

TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

CONTRACT NO. W-143
FOR
SPRINGVALE NO. 4
WATER PUMP STATION

BOARD OF SELECTMEN

JONATHAN H. FREEDMAN, CHAIRMAN
SUSAN G. SALAMOFF, VICE CHAIRMAN
RICHARD P. JENNETT, JR., CLERK
MICHAEL J. HICKEY
AMY K. MISTROT

ACTING TOWN ADMINISTRATOR

WILLIAM CHENARD

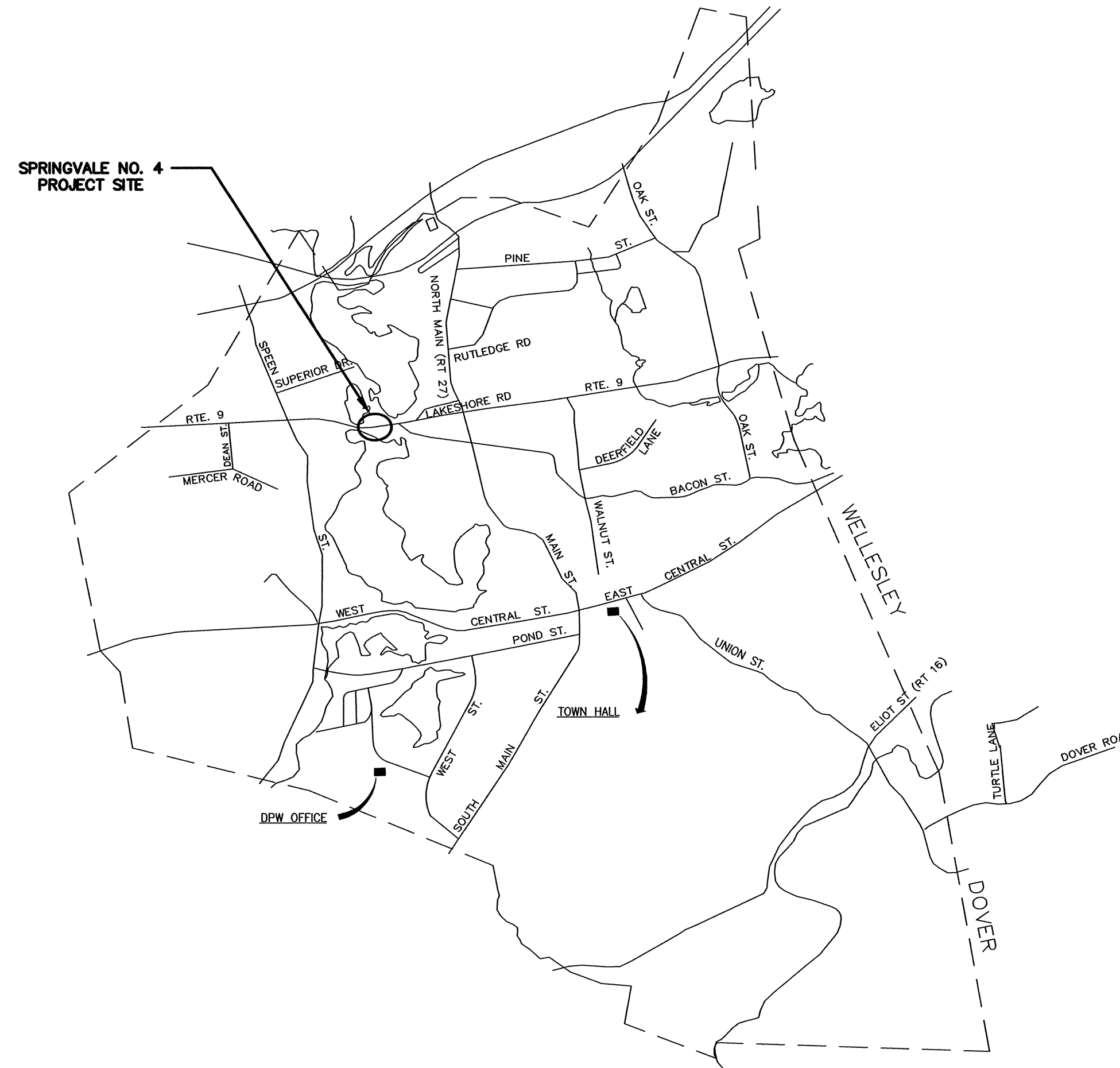
DIRECTOR OF PUBLIC WORKS

JEREMY MARSETTE

WATER AND SEWER SUPERINTENDENT

ANTHONY COMEAU

HALEY AND WARD, INC.
ENGINEERS
MAYNARD, MASSACHUSETTS



INDEX

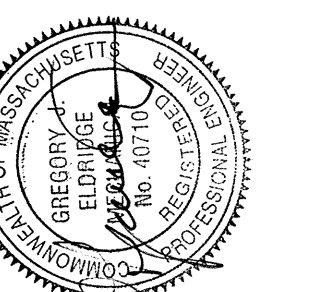
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TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

SPRINGVALE NO. 4
WATER PUMP STATION

Haley and Ward, Inc.

63 GREAT ROAD, SUITE 200,
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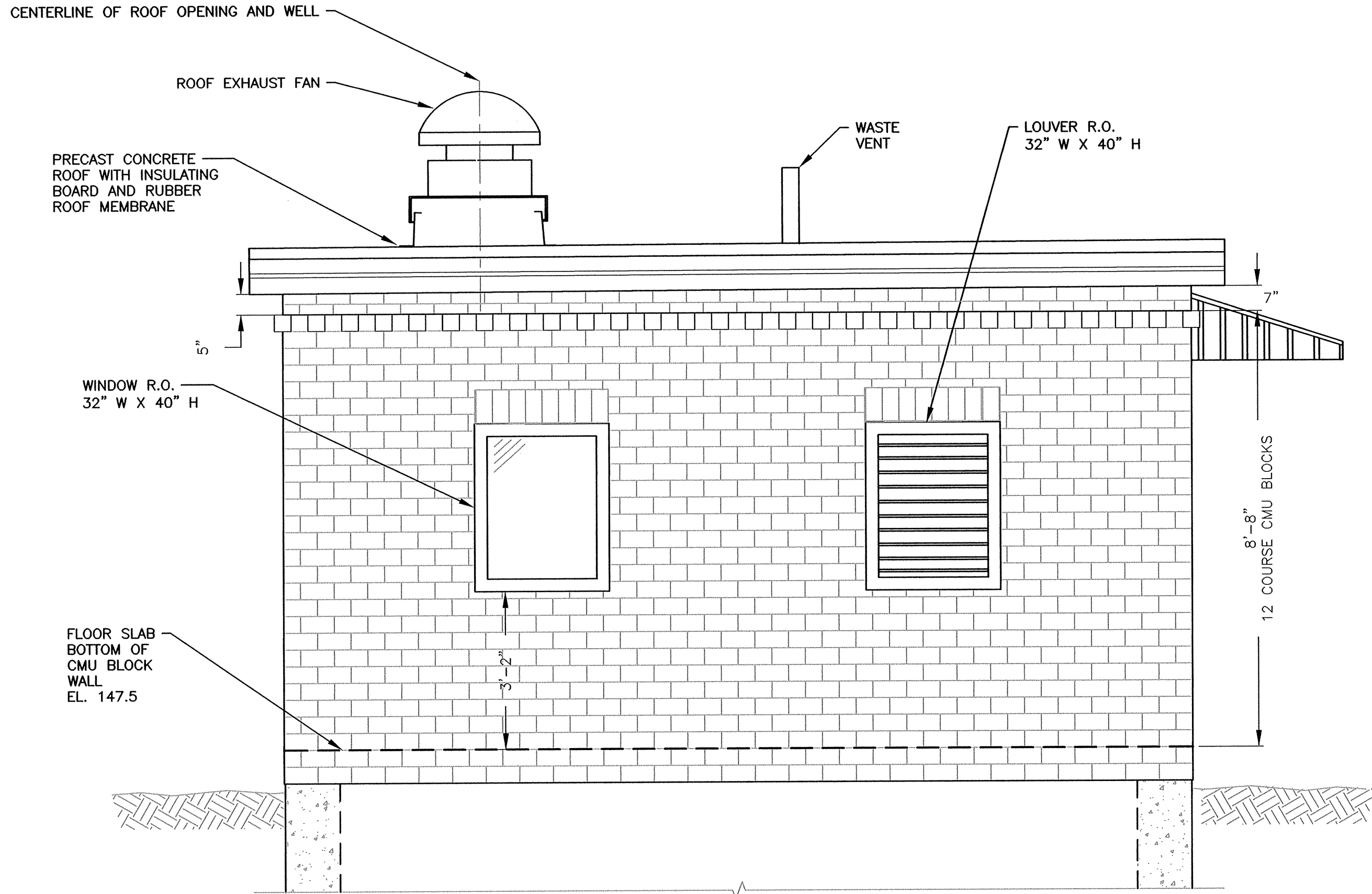


CHECKED	DATE	BY	REVISION	DATE	BY

SHEET NO.:	1 OF 22
CONTRACT NO.:	W-143
SCALE:	NONE
DATE DRAWN:	SEPTEMBER, 2017
DRAWN BY:	LJC
FILE NO.:	NAT-436-CVR.DWG

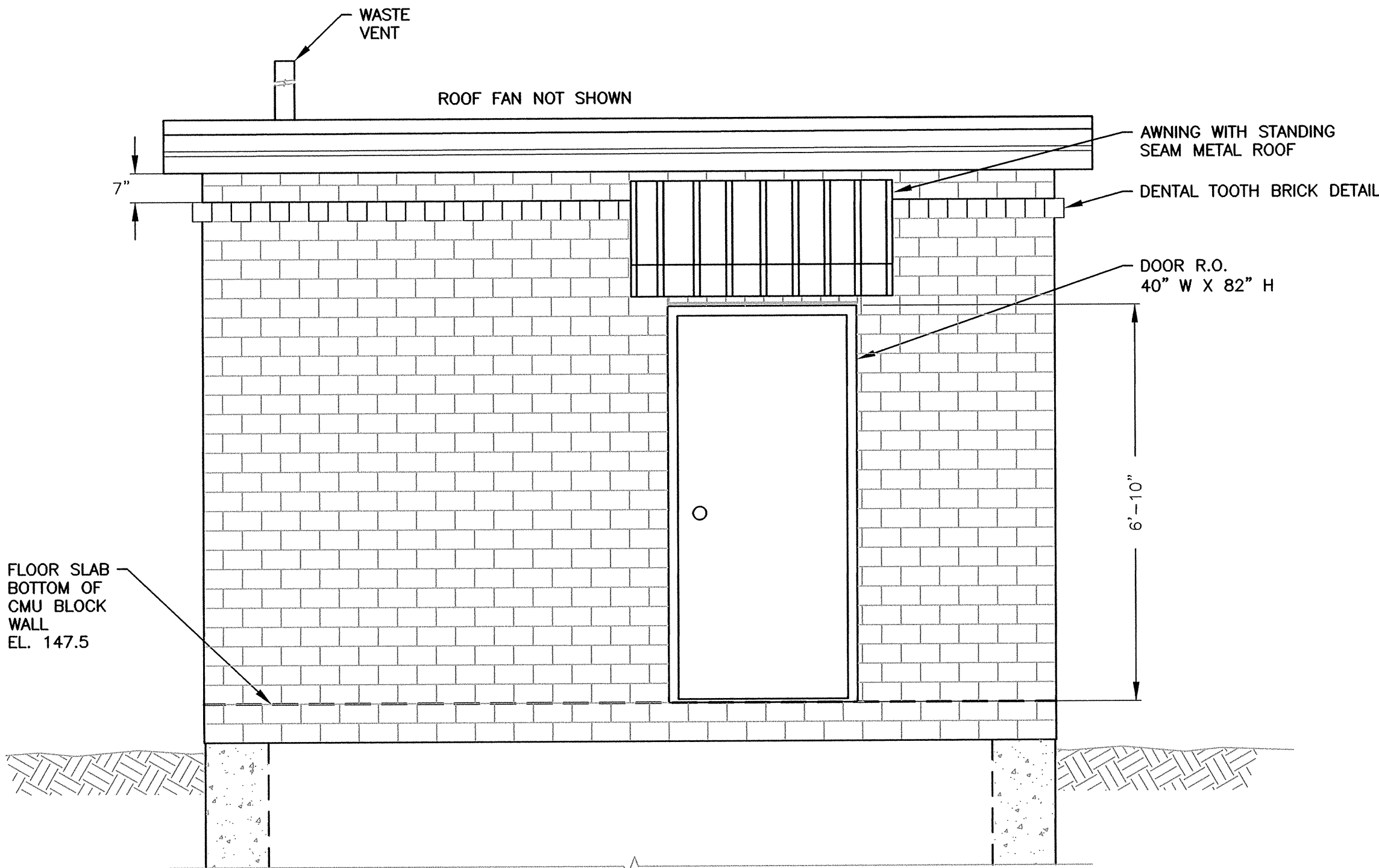
DWG. NO.

CVR



LEFT WALL (EAST)

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

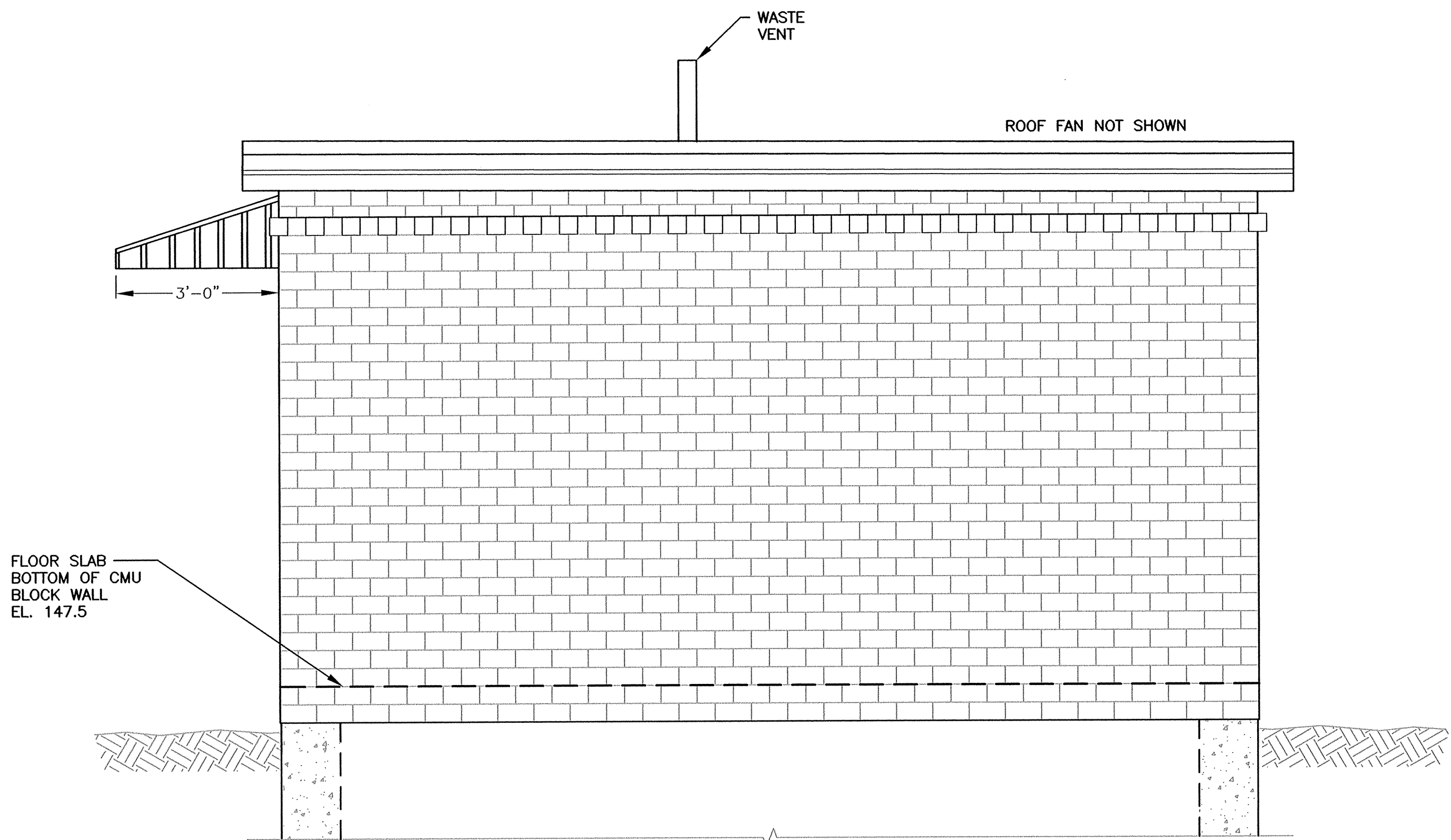


FRONT WALL (NORTH)

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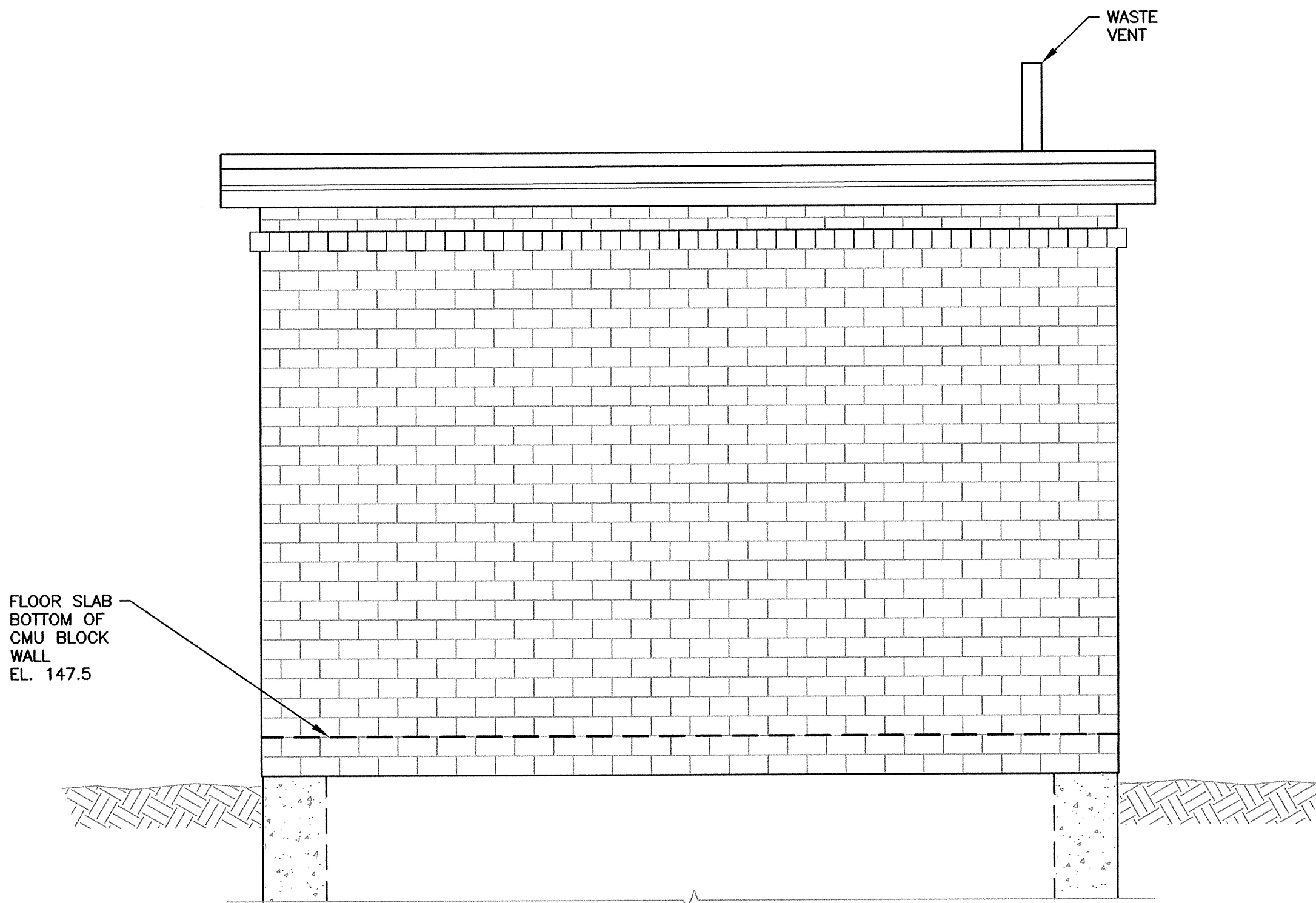
MASONRY NOTES:

1. DOOR ACCESS CONTROL SYSTEM WILL BE INSTALLED UNDER SEPARATE CONTRACT.
2. MASON TO COORDINATE ELECTRIC DOOR STRIKE JUNCTION BOX INSERT INTO WALL WITH ELECTRICAL CONTRACTOR.
3. ALL JUNCTION BOXES ON EXTERIOR OF BUILDING TO BE RECESSED INTO WALL. BOXES ARE TO BE FLUSH WITH BRICK EXTERIOR. COORDINATE WITH ELECTRICAL CONTRACTOR.



RIGHT WALL (WEST)

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



REAR WALL (SOUTH)

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

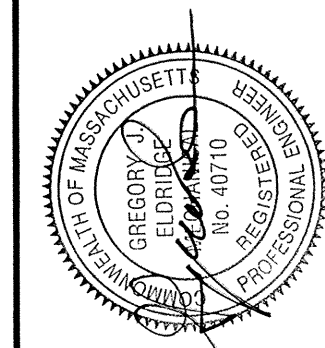
TOWN OF NATICK, MASSACHUSETTS
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**SPRINGVALE NO. 4
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**ARCHITECTURAL
ELEVATIONS**

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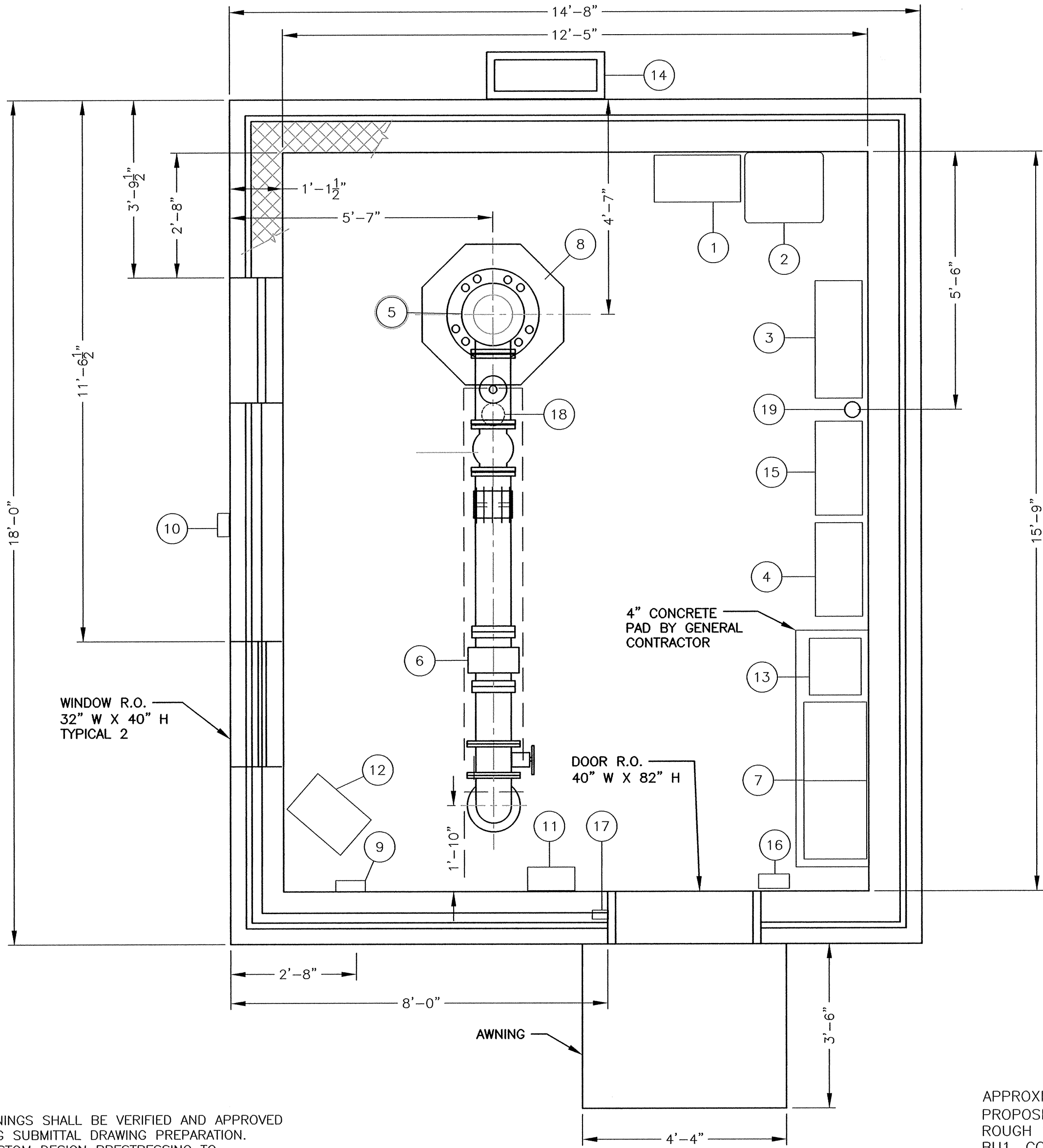
SHEET NO.:	4 OF 22
CONTRACT NO.:	W-143
SCALE:	1/2" = 1'
DATE DRAWN:	OCTOBER, 2017
DRAWN BY:	LJC
FILE NO.:	NAT436-A1.DWG

DWG. NO.

A1

NOTES:

- HOLLOW CORE PLANK ROOF OPENINGS SHALL BE VERIFIED AND APPROVED BY PLANK MANUFACTURER DURING SUBMITTAL DRAWING PREPARATION. PLANK MANUFACTURER SHALL CUSTOM DESIGN PRESTRESSING TO ACCOMMODATE ROOF OPENINGS. DERIVATIONS FROM THE DESIGN OR LAYOUT SHOWN ON THIS DRAWING SHALL BE APPROVED BY ENGINEER AND ROOF PLANK MANUFACTURER DESIGN DIVISION.
- PARTIAL HOLLOW CORE PLANKS IF REQUIRED SHALL BE FACTORY SAW CUT BY THE PLANK MANUFACTURER. A 1" POUR JOINT SHALL BE PROVIDED BETWEEN THE SAW CUT JOINTS FOR TOLERANCE.
- OPENINGS SHOWN ON THE REFLECTED CEILING VIEW ARE BASED UPON EQUIPMENT SELECTED DURING THE DESIGN PHASE FOR THE PROJECT. ACTUAL OPENING SIZE AND LOCATIONS MAY NEED TO BE ALTERED TO FIT CONFIGURATION OF APPROVED EQUIPMENT. THE CONTRACTOR MUST SUBMIT REQUIRED INFORMATION TO PLANK MANUFACTURER TO INSURE ALTERATIONS ARE INCLUDED PRIOR TO MANUFACTURING THE PLANKS.



FLOOR PLAN

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

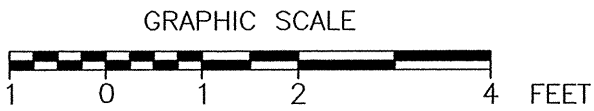
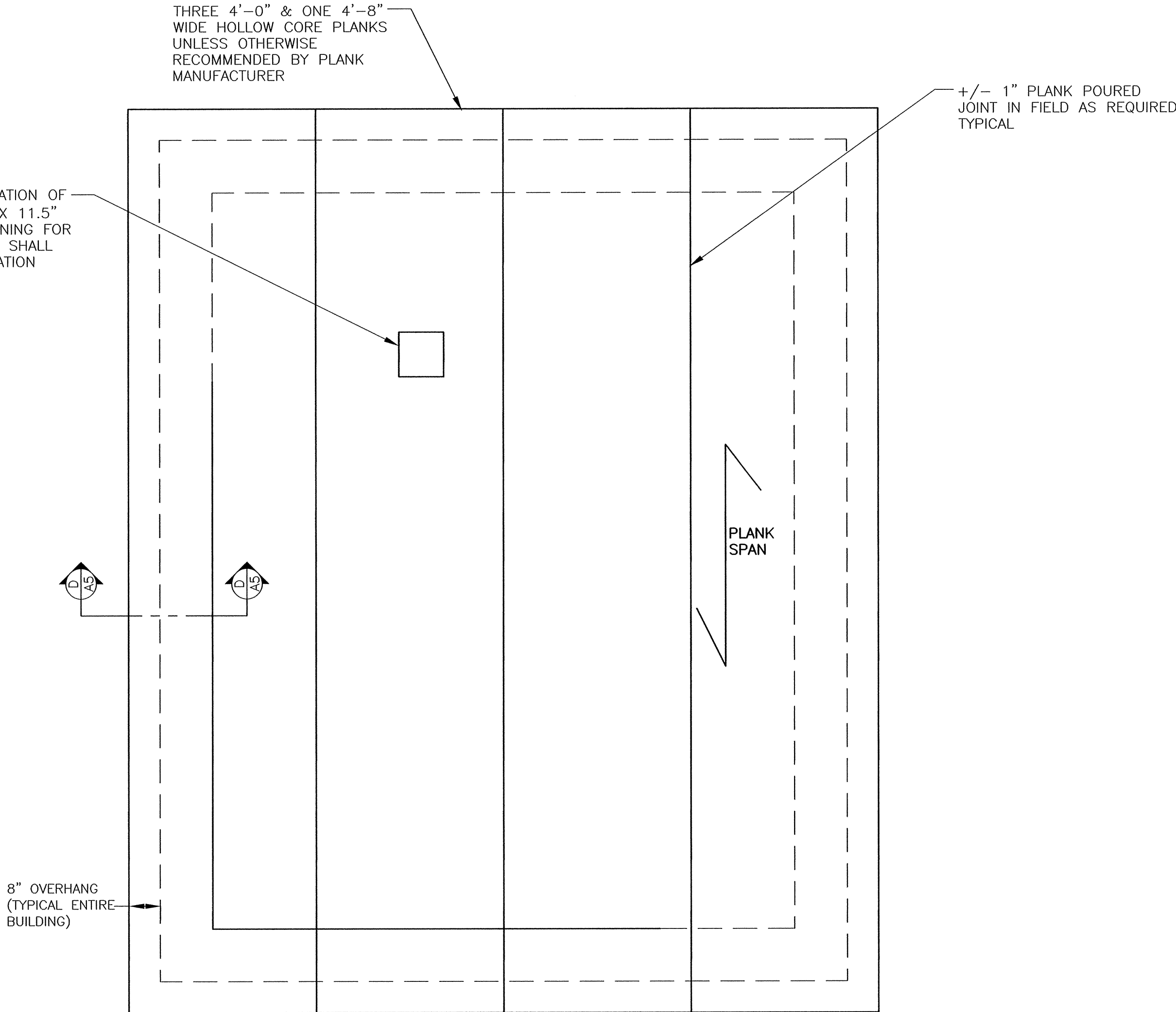
EQUIPMENT KEY

- VFD
- VFD FILTER
- AIR HANDLER DUCTLESS AIR CONDITION SYSTEM
- RELOCATED SCADA ENCLOSURE
- PUMP MOTOR
- MAGMETER
- MOTOR CONTROL CENTER
- ROOFTOP FAN
- HEATER DISCONNECT
- JUNCTION BOX FOR FUTURE CAMERA
- BUILDING SECURITY PANEL
- ELECTRIC HEATER
- FLOOR MOUNT TRANSFORMER
- CONDENSER AIR CONDITION SYSTEM
- FAN CONTROL PANEL
- DOOR ACCESS CONTROL JUNCTION BOX
- ELECTRONIC DOOR STRIKE JUNCTION BOX
- FLOOR DRAIN
- 3" C.I. VENT THROUGH ROOF

MASONRY NOTES:

- DOOR ACCESS CONTROL SYSTEM WILL BE INSTALLED UNDER SEPARATE CONTRACT.
- MASON TO COORDINATE ELECTRIC DOOR STRIKE JUNCTION BOX INSERT INTO WALL WITH ELECTRICAL CONTRACTOR.
- ALL JUNCTION BOXES ON EXTERIOR OF BUILDING TO BE RECESSED INTO WALL, BOXES ARE TO BE FLUSH WITH BRICK EXTERIOR, COORDINATE WITH ELECTRICAL CONTRACTOR.

APPROXIMATE LOCATION OF PROPOSED 11.5" X 11.5" ROUGH ROOF OPENING FOR BU1. CONTRACTOR SHALL FIELD VERIFY LOCATION



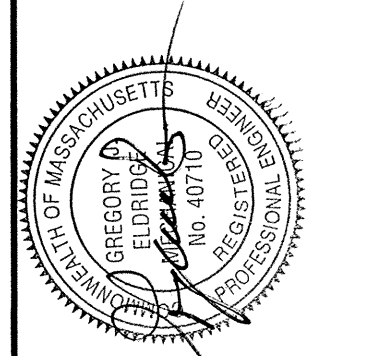
TOWN OF NATICK, MASSACHUSETTS
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BUILDING PLAN
VIEWS

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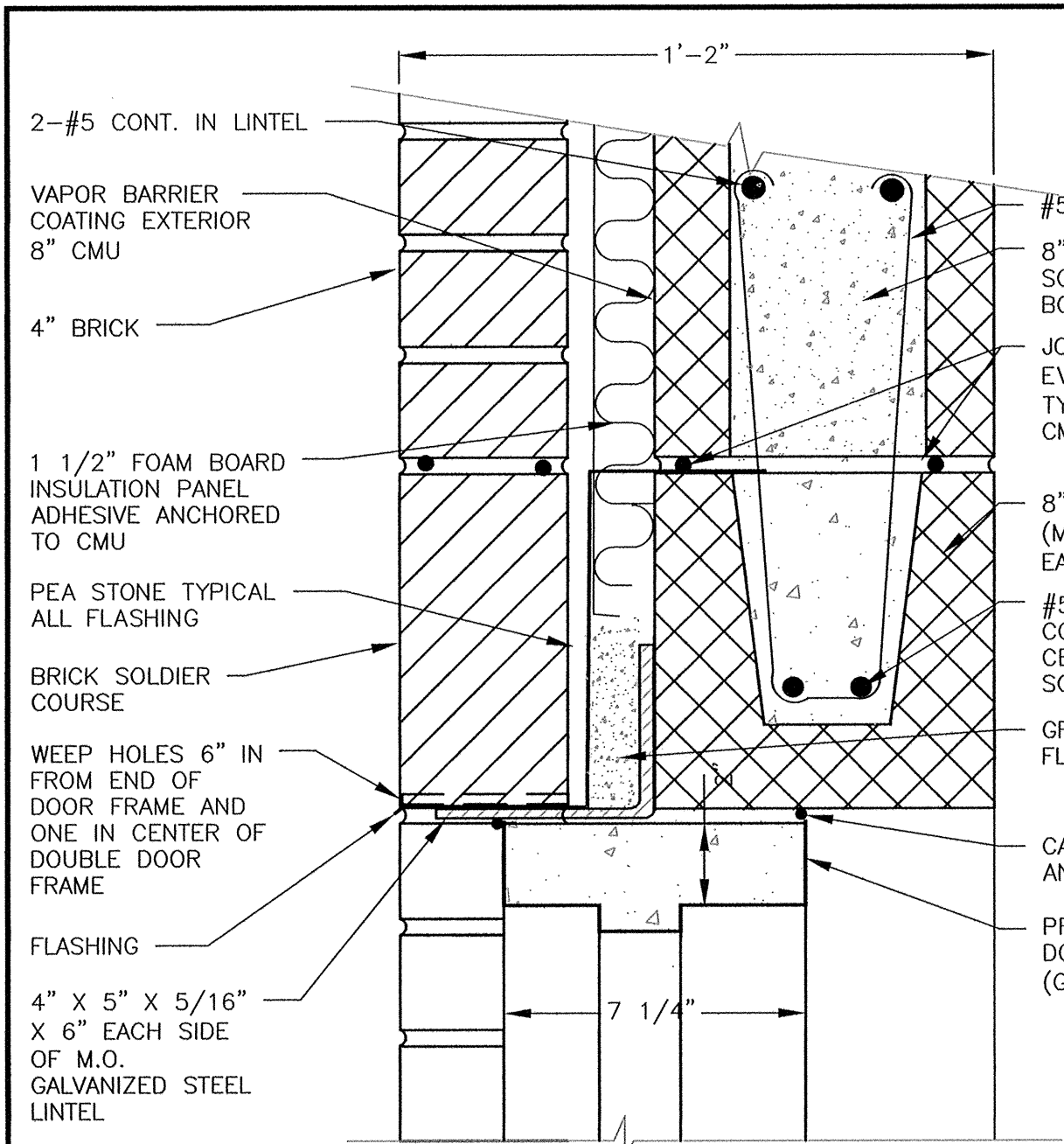


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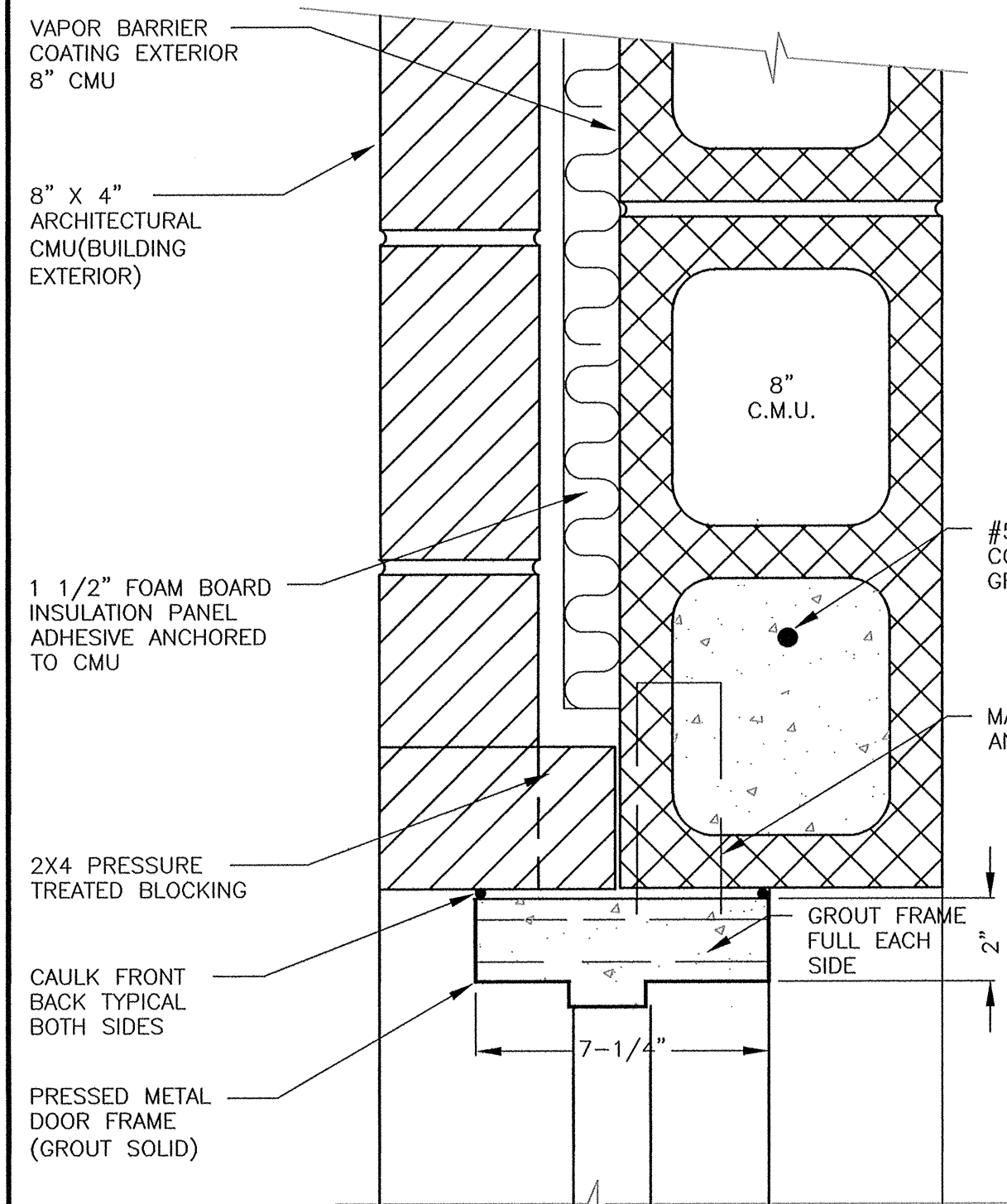
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A2



