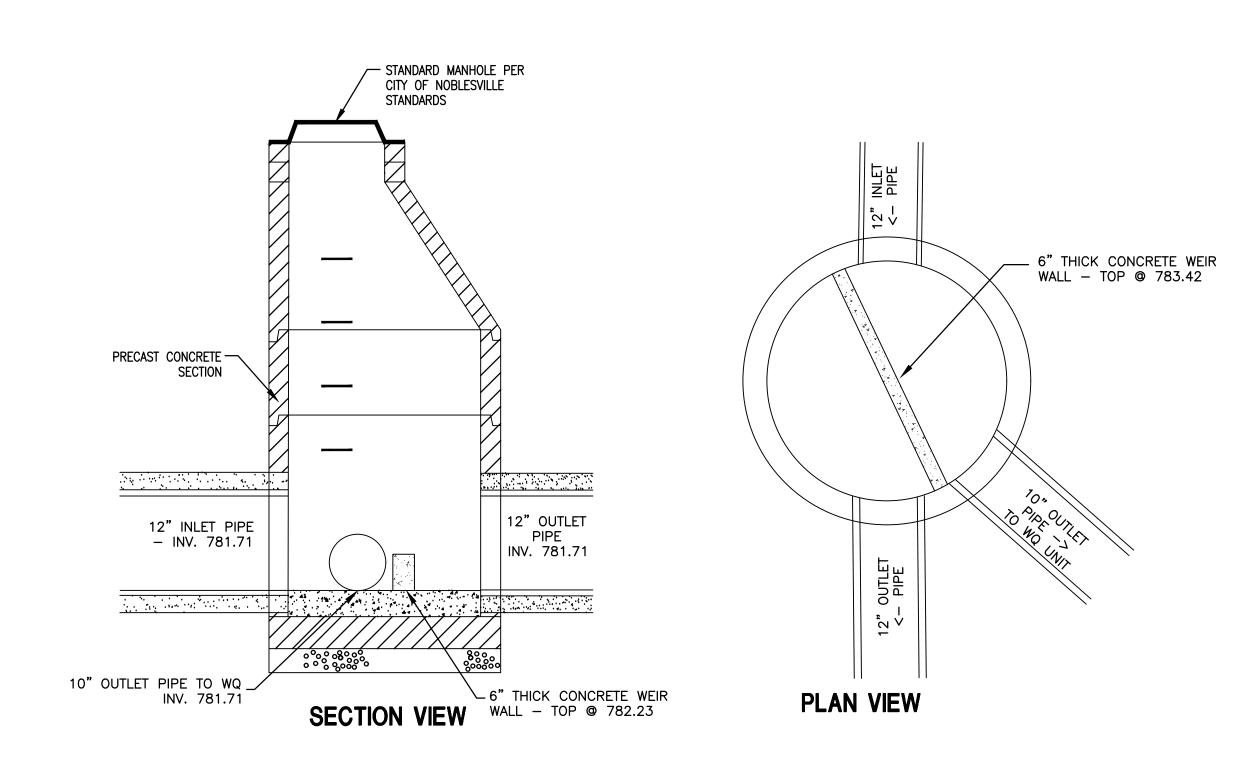
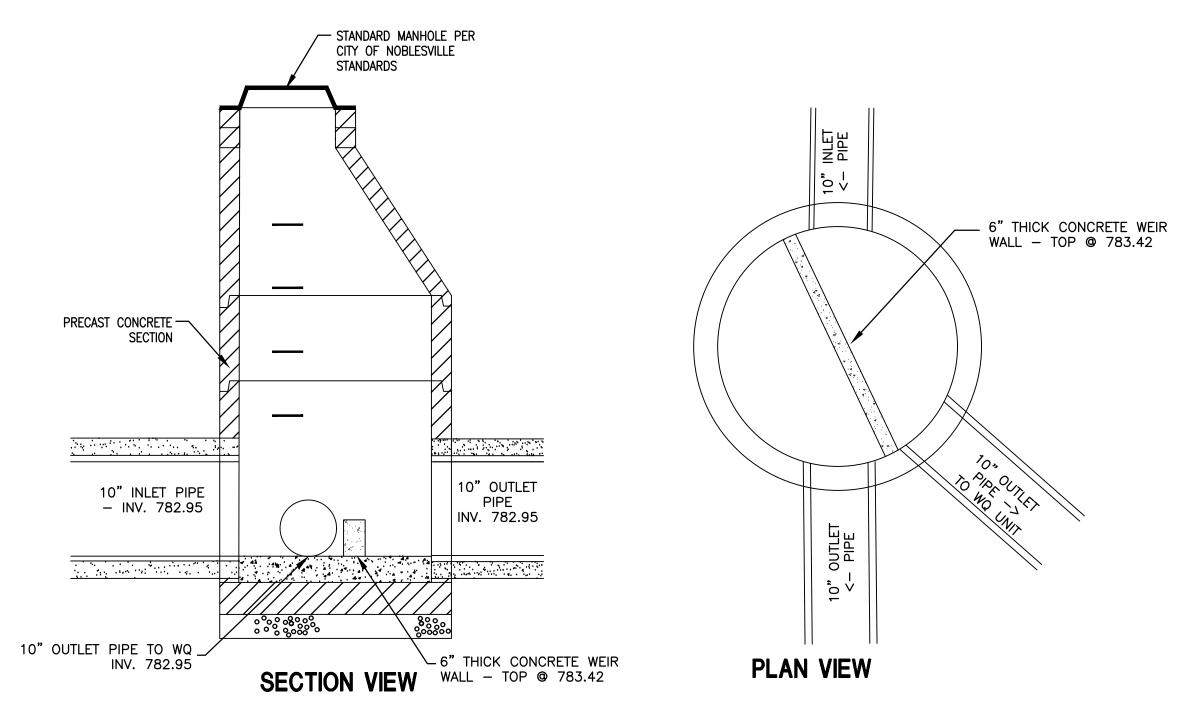
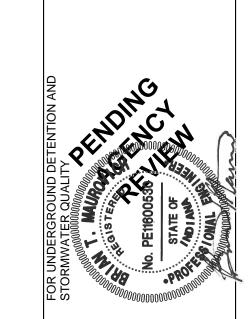
SOUTHERN PARKING LOT WATER QUALITY DIVERSION STRUCTURE 54 SCALE - N.T.S.



EASTERN ROOF DRAIN WATER QUALITY DIVERSION STRUCTURE 71A SCALE - N.T.S.



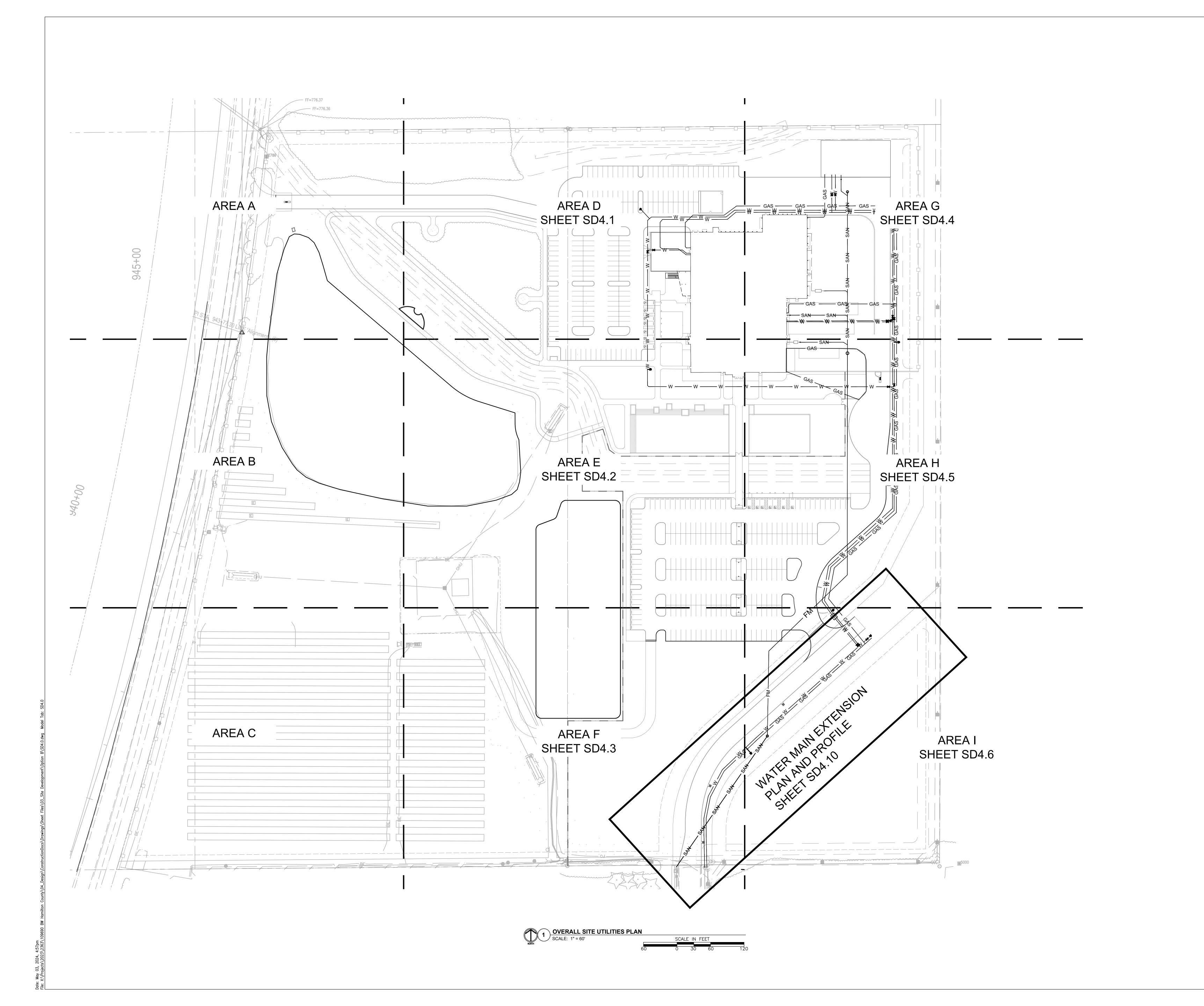
WESTERN ROOF DRAIN WATER QUALITY DIVERSION STRUCTURE 70A SCALE - N.T.S.



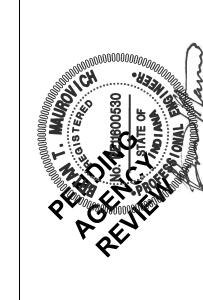




SD3.23





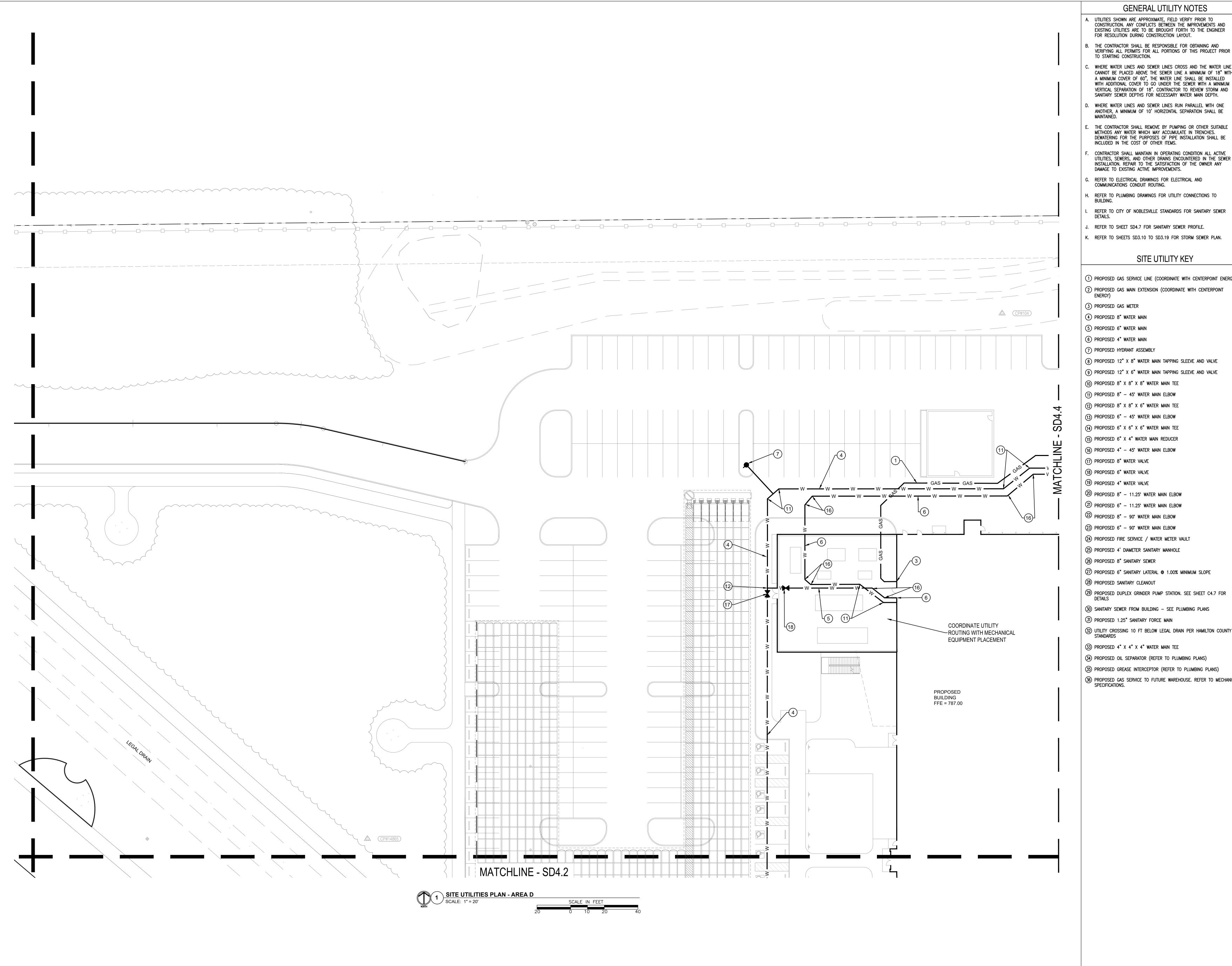


HAMILTON COUNTY
PUBLIC SAFETY CENTER
18291 PRESLEY DRIVE NOBLESVILLE, INDIANA
OVERALL SITE UTILITIES PLAN





SD4.0



- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR TO STARTING CONSTRUCTION.
- WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM
- WHERE WATER LINES AND SEWER LINES RUN PARALLEL WITH ONE ANOTHER, A MINIMUM OF 10' HORIZONTAL SEPARATION SHALL BE
- THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES. DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- G. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
- . REFER TO PLUMBING DRAWINGS FOR UTILITY CONNECTIONS TO
- REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

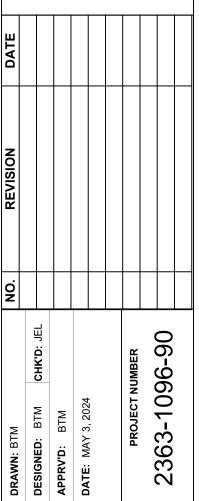
SITE UTILITY KEY

- 1 PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY) (2) PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- 4 PROPOSED 8" WATER MAIN

- (7) PROPOSED HYDRANT ASSEMBLY
- (8) PROPOSED 12" X 8" WATER MAIN TAPPING SLEEVE AND VALVE
- (9) PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
- (10) PROPOSED 8" X 8" X 8" WATER MAIN TEE
- (11) PROPOSED 8" 45" WATER MAIN ELBOW
- (12) PROPOSED 8" X 8" X 6" WATER MAIN TEE
- (13) PROPOSED 6" 45° WATER MAIN ELBOW
- (14) PROPOSED 6" X 6" X 6" WATER MAIN TEE

- (17) PROPOSED 8" WATER VALVE
- (18) PROPOSED 6" WATER VALVE
- 19 PROPOSED 4" WATER VALVE
- ② PROPOSED 8" 11.25° WATER MAIN ELBOW
- 22) PROPOSED 8" 90° WATER MAIN ELBOW
- ②5) PROPOSED 4' DIAMETER SANITARY MANHOLE
- 26) PROPOSED 8" SANITARY SEWER
- 28 PROPOSED SANITARY CLEANOUT

