

# GENERAL NOTES

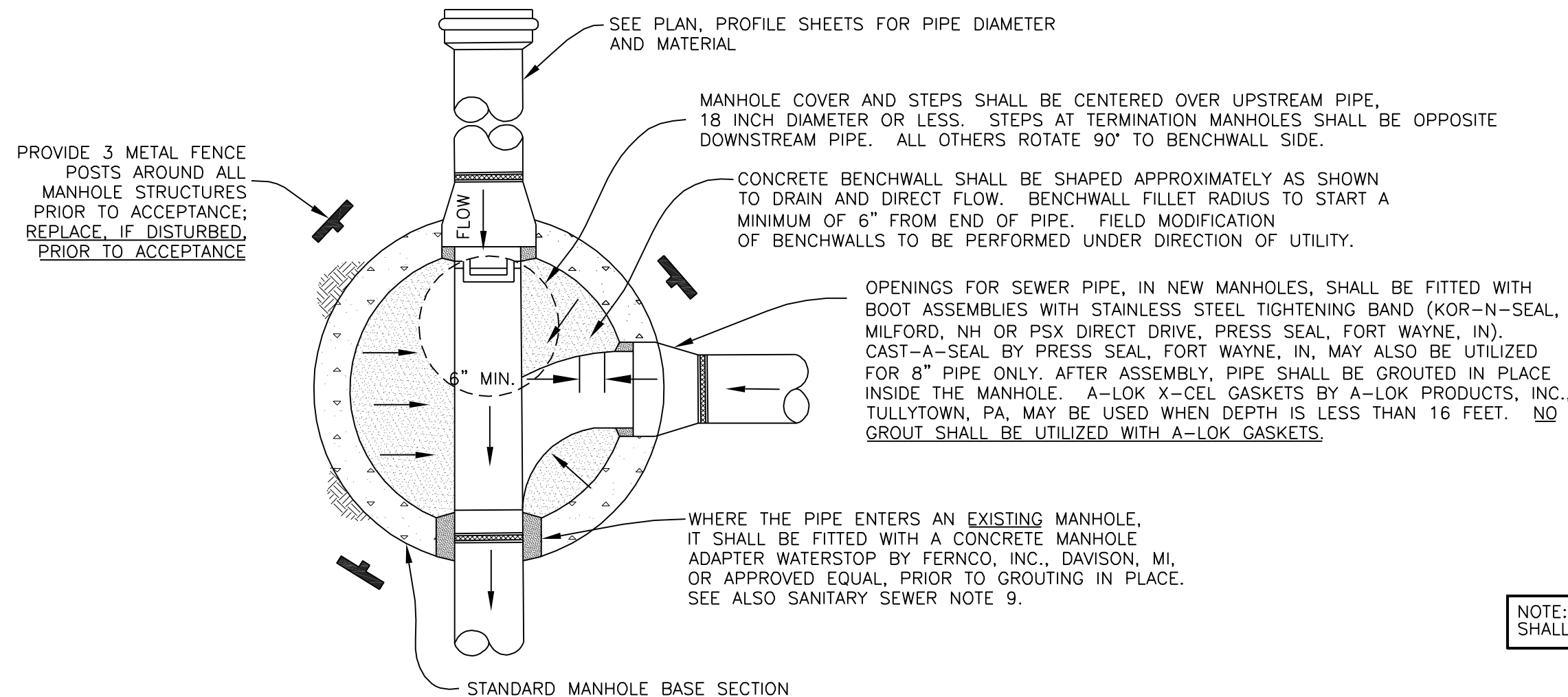
- DEVELOPER SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AT LEAST 24 HOURS PRIOR TO ANY CONSTRUCTION OR EXCAVATION. DURING CONSTRUCTION, ALL UTILITIES SHALL BE ADEQUATELY SUPPORTED TO MINIMIZE DAMAGE.
- DEVELOPER SHALL SUPPLY TO THE UTILITY (AMERICAN SUBURBAN UTILITIES) ALL EASEMENTS 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 BE LOCATED AND CONSTRUCTED IN PROPERITY 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 EASEMENTS THAT ARE 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 AT LEAST TEN PERCENT 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 SEED, 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.
- 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 TRENCH
  - 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 WHEN USED BY THE UTILITY. THE DIGITAL DRAWINGS SHALL CONTAIN LOT LINES, LOT NUMBERS, EASEMENTS (FROM FINAL PLAT), AND POINTS WITH NORTHING 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 LINEWORK 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 TOPOGRAIC 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 AS HAND COPY OF THE MOST RECENT MITS GIS DATA OR A WRITTEN DESCRIPTION OF THEIR LOCATION SHALL BE PROVIDED. THE ADJACENCY OF THE REFERENCE POINTS SHALL BE DETERMINED BY THE UTILITY.
  - A PDF DIGITAL COPY OF THE FINAL APPROVED VERSION 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 BOTH FLOW MONITOR, RE-TELEVIS, AND PERIODICALLY INSPECT THE SANITARY SEWER LINES AT THE UTILITY'S EXPENSE PRIOR TO THE EXPIRATION OF THE THREE (3) YEAR MAINTENANCE BOND. ANY 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 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 VERIFIED, IN WRITING, AND PROVIDED TO UTILITY BEFORE CONSTRUCTION BEGINS. AT ITS DISCRETION, UTILITY MAY REQUIRE INDEPENDENT VERIFICATION AT DEVELOPER'S EXPENSE.

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).

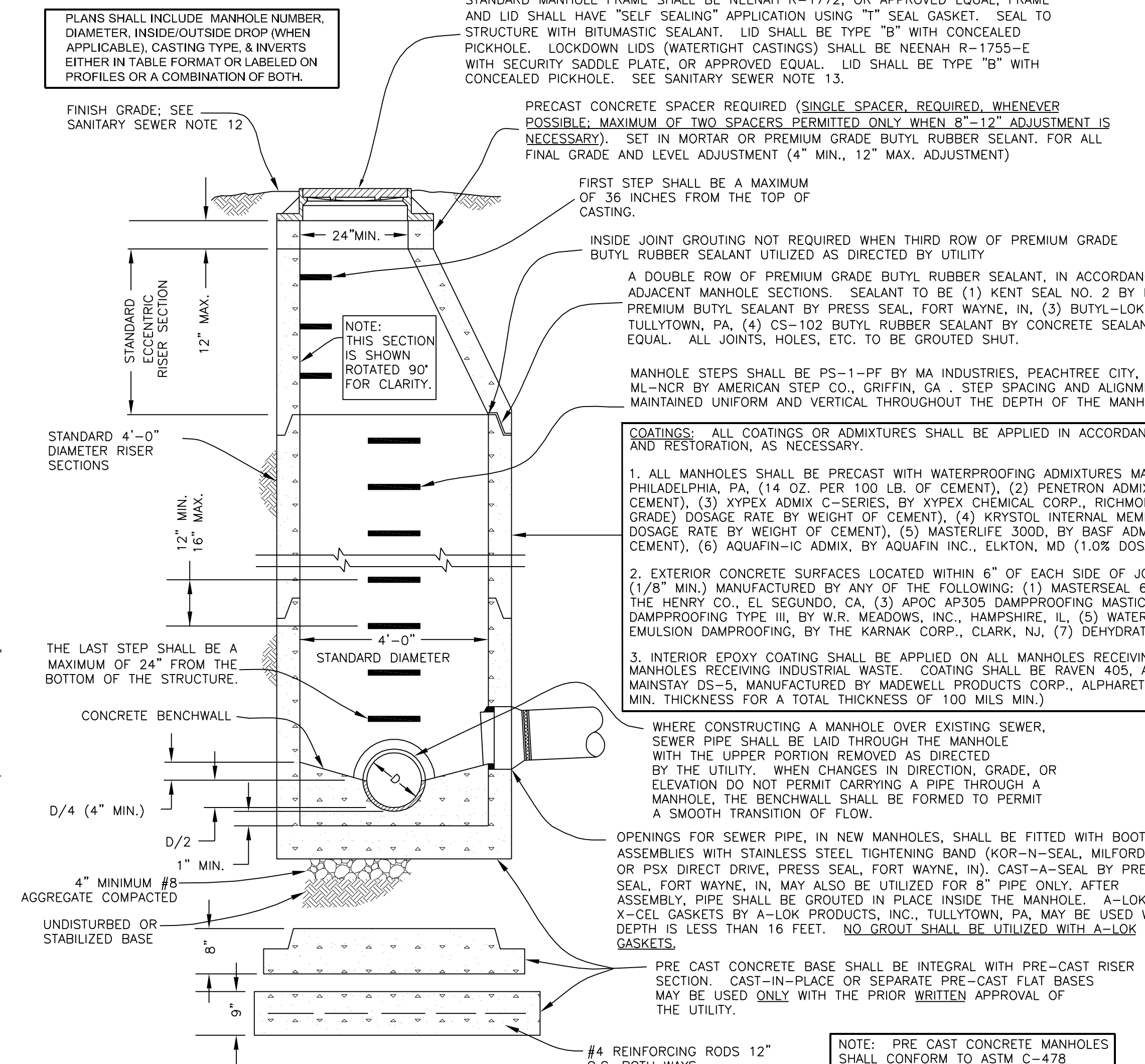
# SANITARY SEWER NOTES

- 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) PRESSURE PIPE (ASTM D-2241) OR (3) CAST IRON PIPE (ASTM A-152) WITH AN APPROPRIATE JOINT. 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 6.5 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).
  - 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. ALL LATERALS MUST BE TESTED 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.
  - 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. CLEANING, TELEVISION AND TESTING 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 TAPE (CD OR DVD 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 SERVICE LATERALS. SERVICE LATERALS SHALL BE CENTERLINE TO CENTERLINE DISTANCES MUST BE GREATER THAN 18" VERTICAL AND 10'-0" HORIZONTAL. ALL CROSSINGS WITH WATERMAIN MUST BE AT A MINIMUM 45 DEGREE ANGLE WITH 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.
  - CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE USING A CONCRETE MANHOLE ADAPTER WATERSTOP GROUDED 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 FINISH SURFACE, AND BACKFILL SHALL BE GRANULAR. 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 WATER TIGHT CASTING (WHEN STILL LOCATED 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: (1) CONTRACTOR SHALL COMPLETE SEWER IMPROVEMENTS, SUCH AS MANHOLE RIM AND INVERT ELEVATIONS, TO WITHIN 0.1 FEET OF THE ELEVATIONS CONTAINED IN THESE PLANS. (2) 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%. THE CONTRACTOR SHALL BE REQUIRED TO REWORK ANY AREA THAT DOES NOT MEET THESE TOLERANCE AT HIS OWN EXPENSE UNTIL COMPLIANCE IS OBTAINED.
- MANHOLES SHALL ALSO BE CONSTRUCTED WITHIN 2 FEET OF THEIR DESIGN HORIZONTAL LOCATION.
- 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 LIFTS (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 SEWER. 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.
  - THESE SPECIFICATIONS ARE NOT ALL INCLUSIVE. REFERENCE IS MADE, AND SEWER DESIGN AND CONSTRUCTION SHALL CONFORM, TO 327 IAC 3-6.



