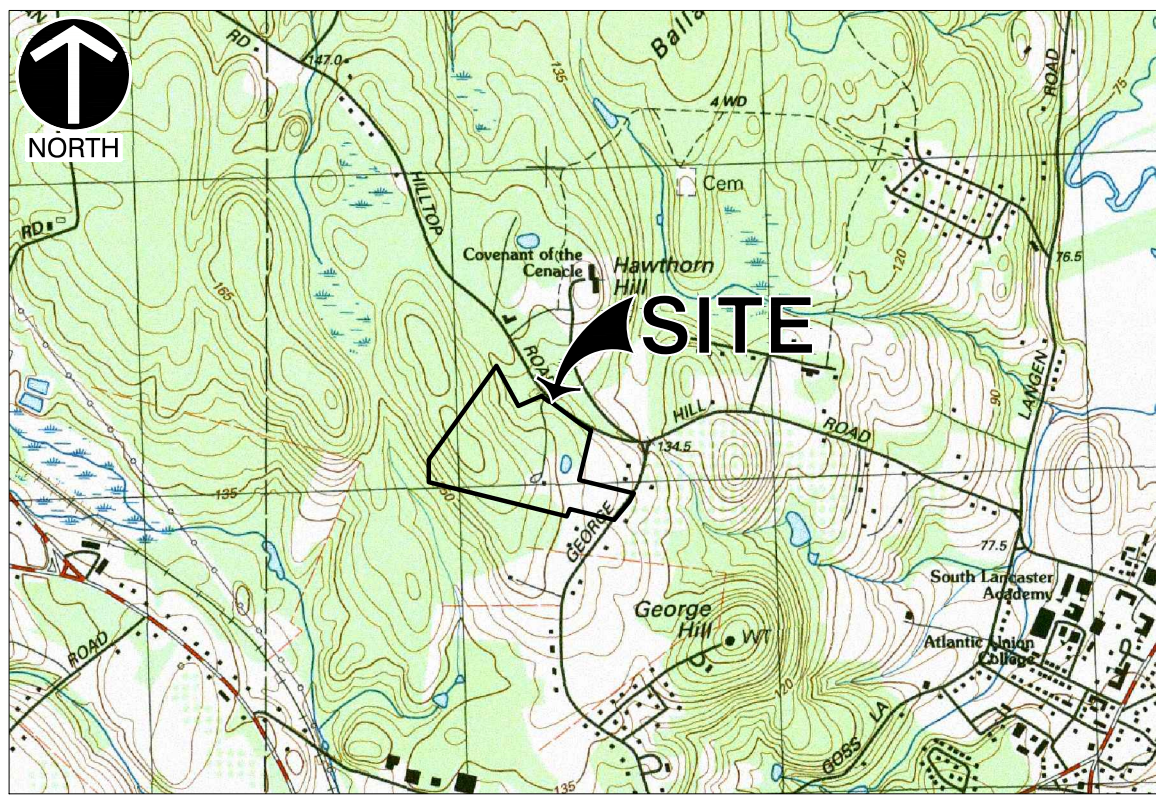
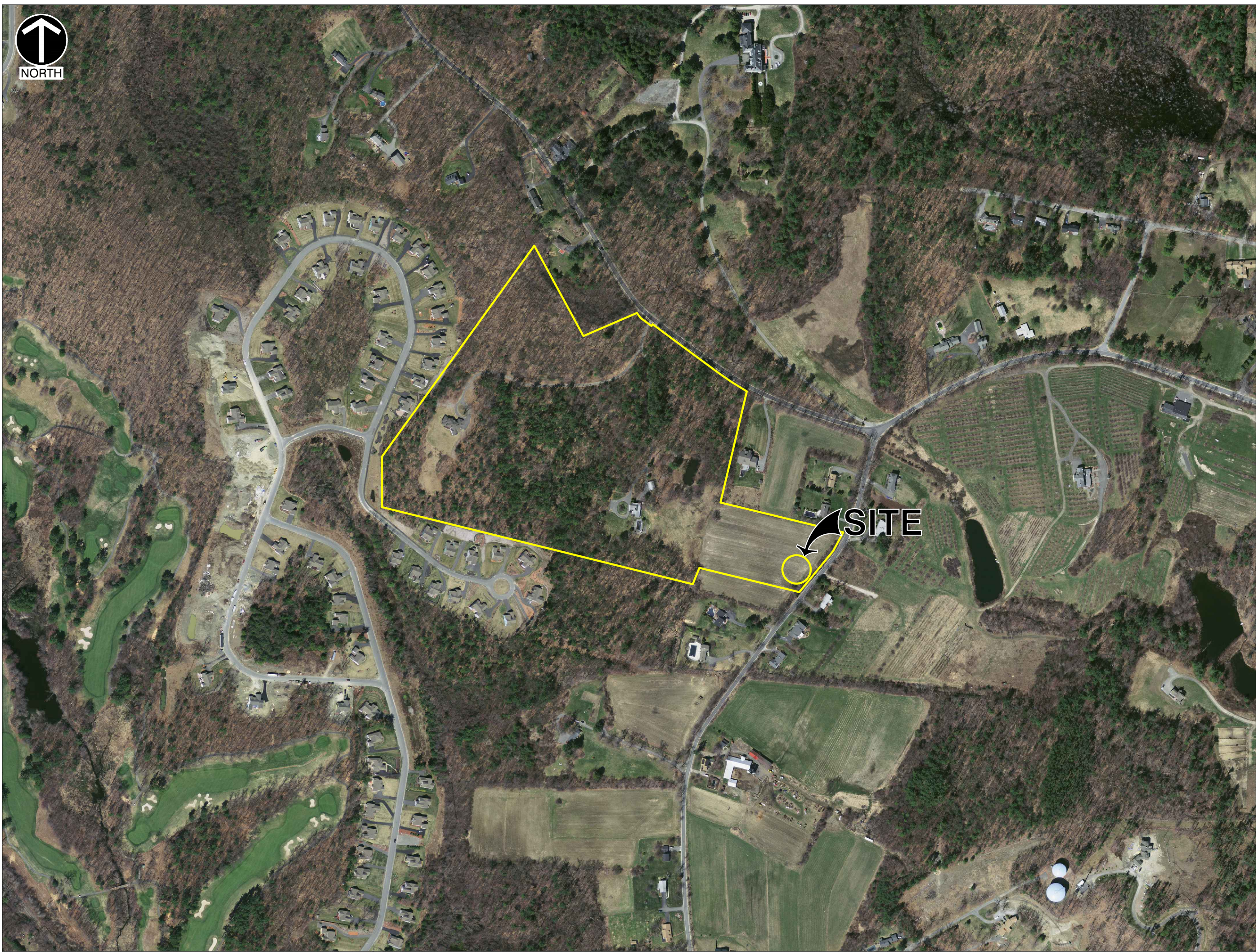


# HILLTOP ROAD SUBDIVISION BOOSTER PUMP STATION

OFF GEORGE HILL ROAD  
LANCASTER, MASSACHUSETTS  
TOWN OF LANCASTER



VICINITY MAP  
SCALE: 1"=2,000'



SITE MAP  
SCALE: 1"=400'

REFERENCE: ORTHOGRAPHIC AERIAL IMAGERY AND MAPS ARE BASED ON GIS DATA OBTAINED FROM MASSGIS PROVIDED BY THE BUREAU OF GEOGRAPHIC INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS, EXECUTIVE OFFICE OF TECHNOLOGY AND SECURITY SERVICES.

DRAWING INDEX		
SHEET NUMBER	DRAWING NUMBER	SHEET TITLE
CIVIL ENGINEERING PLANS		
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5	C901	BOOSTER STATION DETAILS
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8	C904	GENERAL DETAILS
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Dig Safe Systems, Inc.  
1-888-DIG-SAFE  
(1-888-344-7233)

PERMITTING  
NOVEMBER 2018



REVISION RECORD

NO	DATE	DESCRIPTION



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HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS

COVER

DATE: NOVEMBER 2018  
DRAWN BY: JBN  
DWG SCALE: NOT TO SCALE  
PROJECT NO: 182-212  
APPROVED BY: JBN

DRAFT

DRAWING NO.: C000

SHEET 1 OF 9



\\saw-bldgpcor\Library\Hilltop Subdivision\17-08-2018\182212-001-C001-GENERAL NOTES.dwg[2021] LS(11/21/2018 - jhmlg) - LF 11/21/2018 9:56 AM

## NOTES

- EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, AND PAY ALL REQUIRED FEES PRIOR TO BEGINNING WORK.
- ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
- CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
- CONSTRUCTION SHALL COMPLY WITH PROJECT SPECIFIC SPECIFICATIONS OR MASSACHUSETTS DEPARTMENT OF TRANSPORTATION SPECIFICATIONS WHERE APPLICABLE.
- EXISTING SITE INFORMATION / TOPOGRAPHIC SURVEY WAS PREPARED BY WHITMAN AND BINGHAM ASSOCIATES, INC. AND AS DEPICTED ON A PLAN ENTITLED "EXISTING CONDITIONS/DEMOLITION PLAN" DATED OCTOBER 16, 2015 AND PROVIDED TO CEC IN ELECTRONIC FORMAT. CEC IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
- BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.

## NOTES

- THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
- PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES, INCLUDING IRRIGATION SLEEVING, PRIOR TO INSTALLATION OF PAVED SURFACES.
- THE CONTRACTOR SHALL PROTECT ALL TREES TO REMAIN IN ACCORDANCE WITH THE SPECIFICATIONS.
- SITE WORK CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH TO ALL SURFACES. SITE WORK CONCRETE SHALL BE CLASS 'A' (3,000 PSI @ 28 DAYS) UNLESS OTHERWISE NOTED.
- ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
- SITE DIMENSIONS SHOWN ARE TO THE FACE/BACK OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- COORDINATES ARE FOR BUILDING COLUMNS, EXTERIOR BUILDING WALL, CENTER OF DRIVEWAYS, CENTER OF SANITARY SEWER MANHOLES, AND CENTER AT FACE OF CURB FOR DRAIN INLETS, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT / RECORD DRAWINGS ON THE JOB SITE DURING CONSTRUCTION FOR DISTRIBUTION TO THE OWNER AND/OR OWNER'S REPRESENTATIVE UPON COMPLETION.
- REFER TO THE ARCHITECTURAL DRAWINGS (IF ANY) FOR EXACT DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRY LOCATIONS AND PRECISE BUILDING DIMENSIONS.
- THIS SITE LAYOUT IS SPECIFIC TO THE APPROVALS NECESSARY FOR THE CONSTRUCTION IN ACCORDANCE WITH THE TOWN OF LANCASTER. NO CHANGES TO THE SITE LAYOUT ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. CHANGES MADE TO THE SITE LAYOUT WITHOUT APPROVAL IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. CHANGES INCLUDE BUT ARE NOT LIMITED TO, INCREASED IMPERVIOUS PAVEMENT, ADDITION / DELETION OF PARKING SPACES, MOVEMENT OF CURB LINES, CHANGES TO DRAINAGE STRUCTURES AND PATTERNS, LANDSCAPING, ETC.

## NOTES

- ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE.
- CONTRACTOR SHALL STRICTLY ADHERE TO THE EROSION CONTROL PLAN PREPARED FOR THIS PROJECT.
- EARTHWORK SHALL INCLUDE CLEARING AND GRUBBING, STRIPPING AND STOCKPILING TOPSOIL, MASS GRADING, EXCAVATION, FILLING, UNDER CUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
- CONTRACTOR TO REFILL UNDERCUT AREAS WITH SUITABLE MATERIAL AND COMPACT AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO A DEPTH INDICATED ON THE LANDSCAPE PLANS (6" MINIMUM).
- PAVEMENT SLOPES ACROSS ACCESSIBLE PARKING STALLS AND ADJOINING ACCESS AISLES SHALL BE MAXIMUM 2%
- ALL SLOPES SHALL BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS NOTED OTHERWISE.
- ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, UNLESS NOTED OTHERWISE.
- ALL EXCESS SOIL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.

