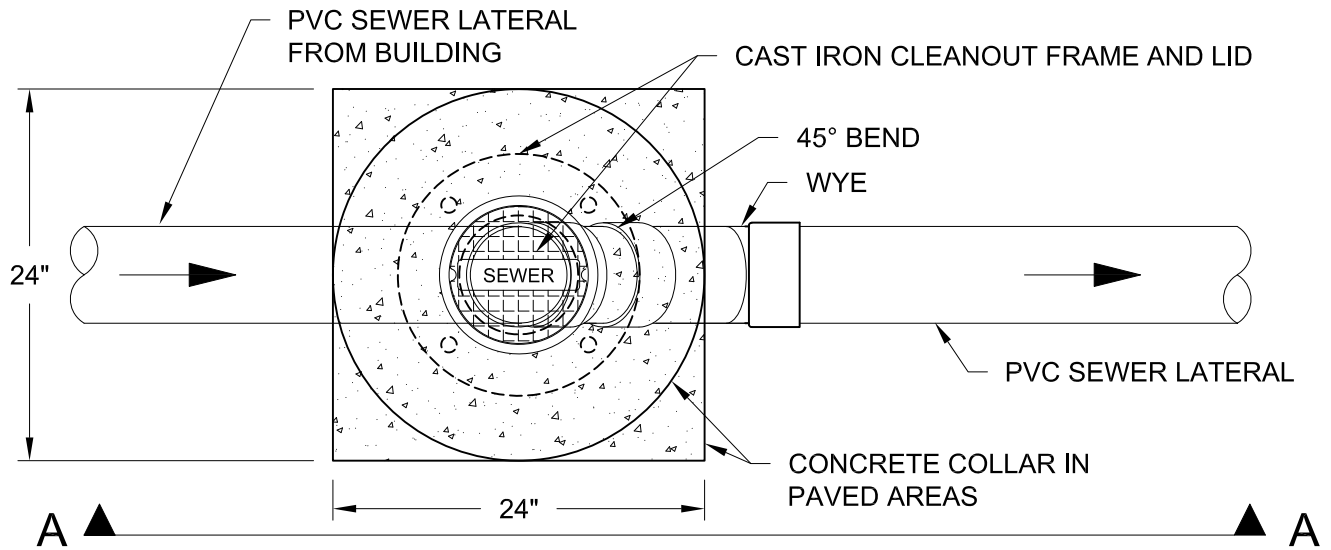
SECTION AA

NOT TO SCALE

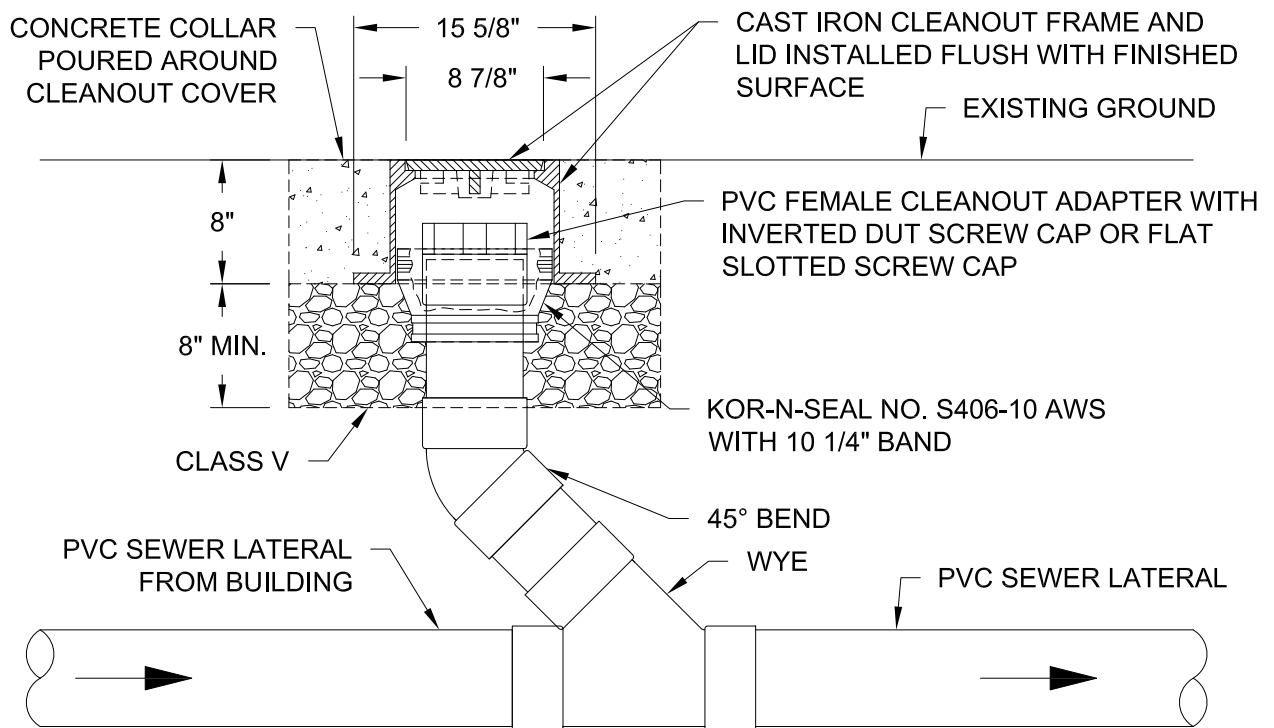
**NOTES:**

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. NO PIPE ALLOWED WITHIN CONE SECTION
3. STRUCTURE STEPS SHALL BE SPACED 16" ON CENTER OVER DOWNSTREAM OUTLET. NEENAH R-1980E OR SIMILAR.
4. EXTERNAL CHIMNEY SEALS SHALL EXTEND FROM THE CASTING TO THE CONE

	<b>UNIVERSITY OF MINNESOTA</b> FACILITIES MANAGEMENT ENGINEERING & UTILITIES	<b>SANITARY SEWER STRUCTURE          INSIDE DROP          ECCENTRIC CONE</b>	STANDARD PLATE NO.  <b>SAN-0002</b>
	PUBLISHED: 03/17/2023		



