

## GENERAL NOTES

- DEVELOPER SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AT LEAST 24 HOURS PRIOR TO ANY CONSTRUCTION OR EXCAVATION. DURING CONSTRUCTION, ALL UTILITIES SHALL BE ADEQUATELY SUPPORTED TO MINIMIZE DAMAGE.
- DEVELOPER SHALL SUBMIT A REQUEST FOR SERVICE. UPON VERIFICATION OF SERVICEABILITY, DEVELOPER SHALL SUBMIT A PLAN FOR SEWER SERVICE TO THE PROPERTY. LOCATION OF SEWER SERVICE TO THE PROPERTY IS DEPENDENT ON SEVERAL FACTORS, INCLUDING BUT NOT LIMITED TO:
  - NUMBER OF EQUIVALENT DWELLING UNITS (EDUs) IN THE DEVELOPMENT, WHERE 1 EDU = 310 GALLONS PER DAY.
  - AGE AND CONDITION OF CONNECTING SEWER.
  - PLANNED LOCATION OF SEWER SERVICE BASED ON UTILITY'S MASTER PLAN OR PREVIOUSLY INSTALLED SEWERS.
- WHEN AN ITEM PERMIT SUBMITTAL IS REQUIRED (GENERALLY FOR ANY NEW SEWER MAIN), INCLUDE AMERICAN SUBURBAN UTILITIES AS A POTENTIALLY AFFECTED PARTY ON THE PERMIT APPLICATION MATERIALS.
- ALL CLEAR WATER DISCHARGES (SUCH AS HVAC, ROOF & FOUNDATION DRAINS, ETC.) SHALL BE TO STORM SEWER OR OTHER APPROPRIATE LOCATION. NO CLEAR WATER SHALL DISCHARGE TO SANITARY SEWER.
- DEVELOPER SHALL SUPPLY TO THE UTILITY (AMERICAN SUBURBAN UTILITIES) ALL EASEMENTS NECESSARY TO PROVIDE SANITARY SEWER SERVICE AT NO COST TO THE UTILITY. ALL EASEMENT DOCUMENTS SHALL BE SUBMITTED TO AND APPROVED BY THE UTILITY PRIOR TO THE APPROVAL OF PLANS BY THE UTILITY. EASEMENTS AND SEWER SHALL ALSO BE PROVIDED ON THE DEVELOPER'S PROPERTY IN ORDER TO SERVE ADJOINING PROPERTIES OR FUTURE SEWER EXTENSIONS AS DETERMINED BY THE UTILITY. IN GENERAL, FOR DEPTHS UP TO 20 FEET, SEWERS SHOULD BE LOCATED IN EASEMENTS THAT ARE TWICE AS WIDE AS THE SEWER DEPTH (20" MIN. WIDTH) AND CONSTRUCTION EASEMENTS OF THE SAME WIDTH SHOULD ALSO, GENERALLY, BE PROVIDED ON ONE SIDE OF THE SEWER EASEMENT. FOR DEPTHS OVER 20', SEWERS SHOULD BE LOCATED IN A 40' EASEMENT AND CONSTRUCTION EASEMENTS SHOULD, GENERALLY, BE PROVIDED ON ONE SIDE OF THE SEWER EASEMENT SUCH THAT THE TOTAL EASEMENT WIDTH IS FOUR TIMES AS WIDE AS THE SEWER DEPTH. CONSTRUCTION EASEMENTS AT MANHOLES TO BE PROVIDED AT MINIMUM 30 FEET (FOR UP TO 20' DEEP SEWERS) ON UPSTREAM SIDE OF SEWER AND IN LINE WITH SEWER (PROVIDE 40 FEET MINIMUM FOR OVER 20' DEEP SEWERS). THE UTILITY CAN REQUIRE DIFFERENT EASEMENT WIDTHS AT ITS DISCRETION.
- THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING A THREE-YEAR MAINTENANCE BOND COVERING THE COSTS OF INSTALLATION OF THE SANITARY SEWER. THE BOND MUST BE FOR TEN PERCENT (10%) OF THE COSTS OF INSTALLING THE SANITARY SEWER AND MUST BE WRITTEN TO AND APPROVED BY THE UTILITY.
- ALL AREAS DISTURBED BY THE CONSTRUCTION PROCESS SHALL BE FERTILIZED AND SEEDED. ADEQUATE MULCHING SHALL BE PLACED AFTER SEEDING AND FERTILIZING. IT SHALL BE THE DEVELOPER'S RESPONSIBILITY TO SEE THAT ADEQUATE GROWTH IS ESTABLISHED.
- INSTALLATION OF OR PROVISIONS FOR THE INSTALLATION OF SANITARY SEWER UTILITIES, INCLUDING SERVICE LATERALS TO BE PLACED UNDER PAVEMENTS, SHALL BE ESTABLISHED PRIOR TO THE CONSTRUCTION OF THE PAVEMENTS.
- DEVELOPER SHALL CONTACT THE UTILITY IF ANY DAMAGE TO SANITARY SEWER UTILITIES OCCURS. ALL COSTS OF REPAIR SHALL BE PAID BY THE DEVELOPER. OTHER DAMAGED UTILITIES SHALL BE REPAIRED IN ACCORDANCE WITH THE AFFECTED UTILITY'S REPAIR POLICY.
- THE CONSTRUCTION WORK SHALL CONFORM TO THE REQUIREMENTS OF AMERICAN SUBURBAN UTILITIES AND THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. NO WORK SHALL BE PERFORMED UNTIL PLANS HAVE BEEN APPROVED BY THE UTILITY. A UTILITY SERVICE AGREEMENT HAS BEEN EXECUTED BY THE DEVELOPER AND THE UTILITY, AND A PRECONSTRUCTION MEETING HAS BEEN HELD WITH THE UTILITY.
- THE DEVELOPER SHALL NOTIFY THE UTILITY AT LEAST 48 HOURS PRIOR TO STARTING OR RESUMING WORK ON A PROJECT.
- THE DEVELOPER SHALL PROVIDE SAFE ACCESS TO THE CONSTRUCTION SITE FOR ALL INSPECTORS AND WILL PROVIDE MATERIAL SAMPLES FOR TESTING. WORK REQUIRING INSPECTION BY THE UTILITY SHALL BE PERFORMED DURING THE UTILITY'S NORMAL WORK HOURS UNLESS AN ADDITIONAL INSPECTION FEE IS PAID BY THE DEVELOPER FOR INSPECTION OUTSIDE OF SUCH HOURS.
- INFORMATION REQUIRED FOR PREPARING "AS-BUILT" DRAWINGS MUST BE RECORDED PRIOR TO THE BACKFILLING OF THE UNDERGROUND FACILITY.
- FOR UTILITY PLACEMENT FOR OTHER THAN SINGLE FAMILY RESIDENCES, CONTACT THE AMERICAN SUBURBAN UTILITIES OFFICE FOR REQUIREMENTS. IN COMMERCIAL DEVELOPMENTS, EACH TENANT/UNIT SHALL HAVE A SEPARATE WATER METER INSTALLED WHERE THE UTILITY'S STAFF CAN READ IT MONTHLY. SEPARATE SANITARY LATERALS FOR EACH TENANT/UNIT SHALL ALSO BE PROVIDED.
- COINCIDENT WITH DELIVERY OF THE APPROPRIATE BILL OF SALE OR TRANSFER OF OWNERSHIP DOCUMENTS BY DEVELOPER TO UTILITY, THE DEVELOPER SHALL ALSO DELIVER TO UTILITY 2 SETS OF THE FOLLOWING INFORMATION IN ORDER TO EXPEDITE THE REVIEW PROCESS:
  - "AS-BUILT" DRAWINGS AND SPECIFICATIONS CERTIFIED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR, INCLUDING A DESCRIPTION, ELEVATION, AND DATUM OF BENCHMARK(S) UTILIZED FOR THE AS-BUILTS.
  - CERTIFICATION OF CONSTRUCTION IN ACCORDANCE WITH THE UTILITY'S SPECIFICATIONS, SIGNED BY A PROFESSIONAL ENGINEER OR LAND SURVEYOR.
  - RECORDED EASEMENTS AND SURVEY, ALL PERMITS, AND ANY OTHER PERTINENT INFORMATION.
  - FINAL RECORDED PLAT OF THE DEVELOPMENT
  - WAIVERS OF LIEN FOR MATERIALS, LABOR AND EQUIPMENT
  - THREE (3) YEAR MAINTENANCE BOND FOR MATERIALS AND WORKMANSHIP FROM THE DATE OF THE FINAL TRANSFER
  - CERTIFIED SCHEDULE ITEMIZING ALL COST OF LABOR, MATERIAL, OVERHEAD AND PROFIT.
  - COPIES OF DRAWINGS IN DIGITAL FORMAT THAT CAN BE ACCESSED BY THE CURRENT VERSION OF AUTOCAD BEING USED BY THE UTILITY. THE DIGITAL DRAWINGS SHALL CONTAIN LOT LINES, LOT NUMBERS, EASEMENTS (FROM FINAL PLAT), AND POINTS WITH NORTING AND EASTING COORDINATES FOR THE CENTER OF THE MANHOLE LID AND MANHOLE NUMBERS (ASSIGNED BY UTILITY) FOR THE AS-BUILT LOCATION OF ALL MANHOLE AND LIFT STATION STRUCTURES AND LINENWORK CONNECTING SAID STRUCTURES. THE DRAWINGS SHALL ALSO CONTAIN AT LEAST TWO POINTS OF HORIZONTAL CONTROL IN THE COUNTY CONSISTING OF PUBLIC LAND SURVEY SYSTEM (PLSS) SECTION CORNERS OR PUBLISHED TIPPECANOE COUNTY MANAGEMENT INFORMATION TECHNOLOGY SERVICES DEPARTMENT (MITS) CONTROL FOR SPATIAL REFERENCE OR AT LEAST TWO POINTS DEPICTING PHYSICAL FEATURES WHICH ARE IDENTIFIABLE FROM THE MOST RECENT MITS GIS DATA. THESE POINTS SHALL ALSO BE SHOWN ON A HARD COPY OF THE MOST RECENT MITS GIS DATA OR A WRITTEN DESCRIPTION OF THEIR LOCATION SHALL BE PROVIDED. THE ADEQUACY OF THE REFERENCE POINTS SHALL BE DETERMINED BY THE UTILITY.
  - A .PDF DIGITAL COPY OF THE FINAL APPROVED VERSION OF THE PLANS/AS-BUILTS, ALONG WITH 2 PAPER SETS OF THE PLANS/AS-BUILTS, AS APPLICABLE TO THE SUBMITTAL, THAT INCLUDES SIGNATURES FROM ALL GOVERNING JURISDICTIONS, AS APPLICABLE.
  - TAP LOCATIONS MEASURED FROM 2 FRONT LOT CORNERS (OR 1 FRONT CORNER AND PERPENDICULAR TO BACK OF CURB IN THE CASE OF STREET CORNER LOTS), ALONG WITH APPROXIMATE DEPTH, IN TYPED AND IN DIGITAL FORMAT WITH ADDRESS AND LOT NUMBERS.
- THE UTILITY WILL FLOW MONITOR, RE-TELEVISION, AND/OR PERIODICALLY INSPECT THE SANITARY SEWER LINES AT THE UTILITY'S EXPENSE PRIOR TO THE EXPIRATION OF THE THREE (3) YEAR MAINTENANCE BOND. ALL DEFICIENCIES NOTED BY THE INSPECTION SHALL BE REPAIRED BY THE DEVELOPER PRIOR TO EXPIRATION OF THE MAINTENANCE PERIOD AND THE RELEASE OF THE BOND.
- IN ORDER TO EXPEDITE THE REVIEW PROCESS, 2 PAPER SETS OF CONSTRUCTION PLANS, PERMITS, AND RELATED INFORMATION SHALL BE PROVIDED TO THE UTILITY.
- THESE STANDARDS ARE SUBJECT TO REVISION BY THE UTILITY. NEW STANDARDS IN EFFECT AT THE TIME OF CONSTRUCTION SHALL APPLY AND THE UTILITY SHALL BE CONTACTED FOR INCLUSION OF THE NEW STANDARDS AS PART OF THE PROJECT PRIOR TO CONSTRUCTION.
- ELEVATIONS OF ALL CONNECTIONS TO EXISTING SEWERS ARE TO BE FIELD VERIFIED, IN WRITING, AND PROVIDED TO UTILITY BEFORE CONSTRUCTION BEGINS. AT ITS DISCRETION, UTILITY MAY REQUIRE INDEPENDENT VERIFICATION AT DEVELOPER'S EXPENSE.
- CONSTRUCTION PLANS SHALL INCLUDE AN OVERALL UTILITY SHEET(S) AND AN OVERALL SANITARY SEWER SHEET(S) WHICH INCLUDES THE LOCATION OF SANITARY SEWERS, LATERALS, MANHOLE LOCATIONS AND MANHOLE NUMBERS.

ALL "AS-BUILT" DRAWINGS AND COSTS SHALL BE EXAMINED AND VERIFIED BY THE UTILITY.

\* ALL REFERENCES TO DEVELOPER SHALL INCLUDE ANY AGENT OF THE DEVELOPER, INCLUDING DEVELOPER'S CONTRACTOR(S).

SEWER	WATER	6"	8"	10"	12"	14"	16"
8"	11"	11"	11"	12"	12"	12"	12"
10"	11"	11"	12"	12"	12"	12"	12"
12"	11"	12"	12"	12"	12"	12"	12"
15"	12"	12"	12"	12"	12"	12"	12"
18"	12"	12"	12"	12"	12"	12"	12"
21"	12"	12"	12"	12"	12"	13"	13"
24"	12"	12"	12"	12"	12"	13"	13"
27"	12"	12"	12"	13"	13"	13"	13"
30"	12"	12"	13"	13"	13"	13"	13"

SANITARY	BELL DIA.
8"	10.0"
10"	12.3"
12"	14.3"
15"	17.3"
18"	21.5"
21"	25.0"
24"	28.0"
27"	33.0"
30"	36.0"

WATER	BELL DIA.
6"	8.5"
8"	11.1"
10"	13.6"
12"	16.2"
14"	19.0"
16"	21.7"

STORM	BELL DIA.
12"	20.0"
15"	23.9"
18"	27.7"
24"	33.0"
30"	39.0"
36"	45.5"
42"	54.0"
48"	61.0"
54"	68.0"

## ¢ TO ¢ HORIZONTAL SEPARATION

NOTES: 1. SANITARY SEWERS AND WATERMANS SHALL BE LAID OUT SUCH THAT THEY CONTAIN THE HORIZONTAL SEPARATION FROM CENTERLINE TO CENTERLINE OF PIPE AS SHOWN IN THE ABOVE TABLE.

2. 18" VERTICAL SEPARATION FROM OUTSIDE TO OUTSIDE OF PIPE SHALL BE BASED ON THE BELL DIAMETERS IN THE ABOVE TABLE. WHEN VERTICAL SEPARATION IS LESS THEN 18" USING DATA FROM THE ABOVE TABLE, THE PROFILE SHEETS SHALL NOTE THAT A CONCRETE CRADLE IS REQUIRED AND SHALL CONTAIN A NOTE REFERRING TO THE PIPE CROSSING DETAIL ON THIS SHEET.