# STANDARD SANITARY MANHOLE PLAN

NOT TO SCALE



# STANDARD SANITARY MANHOLE DETAIL

NOT TO SCALE

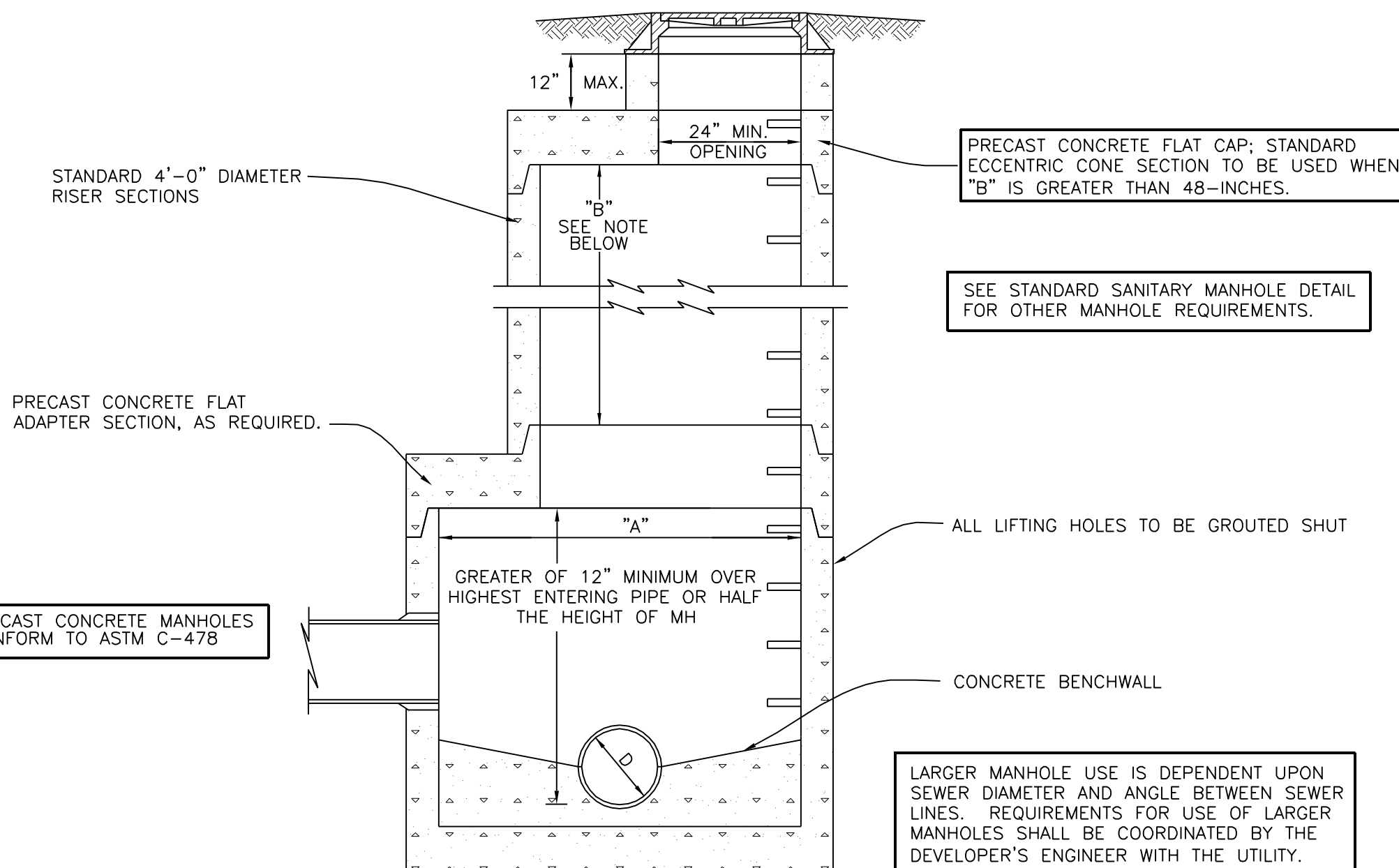
# TELEVISION INSPECTION CRITERIA SANITARY SEWERS

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 STOP AND EXAMINE ALL JOINTS).

ALL UNACCEPTABLE CONDITIONS FOUND DURING TELEVISION OR OTHER INSPECTION MUST BE CORRECTED BY THE DEVELOPER AND RETELEVIEWED. 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:

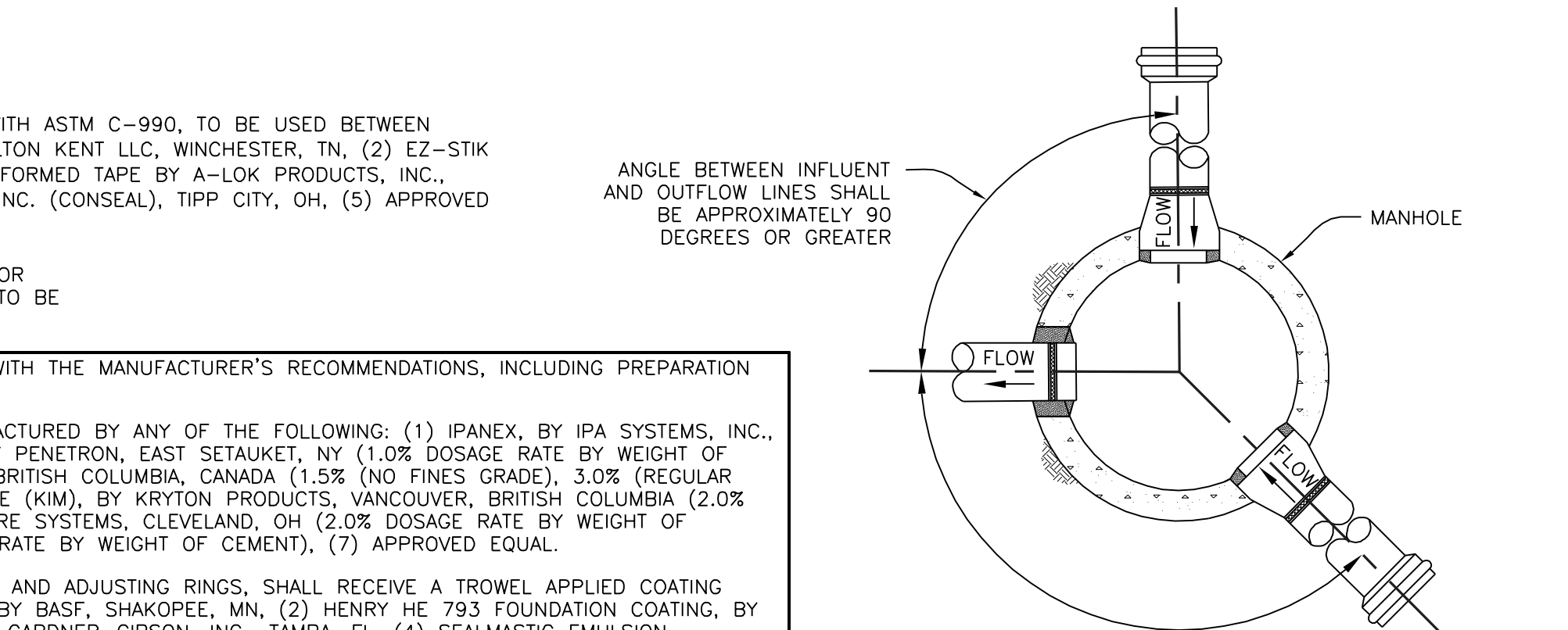
- PROTRUDING TAPS
- ROOT INTRUSION
- CRACKED OR FAULTY PIPE/DAMAGED PIPE OR MANHOLES/USE OF NON-COMPLIANT MATERIALS
- IMPROPER PIPE REPAIR
- MISALIGNMENT OR DEFORMED PIPE
- DEBRIS IN LINE
- INFILTRATION/EXFILTRATION
- EXPOSED GASKETS/EXCESSIVE GAPS AT JOINTS
- BELLES OR SAGS WITH A DEPTH GREATER THAN 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.



# STANDARD SANITARY MANHOLE DETAIL

FOR MANHOLE STRUCTURES LARGER THAN 4 FEET IN DIAMETER

NOT TO SCALE



# SEWER LINE ORIENTATION

NOT TO SCALE

SEWER SIZE	MINIMUM DESIGN GRADE	MIN. RUNS LESS THAN: 120 FEET	MIN. DESIGN GRADE: 60 FEET	MINIMUM GRADE	MAXIMUM GRADE	MAXIMUM MH SPACING
8"	0.45%	0.55%	0.75%	0.40%	1.1%	400'
10"	0.33%	0.43%	0.63%	0.28%	8.25%	400'
12"	0.27%	0.37%	0.57%	0.22%	6.5%	400'
15"	0.20%	0.30%	0.50%	0.15%	4.75%	400'
18"	0.17%	0.27%	0.47%	0.12%	3.75%	400'
21"	0.15%	0.25%	0.45%	0.10%	3%	400'
24"	0.12%	0.22%	0.42%	0.08%	2.5%	400'
27"	0.11%	0.21%	0.41%	0.07%	2.2%	400'
30+"	0.10%	0.20%	0.40%	0.06%	1.9%	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"-16"	35"
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"

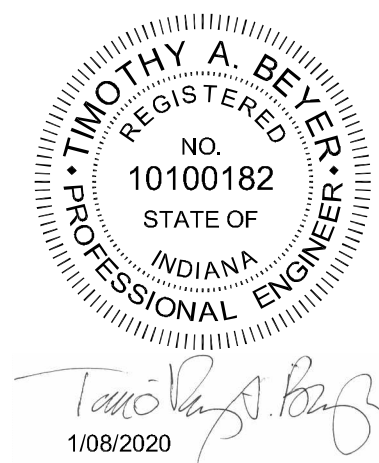
CONSTRUCTION PLAN DESIGN GRADES SHALL NOT BE LESS THAN THE MINIMUM DESIGN GRADES IN THE ABOVE TABLE WITHOUT PRIOR WRITTEN APPROVAL FROM THE UTILITY. PLAN DESIGN GRADES GREATER THAN THE MINIMUM DESIGN GRADE SHALL BE PROVIDED WHEN PRACTICAL. RUN LENGTHS GREATER THAN 120 FEET SHALL BE USED WHENEVER REASONABLY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

