

UNIVERSITY OF MINNESOTA

ENGINEERING & UTILITIES

STANDARD PLATES DIRECTORY

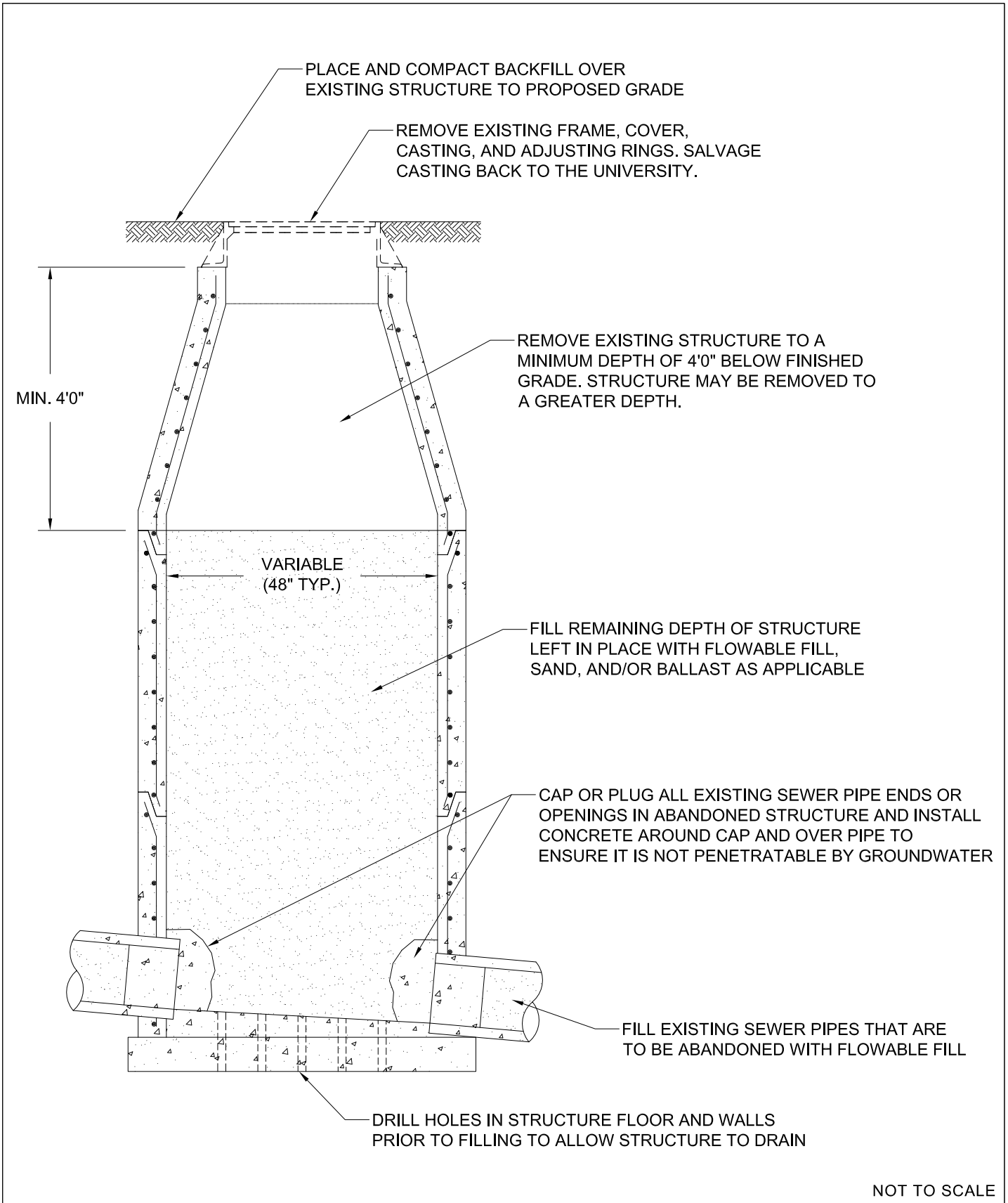
NOTE: The following standard plates establish minimum engineering design guidance. All designs shall use engineering judgement and are the responsibility of the Engineer of Record.

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

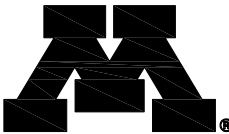
| WATER | | |
|---------------|---|------------------|
| NUMBER | TITLE | PUBLISHED |
| WTR-0001 | Water Structure Standard 48" Eccentric Cone | 4/30/2024 |
| WTR-0002 | Gate Valve and Box Installation | 4/30/2024 |
| WTR-1001 | Water Structure Cover Casting | 3/17/2023 |

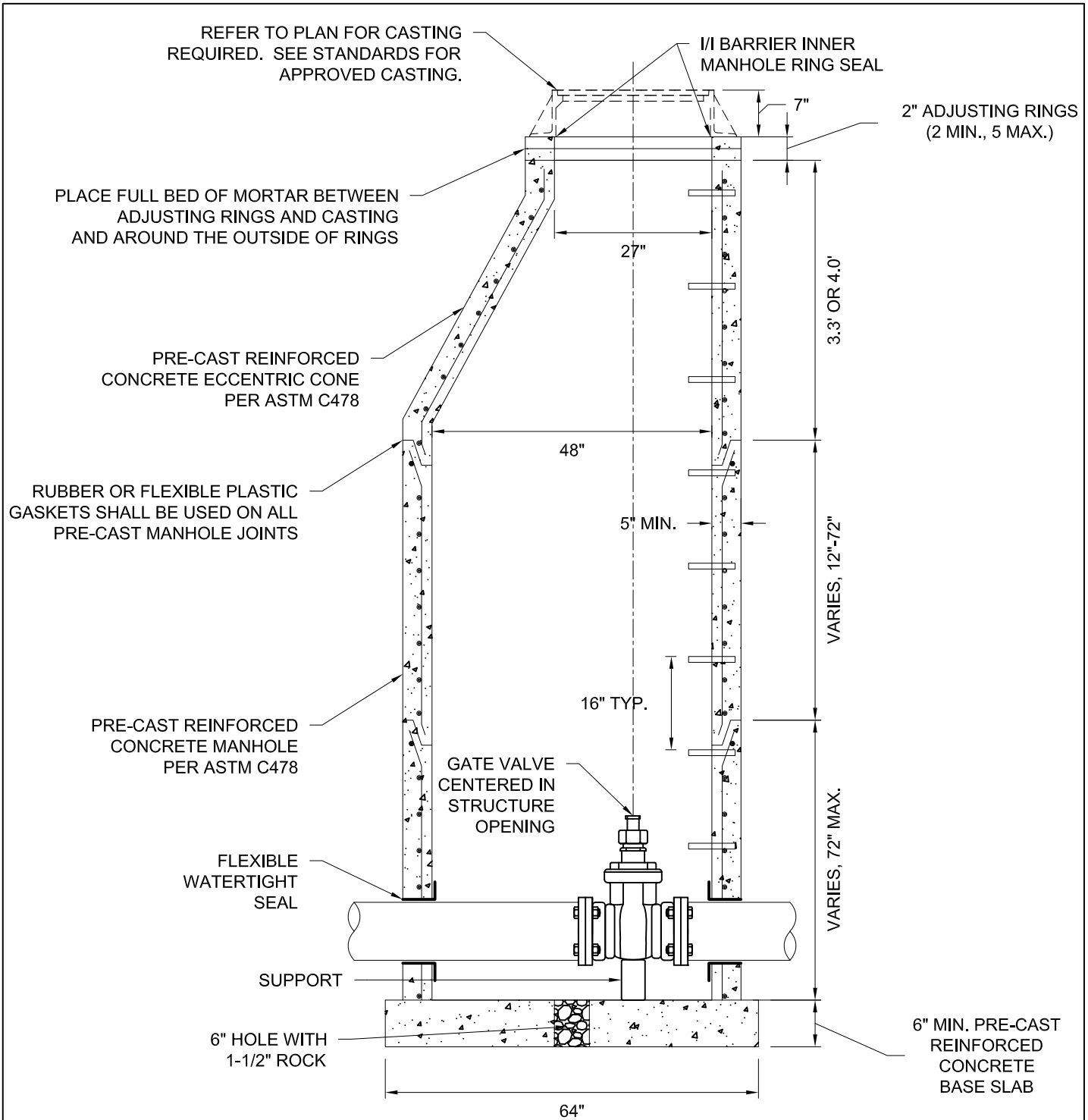
| SANITARY SEWER | | |
|-----------------------|--|------------------|
| NUMBER | TITLE | PUBLISHED |
| SAN-0001 | Sanitary Sewer Structure Standard 48" Eccentric Cone | 4/30/2024 |
| SAN-0002 | Precast Manhole Inside Drop Eccentric Cone | 4/30/2024 |
| SAN-0003 | Sanitary Sewer Cleanout | 4/30/2024 |
| SAN-1001 | Sanitary Sewer Structure Cover Casting | 3/17/2023 |

| STORM SEWER | | |
|--------------------|---|------------------|
| NUMBER | TITLE | PUBLISHED |
| STM-0002 | Storm Sewer Structure Standard 48" Eccentric Cone | 4/30/2024 |
| STM-0003 | Catch Basin Standard 2'x3' | 4/30/2024 |
| STM-0004 | Catch Basin Standard 27" | 4/30/2024 |
| STM-0005 | Precast Manhole - 48" Standard Sump | 4/30/2024 |
| 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 & UTILITIES</p> <p>PUBLISHED: 03/17/2023</p> | <p>ABANDONED STRUCTURE</p> | <p>STANDARD PLATE NO.</p> <p>GEN-0001</p> |
|---|---|-----------------------------------|---|