## EROSION AND SEDIMENT CONTROL NOTES

- THE OWNER AND CONTRACTOR ARE REQUIRED TO SUBMIT A NOTICE OF INTENT (NOI) TO DISCHARGE CONSTRUCTION-ACTIVITY STORMWATER APPLICATION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA) AT LEAST 14 DAYS PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITIES. THE ISSUED NOTICE OF COVERAGE (NOC) OF THE PERMIT TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER SHALL BE POSTED NEAR THE SITE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL HAVE A SET OF APPROVED EROSION CONTROL PLANS ON SITE AT ALL TIMES DURING CONSTRUCTION.
- PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
- THE CONSTRUCTION ACTIVITY ANTICIPATED FOR THIS PROJECT INCLUDES CLEARING, GRADING, PAVING, UTILITY & BUILDING CONSTRUCTION, AND LANDSCAPING.
- THE APPROXIMATE TOTAL AREA OF DISTURBANCE OF THIS PROJECT IS APPROXIMATELY 0.1 ACRES.
- CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY. CHECK MEASURES AT A MAXIMUM OF 7 DAYS IN DRY PERIODS, AND WITHIN 24 HOURS AFTER ANY RAINFALL EVENT, AND WITHIN 24 HOURS AFTER OF A RAINFALL EVENT EXCEEDING 0.5 INCHES.
- THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
- PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 7 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOIL, STRAW, MULCH, OR FABRIC MATTING. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
- TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE (STATE) D.O.T. OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
- MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
- SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION. ALL STOCKPILES SHALL BE COVERED WITH TEMPORARY SEEDING AND PROTECTED WITH SILT FENCING.
- THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDING AREAS MUST HAVE A MINIMUM 90% COVERAGE PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
- CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP. FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING PLANS. THE EQUIPMENT NECESSARY TO IMPLEMENT A CLEANUP SHALL BE MADE AVAILABLE TO FACILITY PERSONNEL. THE OPERATOR SHALL IMMEDIATELY NOTIFY THE DESIGNATED STATE AND LOCAL GOVERNMENT AGENCIES AFTER BECOMING AWARE OF A VISIBLE OIL SHEEN IN STORMWATER RUNOFF FROM ITS FACILITY OR IN A WATER OF THE STATE IN THE PROJECT VICINITY AS A RESULT OF ACTIVITIES AT THE SITE. THE CALLER SHOULD BE PREPARED TO REPORT THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PERSON REPORTING SPILL, THE EXACT LOCATION OF THE SPILL, COMPANY NAME AND LOCATION, THE MATERIAL SPILLED, THE ESTIMATED QUANTITY, THE SOURCE OF THE SPILL, THE CAUSE OF THE SPILL, THE NEAREST DOWNSTREAM WATER WITH THE POTENTIAL TO RECEIVE THE SPILL, AND THE ACTIONS BEING TAKEN FOR CONTAINMENT AND CLEANUP.

## NOTES

- ALL PROPOSED UTILITY LINES AND EXTENSIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF LANCASTER MUNICIPALITY SPECIFICATIONS. CONTRACTOR SHALL COORDINATE UTILITY DISCONNECTIONS WITH THE APPROPRIATE AGENCY.
- THE CONTRACTOR IS PARTICULARLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF THE EXISTING UTILITIES SHOWN HEREON IS BASED ON TOPOGRAPHIC SURVEYS AND RECORD DRAWINGS. THE CONTRACTOR SHALL NOT RELY UPON THIS INFORMATION AS BEING EXACT OR COMPLETE. SHOULD UNCHARTED UTILITIES BE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE FOR INSTRUCTIONS. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION AND REQUEST FIELD VERIFICATION OF UTILITY LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE EXISTING UTILITIES CONFLICTING WITH IMPROVEMENTS SHOWN HEREON IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- MAINTAIN MINIMUM 10-FOOT HORIZONTAL AND 18-INCH MINIMUM VERTICAL SEPARATION BETWEEN SANITARY SEWER AND WATER SUPPLY LINE, UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES, GAS LINES, AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO PAVEMENT CONSTRUCTION.
- ALL TRENCH SPOILS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
- ADJUST ALL EXISTING UTILITY SURFACE FEATURES INCLUDING BUT NOT LIMITED TO CASTINGS, VALVE BOXES, PEDESTALS, CLEANOUTS, ETC. TO MATCH PROPOSED FINISHED GRADES, UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF ALL IMPROVEMENTS. INCLUDE AT LEAST TWO DIMENSIONS TO EACH VALVE AND MANHOLE FROM KNOWN SITE FEATURES. DRAWINGS SHALL INCLUDE HORIZONTAL AND VERTICAL INFORMATION ON ALL NEW UTILITIES AS WELL AS EXISTING UTILITIES ENCOUNTERED.
- UTILITY PIPE MATERIAL OPTIONS FOR PROPOSED WATER MAIN CONSTRUCTION ARE: CEMENT LINED DUCTILE IRON (CLD)

**CEC**  
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**HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS**

### GENERAL NOTES

DATE: NOVEMBER 2018 DRAWN BY: JBN  
DWG SCALE: NOT TO SCALE CHECKED BY: JMP  
PROJECT NO: 182-212  
APPROVED BY: DRAFT

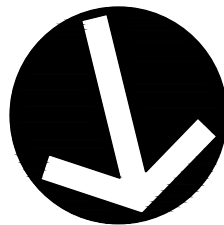


DRAWING NO.:

**C001**

SHEET 2 OF 9





NORTH

NOTES

1. EXISTING SITE INFORMATION / TOPOGRAPHIC SURVEY WAS PREPARED BY WHITMAN AND BINGHAM ASSOCIATES, INC. AND AS DEPICTED ON A PLAN ENTITLED "EXISTING CONDITIONS/DEMOLITION PLAN" DATED OCTOBER 16, 2015 AND PROVIDED TO CEC IN ELECTRONIC FORMAT. CEC IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
2. PROPOSED IMPROVEMENTS TO BE CONSTRUCTED BY OTHERS ARE BASED ON DESIGN PLANS PREPARED BY WHITMAN AND BINGHAM ASSOCIATES, INC. AND AS DEPICTED ON A PLAN ENTITLED "DEFINITIVE SUBDIVISION PLAN OFF HILLTOP ROAD, LANCASTER, MASSACHUSETTS" DATED OCTOBER 6, 2015 AS REVISED AND PROVIDED TO CEC IN ELECTRONIC FORMAT. CEC IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
3. EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
4. PROPOSED ELECTRIC AND TELECOMMUNICATIONS CONNECTIONS TO BE COORDINATED WITH PRIVATE UTILITY PROVIDERS.

REVISION RECORD

NO	DATE	DESCRIPTION



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HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS

BOOSTER STATION SITE PLAN

DATE:	NOVEMBER 2018	DRAWN BY:	JBH
DWG SCALE:	AS SHOWN	CHECKED BY:	JMP
PROJECT NO:	182-212	APPROVED BY:	DRAFT

DRAWING NO.:  
**C500**  
SHEET 3 OF 9



LEGEND	
	SITE BOUNDARY
	PROPOSED TREELINE
	EXISTING TREELINE
	PROPOSED CHAIN LINK FENCE
	PROPOSED BUILDING
	PROPOSED BUILDING ENTRANCE
	EXISTING SANITARY SEWER FORCEMAIN
	SANITARY SEWER FORCEMAIN (BY OTHERS)
	PROPOSED WATER (BY OTHERS)
	PROPOSED WATER
	PROPOSED WATER VALVE AND TEE
	PROPOSED UNDERGROUND ELECTRIC
	PROPOSED UNDERGROUND ELECTRIC AND TELECOMMUNICATIONS
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED FILTER SOCK
	PROPOSED FIRE HYDRANT
	PROPOSED ASPHALT ACCESS DRIVE

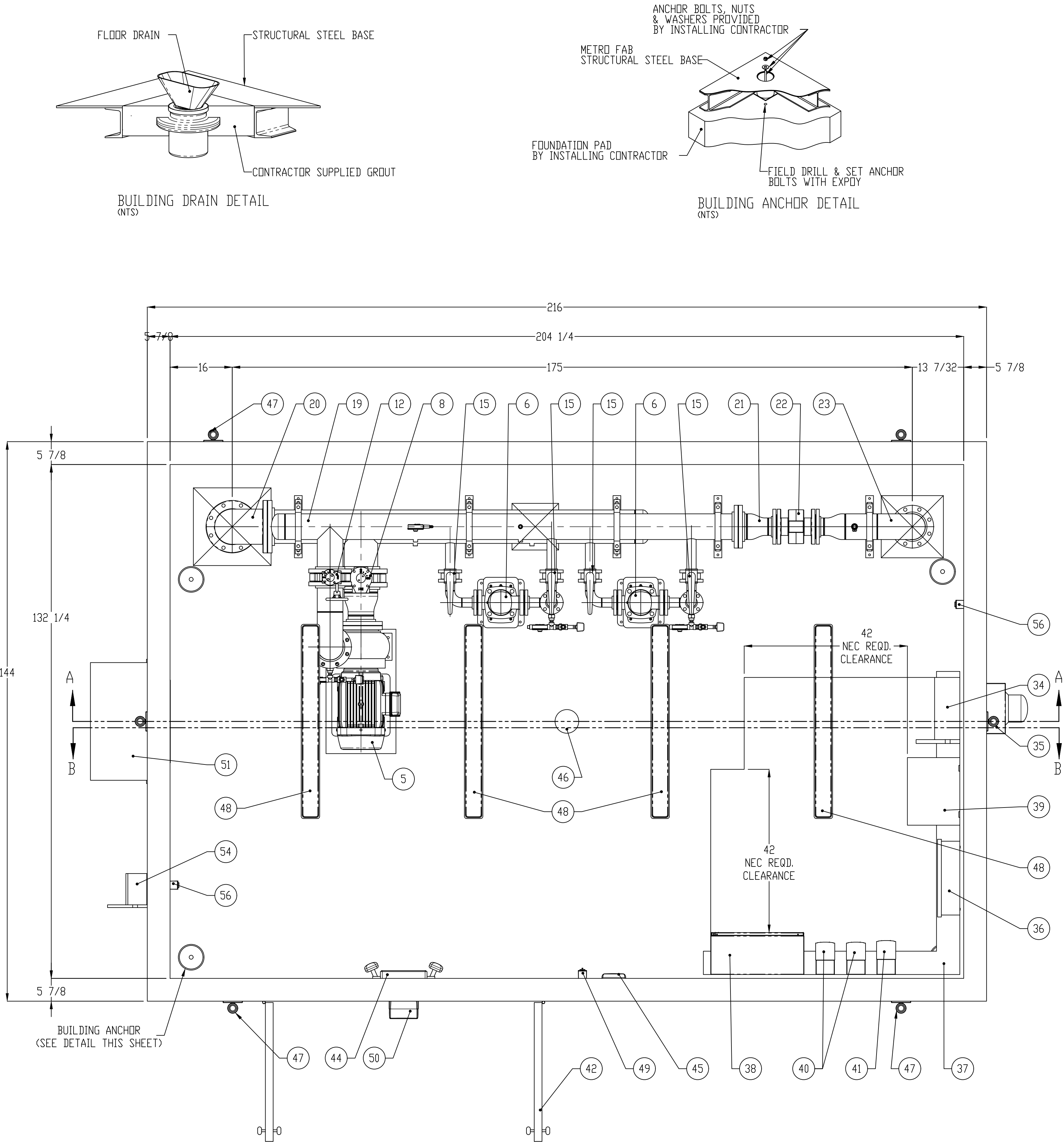
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11/21/2018

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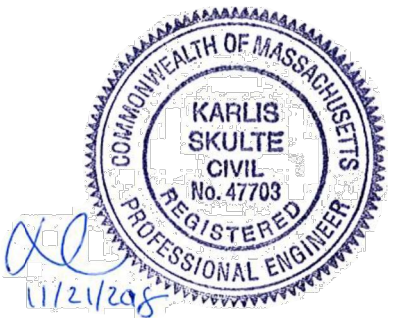


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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	STRUCTURAL STEEL BASE		1
2	BUILDING WALLS		1
3	BUILDING ROOF	STANDING SEAM METAL ROOF, SLOPE 3:12	1
4	GUTTER & DOWN SPOUTS		2
5	AURORA PUMP 3801, 5x6x11	10 HP, 1150 RPM	1
6	CR 10-2	1.5 HP VERTICAL MULTI-STAGE PUMP	2
7	8"x6" FABRICATED ECCENTRIC REDUCER	ANSI CLASS 150 FLANGE (FF) x CLASS 150 FLANGE (RF), SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
8	8" BUTTERFLY VALVE	BONDI GNS01S, 250 MAX PSI, NSF 61/372	1
9	6"x5" FABRICATED REDUCER	ANSI CLASS 150 FLANGE (FF) x CLASS 150 FLANGE (RF), SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
10	6" WAFER SILENT CHECK VALVE	SILENT CHECK VALVE, WAFER STYLE, ANSI CLASS 125/250	1
11	6" FABRICATED ELBOW	CLASS 150 FLANGE, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
12	6" BUTTERFLY VALVE	BONDI GNS01S, 250 MAX PSI, NSF 61/372	1
13	2" FABRICATED ELBOW	ANSI CLASS 300 X 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	2
14	2" WAFER SILENT CHECK VALVE	SILENT CHECK VALVE, WAFER STYLE, ANSI CLASS 125/250	2
15	2" BUTTERFLY VALVE - N501S	ANSI CLASS 125/150 BUTTERFLY VALVE - 250 PSI MAX	4
16	2" SUCTION ELBOW	ANSI CLASS 300 X 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	2
17	2" DISCHARGE ELBOW	ANSI CLASS 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	2
18	8" SUCTION HEADER	ANSI CLASS 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
19	6" DISCHARGE HEADER	ANSI CLASS 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
20	8" S.R. ELBOW	D.I. FITTING	1
21	6" X 4" FLOWMETER UPSTREAM SPOOL	ANSI CLASS 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
22	4" FLOW METER	REQUIRES 0 PIPE DIA. UPSTREAM & DOWNSTREAM.	1
23	6" X 4" DISCHARGE ELBOW	ANSI CLASS 150 FLANGES, SCHED. 40 FUSION BOND EPOXY COATED STEEL PIPE	1
24	3/4" BALL VALVE		1
25	AQUASTAT TREE	SCHED. 40 STAINLESS STEEL PIPING & FITTINGS	3
26	AQUA-STAT	PUMP CASING WATER TEMP MONITOR	3
27	0.5 530 C STD LF	50 TO 175 PSI, CONTRACTOR TO PIPE TO DRAIN	3
28	1/2" SOLENOID VALVE	VALVE, SOLENOID (COMPLETE) 120 VAC, 1/2" SST	3
29	SUCTION PRESSURE GAUGE	SUCTION PRESSURE -100 PSI	1
30	DISCHARGE PRESSURE GAUGE	0-100 PSI	1
31	PRESSURE TRANSDUCER 300 PSI	300 PSI	1
32	SUCTION PRESSURE TRANSDUCER	100 PSI	1
33	PUMP PRESSURE GAUGE	0-100 PSI	3
34	AUTOMATIC TRANSFER SWITCH	200 AMP FUSIBLE DISCONNECT	1
35	METER	PROVIDED & INSTALLED BY OTHERS	1
36	THREE PHASE POWER DISTRIBUTION PANEL	480 VOLT, 3 PHASE, 200 AMP	1
37	WIRING TROUGH		1
38	CONTROL ENCLOSURE	C-SD242410	1
39	15 kVA MINI POWER-ZONE	MINI POWER CENTER	1
40	VFD	5 HP, 480 VOLT, 3 PHASE	2
41	VFD	10 HP, 480 VOLT, 3 PHASE	1
42	72"x84" DOUBLE DOOR	72"x84" DOUBLE DOOR, NO WINDOW, 5.75" JAMB	1
43	LIMIT SWITCH		1
44	EMERGENCY/EXIT LIGHT	LITHONIA MODEL LHQM (LED)	1
45	THERMOSTAT	MODEL TH5220D1151	1
46	SMOKE DETECTOR		1
47	LED WALL LIGHT	10W, 120/277 V, NUVO MODEL 62-1145	6
48	50' LED LIGHT	VAPOR TIGHT, E-CONDLIGHT MODEL E-VWA50A-L4G, 40 W	4
49	LIGHT SWITCH	115 VAC	1
50	WALL SCONCE	LPW7	1
51	W12AAA	1 TON HVAC, (5 kW HEATER)	1
52	RG-1W	RETURN GRILLE	1
53	SG-1W	SUPPLY GRILL	1
54	30 AMP 4X DISCONNECT	NON FUSIBLE DISCONNECT	1
55	EXTERIOR OUTLET	115 VAC, GFCI w/ IN USE COVER, LEVITON 5996-DGY	1
56	DUPLEX OUTLET	115 VAC, GFCI, LEVITON 8899-I	3
57	FLOOR DRAIN WITH FUNNEL - 4" PIPE	SHIPPED LOOSE - CONTRACTOR TO INSTALL PER LOCAL CODES	1