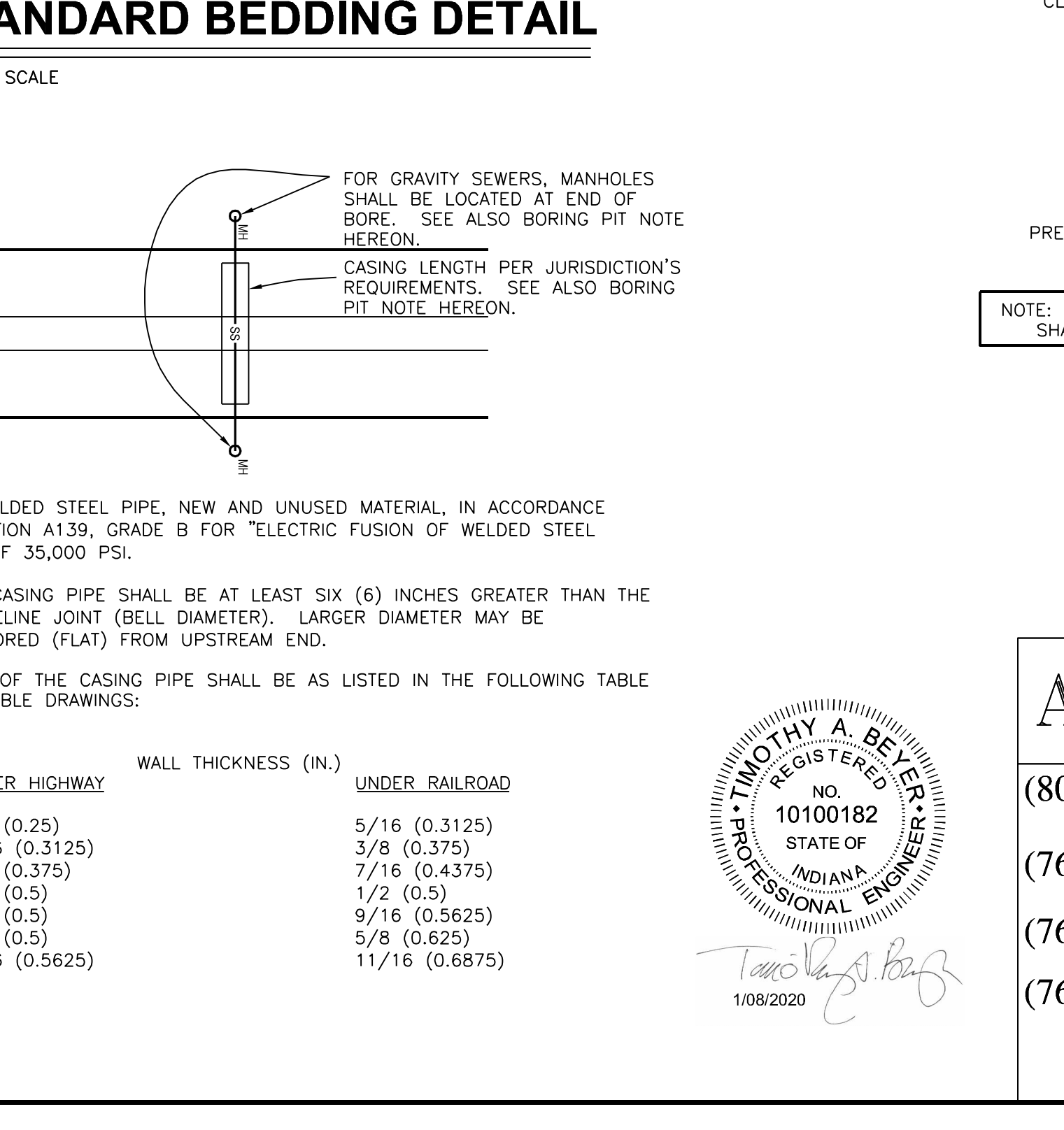
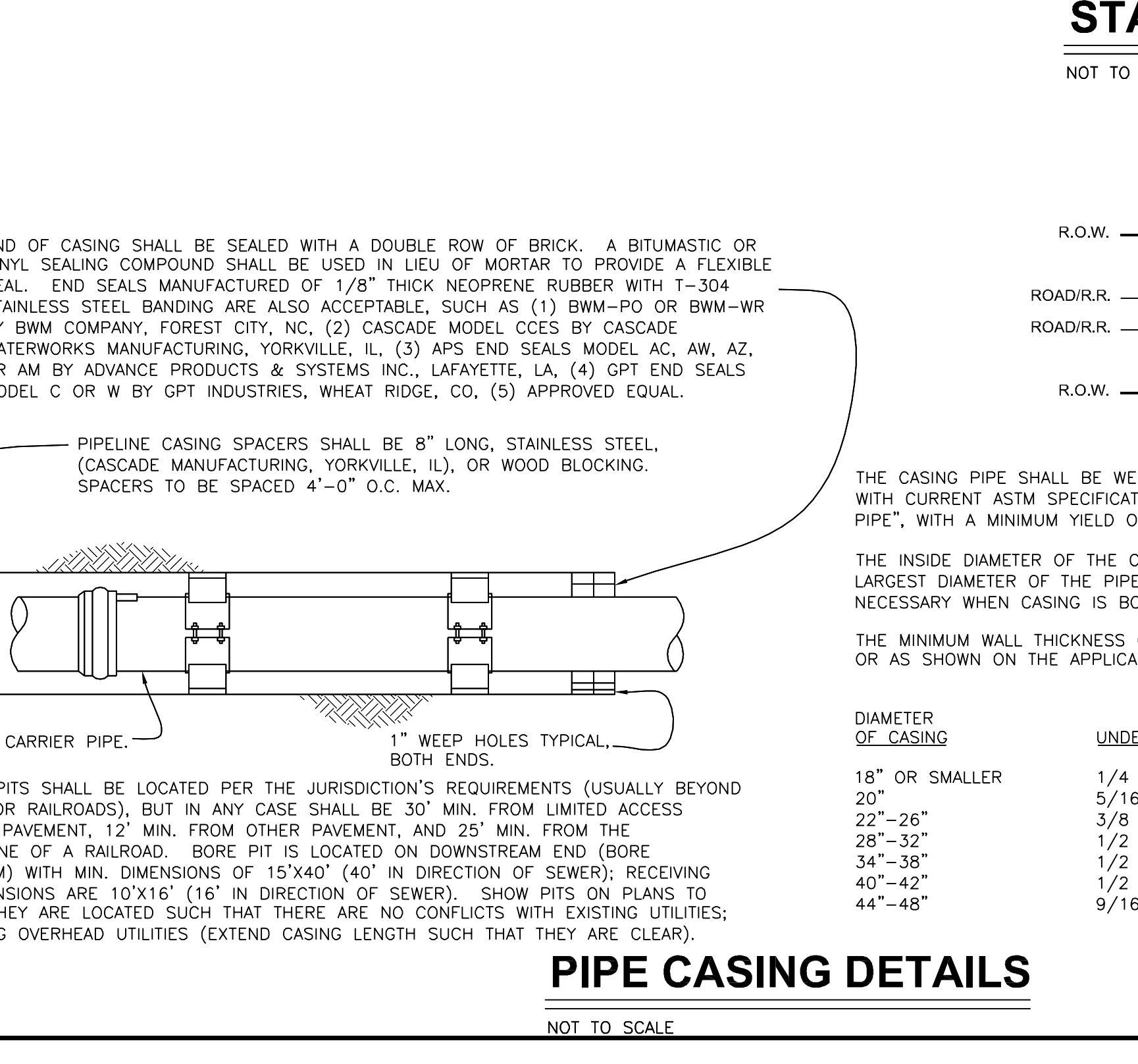
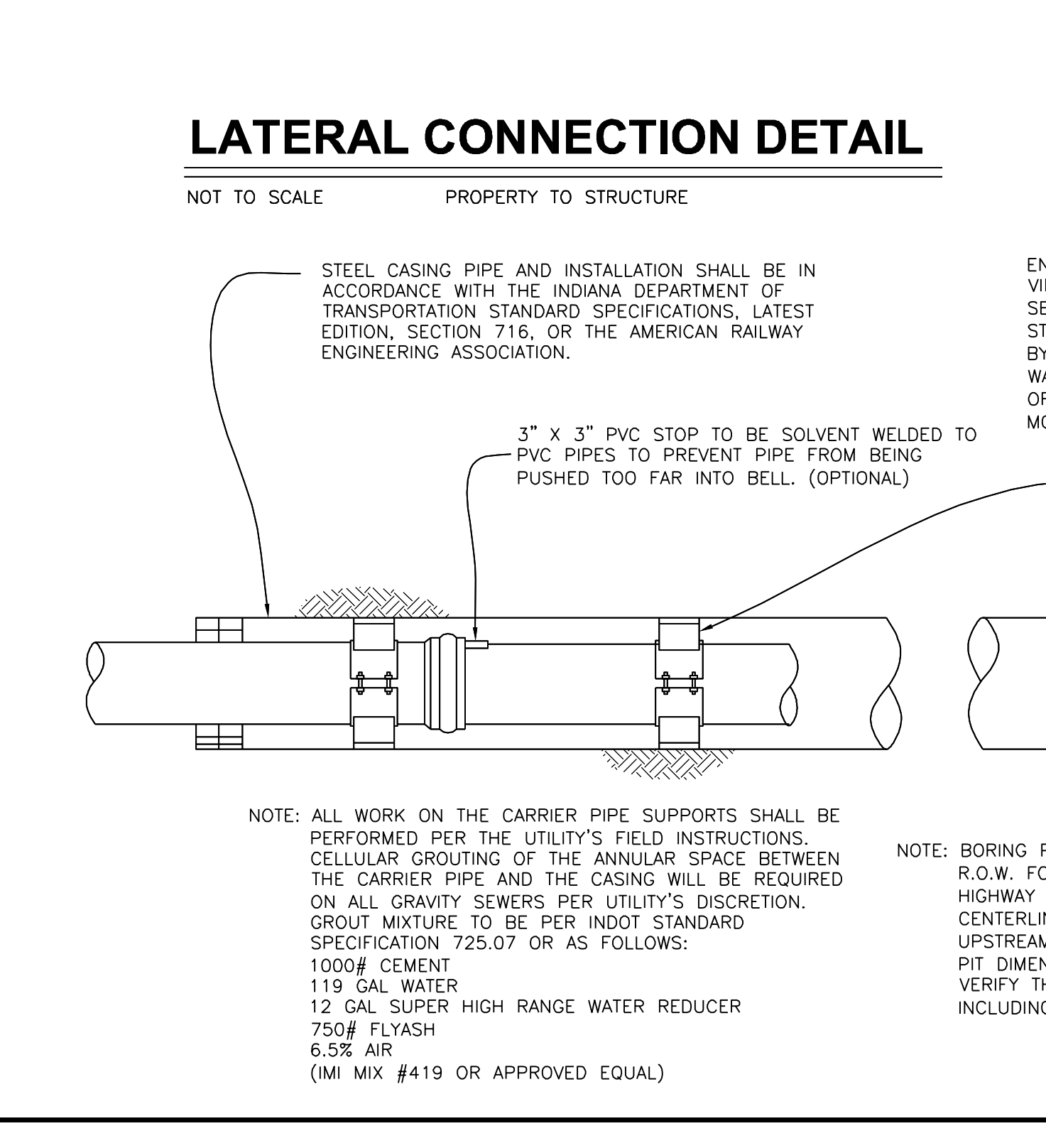
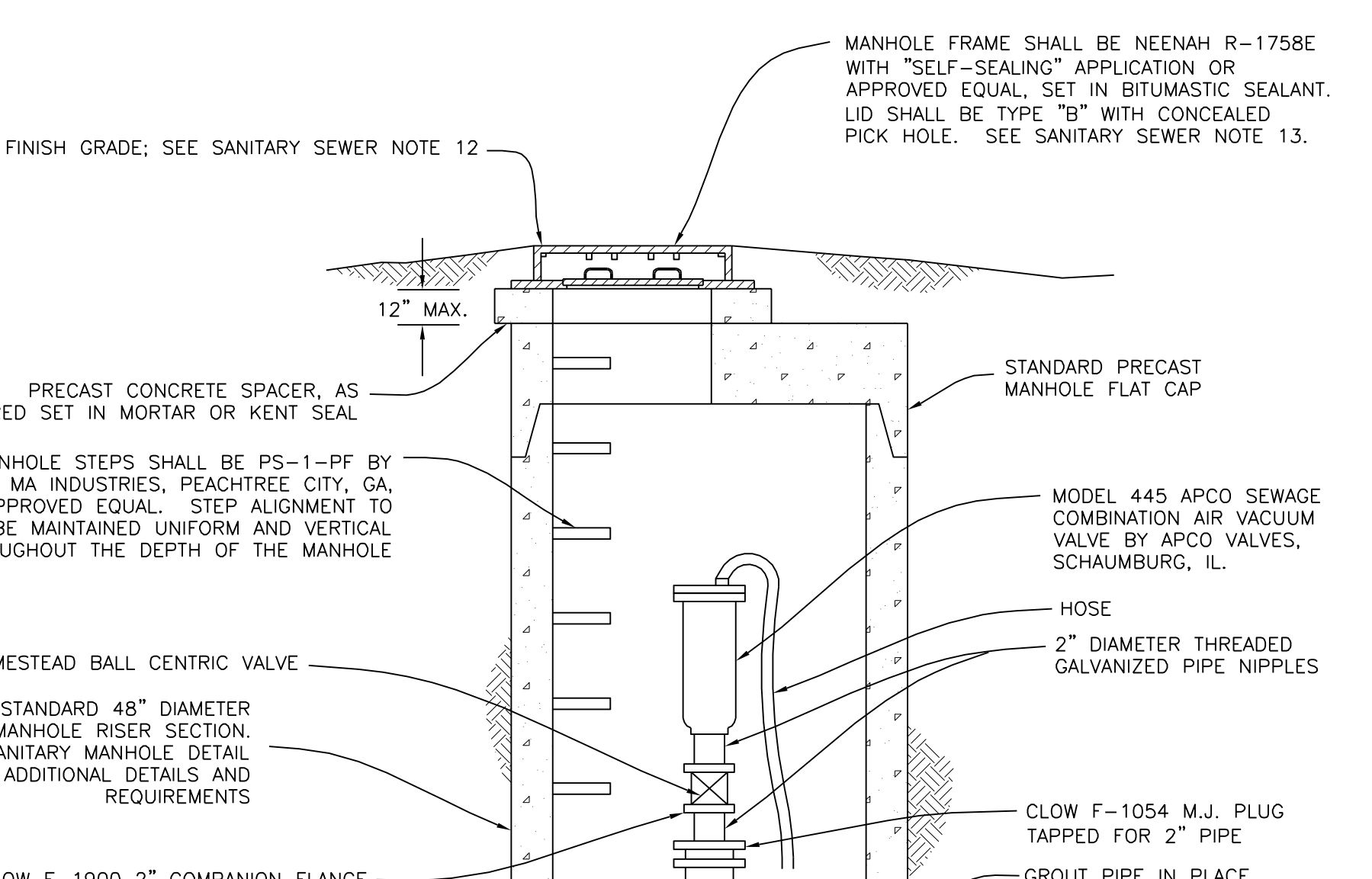
