

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DOCUMENT IS STRICTLY PROHIBITED. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. A2H, INC. SHALL NOT BE RESPONSIBLE FOR ANY DELAYS OR DAMAGES CAUSED BY THE USER'S FAILURE TO OBTAIN SUCH PERMITS AND APPROVALS. A2H, INC. SHALL NOT BE RESPONSIBLE FOR ANY DELAYS OR DAMAGES CAUSED BY THE USER'S FAILURE TO OBTAIN SUCH PERMITS AND APPROVALS.

# TOWN OF HALLS, TENNESSEE

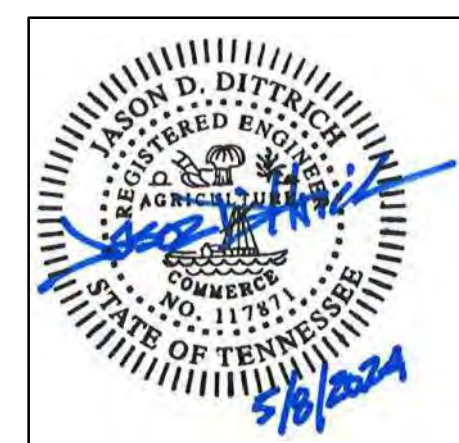
## 2023 SITE DEVELOPMENT GRANT

### BEECH BLUFF UTILITY EXTENSION



CONSTRUCTION DOCUMENTS  
MAY 08, 2024  
PROJECT NUMBER 23134

CIVIL ENGINEER



## STATE ROUTE 209

### NORTH OF COON DANCE ROAD & SOUTH OF SUNROW CREEK

A2H, INC.  
3009 DAVIES PLANTATION ROAD  
LAKELAND, TN 38002  
P. 901.372.0404  
WWW.A2H.COM

\\020230231342\Cmp\p0808\00 COVER SHEET.dwg  
1/26/24 10:47:43 AM

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGE OR MODIFICATION TO THIS DOCUMENT SHALL BE THE RESPONSIBILITY OF THE USER. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

Item no.	Description	UNIT	QUANTITY
<b>Beech Bluff Utility Extension</b>			
707-01	MOBILIZATION	LS	1
795-03.06	8" PVC WATER WATER LINE (SDR-21)	LF	2345
795-07.06	8" x 8" TAPPING SLEEVE AND VALVE	EACH	1
795-08.05	8" GATE VALVE ASSEMBLY	EACH	2
795-11.02	FIRE HYDRANT ASSEMBLY	EACH	1
797-03.08	6" PVC SEWER FORCE MAIN (SDR-21)	LF	2840
797-06.44	JACK/BORE 16" STEEL CASING	LF	210
797-07.06	48" MANHOLE, 12-14 FEET DEEP (FLAT TOP, FUTURE WET WELL)	EACH	1
791-06.52	4" HDPE HOT TAP GAS CONNECTION	EACH	1
791-03.04	4" HDPE GAS MAIN	LF	700
491-07.02	4" HDPE GAS VALVE ASSEMBLY	EACH	2
920-10.04	ROADWAY TRACER WIRE BOX	EACH	7
303-01	MINERAL AGGREGATE, TYPE A, GRADING D (LIMESTONE)	TON	200
307-01.08	ASPHALTIC CONCRETE MIX (PG64-22) (BPMB-HM) GRADING BM2	TON	15
411.01.10	ASPHALTIC CONCRETE MIX (PG64-22) (BPMB-HM) GRADING D	TON	10
795-10.05	2" AIR RELIEF VALVE	EACH	5

**D1**  
SCHEDULE OF QUANTITIES

**GENERAL NOTES**

- THE CONTRACTOR SHALL NOTIFY THE TOWN OF HALLS PUBLIC WORKS DEPARTMENT BEFORE COMMENCING CONSTRUCTION.
- THE EXACT LOCATION OF ALL EXISTING UTILITIES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. CARE SHALL BE TAKEN TO PROTECT ANY UTILITIES THAT ARE TO REMAIN AND ALL CONSTRUCTION SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY/AGENCY. ANY DAMAGE, REPAIR, OR RELOCATION SHALL BE DONE BY LOCAL STANDARDS AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED PRIOR TO ANY CONSTRUCTION ACTIVITIES TAKING PLACE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ANY UTILITY COMPANY WHICH MAINTAINS A UTILITY LINE WITHIN THE BOUNDARIES OF THE PROJECT BEFORE THE INITIATION OF ANY CONSTRUCTION OR DEMOLITION ON THE PROJECT OR IN THE STREETS BORDERING THE PROJECT. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DAMAGE INCURRED BY ANY UTILITY COMPANY TO THEIR UTILITY LINES WHETHER SHOWN ON THE CONSTRUCTION PLANS OR NOT, DURING WORK ON THE PROJECT.
- SEVENTY-TWO (72) HOURS BEFORE BEGINNING ANY EXCAVATION, THE CONTRACTOR SHALL CALL TENNESSEE ONE-CALL 811 AND THE LOCAL UTILITY COMPANIES FOR THE LOCATION OF UNDERGROUND UTILITIES. THE CONTRACTOR IS ADVISED TO INQUIRE ABOUT ANY UTILITY OPERATORS WHO MAY NOT PARTICIPATE IN THE ONE CALL SYSTEM.

THE FOLLOWING INFORMATION IS REQUIRED WHEN NOTIFYING UTILITY OWNERS OF YOUR INTENT TO EXCAVATE.

NAME OF CALLER	START DATE & TIME
TELEPHONE NUMBER	TYPE OF WORK
COUNTY	BLASTING
TOWN	WORK BEING DONE BY
STREET ADDRESS	WORK BEING DONE FOR
NEAREST INTERSECTING ROAD	

THIS INFORMATION IS DISTRIBUTED TO MEET THE REQUIREMENTS OF CFR TITLE 49 PART 192.614 OF THE PIPELINE SAFETY ACT.

- ALL NEWLY CUT AND/OR FILLED AREAS LACKING ADEQUATE VEGETATION SHALL BE PERMANENTLY STABILIZED AS REQUIRED TO EFFECTIVELY PREVENT SOIL EROSION PER THE TOWN TOWN OF HALLS AND STATE REGULATIONS.
- ALL CONSTRUCTION WITHIN PUBLIC EASEMENTS AND RIGHT-OF-WAYS SHALL MEET THE THE TOWN OF HALLS AND TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARDS.
- THE CONTRACTOR MUST HAVE WRITTEN APPROVAL FROM THE PROJECT ENGINEER BEFORE ANY CHANGE IN DESIGN IS MADE.
- THE CONTRACTOR SHALL NOT ENTER UPON NOR CAUSE DAMAGE TO ANY ADJACENT PROPERTIES WITHOUT WRITTEN PERMISSION FROM SAID PROPERTY OWNERS.
- ANY EXISTING UTILITIES REQUIRING RELOCATION OR REMOVAL SHALL BE THE DEVELOPER'S RESPONSIBILITY.
- UTILITY SERVICES INCLUDING BUT NOT LIMITED TO POWER, SEWER, WATER, GAS, COMMUNICATION, ETC. SHALL BE PROTECTED AND MAINTAINED IN WORKING ORDER TO ALL ADJACENT PROPERTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PHASING UTILITY DEMOLITION AND CONSTRUCTION AND/OR PROVIDING TEMPORARY SERVICES TO AFFECTED PROPERTIES.
- PROTECT ALL EXISTING BENCHMARKS, IRON PINS, SURVEY CONTROL POINTS, OR OTHER MONUMENTS TO REMAIN.
- NOTHING IN THE GENERAL NOTES OR SPECIAL PROVISIONS SHALL RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITIES TOWARD THE SAFETY AND CONVENIENCE OF THE GENERAL PUBLIC AND THE RESIDENTS ADJACENT TO THE PROPOSED CONSTRUCTION AREA.

**STAGING/STORAGE AREAS**

- THE EXACT LIMITS OF THE CONTRACTOR'S STAGING AND STORAGE AREA SHALL BE ESTABLISHED BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER. ANY AND ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S OPERATIONS SHALL BE ARRANGED AND PAID FOR BY THE CONTRACTOR DIRECTLY WITH THE APPROPRIATE UTILITY AGENCIES. UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL RESTORE ALL GRASSED AND PAVED AREAS USED FOR STAGING AND STORAGE AREAS TO THEIR ORIGINAL CONDITION, INCLUDING THE ESTABLISHMENT OF TURF WHERE REQUIRED. NO DIRECT MEASUREMENT OR PAYMENT WILL BE MADE FOR THE CONSTRUCTION, MAINTENANCE, RESTORATION, OR REPAIR TO STAGING AND STORAGE AREAS.

**SANITARY SEWER NOTES**

- CONTRACTOR SHALL ENSURE UNINTERRUPTED SEWER SERVICE ON EXISTING SEWER AND SERVICE CONNECTIONS BY PROVIDING AMPLE TEMPORARY WASTEWATER PUMPING AND/OR BYPASSING.
- THE CONTRACTOR SHALL VERIFY EXISTING DATA AND REPORT ANY SIGNIFICANT DISCREPANCIES TO THE ENGINEER.
- ALL SANITARY SEWER TO BE CONSTRUCTED AS PER TOWN OF HALLS STANDARD CONSTRUCTION SPECIFICATIONS.
- ALL SANITARY SEWER, INCLUDING SERVICE CONNECTIONS, WHICH HAS LESS THAN 1.5' CLEARANCE (OUTSIDE OF PIPES) WITH DRAINAGE OR IN FILLED AREAS SHALL BE CLASS 50 D.I.P. OR CONCRETE ENCASED, 10' MINIMUM BOTH SIDES OF CROSSING. ALL DUCTILE IRON PIPE (D.I.P.) SHALL BE POLYETHYLENE LINED OR SHALL BE TREATED WITH PROTECTO 401, TNEMEC 431 OR APPROVED EQUIVALENT.
- THE TOWN OF HALLS SHALL HAVE INGRESS/EGRESS RIGHTS TO USE PRIVATE DRIVES AND YARDS FOR THE PURPOSE OF MAINTAINING ALL PUBLIC SEWER LINES AND SHALL BEAR NO RESPONSIBILITY FOR THE MAINTENANCE OF SAID PRIVATE DRIVES AND YARDS.
- NO TREES, SHRUBS, PERMANENT STRUCTURES OR OTHER UTILITIES (EXCEPT FOR CROSSINGS) WILL BE ALLOWED WITHIN SANITARY SEWER EASEMENT. NO OTHER UTILITIES OR SERVICES MAY OCCUPY SANITARY SEWER EASEMENTS IN PRIVATE DRIVES AND YARDS EXCEPT FOR CROSSINGS.
- ALL PIPE RUNS CONSTRUCTED OF FLEXIBLE PIPE MATERIALS SHALL PASS A GO-NO GO DEFLECTION TEST.
- PRIOR TO BRINGING ANY PART OF THE NEWLY INSTALLED SANITARY SEWER SYSTEM ONLINE, ALL LINES AND MANHOLES SHALL PASS LEAK TESTING.

**WATER SPECIFICATION NOTES**

- ALL MATERIALS AND INSTALLATION SHALL CONFORM TO THE STANDARDS OF THE TOWN OF HALLS AND THE STATE OF TENNESSEE.
- BLOCKING OF FIRE HYDRANTS, TEES, AND BENDS REQUIRED.
- WATER LINES, VALVES, FITTINGS AND HYDRANT SHALL BE INSTALLED, DISINFECTED, PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS.
- ALL TRENCHES TO BE BACK-FILLED ACCORDING TO CONSTRUCTION SPECIFICATIONS.
- ALL TIES TO EXISTING WATER LINES MUST BE MADE STARTING WITH A VALVE IF NO VALVE EXISTS.

**WATER LINE TESTING**

- AT THE END OF CONSTRUCTION WHEN THE NEW WATER LINES ARE TO BE FILLED FOR FLUSHING AND PRESSURE TESTING, THE CONTRACTOR SHALL COORDINATE WITH THE OWNER/OPERATOR OF THE UTILITY TO ENSURE THAT LOW PRESSURE PROBLEMS DO NOT ARISE IN OTHER AREAS OF THE WATER SYSTEM DURING THIS PROCESS.
- ALL NEW WATER LINES ARE TO BE PRESSURE TESTED AND BACTERIAL SAMPLES ARE TO BE TAKEN AND APPROVED BEFORE CONNECTION TO SYSTEM.

**D3**  
GENERAL NOTES

**GENERAL**

SHEET NUMBER	SHEET NAME
G0.0	COVER SHEET
G0.1	SHEET INDEX AND GENERAL NOTES

**CIVIL**

SHEET NUMBER	SHEET NAME
C6.0	OVERALL UTILITY LAYOUT PLAN
C6.1	DETAILED UTILITY LAYOUT PLAN
C6.2	WATER LINE PLAN AND PROFILE
C6.3	SANITARY SEWER PLAN AND PROFILE
C6.4	SANITARY SEWER PLAN AND PROFILE
C6.5	SANITARY SEWER HYDRAULIC GRADE PROFILE
C10.0	CONSTRUCTION DETAILS
C10.1	CONSTRUCTION DETAILS
C10.2	CONSTRUCTION DETAILS

**B5**  
SHEET INDEX



**C5**  
VICINITY MAP

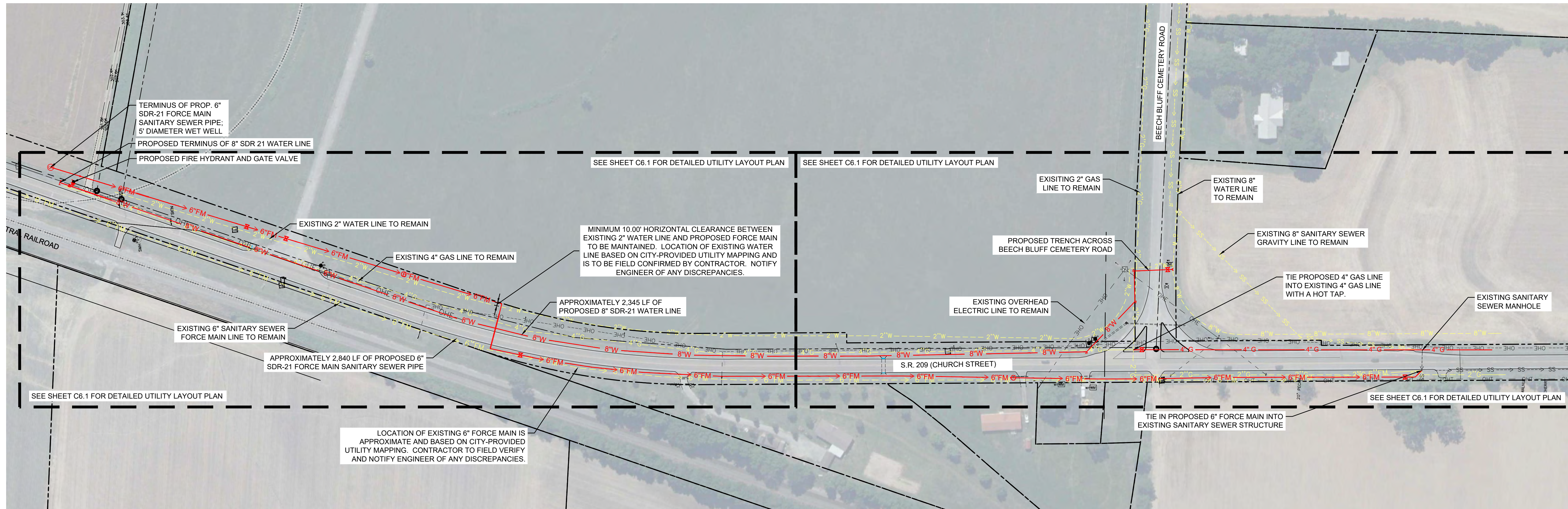


PROJECT NO.	DATE
2304	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

**SHEET INDEX AND GENERAL NOTES**

I:\02\2023\2304\Civil\Project\G0.0 COVER SHEET.dwg  
5/8/2024 10:58:11 AM  
JDD

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGE TO THIS DOCUMENT SHALL BE MADE BY A2H, INC. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION PROVIDED HEREON. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION PROVIDED HEREON.