- NOTE:
- THIS DRAWING IS PRELIMINARY LAYOUT ONLY. NOT FOR CONSTRUCTION. CONSTRUCTION DRAWINGS WILL BE FORWARDED UPON RECEIPT OF APPROVED SUBMITTALS.
  - SOME ITEMS NOT SHOWN FOR CLARITY.
  - CONTRACTOR/ENGINEER TO VERIFY SUCTION & DISCHARGE CONNECTION ORIENTATION.
  - ADEQUATE LIFTING POINTS TO BE PROVIDED.
  - ESTIMATED SYSTEM WEIGHT:15500 LBS



REVISION RECORD

NO	DATE	DESCRIPTION

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HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS

BOOSTER STATION DETAILS

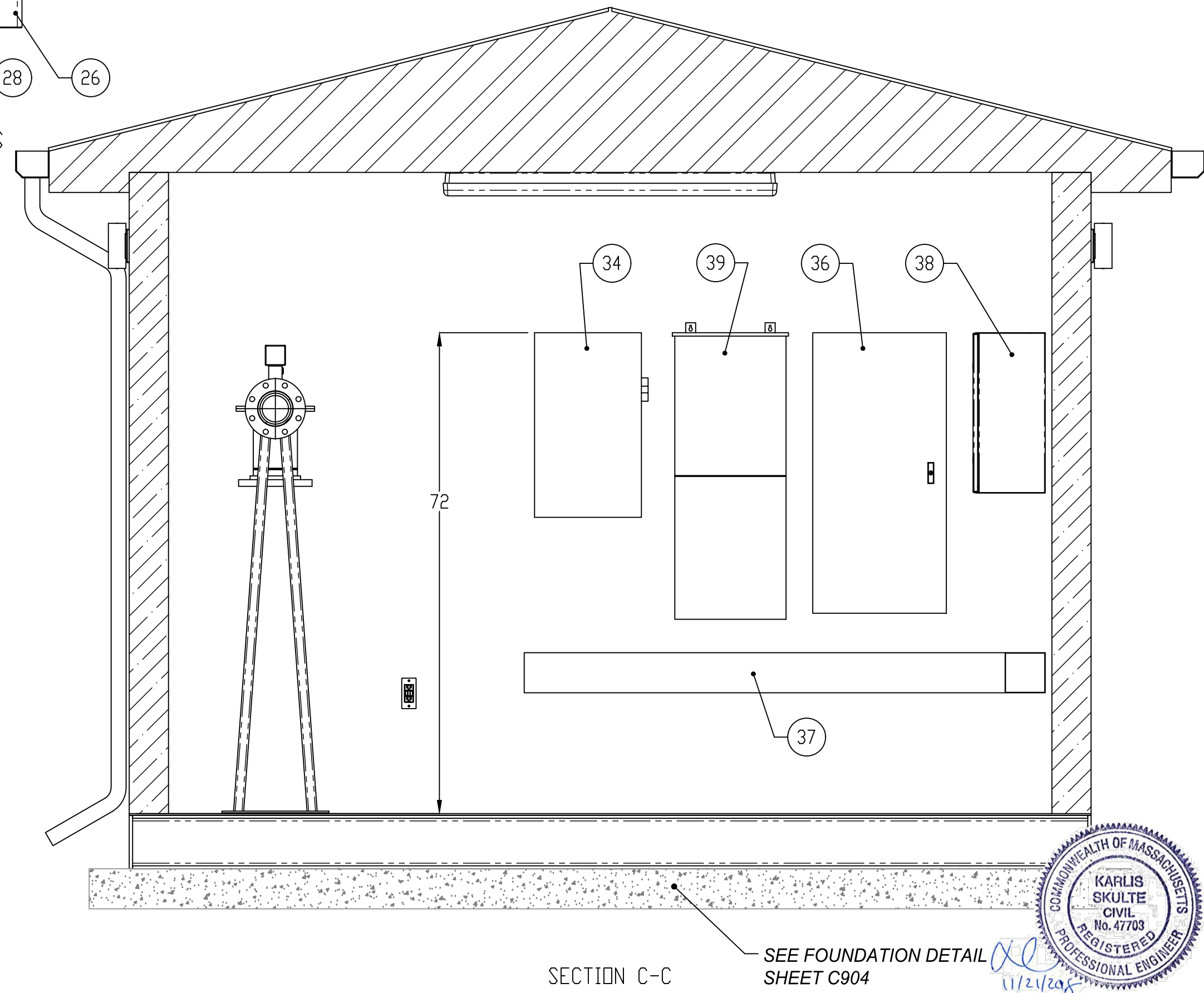
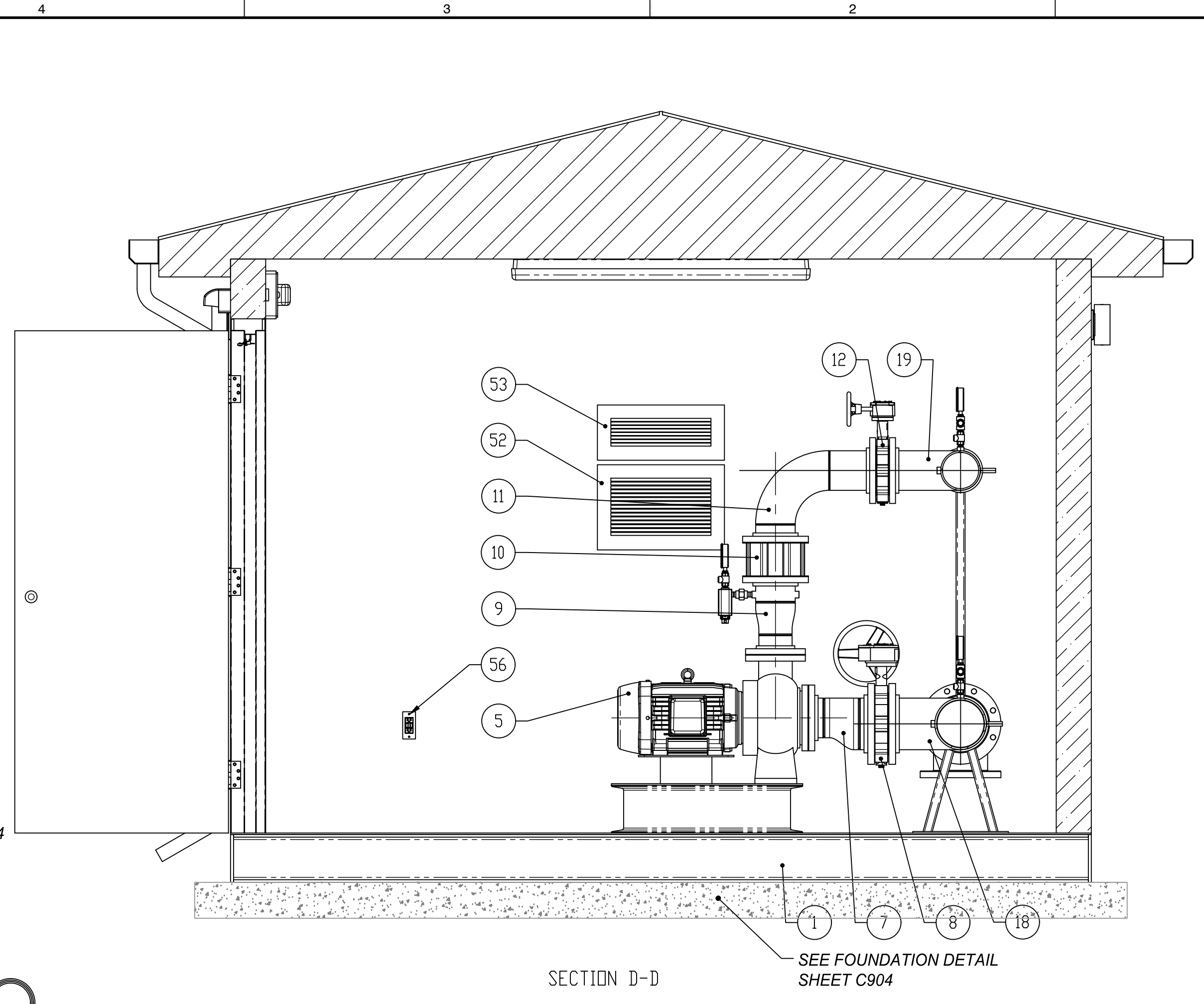
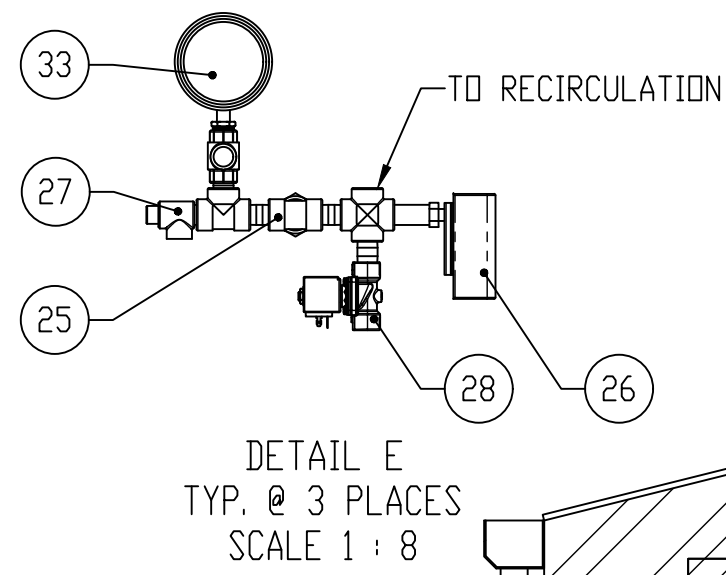
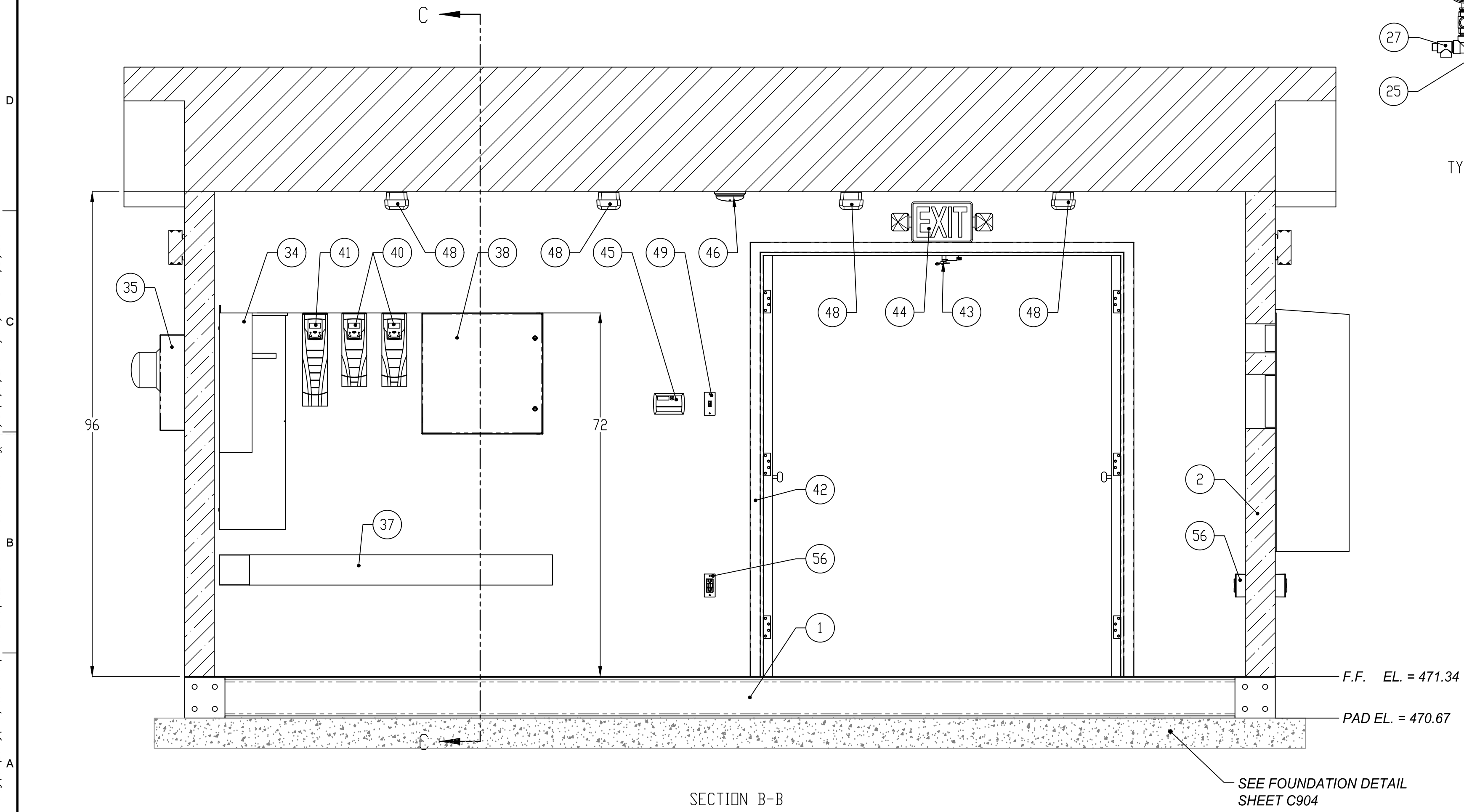
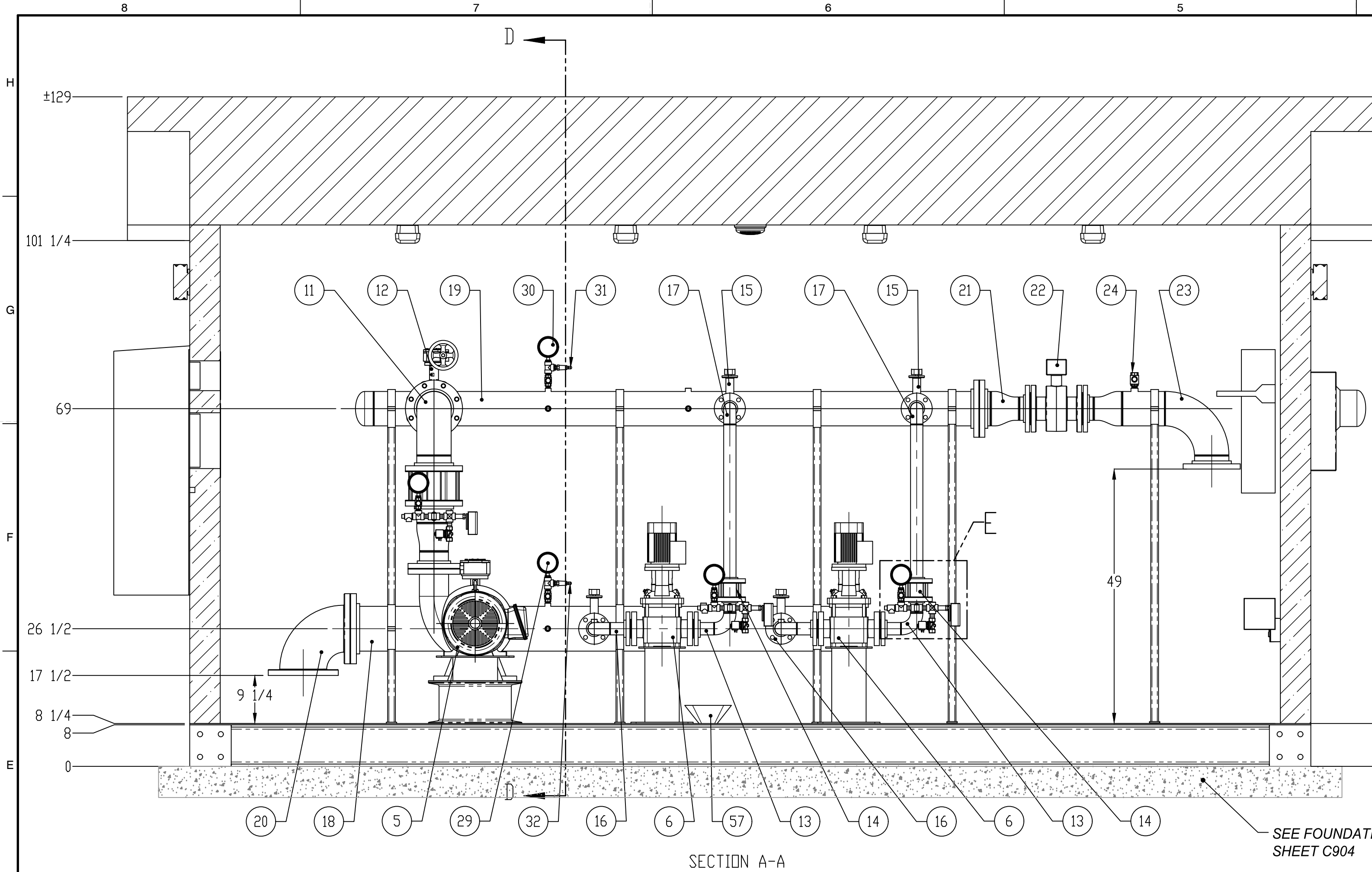
DATE:	NOVEMBER 2018	DRAWN BY:	JBH
DWG SCALE:	1/2" = 1' FOOT	CHECKED BY:	JMP
PROJECT NO.	182-212	APPROVED BY:	DRAFT

