

**!! CAUTION !!**

UTILITIES IN THE AREA, BEFORE CONSTRUCTION  
UTILIZE 1 CALL 1-800-252-1166

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY  
QUALITY LEVEL "C". THIS QUALITY LEVEL WAS DETERMINED  
ACCORDING TO THE GUIDELINES OF CIVASCE 38-02, ENTITLED  
"STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF  
EXISTING SUBSURFACE UTILITY DATA."

**PLAN SYMBOLS**

RIGHT-OF-WAY LINE ROAD	---	R/W
RIGHT-OF-WAY LINE DRAINAGE DITCH	---	
SECTION LINE	---	
QUARTER LINE	---	
PROPERTY LINE	---	
EASEMENT LINE	---	
RAILROAD	---	
FENCE	---	
SANITARY SEWER - EXISTING	---	SS
SANITARY SEWER - PROPOSED	---	SS
SANITARY SEWER SERVICE - EXISTING	---	SS-SV
SANITARY SEWER SERVICE - PROPOSED	---	SS-SV
SANITARY SEWER FORCE MAIN	---	SS-FM
STORM SEWER - EXISTING	---	ST
STORM SEWER - PROPOSED	---	ST
WATER - EXISTING	---	W
WATER - PROPOSED	---	W
WATER SERVICE - EXISTING	---	W-SV
WATER SERVICE - PROPOSED	---	W-SV
TELEPHONE	---	TEL
TELEVISION	---	CATV
FIBER OPTIC	---	FBR
OVERHEAD POWER	---	OHP
UNDERGROUND POWER	---	UGP
PETROLEUM PIPELINE	---	PETRO
GAS	---	GAS
CURB & GUTTER - EXISTING	---	
CURB & GUTTER - PROPOSED	---	
SANITARY MANHOLE	⊙	SS
STORM MANHOLE	⊙	ST
EXISTING MANHOLE	●	
HYDRANT	⊙	
EXISTING HYDRANT	⊙	
GATE VALVE	⊙	
EXISTING GATE VALVE	⊙	
CLEAN OUT	⊙	
CURB STOP	⊙	
PROPOSED INLET	⊙	
EXISTING INLET	⊙	
SIGN - STREET NAME	+	
SIGN - REGULATORY / WARNING	+	
POWER POLE	⊙	or ⊙
STREET LIGHT	⊙	or ⊙
ELECTRICAL TRANSFORMER	⊙	or ⊙
UTILITY PEDESTAL	⊙	or ⊙
UTILITY HANDHOLD / VAULT	⊙	or ⊙
DECIDUOUS TREE	⊙	or ⊙
CONIFEROUS TREE	⊙	or ⊙
BUSH / HEDGE	⊙	or ⊙

# City of Moorhead

## Right-of-Way Details and Standards



SHEET NO.	TITLE
1	Title Sheet
2	Street Patch Repair Details
3	Sidewalk, ADA, Curb Repair Details
4	Private Drive and Walk Details
5	Storm Sewer Repair Details
6	Water and Sewer Service Details
7	Utility Location Construction Standards

S.P. No.	ENG. No.	LEGAL No.
LJH		
DRAWN BY	CHECKED BY	APPROVED BY



THESE DOCUMENTS HAVE BEEN PREPARED IN ACCORDANCE WITH CITY OF MOORHEAD SPECIFICATIONS AND STANDARDS. ALL RIGHT-OF-WAY WORK MUST BE APPROVED AND PERMITTED BY THE CITY OF MOORHEAD CITY ENGINEERS OFFICE BEFORE ANY WORK MAY COMMENCE.

**EFFECTIVE DATE: 01-01-16**

**SPECIFICATION REFERENCE**

THE 2014 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN, AS MODIFIED BY THE CITY OF MOORHEAD SPECIFICATIONS AND SPECIAL PROVISIONS.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE 2014 MMUTCD, AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL) DATED JANUARY 2014.

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**NOTES:**

- TEMPORARY COLD WEATHER PATCH SHALL CONSIST OF A 4" MINIMUM OF COLD-MIX OR CONCRETE AND MUST BE MAINTAINED UNTIL PERMANENT PAVEMENT IS INSTALLED. CLASS 5 WILL NOT BE ALLOWED FOR WINTER TIME TEMPORARY PATCHES.
- CONCRETE REPAIRS WITHIN 5' OF EXISTING JOINT MUST BE MADE TO THE JOINT.
- ALL REBAR USED IN CURB AND STREET REPAIR WILL BE EPOXY COATED REBAR.
- DRIVEWAY REMOVALS WITHIN THE RIGHT-OF-WAY SHALL EXTEND TO THE BACK OF CURB OR THE SIDEWALK CROSSING PLATE IF LESS THAN 3' OF DRIVEWAY REMAINS ADJACENT TO EXCAVATION AREAS.

**CONSTRUCTION NOTES:**

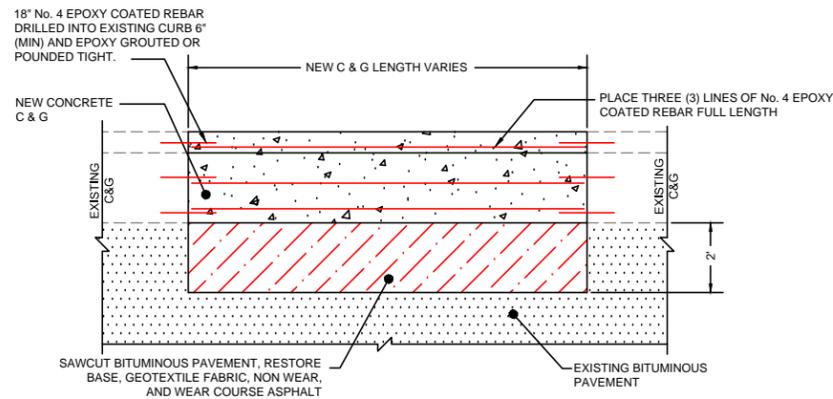
**BITUMINOUS-**  
SHALL BE PLACED A MINIMUM OF 6" THICK. MATCH EXISTING BITUMINOUS DEPTH IF GREATER THAN 6"

**BITUMINOUS OVERLAID CONCRETE-**  
PLACE 7" OF CONCRETE AND No. 5 REBAR AT 24" O.C. EACH WAY AND DOWEL INTO EXISTING PAVEMENT. PLACE BITUMINOUS TO MATCH EXISTING

