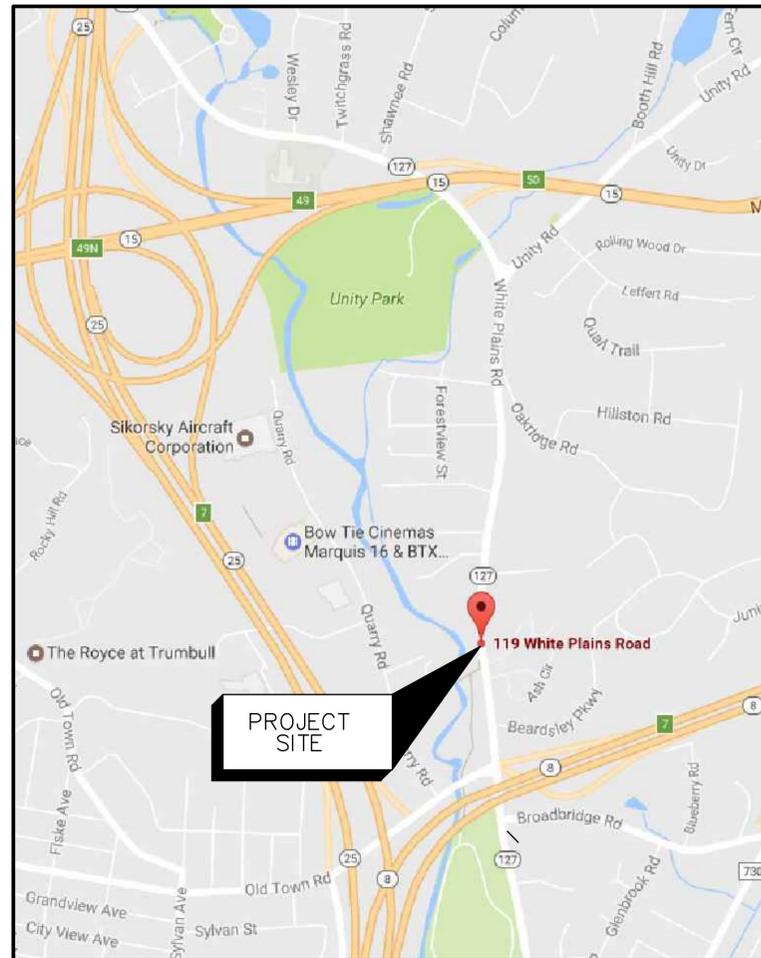




# TOWN OF TRUMBULL, CT WPCA BEARDSLEY PUMP STATION COMPREHENSIVE UPGRADE BID #



PROJECT  
SITE

**LOCATION MAP**  
NOT TO SCALE



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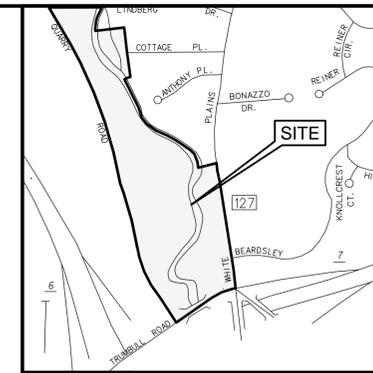
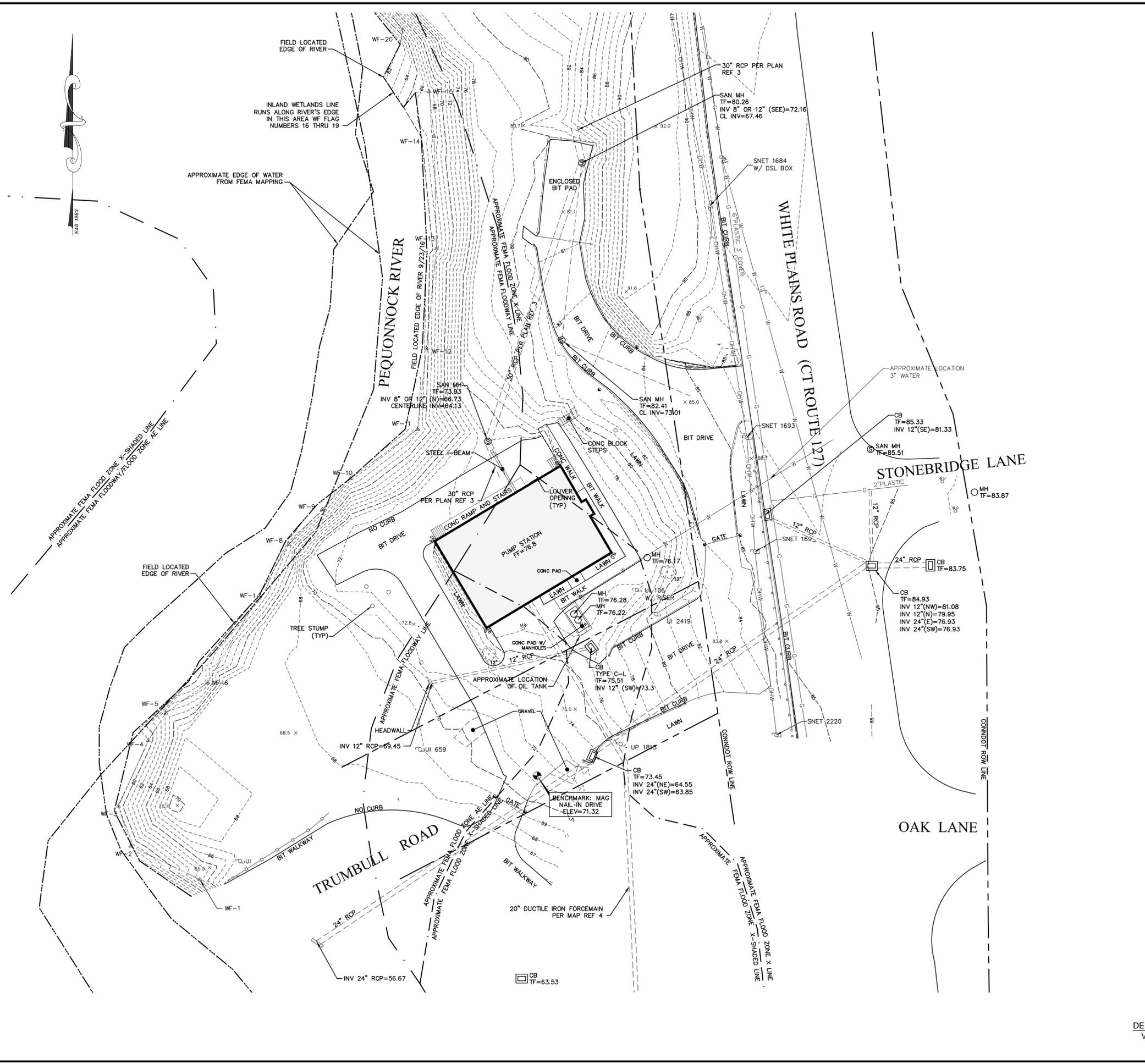
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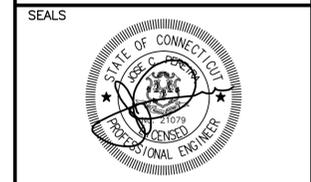


**SEPTEMBER 2017**

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**ARCADIS**  
 LEGAL ENTITY:  
 ARCADIS U.S., INC.  
 CONSULTANTS  
**PEREIRA ENGINEERING, LLC**  
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**TOWN OF TRUMBULL, CONNECTICUT**  
**BEARDSLEY PUMP STATION COMPREHENSIVE UPGRADE**

ARCADIS PROJ. NO. 06532002.0000

NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2017  
 PROJECT NO.: 06532002.0000  
 FILE NAME: 1108SP00  
 DESIGNED BY: K. BUDA  
 DRAWN BY: E. HOMBURG  
 CHECKED BY: J. PEREIRA

SHEET TITLE  
**EXISTING CONDITIONS MAP**

SCALE: 1"=20'  
**G-0**  
 SHEET 1 OF 69

- SURVEY NOTES:**
- THIS SURVEY AND MAP HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-11 THROUGH 20-300b-20 AND THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
  - THE TYPE OF SURVEY PERFORMED IS AN IMPROVEMENT LOCATION SURVEY INTENDED TO DEPICT EXISTING CONDITIONS
  - THE BOUNDARY DETERMINATION/OPINION IS BASED UPON A RESURVEY OF MAP REFERENCE 1 AND 2.
  - THIS SURVEY CONFORMS TO HORIZONTAL ACCURACY CLASS A-2, VERTICAL ACCURACY CLASS V-3, AND TOPOGRAPHIC ACCURACY CLASS T-2.
  - THE ELEVATIONS DEPICTED HEREON ARE BASED UPON NAVD 1988 DATUM DERIVED FROM A VRS GNSS SURVEY OF JUNE 2016.
  - THE NORTH ARROW DEPICTED HEREON IS BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM NAD 1983 DERIVED FROM A VRS GNSS SURVEY OF JUNE 2016.
  - THE BASE FLOOD ELEVATION IS 72'±. THE SUBJECT PARCEL APPEARS TO LIE WITHIN FLOOD ZONE(S) AE, X-SHADED, AND X AS DEPICTED ON FEMA'S FLOOD INSURANCE RATE MAP (FIRM) ENTITLED: FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS); PANEL 431 OF 626; MAP NUMBER 09001C0431F; EFFECTIVE DATE: JUNE 18, 2010; SCALE: 1"=500'. ANY FEMA FLOODPLAIN AND/OR FLOODWAY INFORMATION DEPICTED HEREON IS APPROXIMATE ONLY AND DOES NOT IN ANY WAY CONSTITUTE AN OPINION OR REPRESENTATION OF ACTUAL FLOODPLAIN AND/OR FLOODWAY INFORMATION BY PEREIRA ENGINEERING, LLC (PE). PE DOES NOT WARRANT THE ACCURACY OF THIS INFORMATION, AND MAKES NO REPRESENTATIONS UPON WHICH THE CLIENT SHOULD RELY IN CONNECTION WITH THE FLOOD ZONE OF THE SUBJECT PARCEL OR ANY FEMA FLOODPLAIN AND/OR FLOODWAY INFORMATION DEPICTED HEREON.
  - UTILITY INFORMATION DEPICTED HEREON IS APPROXIMATE AND IS BASED ON VISIBLE EVIDENCE OF SURFACE AND OVERHEAD STRUCTURE LOCATIONS AND AS COMPILED FROM EXISTING RECORD MAPPING AVAILABLE DURING THE PREPARATION OF THE SURVEY. ALL CONTRACTORS SHOULD CONTACT "CALL BEFORE YOU DIG" AT (800)922-4455 FOR VERIFICATION OF UTILITY INFORMATION PRIOR TO START OF ANY WORK.

- MAP REFERENCES:**
- "PROPERTY OF THE STATE OF CONNECTICUT; QUARRY ROAD, TRUMBULL ROAD, OLD TOWN ROAD AND WHITE PLAINS ROAD, TRUMBULL, CONNECTICUT; PREPARED FOR THE DEPARTMENT OF ENERGY AND ENVIRONMENT PROTECTION, STATE OF CONNECTICUT"; SCALE: 1"=20'; REVISED TO: DECEMBER 22, 2012; PREPARED BY TOWN OF TRUMBULL ENGINEERING DEPARTMENT.
  - "CONNECTICUT DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, WHITE PLAINS ROAD FROM GENERAL SAMUEL JASKILKA HIGHWAY NORTHERLY TO UNITY ROAD, TRUMBULL, CONNECTICUT; PREPARED FOR CONNECTICUT DEPARTMENT OF TRANSPORTATION, TOWN OF TRUMBULL"; SCALE: 1"=40'; DATED: MARCH 1, 1989; PREPARED BY CONNECTICUT DEPARTMENT OF TRANSPORTATION.
  - "RECORD PLAN CROSS COUNTRY (PUMPING STATION TO ANTHONY PL.) PLAN AND PROFILE TRUMBULL, CONN." VERT. SCALE: 1"=4'; HORIZONTAL SCALE: 1"=40'; DATED: MAY 1970; PREPARED BY: WHITMAN & HOWARD INC.
  - "RIVER ROAD PLAN AND PROFILE OF FORCE MAIN TRUMBULL, CONN." VERT SCALE: 1"=4'; HORIZONTAL SCALE: 1"=40'; DATED: MAY 1970; PREPARED BY: WHITMAN & HOWARD INC."

**LEGEND**

---	PROPERTY LINE	---	CONTOURS
---	RIGHT OF WAY	○	SPOT ELEVATION
---	EASEMENT LINE	○	CONIFEROUS TREE
---	STONE WALL	○	DECIDUOUS TREE
---	STRUCTURE	○	BUSH
---	EDGE OF PAVEMENT	○	CHAIN LINK FENCE
---	TEST BORING	○	WOOD FENCE
---	CATCH BASIN	○	GUIDERAIL
---	STORM MANHOLE	○	LIGHT POLE
---	SANITARY MANHOLE	○	UTILITY POLE
---	WATER	○	HYDRANT
---	GAS	○	WATER VALVE
---	ELECTRIC	○	GAS VALVE
---	TELEPHONE	○	MONUMENT FOUND
---	FIBER OPTIC LINE	○	IRON PIPE OR PIN FOUND
---	OVERHEAD WIRES	○	DRILL HOLE FOUND

MAP / LOT:  
H-11 / 163

DEED REFERENCE:  
VOL 781 / PG 52





**ABBREVIATIONS**

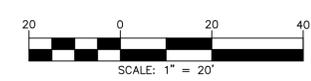
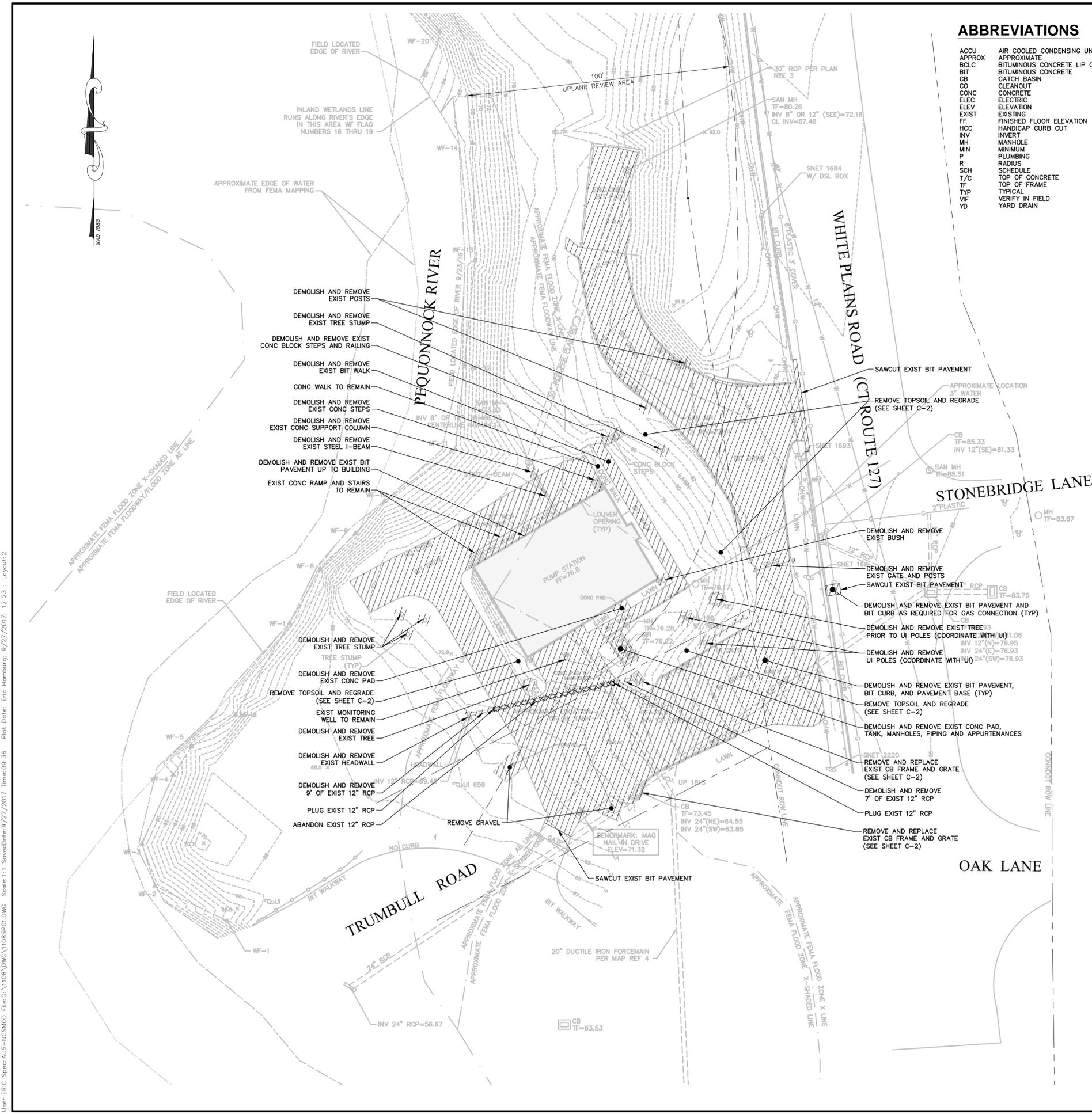
ACCU	AIR COOLED CONDENSING UNIT
BCLC	APPROXIMATE BITUMINOUS CONCRETE LIP CURB
BIT	BITUMINOUS CONCRETE
CB	CATCH BASIN
CO	CLEANOUT
CC	CONCRETE
ELEC	ELECTRIC
ELEV	ELEVATION
EXIST	EXISTING
FF	FINISHED FLOOR ELEVATION
HCC	HANDICAP CURB CUT
INV	INVERT
MH	MANHOLE
MIN	MINIMUM
P	PLUMBING
R	RADIUS
SCH	SCHEDULE
T/C	TOP OF CONCRETE
TF	TOP OF FRAME
TFP	TYPICAL
VF	VERIFY IN FIELD
YD	YARD DRAIN

**GENERAL DEMOLITION NOTES:**

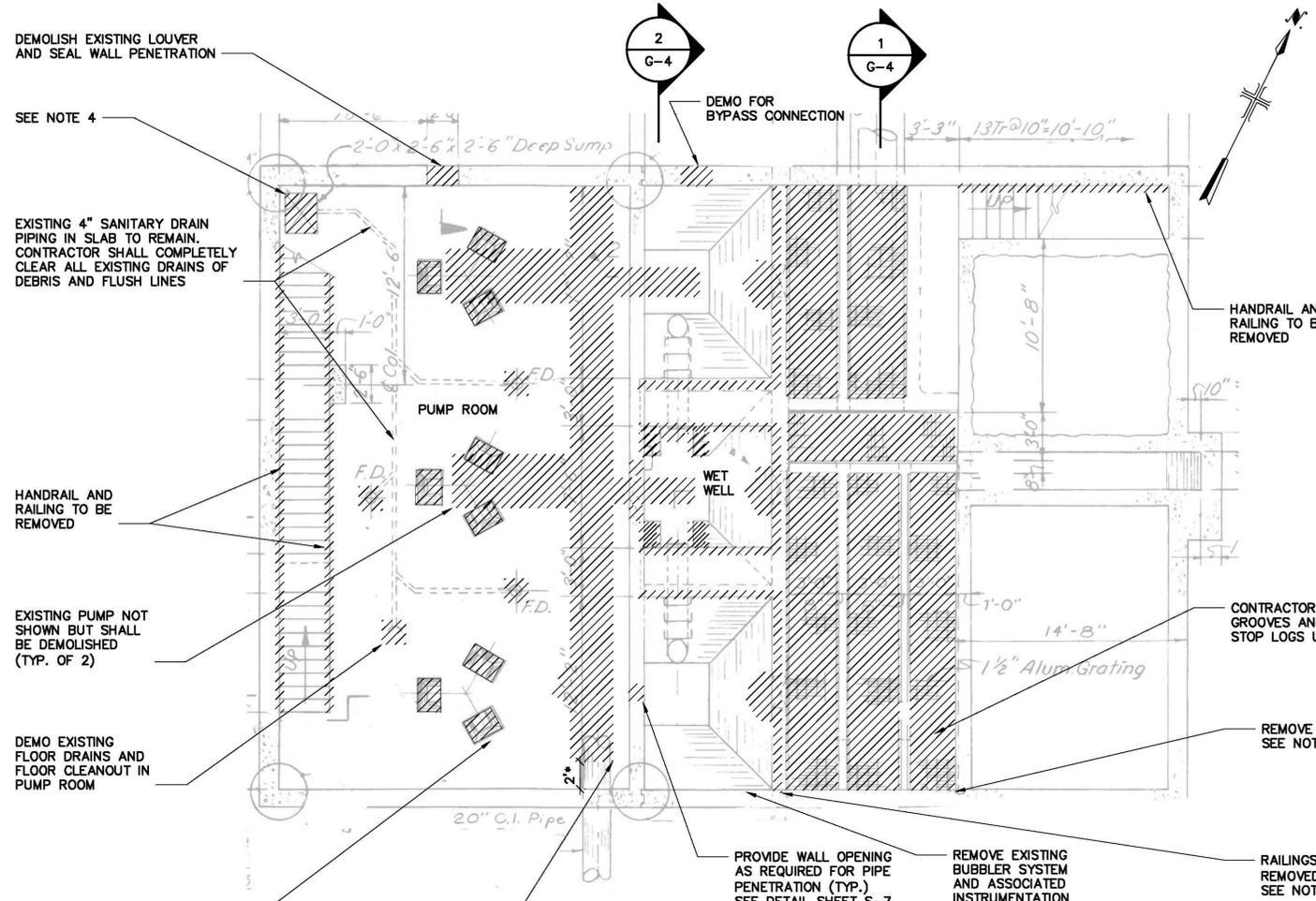
- ALL WORK SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE LOCAL MUNICIPALITY OR IN THE ABSENCE THEREOF TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 817 (LATEST EDITION).
- THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG (CBYD)" LOCATING SERVICE AT 1-(800)-922-4455 AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE START OF CONSTRUCTION IN ORDER TO HAVE ALL UTILITIES LOCATED AND MARKED. CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATING SERVICE (AT HIS OWN EXPENSE) TO VERIFY AND LOCATE ALL UTILITIES THAT CBYD DOES NOT LOCATE. ALL REFERENCES ON DRAWINGS TO "UTILITIES" INCLUDES ALL TYPES OF BUILDING AND SITE SERVICES AS WELL.
- THE CONTRACTOR SHALL LOCATE ALL DRAINAGE INFRASTRUCTURE AND MAINTAIN ADEQUATE STORM DRAINAGE THROUGHOUT CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN THE SAFETY AND PROTECTION OF BOTH PEDESTRIANS AND MOTORISTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE ALL NECESSARY PRECAUTIONARY AND PROTECTIVE MEASURES, INCLUDING, BUT NOT LIMITED TO, SIGNS, LIGHTS, BARRIERS, FENCING, AND TRAFFIC FLAGMEN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL UTILITIES SERVING THE EXISTING BUILDING THAT ARE TO REMAIN.
- THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL EXCESS MATERIAL AND DEMOLITION DEBRIS WITHIN THE PROJECT LIMITS (UNLESS INDICATED TO REMAIN) AT NO ADDITIONAL COST TO OWNER.
- THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND APPURTENANCES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE ENGINEER. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- THE PROPOSED LIMITS OF DEMOLITION SHOWN ARE APPROXIMATE AND MAY VARY BASED ON ACTUAL FIELD CONDITIONS AND CONTRACTOR'S METHODS OF DEMOLITION/CONSTRUCTION. CONTRACTOR SHALL DEMOLISH AND REMOVE ANY AND ALL ITEMS AS REQUIRED TO CONSTRUCT PROPOSED WORK AT NO ADDITIONAL COST TO OWNER.
- DEMOLITION AND ABANDONMENT OF EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH RESPECTIVE UTILITY COMPANY'S REQUIREMENTS AND STANDARDS. CONTRACTOR SHALL COORDINATE DEMOLITION AND ABANDONMENT WITH UTILITY COMPANIES PRIOR TO START OF CONSTRUCTION. UTILITIES SHALL BE CAPPED AT PROPERTY LINES UNLESS OTHERWISE NOTED OR REQUIRED BY UTILITY COMPANIES.
- CONTRACTOR SHALL PROPERLY ABANDON OR DEMOLISH AND REMOVE ANY AND ALL UNEXPECTED UTILITIES DISCOVERED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- EXCAVATION OPERATIONS SHALL BE EXECUTED CAREFULLY AT ALL LOCATIONS ADJACENT TO EXISTING UNDERGROUND UTILITIES AND VAULTS. PROTECTION OF EXISTING UTILITIES WITHIN THE WORK LIMIT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK WILL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
- ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION (OR BETTER) OR AS INDICATED ON THE CONTRACT DRAWINGS.
- ANY DAMAGE TO EXISTING PAVEMENT, CURBS, SIDEWALKS, STRUCTURES OR ANY OTHER APPURTENANCES DURING CONSTRUCTION SHALL BE REPLACED (IN-KIND OR BETTER) BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE. SAW-CUT DAMAGED SECTIONS BACK TO THE NEAREST JOINT WHERE APPROPRIATE AND MATCH EXISTING MATERIALS, THICKNESSES, AND PATTERNS.
- CONTRACTOR SHALL SAW-CUT BITUMINOUS AND CONCRETE SURFACES AT LIMITS OF DEMOLITION AS REQUIRED SO AS TO ACHIEVE A SMOOTH TRANSITION BETWEEN EXISTING SURFACES (TO REMAIN) AND NEW SURFACES. APPLY/INSTALL TACK COATS AND EXPANSION JOINTS AS REQUIRED. ANY EXISTING SURFACES LOCATED DIRECTLY ADJACENT TO THE LIMIT OF DEMOLITION THAT ARE DAMAGED SHALL ALSO BE REPLACED AND INCLUDED IN THE WORK AT NO ADDITIONAL COST TO THE OWNER. THE INTENT IS TO AVOID LEAVING DAMAGED SURFACES LOCATED DIRECTLY ADJACENT TO NEWLY REPLACED WORK.
- TREE REMOVAL INCLUDES REMOVAL OF TREE TRUNK, BRANCHES, LEAVES, AND STUMP. NO STUMPS, BRUSH, BUILDING DEBRIS, OR UNSUITABLE MATERIALS ARE TO BE BURIED ON SITE. REMOVE ALL TREES WITHIN PROJECT LIMITS UNLESS OTHERWISE NOTED.
- ABANDONMENT PROCEDURES FOR EXISTING BURIED TANKS AND VAULTS SHALL BE AS FOLLOWS (UNLESS OTHERWISE REQUIRED): THE CONTRACTOR SHALL PUMP OUT THE EXISTING TANKS AND VAULTS, THEN CRUSH THE TOP AND BOTTOM OF THE STRUCTURES AND BACKFILL AND COMPACT THE EXCAVATION. PIPES FROM THE EXISTING TANKS AND VAULTS SHALL BE CAPPED AND ABANDONED. TANK AND VAULT CONTENTS SHALL BE LEGALLY DISPOSED OF OFF SITE.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY 8 FT. HIGH CHAIN LINK FENCING. THE FENCING SHALL BE DESIGNED TO MAINTAIN SECURITY AND PROVIDE SAFETY FOR THE CONSTRUCTION SITE.
- REFER TO OTHER DRAWINGS, DETAILS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING DEMOLITION.

**LEGEND**

	EXISTING	CONTOURS
	650	SPOT ELEVATION
	671.5	PROPERTY LINE
	X	100' UPLAND REVIEW LINE
		WATERCOURSE
		STRUCTURE
	15" RCP STORM	EDGE OF PAVEMENT
	8" SANITARY	STORM SEWER PIPE
		SANITARY SEWER PIPE
		MANHOLE
		CATCH BASIN
		WATER
		GAS
		SANITARY LATERAL
		UTILITY POLE
		OVERHEAD WIRE
		GUIDERAIL
		DEMOLISH AND REMOVE
		ABANDONED



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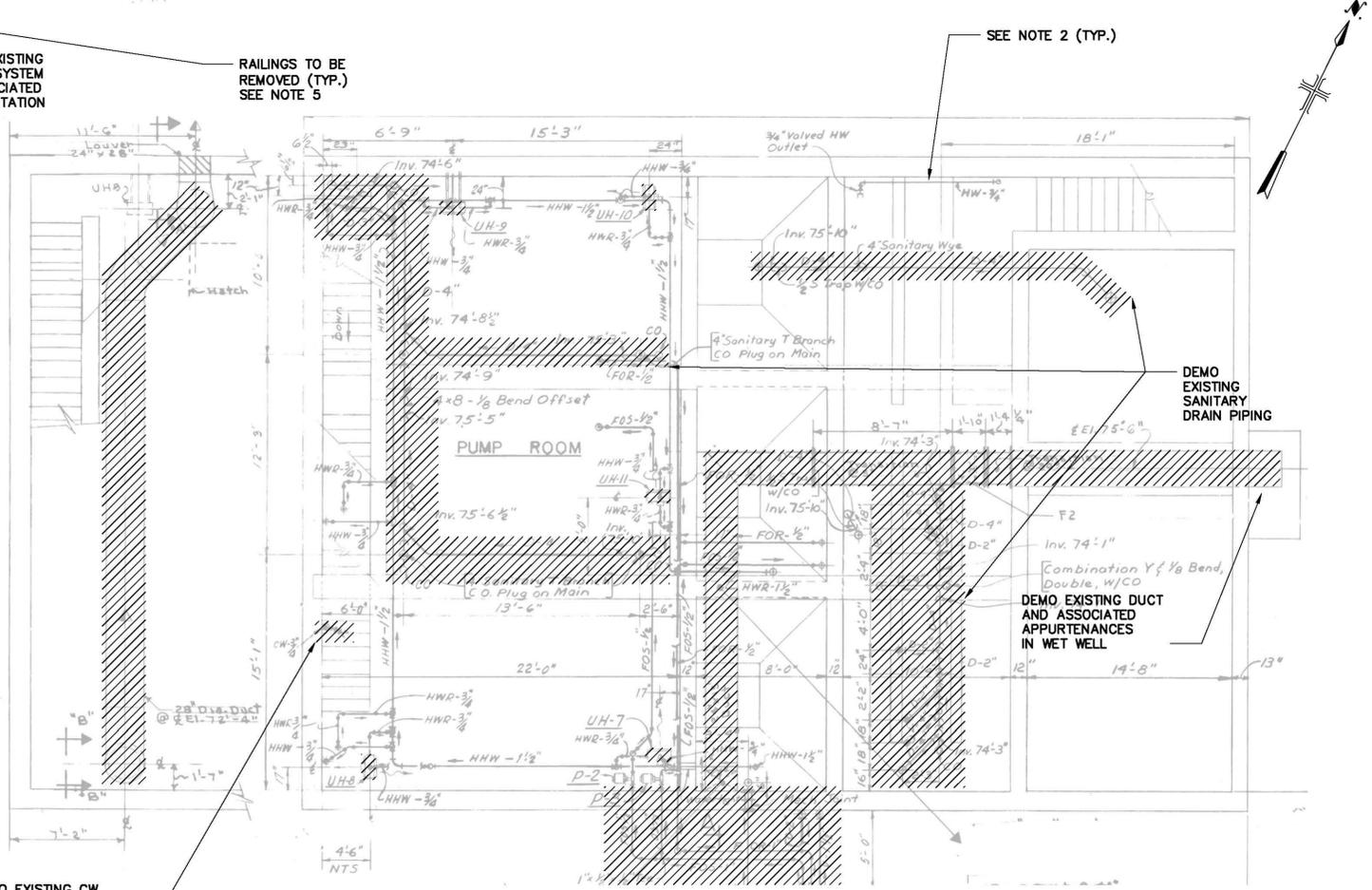


**PUMP ROOM AND WET WELL PLAN (EL. 54.8)**

SCALE 3/16" = 1'-0"



- NOTES:**
- SEE "S" DWGS FOR CONCRETE SURFACE REPAIR DETAILS.
  - DEMOLISH ALL INTERIOR EXPOSED PLUMBING PIPING, VALVES AND EQUIPMENT UNLESS OTHERWISE SHOWN OR NOTED.
  - ALL PIPE HANGERS, SUPPORTS, ETC. SHALL BE DEMOLISHED AND EXISTING STRUCTURE SHALL BE REPAIRED. ALL UNUSED EXISTING FLOOR AND WALL PENETRATIONS SHALL BE REPAIRED. REFERENCE SECTION 01 73 29 CUTTING AND PATCHING.
  - DEMOLISH EXISTING SUMP PUMP, PIPING, VALVES, AND CONTROLS. REPAIR EXISTING SUMP PIT AS REQUIRED TO ACCEPT NEW SUMP PUMP.
  - REMOVAL OF GRATING AND PROVISION OF COVER SYSTEM IS A BID ALTERNATE TO THE CONTRACT. REFER TO SECTION 01 22 13, MEASUREMENT AND PAYMENT. EXISTING GRATING AND RAILING WHERE NOTED TO REMAIN IF ALTERNATE IS NOT AWARDED.
  - A HAZARDOUS ENVIRONMENTAL CONDITION, DESCRIBED IN THE CONTRACT, WILL AFFECT DEMOLITION WORK.
  - \* DENOTES DIMENSION TO BE ADJUSTED AS REQUIRED TO ACCOMMODATE PROPOSED WORK. SEE SHEET M-1 FOR NEW PIPING CONNECTION TO EXISTING.