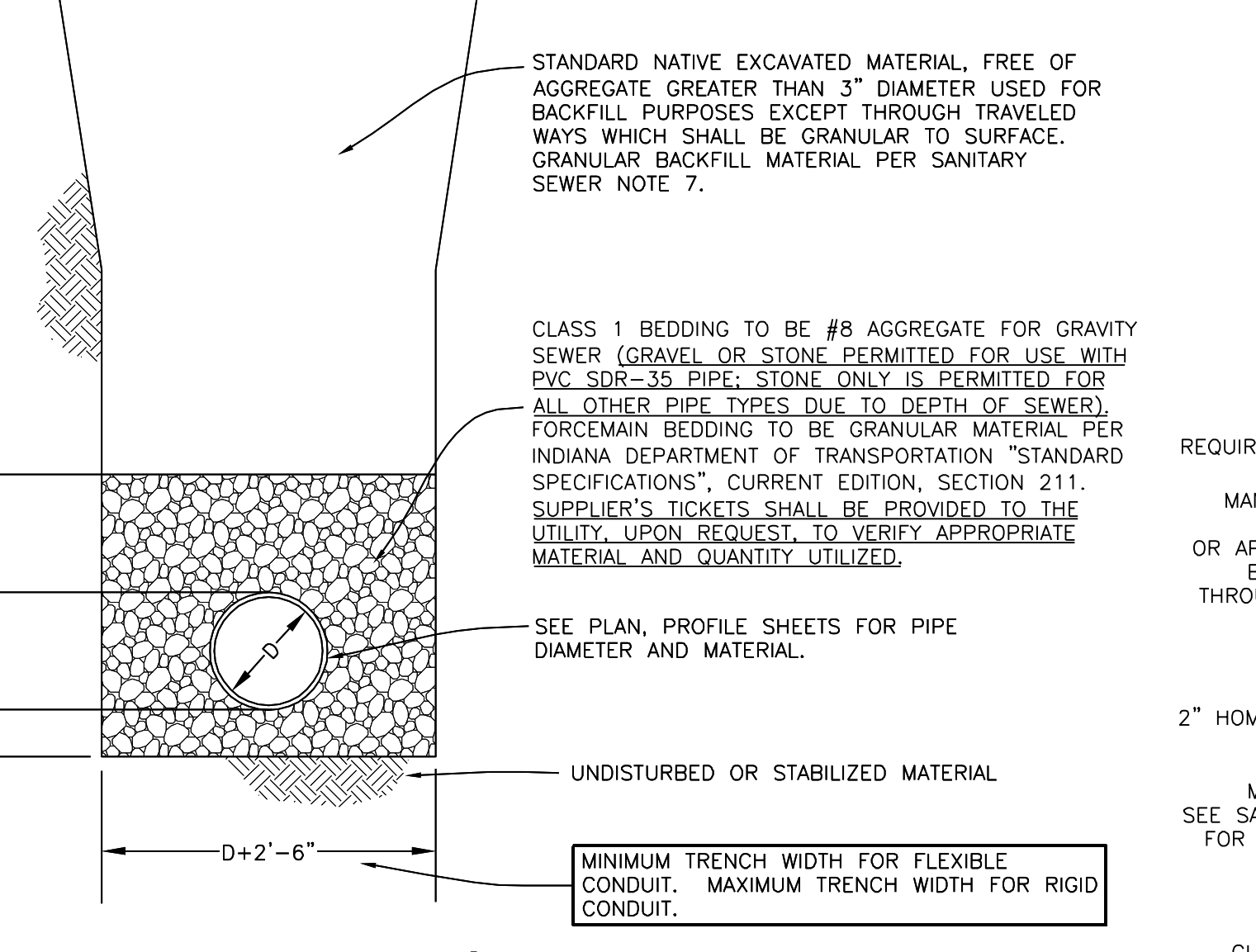
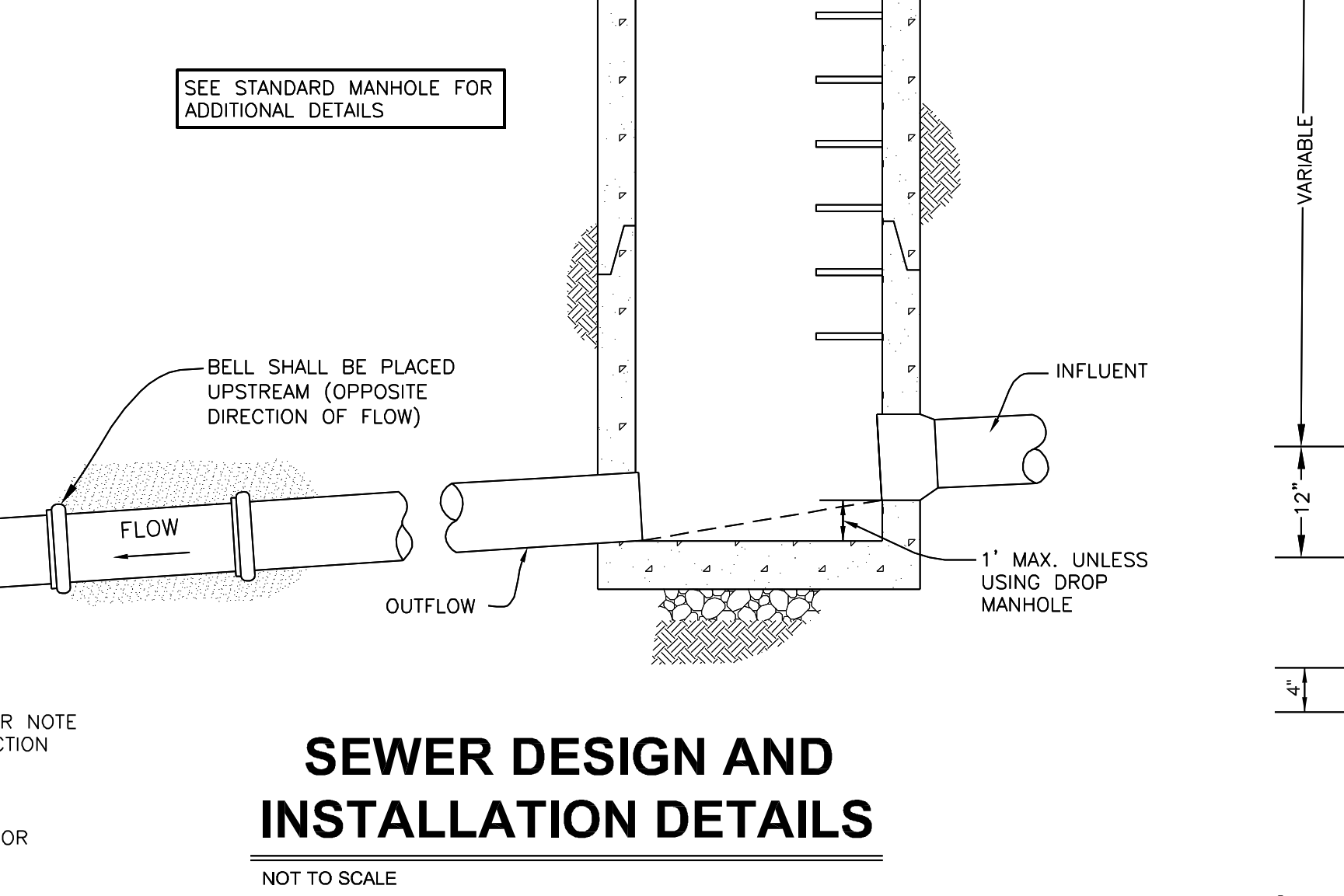
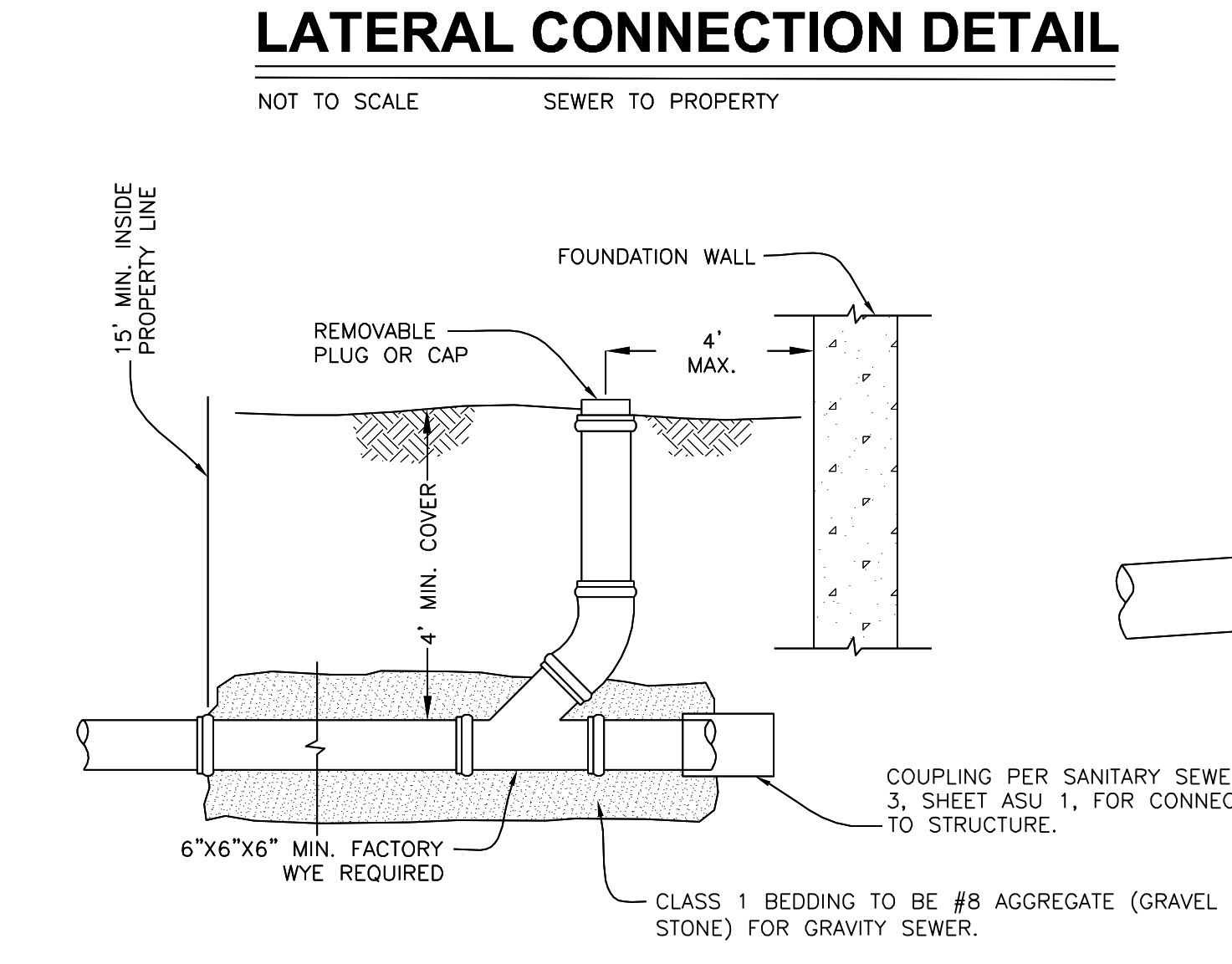
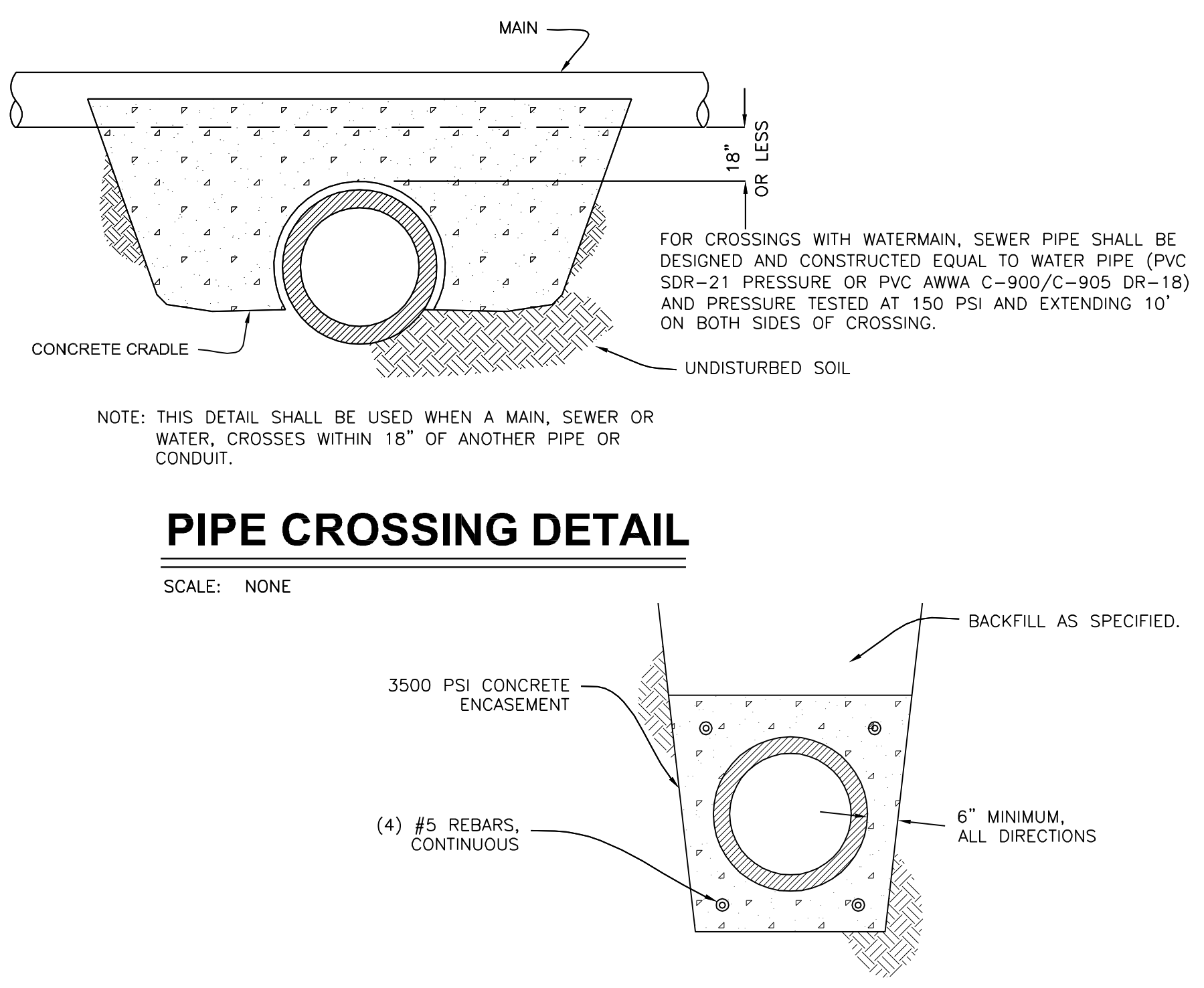
