

INDUSTRIAL & POTABLE WATER TO YATES COMPLEX

APRIL 30, 2021
CONSTRUCTION DOCUMENTS



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PROJECT LOCATION



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EXISTING UTILITIES

The existing utilities shown on the drawings were taken from historic maps and may not represent the exact location or full extent of utilities that may exist, be they live or abandoned. The Contractor shall be responsible for using 811 to locate all utilities. In addition to 811, the Contractor will be responsible for hiring a private utility locator such as Jim’s Private Utility Locating for items that 811 does not mark. In the event that an unmarked utility is located during construction and is damaged or is otherwise in conflict with the proposed project components, the Contractor shall notify the Owner’s Project Representative to make a determination on how to proceed. All utility locations shall be marked on the As-Built drawings.

INCIDENTAL WORK

The work will be measured and paid according to the unit price structure in the Bidder’s Proposal. The items include the major work features. Several work components do not have identified bid items or quantities. These items shall be considered incidental to the associated bid item or part of Incidental Work. A partial list of Incidental Work items is listed below. The list may not be complete and missing items do not qualify for additional payment.

Abandonment of Water Mains, Services, and Meter Pits.	
Clearing & Grubbing	Insulation of Buried Water Main
Removal and Replacement of Surfacing	Sawing
Traffic Control	Striping
SWPPP/Stormwater Permit	Rock Excavation
Erosion Control	Disinfection and Testing
Concrete Coring	Seeding & Fertilizing
Bedding	Tracer Wire
Thrust Blocks	Disposal of Excess Materials

SEQUENCE OF WORK

No specific project phasing has been identified. The existing water system must remain active until the new system is operational. The Contractor shall submit the proposed work sequence for approval by the Owner’s Project Representative.

SURFACING REMOVAL LIMITS

Exact removal limits and quantities have not been quantified. The Contractor will be responsible for determining the disturbance required to complete the work. All surfacing removals and replacements including but not limited to; gravel, asphalt paving, concrete paving, concrete curb & gutter, and sidewalk shall be considered incidental to the various water main unit bid prices and no separate measurement or payment will be made.

SAWING

All existing asphalt and concrete surfaces shall be saw cut for the full depth of the surfacing prior to removal. All pavements shall have 2 saw cuts. The first cut will be made for removals and trenching. The second cut shall be made 1 foot beyond the first cut and shall be made after backfill operations and just prior to paving. Any damage to adjacent paving shall be repaired by the Contractor at no cost to the Owner.

CLEARING & GRUBBING

Exact clearing limits and quantities have not been quantified. The Contractor will be responsible for determining the smallest amount of disturbance required to complete the work. It is the desire of the Owner to retain all trees to the greatest extent practicable. All clearing and grubbing including but not limited to; trees, stumps, bushes, rocks, boulders and other vegetation or ground features shall be considered incidental to the various water main unit bid prices and no separate measurement or payment will be made.

ABANDONDING EXISTING WATER MAINS

Unless otherwise noted for removal, all existing water mains will be abandoned in place. At locations where the existing below grade mains are cut, they shall be abandoned by filling the pipe with a concrete plug that extends 1 ft into the main. At locations where the existing main is exposed in a vault or tunnel, they shall be abandoned by installing a fitting such as capping, plugging, or blind flange.

ABANDONDING EXISTING METER AND VALVE PITS

The existing potable and industrial water meters shall be salvaged to the Owner’s Project Representative. All valves shall be closed and remain in place unless otherwise noted. The buried pits containing the meters or valves shall have the lid demolished and the pit shall be filled and compacted with trench spoils. The surfacing above shall be restored to match surrounding and leave no trace of the pits.

TEMPORARY WATER SERVICE

The water supply to the Yates Complex is not looped and the construction of the meter building will disrupt the water service. Plans show a 3” temporary water line from the fire hydrant west of the new meter building routed around the construction area to the existing valve house. The temporary water service materials may be selected at the discretion of the Contractor and may be new or used. However, they must be suitable for the anticipated pressure and cannot have been used to convey wastewater or other hazardous liquids. The temporary water line must be disinfected and pass a BacT test before it is placed in service. The Contractor shall coordinate with the City of Lead Administrator (605-584-1401) for access and operating of valves at the valve house and fire hose station.

ALIGNMENT AND GRADE

The water main alignment and grade may require adjustment due to unforeseen obstacles. The Contractor may not make adjustments without the approval of the Owner’s Project Representative. The alignment and grade shall maintain a minimum bury of 6 feet and shall not create high points that could trap air unless a hydrant or other appurtenance is provided to expel air. See specifications for other requirements regarding separation from non potable water pipes.

TRAFFIC CONTROL

The majority of the roadways and parking areas within the work limits are private streets. The exception being the intersection of Crown & Summit Street which is a public street. MUTCD traffic control will only be required for the work at Crown & Summit Street. Contractor to submit traffic control plan for approval by the Owner’s Project Representative. The Contractor will be responsible for providing notifications and or barricades to protect the work area. When working adjacent to areas where pedestrians may be present (i.e. the parking lot) the Contractor shall provide a continuous delineation of the work area such as caution tape between traffic candles or orange construction fence. All open excavations shall be protected from unauthorized access.

The road the passes between the Admin Building and E&O building is a high traffic area. Closures of this road shall be kept to a minimum and the Contractor is asked to provide a single lane road through this work area whenever possible. Full closure shall be limited to 4 days (Friday-Monday) for water line install and 3 days (Friday-Sunday or Saturday-Monday) for paving. Traffic control shall be considered incidental and no separate measurement or payment will be made.

EROSION CONTROL

The Contractor shall be responsible for preparing a Stormwater Pollution Prevention Plan (SWPPP) and obtaining a General Permit for Stormwater Discharges Associated with Construction Activities from the South Dakota Department of Agriculture & Natural Resources (SDDANR). The Contractor shall prepare the Notice of Intent (NOI) for the Owner’s signature. The Contractor shall submit the NOI and associated fee along with the Contractor Authorization Form prior to commencement of the Work.

The Contractor will be responsible for installation and maintenance of Best Management Practices (BMP’s) including inspections and reporting as required by the Storm Water Permit. The Owner’s Project Representative shall be invited to accompany the contractor on all inspections and shall sign off on the periodic inspection reports. The permit, plans, and inspection forms shall be continuously updated kept in a physical binder onsite and available for inspection by the Owner or applicable agencies.

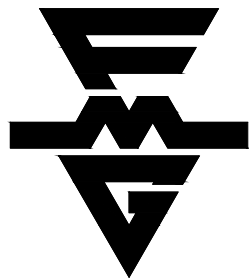
The Contractor shall file the Notice of Termination (NOT) when the site has reached final stabilization.

STORAGE AREA

The Contractor may use a small storage area near the Rope House (General area will be identified during mandatory Pre-Bid walkthrough). No other areas of the complex are available for storage. The area will not be large enough to store all of the materials for the project and the Contractor shall coordinate deliveries as the work progresses.

ROCK EXCAVATION

Multiple projects have excavated areas within the complex. Although bedrock is often encountered, it is fairly weathered and can be excavated with a sufficient sized machine equipped with ripper teeth and sometimes requiring jack hammering. Blasting will not be permitted. No additional payment will be made for rock excavation.



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WATER FOR CONSTRUCTION

Water needed for backfill, dust control or other construction operations must be obtained outside of the complex such as from a City of Lead hydrant to be coordinated with the City water department. The hydrants within the complex are metered by a master meter and are not available for construction water.

Water for filling, disinfection, and flushing will come directly from the City of Lead water system via the new meter building. The Contractor and the Owners’ Project Representative shall coordinate the use of the meter bypass with the City of Lead for these operations.

ESTIMATE OF QUANTITIES

ITEM DESCRIPTION	QUANTITY	UNIT
Mobilization	1	LS
Incidental Work	1	LS
Remove & Backfill Utility Crawl Space Items	1	LS
Temporary West Lead Water Connection	1	LS
Water Service Pipe & Connections in Admin Bldg.	1	LS
Water Service Pipe & Connections in E&O Bldg.	1	LS
Water Service Pipe & Connections in Tunnel	1	LS
2” HDPE Water Service	350	LF
2” Tapping Saddle & Corp. Stop	1	EA
2” Curb Stop & Box	1	EA
4” PVC C900 DR 18 Water Main	45	LF
4” DI Fittings	2	EA
4” Gate Valve	1	EA
6” PVC C900 DR 18 Water Main	328	LF
6” DI Fittings	12	EA
6” Gate Valve	3	EA
12” PVC C900 DR 18 Water Main	2,683	LF
12” DI Fittings	42	EA
12” Gate Valve	10	EA
Fire Hydrant w/ Aux Valve	8	EA
Yard hydrant	1	EA
Fire Hydrant Protection Bollard	7	EA
Water Main Encasement	20	LF
Pre-Manufactured Meter Building	1	LS
Meter Building Piping & Appurtenances	1	LS
Electrical Building Service	1	LS
Spare Conduits/Pull Boxes Meter Building to Admin.	1	LS



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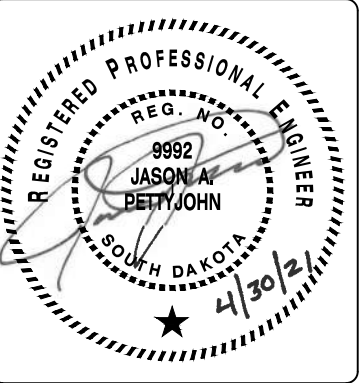
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REVISIONS		
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GENERAL NOTES

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021



SHEET:

C1

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ELLISON SPUR WATER ALIGNMENT				
PI Station	Northing	Easting	Distance	Direction
0+00.00	211746.7846	986810.8806		
			15.01	S12°19'08"W
0+15.01	211732.1247	986807.6791		
			18.61	S58°10'09"W
0+33.61	211722.3118	986791.8716		
			12.50	S13°10'09"W
0+46.11	211710.1421	986789.0241		
			3.83	S01°55'09"W
0+49.94	211706.3130	986788.8958		
			96.01	S20°34'51"E
1+45.95	211616.4359	986822.6444		

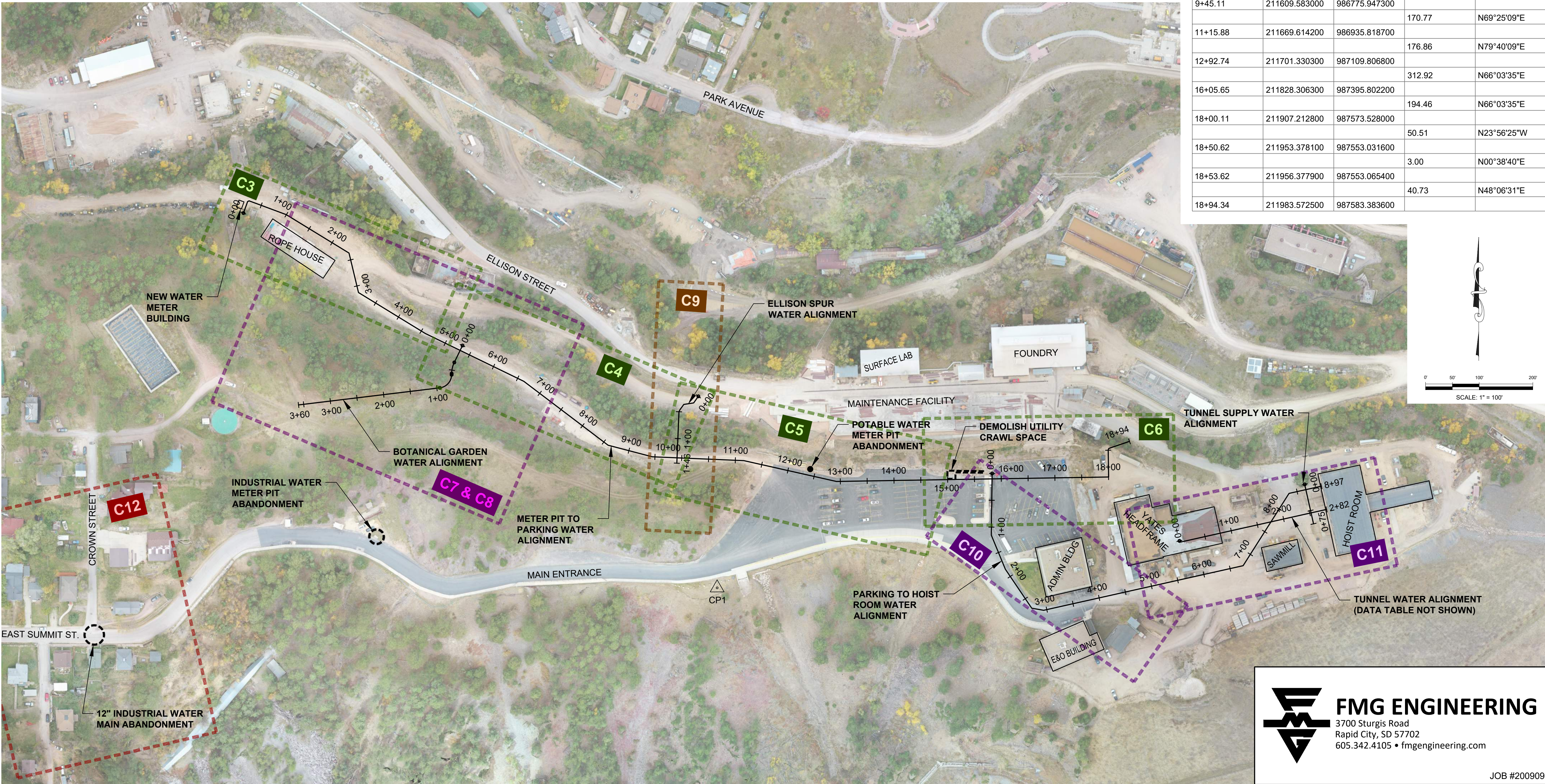
TUNNEL SUPPLY WATER ALIGNMENT				
PI Station	Northing	Easting	Distance	Direction
0+00.00	212037.3026	987915.3390		
			75.35	S35°36'20"E
0+75.35	211976.0420	987959.2064		

PARKING TO HOIST ROOM WATER ALIGNMENT				
PI Station	Northing	Easting	Distance	Direction
0+00.00	211828.3937	987371.0945		
			115.02	S22°16'16"E
1+15.02	211721.9573	987414.6845		
			68.66	S45°21'20"E
1+83.68	211673.7091	987463.5354		
			87.75	S57°06'20"E
2+71.43	211626.0518	987537.2183		
			22.56	N76°53'40"E
2+93.99	211631.1674	987559.1915		
			380.98	N54°23'40"E
6+74.97	211852.9774	987868.9481		
			159.60	N09°23'40"E
8+34.58	212010.4387	987894.9998		
			61.93	N54°23'40"E
8+96.51	212046.4955	987945.3530		

BOTANICAL GARDEN WATER ALIGNMENT				
PI Station	Northing	Easting	Distance	Direction
0+00.00	211662.1673	986369.2445		
			45.86	S02°55'09"W
0+45.86	211616.3717	986366.9093		
			34.96	S21°46'50"E
0+80.47	211583.9100	986379.8803		
			286.92	S60°05'27"W
3+59.75	211440.8459	986131.1771		

SURVEY CONTROL POINT TABLE				
Number	Northing	Easting	Elevation	Description
CP1	211431.7880	986982.6520	5333.80	SET REBAR

METER PIT TO PARKING WATER ALIGNMENT				
PI Station	Northing	Easting	Distance	Direction
0+00.00	211729.897700	985896.905700		
			23.00	N02°46'02"W
0+23.00	211752.870900	985895.795300		
			3.00	N42°13'58"E
0+26.00	211755.092100	985897.811800		
			73.68	N87°23'20"E
0+99.68	211758.448800	985971.416200		
			137.28	S81°31'02"E
2+36.96	211738.198800	986107.189400		
			75.67	S36°31'02"E
3+12.63	211677.384900	986152.217400		
			145.90	S81°31'02"E
4+58.52	211655.862600	986296.520800		
			204.32	S87°04'51"E
6+62.85	211645.457500	986500.579000		
			197.02	S75°49'51"E
8+59.86	211597.231500	986691.600100		
			85.25	N81°40'09"E
9+45.11	211609.583000	986775.947300		
			170.77	N69°25'09"E
11+15.88	211669.614200	986935.818700		
			176.86	N79°40'09"E
12+92.74	211701.330300	987109.806800		
			312.92	N66°03'35"E
16+05.65	211828.306300	987395.802200		
			194.46	N66°03'35"E
18+00.11	211907.212800	987573.528000		
			50.51	N23°56'25"W
18+50.62	211953.378100	987553.031600		
			3.00	N00°38'40"E
18+53.62	211956.377900	987553.065400		
			40.73	N48°06'31"E
18+94.34	211983.572500	987583.383600		



Z:\000909 WPE\Yates Potable & Industrial Water System\CAD\Design Drawings\000909 Control.dwg - C2 Alignment and Survey Control Plan - Friday, April 30, 2021 1:30:16 PM

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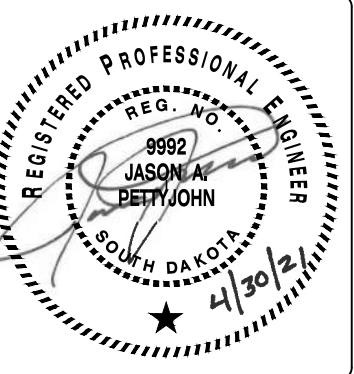
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ALIGNMENT AND SURVEY CONTROL PLAN

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

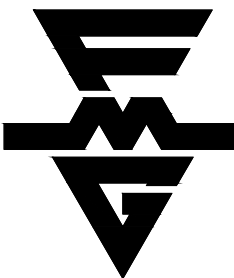
PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021



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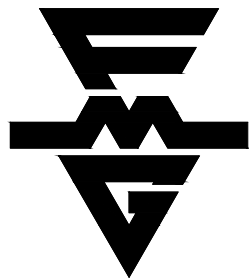
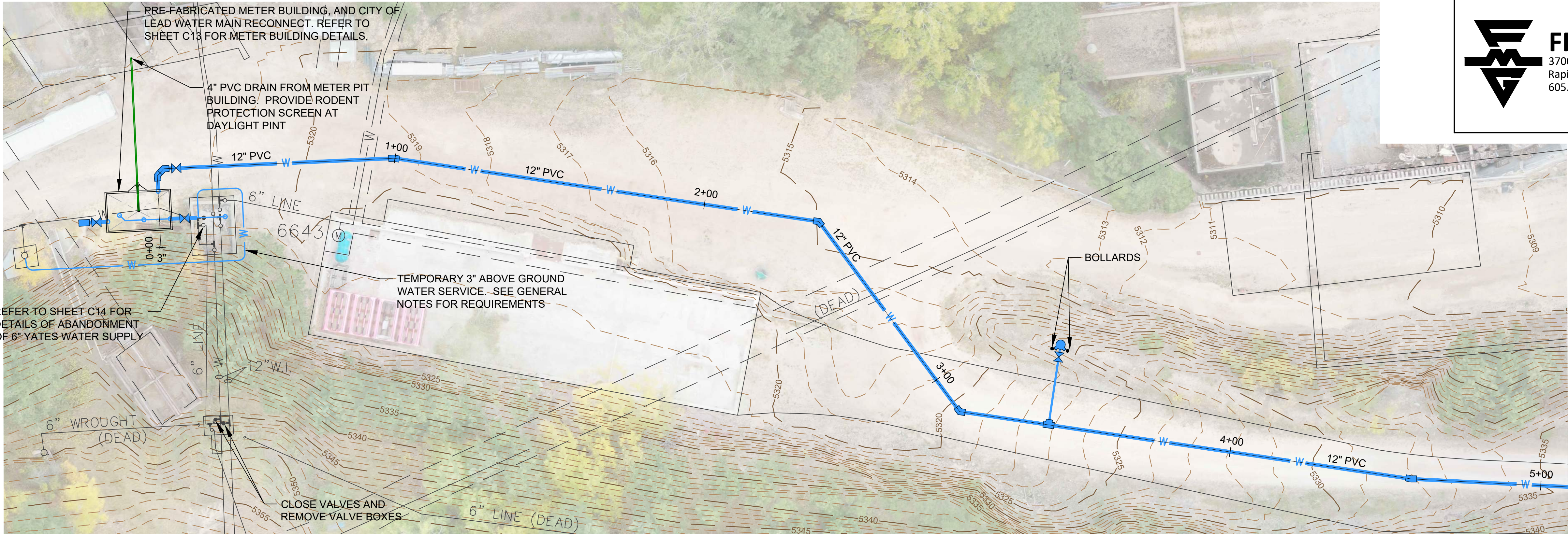
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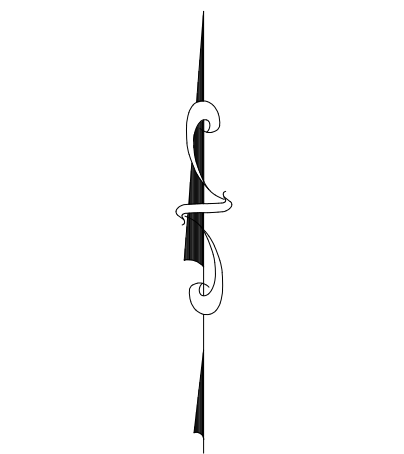
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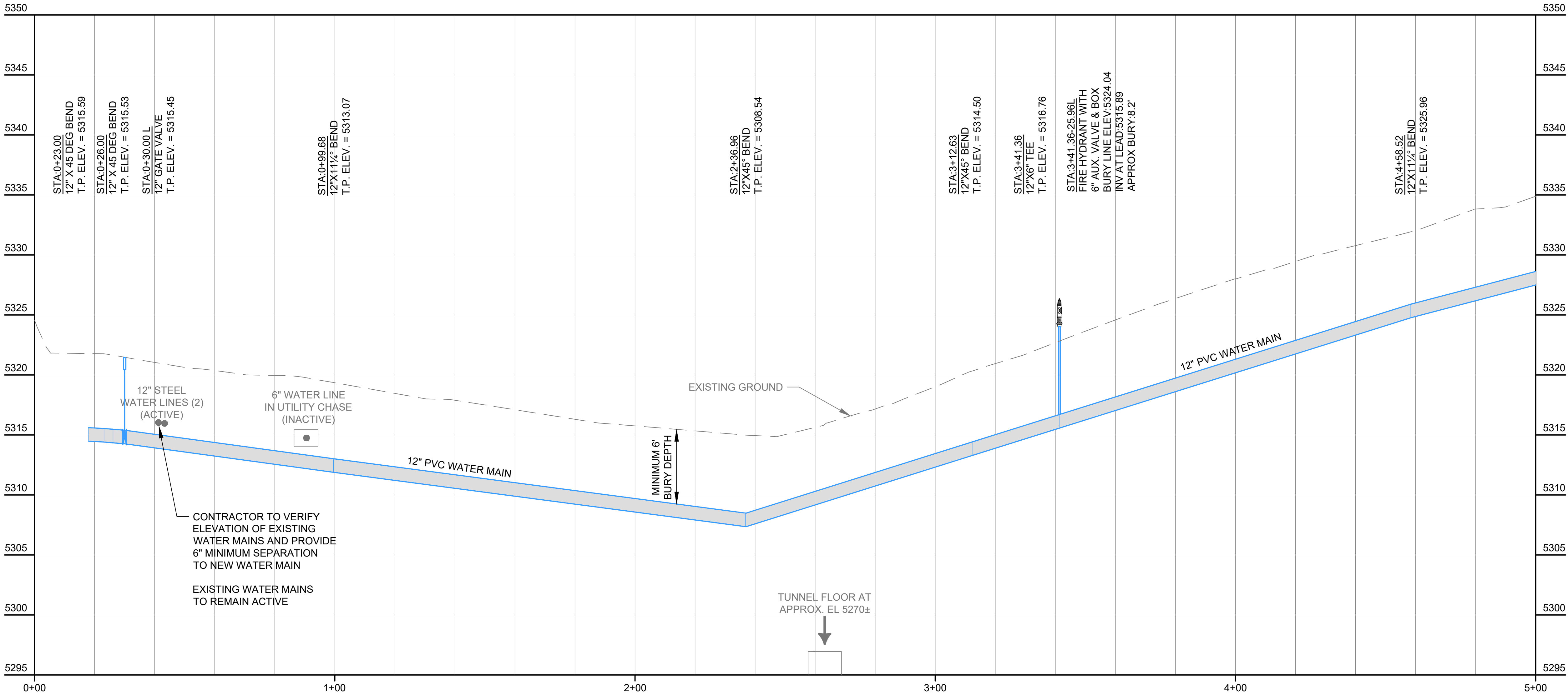
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0' 20' 40' 80'
SCALE: 1" = 40'

PROPOSED LEGEND

- ASPHALT PAVEMENT
- CONCRETE SURFAING
- CURB & GUTTER
- WATER MAIN
- FIRE HYDRANT
- GATE VALVE
- CURB STOP
- WATER MAIN FITTINGS



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ROPE HOUSE TO ELLISON PLAN AND PROFILE

INDUSTRIAL & POTABLE

WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#: BR20030

DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

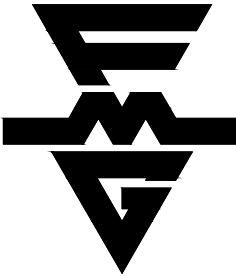
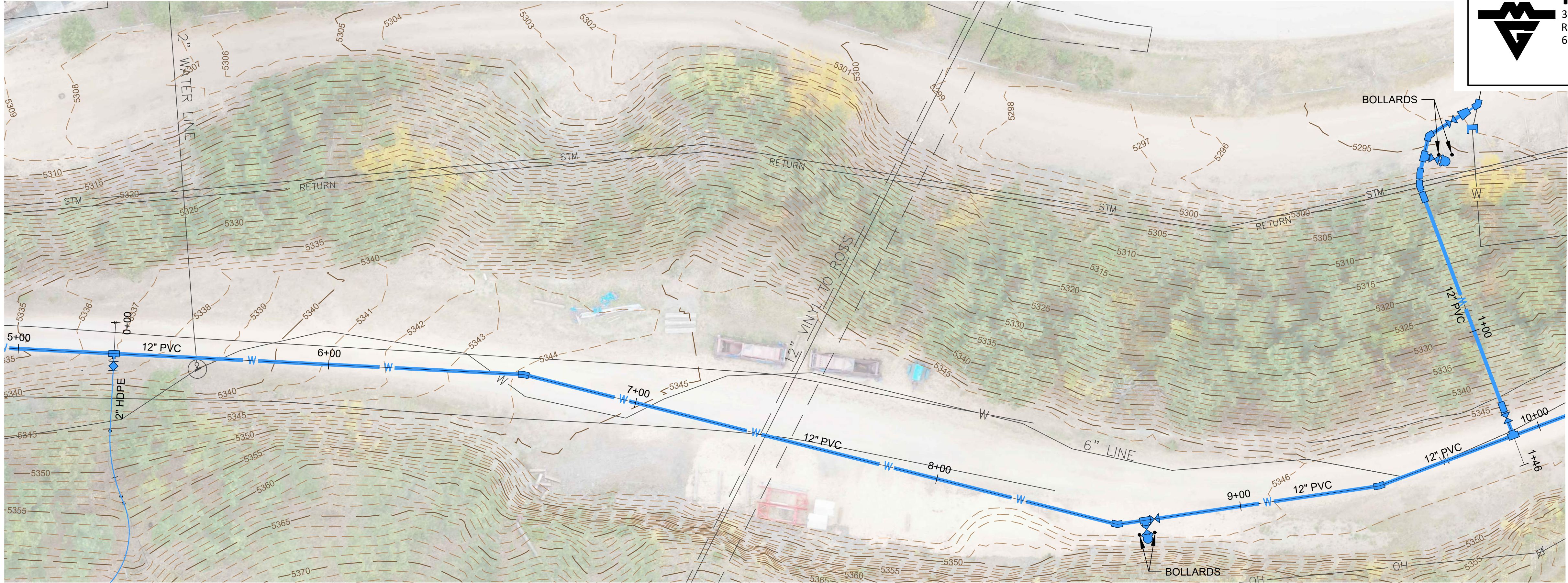
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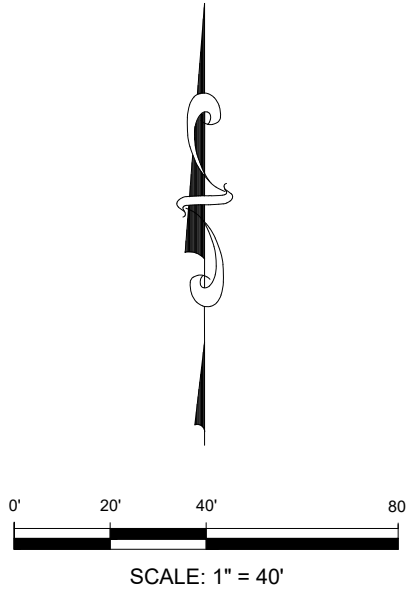
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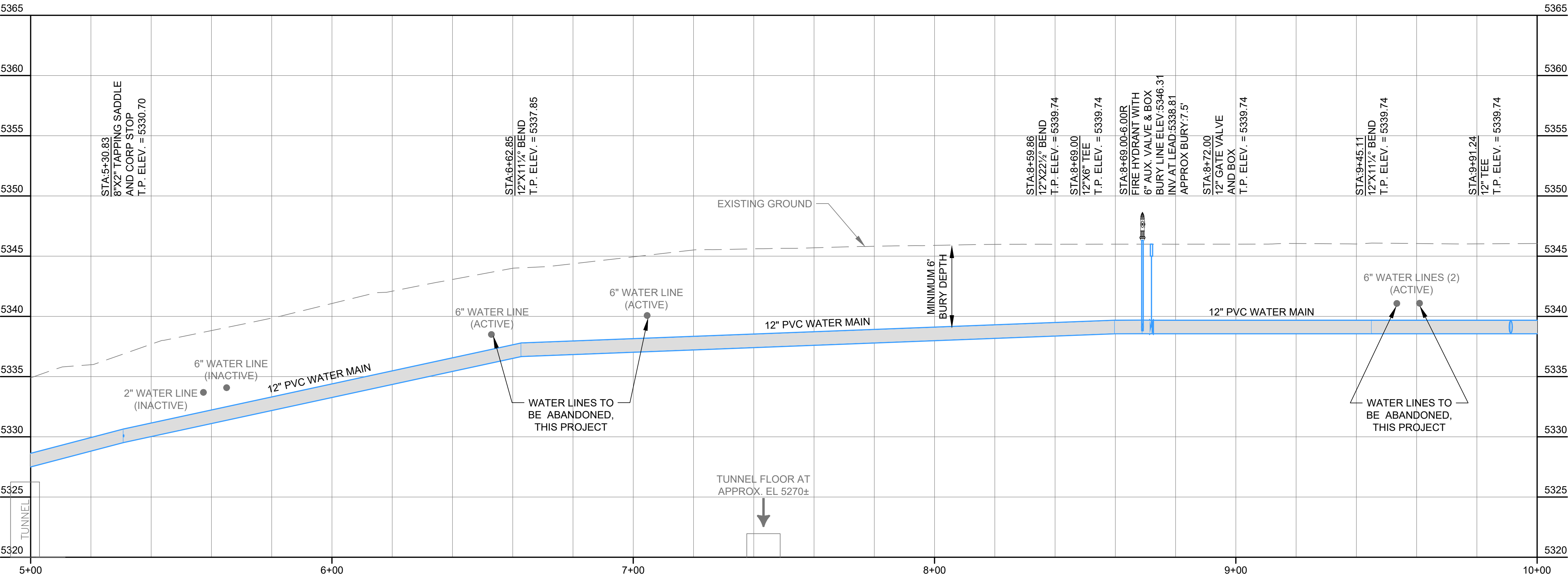
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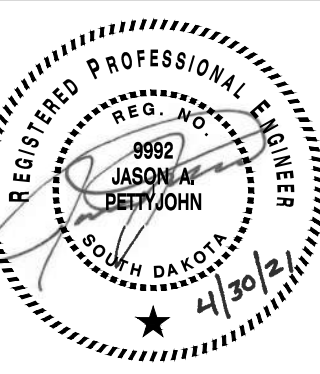
ROPE HOUSE TO ELLISON PLAN AND PROFILE