**PLAN VIEW**



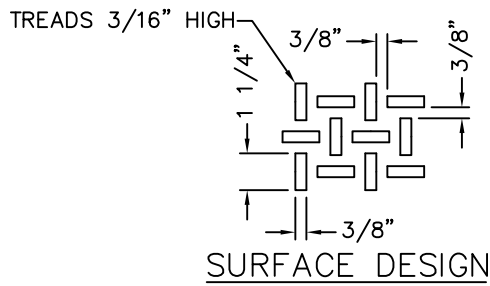
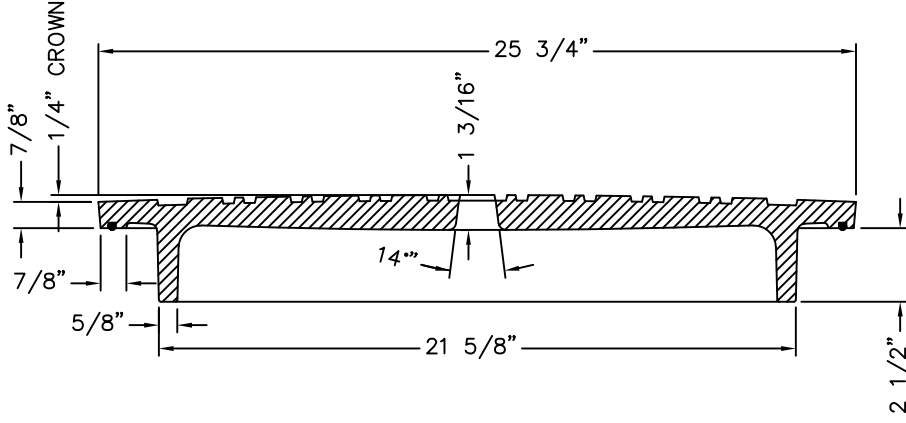
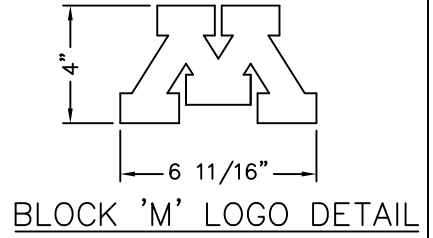
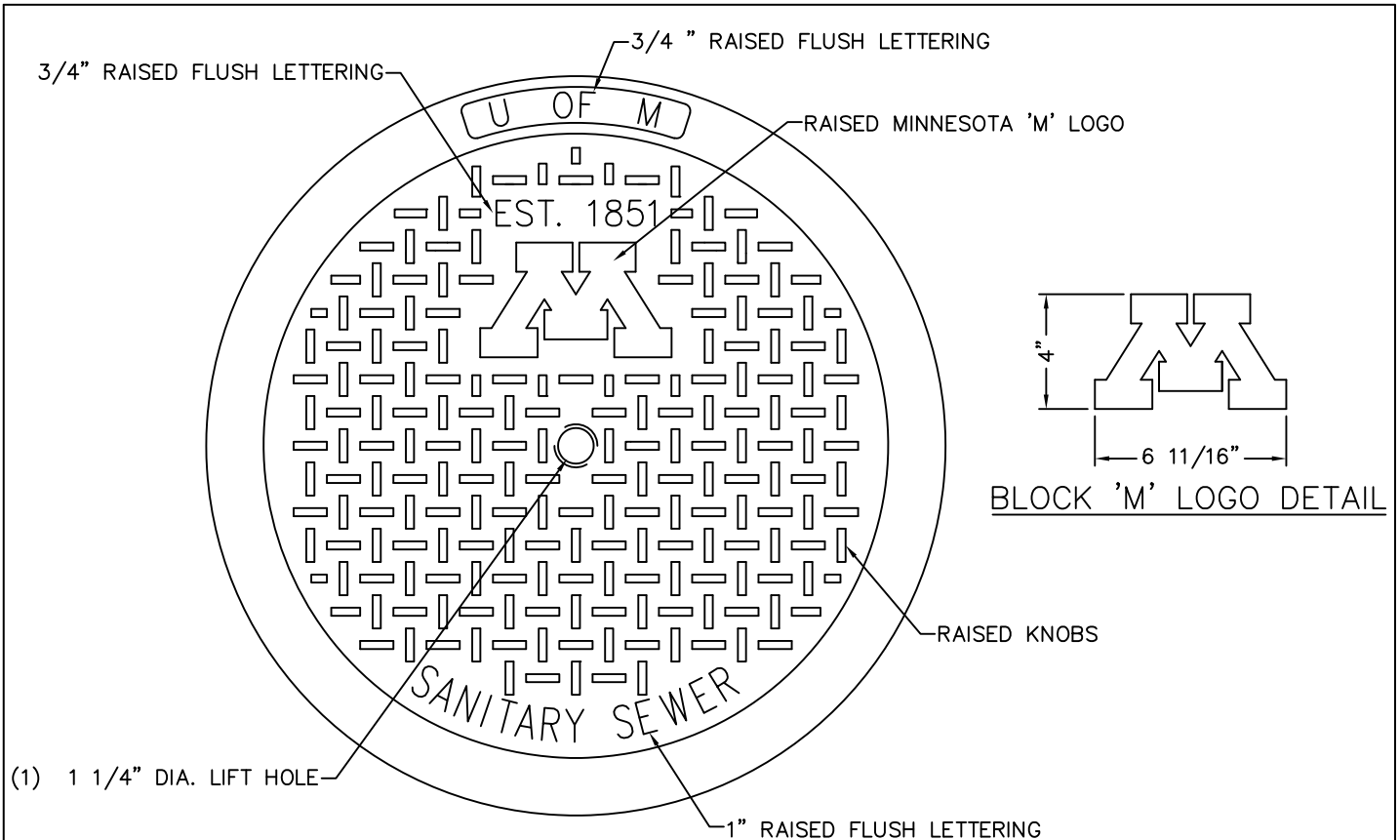
**SECTION AA**

**NOTES:**

1. ALL PIPING SHALL BE PVC
2. CONCRETE COLLAR TO ENCASE CLEANOUT FRAME IN PAVED AREAS
3. CONCRETE COLLAR SHALL BE CIRCULAR OR SQUARE
4. SEAL JOINT BETWEEN PAVEMENT AND COLLAR
5. CAST IRON CLEANOUT FRAME SHALL BE EJ 1574, OR APPROVED EQUAL
6. CAST IRON CLEANOUT LID SHALL BE EJ 1574A SW VC WITH THE WORD "SEWER" STAMPED ON THE LID, OR APPROVED EQUAL