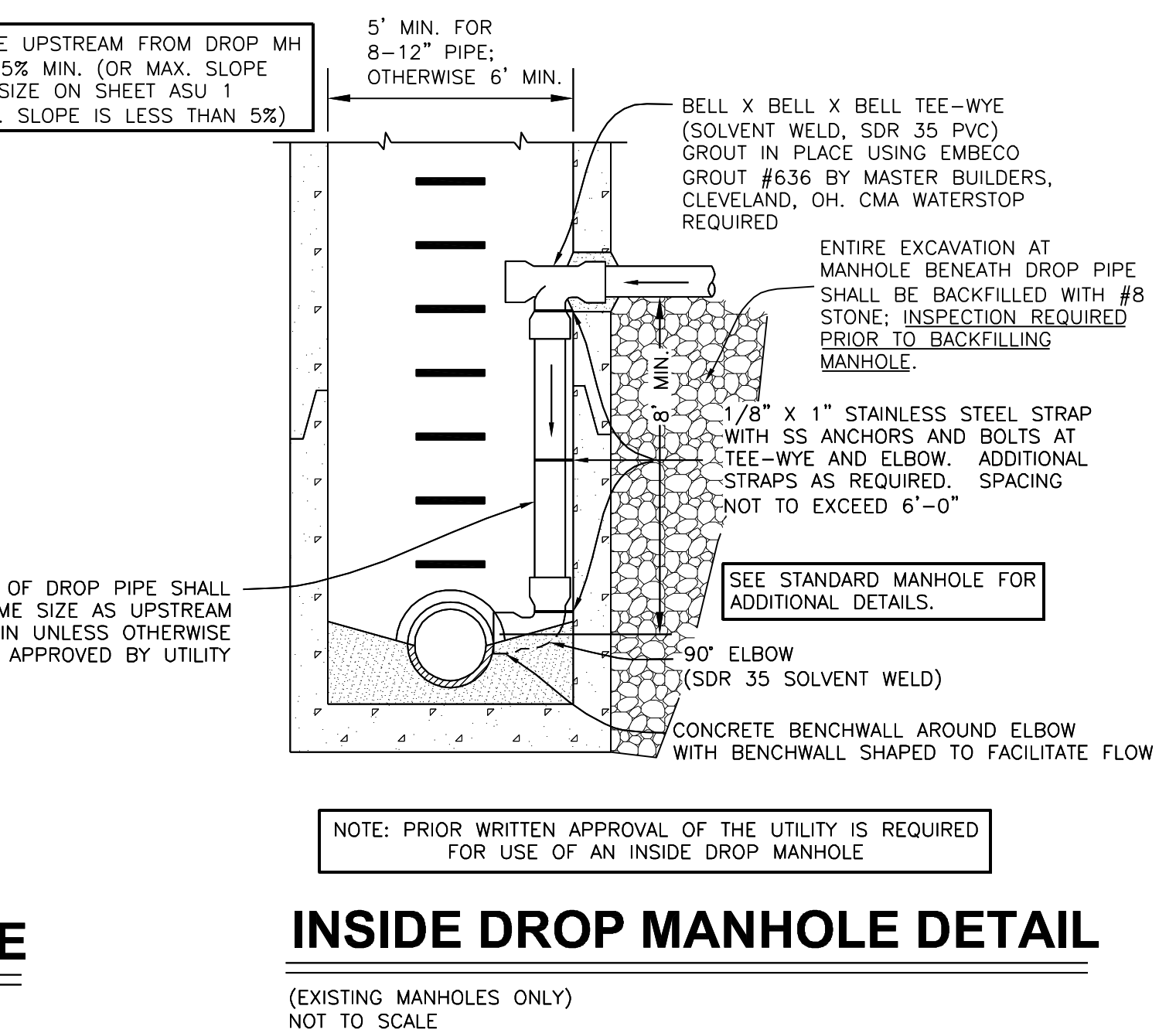
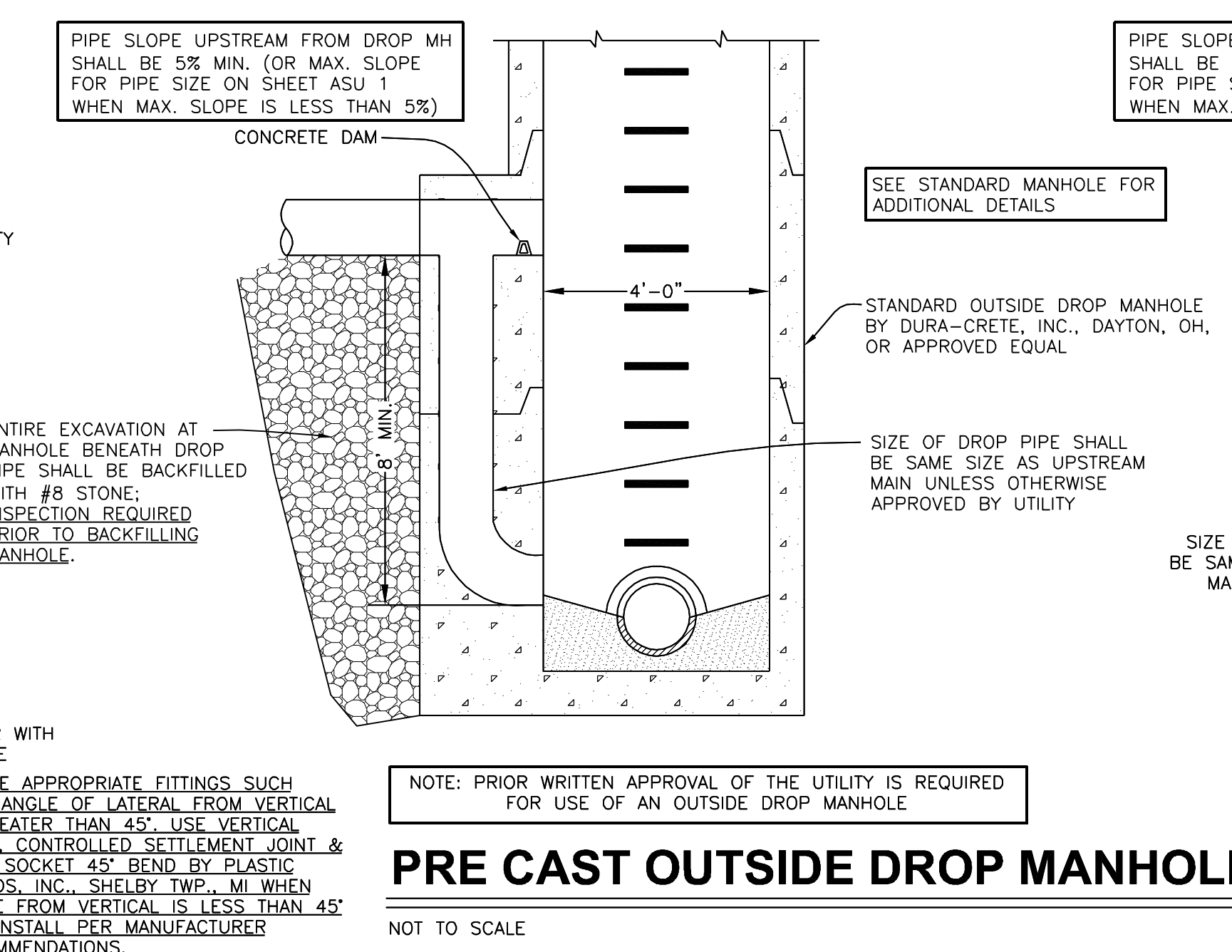
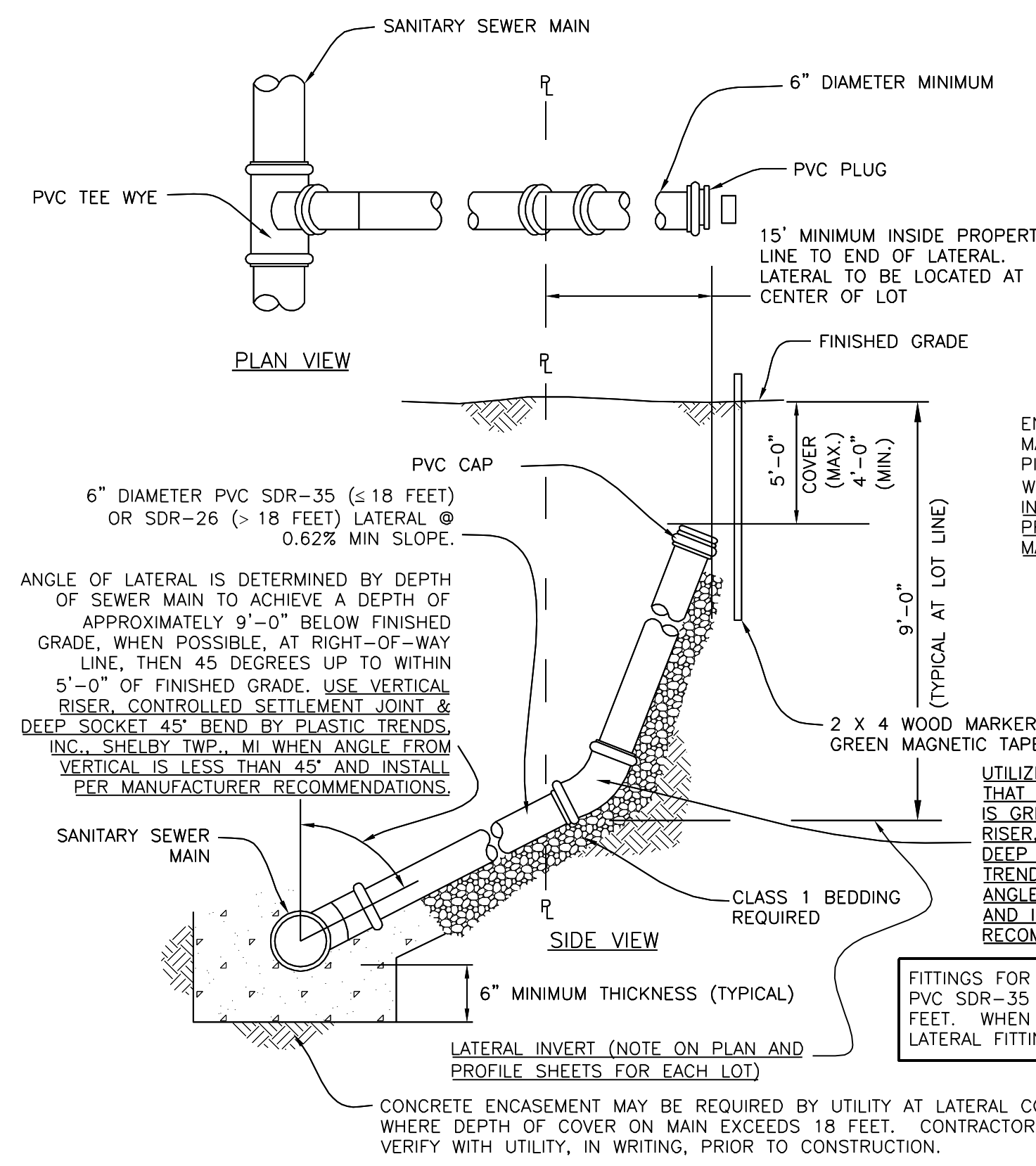
# DESIGN INFORMATION FOR SANITARY SEWERS