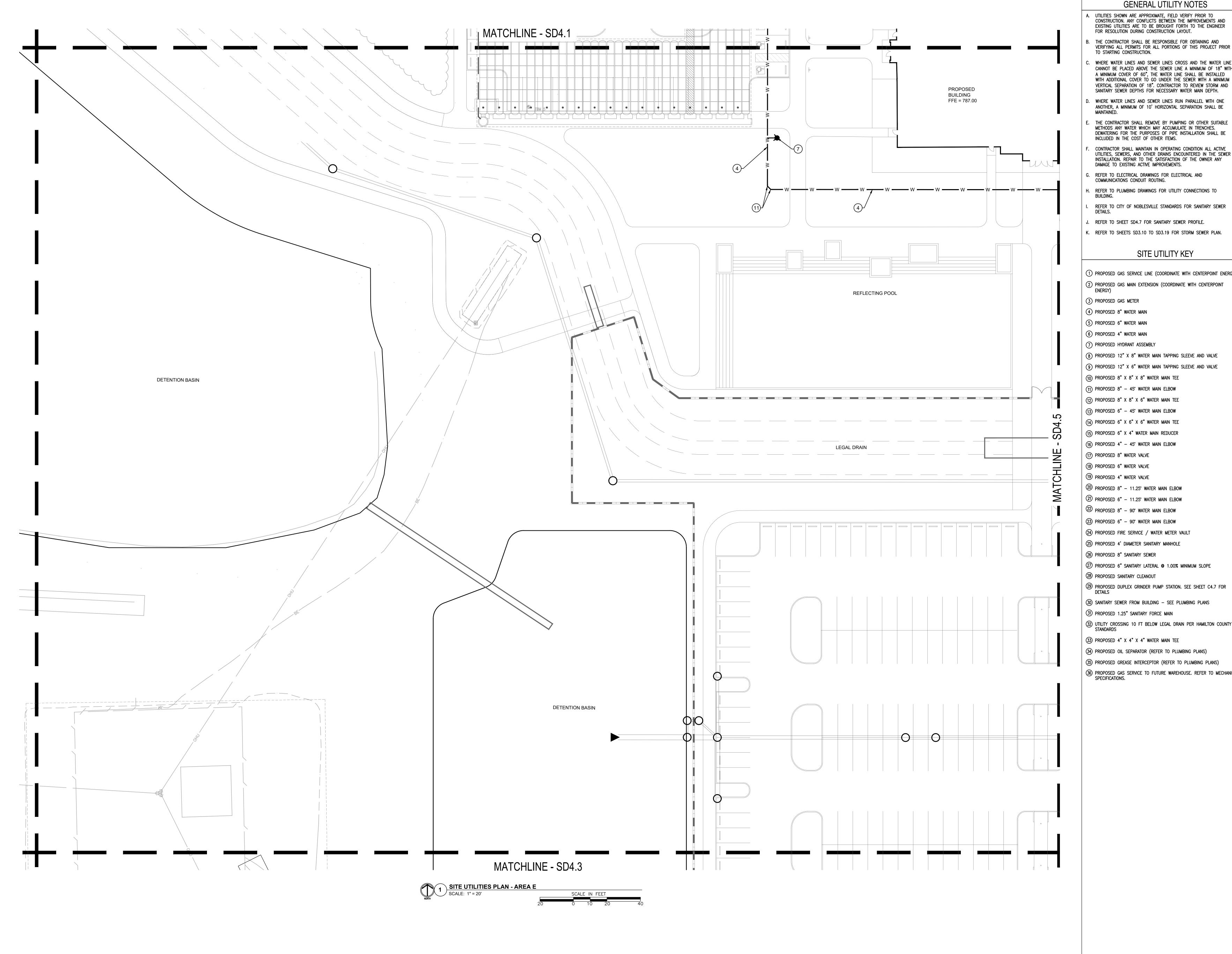
- 30) SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS ③1) PROPOSED 1.25" SANITARY FORCE MAIN
- 32) UTILITY CROSSING 10 FT BELOW LEGAL DRAIN PER HAMILTON COUNTY STANDARDS
- 33) PROPOSED 4" X 4" X 4" WATER MAIN TEE
- 35) PROPOSED GREASE INTERCEPTOR (REFER TO PLUMBING PLANS)
- (36) PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.





DRAWING NUMBER

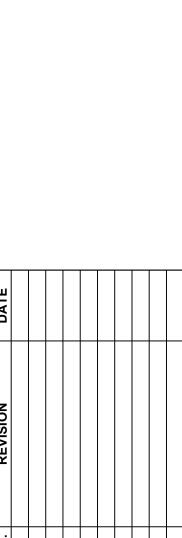
SD4.1



- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR TO STARTING CONSTRUCTION.
 - WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM
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 - THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES. DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
 - CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
 - REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
 - REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

SITE UTILITY KEY

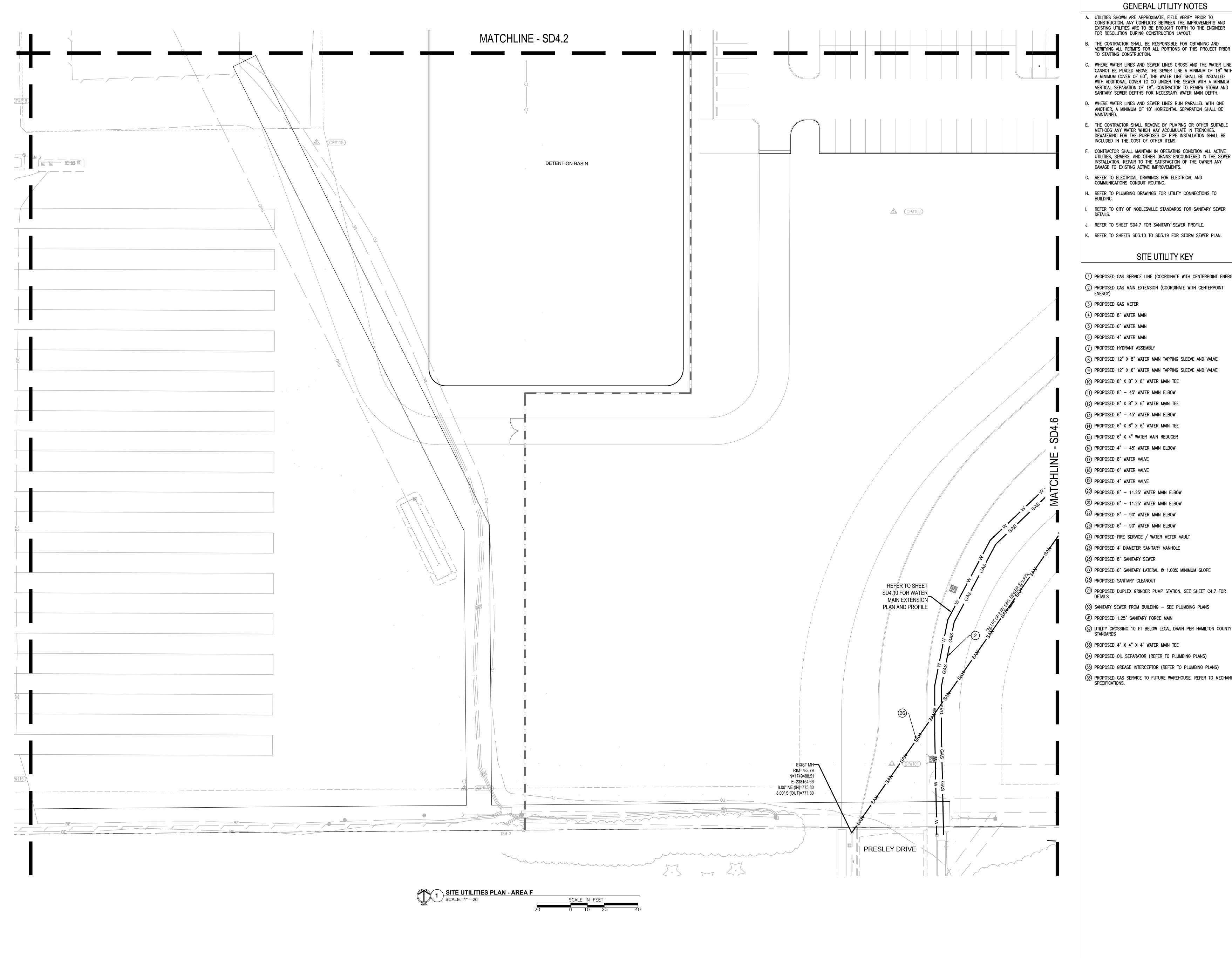
- 1) PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY) 2 PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- (3) PROPOSED GAS METER
- 4 PROPOSED 8" WATER MAIN
- (6) PROPOSED 4" WATER MAIN
- (7) PROPOSED HYDRANT ASSEMBLY
- (8) PROPOSED 12" X 8" WATER MAIN TAPPING SLEEVE AND VALVE
- (9) PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
- (10) PROPOSED 8" X 8" X 8" WATER MAIN TEE
- (12) PROPOSED 8" X 8" X 6" WATER MAIN TEE
- (13) PROPOSED 6" 45° WATER MAIN ELBOW
- (14) PROPOSED 6" X 6" X 6" WATER MAIN TEE
- (5) PROPOSED 6" X 4" WATER MAIN REDUCER
- (16) PROPOSED 4" 45" WATER MAIN ELBOW
- (17) PROPOSED 8" WATER VALVE
- (18) PROPOSED 6" WATER VALVE
- 19 PROPOSED 4" WATER VALVE
- 21) PROPOSED 6" 11.25° WATER MAIN ELBOW
- 23) PROPOSED 6" 90" WATER MAIN ELBOW
- 24) PROPOSED FIRE SERVICE / WATER METER VAULT (25) PROPOSED 4' DIAMETER SANITARY MANHOLE
- (26) PROPOSED 8" SANITARY SEWER
- 27) PROPOSED 6" SANITARY LATERAL @ 1.00% MINIMUM SLOPE
- 29 PROPOSED DUPLEX GRINDER PUMP STATION. SEE SHEET C4.7 FOR DETAILS
- 30 SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS
- ③1) PROPOSED 1.25" SANITARY FORCE MAIN
- 32) UTILITY CROSSING 10 FT BELOW LEGAL DRAIN PER HAMILTON COUNTY STANDARDS
- 33) PROPOSED 4" X 4" X 4" WATER MAIN TEE
- 34) PROPOSED OIL SEPARATOR (REFER TO PLUMBING PLANS)
- 35) PROPOSED GREASE INTERCEPTOR (REFER TO PLUMBING PLANS)
- (36) PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.





DRAWING NUMBER

SD4.2



- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR TO STARTING CONSTRUCTION.
- WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM
- WHERE WATER LINES AND SEWER LINES RUN PARALLEL WITH ONE ANOTHER, A MINIMUM OF 10' HORIZONTAL SEPARATION SHALL BE
- THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES. DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
- REFER TO PLUMBING DRAWINGS FOR UTILITY CONNECTIONS TO
- REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- J. REFER TO SHEET SD4.7 FOR SANITARY SEWER PROFILE. K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

SITE UTILITY KEY

- 1) PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY) 2 PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- (3) PROPOSED GAS METER
- 4 PROPOSED 8" WATER MAIN
- (6) PROPOSED 4" WATER MAIN
- (7) PROPOSED HYDRANT ASSEMBLY
- (8) PROPOSED 12" X 8" WATER MAIN TAPPING SLEEVE AND VALVE
- (9) PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
- (10) PROPOSED 8" X 8" X 8" WATER MAIN TEE
- (12) PROPOSED 8" X 8" X 6" WATER MAIN TEE
- (15) PROPOSED 6" X 4" WATER MAIN REDUCER
- (16) PROPOSED 4" 45° WATER MAIN ELBOW
- 17) PROPOSED 8" WATER VALVE
- (18) PROPOSED 6" WATER VALVE
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- 21) PROPOSED 6" 11.25" WATER MAIN ELBOW
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- 26) PROPOSED 8" SANITARY SEWER
- 27) PROPOSED 6" SANITARY LATERAL @ 1.00% MINIMUM SLOPE
- 29 PROPOSED DUPLEX GRINDER PUMP STATION. SEE SHEET C4.7 FOR DETAILS
- 30) SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS
- ③ PROPOSED 1.25" SANITARY FORCE MAIN
- 32) UTILITY CROSSING 10 FT BELOW LEGAL DRAIN PER HAMILTON COUNTY STANDARDS
- 33) PROPOSED 4" X 4" X 4" WATER MAIN TEE
- 34) PROPOSED OIL SEPARATOR (REFER TO PLUMBING PLANS)
- 35) PROPOSED GREASE INTERCEPTOR (REFER TO PLUMBING PLANS)
- (36) PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.



DRAWING NUMBER

SD4.3

- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT
- FOR RESOLUTION DURING CONSTRUCTION LAYOUT.

 B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR
- TO STARTING CONSTRUCTION.

 WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM VERTICAL SEPARATION OF 18". CONTRACTOR TO REVIEW STORM AND
- WHERE WATER LINES AND SEWER LINES RUN PARALLEL WITH ONE ANOTHER, A MINIMUM OF 10' HORIZONTAL SEPARATION SHALL BE MAINTAINED.

SANITARY SEWER DEPTHS FOR NECESSARY WATER MAIN DEPTH.

- E. THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES.

 DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- F. CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- G. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
- H. REFER TO PLUMBING DRAWINGS FOR UTILITY CONNECTIONS TO BUILDING.
- I. REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- J. REFER TO SHEET SD4.7 FOR SANITARY SEWER PROFILE.
- K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

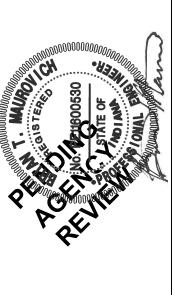
SITE UTILITY KEY

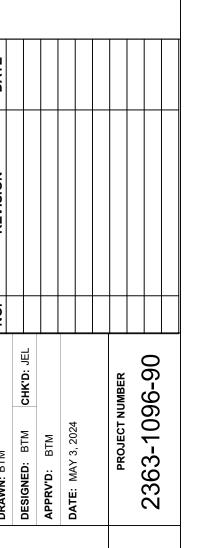
- PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY)

 PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- (3) PROPOSED GAS METER
- 4 PROPOSED 8" WATER MAIN
- 5 PROPOSED 6" WATER MAIN
- 6 PROPOSED 4" WATER MAIN
- 7) PROPOSED HYDRANT ASSEMBLY
- 8 PROPOSED 12" X 8" WATER MAIN TAPPING SLEEVE AND VALVE
- PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
- (10) PROPOSED 8" X 8" X 8" WATER MAIN TEE
- 11) PROPOSED 8" 45" WATER MAIN ELBOW
- 12) PROPOSED 8" X 8" X 6" WATER MAIN TEE
- 3 PROPOSED 6" 45" WATER MAIN ELBOW
- PROPOSED 6" X 6" X 6" WATER MAIN TEE
- (15) PROPOSED 6" X 4" WATER MAIN REDUCER
- 16) PROPOSED 4" 45" WATER MAIN ELBOW
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- 23) PROPOSED 6" 90" WATER MAIN ELBOW
 24) PROPOSED FIRE SERVICE / WATER METER VAULT
- 25) PROPOSED 4' DIAMETER SANITARY MANHOLE
- 26 PROPOSED 8" SANITARY SEWER

 27 PROPOSED 6" SANITARY LATERAL @ 1.00% MINIMUM SLOPE
- 28 PROPOSED SANITARY CLEANOUT
- 29 PROPOSED DUPLEX GRINDER PUMP STATION. SEE SHEET C4.7 FOR
- 30 SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS
- 31) PROPOSED 1.25" SANITARY FORCE MAIN
- 32) UTILITY CROSSING 10 FT BELOW LEGAL DRAIN PER HAMILTON COUNTY STANDARDS
- 33) PROPOSED 4" X 4" X 4" WATER MAIN TEE
- 34) PROPOSED OIL SEPARATOR (REFER TO PLUMBING PLANS)
- 35) PROPOSED GREASE INTERCEPTOR (REFER TO PLUMBING PLANS)
- PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.





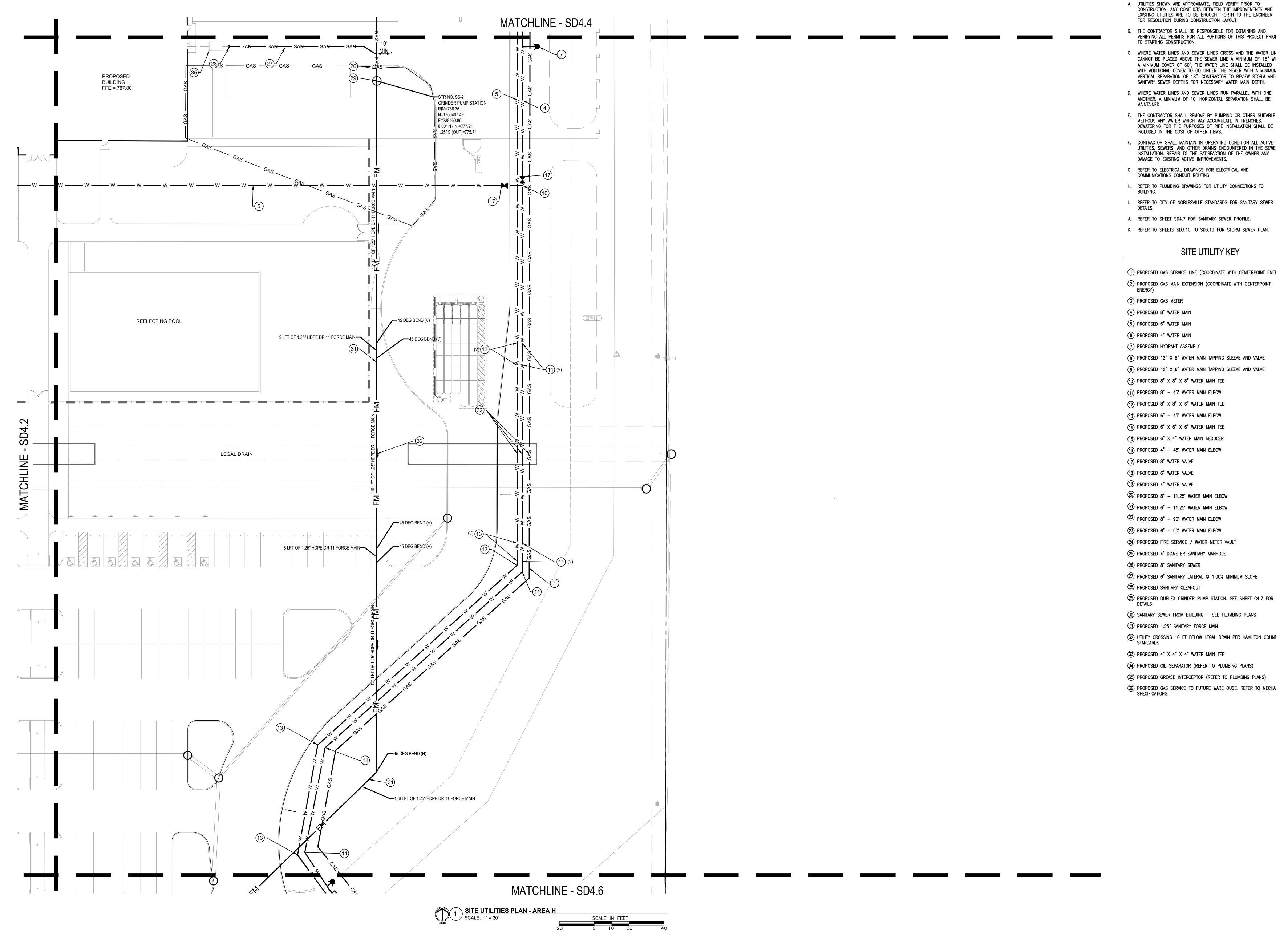








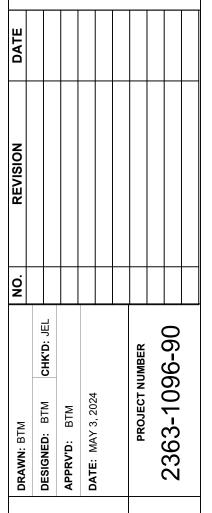
SD4.4



- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT.
 - B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR
- WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM VERTICAL SEPARATION OF 18". CONTRACTOR TO REVIEW STORM AND SANITARY SEWER DEPTHS FOR NECESSARY WATER MAIN DEPTH.
- WHERE WATER LINES AND SEWER LINES RUN PARALLEL WITH ONE ANOTHER, A MINIMUM OF 10' HORIZONTAL SEPARATION SHALL BE
- THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES. DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- G. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
- REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- J. REFER TO SHEET SD4.7 FOR SANITARY SEWER PROFILE.
- K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