TOWN OF HALLS

2023 SITE DEVELOPMENT GRANT  
BEECH BLUFF UTILITY EXTENSION

HALLS, TENNESSEE

CONSTRUCTION DOCUMENTS

REVISIONS

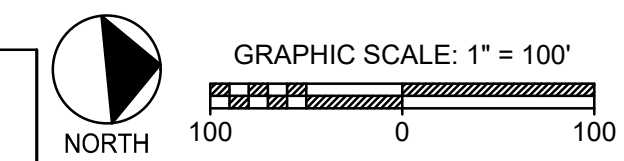
PROJECT NO.	DATE
23134	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

OVERALL UTILITY LAYOUT PLAN

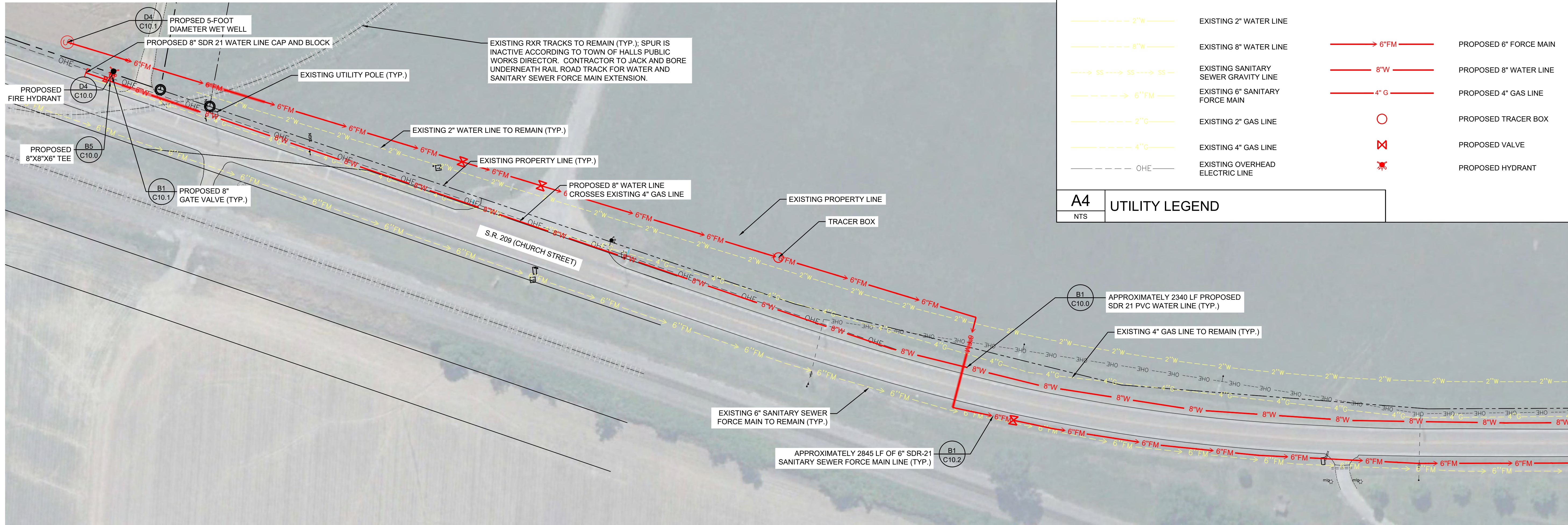
CIVIL SHEETS  
3 OF 11

**C6.0**

1/20/2023 10:42:23 AM C:\p\proj\23134\06.0 OVERALL UTILITY LAYOUT PLAN.dwg



THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY COPIES OR REPRODUCTIONS OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF A2H, INC. ARE STRICTLY PROHIBITED. A2H, INC. SHALL BE RESPONSIBLE FOR ANY AND ALL ERRORS OR OMISSIONS.

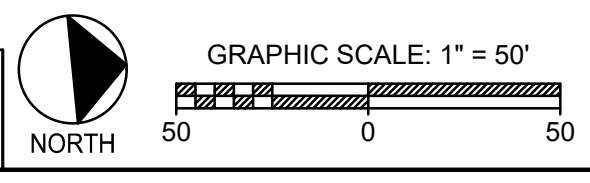
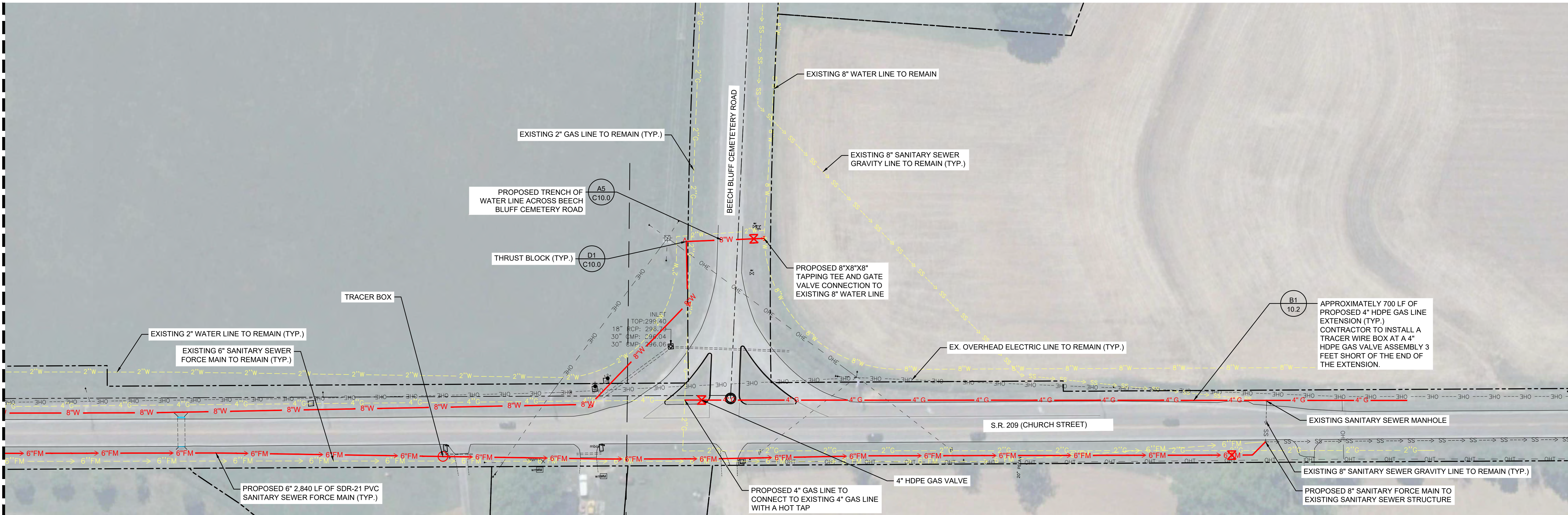


	EXISTING 2" WATER LINE		PROPOSED 6" FORCE MAIN
	EXISTING 8" WATER LINE		PROPOSED 8" WATER LINE
	EXISTING SANITARY SEWER GRAVITY LINE		PROPOSED 4" GAS LINE
	EXISTING 6" SANITARY FORCE MAIN		PROPOSED TRACER BOX
	EXISTING 2" GAS LINE		PROPOSED VALVE
	EXISTING 4" GAS LINE		PROPOSED HYDRANT
	EXISTING OVERHEAD ELECTRIC LINE		

**A4** UTILITY LEGEND  
NTS

MATCH LINE - SEE THIS SHEET

MATCH LINE - SEE THIS SHEET

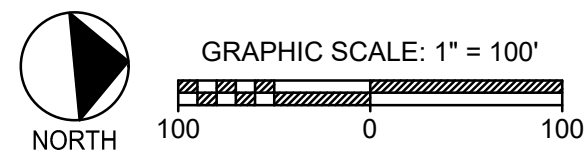
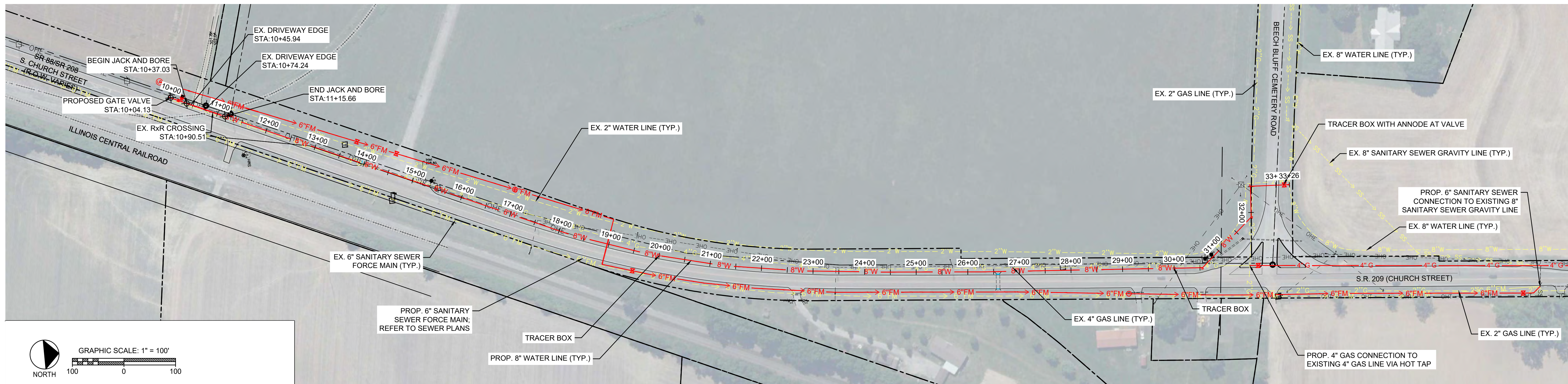


**D1** DETAILED UTILITY LAYOUT PLAN  
1" = 50'



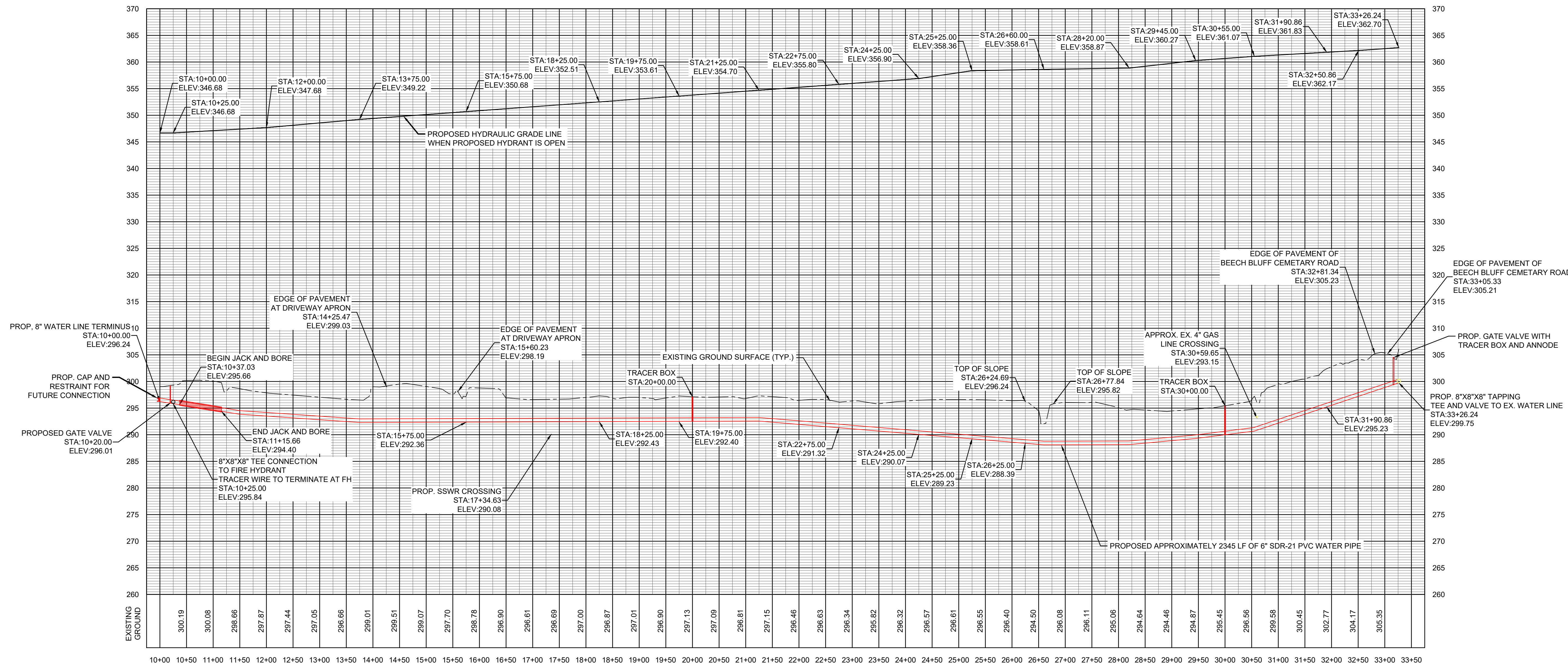
PROJECT NO.	DATE
2384	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGE OR MODIFICATION TO THIS DOCUMENT SHALL BE THE RESPONSIBILITY OF THE USER. THE USER SHALL BE SOLELY RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE SOLELY RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.



**A1**  
1" = 100'  
**WATER UTILITY LAYOUT PLAN VIEW**

**PROPOSED 8 INCH WATER LINE**

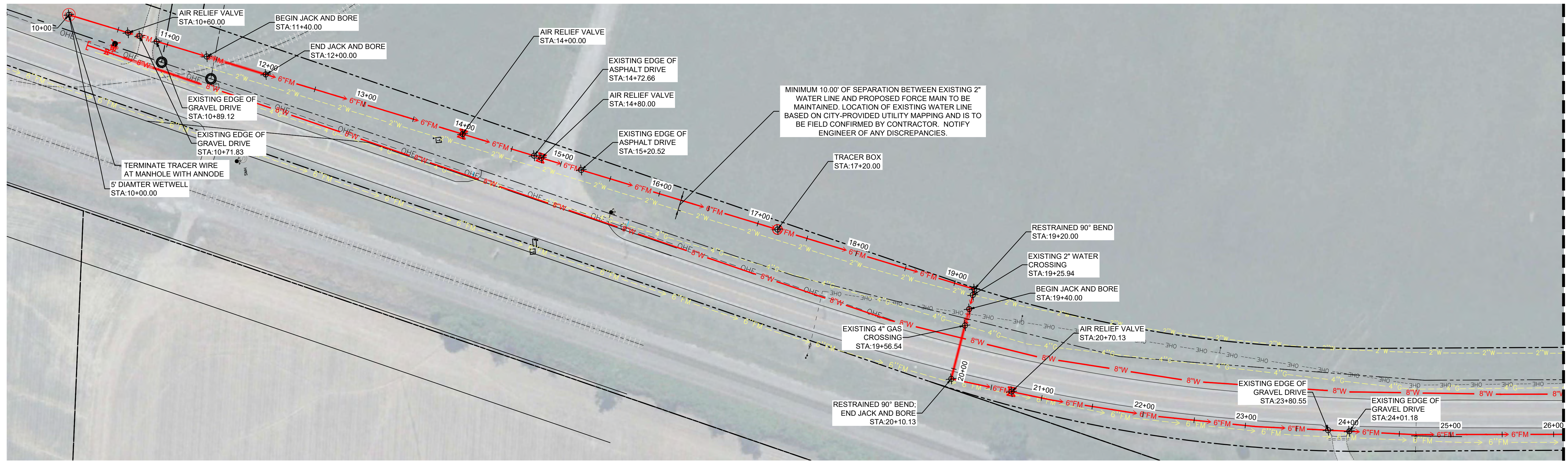


**D1**  
SEE DETAIL  
**WATER LINE PROFILE**

H: 1" = 100'  
V: 1" = 10'

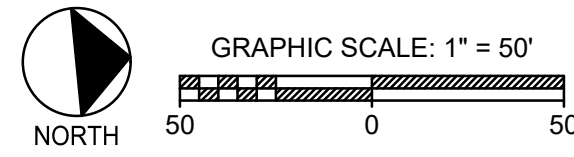


THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGES OR MODIFICATIONS TO THIS DOCUMENT SHALL BE THE RESPONSIBILITY AND LIABILITY OF THE ENGINEER AND ARCHITECT. NO LEGAL PROCEEDINGS SHALL BE FILED AGAINST THE ENGINEER OR ARCHITECT FOR NEGLIGENCE OR OTHERWISE ARISING OUT OF THE USE OF THIS DOCUMENT.