DRAWING NO.:  
**C900**

SHEET 3 OF 9



\\lan-hedgeport\Library\Hilltop Subdivision\17-05-2018\18212-C901-C902-Booster Station.dwg[C901] LS(11/21/2018 - 9:57 AM) - LPA 11/21/2018 9:57 AM



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**HILLTOP ROAD SUBDIVISION  
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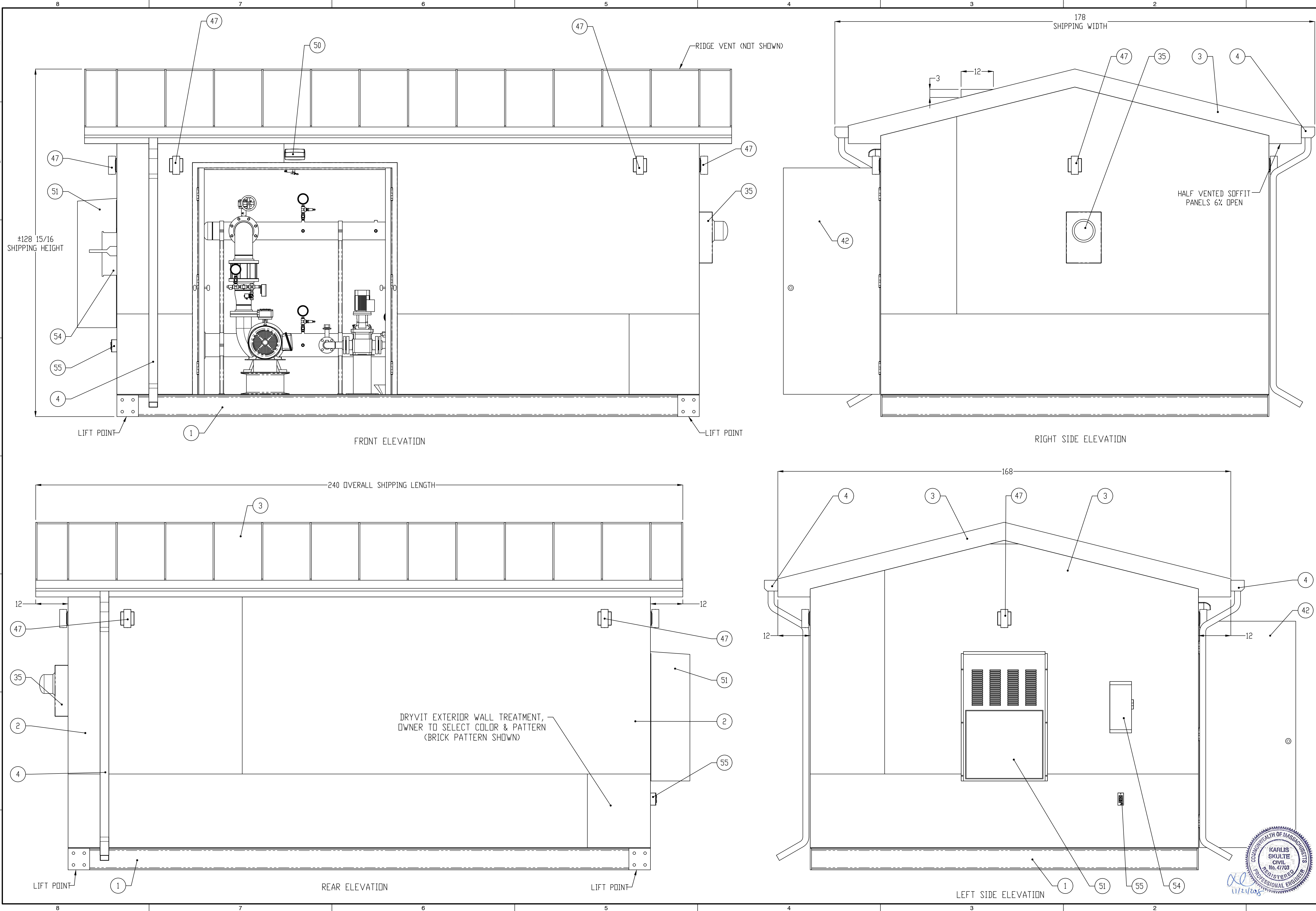
**BOOSTER STATION DETAILS**

DATE:	NOVEMBER 2018	DRAWN BY:	JBH
DWG SCALE:	1/2" = 1 FOOT	CHECKED BY:	JMP
PROJECT NO.	182-212	APPROVED BY:	DRAFT

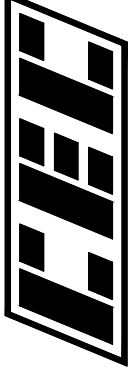
DRAWING NO.: **C901**

SHEET 4 OF 9

\\lan-bldgport\Library\Hilltop Substation\17-05-2018\182212-C902-Booster Station.dwg[C902] LS(11/21/2018 - 11/21/2018) - JPH 11/21/2018 9:58 AM



REVISION RECORD	
NO	DATE



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**HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS**

**BOOSTER STATION DETAILS**

DATE:	NOVEMBER 2018	DRAWN BY:	JBH
DWG SCALE:	1/2" = 1 FOOT	CHECKED BY:	JMP
PROJECT NO.	182-212		
APPROVED BY:	DRAFT		

DRAWING NO.: **C902**

SHEET 5 OF 9



11/21/2018



THRUST BLOCKING

1. THE THRUST BLOCKING MUST BE FORMED AGAINST A SOLID TRENCH WALL AND THESE FITTING AREAS MUST BE EXCAVATED BY HAND BECAUSE MECHANICAL EQUIPMENT WILL DAMAGE THE BEARING SURFACE OF THE TRENCH WALL.
2. THE SIZE AND TYPE OF THRUST BLOCK DEPENDS ON THE PIPE SIZE, LINE PRESSURE, TYPE OF FITTING, DEGREE OF BEND AND TYPE OF SOIL. IN MOST CASES, THE SIZE AND TYPE OF THRUST BLOCK WILL BE DETERMINED BY THE ENGINEER. THRUST BLOCK SIZE MAY BE CALCULATED BY THE PROCEDURES SHOWN AT RIGHT.

THRUSTS IN SOFT UNSTABLE SOILS

1. IN SOFT, UNSTABLE SOILS SUCH AS MUCK OR PEAT, THRUSTS ARE RESISTED BY RUNNING CORROSION-RESISTANT TIE-RODS TO SOLID FOUNDATIONS OR BY REMOVING THE SOFT MATERIAL AND REPLACING IT WITH BALLAST OF SUFFICIENT SIZE AND WEIGHT TO RESIST THRUSTS DEVELOPED.

