

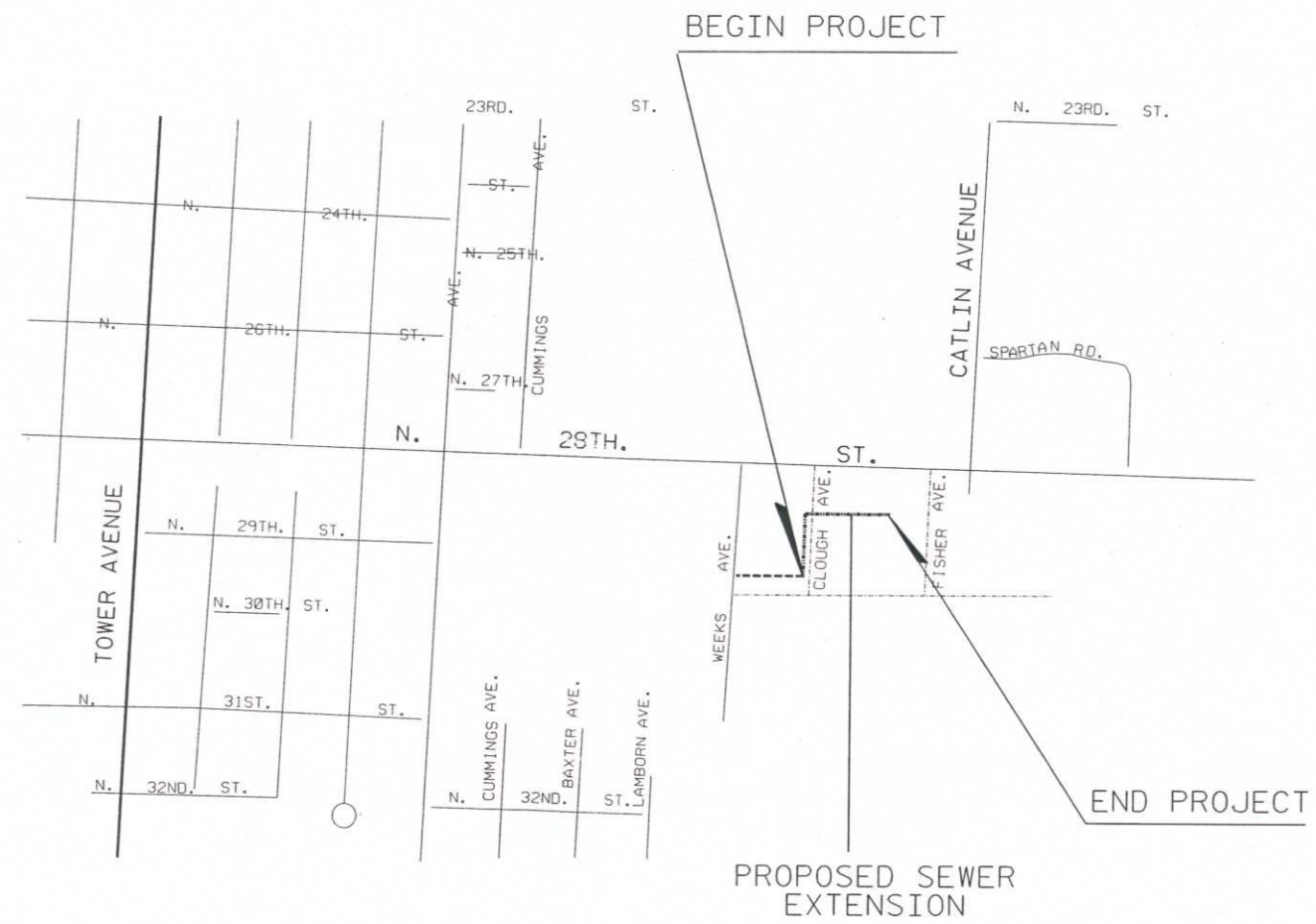
PROJECT NUMBER	SHEET NO.
264914D	1

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# PLAN AND PROFILE

## CLOUGH AVENUE, NORTH 30TH. STREET SEWER EXTENSIONS



### CONVENTIONAL SIGNS AND ABBREVIATIONS

ACCESS POINT	A.P.	COMBUSTIBLE FLUIDS (UNDER PRESSURE)	
ACRES	AC.	UNDERGROUND UTILITIES	
AHEAD	AH.	GAS	G
AND OTHERS	ET AL	ELECTRIC	E
BACK	BK.	TELEPHONE	T
BARN	B	SERVICE PEDESTAL	PEO.
BUILDINGS	BLDGOS.	IRON PIN (SET)	•
CENTRAL ANGLE	Δ	POWER POLE	⊕
CHANNEL CHANGE	CH. CH.	TELEPHONE POLE	⊙
COMPANY	CO.	RAILROADS	
CORNER	COR.	MARSH	
CORPORATION	CORP.	WOODED AREA	
COUNTY	CO.	COUNTY LINE	
COUNTY TRUNK HIGHWAY	C.T.H.	CORPORATE LIMITS	
CREEK	CR.	PROPERTY LINE	
DEGREE OF CURVE	D	LOT LINE	
GARAGE	G	LIMITED HIGHWAY EASEMENT	
GOVERNMENT	GOV'T.	EXISTING RIGHT OF WAY	
HOUSE	H	NEW RIGHT OF WAY	
HOUSE TRAILER	H.T.	REFERENCE LINE	
INCORPORATED	INC.	SLOPE INTERCEPT	
IRON PIN	I.P.	STATE LINE	
LEFT	LT.	TOWNSHIP AND RANGE LINES	
LENGTH OF CURVE	L.C.	SECTION LINE	
LIMITED HIGHWAY EASEMENT	L.H.E.	QUARTER LINE	
MILE	MI.	SIXTEENTH LINE	
NORTHEAST	NE	NEW CENTERLINE	
NORTHWEST	NW	NO ACCESS	
PERMANENT	PERM.	NO ACCESS BY PRIOR PROJECT	
POINT OF CURVATURE	P.C.	NO ACCESS BY STATUTE	
POINT OF INTERSECTION	P.I.	TRANSMISSION TOWER AND LINE	
POINT OF TANGENCY	P.T.	HIGHWAY HIGHWAY SEPARATION	
POINT OF COMPOUND CURVE	P.C.C.	RIGHT OF WAY POINT	
POINT OF REVERSE CURVE	P.R.C.	RIGHT OF WAY POINT TO BE MONUMENTED	
POINT ON CURVE	P.O.C.	LOCATED U.S.P.L.C.	
PROJECT	PROJ.	PULL BOX	
PROPERTY LINE	P.L.		
QUIT CLAIM DEED	Q.C.D.		
RADIUS	R		
RAILROAD	RR		
RAILWAY	RY		
REQUIRED	REQ'D.		
RIGHT	RT.		
RIGHT OF WAY	R/W		
ROAD	RD.		
SECTION	SEC.		
SHED	S		
SOUTHEAST	SE		
SOUTHWEST	SW		
STATION	STA.		
STREET	ST.		
TANGENT	TAN.		
TAVERN	TAV.		
TEMPORARY	TEMP.		
UNITED STATES COAST & GEODETIC SURVEY	U.S.C. & G.S.		
UNITED STATES GEOLOGICAL SURVEY	U.S.G.S.		
UNITED STATES HIGHWAY	U.S.H.		
WELL	W		
UNITED STATES PUBLIC LAND SURVEY CORNER	U.S.C. & G.S.		
BRASS CAP IRON PIPE	B.C.I.P.		