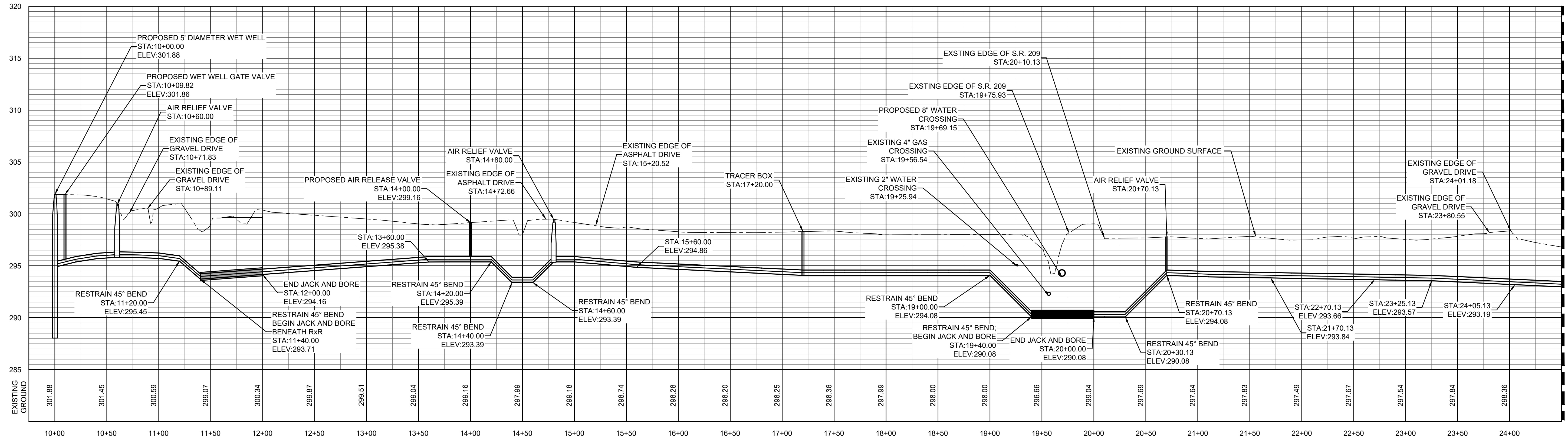


MATCH LINE - SEE SHEET C6.4

**A1** SANITARY SEWER LAYOUT PLAN VIEW  
1" = 50'



**PROP. 6 INCH SANITARY SEWER FORCE MAIN STA. 10+00 TO 24+50**



MATCH LINE - SEE SHEET C6.4

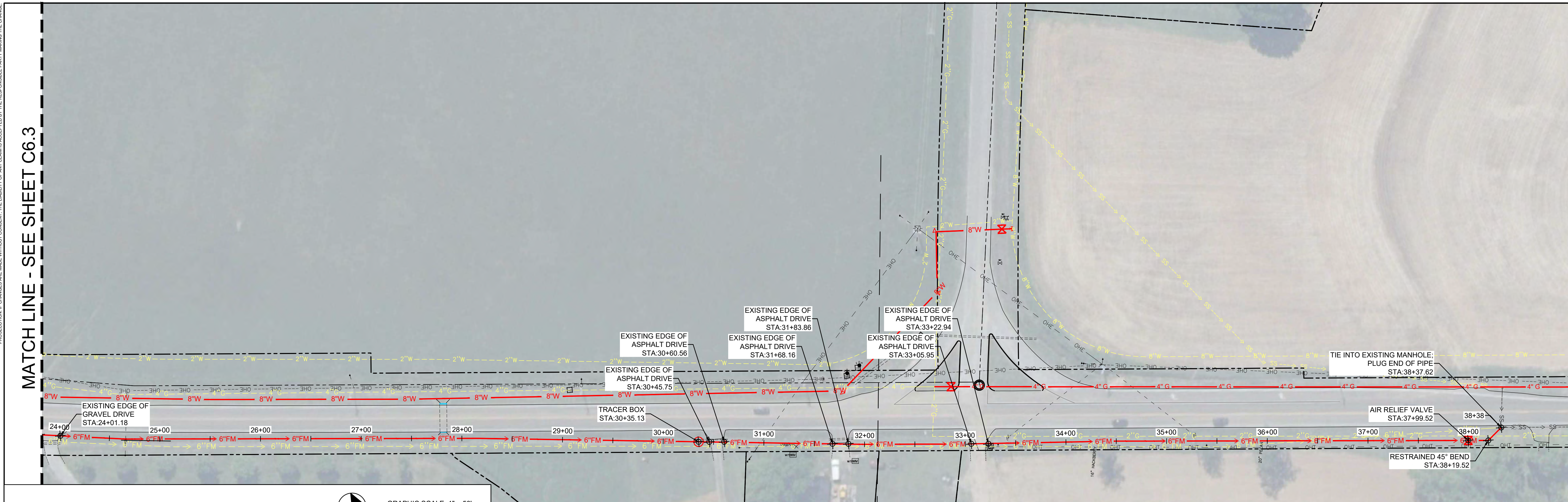
**D1** SANITARY SEWER FM PROFILE VIEW  
SEE DETAIL

H: 1" = 50'  
V: 1" = 5'

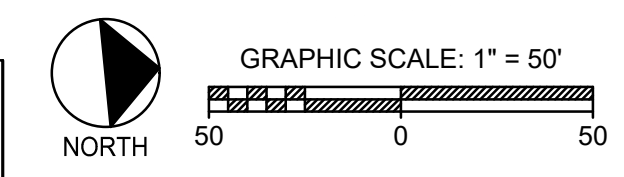


THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGES OR MODIFICATIONS TO THIS DOCUMENT SHALL BE THE RESPONSIBILITY AND SUBJECT OF WRITTEN INSTRUCTIONS FROM A2H, INC. TO THE ENGINEER AND ARCHITECT. THE ENGINEER AND ARCHITECT SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. A2H, INC. AND ITS CONSULTANTS SHALL NOT BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

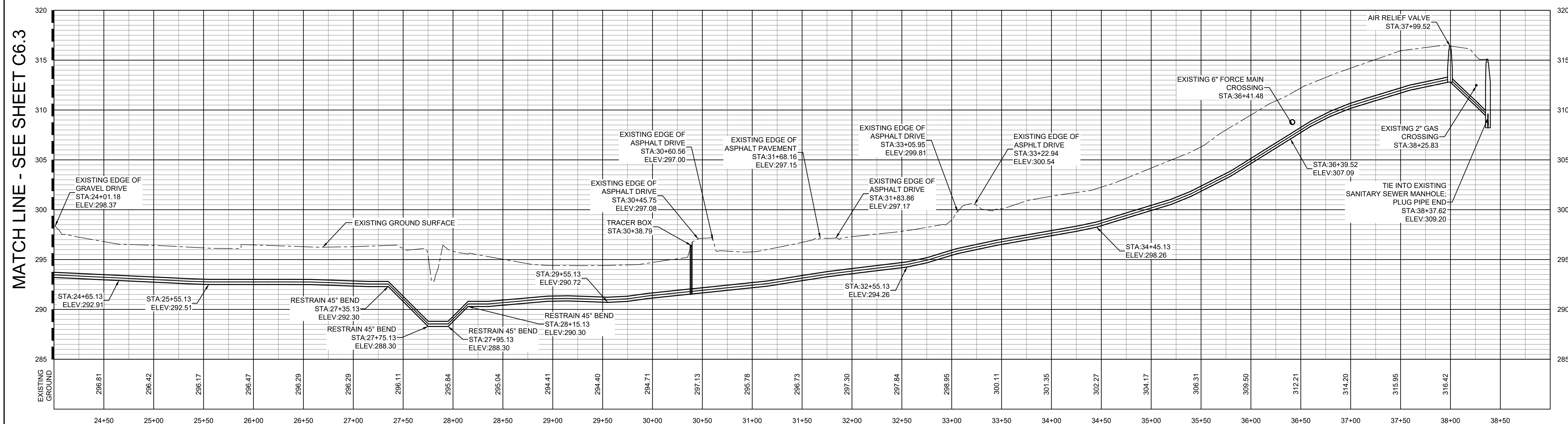
MATCH LINE - SEE SHEET C6.3



**A1** SANITARY SEWER LAYOUT PLAN VIEW  
1" = 50'



PROP. 6 INCH SANITARY SEWER FORCE MAIN STA. 24+50 TO 38+37.62



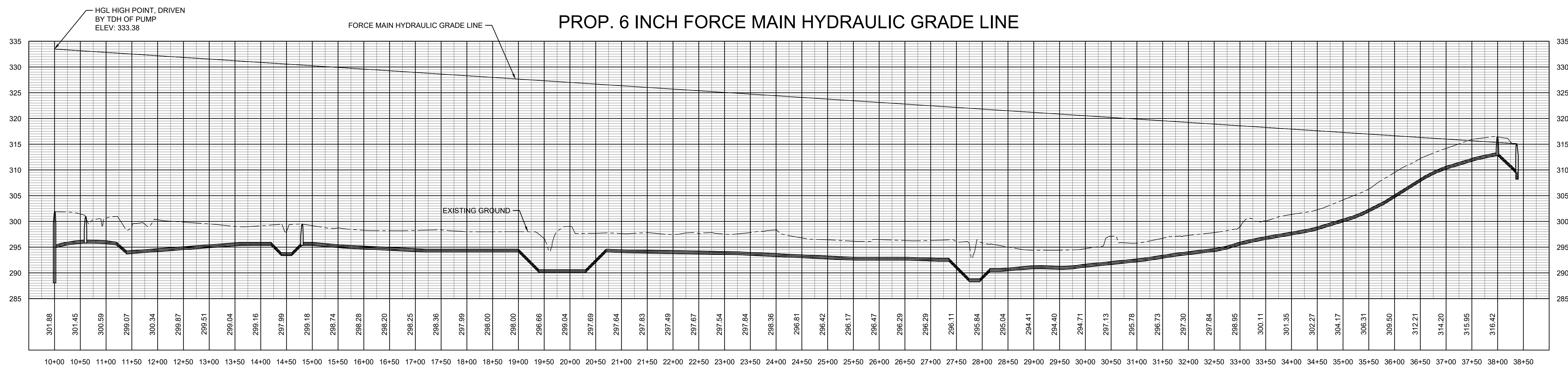
**D1** SANITARY SEWER FM PROFILE VIEW  
SEE DETAIL

H: 1" = 50'  
V: 1" = 5'



THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGE OR MODIFICATION TO THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF A2H, INC. IS PROHIBITED AND WILL BE SUBJECT TO LEGAL PROSECUTION. IT IS HEREBY ADVISED THAT THE LIABILITY OF A2H, INC. IS LIMITED TO THE EXTENT OF THE CONTRACT AND SHALL BE LIMITED TO THE

A2H  
11/20/2023 10:42:52 AM C:\p\proj\046 SANITARY SEWER PROFILE PLAN.dwg  
2024/05/08 10:42:52 AM SFA



**D1** SANITARY SEWER FM HYDRAULIC PROF.  
SEE DETAIL

H: 1" = 100'  
V: 1" = 10'



**TOWN OF HALLS**

**2023 SITE  
DEVELOPMENT GRANT  
BEECH BLUFF UTILITY  
EXTENSION**

**HALLS, TENNESSEE**

**CONSTRUCTION DOCUMENTS**

**REVISIONS**

PROJECT NO.	DATE
2304	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

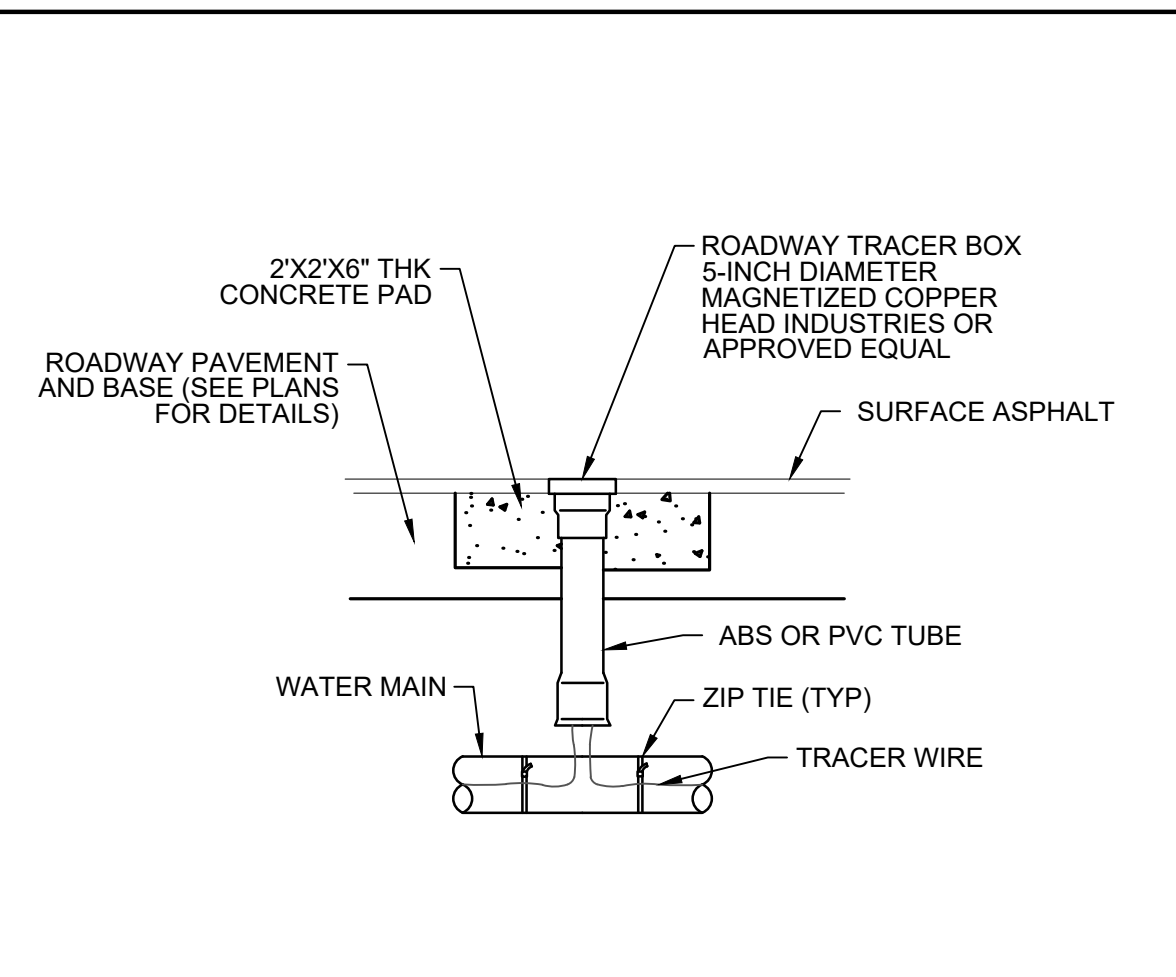
**SANITARY SEWER  
HYDRAULIC GRADE  
PROFILE**