**PUMP ROOM AND WET WELL CEILING PLAN**

SCALE 3/16" = 1'-0"



User: NPAID, Spec: AUS-NCSMOD, File: \ACAD\PROJ\06532002.0000\SHEETS\GENERAL\G-2.DWG, Scale: 1:1, SavedDate: 9/26/2017, Plot Date: 9/27/2017, 14:54, Layout: G-2



NO.	DATE	ISSUED FOR	BY

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2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: G-3

DESIGNED BY: T. O'CONNELL

DRAWN BY: K. BYRNE

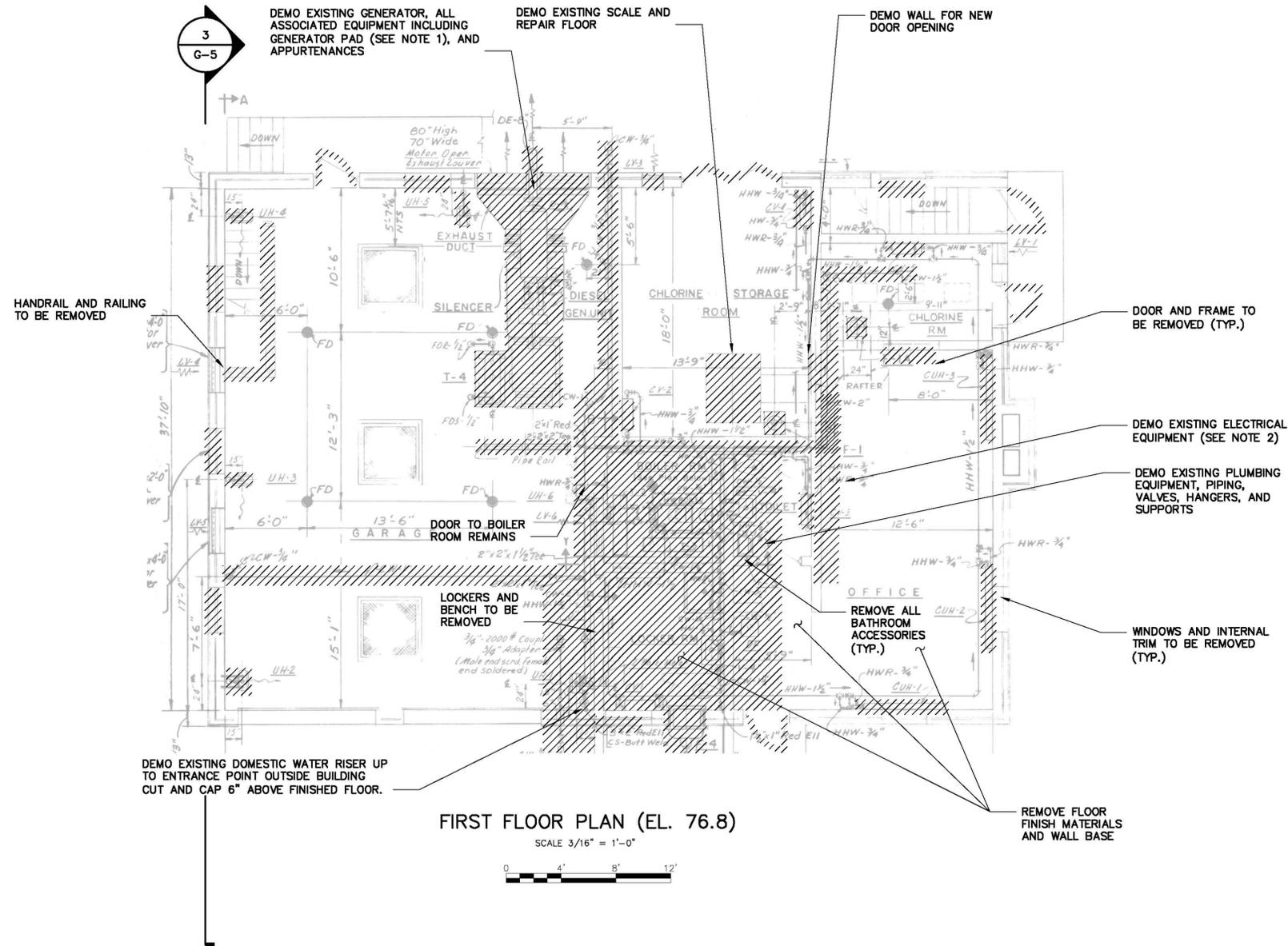
CHECKED BY: V. MCPHERSON

SHEET TITLE

**DEMOLITION FLOOR  
PLANS II**

SCALE:  
AS SHOWN

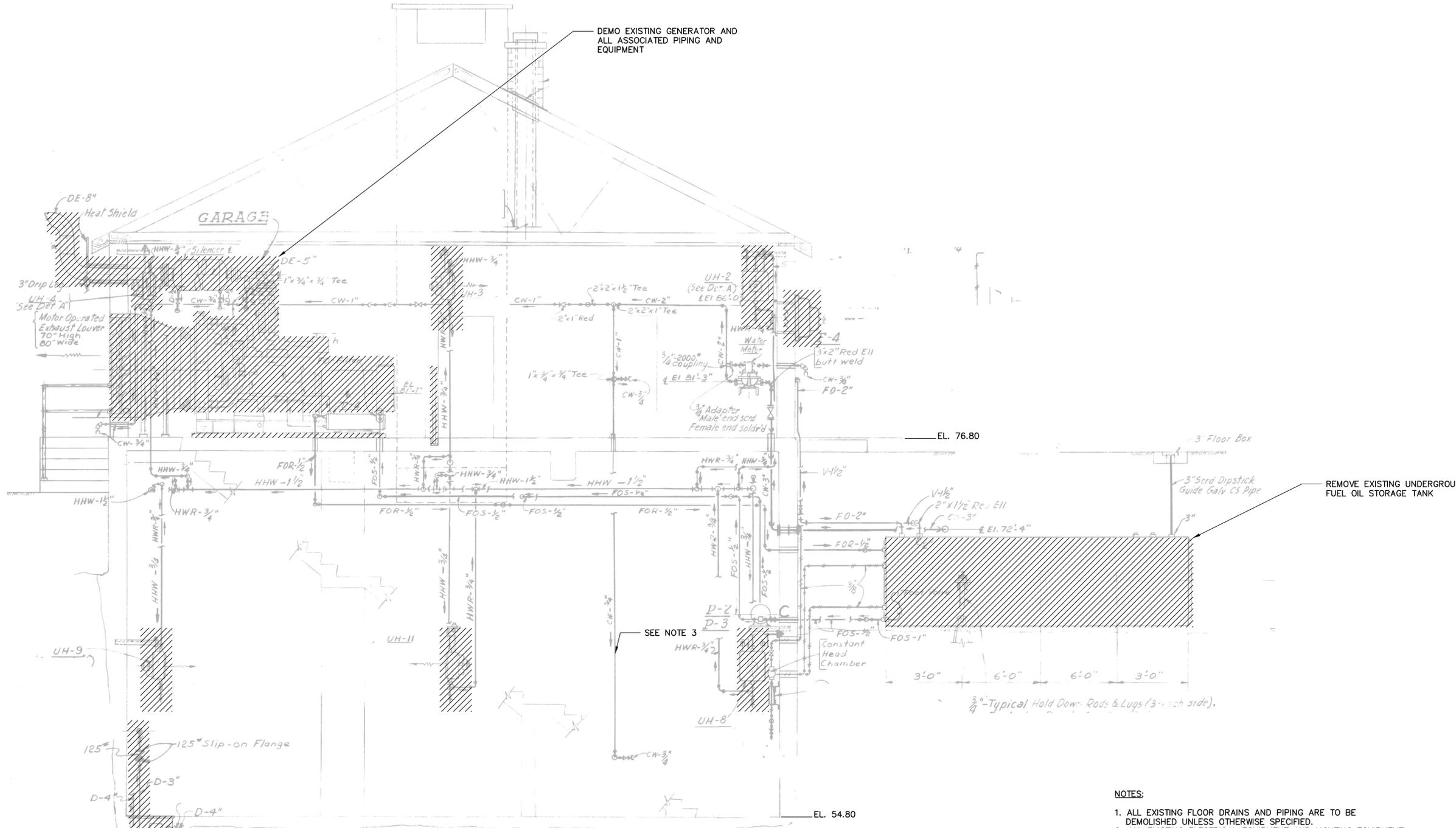
**G-3**  
SHEET 4 OF 69



**NOTES:**

1. SAWCUT 3/4" ALL AROUND. REMOVE EXISTING CONCRETE DOWN TO 2" BELOW TOP OF EXISTING SLAB. SEE S-DWGS FOR REPAIR DETAILS.
2. ALL EXISTING ELECTRICAL EQUIPMENT AND LIGHTING EQUIPMENT IS TO BE DEMOLISHED UNLESS OTHERWISE SPECIFIED.
3. DEMOLISH ALL INTERIOR PLUMBING PIPING, VALVES, AND EQUIPMENT UNLESS OTHERWISE SHOWN OR NOTED.
4. ALL PIPE HANGERS, SUPPORTS, ETC. SHALL BE DEMOLISHED AND EXISTING STRUCTURE SHALL BE REPAIRED. ALL UNUSED EXISTING FLOOR AND WALL PENETRATIONS SHALL BE REPAIRED. REFERENCE SECTION 01 73 29 CUTTING AND PATCHING.
5. REMOVE EXISTING DOMESTIC WATER HEATER AND ASSOCIATED PIPING, VALVES, AND APPURTENANCES.
6. REMOVE ALL EXISTING PLUMBING FIXTURES AND TRIM.
7. REMOVE ALL EXTERIOR HOSE BIBBS AND WALL HYDRANTS. PENETRATIONS SHALL BE MODIFIED TO ACCEPT NEW FIXTURES OR REPAIRED TO NEW CONDITION (REFER TO PLUMBING DRAWINGS FOR LOCATIONS OF NEW EQUIPMENT).
8. A HAZARDOUS ENVIRONMENTAL CONDITION, DESCRIBED IN THE CONTRACT, WILL AFFECT DEMOLITION WORK.





DEMO EXISTING GENERATOR AND ALL ASSOCIATED PIPING AND EQUIPMENT

REMOVE EXISTING UNDERGROUND FUEL OIL STORAGE TANK

DEMO EXISTING SUMP PUMP, COVER, AND ASSOCIATED PIPING, VALVES, AND CONTROLS

- NOTES:**
1. ALL EXISTING FLOOR DRAINS AND PIPING ARE TO BE DEMOLISHED UNLESS OTHERWISE SPECIFIED.
  2. ALL EXISTING ELECTRICAL EQUIPMENT AND LIGHTING EQUIPMENT IS TO BE DEMOLISHED UNLESS OTHERWISE SPECIFIED.
  3. DEMOLISH ALL INTERIOR EXPOSED PLUMBING PIPING, VALVES AND EQUIPMENT UNLESS OTHERWISE SHOWN OR NOTED.

**3 SECTION**  
G-03 1/4" = 1'-0"



User: N8AID Spec: AUS-NCSMCD File: I:\ACAD\PROJ\06532002.0000\SHEETS\GENERAL\G-5.DWG Scale: 1/4" = 1'-0" Plot Date: 9/27/2017 Time: 12:11 PM Plot Date: 9/26/2017 Time: 14:56 Layout: G-5









TOWN OF TRUMBULL,  
CONNECTICUT

BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE

ARCADIS PROJ. NO. 06532002.0000

NO.	DATE	ISSUED FOR	BY

COPYRIGHT: ARCADIS U.S., INC.  
2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: 1108DT01

DESIGNED BY: K. BUDA

DRAWN BY: E. HOMBURG

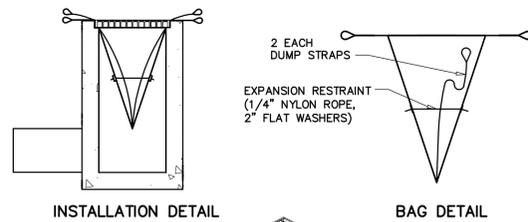
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SHEET TITLE

**SOIL EROSION AND  
SEDIMENT CONTROL  
DETAILS**

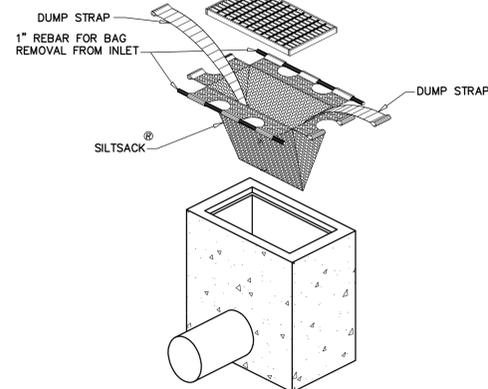
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**C-4**  
SHEET 10 OF 69



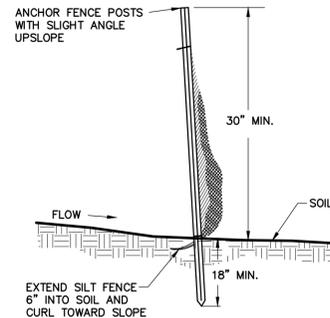
INSTALLATION DETAIL

BAG DETAIL



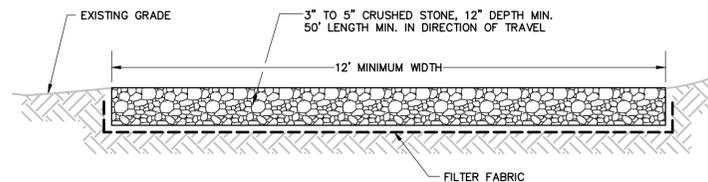
SILTSACK DETAIL

NOT TO SCALE



GEOTEXTILE SILT FENCE

NOT TO SCALE

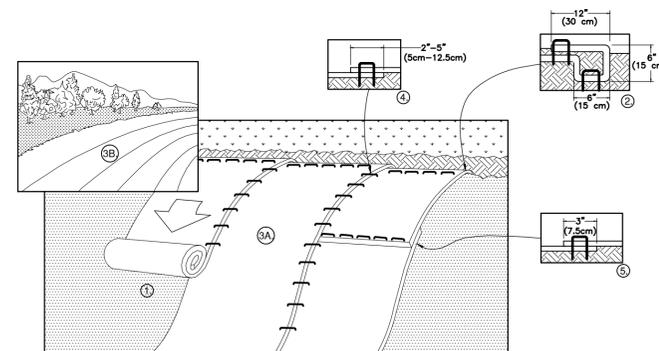


CONSTRUCTION ENTRANCE

NOT TO SCALE



THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC REPLACEMENT OF STONE AND/OR ADDITIONAL APRON LENGTH. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF WAY MUST BE REMOVED IMMEDIATELY.



EROSION CONTROL BLANKET DETAIL

(FOR USE ON VEGETATED SLOPES UP TO 2H:1V)

NOT TO SCALE



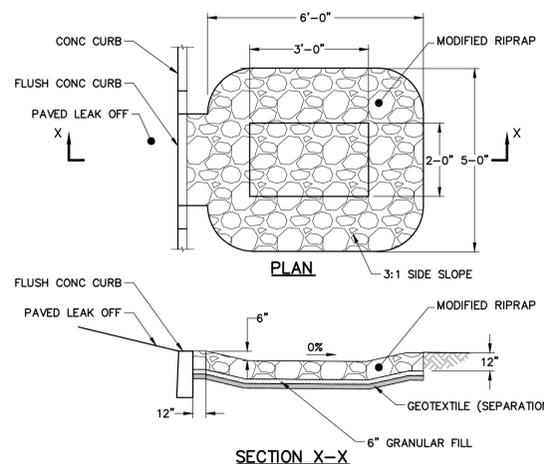
- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
- SPECIFICATION: THE EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 100% AGRICULTURAL STRAW MATRIX WITH A FUNCTIONAL LONGEVITY OF APPROXIMATELY 12 MONTHS. (NOTE: FUNCTIONAL LONGEVITY MAY VARY DEPENDING UPON CLIMATIC CONDITIONS, SOIL, GEOGRAPHIC LOCATION, AND ELEVATION).

THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP AND BOTTOM SIDES WITH LIGHTWEIGHT PHOTODEGRADABLE SEWN TOGETHER ON 1.50 INCH (3.81 CM) CENTERS (50 STICHES PER ROLL WIDTH) WITH DEGRADABLE THREAD.

INSTALLATION STAPLE PATTERNS SHALL BE CLEARLY MARKED ON THE EROSION CONTROL BLANKET WITH ENVIRONMENTALLY SAFE PAINT. THE BLANKET SHALL BE MANUFACTURED WITH A COLORED LINE OR THREAD STITCHED ALONG BOTH OUTER EDGES (APPROXIMATELY 2-5 INCHES [5-12.5 CM] FROM THE EDGE) TO ENSURE PROPER MATERIAL OVERLAPPING.

THE STRAW EROSION CONTROL BLANKET SHALL BE MODEL S150 AS MANUFACTURED BY NORTH AMERICAN GREEN, OR EQUIVALENT. (LOCAL DISTRIBUTOR: CONSTRUCTION MATERIALS (203) 335-1873)

NOTE:  
\*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.



RIPRAP OUTLET PROTECTION

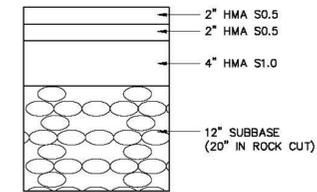
NOT TO SCALE











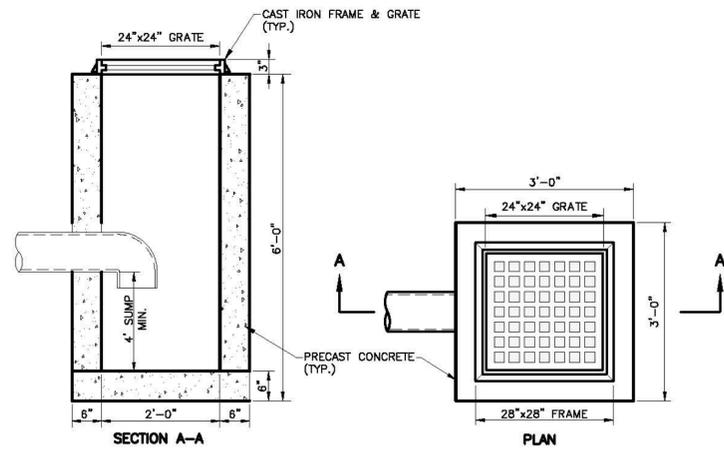
**CT DOT PAVEMENT STRUCTURE 3**  
NOT TO SCALE

NOTICE TO CONTRACTOR - SUPERPAVE DESIGN LEVEL INFORMATION

HOT-MIX ASPHALT (HMA) CONSTRUCTED ACCORDING TO THE SUPERPAVE MIX-DESIGN SYSTEM IS REQUIRED TO ATTAIN A SUPERPAVE DESIGN LEVEL AND IS REQUIRED TO USE A PERFORMANCE GRADED (PG) BINDER. THE SUPERPAVE DESIGN LEVEL REQUIRED FOR THIS PROJECT IS LISTED IN TABLE 1. THE REQUIRED PG BINDER IS INDICATED FOR EACH MIX WITH AN "X" IN THE APPROPRIATE BOX IN TABLE 1.

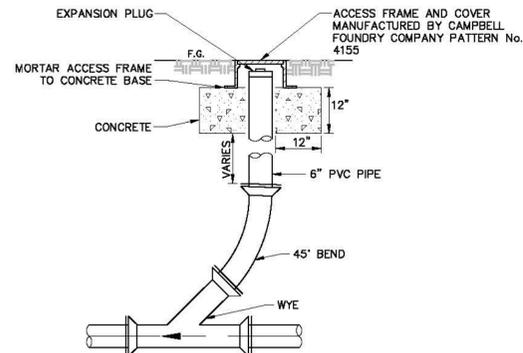
TABLE 1 - SUPERPAVE DESIGN LEVEL AND PERFORMANCE GRADED (PG) BINDER

MIX DESIGNATION	PG BINDER	ROUTE 127 DESIGN LEVEL	ROUTE - DESIGN LEVEL	ROUTE - DESIGN LEVEL
HMA S0.25	X	2	-	-
HMA S0.375	X	2	-	-
HMA S0.5	X	2	-	-
HMA S1	X	2	-	-

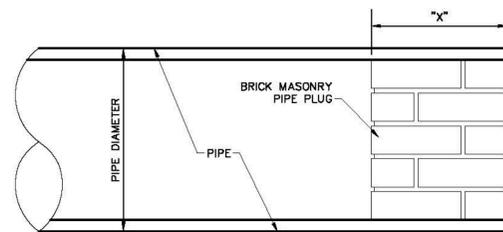


NOTE:  
YARD DRAIN TO BE AS MANUFACTURED BY CONNECTICUT PRECAST CORP., MONROE, CT OR EQUIVALENT.

**YARD DRAIN**  
NOT TO SCALE

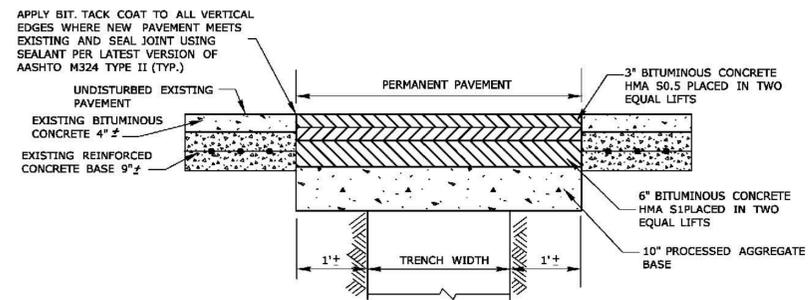


**CLEANOUT**  
NOT TO SCALE



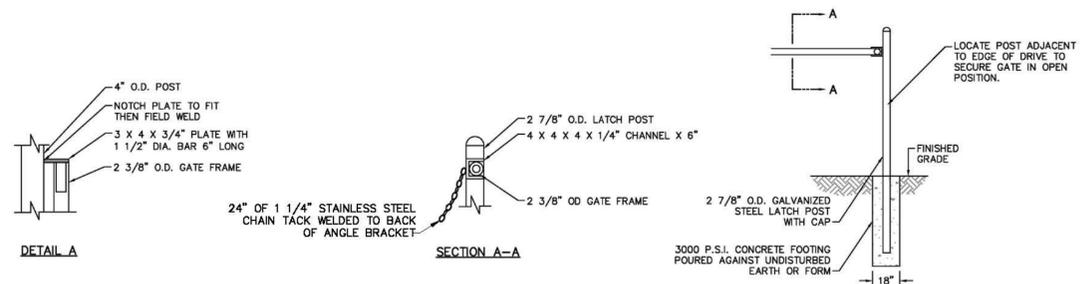
NOTE:  
X=12" (FOR PIPE DIAMETER <=12")  
X=18" (FOR PIPE DIAMETER >12" & <48")  
X=24" (FOR PIPE DIAMETER >=48")

**PIPE PLUG DETAIL**  
NOT TO SCALE

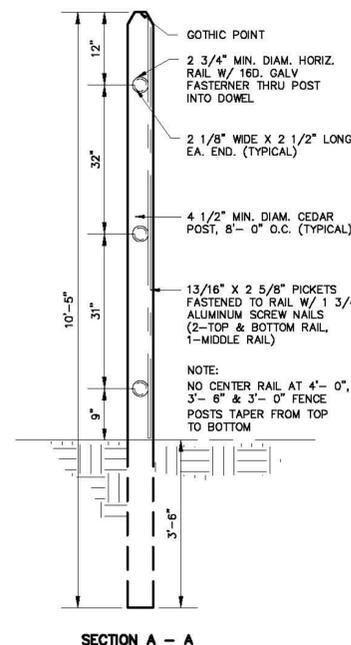


**PERMANENT PAVEMENT TRENCH DETAIL  
TRENCH PARALLEL TO EDGE OF PAVEMENT**

**CONDOT PAVEMENT REPAIR**  
NOT TO SCALE

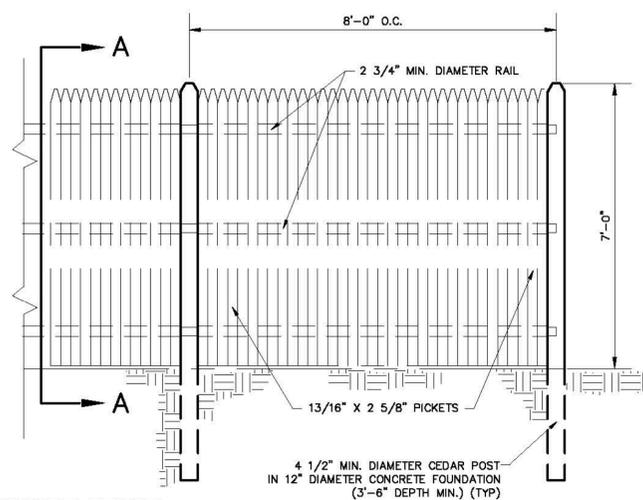


**STEEL PIPE DOUBLE LEAF SWING GATE**  
NOT TO SCALE



NOTE:  
1. ALL FENCING MATERIAL SHALL BE PRESSURE TREATED NORTHERN WHITE TYPE CEDAR ACQ, SAWN TO THE DIMENSIONS SHOWN ON THE DRAWING.  
2. ALL FENCE POSTS SHALL BE STAINED AND SEALED AS DIRECTED BY THE CLIENT.  
3. POSTS SHALL MAINTAIN A DEPTH OF 3'-6" IN GROUND AND SHALL BE RACKED TO ACCOMMODATE ANY CHANGES IN GRADE.  
4. LINE OF FENCE TOP & BOTTOM SHALL BE INSTALLED STRAIGHT AND TRUE. ALL POSTS AND FACING BOARDS OR SLATS SHALL BE INSTALLED PARALLEL AND PLUMB. ALL RAILS SHALL BE INSTALLED PARALLEL AND TRUE.  
5. POSTS SHALL BE EMBEDDED IN CONCRETE FOOTINGS (12" DIAM. X 42" DEEP, MIN.)

**STOCKADE FENCE**  
NOT TO SCALE







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ENERGY EFFICIENCY: (IECC 2012 AS MODIFIED BY THE STATE OF CONNECTICUT)		
CLIMATE ZONE (CHAPTER 3)	5	MOIST-(A)
BUILDING ENVELOPE REQUIREMENTS (TABLE C402.2 or ALT C402.1.2)		BEARDSLEY PUMP STATION
ROOF ASSEMBLIES:		
INSULATION ENTIRELY ABOVE DECK	R-25ci / U-0.039	R-30CI / U-0.032
METAL BUILDING	R-19+R-11 Ls / U-0.035	NA
ATTIC AND OTHER - WOOD FRAMING	R-38 / U-0.027	NA
ATTIC AND OTHER - STEEL FRAMING	R-38 / U-0.027	NA
WALLS BELOW GRADE:		
BELOW-GRADE WALL	R-7.5ci / C-0.119	R-7.5CI / C-0.119
WALLS ABOVE GRADE:		
MASS	R-11.4ci / U-0.078	R-95CI / U0.104
METAL BUILDING	R-13+R-13ci / U-0.058	NA
METAL FRAMED	R-13+R-7.5ci / U-0.064	NA
WOOD-FRAMED AND OTHER	R-13+R-3.8ci OR R-20/ U-0.064	NA
FLOORS OVER OUTDOOR AIR OR UNCONDITIONED SPACE:		
MASS	R-10ci / U-0.074	NA
JOIST/ FRAMING	R-30 / U-0.033	NA
OPAQUE DOORS (< 50% GLASS):		
SWINGING	U-0.37	U-0.20
ROLL-UP OR SLIDING	R-4.75	R-9.09
SLAB ON GRADE FLOORS:		
UNHEATED	R-10.24 IN / F-0.54	R-15.24 IN / F-0.520
HEATED (FOR 36 INCHES)	R-15: / F-0.58	NA
FENESTRATION BUILDING ENVELOPE REQUIREMENTS (TABLE 402.3)		
BUILDING WINDOW AND GLAZED PERCENTAGE	30%	BEARDSLEY PUMP STATION: LESS THAN 30%
FRAMING MATERIALS OTHER THAN METAL WITH OR WITHOUT METAL REINFORCEMENT OR CLADDING:		
U-FACTOR	0.32	NA
FENESTRATION:		
FIXED FENESTRATION U-FACTOR	0.38	NA
OPERABLE FENESTRATION U-FACTOR	0.45	NA
ENTRANCE DOORS U-FACTOR	0.77	NA
SHGC - ALL FRAME TYPES:		
SHGC: PF < 0.25	0.25	NA
SHGC: 0.25 PF < 0.5	0.33	NA
SHGC: PF 0.5	0.4	NA
SKYLIGHTS (3% MAXIMUM):		
SHGC	0.4	NA
AIR LEAKAGE (TABLE C402.4.3)		
WALL ASSEMBLIES (C402.4.1.2.2)	MAX 0.04 CFM/SF at 0.3 INCHES W.G.	COMPLY
BUILDING TEST REQUIRED (C402.4.1.2.3)	MAX 0.40 CFM/SF at 0.3 INCHES W.G.	COMPLY
LOUVER DAMPERS (C402.4.5)	MAX 4.00 CFM/SF at 1.0 INCHES W.G.	COMPLY
MAX AIR INFILTRATION RATES		
WINDOW, SLIDING DOOR ASSEMBLIES	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
SWINGING DOORS	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
SKYLIGHTS - WITH CONDESATION WEEPAGE OPENINGS	MAX 0.30 CFM/SF	NA
SKYLIGHTS - ALL OTHER	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
CURTAIN WALLS	MAX 0.06 CFM/SF	NA
STOREFRONT GLAZING	MAX 0.06 CFM/SF	NA
COMMERCIAL GLAZED SWINGING ENTRANCE DOORS	MAX 1.00 CFM/SF	NA
REVOLVING DOORS	MAX 1.00 CFM/SF	NA
GARAGE DOOR	MAX 0.40 CFM/SF	NR
ROLLING DOOR	MAX 1.00 CFM/SF	NA
NR - NOT REQUIRED; NA - NOT APPLICABLE		

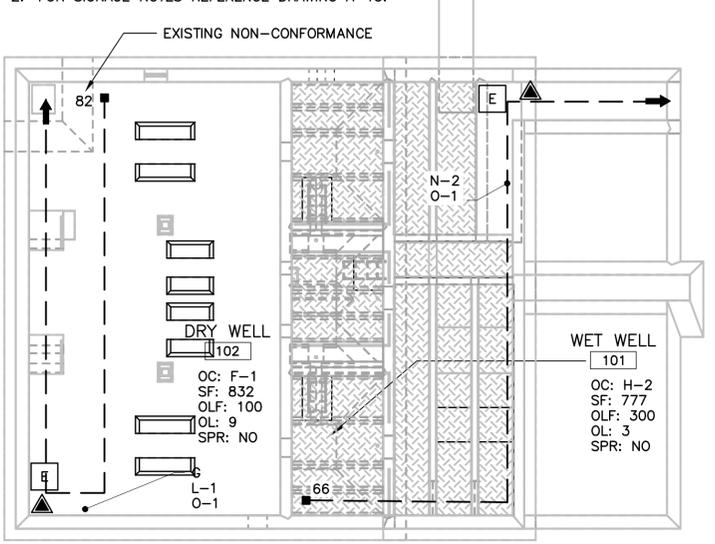
**VENTILATION NOTES:**  
 CONTINUOUS VENTILATION RATES: AIR CHANGES PER HOUR  
 1. GARAGE, ELECTRICAL ROOM, AND OFFICE: NA, SEASONAL.  
 2. DRY WELL: 6.  
 3. WET WELL: 6/30.

BUILDING CODE CHART: (IBC 2012 AS MODIFIED BY THE STATE OF CONNECTICUT)		
NFPA 820 CLASSIFICATION		BEARDSLEY PUMP STATION
BUILDING (MAIN) OCCUPANCY (CHAPTER 3)		F-1
MIXED USE FACILITY/ACCESSORY	YES	
ROOM OCCUPANCY/ SEPARATION RATING	H-2 TO F-1	3 HRS
CONSTRUCTION CLASSIFICATION (CHAPTER 6)		
NUMBER OF STORIES	ALLOWABLE	ACTUAL
	3	1
BUILDING HEIGHT	ALLOWABLE	ACTUAL
	55	20'-5"
ALLOWABLE AREA PER FLOOR	ALLOWABLE	ACTUAL
	18,000	2,080
FIRE SEPARATION DISTANCE RATINGS (TABLE 602):		
	REQUIRED	PROVIDED
DISTANCE LESS THAN 5'	1	NA
DISTANCE BETWEEN 5' & 10'	1	NA
DISTANCE BETWEEN 10' & 30'	1	NA
DISTANCE MORE THAN 30'	0	NA
FIRE RESISTANCE RATING REQ'TS FOR BLDG ELEMENTS (TABLE 601):		
	REQUIRED	PROVIDED
PRIMARY STRUCTURAL FRAMING	0	0
BEARING WALLS - EXTERIOR	2	2
BEARING WALLS - INTERIOR	0	0
NON BEARING WALLS - EXTERIOR	SEE FIRE SEPARATION DISTANCE RATINGS	
NON BEARING WALLS - INTERIOR	0	0
FLOOR CONSTRUCTION	0	0
ROOF CONSTRUCTION	0	0
INTERIOR FINISHES (TABLE 803.11) :		
VERTICAL EXITS AND EXIT PASSAGEWAYS	B	B
EXIT ACCESS CORRIDORS & OTHER EXITWAYS	C	C
ROOMS AND ENCLOSED SPACES	C	C
FIRE PROTECTION SYSTEMS (CHAPTER 9):		
	REQUIRED	PROVIDED
AUTOMATIC SPRINKLER SYSTEMS (SECTION 903)	NO	NO
ALT. AUTOMATIC FIRE-EXTINGUISHING SYSTEMS (SECTION 904)	NO	NO
STANDPIPE SYSTEMS (SECTION 905)	NO	NO
PORTABLE FIRE EXTINGUISHERS (SECTION 906)	YES	YES
FIRE ALARM AND DETECTION SYSTEMS (SECTION 907)	NO	NO
EMERGENCY ALARM SYSTEMS (SECTION 908)	YES IN H-2	YES IN H-2
EMERGENCY RESPONDER SAFETY FEATURES (SECTION 914)	NA	NA
MEANS OF EGRESS (CHAPTER 10):		
	REQUIRED/ ALLOWABLE	PROVIDED
OCCUPANT LOAD CHART (TABLE 1004.1.2)	REFERENCE CODE COMPLIANCE PLAN	
EGRESS WIDTH PER OCCUPANT LOAD - STAIRWAYS (SECTION 1005.3)	36 INCHES REQ'D MIN.	36 INCHES
EGRESS WIDTH PER OCCUPANT LOAD - OTHER COMPONENTS (SECTION 1005.3)	36 INCHES REQ'D MIN.	36 INCHES
STORIES WITH ONE MEANS OF EGRESS (TABLE 1021.2)	F OCCUP. MAX LOAD 23, TRAVEL DISTANCE 75- FEET (H-2 OCCUPANCY, MAX LOAD 4, TRAVEL DISTANCE 25- FEET, EXIST'G NON-CONFORMING)	
SPACES WITH ONE MEANS OF EGRESS (TABLE 1015.1)	F OCCUPANCY MAX OCCUPANT LOAD 23 (H-2 OCCUPANCY, MAX LOAD 4, EXIST'G NON-CONFORMING)	
EXIT ACCESS TRAVEL DISTANCE	REFERENCE CODE COMPLIANCE PLAN	
CORRIDOR FIRE-RESISTANCE RATING	1	1
ACCESSIBILITY (ANSI/ ADAAG):		
	REQUIRED	PROVIDED
CONSTRUCTION SITES	NO	EXEMPT 1103.2.6
ACCESSIBLE ROUTE	NO	EXEMPT 1104

ACCESSIBLE ENTRANCE	YES	EXEMPT 1103.2.9
EQUIPMENT SPACES AND PUMP STATIONS	NO	EXEMPT 1103.2.9
PARKING	YES	EXEMPT 1103.2.9
SIGNAGE	NA	YES

DISC.	GENERAL CODE CRITERIA	
	PROJECT CODES	GENERAL
A/S	ADMINISTRATIVE CODE	2016 CONNECTICUT STATE BUILDING CODE
A/S	BUILDING CODE	2016 CONNECTICUT STATE BUILDING CODE (2012 IBC)
H/A	FIRE CODE	2016 CONNECTICUT STATE FIRE SAFETY CODE (2012 IFC)
H	PLUMBING CODE	2016 CONNECTICUT PLUMBING CODE (2012 IPC)
H	MECHANICAL CODE	2016 CONNECTICUT MECHANICAL CODE (2012 IMC)
E	ELECTRICAL CODE	2016 CONNECTICUT STATE BUILDING CODE (NFPA 70-2014, NEC)
A	ENERGY CODE	2016 CONNECTICUT ENERGY CONSERVATION CODE (2012 IEC)
A/S	EXISTING BUILDING CODE	2016 CONNECTICUT BUILDING CODE (2012 IEBC)
A/S	ACCESSIBILITY	2016 CONNECTICUT BUILDING CODE (2009 ICC/ANSI A117.1)
A/S	FUEL GAS	2016 CONNECTICUT STATE BUILDING CODE (NFPA 2, 54 & 58)
SITE		
S	SOIL CLASSIFICATION (SITE CLASS)	D
S	WIND SPEED	135 MPH
S	WIND EXPOSURE	B
S	SPECTRAL RESPONSE ACCELERATION COEFFICIENT	Ss=20.6%, S1=6.5%
S	NON STRUCTURAL COMPONENT SEISMIC DESIGN REQUIRED	NO
BUILDING/STRUCTURE NAME		
BEARDSLEY PUMP STATION		
A	OCCUPANCY OF BUILDING	F-1
A	CONSTRUCTION TYPE	III-B
A	NUMBER OF STORIES	1
A	BUILDING HEIGHT	Existing/Unchanged 20'-5"
A	FLOOR AREA	Existing/Unchanged 4,108 SF
S	WIND PRESSURE (COMPONENTS AND CLADDING)	35 PSF
S	OCCUPANCY CATEGORY	III
S	SEISMIC DESIGN CATEGORY	B

- NOTES:**  
 1. FOR BUILDING CODE CHART REFERENCE THIS DRAWING.  
 2. FOR SIGNAGE NOTES REFERENCE DRAWING A-13.



**BASE'T CODE/SIGNAGE PLAN-EL. 67.47**  
 SCALE: 1/8" = 1'-0"

LEGEND FOR CODE & SIGNAGE PLANS	
## →	INDICATES DIRECTION OF EGRESS PATH ## IS DISTANCE IN FEET TO EXIT FROM SQUARE DOT TO ARROW
SF	SQUARE FEET
OLF	OCCUPANT LOAD FACTOR
OL	OCCUPANT LOAD
SPR	SPRINKLER
NA	NOT APPLICABLE
E	EXIT SIGN LOCATION
◆	INDICATES 1 HOUR FIRE RATING
◆◆◆	INDICATES 3 HOUR FIRE RATING
▲	FIRE EXTINGUISHER, MULTI-PURPOSE DRY CHEMICAL WALL MOUNTED
▲	CARBON DIOXIDE FIRE EXTINGUISHER, MULTI-PURPOSE DRY CHEMICAL WALL MOUNTED
C-2	SIGN TYPE, REFER TO SHEET A-12

LEGAL ENTITY:  
ARCADIS U.S., INC.