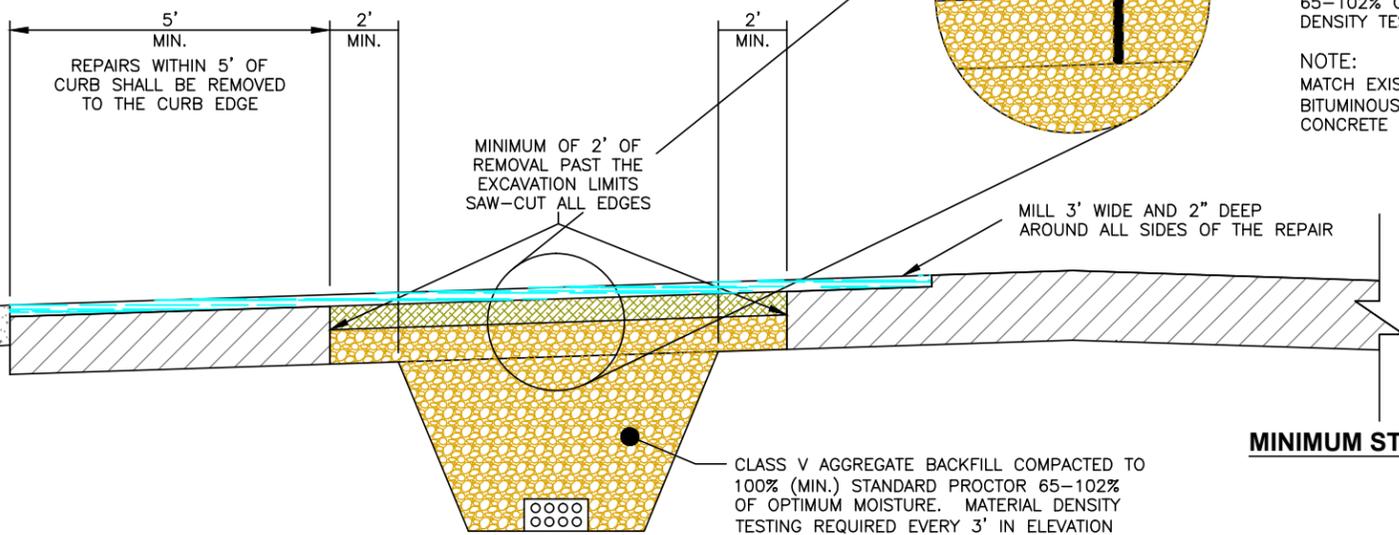
**CONCRETE-**  
REPLACE TO EXISTING DEPTH. PLACE No. 5 REBAR AT 24" O.C. EACH WAY AND DOWEL INTO EXISTING PAVEMENT

**ALL STREETS AND AVENUES REQUIRE CDF BACKFILL\***

\*EXCAVATIONS OVER 150 SQUARE FEET HAVE THE OPTION TO USE CLASS V AGGREGATE FOR BACKFILL WITH DENSITY TESTING EVERY 3' IN ELEVATION AND EVERY 100 LF IN LENGTH. FAILURE TO PROVIDE TESTING RESULTS WILL RESULT THE REMOVAL AND REPLACEMENT OF THE EXCAVATION AT THE CONTRACTORS COST.

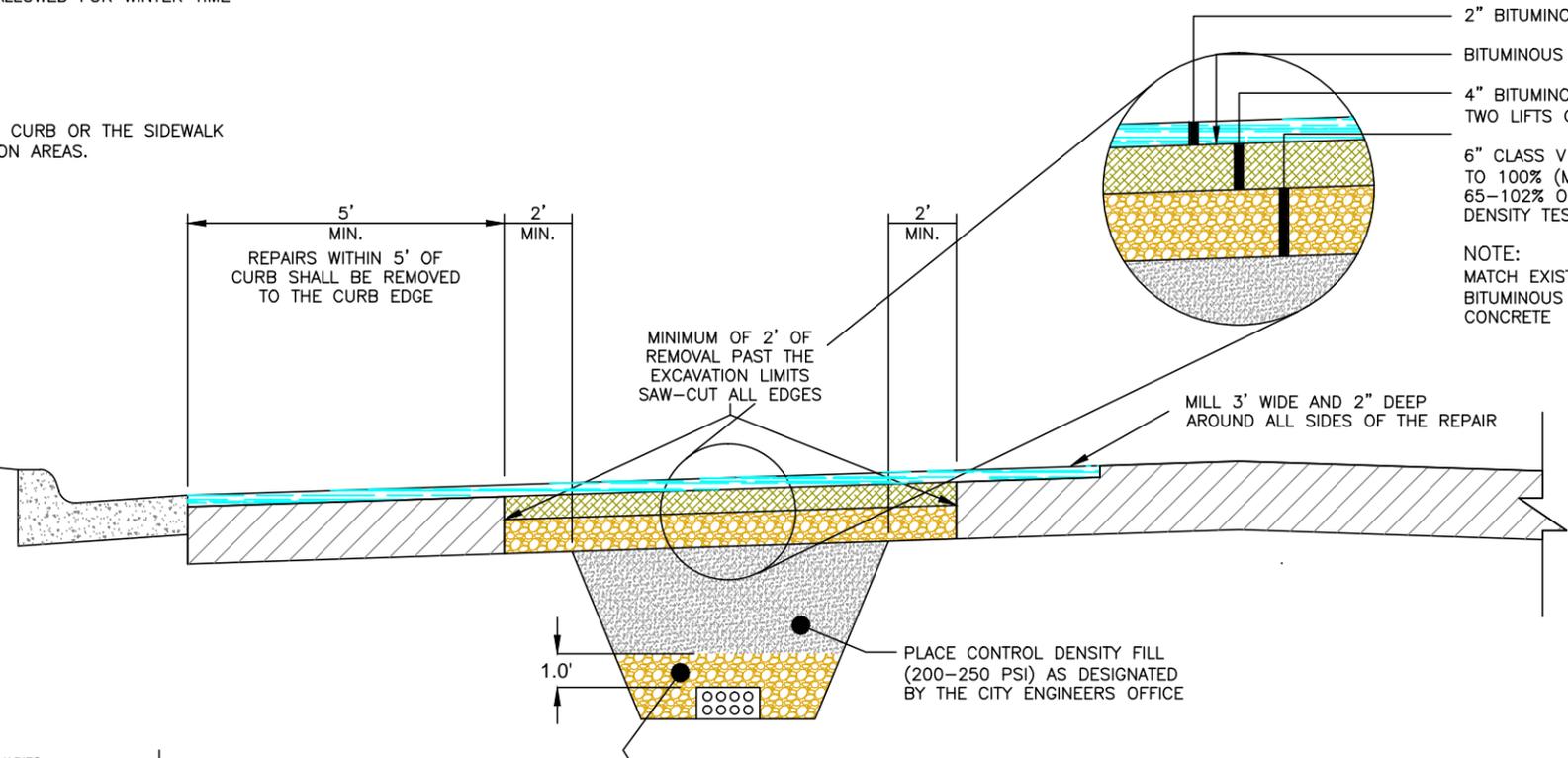


**SPOT CURB AND GUTTER REPLACEMENT (WITH BITUMINOUS STREET PATCH)**



**MINIMUM STANDARDS FOR STREET REPAIR, EXCAVATION OVER 150 SF**

LESS THAN 10 YEARS SINCE PLACEMENT OF REHABILITATION  
NOT TO SCALE



**MINIMUM STANDARDS FOR STREET REPAIR, EXCAVATION UNDER 150 SF**

LESS THAN 10 YEARS SINCE PLACEMENT OF REHABILITATION  
NOT TO SCALE

- 2" BITUMINOUS WEAR COURSE
- BITUMINOUS TACK OIL (0.035 GAL/SY)
- 4" BITUMINOUS BASE COURSE PLACED IN TWO LIFTS OF 2"
- 6" CLASS V AGGREGATE BASE COMPACTED TO 100% (MIN.) STANDARD PROCTOR AND 65-102% OF OPTIMUM MOISTURE. MATERIAL DENSITY TESTING REQUIRED.