CIVIL SHEETS  
8 OF 11

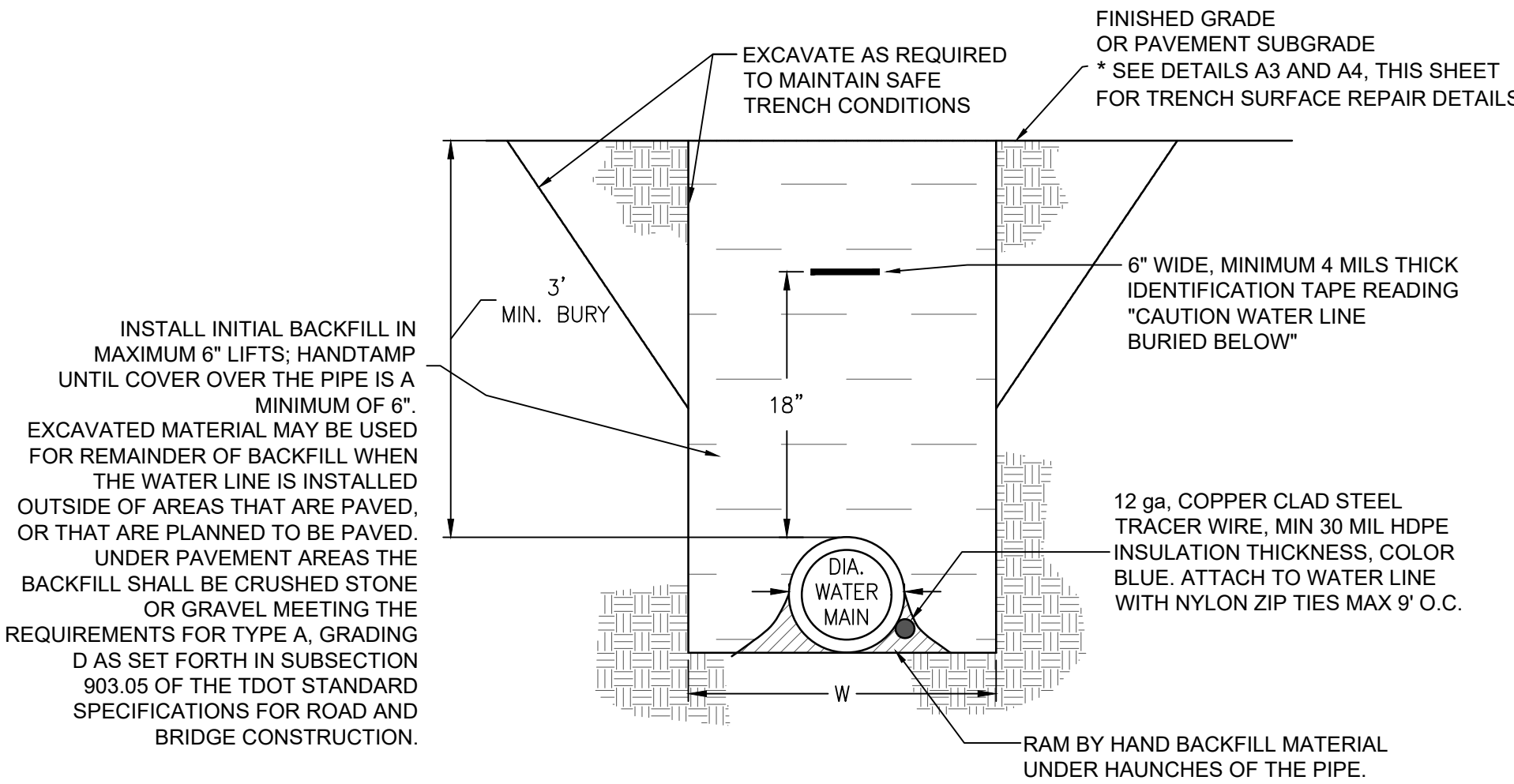
**C6.5**



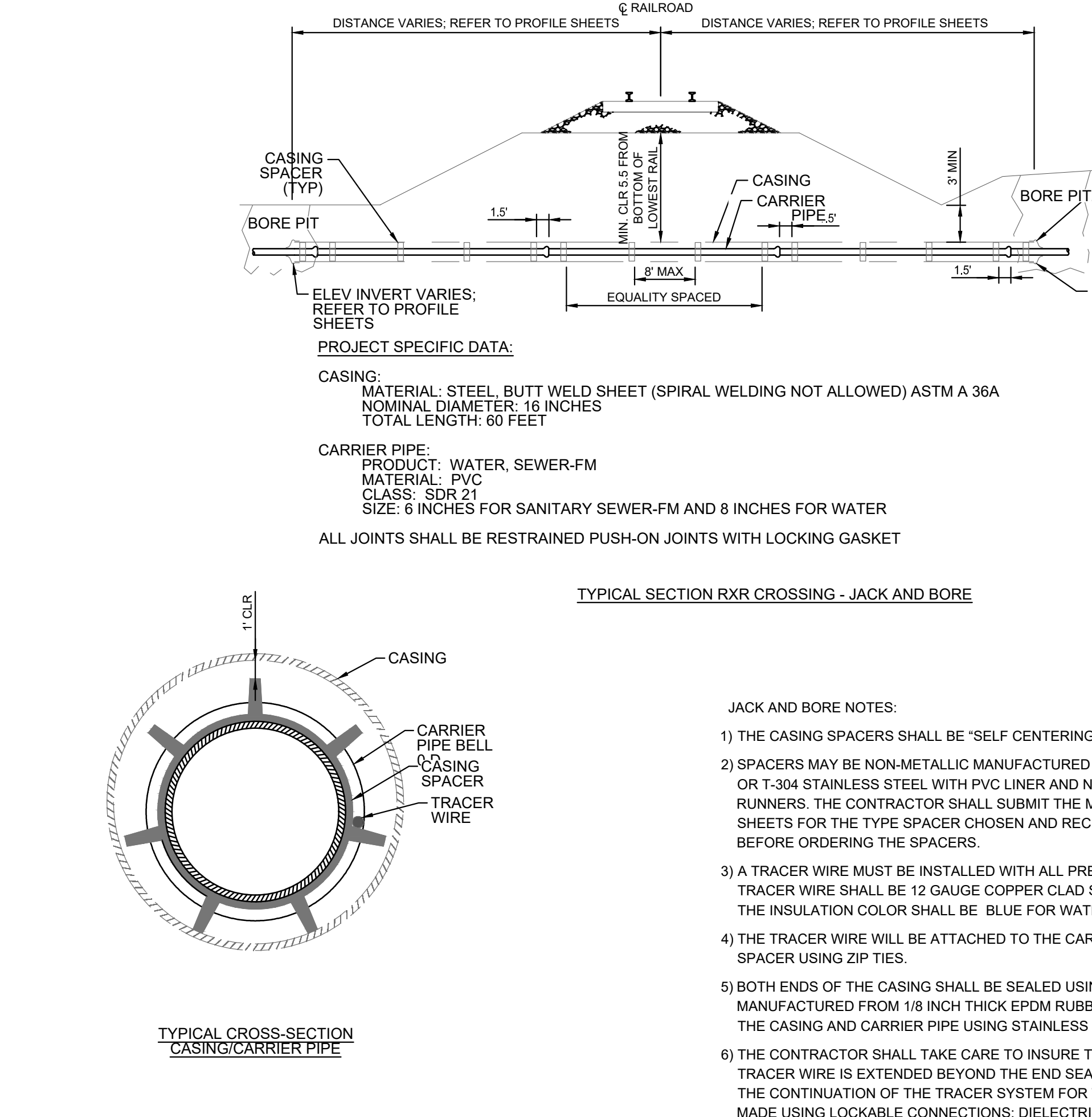
THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGES, MODIFICATIONS, OR REVISIONS TO THIS DOCUMENT SHALL BE MADE BY THE ENGINEER AND ANY SUCH CHANGES SHALL BE SUBJECT TO LOGICAL PROCEEDINGS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION AND DATA PROVIDED HEREIN.