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CONSULTANTS

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SEALS

**TOWN OF TRUMBULL, CT  
WPCA**

**BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE**

ARCADIS PROJ. NO. 06532002.0000

NO.	DATE	ISSUED FOR	BY

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DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: A-2

DESIGNED BY: R. BELLO

DRAWN BY: R. BRIDGE

CHECKED BY: E. DAWKINS

SHEET TITLE

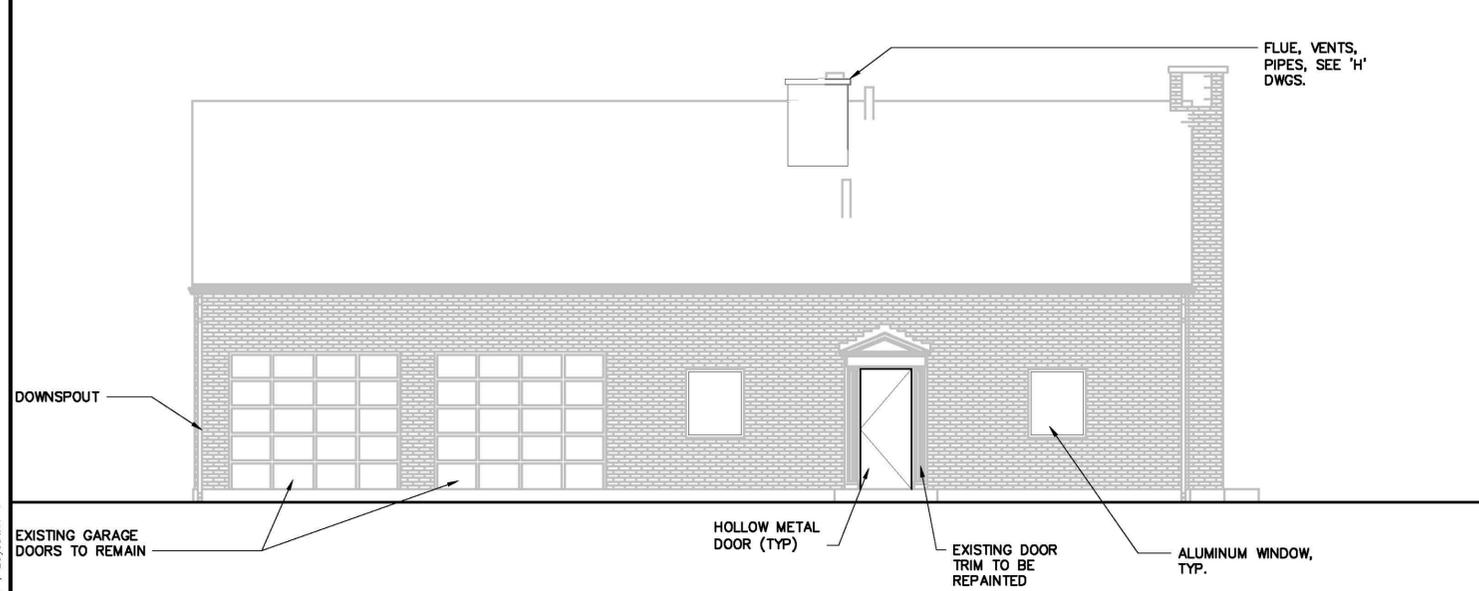
**CODE DATA AND CODE PLAN**

SCALE: 1/8" = 1'-0"

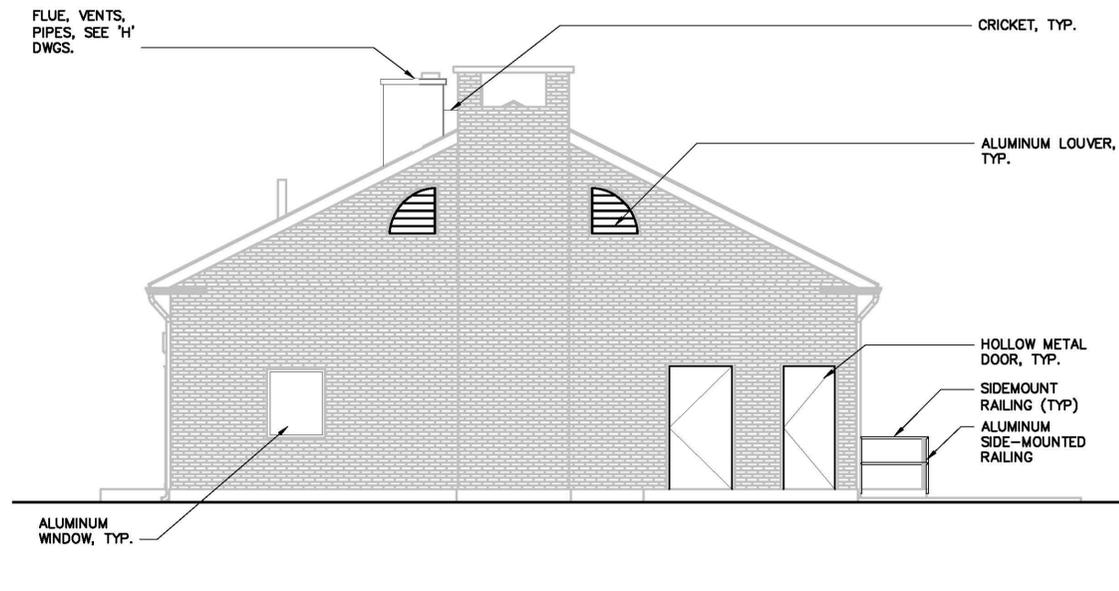
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SHEET 17 OF 69

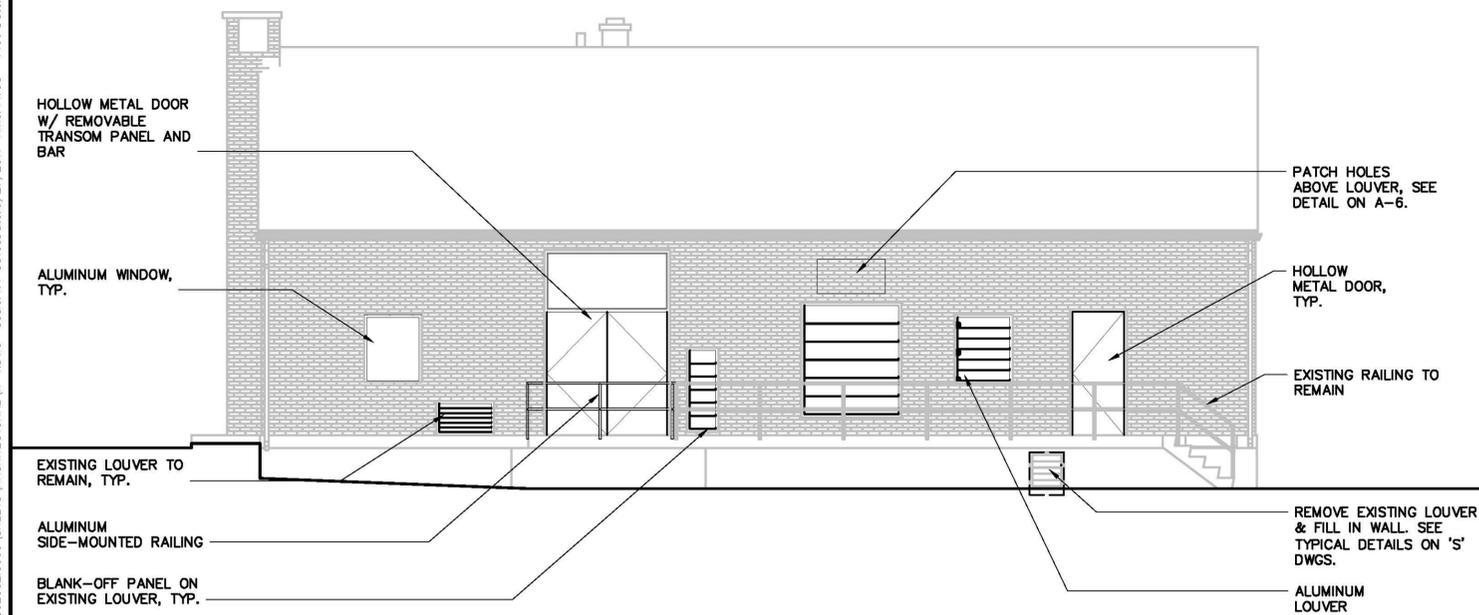




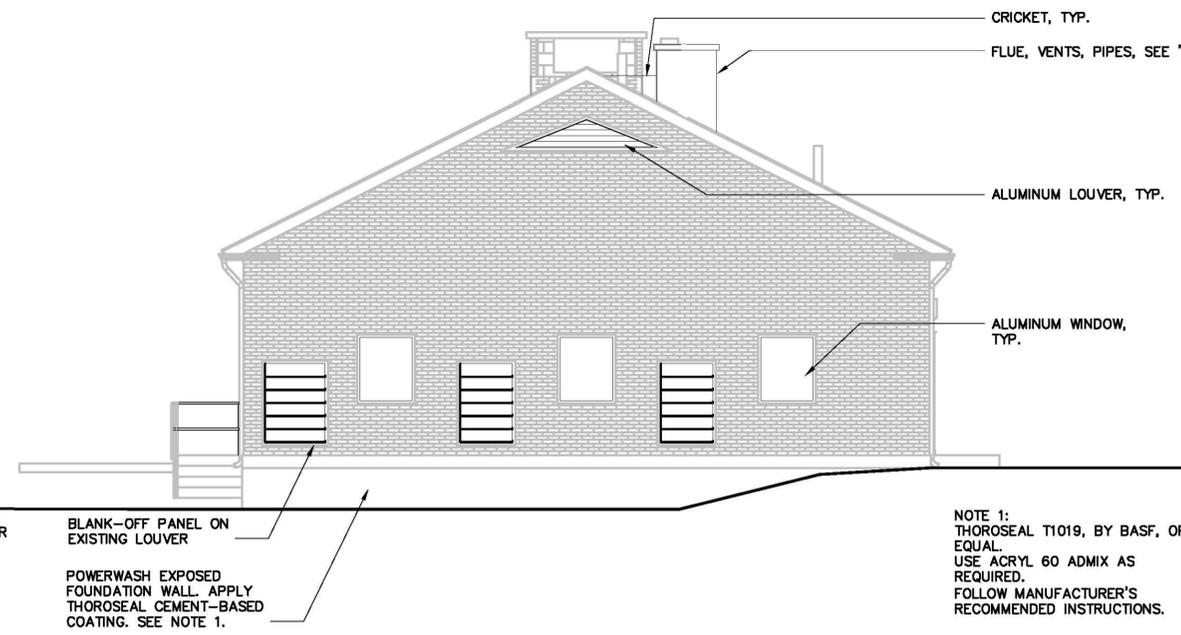
**1 SOUTH ELEVATION**  
A-04 SCALE: 3/16" = 1'-0" 0 4' 8' 12'



**2 EAST ELEVATION**  
A-04 SCALE: 3/16" = 1'-0" 0 4' 8' 12'



**3 NORTH ELEVATION**  
A-04 SCALE: 3/16" = 1'-0" 0 4' 8' 12'



**4 WEST ELEVATION**  
A-04 SCALE: 3/16" = 1'-0" 0 4' 8' 12'

NOTE 1:  
THOROSEAL T1019, BY BASF, OR EQUAL.  
USE ACRYL 60 ADMIX AS REQUIRED.  
FOLLOW MANUFACTURER'S RECOMMENDED INSTRUCTIONS.

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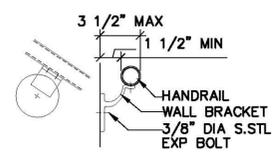
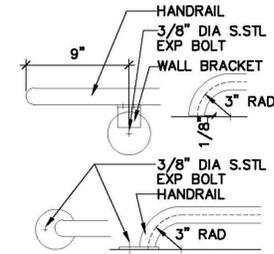
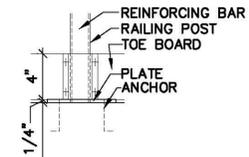
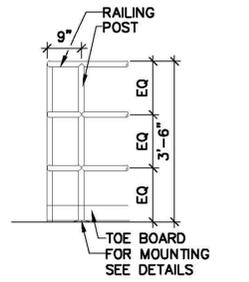
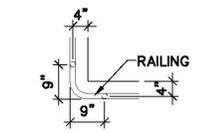
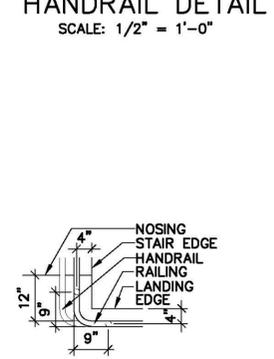
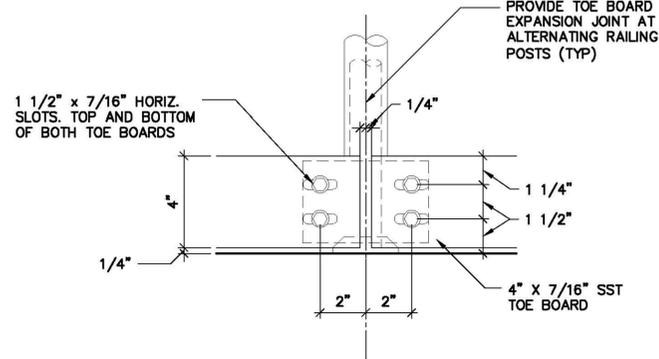
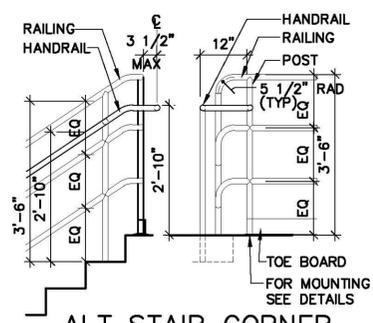
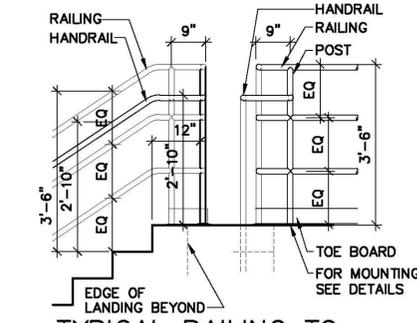
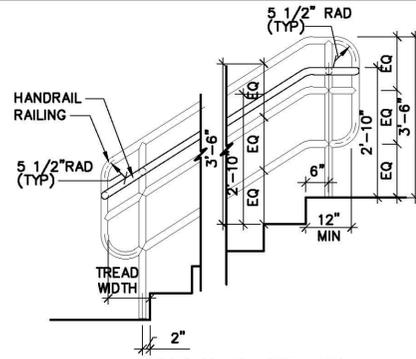
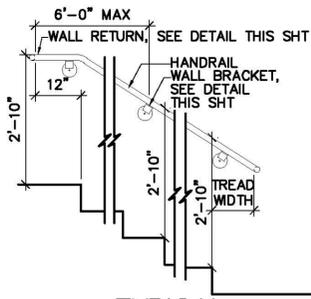
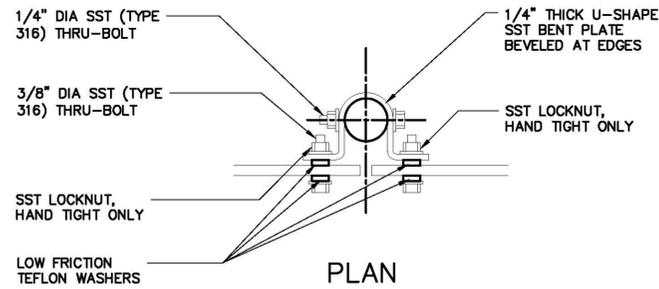




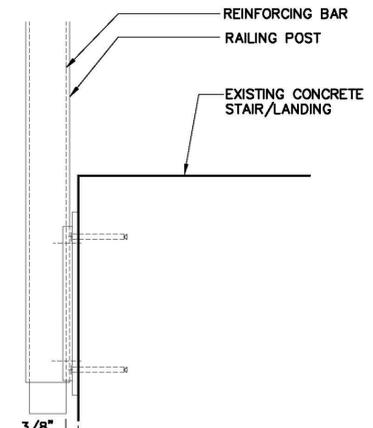
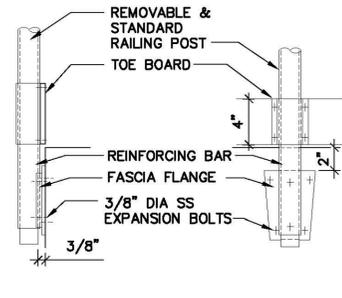






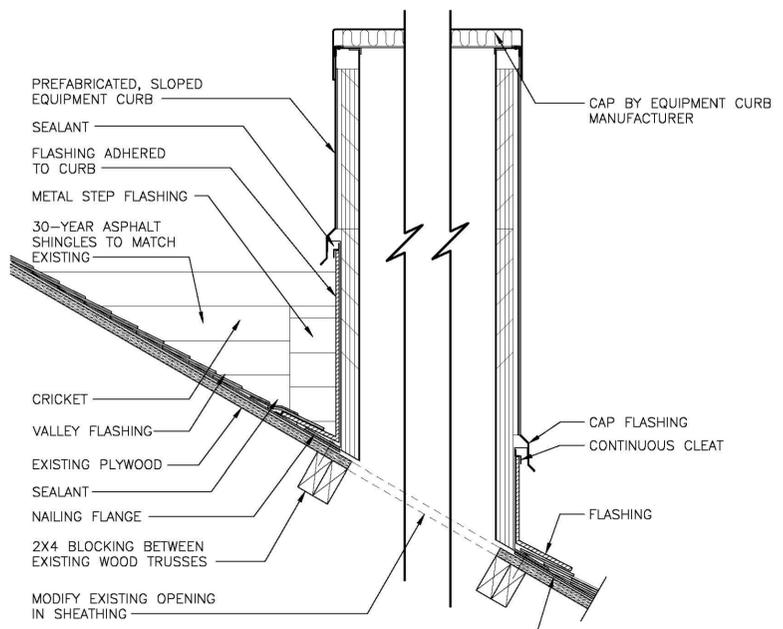


1 TYPICAL RAILING DETAILS  
SCALE: AS NOTED

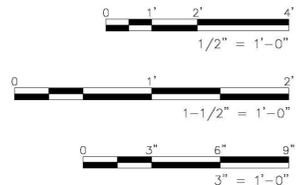


SIDE MOUNT DETAIL  
SCALE: 1 1/2\"/>

TYPICAL STRINGER DETAIL  
SCALE: 3\"/>

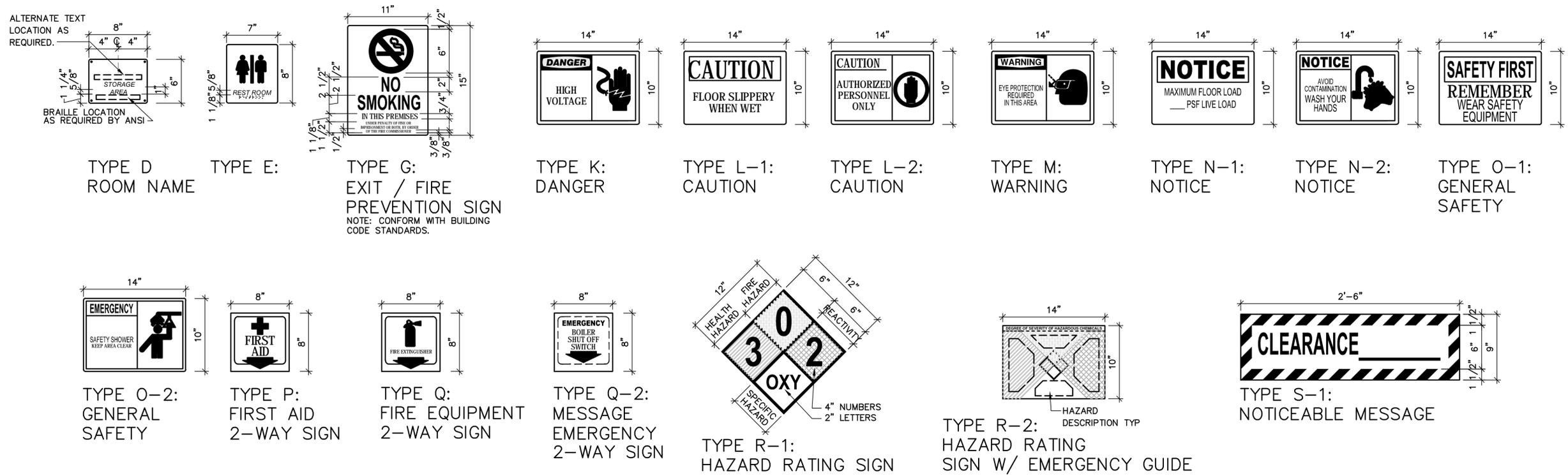


2 TYPICAL EQUIPMENT CURB DETAIL  
Scale: 1 1/2\"/>



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**SIGNAGE NOTES:**

1. THE SIGNS SHOWN ON THIS SHEET ARE A COMPREHENSIVE STANDARD GUIDE INTENDED TO GRAPHICALLY INDICATE THE APPEARANCE OF THE SIGNS. THIS SHEET IS FOR GENERAL USE ON THE PROJECT. THEREFORE NOT ALL THE SIGNS CONTAINED ON THIS SHEET ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
2. PROVIDE ALL PERMANENT DIRECTIONAL/INFORMATIONAL, ROOM NAME, BUILDING NAME, AREA NAME, ACCESSIBLE AREA, FLOOR NUMBERING, STAIR IDENTIFICATION, FIRE PREVENTION AND RESTRICTION SIGNS WITH BOTH RAISED TEXT AND BRAILLE TO COMPLY WITH ANSI A117.1, THE AMERICANS WITH DISABILITIES ACT OF 1990, OSHA REGULATIONS, NFPA GUIDELINES, AND THE GEORGIA STATE BUILDING CODE. FIELD VERIFY EXACT LOCATION OF SIGNS WITH PLANT MANAGEMENT AND ENGINEER.
3. PROVIDE ALL ACCIDENT PREVENTION, HEALTH, SAFETY AND WARNING SIGNS IN COMPLIANCE WITH ANSI Z535.1, ANSI Z535.2, ANSI Z535.3 AND OSHA 1910.44 AND 1910.145. FIELD VERIFY EXACT LOCATION OF SIGNS WITH ENGINEER. FLOOR DIAGRAM EXIT SIGN SHALL MEET ALL THE REQUIREMENTS OF THE LOCAL FIRE MARSHALL.
4. COORDINATE WITH THE FIRE MARSHALL THE ITEMS REQUIRED TO BE INDICATED AND THEIR LOCATIONS. THE SIGNS SHALL BE REVIEWED AND APPROVED BY THE FIRE MARSHALL AND THE ENGINEER PRIOR TO FABRICATION. FIELD VERIFY WHICH SIGNS REQUIRE BEING SUSPENDED, AND WHAT THEY WILL BE SUSPENDED FROM.
5. PROVIDE ENGINEER APPROVED MATERIALS AND FASTENERS TO SECURELY ATTACH AND SUSPEND THESE SIGNS. SUSP. DOUBLE SIDED SIGN - INDICATES SIGNS THAT WILL IN SOME CASES NEED TO BE SUSPENDED.
6. THOSE THAT ARE SUSPENDED WILL BE A CUSTOM DOUBLE SIDED SIGN. FIELD VERIFY EXACT LOCATION. FIELD VERIFY DIRECTION ARROW HEADS SHOULD BE POINTING ON ALL DIRECTIONAL SIGNS.
7. VERIFY EXACT LOCATION OF SIGNS WITH ENGINEER. ALL SIGNS SHALL BE PLACED SO THAT THEY ARE READILY VISIBLE AND READABLE.
8. DOORS SHALL NOT BLOCK SIGNS WHEN IN OPEN POSITION.
9. FOR LOCATION OF EYE WASHES SEE 'P' DRAWINGS.
10. PROVIDE ROOM SIGN TYPE 'D' AT ALL DOORS. PROVIDE ROOM SIGN ON BOTH SIDES OF DOOR WHERE DOOR IS BETWEEN TWO ROOMS (NOT HALL, CORRIDOR OR EXTERIOR).
11. PROVIDE TYPE 'E' SIGN AT BOTH RESTROOMS.
12. PROVIDE ONE EACH OF TYPE 'G', TYPE 'K' AND TYPE 'L-2' SIGNS AT THE GENERATOR.
13. PROVIDE ONE (1) TYPE 'M' SIGNS AT AUTOMATIC TRANSFER SWITCH THAT READS "POWER FROM TWO SOURCES".
14. PROVIDE ONE TYPE 'N-1' SIGN AS SHOWN IN THE GARAGE THAT READS "MAXIMUM FLOOR LOAD 250 PSF LIVE LOAD".
15. PROVIDE TWO TYPE 'N-1' SIGNS IN THE GARAGE THAT READ "MAXIMUM HOIST LOAD 4 TONS". LOCATIONS TO BE DETERMINED IN THE FIELD.
16. PROVIDE TYPE 'O-2' AT EACH EMERGENCY SHOWER/EYE WASH LOCATION.
17. PROVIDE ONE TYPE 'P' SIGN. LOCATION OF TYPE 'P' SIGN TO BE AT OWNERS DIRECTION.
18. PROVIDE FIRE EXTINGUISHER SIGN TYPE 'Q' AT ALL FIRE EXTINGUISHER LOCATIONS. REFER TO SHEETS A-1 & A-2 FOR LOCATIONS OF FIRE EXTINGUISHERS.
19. PROVIDE SIGN TYPE 'Q2' AT BOILER SHUT-OFF SWITCH.
20. PROVIDE FIVE (5) TYPE 'S-1' SIGNS. LANGUAGE WILL BE DETERMINED DURING CONSTRUCTION.
21. PROVIDE AN ADDITIONAL TEN (10) SIGNS OF VARYING TYPES. TYPES AND QUANTITIES WILL BE DETERMINED AS PROJECT NEEDS ARISE DURING CONSTRUCTION.

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**GENERAL**

G-1 THESE NOTES ARE GENERAL AND SUPPLEMENTAL TO THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.

G-2 STANDARD DETAILS, SHOWN ON DRAWINGS S-7 & S-8 SHALL BE USED WHEN REFERRED TO, UNLESS LESS RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.

G-3 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE 2016 CONNECTICUT STATE BUILDING CODE EXCEPT WHERE OTHER APPLICABLE CODES AND THE CONTRACT DOCUMENTS ARE MORE RESTRICTIVE.

G-4 LIVE LOADS: AS SHOWN ON DRAWINGS.

G-5 ROOF SNOW LOAD:  
1. GROUND SNOW LOAD, P<sub>g</sub> = 30 PSF  
2. FLAT-ROOF SNOW LOAD, P<sub>f</sub> = 23.1 PSF  
3. SNOW IMPORTANCE FACTOR, I<sub>s</sub> = 1.1  
4. THERMAL FACTOR, C<sub>t</sub> = 1.0

G-6 SEISMIC DESIGN DATA:  
1. SEISMIC IMPORTANCE FACTOR, I<sub>e</sub> = 1.25  
2. RISK CATEGORY: III  
3. MAPPED SPECTRAL RESPONSE ACCELERATIONS:  
A) S<sub>s</sub> = 20.6%  
B) S<sub>1</sub> = 6.5%  
4. SITE CLASS = D  
5. SPECTRAL RESPONSE COEFFICIENTS:  
A) S<sub>ds</sub> = 22.0%  
B) S<sub>ds</sub> = 10.4%  
6. SEISMIC DESIGN CATEGORY = B  
7. BASIC SEISMIC FORCE RESISTING SYSTEM = ORDINARY REINFORCED MASONRY SHEAR WALLS.  
8. BASE SHEAR = 13.73% X W  
9. RESPONSE MODIFICATION FACTOR = 2.  
10. ANALYSIS PROCEDURE = ASCE 7-12.8

G-7 WIND DESIGN DATA:  
1. ULTIMATE WIND SPEED: 135 MPH  
2. WIND IMPORTANCE FACTOR: 1.0  
3. WIND EXPOSURE: B  
4. APPLICABLE INTERNAL PRESSURE COEFFICIENT:  
a. ENCLOSED = ±0.18  
b. PARTIALLY ENCLOSED = ±0.55

G-8 ALL DIMENSIONS INDICATED (\*) ARE TO BE VERIFIED EITHER BY FIELD MEASUREMENTS FOR EXISTING STRUCTURES OR BY SHOP DRAWINGS FOR EQUIPMENT FURNISHED. STRUCTURAL DIMENSIONS NOT SHOWN BUT CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.

G-9 EQUIPMENT ANCHOR BOLT SIZES, TYPES, AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.

G-10 STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.

G-11 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED BY THE OWNER.

G-12 STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

G-13 NO BACKFILL SHALL BE PLACED AGAINST ANY WALL UNLESS ALL SUPPORTING ELEMENTS OF THE STRUCTURE HAVE BEEN CONSTRUCTED AND HAVE REACHED THE SPECIFIED MINIMUM CONCRETE STRENGTH.

G-14 DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.

G-15 CONTRACTOR'S CONSTRUCTION AND ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

G-16 WHERE CONNECTIONS TO OR MODIFICATIONS OF EXISTING STRUCTURES ARE SHOWN, EXISTING FOUNDATIONS, WALLS, COLUMNS, SLABS, BEAMS, FLOORS, DECKS, (CONCRETE, STEEL, TIMBER, ETC.) ARE ASSUMED TO BE IN GOOD CONDITION. THIS MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. UNSOUND CONDITIONS SHALL BE REPORTED TO THE OWNER. ALL UNSOUND STRUCTURAL ELEMENTS SHALL BE REPAIRED TO SOUND CONDITION AS APPROVED BY THE OWNER. EXISTING CONSTRUCTION: DIMENSIONS SHALL BE VERIFIED BY THE GENERAL CONTRACTOR BEFORE WORK COMMENCES. VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS SHALL BE REPORTED TO THE OWNER.

G-17 PROVIDE ADDITIONAL REINFORCEMENT AT OPENINGS AND AT WALL INTERSECTIONS AS SHOWN IN TYPICAL DETAILS.

G-18 FOR SIZES AND LOCATIONS OF EQUIPMENT SUPPORTS AND PIPE OPENINGS, SEE OTHER DISCIPLINE DRAWINGS. OPENING SIZES LESS THAN 12" ARE NOT SHOWN ON STRUCTURAL DRAWINGS, REFERENCE OTHER DISCIPLINE DRAWINGS FOR LOCATIONS.

**GENERAL (CON'T)**

G-19 NO COLD WEATHER CONSTRUCTION OR HOT WEATHER CONSTRUCTION, AS DEFINED IN SPECIFICATION SECTION 03 00 05, IS PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

G-20 OPENINGS AND PENETRATIONS: THE CONTRACTOR SHALL SUBMIT COMPOSITE DRAWINGS INDICATING ALL FLOOR OPENINGS AND PENETRATIONS THROUGH STRUCTURAL MEMBERS REQUIRED TO ACCOMMODATE THE HVAC, PLUMBING AND ELECTRICAL WORK. THE CONTRACTOR SHALL FOLLOW THE TYPICAL FRAMING DETAILS AT OPENINGS AND REINFORCEMENT DETAILS AT PENETRATIONS THROUGH STRUCTURAL MEMBERS. ACCORDINGLY, THE CONTRACTOR SHALL SUBMIT SHOP DETAILS TO THE ENGINEER FOR REVIEW.

G-21 ALL GRATING TO BE ALUMINUM, UNLESS NOTED OTHERWISE.

**FOUNDATIONS**

F-1 DESIGN ASSUMPTIONS:  
A) ALLOWABLE BEARING PRESSURE: 1500 PSF  
B) GROUNDWATER:  
1) BASE FLOOD ELEVATION: EL 74.50±

F-2 CONCRETE GENERAL NOTES APPLY TO FOUNDATIONS.

F-3 MINIMUM DEPTH FROM ADJACENT FINISHED GRADE TO BOTTOM OF FOUNDATION 3'-6" UON.

**CONCRETE**

C-1 CONCRETE 28-DAY COMPRESSIVE STRENGTH:  
CLASS A - 4500 PSI  
CLASS B - 3000 PSI

C-2 REINFORCEMENT: ASTM A615, GRADE 60.

C-3 CONCRETE COVER FOR REINFORCING:  
A) SURFACES CAST AGAINST SUBGRADE 3"  
B) TOP SURFACES OF SLABS WHERE PVC WATERSTOP IS REQUIRED IN WALLS 3"  
C) FORMED SURFACES IN CONTACT WITH WEATHER, SOIL, OR LIQUID 2"  
D) BOTTOM SURFACES OF SLABS OVER LIQUID 2"  
F) SURFACES NOT IN CONTACT WITH WEATHER, SOIL, OR LIQUID 1 1/2"

C-4 CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. WHERE NOT SHOWN, CONSTRUCTION JOINTS SHALL BE LOCATED AT NO MORE THAN 40' ON CENTER. CONSTRUCTION JOINT LOCATIONS SHALL BE AS APPROVED BY THE ENGINEER.

C-5 WHERE HORIZONTAL CONSTRUCTION JOINTS, LOCATED ABOVE THE FOUNDATION SLAB, EXTEND BEYOND WHERE NEEDED, TERMINATE AT A VERTICAL CONSTRUCTION JOINT AS APPROVED BY THE ENGINEER.

C-6 PROVIDE WATERSTOPS IN ALL FOUNDATION, TANKS AND OTHER SUBSTRUCTURES UP TO AN ELEVATION AT LEAST 12 INCHES ABOVE GRADE OR TO AN ELEVATION AT LEAST 12 INCHES ABOVE LIQUID LEVEL IN TANKS, WHICHEVER IS HIGHER, WHETHER SHOWN OR NOT.

C-7 EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.

C-8 AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH MATCHING DOWELS SET IN EPOXY IN DRILLED HOLES AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3 INCHES FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.

C-9 WHERE DRILLED EPOXY DOWELS ARE PLACED INTO HARDENED CONCRETE, ADJUST THE DOWEL LOCATIONS AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE DOWEL LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER.

C-10 DOWELS, ANCHOR BOLTS, PIPES, AND OTHER EMBEDDED ITEMS SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

C-11 CONDUITS AND PIPES EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2 INCHES CLEAR. OUTSIDE DIMENSION OF EMBEDDED ITEMS SHALL NOT EXCEED 1/3 OF THE CONCRETE MEMBER THICKNESS. CLEAR SPACING REQUIREMENTS SHALL APPLY FOR EMBEDDED CONDUITS OR PIPES CROSSING AT AN ANGLE LESS THAN 60 DEGREES.

C-12 THE EFFECTIVE DIMENSION USED TO MEET MEMBER THICKNESS LIMITATIONS SHALL BE THE SUM OF THE OUTER DIMENSIONS OF CROSSING ELEMENTS.

C-13 EMBEDDED CONDUITS AND PIPES SHALL BE LOCATED BETWEEN THE LAYERS OF REINFORCEMENT AND A MINIMUM OF 2 1/2 INCHES CLEAR FROM APPROXIMATELY PARALLEL REINFORCING BARS. REQUIREMENTS FOR EMBEDDED ELEMENTS CROSSING REINFORCING BARS SHALL BE AS REQUIRED FOR CROSSING EMBEDDED ELEMENTS.

**CONCRETE (CON'T)**

C-14 CONDUITS AND PIPES SHALL NOT BE EMBEDDED IN OR PASS THROUGH COLUMNS OR BEAMS UNLESS INDICATED OTHERWISE OR AUTHORIZED BY ENGINEER.

C-15 REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2 INCHES SHALL BE PROVIDED.

C-16 CONTRACTOR SHALL PROVIDE 3/4 INCH CHAMFER USING WOOD CHAMFER STRIPS ON ALL EXPOSED CORNERS OF COLUMNS, BEAMS AND WALLS OR AS REQUIRED TO MATCH EXISTING.

C-17 LAP SPLICES SHALL BE IN ACCORDANCE WITH THE TABLE SHOWN ON DRAWING S-7.

C-18 PROVIDE ADDITIONAL REINFORCEMENT AT OPENINGS AND WALL INTERSECTIONS AS SHOWN ON TYPICAL DETAILS (UON).

**SPECIAL INSPECTION**

I-1 THE FOLLOWING ITEMS SHALL BE SUBJECT TO SPECIAL INSPECTION, MADE AND WITNESSED BY OR UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. TEST REPORTS, CERTIFICATES OF INSPECTION SHALL BE PREPARED AND FILED WITH THE DEPARTMENT OF BUILDINGS:  
A. SHORING, BRACING, STRUCTURAL STABILITY  
B. CONCRETE INSPECTION PER SPECIFICATIONS  
C. MASONRY INSPECTION PER SPECIFICATIONS  
D. CONCRETE ANCHORS AND ANCHOR BOLTS  
E. SUBGRADE COMPACTION

I-2 THE DESIGNATED INSPECTING AGENCY FOR SPECIAL INSPECTION SHALL PERFORM ON SITE INSPECTION IN ACCORDANCE WITH THE 2016 CONNECTICUT STATE BUILDING CODE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.

I-3 THE DESIGNATED INSPECTING AGENCY IS RESPONSIBLE FOR ALL REQUIRED TESTING AND INSPECTION INCLUDING SPECIAL INSPECTION. THE SPECIAL INSPECTION ENGINEERS ARE RESPONSIBLE FOR FILING AND OBTAINING APPROVAL OF ALL STATEMENTS, TEST AND INSPECTION REPORTS, INCLUDING STEEL AND CONCRETE PRODUCER'S CERTIFICATES.

I-4 CONTRACTOR TO NOTIFY THE SPECIAL INSPECTION ENGINEERS AT LEAST 48 HOURS PRIOR TO START OF WORK.

**STRUCTURAL METALS**

S-1 DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION.

S-2 STEEL MATERIAL:  
A) STRUCTURAL TUBING, ASTM A 500, GRADE B  
B) STRUCTURAL PIPE, ASTM A 53, GRADE B  
C) W SHAPES, ASTM A992.  
D) STRUCTURAL CHANNELS, ASTM A 572.  
E) ALL OTHER SHAPES AND PLATES, ASTM A 36 UON.

S-3 PROVIDE MIN. 3/4" DIAMETER ASTM A 325 OR ASTM F3125 TYPE X HIGH STRENGTH BOLTS, FULLY TIGHTENED CONNECTIONS.

S-4 PROVIDE TYPICAL STEEL BEAM CONNECTIONS FOR A CAPACITY OF NOT LESS THAN THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE AISC TABLES FOR ALLOWABLE LOADS OF BEAMS.

S-5 DO NOT PAINT STEEL SURFACES WHICH ARE TO BE WELDED OR ENCASED IN CONCRETE.

S-6 ALL GROOVE AND BUTT WELDS SHALL BE FULL PENETRATION UON.

S-7 FILLET WELD SIZES SHALL BE THE MINIMUM SIZE REQUIRED BY AISC CODE FOR PLATE SIZES TO BE CONNECTED AND SHALL BE APPLIED TO THE ENTIRE JOINT CONTACT LENGTH, BUT NOT LESS THAN 3/16 INCH.

S-8 STAINLESS STEEL SHALL BE TYPE 316L-ASTM A276.

S-9 STAINLESS STEEL TYPE 316L SHALL BE USED IN ALL AREAS TO BE SUBMERGED AND AS SHOWN ON DWGS.

S-10 IF STAINLESS STEEL MEMBERS ARE NOT AVAILABLE. CONTRACTOR SHALL PROVIDE EQUIVALENT STAINLESS STEEL SECTIONS, BUILT UP OUT OF STAINLESS STEEL PLATES.

S-11 ALL BOLTS, ANCHOR BOLTS, AND CONCRETE ANCHORS CONNECTING STAINLESS STEEL SHALL BE TYPE 316 STAINLESS STEEL.