NOTE:  
MATCH EXISTING SECTION, MINIMUM 6" BITUMINOUS AND 6" CLASS V OR 7" CONCRETE

S.P. No.	ENG. No.	LEGAL. No.
LUH		
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Street Patch Repair Details

Right-of-Way Details and Standards

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**NOTES:**

1. REINFORCEMENT NOT SHOWN
2. TYPE "A" CASTING ASSEMBLY TO BE USED FOR STORM AND SANITARY MANHOLES
3. TYPE "B" CASTING ASSEMBLY TO BE USED FOR REAR YARD DRAINAGE
4. TYPE "C" CASTING ASSEMBLY TO BE USED IN TYPE "C" MOUNTABLE CURB AND GUTTER
5. TYPE "D" CASTING ASSEMBLY TO BE USED IN B-624 CURB AND GUTTER
6. TYPE "E" CASTING ASSEMBLY TO BE USED FOR BOULEVARD DRAINAGE AND DITCH DRAINAGE
7. INLET PIPE OPENINGS SHALL BE GROUTED ON THE INSIDE AND OUTSIDE OF EACH STRUCTURE
8. HDPE RINGS SHALL BE INSTALLED VERTICALLY; STAGGERING OF ADJUSTMENT RINGS SHALL NOT BE ALLOWED, CONTRACTOR SHALL ADJUST STRUCTURE PLACEMENT OR CURB ALIGNMENT AS NECESSARY

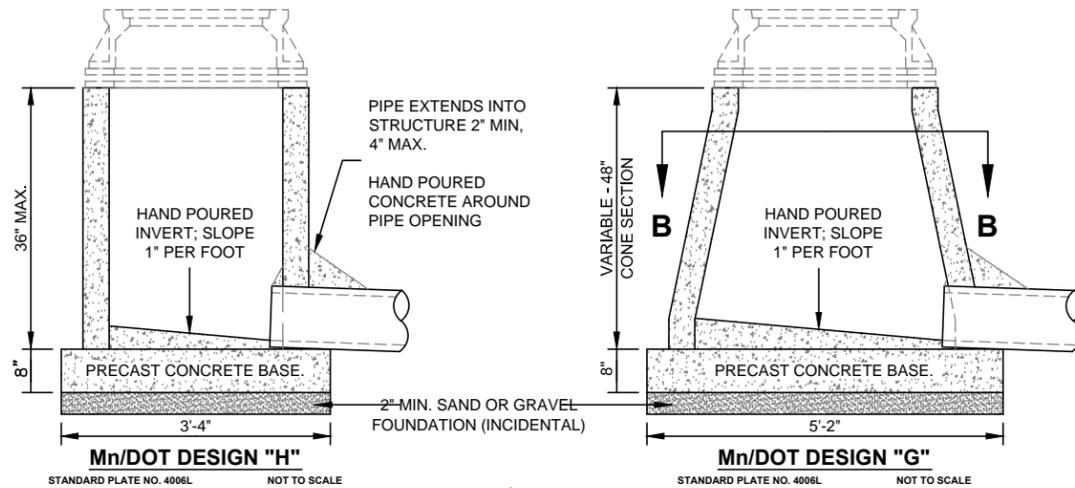
**TYPE "A" CASTING ASSEMBLY**  
 FRAME Mn/DOT 700-7  
 SAN. GRATE Mn/DOT 716  
 STS. GRATE Mn/DOT 715

**TYPE "C" CASTING ASSEMBLY**  
 FRAME NEENAH 3508-A2  
 GRATE NEENAH TYPE C

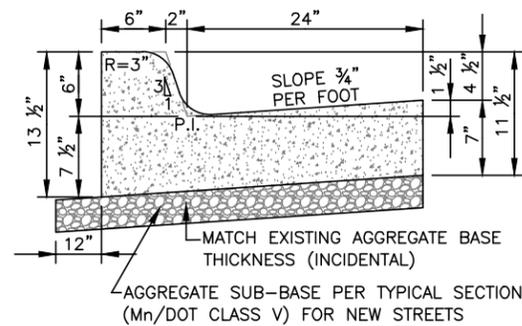
**TYPE "E" CASTING ASSEMBLY**  
 FRAME CONCRETE (SEE DETAIL)  
 GRATE MNDOT CASTING #731  
 (NEENAH R-4342)

**TYPE "B" CASTING ASSEMBLY**  
 FRAME NEENAH 1733  
 GRATE NEENAH TYPE C

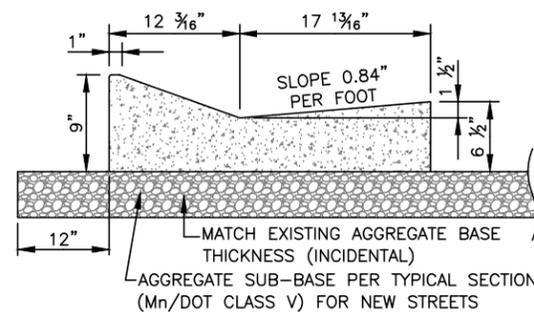
**TYPE "D" CASTING ASSEMBLY**  
 FRAME NEENAH 3250-DVSP  
 GRATE NEENAH TYPE VANE  
 CURB BOX INCLUDED



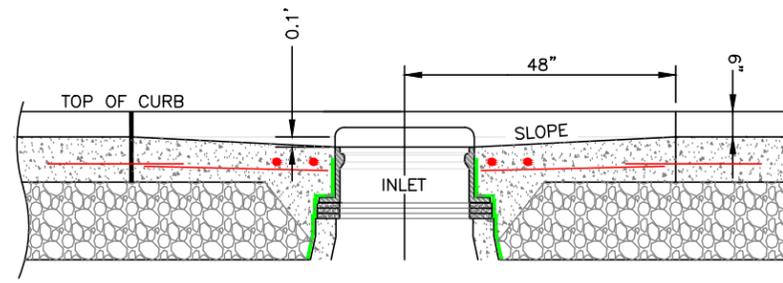
**NOTE:**  
 ALL STORM SEWER PIPING SHALL BE PROTECTED DURING EXCAVATION OPERATIONS. IF THE STORM SEWER IS DAMAGED, IT SHALL BE REPAIRED OR REPLACED WITH THE APPROVED TYPE OF PIPING. STORM SEWER REPAIRS SHALL BE TO THE NEXT AVAILABLE JOINT AND SHALL MATCH EXISTING SIZE AND TYPE (RCP SHALL BE EITHER MN/DOT DESIGN 3000 OR 3006 RCP PIPING) UNLESS OTHERWISE APPROVED BY THE CITY ENGINEERS OFFICE. PVC PIPING WITH FERNCO BOOTS WILL NOT BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEERS OFFICE. ALL REPLACED PIPING SHALL BE GROUTED INTO THE ADJACENT MANHOLE OR CATCH BASIN INLET.