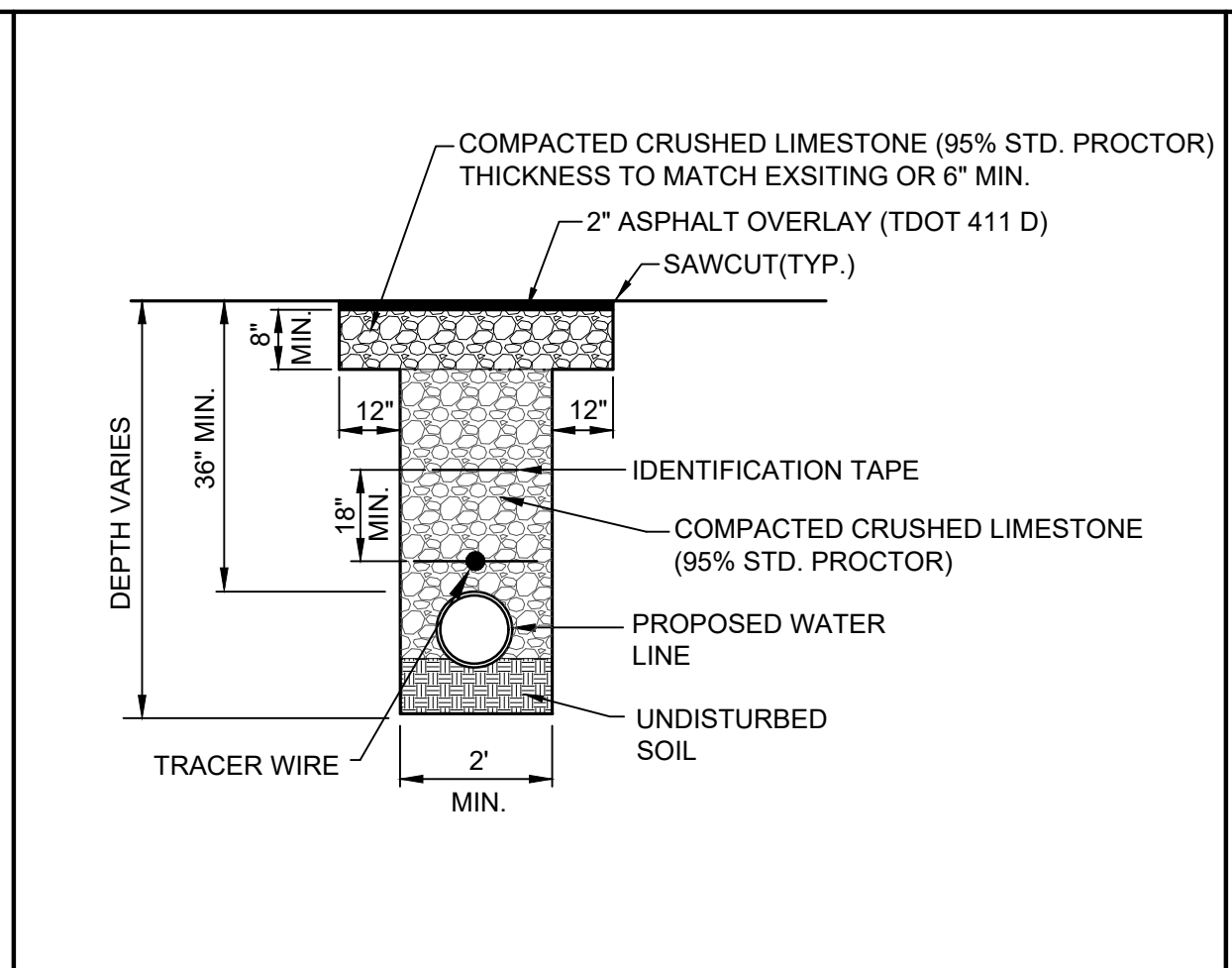
**A1** TRACER WIRE ROADWAY TRACER BOX DETAIL  
NTS



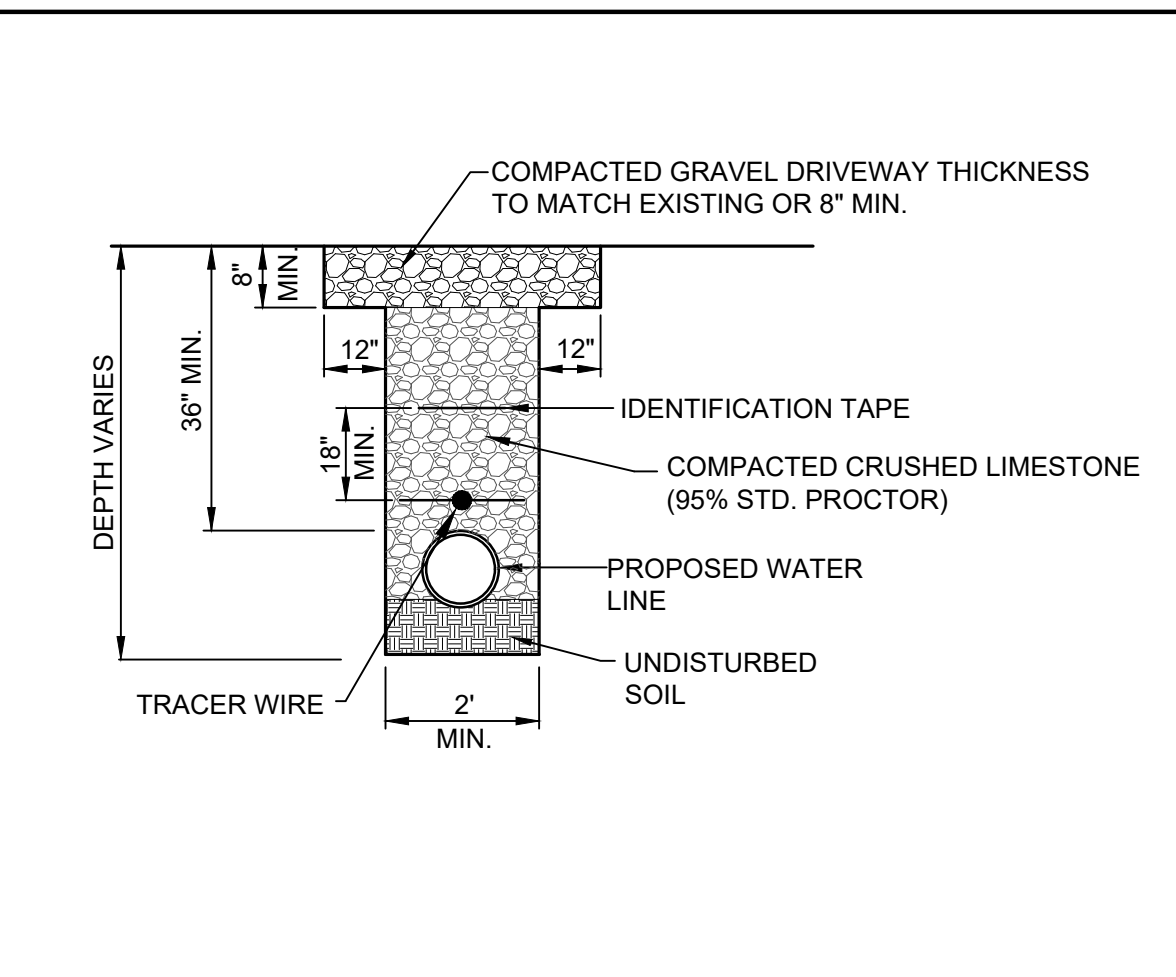
**B1** TYPICAL WATER MAIN TRENCH INSTALLATION  
NTS



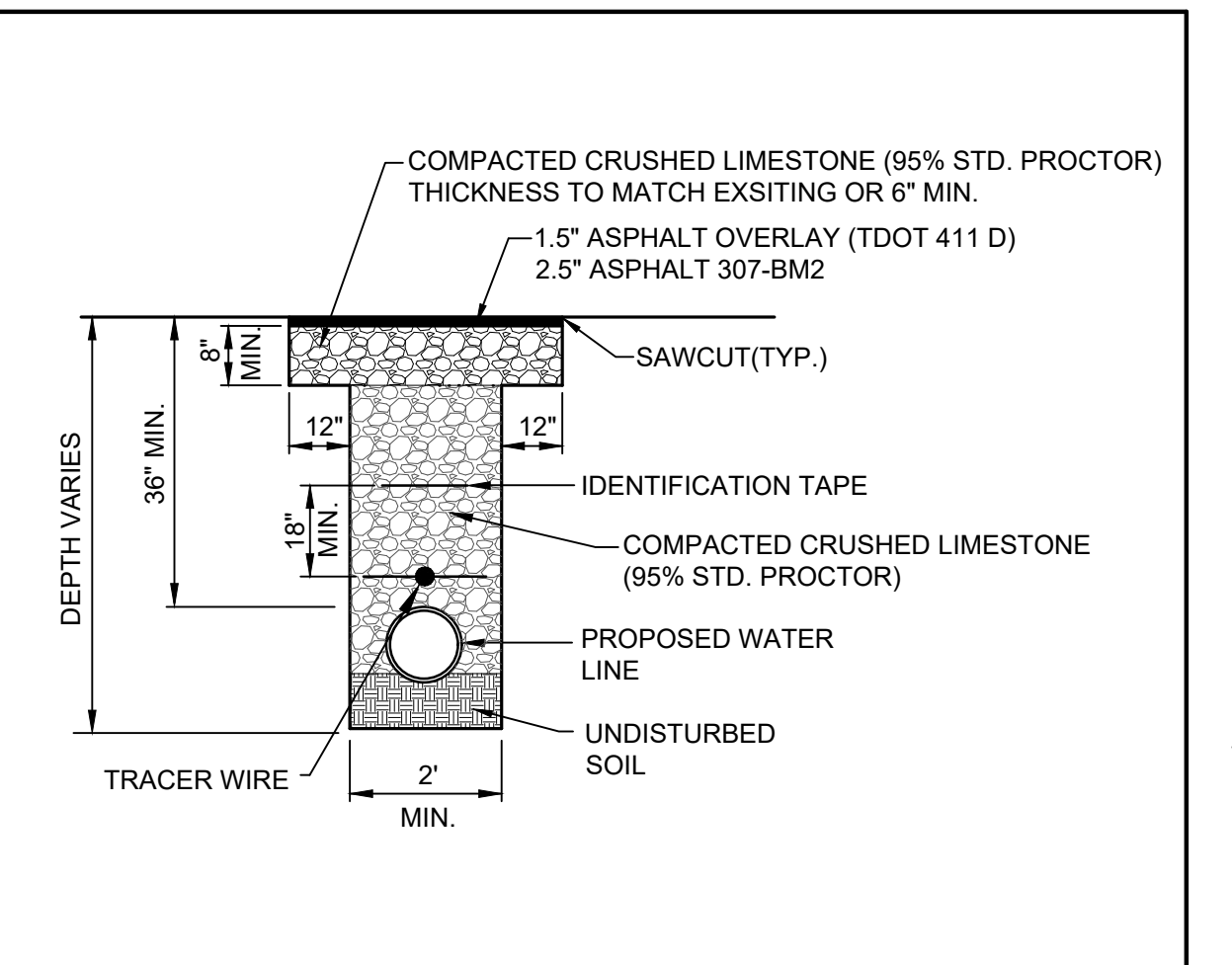
**D1** RXR CROSSING BY JACK AND BORE  
NTS



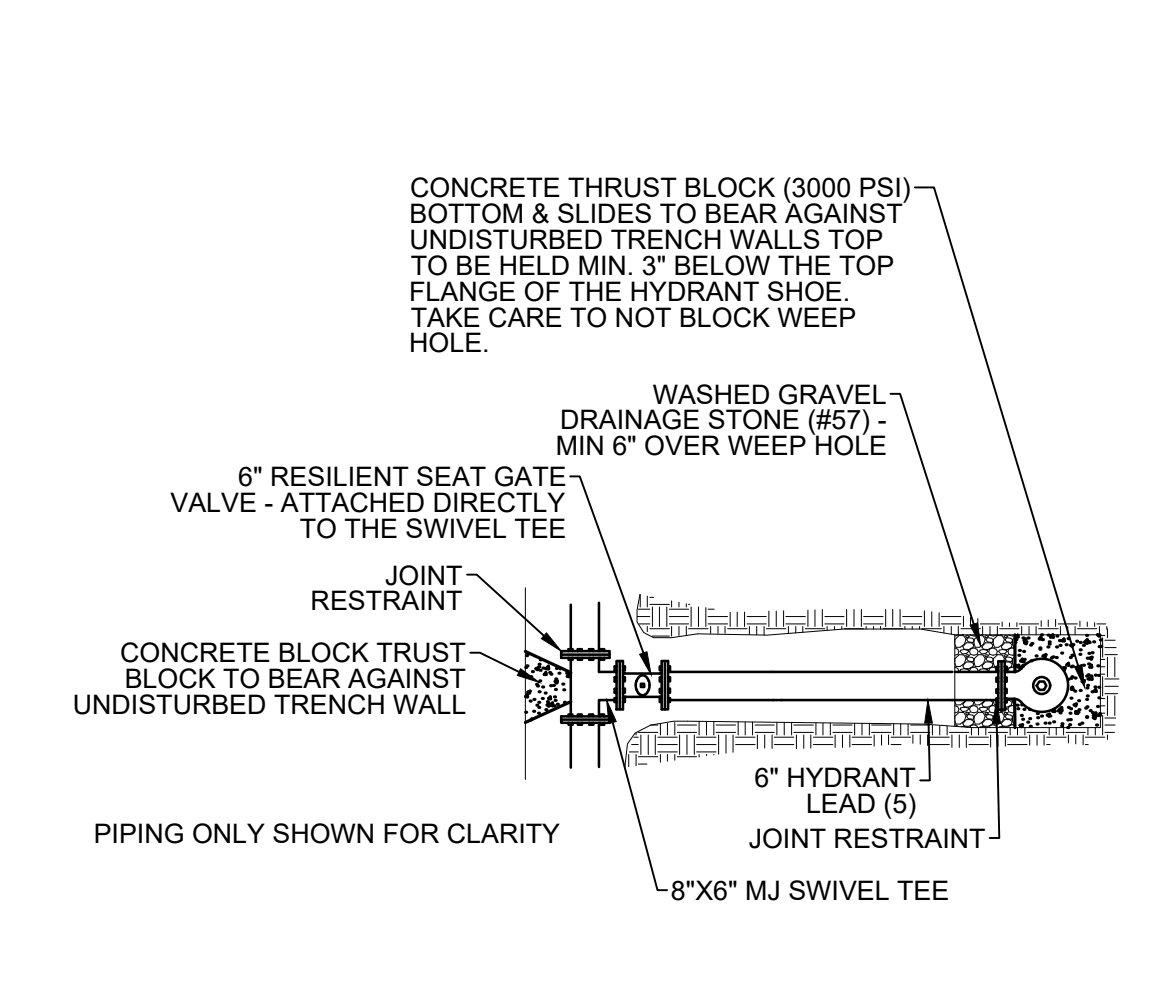
**A3** ASPHALT DRIVEWAY REPAIR DETAIL  
NTS



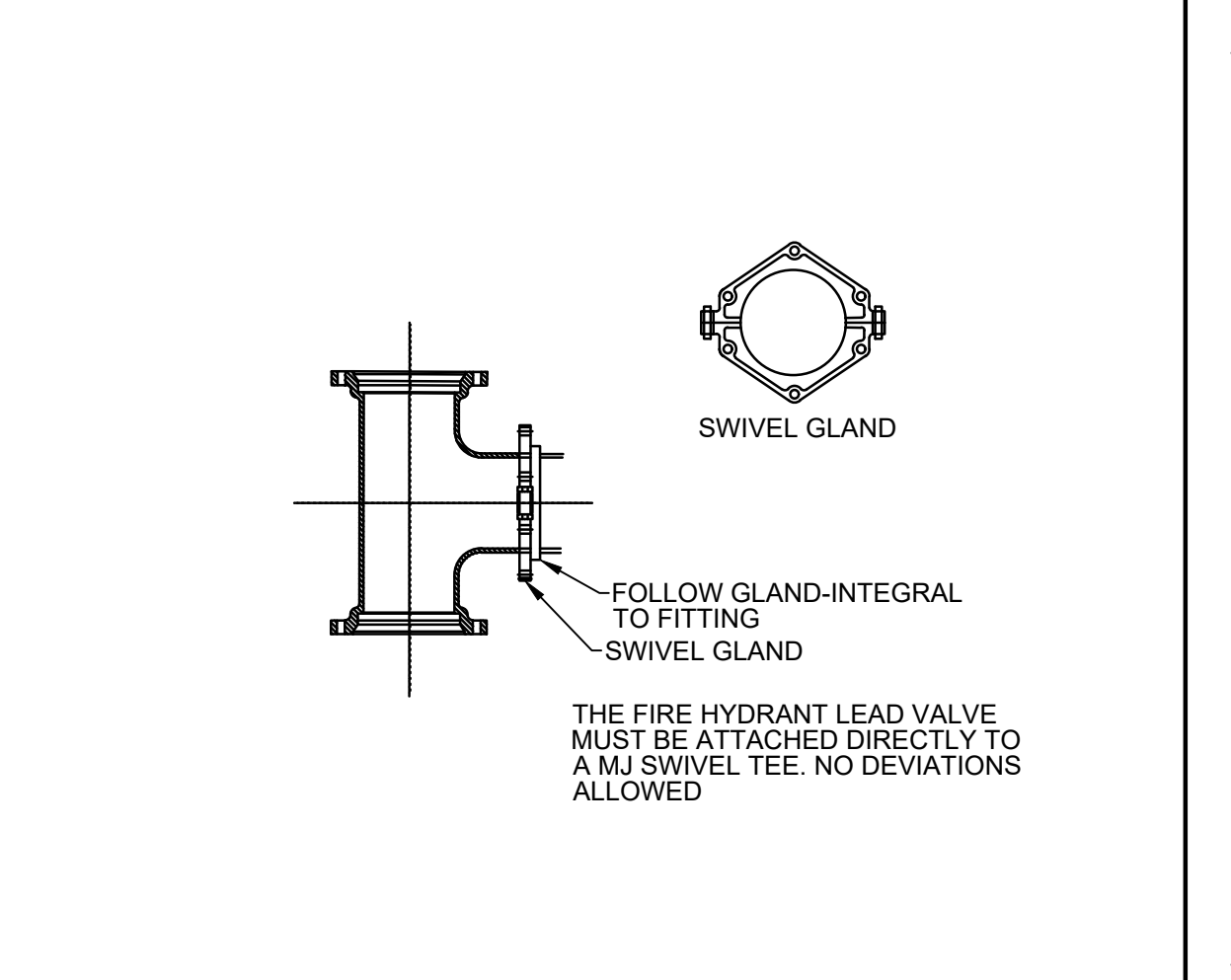
**A4** GRAVEL DRIVEWAY REPAIR DETAIL  
NTS



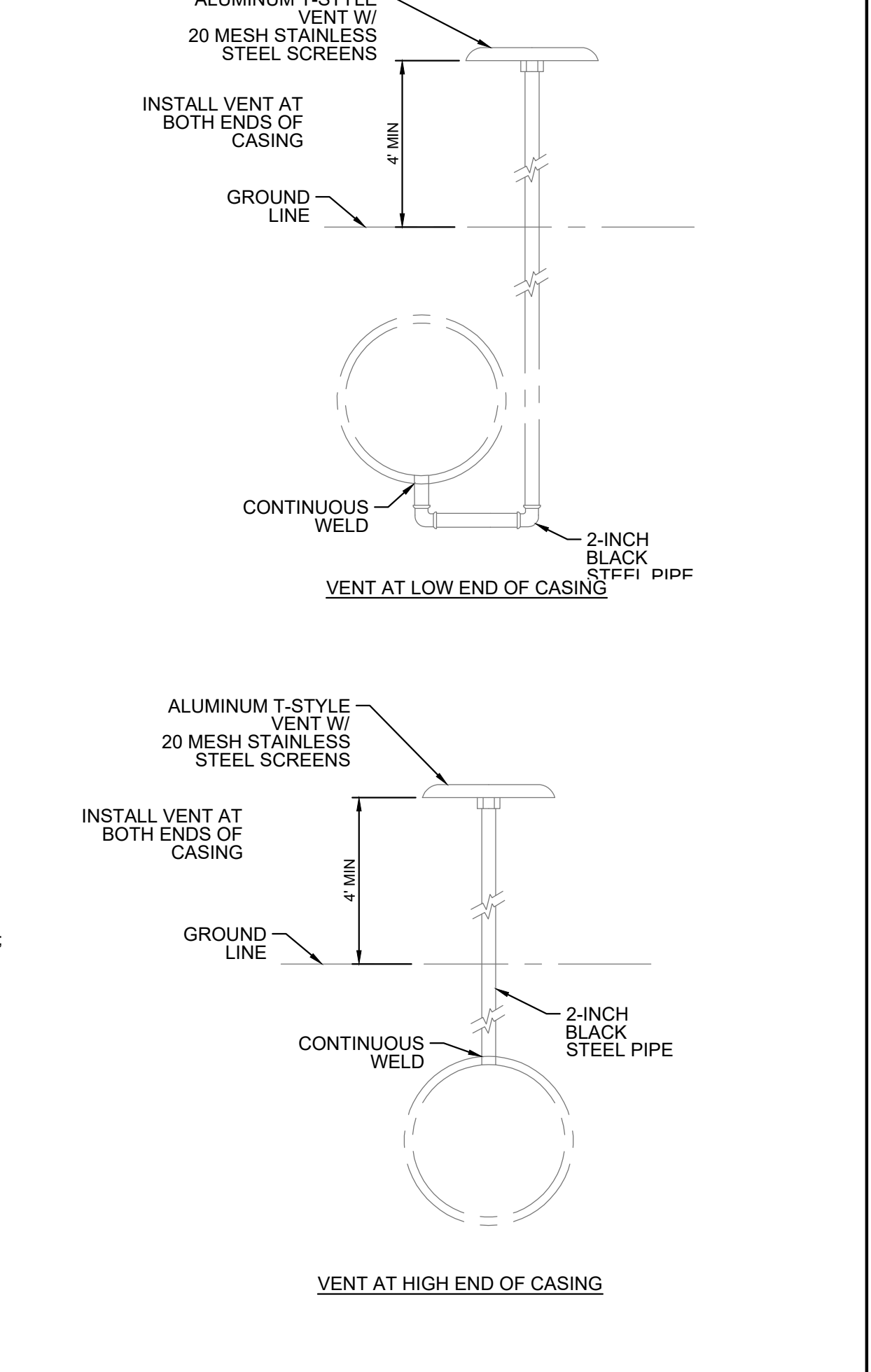
**A5** STREET CROSSING REPAIR DETAIL  
NTS



**B4** PLAN VIEW FIRE HYDRANT ASSEMBLY  
NTS



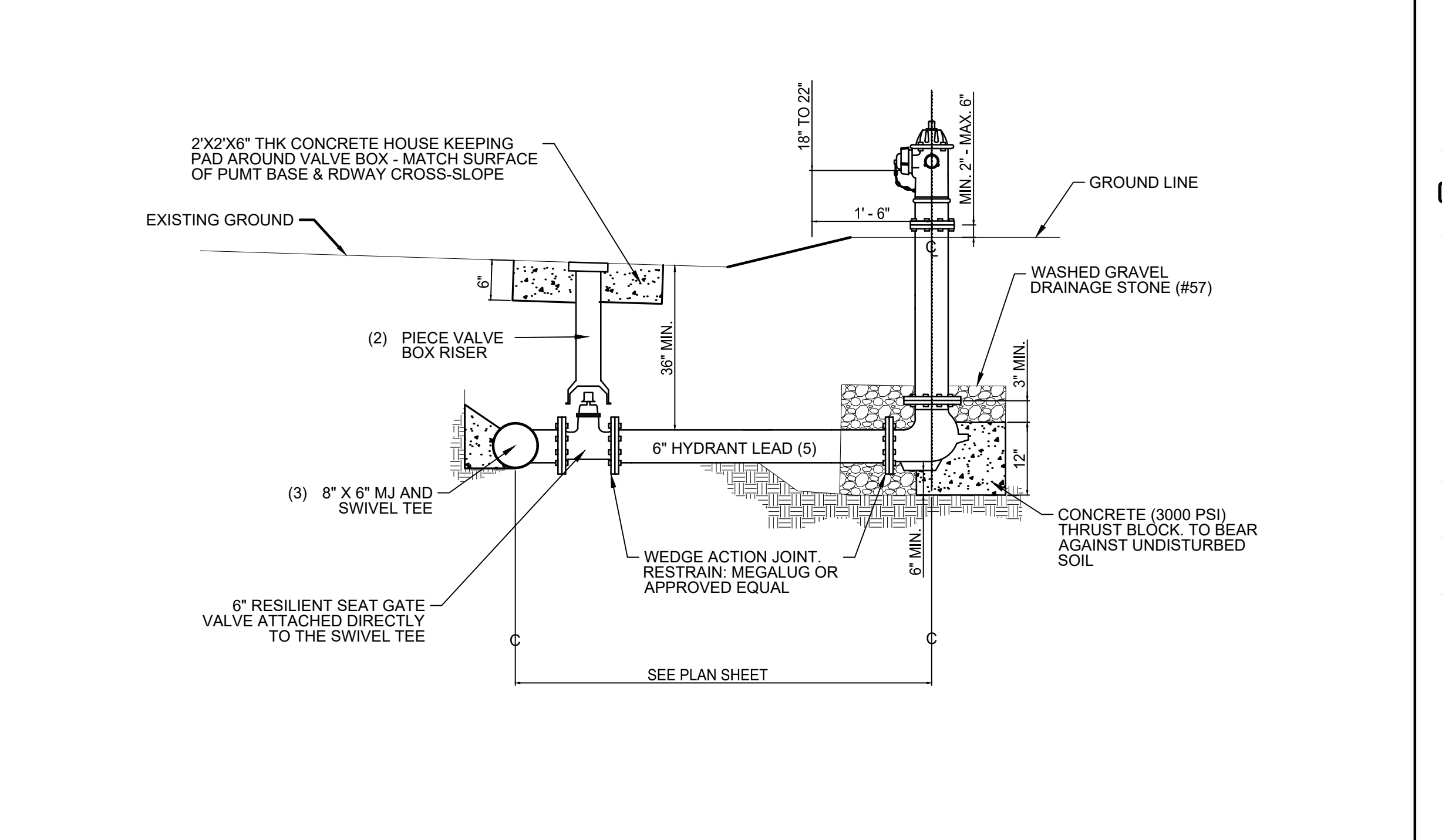
**B5** MJ SWIVEL TEE 8" X 6"  
NTS



**D4** SECTION VIEW OF FIRE HYDRANT ASSEMBLY  
NTS

**FIRE HYDRANT ASSEMBLY NOTES:**

1. FIRE HYDRANT SHALL BE BREAK AWAY 5 1/2" MULLER A-423 SUPER CENTURION 250.
2. ALL JOINTS BETWEEN THE DISTRIBUTION MAIN AND THE FIRE HYDRANT SHALL BE RESTRAINED.
3. THE HYDRANT LEAD VALVE MUST BE ATTACHED TO A MJ SWIVEL TEE. THE DIAMETER OF MAIN BODY OF THE TEE SHALL MATCH THE DIAMETER OF THE DISTRIBUTION MAIN. THE BRANCH OF THE TEE SHALL BE 6-INCHES.
4. UNLESS OTHERWISE NOTED, ALL MECHANICAL JOINTS WILL BE RESTRAINED USING MEGALUG JOINT RESTRAINTS. THE CONTRACTOR MAY USE ALTERNATE MEANS OF JOINT RESTRAINT ONLY AFTER RECEIVING APPROVAL TO DO SO FROM THE ENGINEER.
5. SHOULD THE LENGTH OF THE HYDRANT LEAD PIPING EXCEED 16 FEET THE CONTRACTOR MAY USE PUSH-ON PIPE JOINTS PROVIDED THE JOINTS ARE RESTRAINED USING A MEGALUG RESTRAINT HARNESS, OR APPROVED EQUAL.
6. THE FIRE HYDRANT SHALL BE SET VERTICALLY SO THAT THE BURY LINE ON THE LOWER BARREL SECTION IS VISIBLE ABOVE FINISHED GRADE. THE BURY LINE SHALL NOT BE BELOW GROUND LEVEL NOR MORE THAN 6-INCHES ABOVE FINISHED GRADE.