PROJECT NAME	PROJECT SHEET NUMBER
	of

# AMERICAN SUBURBAN UTILITIES

(800) 382-5544	HOLEY MOLEY	3350 WEST, 250 NORTH	DATE JAN. 2020
(765) 463-3856	AMERICAN SUBURBAN UTILITIES	WEST LAFAYETTE, INDIANA 47906	SHEET
(765) 463-6664	FIRE DEPT.	GENERAL NOTES and GUIDELINES	ASU1
(765) 423-9321	SHERIFF	FOR UTILITY LOCATIONS	





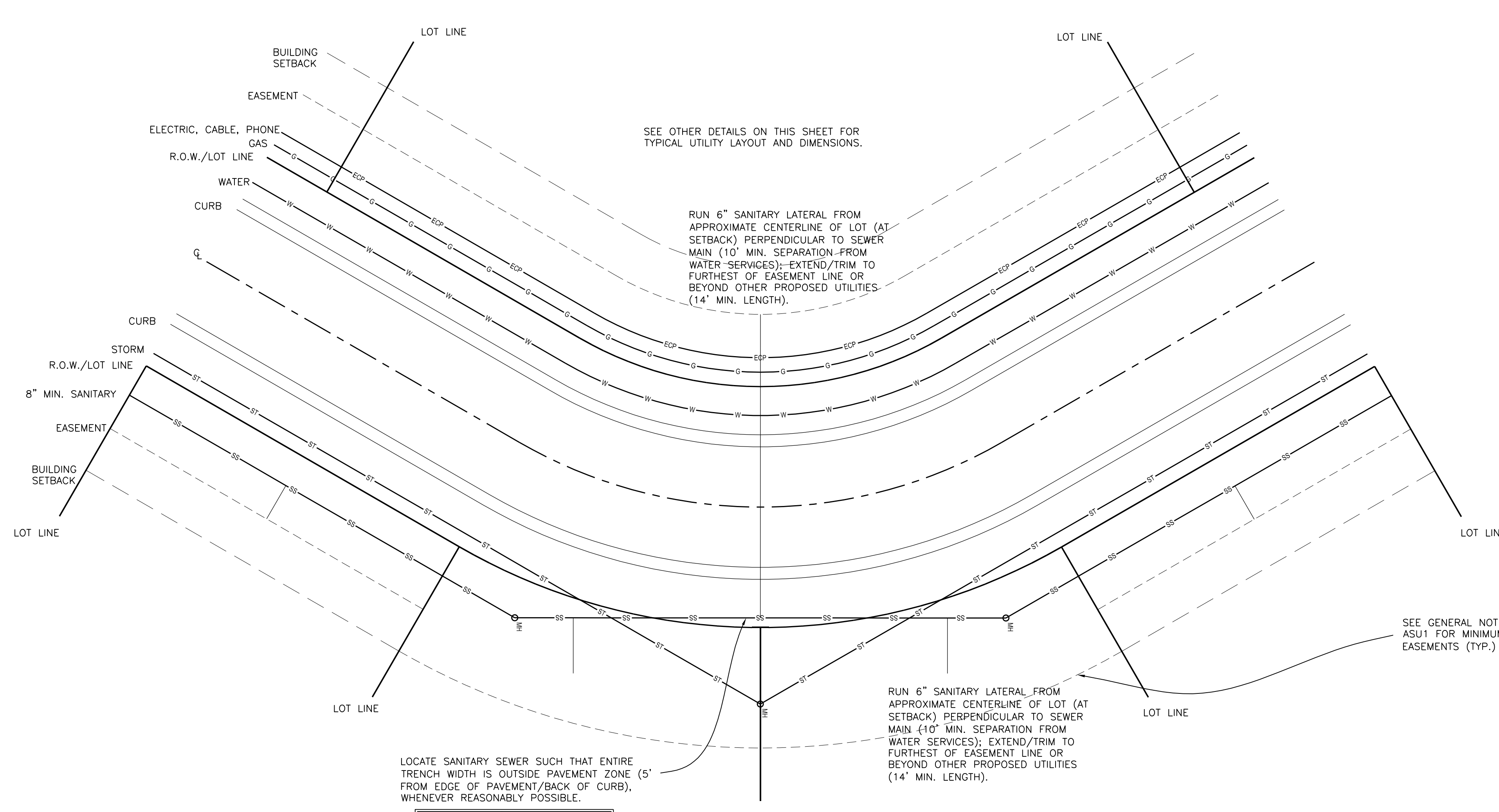
**SEWAGE FORCE MAIN AIR RELEASE MANHOLE (FORCEMAIN 4" Ø TO 12" Ø)**  
NOT TO SCALE

PROJECT NAME	PROJECT SHEET NUMBER
	of

**AMERICAN SUBURBAN UTILITIES**

(800) 382-5544	HOLEY MOLEY	3350 WEST, 250 NORTH	DATE JAN. 2020
(765) 463-3856	AMERICAN SUBURBAN UTILITIES	WEST LAFAYETTE, INDIANA 47906	SHEET
(765) 463-6664	FIRE DEPT.	SANITARY SEWER	ASU2
(765) 423-9321	SHERIFF	TYPICAL DETAILS and NOTES	

PROFESSIONAL ENGINEER  
TIMOTHY A. BEYER  
REGISTERED  
NO. 10100182  
STATE OF INDIANA  
1/08/2020



PIPE DEPTH	TRENCH WIDTH
0-14'	PIPE O.D. + 4.5'
14'-18'	PIPE O.D. + 5'
18'-22'	PIPE O.D. + 6'
22'+	PIPE O.D. + 7'

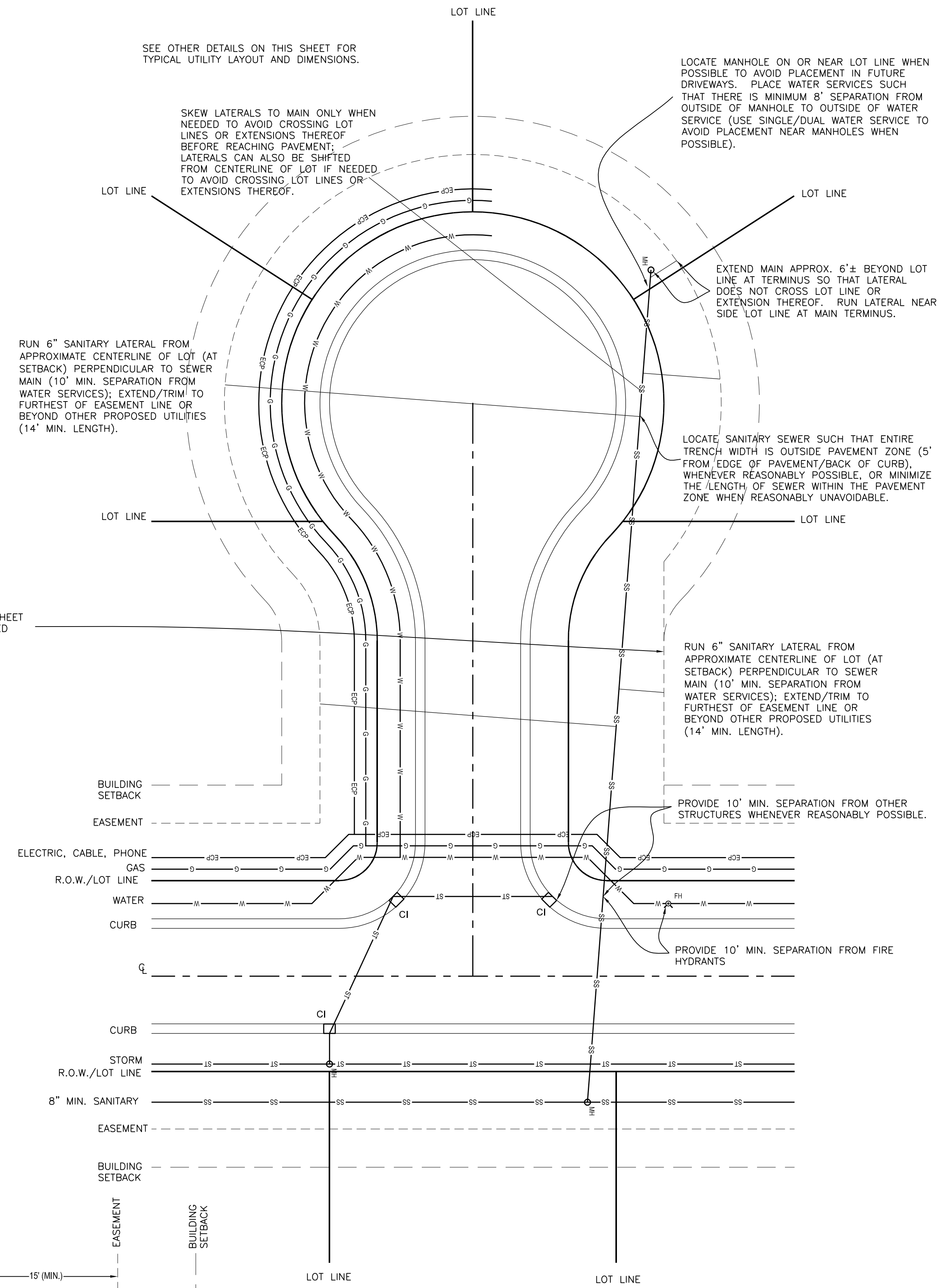
**STREET PLAN - CURVE**

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 PAVEMENT ZONES AS MUCH AS POSSIBLE.