NET CENTERLINE LENGTH 973' SEWER EXTENSION

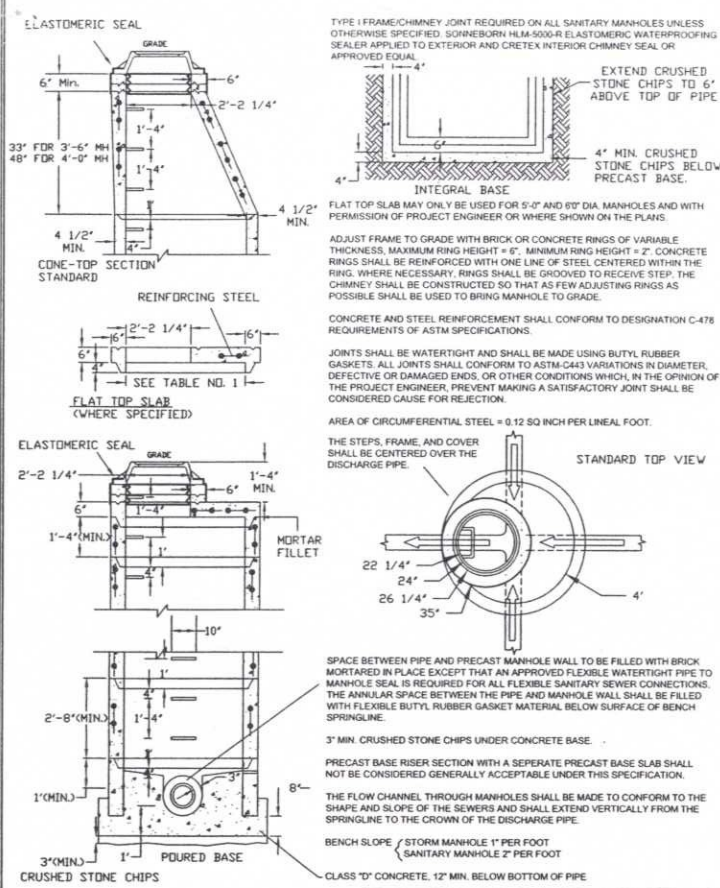


DATE 1/10/07 WILLIAM NIEMI, PE

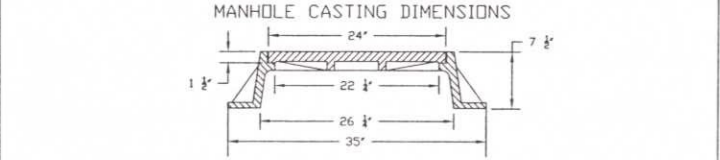
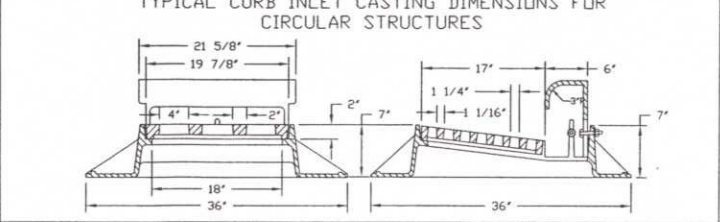
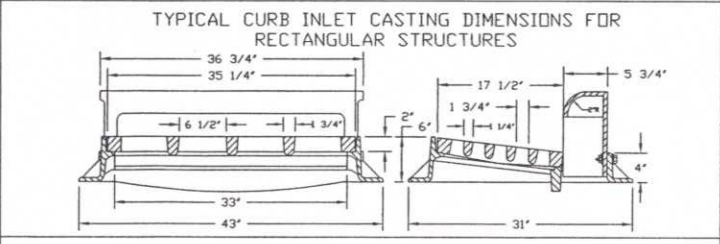
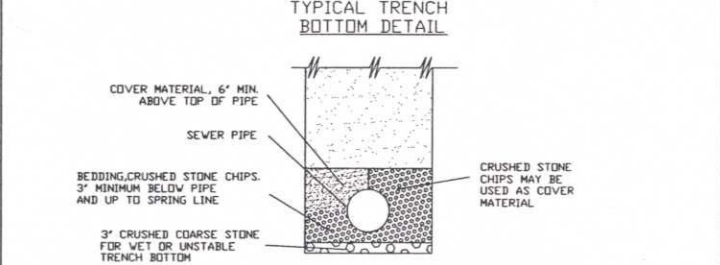
APPROVED FOR  
CITY OF SUPERIOR

DATE \_\_\_\_\_ DIR. OF PUBLIC WORKS

LEVELS ON - 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63



PIPE DIA.	MANHOLE DIA.	WALL THICKNESS
8" THRU 30"	4'-0"	5"
36"	5'-0"	6"
42"	6'-0"	7"



**General**  
The Contractor shall comply with the most current edition of Standard Specifications for Sewer & Water Construction in Wisconsin.

**SANITARY PIPE AND JOINT MATERIALS**  
Materials used in open trench construction of nonpressure sanitary sewers shall be restricted to the following: Reinforced Concrete Pipe (RCP), Ductile Iron Pipe (DI), and Polyvinyl Chloride Pipe (PVC). All material used for sanitary sewer construction shall be free from defects that impair service. Each length of pipe and fitting used in a sanitary sewer shall be stamped or indelibly marked with the manufacturer's name or mark. The substitution of any other type of pipe, or monolithic section, may only be used with the approval of the Wastewater Division of Public Works (WDPW). Where the substitution of a short length of monolithic concrete sewer is approved, the section shall be reinforced as directed by the Project Engineer.

**STORM PIPE AND JOINT MATERIALS**  
Materials used in open trench construction of storm sewers shall be restricted to the following: RCP and Polyethylene Pipe with a smooth liner and corrugated exterior (PE). All material used for storm sewer construction shall be free from defects that impair service. Each length of pipe and fitting used in a storm sewer shall be stamped or indelibly marked with the manufacturer's name or mark. The substitution of any other type of pipe, or monolithic section, may only be used with the approval of the WDPW. Where the substitution of a short length of monolithic concrete sewer is approved, the section shall be reinforced as directed by the Project Engineer.

**CULVERT PIPE AND JOINT MATERIALS**  
Materials used in construction of culverts shall be restricted to the following: RCP, PE, and Corrugated Steel Culvert Pipe (CSCP). The substitution of any other type of pipe may only be used with the approval of the WDPW. All material used for culvert construction shall be free from defects that impair service. Each length of pipe and fitting used in a culvert shall be stamped or indelibly marked with the manufacturer's name or mark.