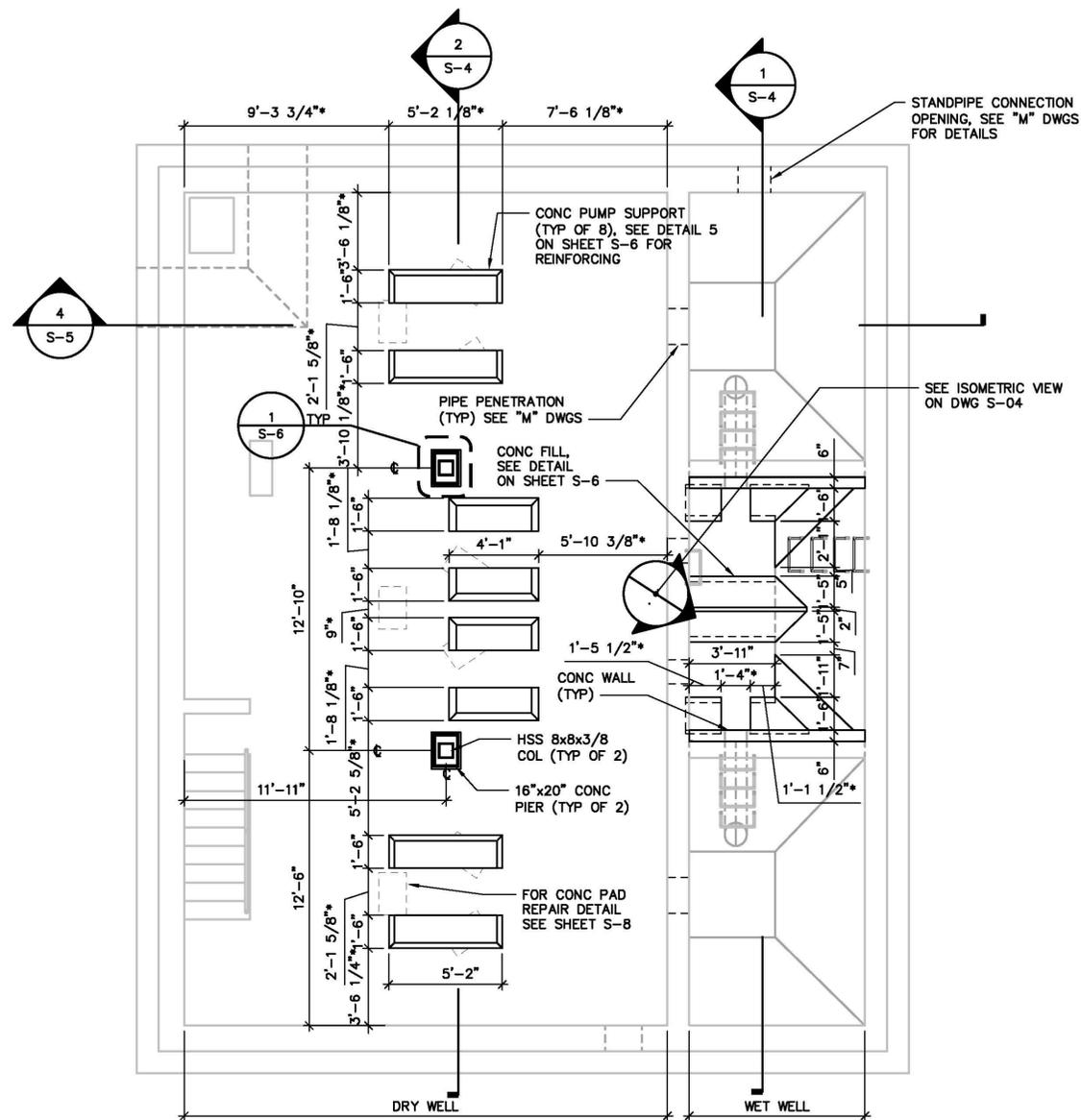
S-12 WHENEVER ONE MEMBER IS FASTENED TO ANOTHER WITH FASTENINGS (BOLTS, WELDS, ETC.) SET AT A UNIFORM SPACING, THERE SHALL BE A MINIMUM OF TWO FASTENINGS PER PIECE CONNECTED AND THE FIRST AND LAST FASTENINGS SHALL BE LOCATED NOT TO EXCEED 1/4 SPACE FROM EACH END.

**ABBREVIATIONS**

AB	ANCHOR BOLTS	ID	INSIDE DIAMETER
ADD'L	ADDITIONAL	IF	INSIDE FACE
AL	ALUMINUM	INV	INVERT
ALT	ALTERNATE	JT	JOINT
ANCH	ANCHOR	KO	KNOCK OUT
APPROX	APPROXIMATE	L	ANGLE (STRUCTURAL SHAPE)
A	ARCHITECTURAL	LG	LONG
BAL	BALANCE	LL	LIVE LOAD
BET	BETWEEN	LLH	LONG LEG HORIZ
BL	BUILDING LINE	LLV	LONG LEG VERT
BLDG	BUILDING	LOC	LOCATION
BLK	BLOCK	LP	LOW POINT
BM	BEAM	LW	LONG WAY
BOT	BOTTOM	MAS	MASONRY
BRG	BEARING	MAX	MAXIMUM
C	CHANNEL STRUCTURAL SHAPE	MECH	MECHANICAL
CANT'L	CANTILEVER	MEZZ	MEZZANINE
CJ	CONSTRUCTION JOINT	MFR	MANUFACTURE, MANUFACTURER
CL	CLEAR	MH	MANHOLE
CMU	CONCRETE MASONRY UNIT	MID	MIDDLE
COL	COLUMN	MIN	MINIMUM
COMP	COMPRESSIBLE	MO	MASONRY OPENING
CONC	CONCRETE	N	NORTH
CONN	CONNECTION	NF	NEAR FACE
CONST	CONSTRUCTION	#	NUMBER
CONT	CONTINUOUS	NTS	NOT TO SCALE
CSTG	CASTING	OC	ON CENTER
C/C	CENTER TO CENTER	OD	OUTSIDE DIAMETER
CTR	CENTER	OF	OUTSIDE FACE
DET	DETAIL	OPNG	OPENING
DIA	DIAMETER	OPP	OPPOSITE
DIAG	DIAGONAL	PC	PRECAST CONCRETE
DIM	DIMENSION	PCO	PILE CUT OFF
DL	DEAD LOAD	PL	PLATE
DN	DOWN	PSF	POUNDS PER SQUARE FOOT
DO	DITTO	PVC	POLYVINYL CHLORIDE
DP	DEEP	R	RISER
DWG	DRAWING	RAD	RADIUS
DWL	DOWEL	RD	ROOF DRAIN
E	EAST	REINF	REINFORCEMENT
EA	EACH	REQD	REQUIRED
EF	EACH FACE	RM	ROOM
EJ	EXPANSION JOINT	RO	ROUGH OPENING
EL	ELEVATION	S	SOUTH
ELEC	ELECTRICAL	SECT	SECTION
EMB	EMBEDMENT	SHT	SHEET
ENCL	ENCLOSURE	SIM	SIMILAR
EQ	EQUAL	SL	SLAB
EQUIP	EQUIPMENT	SP	SPIRAL
ES	EACH SIDE	SPA	SPACING/SPACES
EW	EACH WAY	SPEC	SPECIFICATION
EW T&B	EACH WAY TOP & BOTTOM	SQ	SQUARE
EXIST	EXISTING	ST STL	STAINLESS STEEL
EXP	EXPANSION	STD	STANDARD
EXT	EXTERIOR	STIR	STIRRUP
FB	FLOOR BEAM	STL	STEEL
FD	FLOOR DRAIN	STRUCT	STRUCTURAL
FDN	FOUNDATION	SW	SHORT WAY
FF	FAR FACE	T&B	TOP AND BOTTOM
FIN	FINISH	TOC	TOP OF CONCRETE
FL	FLOOR	THK	THICK
FTG	FOOTING	T/	TOP OF
GA	GAUGE	T	TREAD
GALV	GALVANIZE	TYP	TYPICAL
GB	GRADE BEAM	UON	UNLESS OTHERWISE NOTED
GR	GRADE	VERT	VERTICAL
GRTG	GRATING	W	WEST
H	HIGH	WF	WIDE FLANGE STRUCTURAL SHAPE, WIDTH, WEST
HT	HEIGHT	W/	WITH
HORIZ	HORIZONTAL	WP	WORKING POINT
HP	HIGH POINT	WS	WATERSTOP
HS	HIGH STRENGTH		
HVAC	HEATING, VENTILATING & AIR CONDITIONING		

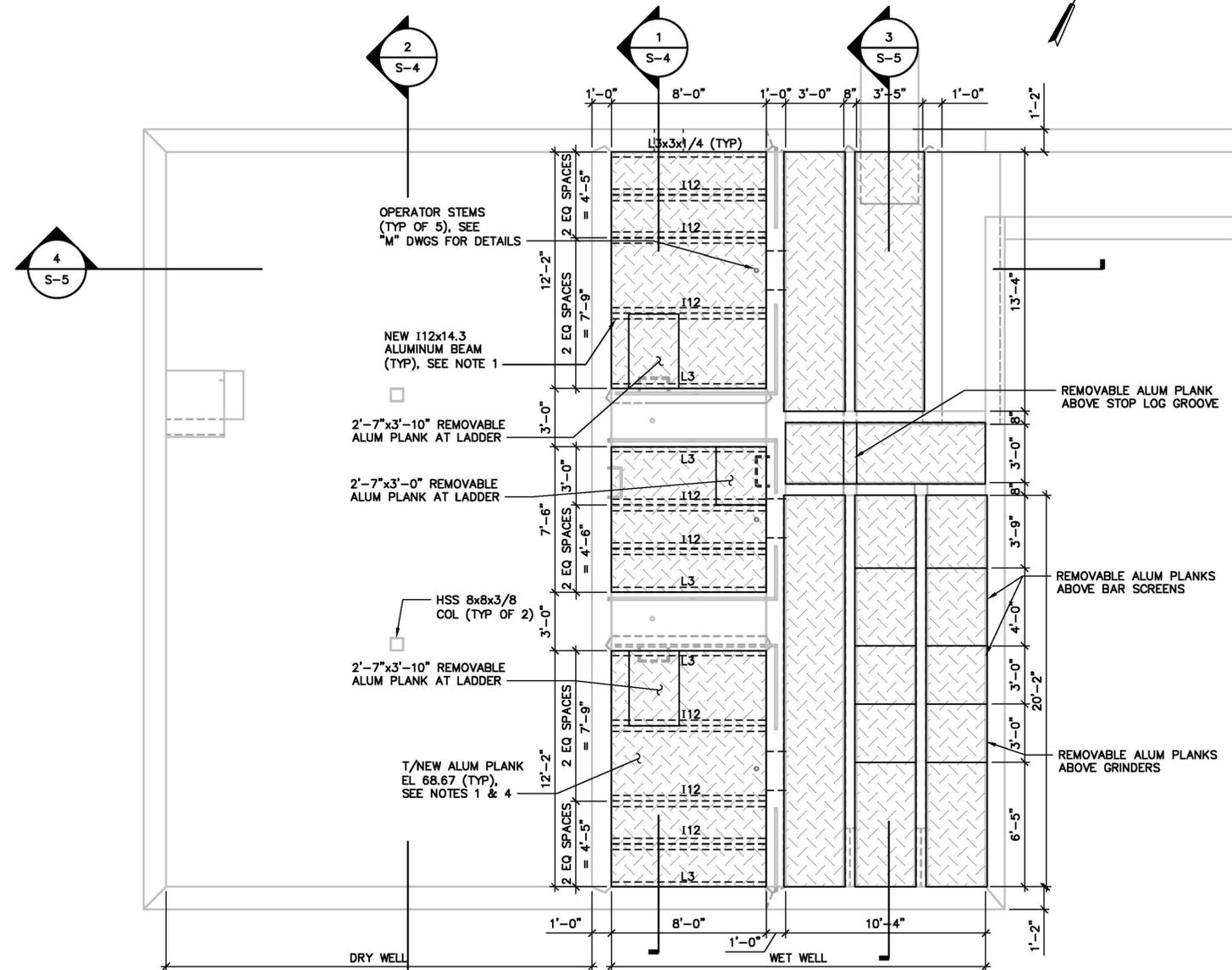
**PROTECTIVE COATING SYSTEM**

1. ALL CONCRETE WALLS AND SLABS IN WET WELLS & CHANNELS THAT ARE COVERED BY ALUMINUM PLANKS SHALL RECEIVE PROTECTIVE COATING SYSTEMS. FOR EXTENTS AND LIMITS OF COATING SYSTEM, SEE S-8 AND SPECIFICATION 09 91 00, PAINTING.



**BASEMENT PLAN AT EL 54.80**

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



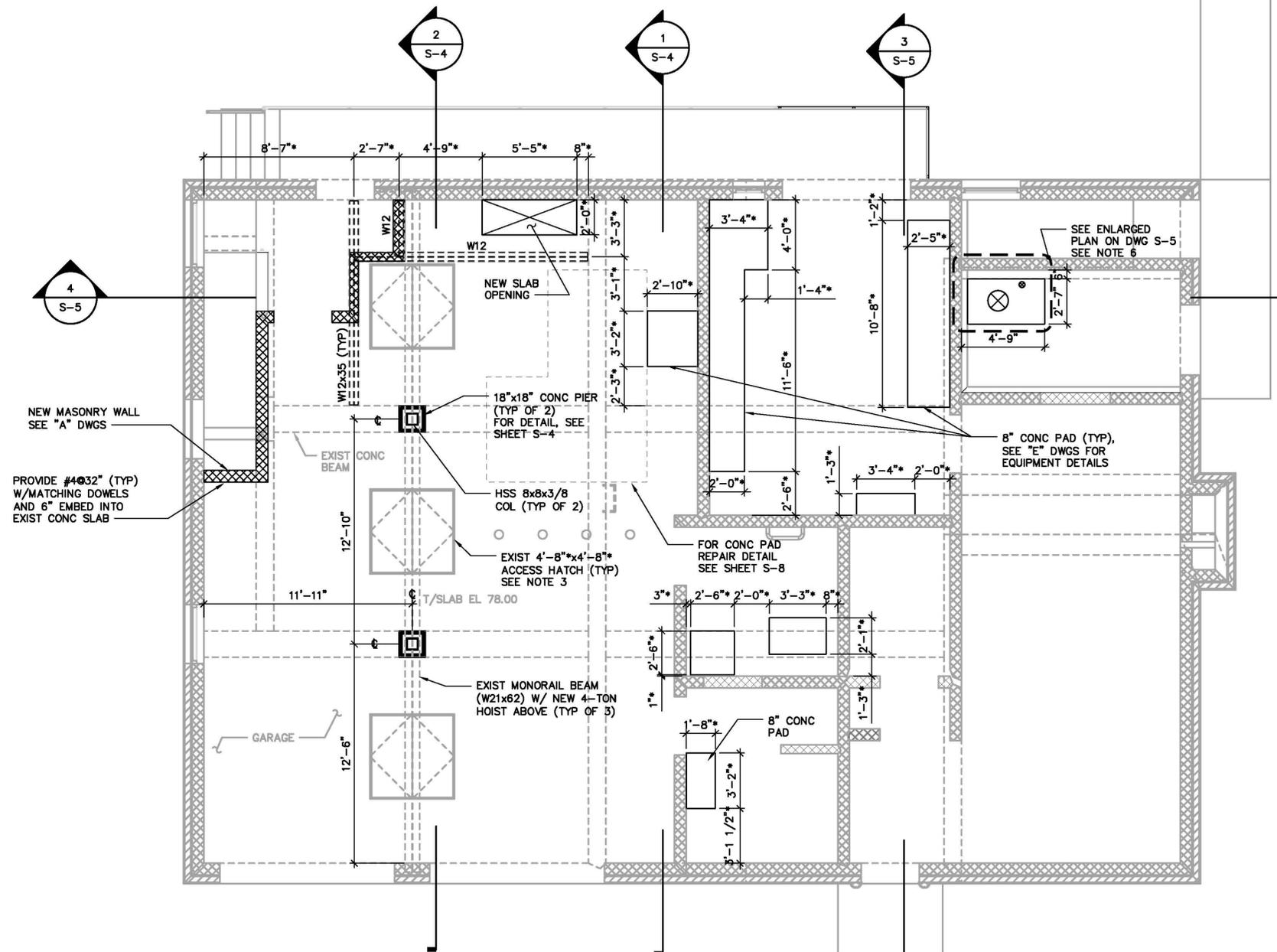
**INTERMEDIATE PLAN AT EL 67.47**

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



NOTES:

1. PROVISION OF WET WELL COVER SYSTEM IS A BID ALTERNATE TO THE CONTRACT. REFER TO SECTION 01 22 13. EXISTING GRATING TO REMAIN IF ALTERNATE IS NOT AWARDED.
2. FLOOR DESIGN LL = 100 PSF
3. COORDINATE OPENINGS IN ALUMINUM PLANK SYSTEM AS REQUIRED FOR GATES, INSTRUMENTATION AND APPURTENANCES.
4. ALUMINUM PLANKS SHALL BE 1 1/2" UNPUNCHED PLANKS WITH INTERLOCK SIDES.
5. USE EXISTING GRATING SUPPORTS WHERE APPLICABLE.
6. SEE "M" DRAWINGS FOR ADDITIONAL INFORMATION ABOUT SIZE AND LOCATION OF PENETRATIONS AND OPENINGS.



**FLOOR PLAN AT EL 76.80**

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



NOTES:

1. FLOOR LL = 100 PSF
2. GARAGE LL = 250 PSF
3. PROVIDE GASKETING AND FALL THROUGH PROTECTION NET SYSTEM UNDER EXISTING ACCESS HATCHES. NET SYSTEM SHALL BE MANUFACTURED FROM HIGH STRENGTH POLYESTER WITH 316 SS HARDWARE, HOOKS AND ANCHORS.
4. SEE "A", "M", "H" AND "E" DWGS FOR EQUIPMENT PAD LOCATIONS AND SIZES. NOT ALL REQUIRED PADS SHOWN FOR CLARITY.
5. INSTALL W12 STEEL BEAMS PRIOR TO INSTALLING MASONRY WALL.
6. PROVISION OF ODOR CONTROL SYSTEM IS A BID ALTERNATIVE TO THE CONTRACT. REFER TO SECTION 01 22 13.



NO.	DATE	ISSUED FOR	BY

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2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: S-4

DESIGNED BY: A. WIDDISON

DRAWN BY: Z. SANGALANG

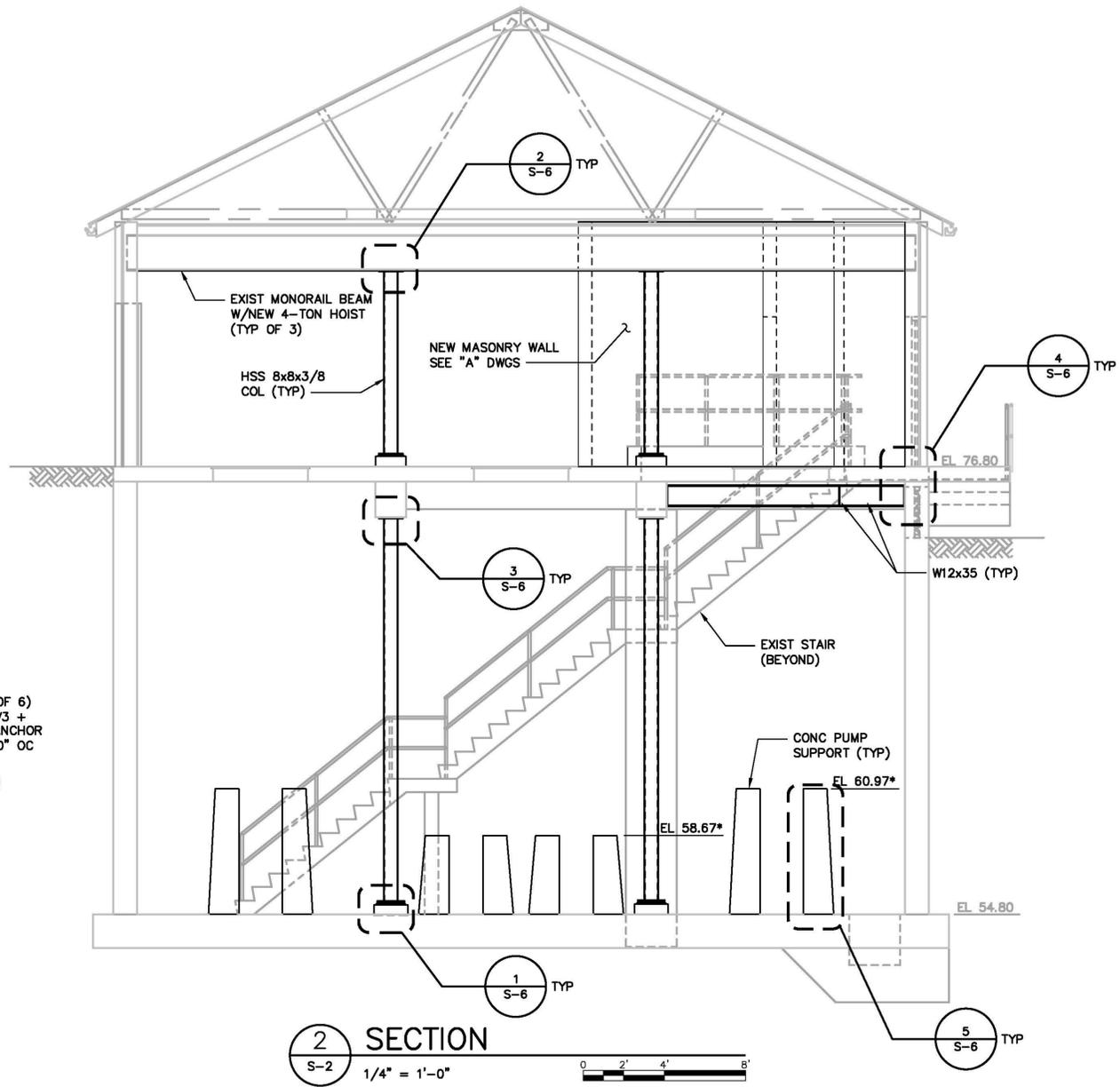
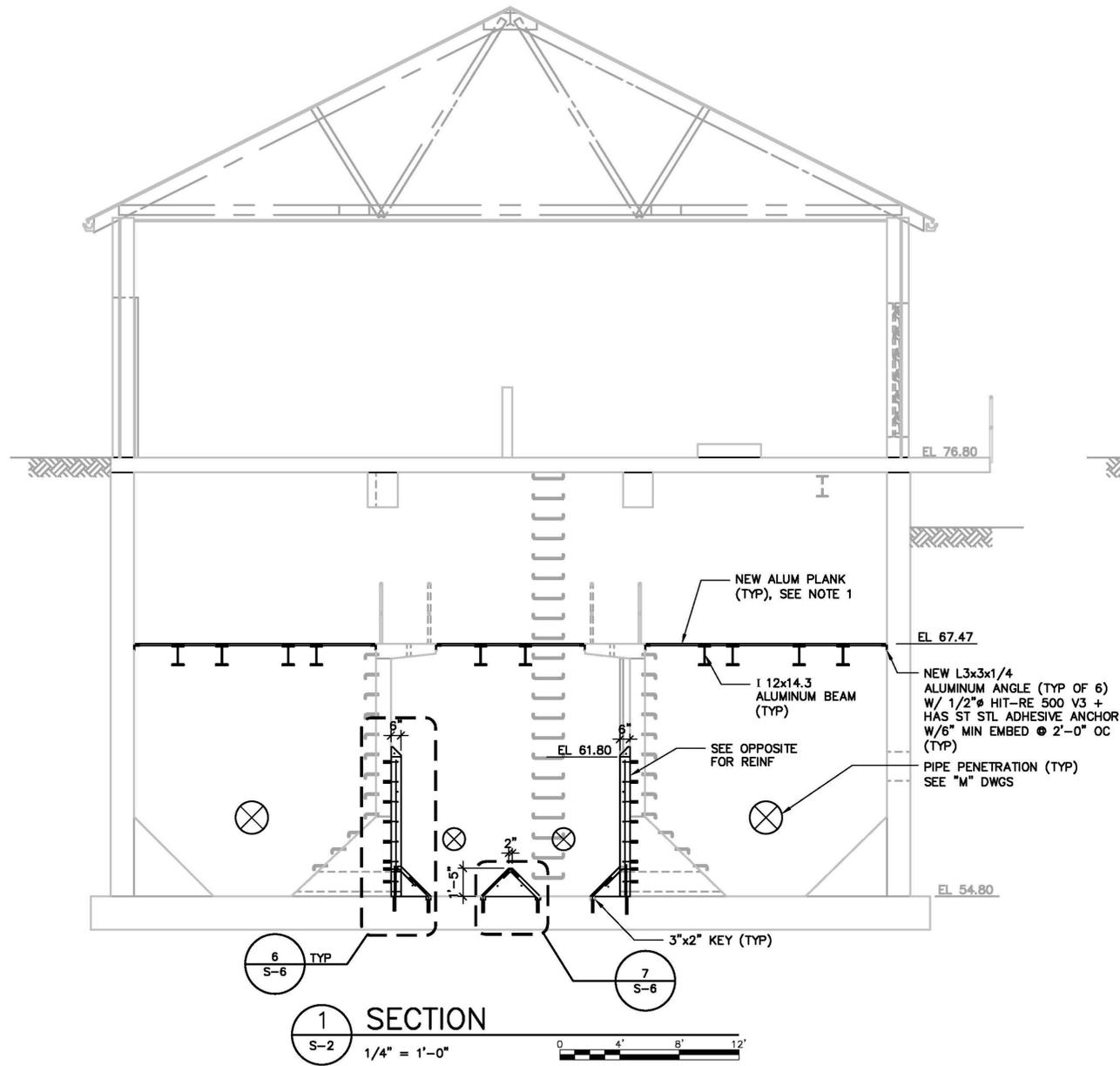
CHECKED BY: S. MANZO

SHEET TITLE

**SECTIONS I**

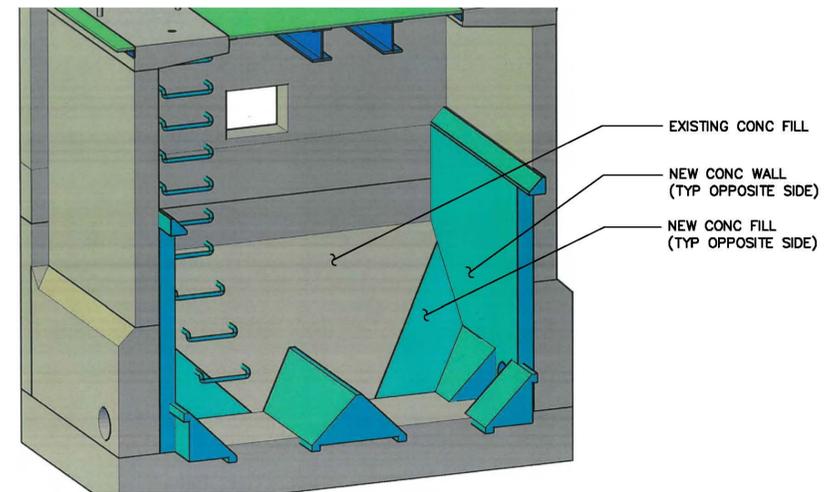
SCALE: AS SHOWN

**S-4**  
SHEET 31 OF 69



NOTES:

1. PROVISION OF WET WELL COVER SYSTEM IS A BID ALTERNATE TO THE CONTRACT. REFER TO SECTION 01 22 13. EXISTING GRATING TO REMAIN IF ALTERNATE IS NOT AWARDED.
2. MAXIMUM ADJACENT WATER ELEVATION DURING WET WELL DEMOLITION AND RECONSTRUCTION WORK SHALL BE NO HIGHER THAN EL 60.00.

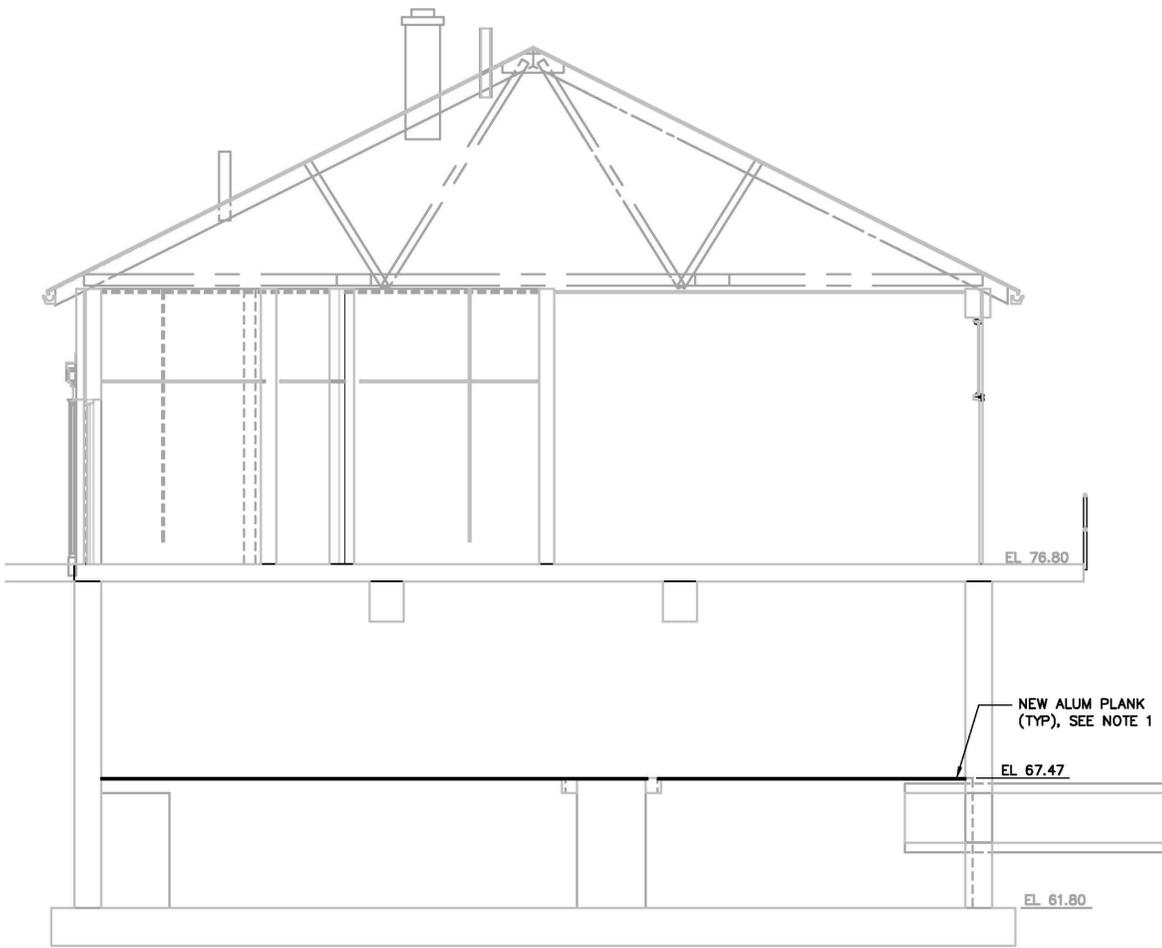


**ISOMETRIC VIEW**

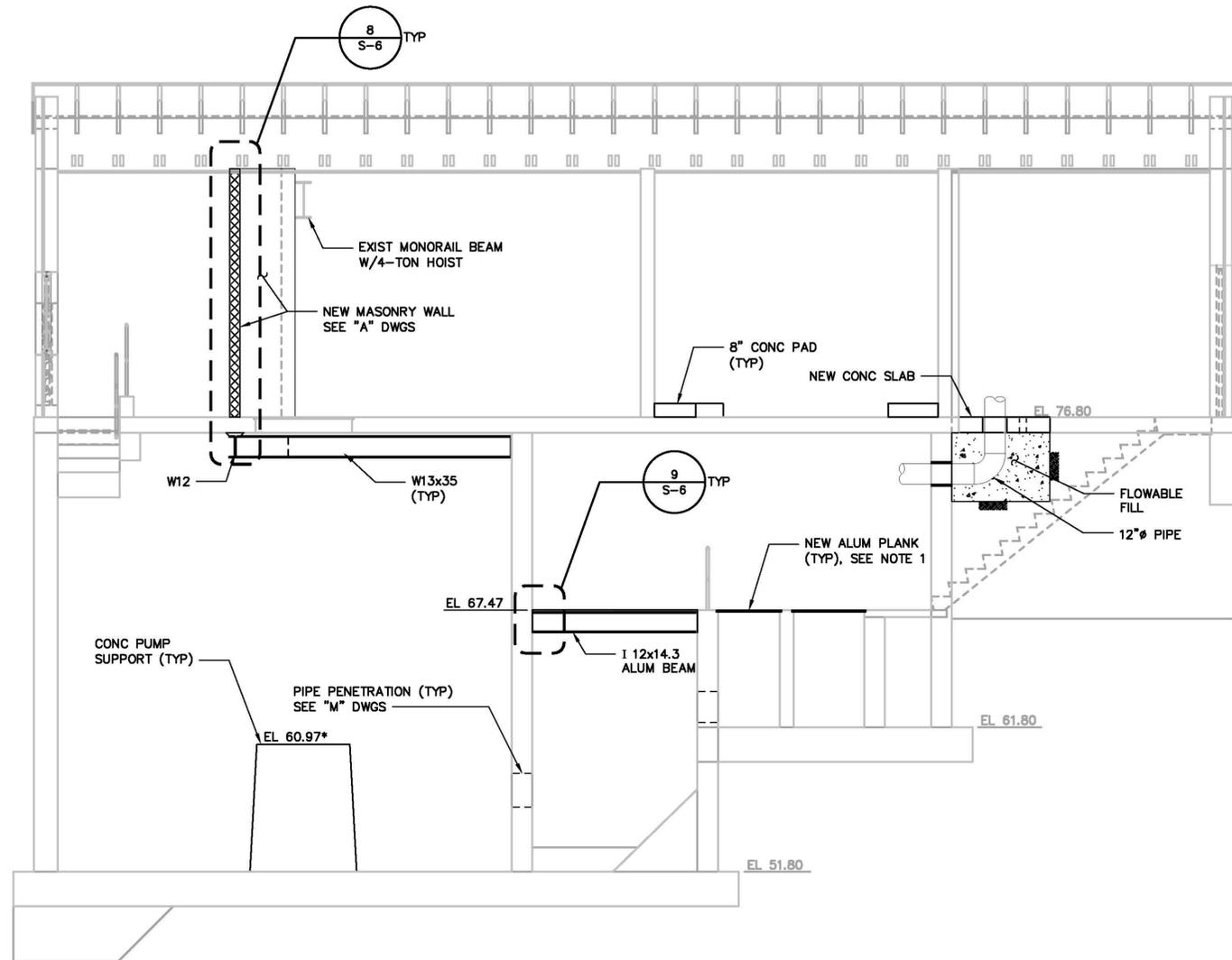
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**SECTIONS II**



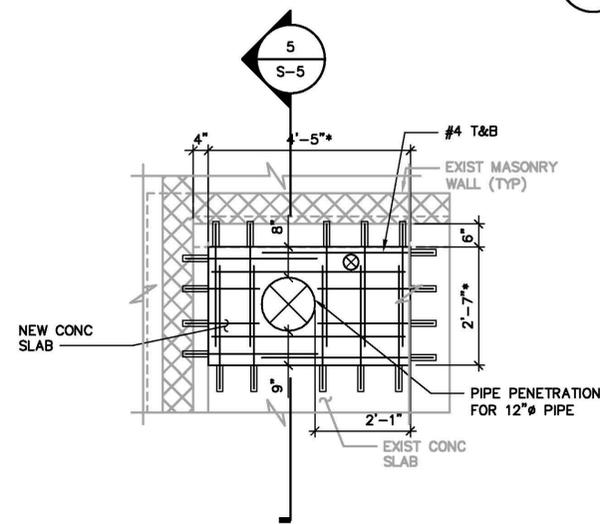
**3 SECTION**  
S-2 1/4" = 1'-0"



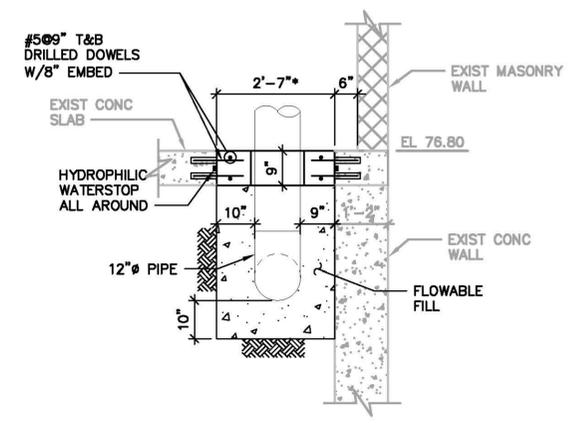
**4 SECTION**  
S-2 1/4" = 1'-0"

NOTES:

- PROVISION OF WET WELL COVER SYSTEM IS A BID ALTERNATE TO THE CONTRACT. REFER TO SECTION 01 22 13. EXISTING GRATING TO REMAIN IF ALTERNATE IS NOT AWARDED.