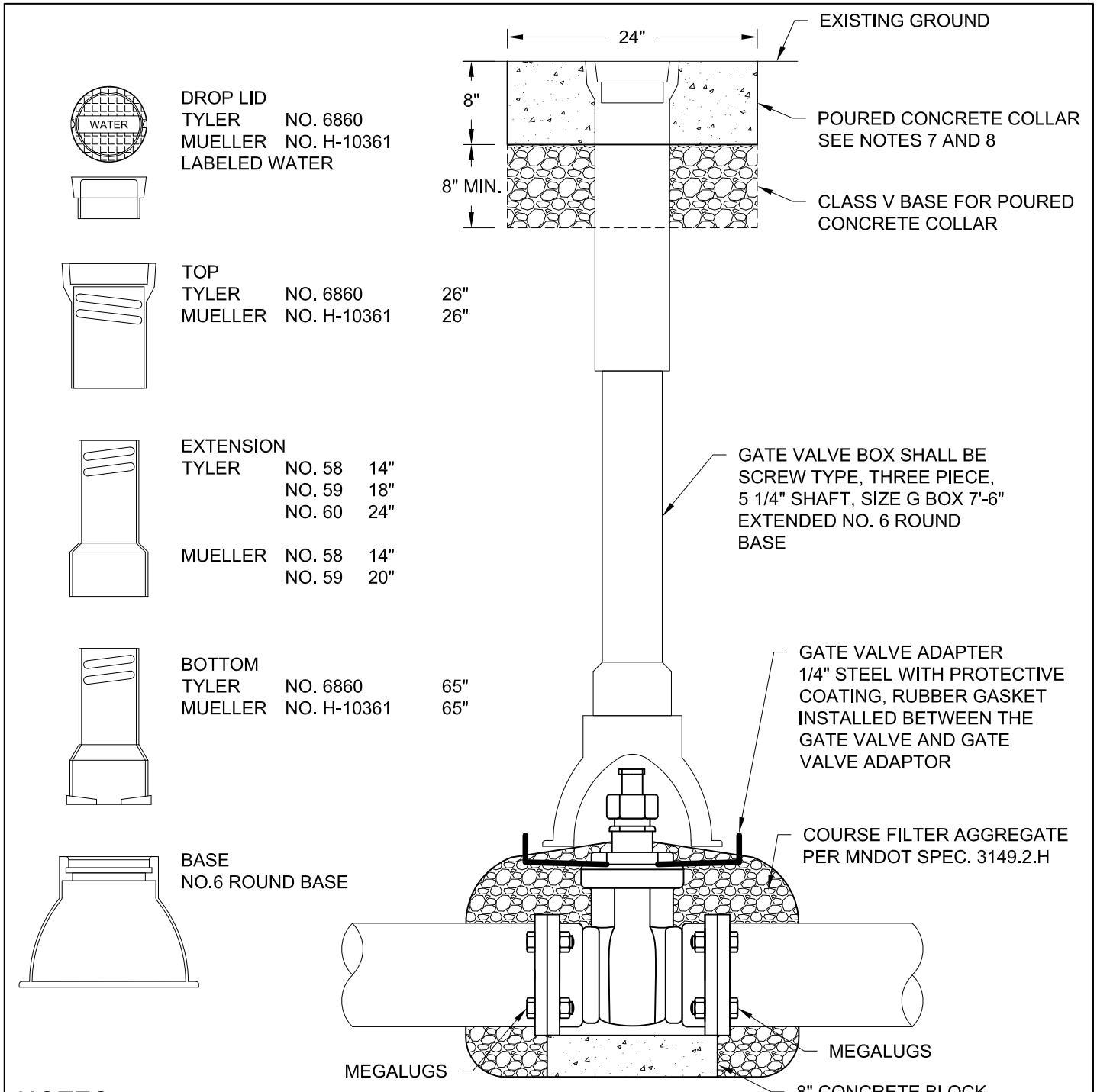


NOTES:

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. 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

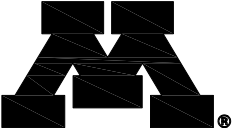
| | | | |
|---|---|---|--|
|  | <p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES</p> <p>PUBLISHED: 04/30/2024</p> | <p>WATER VALVE STRUCTURE STANDARD 48" ECCENTRIC CONE</p> | <p>STANDARD PLATE NO.</p> <p>WTR-0001</p> |
|---|---|---|--|

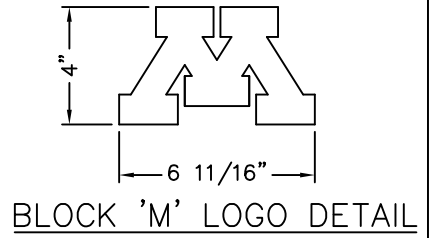
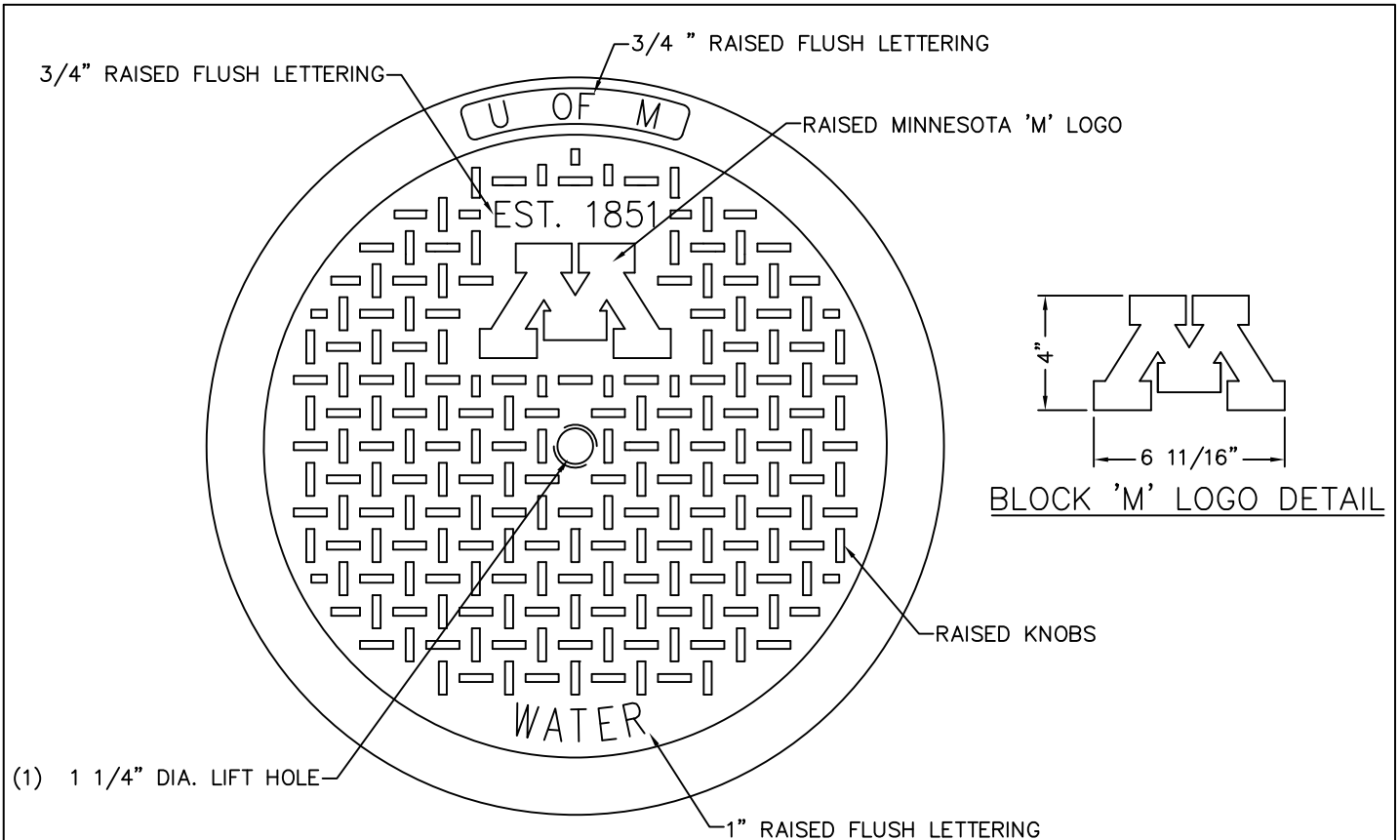


NOTES:

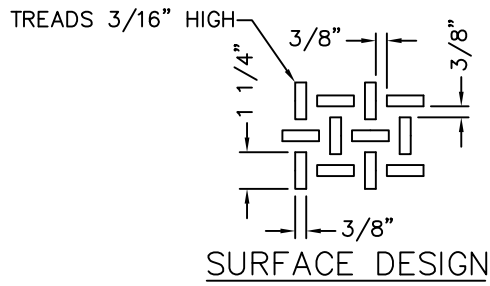
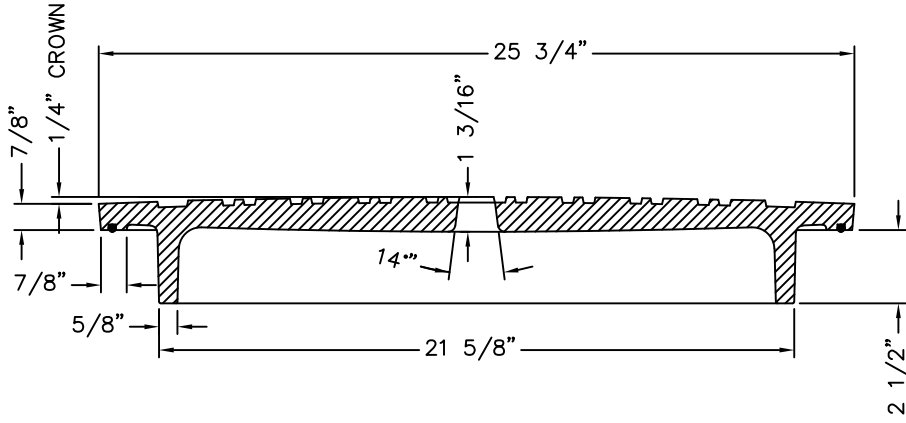
1. VALVE BOX PRODUCTS TO BE AS SHOWN ABOVE OR APPROVED EQUAL.
2. ALL BOLTS INCLUDING T-BOLTS SHALL BE COR-BLUE.
3. RESTRAIN TEE AND VALVE WITH MEGALUG THRUST RESTRAINTS.
4. 7.5' MINIMUM COVER REQUIRED OVER TOP OF WATER MAIN.
5. LID TO BE FLUSH WITH GRADE UNLESS SPECIFIED IN UMN STANDARDS DIVISION 33 10 00.
6. BOX TO BE SET TO PROVIDE 12" OF ADJUSTMENT.
7. CONCRETE COLLAR TO ENCASE VALVE BOX WHEN LOCATED IN PAVERS, CLASS V, OR GRAVEL AREAS
8. CONCRETE COLLAR SHALL BE CIRCULAR OR SQUARE

NOT TO SCALE

| | | | |
|---|--|---|-------------------------------|
|  | <p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES</p> | <p>GATE VALVE AND BOX INSTALLATION</p> | <p>STANDARD PLATE NO.</p> |
| | <p>PUBLISHED: 04/30/2024</p> | | <p>WTR-0002</p> |



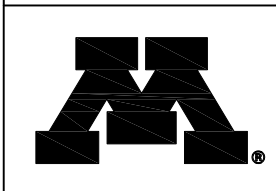
(1) 1 1/4" DIA. LIFT HOLE



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.

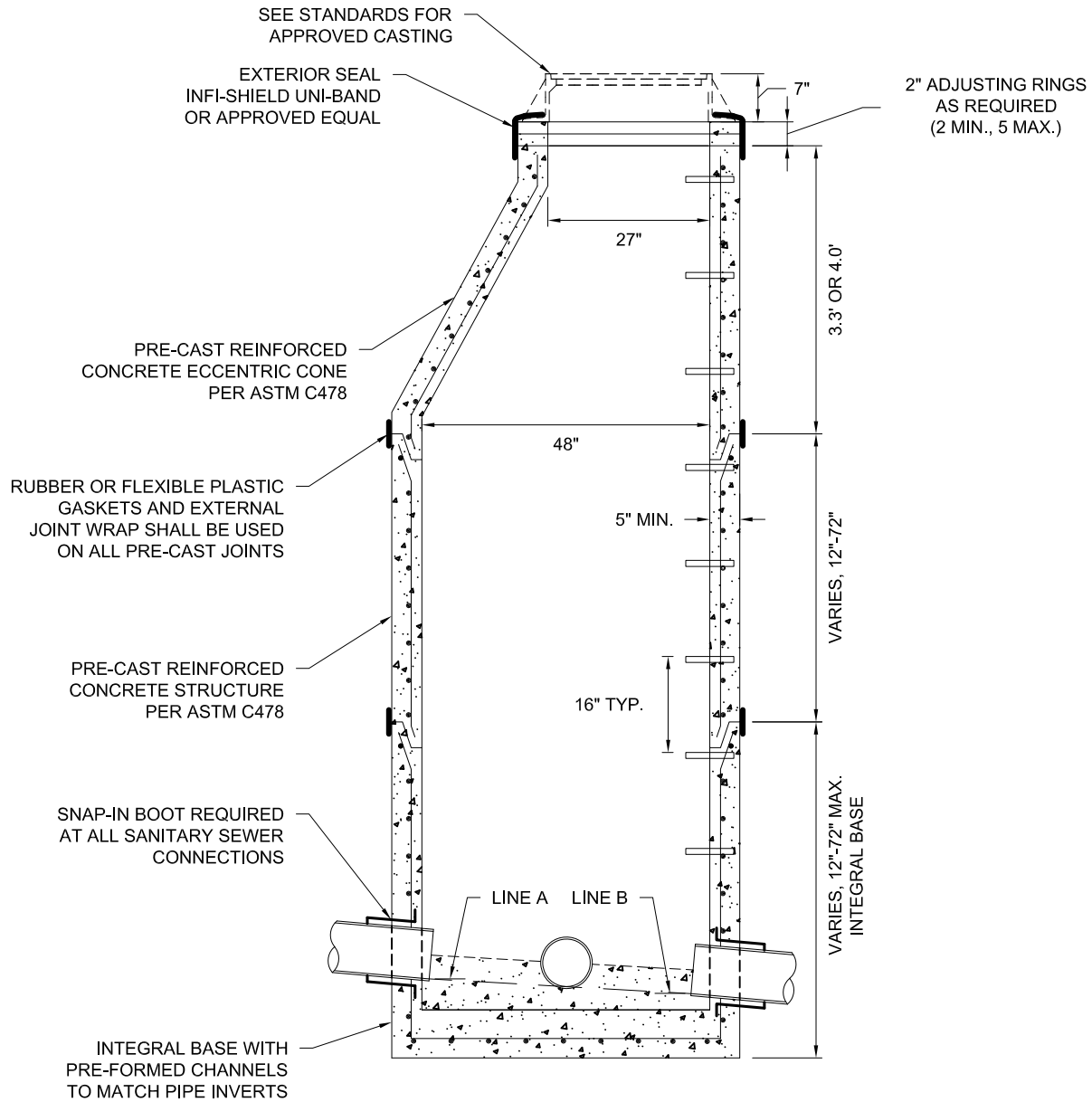
NOT TO SCALE



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

**WATER STRUCTURE
 COVER CASTING**

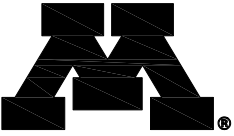
STANDARD
 PLATE NO.
WTR-1001

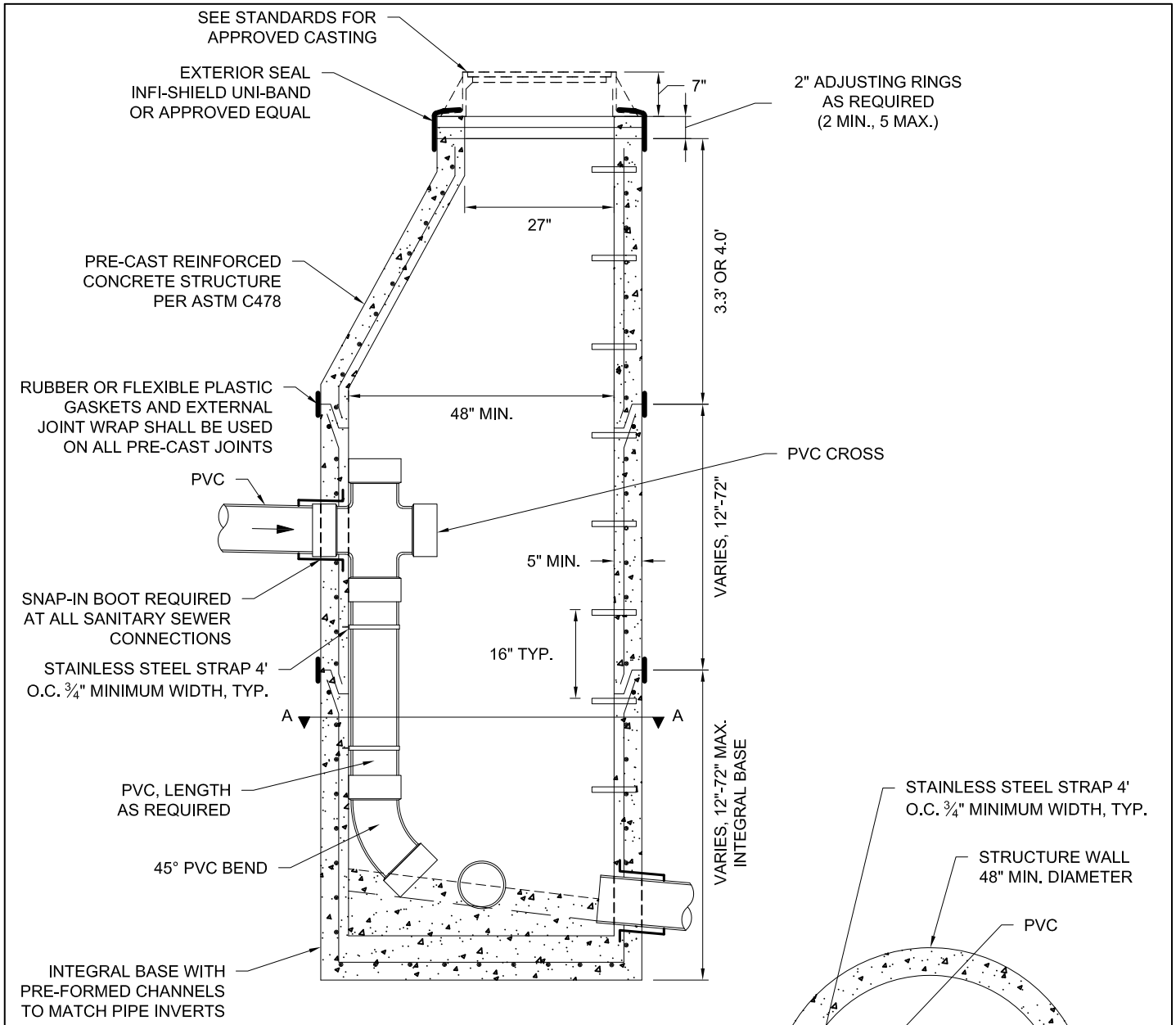


NOTES:

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

| | | | |
|---|--|---|--|
|  | UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES | SANITARY SEWER STRUCTURE STANDARD 48" ECCENTRIC CONE | STANDARD PLATE NO. SAN-0001 |
| | PUBLISHED: 04/30/2024 | | |

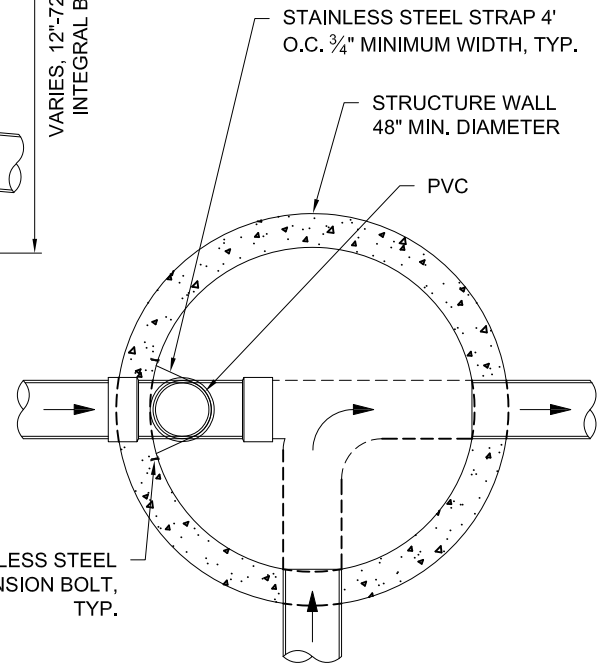


2" ADJUSTING RINGS AS REQUIRED (2 MIN., 5 MAX.)

3.3' OR 4.0'

VARIES, 12"-72"

VARIES, 12"-72" MAX. INTEGRAL BASE

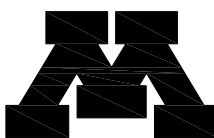


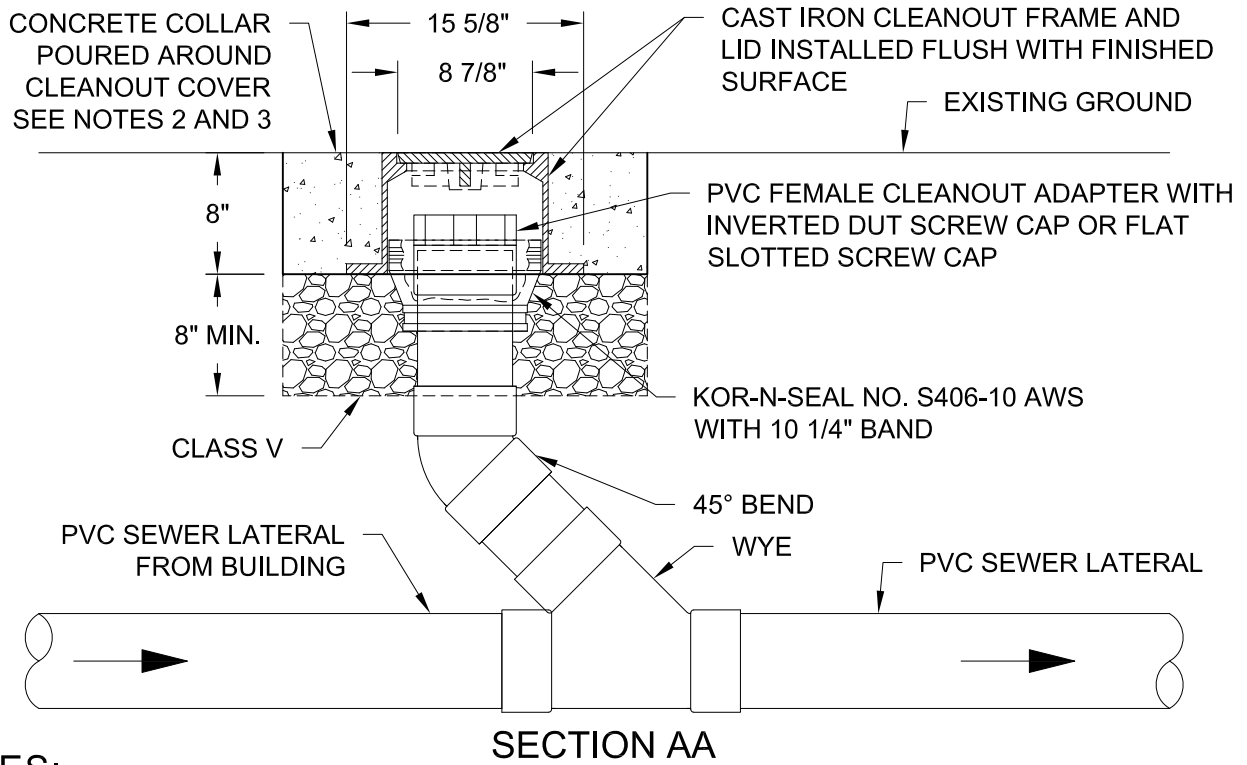
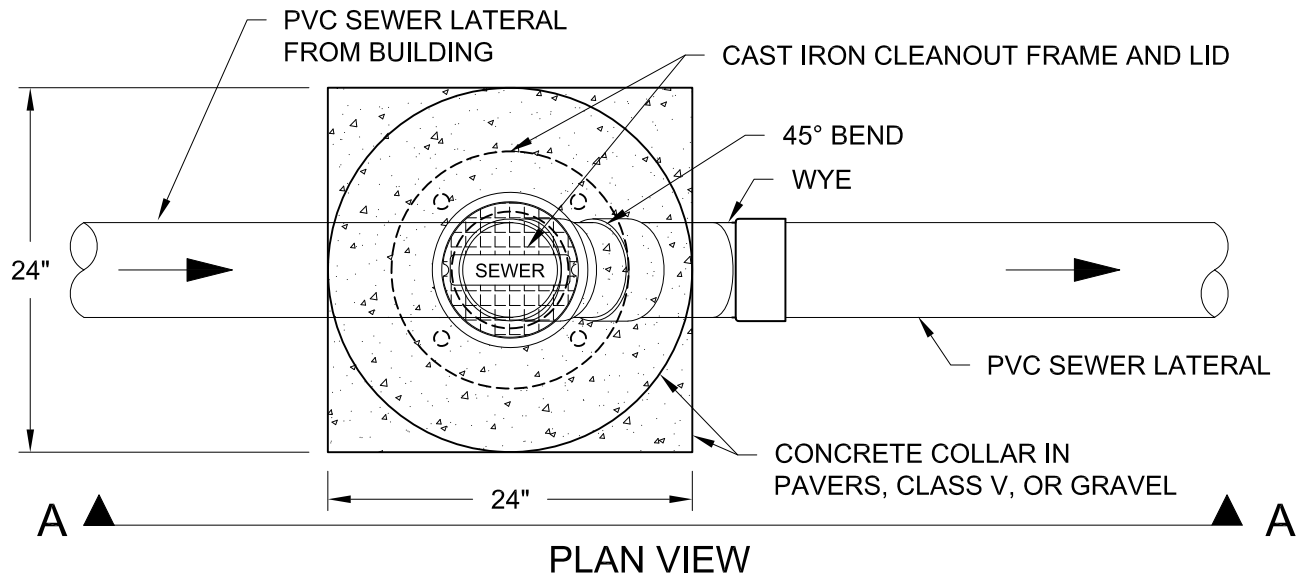
SECTION AA

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

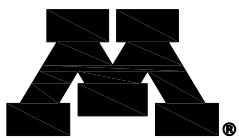
| | | | |
|---|---|---|--|
|  | <p style="text-align: center;">UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES</p> <p style="text-align: center;">PUBLISHED: 04/30/2024</p> | <p>SANITARY SEWER STRUCTURE INSIDE DROP ECCENTRIC CONE</p> | <p>STANDARD PLATE NO. SAN-0002</p> |
|---|---|---|--|



NOTES:

1. ALL PIPING SHALL BE PVC
2. CONCRETE COLLAR TO ENCASE CLEANOUT FRAME WHEN LOCATED IN PAVERS, CLASS V, OR GRAVEL 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



