

# Upper Pompey Water Supply Project

## Contract 1 (AML)

## Contract 2

### Mountain Water District

### Raccoon, Kentucky

**AS-BUILT SET**



INDEX OF DRAWINGS

GENERAL SHEETS

Cover Sheet	G-1
General Notes	G-2
Key Map	G-3

PLAN SHEETS

Contract 1 (AML)	C1-1 to C1-4
Contract 2	C2-2, C2-3, C2-5, C2-6

PUMP STATION SHEETS - CONTRACT 1 (AML)

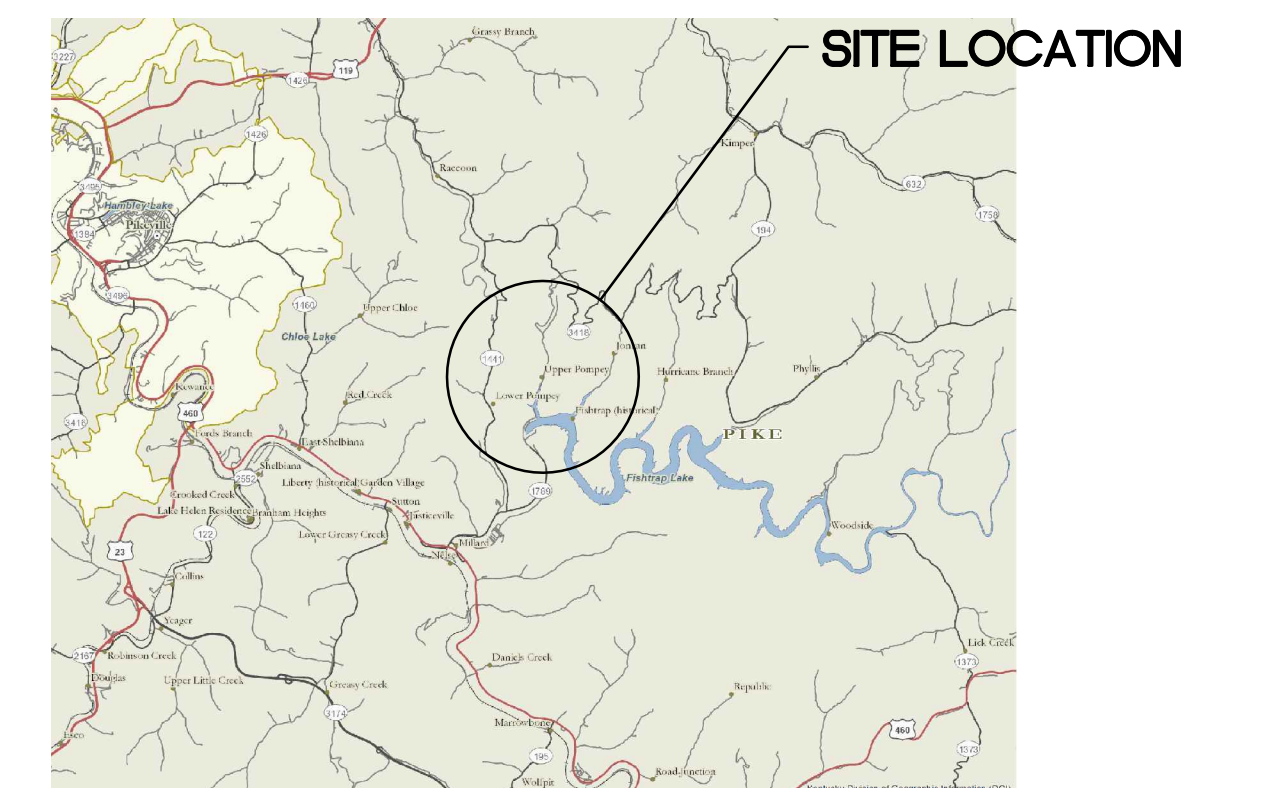
Pump Station	PS-1
Additional Pump Station Upgrades	PS-2

TANK SHEETS - CONTRACT 1 (AML)

Tank Site	T-1
Tank Details	T-2

DETAIL SHEETS

Bedding and Backfill Details	D-1
Water Line Details	D-2
Miscellaneous Details	D-3
Pressure Reducing Station Details	D-4



**PROJECT AREA**  
NTS



131 SUMMIT DRIVE  
PIKEVILLE, KENTUCKY 41501  
(606) 432-1447

Project No.	---
Paradox Number	---
Date Plotted	8/14/15



**MASTER LEGEND**

EXISTING (FOUND)	PROPOSED (SET)	
		SURVEY BASE LINE/ROAD CENTER LINE
		FLOODWAY
		PROPERTY LINE
		RIGHT OF WAY
		ROADWAY
		EASEMENT (TYPE NOTED)
		PARCEL/LOT IDENTIFIER
		MONUMENT (I.P. - Iron Pin W/ Summit Eng. Cap, P.K. Nail W/ Summit Cap, F.D. - Found)
		BOUNDARY POINT - No Monument
		BENCH MARK
		REFERENCE MARK
		FB SURFACE DITCH
		'V' SURFACE DITCH
		SPECIAL DITCH
		STREAM
		BREAK IN SLOPE, TOP BANK, TOE HILL, ETC.
		CONTOUR LINES
		SPOT ELEVATION
		GAS LINE - SIZE INDICATED
		WATER LINE - SIZE INDICATED
		SANITARY SEWER, MANHOLE & SERVICE LATERAL
		STORM SEWER & CATCH BASINS
		FORCE MAIN
		SIPHON
		ENCASEMENT - BORE
		ENCASEMENT - OPEN CUT
		BOX CULVERT
		OVERHEAD POWER LINE
		OVERHEAD TELEPHONE LINE
		UNDERGROUND POWER OR TELEPHONE
		LIGHTING POLE
		POWER POLE
		JOINT POWER & TELEPHONE POLE
		TELEPHONE & TELEGRAPH POLE
		ANCHOR, POWER OR TELEPHONE
		STUB POWER
		STUB TELEPHONE
		TRANSFORMER
		VALVE (Normal = Gate, P = Plug, B = Butterfly, C = Curb Stop)
		PRESSURE REDUCING VALVE
		CHECK VALVE
		POST INDICATOR VALVE
		FIRE HYDRANT ASSEMBLY (INC. Valve and Valve Box)
		AIR RELEASE
		FLUSH HYDRANT OR BLOW OFF (INC. Valve and Valve Box)
		WATER SERVICE LINE & METER SET W/ ACCESS
		SHADED W/ PRV-OPEN W/O PRV, DC INDICATES DOUBLE CUT REGULATION
		WATER SERVICE LINE & DOUBLE METER SET W/ ACCESS
		SHADED W/ PRV-OPEN W/O PRV, DC INDICATES DOUBLE CUT REGULATION
		TEE
		HYDRANT TEE
		GAS METER
		GAS WELL
		STOP SIGN
		STREET SIGN
		TREE LINE
		BRUSH LINE
		SILT FENCE
		DAYLIGHT LINES (CUT / FILL LIMITS)
		GUARD RAIL
		FENCE LINE

**WATER LINE CONSTRUCTION IN VICINITY OF CULVERTS**

- CONSTRUCT WATER LINE UNDER CULVERT
- CONSTRUCT WATER LINE BEYOND CULVERT
- CONSTRUCT WATER LINE OVER CULVERT

**GENERAL NOTES**

- 1) IDENTIFICATION OF PARTIES  
 OWNER - Mountain Water District  
 OPERATOR - Mountain Water District  
 ENGINEER - The registered professional engineer designated by the OWNER to provide design, construction, and certification services.  
 CONTRACTOR - The entity responsible under contract to OWNER to furnish labor, equipment, etc. to complete the work specified herein
- 2) GENERAL PROJECT REQUIREMENTS  
 In the event of a conflict between any portion of the Contract Documents, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
- 3) PROJECT COMMUNICATIONS / INSPECTION  
 The ENGINEER shall be the OWNER'S designated site representative. All communication from the CONTRACTOR, and to the CONTRACTOR, shall be through the ENGINEER.
- 4) SAFETY  
 The CONTRACTOR shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The CONTRACTOR shall select the means, methods, sequences, and techniques of construction he deems appropriate for accomplishing the Work in a safe manner. The CONTRACTOR shall be responsible for all damage to persons and property resulting from his activities.
- 5) EMERGENCY SHUTOFF  
 The CONTRACTOR shall locate existing water and gas valves prior to starting work so that in the event of an emergency the utility service may be quickly shut off.
- 6) SURVEYS  
 The CONTRACTOR shall retain the services of a registered surveyor to establish the project limits. All surveys by the CONTRACTOR'S surveyor shall be subject to periodic checks by the ENGINEER. This checking shall in no way relieve the CONTRACTOR of his obligation to accurately lay out the work.
- 7) EASEMENTS AND RIGHT-OF-WAY  
 The OWNER is responsible for the procurement of all permanent easements necessary or required for the project. The CONTRACTOR is responsible for temporary easements for his staging areas. It is the CONTRACTOR'S responsibility to observe the conditions of these agreements and confine his activities to the limits of the easements.
- 8) EXCAVATION  
 The CONTRACTOR shall perform all excavation necessary or required for completion of the project. This work shall include the removal and proper disposal of all materials of whatever nature encountered. All excavation is UNCLASSIFIED. Excavation shall be considered incidental to the cost of the work and shall not be measured for payment.
- 9) TOTAL SITE RESPONSIBILITY  
 In occupying the site and commencing work in accordance with the Notice to Proceed, the CONTRACTOR assumes total and complete responsibility for the work until final payment and release of claims. Any portion of the Work damaged in this time period shall be corrected, repaired, or replaced by the CONTRACTOR at NO additional cost to the OWNER.
- 10) ACCESS TO WORK  
 The ENGINEER, his representatives, and representatives of the OWNER shall have full access to the work at all times.
- 11) BLASTING  
 NO BLASTING SHALL BE PERMITTED ON THIS PROJECT!
- 12) BURNING  
 Burning on this project shall conform to the applicable local, state and federal burning ordinances.
- 13) WASTE AREAS  
 The CONTRACTOR will necessarily generate waste materials in the form of brush chippings, oversize boulders, muck, etc. THE CONTRACTOR SHALL SUBMIT A WRITTEN PLAN DETAILING THE MANNER IN WHICH WASTE MATERIALS WILL BE HANDLED. The CONTRACTOR shall strictly comply with all local, state, and federal laws and regulations pertaining to the disposition of construction related waste products. In no event shall waste materials be placed in a regulatory floodway (or flood plain) without a DOW permit to Construct Along or Across a Stream. OWNER will not assume responsibility for waste areas.
- 14) ADHERENCE TO PERMITS  
 Permits acquired by the OWNER are:  
 Division of Water Drinking Water Construction Permit  
 Department of Highways Encroachment Permit  
  
 The CONTRACTOR shall conduct his activities in strict accordance with these permits at all times. In particular, the CONTRACTOR shall strictly observe the 401 Water Quality Certification. Key requirements of the 401 Certification include:  
  
 Revegetation and cleanup of areas adjacent to streams shall occur concurrently with the progress of the work. Concurrently is herein defined to mean that revegetation and cleanup shall be completed within seven calendar days of pipe placement.  
  
 Best management practices shall be employed to minimize sediment runoff and soil erosion to a water course.  
  
 Extreme care shall be taken to prevent spills of fuels and lubricants into water courses.  
  
 The CONTRACTOR shall obtain a storm water general permit prior to initiating his work. Storm water permits are handled by:  
 Section Supervisor  
 Inventory & Data Management Section  
 KPDES Branch  
 Kentucky Division of Water  
 14 Rellly Road  
 Frankfort, Kentucky 40601
- 15) EXISTING UTILITIES & UNDERGROUND FACILITIES  
 The CONTRACTOR'S attention is called to the presence of existing utilities in close proximity to the project site. The CONTRACTOR is advised to carefully review the project requirements regarding utility relocations. All utility repair and relocation work shall be incidental to other items of work.  
  
 THE CONTRACTOR MUST MAKE A DILIGENT EFFORT TO MAINTAIN THE SERVICE OF EXISTING UTILITIES.
- 16) REPLACEMENT OF EXISTING FACILITIES  
 The CONTRACTOR shall replace existing entrance pipes, retaining walls, catch basins, ditches, etc. that are damaged by construction unless said facilities are specifically shown to be removed. In particular, all entrance pipes and drainage ditches shall be restored to a condition equal or better than that which existed prior to construction. Unless said facility replacement is identified as a pay item in the Design Drawings or Technical Specifications, this work shall be considered incidental to the cost of laying pipe and shall not be measured for payment.
- 17) DAMAGE TO GUARDRAIL, SIGNS, FENCES, ETC.  
 All guardrail, signs, fences, etc. damaged as a result of the construction shall be restored in like kind and character to the satisfaction of the OWNER. Unless said replacement is identified as a pay item in the Design Drawings or Technical Specifications, this work shall be considered incidental to the cost of laying pipe and shall not be measured for payment.
- 18) STORED MATERIALS  
 Request for payment for stored materials MUST be prepared in compliance with Article 14 of the General Conditions.
- 19) STREAM CROSSING  
 Restrained joint ductile iron pipe shall be employed for all stream crossings. The last 18" of backfill in all stream beds shall consist of Kentucky Department of Highways Channel Lining Class III.
- 20) NOTICE  
 The CONTRACTOR shall not move equipment or material to the work site, nor begin any construction prior to the date specified in the "Notice to Proceed." The CONTRACTOR must notify the OWNER and ENGINEER seven (7) calendar days in advance of his occupying the site.
- 21) THRUST BLOCKS  
 Concrete thrust or "kicker" blocks shall be installed in all pressurized lines at intersections and changes of direction to resist forces acting upon the pipeline. Thrust blocks are considered incidental to pipeline installation.
- 22) ANCHORS / RESTRAINT  
 Concrete anchors shall be provided when the pipe slope exceeds 20 percent. Anchors are considered incidental to the pipeline installation. The plans also identify special areas where restrained mechanical joint pipe is required.
- 23) VALVES  
 Valve locations can not be shown with precision on 100 scale mapping! Valve locations shall be coordinated with resident inspector & owner prior to installation. CONTRACTOR'S record drawings shall include an 8 1/2" X 11" valve location diagram for every valve constructed. See specifications.
- 24) SEPARATION OF WATER AND SEWER  
 Horizontal - Water lines shall be laid at least 10 feet horizontally from any existing sanitary sewer. This distance shall be measured edge to edge. If field conditions do not allow this separation, the water line shall be located such that the crown of the sewer pipe is 18 inches below the invert of the water line. If field conditions do not allow this condition to be met - then the existing sewer pipe shall be removed and replaced with mechanical joint ductile iron pipe and encased in concrete.  
  
 Crossing - Water lines shall cross over existing sewers with a minimum of 18 inches of separation between the crown of the sewer and the invert of the water main. If field conditions are such that this separation can not be maintained, the existing sewer shall be removed and reconstructed of mechanical joint ductile iron pipe. The ductile iron pipe must be centered on the crossing so that the joints are at least 5 feet on either side of the crossing.  
  
 No separate payment shall be made for work to insure compliance with this separation criterion. Maintenance of adequate separation shall be considered an integral part of the unit price bid for pipe.
- 25) METER SETS  
 The Plans illustrate the approximate location of meter sets for purposes of estimating quantities only! Plans also indicate meter sets for ALL residents who have signed a service agreement with the owner are to receive meter sets. CONTRACTOR shall obtain a final list of sign-ups IMMEDIATELY prior to construction. A representative of the CONTRACTOR and the OWNER shall meet with each resident on the sign-up list. The location of all meter sets shall be determined by a representative of the OWNER. IF THE CONTRACTOR FAILS TO IMPLEMENT THIS PROCEDURE, CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH RELOCATING METER SETS TO THE SATISFACTION OF RESIDENTS AND THE OWNER.
- 26) TESTING  
 Completed water lines shall be subjected to the acceptance tests described in the specifications. Water lines shall be pressure tested in accordance with AWWA C-600 and disinfected in accordance with AWWA C-651.
- 27) NOTICE  
 The CONTRACTOR shall not move equipment or material to the work site, nor begin any construction prior to the date specified in the "Notice to Proceed." The CONTRACTOR must notify the OWNER and ENGINEER prior to occupying the site in accordance with the requirements of the Technical Specifications.
- 28) TRAFFIC CONTROL  
 The CONTRACTOR'S work will disturb numerous private driveways and substantial portions of public thoroughfares. The terrain does not lend itself to detours. Consequently, the CONTRACTOR must observe the following traffic control principles:  
 a. Access to a residence drive may not be interrupted for more than three (3) hours at any one time.  
 b. Access to all driveways and public thoroughfares must be restored at the end of each work day.  
 c. Work within the limits of a public thoroughfare may only be conducted between the hours of 8:30 AM and 12:00 Noon, between 12:30 PM and 3:30 PM, and between 6:00 PM and 9:30 PM. The CONTRACTOR must post signs adjacent the roadway will be closed during the posted hours at least one day in advance of the proposed road closure.  
 d. The CONTRACTOR must make special provision for access for emergency vehicles: police, fire, and ambulance.  
 e. The CONTRACTOR shall provide all necessary safety devices in the forms of signs, flashers, barricades, etc. The CONTRACTOR shall be solely responsible for claims arising from the public with respect to his traffic control activities.
- 29) SEEDING  
 All disturbed areas shall be seeded in accordance with the Technical Specifications.
- 30) PROTECTION OF TREES  
 Care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

**SPECIAL PROVISIONS**

- (1) **TAPS:** At the request of Mountain Water District, There shall be **NO DRY TAPS**
- (2) **BEDDING AND BACKFILL:** CONTRACTORS are cautioned to carefully study the Bedding and Backfill detail on Sheet D-1. **THE OWNER WILL STRICTLY ENFORCE THIS DETAIL**
- (3) **EQUIPMENT:** No Track vehicles will be allowed on KYDOH Pavement.

- 31) SUB PAVEMENT DRAINS  
 There are numerous KYDOH sub pavement drains within the limits of the project. Upon encountering sub drains, the CONTRACTOR shall carefully excavate around the sub drain. Any sub drains that are damaged during construction shall be restored to a condition equal or better than that which existed prior to construction. Said facility replacement shall be considered incidental to the cost of laying pipe and shall not be measured for payment.
- 32) COORDINATION  
 Prior to commencement of construction activities, the CONTRACTOR shall schedule a project coordination meeting with representatives of KYDOH.
- 33) DISTANCES  
 At the request of the Highway Department, scaled distances have been given in certain locations from the edge of the road (as delineated by the white striping) to the proposed water main. CONTRACTOR shall observe these distances during pipeline construction.
- 34) CULVERTS  
 CONTRACTOR to construct waterline under culverts or around culverts within department of transportation R.O.W. and NOT over.

**ABBREVIATIONS**

Abbr.	Miscellaneous
BW	Bottom of Wall
FL	Flow Line
IE	Inlet Elevation
OE	Outlet Elevation
TC	Top of Concrete
TG	Top of Grate
TOT	Top of Tank
TP	Top of Pavement
TS	Top of Sidewalk
TW	Top of Wall
Appurtenances	
CBI	Curb Box Inlet
CO	Clean Out
DBI	Drop Box Inlet
DS	Down Spout
FH	Fire Hydrant
MH	Man Hole
Pipe	
BCOMP	Bituminous Coated Corrugated Metal Pipe
CMP	Corrugated Metal Pipe
CPEP	Corrugated Polyethylene Pipe
DI	Ductile Iron
PVC	Polyvinyl Chloride Pipe
SICPEP	Smooth Interior Corrugated Polyethylene Pipe
Utilities	
PP	Power Pole
SS	Sanitary Sewer
ST	Storm Sewer

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.



Pikeville, KY  
 Lexington, KY  
 Louisville, KY  
 South Charleston, WV  
 Bridgeport, WV

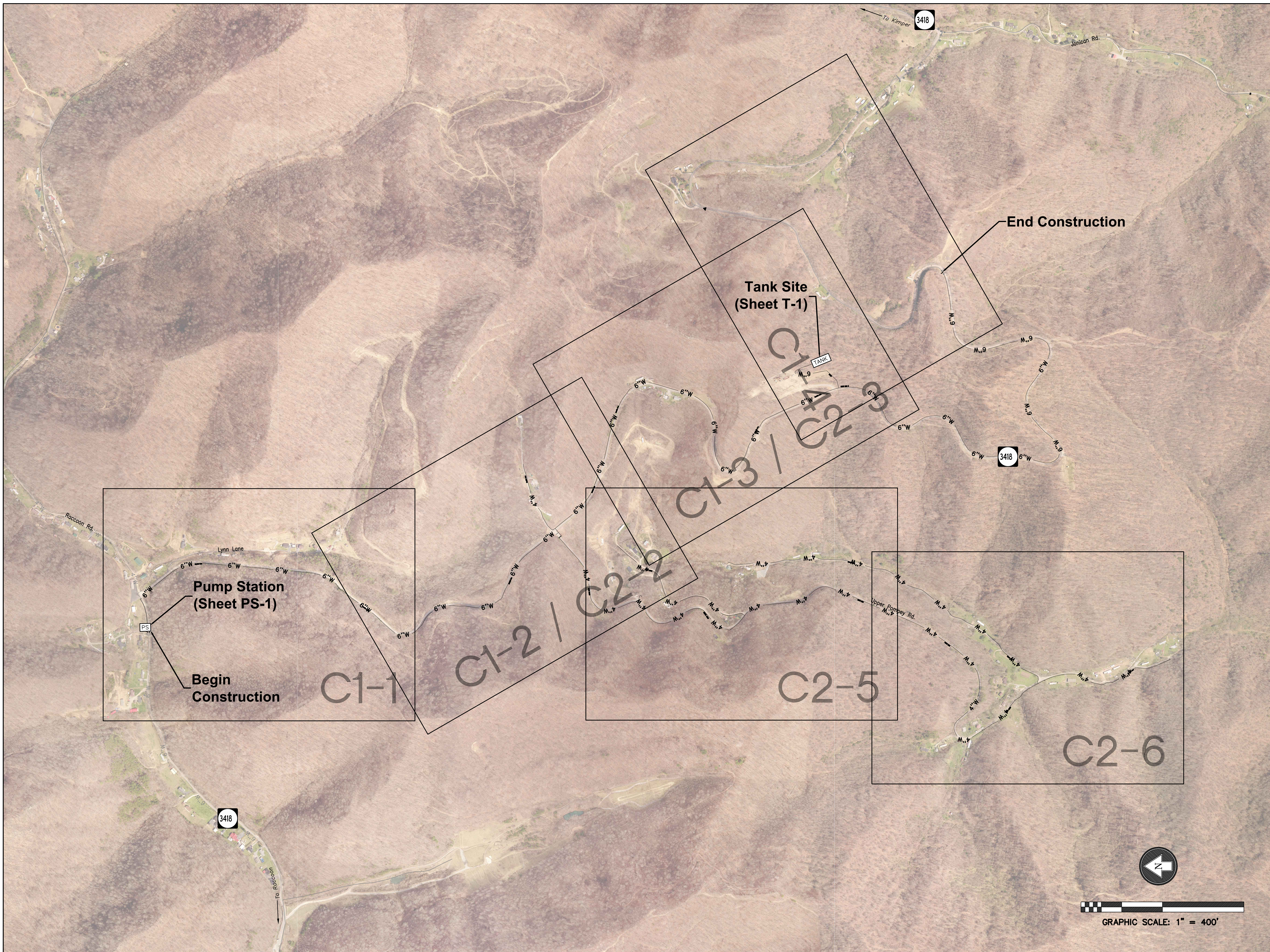
Mountain Water District  
 6332 Zebulon Highway  
 Pikeville, Kentucky 41501

Upper Pompey Water Supply  
 General Notes

DATE:  
 SCALE:  
 DRAWN BY: JRN/JBK  
 CHECKED: J. Hunt  
 PROJECT NO: 6375.043

SHEET:  
 OF:  
**G-2**





DATE	DESCRIPTION OF REVISION

**SUMMIT ENGINEERING INC.**

Pikeville, KY  
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 Louisville, KY  
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 Bridgeport, WV