NOT TO SCALE

	<b>UNIVERSITY OF MINNESOTA</b> FACILITIES MANAGEMENT ENGINEERING & UTILITIES	<b>SANITARY SEWER          CLEANOUT</b>	STANDARD PLATE NO.  <b>SAN-0003</b>
	PUBLISHED: 03/17/2023		



**NOTES**

NEENAH FOUNDRY CASTING NO. R-1733-0804 OR SIMILAR

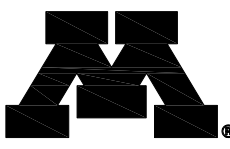
EQUIPMENT NOS.: NEW COPE AND DRAG

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

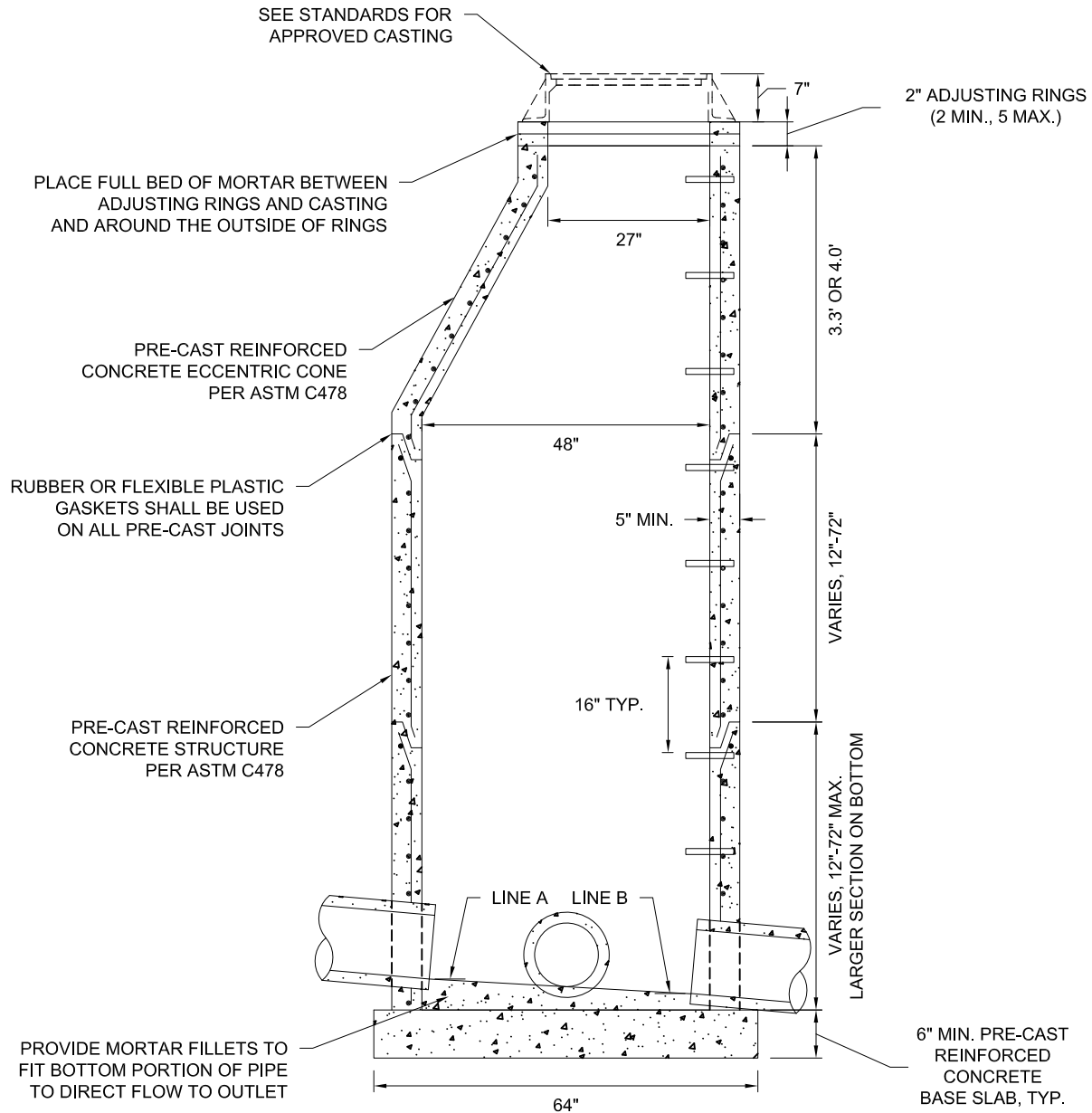
FINISH: NO PAINT UNLESS SPECIFIED ON PURCHASE ORDER

WEIGHT: APPROX. 150 LBS.

NOT TO SCALE

	<p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING &amp; UTILITIES</p> <p>PUBLISHED: 03/17/2023</p>	<p><b>SANITARY SEWER STRUCTURE COVER CASTING</b></p>	<p>STANDARD PLATE NO.</p> <p><b>SAN-1001</b></p>
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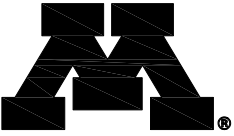


