

ADDENDUM NO. 1
TO SPECIFICATIONS AND PLANS FOR THE
SOUTH BLOOMFIELD HIGHLANDS WATER MAIN
BLOOMFIELD TOWNSHIP
OAKLAND COUNTY, MICHIGAN

MAILING: PO Box 824 Bloomfield Hills, MI 48303-0824

SHIPPING: 555 Hulet Drive Bloomfield Hills, MI 48302-0360

PHONE: 248-454-6300 WEBSITE: hrcengr.com

Date: August 12, 2024 HRC Job No. 20220693

This Addendum is issued prior to receipt of bids to provide for certain changes and clarifications to the Specifications and/or the Plans, as herein specified, and is hereby made a part of the Contract Documents and shall be taken into consideration in preparing the Proposal. The General Conditions and Specifications for the original work and the Contract Drawings are to govern this work unless otherwise revised herein. All other conditions remain the same. Please note that sealed proposals still must be received on or before 10:00 am, Local Time on Tuesday, August 20, 2024.

The Bidder shall acknowledge the receipt of this Addendum by signing the Addendum and enclosing it in the submission of his bids. This must also be acknowledged on Page 5 of the Proposal. Failure to enclose Addendum No. 1 in the submission of bids may be justification for the bid proposal being rejected as non-responsive.

The following lists the extent of this Addendum. Description of the changes or clarifications are given within each heading:

CONTRACTOR QUESTIONS:

- Q: If a new stop box excavation is left exposed for a resident to have their plumber come in and make the connection to the existing water service line, how will restoration be handled in that case?
- A: The Contractor will be responsible for all restoration work in the right-of-way and up to the property line as well as any damage done by the Contractor within private property. The residents and their plumbers will be responsible for any restoration on private property resulting from their private water service connection being made by their plumber.
- Q: Is the Contractor responsible for service line replacement if a water service line is found to be lead?
- A: No, the Contractor should contact the Township DPW who will complete the lead service line replacement if such a situation arises.
- Q: How many lineal feet of water main will need to be abandoned?
- A: Approximately 14,000 lineal feet of mostly four (4") inch main with six (6") inch water main on Somerset Rd.

PRE-BID MEETING INFORMATION:

The Pre-Bid Meeting Minutes and Sign-In Sheet (Issued) – Attached herewith are the meeting minutes from the Pre-bid meeting held on August 7, 2024. A copy of the Pre-bid meeting sign-in sheet has been included. Contractor questions and responses are listed above. No additional questions have been submitted to HRC at this time. Answers provided to bidder questions shall be considered conditions of the contract and considered in the preparation of bids.



DRAWINGS:

Sheet 49 – Bloomfield Township Water Main Standard Details

 Plan sheet has been added to the Drawings. Please note that the Bloomfield Township standard hydrant requirements were revised on August 8, 2024. New hydrants shall have 2-way nozzles. Pumper nozzles shall include a three and three-quarter (3-3/4) inch DFD and a five (5) inch Storz. East Jordan 5BR250 Watermaster Fire Hydrant Product: 55972D.

Sheet 50 - Bloomfield Township Sanitary Sewer Standard Details

Plan sheet has been added to the Drawings.

Sheet 51 – Bloomfield Township Storm Sewer Standard Details

Plan sheet has been added to the Drawings.

Sheet 52 – OCWRC Soil Erosion & Sedimentation Control (S.E.S.C.) Standard Details

Plan sheet has been added to the Drawings.

SUMMARY:

This Addendum No. 1 has been issued in order to clarify, modify and add additional items to the original Bid Package. The Bidder shall acknowledge receipt of this Addendum No. 1 by signing in the location provided below and incorporating this Addendum No. 1 with the submission of his bid. Failure to include Addendum No. 1 and its attachments may result in rejection of the bid.

HUBBELL, ROTH & CLARK, INC.

HUBBELL, ROTH & CLARK, INC.

Christopher N. Ross, P.E.

Senior Associate

Christopher N. Ross, P.E.

Project Engineer

pc: All plan holders

Respectfully submitted,

Bloomfield Township; Mr. R. Corey Almas, P.E., Ms. Angela Hysinger, P.E., Mr. Paul Palace

HRC; D. Mitchell, J. Van Acker

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MAILING: PO Box 824 Bloomfield Hills, MI 48303-0824

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PHONE: 248-454-6300 WEBSITE: hrcengr.com

PRE-BID MEETING MINUTES SOUTH BLOOMFIELD HIGHLANDS WATER MAIN BLOOMFIELD TOWNSHIP

Date: August 7, 2024 HRC Job No. 20220693

Time: 10:00 a.m.

Meeting Held: Bloomfield Township DPW Conference Room

Attendee Name	Representing	Phone No.	Email Address
Corey Almas	Bloomfield Township	248-594-2807	calmas@bloomfieldtwp.org
Paul Palace	Bloomfield Township	248-594-2809	ppalace@bloomfieldtwp.org
Steve Sierota	Bloomfield Township	248-594-2811	ssierota@bloomfieldtwp.org
Paul Horen	Bloomfield Township	248-433-7732	phoren@bloomfieldtwp.org
Mark Hendricks	Bloomfield Township	248-200-6814	mhendricks@bloomfieldtwp.org
Noah Mehalski	Bloomfield Township	248-433-7728	nmehalski@bloomfieldtwp.org
Adam Roose	Bloomfield Township	248-594-2802	aroose@bloomfieldtwp.org
Karyn Stickel	HRC	248-454-6566	kstickel@hrcengr.com
Chris Ross	HRC	248-330-7344	cross@hrcengr.com
Justin Van Acker	HRC	248-762-6430	jvanacker@hrcengr.com
Brandon Hosler	ISCO Pipe	502-640-9778	brandon.hosler@isco-pipe.com
Vinay Shenoy	Superior Excavating	313-247-4319	shenoyvinay@gmail.com
Alex Phillips	D'Angelo Brothers	248-894-2397	alex@dangelo-brothers.com
Bill Bell	Pamar Enterprises	810-343-1847	bill@pamarenterprises.com
Joe Strickland	Murphy Pipeline	734-460-3441	joe.strickland@murphypipeline.com

1) Introductions

2) Project Background and Scope

- The existing community well water system for the South Bloomfield Highlands (SBH) subdivision is failing and will be replaced with public water main. A Special Assessment District (S.A.D.) #601 was majority approved by the SBH residents.
- New public water main will include (5) connections to the existing Township water system and approx.
 13,937 LF of directional drilled 8" HDPE DIPS DR11 water main, 669 LF of open cut 8" Cl. 54 D.I. water main, 20 fire hydrants, 32 gate valve & wells, and 6,263 L.F. of 1" type "K" copper or HDPE DR9 water service lines.
- Once all residents have been connected to the new water system the existing community water system
 and wells will be abandoned. Residents will be given 90 days from the activation of the new water
 system to connect themselves.

3) Review of Regulatory Requirements and Permits:

- EGLE Act 399 Approved Permit # ACT-333357. No cost to the contractor.
- RCOC Approved Permit Application # <u>24-0824</u>. Contractor to pull the RCOC permit, pay fees (total of \$6,000), provide insurance and \$30,000 construction bond to RCOC.
- OCWRC SESC Permit not yet received. HRC to pull SESC permit and Township to pay for permit and inspection fees.



4) Review of potential utility conflicts:

- Consumers Energy Gas main locations are shown on the plans and vary street by street. Gas main crossings with the proposed water main in multiple locations. Contractor to work closely with Consumers Energy loss prevention representative.
- Bloomfield Township Sanitary Sewer and Sanitary Leads Sanitary sewer crossings with the proposed water main in multiple locations. Sanitary leads to be televised via lead launching and exposed at all crossings.
- SBH Community Water System Existing water main crossings with the proposed water main in multiple locations. It is critical that the existing water main and water service lines are not damaged and remain active throughout construction as isolation of the existing water main requires full shutdown of the community well system.

5) Special Project Requirements:

- For information about Contractor qualifications, scheduling and special notes for bid items see spec section 01001 Special Project Requirements and Supplemental Specifications.
- Additional information regarding the following is included in the supplemental specs: Incidentals, exposing utilities, water use, hours of operation, winter work/temporary pavement, restoration, maintenance of services, disposal of excavated materials, tree protection, Contractor's liability and insurance, hydrant and gatewell connections, field adjustments, pipe materials, abandonment of the existing main etc.. It is critical the Contractor has read and understands this spec section prior to submitting their proposal.

6) Project Construction/Materials:

- A mechanical joint adaptor with a concrete collar and flex restraint must be utilized in locations where the new HDPE main is to be connected to an existing ductile or cast iron water main to ensure the connection to the existing main does not separate.
- All ductile iron pipe shall have restrained joints and poly-wrap (8 mil).
- Directional drilling bore path alignment to be confirmed from the data logger with final bore path alignment documented by the Contractor.
- Existing water main to be abandoned with flowable fill only after all residents have switched services over to the new main.
- Temporary construction signage to be ground mounted per RCOC.
- All excavations are to be backfilled with Class II compacted sand backfill.
- The Contractor may salvage and re-use the gravel in the roadways so long as it can be kept clean.