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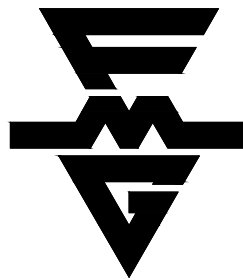
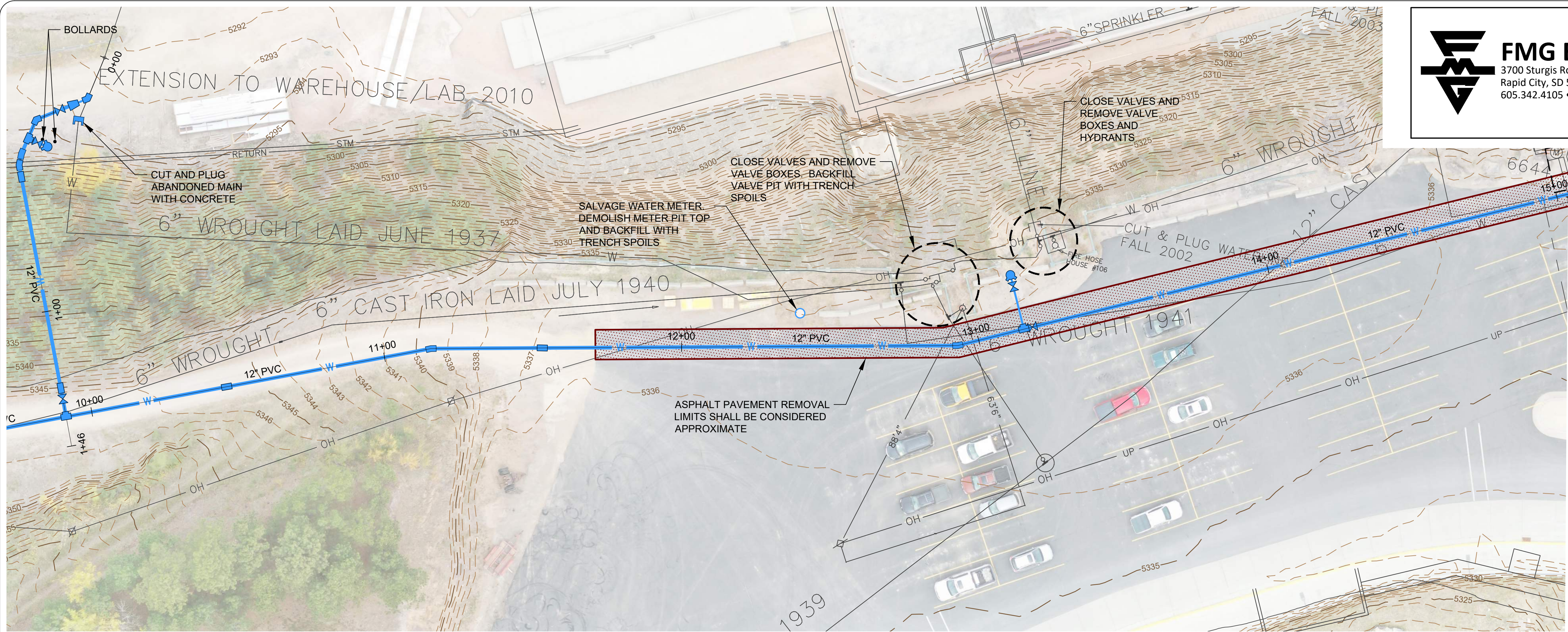


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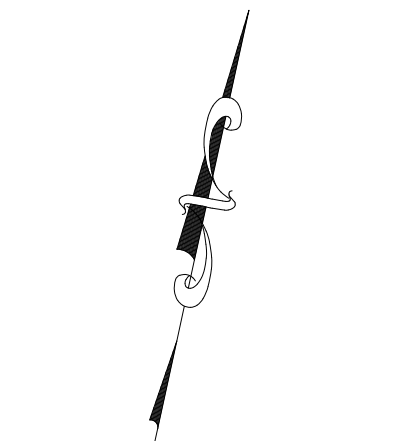
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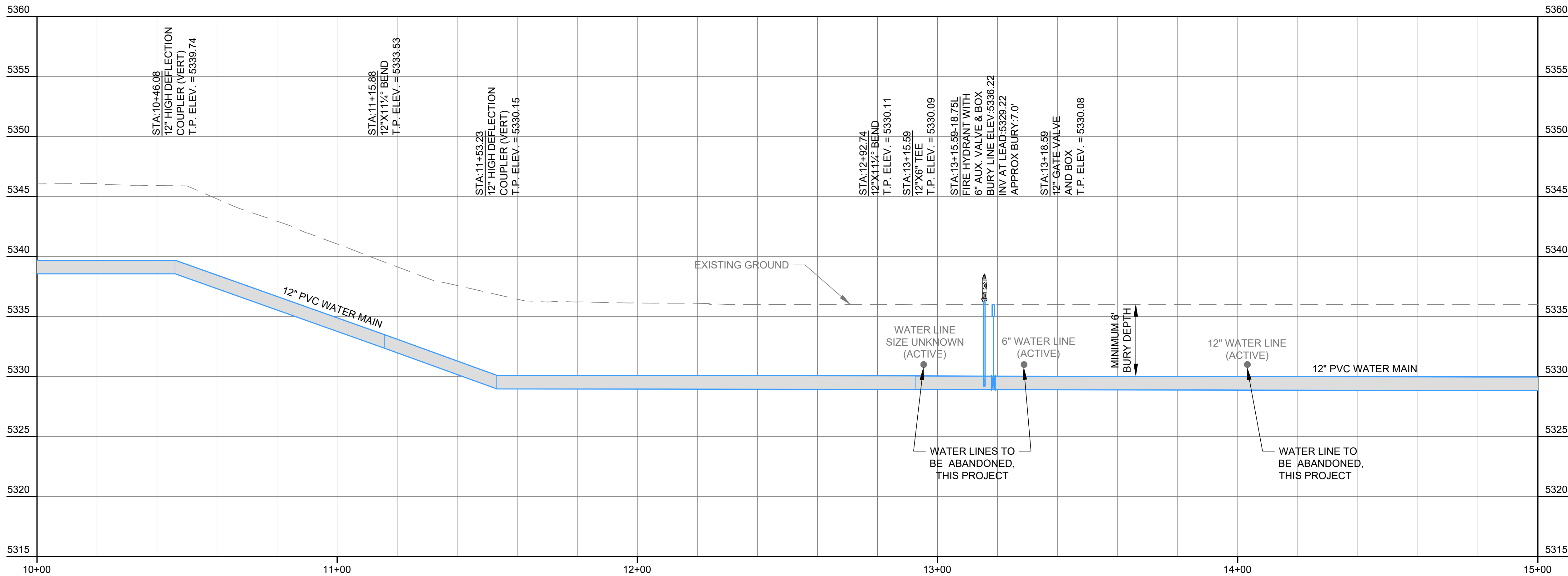
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ROPE HOUSE TO ELLISON PLAN AND PROFILE

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PROJECT#: BR20030

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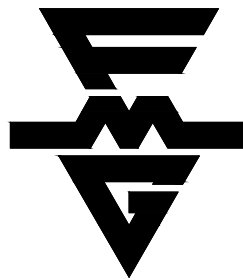
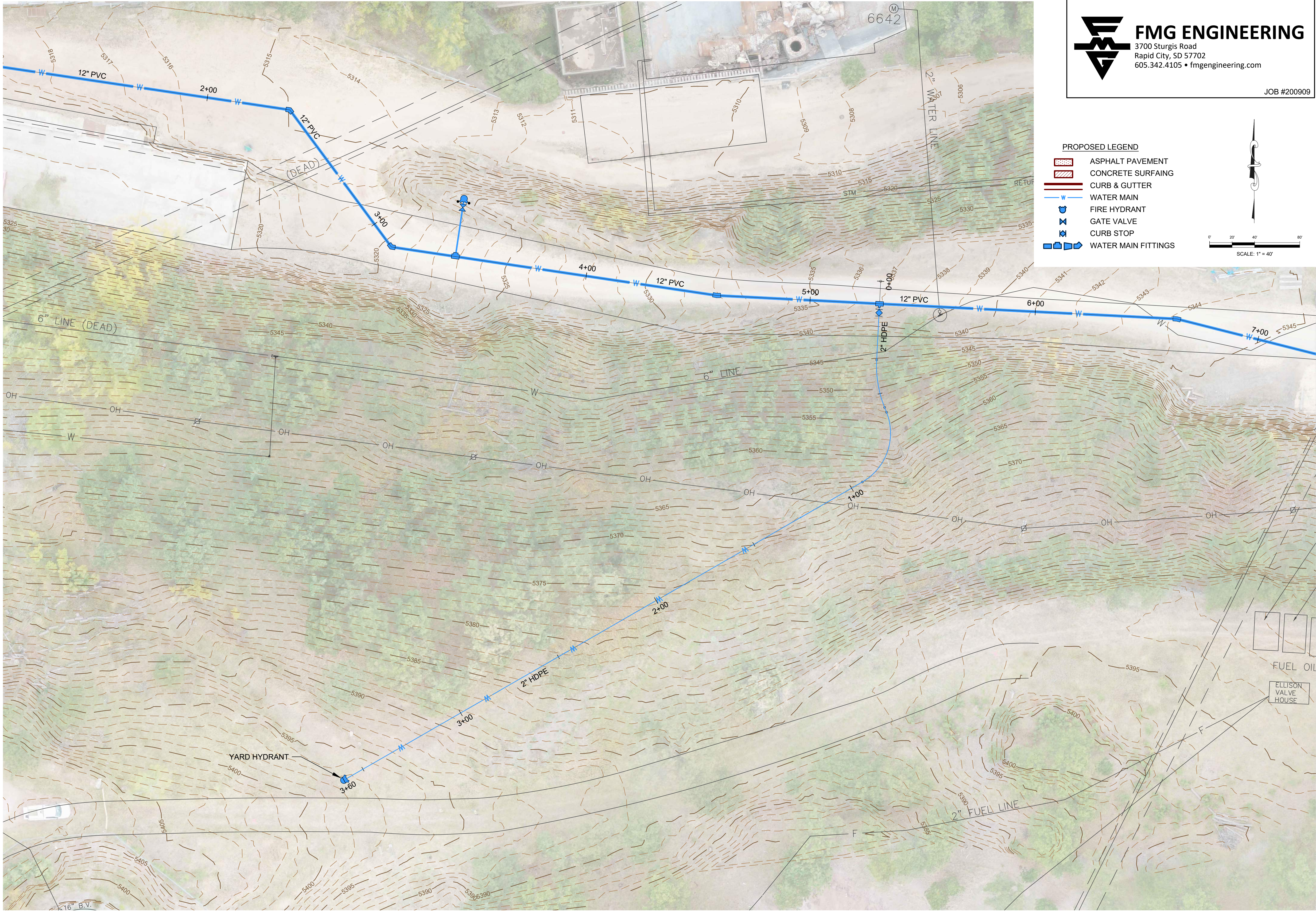


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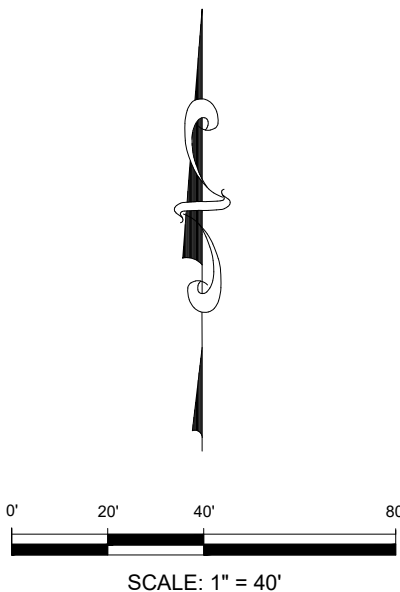
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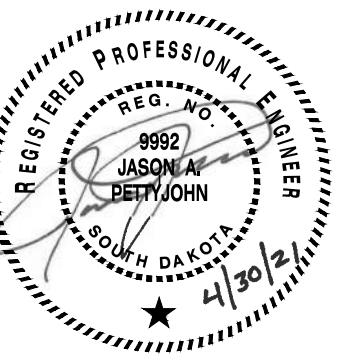
BOTANICAL GARDEN SERVICE LINE PLAN

INDUSTRIAL & POTABLE

WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021

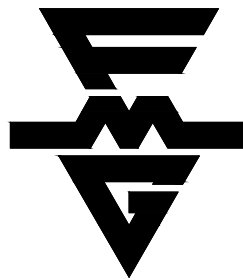
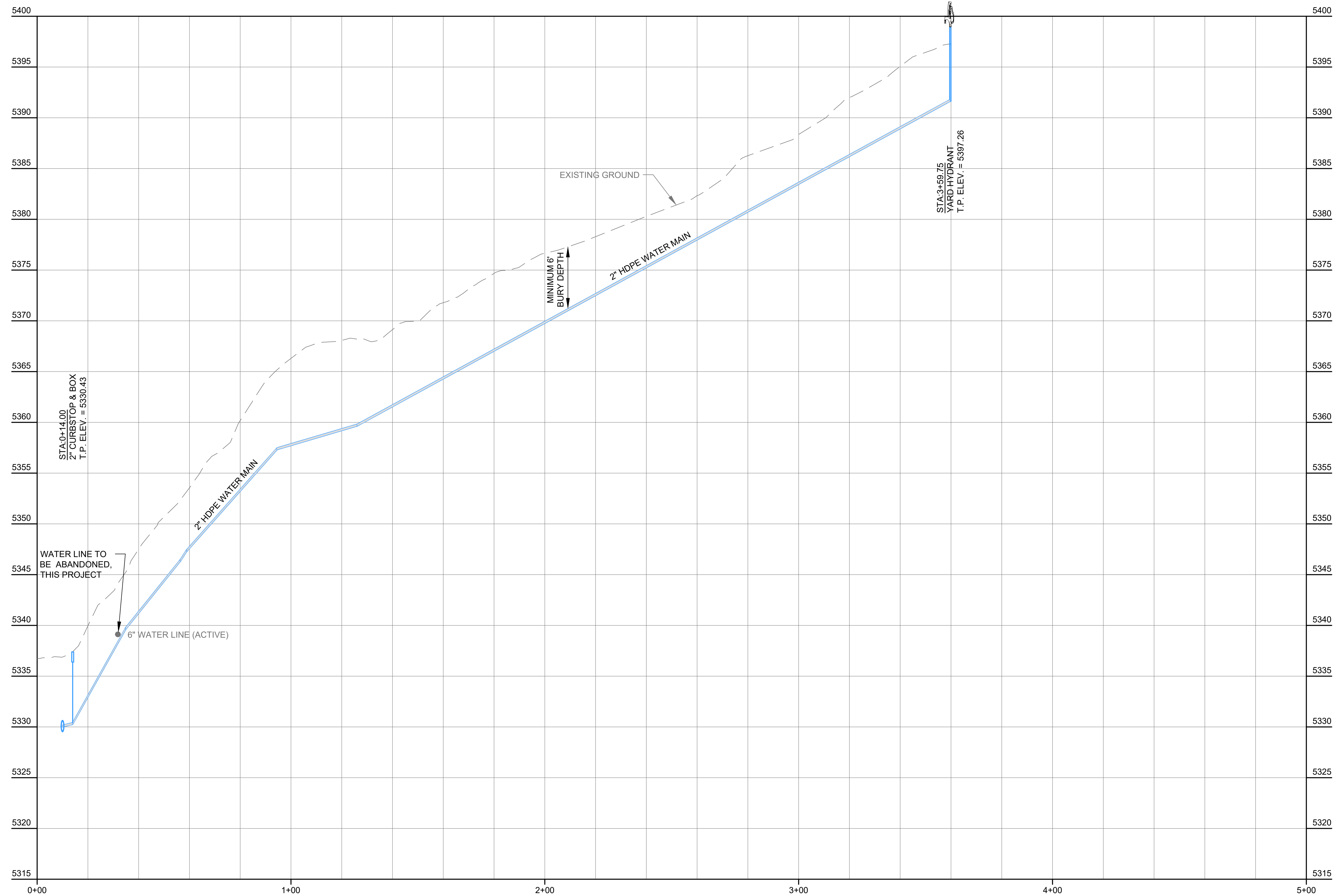


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BOTANICAL GARDEN SERVICE LINE PROFILE

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#: BR20030

DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

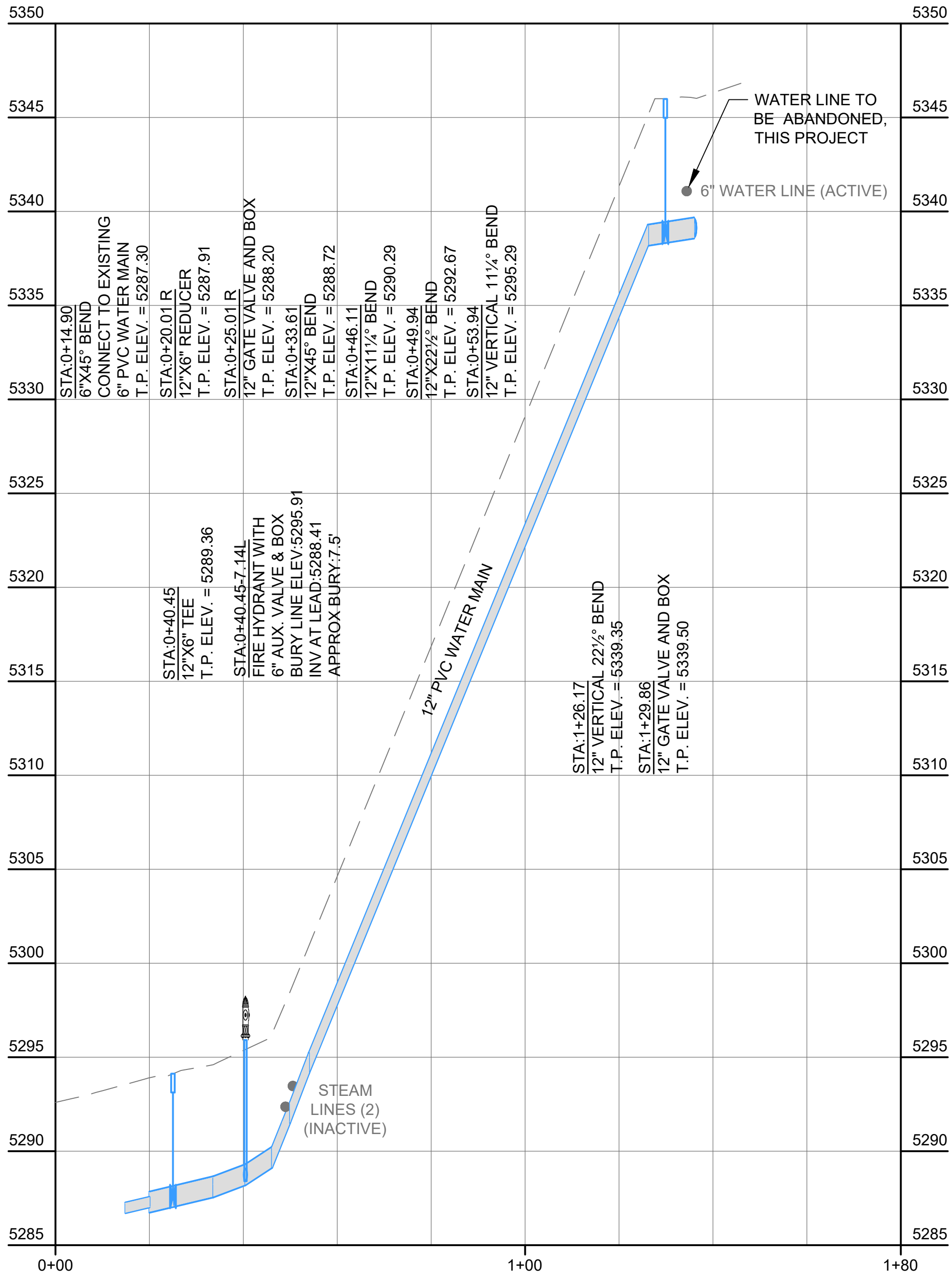
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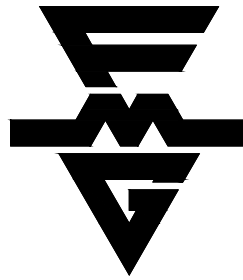
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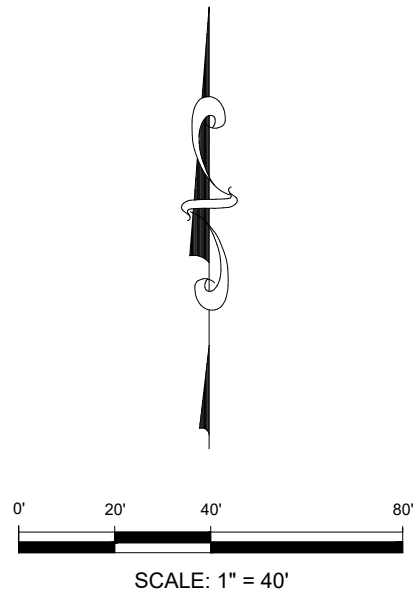
- PROPOSED LEGEND**
- ASPHALT PAVEMENT
 - CONCRETE SURFAING
 - CURB & GUTTER
 - WATER MAIN
 - FIRE HYDRANT
 - GATE VALVE
 - CURB STOP
 - WATER MAIN FITTINGS



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ELLISON SPUR PLAN AND PROFILE

**INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX**
LEAD, SOUTH DAKOTA

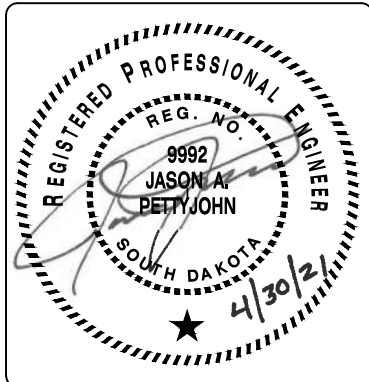
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DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

DATE: 04-30-2021

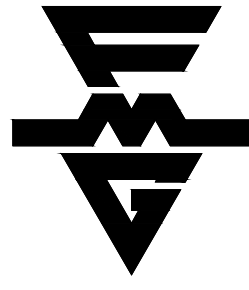
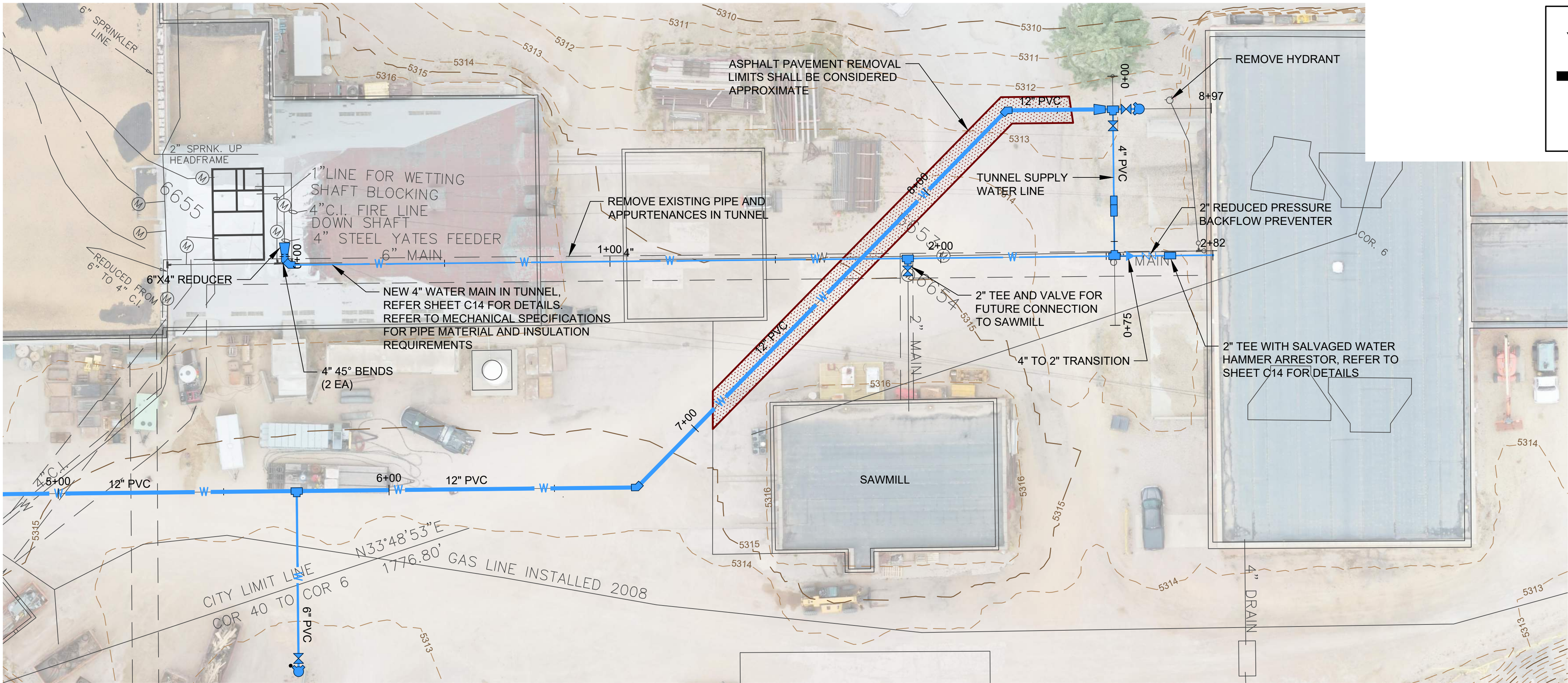


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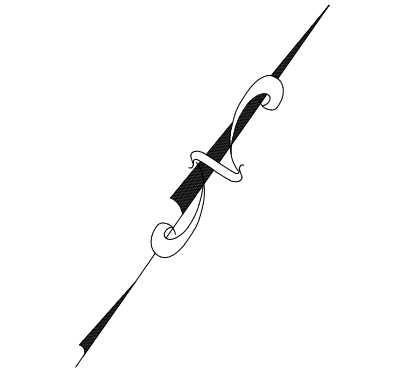
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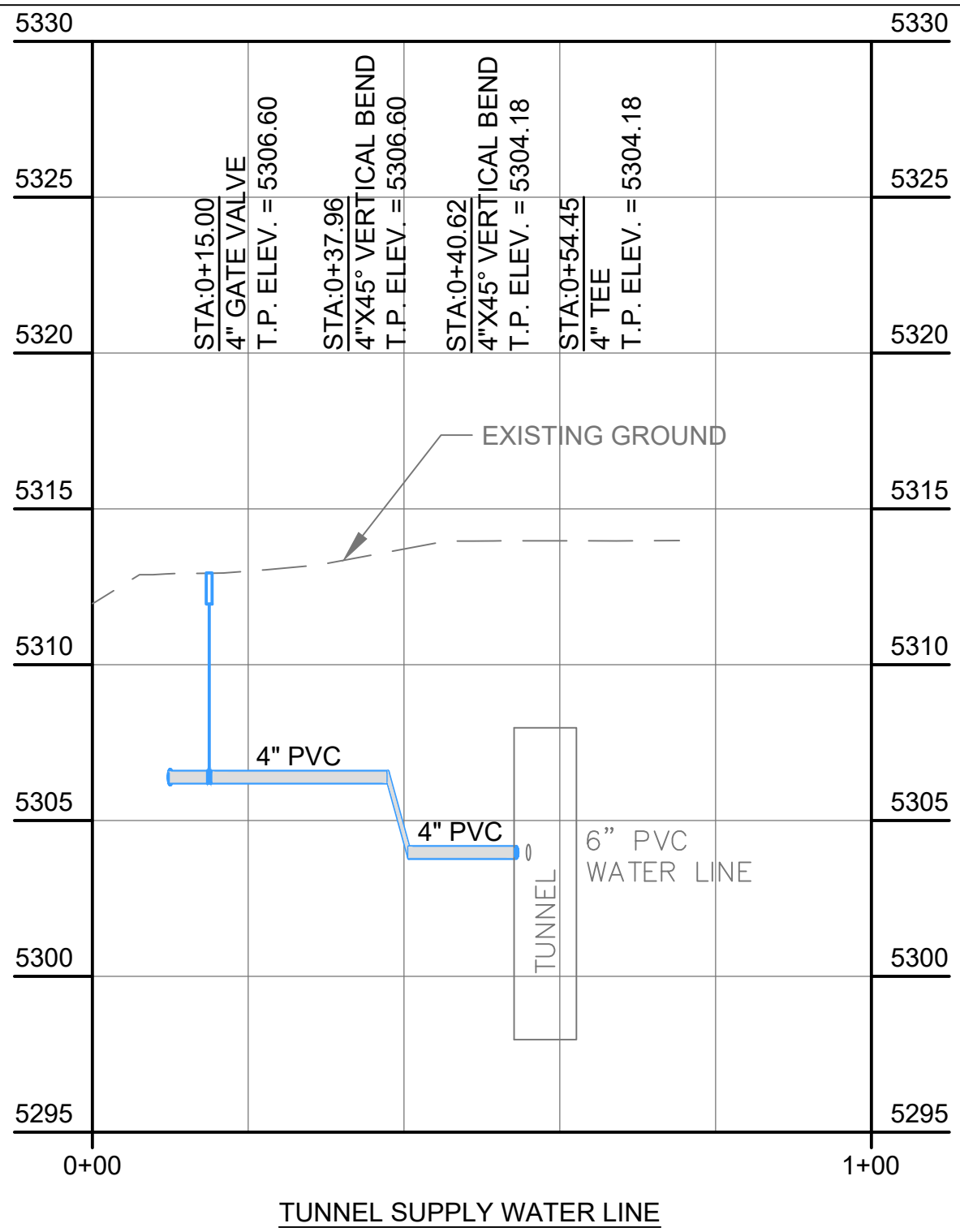
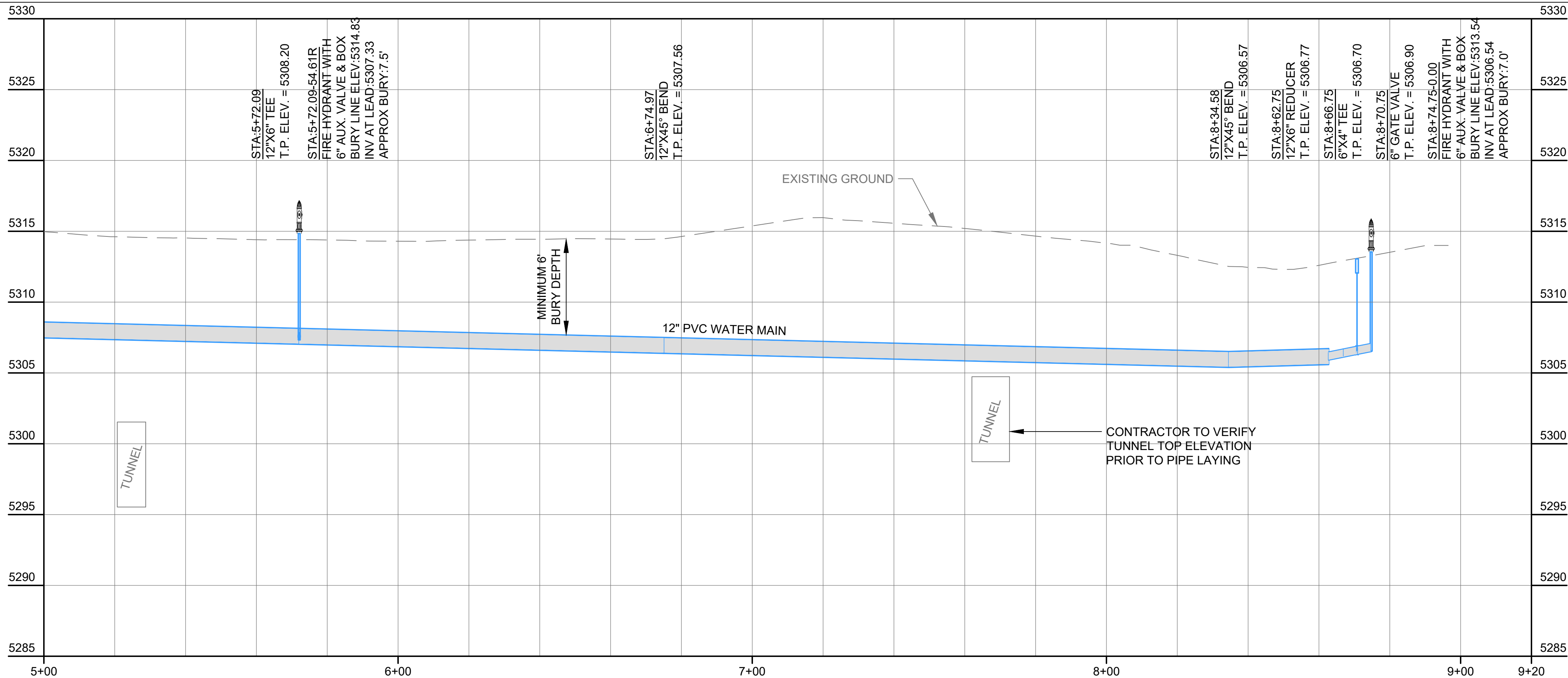
JOB #200909



0' 20' 40' 80'
SCALE: 1" = 40'

PROPOSED LEGEND

- ASPHALT PAVEMENT
- CONCRETE SURFAING
- CURB & GUTTER
- WATER MAIN
- FIRE HYDRANT
- GATE VALVE
- CURB STOP
- WATER MAIN FITTINGS