SITE UTILITY KEY

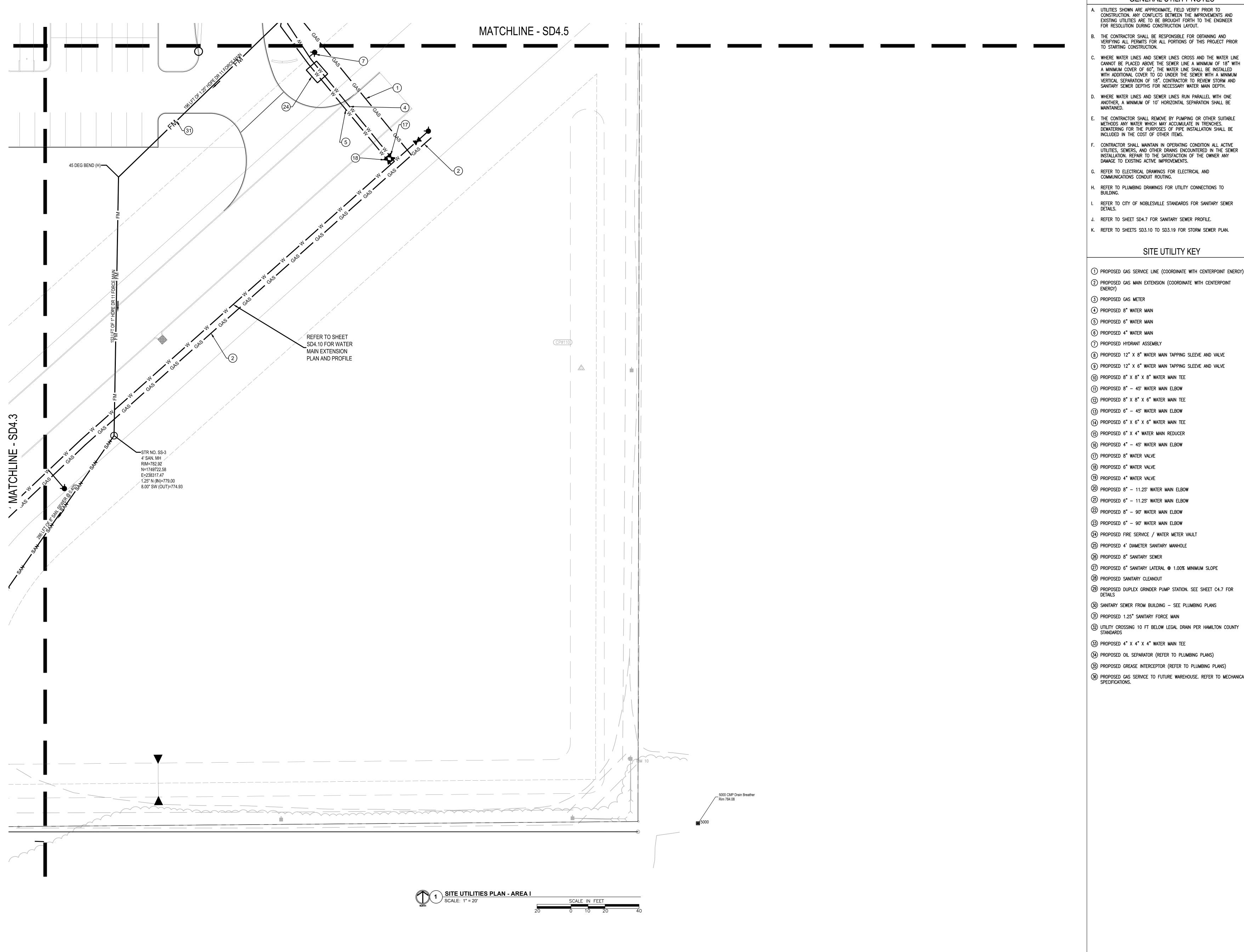
- 1) PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY) 2 PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- (3) PROPOSED GAS METER
- 4 PROPOSED 8" WATER MAIN
- 6 PROPOSED 4" WATER MAIN
- (7) PROPOSED HYDRANT ASSEMBLY
- (8) PROPOSED 12" X 8" WATER MAIN TAPPING SLEEVE AND VALVE
- (9) PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
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- (1) PROPOSED 8" 45" WATER MAIN ELBOW
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- (14) PROPOSED 6" X 6" X 6" WATER MAIN TEE
- (15) PROPOSED 6" X 4" WATER MAIN REDUCER
- (16) PROPOSED 4" 45" WATER MAIN ELBOW
- (17) PROPOSED 8" WATER VALVE
- 19 PROPOSED 4" WATER VALVE
- 20 PROPOSED 8" 11.25" WATER MAIN ELBOW
- 21) PROPOSED 6" 11.25" WATER MAIN ELBOW 22 PROPOSED 8" - 90" WATER MAIN ELBOW
- 23) PROPOSED 6" 90" WATER MAIN ELBOW
- ②4 PROPOSED FIRE SERVICE / WATER METER VAULT (25) PROPOSED 4' DIAMETER SANITARY MANHOLE
- (26) PROPOSED 8" SANITARY SEWER
- 27) PROPOSED 6" SANITARY LATERAL @ 1.00% MINIMUM SLOPE
- 28 PROPOSED SANITARY CLEANOUT
- 29 PROPOSED DUPLEX GRINDER PUMP STATION. SEE SHEET C4.7 FOR DETAILS
- 30 SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS
- 31) PROPOSED 1.25" SANITARY FORCE MAIN
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- 34) PROPOSED OIL SEPARATOR (REFER TO PLUMBING PLANS) 35) PROPOSED GREASE INTERCEPTOR (REFER TO PLUMBING PLANS)
- (36) PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.





DRAWING NUMBER

SD4.5



- A. UTILITIES SHOWN ARE APPROXIMATE, FIELD VERIFY PRIOR TO CONSTRUCTION. ANY CONFLICTS BETWEEN THE IMPROVEMENTS AND EXISTING UTILITIES ARE TO BE BROUGHT FORTH TO THE ENGINEER FOR RESOLUTION DURING CONSTRUCTION LAYOUT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND VERIFYING ALL PERMITS FOR ALL PORTIONS OF THIS PROJECT PRIOR
- WHERE WATER LINES AND SEWER LINES CROSS AND THE WATER LINE CANNOT BE PLACED ABOVE THE SEWER LINE A MINIMUM OF 18" WITH A MINIMUM COVER OF 60", THE WATER LINE SHALL BE INSTALLED WITH ADDITIONAL COVER TO GO UNDER THE SEWER WITH A MINIMUM VERTICAL SEPARATION OF 18". CONTRACTOR TO REVIEW STORM AND
- WHERE WATER LINES AND SEWER LINES RUN PARALLEL WITH ONE ANOTHER, A MINIMUM OF 10' HORIZONTAL SEPARATION SHALL BE
- THE CONTRACTOR SHALL REMOVE BY PUMPING OR OTHER SUITABLE METHODS ANY WATER WHICH MAY ACCUMULATE IN TRENCHES. DEWATERING FOR THE PURPOSES OF PIPE INSTALLATION SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.
- CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS, AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
- G. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL AND COMMUNICATIONS CONDUIT ROUTING.
- REFER TO CITY OF NOBLESVILLE STANDARDS FOR SANITARY SEWER
- J. REFER TO SHEET SD4.7 FOR SANITARY SEWER PROFILE.
- K. REFER TO SHEETS SD3.10 TO SD3.19 FOR STORM SEWER PLAN.

SITE UTILITY KEY

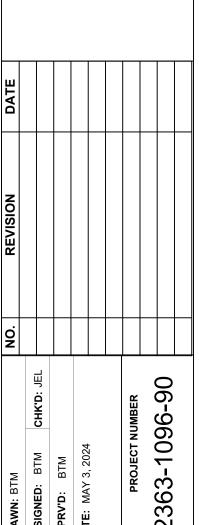
- 1 PROPOSED GAS SERVICE LINE (COORDINATE WITH CENTERPOINT ENERGY) 2 PROPOSED GAS MAIN EXTENSION (COORDINATE WITH CENTERPOINT
- (9) PROPOSED 12" X 6" WATER MAIN TAPPING SLEEVE AND VALVE
- (10) PROPOSED 8" X 8" X 8" WATER MAIN TEE

- (16) PROPOSED 4" 45° WATER MAIN ELBOW

- 23) PROPOSED 6" 90" WATER MAIN ELBOW
- (26) PROPOSED 8" SANITARY SEWER

- 29 PROPOSED DUPLEX GRINDER PUMP STATION. SEE SHEET C4.7 FOR DETAILS
- 30 SANITARY SEWER FROM BUILDING SEE PLUMBING PLANS

- 34) PROPOSED OIL SEPARATOR (REFER TO PLUMBING PLANS)
- (36) PROPOSED GAS SERVICE TO FUTURE WAREHOUSE. REFER TO MECHANICAL SPECIFICATIONS.



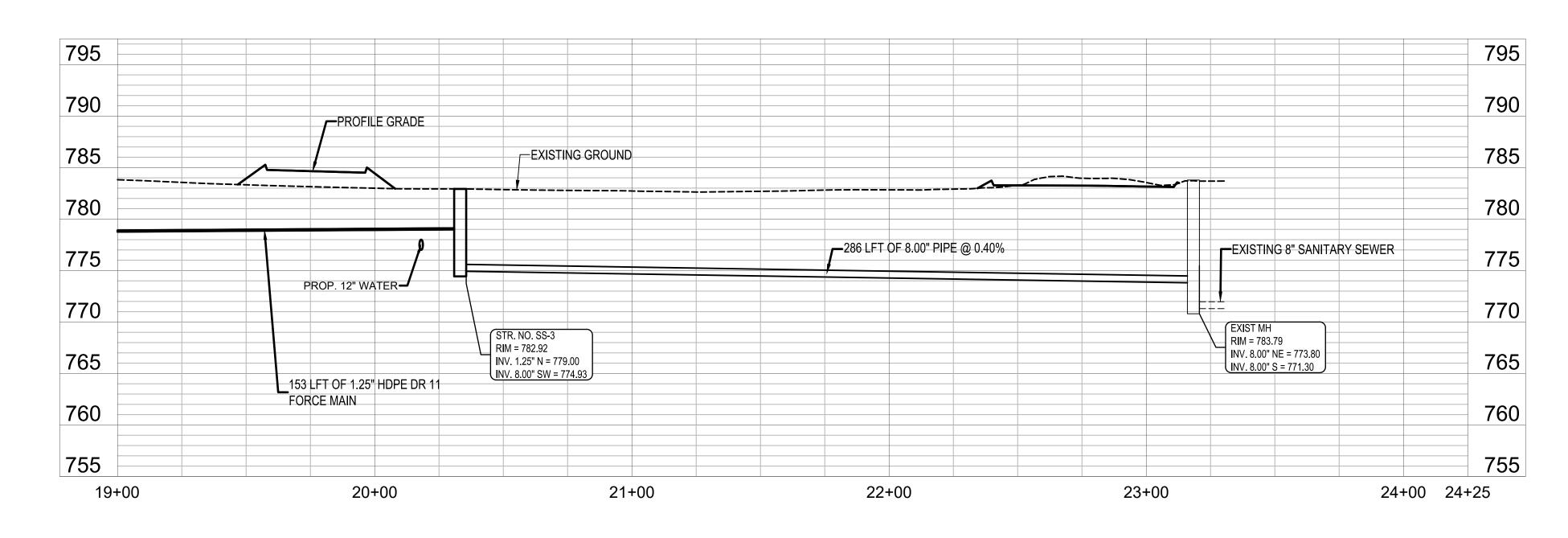


DRAWING NUMBER

SD4.6

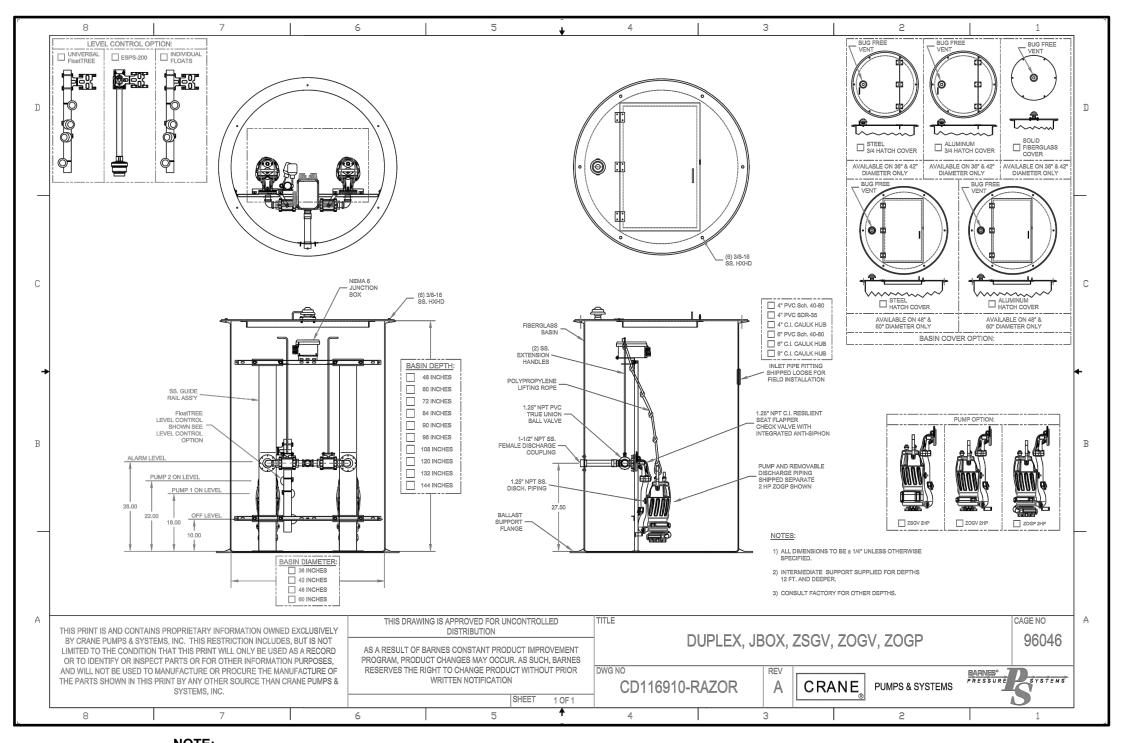
SANITARY SEWER PROFILE - STA. 10+00 TO 19+00

SCALE: 1" = 30' HORIZ.; 1" = 5' VERT



SANITARY SEWER PROFILE - STA. 19+00 TO 24+25

SCALE: 1" = 30' HORIZ.; 1" = 5' VERT.



CRANE GRINDER PUMP SYSTEM IS THE BASIS OF DESIGN PRODUCT. OTHER MANUFACTURERS ARE
ACCEPTABLE WITH ENGINEER APPROVAL.
 INFORMATION IS PROVIDED AS THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS
INDICATING ALL COMPONENTS REQUIRED.

2 SANITARY GRINDER PUMP STATION DETAIL

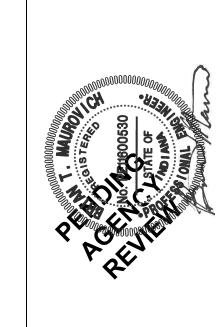
SCALE - N.T.S.

OFFICE OF THE HAMILTON COUNTY SURVEYOR PIPELINE & UTILITY INSTALLATION CROSS SECTION - OPEN - UTILITY INSTALLATION -UTILITY INSTALLATION CROSS SECTION - PIPELINE INSTALLATION PIPELINE INSTALLATION CROSS SECTION When installing a utility in, through or across an open regulated drain, the utility contractor will adhere to the following procedure. Utility to be installed a minimum of ten (IO') feet below existing flow line of drain. All petroleum pipelines and/or high pressure transmission lines are to be installed a minimum of ten (IO') feet below existing flow line of drain. 2. If sanitary sewer is installed under drain, sewer shall be encased with concrete. Minimal distance shall be measured from top of concrete encasement. 3. Utility contractor shall adhere to open drain crossing standard during construction process. 4. Notify Surveyor's Office at (317) 776-8495 two working days prior to installation and backfilling. 5. No structures are to be placed in the statutory regulated drain easement. HAMILTON COUNTY SURVEYOR'S OFFICE REVISED: 1 JUNE 2021 STANDARD PLAN APPROVED: C-6 KENTON C. WARD, HAMILTON COUNTY SURVEYOR

HAMILTON COUNTY REGULATED DRAIN CROSSING DETAIL

SCALE - N.T.S.