## HORIZONTAL AND VERTICAL SEPARATION DATA

## BELL DIAMETERS FOR PIPE

## DESIGN INFORMATION FOR SANITARY SEWERS

## SANITARY SEWER NOTES

- SANITARY SEWERS SHALL BE ONE OF THE FOLLOWING: (1) POLYVINYL CHLORIDE (PVC) SDR-35 OR SDR-26 GRAVITY PIPE (ASTM D-3034 OR ASTM F-679, AS APPLICABLE), (2) PVC SDR-21 PRESSURE PIPE (ASTM D-2241), (3) PVC DR-25 OR DR-18 (AWWA C-900 OR C-905, AS APPLICABLE). SEE TABLE THIS SHEET FOR PIPE REQUIREMENTS BASED ON BURY DEPTH. TYPE OF PIPE(S) PERMITTED SHALL BE SHOWN ON THE PROFILE SHEETS BASED ON PROPOSED BURY DEPTH AND SHALL BE THE SAME PIPE TYPE FROM MANHOLE TO MANHOLE. JOINTS SHALL BE GASKETED, BELL AND SPIGOT TYPE WITH THE BELL MADE INTEGRAL WITH THE PIPE. SEE PLAN, PROFILE SHEETS FOR SIZES. MINIMUM SHALL BE 8 INCH DIAMETER. SEWERS SHALL, GENERALLY, BE DESIGNED AND INSTALLED IN ORDER TO SERVE BASEMENTS BY GRAVITY BUT SHALL, IN NO CASE, HAVE LESS THAN 0.5 FEET OF COVER (4 FEET FOR LATERALS) UNLESS APPROVED IN WRITING. MINIMUM PIPE COVER AT TERMINATION POINT SHALL BE 10 FEET (OR DEEPER AT THE DETERMINATION OF UTILITY). TERMINATION POINT OF SEWER AT THE DEVELOPMENT PROPERTY LINES SHALL BE COORDINATED WITH UTILITY.
  - SANITARY SEWER LATERALS ARE REQUIRED FOR EACH INDIVIDUALLY OWNED SEWER CONNECTION AND SHALL BE 6" DIAMETER PVC SDR-35 OR SDR-26 (ASTM D-3034), LAID AT A MINIMUM SLOPE OF 0.62 %. ENDS TO BE PLUGGED, JOINTS SHALL BE GASKETED BELL AND SPIGOT TYPE WITH THE BELL MADE INTEGRAL. LATERALS MUST TIE-IN TO THE SEWER MAIN. NO LATERALS SHALL CONNECT TO MANHOLES UNLESS PERMITTED BY UTILITY. PIPE LATERALS LONGER THAN 150' SHALL BE 8" DIAMETER, TESTED AS SPECIFIED HEREIN, AND REQUIRE A MANHOLE(S). SHOW LATERAL INVERT ELEVATIONS AT END OF LATERAL AT LOT ON PLAN AND PROFILE SHEETS FOR EACH LOT. SEE ALSO LATERAL CONNECTION DETAIL ON SHEET AS2 FOR FURTHER INFORMATION.
- LATERALS SHALL BE CONNECTED TO SEWER MAINS LOCATED ALONG STREETS AND WITHIN THE DEVELOPMENT RATHER THAN CONNECTING TO SEWER MAINS THAT ARE INTENDED FOR FUTURE SERVICE BEYOND THE DEVELOPMENT.
- PIPE/LATERAL CONNECTIONS TO SEWERS SHALL BE APPROVED BY THE UTILITY ON A PER-TAP BASIS. CONNECTIONS TO PVC PIPE SHALL BE MADE WITH APPROPRIATE PVC REPAIR COUPLERS OR APPROPRIATE PVC INCREASERS WHEN THERE IS A PIPE SIZE CHANGE FOR LATERALS. CONNECTIONS TO PIPE OTHER THAN PVC SHALL BE MADE WITH APPROPRIATE DUCTILE IRON FITTINGS AND TRANSITION GASKET, WHENEVER POSSIBLE; OTHERWISE, USE SHEAR GUARD COUPLERS BY INDIANA SEAL (A GPK PRODUCTS COMPANY), FARGO, ND. NO FLEXIBLE OR OTHER COUPLERS ARE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL. SHOP DRAWINGS ARE REQUIRED.
  - THE COMPLETED SANITARY SEWER SHALL BE HIGH PRESSURE WATER JET CLEANED AND SUBJECTED TO AN AIR TEST CONFORMING TO ASTM F1417. A DEFLECTION TEST SHALL BE PERFORMED WITH A "GO-NO-GO" MANDREL (SIZED FOR 95 % OF INSIDE DIAMETER OF SEWER PIPE AND PULLED BY HAND) ACCORDING TO IDEM STANDARDS. ALL CLEANING, TELEVISION AND TESTING (PIPE AND MANHOLE) SHALL BE PERFORMED A MINIMUM OF 45 DAYS AFTER INSTALLATION AND WITNESSED BY THE UTILITY. ALL COSTS OF CLEANING AND TESTING ARE TO BE BORNE BY THE DEVELOPER. CLOSED CIRCUIT TELEVISION INSPECTION OF THE SYSTEM SHALL BE REQUIRED. A COPY OF THE VIDEO (DIGITAL FORMAT) SHALL BE RETAINED BY THE UTILITY. ALL COSTS OF TELEVISION ARE TO BE BORNE BY THE DEVELOPER.
  - MANHOLES SHALL BE AIR TESTED IN ACCORDANCE WITH CURRENT VERSION OF ASTM C1244, STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY THE NEGATIVE AIR PRESSURE (VACUUM) TEST.
  - 18" VERTICAL SEPARATION AND 10'-0" HORIZONTAL SEPARATION TO BE MAINTAINED BETWEEN WATER MAINS, HYDRANTS AND SANITARY SEWERS, INCLUDING SANITARY SERVICE LATERALS AND WATER SERVICES. SEPARATION IS FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE; THEREFORE, CENTERLINE TO CENTERLINE DISTANCES MUST BE GREATER THAN 18" VERTICAL AND 10'-0" HORIZONTAL. ALL CROSSINGS WITHIN 5 FEET OF EDGE OF PAVEMENT OR BACK OF CURB, FOR SANITARY SEWER AND VERTICAL SEPARATION MUST BE MAINTAINED UNTIL 10'-0" HORIZONTAL SEPARATION IS ACHIEVED BETWEEN SANITARY AND WATERMAIN. SEE PIPE CROSSING DETAIL WHEN SUCH SEPARATION CANNOT BE MAINTAINED. NO SANITARY MANHOLE SHALL BE WITHIN 8'-0" OF A WATER MAIN MEASURED FROM OUTSIDE OF MANHOLE TO OUTSIDE OF WATERMAIN.
  - TRENCHES UNDER PAVED AREAS (EXCLUDING SIDEWALKS THAT WILL BE CONSTRUCTED AT LEAST 6 MONTHS AFTER SEWER INSTALLATION) SHALL BE BACKFILLED WITH GRANULAR MATERIAL PER INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", CURRENT EDITION, SECTION 211, AND COMPACTED IN LIFTS. PAVED AREAS INCLUDES THE ENTIRE TRENCH WHEN ANY PORTION OF THE TRENCH IS WITHIN 5 FEET OF EDGE OF PAVEMENT OR BACK OF CURB. FOR TRENCHES WITHIN PAVED AREAS MAINTAINED BY A PUBLIC JURISDICTION, BACKFILL SHALL CONFORM TO THE JURISDICTION'S REQUIREMENTS.
  - SANITARY SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321 AND MANUFACTURER'S RECOMMENDATIONS, AS APPLICABLE. BEDDING FOR ALL SANITARY SEWER LINES SHALL BE CLASS 1 BEDDING. SEE TRENCH DETAILS FOR FURTHER INFORMATION. DETECTABLE WARNING TAPE REQUIRED FOR ALL PIPE INSTALLATIONS.
  - CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE USING A CONCRETE MANHOLE ADAPTER WATERSTOP GROUTED IN PLACE USING MASTERSEAL 595 BY BASF, SHAKOPEE, MN OR APPROVED EQUAL. CONNECTIONS SHALL NOT BE MADE AT OR NEAR MANHOLE JOINTS.
  - ALL SEWER LINES SHALL HAVE A 0.1 FT. DROP THROUGH THE MANHOLE. WHERE SEWER LINES CHANGE DIRECTION AT A 45-DEGREE OR GREATER ANGLE, THE MANHOLE INVERT ELEVATION SHALL DROP 0.25 FEET (TYPICAL) THROUGH THE MANHOLE. OTHER DROPS MAY BE USED WITH PRIOR APPROVAL OF THE UTILITY.
  - SEWER PERMIT AND UTILITY INSPECTION ARE REQUIRED FOR ALL CONNECTIONS TO SANITARY SEWER SYSTEMS. SEWER PERMIT IS REQUIRED ON SITE DURING ANY SEWER CONSTRUCTION.
  - TOP OF MANHOLE FRAMES SHALL BE SET AT FINISHED YARD OR SIDEWALK GRADE WHEN LOCATED IN SIDEWALK OR BETWEEN SIDEWALK AND STREET. WHEN MANHOLE IS IN A TRAVELED WAY, THE TOP OF THE LID SHALL BE FLUSH WITH THE FINAL SURFACE AND BACKFILL SHALL BE GRANULAR TO SURFACE. IN ALL OTHER AREAS, THE TOP OF THE FRAME SHALL BE ONE FOOT ABOVE THE SURROUNDING GRADE, SLOPING AWAY FROM THE MANHOLE FOR A DISTANCE OF 6'-0" IN ALL DIRECTIONS. WHEN CLOSER THAN 6'-0" FROM SIDEWALK/TRAVELED WAY, TOP OF FRAME SHALL BE SET PROPORTIONATELY FROM ZERO TO ONE FOOT ABOVE SURROUNDING GRADE. IN AREAS SUBJECT TO FLOODING, TOP OF FRAME SHALL BE RAISED TO A MAXIMUM OF 4 FEET ABOVE GROUND SURFACE SUCH THAT FRAME IS 2 FEET ABOVE 100-YEAR FLOOD ELEVATION OR PROVIDED WITH WATERTIGHT CASTING (WHEN SITUATED LESS THAN 2 FEET ABOVE 100-YEAR FLOOD ELEVATION). SEE ALSO STANDARD SANITARY MANHOLE DETAIL THIS SHEET.
  - ALL MANHOLE CASTINGS SHALL HAVE THE WORDS "AMERICAN SUBURBAN UTILITIES" AND "SANITARY SEWER" CAST IN THE LID, ALONG WITH THE NUMBER SUPPLIED BY AMERICAN SUBURBAN UTILITIES. AMERICAN SUBURBAN UTILITIES WILL PROVIDE THE LID. MANHOLE FRAME SHALL BE PROVIDED BY THE DEVELOPER.
  - WHERE PROPRIETARY EQUIPMENT IS SPECIFIED, "OR APPROVED EQUAL" IS IMPLIED, ALL PROPOSALS FOR SUBSTITUTION SHALL BE SUBMITTED TO THE UTILITY IN WRITING FOR THEIR APPROVAL.
  - MARK THE LOCATIONS OF THE SANITARY SEWER LATERALS BY STAMPING "SS" IN THE CURB. SIMILARLY, STAMP MH IN THE CURB TO MARK THE LOCATIONS OF MANHOLES.
  - ALL BENCH MARKS AND ELEVATIONS SHALL BE NORTH AMERICAN VERTICAL DATUM (NAVD 1988).
  - THE MOST RESTRICTIVE OF THE FOLLOWING TOLERANCE SPECIFICATIONS SHALL APPLY TO ALL INFRASTRUCTURE CONSTRUCTED ON THIS PROJECT:
    - CONTRACTOR SHALL COMPLETE SEWER IMPROVEMENTS, SUCH AS MANHOLE RIM AND INVERT ELEVATIONS, TO WITHIN 0.1 FEET OF THE ELEVATIONS CONTAINED IN THESE PLANS.
    - CONTRACTOR SHALL COMPLETE INSTALLATION OF SEWER TO THE GRADES (SLOPES) CONTAINED IN THESE PLANS SUCH THAT THEY DEVIATE BY NO MORE THAN 10% FROM THEIR DESIGN GRADE (SLOPE)-E.G. A DESIGN GRADE OF 0.50 % SHALL BE CONSTRUCTED BETWEEN 0.45 % AND 0.55%.
    - MANHOLES SHALL ALSO BE CONSTRUCTED WITHIN 2 FEET OF THEIR DESIGN HORIZONTAL LOCATION.
- THE CONTRACTOR SHALL BE REQUIRED TO REWORK ANY AREA THAT DOES NOT MEET THESE TOLERANCES AT HIS EXPENSE UNTIL COMPLIANCE IS OBTAINED. THIS SPECIFICATION DOES NOT PERMIT SEWERS TO BE CONSTRUCTED BELOW MINIMUM GRADE SHOWN ON THIS SHEET.
- THIS SPECIFICATION DOES NOT ALLOW THE ENTIRE PROJECT TO BE CONSTRUCTED AT SUCH LIMITS (E.G. CONSTRUCT THE ENTIRE PROJECT 0.1-FOOT BELOW DESIGN ELEVATIONS). IN GENERAL, CONTRACTOR SHALL CONSTRUCT STRICTLY TO THE DESIGN GRADES AND ELEVATIONS CONTAINED IN THESE PLANS BUT THE ABOVE LIMITS ARE BEING ESTABLISHED AS A MINIMUM CONSTRUCTION REQUIREMENT TO ENSURE PROPER FUNCTIONALITY OF THE CONSTRUCTED SEWER. DEVIATIONS IN EXCESS OF THESE LIMITS REQUIRE APPROVAL OF THE UTILITY AND WILL BE GRANTED ONLY IF PROPER FUNCTIONALITY OF THE SEWER CAN BE SHOWN.
- SHOP DRAWINGS FOR ALL INFRASTRUCTURE SHALL BE APPROVED BY THE UTILITY PRIOR TO CONSTRUCTION/MANUFACTURE. SHOP DRAWINGS SHALL INCLUDE A STATEMENT THAT CONTRACTOR HAS REVIEWED SUBMITTALS FOR CONFORMANCE WITH UTILITY'S SPECIFICATIONS PRIOR TO SUBMITTAL.
  - THESE SPECIFICATIONS ARE NOT ALL INCLUSIVE. REFERENCE IS MADE, AND SEWER DESIGN AND CONSTRUCTION SHALL CONFORM, TO 327 IAC 3-6.

SEWER SIZE	MINIMUM DESIGN GRADE	MIN. DESIGN GRADE, RUNS LESS THAN:	MINIMUM GRADE	MAXIMUM GRADE	MAXIMUM MH SPACING
8"	0.45%	120 FEET	0.55%	0.40%	400'
10"	0.33%	60 FEET	0.43%	0.28%	400'
12"	0.27%	60 FEET	0.37%	0.22%	400'
15"	0.20%	60 FEET	0.30%	0.15%	400'
18"	0.17%	60 FEET	0.27%	0.12%	400'
21"	0.15%	60 FEET	0.25%	0.10%	400'
24"	0.12%	60 FEET	0.22%	0.08%	400'
27"	0.11%	60 FEET	0.21%	0.07%	400'
30"	0.10%	60 FEET	0.20%	0.06%	400'

PIPE TYPE: DESCRIPTION, RANGE OF SIZES	MAX. PERMITTED COVER OVER TOP OF PIPE
TYPE 1: PVC GRAVITY SDR-35, 8"-36"	18"
TYPE 2: PVC GRAVITY SDR-26, 8"-36"	30"
TYPE 3: PVC PRESSURE SDR-21, 8"-18"	36"
TYPE 4: PVC AWWA C-900/C-905 DR-25, 8"-36"	30"
TYPE 5: PVC AWWA C-900/C-905 DR-18, 8"-36"	42"

SEE SANITARY SEWER NOTE 1 FOR ADDITIONAL INFORMATION ON PIPE MATERIALS. NOTE THAT PIPE TYPES 3 THRU 5 ARE AVAILABLE IN WATERMAIN SIZES AND NOT GRAVITY SEWER SIZES.

CONSTRUCTION PLAN DESIGN GRADES SHALL NOT BE LESS THAN THE MINIMUM DESIGN GRADES IN THE ABOVE TABLE WITHOUT PRIOR WRITTEN APPROVAL FROM THE UTILITY. PLAN DESIGN GRADES GREATER THAN THE MINIMUM DESIGN GRADE SHALL BE PROVIDED WHEN PRACTICAL. RUN LENGTHS GREATER THAN 120 FEET SHALL BE USED WHENEVER REASONABLY POSSIBLE.

## TELEVISION INSPECTION CRITERIA

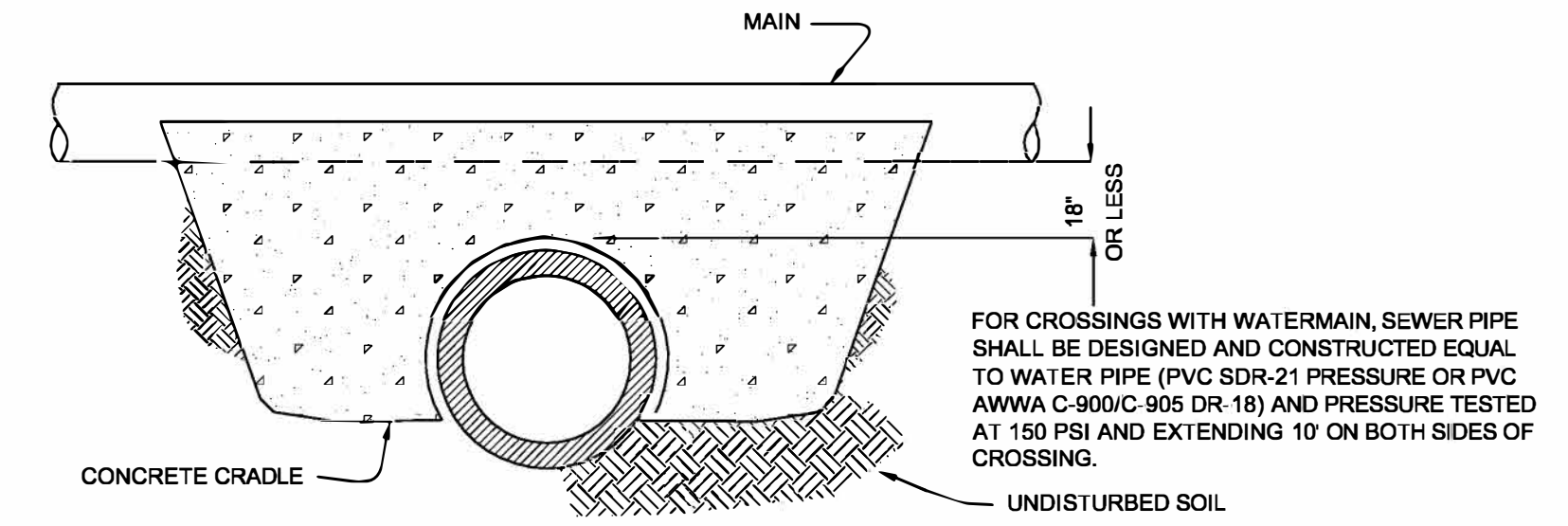
### SANITARY SEWERS

SEWERS SHALL BE "FLOODED" BEFORE TELEVISION INSPECTION. THE IMAGE SHALL BE CLEAR ENOUGH TO ENABLE THE UTILITY REPRESENTATIVE AND OTHERS VIEWING THE MONITOR TO EASILY EVALUATE THE INTERIOR CONDITION OF THE PIPE. ALL PIPE JOINTS SHALL BE EXAMINED (CAMERA SHALL RUN IN THE UPSTREAM DIRECTION).

ALL UNACCEPTABLE CONDITIONS FOUND DURING TELEVISION OR OTHER INSPECTION MUST BE CORRECTED BY THE DEVELOPER AND RETELEVISION. THIS INCLUDES INSPECTIONS OF LATERALS OR PRIVATE SEWERS.