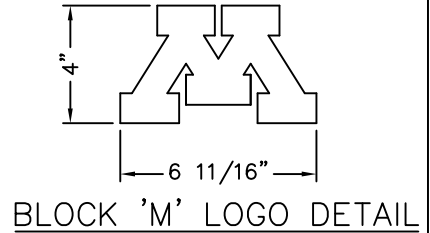
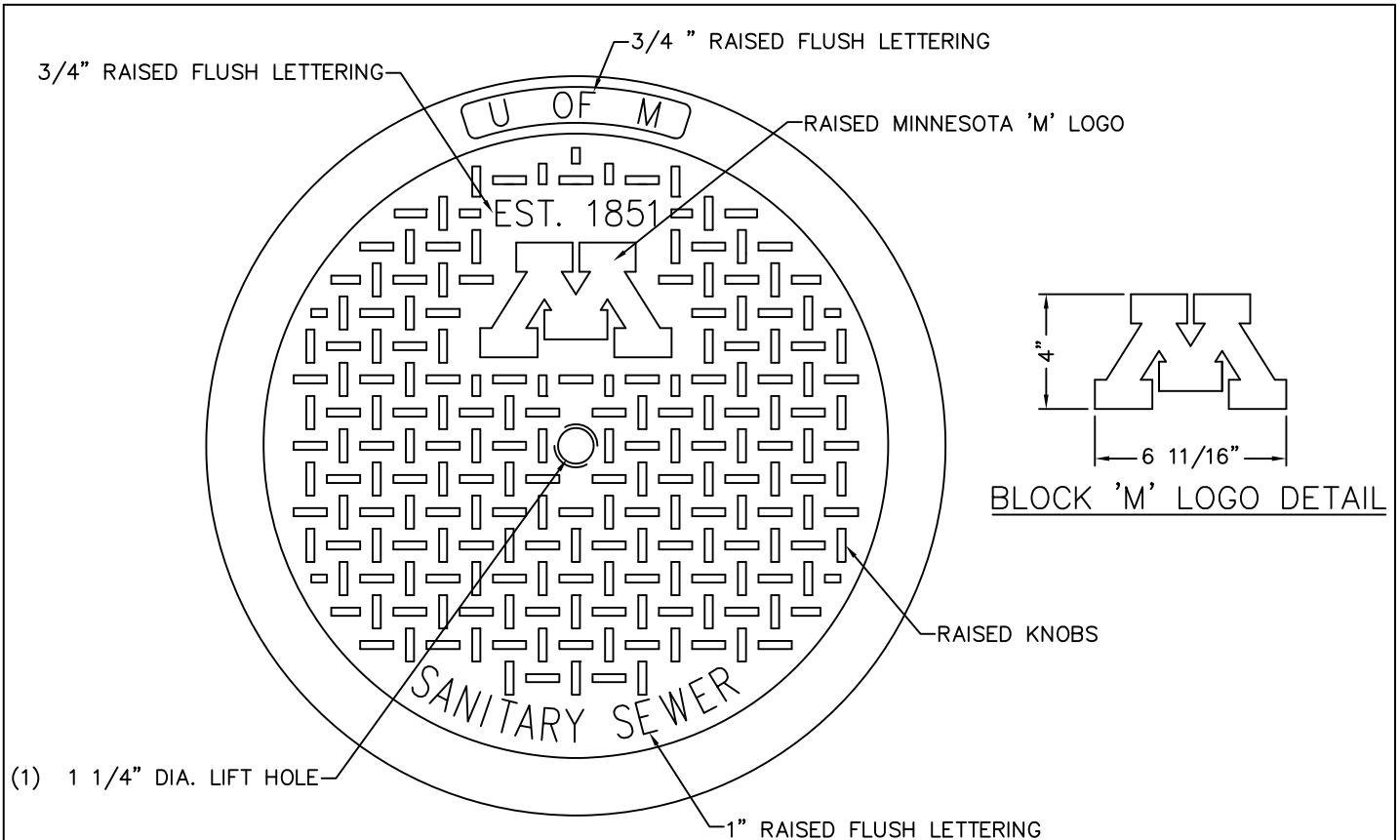
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FACILITIES MANAGEMENT
ENGINEERING & UTILITIES

PUBLISHED: 04/30/2024

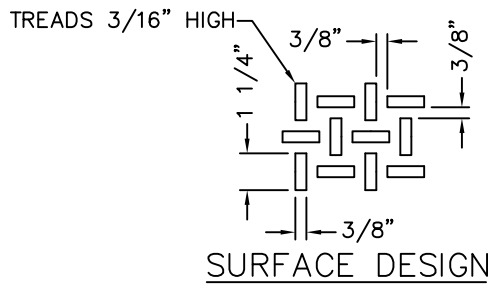
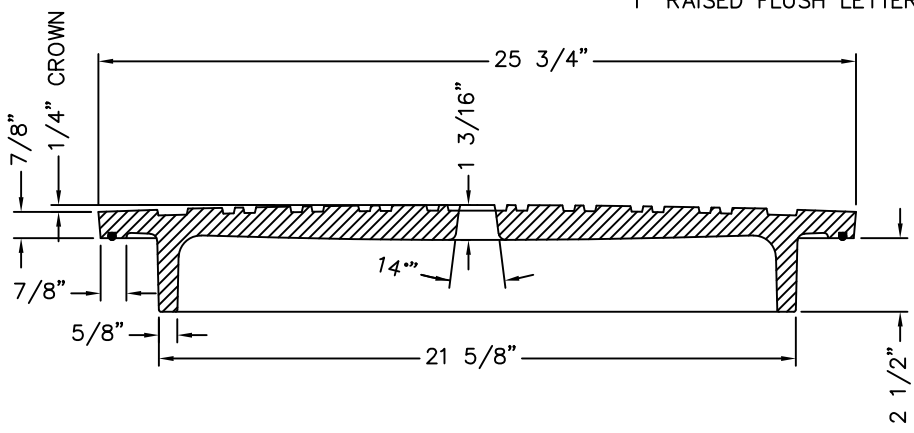
**SANITARY SEWER
CLEANOUT**

STANDARD
PLATE NO.

SAN-0003



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

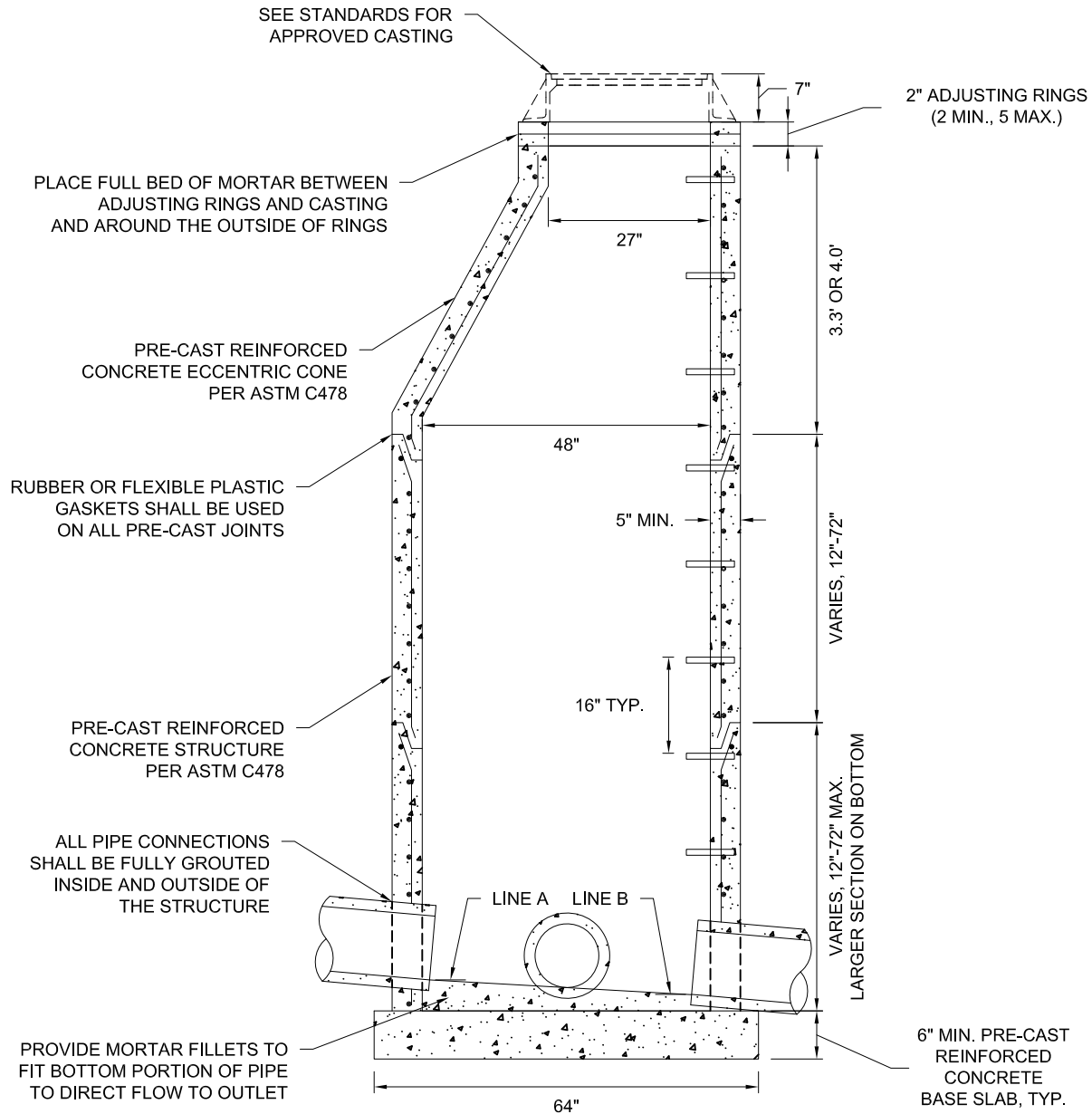


NOTES

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

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



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. WHEN REQUIRED, FULLY WATERTIGHT PIPE CONNECTIONS SHALL BE GASKETED JOINTS.

NOT TO SCALE



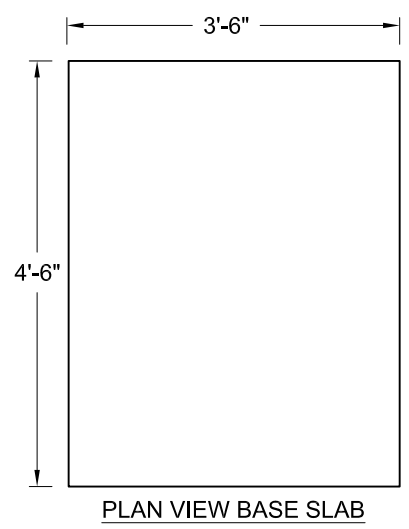
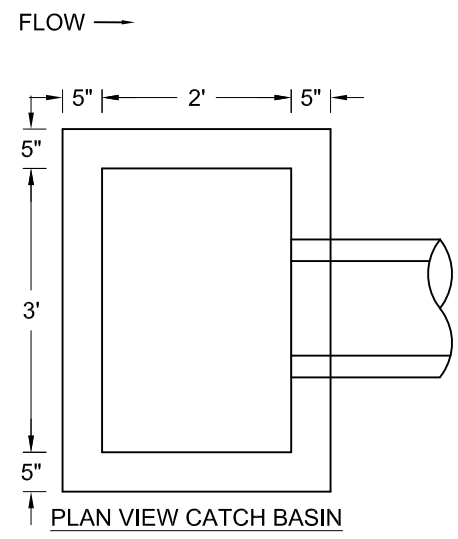
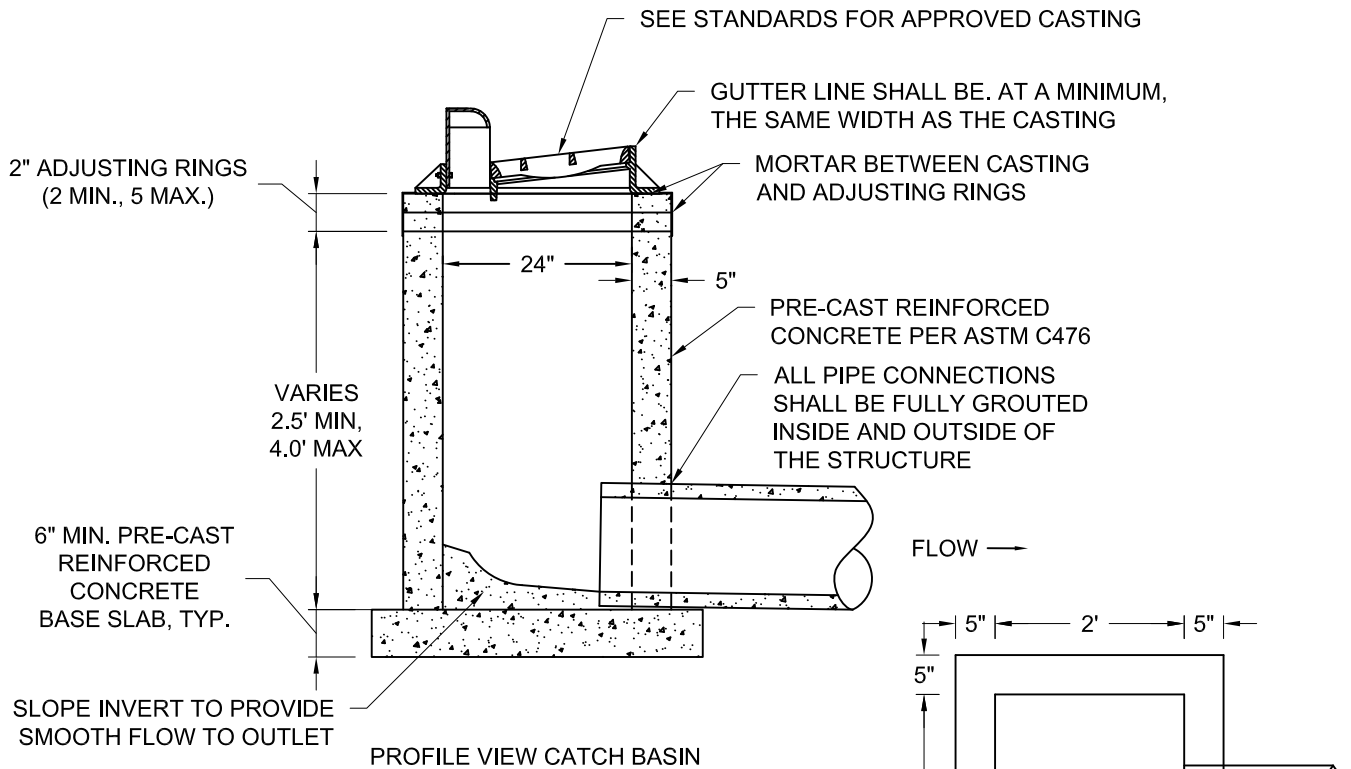
UNIVERSITY OF MINNESOTA
 FACILITIES MANAGEMENT
 ENGINEERING & UTILITIES

PUBLISHED: 04/30/2024

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

STANDARD
 PLATE NO.

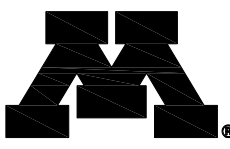
STM-0002

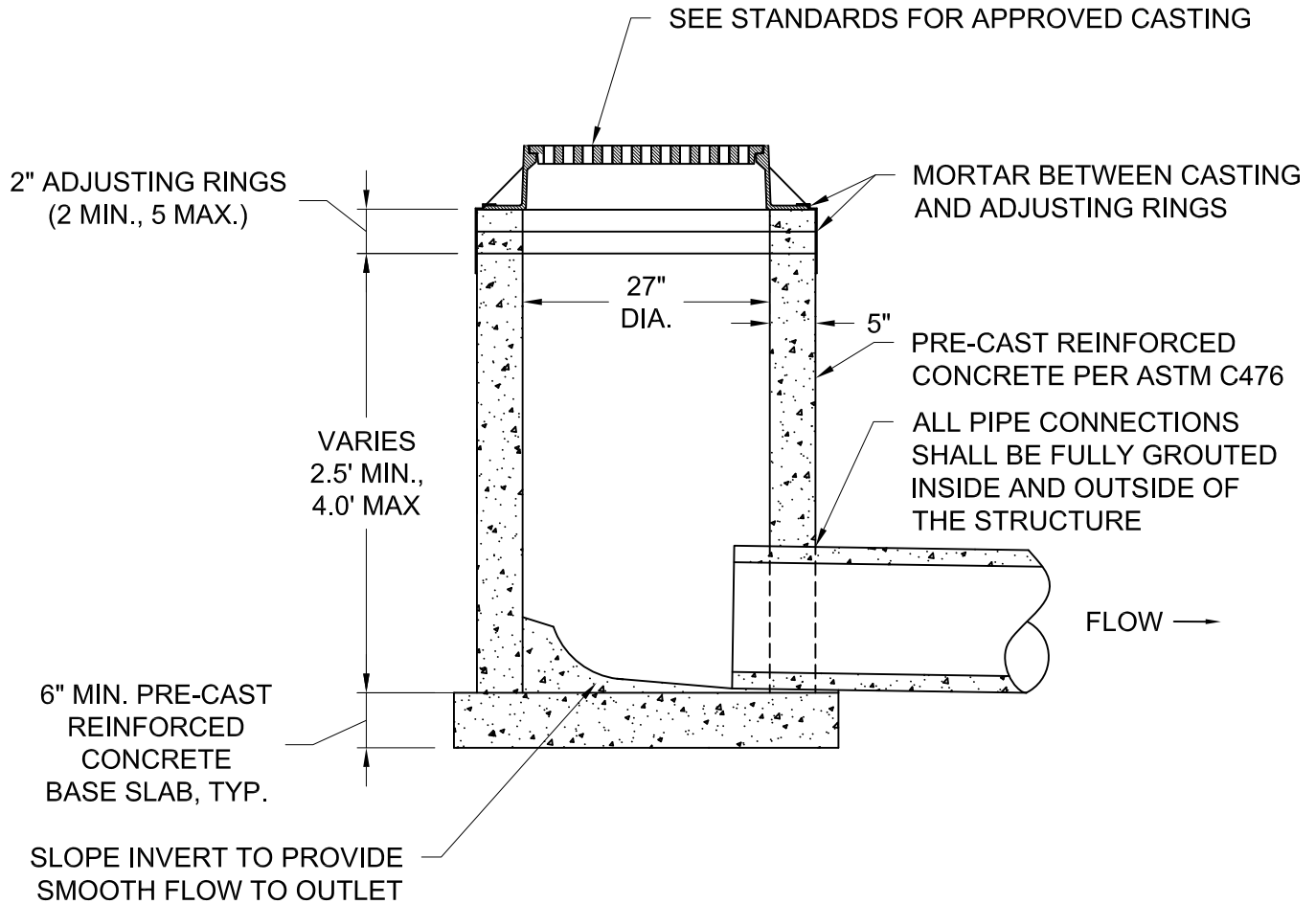


NOTES:

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. WHEN REQUIRED, FULLY WATERTIGHT PIPE CONNECTIONS SHALL BE GASKETED JOINTS.