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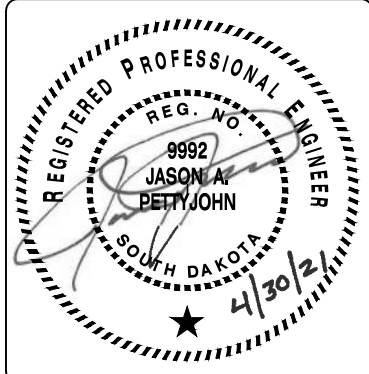
REVISIONS		
#	DESCRIPTION	DATE
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PARKING TO HOIST ROOM PLAN AND PROFILE

**INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX**

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021

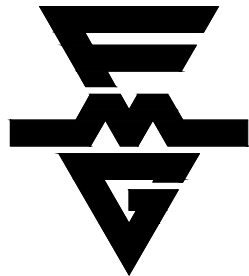


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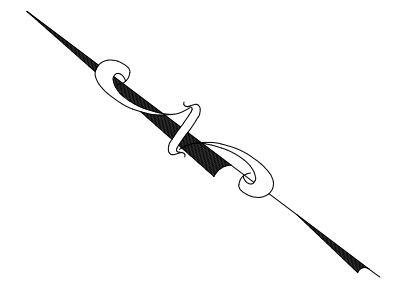
Z:\000909 WPE\Yates Potable & Industrial Water System\CAD\Design Drawings\000909 Plan.dwg - C12 12" Industrial Water Main Abandonment - Friday, April 30, 2021 1:54:12 PM



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JOB #200909



0' 20' 40' 80'
SCALE: 1" = 40'

PROPOSED LEGEND

- ASPHALT PAVEMENT
- CONCRETE SURFAING
- CURB & GUTTER
- WATER MAIN
- FIRE HYDRANT
- GATE VALVE
- CURB STOP
- WATER MAIN FITTINGS

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12" INDUSTRIAL WATER MAIN ABANDONMENT

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#: BR20030

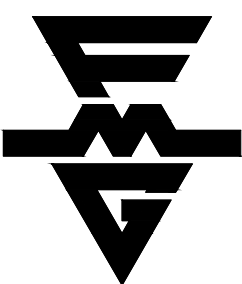
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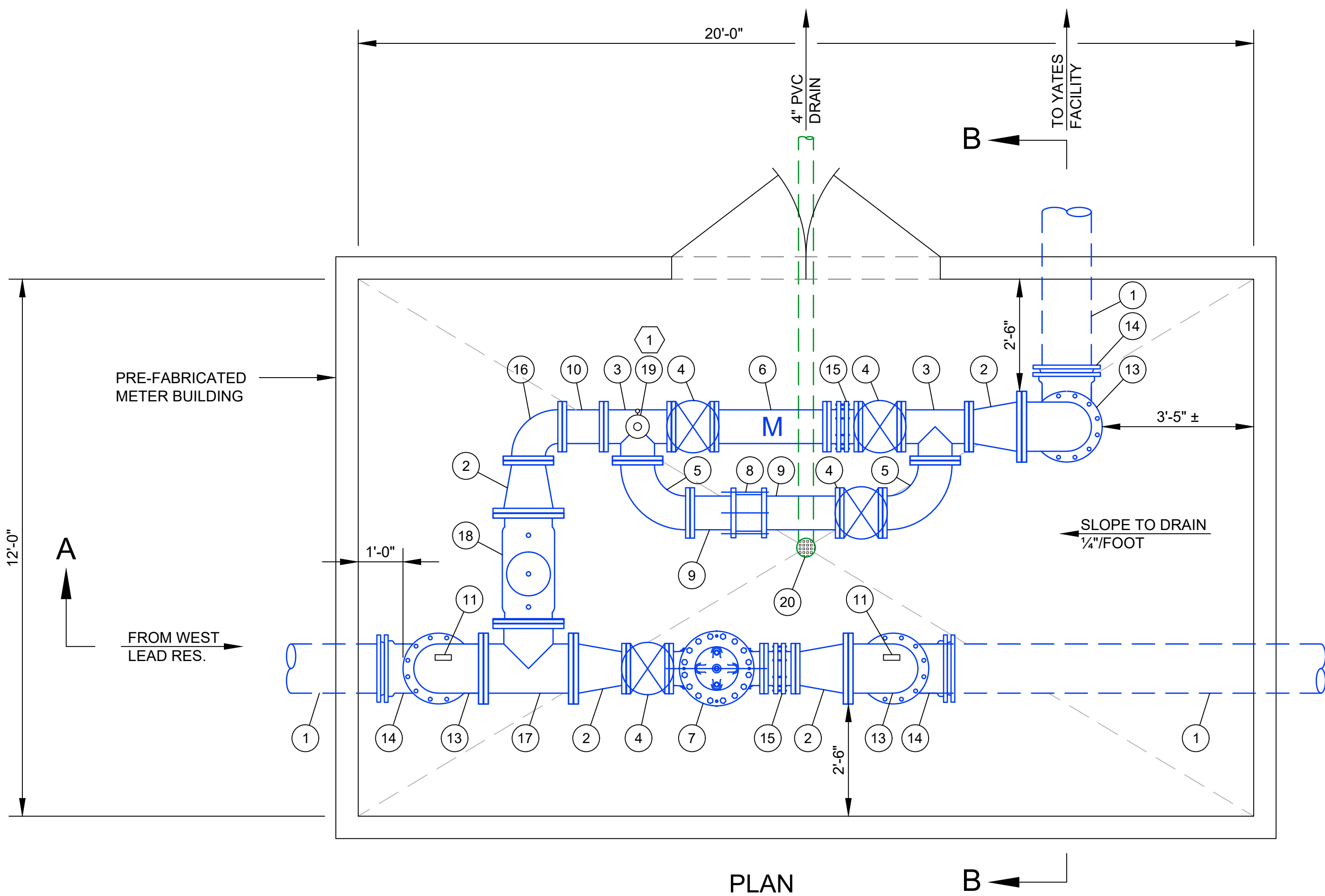
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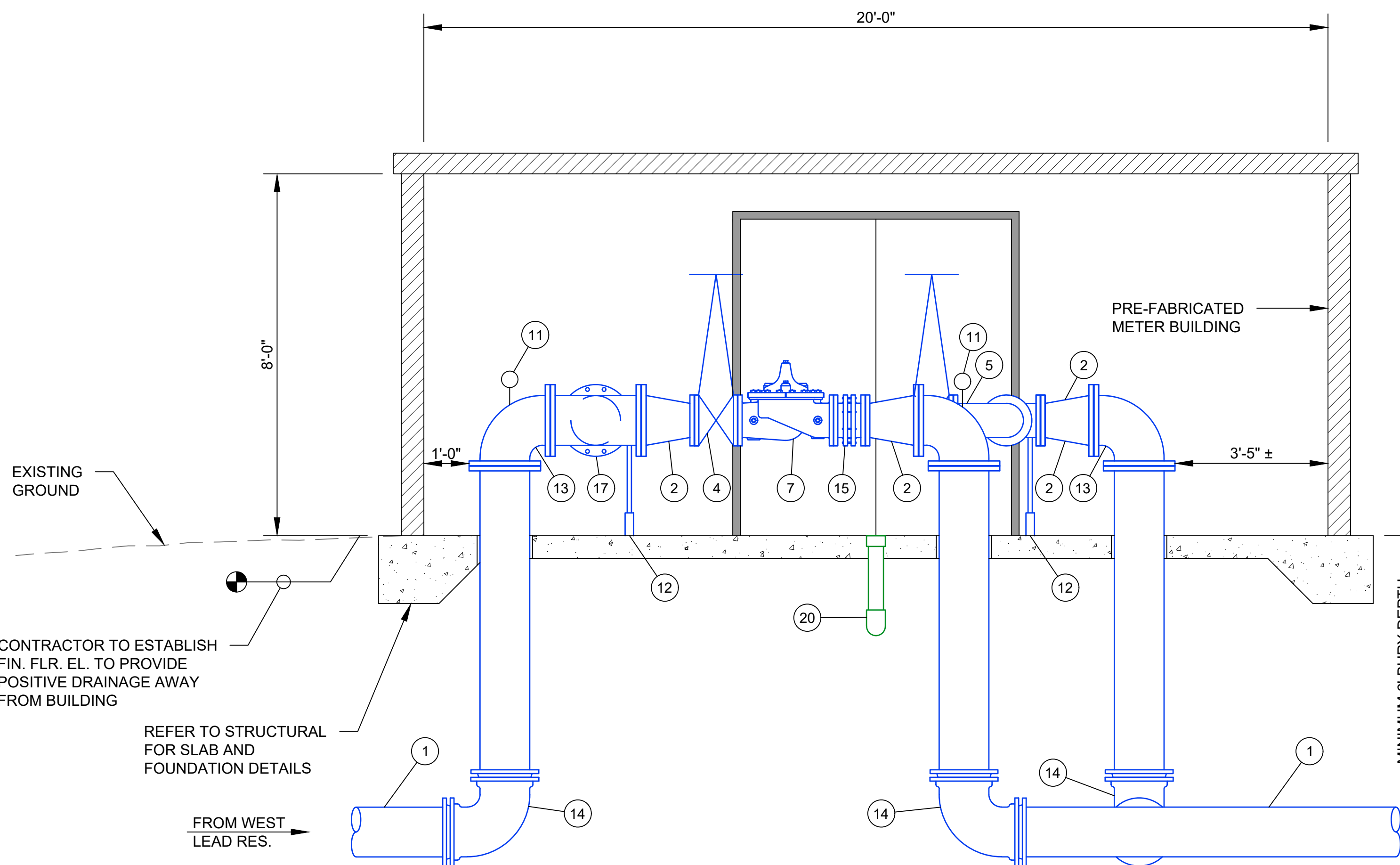
- 1 PIPE OUTLET OF AIR VALVE TOWARDS FLOOR DRAIN WITH PVC PIPE. MAINTAIN 1 FT. AIR GAP. CONNECT AIR VALVE TO PIPE WITH TAPPING SLEEVE OR BY DIRECT TAP. INSTALL 2" BALL VALVE FOR ISOLATION AND MAINTENANCE OF AIR VALVE.

PROVIDE TOP COAT OF EPOXY PAINT OVER ALL PIPE AND APPURTENANCES AFTER INSTALL EXCEPT FOR STAINLESS STEEL, COPPER, OR BRASS

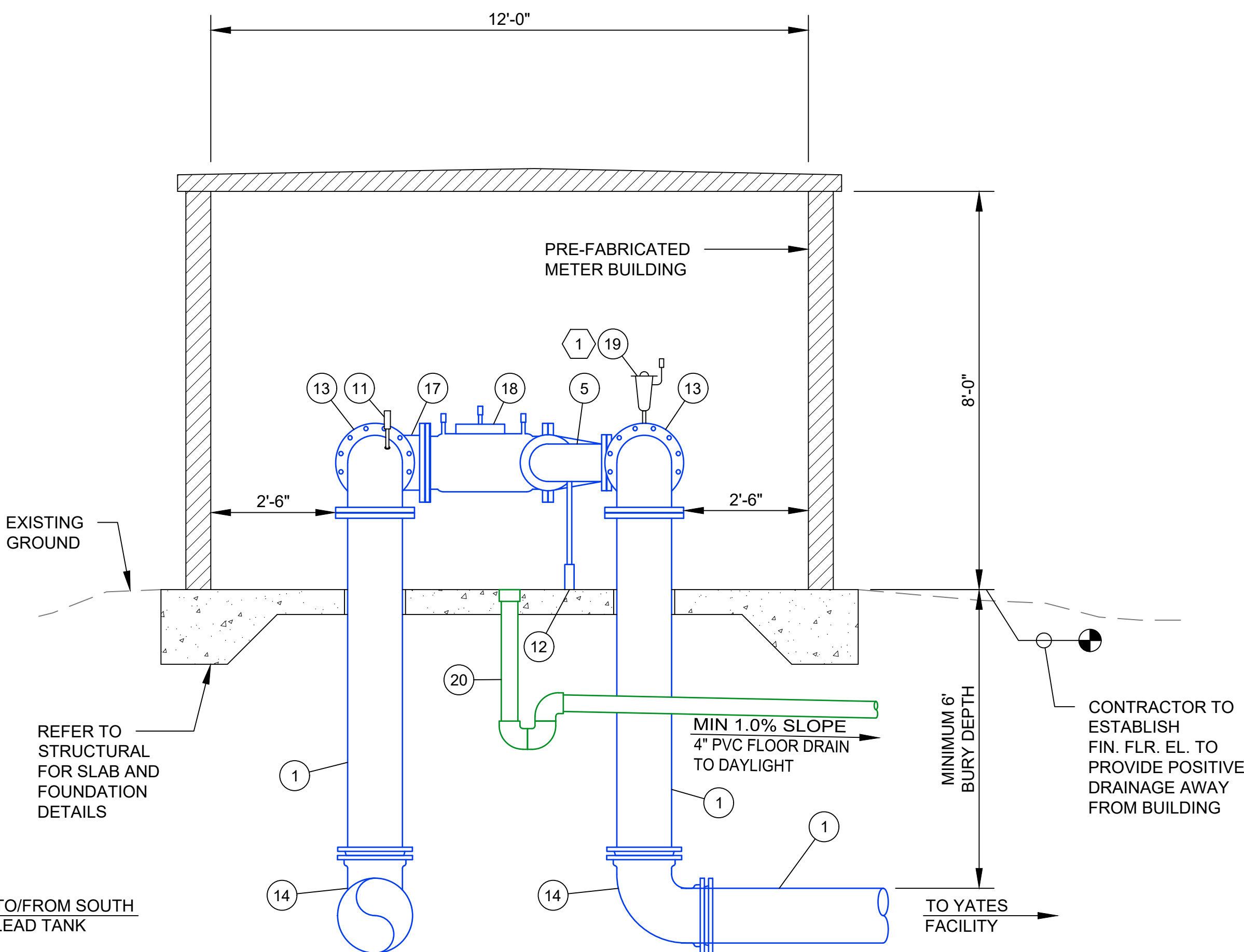
- 1 12" D.I. FLxPE
 - 2 12"x8" REDUCER
 - 3 8" TEE
 - 4 8" GATE VALVE WITH HAND WHEEL
 - 5 8"x90° LONG RADIUS BEND
 - 6 8" METER (SUPPLIED BY OWNER)
 - 7 8" PRESSURE SUSTAINING/REDUCING VALVE
 - 8 8" COUPLER *
 - 9 8" D.I. SPOOL FLxPE
 - 10 8" D.I. SPOOL FLxFL
 - 11 PRESSURE GAUGE
 - 12 PIPE STAND
 - 13 12"x90° FLxFL BEND
 - 14 12"x90° MJxMJ BEND
 - 15 8" DISMANTLING JOINT
 - 16 8"x90° FLxFL BEND
 - 17 12" TEE
 - 18 12" DOUBLE CHECK VALVE ASSEMBLY
 - 19 2" AIR RELEASE VALVE
 - 20 4" FLOOR DRAIN
- * PROVIDE RESTRAINED COUPLER OR OTHER MEANS TO RESTRAIN BETWEEN ADJACENT FLANGES



PLAN



SECTION A-A



SECTION B-B

VALVE PIT SCHEMATIC AND DETAILS

INDUSTRIAL & POTABLE

WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#: BR20030

DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

DATE: 04-30-2021

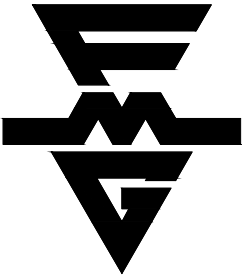
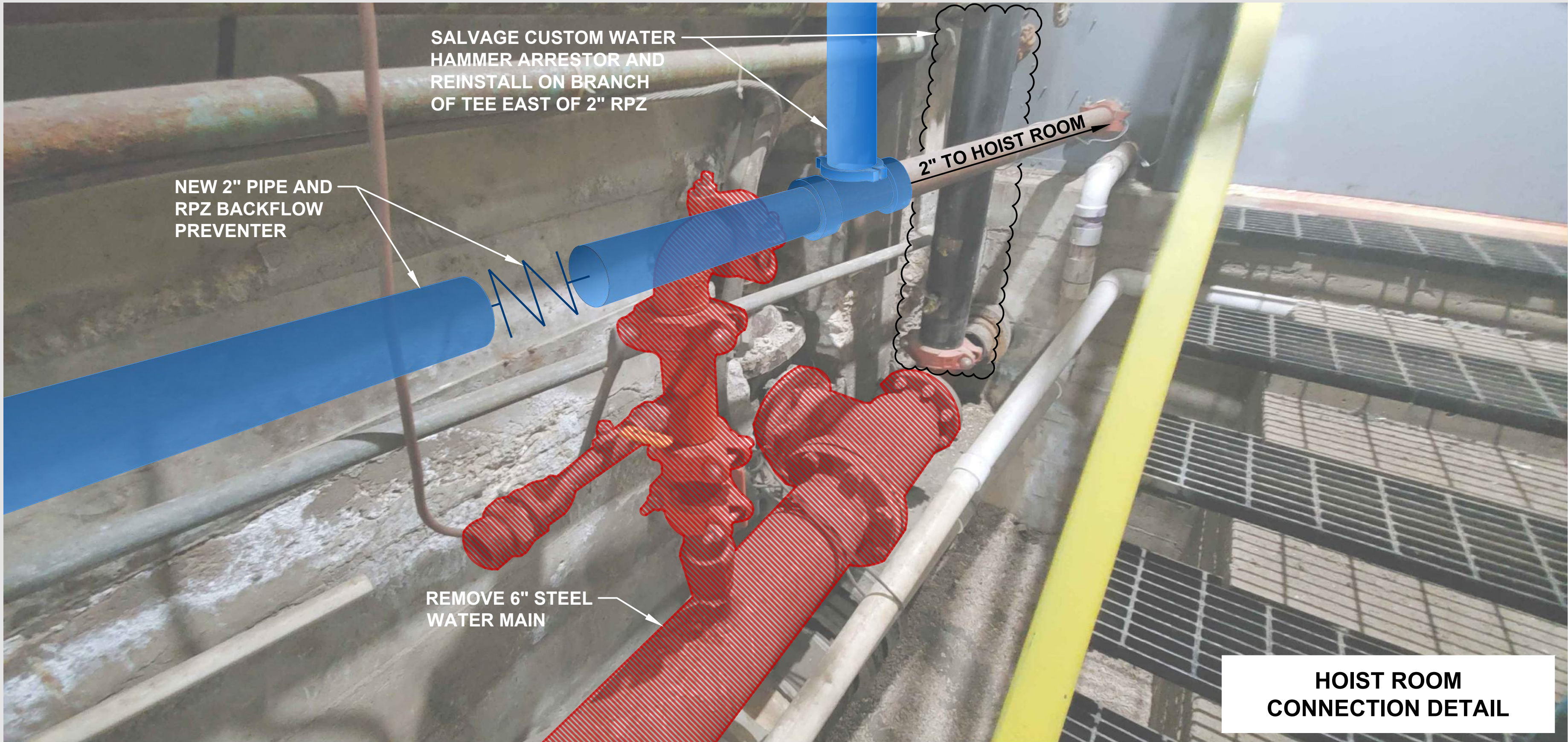
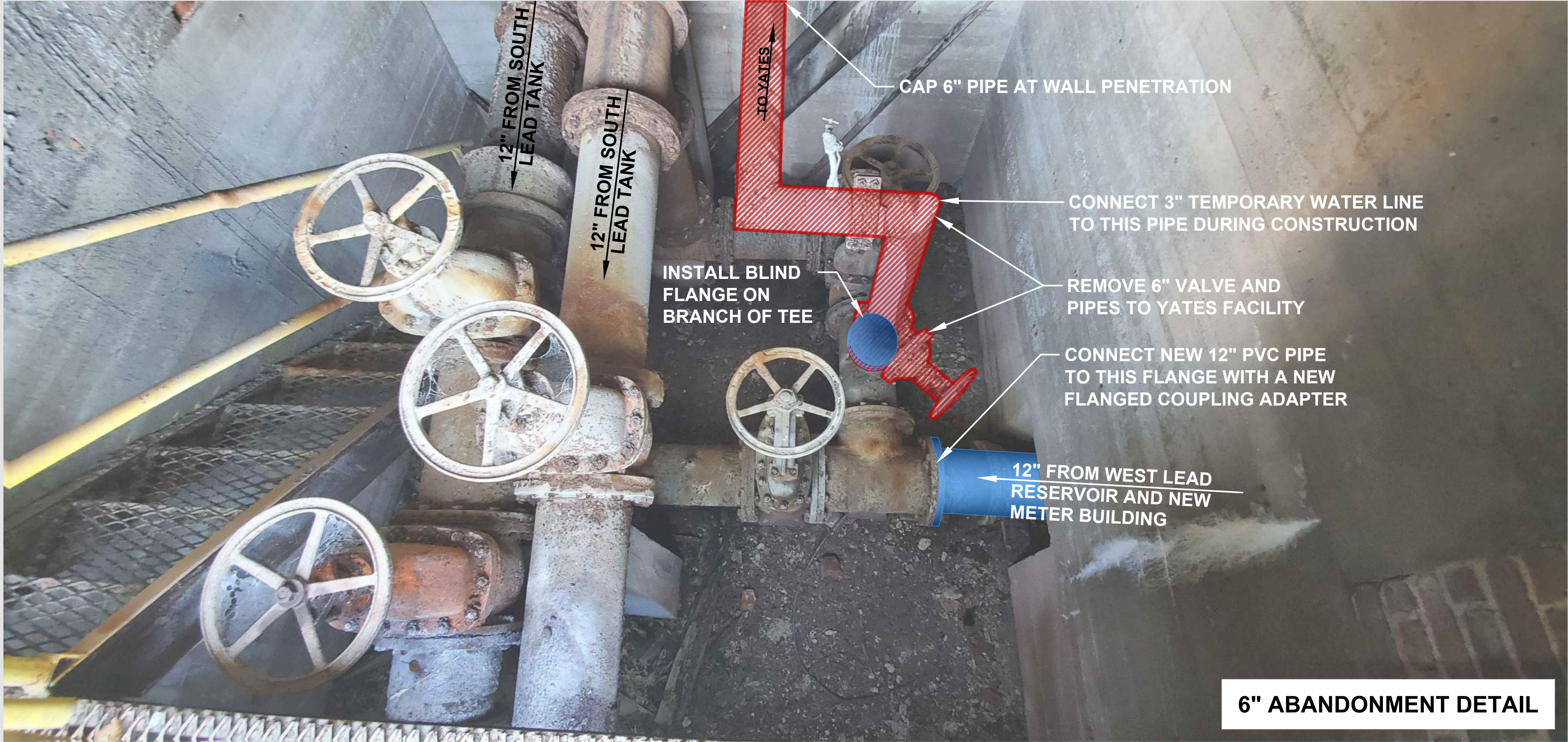


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PIPING DETAILS

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#: BR20030

DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

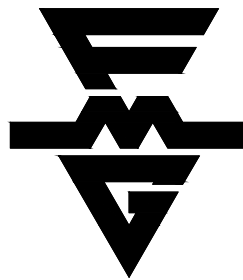
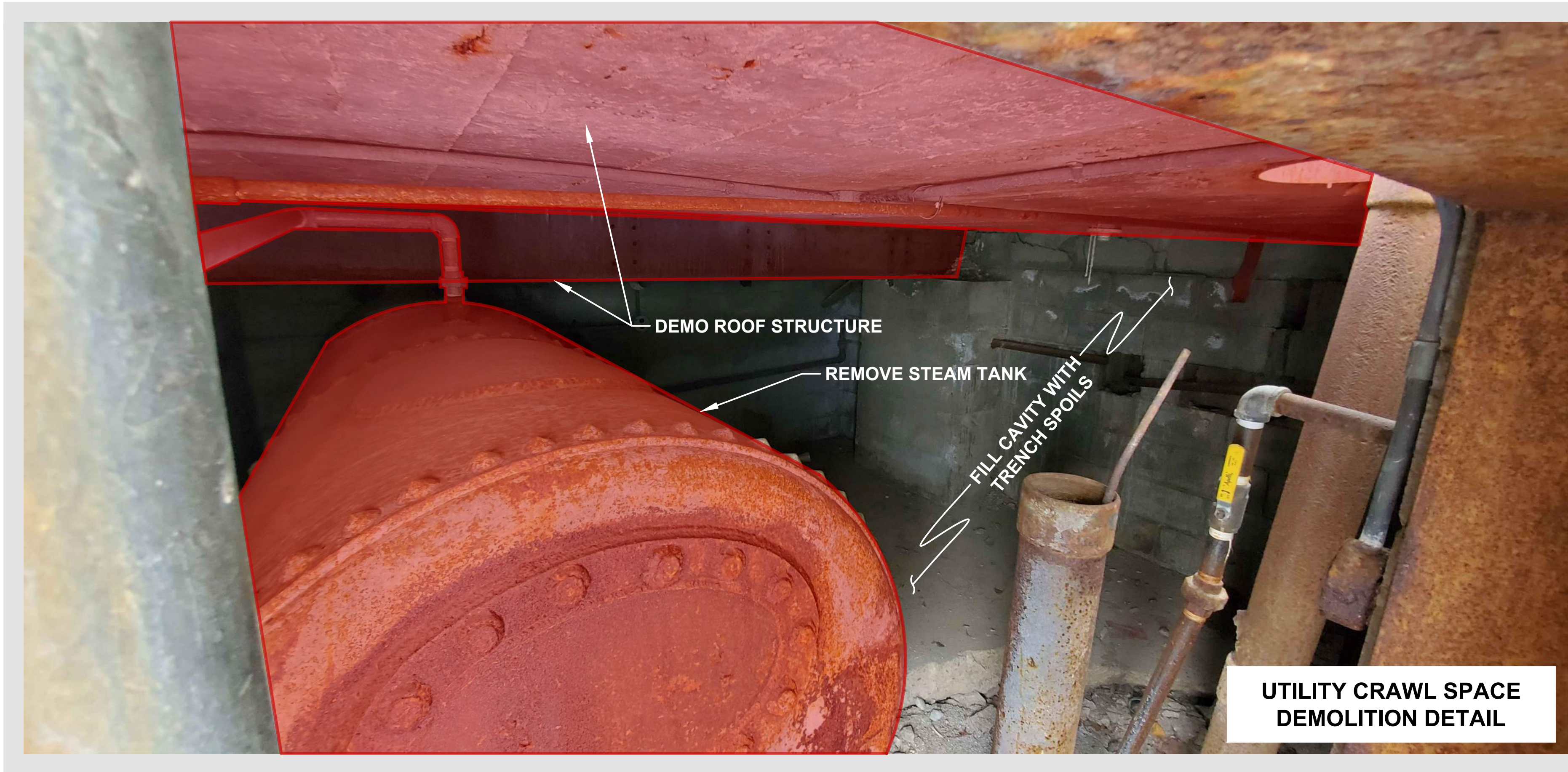
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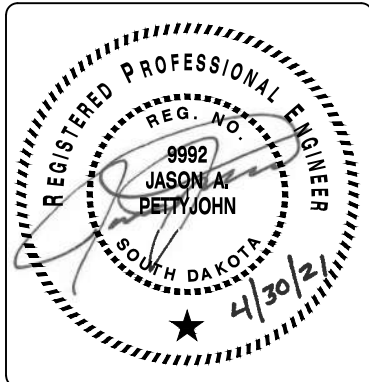
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PIPING DETAILS	INDUSTRIAL & POTABLE WATER TO YATES COMPLEX
	LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021

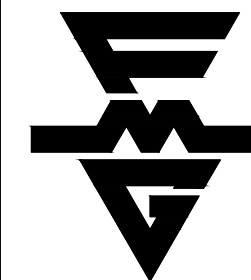
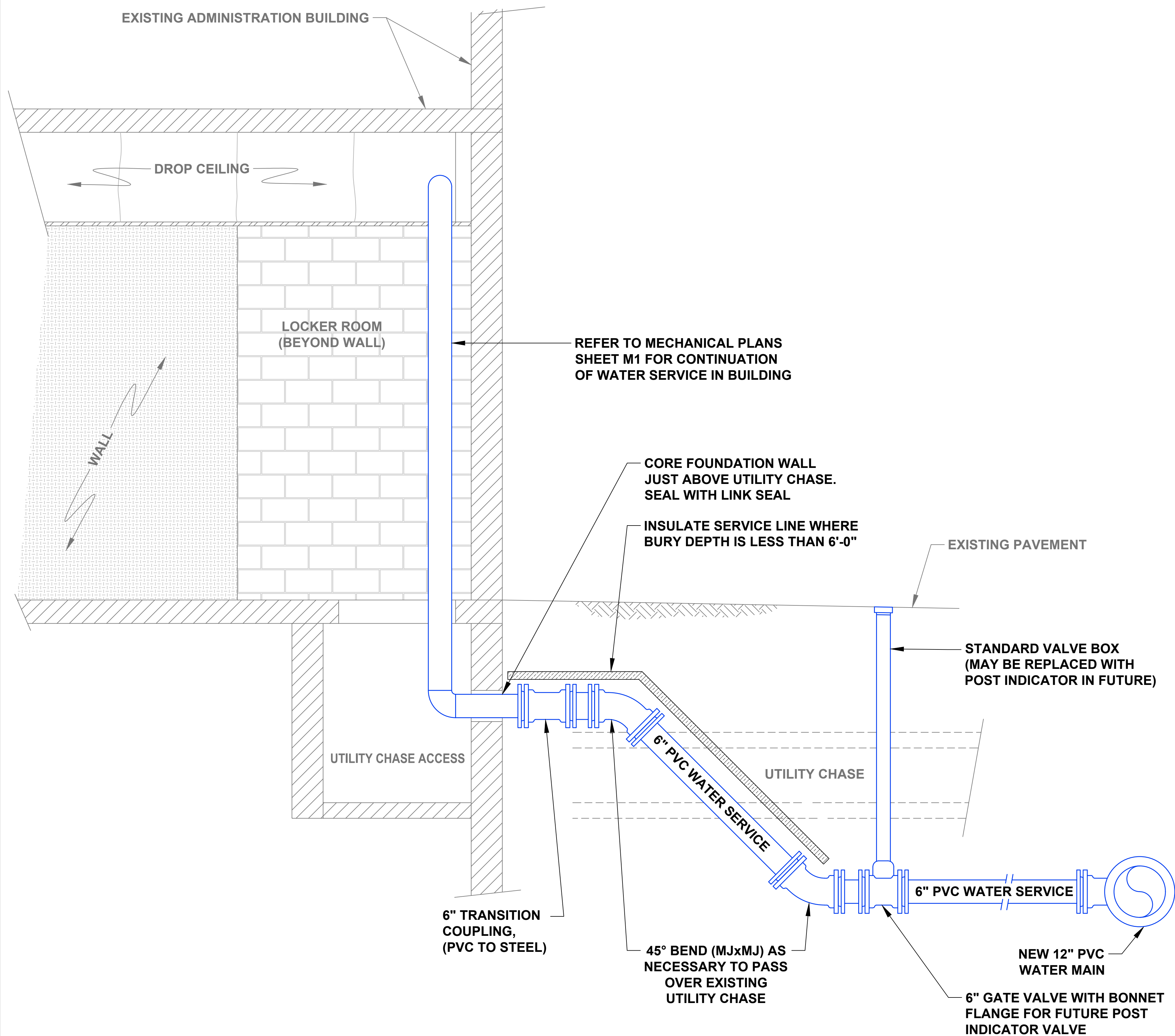