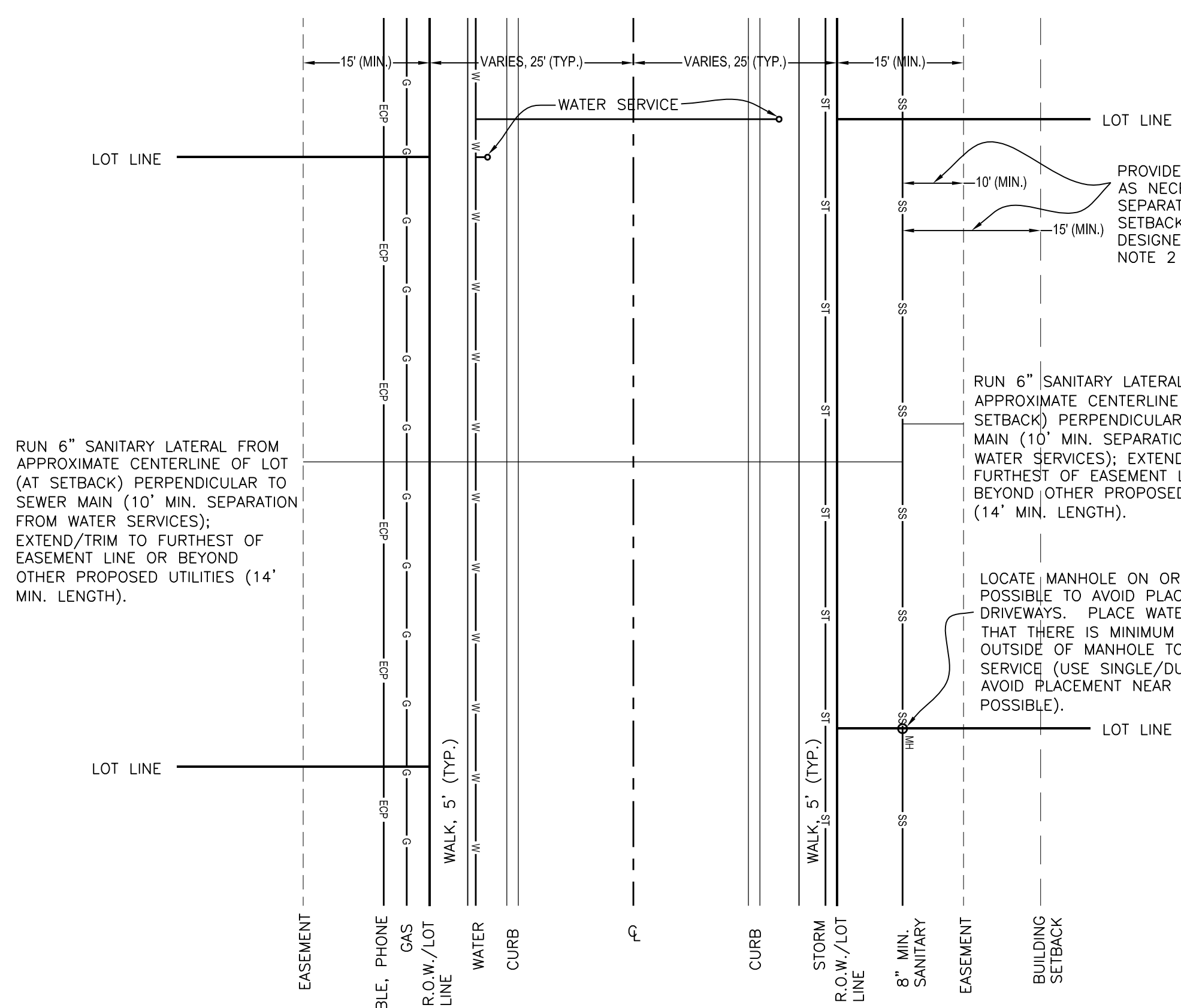
FOR APARTMENT PROJECTS, COMMERCIAL SITE DEVELOPMENTS, & DEVELOPMENTS WITH SMALLER LOTS AND NARROWER PRIVATE ROADS, THE UTILITY MAY PERMIT THE SEWER TO BE LOCATED WITHIN PAVED AREAS.

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.



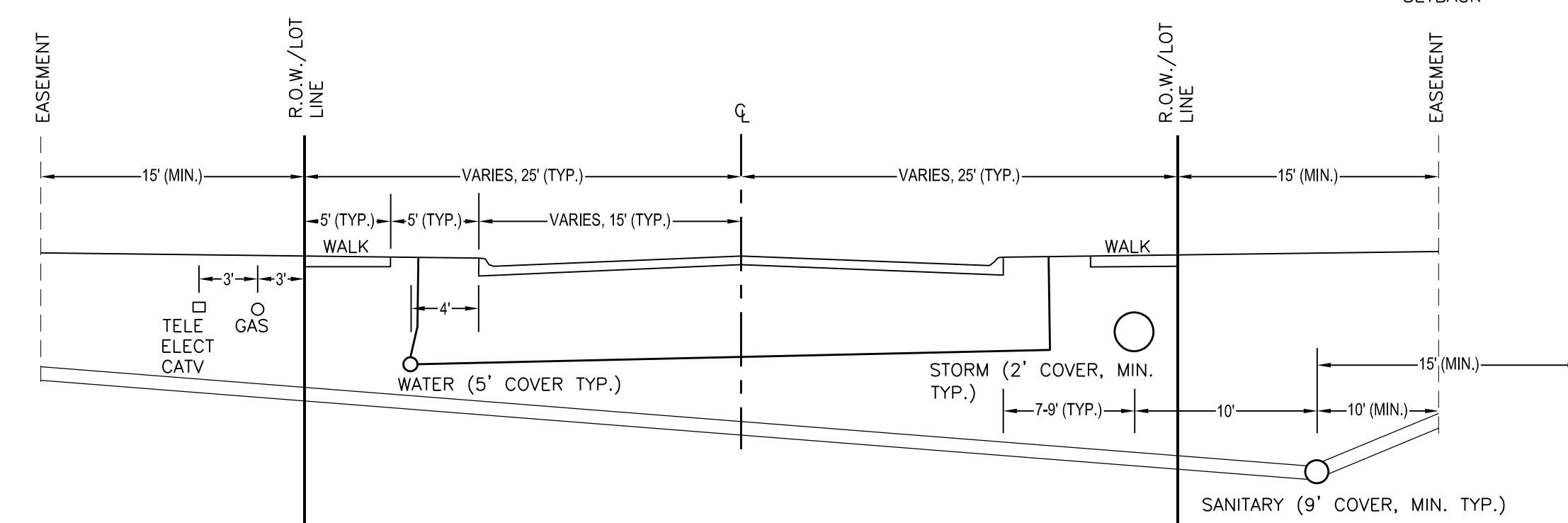
**STREET PLAN - CUL-DE-SAC**

NOT TO SCALE



**STREET PLAN - TANGENT**

NOT TO SCALE

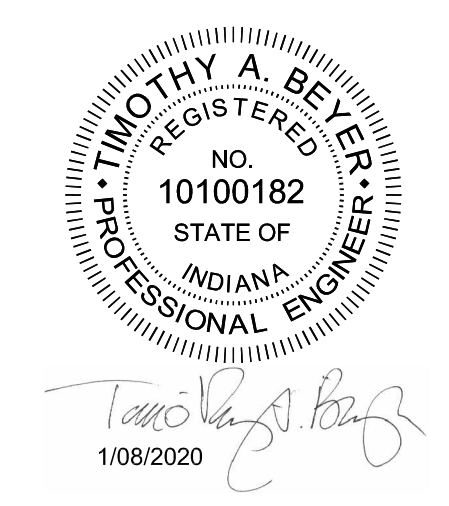


**STREET CROSS SECTION**

NOT TO SCALE

**UTILITY LOCATIONS**

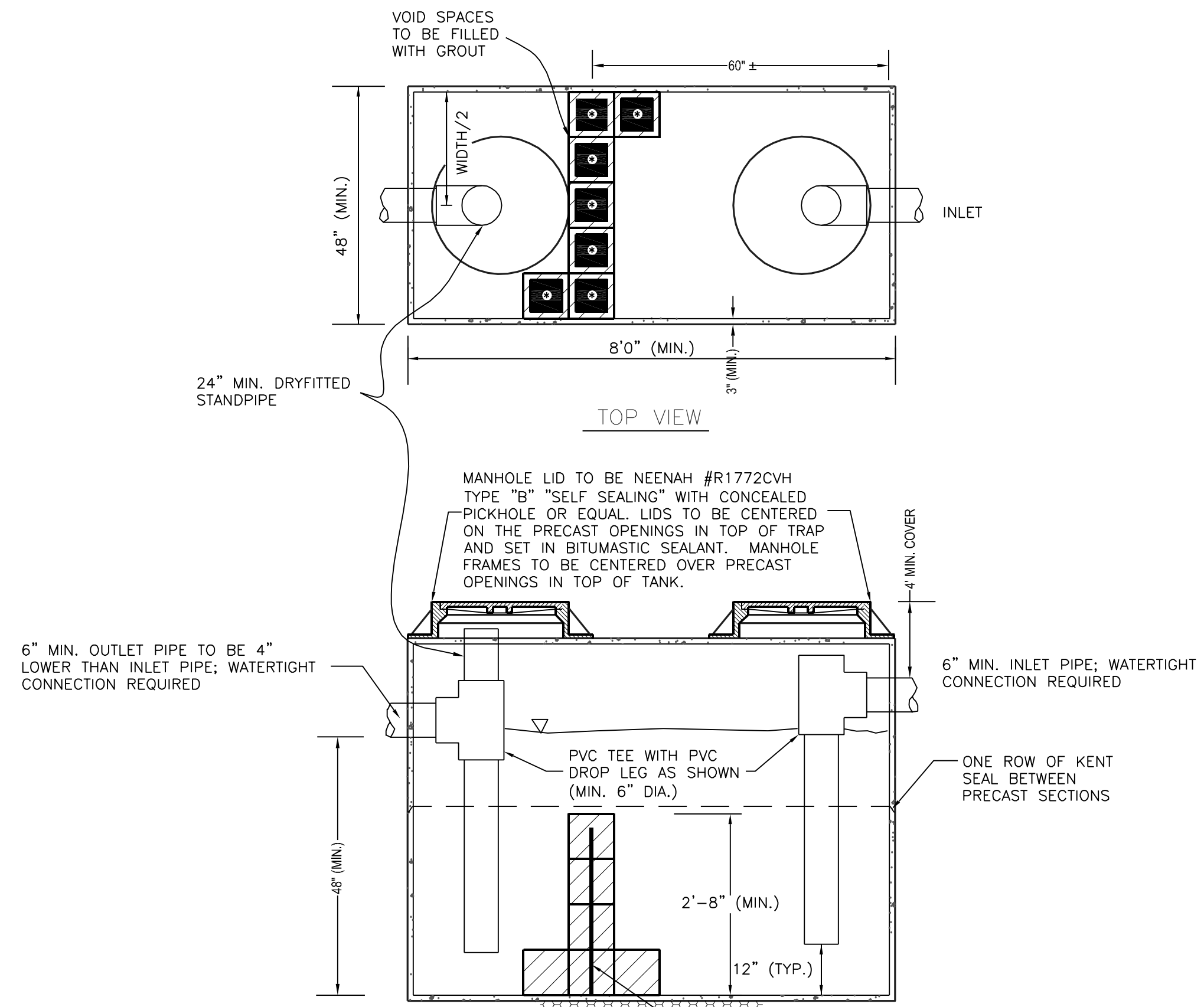
NOT TO SCALE



PROJECT NAME	PROJECT SHEET NUMBER
	of

**AMERICAN SUBURBAN UTILITIES**

(800) 382-5544	HOLEY MOLEY	3350 WEST, 250 NORTH WEST LAFAYETTE, INDIANA 47906	DATE JAN. 2020	
(765) 463-3856	AMERICAN SUBURBAN UTILITIES		SHEET	
(765) 463-6664	FIRE DEPT.		SANITARY SEWER TYPICAL DETAILS and NOTES	ASU3
(765) 423-9321	SHERIFF			



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 TRAPS/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, U.S. 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 WHENEVER POSSIBLE INSTEAD OF USING GREASE TRAPS. 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, CAN WASHES, AND FLOOR DRAINS IN FOOD PREPARATION AREAS SUCH AS THOSE NEAR A FRYER OR TILY/STEAM KETTLE. ALL OTHER SANITARY FLOWS SHALL BE DIRECTED TO A SEPARATE SANITARY LATERAL THAT BYPASSES THE GREASE TRAP. 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 EVENTUALLY 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

**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>Apis 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
Erigeron'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 Chervil	<i>Chaerophyllum procumbens</i>	wildflower	FAC+
Northern Sea Oats	<i>Chasmanthium latifolium</i>	grass	FACW
Wood-Reed	<i>Cinna arundinacea</i>	grass	FACW
Honeysuckle	<i>Cryptotaenia 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-Cicely	<i>Osmorhiza clytorei</i>	wildflower	FACU
Switch Grass	<i>Panicum virgatum</i>	grass	FAC+
Wild Blue Phlox	<i>Phlox divaricata</i>	wildflower	FACU
Cleanweed	<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
Wood-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 Germander	<i>Teucrium canadense</i>	wildflower	FACW
Singing Nettle	<i>Urtica dioica</i>	wildflower	FAC+
Blue Vervain	<i>Verbena hastata</i>	wildflower	FACW+
Wingsstem	<i>Verbena alternifolia</i>	wildflower	FACW

**WATER**

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

**SANITARY**

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

**STORM**

BELL DIA.	12"	20.0"
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"	