**Mountain Water District**  
 6392 Zebulon Highway  
 Pikeville, Kentucky 41501

**Upper Pompey Water Supply**  
 Key Map

DATE:  

SCALE: 1" = 400'

DRAWN BY: JRN/JBK

CHECKED: J. Hunt

PROJECT NO: 6375.043

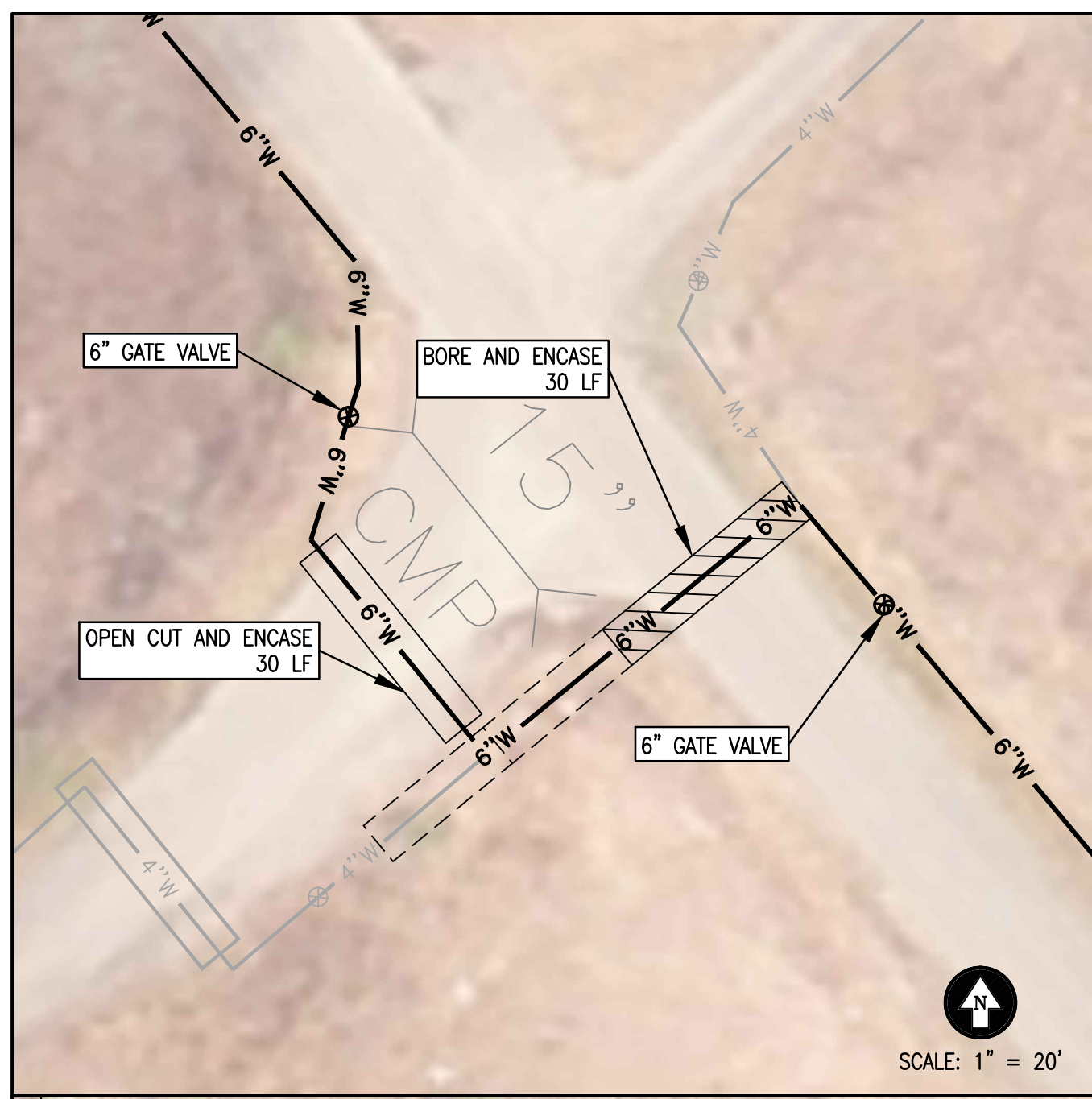
SHEET: **G-3**

OF:









GRAPHIC SCALE: 1" = 100'

DATE	DESCRIPTION OF REVISION

**SUMMIT ENGINEERING INC.**

Pikeville, KY  
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**Mountain Water District**  
 6332 Zebulon Highway  
 Pikeville, Kentucky 41501

**Upper Pompey Water Supply**  
 Contract 1 (AML)

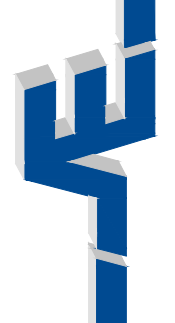
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SCALE:	VARIES
DRAWN BY:	JRN / JBK
CHECKED:	J. Hunt
PROJECT NO:	6375.043
SHEET:	C1-2
OF:	





DATE	DESCRIPTION OF REVISION

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**Mountain Water District**  
 6392 Zebulon Highway  
 Pikeville, Kentucky 41501  
**Upper Pompey Water Supply**  
 Contract 1 (AML)

DATE:	
SCALE:	1" = 100'
DRAWN BY:	JRN/JBK
CHECKED:	J. Hunt
PROJECT NO:	6375.043
SHEET:	<b>C1-3</b>
OF:	





REPLACE EXISTING VFD PUMP STATION WITH  
JONICAN PRESSURE REDUCING STATION  
EL. 1275, SEE SHEET D-4

Machine G-1 / L-2  
Machine G-1

BLOW-OFF HYDRANT

CONNECT TO EXISTING



GRAPHIC SCALE: 1" = 100'

DATE	DESCRIPTION OF REVISION

**SUMMIT ENGINEERING INC.**

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Pikeville, Kentucky 41501

**Upper Pompey Water Supply**  
Contract 1 (AML)

DATE:                    1" = 100'  
SCALE:                    JRN / JBK  
DRAWN BY:                J. Hunt  
CHECKED:                PROJECT NO: 6375.043  
SHEET:                    C1-4  
OF:











**General and Keyed Notes**  
 1. Contractor Shall Use Band Saddles On All HDPE Taps.



DATE	DESCRIPTION OF REVISION

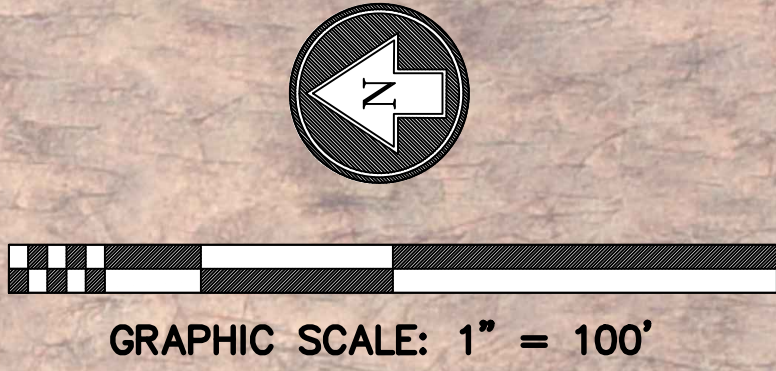
**SUMMIT ENGINEERING INC.**

Pikeville, KY  
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**Mountain Water District**  
 6332 Zebulon Highway  
 Pikeville, Kentucky 41501

**Upper Pompey Water Supply**  
 Contract 2

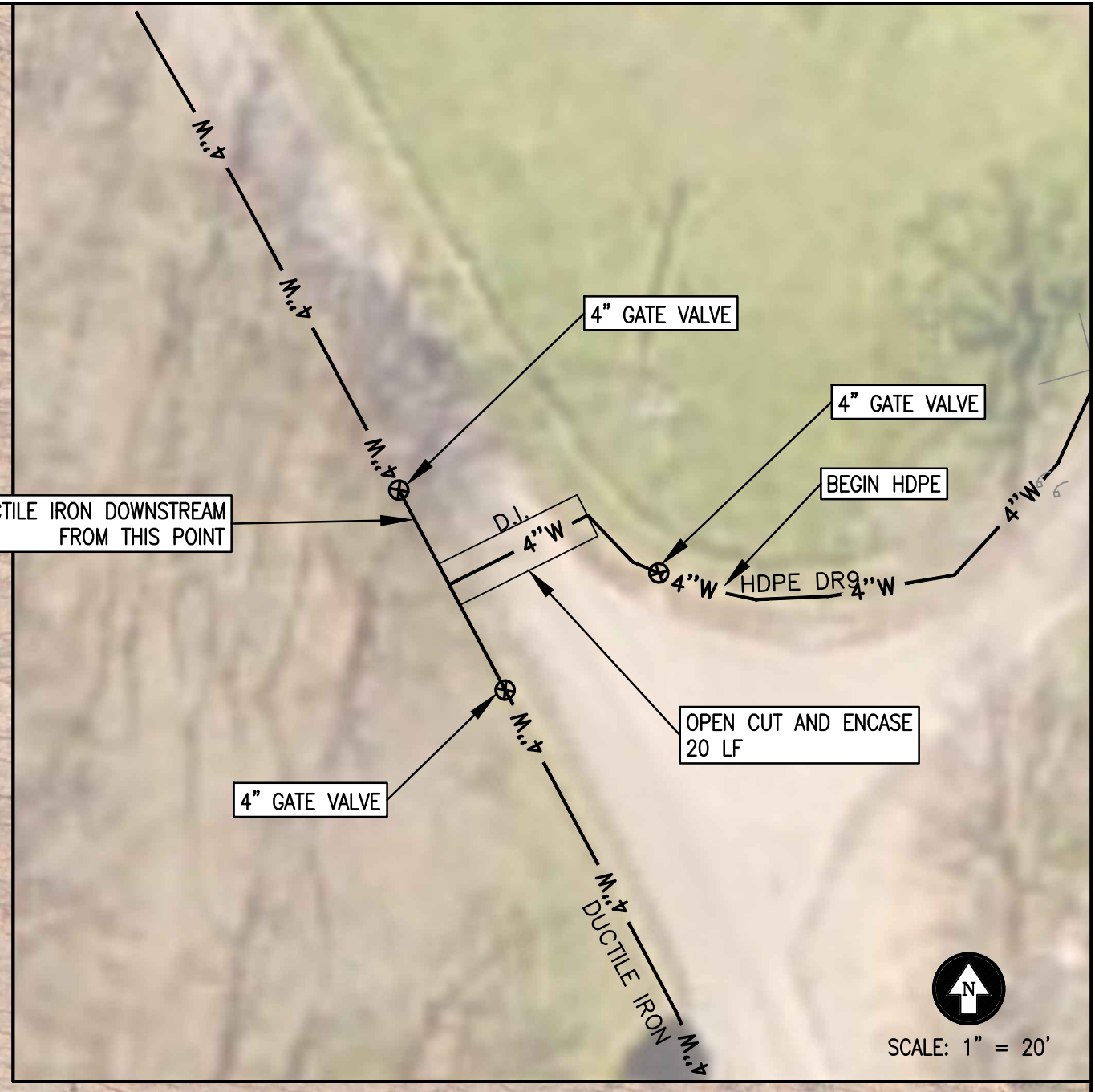
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DRAWN BY: JRN/JBK	CHECKED: J. Hunt
PROJECT NO: 6375.043	SHEET: C2-5
OF:	



SCALE: 1" = 20'



**General and Keyed Notes**  
 1. Contractor Shall Use Band Saddles On All HDPE Taps.



GRAPHIC SCALE: 1" = 100'

DATE	DESCRIPTION OF REVISION

**SUMMIT ENGINEERING INC.**

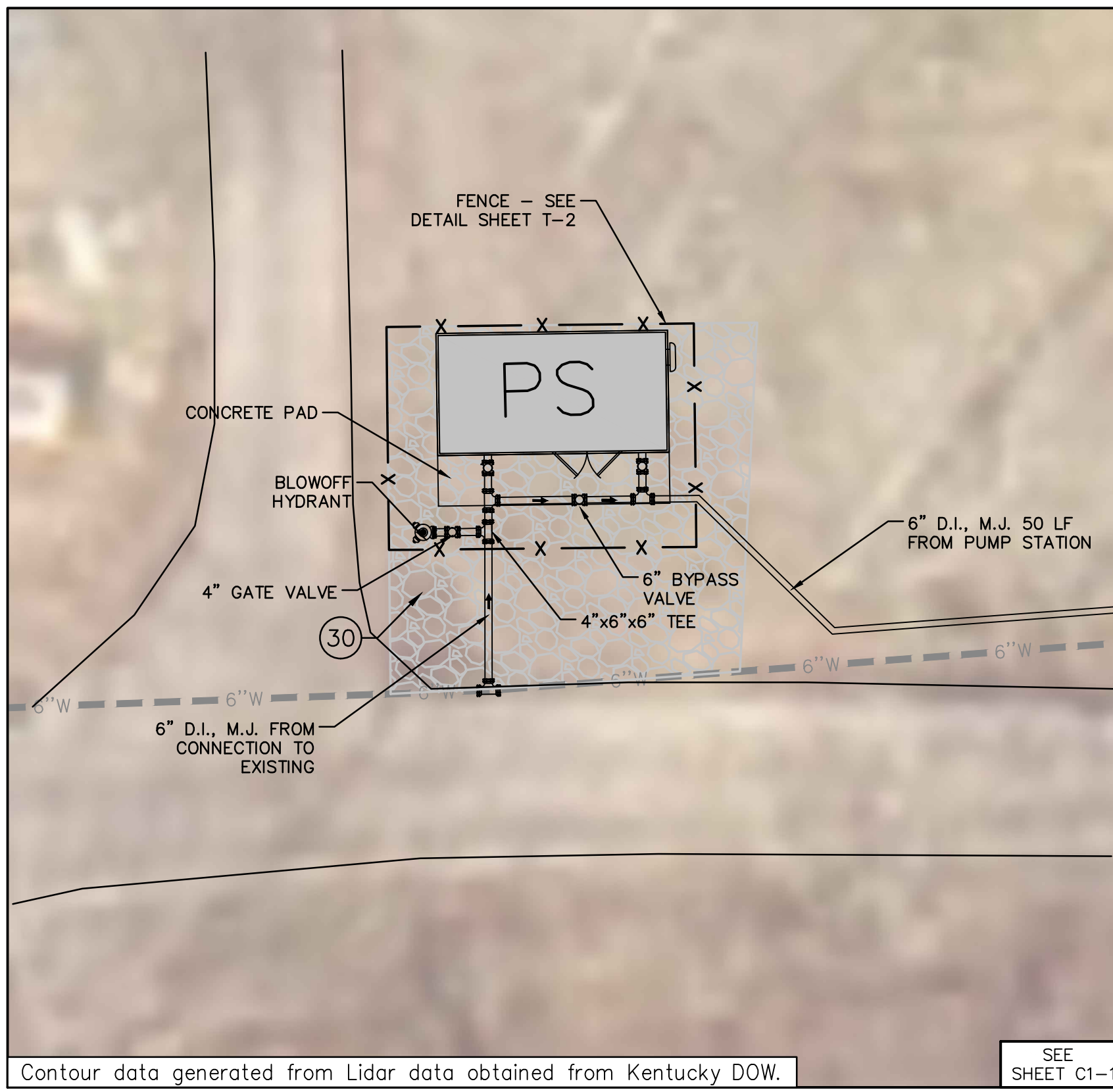
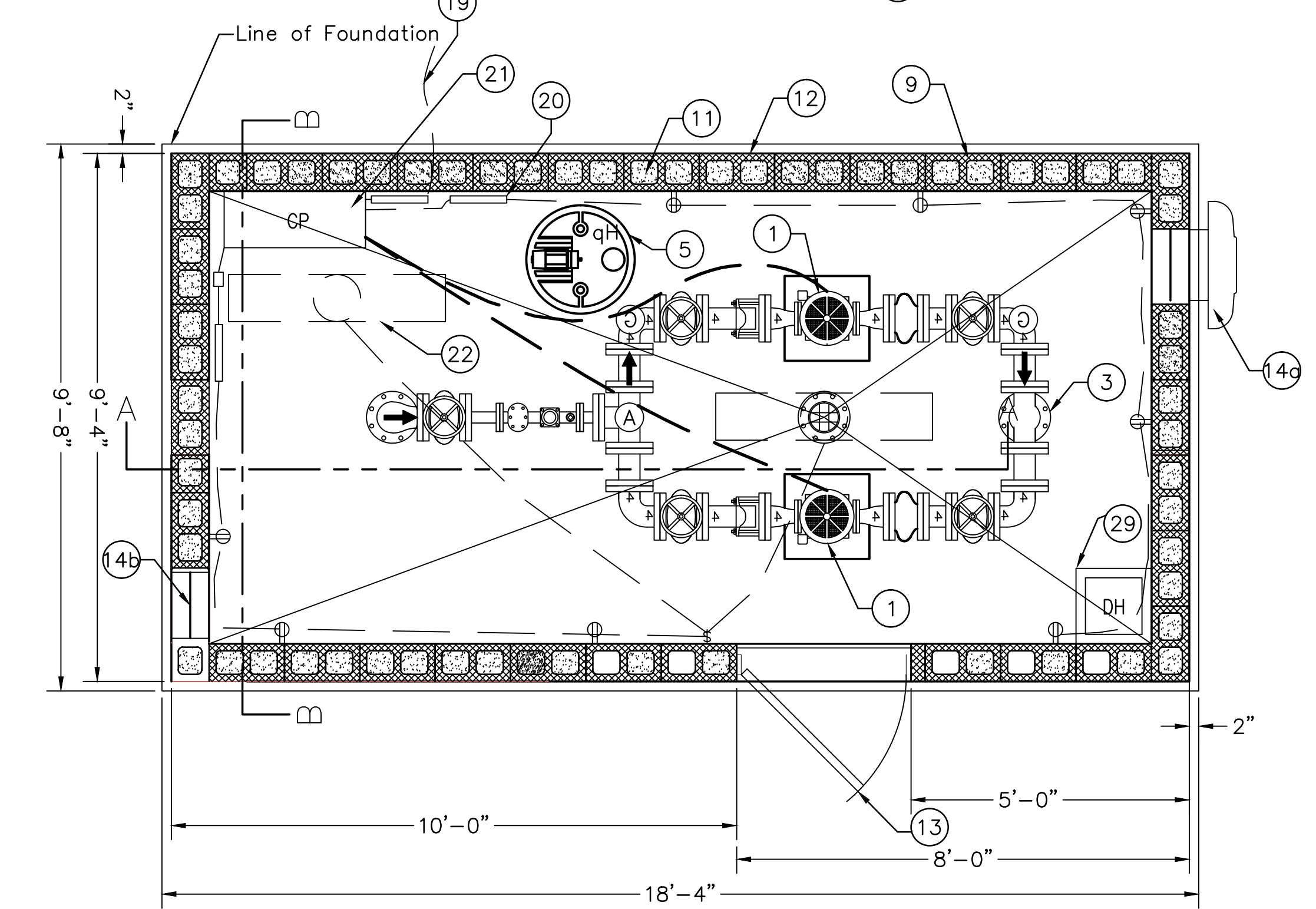
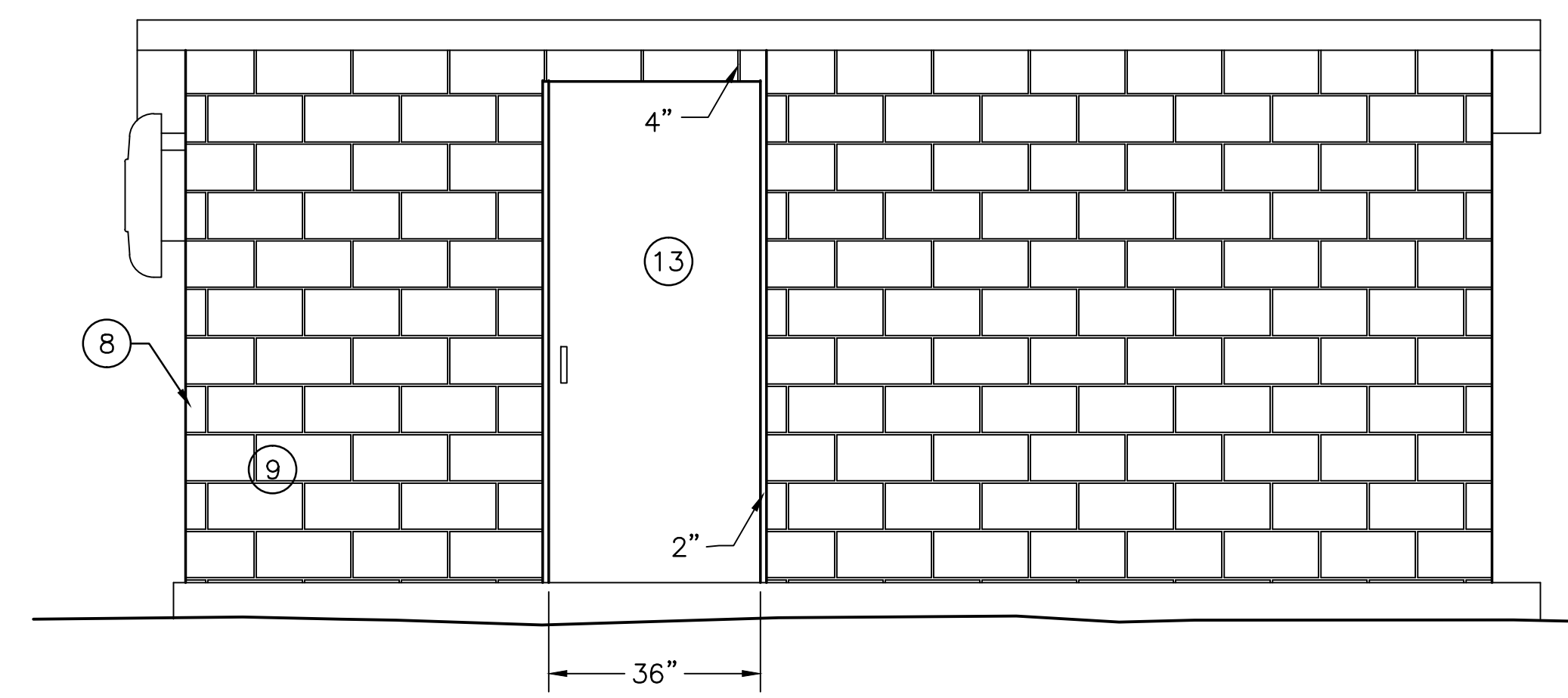
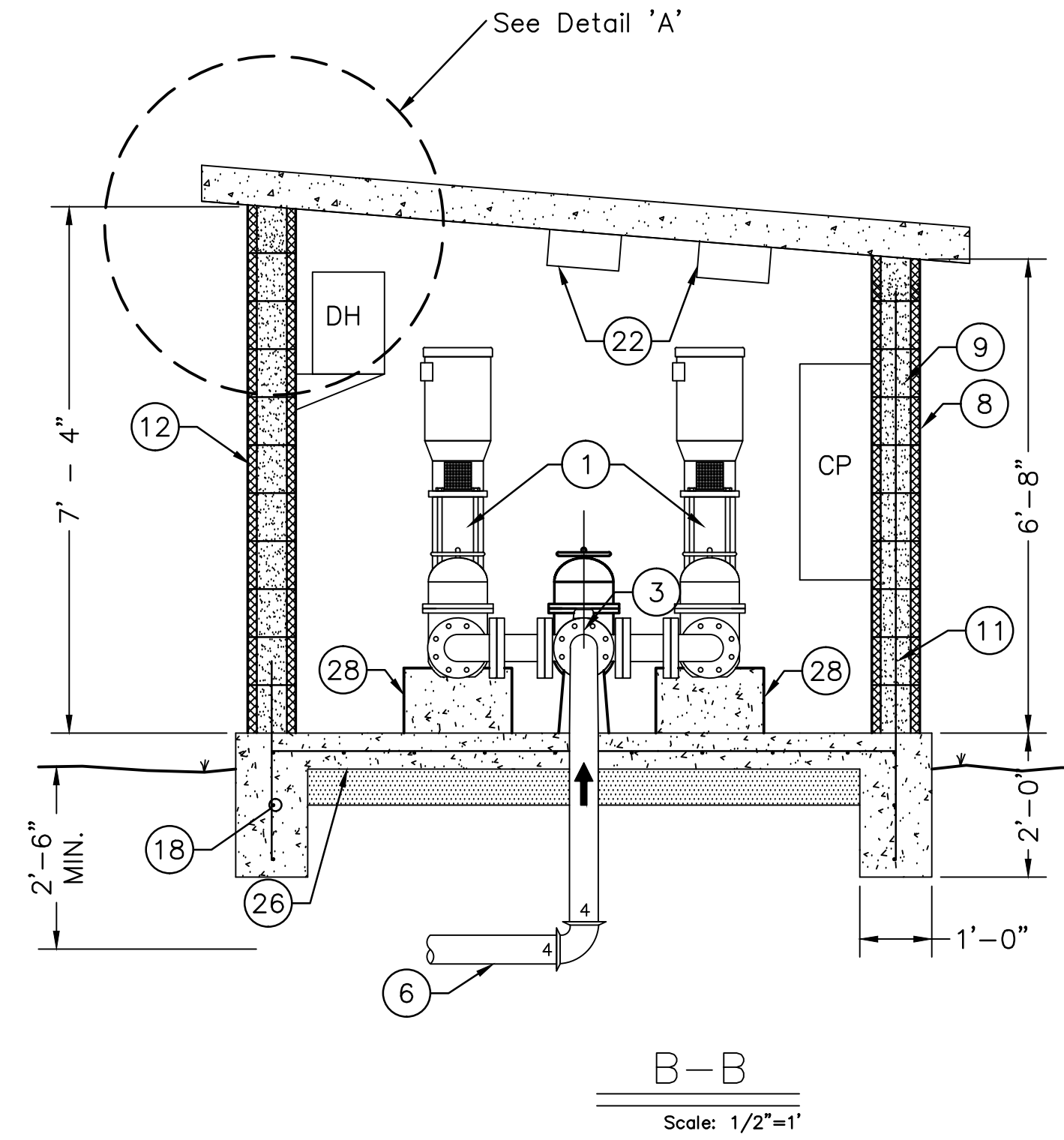
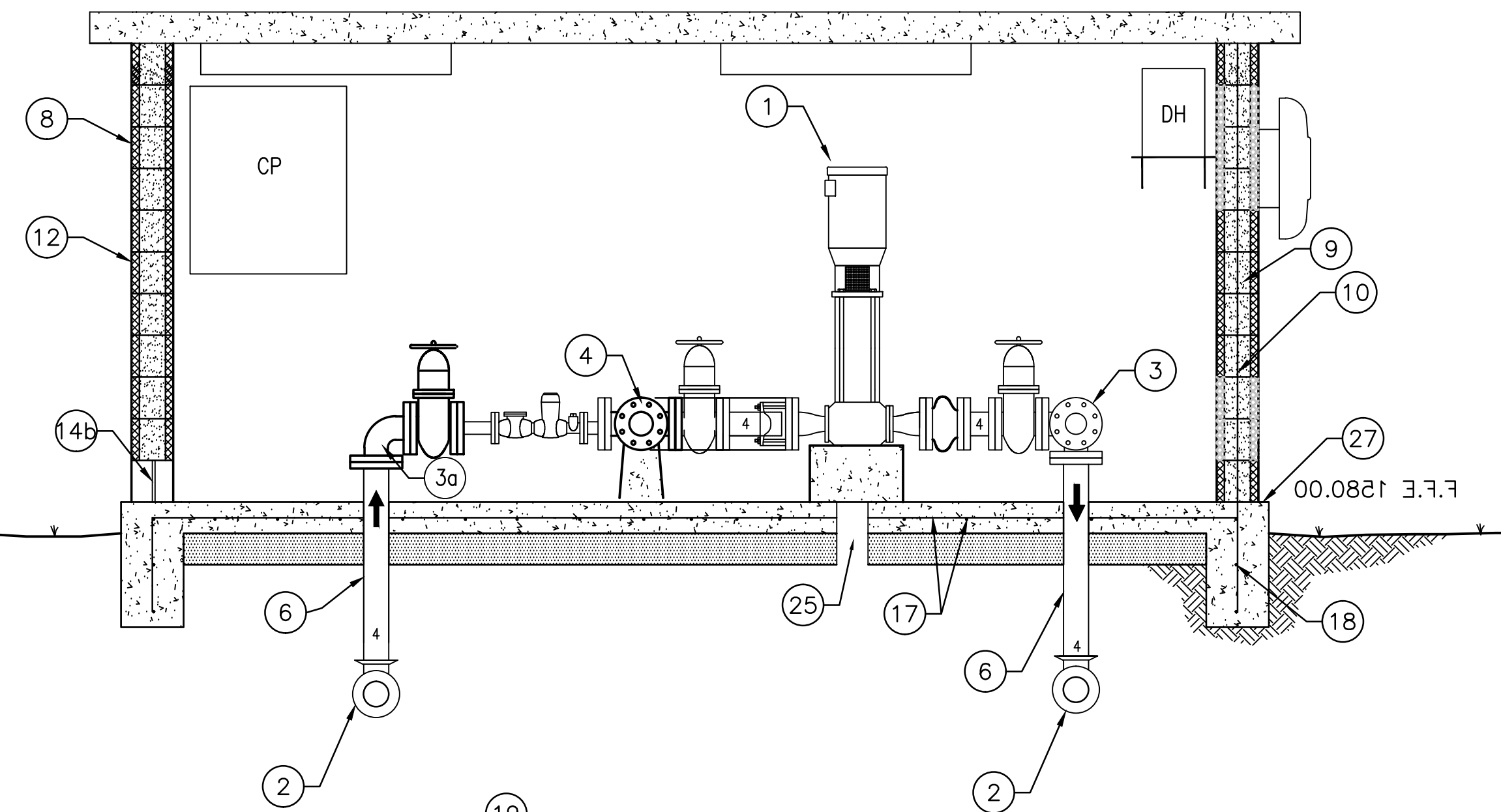
Pikeville, KY  
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**Mountain Water District**  
 6332 Zebulon Highway  
 Pikeville, Kentucky 41501