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PIPING DETAILS

**INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX**
LEAD, SOUTH DAKOTA

PROJECT#: BR20030

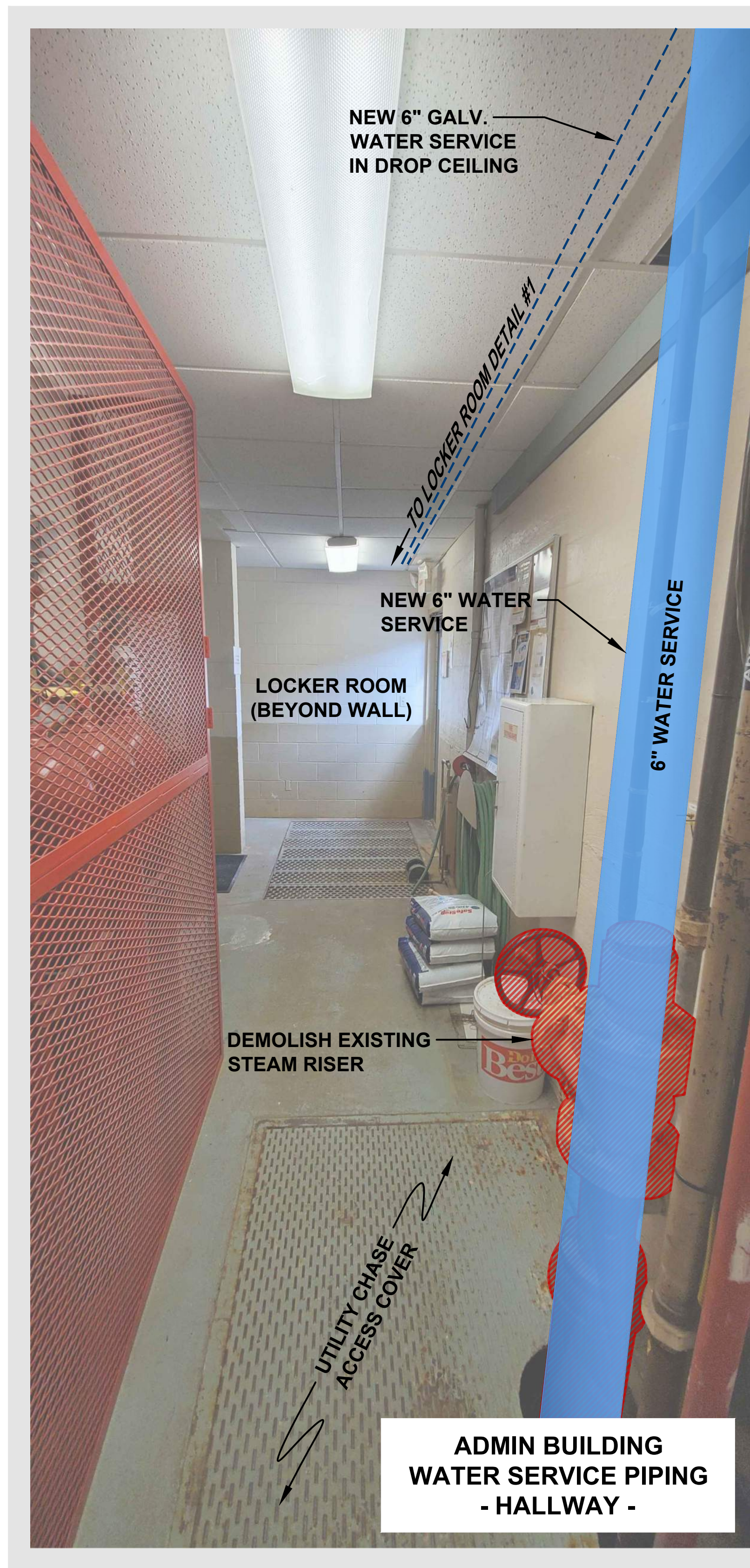
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DRAWN: KJS
APPROVED: JAP
DATE: 04-30-2021



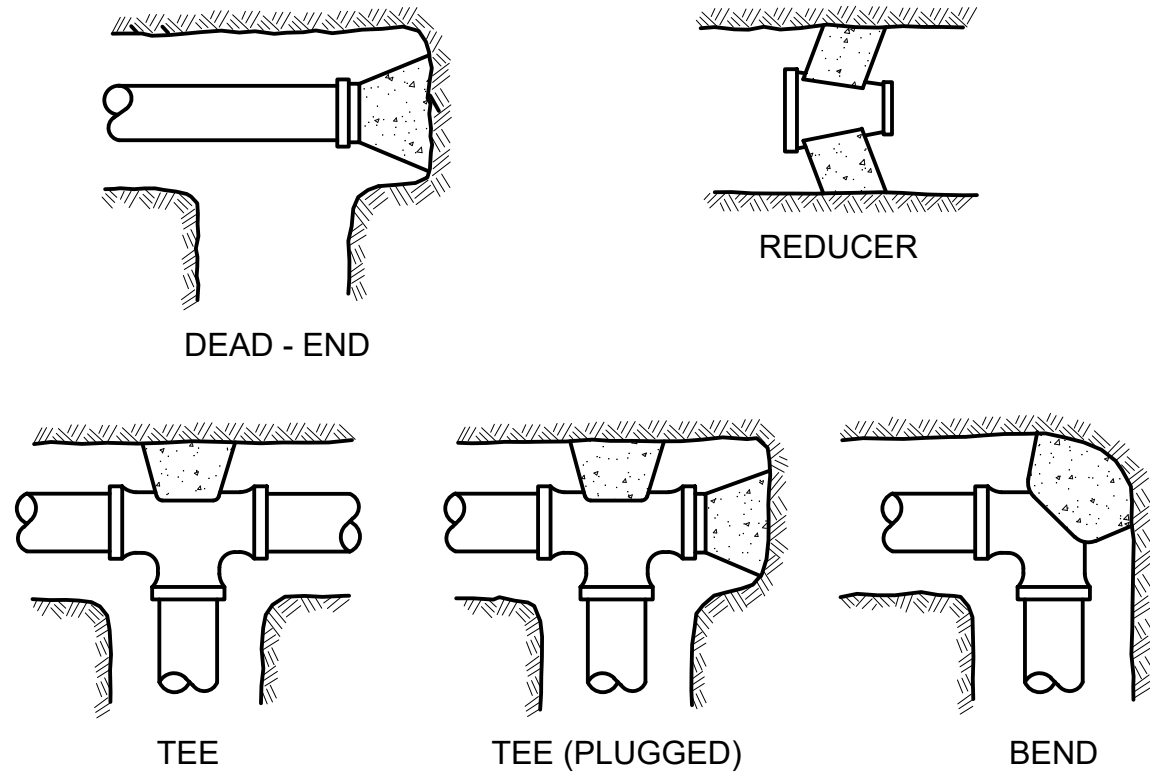
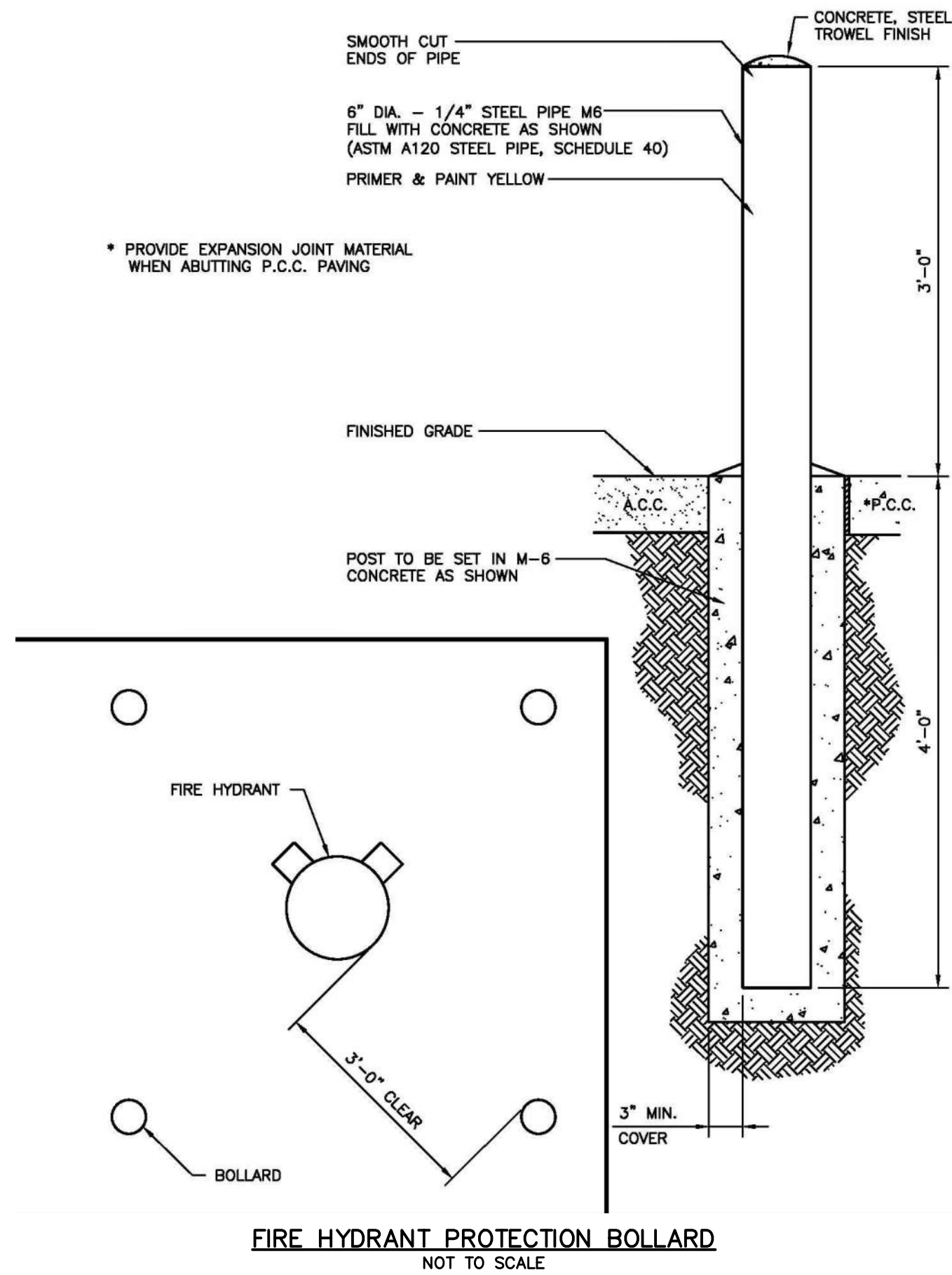
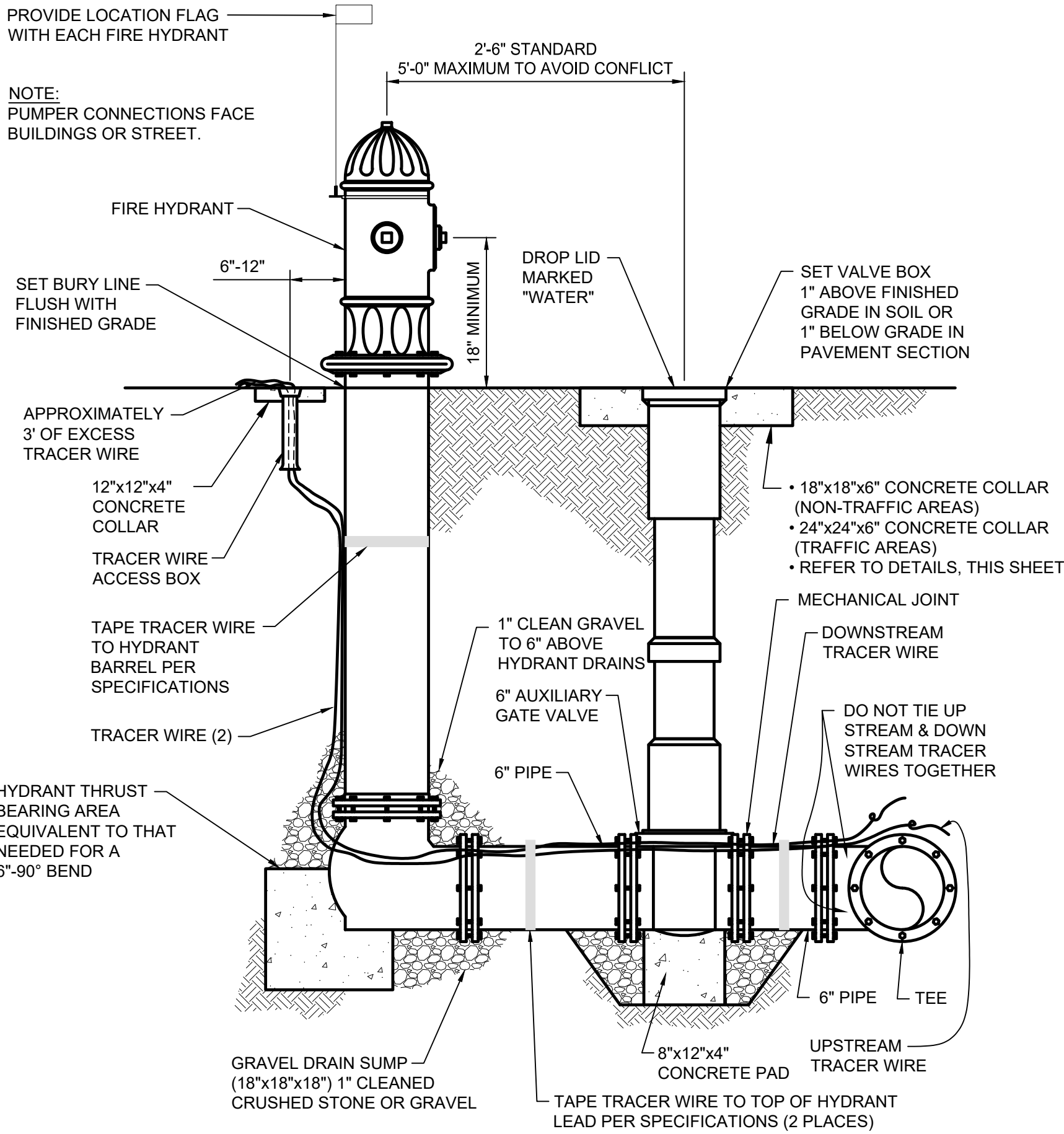
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- Place 8 ml. polyethylene between concrete and fitting.
- All thrust blocking shall be cast-in-place concrete having a minimum 28-day compressive strength of 4000 psi.
- Thrust blocking shall be cast against undisturbed earth. Thrust block orientation shall be such that the center of the fitting corresponds with the center of the thrust block.
- The horizontal dimension of the bearing area shall be between 0.8 and 1.25 times the vertical dimension.

TABLE Pounds of Thrust per fitting at 150 psi Water Pressure

(Minimum bearing area in sq. ft. for concrete thrust block based on 150 psi and soil bearing capacity of 1000 pounds per square foot)

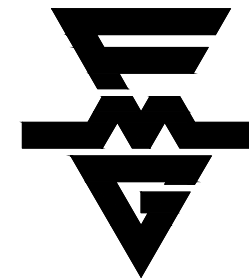
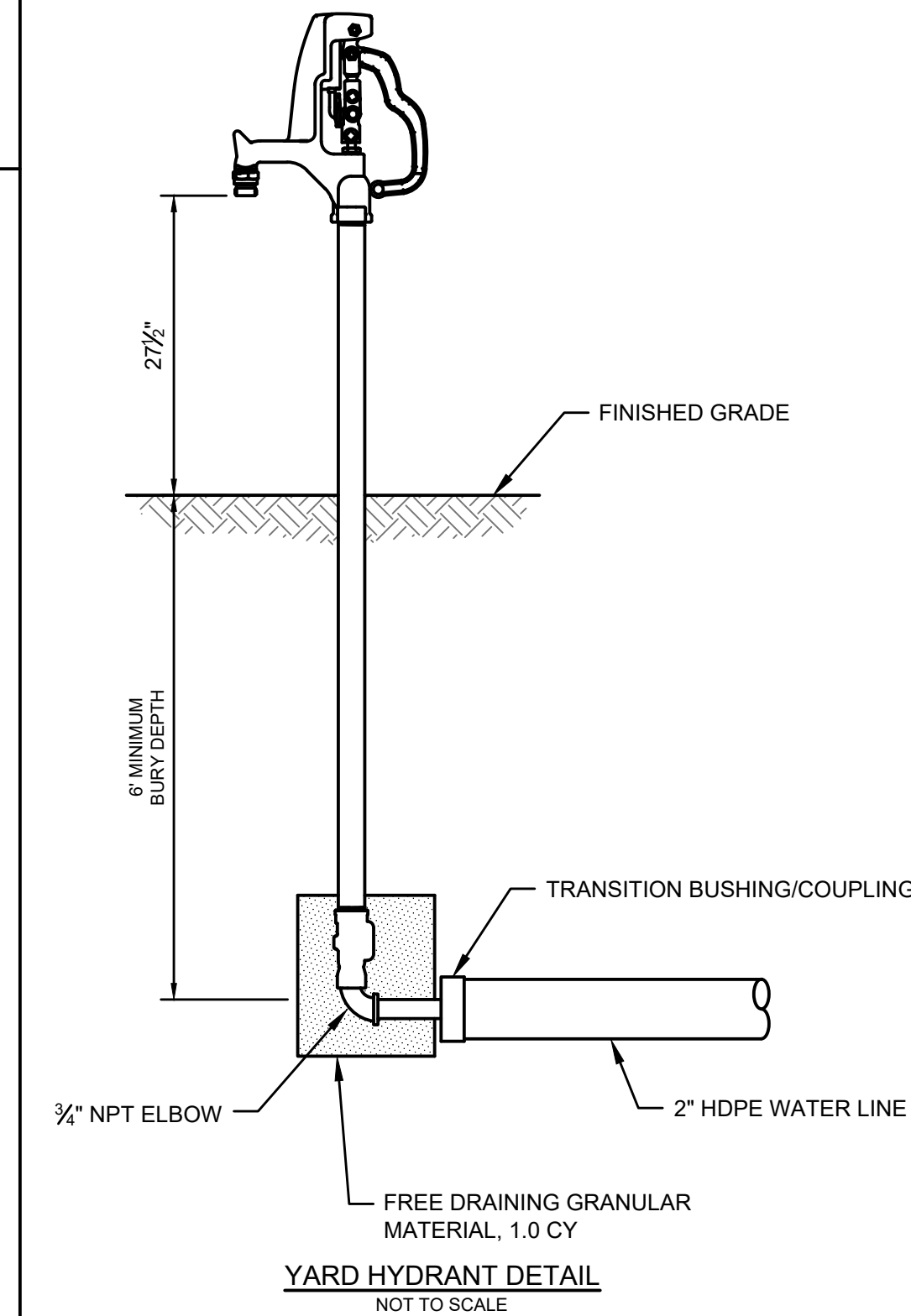
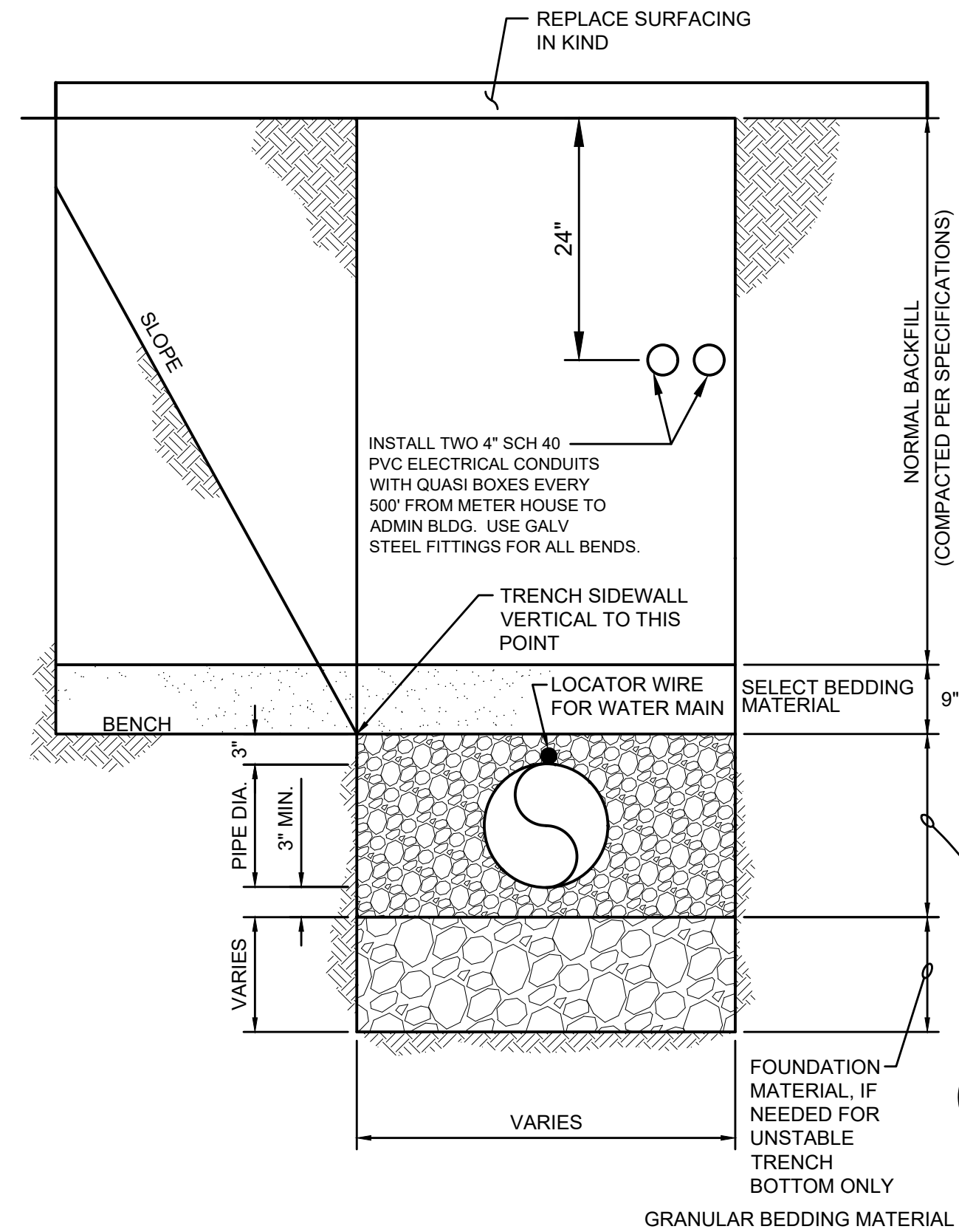
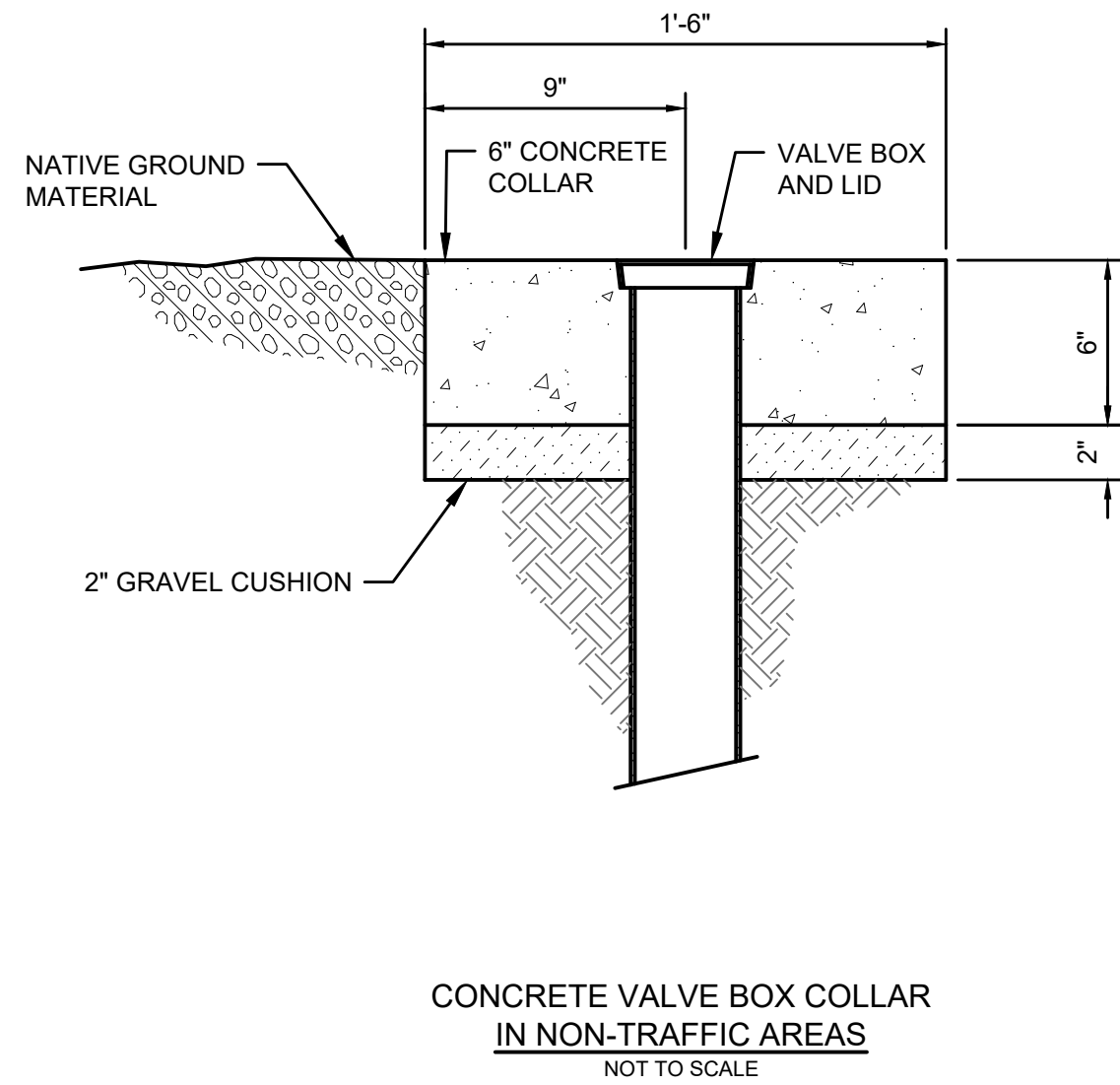
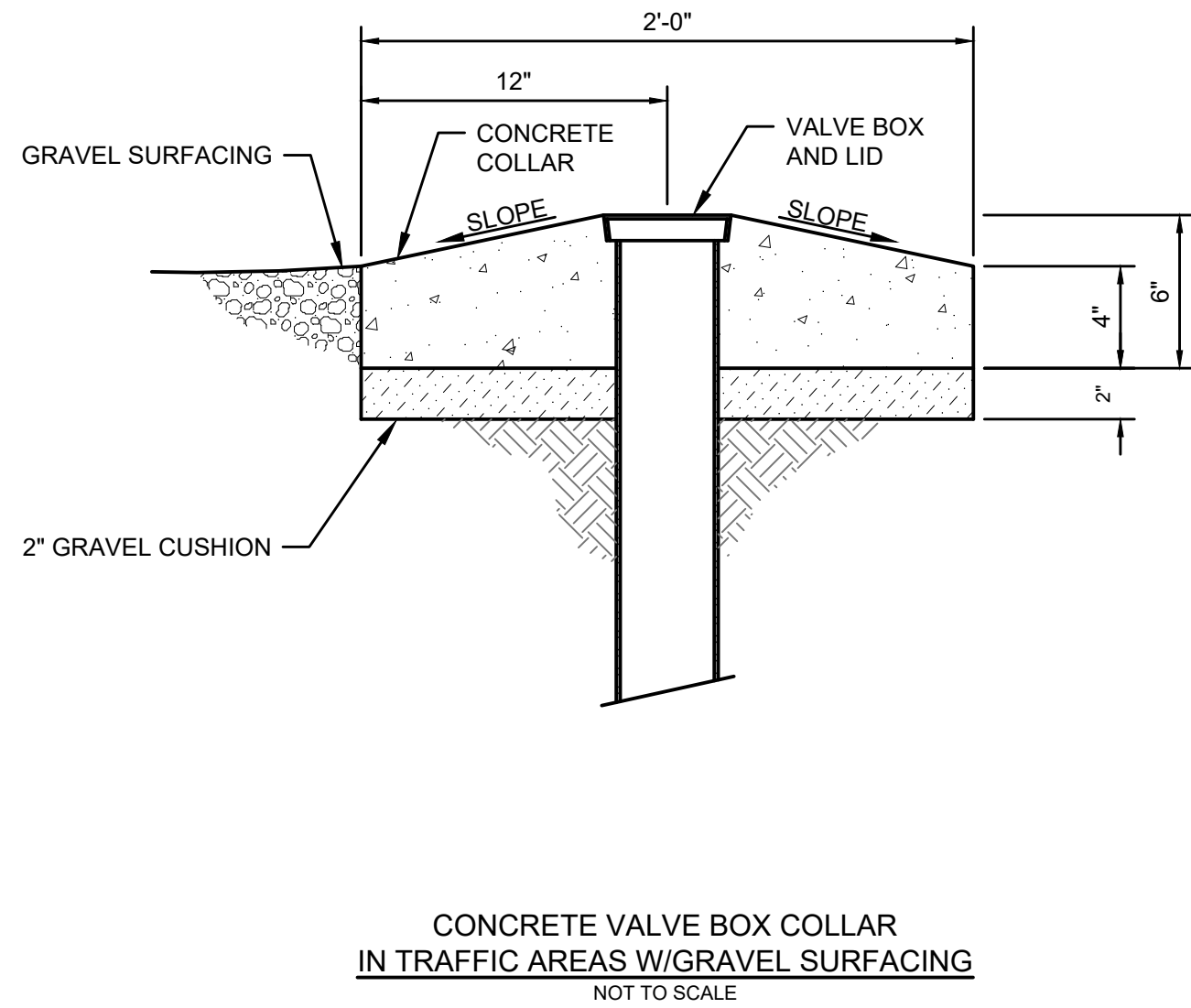
(Minimum Volume (CY) of Concrete per Thrust Block)

Pipe Size	Tee & Dead End	90° Bend	45° Bend	22 1/2° Bend	11 1/4° Bend
4"	2700(2.7)(0.10)	3950(4.0)(0.15)	2090(2.09)(.08)	1050(1.1)(0.4)	530(0.5)(0.2)
6"	5610(5.6)(0.21)	7940(7.9)(0.29)	4290(5.7)(0.16)	2190(2.2)(0.8)	1100(1.1)(0.4)
8"	9650(9.7)(0.36)	13650(13.7)(0.51)	7380(9.8)(0.28)	3760(3.8)(0.14)	1890(1.9)(0.7)
10"	14520(14.5)(0.54)	20530(20.5)(0.76)	11100(14.8)(0.41)	5670(5.7)(0.21)	2850(2.9)(0.11)
12"	20530(20.5)(0.76)	29030(29.0)(1.07)	15710(21.0)(0.58)	8010(8.0)(0.30)	4030(4.0)(0.15)
14"	27580(27.6)(1.02)	39000(39.0)(1.44)	21100(28.1)(0.78)	10770(10.8)(0.40)	5400(5.4)(0.20)
16"	35670(35.7)(1.32)	50440(50.4)(1.87)	27300(36.4)(1.01)	13920(13.9)(0.52)	6990(7.0)(0.26)
20"	54970(55.0)(2.03)	77740(77.7)(2.88)	42080(56.1)(1.56)	21450(21.5)(0.79)	10780(10.8)(0.40)

ADJUST SIZE OF THRUST BLOCK FOR DIFFERENT PRESSURES OR SOIL BEARING CAPACITY.

Concrete Thrust Restriants and Joint Restraining devices shall be per Sections 8.3.E.10 and 8.3.E.11 of the City of Rapid City Standard Specifications for Public Works Construction, 2007 Edition.