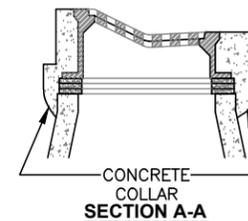
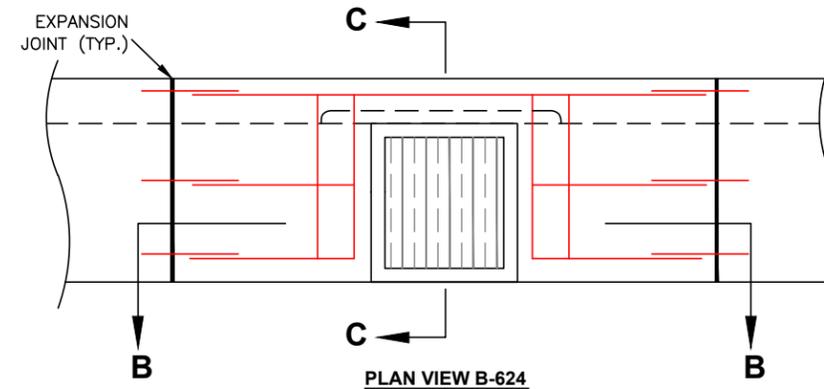
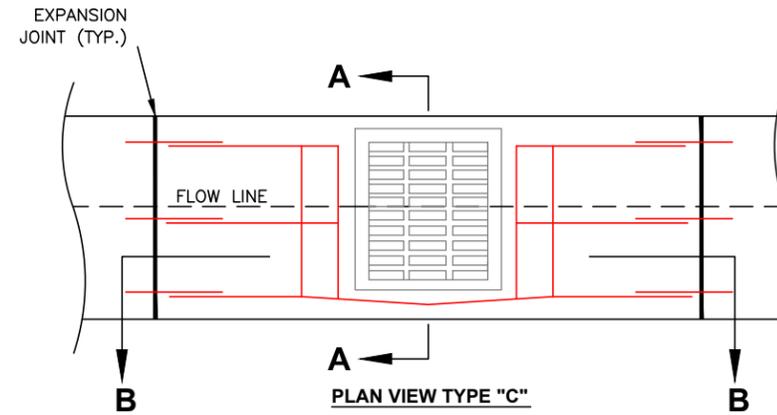
**B-624 CURB DETAIL**  
 NOT TO SCALE



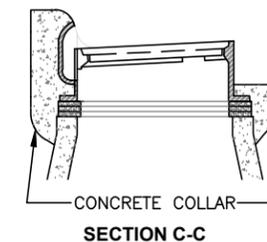
**TYPE "C" MOUNTABLE CURB DETAIL**  
 NOT TO SCALE



**SECTION B-B**



**TYPE "C" MOUNTABLE CURB & GUTTER CONSTRUCTION AT CATCH BASIN**  
 NOT TO SCALE



**B-624 CURB & GUTTER CONSTRUCTION AT CATCH BASIN**  
 NOT TO SCALE

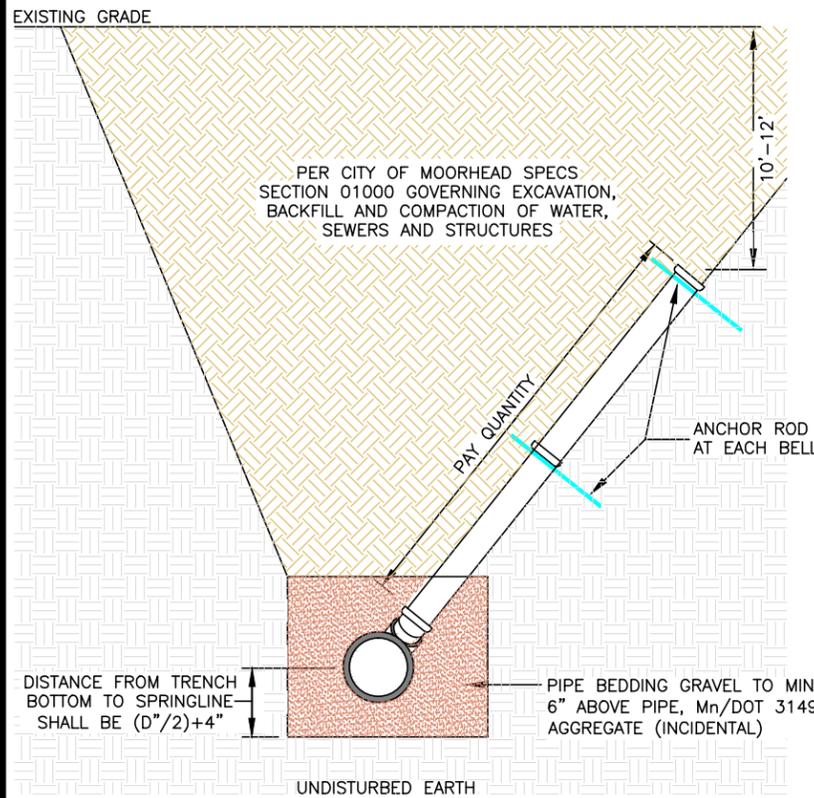
S.P. No.	ENG. No.	LEGAL No.
LJH		
DRAWN BY	CHECKED BY	APPROVED BY



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**EFFECTIVE DATE: 01-01-16**

Storm Sewer Repair Details  
 Right-of-Way Details and Standards

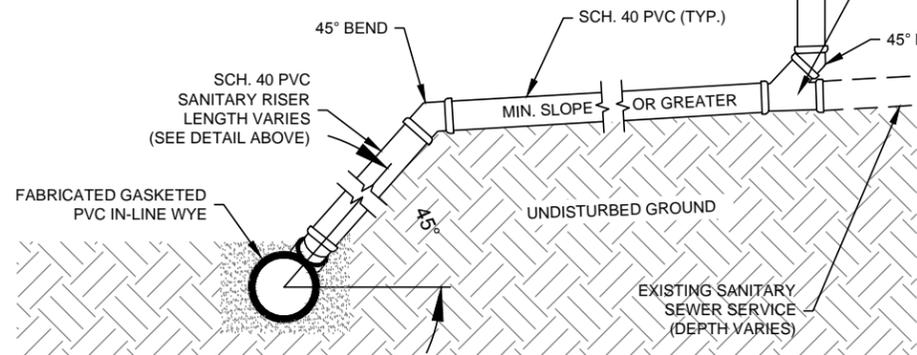


**TYPICAL SANITARY SEWER SERVICE RISER DETAIL  
(FOR SEWERS 12' OR MORE IN DEPTH)**

MINIMUM SEWER SERVICE GRADES  
4" - 2.00%, 6" - 1.00%, 8" - 0.50%  
NOT TO SCALE

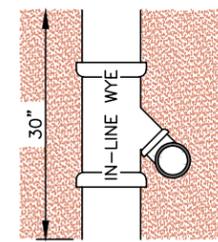
**NOTES:**

- HEIGHT OF RISER SHALL BE MEASURED FROM INVERT TO TOP OF RISER.
- PAYMENT FOR RISERS WILL BE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL COSTS FOR MATERIALS, EXCAVATION AND LABOR. PAY QUANTITY SHALL BE MEASURED FROM TOP CENTER OF STREET 45° BEND TO TOP CENTER OF RISER END.
- SANITARY RISER MAY BE REQUIRED IF SANITARY SEWER IS 12' IN DEPTH OR MORE. IF SANITARY SEWER IS LESS THAN 12' IN DEPTH, NO RISER WILL BE REQUIRED.
- RISERS MAY BE LOCATED AT THE MAIN, AFTER CROSSING A GRADE CONFLICT (MAINTAIN 18" MIN. SEPARATION), AT THE PROPERTY LINE OR IN COMBINATION. LOCATIONS TO BE DETERMINED BY ENGINEER IN THE FIELD.