UNACCEPTABLE CONDITIONS ARE CONDITIONS THAT ADVERSELY AFFECT THE ABILITY OF THE SYSTEM TO FUNCTION AS DESIGNED OR TO BE PROPERLY MAINTAINED AND MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

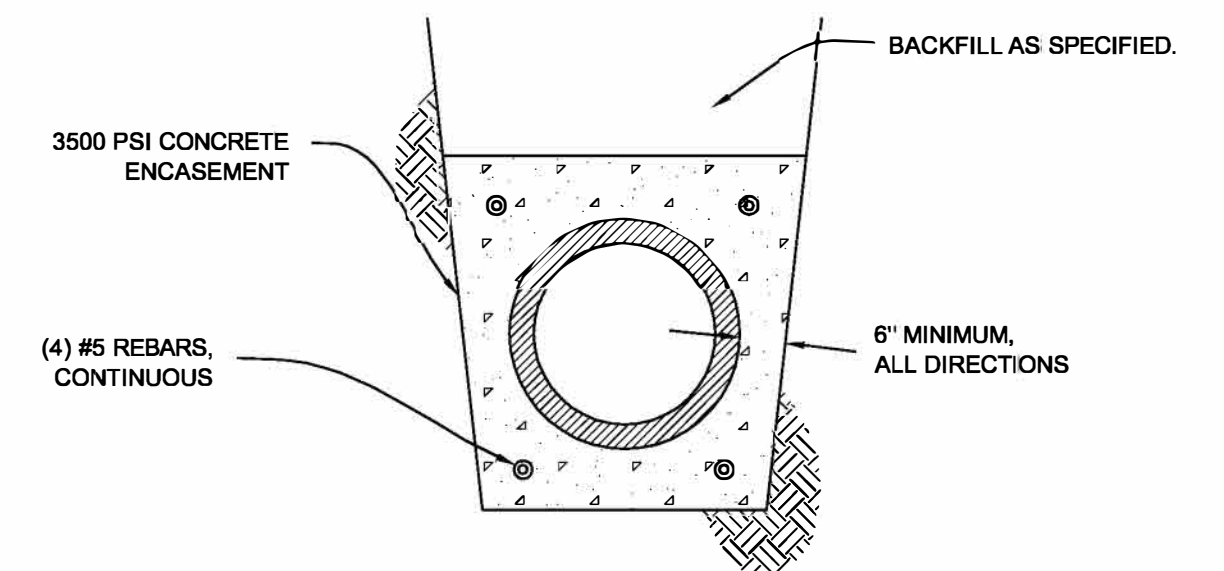
- PROTRUDING TAPS
- ROOT INTRUSION
- CRACKED OR FAULTY PIPE/DAMAGED PIPE OR MANHOLES/USE OF NON-COMPLIANT MATERIALS
- IMPROPER PIPE REPAIR
- MISALIGNED OR DEFORMED PIPE
- DEBRIS IN LINE OR IN JOINTS
- INFILTRATION/EXFILTRATION
- EXPOSED GASKETS/EXCESSIVE GAPS AT JOINTS
- BELLIES OR SAGS WITH A DEPTH GREATER THAN OR EQUAL TO 10" (OR A MAXIMUM OF 1'-1/2" FOR 18" PIPE) OF PIPE DIAMETER AND/OR A LENGTH GREATER THAN 25 FEET
- MANHOLES WITH HOLES CORED AT OR NEAR MANHOLE JOINTS.



NOTE: THIS DETAIL SHALL BE USED WHEN A MAIN, SEWER OR WATER CROSSES WITHIN 18" OF ANOTHER PIPE OR CONDUIT.

## PIPE CROSSING DETAIL

SCALE: NONE



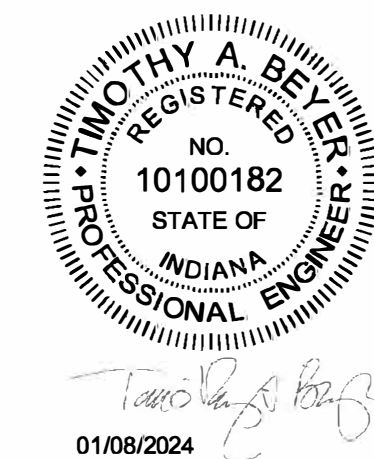
## PIPE ENCASEMENT DETAIL

NOT TO SCALE

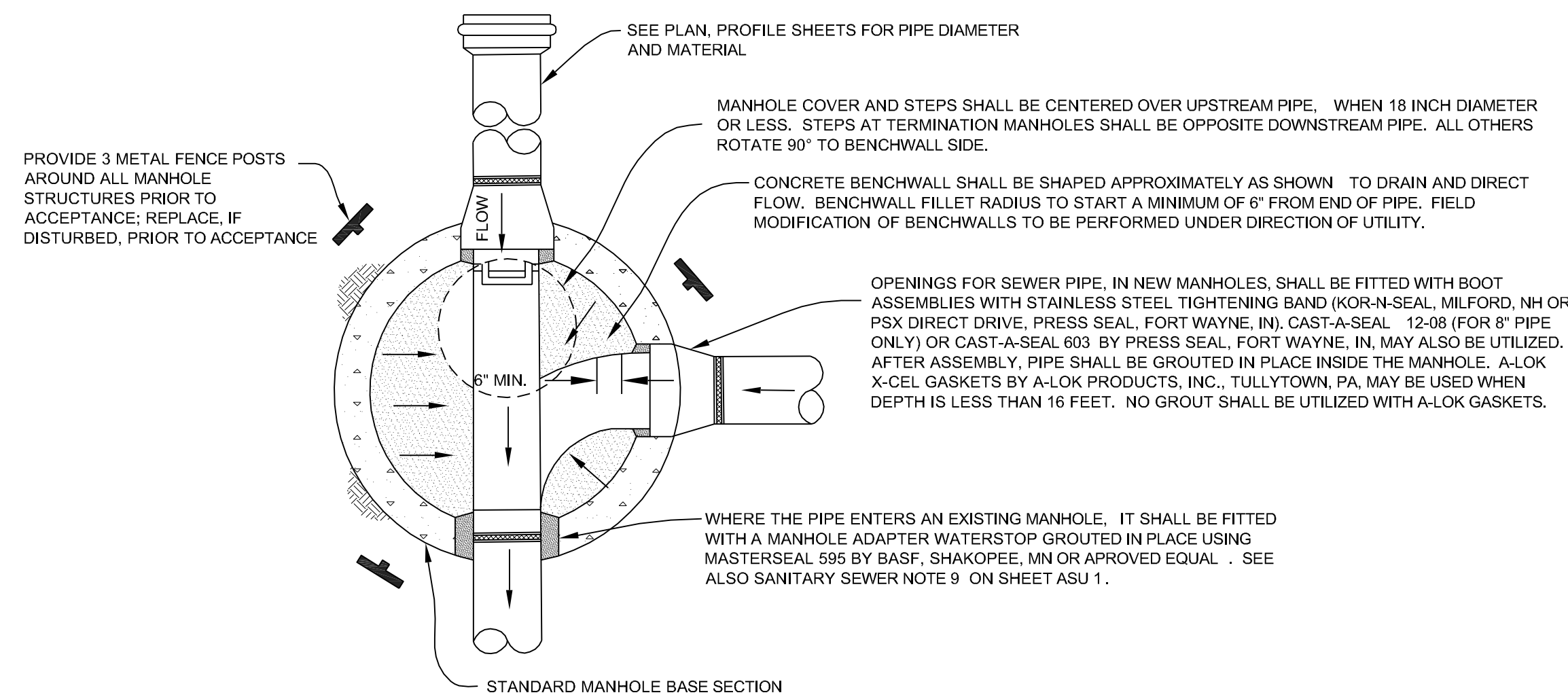
PROJECT NAME	PROJECT SHEET NUMBER
	of

## AMERICAN SUBURBAN UTILITIES

(800) 382-5544	HOLEY MOLEY	3350 WEST, 250 NORTH	DATE JAN. 2024
(765) 463-3856	AMERICAN SUBURBAN UTILITIES	WEST LAFAYETTE, INDIANA 47906	SHEET
(765) 463-6664	FIRE DEPT.	GENERAL NOTES and GUIDELINES FOR UTILITY LOCATIONS	ASU1
(765) 423-9321	SHERIFF		

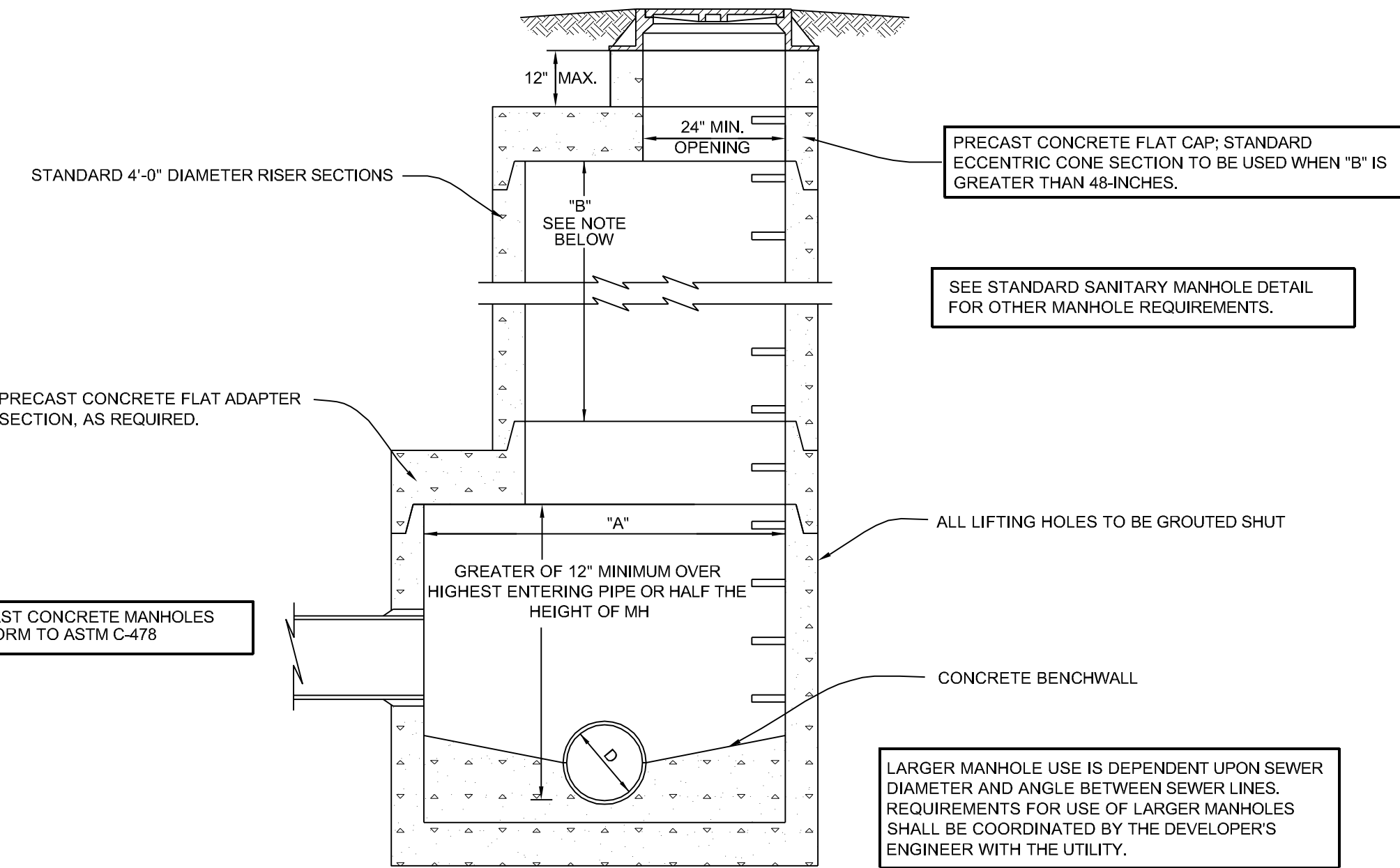


01/08/2024



**STANDARD SANITARY MANHOLE PLAN**

NOT TO SCALE



**SANITARY MANHOLE DETAIL**

FOR MANHOLE STRUCTURES LARGER THAN 4 FEET IN DIAMETER

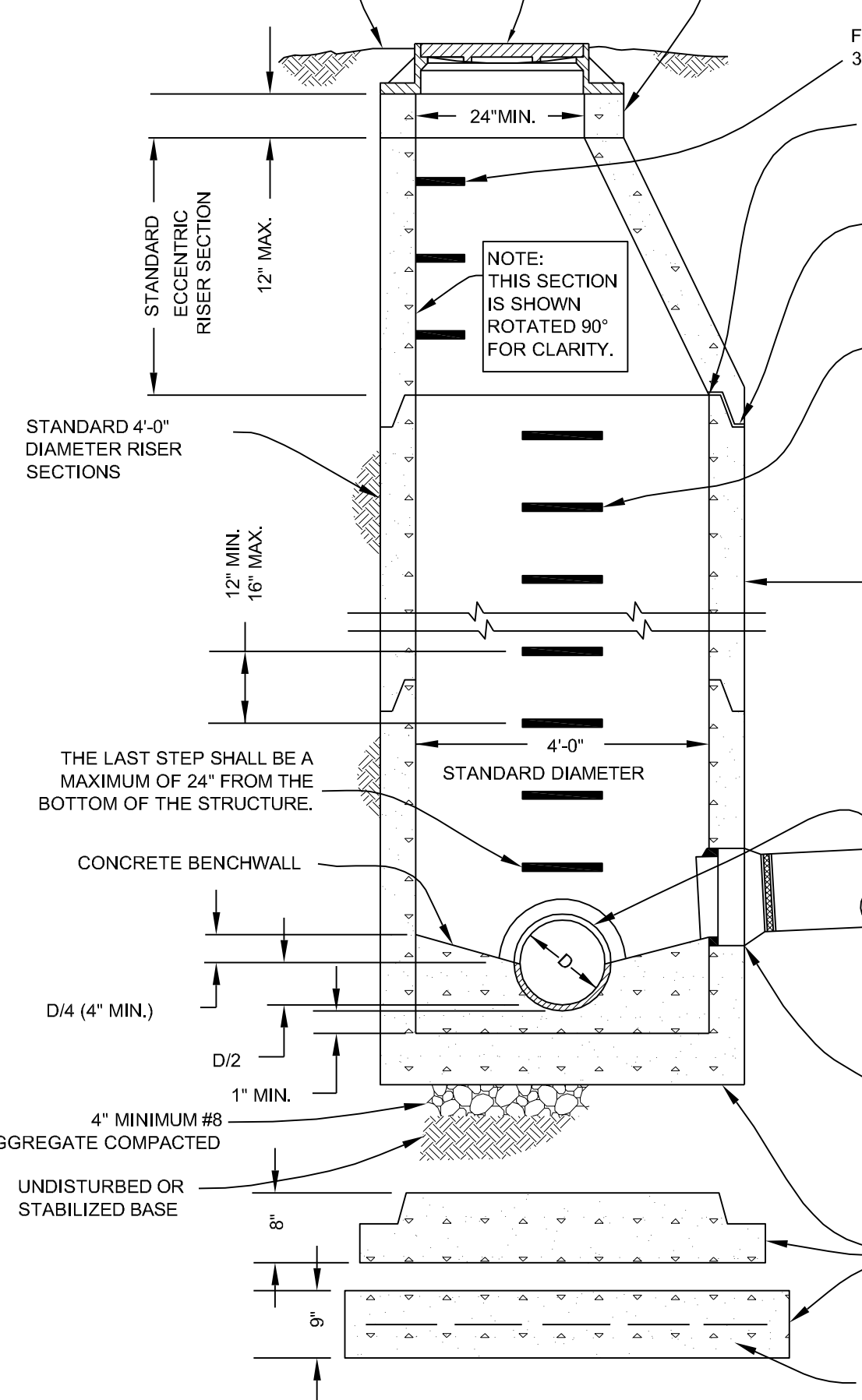
NOT TO SCALE

PLANS SHALL INCLUDE MANHOLE NUMBER, DIAMETER, INSIDE/OUTSIDE DROP (WHEN APPLICABLE), CASTING TYPE, & INVERTS EITHER IN TABLE FORMAT OR LABELED ON PROFILES OR A COMBINATION OF BOTH.

STANDARD MANHOLE FRAME SHALL BE NEENAH R-1772, OR APPROVED EQUAL, FRAME AND LID SHALL HAVE "SELF SEALING" APPLICATION USING "T" SEAL GASKET, SEAL TO STRUCTURE WITH BITUMASTIC SEALANT. LID SHALL BE TYPE "B" WITH CONCEALED PICKHOLE. LOCKDOWN LIDS (WATERTIGHT CASTINGS) SHALL BE NEENAH R-1755-E WITH SECURITY SADDLE PLATE, OR APPROVED EQUAL. LID SHALL BE TYPE "B" WITH CONCEALED PICKHOLE. SEE SANITARY SEWER NOTE 13 ON SHEET ASU 1.

FINISH GRADE: SEE SANITARY SEWER NOTE 12 ON SHEET ASU 1

PRECAST CONCRETE SPACER REQUIRED (SINGLE SPACER, REQUIRED, WHENEVER POSSIBLE; MAXIMUM OF TWO SPACERS PERMITTED ONLY WHEN 8"-12" ADJUSTMENT IS NECESSARY). SET IN MORTAR OR PREMIUM GRADE BUTYL RUBBER SEALANT. FOR ALL FINAL GRADE AND LEVEL ADJUSTMENT (4" MIN., 12" MAX. ADJUSTMENT)



FIRST STEP SHALL BE A MAXIMUM OF 36 INCHES FROM THE TOP OF CASTING.