THRUST BLOCK DETAILS (150psi)
NOT TO SCALE



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PROJECT DETAILS

INDUSTRIAL & POTABLE

WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JAP
DRAWN:	KJS
APPROVED:	JAP
DATE:	04-30-2021

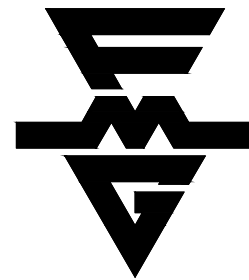


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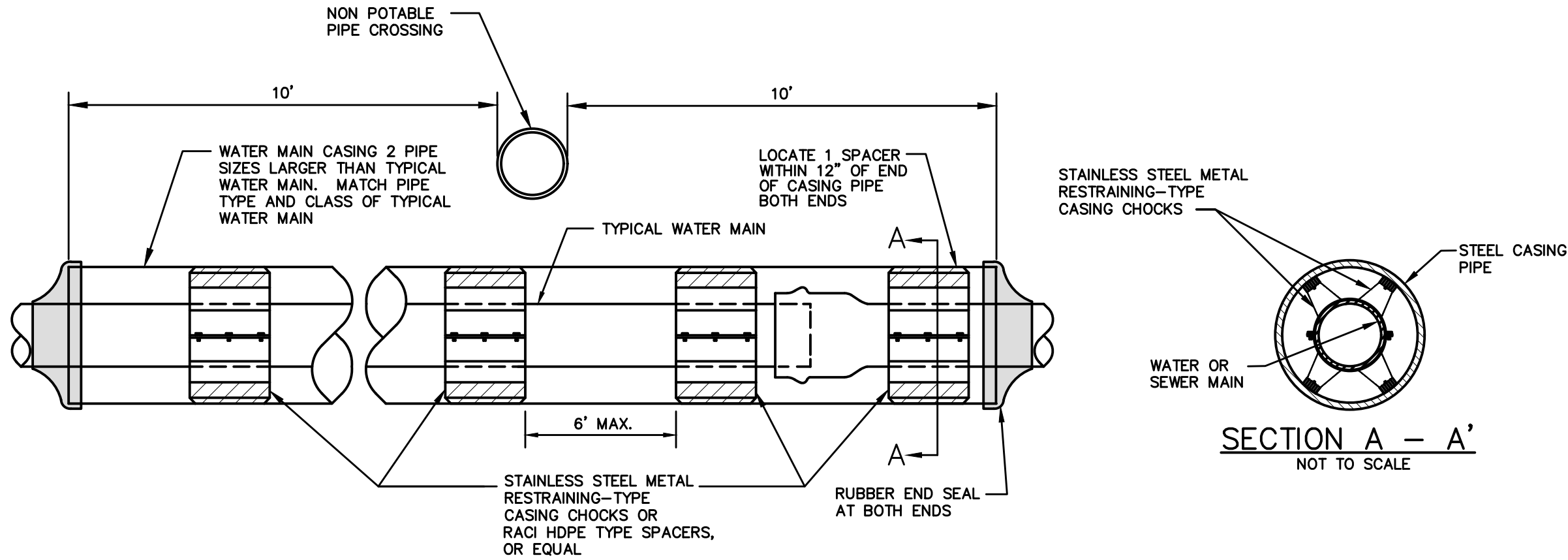
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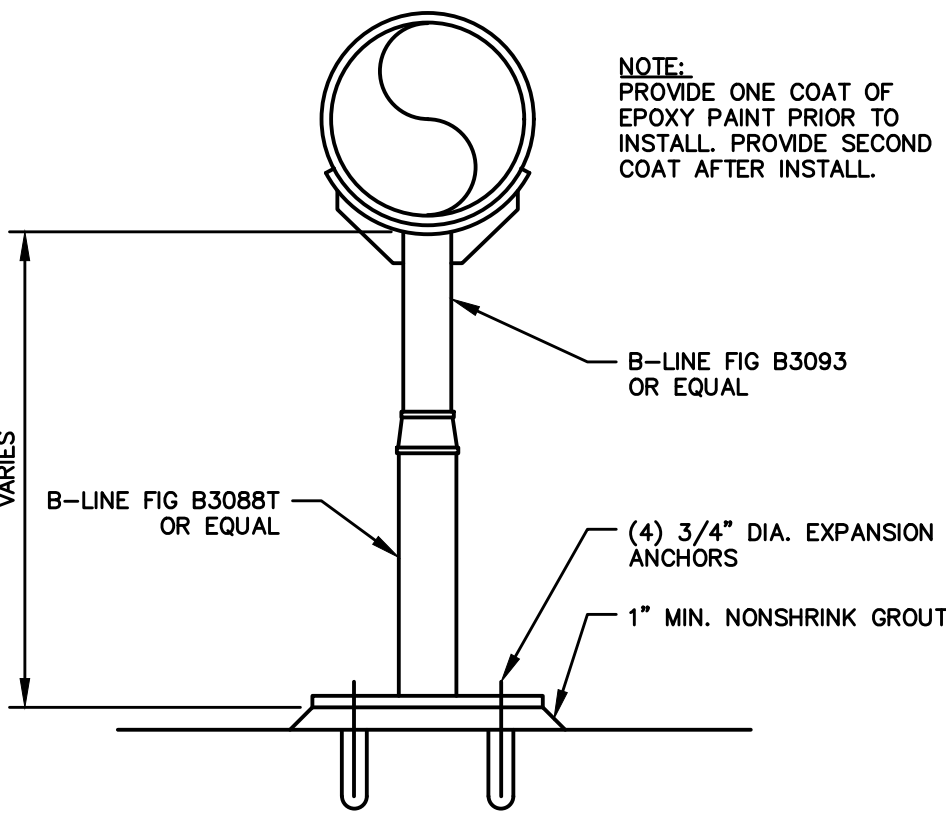
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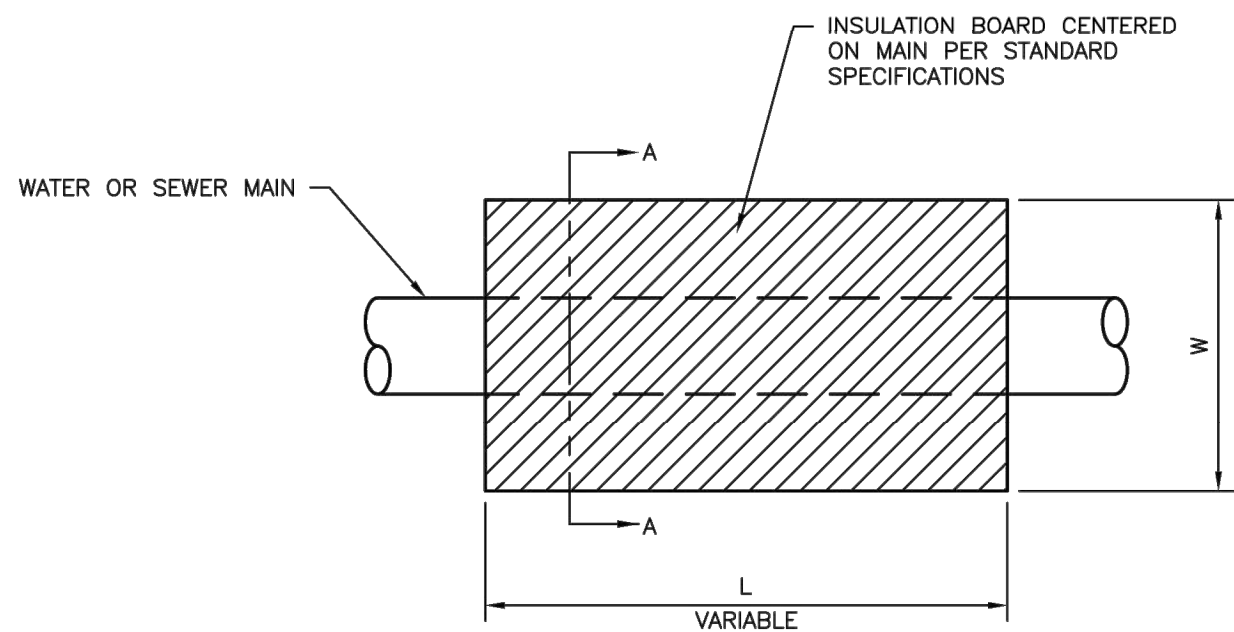
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CASING PIPE – WATER MAIN
NOT TO SCALE



ADJUSTABLE PIPE SUPPORT
NOT TO SCALE

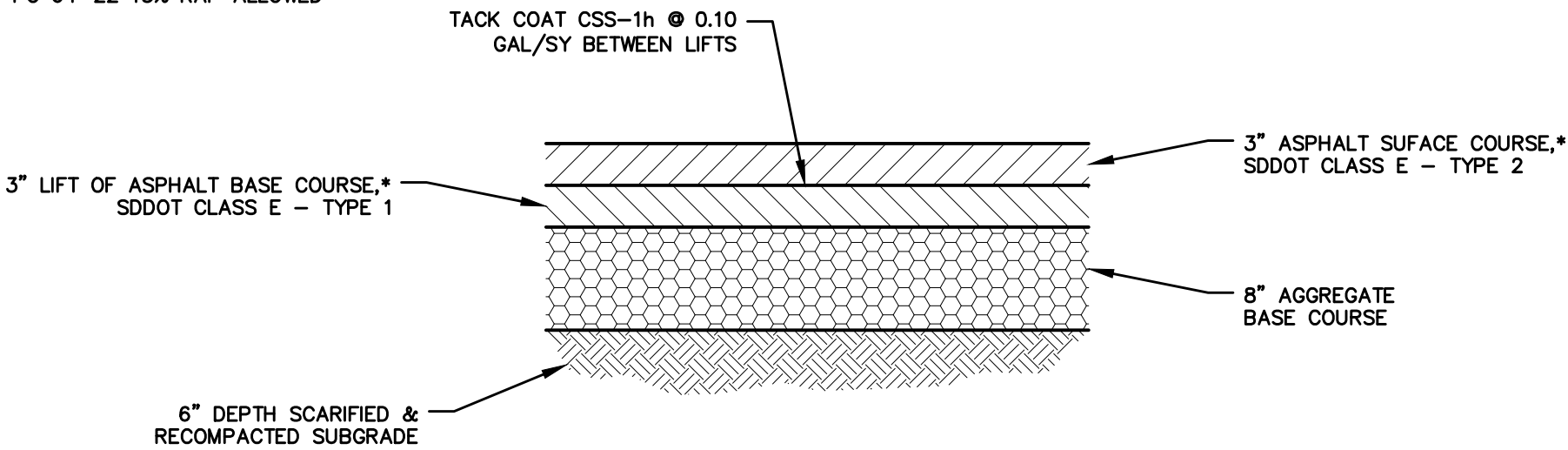


WATER		SEWER	
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4	6	3	6
5	4	3.5	4

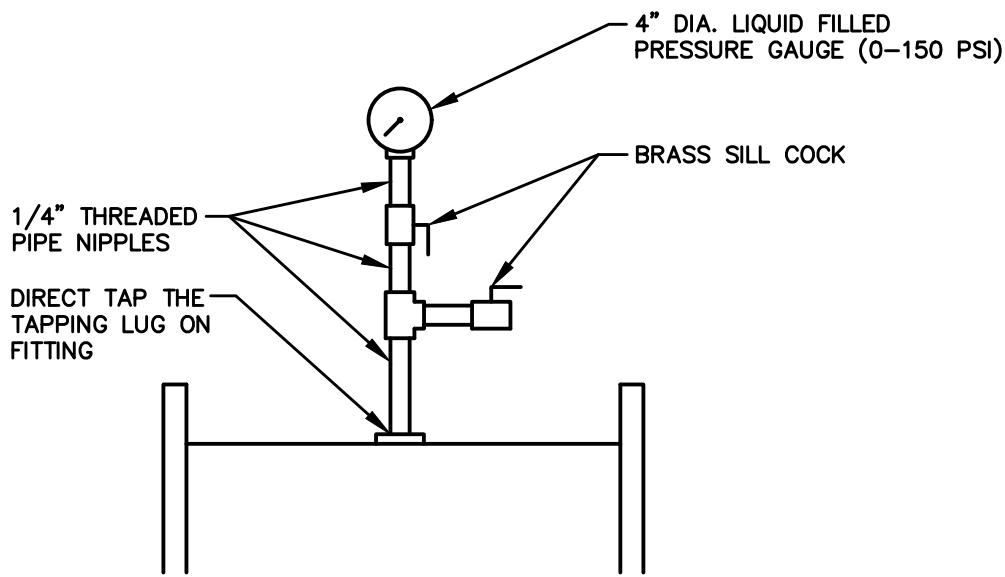
PIPE INSULATION DETAIL
NOT TO SCALE

* THE USE OF INSULATION
REQUIRES PRIOR APPROVAL BY
THE ENGINEER.

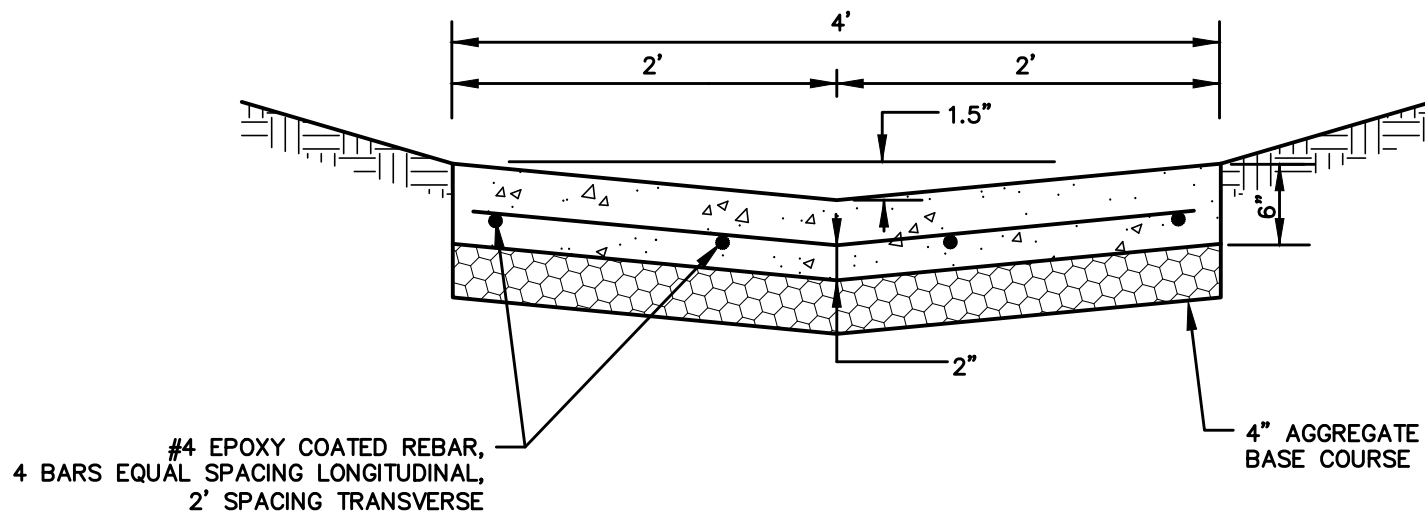
NOTE:
PG 64-22 15% RAP ALLOWED



ASPHALT PAVEMENT DETAIL
NOT TO SCALE



ANALOG PRESSURE GAUGE
NOT TO SCALE



CONCRETE DRAIN PAN DETAIL
NOT TO SCALE

PROJECT DETAILS

**INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX**
LEAD, SOUTH DAKOTA

PROJECT#: BR20030

DESIGNED: JAP

DRAWN: KJS

APPROVED: JAP

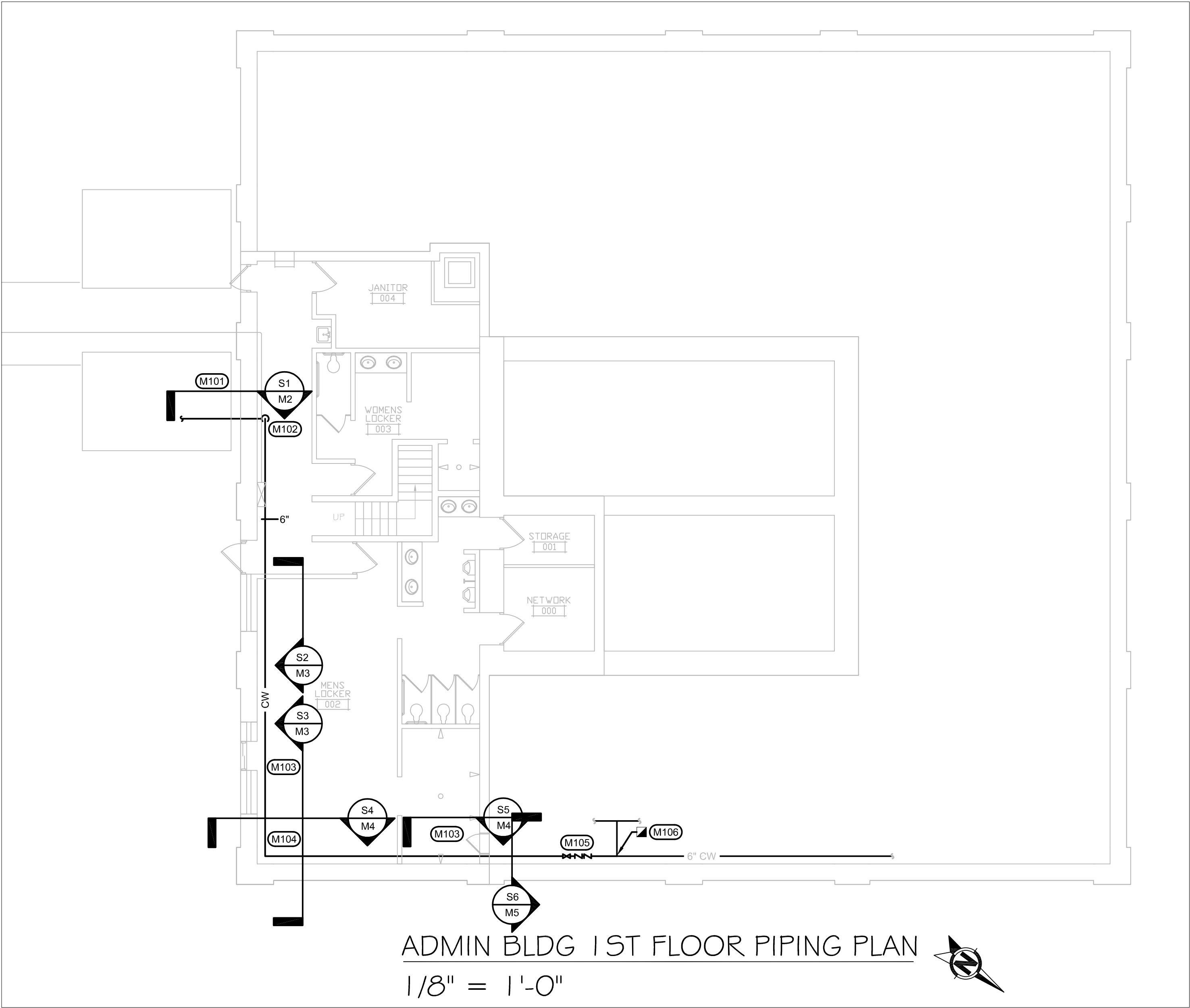
DATE: 04-30-2021



SHEET:

C18

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- GENERAL MECHANICAL NOTES:
- A. COORDINATE LOCATIONS OF PIPING WITH OTHER TRADES AND STRUCTURE.
 - B. ALL PIPING INSULATION SERVING DOMESTIC COLD WATER PIPING SHALL BE INSTALLED WITH UNBROKEN VAPOR BARRIERS AS PER SPECIFICATIONS. CONTRACTOR TO USE METAL SADDLES AND STRAPS ON EXTERIOR OF INSULATION FOR SUPPORT OF PIPING AT HANGERS, UNISTRUT, ETC.
 - C. ISOLATE ALL COPPER PIPE FROM BEARING ON FERROUS HANGERS, ETC. WITH ELECTRICALLY INSULATING MATERIALS AS SPECIFIED. USE DIELECTRIC UNIONS IN CONNECTION OF ALL COPPER PIPING TO FERROUS PIPING AS SPECIFIED.
 - D. COORDINATE PHASING AND REMOVAL OF EXISTING PIPING, AND EQUIPMENT WITH OWNER.
 - E. REMOVE EXISTING PIPING, ETC. WHERE DASHED CAP PIPING DURING CONSTRUCTION. THIS CONTRACTOR TO ASSIST IN REMOVAL AND REINSTALLATION OF PIPING THAT RESTRICTS THE WORK OF OTHER TRADES.
 - F. THE MECHANICAL CONTRACTOR IS TO EXTEND, MODIFY AND/OR RELOCATE ANY PIPING, THAT CONTINUES TO SERVE THE SPACE, AS NEEDED SO THAT ALL NEW ARCHITECTURAL, MECHANICAL AND ELECTRICAL WORK SHOWN IN THE REMODEL PLANS CAN BE INSTALLED.
- SPECIFIC MECHANICAL NOTES: #
- M101. WATER PIPE SHALL TRANSITION FROM PVC SITE PIPE TO METAL WATER PIPING BEFORE ENTERING BUILDING. REFER TO SITE CIVIL DRAWINGS FOR PIPE CONTINUATION AND PIPING MATERIAL TYPES.
 - M102. DEMOLISH EXISTING STEAM RISER.
 - M103. REMOVE EXISTING CONDENSATE PIPING AND HANGERS IN THIS AREA. REFER TO MECHANICAL SHEETS.
 - M104. PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE, ABOVE DROP CEILING GRID.
 - M105. PROVIDE LINE SIZE ISOLATION VALVE AND DOUBLE CHECK BACKFLOW PREVENTER.
 - M106. CAP EXISTING WATER LINE.

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REVISIONS		
#	DESCRIPTION	DATE
1		
2		
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1ST FLOOR PIPING PLAN

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

REGISTERED PROFESSIONAL ENGINEER

REG. NO. 10962

JOHN H. HUNTER

SOUTH DAKOTA

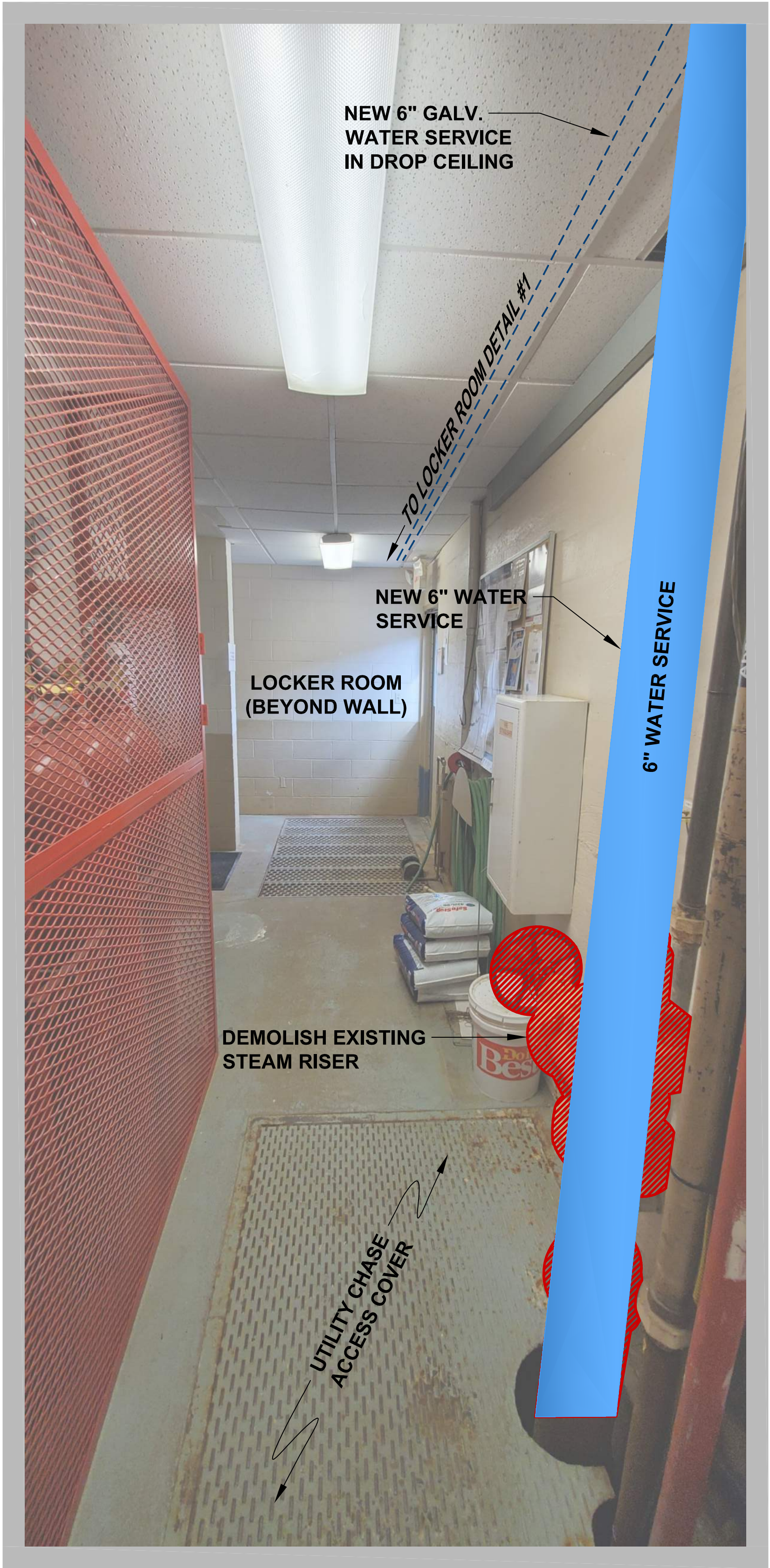
4/30/21

SHEET:

M1

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① ADMIN BLDG CORRIDOR NORTHEAST PHOTO
NO SCALE

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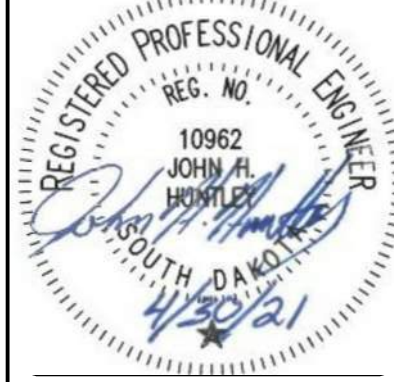
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ADMIN BLDG PIPING PHOTO SECTION

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

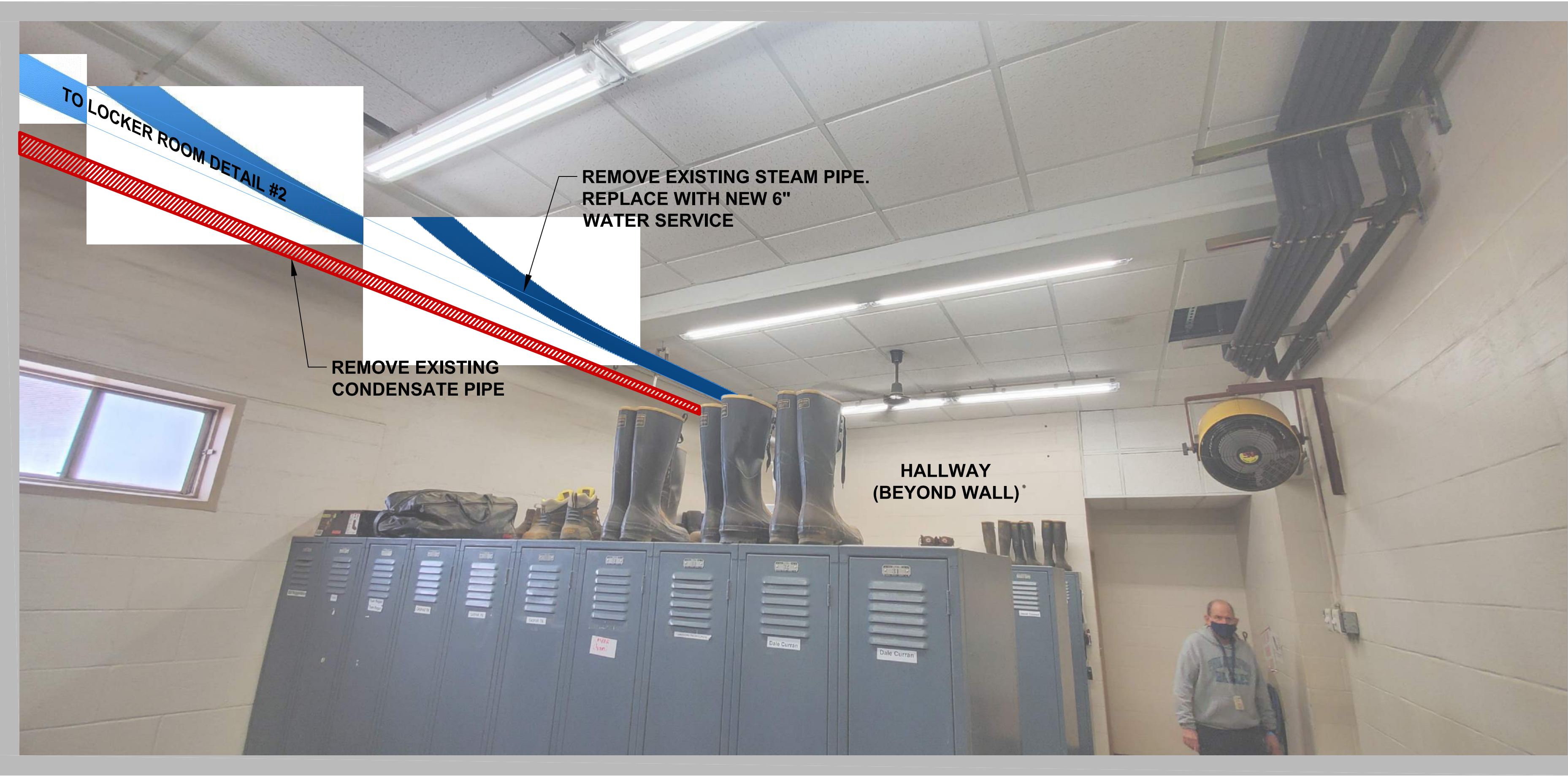


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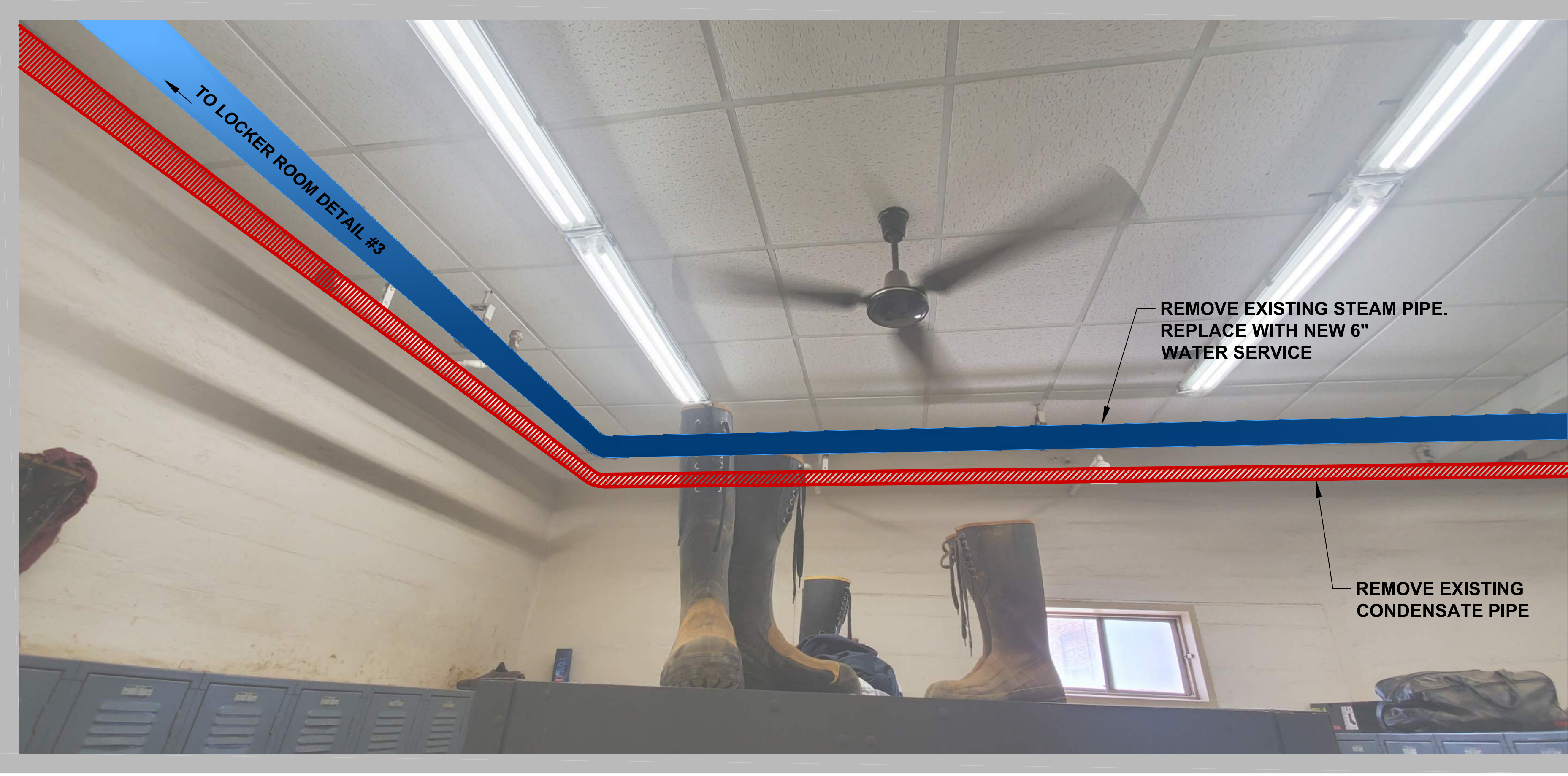
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S2 ADMIN BLDG MENS LOKER SOUTHWEST PHOTO
NO SCALE