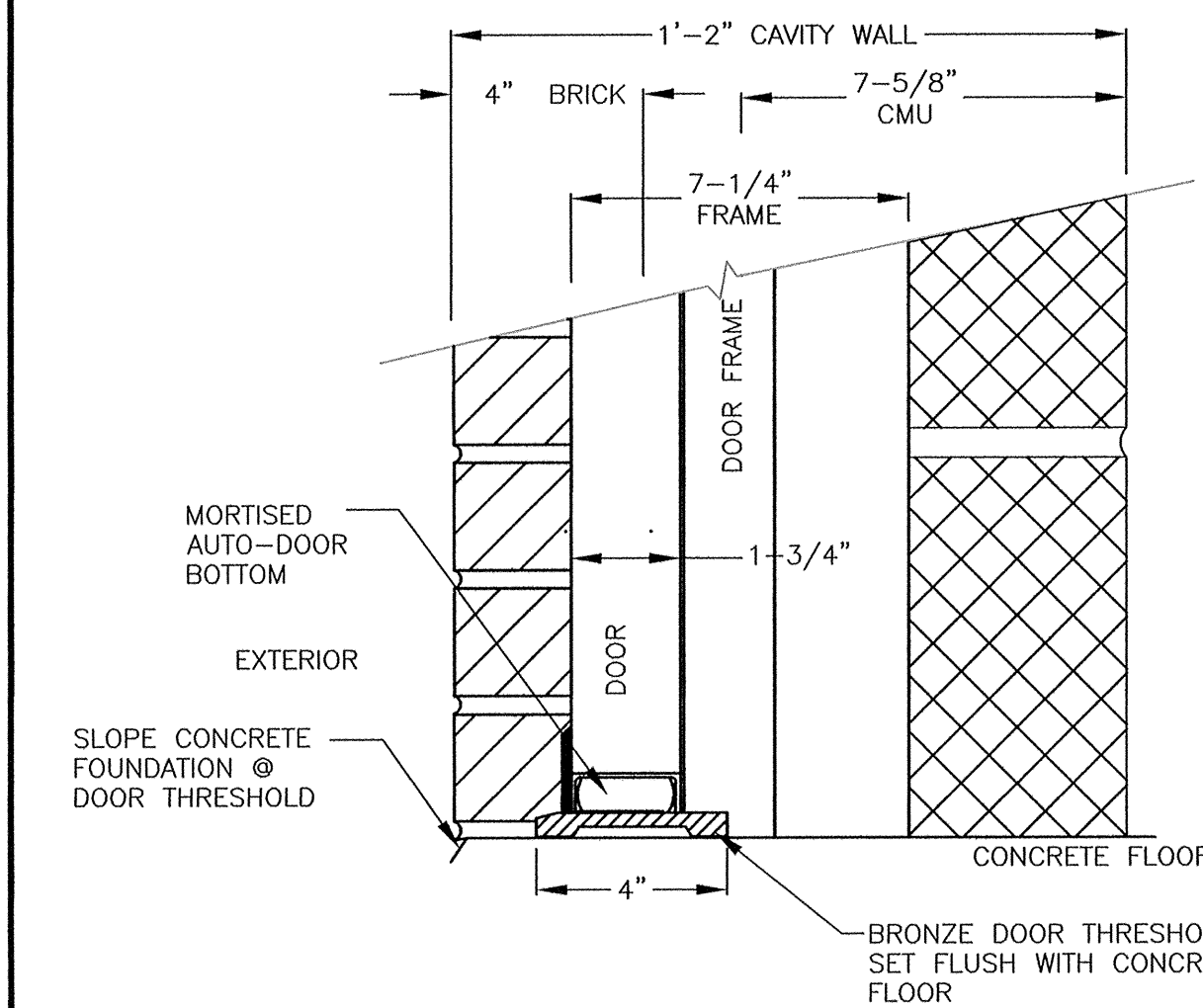
EXTERIOR DOOR HEAD SECTION

SCALE: 3" = 1'



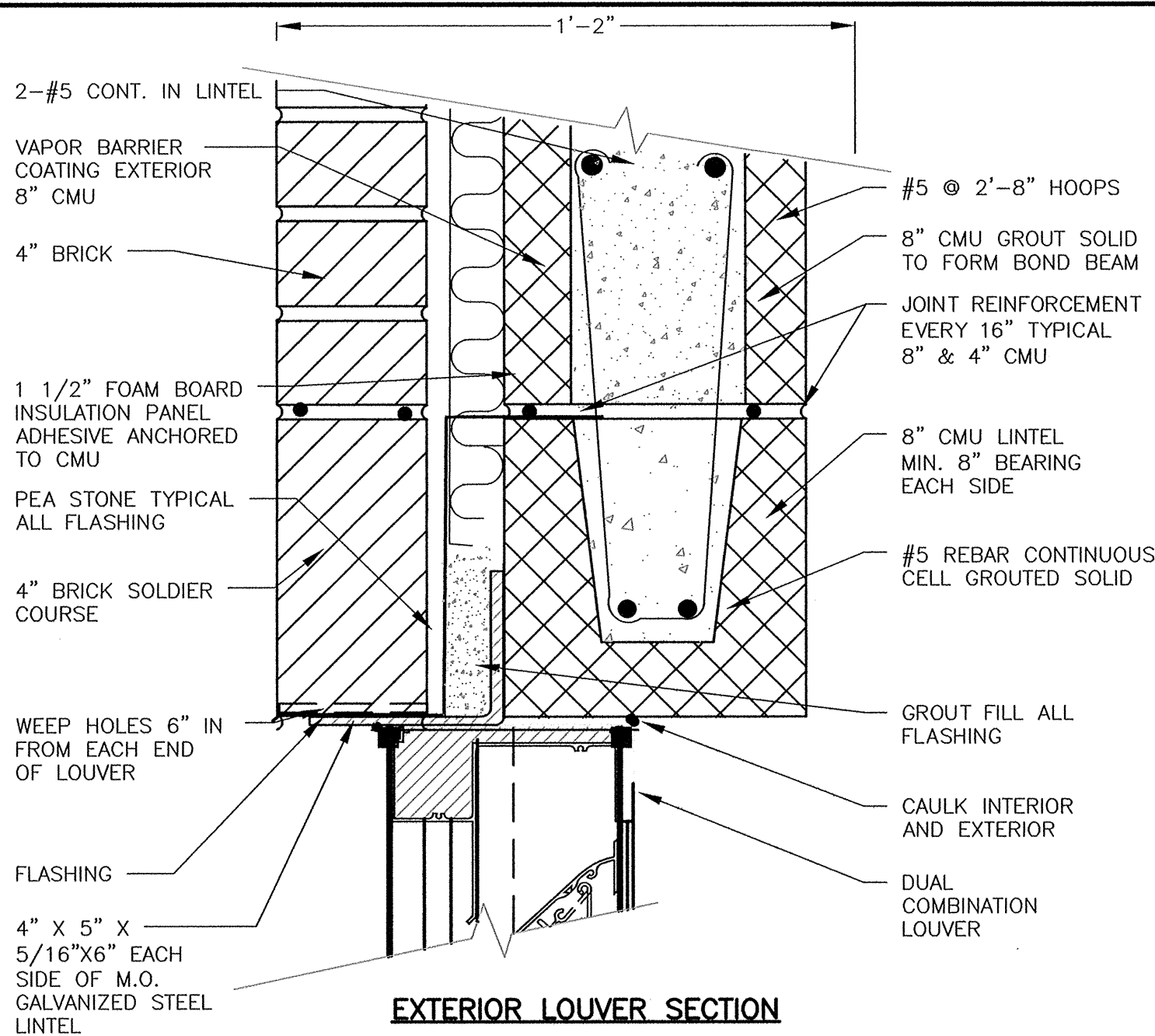
DOOR JAMB SECTION

SCALE: 3" = 1'-0"



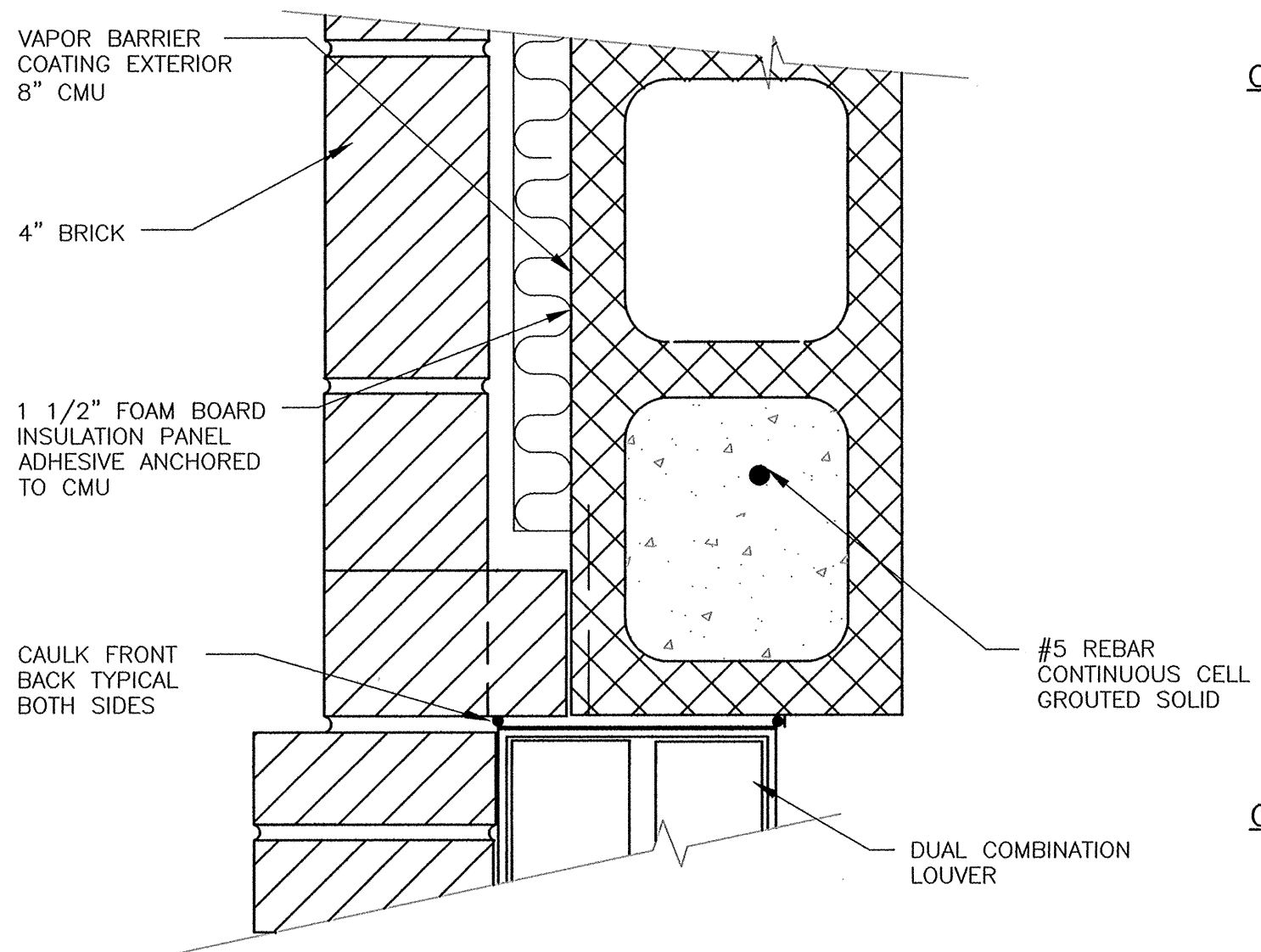
DOOR SILL SECTION

SCALE: 3" = 1'-0"



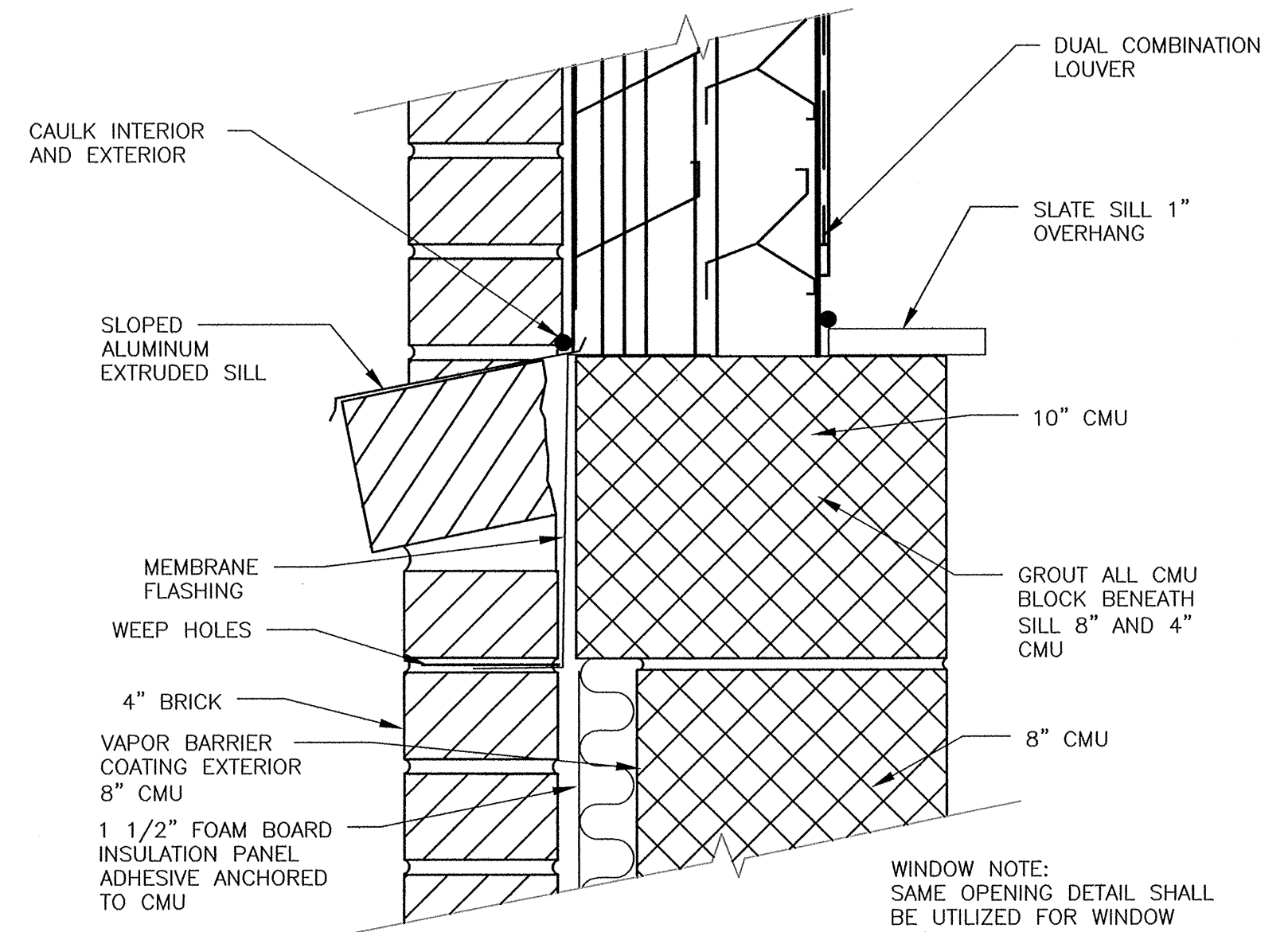
EXTERIOR LOUVER SECTION

SCALE: 3" = 1'



LOUVER JAMB SECTION

SCALE: 3" = 1'-0"

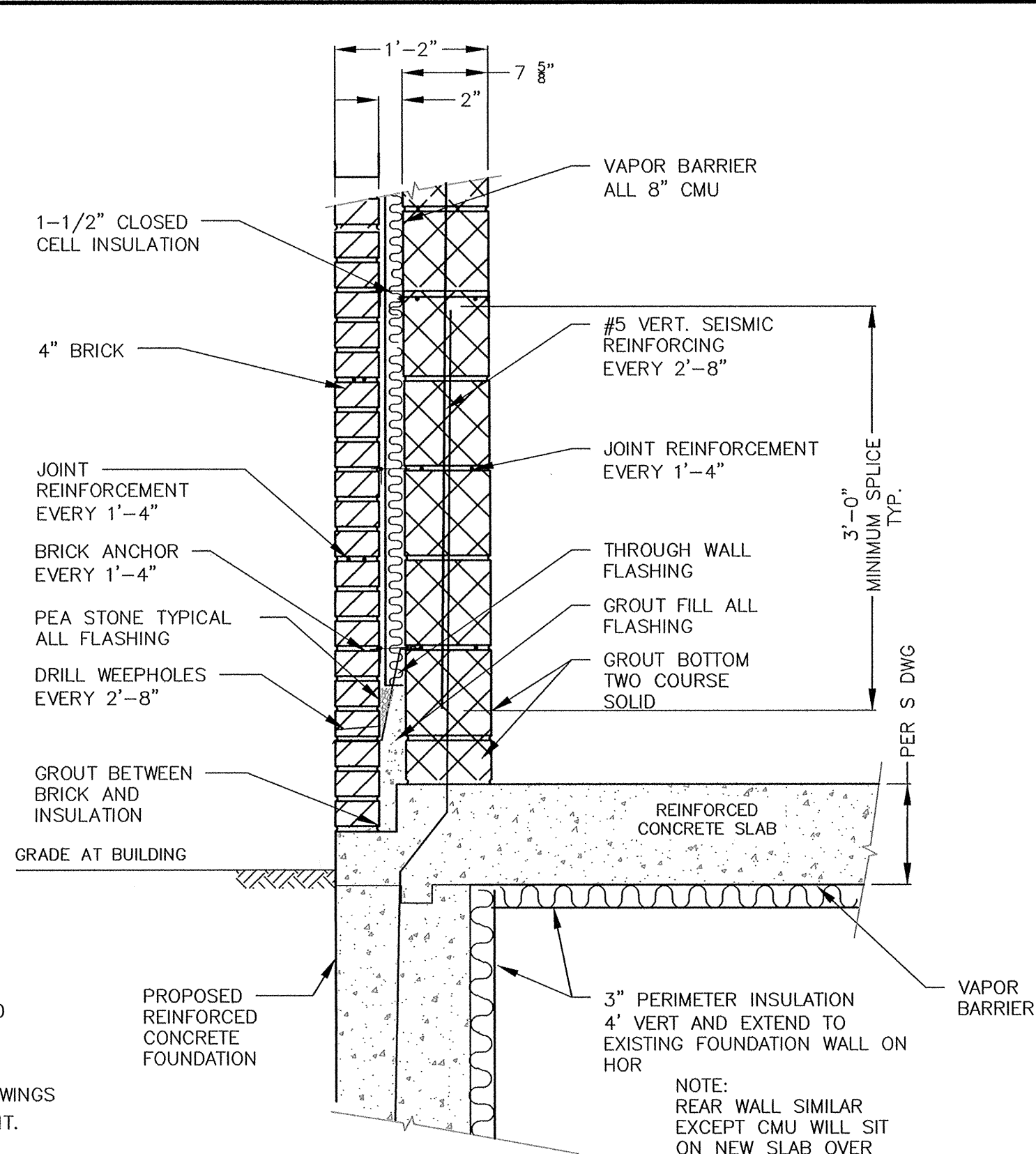


LOUVER SILL DETAIL

NOT TO SCALE

MASONRY NOTES:

1. SEISMIC REINFORCING SHALL BE LAPPED 30 DIAMETERS.
2. GROUT ALL CELLS AS SHOWN ON THE DRAWINGS AND ALL CELLS CONTAINING REINFORCEMENT.



PERIMETER CAVITY WALL SECTION

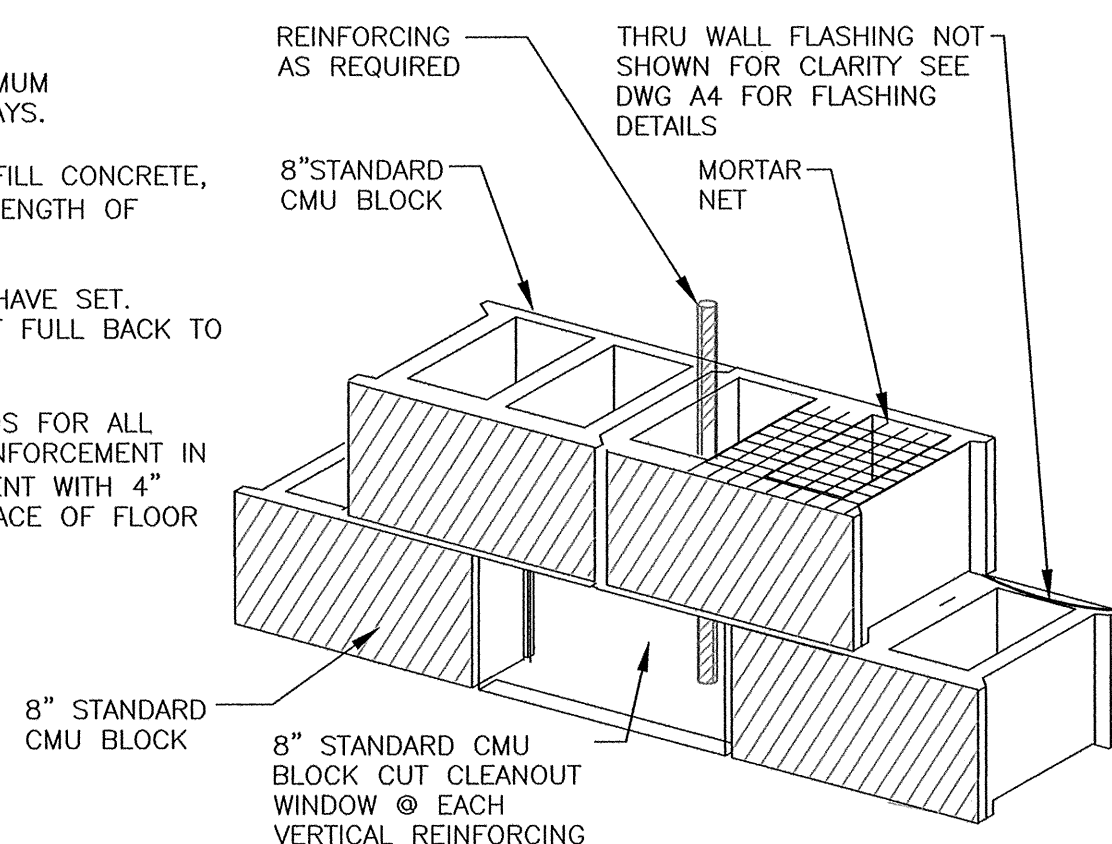
SCALE: 1" = 1'

CAVITY WALL CONSTRUCTION NOTES:

1. MEET ALL REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS.
2. CMU SHALL BE NOMINAL DIMENSION 8" HIGH BY 16" LONG BY NOTED THICKNESS.
3. CAVITY ALL CONSTRUCTION SHALL CONFORM TO "SPECIFICATIONS FOR MASONRY STRUCTURES" ASCI 530.1, LATEST REVISION.
4. MORTAR SHALL COMPLY WITH THE SPECIFICATIONS AND MEET ASTM C270, TYPE S, WITH MINIMUM COMPRESSIVE STRENGTH OF 1,350 PSI. MORTAR SHALL BE INSTALLED WITHIN 2 HOURS OF MIXING.
5. PROVIDE HORIZONTAL TRUSS REINFORCING, EVERY SECOND COURSE OF MASONRY UNITS.
6. GROUT ALL CORES CONTAINING VERTICAL REINFORCEMENT.
7. INSTALL VERTICAL REINFORCEMENT WHERE SHOWN AND ON EITHER SIDE OF ALL DOOR AND WINDOW OPENINGS.

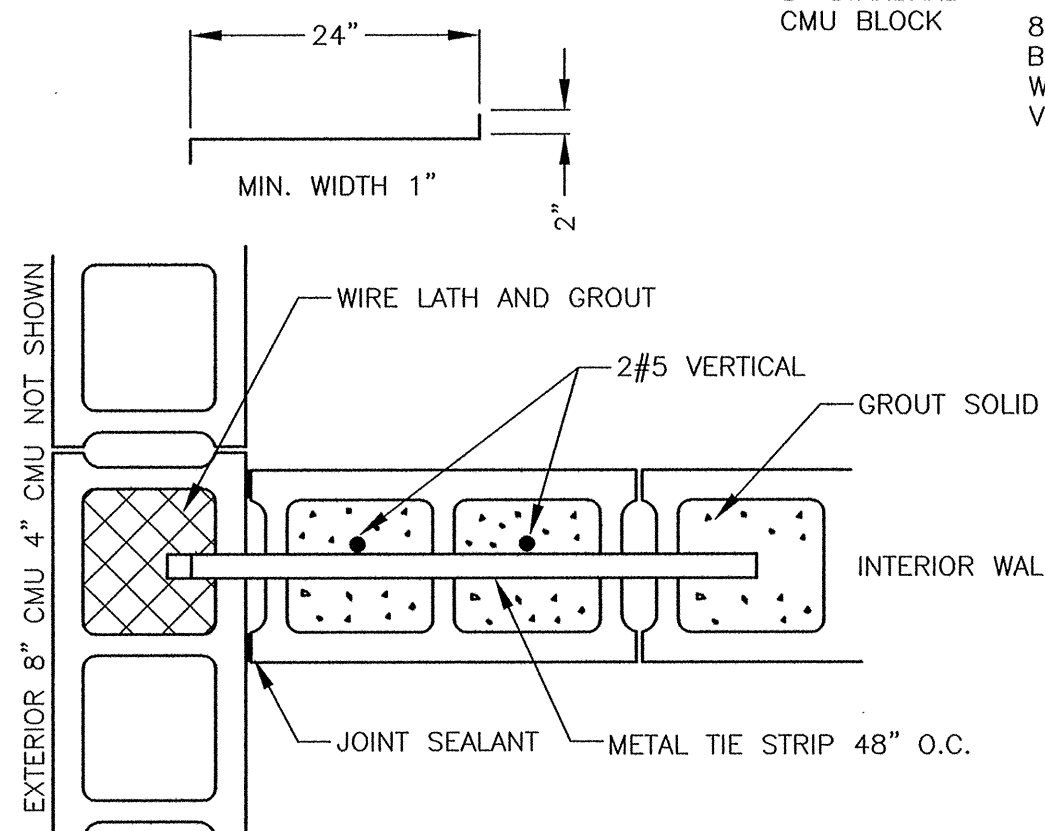
CONCRETE STRENGTH NOTES:

1. ALL REINFORCED CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS.
2. NON REINFORCED CONCRETE (THRUST BLOCKS, FILL CONCRETE, ETC.) SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI @ 28 DAYS.
3. CUT CONTROL JOINTS 24 HOURS AFTER SLABS HAVE SET. LOCATION TO BE DETERMINED IN THE FIELD. CUT FULL BACK TO SLAB EDGES.
4. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED EQUIPMENT. PLACE W4xW4 REINFORCEMENT IN ALL PADS, WIDTH AND LENGTH TO SUIT EQUIPMENT WITH 4" EXTENSION BEYOND EQUIPMENT. ROUGHEN SURFACE OF FLOOR TO PLACE NEW CONCRETE OVER.



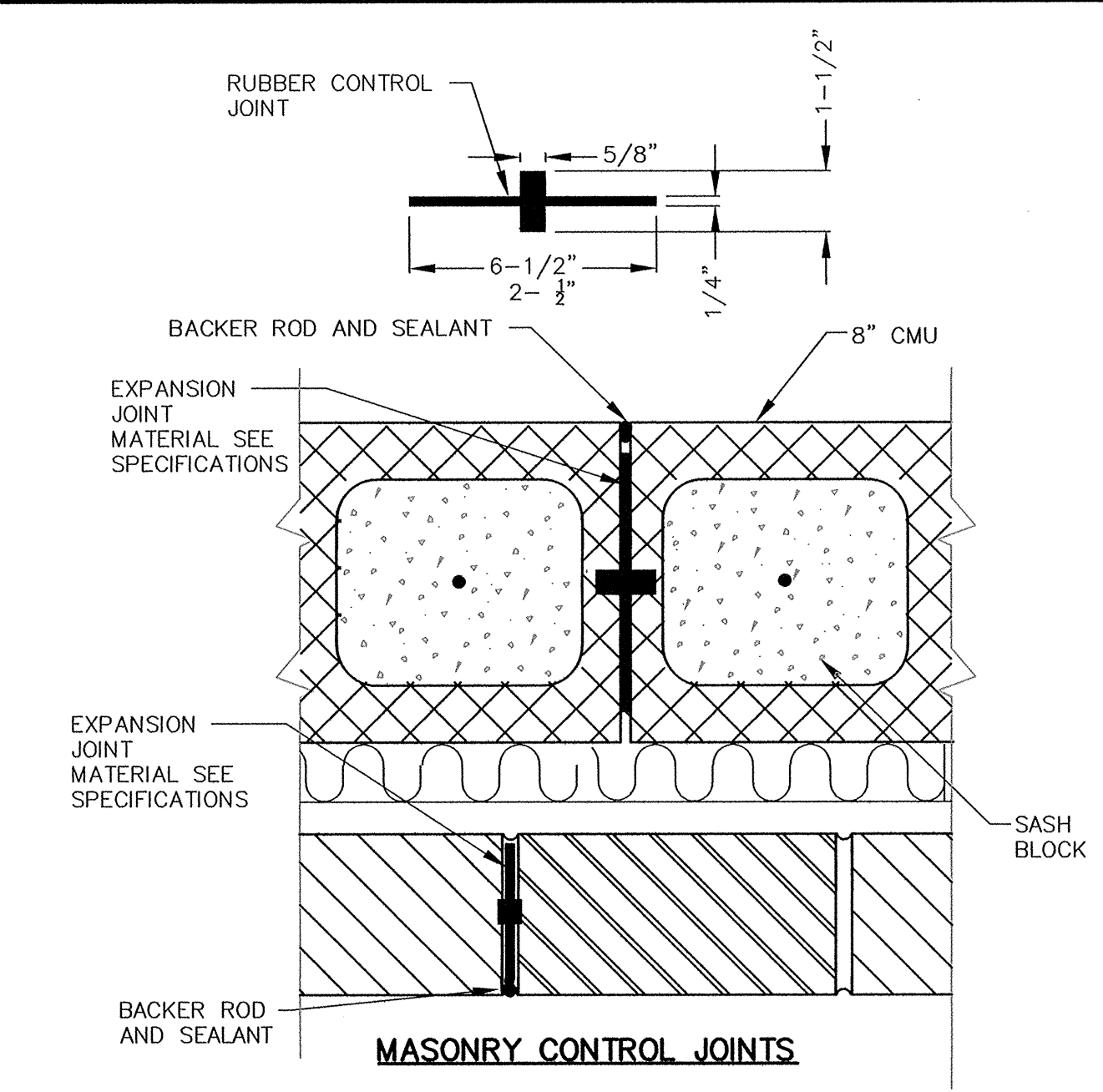
REINFORCING CELL CLEANOUT WINDOW DETAIL

NOT TO SCALE



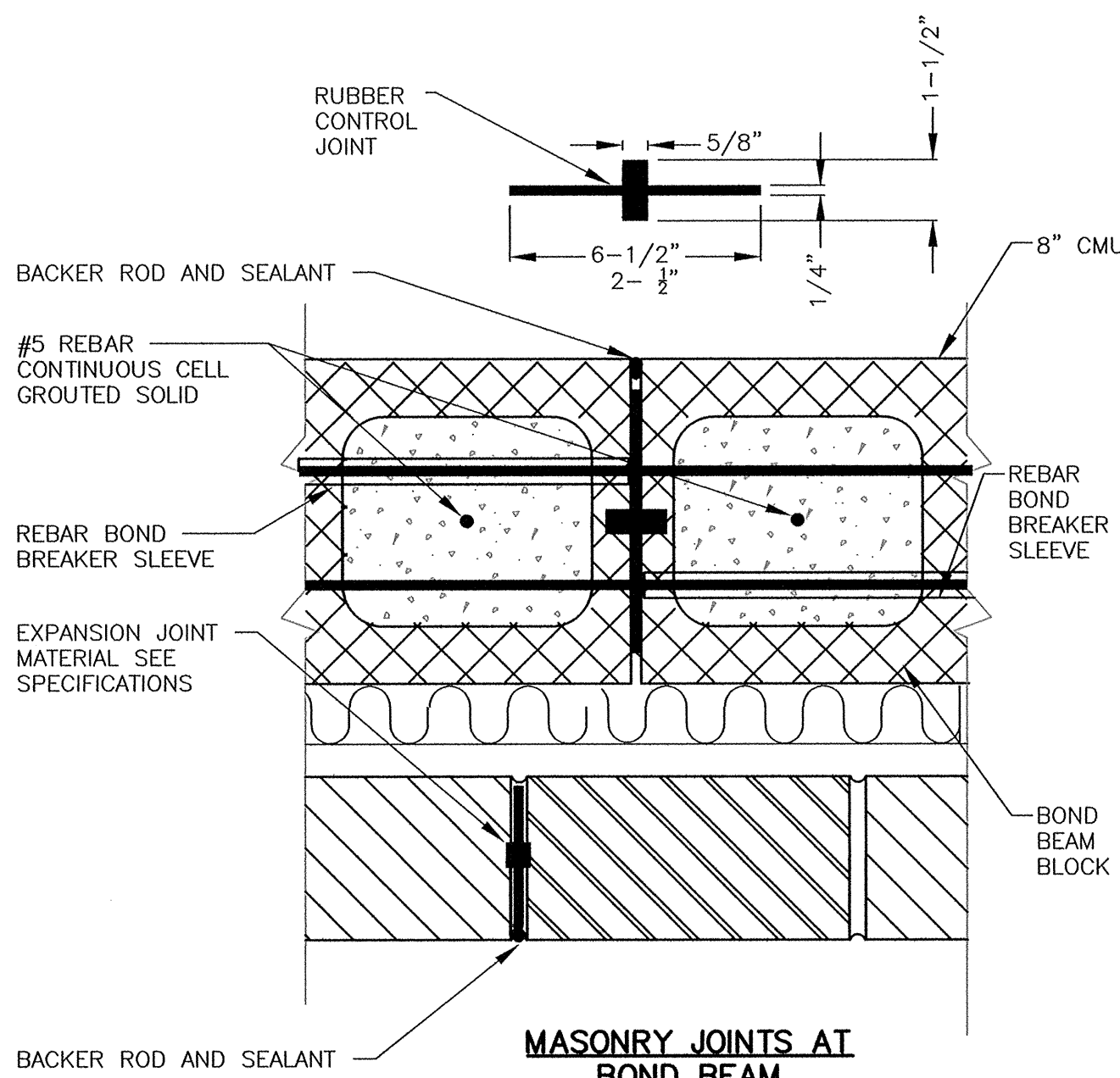
C.M.U. WALL INTERSECTIONS

NOT TO SCALE



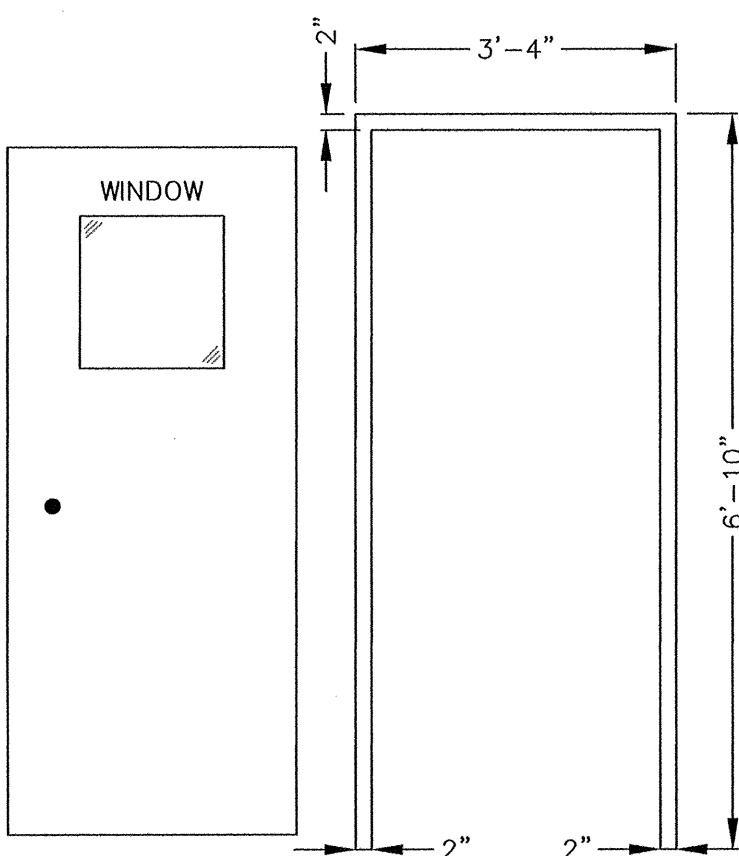
MASONRY CONTROL JOINTS

SCALE: 3" = 1'-0"



MASONRY JOINTS AT BOND BEAM

SCALE: 3" = 1'-0"



DOOR TYPE "A"

DOOR FRAME TYPE "A"

DOOR SCHEDULE

DOOR NO.	LOCATION	DOOR SIZE			DETAIL LOCATION FOR HEAD JAMB AND SILL	DOOR TYPE	DOOR FRAME TYPE	NOTES
		W	H	THICKNESS				
D-1	NEW PUMP STATION ENTRANCE	3'-0"	6'-8"	1-3/4"	A4	B	A	BRONZE THRESHOLD
D-2	EXISTING PUMP STATION	5'-8"	6'-11"	1-3/4"	D1	N/A	FABR.	COILING OVERHEAD DOOR

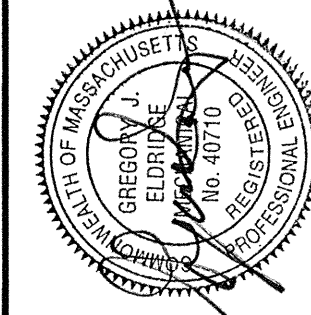
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WATER PUMP STATION

ARCHITECTURAL
DETAILS

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FILE NO.:	NAT436-A4.DWG

DWG. NO.

A3

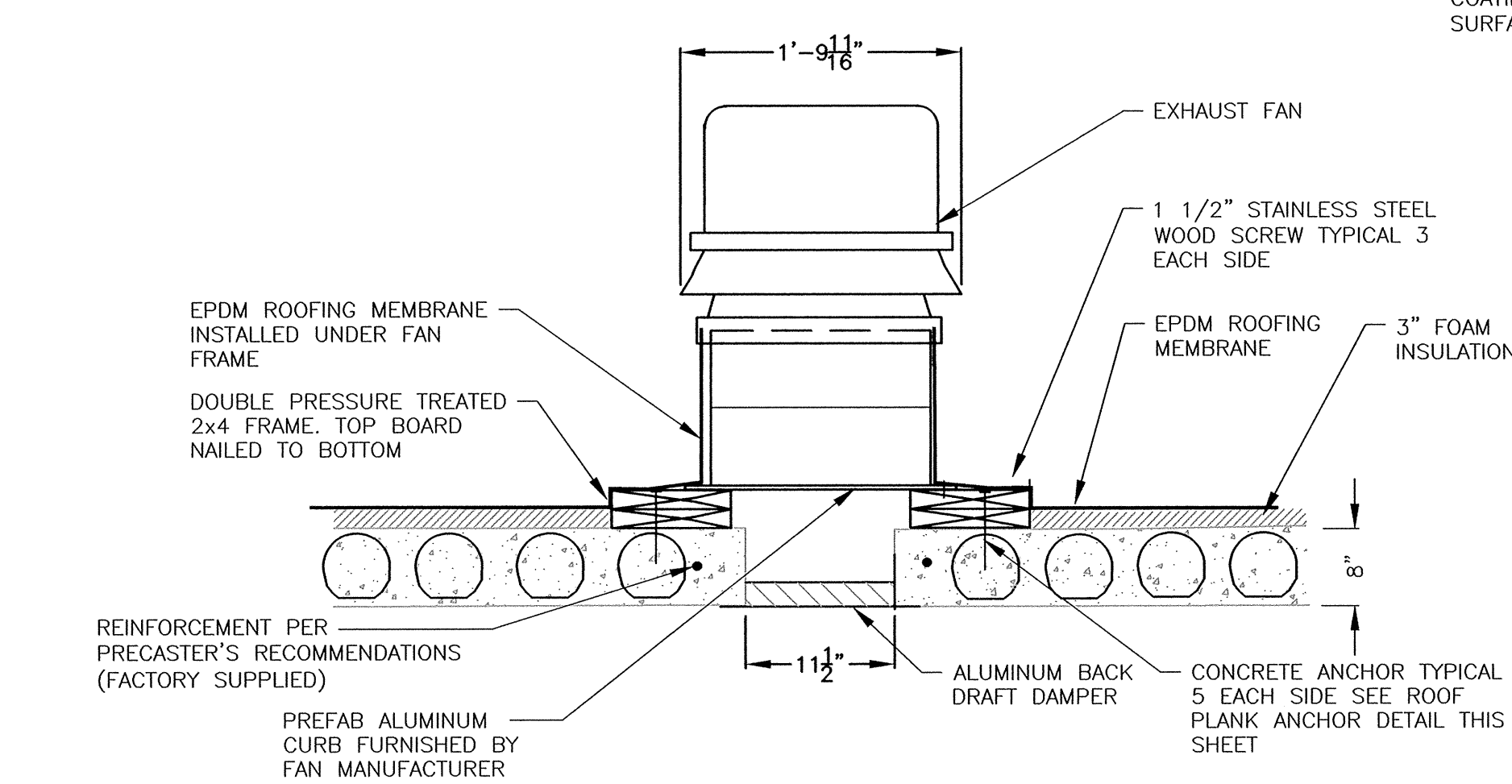
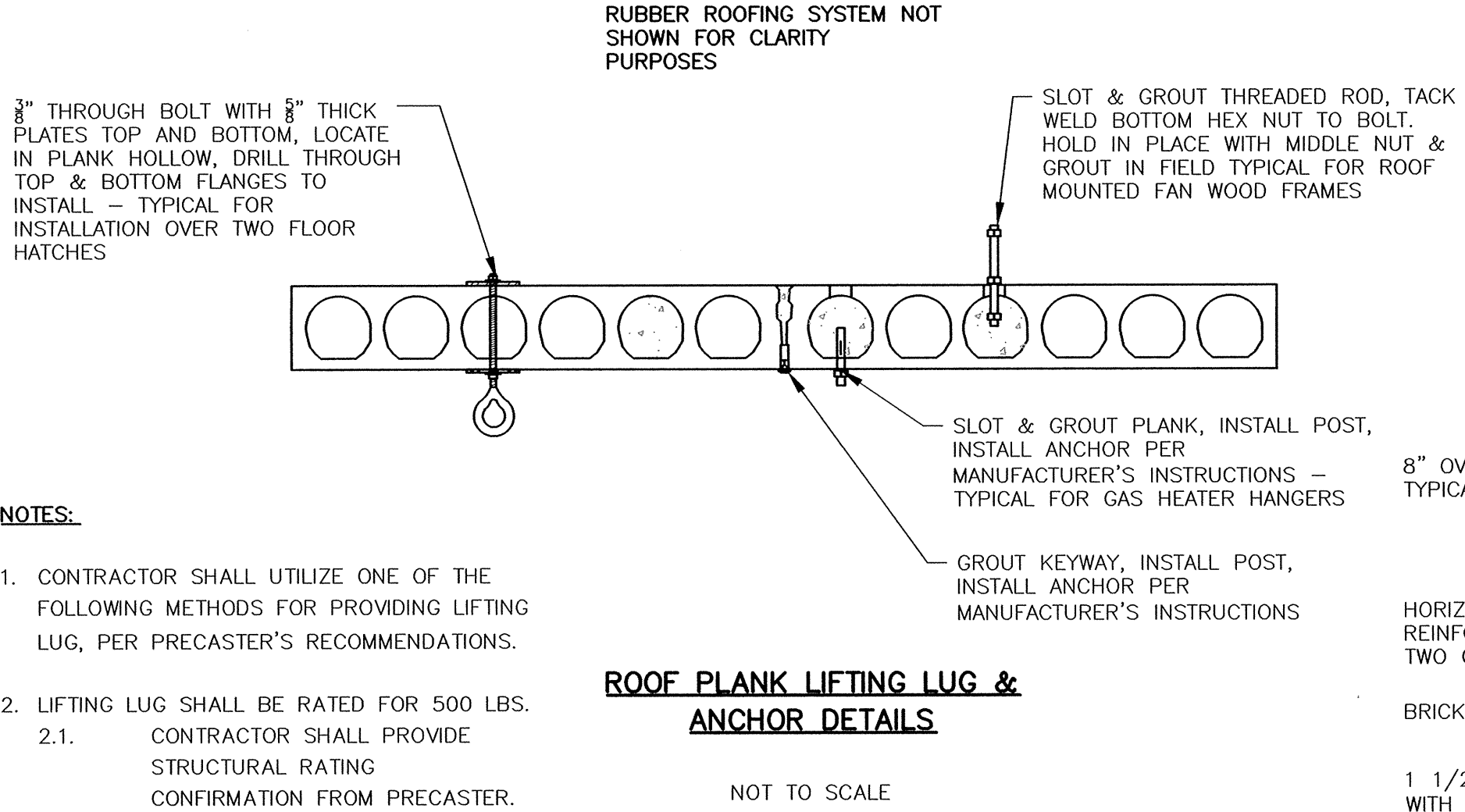
'HOLLOWCORE' ROOF PLANK NOTES:

- OPENINGS:
1. THEY RANGE FROM "LARGE" OPENINGS (>10-INCHES) TO SMALL CORE DRILLS.
 2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR DESIGN COORDINATION AND FIELD LAYOUT OF ALL OPENINGS.
 3. MANUFACTURER MAY SHOW OPENINGS LARGER THAN 10-INCHES SQUARE ON SHOP DRAWINGS IF SUPPLIED EARLY. ADDITIONAL OPENINGS NOT SHOWN ON RETURNED APPROVED SHOP DRAWINGS MUST HAVE WRITTEN APPROVAL FROM MANUFACTURER'S ENGINEER.
 4. SMALL CORE DRILLED OPENINGS CAN BE PLACED ANYWHERE PROVIDED THEY ARE LOCATED IN THE HOLLOW VOID OF THE PLANK AND ARE SMALL ENOUGH THAT THEY DO NOT CUT ANY PRESTRESSING STRAND. ANY CORE DRILLED OPENINGS THAT CUT THROUGH THE STRAND MUST BE ACCOUNTED FOR IN THE DESIGN OF THE PLANK AND CAREFULLY MONITORED IN THE FIELD. ANY CORE DRILLED OPENING THAT CUTS PRESTRESSING STRAND THAT WAS NOT ACCOUNTED FOR IN DESIGN NEEDS THE IMMEDIATE REVIEW OF MANUFACTURER'S ENGINEER

- INSTALL:
5. FOLLOW ALL RECOMMENDATIONS AND PROCEDURES FROM THE MANUFACTURER.
 6. CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR INSTALLING THE PLANK PROPERLY.
 7. MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY PROBLEMS OR DAMAGE WHICH RESULT FROM INCORRECT PROCEDURES ONCE THE MATERIAL IS DELIVERED TO THE JOB SITE.