**Upper Pompey Water Supply**  
 Contract 2

DATE:                    1" = 100'  
 SCALE:                    JRN/JBK  
 DRAWN BY:                J. Hunt  
 CHECKED:                6375.043  
 PROJECT NO:             SHEET:  
**C2-6**  
 OF:



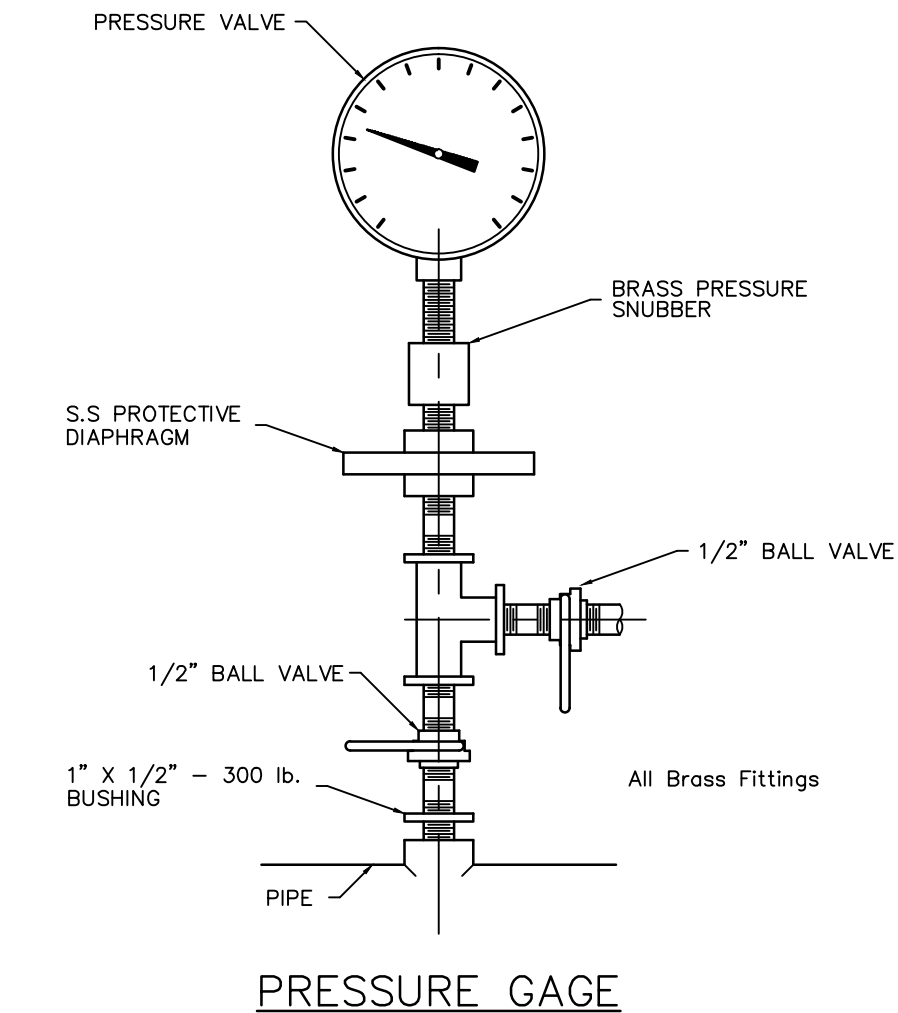
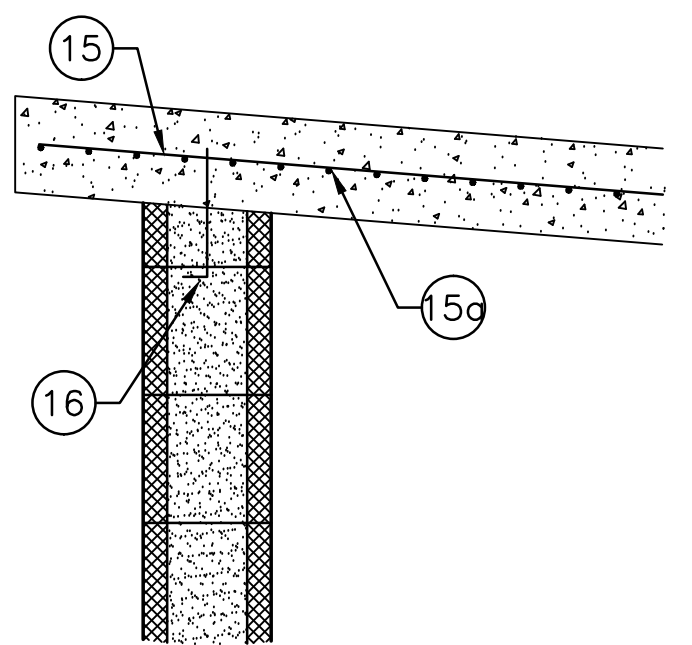


- SCOPE**  
All work addressed (or implied) hereon shall be included in CONTRACTOR'S Lump Sum bid for "Booster Pump Station".
- PROCESS**
- Pumps - Grundfos CR 20-06, 3444 RPM, 94.7 GPM @ 350' TDH. (Three Phase)
  - Lump Sum price for booster pumping station includes suction and discharge lines from station to 4" valve outside of station.
  - 4"x4"x4" D.I. TEE, F.J.,
  - 4" D.I. ELL, F.J.,
  - Provide 1/2" tap, 1/2" Valve and 1/2" copper service tubing for air release valve
  - HypoChlorinator - Polyethylene day tank and liquid metronics metering pump, or equal.
  - All Pipe in building 3" and larger shall be D.I. 250# flanged joint. All pipe below slab shall be D.I. M.J. Pipe smaller than 3" shall be red brass rated at 250#.
  - Elevation of CL of Pumps may vary.
- STRUCTURAL**
- CONTRACTOR to provide masonry block pump house with reinforced concrete floor and roof as shown. FFE 1053.
  - 7 5/8"x15 5/8"x8" Split face hollow load bearing block with natural exterior finish.
  - Block Reinforcement  
Horizontal - Blok-Lok (or approved equal) every other course  
Vertical - No. 4 bar on 8" Centers - every other bar full height of wall, fill void with Class 'A' Concrete
  - Block Insulation - "Water Repellent Fill Insulation" or approved equal.
  - Block Seal - Provide masonry waterproofing / seal coat.
  - Door - 1 standard 18 gauge steel door, 3"x7"0"x1 3/4", tamper proof hinges, dead bolt lock. Aluminum Threshold.
  - Thermostatically Controlled, Wall Mounted Exhaust with Back draft Damper.
  - Automatic Aluminum Louvered Intake Vent to open when Exhaust Fan Activates.
  - No. 4 at 12" O.C.
  - No. 4 at 6" O.C.
  - 1" anchor bolt at 24" O.C., Grout Cell, anchor bolt length 18"
  - No. 5 @ 12" O.C.
  - No. 4 @ 9" O.C.
- MECHANICAL and ELECTRICAL**
- Power Supply. Service Entrance included, not shown for clarity
  - Breaker Box / Transformer
  - Control Panel - Nema 3R
  - Two tube, 40 watt, rapid start, "OSHA" approved enclosed and gasketed fluorescent light fixture.
  - Duplex, Grounding type, 3 wire, polarized convenience receptacle
  - Wall mounted, forced air electric heater, 5000 BTU/H Dayton 2E434, Bracket 23433, or equal.
- MISCELLANEOUS**
- Daylight 4" Drain in surface drainage way.
  - Polyethylene Vapor Barrier
  - Finished Floor Elevation minimum 6" above grade.
  - Pumps to be mounted on reinforced conc. pump pads minimum 6" above FFE (Also See Note 7)
  - Dehumidifier (See Specs). Plumb to Drain.
  - Gravel hatch area with #57 crushed stone. (4" depth)

PLAN VIEW  
Scale: 1/2"=1'

SITE PLAN  
Scale: 1"=10'

- LEGEND**
- 2" Turbo Meter w/ Integral Strainer
  - Globe Style Wafer Check Valve
  - Mechanical Flange Adapter
  - Resilient Wedge Gate Valve w/ Rising Stem
  - Pressure Gauge
  - Air Release Valve
  - Duplex Receptacle
  - Floor Drain
  - Control Panel
  - Pump
  - Light Switch
  - Fluorescent Light
  - DH Dehumidifier



DESCRIPTION OF REVISION

DATE

**SUMMIT ENGINEERING INC.**

Pikeville, KY  
Leighton, KY  
South Charleston, WV  
Bridgeport, WV

**Mountain Water District**  
6392 Zebulon Highway  
Pikeville, Kentucky 41501

**Upper Pompey Water Supply - Contract 1 (AML)**  
Pump Station

DATE: \_\_\_\_\_ VARIAS  
SCALE: \_\_\_\_\_  
DRAWN BY: JRN/JBK  
CHECKED: J. Hunt  
PROJECT NO: 6375.043  
SHEET: \_\_\_\_\_  
**PS-1**  
OF: \_\_\_\_\_



**PUMP STATION NOTES**

Contractor shall complete the work listed below at the three existing pump stations indicated on this sheet.

**ANDERSON BRANCH / HUNTS BRANCH PUMP STATIONS**

1. Contractor shall provide a single Generac MMG120 (or equal) mobile generator for use at both pump stations.
2. Contractor shall install a permanent Docking Station at each Pump Station.

**FERRELLS CREEK PUMP STATION**

1. Replace existing pumps with Grundfos CR 120-5-2, 700 GPM, 445 ft. TDH at 3567 RPM (Three Phase).
2. Provide a single Generac SD200 (or equal) stationary generator with 230 KW alternator and auto transfer switch.
3. Contractor shall provide and install new Variable Frequency Drives for newly installed pumps.

460

3418

11

PS

ANDERSON BRANCH  
PUMP STATION

194

HUNTS BRANCH  
PUMP STATION

PS

194

Fairtop Lake

1499

1373

FERRELLS CREEK  
PUMP STATION

460

PS

1373

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.

Pikeville, KY  
Lebanon, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6332 Zebulon Highway  
Pikeville, Kentucky 41501

Upper Pompey Water Supply - Contract 1 (AML)  
Additional Pump Station Upgrades

DATE:  
SCALE: 1" = 2000'  
DRAWN BY: JRN/JBK  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

PS-2

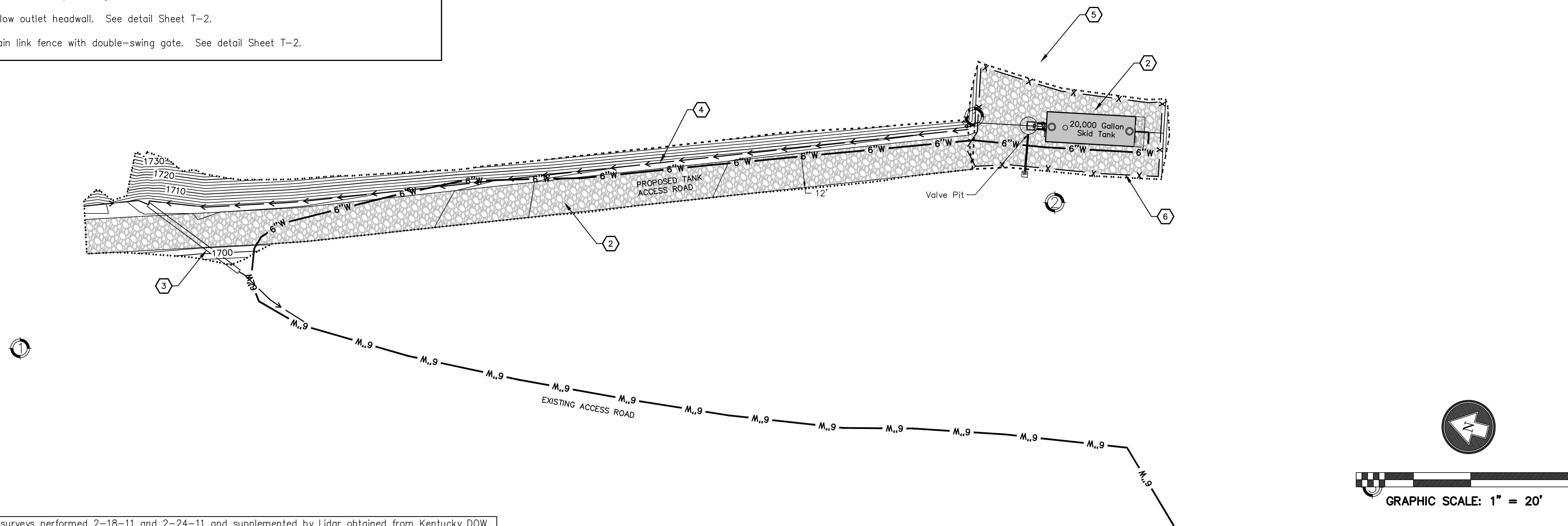
OF:



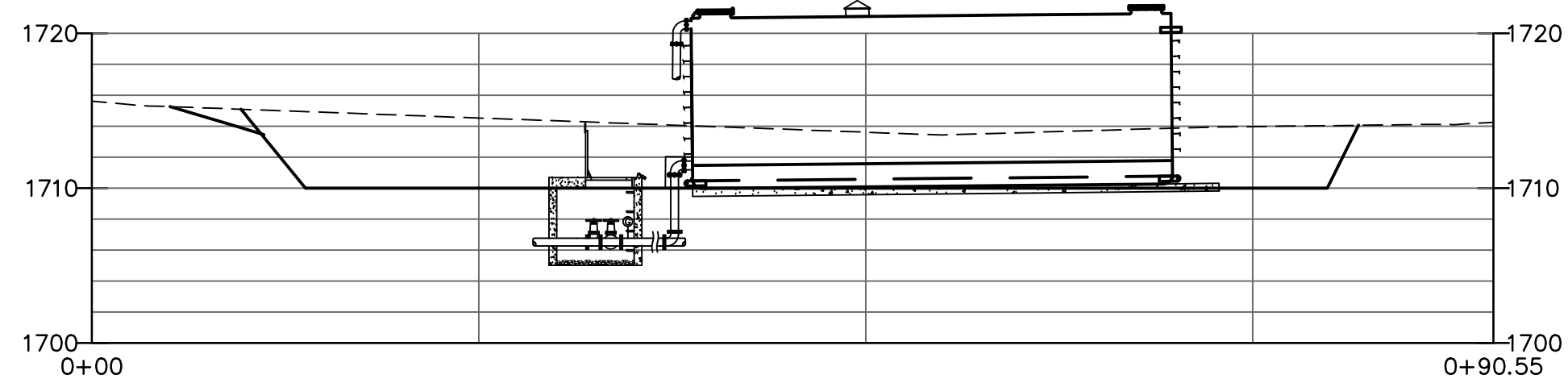
**General and Keyed Notes**

1. See Sheet T-2 for Tank Details.
2. CONTRACTOR shall provide crushed stone base (4") on tank access road and inside tank fencing.
3. Install 18" CMP culvert. Upper invert ~1700'; lower invert ~1695'. Make adjustments in field as necessary.
4. Construct "V" ditch at one foot depth along tank access road.
5. Field locate tank overflow outlet headwall. See detail Sheet T-2.
6. Install 6-foot high chain link fence with double-swing gate. See detail Sheet T-2.

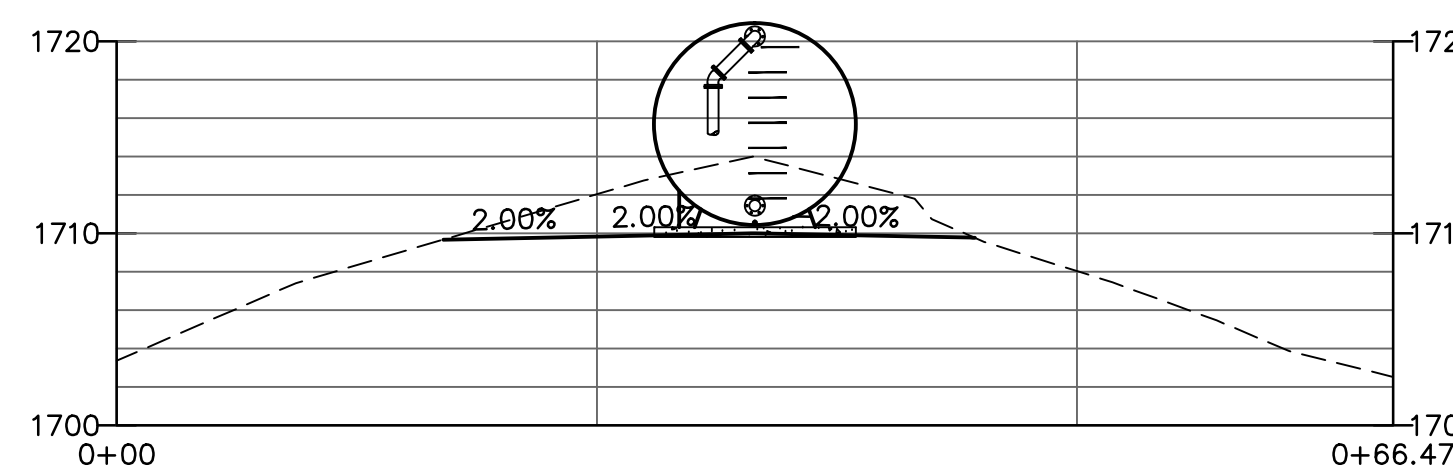
Bench Mark Schedule				
BM	Description	Elevation	Northing	Easting
1	REBAR CAP	1703.964	2068202.5500	2612102.0130
2	T-H	1705.473	2067866.7644	2612244.6279
3	T-H	1654.201	2067733.9130	2612177.3908



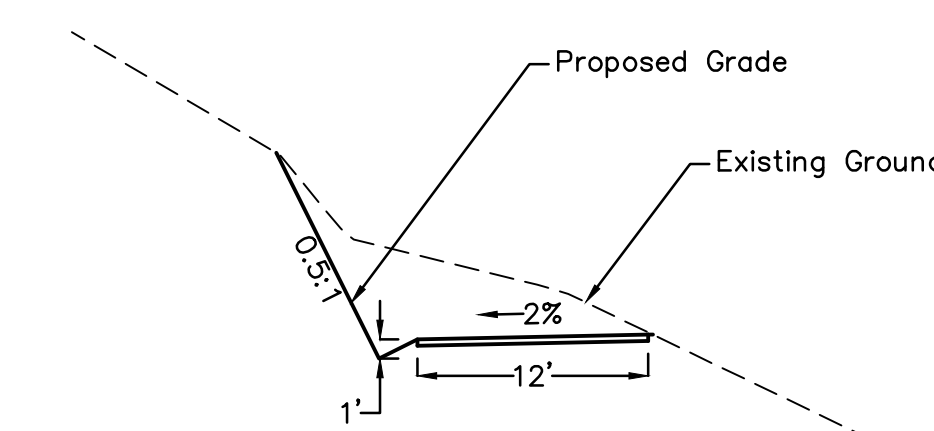
Surface data generated from field surveys performed 2-18-11 and 2-24-11 and supplemented by Lidar obtained from Kentucky DOW.