**D4** SECTION VIEW OF FIRE HYDRANT ASSEMBLY  
NTS

**A2H** ENGINEERS ARCHITECTS PLANNERS

A2H, INC.  
3009 DAVIES PLANTATION ROAD  
LAKELAND, TN 38002  
P. 901.372.0404  
WWW.A2H.COM

Professional Engineer Seal for Jason D. Dittrich, State of Tennessee, No. 11751, dated 5/18/2024.

**TOWN OF HALLS**

**2023 SITE DEVELOPMENT GRANT BEECH BLUFF UTILITY EXTENSION**

**HALLS, TENNESSEE**

**CONSTRUCTION DOCUMENTS**

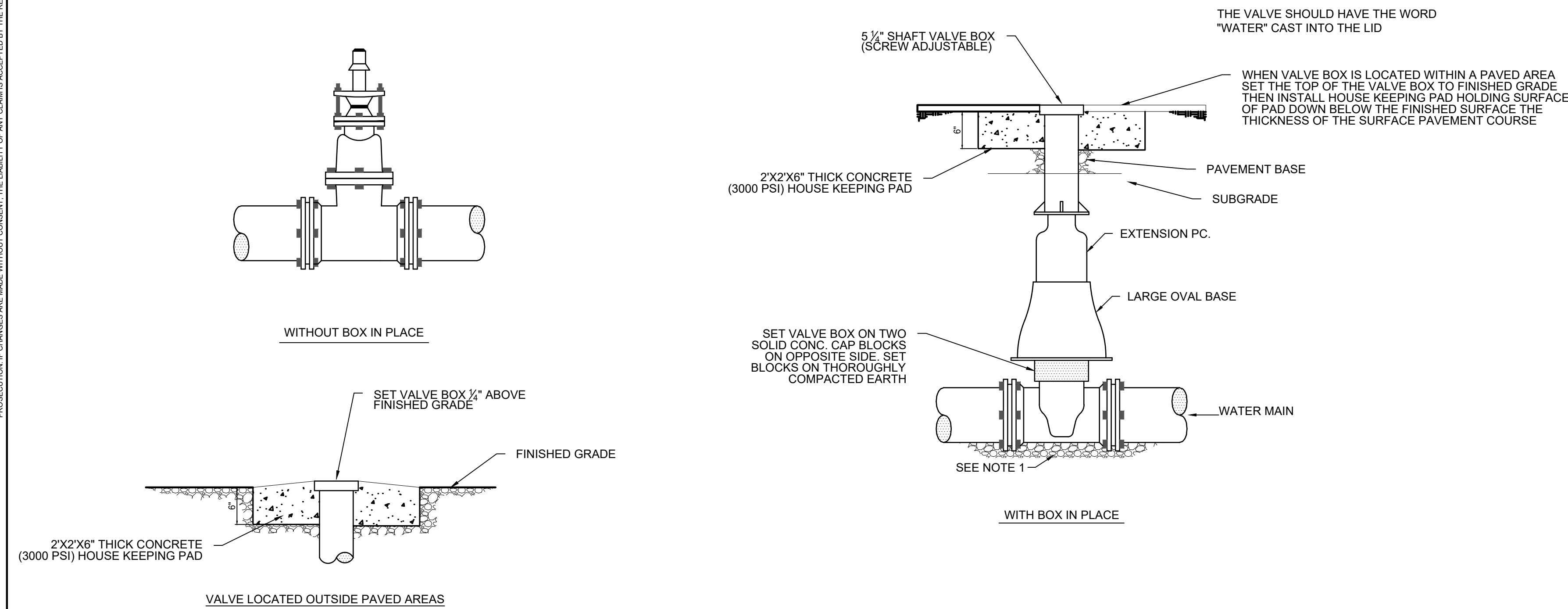
**REVISIONS**

PROJECT NO.	DATE
2384	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

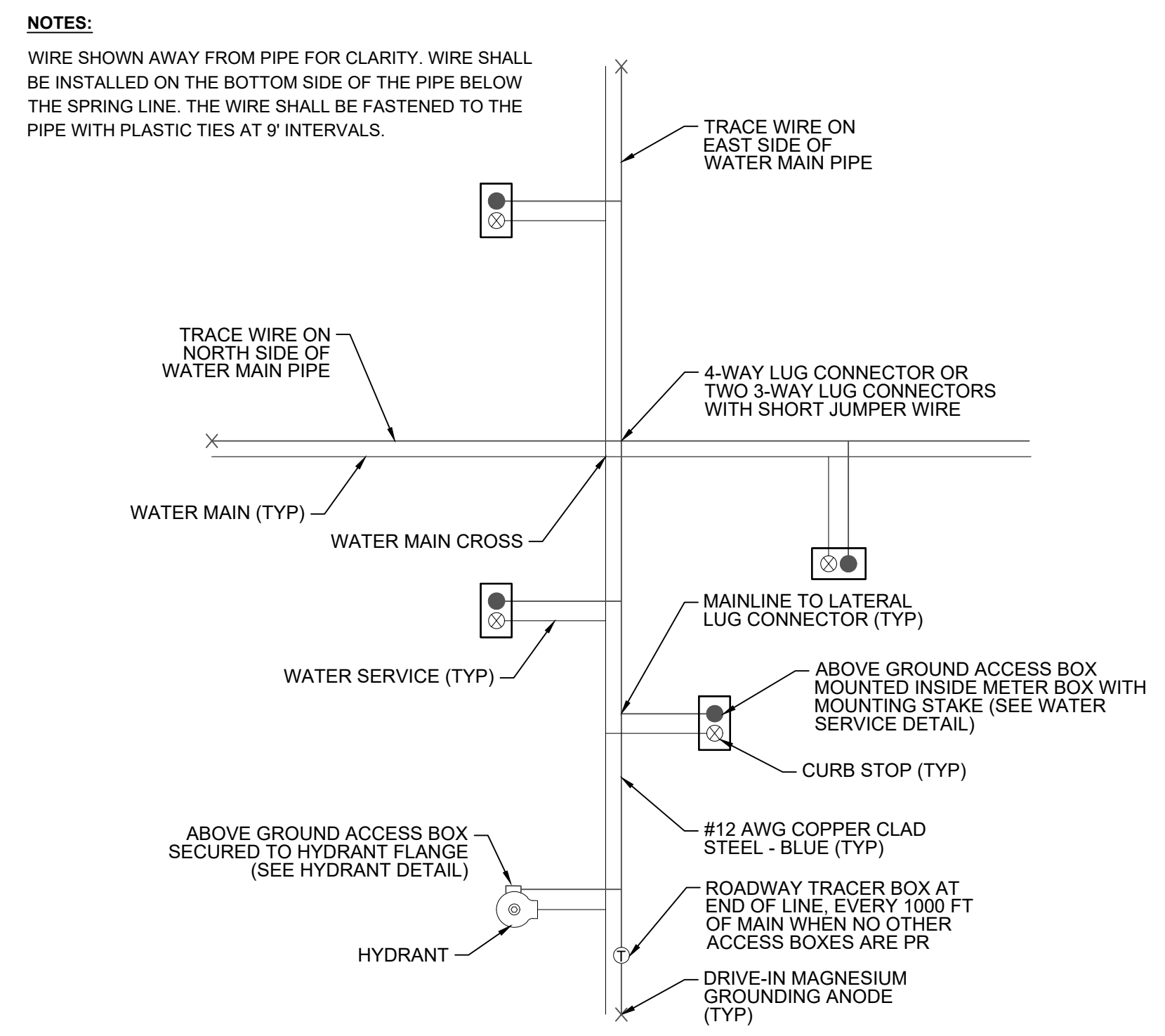
**CONSTRUCTION DETAILS**

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DOCUMENT IS PROHIBITED. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.

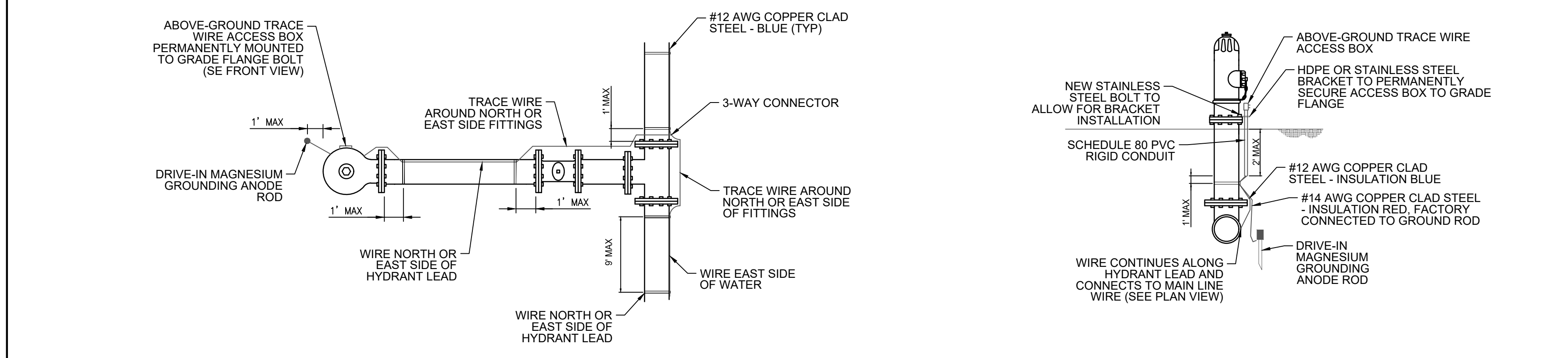
- NOTE:**
- AREAS OVER EXCAVATED TO INSTALL THE VALVE SHALL BE FILLED WITH CRUSHED STONE (SIZE #7). THE STONE SHALL BE RAMMED UNDER AND AROUND THE VALVE AND PIPING.
  - THE VALVE BOX SHALL NOT COME IN CONTACT WITH ANY PART OF THE VALVE.
  - BACKFILL WITHIN 4 FEET AROUND THE VALVE BOX SHALL BE HAND PLACED AND TAMPED.
  - VALVE BOXES SHALL BE GRAY IRON CLASS 30B SCREW TYPE.



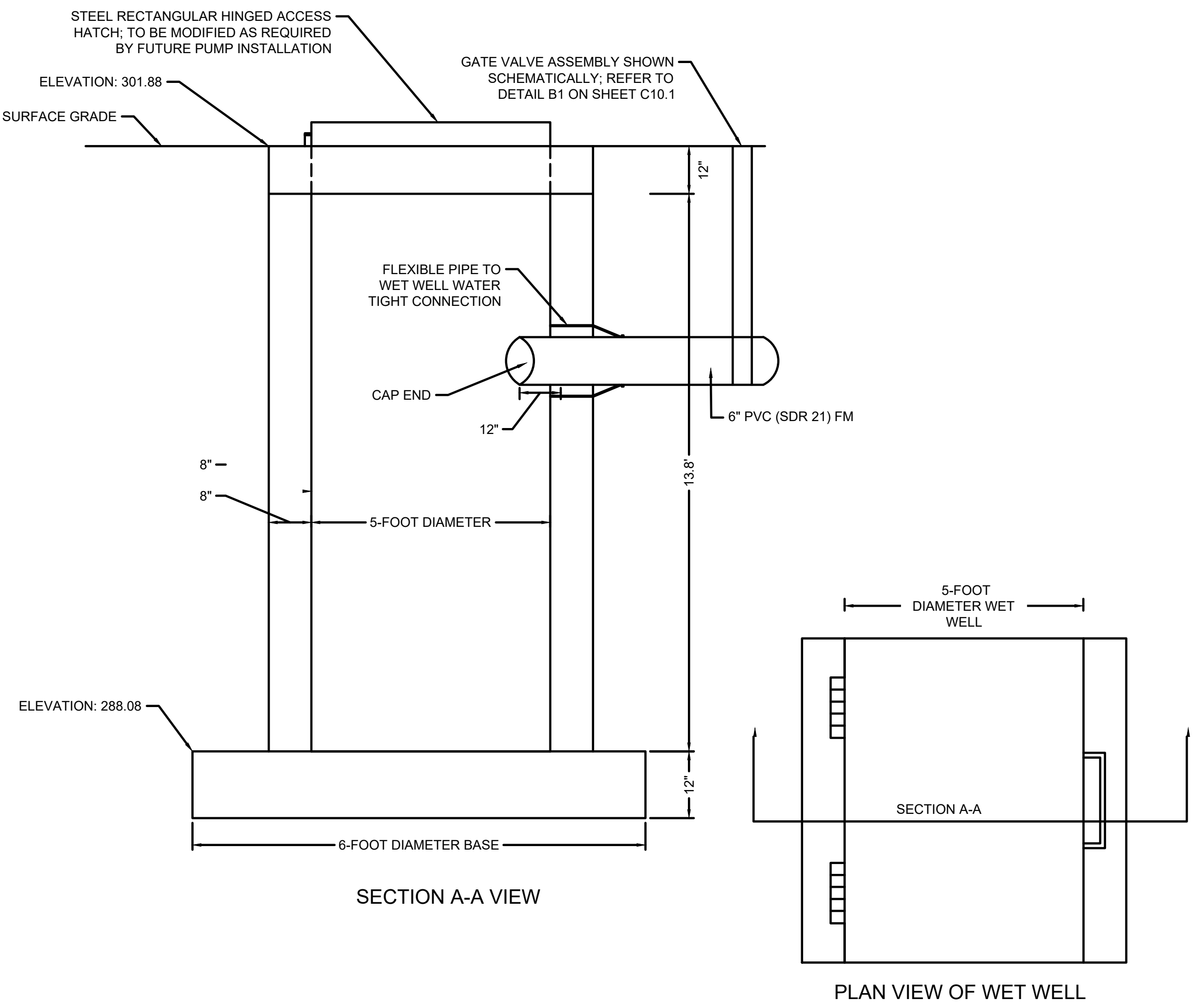
**B1**  
NTS  
DETAIL OF VALVE SETTING



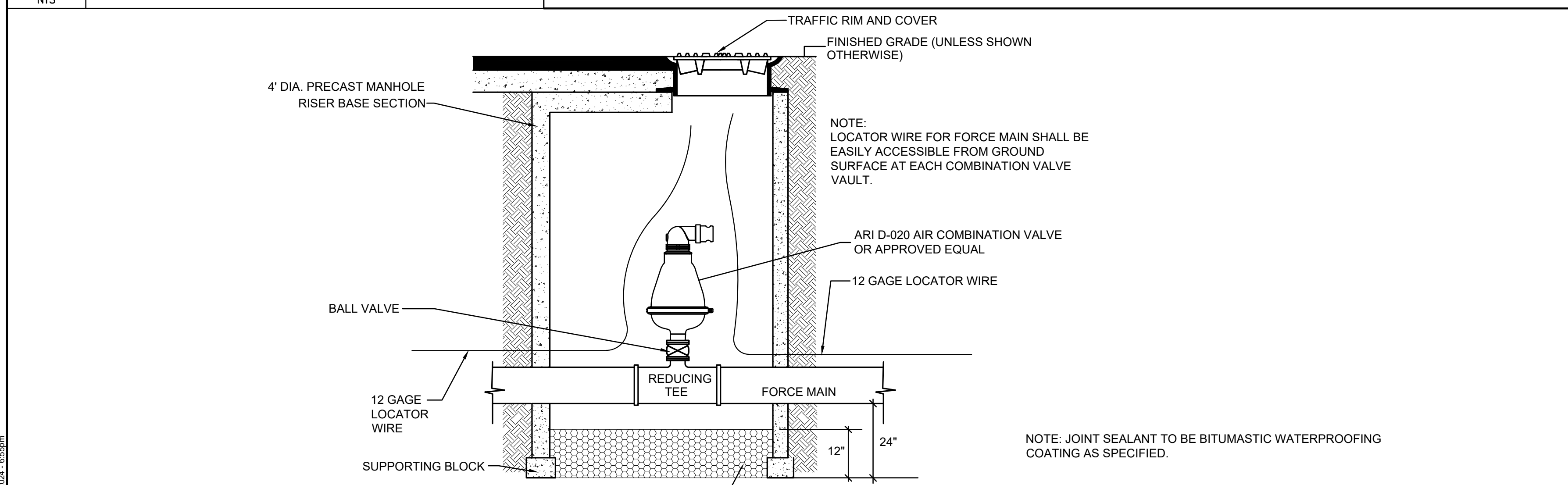
**B4**  
NTS  
TRACE WIRE TYPICAL WATER PLAN