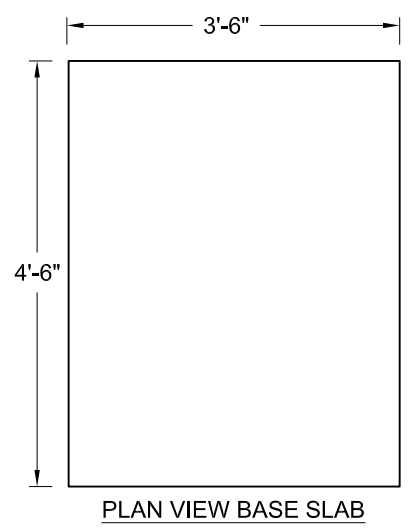
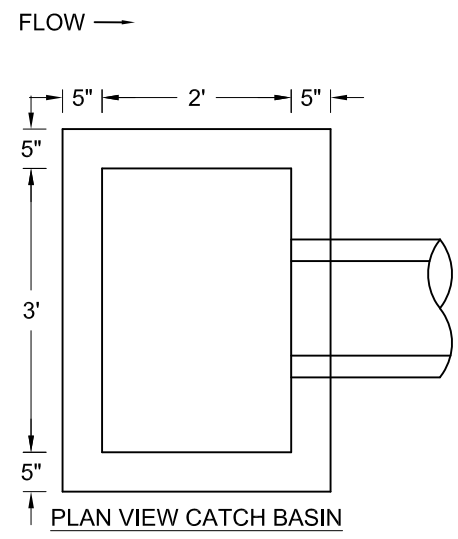
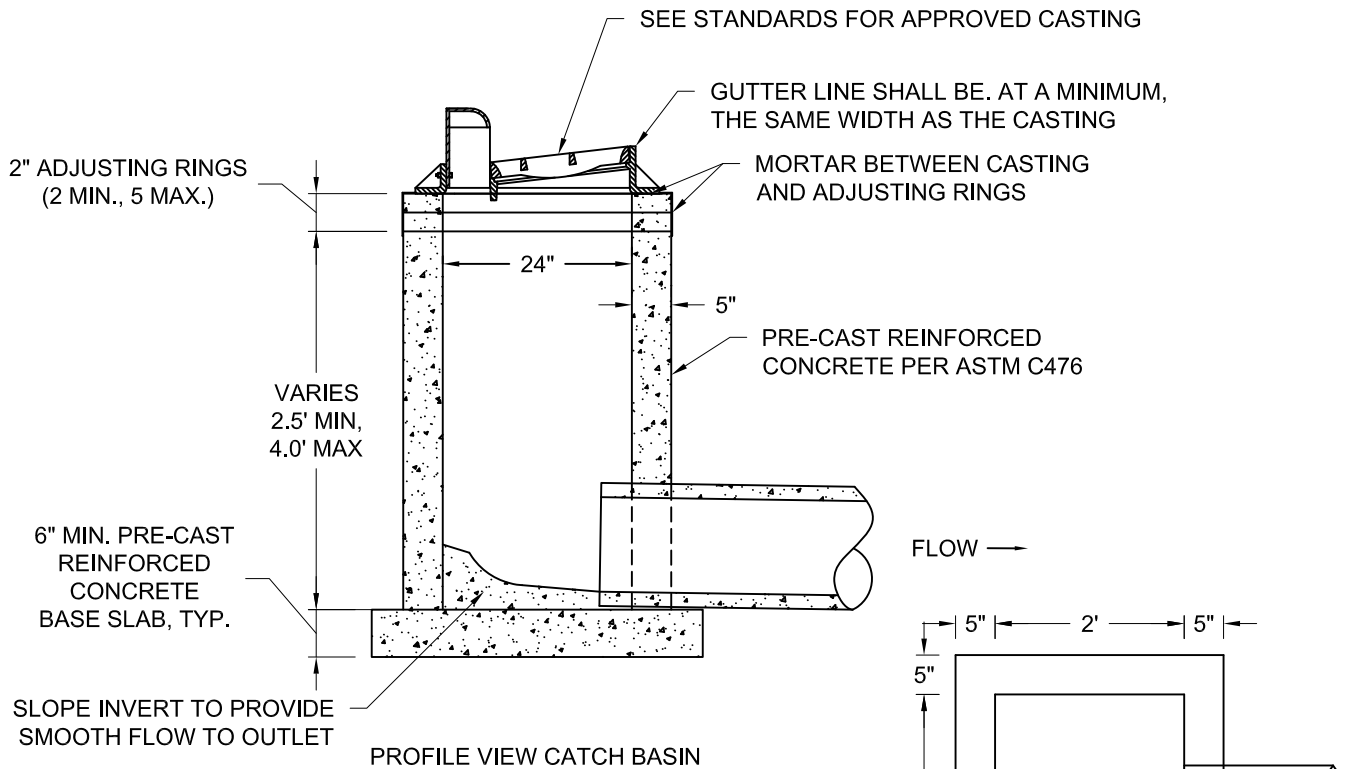


**NOTES:**

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE
3. THE ELEVATION OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B
4. STEPS REQUIRED IN MANHOLE STRUCTURES MORE THAN 4' DEEP. STRUCTURE STEPS SHALL BE SPACED 16" ON CENTER OVER DOWNSTREAM OUTLET. NEENAH R-1980E OR SIMILAR.

NOT TO SCALE

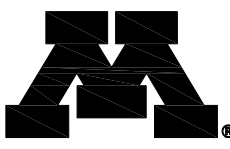
	<b>UNIVERSITY OF MINNESOTA</b> FACILITIES MANAGEMENT ENGINEERING & UTILITIES	<b>STORM SEWER STRUCTURE          STANDARD 48"          ECCENTRIC CONE</b>	STANDARD PLATE NO.  <b>STM-0002</b>
	PUBLISHED: 02/04/2022		