**PIPE & FITTING MATERIALS**  
The following are minimum standards for nonpressure pipe:  
1. Polyvinyl Chloride (PVC) bell and spigot sewer pipe shall meet the requirements of D3034 (1981). PVC shall be type PSM SDR-35 unless otherwise specified. Joints shall be rubber gasket bell and spigot joints unless otherwise specified.  
2. Reinforced Concrete Pipe (RCP) bell and spigot sewer pipe shall meet the requirements of C76 (1982). RCP shall be Class III unless otherwise specified. Joints shall be rubber gasket bell and spigot joints conforming to ASTM C443 (1979) unless otherwise specified.  
3. Steel Pipe shall be welded from steel plate or spiral welded from steel coil. The minimum yield strength shall be 36,000 psi. For casing pipe the minimum wall thickness shall be 0.625 inches. The minimum inside diameter of the steel casing shall be not less than 8 inches greater than the maximum outside diameter of the carrier pipe. The steel casing pipe shall be epoxy coated on inside and outside surfaces.  
4. Ductile Iron (DI) bell and spigot sewer pipe, fittings, and joints shall meet the requirements of AWWA C100 (1977).  
5. Corrugated Polyethylene Pipe (PE) with a smooth liner shall conform to ASTM F894 or AASHTO M294, Type S. PE pipe conforming to ASTM F894 shall be not less than Class 100 (Ring Stiffness Constant = 100) and carrier pipe shall be not less than Class 160. Joints shall be watertight, bell and spigot type with rubber gaskets conforming to ASTM F477. Soil-tight joints which are not watertight are not adequate under these specifications. Pipe fittings shall conform to AASHTO M294 or ASTM F894. Fittings shall be suitable for specified pipe joints. PE pipe shall conform to ASTM F894 (e.g. Spiruline as manufactured by Chevron) or AASHTO M294, Type S (e.g. Hancor Blue Seal as manufactured by Hancor Corporation).  
6. Corrugated Steel Culvert Pipe (CSCP) shall be industry standard galvanized corrugated steel culvert pipe. Corrugations shall be 2 1/3 inches by 1/2-inch. Steel thickness shall be 0.052-inch for 8-inch diameter pipe and 0.064-inch for diameters from 10 to 48 inches. Joints shall be industry standard connecting bands subject to the approval of the WDPW.

**JOINT ASSEMBLY OF POLYETHYLENE AND POLYVINYL CHLORIDE PIPING**  
Lubricated spigot end shall be inserted into receiving pipe bell until marked line is even with edge of bell. Assembly resulting in over-insertion, rolled gaskets, split bells, failure to pass acceptance testing or damage to previously assembled joints will be considered sufficient cause for rejection of the Work.

**COUPLINGS**  
Where pipe couplings are required to join pipes of dissimilar material, they shall be fully stainless steel shielded rubber couplings intended for underground use. Clamps shall be nut-and-bolt clamps; worm-drive or T-Bolt clamps shall not be generally acceptable under this specification. Couplings shall be Flex-Seal Adjustable Repair Couplings as manufactured by Mission Rubber Company or approved equal.

**BEDDING**  
Lift thickness for bedding materials shall not exceed 12 inches. Bedding shall be compacted by hand, or mechanically compacted by equally careful means, to a minimum of 90% of Standard Proctor Density. Pipe bedding shall be as follows:  
1. Rigid Pipe Unless otherwise specified on the plans, the Standard Section shall be used. The Standard Section bedding has a foundation formed as follows: A layer of Crushed Stone Chips is spread over the bottom of the trench so that after the pipe has been placed thereon, imbedded to grade, and aligned, there remains a 4 inch minimum depth of Crushed Stone Chips below the pipe barrel and a minimum of 3 inches below the bell for pipe 27 inches in diameter or smaller; a minimum of 4 inches below the pipe for diameters up to 54 inches, and a minimum of 6 inches below the pipe for diameters 60 inches or larger. If excavation has been carried deeper than 6 inches below the pipe barrel, the excess depth shall be filled with Backfill Concrete or Crushed Stone meeting the gradation requirements of ASTM C-33 Size 4. Care shall be taken to insure that the pipe does not rest directly on the bell but is uniformly supported through its entire length. Wood foot blocks of 2-inch minimum thickness may be used at joints of pipe 36 inches in diameter and larger provided that the bedding material is mechanically compacted under the lower 90-degree quadrant of the pipe. Supporting blocks are not permitted under pipe less than 36 inches in diameter.  
2. Plastic Pipe Plastic pipe, including but not limited to PVC and PE, shall be laid with bedding material of Crushed Stone Chips which shall be placed below and around the pipe up to the spring line in such a manner as to provide adequate side support and to prevent lateral movement of the pipe. The layer of Crushed Stone Chips shall be spread over the bottom of the trench so that after the pipe has been placed thereon, imbedded to grade, and aligned, there remains a 4-inch minimum depth of Crushed Stone Chips below the pipe for pipe 36 inches in diameter or smaller, a minimum of 6 inches below the pipe for diameters larger than 36 inches. If excavation has been carried deeper than 6 inches below the pipe barrel, the excess depth shall be filled with Backfill Concrete or Crushed Stone meeting the gradation requirements of ASTM C-33 Size 4.  
3. Ductile Iron Sewer Pipe Ductile iron sewer pipe shall be laid according to the specifications for Plastic Pipe, except that bedding material may be Crushed Stone Chips or Cover Material.  
4. Corrugated Steel Culvert Pipe Corrugated Steel Culvert Pipe shall be laid according to the specifications for Plastic Pipe.

**CRUSHED STONE CHIPS**  
Crushed Stone Chips shall mean granular material resulting from the mechanical compaction of rock, boulders, large cobble stones, or pea gravel of which 85% to 100% of particles have faces have been fractured by crushing operations.

Crushed Stone Chips shall consist of clean, hard, tough, durable material crushed from bedrock, dolomite, or granite as in the opinion of the WDPW are suitable. "Crushed Pea Gravel" or "1 Inch Minus" are generally acceptable under this specification.

Sieve Size	% Passing	3/4"	% Passing
3/4"	-	100	-
3/8"	-	90-100	20-55
No. 10	0-3	0-15	0-10
No. 30	0-3	0-3	0-3

**COVER**  
Lift thickness for pipe cover shall not exceed 12 inches. Crushed Stone Chips may be substituted for Cover Material in sewer installation. Cover shall be mechanically tamped to a minimum of 90% of Standard Proctor Density.