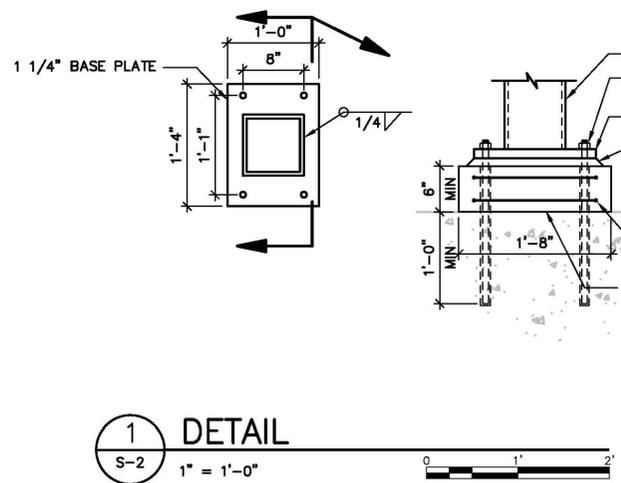
**ENLARGED PLAN AT EL 76.80**  
SCALE: 1/2" = 1'-0"



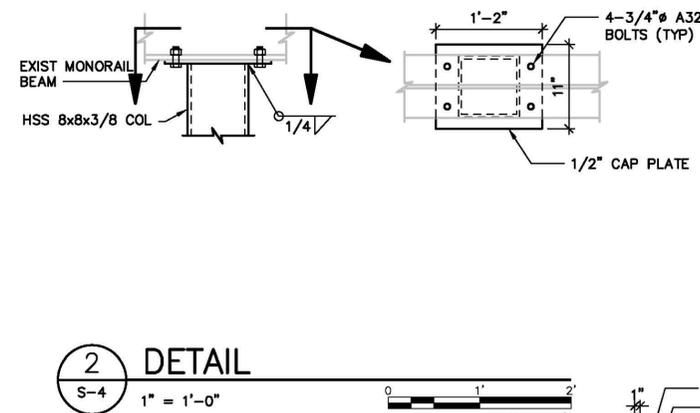
**5 SECTION**  
S-5 1/2" = 1'-0"



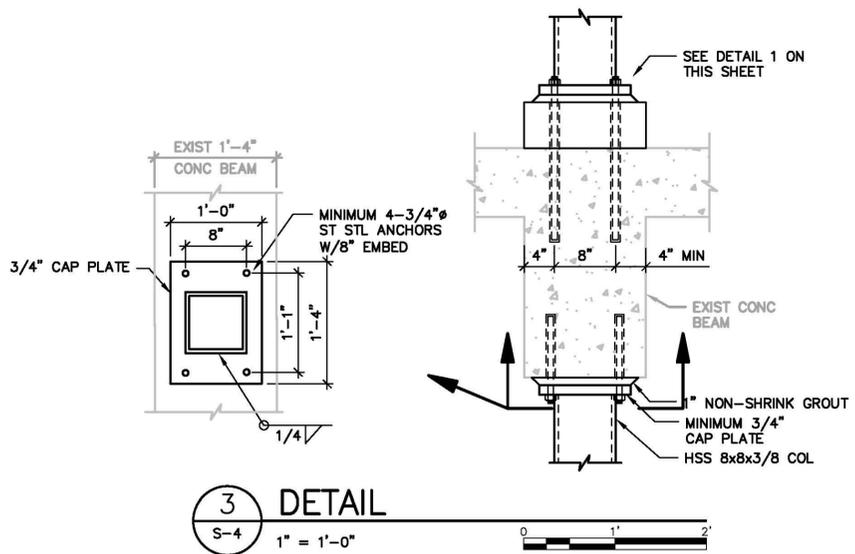
**DETAILS**



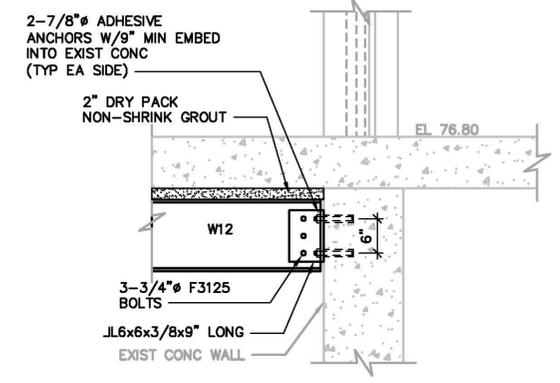
**1** DETAIL  
S-2 1" = 1'-0"



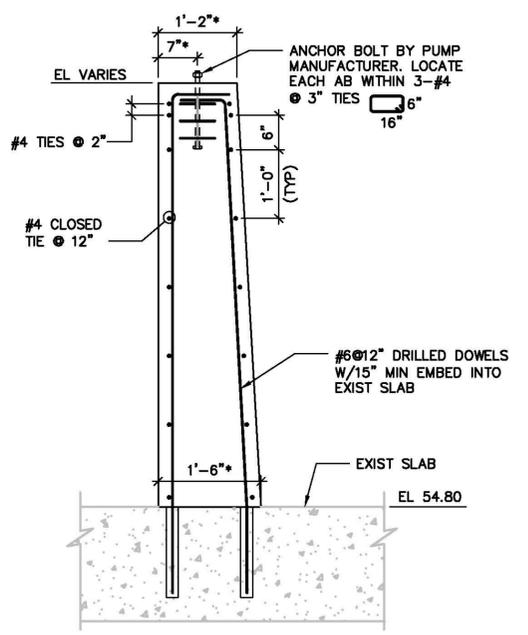
**2** DETAIL  
S-4 1" = 1'-0"



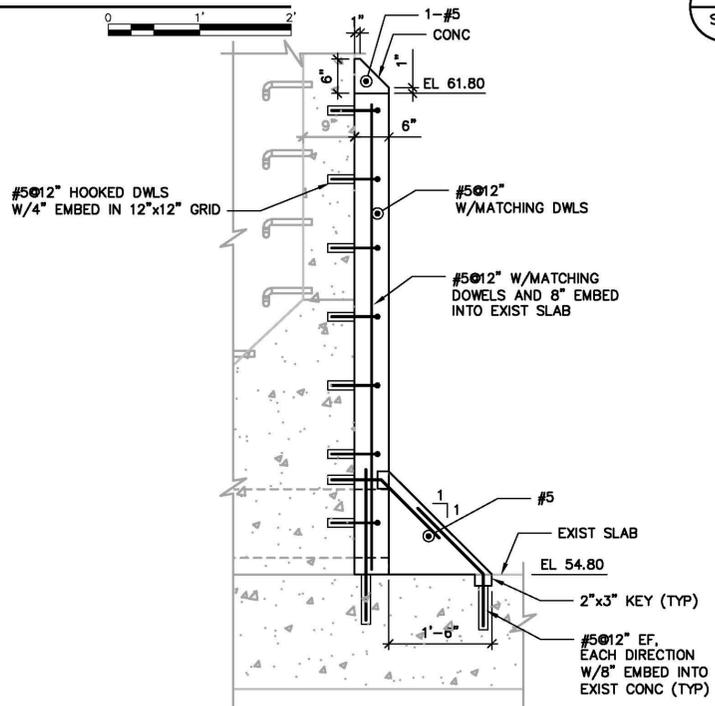
**3** DETAIL  
S-4 1" = 1'-0"



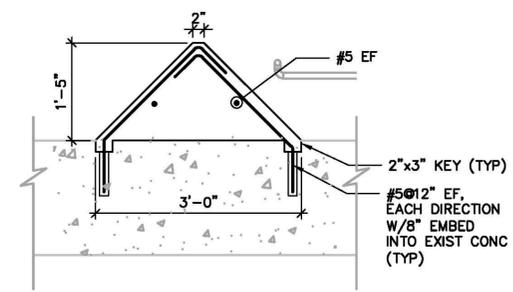
**4** DETAIL  
S-4 3/4" = 1'-0"



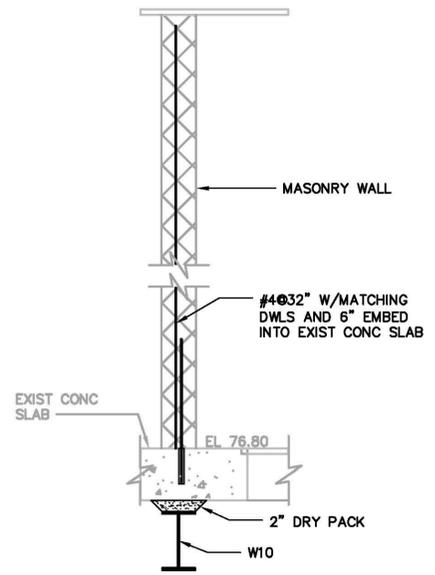
**5** DETAIL  
S-4 3/4" = 1'-0"



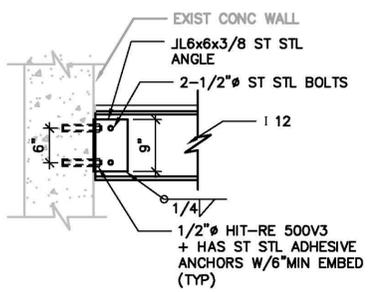
**6** DETAIL  
S-4 3/4" = 1'-0"



**7** DETAIL  
S-4 3/4" = 1'-0"



**8** DETAIL  
S-5 3/4" = 1'-0"

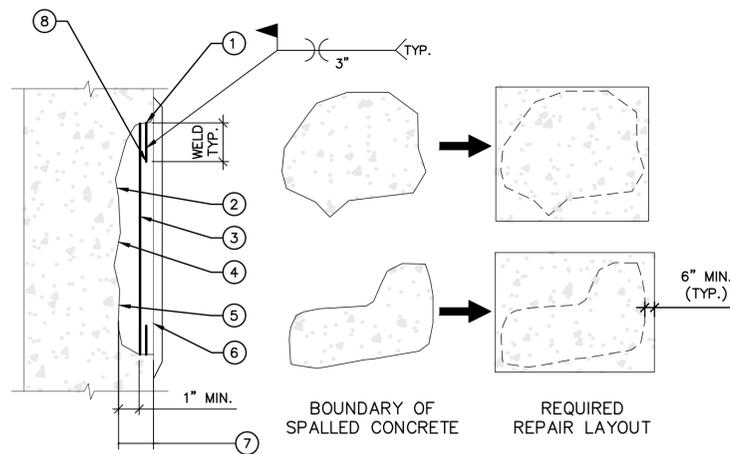


**9** DETAIL  
S-5 3/4" = 1'-0"

- GENERAL NOTES:
- ROUGHEN EXISTING CONCRETE SURFACE TO AN AMPLITUDE OF 1/4".
  - APPLY EPOXY AGENT BONDING AGENT PRIOR TO POURING CONCRETE.

User: TOCINELL, Spec: AUS-NGSM00, File: I:\CAD\PROJ\06532002.0000\SHEETS\STRUCTURAL\S-6.DWG, Scale: 1:1, SavedDate: 9/27/2017, Time: 12:41, Plot Date: 9/27/2017, 15:04, Layout: S-6





**SECTION**

**ELEVATION**

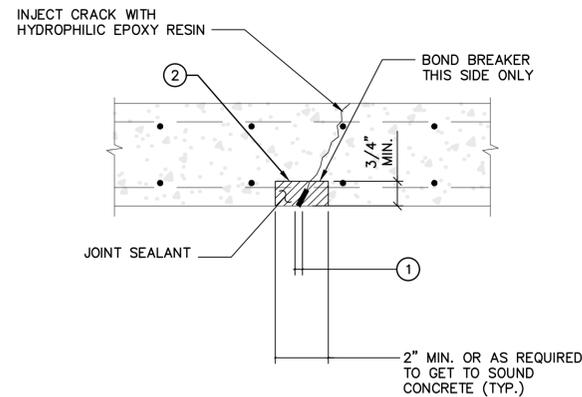
- 1 DO NOT CUT REINFORCING UNLESS NECESSARY TO REMOVE ALL DETERIORATED CONCRETE.
- 2 REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8-INCH IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
- 3 WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, ENGINEER TO REVIEW CONDITION OF CORRODED REBARS PRIOR TO REPAIR. REPLACEMENT IS REQUIRED WHERE LOSS ON REBAR CROSS SECTION IS OVER 25%. AFTER REPAIR WHERE REINFORCING REMAINS, CLEAN REINFORCING STEEL TO REMOVE ALL CONTAMINANTS AND RUST. REMOVE CONCRETE TO A DEPTH OF 1-INCH MINIMUM BEHIND REINFORCING BAR AS SHOWN.
- 4 SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
- 5 INSTALL CONCRETE REPAIR MATERIALS PER THE MANUFACTURER'S REQUIREMENTS.
- 6 REPAIR MORTAR SHALL BE ADDED SO THAT THE MINIMUM COVER OVER EXISTING REINFORCING STEEL IS 1 1/2".
- 7 THE CONTRACTOR SHALL BE PERMITTED TO PLACE REPAIR MORTAR RESULTING IN LOCALLY RAISED AREAS, WHERE NEEDED TO PROVIDE COVER. TRANSITION TO EXISTING SURFACE WITH 4:1 OR FLATTER SLOPE.
- 8 REFER TO THE GENERAL NOTES FOR ADDITIONAL EXISTING CONCRETE NOTES, SPECIFIED PRODUCTS AND REQUIREMENTS FOR COORDINATION OF WORK.
- 9 FOR BID PURPOSES, ASSUME TOTAL DEPTH OF REPAIR IS 4-INCHES.
- 10 CUT EXISTING CORRODED REINFORCING BAR AS REQUIRED AND WELD NEW REBAR SAME SIZE.

**TYPICAL CONCRETE SURFACE REPAIR DETAIL - TYPE 1**  
(WITH OR WITHOUT REBAR REPAIR)  
SCALE: N.T.S.

CONCRETE REPAIRS ESTIMATED QUANTITIES					
REPAIR TYPE	LOCATION	WET WELL	DRY WELL	GARAGE AND SUPERSTRUCTURE	REMARKS
1	WALL AND BASE SLAB	320 FT2	40 FT2	40 FT2	WITHOUT REBAR REPAIR
1	WALL AND BASE SLAB	120 FT2	60 FT2	-	WITH REBAR REPAIR
2	WALLS	630 FT	50 FT	-	
3	WALLS	315 FT	-	-	
4	WALLS	1950 FT2	-	-	PART OF BID ALTERNATE TO THE CONTRACT. SEE INTERMEDIATE PLAN NOTE 1 ON S-2.

NOTES:

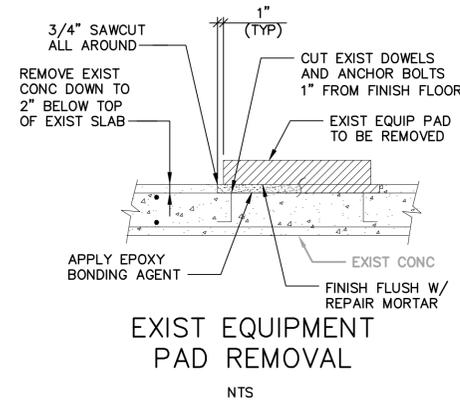
1. ENGINEER SHALL INSPECT AND MARK THE SURFACE AREAS TO BE REPAIRED AFTER CONTRACTOR HAS DRAINED, POWER WASHED AND DISINFECTED THE WET WELL AND CHANNELS.
2. ENGINEER SHALL IDENTIFY AND MARK REPAIR TYPES ON SURFACES.
3. DAMAGED CONCRETE SHALL BE REMOVED TO A DEPTH UNTIL SOUND CONCRETE IS ENCOUNTERED AND REPAIRED.
4. FOR REPAIR DETAILS SEE DWG S-8.
5. ESTIMATED QUANTITIES ARE FOR BID PURPOSES ONLY.
6. TABLE ABOVE DOES NOT INCLUDE ESTIMATED REPAIR QUANTITIES FOR EQUIPMENT PAD REPAIR.



- 1 FOR CRACKS WIDER THAN 1/8" CUT CONCRETE AS SHOWN AND INSTALL BOND BREAKER AND JOINT SEALANT BONDED TO THE SIDES. FOR CRACKS LESS THAN 1/8-INCH, BOND BREAKER AND JOINT SEALANT AND CONCRETE GROOVE DEMO NOT REQUIRED.
- 2 WHERE EXISTING REINFORCING BARS ARE EXPOSED, REPAIR AS PER REPAIR TYPE 1.

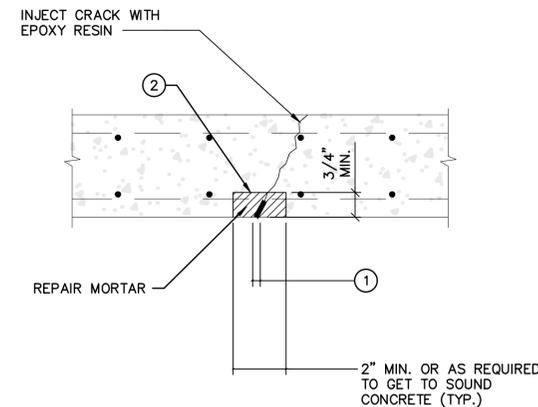
**NON STRUCTURAL CRACK REPAIR - TYPE 2**

SCALE: N.T.S.



**EXIST EQUIPMENT PAD REMOVAL**

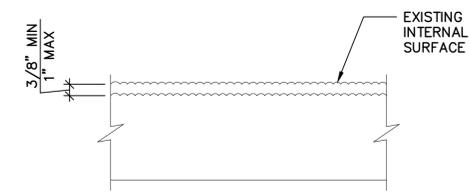
NTS



- 1 FOR CRACKS WIDER THAN 1/8" CUT CONCRETE AS SHOWN AND PATCH AS PER REPAIR TYPE 1. FOR CRACKS LESS THAN 1/8", REMOVAL OF CONCRETE AND REPAIR MORTAR NOT REQUIRED.
- 2 WHERE EXISTING REINFORCING BARS ARE EXPOSED, REPAIR AS PER REPAIR TYPE 1.

**STRUCTURAL CRACK REPAIR - TYPE 3**

SCALE: N.T.S.

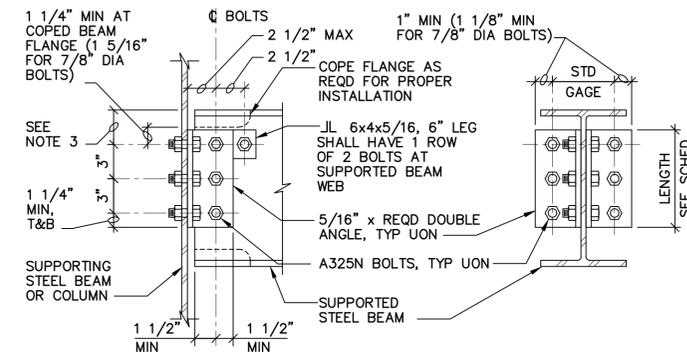


NOTES:

- 1 REMOVE DETERIORATED CONCRETE BY HYDROBLASTING. DAMAGED CONCRETE SHALL BE REMOVED TO A DEPTH UNTIL SOUND CONCRETE IS ENCOUNTERED AND REPAIRED PER SPECIFICATION SECTION 03 01 30. CONTRACTOR SHALL USE 1" MAX FOR BIDDING PURPOSES.
- 2 REPAIR CRACKS PER DETAIL 3 AS DIRECTED BY ENGINEER.
- 3 APPLY REPAIR MORTAR ON SURFACE TO RESTORE SURFACE TO ORIGINAL CONDITION.
- 4 COATING SHALL BE APPLIED AFTER ALL REPAIR TYPES ARE COMPLETED AND ON AREA IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.

**TYPICAL EXPOSED AGGREGATE REPAIR - TYPE 4**

N.T.S.

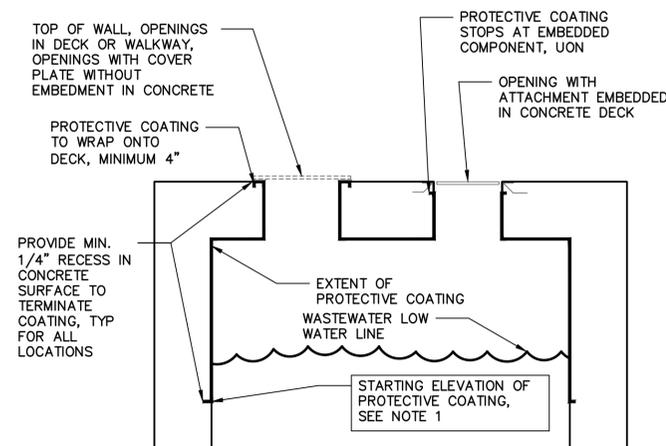


NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA, INCHES	DOUBLE ANGLE, LENGTH, INCHES	COMMENTS
12-15	3	3/4"	0'-8 1/2"	-
8-10	2	3/4"	0'-5 1/2"	-
6	1	3/4"	0'-3"	JL 6"x4"x5/16"
4	1	3/4"	0'-2 1/2"	JL 6"x4"x5/16"

NOTES:

1. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.
2. PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHEN REQUIRED OR USED.
3. DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

**TYPICAL BEAM CONNECTION - STEEL**



**TYP PROTECTIVE COATING DETAIL**

SCALE: N.T.S.

NOTES:

1. STARTING ELEVATION OF PROTECTIVE COATING:
  - a. WET WELL CHAMBERS: EL 59.00
  - b. WET WELL CHANNELS: EL 64.00



NO.	DATE	ISSUED FOR	BY

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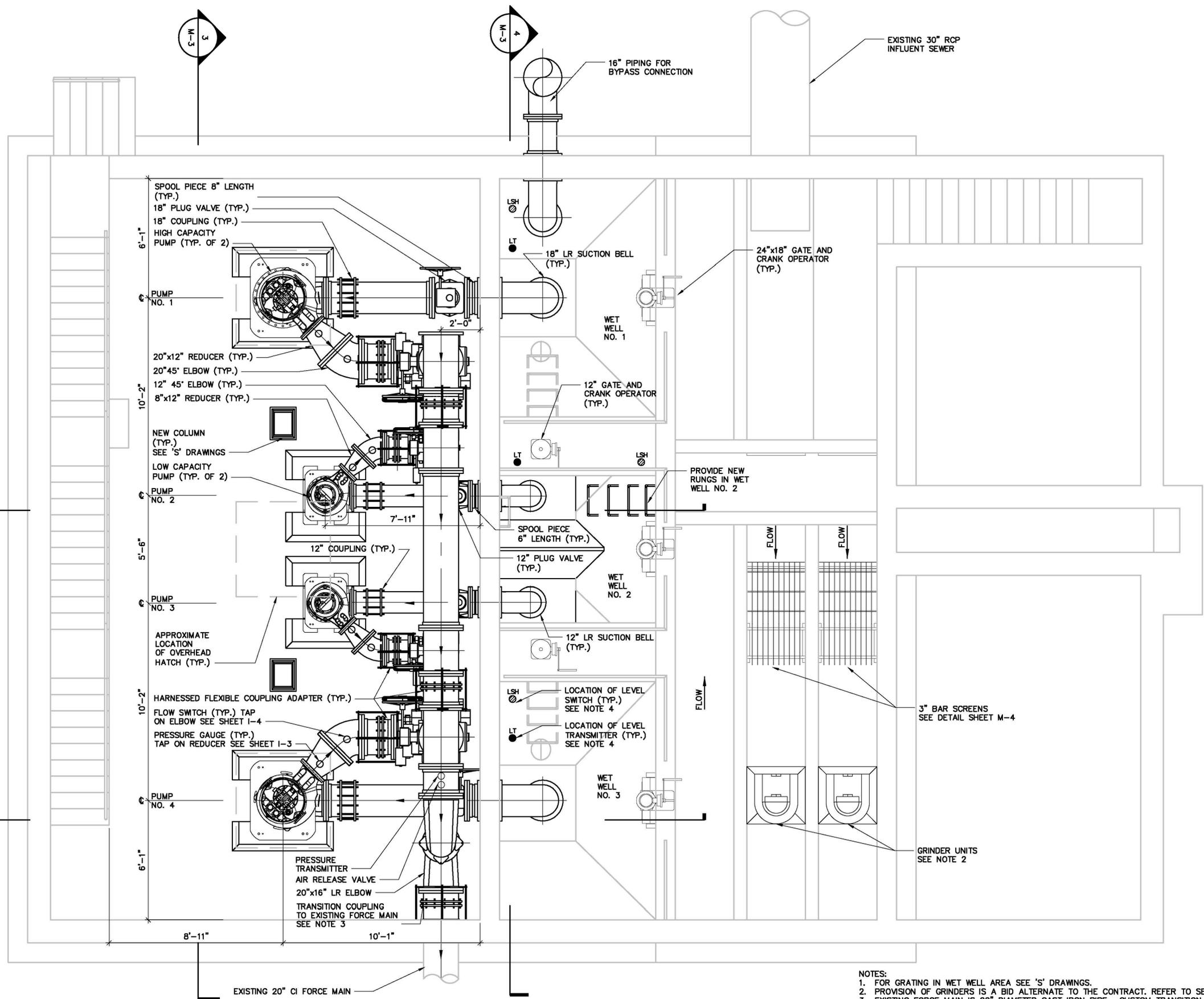
DATE: SEPTEMBER 2017  
 PROJECT NO.: 06532002.0000  
 FILE NAME: M-1  
 DESIGNED BY: T. O'CONNELL  
 DRAWN BY: T. O'CONNELL  
 CHECKED BY: V. MCPHERSON

SHEET TITLE

FLOOR PLAN

SCALE: 3/8" = 1'-0"

M-1  
SHEET 36 OF 69

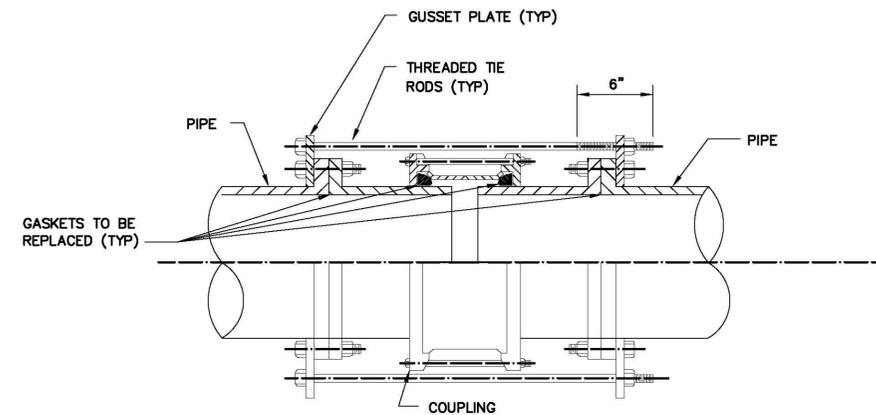
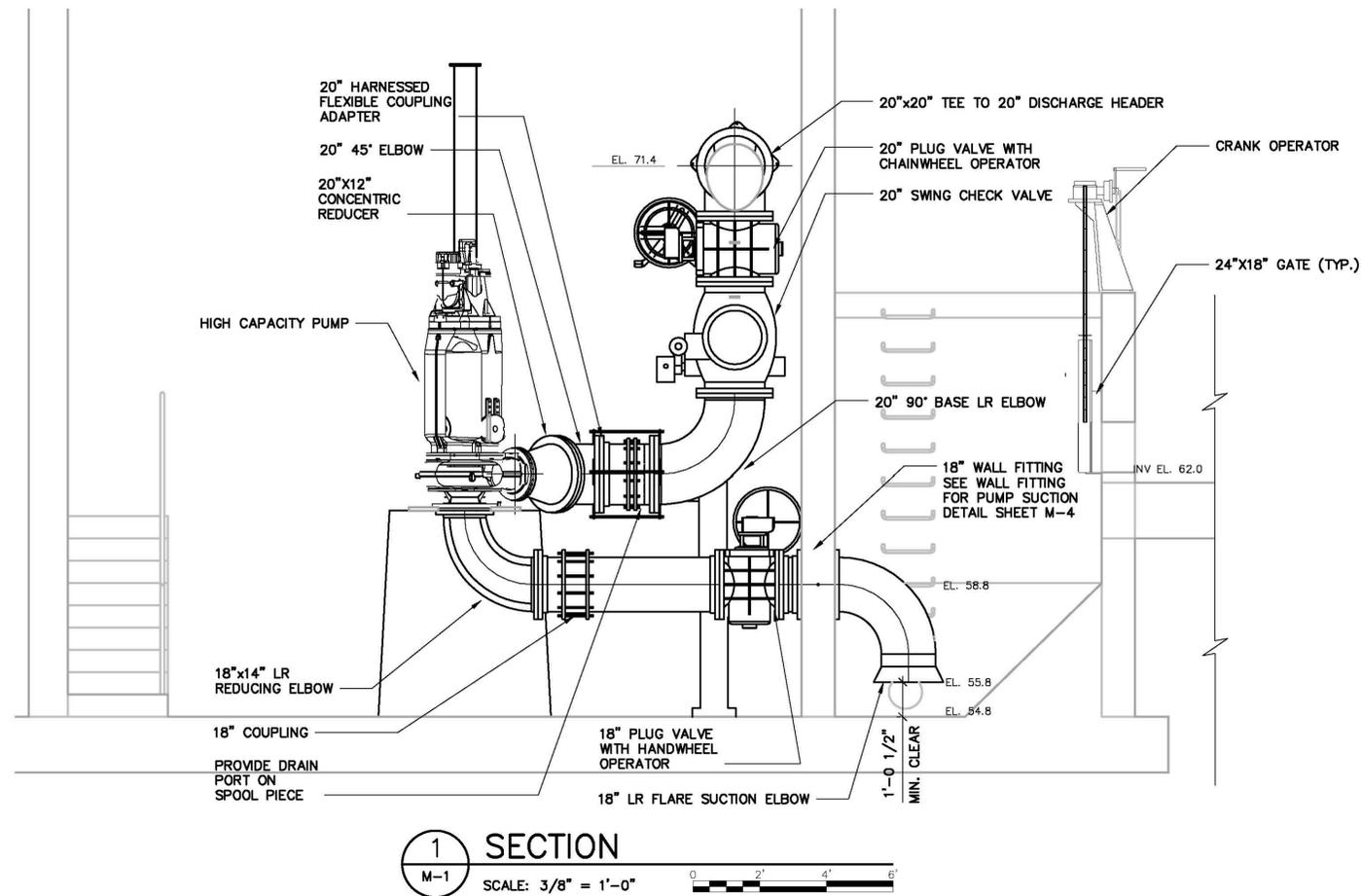


**PLAN OF BASEMENT AND WET WELL**

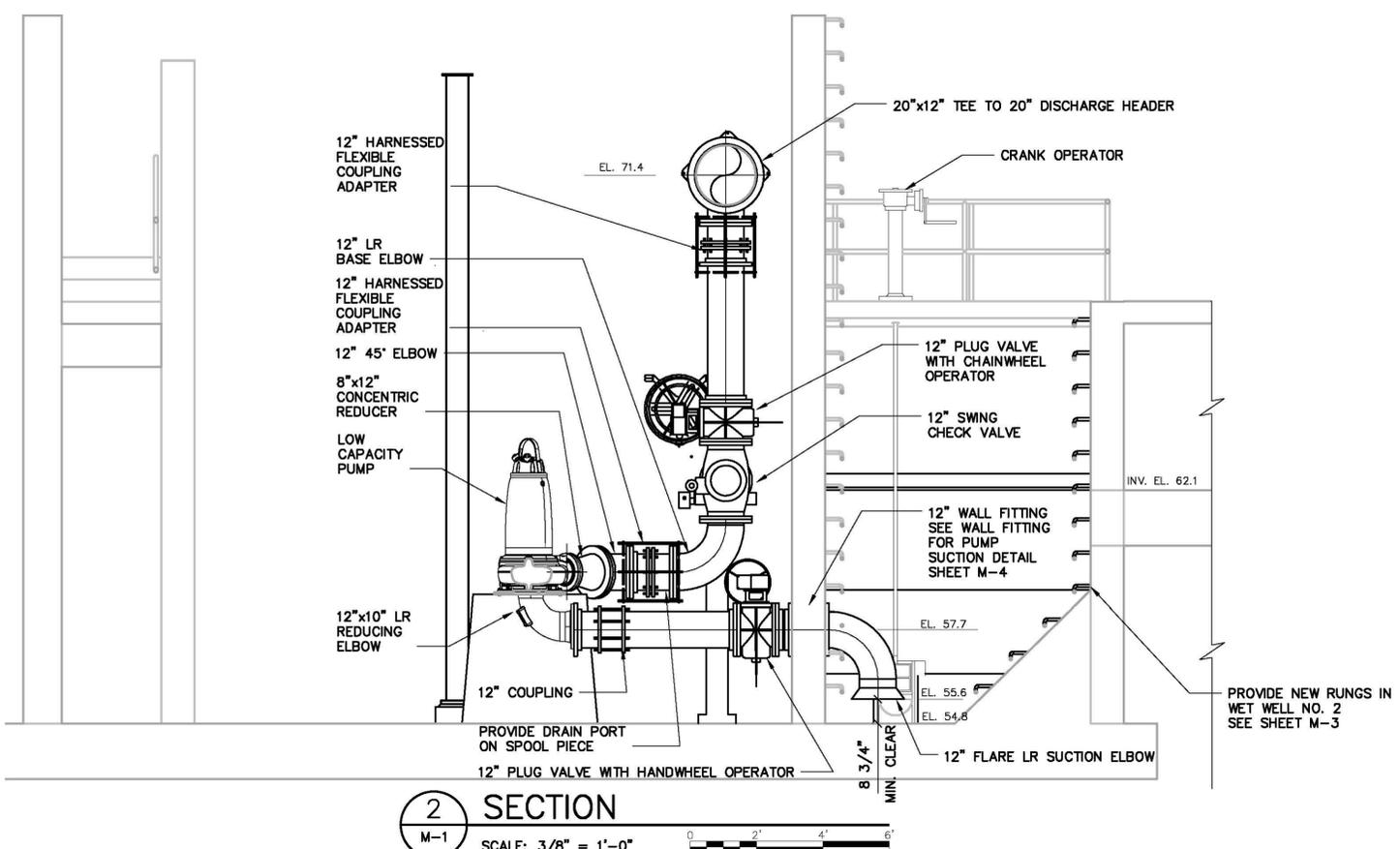
SCALE: 3/8" = 1'-0"

- NOTES:
- FOR GRATING IN WET WELL AREA SEE 'S' DRAWINGS.
  - PROVISION OF GRINDERS IS A BID ALTERNATE TO THE CONTRACT. REFER TO SECTION 01 22 13.
  - EXISTING FORCE MAIN IS 20" DIAMETER CAST IRON PIPE. CUSTOM TRANSITION HARNESS COUPLING TO BE FABRICATED AS REQUIRED FOR CONNECTION BETWEEN NEW DUCTILE IRON PIPING AND EXISTING CAST IRON FORCE MAIN.
  - GRATING/PLATE PENETRATIONS TO BE PROVIDED FOR LEVEL TRANSMITTERS AND SWITCHES AS REQUIRED.

User: T. O'CONNELL; Spec: AUS-NGSMOD; File: \\ACAD\PROJ\06532002.0000\SHEETS\MECHANICAL\M-1.DWG; Scale: 1/1; SavedDate: 9/27/2017; Time: 11:20; Plot Date: 9/27/2017; Time: 12:14; Layout: M-1



- NOTES:
1. PROVIDE NEW HARNESING RODS PER THIS DETAIL WHERE NOTED ON THE DRAWINGS.
  2. THE NUMBER OF TIE RODS, HARNES LUGS CONFIGURATION AND MATERIAL THICKNESS SHALL BE IN ACCORDANCE WITH AWWA M-11, STEEL PIPE - A GUIDE FOR DESIGN AND INSTALLATION.



- NOTES:
1. NOT ALL PIPE SUPPORTS ARE SHOWN. DESIGN OF SUPPORT SYSTEM DELEGATED TO CONTRACTOR. REFER TO SECTION 40 05 07 FOR PIPE HANGER AND SUPPORT REQUIREMENTS.

User: T. O'CONNELL, Scale: AUS - NCSH00, File: V:\CAD\PROJ\06532002.0000\SHEETS\MECHANICAL\M-2.DWG, Scale: 1:1, SavedDate: 9/27/2017, Time: 11:42, Plot Date: 9/27/2017, 12:13, Layout: M-2





NO.	DATE	ISSUED FOR	BY

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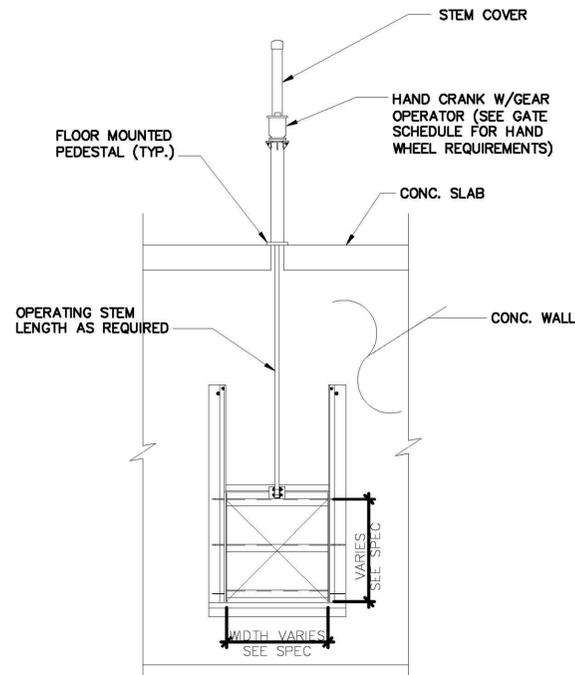
DATE: SEPTEMBER 2017  
PROJECT NO.: 06532002.0000  
FILE NAME: M-4  
DESIGNED BY: T. O'CONNELL  
DRAWN BY: T. O'CONNELL  
CHECKED BY: V. MCPHERSON

SHEET TITLE

**SECTIONS & DETAILS  
III**

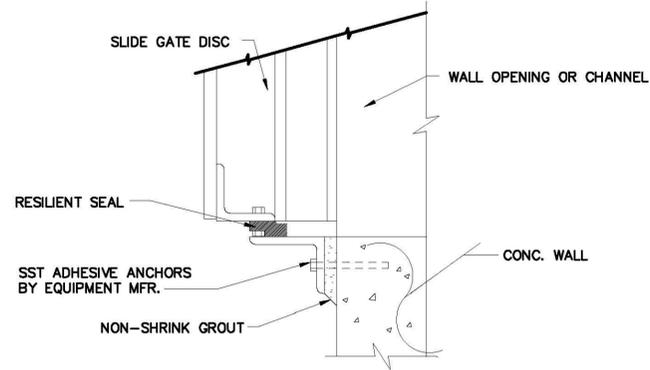
SCALE:  
AS SHOWN

**M-4**  
SHEET 39 OF 69



**NON-SELF CONTAINED  
PEDESTAL MOUNTED SLIDE  
GATE TYPICAL DETAIL**

SCALE: N.T.S.