ARCHITECTURE • ENGINEERING • PLANNING SURVEYING • CONSTRUCTION SERVICES DLZ INDIANA, LLC



 DRAWN: BTM
 NO.
 REVISION
 DATE

 DESIGNED: BTM
 CHK'D: JEL
 APPRV'D: BTM
 CHK'D: JEL

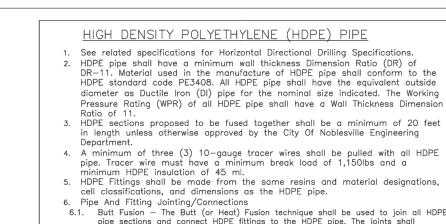
 APPRV'D: BTM
 DATE: MAY 3, 2024
 CHK'D: JEL
 CHK'D: JEL

 PROJECT NUMBER
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HAMILTON COUNTY
PUBLIC SAFETY CENTER
18291 PRESLEY DRIVE NOBLESVILLE, INDIANA
ANITARY SEWER PROFILE AND DET







4. A minimum of three (3) 10-gauge tracer wires shall be pulled with all HDPE pipe. Tracer wire must have a minimum break load of 1,150lbs and a HDPE Fittings shall be made from the same resins and material designations, . Butt Fusion — The Butt (or Heat) Fusion technique shall be used to join all HDPE pipe sections and connect HDPE fittings to the HDPE pipe. The joints shall conform to ASTM D2657 and shall be performed in strict accordance with the pipe manufacture's recommendations. The butt fusion equipment should be capable of

meeting all conditions recommended by the manufacturer, including but not limited to, temperature requirements of 400 to 450 degrees Fahrenheit, alignment, and a minimum interfacial fusion pressure of 75 psi. The fusion joining shall produce a joint weld strength equal to or greater than the tensile strength of the pipe itself. Sidewall Fusion — The Sidewall (or Heat) Fusion technique shall be used to connect HDPE fittings to the HDPE pipe. The joints shall conform to ASTM D2657 and shall be performed in strict accordance with the pipe manufacture's recommendations. The sidewall fusion heating irons shall have an inside diameter equal to the outside diameter of the HDPE pipe and shall be 14-inch wider than 6.3. Pipe Mechanical Joining — Mechanical joining shall be used to make connections to PVC fittings and/or non-HDPE pipe. The permitted method of HDPE joining is

6.3.1. HDPE Pipe to Non-HDPE pipe - Mega Lug Restrainers (manufactured for use with PVC pipe) combined with a MJ Harvey Adapter and mechanical joint, solic short sleeves. The HDPE side of the connection shall also be restrained by a concrete thrust anchor as per the plans. The non—HDPE pipe shall be to PVC connection, when the connection is linear. 7. HDPE pipe shall be installed using the horizontal directional drilling method as city Of Noblesville Department Of Engineering And City Of Noblesville Utilities Department. Locations where pipe material transitions are required, i.e. HDPE/PVC, may be installed by open cut.

shall be promptly submitted to the City of Noblesville Engineering for approval. The following items shall be submitted before delivery of HDPE pipe, tubing, or factured and tested in accordance with all applicable specifications and 8.2. Manufacturer's installation instruction and literature to the contractor so that manufacturer's recommended procedure and practice of installing pipe and fittings

8. Shop drawings and manufacturer's literature for all contractor supplied material

 Pipe Joining:
 The HDPE pipe shall be assembled and joined at the site using the butt-fusion
 Threaded or solvent-cement joints and method to provide a leak proof joint. Threaded or solvent—cement joints and connections are not permitted. All equipment and procedures used shall be used in strict compliance with the manufacturer's recommendations. Fusing shall be accomplished by personnel trained as fusion technicians by a manufacturer of polyethylene pipe and/or fusing equipment. polyethylene pipe and/or tusing equipment.

Square the pipe ends by using the fusion machine facing tool. In the fusion machine, pipe ends shall meet squarely so that the entire area to be fused is covered. The pipe ends shall make firm contact without applying pressure to the heat plate. The heat plate temperature shall be as required by the pipe manufacturer's recommendations. The melt bead shall be according to pipe diameter and as recommended by the pipe manufacturer. Pipe ends shall be carefully moved away from heat plate once the appropriate melt bead is achieved The pipe ends shall be joined quickly without slamming. The butt—fused joint sha

be true alignment and shall have uniform roll back beads resulting from the use of proper temperature and pressure. The joint shall be allowed adequate cooling time before removal of pressure. The fused joint shall be watertight and shall have tensile strength equal to that of the pipe. All joints shall be subject to eptance by the City Of Noblesville prior to insertion other deleterious fault greater in depth than ten percent (10%) of the wall thickness, shall not be used and must be removed from the site. However, a defective area of the pipe may be cut out and the joint fused in accordance with procedures stated above. In addition, any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing or handling determined by the City Of Noblesville shall be discarded and not used.

. The Contractor shall perform any and all testing on the HDPE pipe as directed and required by the City of Noblesville. A representative of the City of Noblesville shall be present for all testing associated with the HDPE pipe.

O. Contractor or subcontractor performing any fusion (heat or electrofusion) on

service in at least 3 projects of similar pipe diameter and with similar service

HORIZONTAL DIRECTIONAL DRILLING SPECIFICATIONS See Related Specifications for High Density Polyethylene (HDPE) Pipe.

. The contractor or sub—contractor performing any HDD installations shall have performed at least five (5) HDD projects of similar pipe diameter and length in he last three (3) years. The contractor shall ensure that appropriate equipmen is provided to facilitate the installation. Equipment shall be matched to the size of pipe being installed and shall have appropriate torque and thrust/pullback capacity for the diameter and length of the intended drilling sections. The contractor will ensure that the drill rod can meet the bend radius required for e proposed installation.

A mixture of bentonite clay or other approved slurry and potable water shall be used as the cutting and soil stabilization fluid. The viscosity shall be varied to best fit the soil conditions encountered. Water shall be clean and fresh. No other chemicals or polymer surfactant is to be used in the drilling fluid without the written consent of the City Of Noblesville and after a determination is made that the chemicals to be added are not harmful

or corrosive to the facility and are environmentally safe. The contractor shall identify the source of fresh water for mixing the drilling mud. The contractor shall be responsible for approvals and permits required for such sources as streams, rivers, ponds, or fire hydrants. Any water source other than potable water may require a pH Test. Monitoring of the drilling fluids such as the pumping rate, pressures. viscosity, and density is required during the pilot bore, back reaming, and pipe installation stages, to ensure adequate removal of soil cuttings and the

stability of the bore hole. Relief holes can be used as necessary to relieve excess pressure down hole. To minimize heaving during pullback, the pull back rate is determined in order to maximize the removal of soil cuttings without building excess down hole pressure. Excess drilling fluids shall be contained at entry and exit points until they are recycled or removed from the site. Entry and exit pits shall be of sufficient size to contain the The contractor shall ensure that all drilling fluids are disposed of or

recycled in a manner acceptable to the appropriate local, state, or federal regulatory agencies. When drilling in suspected contaminated ground, the drilling fluid shall be tested for contamination and disposed of appropriately Any excess material shall be removed upon completion of the bore. Restoration for damage to any transportation facility or non-transportation facility caused by heaving, settlement, escaping drilling fluid (fracout) or the directional drilling operation, is the responsibility of the contractor. Any pavement heaving or settlement damage requires restoration/replacement of

the pavement per applicable City Of Noblesville standards. General Construction Requirements: 1. The pipe shall be installed in the location and to the line and grade

designated on the drawings.

Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling All surfaces shall be finish graded to original contours and ground cover.

All materials delivered to the project shall be neatly stored. Excavated material, which is not removed from the immediate work site, shall be stockpiled so as to cause as little inconvenience to the property owners as ossible. Driveways and street crossings must be kept clear Excavation for entry, recovery pits, slurry sump pits, or any other excavation

shall be carried out in accordance with City Of Noblesville Specifications fo applicable work. Sump areas or holding tanks are required to contain drilling ofter completing installation of the product the work site shall be restored. The work site shall be cleaned of all excess slurry left on the ground. Removal and final disposition of excess slurry or spoils as the product is introduced shall be the responsibility of the contractor

Excavated areas shall be restored in accordance with the City Of Noblesville Specifications. The cost of restoring damaged pavement, curb, sidewalk, driveways, lawns, storm drains, landscape, and other facilities is the esponsibility of the contractor 4.8. If underground utilities and/or structures not shown on the Drawings are encountered, notify the City Of Noblesville and do not proceed until instructions are obtained. Notify the City Of Noblesville if springs or running

. Utility Verification (Potholing) 1.1. Contractor shall conduct prior to the start of sanitary main construction the verification of all underground utilities (potholing) that may conflict with Sanitary Force Main construction.

water are encountered.

Specific Requirements:

HORIZONTAL DIRECTIONAL DRILLING SPECIFICATIONS (CONT.) 5.1.2. Potholing results shall be presented to the City Of Noblesville on a full

set of drawings showing accurate locations of utilities. Information marked on the plans should include horizontal tie downs as well as depths related to USGS elevation. 5.1.3. Alignment of the proposed sanitary force main (horizontal and vertical) may be adjusted in the field upon review of potholing results by the Engineer/City Of Noblesville.
5.2. Back Ream Hole Diameter — The back ream hole diameter shall be no greater than the sum of the maximum product outside diameter (OD) plus

may leak, the work is to be stopped and the damage investigated. The City Of Noblesville may require a pressure test. The testing may consist of one of the following methods but shall always meet or exceed City Of Noblesville's testing requirements: 5.3.1. Manufacturer's pressure testing recommendations for the type of pipe being installed are followed. The City Of Noblesville shall be notified and be present during the test for review of the test results for compliance.

The pressure test shall be performed within twenty—four (24) hours. A copy of the test results shall be furnished to the The City Of Noblesville. If the pipe is not in compliance with specifications, the City Noblesville may require it to be filled with flowable fill. Product carrier pipes installed without a casing must meet pressure requirements set by the City Of Noblesville. A copy of the test results shall be furnished to the The City Of Noblesville. If the pipe is not in

5.3. Testing — When there is any indication a pipe has sustained damage and

compliance with specifications the City may require it to be filled with 5.4. Locating and Tracking — The contractor shall describe the method of

locating and tracking the drill head during the pilot bore. The City Of Noblesville recognizes walkover, wire line, and wire line with surface grid verification, or any other system as approved by the City Of Noblesville, as the accepted methods of tracking directional bores. The locating and tracking system shall be capable of ensuring that the proposed installation is installed as intended. The locating and tracking system shall provide Clock and Pitch Information.

5.4.2. Depth. 5.4.3. Battery Status.

5.4.5. Azimuth, where direct overhead readings (walkover) are not possible (i.e. subaqueous or limited access transportation facility.) Alignment readings or plot points shall be taken and recorded every five Before commencement of a directional drilling operation, proper calibration of the equipment (if required) shall be undertaken. 5.5. All facilities shall be installed in such a way that their location can be

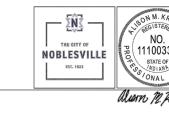
non-conductive installations this shall be accomplished by attachment of three (3) 10-gauge tracing wires, as per these City Of Noblesville 3.1. A representative of the contractor must be in control of the operation at all

readily determined by electronic designation after installation. For

times. The representative must have a thorough knowledge of the equipment and the procedures to be performed, and must be present at the job site 6.2. The City Of Noblesville must be notified forty-eight (48) hours in advance of starting work. The installation shall not begin until the City Of Noblesville is present at the job site and agrees that proper preparations have been

7.1. Provide for testing and cleanup as soon as practicable, so these operations do not lag far behind pipe installation. Perform preliminary cleanup and grading operations immediately after backfilling.

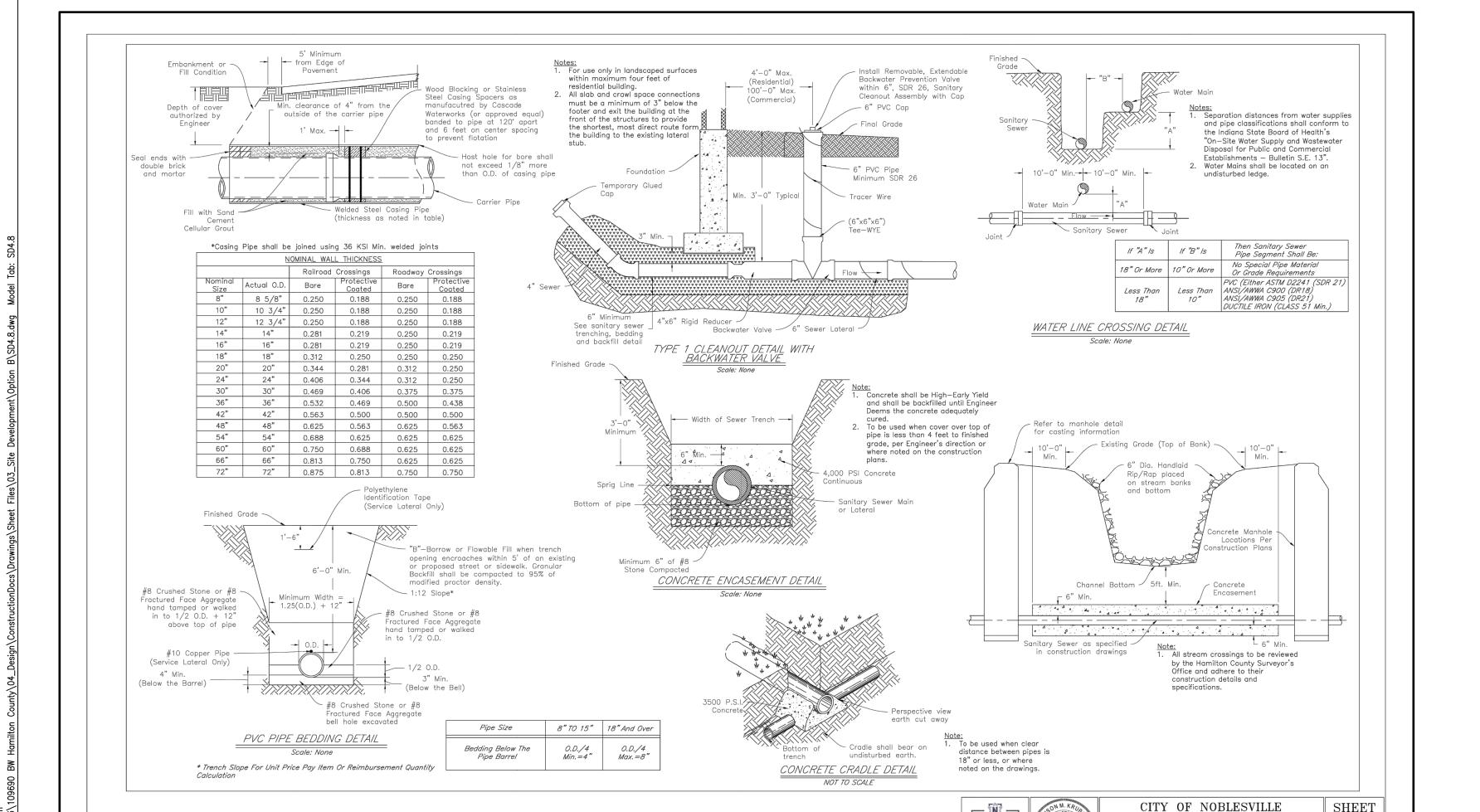
7.2. All surfaces shall be finish graded to original contours and ground cover. All surplus excavated material shall be disposed of off-site in a legal manner



CITY OF NOBLESVILLE Sanitary Sewer General Notes and Specifications

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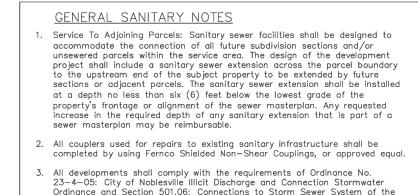
NOBLESVILLE

Sanitary Sewer Pipe and Bedding

Details

of

29



 All developments shall comply with the requirements of Ordinance No. 23-4-05: City of Noblesville Illicit Discharge and Connection Stormwater Ordinance and Section 501.06: Connections to Storm Sewer System of the City of Noblesville Stormwater Technical Standards Manual. As such, all non-stormwater runoff shall be prohibited from connecting to the City's separate storm water system; rather, shall be connected to the City's sanitary sewer system, unless exempted by Section 7: Discharge Prohibitions of Ordinance No. 23-4-05 or approved by the City of Noblesville. Typical non-stormwater runoff discharges may include, but are not limited to covered dumpster enclosure drains, non-exterior parking garage floor drains, garage and basement floor drains and water softener discharge, and wimming pool drains that have not been de-chlorinated. Non-stormwater runoff shall be pre-treated by an appropriate arease/arit interceptor, or other acceptable method, prior to discharge to the sanitary system, unless otherwise approved. The grease/grit interceptor shall be sized by the design engineer and approved by the City of Noblesville, and shall be in accordance with the Oil/Grease Trap requirements, Sheet 15.