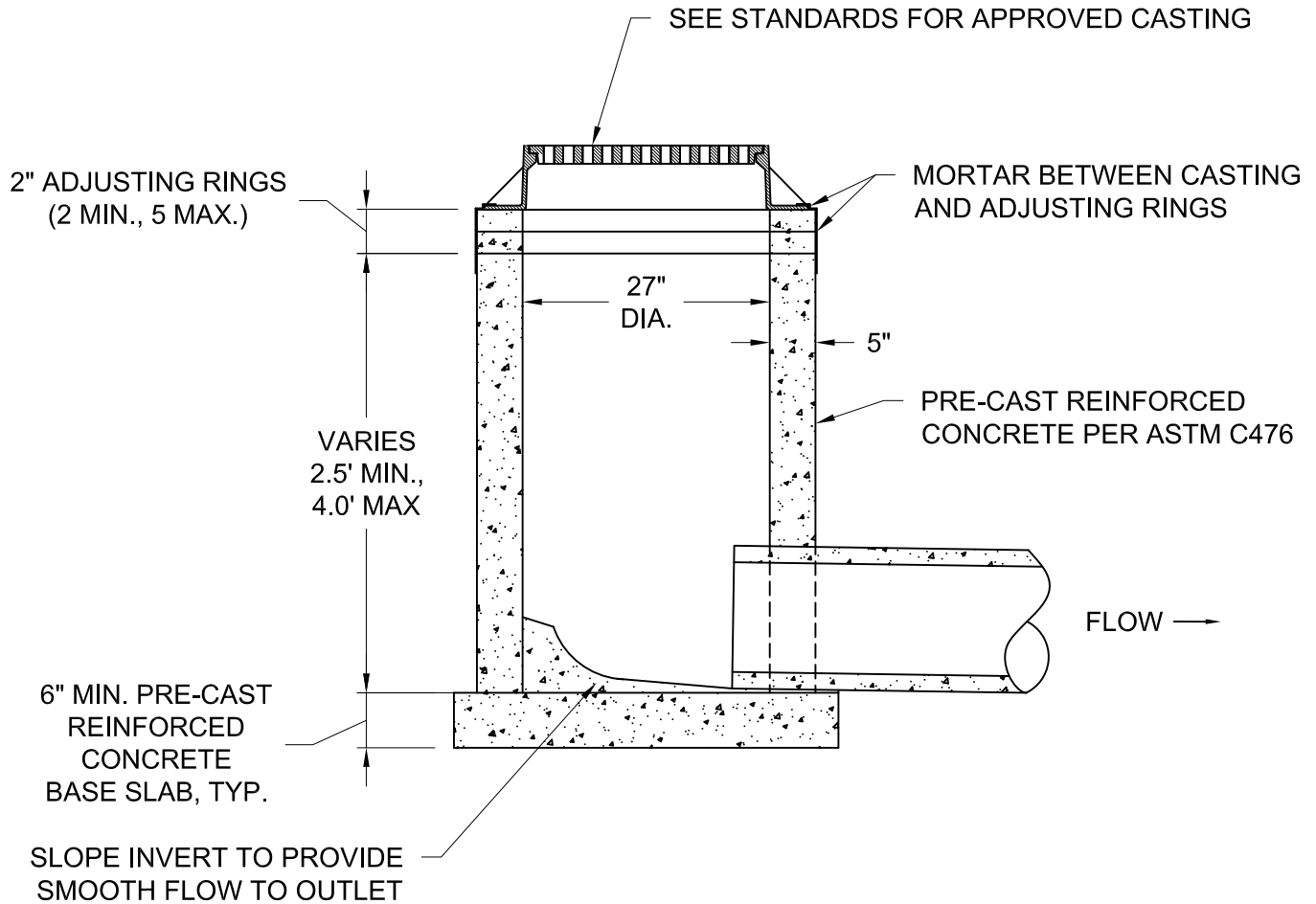


**NOTES:**

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. PROVIDE MORTAR FILLETS TO FIT THE BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET
3. THE ELEVATION OF INLET INVERTS SHALL BE ABOVE THE OUTLET INVERT ELEVATION
4. ADJUSTING RINGS TO HAVE A FULL BED OF MORTAR BETWEEN RINGS AND AROUND THE OUTSIDE OF RINGS
5. INSIDE DIMENSIONS OF 2.00' X 3.00' (STRENGTH DESIGN OF BASE SLAB AND STRUCTURE PER MANUFACTURER.)
6. FILL VOID BETWEEN STRUCTURE AND PIPE WITH BRICK AND MORTAR. MORTAR BETWEEN THE BRICK AND ACROSS THE FACE.

NOT TO SCALE

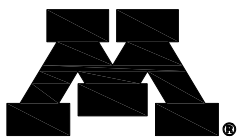
	<p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING &amp; UTILITIES</p> <p>PUBLISHED: 02/04/2022</p>	<p><b>CATCH BASIN STANDARD 2'X3'</b></p>	<p>STANDARD PLATE NO.  STM-0003</p>
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## NOTES:

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
2. PROVIDE MORTAR FILLETS TO FIT THE BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET.
3. ADJUSTING RINGS TO HAVE A FULL BED OF MORTAR BETWEEN RINGS AND AROUND THE OUTSIDE OF RINGS.
4. FILL VOID BETWEEN STRUCTURE AND PIPE WITH BRICK AND MORTAR. MORTAR BETWEEN THE BRICK AND ACROSS THE FACE.
5. FOR USE WHERE THERE ARE NO INLET PIPES