1. Rigid Pipe After the pipe has been properly laid and jointed, Cover Material shall be placed around the sides of the pipe less than 36 inches in diameter and up to a level 6 inches above the pipe barrel. This material shall be placed by hand or equally careful means. Where pipe 36 inches in diameter or larger is being installed, Granular Backfill may be used as Cover Material. Where this provision is used, the Bedding Material shall be extended to the spring line of the pipe.  
2. Plastic Pipe Plastic pipe, including but not limited to PVC and PE, shall be laid with Crushed Stone Chips placed in not less than two stages, one to the top of the pipe and the other to a level at least 6 inches above the pipe for sizes 36 inches in diameter or smaller and to a level at least 12 inches above the pipe where the pipe is larger than 36 inches in diameter. In order to provide lateral support for the pipe, each stage of Cover Material shall be compacted by hand or mechanical tamping to a minimum of 90% Standard Proctor Density. If the remaining backfill material contains large rocks or boulders, the second stage of Cover Material shall be increased to level 12 inches above the pipe.  
3. Ductile Iron Pipe Ductile iron sewer pipe shall be laid according to the specifications for Plastic Pipe, except that the cover material shall be the same material used for bedding material.  
4. Corrugated Steel Culvert Pipe Corrugated Steel Culvert Pipe shall be laid according to the specifications for Plastic Pipe.

**COVER MATERIAL:** Crushed Stone Chips shall be used as Cover Material for PVC and other flexible pipe materials, unless the Contractor provides a gradation report performed by certified personnel (Twin Ports Testing, GME Consultants, or approved alternate) indicating gradation within limits contained herein. Cover material shall consist of durable particles ranging in size from fine to coarse in substantially uniform combination as in the opinion of the Project Engineer are suitable. Poorly graded sand does not generally meet the gradation requirements under this specification.

Sieve Size	Percent Passing
1"	100
3/4"	85-100
3/8"	50-90
No. 4	35-65
No. 40	15-30
No. 200	5-15

Concrete manhole bases shall be as follows:  
1. Precast Manhole With Integral Base The excavation shall be made deep enough so that after the bottom manhole barrel section with the integral base has been placed thereon, set to grade, and plumbed, there remains a minimum depth of bedding material below the bottom of the base equal to the depth of bedding material of the adjacent sewers.  
The annular space between the manhole excavation and the outside manhole wall shall be backfilled with bedding material up to the spring line of the incoming pipe.  
2. Field Poured Base For Precast Manhole The Precast Manhole bottom barrel shall be set on concrete brick or solid block so that the bottom of this section is below the spring line of the outlet pipe, set for proper location and plumbed. The concrete base of Class D concrete shall have a minimum thickness of 12 inches below the invert of the outlet sewer. The manhole base shall substantially conform to the required shape and dimensions; the excavation shall be back formed, if necessary, to achieve this end. If excavation in stable soil has been carried below the required depth, such excess depth shall be filled with concrete. Excess concrete shall not be deposited around the manhole in such a manner that will interfere with possible future connections. The pipe shall be supported on brick or solid concrete blocks for the pouring of the concrete base. The concrete support for rigid pipe shall end in a vertical plane flush with the face of the pipe bell.  
3. Separate Concrete Base Slab Separate concrete base slabs shall not generally be acceptable under these specifications.

**FLOW CHANNEL**  
The flow channel through manholes shall be made to conform to the shape and slope of the sewers and shall extend vertically from the springline to the crown of the discharge pipe.

**PIPE TO MANHOLE CONNECTION**  
Connection shall be water tight in all manholes. Where groundwater conditions are unfavorable inlet and outlet pipes shall be joined to sanitary manholes with a gasketed flexible watertight connection or any watertight connection arrangement that allows differential settlement of the pipe and manhole wall to take place.

The manhole connection of pipe sewers shall be accomplished by one of the following:  
1. Connection Of Rigid Pipe To Precast Manholes The rigid pipe to Precast Manhole connection shall be by means of brick and mortar or by an approved flexible watertight pipe to manhole seal for pipe diameters up to 24 inches in 48-inch manholes. For brick and mortar connection, a minimum of water shall be added to the mortar to produce a lumpy texture. Mortar shall be packed in and troweled off. Larger diameter pipe connections shall be as shown on the Contract Drawings. This seal shall meet the physical requirements of ASTM C923. Holes in Precast Manholes shall be cored or preformed.  
2. Connection Of Plastic Pipe To Precast Manholes All plastic pipe shall be connected to Precast Manholes by means of an approved flexible watertight pipe to manhole seal. This seal shall meet the physical requirements of both ASTM C-425 and C-433.

Pipe entering a manhole through this seal shall be laid in accordance with the bedding section requirements and shall not be rigidly supported as required for nonflexible connections.

To maintain the seal flexibility that portion of the annular space between the pipe and the manhole wall below the spring line of the pipe, shall be plugged with butyl rubber gasket material prior to the placing of concrete in the manhole.

**MANHOLE MATERIALS**  
Sanitary manholes shall be precast concrete. Risers and tops shall conform to ASTM C-478.

**MANHOLE DIAMETER**  
The minimum diameter of manholes shall be 48 inches. Larger diameter manholes shall be used as indicated on the plan and profile drawings.

**MANHOLE STEPS**  
Manhole Steps shall be installed in all manholes and structures in excess of 4 feet deep, and be aligned so as to form a continuous ladder with the Manhole Steps equally spaced vertically in the completed manhole at a design distance of 16 inches on center and shall be centered over the discharge pipe. The steps shall project a minimum clear distance of 4 inches from the wall of the riser or cone section measured from the point of embedment.

The steps shall be placed as required with an allowable tolerance of one inch plus or minus.

**GRADES FOR SETTING MANHOLE FRAMES**  
The manhole frame shall be set at the elevation given on the plan or, when no such elevation is given, they shall be set as follows:  
1. Within A Traveled Roadway Within a traveled roadway or in the shoulders of a highway, the top of the manhole frame shall be set 1/2-inch below the shoulder or pavement surface.  
2. In Other Locations In other locations, the top of the frame shall be set at the proposed or established grade, whichever is higher.

**CHIMNEY**  
A chimney having a minimum height of 6 inches, constructed of precast concrete adjusting rings shall be built on top of the corbel section or flat slab up to the elevation at which the frame is set. The chimney shall be constructed so that as few adjusting rings as possible shall be used to bring the manhole to grade.

**ADJUSTING RINGS**  
Concrete adjusting rings shall substantially conform to the diameter dimensions of the respective manhole corbel and shall have height of two (2) to six (6) inches. Concrete adjusting rings shall be reinforced with No. 2 reinforcing rod centered within the ring. Cracks, exposed bar, or other damage or defect shall be considered cause for rejection of adjusting rings. The Contractor shall wire brush and wipe clean adjusting rings to remove surface contaminants prior to placement and shall moisten the adjusting rings to receive mortar.