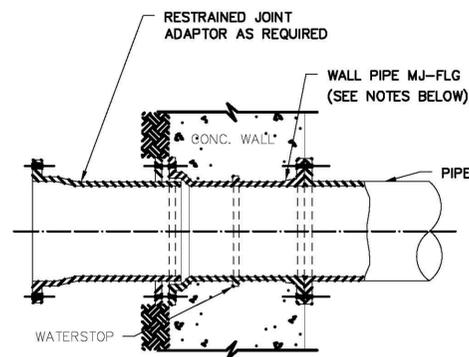


**FACE MOUNTED INVERT  
CLOSURE DETAIL**

SCALE: N.T.S.

NOTES:

- GATE DETAILS SHOWN VARY BY MANUFACTURER. CONTRACTOR TO COORDINATE GATE DETAILS OF CONSTRUCTION, INCLUDING MOUNTING ARRANGEMENTS, SIZES, AND DIMENSIONS WITH EQUIPMENT FURNISHED.
- CONTRACTOR TO COORDINATE HAND CRANK OPERATOR ORIENTATION SO AS TO AVOID INTERFERENCES WITH ADJACENT STRUCTURES AND EQUIPMENT. SEE PLANS FOR GATE LOCATIONS.
- PROVIDE STOP BARS AND STEM GUIDES ON OPERATING STEM AS REQUIRED.
- SEE SPEC FOR SIZES OF OPENINGS AND REQUIRED GATE TRAVEL HEIGHT.
- FACE MOUNTED SLIDE GATES SHOWN ABOVE. COORDINATE DETAILS WITH EQUIPMENT FURNISHED.
- \* - DENOTES DIMENSION TO BE COORDINATED WITH EQUIPMENT FURNISHED. SEE NOTE 1.

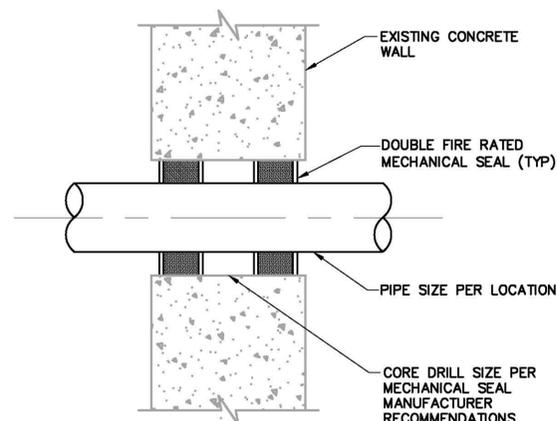


**WALL FITTING FOR PUMP  
SUCTION**

SCALE: N.T.S.

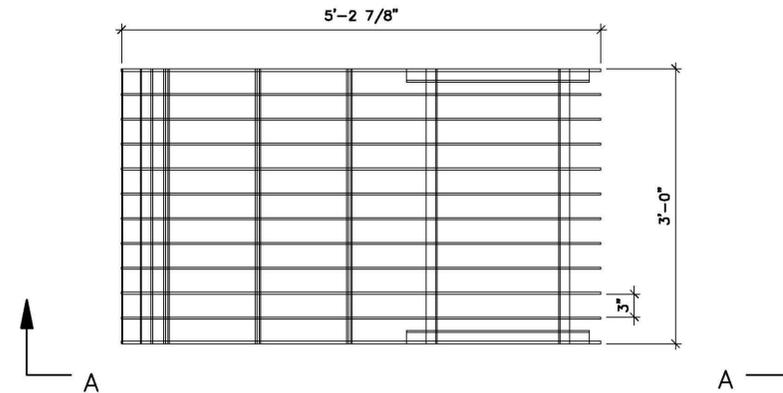
NOTES:

- WALL PIPE CAN BE MJ-FLG (SHOWN ABOVE), FLG-FLG, MJ-PE AND FLG-PE.
- WALL PIPE IS TO BE SET FLUSH WITH WALL UNLESS OTHERWISE NOTED.
- FLANGES & MJ SHOULD BE DRILLED AND TAPPED FOR STUDS.

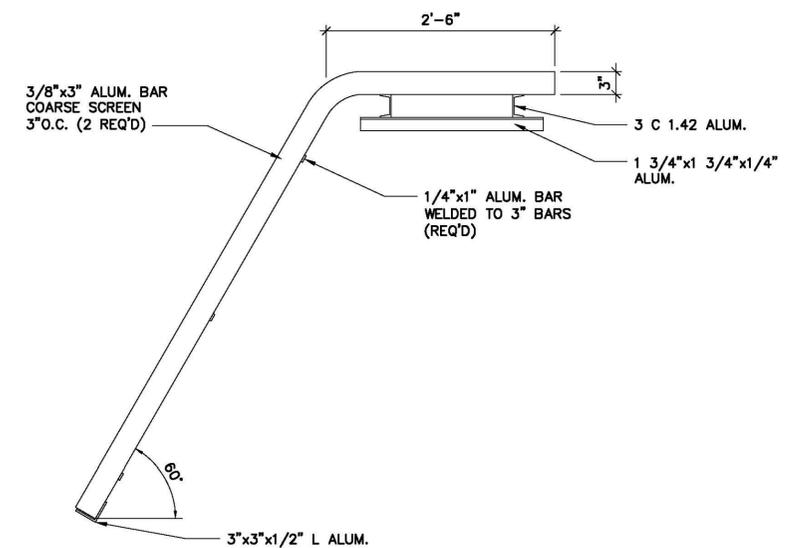


**TYPICAL PIPE PENETRATION  
THROUGH WALLS**

SCALE: N.T.S.



PLAN



SECTION A-A

**BAR SCREEN DETAIL**

SCALE: 1" = 1'-0"

# ABBREVIATIONS

# PIPING SYMBOLS

# DUCTWORK SYMBOLS

# GENERAL NOTES



LEGAL ENTITY:  
ARCADIS U.S., INC.

CONSULTANTS

SEALS



TOWN OF TRUMBULL, CT  
WPCA

BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE

ARCADIS PROJ. NO. 06532002.0000

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2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: H-1

DESIGNED BY: S. CHHEA

DRAWN BY: S. CHHEA

CHECKED BY: J. CALLAHAN

SHEET TITLE

SYMBOLS,  
ABBREVIATIONS &  
NOTES

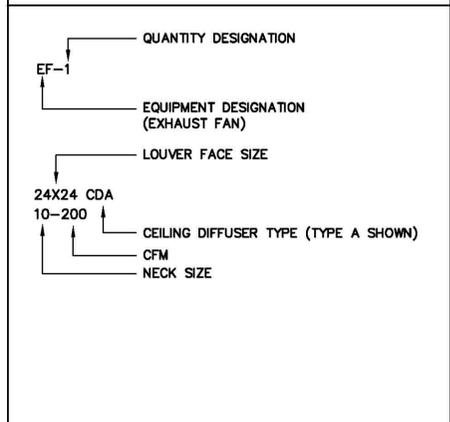
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H-1  
SHEET 40 OF 69

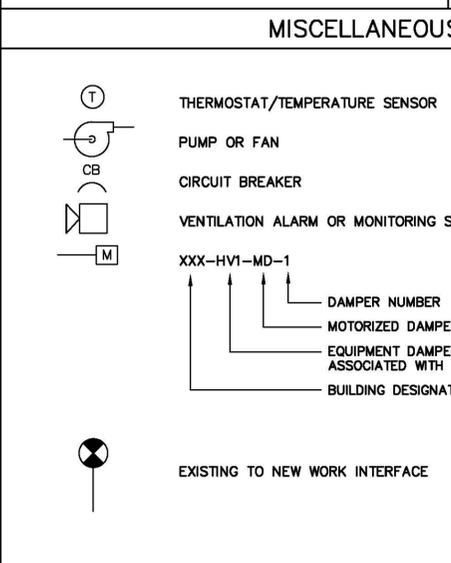
HVAC	
ACH	AIR CHANGES PER HOUR
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
AL	ALUMINUM
AMB	AMBIENT
APPROX	APPROXIMATE
ATC	AUTOMATIC TEMPERATURE CONTROL
AUTO	AUTOMATIC
BBO	BATTERY BACK UP OPEN
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOG	BOTTOM OF GRILLE
BOT EL	BOTTOM ELEVATION
BOU	BOTTOM OF UNIT
BTU/HR	BRITISH THERMAL UNITS PER HOUR
BTUH	BRITISH THERMAL UNITS PER HOUR
CL	CENTER LINE
CD	CEILING DIFFUSER
CFM	CUBIC FEET OF AIR PER MINUTE
CGD	COMBUSTION GAS DETECTOR
CO	CLEAN OUT
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONT	CONTINUATION
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
ECAV	EXHAUST CONSTANT AIR VOLUME
EG	EXHAUST GRILLE
EL	ELEVATION
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EQUIP	EQUIPMENT
EWT	ENTERING WATER TEMPERATURE
EVAV	EXHAUST VARIABLE AIR VOLUME
EXH	EXHAUST
EXIST	EXISTING
F&B	FACE & BYPASS
FD	FIRE DAMPER
FLR	FLOOR
FO	FUEL OIL
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOPR	FUEL OIL PRESSURE RELIEF
FPM	FEET PER MINUTE
FT	FEET
GAL	GALVANIZED
GBD	GRAVITY BACKDRAFT DAMPER
GPM	GALLONS PER MINUTE
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HP	HORSEPOWER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
KW	KILOWATT
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LBG	LINEAR BAR GRILLE
LCD	LIQUID CRYSTAL DISPLAY
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MECH	MECHANICAL
MIN	MINIMUM
MFR	MANUFACTURER
MOP	MAX OVERCURRENT PROTECTION
MTD	MOUNTED
NA	NOT APPLICABLE
NK	NECK
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
NFA	NET FREE AREA
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OPNG	OPENING
PD	PRESSURE DROP
PE	PNEUMATIC/ELECTRIC
PVC	POLYVINYL CHLORIDE
RECIP	RECIPROCATING
RD	ROOF DRAIN

RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RM	ROOM
RR	RETURN REGISTER
RO	ROOF OPENING
RS	REFRIGERANT SUCTION
RV	RELIEF VENT
SC	SPRING CLOSE
SCAV	SUPPLY CONSTANT AIR VOLUME
SCH	SCHEDULE
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR OR SANITARY DRAIN
SG	SUPPLY GRILLE
SMD	SMOKE DAMPER
SO	SPRING OPEN
SP	STATIC PRESSURE
SRV	SAFETY RELIEF VALVE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
SVAV	SUPPLY VARIABLE AIR VOLUME
TOD	TOP OF DUCT
TS	TOTAL STATIC
TSP	TOTAL STATIC PRESSURE
TVS	TEMPORARY VENTILATION STATION
TYP	TYPICAL
VAS	VENTILATION ALARM STATION
VD	MANUAL VOLUME DAMPER
VH	VALVE HEATING
VMS	VENTILATION MONITORING STATION
WB	WET BULB
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
W/	WITH

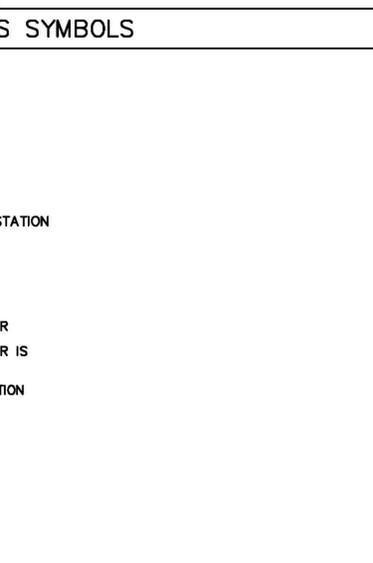
EQUIPMENT	
AC	AIR CONDITIONING UNIT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
CF	CIRCULATING FAN
CH	CHILLER
CRAC	COMPUTER ROOM AIR CONDITIONER
CUH	CABINET UNIT HEATER
CV	CONVECTOR
CWH	CABINET WALL HEATER
DDC	DIRECT DIGITAL CONTROL
DH	DEHUMIDIFICATION UNIT
EBH	ELECTRIC BASEBOARD HEATER
EF	EXHAUST FAN
EUH	ELECTRIC UNIT HEATER
FACP	FIRE ALARM CONTROL PANEL
FBP	FIBER BRANCH PANEL
FPP	FIBER PATCH PANEL
GDC	GLYCOL DRY COOLER
HUH	HOT WATER UNIT HEATER
HV	HEATING AND VENTILATING UNIT
HVAC	HEATING, VENTILATING, AIR CONDITIONING UNIT
HWB	HOT WATER BOILER
HWP	HOT WATER PUMP
HWPP	HOT WATER PRIMARY PUMP
HWSP	HOT WATER SECONDARY PUMP
IWH	INDIRECT WATER HEATER
MAU	MAKE-UP AIR UNIT
P	PUMP
PSP	PURGE STATION PANEL
PTAC	PACKAGED TERMINAL AC UNIT
RHP	RADIANT HEATING PANEL
SF	SUPPLY FAN
SPP	SMOKE PURGE PANEL



— HWS —	HOT WATER SUPPLY
— HWR —	HOT WATER RETURN
— CA —	COMPRESSED AIR
— CHWS —	CHILLED WATER SUPPLY
— CHWR —	CHILLED WATER RETURN
— DG —	DIGESTER GAS
— EFWS —	EFFLUENT WATER SUPPLY
— EFWR —	EFFLUENT WATER RETURN
— D —	DRAIN
— FOS —	FUEL OIL SUPPLY
— FOR —	FUEL OIL RETURN
— V —	VENT
— FOV —	FUEL OIL VENT
— FOG —	FUEL OIL GAUGE
— NG —	NATURAL GAS
— CW —	COLD WATER
— MU —	MAKE-UP WATER
—	EXPANSION JOINT
—	DIRECTION OF PITCH
—	ELBOW UP
—	ELBOW DOWN
—	TEE DOWN
—	TEE UP
—	PIPE CAP
—	CONNECTION UP
—	CONNECTION DOWN
—	ALIGNMENT GUIDE
—	ANCHOR
—	CONTROL VALVE, (2-WAY) ELECTRIC MOTOR OPERATED
—	CONTROL VALVE, (3-WAY) ELECTRIC MOTOR OPERATED

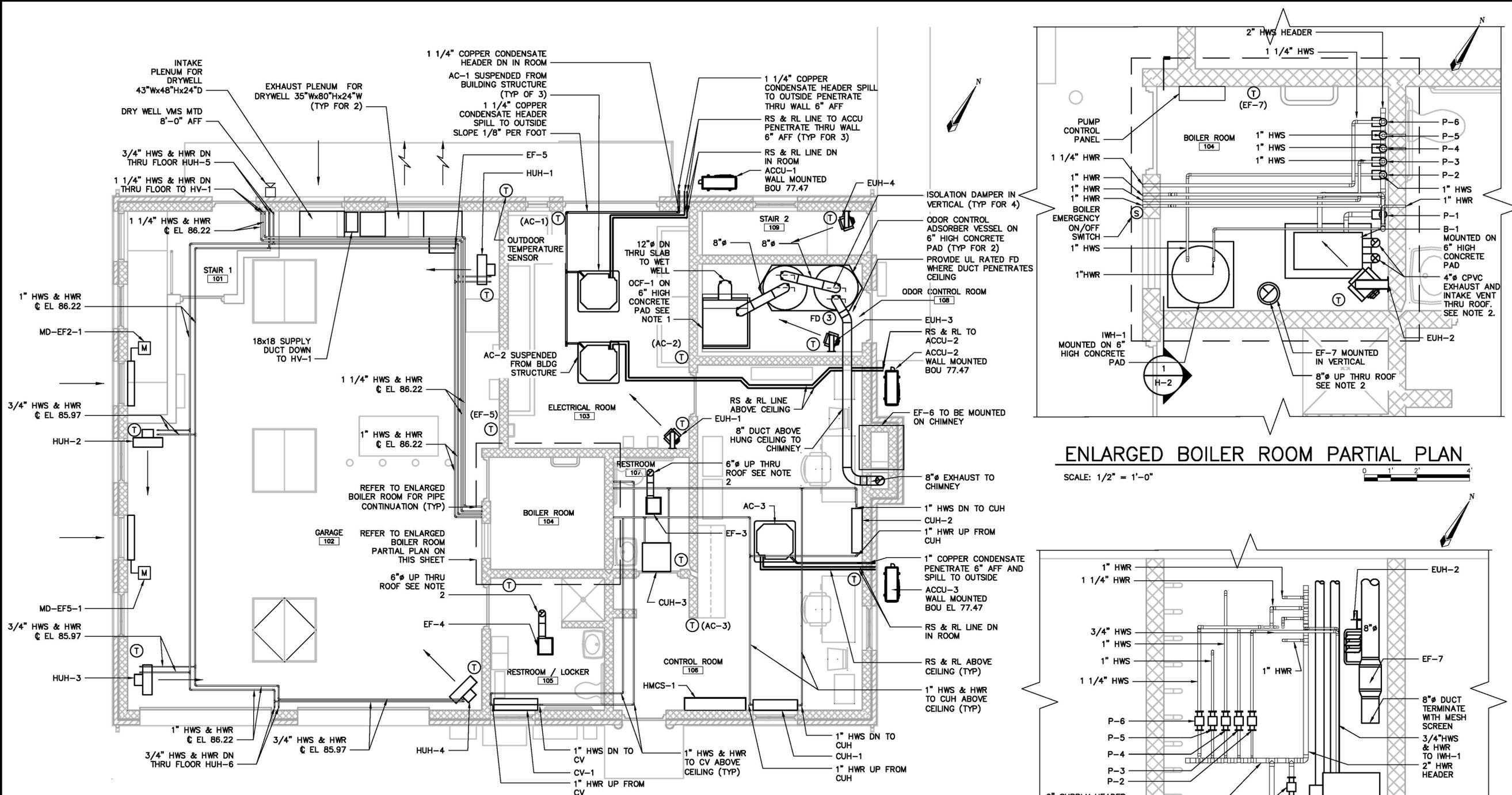


—	ISOLATION VALVE TYPE DESIGNATED IN SPECIFICATION
—	BUTTERFLY VALVE
—	CHECK VALVE
—	GATE VALVE
—	GLOBE VALVE
—	TRIPLE DUTY VALVE (STRAIGHT, ANGLE PATTERN)
—	BALANCING VALVE
—	BALL VALVE
—	SOLENOID VALVE
—	Y STRAINER
—	FLOW SWITCH
—	REDUCER (CONCENTRIC)
—	REDUCER (ECCENTRIC)
—	UNION
—	THERMOMETER
—	PRESSURE GAUGE
—	FLEXIBLE CONNECTION
— RL —	REFRIGERANT LIQUID LINE
— HG —	HOT GAS LINE
— RS —	REFRIGERANT SUCTION LINE
—	CONTROL SWITCH
—	PRESSURE SWITCH
—	EXISTING PIPING/EQUIPMENT
—	NEW PIPING/EQUIPMENT
—	HIDDEN PIPING/EQUIPMENT



—	SUPPLY AIR
—	RETURN OR EXHAUST AIR
12" X 12"	DUCT, DIRECTION OF FLOW, SIZE
—	DUCT SECTION, SUPPLY
—	DUCT SECTION, EXHAUST
—	DUCT SECTION, RETURN
—	DROP (D) CHANGE OF ELEVATION RISE (R),
—	FLEXIBLE CONNECTION
—	FLEXIBLE DUCT
—	MITERED ELBOW W/ TURNING VANES
—	DUCT ELBOW DOWN, SUPPLY SHOWN
—	DUCT ELBOW UP, SUPPLY SHOWN
—	VOLUME DAMPER
—	SUPPLY REGISTER OR GRILLE
—	EXHAUST REGISTER OR GRILLE
—	RETURN REGISTER OR GRILLE
—	FOUR WAY BLOW SUPPLY DIFFUSER / REGISTER
—	THREE WAY BLOW SUPPLY DIFFUSER / REGISTER
1.0   S.F.	DOOR LOUVER, SIZE
100 CFM	DOOR UNDERCUT
—	DUCTWORK WITH INTERNAL INSULATION
—	MOTORIZED DAMPER (ELECTRIC)
—	SMOKE DAMPER
—	GRAVITY BACKDRAFT DAMPER
—	FIRE DAMPER W/ ACCESS DOOR
—	DESIGNATES FIRE WALL RATING
—	TWO WAY BLOW SUPPLY DIFFUSER
—	ONE WAY BLOW SUPPLY DIFFUSER
—	LINEAR DIFFUSER
—	EXISTING DUCTWORK/EQUIPMENT
—	NEW DUCTWORK/EQUIPMENT
—	HIDDEN DUCTWORK/EQUIPMENT

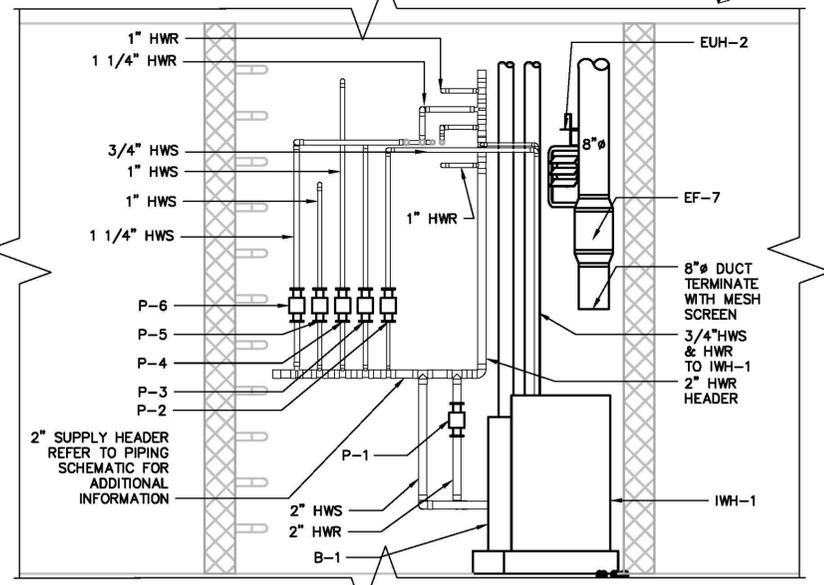
- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED ARE NECESSARILY USED.
- CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO BEGINNING WORK SHOWN.
- LOCATION, ELEVATION AND DIMENSIONS OF EXISTING PIPING, DUCTWORK, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING PIPING, DUCTWORK, STRUCTURES AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER (IN WRITING) IF ANY LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING PIPING, DUCTWORK, STRUCTURES AND OTHER FEATURES SIGNIFICANTLY DIFFER FROM THOSE SHOWN. THE ENGINEER WILL ISSUE WRITTEN INSTRUCTIONS IF WARRANTED. IT IS THE INTENT OF THIS CONTRACT THAT THE CONTRACTOR BE RESPONSIBLE TO MAKE ANY AND ALL ADJUSTMENTS IN CONSTRUCTION NECESSARY TO SUIT EXISTING DIMENSIONS OR ELEVATIONS, AT NO CHANGE IN CONTRACT PRICE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- ALL DUCT DIMENSIONS ARE CLEAR DIMENSIONS TO INSIDE OF DUCT. DIMENSIONS TO DUCTS FROM FLOOR OR WALL SHALL BE TO THE OUTSIDE OF DUCT. WHERE INTERNAL INSULATION IS REQUIRED, THE DUCT SIZE SHALL BE INCREASED TO GIVE CLEAR INSIDE DIMENSIONS.
- EQUIPMENT SIZES AND LOCATIONS ARE APPROXIMATE. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED.
- CONCRETE PAD SIZES AND LOCATIONS SHALL BE COORDINATED DURING CONSTRUCTION WITH APPROVED EQUIPMENT.
- FINAL SIZES OF FLOOR OPENINGS, WALL OPENINGS, ROOF OPENINGS, DUCT PLENUMS, DUCT TRANSITIONS AND PIPING CONNECTIONS TO EQUIPMENT SHALL BE DETERMINED BY EQUIPMENT FURNISHED.
- FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
- FIELD COORDINATE FOR EXISTING FLOOR DRAIN LOCATIONS.
- WHERE PIPING OR DUCTWORK CONNECTS TO EXISTING PIPING OR DUCTWORK, MODIFY EXISTING PIPING OR DUCTWORK AS REQUIRED TO MAKE CONNECTION.
- WHERE PIPES OR DUCTS PENETRATE THROUGH EXISTING FLOORS, WALLS, OR SLABS, CORE DRILL OR SAW CUT PENETRATION. THIS WORK SHALL BE PROVIDED UNDER THE GENERAL CONTRACT AND COORDINATED UNDER THE HVAC CONTRACT.
- PATCH EXISTING PENETRATIONS THROUGH WALLS AND FLOORS THAT RESULTED FROM DEMOLITION OF EXISTING DUCTWORK, PIPING AND EQUIPMENT. THIS WORK SHALL BE PROVIDED UNDER THE GENERAL CONTRACT AND COORDINATED UNDER THE HVAC CONTRACT.
- VOLUME DAMPERS SHOWN OR DESCRIBED ON THE DRAWINGS ARE IN ADDITION TO OPPOSED BLADE DAMPERS PROVIDED WITH REGISTERS.
- PROVIDE PIPE SLEEVES AND MECHANICAL SEALS FOR ALL PIPING AND CONTAINMENT CONDUIT PENETRATIONS THRU CONCRETE OR MASONRY CONSTRUCTION INCLUDING BUT NOT LIMITED TO WALLS, FLOORS, ROOFS, PADS, UNDERGROUND STRUCTURES EXCEPT WHERE OTHERWISE NOTED.
- REFER TO CODE COMPLIANCE DRAWINGS UNDER THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DESIGN INFORMATION REQUIRED UNDER THIS CONTRACT.



**FLOOR PLAN AT EL 76.80**  
SCALE: 1/4" = 1'-0"

- NOTES:
1. THE ODOR CONTROL SYSTEM IS INCLUDED AS A BID ALTERNATE TO THE CONTRACT.
  2. ALL EXHAUST FAN EXHAUST DUCT AND BOILER VENTS SHALL BE THRU NORTH SIDE OF ROOF. ROUTE DUCT/VENT IN ATTIC ACCORDINGLY AND TERMINATE ALL DUCTS THROUGH A COMMON CUSTOM CURB BY THYBAR OR EQUAL. CONTRACTOR SHALL PROVIDE CUSTOM ROOF CURB COMPATIBLE FOR PITCHED ROOF. REFER TO ARCH DRAWINGS FOR ROOF PENETRATION LOCATION AND FLASHING DETAIL. ROUGH OPENING FOR CURB IS 2'-6" x 3'-6". EACH EXHAUST DUCT SHALL TERMINATE WITH A GOOSENECK. COMBUSTION INTAKE AIR DUCT FOR BOILER SHALL BE A VERTICAL TYPE WITH WEATHER INTAKE CAP PER THE BOILER MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL FURNISH AND INSTALL WEATHER RESISTANT METAL CURB CAP WITH PIPE BOOT ADAPTERS FOR INTAKE AND EXHAUST VENTS THRU CHIMNEY. INTAKE AND EXHAUST VENT SPACING AND HEIGHTS FOR BOILER SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

**ENLARGED BOILER ROOM PARTIAL PLAN**  
SCALE: 1/2" = 1'-0"

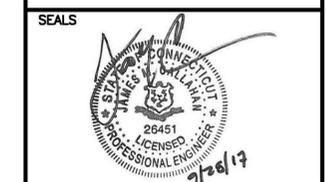
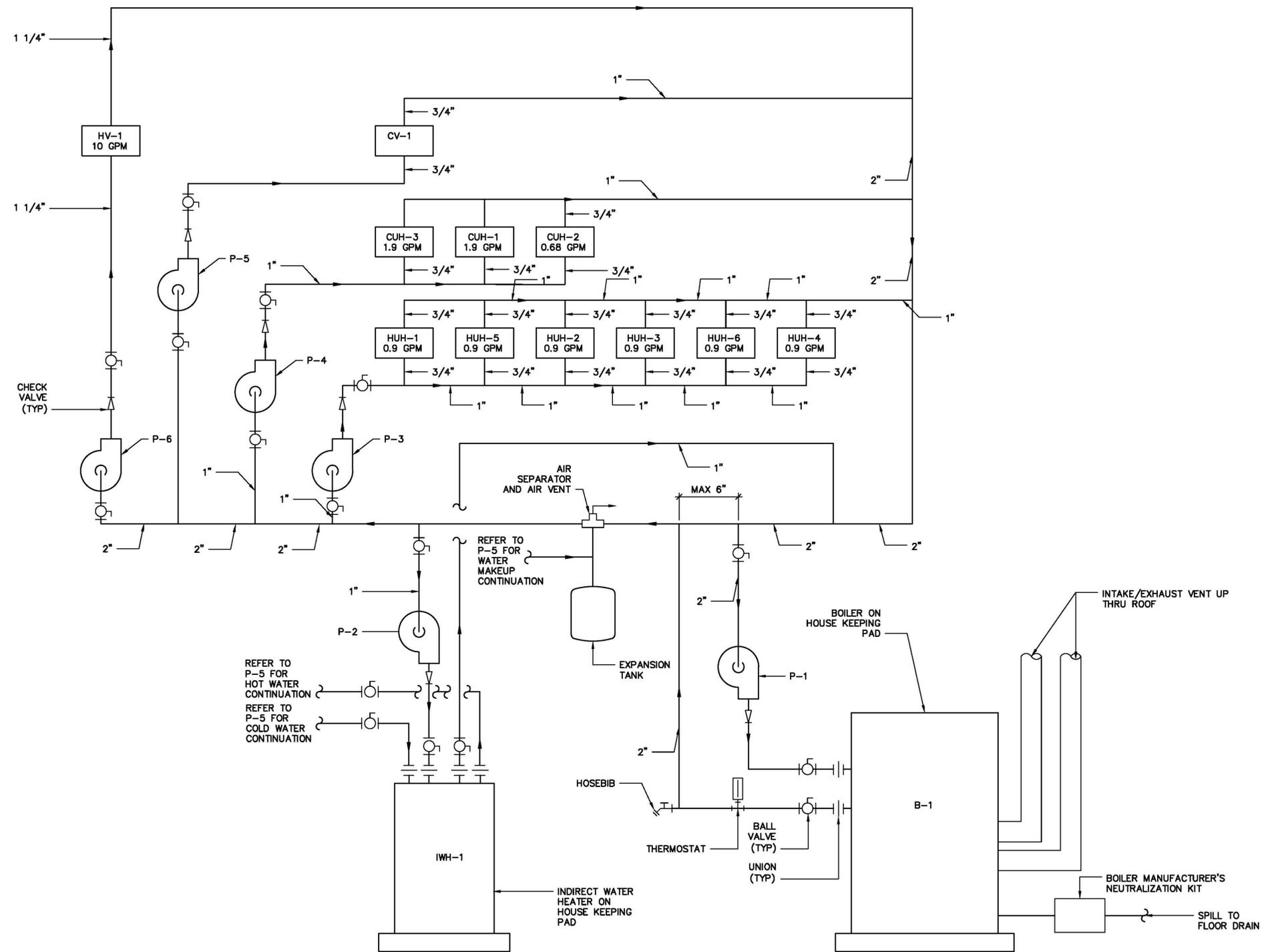


**SECTION H-2**  
SCALE: 1/2" = 1'-0"

User: CHHEA Spec: AUS-HUCS-MOD File: \\ACAD\PROJ\06532002.0000\SHEETS\HVAC\H-2.DWG Scale: 1/4" = 1'-0" Time: 10:33 Plot Date: Chhea, September, 9/27/2017, 15:22 Layout: H-2



User: CHHEA Spec: AUS-HUCS/MOD File: \\ACAD\PROJ\06532002\0000\SHEETS\HVAC\H-4.DWG Scale: 1:1 SavedDate: 9/26/2017 Time: 08:59 Plot Date: O'Connell, Timothy 9/27/2017 14:57 Layout: H-4



TOWN OF TRUMBULL, CT  
WPCA

BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE

ARCADIS PROJ. NO. 06532002.0000

NO.	DATE	ISSUED FOR	BY

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2017

DATE: SEPTEMBER 2017  
 PROJECT NO.: 06532002.0000  
 FILE NAME: H-4  
 DESIGNED BY: S. CHHEA  
 DRAWN BY: S. CHHEA  
 CHECKED BY: J. CALLAHAN

SHEET TITLE

**PIPING SCHEMATIC**

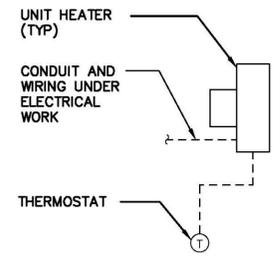
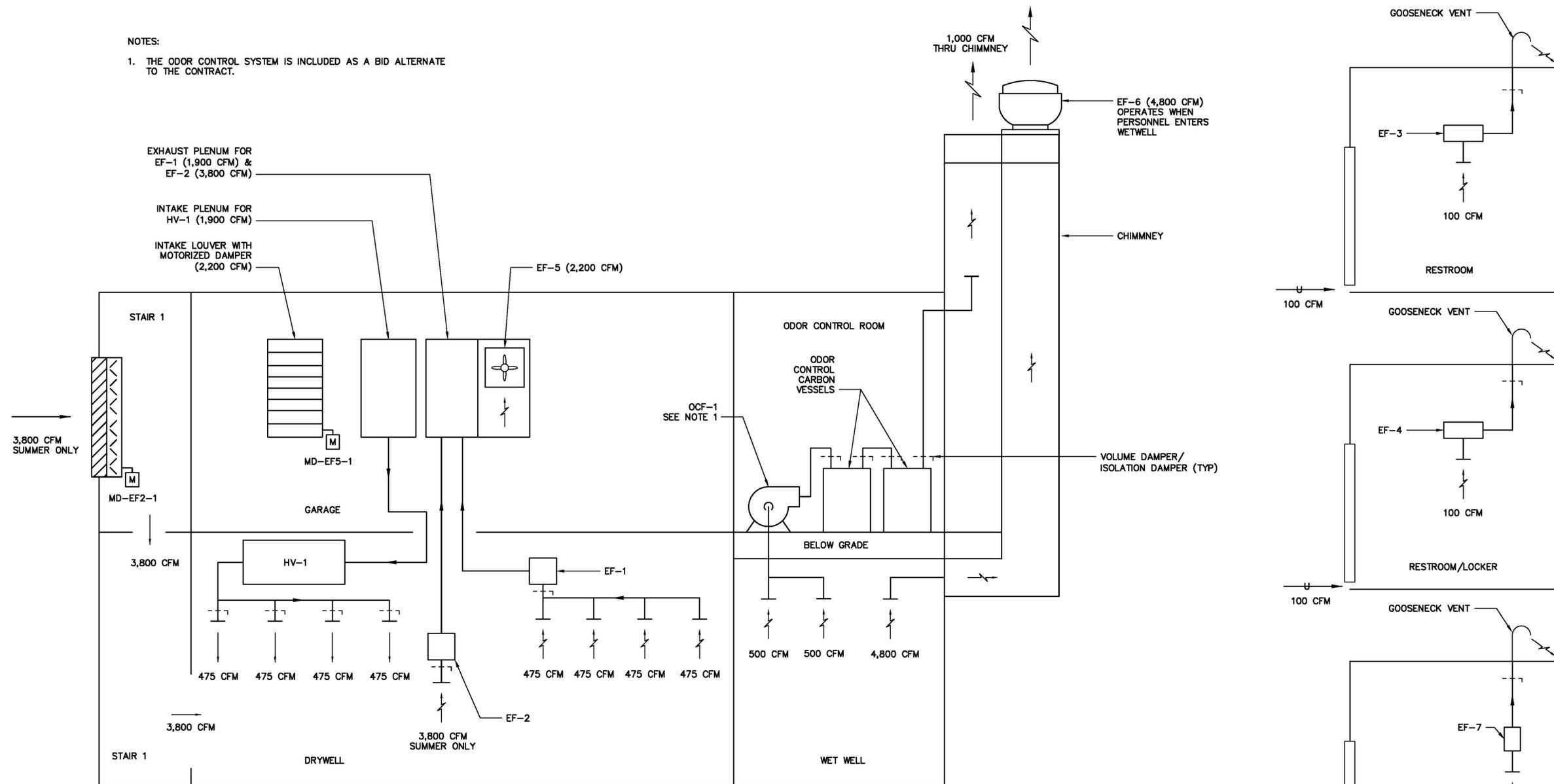
SCALE:  
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**H-4**  
SHEET 43 OF 69

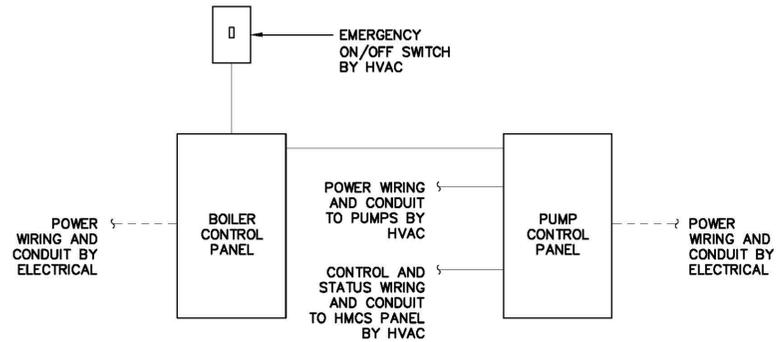


NOTES:

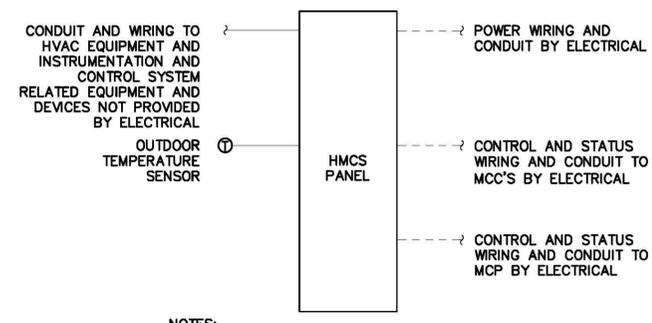
1. THE ODOR CONTROL SYSTEM IS INCLUDED AS A BID ALTERNATE TO THE CONTRACT.