INSIDE JOINT GROUTING NOT REQUIRED WHEN THIRD ROW OF PREMIUM GRADE BUTYL RUBBER SEALANT UTILIZED AS DIRECTED BY UTILITY

A DOUBLE ROW OF PREMIUM GRADE BUTYL RUBBER SEALANT, IN ACCORDANCE WITH ASTM C-990, TO BE USED BETWEEN ADJACENT MANHOLE SECTIONS. SEALANT TO BE (1) KENT SEAL NO. 2 BY HAMILTON KENT LLC, WINCHESTER, TN, (2) EZ-STIK PREMIUM BUTYL SEALANT BY PRESS SEAL, FORT WAYNE, IN, (3) BUTYL-LOK PREFORMED TAPE BY A-LOK PRODUCTS, INC., TULLYTOWN, PA, (4) CS-102 BUTYL RUBBER SEALANT BY CONCRETE SEALANTS, INC. (CONSEAL), TIPP CITY, OH, (5) BUTYL-TITE JOINT SEALANT BY MULTISEAL, EVANSVILLE, IN, (6) TRELLEBORG C-56 BY TRELLEBORG PIPE SEALS, MILFORD, NH, (7) BN-109 BUTYL-NEK JOINT SEALANT BY HTE HENRY CO., EL SEGUNDO, CA, (8) APPROVED EQUAL. ALL JOINTS, HOLES, ETC. TO BE GROUTED SHUT.

MANHOLE STEPS SHALL BE PS-1-PF BY MA INDUSTRIES, PEACHTREE CITY, GA, OR ML-NCR BY AMERICAN STEP CO., GRIFFIN, GA. STEP SPACING AND ALIGNMENT TO BE MAINTAINED UNIFORM AND VERTICAL THROUGHOUT THE DEPTH OF THE MANHOLE.

COATINGS: ALL COATINGS OR ADMIXTURES SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING PREPARATION AND RESTORATION, AS NECESSARY.

1. ALL MANHOLES SHALL BE PRECAST WITH WATERPROOFING ADMIXTURES MANUFACTURED BY ANY OF THE FOLLOWING: (1) IPANEX, BY IPA SYSTEMS, INC., PHILADELPHIA, PA, (14 OZ. PER 100 LB. OF CEMENT), (2) PENETRON ADMIX, BY PENETRON, EAST SETAUKET, NY (1.0 % DOSAGE RATE BY WEIGHT OF CEMENT), (3) XYPREX ADMIX C-SERIES, BY XYPREX CHEMICAL CORP., RICHMOND, BRITISH COLUMBIA, CANADA (1.5 % (NO FINES GRADE), 3.0 % (REGULAR GRADE) DOSAGE RATE BY WEIGHT OF CEMENT), (4) KRYSSTOL INTERNAL MEMBRANE (KIM), BY KRYTON PRODUCTS, VANCOUVER, BRITISH COLUMBIA (2 .0% DOSAGE RATE BY WEIGHT OF CEMENT) , (5) MASTERLIFE 300D, BY BASF ADMIXTURE SYSTEMS, CLEVELAND, OH (2.0% DOSAGE RATE BY WEIGHT OF CEMENT) , (6) AQUAFIN-IC ADMIX, BY AQUAFIN INC., ELKTON, MD (1.0% DOSAGE RATE BY WEIGHT OF CEMENT), (7) APPROVED EQUAL.

2. EXTERIOR CONCRETE SURFACES LOCATED WITHIN 6" OF EACH SIDE OF JOINTS AND ADJUSTING RINGS , SHALL RECEIVE A TROWEL APPLIED COATING (1/8" MIN.) MANUFACTURED BY ANY OF THE FOLLOWING: (1) MASTERSSEAL 614, BY BASF, SHAKOPEE, MN, (2) HENRY HE 793 FOUNDATION COATING, BY THE HENRY CO., EL SEGUNDO, CA, (3) APOC AP305 DAMPROOFING MASTIC, BY GARDNER-GIBSON, INC., TAMPA, FL, (4) SEALMASTIC EMULSION DAMPROOFING TYPE II, BY W.R. MEADOWS, INC., HAMPSHIRE, IL, (5) WATERBAN 60M, BY LAMBERT CORPORATION, ORLANDO, FL, (6) KARNAK 920 TROWEL EMULSION DAMPROOFING, BY THE KARNAK CORP., CLARK, NJ, (7) DEHYDRATINE 95, BY TAMMS INDUSTRIES, KIRKLAND, IL, (8) APPROVED EQUAL.

3. INTERIOR EPOXY COATING SHALL BE APPLIED ON ALL MANHOLES RECEIVING FORCEMAIN DISCHARGE, ON ALL LIFT STATION WET WELLS AND ANY MANHOLES RECEIVING INDUSTRIAL WASTE. COATING SHALL BE RAVEN 405, AS MANUFACTURED BY RAVEN LINING SYSTEMS, BROKEN ARROW, OK, OR MAINSTAY DS-5, MANUFACTURED BY MADEWELL PRODUCTS CORP., ALPHARETTA, GEORGIA, OR APPROVED EQUAL (TWO COATS WITH EACH COAT @ 50 MIL MIN. THICKNESS FOR A TOTAL THICKNESS OF 100 MILS MIN.)

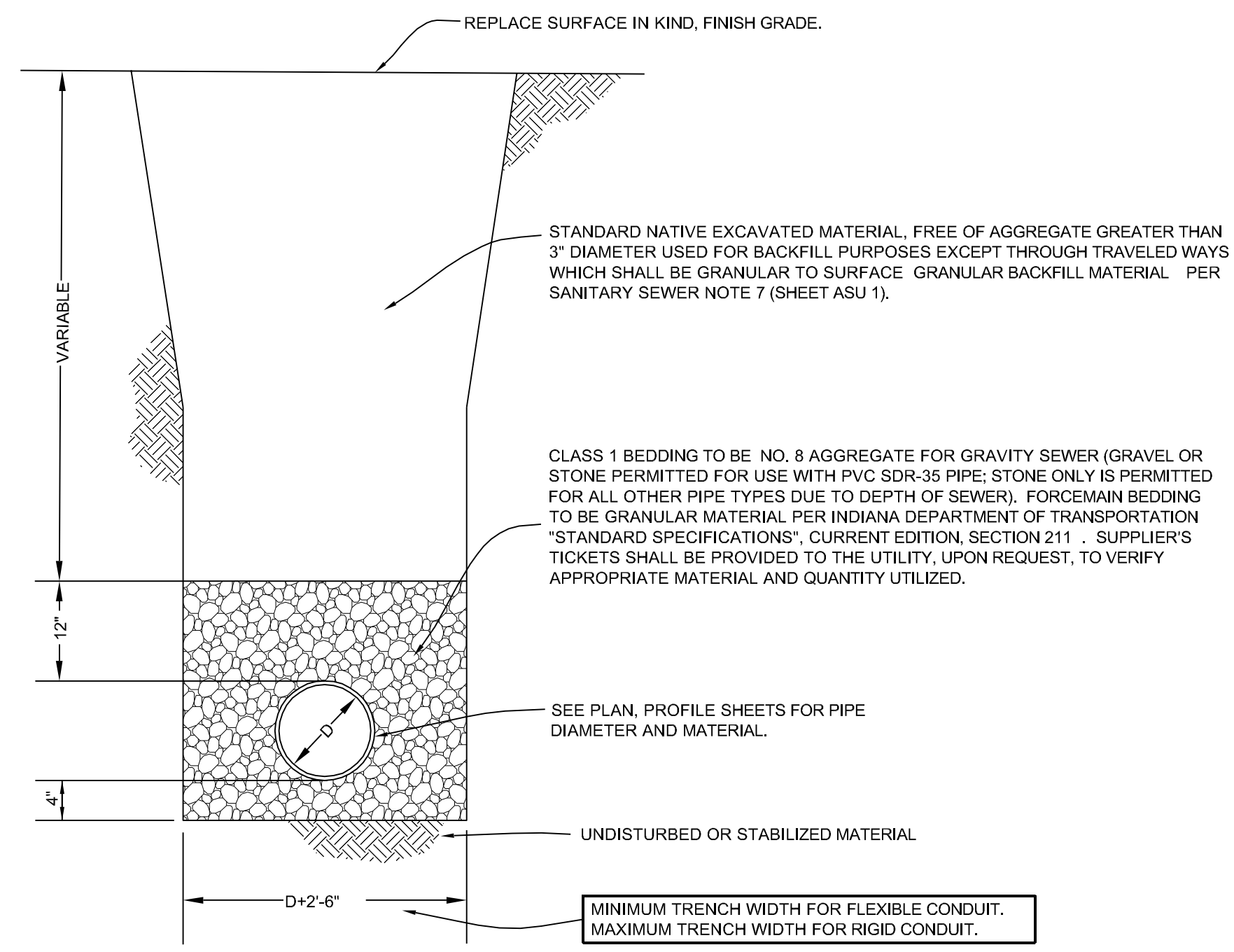
FOR MANHOLES OVER EXISTING SEWER, USE STANDARD MANHOLE AND CUT EXISTING SEWER AND REPAIR WITH BARREL COUPLERS WHEN POSSIBLE; OTHERWISE, WHERE CONSTRUCTING A MANHOLE OVER EXISTING SEWER, SEWER PIPE SHALL BE LAID THROUGH THE MANHOLE WITH THE UPPER PORTION REMOVED AS DIRECTED BY THE UTILITY. WHEN CHANGES IN DIRECTION, GRADE, OR ELEVATION DO NOT PERMIT CARRYING A PIPE THROUGH A MANHOLE, THE BENCHWALL SHALL BE FORMED TO PERMIT A SMOOTH TRANSITION OF FLOW. LINK-SEAL OR APPROVED EQUAL SHALL BE USED BETWEEN OPENING BETWEEN EXISTING PIPE AND CONCRETE STRUCTURE.

OPENINGS FOR SEWER PIPE, IN NEW MANHOLES, SHALL BE FITTED WITH BOOT ASSEMBLIES WITH STAINLESS STEEL TIGHTENING BAND (KOR-N-SEAL, MILFORD, NH OR PSX DIRECT DRIVE, PRESS SEAL, FORT WAYNE, IN, CAST-A-SEAL, 12-08 (FOR 8" PIPE ONLY) OR CAST-A-SEAL 603 BY PRESS SEAL, FORT WAYNE, IN, MAY ALSO BE UTILIZED. AFTER ASSEMBLY, PIPE SHALL BE GROUTED IN PLACE INSIDE THE MANHOLE. A-LOK X-CEL GASKETS BY A-LOK PRODUCTS, INC., TULLYTOWN, PA, MAY BE USED WHEN DEPTH IS LESS THAN 16 FEET. NO GROUT SHALL BE UTILIZED WITH A-LOK GASKETS.

PRE CAST CONCRETE BASE SHALL BE INTEGRAL WITH PRE-CAST RISER SECTION. CAST-IN-PLACE OR SEPARATE PRE-CAST FLAT BASES MAY BE USED ONLY WITH THE PRIOR WRITTEN APPROVAL OF THE UTILITY.

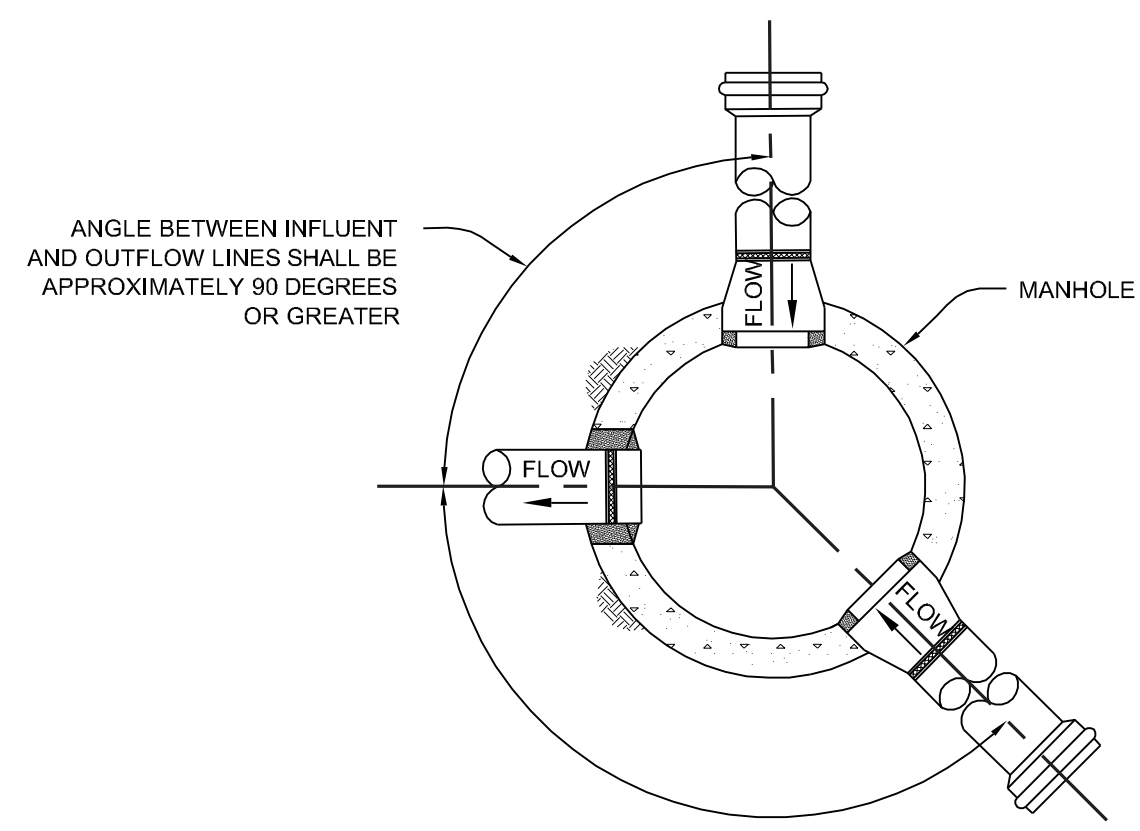
#4 REINFORCING RODS 12" O.C. BOTH WAYS.