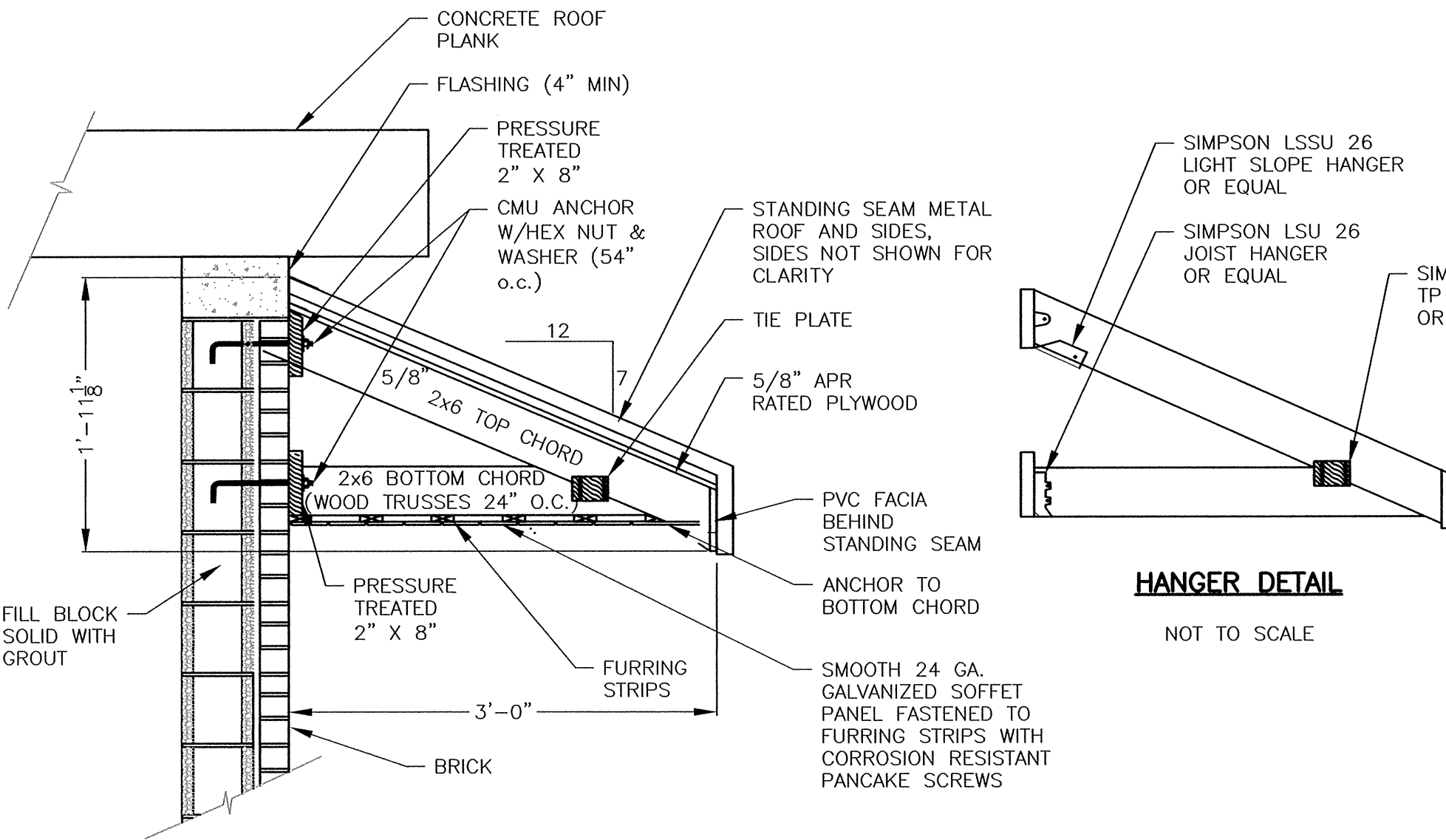
- GROUTING:
8. PRIOR TO GROUTING THE KEYWAYS, ANY VARIATIONS BETWEEN ADJACENT SLABS SHOULD BE REASONABLY LEVELED OUT BY JACKING, LOADING OR OTHER FEASIBLE METHODS IN ACCORDANCE WITH RECOMMENDATIONS PROVIDED BY MANUFACTURER.
 9. CLEAR DEBRIS FROM KEYWAYS. WET DOWN THE KEYWAYS PRIOR TO GROUTING TO INSURE A GOOD BOND. THIS IS ESPECIALLY IMPORTANT IN HOT WEATHER.
 10. PLACE GROUT IN KEYWAYS USING A 3:1 MIXTURE OF THREE PARTS SAND TO ONE PART CEMENT. GROUT SHOULD BE WET ENOUGH TO FLOW EASILY TO ASSURE COMPLETE FILLING OF KEYWAYS.
 11. CLEAN THE UNDERSIDE OF THE PLANK TO REMOVE ANY GROUT THAT MIGHT HAVE SEEPED THROUGH IF NECESSARY.
 12. MAKE SURE GROUT HAS CURED PRIOR TO PLACING HEAVY LOADS ON THE PLANK SURFACE. (CONSTRUCTION MATERIALS, ETC.)
 13. PLANKS ARE DESIGNED TO SUPPORT THE APPLIED LOADS WITH THE SIZE AND LOCATION OF THE OPENINGS THAT ARE SHOWN ON THE SHOP DRAWINGS. DO NOT CUT OPENINGS THAT ARE NOT SHOWN.
 14. OBTAIN WRITTEN PERMISSION OF MANUFACTURER'S ENGINEER BEFORE CORE DRILLING ADDITIONAL OPENINGS THAT ARE NOT SHOWN ON THE APPROVED SHOP DRAWINGS.
 15. OPENINGS SHOULD NOT BE CUT UNTIL THE JOINTS ARE GROUTED AND THE GROUT HAS ACHIEVED 85% OF ITS DESIGN STRENGTH (THE DESIGN STRENGTH OF GROUT IS TYPICALLY 3,000 PSI).
 16. GROUT ALL HOLLOW CORE ENDS AT CONCLUSION OF INSTALLATION, PRIOR TO INSTALLING FASCIA.

- CAMBER:
17. MINIMIZE DIFFERENTIAL PLANK CAMBER PRIOR TO GROUTING KEYWAYS BY ONE OF MORE OF THE FOLLOWING METHODS: USE TEMPORARY SHORING TO JACK UP LOW PLANKS; USE SANDWICH PLATES AND BOLTS AT MID SPAN TO DRAW PLANKS VERTICALLY TOGETHER; SHIM SHORTER AND LOW PLANKS AT BEARING POINTS; FLASH PATCH (FEATHER) JOINTS BETWEEN ADJACENT PLANKS; APPLY SELF-LEVELING COATINGS (GYPCRETE) OR USE STRUCTURAL TOPPING.
 18. SUBCONTRACTORS SHALL ACCOUNT FOR PLANK CAMBER AND TOPPING DURING DOOR AND OPENING INSTALLATION.



DETAIL OF ROOF OPENING EXHAUST FAN (EU1)

NOT TO SCALE



HANGER DETAIL

NOT TO SCALE

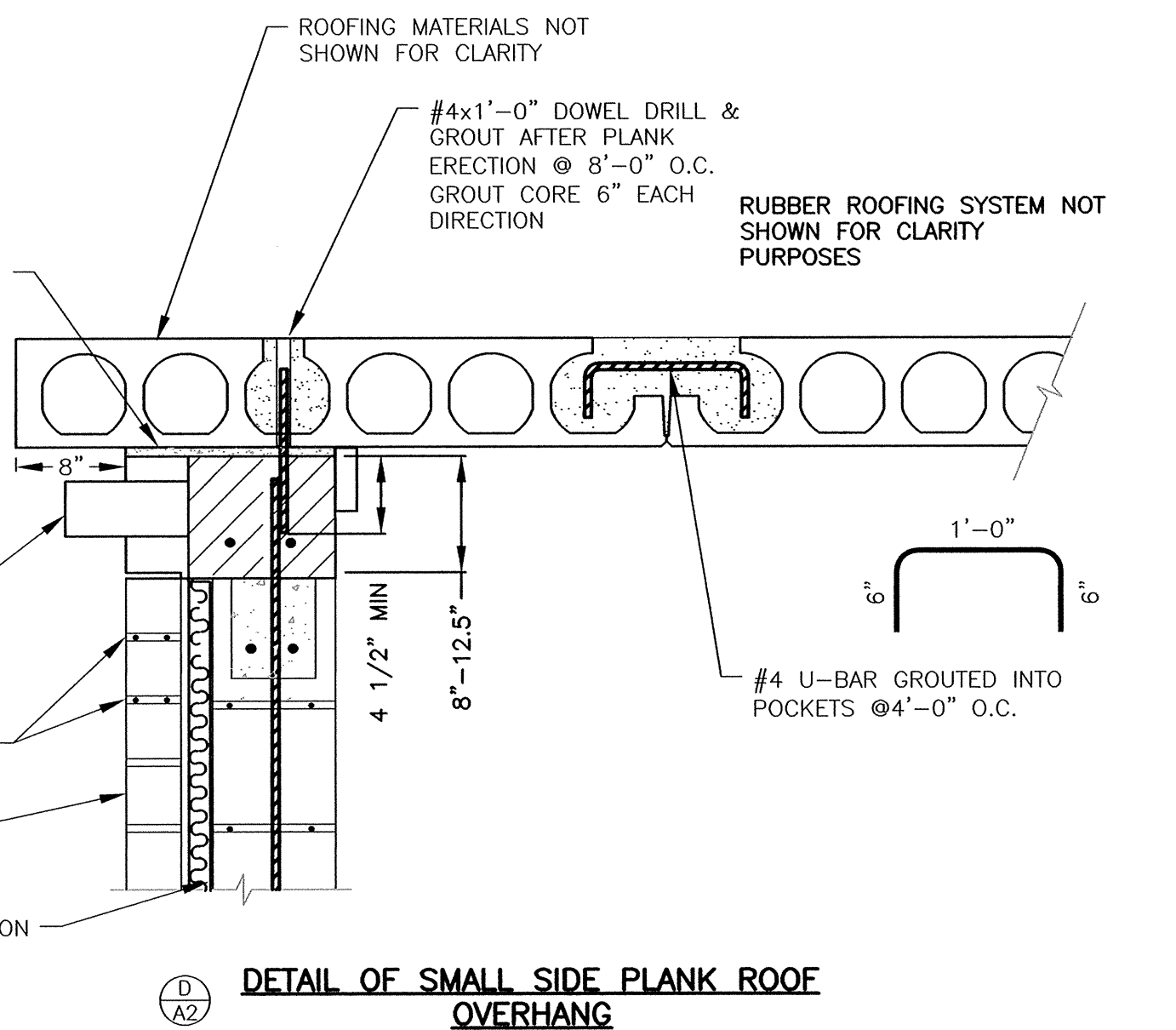
BOND BEAM CORNERS

NOT TO SCALE

FAN SCHEDULE					
TYPE	QUANTITY	ROUGH OPENING	PREFAB CURB	DAMPER/ SHUTTER	FAN MOUNTING
BLOWER (BU1)	1	11.5" X 11.5"	17" X 17" X 12"	11.5" X 11.5"	TBD

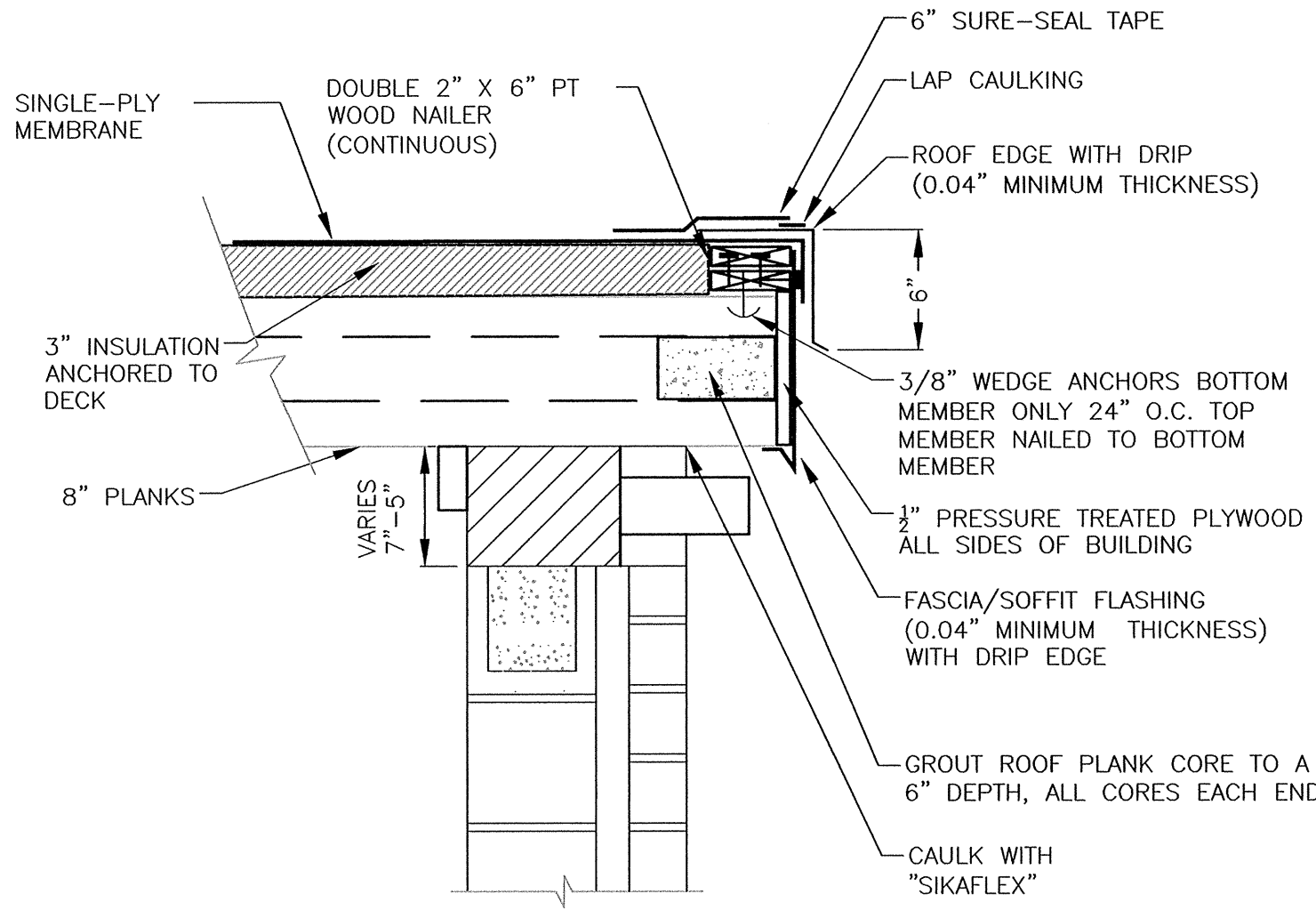
CURB NOTES:

1. IF VERTICAL SPLICE IS NOT LOCATED AT CORNER, 6" WIDE PRESSURE-SENSITIVE ELASTOFORM FLASHING MUST BE CENTERED OVER FIELD SPLICE AT ANGLE CHANGE.
2. FASTENING PLATES MAY BE INSTALLED VERTICALLY.
3. APPLY PRIMER PRIOR TO INSTALLING TAPE.
4. SPLICING CEMENT MAY BE USED IN LIEU OF TAPE.
5. LAP SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED MEMBRANE
6. USE A HEAT GUN TO WARM PRESSURE-SENSITIVE ELASTOFORM FLASHING IN COLD TEMPERATURE



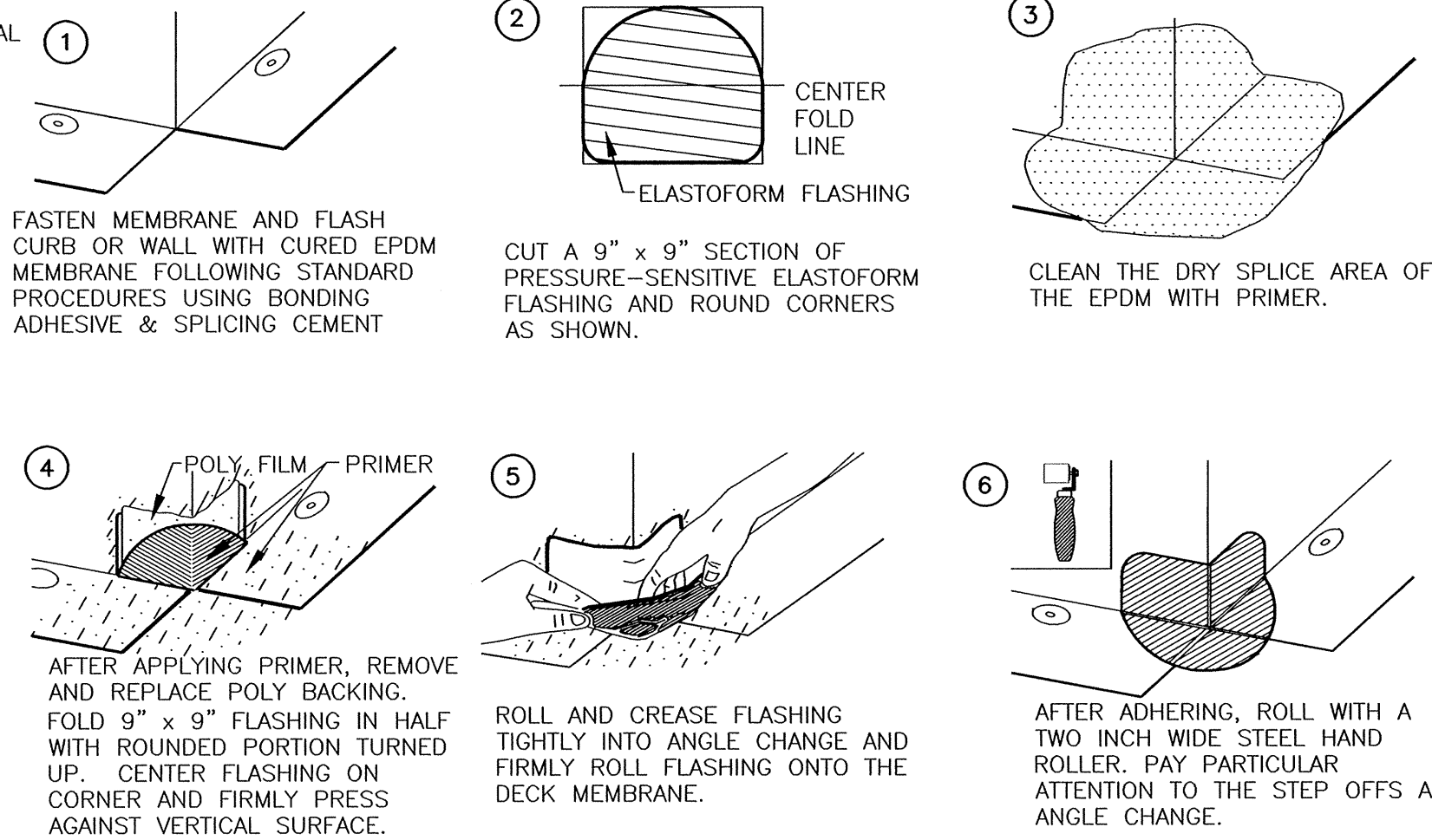
DETAIL OF SMALL SIDE PLANK ROOF OVERHANG

NOT TO SCALE



PROPOSED DETAIL

NOT TO SCALE

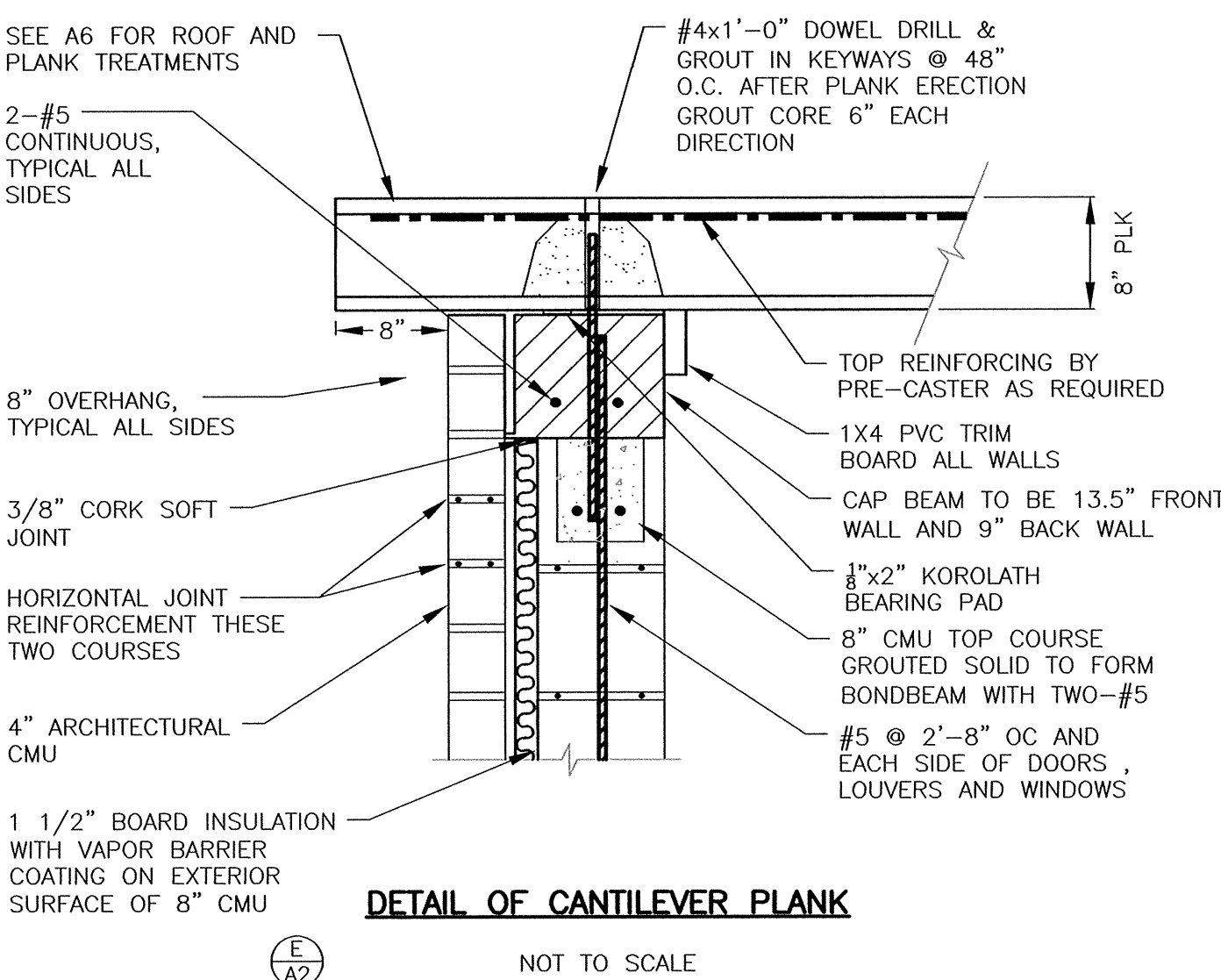


MEMBRANE OUTSIDE CORNER

NOT TO SCALE

ROOFING SYSTEM TERMINATION BAR NOTES:

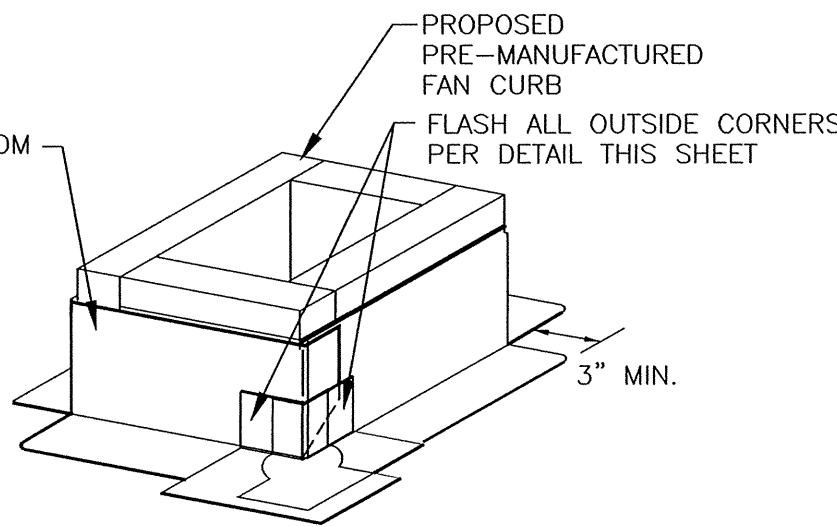
1. ADJOINING SECTIONS OF THE REINFORCED STRIP MUST BE OVERLAPPED AND SPLICED A MINIMUM OF 3".
2. DECK FLANGE MUST BE TOTALLY COVERED BY EPDM MEMBRANE. MINIMUM 2" SPLICE FROM NAIL HEAD.
3. PRIOR TO APPLYING TAPE, SCRUB THE METAL FLANGE WITH PRIMER.
4. FASTENERS AND FASTENER PATTERN AS RECOMMENDED BY ROOF FLASHING MANUFACTURER.
5. UNDERSIDE OF ROOF FLASHING FLANGE MUST BE SEALED AT ALL JOINTS. CONSULT RESPECTIVE MANUFACTURER FOR APPROPRIATE SEALANT.
6. REFER TO ROOF EDGE INSTALLATION INSTRUCTION MANUAL FOR STEP-BY-STEP INSTALLATION PROCEDURES.
7. 6" WIDE TAPE CAN BE USED IN LIEU OF THE TWO STRIPS OF 3" TAPE PROVIDING COMPLETE COVERAGE OF THE METAL FLANGE IS OBTAINED WITH A MINIMUM OF 2.5" COVERAGE ONTO THE RUSS EXTENDING BEYOND THE METAL FLANGE.
8. APPLY LAP SEALANT AT TAPE OVERLAPS AND INTERSECTIONS WITH FIELD SEAMS AND JOINTS IN METAL EDGING.



DETAIL OF CANTILEVER PLANK

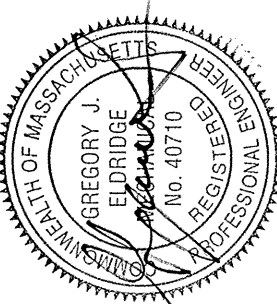
NOT TO SCALE

RUBBER ROOFING SYSTEM NOT SHOWN FOR CLARITY PURPOSES



ROOF BLOWER & FAN CURB FLASHING

NOT TO SCALE



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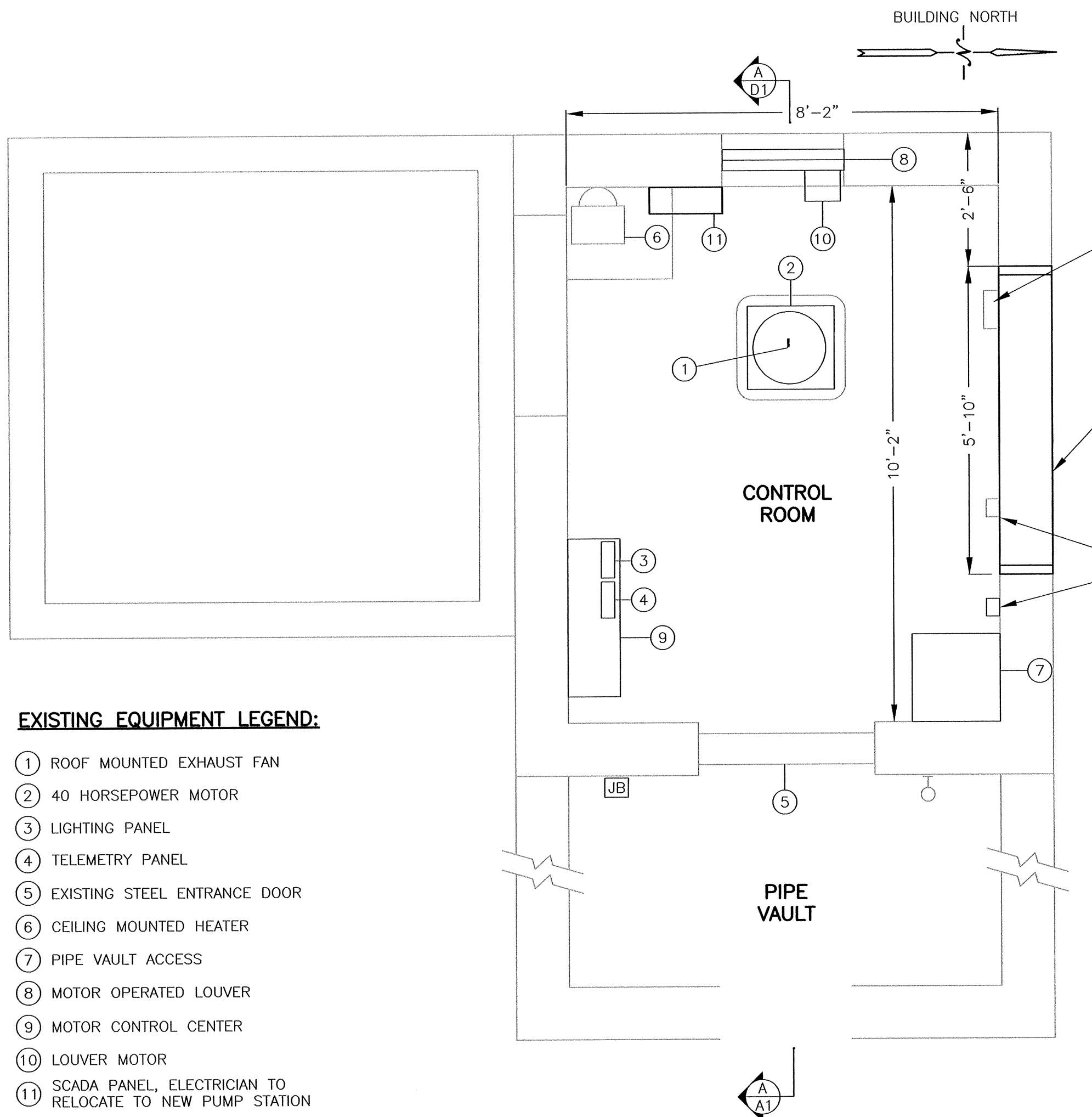
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A4

ROOF, WALL AND AWNING DETAILS

TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN
SPRINGVALE NO. 4
PUMP STATIONS



EXISTING PUMP STATION #4 BUILDING PLAN VIEW FIRST FLOOR

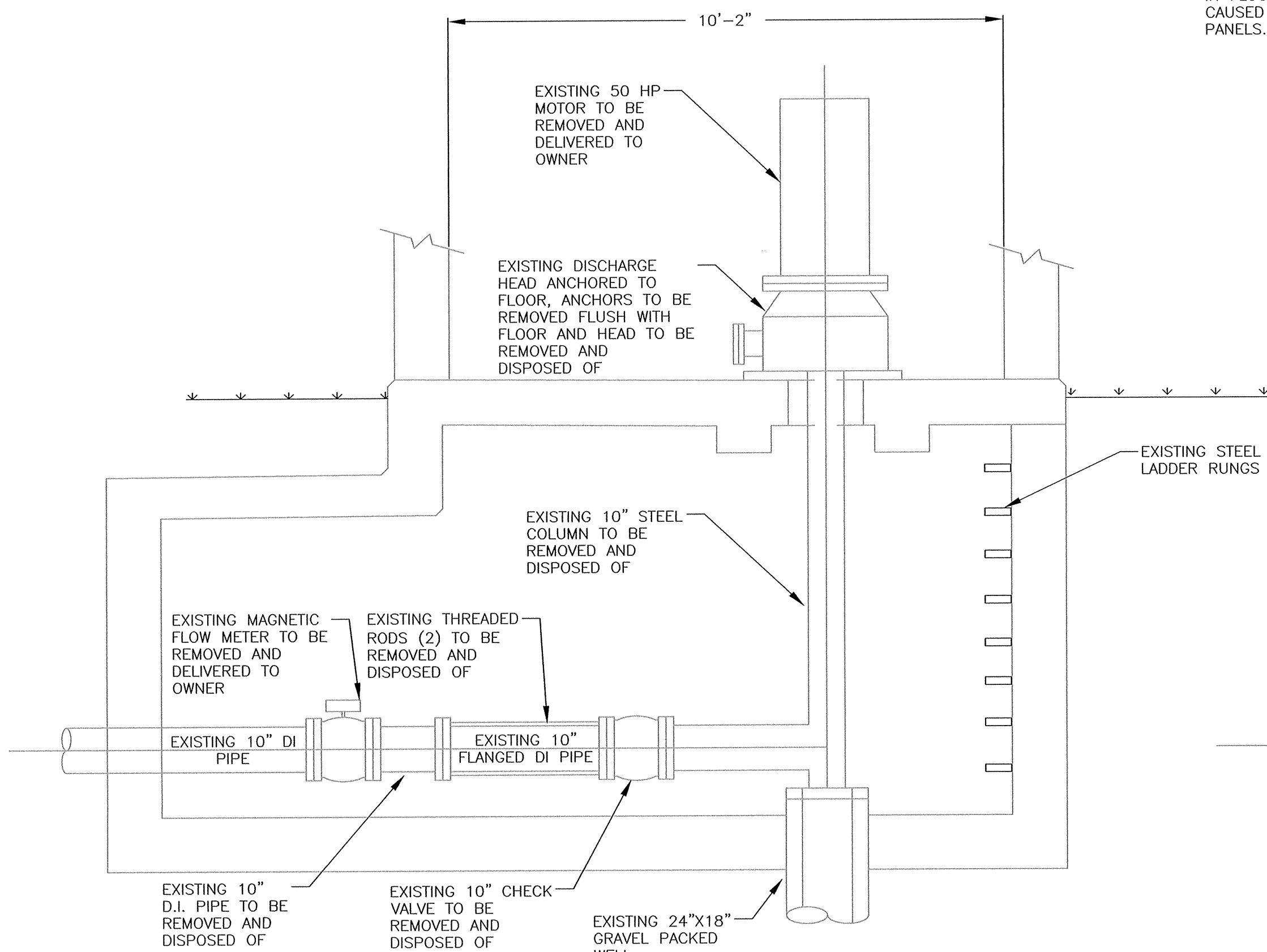
1/2" = 1'

EXISTING EQUIPMENT LEGEND:

- 1 ROOF MOUNTED EXHAUST FAN
- 2 40 HORSEPOWER MOTOR
- 3 LIGHTING PANEL
- 4 TELEMETRY PANEL
- 5 EXISTING STEEL ENTRANCE DOOR
- 6 CEILING MOUNTED HEATER
- 7 PIPE VAULT ACCESS
- 8 MOTOR OPERATED LOUVER
- 9 MOTOR CONTROL CENTER
- 10 LOUVER MOTOR
- 11 SCADA PANEL, ELECTRICIAN TO RELOCATE TO NEW PUMP STATION

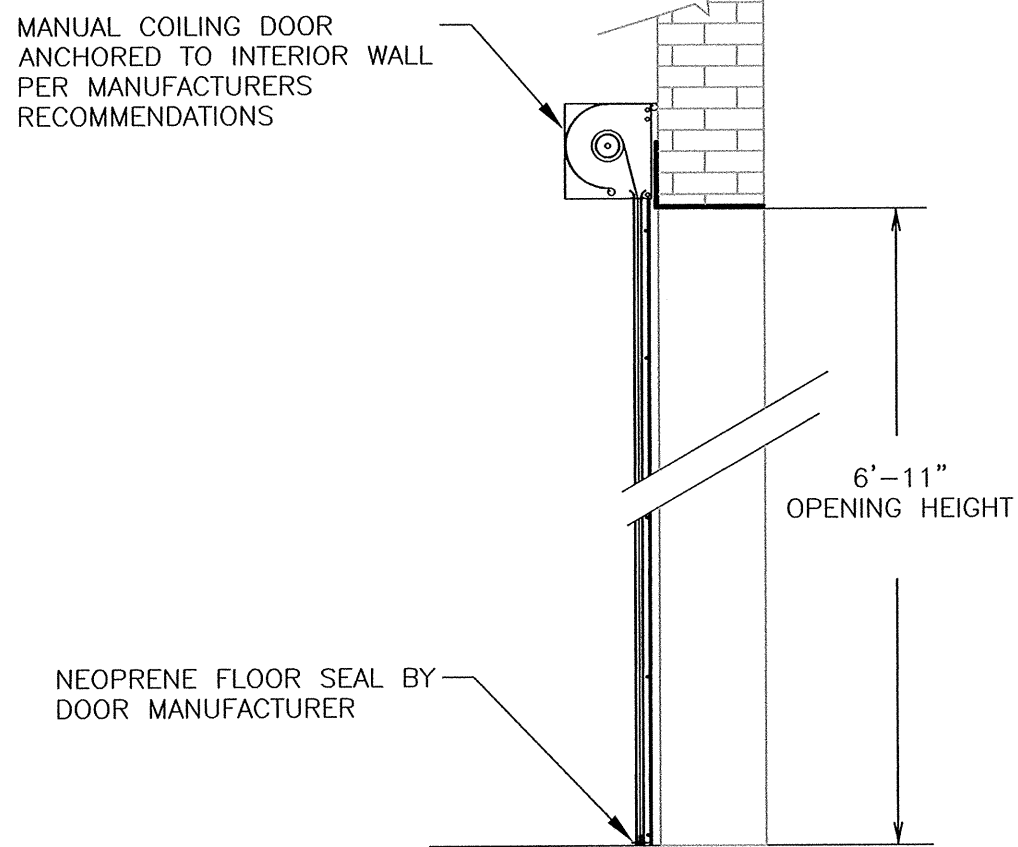
NOTE:

CONTRACTOR TO FILL ALL OPENINGS IN FLOOR AND WALLS WITH GROUT, CAUSED BY REMOVAL OF CONDUITS AND PANELS.