**CASTINGS**  
All manhole and inlet castings shall conform to the requirements of ASTM A-48, Class No. 30-B and shall be free from cracks, holes, swirls, and cold shuts.  
1. Standard Manhole Castings Castings shall be Neenah R-1670, East Jordan Ironworks 112021 or approved equal, unless otherwise specified. Standard manhole castings where frames with grates manhole covers are required, castings shall be Neenah R-2500 or approved equal. Covers shall be "Self Sealing", "T-Seal" or "Gasket Sealed" covers with "SANITARY" or "STORM" labels as applicable, or other labels approved as equal.  
2. Bolt Down Manhole Castings Bolt down castings shall be Neenah R-1916-D or approved equal, and shall be secured to the manhole wall with one-inch diameter anchor bolts as directed by the WDPW. Covers shall be "Self Sealing", "T-Seal" or "Gasket Sealed" covers with "SANITARY" or "STORM" labels as applicable, or other labels approved as equal.  
3. Curb Inlet Castings - Circular Typical curb inlet castings for circular structures shall be Neenah R-3235 Type C, approved equal, or approved alternate.  
4. Curb Inlet Castings - Rectangular Typical curb inlet castings for rectangular structures shall be Neenah R3290, East Jordan Ironworks 7030, approved equal, or approved alternate.

**FRAME / CHIMNEY JOINTS**  
All manhole chimneys shall be constructed with flexible watertight frame/chimney joints. All frame / chimney joints for sanitary sewer manholes shall be Type I Chimney Joints unless otherwise specified. All frame / chimney joints for storm sewer manholes shall be Type III Chimney Joints unless otherwise specified.  
1. Type I Chimney Joint Type I Chimney Joint shall be a Type III Chimney Joint and an internal chimney seal. Chimney seals shall be Cretex® internal chimney seals or approved equal.  
2. Type II Chimney Joint Type II Chimney Joint omitted.  
3. Type III Chimney Joint Type III Chimney Joint shall be a mortar joint. The mortar frame / chimney joint and typical joints between concrete adjusting rings shall be one (1) inch in thickness and the full width of the adjusting ring. The interior shall be back-plastered with 1/2-inch of mortar or other approved sealer. An Elastomeric Waterproof Seal shall be applied to the exterior of the chimney.

**CHIMNEY SEAL**  
Chimney Seals shall be manufactured seals installed on new or existing sanitary manholes. The flexible portion of the seal shall be natural or synthetic rubber conforming to applicable requirements of ASTM C-923. All metal parts shall be Type 304 stainless steel. The seal shall prevent leakage of water into the manhole at the area of the joint between the manhole frame, chimney, and corbel continuously throughout a 20-year design life. The seal shall remain flexible while allowing repeated vertical movements of the frame of up to two inches occurring at rates not less than 0.10 inches per minute.

**Elastomeric Waterproofing Sealing**  
All masonry work shall be cured a minimum of 24 hours prior to applying an elastomeric waterproofing seal. All surfaces shall be cleaned and primed in accordance with the manufacturer's recommendation. Elastomeric Waterproofing Sealer shall be applied so that it forms a continuous membrane, 100-mil thick, extending from a point 4 inches below the chimney to a point 2 inches above the frame flange. The WDPW reserves the right to require bond breaker (duct tape) be placed completely around the manhole circumference and centered over the mortar joint between the frame and chimney or cone. Adjacent backfill shall not be placed within 24 hours of applying the sealer.

**Elastomeric Sealer**  
Elastomeric Waterproofing Sealer shall be a single component moisture curing polyurethane applied to form a continuous membrane. The sealer shall be Sonneborn HLM 5000-R, Temproof 60, Duramen V500, Thiodeck CF, Sikaflex 1A, or approved equal.

**PHASING & CONSTRUCTION SCHEDULE**  
A Phasing & Construction Schedule shall be submitted to the City of Superior Wastewater Division of Public Works upon request. The Phasing & Construction Schedule shall indicate the Contractors plan for progression of the Work.

**CONSTRUCTION QUALITY TESTING**  
Project acceptance shall not occur until all of the Construction Quality Testing reports have been delivered and approved by the WDPW. Personnel certified for the applicable class of testing shall perform construction quality testing. All construction quality testing must be performed under the observation of the WDPW (this requirement does not apply to materials testing such as gradation testing, concrete compressive strength testing, and other laboratory testing or written notice must be provided to the WDPW 3 business days prior to the inspection). All construction quality testing reports shall include testing methods and results of the testing. The reports shall clearly indicate any deficiencies observed.  
1. Deflection Testing Deflection tests shall be performed for flexible pipe installations except sanitary relays with active connected building sewers. The go/no-go device shall be 92.5% of the minimum acceptable internal diameter of the specified pipe.  
2. Telesurveying shall be performed for all sewer installations of pipe 8 inches in diameter or larger. VHS videotapes of the televising shall be produced for installations requiring Telesurvey Reports. Telesurvey Reports shall include the video tape(s). The video shall be produced such that the display indicates the date of televising, line number, direction of travel, and relative position (footage count) of the camera for the duration of televising. The video shall be produced with a "crawler" or "tractor" type camera, or other device approved by the Project Engineer, so that the camera remains a generally vertical alignment. The device shall maintain the camera near the center of the pipe being inspected. The resolution, lighting, and contrast shall be adequate to capture details within the pipe. The use of "pan and tilt" is required for inspection of Building Sewer and Storm Drain connections. Black and white video does not meet the requirements under this specification.  
3. Leakage Testing Groundwater infiltration into gravity sewer systems shall be minimized. Leakage testing shall be performed in accordance with Chapter 3.7 of the most current edition of Standard Specifications for Sewer & Water Construction in Wisconsin.