H. The use of a low pressure sewer system shall be approved by the Noblesville Department of Engineering. All components of the low pressure sewer system including, but not limited to: grinder pump, tank capacity, and force main size shall be designed and certified by a professional engineer and approved by the City. The minimum system for a single—family residential use shall be an E/One Extreme Series DH071 Grinder Pump Station, or approved equal, with 70 gal./700 GPD capacity. SANITARY SEWER LATERAL PIPE AND FITTINGS

Service laterals shall be SDR-26 pipe from the sewer main to the building One (1) lateral shall be installed per building. All laterals shall be inspected by the Noblesville Department of Engineering prior to backfilling.

Joints shall be flexible gasket push—on—compression type conforming to ASTM D-3212 and ASTM F-477. No solvent cement joints shall be allowed. 3. Lateral size shall be a minimum of 6-inches in diameter between mainline sewer and clean—out closest to building. Lateral size shall be a minimum of 4-inches in diameter between building and first downstream clean-out. 4. A minimum of one (1) exterior clean—out shall be installed for each lateral Where the length of a lateral exceeds 100 feet, then one clean—out shall be installed for every 100 feet of lateral length. An additional clean—out shall

also be installed at any change in direction along the lateral. In any event, a

clean-out shall be located no farther than four (4) feet from the building in

residential developments.

In accordance with Sanitary Sewer Connection Policy No. 85—W2, approval

consideration of a lateral connection requires the owner of the residence of business to provide the following information on a legible diagram: name of property owner, address, telephone numbers of both property owner and length and size of pipe to be installed, pipe material, slope of pipe, bedding 5. Contractor shall, when curbs are available, engrave a 3—inch high by 1/8-inch deep "S" on the curb directly above each service lateral. Where curbs are not available, contractor shall notch the sidewalk directly above each service lateral. See Curb Stamp Detail, Sheet 4.

A removable, extendable backwater prevention valve shall be provided for each

sanitary sewer lateral. The backwater prevention valve shall be housed in a 6-inch diameter, SDR-26, sanitary clean—out assembly with cap. The backwater prevention valve shall be readily accessible at all times, and located in the first sanitary clean—out immediately downstream of the 8. For service laterals, contractor shall install 10—gauge insulated, solid copper to alkalis, acids and other destructive agents found in soil. The 10-aguae tracer wire shall be attached directly to the outside of the PVC service lateral every 10 feet. The polyethylene identification tape shall have a

minimum thickness of 4 mils and shall be placed directly over pipe, 1'-6" below final grade. The approval of a new sanitary sewer service lateral or the modification of an existing service lateral requires an approved City of Noblesville permit.

10. In accordance with ASTM D-3034, the outside of each pipe section shall be legibly marked with the date of manufacture, class of pipe, specification designation, name or trademark of manufacturer and identification of plant/location. Pipe shall be rotated in such a manner that the markings are easily readable during sanitary lateral inspection.

SANITARY SEWER POLYVINYL CHLORIDE (P.V.C.) PIPE 1. P.V.C. Pipe diameters of 4—inches through 15—inches shall meet or

exceed all the requirements of ASTM D=3034, and shall have a Cell Classification of 12454-B, 12454-C, 12364-C, or 13364-B. Reference should be made to ASTM D=1784 for a summarization of Cell Classification properties. P.V.C. Pipe diameters greater than 15—inches shall meet or exceed all requirements of ASTM F—679, and shall have a minimum Cell Classification Of 12454—C or 12364—C. minimum Cell Classification Of 12454—C or 12364—C.

2. When depth of soil cover over the pipe is less than 12 Feet the minimum Wall Thickness of P.V.C. Pipe, 6—inches through 15—inches in diameter, shall conform to SDR—35, Type PSM, as specified in ASTM D—3034. When depth of soil cover over the pipe is 12 Feet or greater, the minimum Wall Thickness of P.V.C Pipe, 6—inches through 15—inches in diameter, shall conform to SDR—26, Type PSM, as specified in ASTM D—3034. The minimum Wall Thickness for P.V.C. Pipe greater than 15—inches shall conform to T-1 Or T-2, as specified in ASTM F-679. P.V.C. SDR-35 Pipe shall have a minimum Pipe Stiffness of 46 Pounds

Per Square Inch for each diameter when measured at five percent deflection and tested in accordance with ASTM D-2412. P.V.C. SDR-26 Pipe shall have a minimum Pipe Stiffness of 115 Pounds Per Sauare Inch for each diameter when measured at five percent deflection and tested in accordance with ASTM D-2412. 3. The assembly of joints shall be in accordance with pipe manufacturers' ecommendations and ASTM D—3212. Solvent Cement Joints shall not be

allowed for mainline pipe.

4. Pipe fittings shall be SDR-26 manufactured fittings made of P.V.C. Plastic having a Cell Classification of 12454—B, 12454—C, or 13343—C, as defined in ASTM D—1784. Saddle connections shall not be allowed for

new construction. Lateral connections shall occur at SDR-26 Tee-Wyes.

In accordance with ASTM D-3034, the outside of each pipe section shall be legibly marked with the date of manufacture, class of pipe, specification designation, name or trademark of manufacturer and identification of plant/location. When possible, the interior of the pipe shall also be marked with same information as the exterior of the pipe in a location that can be seen during the Closed Circuit Television 6. Installation shall be in accordance with ASTM recommended practice

7. Pipe size and classification shall be called out in Plan and Profile of Construction Drawings. 8. Sanitary sewer pipe shall have a minimum horizontal separation of 10 Feet from storm sewer pipe or water main pipe. All pipe crossings shal be at angles greater than 45° with a minimum vertical separation of 1. eet. Dimensions are measured from the outside of pipe to outside of

SANITARY SEWER TELEVISING AND AS-BUILT DRAWINGS 1 Closed circuit television inspection shall be performed in compliance with NASSCO's Pipeline Assessment Certification Program (PACP) standards on all pipe to be used for the purposes of conveying sanitary sewer. Televising shall be completed after leakage and deflection testing is

2. The contractor installing pipe shall employ/hire the contractor responsible for the television inspection services. The contractor/developer shall contact the Noblesville Department of Engineering to schedule the CCTV inspection immediately following the thorough cleaning of all line segments. 3. If any pipe and/or joint is found to be leaking, the contractor shall epair that portion of the work to the satisfaction and approval of the Noblesville Department of Engineering.
4. Contractor shall bear all costs of line segment cleaning, debris removal

Contractor shall submit as—built drawings, electronic and hardcopy, and all leakage and deflection certification of attestment within 30 days of successful completion of all testing requirements.

6. Electronic as—built drawings submittal shall be submitted to the Noblesville Department of Engineering and comply with the City's GIS Coordinator's guidelines. Contractor shall supply digital video to the City of Noblesville Engineering
Department that is compatible with Windows Media Viewer with indexed

chapters to allow instant access to points of observation.

and disposal, and, the CCTV inspection.

SANITARY SEWER DEFLECTION TESTING 1. An in-place deflection test shall be performed on all flexible pipe to be

used for the purposes of conveying sanitary sewage. Testing for an allowable deflection of 5 percent internal pipe diameter (ID) shall not commence until after all backfilling has been in place for 30 days. A nine-point, "go-no-go" mandrel shall be used for the deflection test. A proving ring shall be provided for each mandrel. 2. All pipe exceeding the allowable deflection shall be replaced. A replaced section shall be retested 30 days after replacement. The Contractor shall

bear all costs for testing and testing equipment. The "go-no-go" mandrel shall be manually pulled without the use of any winching or other mechanical device. Should corrective measures be conducted, the entire segment shall be tested again for leakage, as stated above.

 The design engineer or his/her representative shall attest that each mainline segment was tested for deflection, with successful results, in compliance with stated deflection testing requirements.

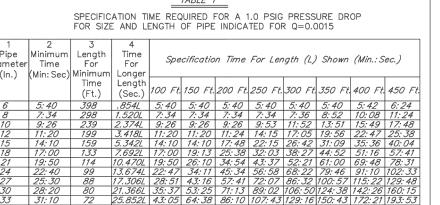
SANITARY SEWER LEAKAGE TESTING 1. A leakage test shall be performed for all mainline segments. Low pressure air shall be slowly introduced into the sealed line until the internal air pressure reaches 4 PSIG plus the groundwater head divided by 2.31 (maximum test pressure is 9 PSIG). Testing for leakage shall not commence until after all backfill has been in place for 30 days.

2. At a stable internal air pressure within 0.5 PSIG of the initial internal air pressure, timing shall commence with a stopwatch or similar device of 99.8 percent accuracy, timing shall end when the internal air pressure

drops 1 PSIG below the stable internal air pressure.

3. The line shall be accepted if the time shown in Table 1 for the designated pipe size and length elapses before the air pressure drops 1 PSIG below the stable internal air pressure at which time the test can be discontinued for the accepted line. Should contractor excavate pipe for the purpose of repairing a leak, then

entire mainline segment shall be retested for both leakage and 5. The design engineer or his/her representative shall attest that each mainline segment was tested for leakage with successful results, in compliance with stated leakage testing requirements.



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For more efficient testing of long

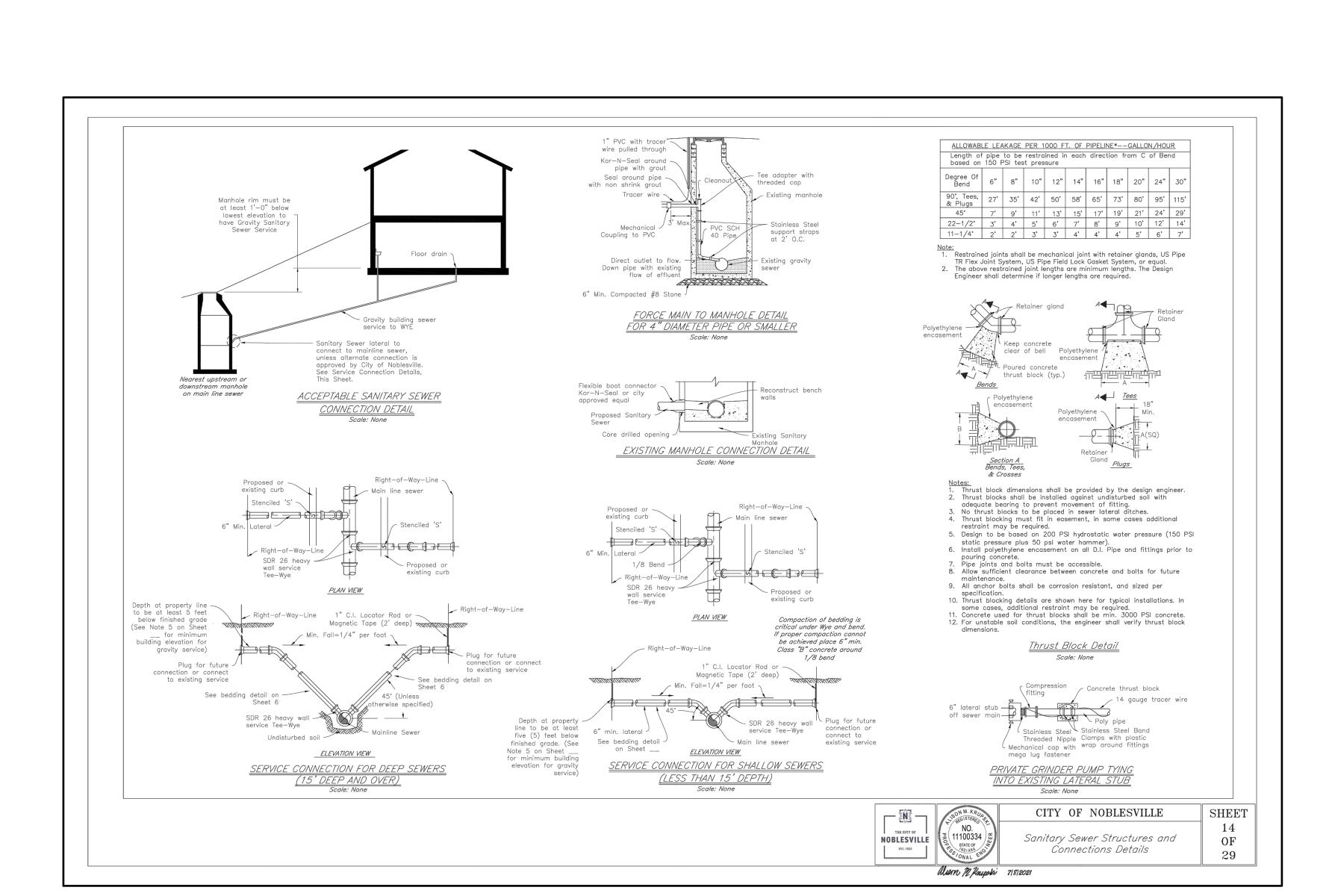
larger diameter pípes, a timed pressure drop of 0.5 PSIG may be used in lieu of the 1.0 PSIG timed pressure drop. If a 0.5 PSIG

test time shall be exactly half as

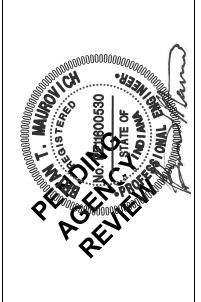
test sections and/or sections of

CITY OF NOBLESVILLE SHEET 10 Sanitary Sewer General Notes and ofSpecifications 29

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HAMILTON COUNTY
PUBLIC SAFETY CENTER
18291 PRESLEY DRIVE NOBLESVILLE, INDIANA
SANITARY SEWER STANDARD DETAILS



DRAWING NUMBER

SD4.9

WATER UTILITY INSTALLATION NOTES

- 1. INSTALLATION OF WATER MAIN, FITTINGS, VALVES, FIRE HYDRANTS, AND APPURTENANCES SHALL BE IN ACCORDANCE WITH INDIANA AMERICAN WATER STANDARDS AND SPECIFICATIONS, LATEST REVISION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION, SIZE AND MATERIAL OF THE EXISTING WATER MAIN PRIOR TO CONSTRUCTION.
 AT THE POINT OF CONNECTION TO EXISTING WATER MAINS, A
- TAPPING SLEEVE AND VALVE MAY BE REQUIRED TO BE INSTALLED IF THE EXISTING WATER MAIN CANNOT BE SHUT DOWN WITHOUT IMPACTING CUSTOMERS, TO BE DETERMINED AT THE PRE—CONSTRUCTION MEETING.

 4. FOR PVC C900 PIPE INSTALLATION: DR14 PIPE IS REQUIRED.
- 4. FOR PVC C900 PIPE INSTALLATION: DR14 PIPE IS REQUIRED. DEFLECTION OF PIPE JOINTS AND BENDING OF PIPES ARE NOT PERMITTED. ALL ANGLES SHALL BE MADE WITH PROPER FITTINGS. WHEN RESTRAINT OF PIPE—TOPIPE JOINTS ARE REQUIRED, ALL JOINTS SHALL BE RESTRAINED WITH EXTERNAL SPLIT SERRATED RESTRAINT HARNESSES. SELECT FILL MATERIAL REQUIRED FOR BEDDING AND EMBEDMENT REGARDLESS OF PIPE'S PROXIMITY TO PAVEMENT. PVC C900 PIPE IS NOT ALLOWED FOR PIPES LARGER THAN 12—INCH.
- 5. FOR DUCTILE IRON PIPE INSTALLATION: THICKNESS CLASS 52 FOR TYPICAL DISTRIBUTION MAINS 12—INCH NOMINAL SIZE AND SMALLER. WHEN RESTRAINT OF PIPE—TO—PIPE JOINTS ARE REQUIRED, PUSH—ON RESTRAINING GASKETS WITH INTEGRAL STAINLESS STEEL LOCKING SEGMENTS ARE PERMITTED ON PIPE—TO—PIPE CONNECTIONS 12—INCH NOMINAL SIZE AND SMALLER ONLY. PIPE—TO—PIPE CONNECTIONS GREATER THAN 12—INCH NOMINAL SIZE SHALL BE

RESTRAINED PER SPECIFICATION SECTION 15105.