7) Review of Contract Documents:

- Physical bids to be submitted to the Township as described in the Proposal and Instructions to Bidders.
- A Performance Bond, Labor and Material Bond, and Maintenance and Guarantee Bond will all be required as part of the signed Contract.
- No proposals will be received unless made on blanks furnished and delivered to the Bloomfield Township Dave Payne Public Services Building on or before 10:00am local time on August 20, 2024.
- A Bid Bond will be required to be submitted along with the Contractor's Proposal.

8) Critical Work Sequencing:

• Construction to begin after October 1, 2024. Substantial completion to be achieved by October 31, 2025. Final completion of the project is due by April 30, 2026.



• The Contractor may elect to start work on Division 1 & 2 only as soon as the Notice to Proceed is issued. However, once work is started in a location, it shall be continued without delay or stoppages until the work is substantially complete. A separate Notice to Proceed will be issued for the Division 3 work only which will begin once all residents have connected themselves to the new water system within 90 days of the division 1 work being completed.

9) Use of premises by Owner and Contractor:

- The Contractor may use the ROW of Mulberry Road for staging and fusing of the water main. Additionally, the SBH wellhouse property at 2183 Somerset will be available for temporary staging and storage for the Contactor.
- Vehicular access to each home will be maintained during construction. Emergency vehicle access, mail delivery and garbage pick-up must also be maintained during construction.
- The General Contractor's foreman or superintendent must be on site at all times during active construction.
- Allowable work hours in Bloomfield Township are Monday through Saturday, 7 AM to 6 PM, and
 not on Sundays or holidays. The Contractor may work outside these hours only with permission
 from Bloomfield Township. Contractor to notify Township Engineering & Environmental Services
 Department the Wednesday prior to any requested Sunday work and cannot complete Sunday work
 without permission from the Township Supervisor.

10) Project Coordination:

• Contractor may need to coordinate work with MDOT and Dan's Excavating should the Square Lake Road reconstruction project still be occurring when project begins.

11) Survey and layout by HRC:

- HRC to provide construction staking for directional drilled sections of water main, gate wells and hydrant finished grades. Staking of the right-of-way to be provided when requested by the Contractor.
- All work shall be performed under the observation of a full time field observer provided by the Township of Bloomfield. HRC will provide construction observation services on the Township's behalf. 48-hour minimum notice must be provided to HRC for observation scheduling. If an inspector is scheduled to come out and no work takes place then a ½ crew day will be charged for the show up time.

12) Procedures for testing:

- Bacteriological and pressure tests to be performed after the pipes have been installed by directional drilling or open-cut.
 - o Two-day bacti tests must be provided for the water main.
- Water main pressure test (150 psi 4 hr test) required. To be witnessed by HRC. Both safe bacti and pressure tests are required prior to physical connections.
- HRC will perform compaction testing for backfill & HMA, and concrete testing. HRC's observer will assist with coordination for testing. MDOT Class II sand required for all backfill. Gravel road restoration to consist of 8 inches of 23A compacted in place.

13) Procedures for maintaining record documents:

• HRC to complete as-built plans from HRC observation reports and the Contractor's bore path data logger.



14) Traffic Control:

- Bids shall include the expected cost of all traffic control, signage, and barricading required for the project in the lump sump pay item for "Maintaining Traffic"
- Traffic control will be primarily around the daily work zone on local, residential streets.

15) Other discussions (housekeeping):

• Contractors must take care of dust control throughout project duration. All mud tracked onto area roadways must immediately be removed with roads swept clean on as-needed basis.

These minutes are intended to be a summary of those items discussed. Any corrections and/or comments should be noted to the writer as soon as possible.

Respectfully submitted,

HUBBELL, ROTH & CLARK, INC.

Christopher N. Ross, P.E.

Project Engineer

CR/JV

pc: All present

Bloomfield Township; A. Hysinger

HRC; D. Mitchell, File

Pre-Bid Meeting - Sign-In Sheet South Bloomfield Highlands Water Main **Bloomfield Township DPW Conference Room**

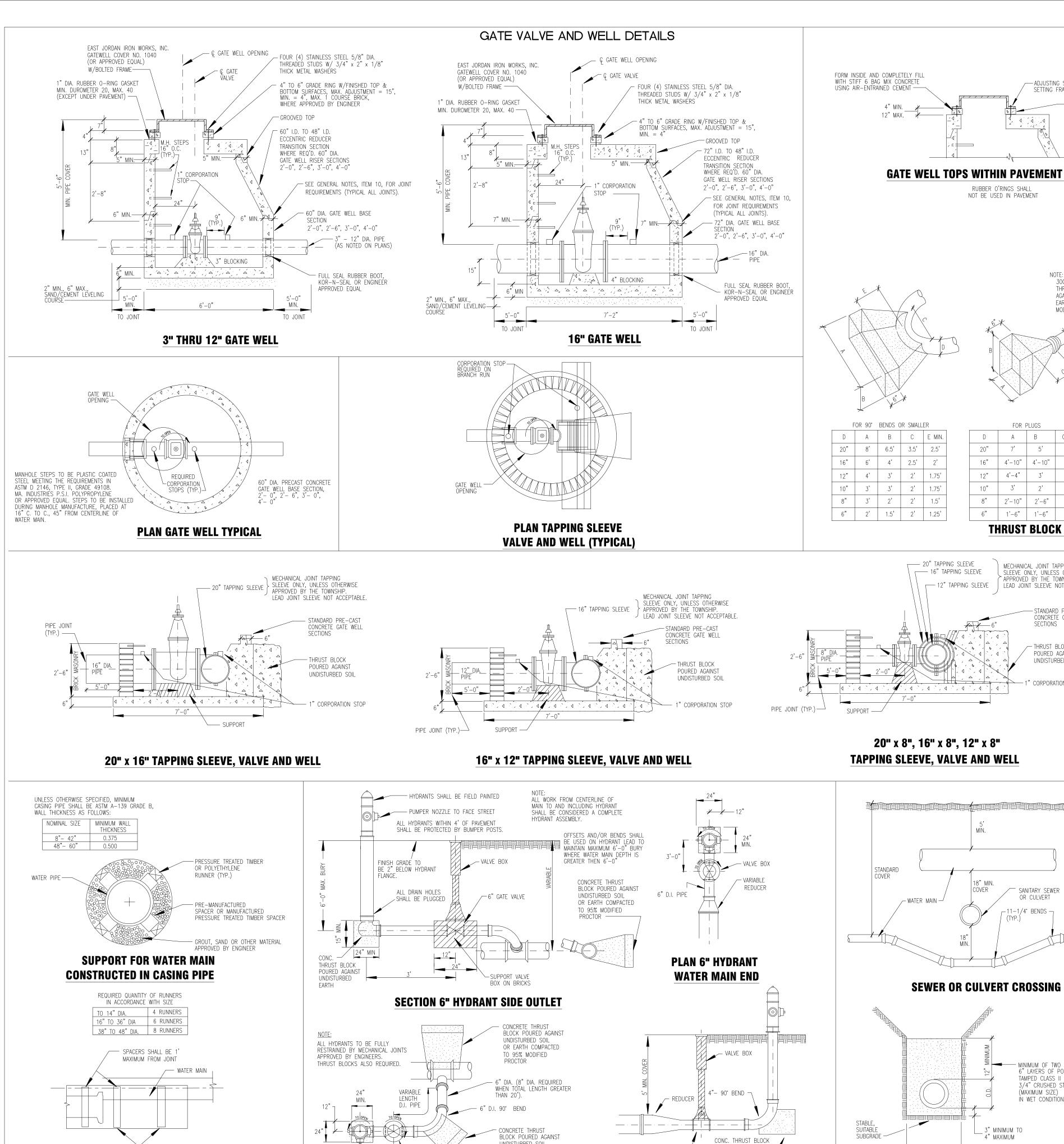
Date: August 7, 2024 Time: 10:00am



Name	Affiliation	Phone Number	Email Address	
Chris			Cross	
Ross	HRC	248 - 330 - 7344	@ hreengr.com	
Paul	. C'aln		Pralace Pralace	
PALACE	Bloom Field	248.594.2809	@ BloomfieldTWP. org	
Color	BT	248. 594. 2807	CALMAS	
ALMAS	12.7	248. 577. 200	@ BEOOMFIELDIN P.ORG	
NoAH	_		1 mchalski	
Mehmlski	BTWP	248-433-7728	@ B bloomfield tup. org	
Brandon	ISCO	(502)-640-9778	Brandon Hoster	
itosler			@ Isco-pipe, com	
VINAY	SUPERIOR	313-247-4319	shenoy vinay	
SHENOY	EXCAVATING,	313 ~ 241 - 4314	@ gmail.com	
Alex	D'Angelo	2110 0211 00	DIEV	
DALLINGS	Brothers	248-894-2397	@ Dangelo-Brothers.com	
B.11	Parrow		bill	
Bin Bell	ENterprises	810-343-1847	@ Pamacente and see a an	
- \-	/	734-	DOE. STRECKIAND	
STRICKIAWD	MBC	460-3441	@ MURPHY PiPe Line. Co.	
Parin	BTWP	947-414-0071	Phosen	
Holen			@ Bloomfield twp-019	
Steve	BTWP	248 594 2811	S Sierola	
Sierota	×		@ Bloomfield two.org.	
nark	BTWA	248.200 -6814		
Hendric Ks		270.200 - 6017	@ Bloomfield twp.org	
Karyn Stickel	HRC	248-459-3843	kstickel	
. ,	PICO	W0-437 3043	@ hrc-engr. com	
Adam Roose	Bloomfield	210 FAU 19 22	Aroose	
		848-594-2802	@ Bloomfield twp.org	
			2.2011	

Justin Uniter HRC 246-762-6430 Juanactur @ hrc-togr.com





UNDISTURBED SOIL

TO 95% MODIFIED

PLAN 6" HYDRANT SIDE OUTLET

12' MAXIMUM ON PIPF

REVISION DESCRIPTION:

02-16-2005 UPDATED DETAIL SHEET

08-09-2005 UPDATED PER BTEES

11-22-2005 UPDATED PER BTEES

08-08-2024 UPDATED PER BTEES

WATER MAIN IN CASING SECTION

WATER MAIN IN CASING DETAILS

3 WORKING DAYS

BEFORE YOU DIG

1-800-482-7171

CALL MISS DIG.