### DETAIL SUMMARY OF MISCELLANEOUS QUANTITIES

EROSION CONTROL ITEMS	LBS	CWT	L.F
SEED	150		
FERTILIZER		3.50	
SILT FENCE			900

### 8 INCH PVE SEWER PIPE

STATION TO STATION	LF
0+00	9+72.97
	973

### MANHOLE

STATION	EACH	CASTING
3+57.97	1	1
6+65.47	1	1
9+72.97	1	1

### DIRECTIONAL BORING OR JACKING

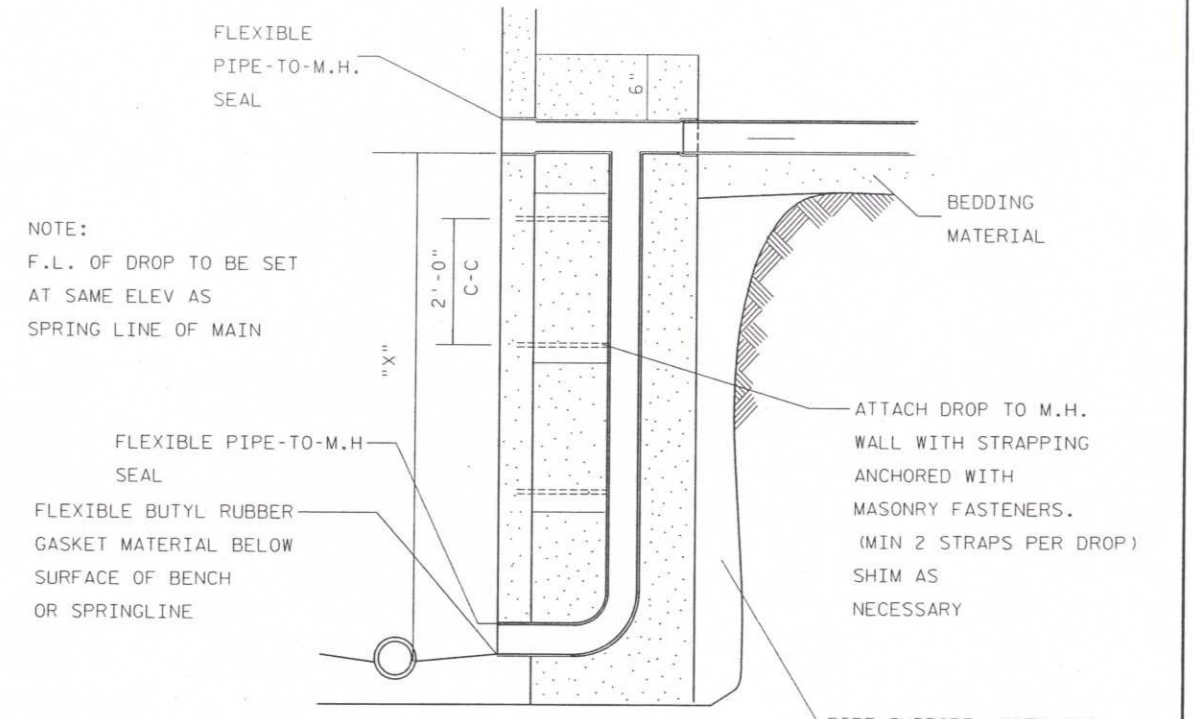
STATION TO STATION	LF
2+90	3+40
	50

### SEWER WYES AND 4" SEWER PIPES

APPROX STATION	8" X 4" WYE	4" SEWER PIPE LF	LOCATION
4+00	1	20	LOT 7
5+00	1	20	LOT 6
6+00	1	20	LOT 5
7+00	1	20	LOT 4
8+00	1	20	LOT 3
9+00	1	20	LOT 2
9+60	1	20	LOT 1
TOTAL	7	140	

GENERAL NOTE:  
CONTRACTOR SHALL PHYSICALLY VERIFY THE DEPTH OF AND LOCATION OF THE CITY OF CLOQUET WATER MAIN @ APPROX STATION 3+15.

PRIOR TO ANY ON SITE WORK, THE CONTRACTOR SHALL CONTACT JIM PRUSAK, CITY OF CLOQUET ENGINEER AT (218)879-6758  
EMAIL: JPRUSAK@CI.CLOQUET.MN.US PRIOR TO ANY EXCAVATION.

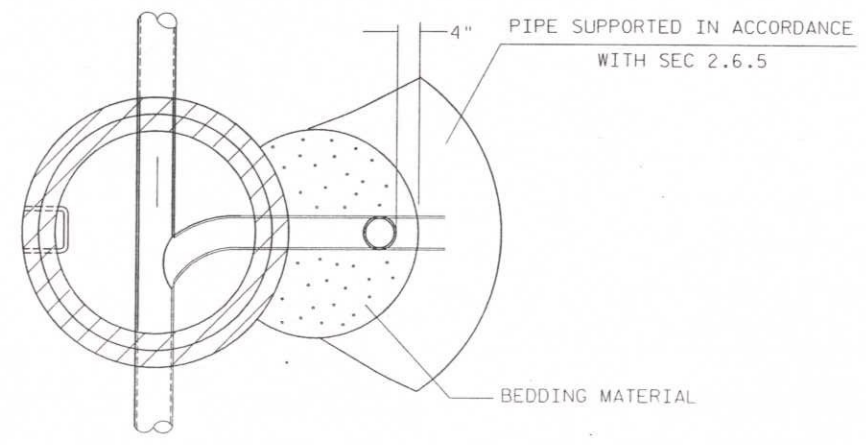


WHENEVER "X" IS GREATER THAN 2 FT. AN OUTSIDE DROP MUST BE CONSTRUCTED AS SHOWN.

PIPE SUPPORT WHEN "X" IS LESS THAN 6' BACKFILL WITH BEDDING MATERIAL.  
WHEN "X" IS 6 FEET OR GREATER USE CLASS "D" CONCRETE OR AGGREGATE SLURRY (SEE 6.45.8)

REF. SEC 3.5.8 (D) 1.

### OUTSIDE DROP PRECAST MANOLE FLEXIBLE PIPE TPO MANHOLE SEAL

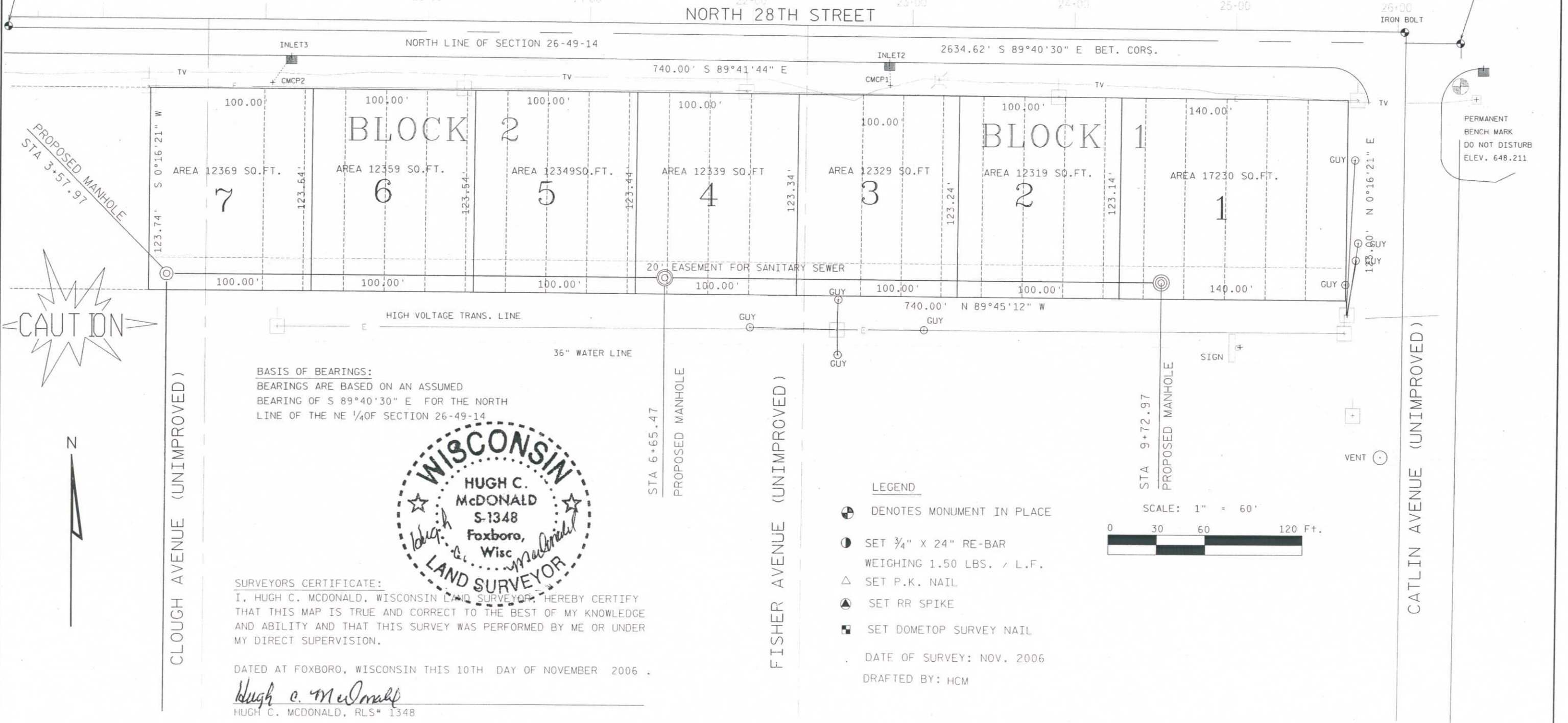
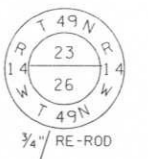
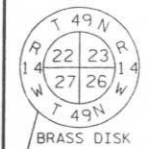