UPWARD THRUSTS AT FITTINGS

1. WHERE A FITTING IS USED TO MAKE A VERTICAL BEND, ANCHOR THE FITTING TO A THRUST BLOCK BRACED AGAINST THE UNDISTURBED SOIL. THE THRUST BLOCK SHOULD HAVE ENOUGH RESISTANCE TO WITHSTAND UPWARD AND OUTWARD THRUSTS AT THE FITTING.

SIDE THRUST ON CURVES

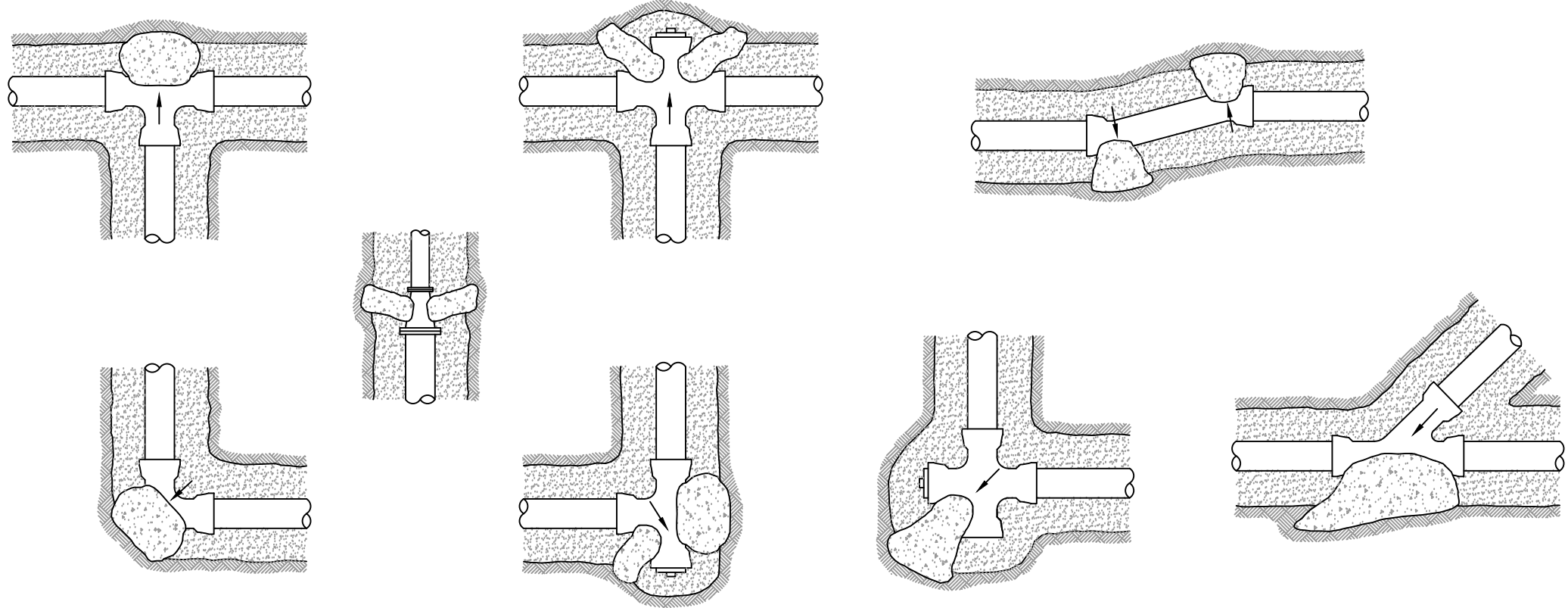
1. AN OUTWARD PRESSURE EXISTS ON ALL DEFLECTIONS FROM A STRAIGHT LINE. GOOD SOIL, PROPERLY TAMPED, IS SUFFICIENT TO HOLD SIDE THRUST UNLESS SOIL CONDITIONS ARE UNSTABLE. IN THAT CASE, TO ANCHOR AGAINST THIS SIDE THRUST, THE BLOCKING SHOULD BE PLACED AGAINST THE PIPE ON EACH SIDE OF THE COUPLING. DO NOT THRUST BLOCK THE COUPLING ITSELF.

SIDE THRUST

PIPE SIZE INCHES	SIDE THRUST POUNDS PER DEGREE
1 1/2"	5.1
2"	7.9
2 1/2"	11.6
3"	17.1
3 1/2"	22.4
4"	28.3
5"	43.1
6"	60.8
8"	103.0
10"	160.0
12"	225.0

BASED ON SIDE THRUST PER 100 POUNDS PER SQUARE INCH (PSI) PRESSURE PER DEGREE OF DEFLECTION

MULTIPLY SIDE THRUST POUNDS BY DEGREE OF DEFLECTION TIMES POUNDS OF PRESSURE DIVIDED BY 100 TO OBTAIN TOTAL SIDE THRUST IN POUNDS.



HORIZONTAL FITTINGS

CONCRETE THRUST BLOCK DETAILS

NOT TO SCALE

STEP No. 1:

MULTIPLY THE PRESSURE LEVEL DESIRED FOR TESTING BY THE APPROPRIATE VALUE SHOWN IN THE FOLLOWING TABLE:

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
1.5"	2.94	4.16	2.25	1.15
2"	4.56	6.45	3.50	1.78
2.5"	6.65	9.40	5.10	2.60
3"	9.80	13.9	7.51	3.82
3.5"	12.8	18.1	9.81	4.99
4"	16.2	23.0	12.4	6.31
5"	24.7	35.0	18.9	9.63
6"	34.8	49.2	26.7	13.6
8"	59.0	83.5	45.2	23.0
10"	91.5	130.0	70.0	35.8
12"	129.0	180.0	98.5	50.3

BASED ON POUNDS THRUST PER PSI WORKING PRESSURE

STEP No. 2:

DETERMINE THE BEARING STRENGTH OF THE SOIL FROM THE TABLE BELOW:

SOILS AND SAFE BEARING LOADS LBS SQ. FT.

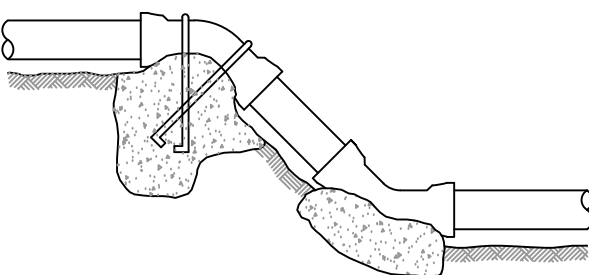
SOUND SOILS	10,000
CEMENTED GRAVEL AND SAND DIFFICULT TO PICK	4,000
COURSE AND FINE COMPACT SAND	3,000
MEDIUM CLAY CAN BE SPADED	2,000
SOFT CLAY	1,000
MUCK	0

STEP No. 3:

DIVIDE THE TOTAL THRUST OBTAINED IN STEP 1 BY THE BEARING STRENGTH OF SOIL THIS GIVES THE SQUARE FEET OF THE AREA NEEDED.

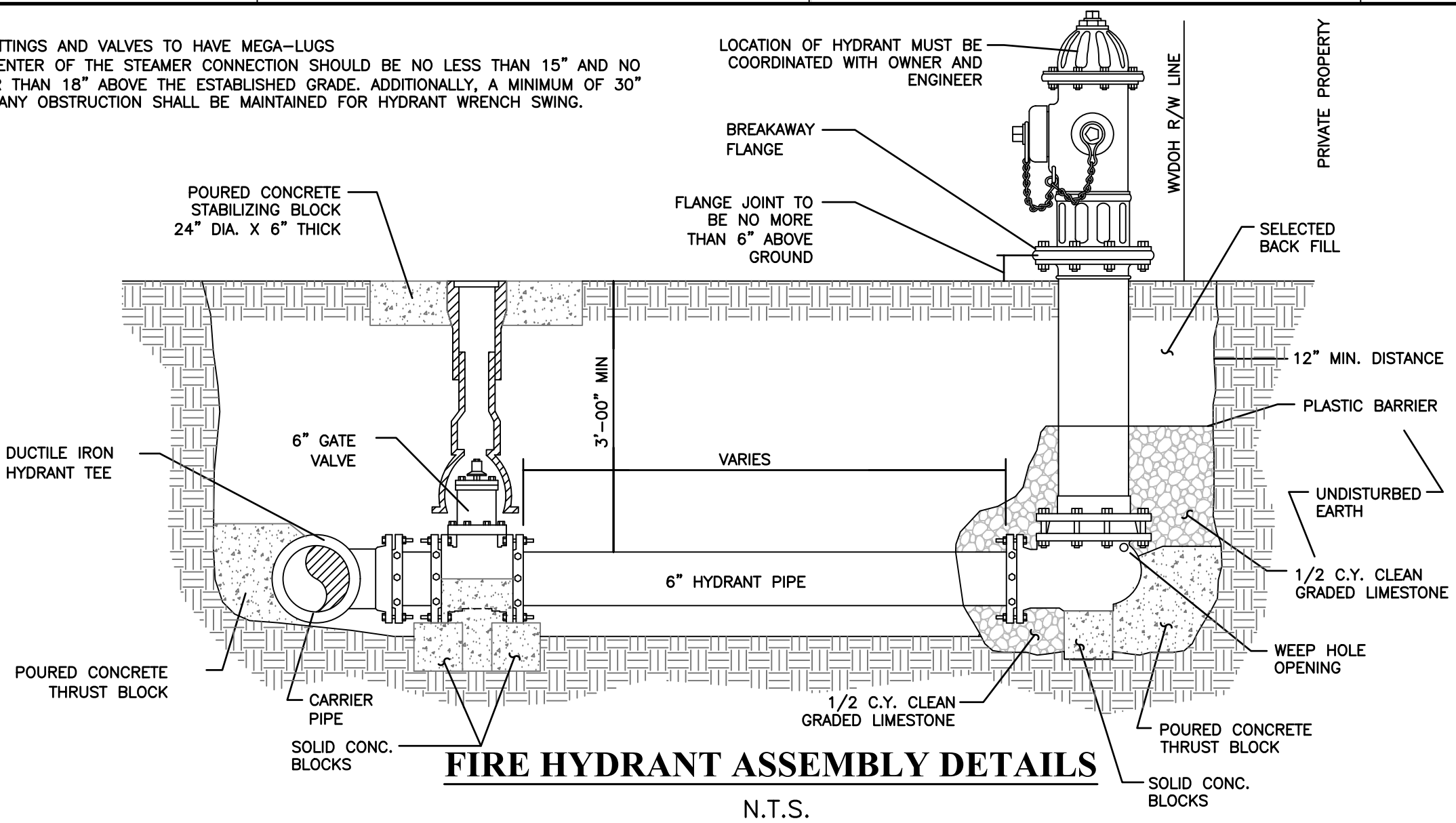
THRUST BLOCK GENERAL NOTES:

1. ALL CONCRETE THRUST BLOCKING TO MEET 3000 PSI TEST.
2. ALL FITTINGS ARE TO BE WRAPPED WITH 4 MIL PLASTIC PRIOR TO PLACING CONCRETE THRUST BLOCK.



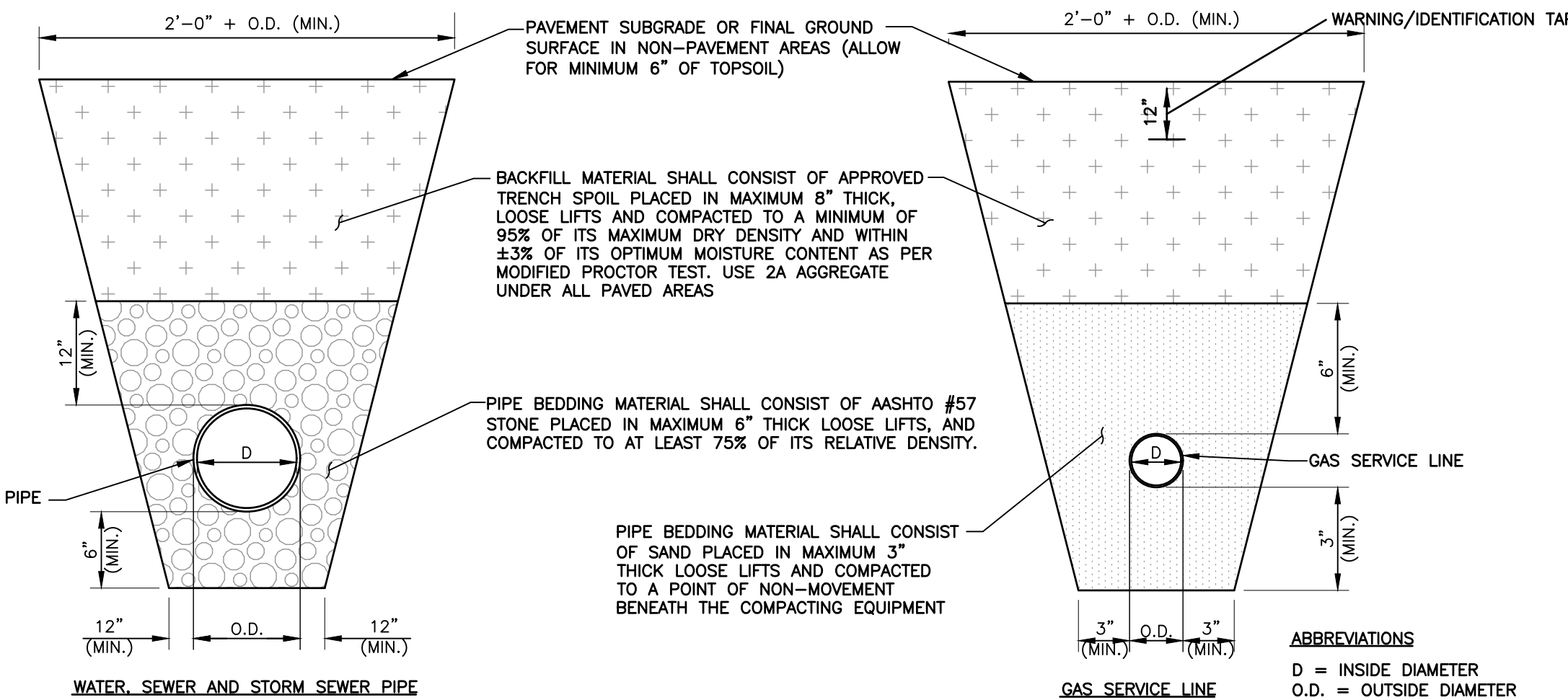
VERTICAL FITTINGS

NOTES:  
ALL FITTINGS AND VALVES TO HAVE MEGA-LUGS  
THE CENTER OF THE STEAMER CONNECTION SHOULD BE NO LESS THAN 15" AND NO HIGHER THAN 16" ABOVE THE ESTABLISHED GRADE. ADDITIONALLY, A MINIMUM OF 30" FROM ANY OBSTRUCTION SHALL BE MAINTAINED FOR HYDRANT WRENCH SWING.