Tank Site Profile  
HORIZ. SCALE 1"=100'  
VERT SCALE 1"=100'



Tank Site Section  
HORIZ. SCALE 1"=100'  
VERT SCALE 1"=100'



Tank Access Road  
Typical Section  
SCALE 1" = 10'

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.

Pikeville, KY  
Lebanon, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6332 Zebulon Highway  
Pikeville, Kentucky 41501

Upper Pompey Water Supply - Contract 1 (AML)  
Tank Site

DATE: VARIES  
SCALE: JRN/JBK  
DRAWN BY: J. Hunt  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

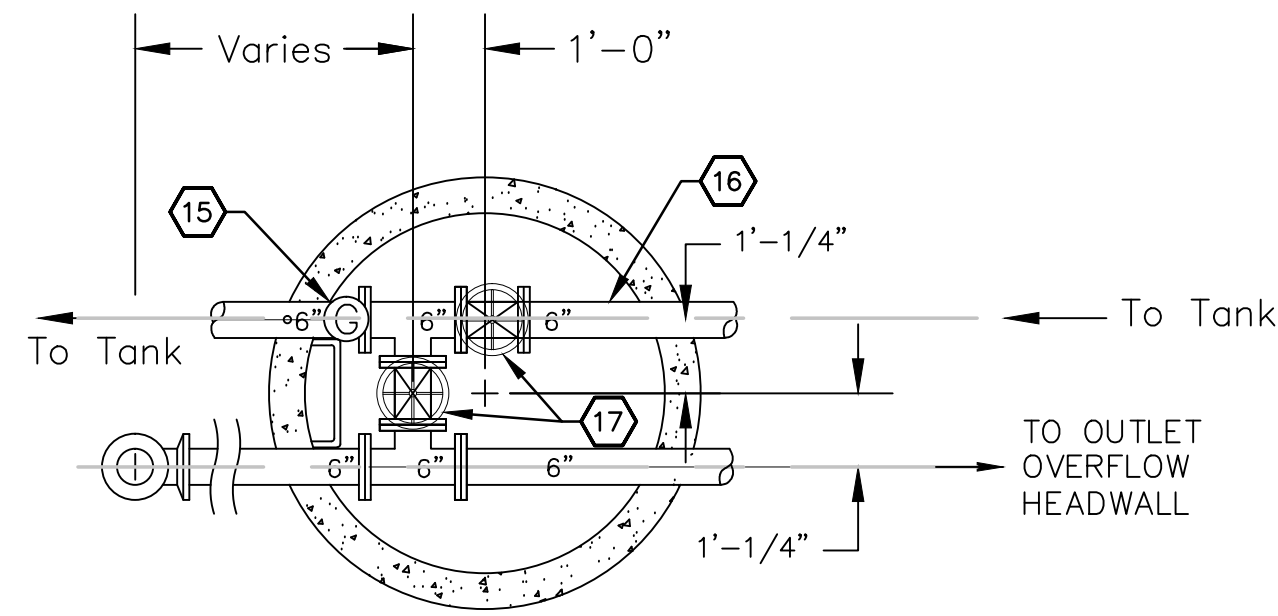
T-1

OF:

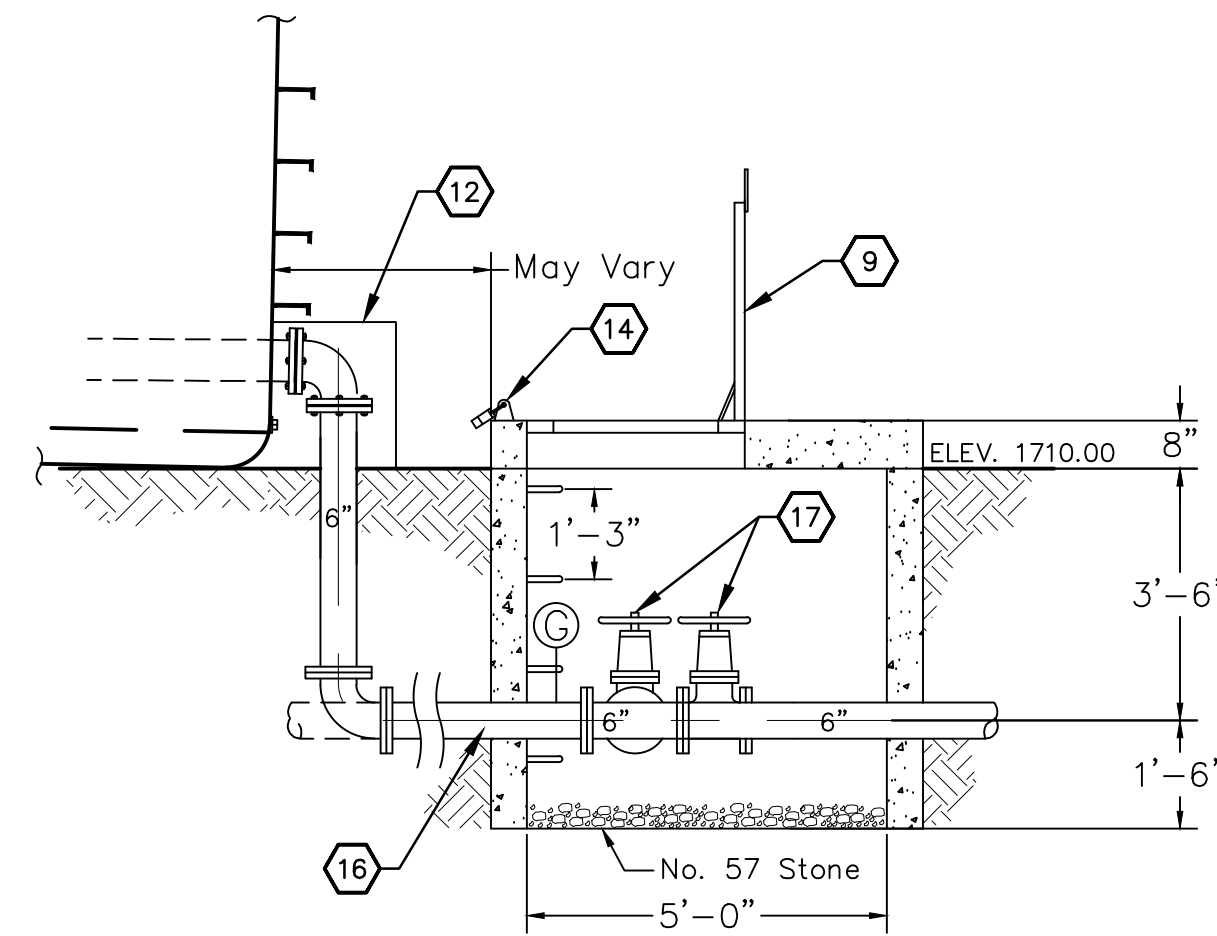


**CONSTRUCTION NOTES**  
(Circle indicates note appears in Drawing)

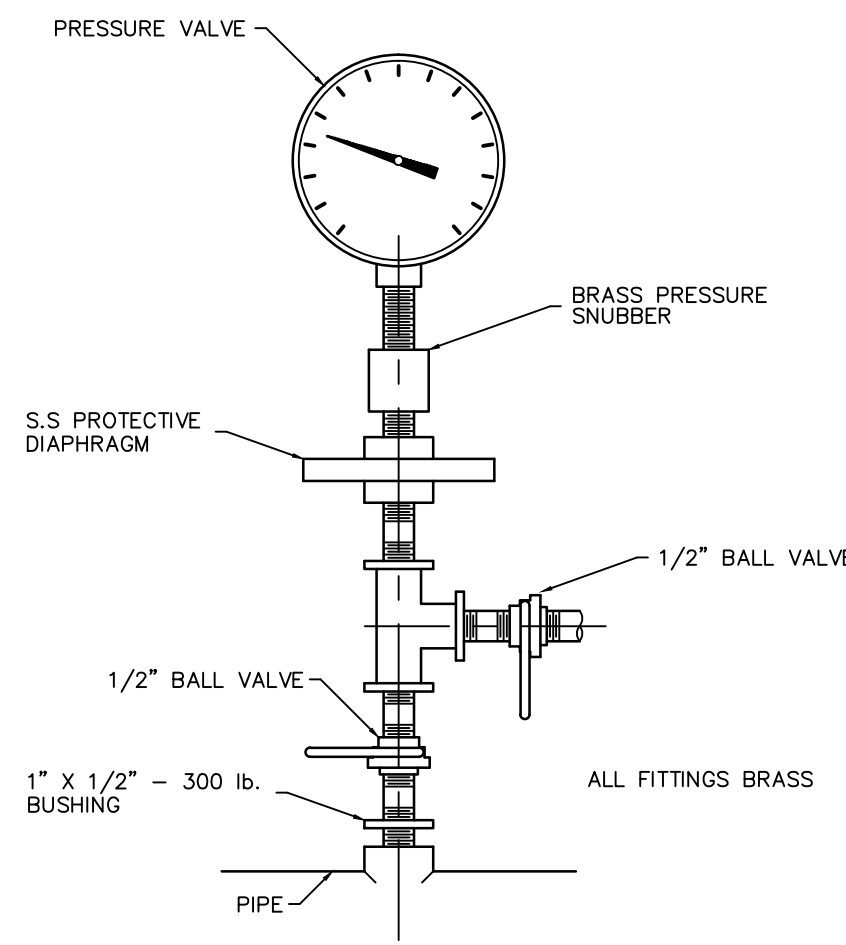
1. Scope. All work addressed (or implied) hereon shall be included in CONTRACTOR'S Lump Sum bid for "Ridgeline Road Water Storage Tank, Complete, In-Place".
2. Foundation. Grade tank site to maintain positive drainage. ENGINEER may direct CONTRACTOR to excavate test pits to insure that tank is sited on a sound site. Construct a reinforced concrete slab as detailed.
3. Pipe. OWNER will pay for water supply pipe to valve pit at contract price per foot. All other piping on this plan sheet included in CONTRACTOR'S Lump Sum bid.
4. Access. CONTRACTOR shall access work area via unimproved old roadway shown on sheet W-2. At completion of tank installation, CONTRACTOR shall regrade access back to Main road and surface with 275 Ton crushed stone base. CONTRACTOR shall provide a 1' deep "V" ditch the entire length of the access road.
5. Ventilator. Ventilator with pest screen.
6. Manway. Manway with spring loaded hatch. Provide OWNER with padlock for security.
7. Manway. Bolted.
8. Liquid Level Indicator. Mount liquid level indicator at end of tank.
9. Access Hatch. Aluminum access hatch, 3' x 3', 150 psi live load, 90 deg. hinged door, Bilco or equal.
10. Steps. Provide steps to access manway. Submit shop drawing detail. OWNER has requested an OSHA approved safety cage on all steps.
11. Headwall. Outlet headwall for overflow/drain. See detail this sheet.
12. Frost box. Provide frost box and insulation to protect influent water line. See technical specifications.
13. CONTRACTOR shall cut 1:1 in soil, 0.25:1 in solid, and fill at 2:1. Depth of soil assumed.
14. Padlock - master key. Coordinate all locks and keys with OWNER.
15. Provide one 3/4" NPT taps with 3/4" ball valve. Provide pressure gage per detail.
16. All pipe in valve pit to be flanged ductile iron. All pipe for buried service between pit and tank to be 6" M.J. ductile iron.
17. Gate Valve. 6" Resilient Wedge, F.J.
18. CONTRACTOR shall provide crushed stone base (4") inside tank fencing.
19. Install 18" CMP culvert. Upper invert shall be 1697'; lower invert shall be 1696'.
20. Construct "V" ditch along tank access road.



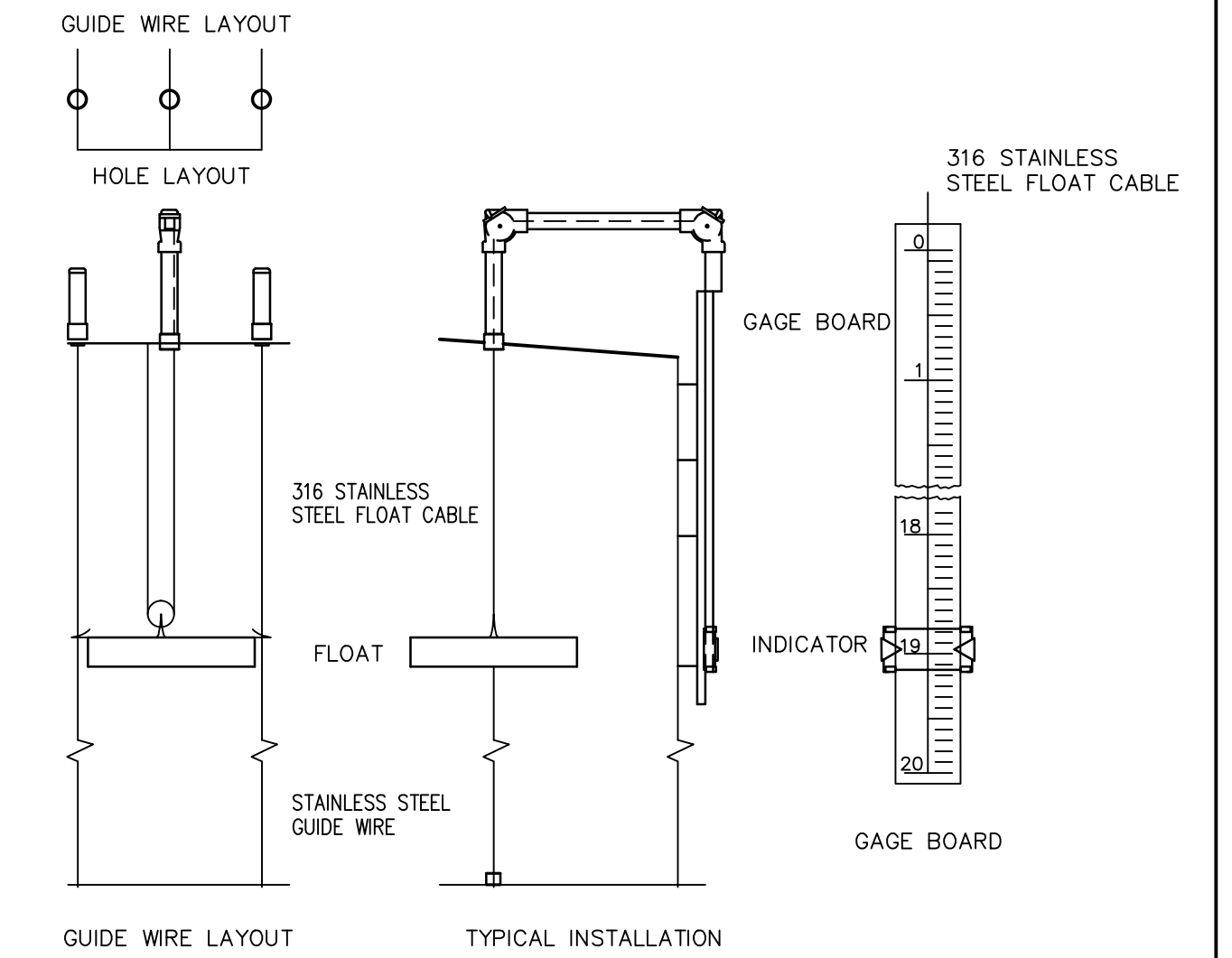
**VALVE PIT PLAN**  
N.T.S.



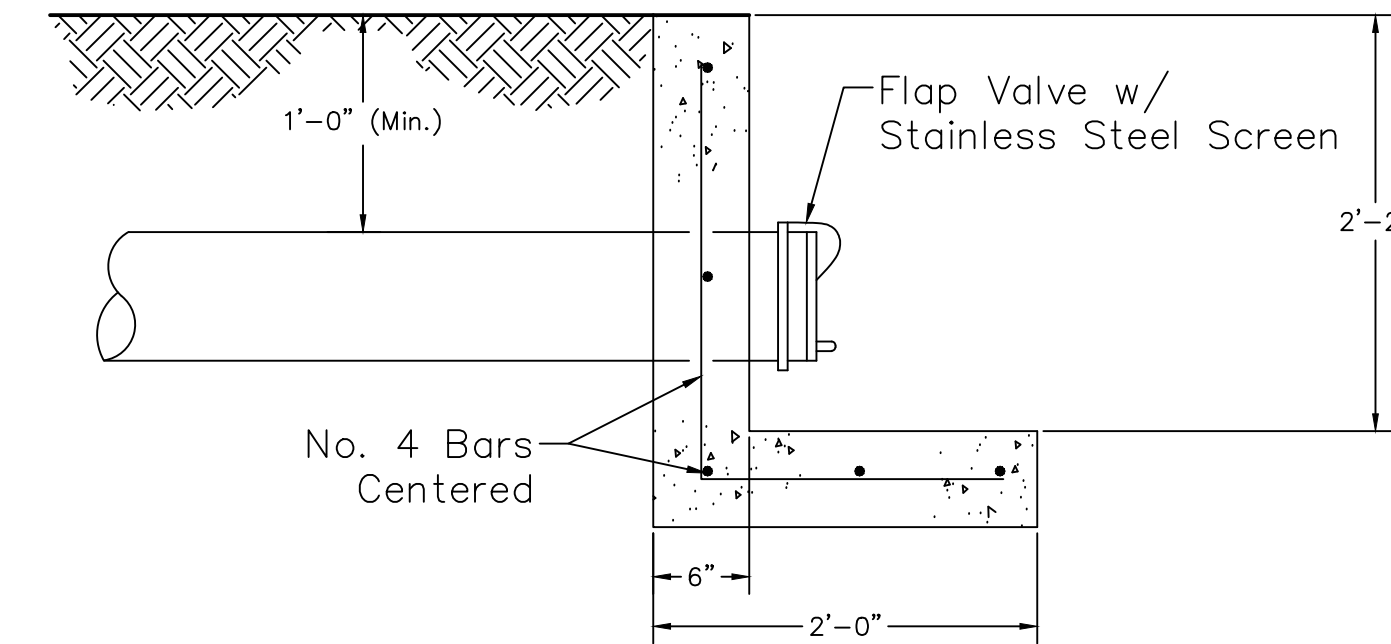
**VALVE PIT SECTION**  
N.T.S.



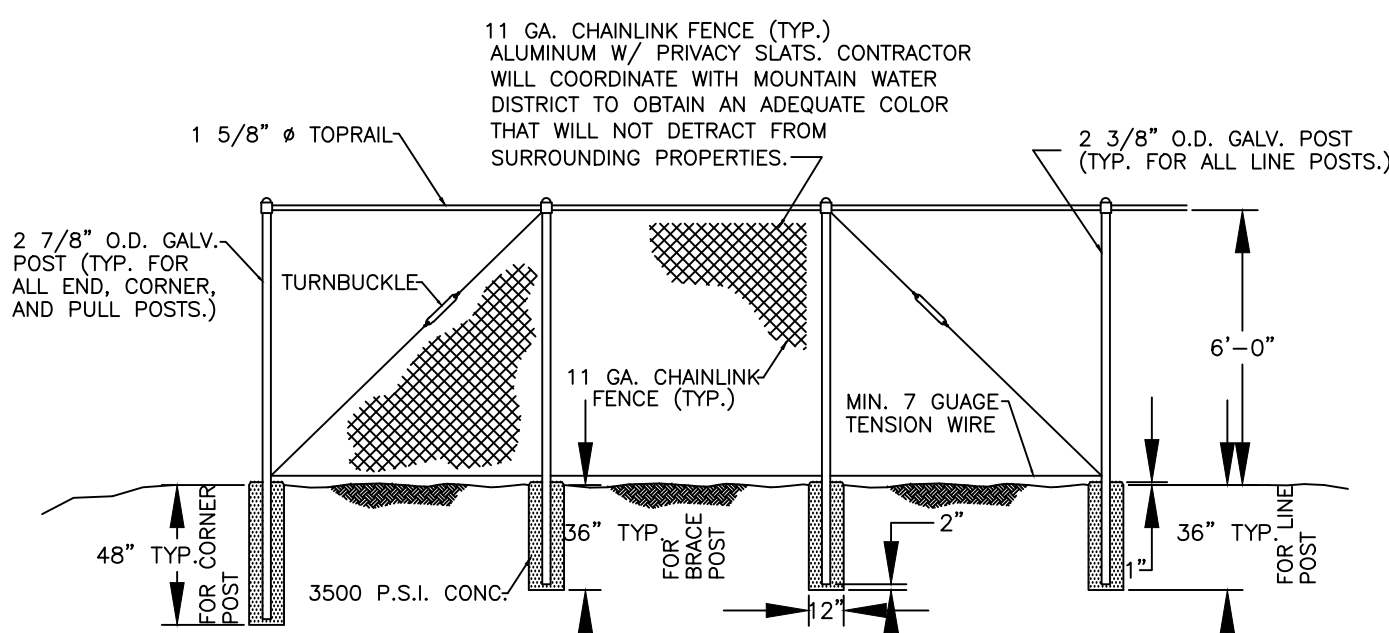
**PRESSURE GAGE**



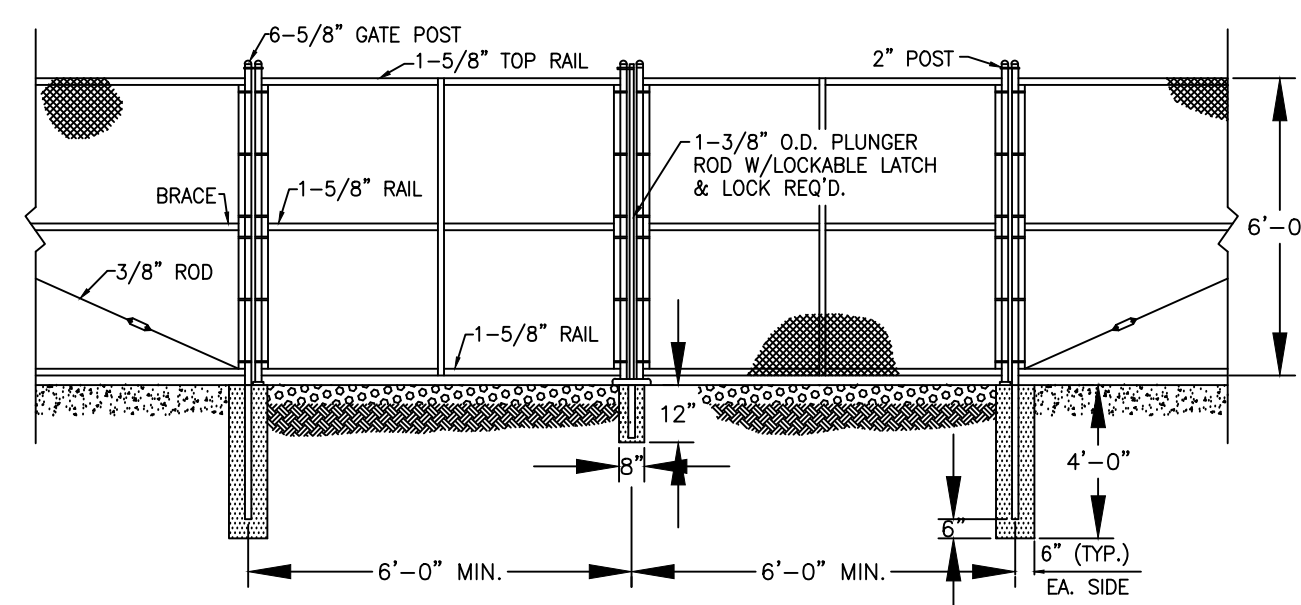
**FULL TRAVEL LIQUID LEVEL INDICATOR**  
N.T.S.