- 6. FOR HDPE PIPE INSTALLATION: DIPS DR11 FOR SIZES 4 INCH AND LARGER, IPS DR9 FOR 3 INCH, AND CTS DR9 FOR SIZES SMALLER THAN 3 INCH. HDPE BENDS, TEES, AND CROSSES ARE NOT ACCEPTABLE. PRESSURE TESTING OF HDPE PIPE DIFFERS FROM DUCTILE IRON AND PVC PIPE, SEE SPECIFICATION SECTION 15030–3.03. PIPE FUSION MUST BE COMPLETED BY CERTIFIED TECHNICIAN; CERTIFICATION TO BE SUBMITTED PRIOR TO PRECONSTRUCTION MEETING.
- 7. ENCASE ALL DUCTILE IRON PIPING, DUCTILE IRON FITTINGS, VALVES, HYDRANTS, RESTRAINT HARNESSES, AND ALL OTHER METALLIC APPURTENANCES IN 12MIL BLUE POLYETHYLENE.
- 8. ALL FIRE HYDRANT LATERALS SHALL BE DUCTILE IRON PIPE.
- 9. ALL MJ T-BOLTS AND FLANGE BOLTS SHALL HAVE XYLAN OR FLUOROKOTE #1 CORROSION RESISTANT COATING.
- ALL FITTINGS SHALL BE RESTRAINED USING MJ RETAINER GLANDS.
 THRUST RESTRAINT TO BE ACHIEVED THROUGH THE RESTRAINT OF PIPE JOINTS AND FITTINGS. THRUST BLOCKS ARE NOT AN ACCEPTABLE MEANS OF THRUST RESTRAINT, EXCEPT WHEN REQUIRED IN CONNECTING TO EXISTING WATER MAIN AND FOR INSTALLATION OF FIRE HYDRANTS. SEE SPECIFICATION SECTIONS 15105 AND 15120 FOR PIPE JOINT RESTRAINT REQUIREMENTS FOR DUCTILE IRON AND PVC PIPE.
- 12. COPPER-CLAD STEEL TRACER WIRE REQUIRED ON INSTALLATION OF ALL PIPE. TRACER WIRE SHALL BE TAPED TO PIPE OR POLYETHYLENE ENCASEMENT AT A MINIMUM SPACING OF 10-FEET. SPLICES SHALL BE ENCASED IN WATERPROOF CONNECTORS. WIRE AND CONNECTORS ARE TO BE COMPATIBLE AND FROM THE SAME MANUFACTURER. DETECTABLE TAPE IS REQUIRED ONE FOOT ABOVE PIPE. CONTINUITY SHALL BE TESTED AFTER COMPLETION OF BACKFILL.
- 13. SELECT FILL MATERIAL REQUIRED FOR FINAL BACKFILL WHEN WITHIN

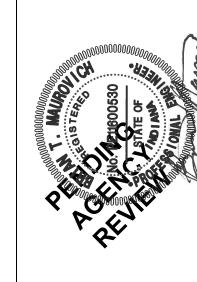
5-FEET OF PAVEMENT PER SPECIFICATION SECTION 02210. REV

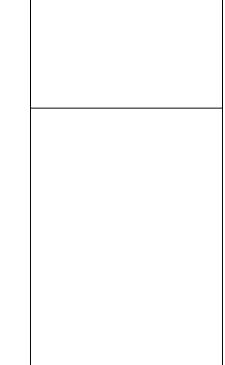
PROP. 1.25" SANITARY FORCE MAIN

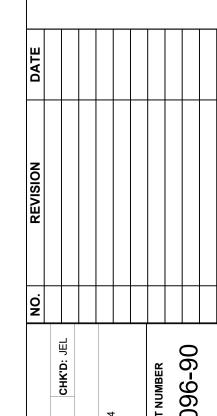
- 14. MAINTAIN THE REQUIRED 10—FEET OF HORIZONTAL SEPARATION AND 18—INCHES OF VERTICAL SEPARATION FROM SANITARY AND STORM SEWERS. MAINTAIN 8—FEET OF HORIZONTAL SEPARATION FROM SANITARY AND STORM STRUCTURES. SEE 327 IAC 8—3.2—9 OF THE INDIANA ADMINISTRATIVE CODE FOR MORE INFORMATION.
- 15. MAINTAIN MINIMUM COVER DEPTH OF 54" AND A MAXIMUM OF 54"+24".

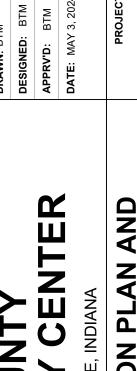
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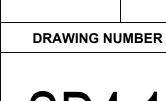