NOT TO SCALE

| | | | |
|---|---|--|---|
|  | <p>UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES</p> <p>PUBLISHED: 04/30/2024</p> | <p>CATCH BASIN STANDARD 2'X3'</p> | <p>STANDARD PLATE NO.</p> <p>STM-0003</p> |
|---|---|--|---|



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. FOR USE WHERE THERE ARE NO INLET PIPES.
5. WHEN REQUIRED, FULLY WATERTIGHT CONNECTIONS SHALL BE GASKETED JOINTS.

NOT TO SCALE



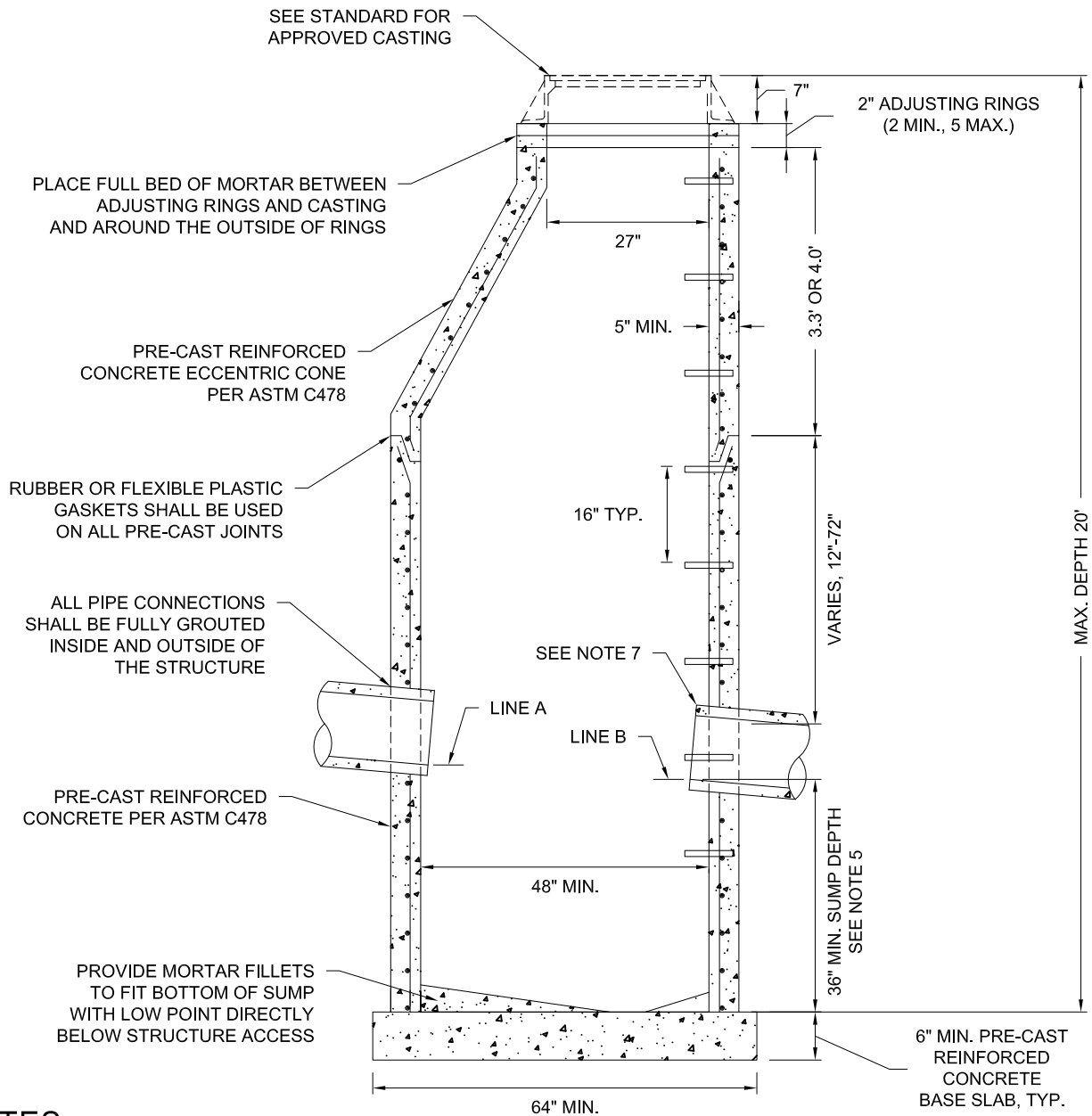
UNIVERSITY OF MINNESOTA
FACILITIES MANAGEMENT
ENGINEERING & UTILITIES

PUBLISHED: 04/30/2024

**CATCH BASIN
STANDARD 27"**

STANDARD
PLATE NO.

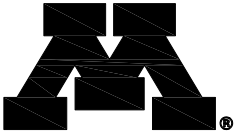
STM-0004

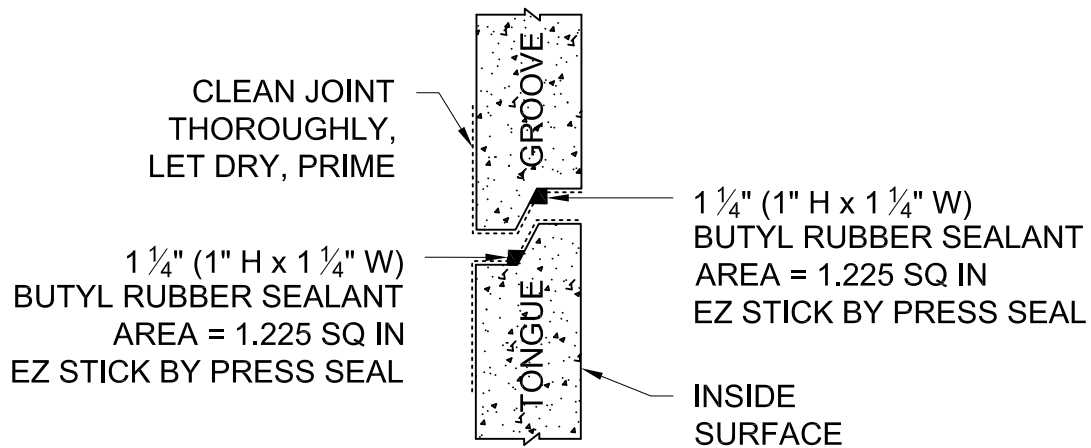


NOTES:

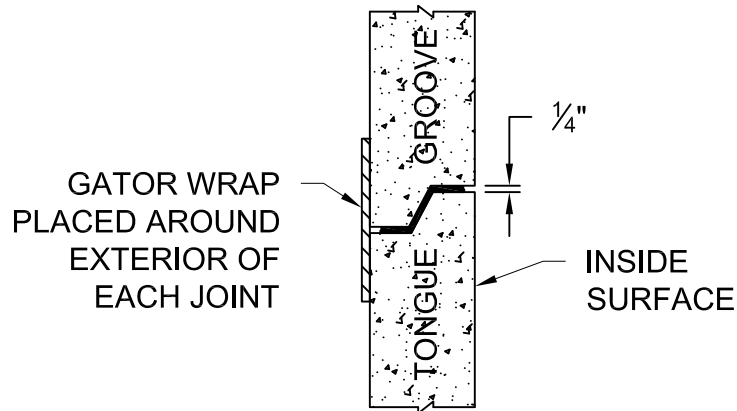
1. REINFORCEMENT SHALL BE SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT
2. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE
3. THE ELEVATION OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B
4. STRUCTURE STEPS SHALL BE SPACED 16" ON CENTER OVER DOWNSTREAM OUTLET. 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.
8. WHEN REQUIRED, FULLY WATERTIGHT PIPE CONNECTIONS SHALL BE GASKETED JOINTS.

NOT TO SCALE

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|---|--|--|--|
|  | UNIVERSITY OF MINNESOTA FACILITIES MANAGEMENT ENGINEERING & UTILITIES | STORM SEWER STRUCTURE SUMP 48" ECCENTRIC CONE | STANDARD PLATE NO. STM-0005 |
| | PUBLISHED: 04/30/2024 | | |



PRE-ASSEMBLED JOINT DETAIL

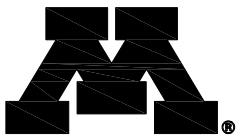


ASSEMBLED JOINT DETAIL

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



UNIVERSITY OF MINNESOTA
FACILITIES MANAGEMENT
ENGINEERING & UTILITIES

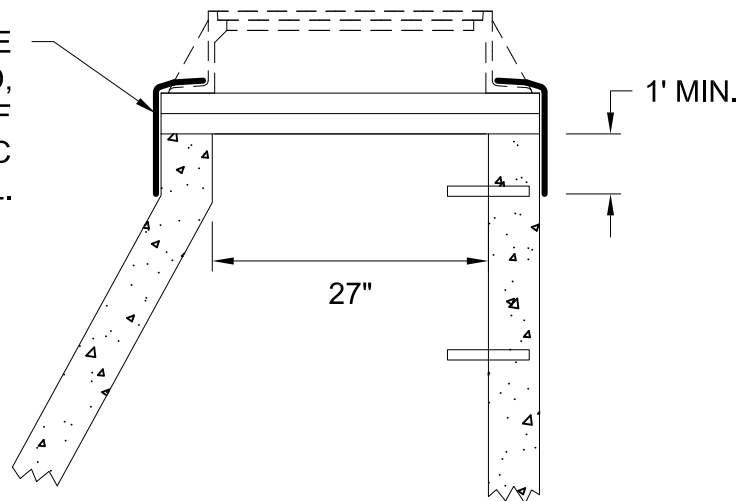
PUBLISHED: 02/04/2022

**BOX CULVERT
WATERTIGHT JOINT**

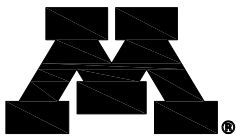
STANDARD
PLATE NO.