NOTE: PRE CAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C-478



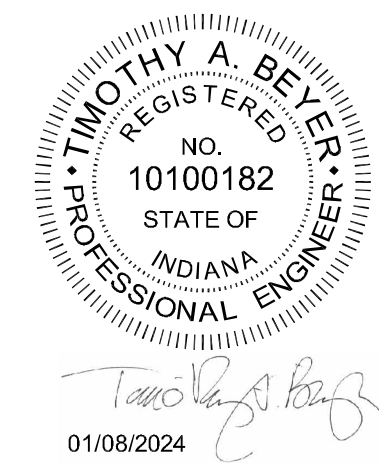
**STANDARD BEDDING DETAIL**

NOT TO SCALE



**SEWER LINE ORIENTATION**

NOT TO SCALE



PROJECT NAME	PROJECT SHEET NUMBER
	of

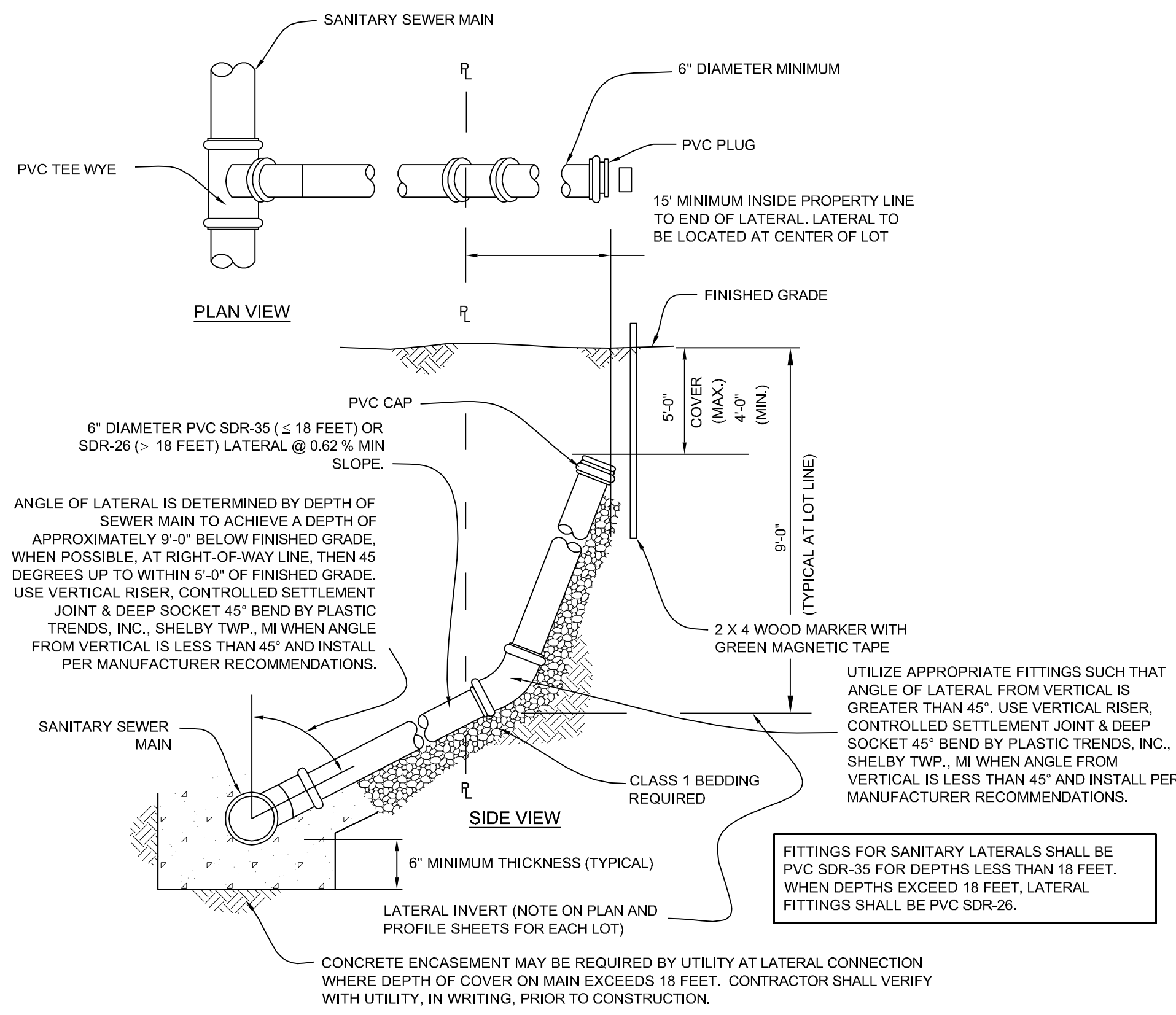
**AMERICAN SUBURBAN UTILITIES**

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 (765) 463-3856 AMERICAN SUBURBAN UTILITIES  
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3350 WEST, 250 NORTH  
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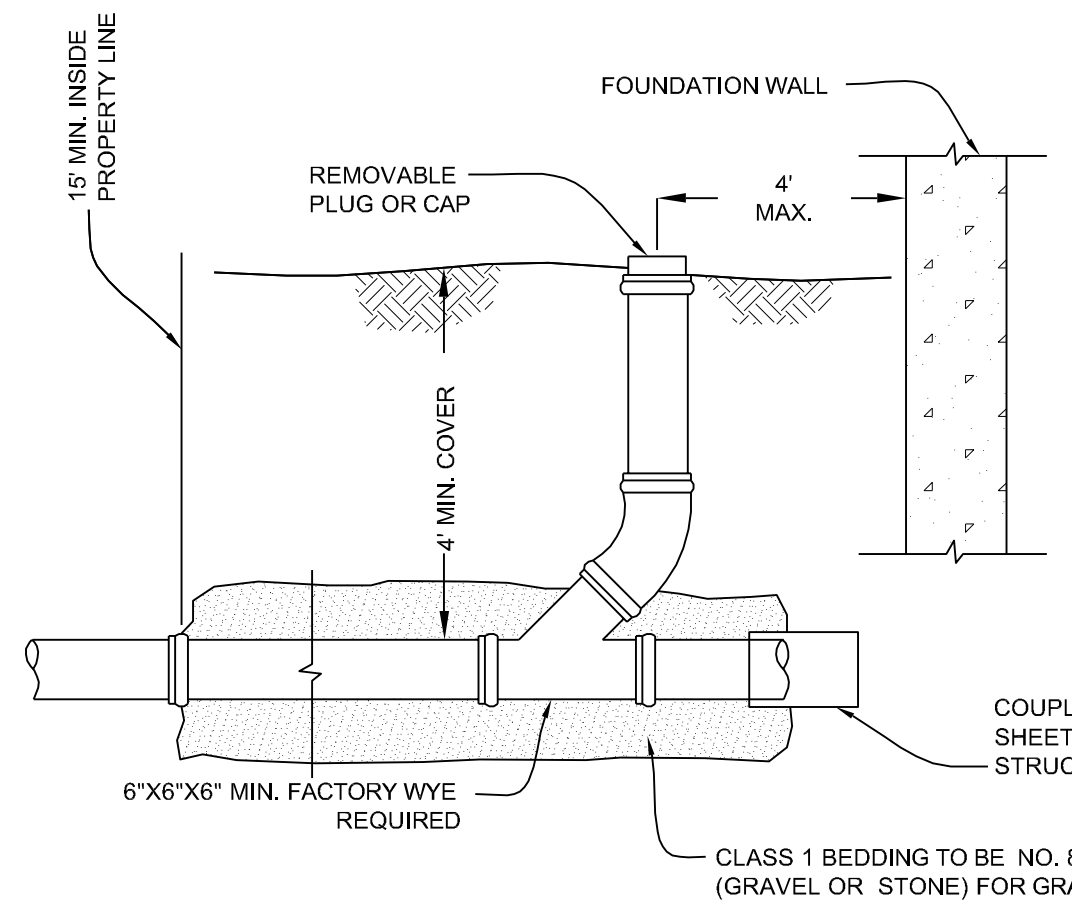
GENERAL NOTES and GUIDELINES ASU2  
 FOR UTILITY LOCATIONS

DATE JAN. 2024  
 SHEET



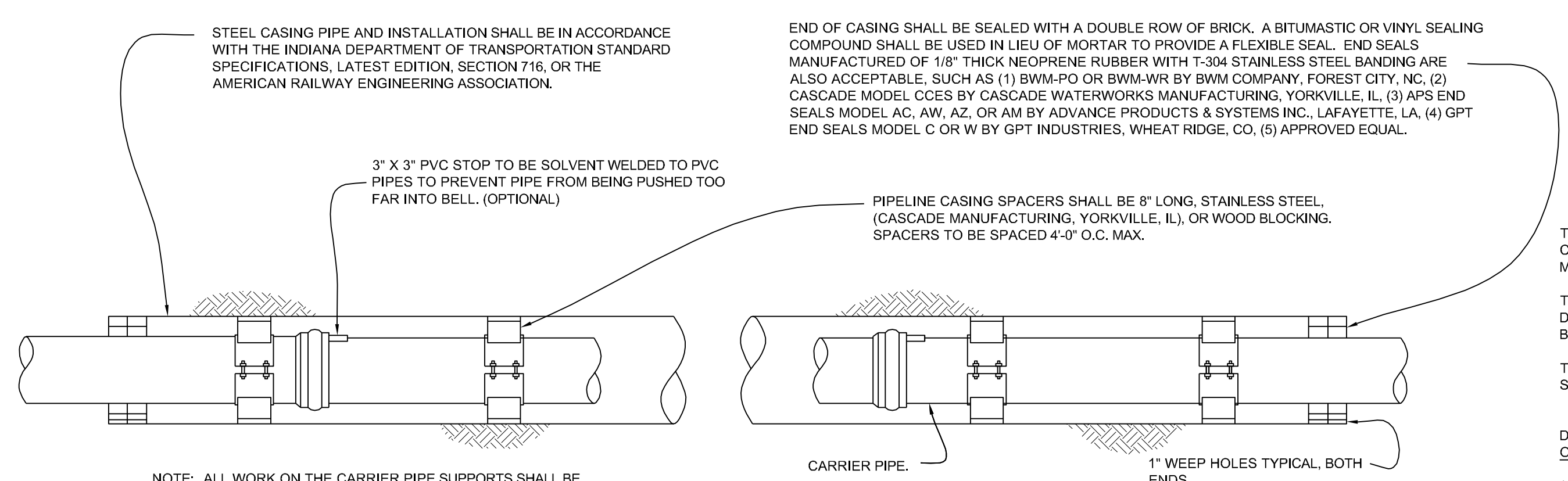
**LATERAL CONNECTION DETAIL**

NOT TO SCALE SEWER TO PROPERTY



**LATERAL CONNECTION DETAIL**

NOT TO SCALE PROPERTY TO STRUCTURE



THE CASING PIPE SHALL BE WELDED STEEL PIPE, NEW AND UNUSED MATERIAL, IN ACCORDANCE WITH CURRENT ASTM SPECIFICATION A139, GRADE B FOR "ELECTRIC FUSION OF WELDED STEEL PIPE", WITH A MINIMUM YIELD OF 35,000 PSI.

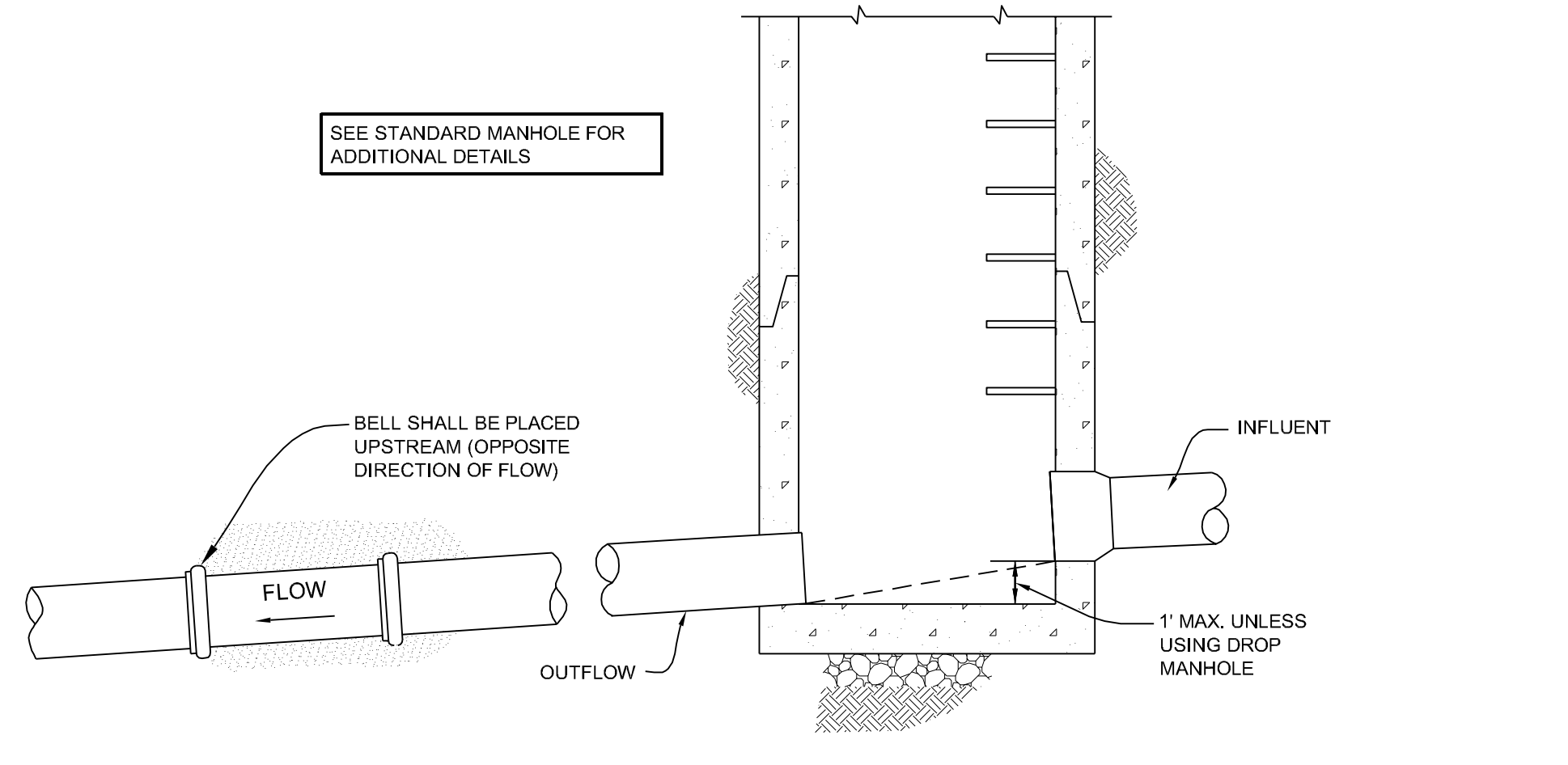
THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE AT LEAST SIX (6) INCHES GREATER THAN THE LARGEST DIAMETER OF THE PIPELINE JOINT (BELL DIAMETER). LARGER DIAMETER MAY BE NECESSARY WHEN CASING IS BORED (FLAT) FROM UPSTREAM END.

THE MINIMUM WALL THICKNESS OF THE CASING PIPE SHALL BE AS LISTED IN THE FOLLOWING TABLE OR AS SHOWN ON THE APPLICABLE DRAWINGS:

DIAMETER OF CASING	WALL THICKNESS (IN.)	
	UNDER HIGHWAY	UNDER RAILROAD
18" OR SMALLER	1/4 (0.25)	5/16 (0.3125)
20"	5/16 (0.3125)	3/8 (0.375)
22"-26"	3/8 (0.375)	7/16 (0.4375)
28"-32"	1/2 (0.5)	1/2 (0.5)
34"-38"	1/2 (0.5)	9/16 (0.5625)
40"-42"	1/2 (0.5)	5/8 (0.625)
44"-48"	9/16 (0.5625)	11/16 (0.6875)