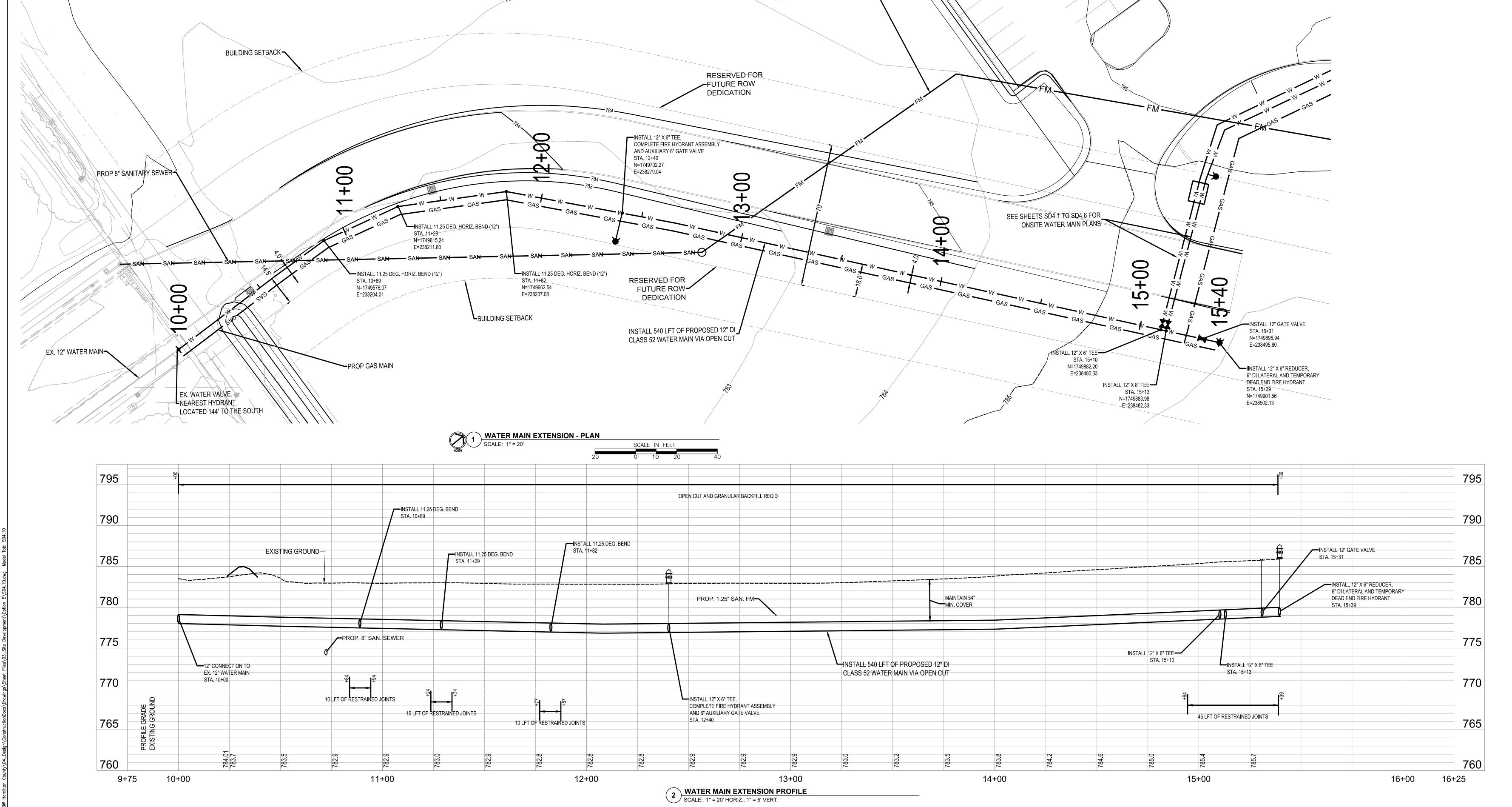


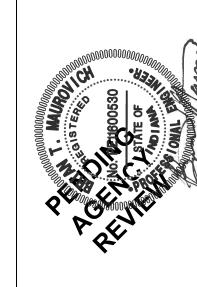


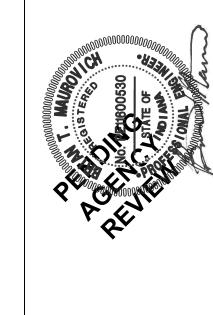


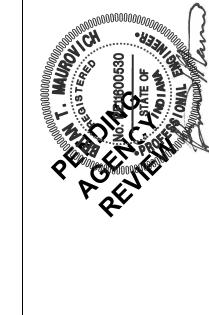


SD4.10

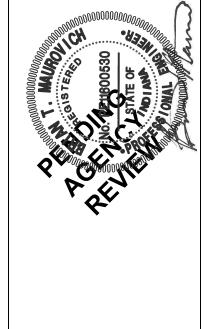


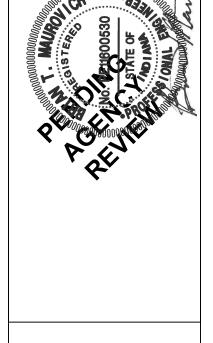


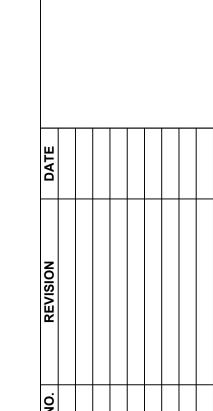


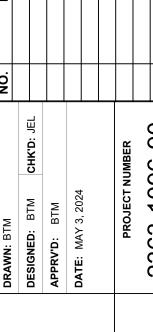


MJ RETAINER







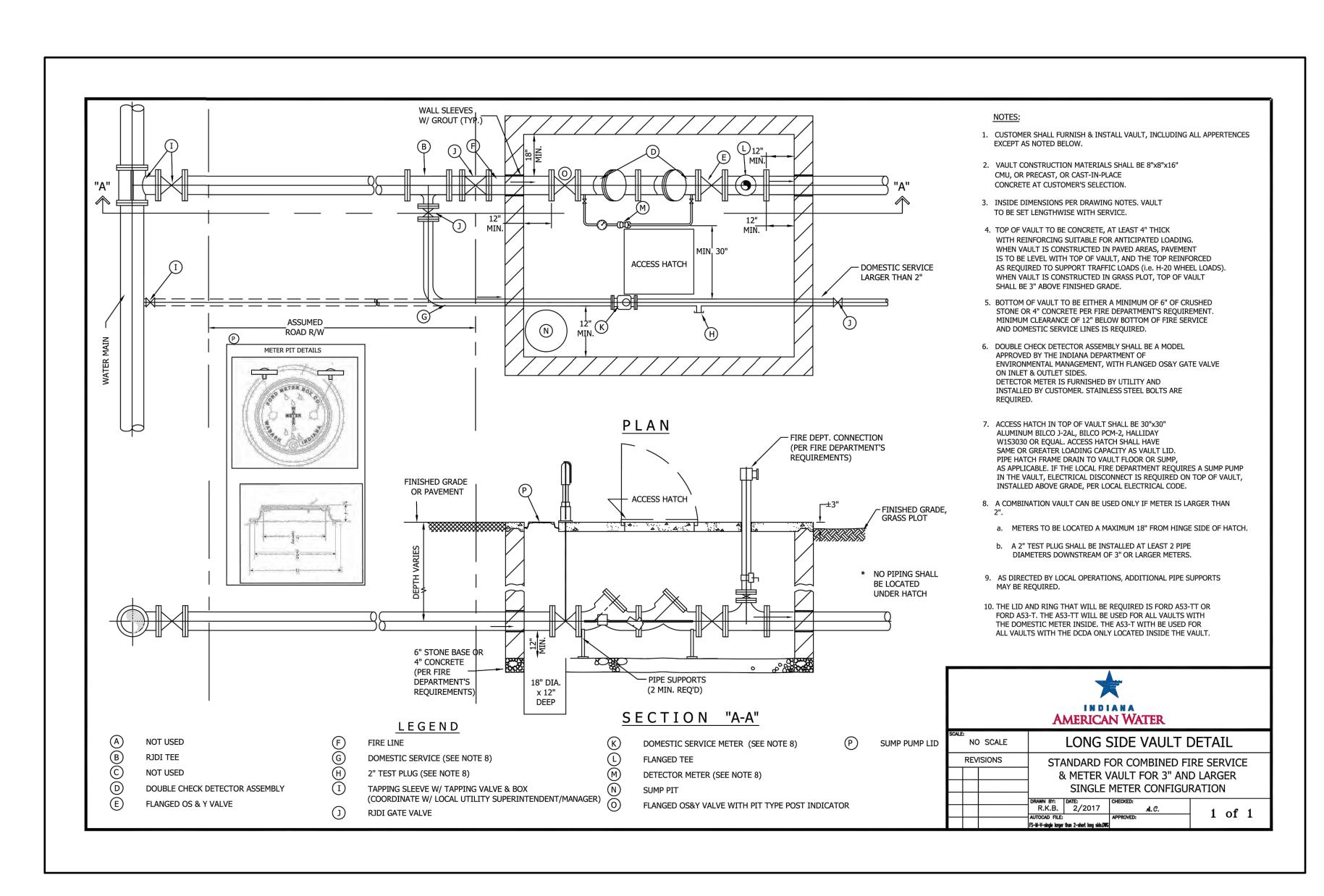


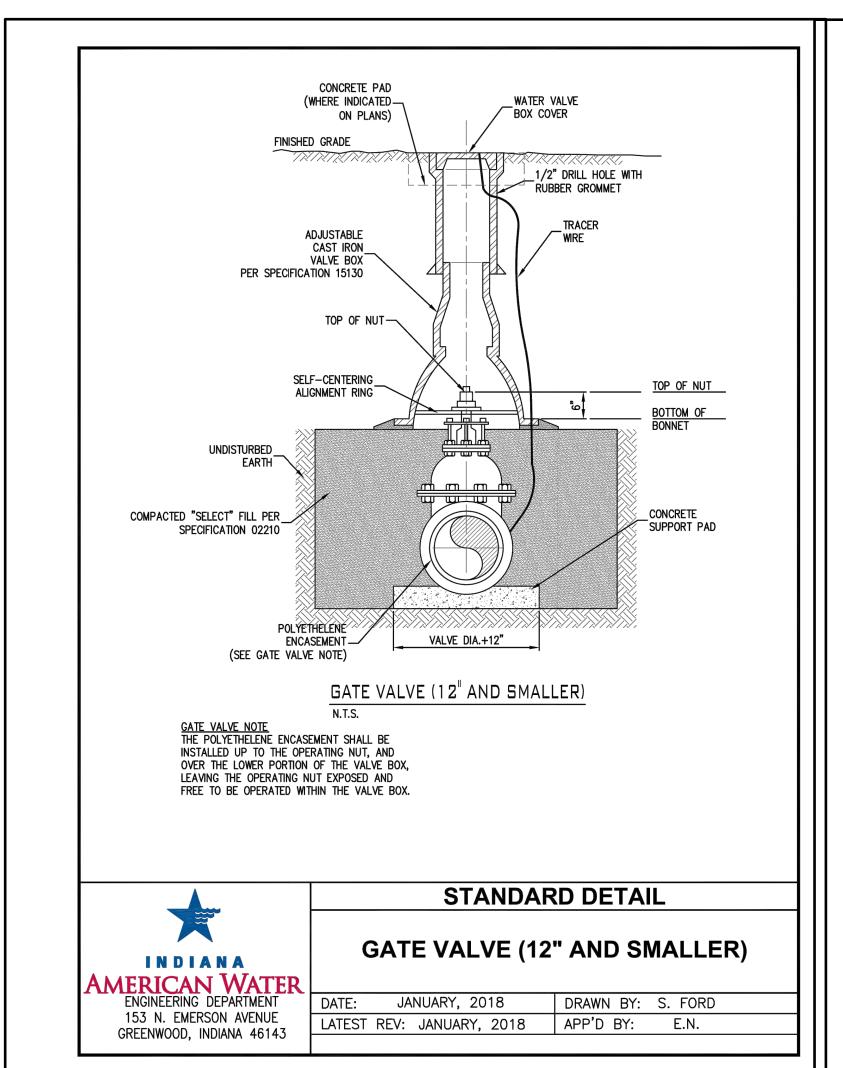


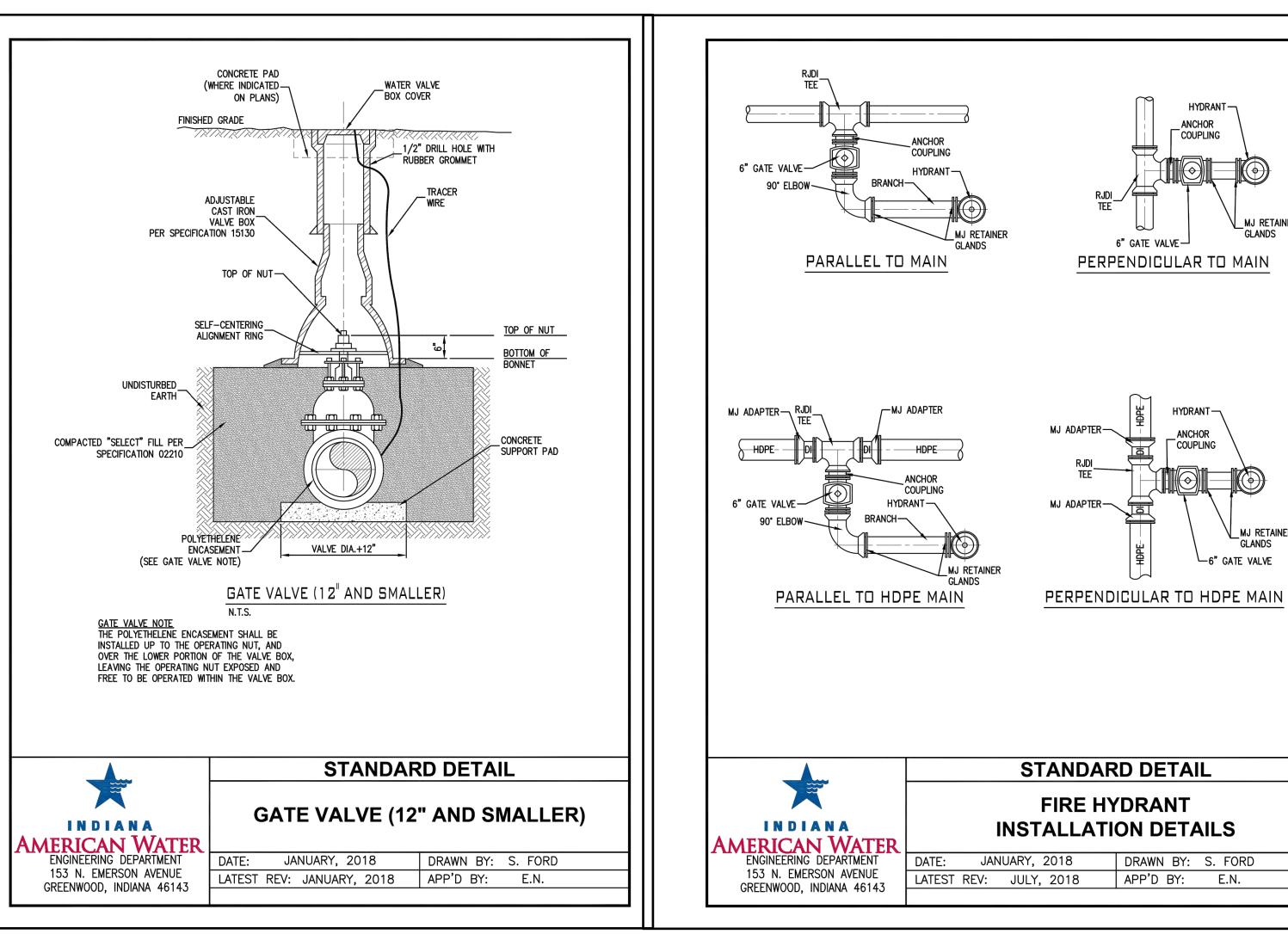


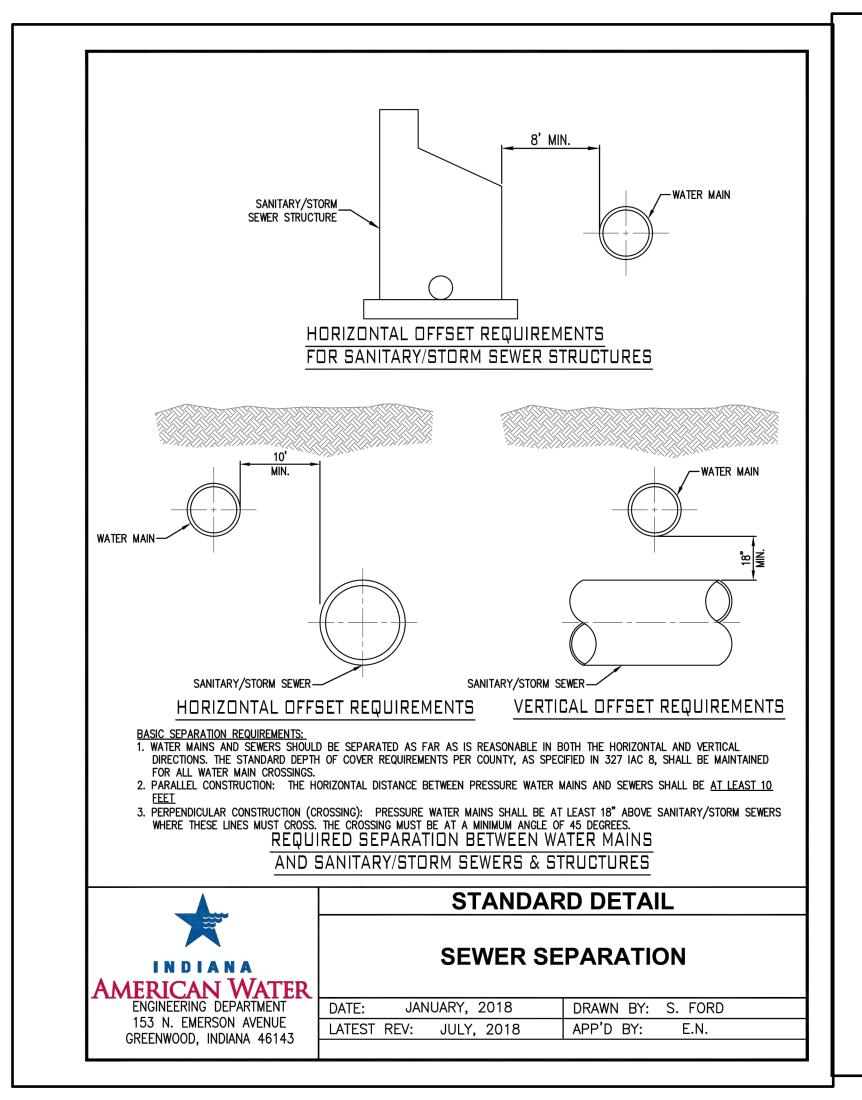


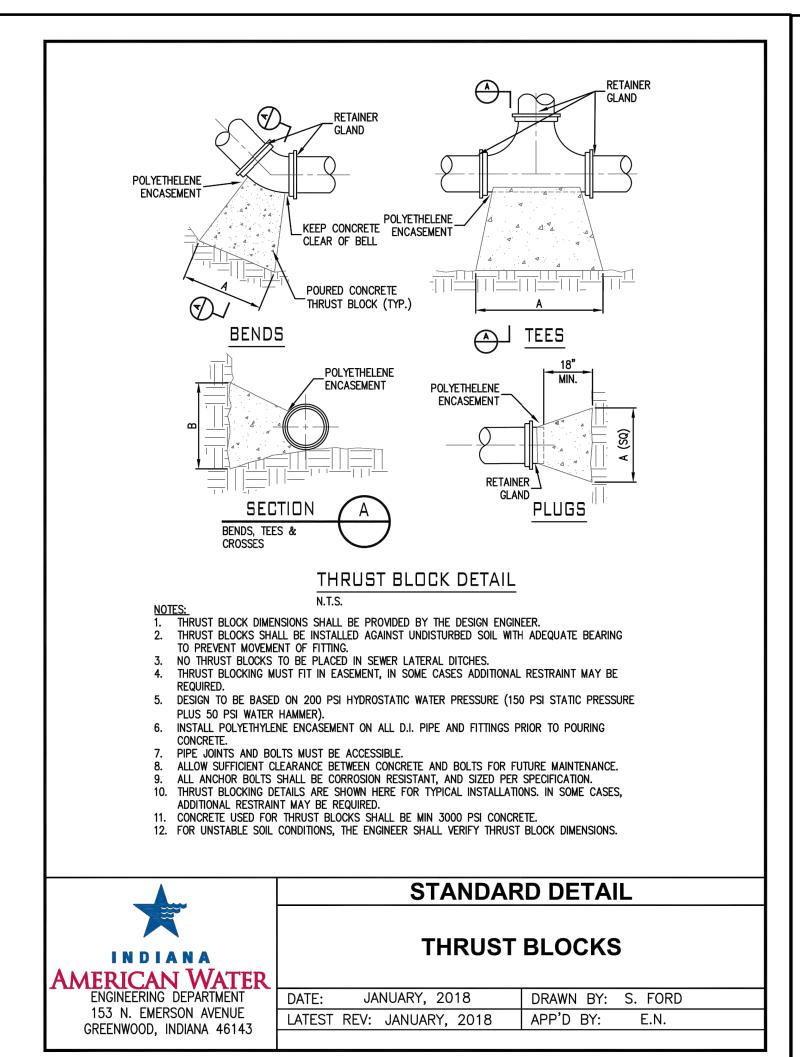
SITE DEVELOPMENT

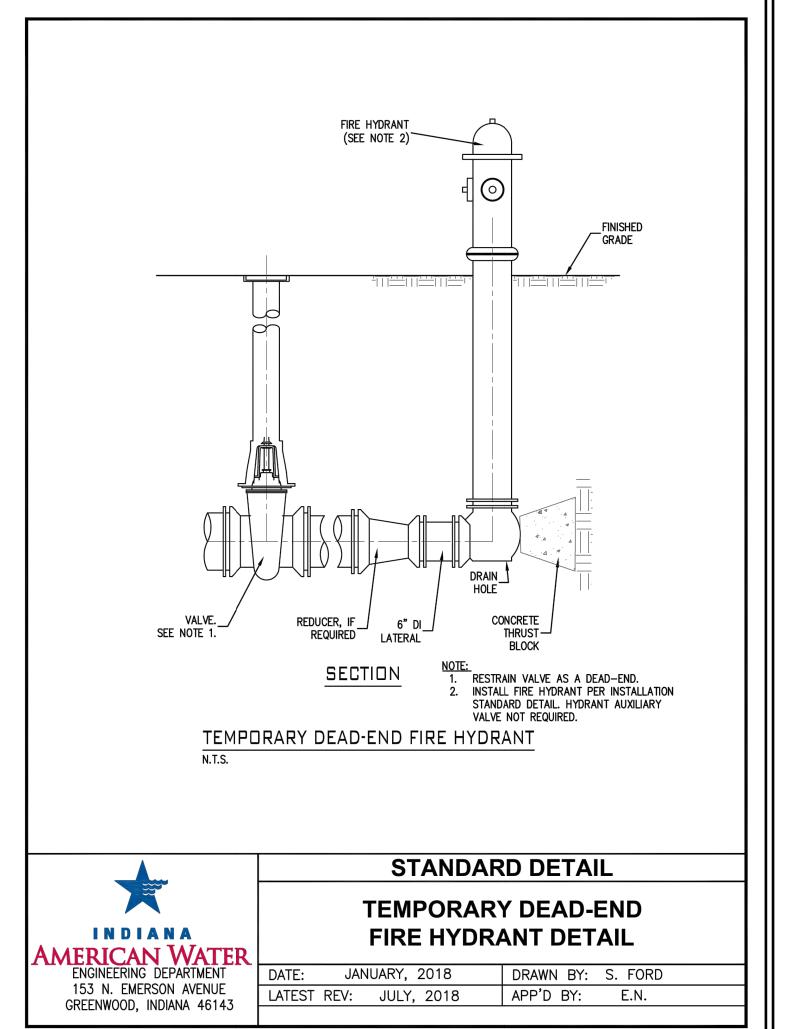


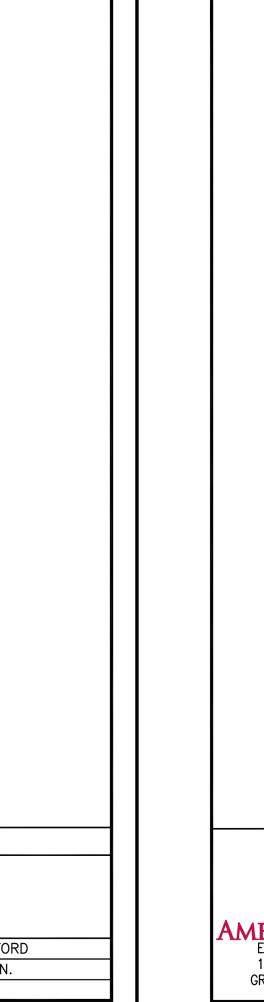


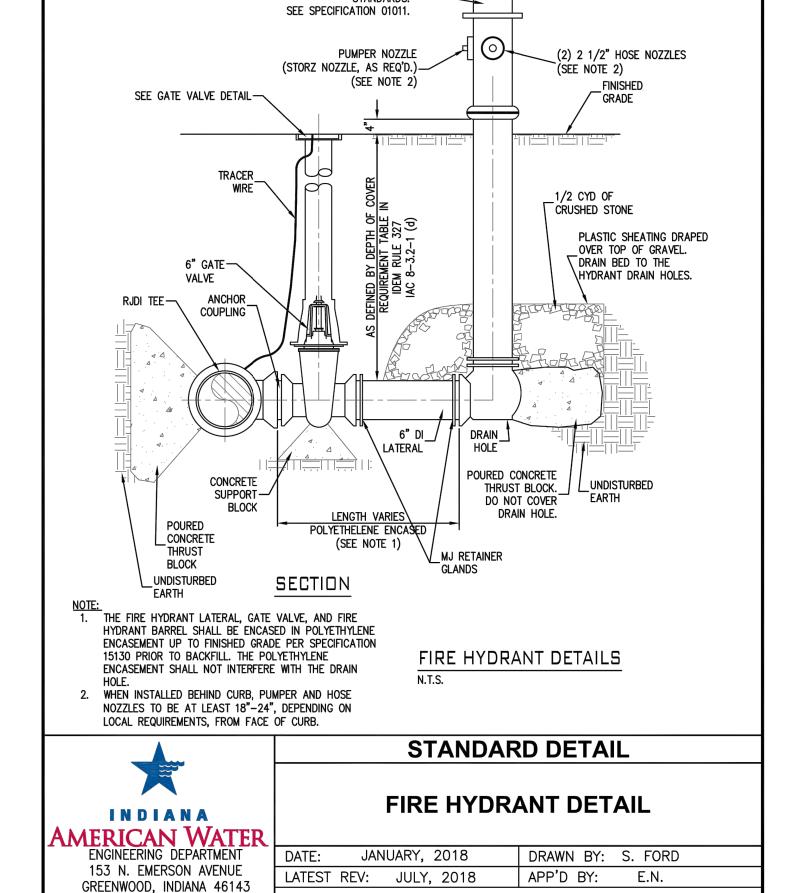




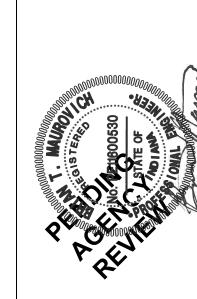








FIRE HYDRANT PER LOCAL OPERATIONS



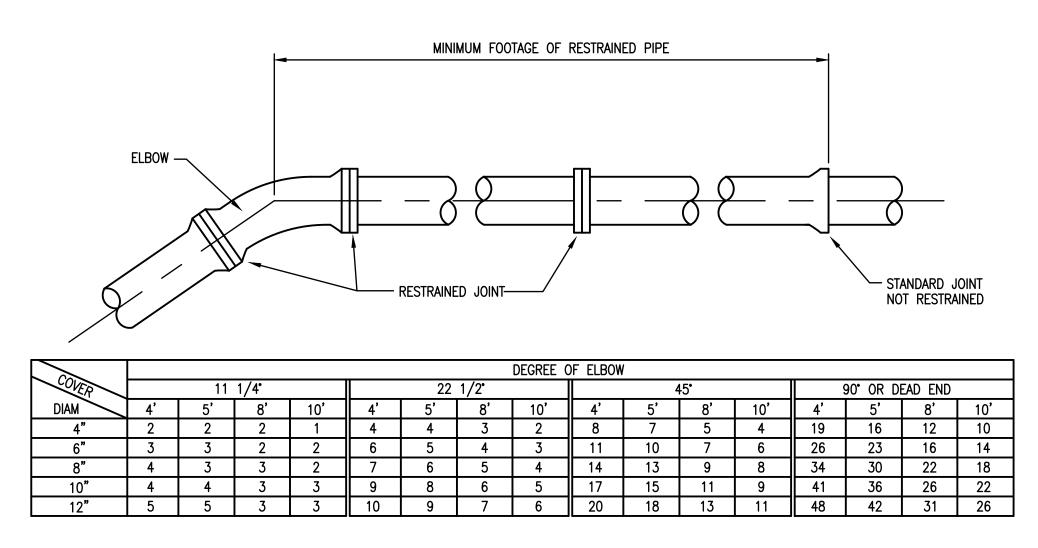
DRAWING NUMBER

SD4.12

RESTRAINED PIPE SYSTEM PARAMETERS TEST PRESSURE — 200 PSI SOIL TYPE — CL (ASTM STD. D2487) BEDDING — COMPACTED GRANULAR MATERIAL

RESTRAINING ROD PARAMETERS
PRESSURE - 2000 PSI
SAFETY FACTOR - 2.5
THREAD TYPE - AMERICAN COARSE

SAFETY FACTOR - 2 CONSULT WITH ENGINEER FOR ANY VARIATIONS ENCOUNTERED FROM THESE PARAMETERS.



- PROPOSED SEWER PIPE CROSSING NEW WATER MAIN ----RESTRAINED JOINTS WITH MEGALUGS, SAND BACKFILL CENTER 20' LENGTH OF WATER MAIN ON PROPOSED STORM CROSSING

WATERMAIN UNDER SEWER DETAIL

PER TRENCH DETAIL

SECTION A

UTILITY CROSSING DETAIL

upper pipe

- CONCRETE SADDLE IF NECESSARY

WATERMAINS

4" BEDDING (MIN.)

STRENGTH = 4000 PSI.

CONCRETE SADDLE IF NECESSARY

FULL DEPTH GRANULAR FILL:

NO. 8 CRUSHED STONE FOR

for PIPE CROSSINGS WITH LESS THAN 18" SEPARATION, USE CONCRETE SADDLE.

SUBJECT TO ENGINEER'S APPROVAL.

CONCRETE PER SPECIFICATIONS 28 DAY

MAINTAIN 18" VERTICAL AND 10' HORIZONTAL SEPARATION BETWEEN WATERMAINS AND SEWERS. WHEN THIS IS NOT

3 IN ALL LOCATIONS WHERE GAS PIPING CROSSES BENEATH SEWER PIPING, THE GAS PIPING SHALL BE SLEEVED WITH

POSSIBLE, THE SEWER PIPE SHALL BE PRESSURE RATED

FOR AT LEAST ONE LENGTH OF PIPE. PIPE SELECTION IS

STEEL PIPE, FOR A MINIMUM OF 20'. NO JOINTS IN THE STEEL SLEEVE SHALL BE LOCATED BELOW THE SEWER

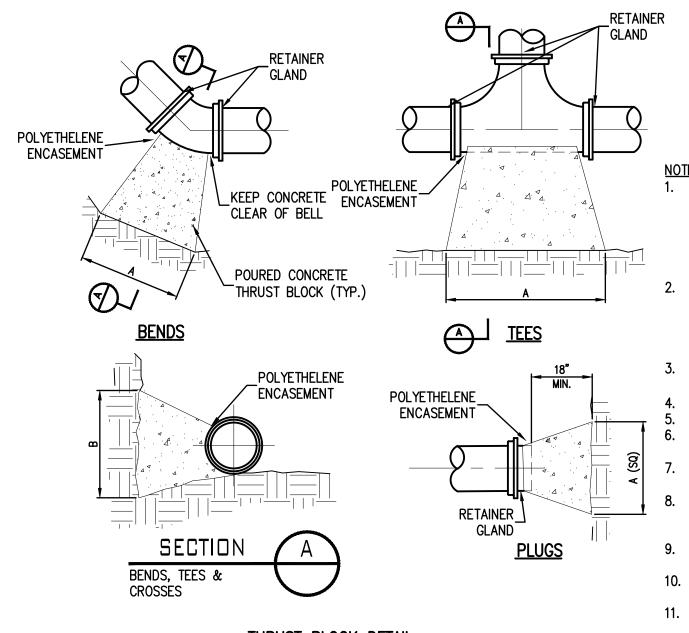
OUTSIDE DIAMETER (O.D.)