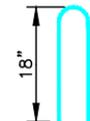
**TYPICAL SANITARY SEWER SERVICE DETAIL**

NOT TO SCALE

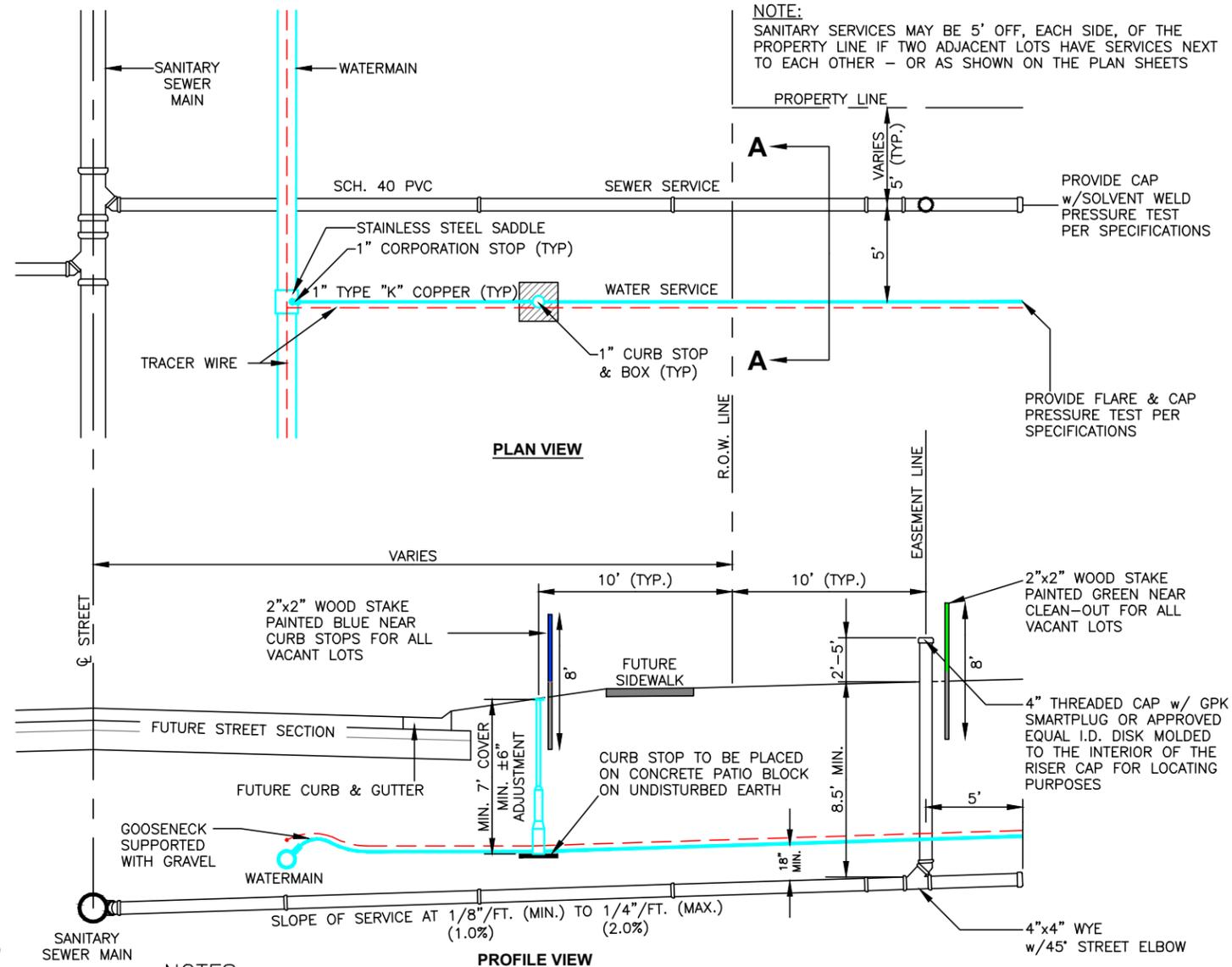


**PLAN VIEW**

NOTE:  
ANCHOR ROD TO BE MADE OF #3 REINFORCING BARS



**ANCHOR DETAIL**  
NOT TO SCALE



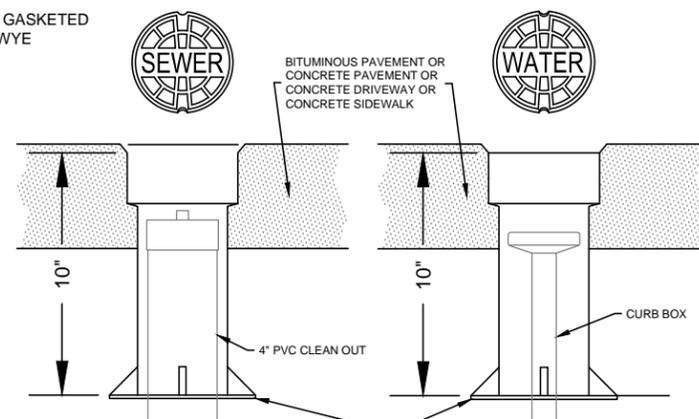
**PROFILE VIEW**

**TYPICAL SANITARY SEWER & WATER SERVICE DETAIL**

NOT TO SCALE

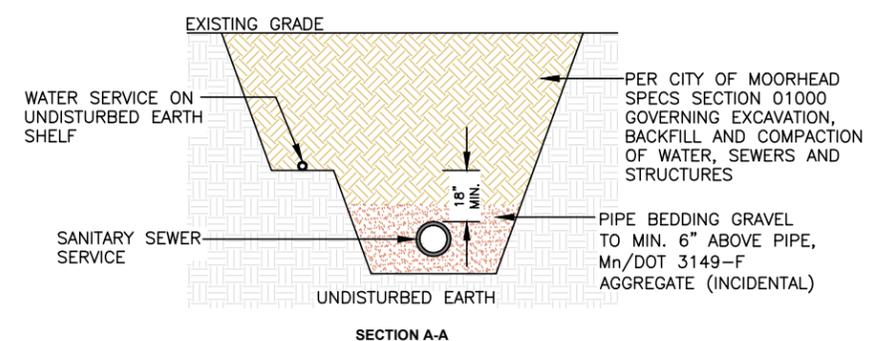
**NOTES:**

- TRACER WIRE IS TO BE #10 BLUE STRANDED, WHICH IS TO BE LOCATED ABOVE THE WATERMAIN
- TRACER WIRE IS ALSO TO BE PLACED ALONG THE SERVICES AND CONNECTED TO THE TRACER WIRE ON THE MAIN
- DUCTILE IRON CURB BOXES SHALL BE WRAPPED IN POLYETHYLENE ( MIN. 0.008\"/>