**C1**  
NTS  
TRACE WIRE HYDRANT DETAIL



**D4**  
NTS  
WET WELL DETAIL PLAN AND SECTION



**D1**  
NTS  
AIR RELIEF VALVE



**TOWN OF HALLS**

**2023 SITE DEVELOPMENT GRANT BEECH BLUFF UTILITY EXTENSION**

HALLS, TENNESSEE

CONSTRUCTION DOCUMENTS

REVISIONS

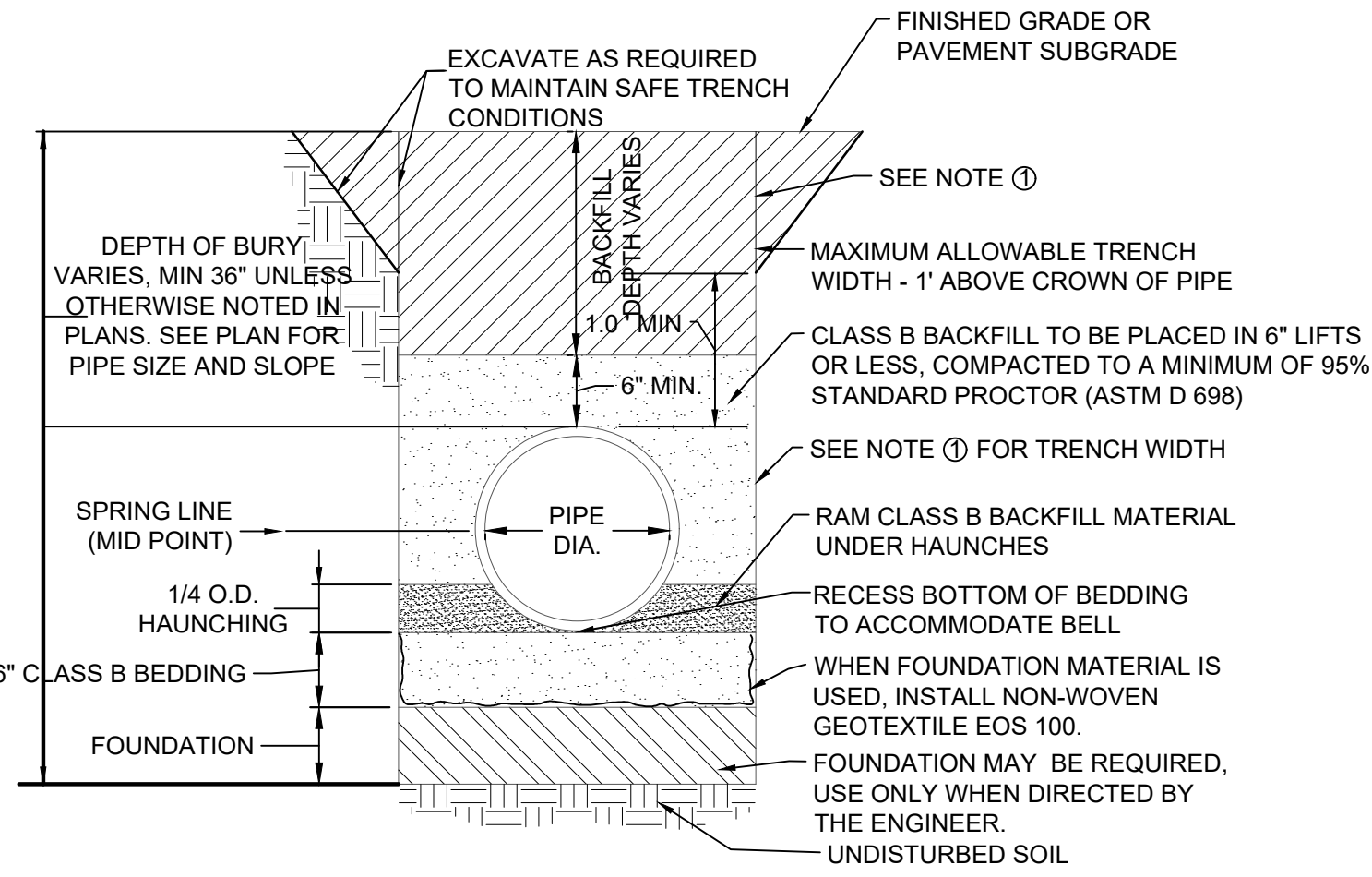
PROJECT NO.	DATE
23034	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

CONSTRUCTION DETAILS

CIVIL SHEETS  
10 OF 11

**C10.1**

THIS DOCUMENT IS THE PROPERTY OF A2H, INC. AND ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS SHALL BE RETAINED BY SAME. ANY CHANGES, MODIFICATIONS, OR REVISIONS TO THIS DOCUMENT SHALL BE MADE BY THE ENGINEER AND APPROVED BY THE REGISTERED PROFESSIONAL ENGINEER. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION AND DATA PROVIDED HEREIN. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES.

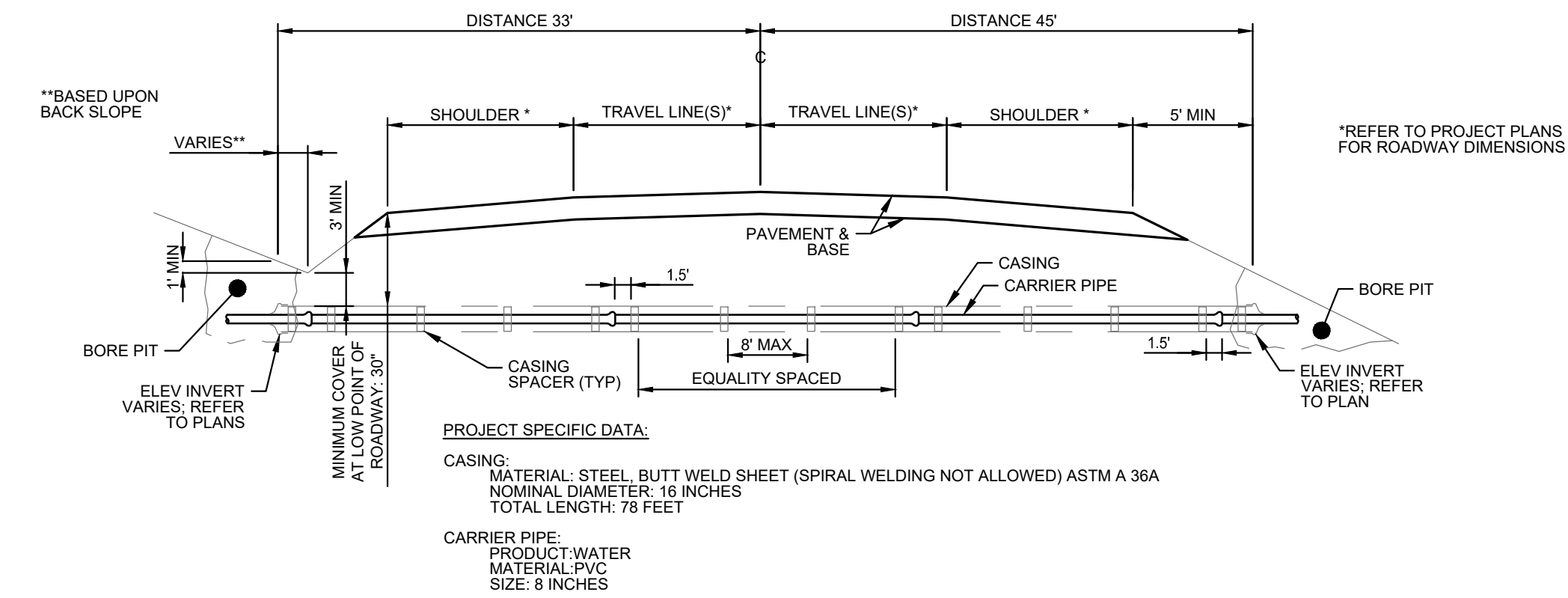


- NOTE:
- MINIMUM AND MAXIMUM TRENCH WIDTHS MEASURED AT THE SPRING LINE OF THE PIPE AND ONE (1) FOOT ABOVE THE CROWN OF THE PIPE.  
MINIMUM WIDTH = 1' + PIPE DIAMETER  
MAXIMUM WIDTH = 4' + PIPE DIAMETER
  - CLASS B BEDDING SHALL BE CRUSHED STONE, CHERT, OR SLAG MAY BE USED FOR CLASS B BEDDING MEETING THE FOLLOWING GRADATION:  

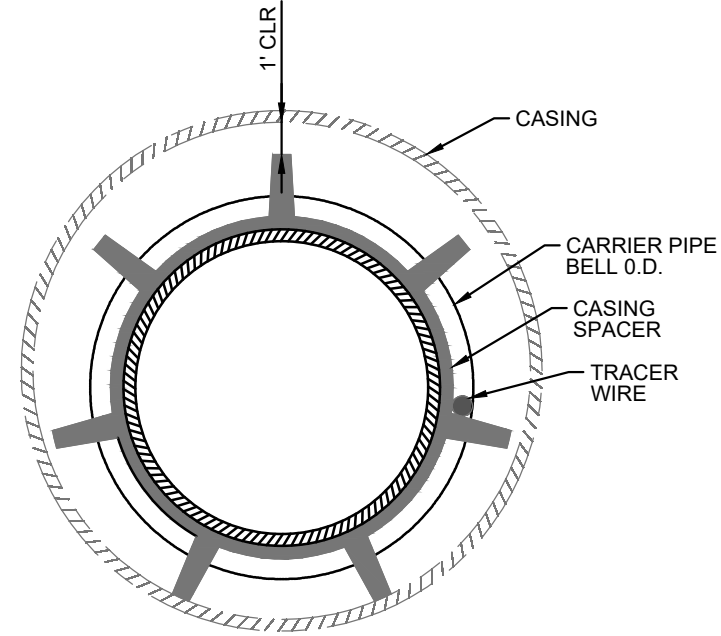
SIEVE SIZE	1 1/2"	1"	3/4"	3/8"	NO. 4	NO. 10	NO. 100
% PASSING	100	85-100	60-95	50-80	40-65	20-40	9-18
  - BACKFILL MATERIAL SHALL BE SELECT ON SITE MATERIAL THAT IS FREE OF DEBRIS, ORGANIC MATTER, PERISHABLE COMPRESSIBLE MATERIALS, AND STONE OR ROCK FRAGMENTS. THE BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING SIX (6) INCHES IN THICKNESS AND EACH LAYER IS TO BE COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR AS DETERMINED BY ASTM D 698. THE MOISTURE CONTENT OF EACH LAYER MUST BE WITHIN +/- 2 PERCENTAGE POINTS OF OPTIMUM. IN AREAS TO BE PAVED, BACKFILL SHALL BE CRUSHED STONE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
  - FOUNDATION MATERIAL #57 STONE, USE ONLY WHEN DIRECTED BY THE ENGINEER.

**B1 FLEXIBLE PIPE BEDDING**

NTS



TYPICAL SECTION RURAL ROADWAY CROSSING - JACK AND BORE



TYPICAL CROSS-SECTION CASING/CARRIER PIPE

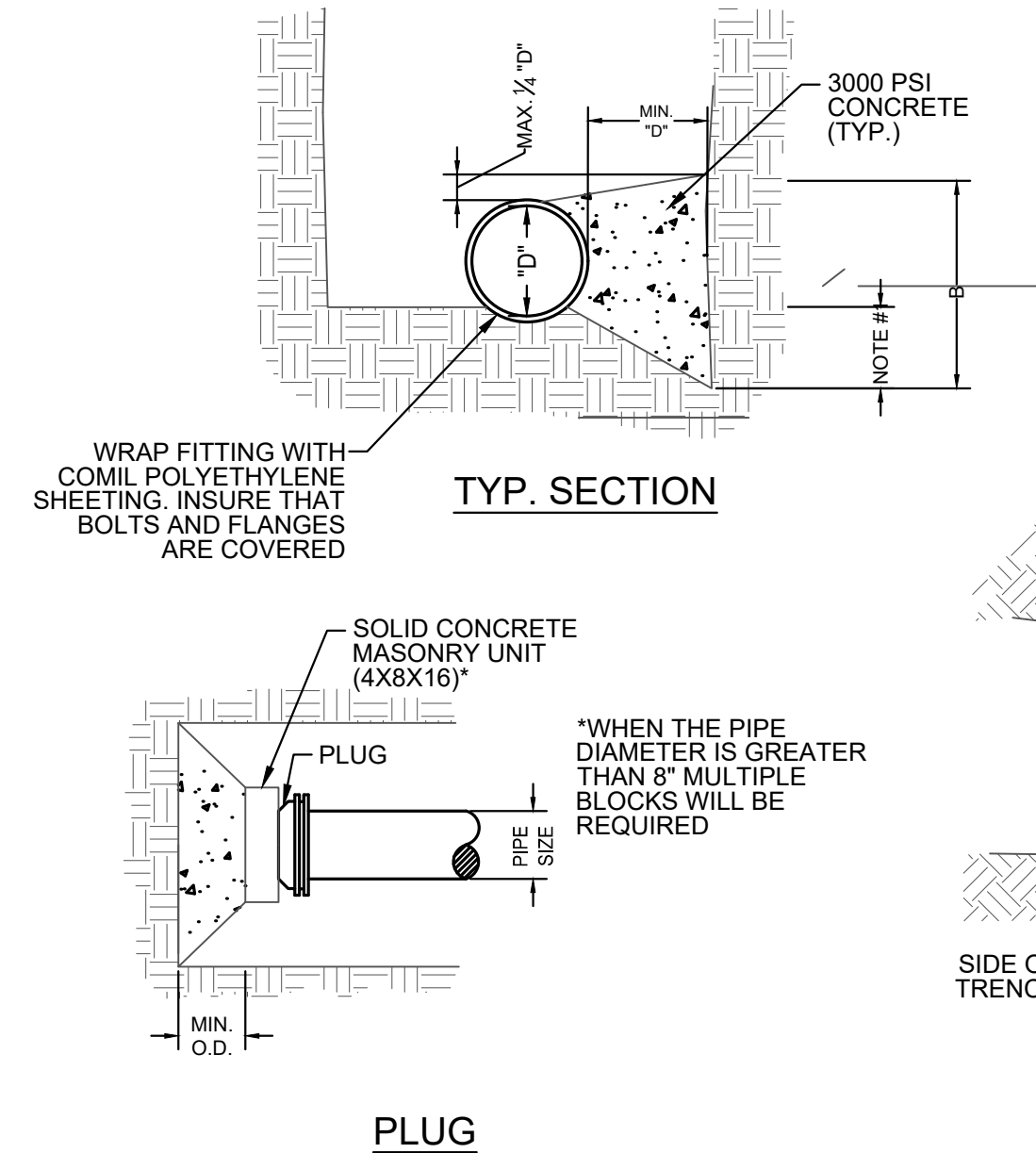
**D1 JACK AND BORE DETAIL**

NTS

TABLE 1 - THRUST BLOCK DATA FOR HORIZONTAL FITTINGS

PIPE DIA (INCHES)	90° BEND		45° BEND		22.5° BEND		11.25° BEND		TEE OR PLUG	
	T (lbs.)	EA (s.f.)	T (lbs.)	EA (s.f.)	T (lbs.)	EA (s.f.)	T (lbs.)	EA (s.f.)	T (lbs.)	EA (s.f.)
4 & UNDER	2,560	1.54	1,386	0.83	707	0.42	355	0.21	1,811	1.09
6	5,288	3.17	2,862	1.72	1,459	0.88	733	0.44	3,739	2.24
8	9,098	5.46	4,924	2.95	2,511	1.51	1,262	0.76	6,433	3.86
10	13,686	8.21	7,407	4.44	3,776	2.27	1,898	1.14	9,677	5.81
12	19,354	11.61	10,475	6.29	5,340	3.20	2,683	1.61	13,685	8.21
14	26,001	15.60	14,072	8.44	7,174	4.30	3,805	2.16	18,365	11.03
16	33,629	20.18	18,200	10.92	9,279	5.57	4,662	2.80	23,779	14.27
18	42,236	25.34	22,858	13.71	11,653	6.99	5,855	3.51	29,865	17.92
20	51,823	31.09	28,047	16.83	14,298	8.58	7,184	4.31	36,644	21.99
24	73,934	44.36	40,013	24.01	20,399	12.24	10,249	6.15	52,279	31.37