LEVELS ON - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63

SURVEY OF BLOCK 1 AND 2; WEST SUPERIOR BOULEVARD ADDITION  
 LOCATED IN SECTION 26, T 49 N, R 14 W, CITY OF SUPERIOR, DOUGLAS COUNTY, WI.

PROJECT NUMBER	SHEET NO
SURVEY FOR:	1/1
HERITAGE HOMES	4
1626 ELMIRA AVENUE	
SUPERIOR, WI. 54880	

LEVELS ON \* 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63



**SURVEYORS CERTIFICATE:**  
 I, HUGH C. McDONALD, WISCONSIN LAND SURVEYOR, HEREBY CERTIFY THAT THIS MAP IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND ABILITY AND THAT THIS SURVEY WAS PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

DATED AT FOXBORO, WISCONSIN THIS 10TH DAY OF NOVEMBER 2006 .  
*Hugh C. McDonald*  
 HUGH C. McDONALD, RLS# 1348



# PROPOSED SANITARY SEWER LAYOUT 5

ORIGIN OF LEVELS:  
CITY OF SUPERIOR PERMANENT BENCH MARK  
SE CORNER OF 28TH AND CATLIN  
BRASS DISK IN CONC. CYLINDER  
ELEV. 648.211

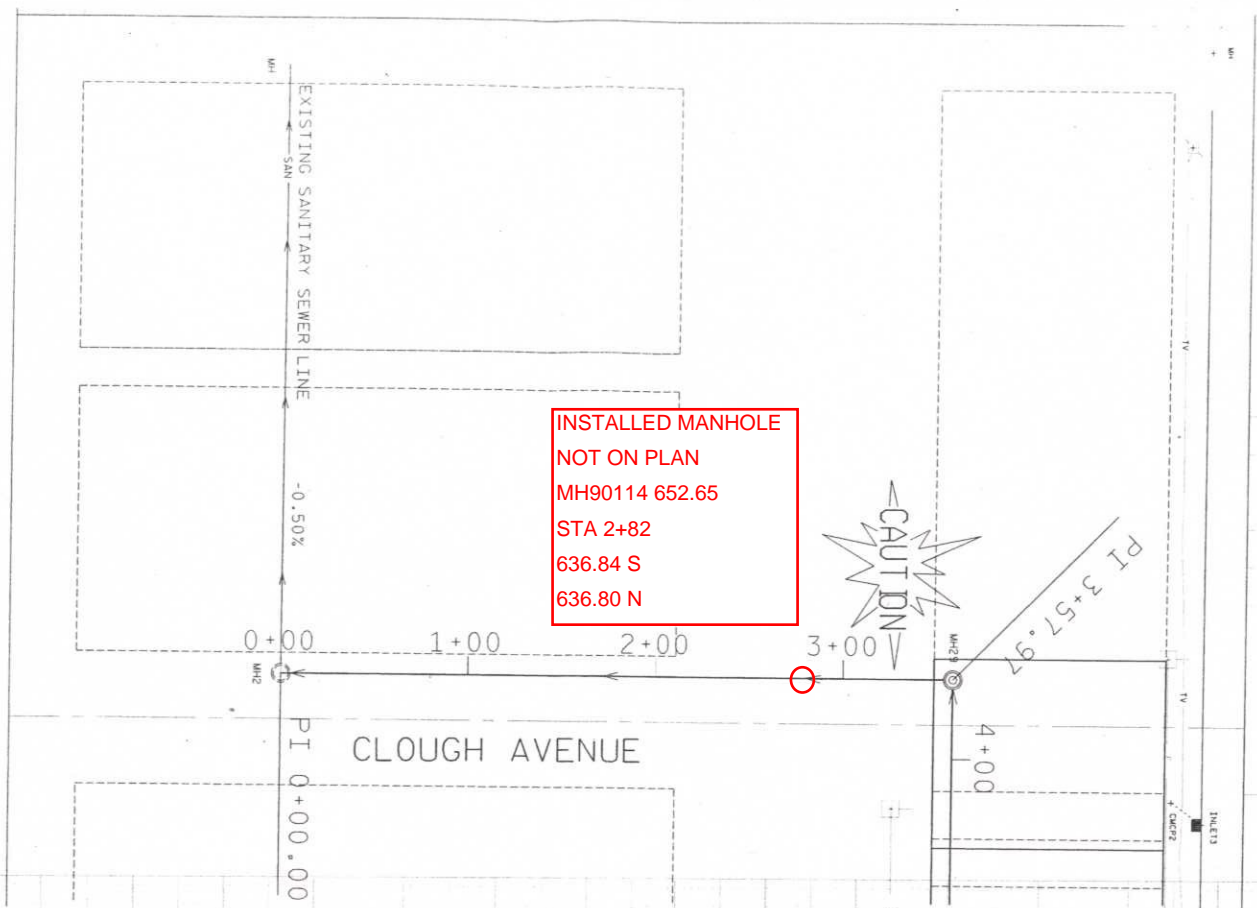
**EXISTING**  
MH90109 653.35  
STA 0+00  
634.48 8" W  
635.35 8" N