S3 ADMIN BLDG MENS LOKER SOUTHEAST PHOTO
NO SCALE

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ADMIN BLDG PHOTO SECTIONS

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

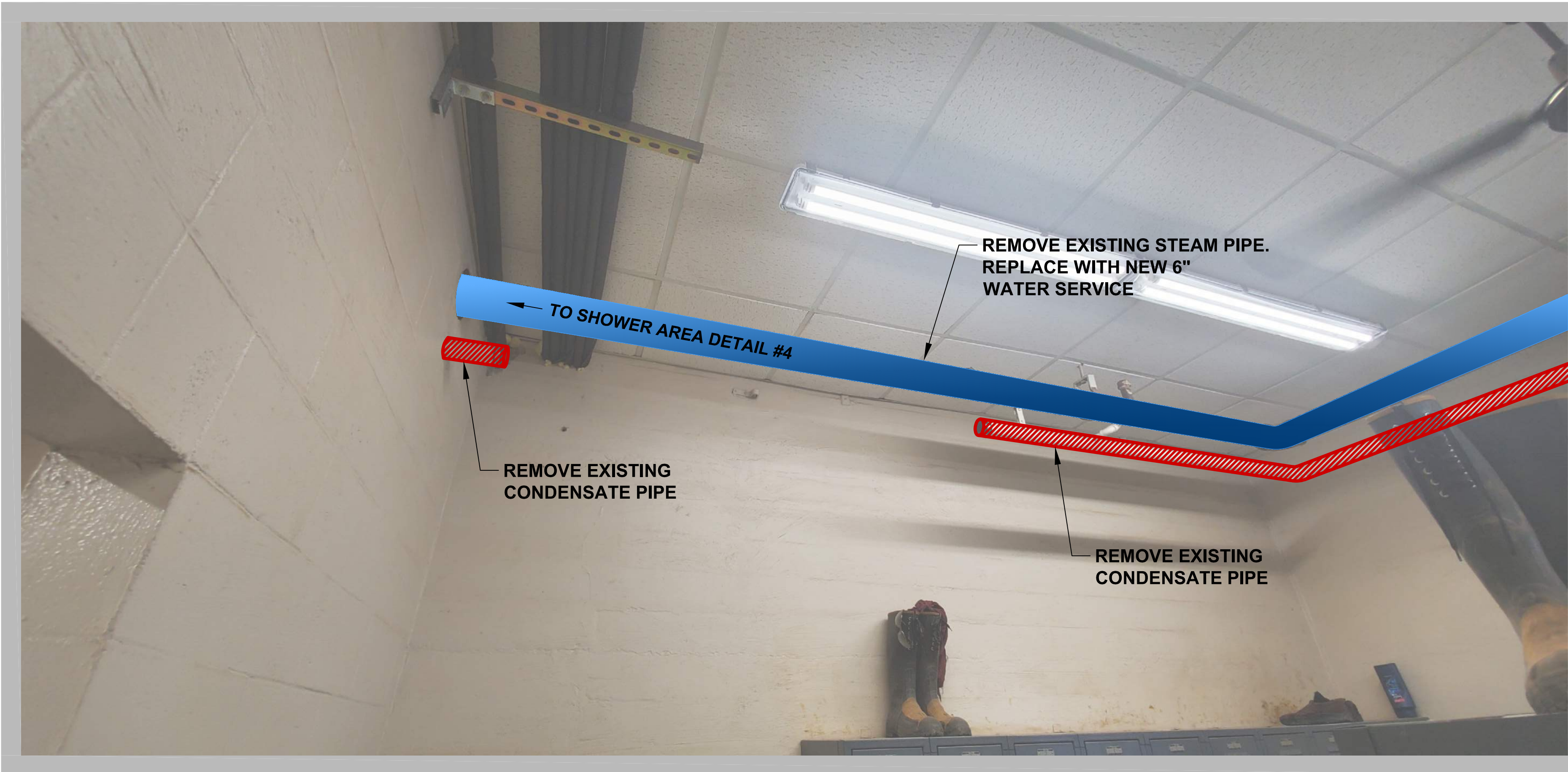


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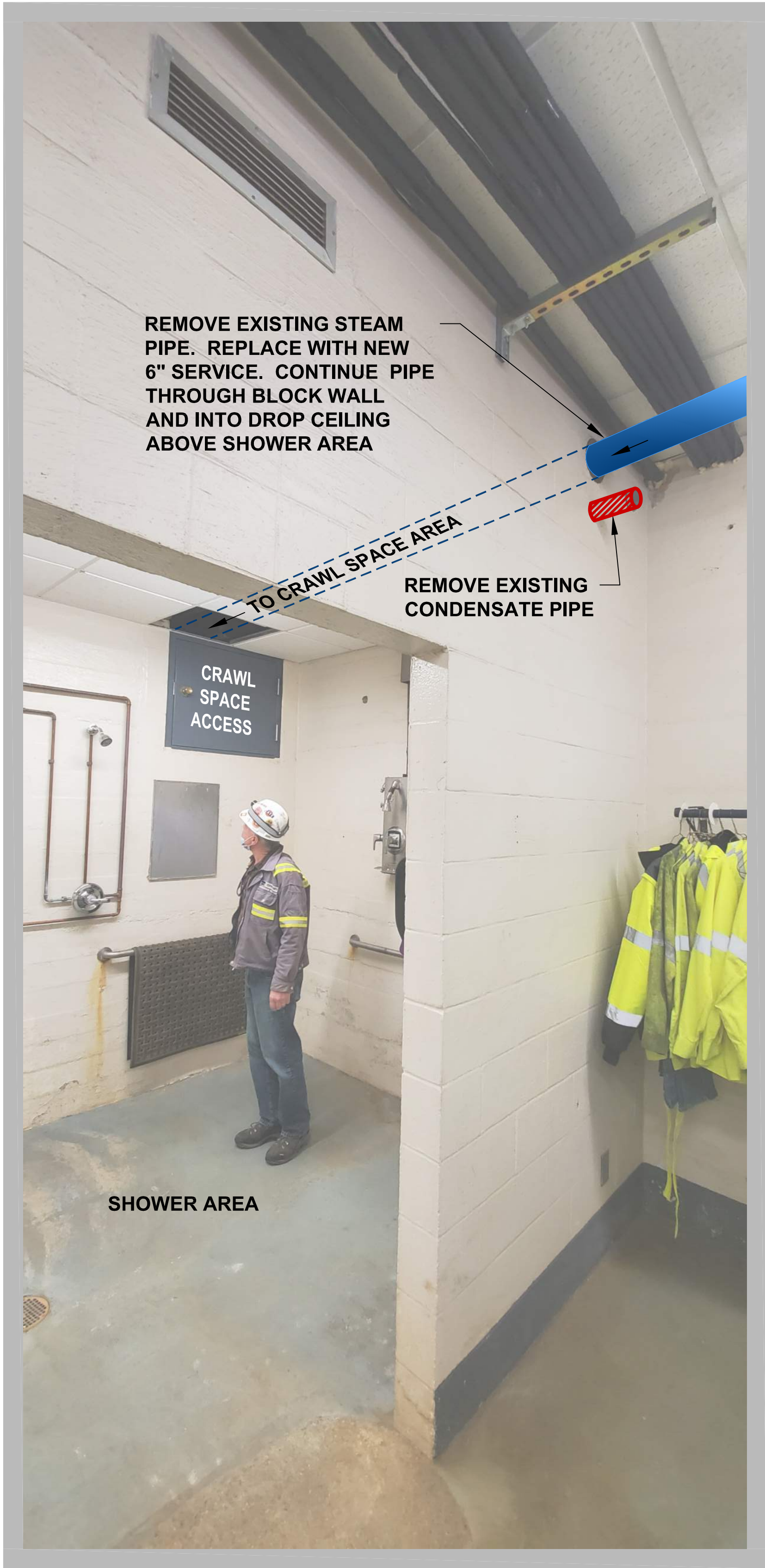
M3

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S4 ADMIN BLDG MEN'S LOCKER WEST PHOTO
NO SCALE



S9 ADMIN BLDG MEN'S SHOWER WEST PHOTO
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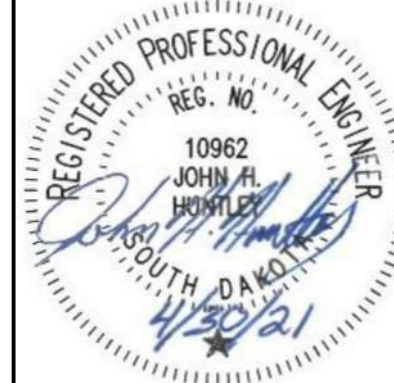
ADMIN BLDG PHOTO SECTIONS

INDUSTRIAL & POTABLE

WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

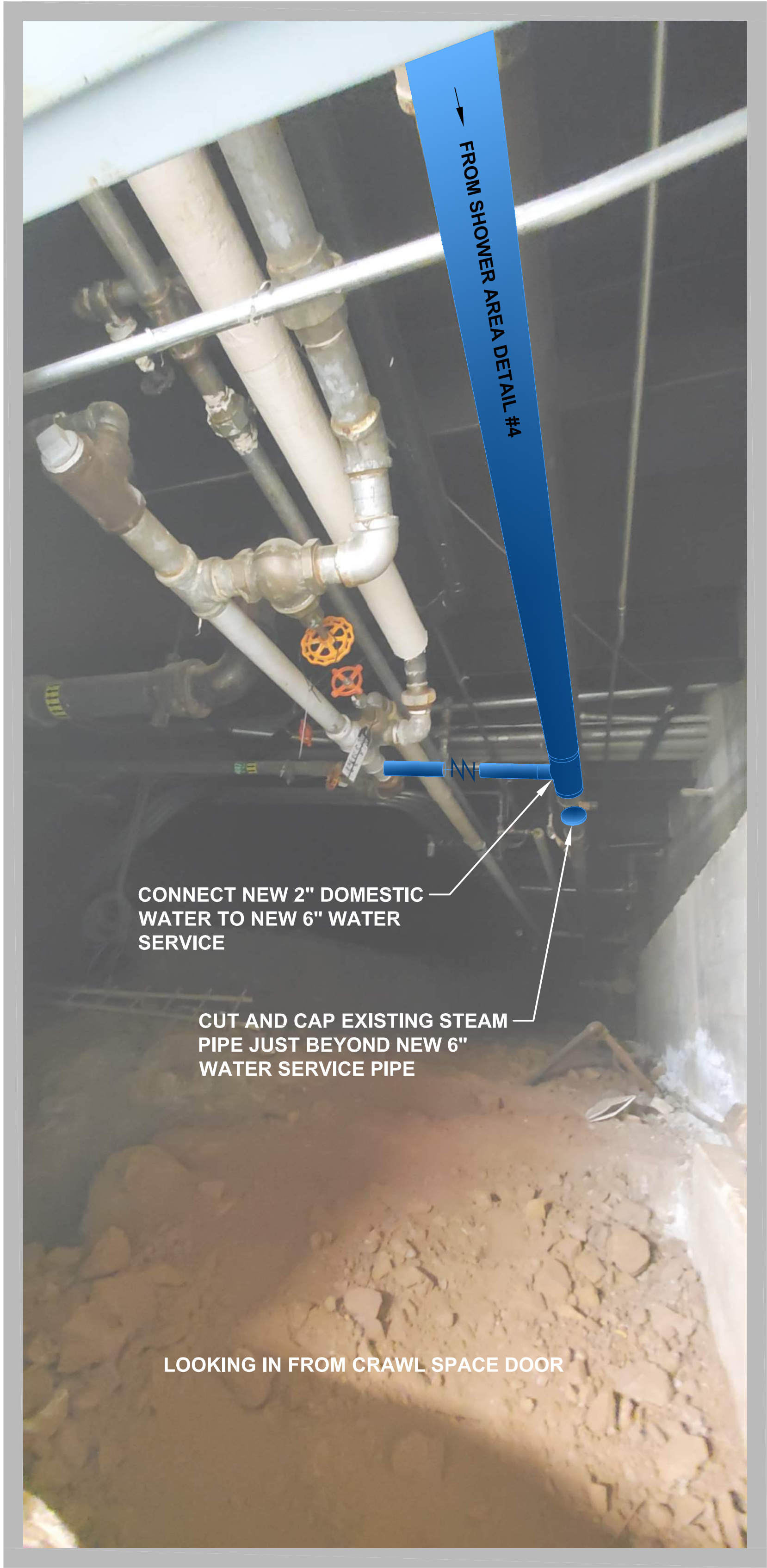


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S6 ADMIN BLDG NORTHWEST PHOTO
NO SCALE

ADMIN BLDG PHOTO SECTION

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

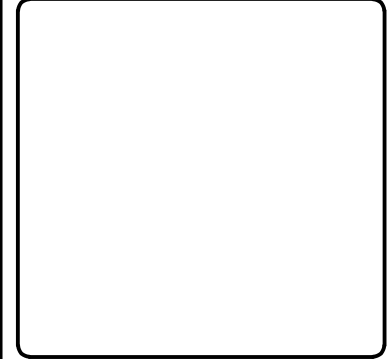


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M5

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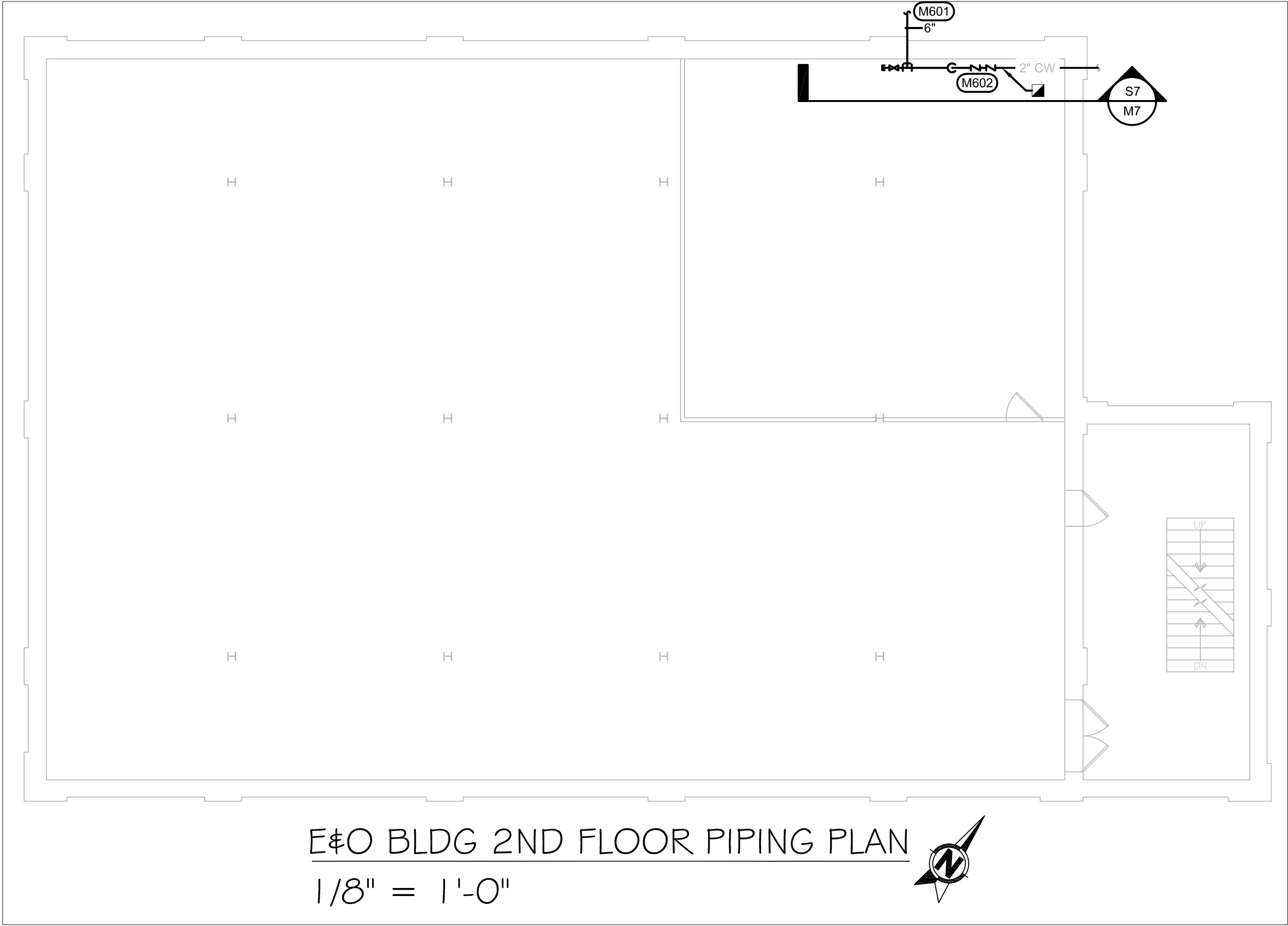
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GENERAL MECHANICAL NOTES:

- PLUMBING:
- A. COORDINATE LOCATIONS OF PIPING WITH OTHER TRADES AND STRUCTURE.
- B. ALL PIPING INSULATION SERVING DOMESTIC COLD WATER PIPING SHALL BE INSTALLED WITH UNBROKEN VAPOR BARRIERS AS PER SPECIFICATIONS. CONTRACTOR TO USE METAL SADDLES AND STRAPS ON EXTERIOR OF INSULATION FOR SUPPORT OF PIPING AT HANGERS, UNISTRUT, ETC.
- C. ISOLATE ALL COPPER PIPE FROM BEARING ON FERROUS HANGERS, ETC. WITH ELECTRICALLY INSULATING MATERIALS AS SPECIFIED. USE DIELECTRIC UNIONS IN CONNECTION OF ALL COPPER PIPING TO FERROUS PIPING AS SPECIFIED.
- D. COORDINATE PHASING AND REMOVAL OF EXISTING PIPING, AND EQUIPMENT WITH OWNER.
- E. REMOVE EXISTING PIPING, ETC. WHERE INDICATED BY HATCHING. CAP PIPING DURING CONSTRUCTION. THIS CONTRACTOR TO ASSIST IN REMOVAL AND REINSTALLATION OF PIPING THAT RESTRICTS THE WORK OF OTHER TRADES.
- F. THE MECHANICAL CONTRACTOR IS TO EXTEND, MODIFY AND/OR RELOCATE ANY PIPING, THAT CONTINUES TO SERVE THE SPACE, AS NEEDED SO THAT ALL NEW ARCHITECTURAL, MECHANICAL AND ELECTRICAL WORK SHOWN IN THE REMODEL PLANS CAN BE INSTALLED.

SPECIFIC MECHANICAL NOTES: ①

M601. PROVIDE LINE SIZE TEE WITH 6" WATER LINE FOR FUTURE FIRE SPRINKLER SYSTEM WITH ISOLATION VALVE AND CAPPED PIPE END. WATER PIPE SHALL TRANSITION FROM PVC SITE PIPE TO METAL WATER PIPING BEFORE ENTERING BUILDING. REFER TO SITE CIVIL DRAWINGS FOR PIPE CONTINUATION AND PIPING MATERIAL TYPES.

M602. ROVIDE LINE SIZE ISOLATION VALVE AND DOUBLE CHECK BACKFLOW REVENTER.

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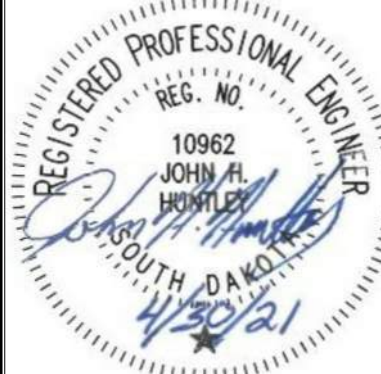
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E&O 2ND FLOOR PIPING PLAN

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021

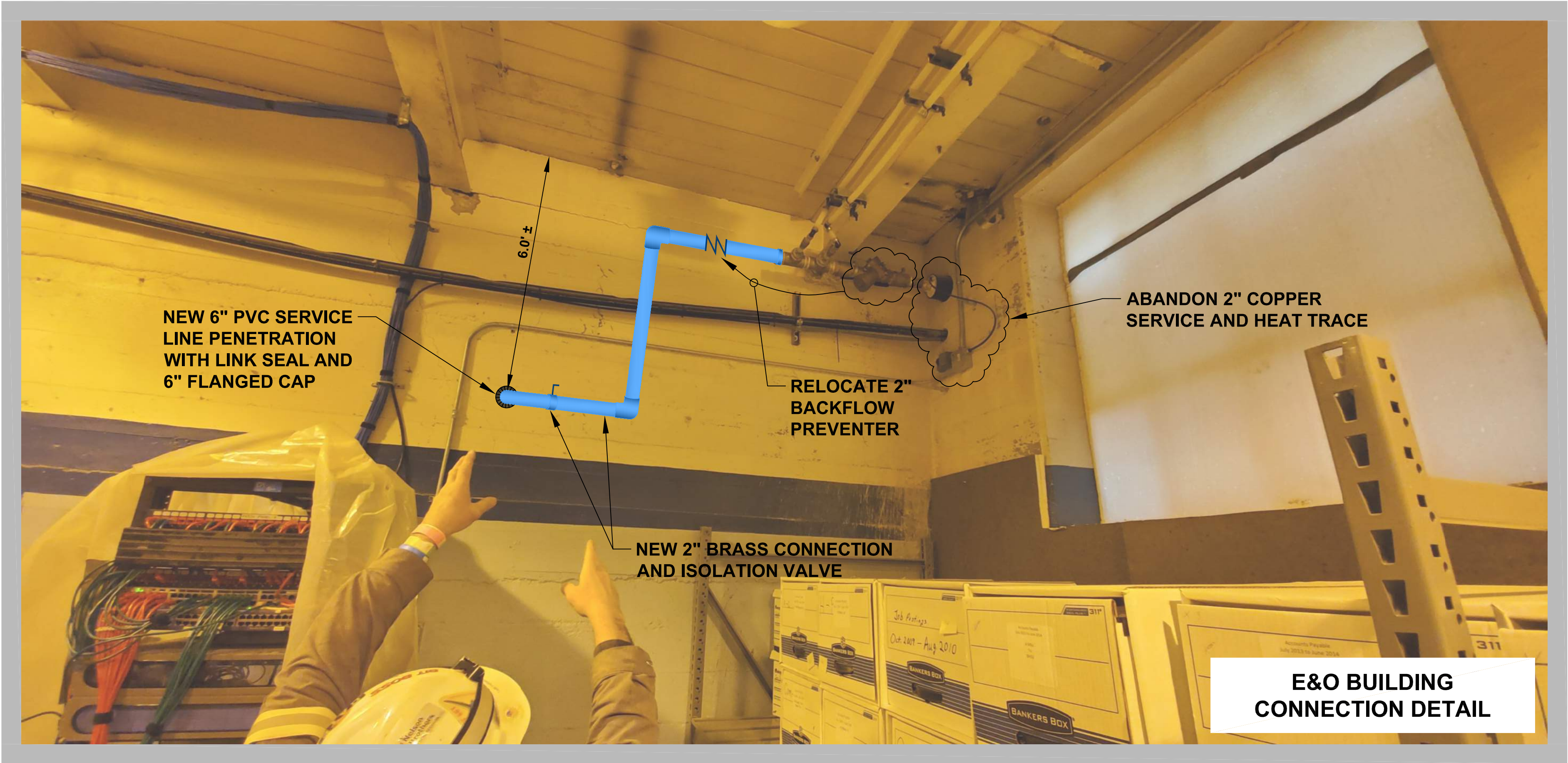


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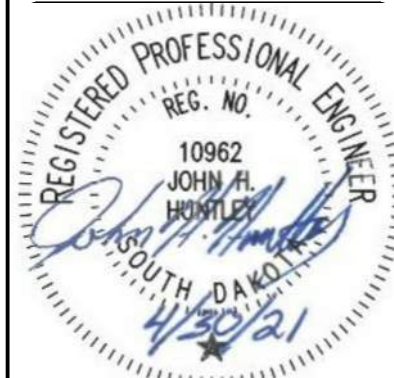


57 E&O BLDG 2ND FLOOR NORTHWEST PHOTO
NO SCALE

E&O BLDG PHOTO SECTION

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	JHH
DRAWN:	KJH
APPROVED:	MSH
DATE:	04-30-2021



SHEET:

M7

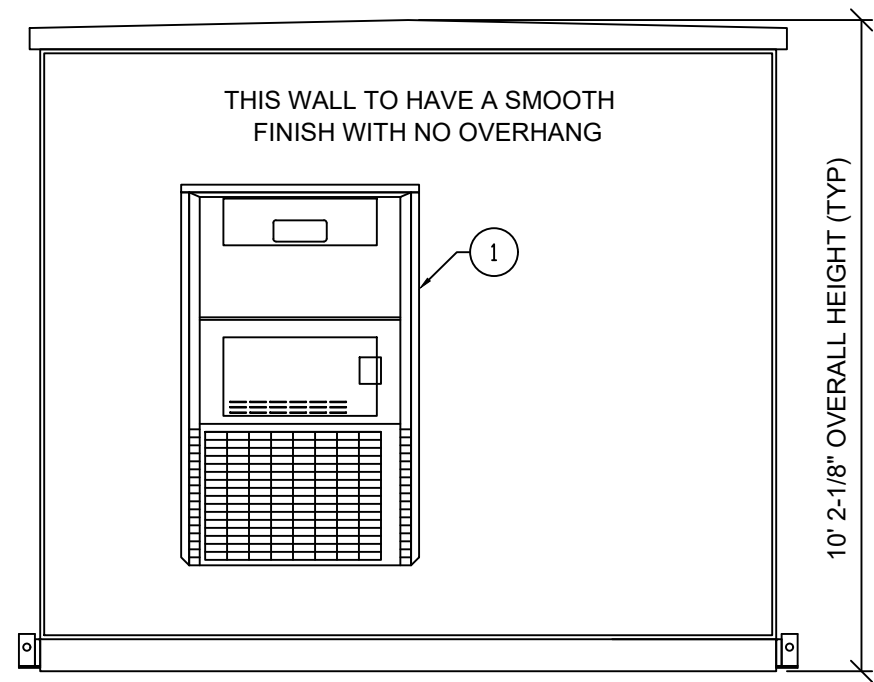
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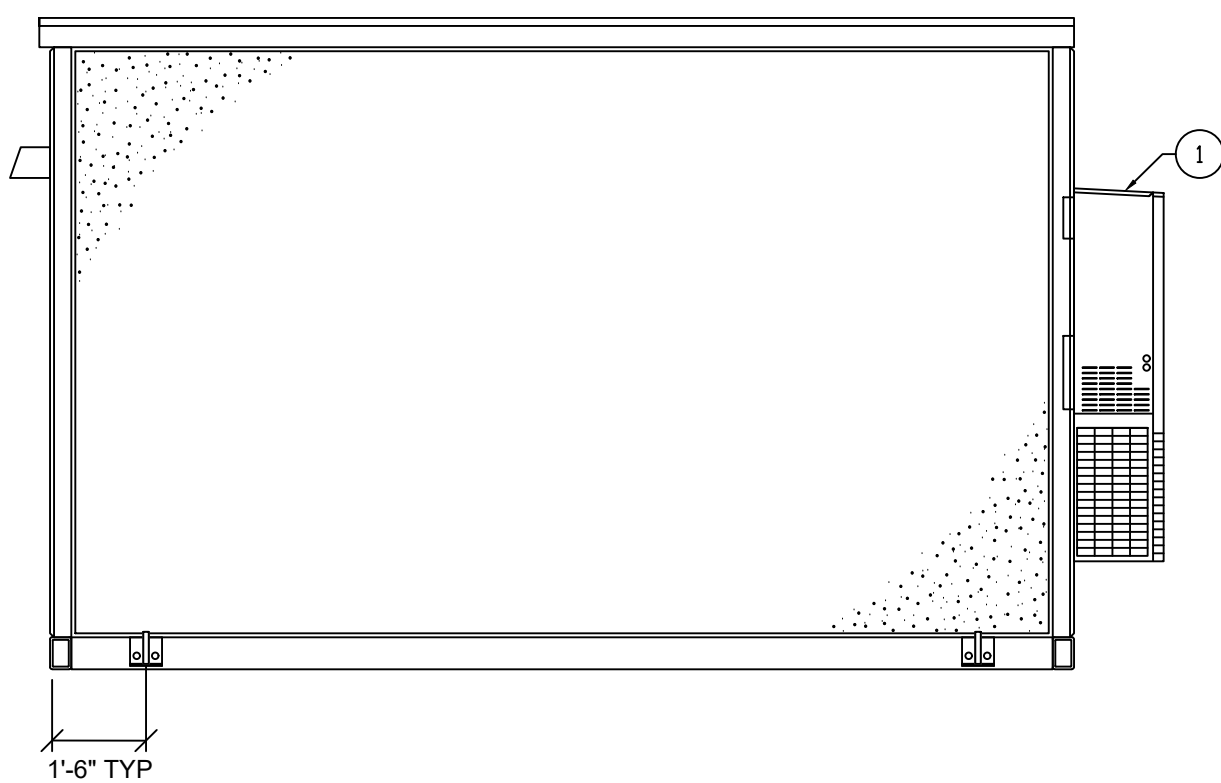
WEST PLAINS ENGINEERING, INC.

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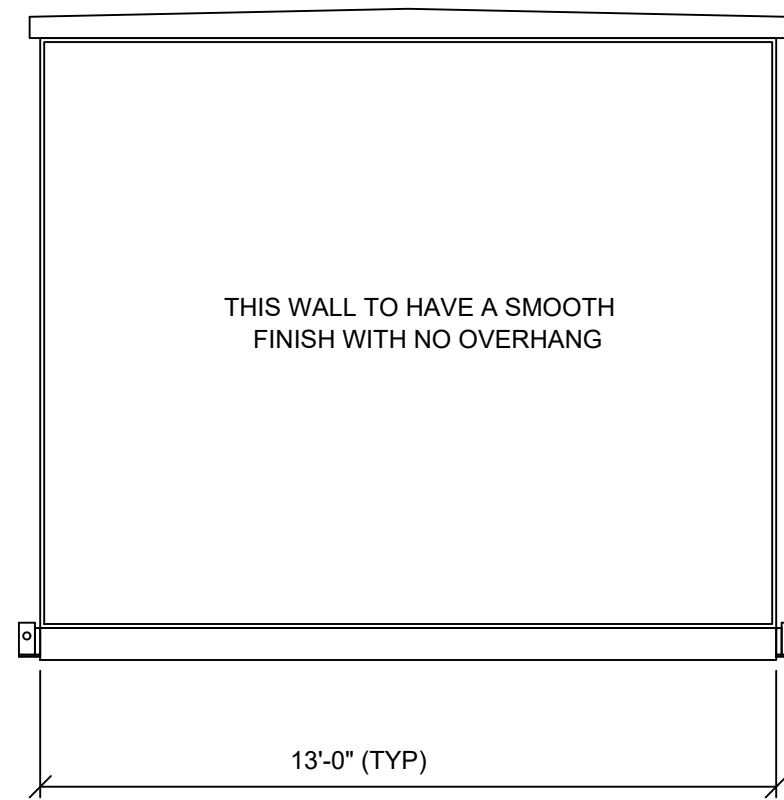
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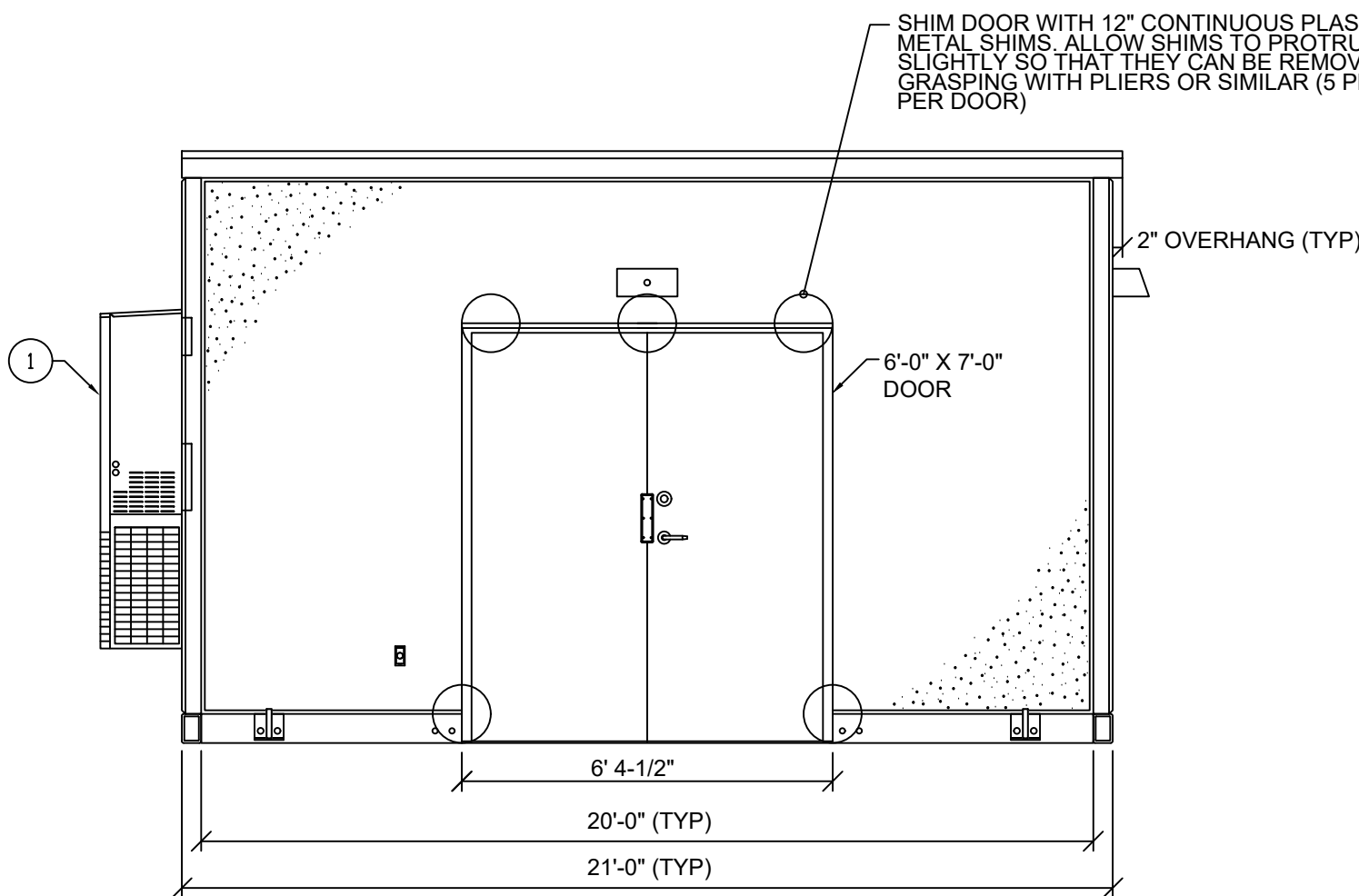
FRONT EXTERIOR ELEVATION (WALL C)
SCALE: NONE