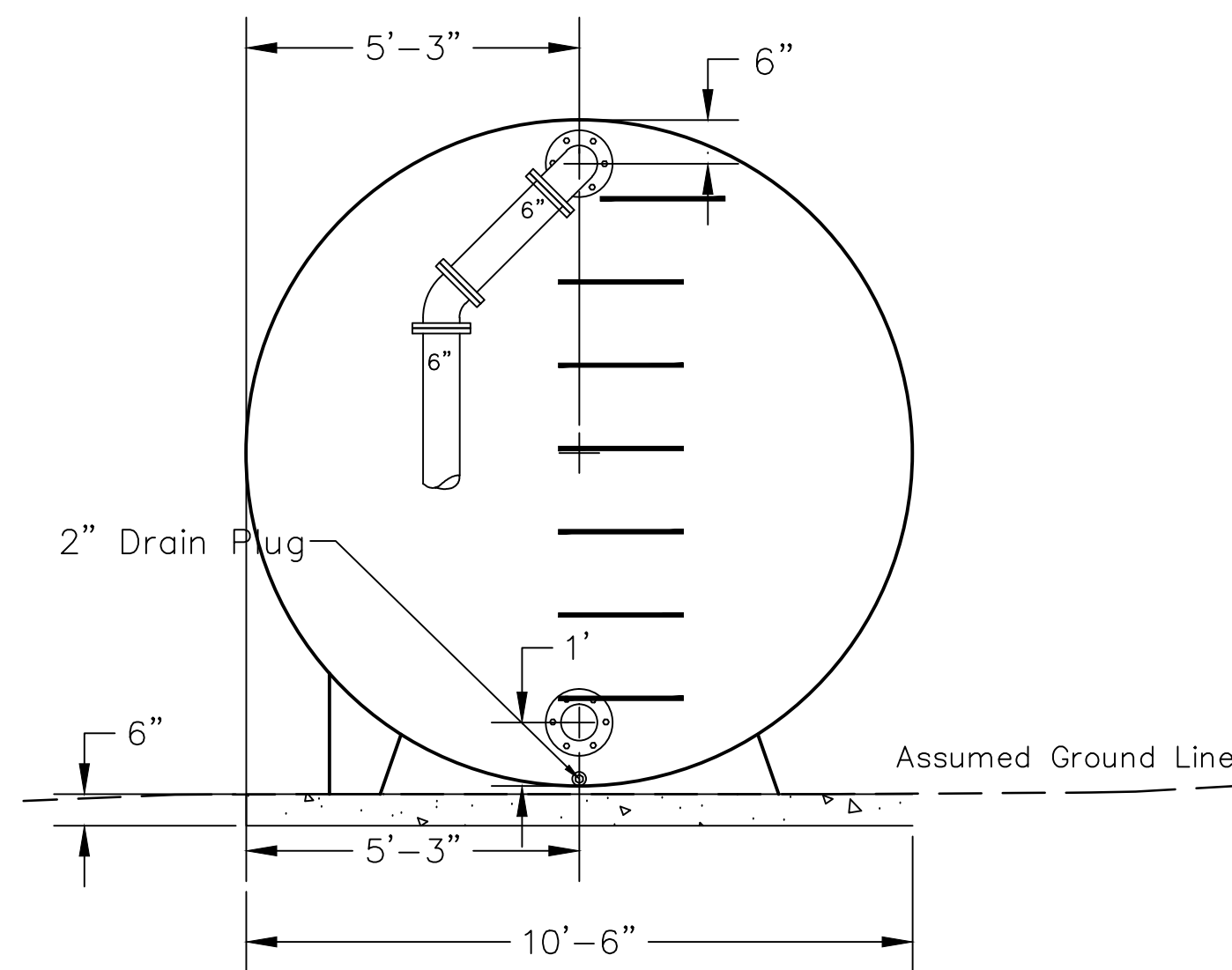
**OVERFLOW PIPE OUTLET & HEADWALL**  
SCALE: 1" = 1'



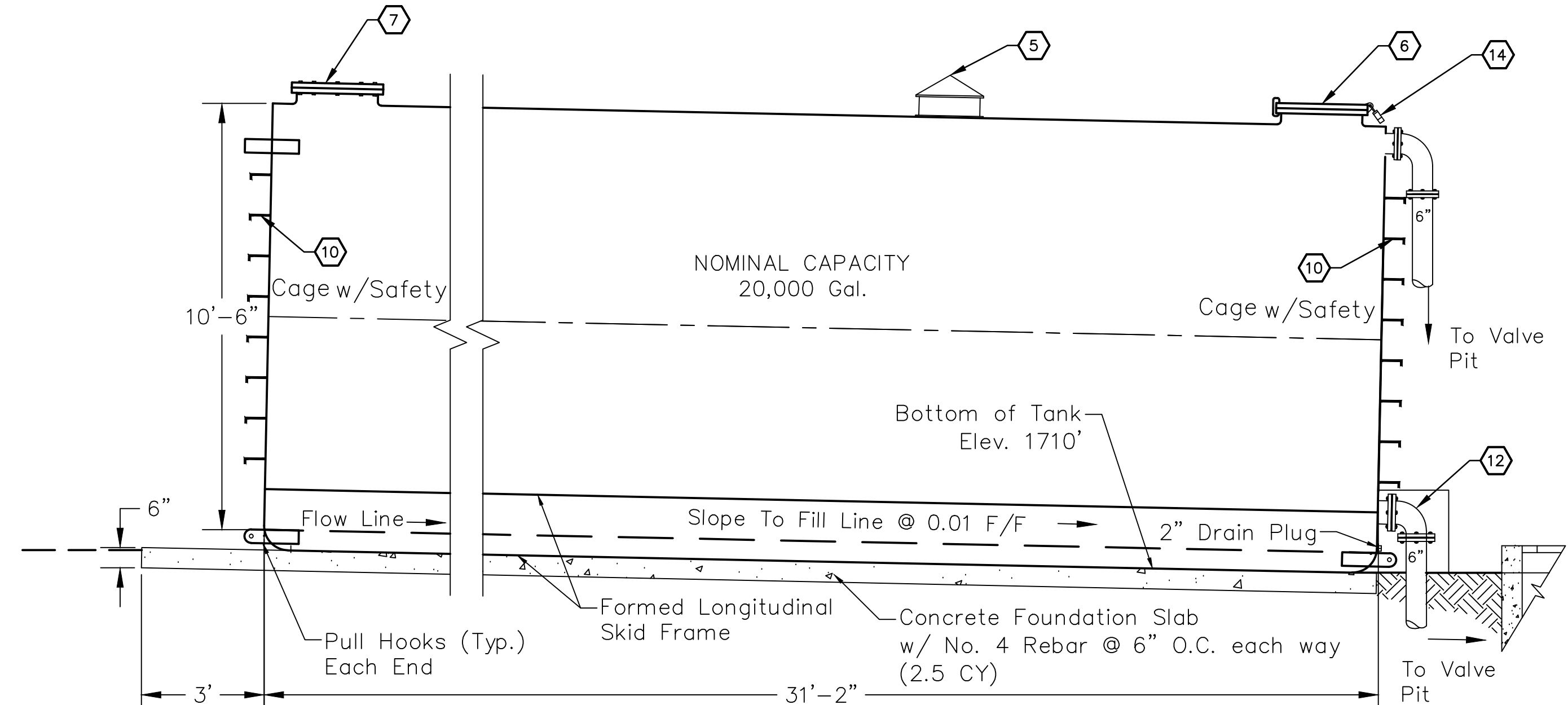
**CHAIN LINK FENCE DETAIL**  
N.T.S.



**DOUBLE SWING GATE**  
N.T.S.



**TANK END VIEW**  
SCALE: N.T.S.



**TANK ELEVATION VIEW**  
SCALE: N.T.S.

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.

Pikeville, KY  
Lexington, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6332 Zebulon Highway  
Pikeville, Kentucky 41501

Upper Pompey Water Supply - Contract 1 (AML)  
Tank Details

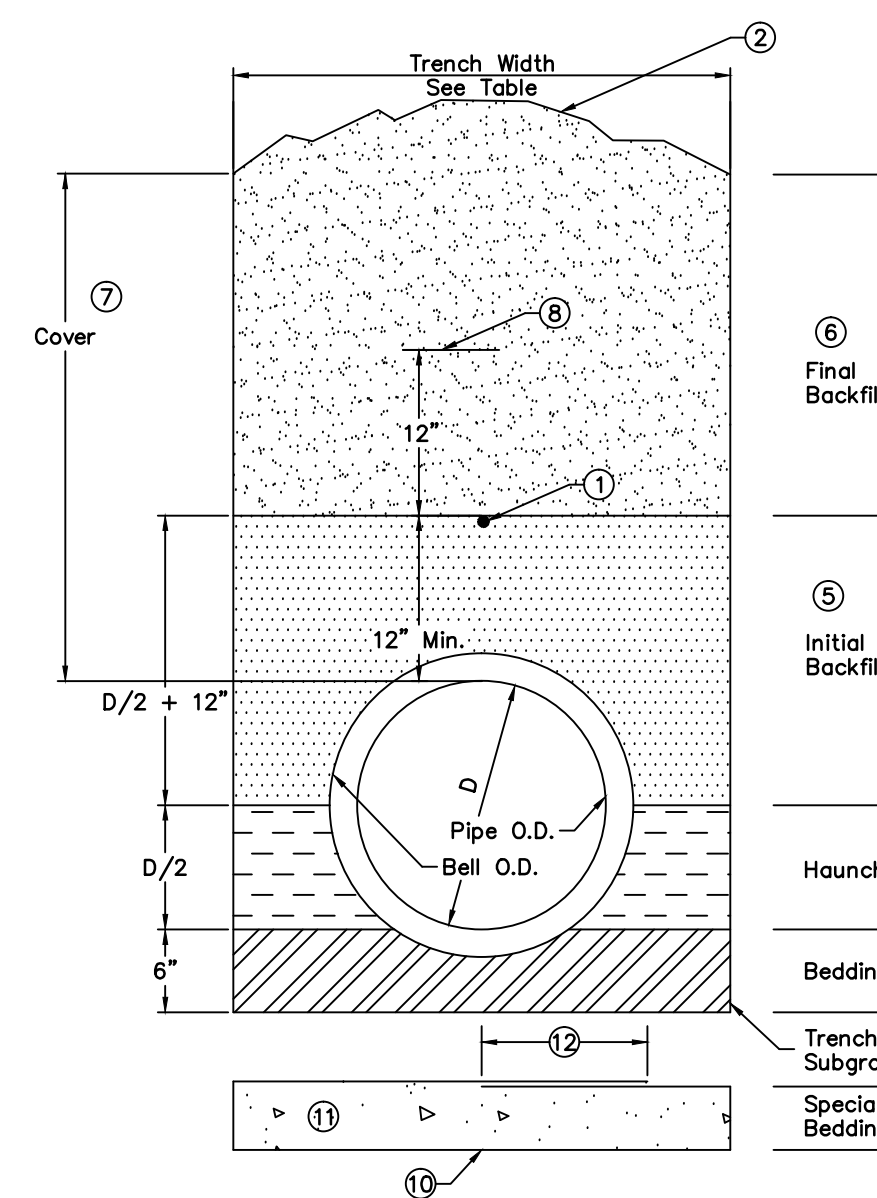
DATE: VARIAS  
SCALE: JRN/JBK  
DRAWN BY: J. Hunt  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

T-2

OF:





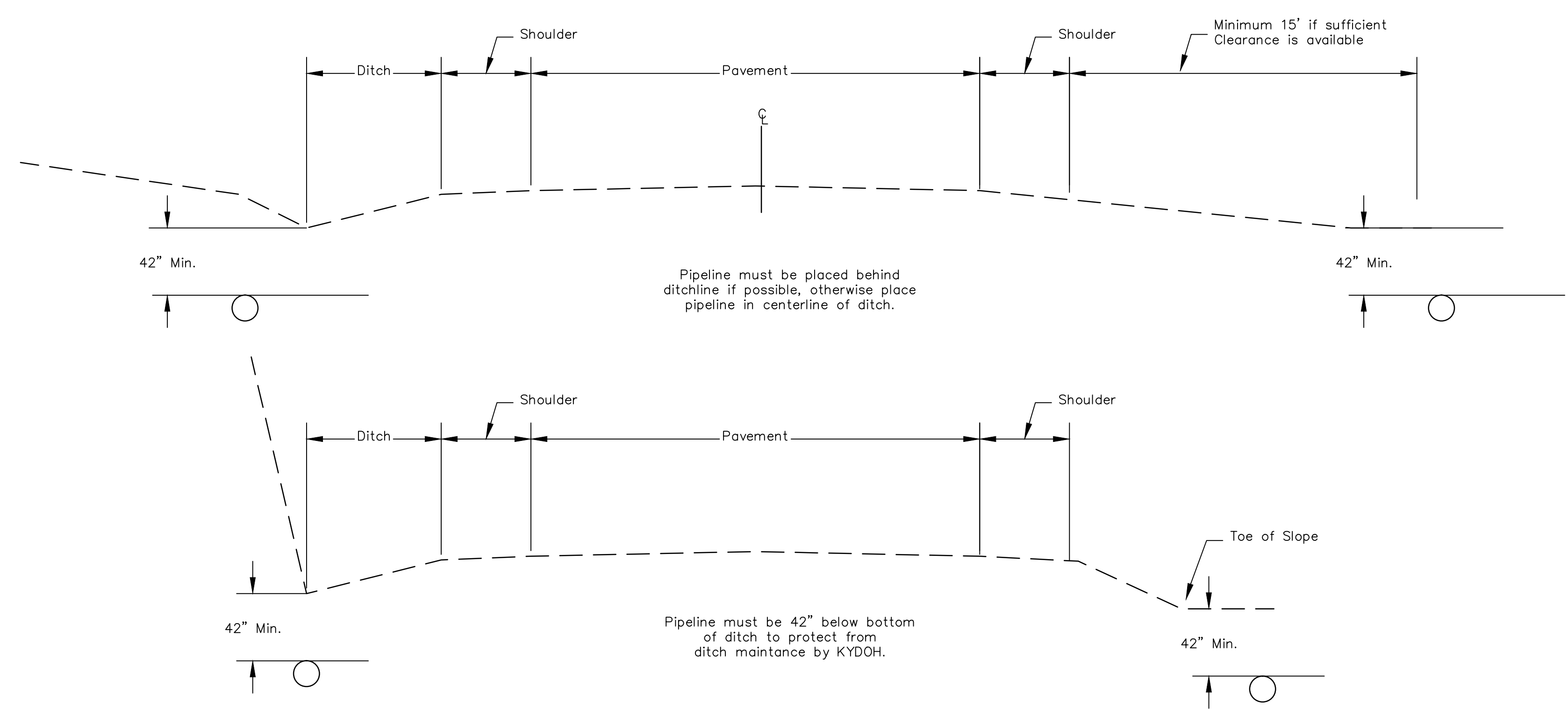
- ① Trace Wire - No. 12 copper trace wire required for all plastic pipe. Extend to inside of valve boxes, pump stations, etc.
- ② Surface Replacement - For construction in existing streets and roads see pavement replacement details. For construction in advance of new roadway construction last lift of backfill shall be 6" dense graded aggregate. For open areas, heap slightly and seed in accordance with specifications.
- ③ Bedding - KYDOH No. 9 Crushed Stone
- ④ Haunching - Ductile Iron and Corrugated Metal Pipes  
Select Fine Soil Free of Stones larger than 3/4" in diameter (Hand tamped).  
Plastic Pipes  
KY DOH No. 9 Crushed Stone or KY DOH Sand for Pipe Bedding (804.07). No Alternates
- ⑤ Initial Backfill - Ductile Iron and Corrugated Metal Pipes  
Select Fine Soil Free of Stones larger than 3/4" in diameter (Hand tamped).  
Plastic Pipes  
KY DOH No. 9 Crushed Stone or KY DOH Sand for Pipe Bedding (804.07). No Alternates
- ⑥ Final Backfill - See Pavement Replacement Detail for Appropriate Method  
  
Method 'A' - Backfill placed in 12" lifts, and mechanically compacted. Trench may be left heaped until seeding at which time backfill shall be graded to approximate original contours. No rock larger than 1/4 cubic foot allowed.  
Method 'B' - Backfill placed in 6" lifts, and mechanically compacted to 95% of ASTM D-698 (Gravel Areas) Final 6" of Backfill to be DGA.  
Method 'C' - Backfill placed in 6" lifts, and mechanically compacted to 100% of ASTM D-698 (Paved Areas) Final 6" of Backfill to be DGA.  
Alternate Method 'C' - Final backfill shall be KYDOH No. 9 Crushed Stone in 6" Lifts.
- ⑦ Cover - 30" Minimum cover for Water Mains, Water Service Lines and Sanitary Sewers, except in KYDOH right of way. Provide 42" of cover on highway right of way.
- ⑧ Marking Tape - "Caution Buried Water"
- ⑨ Soft, Mucky Subgrade shall be overexcavated to the depth designated by the Engineer.
- ⑩ Install Geotextile Type III.
- ⑪ Install Bedding Stone to depth of overexcavation.
- ⑫ Close Geotextile envelope with one (1) foot of overlap.
- ⑬ Order - Special Pipe Bedding shall only be installed on written order of the Engineer.

Special Pipe Bedding Detail

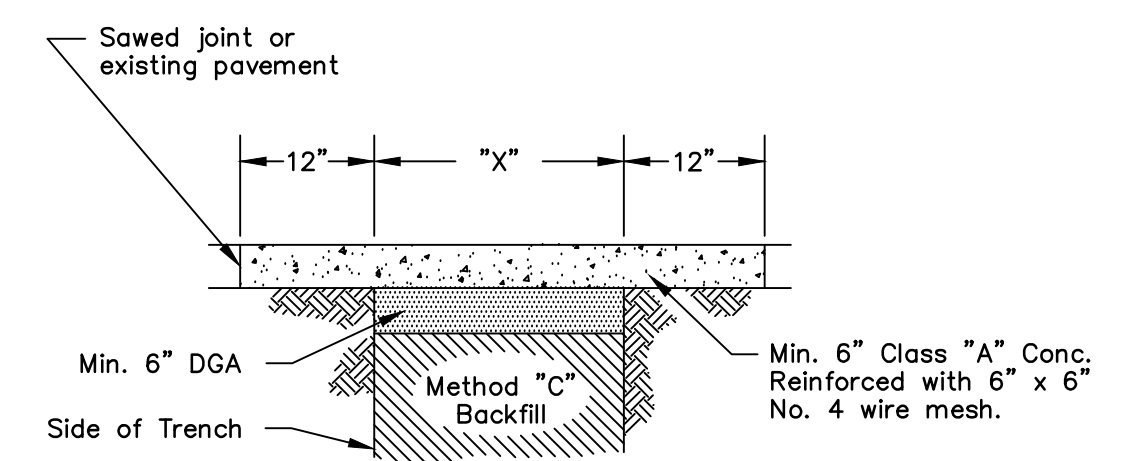
TRENCH WIDTH TABLE

Pipe Size	"X" Unsupported Trench	"X" Trench Box
< 4"	12"	N.A.
4" - 12"	30"	42"
14" - 18"	36"	48"
20" - 24"	42"	52"
26" - 36"	54"	68"
54"	78"	84"

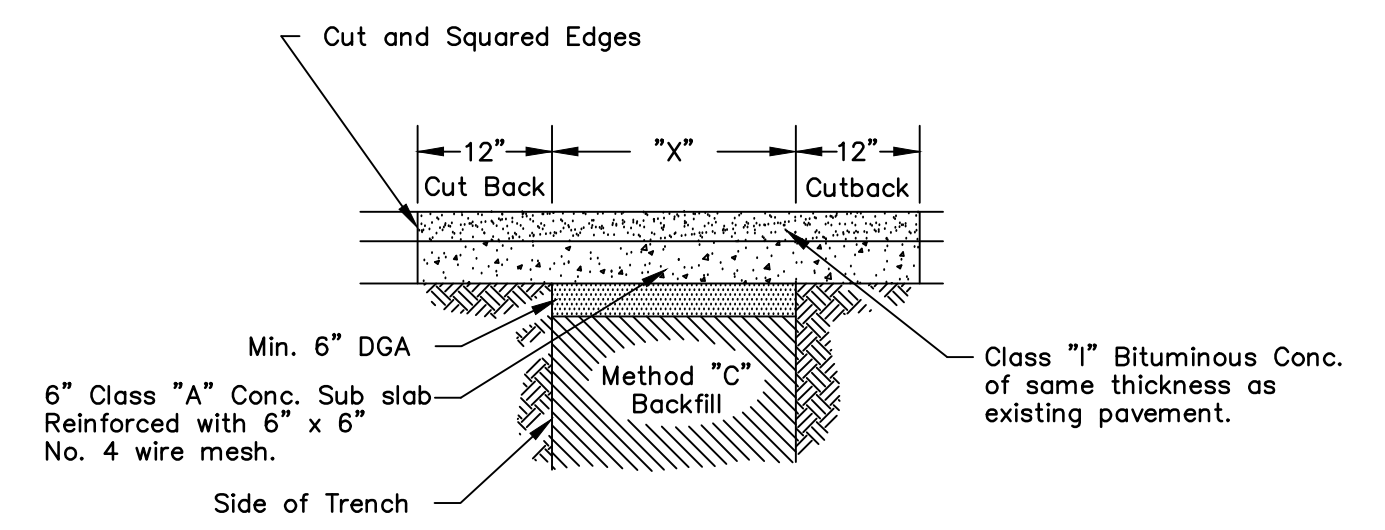
**BEDDING and BACKFILL DETAIL**



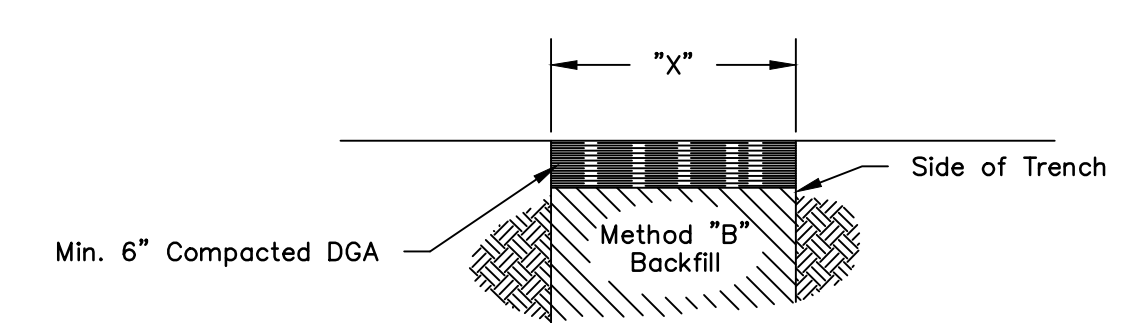
DETAIL "A" Typical Construction on KYDOH Rights of Way



CONCRETE PAVEMENT REPLACEMENT



BITUMINOUS PAVEMENT REPLACEMENT



GRAVEL SURFACE REPLACEMENT

**PAVEMENT REPLACEMENT METHODS**

N.T.S.

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.