FIRE HYDRANT ASSEMBLY DETAILS

N.T.S.



COVER REQUIREMENTS

UTILITY	MINIMUM COVER REQUIRED *
STORM SEWER	2.0 FT.
SANITARY SEWER	4.0 FT.
WATERLINE	5.0 FT.
GAS LINE	2.0 FT.
TELEPHONE LINE	2.5 FT.
ELECTRIC LINE	3.75 FT.

\* AS MEASURED FROM TOP OF PIPE TO FINAL GROUND SURFACE VEGETATED AREA

CONSTRUCTION NOTES:

1. ALL MATERIALS EXCAVATED FROM THE UTILITY TRENCH SHALL BE STOCKPILED A MINIMUM SUFFICIENT DISTANCE FROM ALL TRENCHES TO PREVENT SLIDES OR CAVE-INS.
2. ALL BACKFILL MATERIALS SHALL BE APPROVED BY THE GENERAL CONTRACTOR OR HIS REPRESENTATIVE BEFORE BEING PLACED.
3. THE AASHTO #57 STONE SHALL BE CRUSHED LIMESTONE THAT SATISFIES THE REQUIREMENTS OF MASSACHUSETTS DOT STANDARD SPECIFICATIONS.
4. THE MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT FOR THE BACKFILL MATERIALS SHALL BE DETERMINED BY ASTM D1557, AND THE RELATIVE DENSITY OF THE AASHTO #57 STONE SHALL BE DETERMINED BY ASTM D4253 AND ASTM D4254.
5. THE CONTRACTOR SHALL CONSTRUCT THE UTILITY TRENCHES AND PROVIDE ADEQUATE SHORING (WHERE NECESSARY) IN CONFORMANCE WITH THE LATEST REQUIREMENTS FOR CONSTRUCTION STANDARD FOR EXCAVATIONS (29 CFR PART 1926.650-652 SUBPART P) PROMULGATED BY OSHA.
6. THE CONTRACTOR SHALL VERIFY THAT THE MINIMUM SPECIFIED PIPE COVER IS PROVIDED BETWEEN THE FINAL GROUND SURFACE AND TOP OF PIPE BEFORE LAYING PIPE. PROVIDE A MINIMUM OF 3 FT. OF COVER ABOVE ALL PIPES DURING CONSTRUCTION.
7. THE TELEPHONE AND ELECTRIC CONDUIT WILL NOT SHARE THE SAME UTILITY TRENCH WHERE THEY ARE SEPARATED AT THE MANHOLE/VAULT LOCATIONS.
8. INCREASE TRENCH WIDTH AS NECESSARY TO ALLOW FOR PROPER COMPACTION OF BEDDING/BACKFILL.
9. HDPE STORM SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.

UTILITY TRENCH DETAILS

N.T.S.



REVISION RECORD

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HILLTOP ROAD SUBDIVISION  
BOOSTER PUMP STATION DESIGN  
LANCASTER, MASSACHUSETTS