NOT TO SCALE



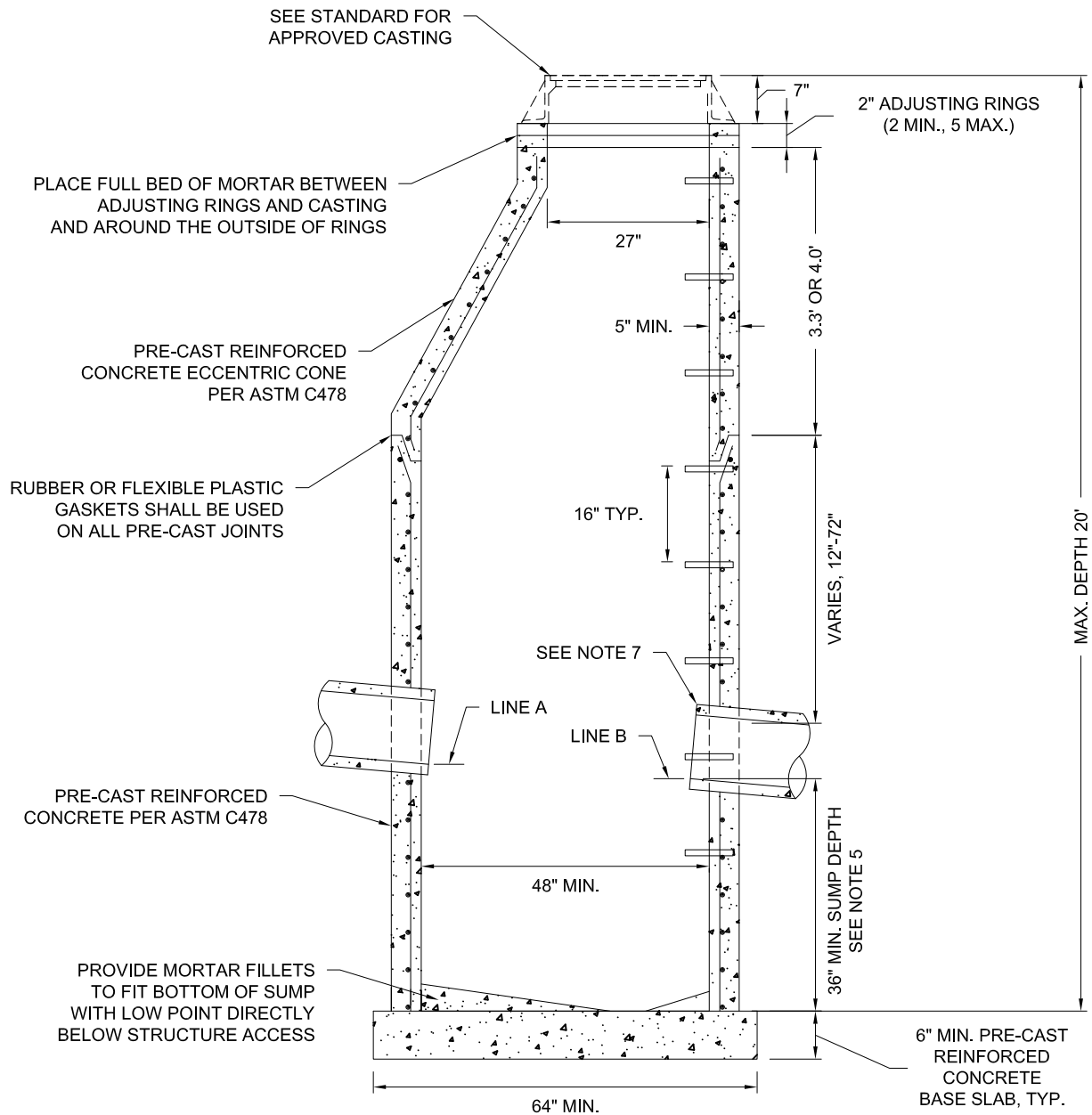
UNIVERSITY OF MINNESOTA  
FACILITIES MANAGEMENT  
ENGINEERING & UTILITIES

PUBLISHED: 02/04/2022

**CATCH BASIN  
STANDARD 27"**

STANDARD  
PLATE NO.

**STM-0004**



**NOTES:**

1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE
3. THE ELEVATION OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B
4. STRUCTURE STEPS SHALL BE SPACED 16" ON CENTER OVER DOWNSTREAM OUTLET. NEENAH R-1980E OR SIMILAR.
5. SUMP DEPTH TO BE DESIGNED BY THE ENGINEER OF RECORD
6. SUMP STRUCTURES TO HAVE A MAXIMUM OF 1 INLET PIPE, TYP.
7. OUTLET INVERT TO HAVE A SKIMMER AND/OR FLOW DISSIPATION DEVICE. SKIMMER SHALL HAVE A PORT THAT ALLOWS ACCESS TO THE OUTLET PIPE, AND AN ANTI-SIPHON DEVICE.

NOT TO SCALE



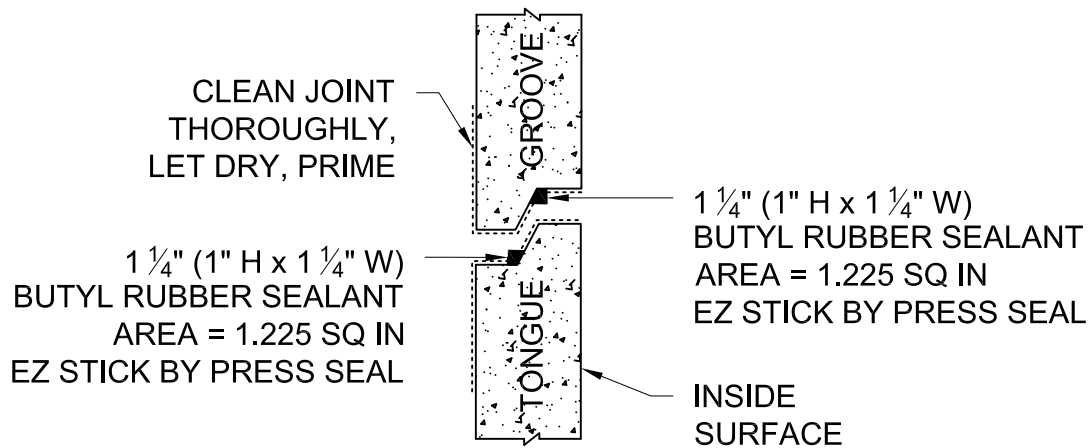
UNIVERSITY OF MINNESOTA  
FACILITIES MANAGEMENT  
ENGINEERING & UTILITIES

PUBLISHED: 02/04/2022

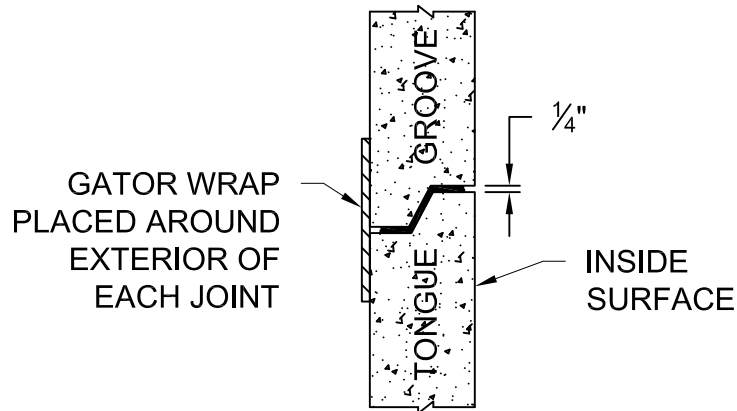
**STORM SEWER STRUCTURE  
SUMP 48"  
ECCENTRIC CONE**

STANDARD  
PLATE NO.

**STM-0005**



PRE-ASSEMBLED JOINT DETAIL

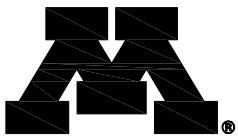


ASSEMBLED JOINT DETAIL

## NOTES:

1. TWO ROPES OF BUTYL SEALANT, ALL AROUND
2. EXTERIOR JOINT WRAP, TOP AND SIDES (CONSEAL CS212 OR EQUAL)
3. TIE ALL JOINTS

NOT TO SCALE



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ENGINEERING & UTILITIES

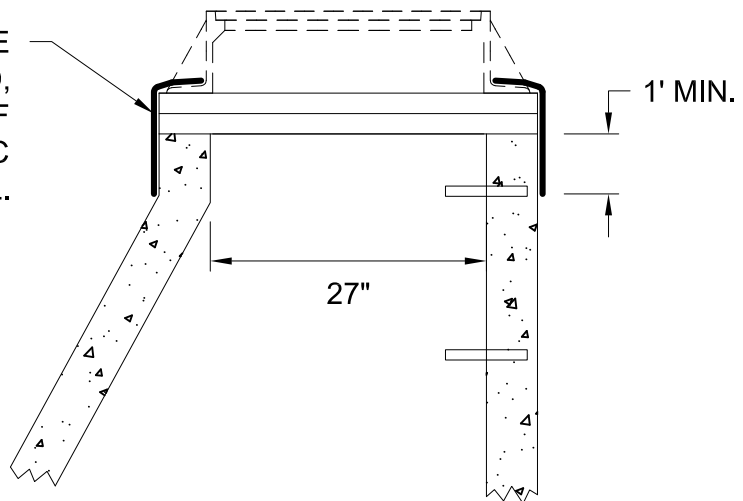
PUBLISHED: 02/04/2022

### BOX CULVERT WATERTIGHT JOINT

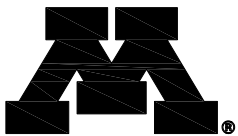
STANDARD  
PLATE NO.

STM-0020

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.



NOT TO SCALE



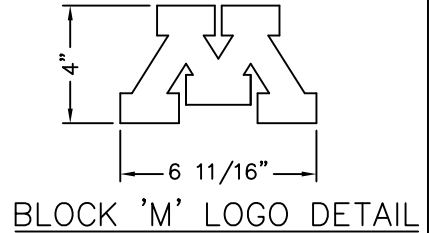
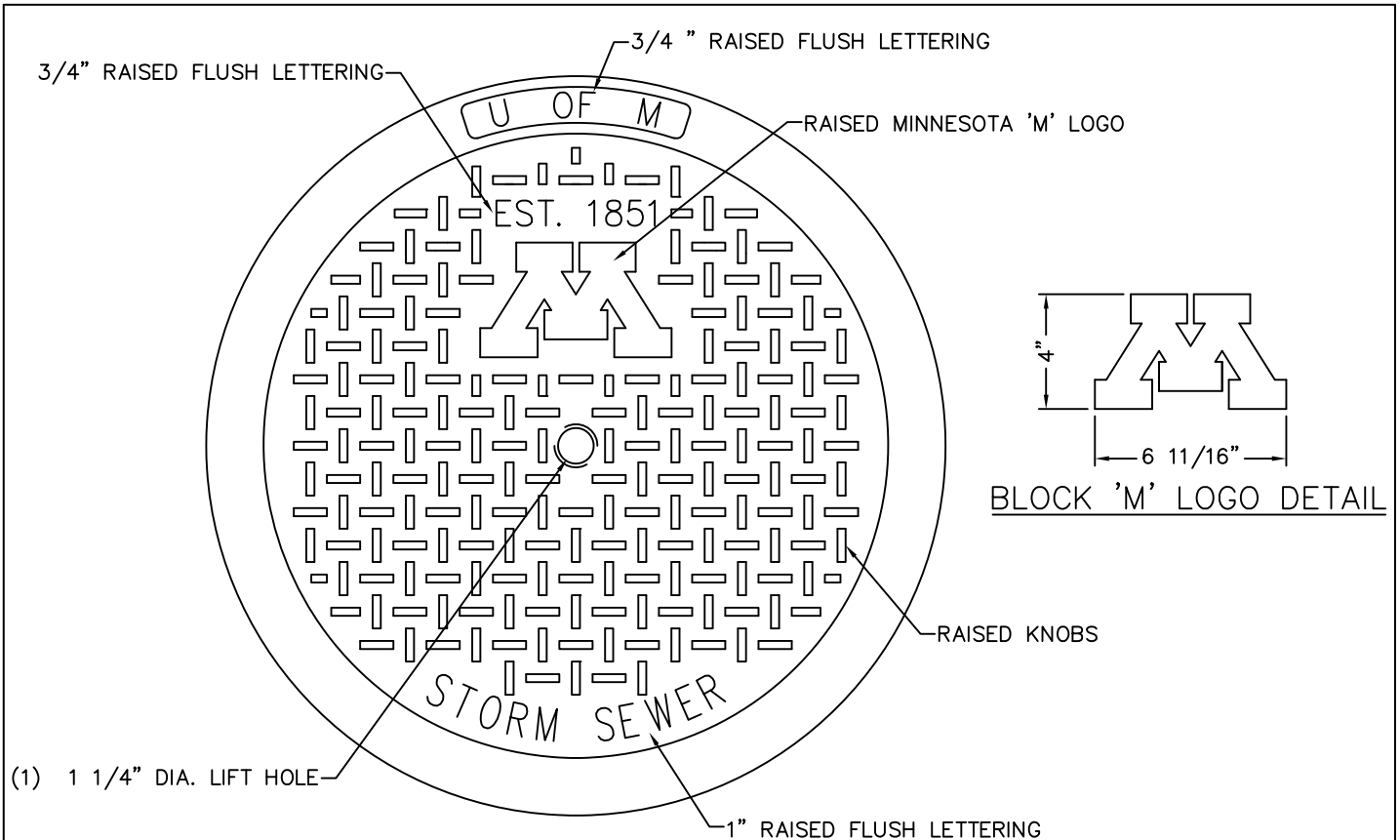
UNIVERSITY OF MINNESOTA  
FACILITIES MANAGEMENT  
ENGINEERING & UTILITIES