Pikeville, KY  
Lexington, KY  
Louisville, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6332 Zebulon Highway  
Pikeville, Kentucky 41501

Upper Pompey Water Supply  
Bedding and Backfill Details

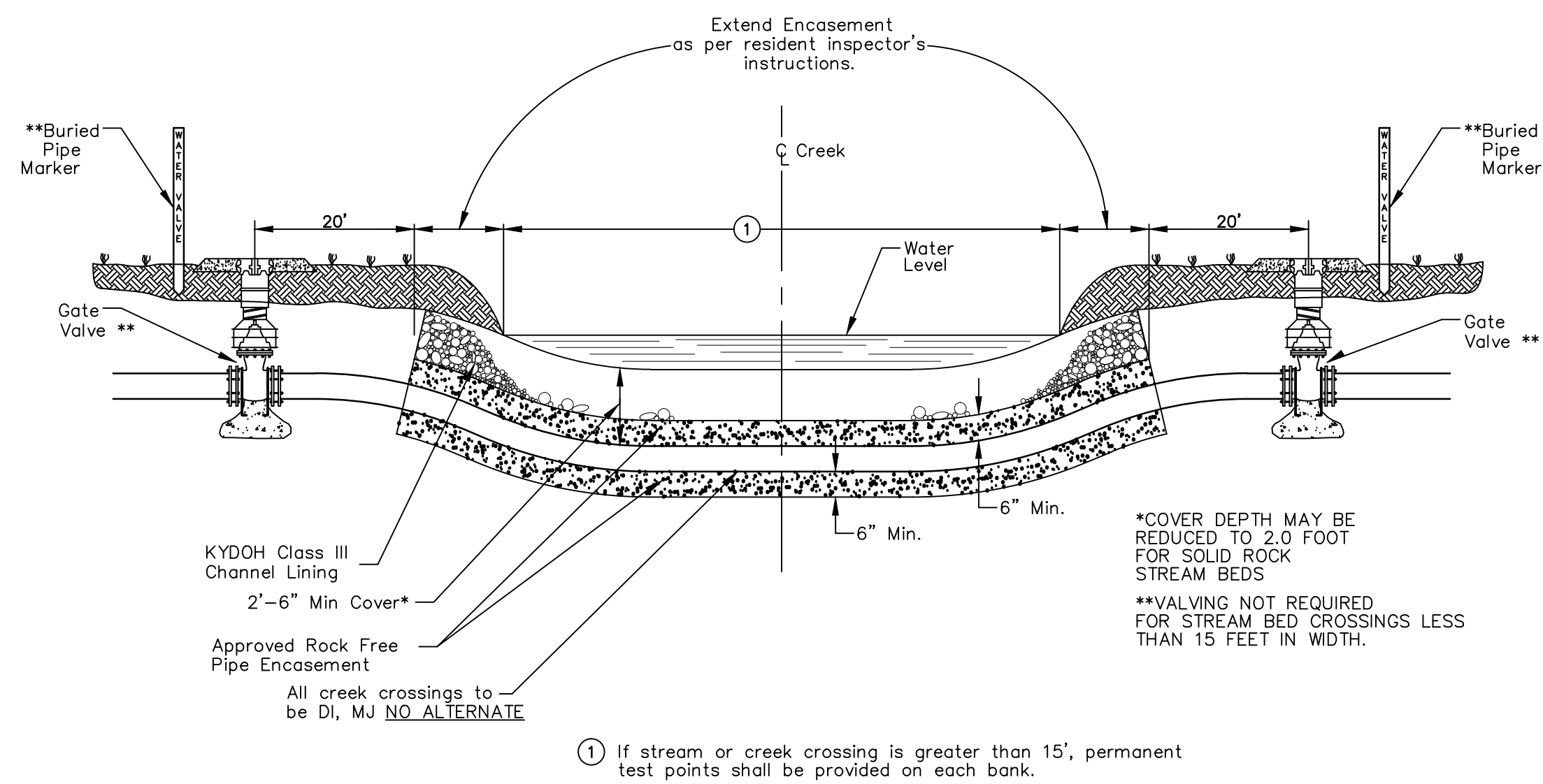
DATE: NTS  
SCALE: NTS  
DRAWN BY: JRN/JBK  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

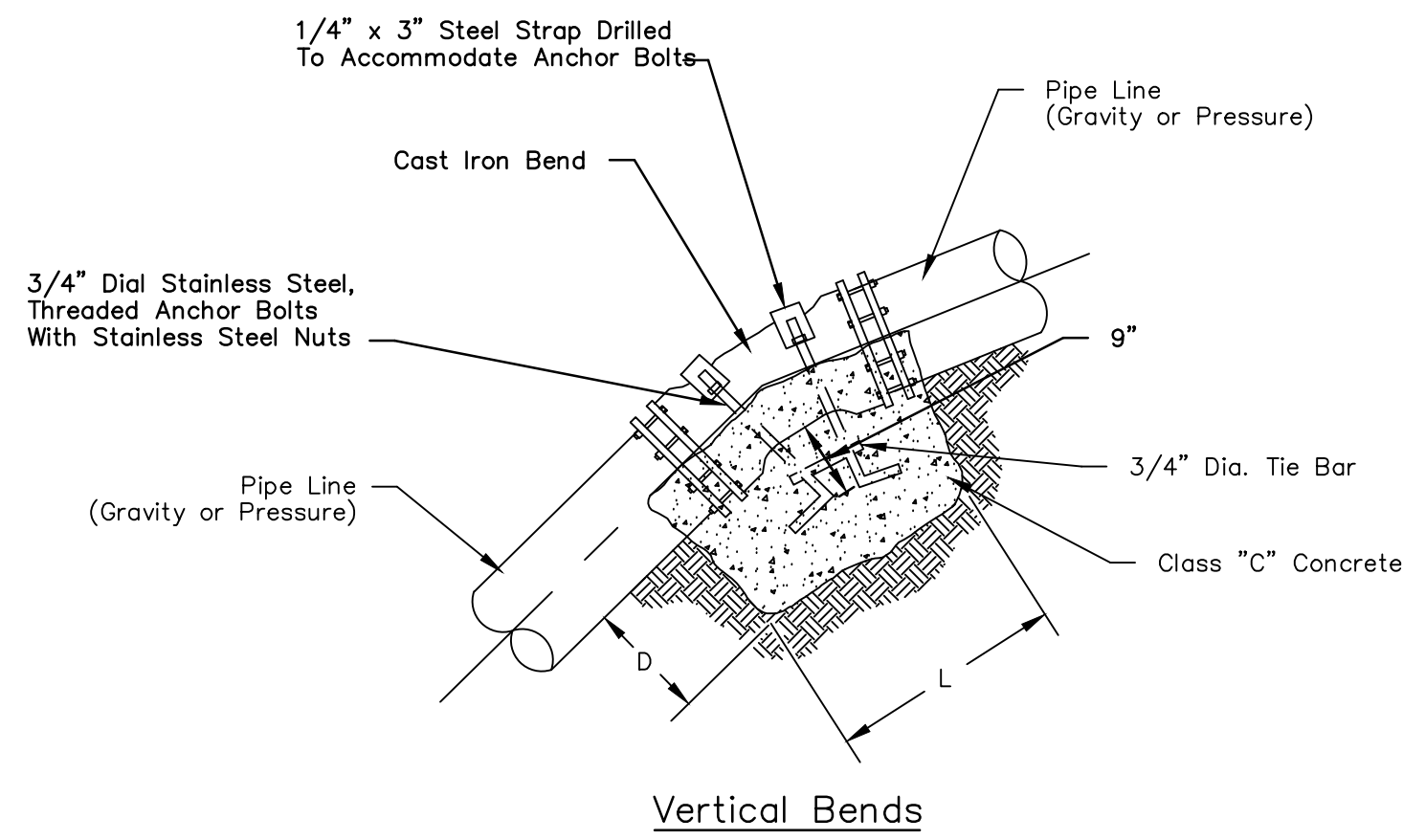
D-1

OF:



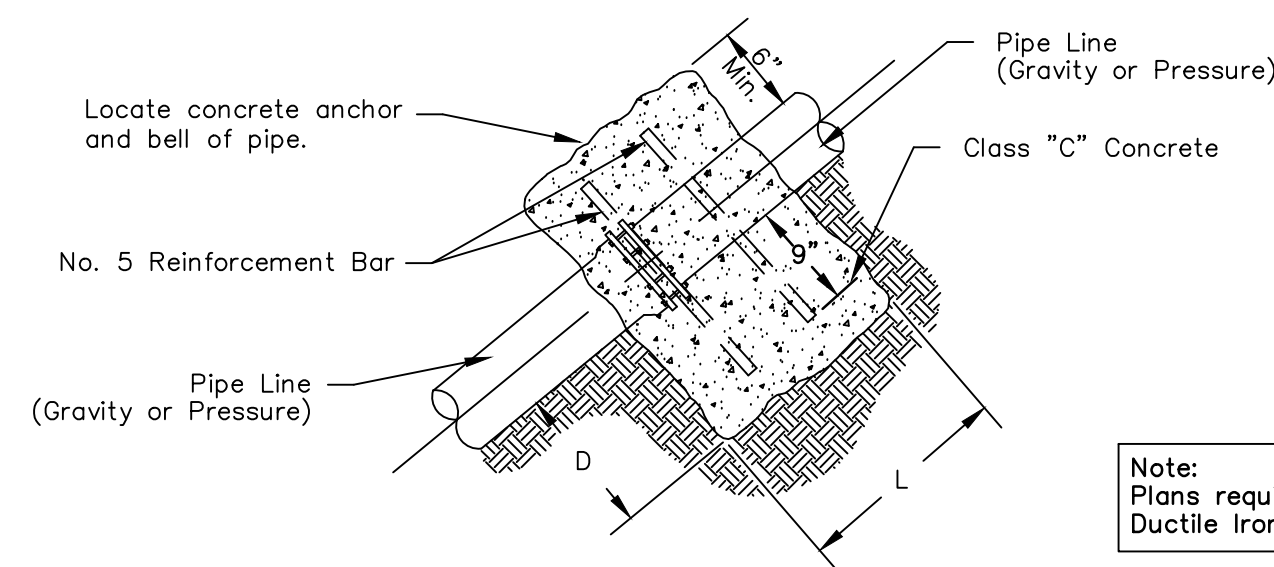


**TYPICAL CREEK CROSSING for PRESSURIZED PIPE >2" IN DIAMETER**



VERTICAL BEND & STRAIGHT PIPE						
SIZE	2"	3"	4"	6"	8"	10"
"D"	10"	12"	12"	15"	15"	18"
"L"	12"	18"	18"	24"	24"	30"

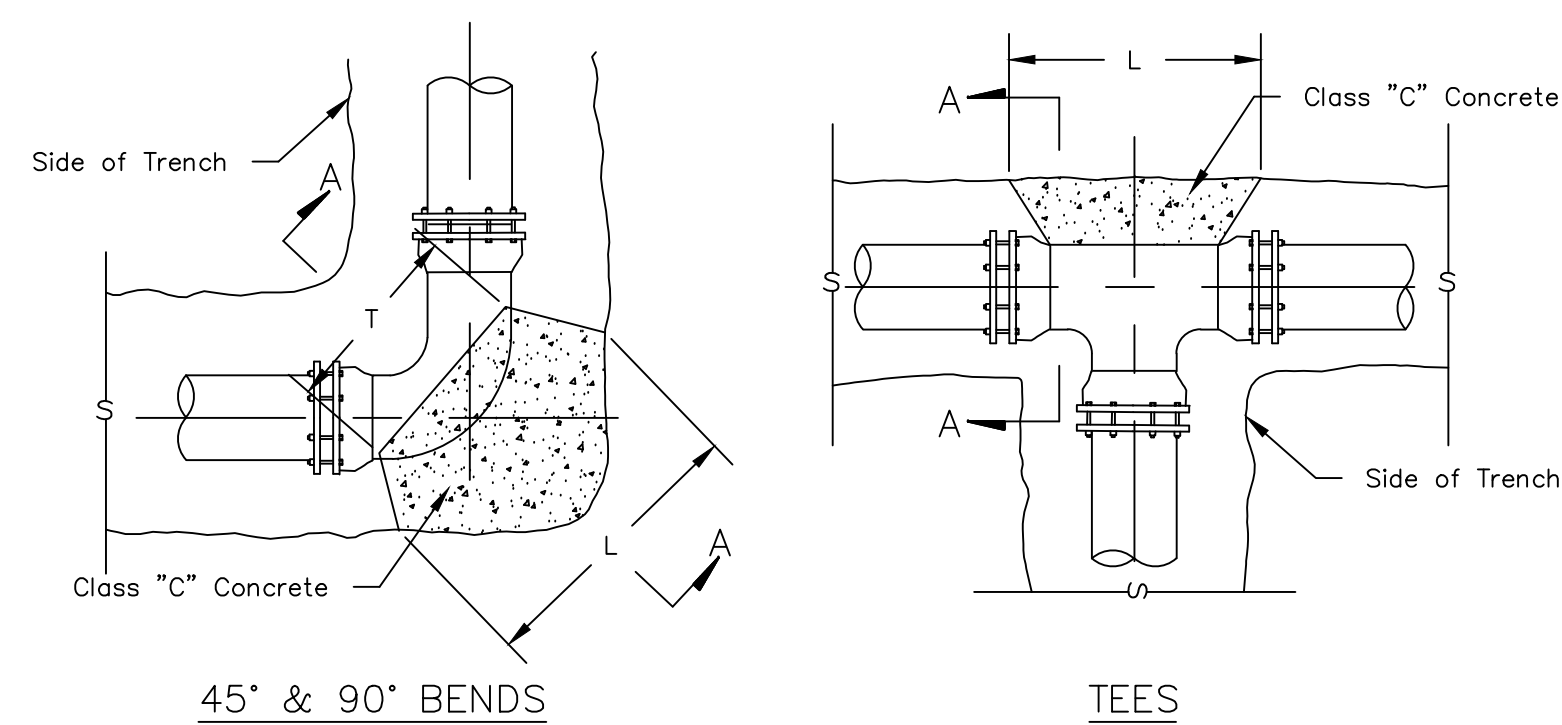
Note:  
Anchors To Be Full Width of Trench  
Anchors Must Be Placed Against Undisturbed Earth



Note:  
Plans require Restrained Mechanical Joint  
Ductile Iron Pipe on steep slopes.

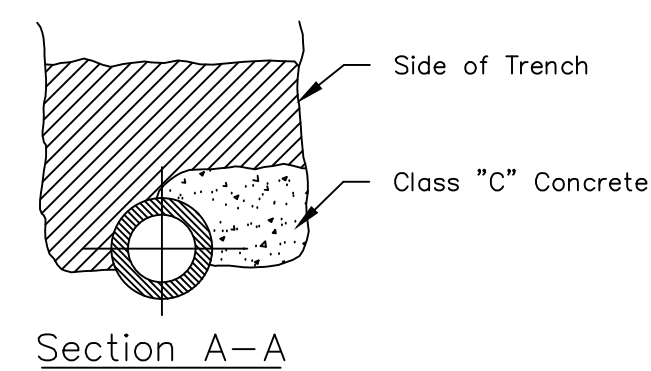
**Straight Pipe**

**CONCRETE ANCHOR BLOCKING for VERTICAL BENDS and STEEP SLOPES**

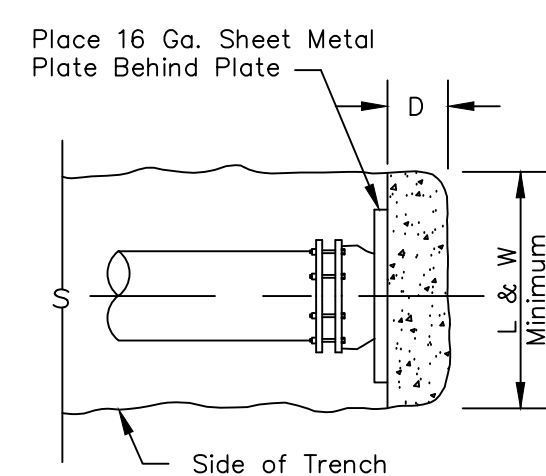


**45° & 90° BENDS**

**TEES**



**Section A-A**



**PLUGS**

**CONCRETE THRUST BLOCKING**

NOTE: ALL FITTINGS SHALL BE RESTRAINED MECHANICAL JOINT

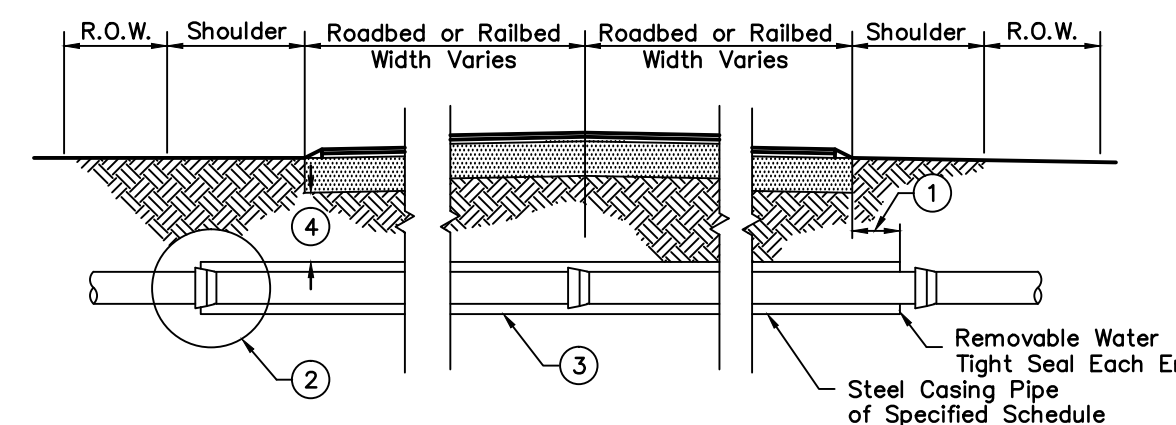
PLUGS & TEES						
SIZE	2"	3"	4"	6"	8"	10"
D	6"	6"	6"	6"	6"	6"
L & W	14"	16"	18"	20"	22"	24"

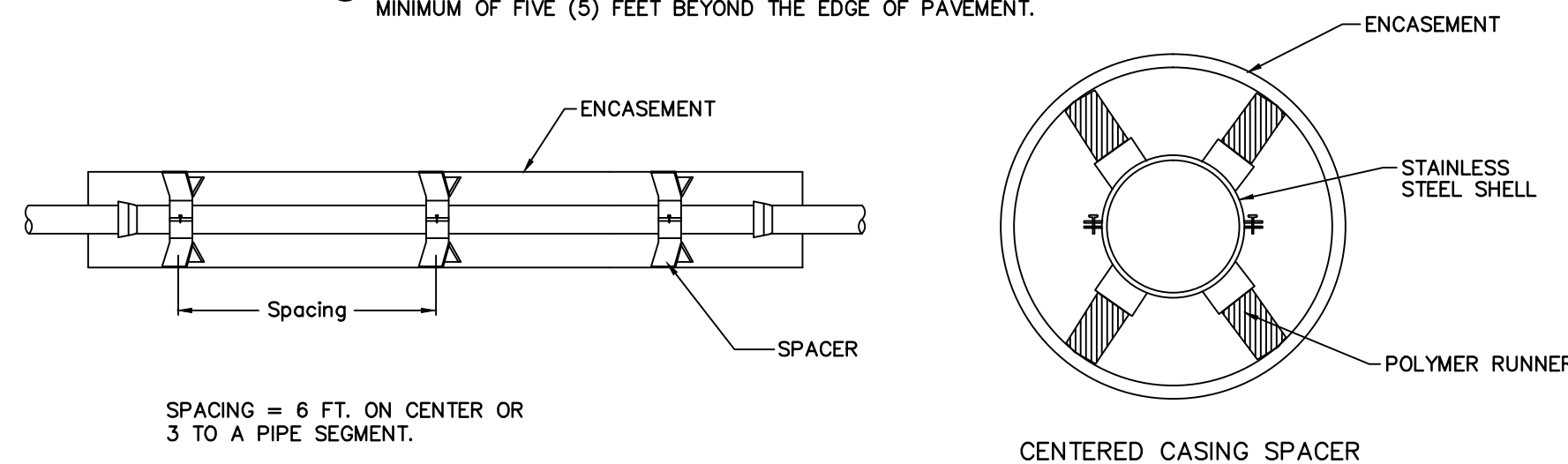
(45°) EIGHTH BENDS						
SIZE	2"	3"	4"	6"	8"	10"
D	6"	6"	6"	6"	6"	6"
L	12"	14"	16"	18"	20"	22"
T	10"	12"	14"	16"	18"	18"

(90°) QUARTER BENDS						
SIZE	2"	3"	4"	6"	8"	10"
D	6"	6"	6"	6"	10"	12"
L	15"	18"	21"	24"	27"	30"
T	10"	12"	14"	16"	18"	20"



- EXTENSION OF ENCASEMENT BEYOND EDGE OF PAVEMENT AS DESCRIBED IN TECHNICAL SPECIFICATIONS OR PLANS. FIVE FEET BEYOND EDGE OF PAVEMENT FOR HIGHWAYS.
- SEE "TYPICAL PIPE CASING SKIDS" DETAIL HEREON.
- ENCASEMENT PIPE I.D. SHALL BE AT LEAST 4" GREATER THAN THE BELL O.D. OF CARRIER PIPE.
- STATE HIGHWAYS 2'-0" BELOW SUBGRADE OR 36" BELOW GRADE, WHICHEVER IS GREATER. RAILROAD 5'-6" BELOW RAIL.
- WHEN PERFORMING BORES ADJACENT TO SLOPE AREAS, BORE PITS SHALL BE PLACED BEYOND THE TOE OF THE SLOPE. EXCAVATION OF THE SLOPE SHALL NOT BE ALLOWED.
- WHEN PERFORMING BORES ADJACENT TO A DITCHLINE, BORE PITS MUST BE PLACED OUTSIDE OF THE DITCH.
- WHEN PERFORMING BORES AT RELATIVELY FLAT LOCATIONS, THE BORE PIT MUST BE A MINIMUM OF FIVE (5) FEET BEYOND THE EDGE OF PAVEMENT.



**TYPICAL PIPE ENCASEMENT DETAIL**

**TABLE of SERVICE TUBING ENCASEMENT SIZES**

NOMINAL PIPE DIAMETER (INCHES)	COPPER & PE SERVICE TUBING			
	CARRIER PIPE O.D. (INCHES)	RR CROSS (STEEL) (INCHES) (Note 1)	STATE HWY (STEEL) (INCHES) (Note 2)	LOCAL STREET (PVC) (INCHES) (Note 3)
0.75	0.875	5	Note 4	Note 4
1	1.125	5	Note 4	Note 4
1.25	1.375	6	3	3
2	2.125	6	4	4

- NOTES
- Nominal Steel Pipe Size. Minimum wall 0.188 Inches.
  - Nominal Steel Pipe Size. STD Schedule 40 Steel.
  - Nominal PVC Pipe Size. STD Schedule 40 PVC.
  - Encasement not required.

**TABLE of STEEL PIPE ENCASEMENT SIZES**

NOMINAL CARRIER PIPE DIAMETER (INCHES)	CARRIER PIPE PVC ASTM D-3034			CARRIER PIPE DUCTILE IRON - PUSH JOINT			CARRIER PIPE DUCTILE IRON - MECHANICAL JOINT		
	BELL O.D. (INCHES) (Note 1)	BARREL O.D. (INCHES)	ENGMT I.D. (INCHES) (Note 2)	BELL O.D. (INCHES)	BARREL O.D. (INCHES)	ENGMT I.D. (INCHES) (Note 2)	BELL O.D. (INCHES)	BARREL O.D. (INCHES)	ENGMT I.D. (INCHES) (Note 2)
4	5.2	4.22	9.2	6.86	4.8	10.86	9.12	4.8	13.12
6	7.5	6.28	11.5	8.75	6.9	12.75	11.12	6.9	15.12
8	10.1	8.4	14.1	11.05	9.05	15.05	13.37	9.05	17.37
10	12.4	10.5	16.4	13.15	11.1	17.15	15.62	11.1	19.62
12	14.5	12.5	18.5	15.3	13.2	19.3	17.88	13.2	21.88

- NOTES
- PVC Bell O.D. based on JM Pipe Green Title. Bell OD may vary with manufacturer.
  - See Table of Minimum Wall Thickness to determine Nominal Casing O.D.