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



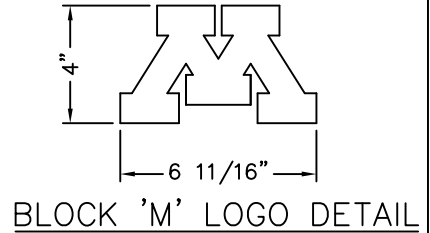
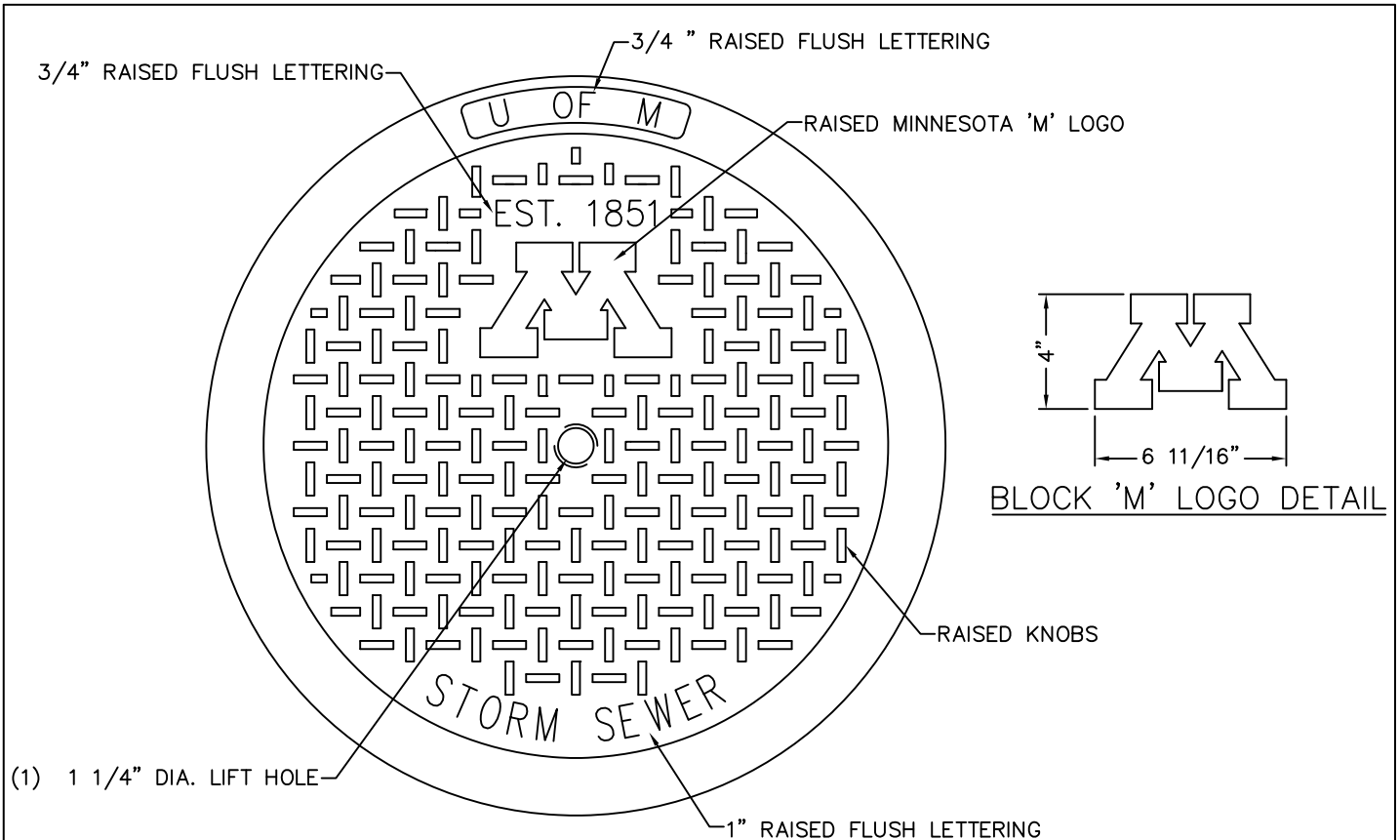
UNIVERSITY OF MINNESOTA
FACILITIES MANAGEMENT
ENGINEERING & UTILITIES

PUBLISHED: 02/04/2022

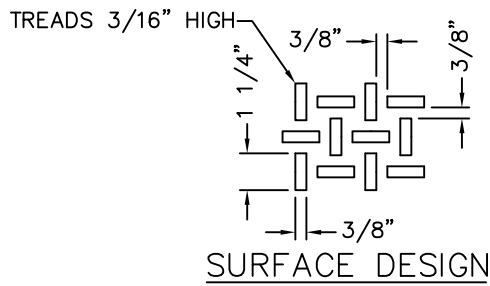
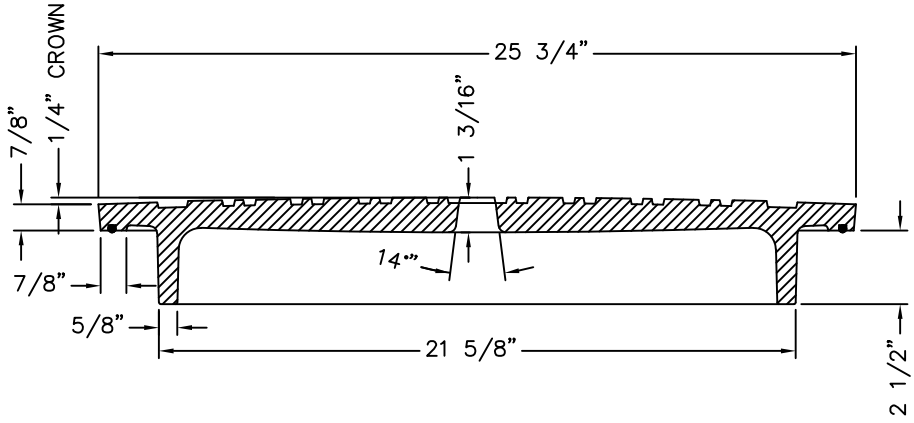
**FABRIC WRAPPED
CASTING**

STANDARD
PLATE NO.

STM-0022



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



NOTES

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

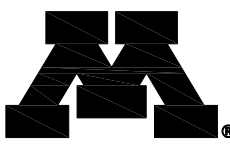
EQUIPMENT NOS.: NEW COPE AND DRAG

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

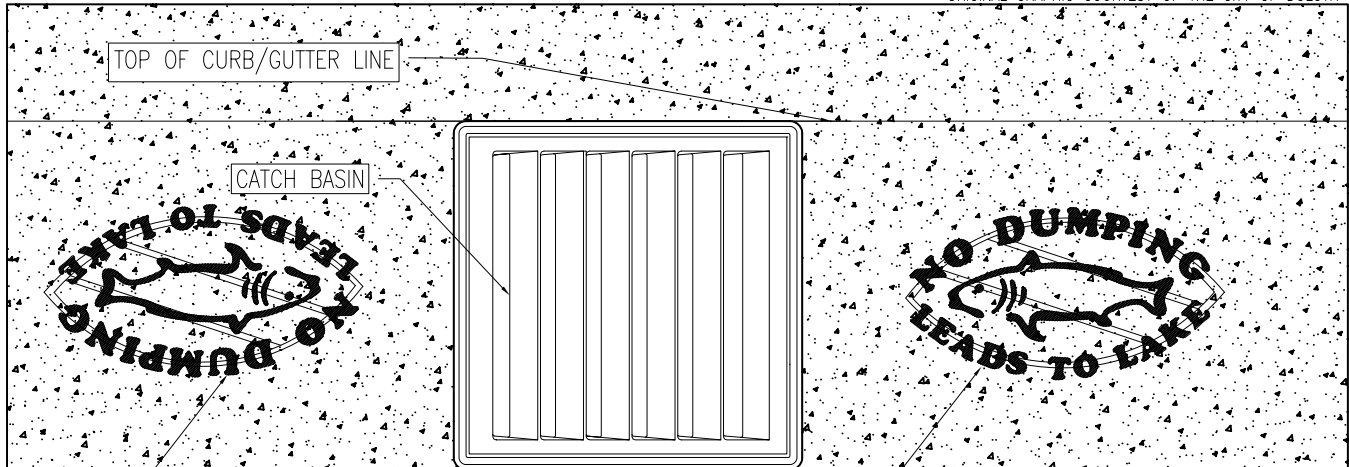
FINISH: NO PAINT UNLESS SPECIFIED ON PURCHASE ORDER

WEIGHT: APPROX. 150 LBS.

NOT TO SCALE

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



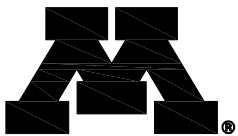
SECOND GUTTER STAMP, WHEN USED, TO BE PLACED SO THAT IT IS READABLE FROM THE CURB

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

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**CATCH BASIN GUTTER STAMP
UMD CAMPUS ONLY**

STANDARD
PLATE NO.

STM-4001