**VALVE BOX FOR CLEAN OUT AND CURB BOX INSTALLATION IN PAVEMENTS**

NOT TO SCALE



**SECTION A-A**

**TRENCH DETAIL  
SANITARY SEWER & WATER SERVICE**

SINGLE TRENCH  
NOT TO SCALE

NOTE:  
SANITARY SERVICES MAY BE 5' OFF, EACH SIDE, OF THE PROPERTY LINE IF TWO ADJACENT LOTS HAVE SERVICES NEXT TO EACH OTHER - OR AS SHOWN ON THE PLAN SHEETS

S.P. No.	ENG. No.	LEGAL No.
LUH		
DRAWN BY	CHECKED BY	APPROVED BY



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Water and Sewer Service Details

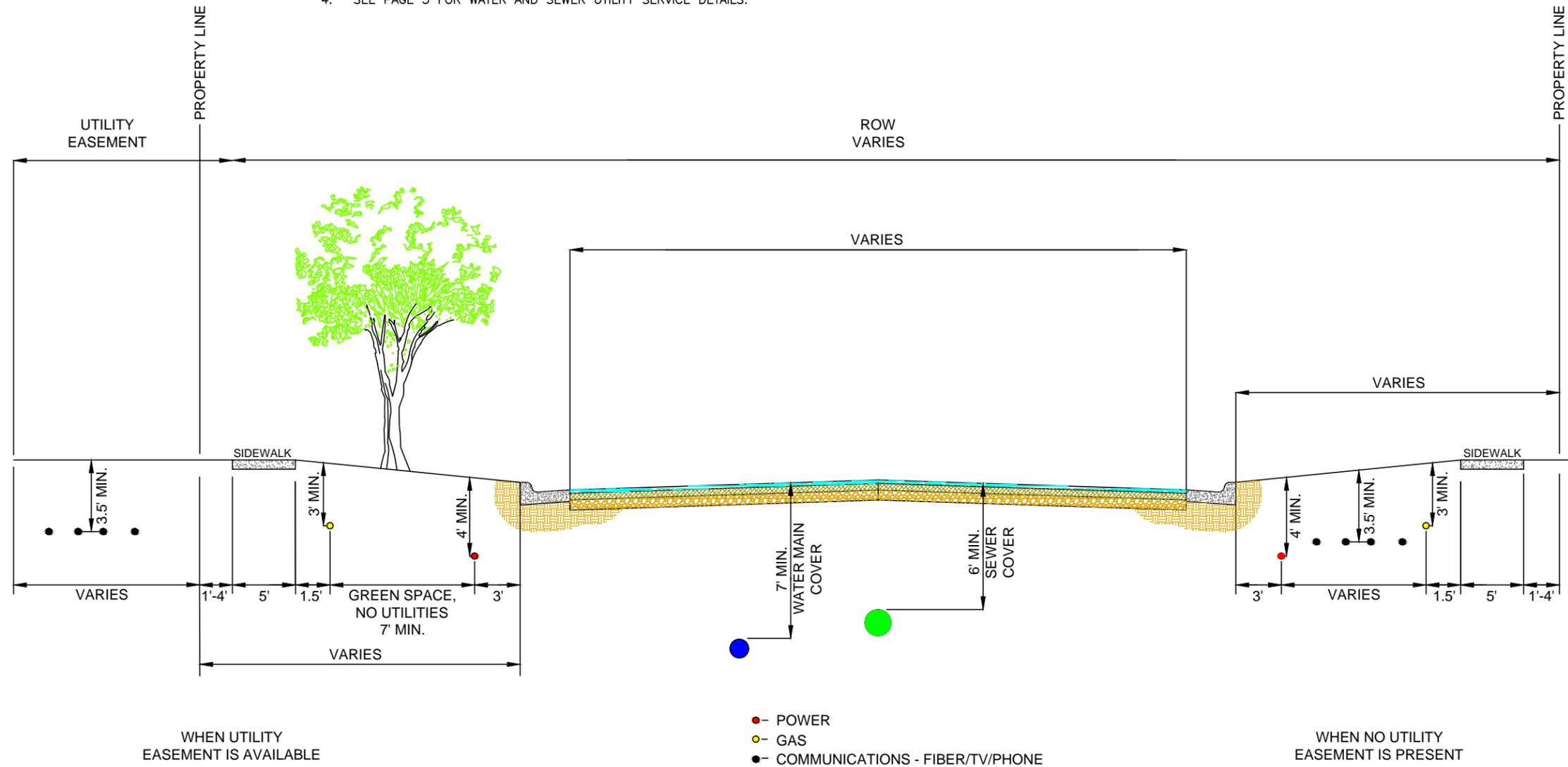
Right-of-Way Details and Standards

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**NOTES:**

1. ALL UTILITIES, WITH THE EXCEPTION OF GAS AND POWER, MUST BE LOCATED WITHIN THE DESIGNATED UTILITY EASEMENT WHENEVER POSSIBLE.
2. ROW WIDTHS AND UTILITY EASEMENT SIZES VARY, INFORMATION WILL BE PROVIDED BY THE CITY ENGINEERS OFFICE UPON REQUEST.
3. POWER WILL ALWAYS BE LOCATED WITHIN 3 FEET OF THE BACK OF CURB AND THE GAS WILL ALWAYS BE LOCATED 1.5 FEET FROM THE EDGE OF SIDEWALK UNLESS OTHERWISE NOTED.
4. SEE PAGE 5 FOR WATER AND SEWER UTILITY SERVICE DETAILS.