EXISTING PIPE VAULT AND PIPING

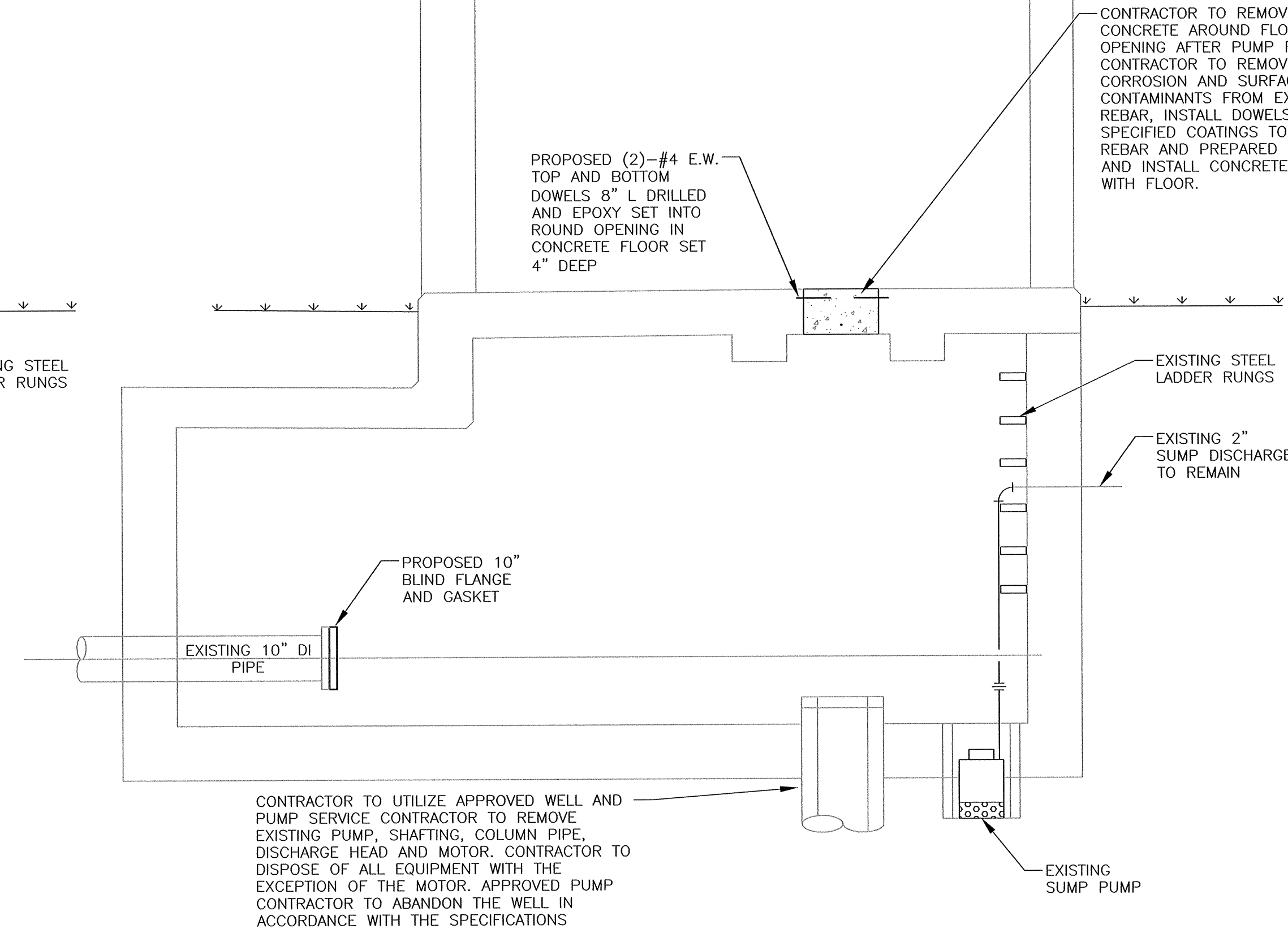
1/2" = 1'



EXISTING PUMP STATION #4 PROPOSED GARAGE DOOR MOUNTING DETAIL

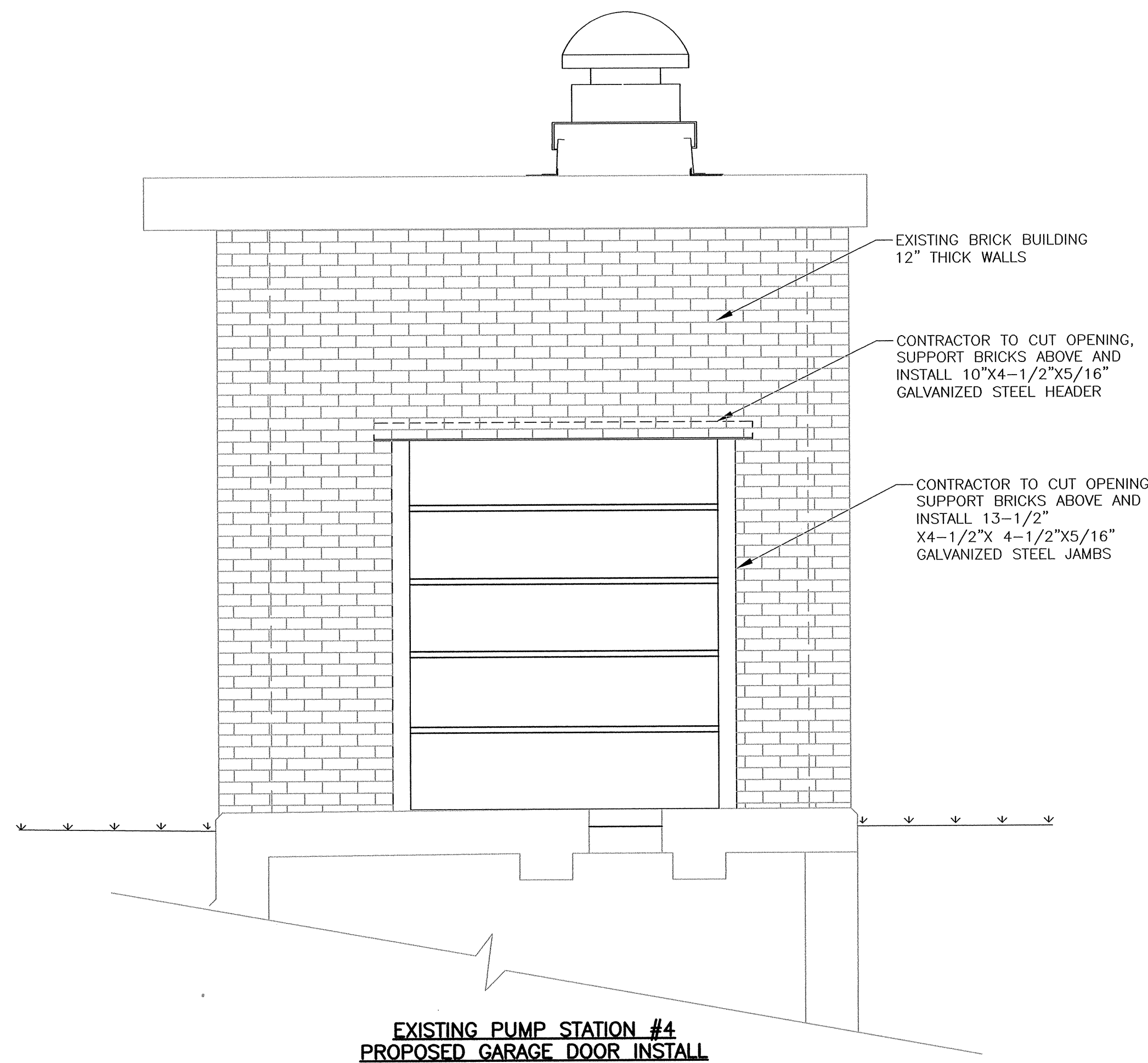
NOT TO SCALE

EXISTING ROOF EXHAUST FAN TO REMAIN



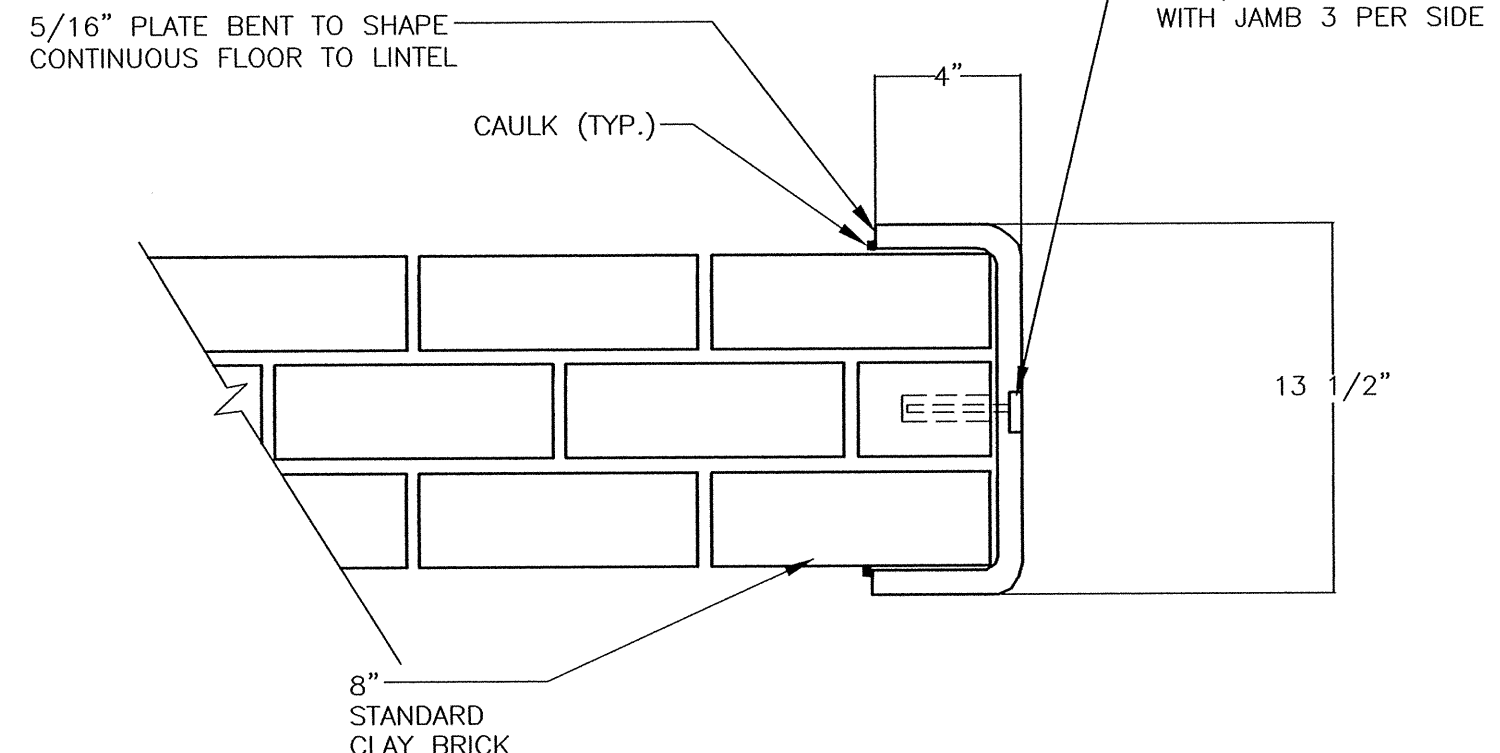
PROPOSED BUILDING MODIFICATIONS

1/2" = 1'



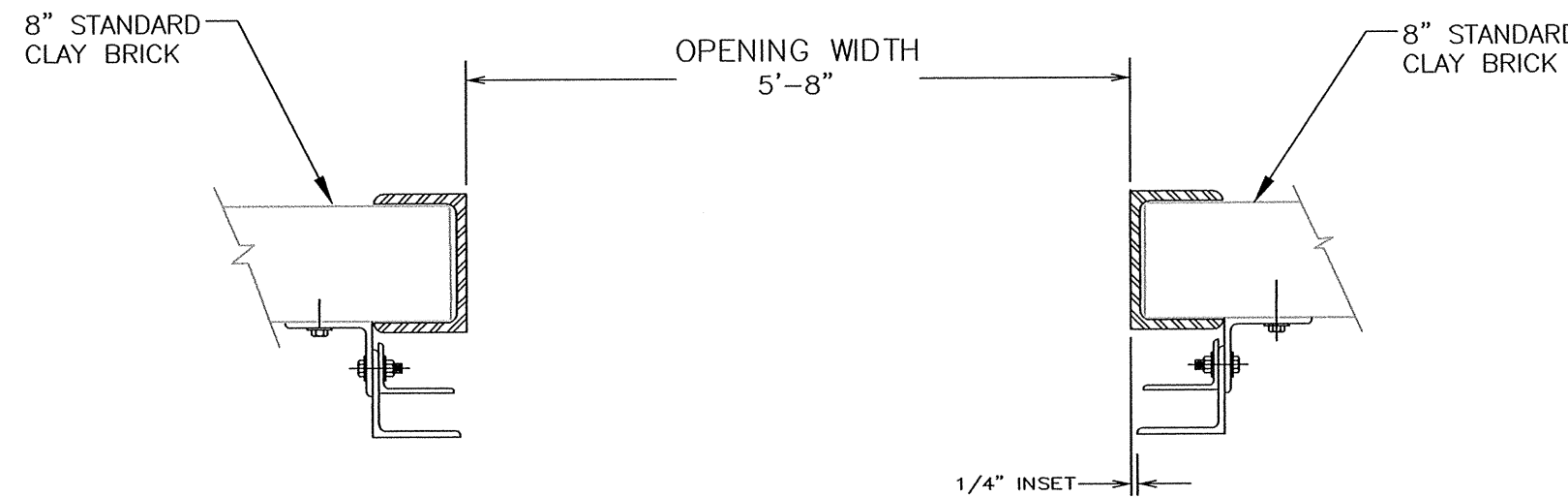
EXISTING PUMP STATION #4 PROPOSED GARAGE DOOR INSTALL

1/2" = 1'



EXISTING PUMP STATION #4 PROPOSED GARAGE DOOR JAMB DETAIL

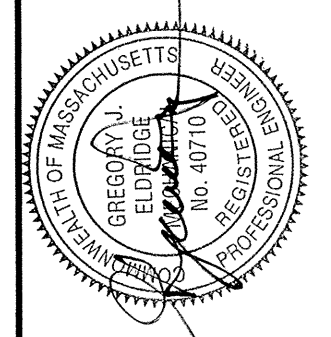
NOT TO SCALE



EXISTING PUMP STATION #4 PROPOSED GARAGE DOOR GUIDE DETAIL

NOT TO SCALE

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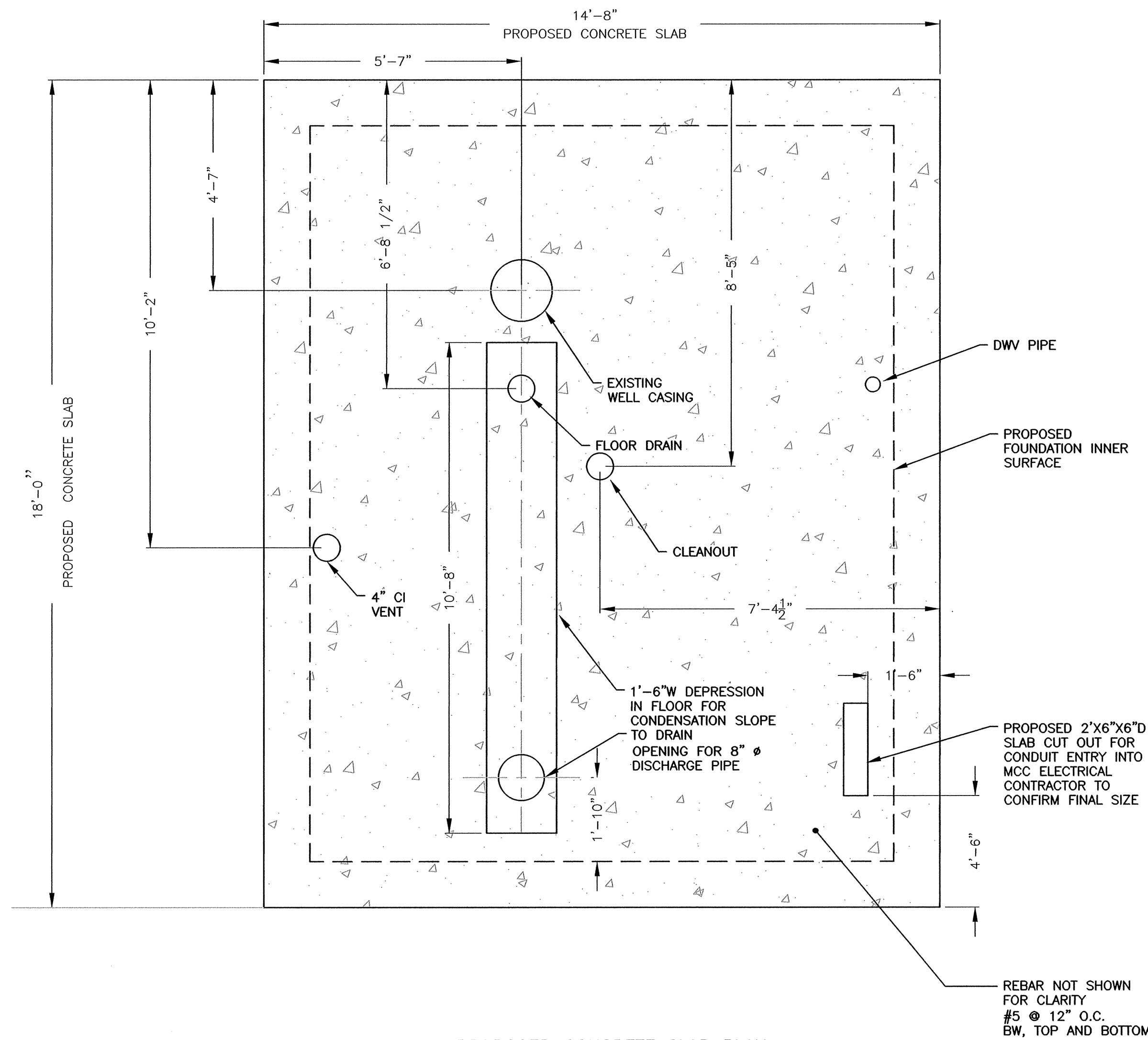
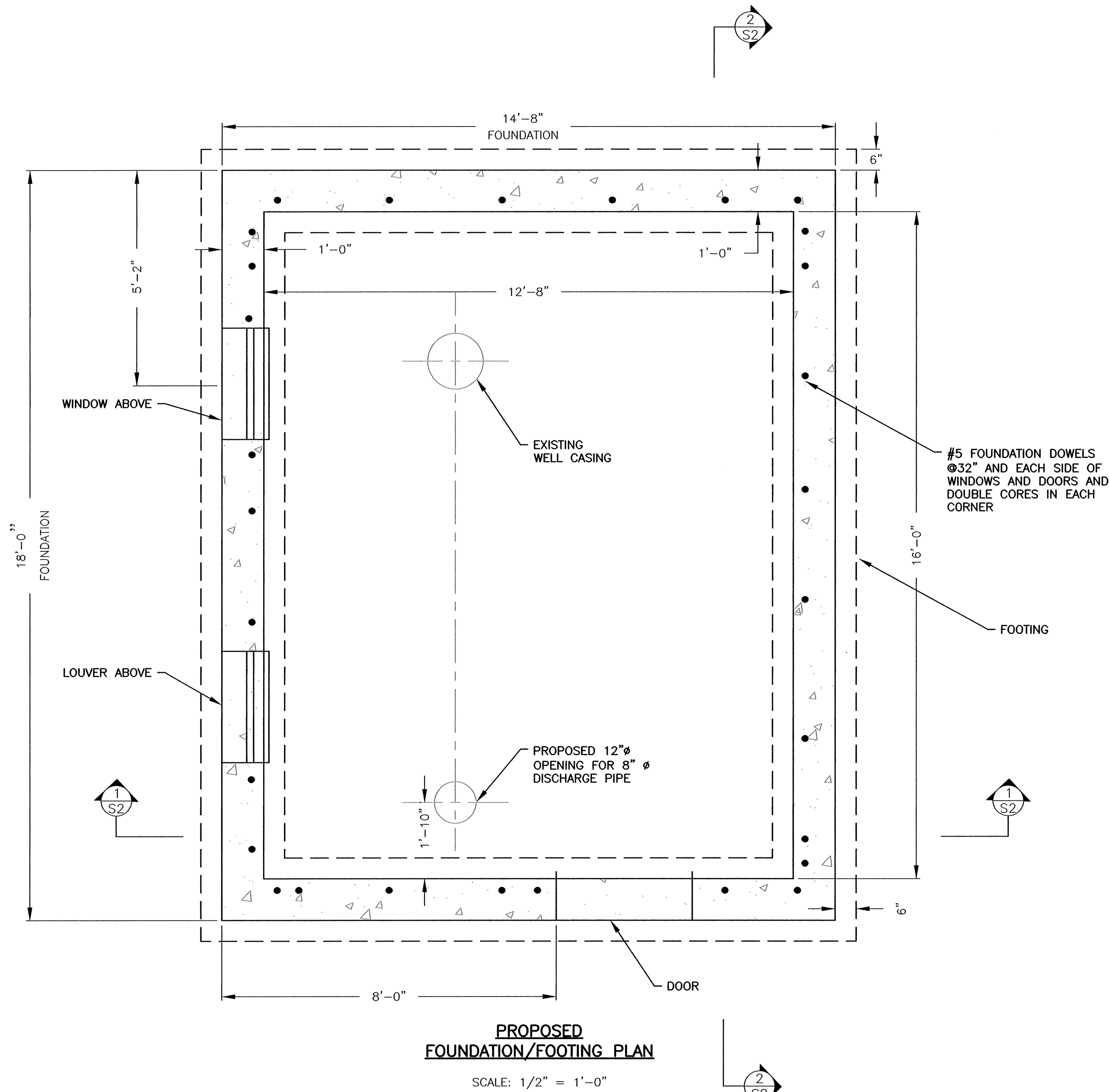
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CONTRACT NO.:	W-143
SCALE:	1/2" = 1'
DATE DRAWN:	SEPTEMBER, 2017
DRAWN BY:	LUC
FILE NO.:	NAT434-D1.DWG

DWG. NO.

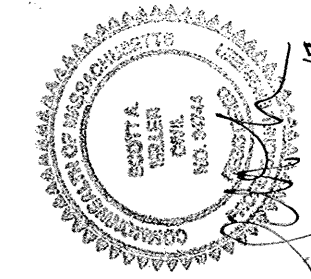
D1

EXISTING BUILDING MODIFICATIONS

BOARD OF SELECTMEN
TOWN OF NATICK, MASSACHUSETTS
SPRINGVALE NO. 4
WATER PUMP STATION



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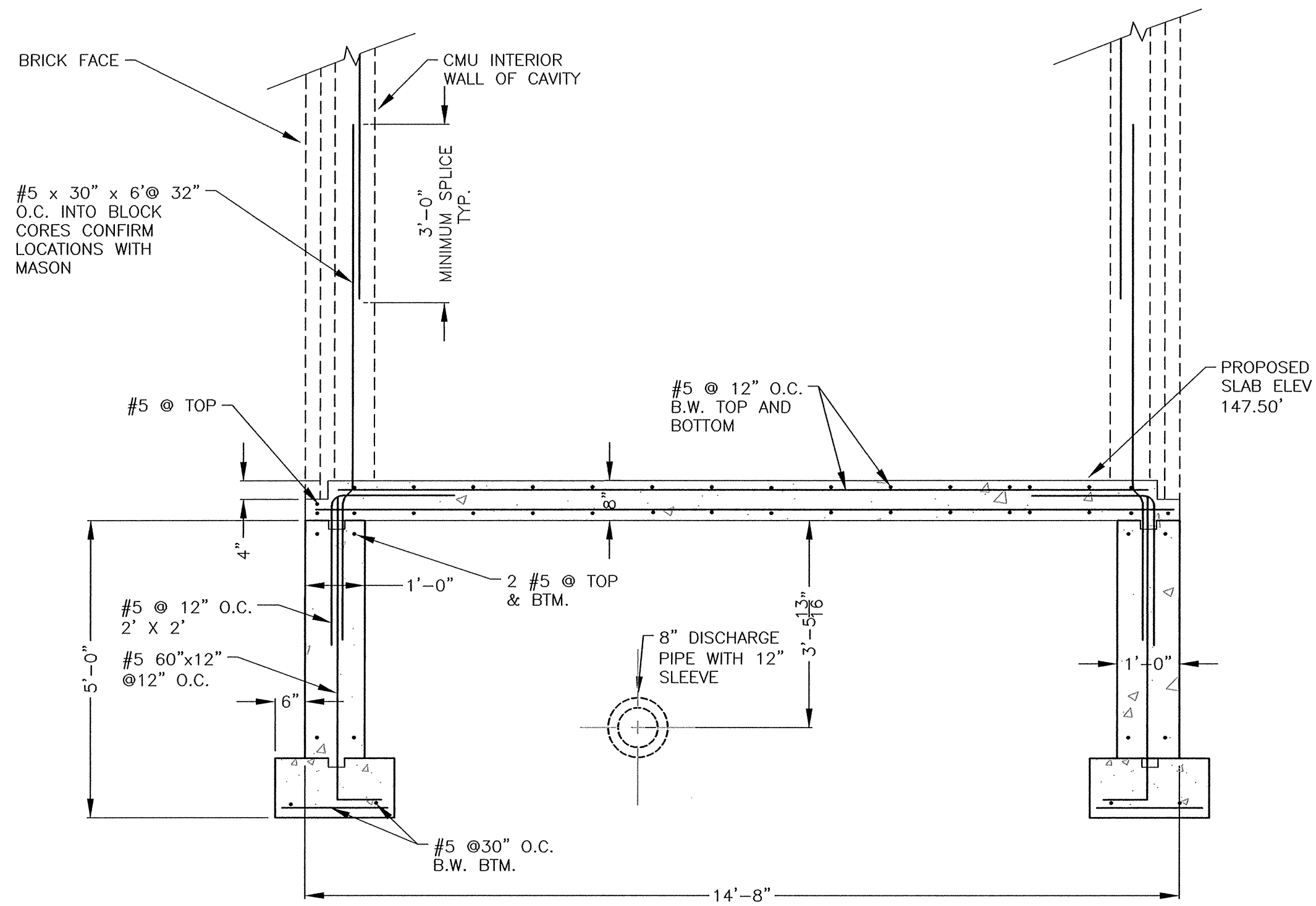
SHEET NO.:	9 OF 22	CHECKED	DATE	BY
CONTRACT NO.:	W-143	REVISED	DATE	BY
SCALE:	1/2" = 1'			
DATE DRAWN:	SEPTEMBER, 2017			
DRAWN BY:	GJE			
FILE NO.:	NAT-36-S1.DWG			

DWG. NO.

S1

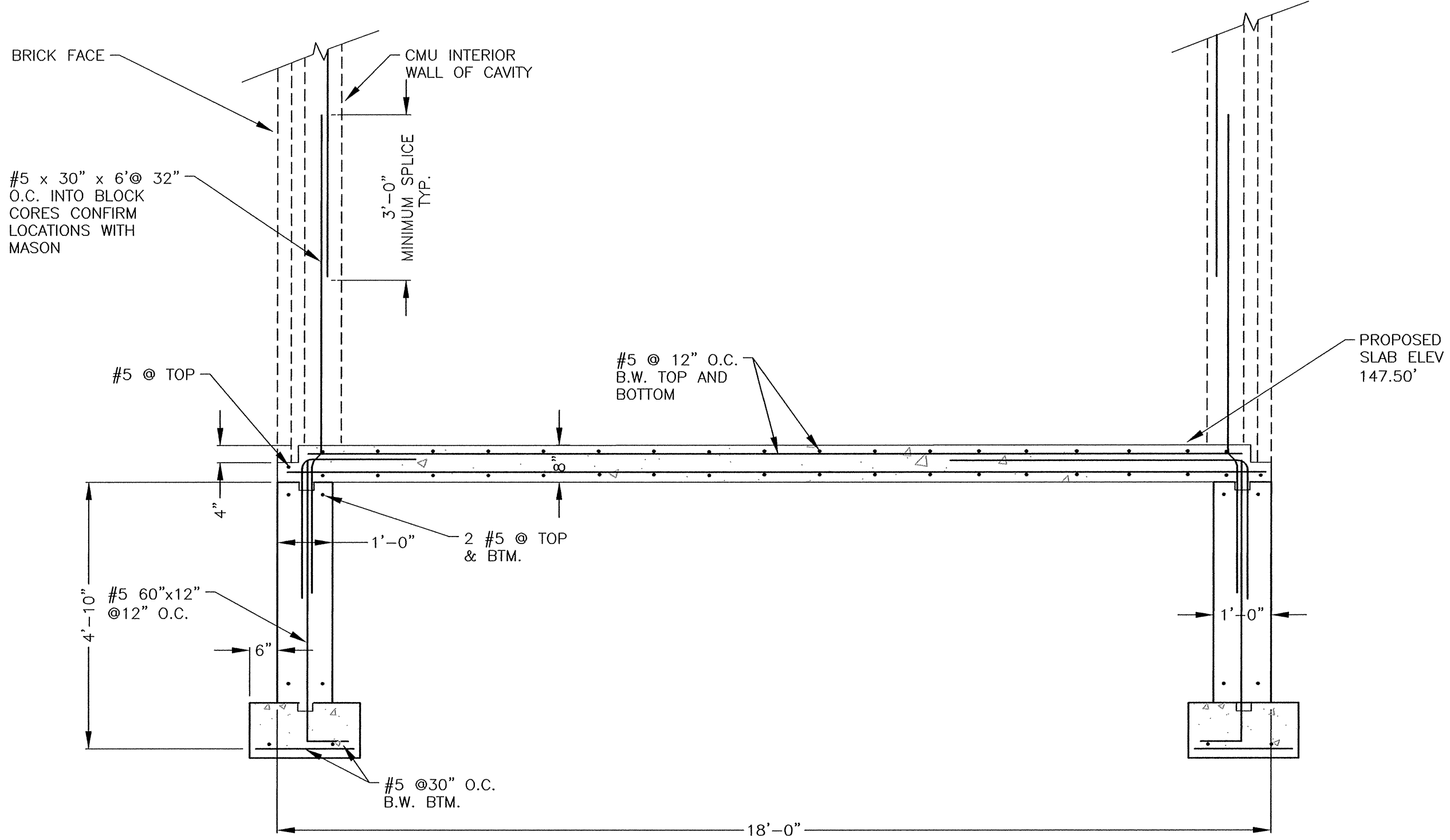
FOUNDATION,
FOOTING
AND SLAB

TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN
SPRINGVALE NO. 4
WATER PUMP STATION



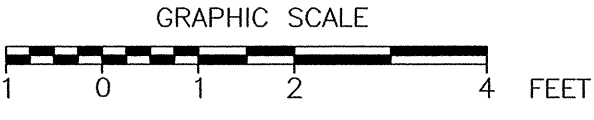
BUILDING SOUTH
ELEVATION VIEW
SECTION

1
ST



BUILDING WEST
ELEVATION VIEW
SECTION

2
ST



TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

SPRINGVALE NO. 4
WATER PUMP STATION

STRUCTURAL
ELEVATIONS

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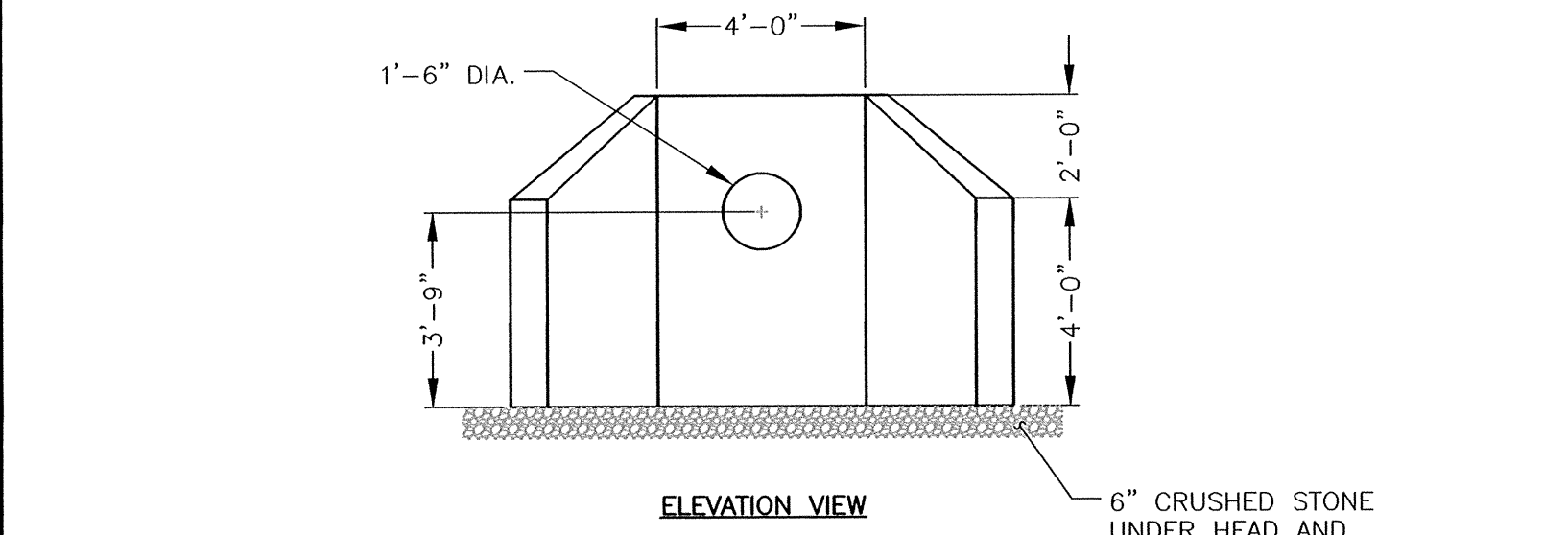
PC-17-17

CHECKED	DATE	BY

SHEET NO.:	10 OF 22
CONTRACT NO.:	W-143
SCALE:	1/2" = 1'
DATE DRAWN:	SEPTEMBER, 2017
DRAWN BY:	GJE
FILE NO.:	NAT-436_S2.DWG

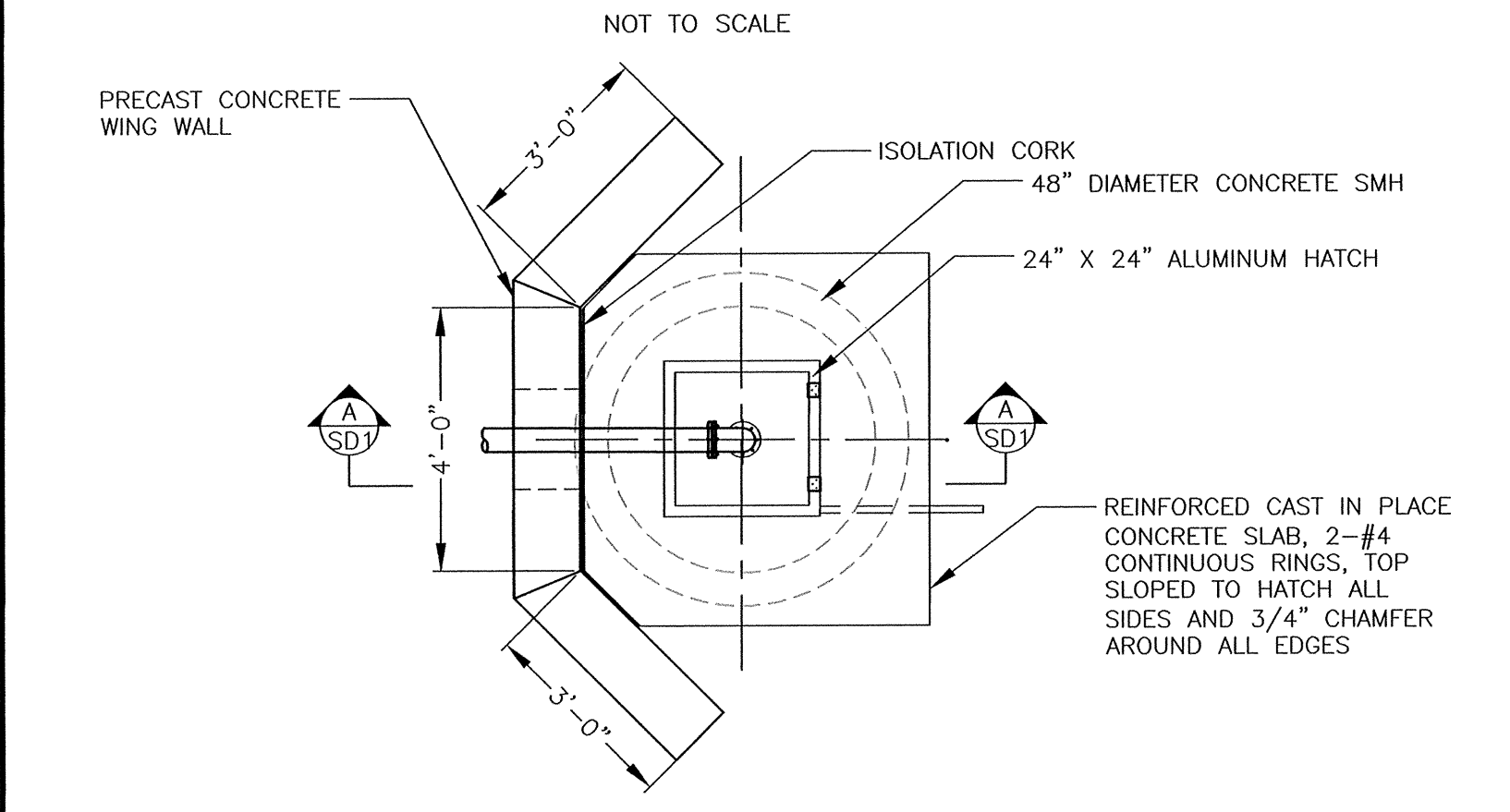
DWG. NO.

S2

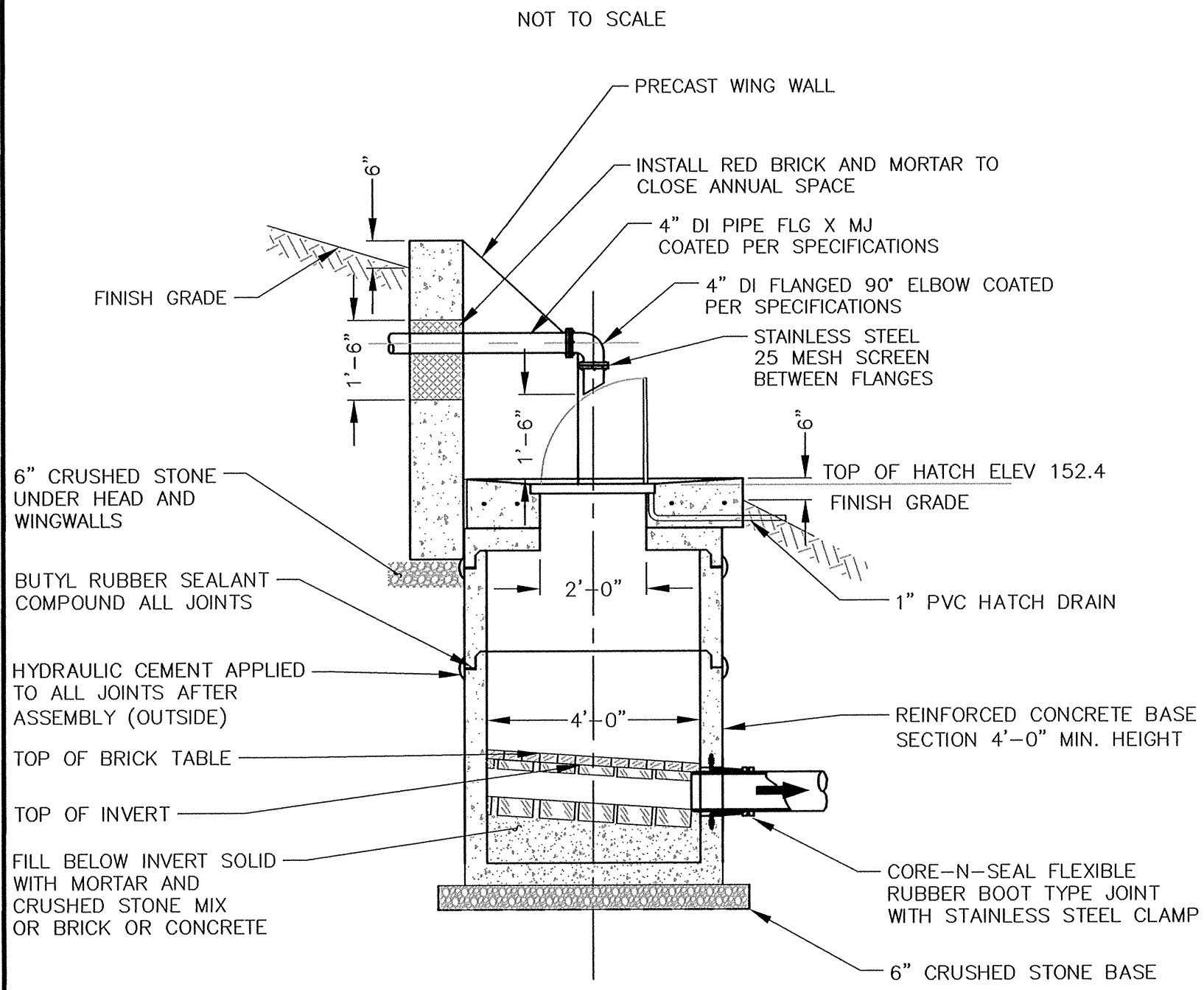


NOTE:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.