TYPICAL UNIT HEATER CONTROL SCHEMATIC



BOILER AND PUMP CONTROL PANEL SCHEMATIC

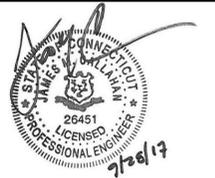


NOTES:

1. REFER TO SPECIFICATION SECTION 23 09 00 FOR CONTROL EQUIPMENT AND SEQUENCE OF OPERATIONS.

HMCS PANEL SCHEMATIC

User: CHHEA, Spec: AUS-HUCS000, File: \\ACAD\PROJ\06532002\0000\SHEETS\HVAC\H-5.DWG, Scale: 1:1, SavedDate: 9/27/2017, Time: 10:35, Plot Date: 9/27/2017, Time: 14:58, Layout: H-5



**HEATING AND VENTILATING UNIT SCHEDULE**

MARK NO.	LOCATION	SERVICE	SUPPLY FAN DATA										HEATING COIL DATA										FILTER DATA		TOTAL POWER		WEIGHT (LBS)	MFR	MODEL	NOTES		
			TOTAL AIRFLOW (CFM)	OUTSIDE AIR FLOW (CFM)	T.S.P. (IN W.G.)	E.S.P. (IN W.G.)	FAN RPM	DRIVE	HP	BHP	MOTOR RPM	V/PH	TYPE	PROPYLENE GLYCOL/ WATER MIX (%)	TOTAL MBH	FACE AREA (SQ. FT.)	WATER VELOCITY (FPS)	ROWS	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	MAX WATER PD (FT)	FLOW (GPM)	THICKNESS (IN)	MERV RATING					MCA (AMPS)	MOP (AMPS)
HV-1	DRYWELL	DRYWELL	1,900	1,900	1.0	0.75	1134	DIRECT	4	0.52	2750	460/3	WATER	50/50	132.0	7.22	4.33	1	10	67.4	180	150.4	8.7	10	4	8	6	15	800	AAON	H3	1

NOTES:  
1. DISCONNECT PROVIDED BY ELECTRICAL.

**FAN SCHEDULE**

MARK NO.	LOCATION	SERVICE	TYPE	DRIVE	AIRFLOW (CFM)	ESP (IN. W.G.)	SPEED (RPM)	MOTOR DATA					WEIGHT (LBS)	MFR	MODEL	NOTES
								INPUT WATTS	HP	BHP	RPM	V/PH				
OCF-1	ODOR CONTROL ROOM	WET WELL	CENTRIFUGAL	BELT	1,000	9.00	1780	N/A	3	1.99	1780	460/3	500	NEW YORK BLOWER	PRESSURE BLOWER	1, 3
EF-1	DRYWELL	DRYWELL	CENTRIFUGAL	DIRECT	1,900	0.50	1725	N/A	3/4	0.60	1725	460/3	100	LOREN COOK	SQND	1
EF-2	DRYWELL	DRYWELL	CENTRIFUGAL	DIRECT	4,066	0.50	1725	N/A	2	1.49	1725	460/3	125	LOREN COOK	SQND	1
EF-3	RESTROOM	RESTROOM	CENTRIFUGAL CEILING CABINET	DIRECT	123	0.33	N/A	38	N/A	N/A	1075	115/1	25	LOREN COOK	GN	1
EF-4	RESTROOM	RESTROOM	CENTRIFUGAL CEILING CABINET	DIRECT	123	0.33	N/A	38	N/A	N/A	1075	115/1	25	LOREN COOK	GN	1
EF-5	GARAGE	GARAGE	WALL PROPELLER	DIRECT	2,200	0.33	1521	N/A	1/2	0.26	1725	460/3	100	LOREN COOK	AWD	1
EF-6	OUTDOORS	WET WELL	WET WELL	BELT	4180	0.75	2008	N/A	2	1.49	2008	460/3	150	HARTZELL	A37	1, 2, 3
EF-7	BOILER ROOM	BOILER ROOM	INLINE	DIRECT	225	0.325	2119	56.8	N/A	N/A	2119	120/1	25	FANTECH	PRIOAIR 8	1

NOTES:  
1. DISCONNECT PROVIDED BY ELECTRICAL. 3. EXPLOSION PROOF MOTOR RATED FOR CLASS I DIV I  
2. STACK CAP.

**DUCTLESS SPLIT SYSTEM SCHEDULE**

MARK NO. EVAPORATOR (INDOOR)	MARK NO. CONDENSING UNIT (OUTDOOR)	INDOOR UNIT LOCATION	CONDENSING UNIT LOCATION	REFRIGERANT	EVAPORATOR (INDOOR) UNIT										CONDENSING (OUTDOOR) UNIT					ELECTRICAL DATA	SEER	NOTES	
					TOTAL COOLING CAPACITY (MBH)	SENSIBLE COOLING CAPACITY (MBH)	AIR FLOW (CFM)	V/PH	FAN FLA	MCA	MOUNTING	WEIGHT (LBS)	MFR	MODEL	V/PH	FAN FLA	MCA	WEIGHT	MFR				MODEL
AC-1	ACCU-1	ELECTRICAL ROOM	OUTDOOR	R-410A	30.0	30.0	705	208/1	0.43	1	WALL	50	mitsubishi	PKA	208/1	0.75	25	170	mitsubhishi	PUY	30	13	1, 2
AC-2	ACCU-2	ELECTRICAL ROOM	OUTDOOR	R-410A	30.0	30.0	705	208/1	0.43	1	WALL	50	mitsubishi	PKA	208/1	0.75	25	170	mitsubhishi	PUY	30	13	1, 2
AC-3	ACCU-3	CONTROL ROOM	OUTDOOR	R-410A	36	36.0	990	208/1	1.25	2	CEILING	75	mitsubishi	PLA	208/1	0.75	25	175	mitsubhishi	PUY	30	13.1	1, 2

NOTES:  
1. INDOOR UNIT POWERED FROM OUTDOOR UNIT.  
2. DISCONNECT PROVIDED BY ELECTRICAL.

**ELECTRIC UNIT HEATER SCHEDULE**

MARK NO.	LOCATION	SERVICE	COIL DATA			MOTOR DATA			TOTAL AMPS	CFM	EAT (°F)	LAT (°F)	THROW (FT)	DISCHARGE ORIENTATION	MTG. HEIGHT (AFF)	WEIGHT (LBS)	MFR	MODEL	NOTES
			MBH	KW	V/PH	RPM	HP	V/PH											
EUH-1	ELECTRICAL ROOM	ELECTRICAL ROOM	17.1	5.0	480/3	1550	1/35	480/3	6.3	380	55	97	12	HORIZONTAL	8	50	CHROMALOX	LUH	1
EUH-2	MECHANICAL ROOM	MECHANICAL ROOM	17.1	5.0	480/3	1550	1/35	480/3	6.3	380	55	97	12	HORIZONTAL	8	50	CHROMALOX	LUH	1
EUH-3	ODOR CONTROL ROOM	ODOR CONTROL ROOM	17.1	5.0	480/3	1725	1/4	480/3	5.6	700	55	77	28	HORIZONTAL	8	135	INDEECO	ULTRA-SAFE EXP	1
EUH-4	STAIRWELL	STAIRWELL	17.1	5.0	480/3	1725	1/4	480/3	5.6	700	55	77	28	HORIZONTAL	8	135	INDEECO	ULTRA-SAFE EXP	1

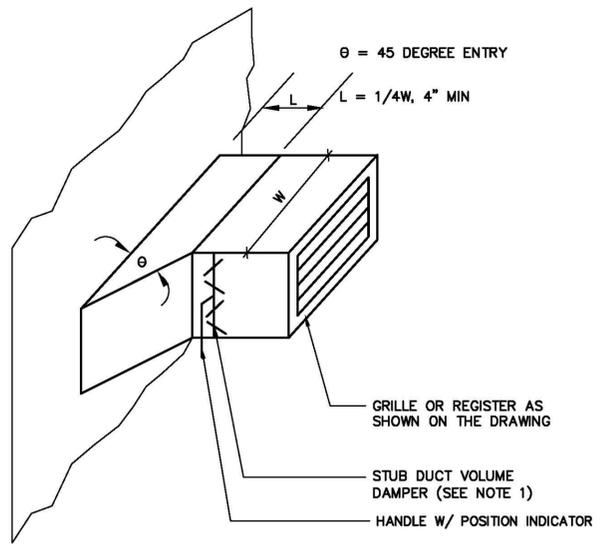
NOTES:  
1. DISCONNECT PROVIDED BY ELECTRICAL.

**HOT WATER UNIT HEATER SCHEDULE**

MARK NO.	LOCATION	SERVICE	COIL DATA					FAN										DISCHARGE ORIENTATION	MOUNTING HEIGHT AFF (FT)	WEIGHT (LB)	MFR	MODEL	NOTES
			MBH	EWT (°F)	LWT (°F)	FLOW (GPM)	MAX WATER PD (FT)	RPM	HP	V/PH/Hz	TOTAL AMPS	QTY	CFM	EAT (°F)	TEMP RISE (°F)	THROW (FT)							
HUH-1 THRU 4	PROCESS AREA	PROCESS AREA	17.2	180	140	0.9	0.2	850	1/20	115/1/60	1.1	1	420	60	97.9	18	HORIZONTAL	8	50	SIGMA	030H	1	
HUH-5 THRU 6	DRYWELL	DRYWELL	17.2	180	140	0.9	0.2	850	1/20	115/1/60	1.1	1	420	60	97.9	18	HORIZONTAL	8	50	SIGMA	030H	1	
CUH-1 & 2	CONTROL ROOM	CONTROL ROOM	23.2	180	140	1.19	0.4	1075	1/10	120/1/60	1.9	2	300	60	N/A	N/A	HORIZONTAL	0.5	125	SIGMA	SFF03	1	
CUH-3	REST ROOM	REST ROOM	13.6	180	140	0.68	0.1	1075	1/10	120/1/60	1.9	1	200	60	97.9	18	CEILING FLUSHED	CEILING FLUSH	75	SIGMA	SFF02	1, 2	
CV-1	REST ROOM	REST ROOM	12.5	180	140	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	HORIZONTAL-ANGLED	0.33	125	SIGMA	CWS	2	

NOTES:  
1. DISCONNECT PROVIDED BY ELECTRICAL.  
2. RECESSING COLLAR.

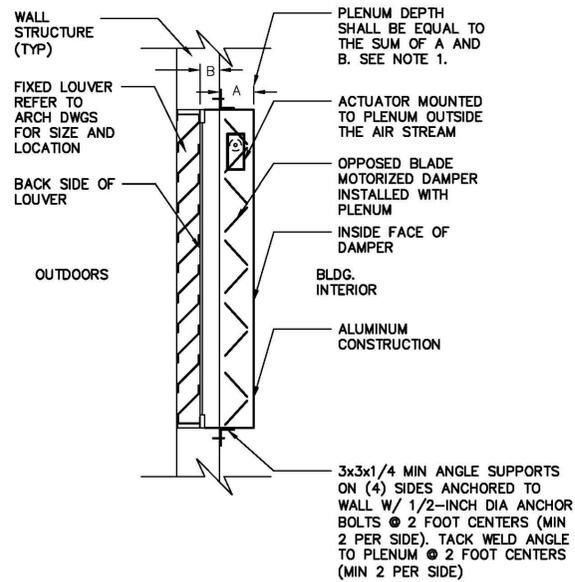




STUB DUCT DETAIL

NOTES:

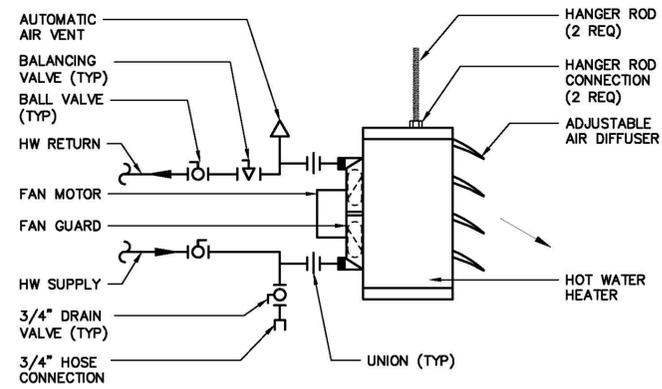
- VOLUME DAMPERS SHOWN OR SPECIFIED ON THE DRAWINGS ARE IN ADDITION TO DAMPERS SPECIFIED WITH REGISTERS. REGISTER DAMPERS ARE NOT SHOWN ON THE DWGS.



LOUVER DAMPER MOUNTING DETAIL

NOTES:

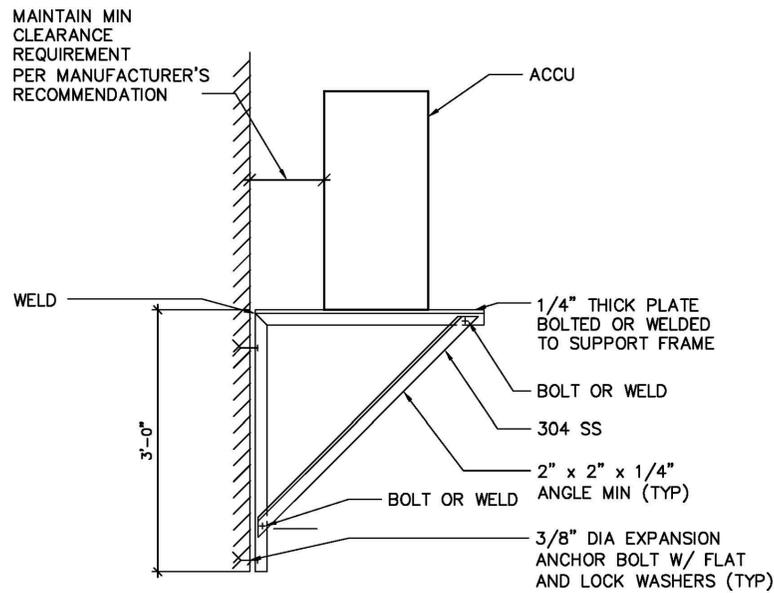
- PLENUM SHALL BE CONTINUOUS FROM INSIDE FACE OF DAMPER FRAME TO THE BACK SIDE OF THE LOUVER. "A" DIMENSION SHALL BE THE DEPTH OF THE DAMPER PLUS CLEARANCE REQUIRED TO MOUNT THE ACTUATOR INCLUDING ACTUATOR ENCLOSURE. "B" DIMENSION SHALL BE THE DEPTH OF THE WALL MINUS THE LOUVER DEPTH.



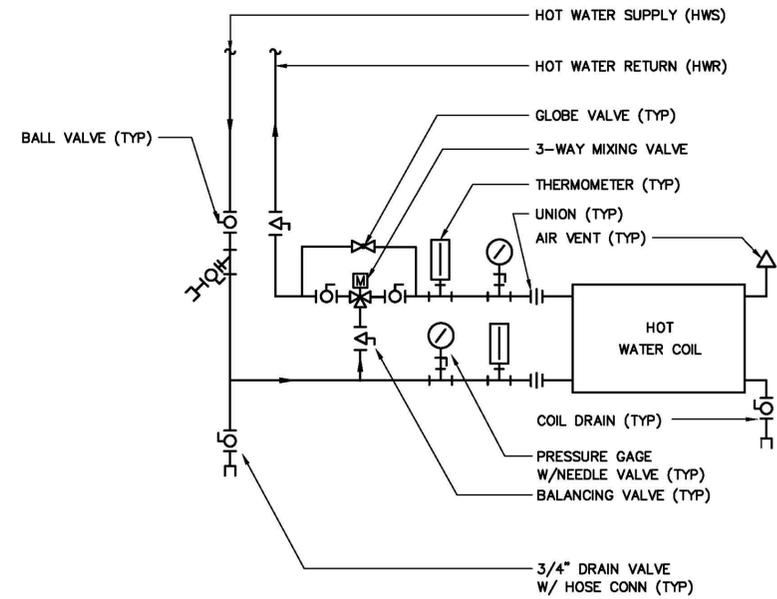
TYPICAL HOT WATER UNIT HEATER DETAIL

NOTES:

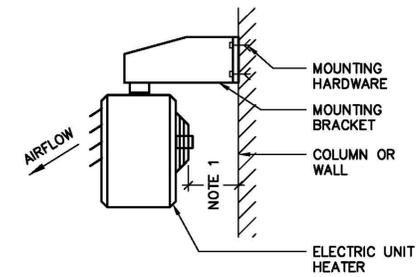
- WALL OR CEILING MOUNT UNIT AS INDICATED ON THE DRAWINGS. PROVIDE ATTACHMENT BRACKETS AND HARDWARE TO ACCOMMODATE MOUNTING CONFIGURATION.
- MOUNT UNIT IN ACCORDANCE W/ THE MANUFACTURER'S CLEARANCE REQUIREMENTS.



ACCU WALL SUPPORT DETAIL



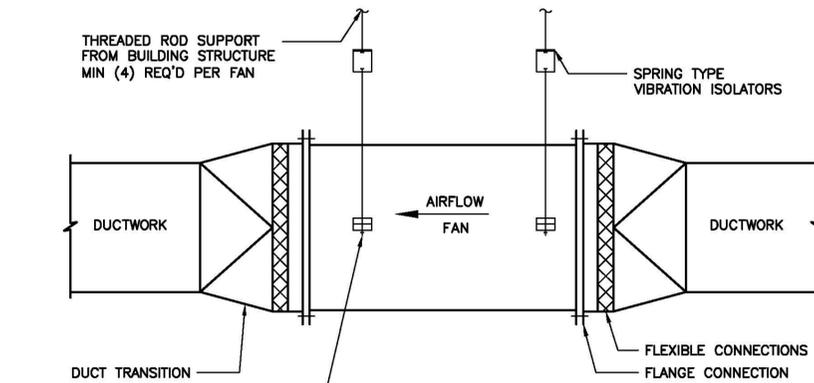
TYPICAL HV HOT WATER COIL DETAIL



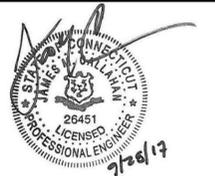
ELECTRIC UNIT HEATER MOUNTING DETAIL

NOTES:

- MAINTAIN MANUFACTURER'S MINIMUM CLEARANCE REQUIREMENTS.



IN-LINE FAN DETAIL





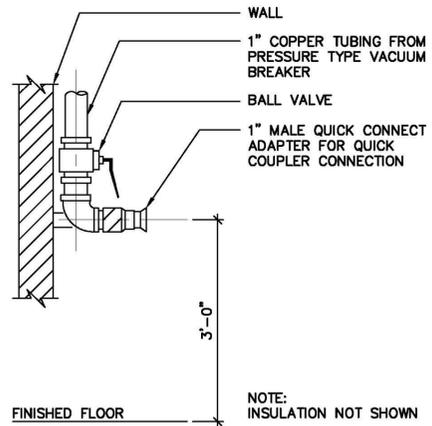








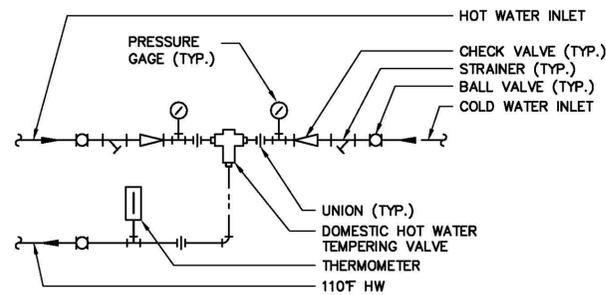
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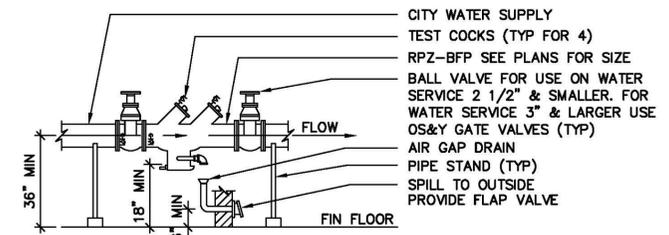
**HOSE CONNECTION DETAIL (HC)**  
NOT TO SCALE

NOTE:

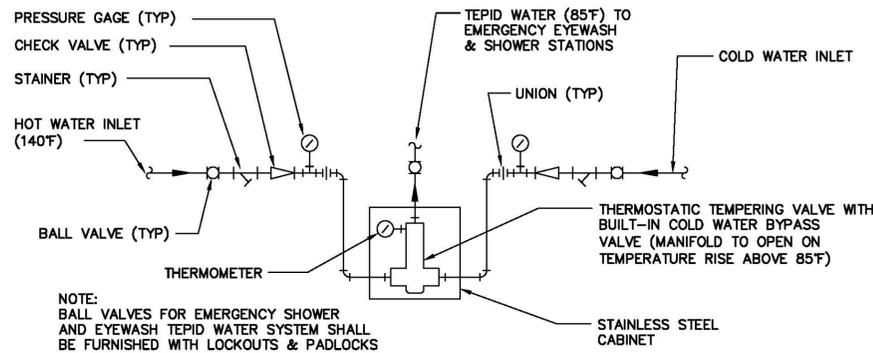
- 50' CONTINUOUS LENGTH 1" DIA. HOSE WITH FEMALE CAM STYLE LOCKING QUICK DISCONNECT AND BRASS FOG NOZZLE, TO BE PROVIDED AS PART OF HOSE RACK ASSEMBLY.
- ALL VERTICAL PIPE DROPS SUPPLYING HOSE CONNECTIONS SHALL BE PROVIDED WITH A PRESSURE TYPE VACUUM BREAKER AT THE HIGHEST POINT NEAR THE TAP OFF THE MAIN.



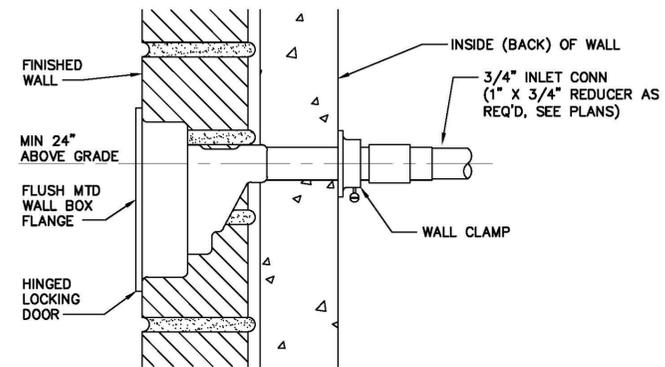
**DOMESTIC HOT WATER TEMPERING VALVE PIPING DETAIL**  
NOT TO SCALE



**REDUCED PRESSURE ZONE BACKFLOW PREVENTER DETAIL (RPZ-BFP)**  
NOT TO SCALE

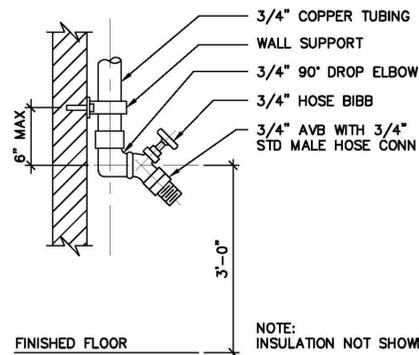


**TEPID WATER MIXING VALVE DETAIL**



- NOTES:
- COORDINATE WALL HYDRANT LENGTH WITH WALL THICKNESS (REFER TO ARCHITECTURAL SHEETS FOR WALL CONSTRUCTION).

**FREEZE-PROOF ENCASED WALL HYDRANT DETAIL (WH)**  
NOT TO SCALE



**HOSE BIBB DETAIL (HB)**  
NOT TO SCALE

PLUMBING FIXTURE SCHEDULE								
FIXTURE TYPE	DESCRIPTION	SERVICES						REMARKS
		TRAP	S/W	VENT	CW	HW	TW	
WC	WATER CLOSET	-	4"	2"	1"	-	-	WALL MOUNTED, BOTTOM OUTLET - ADA COMPLIANT
LAV	LAVATORY	1 1/4"x 1 1/2"	2"	1 1/2"	1/2"	1/2"	-	CONCEALED ARM SUPPORT - ADA COMPLIANT
KS	KITCHEN SINK	1 1/4"x 1 1/2"	2"	1 1/2"	1/2"	1/2"	-	COUNTERTOP - SINGLE BASIN
SS	SERVICE SINK	3"	3"	2"	1/2"	1/2"	-	FREESTANDING W/ WALL SUPPORT
EW	EMERGENCY EYEWASH	1 1/4"x 1 1/2"	2"	-	-	-	1/2"	WALL MOUNTED, ANSI Z358.1 COMPLIANT
HB	HOSE BIBB	-	-	-	3/4"	-	-	INTEGRAL VACUUM BREAKER
HC	HOSE CONNECTION	-	-	-	1"	-	-	PROVIDE AVB W/ CHECK VALVE AT HIGH POINT
HR	HOSE RACK	-	-	-	-	-	-	WALL MTD, 50' OF 1" HOSE WITH FOG NOZZLE
WH	WALL HYDRANT	-	-	-	3/4"	-	-	RECESSED, FREEZE-PROOF

SUMP PUMP SCHEDULE													
EQUIP NO.	LOCATION	SYSTEM SERVED	TYPE	CAPACITY		MOTOR			RPM	DSCH SIZE (IN)	IMPELLER TYPE	REMARKS	MANUFACTURER
				GPM	TOTAL HEAD (FT)	HP	V/PH	FREQ (HZ)					
SSP-1	DRY WELL FIN FLR EL. 54.80	WASH DOWN	SUBMERSIBLE SUMP PUMP	23	15	0.5	120/1	60	1725	2.0	OPEN/SEMI	SIMPLEX	ZOELLER PUMP CO. MODEL 264 OR EQUAL.

NOTES:

- SYSTEM SHALL BE MECHANICAL FLOAT OPERATED.
- SYSTEM SHALL BE PROVIDED W/ 3/16 ST STL LIFTING CHAIN.
- SYSTEM SHALL HAVE NEMA 4X "AUDIBLE/VISIBLE HIGH WATER ALARM PANEL, ZOELLER MODEL 10-0126, OR EQUAL
- PUMP DISCHARGE SHALL HAVE CHECK AND BALL VALVE, ZOELLER MODEL 30-0101 OR EQUAL.



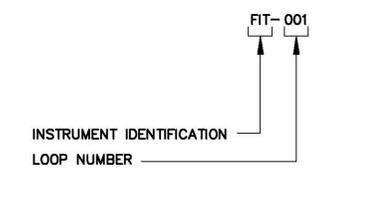
NO.	DATE	ISSUED FOR	BY



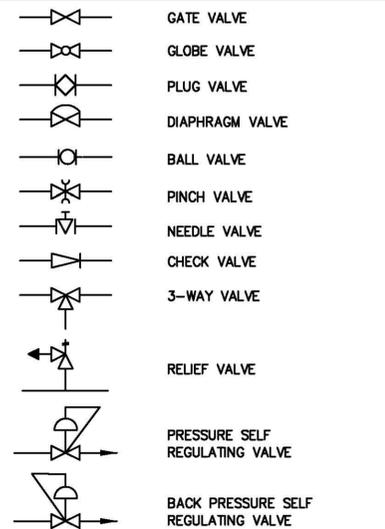
**INSTRUMENT IDENTIFICATION LEGEND**

FIRST LETTER	SUCCEEDING LETTERS	
	MEASURED OR INITIATING VARIABLE, MODIFIER	READOUT OR PASSIVE FUNCTION, OUTPUT FUNCTION, MODIFIER
A	ANALYSIS	ALARM
B	BURNER FLAME	NOT USED
C	CONDUCTIVITY (ELECTRICAL)	NOT USED
D	DENSITY (MASS) OR SPECIFIC GRAVITY	CONTROL
E	VOLTAGE (EMF)	NOT USED
F	FLOW RATE	CONTROL
G	INTRUSION	NOT USED
H	HAND (MANUALLY INITIATED)	NOT USED
I	CURRENT (ELECTRICAL)	NOT USED
J	POWER	NOT USED
K	TIME OR TIME SCHEDULE	NOT USED
L	LEVEL	CONTROL STATION
M	MOISTURE OR HUMIDITY	CONTROL STATION
N	SEQUENCE STRATEGY	CONTROL STATION
O	NOT USED	CONTROL STATION
P	PRESSURE OR VACUUM	CONTROL STATION
Q	QUANTITY	CONTROL STATION
R	RADIOACTIVITY	CONTROL STATION
S	SPEED, FREQUENCY	CONTROL STATION
T	TEMPERATURE	CONTROL STATION
U	MULTIVARIABLE	CONTROL STATION
V	VIBRATION	CONTROL STATION
W	WEIGHT OR FORCE	CONTROL STATION
X	UNCLASSIFIED	CONTROL STATION
Y	EVENT STATUS	CONTROL STATION
Z	POSITION	CONTROL STATION

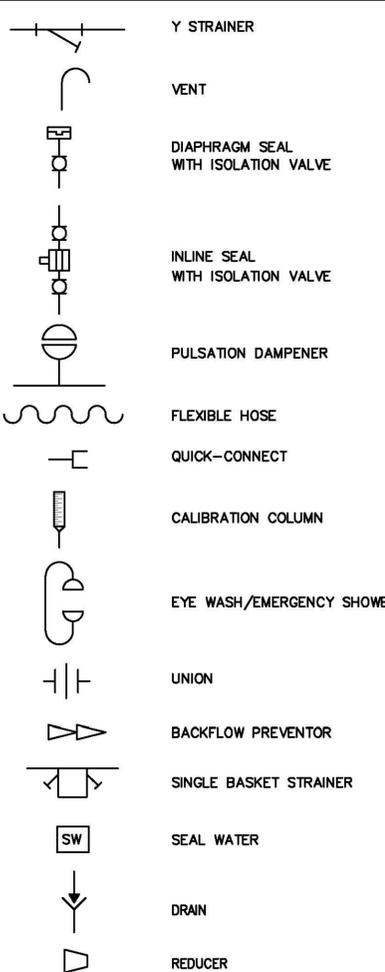
**INSTRUMENT TAGGING SYSTEM**



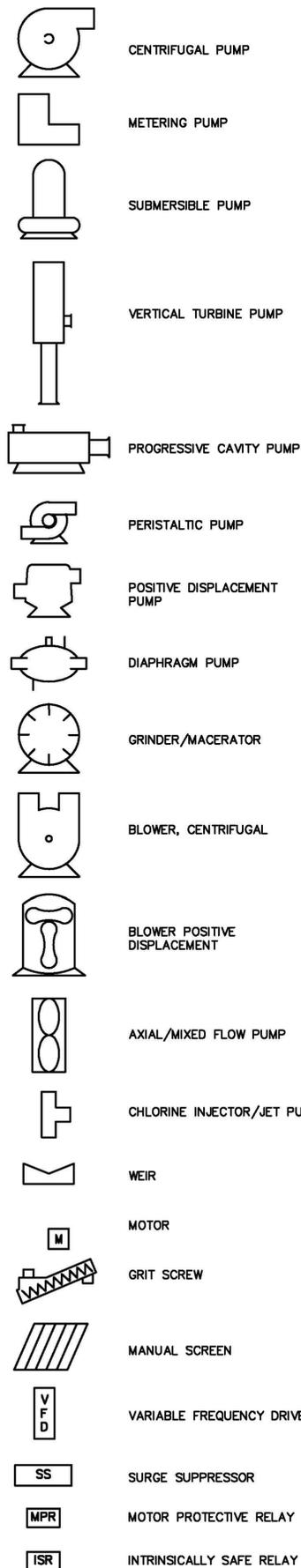
**VALVE SYMBOLS**



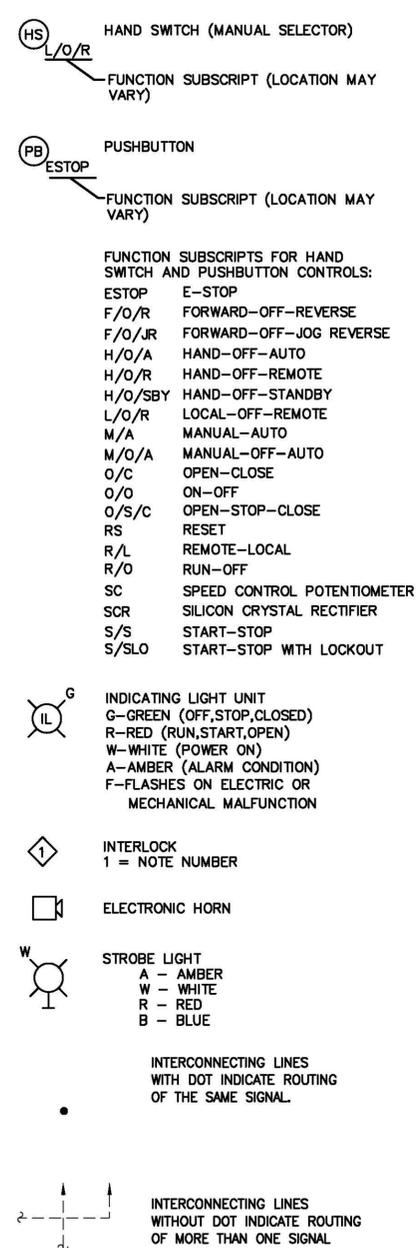
**PIPING SYMBOLS**



**EQUIPMENT SYMBOLS**



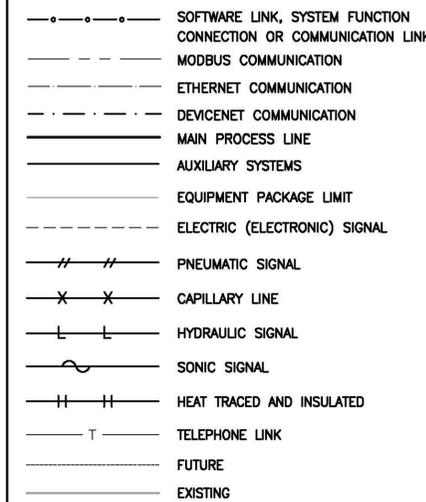
**PANEL DEVICE SYMBOLS**



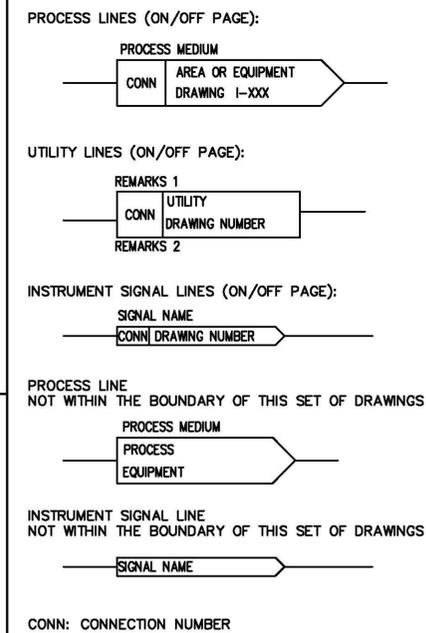
**GENERAL NOTES**

- COORDINATE WORK WITH OTHER DRAWINGS AND DISCIPLINES.
- THE SYMBOLS SHOWN ON THIS SHEET ARE STANDARD DESIGNATIONS. NOT ALL SYMBOLS ARE APPLICABLE TO THE INCLUDED DIAGRAMS AND INSTRUMENT TAGGING SYSTEM.
- NOT ALL PIPING, FITTINGS, AND TANK DETAILS ARE SHOWN. REFER TO PROCESS DRAWINGS FOR ACTUAL DETAILS.
- INSTRUMENT IDENTIFICATION AND LOOP NUMBERS APPEAR WITH INSTRUMENT SYMBOL.
- TAG NUMBER DOES NOT CHANGE IF SIGNAL IS BROUGHT TO ANOTHER CONTRACT AREA.
- FINAL ALPHA CHARACTER IN TAG (E.G. FI-101A) INDICATES DUPLICATE DEVICE EXISTS. FI-101B MAY BE IN A PANEL.