**UTILITY LOCATION CONSTRUCTION STANDARDS**

NOT TO SCALE

LJH	S.P. No.	ENG. No.	LEGAL. No.
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Utility Location Construction Standards  
 Right-of-Way Details and Standards

LEGAL No.	APPROVED BY	 MOORHEAD ENGINEERING MINNESOTA
ENG. No.	CHECKED BY	
S. P. No.	DRAWN BY	LJH

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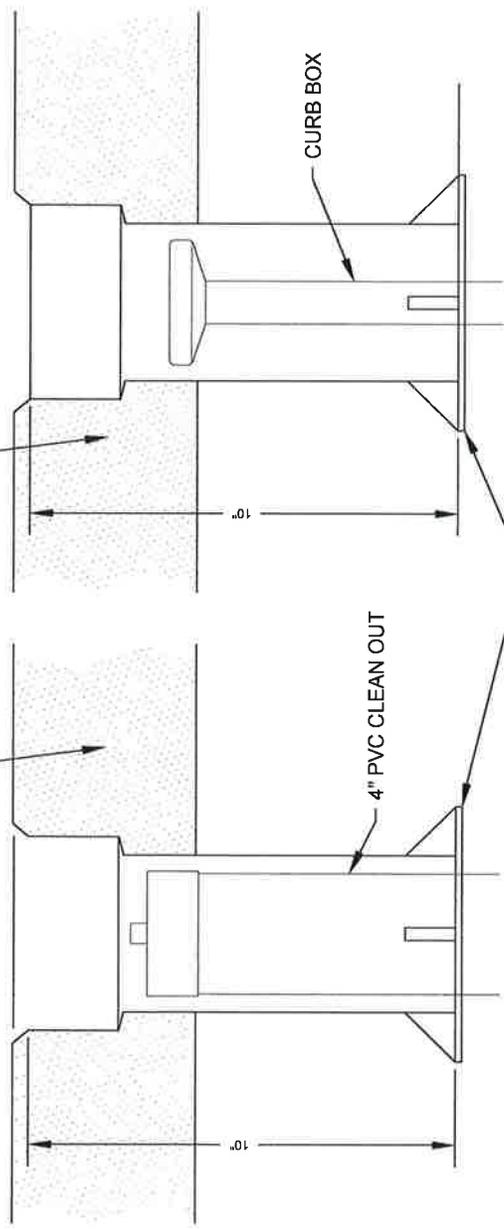
Valve Box Details

Driveway and Valve Box Details

SHEET **2** OF 3



BITUMINOUS PAVEMENT OR  
CONCRETE PAVEMENT OR  
CONCRETE DRIVEWAY OR  
CONCRETE SIDEWALK



**NOTE:** PAYMENT FOR VALVE BOX SHALL BE INCIDENTAL TO THE CLEAN OUT BID ITEM.

STAR PIPE PRODUCTS STANDARD SLIP TYPE VALVE BOX TOP OR APPROVED EQUAL

## VALVE BOX FOR CLEAN OUT AND CURB BOX INSTALLATION IN PAVEMENTS

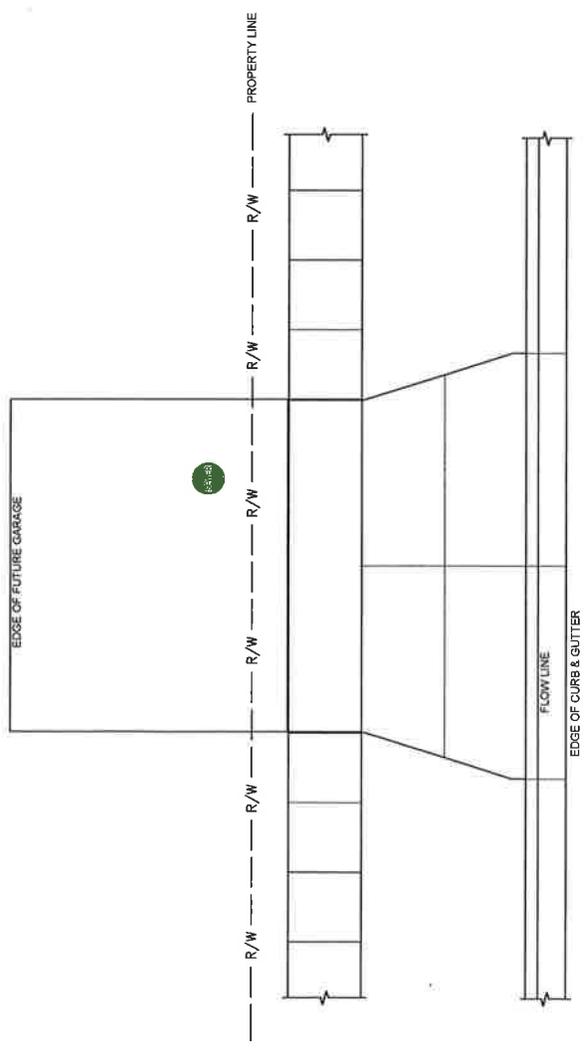
NOT TO SCALE

LEGAL No.	APPROVED BY	 <b>MOORHEAD</b> ENGINEERS P.C.
ENG. No.	CHECKED BY	
S.P. No.	DRAWN BY	

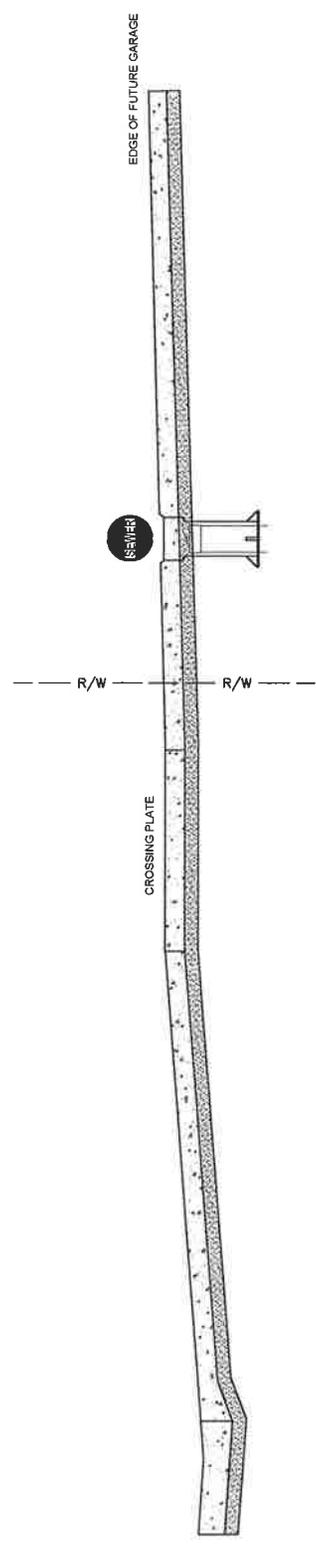
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**EFFECTIVE DATE: 01-01-16**

Driveway and Valve Box Details  
 Driveway and Valve Box Details



**STANDARD PRIVATE DRIVE WITH VALVE BOX**  
 NOT TO SCALE



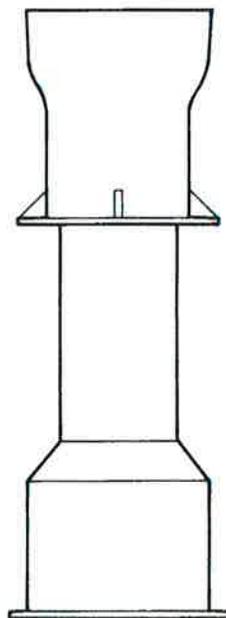
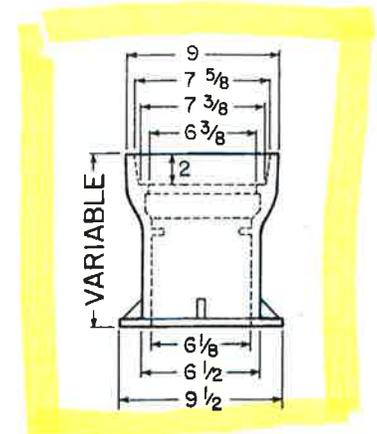
**DRIVEWAY SECTION WITH VALVE BOX**  
 NOT TO SCALE