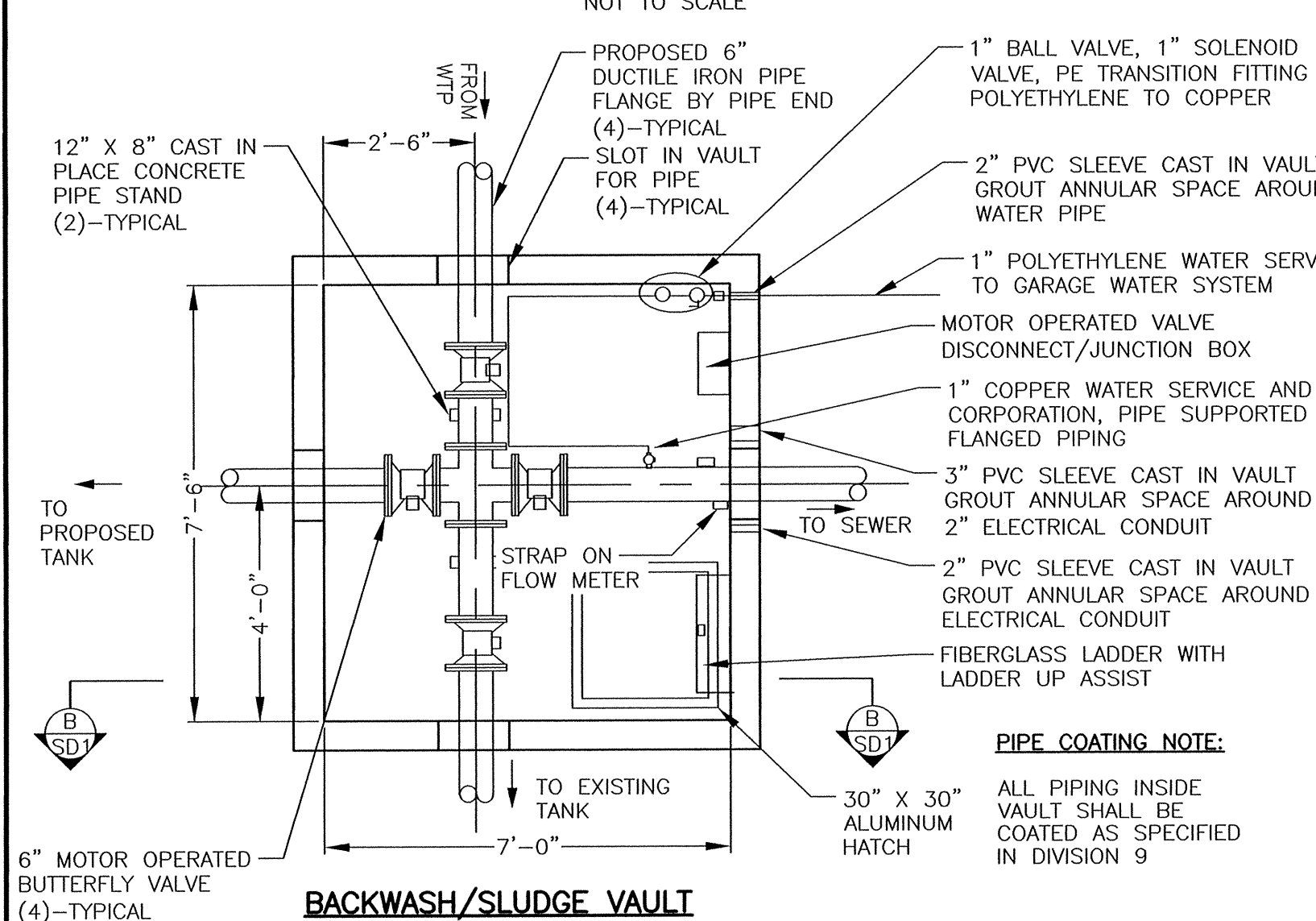
CONCRETE HEAD AND WING WALL
DETAILS



PLAN VIEW

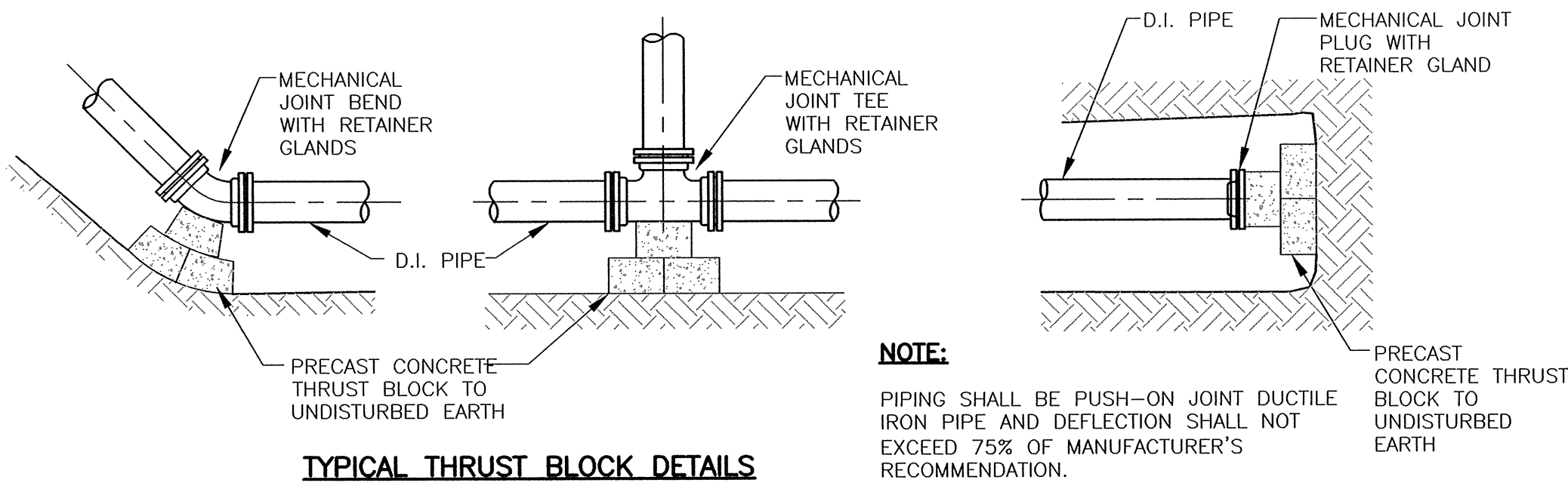


SLUDGE DISCHARGE SEWER
MANHOLE DETAIL

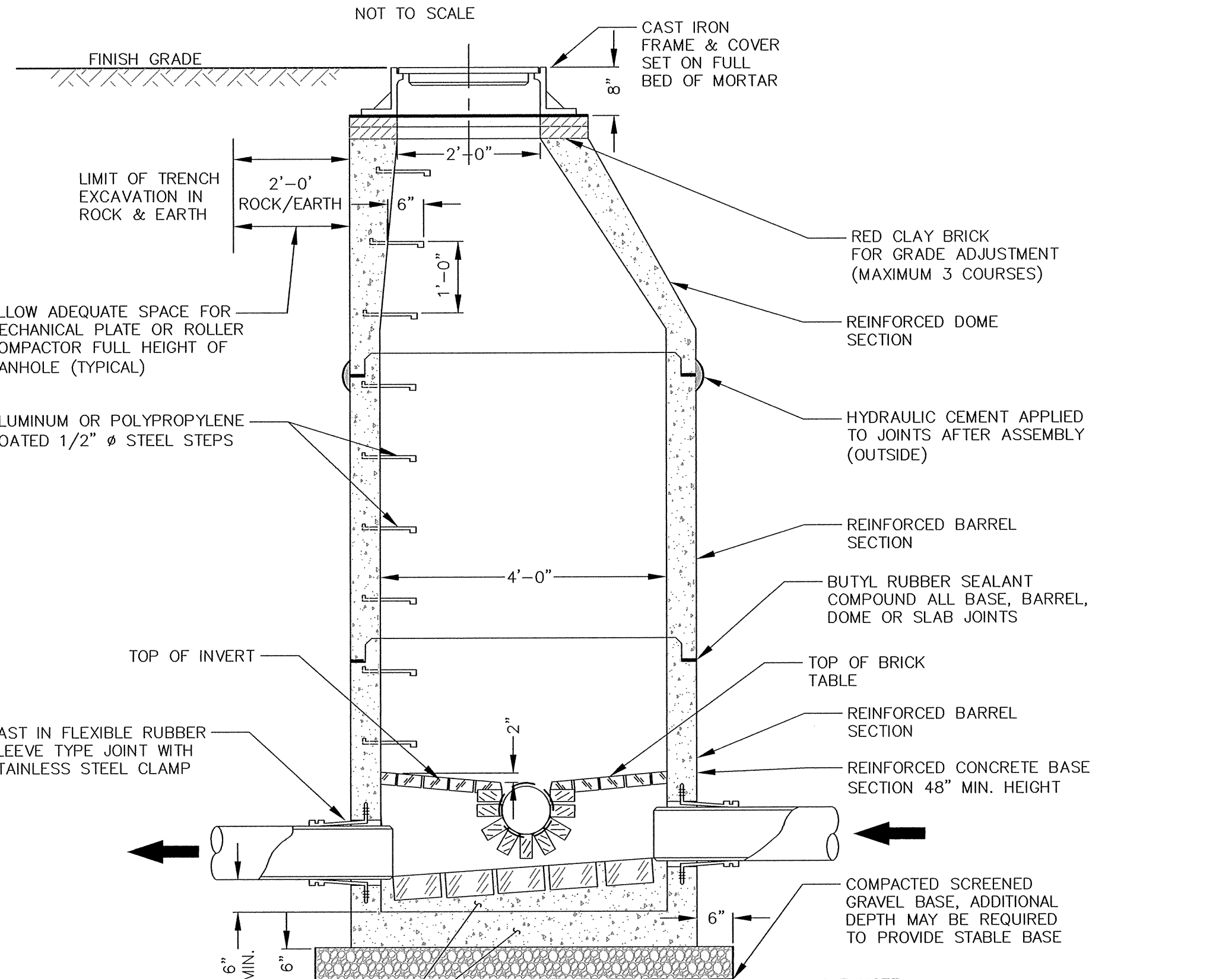


BACKWASH/SLUDGE VAULT

SCALE: 3/8" = 1'

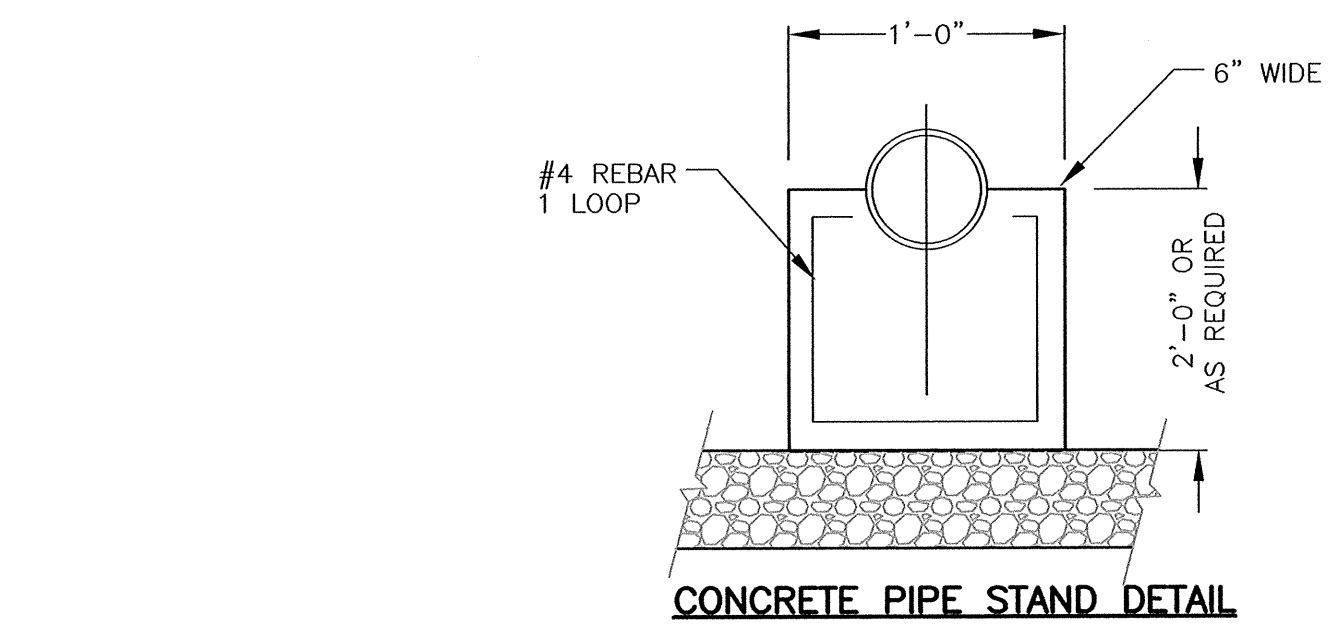


TYPICAL THRUST BLOCK DETAILS

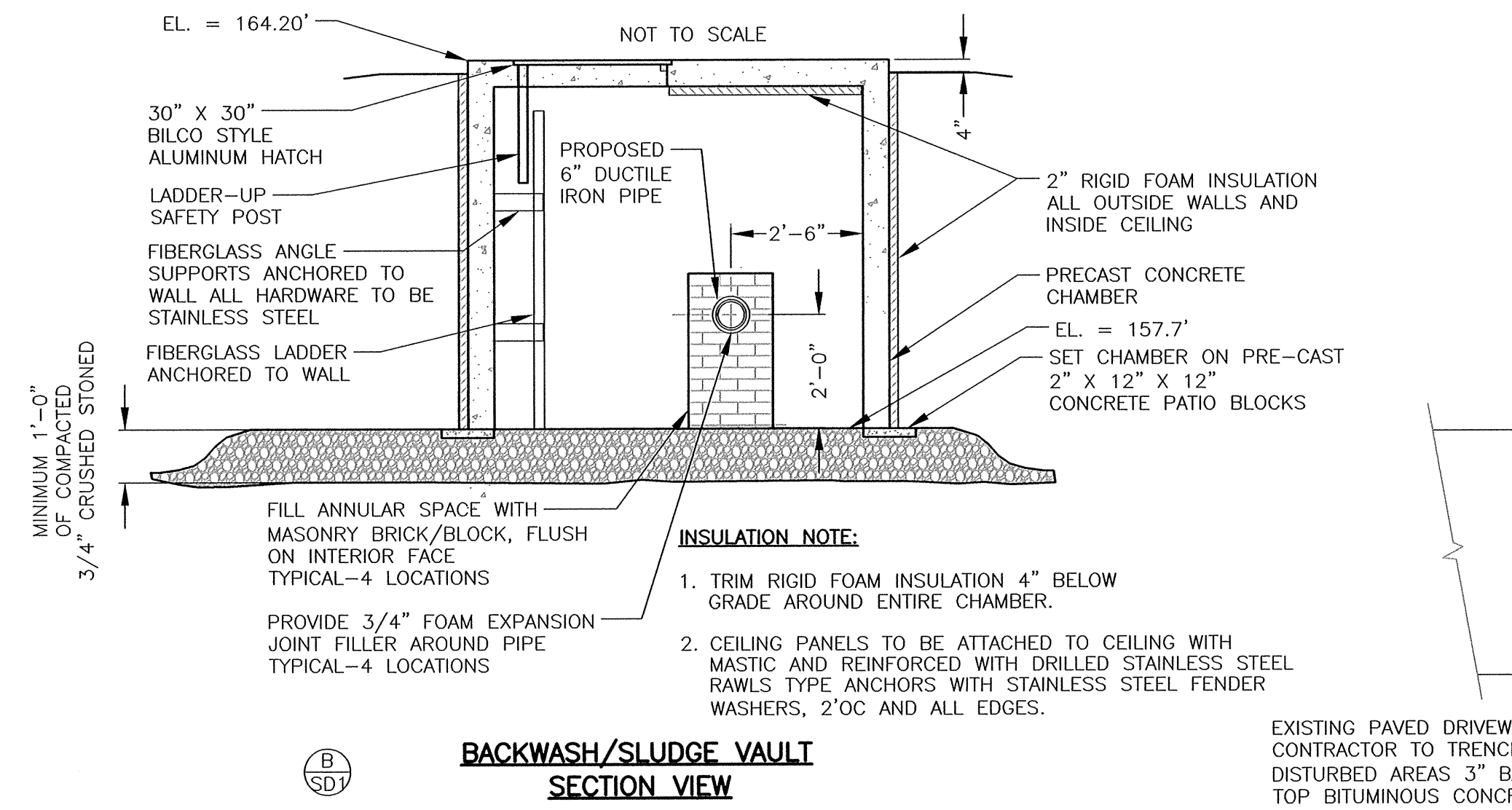


SEWER MANHOLE SECTION

MANHOLE NOTE:
1. WATERPROOFING COMPOUND TO BE APPLIED, AT FACTORY, TO EXTERIOR WALLS OF BASE, BARREL, AND DOME SECTIONS OF ALL MANHOLES.
2. APPLY HYDRAULIC CEMENT TO ALL LIFT HOLES.
3. ALL MANHOLES ARE 4'-0" O.D. DIAMETER.

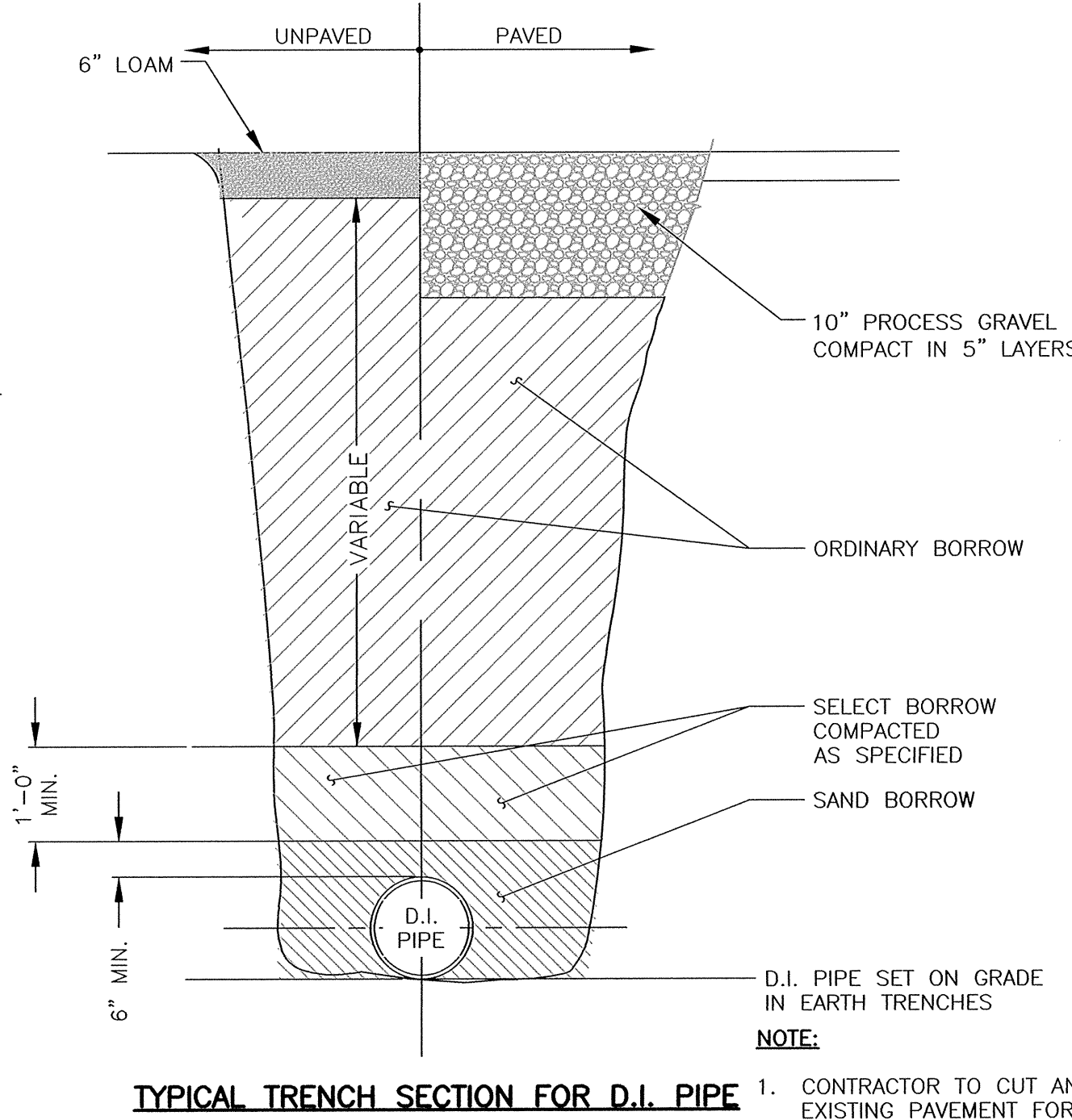


CONCRETE PIPE STAND DETAIL

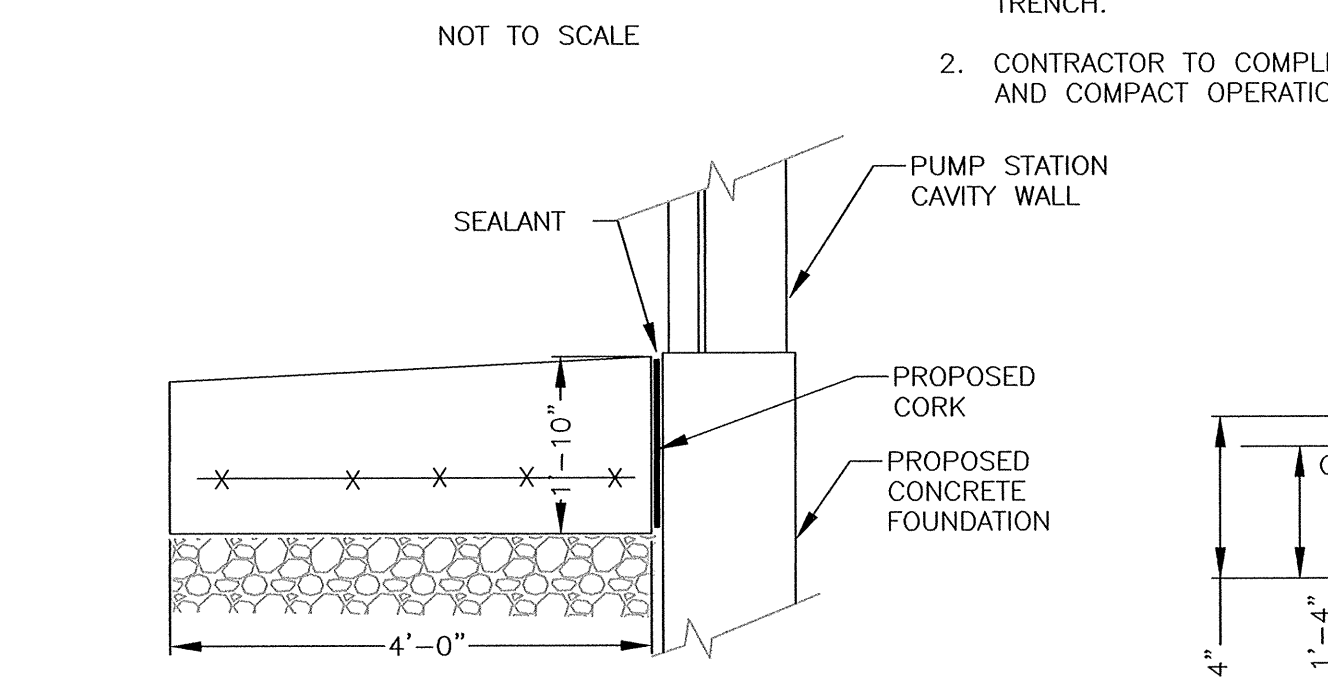


BACKWASH/SLUDGE VAULT
SECTION VIEW

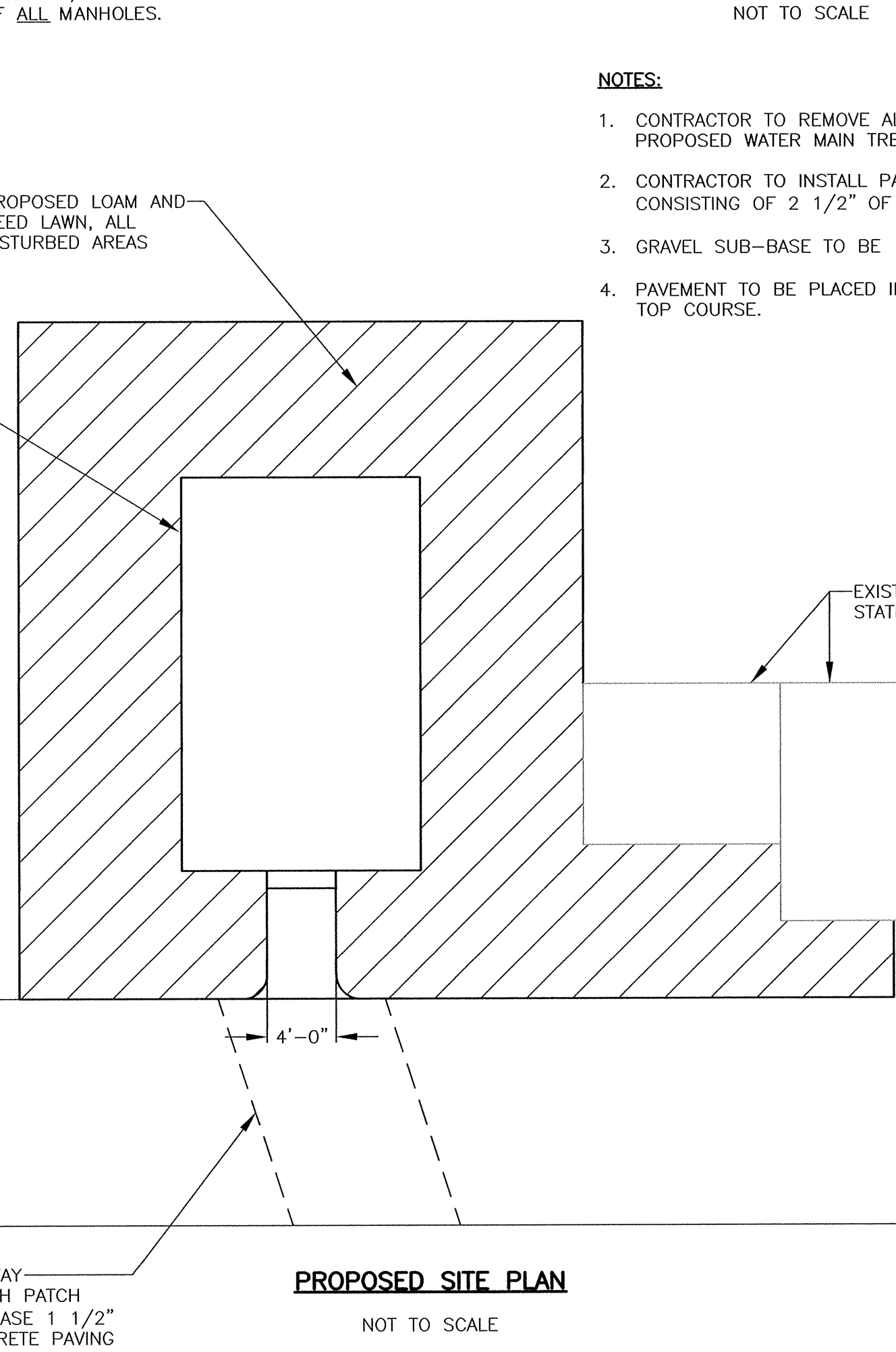
SCALE: 3/8" = 1'



TYPICAL TRENCH SECTION FOR D.I. PIPE

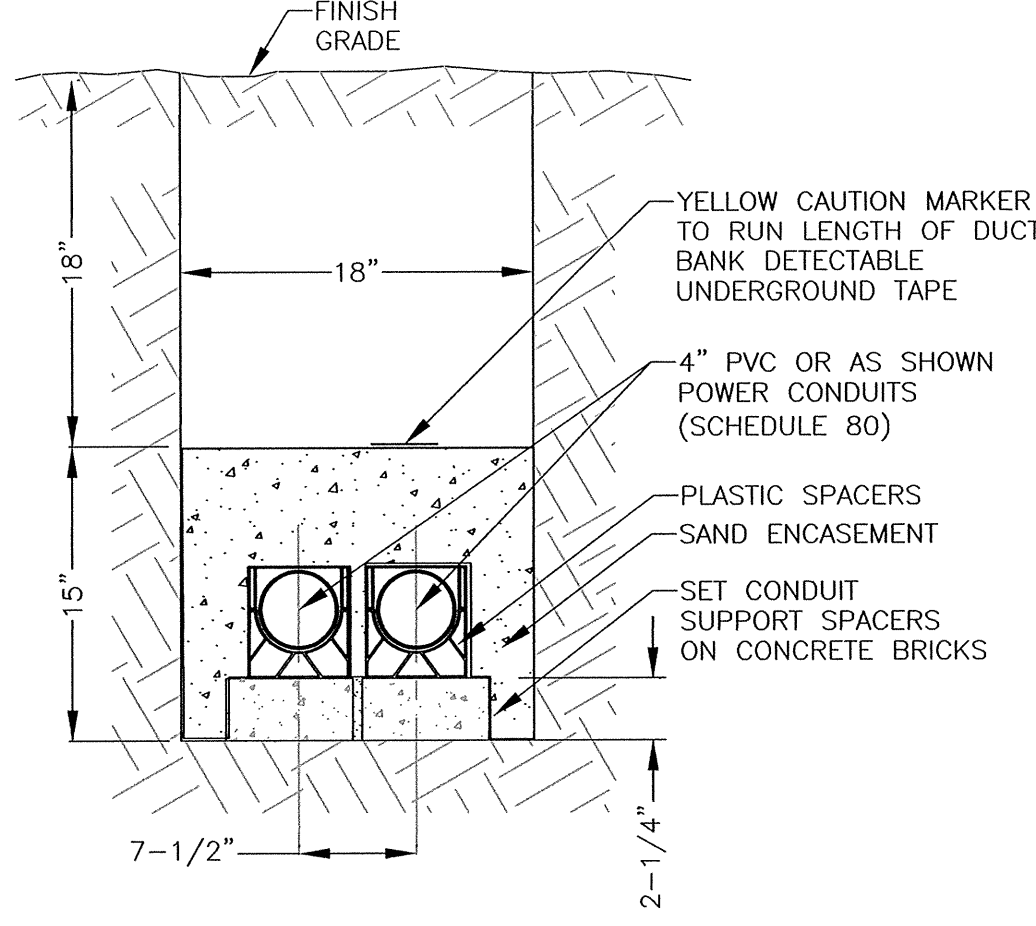


CONCRETE LANDING AT
EXTERIOR DOOR



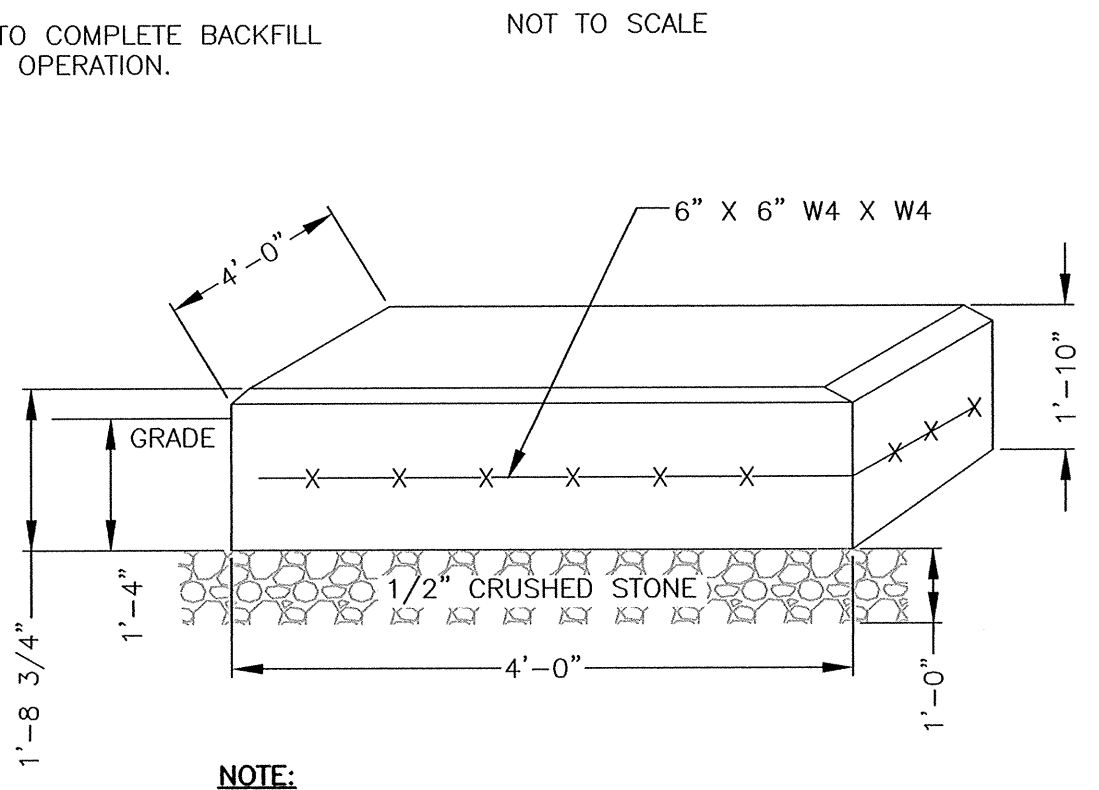
PROPOSED SITE PLAN

EXISTING PAVED DRIVEWAY
CONTRACTOR TO TRENCH PATCH
DISTURBED AREAS 3" BASE 1 1/2" TOP BITUMINOUS CONCRETE PAVING



NOTES:
1. GENERAL CONTRACTOR TO EXCAVATE TRENCH AND COMPLETE BACK FILLING AND COMPACTION WORK.
2. ELECTRICAL SUB CONTRACTOR TO INSTALL DUCTS.
3. SAND ENCASEMENT REQUIRED FOR ALL DUCTS.
4. GENERAL CONTRACTOR TO INSTALL ENCASEMENT.

ELECTRICAL CONDUIT
IN SAND ENCASED TRENCH



NOTE:
SLOPE LANDING @ 1/4" PER FT

NOTES:
1. CONTRACTOR TO REMOVE ALL PAVEMENT AND DISPOSE OF WITHIN PROPOSED WATER MAIN TRENCHES.
2. CONTRACTOR TO INSTALL PAVED SIDEWALK TO NEW PUMP STATION CONSISTING OF 2 1/2" OF TOP COURSE BITUMINOUS CONCRETE.
3. GRAVEL SUB-BASE TO BE 10" PROCESS GRAVEL COMPACTION IN 3" LIFTS.
4. PAVEMENT TO BE PLACED IN 2 LIFTS, 3" BINDER COURSE AND 1 1/2" TOP COURSE.

TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

MISCELLANEOUS
UTILITY DETAILS

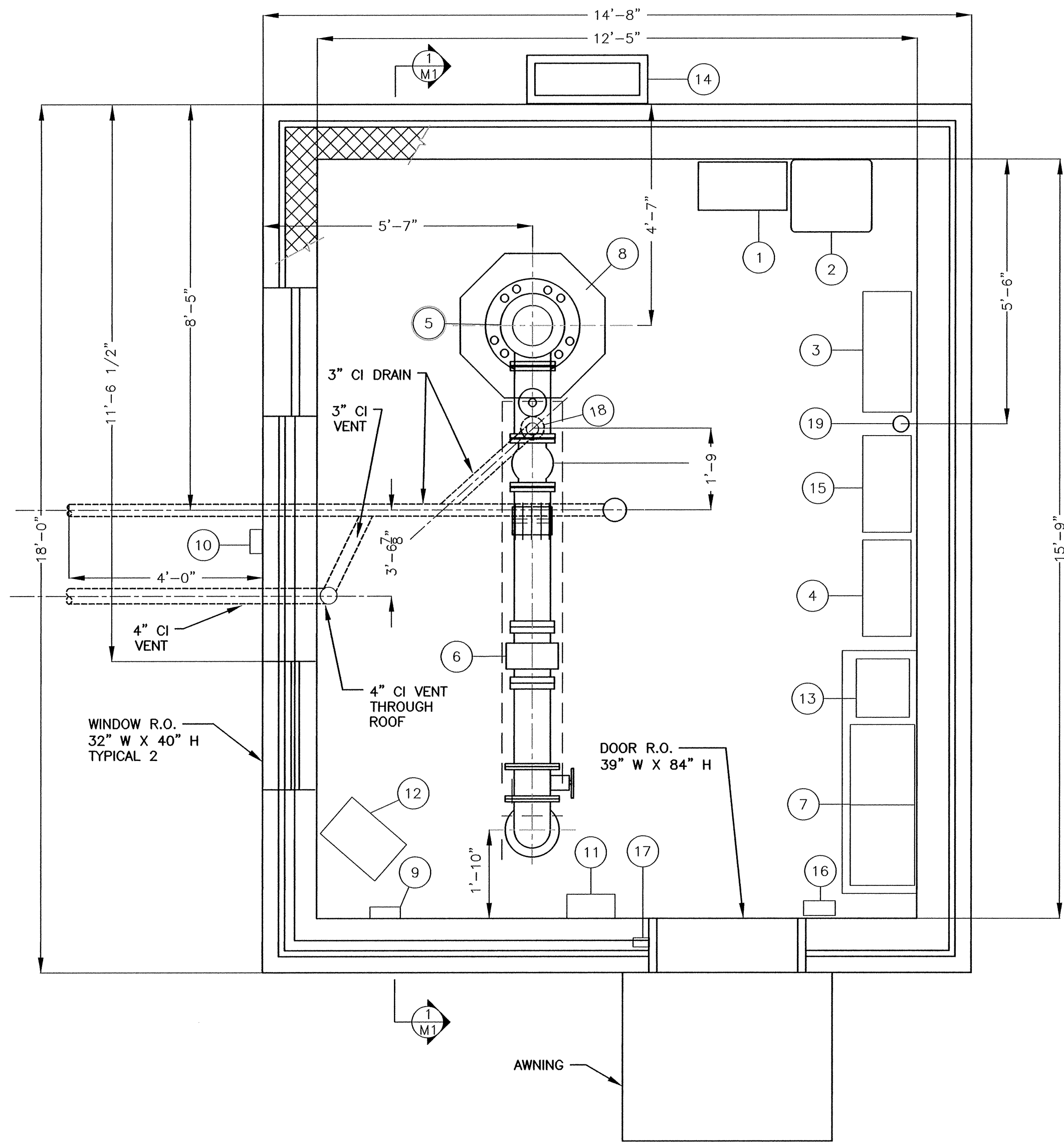
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DATE
BY

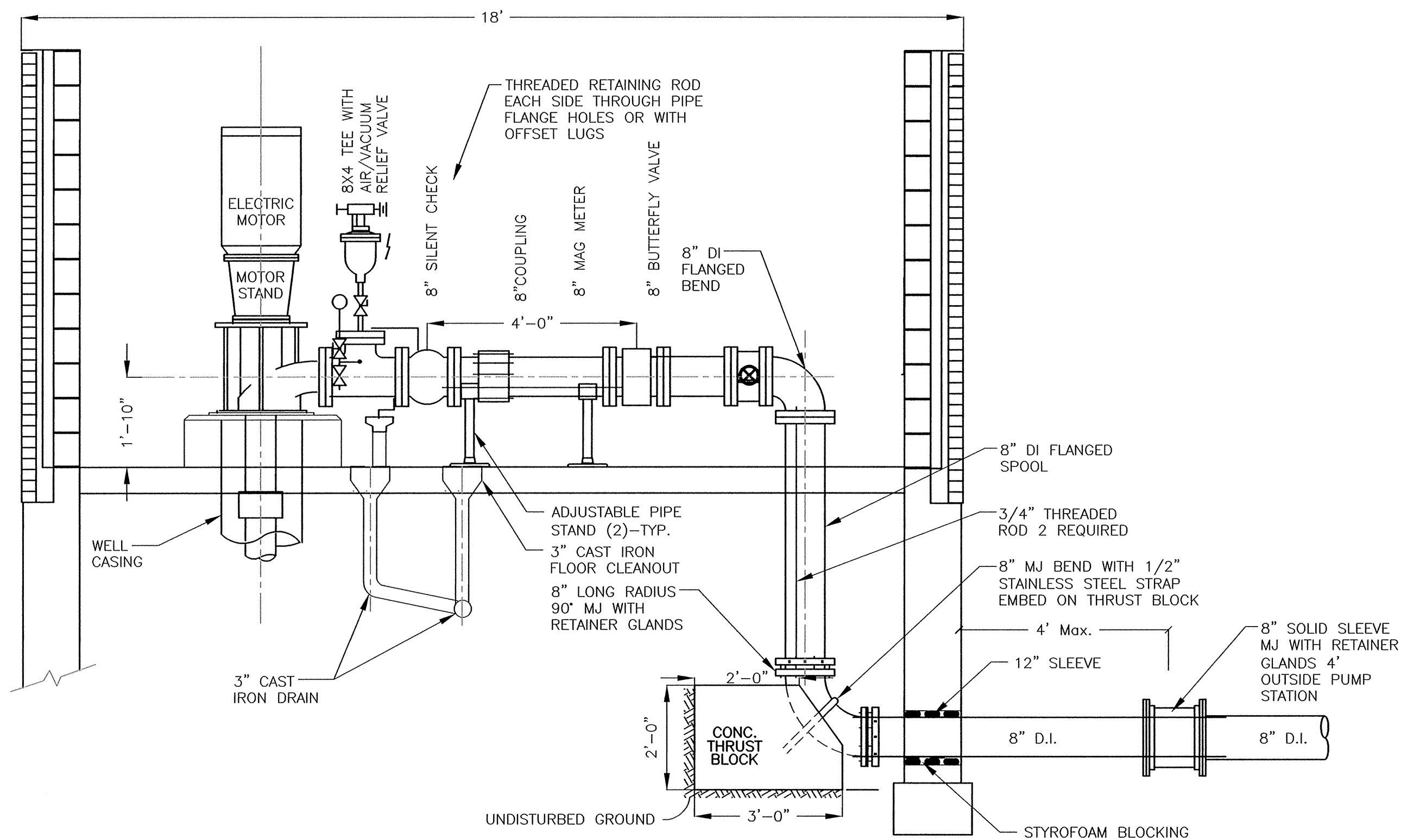
11 OF 22
CONTRACT NO.: W-143
SCALE: 1/2" = 1'
DATE DRAWN: SEPTEMBER, 2017
DRAWN BY: GJE
FILE NO.: NAT-436-SD1.DWG

DWG. NO.
SD1



FLOOR PLAN

SCALE: 1/2" = 1'