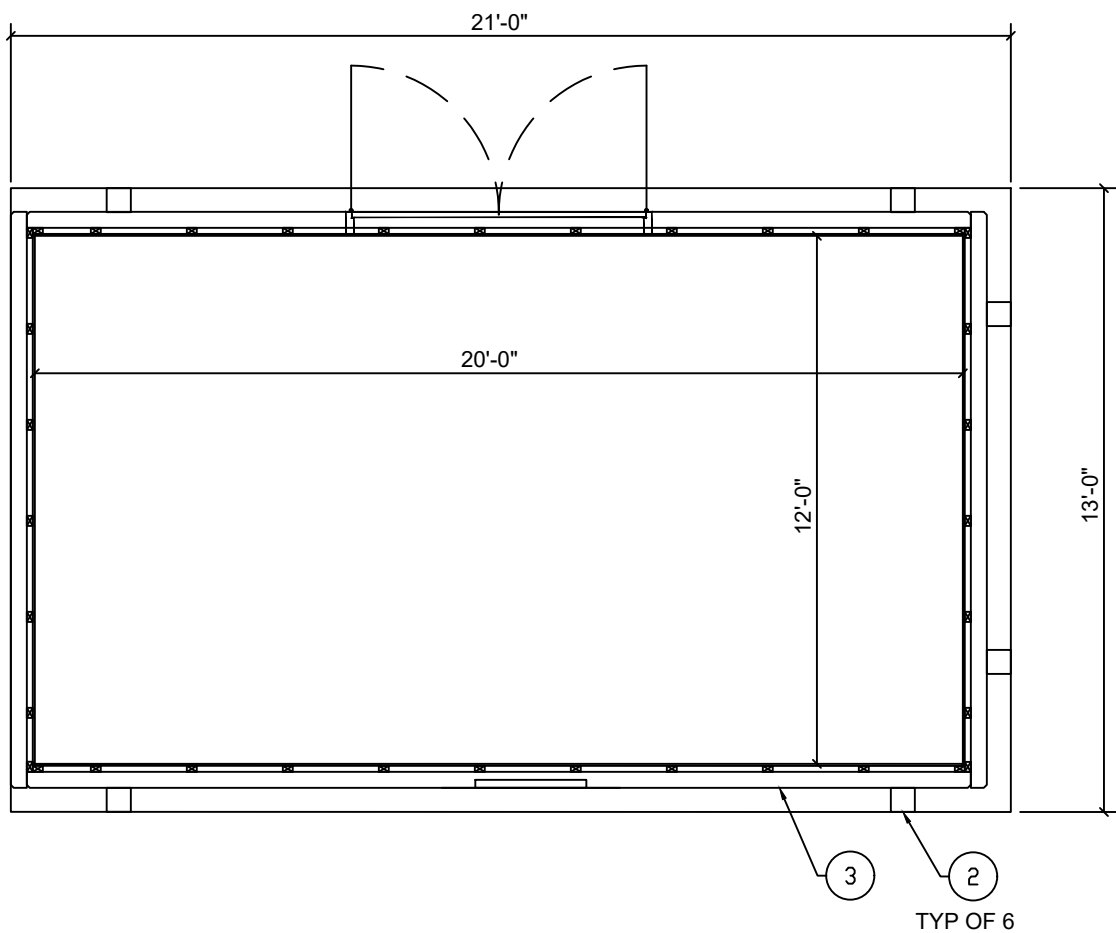
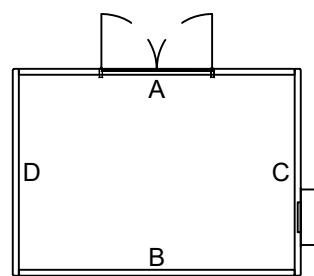
LEFT EXTERIOR ELEVATION (WALL B)
SCALE: NONE



REAR EXTERIOR ELEVATION (WALL D)
SCALE: NONE



RIGHT EXTERIOR ELEVATION (WALL A)
SCALE: NONE



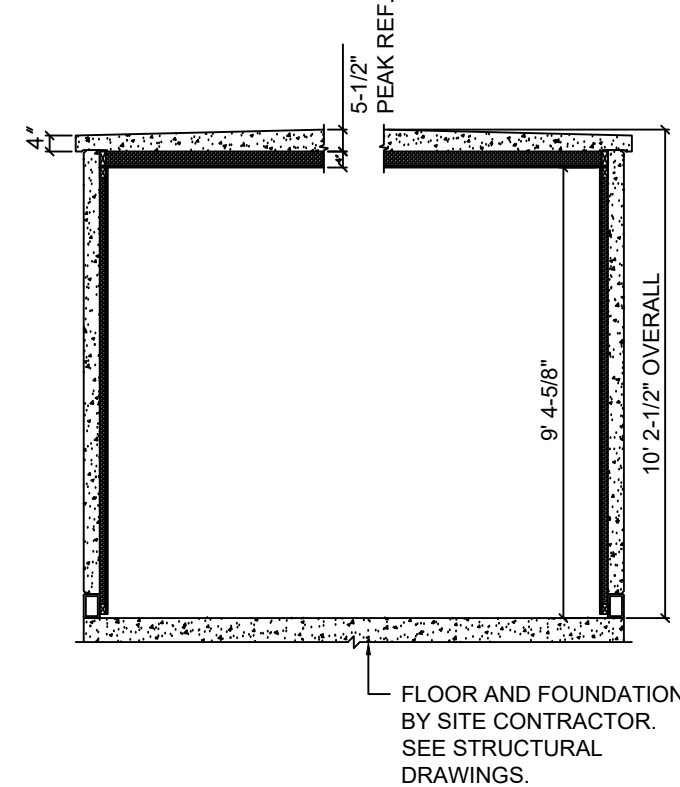
ARCHITECTURAL PLAN
1/4" = 1'-0" (22X34)
1/8" = 1'-0" (11X17)

MISCELLANEOUS NOTES:

- PREFABRICATED PRE-CAST CONCRETE BUILDING SHALL BE MANUFACTURED BY THERMO BOND BUILDINGS, LLC OR PRE-APPROVED EQUAL. POC DOUG OLSON (605)356-2474.
- BUILDING TO BE PREFABRICATED, WITH EXCEPTION TO FOUNDATION AND FLOOR, WITH ALL ELECTRICAL AND HVAC SYSTEMS PRE-INSTALLED UNLESS SPECIFICALLY NOTED. SEE SHEET E2 FOR ELECTRICAL AND HVAC LAYOUT.
- SITE CONTRACTOR SHALL PROVIDE FOUNDATION AND FLOOR PER STRUCTURAL DRAWINGS.
- SITE CONTRACTOR SHALL PROVIDE CONNECTION OF PRE-FABRICATED BUILDING TO FOUNDATION AND FLOOR SYSTEM.
- CONTRACTOR SHALL COMPLETE ELECTRICAL INSTALLATION BY NEW SERVICE BY BHE AS SHOWN ON THE SITE PLAN E1, AND PROVIDE GROUNDING CONNECTIONS AS INDICATED.

SPECIFIC NOTES: (1)

- 2TON HVAC UNIT SHALL BE SUPPLIED WITH PREFABRICATED BUILDING. THE HVAC UNIT WILL BE FIRST INSTALLED AT THE FACTORY TO ENSURE CONNECTIONS AND SLEEVES ARE CORRECT. HVAC UNIT WILL THEN BE REMOVED BY THE BUILDING MANUFACTURER FOR SHIPPING AND WILL REQUIRE REINSTALLATION ON SITE BY THE INSTALLING CONTRACTOR.
- SITE CONTRACTOR SHALL PROVIDE CONNECTION OF PRE-FABRICATED BUILDING TO FOUNDATION AND FLOOR SYSTEM USING TYPICAL OF SIX 6"x6"x3/8" ANGLES THAT ARE 6" WIDE AND SUPPLIED BY PREFABRICATED BUILDING SUPPLIER. BOLTS FOR CONNECTION TO BUILDING SUPPLIED BY BUILDING SUPPLIER. SITE CONTRACTOR TO PROVIDE BOLTS CONNECTION TO FOUNDATION AND INSTALL PER THE STRUCTURAL DRAWINGS.
- SITE CONTRACTOR TO PROVIDE TWO 1/2" BEADS OF CAULK UNDER STEEL TUBING FOR THE ENTIRE PERIMETER OF BUILDING. SITE CONTRACTOR SHALL ALSO PROVIDE CONTINUOUS BEAD OF CAULK AROUND EXTERIOR AND INTERIOR OF BUILDING ONCE BUILDING HAS BEEN SET IN PLACE.

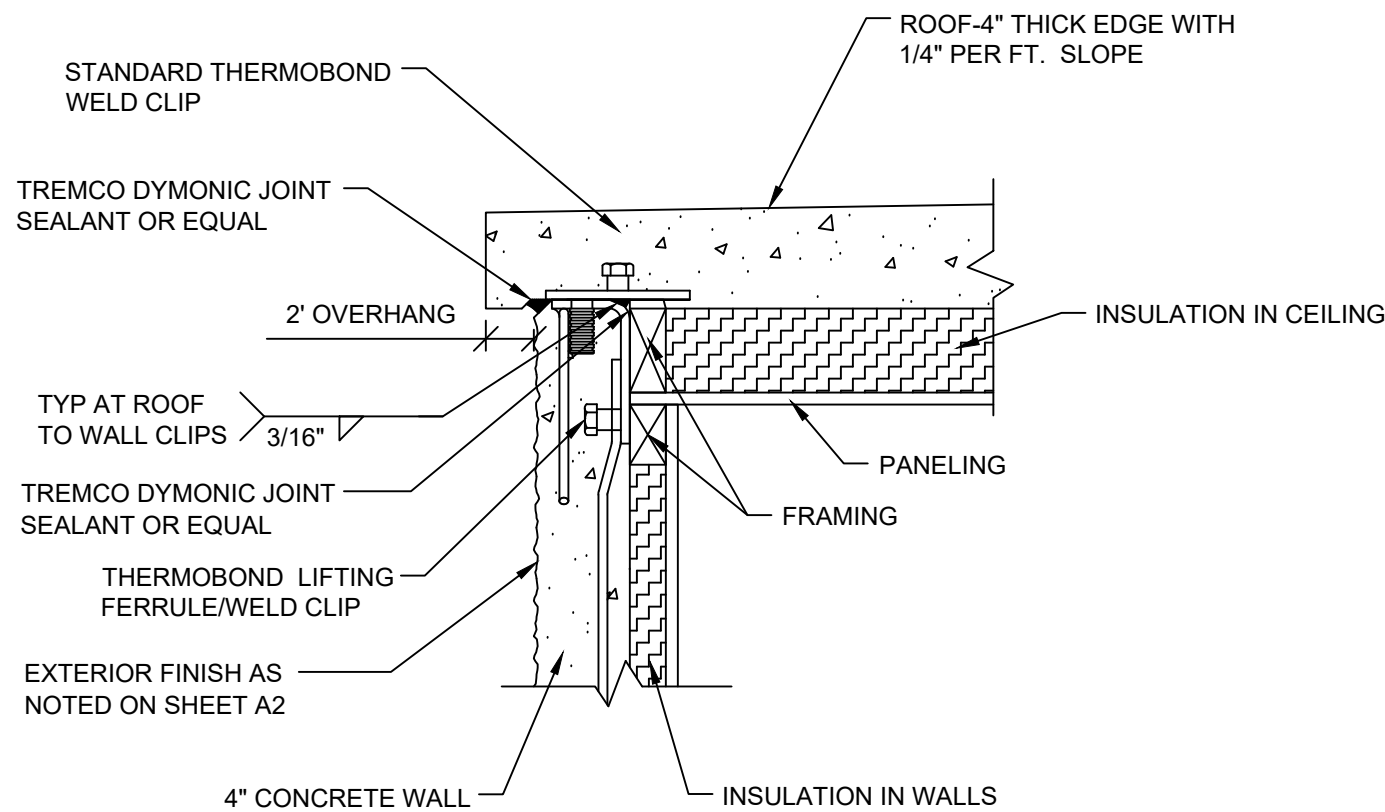


BUILDING SECTION
1/4" = 1'-0" (22X34)
1/8" = 1'-0" (11X17)

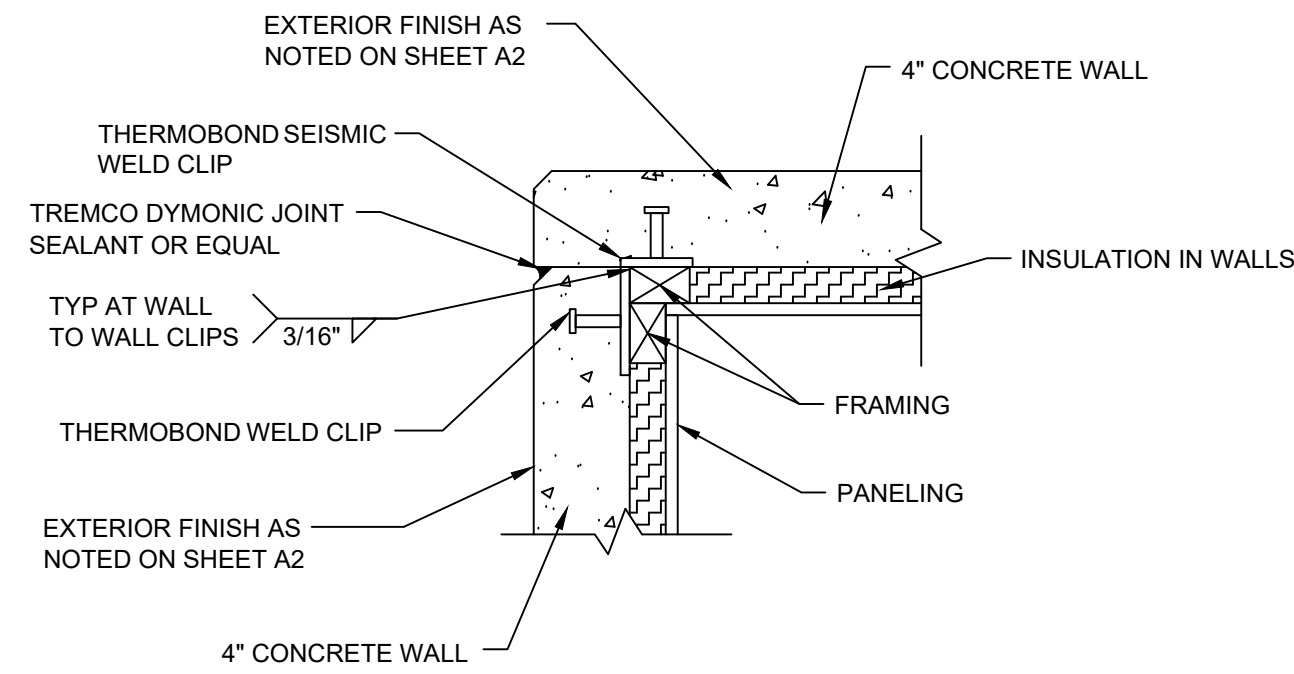
CONSTRUCTION MATERIALS:

- INTERIOR FINISH:
- WALLS: 1/2" FRP COVERED PANELING (CLASS "C" MINIMUM)
 - CEILING: 1/2" FRP COVERED PANELING (CLASS "C" MINIMUM)
- INSULATION:
- WALLS: 1 1/2" THERMAX FOAM INSULATION (R-10.1) ESR-1659
 - CEILING: 3" THERMAX FOAM INSULATION (R-19) ESR-1659
- FRAMING:
- WALLS: 2" X 3" FURRING STRIPS ON SIDE AT 24" O.C.
 - CEILING: 2" X 4" FURRING STRIPS ON END AT 24" O.C.
- CONCRETE:
- WALLS: 5000psi LIGHTWEIGHT
 - CEILING: 5000psi LIGHTWEIGHT

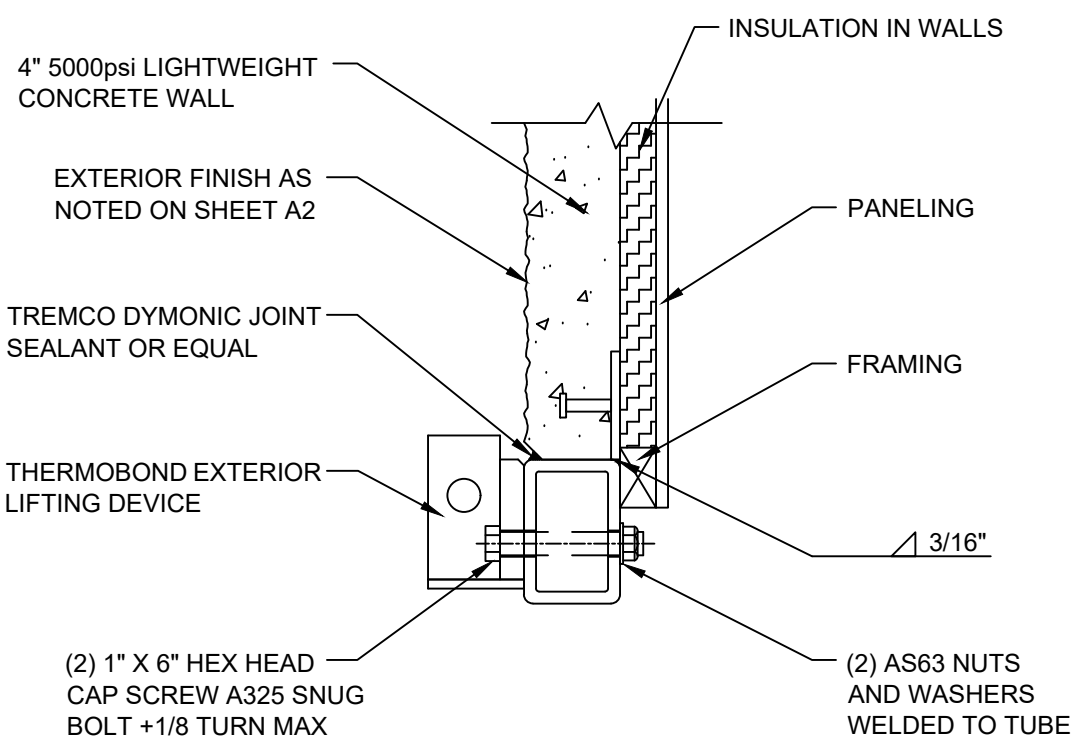
EXTERIOR FINISH SCHEDULE			
ITEM	SURFACE	FINISH	PAINT COLOR
ROOF	TROWELED SMOOTH	SEALED, ELASTOMERIC COURSE PAINT	TELECOM BROWN
WALLS	EXPOSED WASHED AGGREGATE	OKITE STAIN (2 COATS)	-
DOORS	STEEL, RATED	PAINT	TELECOM BROWN
JOINTS	AS FINISHED	SEALED PER DETAILS SHEET	TELECOM BROWN



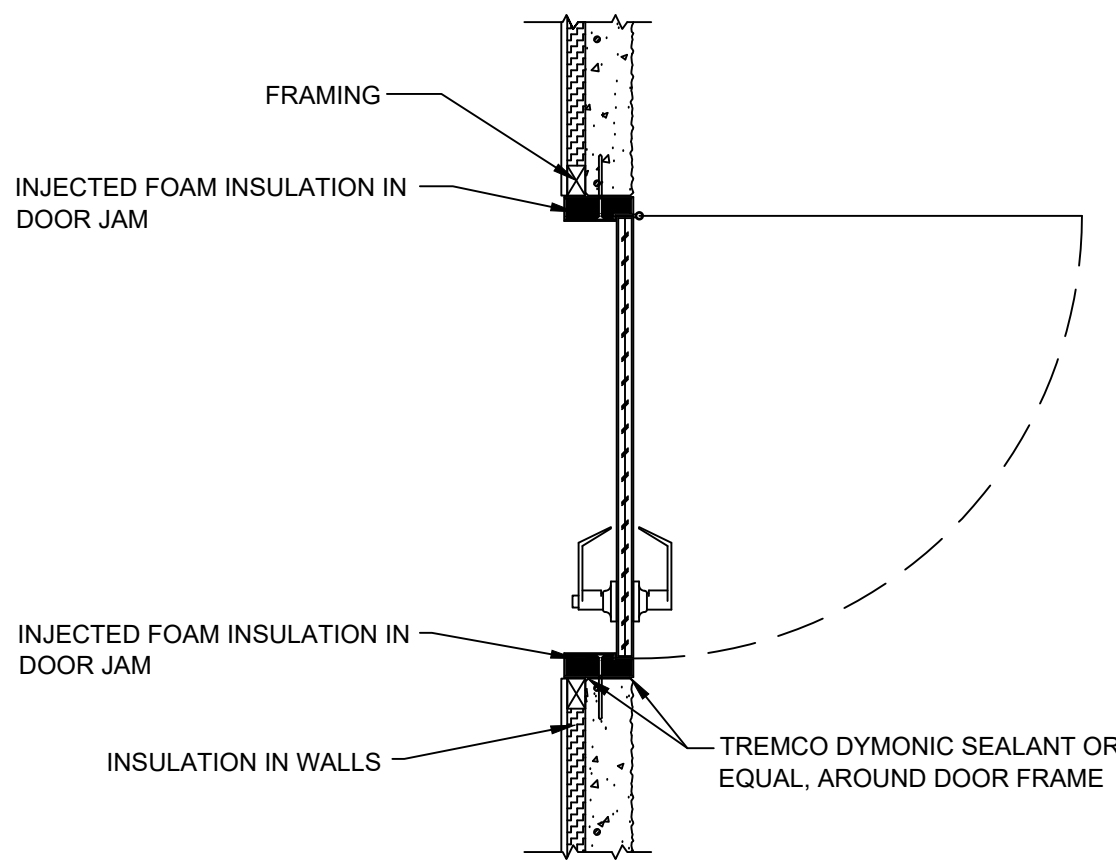
TYPICAL ROOF TO WALL SECTION DETAIL
1-1/2" = 1'-0" (22X34)
3" = 1'-0" (11X17)



TYPICAL WALL TO WALL SECTION DETAIL
1-1/2" = 1'-0" (22X34)
3" = 1'-0" (11X17)



TYPICAL WALL TO FRAME SECTION
1-1/2" = 1'-0" (22X34)
3" = 1'-0" (11X17)



TYPICAL DOOR SECTION DETAIL
3/4" = 1'-0" (22X34)
1-1/2" = 1'-0" (11X17)

GENERAL STRUCTURAL NOTES

GENERAL NOTES:

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND MECHANICAL, ELECTRICAL, PLUMBING AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR SLEEVES, DEPRESSIONS AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
- THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO ENSURE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING (AND ACCOMPANYING FOOTINGS), GUYS OR TIE-DOWNS.
- ADDITIONAL OBSERVATIONS AS A RESULT OF REJECTION OF WORK COMPLETED AND/OR ADDITIONAL OBSERVATIONS DUE TO THE DEFICIENCIES IN WORK OBSERVED WILL BE AT THE EXPENSE OF THE CONTRACTOR.
- ALL STRUCTURAL SHOP DRAWINGS TO BE REVIEWED BY JOB SUPERINTENDENT IN ADDITION TO ALL PERSONNEL DEEMED NECESSARY BY CONTRACTOR PRIOR TO SUBMITTAL TO ENGINEER FOR APPROVAL.
- ALL SHOP DRAWINGS TO BE REVIEWED BY ALBERTSON ENGINEERING INC. SHALL HAVE ELECTRONIC COPIES PROVIDED TO ALBERTSON ENGINEERING INC. FOR REVIEW. AN ELECTRONIC MARKED SET OF THOSE DRAWINGS WILL BE RETURNED TO THE CONTRACTOR. NO ADDITIONAL HARD COPIES OF THE SHOP DRAWINGS NEED TO BE PROVIDED TO ALBERTSON ENGINEERING INC., ALTHOUGH OTHER PARTIES MAY REQUIRE HARD COPIES OF THE MARKED UP DRAWINGS. THESE REQUIREMENTS ARE IN ADDITION TO THE TYPICAL PROJECT SHOP DRAWING SUBMITTAL REQUIREMENTS STATED IN THE PROJECT SPECIFICATIONS.
- THE DESIGN OF THE STRUCTURE SHOWN IN THESE CONSTRUCTION DOCUMENTS IS FOR THE ONE-TIME.

DESIGN CODES:

- 2018 INTERNATIONAL BUILDING CODE.
- ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.
- ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES.

DESIGN LOADS:

THE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED WITH THE FOLLOWING SUPERIMPOSED LOADINGS BASED ON RISK CATEGORY I:

ROOF:	
GROUND SNOW LOAD	57 PSF
ROOF SNOW LOAD	32 PSF
SNOW EXPOSURE FACTOR	1.0
SNOW THERMAL FACTOR	1.0
SNOW IMPORTANCE FACTOR	0.8
ROOF SLOPE FACTOR	1.0

WIND:	
ULTIMATE WIND SPEED	111 MPH
EXPOSURE CATEGORY	C
INTERNAL PRESSURE COEFFICIENT	+/- 0.18

SEISMIC:	
SEISMIC DESIGN CATEGORY	A
SITE CLASSIFICATION	D

FOUNDATIONS:

FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 1,500 PSF ON EXISTING SOILS. BEFORE CONSTRUCTION COMMENCES, SOIL BEARING CAPACITY SHALL BE VERIFIED BY A GEOTECHNICAL ENGINEER WHO SHALL PROVIDE RECOMMENDATIONS FOR SITE PREPARATION IN ORDER TO BEAR THE FOUNDATION LOADS.

PLUMBING SLEEVES:

MINIMUM SLEEVE SPACING SHALL BE TWO DIAMETERS CENTER TO CENTER TO THE LARGER SLEEVE OR 6" CLEAR BETWEEN SLEEVES, WHICHEVER IS GREATER. PRIOR TO CONSTRUCTION SLEEVE LOCATIONS AND SIZES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

CHEMICAL ANCHORS:

SHALL BE A POLYMER INJECTION SYSTEM SUCH AS HILTI-HY 200 EPOXY, OR APPROVED EQUAL, INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. INSTALLERS SHALL BE TRAINED BY THE MANUFACTURER'S REPRESENTATIVE.

ANCHOR BOLTS:

- SHALL BE A36 THREADED ROD. PROVIDE HOT DIP GALVANIZE FINISH ON ALL ANCHOR BOLTS PERMANENTLY EXPOSED TO EXTERIOR OR IN CONTACT WITH PRESSURE TREATED LUMBER.

CONCRETE MIX DESIGN:

- CONCRETE MIX SHALL BE DESIGNED BY RECOGNIZE TESTING LABORATORY TO ACHIEVE A STRENGTH AT 28 DAYS AS SHOWN IN THE BELOW CONCRETE CURING STRENGTH SCHEDULE WITH A PLASTIC AND WORKABLE MIX:

CONCRETE PROPERTIES				
LOCATION	28 DAY COMPRESSIVE STRENGTH	ENTRAINED AIR	SLUMP	MAX W/C RATIO
FOOTINGS	3,500 PSI	4.0% - 6.0%	5" +/- 1"	0.55
FND WALLS & ALL OTHER CONC	4,500 PSI	5.0% - 7.0%	4" +/- 1"	0.45
INTERIOR SLABS	4,000 PSI	< 3.0%	3" +/- 1"	0.5
EXTERIOR SLABS	4,000 PSI	5.0% - 7.0%	3" +/- 1"	0.40

- SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDER OR LAB TESTS FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. CONCRETE SHALL COMPLY WITH ALL THE REQUIREMENTS OF ASTM STANDARD C39 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TICKETS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1-1/2) HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. IT SHALL BE THE RESPONSIBILITY OF THE TESTING LAB TO NOTIFY THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR OF ANY NONCOMPLIANCE WITH THE ABOVE. ALL SLABS SHALL BE CURED USING CURING COMPOUND MEETING ASTM STANDARD C309 TYPE 1 AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LEFT THE UNFINISHED CONCRETE. ALL SCUFFED OR BROKEN AREAS IN THE CURING MEMBRANE SHALL BE RECOATED DAILY. CALCIUM CHLORIDES SHALL NOT BE UTILIZED; OTHER ADMIXTURES MAY BE USED ONLY WITH THE APPROVAL OF THE ENGINEER.
- CONCRETE SHALL UTILIZE TYPE III CEMENT AND SHALL HAVE A 20% MINIMUM CLASS F FLY-ASH CONTENT BY WEIGHT.
- COARSE AND FINE AGGREGATES SHALL COMPLY WITH ASTM C33 AND ACI 302.1, CURRENT VERSIONS.
- THE CONCRETE STRENGTHS SHOWN IN THE SECTION ABOVE AND IN THE SPECIFICATIONS ARE MINIMUM COMPRESSIVE STRENGTHS. THE ENGINEER SHALL DETERMINE IF THE CONCRETE IS ACCEPTABLE, OR TO BE REMOVED, OR TO RECEIVE SPECIAL CURING IF THE COMPRESSIVE STRENGTHS ARE LESS THAN SPECIFIED.
- WATER REDUCING AGENTS MAY BE USED IN THE CONCRETE MIX. PLASTICIZERS AND SUPER-PLASTICIZERS MAY BE USED ONLY WHEN WRITTEN PERMISSION OF THE ENGINEER IS GIVEN.
- NO SALTS OF ANY KIND MAY BE USED IN CONCRETE BEFORE OBTAINING THE ENGINEER'S WRITTEN PERMISSION FOR THEIR USE.

CONCRETE AND REINFORCING PLACEMENT:

- ALL CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 301 AND ACI 117.
- ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 (#4 AND LARGER), EXCEPT WHERE NOTED OTHERWISE. REINFORCING SHALL NOT BE WELDED.
- ALL REINFORCING STEEL BARS TO BE DETAILED AND PLACED IN ACCORDANCE WITH THE LATEST ACI MANUALS.
- LAP ALL REINFORCING SPLICES IN CONCRETE A MINIMUM OF 48 BAR DIAMETERS OR 24 INCHES, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE ON DRAWINGS (CLASS B SPLICE).
- PROVIDE CORNER BARS OF SAME BAR DIAMETER AS SPECIFIED FOR THE WALL, BEAM OR FOOTING. PROVIDE MINIMUM OF 40 BAR DIAMETER LAP FOR ALL CORNER BARS, UNLESS NOTE OTHERWISE.
- WHERE SHOWN ON THE DRAWINGS, PROVIDE WELD PLATES, WELDMENTS, OR CONCRETE INSERTS FOR FASTENING AND SECURING OTHER COMPONENTS. CONCRETE INSERTS SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM AND INSTALLED BY THE CONTRACTOR CASTING THE CONCRETE AROUND THEM. CLIP ANGLES SHALL BE FURNISHED BY THE CONTRACTOR REQUIRING THEM.
- REINFORCING STEEL SHALL RECEIVE CONCRETE COVER AS FOLLOWS:

DESCRIPTION	MINIMUM COVER
CAST AGAINST & PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER #6 THROUGH #18 BARS	2"
#5 BARS OR SMALLER	1 1/2"
NOT EXPOSED TO EARTH OR WEATHER OR IN CONTACT WITH THE GROUND, SLABS AND WALLS	
#11 BARS OR SMALLER	3/4"
#14 AND #18	1 1/2"
BEAMS AND COLUMNS	1 1/2"
SHELLS, FOLDED PLATE MEMBERS: NO. 6 BAR AND LARGER	3/4"
NO. 5 BAR, W31 OR D31 WIRE AND SMALLER	1/2"
PROVIDE TWO (2) #5'S, ONE AT EACH FACE, UNLESS NOTED OTHERWISE, AROUND ALL OPENINGS GREATER THAN 12"x12" IN CAST-IN-PLACE CONCRETE. EXTEND REINFORCING 2'-0" BEYOND OPENING IN BOTH DIRECTIONS. CONTACT ENGINEER FOR ALL OPENINGS GREATER THAN 12"x12" FOR DESIGN.	
COLD WEATHER AND HOT WEATHER PROVISIONS OF ACI 306 AND 305 (CURRENT EDITIONS), RESPECTIVELY, SHALL BE MAINTAINED.	