**TABLE of MINIMUM WALL THICKNESS for STEEL PIPE ENCASEMENTS**

STEEL ENC O.D. (INCHES)	MIN. WALL THICKNESS (INCHES)	PIPE I.D. (INCHES)
6.625	0.188	6.249
8.625	0.188	8.249
10.75	0.188	10.374
12.75	0.188	12.374
14	0.188	13.624
16	0.219	15.562
18	0.250	17.500
20	0.281	19.438
22	0.281	21.438
24	0.312	23.376
26	0.344	25.312
28	0.375	27.250
30	0.406	29.188
32	0.438	31.124
34	0.469	33.062
36	0.469	35.062
38	0.500	37.000
40	0.531	38.938
42	0.563	40.874
44	0.594	42.812
46	0.594	44.812
48	0.625	46.750
50	0.656	48.688

- NOTES
- Casing thickness based on Cooper E80 loading.
  - For casing beneath railways, when casing is installed without the benefit of a protective coating or cathodic protection casing wall thickness shown hereon shall be increased to the next largest standard size.

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.



Pikeville, KY  
Lexington, KY  
Louisville, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6392 Zebulon Highway  
Pikeville, Kentucky #1501

Upper Pompey Water Supply  
Water Line Details

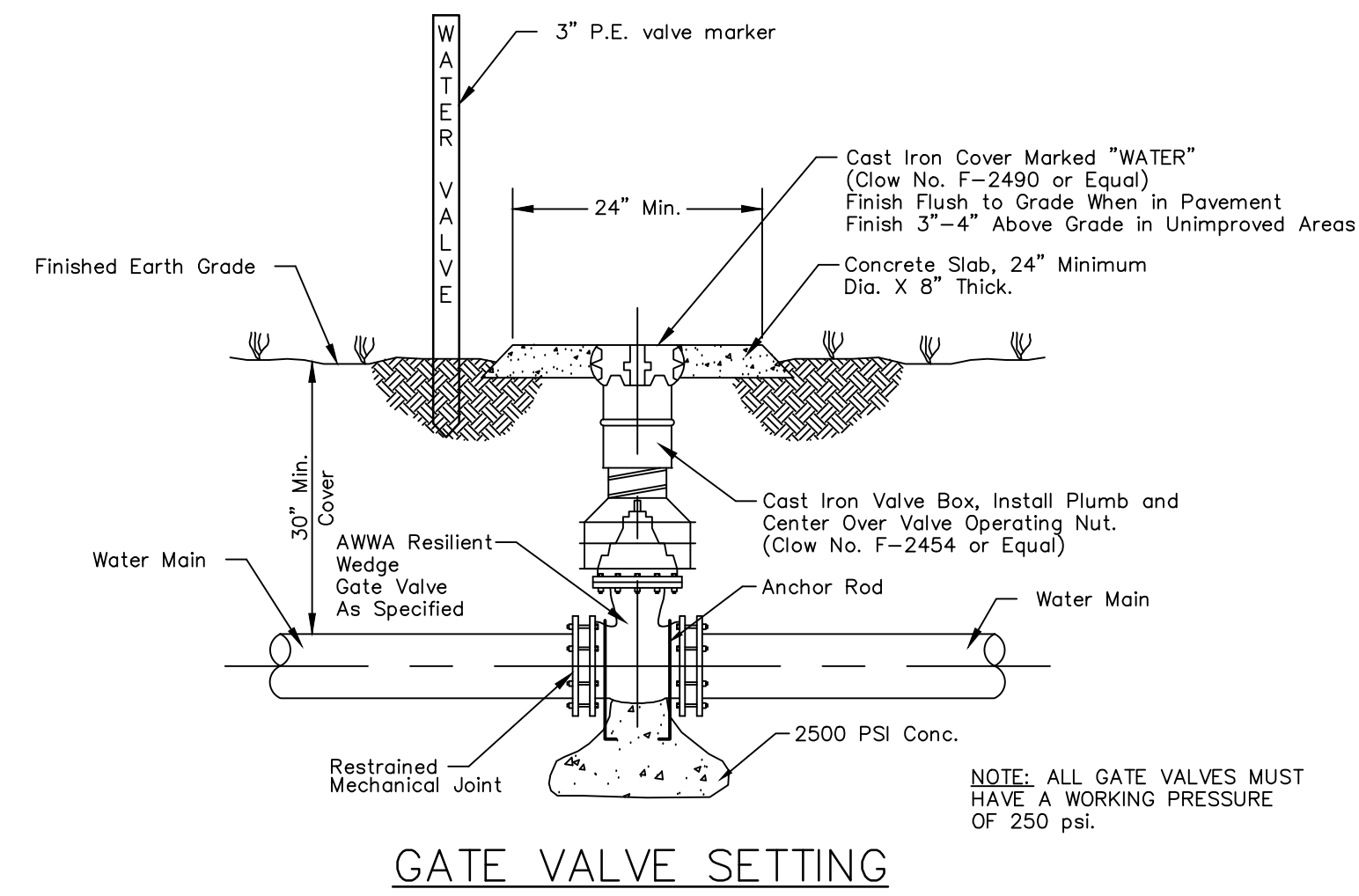
DATE: NTS  
SCALE: NTS  
DRAWN BY: JRN/JBK  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

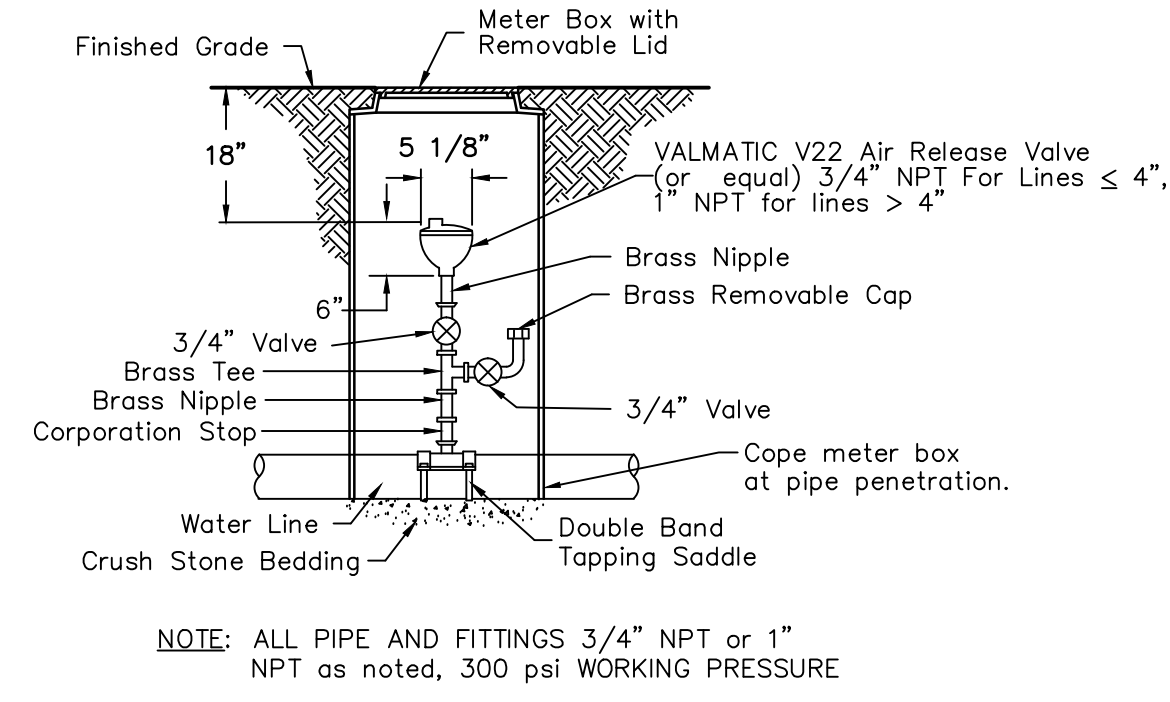
D-2

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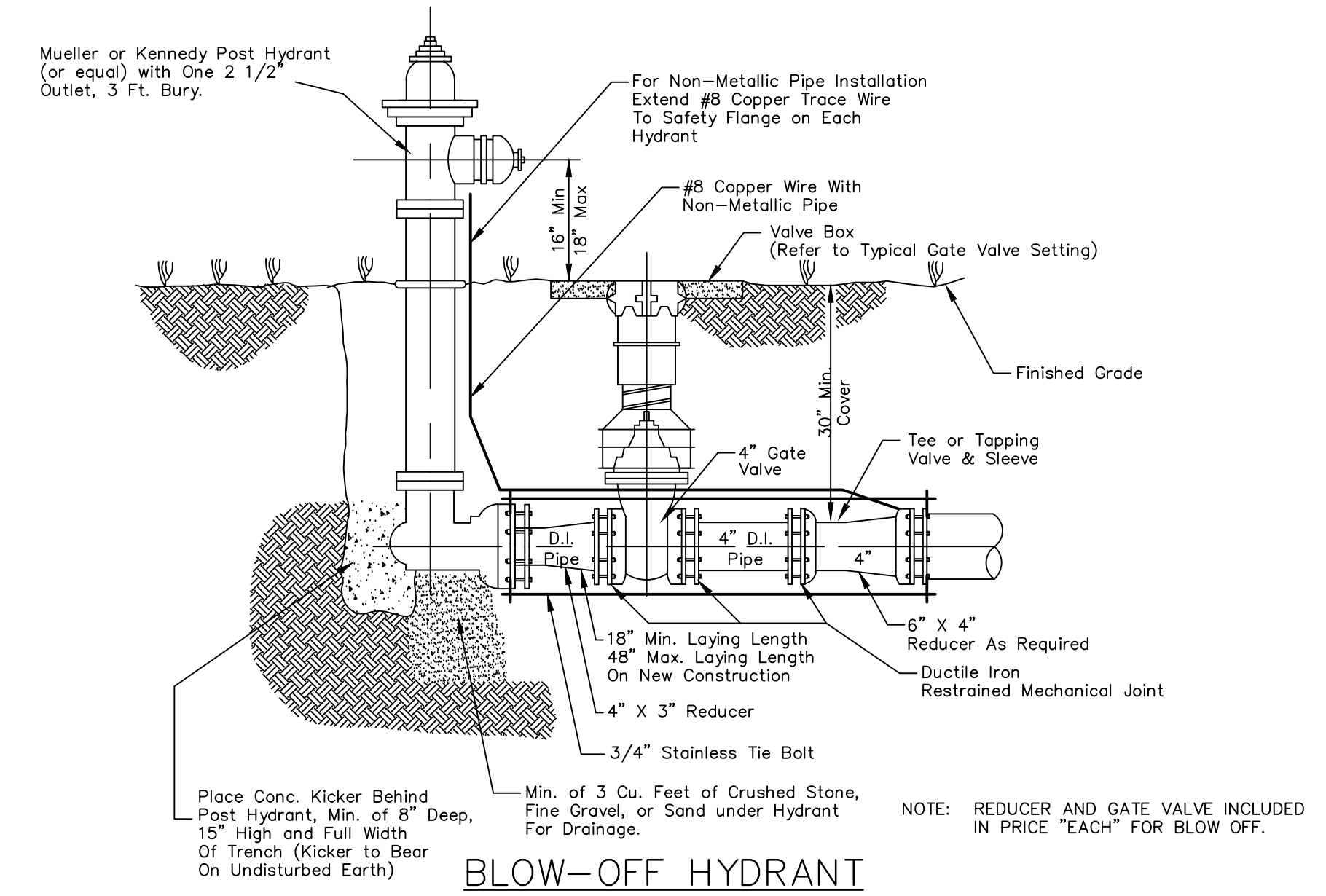




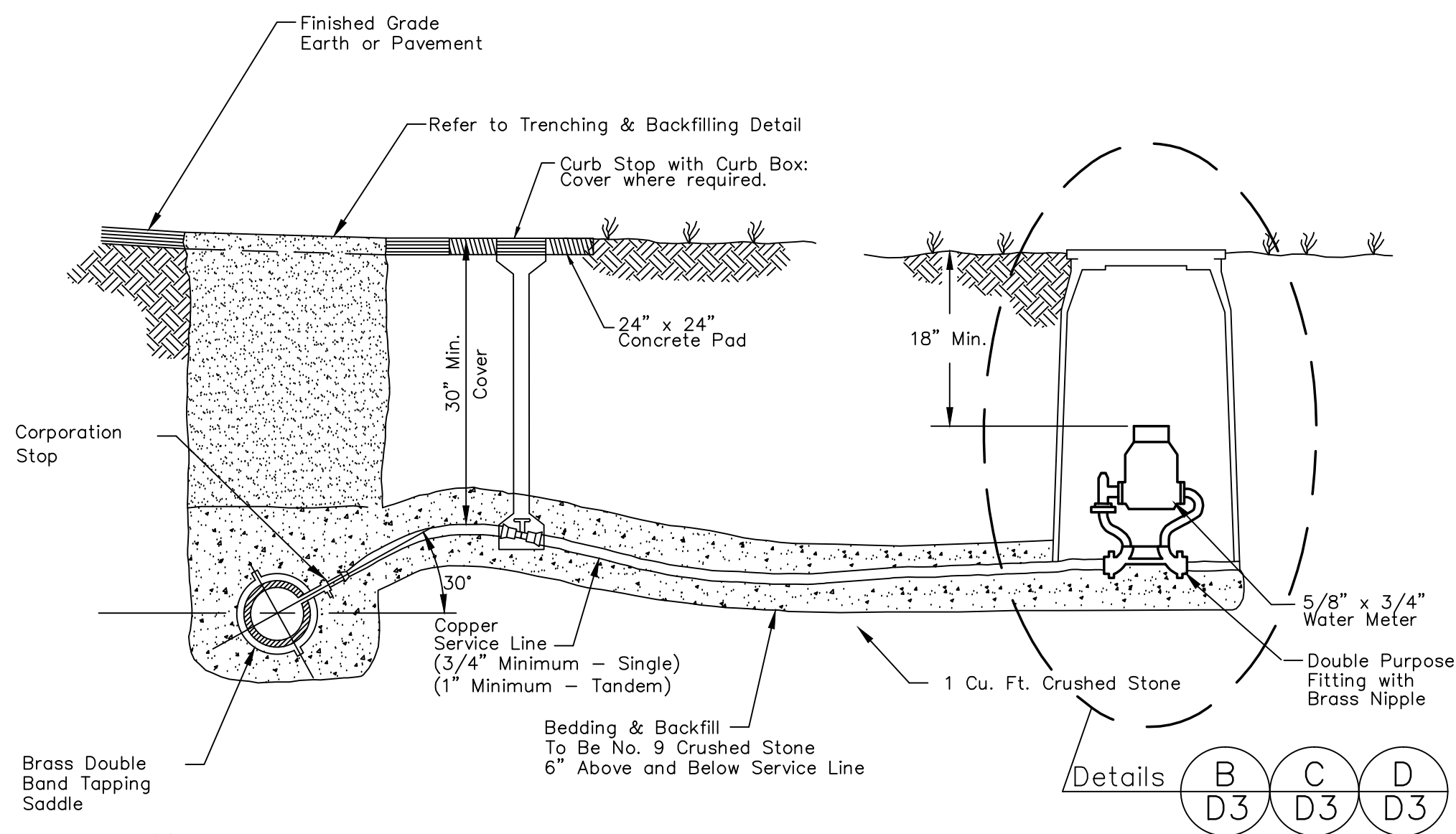
**GATE VALVE SETTING**



**AIR RELEASE**

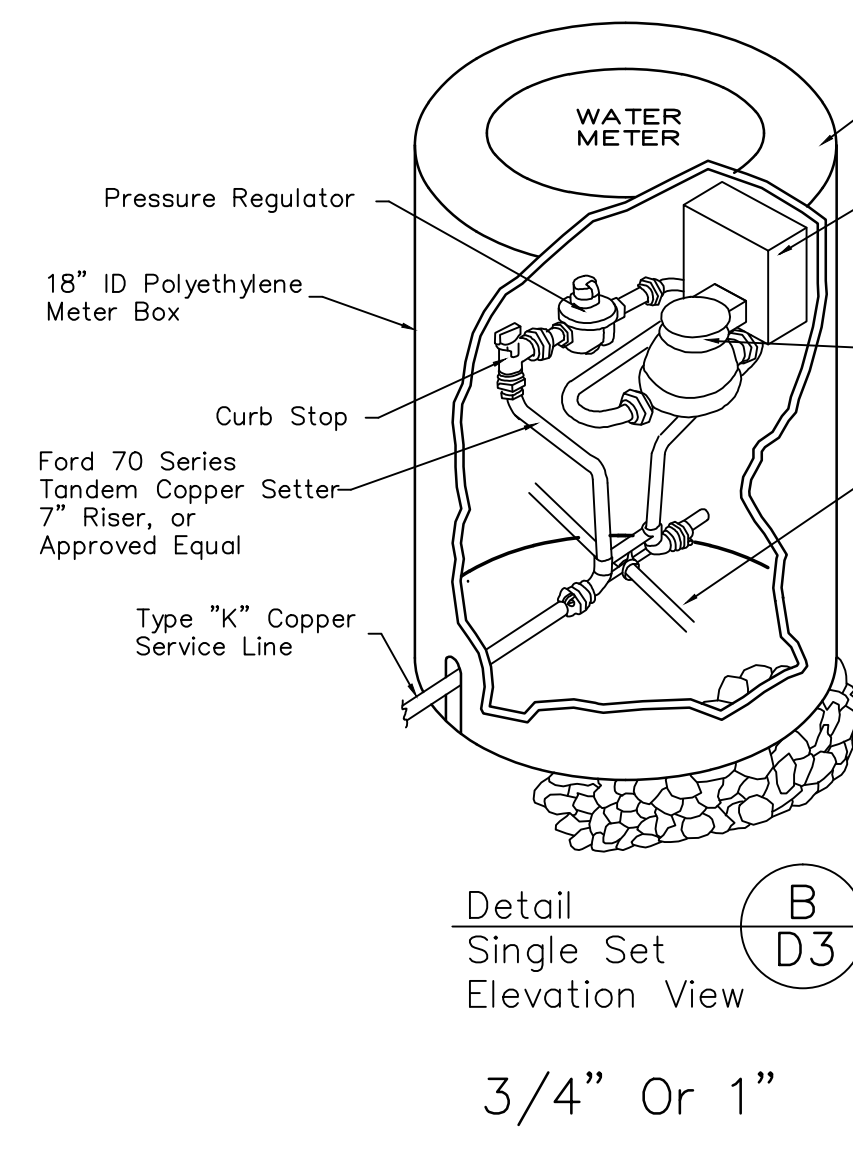
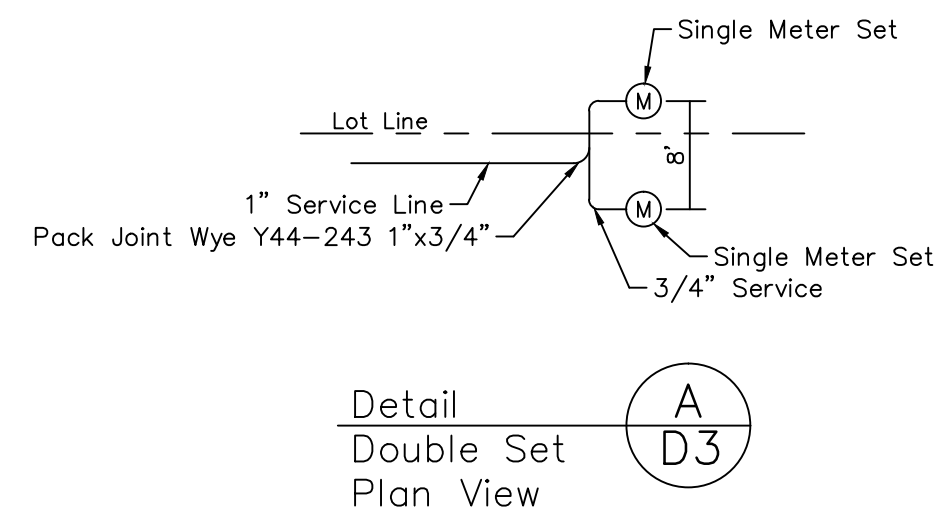


**BLOW-OFF HYDRANT**

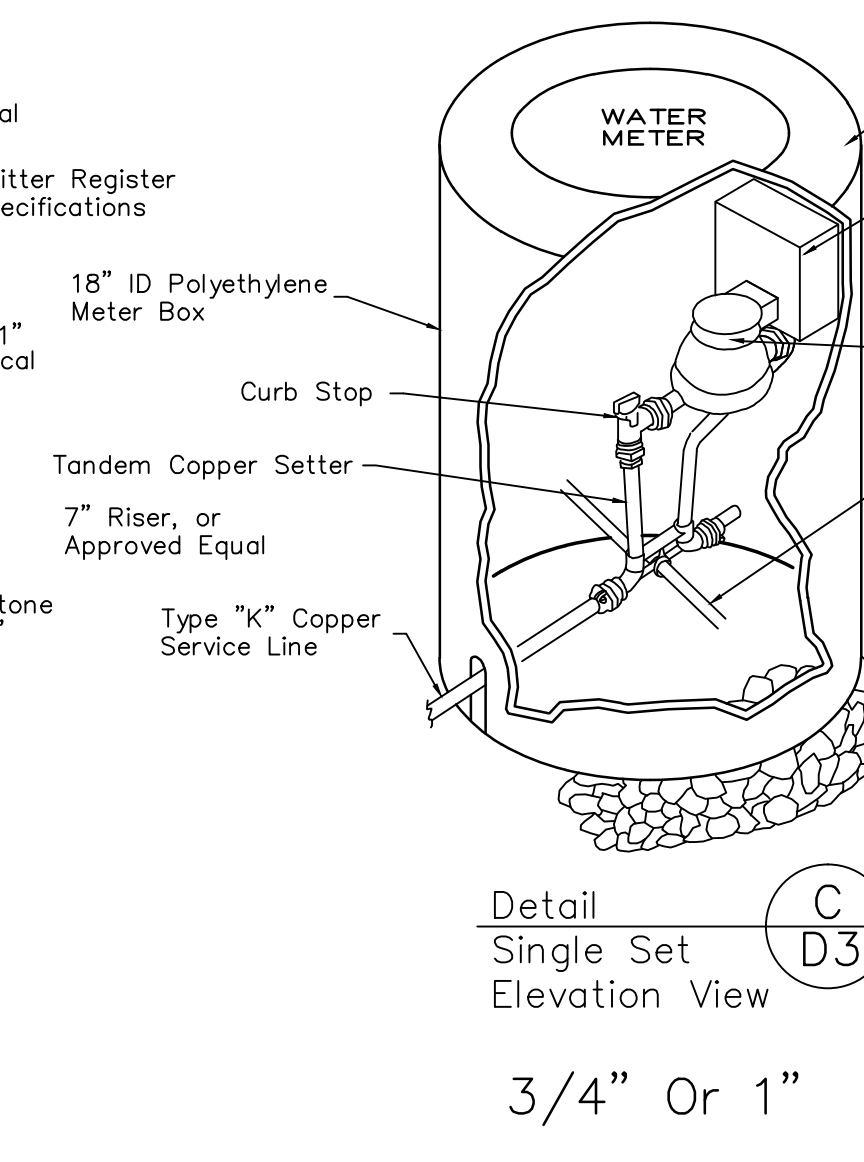


- (1) A Service Connection is measured and paid as a Service Line and Meter set. A Meter Set is defined to include the tapping saddle, Corporation stop, Meter Box and Lid, coppersetter, meter, pressure regulator (if applicable) and curb stop.
- (2) The CONTRACTOR shall provide the meter but may not install it. A dummy meter shall be used to check connections. The meter shall be delivered to the OWNER's Operations Manager.
- (3) Lid shall be flush with paved surfaced, 1/2" above grade in lawn areas, and 2" above grade in unimproved areas.
- (4) Curb stop (valve) shall be utilized on service connections exceeding 100'.