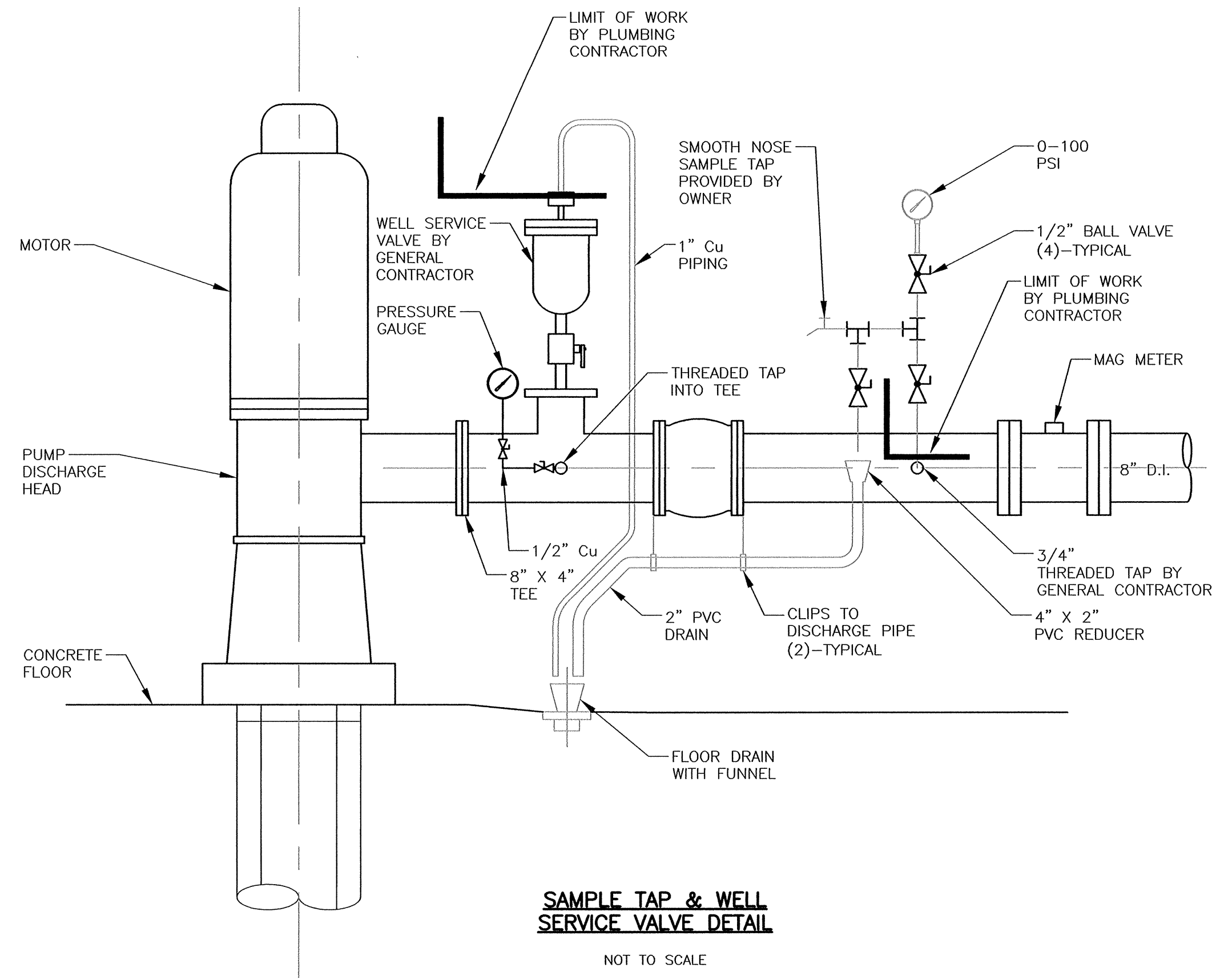


SECTION

SCALE: 1/2" = 1'

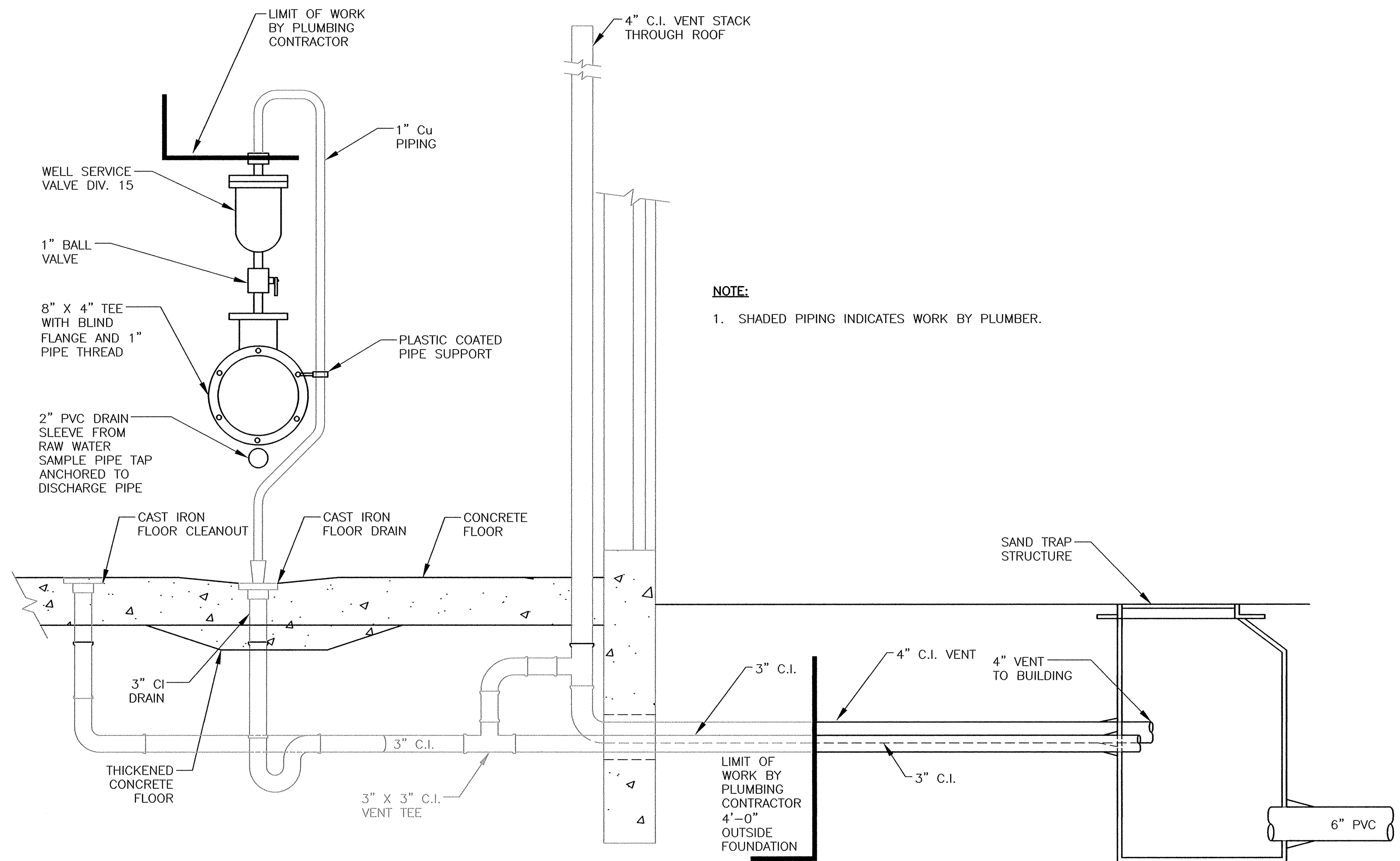
EQUIPMENT KEY

- ① VFD
- ② VFD FILTER
- ③ AIR HANDLER DUCTLESS AIR CONDITION SYSTEM
- ④ RELOCATED SCADA ENCLOSURE
- ⑤ PUMP MOTOR
- ⑥ MAGMETER
- ⑦ MOTOR CONTROL CENTER
- ⑧ ROOFTOP FAN
- ⑨ HEATER DISCONNECT
- ⑩ JUNCTION BOX FOR FUTURE CAMERA
- ⑪ BUILDING SECURITY PANEL
- ⑫ ELECTRIC HEATER
- ⑬ FLOOR MOUNT TRANSFORMER
- ⑭ CONDENSER AIR CONDITION SYSTEM
- ⑮ FAN CONTROL PANEL
- ⑯ DOOR ACCESS CONTROL JUNCTION BOX
- ⑰ ELECTRONIC DOOR STRIKE JUNCTION BOX
- ⑱ FLOOR DRAIN
- ⑲ 3" C.I. VENT THROUGH ROOF



SAMPLE TAP & WELL SERVICE VALVE DETAIL

NOT TO SCALE



FLOOR DRAIN DETAIL

NOT TO SCALE

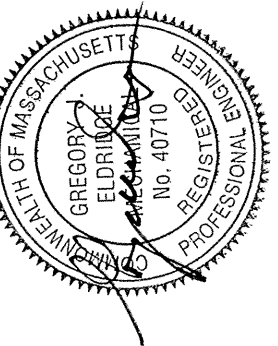
TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

**SPRINGVALE NO. 4
WATER PUMP STATION**

**MECHANICAL
DETAILS**

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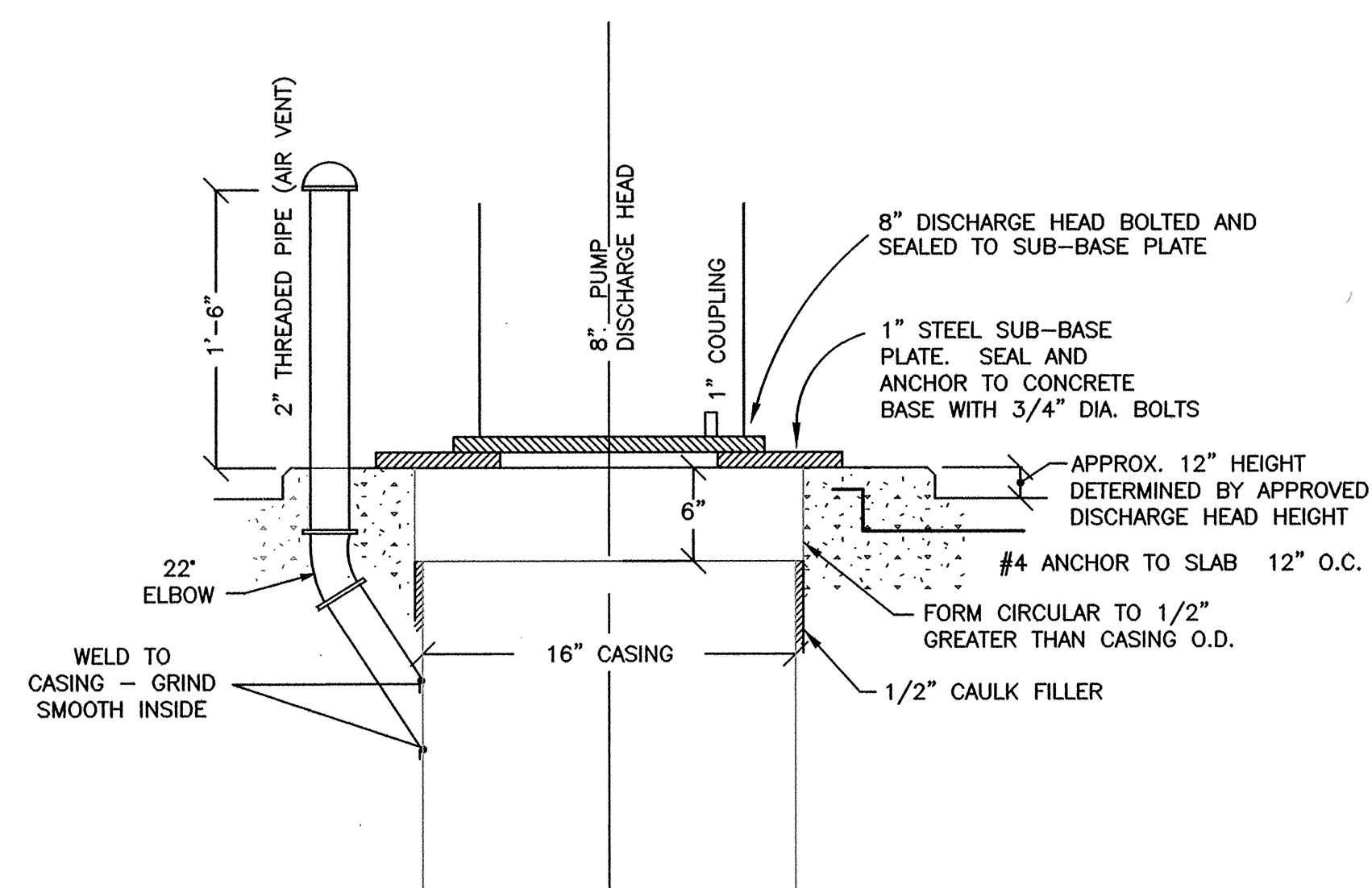
CHECKED	DATE	BY	REVISION	DATE	BY
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SHEET NO.:	12 OF 22
CONTRACT NO.:	W-143
SCALE:	AS NOTED
DATE DRAWN:	SEPTEMBER, 2017
DRAWN BY:	GJE
FILE NO.:	NAT 436-M1

DWG. NO.

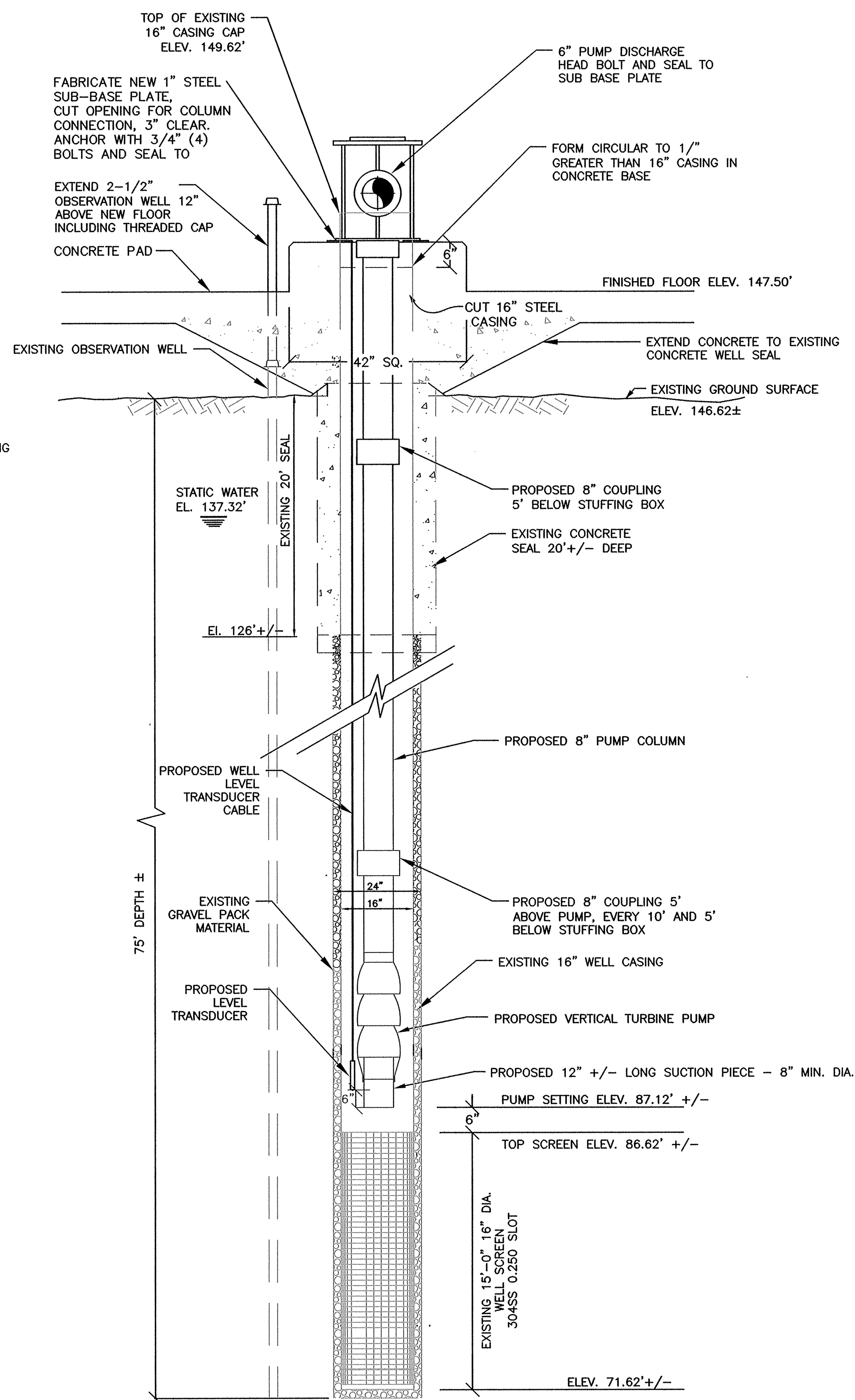
M1

NOT TO SCALE



1
M2

NOT TO SCALE

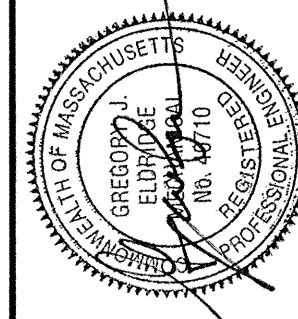


PUMP AND WELL SECTION

NOT TO SCALE

PUMPING EQUIPMENT

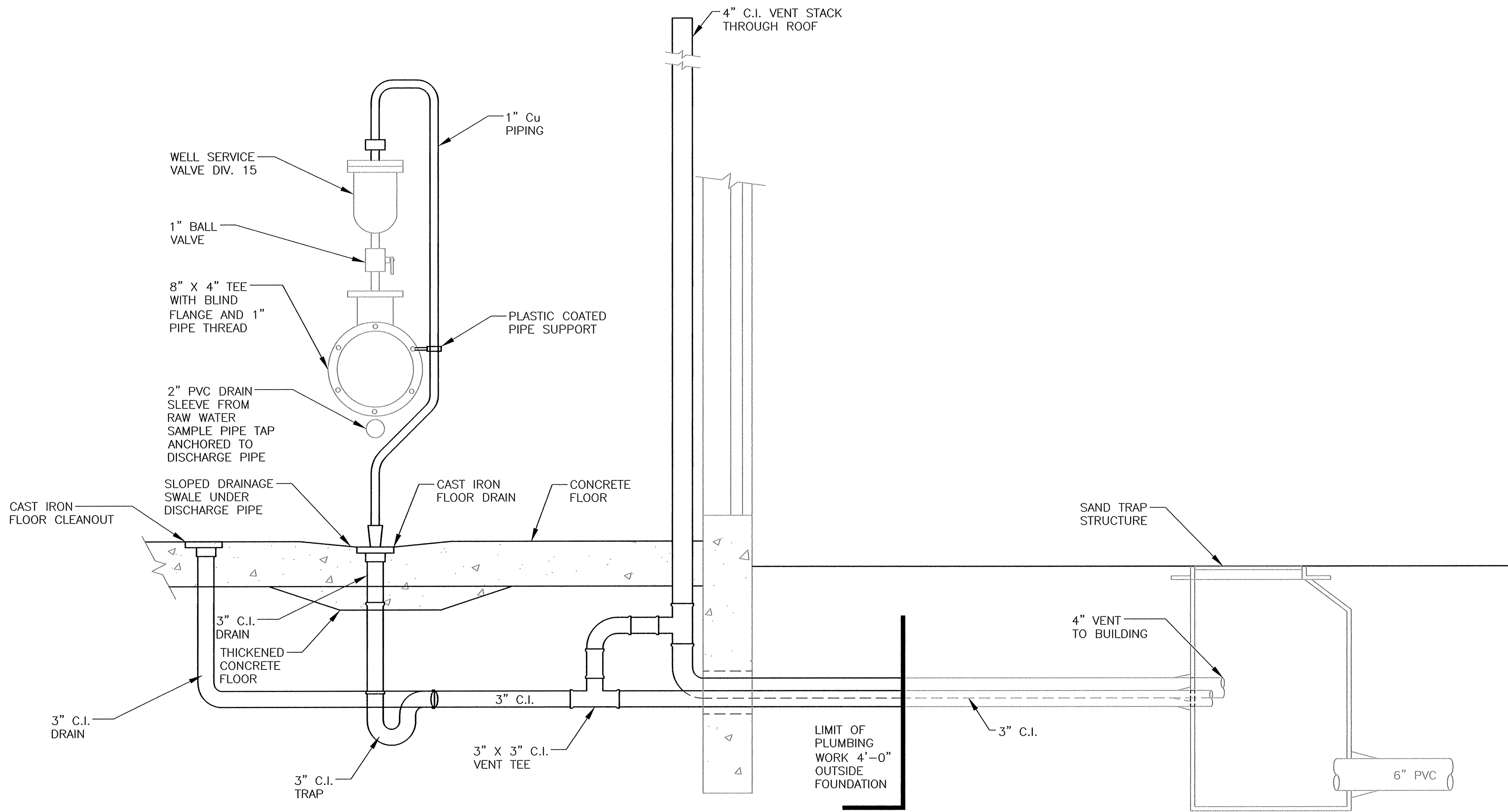
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CONTRACT NO.:	W-143	REVISED	DATE	BY
SCALE:	NONE			
DATE DRAWN:	SEPTEMBER, 2017			
DRAWN BY:	GJE			
FILE NO.:	NAT 436-M2.DWG			

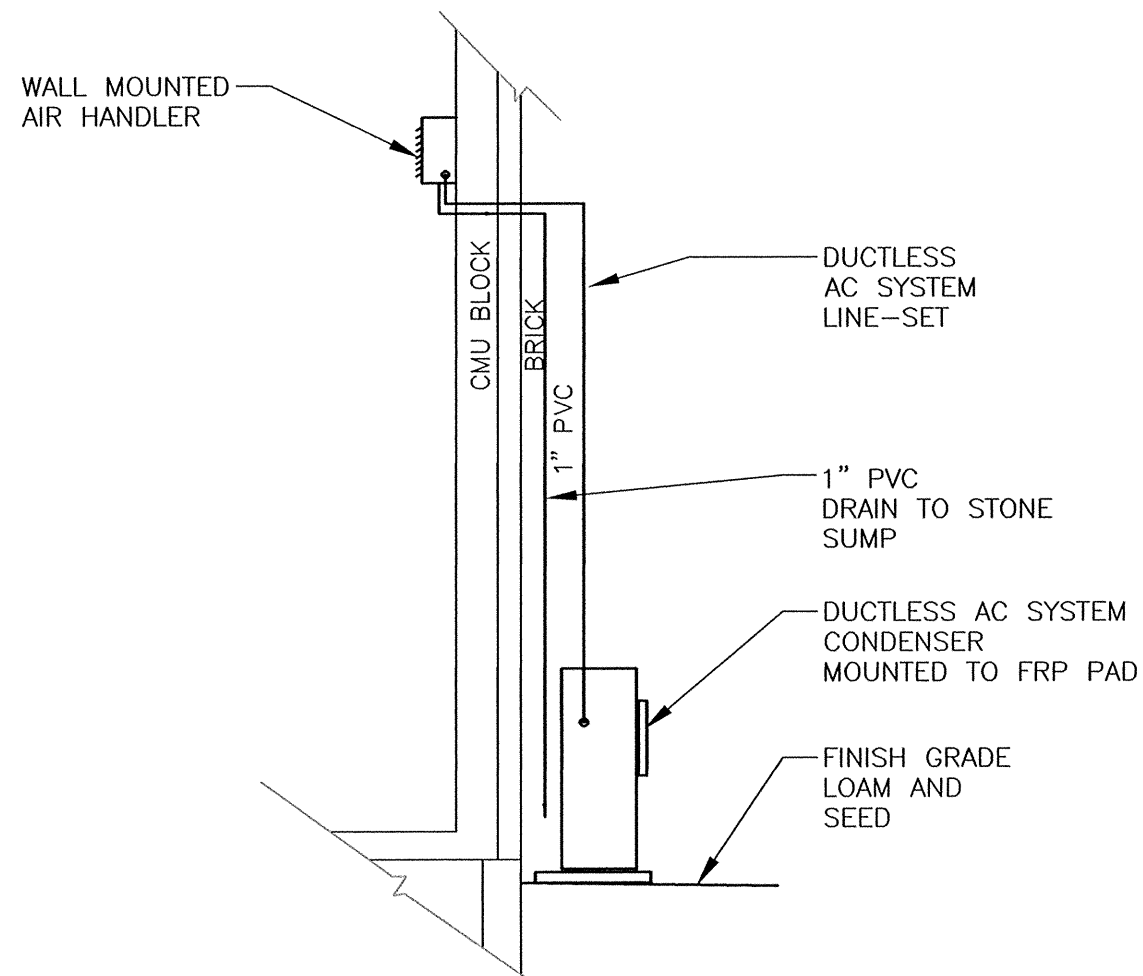
DWG. NO.

M2



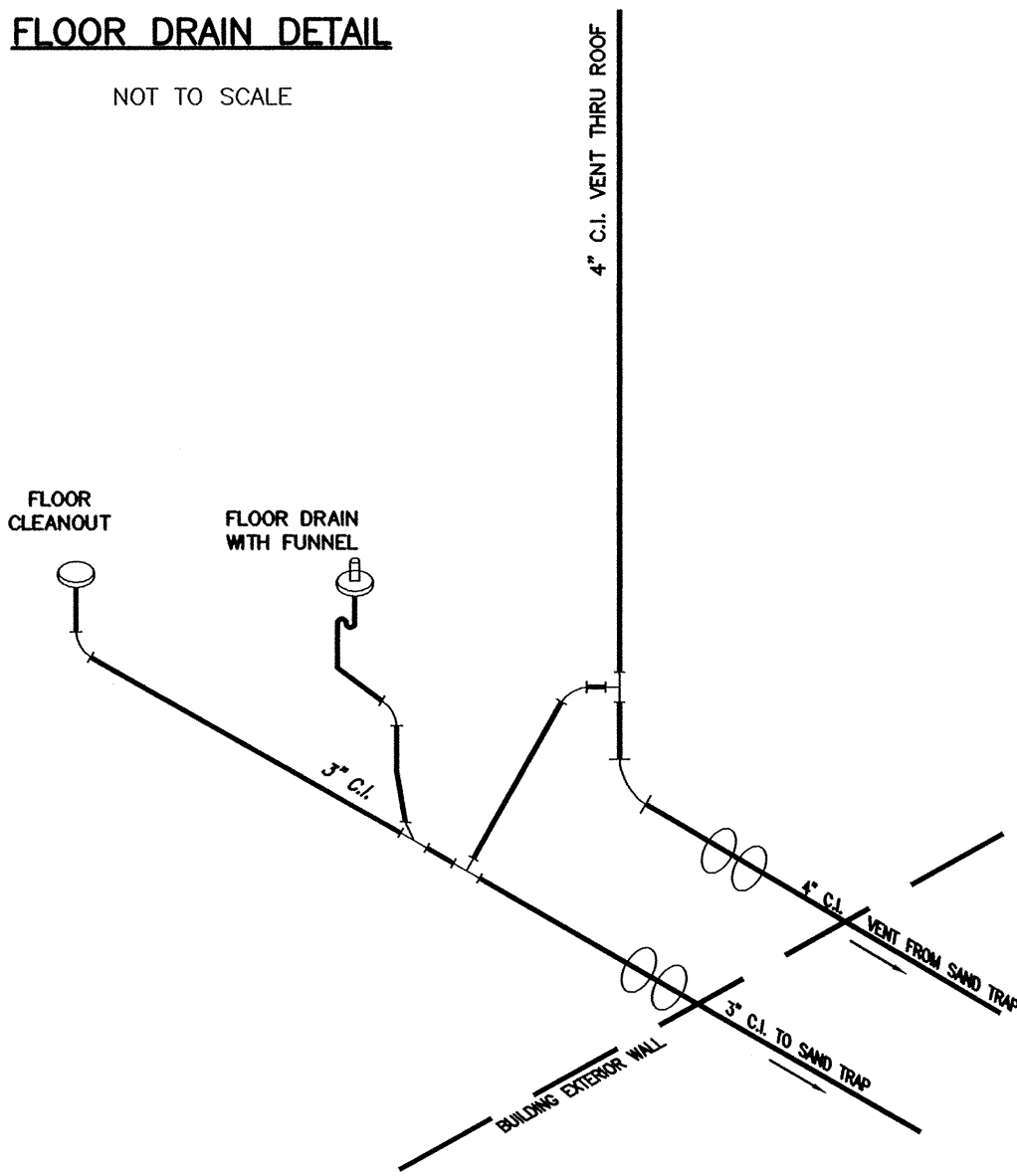
FLOOR DRAIN DETAIL

NOT TO SCALE



DUCTLESS AIR CONDITION PIPING

NOT TO SCALE



DRAIN WASTE AND VENT SYSTEM

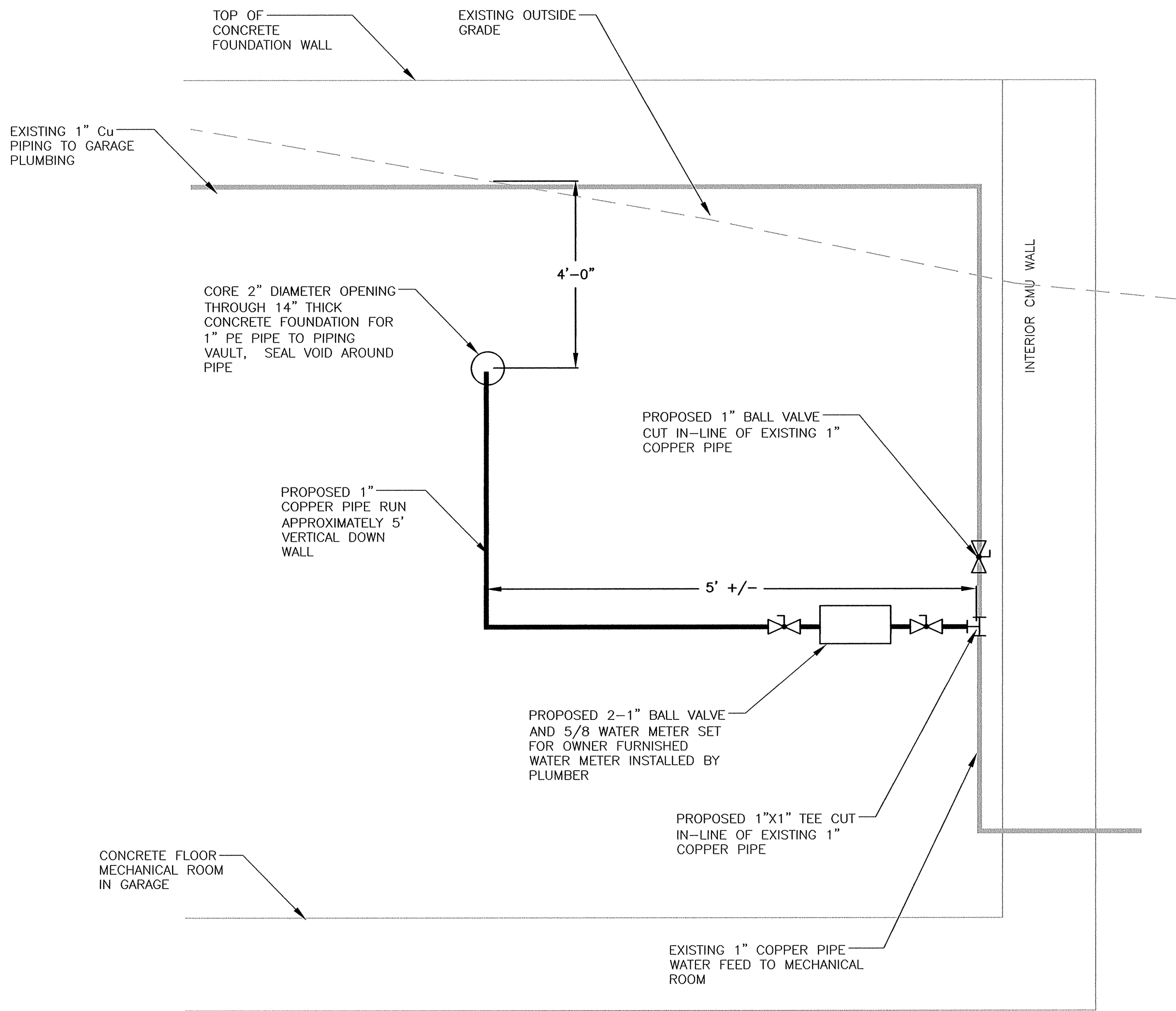
NOT TO SCALE

LEGEND

	BRONZE SILENT CHECK VALVE		GAS REGULATORS
	BRONZE CHECK VALVE		SOLENOID VALVE (12V)
	Service Ball Valve		UNIONS
	BRONZE BALL VALVE		GAS VALVES
	PVC FLANGED TRUE UNION BALL VALVE		
	PVC FLANGED BALL CHECK		
	UNION (PVC & BRASS)		

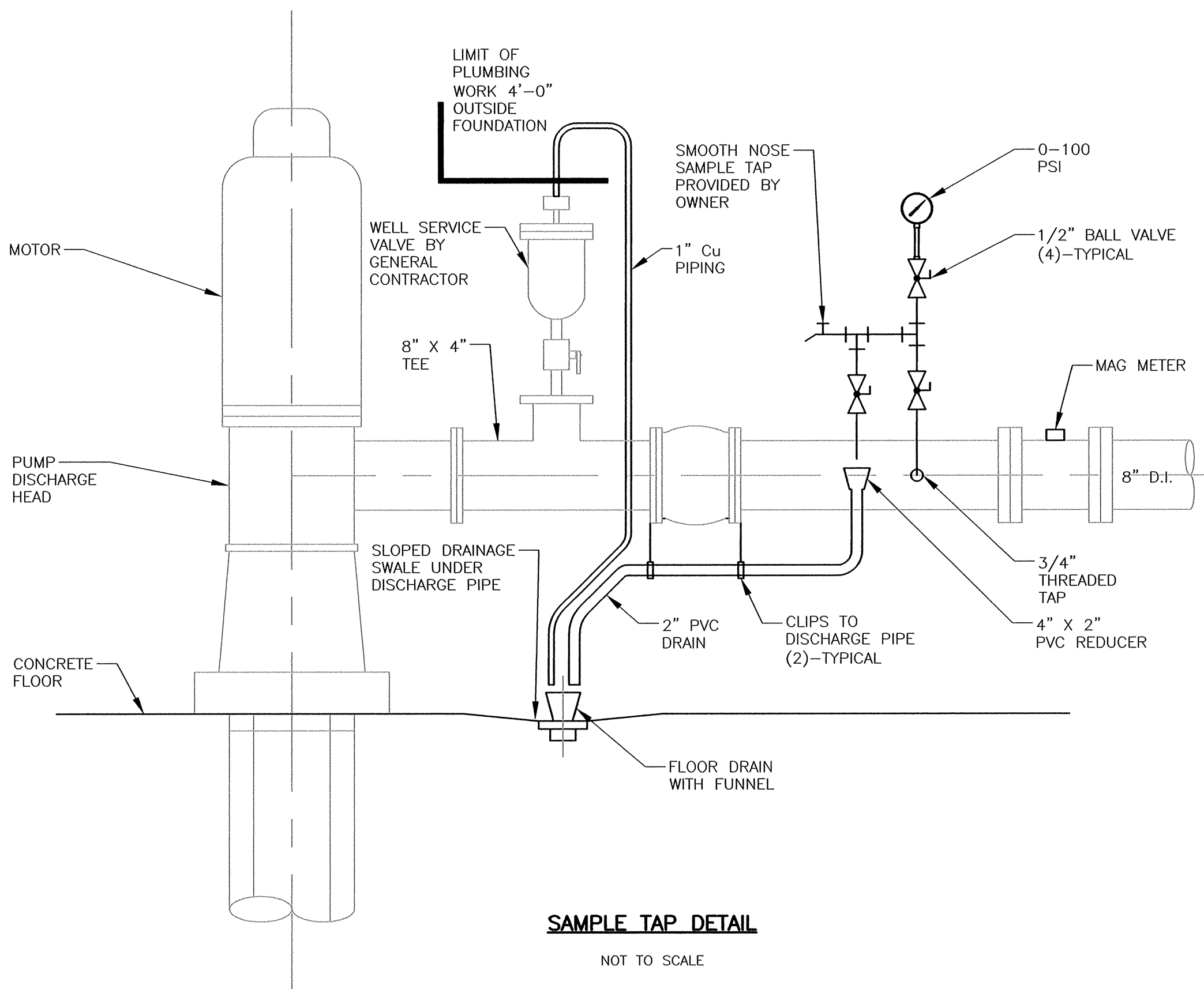
NOTE:

1. SHADE LINES DEPICTS WORK BY GENERAL CONTRACTOR.



SLUDGE RINSE WATER PIPING DETAIL

NOT TO SCALE



SAMPLE TAP DETAIL

NOT TO SCALE

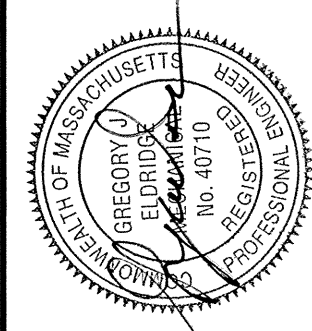
TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

SPRINGVALE NO. 4
WATER PUMP STATION

PLUMBING
DETAILS

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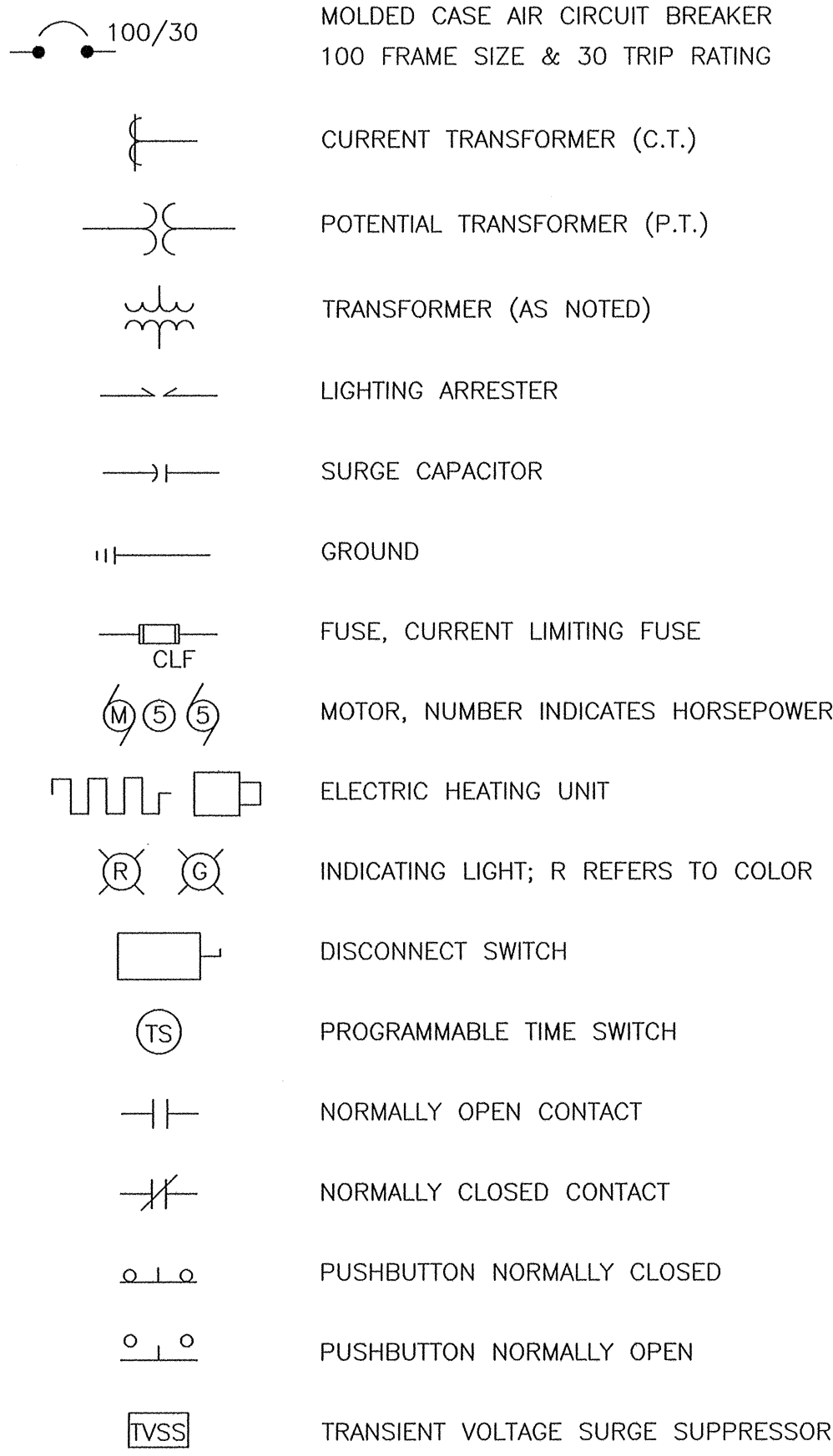


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SHEET NO.:	14 OF 22	CONTRACT NO.:	W-143	SCALE:	NONE
DATE DRAWN:	SEPTEMBER, 2017	DRAWN BY:	LJC	FILE NO.:	NAT-436-P1.DWG

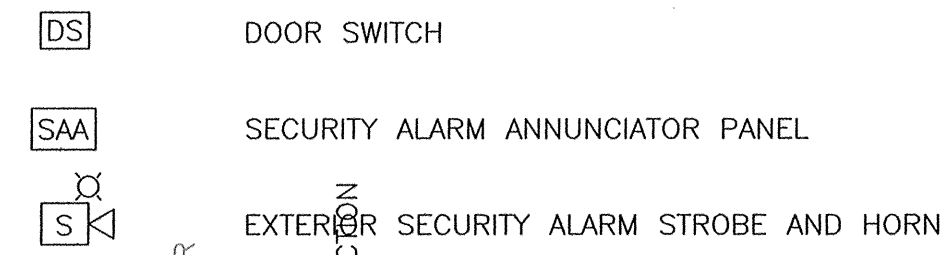
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P1