SEWERS AND SAND FOR

SCALE - N.T.S.

— FINISH GRADE

RESTRAINED JOINT DETAIL SCALE - N.T.S.



1. COVER OVER TOP OF PIPE SHALL BE BELOW FROST LINE OR 30" MINIMUM, 72" MAXIMUM ACCORDING TO REGULATORY REQUIREMENTS. IF GRADING PLANS RECEIVED BY ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS. THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL WITH ADEQUATE BACKING TO PREVENT MOVEMENT OF FITTING. WHERE UNDISTURBED SOIL IS NOT PRESENT, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY. BASED ON 200 PSI (150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER) AND 2000 PSF SOIL BEARING. POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE. ALL ANCHOR BOLTS SHALL BE COR-BLUE, MINIMUM 1/2" DIAMETER, COAT EXPOSED ROD WITH ASPHALT CEMENT AFTER CONCRETE HAS SET. ALL M.J. AND FLG. FITTINGS TO RECEIVE TRUST BLOCKS SHALL HAVE THE FASTENER AREAS FELT WRAPPED AND TAPED PRIOR TO THE CONCRETE POUR TO ALLOW FUTURE ACCESS TO THE FASTENERS AT THE JOINTS. 9. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED. 10. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE. 11. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.

<u>THRUST</u>	BLOCK	<u>DETAIL</u>
N.T.S.		

DIDE CIZE	90 DEGREE BENDS	45 DEGREE BENDS	11.25 DEGREE BENDS	22.5 DEGREE BENDS	TEES/PLUGS
PIPE SIZE	AREA (sq ft)	AREA (sq ft)	AREA (sq ft)	AREA (sq ft)	AREA (sq ft)
4	1.0	0.54	0.14	0.28	1.41
6	2.2	1.22	0.31	0.62	3.18
8	4.0	2.16	0.55	1.10	5.65
10	6.2	3.38	0.87	1.72	8.84
12	9.0	4.87	1.25	2.48	12.72
14	12.2	6.63	1.70	3.38	17.32
16	16.0	8.66	2.22	4.41	22.62
20	25.0	13.53	3.46	6.90	35.34
24	36.0	19.48	4.99	9.93	50.89

HORIZONTAL THRUST BLOCK DETAIL

LUUSE SAND	3,000	.00	3.	ALL CONCRETE SHALL HAVE A 28
MEDIUM COMPACT SAND	4,000	.50] 3.	DAY STRENGTH OF 2500 PSI
VERY COMPACT SAND	6,000	.41		MINIMUM.
LOOSE GRAVEL, SAND MIX	6,000	.41	4.	WITH RESPECT TO THE
MEDIUM COMPACT MIX	9,000	.33	 	REINFORCING BARS SHOWN ON
VERY COMPACT MIX	12,000	.29		
- () - ,	ED ON SOFT CLAY BEARING PRESS BAR SIZE = (4 BARS, M	URE = 1,000 = 0.4 D ²	•	THE BELOW PLANS & SECTIONS, THEIR NOMINAL SIZE IS EQUAL TO THE PRODUCT OF THE INSIDE DIAMETER OF THE PIPE TIMES THE MULTIPLIER SHOWN. (DECIMALS ARE TO BE ROUNDED TO THE NEXT WHOLE NUMBER).
2.5 D	7.5 DS	NCRETE -	4 [BAR LENGTH = 0.075 D (12" MfNIMUM)

SECTION A-A

.41

VERTICAL THRUST BLOCK DETAIL

<u>PROFILE</u>

SOIL FACTOR TABLE

SOFT CLAY

STIFF CLAY

HARD CLAY

LOOSE SAND

BRG. CAPACITY FACTOR

PSF

6,000

"D" INSIDE DIAMETER OF PIPE "S"

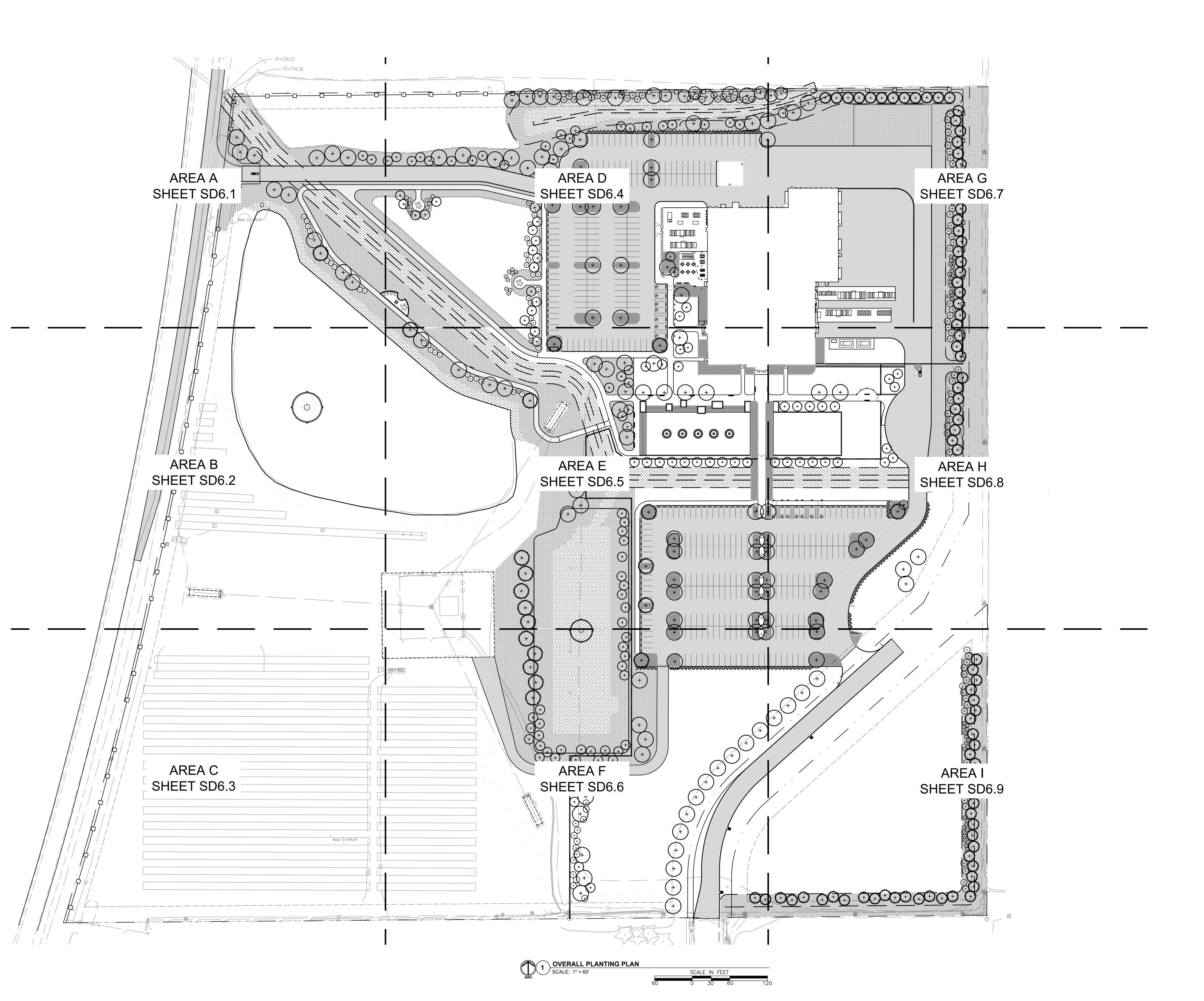
TRENCH SIDES AND BOTTOMS ARE

FILL IS PERMITTED BEHIND THE

TO BE OF UNDISTURBED EARTH. NO

(SEE "SOIL FACTOR TABLE")

THRUST BLOCK.

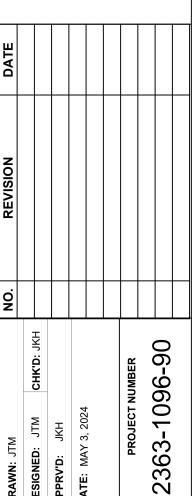


GENERAL PLANTING NOTES

- A. CONTRACTOR SHALL FIELD LOCATE (STAKE AND MARK) PLANT LOCATIONS FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO FIELD ADJUST ALL PLANT LOCATIONS AS DEEMED NECESSARY.
- CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES NOT SHOWN ON PLANS IN ACCORDANCE WITH SPEC. SECTION 329200.
- CLEAR AND GRUB ALL AREAS DESIGNATED FOR PROPOSED PLANTING/IMPROVEMENTS AS NECESSARY TO INSTALL
- PROPOSED LAWN AND/OR PLANTINGS.
- D. ALL PLANTING BEDS ADJACENT TO LAWN SHALL BE EDGED WITH BLACK STEEL EDGING AS SHOWN ON PLANS.





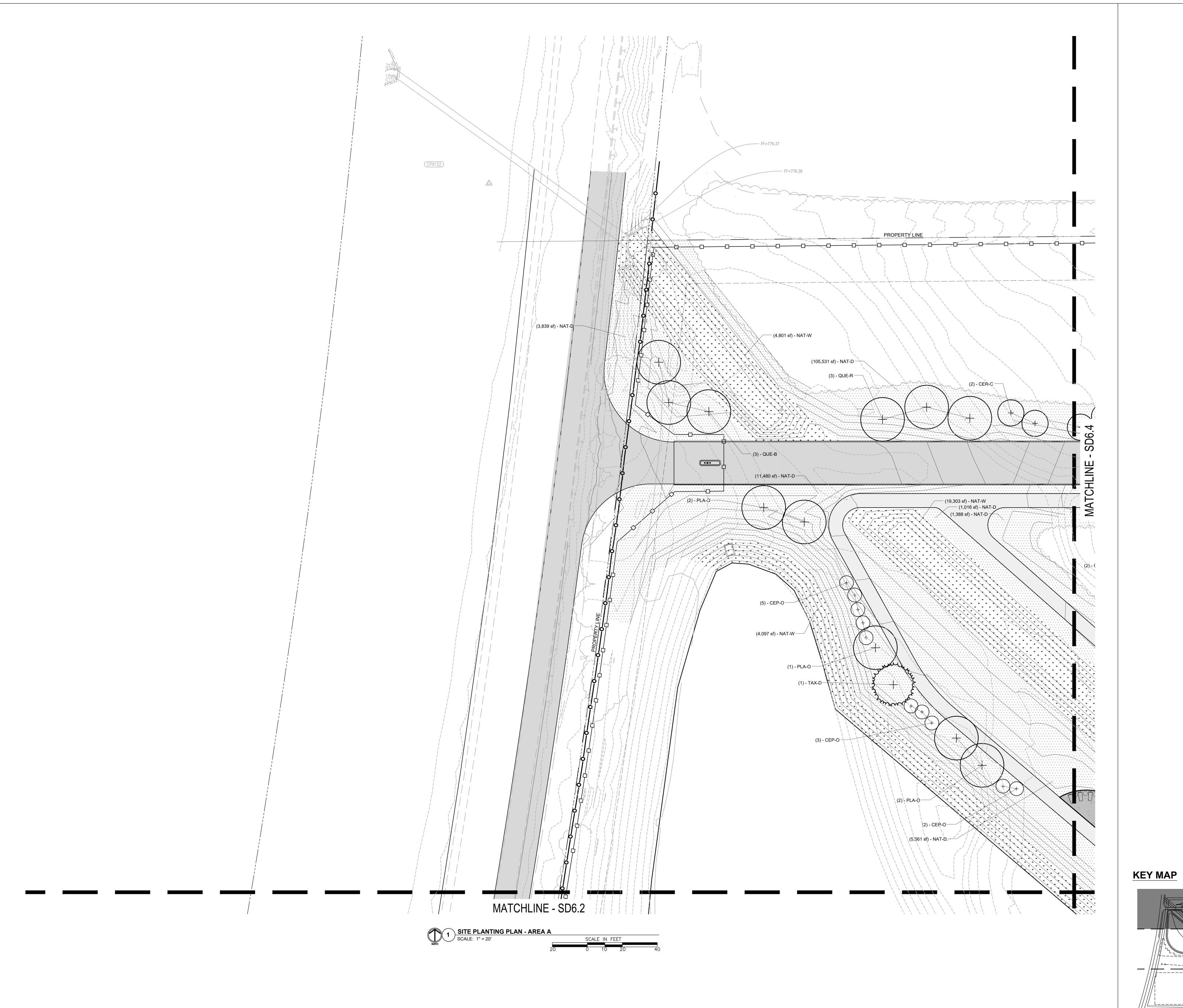




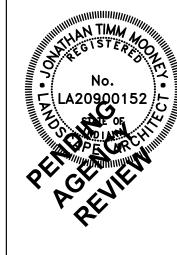
KEY MAP

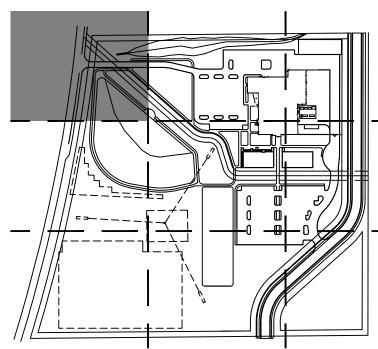




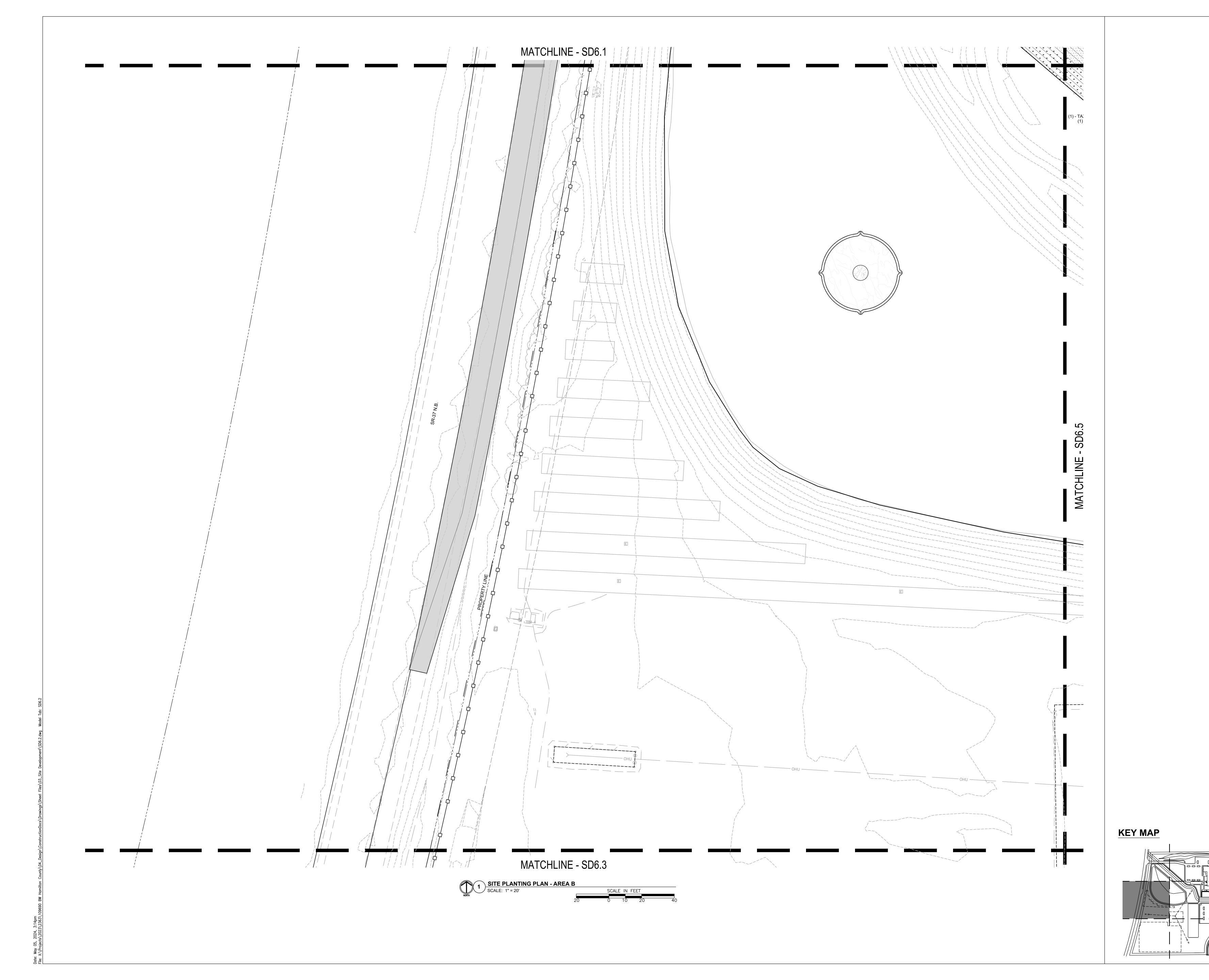




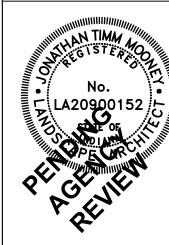


















SD6.2