OR EARTH COMPACTED

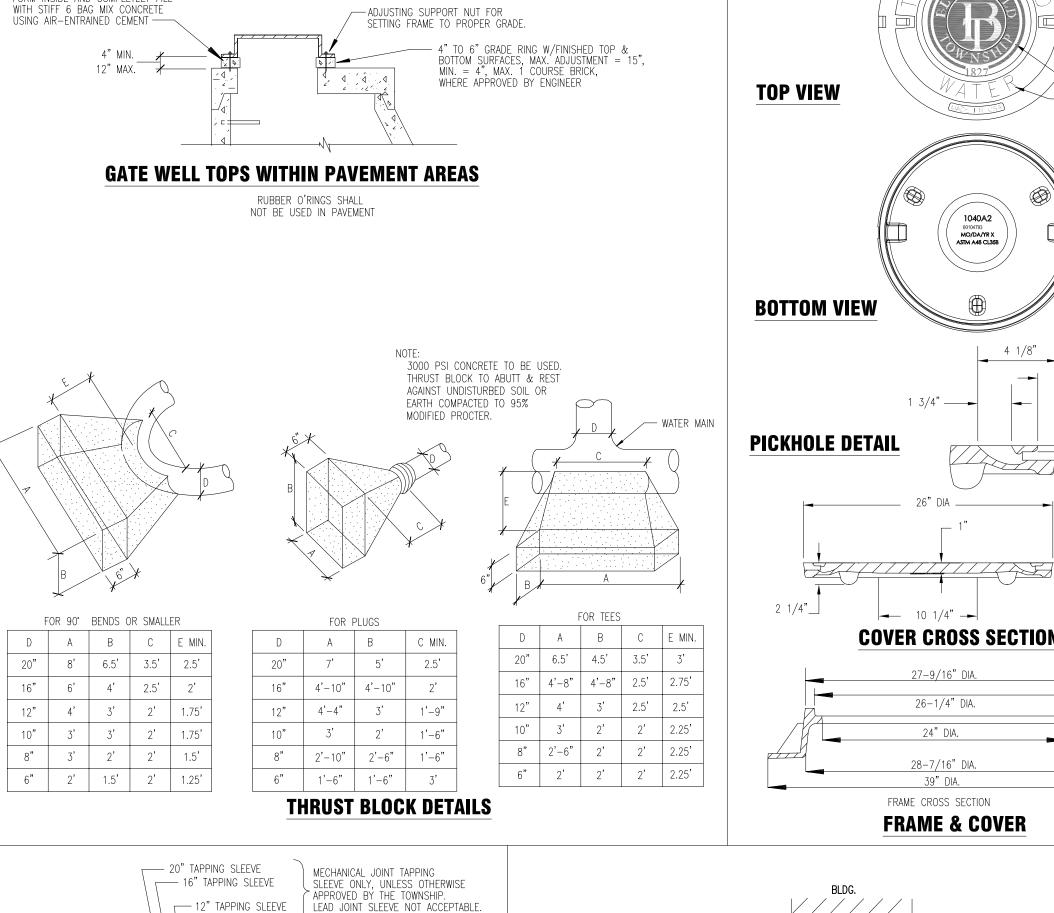
(POUR AGAINST

DEAD END HYDRAN

4" GATE VALVE —

HYDRANT DETAILS

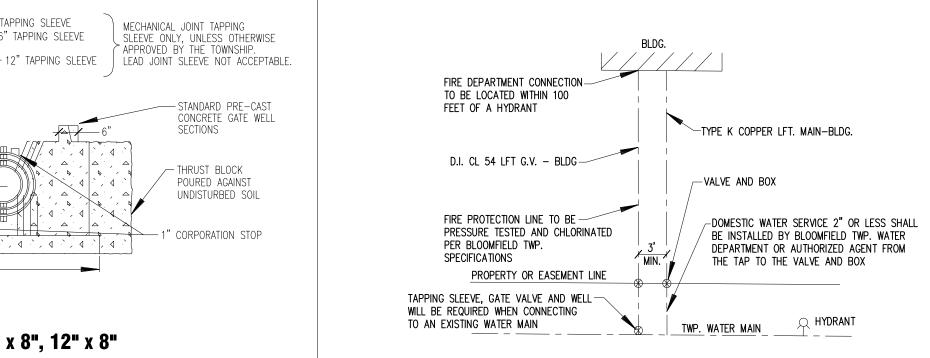
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SECTIONS

- THRUST BLOCK

POURED AGAINST

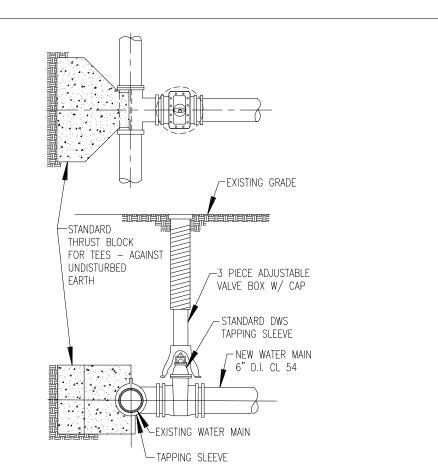


PRIVATE FIRE PROTECTION WATER MAIN - TESTING & INSPECTION

1. ALL WATER MAIN SHALL BE INSTALLED UNDER THE INSPECTION OF THE TOWNSHIP ENGINEER

- 2. ALL WATER MAIN SHALL BE PRESSURE TESTED AND DISINFECTED ACCORDING TO BLOOMFIELD TWP. REQUIREMENTS
- 3. THIS WATER MAIN SHALL NOT BE CONNECTED TO THE EXISTING MAIN UNTIL SATISFACTORY TEST RESULTS HAVE BEEN OBTAINED AND REPORTED.
- 4. ALL WATER MAIN SHALL BE DUCTILE IRON PIPE CLASS 54.
- 5. THIS WATER MAIN IS A PRIVATE LINE FOR FIRE PROTECTION ONLY AND NO DOMESTIC WATER SERIVCE IS ALLOWED FROM THIS LINE, WITH ALL MAINTENANCE BEING THE PROPERTY OWNER'S RESPONSIBILITY. DOMESTIC WATER SERVICE MAY BE TAPPED OFF OF THE FIRE PROTECTION LINE BEFORE THE VALVE AND BOX IF CONSTRUCTED WITHIN THE PUBLIC RIGHT-OF-WAY OR A DEDICATED EASEMENT.

PRIVATE FIRE PROTECTION AND DOMESTIC WATER SUPPLY DETAIL



TAPPING SLEEVE AND VALVE W/ VALVE BOX

GENERAL NOTES

1. ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND

2" LETTERS (RECESSED FLUSH)

PICK HOLES

CUSTOM LOGO

- 2" LETTERS

(RECESSED)

1040A2 00104793 MO/DA/YR X ASTM A48 CL35B

COVER CROSS SECTION

27-9/16" DIA

26-1/4" DIA

24" DIA.

39" DIA.

FRAME & COVER

FRAME CROSS SECTION

4 1/8"

4

- SPECIFICATIONS OF THE TOWNSHIP OF BLOOMFIELD. CONTRACTOR MUST CONTACT MISS DIG (1-800-482-7171) THREE WORKING DAYS BEFORE THE START OF
- CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION STARTS.
- 3. ALL NECESSARY EASEMENTS FOR WATER MAINS SHALL BE PROVIDED IN THE NAME OF THE OWNER OF THE WATER MAIN PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM FOR OPERATION.
- 4. ALL WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF FIVE (5) FEET BELOW FINISHED GRADES INCLUDING OPEN DRAINAGE COURSES.
- 5. ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS SHALL BE BACKFILLED WITH THOROUGHLY COMPACTED CLASS II SAND TO GRADE (95% MAXIMUM UNIT DENSITY).
- 6. WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS
- TO THE UNDERSIDE OF THE HIGHER UTILITY. 7. WHERE WATER MAINS MUST DIP TO PASS UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH AND SHALL BE CONSTRUCTED WITH ELEVEN AND ONE-QUARTER (11-1/4)

DEGREE VERTICAL BENDS, PROPERLY ANCHORED.

DIVISION OF DRINKING WATER AND RADIOLOGICAL PROTECTION.

8. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD

SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.