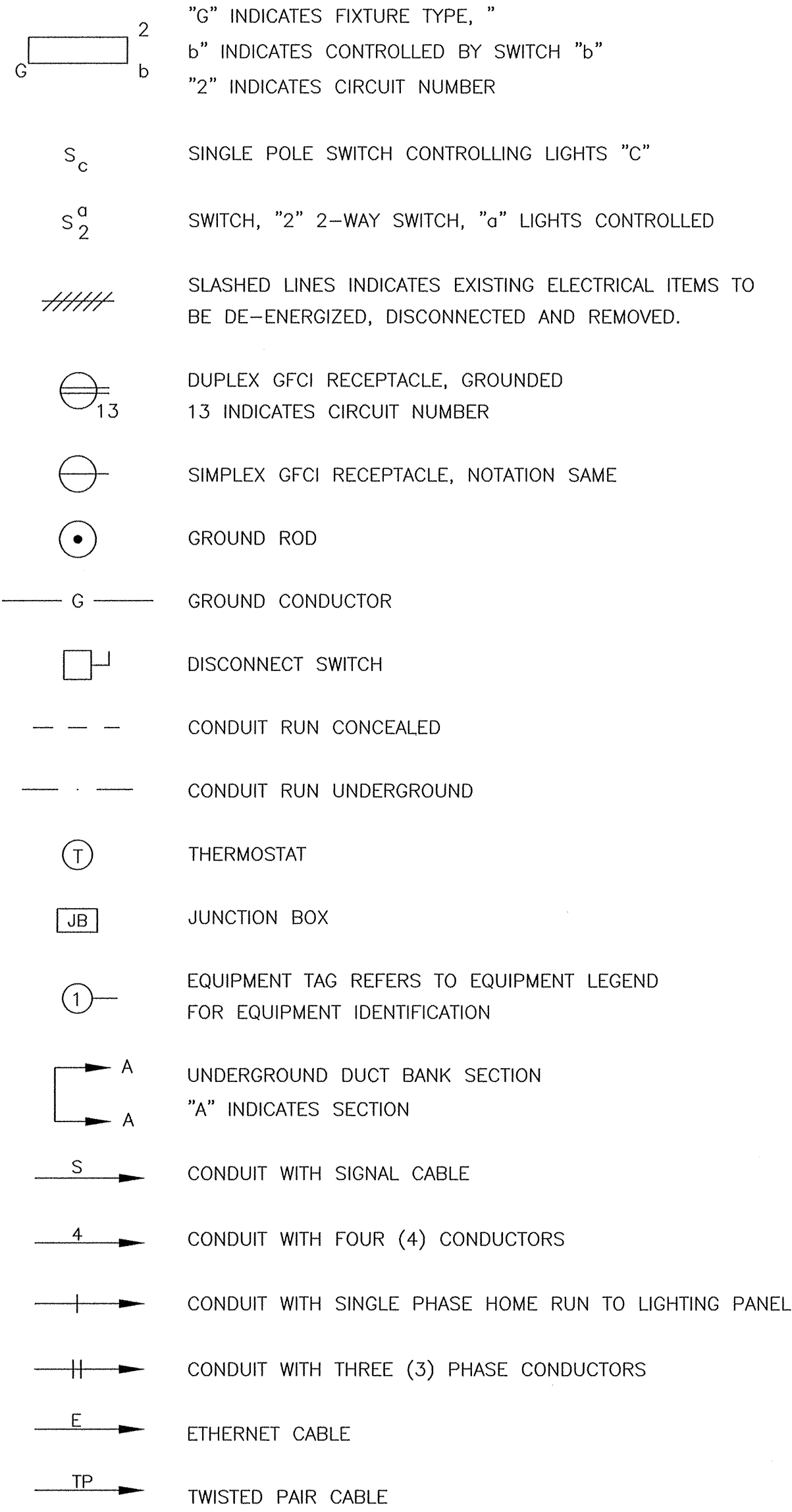
SINGLE LINE AND SCHEMATIC SYMBOLS



SECURITY SYSTEM SYMBOLS



PLAN SYMBOLS

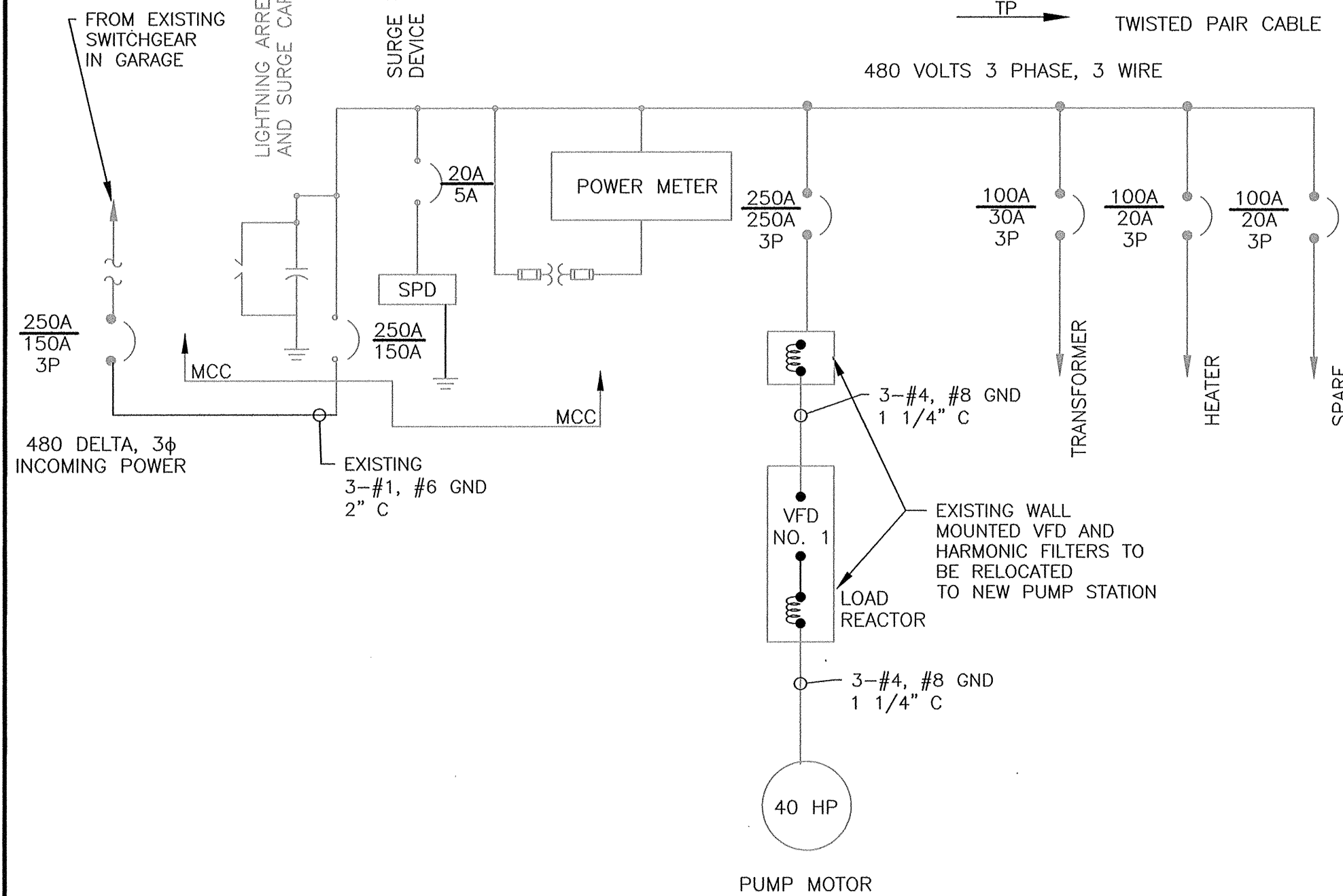


ABBREVIATIONS

2-1" C, 3#8	2 1 INCH CONDUITS, CONDUIT CONTAINING 3#8 AWG COPPER WIRES
3/4" CE	EMPTY CONDUIT, NUMERAL DENOTES SIZE
1-2/C#16 T.S.P	ONE-TWO CONDUCTOR, NO. 16 AWG, TWISTED SHIELDED PAIR CABLE
AI	ANALOG IN
AO	ANALOG OUT
CB	CIRCUIT BREAKER
CP	CONTROL PANEL
DI	DISCRETE IN
DO	DISCRETE OUT
EF	EXHAUST FAN
ETM	ELAPSE TIME METER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
JB	JUNCTION BOX
KVA	KILO VOLT-AMPERES
LP	LIGHTING PANEL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
SAA	SECURITY ALARM SYSTEM CONTROL PANEL
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF (NEMA 4 UNLESS OTHERWISE NOTED)
GFD	GROUND FAULT DETECTOR

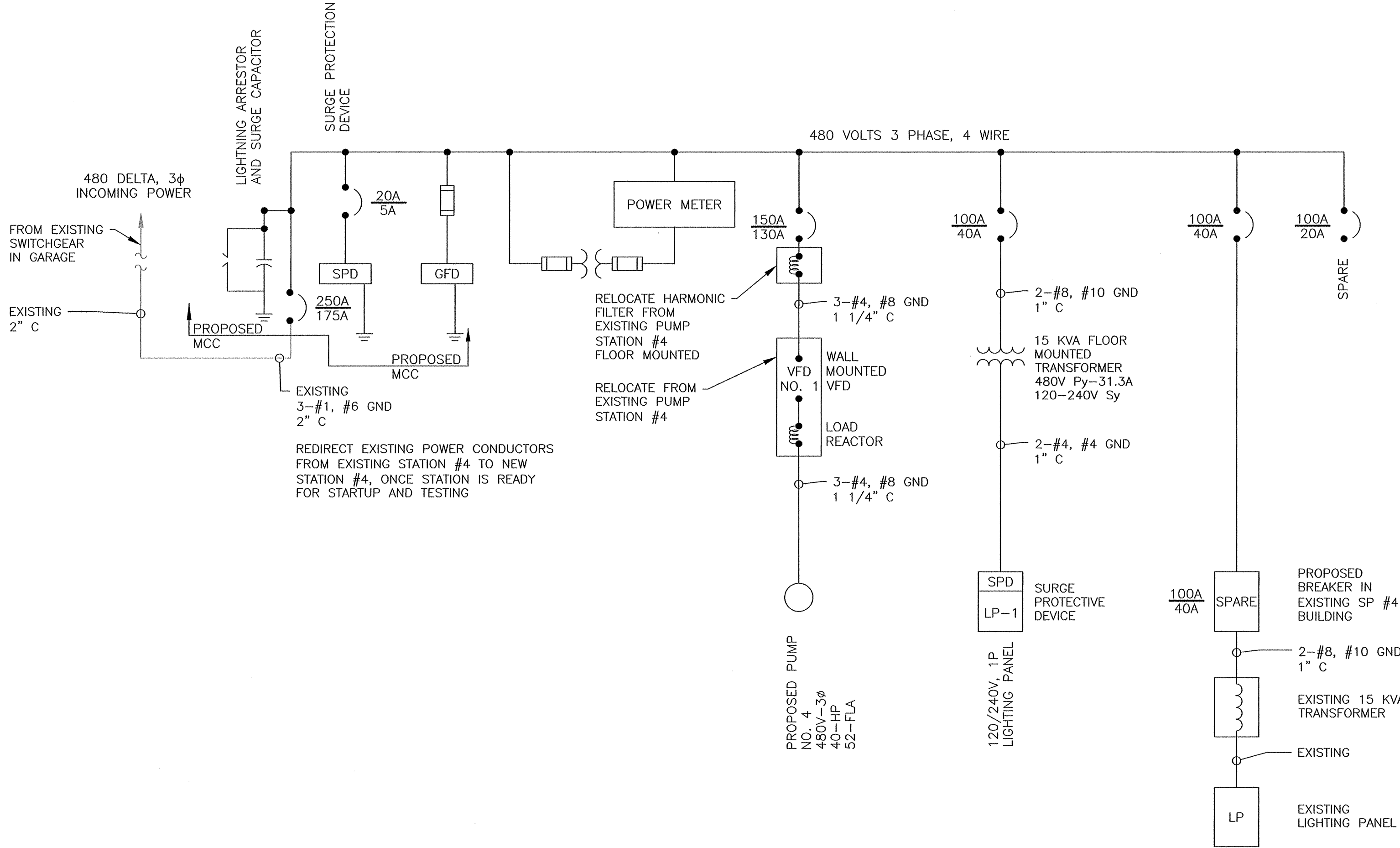
GENERAL NOTES

- TEXT LABELED GENERAL NOTES SHALL PERTAIN TO ALL ELECTRICAL DRAWINGS. TEXT LABELED NOTES SHALL PERTAIN TO THAT SPECIFIC DRAWING.
- ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
- PROVIDE GROUND CONNECTIONS TO WATER PIPES, IN EACH FACILITY BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH TABLE 250-94 OF THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE IN ACCESSIBLE LOCATIONS.
- CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
- NO CONDUIT SMALLER THAN 1/2" PIPE SIZE NOR POWER CONDUCTOR SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED, EXCEPT RECEPTACLES IN OFFICES OR AREAS WITH SUSPENDED CEILING SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
- ALL SURFACE MOUNTED PANELS AND PANELLOADS ON THE INSIDE OF THE EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- ALL PANEL BOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".
- PROVIDE CONDUIT AND WIRE FOR ALL SURGE PROTECTION DEVICES AT INSTRUMENTS AND INSTRUMENTATION PANELS. SURGE PROTECTION DEVICES TO BE PROVIDED BY DIVISION 16 SUPPLIER.
- CONDUIT AND WIRE (NOT SHOWN) FOR ALL PERIPHERAL DEVICES SHALL BE FURNISHED AND INSTALLED AS FOLLOWS UNLESS OTHERWISE NOTED:
A. 1/2" (MIN.) RIGID PVC CONDUIT
B. NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED
- CONDUIT AND WIRE (NOT SHOWN) FOR LIGHTING FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
A. 1/2" (MIN.) RIGID PVC CONDUIT
B. NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED, INCLUDING GROUND
- OUTLET, SWITCH, JUNCTION, PULL AND TERMINAL BOXES SHALL BE PROVIDED WITH NEMA ENCLOSURE AS INDICATED ON THE EQUIPMENT ENCLOSURE SCHEDULE.
- DUCTLINE CONDUIT SIZES ARE GIVEN IN THE DUCTLINE SECTIONS, WHERE THE SAME CONDUIT IS USED BOTH IN THE DUCTLINE AND IN THE CONDUIT IN THE BUILDING ONLY.
- EXPANSION JOINTS SHALL BE EXPANSION OR DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
- EXISTING EQUIPMENT SHALL BE SHOWN IN A LIGHT LINEWEIGHT. NEW EQUIPMENT SHALL BE SHOWN IN A HEAVY LINEWEIGHT.



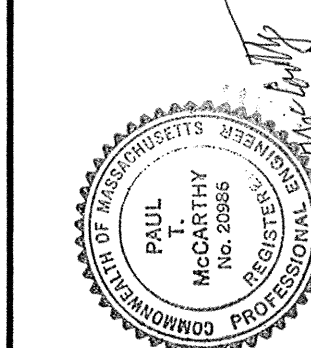
EXISTING SPRINGVALE PUMP STATION NO. 4 MOTOR CONTROL CENTER SINGLE LINE DIAGRAM

NOT TO SCALE



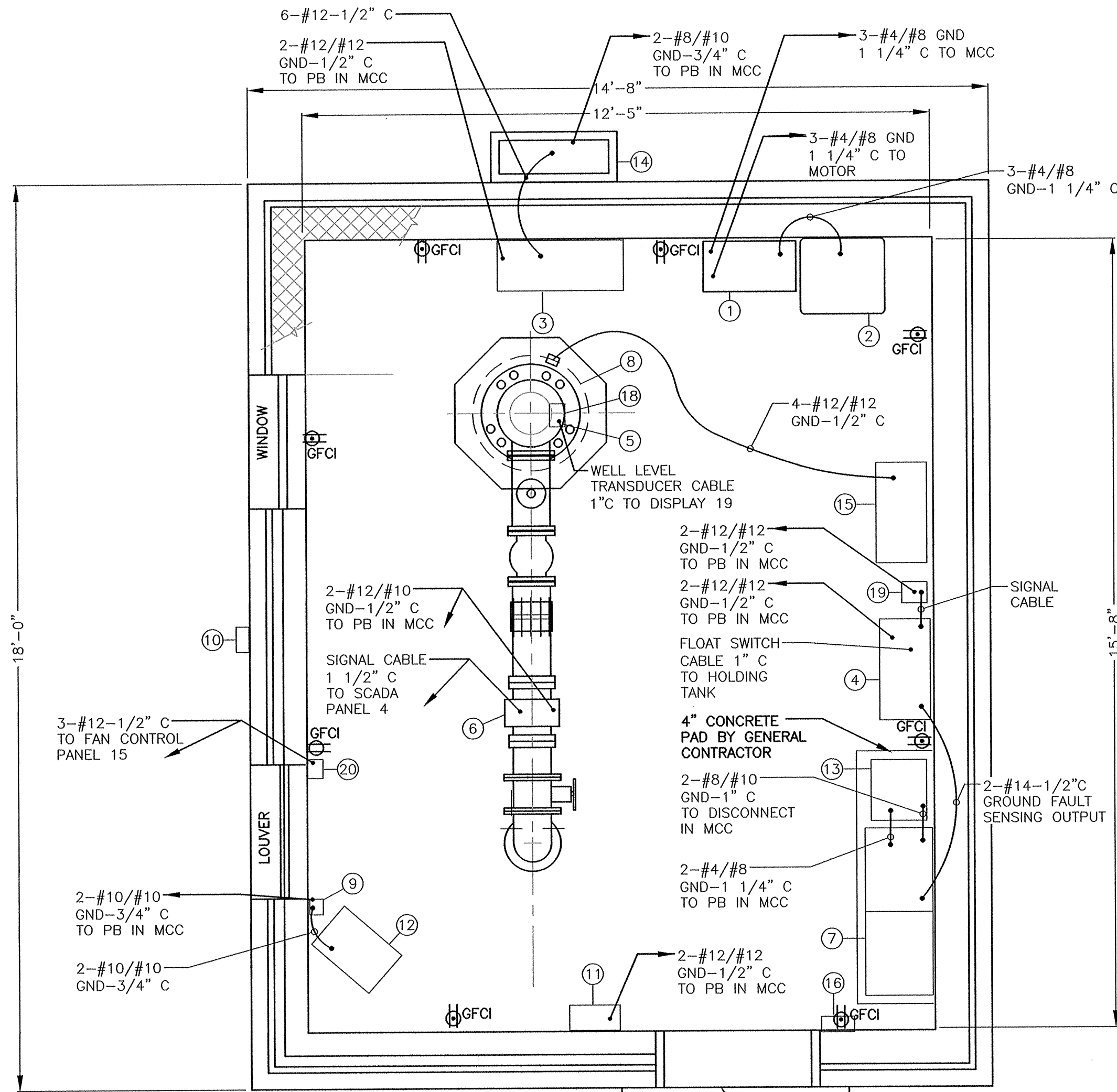
PROPOSED SPRINGVALE #4 PUMP STATION SINGLE LINE DIAGRAM

NOT TO SCALE



SHEET NO.:	15 OF 22	CHECKED	DATE	BY
CONTRACT NO.:	W-143	REVIS	DATE	BY
SCALE:	NONE			
DATE DRAWN:	APRIL, 2017			
DRAWN BY:	LJC			
FILE NO.:	NAT436-E1.DWG			

J:\Natick\436 Springvale #4 Pump Station CT W-143\CADD\NAT436-E2.dwg, 10/26/2017 2:00:43 PM



FLOOR PLAN

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

PANEL SCHEDULE					
SERVICE: 100A 120/240. 1PH, 3W MOUNTING: MCC			MAIN BREAKER: 100 AMPS SPD		
LOCATION: PUMP ROOM					
CIR. NO.	APPLICATION	LOAD		CIRCUIT BREAKER DIV. 16	
		KVA	HP	POLES	TRIP
1	INTERIOR LIGHTS			1	20
2	MAG METER AND DISPLAY			1	20
3	EXTERIOR LIGHTS			1	20
4	RECEPTACLES			1	20
5	CONDENSER AC SYSTEM			1	20
6	CONDENSER AC SYSTEM			1	20
7	EXHAUST FAN CONTROL PANEL			1	20
8	EXHAUST FAN CONTROL PANEL			1	20
9	SCADA PANEL			1	20
10	EMERGENCY LIGHTS			1	20
11	DEHUMIDIFIER RECEPTACLE			1	20
12	SECURITY			1	20
13	ELECTRIC HEATER			1	30
14	ELECTRIC HEATER			1	30
15	INTRUSION DETECTION SYSTEM			1	20
16	EXHAUST FAN			1	40
17	EXHAUST FAN			1	40
18	INDOOR AIR CONDITIONER			1	20
19	INDOOR AIR CONDITIONER			1	20
20-30	SPARES			1	20

PANELBOARD

ELECTRICAL NOTES:

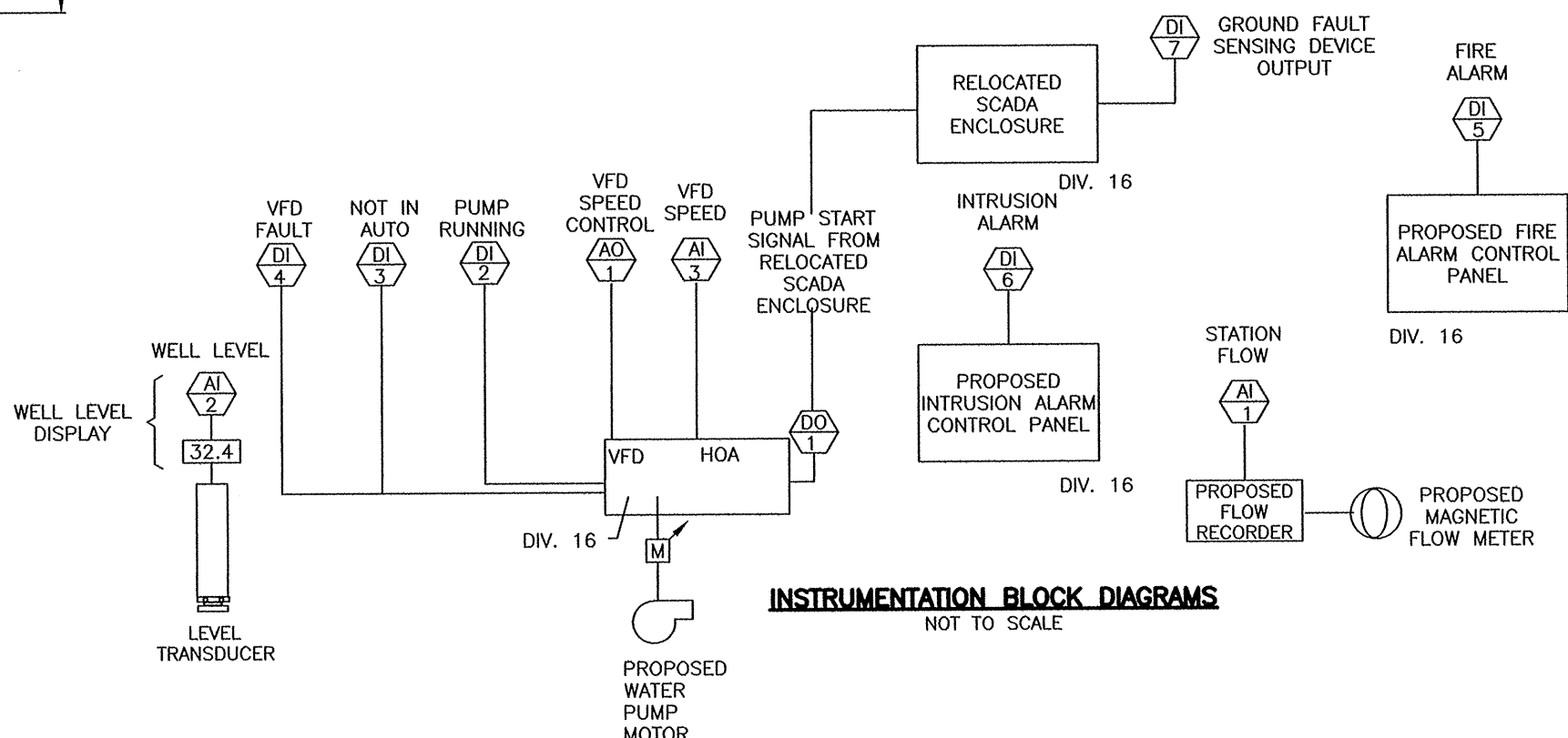
- ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL PROPOSED TOUCH PAD, INTRUSION (SECURITY) PANEL, DOOR SWITCH, HEAT/SMOKE DETECTOR, MOTION SENSOR, HATCH SWITCH AND POWER RECEPTACLE.
- ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL SECURITY CAMERA CONDUITS, JUNCTION BOX AS SHOWN. CAMERA EQUIPMENT INSTALLED UNDER SEPARATE CONTRACT.
- ELECTRICAL CONTRACTOR TO INSTALL CONDUIT AND JUNCTION BOXES AS SHOWN FOR THE FUTURE DOOR ACCESS CONTROL SYSTEM.
- MASON TO COORDINATE ELECTRIC DOOR STRIKE JUNCTION INSERT INTO WALL WITH ELECTRICAL CONTRACTOR.
- ALL JUNCTION BOXES ON EXTERIOR OF BUILDING TO BE RECESSED INTO WALL, SO BOXES ARE FLUSH WITH BRICK EXTERIOR. COORDINATE WITH ELECTRICAL CONTRACTOR.
- EXISTING WELL LEVEL TRANSDUCER TO BE REMOVED AND TRANSFERRED TO OWNER.
- CONTRACTOR TO RELOCATE SCADA PANEL FROM EXISTING PUMP STATION NO. 4 ONCE VFD IS READY FOR RELOCATION.
- CONTRACTOR TO MAKE ALL CONDUIT AND CONDUCTOR CONNECTIONS TO **RELOCATED SCADA PANEL** APPROPRIATE TERMINALS

EQUIPMENT KEY

- VFD
- VFD FILTER
- AIR HANDLER DUCTLESS AIR CONDITION SYSTEM
- RELOCATED SCADA ENCLOSURE
- PUMP MOTOR
- MAGMETER AND DISPLAY
- MOTOR CONTROL CENTER
- ROOFTOP FAN
- HEATER DISCONNECT
- JUNCTION BOX FOR FUTURE CAMERA
- BUILDING SECURITY PANEL
- ELECTRIC HEATER
- FLOOR MOUNT TRANSFORMER
- CONDENSER AIR CONDITION SYSTEM
- FAN CONTROL PANEL
- DOOR ACCESS CONTROL SINGLE GANG JUNCTION BOX
- DOOR ELECTRIC STRIKE JUNCTION BOX IN WALL
- WELL LEVEL TRANSDUCER JUNCTION BOX
- WELL LEVEL DISPLAY
- LOUVER MOTOR

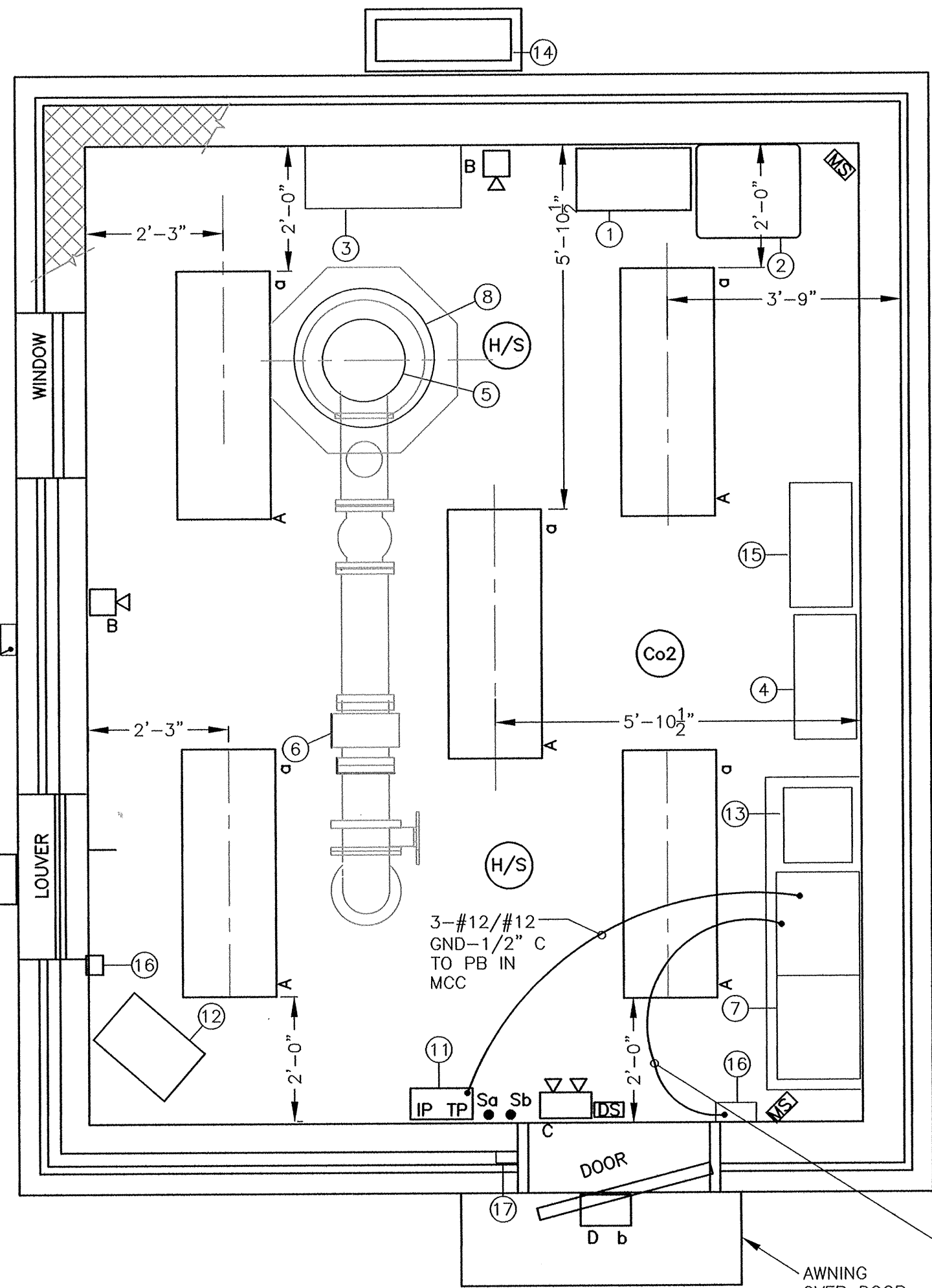
LEGEND

- DS DOOR REED SWITCH
RS ROOF HATCH REED SWITCH
MS MOTION SENSOR
TP TOUCH PAD
MS CEILING MOUNTED MOTION SENSOR
IP INTRUSION (SECURITY) PANEL
GFCI WEATHERPROOF CONVENIENCE RECEPTACLE
C EMERGENCY LIGHT (DOUBLE)
B EMERGENCY LIGHT (SINGLE)
CM CARBON MONOXIDE DETECTOR
DP DUPLEX GFCI RECEPTACLE
PB PANELBOARD IN MCC



INSTRUMENTATION BLOCK DIAGRAMS

NOT TO SCALE



LIGHTING AND SECURITY FLOOR PLAN

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

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	LAMPS	MOUNTING	ENCLOSURE	MANUFACTURER	CATALOG NO.	REMARKS
A	INDOOR - LED FIBERGLASS - ACRYLIC LENS SURFACE OR SUSPEND	LED 2 LAMP FIXTURE	SURFACE OR SUSPEND	MOLDED POLYESTER FIBERGLASS	LITHONIA LIGHTING	FEM 4 LED 4L/35/IMAFL	UL LISTED PROVIDE ALL NECESSARY MOUNTING ACCESSORIES LENGTH AS NOTED
B	EMERGENCY LIGHTING REMOTE SINGLE HEAD	SINGLE LED	WALL	THERMOPLASTIC	DUAL-LITE	HGX SERIES CPRSW06RC12	REMOTE HEAD
C	EXIT SIGN WITH EMERGENCY LIGHTS	LED	WALL	THERMOPLASTIC	DUAL-LITE	HGXURW-03L	SINGLE FACE BATTERY BACK UP PROVIDE MTG. ACCESS
D	WALL PACK	LED 26 WATTS	SURFACE OUTDOOR WALL PACK	SUITABLE FOR WET LOCATIONS	RAB LIGHTING	WP LED 26/PC	EXTERNAL MOTION SENSOR TO CONTROL ALL OUTSIDE LIGHTS
E	MOTION SENSOR	NONE	SURFACE OUTDOOR	POLYCARBONATE	RAB LIGHTING	GT 500W	UL LISTED, USE FOR WET LOCATIONS 500 WATT CAPACITY

1 0 1 2 4 FEET

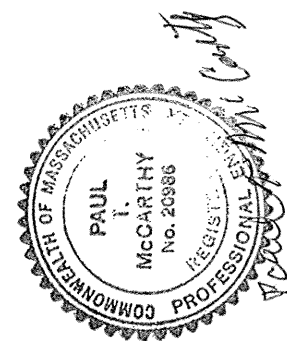
TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

SPRINGVALE NO. 4
WATER PUMP STATION

EQUIPMENT
LAYOUT AND
SECURITY

Haley and Ward, Inc.

63 GREAT ROAD, SUITE 200,
MAYNARD, MASSACHUSETTS 01754-2087
PHONE: (978) 648-6025 FAX: (978) 648-6068
www.haleyward.com

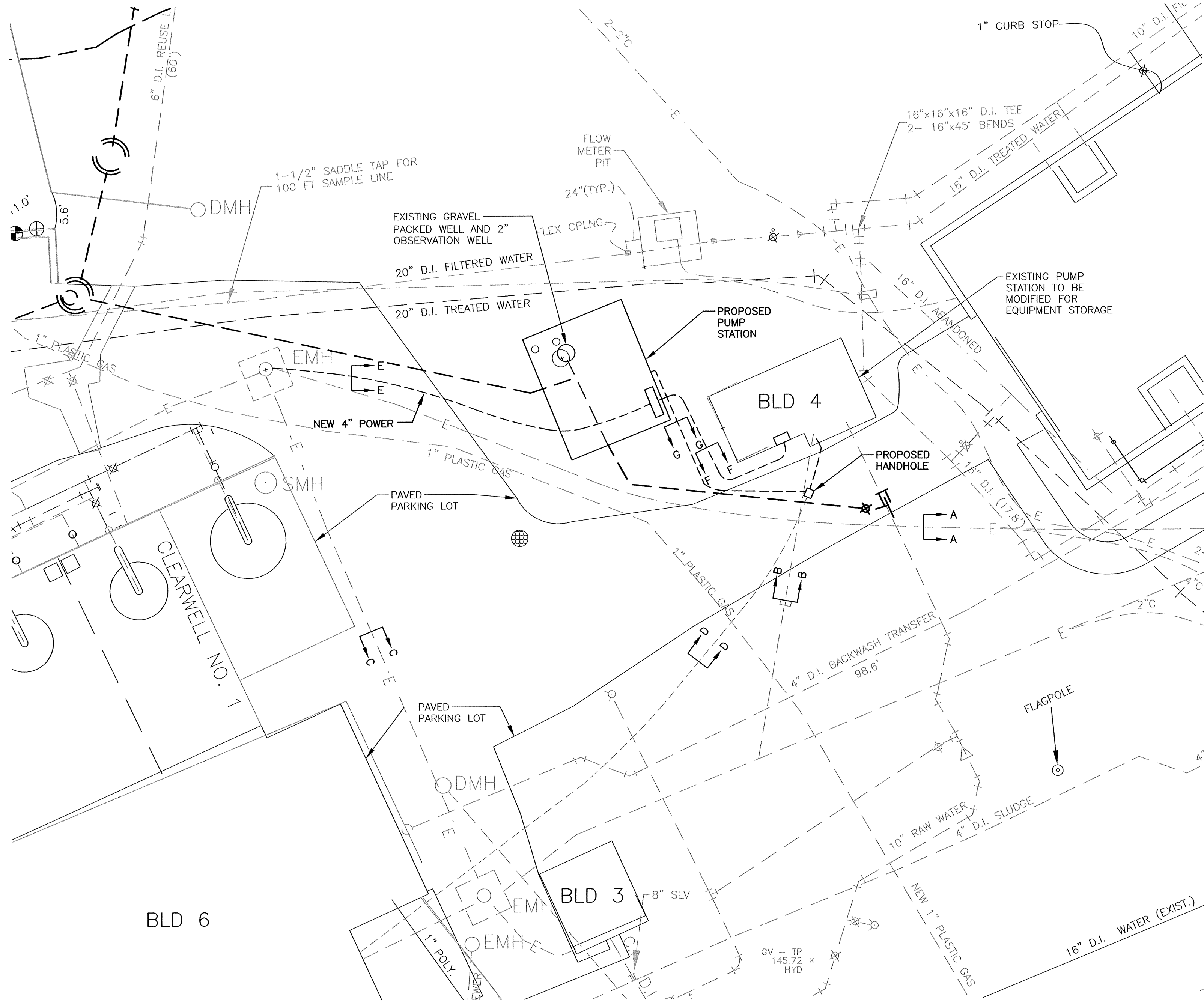


CHECKED	DATE	BY
REVISED	DATE	BY

SHEET NO.:	16 OF 22
CONTRACT NO.:	W-143
SCALE:	AS NOTED
DATE DRAWN:	SEPTEMBER, 2017
DRAWN BY:	LJC
FILE NO.:	NAT436-E2.DWG

DWG. NO.