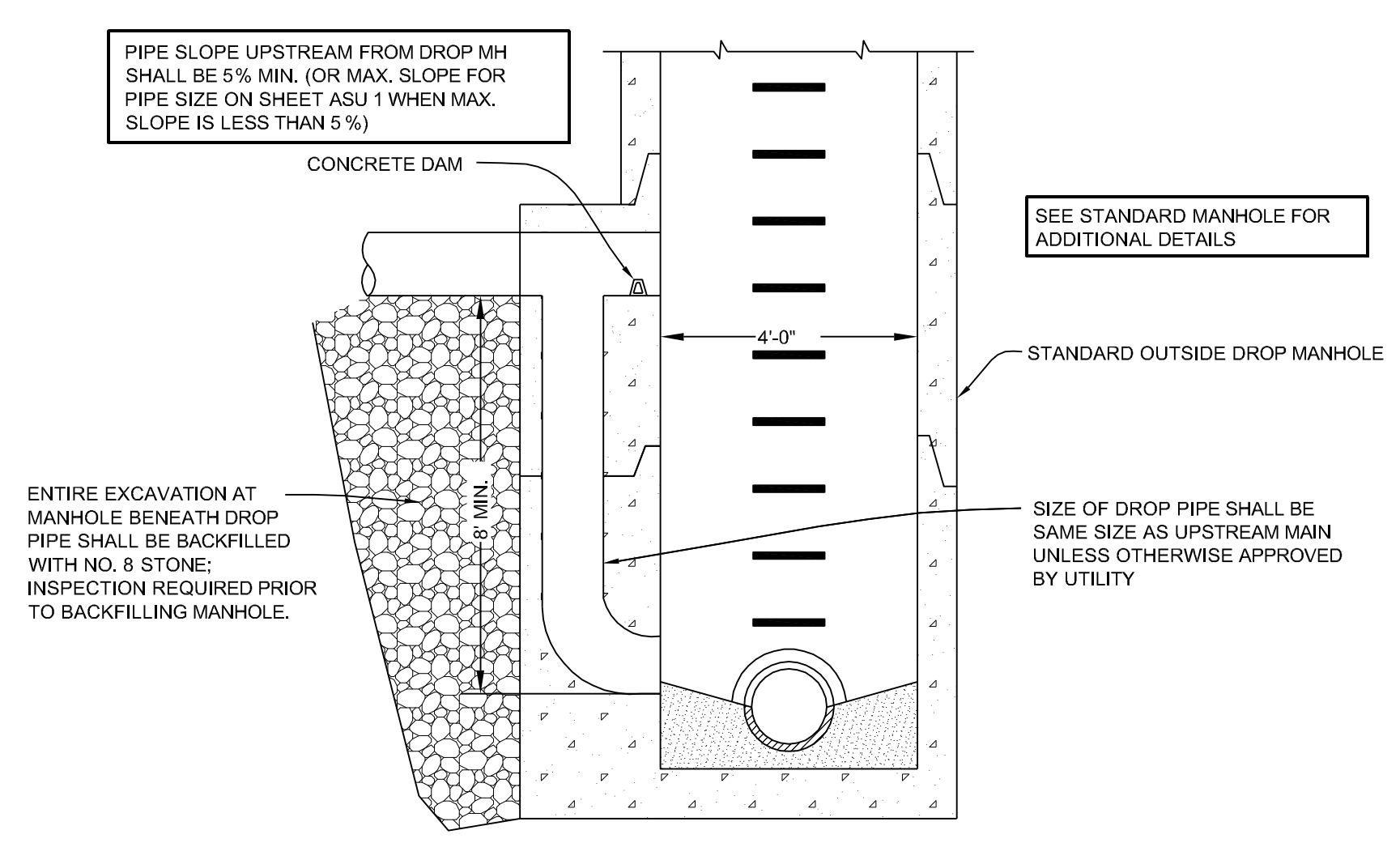
**PIPE CASING DETAILS**

NOT TO SCALE



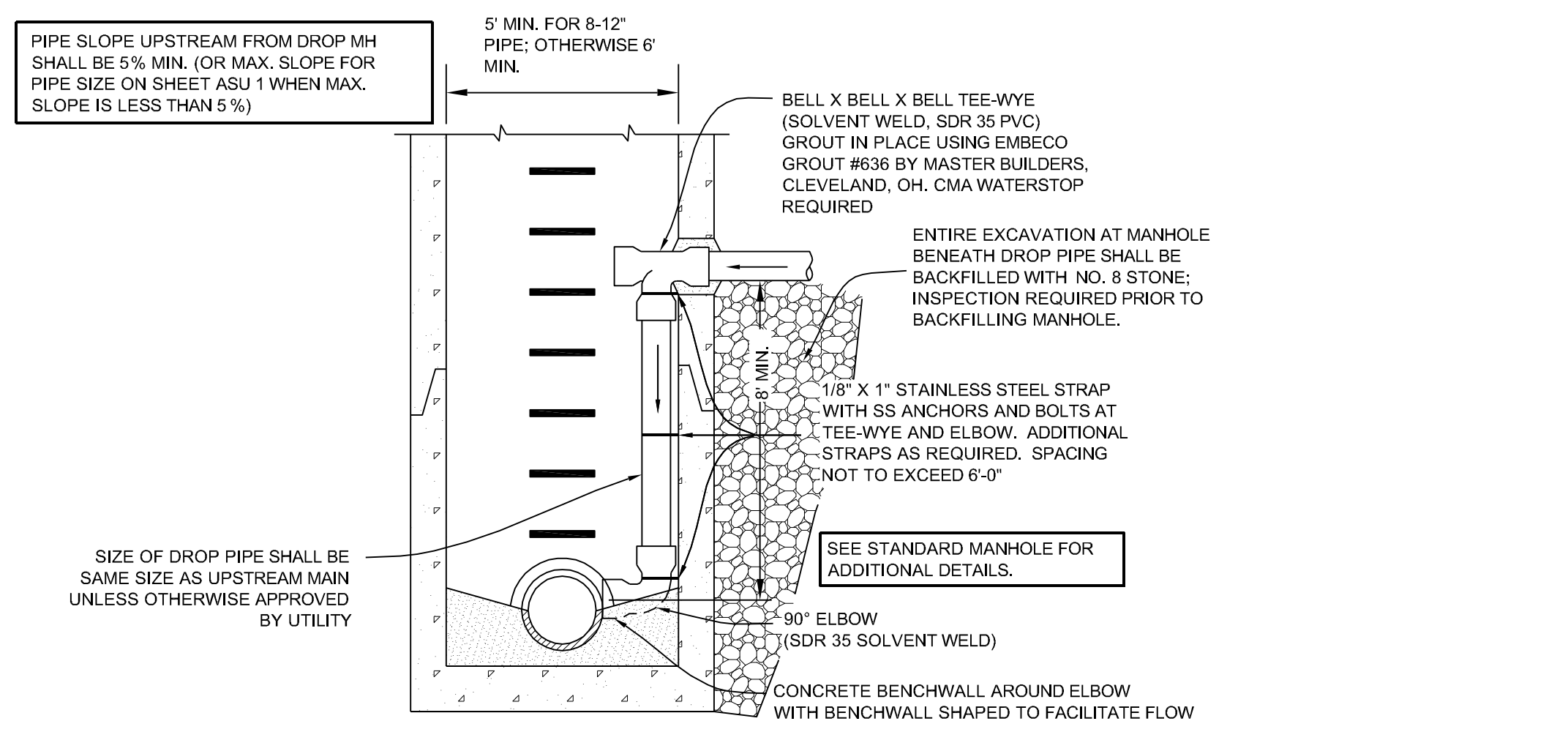
**SEWER DESIGN AND INSTALLATION DETAILS**

NOT TO SCALE



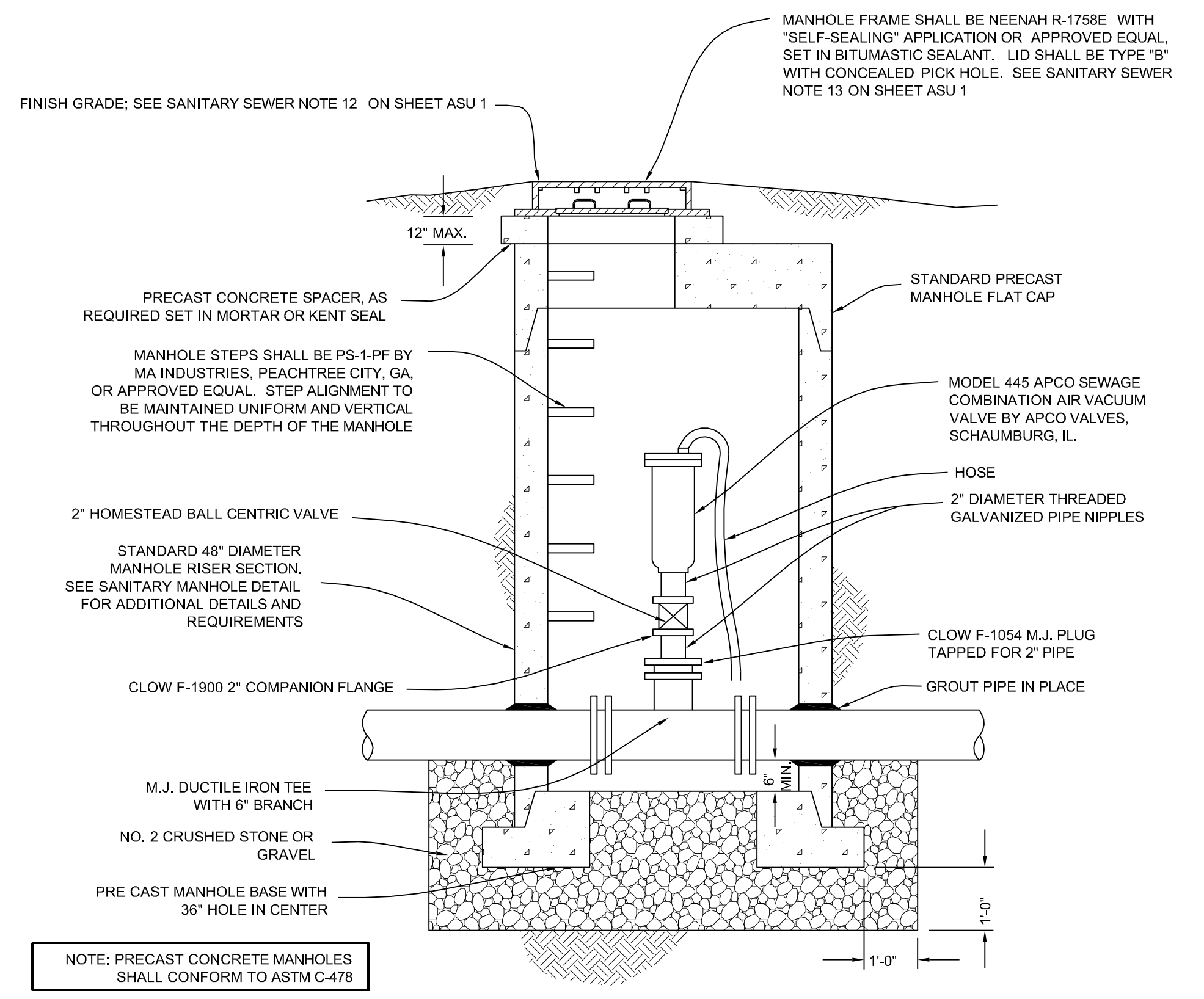
**PRECAST OUTSIDE DROP MANHOLE**

NOT TO SCALE



**INSIDE DROP MANHOLE DETAIL**

(EXISTING MANHOLES ONLY) NOT TO SCALE



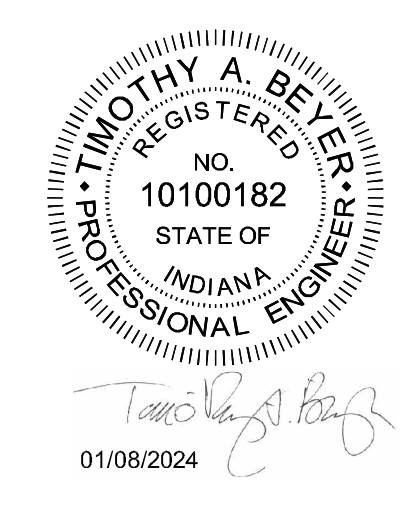
**SEWAGE FORCE MAIN AIR RELEASE MANHOLE (FORCEMAIN 4"Ø TO 12"Ø)**

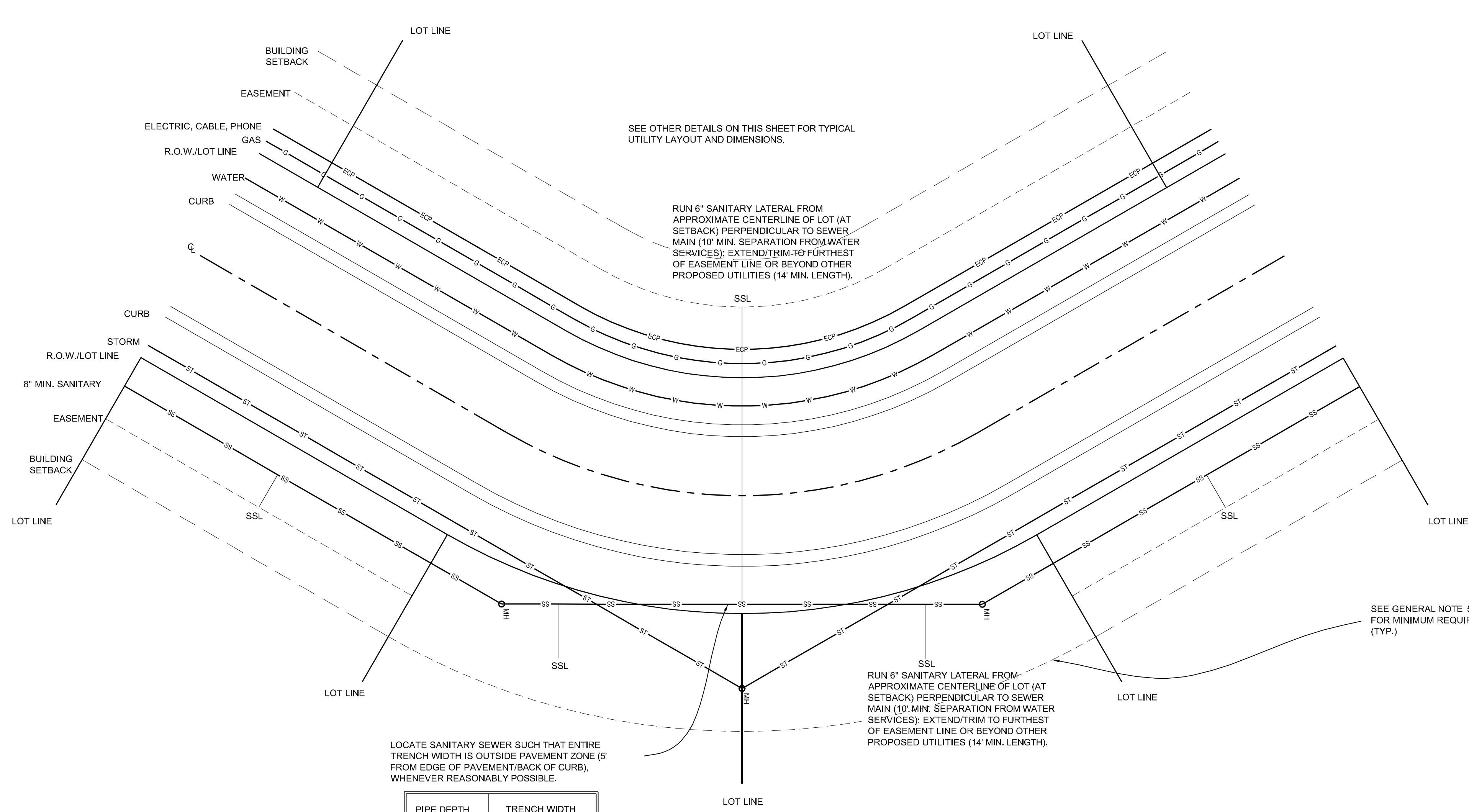
NOT TO SCALE

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(765) 463-6664	FIRE DEPT.	SANITARY SEWER	SHEET
(765) 423-9321	SHERIFF	TYPICAL DETAILS and NOTES	ASU3





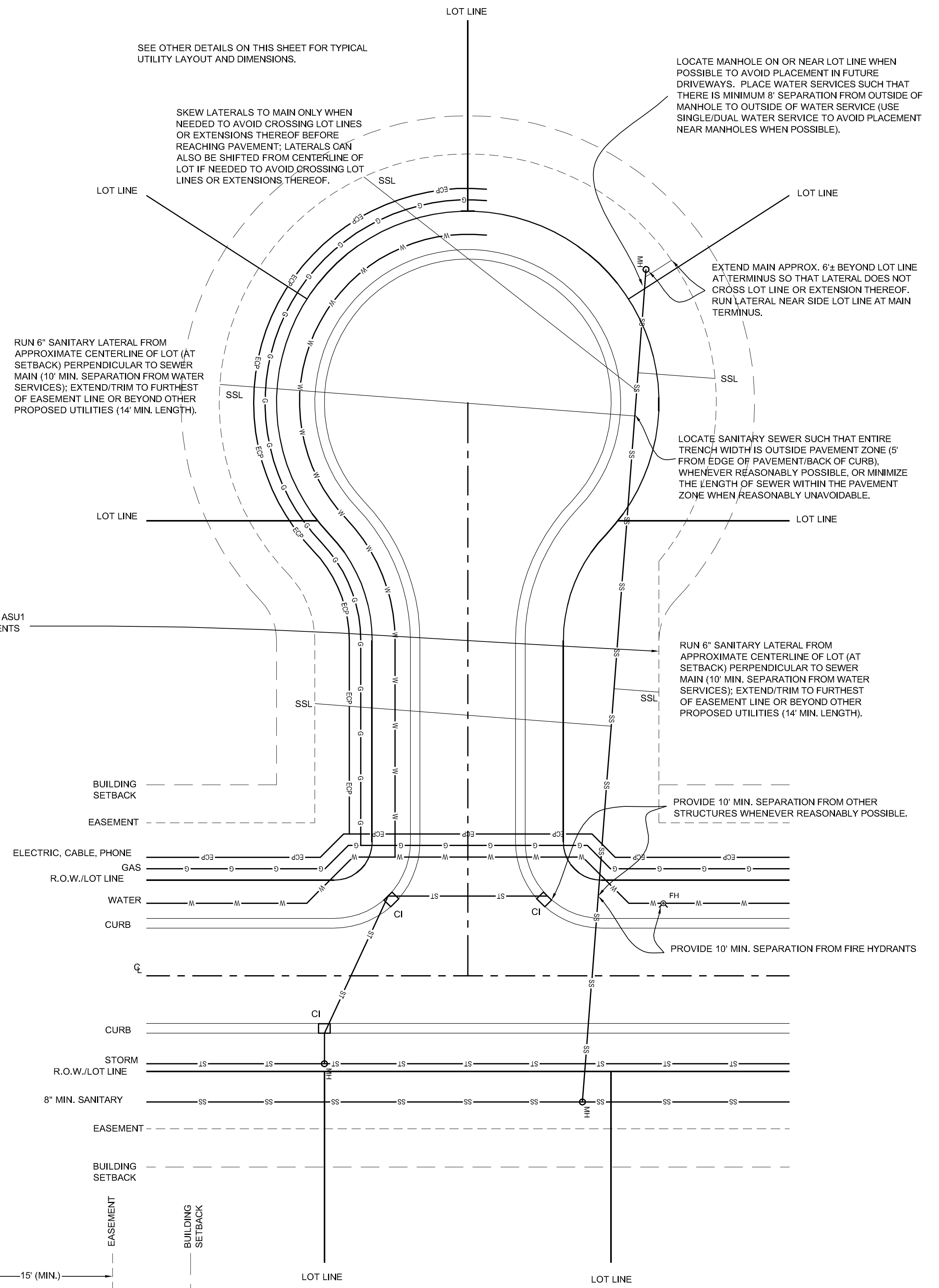
**STREET PLAN - CURVE**

NOT TO SCALE

THE UTILITY LAYOUTS SHOWN ON THIS PAGE ARE TYPICAL REQUIREMENTS FOR RESIDENTIAL SUBDIVISIONS WITH PUBLIC STREETS. LAYOUTS CAN VARY FROM THOSE SHOWN HEREON; HOWEVER, MINIMUM SEPARATIONS SHOWN FROM OTHER UTILITIES SHOULD GENERALLY BE MAINTAINED AND SEWERS SHOULD BE KEPT OUTSIDE PAVED ZONES AS MUCH AS POSSIBLE.