PUBLISHED: 02/04/2022

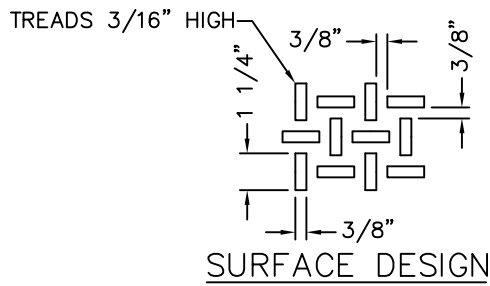
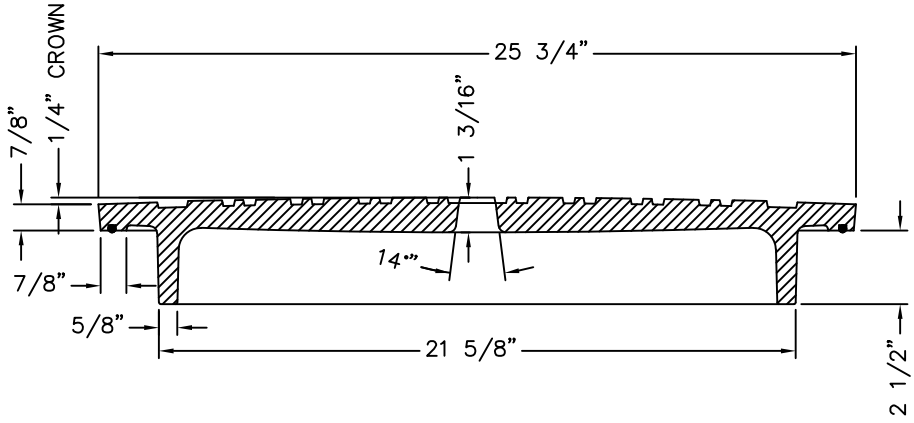
**FABRIC WRAPPED  
CASTING**

STANDARD  
PLATE NO.

**STM-0022**



(1) 1 1/4" DIA. LIFT HOLE



**NOTES**

NEENAH FOUNDRY CASTING NO. R-1733-0805 OR SIMILAR

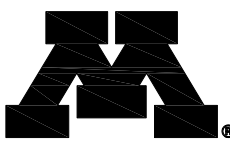
EQUIPMENT NOS.: NEW COPE AND DRAG

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

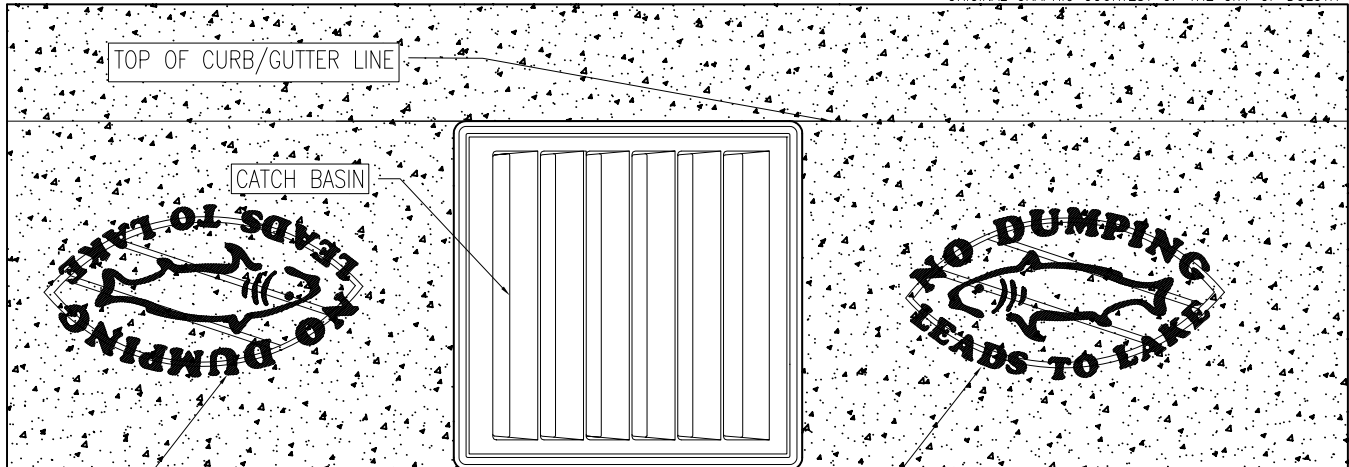
FINISH: NO PAINT UNLESS SPECIFIED ON PURCHASE ORDER

WEIGHT: APPROX. 150 LBS.

NOT TO SCALE

	<p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING &amp; UTILITIES</p> <p>PUBLISHED: 03/17/2023</p>	<p><b>STORM SEWER STRUCTURE SOLID COVER CASTING</b></p>	<p>STANDARD PLATE NO.</p> <p><b>STM-1001</b></p>
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ORIGINAL GRAPHIC COURTESY OF THE CITY OF DULUTH



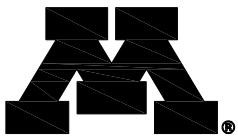
SECOND GUTTER STAMP, WHEN USED, TO BE PLACED SO THAT IT IS READABLE FROM THE CURB

GUTTER STAMP TO BE PLACED A MAXIMUM OF 18" FROM CATCH BASIN GRATE ON UPHILL SIDE AND CENTERED AND PARALLEL IN GUTTER.

## NOTES:

1. FOR USE WITHIN THE URBANIZED AREA OF THE UNIVERSITY OF MINNESOTA DULUTH (UMD) CAMPUS ONLY.
2. UMD USES THE SAME STAMP AS CITY OF DULUTH. A GUTTER STAMP CAN BE BORROWED FROM UMD FACILITIES MANAGEMENT IF NECESSARY.
3. IMPRINT SHOULD BE APPROXIMATELY  $\frac{1}{4}$ " (ONE QUARTER) INCH IN DEPTH. NOT SO DEEP SO AS TO MAKE FRAME MARKS IN THE CONCRETE, BUT DEEP ENOUGH THAT WHEN STAMP IS REMOVED THE TEXT IS LEGIBLE.
4. A SINGLE STAMP SHOULD BE PLACED ON THE UPGRADIENT SIDE OF THE CATCH BASIN SO THAT IT IS READABLE FROM THE STREET.
5. WHEN ADJACENT TO A SIDEWALK AND/OR THE GUTTER IS SLOPED TOWARD THE CATCH BASIN IN BOTH DIRECTIONS, A SECOND STAMP SHOULD BE PLACED SO THAT IT IS READABLE FROM THE BACK OF CURB.

NOT TO SCALE



UNIVERSITY OF MINNESOTA  
FACILITIES MANAGEMENT  
ENGINEERING & UTILITIES

PUBLISHED: 04/13/2023

**CATCH BASIN GUTTER STAMP  
UMD CAMPUS ONLY**

STANDARD  
PLATE NO.

**STM-4001**