E2



BUILDING LEGEND

Ø	UTILITY POLE
BLD 1	SPRINGVALE WELL No. 1
BLD 2	SPRINGVALE WELL No. 2
BLD 3	SPRINGVALE WELL No. 3
BLD 4	SPRINGVALE WELL No. 4
BLD 5	H&T FILTER FACILITY
BLD 6	HIGH LIFT PUMP BUILDING
BLD 7	TONKA FILTER FACILITY
BLD 8	GARAGE – OFFICE
BLD 9	STORAGE HOUSE
BLD 10	SEWAGE PUMP STATION

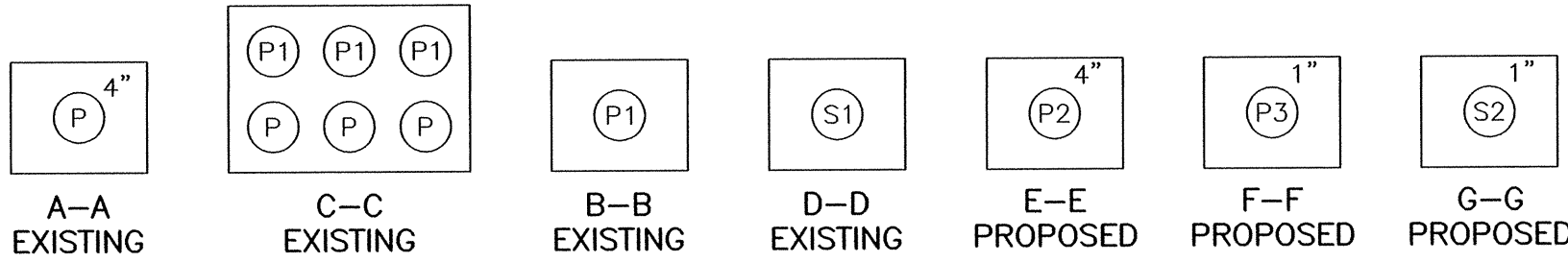
LEGEND

⊗	EXISTING GATE VALVE
⊕	EXISTING TEE
⊞	EXISTING COUPLING
⌒	EXISTING BEND
— E —	EXISTING UNDERGROUND ELECTRIC
— GAS —	EXISTING GAS

ELECTRICAL NOTES:

- ELECTRICAL CONTRACTOR TO RELOCATE EXISTING UNDERGROUND POWER CONDUCTORS CONNECTED TO EXISTING SPRINGVALE #4 PUMP STATION MCC TO NEW SPRINGVALE #4 PUMP STATION MCC THROUGH EXISTING AND PROPOSED UNDERGROUND CONDUITS.
- RELOCATED OF POWER CONDUITS WILL OCCUR WHEN THE NEW SPRINGVALE PUMP STATION IS READY FOR VFD RELOCATION AND START-UP TO MINIMIZE DOWNTIME OF EXISTING SPRINGVALE #4 PUMP STATION,
- GENERAL CONTRACTOR TO EXCAVATE AND BACKFILL TRENCH FOR NEW UNDERGROUND CONDUITS. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL NEW GALVANIZED STEEL CONDUIT IN TRENCHES.
- SEE DRAWING G1–G3 FOR LAYOUT OF EXISTING UNDERGROUND ELECTRICAL CONDUITS

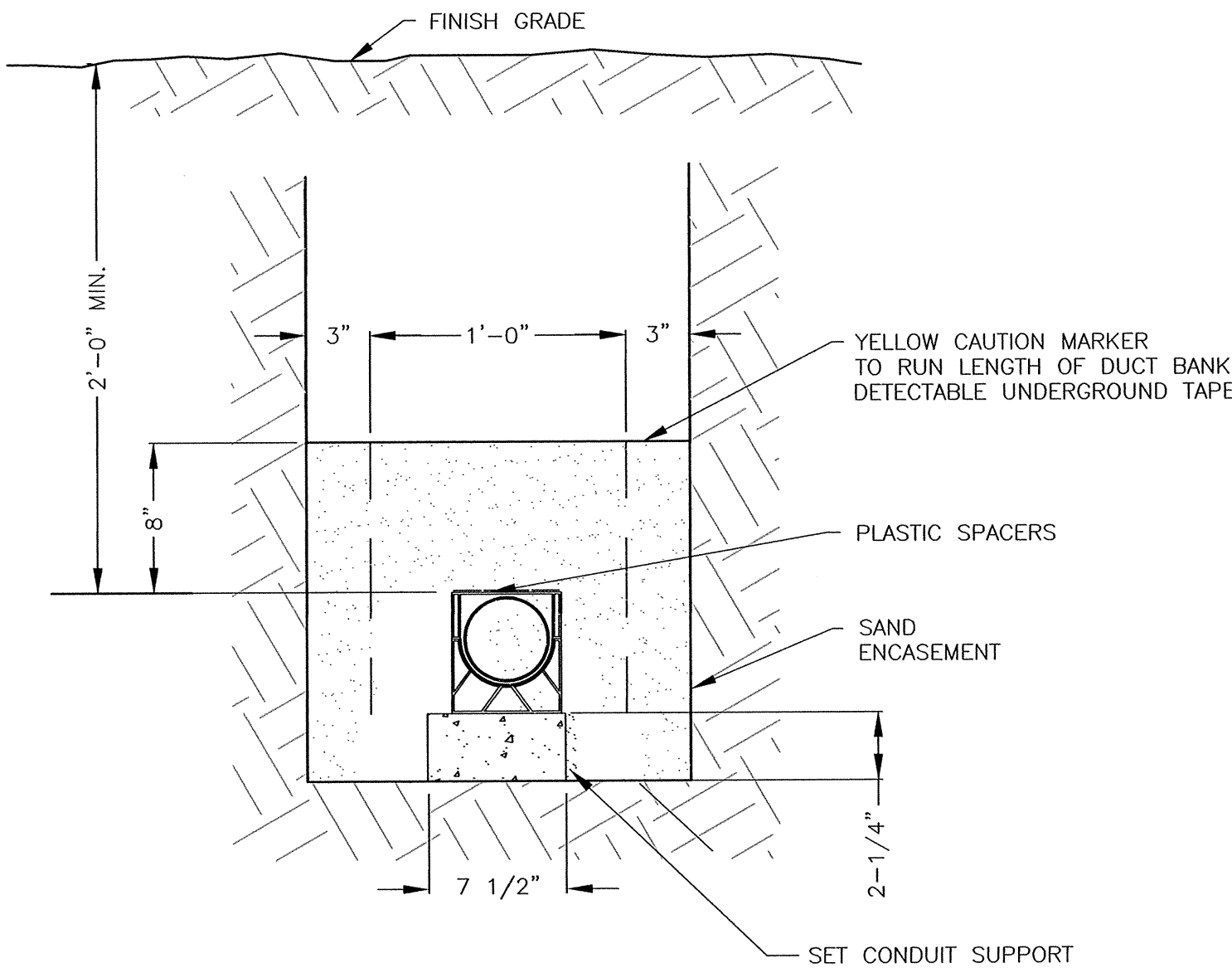
DUCT	FROM	TO	CONDUCTORS
P1	FROM EXISTING SWITCHGEAR IN GARAGE	EXISTING PUMP STATION #4	EXISTING 4–250 KCML–4°C
P2	EMH	NEW MCC IN NEW PUMP STATION #4	RELOCATED 4–250 KCML–4°C
P3	PROPOSED PUMP STATION #4 DISCONNECT	EXISTING POWER PANEL EXISTING PUMP STATION #4	2–#8/#10 GND–1°C
S1	BUILDING #6 PLC	EXISTING SCADA PANEL	FIBER OPTIC CABLE
S2	NEW BUILDING SCADA PANEL	NEW HAND HOLE DUCT D–D	P2 FIBER OPTIC CABLE



P: DENOTES POWER CONDUIT
S: DENOTES SIGNAL CONDUIT

SECTION PROPOSED DUCT

NOT TO SCALE

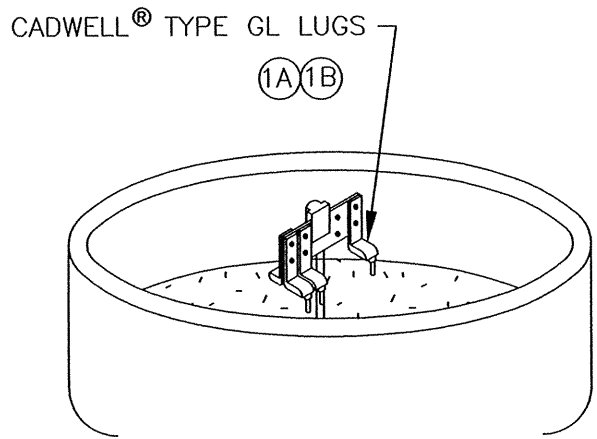
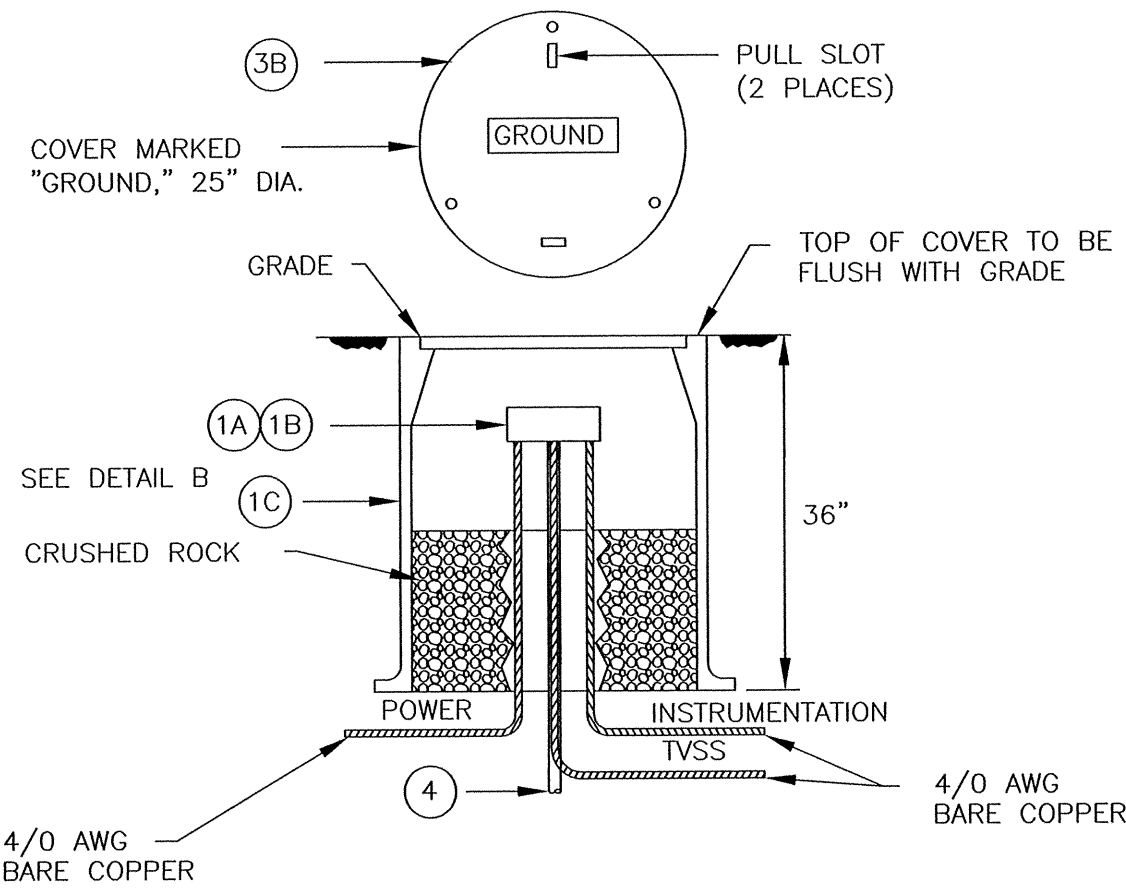


NOTES:

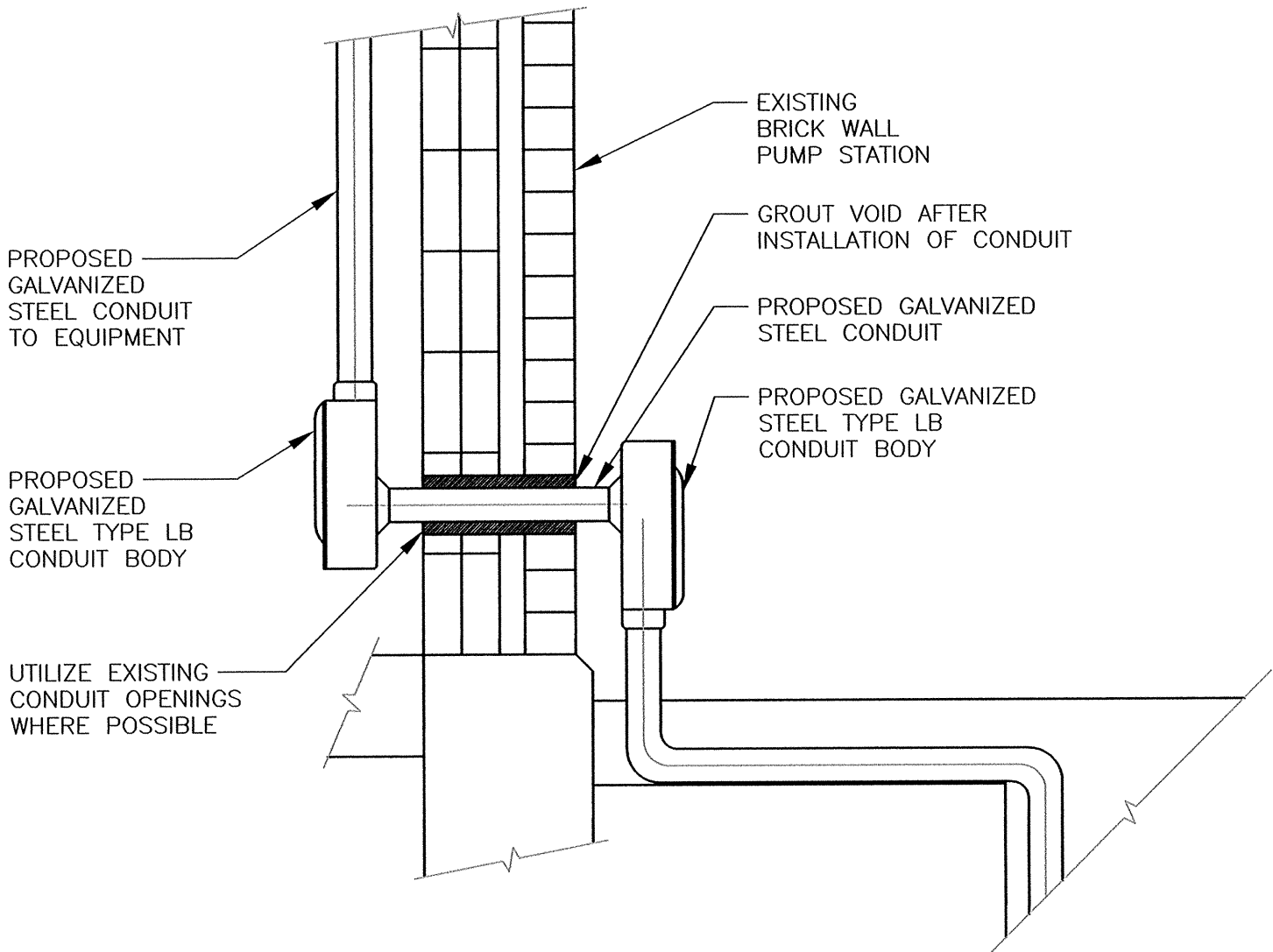
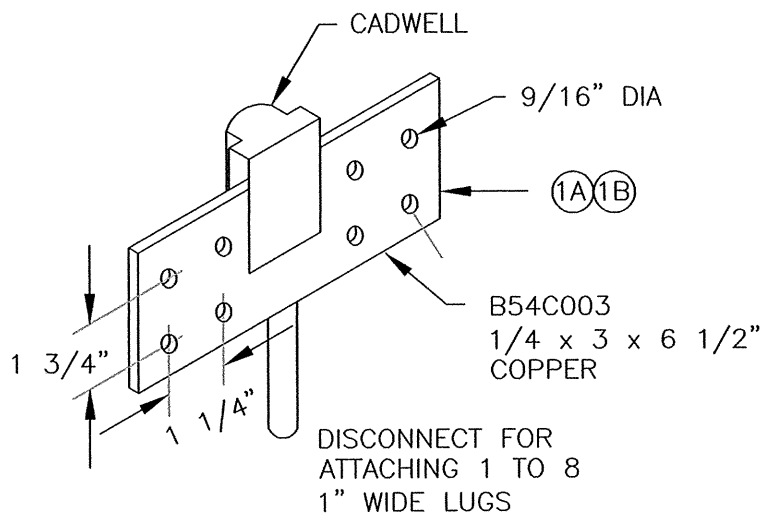
- ALL CONDUITS SHALL BE SCHEDULE 80.
- EXCAVATION, BACKFILL AND COMPACTION FOR ELECTRICAL CONDUITS TO BE COMPLETED BY GENERAL CONTRACTOR.

POWER AND INSTRUMENTATION DUCT DETAIL

NOT TO SCALE



DETAIL B



EXISTING SPRINGVALE #4 BUILDING PROPOSED POWER FEED

NOT TO SCALE

ITEM NUMBER	QUANTITY	DESCRIPTION	MANUFACTURER	CAT #
1A	1	CADWELD CONNECTION BUS BAR TO GND ROD	ERICO, INC. OR EQUAL	CR 200
1B	1	CADWELD GROUND BAR	ERICO, INC. OR EQUAL	B543C003
2A	3	CADWELD TYPE GL CONNECTION	ERICO, INC. OR EQUAL	GLCDE2Q
2B	3	CADWELD TYPE GL COPPER LUG	ERICO, INC. OR EQUAL	B122DE
3A & B	1	INSPECTION HOUSING AND COVER	ERICO, INC. OR EQUAL	T416A
4	1	GROUND ROD, 3/4" X 8' COPPER CLAD	ERITECH OR EQUAL	633400
5	1	EARTH ENHANCEMENT MATERIAL (GEM)	ERITECH OR EQUAL	GEM 25 M

GROUND INSTALLATION DETAIL

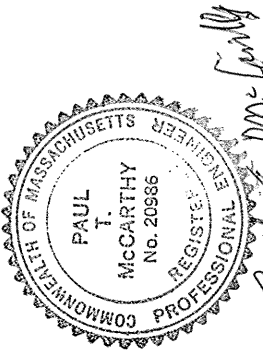
NOT TO SCALE

BOARD OF SELECTMEN
TOWN OF NATICK, MASSACHUSETTS

SPRINGVALE NO. 4
WATER PUMP STATION

PUMP STATION
ELECTRICAL SITE
PLAN & DETAILS

Haley and Ward, Inc.
63 GREAT ROAD, SUITE 200,
MAYNARD, MASSACHUSETTS 01754-2097
PHONE: (978) 648-6025 FAX: (978) 648-6068
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CHECKED	DATE	BY	REVIS	DATE	BY
SHEET NO.:	18 OF 22	CONTRACT NO.:	W-143	SCALE:	AS NOTED
DATE DRAWN:	JUNE, 2017	DRAWN BY:	LUC	FILE NO.:	NAT436-E4.DG

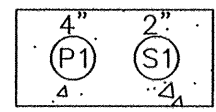
DG. NO.

E4

KEY NOTES:

- 1 ROOF MOUNTED EXHAUST FAN
- 2 40 HORSEPOWER MOTOR
- 3 FLOW METER DISPLAY
- 4 TELEMETRY PANEL
- 5 120/240V LIGHTING PANEL
- 6 7.5 kVA TRANSFORMER
- 7 MOTOR OPERATED LOUVER
- 8 HARMONIC FILTER
- 9 6 PULSE VFD
- 10 MCC
- 11 BUILDING INTRUSION PANEL AND KEY PAD
- 12 ROOF FAN CONTROL PANEL
- 13 BUILDING THERMOSTAT
- 14 ROOF FAN RECEPTACLE
- 15 SERVICE ENTRANCE BREAKER IN WEATHERPROOF ENCLOSURE

LIGHTING PANEL AND TRANSFORMER TO REMAIN POWER FEED TO COME FROM NEW PUMP STATION



A - A
EXISTING
DUCT

DUCT	FROM	TO	CONDUCTORS
P1	MAIN STATION SWITCHGEAR	SPRINGVALE #4 JUNCTION BOX	4-250 kCMIL
S1	MAIN STATION	SPRINGVALE #4 JUNCTION BOX	COMMUNICATIONS CABLE

VFD AND HARMONIC FILTER RELOCATED TO NEW PUMP STATION NO. 4 ONCE PUMPING EQUIPMENT IS INSTALLED AND READY FOR START UP

ELECTRICAL CONTRACTOR TO REMOVE ALL POWER FOR FLOW METER DISPLAY AND DELIVER DISPLAY TO OWNER

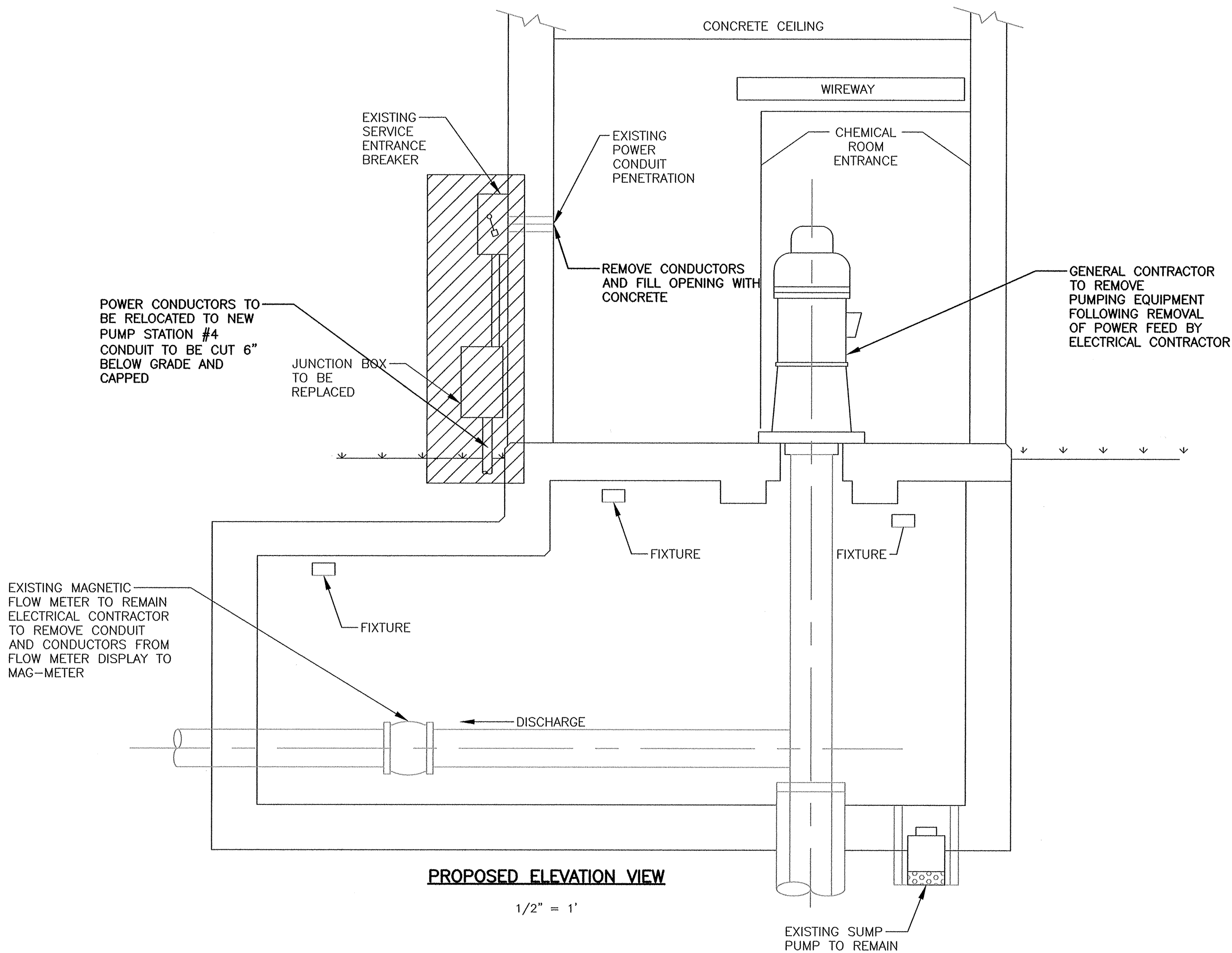
RELOCATE SCADA PANEL TO NEW PUMP STATION NO. 4

EXISTING WIREWAY

CONTRACTOR TO RELOCATE BASEMENT LIGHT SWITCHES FOR GARAGE DOOR INSTALLATION THIS WALL

EXISTING LAYOUT
VIEW FIRST FLOOR

1/2" = 1'



PROPOSED ELEVATION VIEW

1/2" = 1'

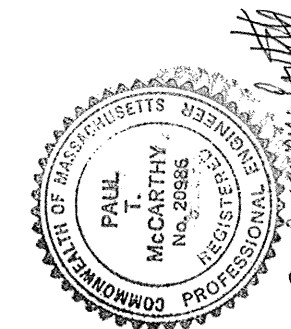
BOARD OF SELECTMEN
TOWN OF NATICK, MASSACHUSETTS

SPRINGVALE NO. 4
WATER PUMP STATION

EXISTING
SPRINGVALE NO. 4
BUILDING
DEMOLITION

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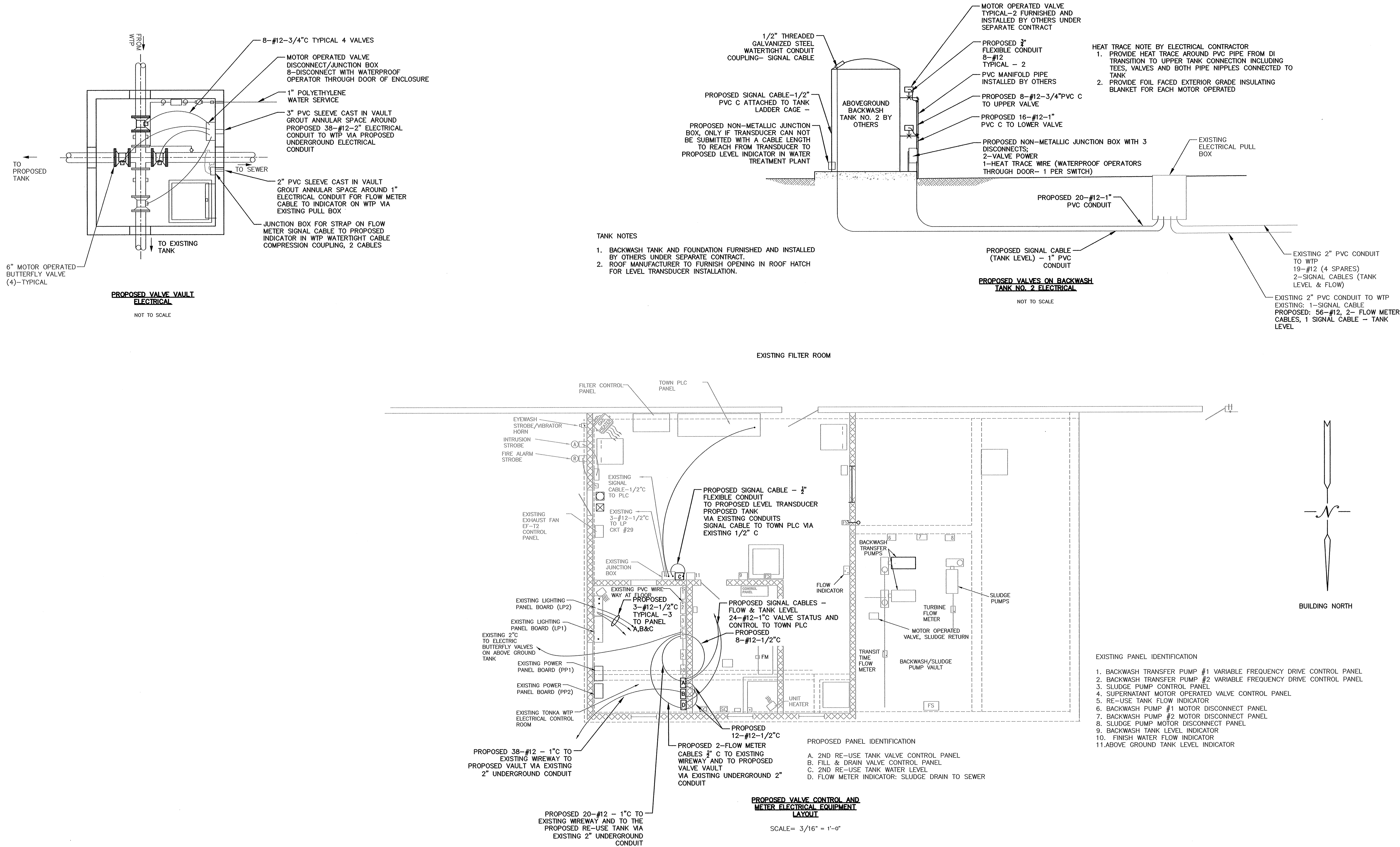
CHECKED	DATE	BY	REVISD	DATE	BY

SHEET NO.:	19 OF 22
CONTRACT NO.:	W-143
SCALE:	NONE
DATE DRAWN:	APRIL, 2017
DPAWN BY:	LJC
FILE NO.:	NAT436-E5.DWG

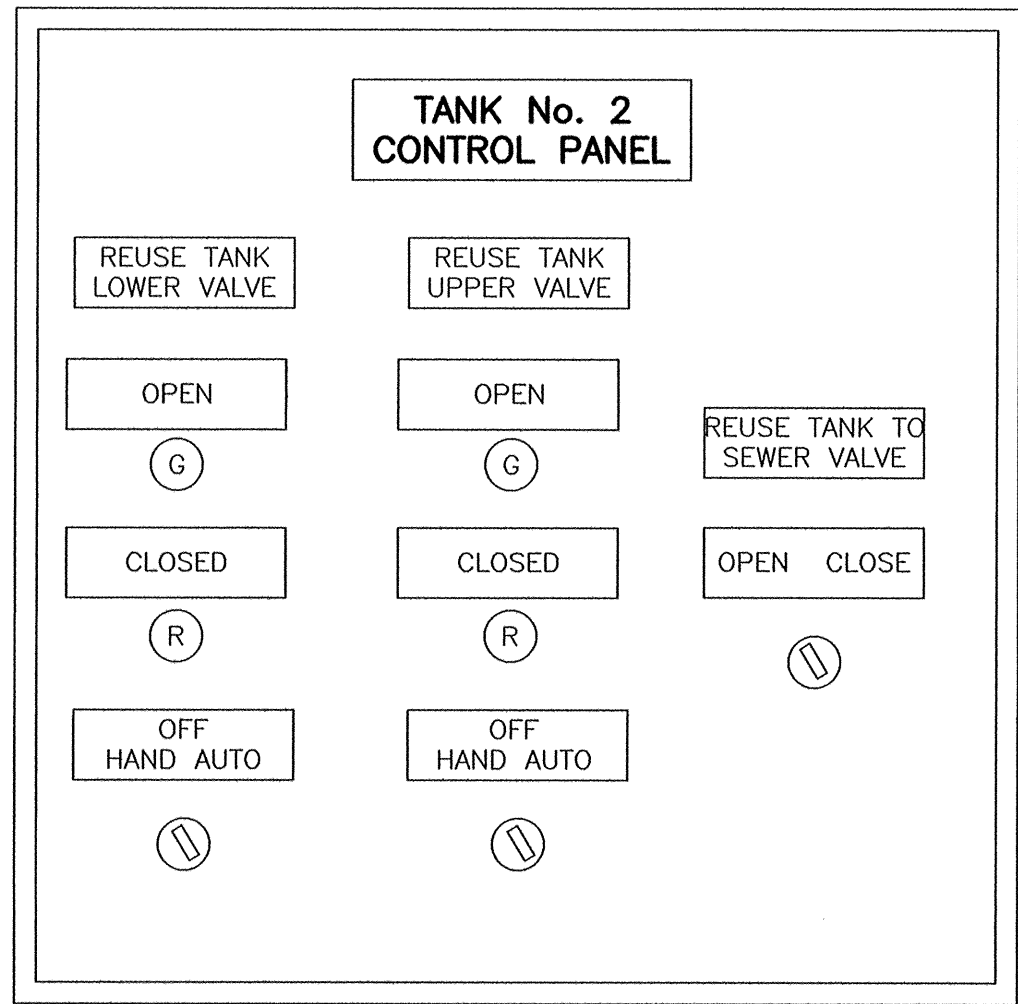
DWG. NO.

E5

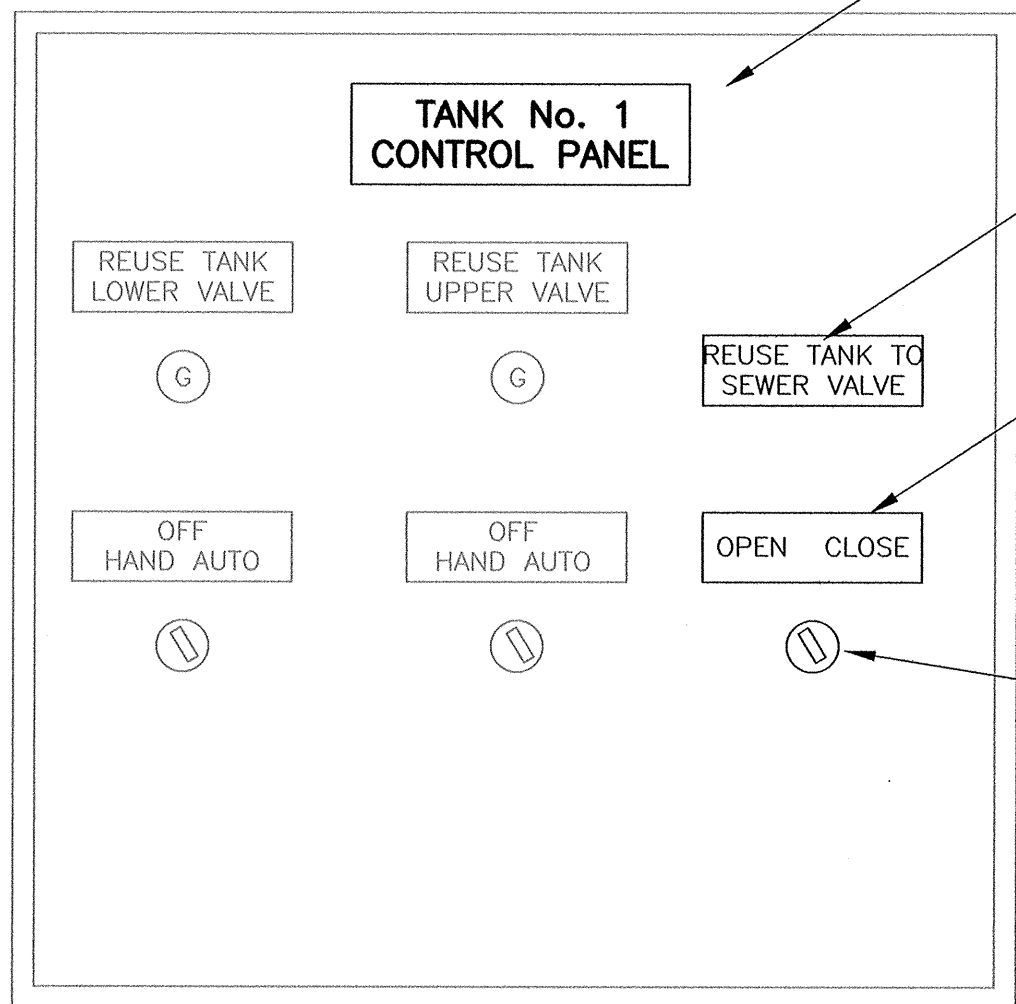
J:\Natick\436 Springvale #4 Pump Station CT\W-143\CADD\NAT-436-E7.dwg, 10/28/2017 2:03:05 PM



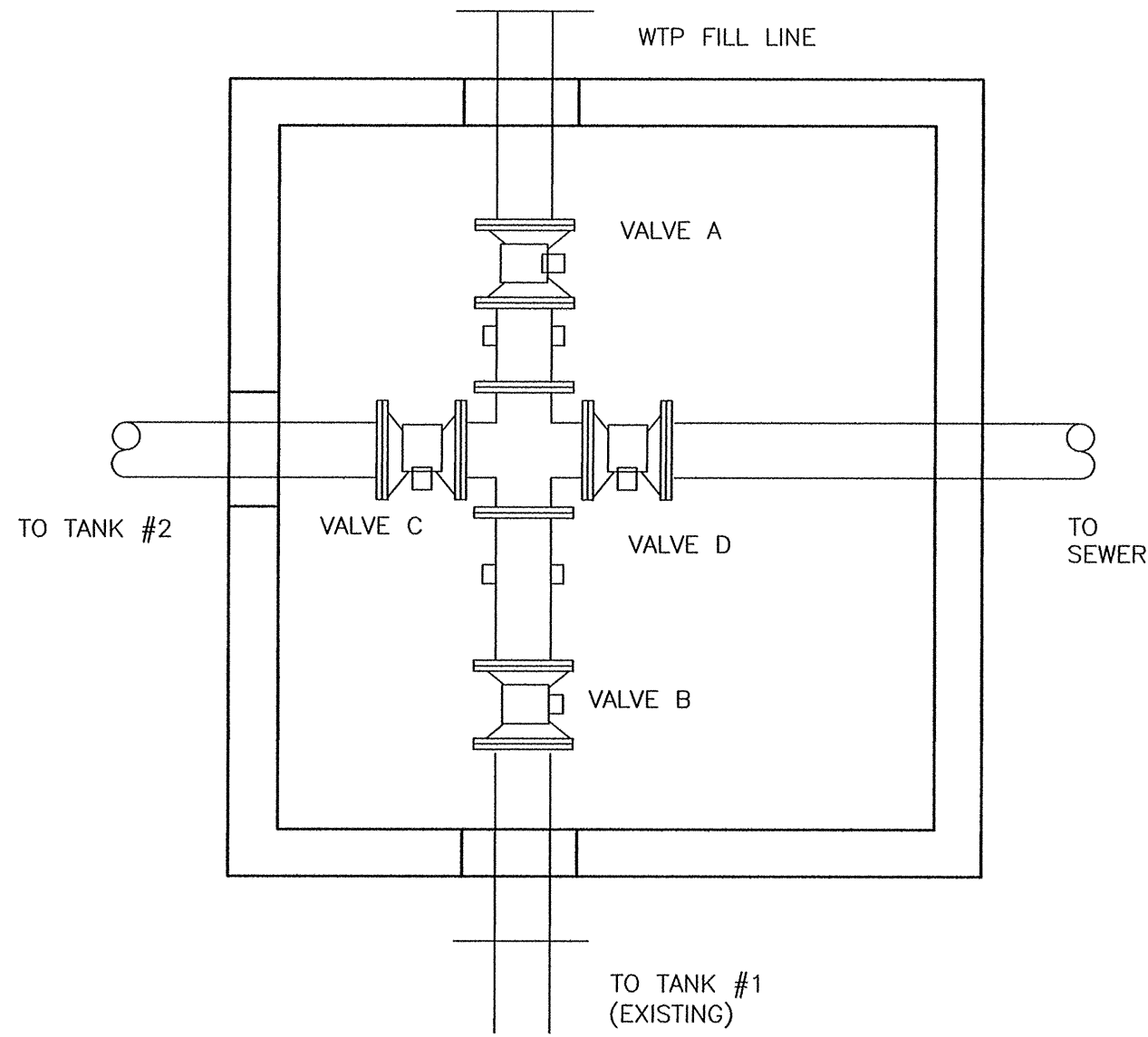
TOWN OF NATICK, MASSACHUSETTS BOARD OF SELECTMEN		SPRINGVALE NO. 4 WATER PUMP STATION	
WTP ELECTRICAL EQUIPMENT LAYOUT		Haley and Ward, Inc. 63 GREAT ROAD, SUITE 200, MAYNARD, MASSACHUSETTS 01754-2097 PHONE: (978) 648-6025 FAX: (978) 648-6068 www.haleyward.com	
		Paul J. Ward	
SHEET NO.: 21 OF 22	CONTRACT NO.: W-143	SCALE: 3/16" = 1'-0"	DATE DRAWN: JULY, 2017
DRAWN BY: GJE	FILE NO.: NAT-436-E7.DWG		
DWG. NO.		E7	



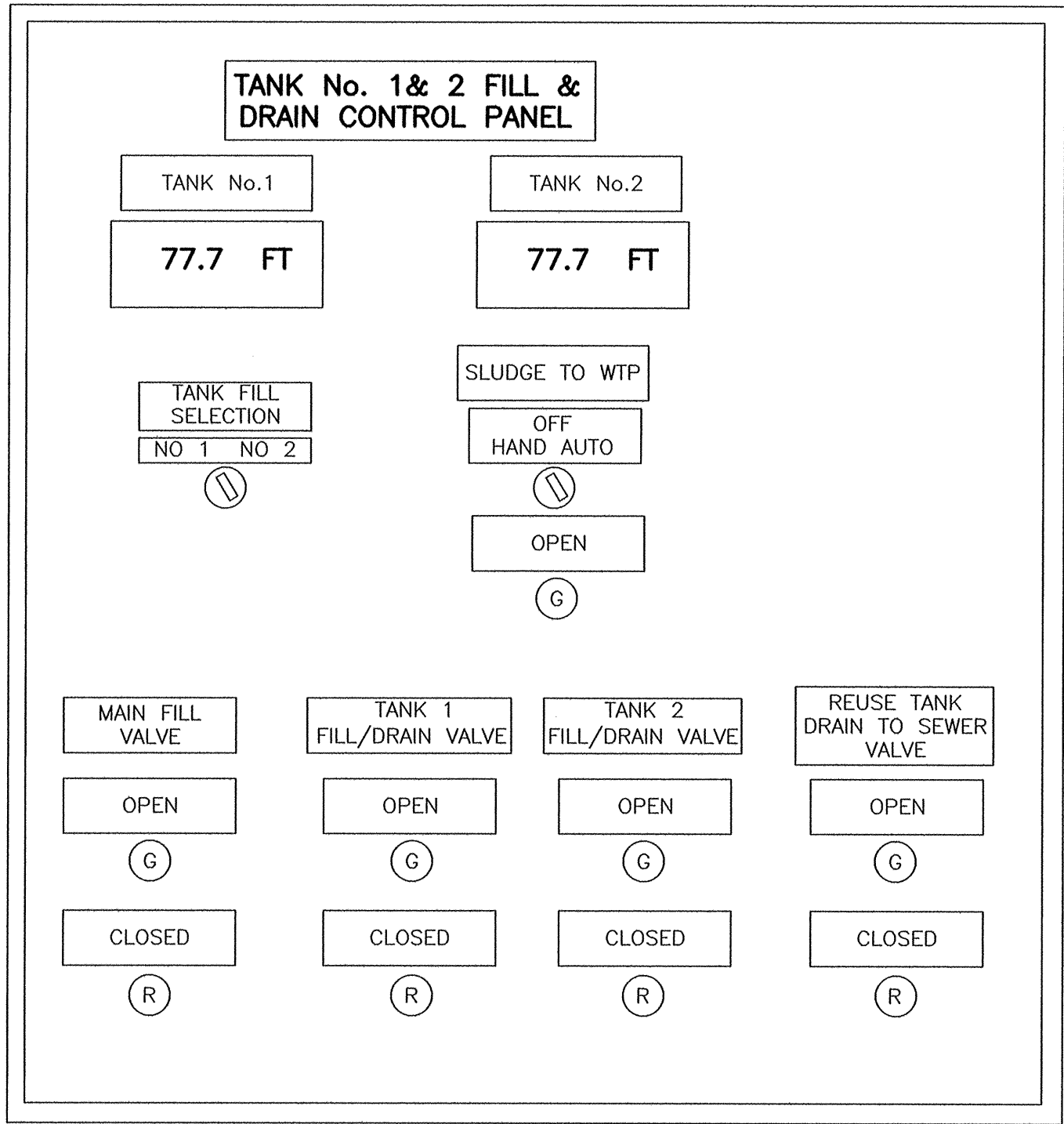
PROPOSED TANK NO 2 SUPERNATANT VALVE CONTROL PANEL
FURNISHED BY INSTALLED
UNDER THIS CONTRACT



EXISTING TANK NO 1 SUPERNATANT VALVE CONTROL PANEL MODIFICATIONS



PROPOSED VALVE VAULT VALVE LAYOUT



PROPOSED TANK FILL & DRAIN CONTROL PANEL
FURNISHED BY OWNER INSTALLED
UNDER THIS CONTRACT

TANK FILL AND DRAIN CONTROL PANEL
NOTE:
1. OWNER MAY DECIDE TO FURNISH PANEL WITH A TOUCH SCREEN AND ELIMINATE THE PILOT LIGHTS AND LEVEL DISPLAYS.
2. PROGRAMMING OF THE TOUCH SCREEN WILL BE COMPLETED BY OTHERS.

ABBREVIATIONS

2-1"C, 3#8	2 1 INCH CONDUITS, CONDUIT CONTAINING 3#8 AWG COPPER WIRES
3/4" CE	EMPTY CONDUIT, NUMERAL DENOTES SIZE
1-2/C#16 T.S.P	ONE-TWO CONDUCTOR, NO. 16 AWG, TWISTED SHIELDED PAIR CABLE
AI	ANALOG IN
AO	ANALOG OUT
CB	CIRCUIT BREAKER
CP	CONTROL PANEL
DI	DISCREET IN
DO	DISCREET OUT
EF	EXHAUST FAN
ETM	ELAPSE TIME METER
FLA	FULL LOAD AMPS
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
JB	JUNCTION BOX
KVA	KILO VOLT-AMPERES
LP	LIGHTING PANEL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
SAA	SECURITY ALARM SYSTEM CONTROL PANEL
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF (NEMA 4 UNLESS OTHERWISE NOTED)

GENERAL NOTES

- TEXT LABELED GENERAL NOTES SHALL PERTAIN TO ALL ELECTRICAL DRAWINGS. TEXT LABELED NOTES SHALL PERTAIN TO THAT SPECIFIC DRAWING.
- ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
- PROVIDE GROUND CONNECTIONS TO GROUND ROD SYSTEM BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH TABLE 250-94 OF THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE IN ACCESSIBLE LOCATIONS.
- CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATIC ALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
- NO CONDUIT SMALLER THAN 1/2" PIPE SIZE NOR POWER CONDUCTOR SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- ALL SURFACE MOUNTED PANELS AND PANEL BOARDS ON THE INSIDE OF THE EXTERIOR WALLS BELOW GRADES OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- ALL PANEL BOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".
- PROVIDE CONDUIT AND WIRE FOR ALL SURGE PROTECTION DEVICES AT INSTRUMENTS AND INSTRUMENTATION PANELS. SURGE PROTECTION DEVICES TO BE PROVIDED BY DIVISION 16 SUPPLIER.
- CONDUIT AND WIRE (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE FURNISHED AND INSTALLED AS FOLLOWS:
 - 1/2" (MIN.) RIGID PVC CONDUIT
 - NO. 12 CU. WIRE (MIN.) TYPE "THWN/THHN"
 - OF WIRES AS REQUIRED
- OUTLET, SWITCH, JUNCTION, PULL AND TERMINAL BOXES SHALL BE PROVIDED WITH NEMA ENCLOSURE AS INDICATED ON THE EQUIPMENT ENCLOSURE SCHEDULE.
- ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL BE EXPANSION OR DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.
- EXISTING EQUIPMENT SHALL BE SHOWN IN A LIGHT LINEWEIGHT. NEW EQUIPMENT SHALL BE SHOWN IN A HEAVY LINE WEIGHT.

TOWN OF NATICK, MASSACHUSETTS
BOARD OF SELECTMEN

SPRINGVALE NO. 4
WATER PUMP STATION

BACKWASH TANK
NO. 2 VALVE
CONTROL PANELS
& NOTES

Haley and Ward, Inc.

63 GREAT ROAD, SUITE 200,
MAYNARD, MASSACHUSETTS 01754-2097
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SHEET NO.:	22 OF 22	CHECKED	DATE	BY
CONTRACT NO.:	W-143	REVISED	DATE	BY
SCALE:	NO SCALE			
DATE DRAWN:	JULY, 2017			
DRAWN BY:	LJC			
FILE NO.:	NAT-436-EB.DWG			

DWG. NO.

E8