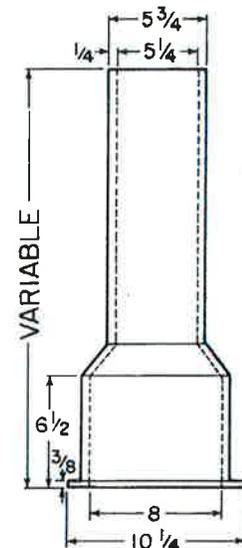
**6855 SERIES  
CAST IRON TWO-PIECE VALVE BOXES**  
for 4" through 12" valves, 5 1/4" shaft, slip-type

TYLER UNION valve boxes are available either pre-assembled or as individual tops and bottoms. For assembled boxes, The UPC codes shown represent a combination of one top and one bottom in the sizes shown. For unassembled boxes, the UPC code represents only a top or a bottom, not a complete box. Therefore, unassembled boxes require ordering tops and bottoms separately.

**\*\*NOTE: Domestic Valve Boxes available in Heavy Duty Only  
Non-Domestic available in Standard or Heavy Duty**



**Box Assembled  
(Less Lid)**



Box (Components)	Extension*(D-HD)UPCode Height	*(ND-HD)UPCode		Wt	*(ND-Std.)UPCode	
		670610	670610		670610	Wt
461-A (10T + 15B)	19-22	145844	502234	55	112099	34
462-A (10T + 24B)	27-32	145831	----	65	112105	46
562-A (16T + 24B)	27-37	145868	502241	72	112112	55
563-A (16T + 30B)	33-43	145714	----	81	112129	67
564-A (16T + 36B)	39-50	145875	502258	83	112136	72
662-A (26T + 30B)	36-52	145721	----	97	112143	83
664-A (26T + 36B)	39-60	145882	502265	99	112150	88
666-A (26T+24B+60 Ext)	51-71	145899	----	124	112167	108
668-A (26T+36B+60 Ext)	62-82	145905	----	135	112181	125

NOTE: D=Domestic ND=Non-Domestic HD=Heavy Duty Weight Std=Standard Weight

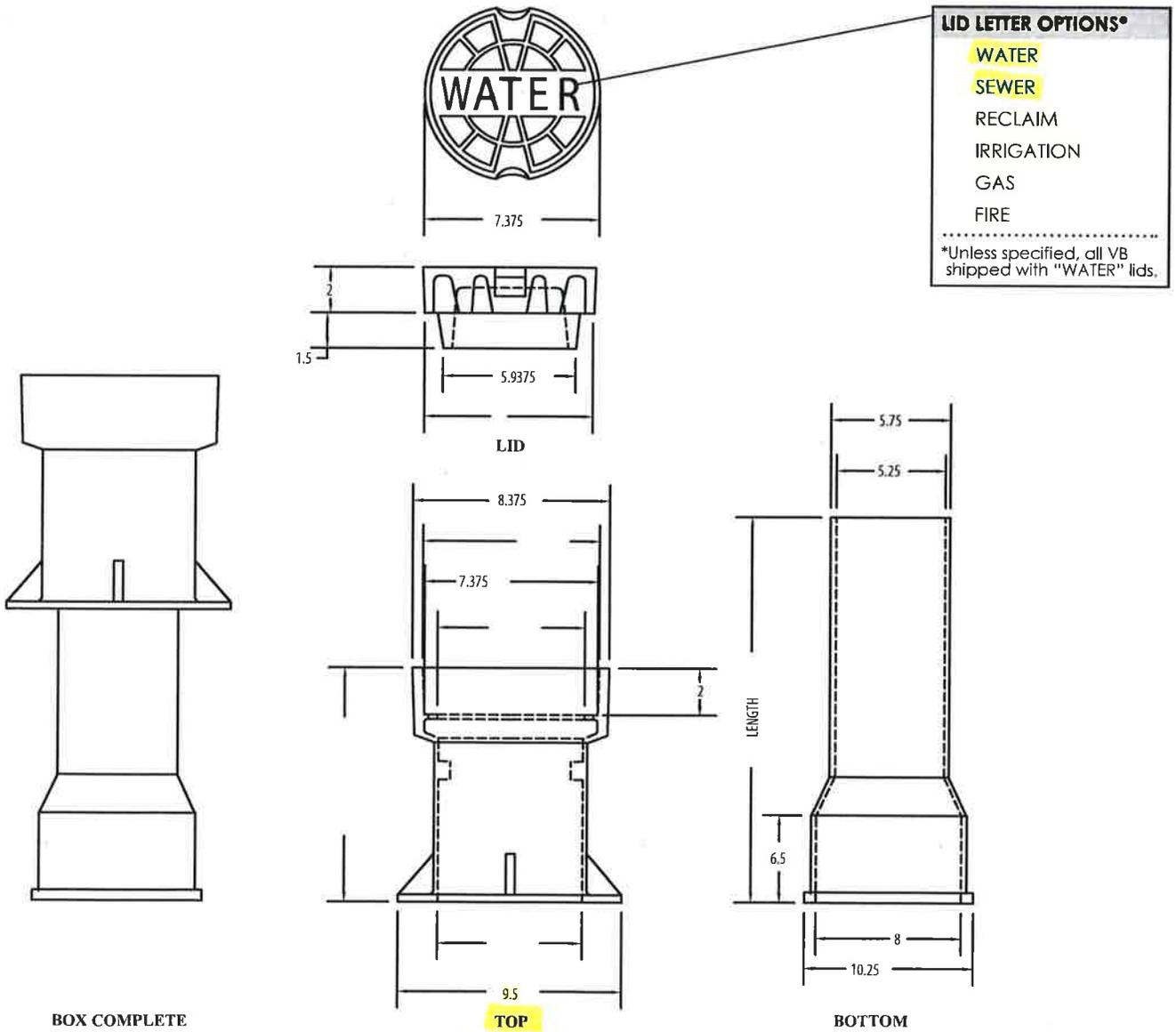
Lids marked "WATER" will ship unless otherwise specified:  
Also available 5 1/4" Drop Lids"  
1)WATER OMA 2)SEWER 3)MWW  
4)PLAIN 5)GAS 6)REUSE  
Note: Special Lettering Available  
Contact Tyler Union for Setup Charge

**2 PIECE STANDARD SLIP TYPE VALVE BOX**

**VB-0003**

ITEM CODE	HEIGHT	LENGTH	
		TOP	BOT.
VB461A	20-25	10	15
VB462A	29-33	10	24
VB562A	29-38	16	24
VB564A	41-51	16	36
VB664A	41-61	26	36
◆VB666A	53-73	26	48

◆ - Optional bottom (48" one piece or 24" bottom w/ 24" extension) - Please indicate your preference



**Notes:**  
 - Material - Cast Iron Per ASTM A48 Class 30B  
 - Dimensions in Inches



© REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR<sup>®</sup> PIPE PRODUCTS  
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 www.starpipeproducts.com