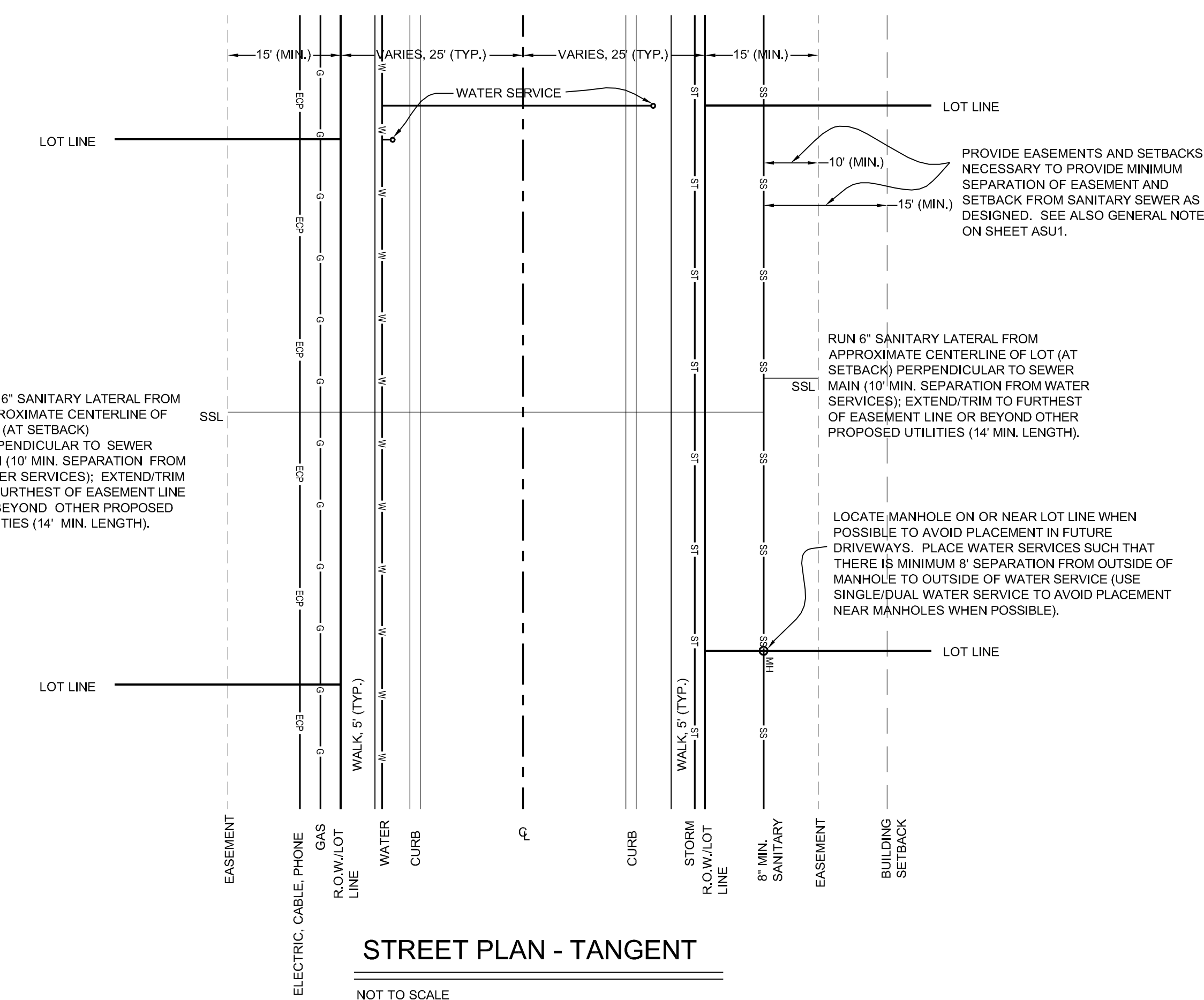
FOR APARTMENT PROJECTS, COMMERCIAL SITE DEVELOPMENTS, & DEVELOPMENTS WITH SMALLER LOTS AND NARROWER PRIVATE ROADS, THE UTILITY MAY PERMIT THE SEWER TO BE LOCATED WITHIN PAVED AREAS.

IT IS RECOMMENDED THAT A PROPOSED UTILITY LAYOUT PLAN BE SUBMITTED TO THE UTILITY FOR REVIEW AND COMMENT PRIOR TO SUBMISSION OF PLAN AND PROFILE SHEETS AND A FULL SET OF CONSTRUCTION PLANS.



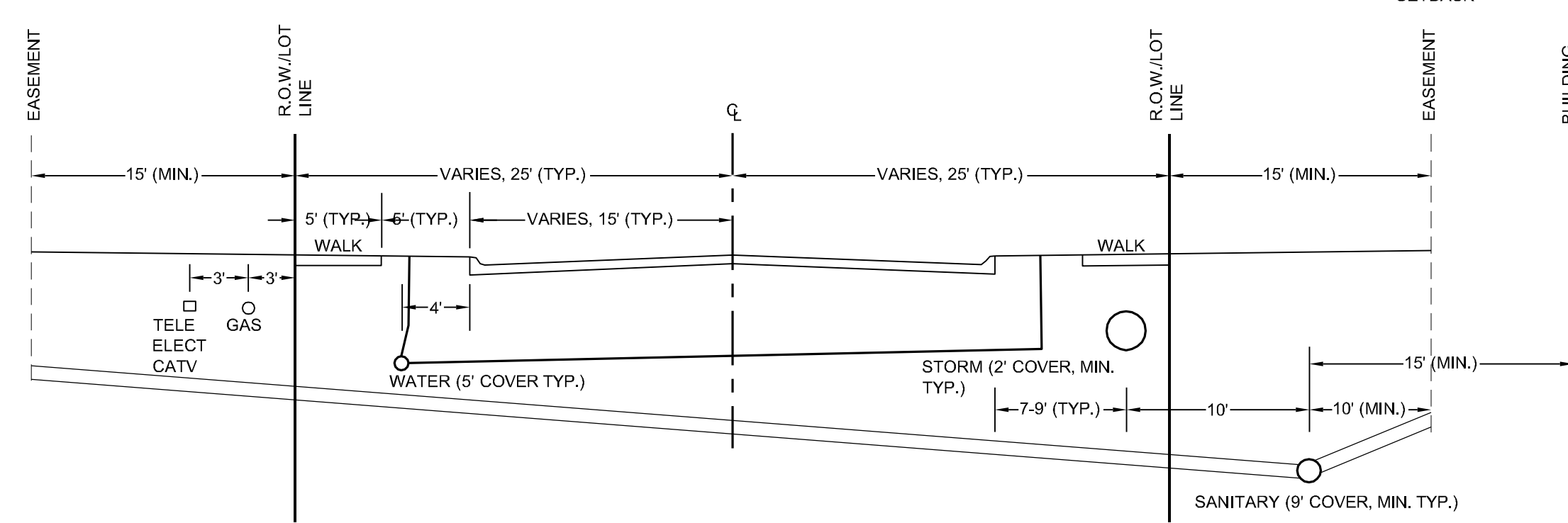
**STREET PLAN - CUL-DE-SAC**

NOT TO SCALE



**STREET PLAN - TANGENT**

NOT TO SCALE

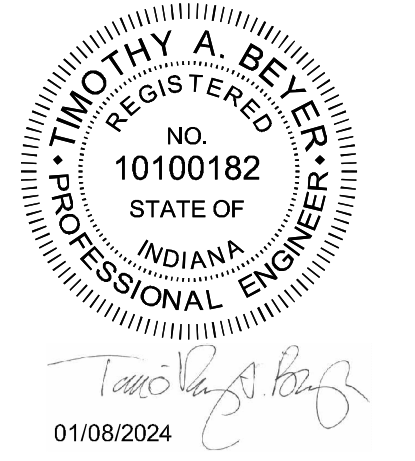


**STREET CROSS SECTION**

NOT TO SCALE

**UTILITY LOCATIONS**

NOT TO SCALE



PROJECT NAME	PROJECT SHEET NUMBER
	of

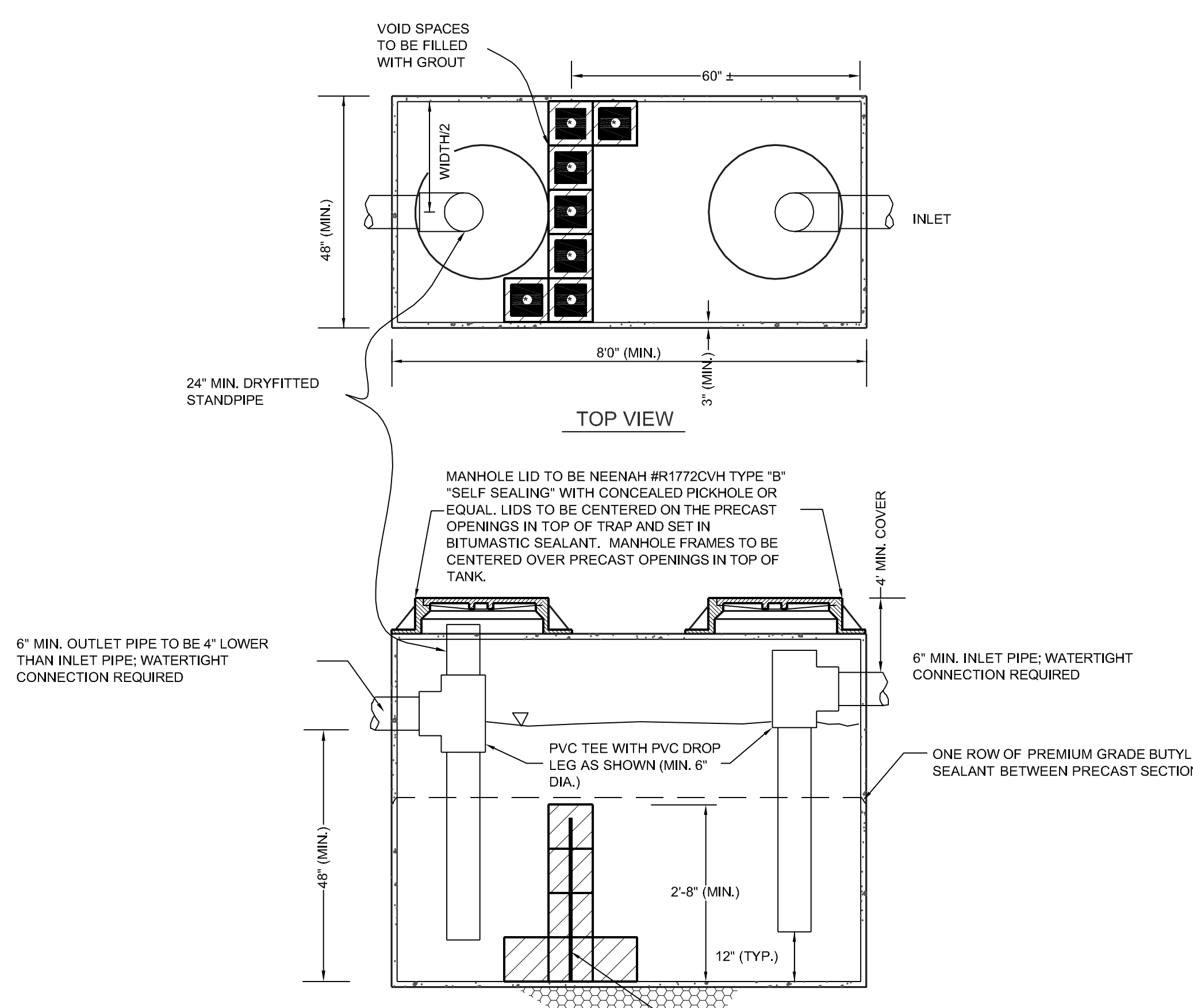
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SANITARY SEWER  
 TYPICAL DETAILS and NOTES

DATE JAN. 2024  
 SHEET ASU4



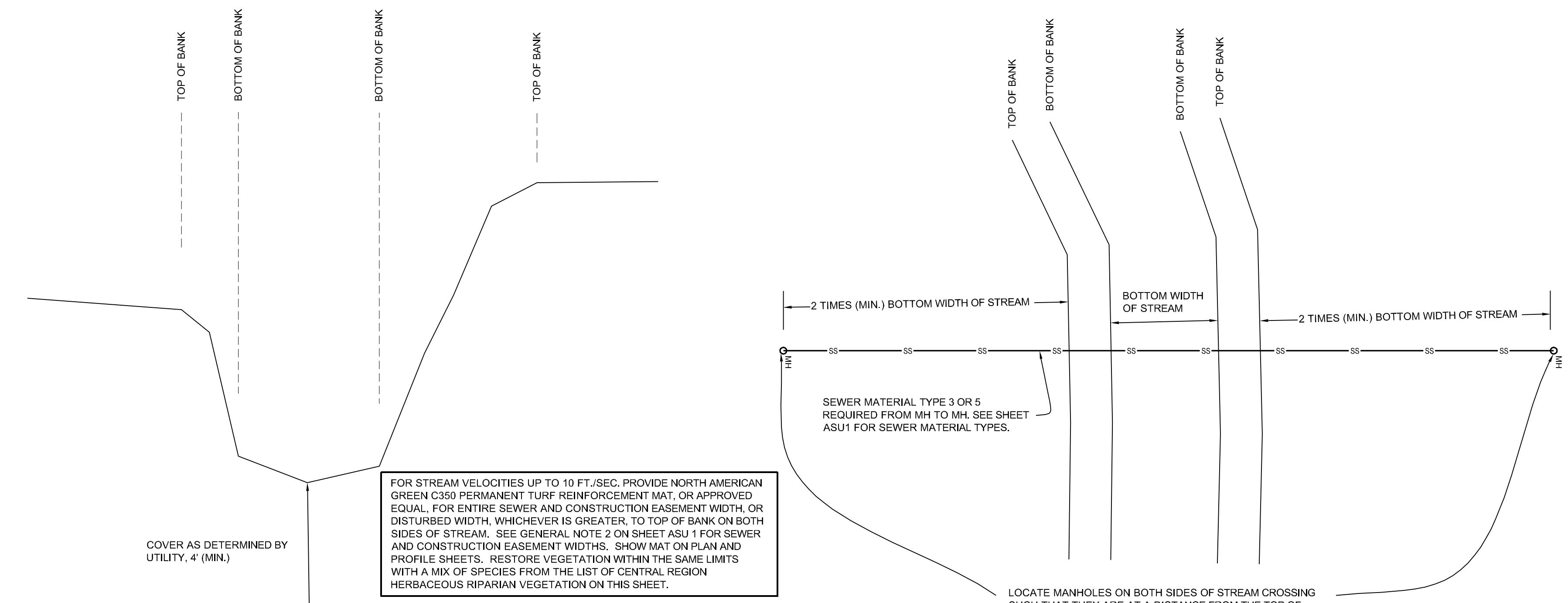
GREASE INTERCEPTOR/TRAP SIZING. SEE ALSO NOTES 4-6 FOR ADDITIONAL REQUIREMENTS.

GREASE WASTE PIPE SIZE	GREASE INTERCEPTOR (GAL.)	GREASE TRAP (GPM)
2"	1,000	20
3"	1,000	35
4"	1,000	50
5"	2,000	NOT PERMITTED
6"	3,000	NOT PERMITTED