GENERAL DETAILS

DATE: NOVEMBER 2018  
DWG SCALE: NOT TO SCALE  
PROJECT NO: 182-212  
APPROVED BY: JIM

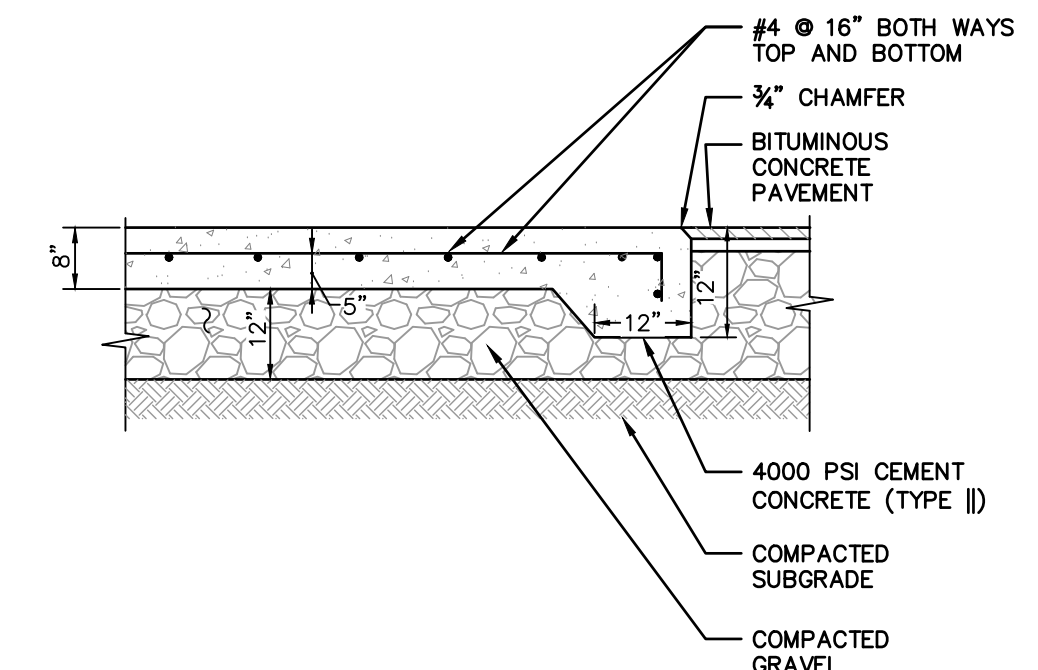
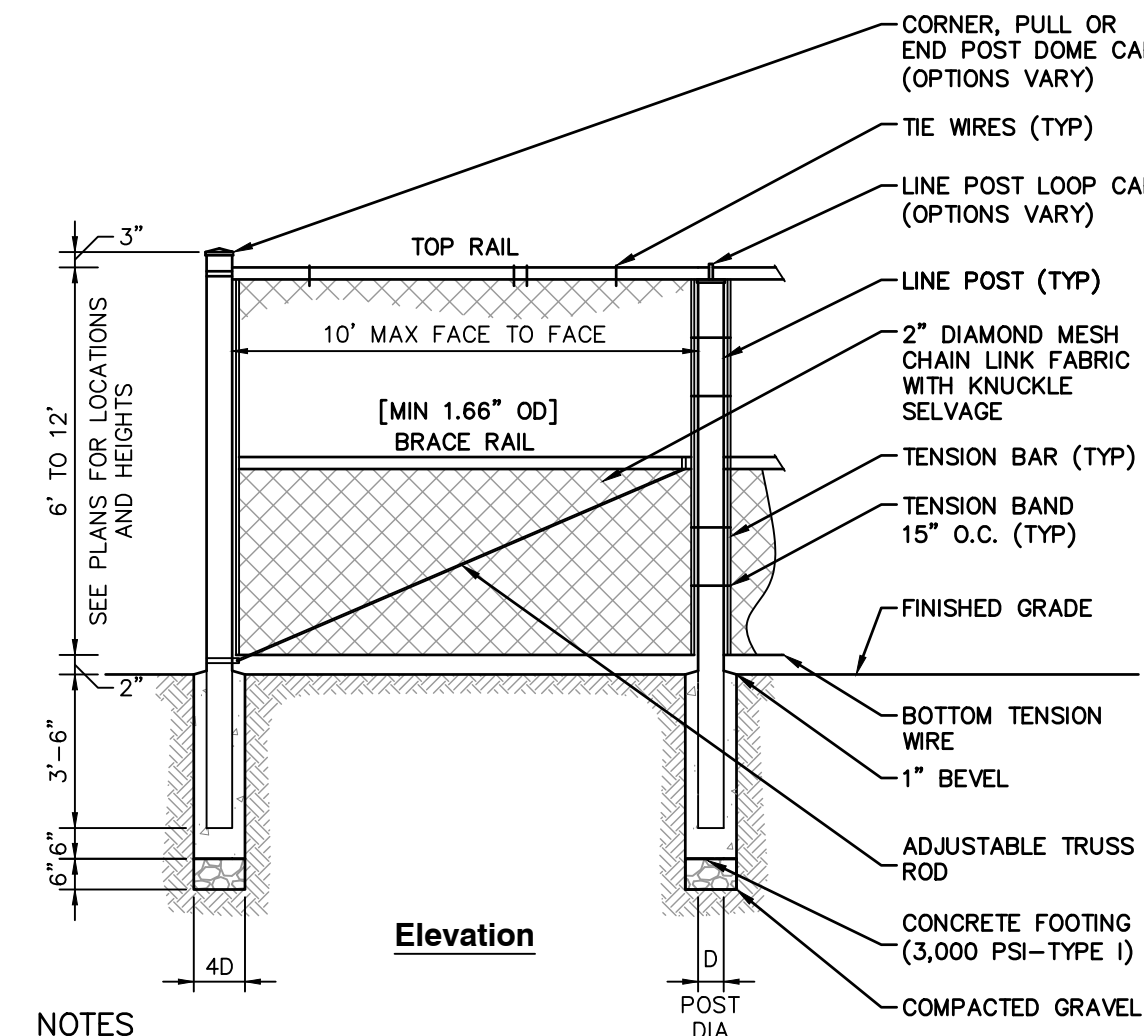
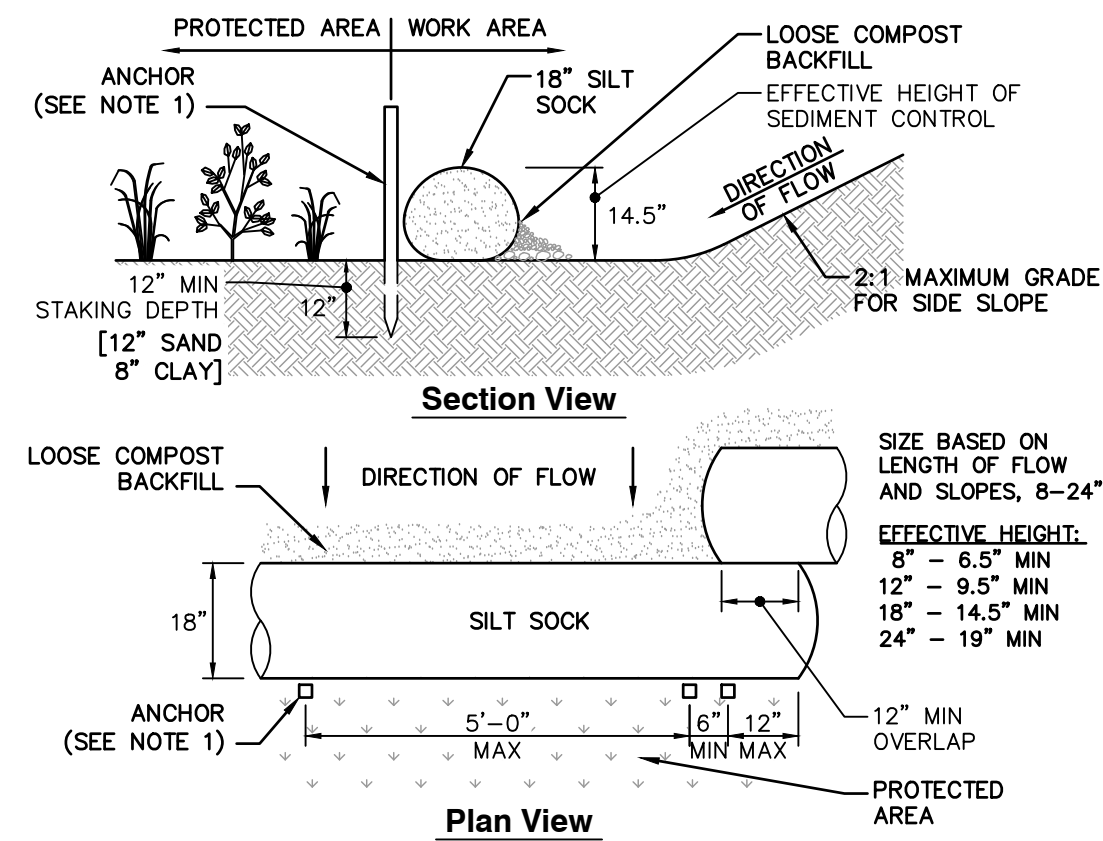
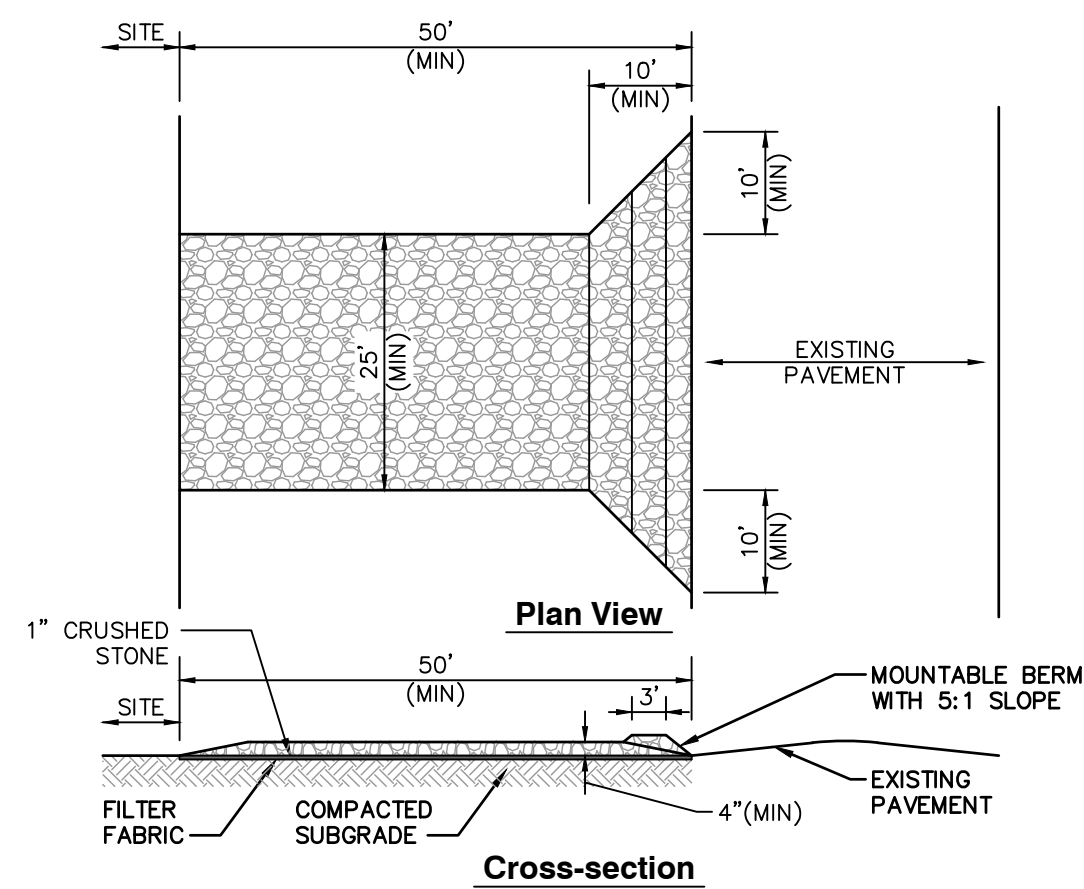
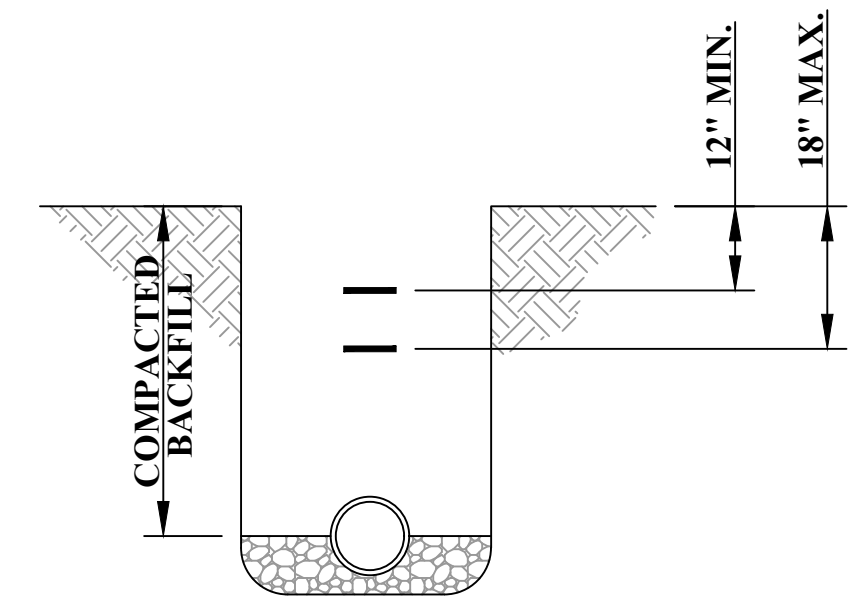
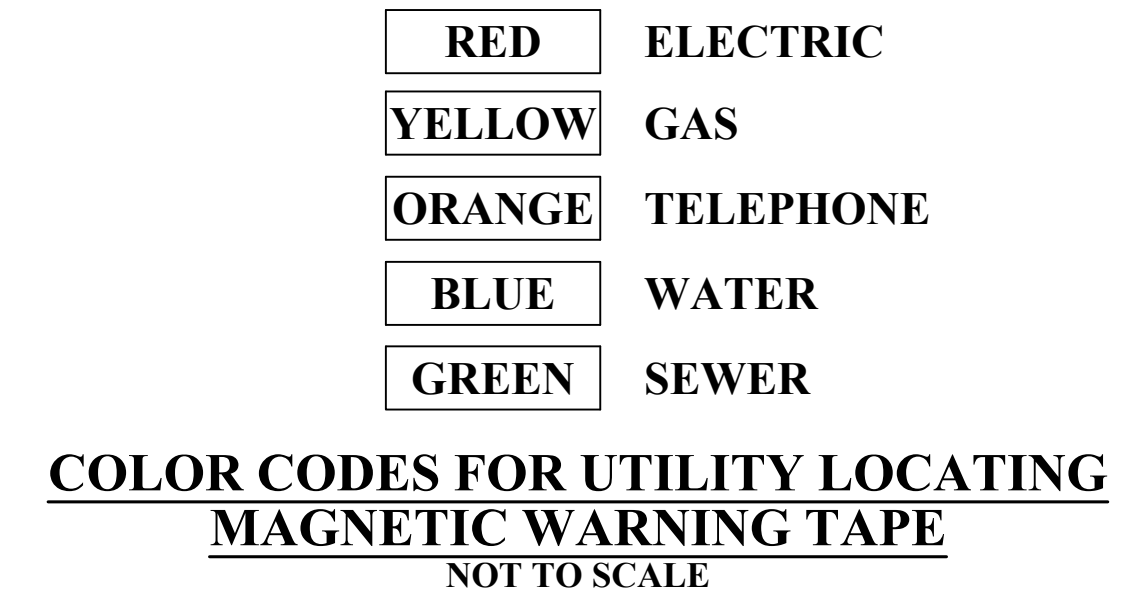
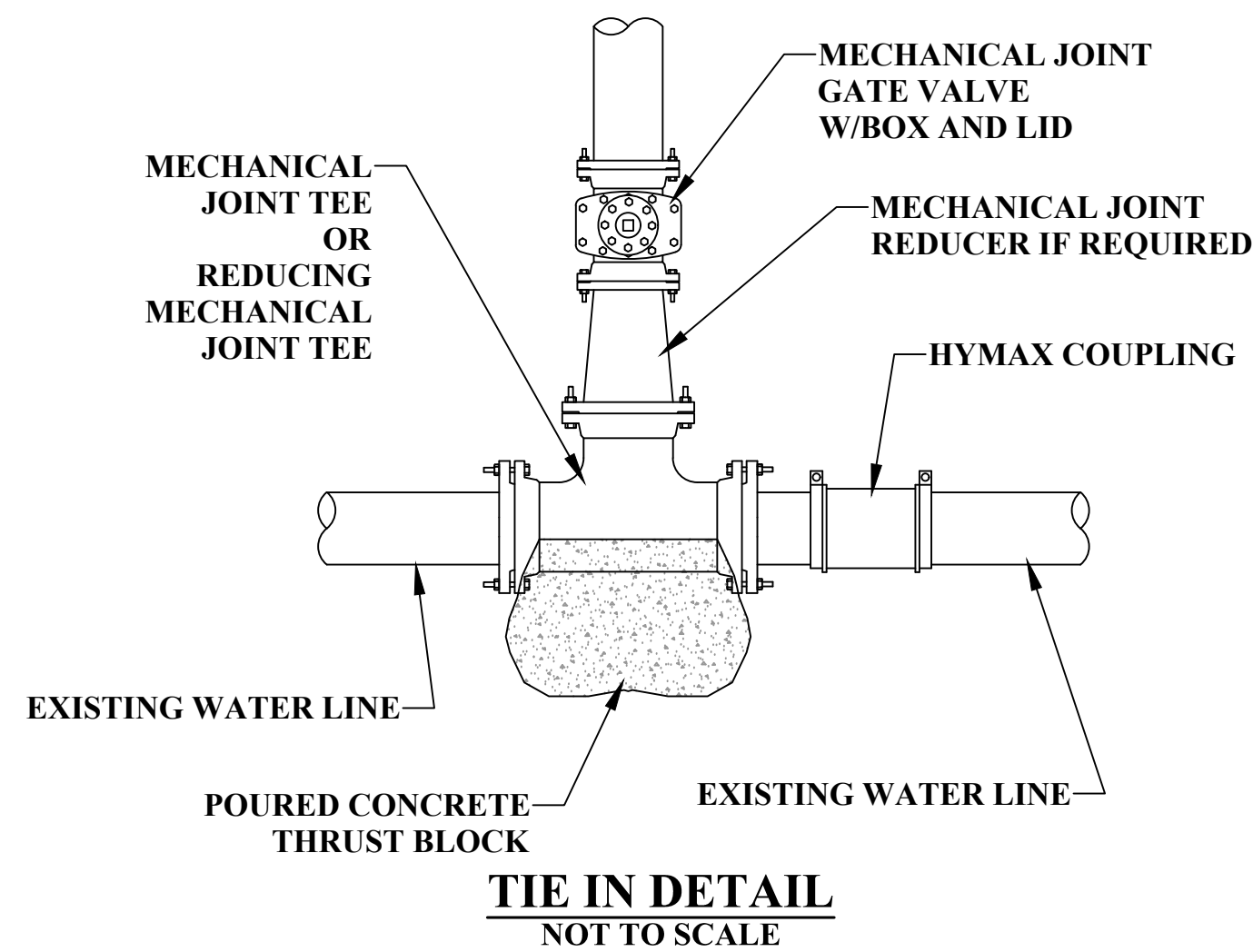
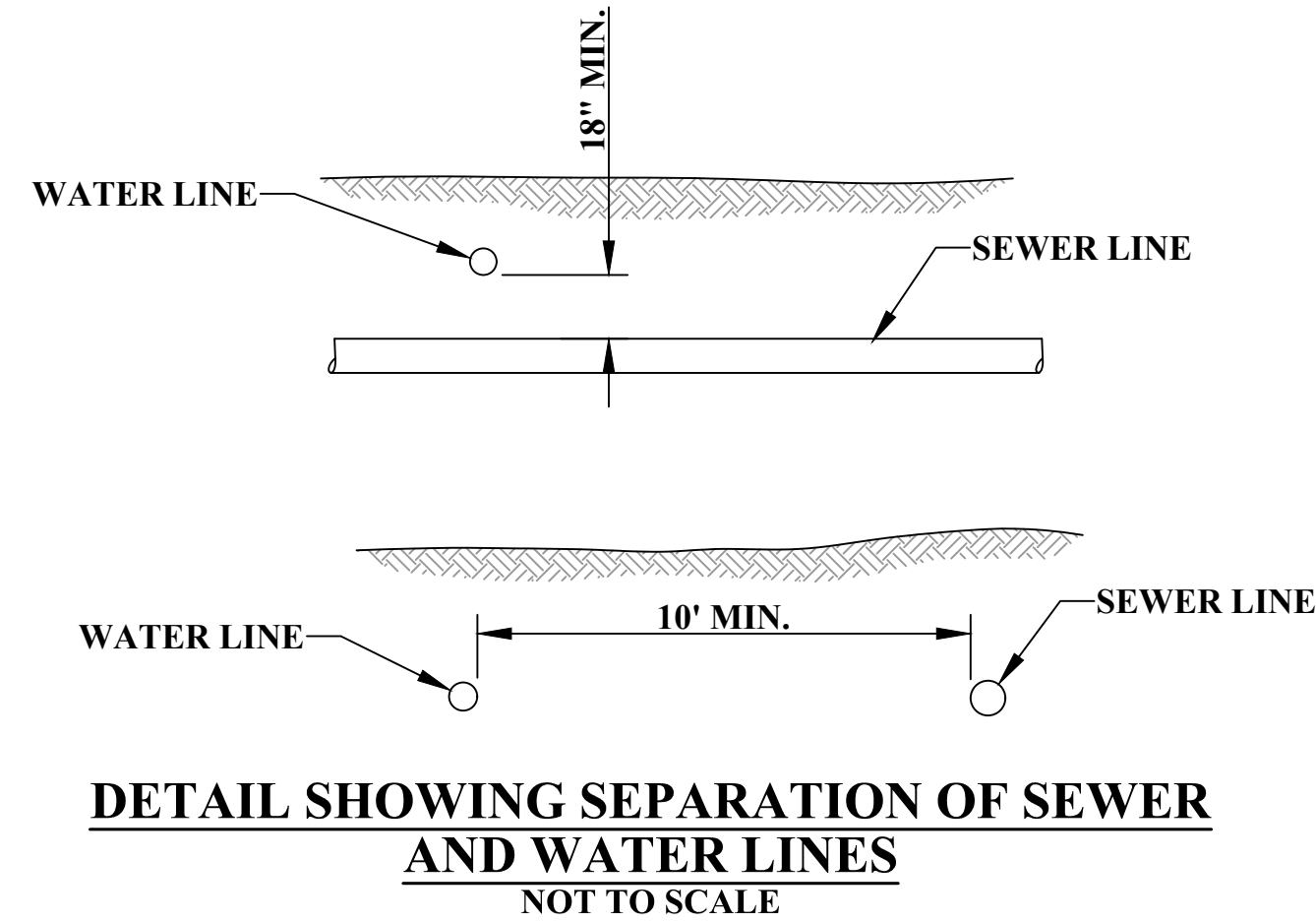
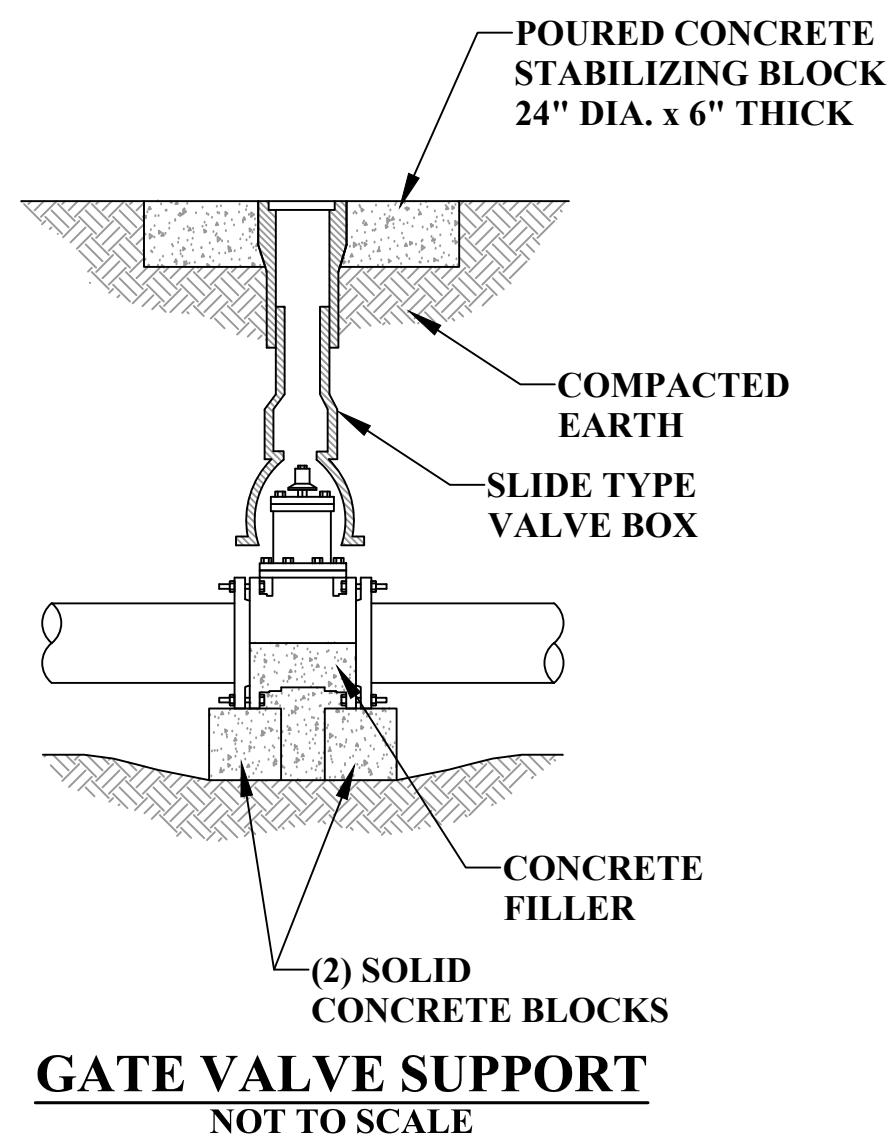
JBH  
JMP  
182-212  
DRAFT