TABLE BASED UPON A TEST PRESSURE OF 100 PSI  
T = POUNDS OF THRUST  
P = RESISTING SOIL PRESSURE (ASSUMED TO BE 2500 PSF)  
S.F. = SAFETY FACTOR (1.5)  
EA = MINIMUM END AREA OF THRUST BLOCK; EA = 1.5 T/P



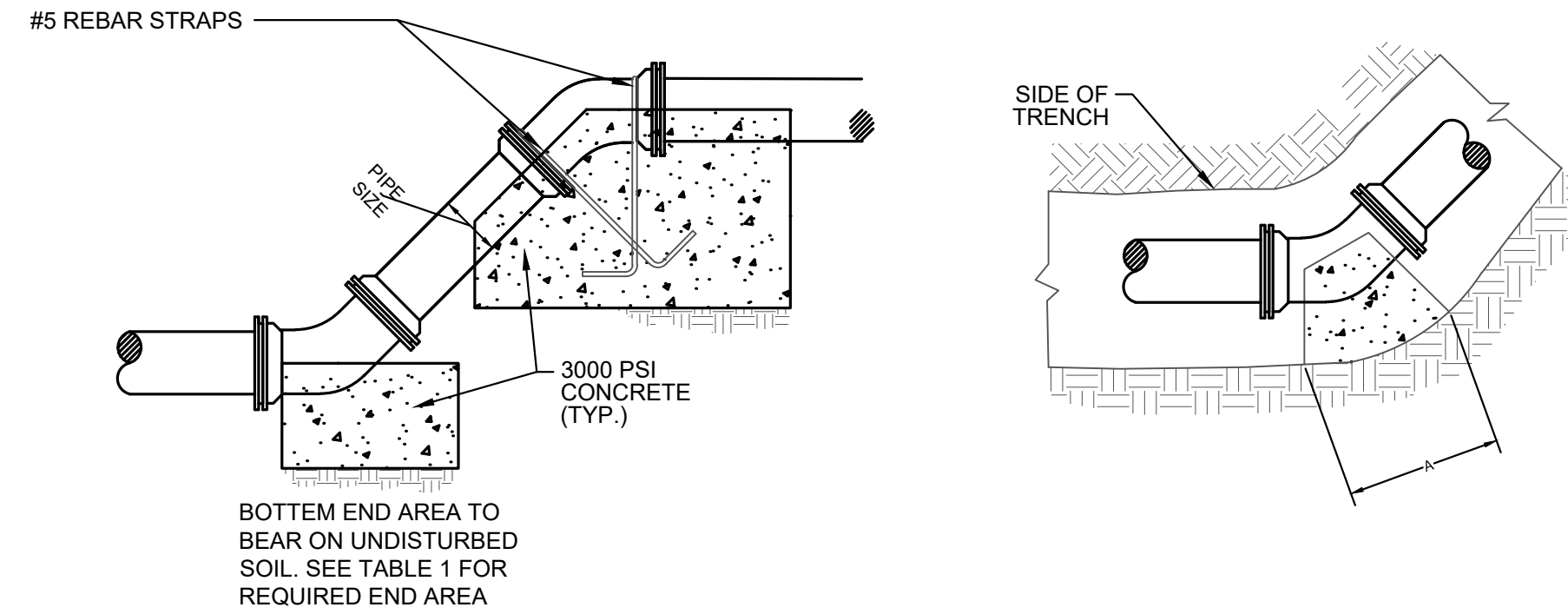
- NOTES:
- THRUST BLOCK MUST HAVE SUFFICIENT MASS TO RESIST UPLIFT. SEE TABLE 4 FOR VOLUME OF CONCRETE.
  - REQUIRED VERTICAL OFFSET THRUST BLOCKS TYPICAL FOR 45°, 22.5°, AND 11.25° BENDS.
  - WRAP ALL PIPE AND FITTING THAT WILL COME IN CONTACT WITH CONCRETE IN 6 MIL POLYETHYLENE SHEETING.
  - THRUST BASED UPON 100 PSI INCREASE VOLUME OF CONCRETE BY:  
ADJ. FACTOR = (TEST PRESSURE/100)

TABLE 2 - THRUST BLOCK - END AREA DIMENSIONS

PIPE DIA (INCHES)	90° BEND		45° BEND		22.5° BEND		11.25° BEND		TEE OR PLUG	
	A	B	A	B	A	B	A	B	A	B
4 & UNDER	23	10	12	10	8	8	7	5	16	10
6	33	14	18	14	11	12	8	8	24	14
8	44	18	24	18	14	16	11	10	31	18
10	52	23	28	23	17	20	13	13	37	23
12	62	27	34	27	20	24	16	15	44	27
14	71	32	38	32	23	28	18	18	50	32
16	81	36	44	36	26	32	21	20	58	36
18	90	41	49	41	28	36	22	23	63	41
20	100	45	54	45	31	40	25	25	71	45
24	119	54	65	54	37	48	30	30	84	54

TABLE BASED UPON A TEST PRESSURE OF 100 PSI

- THRUST BLOCK NOTES:
- DIMENSION FOR 90°, 45°, 22.5° BEND AND TEES OR PLUGS EQUAL TO "D"; FOR 11.25° BEND DIMENSION EQUAL TO 1/2 "D".
  - THE THRUST BLOCK SHALL BEAR ON UNDISTURBED SOIL. REMOVE ANY LOOSE MATERIAL TO EXPOSE UNDISTURBED SOIL.
  - KEEP CONCRETE 3 INCHES CLEAR OF FITTING FLANGES.
  - SIDES OF THRUST BLOCK SHALL BE FORMED USING SUITABLE MATERIAL. EARTH "DAMS" ARE NOT ACCEPTABLE.
  - WHEN THE TEST PRESSURE VARIES FROM 100 PSI; A AND B SHALL; BE ADJUSTED BY VALUES NOTES IN TABLE 3.

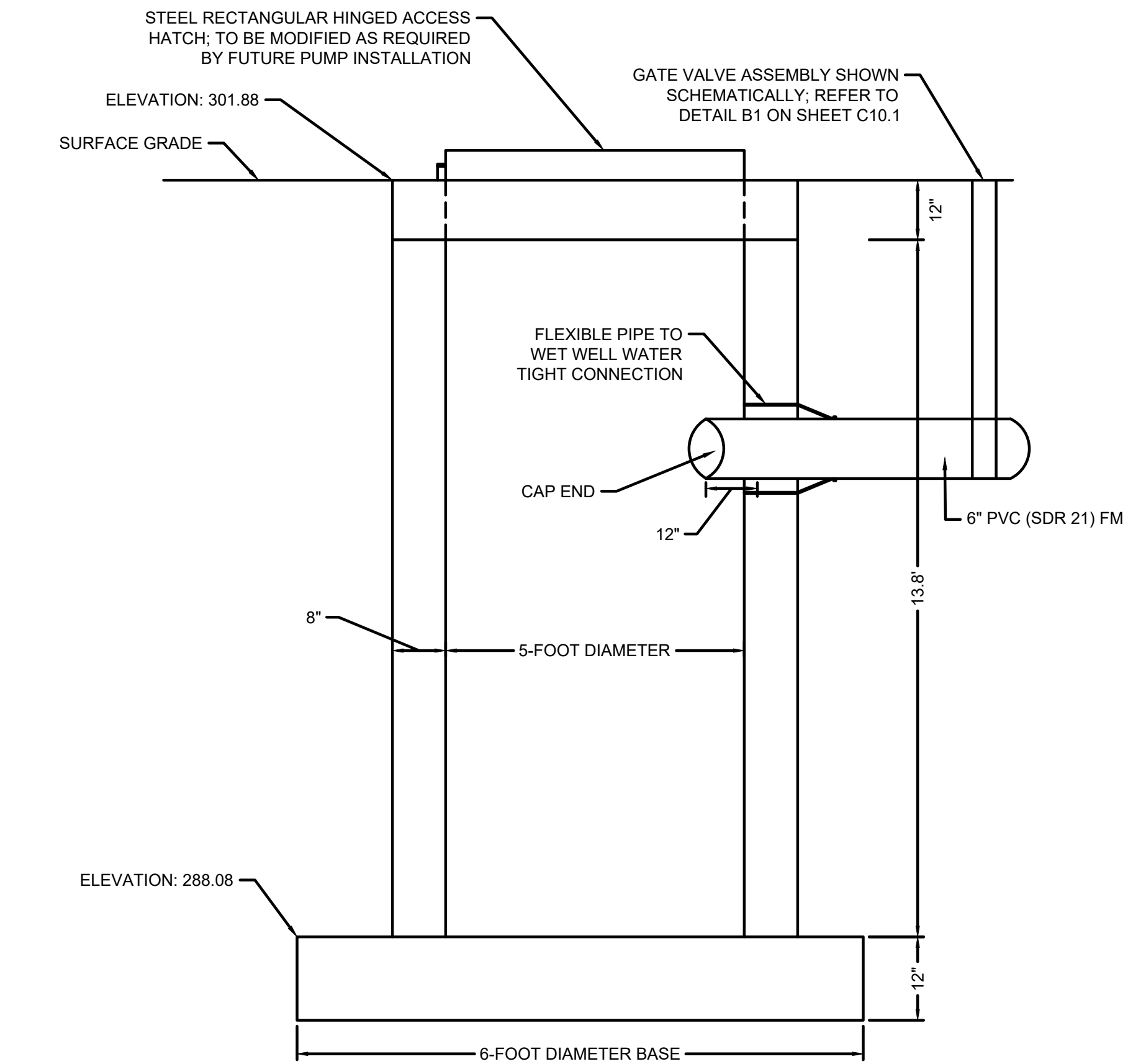


THRUST BLOCKING FOR VERTICAL OFFSET USING 45°, 22.5°, OR 11.25° BENDS

45° - 22 1/2° - 11 1/4° BENDS

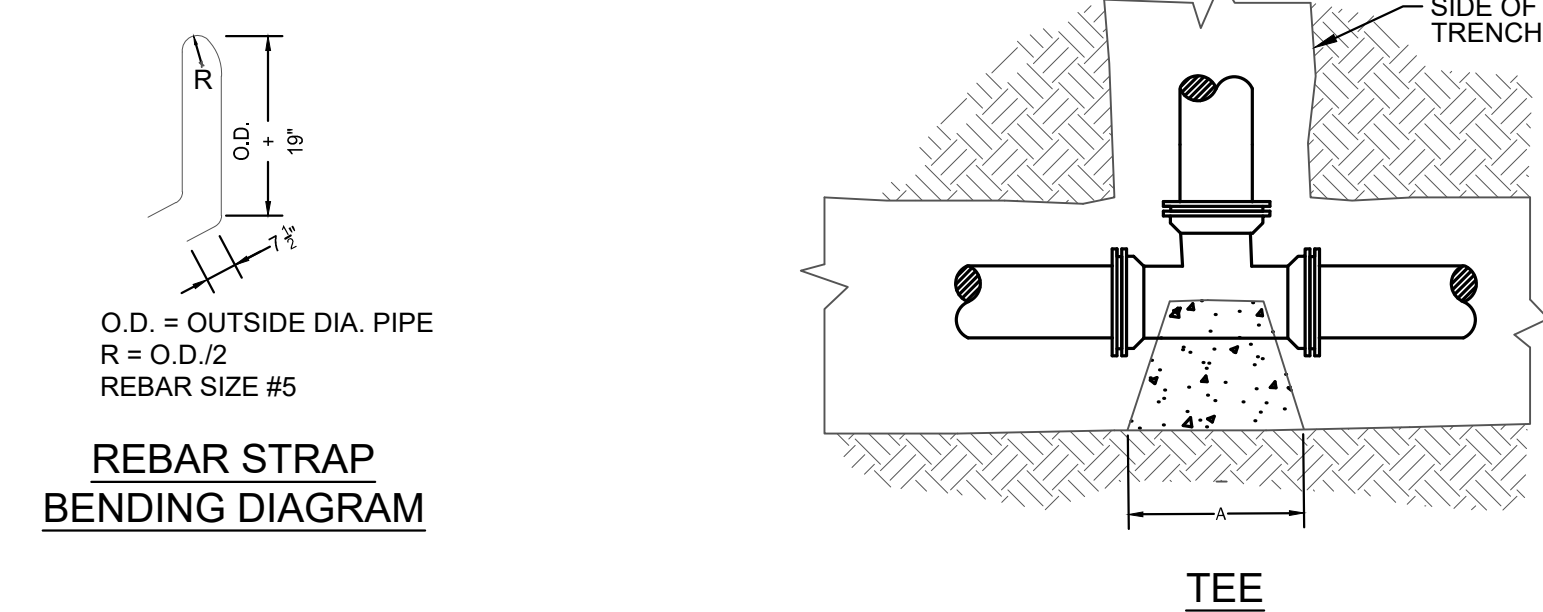
**B3 THRUST BLOCKING**

NTS



**D3 WET WELL DETAIL**

NTS



REBAR STRAP BENDING DIAGRAM

TEE

TABLE 4 - THRUST BLOCK DATA FOR VERTICAL BENDS ORIENTATED DOWNWARD

PIPE DIA (INCHES)	90° BEND		45° BEND		22.5° BEND		11.25° BEND	
	T (lbs.)	VOLUME OF CONCRETE (c.y.)	T (lbs.)	VOLUME OF CONCRETE (c.y.)	T (lbs.)	VOLUME OF CONCRETE (c.y.)	T (lbs.)	VOLUME OF CONCRETE (c.y.)
4 & UNDER	2,560	0.5	1,386	0.50	707	0.20	355	0.10
6	5,288	1.1	2,862	1.00	1,459	0.50	733	0.20
8	9,098	1.8	4,924	1.70	2,511	0.80	1,262	0.40
10	13,686	2.8	7,407	2.50	3,776	1.30	1,898	0.60
12	19,354	3.9	10,475	3.50	5,340	1.80	2,683	0.90
14	26,001	5.3	14,072	4.70	7,174	2.40	3,605	1.20
16	33,629	6.8	18,200	6.10	9,279	3.10	4,662	1.60
18	42,236	8.6	22,858	7.70	11,653	3.90	5,855	2.00
20	51,823	10.5	28,047	9.40	14,298	4.80	7,184	2.40
24	73,934	15.0	40,013	13.50	20,399	6.90	10,249	3.50

THE THRUST PRODUCES AN UPLIFT FORCE. THE WEIGHT OF THE THRUST BLOCK PROVIDES THE RESISTANCE



**TOWN OF HALLS**

**2023 SITE DEVELOPMENT GRANT BEECH BLUFF UTILITY EXTENSION**

HALLS, TENNESSEE

CONSTRUCTION DOCUMENTS

REVISIONS

PROJECT NO.	DATE
2384	MAY 08, 2024
DRAWN	CHECKED
SFA	JDD

CONSTRUCTION DETAILS