- 9. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN COMPLIANCE WITH MEASUREMENTS (i.e. 2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATEWELL OPENING. FAILURE TO DO SO WILL REQUIRE THE
- CONTRACTOR TO CORRECT AT THEIR EXPENSE. IO. ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY AND IN ACCORDANCE WITH THE STANDARDS OF BLOOMFIELD TOWNSHIP, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY,
- 11. ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE TOWNSHIP OF BLOOMFIELD OPERATIONS AND MAINTENANCE DIVISION AFTER WATER MAIN ACCEPTANCE AND APPLICABLE TAP PERMITS ARE OBTAINED.
- 12. ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED IN PLANS AND SPECIFICATIONS, IS APPROVED BY BLOOMFIELD TOWNSHIP.

WATER MAIN MATERIALS NOTES

- 1. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE DOUBLE CHECK VALVE BACKFLOW PREVENTER WITH CURRENT CERTIFICATION.
- 2. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE MUELLER TYPE H-15000 OR EQUIVILANT. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
- 3. ALL DUCTILE IRON PIPE (D.I.P.) WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
- . THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
- 5. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH TWENTY (20) INCH. SIZE TWENTY-FOUR (24) INCH AND LARGER SHALL BE CLASS 55 DUCTILE IRON PIPE (ABBREVIATED "D.I." IN DETAILS AND ON THIS SHEET).
- 6. PIPES OF SIZES LARGER THAN TWENTY-FOUR (24) INCHES IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
- 7. MECHANICAL AND SLIP-ON JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSL A21.11).
- 8. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
- 9. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER, EXCEPT THAT DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE
- DIAMETERS. 10. ALL BURIED BOLTS, NUTS, AND WASHERS SHALL BE CORTEN OR EQUIVALENT.

VALVE AND SLEEVE NOTES

- 1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED WITH NON-RISING STEM.
- 2. ALL IN LINE GATE VALVES THREE (3) INCH AND LARGER SHALL BE IN WELLS AS DETAILED. ALL VALVES SHALL BE RESILIENT SEATED RIGHT TURN OPEN.
- ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY AN EXTÉNSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF
- INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. BUTTERFLY VALVES MAY BE USED FOR VALVES GREATER THAN 16-INCH DIAMETER AND SHALL BE MODEL 2F11 AS MANUFACTURED BY HENRY PRATT COMPANY OR APPROVED EQUAL.
- TAPPING VALVES SHALL BE SERIES A AS MANUFACTURED BY EAST JORDAN IRON WORKS OR RESILIENT SEATED
- GATE VALVES AS APPROVED BY BLOOMFIELD TOWNSHIP.
- 6. TAPPING SLEEVES SHALL BE CJM INDUSTRIES, TYPE 432; EAST JORDAN IRON WORKS, TYPE MJ OR APPROVED EQUAL.
- WHEN THE PROPOSED TAP IS SAME SIZE AS EXISTING WATER MAIN A CUT IN TEE SHALL BE USED. A MINIMUM 48 HRS NOTICE SHALL BE GIVEN TO TOWNSHIP WATER DEPARTMENT FOR ANY SHUTDOWNS OF THE SYSTEM.

HYDRANT REQUIREMENTS

ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW

SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE OR APPROVED EQUAL.

- 2. ALL HYDRANTS SHALL BE EAST JORDAN IRON WORKS NO. 5—BR— TRAFFIC MODEL. SELF—DRAINING HYDRANTS SHALL NOT BE USED. ALL HYDRANTS SHALL BE LOCAL TOWNSHIP STANDARD AS DETAILED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE. HYDRANTS SHALL HAVE 2 WAY NOZZLES. PUMPER NOZZLES SHALL INCLUDE A THREE AND THREE-QUARTER (3-3/4) INCH DFD AND A FIVE (5) INCH STORZ.
- . ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMORTEX 501 ENAMEL, COLOR 314 VERMILLION OR APPROVED EQUAL. HYDRANT CAP SHALL BE PAINTED SAME
- 4. ALL FIRE HYDRANT JOINTS SHALL BE TOTALLY RESTRAINED BY THE USE OF MEG-A-LUGS OR EQUIVALENT. THRUST BLOCKS ARE ALSO REQUIRED UNLESS DIRECTED OTHERWISE BY BLOOMFIELD TOWNSHIP.



OF

TRENCH WIDTH

COVER

SANITARY SEWER

MINIMUM OF TWO

(MAXIMUM SIZE)

3" MINIMUM TO

4" MAXIMUM

STANDARD BEDDING FOR WATER MAIN

IN WET CONDITIONS

MAX. 30" FOR PIPE LESS THAN 16" I.D. 0.D. + 12" FOR PIPE 16"-36" I.D. 0.D. + 24" FOR PIPE 42" I.D. & LARGER

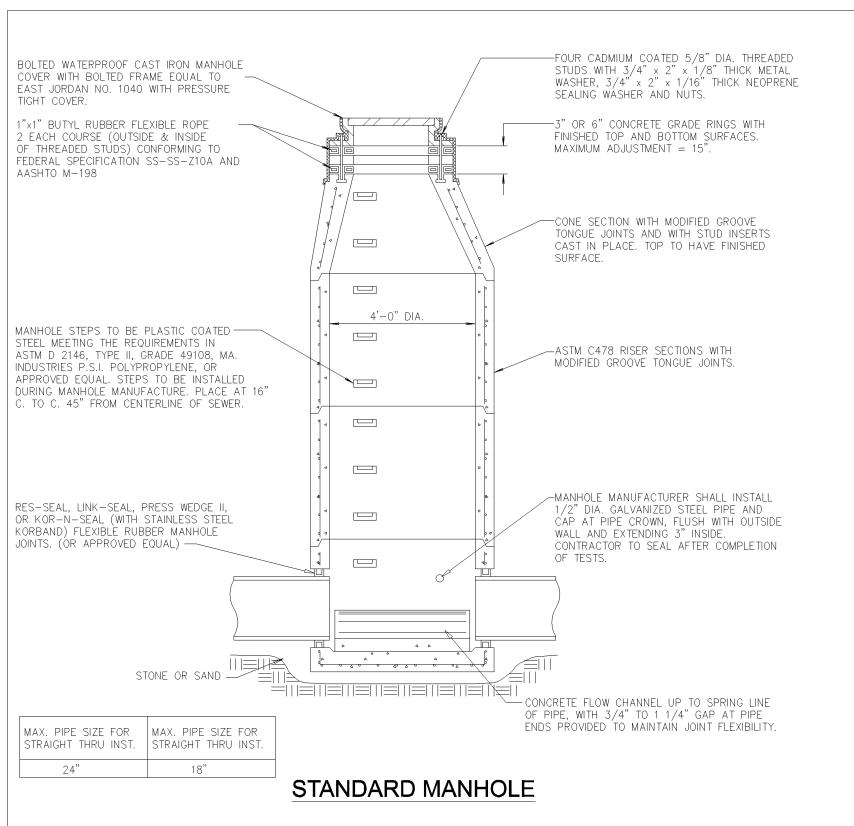
6" LAYERS OF POWER

3/4" CRUSHED STONE.

TAMPED CLASS II SAND OR

OR CULVERT

-11-1/4°BENDS -



SEALING WASHER AND NUTS.

MAXIMUM ADJUSTMENT = 15".

GEOMEMBRANE

___ 3" OR 6" CONCRETE GRADE RINGS WITH

FINISHED TOP AND BOTTOM SURFACES.

--- ELASTOMERIC SEAL

SET RIM A MINIMUM OF 12" ABOVE LEVEL -----

BOLTED WATERPROOF CAST IRON MANHOLE

COVER WITH BOLTED FRAME EQUAL TO -

EAST JORDAN NO. 1040 WITH PRESSURE

1"x1" BUTYL RUBBER FLEXIBLE ROPE -

OF THREADED STUDS) CONFORMING TO

FEDERAL SPECIFICATION SS-SS-Z10A AND

2 EACH COURSE (OUTSIDE & INSIDE

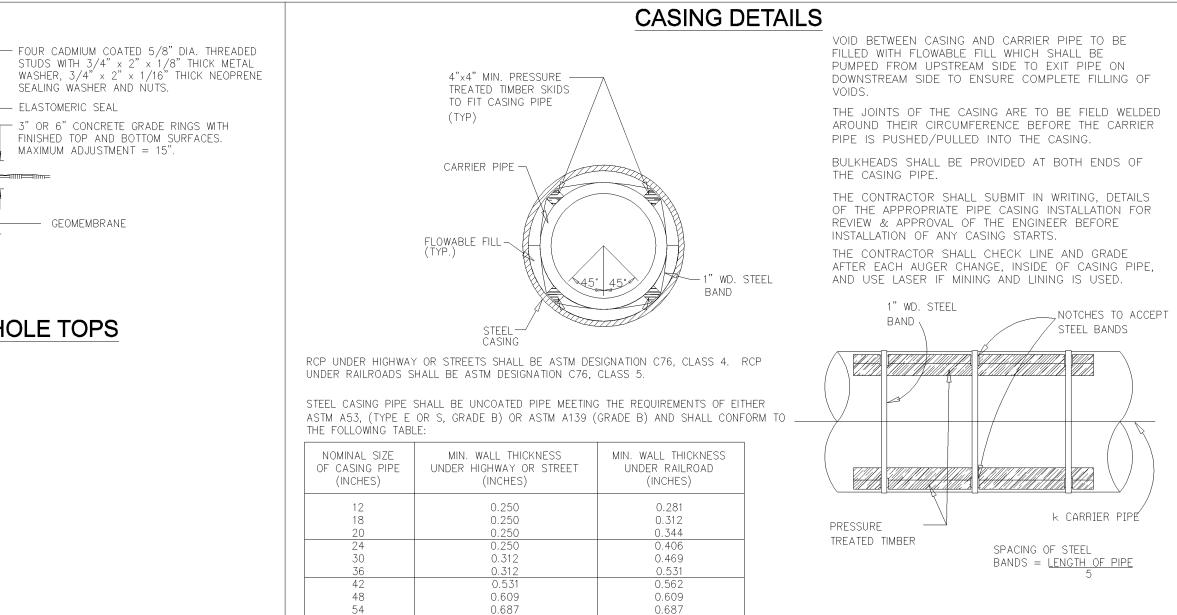
OF STANDING WATER.