DRAWING NO.: C903

SHEET 7 OF 9

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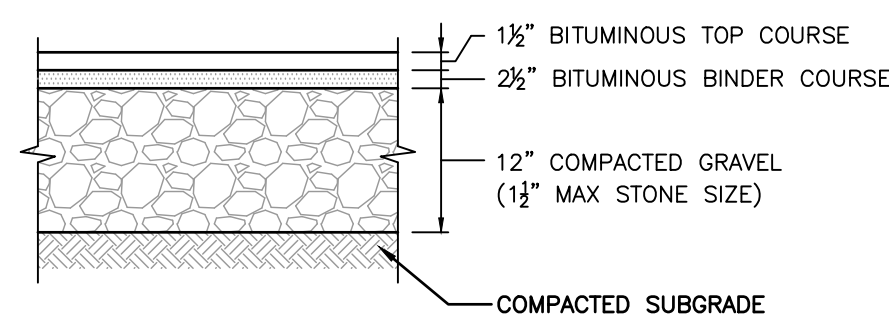


- ## NOTES

1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANING OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION ENTRANCE SHALL BE REMOVED PRIOR TO FINAL FINISHED MATERIALS BEING INSTALLED.

## STABILIZED CONSTRUCTION EXIT

N.T.S.



### STANDARD DUTY FLEXIBLE PAVEMENT

### CONSTRUCTION NOTES

1. PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

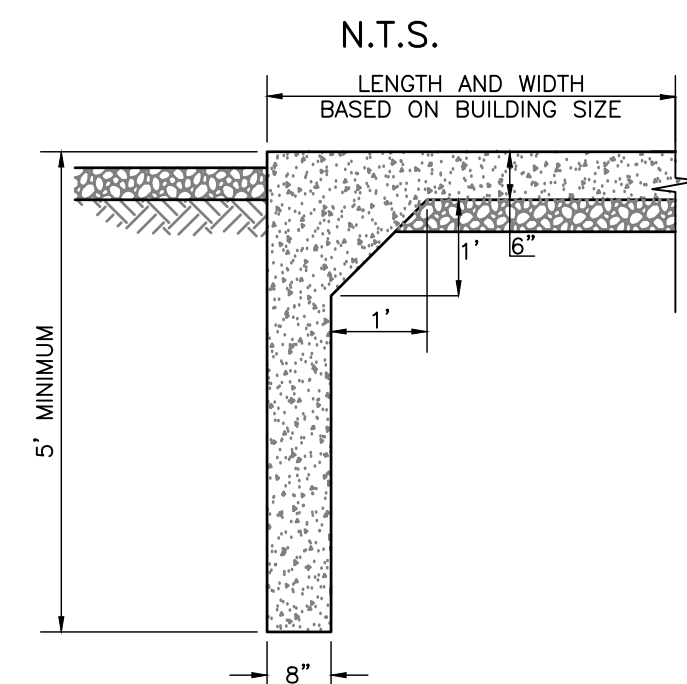
## BITUMINOUS CONCRETE PAVEMENT

N.T.S.

NOTES

1. ANCHOR TO BE A 2" X 2" X 36" HARD WOOD STAKE, OR APPROVED EQUAL.
2. COMPOST FOR SILT SOCK FILL MATERIAL TO BE PROVIDED BY THE MANUFACTURER IN CONJUNCTION WITH THE ENGINEER TO PROVIDE THE REQUIRED REMOVAL OF SEDIMENT OR OTHER POLLUTANTS FROM RUNOFF.
3. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE LOCAL CONSERVATION AGENT OR THE DESIGN ENGINEER.
4. SILT SOCK SHALL BE INSPECTED PER LOCAL AND STATE REQUIREMENTS. REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY, AS NEEDED.
5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.

## **SILT SOCK EROSION CONTROL BARRIER**



## BOOSTER PUMP STATION FOUNDATION DETAIL

N.T.S.

### 6'-12' CHAIN LINK FENCE

N.T.S.

- NOTES

1. FENCE TO BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS AND THE CHAIN LINK FENCE MANUFACTURERS' INSTITUTE PRODUCT MANUAL.
2. POSTS SHALL MAINTAIN A MINIMUM DEPTH OF 3'-6" IN GROUND AND SHALL NOT BE RACKED TO ACCOMMODATE CHANGES IN GRADE.
3. LINE OF FENCE, TOP AND BOTTOM, SHALL BE INSTALLED STRAIGHT AND TRUE. POSTS SHALL BE INSTALLED PARALLEL AND PLUMB. RAILS SHALL BE INSTALLED PARALLEL TO GROUND SURFACE AND EACH OTHER.

NOTES

1. SIZE OF GENERATOR PAD TO BE AS INDICATED ON PLANS.

## GENERATOR PAD

N.T.S.

[illegible]

**CEC**

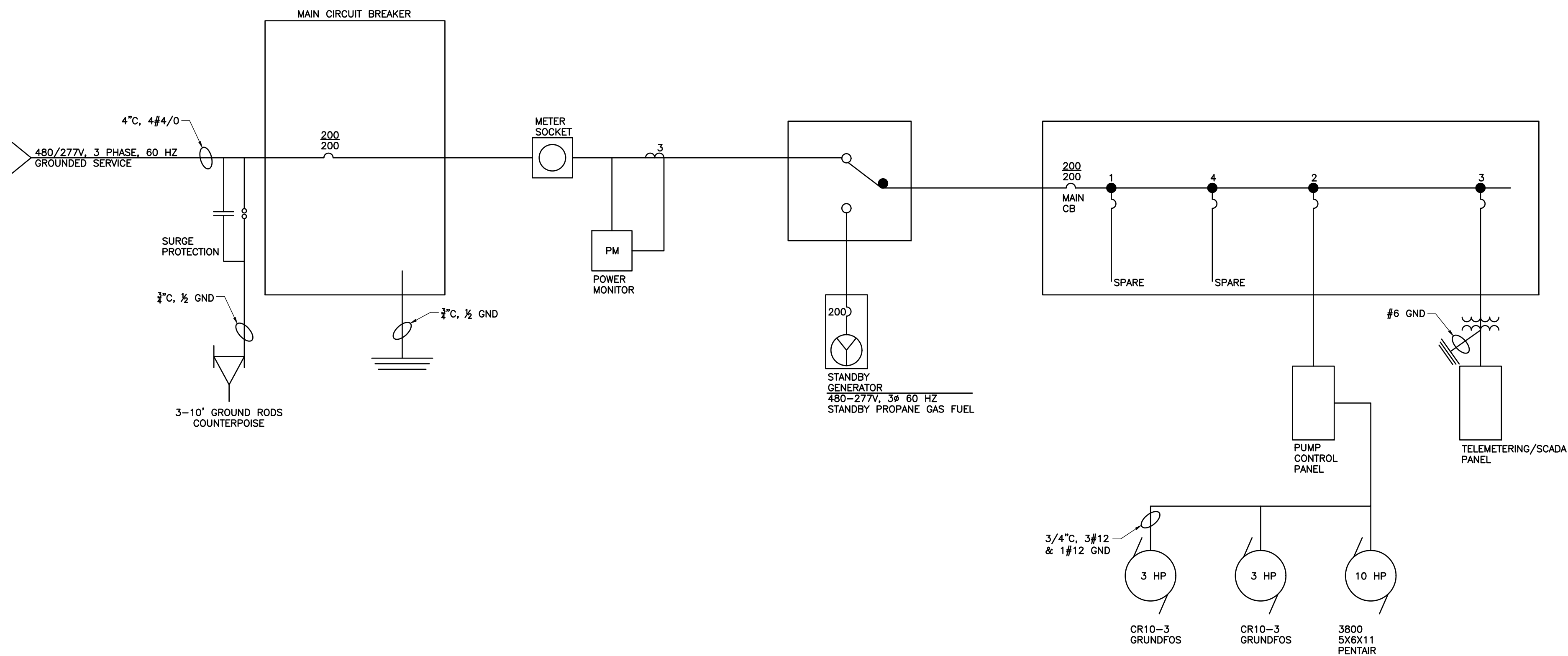
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LANCASTER, MASSACHUSETTS**

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PROJECT NO:			182-212
APPROVED BY:			DRAFT

DRAWING NO.:  
**C904**  
SHEET 8 OF 9





**SINGLE LINE DIAGRAM**  
N.T.S.

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LANCASTER, MASSACHUSETTS**

<b>SINGLE LINE DIAGRAM</b>		<b>JBH</b>
DATE:	<b>NOVEMBER 2018</b>	DRAWN BY:
DWG SCALE:	<b>NOT TO SCALE</b>	CHECKED BY:
PROJECT NO.		<b>182-212</b>
APPROVED BY:		<b>DRAFT</b>