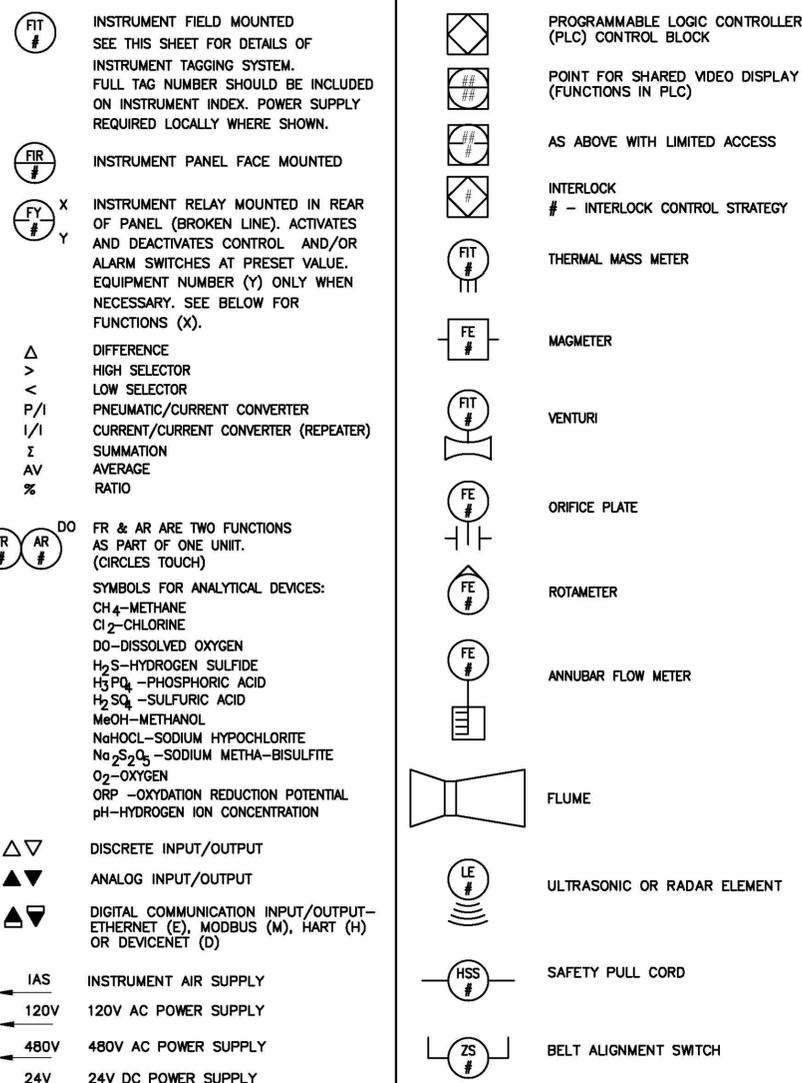
**LINE TYPES**



**DRAWING CONTINUATION LEGEND**



**BASE INSTRUMENTATION SYMBOLS**



LEGAL ENTITY:  
ARCADIS U.S., INC.

CONSULTANTS

SEALS



TOWN OF TRUMBULL, CT  
WPCA

BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE

ARCADIS PROJ. NO. 06532002.0000

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2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: I-1

DESIGNED BY: F.ARANGO/R.HARTMANN

DRAWN BY: G.PAUL

CHECKED BY: E.KOWALSKI

SHEET TITLE

INSTRUMENTATION

SYMBOLS, ABBREVIATIONS  
& GENERAL NOTES

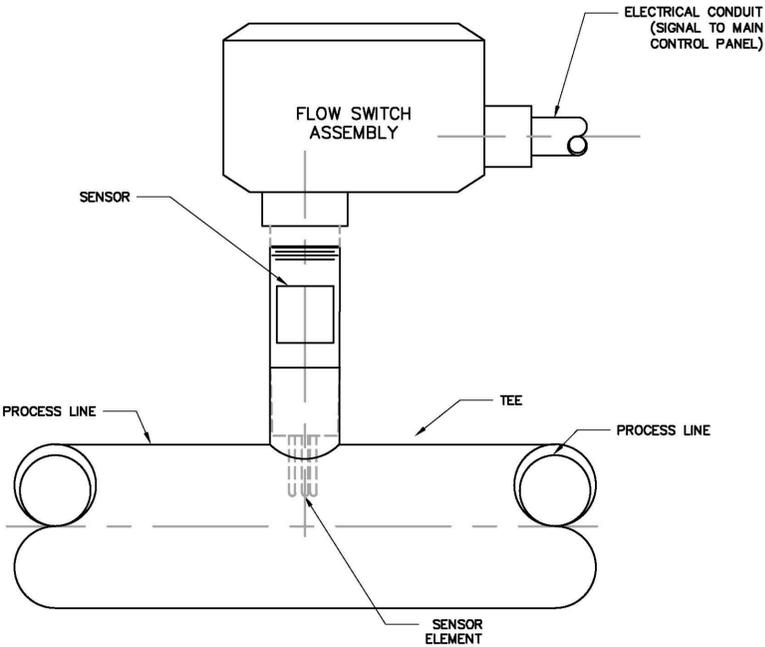
SCALE: AS SHOWN

I-1

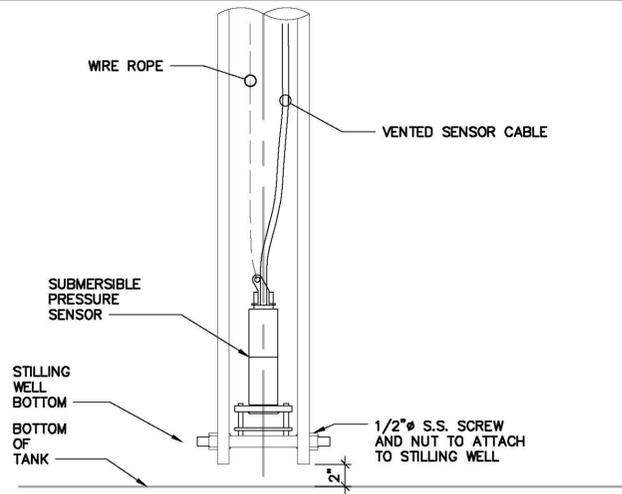
SHEET 55 OF 69



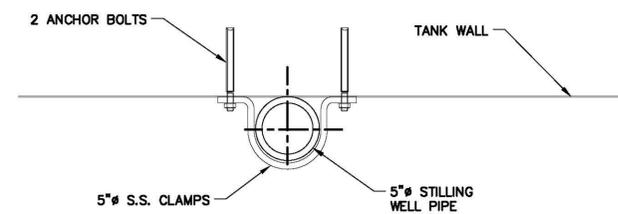




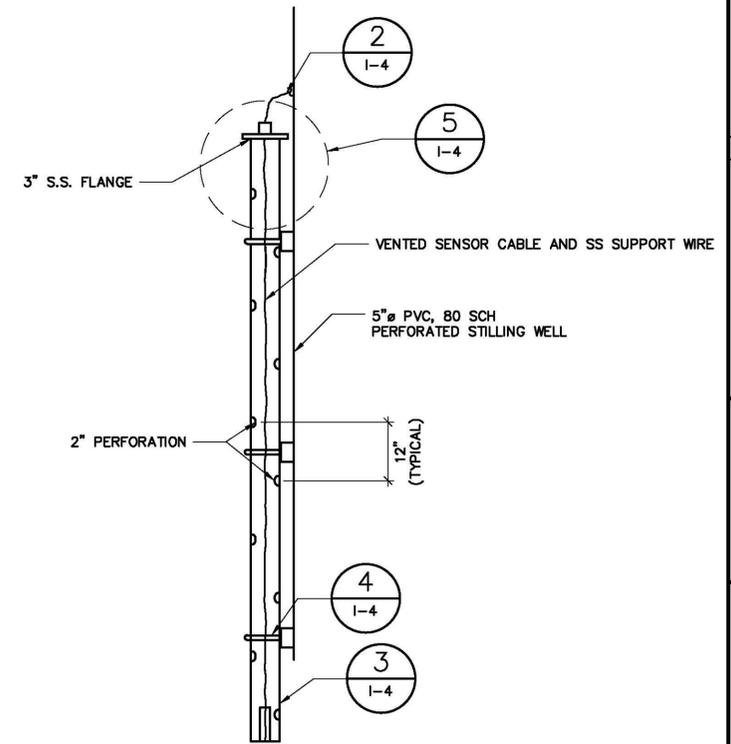
**1** THERMAL MASS FLOW SWITCH INSTALLATION DETAIL  
1-4 NOT TO SCALE



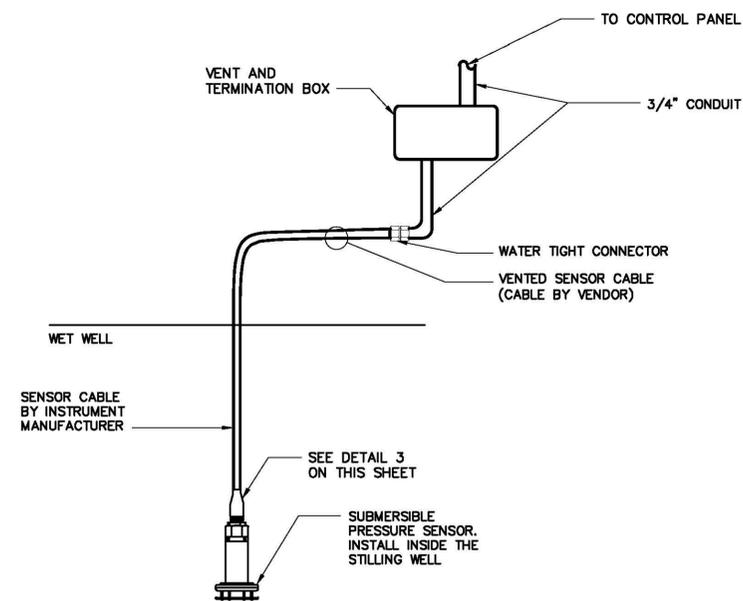
**3** STILLING WELL BOTTOM  
1-4 NOT TO SCALE



**4** STILLING WELL SUPPORT  
1-4 NOT TO SCALE

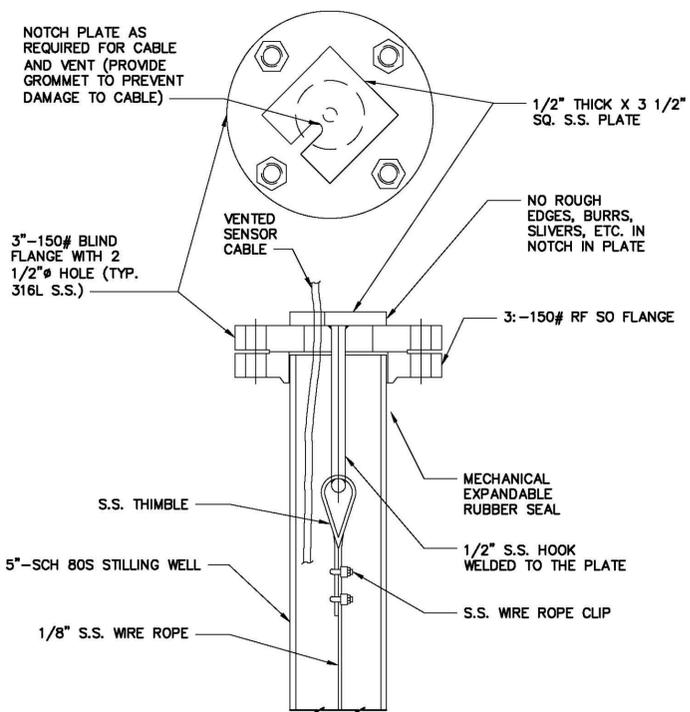


**6** LEVEL SENSOR/STILLING WELL DETAIL  
1-4 NOT TO SCALE



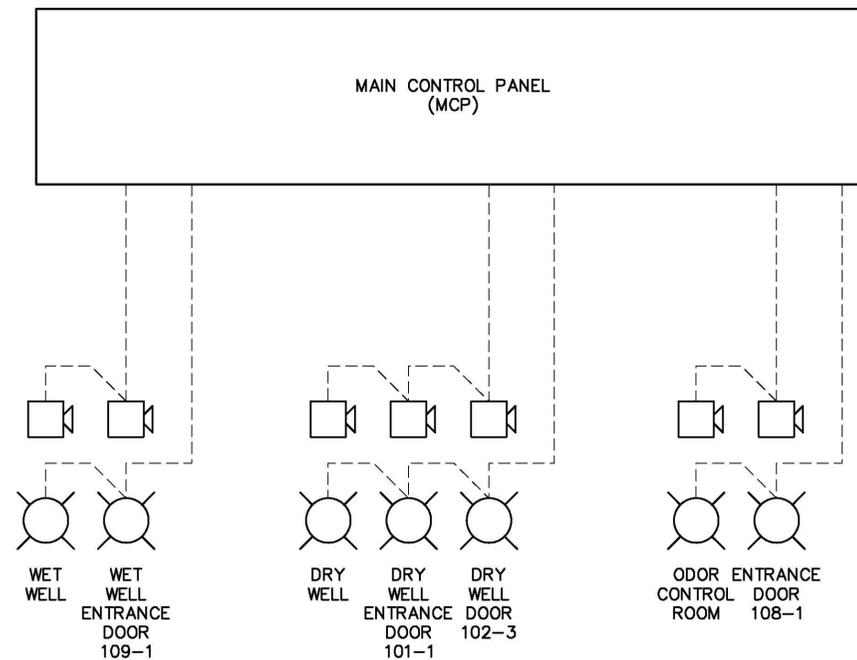
- NOTES
- ALL CONCRETE ANCHORS SHALL BE HILTI HIT-RE 500-SD ICE INJECTION ANCHORS WITH 1/2" 316 TYPE STAINLESS STEEL OR APPROVED EQUAL.
  - ALL CLAMPS TO BE ANVIL 316 S.S., 1/2" DIAMETER OR APPROVED EQUAL.

**2** SUBMERSIBLE LEVEL SENSOR WIRING DETAIL  
1-4 NOT TO SCALE



- NOTE:
- UPON ENGINEER APPROVAL, ADJUST MOUNTING FOR STILLING WELL FOR FIELD CONDITIONS AS NECESSARY.

**5** WELL PENETRATION DETAIL  
1-4 NOT TO SCALE



**7** STROBE AND HORN WIRING DETAIL  
1-4 NOT TO SCALE



NO.	DATE	ISSUED FOR	BY

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2017

DATE: SEPTEMBER 2017  
PROJECT NO.: 06532002.0000  
FILE NAME: 1-4  
DESIGNED BY: F.ARANGO/R.HARTMANN  
DRAWN BY: G.PAUL  
CHECKED BY: E.KOWALSKI

SHEET TITLE  
INSTRUMENTATION

INSTRUMENTS  
MOUNTING  
DETAILS II

SCALE:  
AS SHOWN

# ELECTRICAL SYMBOLS

MOTOR STARTER/CONTROLLER (NON-COMBINATION - COMBINATION - MANUAL) RV DENOTES REDUCED VOLTAGE

LOCAL CONTROL PANEL WITH CONTROLLERS FURNISHED BY EQUIPMENT VENDOR.

1-2  
GF/SS  
DUPEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C. 20 AMP RECEPTACLE DESIGNATIONS WITH NEMA 5-20R, FIRST NUMBER DENOTES PANEL, SECOND NUMBER DENOTES CIRCUIT NUMBER. GF-DENOTES GROUND FAULT TYPE. SS-DENOTES SURGE SUPPRESSION TYPE

SINGLE CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE. REFER TO DRAWINGS FOR AMPERE AND VOLTAGE RATING.

POWER RECEPTACLE, 3 PHASE, 4 WIRE, 480V A.C. WITH DISCONNECT SWITCH. REFER TO DRAWINGS FOR AMPERE RATING.

POWER RECEPTACLE, 2 POLE, 3 WIRE 250 VOLTS A.C. REFER TO DRAWINGS FOR AMPERE RATINGS

RECEPTACLE AS NOTED

POWER ON-OFF SNAP SWITCH, 1PH, 120V AC, 20A

SINGLE POLE SWITCH - LOWER CASE LETTER DENOTES SWITCHING.

TWO POLE SWITCH

THREE-WAY SWITCH

FOUR-WAY SWITCH

SINGLE POLE MANUAL STARTER

TWO OR THREE POLE MANUAL STARTER, 20A

LETTERS AND NUMERALS INDICATE PANEL AND CIRCUIT NUMBER (LP1-2). CROSS LINES INDICATE NUMBER OF CONDUCTORS. HALF HASH MARKS INDICATES NEUTRAL. NUMBER DENOTES WIRE SIZE WHEN NOT #12 AWG. CONTINUE CONDUIT AND WIRE RUN FROM BOX TO DEVICE IN ROOM OR AREA AS NOTED BY BRANCH CIRCUIT NUMBER #10 AWG WIRING SHALL BE USED FOR RUNS BETWEEN PANEL AND FIRST LIGHTING FIXTURE OR RECEPTACLE EXCEEDING 50 FT, UNLESS OTHERWISE NOTED ON DRAWING.

LP1-2  
10

INDICATES GROUND CONDUCTOR

INDICATES HOMERUN AND CONDUIT TAG; REFER TO ONE LINE AND INTERCONNECTION DIAGRAM

PUSHBUTTON STATION

PUSHBUTTON STATION WITH LOCK-OUT FEATURE

SELECTOR SWITCH

INDICATING LIGHT

CONTROL STATION

HAND-OFF-AUTOMATIC SELECTOR SWITCH CONTROL STATION

LOCAL-OFF-REMOTE SELECTOR SWITCH CONTROL STATION

DEVICE LOCATED IN FIELD AT OR NEAR MOTOR

DEVICE LOCATED IN CONTROL PANEL

CONTROL STATION FURNISHED BY EQUIPMENT VENDOR

AMMETER - AMMETER SWITCH

VOLTMETER - VOLTMETER SWITCH

METERING FUNCTIONS

LINE SWITCH DISCONNECT - UNFUSED OR FUSED F DENOTES FUSING, ONLY WHERE INDICATED. FIRST NUMBER DENOTES SWITCH AMP RATING, SECOND NUMBER DENOTES FUSE SIZE WHEN PROVIDED.

VARIABLE FREQUENCY DRIVE

JUNCTION BOX; SIZE AS REQUIRED BY N.E.C.

TERMINAL BOX; SIZE AS REQUIRED BY N.E.C. AND TO ACCOMMODATE ALL TERMINATIONS ON TERMINAL BLOCKS. TERMINATIONS TO INCLUDE SPARE WIRING.

MULTI FUNCTIONAL METERING DEVICE

SURGE PROTECTION DEVICE

LIGHTNING ARRESTER

PULL BOX; SIZE AS REQUIRED BY N.E.C.

LOCK FOR RESPECTIVE KEY INTERLOCK WITH KEY CAPTIVE IN LOCK

OVERTEMPERATURE DEVICE

RESISTIVE TEMPERATURE DEVICE

MOTOR SPACE HEATER

ELECTRIC MOTOR (NUMBER INDICATES HORSEPOWER).

PROVIDE CHANNEL SUPPORT. FOR 120 VOLT BRANCH CIRCUIT MOTORS, NUMERALS DENOTES DISTRIBUTION OR LIGHTING PANEL AND BRANCH CIRCUIT NUMBER.

MOTORIZED VALVE WITH CONTROLLER

MOTORIZED DAMPER WITH CONTROLLER

GROUND TEST POINT

GROUND ROD

GROUND GRID CABLE CONNECTION

GROUND

#4/0 GROUND CABLE BURIED 2'-6" BELOW GRADE

FUSE-PFD DENOTES PULL FUSE DISCONNECT TYPE

PHOTOCCELL

LED LIGHTING FIXTURE - CEILING OR PENDANT MOUNTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE. FIRST NUMERAL DENOTES LIGHTING PANEL (LP1), SECOND NUMBER DENOTES BRANCH CIRCUIT NUMBER.

LED LIGHTING FIXTURE WITH BATTERY PACK - CEILING OR PENDANT MOUNTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE. FIRST NUMERAL DENOTES LIGHTING PANEL (LP1), SECOND NUMBER DENOTES BRANCH CIRCUIT NUMBER.

CEILING OR PENDANT MOUNTED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE.

CEILING OR PENDANT MOUNTED LIGHTING FIXTURE WITH QUARTZ BACKUP. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE.

WALL MOUNTED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE.

POLE OR STANCHION MOUNTED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE.

TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURES

POLE MOUNTED FIXTURE WITH GF RECEPTACLE

2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION. LETTER DENOTES FIXTURE TYPE. CONNECT TO ROOM LIGHTING CIRCUIT AHEAD OF SWITCH.

EXIT SIGN, BATTERY BACKUP TYPE. CONNECT TO ROOM LIGHTING CIRCUIT AHEAD OF SWITCH

FIXTURE DESIGNATION SYMBOL. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND TYPE. ALL FIXTURES SHOWN IN A ROOM WITH THIS SYMBOL SHALL BE OF TYPE INDICATED BY LETTER; NUMBER IN SYMBOL INDICATES LAMP WATTAGE AND NUMBER OF LAMPS WHERE MORE THAN ONE (UNLESS OTHERWISE NOTED). NUMBER BELOW SYMBOL INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR OR AS NOTED.

CURRENT TRANSFORMER

POTENTIAL TRANSFORMER

UNIT HEATER-NUMERAL DENOTES LIGHTING PANEL AND BRANCH CIRCUIT NUMBER

THERMOSTAT

THERMOSTAT

(FRAME SIZE)  
(TRIP SIZE)  
THERMAL-MAGNETIC BREAKER  
2P DENOTES 2 POLE

(CONTINUOUS RATING)  
(MOTOR CIRCUIT PROTECTOR)  
AC COMBINATION FULL VOLTAGE NON-REVERSING STARTER WITH MAGNETIC BREAKER

TRANSFORMER- TYPE AND SIZE AS NOTED ON THE THE DRAWINGS AND IN SPECIFICATIONS

INDICATES NEW EQUIPMENT/CONDUIT

INDICATES EXISTING EQUIPMENT/CONDUIT

INDICATES CONCEALED OR UNDERGROUND EQUIPMENT/CONDUIT

INDICATES AUTOMATIC TRANSFER SWITCH WITH SOLID STATE CONTROLS AND ACCESSORIES

(FRAME SIZE)  
(SENSOR RATING)  
DENOTE PLUG RATING  
DRAWOUT POWER CIRCUIT BREAKER WITH RMS TYPE SOLID STATE TRIP

## INSTRUMENTS

INSTRUMENT DEVICE: LETTERS IDENTIFY DEVICE FUNCTION, NUMBERS WHERE INDICATED DENOTE LOOP NUMBER

PRESSURE SWITCH (PSH DENOTES PRESSURE SWITCH HIGH AND PSL DENOTES PRESSURE LOW)

FLOW SWITCH (FSH DENOTES FLOW SWITCH HIGH AND FSL DENOTES FLOW SWITCH LOW)

LIMIT SWITCH

PRESSURE TRANSMITTER (I DENOTES INDICATING TYPE)

INDICATING LIGHT LETTER "A" DENOTES AMBER COLOR LETTER "R" DENOTES RED COLOR

STROBE LIGHT

ANALYSIS TRANSMITTER (AE DENOTES ANALYSIS ELEMENT)

TEMPERATURE TRANSMITTER (TE DENOTES TEMPERATURE ELEMENT)

TEMPERATURE SWITCH (TSH DENOTES TEMPERATURE SWITCH HIGH AND TSL DENOTES TEMPERATURE SWITCH LOW)

LEVEL SWITCH (LSH DENOTES LEVEL SWITCH HIGH AND LSL DENOTES LEVEL SWITCH LOW)

MOTORIZED VALVE

SOLENOID VALVE

LEVEL TRANSMITTER (LE DENOTES LEVEL ELEMENT)

FLOW TRANSMITTER (FE DENOTES FLOW ELEMENT)

## MISCELLANEOUS SPECIAL SYSTEMS

ALARM CONTROL PANEL

FIRE ALARM CONTROL PANEL

FIRE ALARM SYSTEM STROBE LIGHT/HORN COMBINATION

FIRE ALARM SYSTEM MANUAL PULL STATION

SMOKE DETECTOR

SMOKE DETECTOR

FLAME DETECTOR

HEAT DETECTOR XXX = RATING (135 OR 200)

SPEAKER HORN  
H = HORN  
PS = PAGING SPEAKER  
C = CEILING MOUNTED SPEAKER

AUDIO VISUAL DEVICE

AUDIO VISUAL STATION

ALARM BEACON

DUPLEX ETHERNET JACKET

TELEPHONE JACKET

## ABBREVIATIONS

AC	ALTERNATING CURRENT	NCTC	NORMALLY CLOSED, TIMED TO CLOSE
ACSR	ALUMINIUM CONDUCTOR STEEL-REINFORCED CABLE	NCTO	NORMALLY CLOSED, TIMED TO OPEN
ARPF	ASH RECYCLING AND PROCESSING FACILITY	NOTC	NORMALLY OPEN, TIMED TO CLOSED
AFP	ABOVE FINISHED FLOOR	NOTO	NORMALLY OPEN, TIMED TO OPEN
ATC	AUTOMATIC TEMPERATURE CONTROL PANEL	NTS	NOT TO SCALE
ATS	AUTOMATIC TRANSFER SWITCH	OL'S	MOTOR OVERLOAD HEATERS
AWG	AMERICAN WIRE GAUGE	OT	OVER TEMPERATURE
BKR	BREAKER	PB	PULL BOX
C	CONDUIT	PNL	PANEL
CBV	CABLE BY VENDOR, INSTALLED BY CONTRACTOR	PP	POWER PANEL
CKT	CIRCUIT	PT	POTENTIAL TRANSFORMER
CNT	CONTROL	PWR	POWER
CP	CONTROL PANEL	R1	RELAY #1
CPT	CONTROL POWER TRANSFORMER	RECEP	RECEPTACLE
CT	CURRENT TRANSFORMER	RVNR	REDUCED VOLTAGE NON-REVERSING
DP	DISTRIBUTION PANEL	(S) (SH)	SHIELDED CABLE
EC	EMPTY CONDUIT	SE	SERVICE ENTRANCE
EGC	EQUIPMENT GROUND CONDUCTOR	SS	SPARE
EF	EXHAUST FAN	SP	SELECTOR SWITCH
EL	ELEVATION	SWBD	SWITCHBOARD
EXP	EXPLOSION PROOF	SWGR	SWITCHEAR
EXIST	EXISTING	TEMP	TEMPERATURE
FDR	FEEDER	TEW	THERMOCOUPLE EXTENSION WIRE
FVNR	FULL VOLTAGE NON-REVERSING	UON	UNLESS OTHERWISE NOTED
G OR GND	GROUND	V	VOLT
GF	GROUND FAULT	VFD	VARIABLE FREQUENCY DRIVE
H/O/A	HAND-OFF-AUTOMATIC	WP	WEATHERPROOF
HMCS	HVAC MONITORING CONTROL SYSTEM	WT	WINDING TEMPERATURE RELAY
JB	JUNCTION BOX	XFMR	TRANSFORMER
LCP	LOCAL CONTROL PANEL	NEC	NATIONAL ELECTRIC CODE
LP	LIGHTING PANELBOARD	(TYP)	TYPICAL
LTG	LIGHTING	#	PHASE
M	MOTOR	#	NUMBER
MCC	MOTOR CONTROL CENTER		
MCM	ONE THOUSAND CIRCULAR MILS		
MMD	MICROPROCESSOR-BASED METERING DEVICE		
MTS	MANUAL TRANSFER SWITCH		
NA	NON-AUTOMATIC		

## ANSI DEVICE RELAY AND FUNCTION DESIGNATIONS

25	- AUTO SYNCHRONIZER	N	- DENOTES NEUTRAL
25C	- SYNC CHECK WITH DEAD BUS FEATURE	V	- GENERATOR
26G	- LIQUID TEMPERATURE	59	- OVER VOLTAGE
27	- UNDER VOLTAGE WITH TIME DELAY	63PG	- PRESSURE GAUGE
30	- ANNUNCIATOR RELAY	63PR	- PRESSURE RELIEF
32	- DIRECTIONAL POWER	67	- AC DIRECTIONAL OVER CURRENT
U	- UNDER	81	- FREQUENCY
R	- REVERSE	u	- UNDER
33	- POSITION SWITCH	o	- OVER
40	- LOSS OF EXCITATION	83	- AUTOMATIC TRANSFER
43	- MANUAL SWITCH	86	- LOCKOUT HAND RESET
46	- PHASE-BALANCE CURRENT	87	- PHASE DIFFERENTIAL
47	- PHASE-SEQUENCE VOLTAGE	T	- DENOTES TRANSFORMER
49	- THERMAL SPOT	B	- DENOTES BUS
T	- THERMAL SPOT	G	- DENOTES GENERATOR
M	- DENOTES MOTOR	71Q	- LIQUID LEVEL GAGE
50,51	- INSTANTANEOUS OVERCURRENT AND TIME DELAY OVERCURRENT		
G	- DENOTES GROUND		

## GENERAL NOTES

- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
- ALL MATERIALS AND EQUIPMENT SHALL CONFORM TO THE AREA CLASSIFICATION REQUIREMENTS SPECIFIED IN SECTION 16050. INDOOR AREA DESIGNATIONS FOR WET, CORROSIVE AND CLASSIFIED LOCATIONS ARE INDICATED ON THE DRAWINGS.
- ALL WORK AT THE PROJECT SITE SHALL BE IN ACCORDANCE WITH JOB CONDITIONS SPECIFIED IN SECTION 26000.
- PROVIDE JUNCTION BOX FOR ANY DEVICE WITH PIG TAIL SUCH AS SOLENOID VALVES, LIMIT SWITCHES, SMOKE DETECTORS AND ETC. FOR PROPER ELECTRICAL CONNECTION. PROVIDE ALL HARDWARE FOR MOUNTING OF JUNCTION BOX.
- PROVIDE INDEPENDENT SUPPORT FOR DISCONNECT SWITCHES, CONTROL STATIONS, BOXES, PANELS, ETC. WHERE NO WALLS OR OTHER STRUCTURAL SURFACE EXISTS.
- EQUIPMENT SIZES AND LOCATIONS ARE APPROXIMATE. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED.



LEGAL ENTITY:  
ARCADIS U.S., INC.

CONSULTANTS

SEALS



TOWN OF TRUMBULL, CT  
WPCA

BEARDSLEY PUMP STATION  
COMPREHENSIVE UPGRADE

ARCADIS PROJ. NO. 06532002.0000

NO.	DATE	ISSUED FOR	BY

COPYRIGHT: ARCADIS U.S., INC.  
2017

DATE: SEPTEMBER 2017

PROJECT NO.: 06532002.0000

FILE NAME: E-1

DESIGNED BY: W.JUNG

DRAWN BY: W.JUNG

CHECKED BY: G.MOORE

SHEET TITLE

ELECTRICAL

SYMBOLS AND LEGEND

SCALE: NTS

E-1

SHEET 59 OF 69













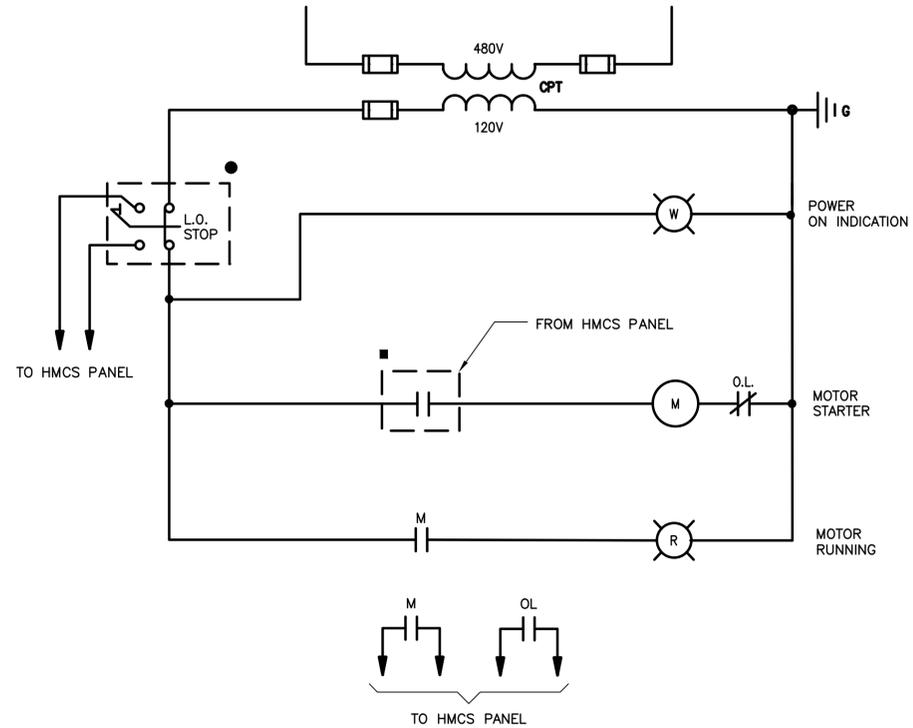


CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
				A	B	C					
1	20 3P	EUH-1	1.67	3.0			1.33	HV-1	20 3P	2	
3			1.67		3.0		1.33				4
5			1.67			3.0					1.33
7	20 3P	EUH-2	1.67	1.7			0.00	SPARE	20 3P	8	
9			1.67		1.7		0.00				10
11			1.67			1.7					0.00
13	20 3P	EUH-3	1.67	1.7			0.00	SPARE	20 3P	14	
15			1.67		1.7		0.00				16
17			1.67			1.7					0.00
19	20 3P	EUH-4	1.67	2.0			0.33	MOTORIZED HOIST #1	20 3P	20	
21			1.67		2.0		0.33				22
23			1.67			2.0					0.33
25	20 3P	SPARE	0.00	0.3			0.33	MOTORIZED HOIST #2	20 3P	26	
27			0.00		0.3		0.33				28
29			0.00			0.3					0.33
31	20 3P	SPARE	0.00	0.3			0.33	MOTORIZED HOIST #3	20 3P	32	
33			0.00		0.3		0.33				34
35			0.00			0.3					0.33
POWER PANEL : PP-1 LOCATION : GARAGE 102			TOTAL KVA			9.0	9.0	9.0	SERVICE CHARACTERISTICS: 480 VOLT - 3 PHASE - 3 WIRE - 60 HZ PROVIDE 225AF/225AT MAIN BREAKER & GROUND BUS 65,000 AMP RMS SYM BRACING		
			GRAND CONNECTED TOTAL KVA			27.0					

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
				A	B	C				
1	20	LTG - DRY WELL AREA	0.35	1.3			0.90	RECEP - DRY & WET WELL AREA	20	2
3	20	LTG - DRY WELL AREA	0.17		0.4		0.27	LTG - WET WELL AREA & STAIR #2	20	4
5	20	LTG - GARAGE & BOILER ROOM	0.26			0.8	0.54	RECEP - GARAGE	20	6
7	20	LTG - GARAGE, STAIR #1 & RESTROOM 105	0.29	0.8			0.54	RECEP - GARAGE	20	8
9	20	LTG - ELECTRICAL ROOM	0.06		0.4		0.36	RECEP - BOILER RM & REST RM 105	20	10
11	20	LTG - ELECTRICAL ROOM	0.03			0.2	0.18	RECEP - ELECTRICAL ROOM	20	12
13	20	LTG - ODOR CONTROL ROOM	0.03	0.2			0.18	RECEP - ODOR CONTROL ROOM	20	14
15	20	LTG - CONTROL ROOM & RESTROOM 107	0.10		0.5		0.36	RECEP - CONT. RM & REST RM 107	20	16
17	20	LTG - CONTROL ROOM	0.10			0.5	0.36	RECEP - CONTROL ROOM	20	18
19	20	LTG - EXTERIOR	0.33	0.3			0.00	SPARE	20	20
21	20	SPARE	0.00		0.0		0.00	SPARE	20	22
23	20	MASTER CONTROL PANEL	1.00			1.0	0.00	SPARE	20	24
25	20	SPARE	0.50	0.7			0.24	FSL-032, FSL-056	20	26
27	20	SPARE	0.50		0.7		0.24	FSL-044, FSL-068	20	28
29	20	EF-7	0.05			0.2	0.10	FIT-076	20	30
31	20	EF-3, EF-4	0.10	2.6			2.50	ACCU-1	20	32
33	20	HUH-1 THRU 4	0.25		2.8		2.50		34	
35	20	HUH-5 THRU 6	0.25			2.8	2.50	ACCU-2	30	36
37	20	CUH-1, 2 & 3	0.30	2.8			2.50		38	
39	30	PUMP CONTROL PANEL	1.50		4.0		2.50	ACCU-3	30	40
41	30	SUMP PUMP CONTROL PANEL	0.60			3.1	2.50		42	
43	15	EYEWASH HEAT TRACE	0.15	3.7			3.50	GENERATOR MISC POWER	40	44
45	2P		0.15		3.7		3.50		46	
47	20	SPARE	0.00			0.0	0.00	SPARE	20	48
49	20	SPARE	0.00	0.0			0.00	SPARE	20	50
51	20	SPARE	0.00		0.0		0.00	SPARE	20	52
53	20	SPARE	0.00			0.0	0.00	SPARE	20	54
55	20	SPARE	0.00	0.0			0.00	SPARE	20	56
57	20	SPARE	0.00		0.0		0.00	SPARE	20	58
59	20	SPARE	0.00			0.0	0.00	SPARE	20	60
LIGHTING PANEL : LP-1 LOCATION : GARAGE 102			TOTAL KVA			12.4	12.5	8.5	SERVICE CHARACTERISTICS: 208/120 VOLT - 3 PHASE - 4 WIRE - 60 HZ PROVIDE 100AF/100AT MAIN BREAKER & SOLID NEUTRAL & GROUND BUS	
			GRAND CONNECTED TOTAL KVA			33.3				

\* PROVIDE GFCI BREAKER

# PANEL SCHEDULE



TYPICAL HVAC CONTROL SCHEMATIC