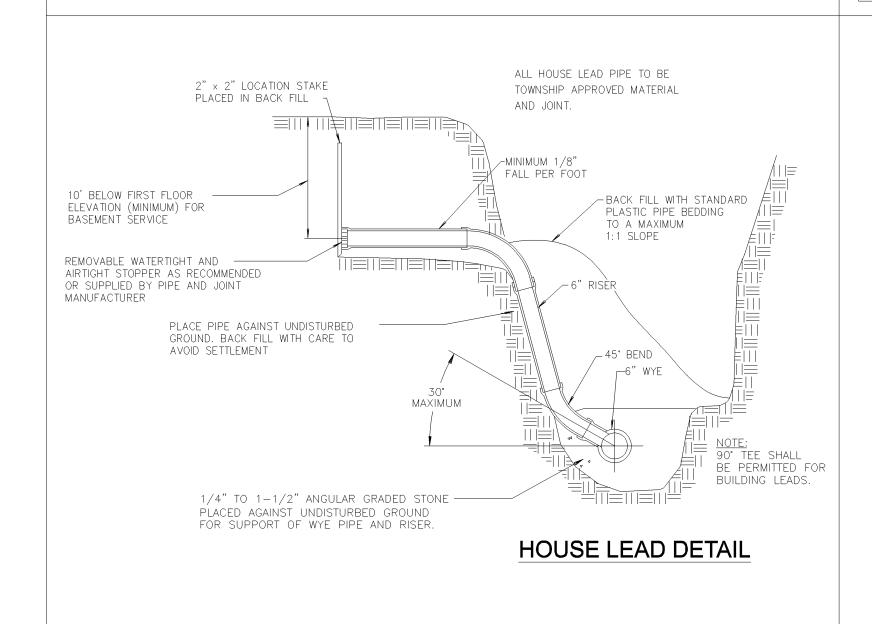
TIGHT COVER.

AASHTO M-198

BOLTED WATERPROOF CAST IRON MANHOLE — FOUR CADMIUM COATED 5/8" DIA. THREADED COVER WITH BOLTED FRAME EQUAL TO STUDS WITH $3/4" \times 2" \times 1/8"$ THICK METAL WASHER, $3/4" \times 2" \times 1/16"$ THICK NEOPRENE EAST JORDAN NO. 1040A WITH PRESSURE TIGHT COVER. SEALING WASHER AND NUTS. 1"x1" E-Z STIK PRE-FORMED BUTYL SEALANT --3" (MIN.) OR 6" CONCRETE GRADE RINGS 2 EACH COURSE (OUTSIDE & INSIDE WITH FINISHED TOP AND BOTTOM SURFACES. OF THREADED STUDS) CONFORMING TO MAXIMUM ADJUSTMENT = 15". FEDERAL SPECIFICATIÓN SS-SS-Z10A AND AASHTO M-198 (OR APPROVED EQUAL) 4/ ₪ ONE SECTION WITH MODIFIED GROOVE TONGUE JOINTS AND WITH STUD INSERTS CAST IN PLACE. TOP TO HAVE FINISHED DIA VARIES (SEE CHART BELOW) MANHOLE STEPS TO BE PLASTIC COATED -STEEL MEETING THE REQUIREMENTS IN -ASTM C478 RISER SECTIONS WITH ASTM D 2146, TYPE II, GRADE 49108, MA. MODIFIED GROOVE TONGUE JOINTS. INDUSTRIES P.S.I. POLYPROPYLENE, OR APPROVED EQUAL. STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE PLACE AT 16" C. TO C. 45" FROM CENTERLINE OF SEWER. - MANHOLE MANUFACTURER SHALL INSTALL 1/2" DIA. GALVANIZED STEEL PIPE AND RES-SEAL, LINK-SEAL, PRESS WEDGE II, ----OR KOR-N-SEAL BOOT (WITH STAINLESS CAP AT PIPE CROWN, FLUSH WITH OUTSIDE WALL AND EXTENDING 3" INSIDE. STEEL KORBAND) FLEXIBLE RUBBER MANHOLE CONTRACTOR TO SEAL AFTER COMPLETION MANHOLE JOINTS. BRICK COURSE PERMITTED PRE-CAST BOOTOM SECTION WITH PIPE FOR CLOSURE OF OPENING PIPE OPENINGS ENCASED IN AND SUPPORTED BY 3500 PSI MONOLITHIC-POURED CONCRETE. MINIMUM ENCASEMENT 12" ----MANHOLE SIZING CHART MAX. PIPE SIZE FOR MANHOLE DIA STRAIGHT THRU INST 3500 PSI MONOLITHIC-POURED-CONC. MINIMUM ENCASEMENT 12" -12" MINIMUM

TO UNDISTURBED GROUND MANHOLE CONSTRUCTED OVER EXISTING SEWER



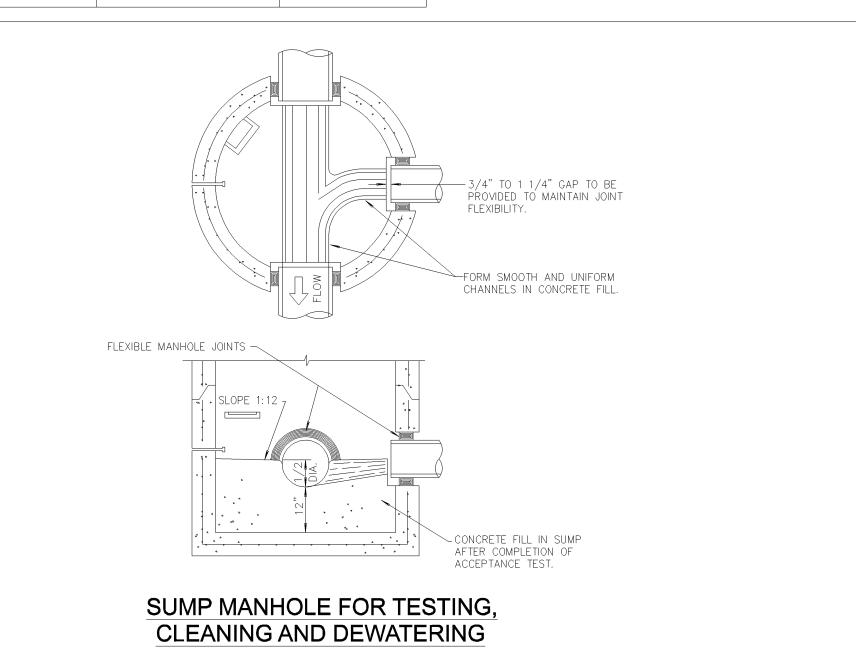


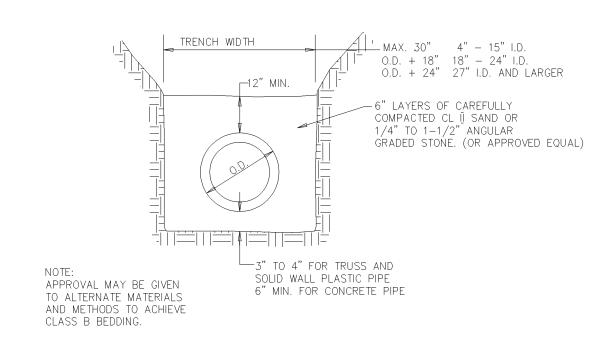
REVISION DESCRIPTION:

SEE STANDARD MANHOLE DRAWING

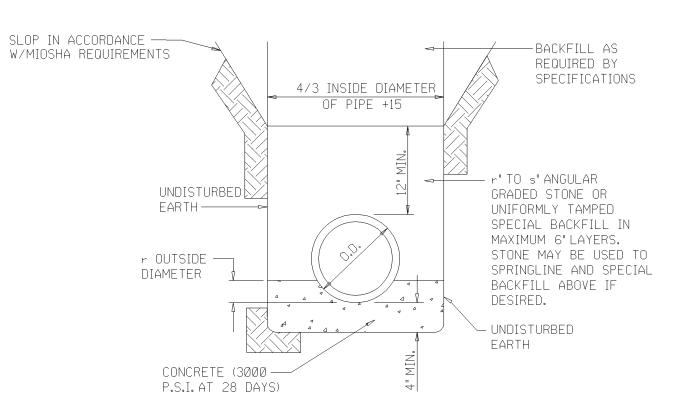
ADJUSTMENT DETAIL MANHOLE TOPS

FOR OTHER MANHOLE DETAILS.