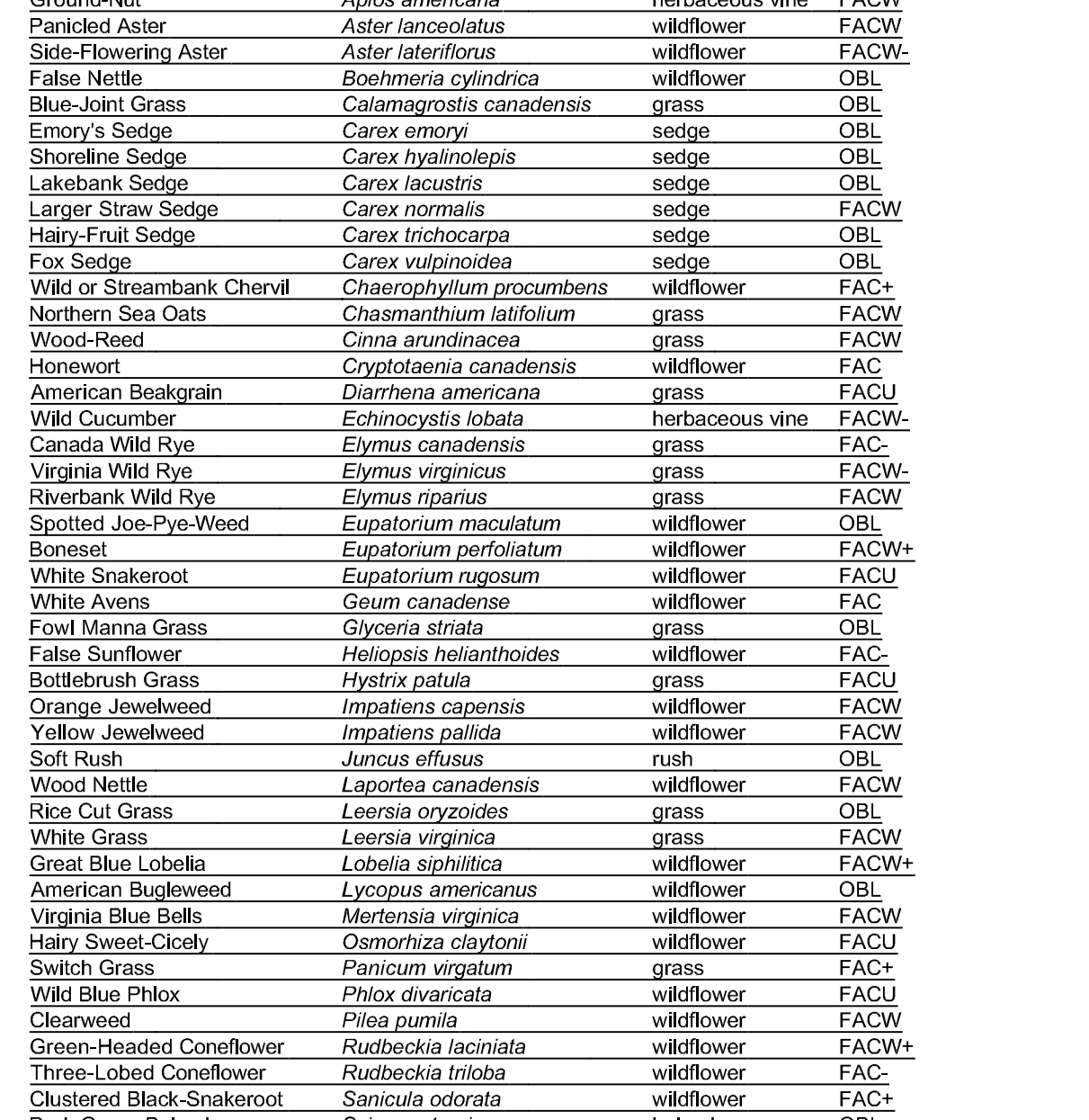
**℄ TO ℄ HORIZONTAL DISTANCE**

**BELL DIAMETERS FOR PIPE**

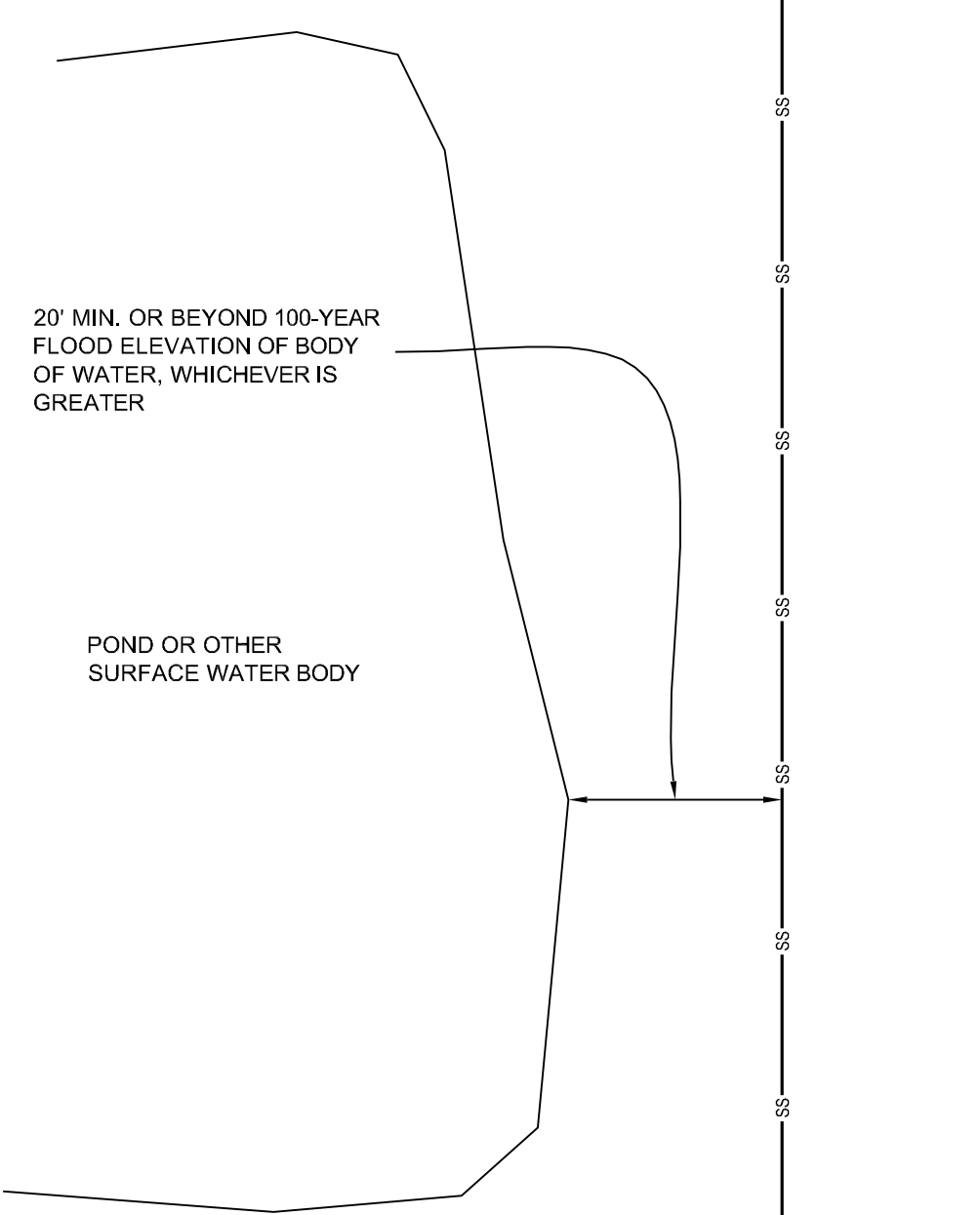
- NOTES: 1. SANITARY SEWERS AND WATERMANS SHALL BE LAID OUT SUCH THAT THEY CONTAIN THE HORIZONTAL SEPARATION FROM CENTERLINE TO CENTERLINE OF PIPE AS SHOWN IN THE ABOVE TABLE.
2. 18" VERTICAL SEPARATION FROM OUTSIDE TO OUTSIDE OF PIPE SHALL BE BASED ON THE BELL DIAMETERS IN THE ABOVE TABLE. WHEN VERTICAL 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 SHEET ASU2.

**HORIZONTAL AND VERTICAL SEPARATION DATA**

**STREAM CROSSING PROFILE**



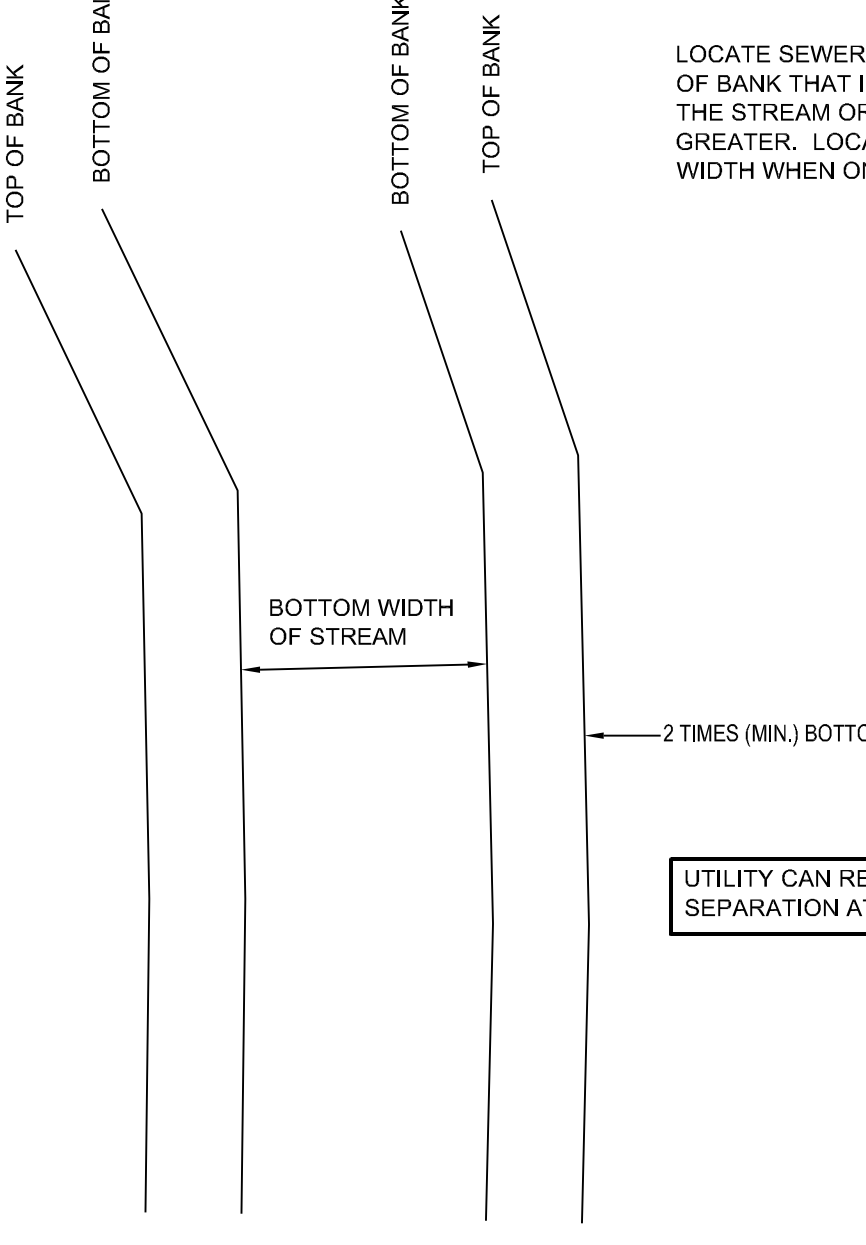
**STREAM CROSSING PLAN**



**SURFACE WATER BODY PLAN**



**SEWER PARALLEL TO STREAM**



**STREAM CROSSING/SURFACE WATER SEPARATION**

NOT TO SCALE

NOT TO SCALE

PROJECT NAME	PROJECT SHEET NUMBER
	of

**AMERICAN SUBURBAN UTILITIES**

(800) 382-5544 HOLEY MOLEY  
 (765) 463-3856 AMERICAN SUBURBAN UTILITIES  
 (765) 463-6664 FIRE DEPT.  
 (765) 423-9321 SHERIFF

3350 WEST, 250 NORTH  
 WEST LAFAYETTE, INDIANA 47906

**SANITARY SEWER**  
**TYPICAL DETAILS and NOTES**

DATE: JAN. 2020  
 SHEET: ASU4