CONCRETE TESTING:

- CONCRETE TESTING SHALL BE ARRANGED AND PAID FOR BY THE CONTRACTOR. TESTING LABORATORY SHALL PERFORM THE FOLLOWING TEST ON CAST-IN-PLACE CONCRETE:
 - ASTM C143 - "STANDARD TEST METHOD FOR SLUMP OF PORTLAND CEMENT CONCRETE."
 - ASTM C39 - "STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS. A SEPARATE TEST SHALL BE CONDUCTED FOR EACH CLASS, FOR EVERY 50 CUBIC YARDS (OR FRACTION THEREOF), PLACED PER DAY. REQUIRED CYLINDER(S) QUANTITIES AND TEST AGE AS FOLLOWS:
 - AT 7 DAYS
 - AT 28 DAYS
 - PROVIDE ONE ADDITIONAL RESERVE CYLINDER TO BE TESTED UNDER THE DIRECTION OF THE ENGINEER, IF REQUIRED. IF 28 DAY STRENGTH IS ACHIEVED, THE ADDITIONAL CYLINDER(S) MAY BE DISCARDED.
 - TESTING SHALL BE BASED UPON CONCRETE TAKEN AT POINT OF PLACEMENT.
 - IN ADDITION TO TYPICAL TESTING REQUIREMENTS, SLUMP AND AIR CONTENT SAMPLES SHALL BE TAKEN AT BEGINNING OF FIRST TRUCK PRIOR TO ANY PLACEMENT AND REPEATED AT THE MIDDLE OF FIRST TRUCK. CONCRETE PLACEMENT SHALL NOT START IF INITIAL TEST(S) FAIL AND SHALL NOT CONTINUE OF TEST TAKEN AT MIDDLE OF FIRST LOAD FAILS.
 - IF ANY SLUMP OR AIR CONTENT FAILS DURING PLACEMENT, TESTS SHALL BE IMMEDIATELY REPORTED AND RETAKEN. IF RETAKEN TESTS FAIL THEN ALL SUBSEQUENT LOADS MUST BE TESTED AT ARRIVAL AND TEST MUST SHOW COMPLIANCE PRIOR TO THE CONCRETE IN THAT TRUCK BEING ALLOWED FOR USE ON PROJECT.

SYMBOLS LEGEND

STRUCTURAL HATCH PATTERNS

INDEX TO STRUCTURAL SHEETS

STRUCTURAL SHEET INDEX			
SHT NO	SHEET NAME	FND PKG	FRMG PKG
S-001	STRUCTURAL GENERAL NOTES		
S-002	IBC TABLES		
S-005	CONCRETE SURFACE REQUIREMENTS		
S-101	WATER VALVE ENCLOSURE BLDG - FDN & FLOOR SLAB PLAN		
S-102	FLOOR FRAMING PLAN		
S-103	ROOF FRAMING PLAN		
S-401	LATERAL FRAMING ELEVATIONS AND SECTIONS		
S-501	DETAILS		
S-601	STANDARD DETAILS / SCHEDULES		

NOTE: ANY DRAWINGS INCLUDED IN THE FRAMING PACKAGE CONTAINED WITHIN THIS SET ARE FOR INFORMATION PURPOSES ONLY AND ARE NOT INTENDED TO BE USED FOR CONSTRUCTION.

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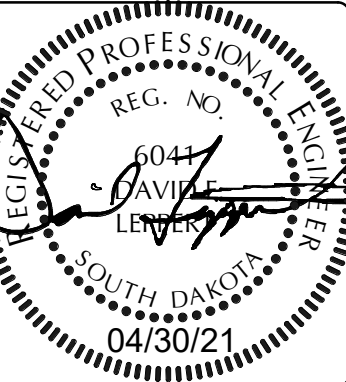
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STRUCTURAL GENERAL NOTES

INDUSTRIAL & POTABLE WATER TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	2021-145
DESIGNED:	DEL
DRAWN:	SKG
APPROVED:	Approver
DATE:	04/30/21



SHEET:

S-001

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IBC 2018 TABLE 1705.3 REQUIRED SPECIAL INSPECTION AND TESTS OF CONCRETE CONSTRUCTION					
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD#	IBC REFERENCE	REQUIRED ON PROJECT
1. INSPECTION REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	-	X	ACI 318 CH 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4	YES
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16". C. INSPECT ALL OTHER WELDS	-	X	AWS D1.4, ACI 318: 26.6.4	-	YES
		X			
	X	-			
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-	YES
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4A.	X	-	ACI 318: 17.8.2.4, ACI 318: 17.8.2	-	NO
	-	X			YES
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3	YES
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172, ASTM C31, ACI 318: 26.5, 26.12	1908.10	YES
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8	NO
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9	YES
9. INSPECT OF PRESTRESSED CONCRETE FOR: A. APPLICATION OF PRESTRESSING FORCES. B. GROUTING OF BONDED PRESTRESSING TENDONS.	X	-	ACI 318: 26.10	-	NO
	X	-			
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: CH. 26.9	-	NO
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES ANDFORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11.2	-	NO
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2(b)	-	YES

a. WHERE APPLICABLE, SEE SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSEUD BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

WELDING OR REINFORCING BARS.
SPECIAL INSPECTIONS OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS FOR REINFORCING BARS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.4 FOR SPECIAL INSPECTION AND AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION.

MATERIAL TESTS.
IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIALS IN CHAPTERS 19 AND 20 OF ACI 318, THE BUILDING OFFICIAL SHALL REQUIRE TESTING OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318.

SPECIAL INSPECTION AND TESTING:

- SPECIAL INSPECTION AND MINIMUM TESTING SHALL BE PERFORMED IN ACCORDANCE WITH 2018 IBC AND ALL REFERENCED MATERIALS AND TABLES.
- INSPECTION SHALL BE PROVIDED BY AN INDEPENDENT TESTING AGENCY HIRED AT THE CONTRACTOR'S EXPENSE. AGENCY INSPECTION PERSONNEL SHALL MEET THE INSPECTOR QUALIFICATIONS FOR EACH MATERIAL ITEM AS INDICATED IN THE SPECIFICATIONS.
- ANY MATERIAL OR PLACEMENT DEVIATIONS FROM MINIMUMS SHOWN ON THE DRAWINGS OR IN SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- IN ADDITION TO THE CONCRETE IBC INSPECTION TABLES, THE INSPECTOR SHALL VERIFY THAT ALL CONCRETE MAINTAIN TOLERANCES SPECIFIED IN ACI 117-90 STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.
- TESTING - ANY FAILED FIELD TEST SHALL BE REPORTED TO ALBERTSON ENGINEERING INC IMMEDIATELY.

IBC 2018 TABLE 1705.6 REQUIRED VERIFICATION AND INSPECTION OF SOILS			
VERIFICATION AND INSPECTION TASKS	FREQUENCY OF INSPECTION		REQUIRED ON PROJECT
	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X	YES
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X	YES
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X	YES
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-	YES
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VARIIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X	YES

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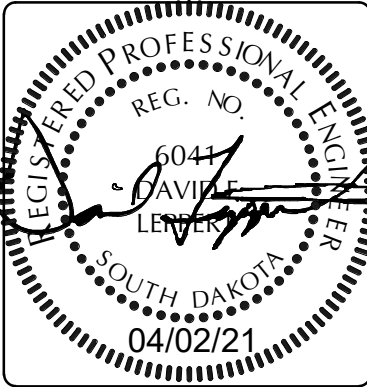
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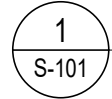
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#	DESCRIPTION	DATE

IBC TABLES

INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX
LEAD, SOUTH DAKOTA

PROJECT#:	2021-145
DESIGNED:	DEL
DRAWN:	SKG
APPROVED:	Approver
DATE:	04/02/21





SCALE: 1/4" = 1'-0"



SCALE: 3/4" = 1'-0"



- 

SCALE: 1 1/2" = 1'-0"

FOUNDATION PLAN NOTES

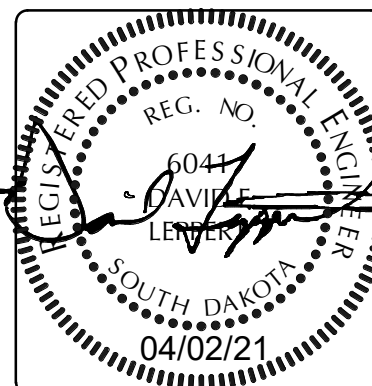
- WATER VALVE ENCLOSURE BLDG - FDN & FLOOR SLAB
PLAN

**INDUSTRIAL & POTABLE
WATER TO YATES COMPLEX**
LEAD, SOUTH DAKOTA

LEAD, SOUTH DAKOTA

REVISIONS		
#	DESCRIPTION	DATE

PROJECT#:	2021-145
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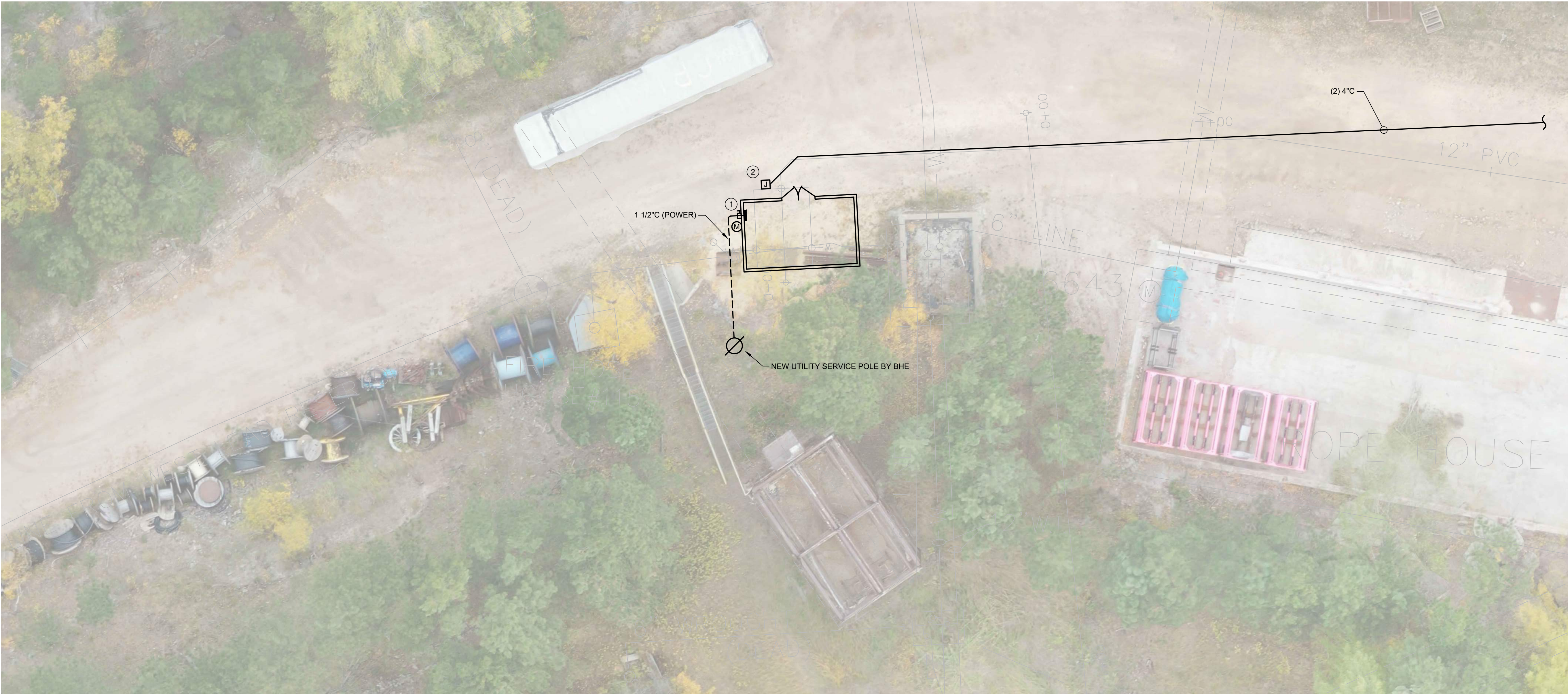
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- SPECIFIC NOTES: ①
1. 100A, 240V, 1Ø SERVICE DISCONNECT & UTILITY METER ON BUILDING. COORDINATE REQUIREMENTS WITH BHE.
 2. PROVIDE QUAZITE PULL BOX FIBERCRETE STYLE WITH STEEL LID FOR CONDUITS APPROXIMATELY EVERY 500 FEET. ALL ELBOWS TO BE PVC COATED RGC. SEE CIVIL DRAWINGS FOR ROUTE TO ADMIN BUILDING. PROVIDE IN TRENCH WITH WATER LINES AT 3' BELOW GRADE.

① ELECTRICAL SITE PLAN
1" = 10'-0"

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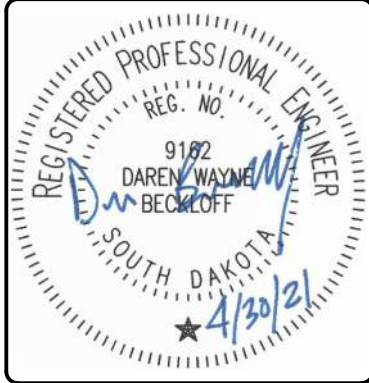
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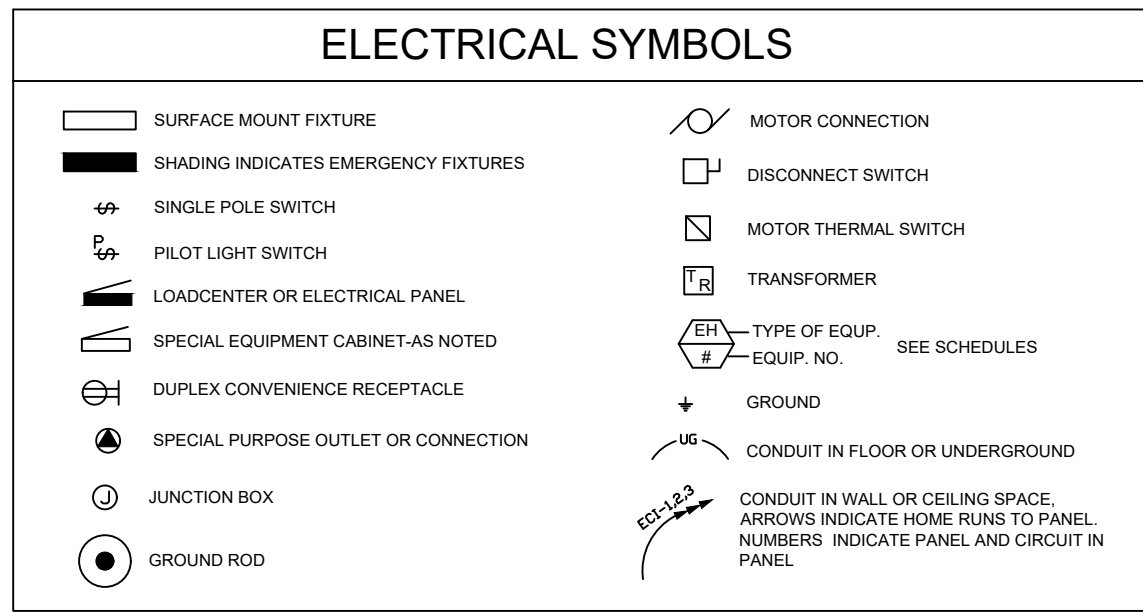
ELECTRICAL SITE PLAN

INDUSTRIAL & POTABLE WATER
TO YATES COMPLEX

LEAD, SOUTH DAKOTA

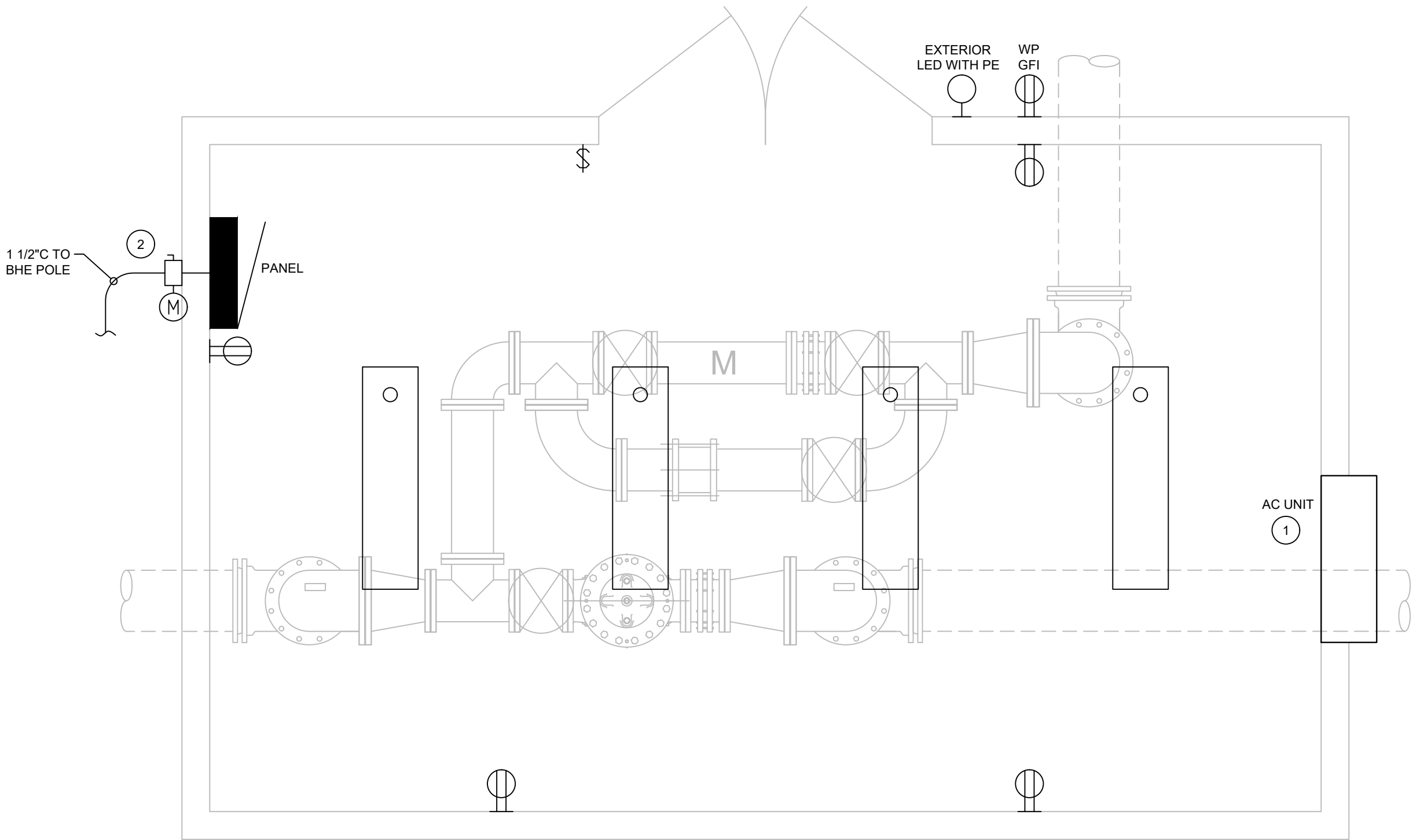
PROJECT#:	BR20030
DESIGNED:	DWB
DRAWN:	JCO
APPROVED:	DWB
DATE:	4/30/2021



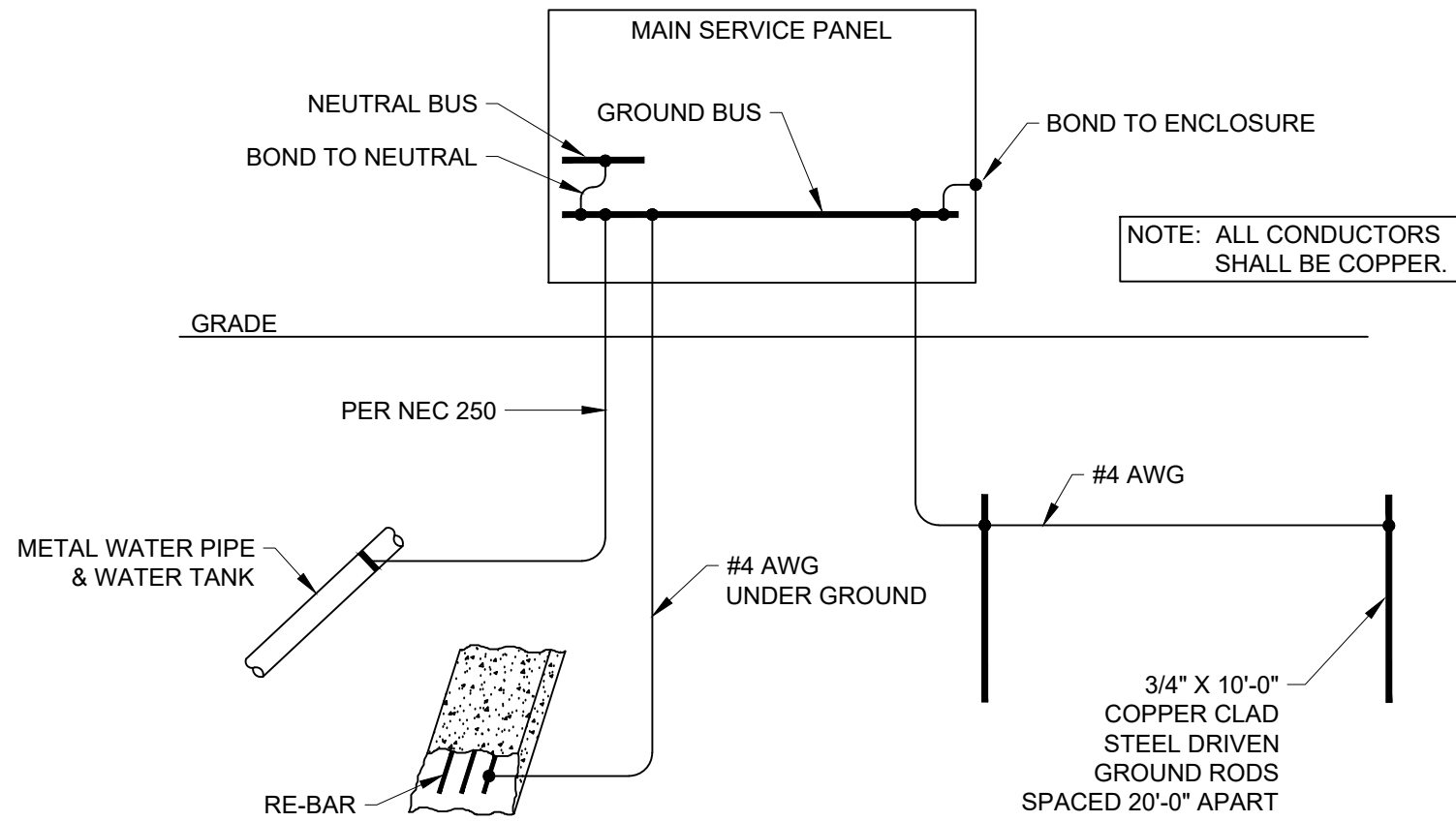


- MISCELLANEOUS ELECTRICAL NOTES:
- A. BUILDING MANUFACTURER TO PROVIDE ALL ELECTRICAL WIRES, BREAKERS, LIGHTS, OUTLETS, PANELS, BOXES, CONDUIT, ETC. TO MAKE A COMPLETE ASSEMBLY.
- B. E.C. TO INCLUDE ALL ASSOCIATED COSTS FROM THE UTILITY COMPANY IN THEIR BID.
- SPECIFIC ELECTRICAL NOTES: (P)
1. 2TON AC UNIT WITH 5KW ELECTRICAL HEAT BY BUILDING MANUFACTURER.
2. 100A, 2P, 4W SERVICE DISCONNECT. MOUNT ON EXTERIOR OF BUILDING ALONG WITH UTILITY METER.

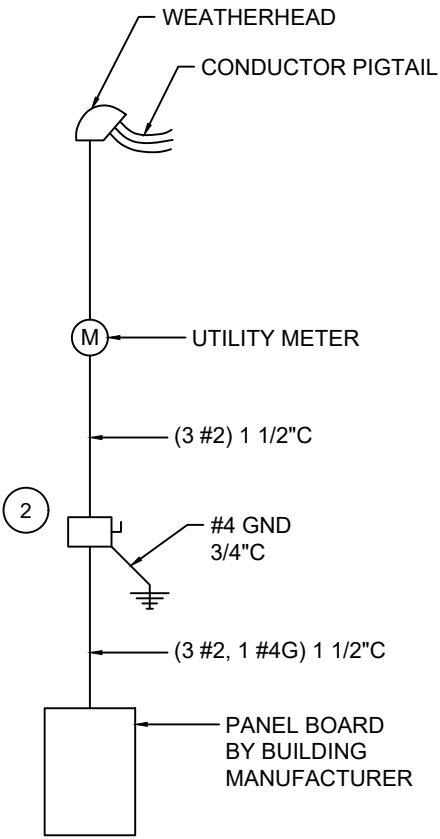
ELECTRICAL ABBREVIATIONS			
A STANDARD LIST. NOT ALL WORDS APPEAR IN THESE DRAWINGS.			
SEE SPECIFICATION SECTION "EQUIPMENT WIRING" FOR ADDITIONAL INFORMATION AND REQUIREMENTS.			
A or AMP	AMPERE	LA	LIGHTNING ARRESTOR
A/C	AIR CONDITIONING	LT	LIGHT
A/E or AE	ARCHITECT & ENGINEER	LTG	LIGHTING
ac	AC	LTS	LIGHTS
AC	ALTERNATING CURRENT	MC	MECHANICAL CONTRACTOR
ADA	AMERICANS WITH DISABILITIES ACT	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISH FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISH GRADE	MCM	THOUSAND CIRCULAR MILS
AFI or AFCI	ARC FAULT CIRCUIT INTERRUPTER	MDP	MAIN DISTRIBUTION PANEL
AHU	AUTHORITY HAVING JURISDICTION	MECH	MECHANICAL
AIR	AIR HANDLING UNIT	MFS	MAIN FUSIBLE SWITCH
AIC	AMPERES INTERRUPTING CURRENT	MH	METAL HALIDE
AL	ALUMINUM	MLO	MAIN LUG ONLY
ANN	ANNUNCIATOR	MSB	MAIN SWITCHBOARD
AS	AUTOMATIC SENSORS	MTD	MOUNTED
AWG	AMERICAN WIRE GAUGE	MTS	MOTOR THERMAL SWITCH
		MV	MERCURY VAPOR
bc	BELOW COUNTER	MW	MICROWAVE
BC	BELOW COUNTER		
BH	BASKETBALL HOOP OPER	NA or N/A	NOT APPLICABLE
BL	BLEACHER ELECTRIC OPERATOR	NC	NORMALLY CLOSED
BRD or BD	BOARD	NEC	NATIONAL ELECTRICAL CODE
BUH	BLAST UNIT HEATER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
		NEU, NEUT or N	NEUTRAL
C or COND	CONDUIT	NF	NON-FUSED
C/B or CB	CIRCUIT BREAKER	NL	NIGHT LIGHT
CAT	CATEGORY	NO	NORMALLY OPEN
CDT or CTK	CIRCUIT		
CM	CARBON MONOXIDE SENSOR	OFF, OF, or OFC	OFFICE
CO	CARBON MONOXIDE	OH	OVERHEAD
COMB	COMBINATION	OHD	OVERHEAD DOOR
CONF	CONFERENCE		
CP	CEILING PROJECTOR	P	POLE
CTC	CABLE TERMINATION CABINET	PA	PUBLIC ADDRESS
Cu or CU	COPPER	PB	PUSH BUTTON
CUH	CONDENSING UNIT	PH	PHASE
		PLB	PLUMBING
DC	DIRECT CURRENT	PAN	PANEL
DC	DISTRIBUTION CABINET	PR or pr	PAIR
DF	DISTRIBUTION PANEL	PRV	POWER ROOF VENTILATOR
DISC	DISCONNECT	PS	PULL SWITCH
DISP	DISPOSAL	PS	PROTECTION SCREEN
DL	DOCK LEVELER	PTZ	PAN TILT ZOOM
DN or DWN	DOWN	PVC	POLYVINYL CHLORIDE
DR	DOOR	PWR	POWER
DW	DISHWASHER	RCP	REFLECTED CEILING PLAN
DWG	DRAWING	REC or RECEPT	RECEPTACLE
		REF or REFRIG	REFRIGERATOR
EC	ELECTRICAL CONTRACTOR	RH	RADIANT HEAT
EC	ELECTRICAL CABINET	RH	RANGE HOOD
EF	EXHAUST FAN	RLY	RELAY
EH	ELECTRICAL HEAT	RM	ROOM
ELEC	ELECTRIC OR ELECTRICAL	RMS	ROOT MEAN SQUARE
EHD	ELECTRIC HAND DRYER		
EM or EMERG	EMERGENCY	SCC	SHORT CIRCUIT CURRENT
EMT	ELECTRICAL METALLIC TUBING	SD	SMOKE DETECTOR
ENT	ELECTRICAL NON-METALLIC TUBING	SFR	SAFETY RECEPTACLE
EUH	ELECTRIC UNIT HEATER	SFTY	SAFETY
EWVC	ELECTRIC WATER COOLER	SHLD	SHIELD OR SHIELDED
EX	EXISTING	SIG	SIGNAL
EXP	EXPLOSION PROOF	SMR	SURFACE MOUNT RACEWAY
		SN	SOLID NEUTRAL
F or FUS	FUSE OR FUSIBLE	SP	SUMP PUMP
FA	FIRE ALARM	SPECS	SPECIFICATIONS
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SPKR	SPEAKER
FACP	FIRE ALARM CONTROL PANEL	SPR	SPLIT WIRE RECEPTACLE
FBO	FURNISHED BY OTHERS	SW	SWITCH
FL, FLU or FLUOR	FLUORESCENT	SWBD	SWITCH BOARD
FLA	FULL LOAD AMPERES		
FVNR	FULL VOLTAGE, NON-REVERSING	TC	TEMPERATURE CONTROL
FVR	FULL VOLTAGE, REVERSING	TC	TELEPHONE CABINET
		TCC	TEMPERATURE CONTROL CONTRACTOR
GC	GENERAL CONTRACTOR	TEL	TELEPHONE
GD	GARBAGE DISPOSAL	TL	TWIST LOCK
GEN	GENERATOR	TR, TRANS or TRFMR	TRANSFORMER
GFI or GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TTB	TELEPHONE TERMINATION BOARD
GIC	GALVANIZED RIGID CONDUIT	TV	TELEVISION
GND or GRND	GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
		TYP	TYPICAL
H & AC	HEATING & AIR CONDITIONING	UG	UNDERGROUND
H & V	HEATING & VENTILATING	UH	UNIT HEATER
HA	HANDICAP ACCESS DOOR	UV	UNIT VENTILATOR
HD	HAND DRYER		
HID	HIGH INTENSITY DISCHARGE	V	VOLT
HP	HORSE POWER	VFD	VARIABLE FREQUENCY DRIVE
HPS	HIGH PRESSURE SODIUM		
HTG	HEATING	W	WATT
HTR	HEATER	W	WITH
HVAC	HEATING, VENTILATION & AIR CONDITIONING	W/O	WITHOUT
HZ	HERTZ (CYCLES/SEC)	WP	WEATHERPROOF
		WTR or H2O	WATER
IC	INTERRUPTING CURRENT	WS	WINDOW SHADE
IGR	ISOLATED GROUND RECEPTACLE	XFMR	TRANSFORMER
IMC	INTERMEDIATE METAL CONDUIT		
INC	INCANDESCENT	Y	WYE CONNECTION
ISO	ISOLATED OR ISOLATION		
		Δ	DELTA
J, JB or J-BOX	JUNCTION BOX		
KCMIL	THOUSAND CIRCULAR MILS		
KV	KILOVOLT		
KVA	KILOVOLT - AMPERE		
KVAR	KILOVOLT - AMPERE REACTIVE		
KW	KILOWATT		
KWH	KILOWATT - HOUR		



② ELECTRICAL PLAN
1/2" = 1'-0"



① GROUNDING ELECTRODE DIAGRAM
NTS



③ ONE-LINE DIAGRAM
NTS

WEST PLAINS ENGINEERING, INC.

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RAPID CITY, SD • SIOUX FALLS, SD • CASPER, WY • CEDAR RAPIDS, IA • BISMARCK, ND

REVISIONS		
#	DESCRIPTION	DATE
1		
2		
3		
4		

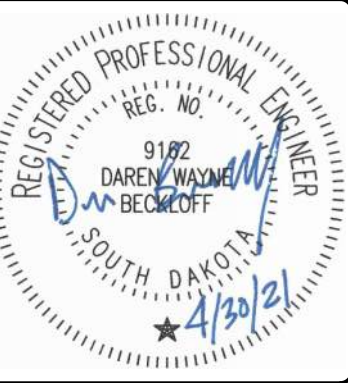
ELECTRICAL FLOOR PLAN

INDUSTRIAL & POTABLE WATER

TO YATES COMPLEX

LEAD, SOUTH DAKOTA

PROJECT#:	BR20030
DESIGNED:	DWB
DRAWN:	JCO
APPROVED:	DWB
DATE:	4/30/2021



SHEET:

E2

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