- NOTES:
- FINAL DESIGN MUST BE APPROVED BY UTILITY. APPLICABLE CIVIL, ARCHITECTURAL, AND PLUMBING PLANS SHALL BE SUBMITTED FOR REVIEW OF GREASE TRAP/INTERCEPTORS.
  - DETAILS SHOW A GENERAL SCHEMATIC LAYOUT.
  - ADEQUATE STRUCTURAL STRENGTH SHALL BE PROVIDED TO ACCOMMODATE VEHICULAR TRAFFIC.
  - GREASE TRAP/INTERCEPTOR SHALL BE SIZED BASED ON GREASE WASTE PIPE SIZE. SEE ACCOMPANYING TABLE. AS AN ALTERNATIVE, GREASE TRAP/INTERCEPTOR MAY BE SIZED USING GUIDELINES IN 2009 OR MORE CURRENT UNIFORM PLUMBING CODE, US EPA, OR PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-G101, OR OTHER METHOD REVIEWED AND APPROVED BY UTILITY.
  - GREASE INTERCEPTORS ARE DEFINED AS VAULTS LOCATED ON THE EXTERIOR OF THE BUILDING AND SHALL BE USED INSTEAD OF USING GREASE TRAPS UNLESS OTHERWISE AUTHORIZED. IN WRITING, BY UTILITY. GREASE INTERCEPTORS SHALL BE BY RENSSELAER SEPTIC TANKS, 1211 NORTH WASHINGTON STREET, RENSSELAER, INDIANA OR APPROVED EQUAL. GREASE TRAPS ARE DEFINED AS SMALL RESERVOIRS ON THE INTERIOR OF THE BUILDING BUILT INTO THE WASTEWATER PIPING A SHORT DISTANCE (NOT MORE THAN 25 FEET FROM FURTHEST FIXTURE DRAINED) FROM THE GREASE PRODUCING AREA.
  - ALL WASTEWATER RUNNING FROM NEW OR REMODELED BUILDINGS THAT HAS THE POTENTIAL TO CONTAIN OILS OR GREASE FROM FOOD PREPARATION AREAS SHALL RUN THROUGH A GREASE TRAP OR INTERCEPTOR. THE GREASE TRAP/INTERCEPTOR MUST BE LOCATED SUCH THAT THEY ARE EASILY ACCESSIBLE FOR INSPECTION. A SEPARATE SANITARY SEWER LATERAL FOR DRAIN LINES FROM ALL GREASE-BEARING DRAINS IN FOOD PREPARATION AREAS IS REQUIRED AND SHALL RUN THROUGH THE GREASE TRAP/INTERCEPTOR. THIS INCLUDES BUT MAY NOT BE LIMITED TO MOP SINKS, WOKS, WASH SINKS, PREP SINKS, UTILITY SINKS, PRE-RINSE SINKS, CAN WASHES, AND FLOOR DRAINS IN FOOD PREPARATION AREAS SUCH AS THOSE NEAR A FRYER OR TILT/STEAM KETTLE. ALL OTHER SANITARY FLOWS SHALL BE DIRECTED TO A SEPARATE SANITARY LATERAL THAT BYPASSES THE GREASE TRAP / INTERCEPTOR. IF A GREASE TRAP/INTERCEPTOR IS INSTALLED ON A LINE THAT DRAINS FROM A FOOD GRINDER, THE TRAP/INTERCEPTOR MUST BE INSTALLED DOWNSTREAM OF AN ADEQUATE SOLIDS INTERCEPTOR.
  - GREASE INTERCEPTORS/TRAPS SHALL BE CHECKED AT LEAST ONCE PER MONTH AND CLEANED AT LEAST ONCE EVERY 90 DAYS OR WHEN THE DEPTH OF GREASE EXCEEDS 1/3 OF THE DEPTH OF THE INTERCEPTOR/TRAP. TRAPS WILL LIKELY NEED TO BE CHECKED AND CLEANED MORE OFTEN (PERHAPS DAILY) DEPENDING ON THE FACILITY USE. ACCUMULATED GREASE SHALL EITHER BE PLACED INTO THE ESTABLISHMENT'S TALLOW DRUMS OR DEPOSITED INTO A PLASTIC GARBAGE BAG, TIED SHUT AND PLACED IN A PLASTIC BUCKET WITH A TIGHT SEALING LID FOR DISPOSAL IN THE GARBAGE DUMPSTER. A LOG OF GREASE INTERCEPTOR/TRAP CLEANING MUST BE MAINTAINED, MADE AVAILABLE FOR INSPECTION, AND SUBMITTED TO THE UTILITY AS REQUIRED. IF A GREASE CLEANING SERVICE IS USED, DATED RECEIPTS MUST BE AVAILABLE FOR INSPECTION.
  - BEST MANAGEMENT PRACTICES FOR MANAGEMENT OF OIL AND GREASE SHALL BE USED AS FOLLOWS:
    - TRAIN KITCHEN STAFF AND OTHER EMPLOYEES ABOUT HOW THEY CAN HELP ENSURE THESE PRACTICES ARE IMPLEMENTED. DOCUMENT THAT EMPLOYEES HAVE BEEN INFORMED.
    - USE WATER TEMPERATURES LESS THAN 140° F IN ALL SINKS, ESPECIALLY THE PRE-RINSE SINK BEFORE THE MECHANICAL DISHWASHER. ALSO, CONSIDER A LOW-TEMPERATURE SANITIZING RINSE DISHWASHER TO REDUCE EMULSIFIED OILS.
    - USE A 3-COMPARTMENT SINK FOR WARE WASHING. MAKE SURE ALL DRAIN SCREENS ARE INSTALLED AND LINES ARE TRAPPED. BEGIN WITH A HOT WATER (<140° F) ONLY (NO DETERGENT) PRE-RINSE THAT IS TRAPPED TO REMOVE NON-EMULSIFIED OILS AND GREASES FROM WARE WASHING. FOLLOW WITH WASH AND RINSE STEPS. USE PROPER CONCENTRATIONS OF CLEANERS AND DISINFECTANTS AND USE DETERGENTS THAT PROMOTE RAPID OIL/WATER SEPARATION.
    - PRACTICE DRY CLEANUP. REMOVE FOOD WASTE WITH "DRY" METHODS SUCH AS SCRAPING, WIPING, OR SWEEPING BEFORE USING "WET" METHODS. USE FOOD GRADE PAPER TO SOAK UP OIL AND GREASE UNDER FRYER BASKETS AND USE PAPER TOWELS TO WIPE DOWN WORK AREAS. CLOTH TOWELS WILL ACCUMULATE GREASE THAT WILL EVENTUALLY END UP IN YOUR DRAINS FROM TOWEL WASHING/RINSING.
    - PREVENT SPILLS AND REDUCE THE AMOUNT OF OIL AND GREASE REQUIRING CLEAN UP. EMPTY CONTAINERS BEFORE THEY ARE FULL. USE A COVER TO TRANSPORT GREASE TRAP CONTENTS TO THE RENDERING BARREL. PROVIDE EMPLOYEES WITH THE PROPER TOOLS TO TRANSPORT MATERIALS WITHOUT SPILLING.
    - CONTRACT WITH A MANAGEMENT COMPANY TO PROFESSIONALLY CLEAN LARGE HOOD FILTERS. HAND-CLEAN SMALL HOODS WITH SPRAY DETERGENTS AND WIPE DOWN WITH CLOTHS FOR CLEANING. HOOD FILTERS CAN BE EFFECTIVELY CLEANED BY ROUTINELY SPRAYING WITH HOT WATER WITH LITTLE OR NO DETERGENTS OVER THE MOP SINK THAT SHOULD BE CONNECTED TO A GREASE INTERCEPTOR/TRAP. AFTER HOT WATER RINSE (SEPARATELY TRAPPED), FILTER PANELS CAN GO INTO THE DISHWASHER.
    - COLLECT FRYER OIL IN AN OIL-RENDERING TANK FOR DISPOSAL. DO NOT DISCHARGE OIL INTO A GREASE INTERCEPTOR/TRAP.

### GREASE INTERCEPTOR (COMMERCIAL)

NOT TO SCALE



### STREAM CROSSING PROFILE

NOT TO SCALE

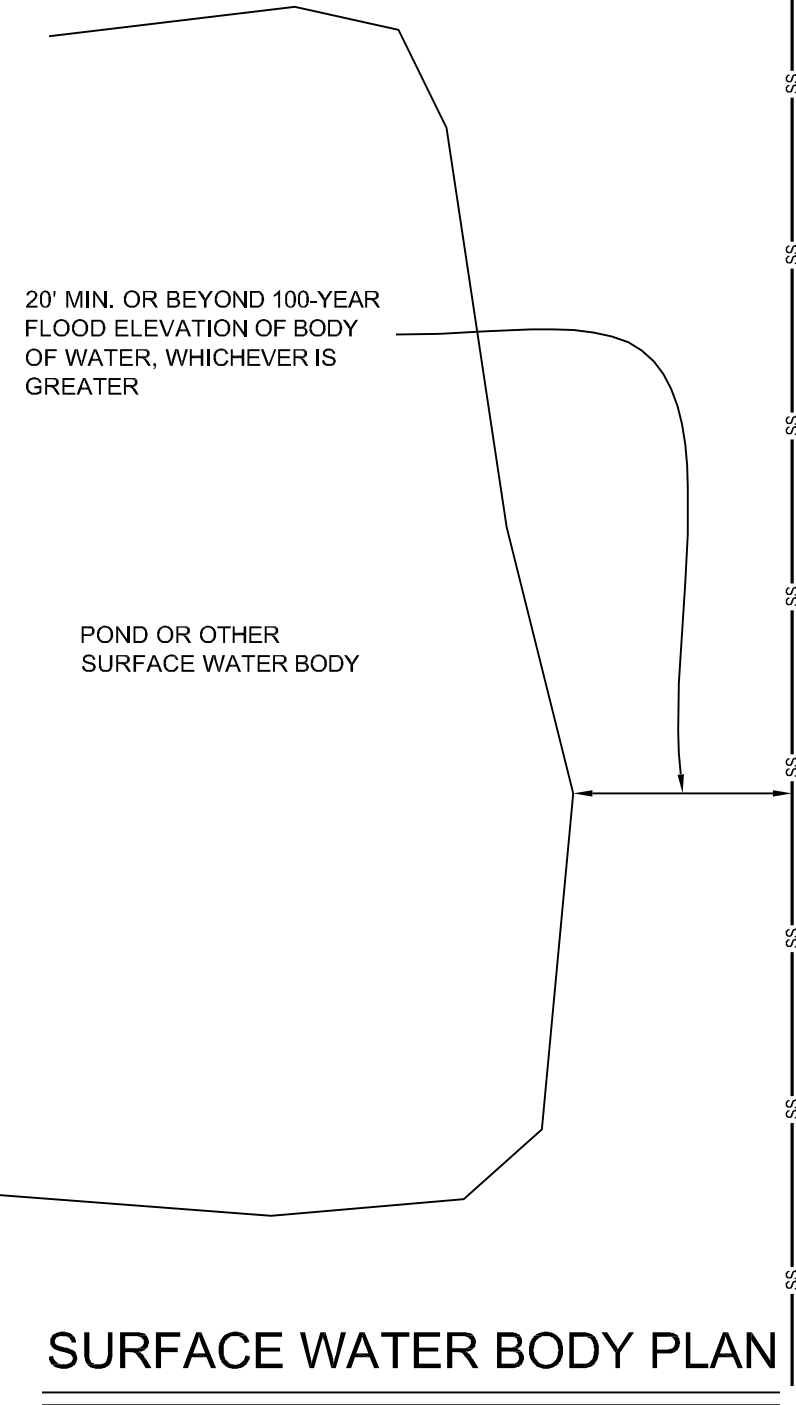
### STREAM CROSSING PLAN

NOT TO SCALE

**Central Region Herbaceous Riparian Vegetation**

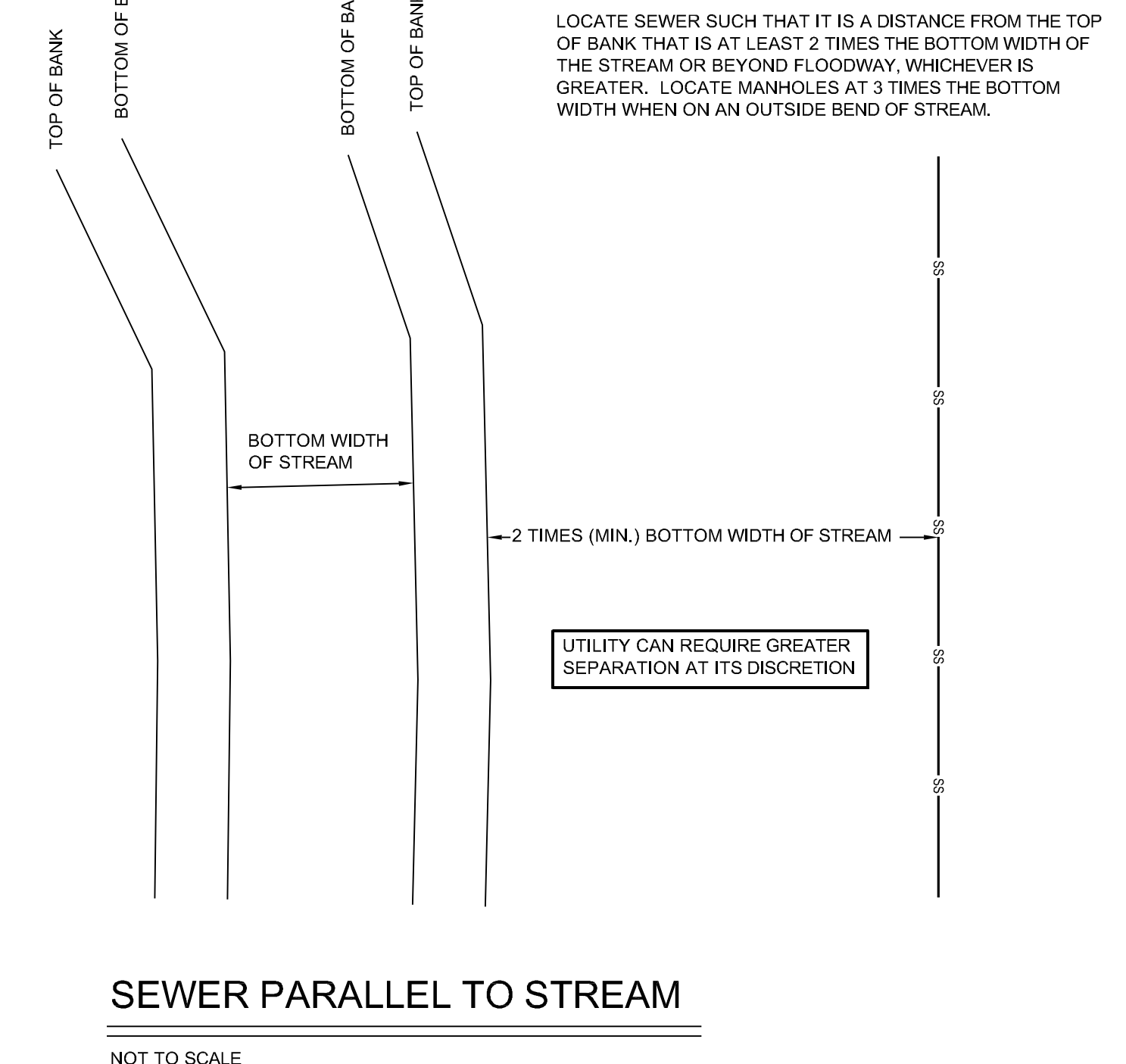
Note: Select a mix of species listed and that match existing vegetation that currently exists along the creek bank.

Common Name	Scientific Name	Size / Class	Indicator
Hog-Peanut	<i>Amphicarpaea bracteata</i>	herbaceous vine	FAC
Ground-Nut	<i>Aporosa americana</i>	herbaceous vine	FACW
Panicled Aster	<i>Aster lanceolatus</i>	wildflower	FACW
Side-Flowering Aster	<i>Aster lateriflorus</i>	wildflower	FACW-
False Nettle	<i>Boehmeria cylindrica</i>	wildflower	OBL
Blue-Joint Grass	<i>Calamagrostis canadensis</i>	grass	OBL
Emory's Sedge	<i>Carex emoryi</i>	sedge	OBL
Shoreline Sedge	<i>Carex hyalinolepis</i>	sedge	OBL
Lakebank Sedge	<i>Carex lacustris</i>	sedge	OBL
Larger Straw Sedge	<i>Carex normalis</i>	sedge	FACW
Hairy-Fruit Sedge	<i>Carex trichocarpa</i>	sedge	OBL
Fox Sedge	<i>Carex vulpinoidea</i>	sedge	OBL
Wild or Streambank Chenill	<i>Chaerophyllum procumbens</i>	wildflower	FAC+
Northern Sea Oats	<i>Chasmanthium latifolium</i>	grass	FACW
Wood-Reed	<i>Cinna arundinacea</i>	grass	FACW
Honewort	<i>Cryptolaena canadensis</i>	wildflower	FAC
American Beakgrass	<i>Dianthus americanus</i>	grass	FACU
Wild Cucumber	<i>Echinocystis lobata</i>	herbaceous vine	FACW-
Canada Wild Rye	<i>Elymus canadensis</i>	grass	FAC-
Virginia Wild Rye	<i>Elymus virginicus</i>	grass	FACW-
Riverbank Wild Rye	<i>Elymus riparius</i>	grass	FACW
Spotted Joe-Pye-Weed	<i>Eupatorium maculatum</i>	wildflower	OBL
Boneset	<i>Eupatorium perfoliatum</i>	wildflower	FACW+
White Snakeroot	<i>Eupatorium rugosum</i>	wildflower	FACU
White Avens	<i>Geum canadense</i>	wildflower	FAC
Fowl Manna Grass	<i>Glyceria striata</i>	grass	OBL
False Sunflower	<i>Helopsis helianthoides</i>	wildflower	FAC
Bottlebrush Grass	<i>Hystrix patula</i>	grass	FACU
Orange Jewelweed	<i>Impatiens capensis</i>	wildflower	FACW
Yellow Jewelweed	<i>Impatiens pallida</i>	wildflower	FACW
Soft Rush	<i>Juncus effusus</i>	rush	OBL
Wood Nettle	<i>Laportea canadensis</i>	wildflower	FACW
Rice Cut Grass	<i>Leersia oryzoides</i>	grass	OBL
White Grass	<i>Leersia virginica</i>	grass	FACW
Great Blue Lobelia	<i>Lobelia siphilitica</i>	wildflower	FACW+
American Bugleweed	<i>Lycopus americanus</i>	wildflower	OBL
Virginia Blue Bells	<i>Mertensia virginica</i>	wildflower	FACW
Hairy Sweet-G cicely	<i>Osmorhiza clyttona</i>	wildflower	FACU
Switch Grass	<i>Panicum virgatum</i>	grass	FAC+
Wild Blue Phlox	<i>Phlox divaricata</i>	wildflower	FACU
Clearweed	<i>Pilea pumila</i>	wildflower	FACW
Green-Headed Coneflower	<i>Rudbeckia laciniata</i>	wildflower	FACW+
Three-Lobed Coneflower	<i>Rudbeckia triloba</i>	wildflower	FAC-
Clustered Black-Snakeroot	<i>Sanicula odorata</i>	wildflower	FAC+
Dark Green Bulrush	<i>Scirpus atrovirens</i>	bulrush	OBL
Wool-Grass	<i>Scirpus cyperinus</i>	bulrush	OBL
River Bulrush	<i>Scirpus fluviatilis</i>	bulrush	OBL
Drooping Bulrush	<i>Scirpus pendulus</i>	bulrush	OBL
Soft-Stem Bulrush	<i>Scirpus validus</i>	bulrush	OBL
Cup-Plant	<i>Silphium perfoliatum</i>	wildflower	FACW-
Late Goldenrod	<i>Solidago gigantea</i>	wildflower	FACW
Prairie Cordgrass	<i>Spartina pectinata</i>	grass	FACW+
American Gelmander	<i>Teucrium canadense</i>	wildflower	FACW-
Stinging Nettle	<i>Urtica dioica</i>	wildflower	FAC+
Blue Vervain	<i>Verbena hastata</i>	wildflower	FACW+
Wingstem	<i>Verbesina alternifolia</i>	wildflower	FACW



### SURFACE WATER BODY PLAN

NOT TO SCALE



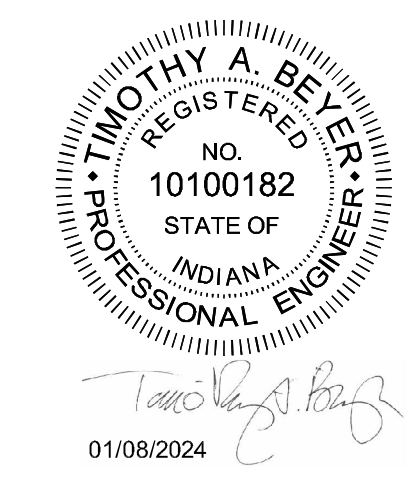
### SEWER PARALLEL TO STREAM

NOT TO SCALE

### STREAM CROSSING/SURFACE WATER SEPARATION

NOT TO SCALE

PROJECT NAME	PROJECT SHEET NUMBER
	of



**AMERICAN SUBURBAN UTILITIES**

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SANITARY SEWER  
 TYPICAL DETAILS and NOTES

DATE JAN. 2024  
 SHEET  
 ASU5