STA. 0+00  
EXISTING MANHOLE IN  
PLACE-TO REMAIN  
COVER ELEV=652.84  
INLET ELEV=632.80  
DISCH ELEV=632.74

**INSTALLED MANHOLE**  
NOT ON PLAN  
MH90114 652.65  
STA 2+82  
636.84 S  
636.80 N

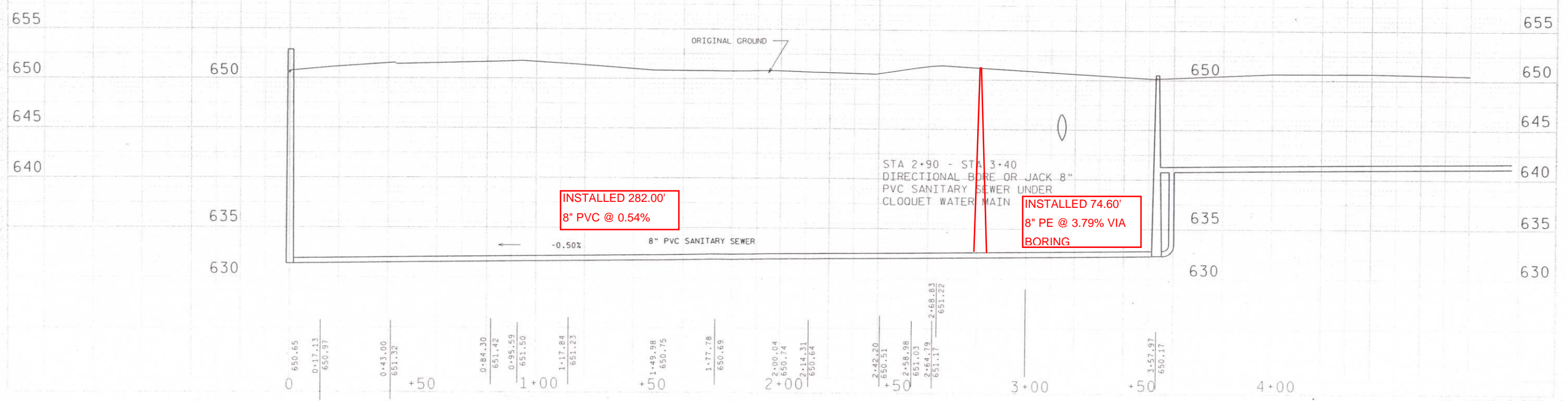
**INSTALLED**  
MH90113 651.22  
STA 3+57  
639.63 S  
639.67 E

STA. 3+57.97  
CONSTRUCT MANHOLE  
WITH DROP INLET  
DISCH ELEV. 634.59  
COVER ELEV=650.50  
TOP INLET ELEV=641.42  
BOTTOM INLET =634.69



NORTH 28TH STREET

APPROX. STA. 3+15  
EXISTING CITY OF CLOQUET  
WATER MAIN  
CONTRACTOR SHALL PHYSICALLY  
VERIFY THE LOCATION AND DEPTH  
PRIOR TO ANY EXCAVATION.



**INSTALLED 282.00'**  
8" PVC @ 0.54%

**INSTALLED 74.60'**  
8" PE @ 3.79% VIA  
BORING

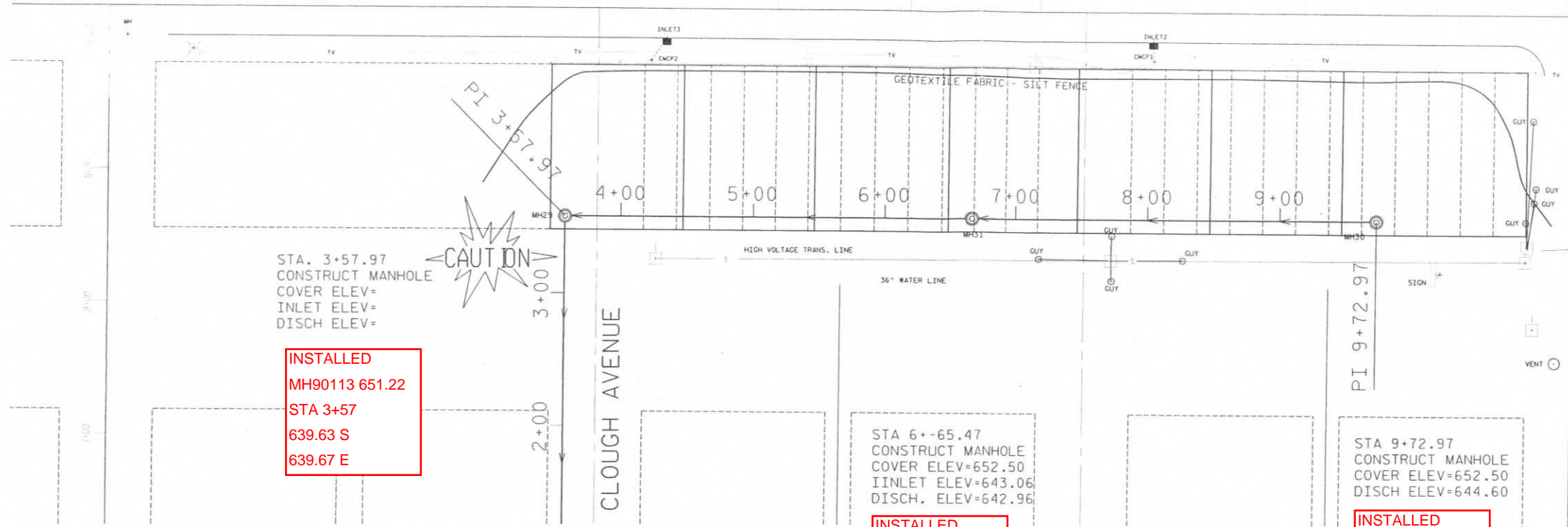
STA 2+90 - STA 3+40  
DIRECTIONAL BORE OR JACK 8"  
PVC SANITARY SEWER UNDER  
CLOQUET WATER MAIN

Station	Elevation
0	650.65
0+17.13	650.97
0+43.00	651.32
+50	
0+84.30	651.42
0+95.59	651.50
1+17.84	651.23
+50	
1+49.98	650.75
1+77.78	650.69
2+00	650.04
2+14.31	650.64
+50	
2+42.20	650.51
2+58.98	651.03
2+64.79	651.17
2+68.83	651.22
3+00	
+50	
3+57.97	650.17
4+00	

NORTH 28TH. STREET

PROPOSED SANITARY SEWER LAYOUT 6

ORIGIN OF LEVELS:  
CITY OF SUPERIOR PERMANENT BENCH MARK  
SE CORNER OF 28TH AND CATLIN  
BRASS DISK IN CONC. CYLINDER  
ELEV. 648.211



STA. 3+57.97  
CONSTRUCT MANHOLE  
COVER ELEV=  
INLET ELEV=  
DISCH ELEV=

INSTALLED  
MH90113 651.22  
STA 3+57  
639.63 S  
639.67 E

STA 6+-65.47  
CONSTRUCT MANHOLE  
COVER ELEV=652.50  
INLET ELEV=643.06  
DISCH. ELEV=642.96

INSTALLED  
MH90112 652.29  
STA 6+77  
641.97 W  
641.97 E

STA 9+72.97  
CONSTRUCT MANHOLE  
COVER ELEV=652.50  
DISCH ELEV=644.60

INSTALLED  
MH90111 651.53  
STA 10+04  
643.66 W