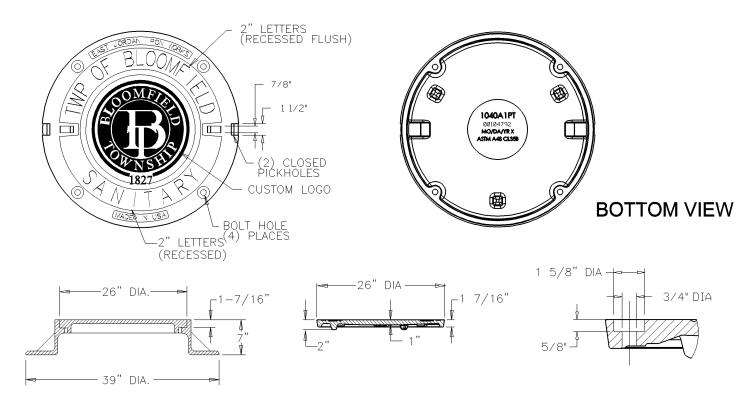




STANDARD CLASS "B" BEDDING (CLASS B)



CONCRETE CLASS "A" BEDDING

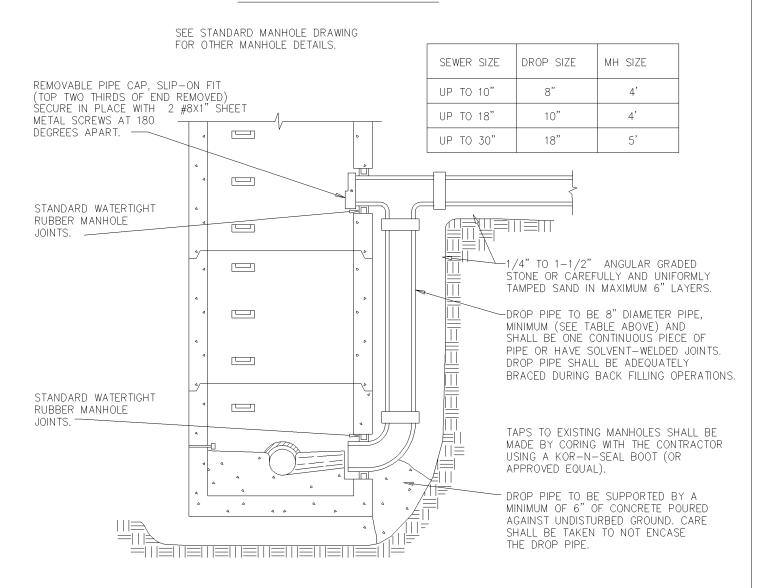


CROSS SECTION

BOLTHOLE DETAIL

EAST JORDAN IRON WORKS HEAVY DUTY MATERIAL ASTM A48 CL.35B COVER WT., 115 LBS., CATALOG NO. 1040A1PT PATTERN NO. 1040A, PRODUCT NO. 1040A1PT 2" RAISED LETTERS, 1" RAISED LETTERS

MANHOLE COVER



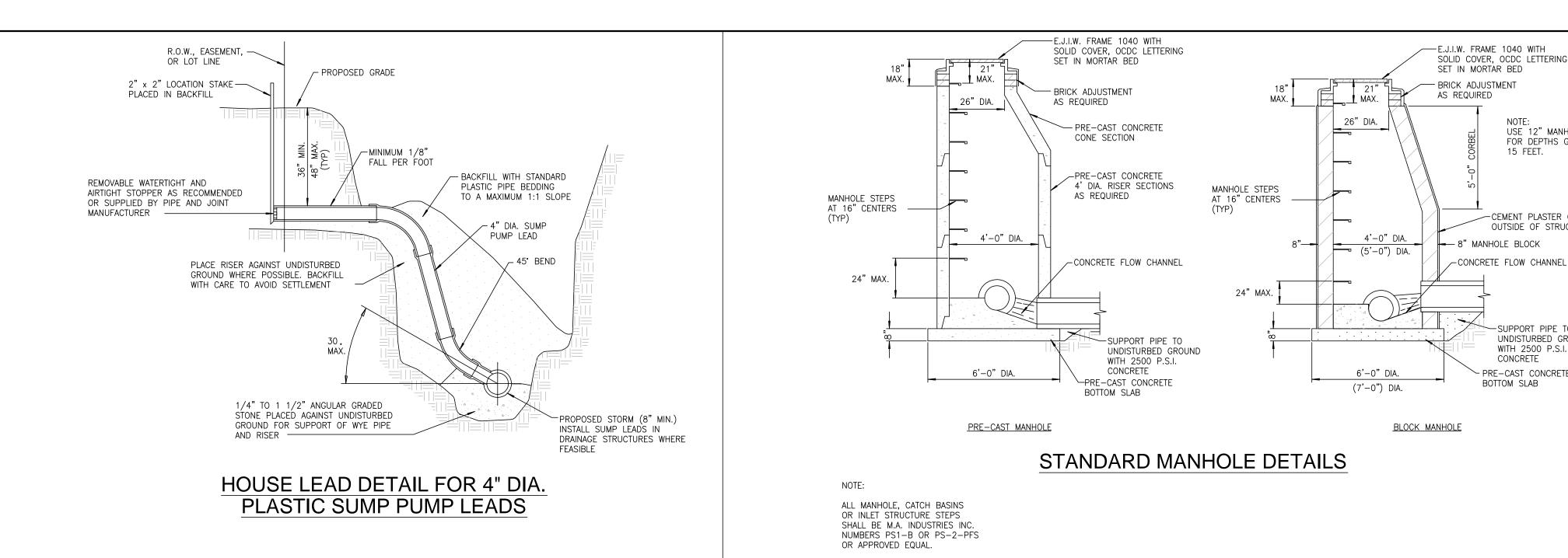
EXTERIOR DROP CONNECTION

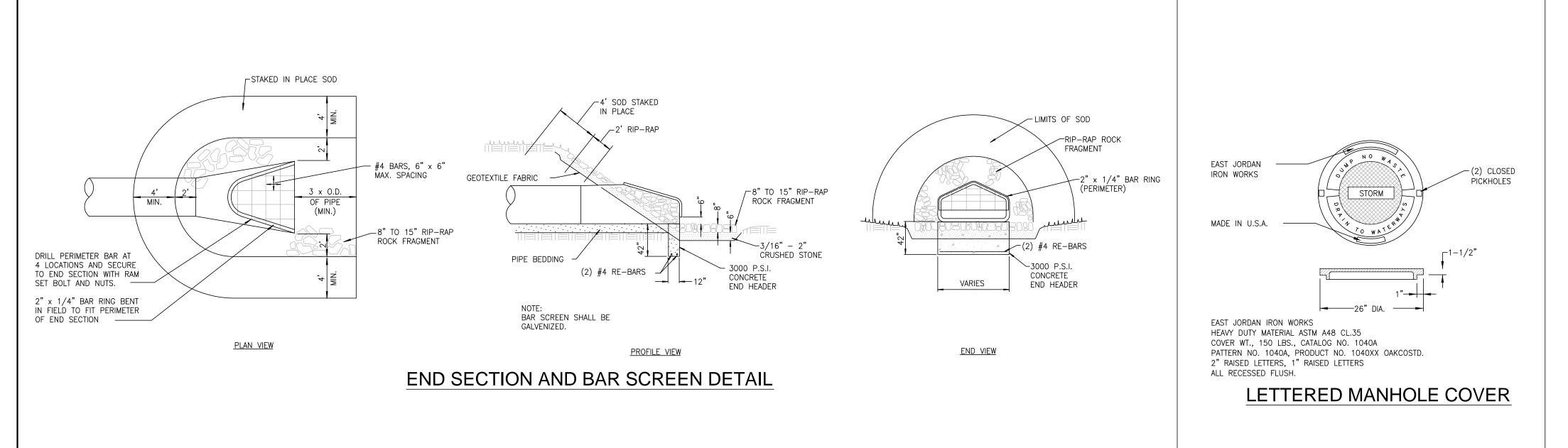
SANITARY SEWER CONSTRUCTION NOTES

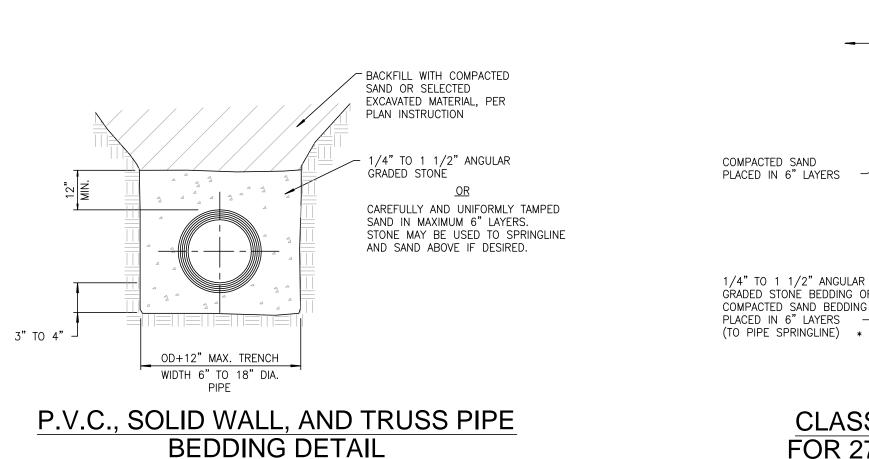
- 1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF BLOOMFIELD TOWNSHIP AND THE OAKLAND COUNTY DRAIN COMMISSIONER (OCDC) WHERE APPLICABLE. ALL SANITARY SEWER CONSTRUCTION SHALL HAVE FULL-TIME INSPECTION SUPERVISED BY A PROFESSIONAL ENGINEER PROVIDED BY BLOOMFIELD TOWNSHIP.
- 2. AT ALL CONNECTIONS TO PUBLIC SEWERS FOR NEW EXTENSIONS, AND BEFORE START OF CONSTRUCTION, THE CONTRACTOR MUST OBTAIN A SEWER TAP PERMIT ISSUED BY OCDC.
- 3. INFILTRATION TESTING REQUIREMENTS SHALL BE IN ACCORDANCE WITH OCDC OPEN CUT SANITARY SEWER SPECIFICATIONS ITEM # 14 "ACCEPTANCE TESTS". ALL TESTS MUST BE WITNESSED BY AN OCDC INSPECTOR.
- 4. AT ALL CONNECTIONS TO AN EXISTING TOWNSHIP SEWER, OR EXTENSION THERETO, A WATERTIGHT BULKHEAD WITH A CAPPED ONE INCH DIAMETER PIPE TO PERMIT MEASURING INFILTRATION SHALL BE PROVIDED. A TEMPORARY 12-INCH DEEP SUMP SHALL ALSO BE PROVIDED IN THE FIRST MANHOLE ABOVE THE CONNECTION WHICH WILL BE FILLED WITH CONCRETE AFTER SUCCESSFUL COMPLETION OF ANY ACCEPTANCE TEST UP TO THE STANDARD FILLET PROVIDED FOR THE FLOW CHANNEL.
- 5. ALL BUILDING LEADS AND RISERS SHALL BE SIX INCH SDR 23.5 ABS PIPE WITH CHEMICALLY FUSED JOINTS OR AN APPROVED EQUAL PIPE AND JOINT. BUILDING LEADS TO BE FURNISHED WITH REMOVABLE AIRTIGHT AND WATERTIGHT STOPPERS.
- 6. ALL RIGID SEWER PIPE SHALL BE INSTALLED IN CLASS "B" BEDDING OR BETTER.
- 7. ALL NEW MANHOLES SHALL HAVE APPROVED FLEXIBLE, WATERTIGHT SEALS WHERE PIPES PASS THROUGH WALLS. MANHOLES SHALL BE OF PRE CAST SECTIONS WITH MODIFIED GROOVE TONGUE AND RUBBER GASKET TYPE JOINTS. PRE CAST MANHOLE CONE SECTIONS SHALL BE APPROVED MODIFIED ECCENTRIC CONE TYPE. ALL MANHOLES SHALL BE PROVIDED WITH BOLTED, WATERTIGHT COVERS.
- 8. DROP CONNECTIONS SHALL BE REQUIRED AT ALL CONNECTIONS TO MANHOLES WHEN THE DIFFERENCE IN INVERT ELEVATIONS EXCEEDS 18 INCHES. (18" MAX. MAY NOT BE APPLICABLE WITH LARGER PIPES).
- 9. TAPS TO EXISTING MANHOLES SHALL BE MADE BY CORING. THE CONTRACTOR SHALL PLACE A KOR-N-SEAL BOOT
- 10. NEW MANHOLES CONSTRUCTED DIRECTLY ON TOWNSHIP SEWERS SHALL BE PROVIDED WITH COVERS READING "BLOOMFIELD TOWNSHIP" IN RAISED LETTERS. NEW MANHOLES BUILT OVER AN EXISTING SANITARY SEWER SHALL HAVE MONOLITHIC POURED BOTTOMS.
- 11. NO GROUND WATER, STORM WATER, CONSTRUCTION WATER, DOWN SPOUT DRAINAGE, OR WEEP TILE DRAINAGE SHALL BE ALLOWED TO ENTER ANY SANITARY SEWER INSTALLATION.
- 12. THE CONTRACTOR SHALL CONTACT MISS DIG (800-482-7171) WITHIN A MINIMUM OF 72 HOURS PRIOR TO ANY EXCAVATIONS FOR THE LOCATION OF UNDERGROUND PIPELINE AND CABLE FACILITIES AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.
- 13. A 18 INCH MINIMUM VERTICAL SEPARATION AND 10 FOOT MINIMUM HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN SANITARY SEWER AND WATER MAIN.
- 14. ALL NEWLY CONSTRUCTED TOWNSHIP SEWERS SHALL BE CLEANED OF MUD, DEBRIS AND OTHER DEFICIENCIES AND SHALL BE VIDEO INSPECTED PRIOR TO BEING PLACED INTO SERVICE. VIDEO INSPECTION MUST BE IN THE PRESENCE OF THE TOWNSHIP INSPECTOR. VIDEO TAPES ARE TO BE DELIVERED TO THE TOWNSHIP IN A VHS FORMAT OR EQUIVALENT.

GRAVITY BUILDING LEAD REQUIREMENTS AND DETAILS

- 1. ALL BUILDING LEAD WORK MUST BE PERFORMED UNDER BLOOMFIELD TOWNSHIP INSPECTOR.
- 2. FOR ALL OCDC-OPERATED SYSTEMS, CALL 248-858-1110 24-HOURS IN ADVANCE OF WORK TO BE SCHEDULE INSPECTION.
- 3. NO SANITARY SEWER MAY BE USED AS A CLEANOUT OF DEWATERING OUTLET.
- 4. WHERE AN EXISTING BUILDING LEAD IS BEING EXTENDED, DISSIMILAR TYPES AND
- SIZES OF PIPE SHALL BE JOINED USING AN APPROVED ADAPTOR.
- 5. APPROVED BUILDING LEAD PIPE FOR GRAVITY SEWER LEADS:
- A. ABS PLASTIC, ASTM D2751, SDR 23.5. B. PVC PLASTIC, ASTM D3034, SDR 23.5 OR ASTM D2665, SCHEDULE 40.
- C. DUCTILE IRON PIPE, AMERICAN WATER WORKS ASSICIATION (AWWA)
- C-104/A21.4, CLASS 54 JOINTS SHALL BE SUPER BEL TITLE, TYTON, TY-SEAL. MULTI-TITE, DUAL-TITE, OR VERI-TITE.
- D. ANY DEVIATIONS FROM SPECIFIED ABOVE REQUIRE APPROVAL BY BLOOMFIELD TOWNSHIP.
- 6. ALLOWABLE TYPES OF SEWER PIPE ADAPTERS: SHALL BE IN CONFORMANCE WITH CURRENT STATE PLUMING CODE.







REVISION DESCRIPTION:

02-16-2005 UPDATED DETAIL SHEET

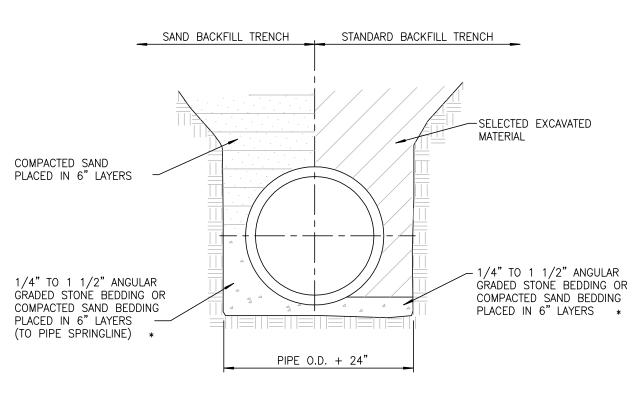
08-09-2005 UPDATED PER BTEES

11-22-2005 UPDATED PER BTEES

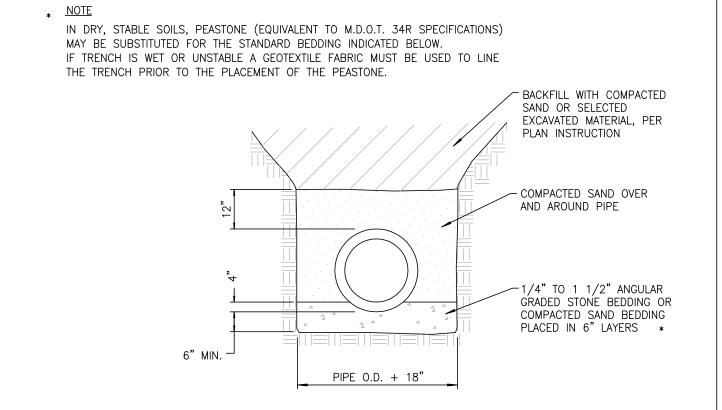
3 WORKING DAYS

BEFORE YOU DIG CALL MISS DIG.

1-800-482-7171







CLASS "B" BEDDING TRENCH DETAIL FOR 24" DIAMETER AND SMALLER PIPE

1. INLET SHALL NOT BE USED FOR YARD DRAINAGE. 2. INLET SHALL NOT BE USED IN COUNTY ROAD RIGHT-OF-WAY. 3. OTHER THAN ABOVE, INLET MAY NOT BE USED, PROVIDED: A. THE INLET DISCHARGES INTO CATCH BASIN LOCATED WITHIN 75 FEET. B. NOT MORE THAN ONE INLET DISCHARGES INTO A CATCH BASIN.

USE 12" MANHOLE BLOCK

15 FEET.

-CEMENT PLASTER ON

-SUPPORT PIPE TO UNDISTURBED GROUND

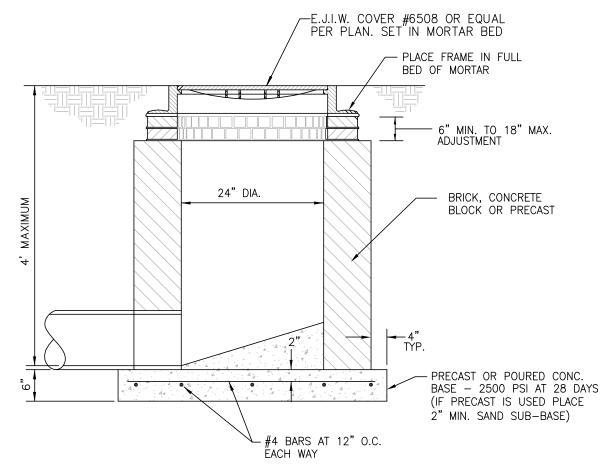
WITH 2500 P.S.I.

PRE-CAST CONCRETE

CONCRETE

OUTSIDE OF STRUCTURE

FOR DEPTHS GREATER THAN



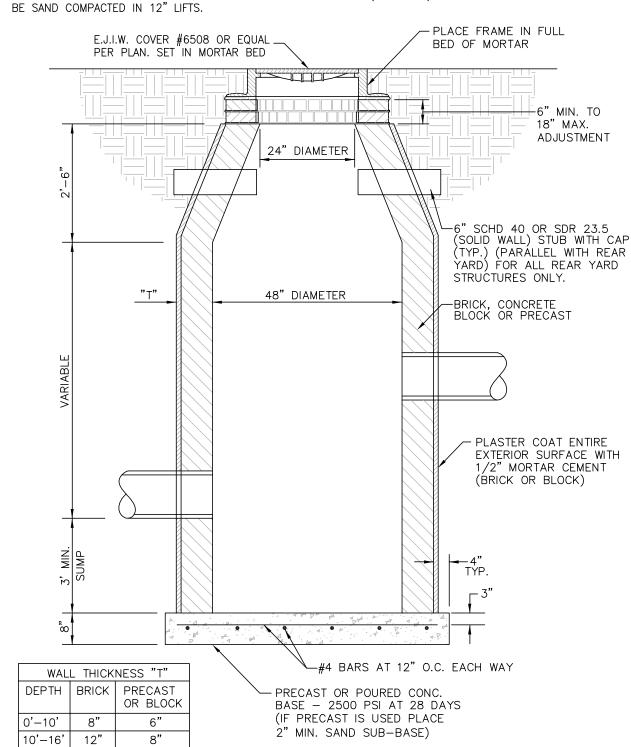
INLET DETAIL

SPECIAL CATCH BASIN NOTES: 1. DIAMETER OF "YARD" CATCH BASIN MAY BE REDUCED TO 36" PROVIDED THERE IS ONLY ONE (1) PIPE IN THE STRUCTURE AND

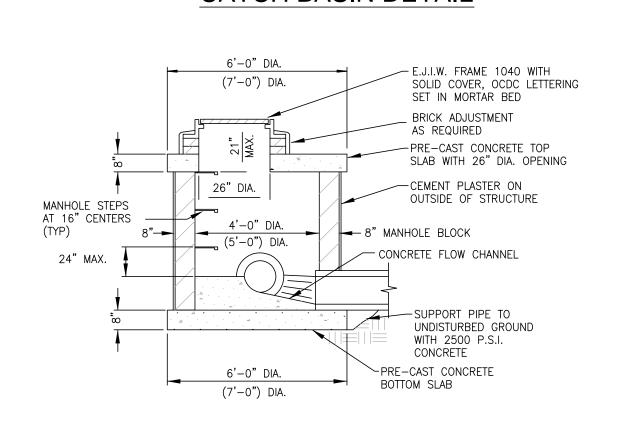
2. CATCH BASIN MUST DISCHARGE INTO MANHOLES AND NOT INTO OTHER CATCH BASINS, EXCEPT A. WHERE CATCH BASIN IS A "YARD" TYPE WITH NOT MORE THAN THREE (3) CATCH BASINS DISCHARGING INTO IT. B. WHERE CATCH BASIN IS A "PAVEMENT TYPE" DISCHARGING INTO

THE DISTANCE TO THE OUTLET MANHOLE IS LESS THAN 150 FEET.

- ANOTHER CATCH BASIN LOCATED WITHIN 75 FEET. 3. STEPS SHALL BE PLACED IN ALL 48" DIAMETER STRUCTURES MORE THAN 4" DEEP.
- 4. ALL BACKFILL AROUND THE STRUCTURE SHALL BE " TO s" ANGULAR STONE UP TO THE SPRINGLINE OF THE HIGHEST PIPE. THE REMAINING BACKFILL (TO GRADE) SHALL



CATCH BASIN DETAIL



LOW HEAD MANHOLE DETAIL

GENERAL NOTES

- . TYPE AND CLASS OF PIPE SHALL BE AS SPECIFIED ON PLANS.
- . CLASS "B" BEDDING SHALL BE USED THROUGHOUT, UNLESS OTHERWISE
- ALL END SECTIONS 18" AND LARGER SHALL BE PROVIDED WITH A GALVANIZED BAR SCREEN.
- CORRUGATED STEEL PIPE REQUIREMENTS:

SPECIFIED ON THE PLAN.

- CORRUGATED STEEL PIPE SHALL BE PROVIDED CORRESPONDING TO THE DIAMETER OR ARCH SHAPE (RISE AND SPAN) AS SPECIFIED ON THE PLANS.
- GAUGE THICKNESS SHALL BE AS SPECIFIED ON THE PLANS.
- A PAVED INVERT SHALL BE PROVIDED IF SPECIFIED ON THE PLANS.
- ALL CORRUGATED STEEL PIPE SHALL BE GALVANIZED AND COATED WITH BITUMINOUS ASPHALT TO RETARD CORROSION. AS AN ALTERNATE TO THIS REQUIREMENT, AN ALUMINIZED STEEL PIPE, OR APPROVED EQUAL, MAY BE SUBSTITUTED.
- ALL CORRUGATED STEEL PIPE SHALL BE JOINED TOGETHER WITH A WATERTIGHT CIRCUMFERENTIALLY CORRUGATED STEEL COUPLING BAND FURNISHED WITH TWO (2) RUBBER GASKETS.
- CORRUGATED STEEL PIPE SHALL HAVE WELDED SEAMS WITH HELICAL CORRUGATIONS. EACH END OF THE HELICAL CORRUGATED PIPE SHALI BE RE-ROLLED TO AN ANNULAR CONFIGURATION TO ACCOMMODATE DATE THE WATERTIGHT COUPLING BAND DESCRIBED HEREIN. RIVETED OR LOCK SEAM PIPE IS UNACCEPTABLE.
- ALL PIPE CONNECTIONS TO THE SIDE WALL OF MAIN-LINE CORRUGATED STEEL PIPE SHALL BE OF THE DIAMETER SPECIFIED ON THE PLANS AND SHALL CONSIST OF SIMILAR STEEL PIPE THAT CONNECTS OR TAPS INTO THE MAIN-LINE PIPE WALL USING A PRE-FABRICATED STEEL SADDLE PLATE.
- 5. CONCRETE PIPE REQUIREMENTS:
- THE CONTRACTOR SHALL PROVIDE REINFORCED CONCRETE PIPE AS SPECIFIED ON THE PLANS.
- ALL REINFORCED CONCRETE PIPE SHALL HAVE MODIFIED GROOVED TONGUE JOINTS WITH O-RING TYPE RUBBER GASKET, PER A.S.T.M. SPECIFICATIONS C443.
- THE INSIDE JOINTS OF PIPE SIZES OVER 27" DIAMETER SHALL BE POINTED UP WITH MORTAR UPON COMPLETION OF BACKFILLING OPERATIONS.
- 6. SUMP PUMP LEAD REQUIREMENTS:
- ALL SUMP PUMP LEADS CONNECTED TO A COUNTY DRAIN SHALL BE PRE-MANUFACTURED.
- SUMP PUMP MAINS AND LEADS SHALL BE A SDR 35, NON-PERFORATED, SOLID WALL, PVC TRUSS PIPE, OR APPROVED EQUAL, WITH PREMIUM JOINTS.

- ENDS OF ALL 4" SUMP PUMP LEADS SHALL BE TEMPORARILY CAPPED

- AND THEIR LOCATION STAKED, WITNESSED AND RECORDED.
- ALL SUMP PUMP LEADS TO BE TAKEN TO THE PROPERTY LINE, EASEMENT LINE OR AS INDICATED ON THE PLAN.
- SUMP PUMP CLEANOUTS SHALL BE A MINIMUM INSIDE DIAMETER OF 24" AND BE CONSTRUCTED AT CHANGES OF ALIGNMENT, ENDS OF SUMP PUMP MAINS OR AS INDICATED ON THE PLAN.
- 12" INLET AND OUTLET SEWER TO HAVE A GRADE OF NOT LESS THAN 0.2% UNLESS OTHERWISE NOTED.
- . PRE-CAST CONCRETE BASE MAY BE USED MUST BE SET LEVEL ON A SAND CUSHION OF NOT LESS THAN 2" NOR THAN 4".