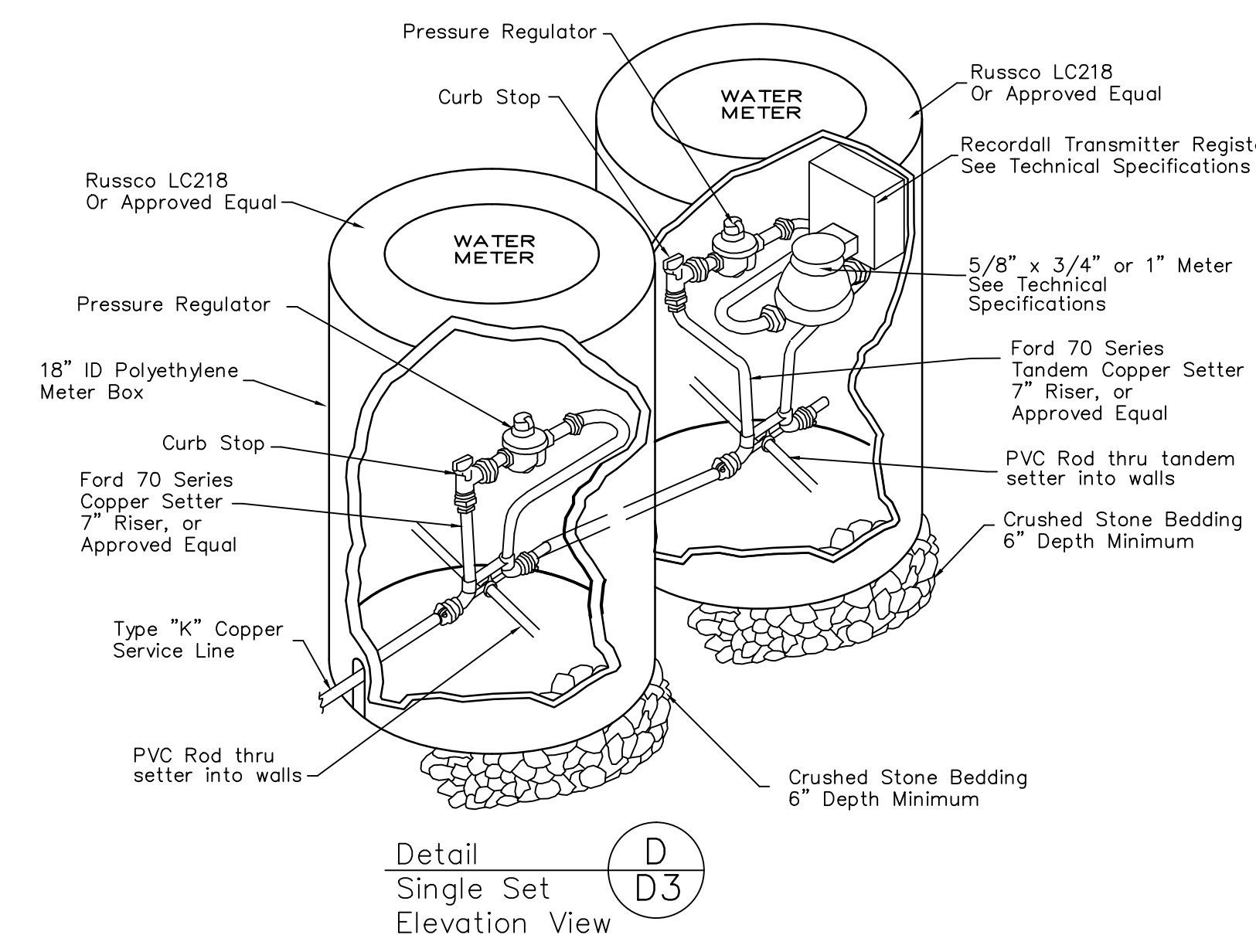
**SERVICE CONNECTION**



**METER WITH PRV**



**METER WITHOUT PRV**



**DOUBLE CUT REGULATION METER SET**

NOTE: Double Cut Regulation Meter Sets shall be required on all services where line pressures exceed 220 psi.

DATE	DESCRIPTION OF REVISION

**SUMMIT ENGINEERING INC.**

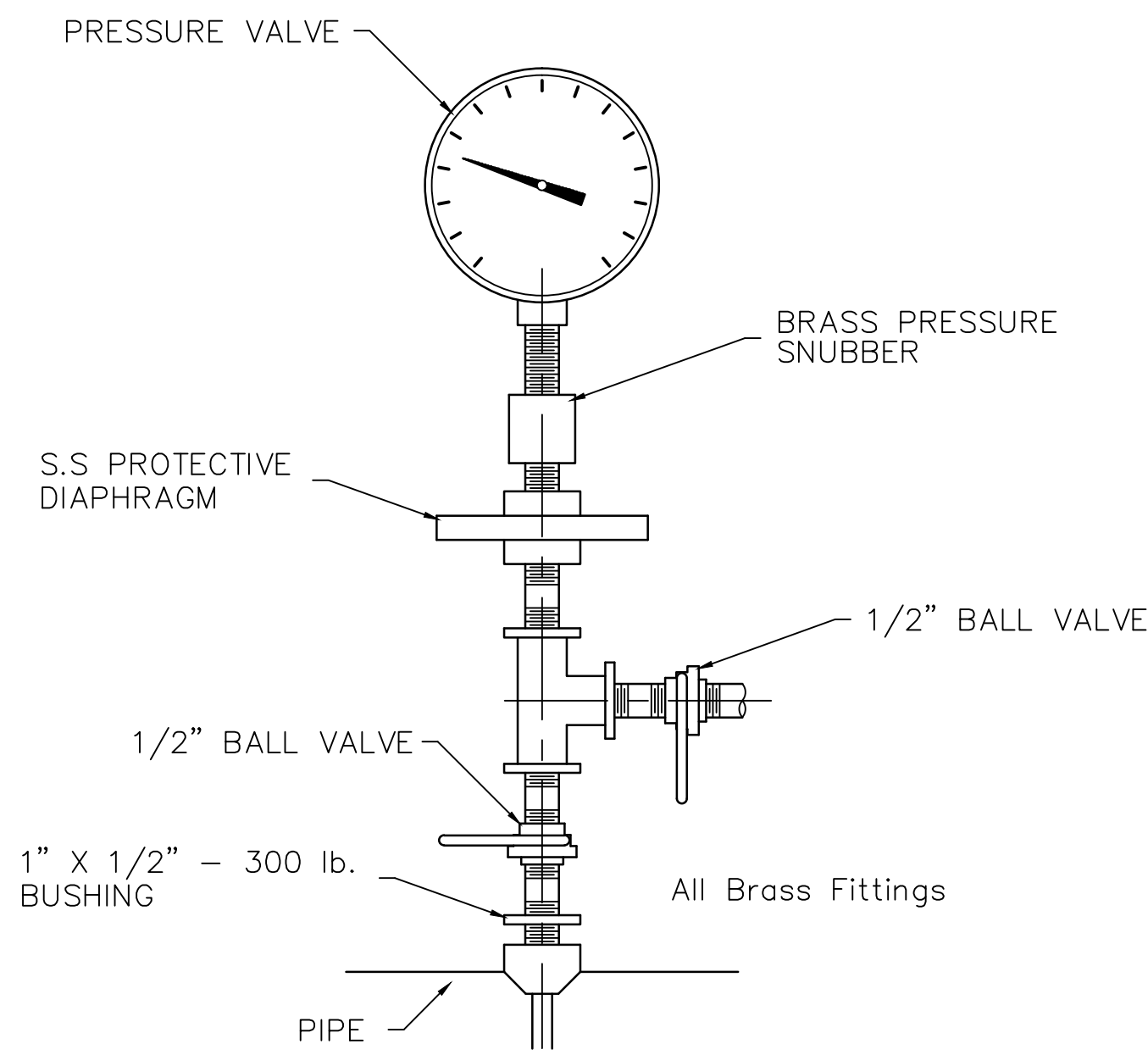
Pikeville, KY  
Lexington, KY  
South Charleston, WV  
Bridgeport, WV

**Mountain Water District**  
6332 Zebulon Highway  
Pikeville, Kentucky #1501

**Upper Pompey Water Supply**  
Miscellaneous Details

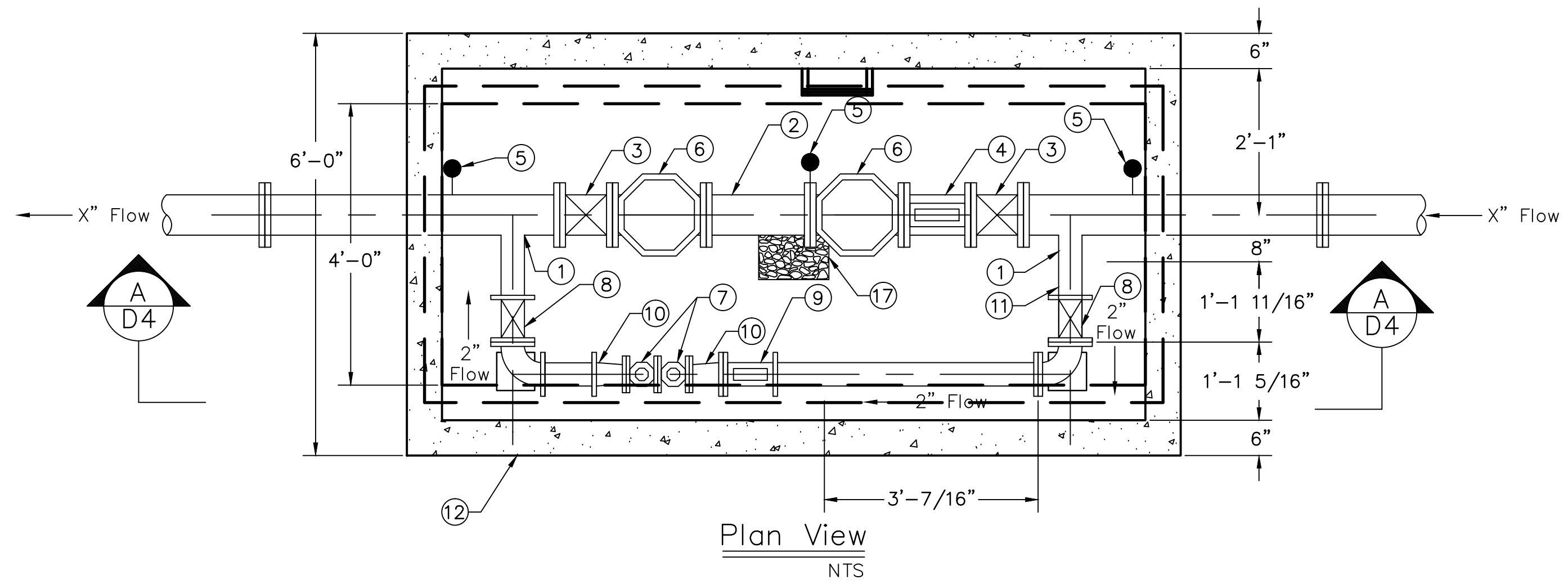
DATE:	NTS
SCALE:	JRN/JBK
DRAWN BY:	J. Hunt
CHECKED:	6375.043
PROJECT NO:	
SHEET:	<b>D-3</b>
OF:	



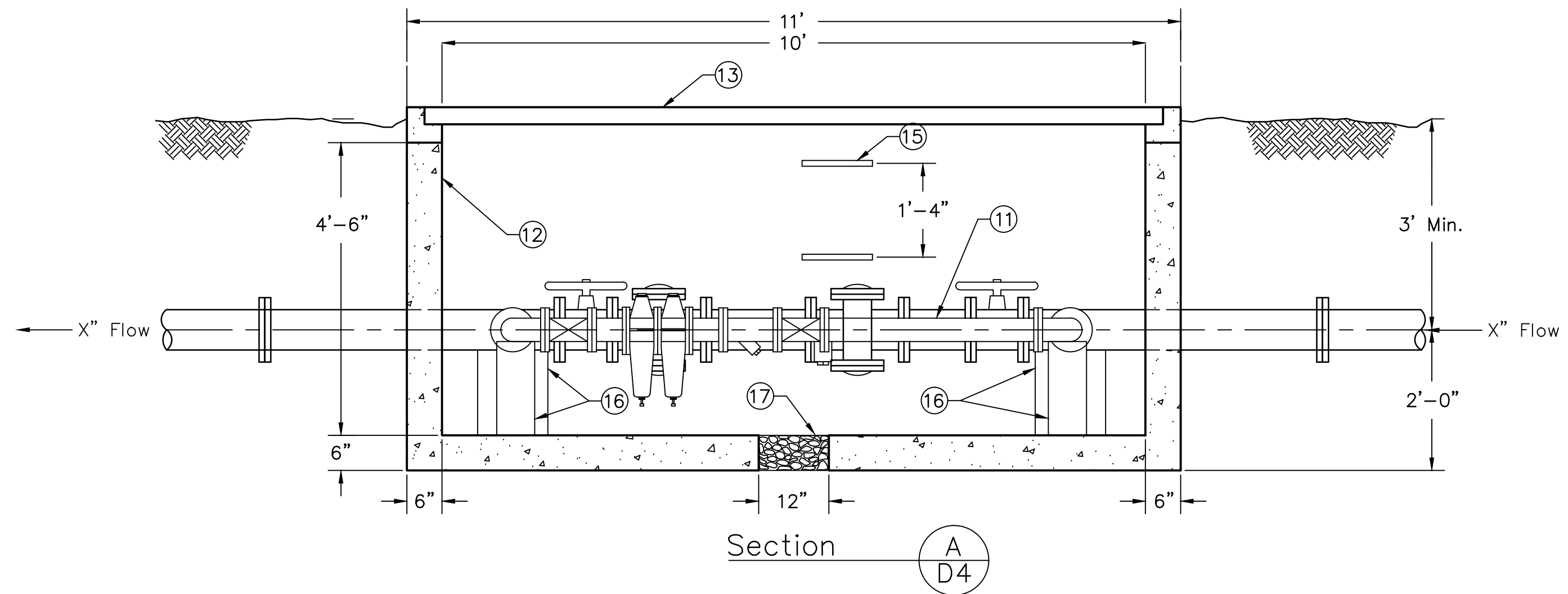


**Vault-Pressure Gauge**

SCALE: NTS



Plan View  
NTS



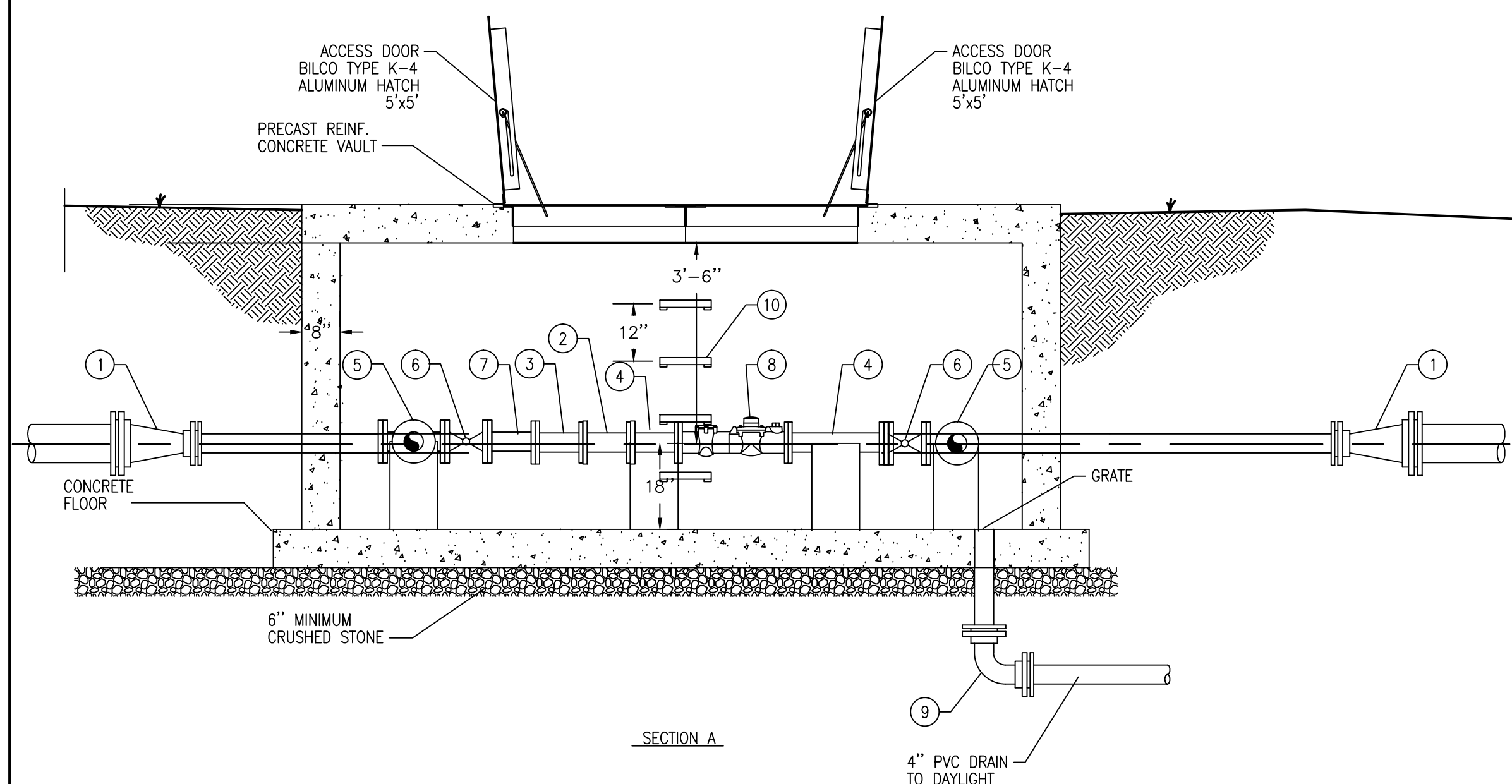
Section  
A  
D4

**PRESSURE REDUCING STATION**

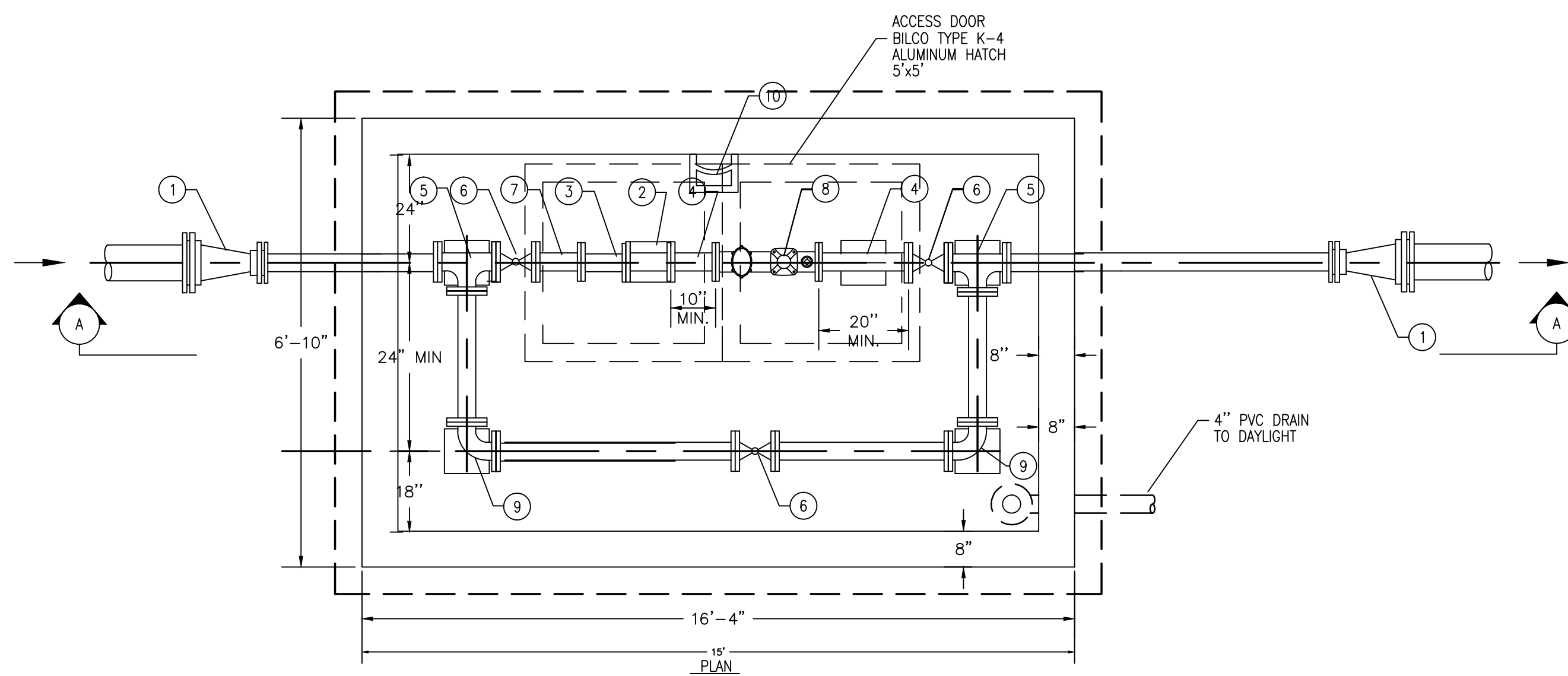
Not to Scale

Values to be used for 'X' below  
Jonian Pressure Reducing Station: 6  
Upper Pompey Pressure Reducing Station: 4

- ① 2" Tap
- ② X" Spool Piece As Required
- ③ X" Gate Valve
- ④ X" Strainer
- ⑤ Pressure Gauge
- ⑥ X" Pressure Reducing Valve
- ⑦ 2" Pressure Reducing Valve w/ Nipple Between
- ⑧ 2" Gate Valve
- ⑨ 2" Strainer (Basket Type)
- ⑩ 1-1/2" x 2" Adapter
- ⑪ All pipe and valves to have rated working water pressure of at least 300 PSI
- ⑫ Cloud 10' x 5' x 7' Precast Concrete Utility Pull Vault (Or Equal) Modified - Overall Height Not To Exceed 5'-6"
- ⑬ Cast in place concrete lid with 10' X 4' Halliday access door, Series S2R (or Equal) Contractor to submit shop drawings.
- ⑭ Louvered Aluminum foundation style Vent with Pest Screen - Typical Each End
- ⑮ Standard Manhole Steps
- ⑯ Cast in place pipe supports as needed or directed
- ⑰ Provide No. 57 Stone in 12 Inch Opening for drainage
- ⑱ PRV Setting Shall Be at 40 PSI



SECTION A



**MASTER METER VAULT**

Not to Scale

**LEGEND**

- ① M.J. REDUCER (TYP.) SIZED ACCORDINGLY
- ② STRAINER
- ③ 4" SOLID SLEEVE (TYP.)
- ④ 4" D.I. SPOOL M.J.xFLG. (TYP.)
- ⑤ 4"x4" TEE (TYP.)
- ⑥ 4" OS&Y GATE VALVE W/HANDWHEEL (TYP.)
- ⑦ CHECK VALVE
- ⑧ 4" BADGER METER (ORION INTEGRAL OR REMOTE FOR RECORDALL)
- ⑨ 4" 90° BEND FLG. (TYP.)
- ⑩ MANHOLE STEP (TYP.)

- NOTES:
- 1. ALL PIPING INSIDE VAULT SHALL BE 4" FLANGED D.I. PIPE.
  - 2. INSTALL CONCRETE SUPPORTS AS REQUIRED.
  - 3. GRIP RING RESTRAINTS SHALL BE INSTALL ON ALL M.J. FITTINGS.
  - 4. VAULT AND COMPONENTS ARE NOT DRAWN TO SCALE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS.
  - 5. CONCRETE PIPE SUPPORTS ARE REQUIRED AS SHOWN IN THE DRAWINGS.

DESCRIPTION OF REVISION

DATE

SUMMIT ENGINEERING INC.



Pikeville, KY  
Lexington, KY  
Louisville, KY  
South Charleston, WV  
Bridgeport, WV

Mountain Water District  
6332 Zebulon Highway  
Pikeville, Kentucky 41501

Upper Pompey Water Supply  
Pressure Reducing Station Details

DATE: VARIOUS  
SCALE: VARIOUS  
DRAWN BY: JRN/JBK  
CHECKED: J. Hunt  
PROJECT NO: 6375.043

SHEET:

D-4

OF: