

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT

WASTEWATER TREATMENT FACILITY IMPROVEMENTS PHASE III

CONTRACT NO. UB 3-0-17512-0033

PROJECT NO. CWSRF – 3197

BOARD OF DIRECTORS

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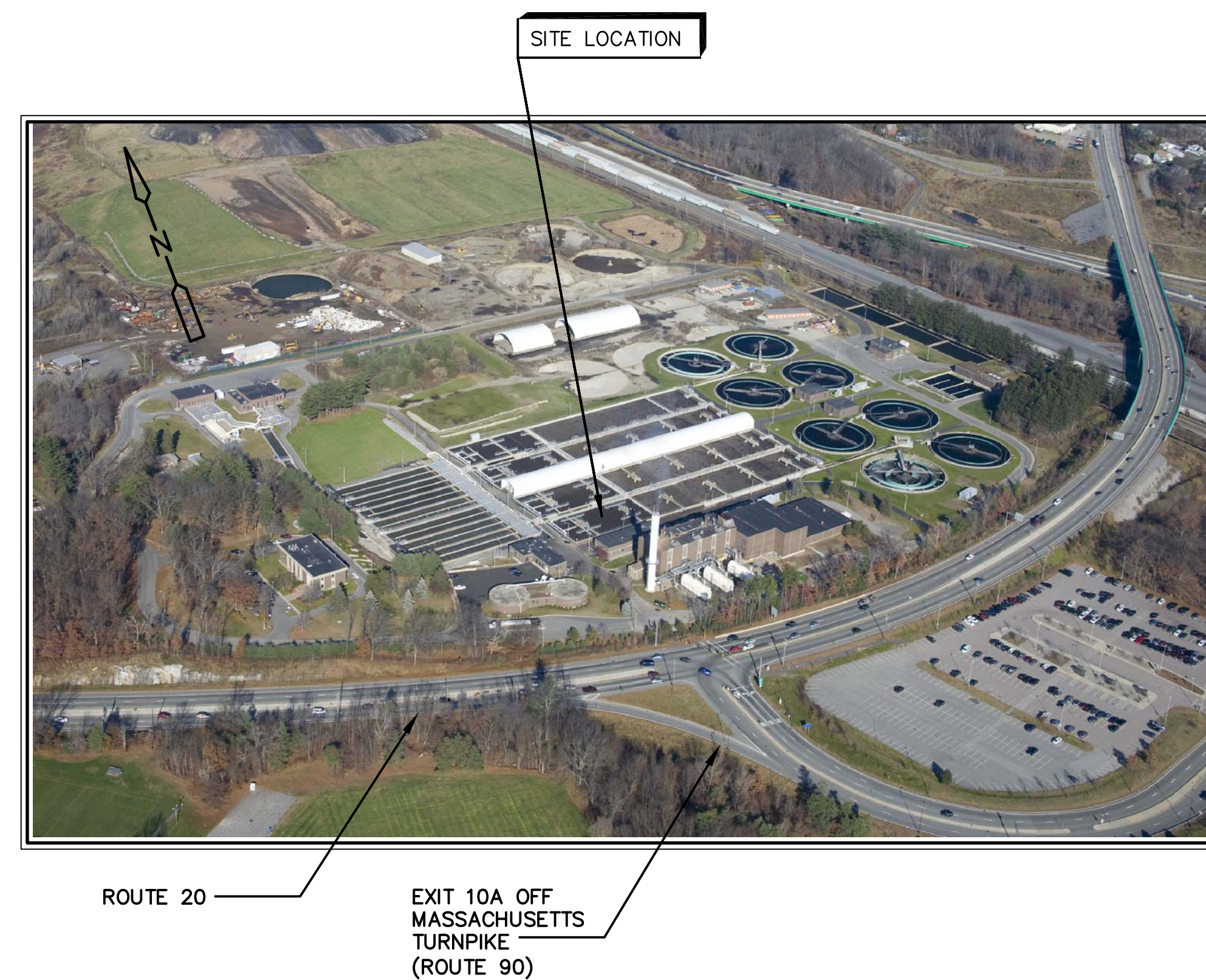
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LOCATION PLAN
APPROXIMATE SCALE: 1"=200'

SEPTEMBER 2010

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CDM Camp Dresser & McKee Inc.
CAMBRIDGE, MASSACHUSETTS

Consulting

Engineering

Construction

CONFORMED

Operations

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DRAWN BY: _____	J.A. CROSS
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SCALE: _____	AS NOTED
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

INDEX OF DRAWINGS

PROJECT NO.
1289-74283

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CONFORMED

DESIGN YEAR FLOWS AND LOADINGS

DESIGN INFLUENT FLOWS (mgd)	2010	2020
AVERAGE ANNUAL (AAF)	42	45
MAXIMUM MONTH	70	75
MAXIMUM DAY	106	111
PEAK HOUR	154	160
DESIGN FLOWS TO ADVANCED TREATMENT (mgd)		
AVERAGE ANNUAL (AAF)	43.6	46.6
MAXIMUM MONTH	70	75
MAXIMUM DAY	80	80
PEAK HOUR		120
ADVANCED TREATMENT BYPASS CAPACITY (mgd)	80	80

2010 DESIGN INFLUENT LOADINGS (lbs/day) (INCLUDING SEPTAGE)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	65,700	101,000	75,300
TSS	67,500	135,000	83,900
TKN	7,790	10,500	10,300
P	1,400	2,330	1,570
2010 DESIGN LOADINGS TO ADVANCED TREATMENT (lbs/day) (INCLUDING SIDESTREAM)			
BOD	47,200	76,200	52,700
TSS	30,700	61,200	34,200
TKN	8,790	12,500	9,900
P	1,750	3,030	2,000

2020 DESIGN INFLUENT LOADINGS (lbs/day) (INCLUDING SEPTAGE)			
	AVERAGE ANNUAL	MAXIMUM DAY	MAXIMUM MONTH
BOD	71,600	110,000	82,100
TSS	73,400	146,000	91,200
TKN	8,860	11,900	11,700
P	1,620	2,700	1,820
2020 DESIGN LOADINGS TO ADVANCED TREATMENT (lbs/day) (INCLUDING SIDESTREAM)			
BOD	50,600	81,500	56,700
TSS	32,800	65,400	36,600
TKN	9,860	13,900	11,200
P	1,970	3,400	2,300

PRELIMINARY TREATMENT

INFLUENT SCREENING	
TYPE	catenary
NUMBER OF UNITS	4
UNIT CAPACITY	40 mgd
CLEAR SPACING OF BARS	5/8 inch
CHANNEL WIDTH	4.5 ft
CHANNEL DEPTH	
EAST	11 ft
WEST	10 ft
AERATED GRIT	
NUMBER OF TANKS	4
DETENTION TIME @ PEAK FLOW (2020)	
EAST	3.5 min
WEST	6.0 min
UNIT DIMENSIONS	
LENGTH	60 ft
WIDTH	
EAST	15 ft
WEST	25 ft
SIDEWATER DEPTH	15 ft
AIR SUPPLY	
NUMBER OF BLOWERS	3
TYPE OF BLOWER	positive displacement
BLOWER CAPACITY	600 scfm @ 7.3 psi

PRIMARY TREATMENT

PRIMARY SETTLING TANKS	
NUMBER OF UNITS	7
UNIT DIMENSIONS	
LENGTH	200 ft
WIDTH	40 ft
SIDEWATER DEPTH	10 ft
TOTAL SURFACE AREA	56,000 sq ft
OVERFLOW RATE (based on 7 tanks in service)	
AVERAGE ANNUAL	804 gpd/sq ft
PEAK HOUR	2,857 gpd/sq ft

SECONDARY TREATMENT

A ² O SYSTEM	
ANAEROBIC ZONE	
NUMBER OF TRAINS	4
STAGES PER TRAIN	3
STAGE DIMENSIONS	
A (LENGTH x WIDTH x SIDE WATER DEPTH)	36 ft x 41 ft x 15.9 ft
B	36 ft x 41 ft x 15.9 ft
C	47 ft x 84 ft x 15.9 ft
VOLUME	
PER TRAIN	0.82 MG
TOTAL	3.3 MG
F/M (lb BOD / lb MLSS) (SEE NOTE 3)	
A	2.4
B	1.2
C	0.51
HYDRAULIC RETENTION TIME (FORWARD FLOW ONLY)	
AVERAGE ANNUAL	1.7 hr
PEAK HOUR	0.66 hr
ANOXIC ZONE	
NUMBER OF TRAINS	4
STAGES PER TRAIN	2
STAGE DIMENSIONS	
D (LENGTH x WIDTH x SIDE WATER DEPTH)	36 ft x 84 ft x 15.3 ft
E (LENGTH x WIDTH x SIDE WATER DEPTH)	37 ft x 84 ft x 14.8 ft
VOLUME	
PER TRAIN	0.69 MG
TOTAL	2.8 MG
HYDRAULIC RETENTION TIME (forward flow only)	
AVERAGE ANNUAL	1.5 hr
PEAK HOUR	2.5 hr
AEROBIC ZONE	
NUMBER OF TRAINS	4
UNIT DIMENSIONS	
LENGTH	345 ft
WIDTH	84 ft
SIDEWATER DEPTH	14.3 ft
VOLUME	
PER TRAIN	3.1 MG
TOTAL	12.4 MG
SRT A/O AND MLE	
A ² /O	8 DAY
MLSS / MLVSS	4,100 mg/l / 3,280 mg/l
HYDRAULIC RETENTION TIME (forward flow only)	
AVERAGE ANNUAL	6.6 hr
PEAK HOUR	2.5 hr
INTERNAL RECYCLE PUMPS	
NUMBER OF UNITS	8
TYPE	submersible propeller
CAPACITY	12,500 gpm @ 4.8 ft
MOTOR HORSEPOWER	40 hp
AVERAGE INTERNAL RECYCLE RATE SUMMER	320% AAF
AVERAGE INTERNAL RECYCLE RATE WINTER	130% AAF
BLOWERS	
NUMBER OF UNITS	4
TYPE	single stage centrifugal
CAPACITY	17,900 acfm
MOTOR HORSEPOWER	800 hp

SECONDARY TREATMENT (CONT'D)

FINAL SETTLING TANKS	
NUMBER OF UNITS	8
TYPE	circular w/rapid sludge uptake
DIMENSIONS	
DIAMETER	140 feet
SIDEWATER DEPTH	14.6 feet
UNIT SURFACE AREA	15,400 sqft
TOTAL SURFACE AREA	123,150 sq ft
UNIT VOLUME	224,800 cu ft
TOTAL VOLUME	1,798,700 cu ft
OVERFLOW RATE	
AVERAGE ANNUAL	378 gpd/sq ft
PEAK HOUR	974 gpd/sq ft
SOLIDS LOADING	
AVERAGE ANNUAL	21 lbs/d/sq ft
PEAK HOUR	49 lbs/d/sq ft
DETENTION TIME	
AVERAGE ANNUAL	7.1 hr
PEAK HOUR	2.7hr
RETURN ACTIVATED SLUDGE PUMPS	
NUMBER OF UNITS	10 [8 operating, 2 standby]
TYPE	vertical non clog centrifugal
CAPACITY (125% AAF)	4,900 gpm @36 FT
MOTOR HORSEPOWER	60 hp
AVERAGE RAS RATE	69 % AAF

WASTE ACTIVATED SLUDGE PUMPS	
NUMBER OF UNITS	6 [4 operating, 2 standby]
TYPE	horizontal non clog centrifugal
CAPACITY (10 DAY SRT)	350 gpm @60 FT
MOTOR HORSEPOWER	10hp

SCUM PUMPS	
NUMBER OF UNITS	2
TYPE	hose pumps
CAPACITY	125 gpm
MOTOR HORSEPOWER	25hp

DRAIN PUMPS	
NUMBER OF UNITS	2
TYPE	Vertical non clog centrifugal
CAPACITY	1800 gpm @26ft
MOTOR HORSEPOWER	20hp

DISINFECTION/ DECHLORINATION

DISINFECTION	
NUMBER OF CONTACT TANKS	2
TOTAL VOLUME	0.76 MG
DETENTION TIME (2020)	
AVERAGE ANNUAL	24.3
PEAK HOUR	9.1
DISINFECTANT	SODIUM HYPOCHLORITE
PEAK DOSAGE	
@ AVERAGE FLOW	20 mg/l
@ PEAK FLOW	8 mg/l
@ PEAK BYPASS FLOW	12 mg/l
DECHLORINATION	
CHEMICAL	SODIUM BISULFITE
DOSAGE	1.6 mg/l per mg/l residual

ODOR CONTROL

BIOFILTER	
SOURCE	screenings, grit, primary influent and effluent channels
PROCESS AIR FLOW	18,000 cfm
STATIC PRESSURE	10 in WG.
DIMENSIONS	
WIDTH	20 ft
LENGTH	67 ft
MEDIA DEPTH	7 ft 6 in
AIR HEATER	200,000 BTU

ACTIVATED CARBON	
SOURCE	sludge holding and receiving tanks
NUMBER OF CARBON CANISTERS	2
UNIT DIMENSIONS	
DIAMETER	6 ft
BED DEPTH	3 ft
AIR FLOW (each)	2,000 cfm
PRESSURE DROP	12 in water column across each bed

FLOW MEASUREMENT

INFLUENT - PARSHALL FLUME	
WIDTH	12 ft
RATED CAPACITY	336 mgd

ADVANCED TREATMENT BYPASS - PALMER - BOWLUS - FLUME	
PALMER-BOWLUS FLUME	
WIDTH	72 in
RATED CAPACITY	120 mgd

NOTES:

- VALUES SHOWN REFLECT DESIGN CRITERIA UNDER 2020 FLOWS AND LOADS.
- SIDEWATER DEPTH BASED ON AVERAGE HYDRAULIC PROFILE.
- F/M VALUES BASED ON MAXIMUM MONTH 2020 LOAD.
- PUMP UNITS ARE EQUALLY DIVIDED BETWEEN NORTH AND SOUTH PUMP STATION.
- SOLIDS HANDLING PROCESSES NOT SHOWN ON THIS SHEET

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DESIGNED BY:	M. NEVILLE
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SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010



UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DESIGN CRITERIA
LIQUID**

PROJECT NO.
1289-74283

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GD-3

Acc # 1289-74410

CONFORMED

DESIGN YEAR SLUDGE QUANTITIES

PRIMARY SLUDGE	2010	2020
AVERAGE (lb/day)	41,900	45,600
MAXIMUM WEEK (lb/day)	60,300	65,600
PRIMARY SLUDGE CONCENTRATION (SEE NOTE 3)	4-5%	4-5%

SECONDARY SLUDGE		
AVERAGE (lb/day)	41,400	44,400
MAXIMUM WEEK (lb/day)	50,900	54,600
SECONDARY SLUDGE CONCENTRATION	0.4-1%	0.4-1%

OUTSIDE SLUDGE	(CURRENT)	(ESTIMATED)
AVERAGE (lb/day)	14,200	27,000-43,000
MAXIMUM WEEK (lb/day)	22,600	43,000-68,000
PRIMARY SLUDGE CONCENTRATION	4-4.5%	4-4.5%

SECONDARY SLUDGE THICKENING

DISSOLVED AIR FLOTATION (DAF) THICKENERS	
SLUDGE TYPE	Secondary/WAS
NUMBER OF UNITS	2 duty (1 duty, 1 stand-by)
UNIT DIMENSIONS	
LENGTH	78 ft
WIDTH	16 ft
SIDEWATER DEPTH	8.75 ft
TOTAL SURFACE AREA	2,240 sq ft (1120)
SOLIDS LOADING RATE	
AVERAGE	0.83 lb/hr/sq ft (1.66)
MAXIMUM WEEK	1.02 lb/hr/sq ft (2.04)
HYDRAULIC LOADING RATE	
AVERAGE @ 0.4% SOLIDS	0.41 gpm/sq ft (0.82)
MAXIMUM WEEK @ 0.4% SOLIDS	0.50 gpm/sq ft (1.02)
OPERATING SCHEDULE	24 hours a day
FEED CONCENTRATION	0.4-1%
THICKENED SLUDGE CONCENTRATION	4-6%

SLUDGE PUMPING

PRIMARY SLUDGE PUMP (PSP 1701-1707)	
PUMP TYPE	Duplex Plunger
NUMBER OF UNITS	7
CAPACITY	200 gpm @ 60 ft
MOTOR HORSEPOWER	6 @ 7.5 and 1 @ 10

THICKENED SLUDGE PUMPS	
PUMP TYPE	Hose Pump
NUMBER OF UNITS	2
CAPACITY @ CONTINUOUS DUTY	60-160 gpm @ 72.5 psi
MOTOR HORSEPOWER	25

OUTSIDE SLUDGE PUMPS	
PUMP TYPE	Chopper Pump
NUMBER OF UNITS	2
CAPACITY @ CONTINUOUS DUTY	900 gpm @ 36 ft
MOTOR HORSEPOWER	15

SLUDGE PUMPING CONT.

DAF DRAIN PUMP	
PUMP TYPE	Duplex Plunger
NUMBER OF UNITS	1
CAPACITY @ CONTINUOUS DUTY	200 gpm @ 60 ft
MOTOR HORSEPOWER	10

SLUDGE TRANSFER PUMPS	
PUMP TYPE	Triplex Plunger
NUMBER OF UNITS	3
CAPACITY @ CONTINUOUS DUTY	320 gpm @ 140 ft
MOTOR HORSEPOWER	20

BFP SLUDGE FEED PUMPS	
PUMP TYPE	Hose Pump
NUMBER OF UNITS	4
CAPACITY @ CONTINUOUS DUTY	60-160 gpm @ 72.5 psi
MOTOR HORSEPOWER	25

SLUDGE STORAGE

SLUDGE HOLDING TANK NO. 1 (PRIMARY SLUDGE)	
DIAMETER	55 ft
SIDEWATER DEPTH	25 ft
TOTAL VOLUME	445,000 gal
AVERAGE STORAGE @ 4% SOLIDS	3.3 days
MAXIMUM WEEK STORAGE @ 4% SOLIDS	2.3 days
MIXER	
TYPE	Axial Flow
NUMBER OF UNITS	1
CAPACITY	18,000 gpm
MOTOR HORSEPOWER	20

SLUDGE HOLDING TANK NO. 2 (THICKENED WAS AND OUTSIDE SLUDGE)	
DIAMETER	55 ft
SIDEWATER DEPTH	25 ft
TOTAL VOLUME	445,000 gal
AVERAGE STORAGE @ 4.5% SOLIDS	3.8 days
MAXIMUM WEEK STORAGE @ 4.5% SOLIDS	3.1 days
MIXER	
TYPE	Axial Flow
NUMBER OF UNITS	1
CAPACITY	18,000 gpm
MOTOR HORSEPOWER	20

SLUDGE MIX TANKS	
NUMBER OF UNITS	2
DIAMETER	12 ft
SIDE WATER DEPTH	27 ft
TOTAL VOLUME	45,680 gal
MIXER	
TYPE	Vertical Shaft
NUMBER OF UNITS	1
MOTOR HORSEPOWER	7.5

SLUDGE DEWATERING

BELT FILTER PRESSES	
NUMBER OF UNITS	4 (3 duty, 1 standby)
SIZE OF UNITS	2 m (Effective Width)
SOLIDS LOADING RATE	
AVERAGE	815-925 lb/hr/m (3 duty)
MAXIMUM WEEK	1130-1300 lb/hr/m (3 duty)
HYDRAULIC LOADING RATE	
AVERAGE	54 gpm/m (3 duty)
MAXIMUM WEEK	57 gpm/m (3 duty)
OPERATING SCHEDULE	24 hours a day
FEED CONCENTRATION	3-5%
DEWATERED CAKE SOLIDS CONCENTRATION	20-26%
MOTOR HORSEPOWER - BELT DRIVES	3 (x 3 Motors)
MOTOR HORSEPOWER - HYDRAULIC DRIVE	2 (x 1 Motors)

DEWATERED SLUDGE CAKE PUMPS	
PUMP TYPE	Hydraulically Driven Piston Pump
NUMBER OF UNITS	4 (3 duty, 1 standby)
CAPACITY	15-50 gpm @ 25% solids
MAXIMUM LINE PRESSURE	1000 psig
MOTOR HORSEPOWER	75

MULTIPLE-HEARTH FURNACE/AIR POLLUTION CONTROL

MULTIPLE-HEARTH FURNACE (with flue gas recirculation)	
NUMBER OF INCINERATORS	2
CAPACITY (each incinerator)	
MAXIMUM THROUGHPUT	3.0 dry tons/hour
FLUE GAS RECIRCULATION (FGR) FANS WITH VFD'S	
NUMBER OF FANS	2
MOTOR HORSEPOWER	125 hp
DESIGN AIR FLOW RATE	50,000 acfm @ 1000 deg F
DESIGN STATIC PRESSURE	5 in water column

AIR POLLUTION CONTROL - WET ELECTROSTATIC PRECIPITATORS (WESP)	
NUMBER	2
UNIT DIMENSIONS	
DIAMETER	10.5 ft
HEIGHT	45 ft
SPECIFIC COLLECTION AREA (SCA)	130 sq ft/1000 acfm
OUTLET PARTICULATE	0.008 Grains/dscf
CONCENTRATION	Corrected to 7% O ₂

SIDE STREAM PUMPING

SIDE STREAM PUMP	
PUMP TYPE	Submersible
NUMBER OF UNITS	3
CAPACITY	1750 gpm @ 30 ft
MOTOR HORSEPOWER	25

NOTES:

- ALL SLUDGE CALCULATIONS BASED ON EXISTING NPDES PERMIT.
- FUTURE OUTSIDE SLUDGE QUANTITY IS AN ESTIMATE SINCE UBWPAD IS PURSUING ADDITIONAL SLUDGE BUT THE FUTURE SLUDGE MARKET IS UNKNOWN.
- VALUES SHOWN REFLECT DESIGN CRITERIA UNDER 2020 FLOWS AND LOADS.
- PRIMARY SLUDGE IS PUMPED OUT OF THE PRIMARY SETTLING TANKS AT 1-2% SOLIDS. PRIMARY SLUDGE THICKENS TO 4-5% SOLIDS IN THE SLUDGE HOLDING TANK.
- VALVES SHOW PARENTHETICALLY REFLECT DESIGN CRITERIA IF DAF THICKENERS OPERATE AS 1 DUTY, 1 STAND-BY.

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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	GDNCRO02
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DESIGN CRITERIA
 SOLIDS**

PROJECT NO.
1289-74283

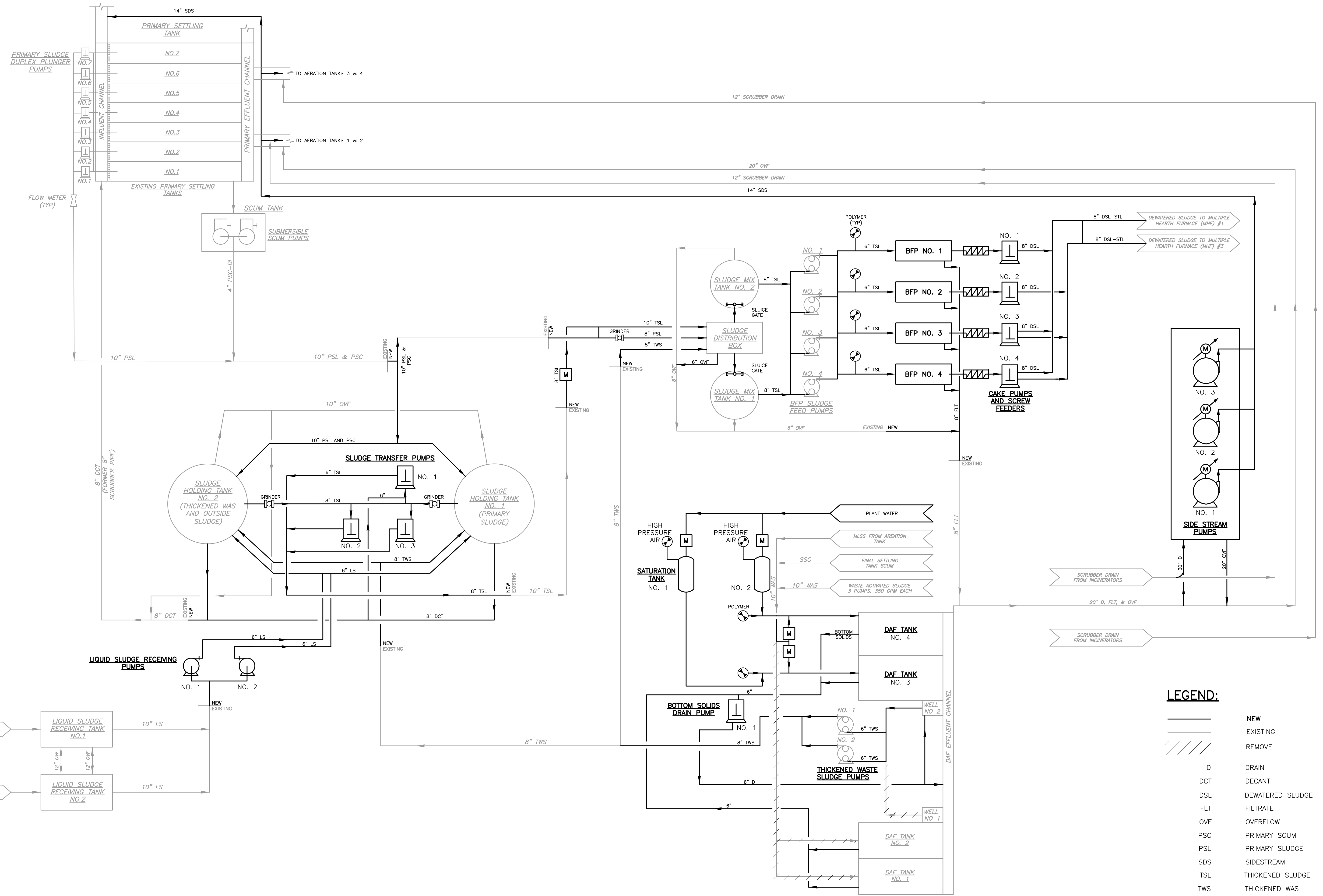
Sht. 5 of 312

GD-4

Acc # 1289-74411

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LEGEND:

	NEW
	EXISTING
	REMOVE
	DRAIN
	DECANT
	DEWATERED SLUDGE
	FILTRATE
	OVERFLOW
	PRIMARY SCUM
	PRIMARY SLUDGE
	SIDESTREAM
	THICKENED SLUDGE
	THICKENED WAS

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. GPRFD001
 DESIGNED BY: A. SZERWINSKI
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

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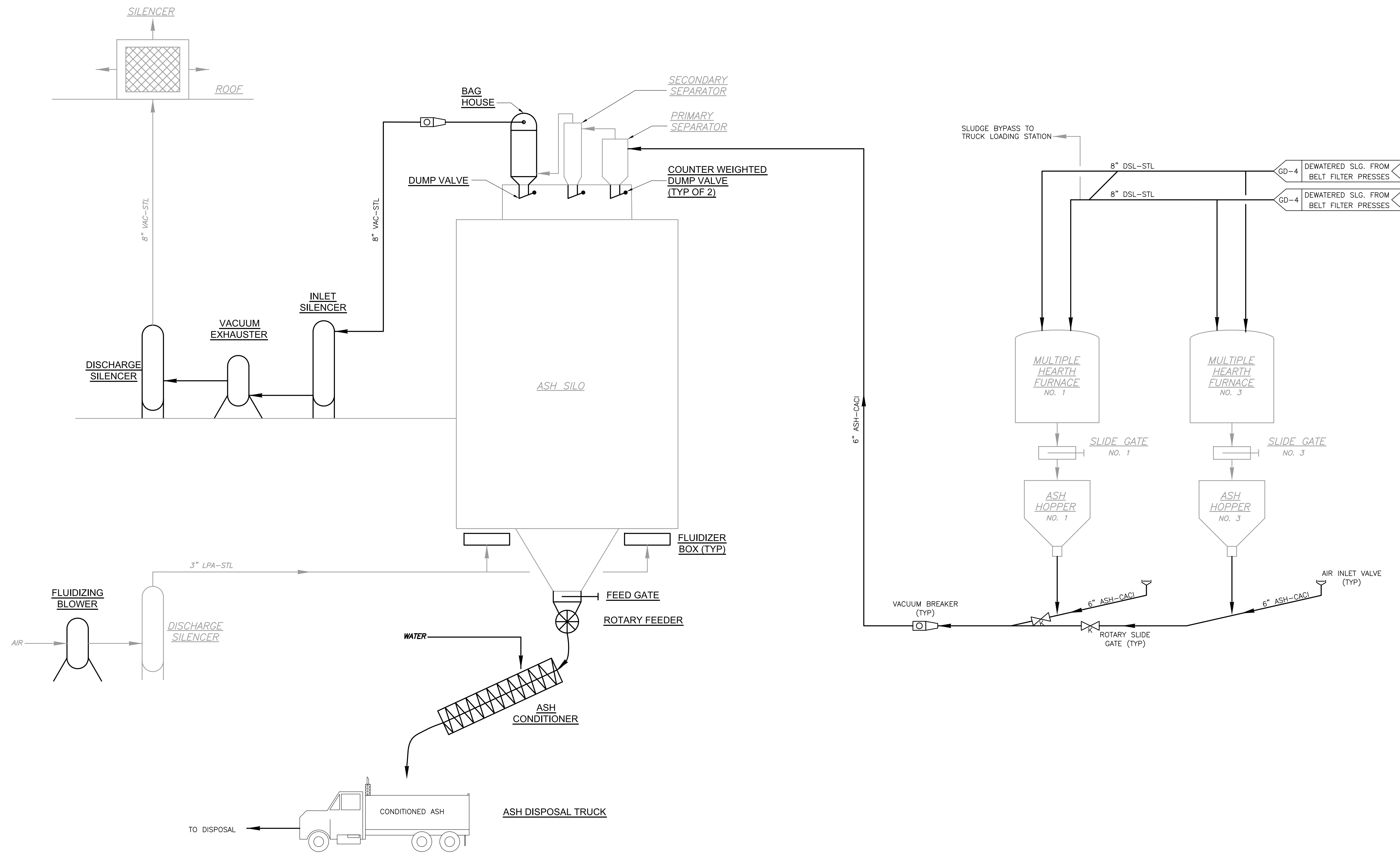
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

SOLIDS PROCESS FLOW DIAGRAM

PROJECT NO.
1289-74283
 Sht. 6 of 312
GD-5
 Acc # 1289-74412

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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTS\UPPERBLACKSTONE\GPRFD002.DWG Saved by: BITTOVJ On: 7-Jul-10 Plotted on: 24-Nov-10 9:54 AM



LEGEND:
 _____ NEW
 _____ EXISTING
 // // // // TO BE DEMOLISHED

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MPRFD002.DWG
 DESIGNED BY: M. NEVILLE
 DRAWN BY: J. RICCIO
 SHEET CHK'D BY: M. NEVILLE
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: F. SAPIENZA
 DATE: SEPTEMBER 2010

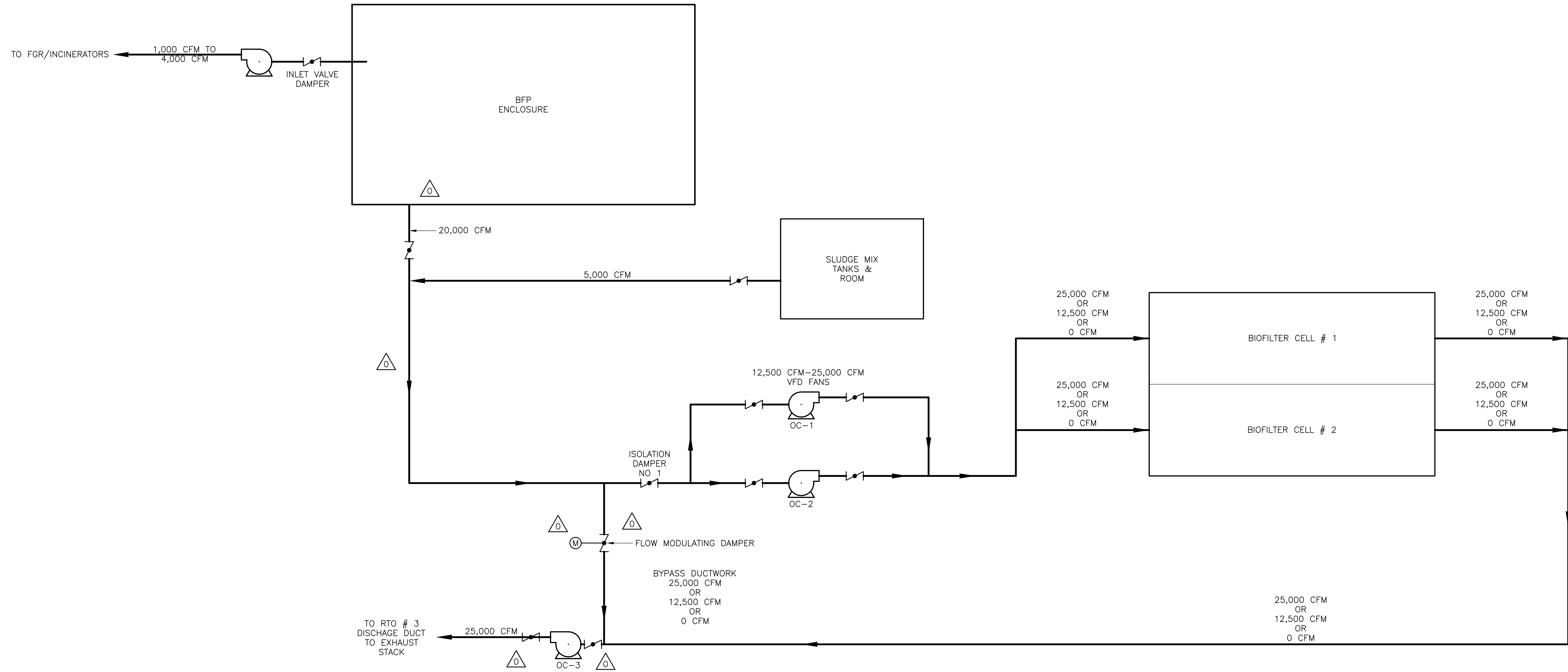
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

ASH PROCESS FLOW DIAGRAM

PROJECT NO.
1289-74283
 Sht. 7 of 312
GD-6
 Acc # 1289-74413

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTS\UPPERBLACKSTONE\GPRFD003.DWG Saved by: BITTOVJ On: 28-Sep-10 Plotted on: 24-Nov-10 9:54 AM



- NOTE:**
- △ OPERATING SCENARIO # 1: ISOLATION DAMPER NO 1 FULL OPEN
 OC-1 OR OC-2= 25,000 CFM FLOW MODULATING DAMPER CLOSED,
 OC-3= 25,000 CFM ALL 25,000 CFM TREATED IN BIOFILTER
 - △ OPERATING SCENARIO # 2: ISOLATION DAMPER NO 1 CLOSED
 OC-1 & OC-2= OFF FLOW MODULATING DAMPER FULL OPEN,
 OC-3= 25,000 CFM ALL 25,000 CFM BYPASS TREATMENT
 - △ OPERATING SCENARIO # 3: ISOLATION DAMPER NO 1 FULL OPEN
 OC-1 OR OC-2= 12,500 CFM FLOW MODULATING DAMPER HALF OPEN,
 OC-3= 25,000 CFM HALF FLOW TREATED IN BIOFILTER,
 HALF FLOW BYPASS TREATMENT

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	09/10	VJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. GPRFD003
 DESIGNED BY: K. SANTORO
 DRAWN BY: F. CONTRERAS
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

BIOFILTER TREATMENT SYSTEM

PROJECT NO.
1289-74283

Sht. 8 of 312

GD-7

Acc # 1289-74414

CONFORMED

LEGEND & ABBREVIATIONS

CIVIL/SITE LEGEND - EXISTING FEATURES

SYMBOL	DESCRIPTION
BOT	BOTTOM
C=	CASING ELEVATION
CB	CATCH BASIN
CL	CHLORINE
CMP	CORRUGATED METAL PIPE
DMH	DRAINAGE MANHOLE
FF=	FINISH FLOOR ELEVATION
FM	FORCE MAIN
G=	GROUND ELEVATION
I=	INVERT ELEVATION
NPV	NO PIPE VISIBLE
P	PLANT WATER
PVC	POLYVINYL CHLORIDE PIPE
OHW	OVERHEAD WIRE
R=	RIM ELEVATION
RCP	REINFORCED CONCRETE PIPE
S=	SUMP ELEVATION
SMH	SANITARY SEWER MANHOLE
T=	TROUGH ELEVATION
TBA	TO BE ABANDONED
TBM	TEMPORARY BENCH MARK ELEVATION
W	POTABLE WATER
CB	CATCH BASIN
DMH	DRAIN MANHOLE
SMH	SEWER MANHOLE
EMH	ELECTRIC MANHOLE
TMH	TELEPHONE MANHOLE
MH	MISCELLANEOUS MANHOLE
1.5" RCP	DRAIN LINE WITH SIZE AND TYPE
8" S	SEWER LINE WITH SIZE AND TYPE
G	GAS LINE
E	ELECTRIC LINE
FM	FORCE MAIN
W	WATER LINE
T	TELEPHONE LINE
OW	OVERHEAD WIRE
	UNKNOWN PIPE OR DUCT DESTINATION
WG	WATER GATE
HYD	FIRE HYDRANT
YD	YARD HYDRANT
GG	GAS GATE
LP	LIGHT POLE
UP	UTILITY POLE WITH LIGHT
UP#1	UTILITY POLE WITH NUMBER
E	ELECTRIC EQUIPMENT
GUY	GUY WIRE
CLF	CHAIN LINK FENCE
	GUARD RAIL
	BUILDING TREELINE
	EDGE OF WATER
400	INDEX CONTOUR
399	INTERMEDIATE CONTOUR
	CONTROL POINTS
419.8	SPOT ELEVATION

SYMBOL	DESCRIPTION
419.85 TC	TOP CURB ELEVATION
419.54 BC	BOTTOM CURB ELEVATION
	EVERGREEN TREE
	DECIDUOUS TREE
	CONC. HEADWALL
CI	CAST IRON
VC	VITRIFIED CLAY
CONC	CONCRETE
GRAN	GRANITE
BIT	BITUMINOUS CONCRETE
HW	HEADWALL
WCR	WHEEL CHAIR RAMP
WF-142	WETLAND FLAG
	LIMIT OF 100 FT. BUFFER
	TOWN LINE
	EASEMENT LINE
	PROPERTY LINE
TP-204	TEST PIT
CDM-21	BORING

CIVIL/SITE LEGEND - NEW FEATURES

SYMBOL	DESCRIPTION
	SECTION SYMBOLS
	PIPELINE, GREATER THAN 16" DIAM
	PIPELINE, 16" DIAM OR LESS
PW	PLANT WATER MAIN
W	WATER MAIN
FP	FIRE MAIN
G	GAS MAIN
T	TELEPHONE
E	ELECTRIC
	ELECTRIC OR TELEPHONE MANHOLE
	SEWER OR DRAIN MANHOLE
	CATCH BASIN
	BUTTERFLY VALVE
	GATE VALVE
	PLUG VALVE
	CLEANOUT
	CHAIN LINK FENCE
	GUARDRAIL
	TREE LINE
+300.00	SPOT ELEVATION
300	INDEX CONTOUR
302	INTERMEDIATE CONTOUR
	CRUSHED STONE MOW STRIP

CIVIL/SITE ABBREVIATIONS

293.4 LP	LOW POINT
300.5 HP	HIGH POINT
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
BIT CONC	BITUMINOUS CONCRETE
BSF	SODIUM BISULFITE
BW	BOTTOM OF WALL
CL	CENTERLINE
CI	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CU	COPPER
D	DRAIN OR TANK DRAIN
DI	DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
EMH	ELECTRIC MANHOLE
EFF	EFFLUENT
EXIST	EXISTING
FD	FLOOR DRAIN
FM	FORCE MAIN
FW	FACE OF WALL
G	GAS
GST	GALVANIZED STEEL
GC	GRANITE CURB
HDPE	HIGH DENSITY POLYETHYLENE
HGS&R	HEATING GLYCOL SERVICE AND RETURN
INF	INFLUENT
INT	INTERSECTION
INV EL	INVERT ELEVATION
LCB	LEACHING CATCH BASIN
LPA	LOW PRESSURE AIR
MSPG	MASSACHUSETTS STATE PLANE GRID
MH	MANHOLE
NAOH	SODIUM HYDROXIDE (CAUSTIC)
PS	PUMP STATION
OC	ODOR CONTROL
O/S	OFF SET
PW	PLANT WATER
PIV	POST INDICATOR VALVE
RCP	REINFORCED CONCRETE PIPE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
POL	POLYMER LINE
PSC	PRIMARY SCUM
PSL	PRIMARY SLUDGE
PVC	POLYVINYL CHLORIDE
PWHDP	PROFILE WALL HIGH DENSITY POLYETHYLENE
RIM EL	RIM ELEVATION
RD	ROAD
SBD	SCRUBBER DRAIN
SHC	SODIUM HYPOCHLORITE
SMH	SEWER MANHOLE
STA	STATION
RED	REDUCER
RAS	RETURN ACTIVATED SLUDGE
SSC	SCUM
SU	SUMP (DISCHARGE)

EROSION AND SEDIMENT CONTROL LEGEND

SYMBOL	DESCRIPTION
	EROSION CONTROL BLANKET
	SEDIMENT FENCE

YARD PIPING GENERAL NOTES

- THE LOCATION OF EXISTING UTILITIES AND OTHER UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS IS APPROXIMATE, AND THEIR ACTUAL LOCATIONS MAY VARY FROM THAT SHOWN. FURTHER, IT IS NOT WARRANTED THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND FEATURES THAT MAY BE AFFECTED BY THE WORK.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITIES THAT COULD BE AFFECTED BY THE WORK, IN ACCORDANCE WITH CHAPTER 370, ACTS OF 1963 OF MASSACHUSETTS LAW. ADDITIONALLY, NOTIFY DIG SAFE (888-344-7233).
- NEW WATER MAINS SHALL HAVE A MINIMUM COVER OF 5 FEET UNLESS OTHERWISE INDICATED AND SHALL PASS UNDER EXISTING UTILITIES AS NECESSARY TO MEET THIS REQUIREMENT.
- ALL NEW WATER PIPES, INCLUDING FIRE PROTECTION LINES, SHALL HAVE RESTRAINED JOINTS AS SPECIFIED.
- TEST PITS SHALL BE DUG TO LOCATE EXISTING PIPES TO WHICH NEW PIPES ARE TO BE CONNECTED, AND WHERE NECESSARY TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL FINAL CONNECTIONS TO PIPES INSTALLED BY PLUMBING SUBCONTRACTOR.
- FOR ADDITIONAL DETAILS OF EXISTING BURIED PROCESS PIPING SEE YARD PIPING DRAWINGS
- ABANDONED PIPES, VALVES AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION MAY BE REMOVED AS REQUIRED. PIPES LEFT IN PLACE SHALL BE PLUGGED AS SPECIFIED AND AS APPROVED BY THE ENGINEER.

GENERAL NOTES

- EXISTING SITE CONDITIONS SHOWN ARE BASED ON A SURVEY CONDUCTED BY CULLINAN ENGINEERING CO., INC. ADDITIONAL INFORMATION HAS BEEN OBTAINED THROUGH FIELD SURVEYS AND INFORMATION PROVIDED BY EXISTING DRAWINGS AND PLANT PERSONNEL, COMPILED BY CDM IN 2002 AND SUPPLEMENTED BY RECORD INFORMATION FOLLOWING CONSTRUCTION OF THE PHASE I AND PHASE II IMPROVEMENT PROJECTS. THIS PLAN WAS COMPILED FROM AERIAL PHOTOGRAPHS DATED NOVEMBER 15, 2001 BY BRADSTREET CONSULTANTS, INC. FIELD EDITS PERFORMED BY CULLINAN ENGINEERING CO., INC. IN APRIL AND MAY OF 2002.
- THE HORIZONTAL DATUM IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE.
- THE VERTICAL DATUM IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
- THE DESIGN 100 YEAR FLOODPLAIN IS AT ELEVATION 414.30
- THE DESIGN 25 YEAR FLOODPLAIN IS AT ELEVATION 412.0.
- SOIL BORINGS AND TEST PITS WERE DRILLED BETWEEN 1970-71 FOR THE CURRENT FACILITY, AND BETWEEN 2000-2005 FOR THIS CONSTRUCTION. THE BORINGS ARE APPENDED TO THE SPECIFICATIONS. BORING LOCATIONS ARE SHOWN ON DRAWING C-3.
- RECORD DRAWINGS OF PRIOR CONSTRUCTION CONTRACTS ARE AVAILABLE FOR REVIEW AT THE UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT ADMINISTRATION BUILDING, AND AT CDM, 50 HAMPSHIRE ST, CAMBRIDGE MA.
- THE CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION AND PREVENTION PLAN AND CONTROL PLAN FOR REVIEW BY THE ENGINEER AND SUBMITTAL TO APPROPRIATE AUTHORITIES TO PROTECT THE SITE FROM EROSION AND PREVENT THE MOVEMENT OF SEDIMENT AND DEBRIS.
- ALL AREAS OUTSIDE THE LIMIT OF DISTURBANCE SHALL BE PROTECTED AT ALL TIMES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- ALL MATERIALS TO BE REMOVED WITHIN THE LIMIT OF DISTURBANCE SHALL BE REMOVED TO A LOCATION ARRANGED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE LOCATION OF STOCKPILED TOPSOIL SHALL BE IN AREAS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL COORDINATE WORK TO ENSURE CONTINUED ACCESS TO ALL EXISTING FACILITY STRUCTURES. SEE SPECIFICATION SECTION 01810 FOR ADDITIONAL INFORMATION.
- REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN LIMITS SHOWN ON DRAWINGS TAKING CARE NOT TO DAMAGE EXISTING WALLS, BUILDINGS OR UTILITY STRUCTURES.
- STRIP EXISTING VEGETATION AND 6" LAYER TOPSOIL UNLESS OTHERWISE SHOWN TO BE PROTECTED WITHIN LIMIT OF DISTURBANCE. GRIND ANY STUMPS TO A MINIMUM OF ONE FOOT BELOW FINISH GRADE AND BACKFILL IN COMPACTED LAYERS AS SPECIFIED.

LAYOUT GENERAL NOTES:

- FOR LAYOUT PURPOSES AND TO ESTABLISH THE COORDINATE SYSTEM SEE P.O.B #1 ON SHEET C-7 AND P.O.B. #2 AND #3 ON SHEETS C-6. CONTRACTOR SHALL VERIFY THAT ALL PK NAILS ARE IN PLACE AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
- CONTRACTOR SHALL VERIFY ALL PROPERTY AND SURVEY INFORMATION.
- CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY AND PROTECT ALL ON-SITE STRUCTURES IDENTIFIED ON THE PLANS AND AS DIRECTED BY THE ENGINEER TO BE RETAINED ON THE SITE THROUGHOUT THE CONSTRUCTION PROJECT.
- CONTRACTOR SHALL MAINTAIN VEHICULAR ACCESS AND ALL UTILITY SERVICES TO THE EXISTING TREATMENT PLANT AND ASSOCIATED FACILITIES THROUGHOUT THE DURATION OF THE CONTRACT, UNLESS OTHERWISE SPECIFIED.
- LOCATIONS OF NEW VAULTS AND CONCRETE PADS ARE APPROXIMATE ONLY. FINAL LOCATIONS SHALL BE DETERMINED IN THE FIELD AFTER STAKING BY THE CONTRACTOR BASED ON ACTUAL SITE CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL DISTURBED AREAS NOT COVERED WITH PAVEMENT OR STRUCTURES OR RIP RAP SHALL RECEIVE 6" LAYER LOAM AND SEED AS SPECIFIED.
- BUILDING DIMENSIONS ARE TO COLUMN LINE INTERSECTION OR OUTSIDE FACE OF WALL AS SHOWN ON THE DRAWINGS. DIMENSIONS FOR TANKS ARE TO OUTSIDE FACE OF WALL OR CENTER POINT OF TANK AS SHOWN ON THE DRAWINGS. DIMENSIONS TO CONCRETE PADS ARE TO EDGE OF PAD.
- ALL ITEMS TO BE REMOVED, UNLESS OTHERWISE INDICATED ON THE DRAWINGS, SHALL BE DISPOSED OFF SITE IN A LEGAL MANNER.
- ITEMS SLATED FOR RE-USE SHALL BE STORED IN A CLEAN, DRY PLACE, PRIOR TO RELOCATION ON SITE.

GRADING GENERAL NOTES:

- BENCHMARK= TBM UB-2 SQUARE CUT EL. 426.4 AT EXISTING SCREENINGS AND GRIT FACILITY. ADDITIONAL BENCHMARKS ARE PROVIDED ON SHEETS C-4, C-5, C-6, C-7
- NOTIFY THE ENGINEER OF OBSTRUCTIONS ENCOUNTERED DURING THE CONSTRUCTION OF ROADWAYS.
- CONTRACTOR IS RESPONSIBLE FOR CONFIRMING GRADES AND LOCATION OF UTILITIES. MAJOR DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- SEE YARD PIPING AND ELECTRICAL PLANS FOR SUBSURFACE UTILITIES.
- TO ESTABLISH PROPER GRADES, CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF GRADE STAKES. THE NUMBER AND LOCATION SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
- ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER APPROVED BY THE ENGINEER.

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\COROA\U\0119523\EXPLO00.DWG Saved by: COROAUJ On: 7-Jul-10 Plotted on: 23-Nov-10 3:08 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. CEXPLO00.DWG
DESIGNED BY: G. HOWARD
DRAWN BY: J. COROA
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: D. GREEN
SCALE: AS NOTED
APPROVED BY: G. HOWARD
DATE: SEPTEMBER 2010

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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

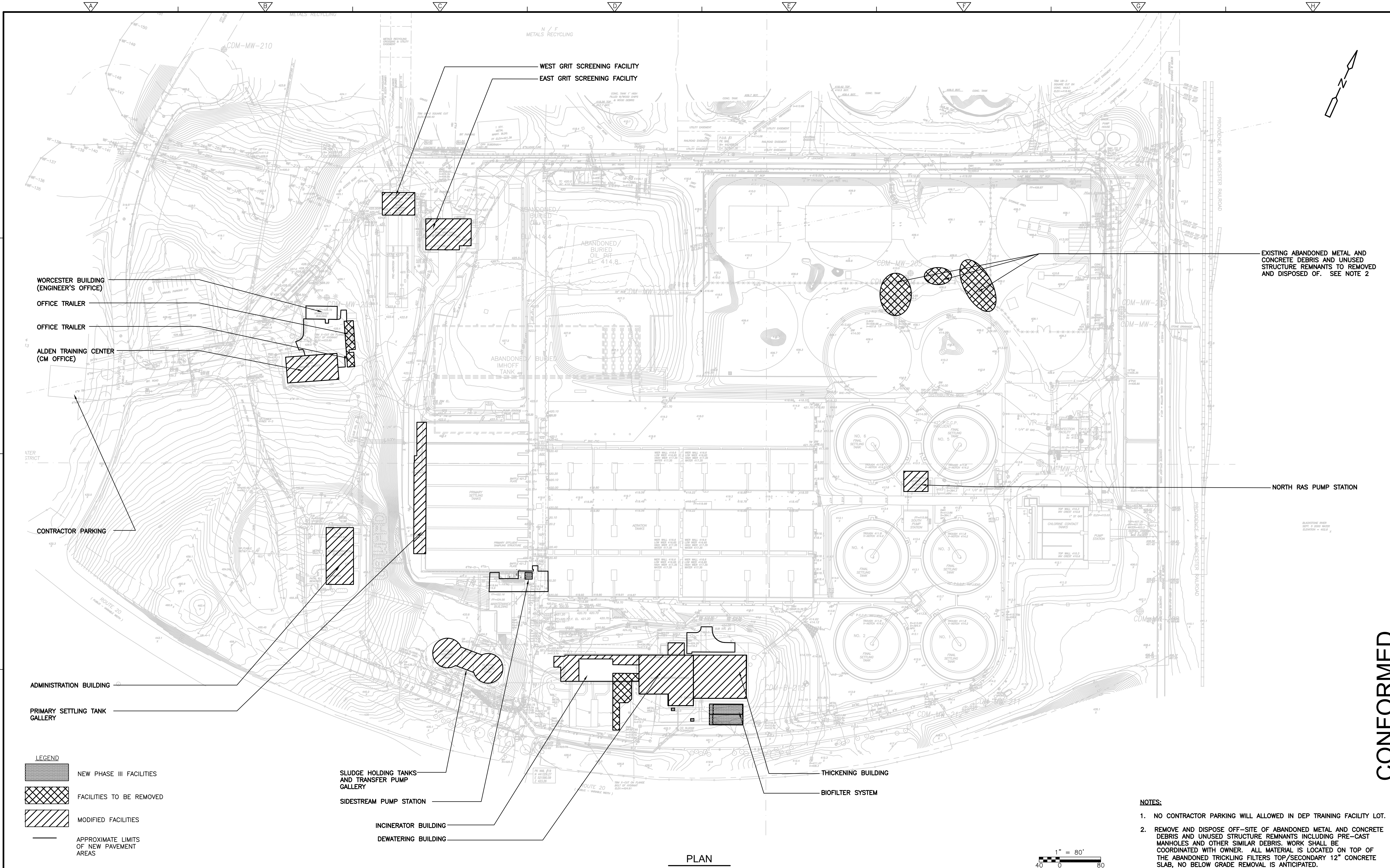
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**CIVIL/SITE LEGEND, NOTES
AND ABBREVIATIONS**



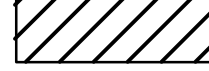
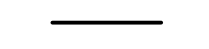
PROJECT NO. 1289-74283
Sht. 9 of 12
C-1
Acc # 1289-74415

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\COROA\U0119523\CYPPL301.DWG Saved by: COROAUJ On: 7-Jul-10 Plotted on: 23-Nov-10 3:09 PM



EXISTING ABANDONED METAL AND CONCRETE DEBRIS AND UNUSED STRUCTURE REMNANTS TO BE REMOVED AND DISPOSED OF. SEE NOTE 2

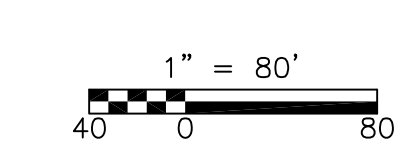
NORTH RAS PUMP STATION

- LEGEND**
-  NEW PHASE III FACILITIES
 -  FACILITIES TO BE REMOVED
 -  MODIFIED FACILITIES
 -  APPROXIMATE LIMITS OF NEW PAVEMENT AREAS

- SLUDGE HOLDING TANKS AND TRANSFER PUMP GALLERY
- SIDESTREAM PUMP STATION
- INCINERATOR BUILDING
- DEWATERING BUILDING

- THICKENING BUILDING
- BIOFILTER SYSTEM

PLAN
1" = 80'



- NOTES:**
1. NO CONTRACTOR PARKING WILL ALLOWED IN DEP TRAINING FACILITY LOT.
 2. REMOVE AND DISPOSE OFF-SITE OF ABANDONED METAL AND CONCRETE DEBRIS AND UNUSED STRUCTURE REMNANTS INCLUDING PRE-CAST MANHOLES AND OTHER SIMILAR DEBRIS. WORK SHALL BE COORDINATED WITH OWNER. ALL MATERIAL IS LOCATED ON TOP OF THE ABANDONED TRICKLING FILTERS TOP/SECONDARY 12" CONCRETE SLAB, NO BELOW GRADE REMOVAL IS ANTICIPATED.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. CYPPL301
 DESIGNED BY: G. HOWARD
 DRAWN BY: J. COROA
 SHEET CHK'D BY: G. HOWARD
 CROSS CHK'D BY: D. GREEN
 SCALE: AS NOTED
 APPROVED BY: G. HOWARD
 DATE: SEPTEMBER 2010

WEST GRIT SCREENING FACILITY
 EAST GRIT SCREENING FACILITY

CDM
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 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

OVERVIEW PLAN

PROJECT NO.
1289-74283

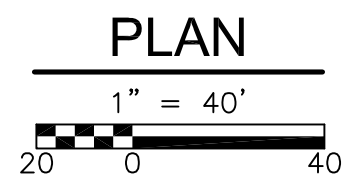
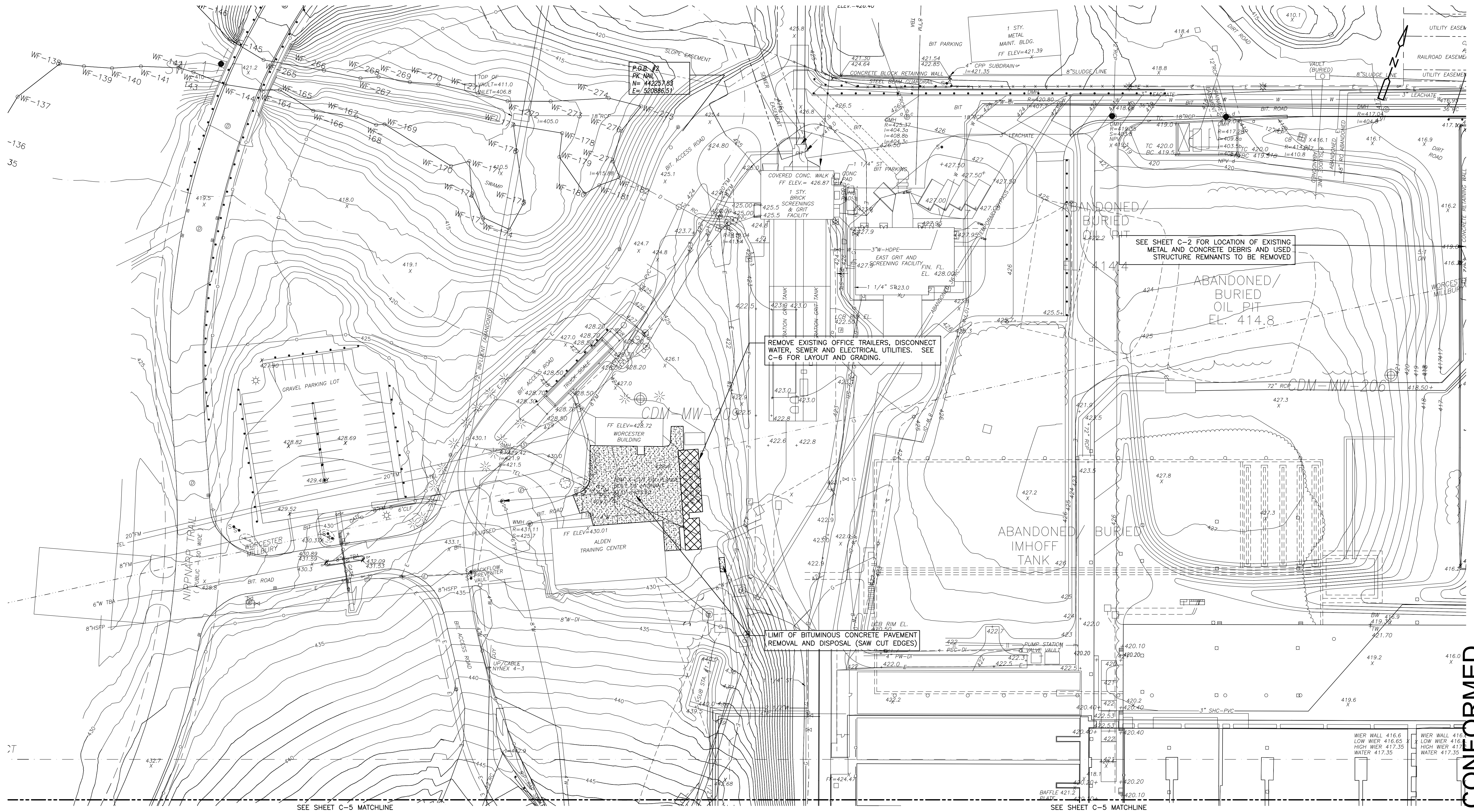
Sht. 10 of 12

C-2

Acc # 1289-74416

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LEGEND

LIMIT OF BITUMINOUS CONCRETE PAVEMENT REMOVAL AND DISPOSAL (SAW CUT EDGES)	
LIMIT OF STRUCTURE REMOVAL AND DISPOSAL	

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. CEXPL302.DWG
DESIGNED BY: G. HOWARD
DRAWN BY: J. COROA
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: D. GREEN
SCALE: AS NOTED
APPROVED BY: G. HOWARD
DATE: SEPTEMBER 2010

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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

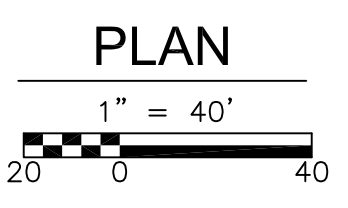
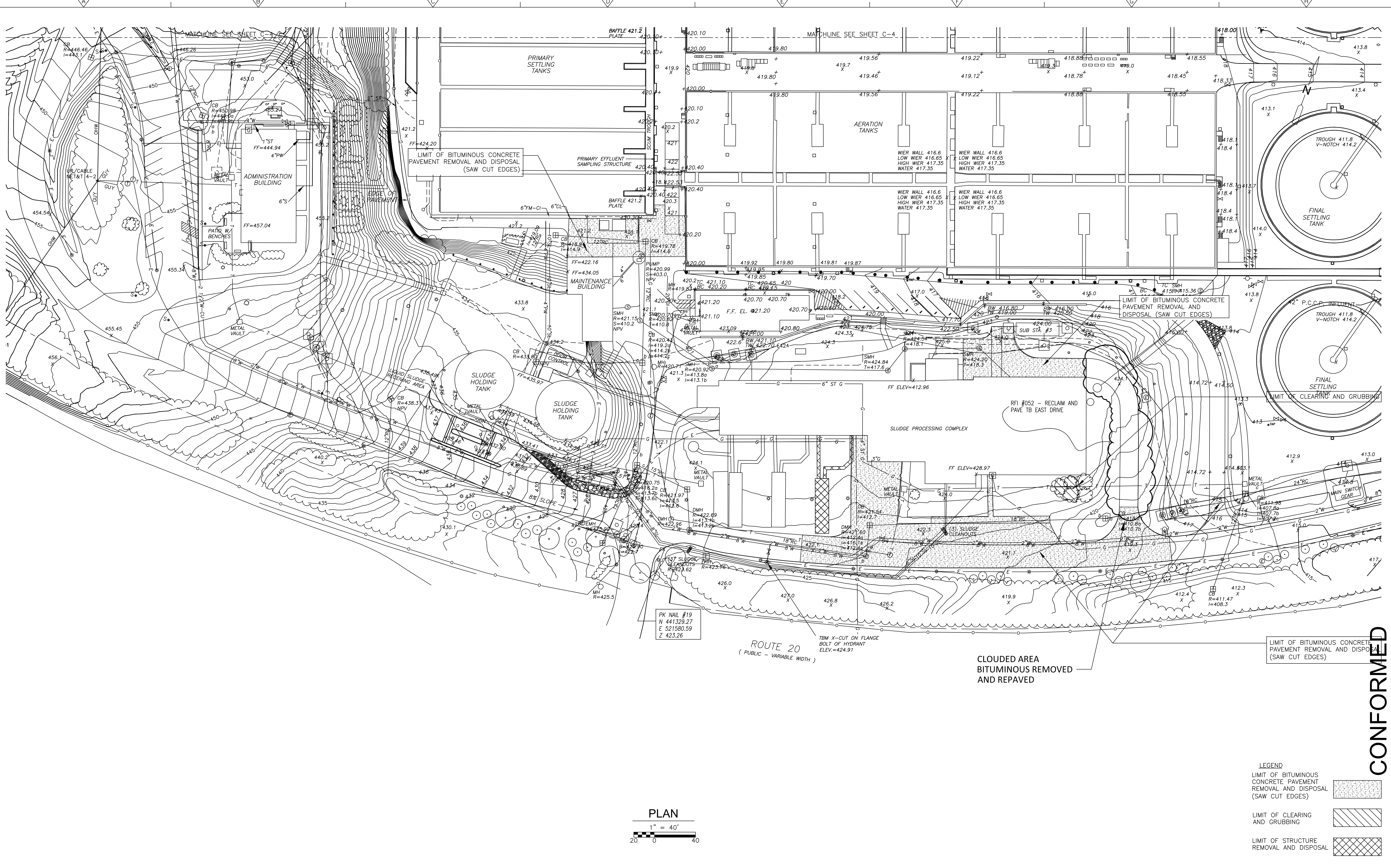
**EXISTING CONDITIONS AND
REMOVAL PLAN I**

C-4

PROJECT NO. 1289-74283
Sht. 12 of 12
Acc # 1289-74418

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\CEXPL301.DWG Saved by: PLOWRY On: 12-Dec-12 2:47 PM



CONFORMED

LEGEND

LIMIT OF BITUMINOUS CONCRETE PAVEMENT REMOVAL AND DISPOSAL (SAW CUT EDGES)	
LIMIT OF CLEARING AND GRUBBING	
LIMIT OF STRUCTURE REMOVAL AND DISPOSAL	

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. CEXPL301.DWG
 DESIGNED BY: G. HOWARD
 DRAWN BY: J. COROA
 SHEET CHK'D BY: G. HOWARD
 CROSS CHK'D BY: D. GREEN
 SCALE: AS NOTED
 APPROVED BY: G. HOWARD
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/13/2012

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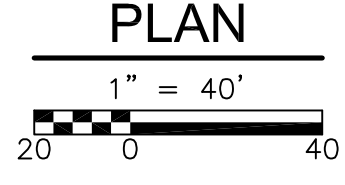
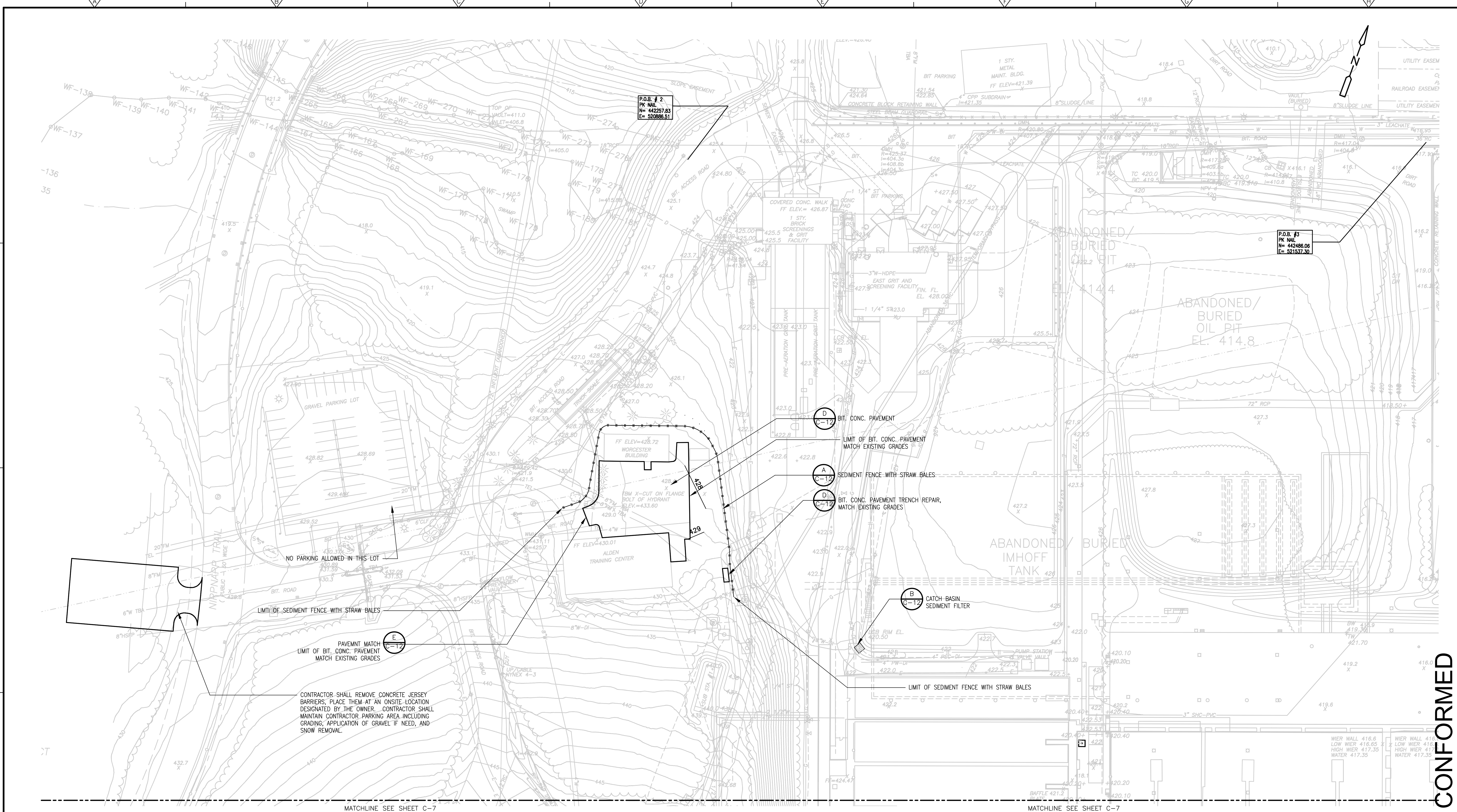
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

EXISTING CONDITIONS AND
 REMOVALS PLAN II

Sht. 13 of 312
C-5
 Acc # 1289-74419

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\COROA\U0119523\CGDPL302.DWG Saved by: COROAUJ On: 7-Jul-10 Plotted on: 23-Nov-10 3:12 PM



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REV. NO.	DATE	DRWN	CHKD	REMARKS

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DESIGNED BY:	G. HOWARD
DRAWN BY:	J. COROA
SHEET CHK'D BY:	G. HOWARD
CROSS CHK'D BY:	D. GREEN
SCALE:	AS NOTED
APPROVED BY:	G. HOWARD
DATE:	SEPTEMBER 2010

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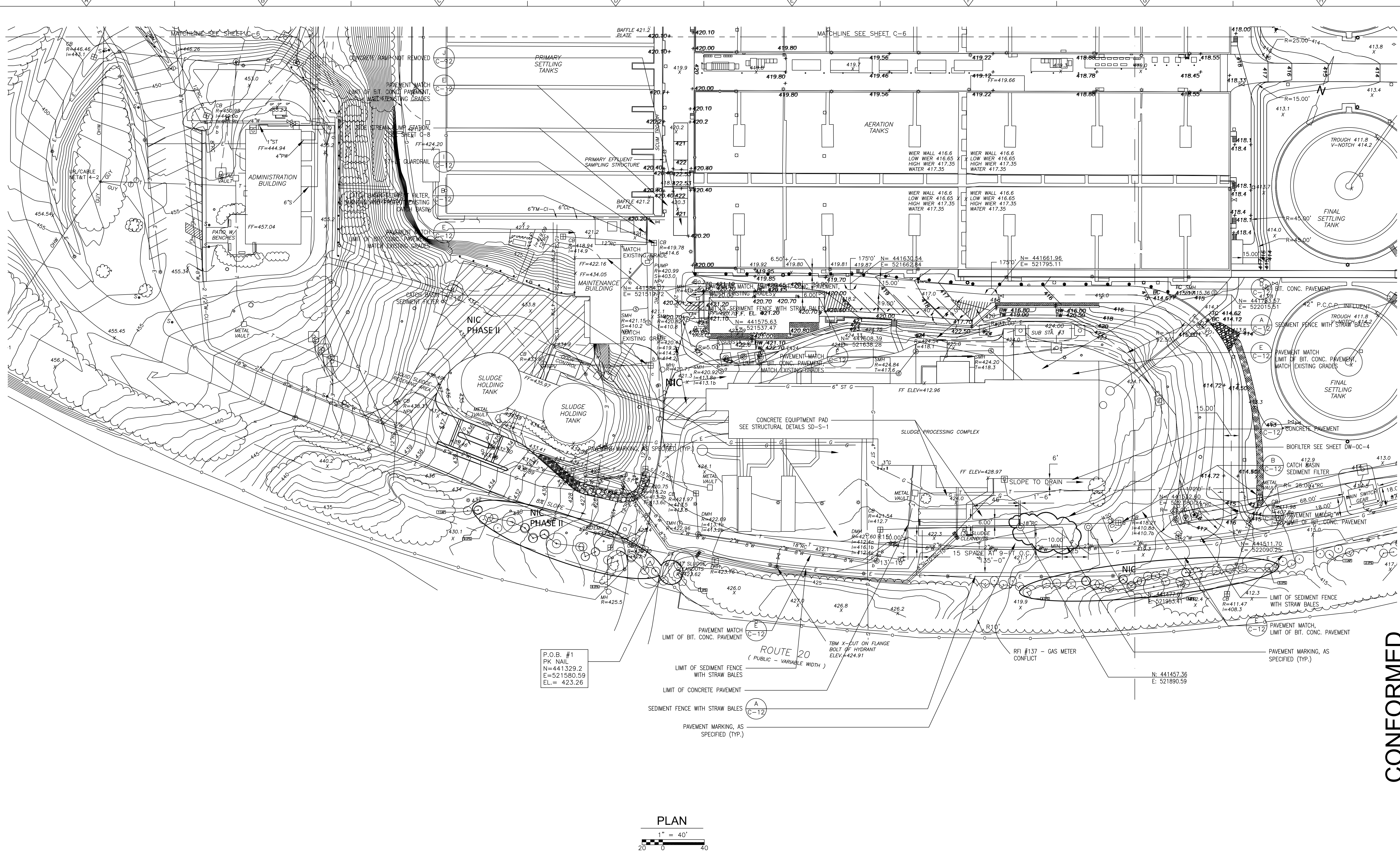
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**LAYOUT, GRADING AND
 EROSION AND SEDIMENTATION
 CONTROL PLAN I**

PROJECT NO.	1289-74283
Sht.	14 of 132
C-6	
Acc #	1289-74420

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\CGDPL301.DWG Saved by: PLOWRY On: 13-Dec-12 8:35 AM



P.O.B. #1
PK NAIL
N=441329.2
E=521580.59
EL.= 423.26

PLAN
1" = 40'
0 40

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. CGDPL301
DESIGNED BY: G. HOWARD
DRAWN BY: J. COROIA
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: D. GREEN
SCALE: AS NOTED
APPROVED BY: G. HOWARD
DATE: SEPTEMBER 2010

DOC RECORD DRAWING
7/13/2012

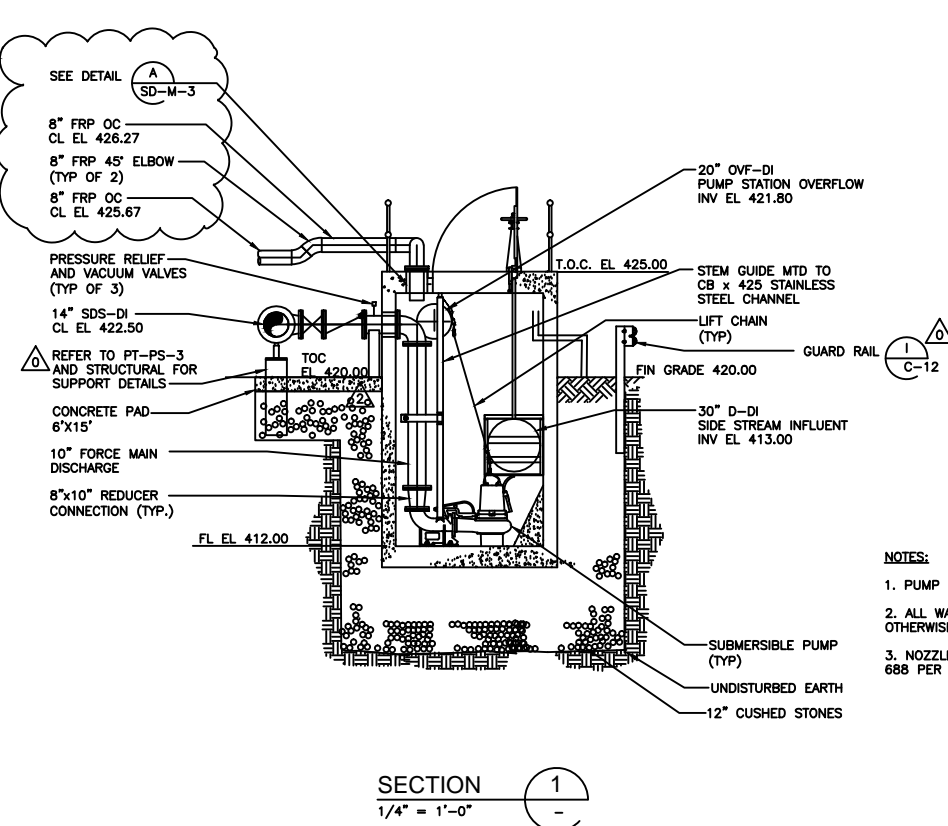
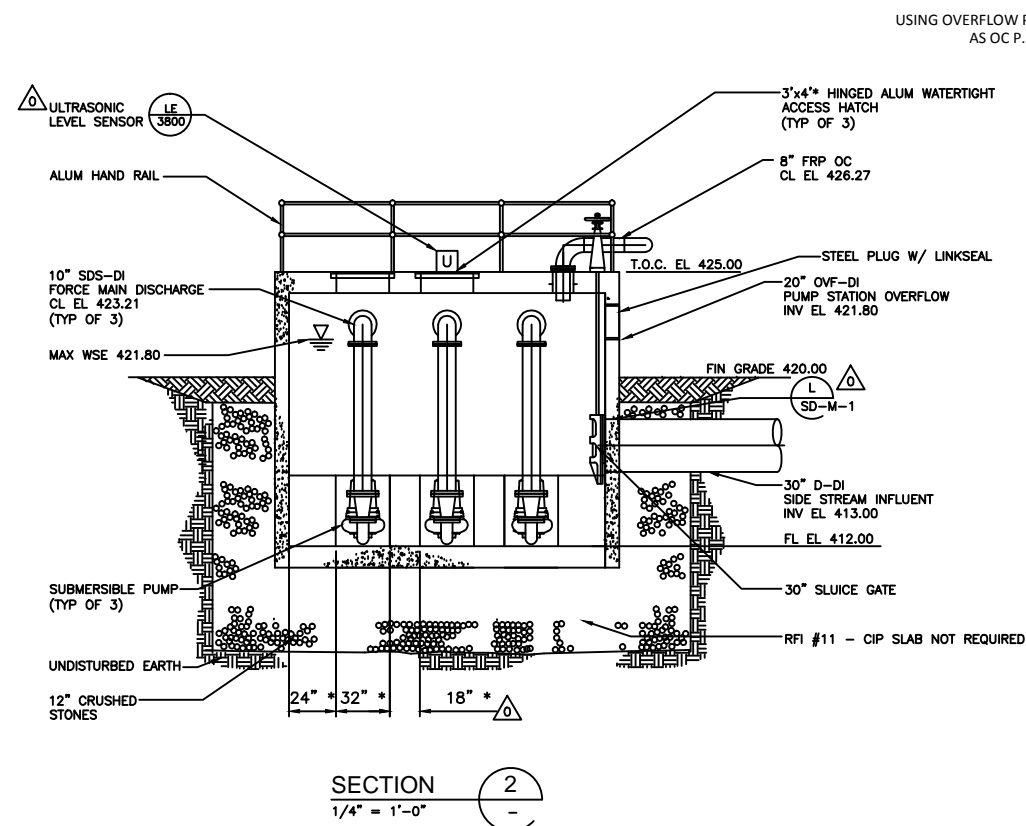
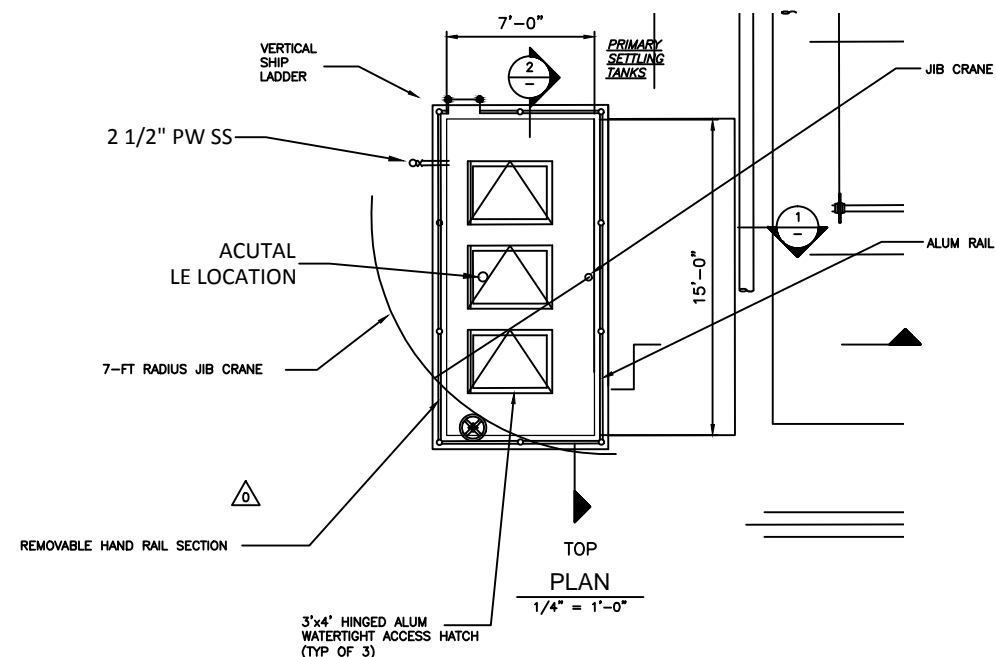
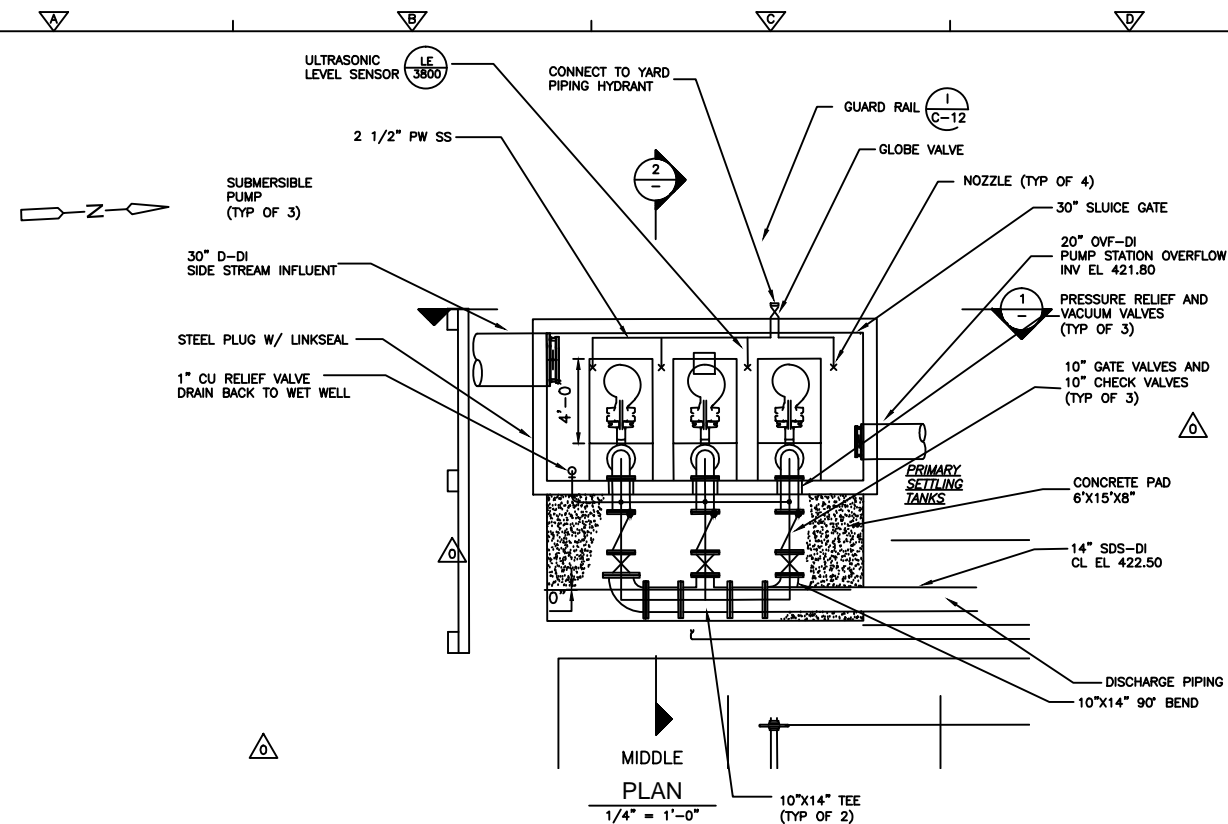
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

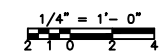
**LAYOUT, GRADING AND
EROSION AND SEDIMENTATION
CONTROL PLAN II**

PROJECT NO.
1289-74283
Sht. 15 of 312
C-7
Acc. # 1289-74421

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\RKOMSSI\DESKTOP\CPSPL003.DWG Saved by: PLOWRY On: 15-Apr-13 Plotted on: 3-Oct-14 2:08 PM



- NOTES:
1. PUMP STATION IS A PRECAST CONCRETE STRUCTURE.
 2. ALL WALL PENETRATIONS ARE DETAIL (J) UNLESS OTHERWISE NOTED.
 3. NOZZLES SHALL BE LECHLER FLAT FAN NOZZLE SERIES 688 PER PCO 144



CONFORMED

0	09/10	BG	MC	REVISED FOR ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

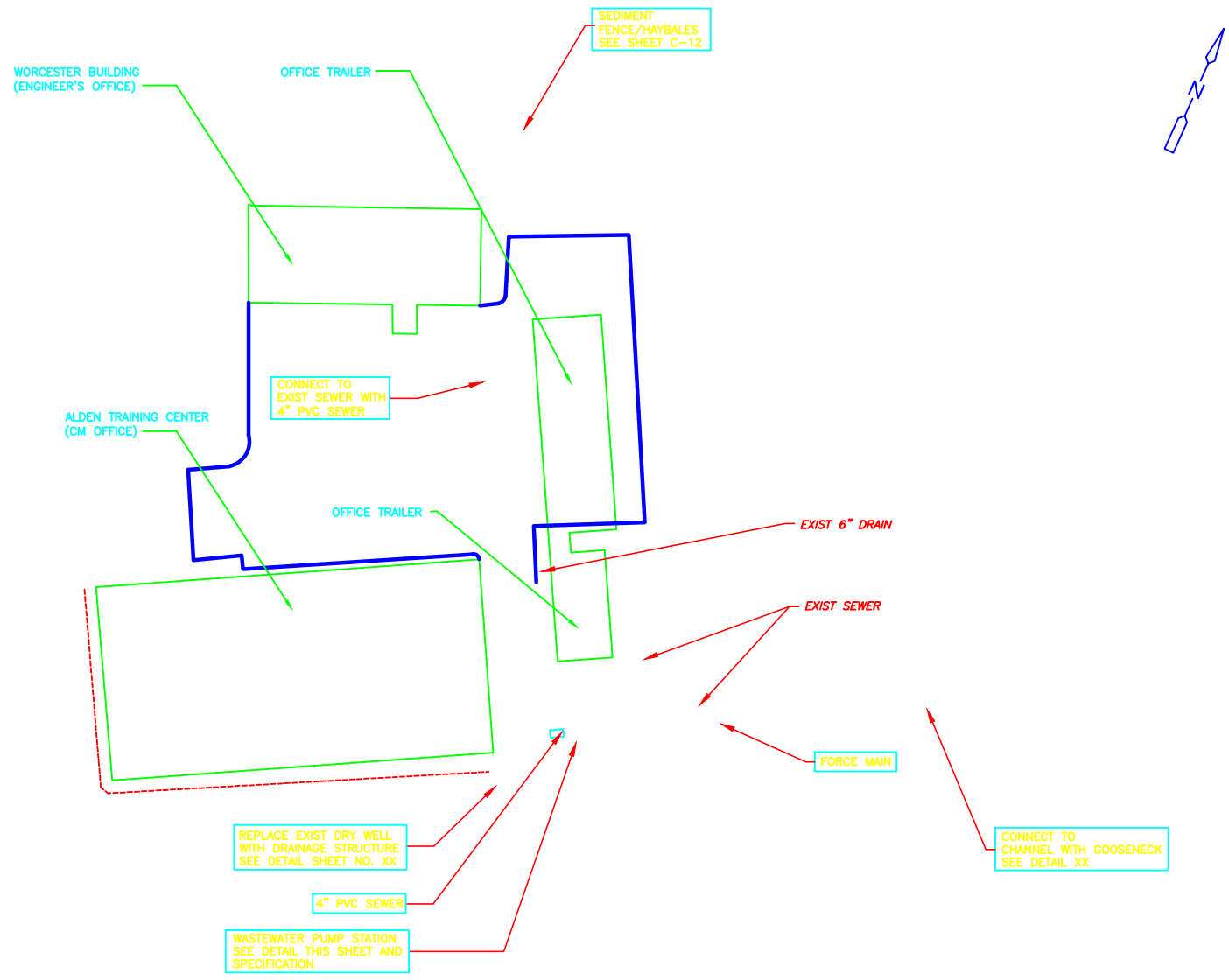
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 DESIGNED BY: G. ROY
 DRAWN BY: M. WALLIK
 SHEET CHECKED BY: G. ROY
 CROSS CHECKED BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W.D. GREEN
 DATE: SEPTEMBER 2010

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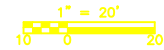
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SITE STREAM
 PUMP STATION**

PROJECT NO.
 1289-74283
 Sht. 17 of 312
 C-9
 Acc # 1289-74423

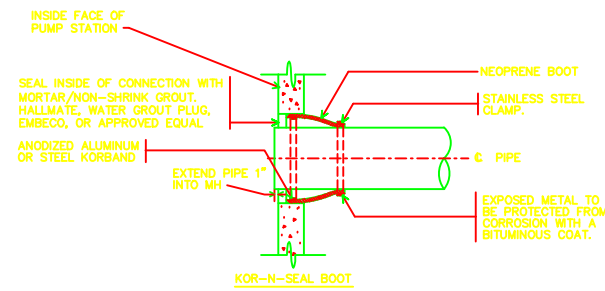


ENLARGED PUMP STATION SITE PLAN



GENERAL NOTES

1. PROVIDE VERTICAL SUPPORTS FOR GUIDE RAILS AT 5'-0" MAX. SPACING. SUPPORTS TO BE 316 STAINLESS STEEL WITH 316 STAINLESS STEEL HARDWARE.
2. MINIMUM PUMP REMOVAL HATCH DIMENSIONS SHALL ALLOW FOR REMOVAL OF SPECIFIED PUMPS. HATCH SHALL BE LOCKABLE SINGLE LEAF ALUMINUM. PRECASTER TO PROVIDE ADDITIONAL REINFORCING AT CORNERS OF ACCESS HATCHES TO PREVENT THE PROPAGATION OF CRACKS.
3. PIPE PENETRATIONS TO BE LOCATED 12" MIN. FROM JOINTS IN PUMP STATION.
4. WETWELL SHALL BE PRECAST CONCRETE WITH PRECAST CONCRETE ROOF AND FLOOR. STRUCTURE AND ALUM ACCESS HATCHES SHALL BE DESIGNED FOR AHSHTO HS20-44 LOADING.
5. ALL COATINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. EXTERIOR OF PUMP CHAMBER TO BE WATERPROOFED WITH 2 COATS OF COAL TAR WATERPROOF PITCH ASTM D-450 TYPE B, KOPPERS OR EQUAL.
7. JOINTS TO BE SEALED WITH 1" BUTYL RUBBER.
8. THE CONTRACTOR IS ALERTED TO THE PRESENCE OF BEDROCK IN THE VICINITY OF THE PROPOSED PUMP STATION.
9. PUMP STATION SHALL BE 8' DIA MTS BY SUPERIOR CONCRETE CO. OR EQUAL.
10. ALL DISCHARGE PIPING FITTINGS AND VALVES BOTH INTERIOR AND EXTERIOR TO THE PUMP STATION MUST HAVE RESTRAINED JOINTS.



SEWER PIPE CONNECTION DETAIL

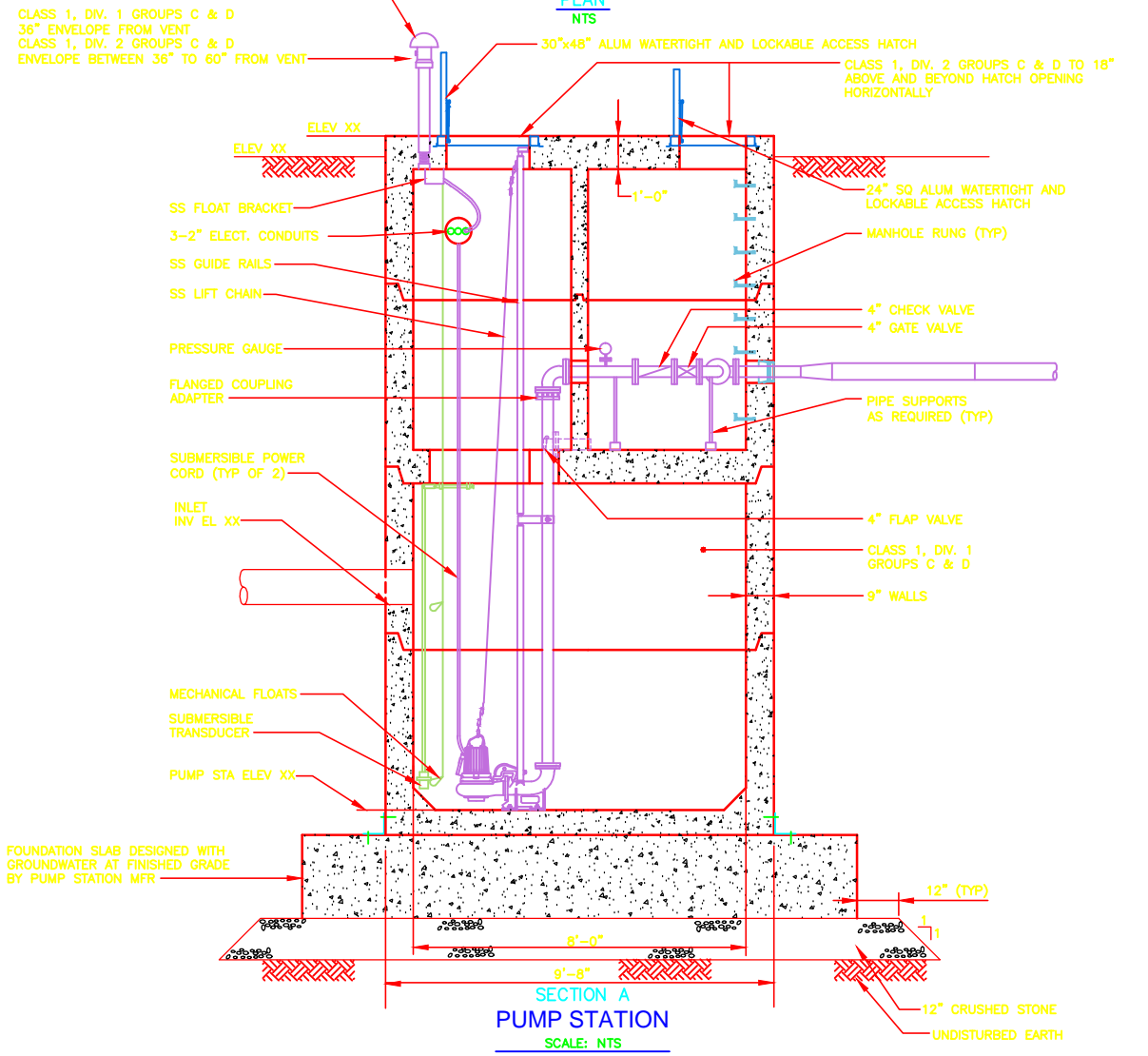
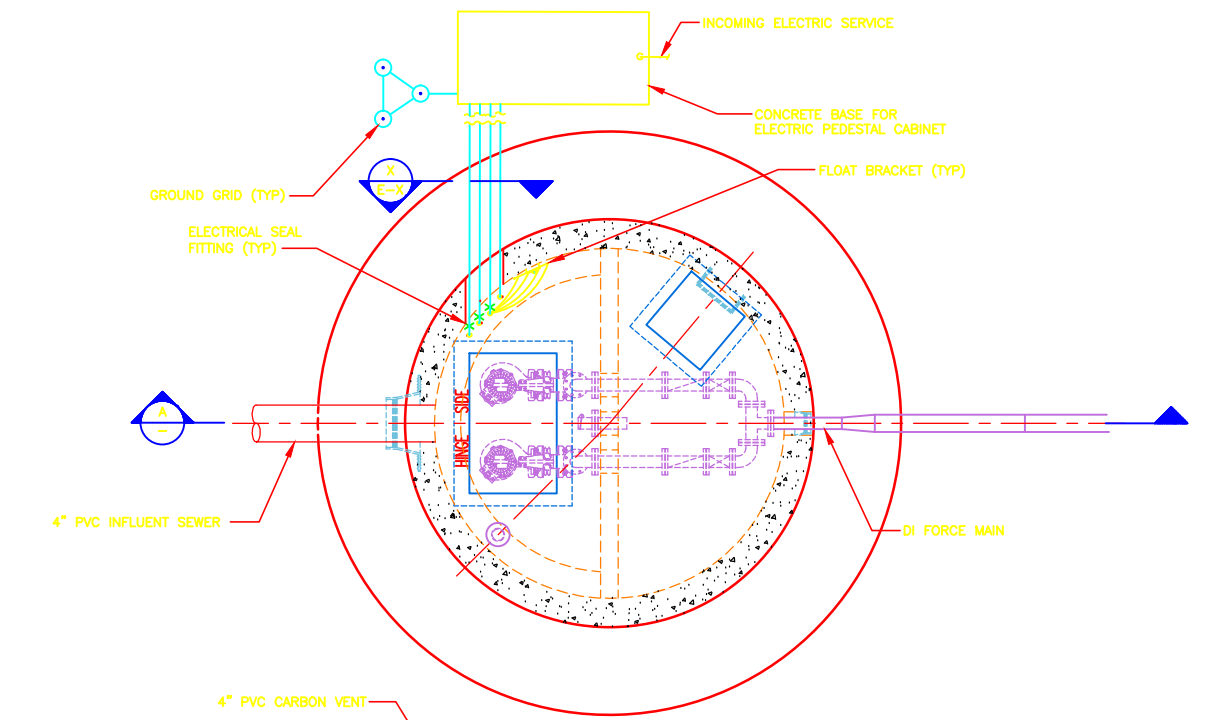


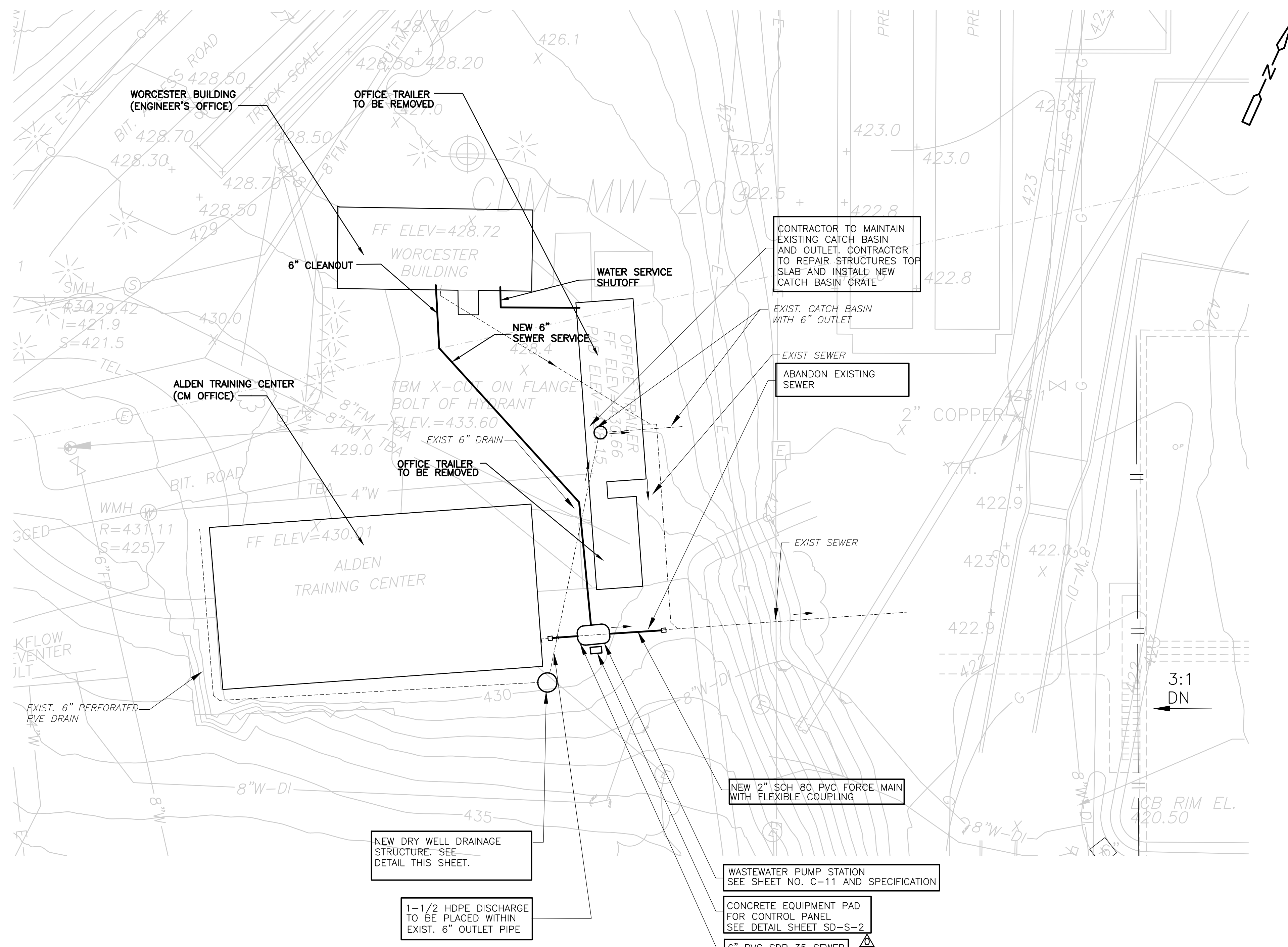
TABLE A

	ELEV.
TOP OF PUMP STATION	
FINISHED GRADE	
FORCE MAIN ELEV.	
INFLUENT SEWER	
HIGH WATER ALARM ELEV.	
PUMP ON ELEV.	
PUMP OFF ELEV.	
LOW WATER ALARM ELEV.	
PUMP STATION ELEV.	

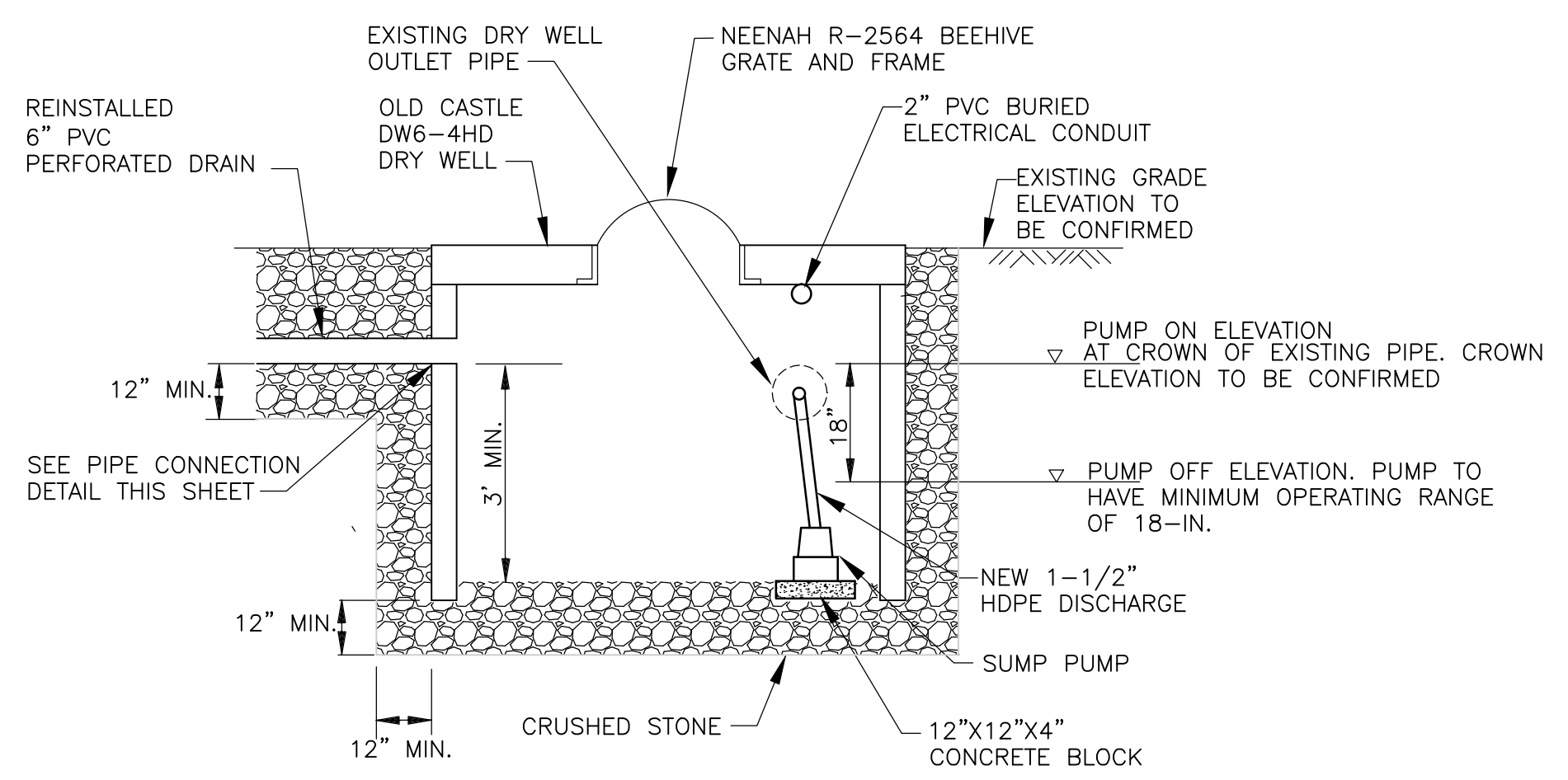
CYPPL301.DWG
 R. STRAND
 M. TOUAYL
 R. STRAND
 M. KOSTUR
 M. KOSTUR

WASTEWATER PUMP STATION AND DRAINAGE WORK

Plot Stamp = ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\AS-BUILT CORRECTIONS 10-29-2012\AUTOCAD\CYPL309.DWG Saved by: DKENNEDY On: 30-Oct-12 Plotted on: 30-Oct-12 1:01 PM



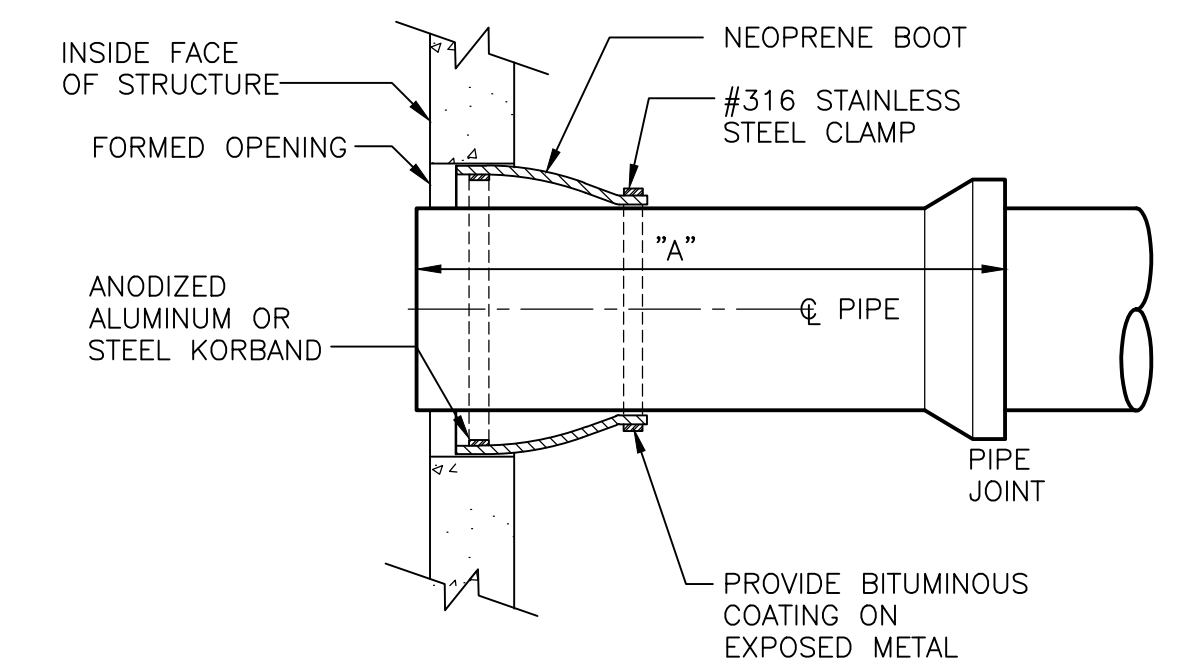
ENLARGED PUMP STATION SITE PLAN
1" = 20'
10 0 20



DRAINAGE DRY WELL STRUCTURE
NTS

NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING PIPE INVERTS AND EXISTING GRADES BEFORE ORDERING OR INSTALLING PRECAST DRY WELL STRUCTURE.
- NEW HDPE OUTLET TO BE PLACED WITHIN EXISTING DRY WELL OUTLET PIPE WITH 1-1/2" CHECK VALVE.
- SUMP PUMP SHALL BE TOP DISCHARGE SUBMERSIBLE ELECTRIC DEWATERING PUMP WITH TYPE 304 SS HOUSING, HAVE MINIMUM CAPACITY OF 15 GPM @ 10-FT. HEAD WITH MAXIMUM 3/4 HP MOTOR AT 120 VOLTS, AND 1-1/2 DISCHARGE CONNECTION.



KOR-N-SEAL BOOT

PIPE CONNECTION DETAIL
NTS

MAXIMUM STUB LENGTH	
PIPE MATERIAL	"A" (MAX.)
RC	4'-0"
PVC	3'-3"
DI	4'-6"

NOTES:

- CONTRACTOR SHALL PLAN FOR ADDITIONAL TEST PITS AS REQUIRED TO LOCATE AND CHARACTERIZE UNKNOWN EXISTING UTILITIES.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	BG	MC		REVISED FOR ADDENDA NOS. 1 THRU 3

CADD FILE NO.	CYPL301.DWG
DESIGNED BY:	R. STRAND
DRAWN BY:	M. TOUAYL
SHEET CHK'D BY:	R. STRAND
CROSS CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

YARD PIPING ENLARGED PLAN-FIELD OFFICES

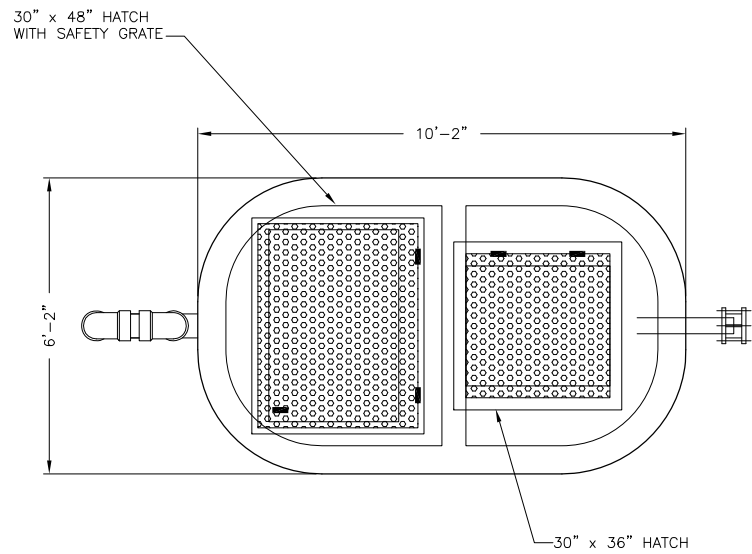
PROJECT NO.
1289-74283

Sht. 18 of 312

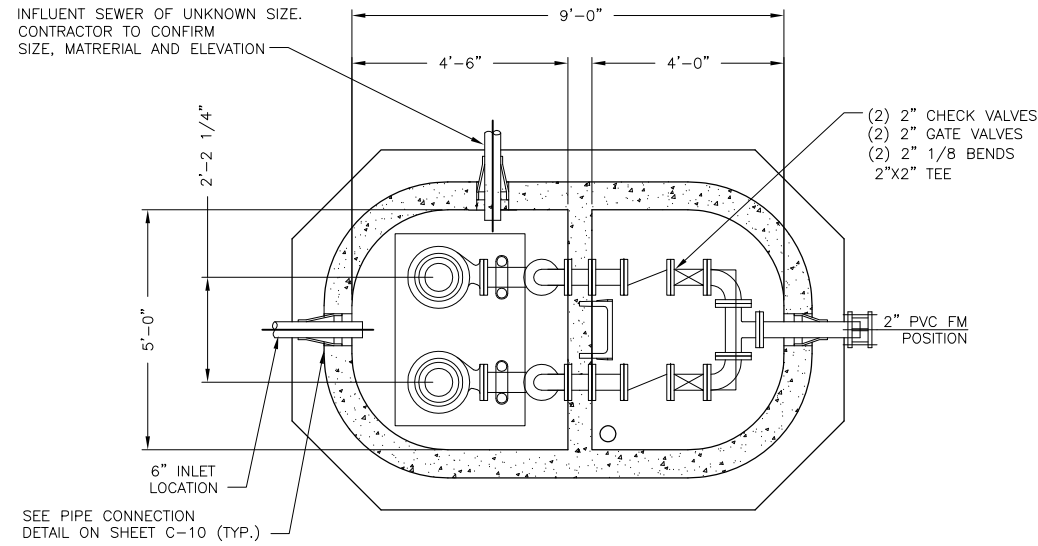
C-10

Acc # 1289-74424

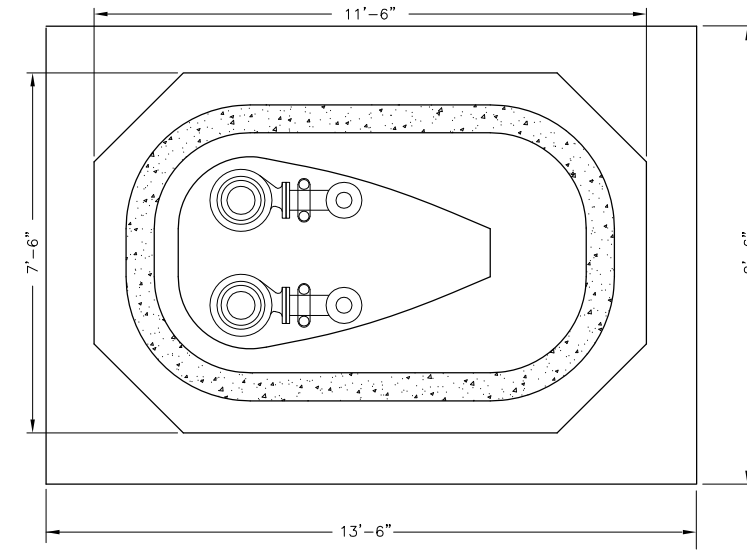
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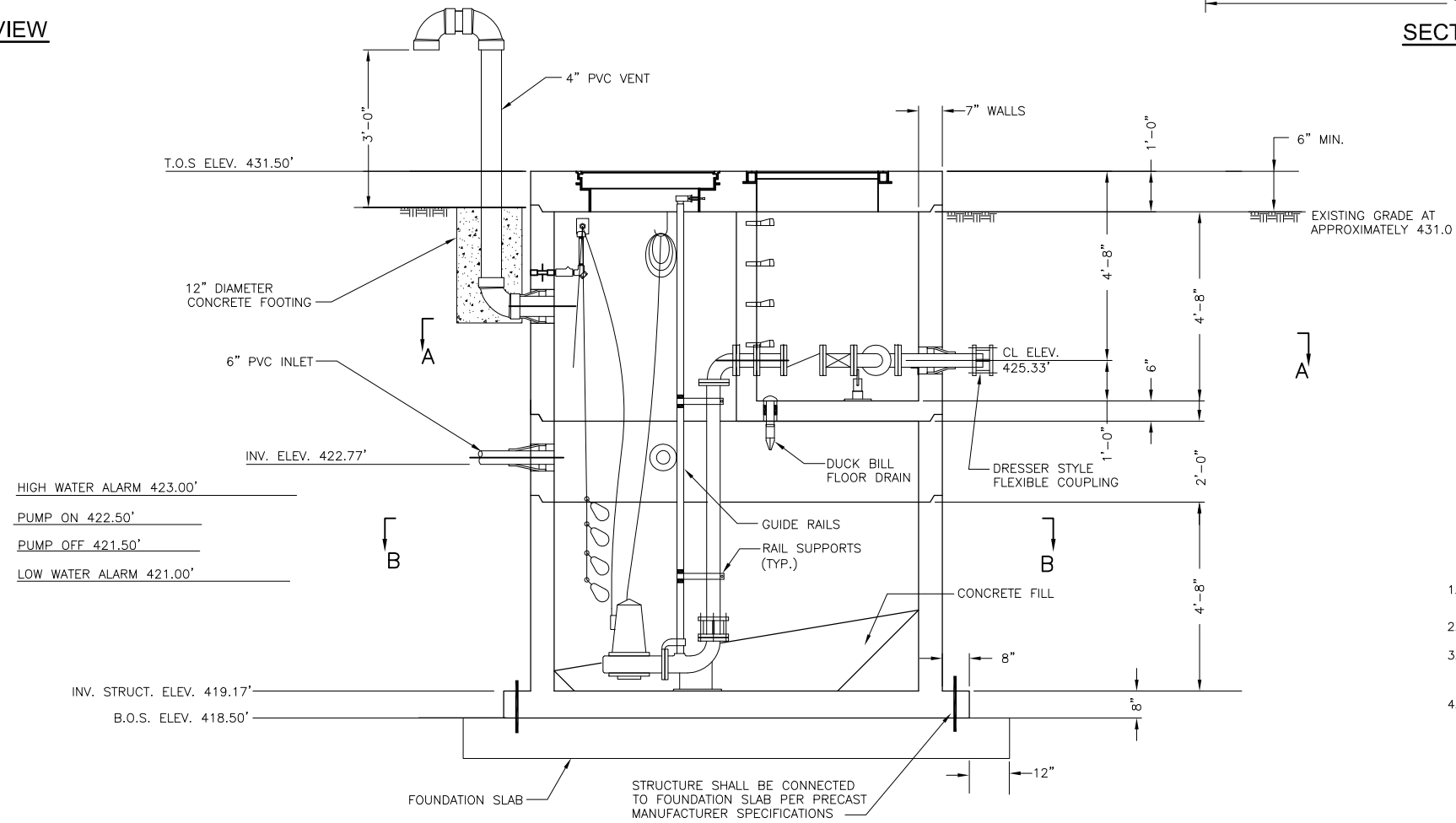
PLAN VIEW



SECTION A-A



SECTION B-B



INTERIOR ELEVATION VIEW

N.T.S.

- NOTES:**
1. ALL ELEVATIONS APPROXIMATE. CONTRACTOR TO CONFIRM ALL ELEVATIONS IN FIELD.
 2. FOR LEGEND AND SYMBOLS SEE SHEET GD-M-1.
 3. FOUNDATION SLAB SHALL BE DESIGNED WITH GROUNDWATER ELEVATION AT FINISHED GRADE BY PUMP STATION MFR.
 4. WATER LEVEL ALARMS SENT TO VISUAL BEACON MOUNTED ON CONTROL PANEL.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	CYPPL301.DWG
DESIGNED BY:	R. STRAND
DRAWN BY:	M. TOUAYL
SHEET CHK'D BY:	R. STRAND
CROSS CHK'D BY:	W.D. GREEN
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

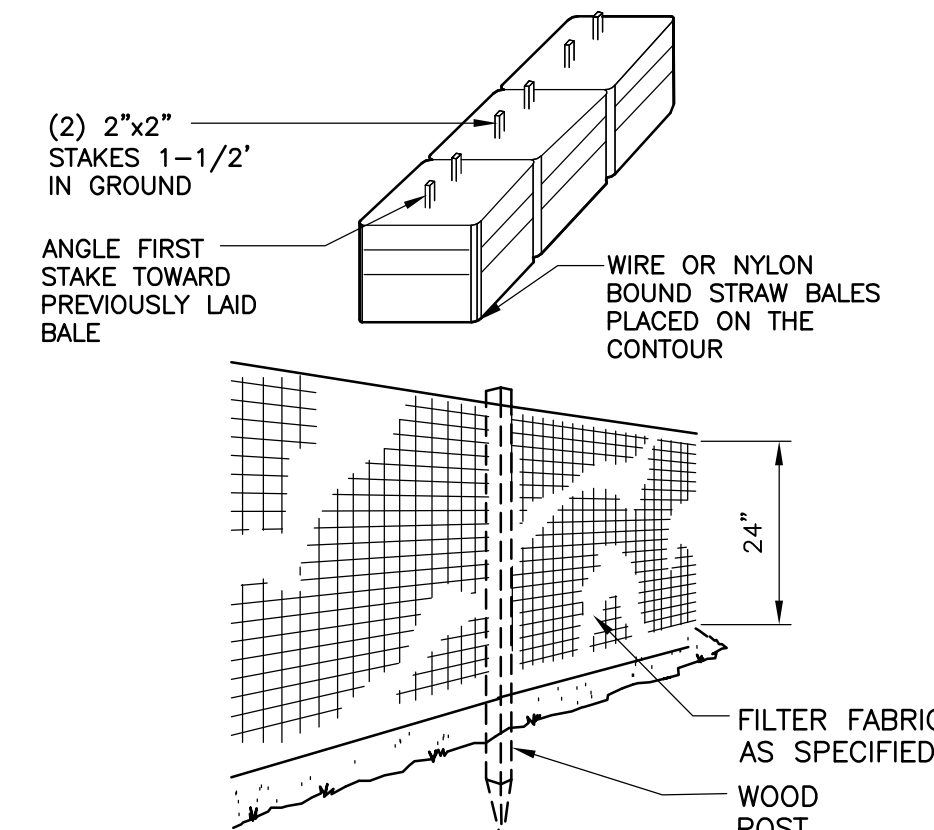
WASTEWATER PUMP STATION LAYOUT

PROJECT NO.
1289-74283

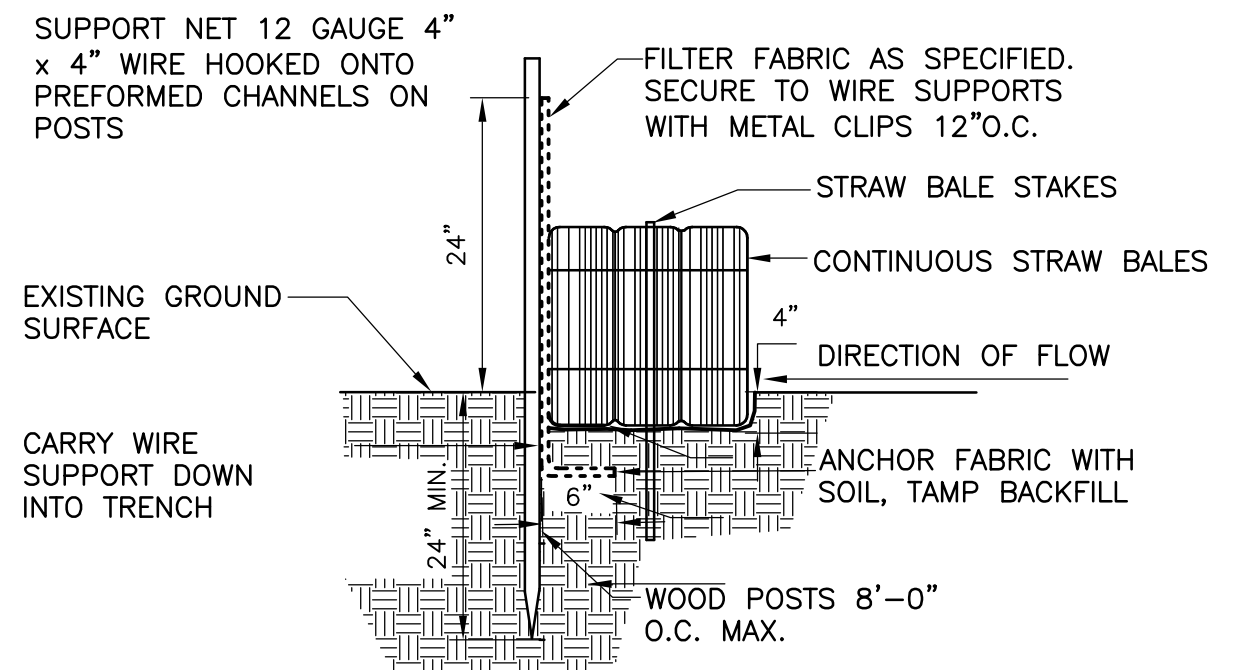
Sht. 19 of 312

C-11

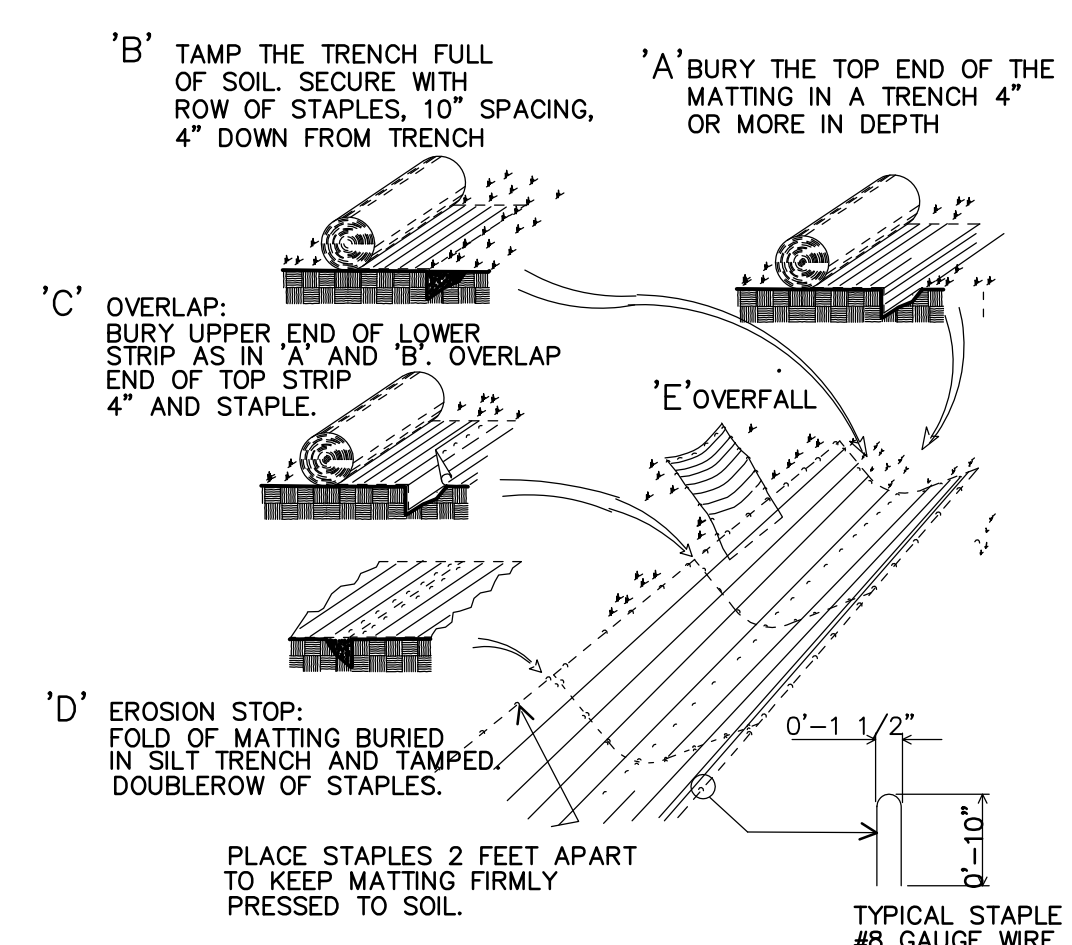
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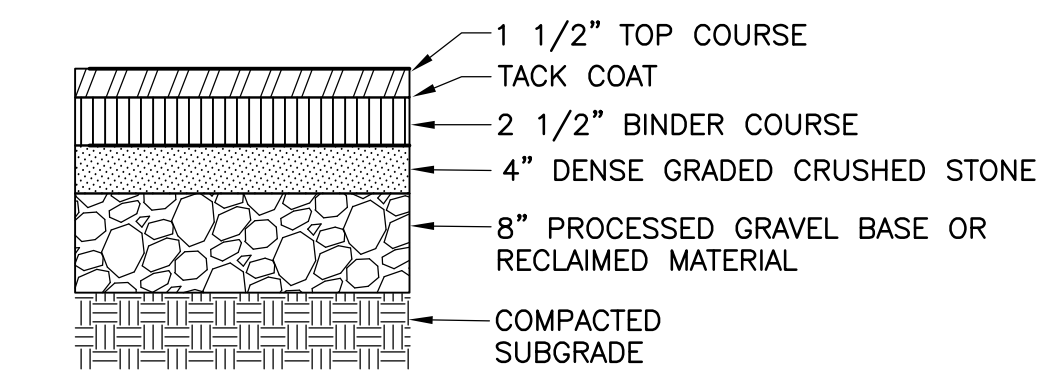
SEDIMENT FENCE WITH STRAW BALES
DETAIL A
 NOT TO SCALE



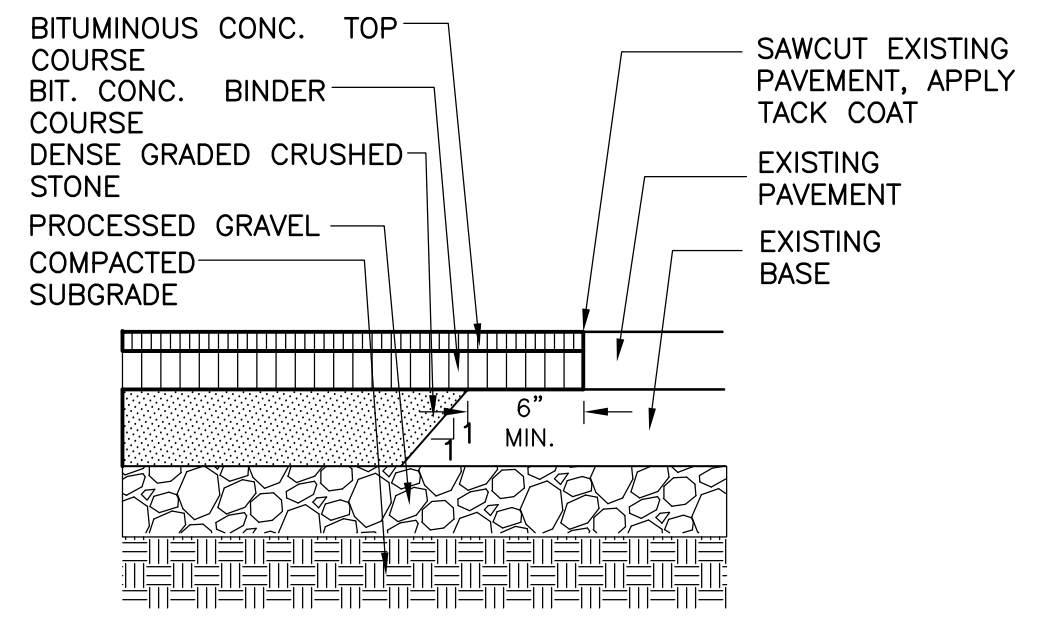
CATCH BASIN FILTER
DETAIL B
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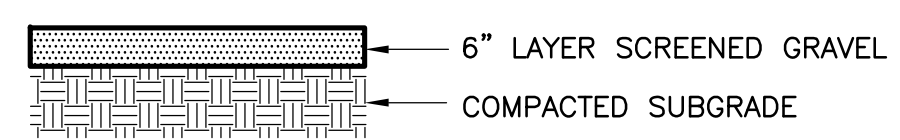
EROSION CONTROL BLANKET
DETAIL C
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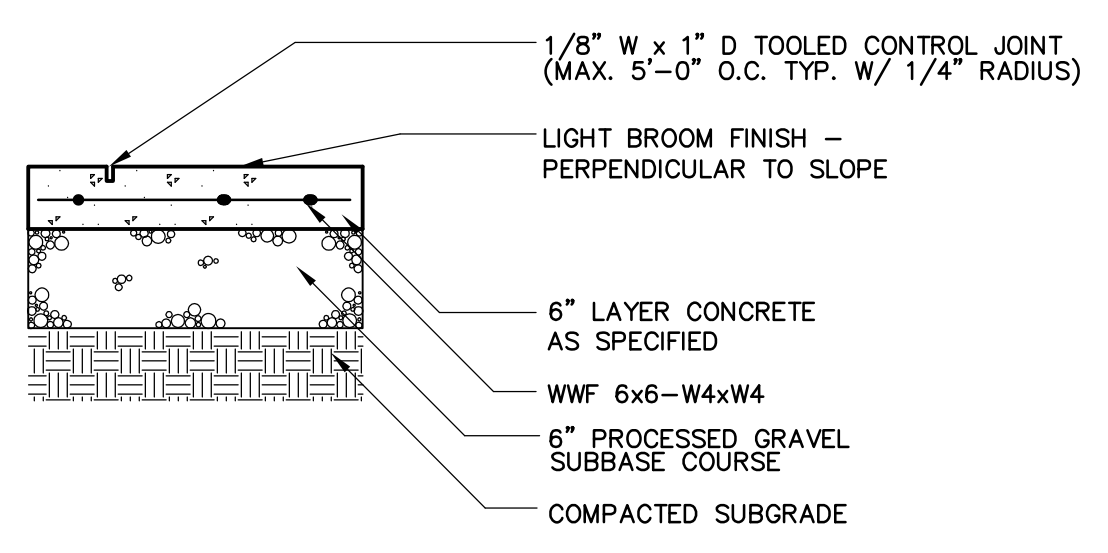
BIT. CONC. PAVEMENT
DETAIL D
 NOT TO SCALE



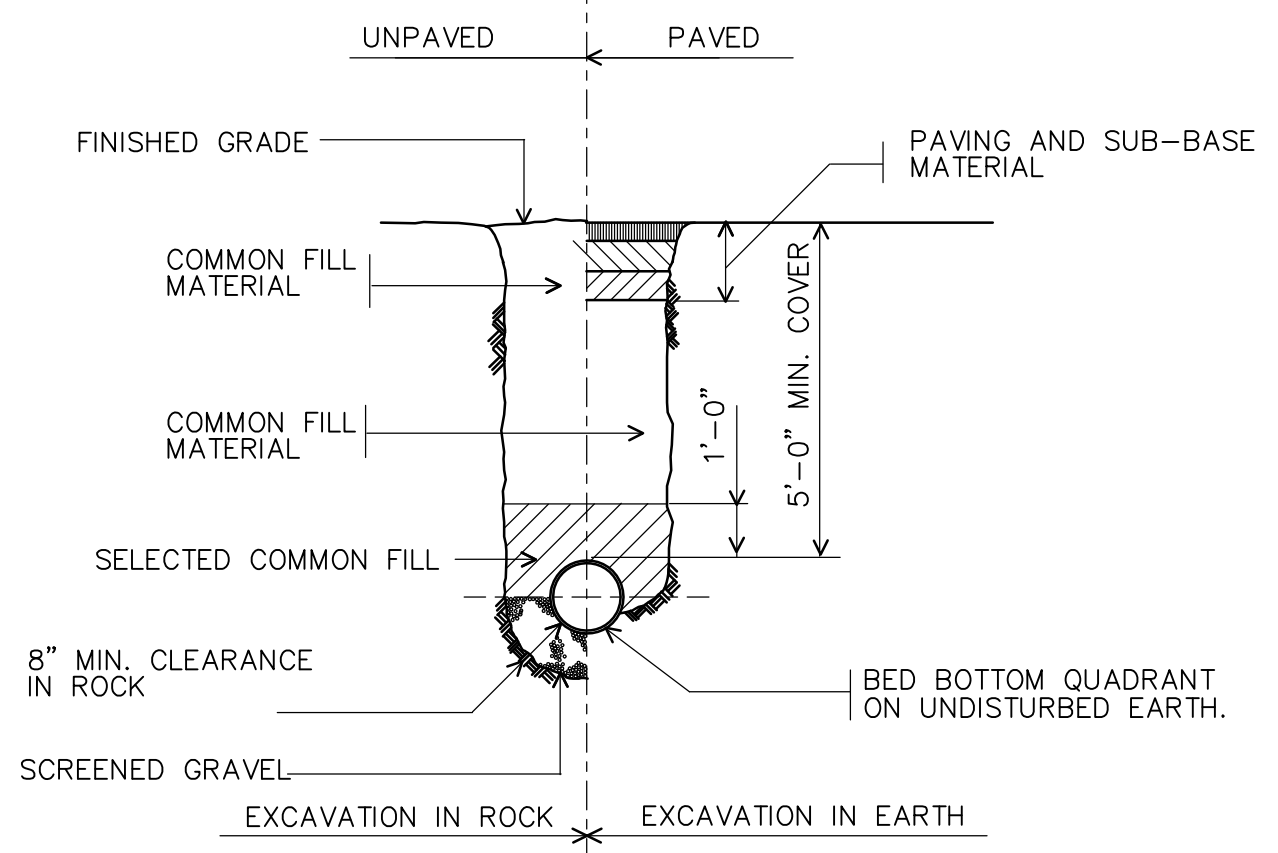
PAVEMENT MATCH
DETAIL E
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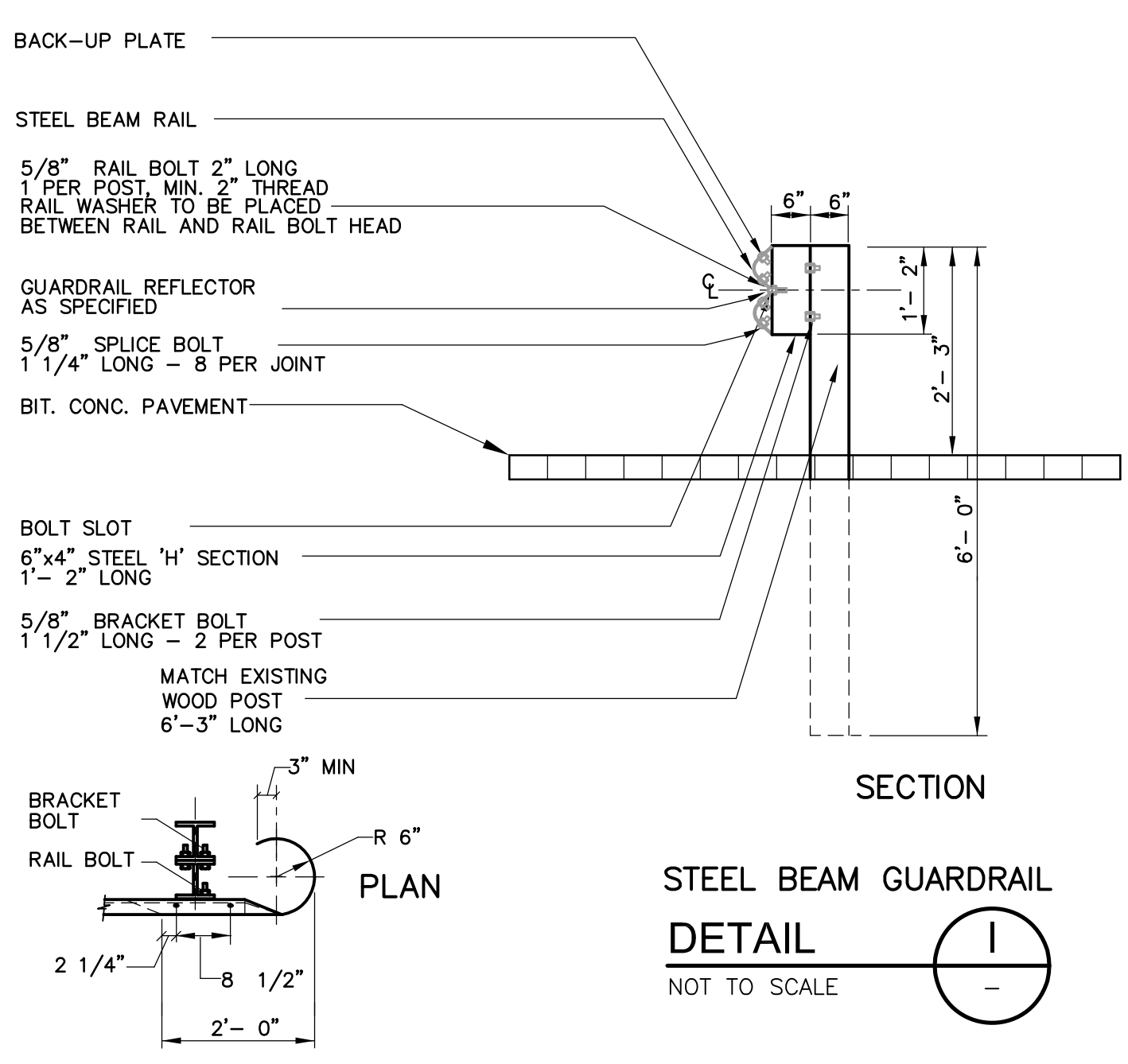
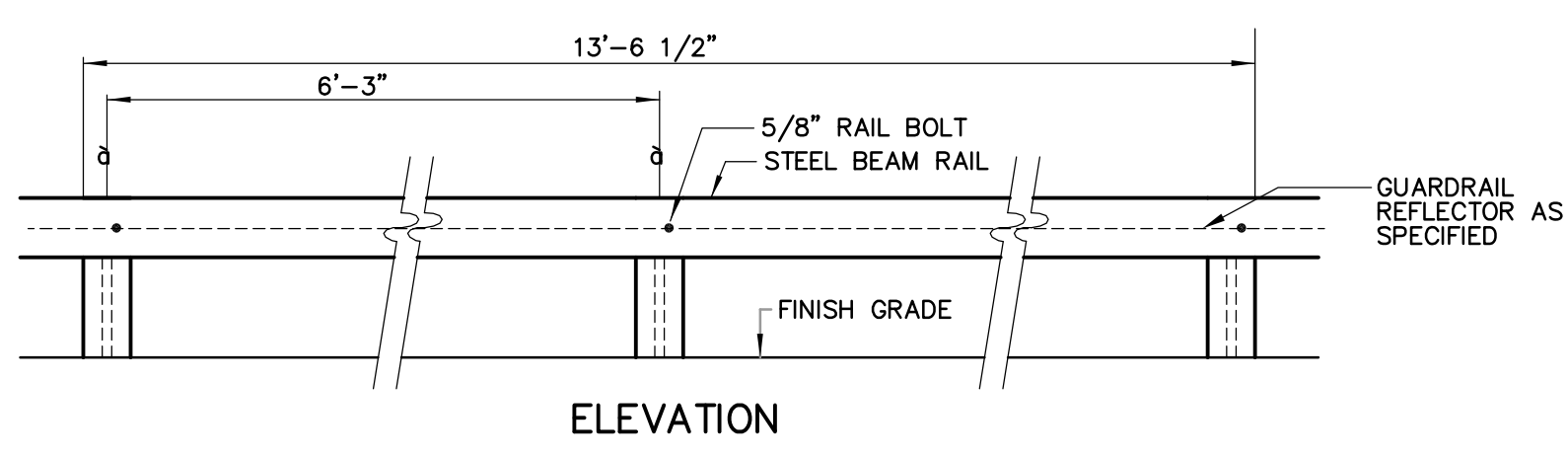
SCREENED GRAVEL WALK
DETAIL F
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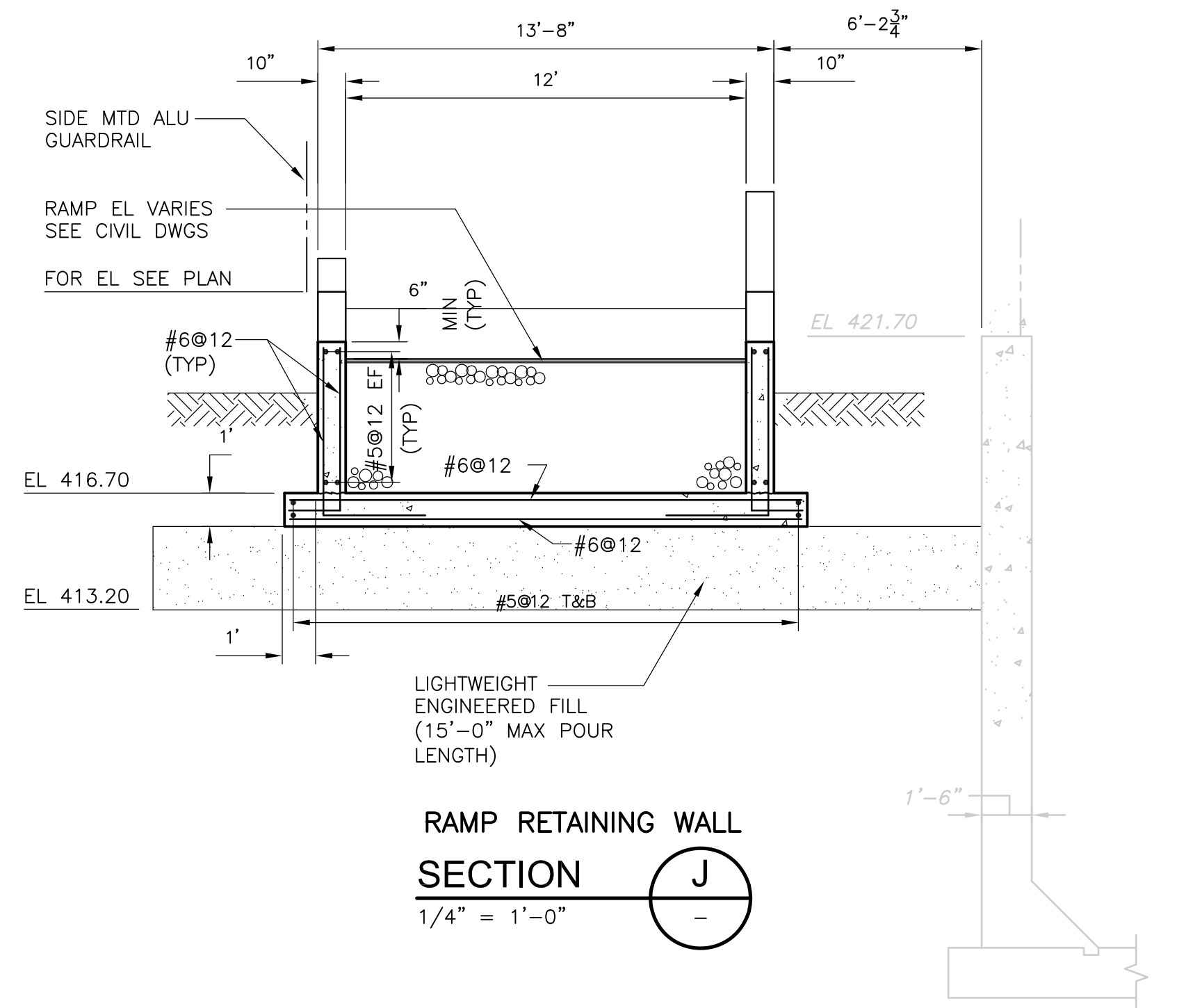
CONCRETE PAVEMENT
DETAIL G
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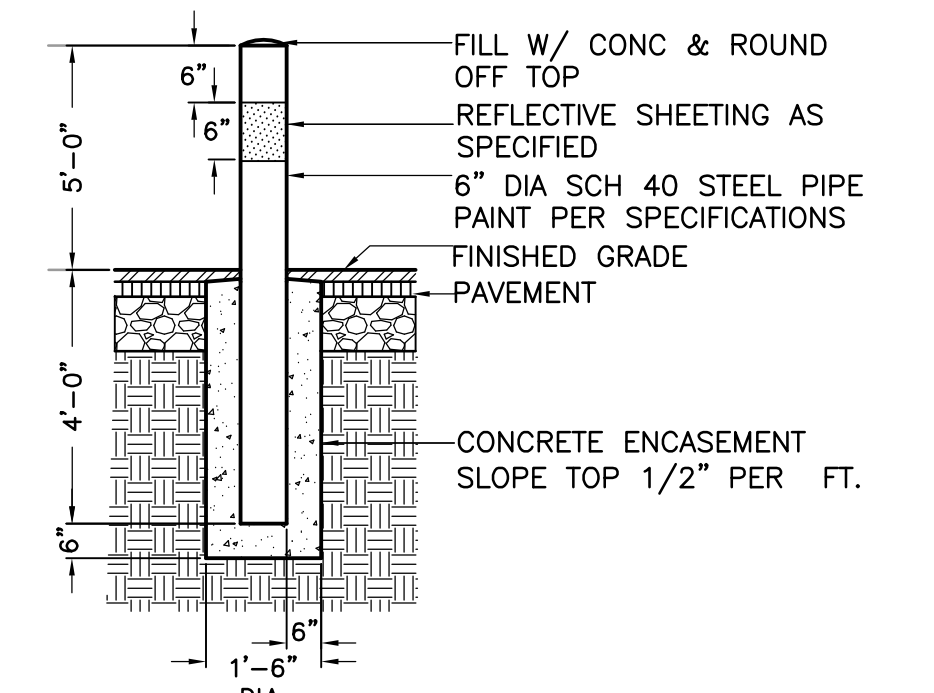
TYPICAL TRENCH DETAIL FOR DI PIPE
DETAIL H
 NOT TO SCALE



STEEL BEAM GUARDRAIL
DETAIL I
 NOT TO SCALE



RAMP RETAINING WALL
SECTION J
 1/4" = 1'-0"



STEEL BOLLARD
DETAIL K
 NOT TO SCALE

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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	CSTDT003
DESIGNED BY:	G. HOWARD
DRAWN BY:	J. COROA
SHEET CHK'D BY:	G. HOWARD
CROSS CHK'D BY:	D. GREEN
SCALE:	AS NOTED
APPROVED BY:	G. HOWARD
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

SITE DETAILS

Sht. 20 of 312
C-12

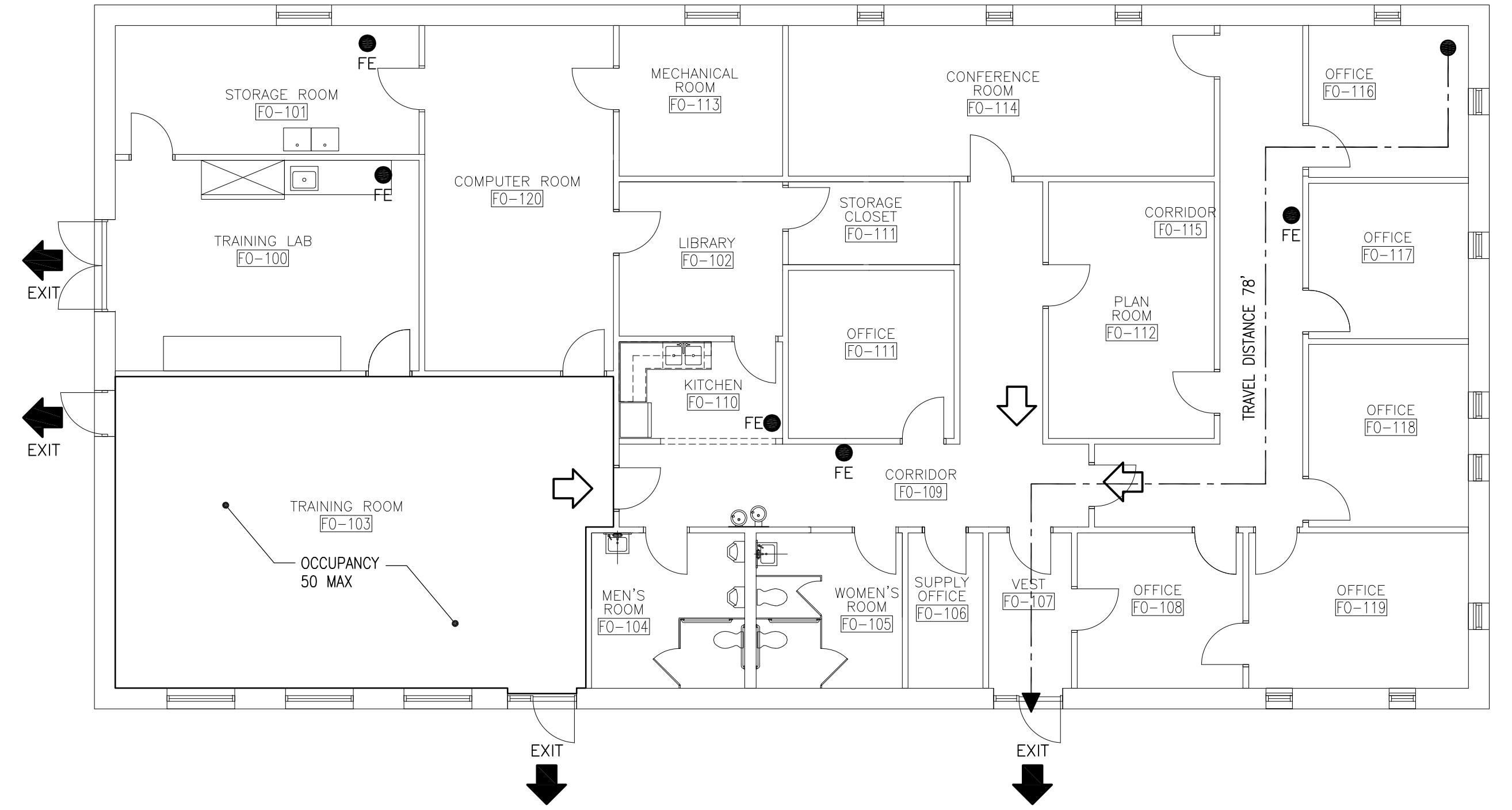
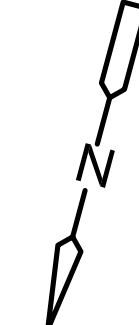
PROJECT NO.
1289-74283

Acc # 1289-74428

CONFORMED

Building Code Summary			
Owner:	Upper Blackstone Water Pollution		Date: 1/12/2010
Project Name:	1289-74283	Location:	Milbury, MA.
Project No:	1289-74283	Architect of Record:	Mark Pelletier
Building Name:	Training Center (EXISTING)		
Applicable Ordinances, Codes, and Standard			
Building Code	Commonwealth of Massachusetts Building Code 780 CMR - Seventh addition		
Fire / Life Safety Code	Massachusetts Fire Prevention Regulations, CMR 21		
Accessibility Code	Architectural Access Regulations, CMR 521		
Energy Code	Mass. State Building Code, Article 13 (780 CMR) ASHRAE 90.1		
Elevator Code	n/a		
Other	n/a		
Authorities Having Jurisdiction			
Building Department	Town of Milbury, Inspectional Services		
Fire Dept / District	Town of Milbury, Fire Department		
Accessibility	Town of Milbury, Inspectional Services		
Energy	Town of Milbury, Inspectional Services		
Elevator	n/a		
Other	n/a		
Use and Occupancy Classification			
IBC Code Reference	See Section 508		
Mixed Use (y/n)	No	Remarks	
Section 904	Business	Group B	Assembly 50 MAX (existing)
General Building Heights and Areas			
Table 503	Allowable Height and Building Areas	Allowable	Proposed
	B - Type II-B	4 Stories / 23,000 sf	5,148 sf - Existing No Change
Types of Construction			
Section 602	Construction Classification		
602.2	Types I and II, Non Combustible	Type II B - Existing, No Change	
Fire Resistance Rating Requirements for Building Elements			
Table 601	Building Element	Req'd Rating	Remarks
	Structural Frame	0	
	Bearing Walls Exterior	0	
	Bearing Walls Interior	0	
	Non Bearing Exterior Walls and Partitions	See Table 602	
	Non Bearing Interior Walls and Partitions	0	
	Floor Construction- incl beams and joists	0	
	Roof Construction- incl beams and joists	0	
Fire Resistance Rating Requirements for Exterior Walls based on Fire Separation Distance			
Table 602	Fire Separation Distance	Occupancy	Req'd Rating
	>=10 <30	Group B	0
Fire-Resistance-Rated Construction			
Fire Door and Fire Shutter Fire Protection Ratings (hours)			
	Type of Assembly	Req'd Assembly Rating	Min Door/ Shutter Assembly Rating
	Fire walls and fire barriers having a req'd fire-resistance rating greater than 1 hour	4	3
		3	3
		2	1 1/2
		1 1/2	1 1/2
	Fire Barriers having a req'd fire-resistance rating of 1 hour		
	Shaft, exit enclosures, exit passageways	1	1
	Other Fire Barriers	1	3/4
	Fire Partitions		
	Corridor Walls	1	1/3
		0.5	1/3
	Other Fire Partitions	1	3/4
		0.5	1/3
	Exterior Walls	3	1 1/2
		2	1 1/2
		1	3/4
	Smoke Barriers	1	1/3
Interior Finishes			
Section 803	Wall and Ceiling Finishes		
Table 803.5 Interior Wall and Ceiling Finish Requirements by Occupancy			
	Group	Exit Enclosures and Exit Passageways	Corridors
	Group B - NonSprinklered	A	B
			C

Fire Protection Systems			
Section 903	Automatic Sprinkler Systems	None - No Change	
903.1.1	Alternative Protection		
903.2	Where Required	Not required	
Section 906	Portable Fire Extinguishers	As required by the Fire Code and NFPA	
Section 907	Fire Alarm and Detection Systems	Yes	
907.2	Where Required		
Section 908	Emergency Alarm Systems	Yes	
Means of Egress			
Section 1003	General Means of Egress	Existing Egress Maintained	
Section 1004	Occupant Load		
Max Floor Area Allowances per Occupant			
	Function of Space (and Area in Sq. Feet)	Floor Area per Occupant	Total Occupants
	Group B - 5,148	100 sqf / occupant	52
Table 1004.1.1			
Section 1005	Egress Width		
Egress Width per Occupant Served			
	Occupancy	Stairways	Other Egress Components
	group B	n/a	0.2 x 52 = 10.4 inches
Table 1005.1			
1005.1	Minimum Egress Width	Required	Proposed
		32	36
Section 1015	Exit and Exit Access Doorways	Required	Proposed
1015.1	Number of Exit Doorways Required	2	4 - Existing No Change
Section 1016	Exit Access Travel Distance		
Table 1016.1	Allowable Exit Access Travel Distance		
	Occupancy	without Sprinklers	with Sprinklers
	B	200 Required	300
		78 Actual	
Section 1017	Corridors	Required	Proposed
1017.2	Corridor Width (see also 1005.1)	44	72
1017.3	Dead Ends	20	
Table 1017.1 Corridor Fire Resistance Rating			
	Occupancy	Required Fire-Resistance Rating (hours)	
	A, B, E, F, M, S, U	without Sprinklers System	with Sprinkler System
	Greater than 30	1	0
Section 1018	Exits		
Section 1019	Number of Exits and Continuity		
	Occupant Load (persons per story)	No. of Exits Req'd	No. of Exits Proposed
	1-500	2	4 - No Change
	501-1,000	3	
	More than 1,000	4	
Table 1019.1			



EXISTING TRAINING BUILDING -- FIRST FLOOR PLAN
USE GROUP B
PLAN
1/8" = 1'-0"

LEGEND	
FIRE EXTINGUISHER LOCATION SEE SPEC SECTION 10522 FOR DESCRIPTION	
● CARBON DIOXIDE TYPE "A" FE	
B BUSINESS USE GROUP	□
INDICATES BUILDING EXIT	➔ EXIT
INDICATES AREA/SPACE EGRESS	➞

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMM\DRISAS\00119527\AABC100.DWG Saved by: PELLETIER On: 6-Jul-10 Plotted on: 22-Nov-10 11:20 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.:	AABC100
DESIGNED BY:	M. PELLETIER
DRAWN BY:	M. PELLETIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

BUILDING CODE SUMMARY
AND LIFE SAFETY PLANS I

PROJECT NO.
1289-74283

Sht. 22 of 312

GD-A-2

Acc # 1289-74428

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\CDM W-KNEELAND FILES\AABB200.DWG Saved by: DKENNEDY On: 19-Jul-12 10:44 AM

Building Code	Commonwealth of Massachusetts Building Code 780 CMR - Seventh addition		
Fire / Life Safety Code	Massachusetts Fire Prevention Regulations, 527 CMR 21		
Accessibility Code	Architectural Access Regulations, CMR 521		
Energy Code	Mass. State Building Code, Article 13 (780 CMR) ASHRAE 90.1		
Elevator Code	n/a		
Other	n/a		
Authorities Having Jurisdiction			
Building Department	Town of Milbury: Inspectional Services		
Fire Dept / District	Town of Milbury: Fire Department		
Accessibility	Town of Milbury: Inspectional Services		
Energy	Town of Milbury: Inspectional Services		
Elevator	n/a		
Other	n/a		
Use and Occupancy Classification			
IBC Code Reference			
Mixed Use (y/n)	See Section 508	No	Remarks
Section 306	Factory and Industrial / High Hazard	Group F-2 / H-4	Existing
Chemical Storage	See Chemical Storage Summary Chart	YES	
Special Detailed Requirements Based on Use and Occupancy			
Section 414	Hazardous Materials		
414.2	Control Areas	See Table 414.2.2 Design and Number of Control Areas	
414.5	Inside Storage, Dispensing and Use		
414.5.5	Spill Control, Drainage and Containment		
414.6	Outdoor Storage, Dispensing and Use		
414.6.1.2	Separation Distance	See Tables 414.2.5(1) and 414.2.5(2)	
Section 415	Groups H-1, H-2, H-3, H-4 and H-5		
General Building Heights and Areas			
Section 503.1.1	Special Industrial Occupancies		
503.1.2	Buildings on the Same Lot		
Table 503	Allowable Height and Building Areas	Allowable	Proposed
	Group F-2 / Type I-B	3 Stories / 23,000 sf	27,435 sf - Existing No Change
Section 508	Area Modifications		
508.2	Frontage Increase (Equation 5-2)	Modified 31,189 sf	
508.3	Automatic Sprinkler System Increase	N/A	
508.4	Area Determination		
508.4.1	Mixed Occupancies		
Equation 5-1			
Section 507	Unlimited Area Buildings		
507.7	Group H Occupancies		
Section 508	Mixed Use and Occupancy		
508.2	Incidental Uses (see Table 508.2)	Req'd Separation or Protection	
	Room or Area	Proposed	
508.3	Mixed Occupancies (see Table 508.3.3)		
508.3.1	Accessory Occupancies		
508.3.2	Non Separated occupancies		
508.3.3	Separated Occupancies		
	Required Separation of Occupancies	Occupancy	Required Separation (in Hours)
		Example F-2 @ H-4	2
Table 508.3.3			
Section 509	Special Provisions		
Types of Construction			
Section 602	Construction Classification		
602.2	Types I and II, Non Combustible	Type I-B, Existing No Change	
	Fire Resistance Rating Requirements for Building Elements		
	Building Element	Req'd Rating	Remarks
	Structural Frame	0	Existing, No Change
	Bearing Walls Exterior	0	Existing, No Change
	Bearing Walls Interior	0	Existing, No Change
	Non Bearing Exterior Walls and Partitions	See Table 602	
	Non Bearing Interior Walls and Partitions	0	Existing, No Change
	Floor Construction- incl beams and joists	0	Existing, No Change
	Roof Construction- incl beams and joists	0	Existing, No Change
Fire-Resistance-Rated Construction			
	Fire Door and Fire Shutter Fire Protection Ratings (hours)		
	Type of Assembly	Req'd Assembly Rating	Min Door/ Shutter Assembly Rating
	Fire walls and fire barriers having a req'd fire-resistance rating greater than 1 hour	4	3
		3	3
		2	1 1/2
		1 1/2	1 1/2
	Fire Barriers having a req'd fire-resistance rating of 1 hour		
	Shaft, exit enclosures, exit passageways	1	1
	Other Fire Barriers	1	3/4
Table 715.4			
	Fire Partitions		
	Corridor Walls	1	1/3
		0.5	1/3
	Other Fire Partitions	1	3/4
		0.5	1/3
	Exterior Walls	3	1 1/2
		2	1 1/2
		1	3/4
	Smoke Barriers	1	1/3
Means of Egress			
Section 1003	General Means of Egress		
Section 1004	Occupant Load		
	Existing Egress Maintained	603 Existing	
	Max Floor Area Allowances per Occupant		
Table 1004.1.1			
	Function of Space (and Area in Sq. Feet)	Floor Area per Occupant	Total Occupants
	Industrial Area 26,380	100 gross	264
	Accessory Storage Area, Mechanical Equipment room (3,715 sq)	300 gross	13
	Locker room (794 sq)	50 gross	16
Section 1005	Egress Width		
	Egress Width per Occupant Served		
Table 1005.1			
	Occupancy	Stairways	Other Egress Components
	Group F	0.3 x 603 = 181 inches	0.20 x 603 = 121 inches
	Minimum Egress Width	Required	
		121 in. Existing No Change	
Section 1016	Exit Access Travel Distance		
1016.1	Travel Distance Limitations		
	Allowable Exit Access Travel Distance		
Table 1016.1			
	Occupancy	without Sprinklers	with Sprinklers
	F-2	300	400
Section 1019	Number of Exits and Continuity		
Table 1019.1			
	Occupant Load (persons per story)	No. of Exits Req'd	No. of Exits Proposed
	1-500	2	
	501-1,000	3	6 Existing, No Change
	More than 1,000	4	
1019.2	Buildings with One Exit		

LEGEND

FIRE EXTINGUISHER LOCATION
SEE SPEC SECTION 10522 FOR DESCRIPTION

FIRE RATED WALL DESIGNATION
TWO (2) HOUR FIRE RATING - - - - -

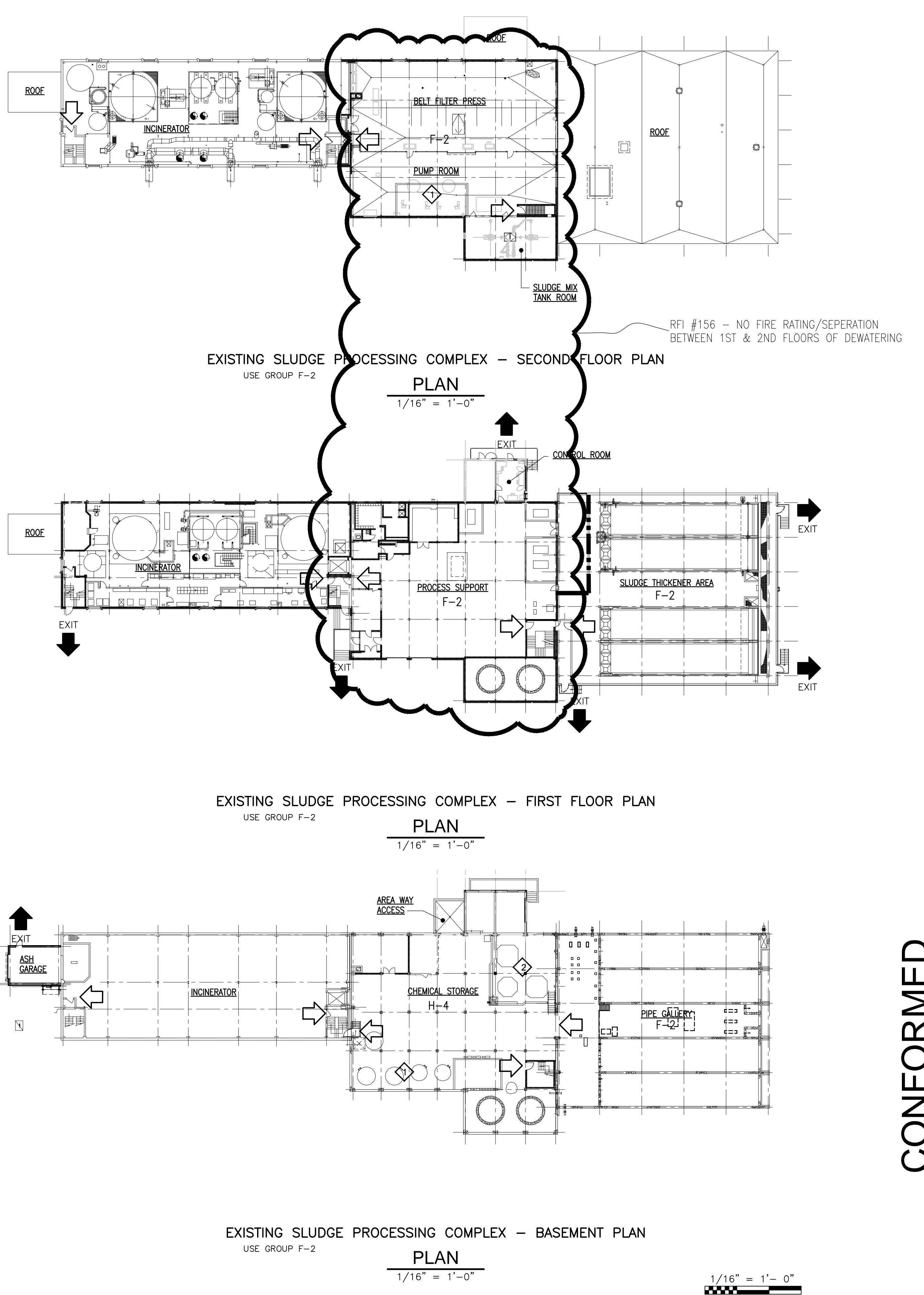
INDICATES BUILDING EXIT → EXIT

INDICATES AREA/SPACE EGRESS ↗

HAZARDOUS MATERIALS CLASSIFICATION

REF: INTERNATIONAL FIRE CODE INSTITUTE

CHEMICAL INFO	STATE	CONCENTRATION (%)	TOTAL STORAGE	SARA TITLE III	FIREFIGHTER WARNING PLACARD			HEALTH PROPERTIES						
					HEALTH	FIRE	REACTIVITY	SPECIAL	OXIDIZER	WATER REACTIVE	CORROSIVE	IRRITANT	OTHER HEALTH HAZARD	TOXIC/ HIGHLY TOXIC
◇ POLYMER	L	6.7%	21,750 GAL.	-	1	0	0	-	-	-	-	IRR	-	-
◇ CAUSTIC SODA (SODIUM HYDROXIDE)	L	50%	18,000 GAL.	-	3	0	0	-	-	-	COR	-	-	-



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AABC200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/19/2012

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**BUILDING CODE SUMMARY
 AND LIFE SAFETY PLANS II**

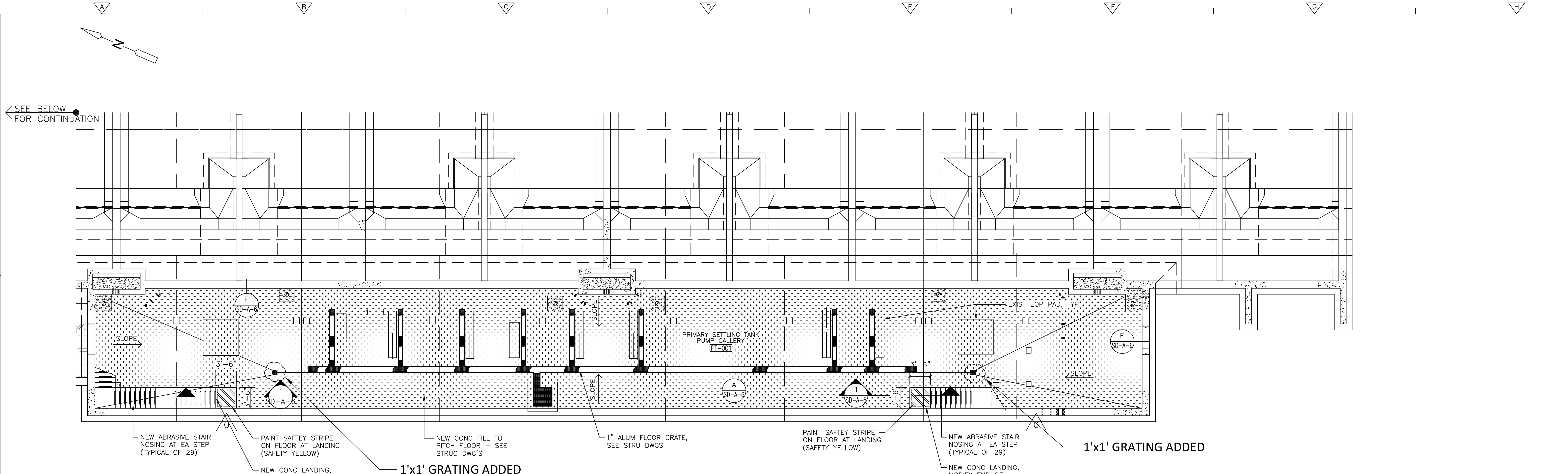
PROJECT NO.
1289-74283

Sht. 23 of 312

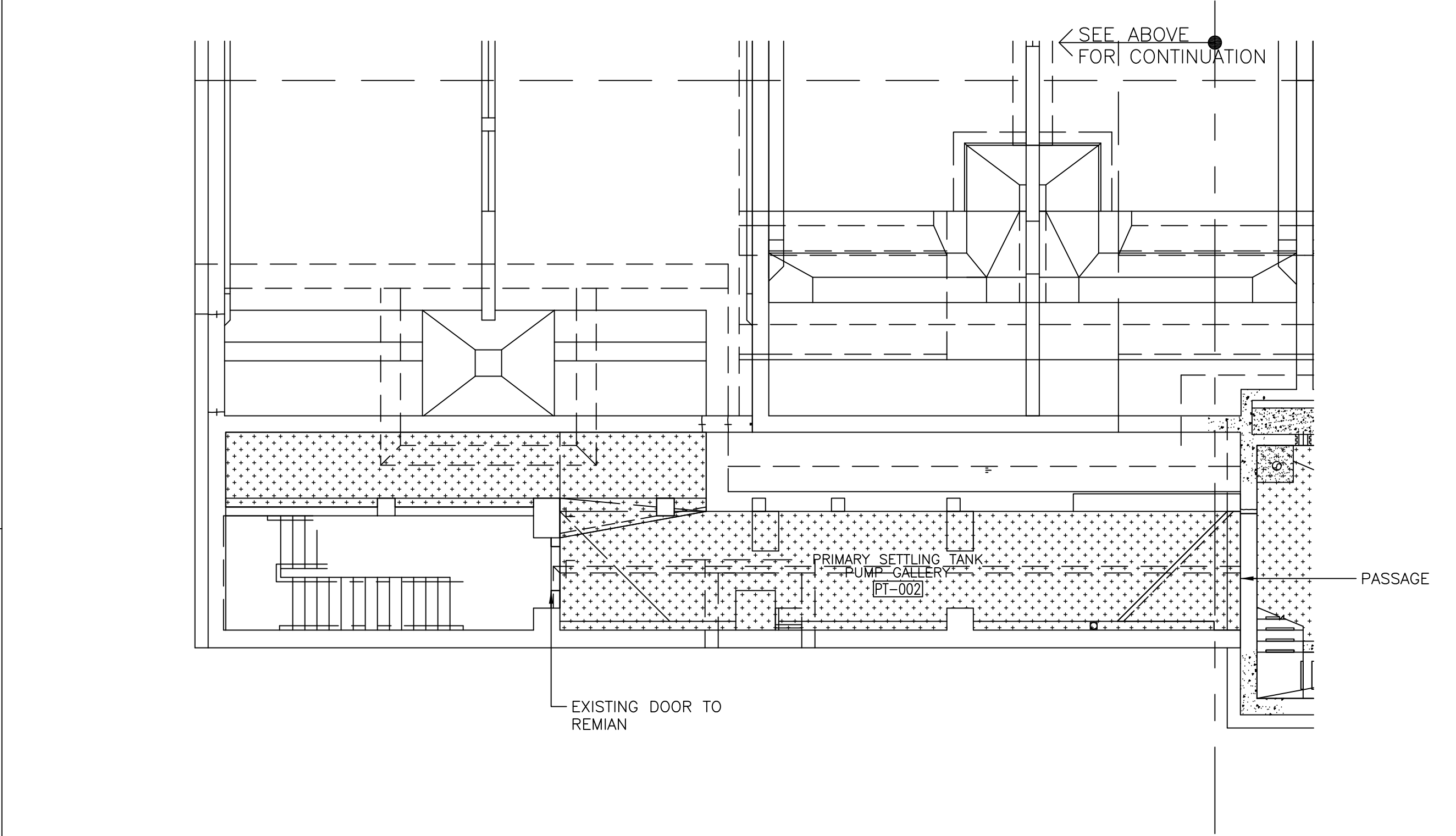
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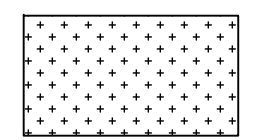
Acc. # 1289-74429

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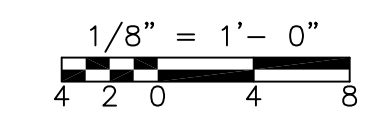
PLAN
1/8"=1'-0"



FINISH KEY (FINISH SCHEDULE OF SD-A-1)	
PAINT / COATING SYSTEM	
	SF-1 SEAMLESS FLOORING ON EXISTING CONCRETE FLOOR

MAINSTAY EPOXY FLOORING USED

- NOTE:
- SEE FINISH SCHEDULE ON SHEET SD-A-1 FOR ADDITIONAL INFORMATION
 - HIGH PRESSURE WATER CLEANING:** PRESSURE WASH CONCRETE FLOORS, UNDERSIDE OF CEILING AND ALL WALLS AT PUMP GALLERY. BEGIN AT 3,000 PSI AND INCREASE (AS DIRECTED BY THE ENGINEER) TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL THE PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.
 - SEE MECH DWGS FOR EQP LAYOUT
 - SEE STRUC DWGS FOR CONCRETE FILL @ PRIMARY SETTLING TANK PUMP GALLERY FLOOR MODIFICATION.



REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	MP	MP	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	APTPL002.dwg
DESIGNED BY:	PELLETIER M.
DRAWN BY:	PELLETIER M.
SHEET CHK'D BY:	GIORGI B.
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**PRIMARY SETTLING TANK
PUMP GALLERY PLAN
IMPROVEMENTS**

PROJECT NO.
1289-74283

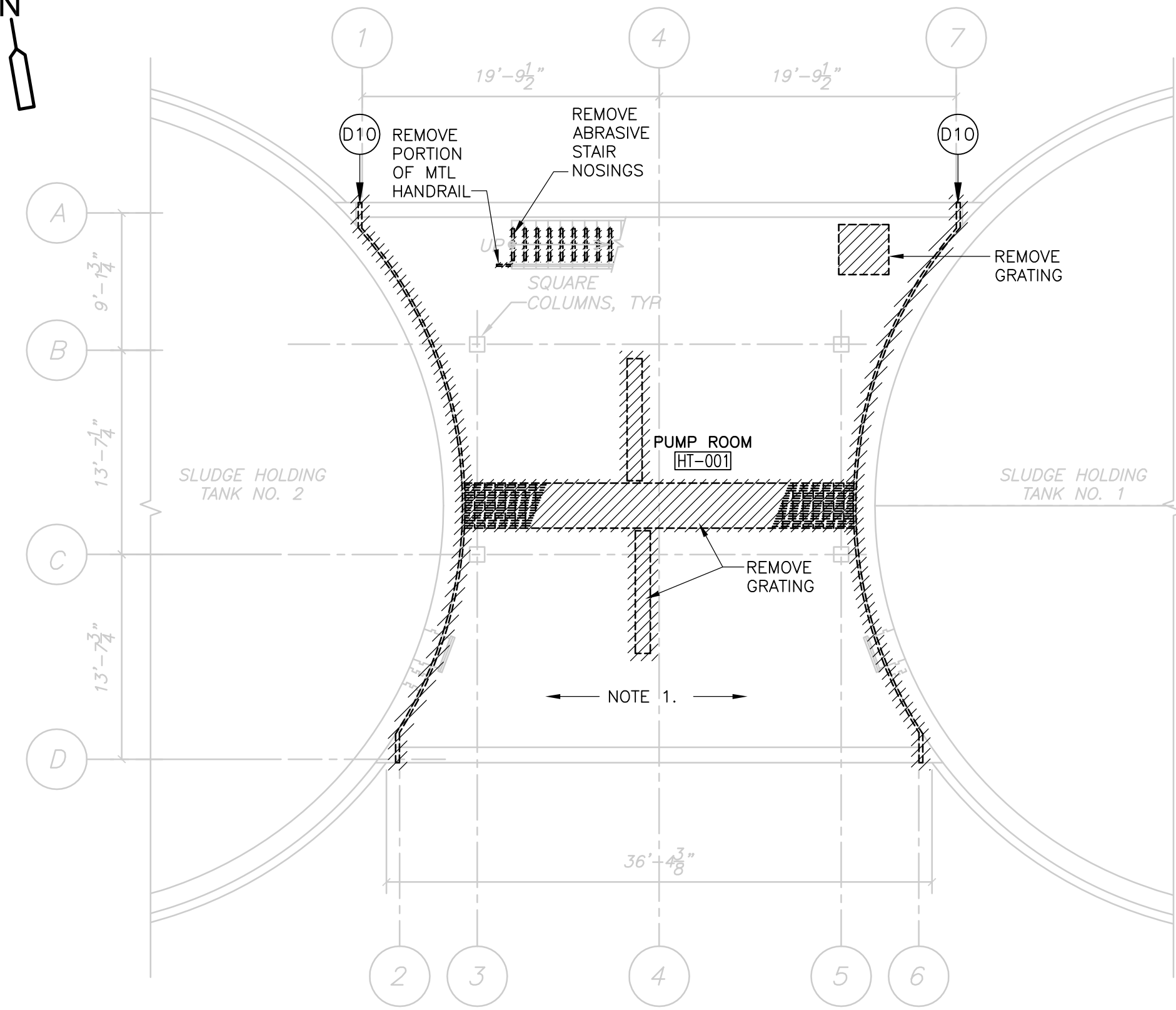
Sht. 24 of 312

PT-A-1

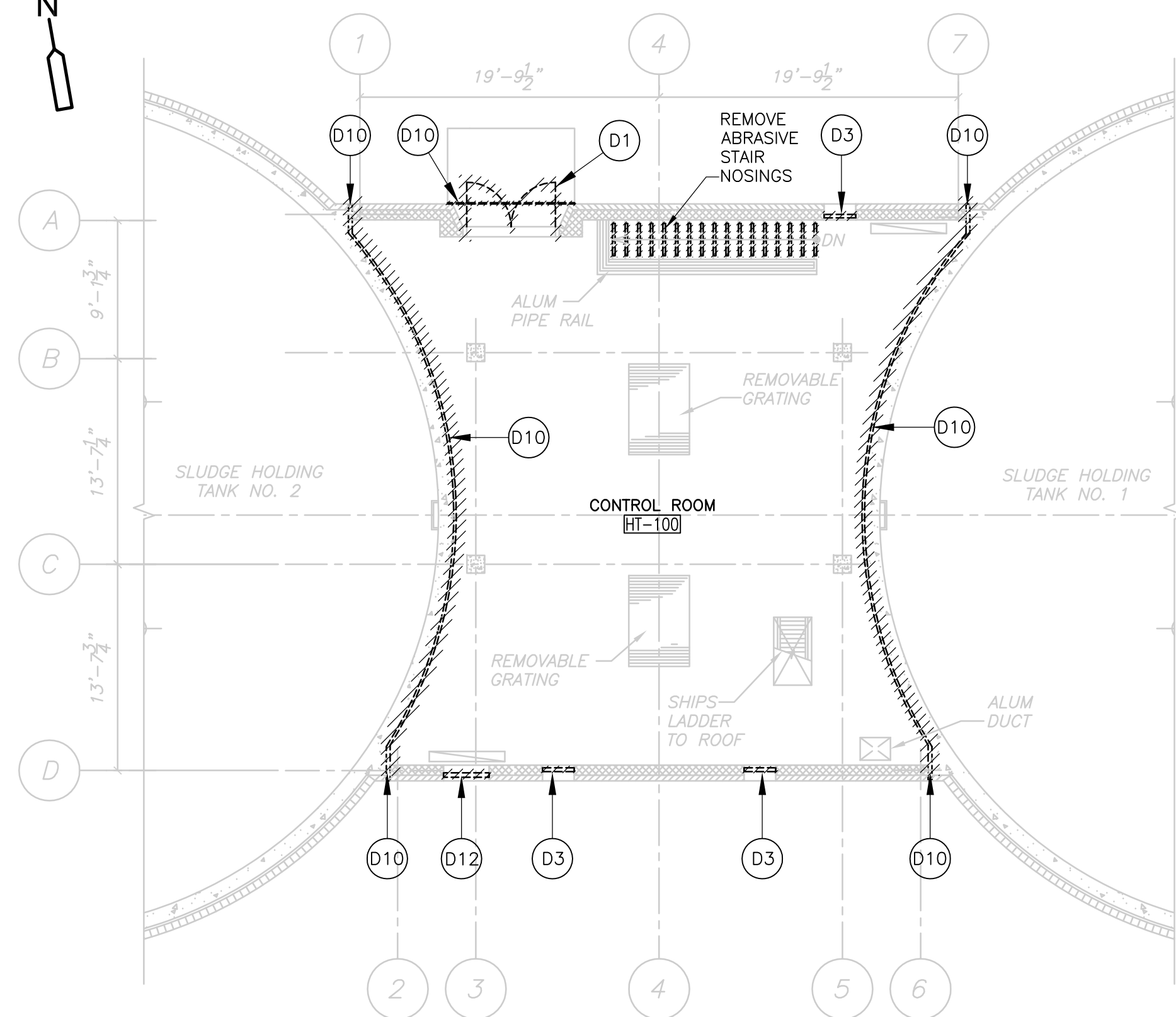
Acc # 1289-74430

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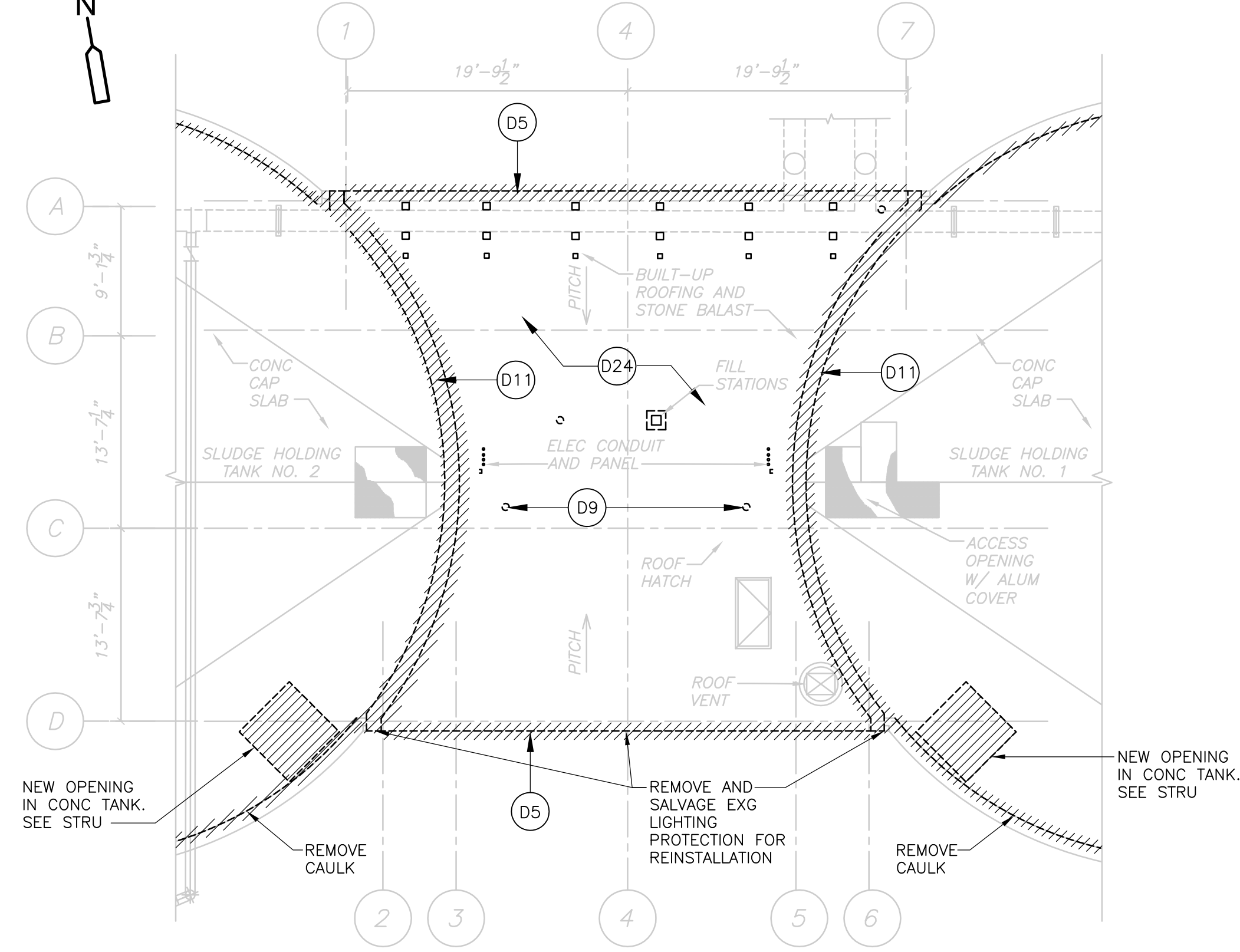
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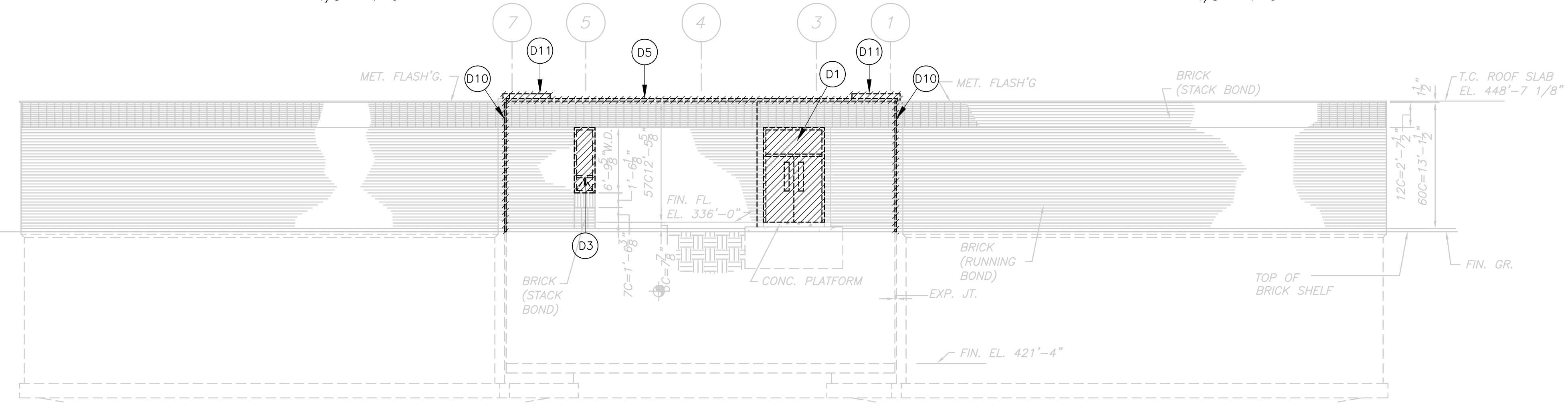
BASEMENT PLAN
1/8" = 1'-0"



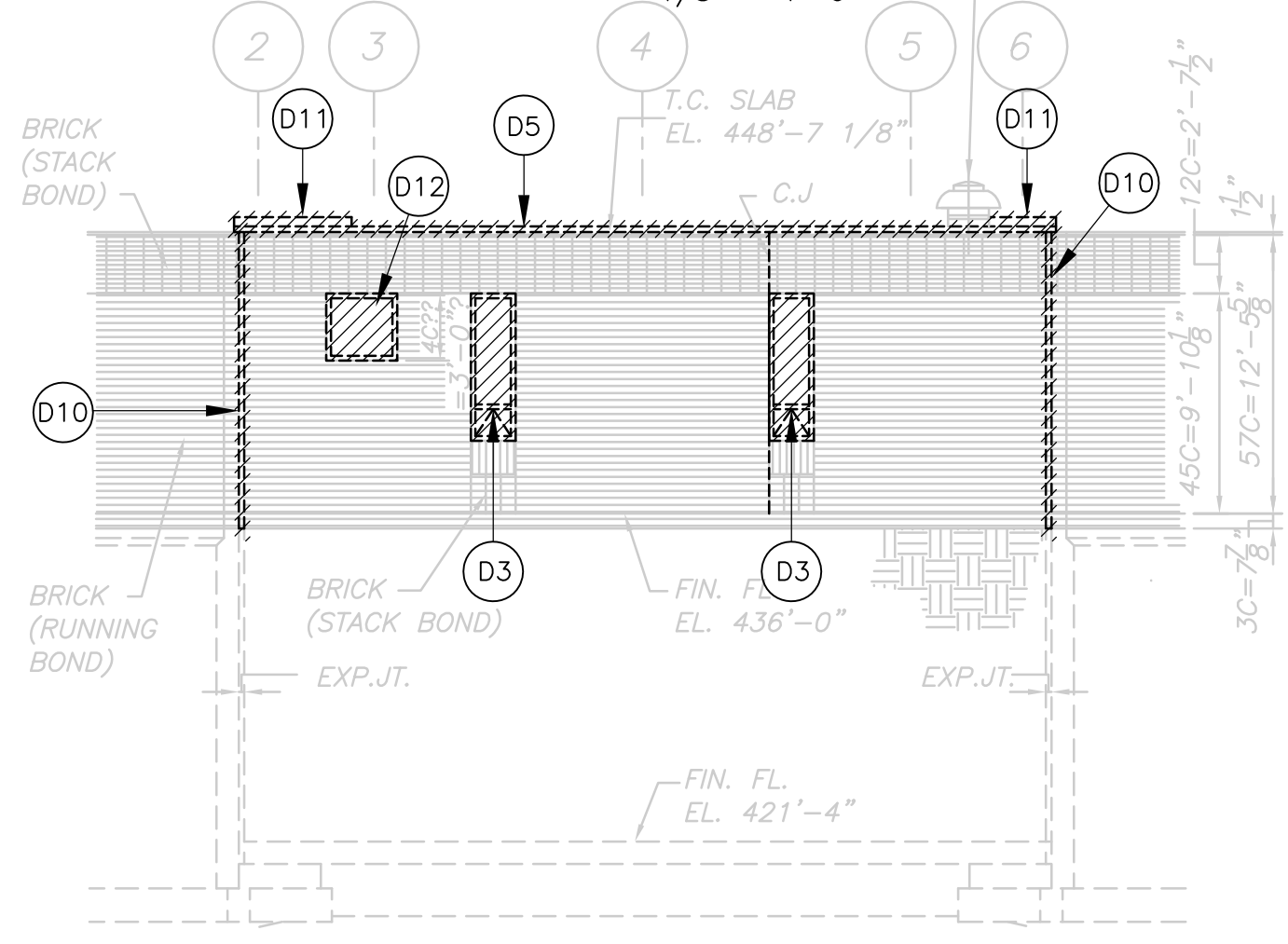
FIRST FLOOR PLAN
1/8" = 1'-0"



ROOF PLAN
1/8" = 1'-0"



DEMOLITION NORTH ELEVATION
1/8" = 1'-0"

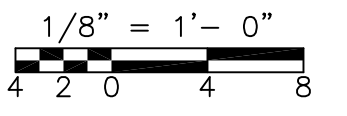


DEMOLITION SOUTH ELEVATION
1/8" = 1'-0"

- DEMOLITION NOTES:**
- ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
 - EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
 - SCREENED BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2, FEBRUARY, 1973. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
 - LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
 - ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
 - SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

- DEMOLITION KEY NOTES:**
- D1 REMOVE EXISTING DOOR AND FRAME
 - D3 REMOVE EXISTING WINDOW SYSTEM. WINDOW SILLS (STOOLS) TO REMAIN
 - D5 REMOVE EXISTING METAL FASCIA AND GRAVEL STOP
 - D9 REMOVE EXISTING ROOF DRAIN
 - D10 REMOVE EXISTING SEALANT FROM CONTROL JOINT
 - D11 REMOVE METAL EXPANSION COVER SYSTEM
 - D12 REMOVE EXISTING LOUVER
 - D24 REMOVE MEMBRANE ROOF DOWN TO STRUCTURAL DECK

- GENERAL NOTES:**
- HIGH PRESSURE WATER CLEANING:** PRESSURE WASH CONCRETE FLOOR, UNDERSIDE OF CONCRETE CEILING AND ALL CONCRETE WALLS AT BASEMENT LEVEL. BEGIN AT 3,000 PSI AND INCREASE (AS DIRECTED BY THE ENGINEER) TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AHTPD100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

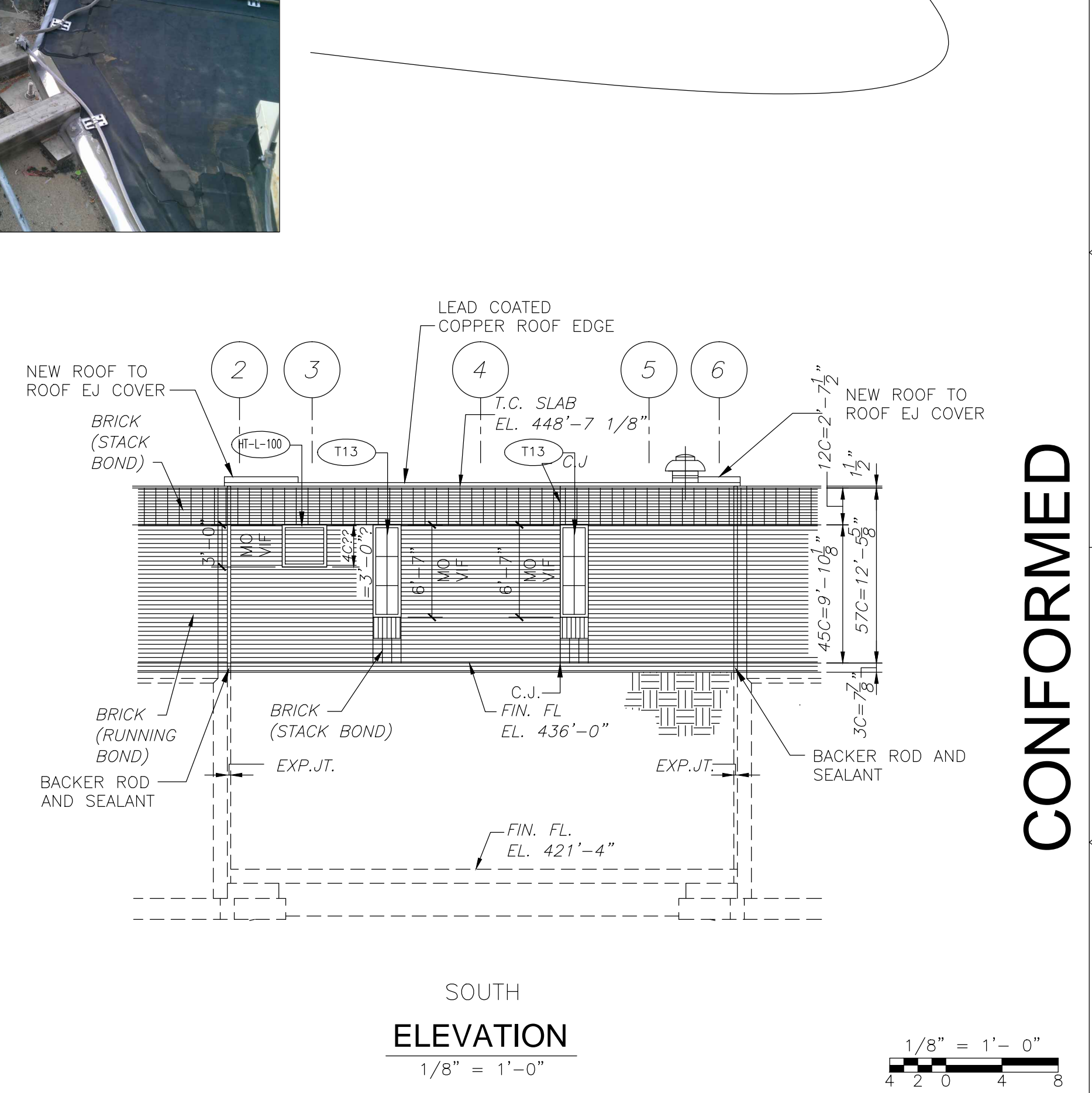
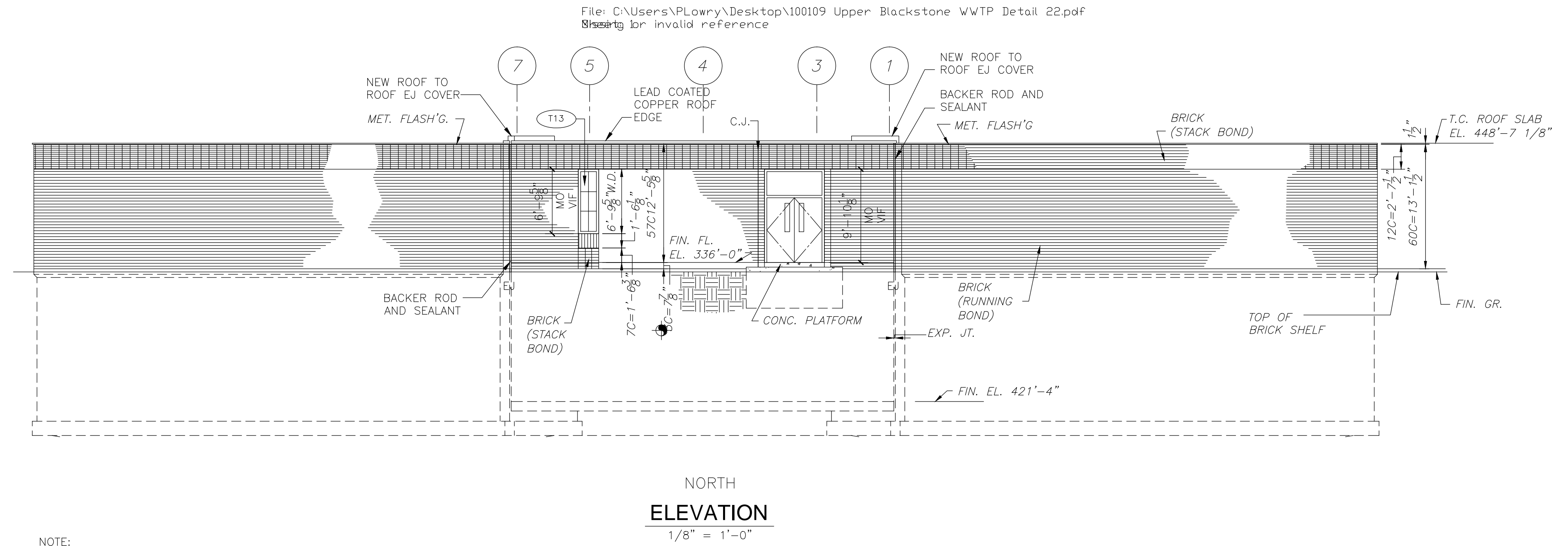
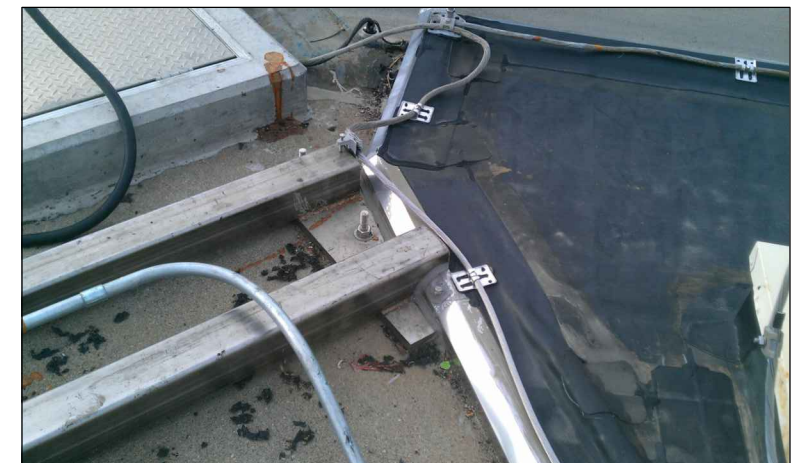
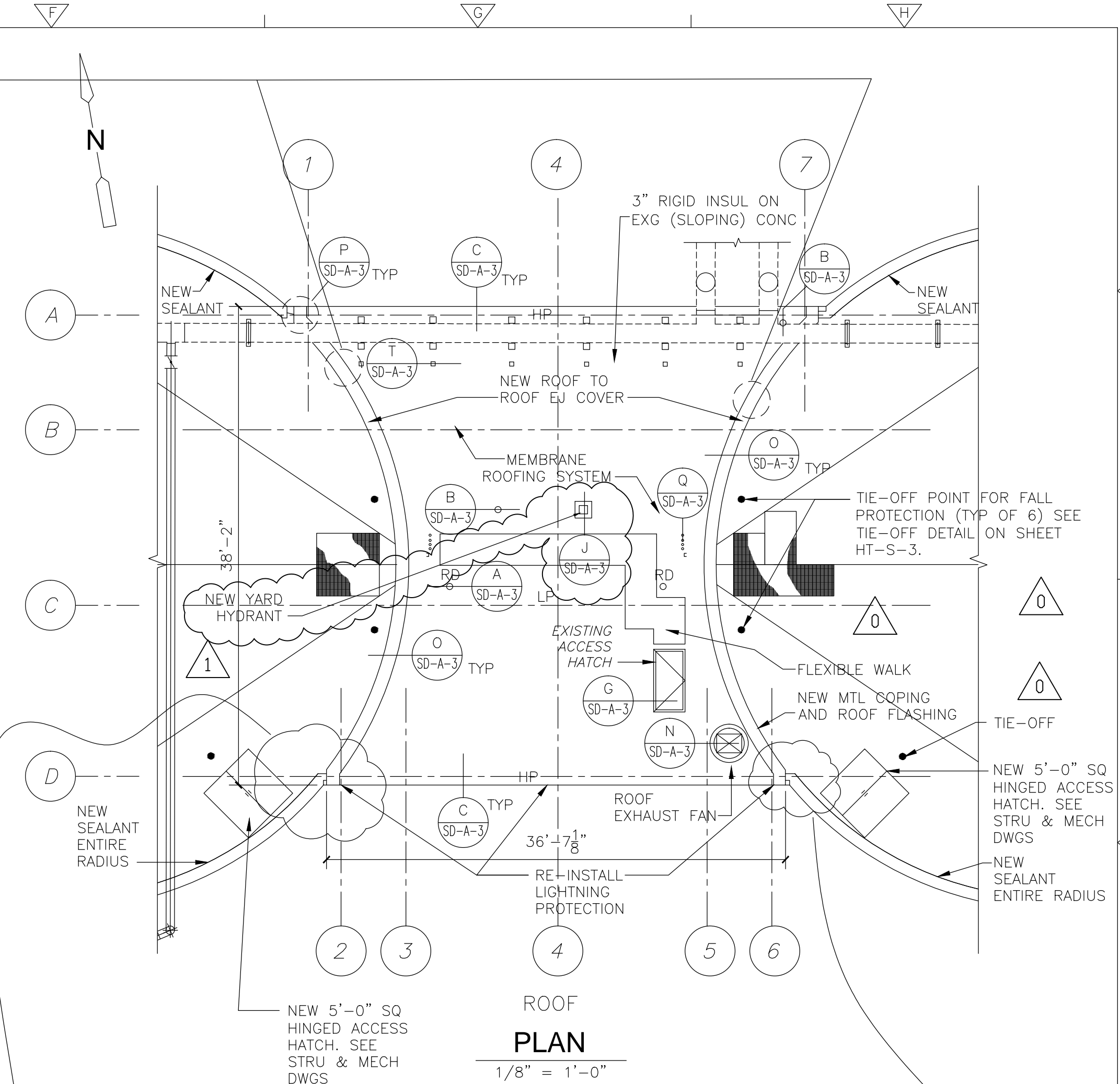
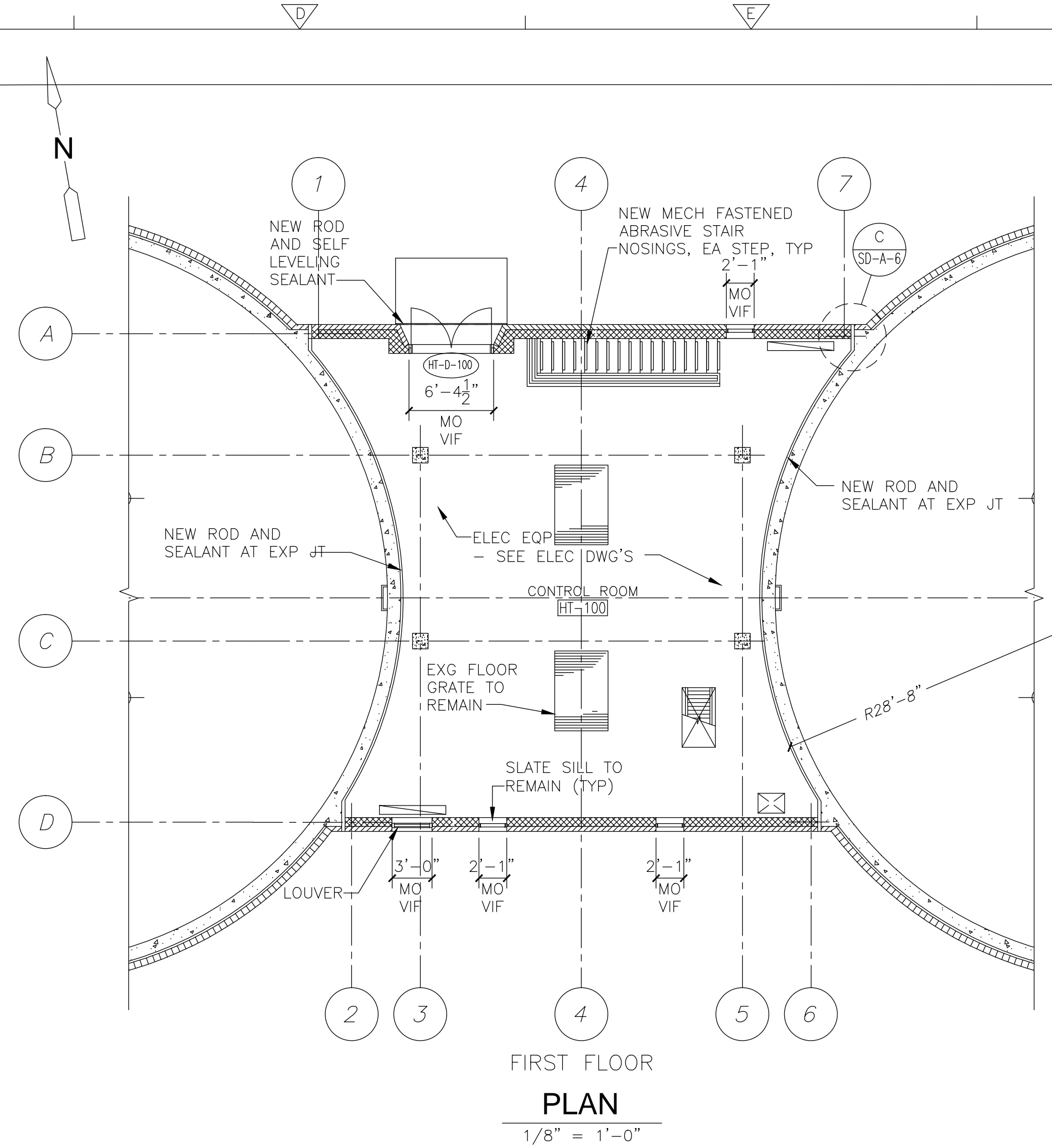
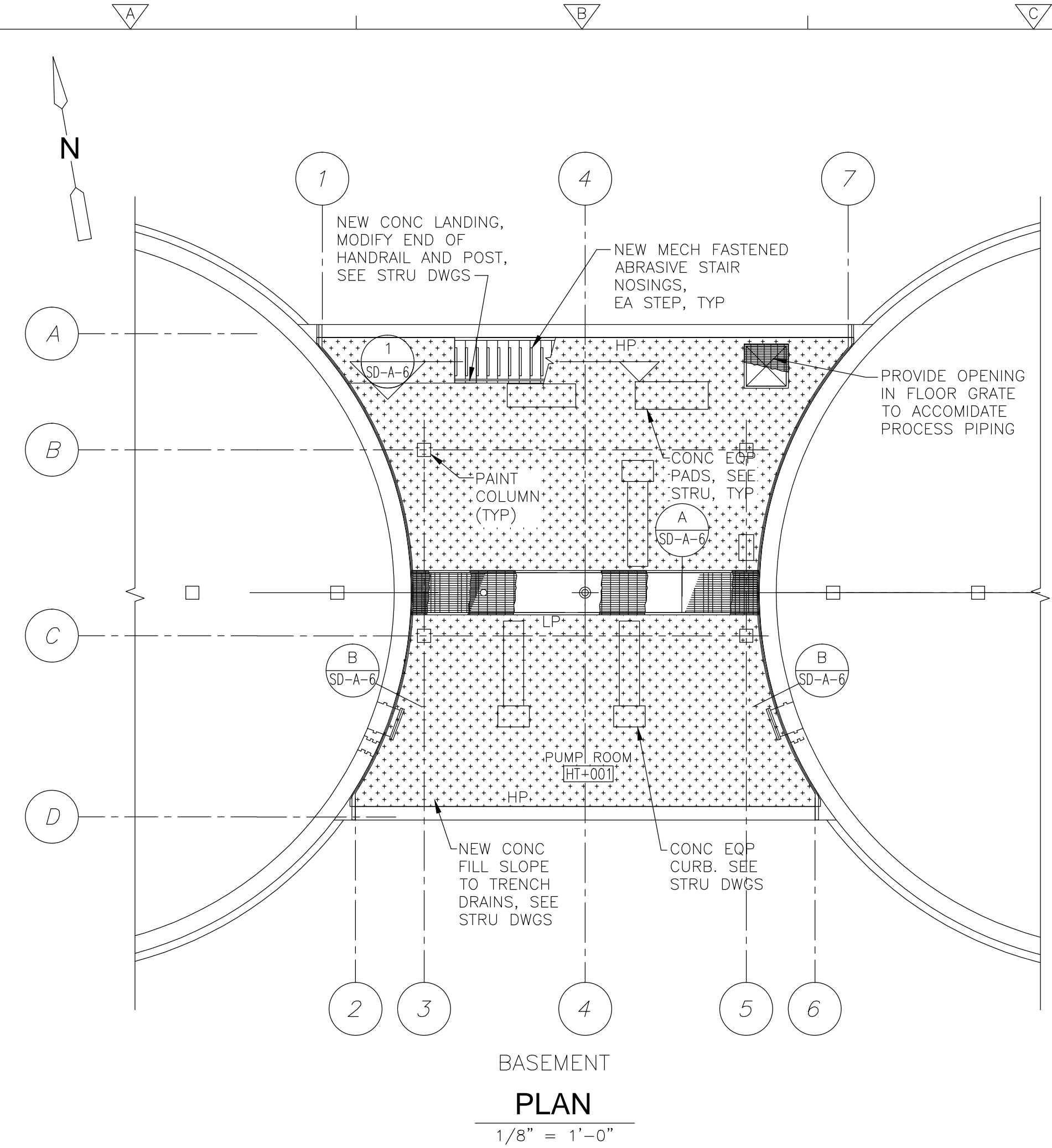
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 PLANS AND ELEVATIONS
 DEMOLITION**

PROJECT NO. 1289-74283
 Sht. 25 of 312
HT-A-1
 Acc # 1289-74431

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NOTE:
SLUDGE HOLDING TANK CONTROL BUILDING OUTLINE, INFORMATION, AND SLANTED TEXT INDICATES INFORMATION OBTAINED FROM SCANNED RECORD DRAWINGS TITLED:
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT REGIONAL WASTEWATER TREATMENT FACILITIES CONTRACT NO. 2 DATED FEBRUARY 1973, PRODUCED BY FAY, SPOFFORD, AND THORNDIKE, INC. ENGINEER
ALL EXISTING INFORMATION AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION

GENERAL NOTES:
1 HIGH PRESSURE WATER CLEANING
PRESSURE WASH CONCRETE FLOOR, UNDERSIDE OF CONCRETE CEILING AND ALL CONCRETE WALLS AT BASEMENT LEVEL. BEGIN AT 3,000 PSI AND INCREASE (AS DIRECTED BY THE ENGINEER) TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.

FINISH KEY (FINISH SCHEDULE OF SD-A-1)	
PAINT / COATING SYSTEM	
	SF-1 SEAMLESS FLOORING ON NEW CONCRETE FLOOR

CONFORMED

CADD FILE NO.	AHTPL100
DESIGNED BY:	M. PELLETIER
DRAWN BY:	M. PELLETIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	9-19-11	MP	MP	YARD HYDRANT
0	09/10	MP	MP	REVISIONS PER ADDENDA NOS 1 THRU 3

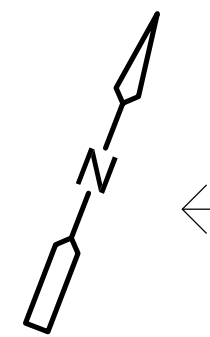
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One Cambridge Place, 50 Hampshire Street
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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

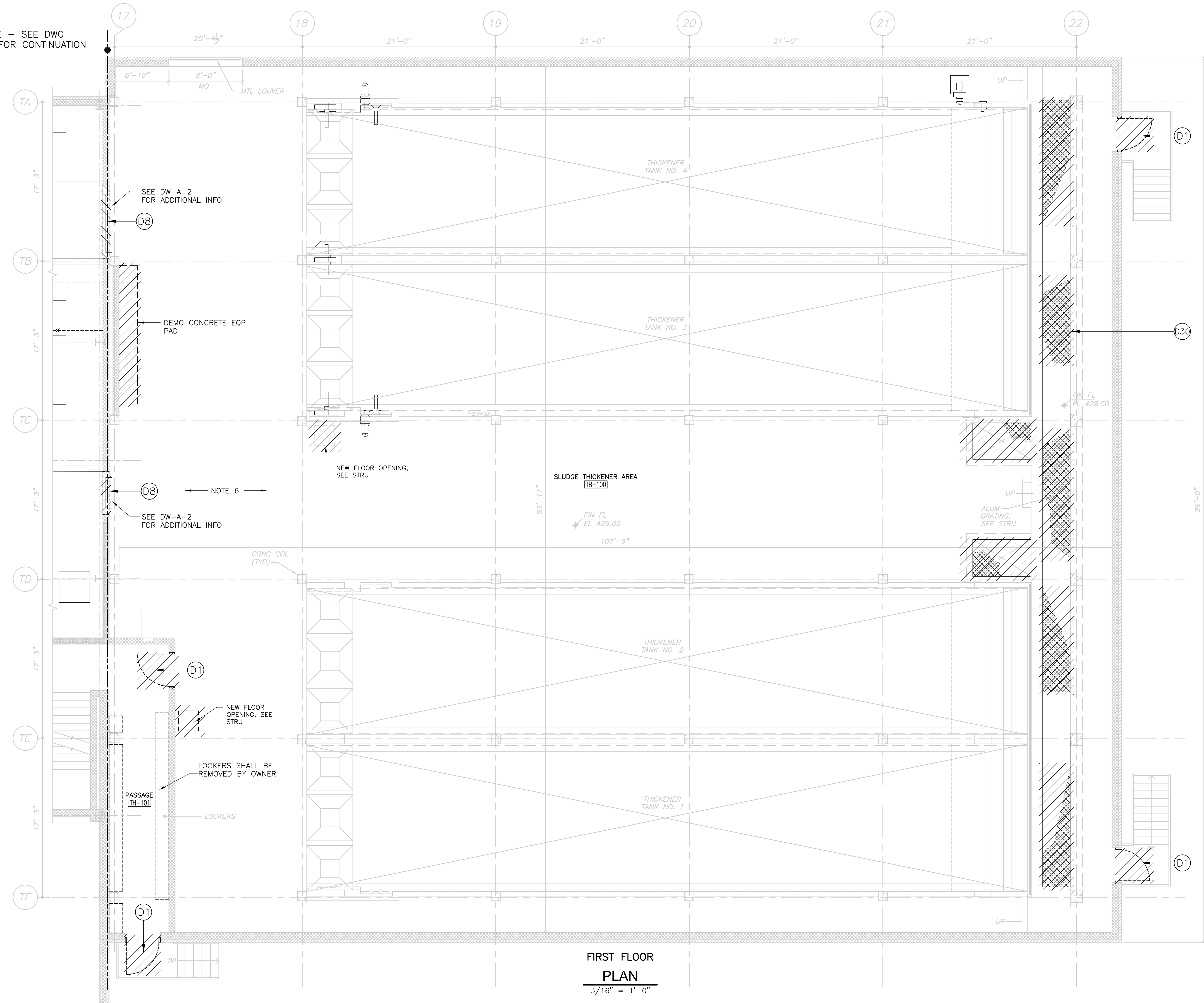
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
PLANS AND ELEVATIONS
IMPROVEMENTS**

PROJECT NO.
1289-74283
Sht. 26 of 312
HT-A-2
Acc # 1289-74432



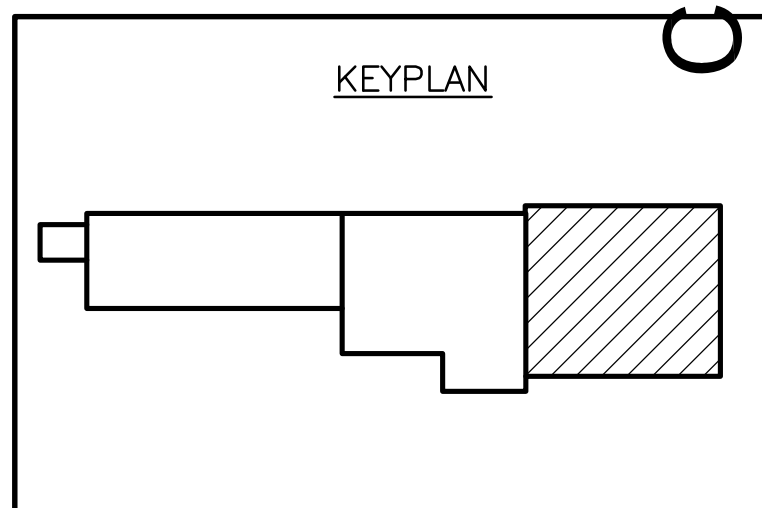
MATCHLINE - SEE DWG DW-A-1 FOR CONTINUATION



FIRST FLOOR PLAN
3/16" = 1'-0"

- GENERAL DEMOLITION NOTES:**
1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
 2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
 3. SCREENED BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1973. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
 4. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
 5. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
 6. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

- DEMOLITION KEY NOTES:**
- D1 REMOVE EXISTING DOOR AND FRAME
 - D8 REMOVE EXST MASONRY TO ACCOMMODATE NEW CONSTRUCTION
 - D30 REMOVE EXISTING FLOOR GRATING



3/16" = 1'-0"

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\DRISAS\0119527\ATHPL200.DWG Saved by: HAYNESKL On: 6-Jul-10 Plotted on: 22-Nov-10 2:28 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS

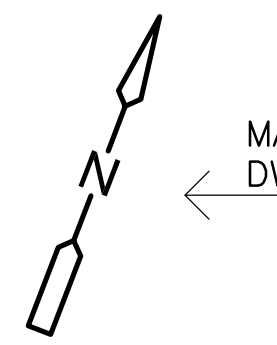
CADD FILE NO. ATHPL200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

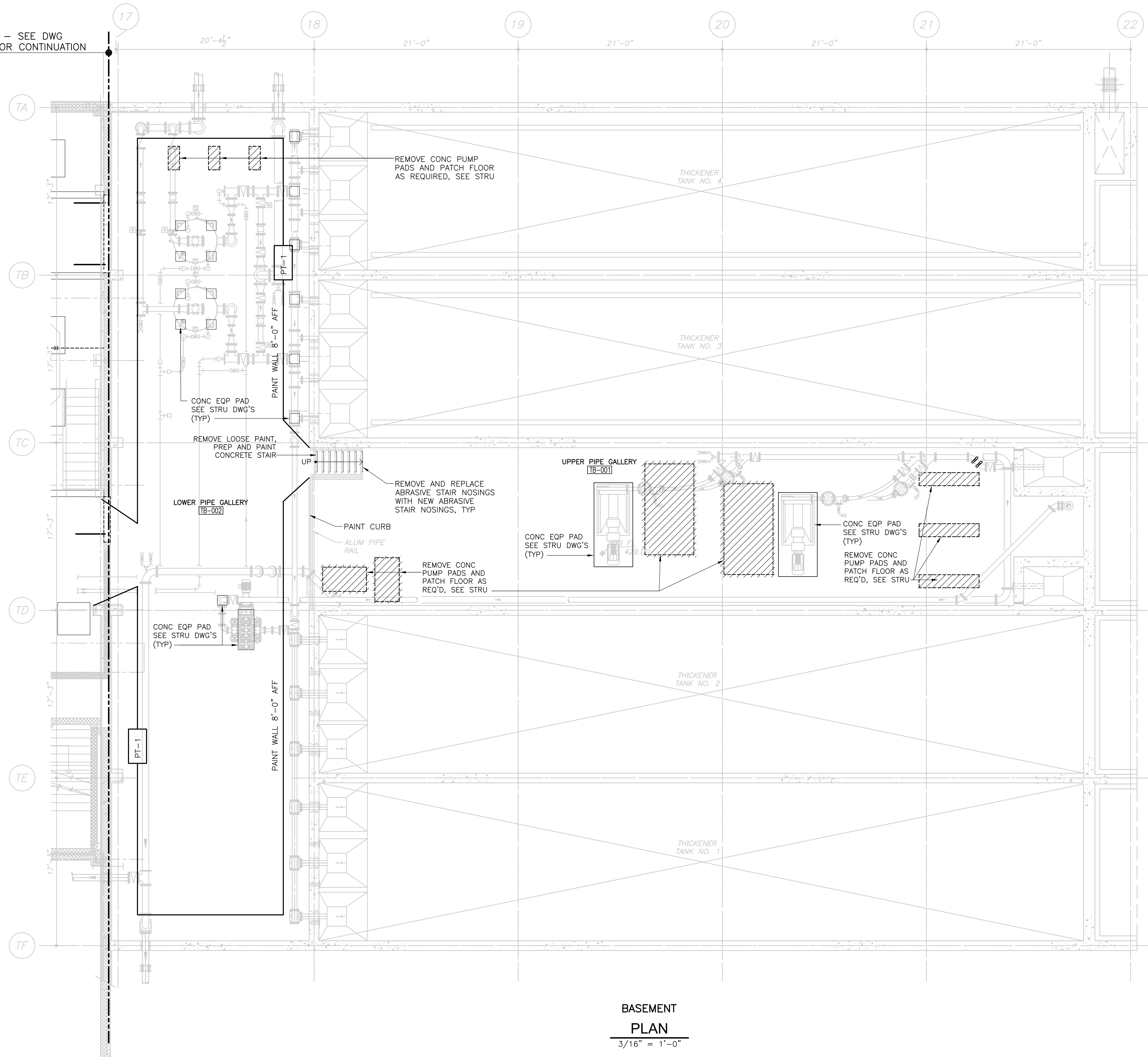
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

THICKENER BUILDING
 FIRST FLOOR PLAN
 DEMOLITION

PROJECT NO.
1289-74283
 Sht. 27 of 312
 TB-A-1
 Acc #1289-74433



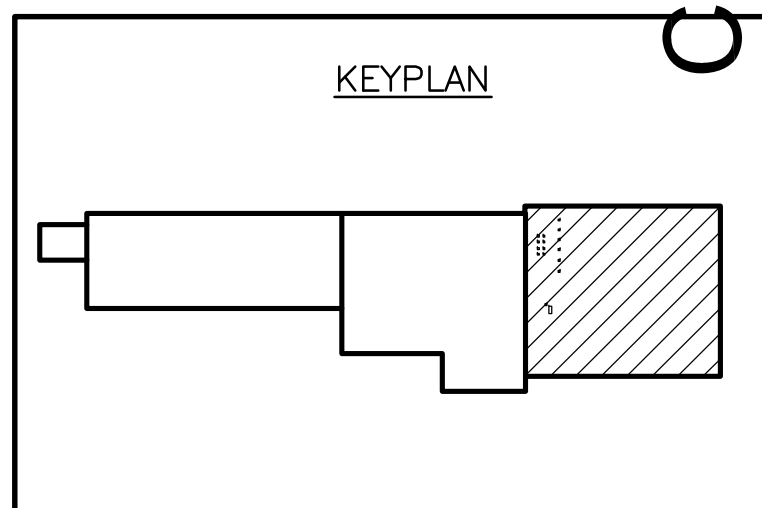
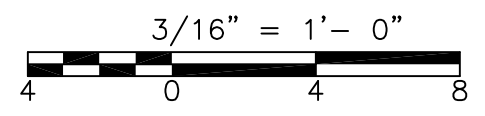
MATCHLINE — SEE DWG
DW-A-1 FOR CONTINUATION



FINISH KEY		FINISH SCHEDULE ON SD-A-1
PAINT / COATING SYSTEM		
SF-1	CONC CMU	VERTICAL SURFACES TO RECEIVE SEAMLESS COATING
PT-1	CONC CMU	VERTICAL SURFACES TO RECEIVE PAINT

- GENERAL NOTES:**
- HIGH PRESSURE WATER CLEANING: PRESSURE WASH CONCRETE FLOORS INCLUDING STAIRS, UNDERSIDE OF ROOF DECK AND ALL WALLS AT BOTH BASEMENT LEVEL AND FIRST FLOOR. BEGIN AT 3,000 PSI AND INCREASE (AS DIRECTED BY THE ENGINEER) TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.

BASEMENT PLAN
3/16" = 1'-0"

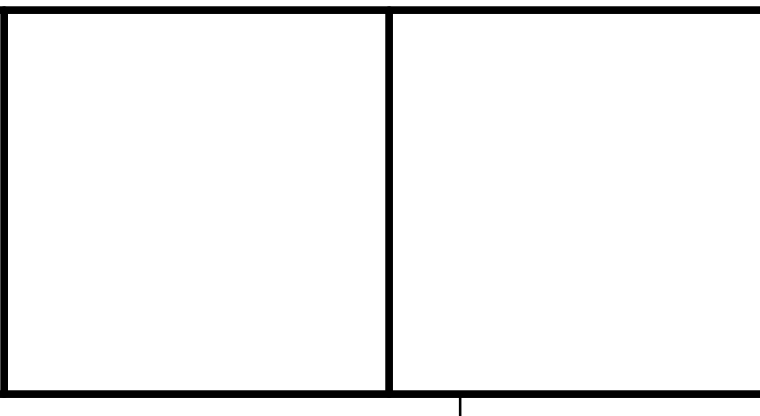


CONFORMED

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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ATHPL100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010



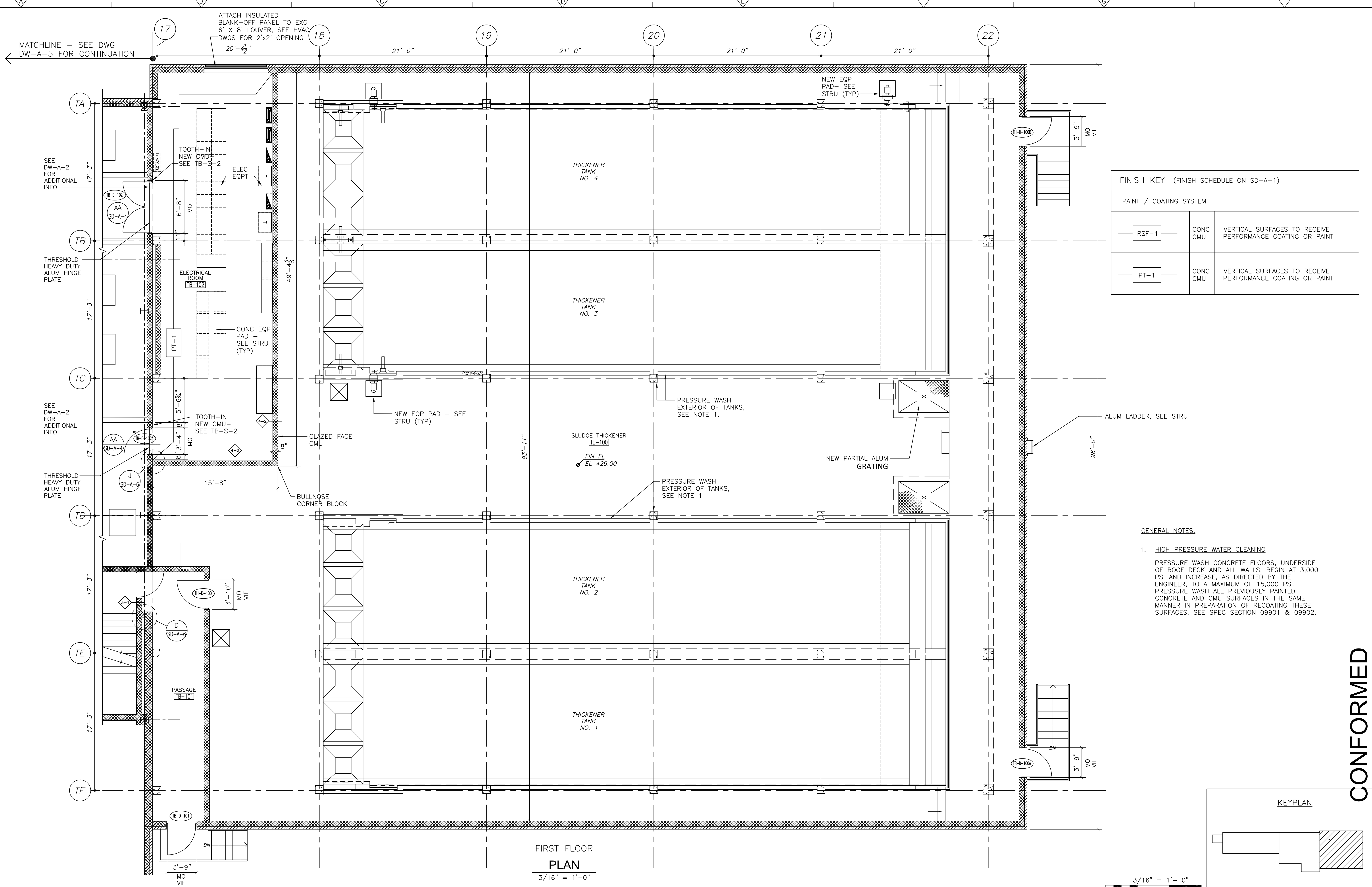
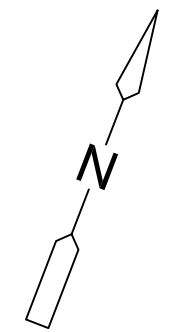
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT FLOOR PLAN
 DEMOLITION AND IMPROVEMENTS**

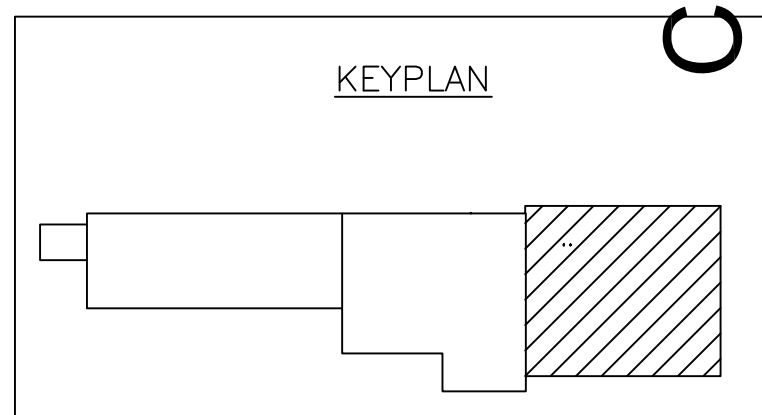
PROJECT NO. 1289-74283
 Sht. 28 of 312
 TB-A-2
 Acc # 1289-74434

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FINISH KEY (FINISH SCHEDULE ON SD-A-1)		
PAINT / COATING SYSTEM		
RSF-1	CONC CMU	VERTICAL SURFACES TO RECEIVE PERFORMANCE COATING OR PAINT
PT-1	CONC CMU	VERTICAL SURFACES TO RECEIVE PERFORMANCE COATING OR PAINT

- GENERAL NOTES:**
- HIGH PRESSURE WATER CLEANING**
 PRESSURE WASH CONCRETE FLOORS, UNDERSIDE OF ROOF DECK AND ALL WALLS. BEGIN AT 3,000 PSI AND INCREASE, AS DIRECTED BY THE ENGINEER, TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.



FIRST FLOOR PLAN
 3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ATHPL400
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

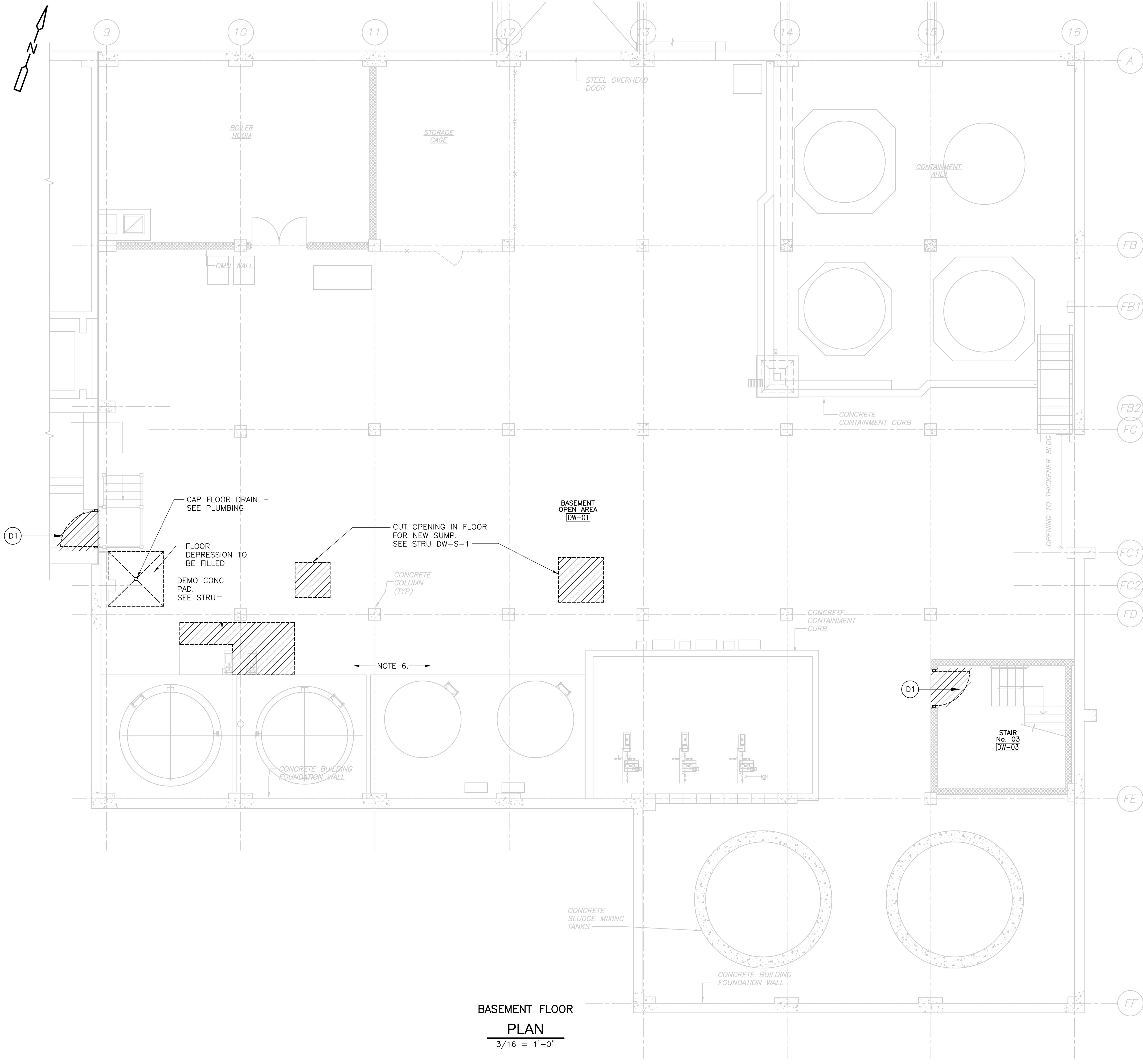
CDM
 Camp Dresser & McKee Inc.
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**

PROJECT NO.
 1289-74283
 Sht. 29 of 312
TB-A-3
 Acc # 1289-74435

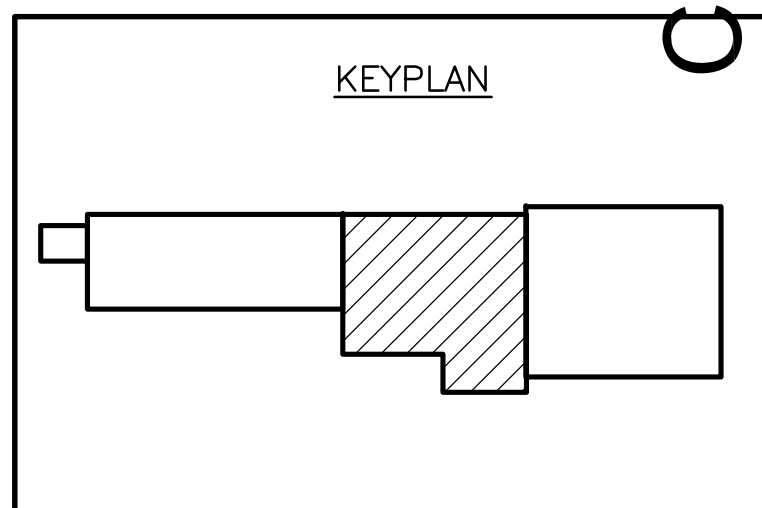
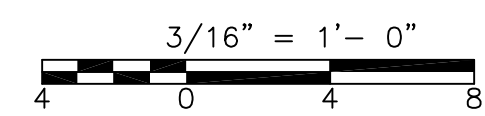
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- GENERAL DEMOLITION NOTES:**
1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
 2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
 3. SCREENED BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1973. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
 4. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
 5. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
 6. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

- DEMOLITION KEY NOTES:**
- D1 REMOVE EXISTING DOOR AND FRAME

BASEMENT FLOOR PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWPD100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

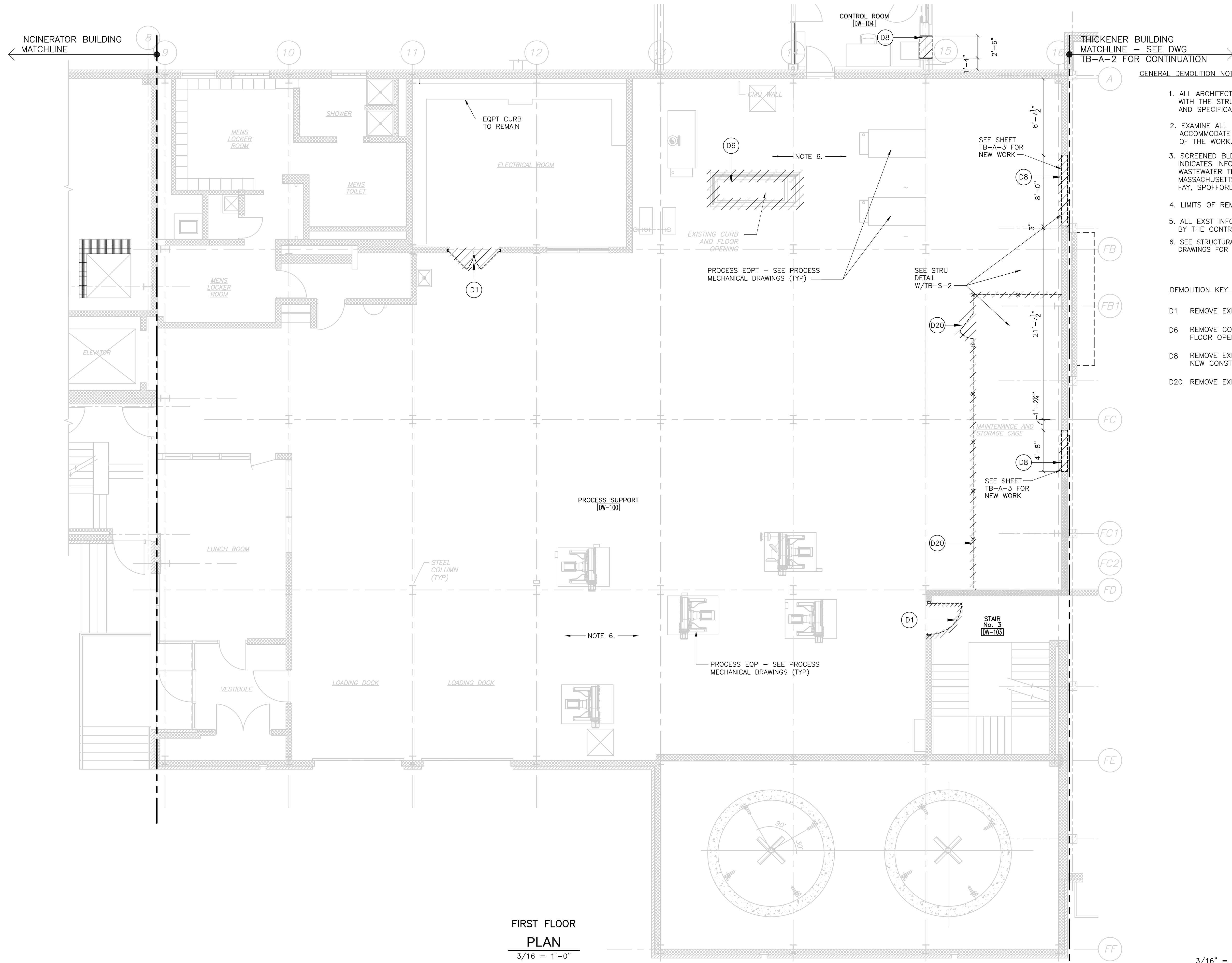
CDM
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BASEMENT PLAN
 DEMOLITION**

PROJECT NO. 1289-74283
 Sht. 30 of 312
DW-A-1
 Acc #1289-74436

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\DRISAS\D0119527\ADWPD200.DWG Saved by: HAYNESK On: 6-Jul-10 Plotted on: 22-Nov-10 11:35 AM



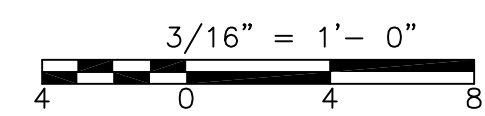
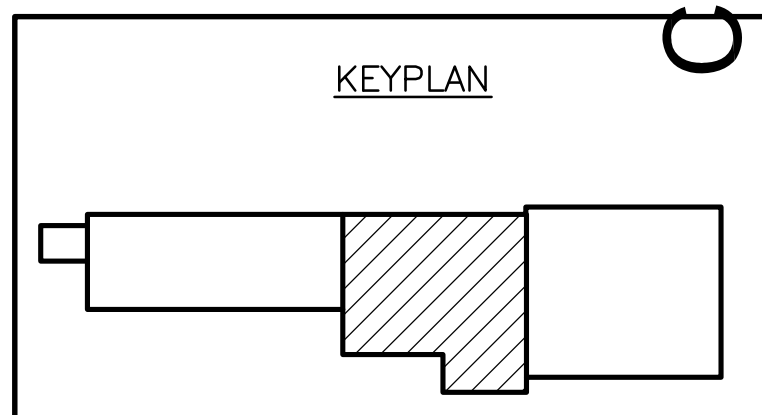
GENERAL DEMOLITION NOTES:

1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
3. SCREENED BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1973. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
4. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
5. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
6. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

DEMOLITION KEY NOTES:

- D1 REMOVE EXISTING DOOR AND FRAME
- D6 REMOVE CONC CURB AND GUARDRAIL AT FLOOR OPENING
- D8 REMOVE EXISTING MASONRY WALL TO ACCOMMODATE NEW CONSTRUCTION
- D20 REMOVE EXISTING CAGE

FIRST FLOOR PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

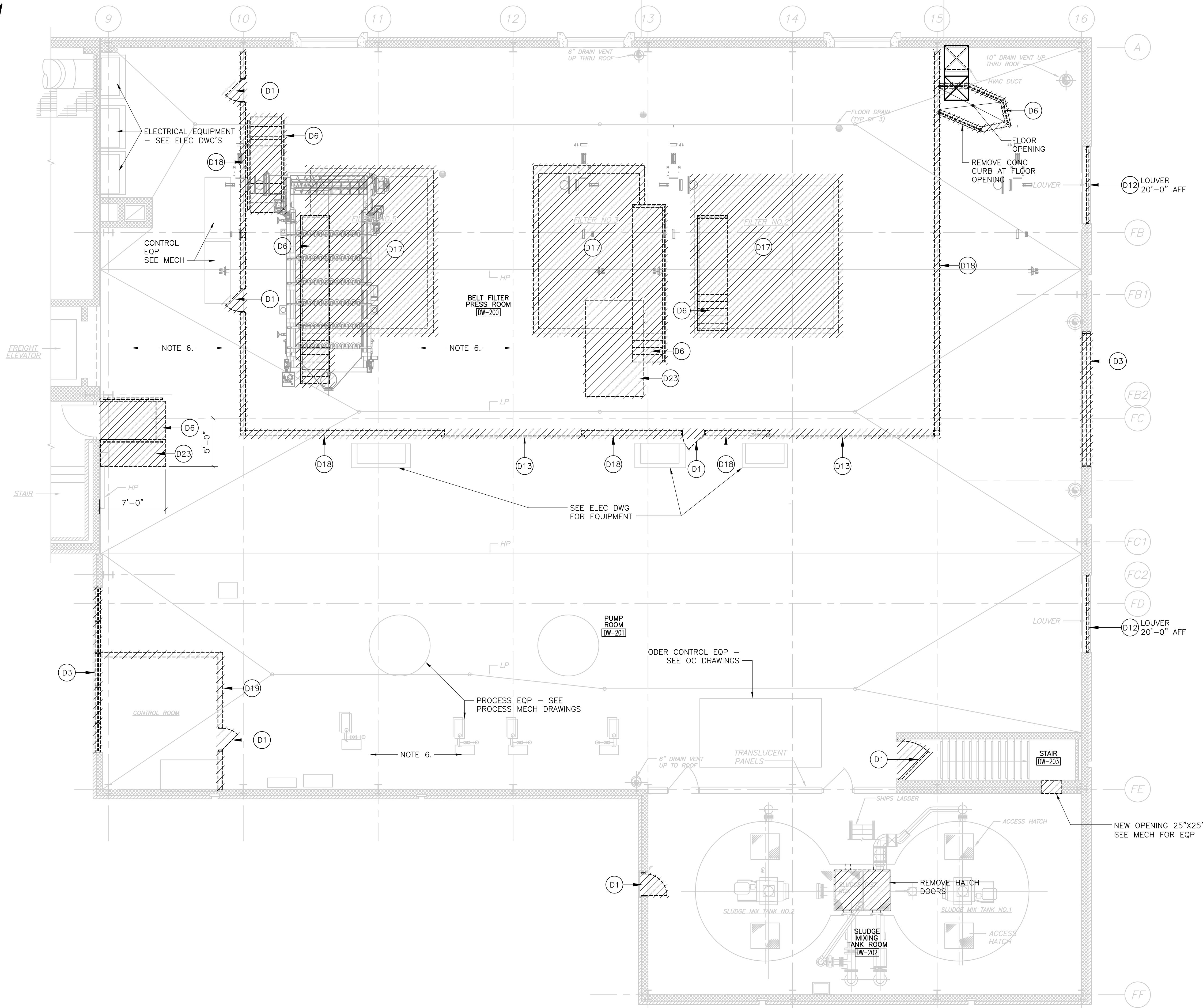
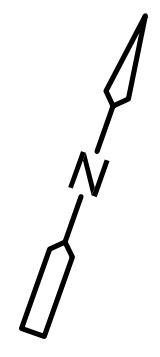
CADD FILE NO. ADWPD200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

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 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 DEMOLITION**

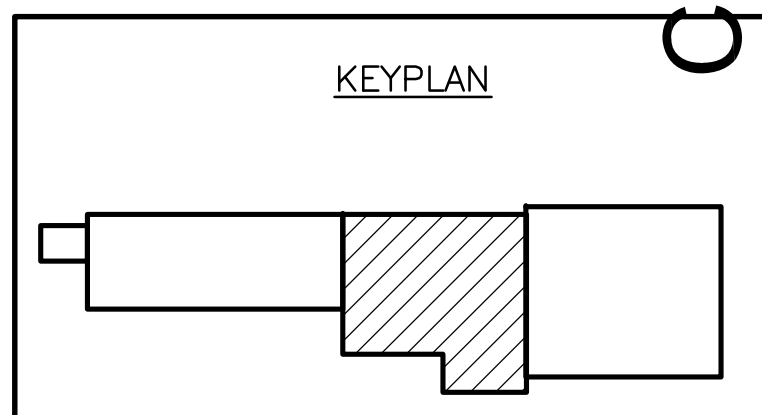
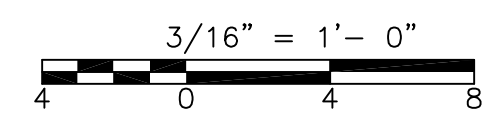
PROJECT NO.
1289-74283
 Sht. 31 of 312
DW-A-2
 Acc # 1289-74437



- GENERAL DEMOLITION NOTES:**
1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
 2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
 3. SCREENED BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1973. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
 4. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
 5. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
 6. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

- DEMOLITION KEY NOTES:**
- D1 REMOVE EXISTING DOOR AND FRAME
 - D3 REMOVE EXISTING WINDOW SYSTEM. WINDOW SILLS (STOOLS) TO REMAIN
 - D6 REMOVE EXISTING STAIR AND HANDRAIL
 - D12 REMOVE EXISTING LOUVER
 - D13 REMOVE ROLL-UP DOOR SYSTEM, INCLUDING METAL DOOR TRACKGUIDES AND SUPPORTS
 - D17 REMOVE EXISTING FILTER PRESS PLATFORM, SUPPORTS AND CONCRETE EQUIPMENT PADS - SEE PROCESS MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION
 - D18 REMOVE EXISTING TRANSLUCENT WALL PANEL, ASSOCIATED METAL FRAMING AND CONCRETE CURB BELOW
 - D19 REMOVE EXISTING WOOD PANEL PARTITION, WINDOWS AND CEILING SYSTEM, IN ITS ENTIRETY
 - D23 SAWCUT AND REMOVE CONCRETE FLOOR. SEE STRU DWGS FOR ADDITIONAL INFORMATION

PLAN
3/16" = 1'-0"

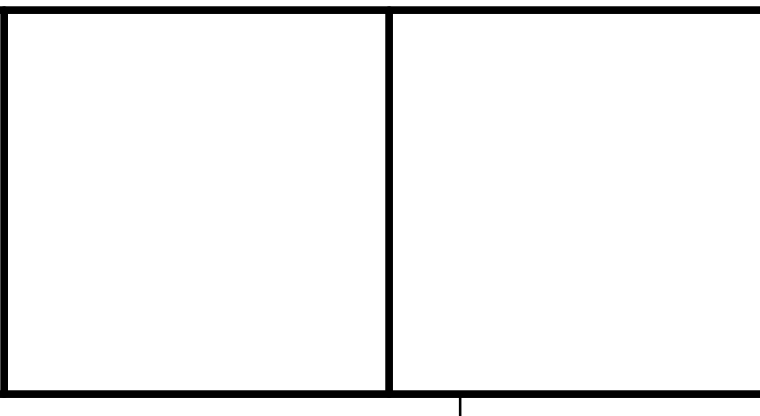


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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWPD300
 DESIGNED BY: M. PELLETIER
 DRAWN BY: J. BALDWIN
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010



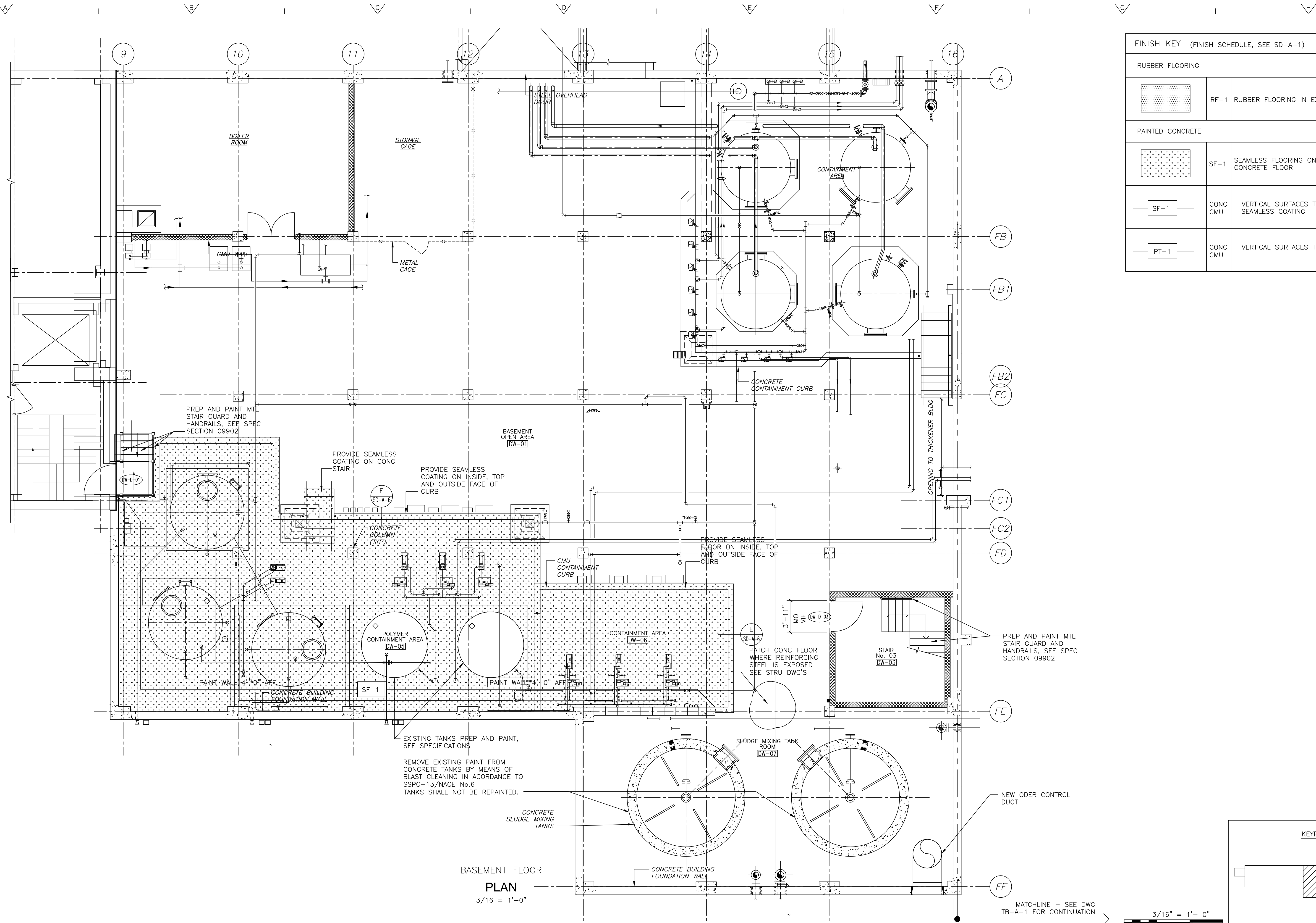
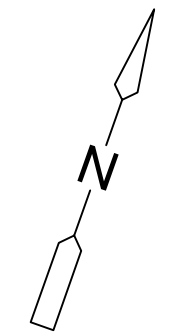
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 SECOND FLOOR PLAN
 DEMOLITION**

PROJECT NO. 1289-74283
 Sht. 32 of 312
 DW-A-3
 Acc # 1289-74438

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM CAD FILES FOR AS BUILT\CDM\DWPL101.DWG Saved by: FLOWRY On: 8-Feb-13 10:18 AM



FINISH KEY (FINISH SCHEDULE, SEE SD-A-1)		
RUBBER FLOORING		
	RF-1	RUBBER FLOORING IN EXIST STAIRWELLS
PAINTED CONCRETE		
	SF-1	SEAMLESS FLOORING ON EXISTING CONCRETE FLOOR
	CONC CMU	VERTICAL SURFACES TO RECEIVE SEAMLESS COATING
	CONC CMU	VERTICAL SURFACES TO RECEIVE PAINT

BASEMENT FLOOR
PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	ADWPL101
DESIGNED BY:	M. PELLETIER
DRAWN BY:	M. PELLETIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

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Cambridge, MA 02139
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
BASEMENT PLAN
IMPROVEMENTS**

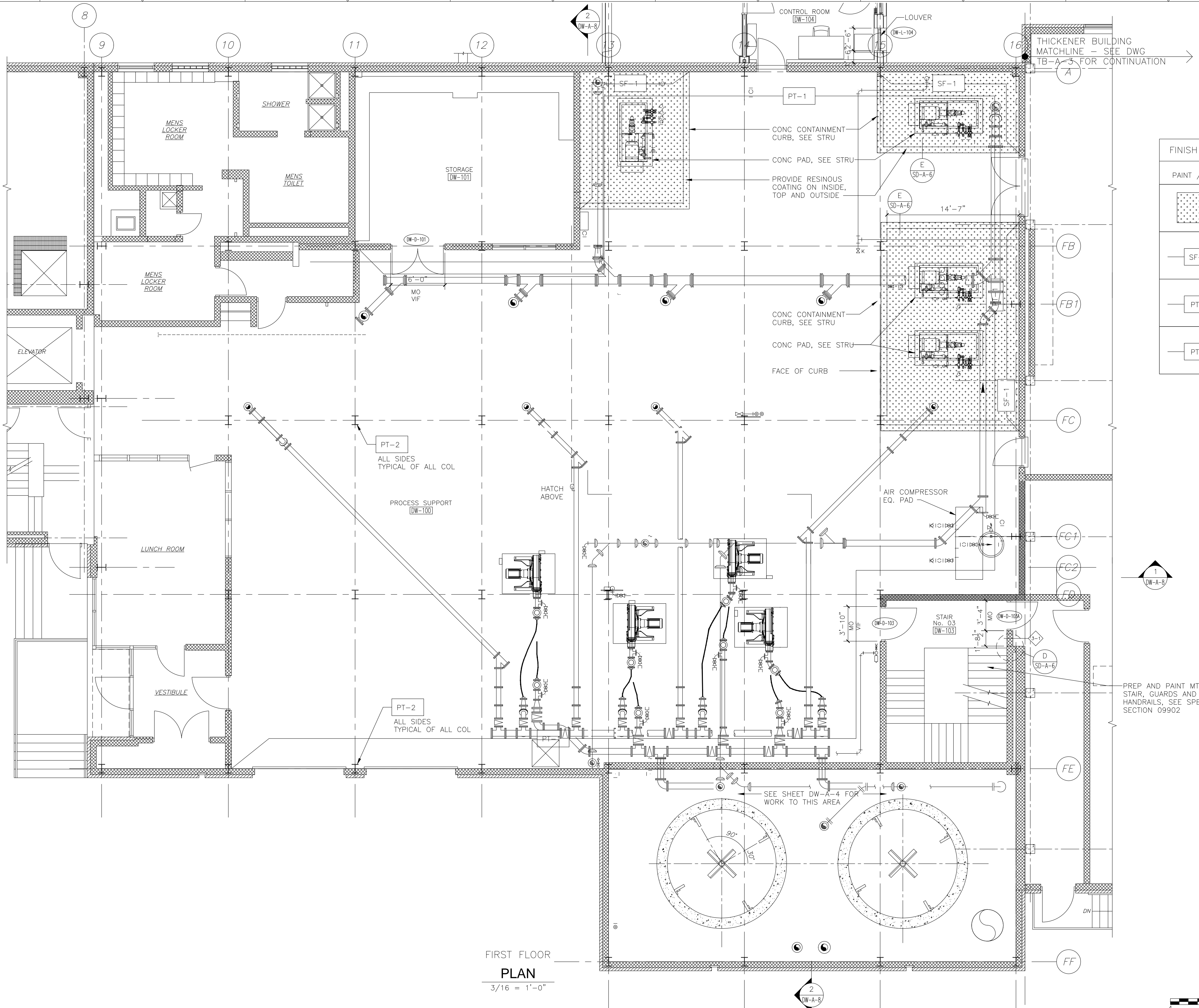
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PROJECT NO.
1289-74283

Sht. 33 of 312

Acc # 1289-74439

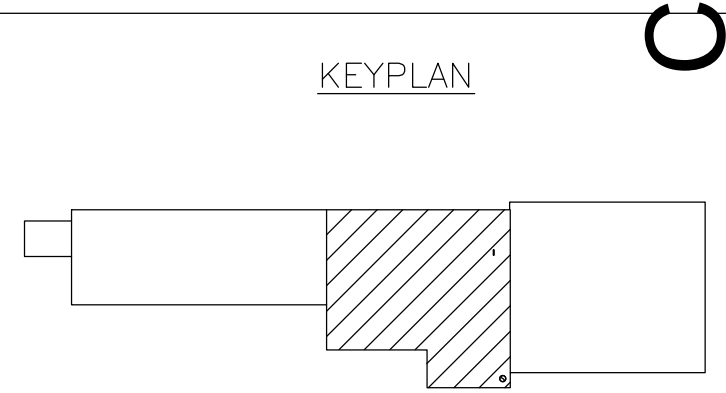
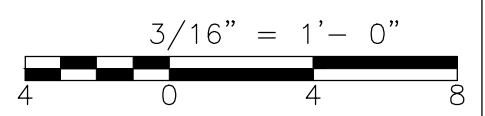
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FINISH KEY (FINISH SCHEDULE OF SD-A-1)

PAINT / COATING SYSTEM		
	SF-1	SEAMLESS FLOORING ON EXISTING CONCRETE FLOOR
	CONC CMU	VERTICAL SURFACES TO RECEIVE SEAMLESS COATING
	CONC CMU	VERTICAL SURFACES TO RECEIVE PAINT
	CONC CMU	VERTICAL SURFACES TO RECEIVE PAINT

FIRST FLOOR
PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWPL200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

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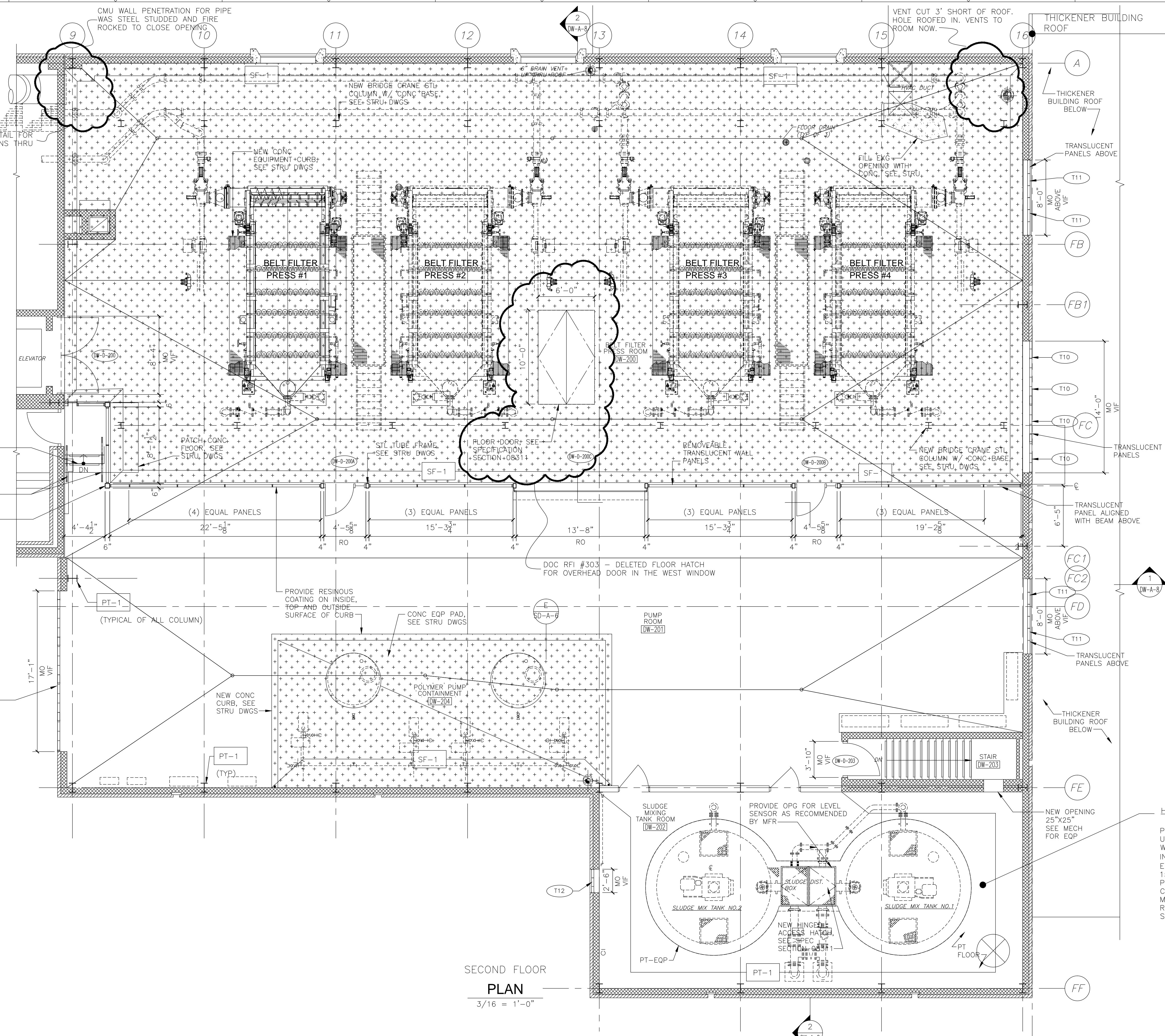
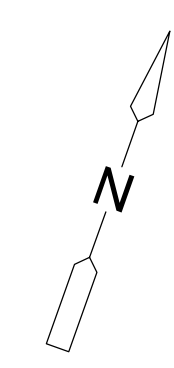
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 34 of 312
DW-A-5
 Acc # 1289-74440

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\DWPL300.DWG Saved by: PLOWRY On: 19-Mar-13 11:11 AM

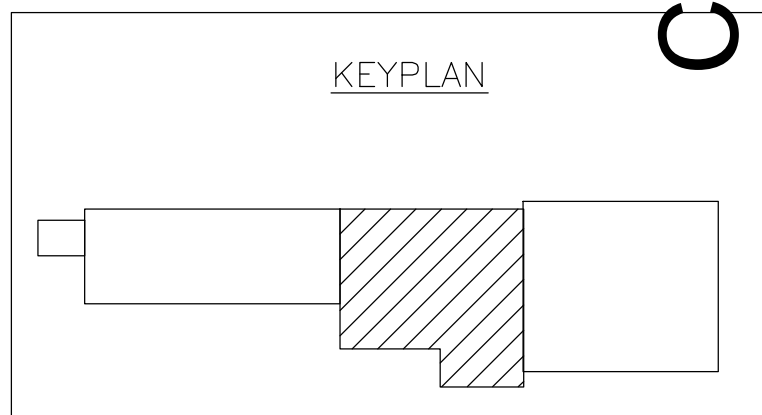
DOC RFI #306 - WALL DETAIL FOR DUCT AND PIPE PENETRATIONS THRU WALL



FINISH KEY		
PAINTED CONCRETE		
	SF-1	SEAMLESS FLOORING ON EXISTING CONCRETE FLOOR
	PT-1	VERTICAL SURFACES TO RECEIVE SEAMLESS COATING
	PT-1	VERTICAL SURFACES TO RECEIVE PAINT

SECOND FLOOR
PLAN
3/16" = 1'-0"

HIGH PRESSURE WATER CLEANING
PRESSURE WASH CONCRETE FLOOR, UNDERSIDE OF CEILING AND ALL WALLS. BEGIN AT 3,000 PSI AND INCREASE (AS DIRECTED BY THE ENGINEER) TO A MAXIMUM OF 15,000 PSI. PRESSURE WASH ALL PREVIOUSLY PAINTED CONCRETE AND CMU SURFACES IN THE SAME MANNER IN PREPARATION OF RECOATING THESE SURFACES. SEE SPEC SECTION 09901 & 09902.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWPL300
DESIGNED BY: M. PELLETIER
DRAWN BY: M. PELLETIER
SHEET CHK'D BY: B. GIORGI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: M. PELLETIER
DATE: SEPTEMBER 2010

DOC RECORD DRAWING
7/19/2012

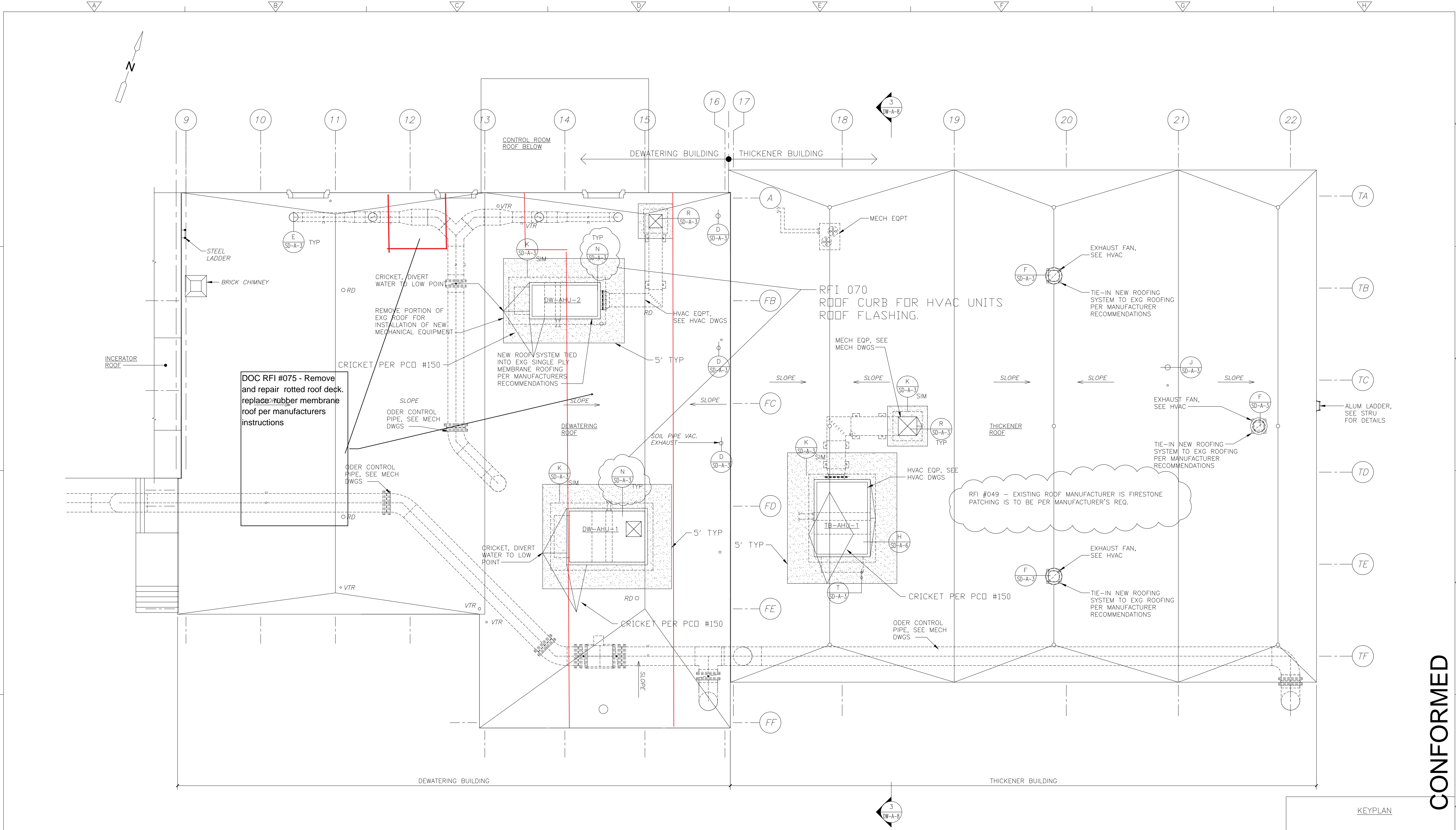
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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

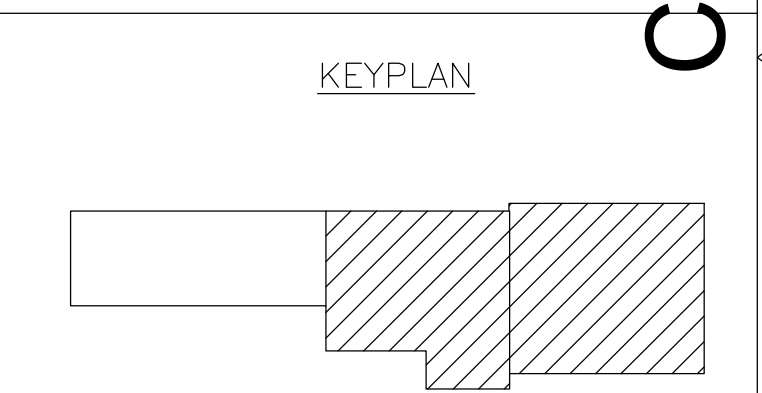
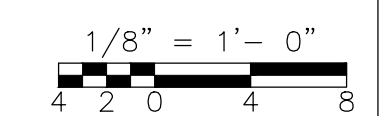
**DEWATERING BUILDING
SECOND FLOOR PLAN
IMPROVEMENTS**

PROJECT NO. 1289-74283
Sht. 35 of 312
DW-A-6
Acc # 1289-74441

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\BUILT FILES\CDM\CAD FILES FOR AS BUILTS\CDM\ADWP0500.DWG Saved by: FLOWERY On: 19-Mar-13 10:41 AM



ROOF PLAN
1/8" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	ADWP0500
DESIGNED BY:	M. PELLETIER
DRAWN BY:	J. BALDWIN
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

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Cambridge, MA 02139
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING AND
THICKENER BUILDING ROOF PLAN
IMPROVEMENTS**

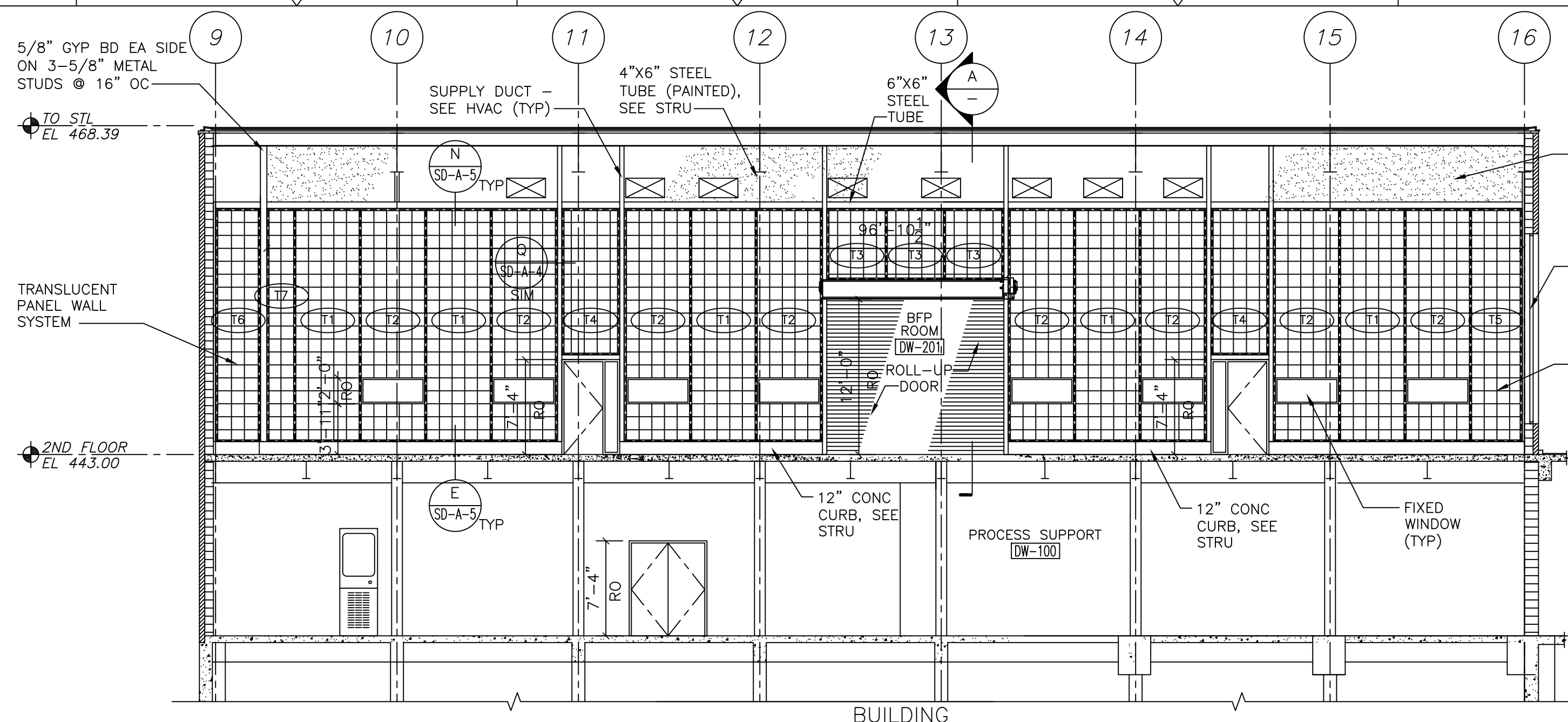
PROJECT NO.
1289-74283

Sht. 36 of 312

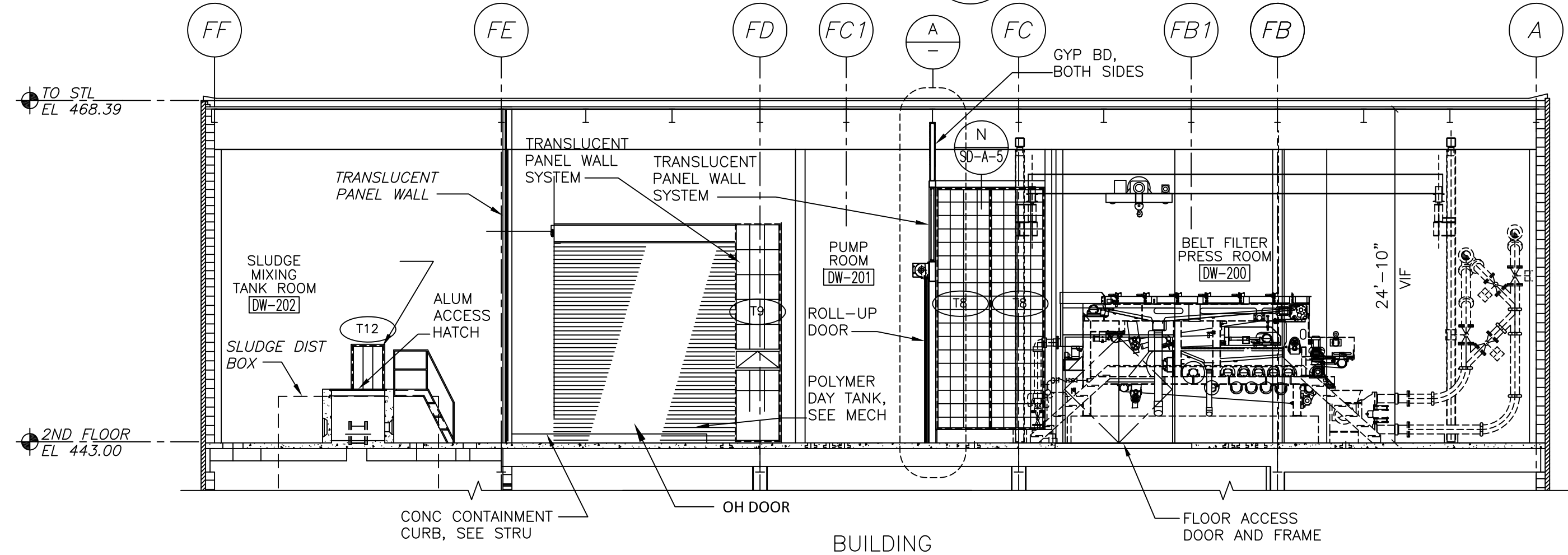
DW-A-7

Acc # 1289-74442

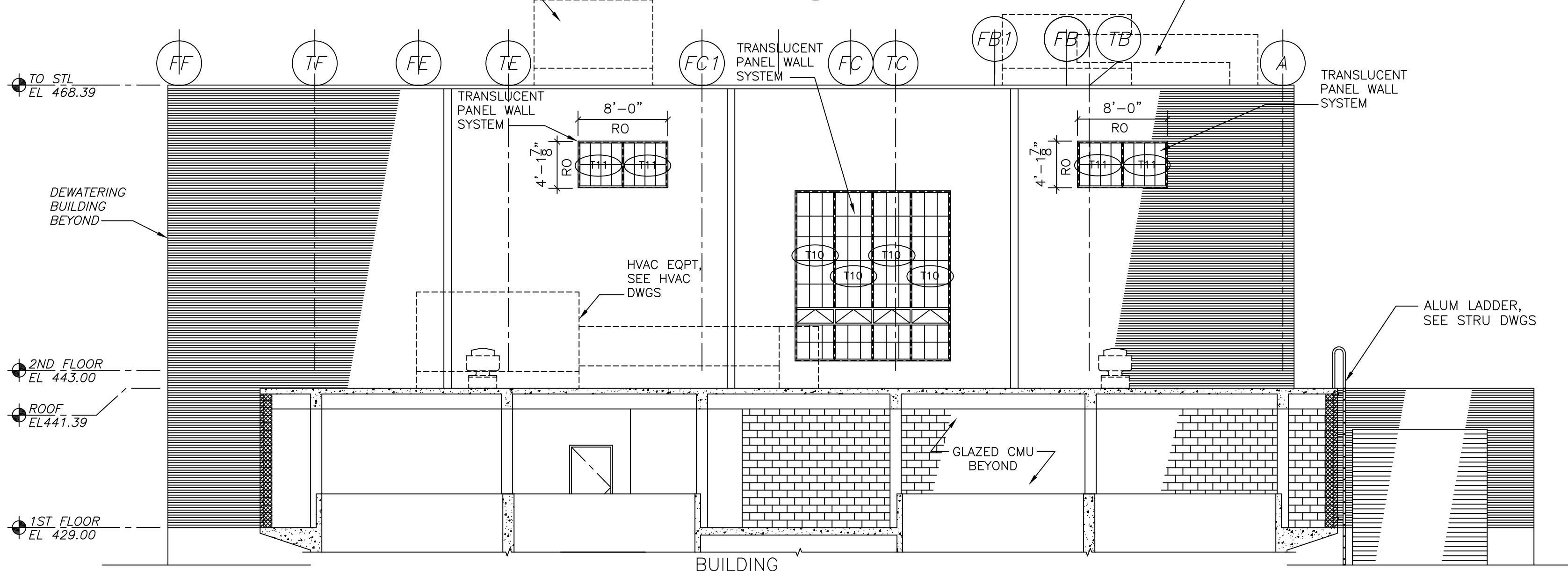
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT\CDM\ADWSC100.DWG Saved by: PLOWRY On: 7-Dec-12 1:48 PM



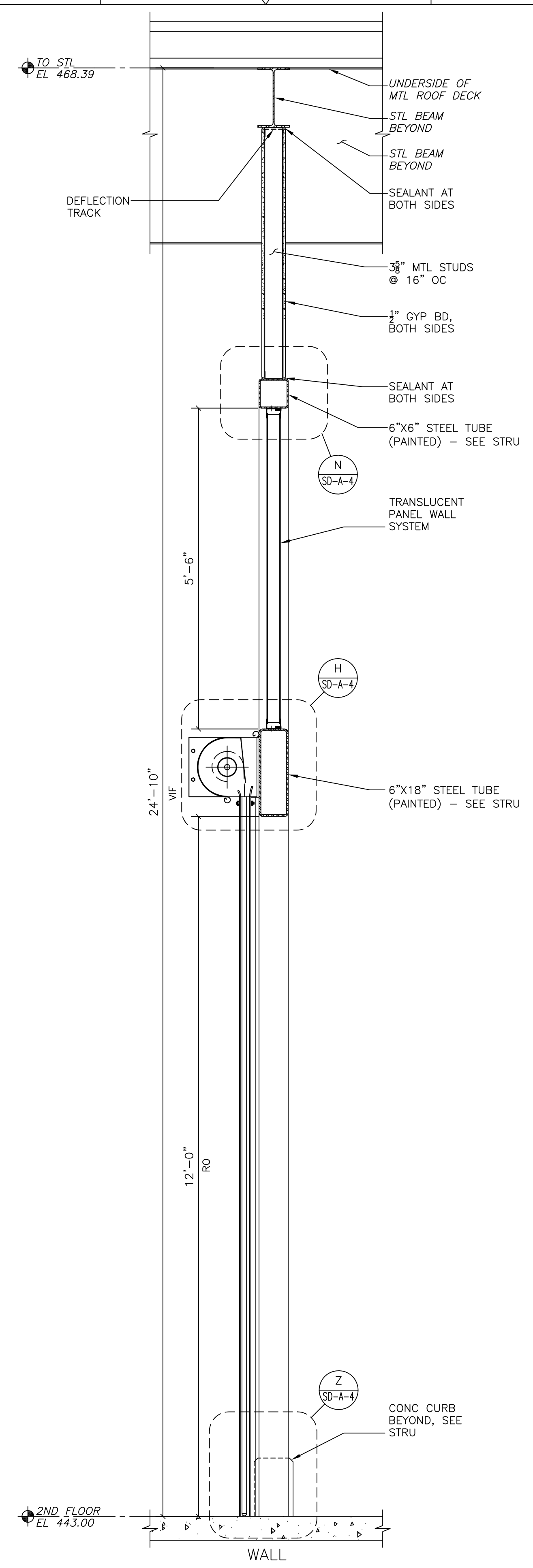
SECTION 1
1/8" = 1'-0"
DW-A-5



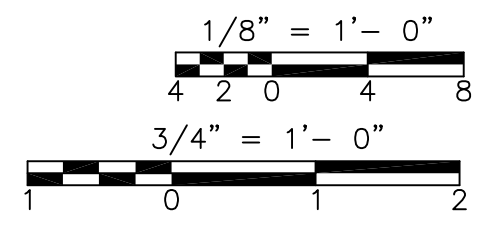
SECTION 2
1/8" = 1'-0"
DW-A-5



SECTION 3
1/8" = 1'-0"
DW-A-7



SECTION A
3/4" = 1'-0"
-



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWSC100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: J. BALDWIN
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

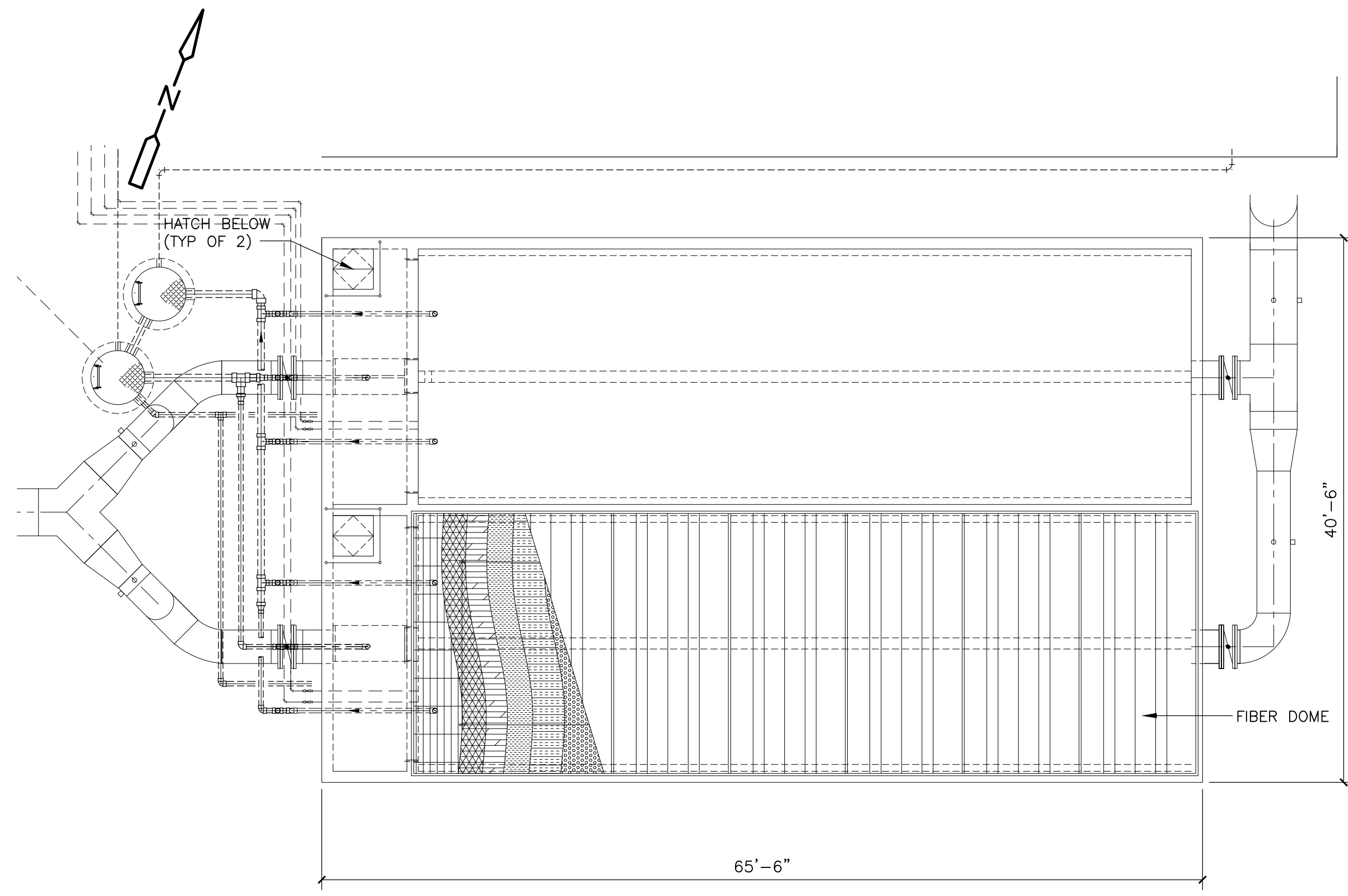
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

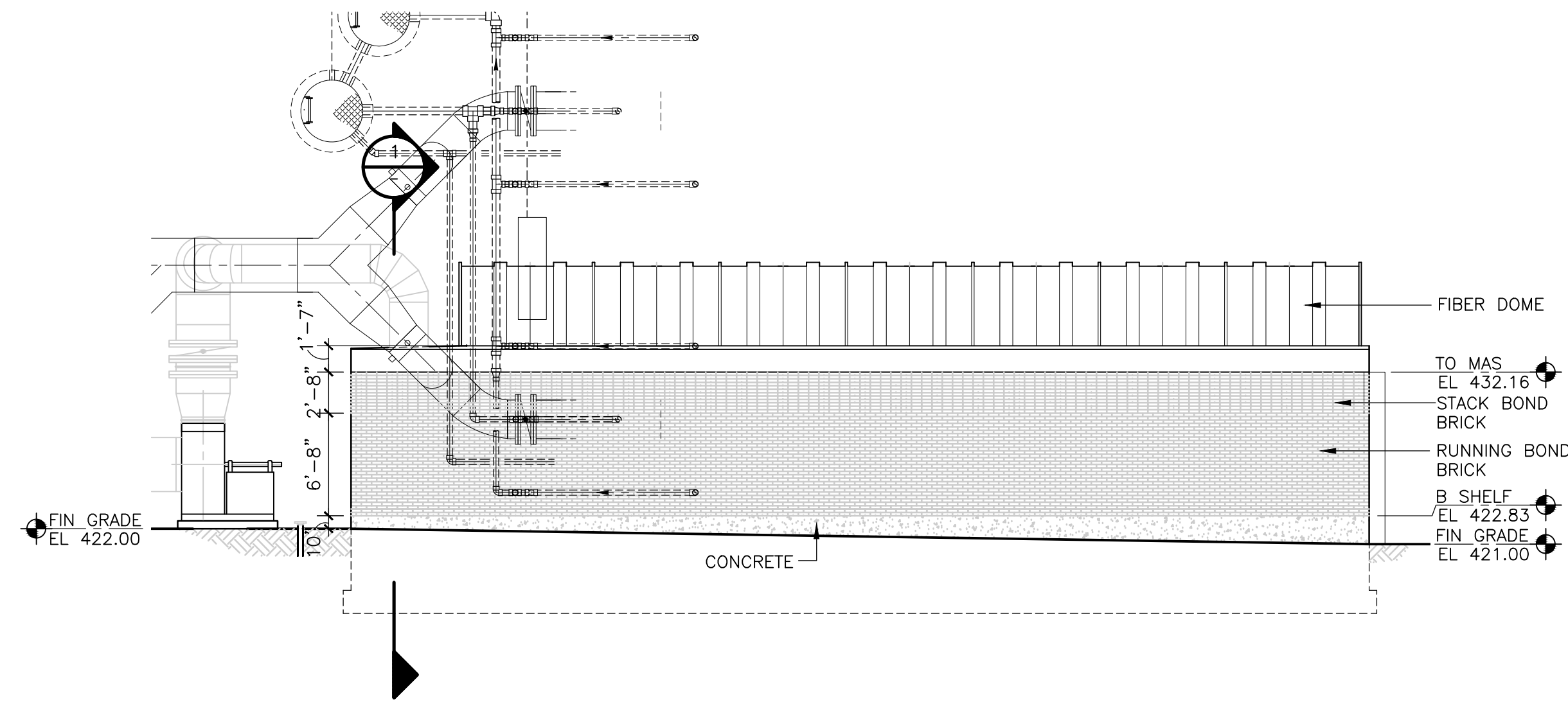
**DEWATERING BUILDING
 BUILDING SECTIONS
 IMPROVEMENTS**

PROJECT NO. 1289-74283
 Sht. 37 of 312
DW-A-8
 Acc # 1289-74443

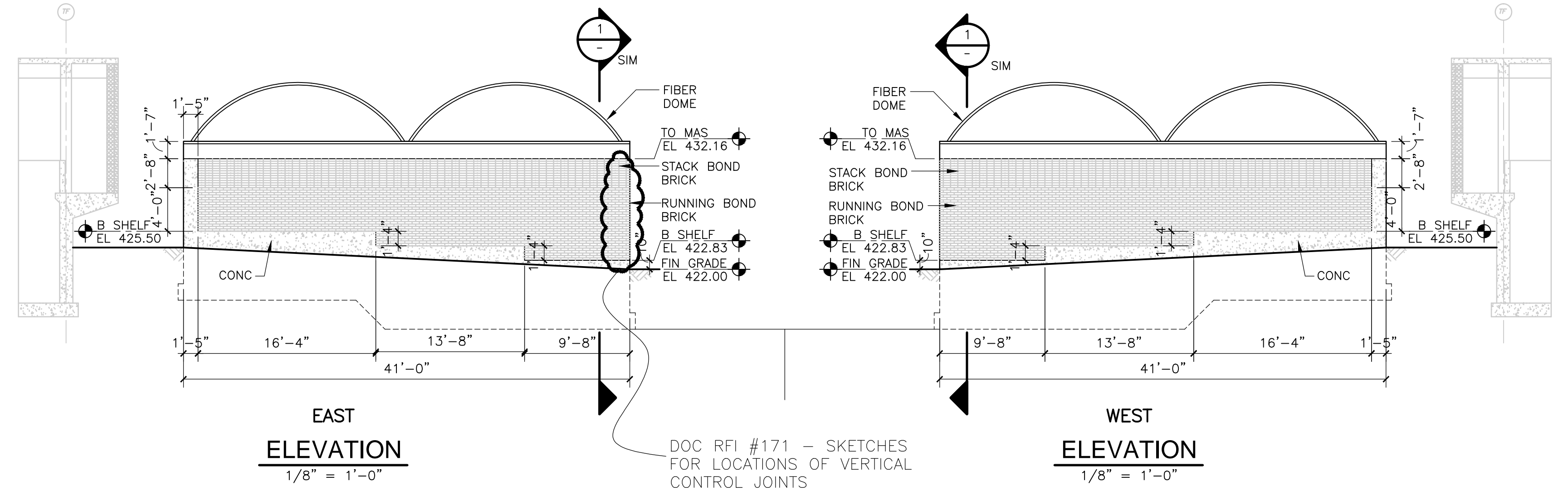
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\CDM W-KNEELAND FILES\ADWPL400.DWG Saved by: DKENNEDY On: 19-Jul-12 Plotted on: 19-Jul-12 1:03 PM



**BIOFILTER STRUCTURE
PLAN**
1/8" = 1'-0"

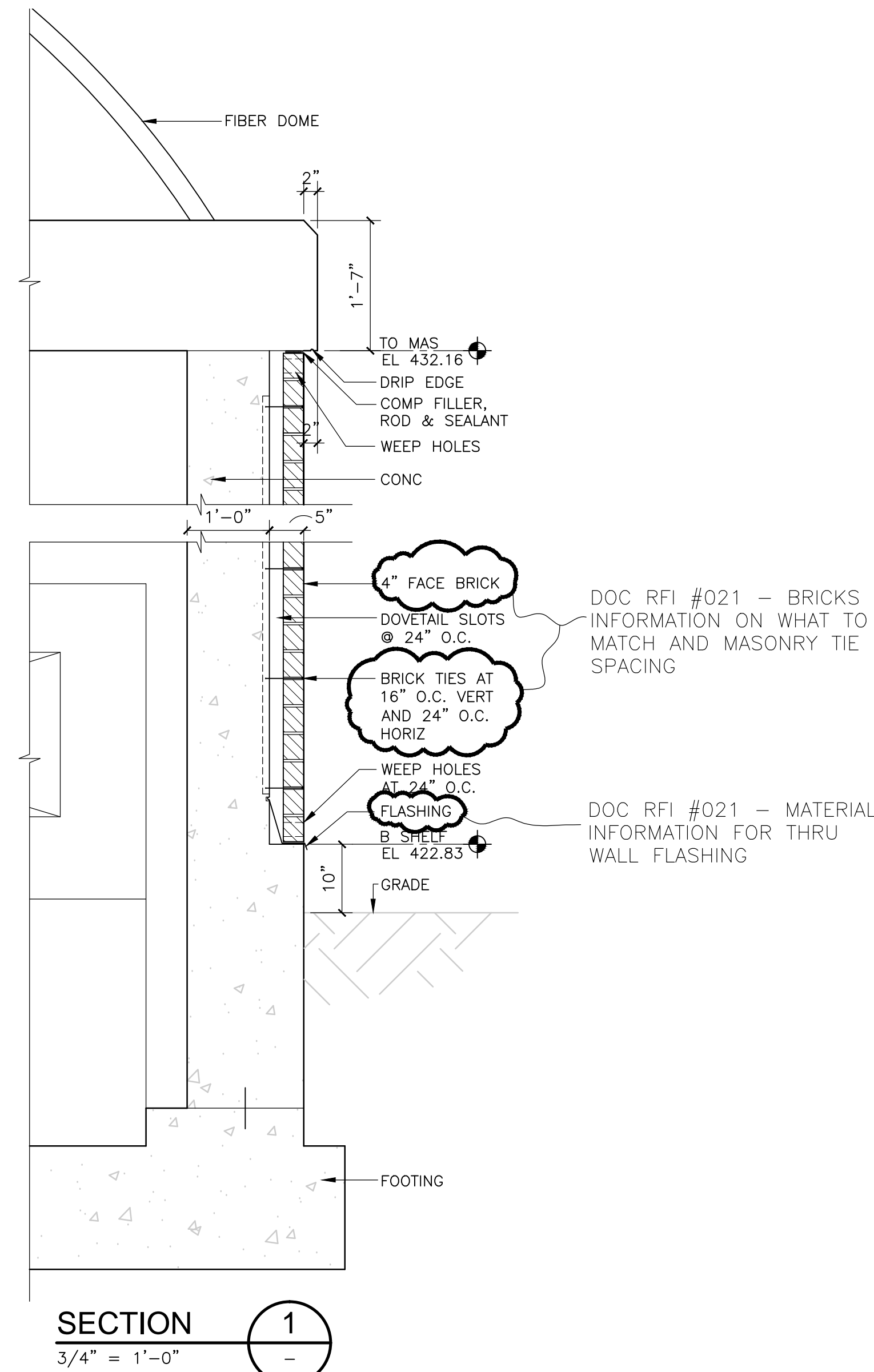


**SOUTH
ELEVATION**
1/8" = 1'-0"

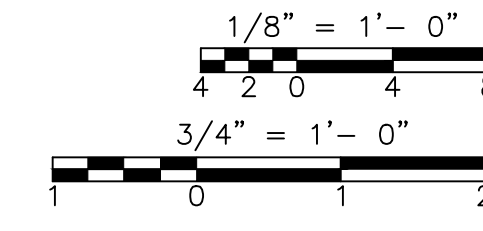
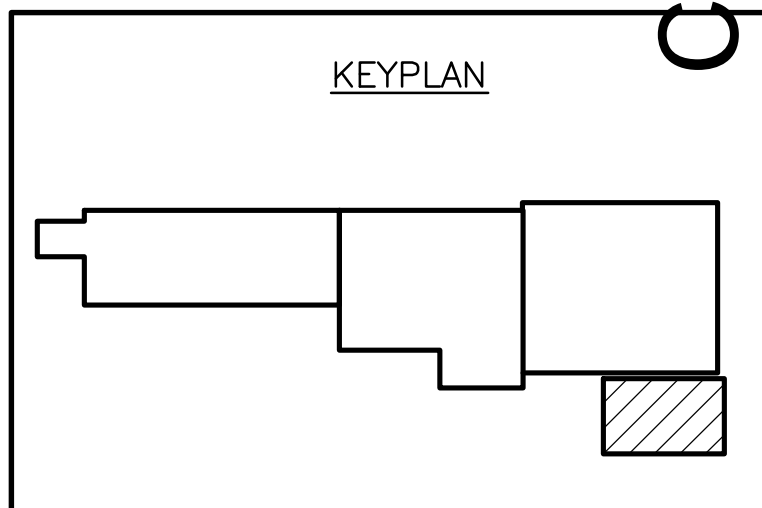


**EAST
ELEVATION**
1/8" = 1'-0"

**WEST
ELEVATION**
1/8" = 1'-0"



SECTION 1
3/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ADWPL400
 DESIGNED BY: M. PELLETIER
 DRAWN BY: A. IDRIS
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/19/2012

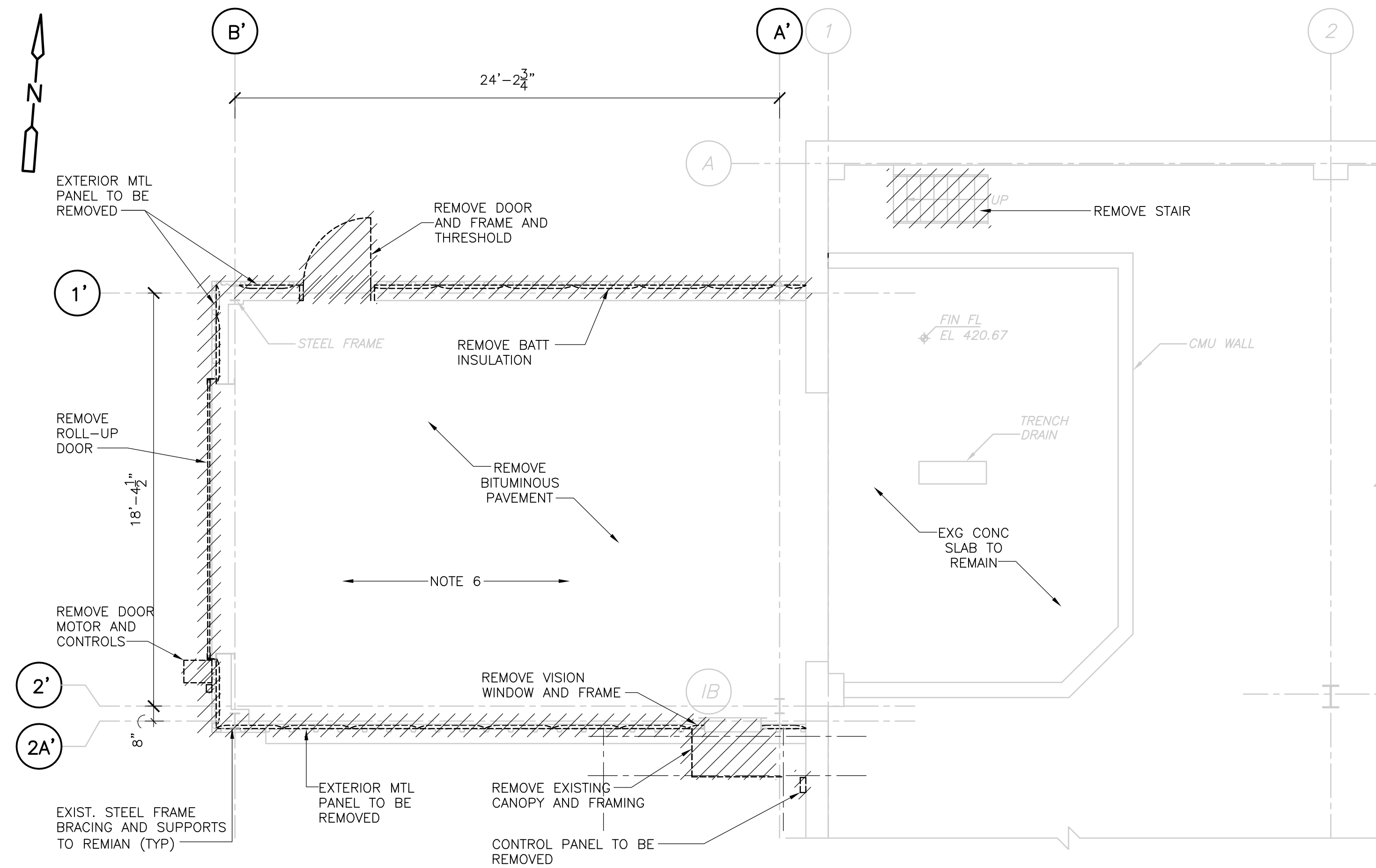
CDM
 Camp Dresser & McKee Inc.
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BIOFILTER STRUCTURE
 PLAN AND ELEVATIONS**

PROJECT NO.
 1289-74283
 Sht. 38 of 312
DW-A-9
 Acc. # 1289-74444

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\DRISAS\D0119527\ABPD100.DWG Saved by: HAYNESKL On: 6-Jul-10 12:39 PM



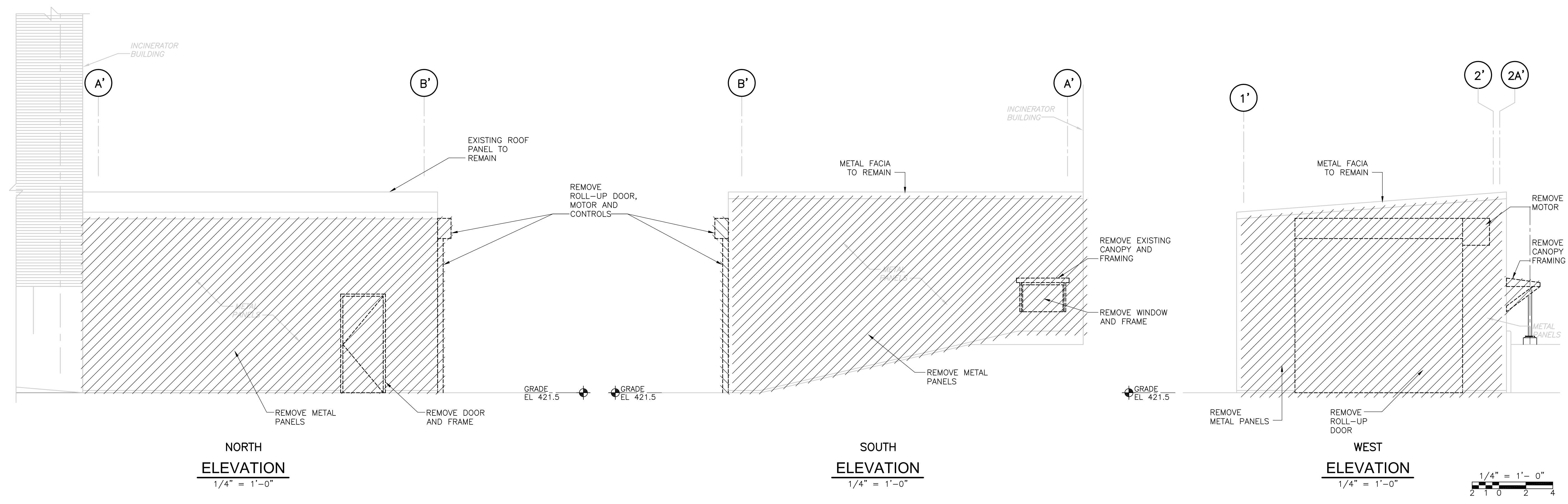
ASH GARAGE PLAN
1/4" = 1'-0"

GENERAL DEMOLITION NOTES:

1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
3. SCREENED INCINERATOR BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1974. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
4. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
5. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
6. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.

NOTE:

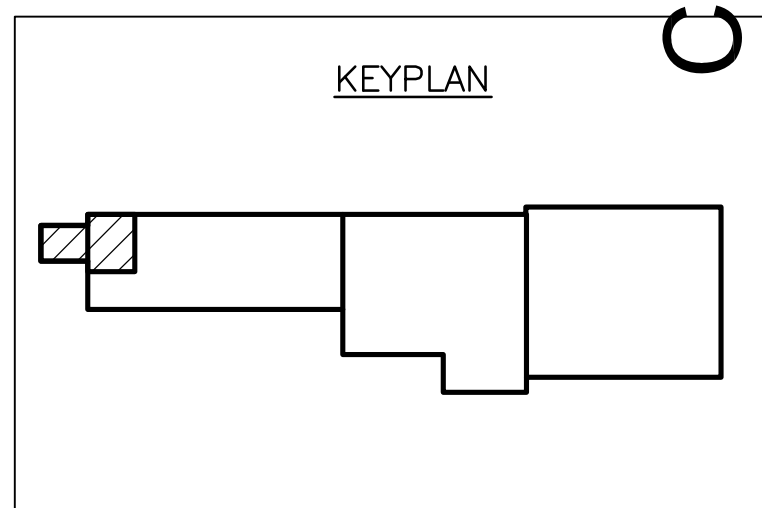
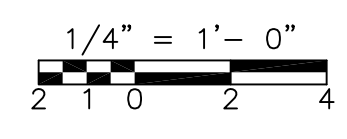
THE ASH GARAGE PLAN AND ELEVATION WERE CREATED BY CDM WITH FIELD MEASUREMENTS
SEE PROPOSED WORK TO COORDINATE ANY EXG MECH, ELEC OR FIXTURES LOCATED ON OR FASTENED TO THE STEEL FRAME. ANY EQUIPMENT THAT MAY INTERFERE WITH THE INSTALLATION OF THE NEW LINER PANELS SHALL BE RELOCATED, ADJUSTED OR REPLACED TO SUIT NEW CONDUITS.



NORTH ELEVATION
1/4" = 1'-0"

SOUTH ELEVATION
1/4" = 1'-0"

WEST ELEVATION
1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AIBPL100.DWG
DESIGNED BY:	M. PELLETIER
DRAWN BY:	M. PELLETIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

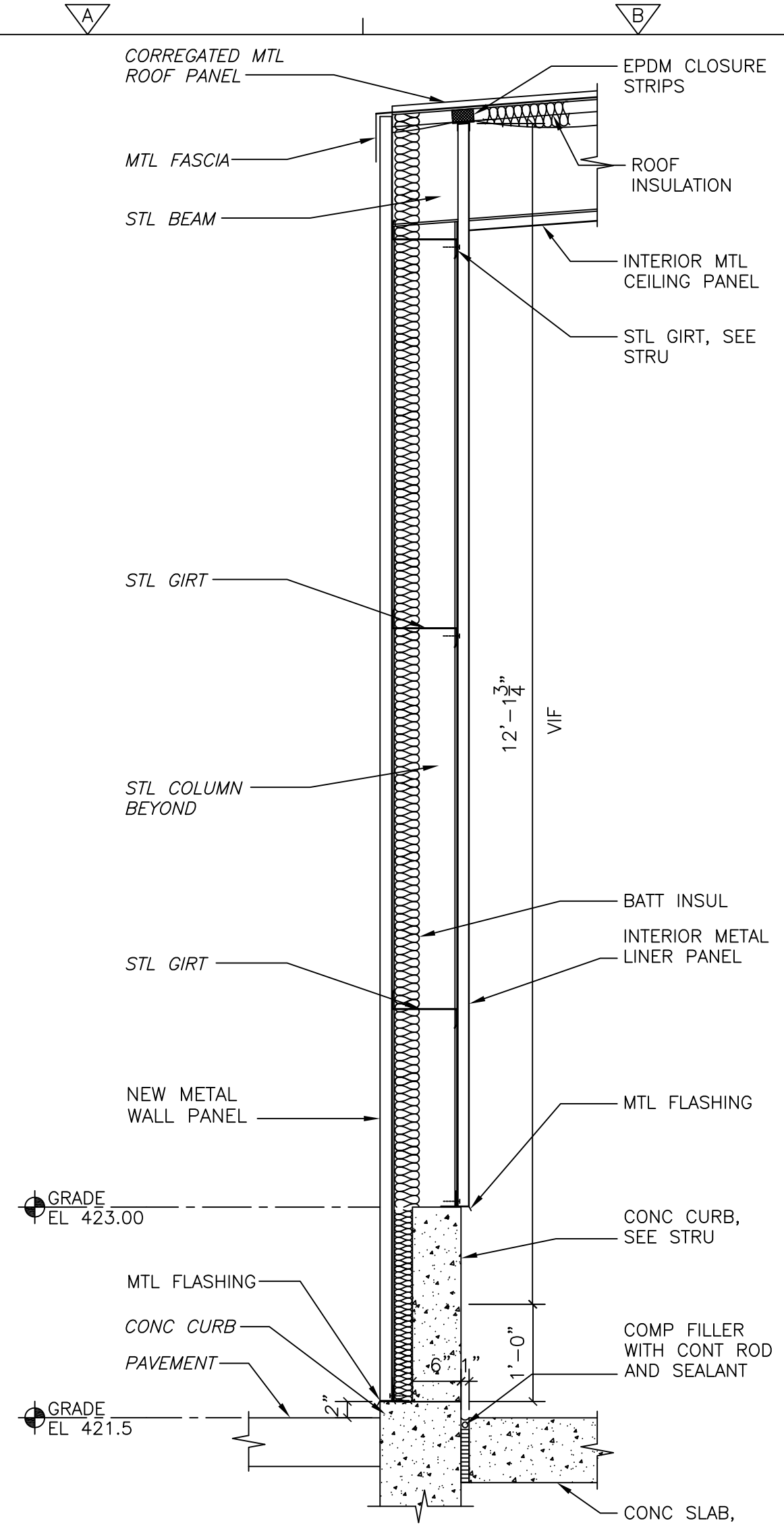
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

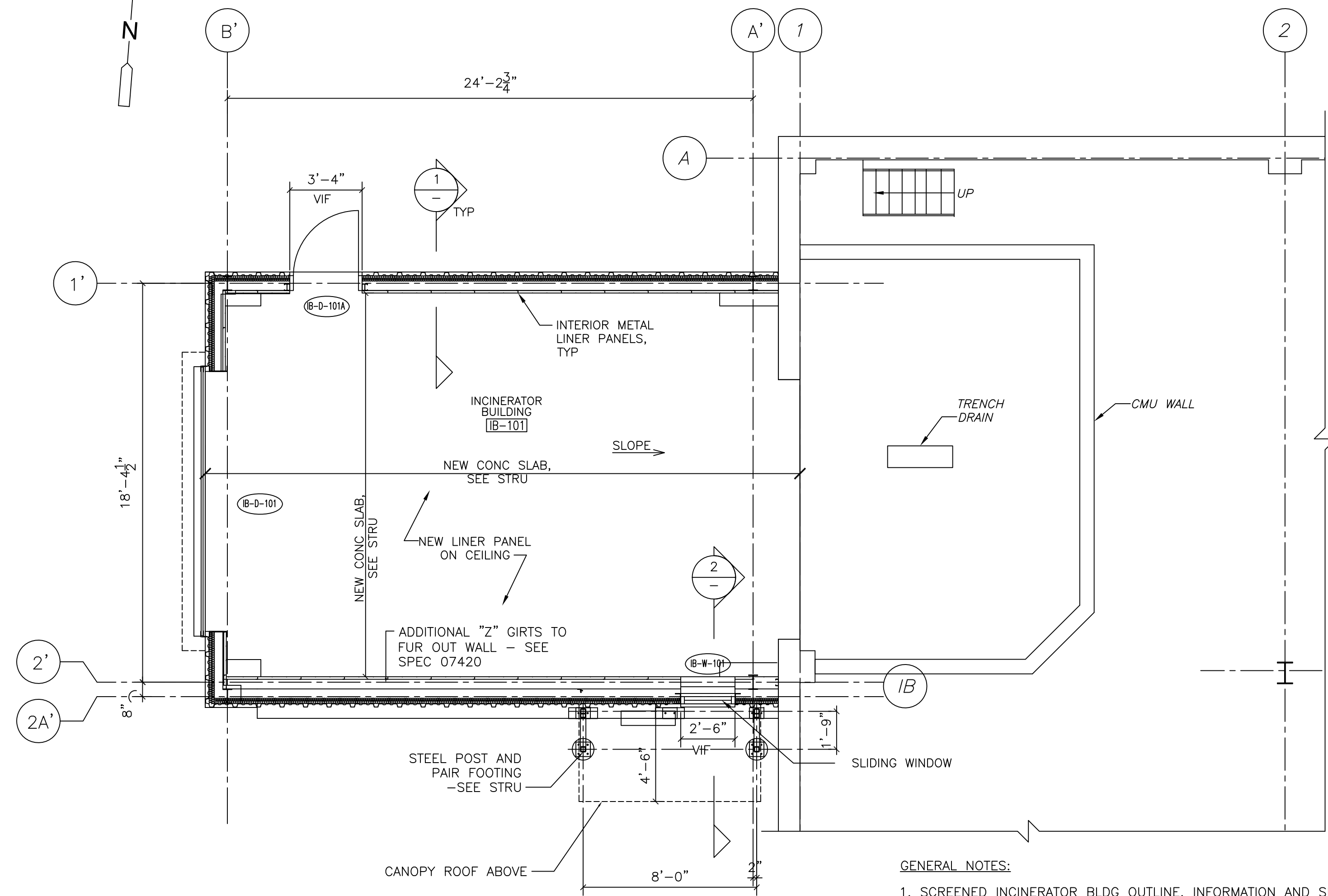
**INCINERATOR BUILDING
ASH GARAGE
DEMOLITION**

PROJECT NO.
1289-74283
Sht. 39 of 312
IB-A-1
Acc # 1289-74445

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\BUILT\100.DWG Saved by: PLOWRY On: 12-Dec-12 4:47 PM

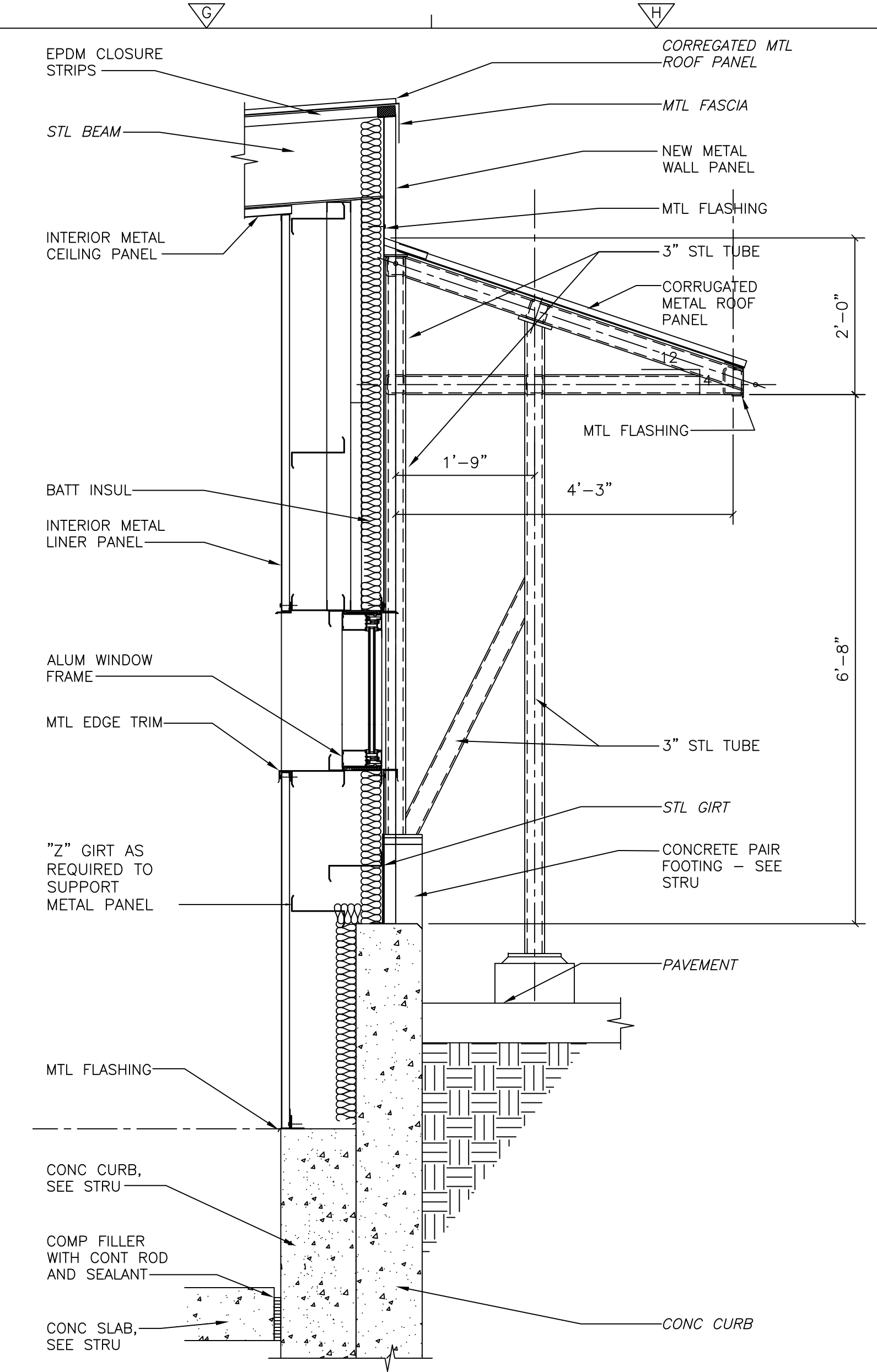


SECTION 1
3/4" = 1'-0"

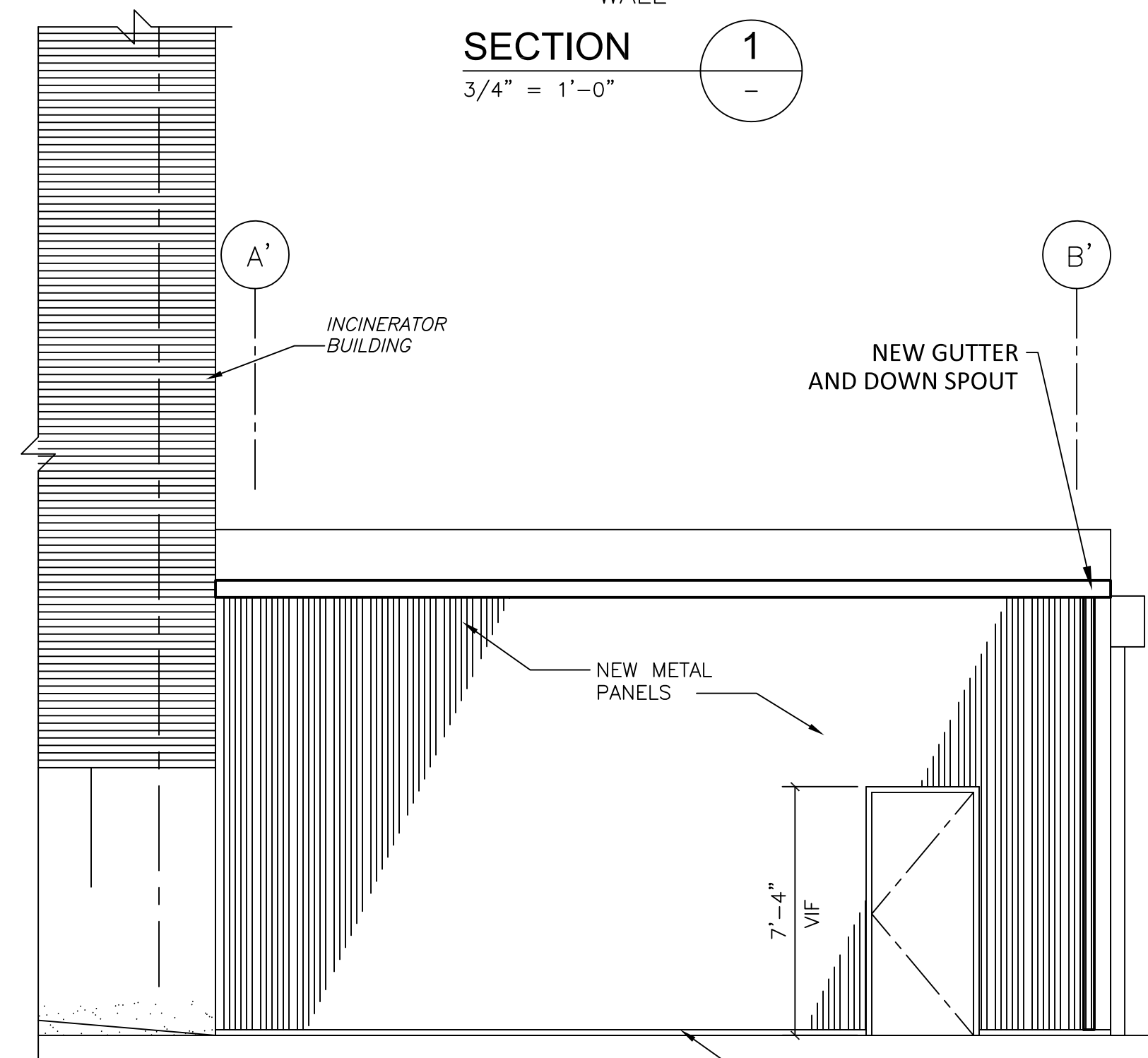


ASH GARAGE PLAN
1/4" = 1'-0"

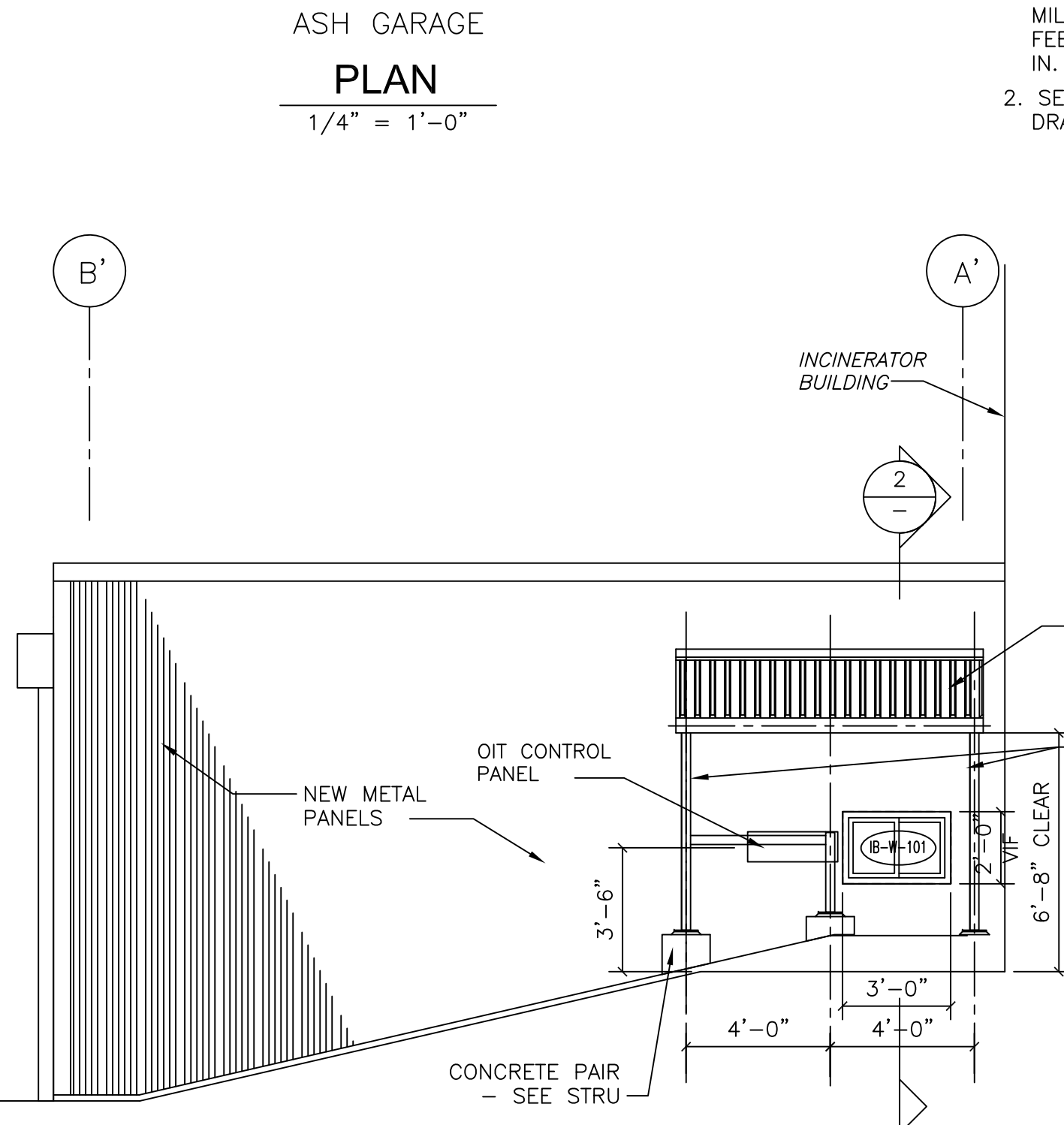
- GENERAL NOTES:**
1. SCREENED INCINERATOR BLDG OUTLINE, INFORMATION AND SLANTED TEXT INDICATES INFORMATION OR DIMENSIONS TAKEN FROM THE REGIONAL WASTEWATER TREATMENT FACILITIES, MILLBURY-WORCESTER, MASSACHUSETTS CONTRACT No. 2 FEBRUARY, 1974. PRODUCED BY FAY, SPOFFORD AND THORNDIKE IN. ENGINEERING.
 2. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.



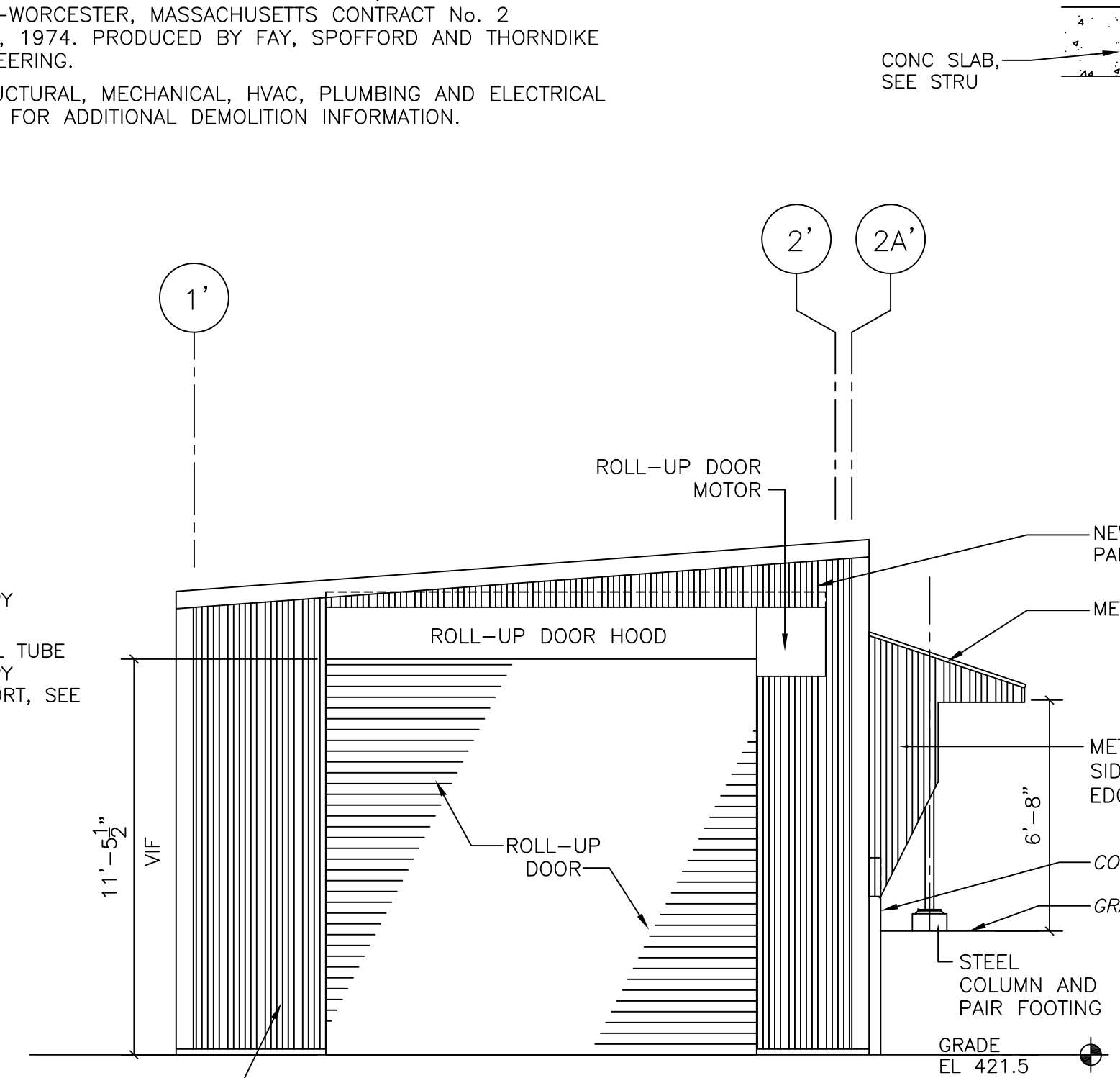
SECTION 2
3/4" = 1'-0"



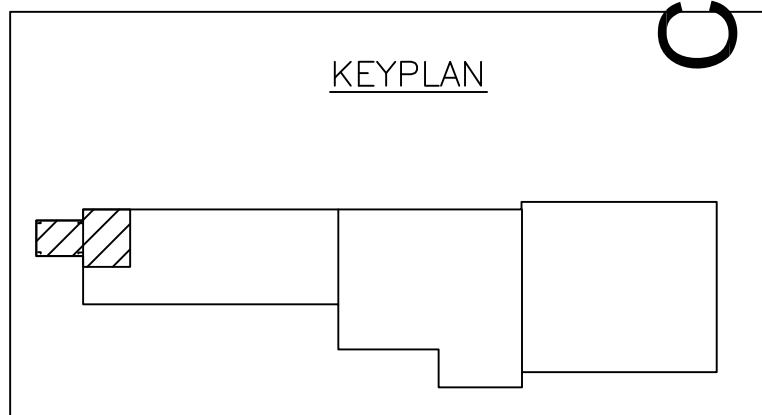
NORTH ELEVATION
1/4" = 1'-0"



SOUTH ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AIBPL100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

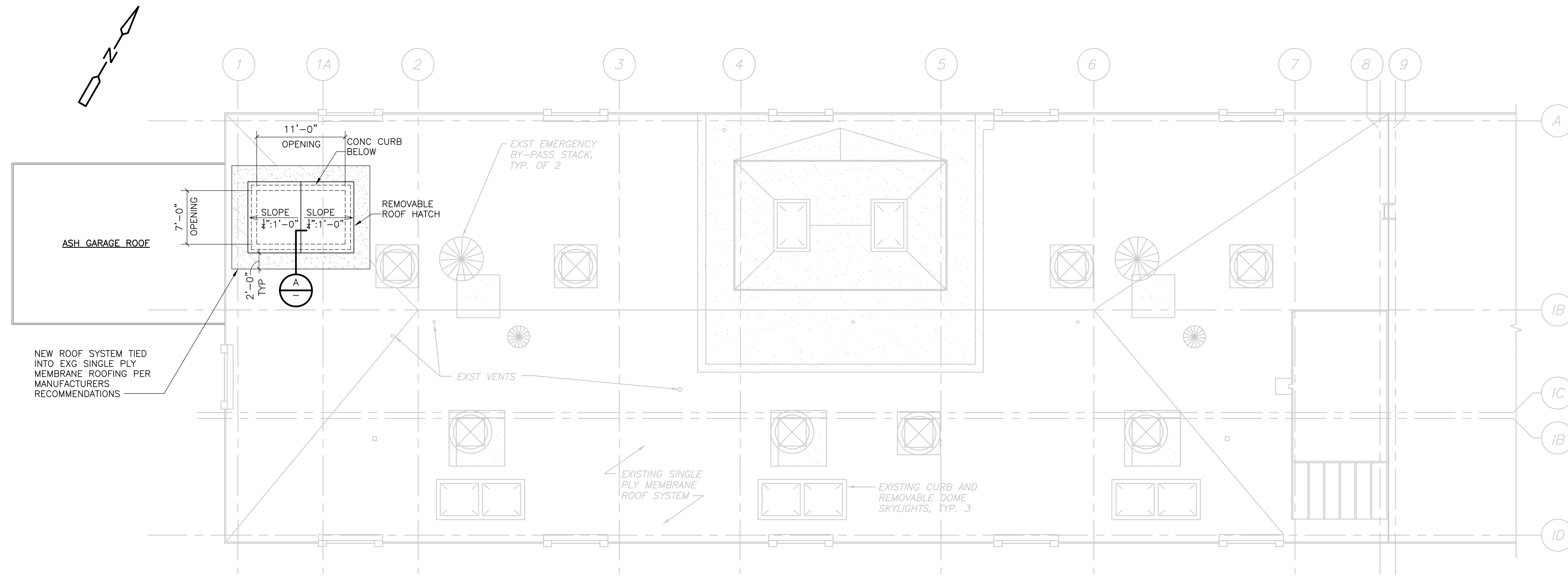
CDM
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

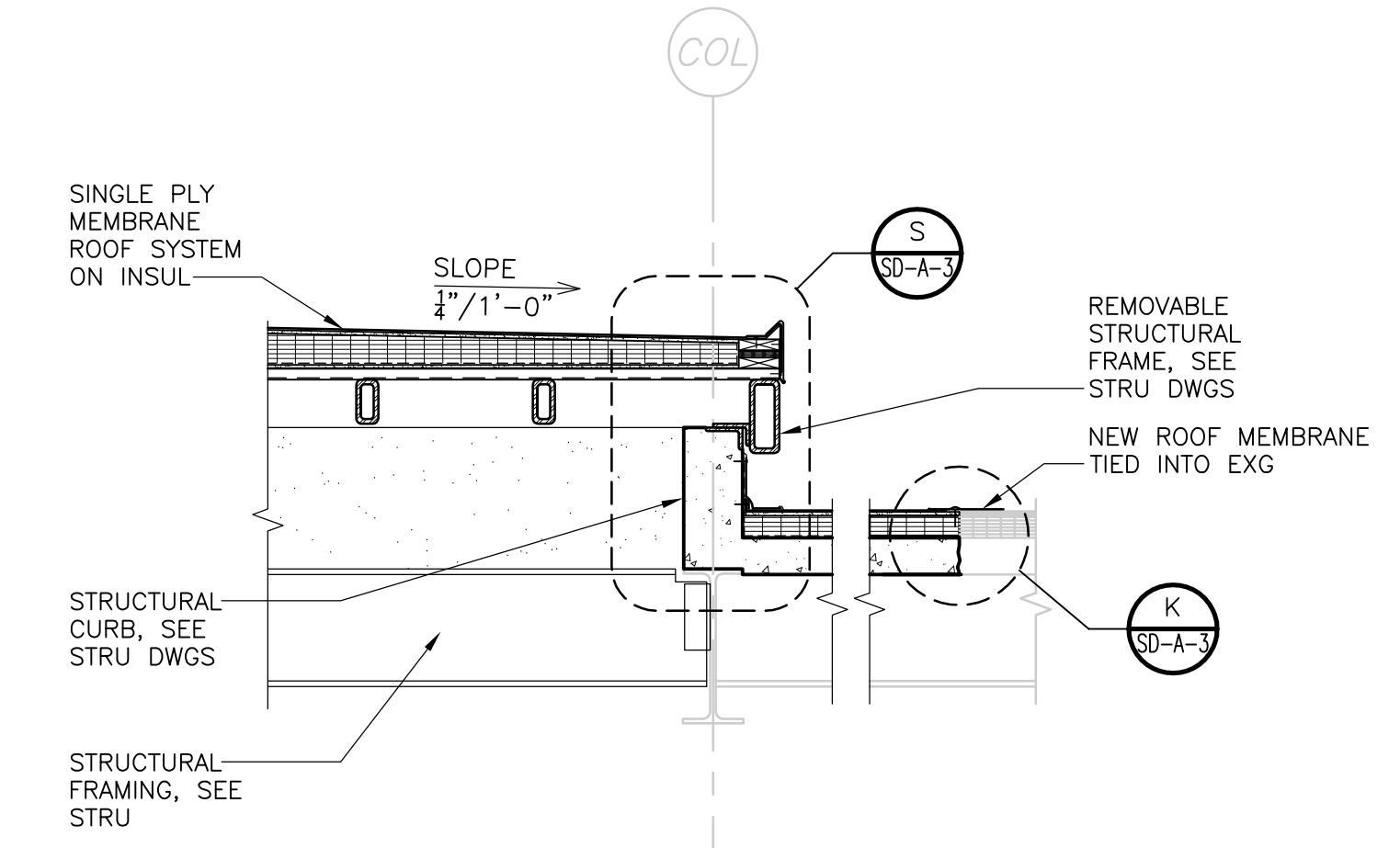
**INCINERATOR BUILDING
 ASH GARAGE
 IMPROVEMENTS**

PROJECT NO. 1289-74283
 Sht. 40 of 312
IB-A-2
 Acc # 1289-74446

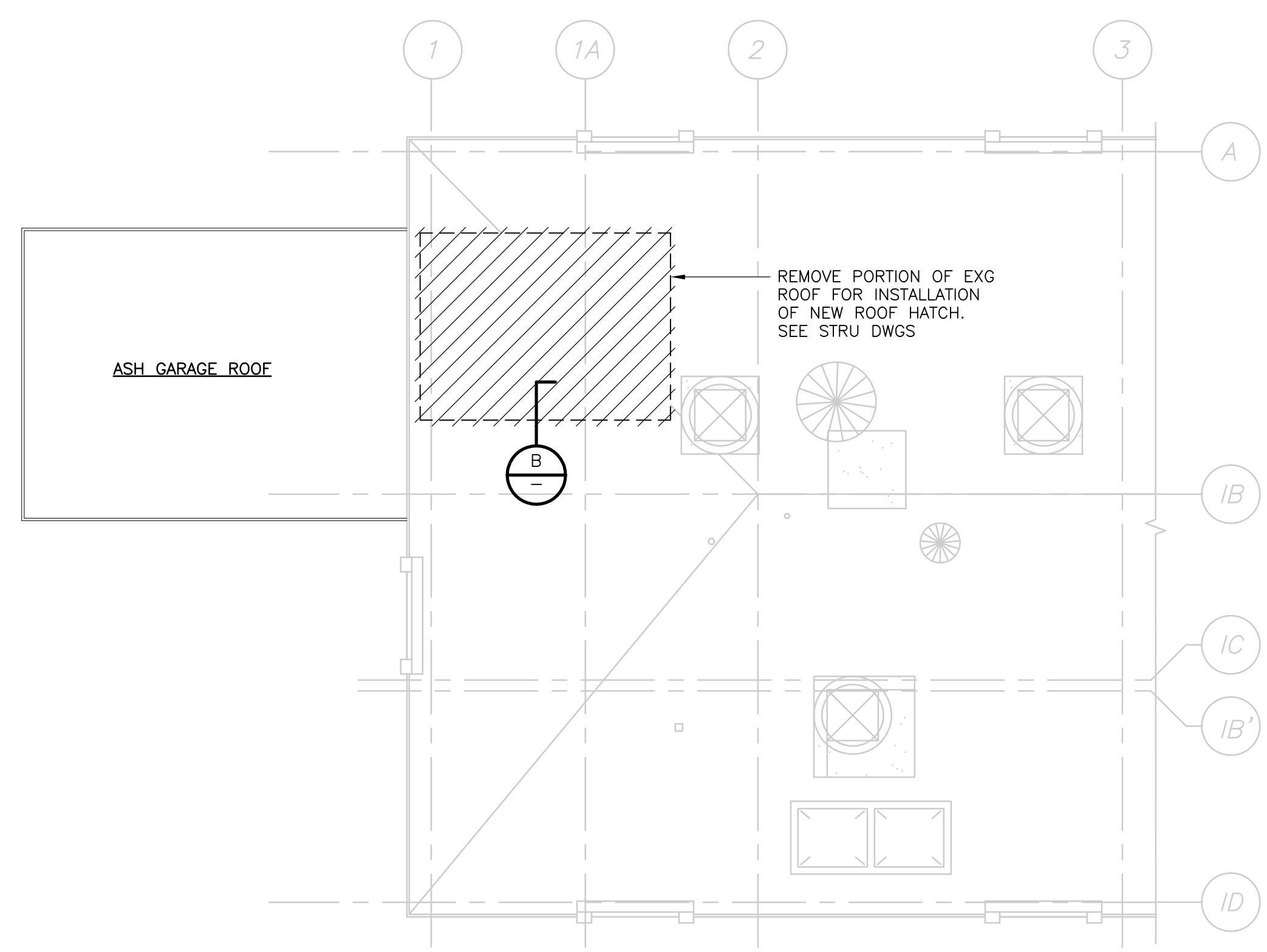
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\IDRISAS\D0119527\AIBPL200.DWG Saved by: HAYNESKL On: 6-Jul-10 Plotted on: 22-Nov-10 12:43 PM



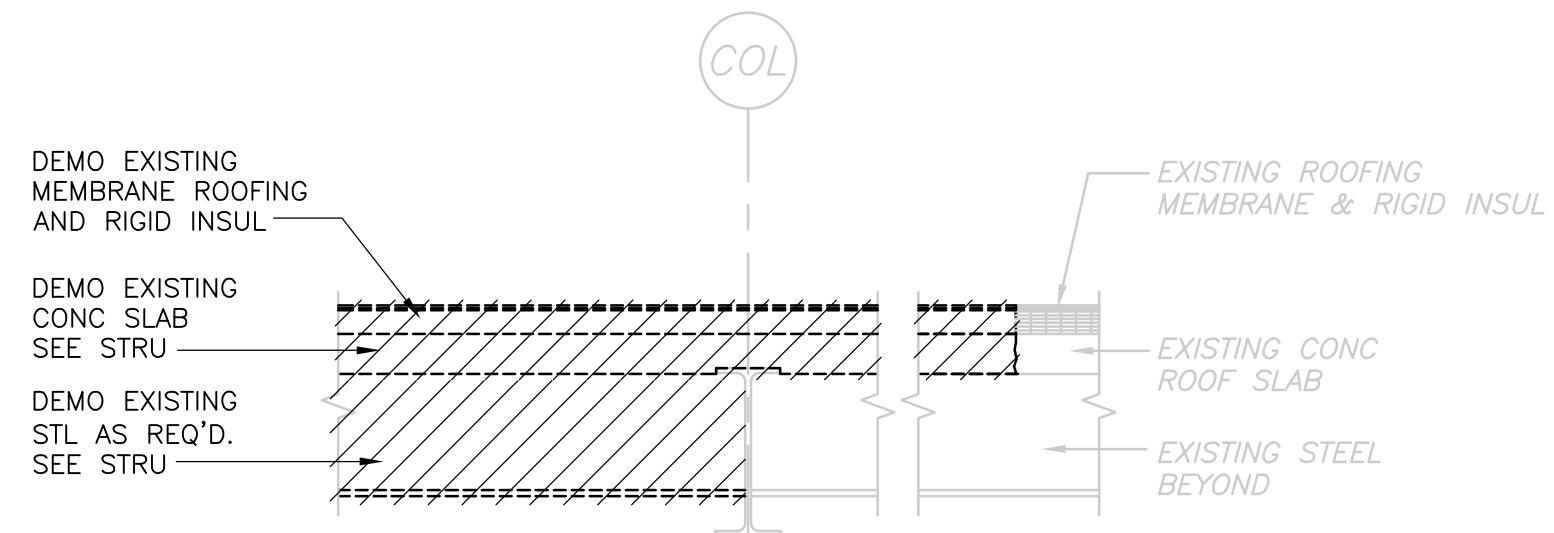
ROOF PLAN
PLAN
 1/8" = 1'-0"



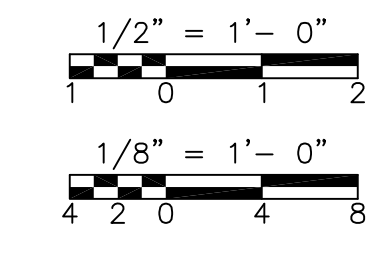
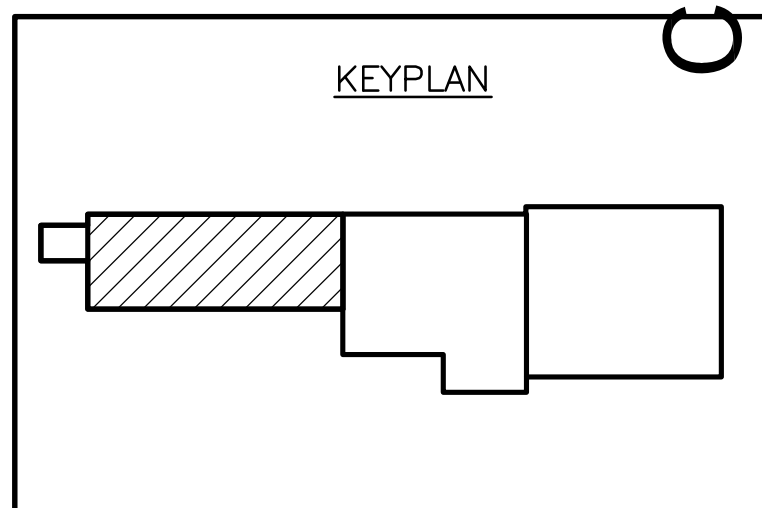
REMOVABLE ROOF HATCH
DETAIL
 1/2" = 1'-0"



DEMOLITION - ROOF PLAN
PLAN
 1/8" = 1'-0"



DEMO SECTION
DETAIL
 1/2" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

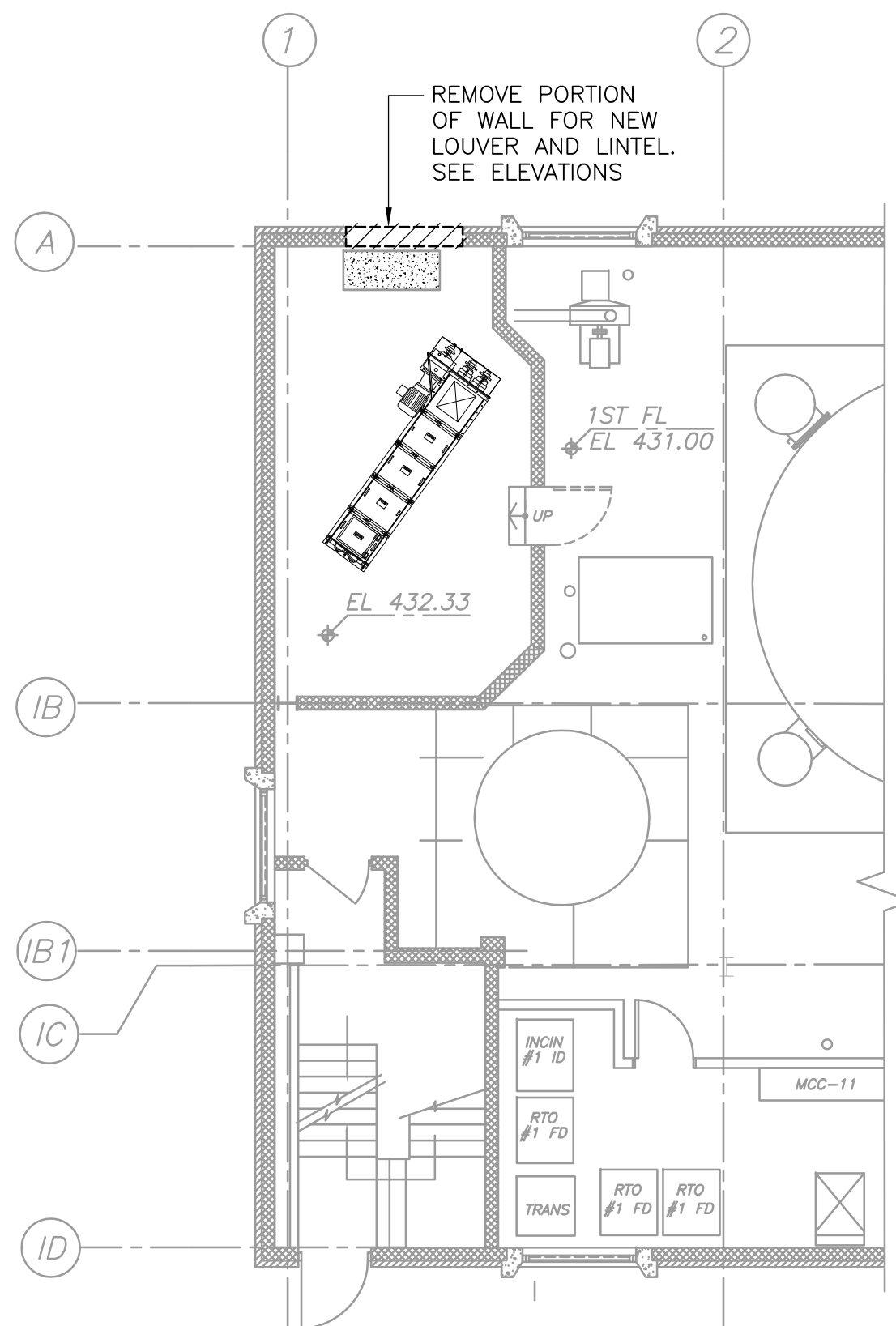
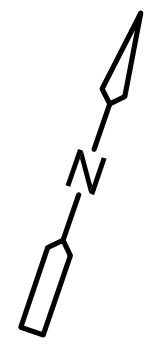
CADD FILE NO. AIBPL200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

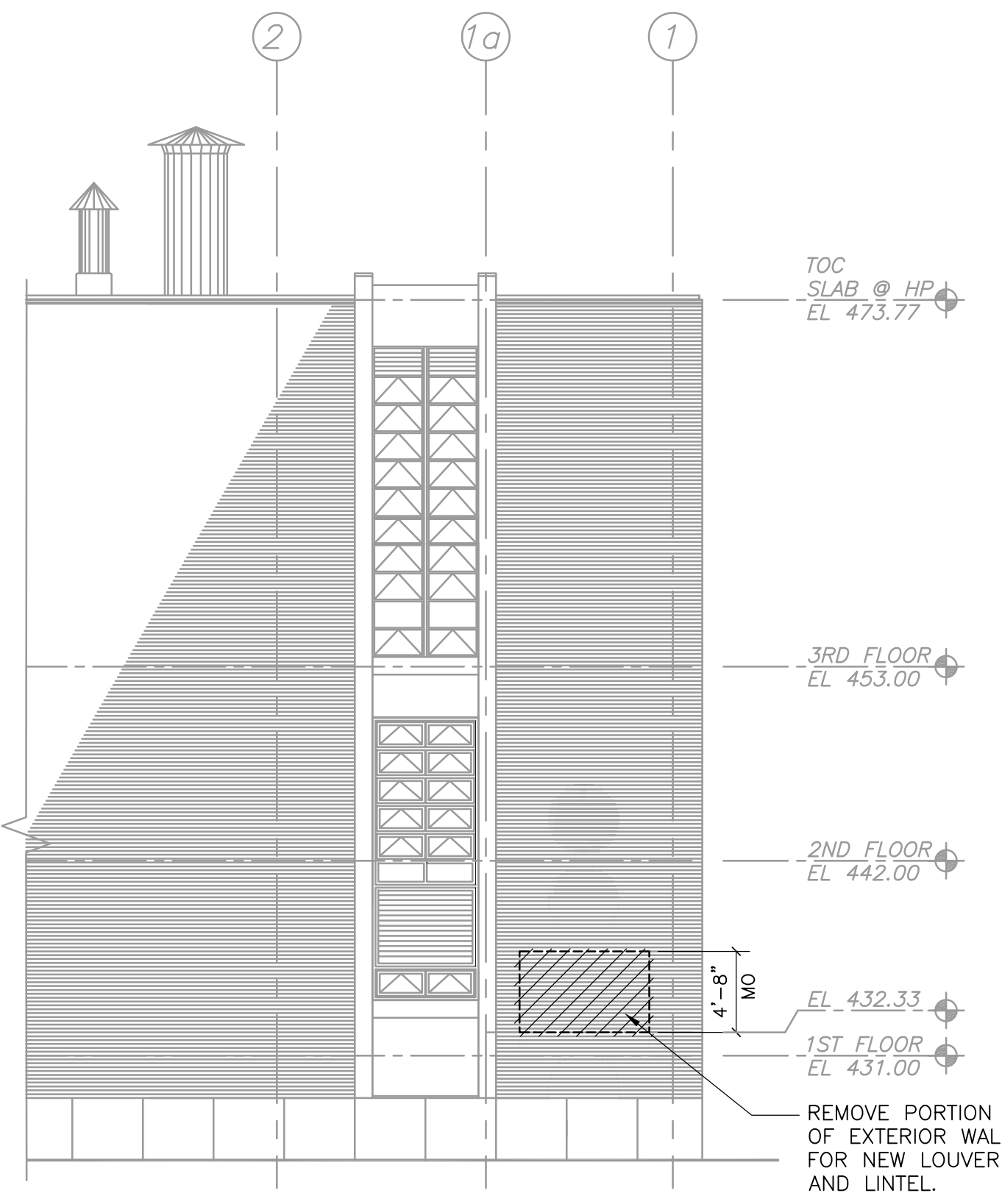
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
ROOF PLAN
DEMOLITION AND IMPROVEMENTS

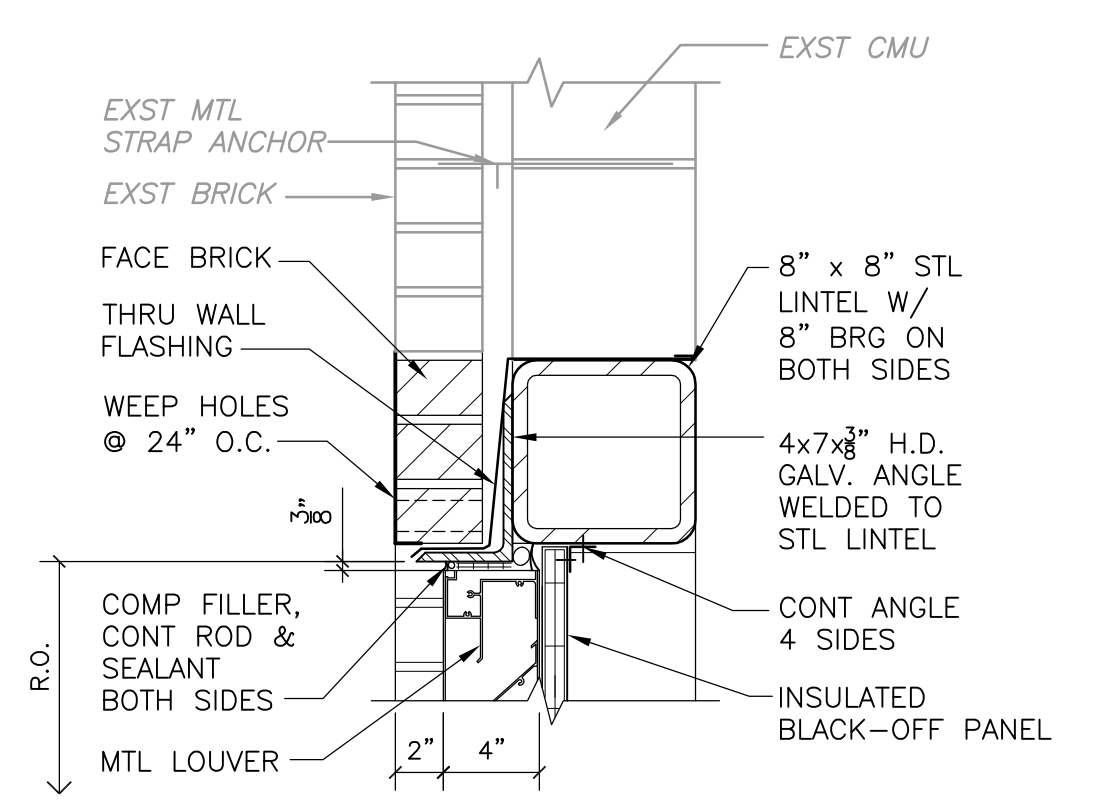
PROJECT NO. 1289-74283
 Sht. 41 of 312
IB-A-3
 Acc # 1289-74447



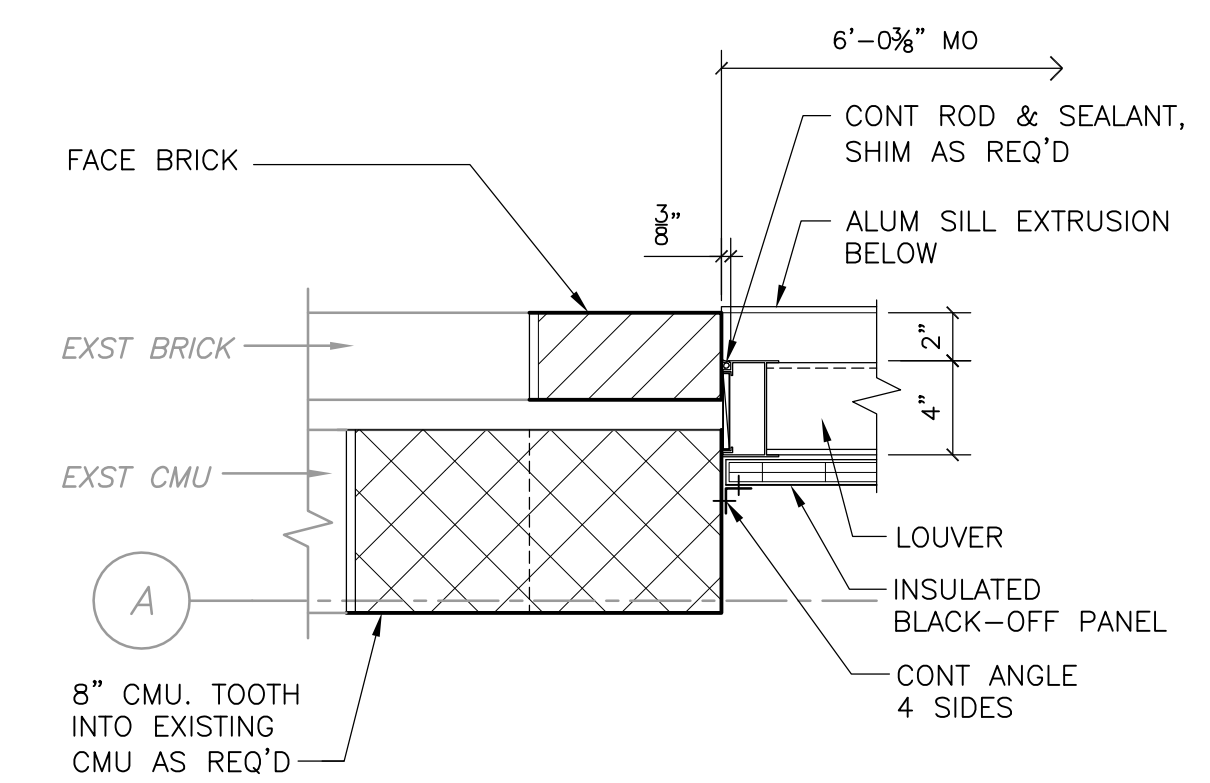
PARTIAL FIRST FLOOR PLAN - DEMOLITION
PLAN
1/8" = 1'-0"



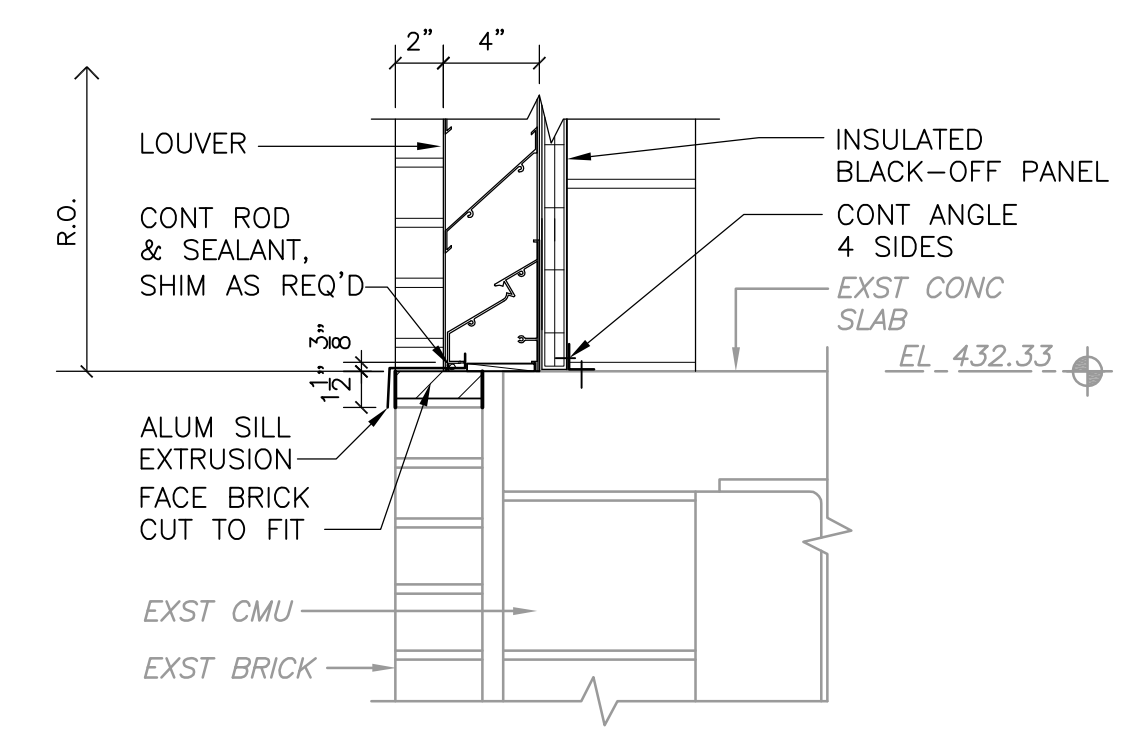
PARTIAL NORTH ELEVATION - DEMOLITION
ELEVATION
1/8" = 1'-0"



LOUVER HEAD
DETAIL A
1-1/2" = 1'-0"



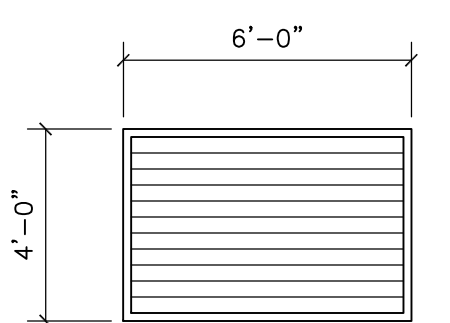
LOUVER JAMB
DETAIL B
1-1/2" = 1'-0"



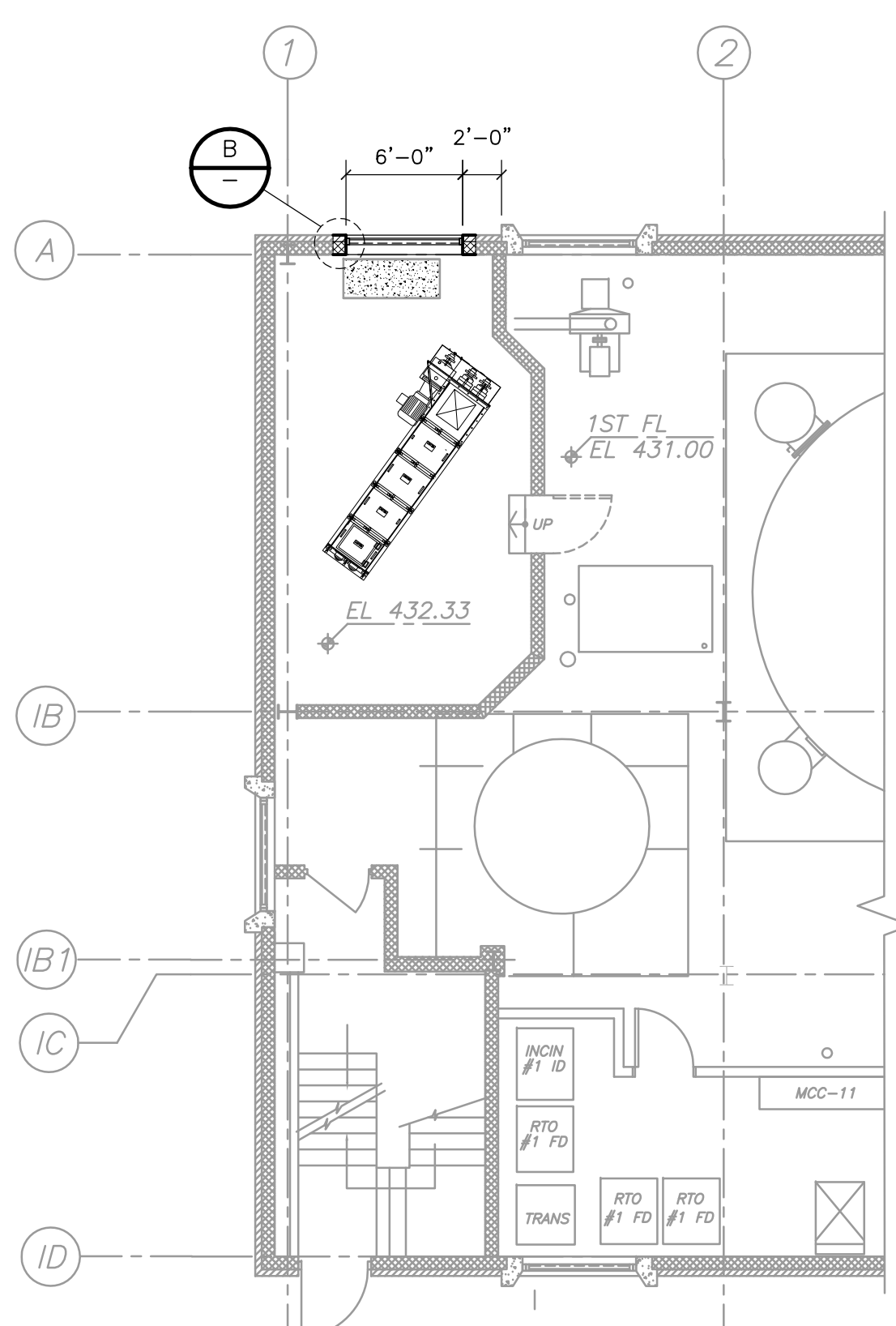
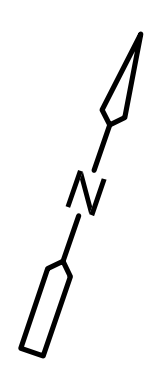
LOUVER SILL
DETAIL C
1-1/2" = 1'-0"

LOUVER SCHEDULE		FIELD VERIFY ALL ROUGH OPENINGS										
LOUVER NUMBER	LOUVER RO	WIDTH	HEIGHT	TYPE	MAT'L	FIN	DETAILS				NOTE NO	NOTES
							HEAD	JAMB	JAMB	SILL		
L-100		6'-0"	4'-0"	L1	ALUM	FF	A	B	B	C	1	1. INSULATED BLANK-OFF PANEL.

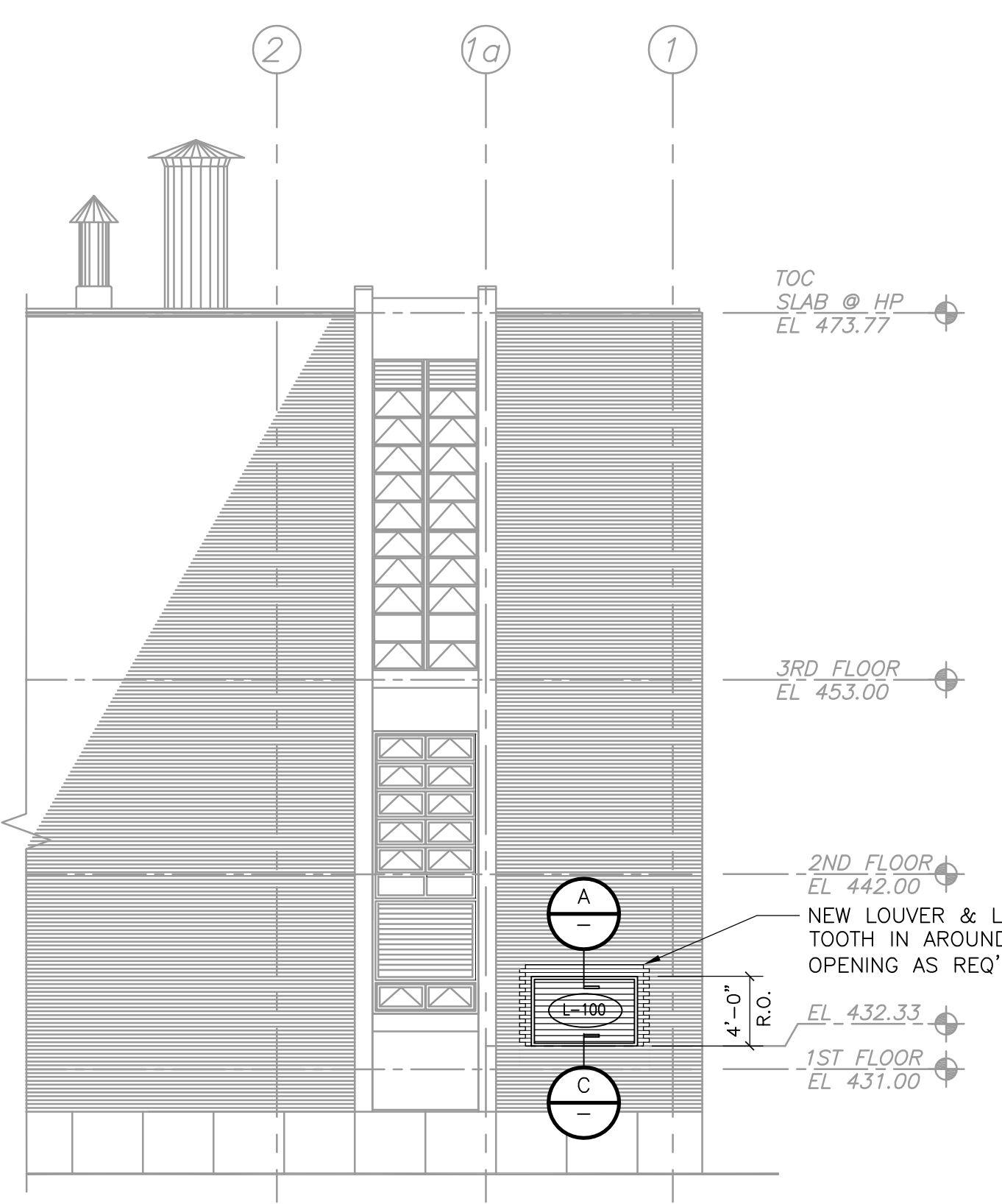
LOUVER TYPE



(L1) ALUM LOUVER



PARTIAL FIRST FLOOR PLAN - NEW WORK
PLAN
1/8" = 1'-0"



PARTIAL NORTH ELEVATION - NEW WORK
ELEVATION
1/8" = 1'-0"

CADD FILE NO. AIBPL300
 DESIGNED BY: M. PELLETIER
 DRAWN BY: K. HAYNES
 SHEET CHK'D BY: M. PELLETIER
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: F. SAPIENZA
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
 FIRST FLOOR PLAN AND PARTIAL ELEVATION
 DEMOLITION AND IMPROVEMENTS

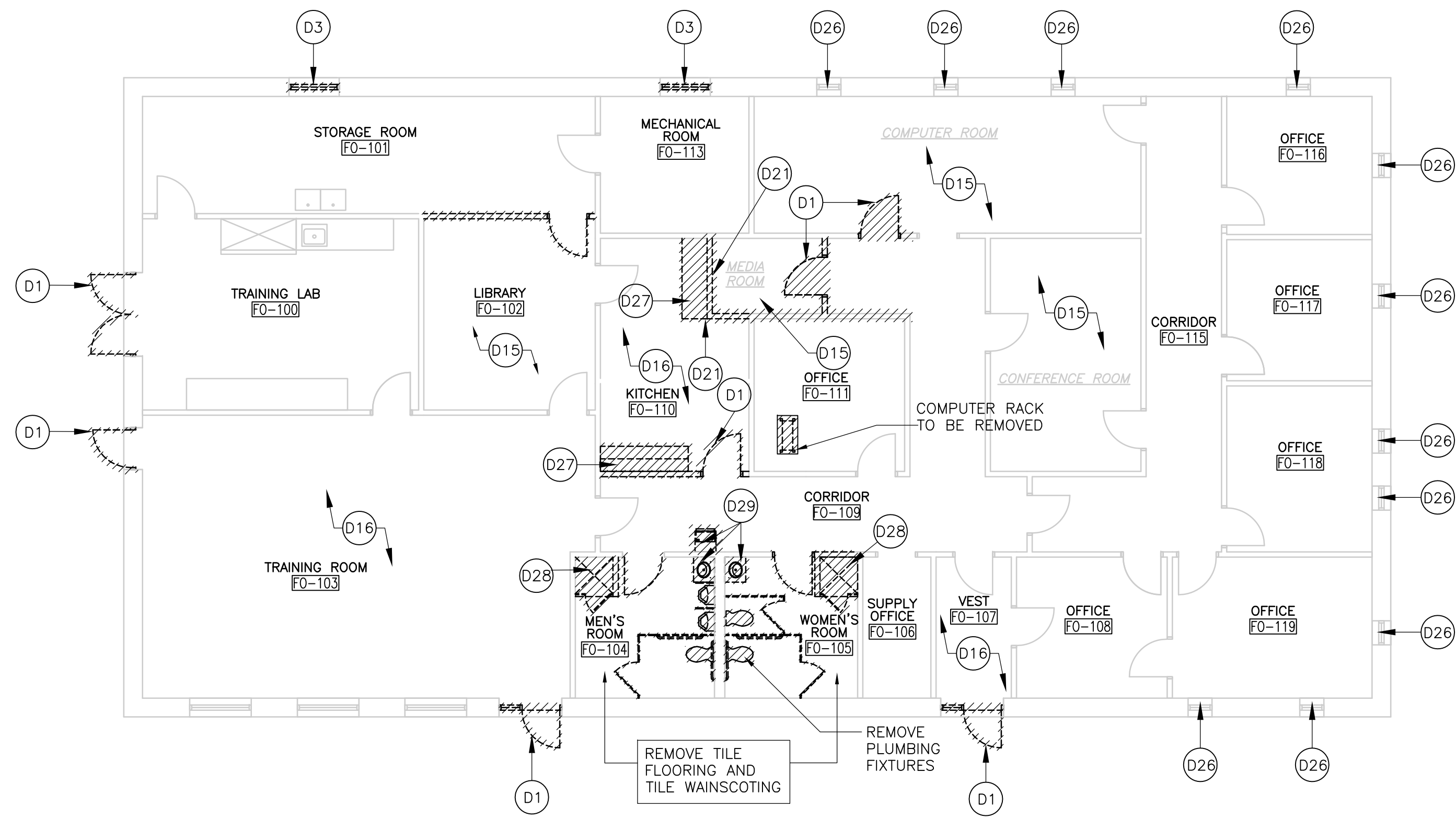
PROJECT NO.
1289-74283
 Sht. 41A of 312
 IB-A-4
 Acc # 1289-74536

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\XDRISAS\0119527\AIBPL300.DWG Saved by: PELLETIER On: 1-Oct-10 Plotted on: 22-Nov-10 12:44 PM

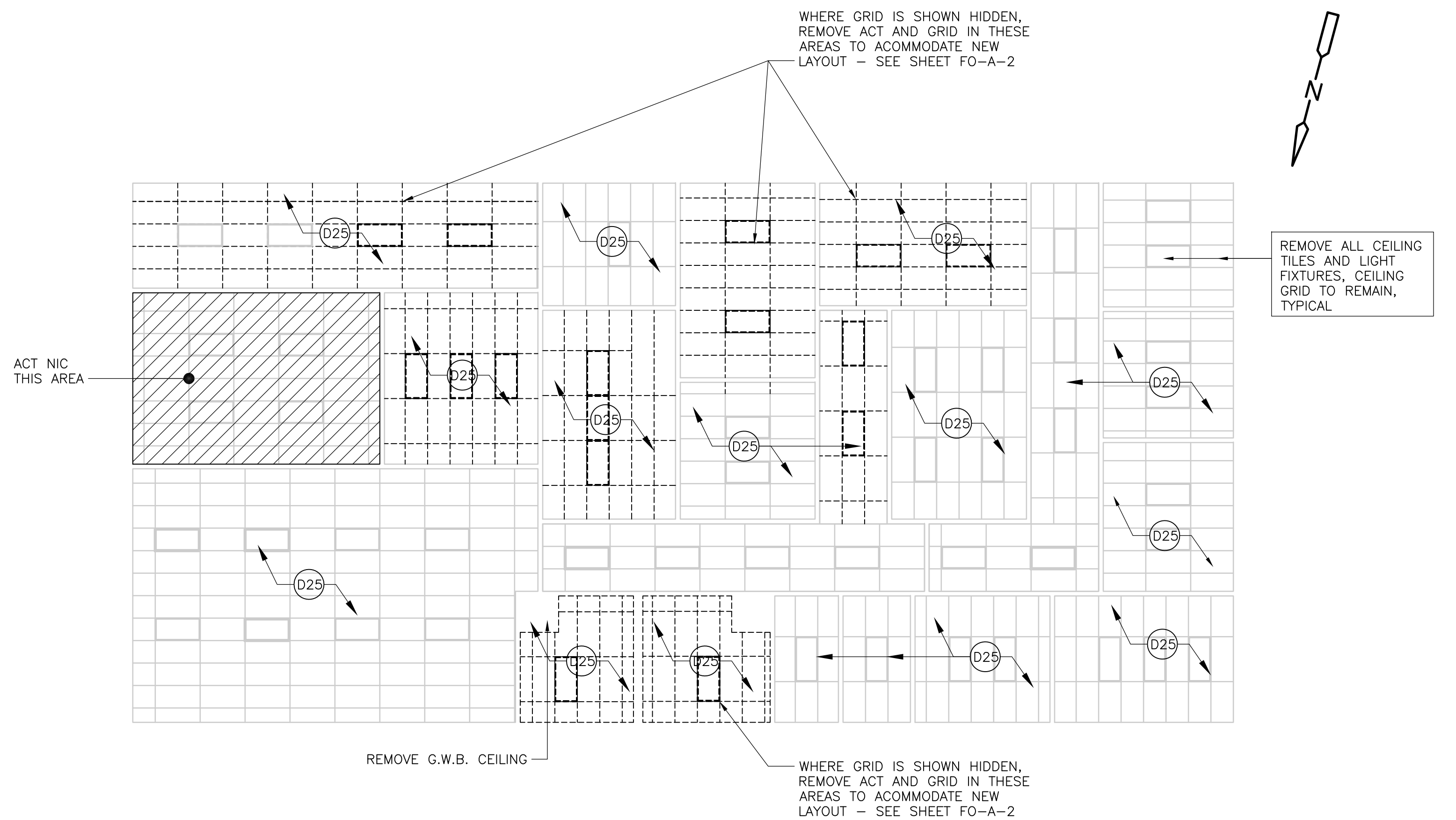
CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	KH	MP	REVISED PER ADDENDA NOS. 1 THRU 3

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\DRISAS\0119527\ATFPD100.DWG Saved by: PELLETIERM On: 22-Nov-10 2:06 PM



EXISTING FIRST FLOOR PLAN
1/8" = 1'-0"



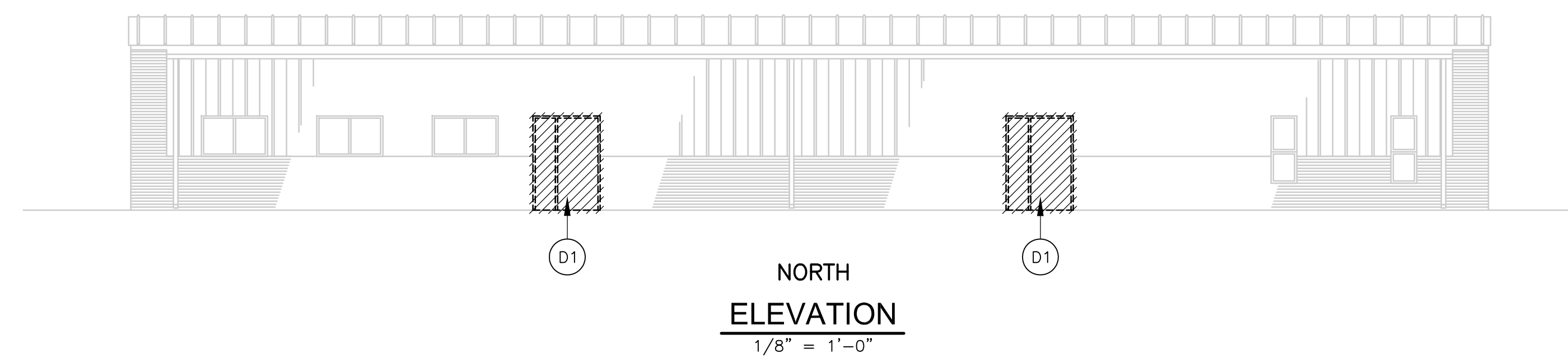
EXISTING REFLECTED CEILING PLAN
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

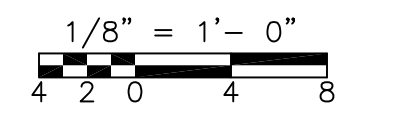
- ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
- EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
- N/A
- LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
- ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
- ALL EXISTING EQUIPMENT, BENCHES, SHELVING, PEGBOARDS AND FURNITURE TO BE REMOVED AND RELOCATED BY THE CONTRACTOR FROM THE TRAINING BUILDING TO THE DESIGNATED AREAS OF THE PLANT AND SUBSEQUENTLY REINSTALLED BY THE CONTRACTOR AS INDICATED IN THE TRAINING BUILDING.

DEMOLITION KEY NOTES:

- D1 REMOVE EXISTING DOOR AND FRAME
- D3 REMOVE EXISTING WINDOW SYSTEM. WINDOW SILLS (STOOLS) TO REMAIN
- D15 REMOVE EXISTING CARPET FLOORING, PADDING AND RUBBER BASE
- D16 REMOVE EXISTING VCT FLOORING
- D21 REMOVE INTERIOR PARTITION
- D25 REMOVE EXISTING ACOUSTIC CEILING TILE. GRID TO REMAIN
- D26 REMOVE LOUVER DRAPE. CLEAN & SALVAGE FOR RE-INSTALLATION - SEE IMPROVEMENT WORK
- D27 REMOVE SINK TOP AND CABINETS
- D28 REMOVE SHOWER PAN, DOOR AND FRAME
- D29 REMOVE SINK AND BASE AND DRINKING FOUNTAIN



NORTH ELEVATION
1/8" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AFOPD100
DESIGNED BY:	M. PELLETIER
DRAWN BY:	M. PELLETIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

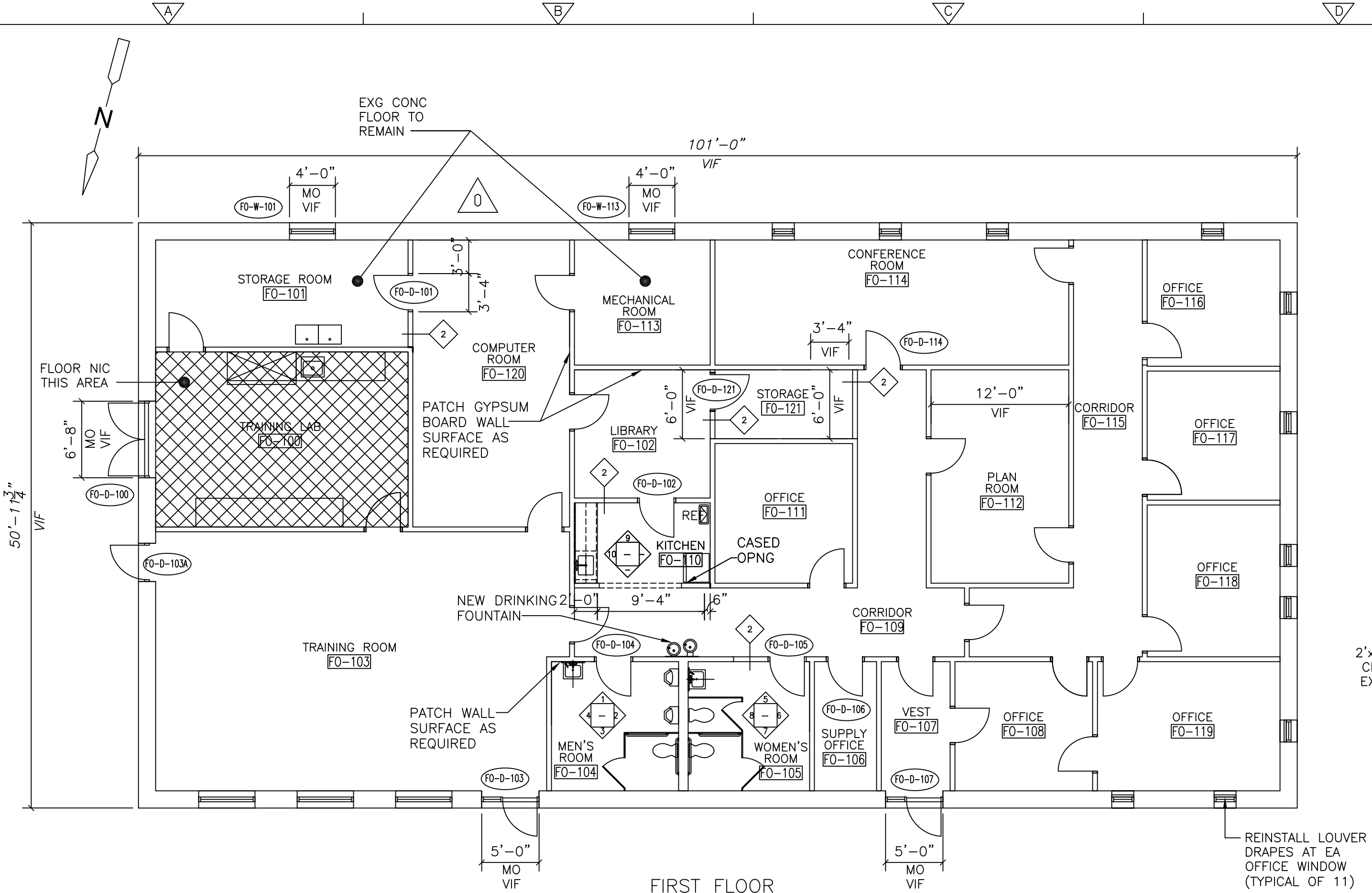
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

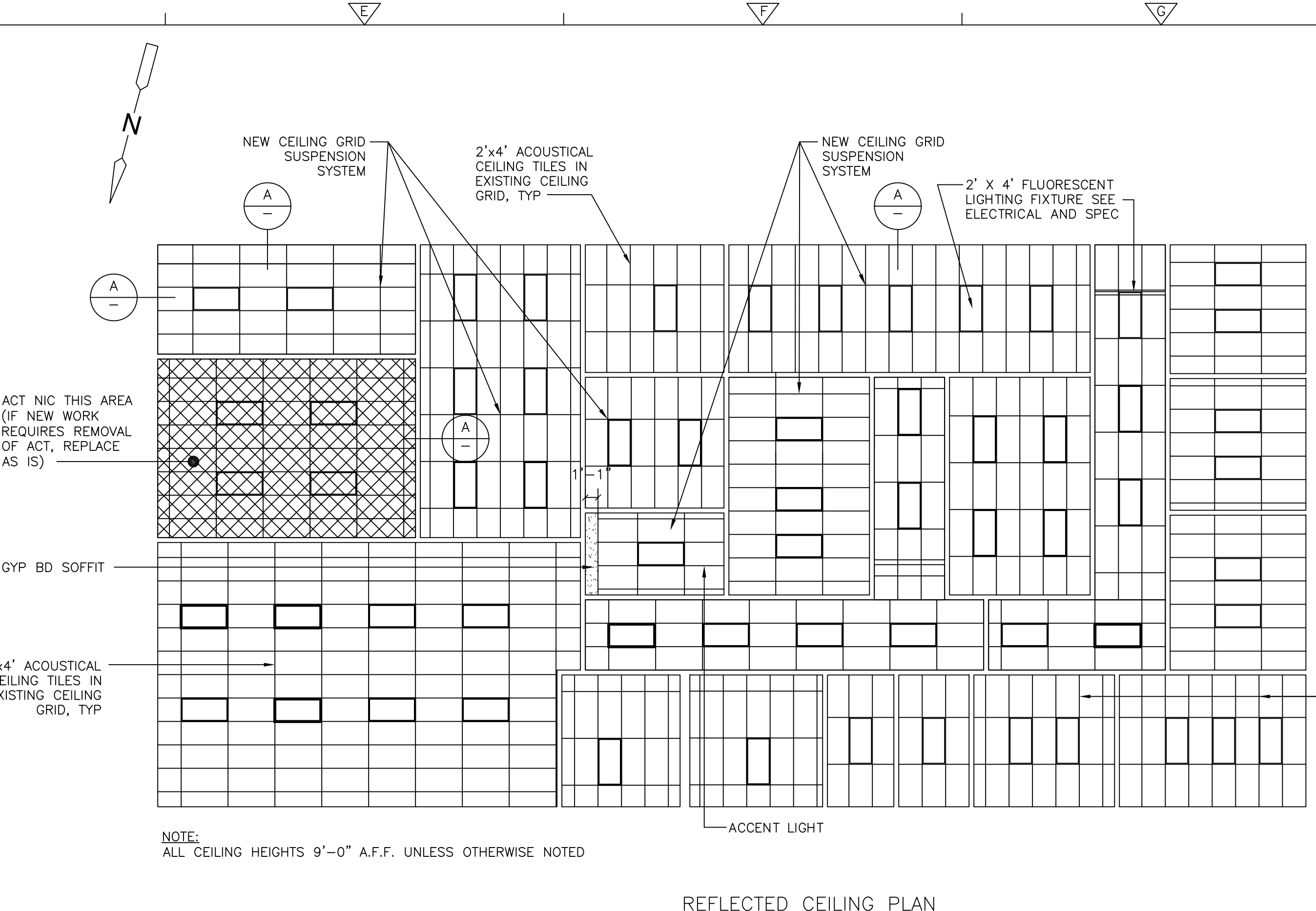
TRAINING FACILITY FLOOR PLAN AND REFLECTED CEILING PLAN DEMOLITION

PROJECT NO. 1289-74283
Sht. 42 of 312
FO-A-1
Acc # 1289-74448

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\ATFPL100.DWG Saved by: PLOWRY On: 12-Dec-12 5:27 PM

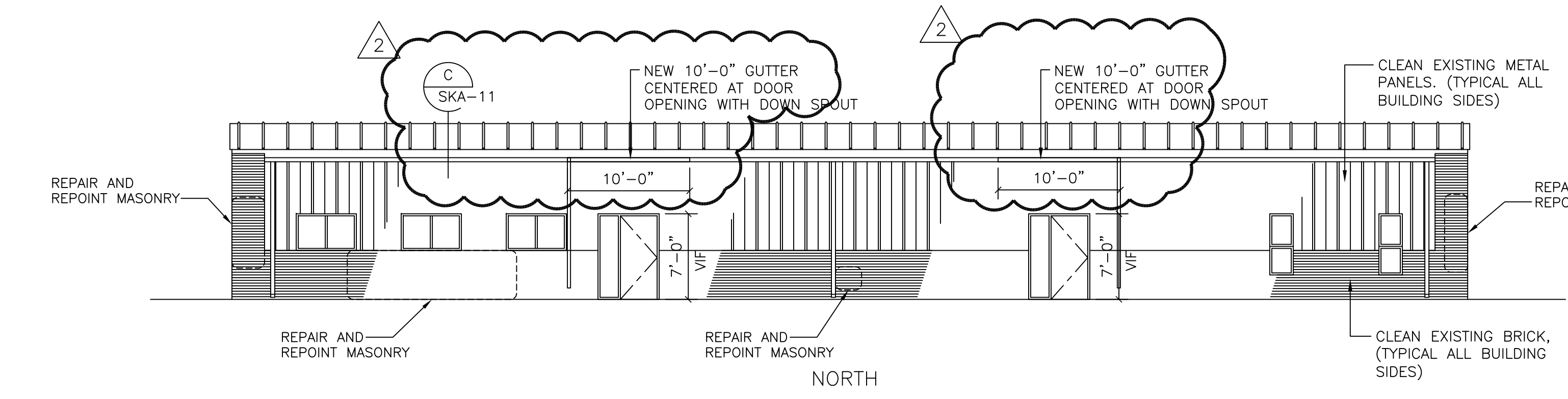


FIRST FLOOR PLAN
1/8" = 1'-0"



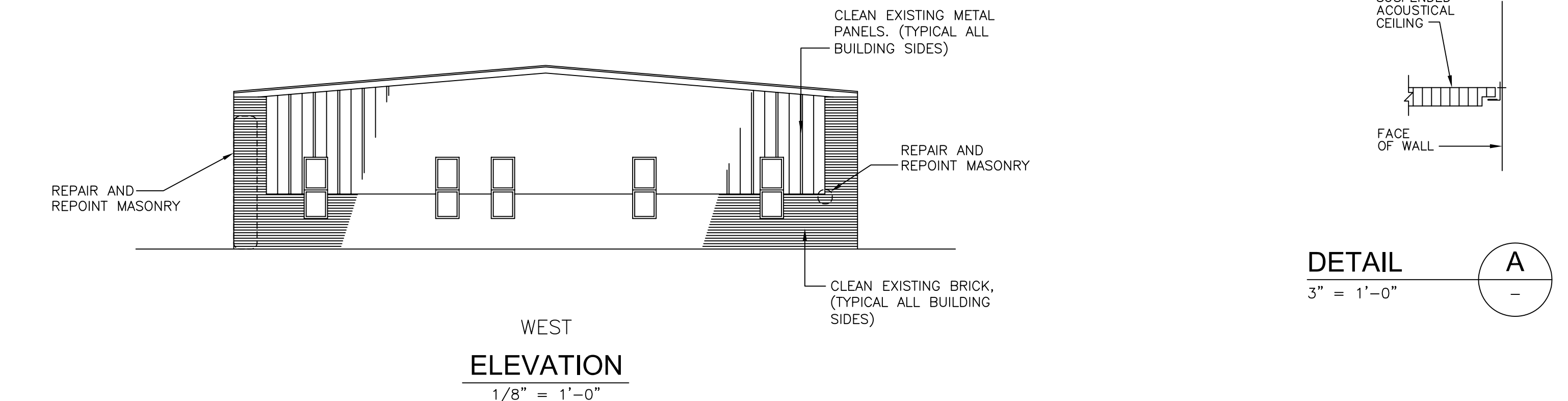
REFLECTED CEILING PLAN
1/8" = 1'-0"

- CEILING LEGEND**
- HVAC SUPPLY DIFFUSER
 - HVAC RETURN GRILLE
 - 2x2 FLUORESCENT LIGHT FIXTURE
 - RECESSED CIRCULAR FLUORESCENT LIGHT FIXTURE
 - 1x4 FLUORESCENT PENDANT MOUNTED LIGHT FIXTURE

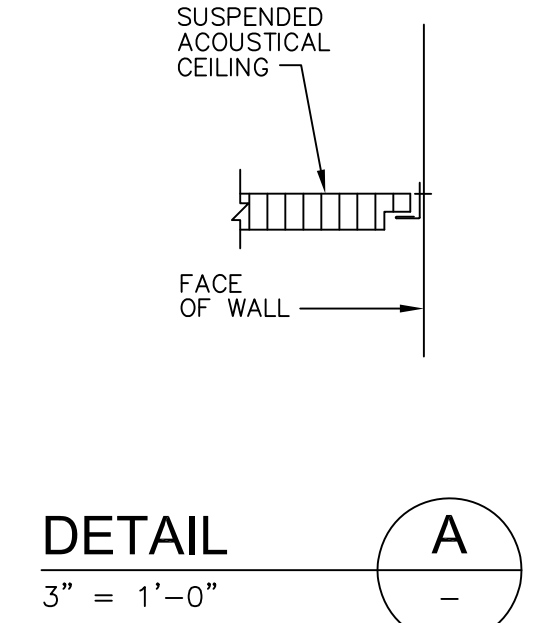


NORTH ELEVATION
1/8" = 1'-0"

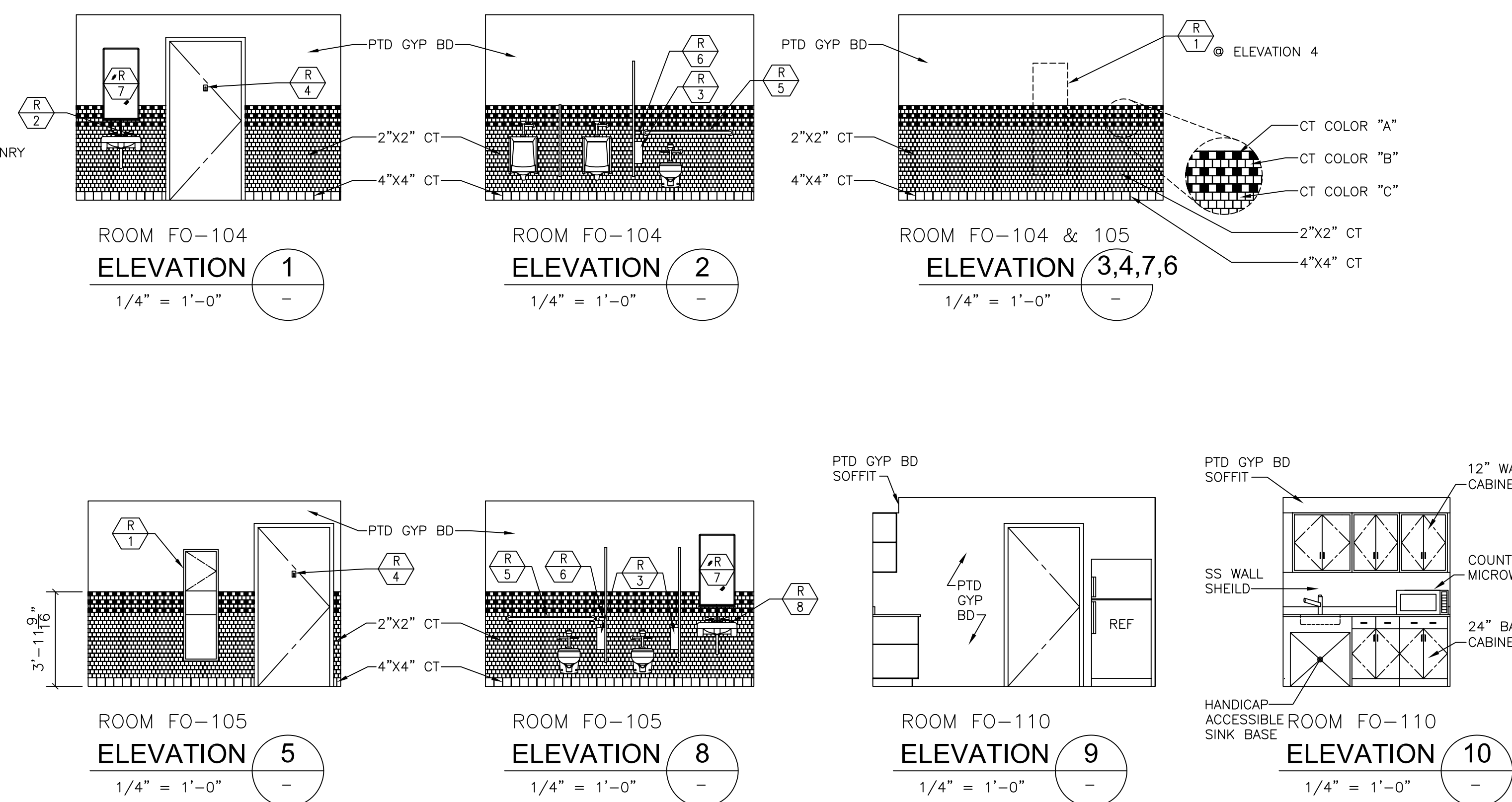
NOTE:
REPAIR AND REPOINT ALL MISSING MORTAR AND CRACKED BRICKS



WEST ELEVATION
1/8" = 1'-0"



DETAIL A
3" = 1'-0"



ROOM FO-104 ELEVATION 1
1/4" = 1'-0"

ROOM FO-104 ELEVATION 2
1/4" = 1'-0"

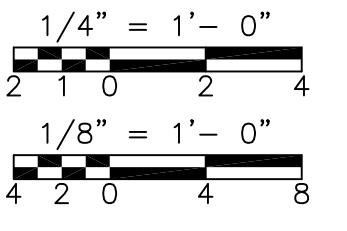
ROOM FO-104 & 105 ELEVATION 3,4,7,6
1/4" = 1'-0"

ROOM FO-105 ELEVATION 5
1/4" = 1'-0"

ROOM FO-105 ELEVATION 8
1/4" = 1'-0"

ROOM FO-110 ELEVATION 9
1/4" = 1'-0"

HANDICAP ACCESSIBLE ROOM FO-110 ELEVATION 10
1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	7/27/11	MP	MP	BUILDING CLOSURE
1	02/17/11	JB	MP	CHANGE ORDER NO.1 - KITCHEN CABINETS REVISIONS
0	09/10	KH	MP	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. ATFPL100
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

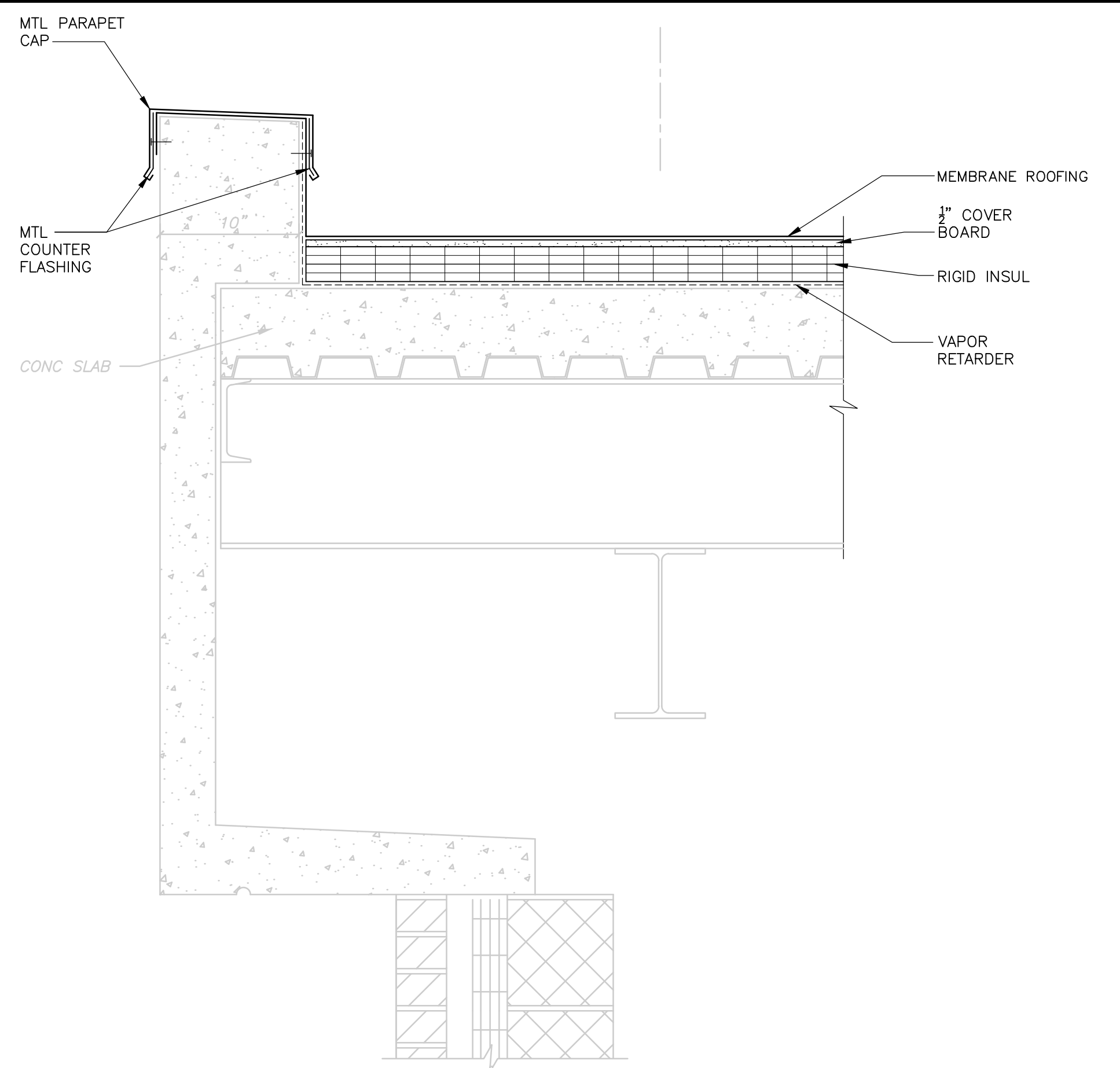
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

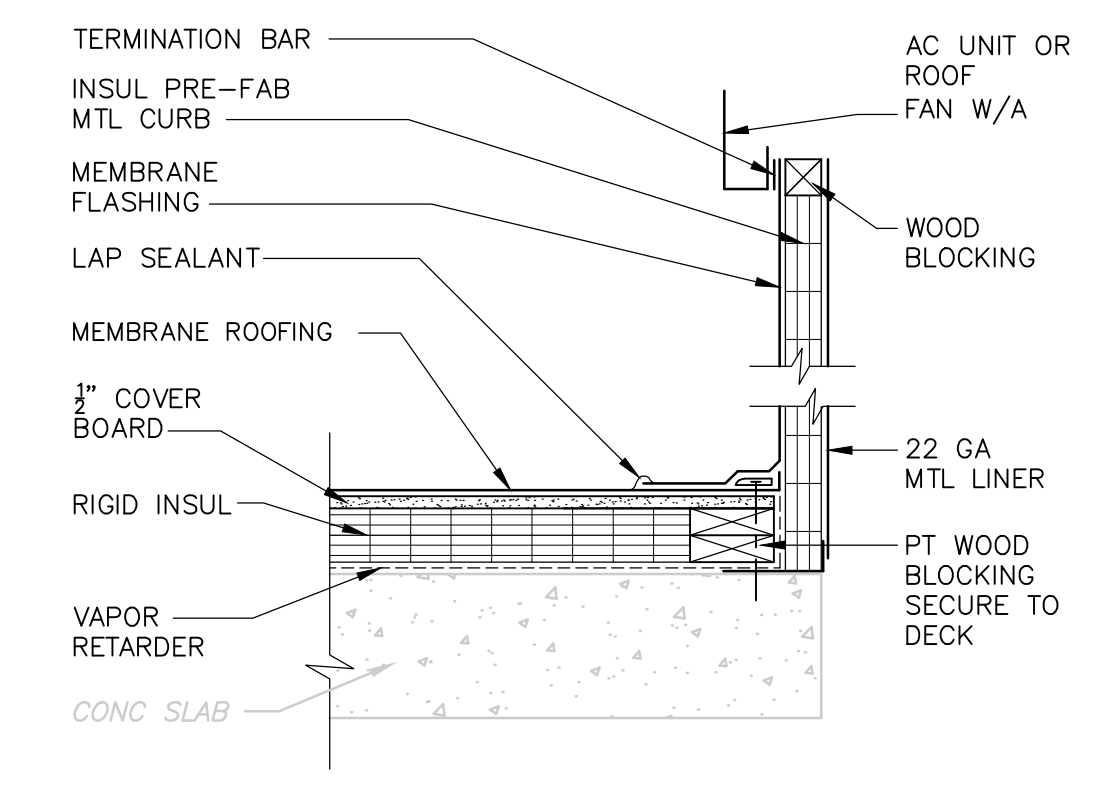
**TRAINING FACILITY
 FLOOR PLAN AND REFLECTED CEILING PLAN
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 43 of 312
FO-A-2
 Acc. # 1289-74449

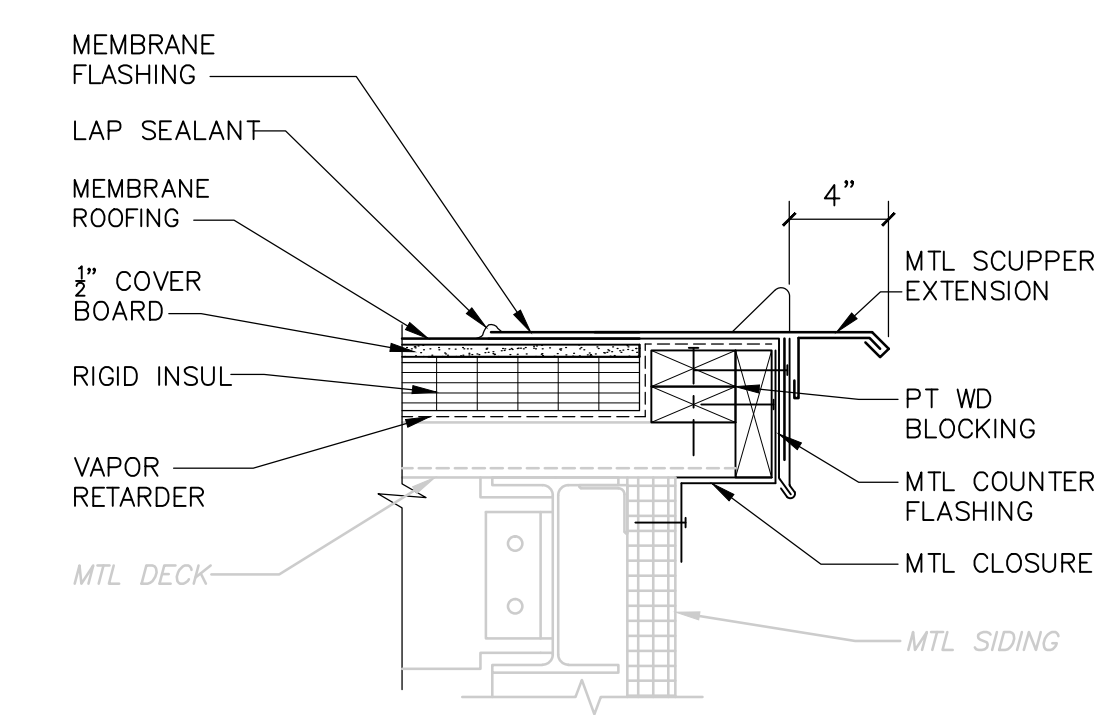
Plot Stamp = ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\CDM W-KNEELAND FILES\AAAMPL300.DWG Saved by: DKENNEDY On: 19-Jul-12 1:36 PM



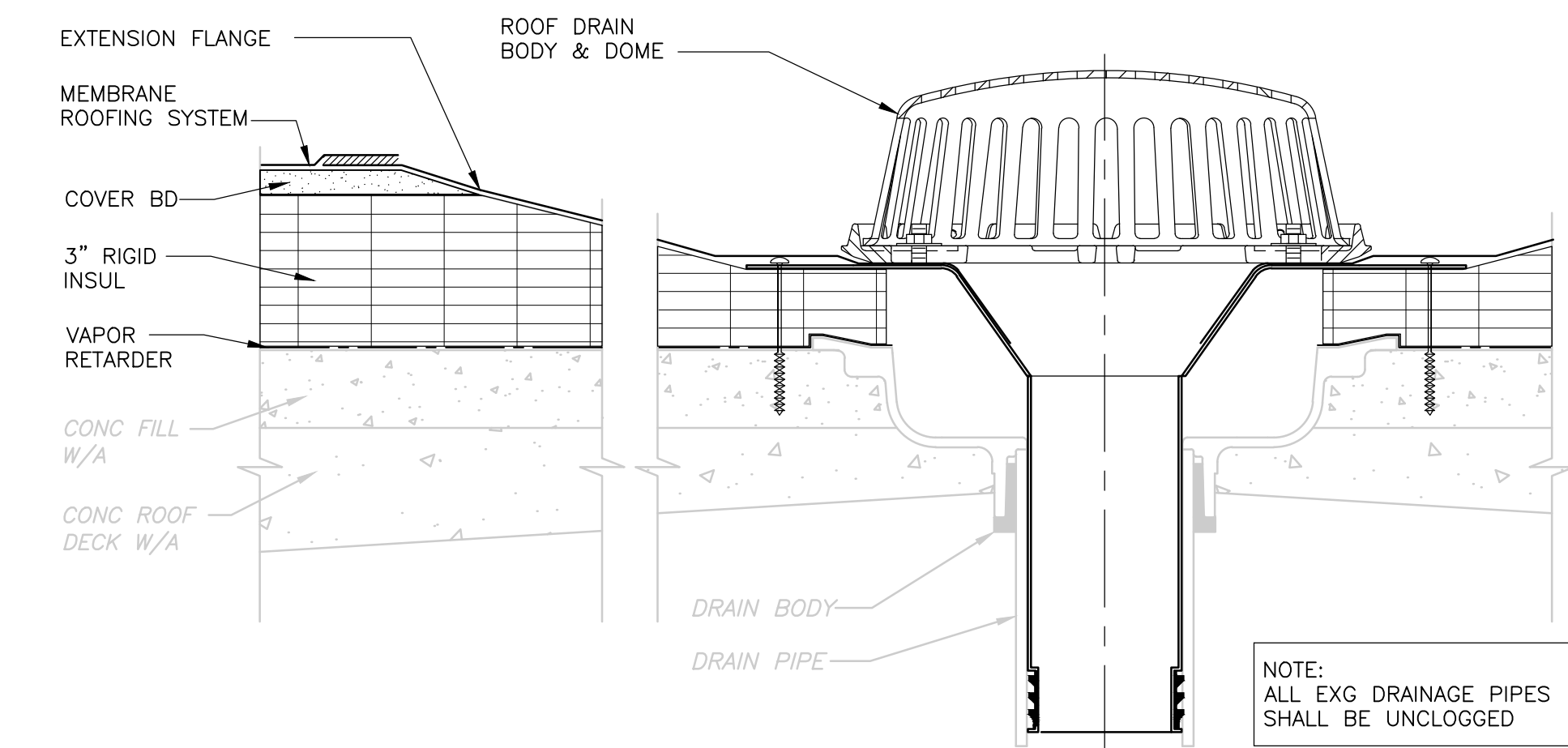
PARAPET
DETAIL A
1-1/2" = 1'-0"



FAN CURB
DETAIL B
1-1/2" = 1'-0"

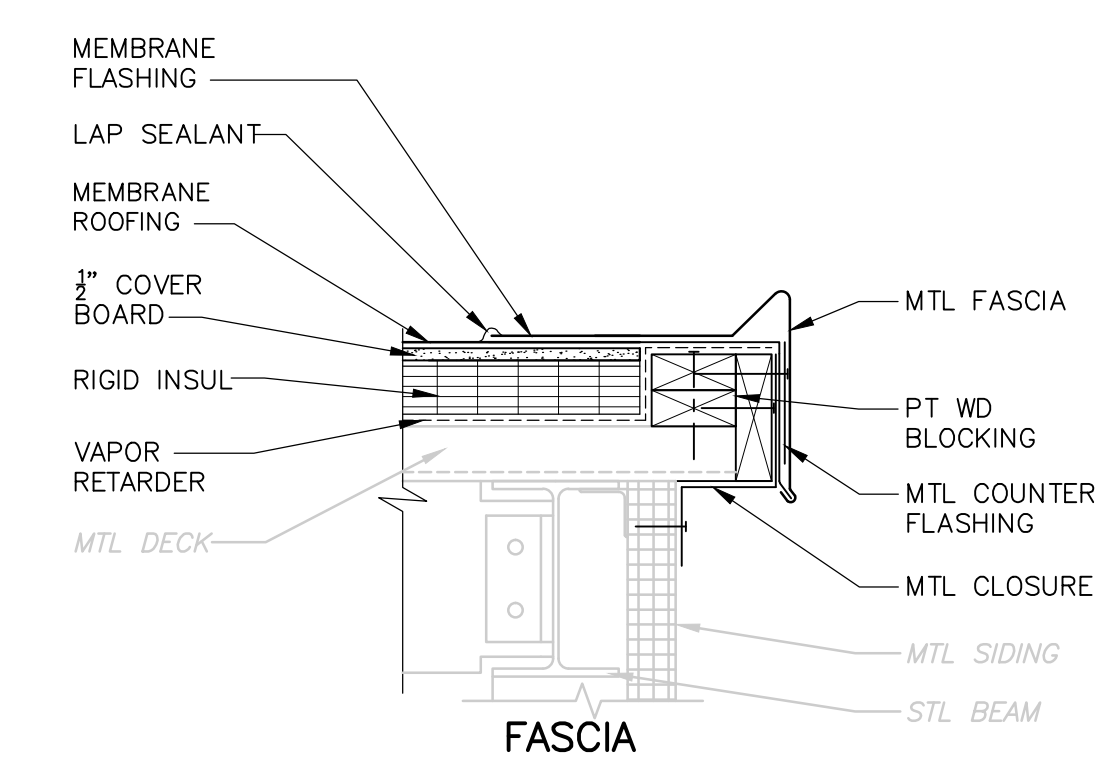


SCUPPER
DETAIL C
1-1/2" = 1'-0"

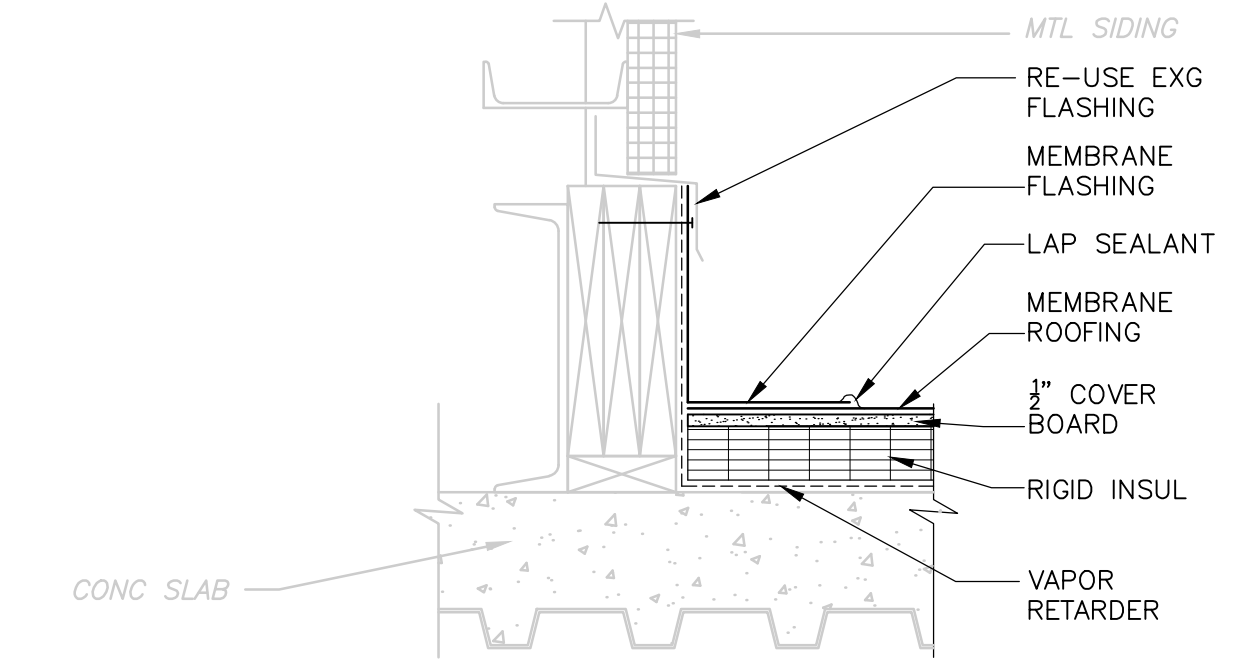


REPLACEMENT ROOF DRAIN
DETAIL D
3" = 1'-0"

NOTE: ALL EXG DRAINAGE PIPES SHALL BE UNCLOGGED

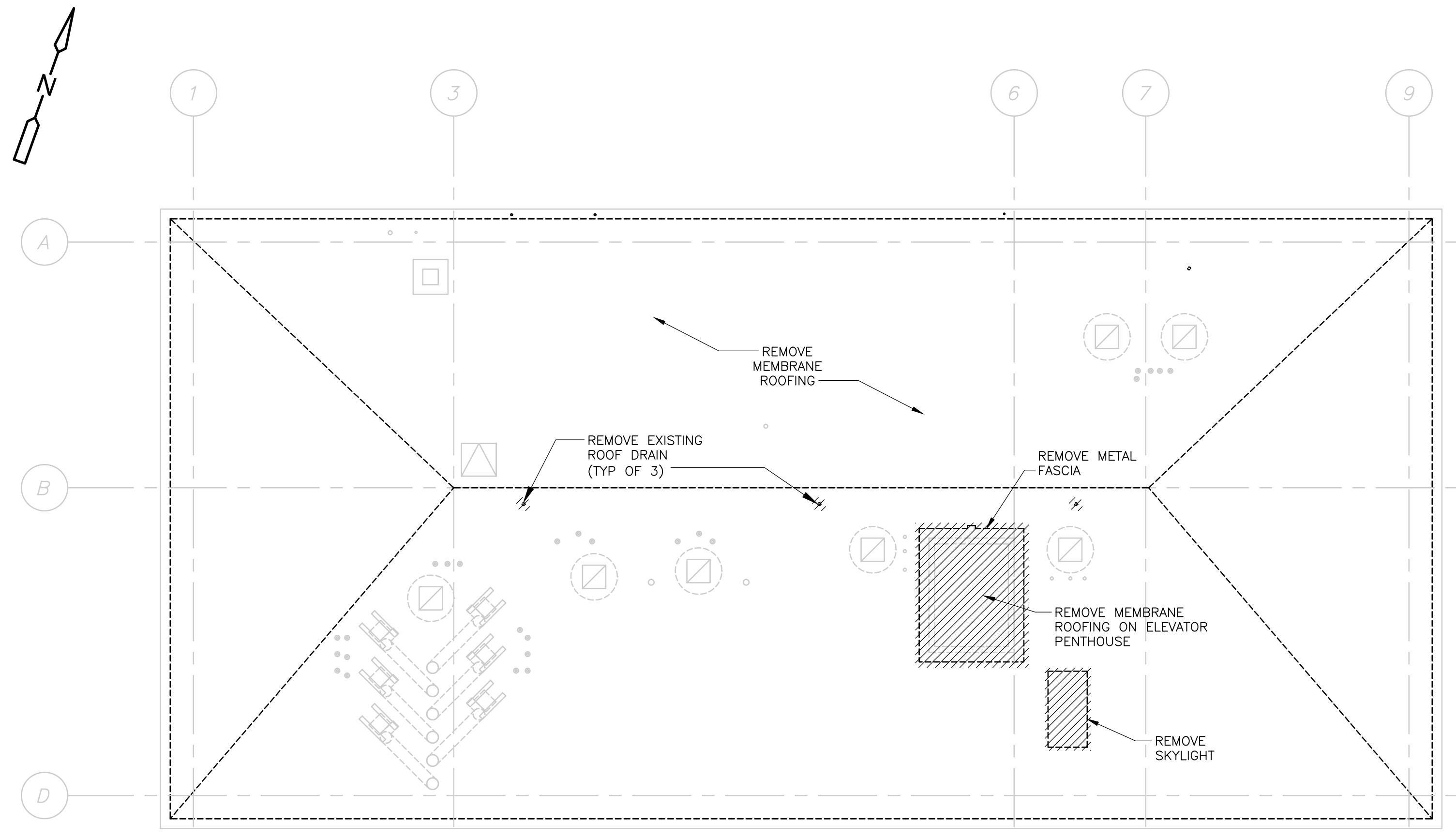


FASCIA
DETAIL E
1-1/2" = 1'-0"

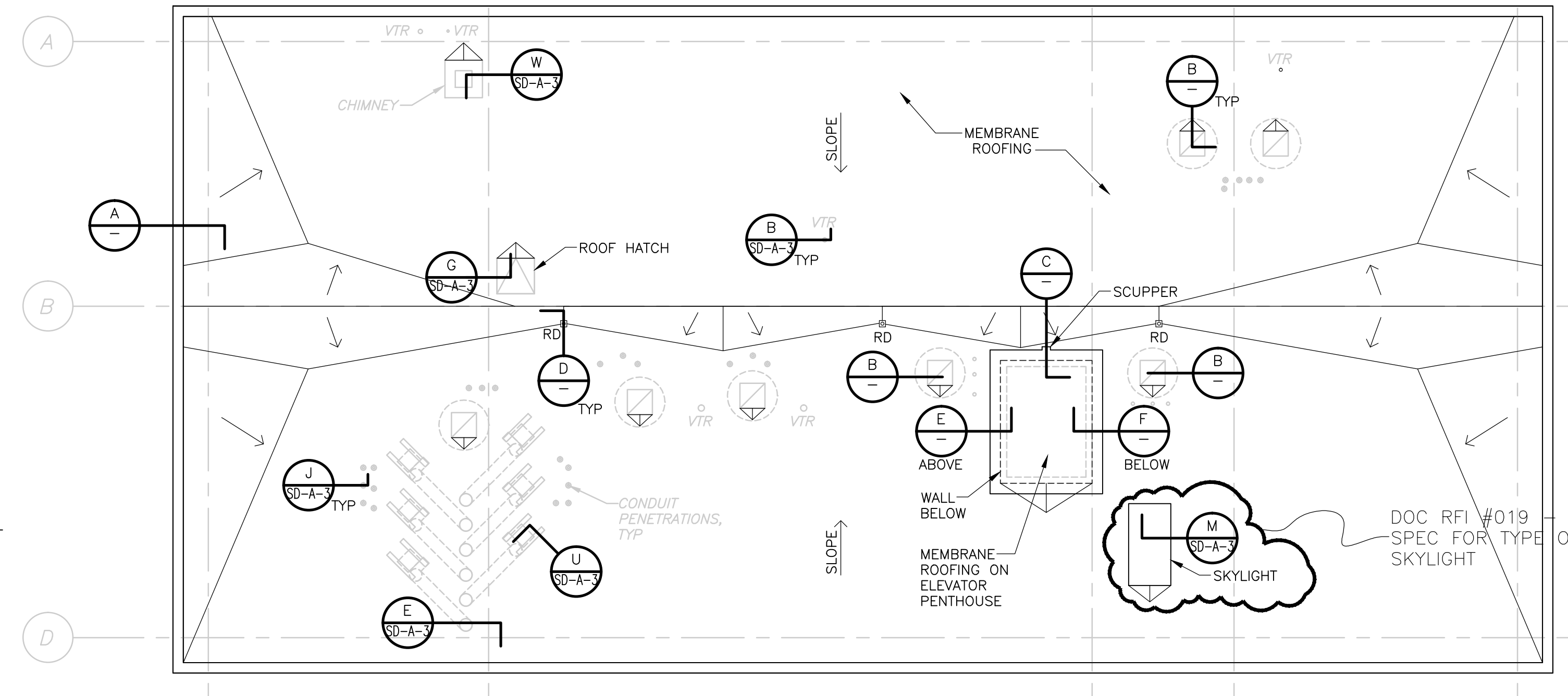


ELEV PENTHOUSE WALL
DETAIL F
1-1/2" = 1'-0"

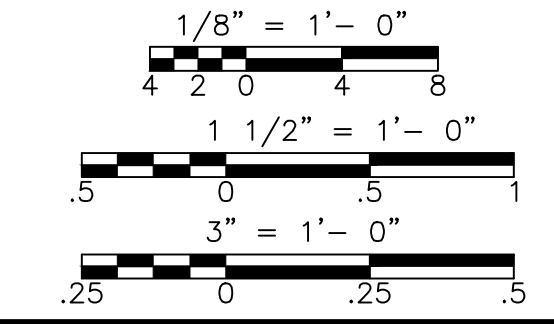
- GENERAL DEMOLITION NOTES:**
1. ALL ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
 2. EXAMINE ALL DRAWINGS FOR REMOVALS REQUIRED TO ACCOMMODATE NEW WORK AND ITEMS TO BE REMOVED AS PART OF THE WORK.
 3. LIMITS OF REMOVAL INDICATED BY HATCHING AND AS NOTED.
 4. ALL EXST INFORMATION AND DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
 5. SEE STRUCTURAL, MECHANICAL, HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION INFORMATION.
 6. THE ADMINISTRATION BUILDING ROOF PLAN AND DETAILS WERE CREATED BY CDM WITH FIELD MEASUREMENTS



ROOF - DEMOLITION
PLAN
1/8" = 1'-0"



ROOF - NEW WORK
PLAN
1/8" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AAAMPL300
 DESIGNED BY: M. PELLETIER
 DRAWN BY: M. PELLETIER
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/19/2012

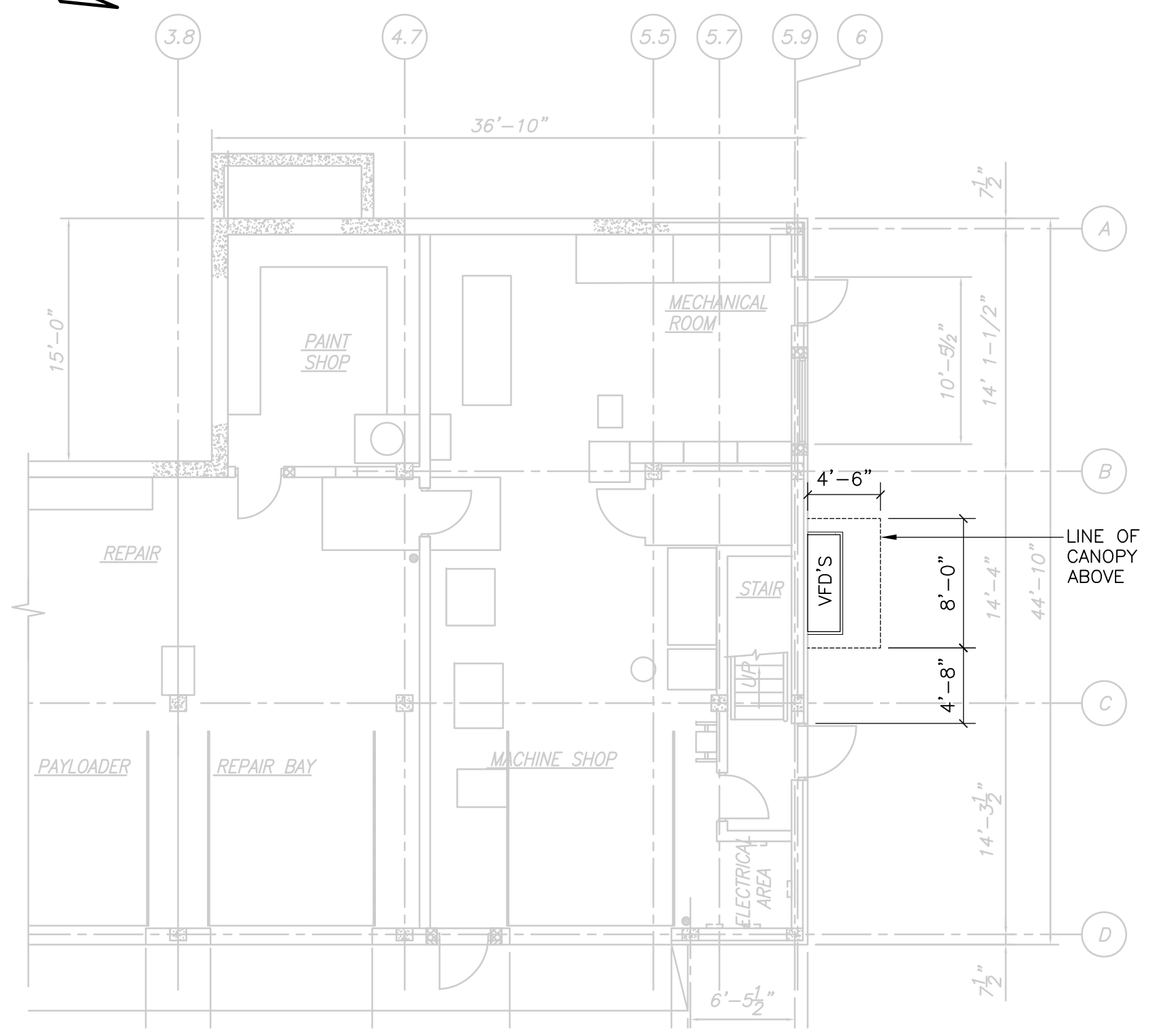
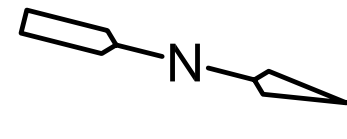
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02142
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

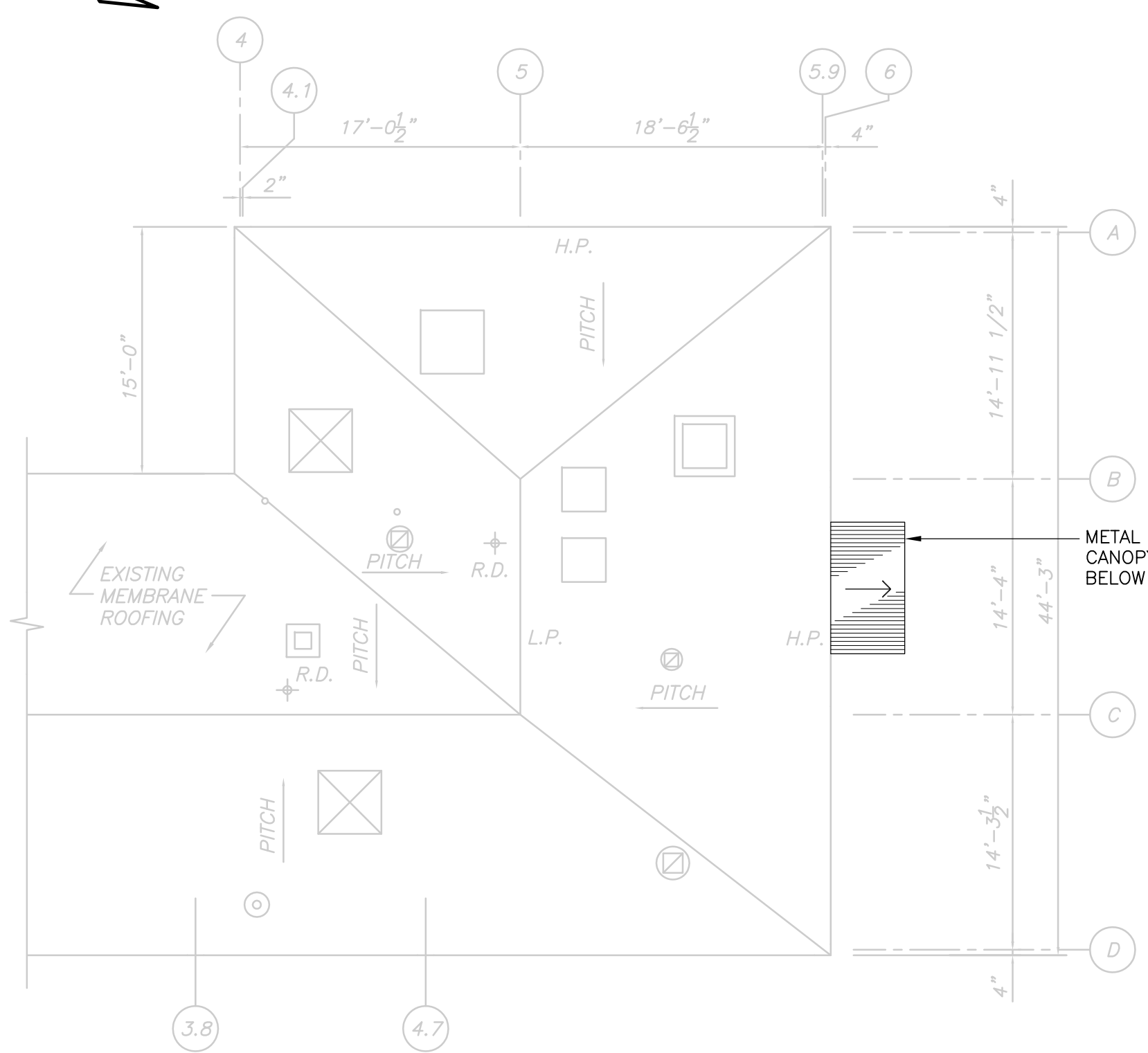
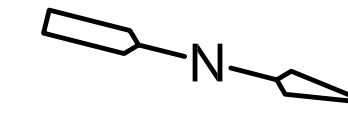
**ADMINISTRATION BUILDING
 ROOF PLAN
 DEMOLITION AND IMPROVEMENTS**

PROJECT NO. 1289-74283
 Sht. 44 of 312
AD-A-1
 Acc # 1289-74450

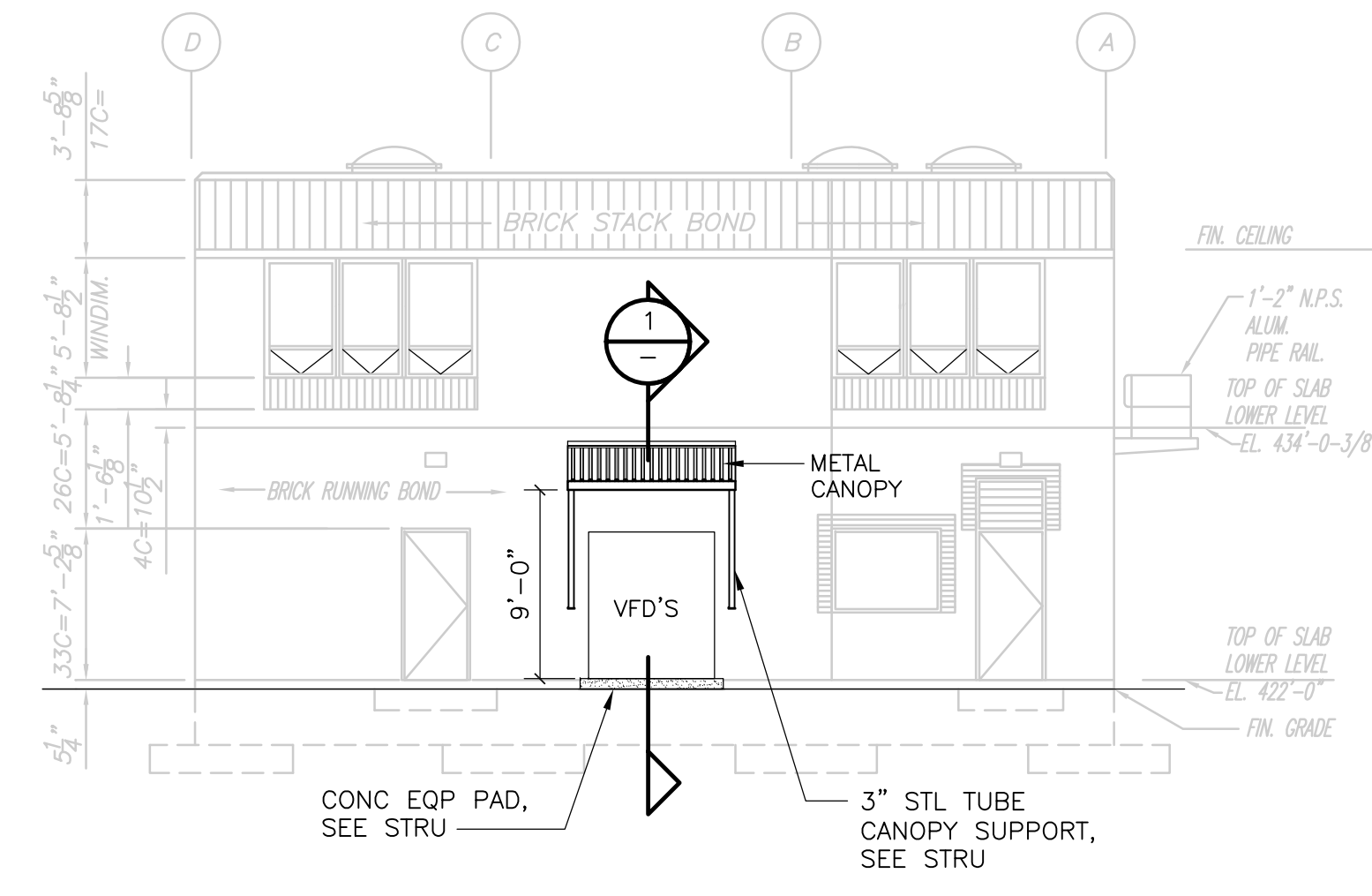
Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\AM\DRISAS\00119527\AMBPL100.DWG Saved by: PELLETIER on 9/28/2010 10:05:50 AM
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 Plotted by: FORTINCC Time: 9/7/2006 9:29:48 AM
 [UPPER BLACKSTONE WPAD - PHASE III]



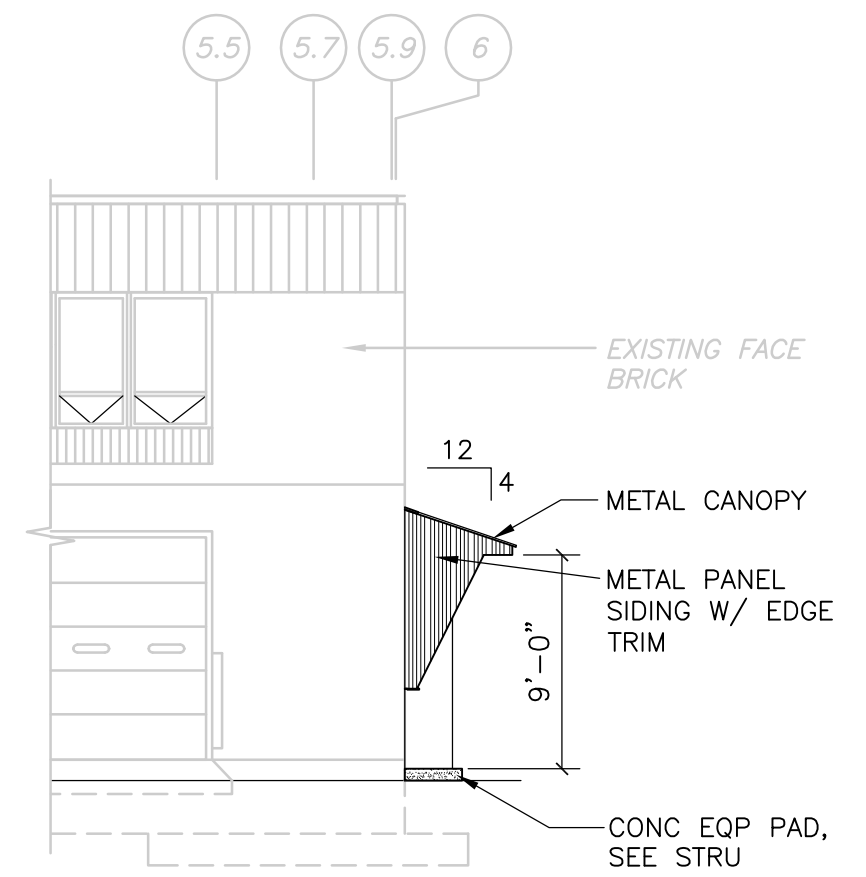
FIRST FLOOR PLAN
PLAN
 1/8" = 1'-0"



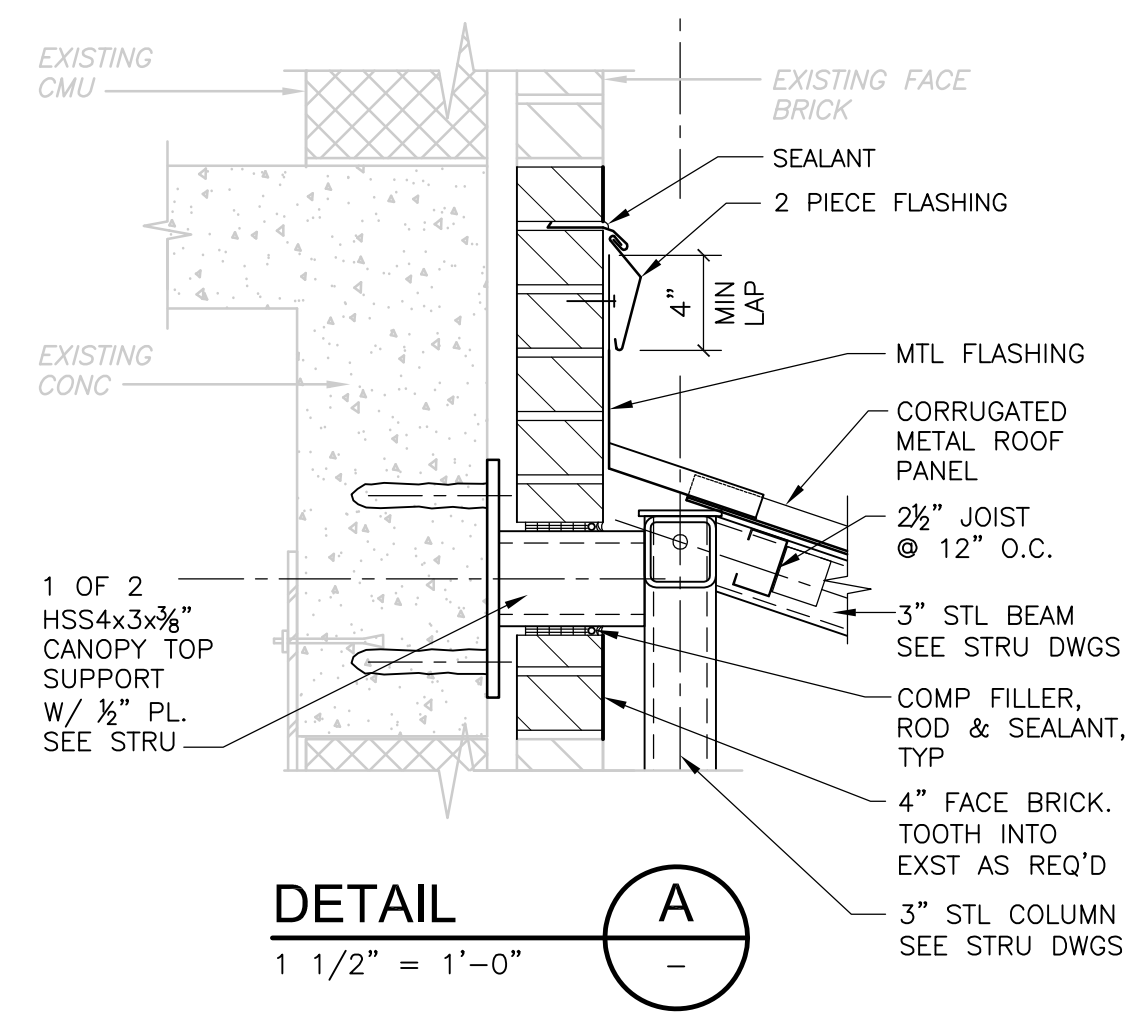
ROOF PLAN
PLAN
 1/8" = 1'-0"



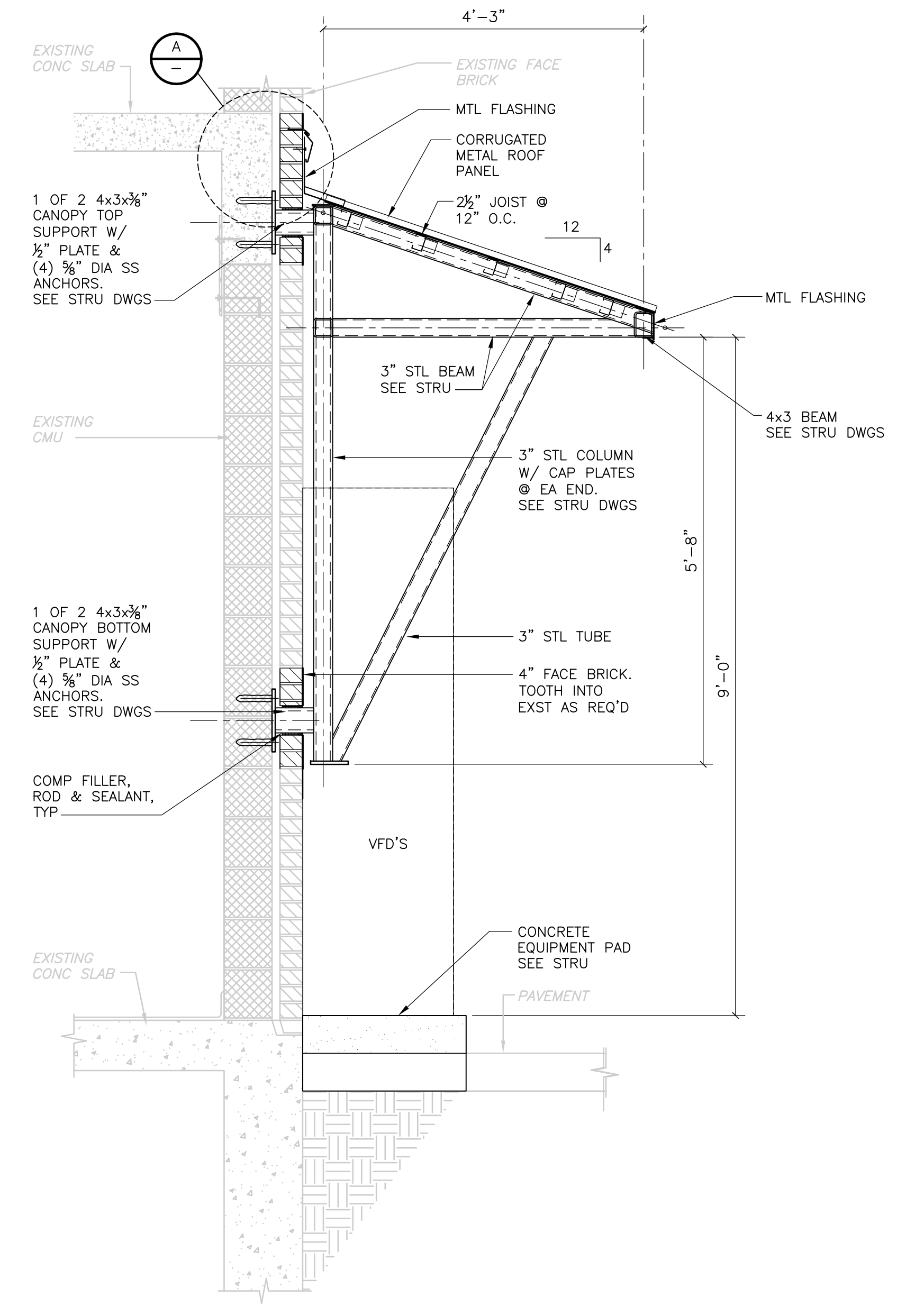
NORTH ELEVATION
ELEVATION
 1/8" = 1'-0"



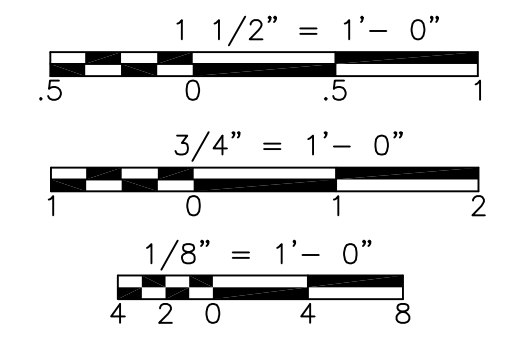
PARTIAL EAST ELEVATION
ELEVATION
 1/8" = 1'-0"



DETAIL
 1 1/2" = 1'-0"



WALL SECTION
SECTION 1
 3/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AMBPL100
DESIGNED BY:	M. PELLETIER
DRAWN BY:	K. HAYNES
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLETIER
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**MAINTENANCE BUILDING
 CANOPY PLAN, ELEVATIONS AND SECTION
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 45 of 312
MB-A-1
 Acc # 1289-74451

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\CDM W-KNEELAND FILES\AFNSH100.DWG Saved by: DKENNEDY On: 19-Jul-12 2:07 PM

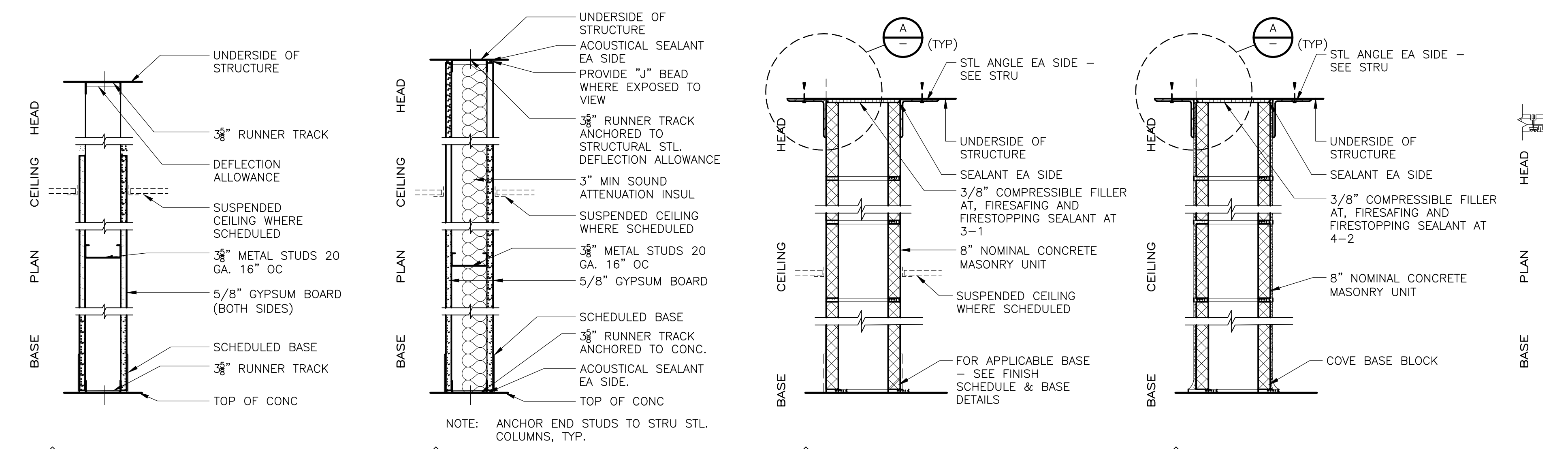
FINISH SCHEDULE

BUILDING NAME	ROOM NUMBER	ROOM NAME	FLOORS		WALLS		CEILINGS		NOTE NO	NOTES	
			MAT'L	FIN	BASE	MAT'L	FIN	MAT'L			FIN
TRAINING FACILITY	FO-100	TRAINING LAB	---	---	---	---	---	---	---	1. PAINT GYP WALL ABOVE CERAMIC TILE	
	FO-101	STORAGE ROOM	EXG CONC	---	RB	EXG CMU/GYP	PTD	ACT	7'-9"	2. PAINT CONCRETE STAIR IN ITS ENTIRETY (PIPE RAILS EXCLUDED)	
	FO-102	LIBRARY	EXG CONC	RT	RB	EXG GYP	PTD	ACT	7'-9"	3. RESINOUS COAT ON CONCRETE CURBS AND TRENCHES	
	FO-103	TRAINING ROOM	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	4. GLAZED FACE CMU SHALL NOT BE PAINTED	
	FO-104	MEN'S ROOM	EXG CT	---	---	---	---	---	---	1,11	5. PAINT WALLS AS INDICATED ON PLAN
	FO-105	WOMEN'S ROOM	EXG CT	---	---	---	---	---	---	1,11	6. PAINT WALLS FROM FLOOR TO 8'-0" AFF
	FO-106	SUPPLY OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	7. PAINT WALL AND COLUMNS FROM 7'-4" AFF TO CLG	
	FO-107	VESTIBULE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	8. PAINT WALLS FROM FLOOR TO 16'-0" AFF	
	FO-108	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	9. PAINT CEILING AND UNDERSIDE OF EACH CONCRETE LANDING	
	FO-109	CORRIDOR	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	10. RESINOUS FLOORING IN CONTAINMENT AREA	
	FO-110	KITCHEN	EXG CONC	RT	RB	EXG GYP	PTD	ACT	7'-9"	11. MOISTURE RESISTANT ACOUSTICAL CEILING TILE	
	FO-111	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"	12. FINISH CONCRETE EQUIPMENT PAD TO MATCH ADJACENT FLOOR FINISH. PAINT/RSF	
FO-112	PLAN ROOM	EXG CONC	RT	RB	EXG GYP	PTD	ACT	7'-9"	13. PAINT NEW STRU STEEL		
FO-113	MECHANICAL ROOM	EXG CONC	---	---	---	---	---	---	---		
FO-114	CONFERENCE ROOM	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-115	CORRIDOR	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-116	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-117	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-118	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-119	OFFICE	EXG CONC	RT	RB	EXG CMU/GYP	PTD	ACT	7'-9"			
FO-120	COMPUTER ROOM	EXG CONC	RT	RB	EXG GYP	PTD	ACT	7'-9"			
FO-121	STORAGE CLOSET	EXG CONC	RT	RB	EXG GYP	PTD	ACT	7'-9"			
PRIMARY SETTLING TANK	PT-001	PRIMARY TANK PUMP GALLERY	EXG CONC	RSF	---	---	---	---	2,3,12		
	PT-002	PRIMARY TANK PUMP GALLERY	EXG CONC	RSF	---	---	---	---	2,3,12		
SLUDGE RECEIVING HOLDING TANK BUILDING	HT-001	PUMP ROOM	EXG CONC	RSF	RSF	EXG CONC	PTD	EXG CONC	PTD	14'-3"	2,3,12
	HT-100	CONTROL ROOM	EXG CONC	PTD	---	EXG CONC	---	EXG CONC	---	12'-2"	3
DEWATERING BUILDING	DW-01	BASEMENT OPEN AREA	---	---	---	---	---	---	15'-4"		
	DW-03	STAIR No. 03	---	---	---	---	---	---	---	9	
	DW-05	POLYMER CONTAINMENT AREA	EXG CONC	RSF	RSF	EXG CONC	PTD	EXG CONC	---	15'-4"	5
	DW-06	CONTAINMENT AREA	EXG CONC	RSF	RSF	EXG CONC	PTD	EXG CONC	---	15'-4"	5
	DW-07	SLUDGE MIX TANK ROOM	EXG CONC	---	---	---	---	---	---	5,8	
	DW-101	STORAGE	EXG CONC	PTD	PTD	EXG CONC	PTD	EXG CONC	PTD	13'-7"	3
	DW-100	PROCESS SUPPORT	EXG CONC	PTD	PTD	EXG CONC	PTD	EXG CONC	PTD	13'-7"	5,12
	DW-103	STAIR No. 03	---	---	---	---	---	---	---	9	
	DW-200	BELT FILTER PRESS ROOM	EXG CONC	RSF	RSF	EXG CONC	PTD	EXG CONC	PTD	24'-10"	10
	DW-201	PUMP ROOM	EXG CONC	PTD	PTD	EXG CONC	PTD	EXG CONC	PTD	24'-10"	10,12
DW-202	SLUDGE MIXING TANK ROOM	EXG CONC	PTD	PTD	EXG CONC	PTD	EXG CONC	PTD	24'-10"		
DW-203	STAIR No. 03	---	---	---	---	---	---	---	24'-10"	9	
DW-204	POLYMER PUMP CONTAINMENT	EXG CONC	RSF	RSF	EXG CONC	PTD	EXG CONC	PTD	24'-10"	9	
INCINERATOR BUILDING (ASH GARAGE)	IB-100	ASH GARAGE	CONC	HARD	---	---	---	---	---		
	IB-101	INCINERATOR BUILDING	---	---	---	---	---	---	---		
THICKENER BUILDING	TB-001	UPPER PIPE GALLERY	---	---	---	---	---	---	8'-10"		
	TB-002	LOWER PIPE GALLERY	---	---	PTD	EXG CONC	PTD	---	15'-4"	2,5,6,12	
	TB-100	SLUDGE THICKENER	EXG CONC	PTD	---	EXG CONC	---	EXG CONC	PTD	11'-8"	7
	TB-101	PASSAGE	EXG CONC	---	---	---	---	---	PTD	11'-8"	
ADMIN BUILDING	201	SENIOR OPERATORS ROOM	---	---	---	---	---	---	8'-10"	14	
	201-A	NEW OFFICE	---	---	RUB	FYP	PTD	---	8'-10"	14	
	219	LIBRARY	---	---	RUB	FYP	PTD	---	8'-10"	14	

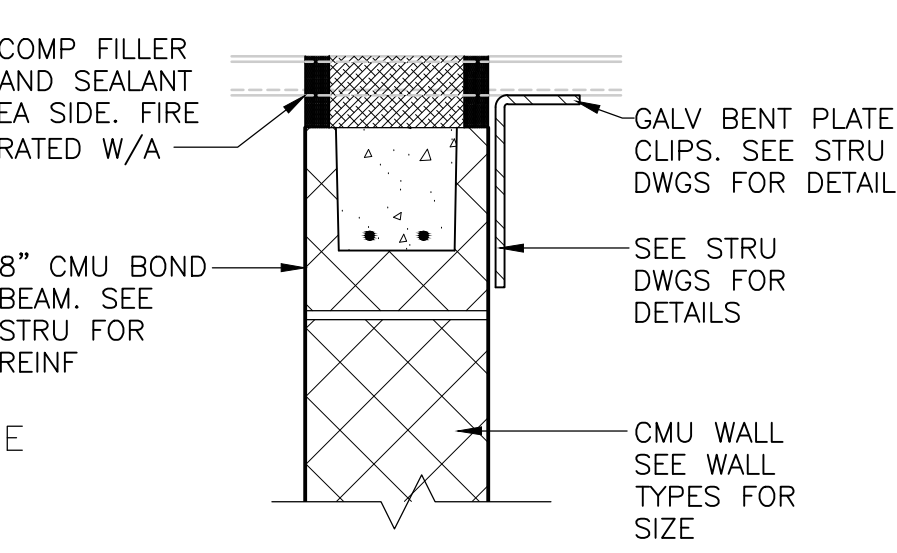
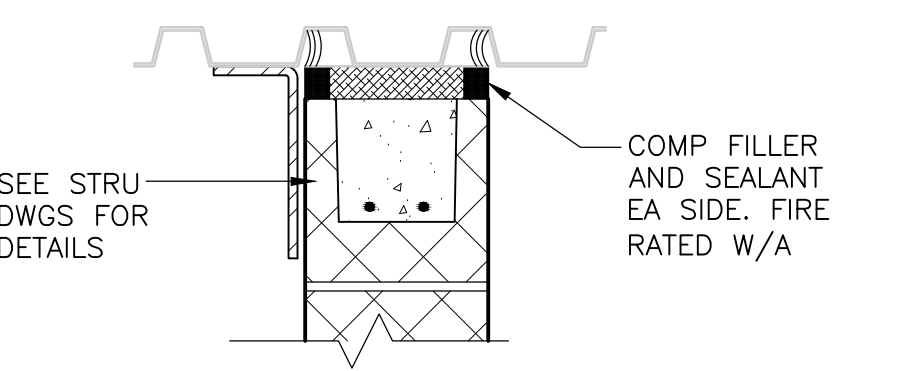
DOC RFI #001 - PROVIDE GLAZING ON BOTH SIDES OF CMU 4-2 WALL TYPE

DOC RFI #016 - PAINT COLOR FOR CEILING DOVE WHITE #SW6385

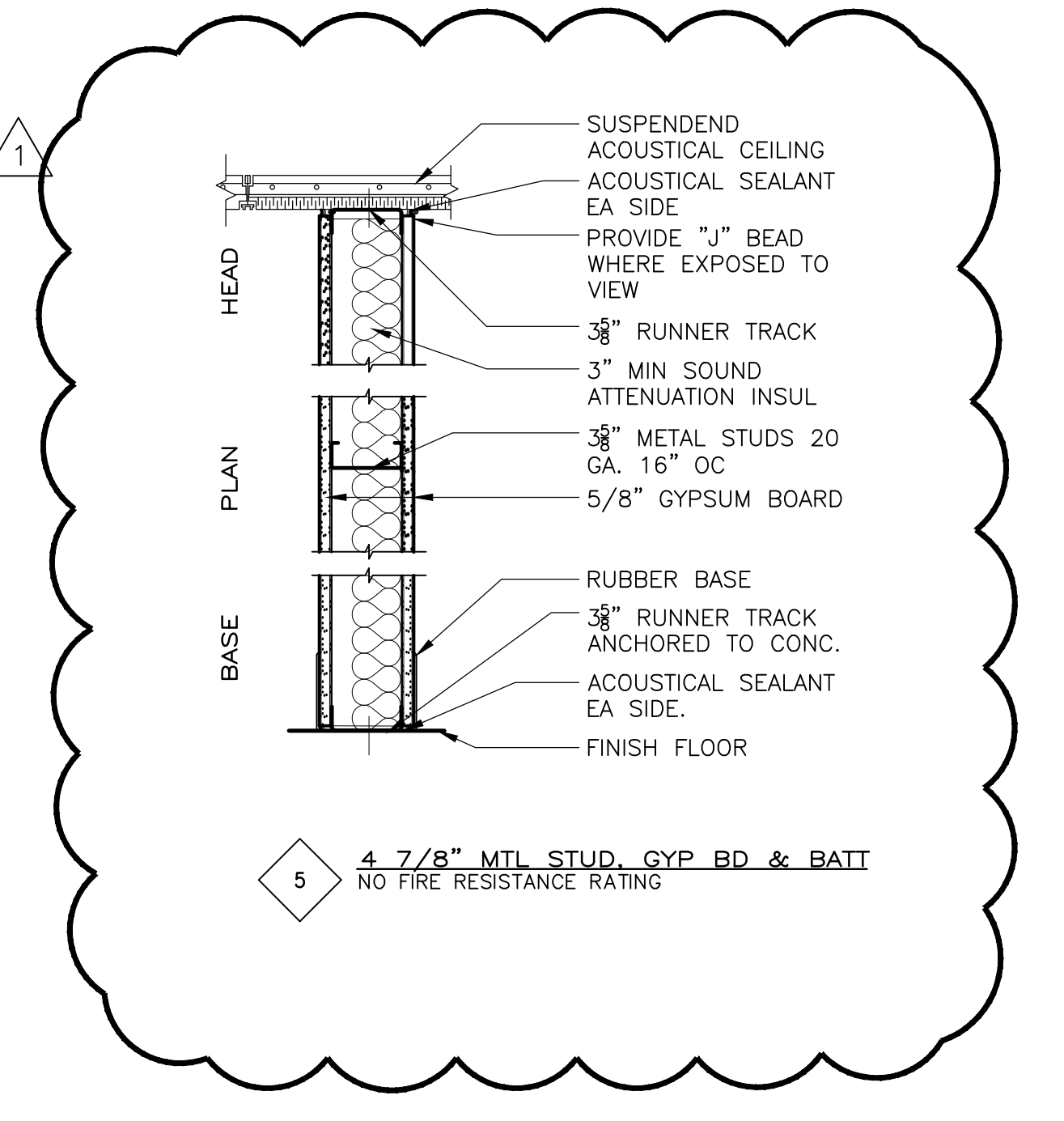
PARTITION TYPES



- 1 4 7/8" MTL STUD & GYP BD
NO FIRE RESISTANCE RATING
NO ACOUSTIC RATING
- 2 4 7/8" MTL STUD, GYP BD & BATT
NO FIRE RESISTANCE RATING
- 3 8" CMU (NOMINAL)
NO FIRE RESISTANCE RATING
- 3-1 8" CMU (NOMINAL)
1 HR. FIRE - UL # U905
- 3-2 8" CMU (NOMINAL)
2 HR. FIRE - UL # U905
- 4-2 8" GLAZED FACE CMU (NOMINAL)
2 HR. FIRE - UL # U905



DETAIL A
1-1/2" = 1'-0"



CONFORMED

CADD FILE NO. AFNSH100
DESIGNED BY: M. PELLETIER
DRAWN BY: J. BALDWIN
SHEET CHK'D BY: B. GIORGI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: M. PELLETIER
DATE: SEPTEMBER 2010

DOC RECORD DRAWING
7/19/2012

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**FINISH SCHEDULE
AND PARTITION TYPE**

PROJECT NO. 1289-74283
Sht. 46 of 312
SD-A-1
Acc. #1289-74452

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	MP	MP	REVISION PER ADDEDNA NOS. 1 THRU 3

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\ASDSH100.DWG Saved by: PLOWRY On: 20-Dec-12 1:12 PM

DOOR SCHEDULE

FIELD VERIFY ALL ROUGH OPENINGS - ADJUST DOOR SIZES AS REQ'D

BUILDING NAME	DOOR NUMBER	DOOR SIZE		DOORS			FRAMES			DETAILS ON SD-A-4				UL LABEL	HARDWARE	NOTE NO	NOTES
		WIDTH	HEIGHT	TYPE	MAT'L	FIN	TYPE	MAT'L	FIN	HEAD	JAMB	JAMB	THRSHD				
TRAINING FACILITY	FO-D-100	3'-2"	6'-10"	HG	FRP	FF	A	FRP	FF	W	EE	EE	S	-	01	1	1. PAIR OF DOORS 2. ADJUST AND REHANG EXISTING DOOR AND HARDWARE
	FO-D-101	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	07		
	FO-D-102	3'-0"	6'-10"	HG	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	06		
	FO-D-103A	3'-2"	6'-10"	HG	FRP	FF	A	FRP	FF	W	EE	EE	S	-	02		
	FO-D-103	3'-0"	6'-10"	FG	ALUM	FF	C	ALUM	FF	W	X/EE	X/EE	S	-	02		
	FO-D-104	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	07		
	FO-D-105	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	07		
	FO-D-106	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	05		
	FO-D-107	3'-0"	6'-10"	FG	ALUM	FF	C	ALUM	FF	W	X/EE	X/EE	S	-	02		
	FO-D-109	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	07		
	FO-D-114	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	06		
	FO-D-121	3'-0"	6'-10"	F	WD	PTD	A	WD	PTD	FF	GG	GG	S	-	05		
SLUDGE HOLDING TANK BUILDING	HT-D-100	3'-0"	7'-2"	NV	FRP	FF	B	FRP	FF	C	L	L	S	-	08	1	
DEWATERING BUILDING	DW-D-01	3'-7"	7'-2"	NV	FRP	FF	A	FRP	FF	A	J	J		60	12		
	DW-D-03	3'-7"	7'-2"	NV	FRP	FF	A	FRP	FF	A	J	J			12		
	DW-D-101	3'-0"	7'-2"	F	FRP	FF	A	FRP	FF	A	J	J			04	1	DOC RFI #009 - DOES NOT NEED TO BE FIRE RATED, PROVIDE TRANSOM
	DW-D-103	3'-6"	7'-2"	NV	FRP	FF	A	FRP	FF	A	J	J		60	12		
	DW-D-103A	3'-0"	7'-2"	NV	FRP	FF	A	FRP	FF	E	N	J		60	10		
	DW-D-200	4'-0"	7'-10"	NV	FRP	FF	A	FRP	FF	F	P	P			16	1	
	DW-D-200A	3'-0"	7'-2"	NV	FRP	FF	C	FRP	FF	G	Q	Y			15		
	DW-D-200B	3'-0"	7'-2"	NV	FRP	FF	C	FRP	FF	G	Q	Y			15		
	DW-D-200C	13'-6"	12'-0"	RU						H	R	R	Z		13		
	DW-D-203	3'-6"	7'-2"	NV	FRP	FF	A	FRP	FF	A	J	J			12		
INCINERATOR BUILDING (ASH GARAGE)	IB-D-101	11'-11 1/2"	11'-5 1/2"	RU						U	CC	CC	V		13		
	IB-D-101A	3'-0"	7'-2"	F	FRP	FF	A	FRP	FF	T	BB	BB	S		14		
	IB-D-102														2		
THICKENER BUILDING	TB-D-100	3'-6"	7'-2"	NV	FRP	FF	A	FRP	FF	A	J	J			09		
	TB-D-100A	3'-5"	7'-2"	NV	FRP	FF	D	FRP	FF	D	M	M	S		03		
	TB-D-100B	3'-5"	7'-2"	NV	FRP	FF	D	FRP	FF	D	M	M	S		03		
	TB-D-101	3'-5"	7'-2"	HG	FRP	FF	D	FRP	FF	D	M	M	S		03		
	TB-D-102	3'-2"	7'-10"	F	HM	PTD	A	HM	PTD	B	K	K	AA	90	11	1	
TB-D-102A	3'-0"	7'-10"	F	HM	PTD	A	HM	PTD	B	K	K	AA	90	10			

RFI #013 - NOT HM DOORS, PROVIDE FRP

WINDOW SCHEDULE

FIELD VERIFY ALL ROUGH OPENINGS - ADJUST WINDOW SIZES AS REQ'D

BUILDING NAME	WINDOW NUMBER	ROUGH OPN'G		TYPE	MAT'L	FIN	DETAILS ON SD-A-5				NOTE NO	NOTES
		WIDTH	HEIGHT				HEAD	JAMB	JAMB	SILL		
TRAINING FACILITY	FO-W-101	4'-0"	1'-6"	W2	ALUM	FF	B	K	K	I	-	
	FO-W-101A	4'-0"	1'-6"	W2	ALUM	FF	B	K	K	I	-	
INCINERATOR BUILDING (ASH GARAGE)	IB-W-101	3'-0"	2'-0"	W1	ALUM	FF	A	J	J	S	-	

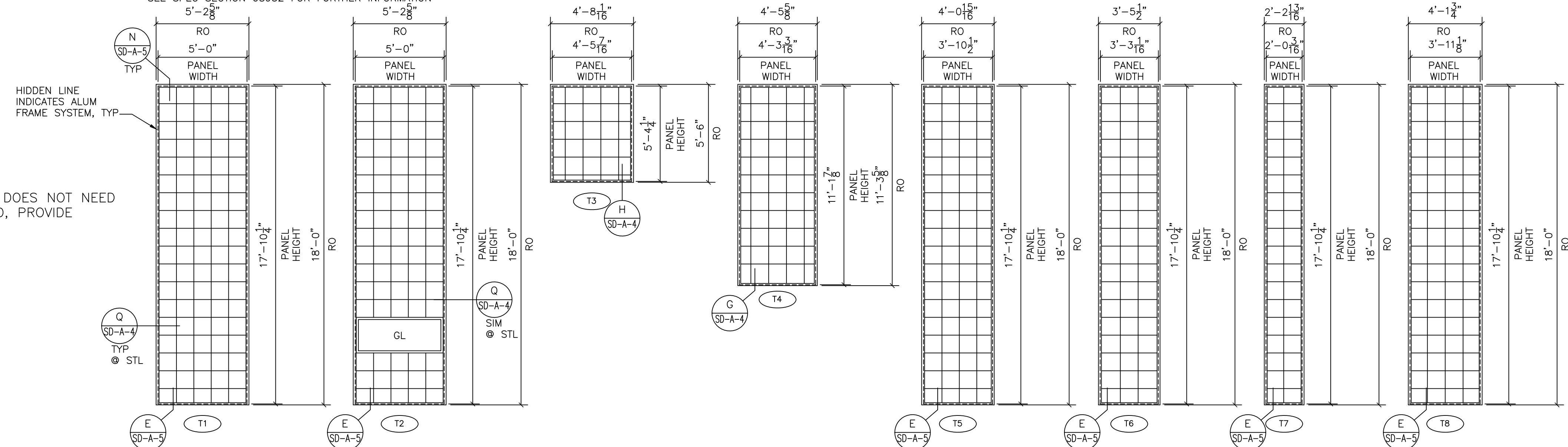
LOUVER SCHEDULE

FIELD VERIFY ALL ROUGH OPENINGS - ADJUST LOUVER SIZES AS REQ'D

BUILDING NAME	LOUVER NUMBER	LOUVER RO		TYPE	MAT'L	FIN	DETAILS ON SD-A-5				NOTE NO	NOTES
		WIDTH	HEIGHT				HEAD	JAMB	JAMB	SILL		
SLUDGE RECEIVING HOLDING TANK BUILDING	HT-L-100	3'-0"	3'-0"	L1	ALUM	FF	F	P	P	X	-	
DEWATERING BUILDING	DW-L-104	2'-6"	1'-0"	L1	ALUM	FF	-	-	-	-	-	

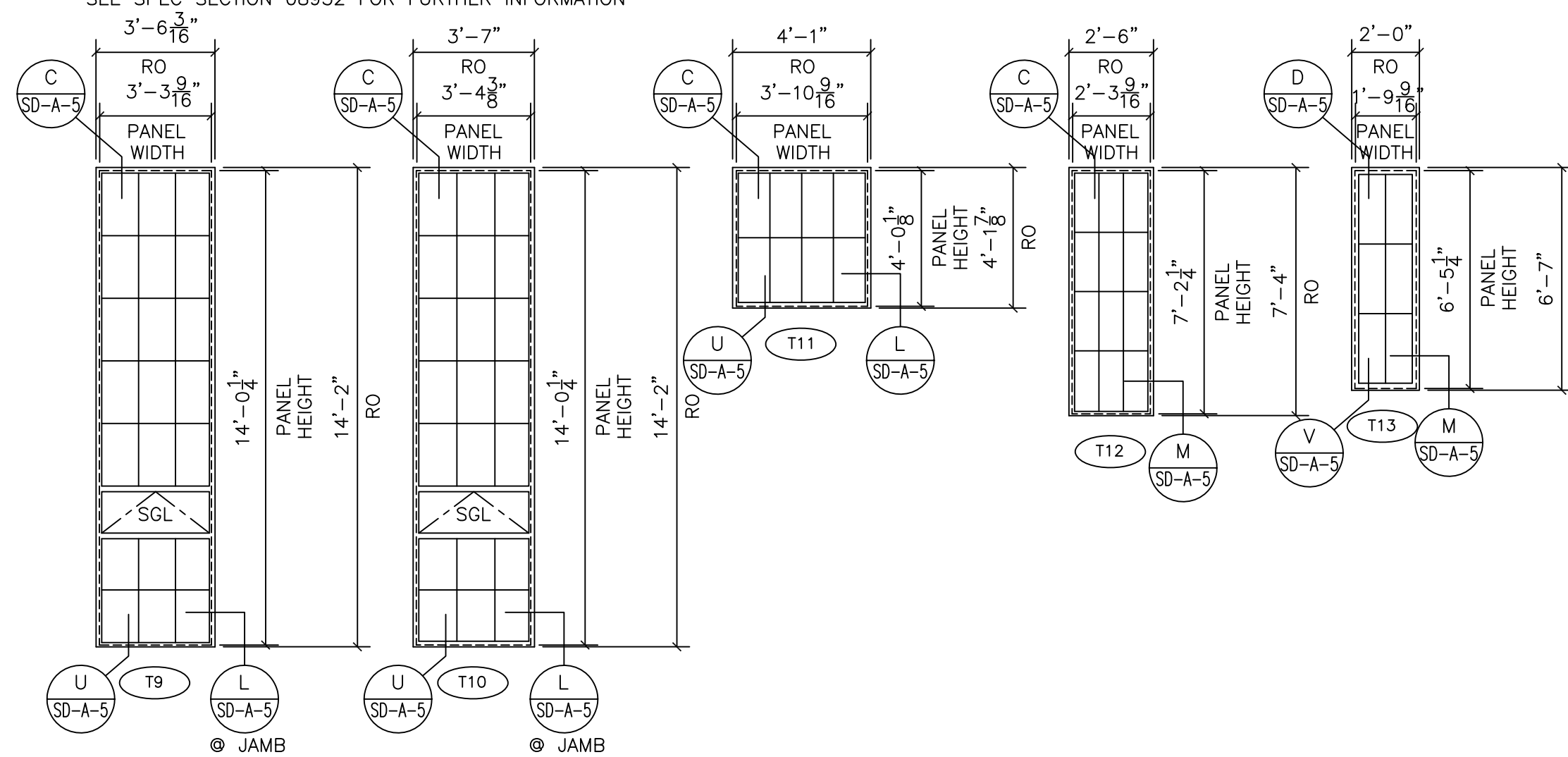
TRANSLUCENT PANEL TYPES - INTERIOR (TUCKERMAN PATTERN)

SEE SPEC SECTION 08952 FOR FURTHER INFORMATION

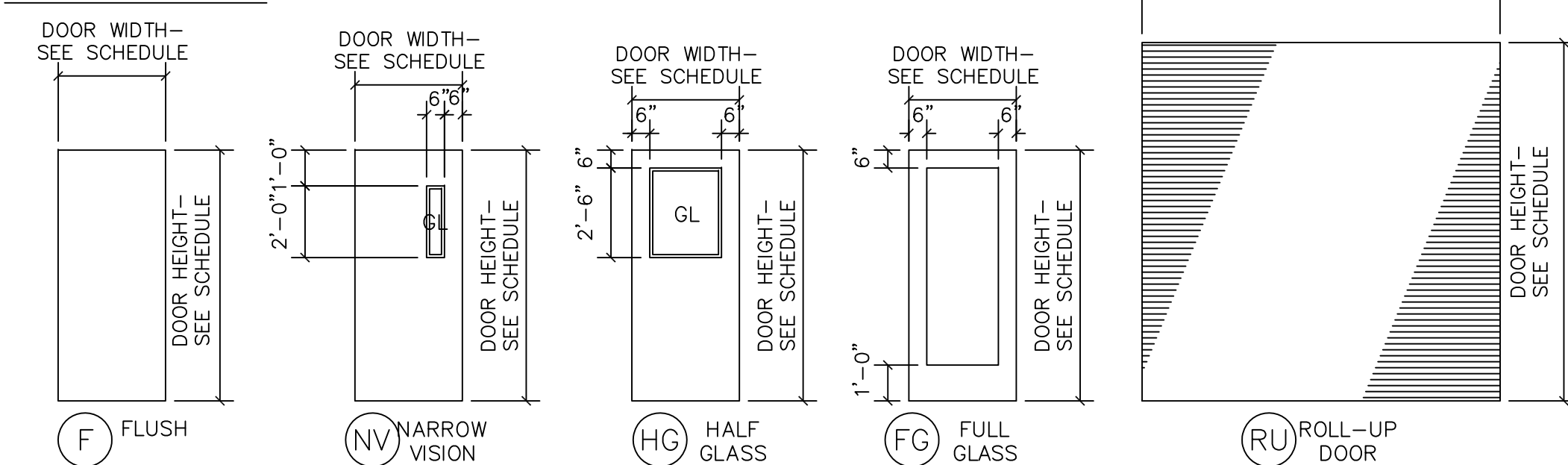


TRANSLUCENT PANEL TYPES - EXTERIOR (INSULATED - SHOJI PATTERN)

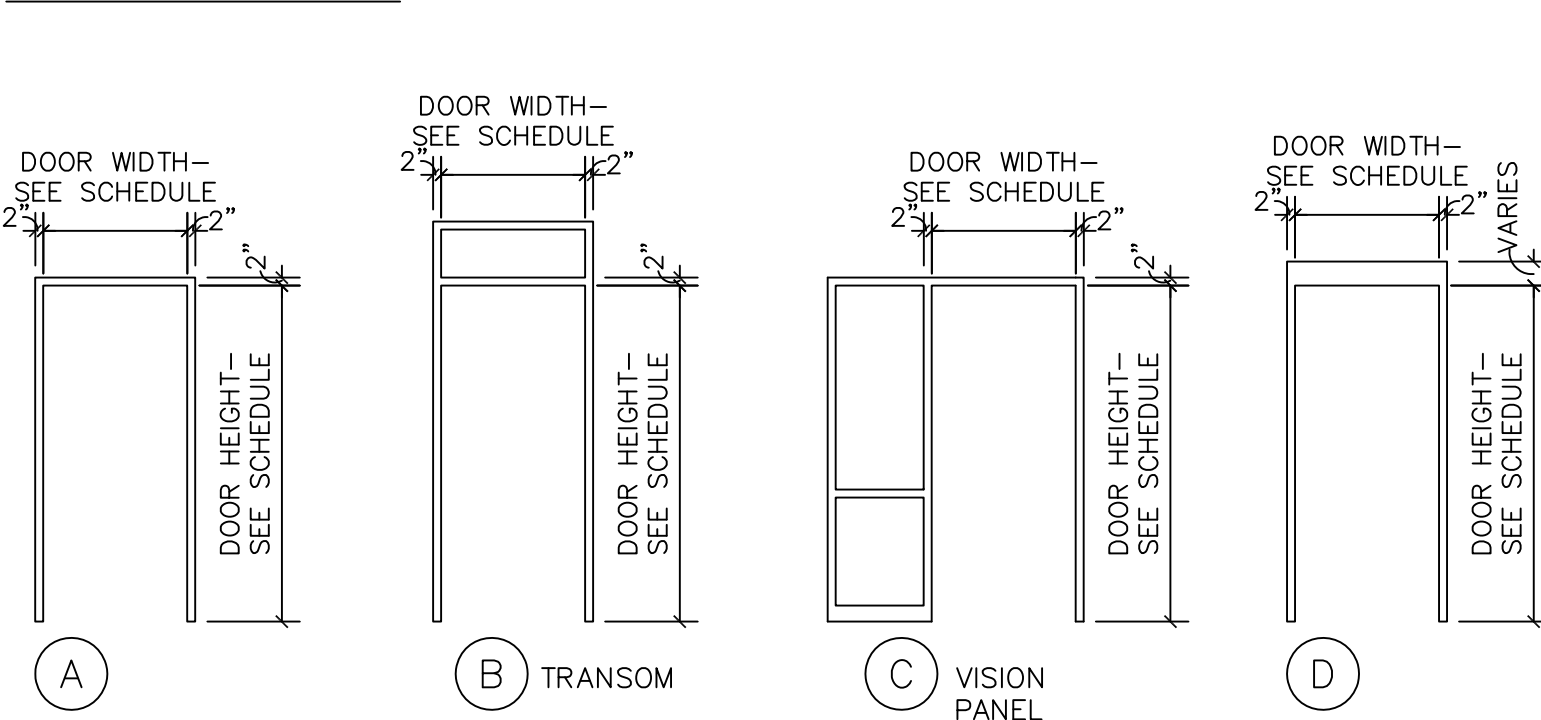
SEE SPEC SECTION 08952 FOR FURTHER INFORMATION



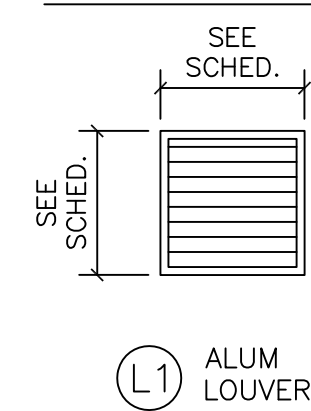
DOOR TYPES



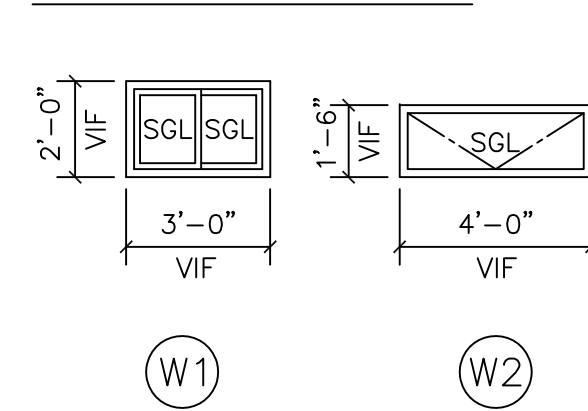
FRAME TYPES



LOUVER TYPES



WINDOW TYPES



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	KH	MP	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	ASDSH100
DESIGNED BY:	M. PELLITIER
DRAWN BY:	M. PELLITIER
SHEET CHK'D BY:	B. GIORGI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	M. PELLITIER
DATE:	SEPTEMBER 2010

DOC RECORD DRAWING
7/19/2012

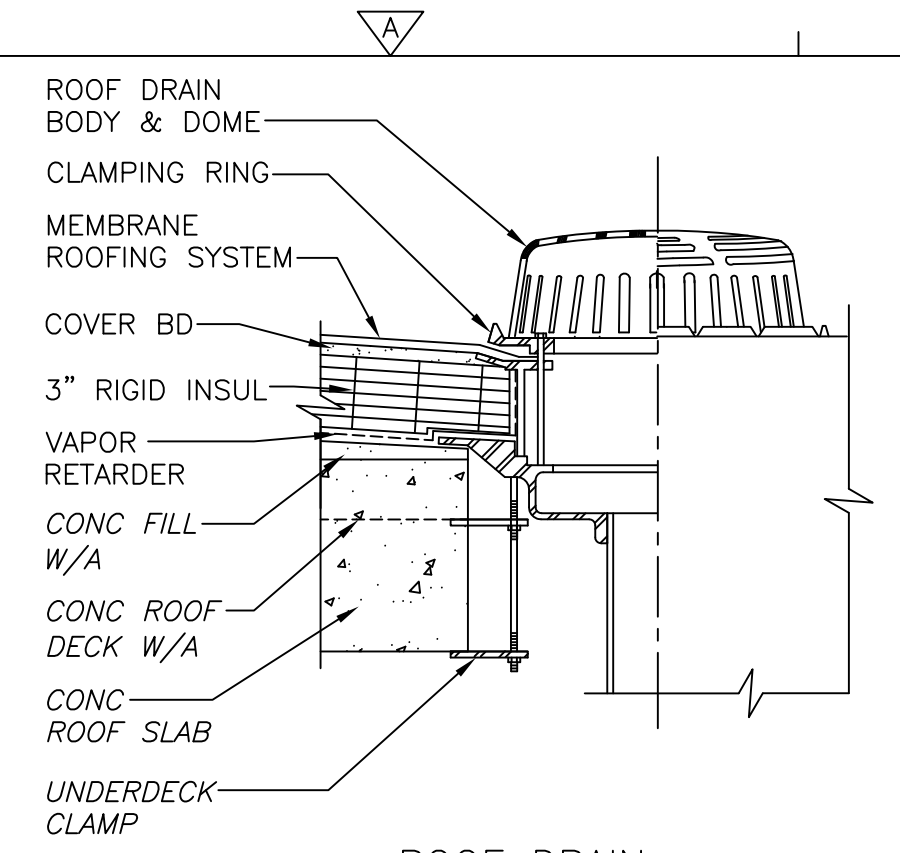
CDM
Camp Dresser & McKee Inc.
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Cambridge, MA 02139
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT NO. 3-0-17512-0033
PROJECT NO. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

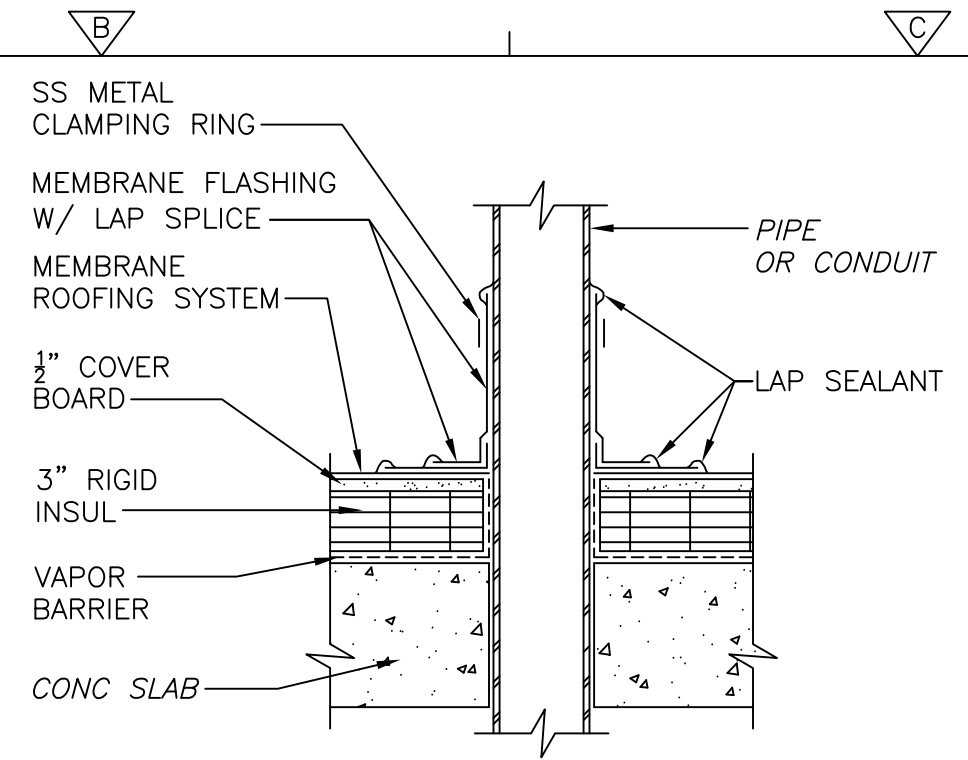
**DOOR, WINDOW, LOUVER
& TRANSLUCENT PANELS
SCHEDULES AND TYPES**

PROJECT NO.
1289-74283
Sht. 47 of 312
SD-A-2
Acc #1289-74453

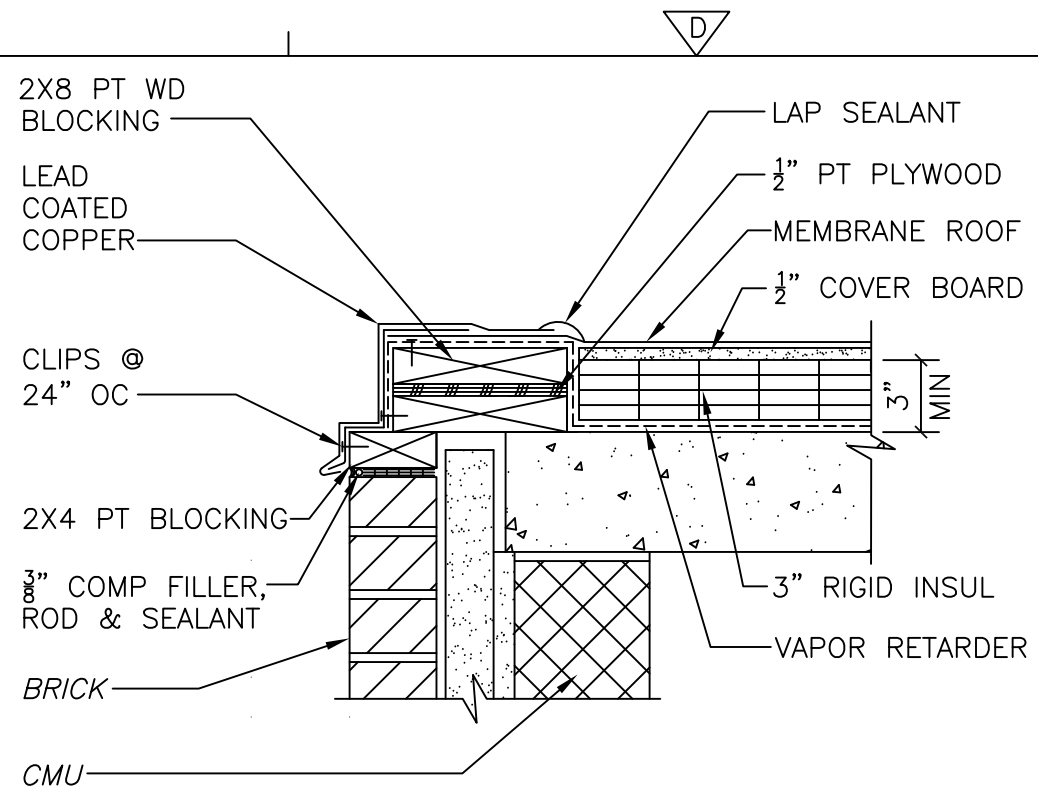
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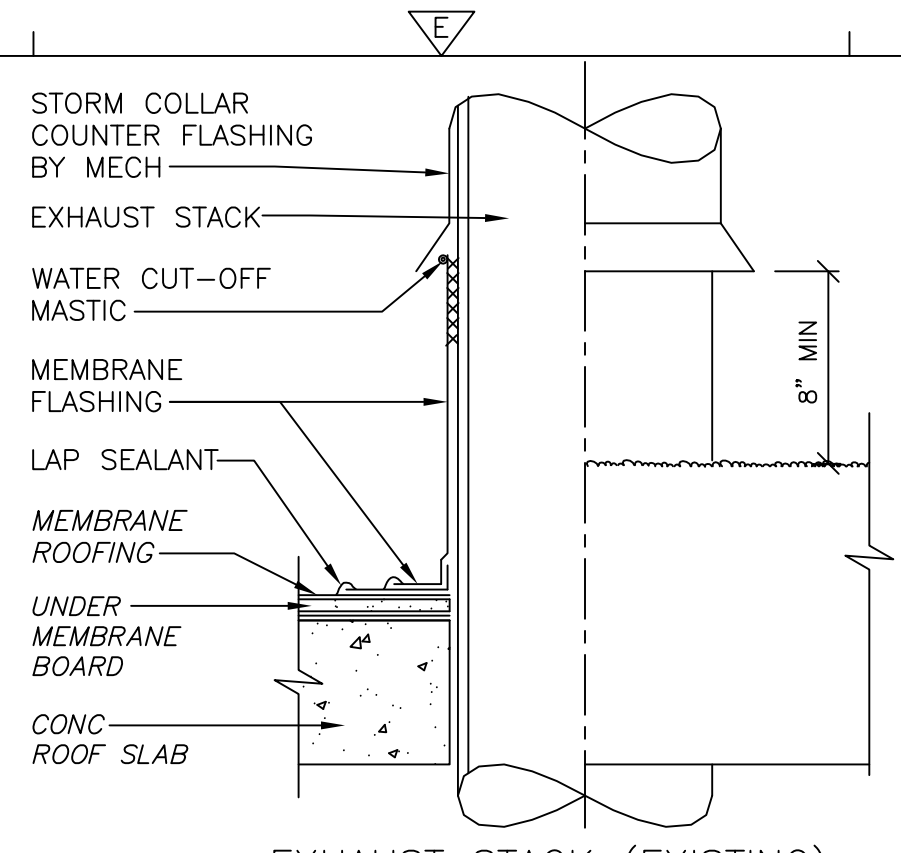
DETAIL A
1-1/2" = 1'-0"



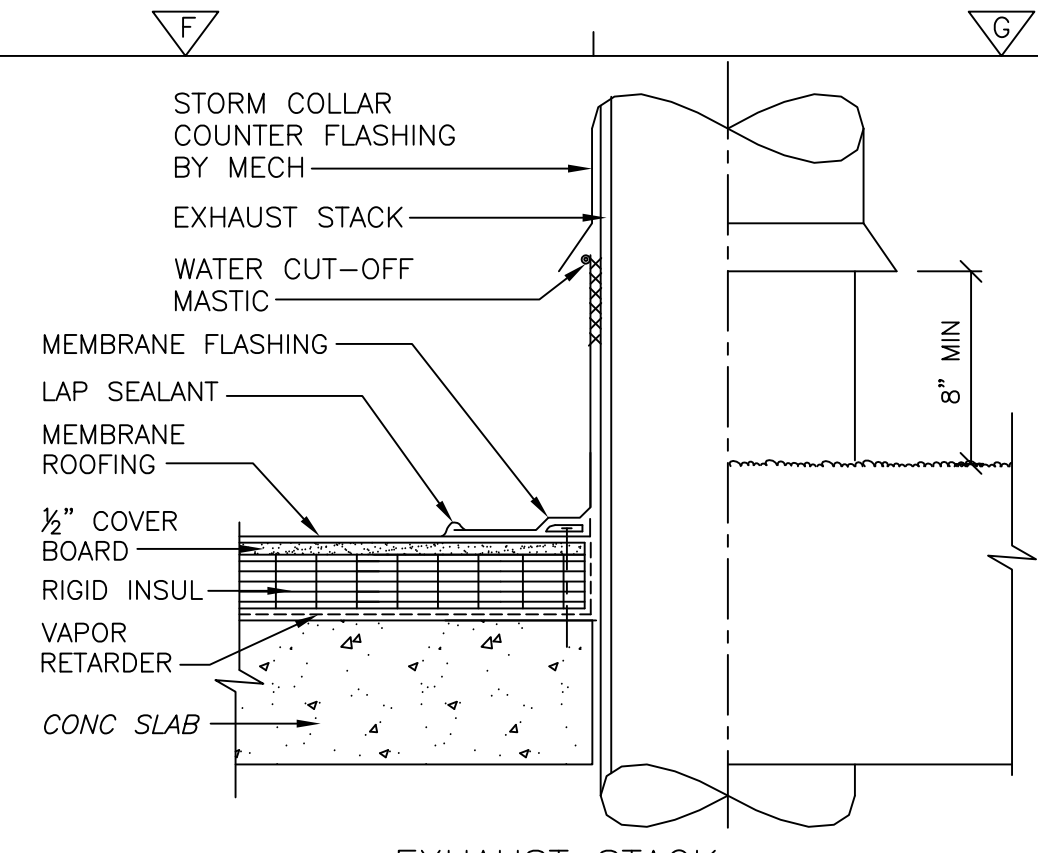
DETAIL B
1-1/2" = 1'-0" HT-A-2



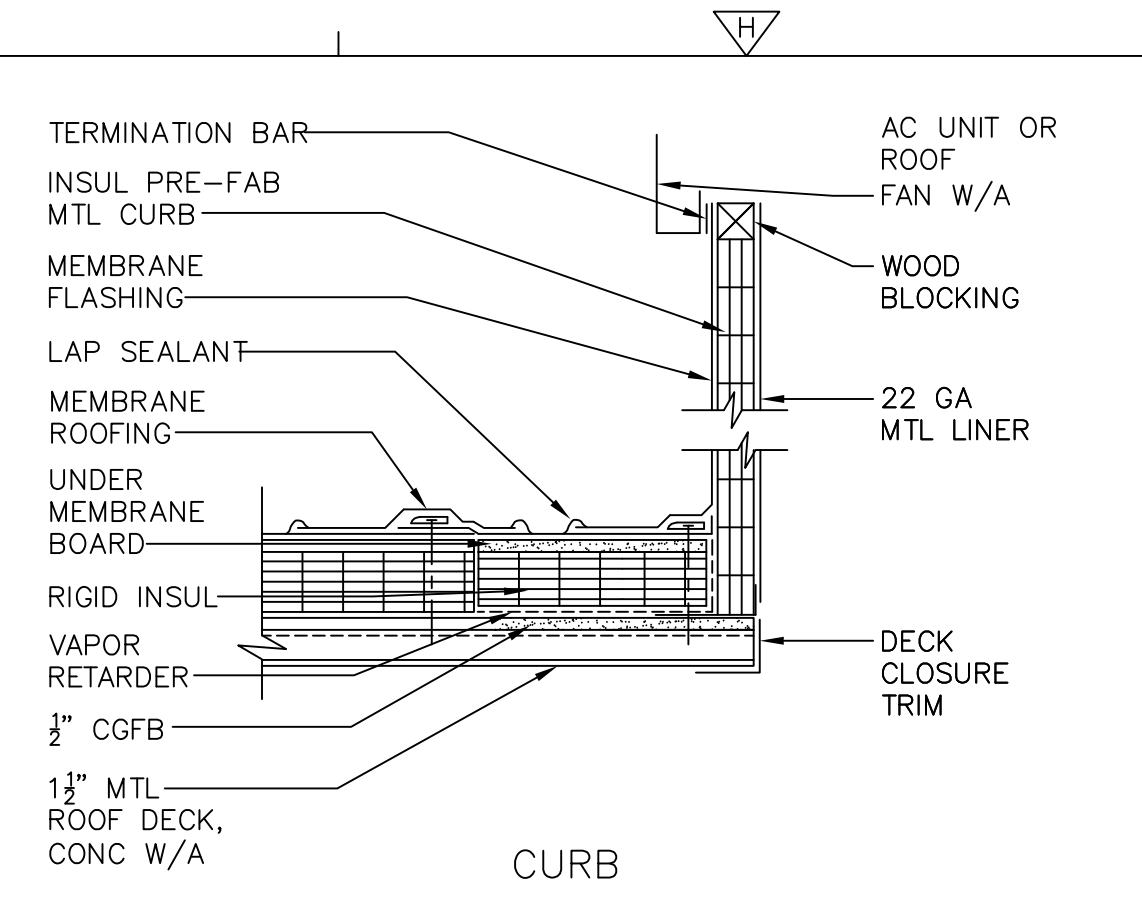
DETAIL C
1-1/2" = 1'-0" HT-A-2



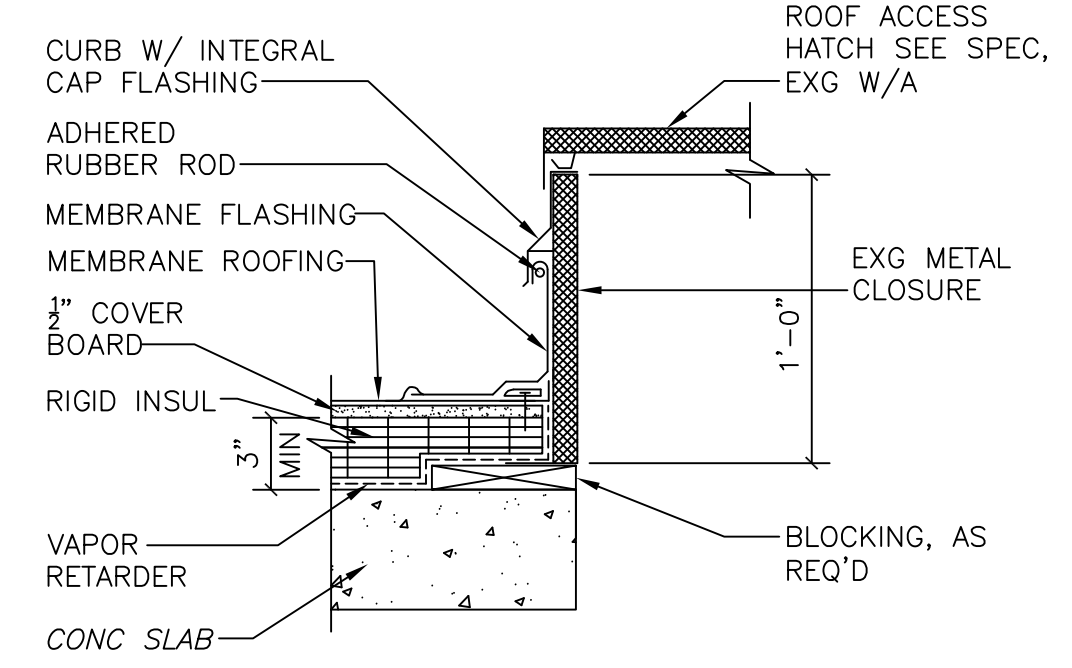
DETAIL D
1-1/2" = 1'-0"



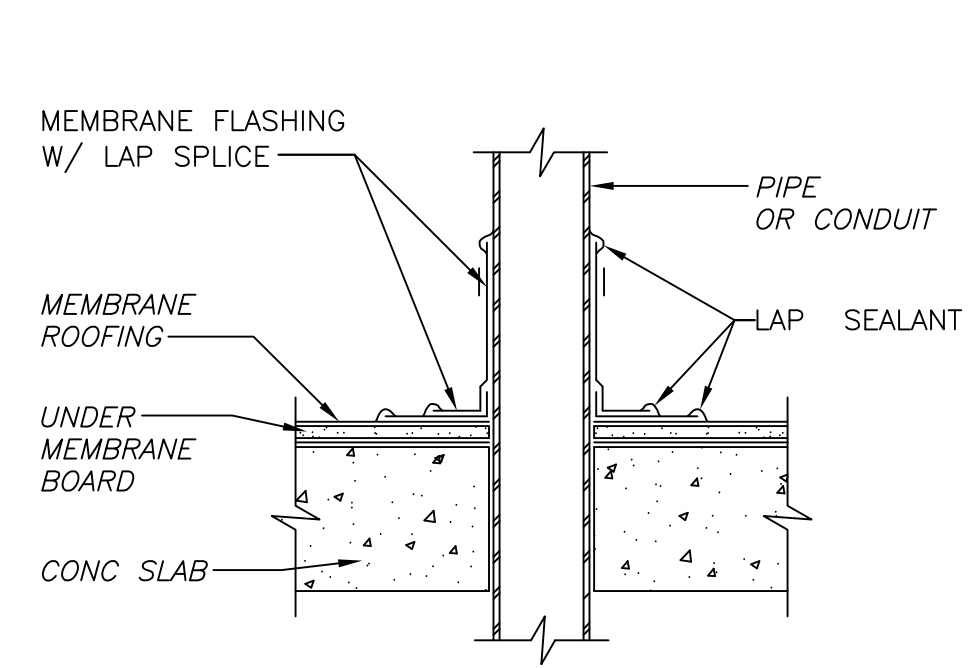
DETAIL E
1-1/2" = 1'-0" AD-A-1



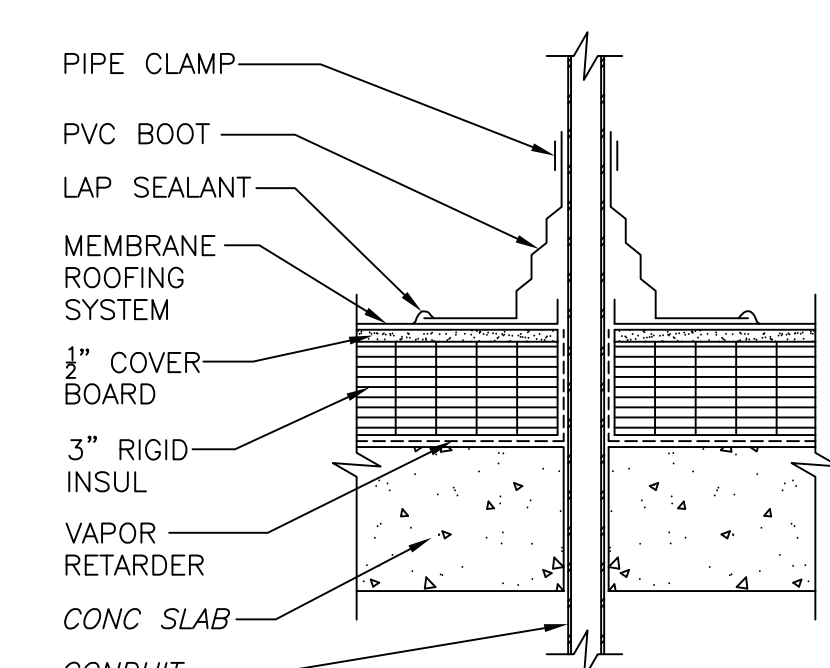
DETAIL F
1-1/2" = 1'-0"



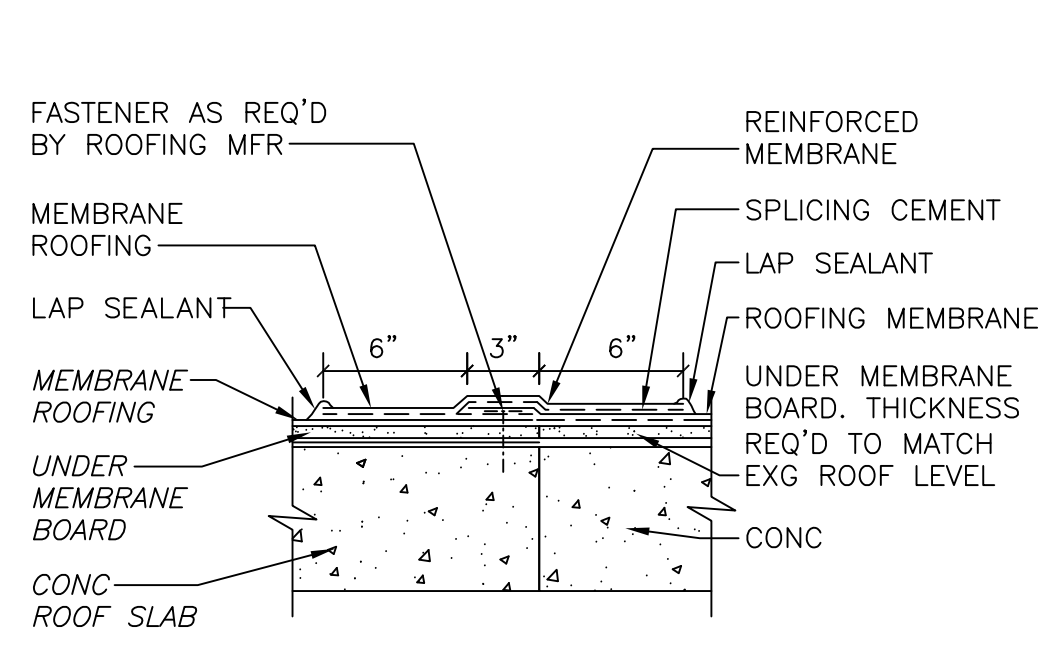
DETAIL G
1-1/2" = 1'-0" HT-A-2



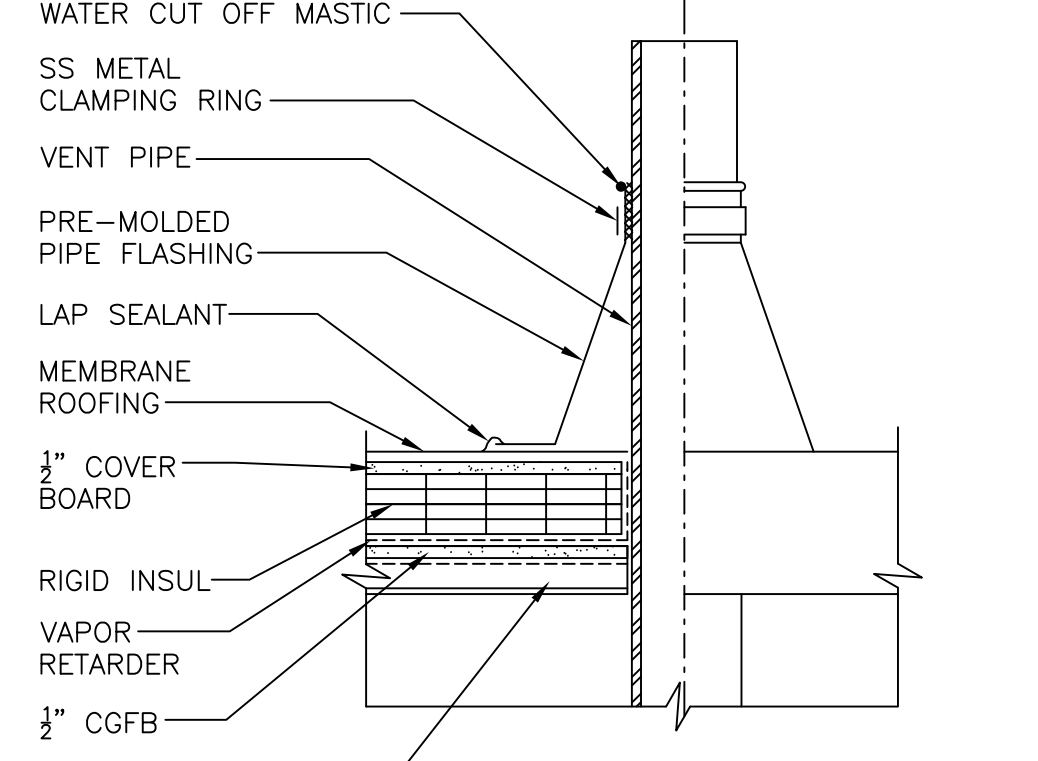
DETAIL H
1-1/2" = 1'-0"



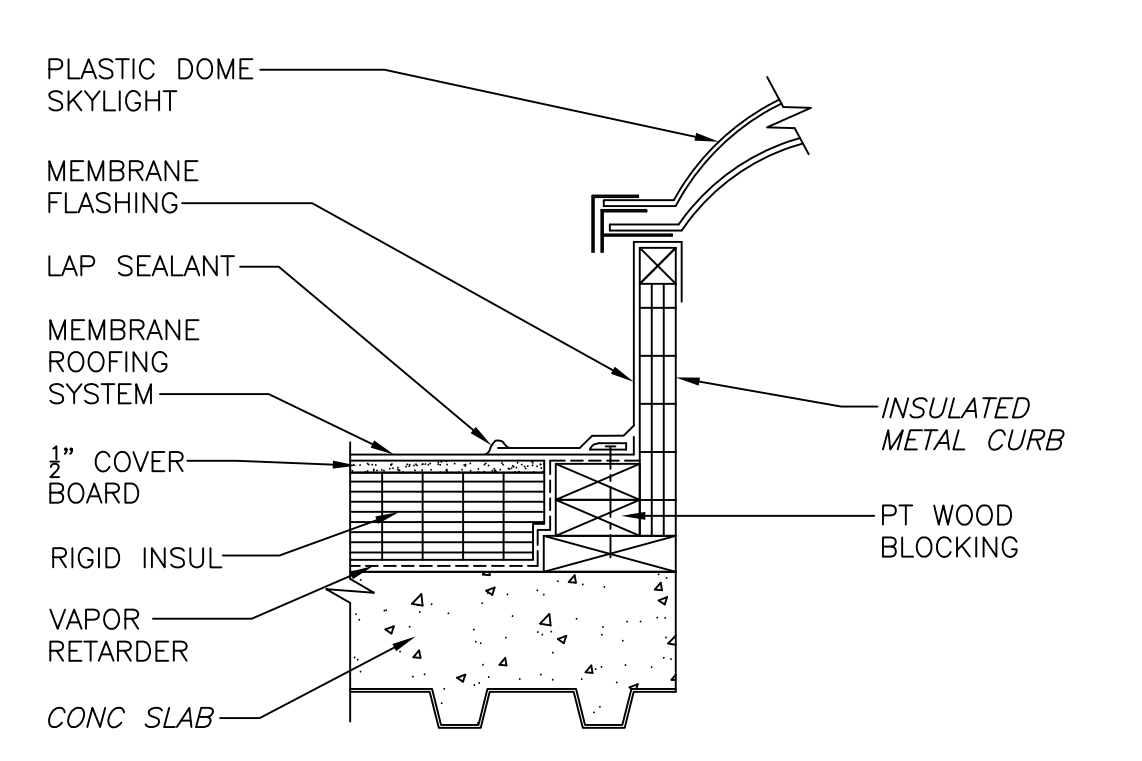
DETAIL J
1-1/2" = 1'-0"



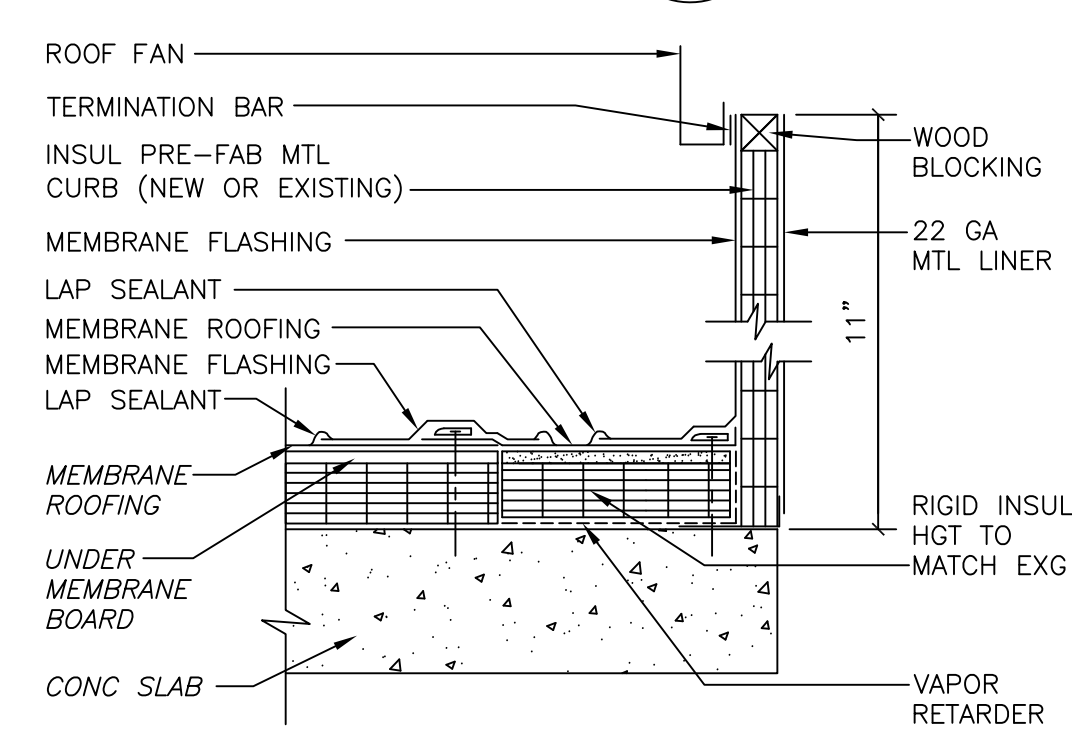
DETAIL K
1-1/2" = 1'-0"



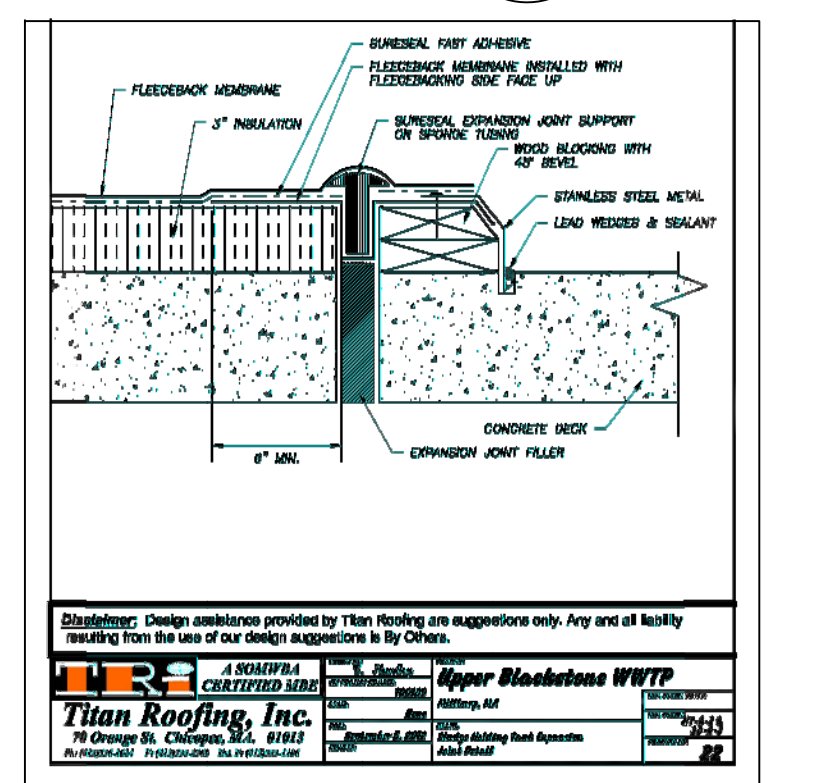
DETAIL L
1-1/2" = 1'-0"



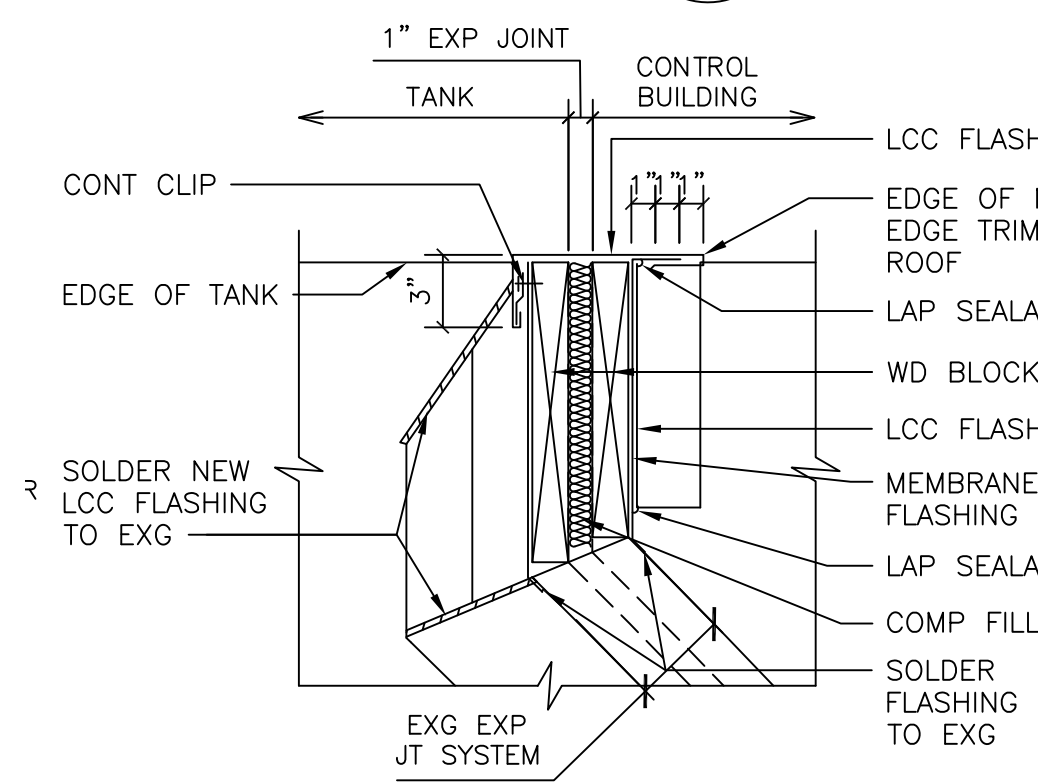
DETAIL M
1-1/2" = 1'-0" AD-A-1



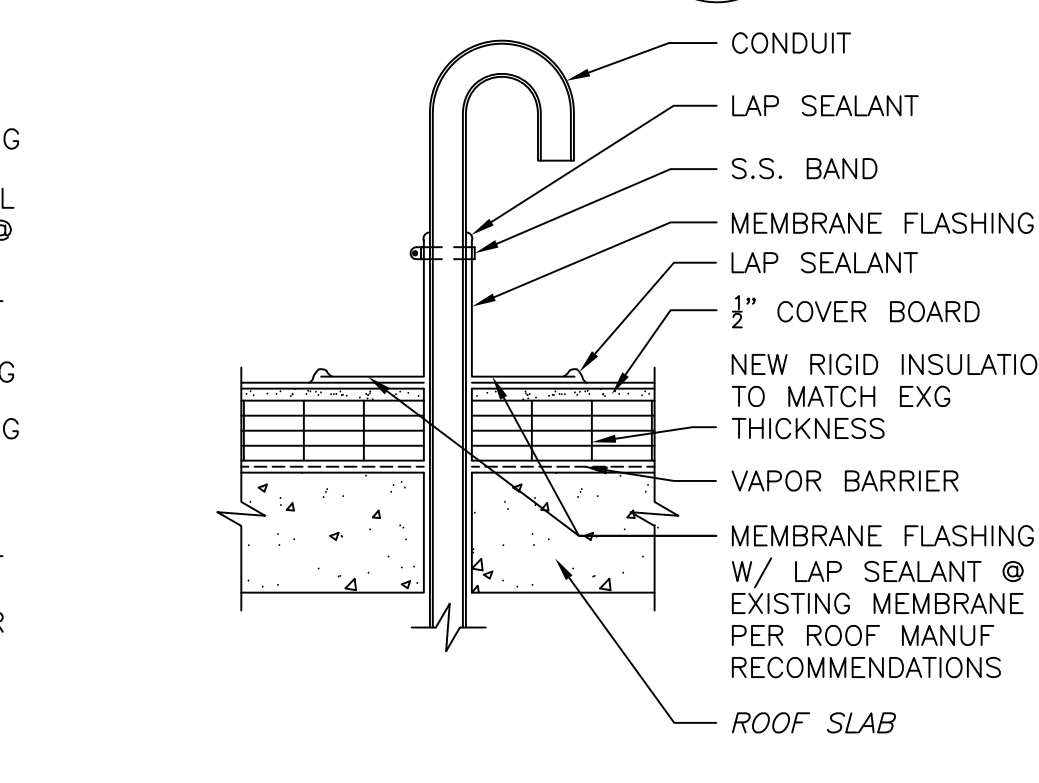
DETAIL N
1-1/2" = 1'-0"



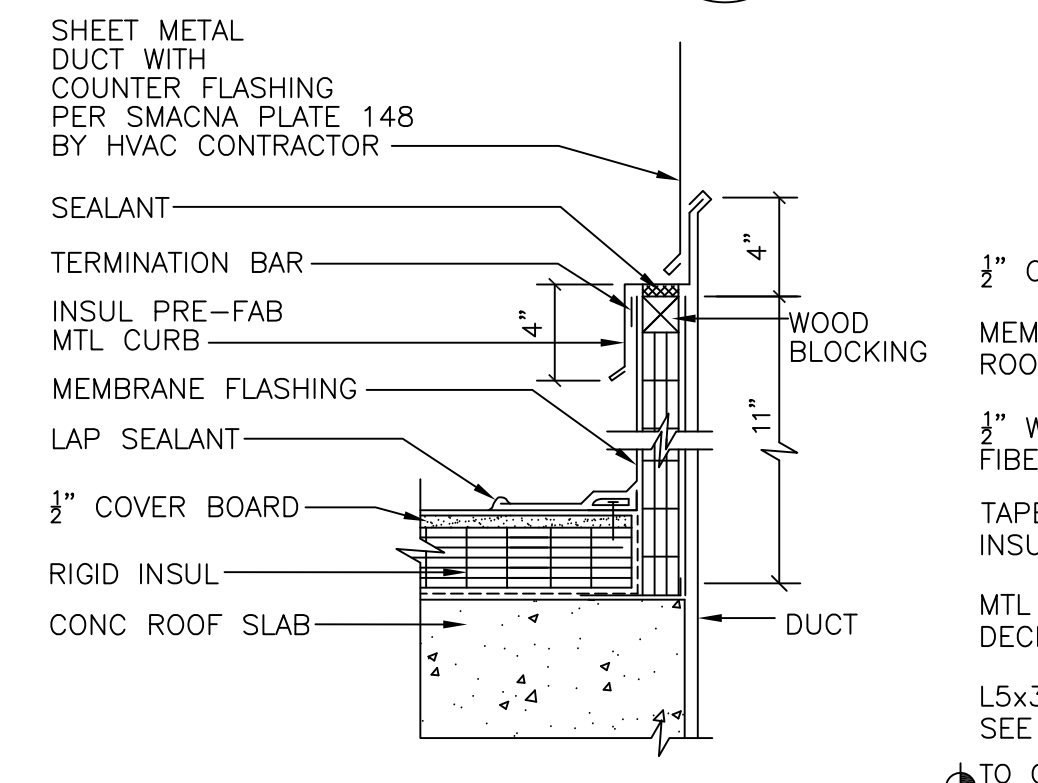
DETAIL O
1-1/2" = 1'-0" HT-A-2



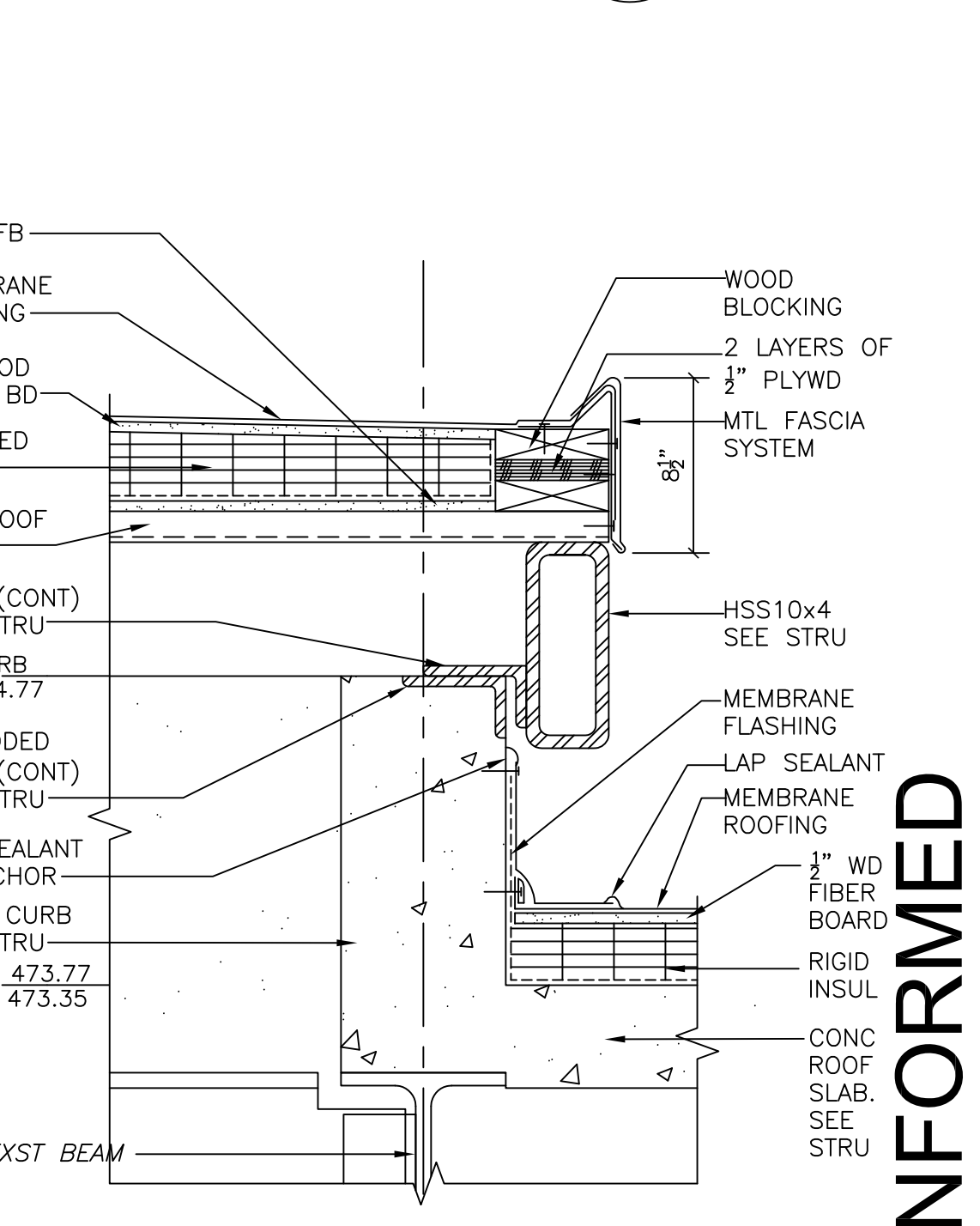
DETAIL P
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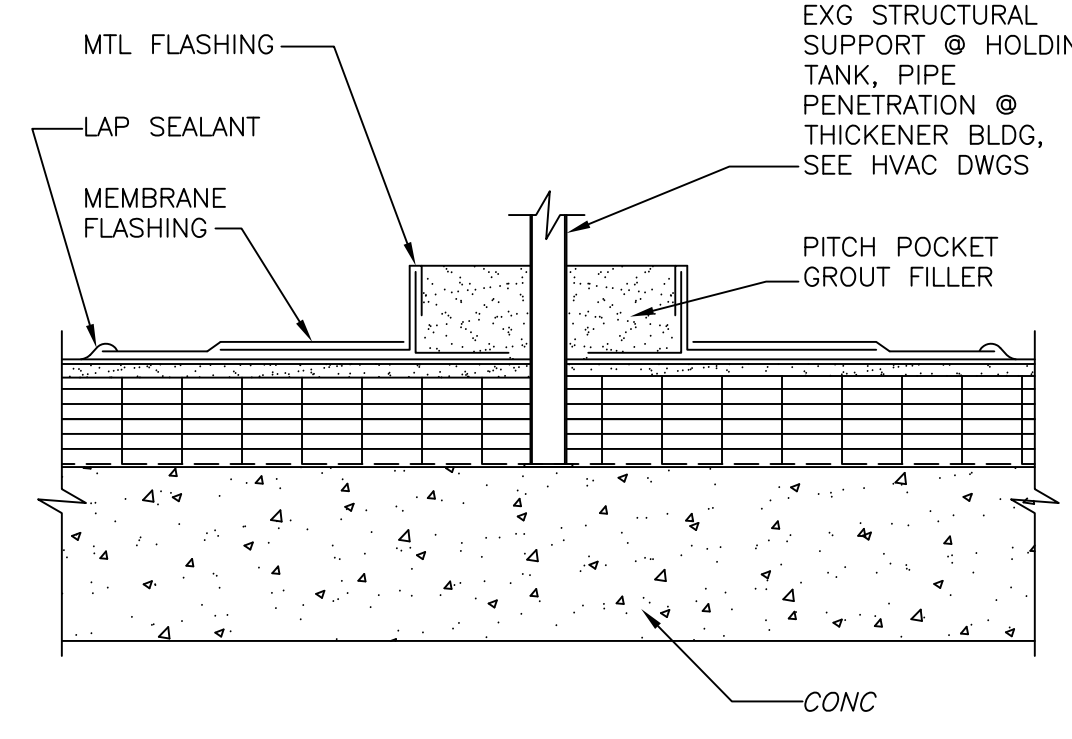
DETAIL Q
1-1/2" = 1'-0" HT-A-2



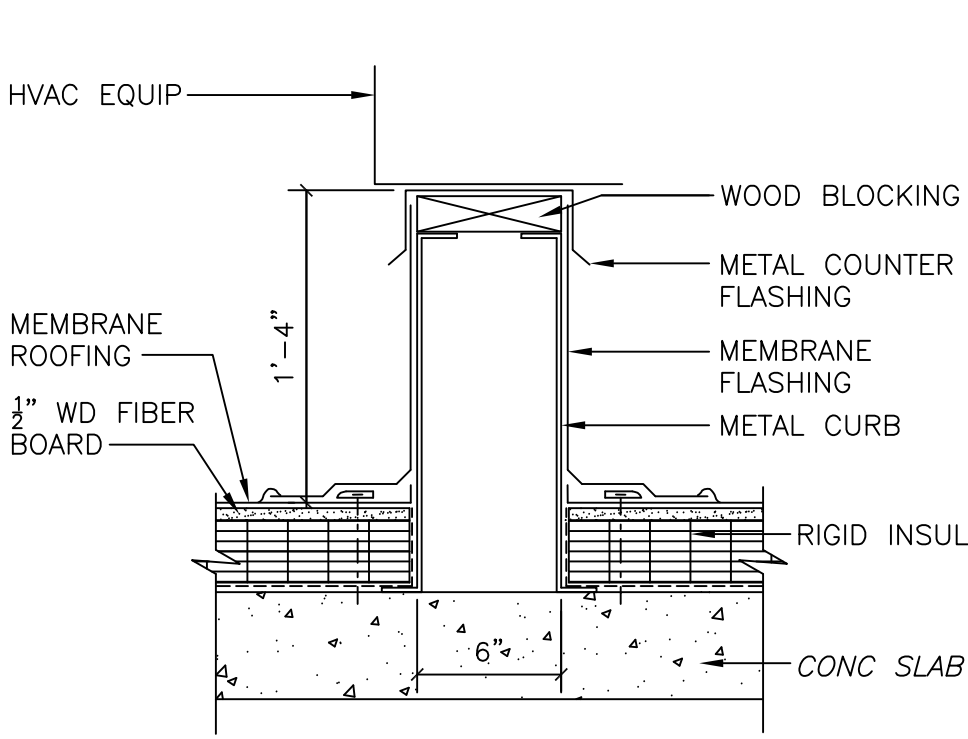
DETAIL R
1-1/2" = 1'-0" DW-A-7



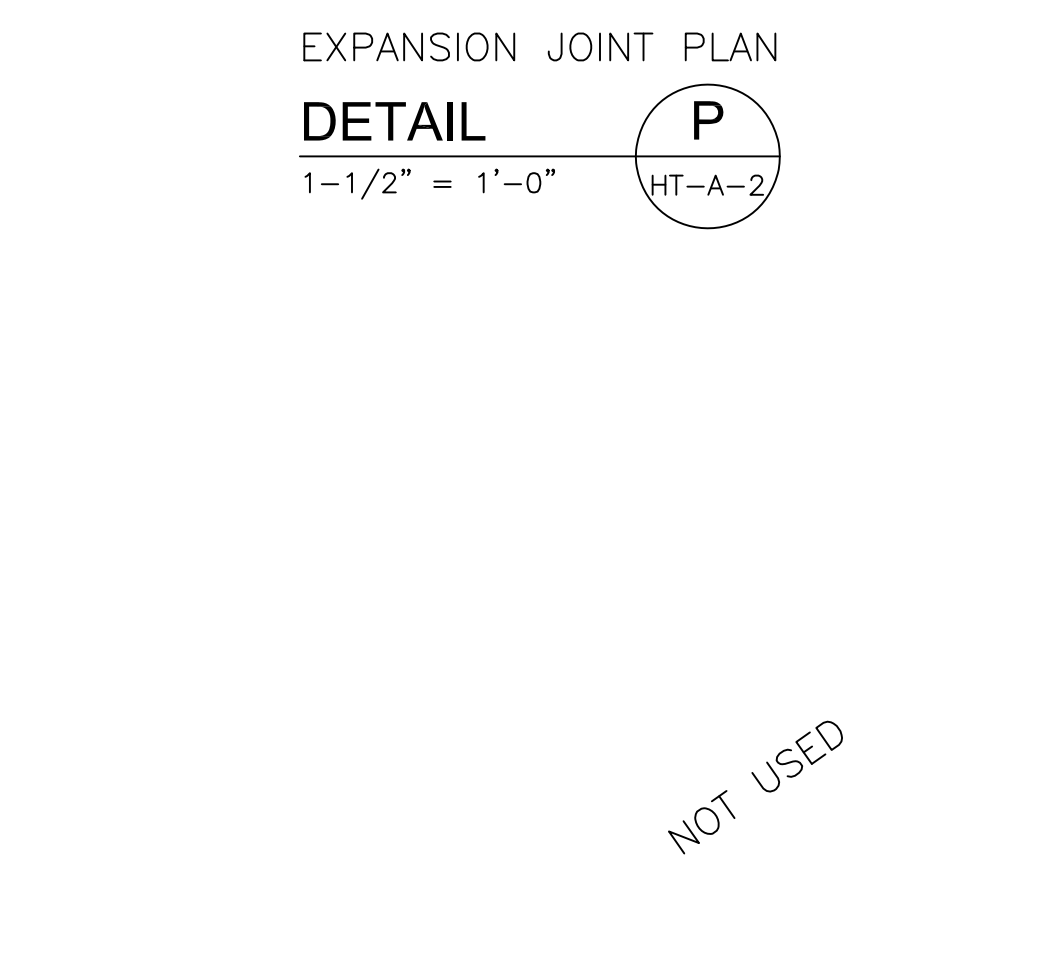
DETAIL S
1-1/2" = 1'-0" IB-A-3



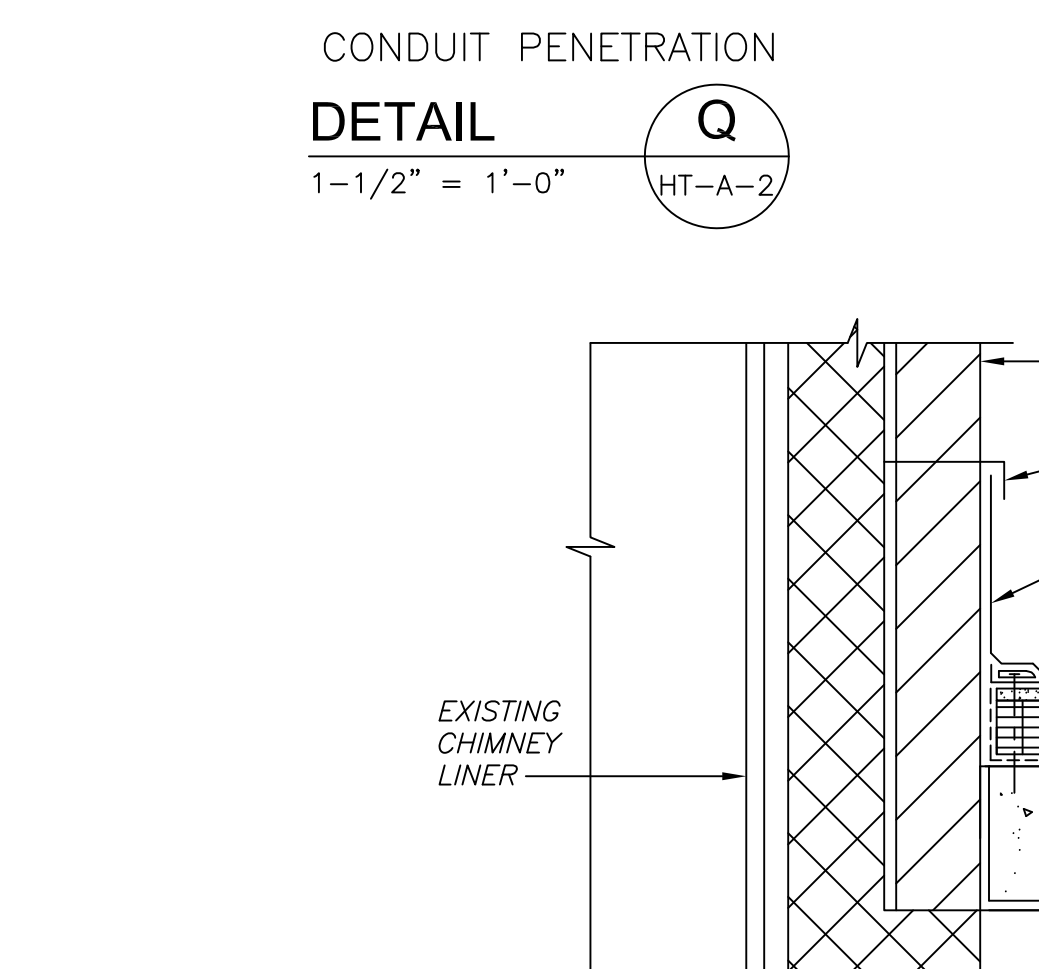
DETAIL T
1-1/2" = 1'-0" HT-A-2



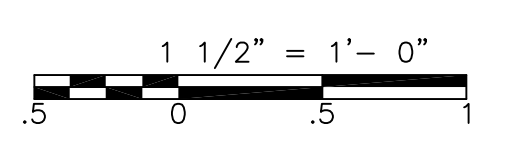
DETAIL U
1-1/2" = 1'-0" AD-A-3



DETAIL V
1-1/2" = 1'-0"



DETAIL W
1-1/2" = 1'-0" AD-A-1



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

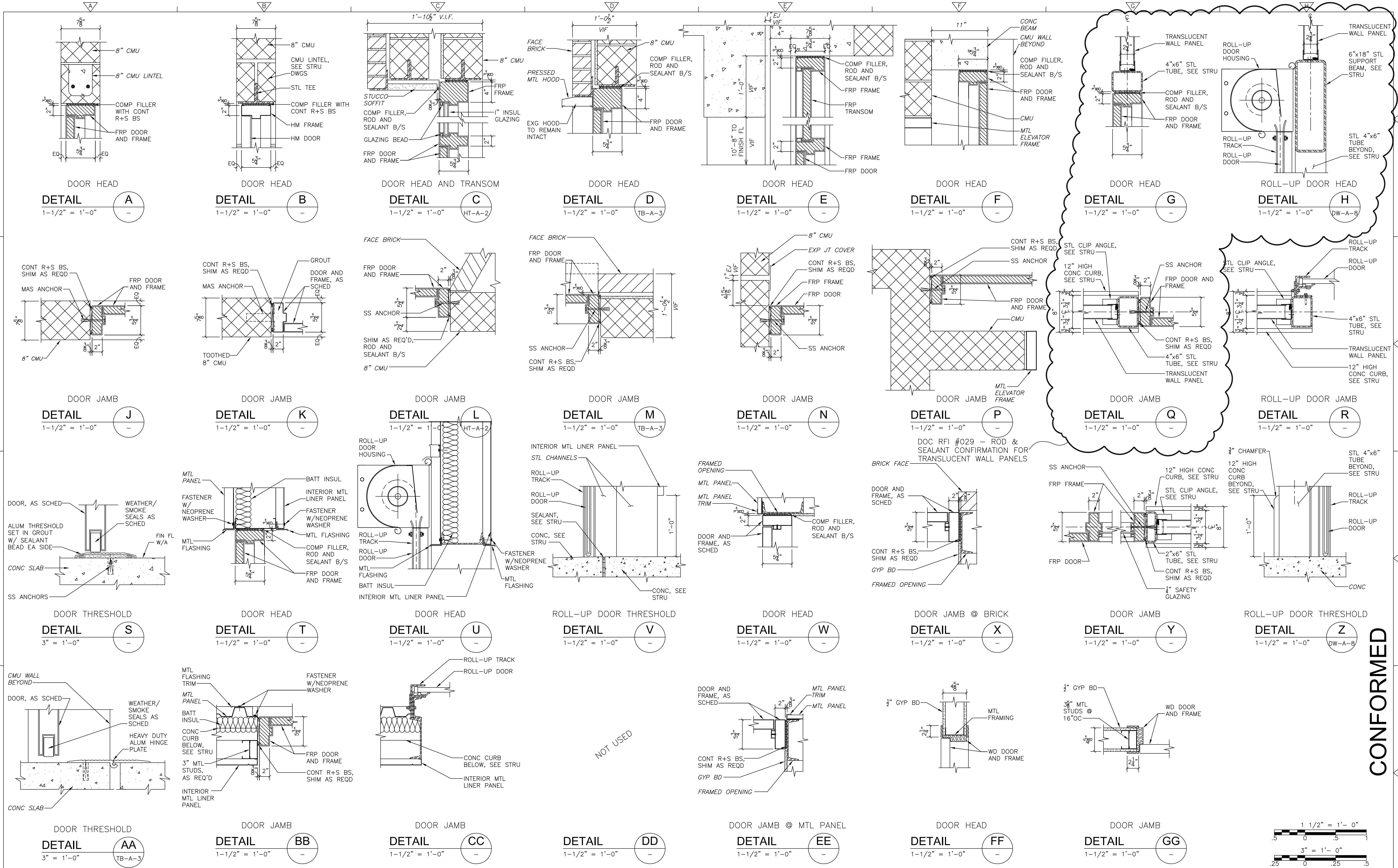
CADD FILE NO. ASDDT100
 DESIGNED BY: M. PELLITIER
 DRAWN BY: J. BALDWIN
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLITIER
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

ROOF DETAILS
 PROJECT NO. 1289-74283
 Sht. 48 of 312
SD-A-3
 Acc #1289-74454

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM W-KNEELAND FILES\ASDDT200.DWG Saved by: PLOWRY On: 20-Dec-12 Plotted on: 20-Dec-12 1:18 PM



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ASDDT200
 DESIGNED BY: M. PELLETIER
 DRAWN BY: J. BALDWIN
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/19/2012

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

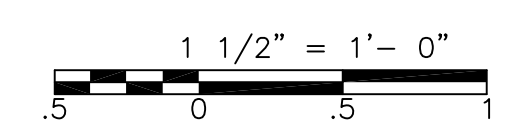
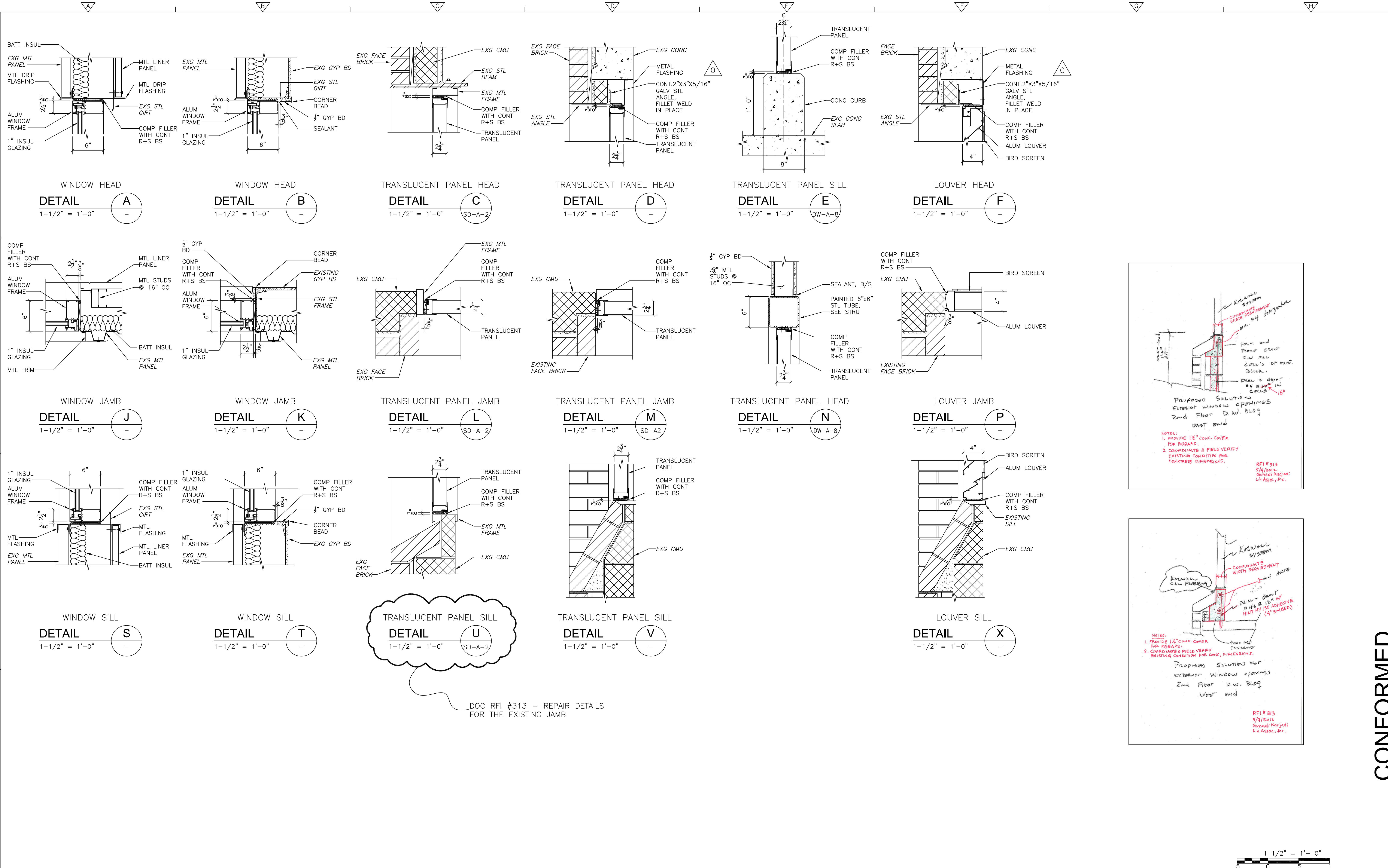
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DOOR
 DETAILS**

PROJECT NO. 1289-74283
 Sht. 49 of 312
SD-A-4
 Acc #1289-74455

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\ASDDT300.DWG Saved by: PLOWRY On: 20-Dec-12 1:34 PM



REV. NO.	DATE	DRWN	CHKD	REVISIONS PER ADDENDA NOS. 1 THRU 3	REMARKS
0	09/10	MP	MP	REVISIONS PER ADDENDA NOS. 1 THRU 3	

CADD FILE NO. ASDDT300
 DESIGNED BY: M. PELLETIER
 DRAWN BY: J. BALDWIN
 SHEET CHK'D BY: B. GIORGI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: M. PELLETIER
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/19/2012

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

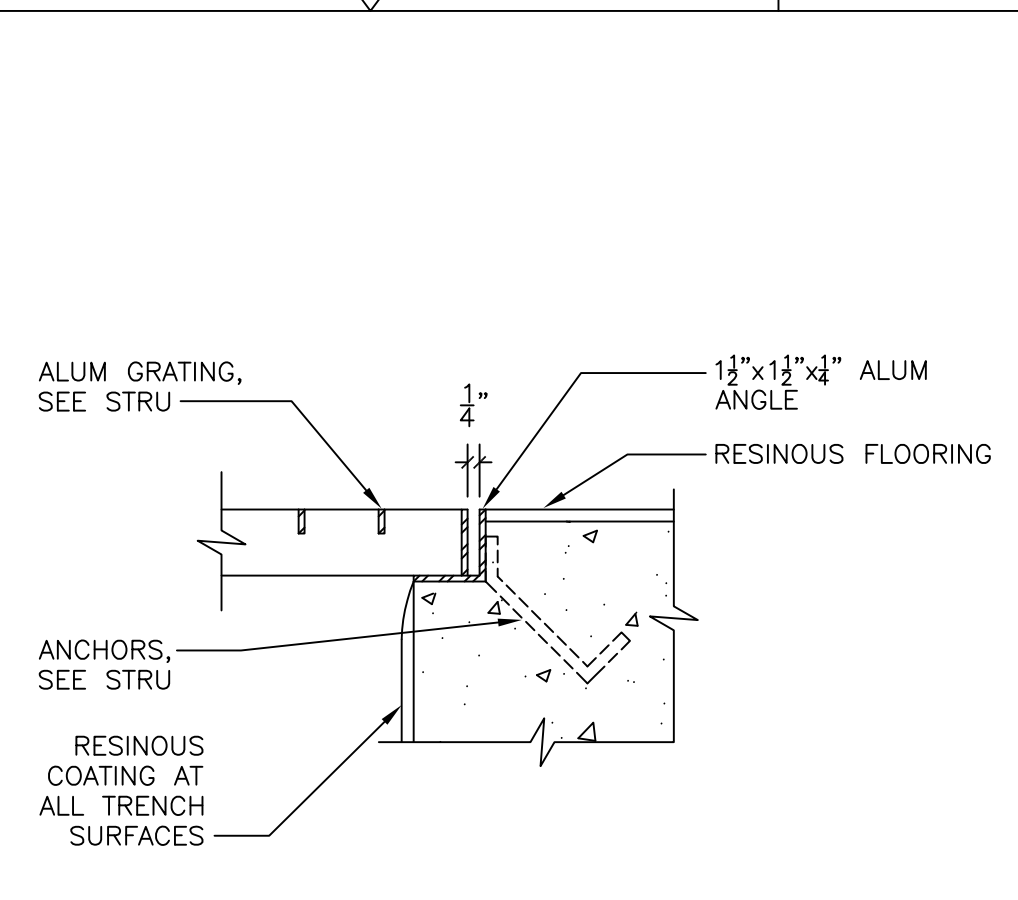
WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

LOUVER, WINDOW AND
 TRANSLUCENT PANEL DETAILS

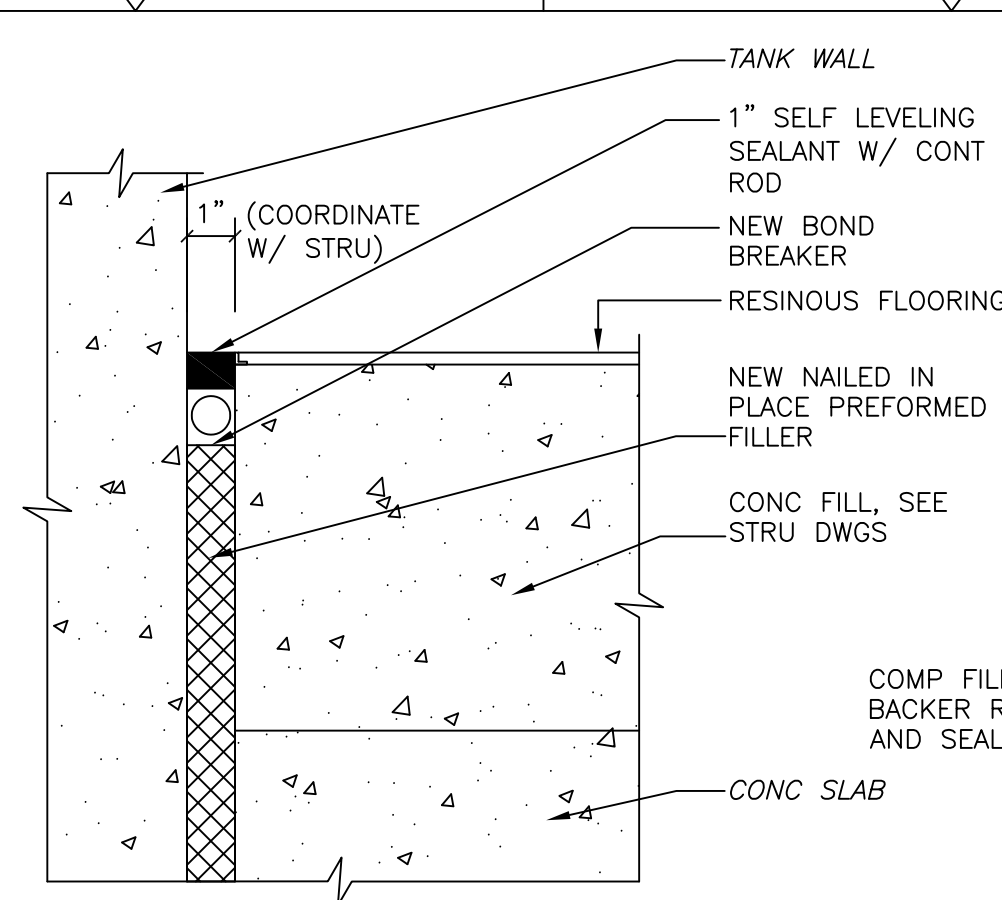
PROJECT NO. 1289-74283
 Sht. 50 of 312
 SD-A-5
 Acc #1289-74456

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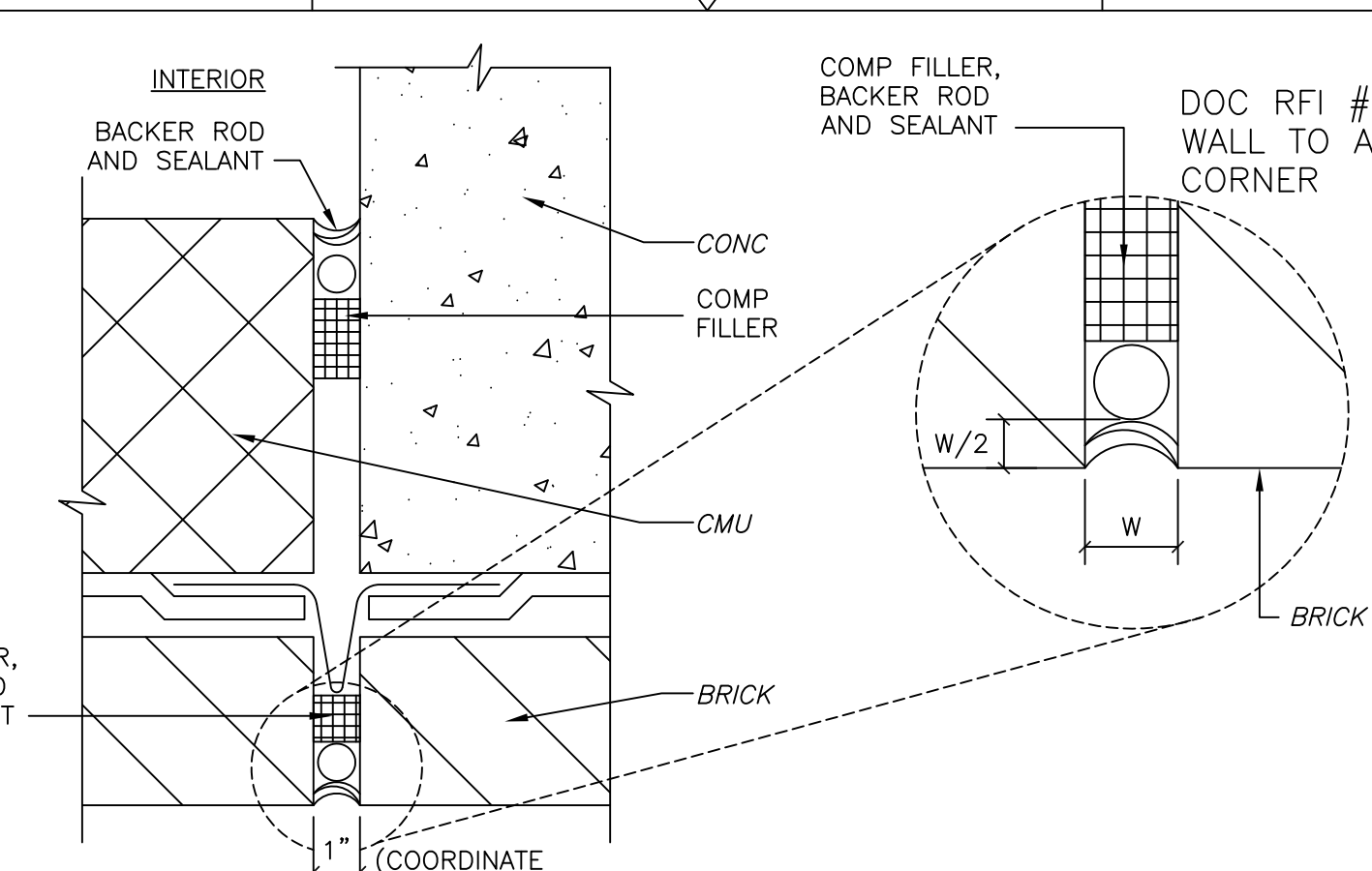
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\ASDDT400.DWG Saved by: PLOWRY On: 27-Dec-12 11:39 AM



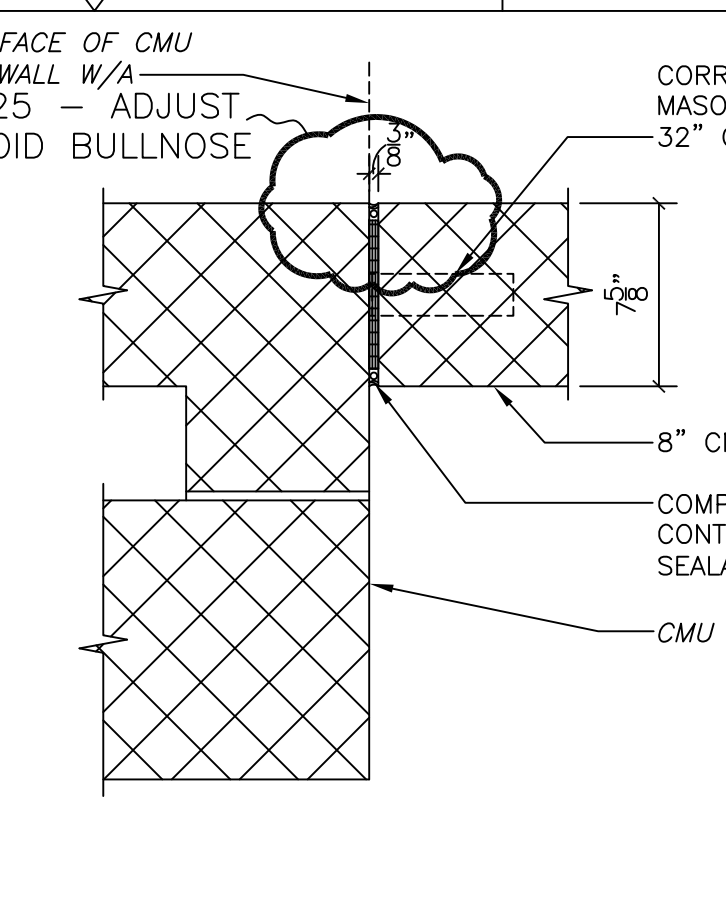
DETAIL A
3" = 1'-0"
PT-A-1



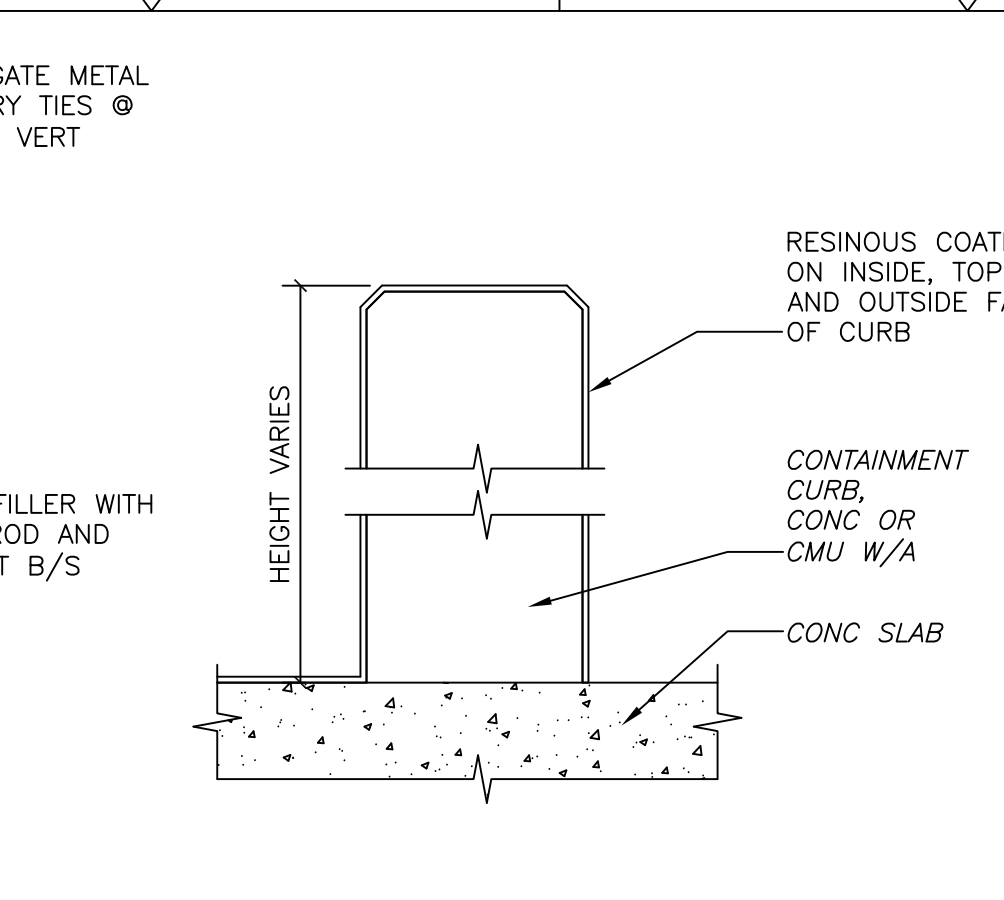
DETAIL B
3" = 1'-0"
HT-A-2



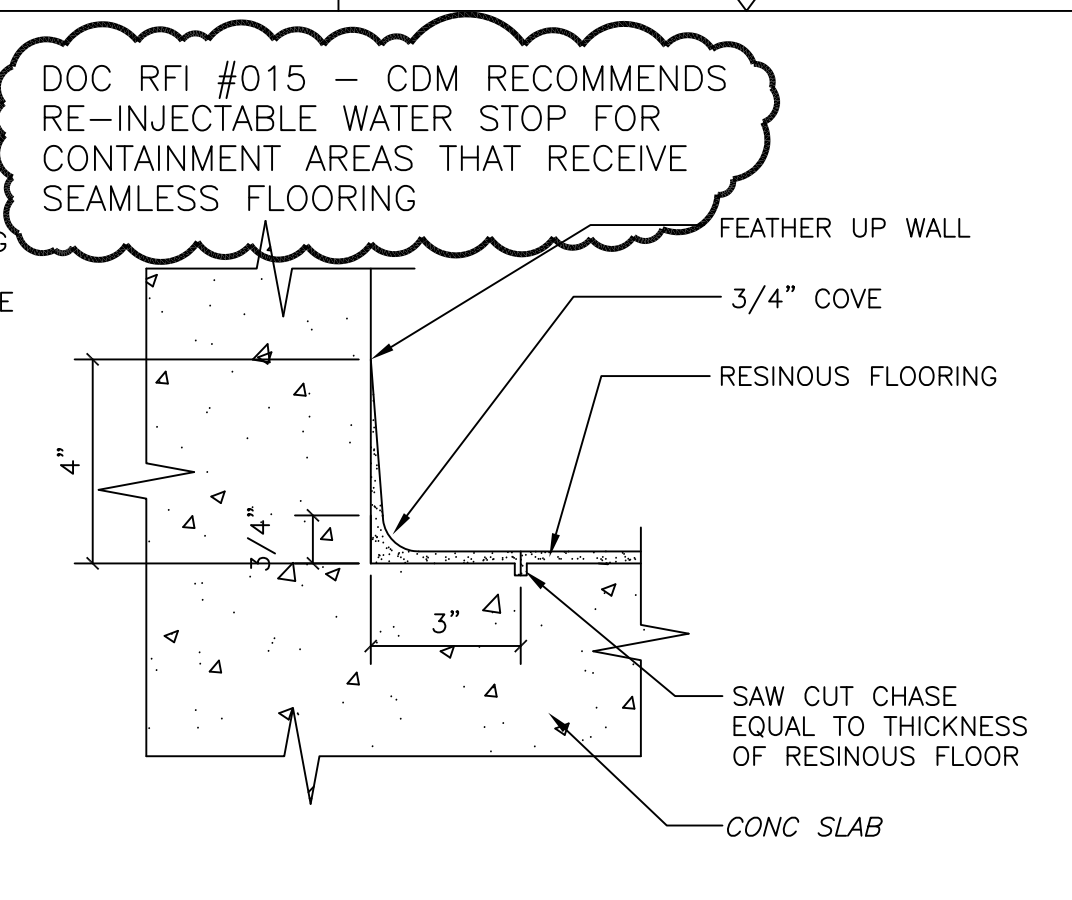
DETAIL C
3" = 1'-0"
HT-A-2



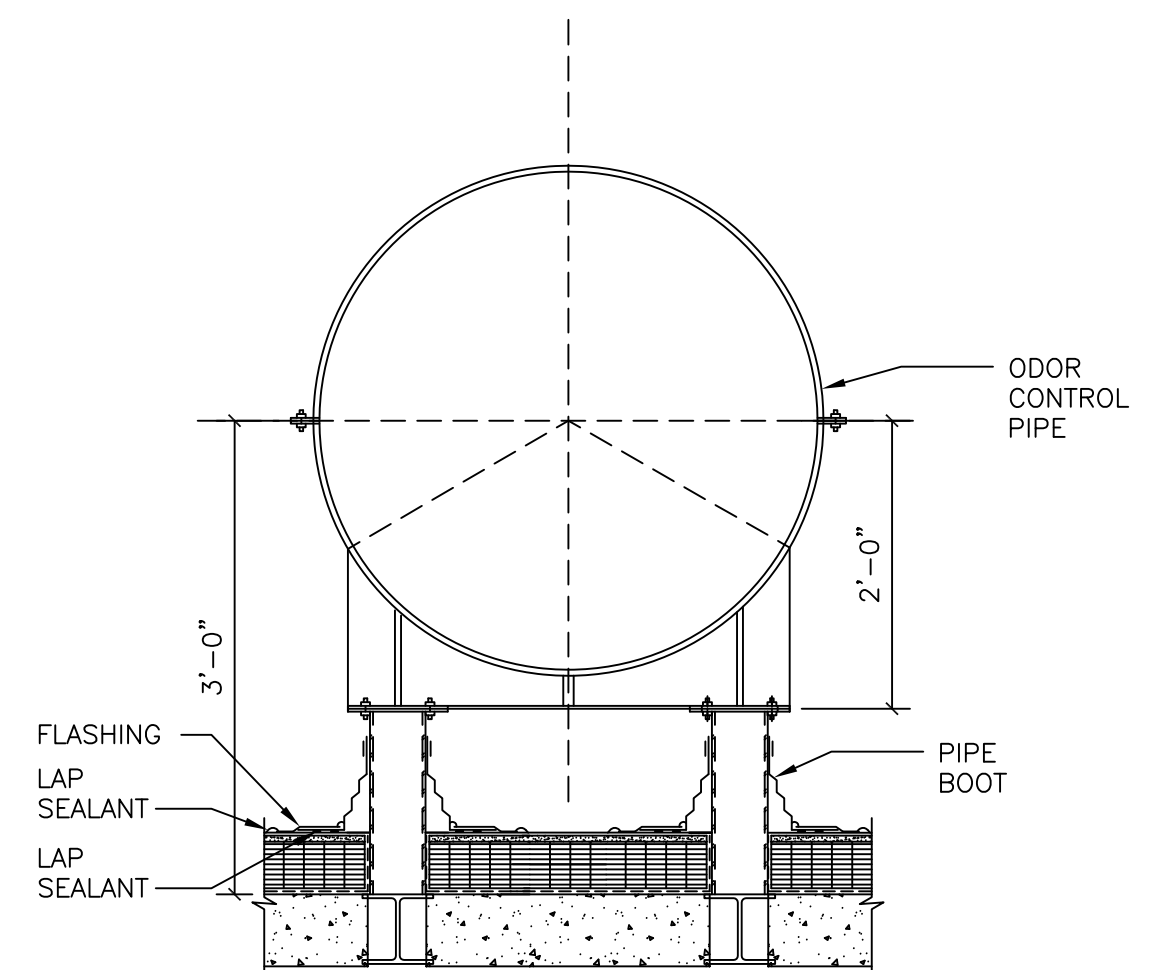
DETAIL D
1-1/2" = 1'-0"
TB-A-3



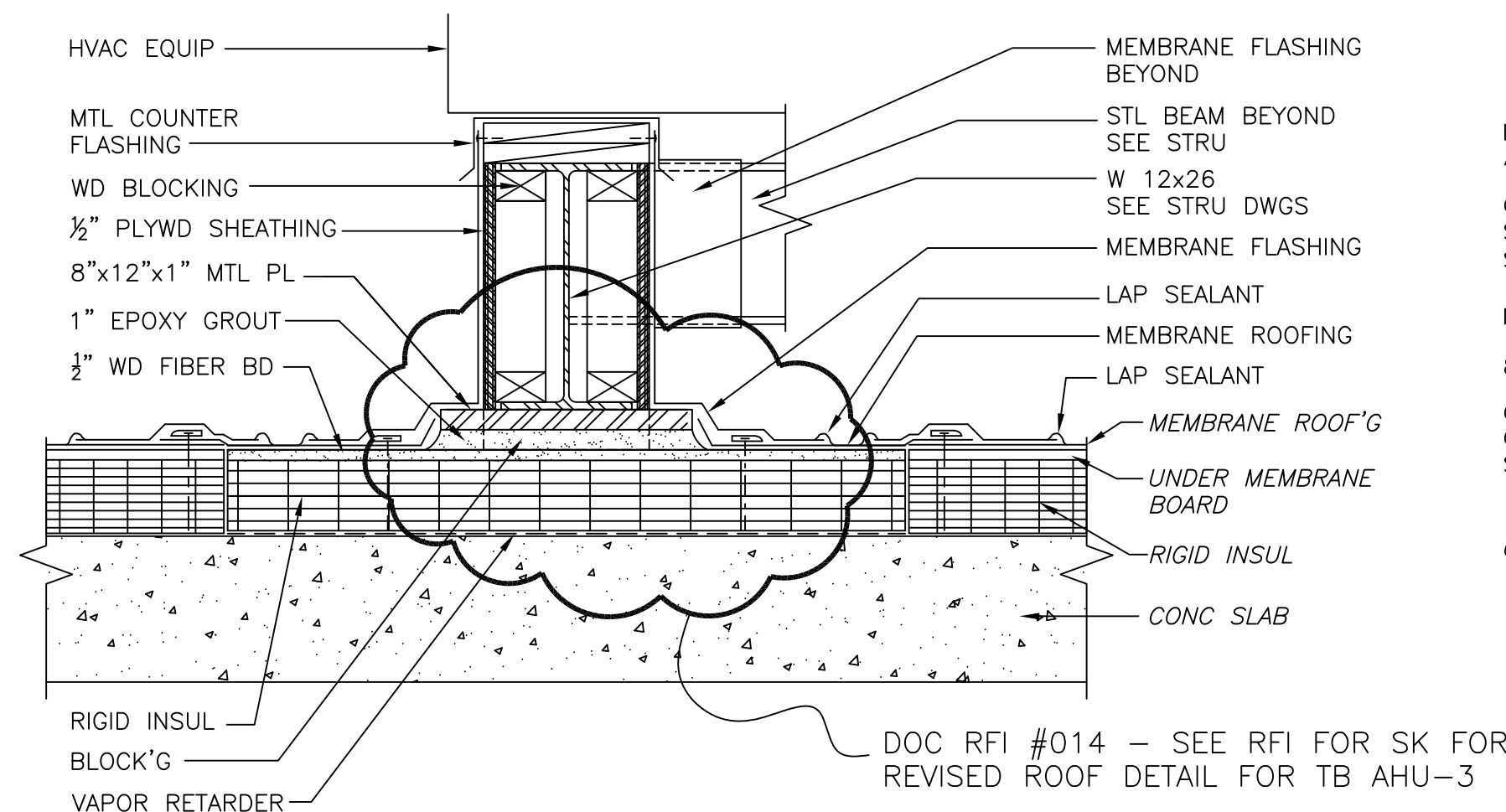
DETAIL E
1-1/2" = 1'-0"
DW-A-4



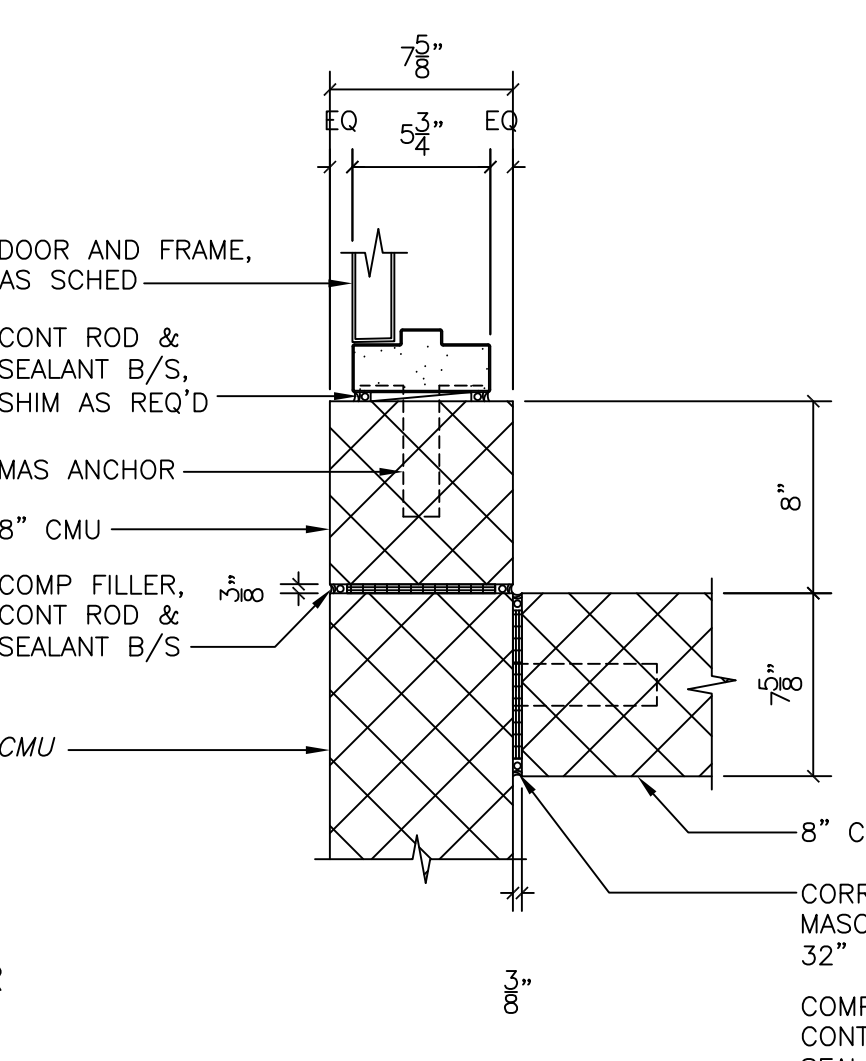
DETAIL F
3" = 1'-0"
PT-A-1



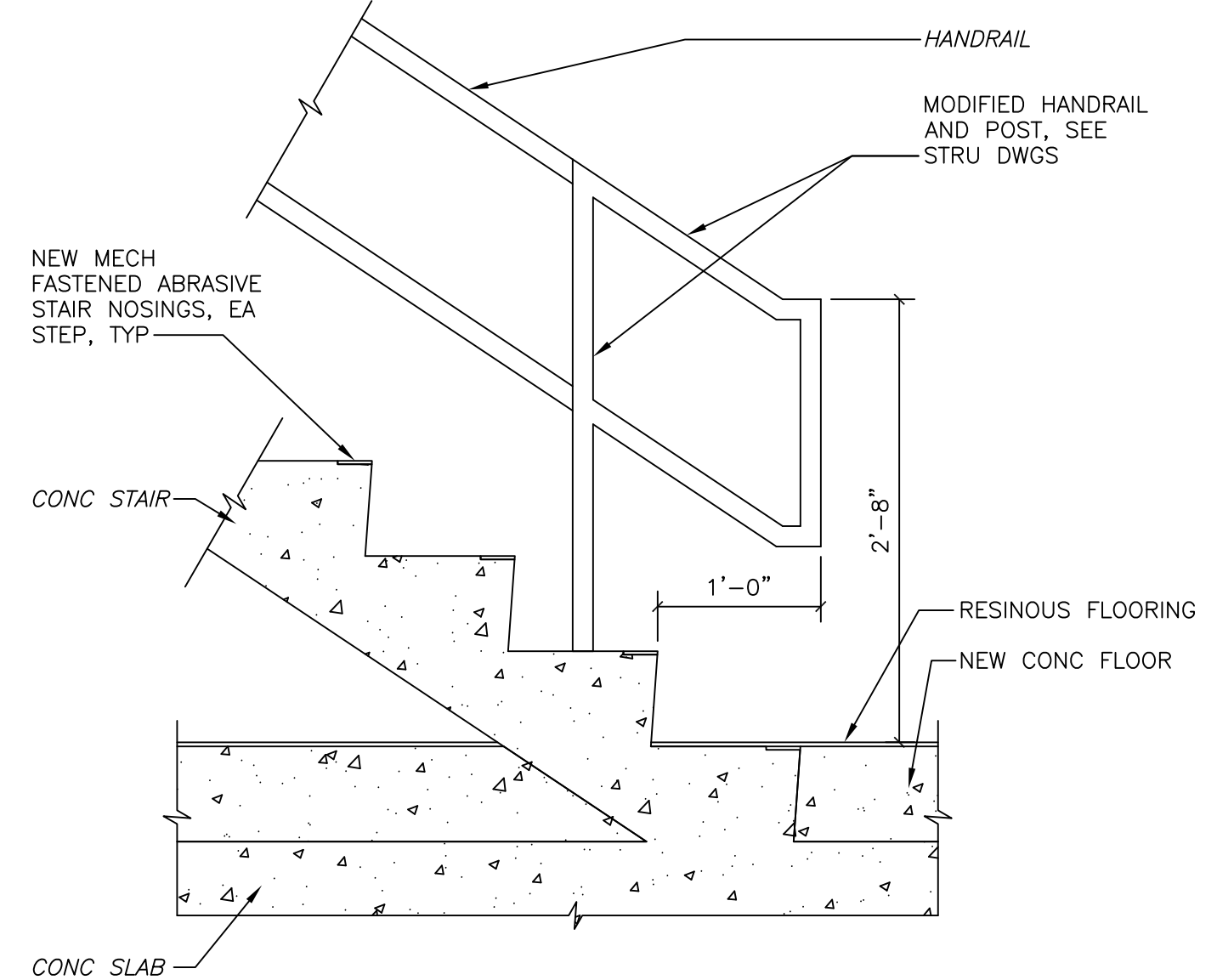
DETAIL G
3/4" = 1'-0"
-



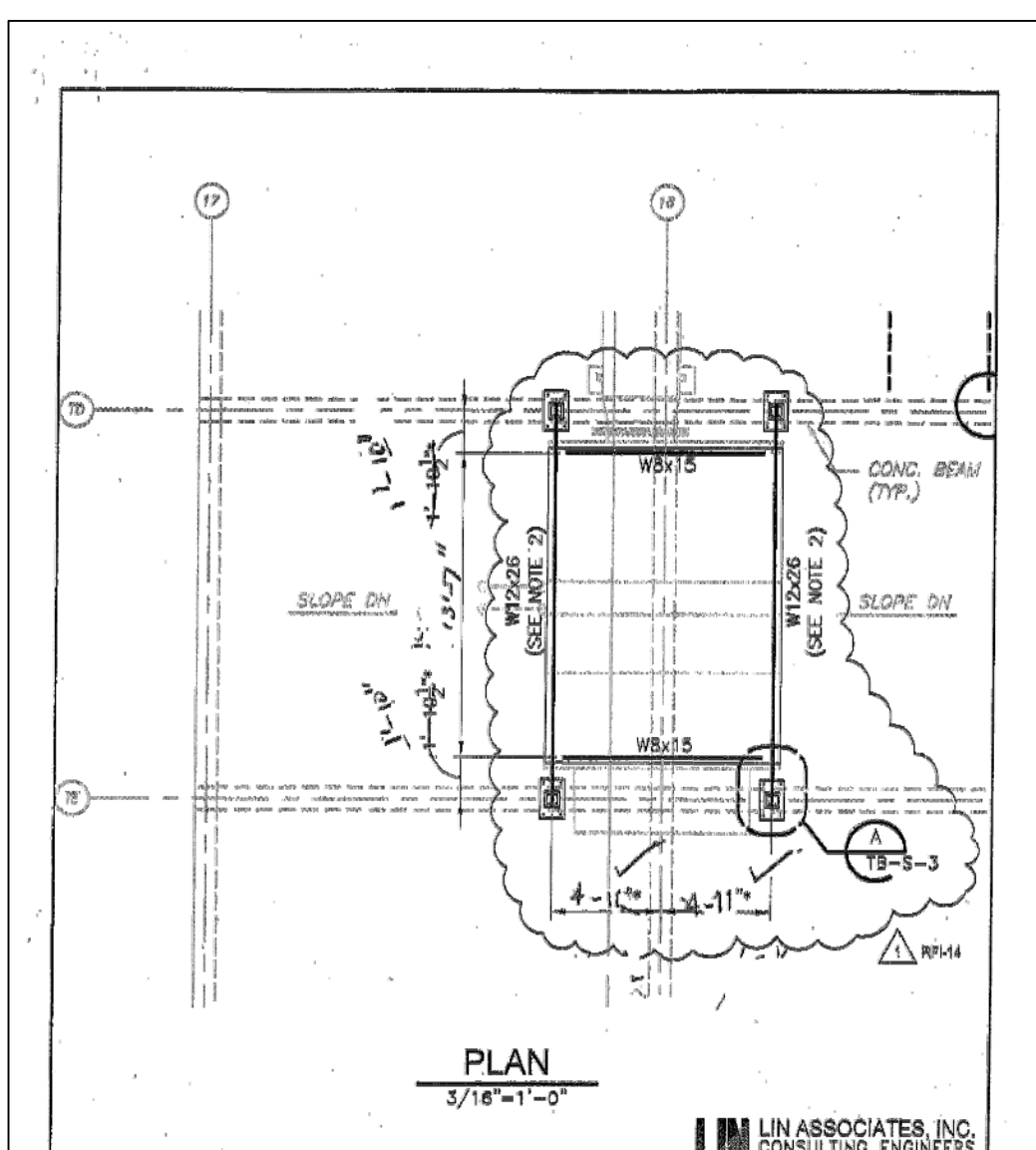
DETAIL H
1-1/2" = 1'-0"
DW-A-7



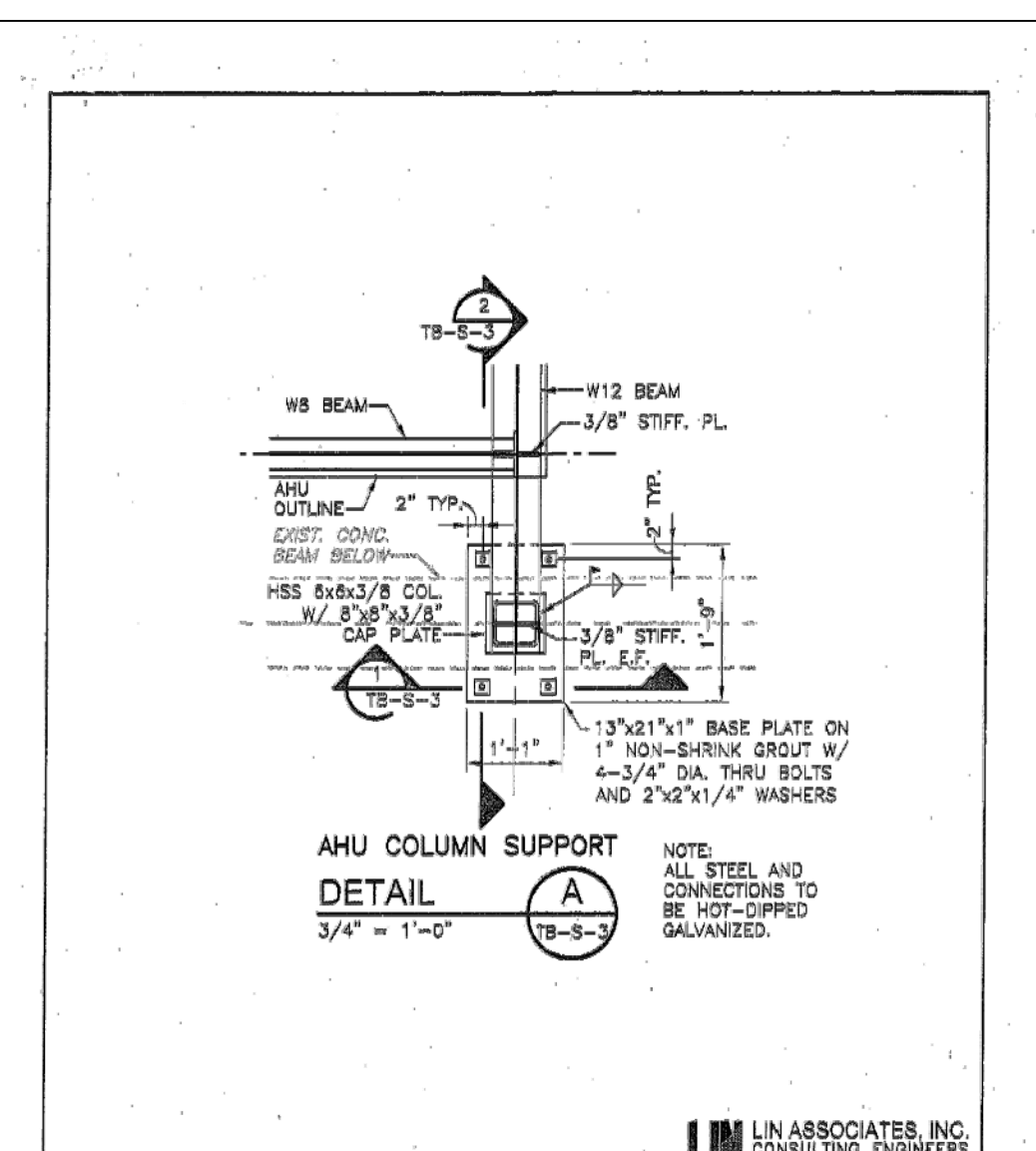
DETAIL J
1-1/2" = 1'-0"
TB-A-3



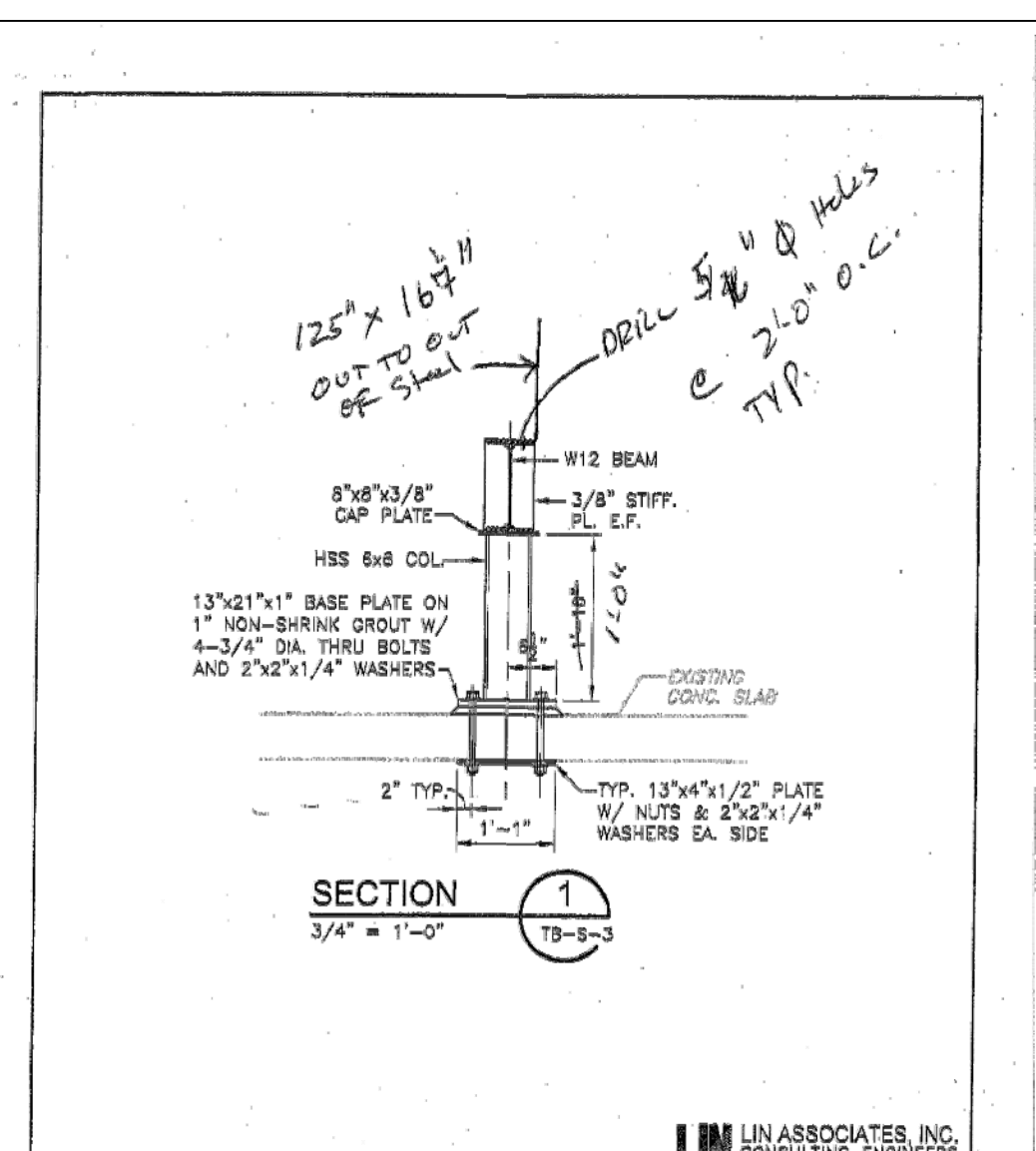
SECTION 1
1/4" = 1'-0"
PT-A-1



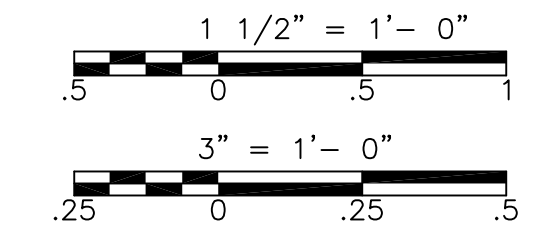
PLAN
3/16" = 1'-0"
LIN ASSOCIATES, INC. CONSULTING ENGINEERS
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III
THICKENER BUILDING ROOF PLAN
SKS-01
RPL NO. 14
REF. DRAWING NO. TB-S-3
SCALE: 3/16" = 1'-0"
DATE: 01/04/2011



DETAIL A
3/4" = 1'-0"
TB-S-3
LIN ASSOCIATES, INC. CONSULTING ENGINEERS
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III
THICKENER BUILDING ROOF PLAN
SKS-02
RPL NO. 14
REF. DRAWING NO. TB-S-3
SCALE: 3/4" = 1'-0"
DATE: 01/04/2011



SECTION 1
3/4" = 1'-0"
TB-S-3
LIN ASSOCIATES, INC. CONSULTING ENGINEERS
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III
THICKENER BUILDING ROOF PLAN
SKS-03
RPL NO. 14
REF. DRAWING NO. TB-S-3
SCALE: 3/4" = 1'-0"
DATE: 01/04/2011



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ASDDT400
DESIGNED BY: M. PELLETIER
DRAWN BY: J. BALDWIN
SHEET CHK'D BY: B. GIORGI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: M. PELLETIER
DATE: SEPTEMBER 2010

DOC RECORD DRAWING
7/19/2012

CDM
Camp Dresser & McKee Inc.
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

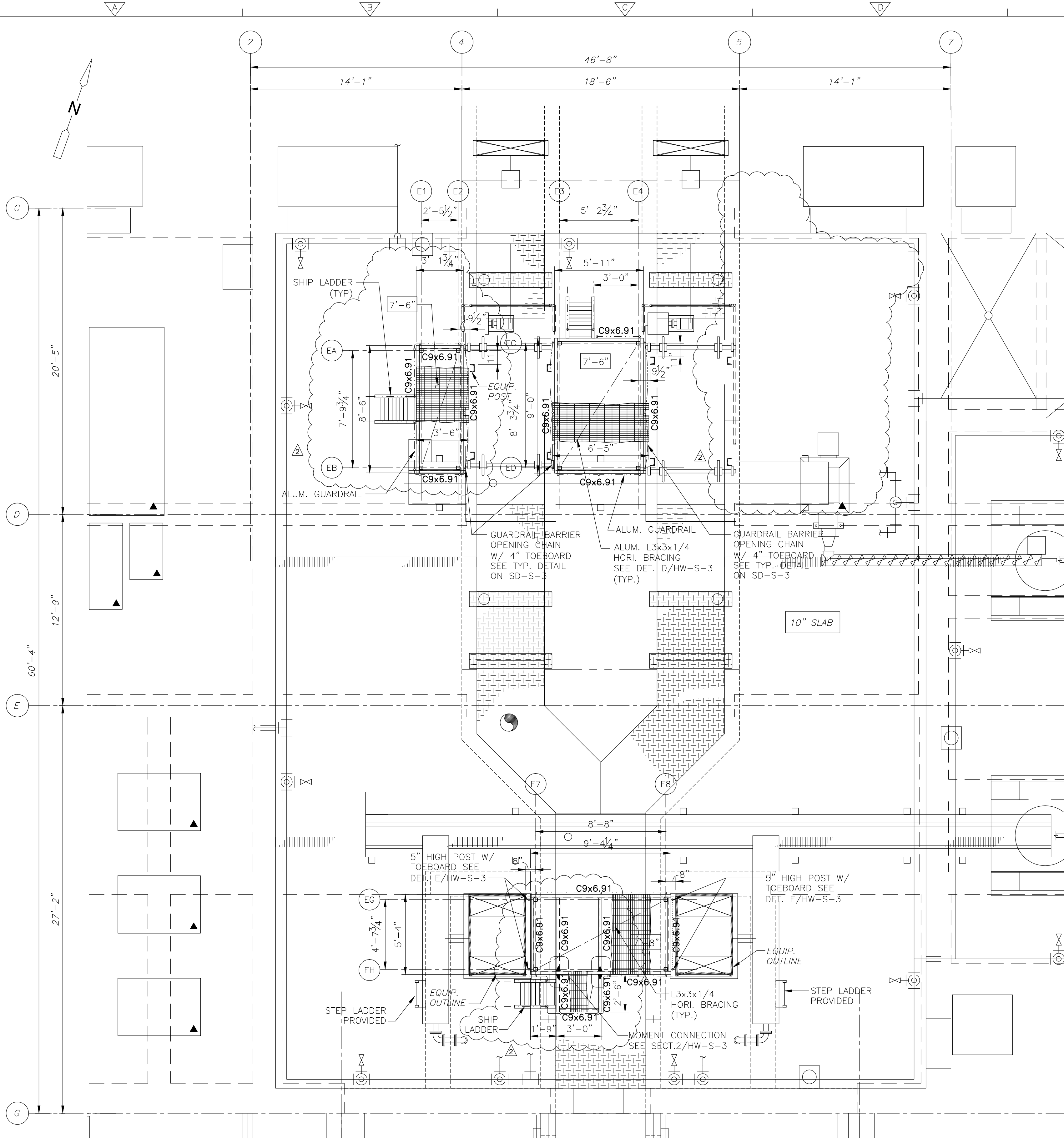
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

MISCELLANEOUS
DETAILS

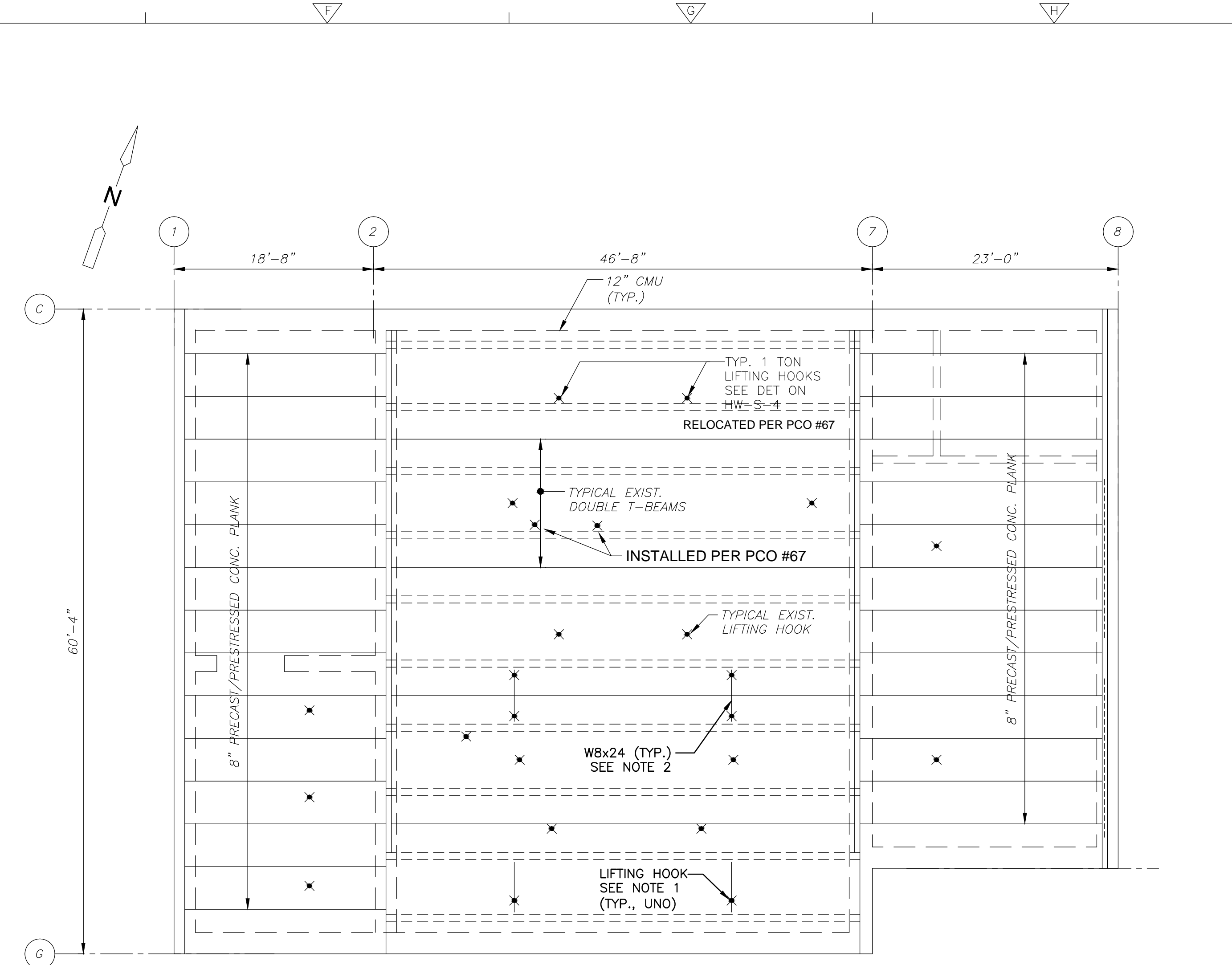
PROJECT NO. 1289-74283
Sht. 51 of 312
SD-A-6
Acc #1289-74457

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SHWPL001.DWG Saved by: PLOWRY On: 19-Mar-13 8:33 AM



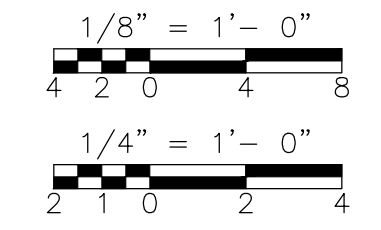
ALL ALUMINUM CONSTRUCTION
FIRST FLOOR PLAN
PLAN
1/8" = 1'-0"



ROOF FRAMING PLAN
PLAN
1/8" = 1'-0"

- ROOF NOTES:
1. X INDICATES 1 TON LIFTING-HOOK AT THE BOTTOM OF STEEL BEAM. SEE TYPICAL DETAIL ON SHEET SD-S-3. COORDINATE LOCATION WITH MECHANICAL REQUIREMENT AND EXISTING LIFTING HOOK IN PLACE.
 2. FOR STEEL BEAM TO EXISTING CONC. BEAM CONNECTION SEE TYPICAL DETAILS IN SHEET SD-S-3.

- FIRST FLOOR NOTES:
1. ALL PLATFORM SUPPORT MEMBERS RAILING AND SHIP LADDERS SHALL BE ALUMINUM ALLOYS 6063-T6.
 2. □ INDICATES 3x3x1/4 ALUMINUM TUBE COLUMN.
 3. ▨ INDICATES 1 3/4"x3/16" ALUMINUM GRATING TYP. UNO. WITH BEARING BARS @ 1 3/16" O.C. CROSS BARS @ 4" TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES.
 4. [7'-6"] INDICATES HEIGHT OF PLATFORM ABOVE FINISH FLOOR.
 5. ▶ INDICATES MOMENT CONNECTION.
 6. FOR SHIPS AND VERTICAL LADDER DETAILS SEE HW-S-3.
 7. ALL CONNECTIONS TO BE STAINLESS STEEL BOLTS OR ANCHORS, EXCEPT AT MOMENT CONNECTION.
 8. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO PLATFORM FABRICATION.



REV. NO.	DATE	DRWN	CHKD	REMARKS
08/11	GK	GK		PLATFORM REVISIONS AND DELETION

CADD FILE NO.	SHWPL001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

HEADWORKS BUILDING
EAST GRIT - FIRST FLOOR AND ROOF PLANS
IMPROVEMENTS

PROJECT NO.
1289-74283

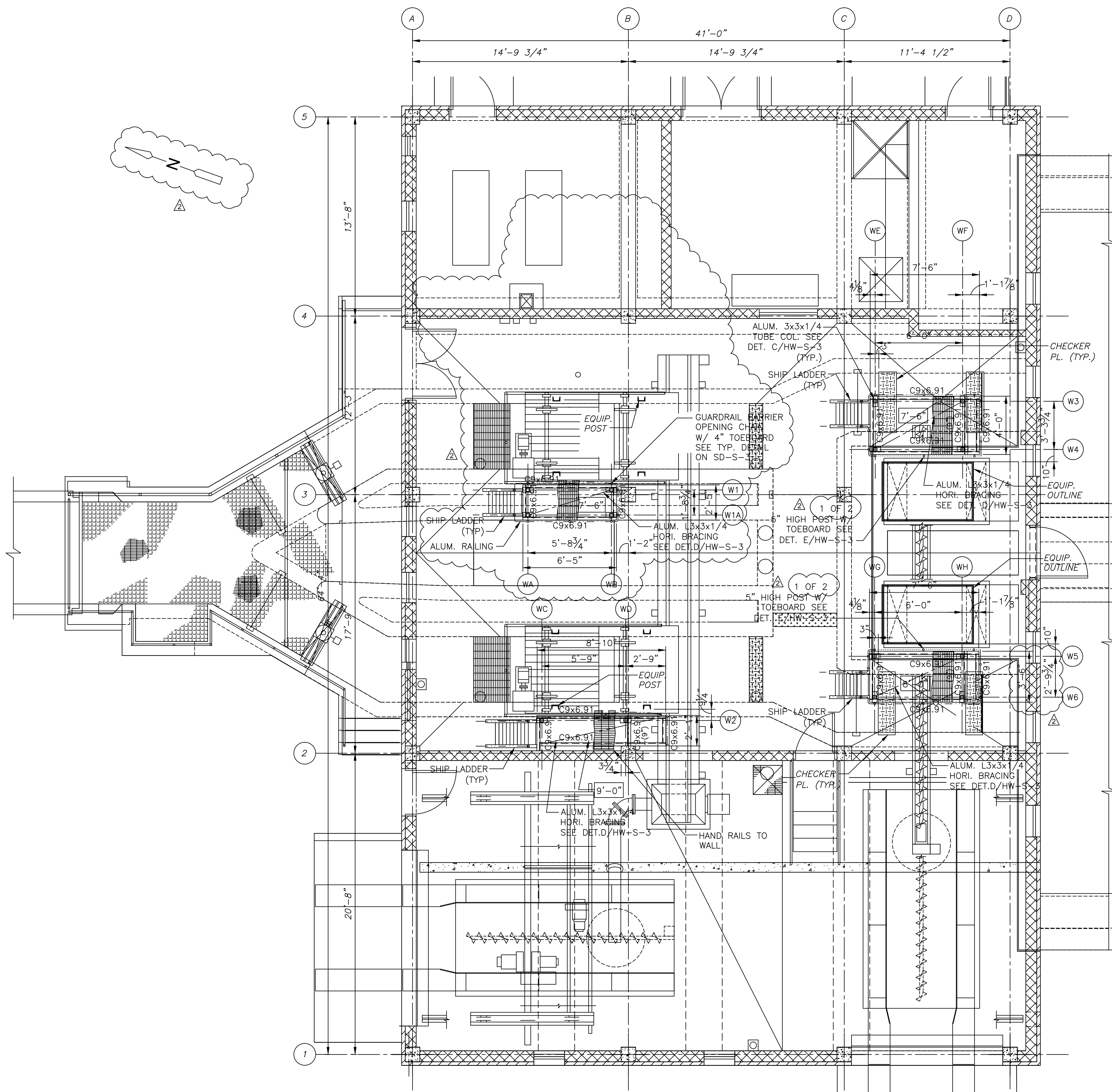
Sht. 53 of 312

HW-S-1

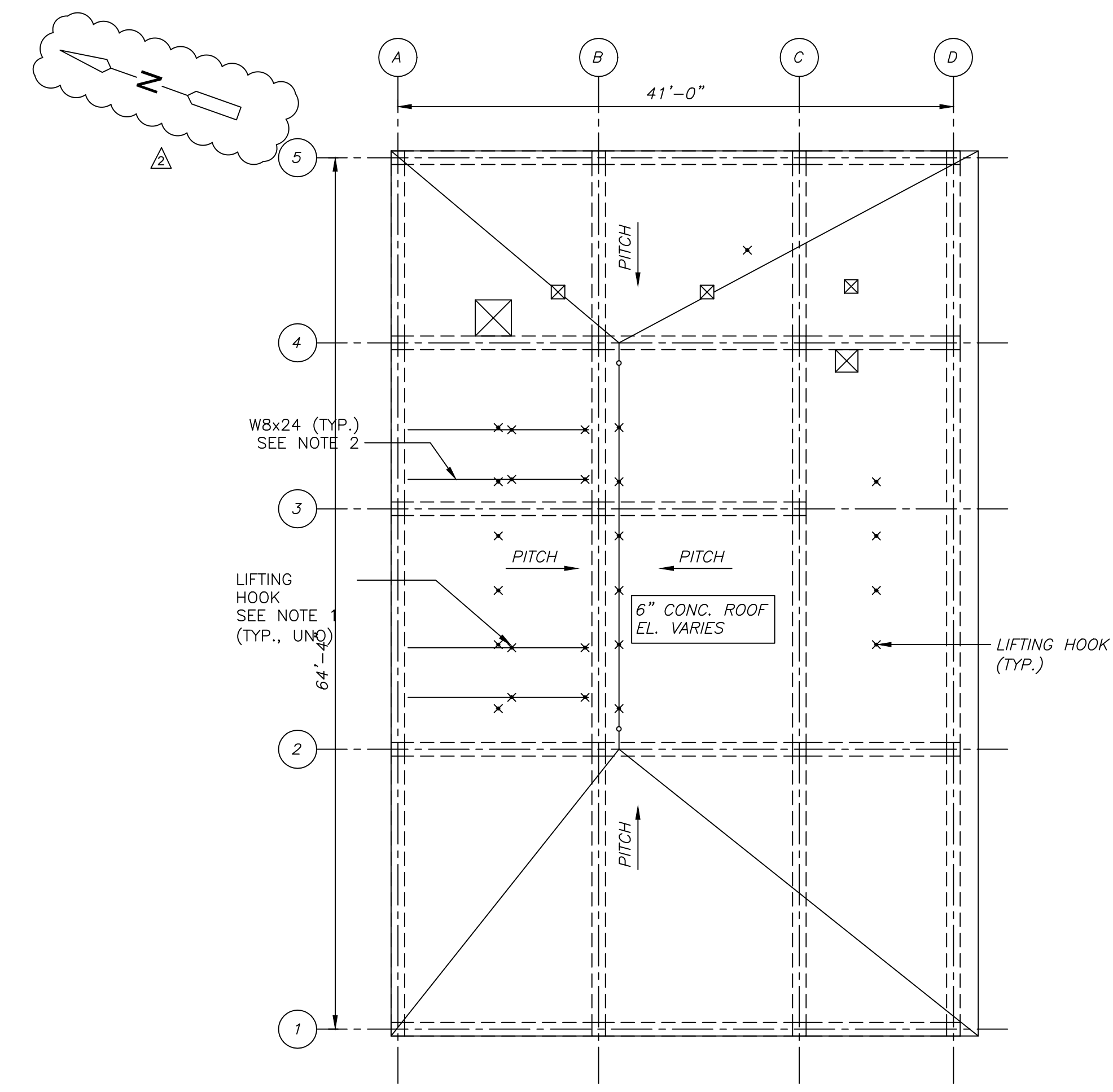
Acc # 1289-74459

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SHWPL002.DWG Saved by: PLOWRY On: 8-Feb-13 11:28 AM



FIRST FLOOR
PLAN
1/4"=1'-0"



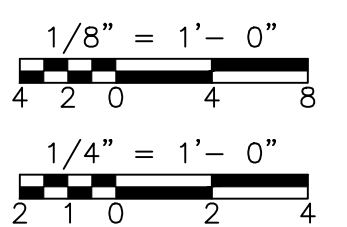
ROOF FRAMING PLAN
PLAN
1/8"=1'-0"

ROOF NOTES:

1. X INDICATES 1 TON LIFTING HOOK AT THE BOTTOM OF STEEL BEAM. SEE TYPICAL DETAIL ON SHEET SD-S-3. COORDINATE LOCATION WITH MECHANICAL REQUIREMENT AND EXISTING LIFTING HOOK IN PLACE.
2. FOR STEEL BEAM TO EXISTING CONC. BEAM CONNECTION SEE TYPICAL DETAILS IN SHEET SD-S-3.

FIRST FLOOR NOTES:

1. ALL PLATFORM SUPPORT MEMBERS RAILING AND SHIP LADDERS SHALL BE ALUMINUM ALLOYS 6063-T6.
2. □ INDICATES 3x3x1/4 ALUMINUM TUBE COLUMN.
3. ▨ INDICATES 1 3/4"x3/16" ALUMINUM CRATING TYP. UNO. WITH BEARING BARS @ 1 3/16" O.C. CROSS BARS @ 4" TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES.
4. [7'-6"] INDICATES HEIGHT OF PLATFORM ABOVE FINISH FLOOR.
5. ▶ INDICATES MOMENT CONNECTION.
6. FOR SHIPS AND VERTICAL LADDER DETAILS SEE HW-S-3.
7. ALL CONNECTIONS TO BE STAINLESS STEEL BOLTS OR ANCHORS, EXCEPT AT MOMENT CONNECTION.
8. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION PRIOR TO PLATFORM FABRICATION.



REV. NO.	DATE	DRWN	CHKD	REMARKS
08/11	GK	GK		PLATFORM REVISIONS

CADD FILE NO.	SHWPL002
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

HEADWORKS BUILDING
WEST GRIT - FIRST FLOOR AND ROOF PLANS
IMPROVEMENTS

PROJECT NO.
1289-74283

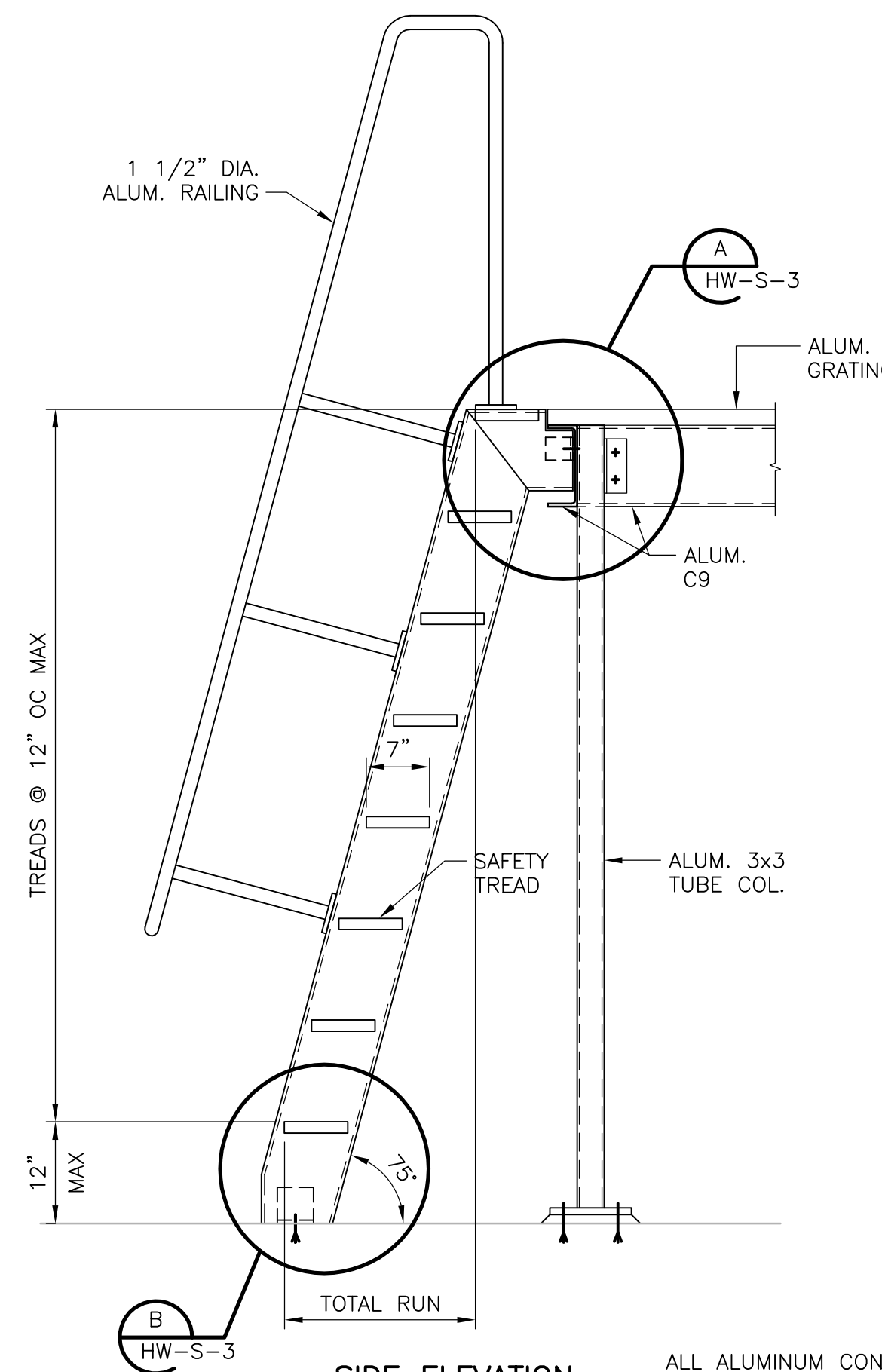
Sht. 54 of 312

HW-S-2

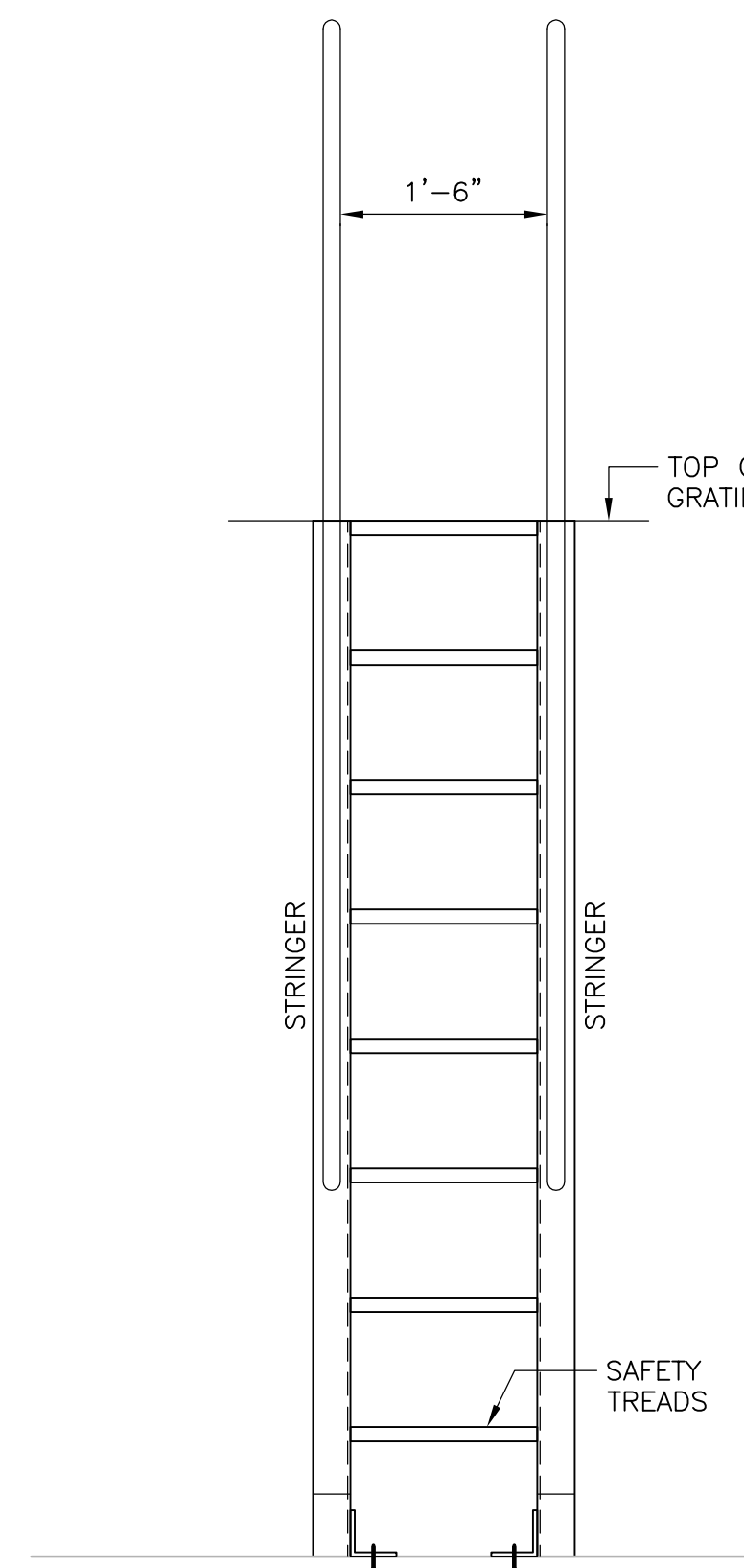
Acc # 1289-74460

CONFORMED

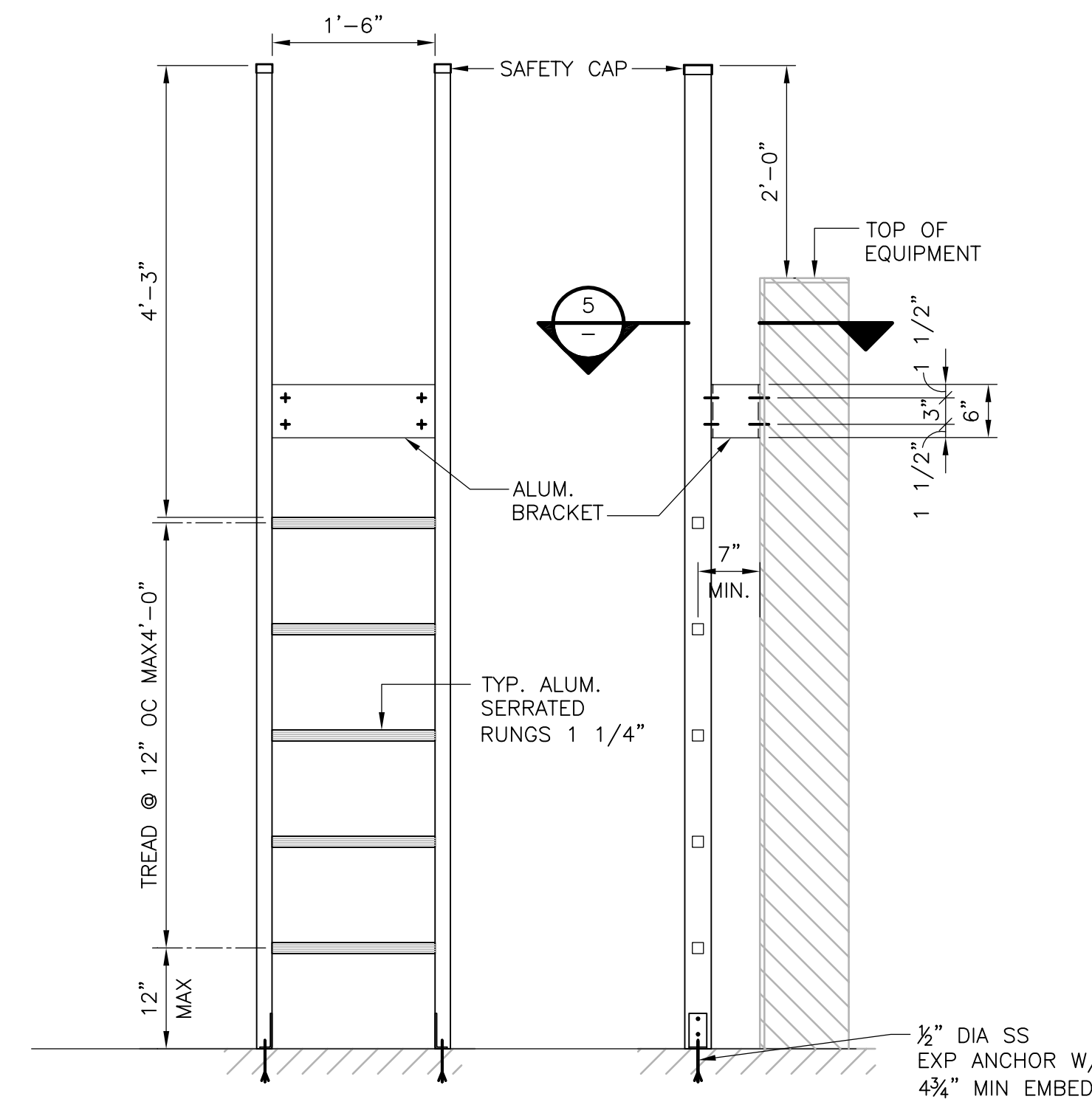
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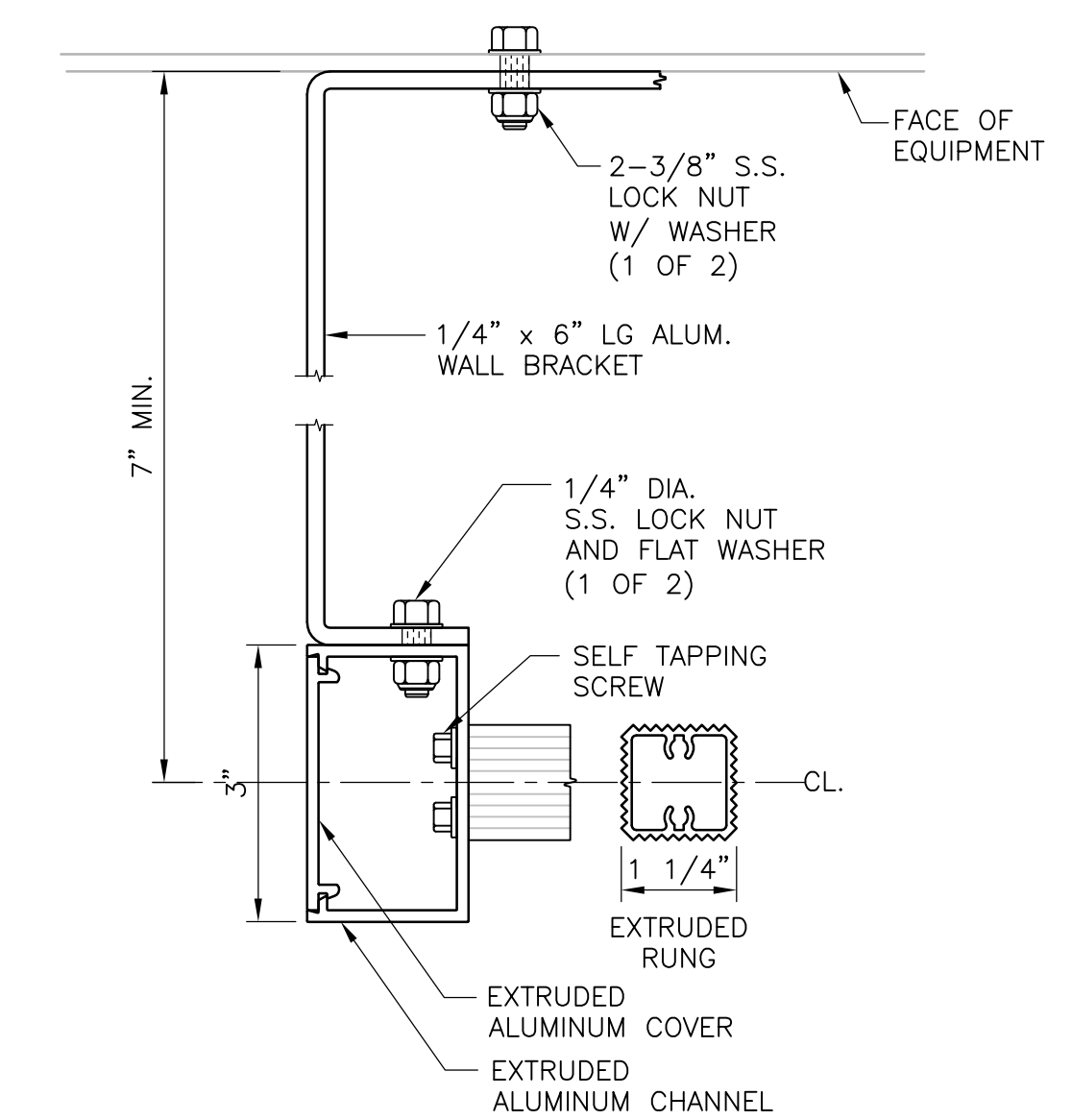
SIDE ELEVATION
ALL ALUMINUM CONSTRUCTION
SHIPS LADDER DETAIL
NTS



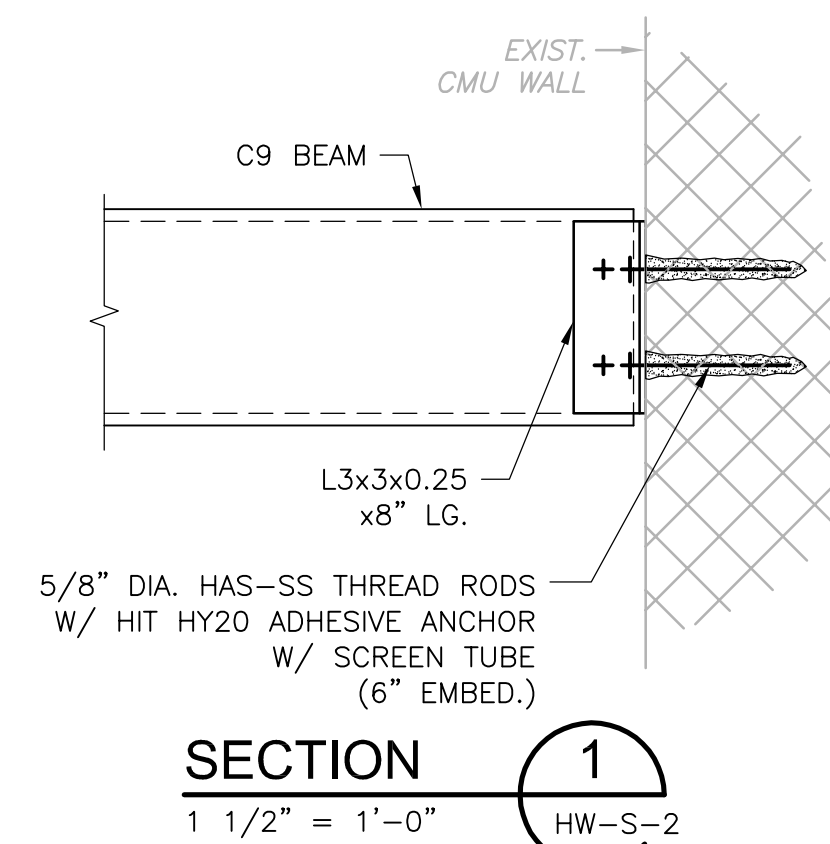
FRONT ELEVATION



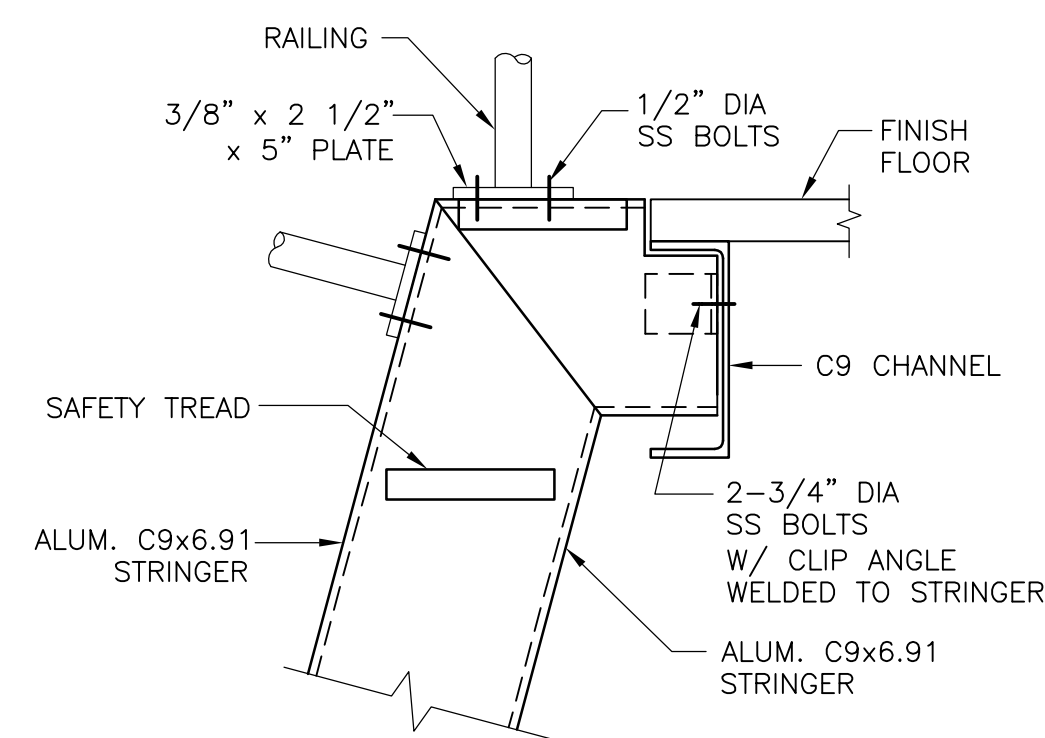
FRONT ELEVATION **SIDE ELEVATION**
ALL ALUMINUM CONSTRUCTION
VERTICAL LADDER DETAIL
NTS



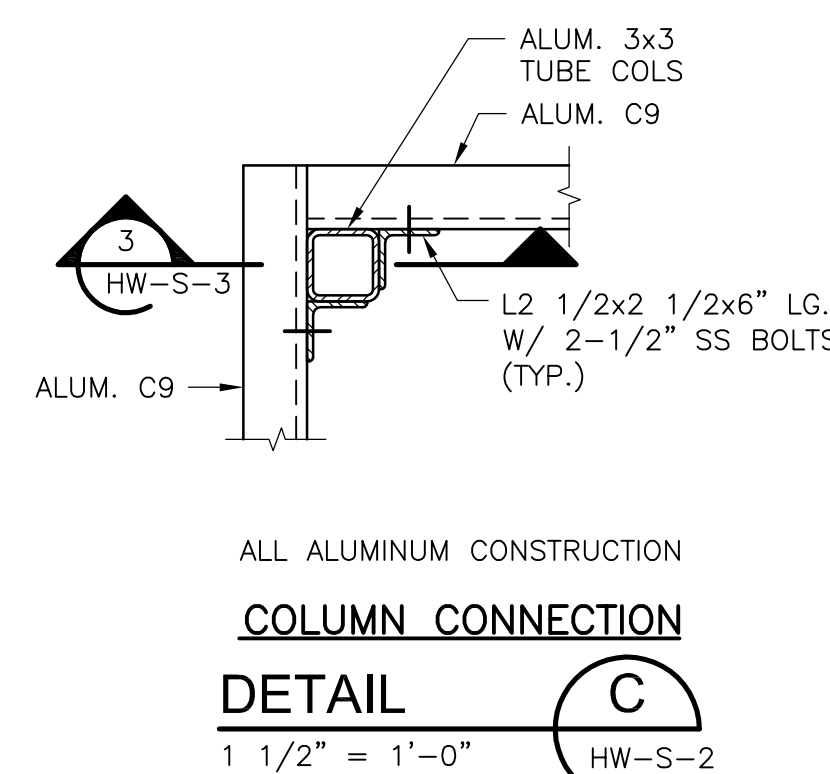
SECTION 5
LADDER DETAILS



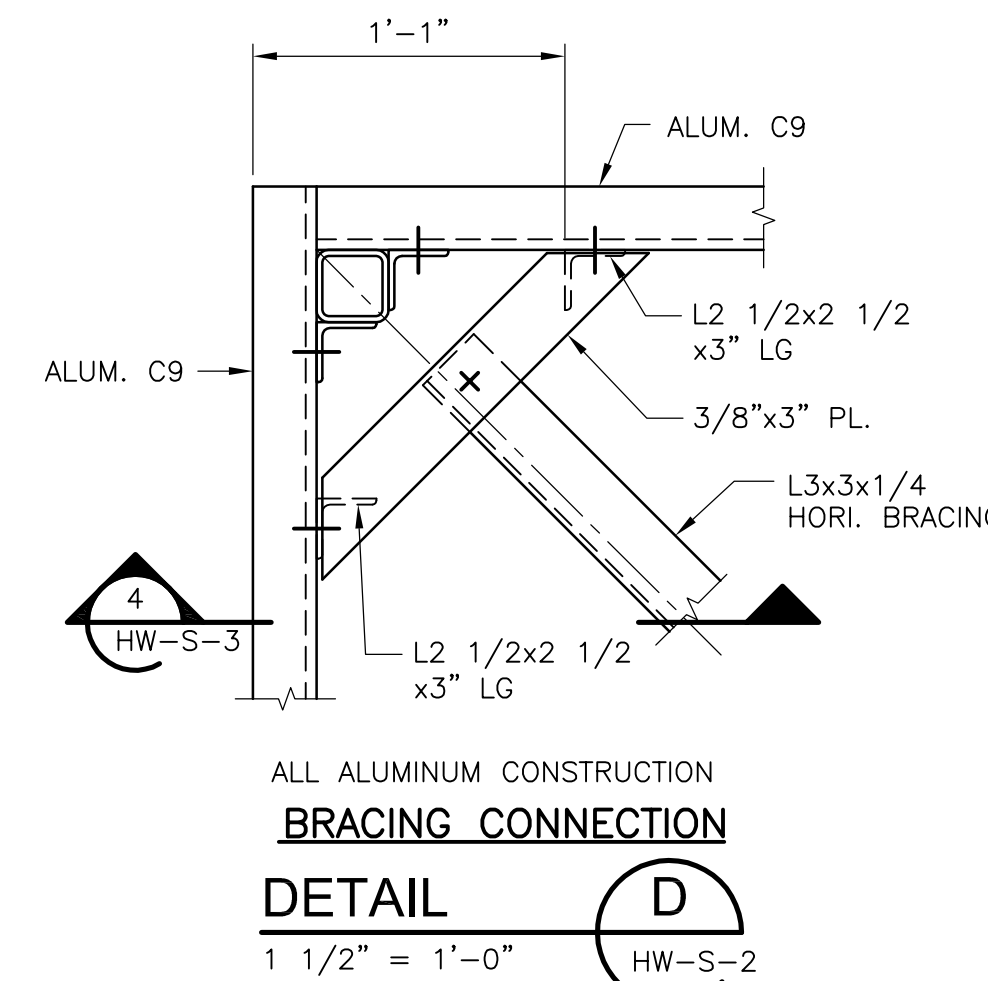
SECTION 1
1 1/2" = 1'-0"



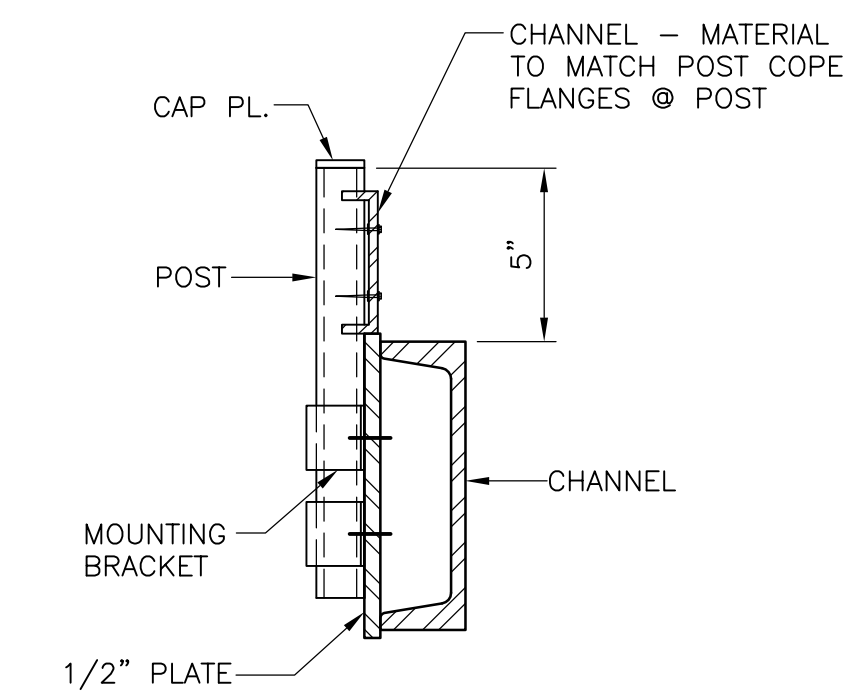
DETAIL A
1 1/2" = 1'-0"



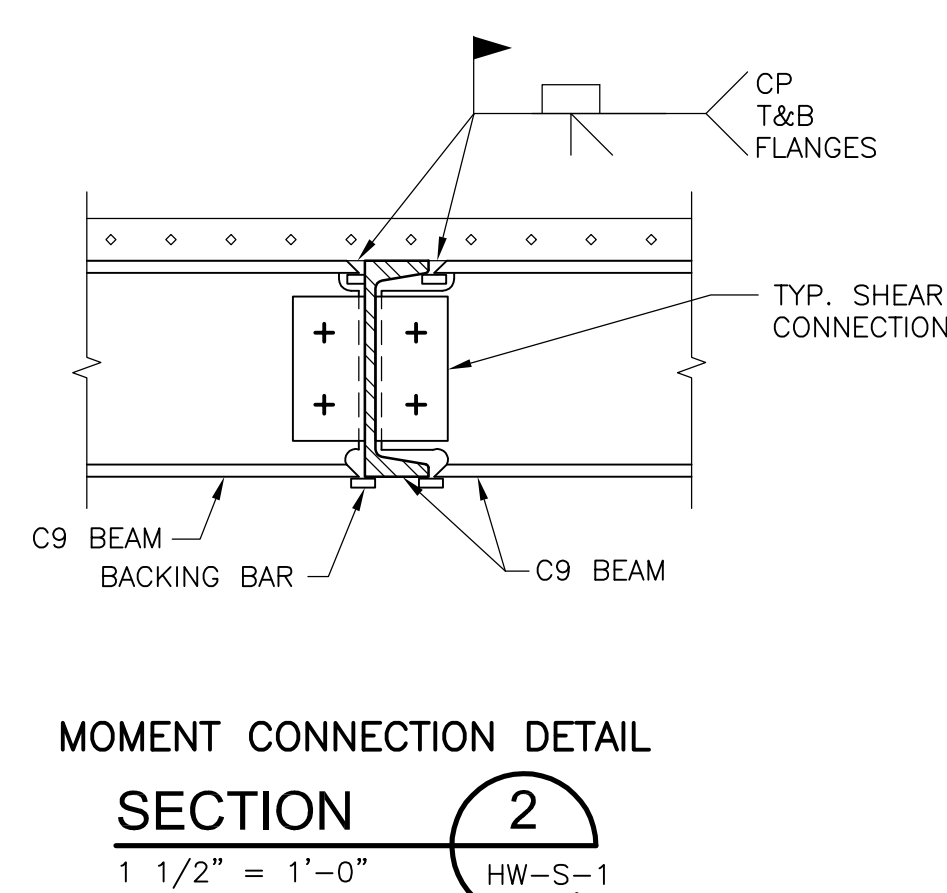
ALL ALUMINUM CONSTRUCTION
DETAIL C
1 1/2" = 1'-0"



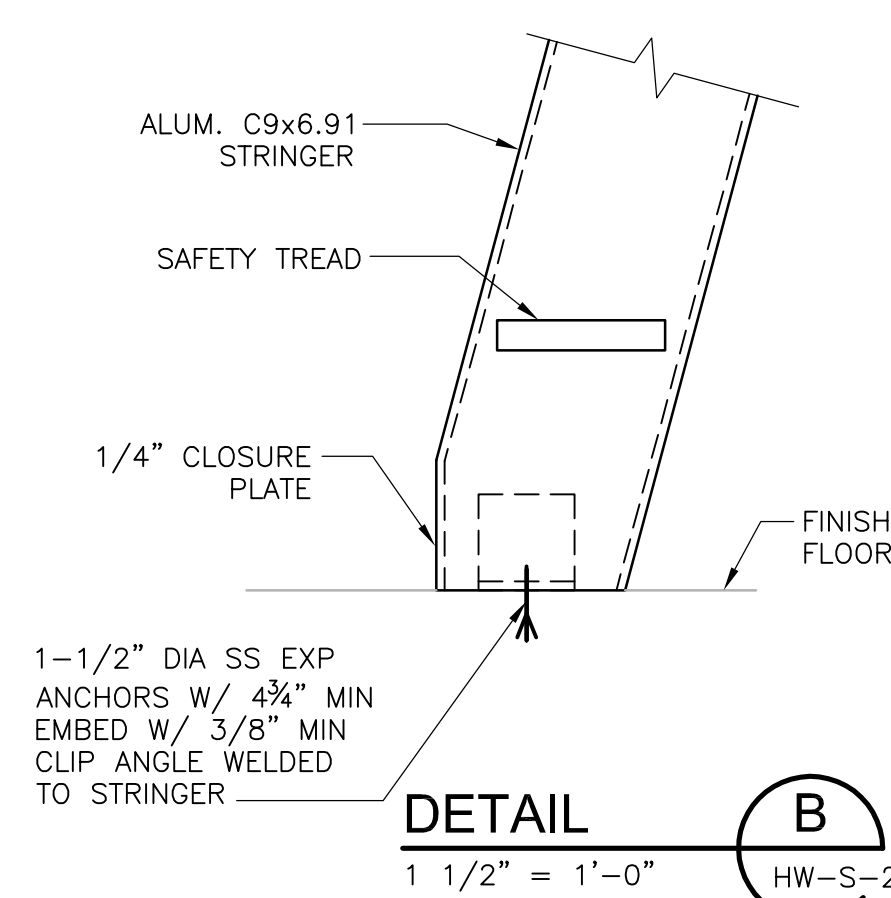
ALL ALUMINUM CONSTRUCTION
DETAIL D
1 1/2" = 1'-0"



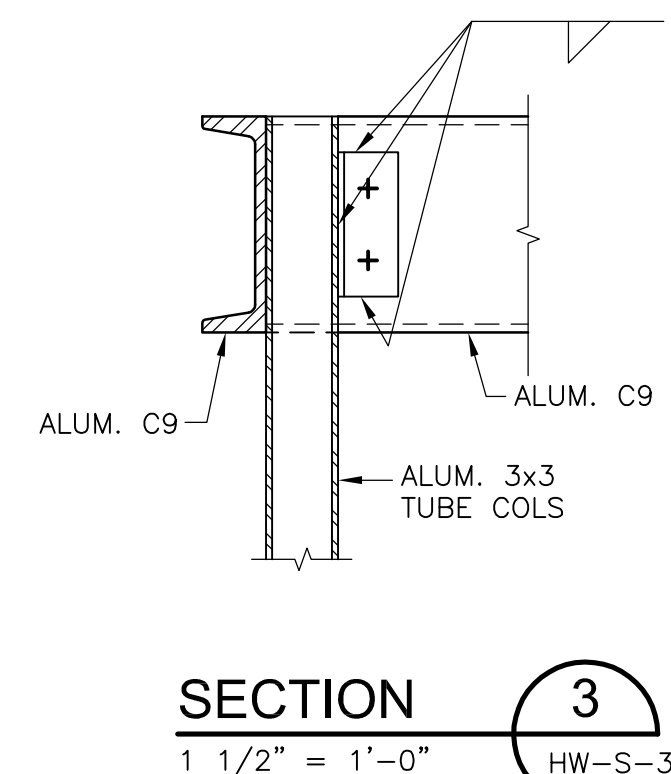
FOR INFO NOT SHOWN SEE DETAIL FOR TOEBOARD CONNECTION TO POST SIDE MOUNTED GUARDRAIL.
5" POST WITH TOEBOARD
DETAIL E
N.T.S.



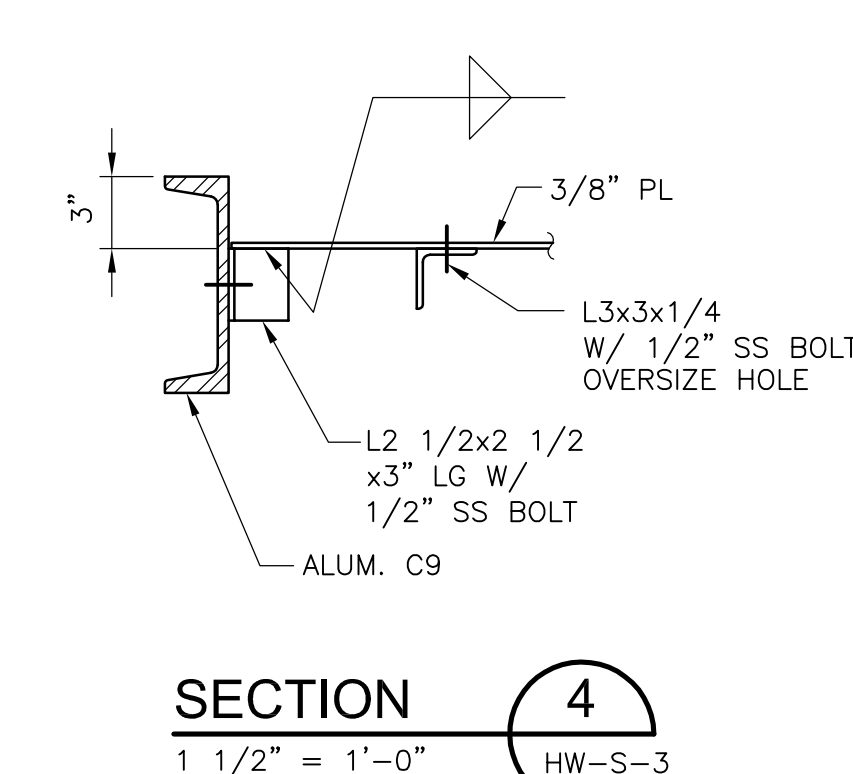
SECTION 2
1 1/2" = 1'-0"



DETAIL B
1 1/2" = 1'-0"



SECTION 3
1 1/2" = 1'-0"



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

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	SHWSC001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	JULY 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
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CONSULTING ENGINEERS
(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

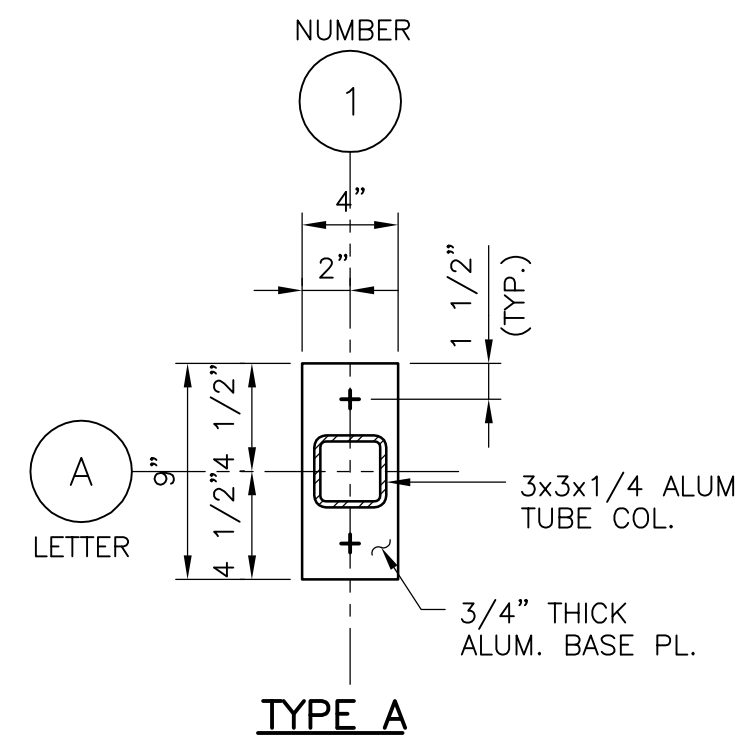
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

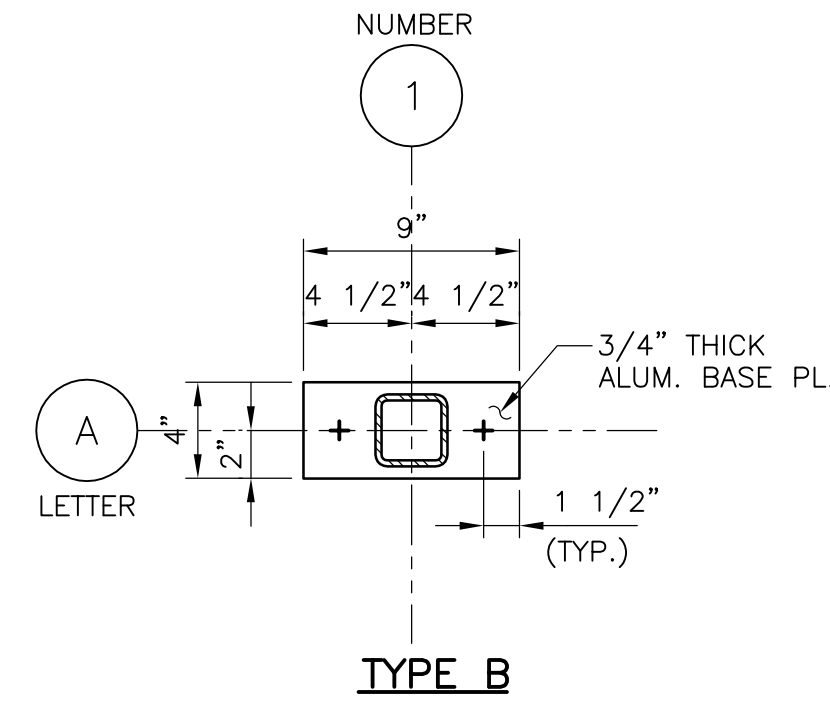
**HEADWORKS BUILDING
SECTIONS AND DETAILS I
IMPROVEMENTS**

PROJECT NO.	1289-74283
Sht.	55 of 312
HW-S-3	
Acc. #	1289-74461

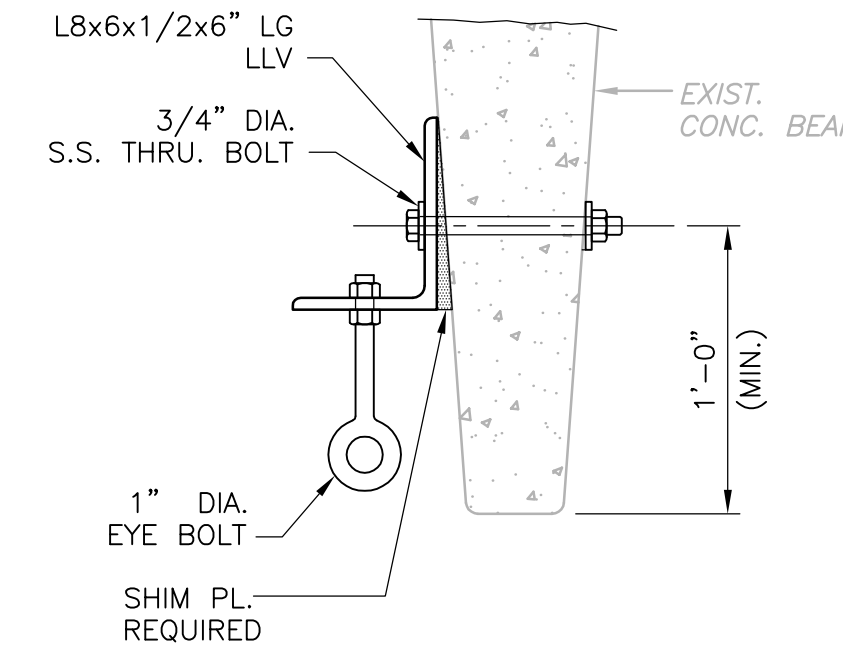
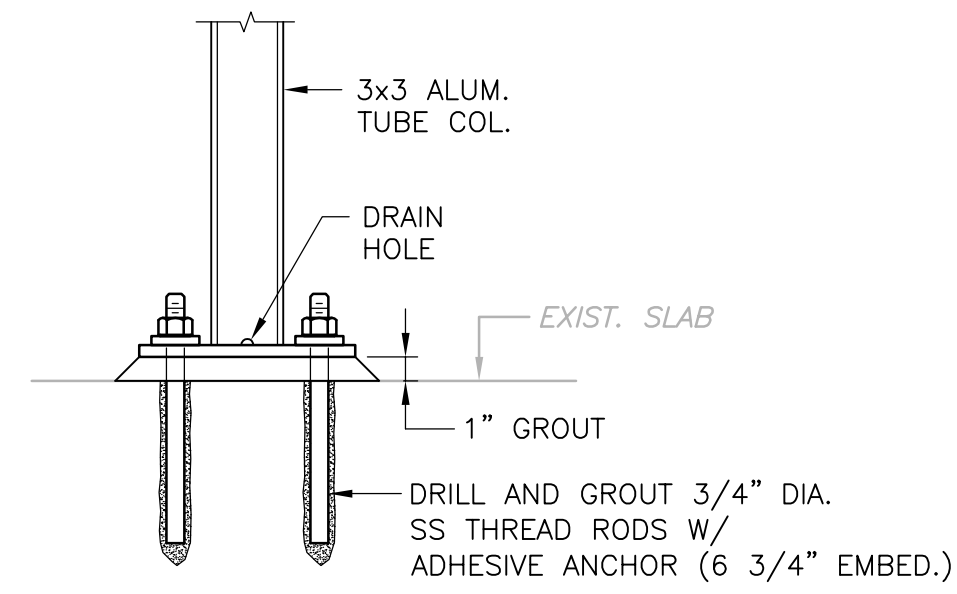
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SHWSC002.DWG Saved by: R.LAM On: 28-Sep-10 9:23 AM



NOTE:
1. SEE "TYPICAL BASE PLATE SECTION ON THIS SHEET."
TYPICAL BASE PLATE DETAIL
NTS



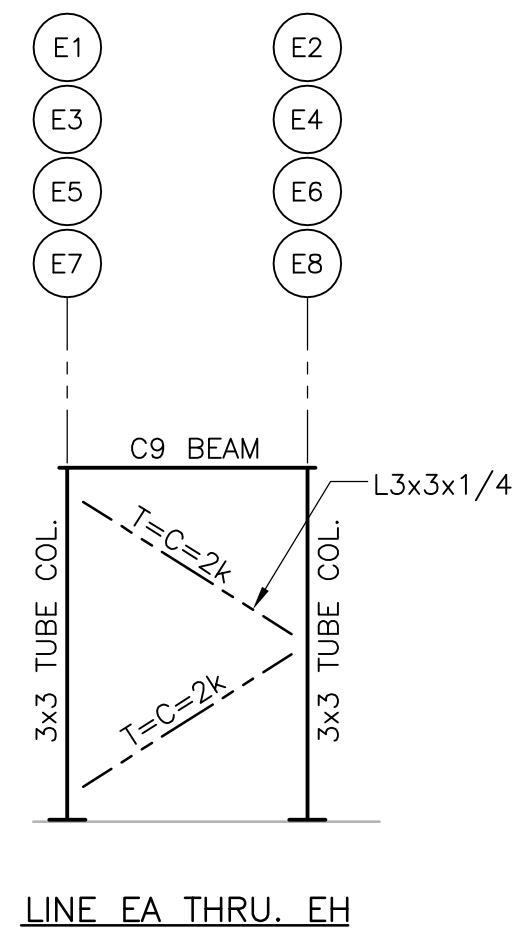
TYPICAL BASE PLATE SECTION
NTS



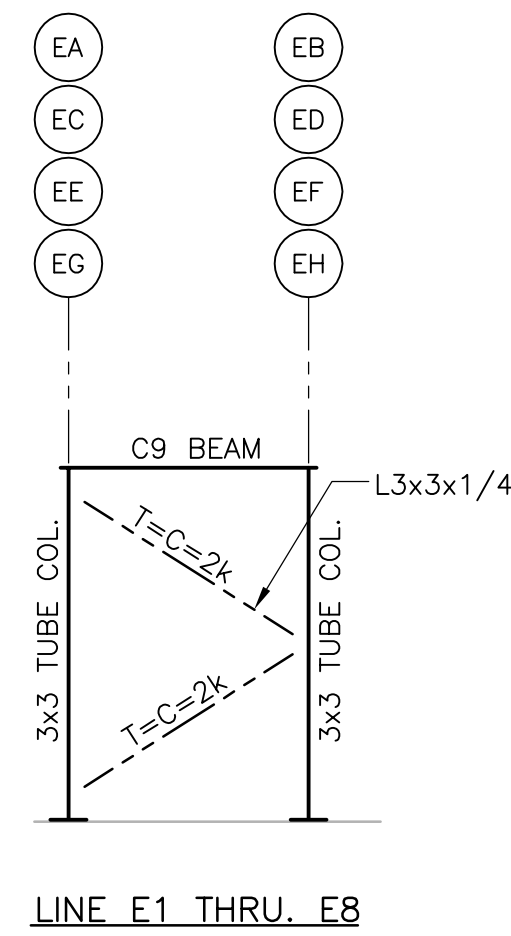
LIFTING HOOK DETAIL
NTS

POST GRID LINE	EAST GRIT														WEST GRIT														
	EA	EA	EB	EB	EC	EC	ED	ED	EE	EE	EF	EF	EG	EG	EH	EH	WA	WB	WC	WD	WE	WE	WF	WF	WG	WG	WH	WH	
E1	E2	E1	E2	E3	E4	E3	E4	E5	E6	E5	E6	E7	E8	E7	E8	W1	W2	W3	W4	W3	W4	W5	W6	W5	W6	W5	W6	W5	W6
BASE PLATE TYPE	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	B	A	A	B	A	B		

BASE PLATE SCHEDULE
NTS

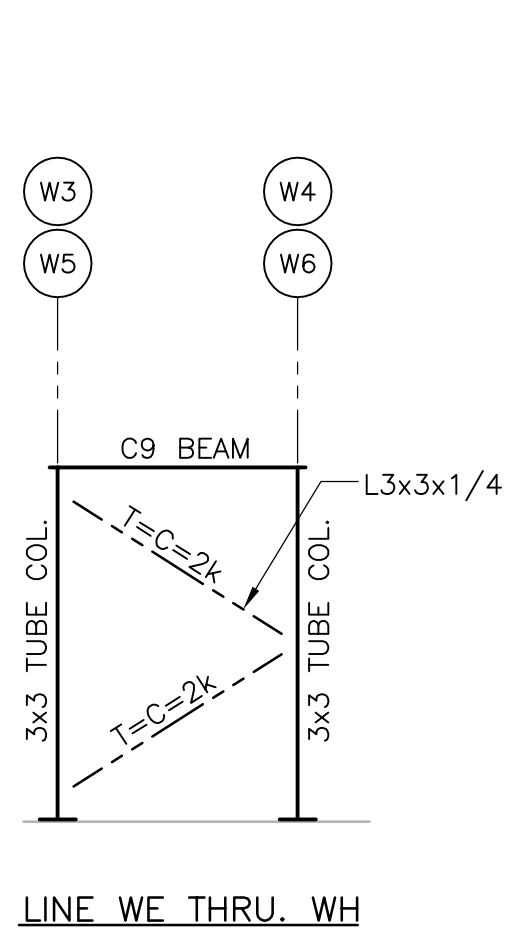


EAST GRIT



LINE E1 THRU. E8

ALL ALUMINUM CONSTRUCTION



LINE WE THRU. WH

WEST GRIT

BRACING ELEVATIONS - EAST GRIT
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	09/10	RL	GK	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SHWSC002
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**HEADWORKS BUILDING
SECTIONS AND DETAILS II
IMPROVEMENTS**

PROJECT NO.
1289-74283

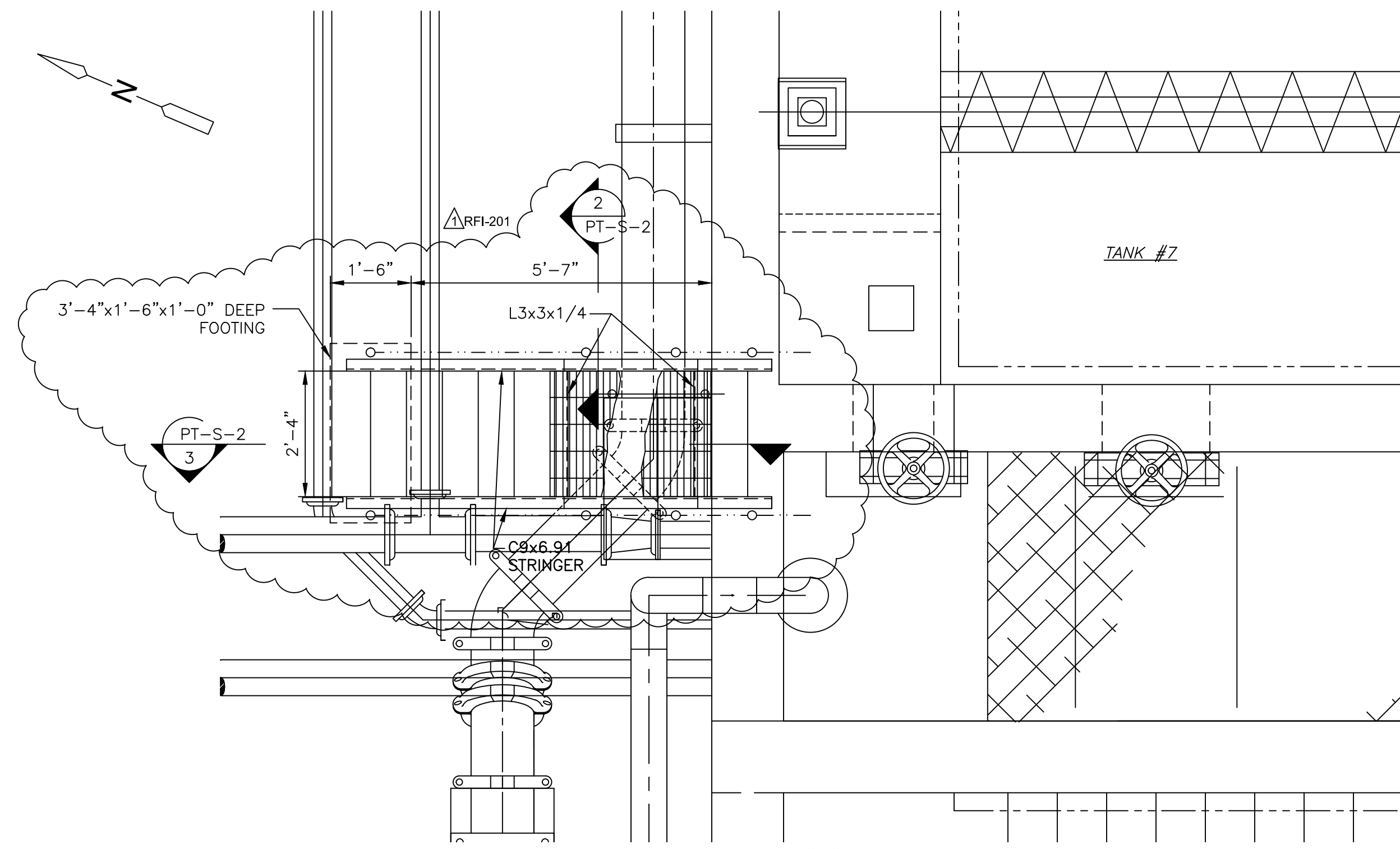
Sht. 56 of 312

HW-S-4

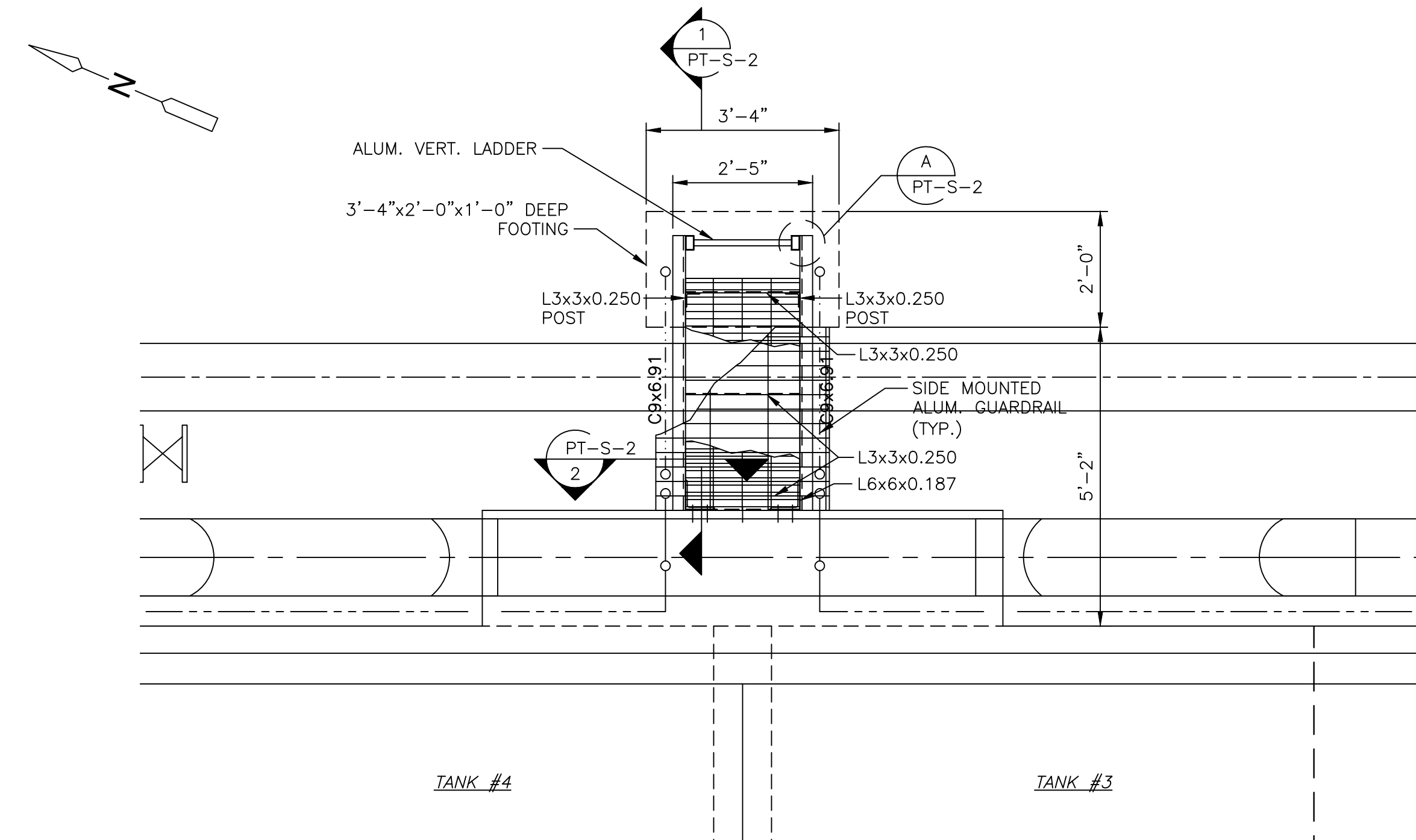
Acc. # 1289-74462

CONFORMED

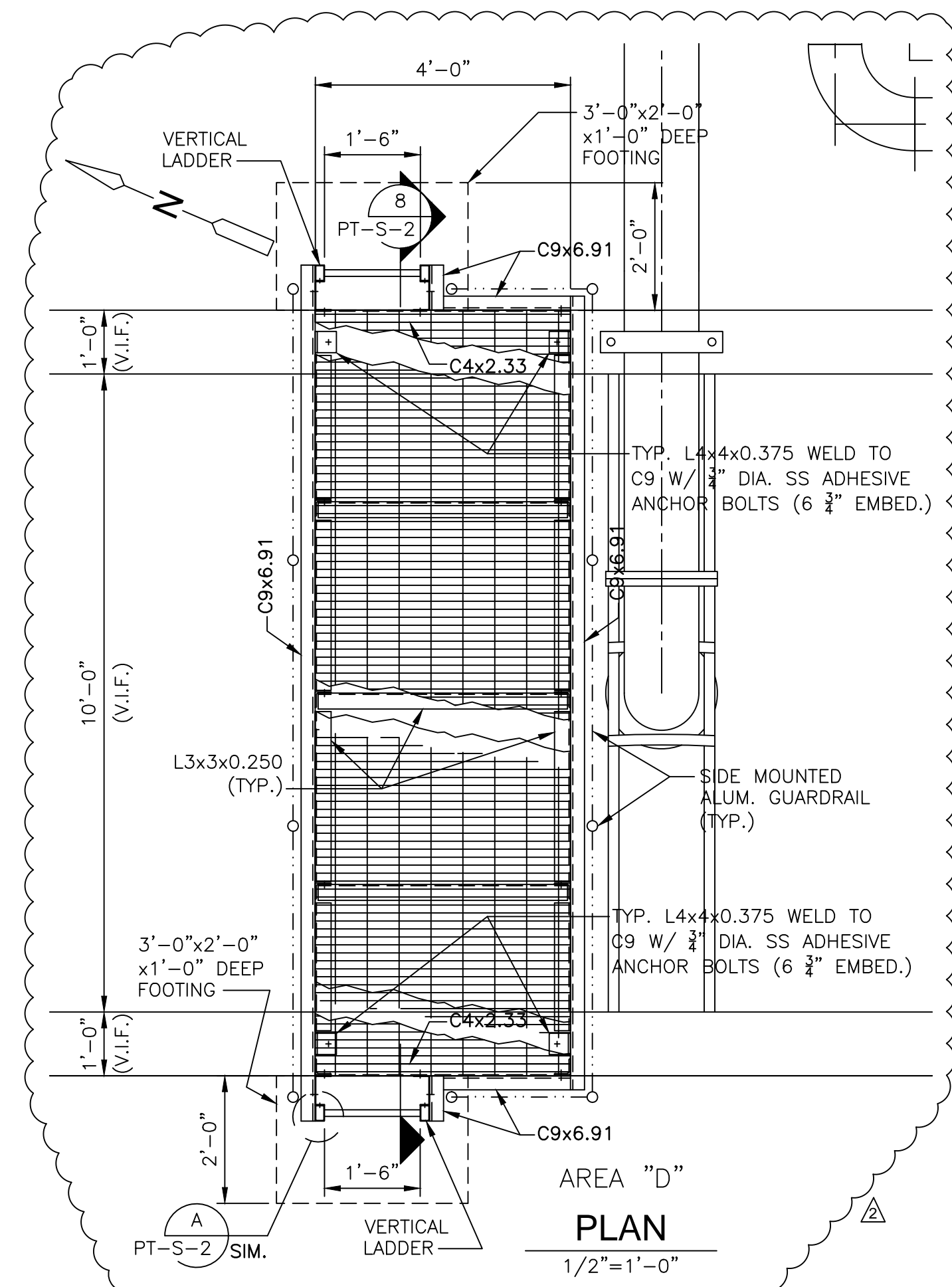
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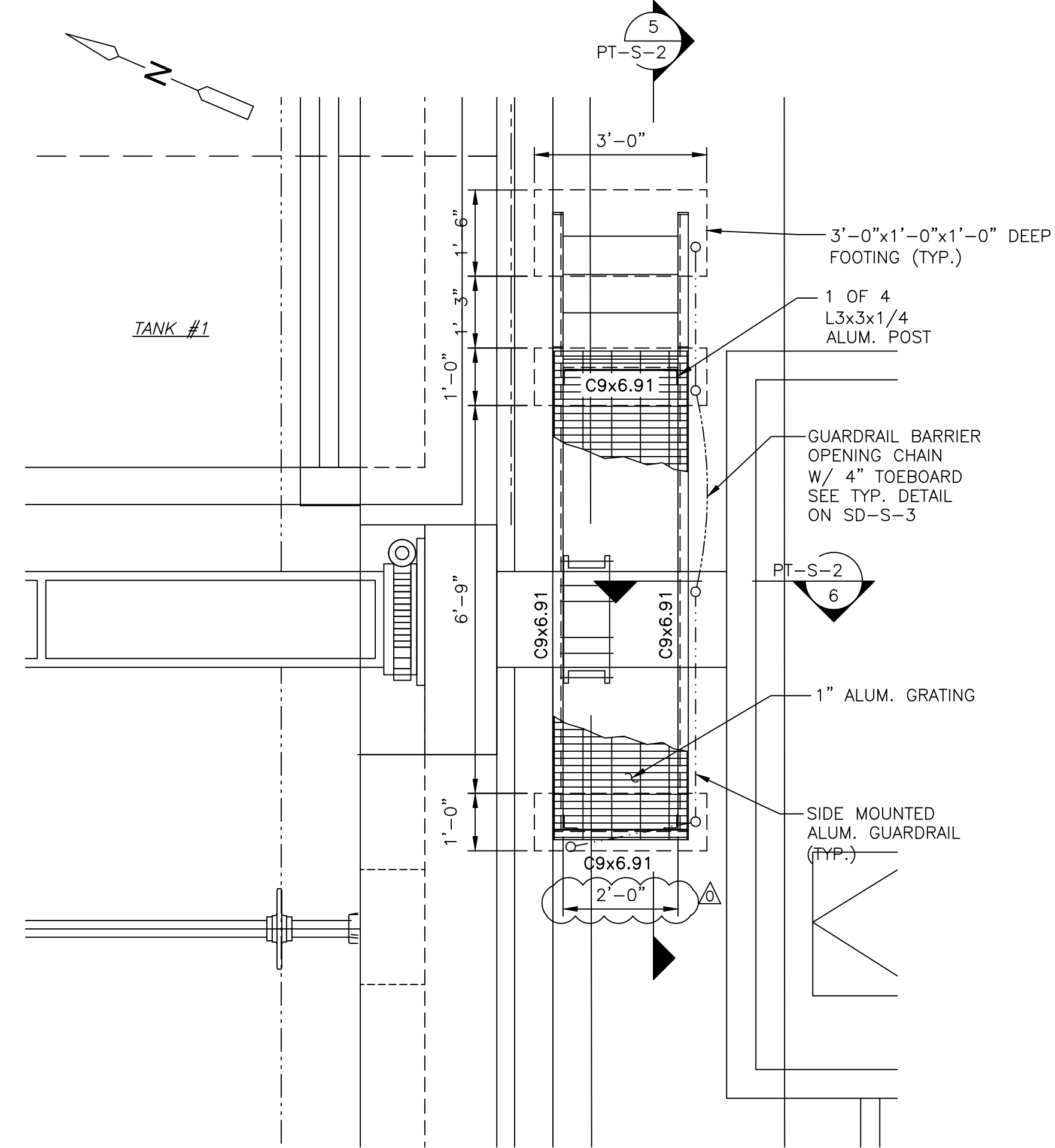
AREA "B"
PLAN
1/2"=1'-0"



AREA "A"
PLAN
1/2"=1'-0"



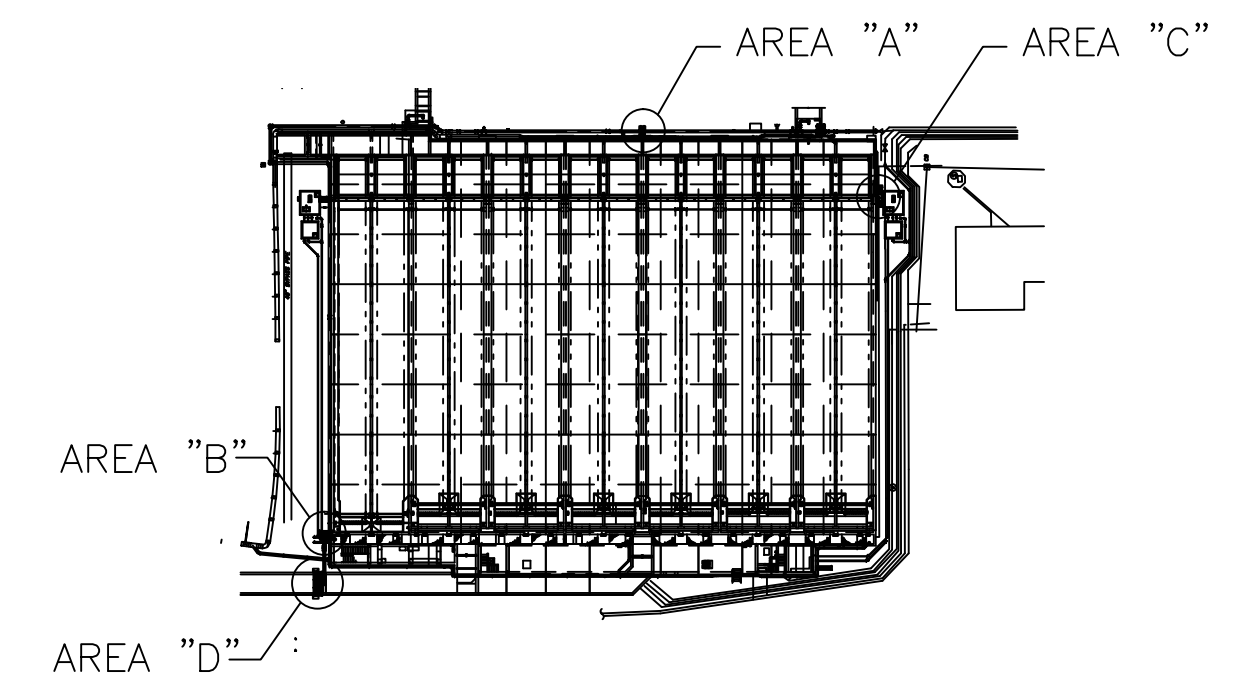
AREA "D"
PLAN
1/2"=1'-0"



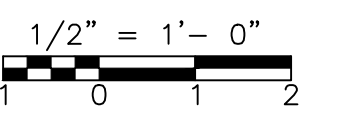
AREA "C"
PLAN
1/2"=1'-0"

NOTES:

1. ALL PLATFORM SUPPORT MEMBERS RAILING AND SHIP LADDERS SHALL BE ALUMINUM ALLOYS 6063-T6.
2. [Hatched pattern] INDICATES 1"x3/16" ALUMINUM GRATING TYP. UNO. WITH BEARING BARS @ 1 3/16" O.C. CROSS BARS @ 4" TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES.
3. ALL CONNECTIONS TO BE STAINLESS STEEL BOLTS OR ANCHORS.



KEY PLAN
NOT TO SCALE



REV. NO.	DATE	DRWN	CHKD	REMARKS
03/12	GK	GK		ADD WALKWAY
10/11	GK	GK		REVISED PER RFI 201
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SPTPL001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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CONSULTING ENGINEERS
(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PRIMARY SETTLING TANK
PLANS
IMPROVEMENTS

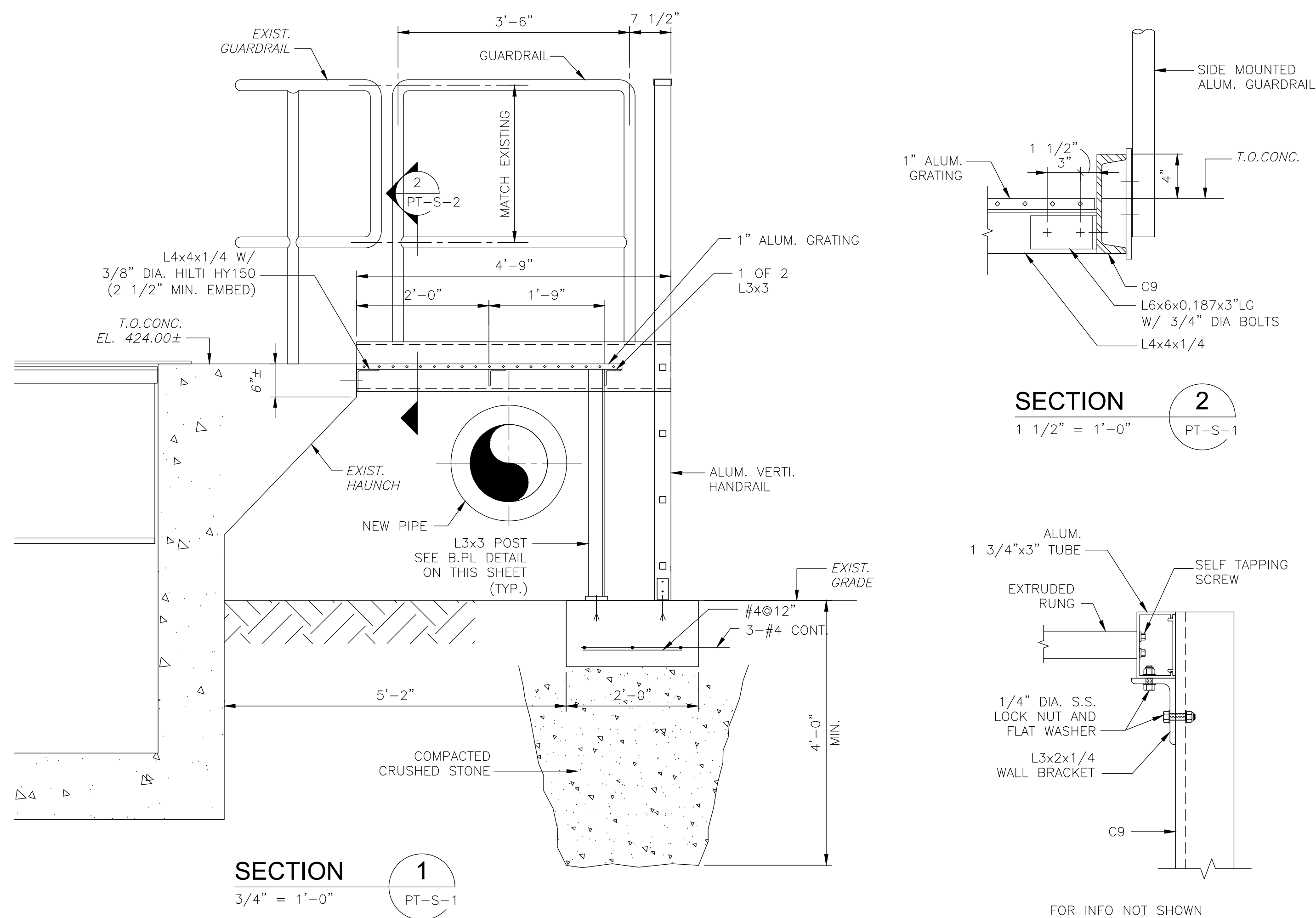
PROJECT NO.
1289-74283

Sht. 57 of 312

PT-S-1

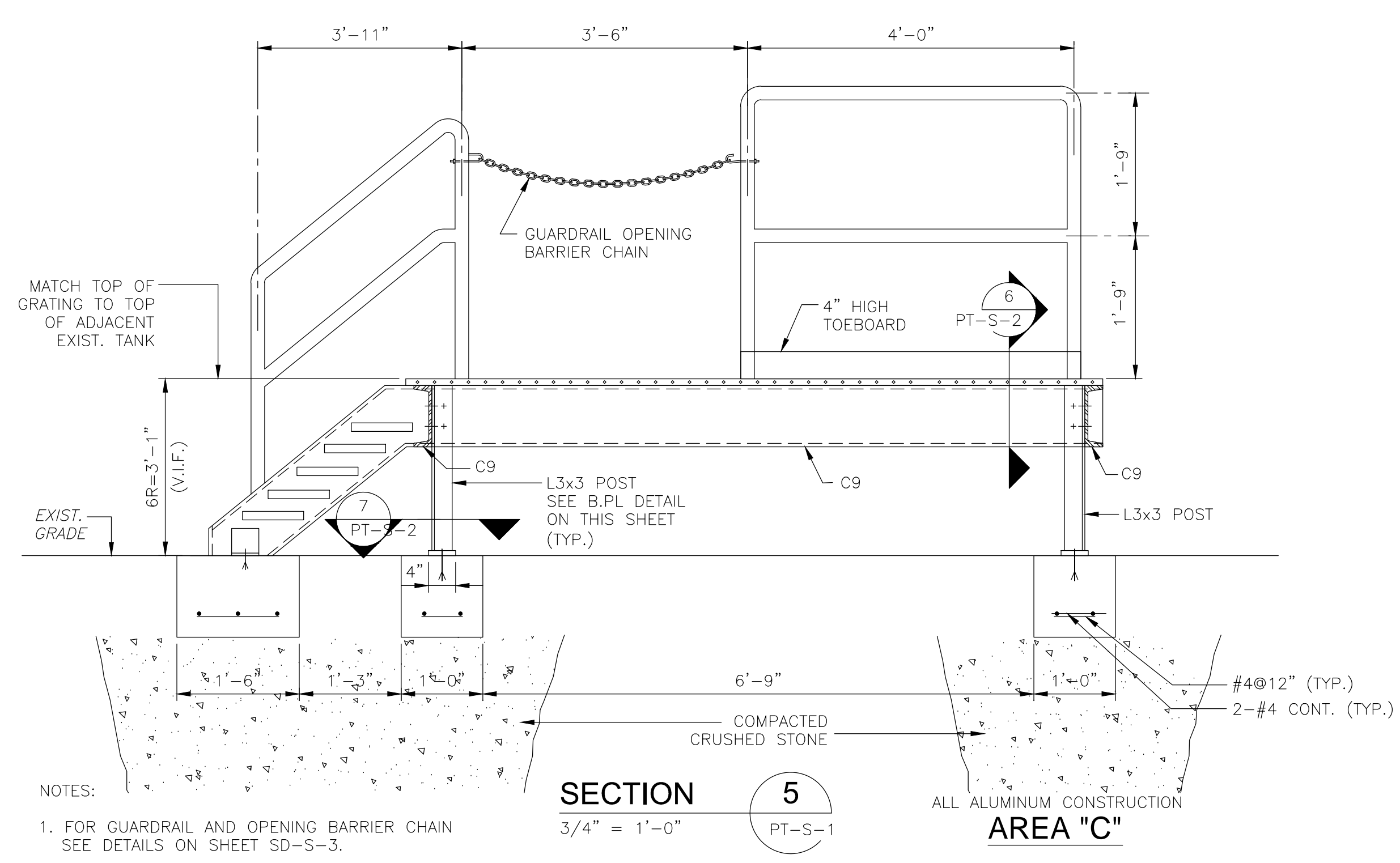
Acc # 1289-74463

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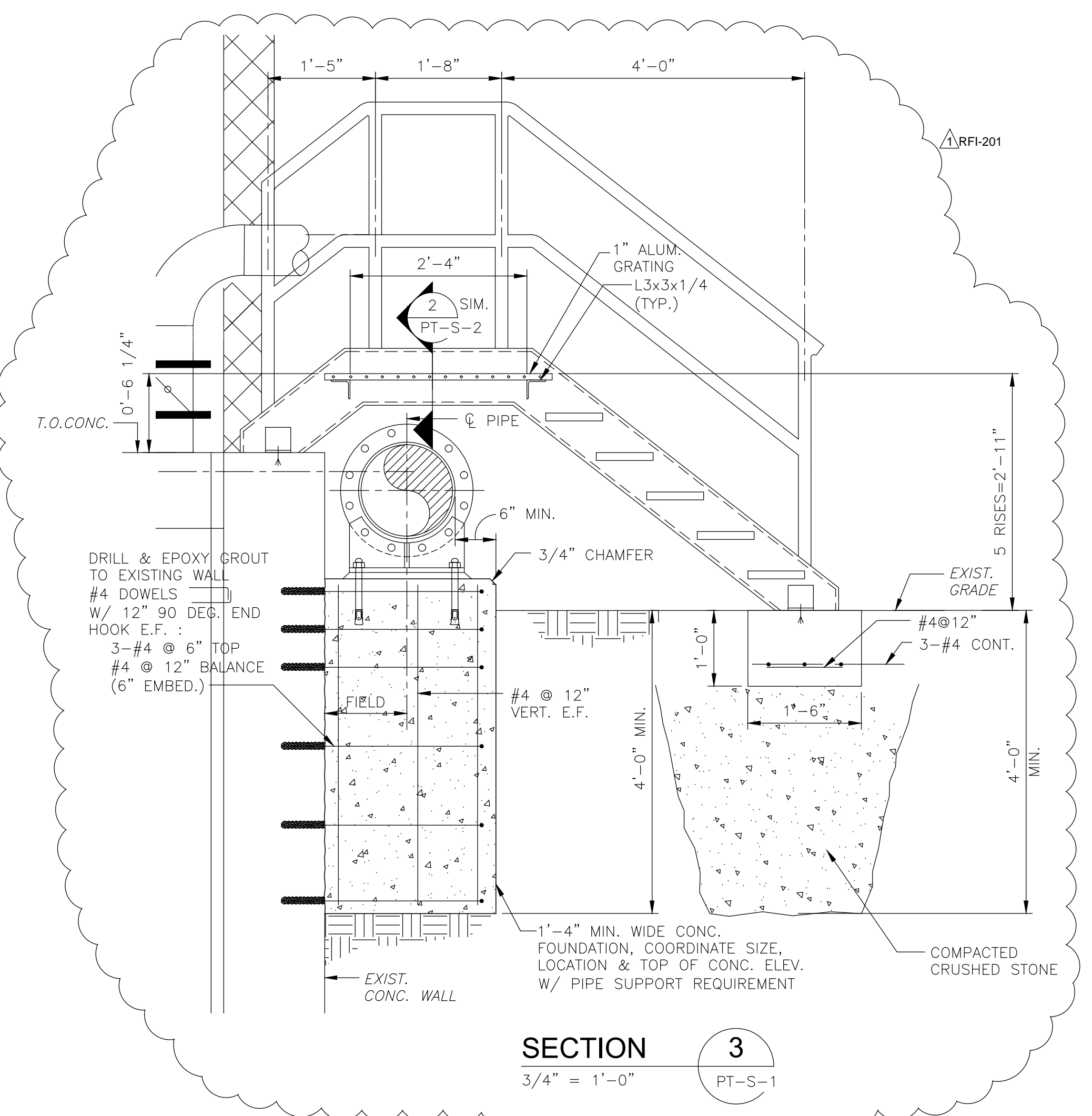
NOTES:
1. FOR GUARDRAIL AND OPENING BARRIER CHAIN SEE DETAILS ON SHEET SD-S-3.

ALL ALUMINUM CONSTRUCTION
AREA "A"



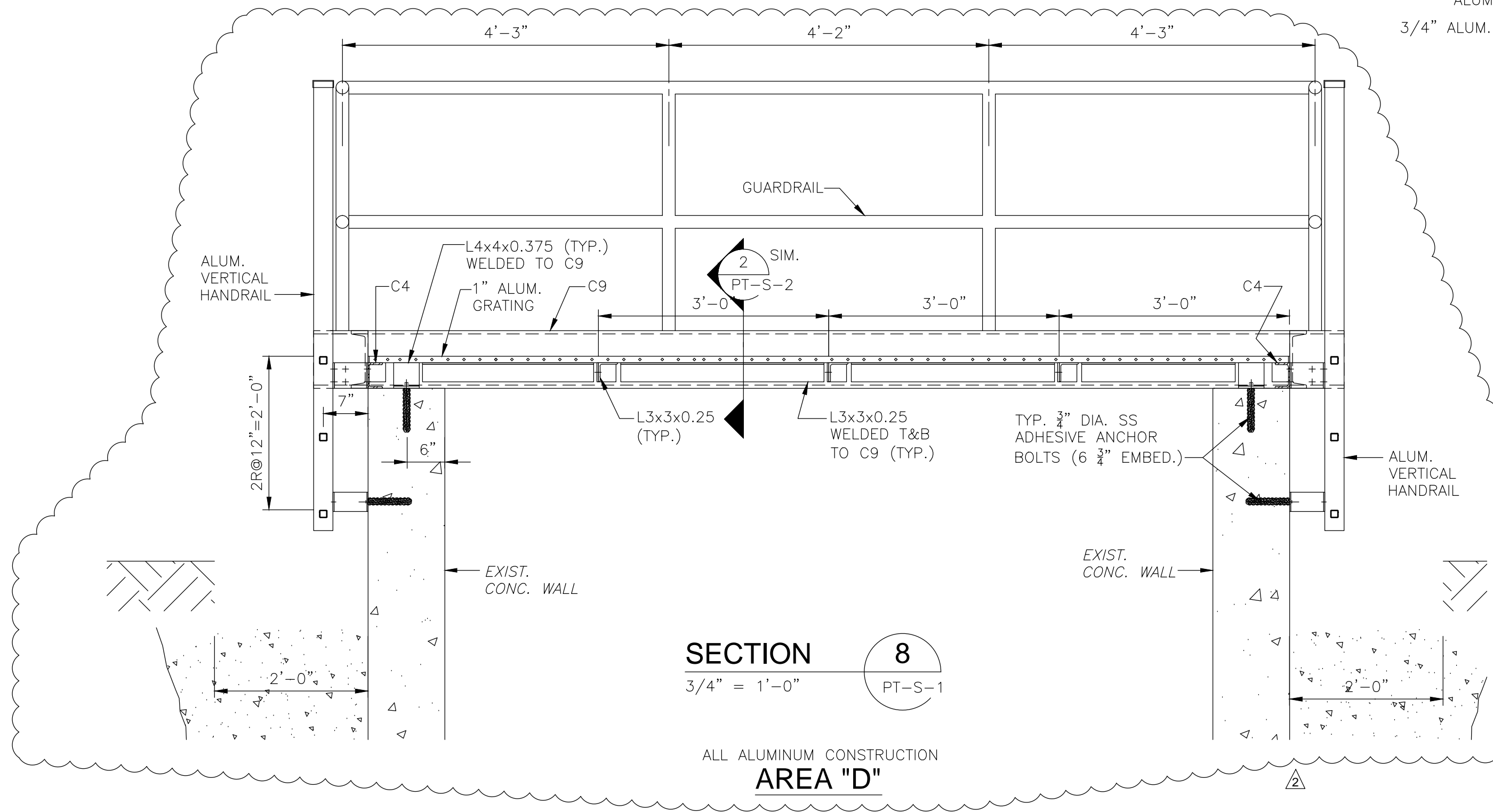
NOTES:
1. FOR GUARDRAIL AND OPENING BARRIER CHAIN SEE DETAILS ON SHEET SD-S-3.

ALL ALUMINUM CONSTRUCTION
AREA "C"

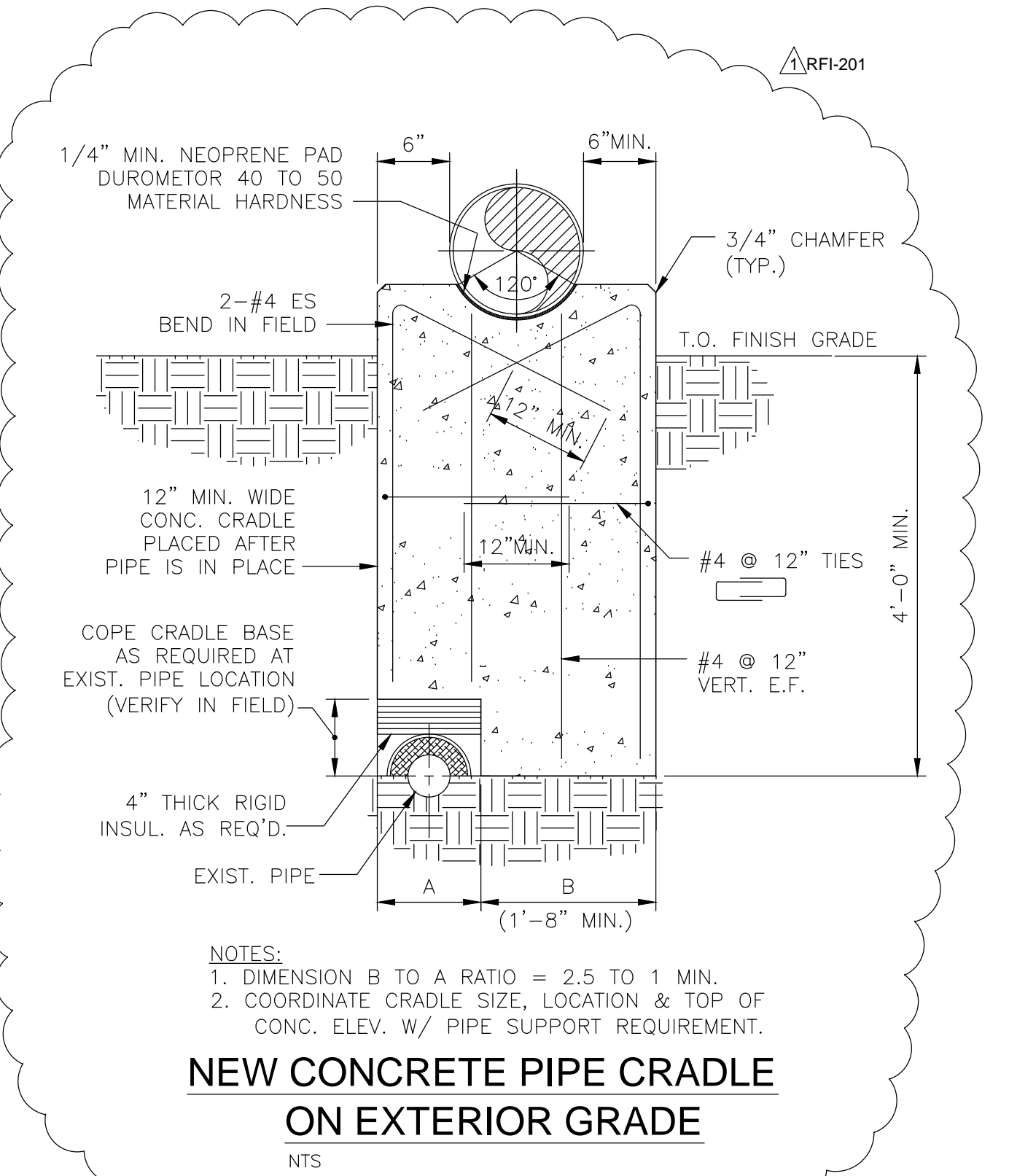


NOTES:
1. FOR GUARDRAIL AND OPENING BARRIER CHAIN SEE DETAILS ON SHEET SD-S-3.

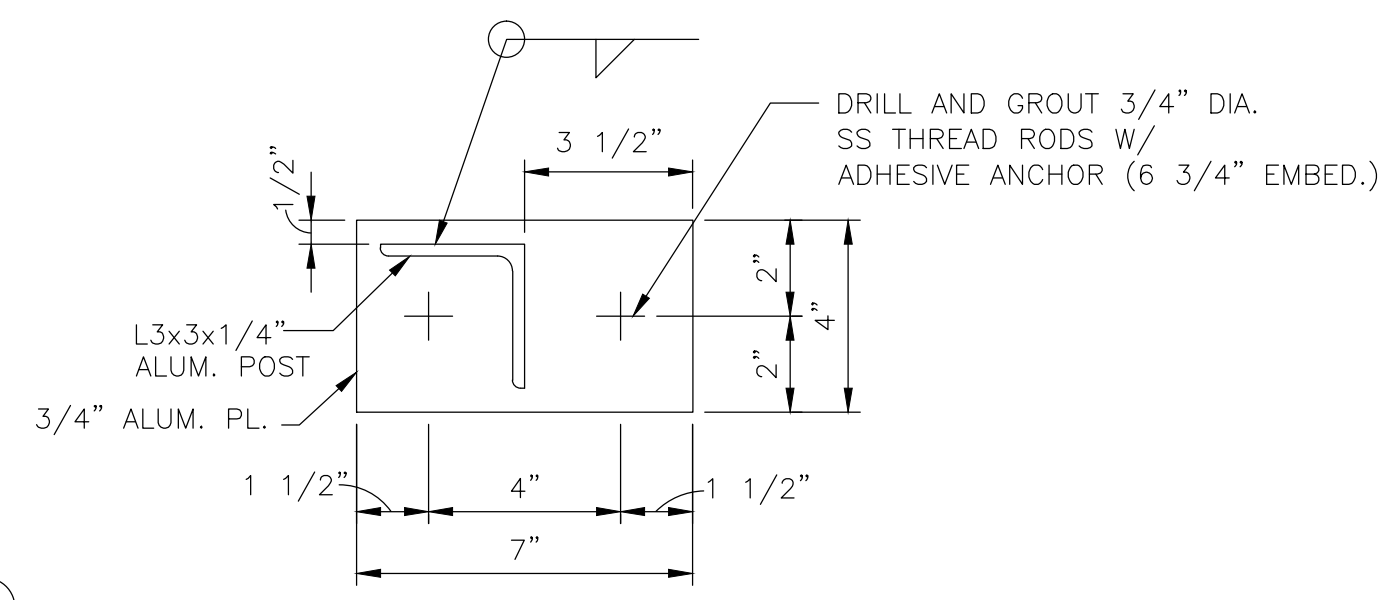
ALL ALUMINUM CONSTRUCTION
AREA "B"



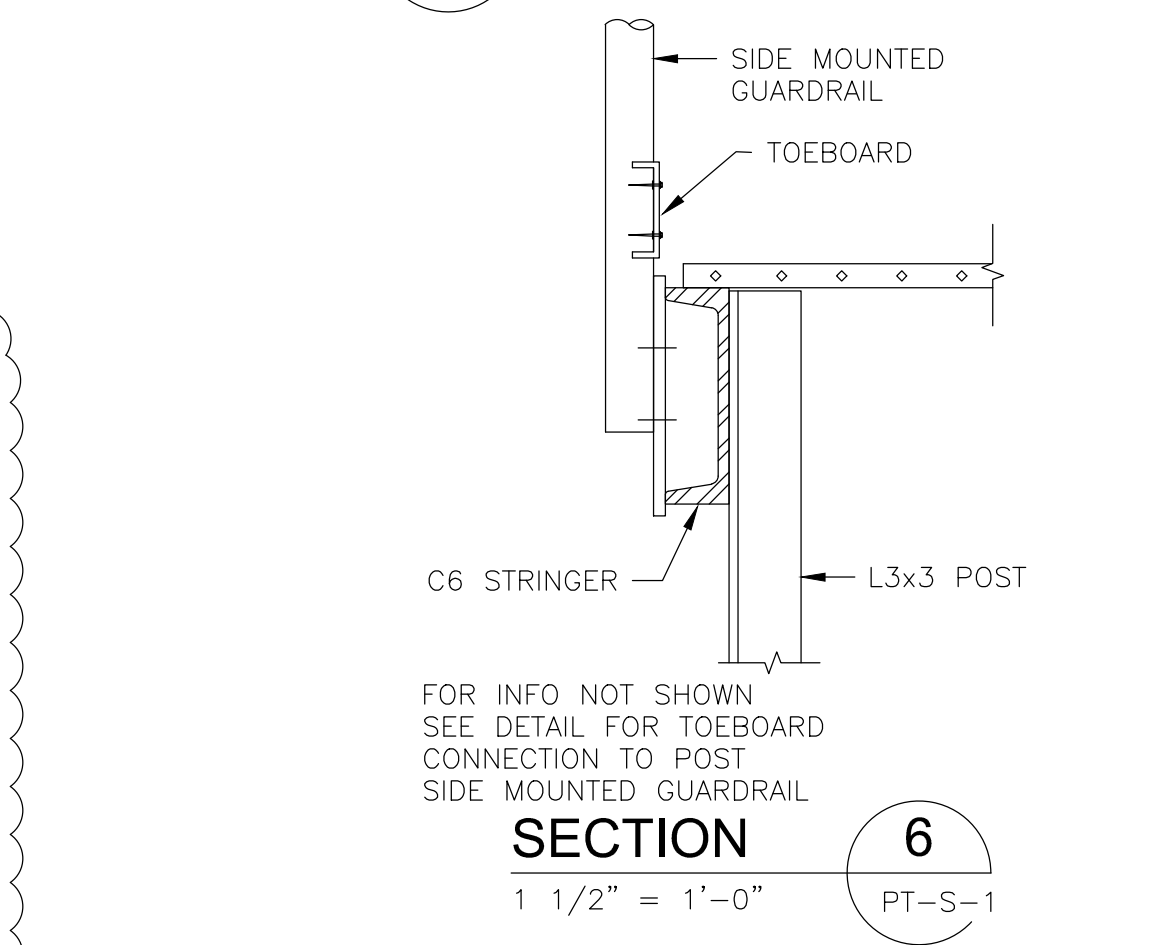
ALL ALUMINUM CONSTRUCTION
AREA "D"



NEW CONCRETE PIPE CRADLE ON EXTERIOR GRADE
NTS



BASE PLATE DETAIL
SECTION 7
1 1/2" = 1'-0"



FOR INFO NOT SHOWN SEE DETAIL FOR TOEBOARD CONNECTION TO POST
SECTION 6
1 1/2" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
03/12	GK	GK		ADD WALKWAY
10/11	GK	GK		REVISED PER RFI 201
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SPTSC001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

**PRIMARY SETTLING TANK
SECTIONS AND DETAILS
IMPROVEMENTS**

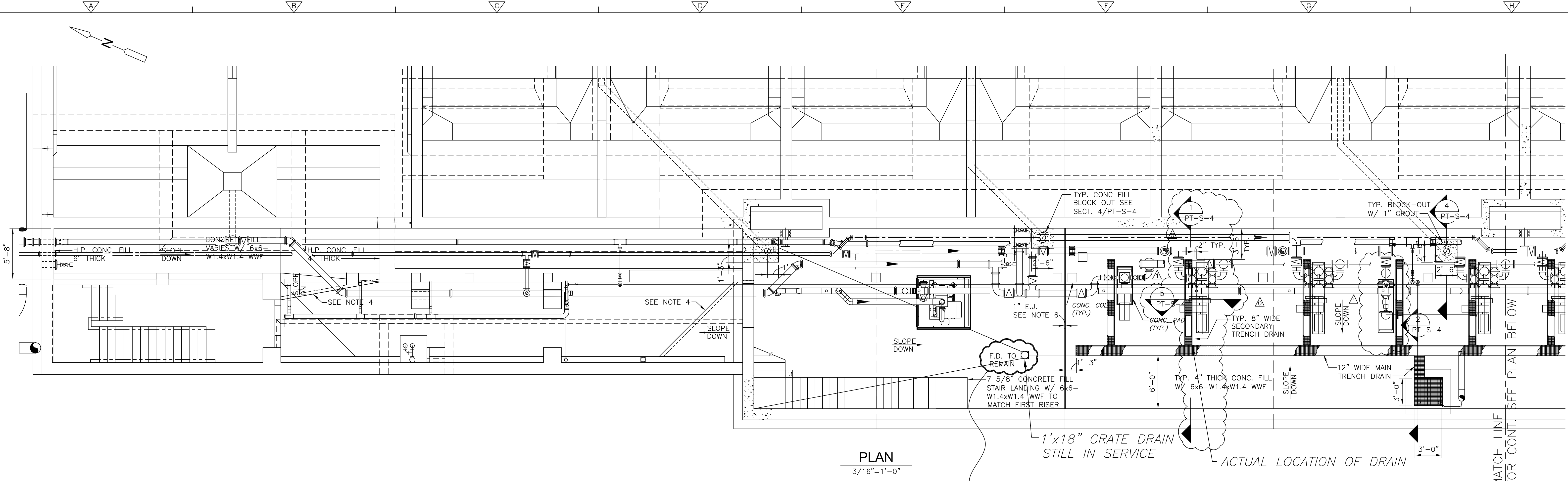
PROJECT NO.
1289-74283

Sht. 58 of 312

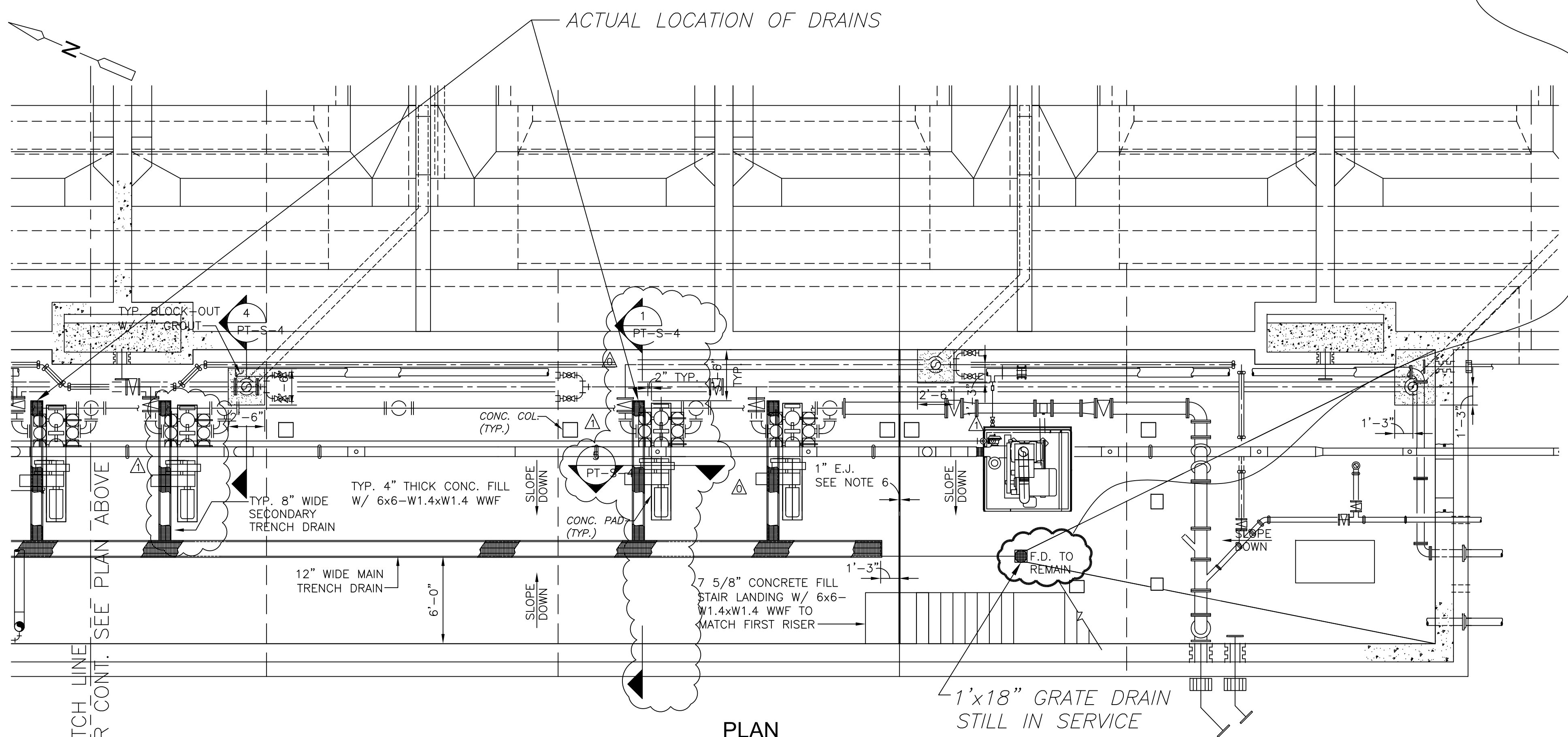
PT-S-2

Acc # 1289-74464

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SPTPL002.DWG Saved by: PLOWRY On: 20-Dec-12 5:03 PM



PLAN
3/16"=1'-0"

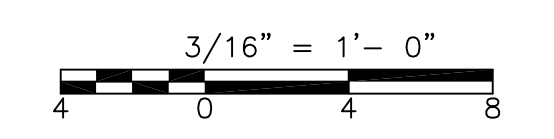


PLAN
3/16"=1'-0"

DOC RFI #051 - ABANDON DRAINS TO ADD PLUGS, DRAINS NOT ADJACENT NEED TO BE EXTENDED TO NEW F.F.E.

NOTES:

1. USE HYDRO DEMOLITION (10,000 PSI TO 15,000 PSI) TO REMOVE MASTERPLATE COATING, SCARIFY AND CLEAN ALL FLOOR SURFACES FOR AREA WHERE CONCRETE FILL WILL BE ADDED.
2. CAST 4" THICK CONCRETE FILL AS INDICATED ON THE PLAN ON THE EXISTING SLOPED CONCRETE SLAB AND TO THE NEW FORM CONCRETE 12" WIDE MAIN TRENCH AND 8" WIDE SECONDARY TRENCH DRAINS.
3. CAST 1" THICK CONCRETE FILL AT THE BOTTOM OF THE 8" WIDE SECONDARY TRENCH DRAINS.
4. CONCRETE FILL TO RAMP DOWN AND MEET EXISTING SURFACE AND SLOPE TO EXISTING FLOOR. SAW CUT THE EXISTING SLAB 1" DEEP X 4" WIDE ALONG THE TAPERED EDGE OF CONCRETE FILL.
5. INDICATES 1"x3/16" ALUMINUM GRATING TYP. UON. WITH BEARING BARS @ 1 3/16" O.C. CROSS BARS @ 4". TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES AND EMBED. ANGLE SUPPORT AT NEW FORM TRENCH DRAINS AND EXISTING SUMP PIT.
6. PROVIDE 1" JOINT FILLER AND 1"x1" SEALANT.
7. FOR NEW FLOOR COATING, SEE ARCHITECTURAL DRAWINGS.
8. REMOVE THE EXISTING GRATING SUPPORT ANGLE AT THE NEW GRATING AREA PRIOR TO CASTING THE CONCRETE FILL.
9. APPLY BONDING AGENT TO EXISTING SLAB PRIOR CASTING NEW CONCRETE
10. SEE ARCHITECTURAL DRAWINGS FOR FINISHES.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
05/11	RL	GK		REVISED TRENCH DRAIN LOCATION
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. SPTPL002
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/20/2012

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

PRIMARY SETTLING TANK
 PUMP GALLERY PLANS AND DETAILS
 IMPROVEMENTS

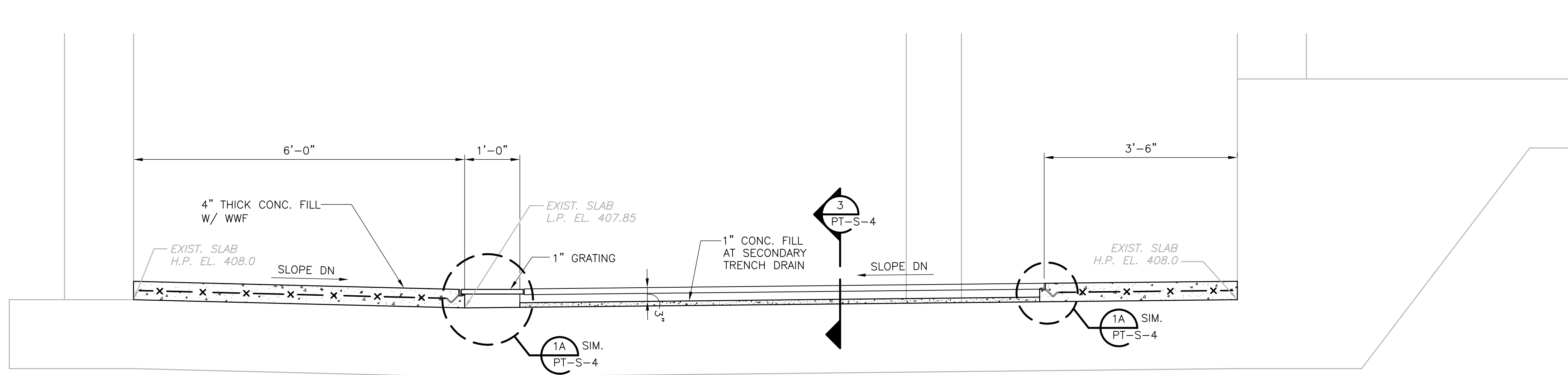
PROJECT NO.
1289-74283

Sht. 59 of 312

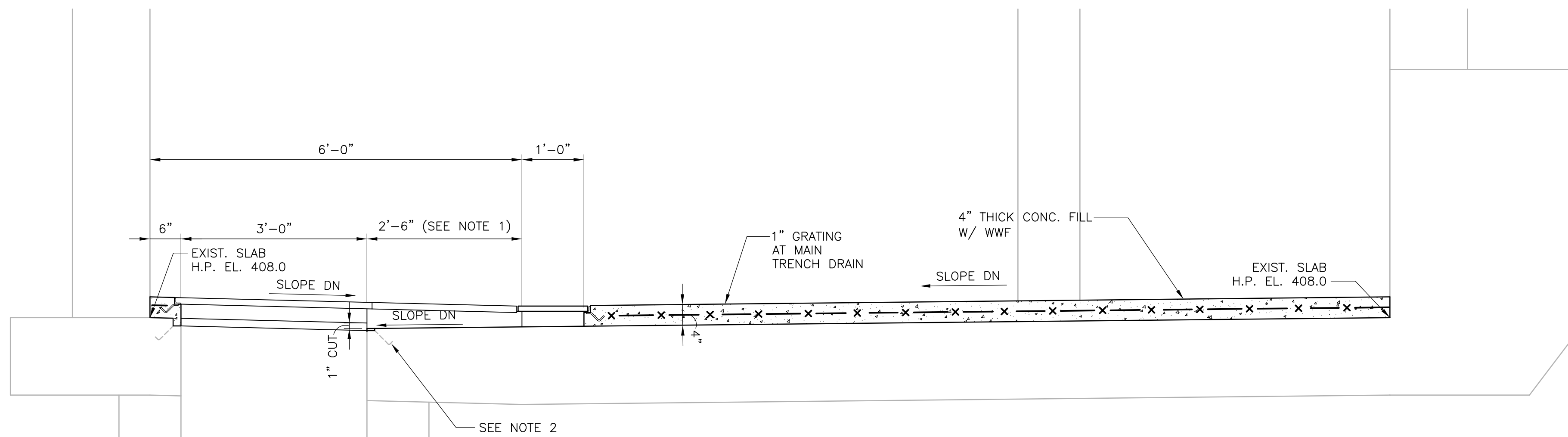
PT-S-3

Acc # 1289-74465

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SPTSC002.DWG Saved by: RLAM On: 28-Sep-10 Plotted on: 29-Sep-10 9:32 AM

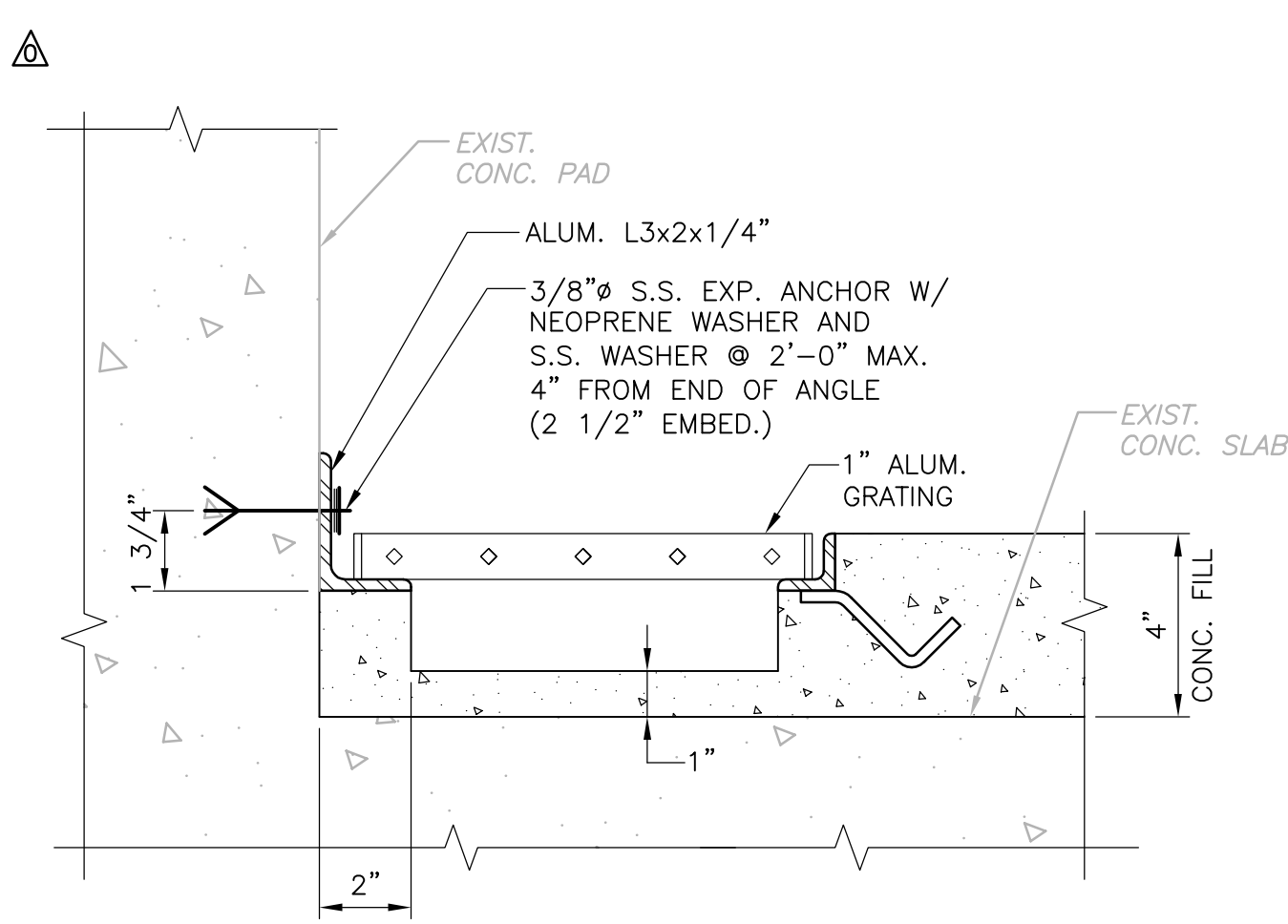


SECTION 1
3/4" = 1'-0"
PT-S-3



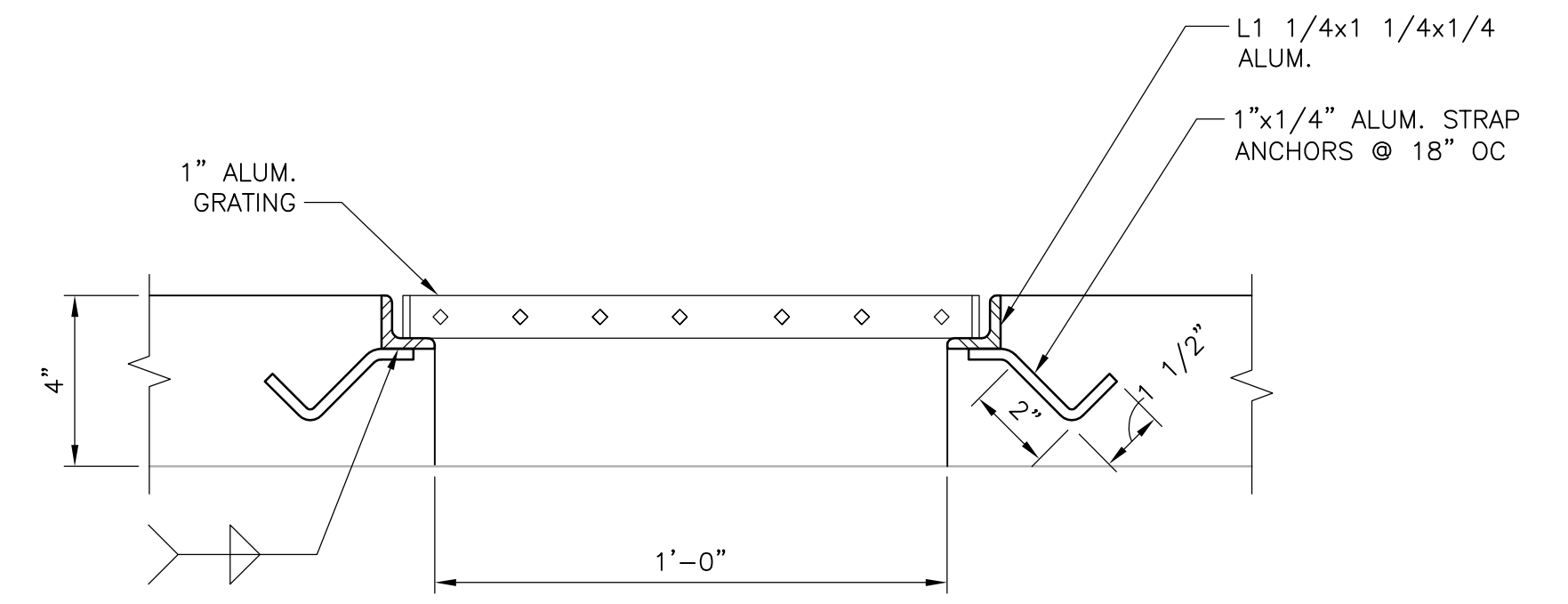
SECTION 2
3/4" = 1'-0"
PT-S-3

- NOTES:**
- CUT EXISTING SLAB BY 1" AT THE EXISTING SUMP FOR THE MAIN TRENCH DRAIN LOW POINT.
 - REMOVE THE GRATING SUPPORT ANGLE AT THE NEW GRATING AREA PRIOR TO CASTING THE CONCRETE FILL.

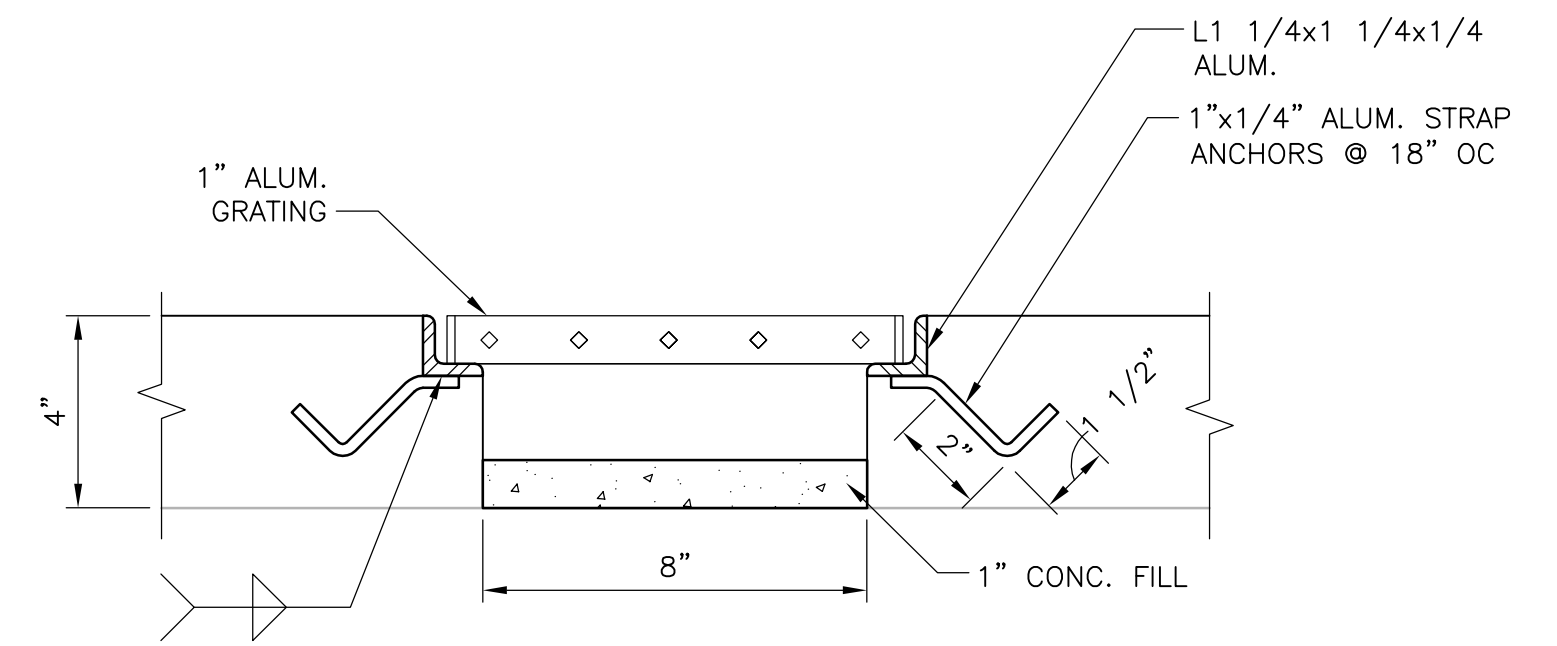


- NOTES:**
- INFORMATION NOT SHOWN SEE SECTION 3/PT-S-4.

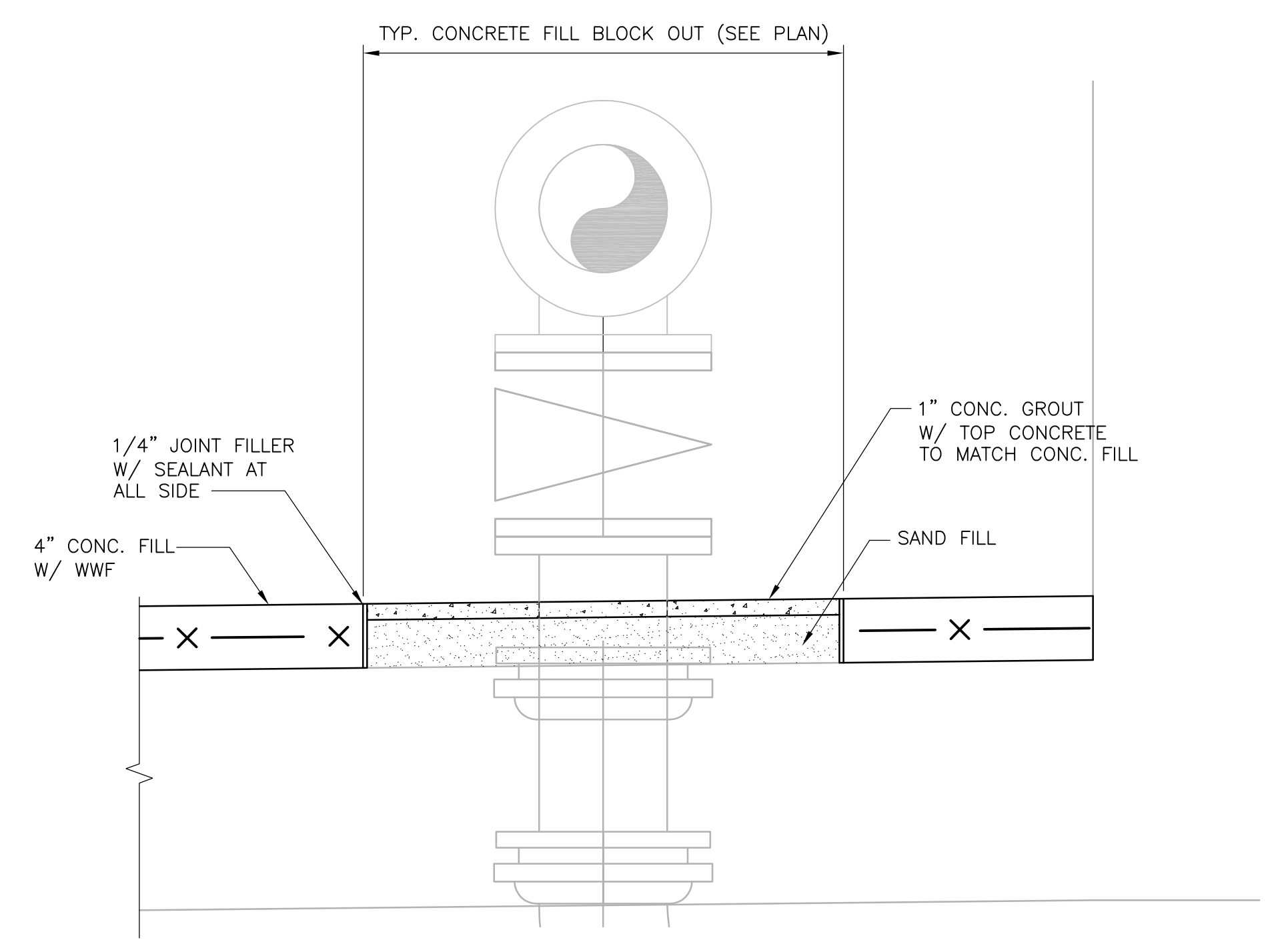
SECTION 3
3" = 1'-0"
PT-S-3



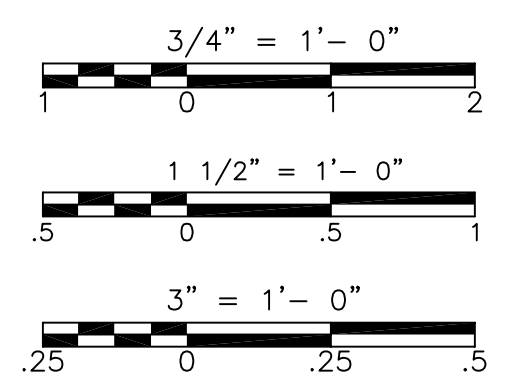
SECTION 1A
3" = 1'-0"
PT-S-4



SECTION 3
3" = 1'-0"
PT-S-3



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



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. SPTSC002
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

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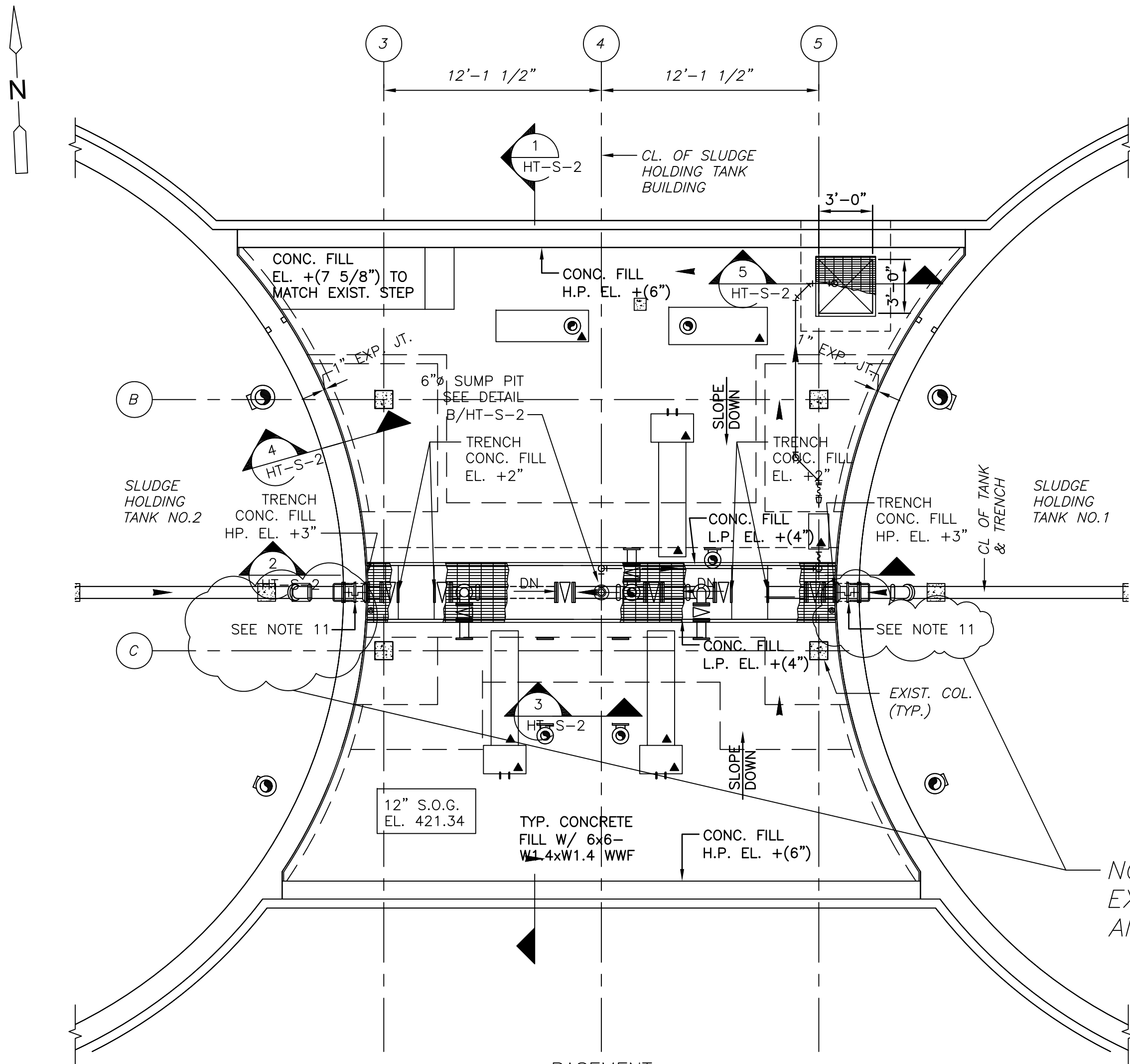
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

PRIMARY SETTLING TANK
 PUMP GALLERY SECTIONS AND DETAILS
 IMPROVEMENTS

PROJECT NO.
1289-74283
 Sht. 60 of 312
 PT-S-4
 Acc # 1289-74466

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\AS BUILT FILES\CDM\CAD FILES FOR AS BUILT\CDM\SHPL001.DWG Saved by: PLOWRY On: 20-Dec-12 5:24 PM

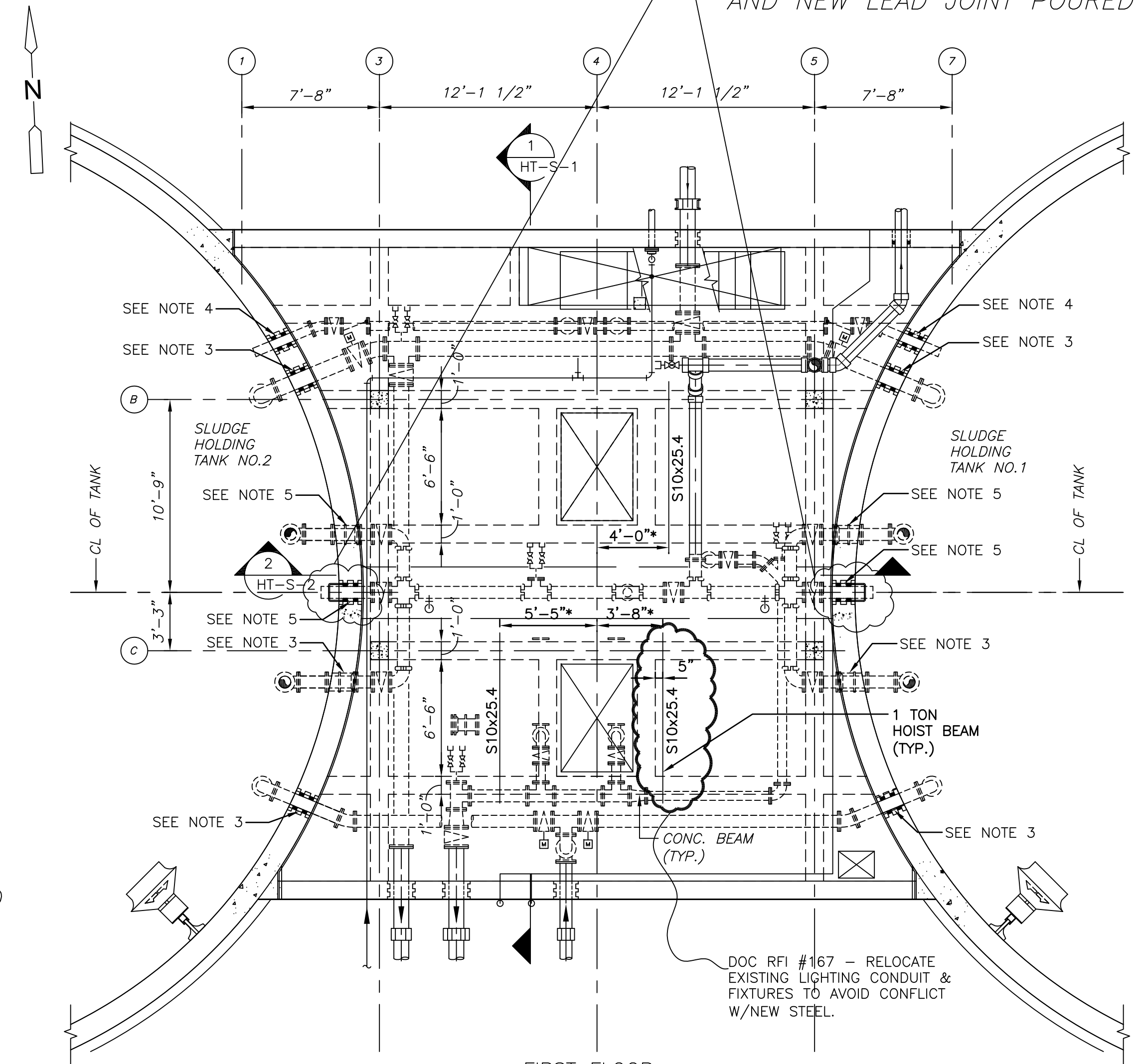


BASEMENT PLAN
3/16"=1'-0"

NOTES:

1. USE HYDRO DEMOLITION (10,000 PSI TO 15,000 PSI) TO REMOVE MASTERPLATE COATING, SCARIFY AND CLEAN ALL FLOOR SURFACES FOR AREA WHERE CONCRETE FILL WILL BE ADDED.
2. REMOVE THE EXISTING GRATING SUPPORT ANGLE AT THE NEW GRATING AREA PRIOR TO CASTING THE CONCRETE FILL.
3. CAST CONCRETE FILL AS INDICATED ON THE PLAN ON THE EXISTING SLOPE CONCRETE SLAB AND TO THE NEW FORM CONCRETE 12" WIDE SECONDARY TRENCHES.
4. CAST CONCRETE FILL WITH 6x6-W1.4XW1.4 WWF AS SHOWN ON EXISTING CONCRETE SLAB.
5. [Hatched pattern] INDICATES 1"x3/16" ALUMINUM GRATING TYP. UNO. WITH BEARING BARS @ 1 3/16" O.C. CROSS BARS @ 4". TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES AND EMBED. ANGLE SUPPORT AT NEW FORM TRENCH DRAINS AND EXISTING SUMP PIT.
6. PROVIDE 1" ALUMINUM GRATING AND EMBED. ANGLE AT NEW FORM TRENCH DRAINS AND EXISTING SUMP PIT.
7. PROVIDE 1" JOINT FILLER AND 1"x1" SEALANT.
8. FOR NEW FLOOR COATING, SEE ARCHITECTURAL DRAWINGS.
9. ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2 DRAWINGS.
10. COORDINATE WITH MECHANICAL DRAWINGS FOR MECHANICAL SEALS REQUIREMENT AT NEW AND EXISTING PIPE PENETRATIONS.
11. PROVIDE PIPE OPENING DIAMETER AS REQUIRED AND CAST NEW OPENING ON EXIST CONCRETE PER TYPICAL DETAIL ON SD-S-2.

NO NEW OPENING WAS MADE EXISTING WALL THIMBLE REUSED AND NEW LEAD JOINT POURED

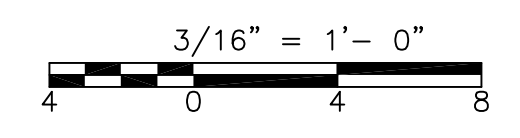


FIRST FLOOR PLAN
3/16"=1'-0"

NOTES:

1. * INDICATES HOIST BEAM LOCATIONS COORDINATE WITH EQUIPMENT MANUFACTURER.
2. COORDINATE WITH MECHANICAL DRAWINGS FOR MECHANICAL SEALS REQUIREMENT AT NEW AND EXISTING PIPE PENETRATIONS.
3. EVALUATE CONDITION AT THE EXISTING PIPE PENETRATION AND PROVIDE REPAIR AS REQUIRED FOLLOWING APPLICABLE NOTES AND DETAILS ON SHEET SD-S-5 AND SD-S-6.
4. CORE DRILL PIPE OPENING DIAMETER AS REQUIRED BY MECHANICAL SEAL MANUFACTURER.
5. PROVIDE PIPE OPENING DIAMETER AS REQUIRED AND CAST NEW OPENING ON EXIST CONCRETE PER TYPICAL DETAIL ON SD-S-2.

NOT USED



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SHTPL001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

DOC RECORD DRAWING	7/20/2012
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BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

SLUDGE HOLDING TANK BUILDING
BASEMENT AND FIRST FLOOR PLANS
IMPROVEMENTS

PROJECT NO.
1289-74283

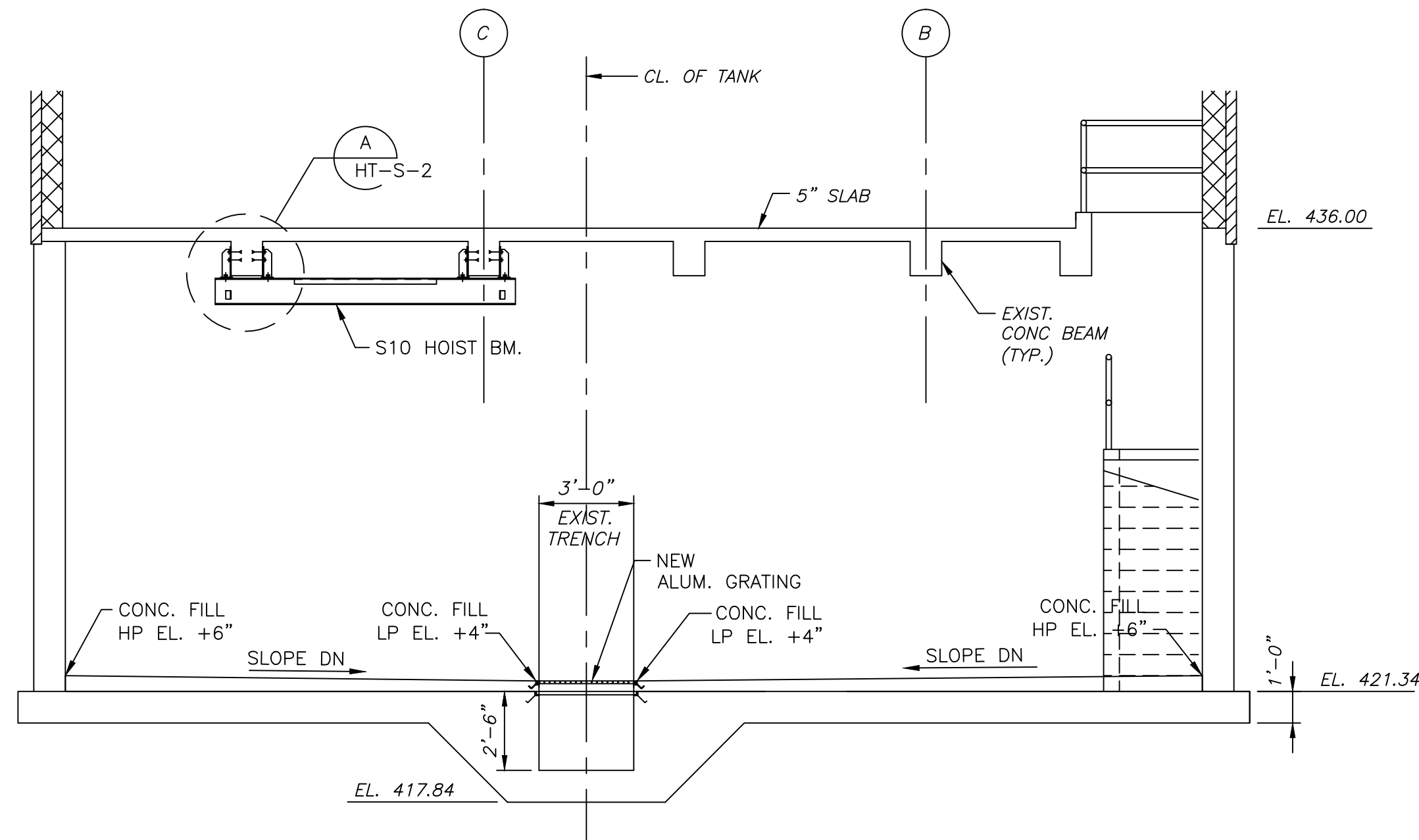
Sht. 61 of 312

HT-S-1

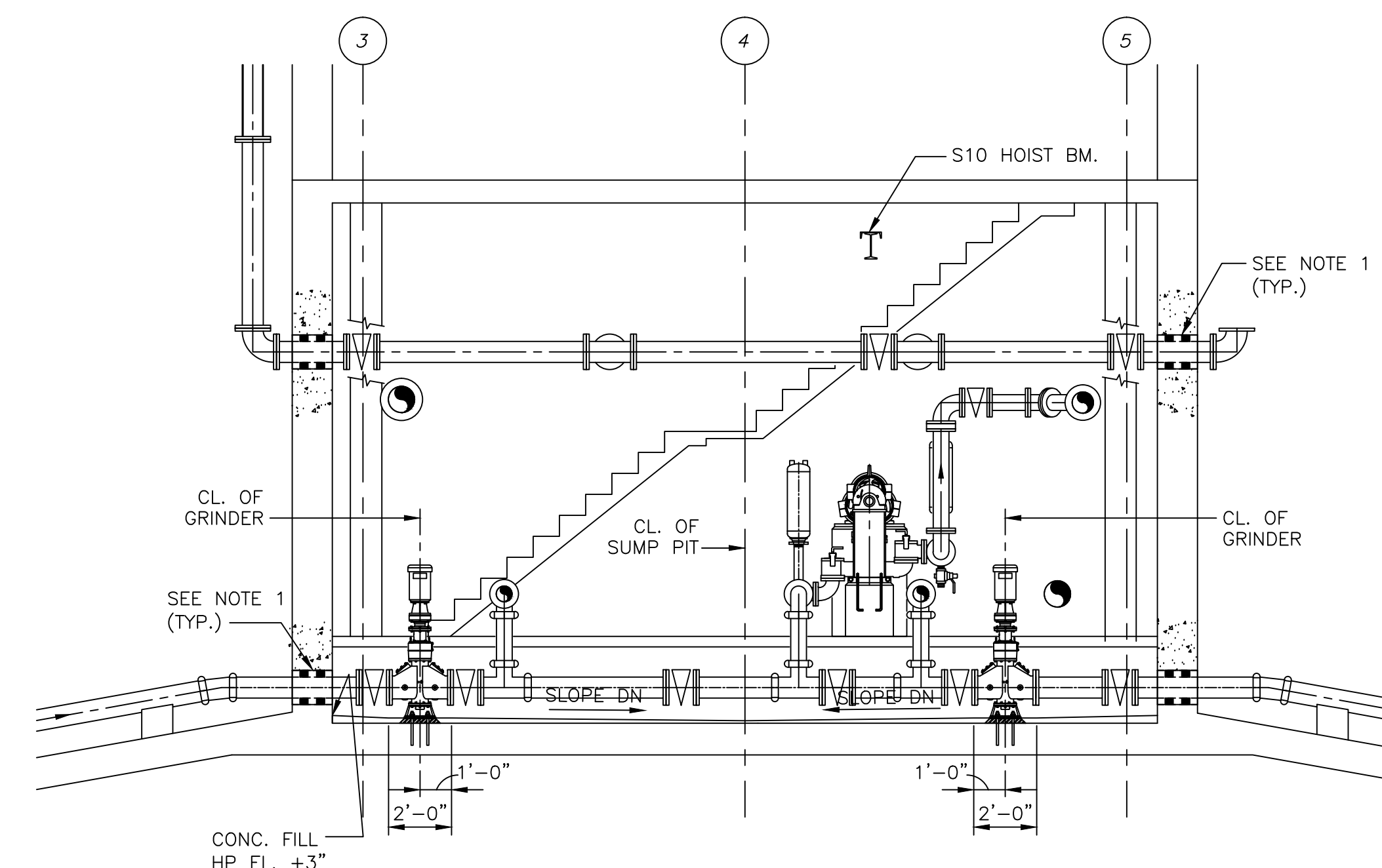
Acc # 1289-74467

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\CAD FILES FOR AS BUILT\CDM\SHTS\CDM\SHTS001.DWG Saved by: PLOWRY On: 8-Feb-13 Plotted on: 8-Feb-13 12:21 PM



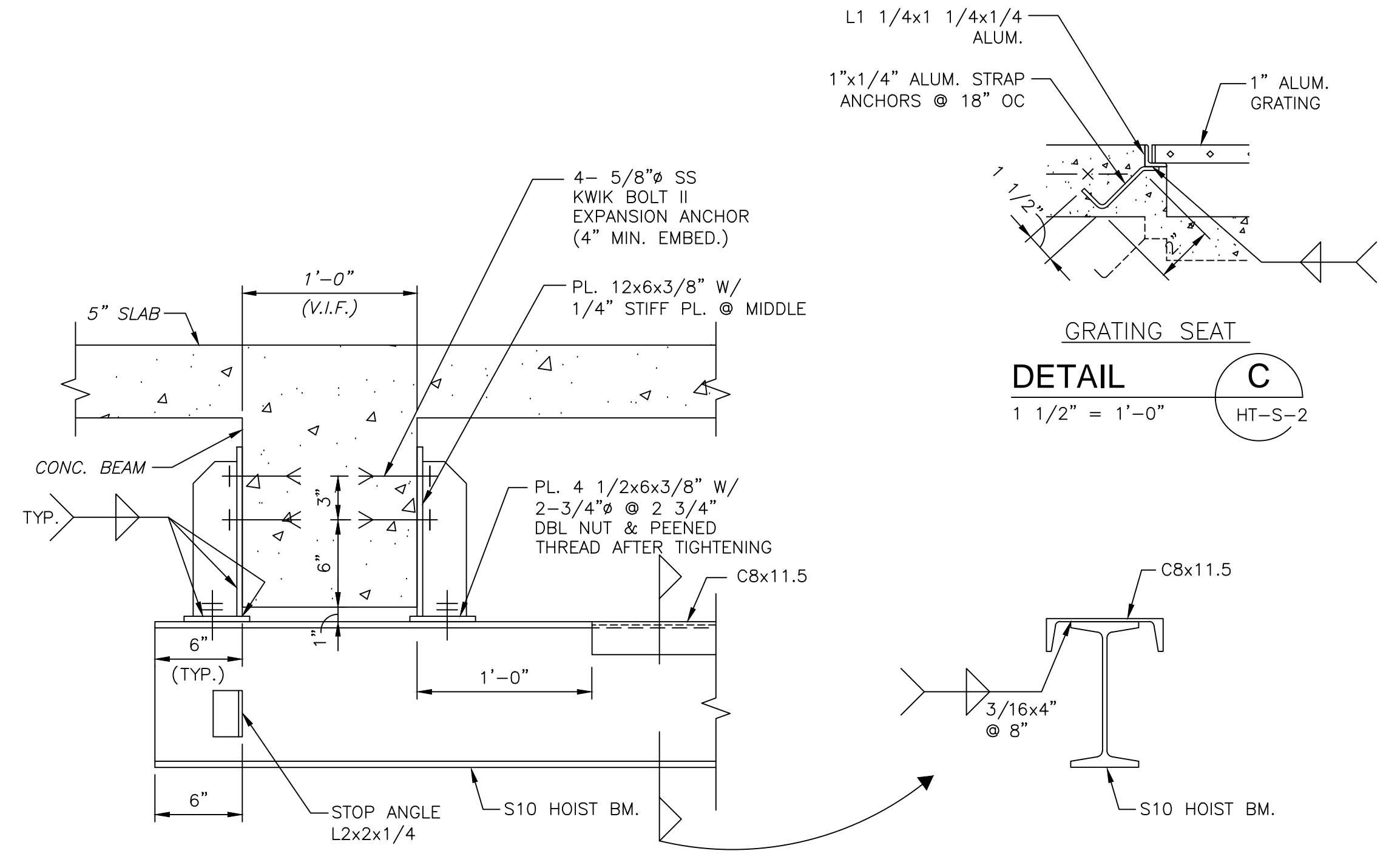
SECTION 1
1/4" = 1'-0"
HT-S-1



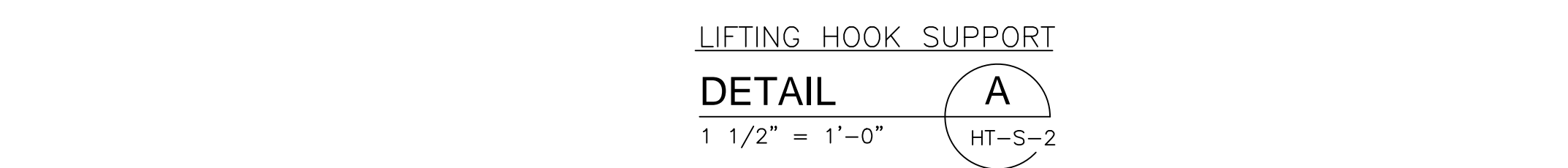
SECTION 2
1/4" = 1'-0"
HT-S-1

NOTES:

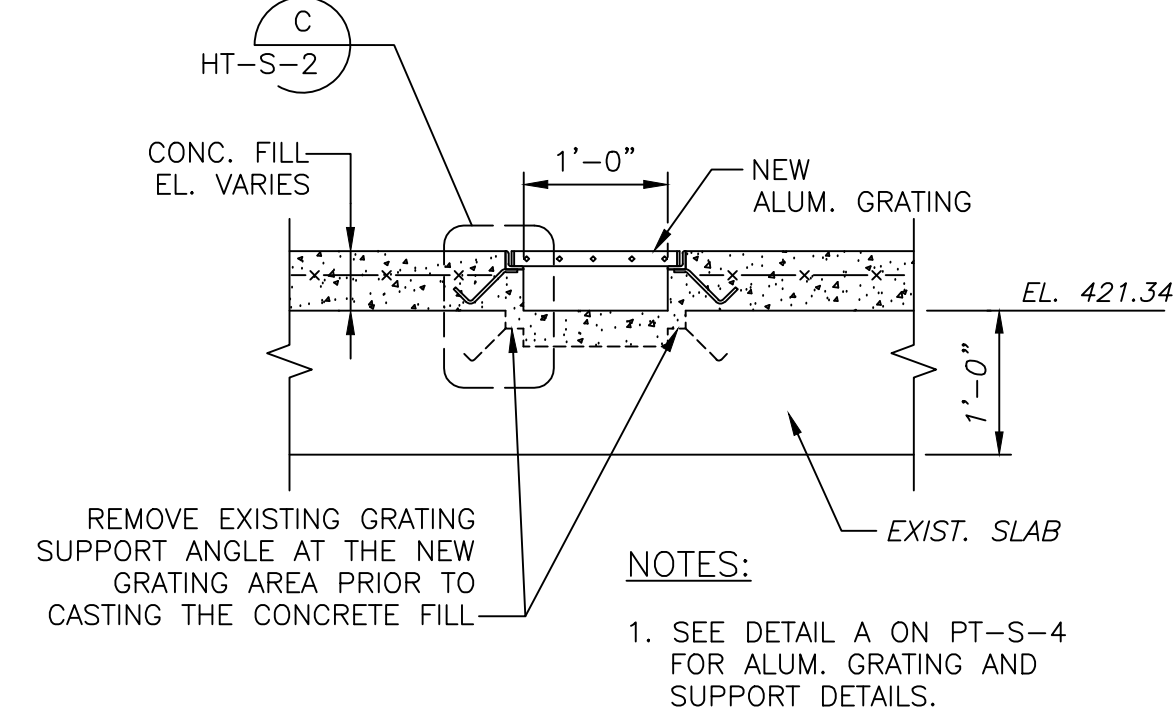
1. PROVIDE PIPE OPENING DIAMETER AS REQUIRED AND CAST NEW OPENING ON EXIST CONCRETE PER TYPICAL DETAIL ON SD-S-2.



DETAIL C
1 1/2" = 1'-0"
HT-S-2



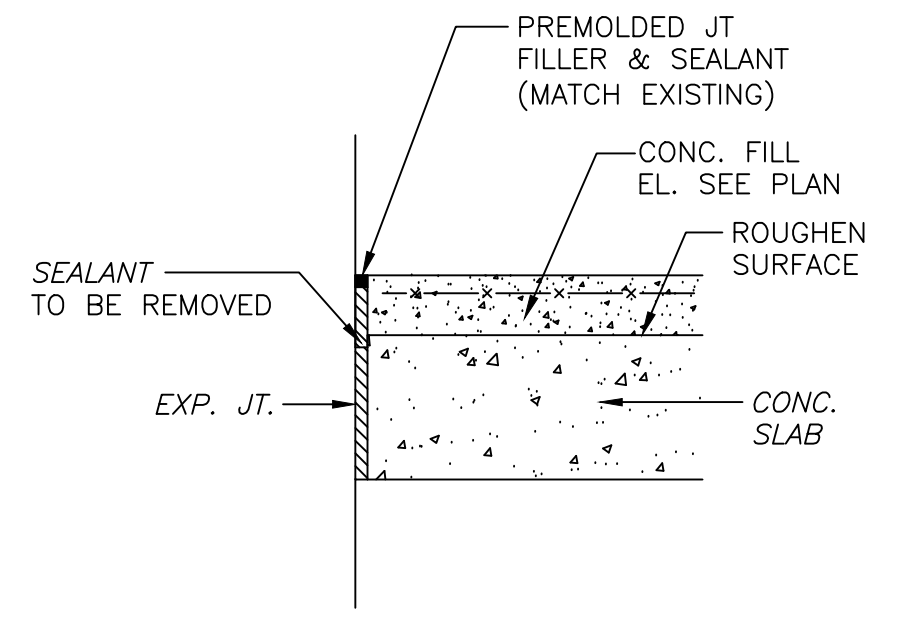
DETAIL A
1 1/2" = 1'-0"
HT-S-2



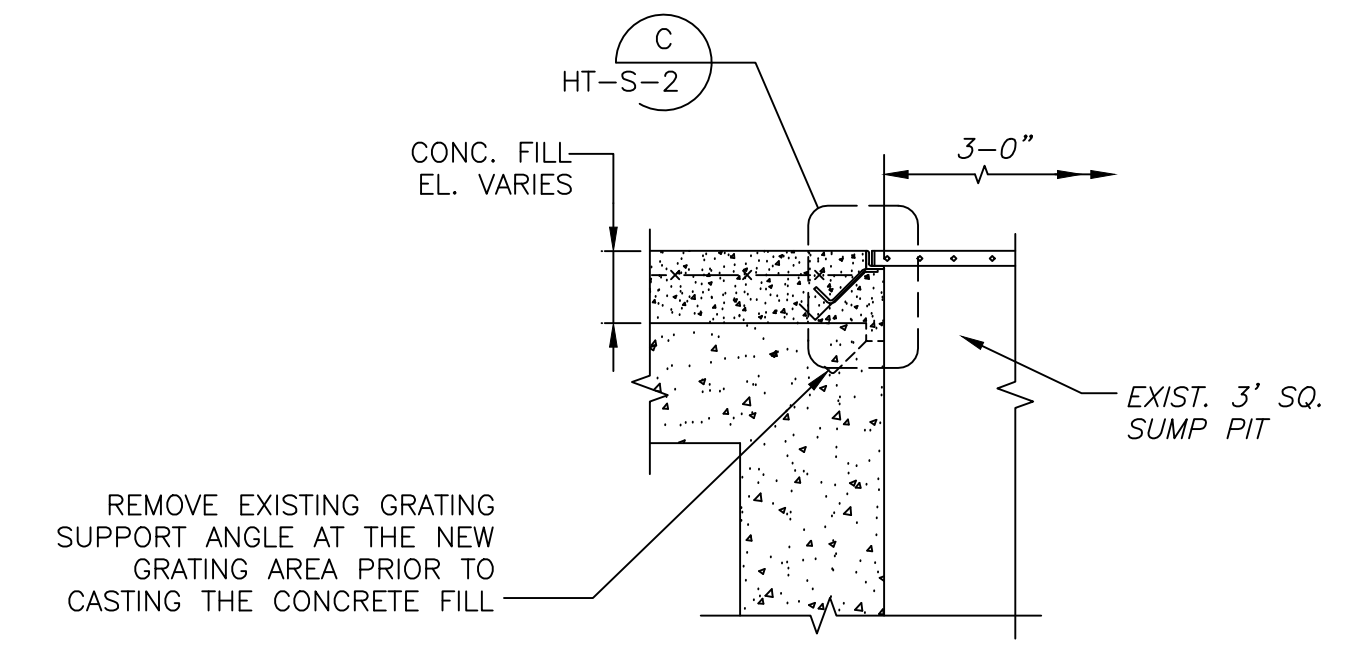
SECTION 3
3/4" = 1'-0"
HT-S-1

NOTES:

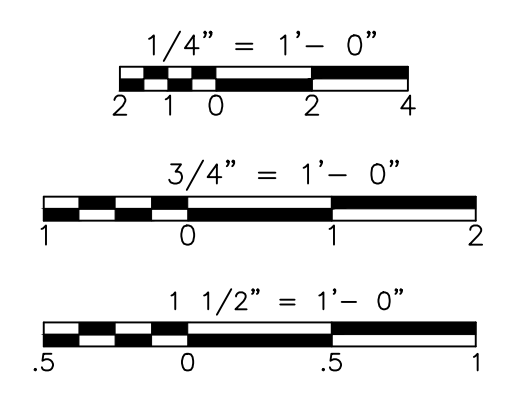
1. SEE DETAIL A ON PT-S-4 FOR ALUM. GRATING AND SUPPORT DETAILS.



SECTION 4
3/4" = 1'-0"
HT-S-1



SECTION 5
3/4" = 1'-0"
HT-S-1



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SHTS001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

SLUDGE HOLDING TANK BUILDING
SECTIONS AND DETAILS
IMPROVEMENTS

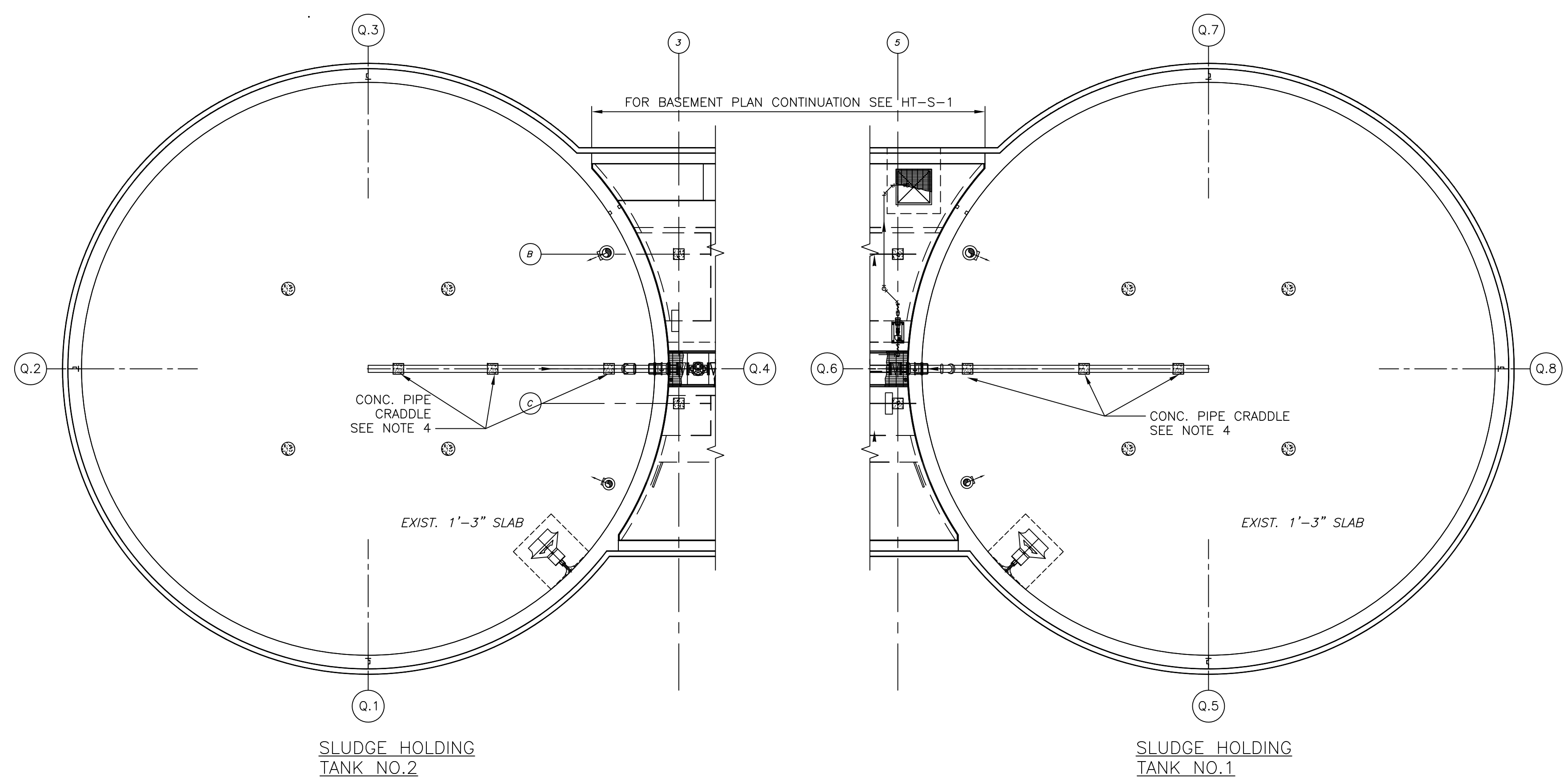
PROJECT NO.
1289-74283

Sht. 62 of 312

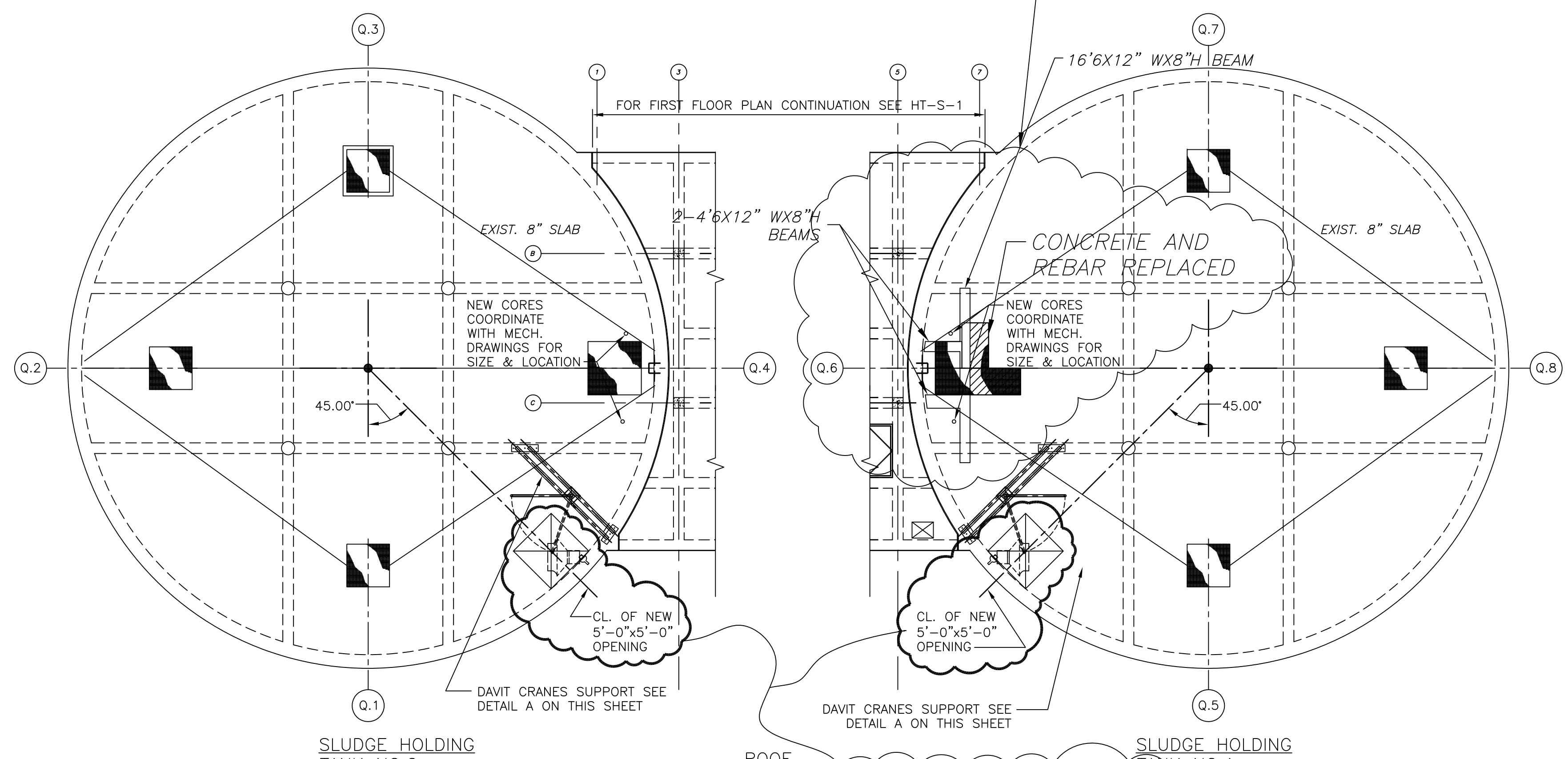
HT-S-2

Acc # 1289-74468

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SHHTP002.DWG Saved by: PLOWRY On: 20-Dec-12 6:02 PM



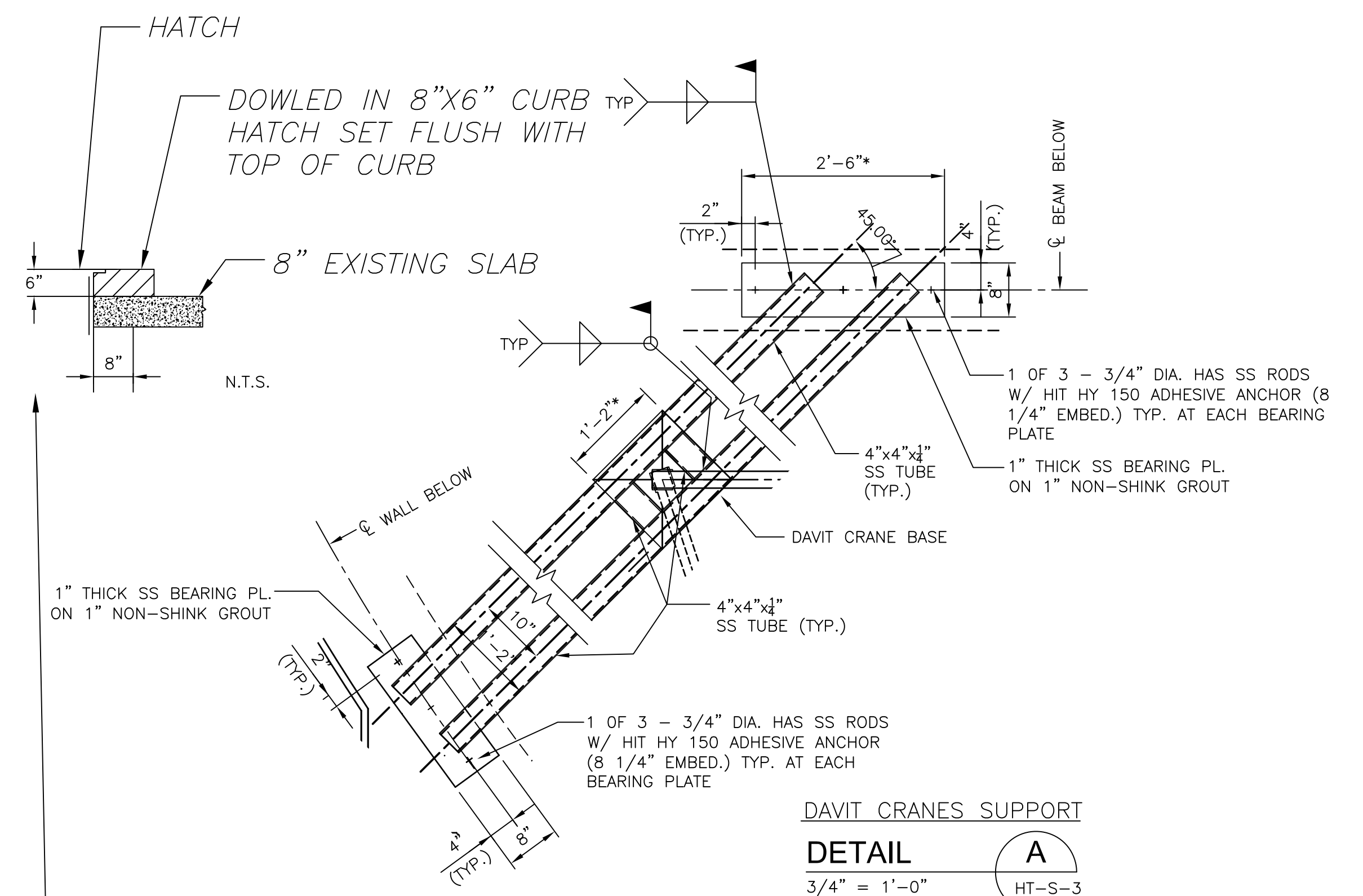
BASEMENT PLAN
1/8"=1'-0"



ROOF PLAN
1/8"=1'-0"

NOTES:

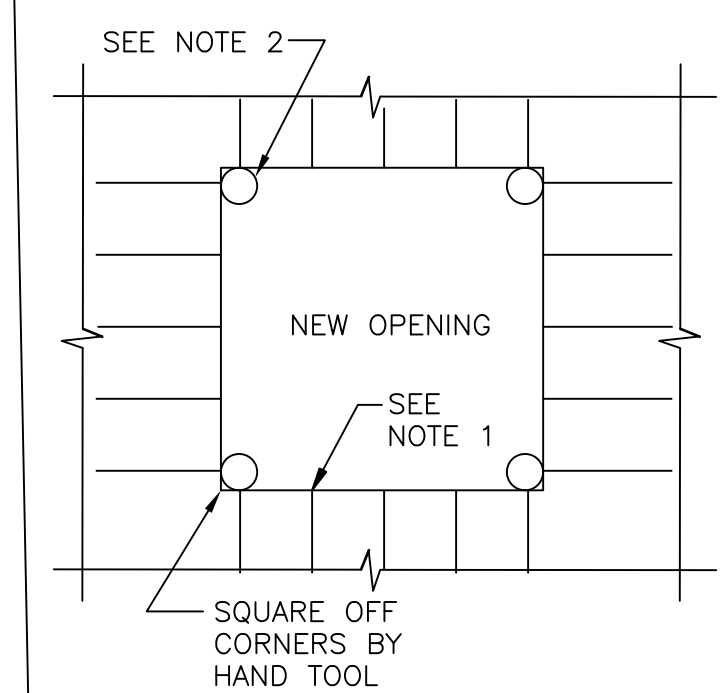
- CONTRACTOR TO EVALUATE CONDITION ON THE INTERIOR OF EXISTING (2) CONCRETE SLUDGE HOLDING TANKS. CONTRACTOR TO EMPTY BELOW WHAT DISTRICT IS ABLE TO PUMP DOWN ONE TANK AT A TIME. CONTRACTOR TO CLEAN TANK AND PROVIDE VENTILATION AND ACCESS FOR ENGINEER TO BE ABLE TO INSPECT SAFELY. DOCUMENT TANK DEFICIENCIES AND PROPOSE REPAIR AS REQUIRED.
 - CLEAN TANK SURFACE BY HIGH PRESSURE WASHING (12,000 PSI PRESSURE)
 - APPLY TWO PASSES OF CORROSION INHIBITOR PENETRANT TO CLEANED CONCRETE SURFACE, E.G. SIKA ARMATEC.
 - PROVIDE CORROSION-RESISTANT POLYMER LINING/EPOXY LINING PER SPECIFICATION SECTION 03180.
- COORDINATE WITH MECHANICAL DRAWINGS FOR MECHANICAL SEALS REQUIRED AT NEW AND EXISTING PIPE PENETRATIONS.
- EVALUATE CONDITION AT THE EXISTING PIPE PENETRATION AND PROVIDE REPAIR AS REQUIRED FOLLOWING APPLICABLE NOTES AND DETAILS ON SHEET SD-S-5 AND SD-S-6.
- FOR CONCRETE PIPE CRADLE TYP. DETAIL SEE SD-S-2.



DAVIT CRANES SUPPORT DETAIL A
3/4" = 1'-0" HT-S-3

NOTES:

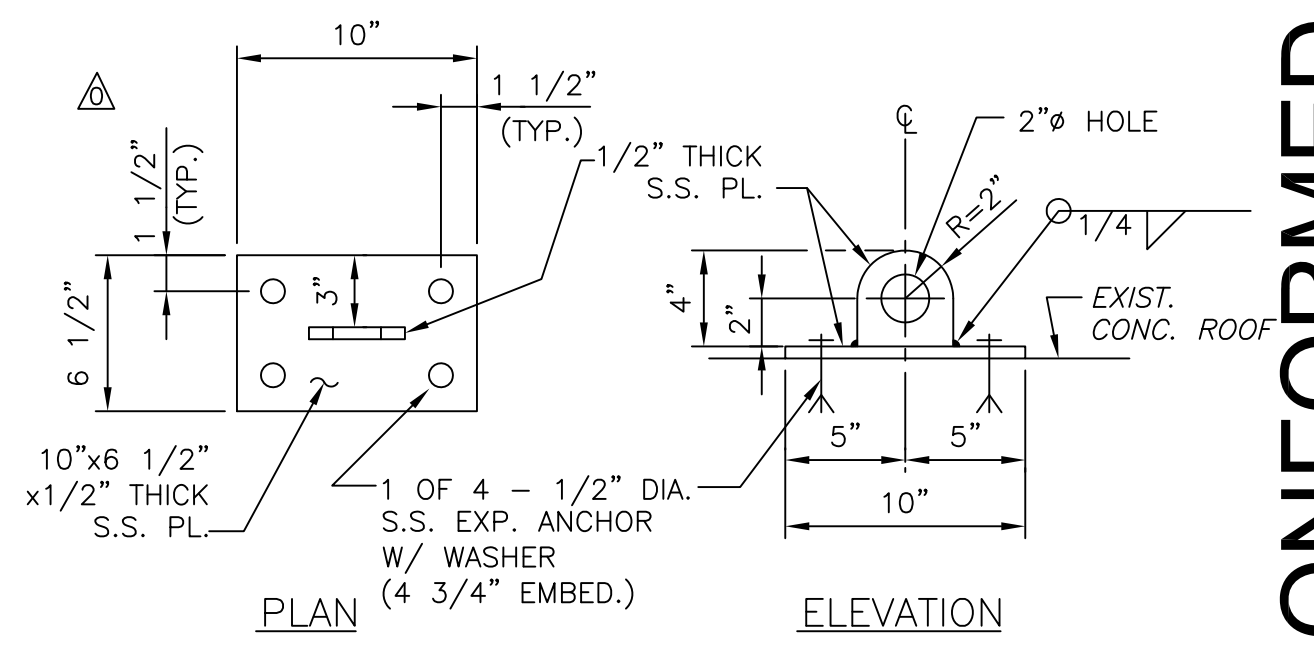
- (*) ASTERISK INDICATES DIMENSION OF SUPPORT SPACING AND SUBSEQUENTLY THE BEARING PLATE LENGTH TO BE COORDINATED WITH DAVIT CRANES BASE REQUIREMENT. PROVIDE ANCHORS/ CONNECTIONS TO SUPPORT PER MANUFACTURER REQUIREMENT.
- COORDINATE DAVIT CRANE SUPPORT LOCATION AND ORIENTATION WITH MECHANICAL DRAWINGS.



NEW OPENING IN EXIST CONCRETE TANK ROOF
NTS

NEW OPENING NOTES:

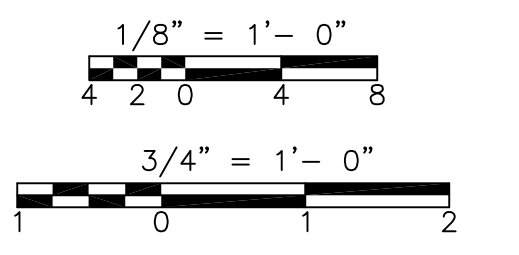
- APPLY 2 COATS OF ZINC RICH COATING TO FACE OF CUT REINFORCING STEEL.
- 4" DIA. CORE AT CORNERS AND CUT TO CORES TO PREVENT OVERCUT. SQUARE OFF CORNERS AS REQUIRED TO ALLOW DUCTWORK AND EQUIPMENT CLEARANCE.
- COORDINATE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATION OF WALL AND ROOF OPENINGS.
- COORDINATE WITH ARCHITECTURAL DRAWINGS FOR HATCH REQUIREMENT.



FALL PROTECTION TIE-OFF DETAIL
NTS

NOTES:

FOR LOCATION AND REQUIREMENT REFER TO ARCH. DWG. HT-A-2.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

DOC RECORD DRAWING
7/20/2012

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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

LIN ASSOCIATES, INC.
CONSULTING ENGINEERS
(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

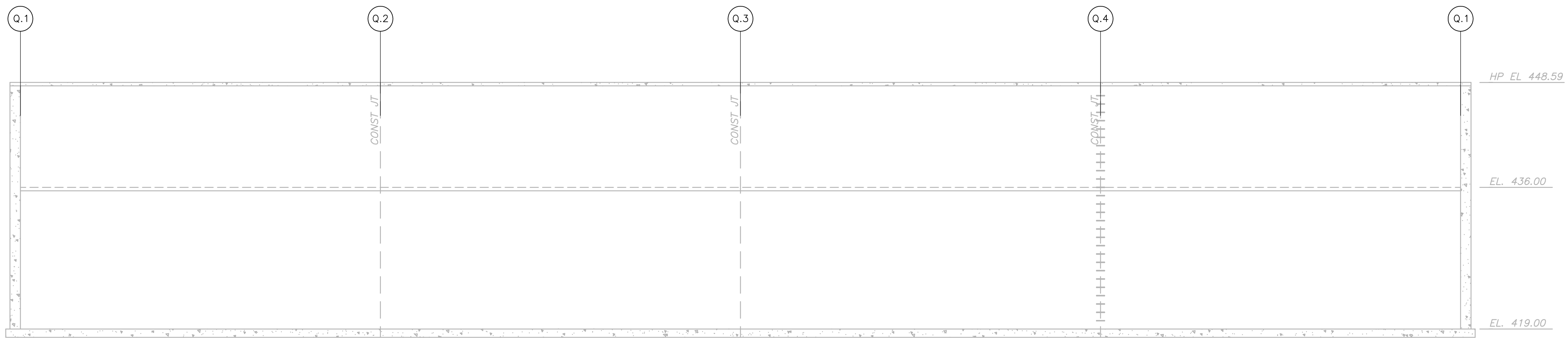
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

SLUDGE HOLDING TANK BUILDING HOLDING TANK PLANS AND NOTES IMPROVEMENTS

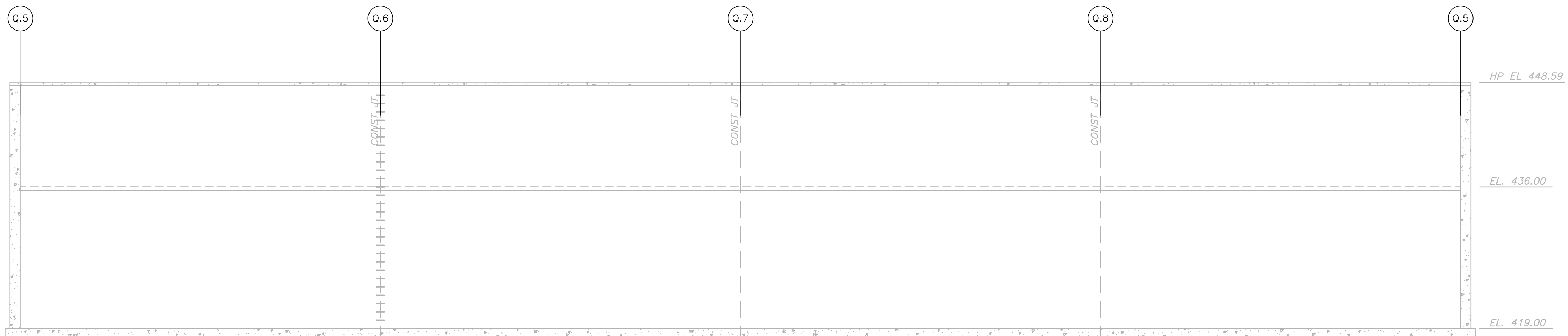
PROJECT NO. 1289-74283
Sht. 63 of 312
HT-S-3
Acc # 1289-74469

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SHTLO01.DWG Saved by: GKARJADI On: 30-Jun-10 Plotted on: 7-Jul-10 8:27 AM



SLUDGE HOLDING TANK NO. 2

ELEVATION **A**
1/8" = 1'-0" HT-S-3



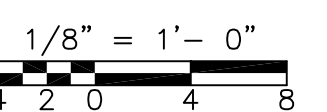
SLUDGE HOLDING TANK NO. 1

ELEVATION **B**
1/8" = 1'-0" HT-S-3

NOTES:

1. SEE SHEET SD-S-5 FOR CONCRETE REPAIRS GENERAL NOTES AND TYPICAL DETAILS.
2. SEE SHEET SD-S-6 FOR CONCRETE REPAIRS MEANS AND METHOD NOTES.
3. SEE NOTES ON SHEET HT-S-3 FOR ADDITIONAL REQUIREMENT.
4. SHEET WILL BE REVISED FOLLOWING TANK INSPECTIONS FOR PROPOSED REPAIR WORK.

RECORD DRAWING



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SHTLO01
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: JULY 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

SLUDGE HOLDING TANK BUILDING
 HOLDING TANK ELEVATIONS
 IMPROVEMENTS

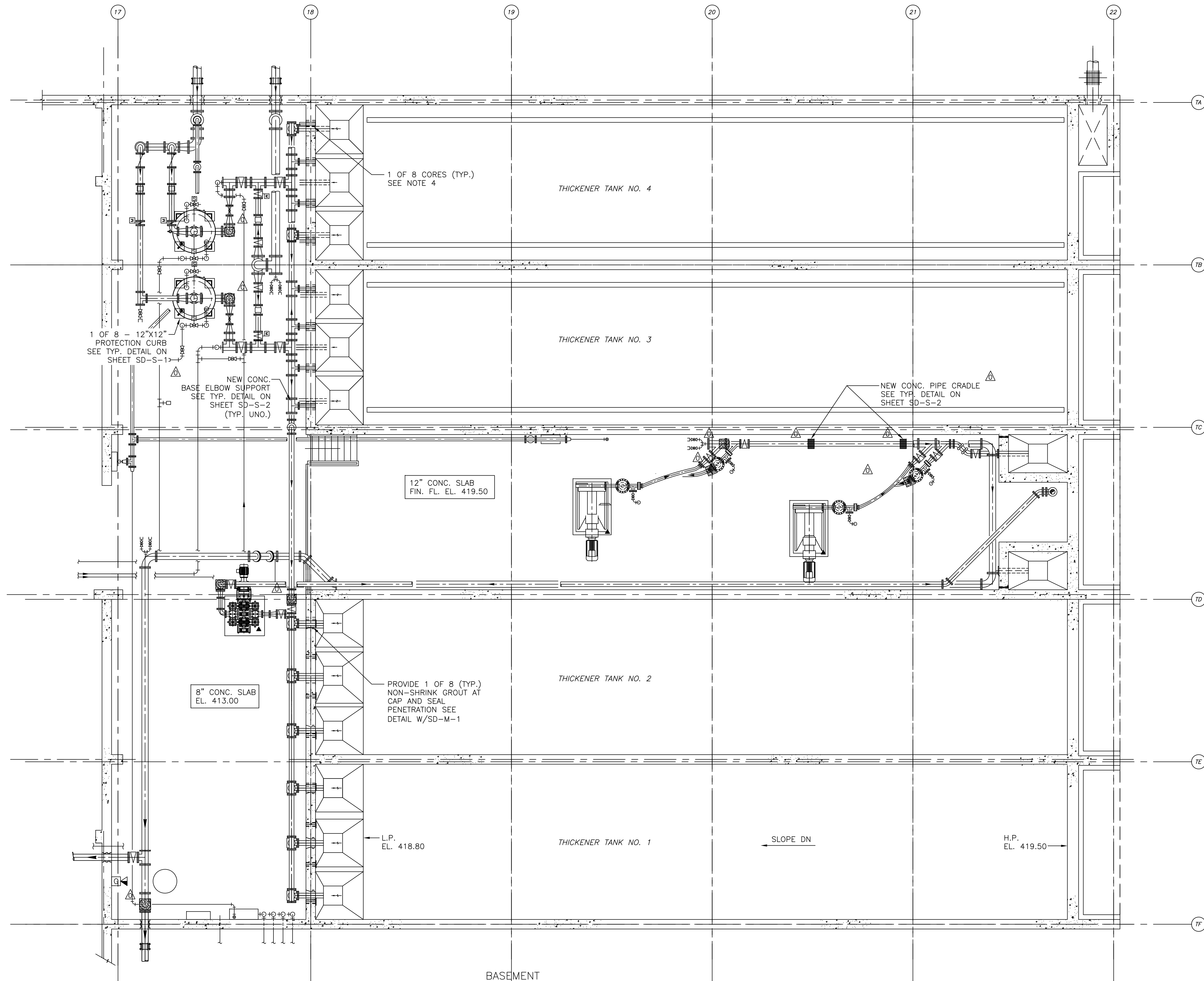
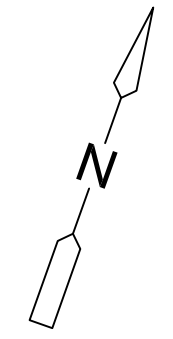
PROJECT NO.
1289-74283

Sht. 64 of 312

HT-S-4

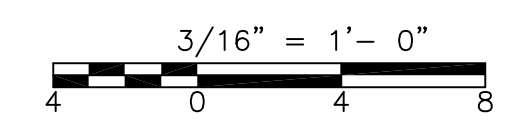
Acc. # 1289-74470

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- NOTES:**
- COORDINATE WITH MECHANICAL DRAWINGS FOR MECHANICAL SEALS REQUIREMENT AT NEW AND EXISTING PIPE PENETRATIONS.
 - EVALUATE CONDITION AT THE EXISTING PIPE PENETRATION AND PROVIDE REPAIR AS REQUIRED FOLLOWING APPLICABLE NOTES AND DETAILS ON SHEET SD-S-5 AND SD-S-6.
 - ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2 DRAWINGS.
 - CORE DRILL PIPE OPENING DIAMETER AS REQUIRED BY MECHANICAL SEAL MANUFACTURER.

**BASEMENT
PLAN**
3/16"=1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. STBPL001
 DESIGNED BY: C. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

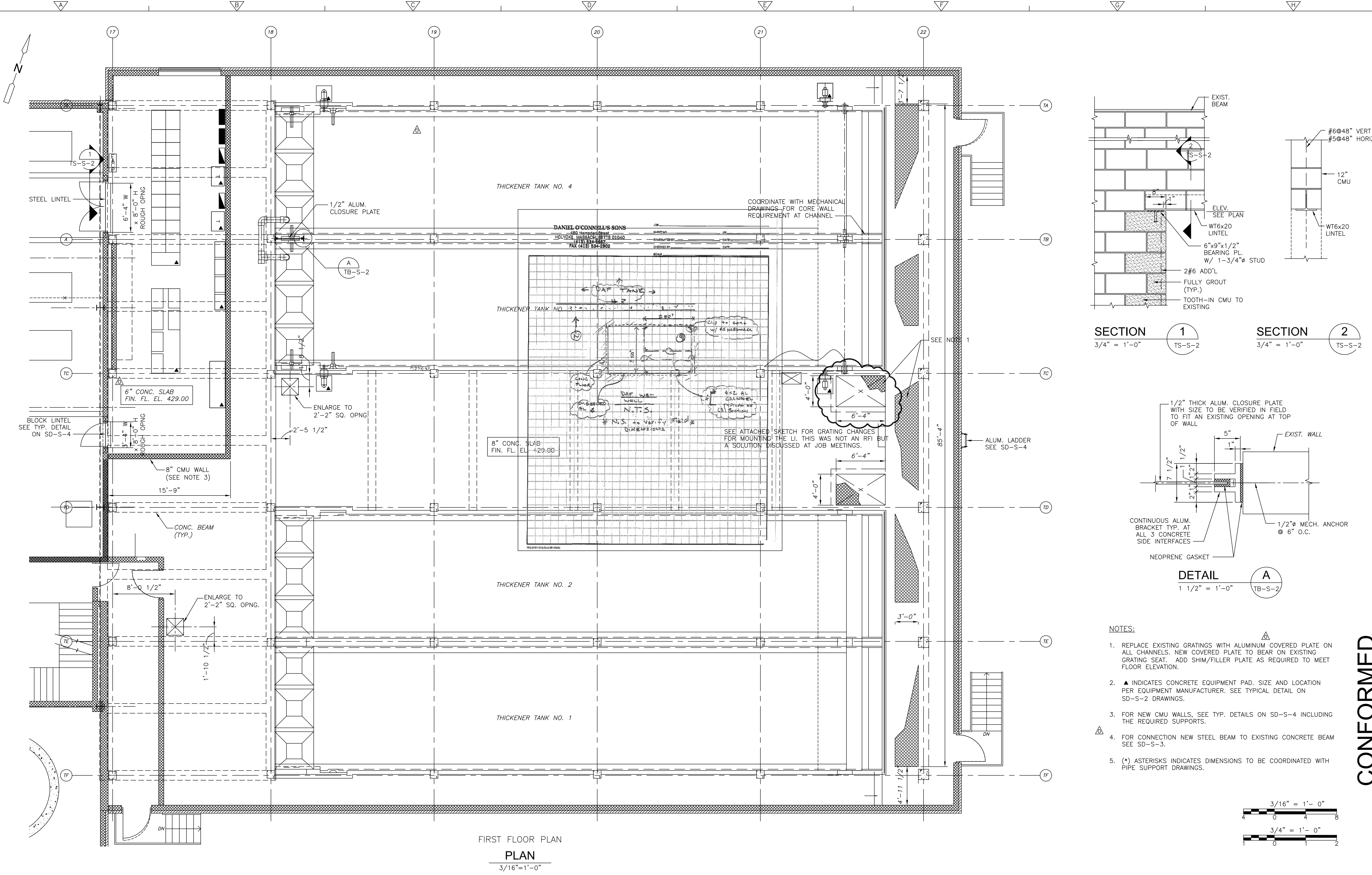
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT FLOOR PLAN
 IMPROVEMENTS**

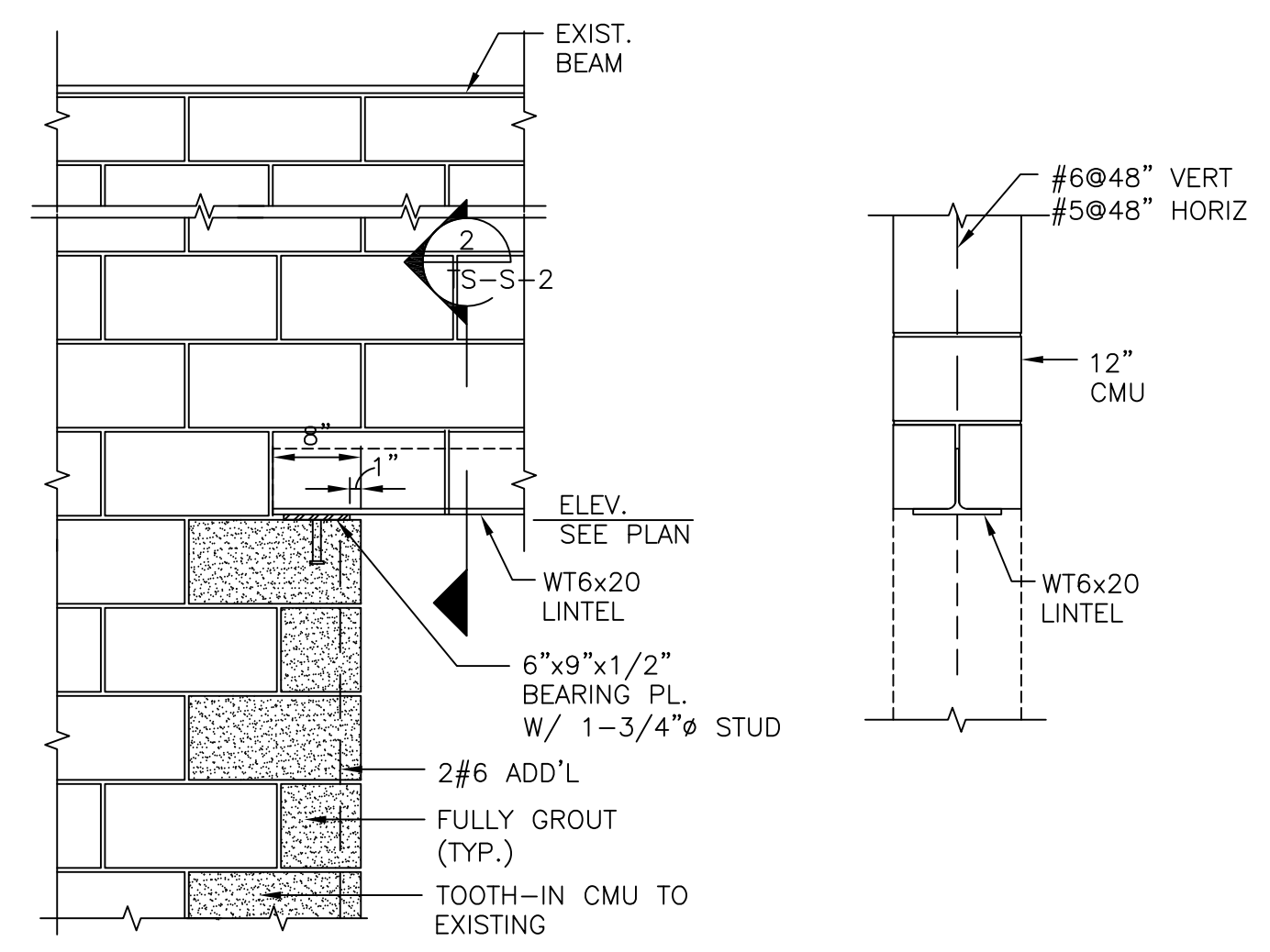
PROJECT NO.
1289-74283
 Sht. 65 of 312
TB-S-1
 Acc # 1289-74471

CONFORMED

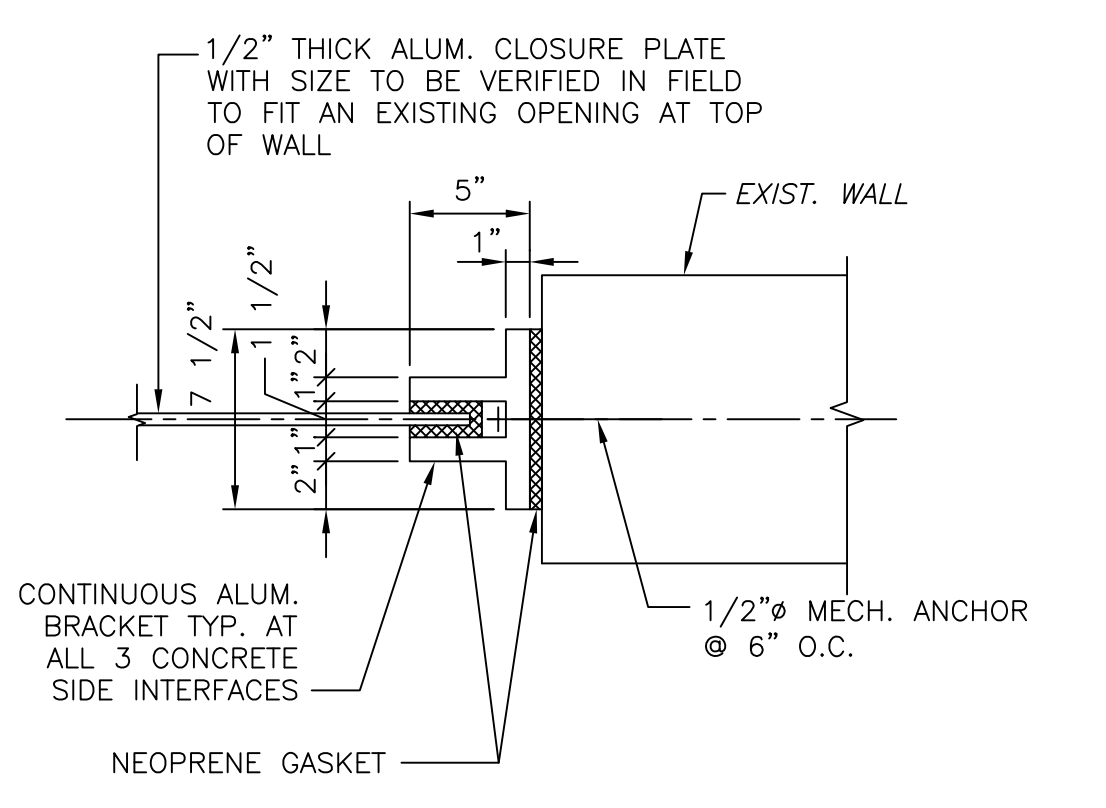
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\BUILT\CDM CAD FILES FOR AS BUILT\STBPL002.DWG Saved by: PLOWRY On: 7-Dec-12 5:03 PM



FIRST FLOOR PLAN
PLAN
3/16"=1'-0"

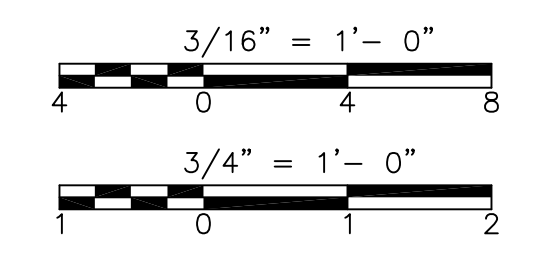


SECTION 1
3/4" = 1'-0"
SECTION 2
3/4" = 1'-0"



DETAIL A
1 1/2" = 1'-0"

- NOTES:
- REPLACE EXISTING GRATINGS WITH ALUMINUM COVERED PLATE ON ALL CHANNELS. NEW COVERED PLATE TO BEAR ON EXISTING GRATING SEAT. ADD SHIM/FILLER PLATE AS REQUIRED TO MEET FLOOR ELEVATION.
 - ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2 DRAWINGS.
 - FOR NEW CMU WALLS, SEE TYP. DETAILS ON SD-S-4 INCLUDING THE REQUIRED SUPPORTS.
 - FOR CONNECTION NEW STEEL BEAM TO EXISTING CONCRETE BEAM SEE SD-S-3.
 - (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH PIPE SUPPORT DRAWINGS.



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REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. STBPL002
DESIGNED BY: C. KARJADI
DRAWN BY: R. LAM
SHEET CHK'D BY: G. KARJADI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: R. LIE
DATE: SEPTEMBER 2010

DOC RECORD DRAWINGS
7/23/2012

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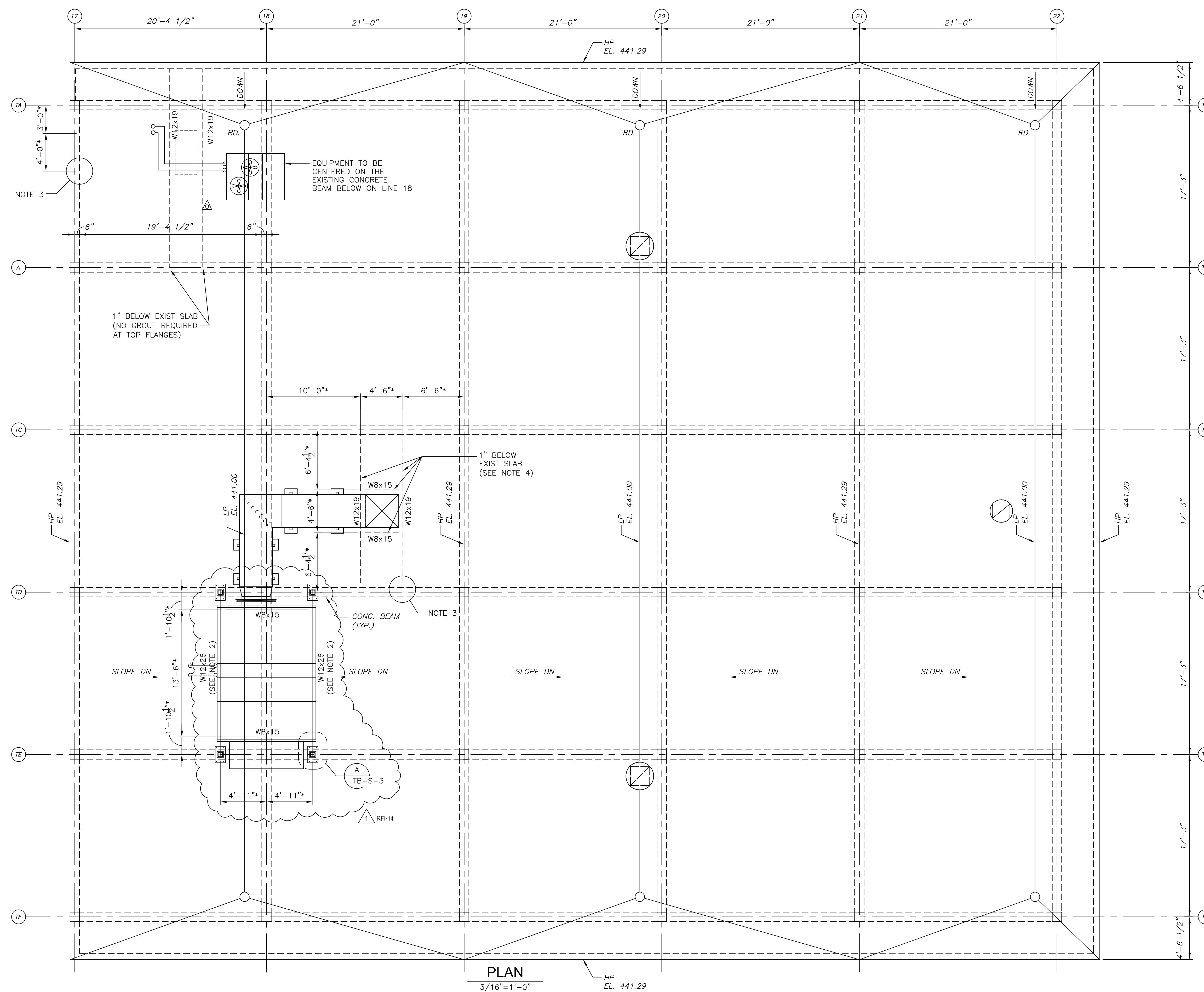
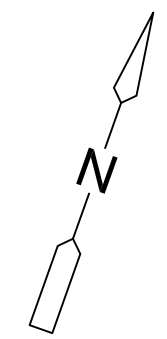
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

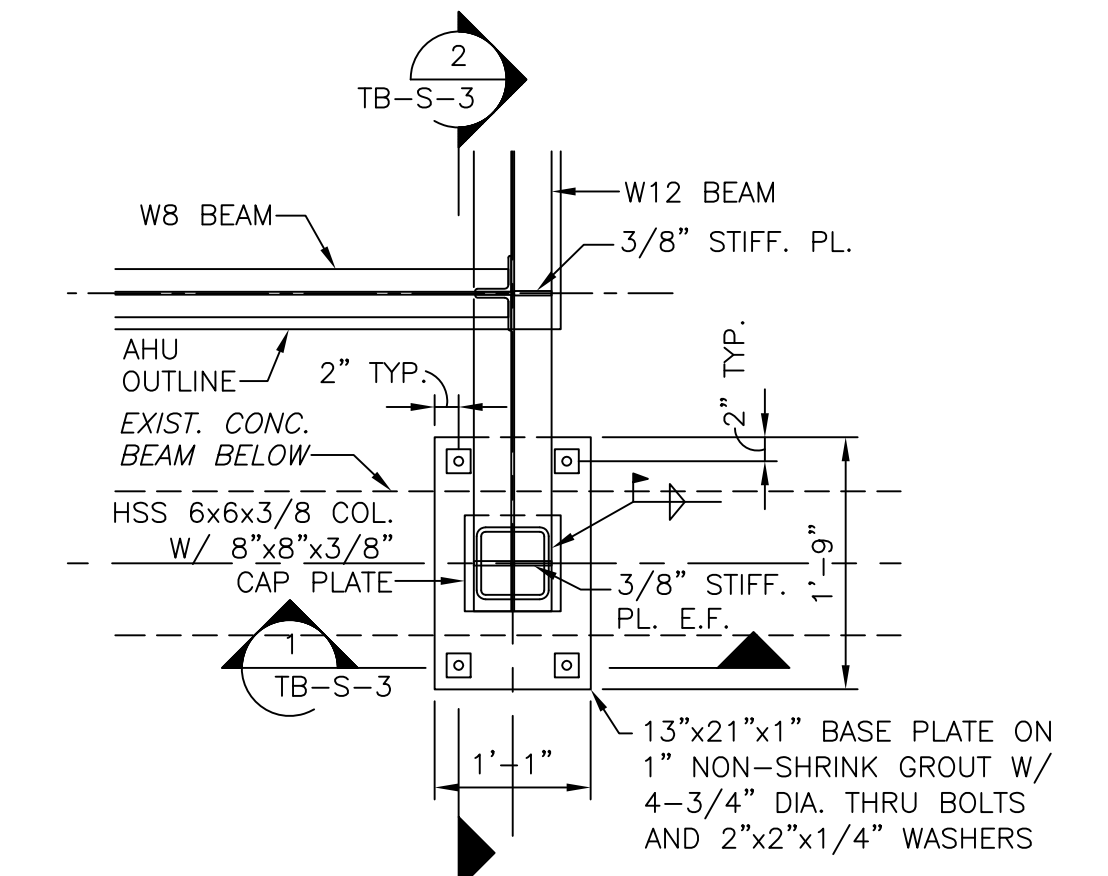
THICKENER BUILDING
FIRST FLOOR PLAN
IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 66 of 312
TB-S-2
Acc # 1289-74472

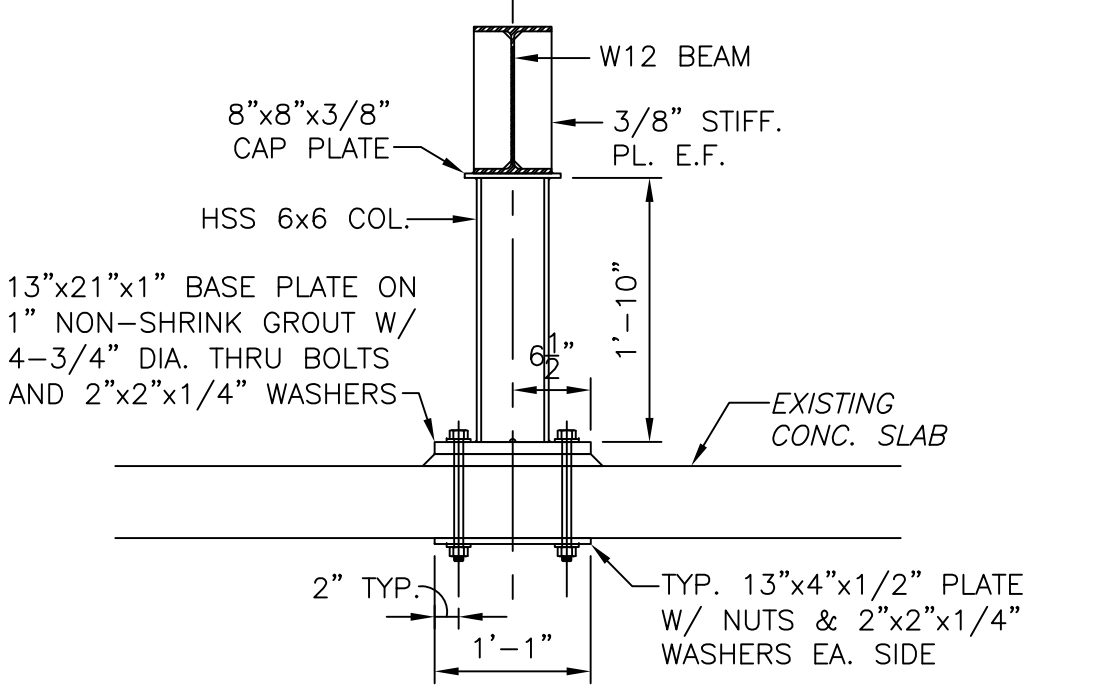
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\STBPL003.DWG Saved by: PLOWRY On: 7-Dec-12 5:31 PM



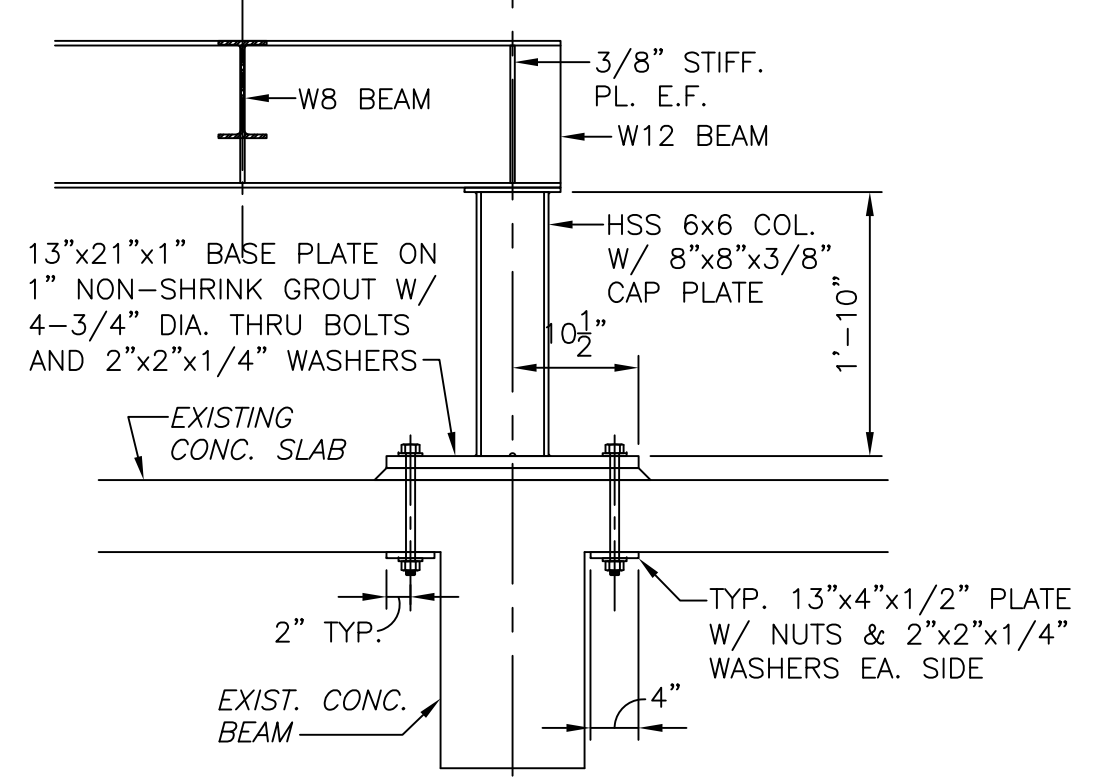
PLAN
3/16" = 1'-0"



DETAIL A
3/4" = 1'-0"

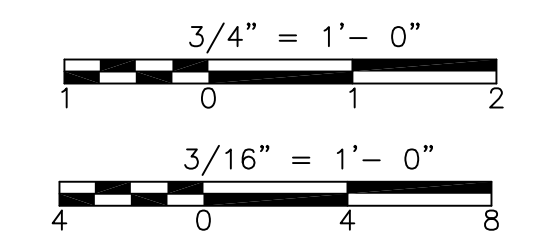


SECTION 1
3/4" = 1'-0"



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

- NOTES:
- (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH MECHANICAL FOR DUCTS AND EQUIPMENT SUPPORT REQUIREMENT.
 - PROVIDE FULL HEIGHT 3/8" STIFFENER PLATE @ 4'-0" MAX. AND WELD TO STEEL BEAM WEB EACH FACE. WELD BEAM TO COL. SUPPORT.
 - FOR CONNECTION NEW STEEL BEAM TO EXISTING CONCRETE BEAM SEE SD-S-3.
 - DRY PACK WITH NON-METALIC, NON-SHINK GROUT FROM BOTH SIDE BETWEEN EXISTING SLAB AND BEAM TOP FLANGE AFTER W8 & W12 INSTALLATION.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. STBPL003
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

PROJECT NO. 1289-74283
 SHEET NO. 67 OF 312
 TB-S-3

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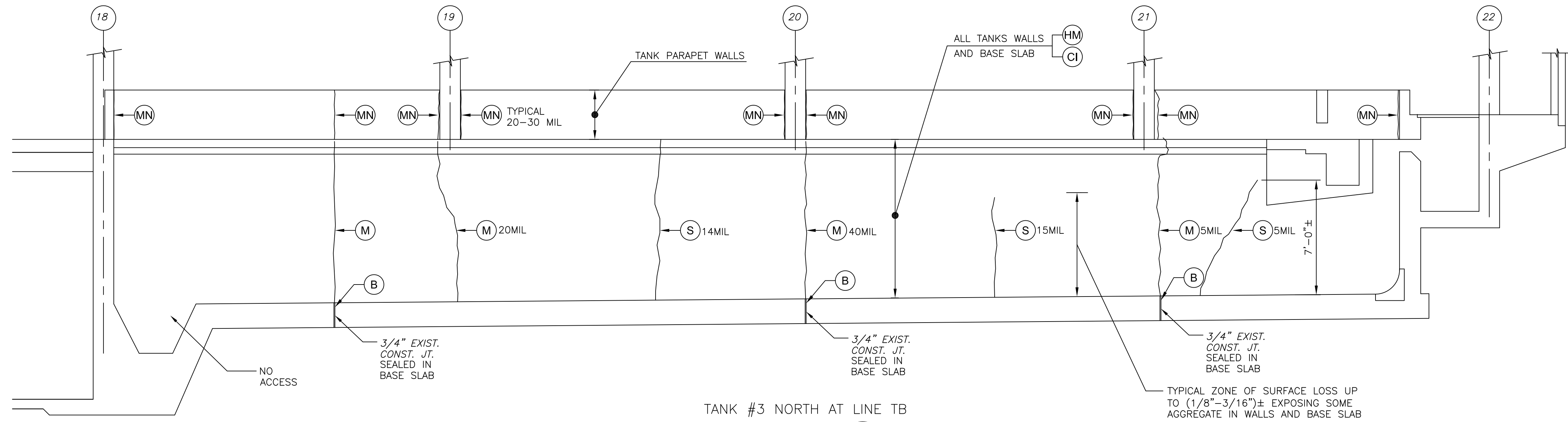
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 ROOF PLAN
 IMPROVEMENTS**

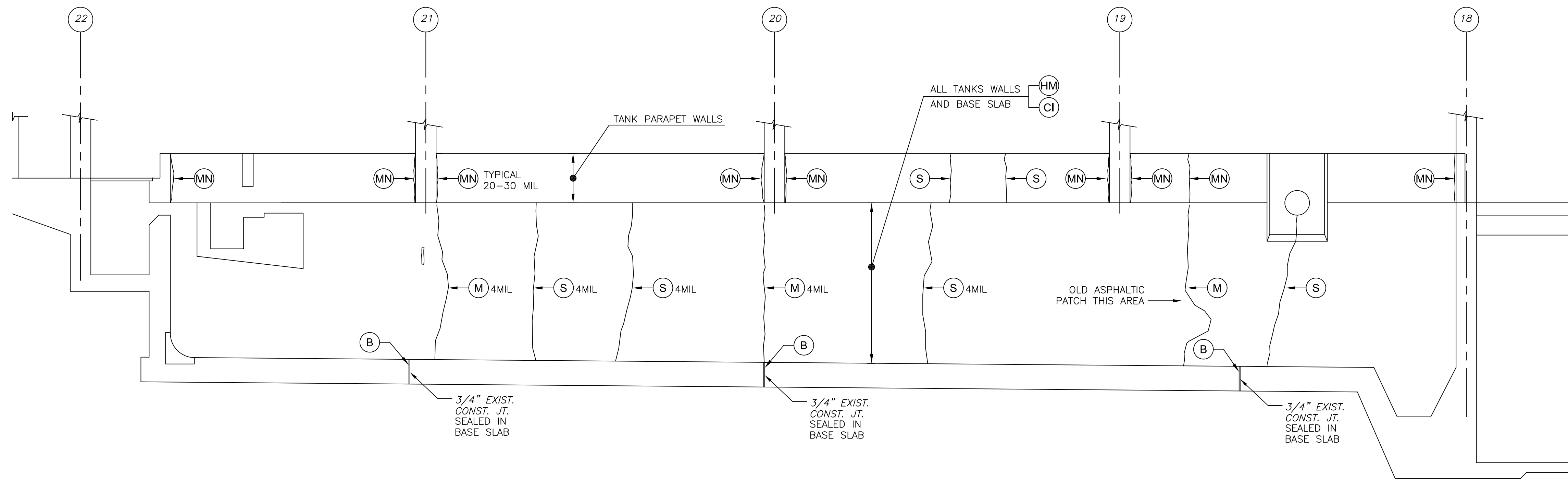
PROJECT NO. 1289-74283
 SHEET NO. 67 OF 312
 TB-S-3
 Acc # 1289-74473

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\STBEL001.DWG Saved by: PLOWRY On: 20-Dec-12 6:10 PM



NOTE FOR ELEVATION A:
COORDINATE INJECTION WORK FOR THROUGH-CRACKS
ON ELEVATION D SHOWN ON TB-S-5.

TANK #3 NORTH AT LINE TB
ELEVATION A
1/4" = 1'-0"



NOTE FOR ELEVATION B:
COORDINATE INJECTION WORK FOR THROUGH-CRACKS
ON ELEVATION H SHOWN ON TB-S-7.

TANK #3 SOUTH AT LINE TC
ELEVATION B
1/4" = 1'-0"

NOTES:

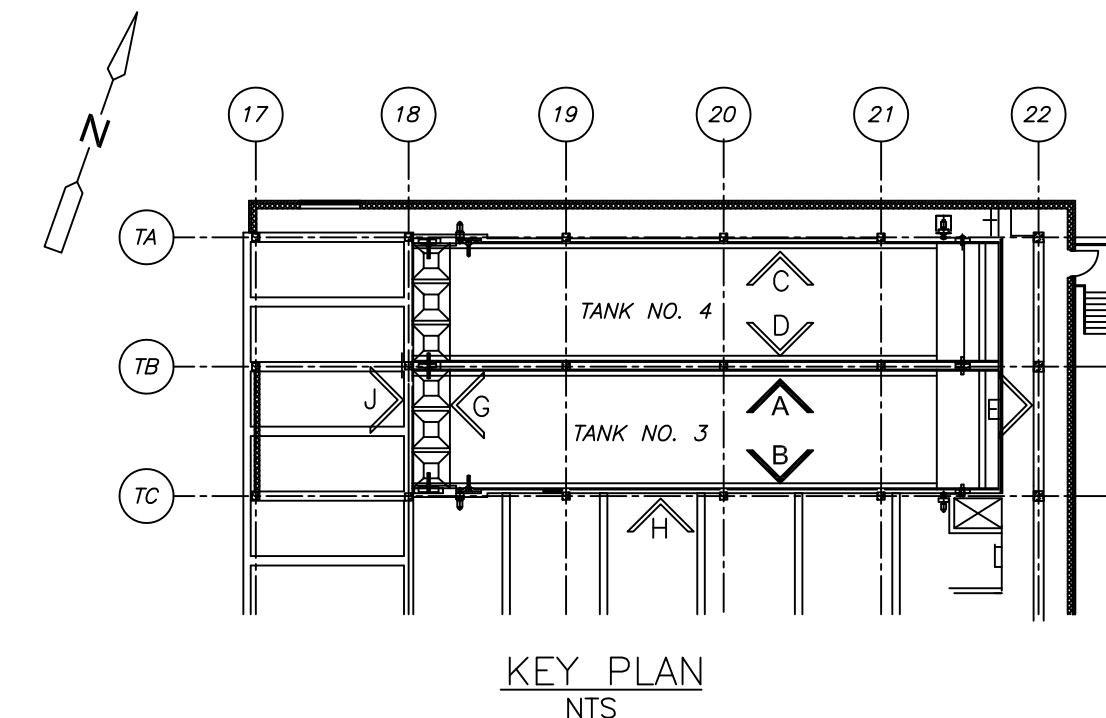
- GENERAL CONTRACTOR TO REVIEW EXISTING CONDITIONS. ANY UNUSUAL CONDITIONS THAT MAY ADVERSELY EFFECT THE WORK SHALL BE REPORTED TO THE ENGINEER. BEGINNING WORK SHALL CONSTITUTE ACCEPTANCE OF UNDERLYING CONDITIONS.
- DEMOLITION OF THE EXISTING EQUIPMENT FOLLOWED BY HYDROBLAST ALL TANK AREAS PRIOR TO BEGINNING REPAIR WORK.
- GENERAL CONTRACTOR TO INSPECT THE TANK AFTER THE HYDROBLAST CLEANING TO CONFIRM THE EXTEND OF CRACKS AND THE TYPE OF REPAIR REQUIRED AND REPORT ANY CHANGES IN SCOPE OF REPAIR TO THE ENGINEER.
- REPAIRS:
LETTER KEY INDICATES SPECIFIC WORK TO BE PERFORMED FOR THIS STRUCTURE.
- CORROSION INHIBITOR COATING PER SPECIFICATION SECTION 3740 PARAGRAPH 2.0.1.G.1 APPLIED TO A DRY SURFACE TANK AREA INDICATED ON THE ELEVATION DRAWINGS INCLUDING THE TANK BASE SLAB AFTER ALL OF THE REPAIR IS COMPLETED IN PLACE OF EPOXY COATING.
- PERFORM WATERTIGHTNESS TEST AFTER APPLICATION OF CORROSION INHIBITOR HAS CURED OUT FOR A MINIMUM OF 3 DAYS AT MINIMUM 50°F FOR THE REPAIR TANKS PER SPECIFICATION SECTION 01680.

DOC RFI# 010 - TESTING IS NOT REQUIRED,
QC WHILE INSTALLING - WATERTIGHTNESS TEST PERFORMED

KEY	DESCRIPTION OF WORKS
B	BASE SLAB JOINT SEALANT REPLACEMENT
M	MOVING JOINT REPAIR WITH URETHANE INJECTION
MN	MOVING JOINT REPAIR WITHOUT URETHANE INJECTION AT TANK PARAPET WALLS ONLY
S	SHRINKAGE CRACK REPAIR
HM	HYDROBLAST REMOVAL TO 3/16" DEEP
CI	CORROSION INHIBITOR COATING

DOC RFI# 005 - AT MIN PROVIDE FERROGARD,
903 @ SURFACES EXPOSED TO WATER (TYP)

7. FOR REPAIR TYPICAL DETAIL AND NOTES SEE DRAWING SD-S-5.



1/4" = 1'-0"
2 1 0 2 4

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
12/10	RL	GK		REISSUED PER REVISION 1

CADD FILE NO. STBEL001	DESIGNED BY: G. KARJADI	DOC RECORD DRAWING
DRAWN BY: R. LAM	SHEET CHK'D BY: G. KARJADI	7/20/2012
CROSS CHK'D BY: M. KOSTUR	SCALE: AS NOTED	
APPROVED BY: R. LIE	DATE: SEPTEMBER 2010	

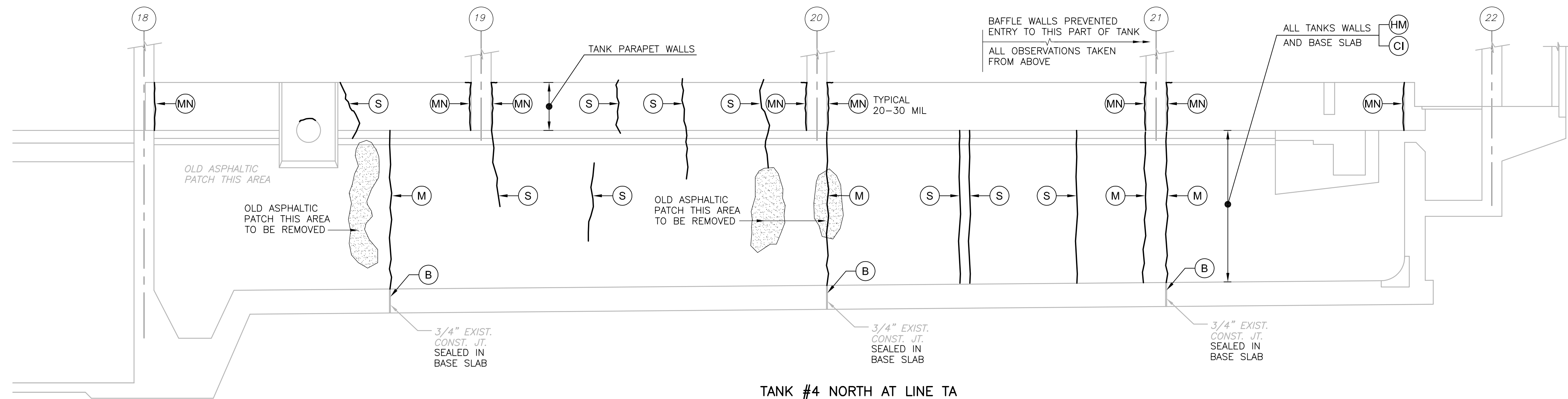
CDM	Camp Dresser & McKee Inc. One Cambridge Place, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 452-6000 consulting • engineering • construction • operations
LIN ASSOCIATES, INC.	CONSULTING ENGINEERS (617) 566-4216 FAX: (617) 566-6038 BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. 3-0-17512-0033 PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

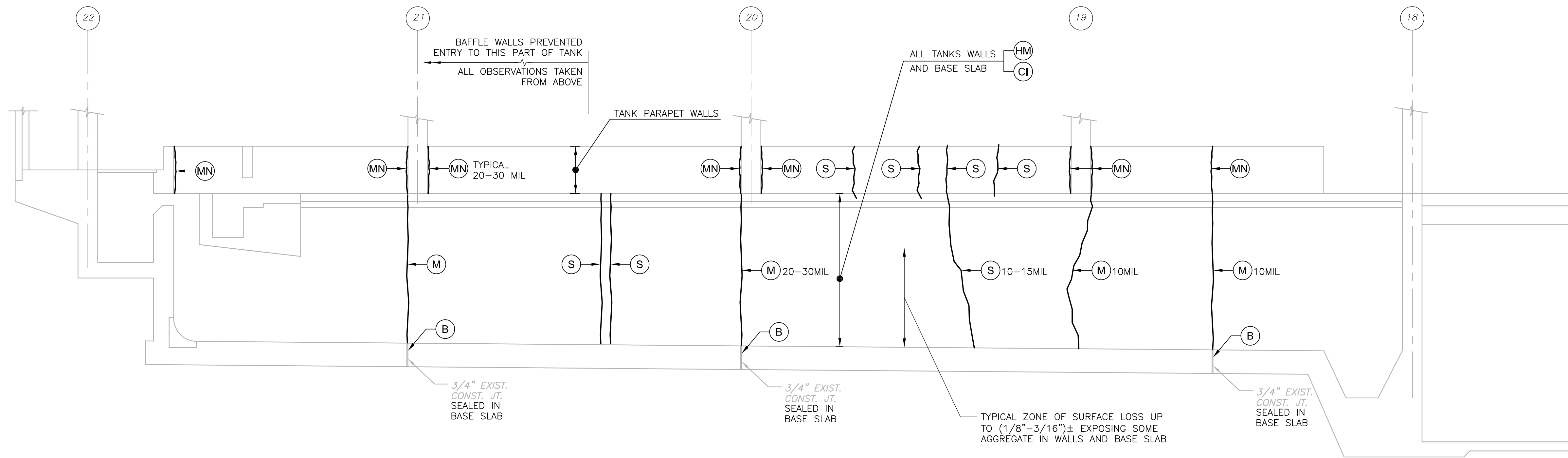
THICKENER BUILDING THICKENER TANK ELEVATIONS I IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 68 of 312
TB-S-4
Acc # 1289-74474

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\STRU\STBEL002.DWG Saved by: RLAM On: 2-Dec-10 Plotted on: 2-Dec-10 2:21 PM



TANK #4 NORTH AT LINE TA
ELEVATION C
1/4" = 1'-0"



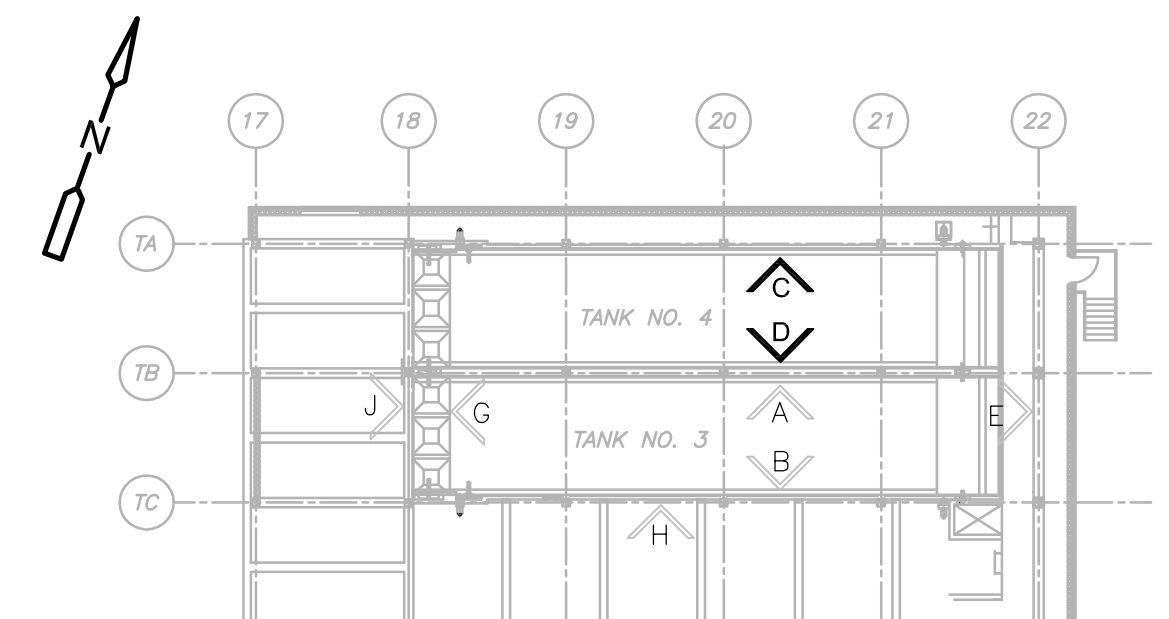
TANK #4 SOUTH AT LINE TB
ELEVATION D
1/4" = 1'-0"

NOTE FOR ELEVATION D:
COORDINATE INJECTION WORK FOR THROUGH-CRACKS ON ELEVATION A SHOWN ON TB-S-4.

NOTES:

- GENERAL CONTRACTOR TO REVIEW EXISTING CONDITIONS. ANY UNUSUAL CONDITIONS THAT MAY ADVERSELY EFFECT THE WORK SHALL BE REPORTED TO THE ENGINEER. BEGINNING WORK SHALL CONSTITUTE ACCEPTANCE OF UNDERLYING CONDITIONS.
- DEMOLITION OF THE EXISTING EQUIPMENT FOLLOWED BY HYDROBLAST ALL TANK AREAS PRIOR TO BEGINNING REPAIR WORK.
- GENERAL CONTRACTOR TO INSPECT THE TANK AFTER THE HYDROBLAST CLEANING TO CONFIRM THE EXTEND OF CRACKS AND THE TYPE OF REPAIR REQUIRED AND REPORT ANY CHANGES IN SCOPE OF REPAIR TO THE ENGINEER.
- REPAIRS:
LETTER KEY INDICATES SPECIFIC WORK TO BE PERFORMED FOR THIS STRUCTURE.
- CORROSION INHIBITOR COATING PER SPECIFICATION SECTION 3740 PARAGRAPH 2.0.1.G.1 APPLIED TO A DRY SURFACE TANK AREA INDICATED ON THE ELEVATION DRAWINGS INCLUDING THE TANK BASE SLAB AFTER ALL OF THE REPAIR IS COMPLETED.
- PERFORM WATERTIGHTNESS TEST AFTER APPLICATION OF CORROSION INHIBITOR HAS CURED OUT FOR A MINIMUM OF 3 DAYS AT MINIMUM 50°F FOR THE REPAIR TANKS PER SPECIFICATION SECTION 01680.
- FOR REPAIR TYPICAL DETAIL AND NOTES SEE DRAWING SD-S-5.

KEY	DESCRIPTION OF WORKS
B	BASE SLAB JOINT SEALANT REPLACEMENT
M	MOVING JOINT REPAIR WITH URETHANE INJECTION
MN	MOVING JOINT REPAIR WITHOUT URETHANE INJECTION AT TANK PARAPET WALLS ONLY
S	SHRINKAGE CRACK REPAIR
HM	HYDROBLAST REMOVAL TO 3/16" DEEP
CI	CORROSION INHIBITOR COATING



1/4" = 1'-0"
2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	12/10	RL	GK	REISSUED PER REVISION 1

CADD FILE NO.	STBEL002
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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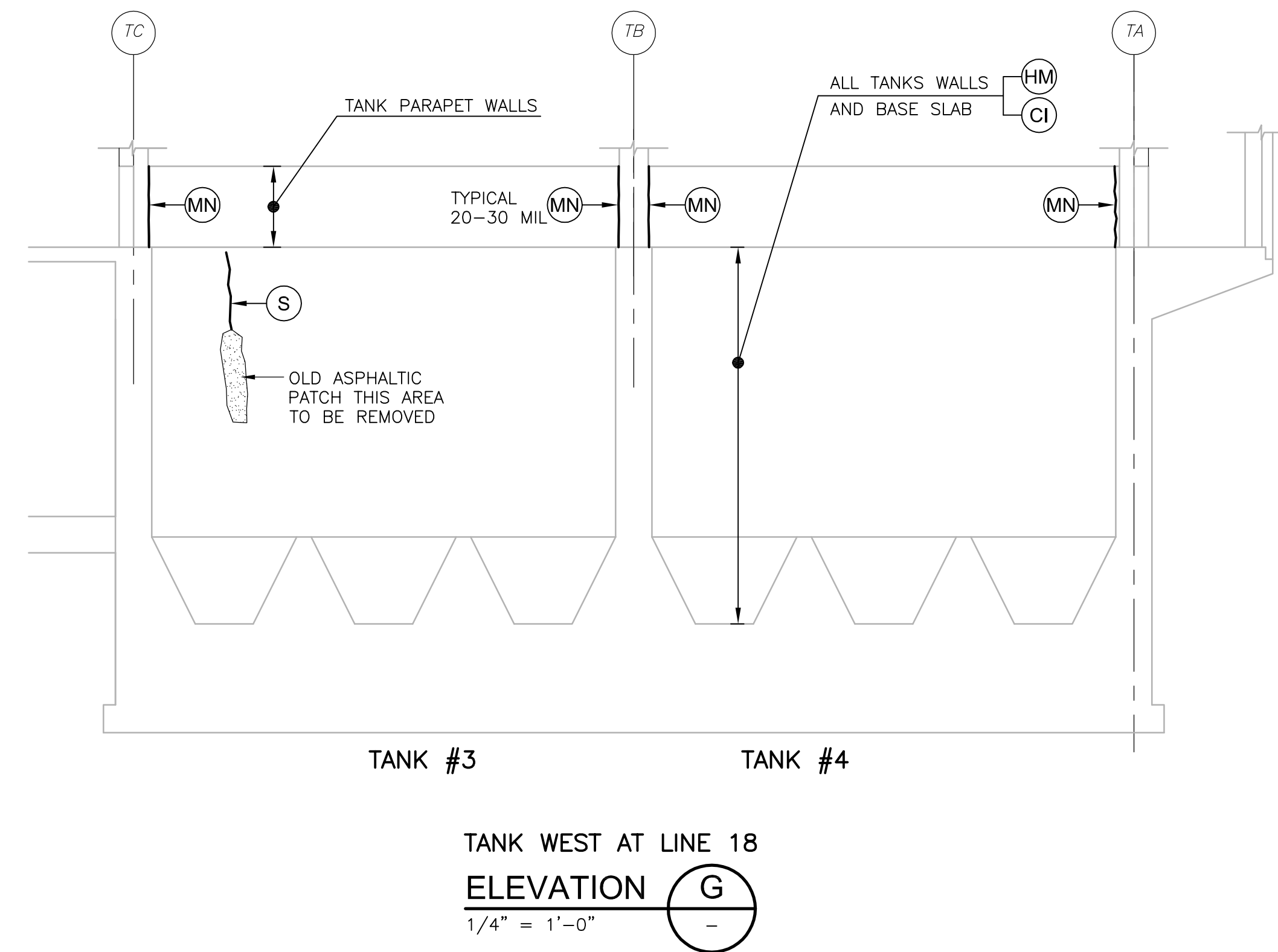
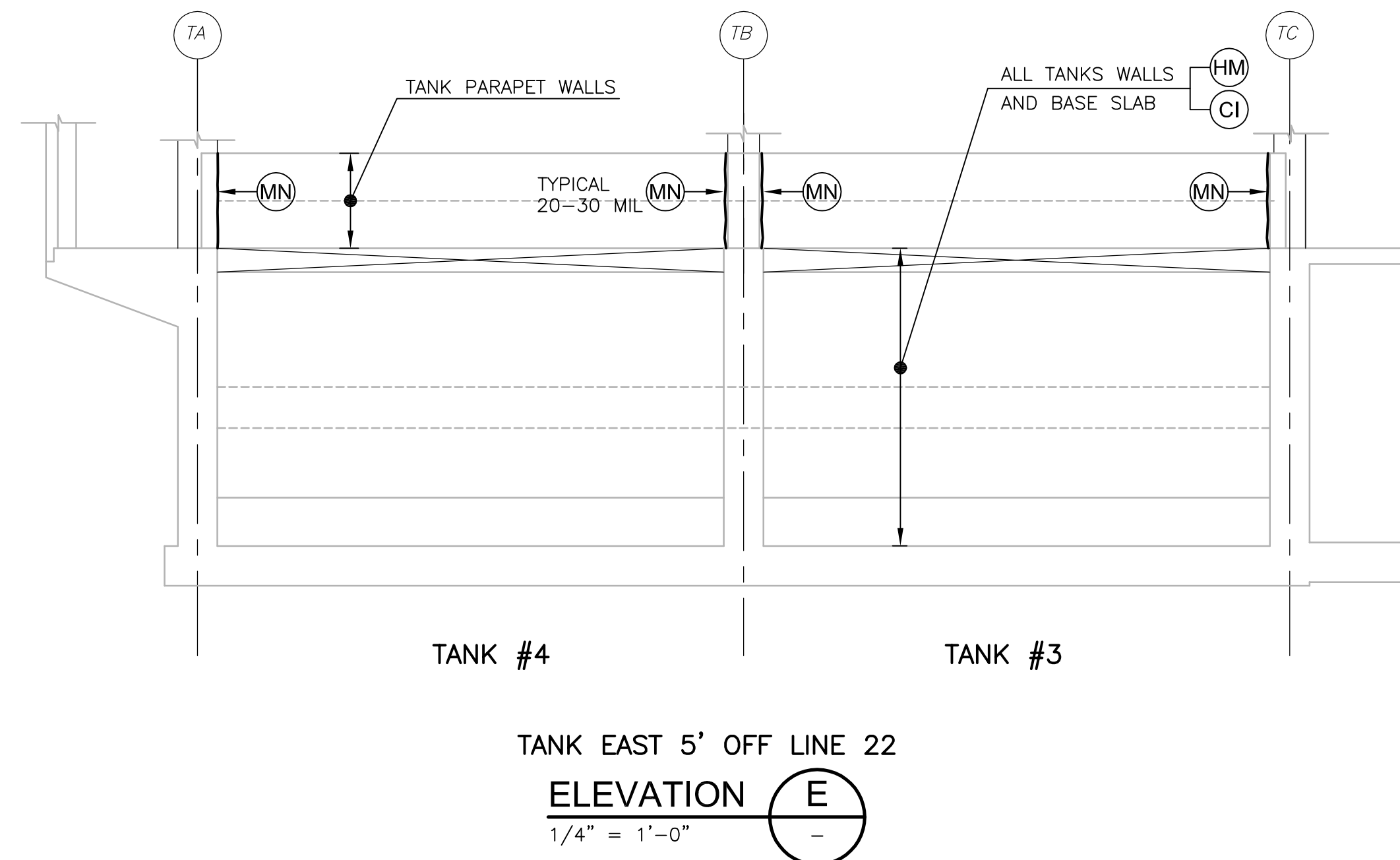
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

THICKENER BUILDING
THICKENER TANK ELEVATIONS II
IMPROVEMENTS

PROJECT NO.
1289-74283
Sht. 69 of 312
TB-S-5
Acc. # 1289-74475

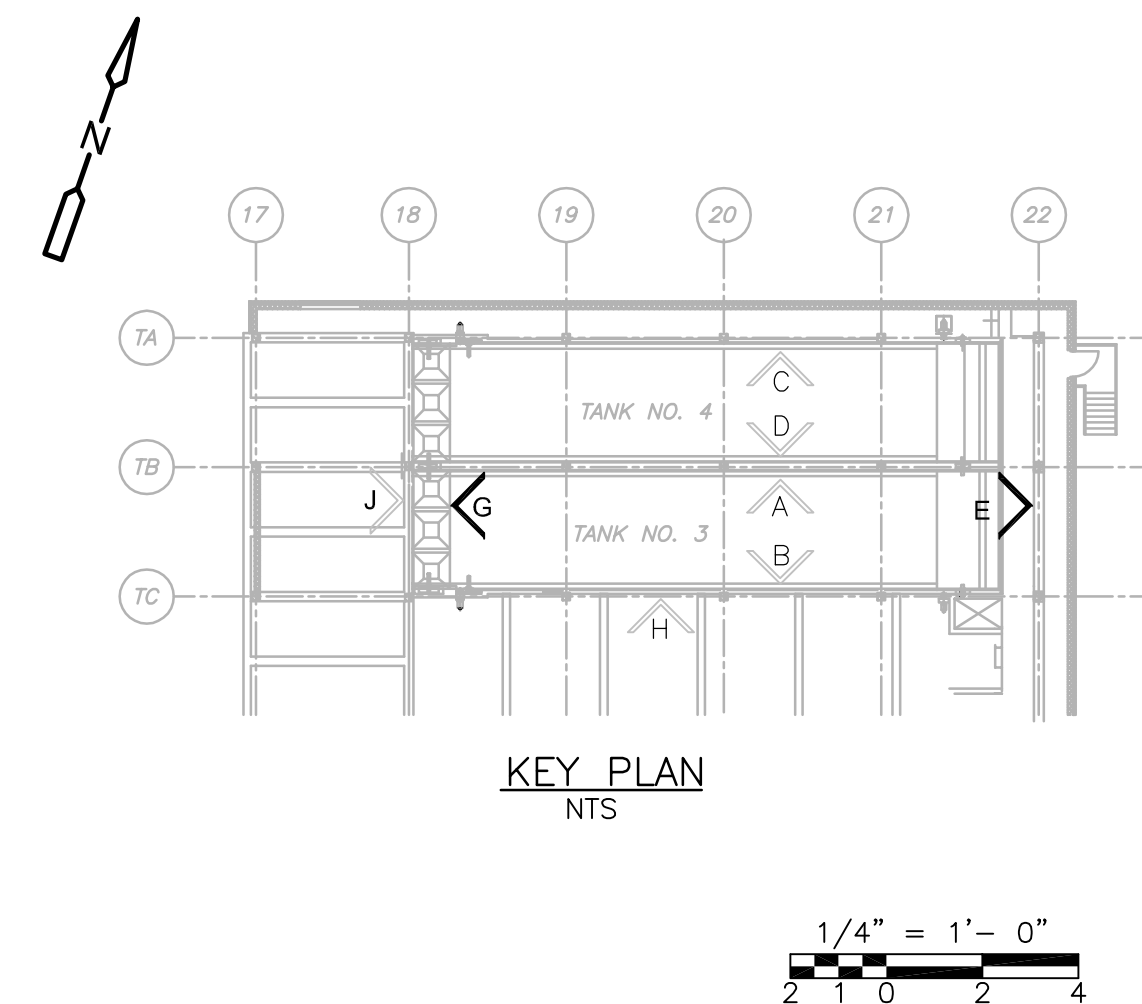
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\STBEL003.DWG Saved by: RLAM On: 1-Dec-10 Plotted on: 2-Dec-10 2:22 PM



NOTES:

- GENERAL CONTRACTOR TO REVIEW EXISTING CONDITIONS. ANY UNUSUAL CONDITIONS THAT MAY ADVERSELY EFFECT THE WORK SHALL BE REPORTED TO THE ENGINEER. BEGINNING WORK SHALL CONSTITUTE ACCEPTANCE OF UNDERLYING CONDITIONS.
- DEMOLITION OF THE EXISTING EQUIPMENT FOLLOWED BY HYDROBLAST ALL TANK AREAS PRIOR TO BEGINNING REPAIR WORK.
- GENERAL CONTRACTOR TO INSPECT THE TANK AFTER THE HYDROBLAST CLEANING TO CONFIRM THE EXTEND OF CRACKS AND THE TYPE OF REPAIR REQUIRED AND REPORT ANY CHANGES IN SCOPE OF REPAIR TO THE ENGINEER.
- REPAIRS:
LETTER KEY INDICATES SPECIFIC WORK TO BE PERFORMED FOR THIS STRUCTURE.
- CORROSION INHIBITOR COATING PER SPECIFICATION SECTION 3740 PARAGRAPH 2.0.1.G.1 APPLIED TO A DRY SURFACE TANK AREA INDICATED ON THE ELEVATION DRAWINGS INCLUDING THE TANK BASE SLAB AFTER ALL OF THE REPAIR IS COMPLETED.
- PERFORM WATERTIGHTNESS TEST AFTER APPLICATION OF CORROSION INHIBITOR HAS CURED OUT FOR A MINIMUM OF 3 DAYS AT MINIMUM 50°F FOR THE REPAIR TANKS PER SPECIFICATION SECTION 01680.
- FOR REPAIR TYPICAL DETAIL AND NOTES SEE DRAWING SD-S-5.

KEY	DESCRIPTION OF WORKS
B	BASE SLAB JOINT SEALANT REPLACEMENT
M	MOVING JOINT REPAIR WITH URETHANE INJECTION
MN	MOVING JOINT REPAIR WITHOUT URETHANE INJECTION AT TANK PARAPET WALLS ONLY
S	SHRINKAGE CRACK REPAIR
HM	HYDROBLAST REMOVAL TO 3/16" DEEP
CI	CORROSION INHIBITOR COATING



REV. NO.	DATE	DRWN	CHKD	REMARKS
Δ	12/10	RL	GK	REISSUED PER REVISION 1

CADD FILE NO.	STBEL003
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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Tel: (617) 452-6000 consulting • engineering • construction • operations

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(617) 566-4216 FAX: (617) 566-6038
BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
THICKENER TANK ELEVATIONS III
IMPROVEMENTS**

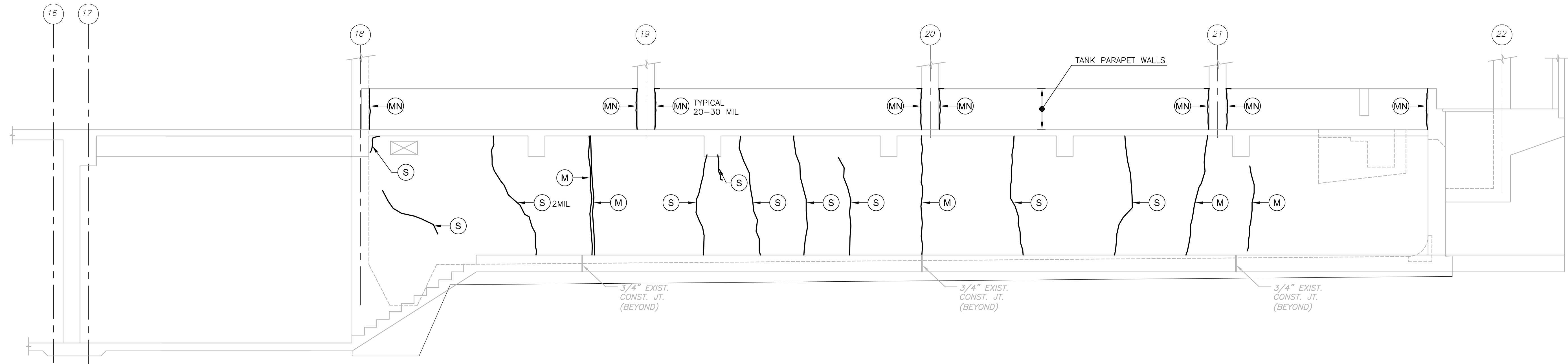
PROJECT NO.
1289-74283

Sht. 70 of 312

TB-S-6

Acc. # 1289-74476

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\STBEL004.DWG Saved by: RLAM On: 1-Dec-10 Plotted on: 2-Dec-10 2:22 PM



NOTE FOR ELEVATION H:
COORDINATE INJECTION WORK FOR THROUGH-CRACKS
ON ELEVATION B SHOWN ON TB-S-4.

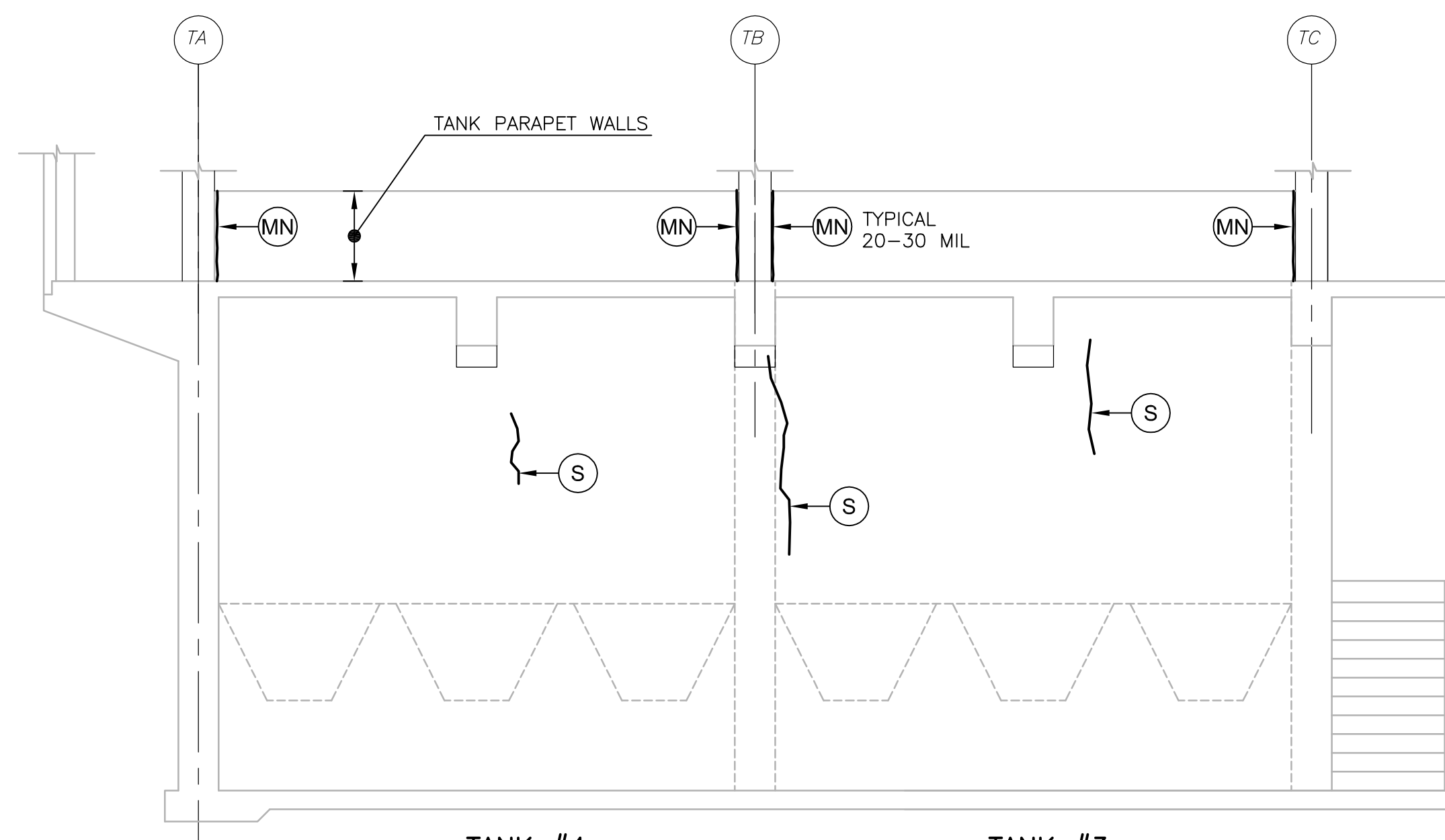
GALLERY NORTH ELEV. AT LINE TC

ELEVATION **H**
1/4" = 1'-0"

NOTES:

1. GENERAL CONTRACTOR TO REVIEW EXISTING CONDITIONS. ANY UNUSUAL CONDITIONS THAT MAY ADVERSELY EFFECT THE WORK SHALL BE REPORTED TO THE ENGINEER. BEGINNING WORK SHALL CONSTITUTE ACCEPTANCE OF UNDERLYING CONDITIONS.
2. DEMOLITION OF THE EXISTING EQUIPMENT FOLLOWED BY HYDROBLAST ALL TANK AREAS PRIOR TO BEGINNING REPAIR WORK.
3. GENERAL CONTRACTOR TO INSPECT THE TANK AFTER THE HYDROBLAST CLEANING TO CONFIRM THE EXTEND OF CRACKS AND THE TYPE OF REPAIR REQUIRED AND REPORT ANY CHANGES IN SCOPE OF REPAIR TO THE ENGINEER.
4. REPAIRS:
LETTER KEY INDICATES SPECIFIC WORK TO BE PERFORMED FOR THIS STRUCTURE.
5. CORROSION INHIBITOR COATING PER SPECIFICATION SECTION 3740 PARAGRAPH 2.0.1.G.1 APPLIED TO A DRY SURFACE TANK AREA INDICATED ON THE ELEVATION DRAWINGS INCLUDING THE TANK BASE SLAB AFTER ALL OF THE REPAIR IS COMPLETED.
6. PERFORM WATERTIGHTNESS TEST AFTER APPLICATION OF CORROSION INHIBITOR HAS CURED OUT FOR A MINIMUM OF 3 DAYS AT MINIMUM 50°F FOR THE REPAIR TANKS PER SPECIFICATION SECTION 01680.
7. FOR REPAIR TYPICAL DETAIL AND NOTES SEE DRAWING SD-S-5.

KEY	DESCRIPTION OF WORKS
B	BASE SLAB JOINT SEALANT REPLACEMENT
M	MOVING JOINT REPAIR WITH URETHANE INJECTION
MN	MOVING JOINT REPAIR WITHOUT URETHANE INJECTION AT TANK PARAPET WALLS ONLY
S	SHRINKAGE CRACK REPAIR
HM	HYDROBLAST REMOVAL TO 3/16" DEEP
CI	CORROSION INHIBITOR COATING

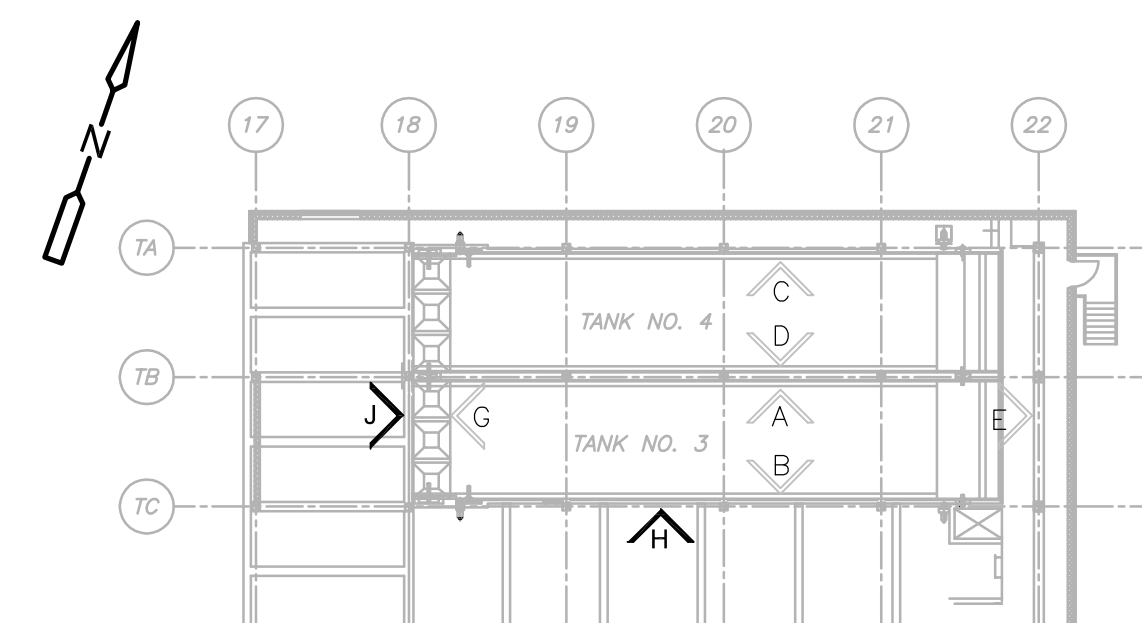


TANK #4
(BEYOND)

TANK #3
(BEYOND)

GALLERY EAST ELEV. AT LINE B

ELEVATION **J**
1/4" = 1'-0"



1/4" = 1'-0"
2 1 0 2 4

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	12/10	RL	GK	REISSUED PER REVISION 1

CADD FILE NO. STBEL004
DESIGNED BY: G. KARJADI
DRAWN BY: R. LAM
SHEET CHK'D BY: G. KARJADI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: R. LIE
DATE: SEPTEMBER 2010

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BRIGHTON MASSACHUSETTS

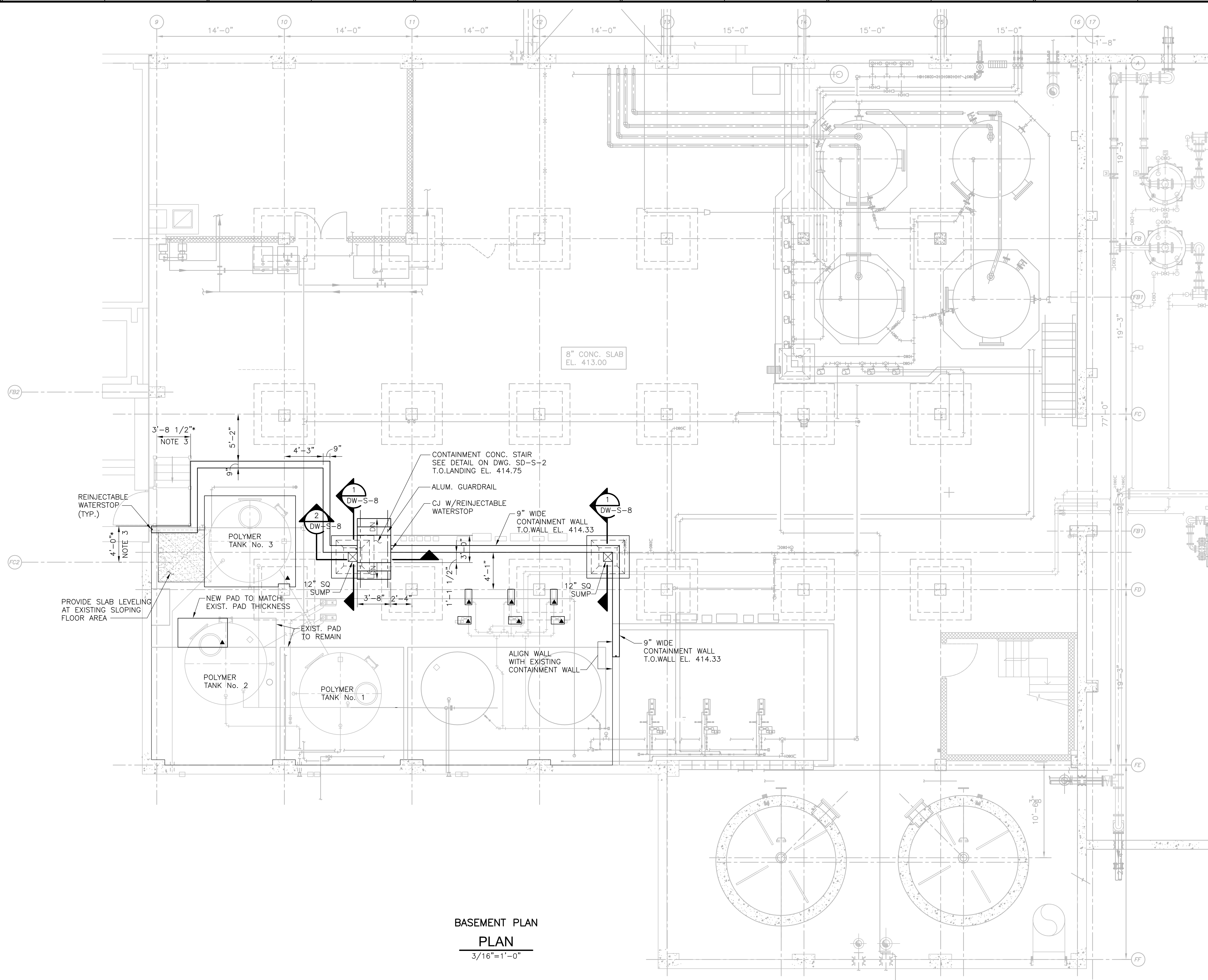
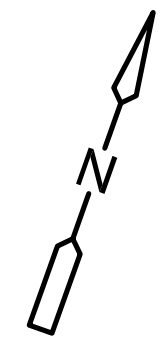
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

THICKENER BUILDING
THICKENER TANK ELEVATIONS IV
IMPROVEMENTS

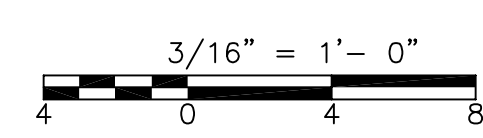
PROJECT NO.
1289-74283
Sht. 71 of 312
TB-S-7
Acc. # 1289-74477

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\STRU\SDWPLO01.DWG Saved by: GKARJADI On: 6-Jul-10 Plotted on: 7-Jul-10 8:52 AM



- NOTES:**
- ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2.
 - FOR NEW CONTAINMENT WALL DETAIL SEE TYPICAL DETAIL ON SD-S-2.
 - * ASTERISKS INDICATES DIMENSIONS TO BE FIELD VERIFIED.

BASEMENT PLAN
PLAN
 3/16"=1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SDWPLO01.dwg
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: JULY 2010

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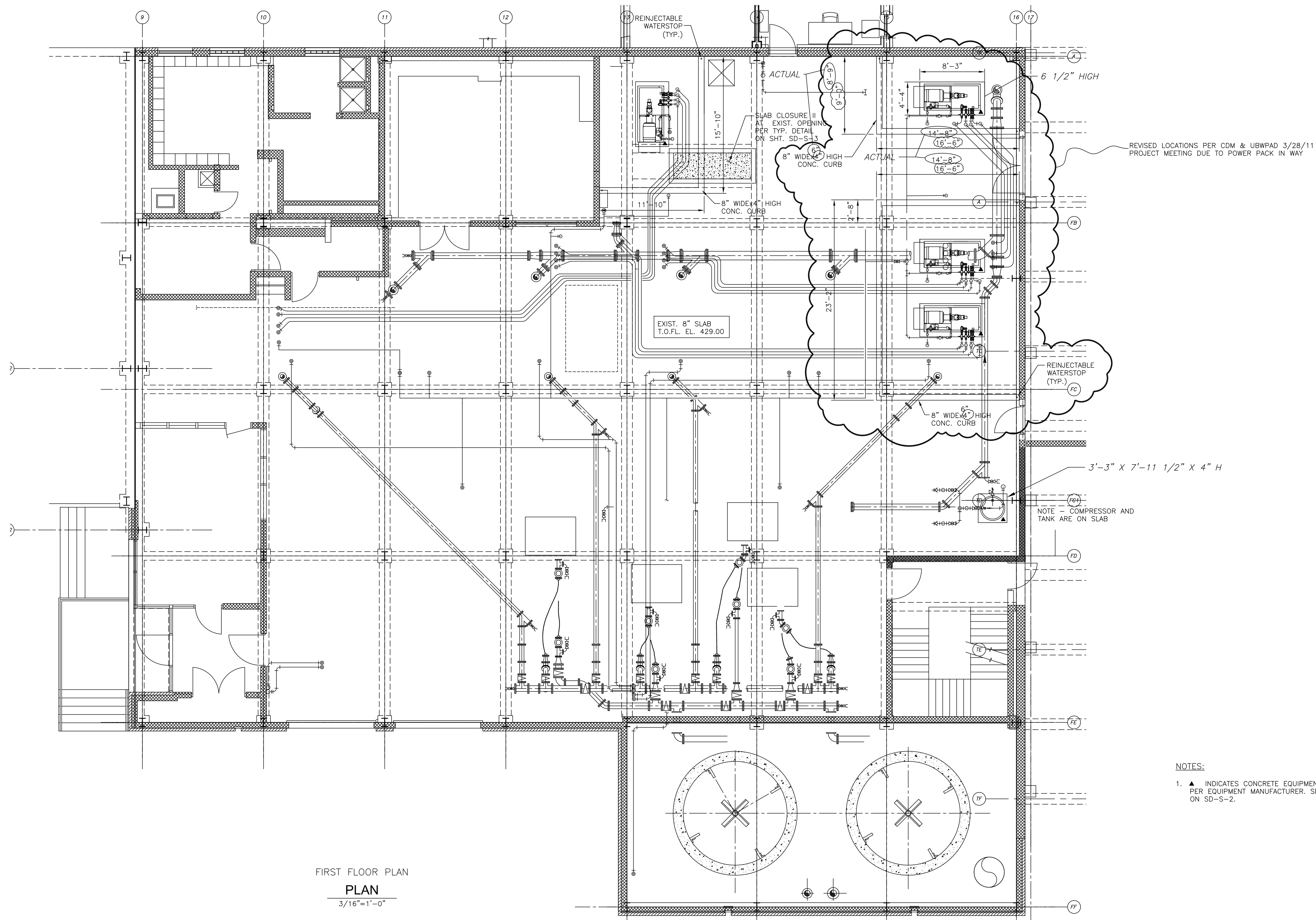
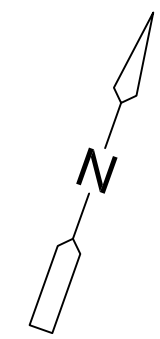
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO.
 1289-74283
 Sht. 72 of 312
DW-S-1
 Acc. # 1289-74478

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\CAD FILES FOR AS BUILT\CDM\SDWPL002.DWG Saved by: PLOWRY On: 20-Dec-12 6:42 PM

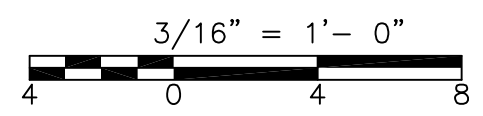


REVISED LOCATIONS PER CDM & UBWPAD 3/28/11 PROJECT MEETING DUE TO POWER PACK IN WAY

NOTE - COMPRESSOR AND TANK ARE ON SLAB

FIRST FLOOR PLAN
PLAN
3/16"=1'-0"

- NOTES:
- ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SDWPL002.dwg
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

DOC
 RECORD DRAWING
 7/20/2012

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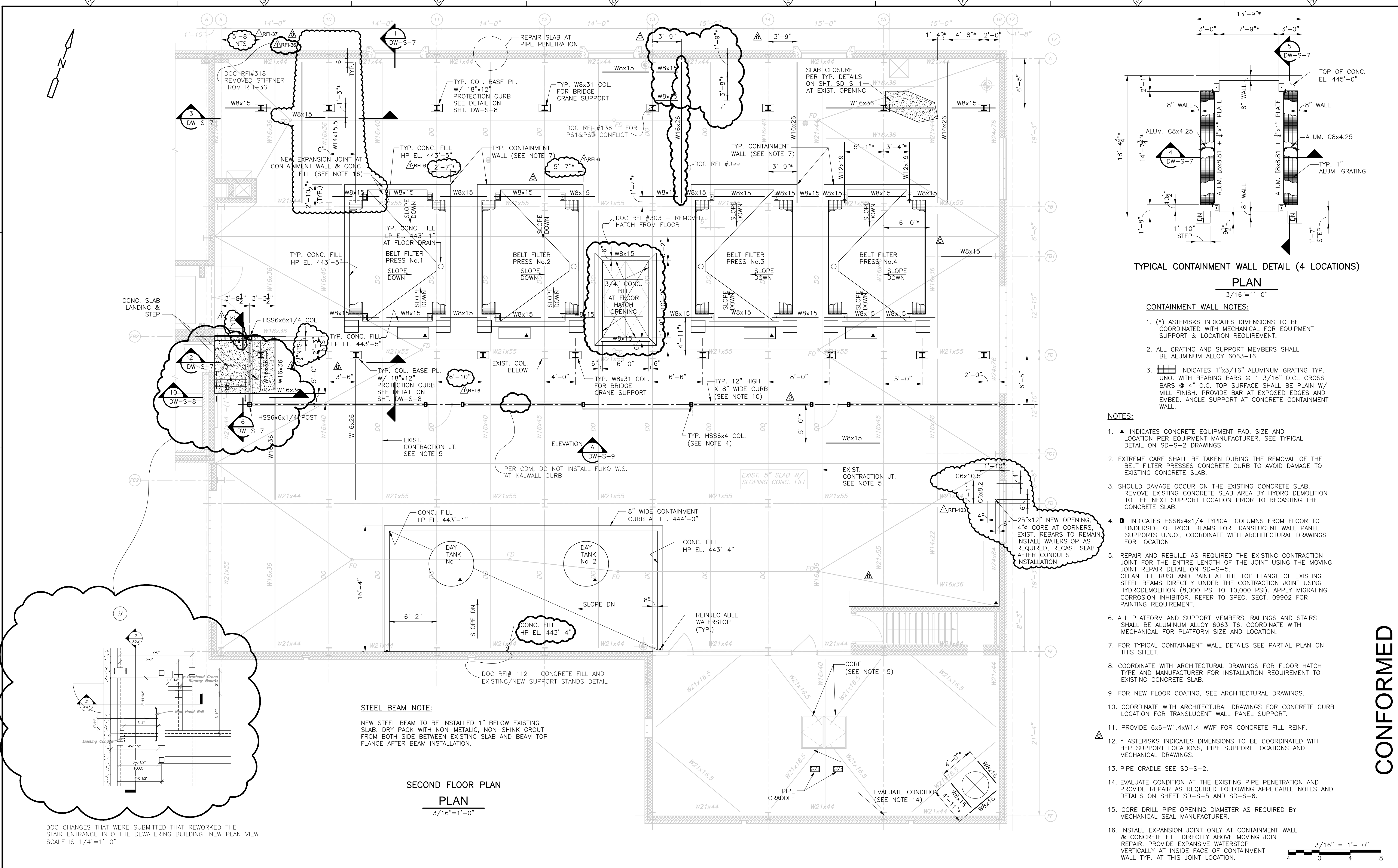
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS

PROJECT NO.
 1289-74283
 Sht. 73 of 312
 DW-S-2
 Acc # 1289-74479

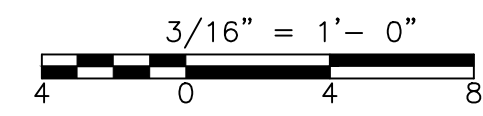
CONFORMED



TYPICAL CONTAINMENT WALL DETAIL (4 LOCATIONS)
PLAN
3/16"=1'-0"

- CONTAINMENT WALL NOTES:**
- (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH MECHANICAL FOR EQUIPMENT SUPPORT & LOCATION REQUIREMENT.
 - ALL GRATING AND SUPPORT MEMBERS SHALL BE ALUMINUM ALLOY 6063-T6.
 - INDICATES 1"x3/16" ALUMINUM GRATING TYP. UNO. WITH BEARING BARS @ 1 3/16" O.C., CROSS BARS @ 4" O.C. TOP SURFACE SHALL BE PLAIN W/ MILL FINISH. PROVIDE BAR AT EXPOSED EDGES AND EMBED. ANGLE SUPPORT AT CONCRETE CONTAINMENT WALL.

- NOTES:**
- ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2 DRAWINGS.
 - EXTREME CARE SHALL BE TAKEN DURING THE REMOVAL OF THE BELT FILTER PRESSES CONCRETE CURB TO AVOID DAMAGE TO EXISTING CONCRETE SLAB.
 - SHOULD DAMAGE OCCUR ON THE EXISTING CONCRETE SLAB, REMOVE EXISTING CONCRETE SLAB AREA BY HYDRO DEMOLITION TO THE NEXT SUPPORT LOCATION PRIOR TO RECASTING THE CONCRETE SLAB.
 - INDICATES HSS6x4x1/4 TYPICAL COLUMNS FROM FLOOR TO UNDERSIDE OF ROOF BEAMS FOR TRANSLUCENT WALL PANEL SUPPORTS U.N.O., COORDINATE WITH ARCHITECTURAL DRAWINGS FOR LOCATION
 - REPAIR AND REBUILD AS REQUIRED THE EXISTING CONTRACTION JOINT FOR THE ENTIRE LENGTH OF THE JOINT USING THE MOVING JOINT REPAIR DETAIL ON SD-S-5. CLEAN THE RUST AND PAINT AT THE TOP FLANGE OF EXISTING STEEL BEAMS DIRECTLY UNDER THE CONTRACTION JOINT USING HYDRODEMOLITION (8,000 PSI TO 10,000 PSI). APPLY MIGRATING CORROSION INHIBITOR. REFER TO SPEC. SECT. 09902 FOR PAINTING REQUIREMENT.
 - ALL PLATFORM AND SUPPORT MEMBERS, RAILINGS AND STAIRS SHALL BE ALUMINUM ALLOY 6063-T6. COORDINATE WITH MECHANICAL FOR PLATFORM SIZE AND LOCATION.
 - FOR TYPICAL CONTAINMENT WALL DETAILS SEE PARTIAL PLAN ON THIS SHEET.
 - COORDINATE WITH ARCHITECTURAL DRAWINGS FOR FLOOR HATCH TYPE AND MANUFACTURER FOR INSTALLATION REQUIREMENT TO EXISTING CONCRETE SLAB.
 - FOR NEW FLOOR COATING, SEE ARCHITECTURAL DRAWINGS.
 - COORDINATE WITH ARCHITECTURAL DRAWINGS FOR CONCRETE CURB LOCATION FOR TRANSLUCENT WALL PANEL SUPPORT.
 - PROVIDE 6x6-W1.4xW1.4 WWF FOR CONCRETE FILL REINF.
 - * ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH BFF SUPPORT LOCATIONS, PIPE SUPPORT LOCATIONS AND MECHANICAL DRAWINGS.
 - PIPE CRADLE SEE SD-S-2.
 - EVALUATE CONDITION AT THE EXISTING PIPE PENETRATION AND PROVIDE REPAIR AS REQUIRED FOLLOWING APPLICABLE NOTES AND DETAILS ON SHEET SD-S-5 AND SD-S-6.
 - CORE DRILL PIPE OPENING DIAMETER AS REQUIRED BY MECHANICAL SEAL MANUFACTURER.
 - INSTALL EXPANSION JOINT ONLY AT CONTAINMENT WALL & CONCRETE FILL DIRECTLY ABOVE MOVING JOINT REPAIR. PROVIDE EXPANSIVE WATERSTOP VERTICALLY AT INSIDE FACE OF CONTAINMENT WALL TYP. AT THIS JOINT LOCATION.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SDWPL003.dwg
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

DOC RECORD DRAWINGS	7/31/2012
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BRIGHTON MASSACHUSETTS

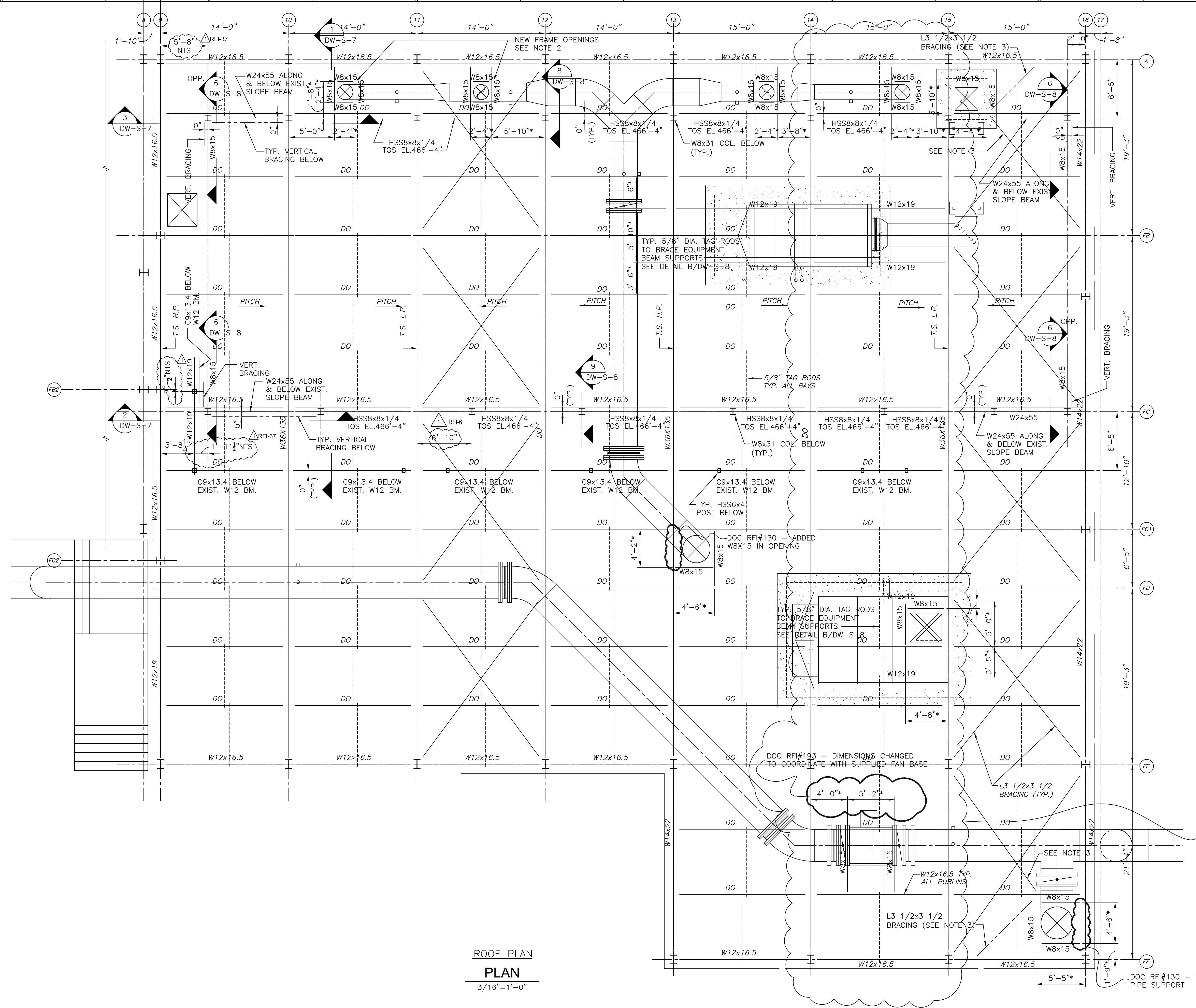
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
SECOND FLOOR PLAN
IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 74 of 312
DW-S-3
Acc. # 1289-74480

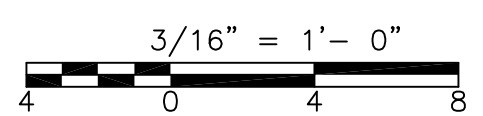
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ROOF PLAN
PLAN
3/16"=1'-0"

DOC RFI#075 - REMOVE AND REPAIR ROTTED ROOF DECKING

- NOTES:
- (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH MECHANICAL FOR DUCTS AND EQUIPMENT SUPPORT AND LOCATION REQUIREMENT.
 - REMOVE EXISTING RODS AS REQUIRED TO FACILITATE NEW OPENING/FRAMINGS.
 - PROVIDE NEW CONNECTION FOR NEW AND EXISTING BRACING THAT HAVE BEEN CUT TO FACILITATE NEW OPENING AT BOTTOM OF EXISTING W12.
 - STEEL BEAMS FOR DUCTS AND EQUIPMENT SUPPORT TO BE INSTALLED TIGHT UNDER THE EXISTING DECK.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SDWPLO04
DESIGNED BY: G. KARJADI
DRAWN BY: R. LAM
SHEET CHK'D BY: G. KARJADI
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: R. LIE
DATE: SEPTEMBER 2010

DOC RECORD DRAWING
7/20/2012

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
ROOF PLAN
IMPROVEMENTS

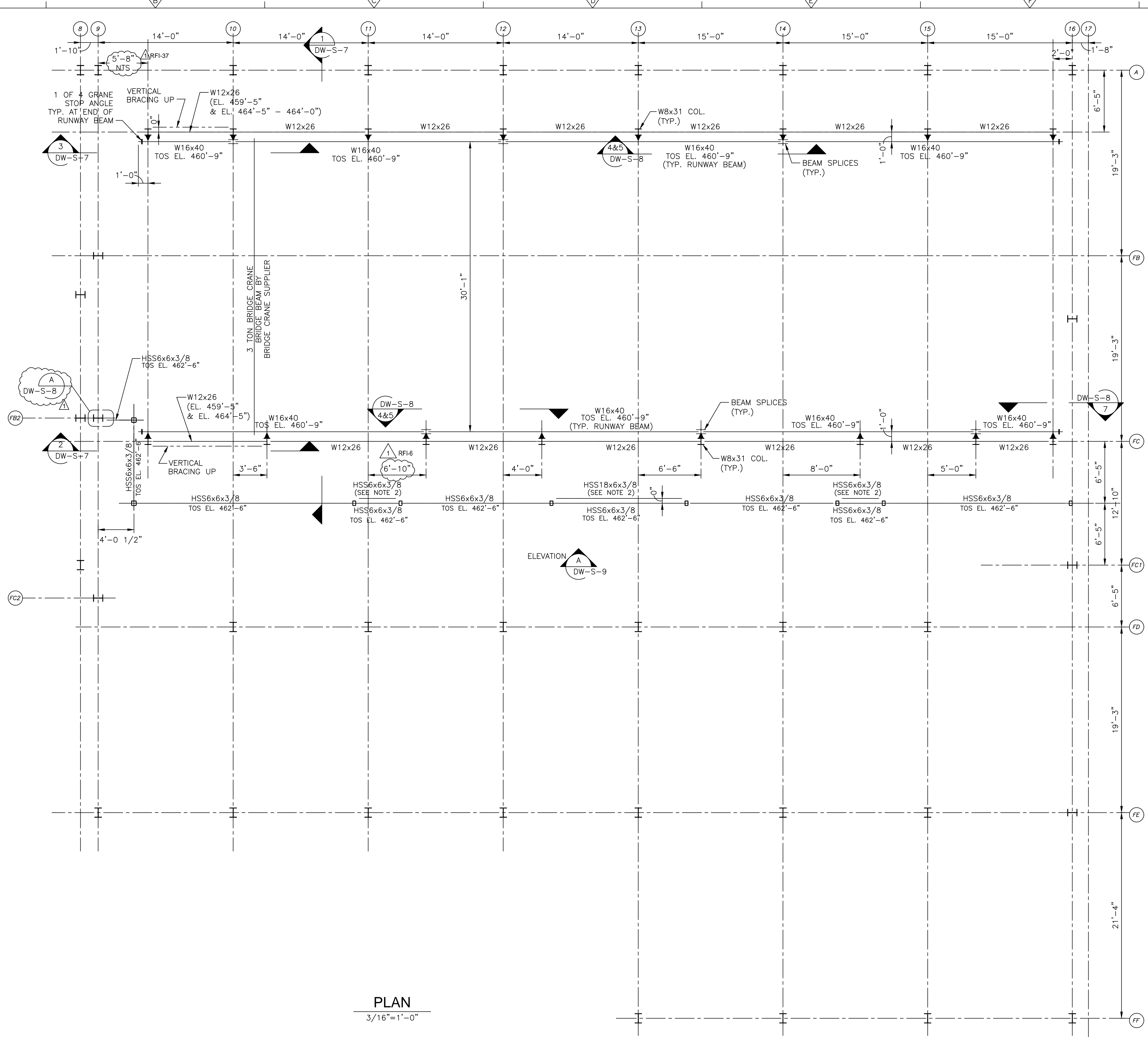
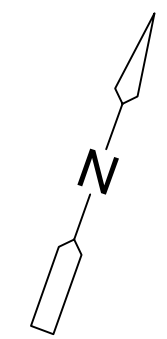
PROJECT NO.
1289-74283

Sht. 75 of 312

DW-S-4

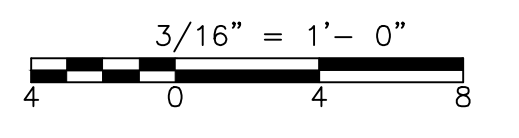
Acc # 1289-74481

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SDWPLO05.DWG Saved by: PLOWRY On: 11-Feb-13 10:58 AM



PLAN
3/16" = 1'-0"

- NOTES:
1. TOP OF STEEL EL. 459'-5" (UNO).
 2. BOTTOM OF STEEL ELEVATION 12'-3" ABOVE THE FINISH FLOOR AT OVERHEAD DOOR AND BOTTOM OF STEEL ELEVATION 7'-4" ABOVE THE FINISH FLOOR AT PERSONNEL DOORS.
 3. INDICATES MOMENT CONNECTION.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SDWPLO05
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 BRIDGE CRANE FRAMING PLAN
 IMPROVEMENTS

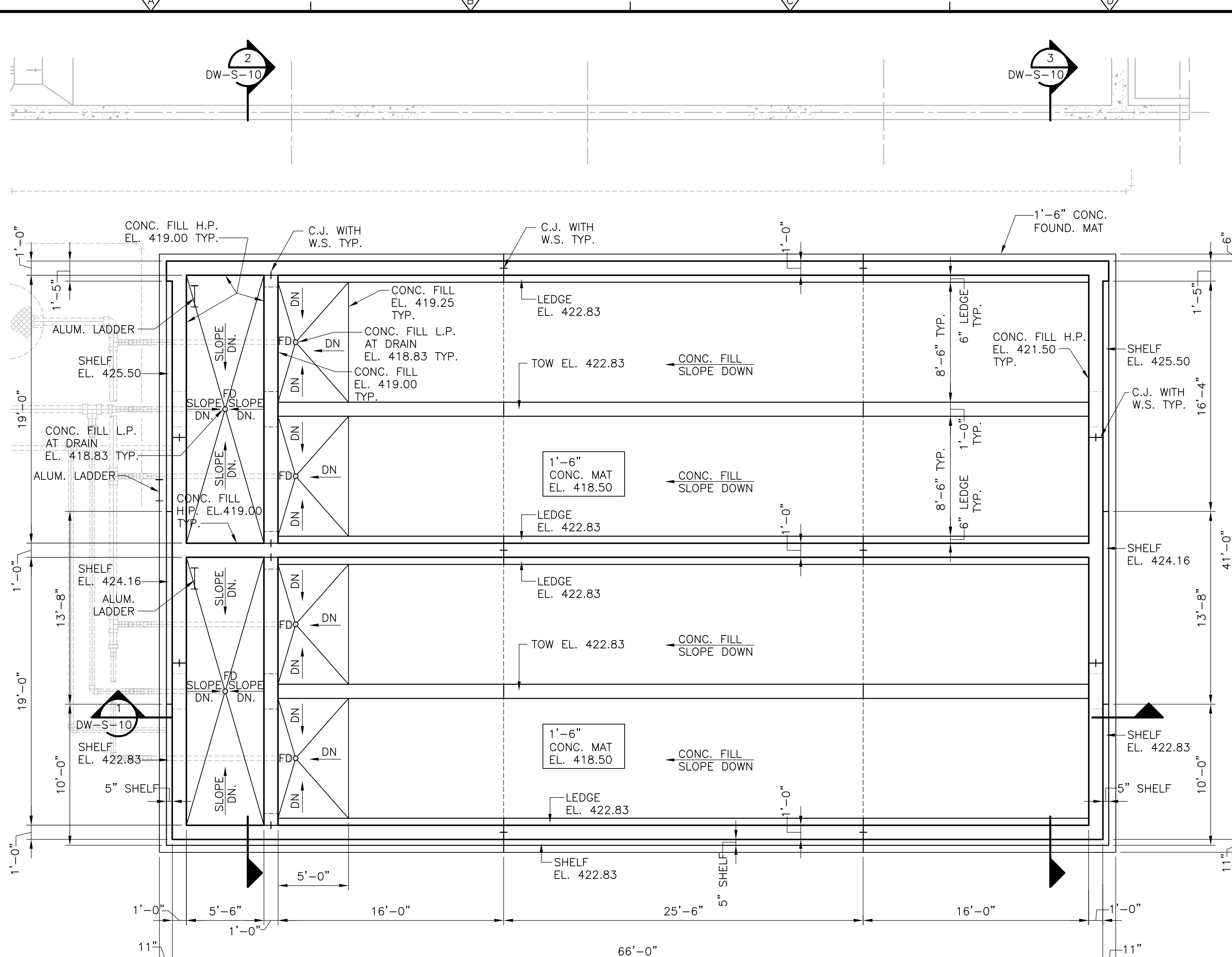
PROJECT NO.
1289-74283

Sht. 76 of 312

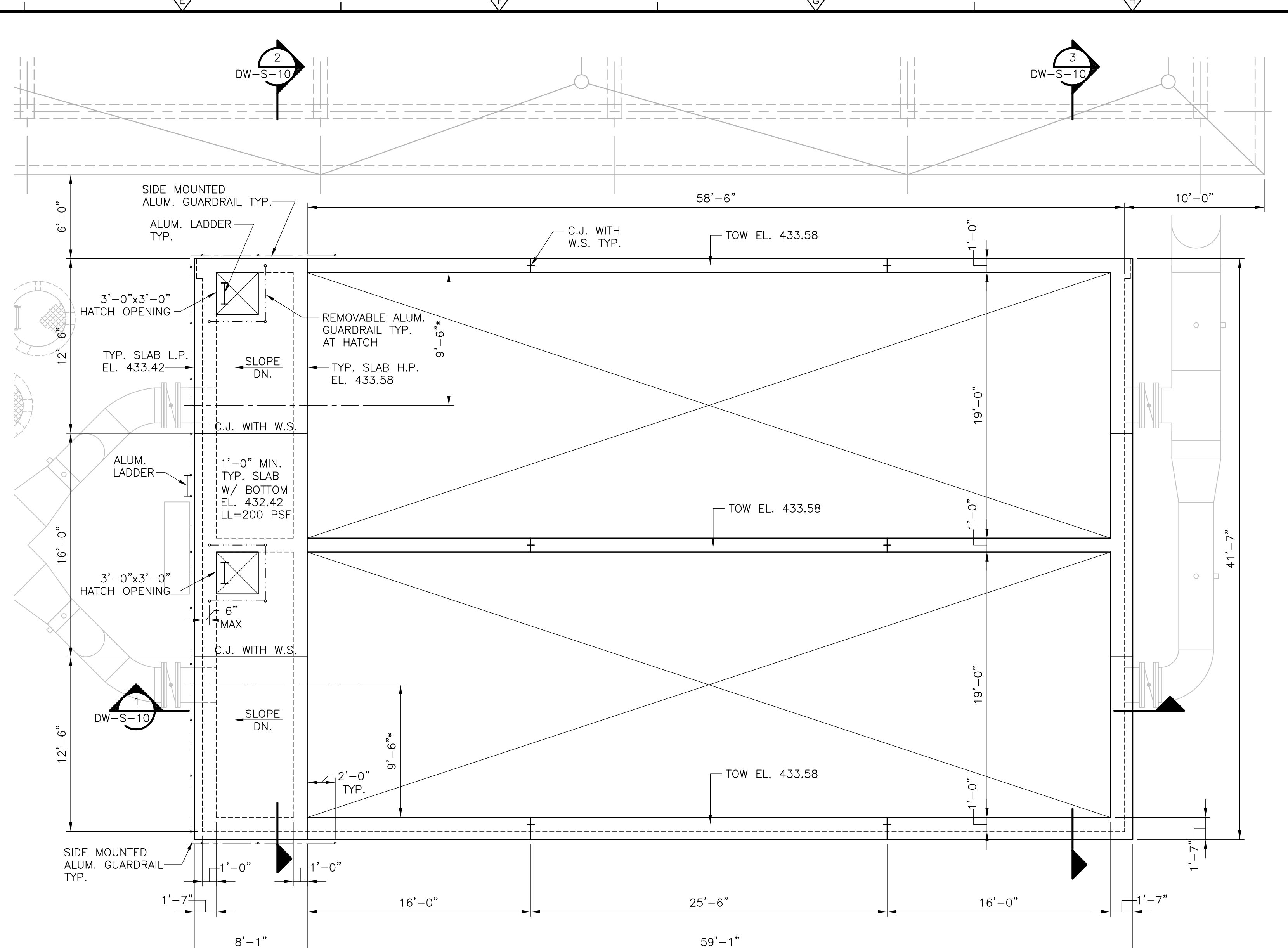
DW-S-5

Acc # 1289-74482

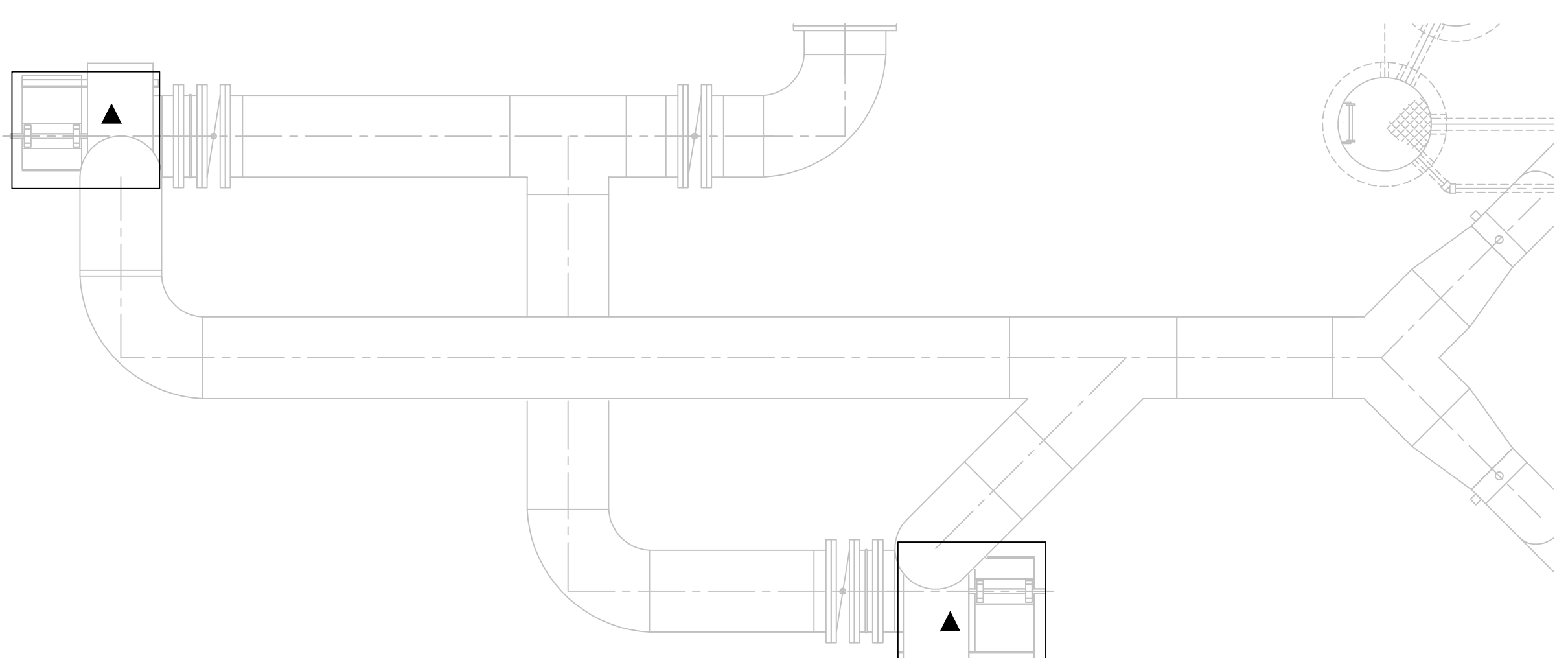
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\STRU\SDWPL006.DWG Saved by: GKARJADI On: 7-Jul-10 9:32 AM



FOUNDATION PLAN
3/16"=1'-0"

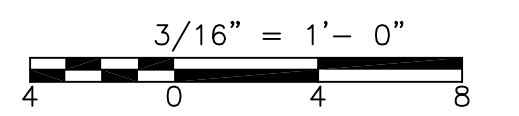


ROOF PLAN
3/16"=1'-0"



EQUIPMENT PAD PLAN
3/16"=1'-0"

- NOTES:
1. ASTERISKS (*) INDICATES DIMENSION, ELEVATION AND/OR INFORMATION TO BE COORDINATED BY THE CONTRACTOR WITH MANUFACTURER OF THE APPROVED EQUIPMENT PRIOR TO FABRICATION AND CONSTRUCTION.
 2. ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	SDWPL006
DESIGNED BY:	G. KARJADI
DRAWN BY:	V. SARACENI
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	JULY 2010

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BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
BIOFILTER FOUNDATION AND ROOF PLANS
IMPROVEMENTS**

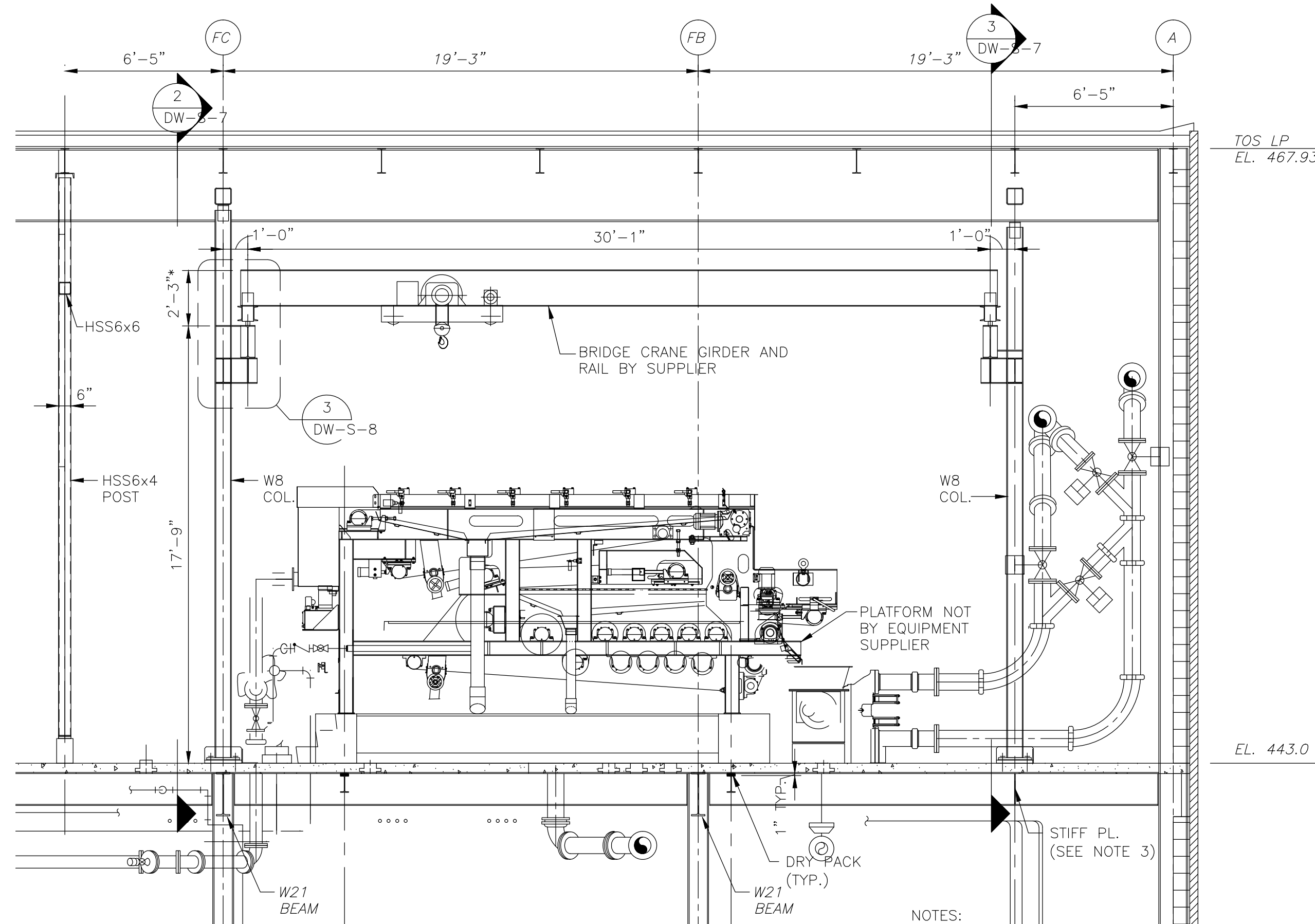
PROJECT NO.
1289-74283

Sht. 77 of 312

DW-S-6

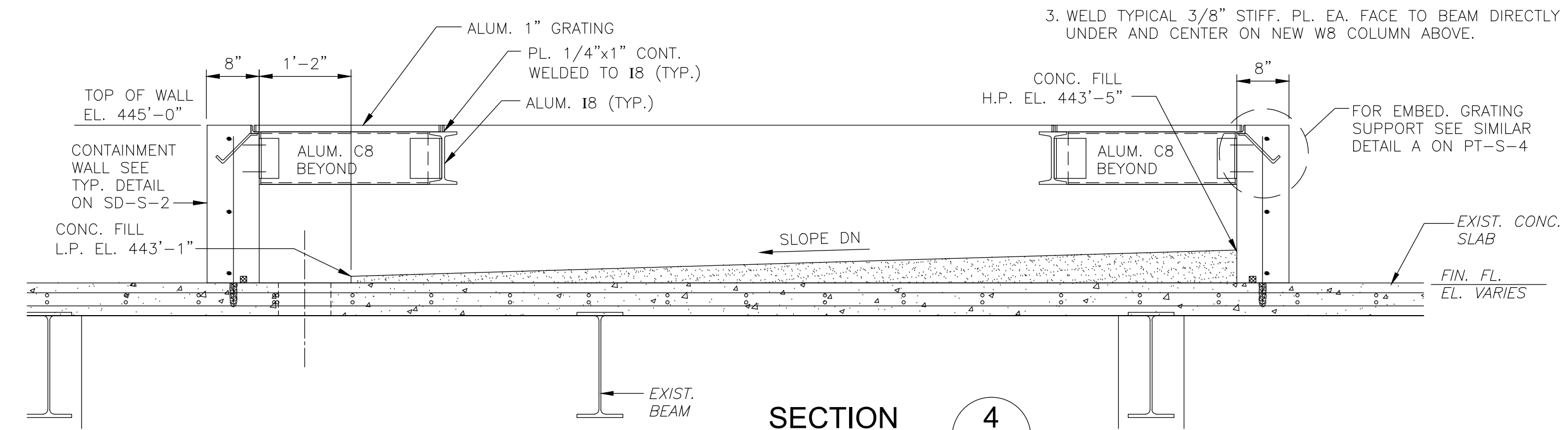
Acc. # 1289-74483

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: P:\HEAVY\UPPER BLACKSTONE\AS BUILT FILES\CDM\SDWSC001.DWG Saved by: PLOWRY On: 19-Mar-13 1:42 PM



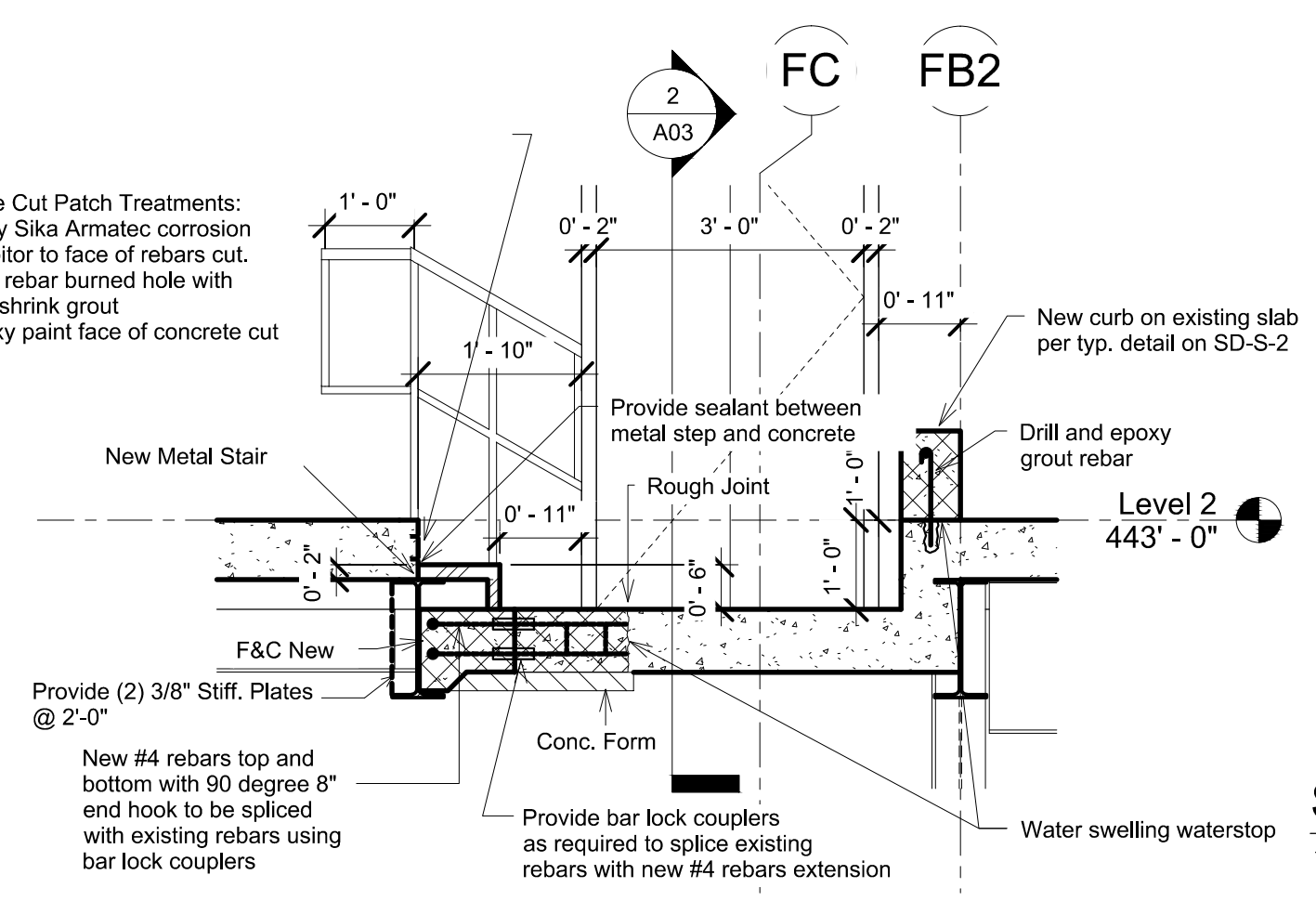
SECTION 1
1/4" = 1'-0"
DW-S-3

- NOTES:
1. COORDINATE WITH BRIDGE CRANE MANUFACTURER AND CMAA (CRANE MANUFACTURERS ASSOCIATION OF AMERICA, INC.) FOR RUNWAY BEAM REQUIREMENT FOR STRAIGHTNESS, ELEVATION AND ALIGNMENT TOLERANCE PRIOR TO FABRICATION AND INSTALLATION.
 2. (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH CRANE MANUFACTURER.
 3. WELD TYPICAL 3/8" STIFF. PL. EA. FACE TO BEAM DIRECTLY UNDER AND CENTER ON NEW W8 COLUMN ABOVE.

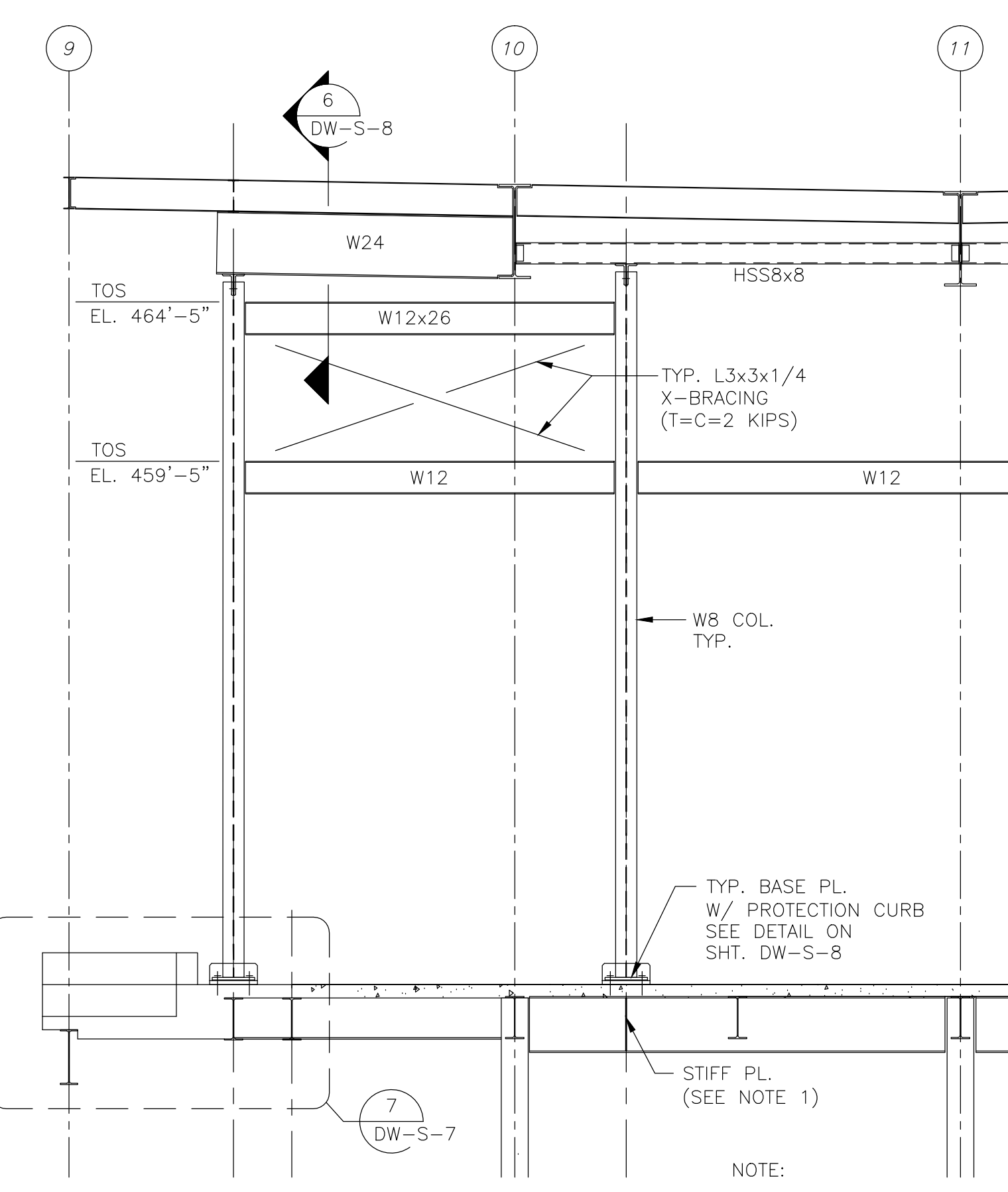


SECTION 4
3/4" = 1'-0"
DW-S-3

- Surface Cut Patch Treatments:
1. Apply Sika Armatex corrosion inhibitor to face of rebars cut.
 2. Plug rebar burned hole with non-shrink grout
 3. Epoxy paint face of concrete cut

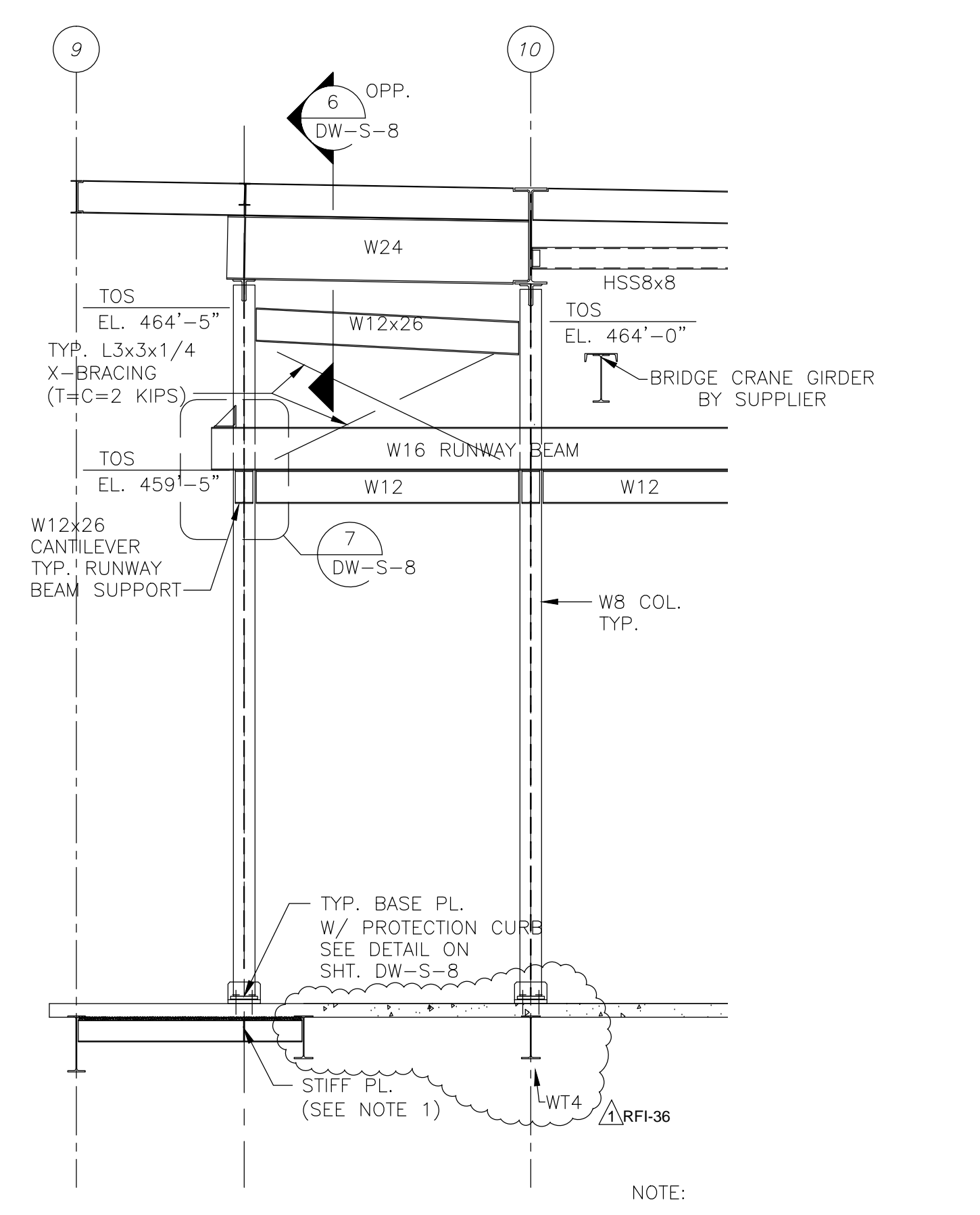


SECTION 6
1/2" = 1'-0"
DW-S-3



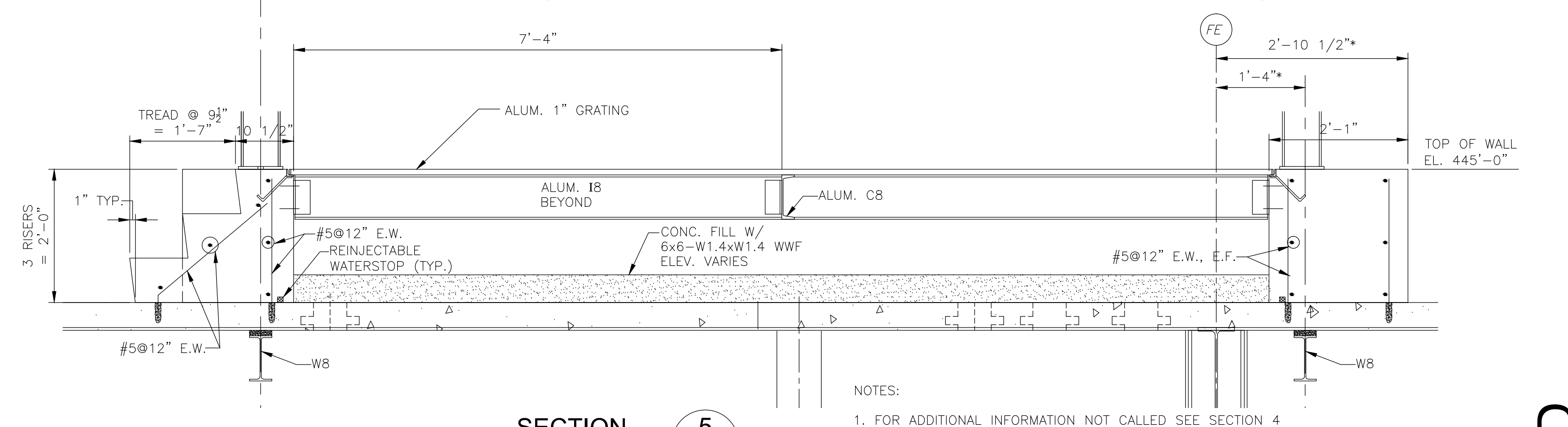
SECTION 2
1/4" = 1'-0"
DW-S-3

- NOTE:
1. WELD TYPICAL 3/8" STIFF. PL. EA. FACE TO BEAM DIRECTLY UNDER AND CENTER ON NEW W8 COLUMN ABOVE.



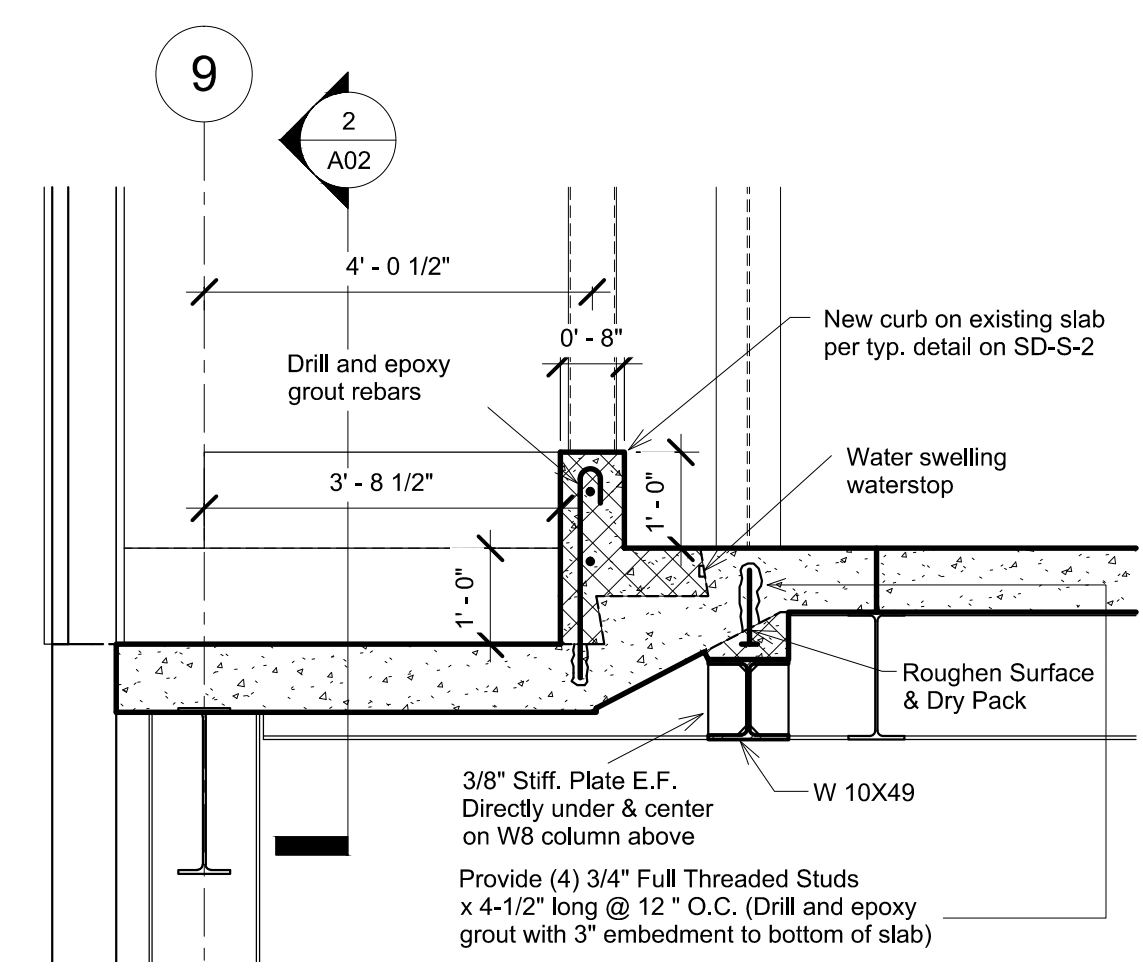
SECTION 3
1/4" = 1'-0"
DW-S-3

- NOTE:
1. WELD TYPICAL 3/8" STIFF. PL. EA. FACE TO BEAM DIRECTLY UNDER AND CENTER ON NEW W8 COLUMN ABOVE.

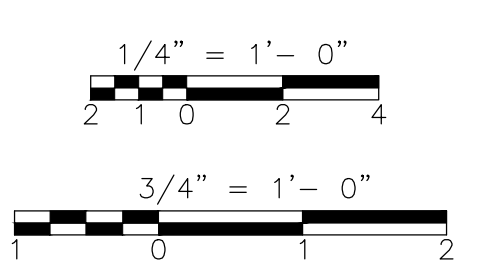


SECTION 5
3/4" = 1'-0"
DW-S-3

- NOTES:
1. FOR ADDITIONAL INFORMATION NOT CALLED SEE SECTION 4 ON THIS SHEET.
 2. (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH BFP SUPPORT LOCATIONS.



SECTION 7
1/2" = 1'-0"
DW-S-7



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SDWSC001
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

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 BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECTIONS AND DETAILS I
 IMPROVEMENTS

PROJECT NO.
1289-74283

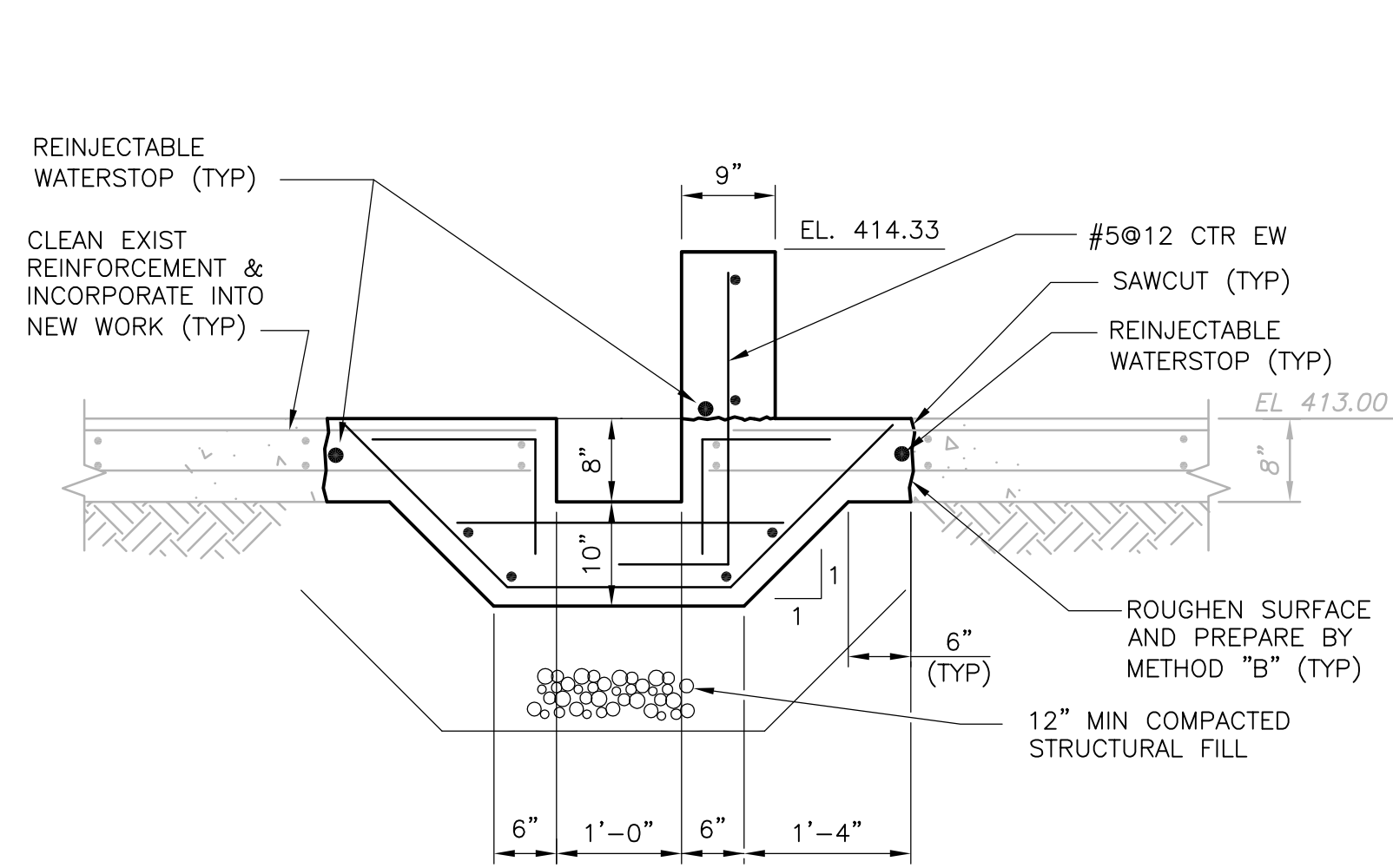
Sht. 78 of 312

DW-S-7

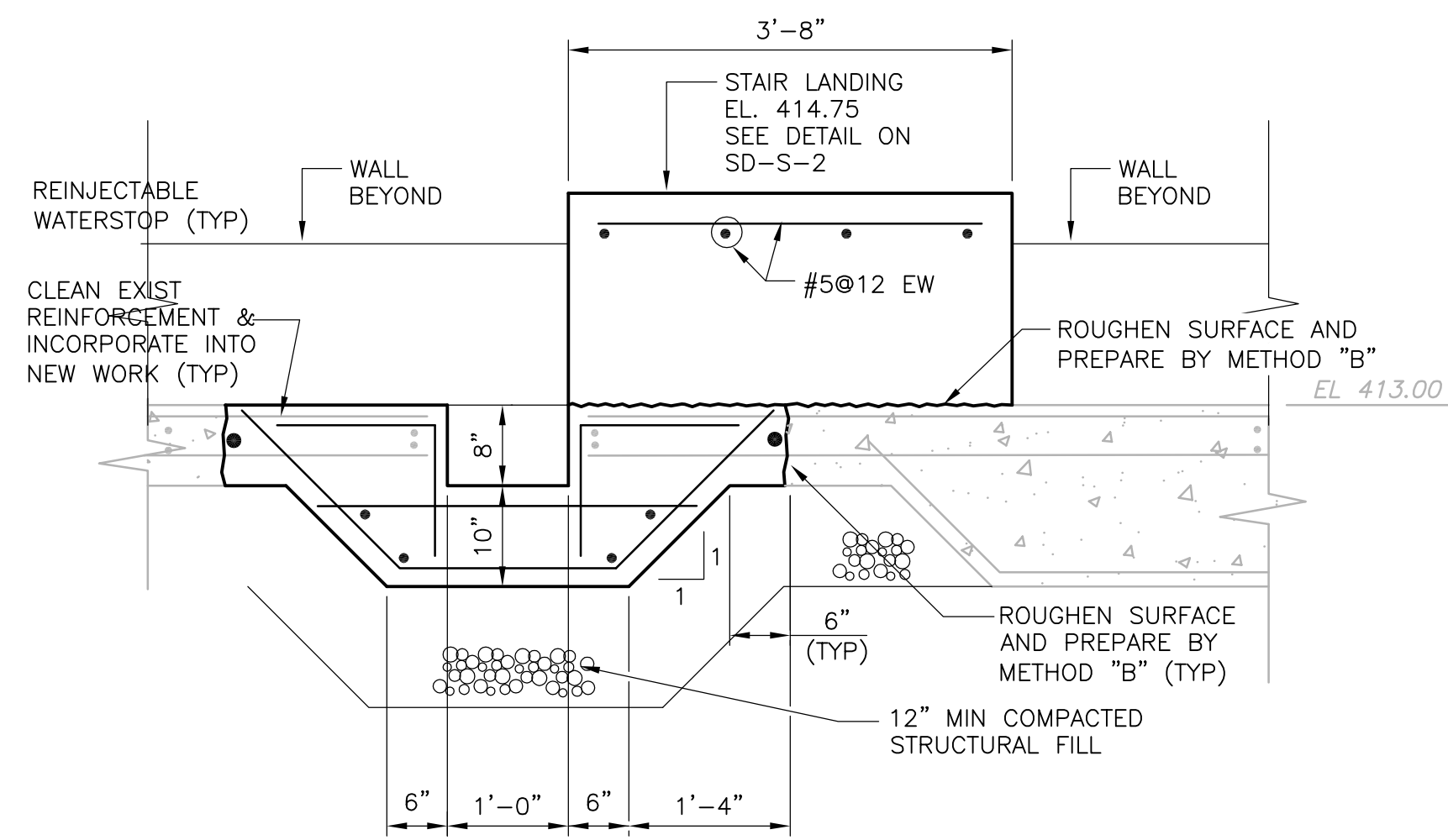
Acc # 1289-74484

CONFORMED

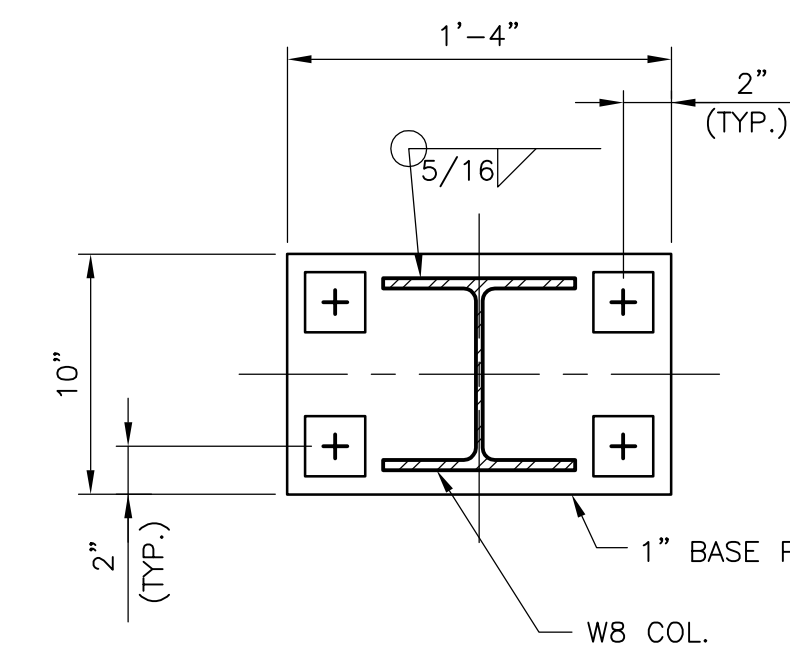
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\CONFORM\STR\SDWSC002.DWG Saved by: RLAM On: 28-Sep-10 Plotted on: 29-Sep-10 9:36 AM



NOTE: ALL REINFORCEMENT SHALL BE #6@12 UNO
SECTION 1
 3/4" = 1'-0" DW-S-1

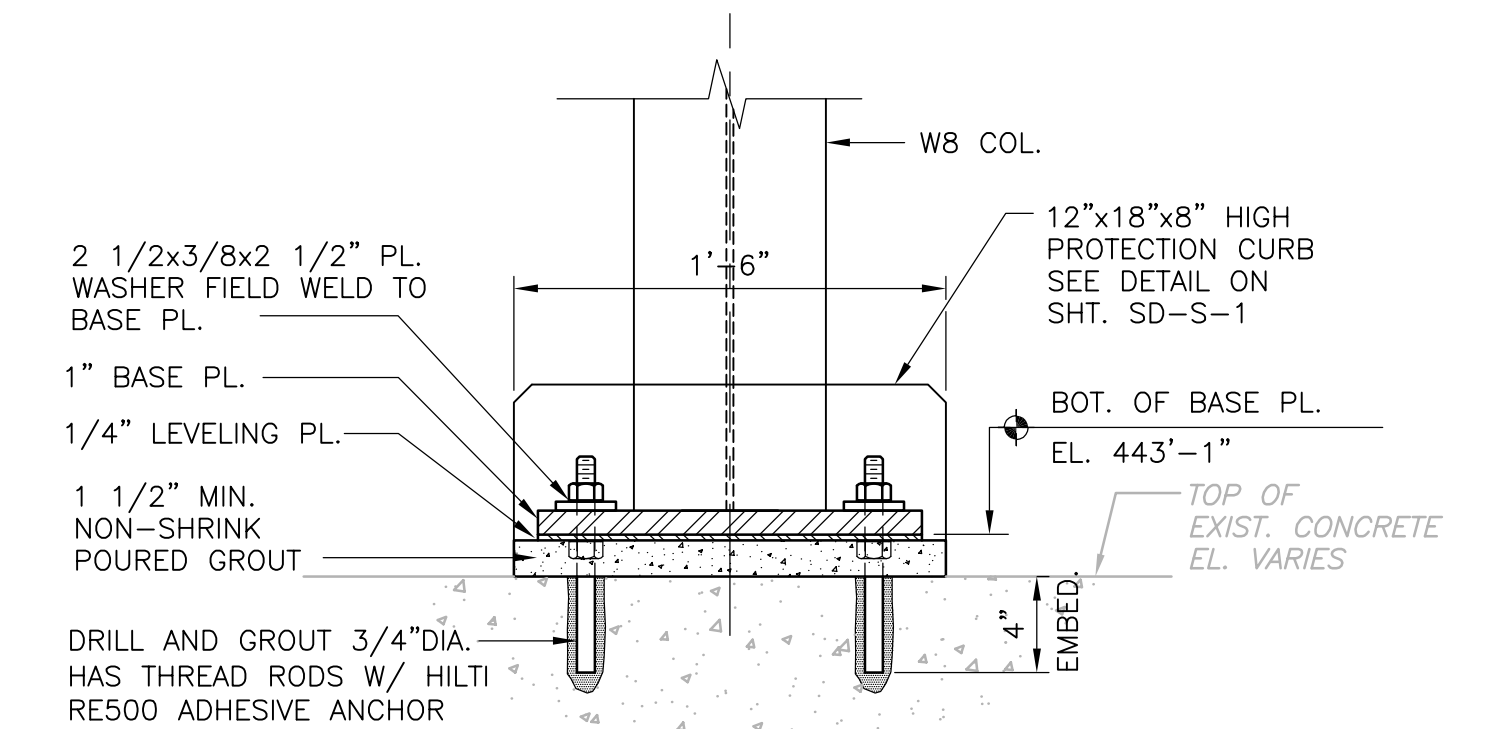


NOTE: ALL REINFORCEMENT SHALL BE #6@12 UNO
SECTION 2
 3/4" = 1'-0" DW-S-1

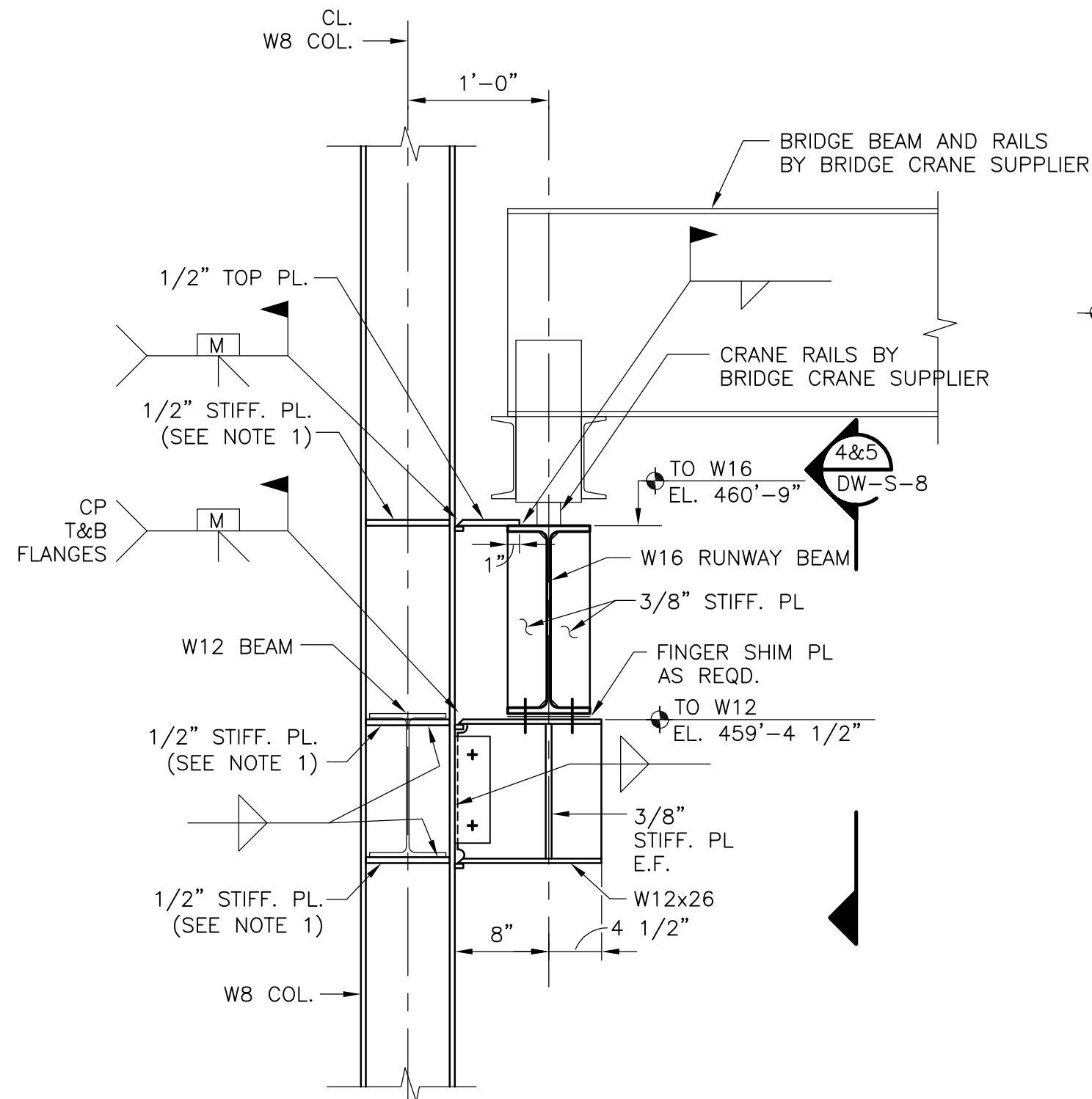


NOTE:
 1. SEE TYPICAL BASE PLATE SECTION ON THIS SHEET.

**BRIDGE CRANE SUPPORT
 TYPICAL BASE PLATE DETAIL**
 NTS

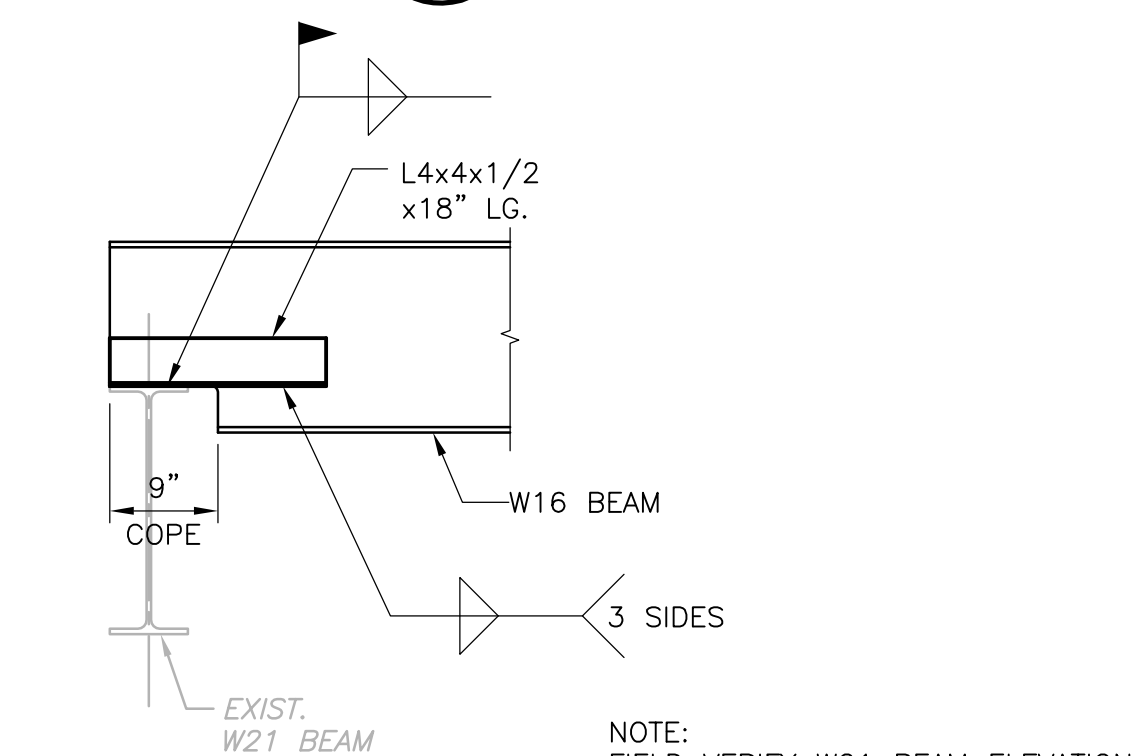


**BRIDGE CRANE SUPPORT
 TYPICAL BASE PLATE SECTION**
 NTS

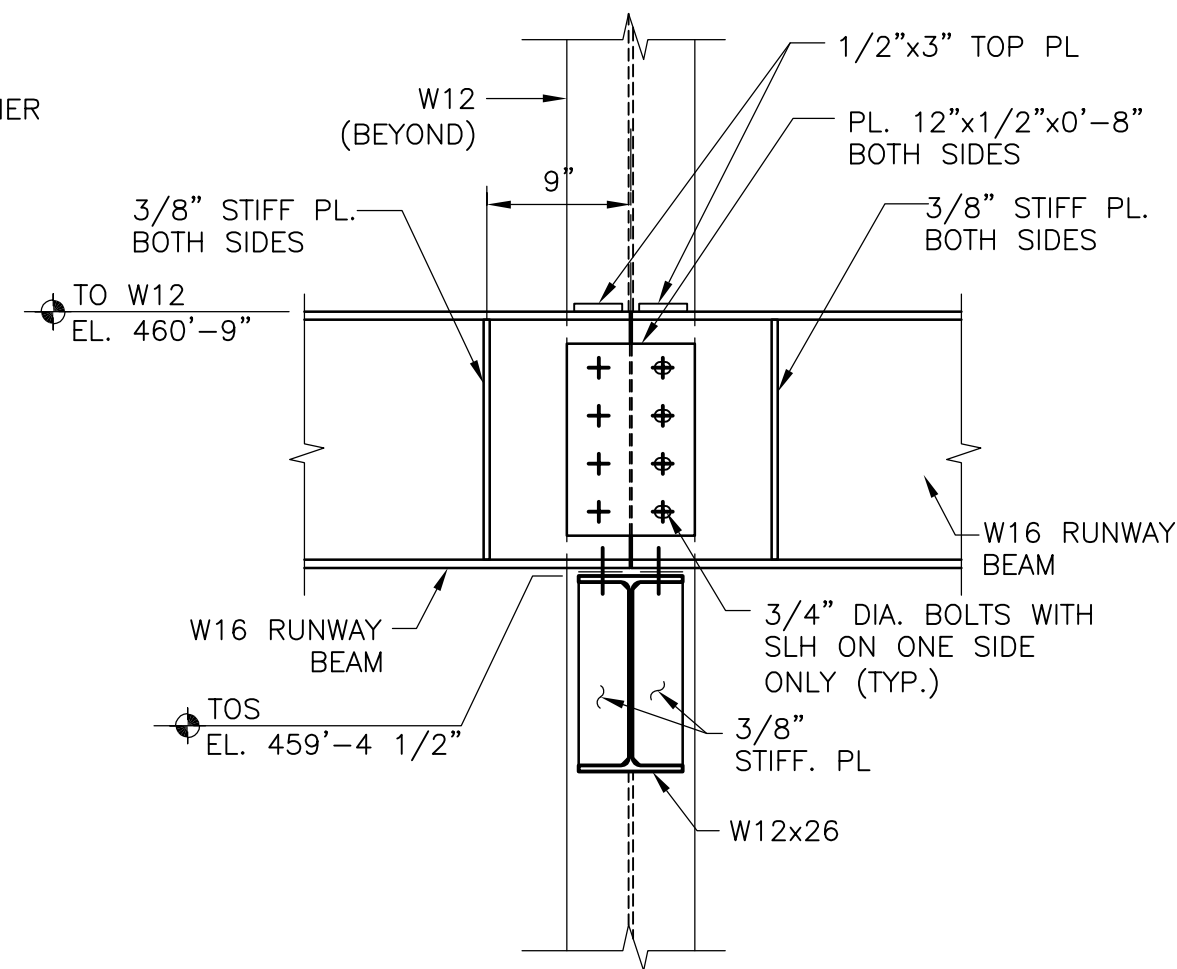


NOTE:
 1. 1/2" STIFF. PLATE EA. FACE WELD TO COLUMN FLANGE AND WEB (5/16" FILLET WELD).

DETAIL 3
 1" = 1'-0" DW-S-7

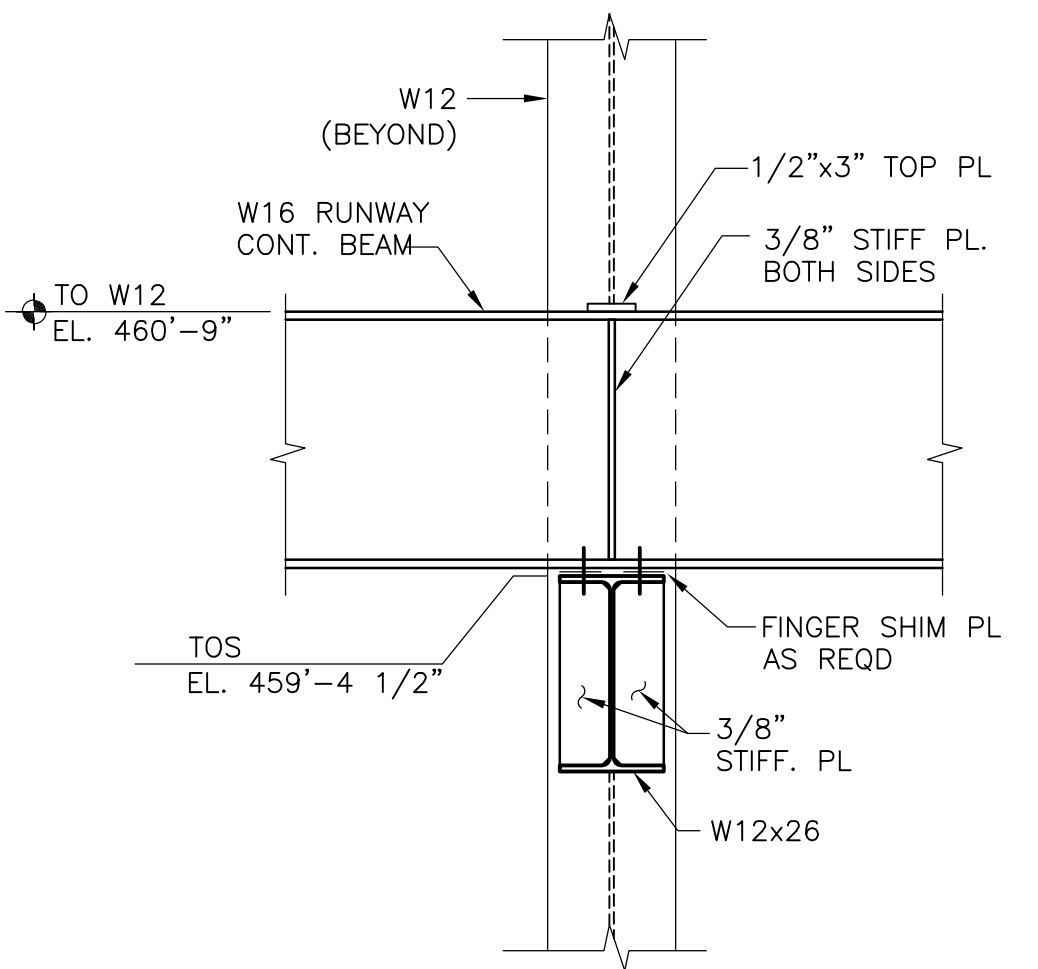


NOTE:
 FIELD VERIFY W21 BEAM ELEVATION AND COORDINATE WITH W16 BEAM PROPOSED ELEVATION PRIOR TO FABRICATION.
SECTION 10
 3/4" = 1'-0" DW-S-3



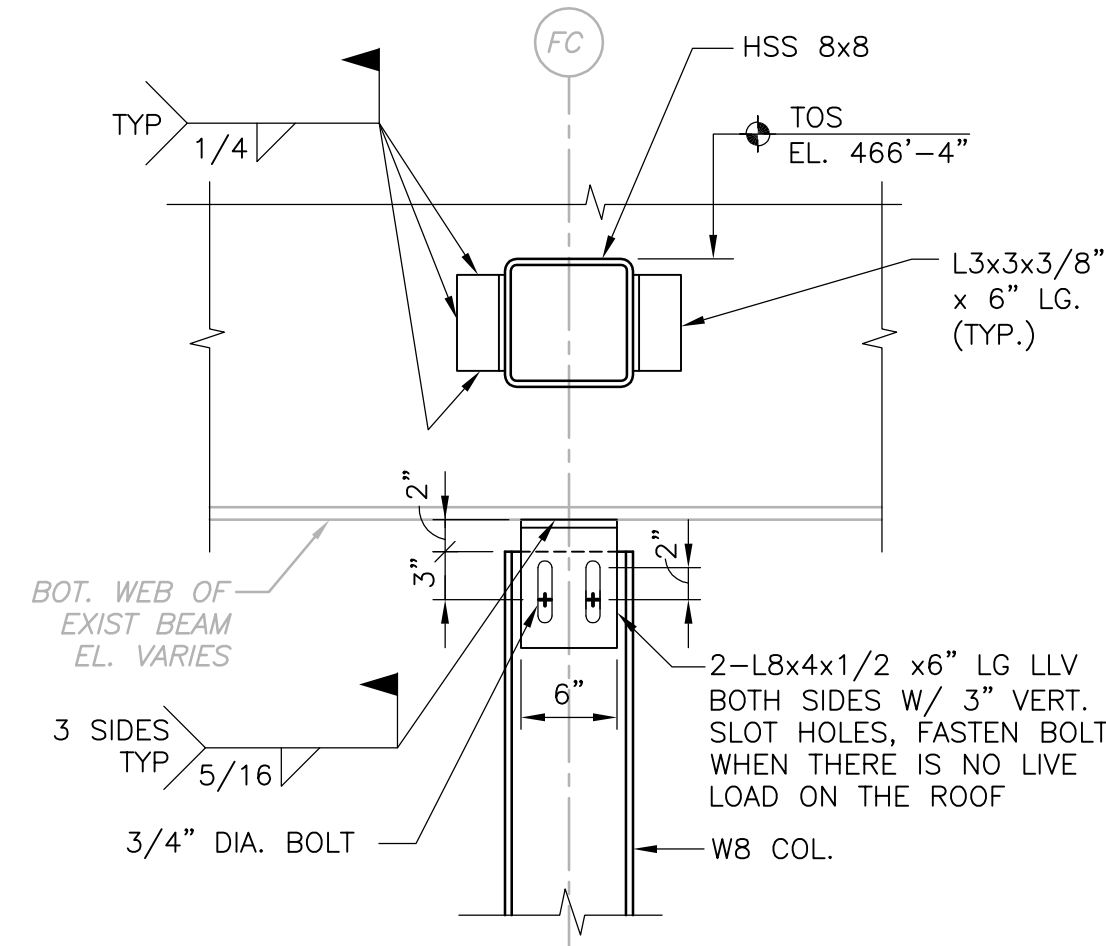
NOTE:
 1. USE 1/4" FILLET WELD. TYPICAL FOR STIFF. PLATE.

**SHEAR SPLICES
 SECTION 4**
 1" = 1'-0" DW-S-5

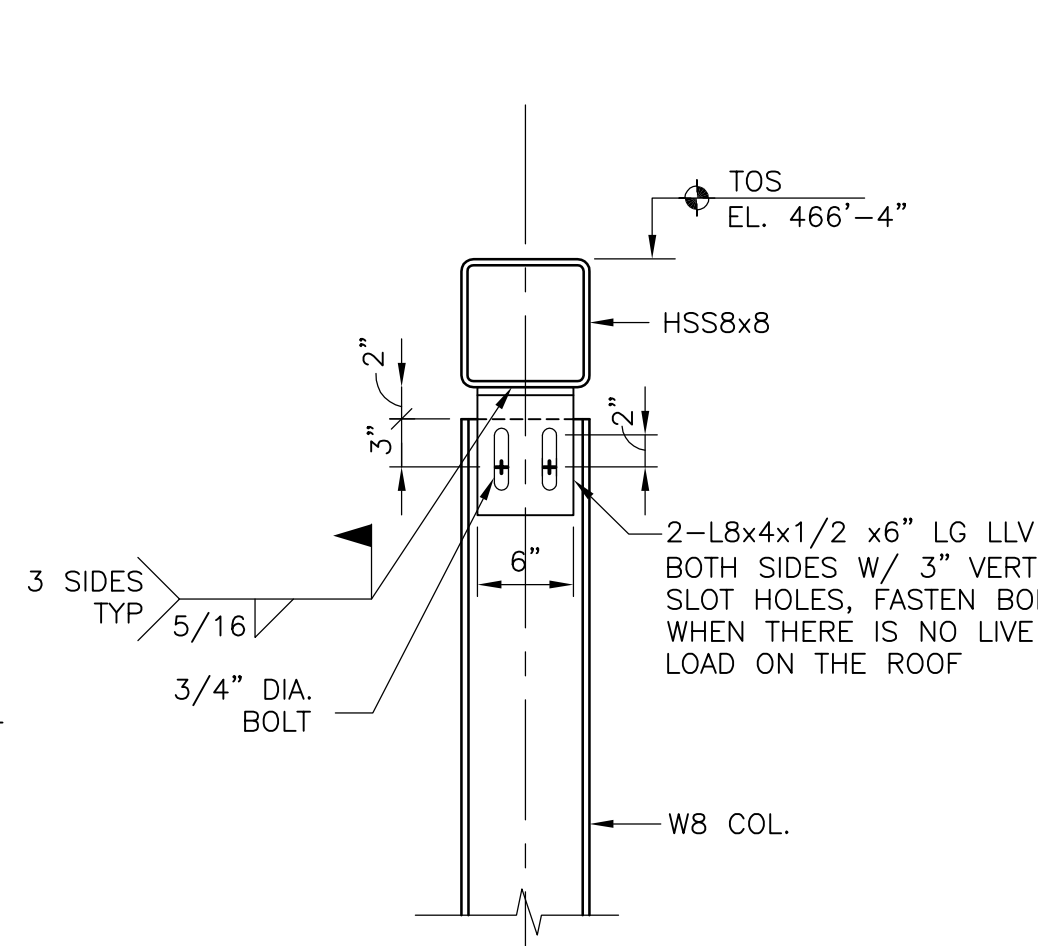


NOTE:
 1. USE 1/4" FILLET WELD. TYPICAL FOR STIFF. PLATE.

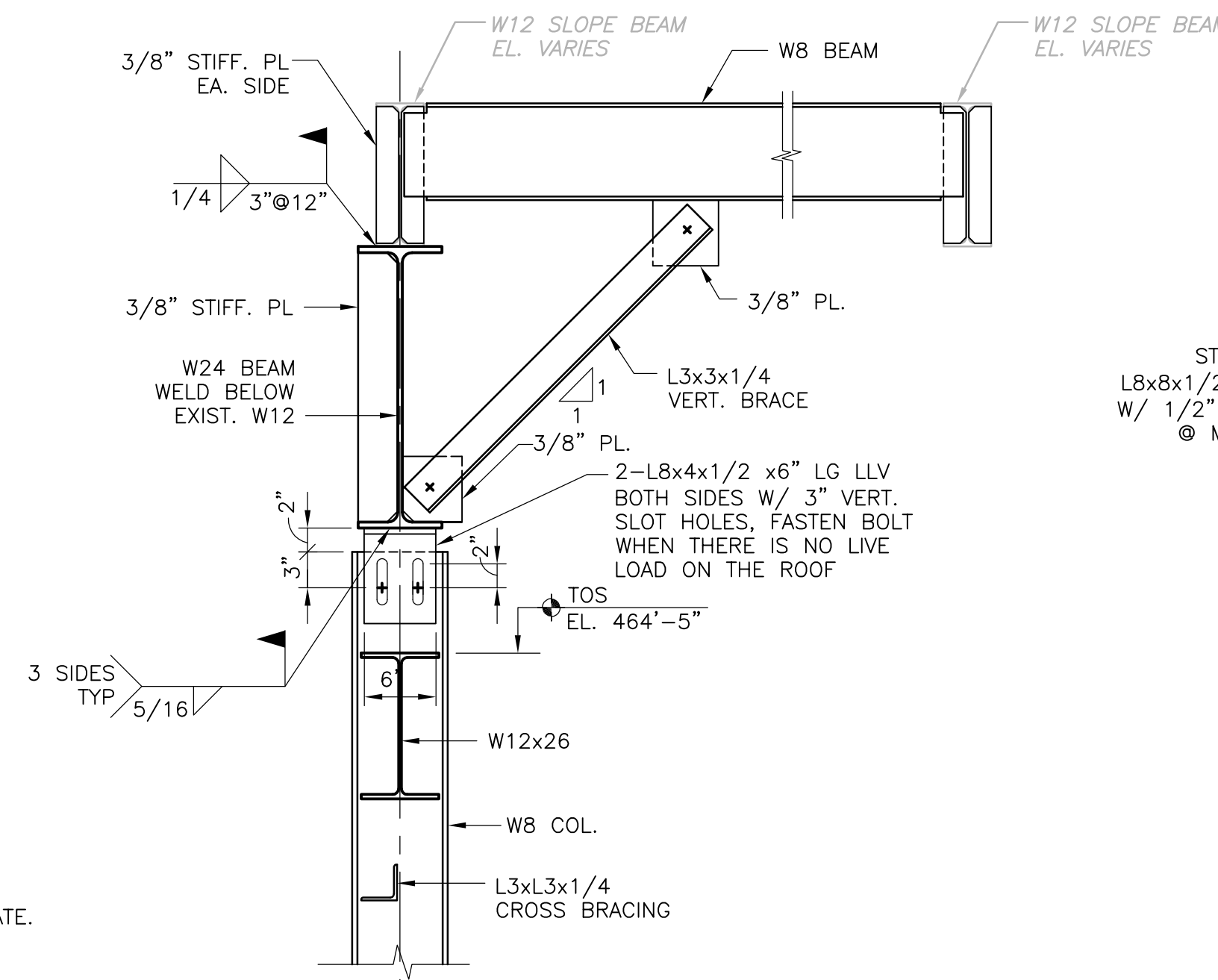
**CONTINUOUS
 SECTION 5**
 1" = 1'-0" HW-S-5



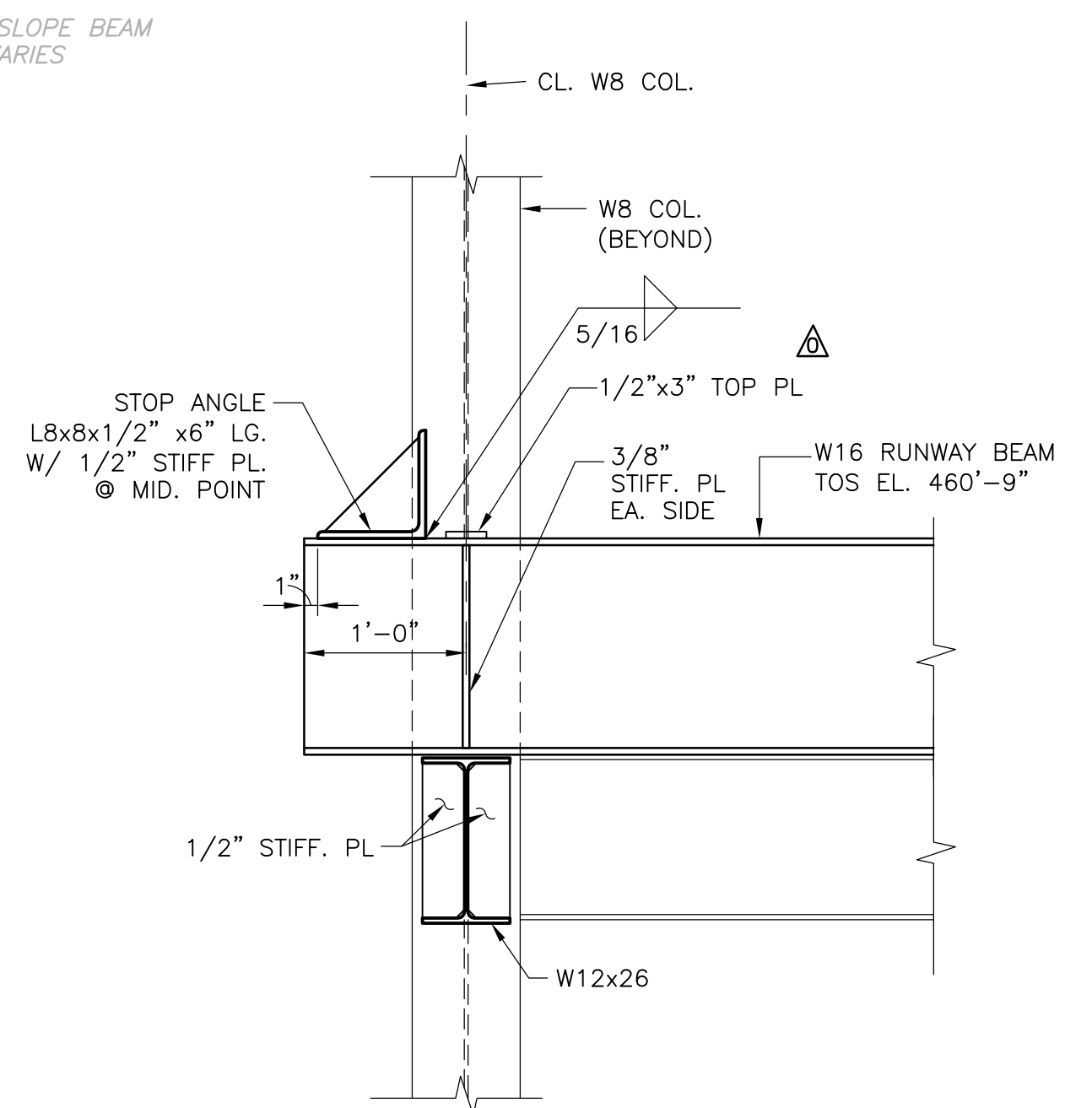
SECTION 8
 1" = 1'-0" DW-S-4



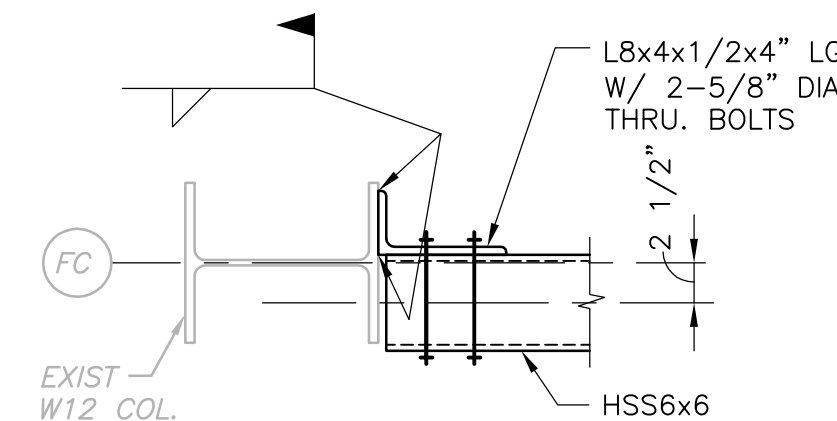
SECTION 9
 1" = 1'-0" DW-S-4



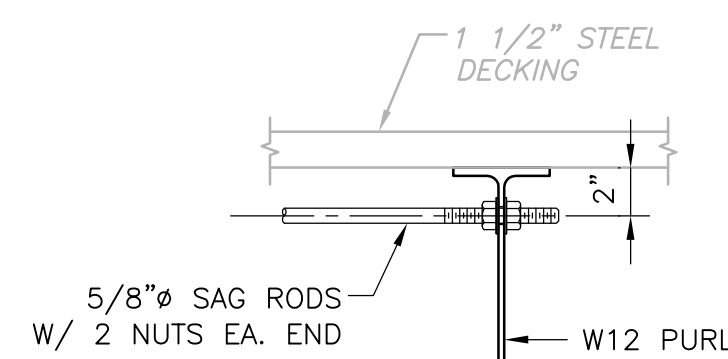
SECTION 6
 1" = 1'-0" DW-S-4



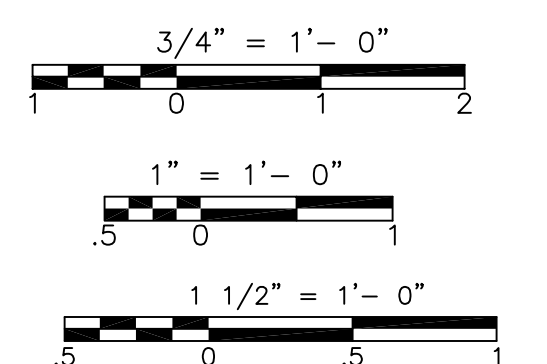
**CRANE STOP ANGLE
 SECTION 7**
 1" = 1'-0" DW-S-5



DETAIL A
 1" = 1'-0" DS-S-5



**SAG ROBS
 DETAIL B**
 1 1/2" = 1'-0" DS-S-4



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SDWSC002
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

PROJECT NO.	1289-74283
PROJECT NAME	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III
CONTRACT NO.	3-0-17512-0033
PROJECT NO. CWSRF	3197

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 (617) 566-4216 FAX: (617) 566-6038
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**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197**

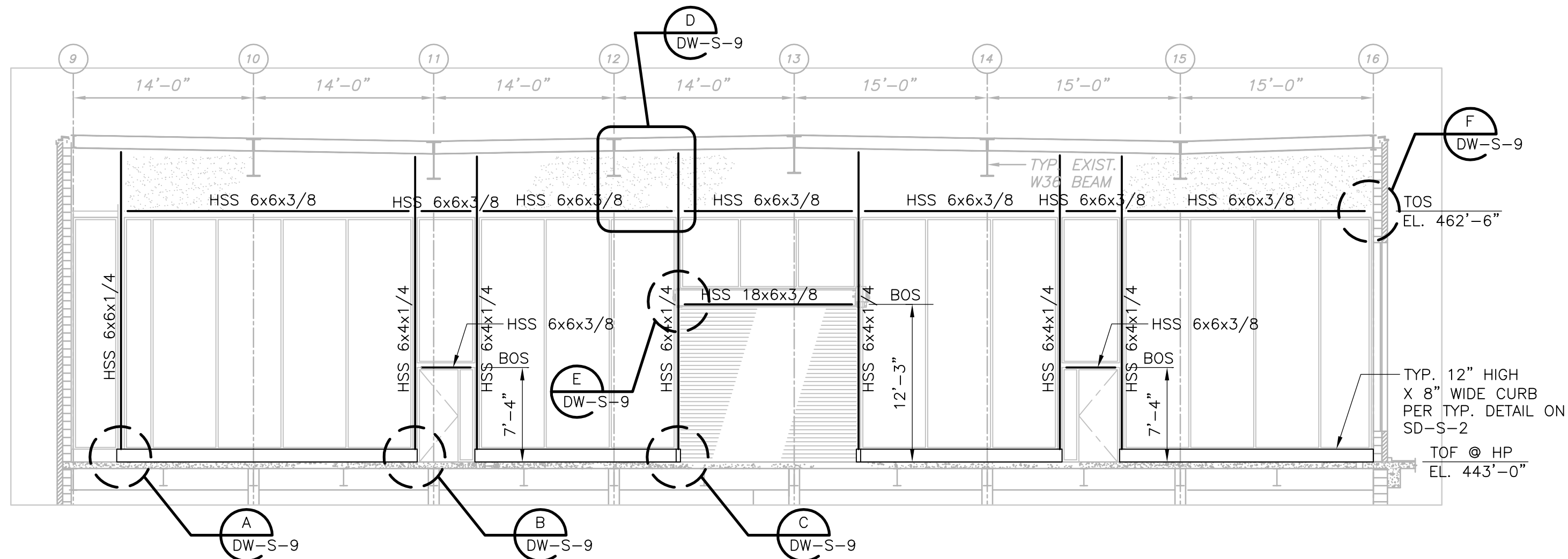
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 SECTIONS AND DETAILS II
 IMPROVEMENTS**

PROJECT NO.	1289-74283
Sht.	79 of 312
DW-S-8	
Acc. #	1289-74485

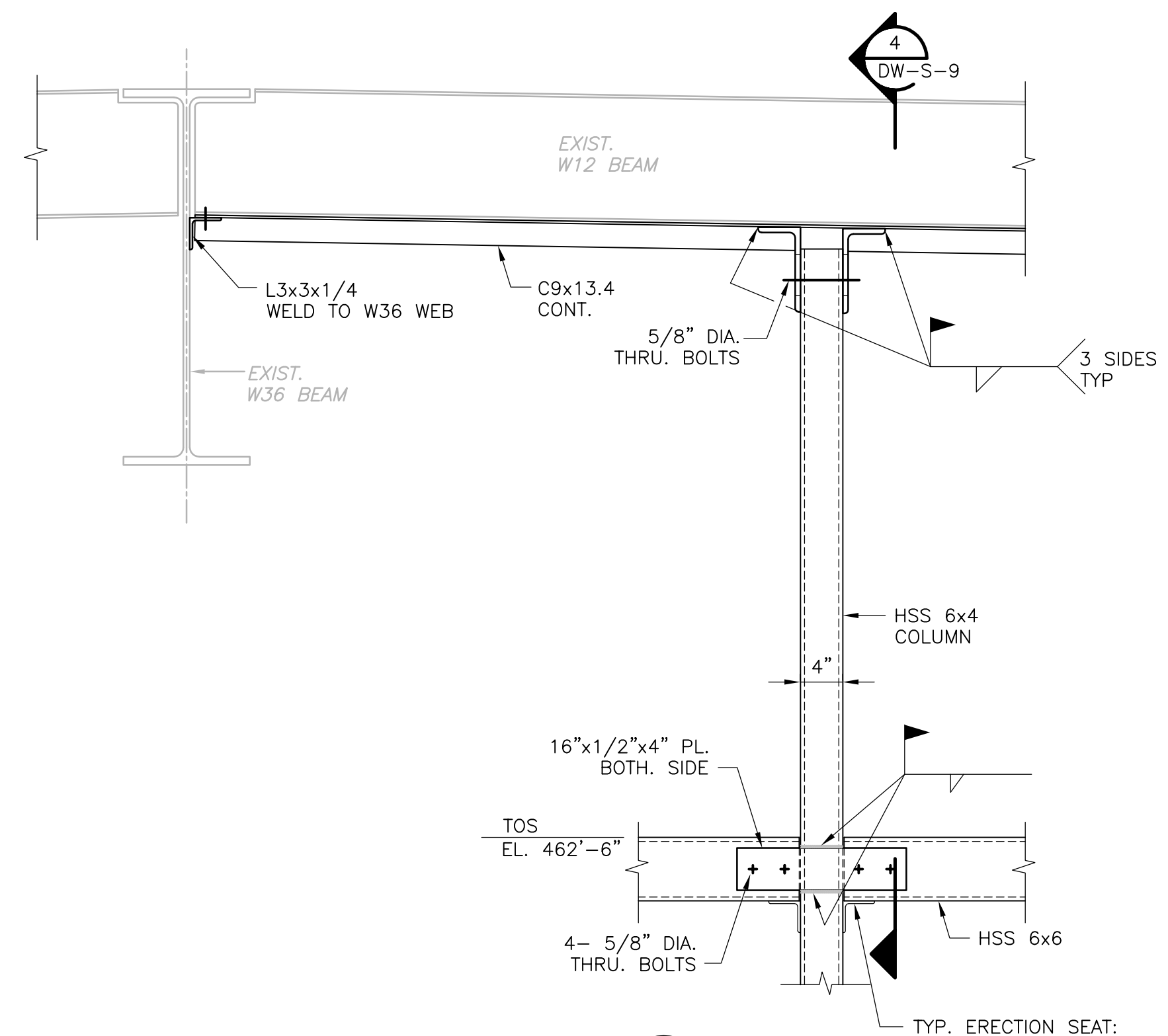
CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\CONFORM\STRU\SDWSC03.DWG Saved by: RLAM On: 28-Sep-10 Plotted on: 29-Sep-10 9:37 AM

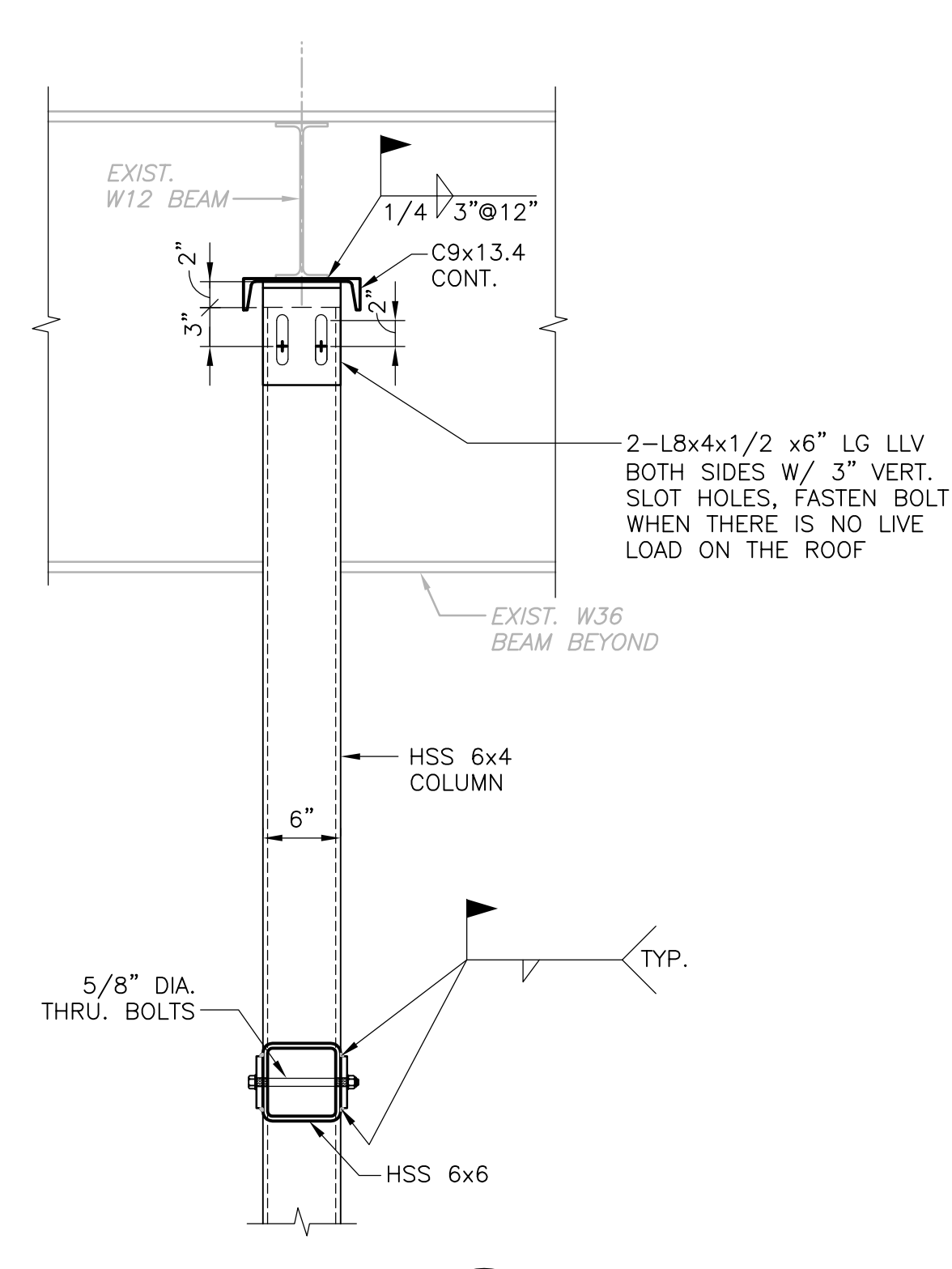


ELEVATION A
1/8" = 1'-0"
DW-S-9

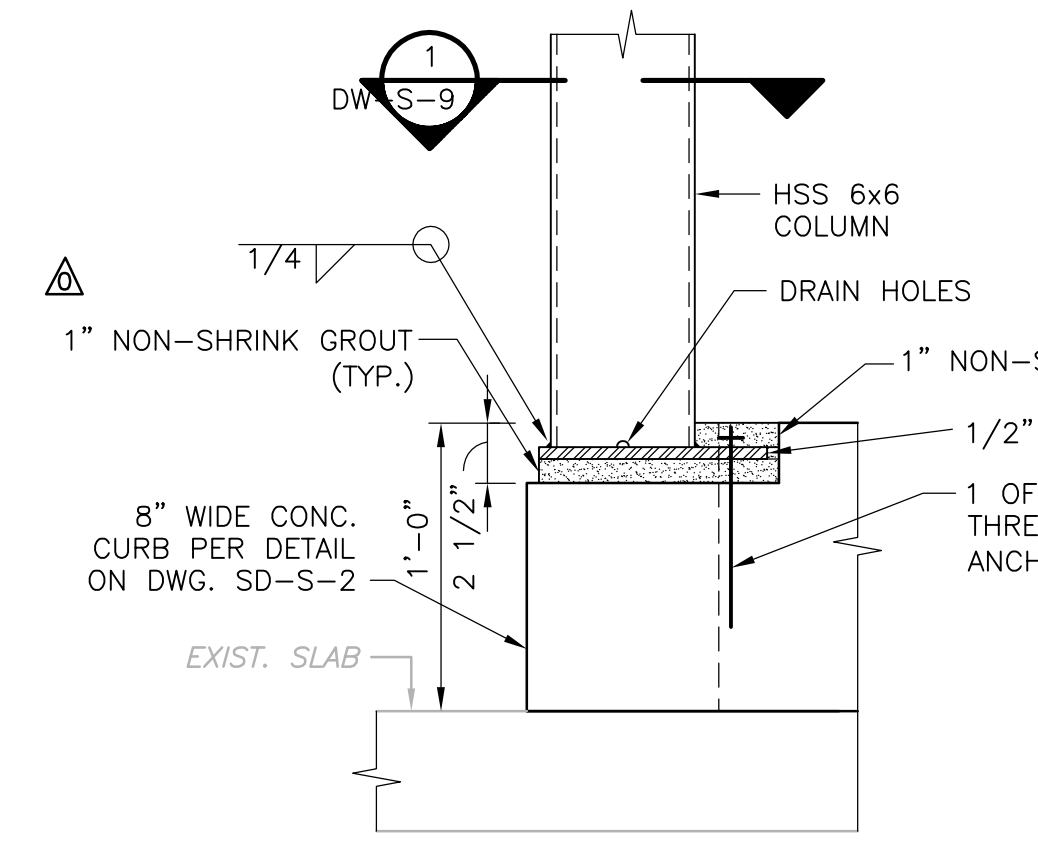
NOTES:
1. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR TRANSLUCENT PANEL WALL SUPPORT LOCATION REQUIREMENT.



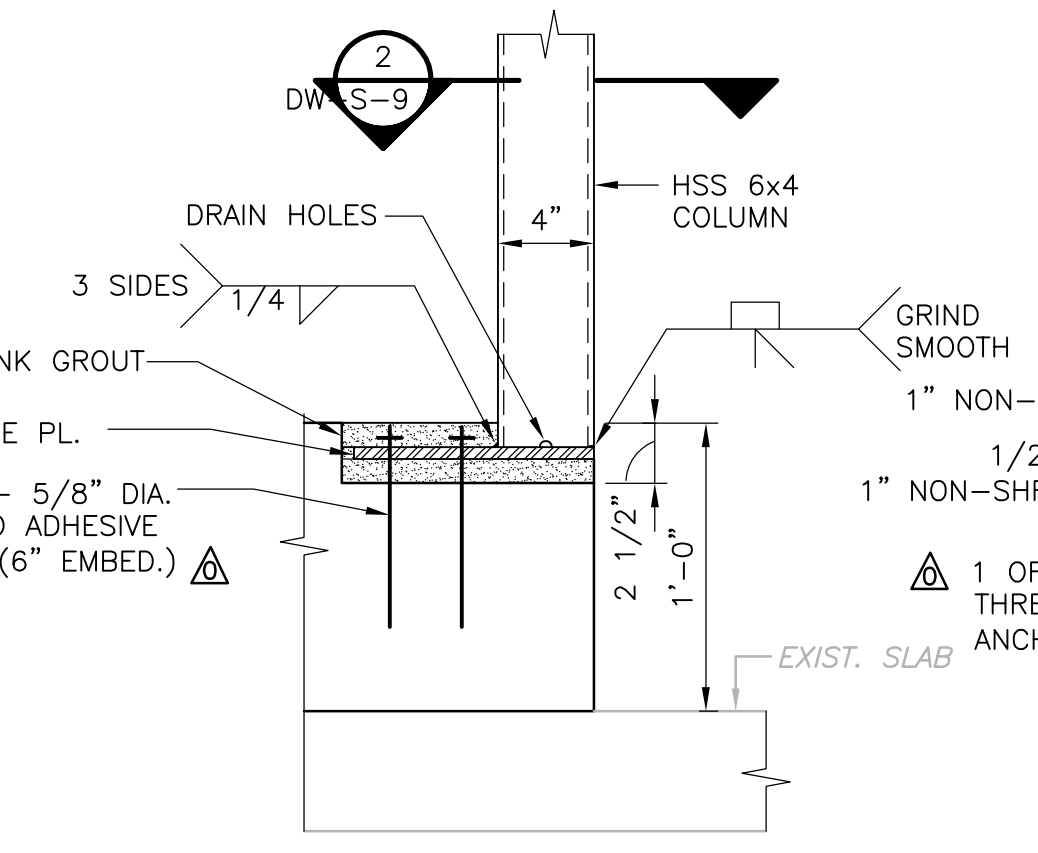
DETAIL D
1" = 1'-0"
DW-S-9



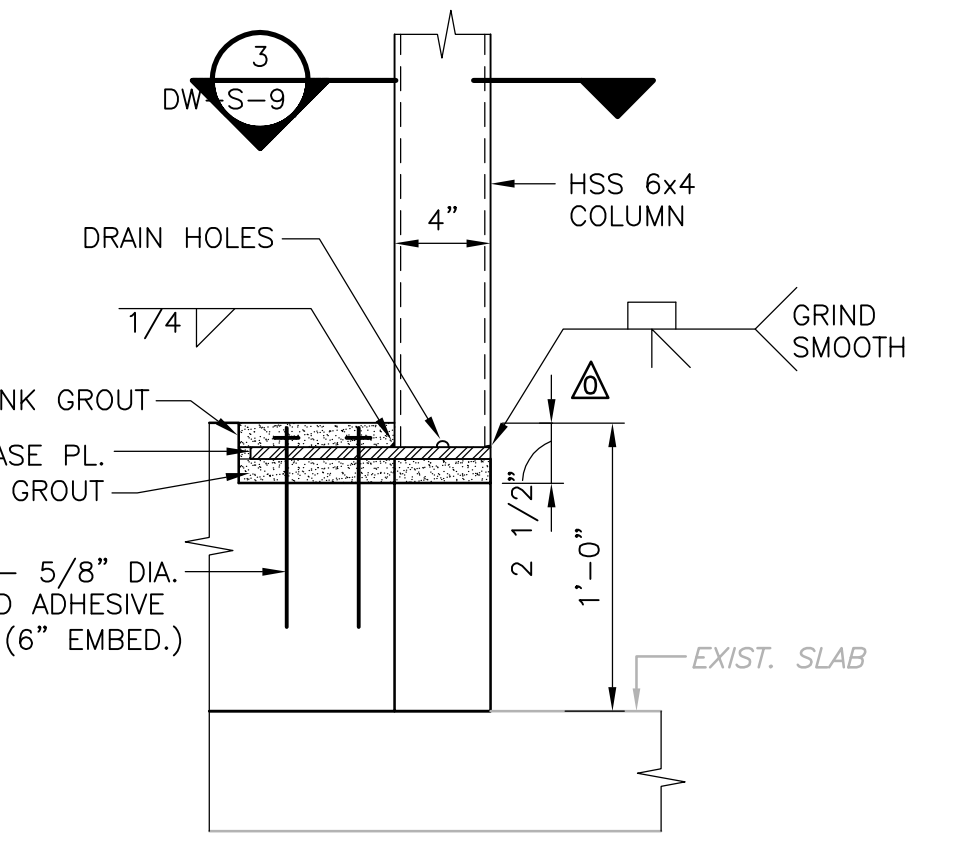
SECTION 4
1" = 1'-0"
DW-S-9



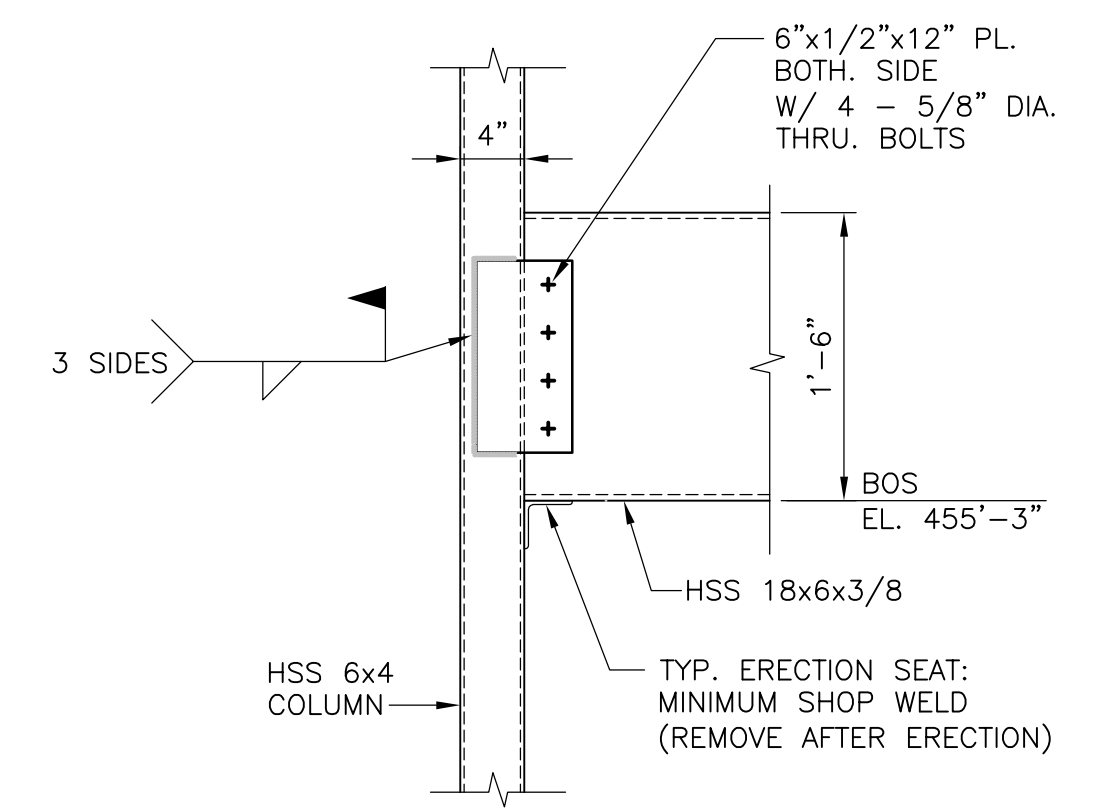
DETAIL A
1 1/2" = 1'-0"
DW-S-9



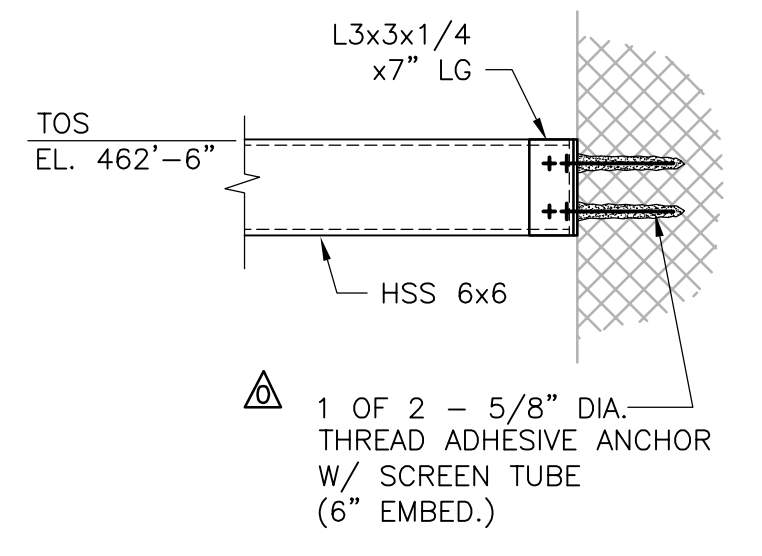
DETAIL B
1 1/2" = 1'-0"
DW-S-9



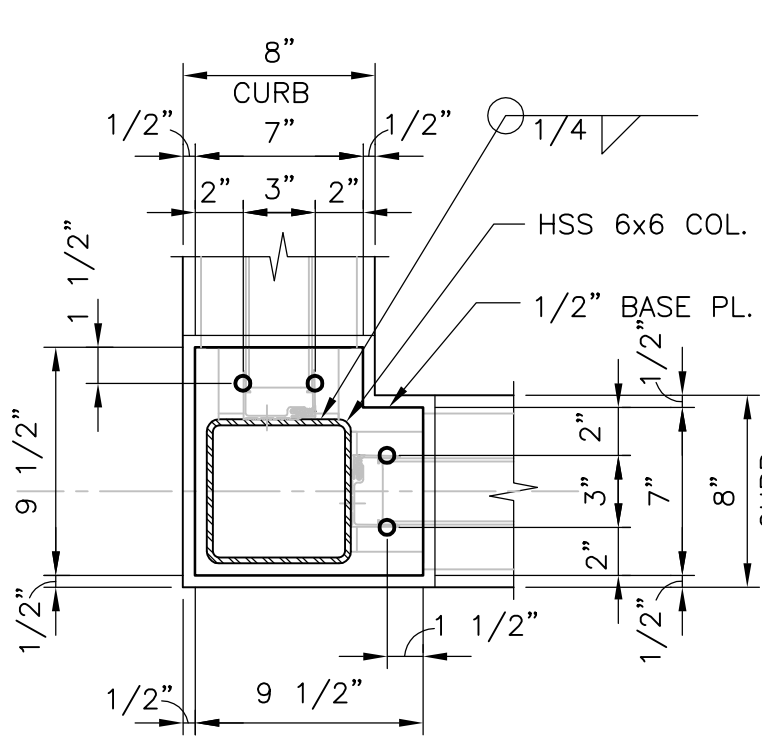
DETAIL C
1 1/2" = 1'-0"
DW-S-9



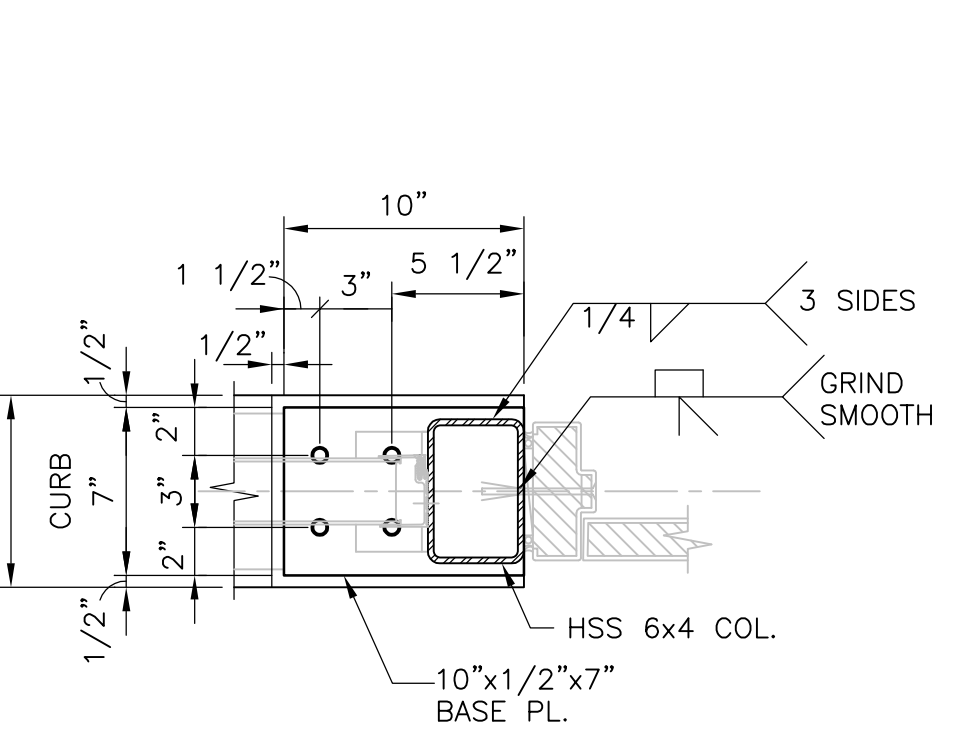
DETAIL E
1" = 1'-0"
DW-S-9



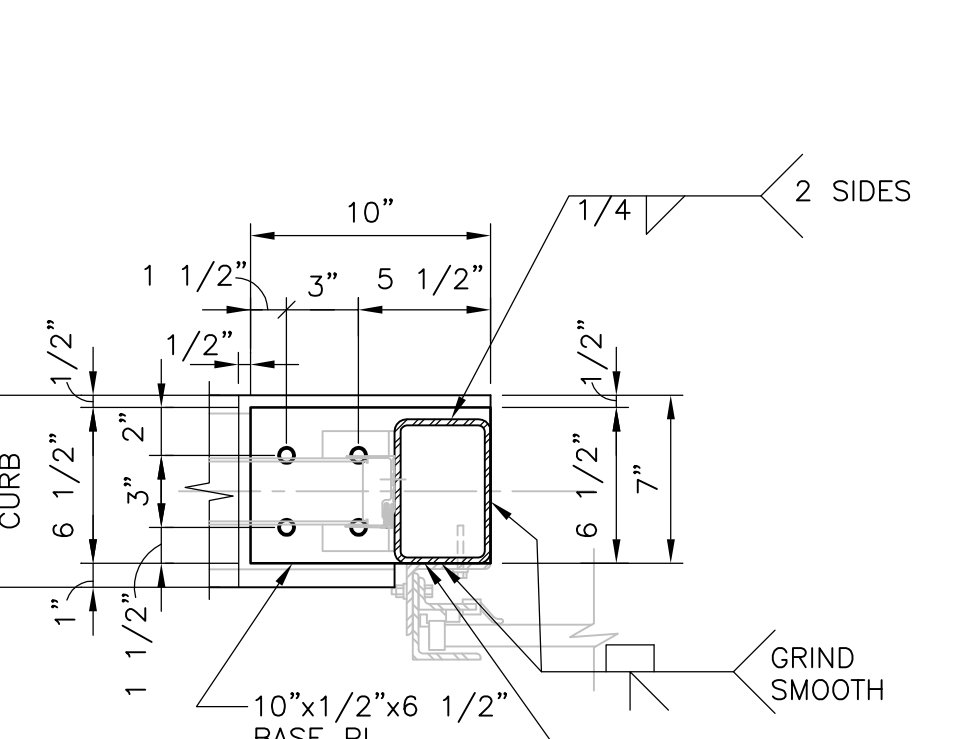
DETAIL F
1" = 1'-0"
DW-S-9



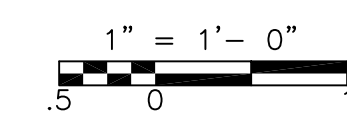
SECTION 1
1 1/2" = 1'-0"
DW-S-9



SECTION 2
1 1/2" = 1'-0"
DW-S-9



SECTION 3
1 1/2" = 1'-0"
DW-S-9



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. SDWSC03
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECTIONS AND DETAILS III
 IMPROVEMENTS

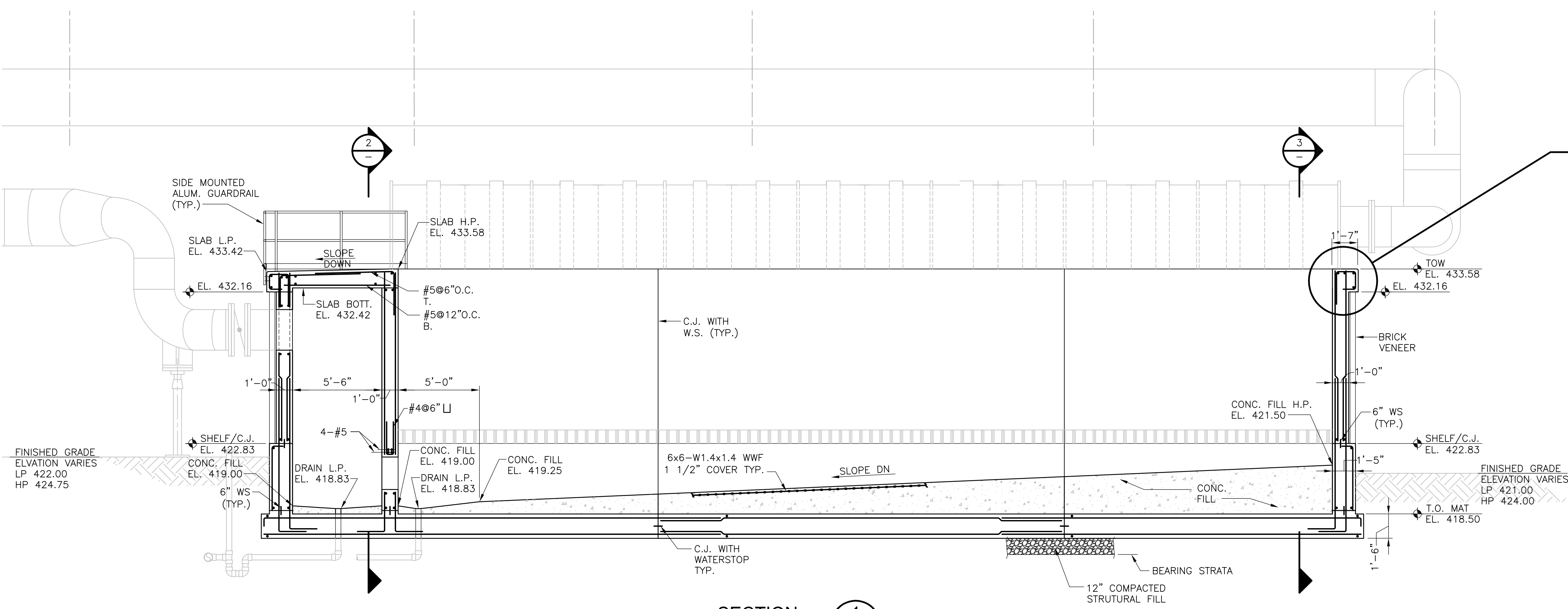
PROJECT NO.
1289-74283

Sht. 80 of 312

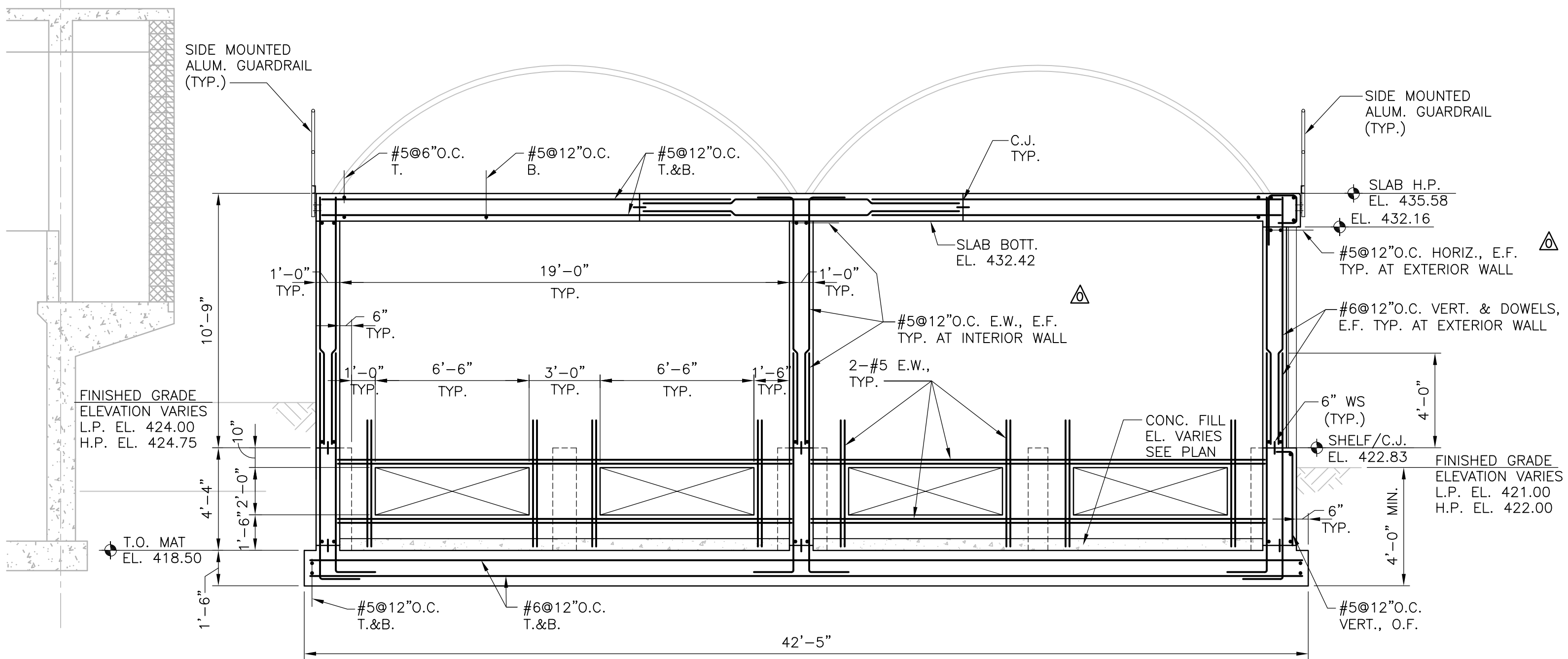
DW-S-9

Acc. # 1289-74486

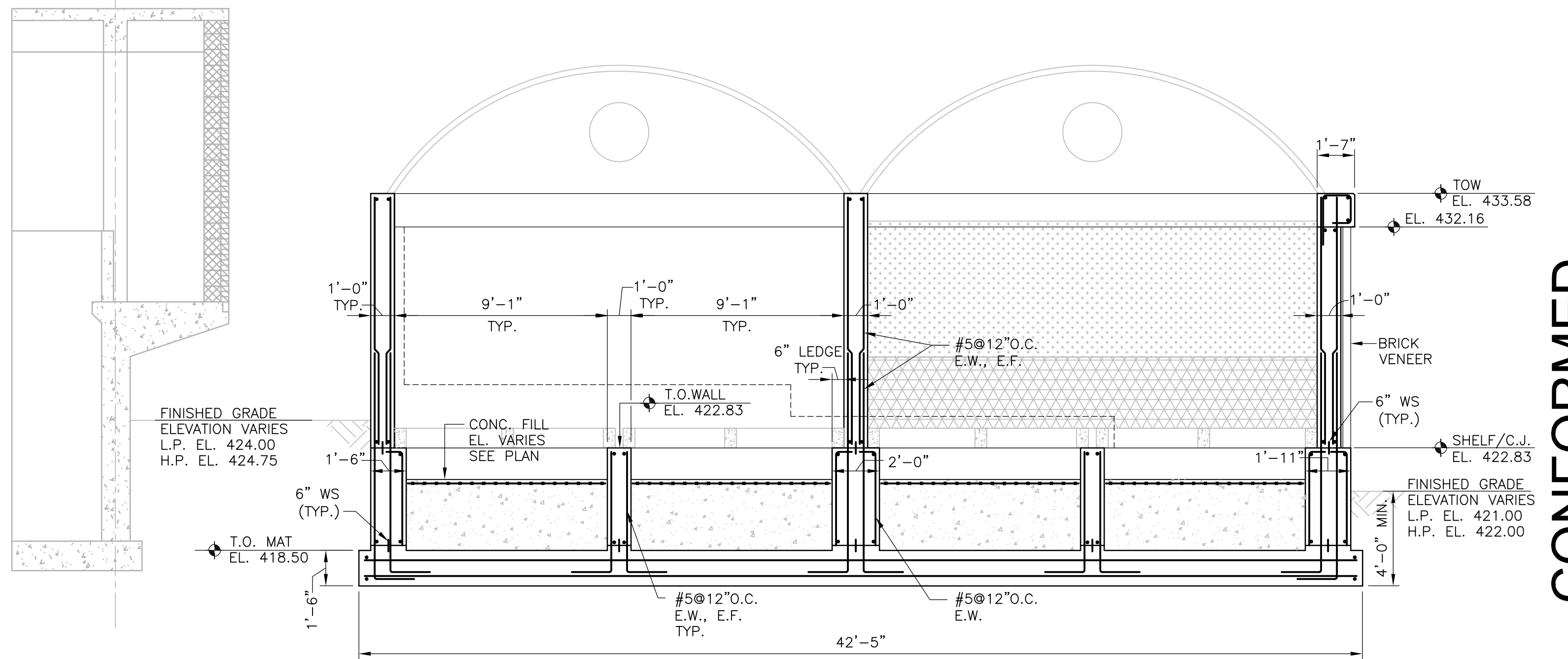
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009\015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SDWSC004.DWG Saved by: RLAM On: 1-Oct-10 11:05 AM



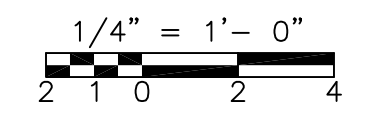
SECTION 1
1/4" = 1'-0"
DW-S-6



SECTION 2
1/4" = 1'-0"
DW-S-6



SECTION 3
1/4" = 1'-0"
DW-S-6



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SDWSC004
DESIGNED BY:	G. KARJADI
DRAWN BY:	V. SARACENI
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
BIOFILTER SECTIONS AND DETAILS
IMPROVEMENTS

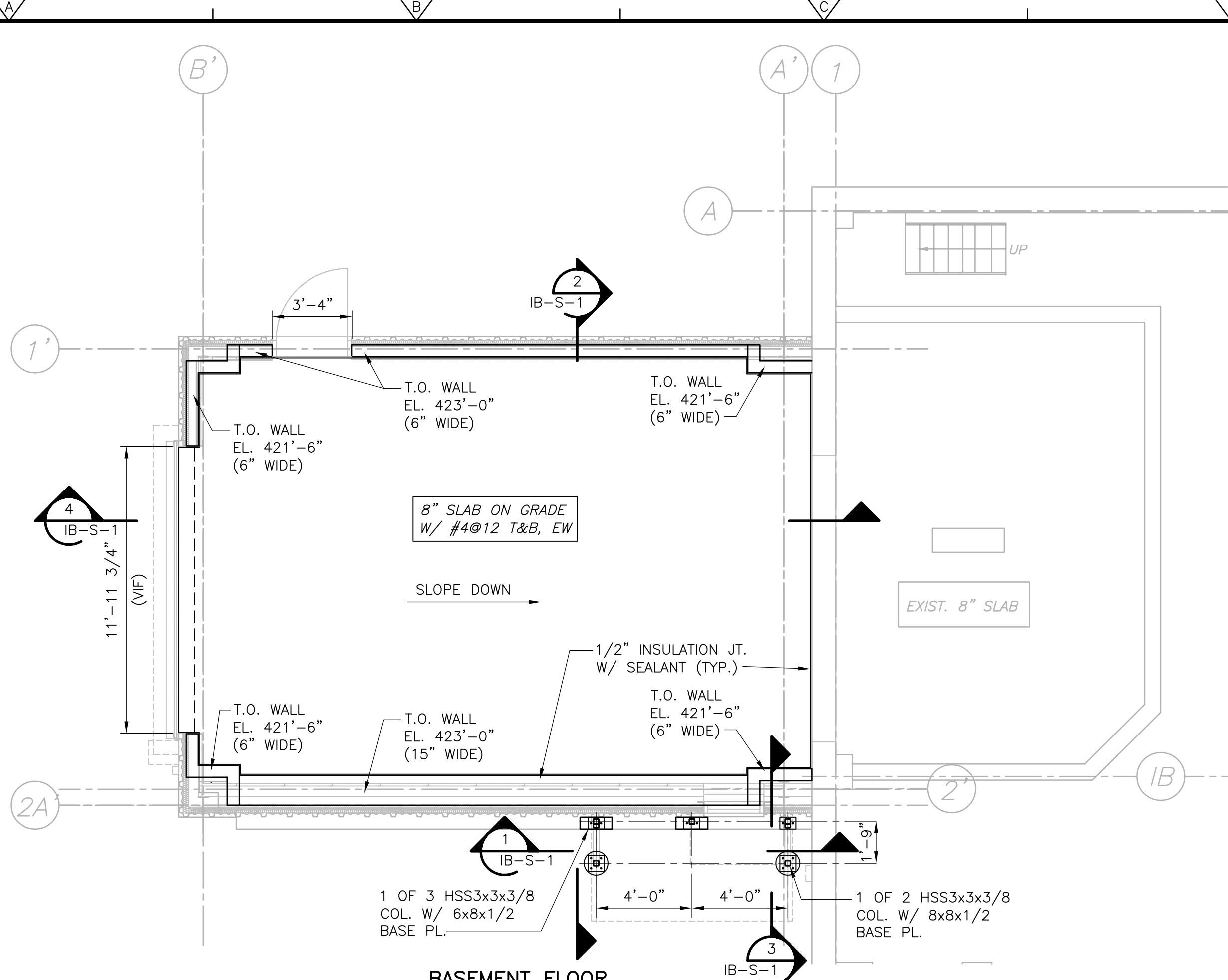
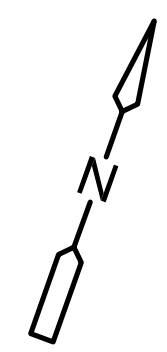
PROJECT NO.
1289-74283

Sht. 81 of 312

DW-S-10

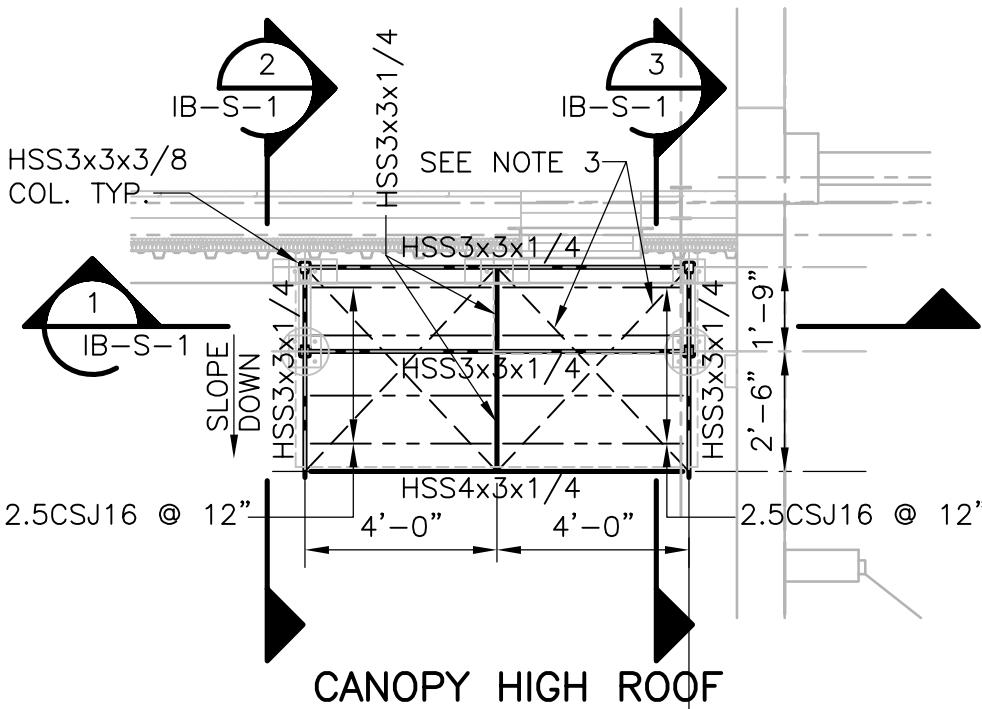
Acc. # 1289-74487

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\STRU\SIBPLO01.DWG Saved by: GKARJADI On: 7-Jul-10 10:19 AM



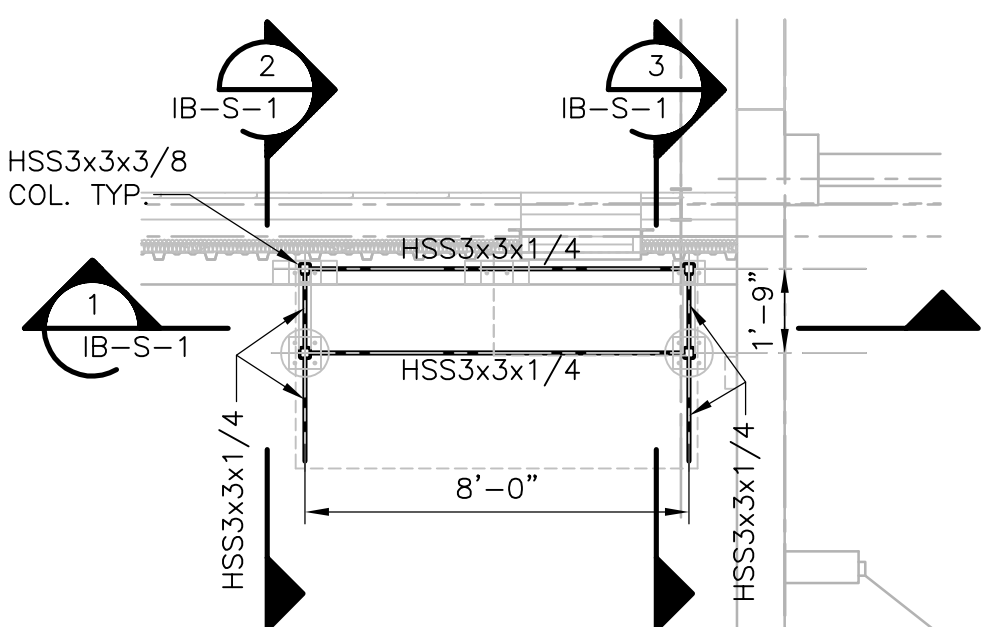
BASEMENT FLOOR PLAN
1/4" = 1'-0"

NOTES:
1. VERIFY EXISTING CONDITION PRIOR TO ANY STEEL FABRICATION.

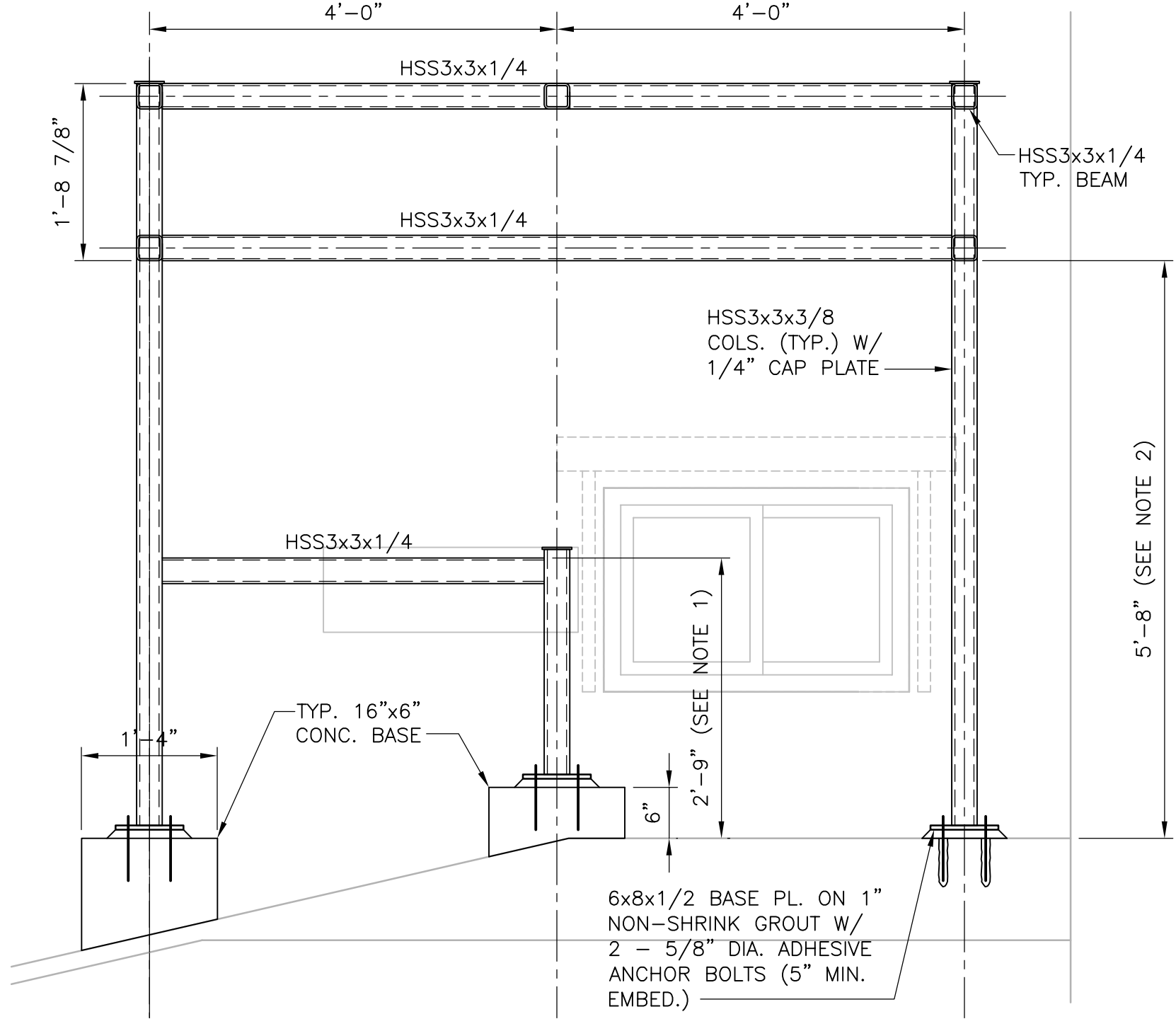


CANOPY HIGH ROOF PLAN
1/4" = 1'-0"

NOTES:
1. USE FULL WELD AND GRIND SMOOTH FOR STEEL TUBE CONNECTION. SHOP WELD WHEN POSSIBLE AND FIELD WELD WHEN REQUIRED.
2. ALL STEEL TO BE GALVANIZED.
3. PROVIDE TYPICAL L.G. 16 GA. CROSS STRAPS FASTEN TO L.G. JOIST & STEEL BEAMS.

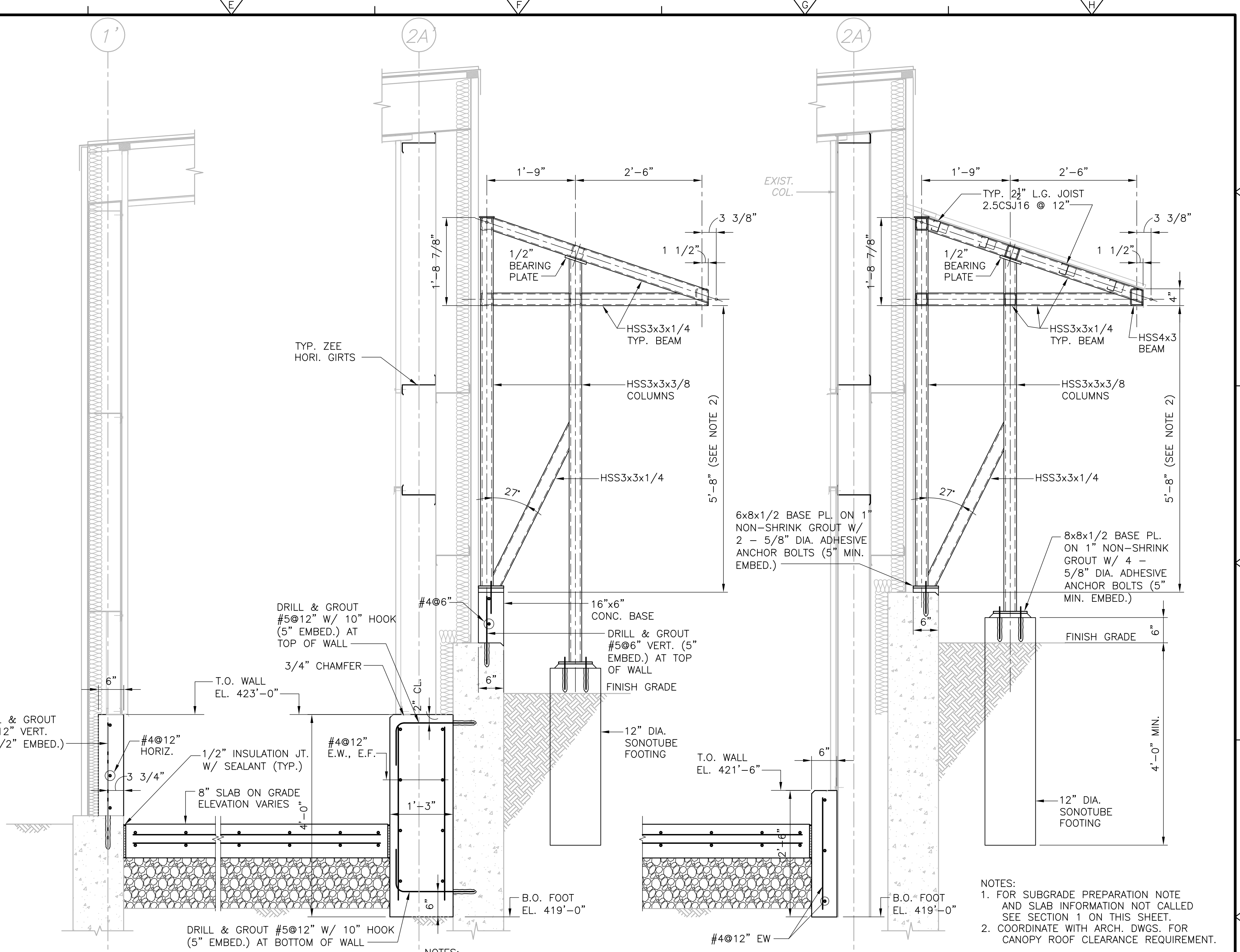


CANOPY LOW ROOF PLAN
1/4" = 1'-0"



SECTION 1
3/4" = 1'-0"

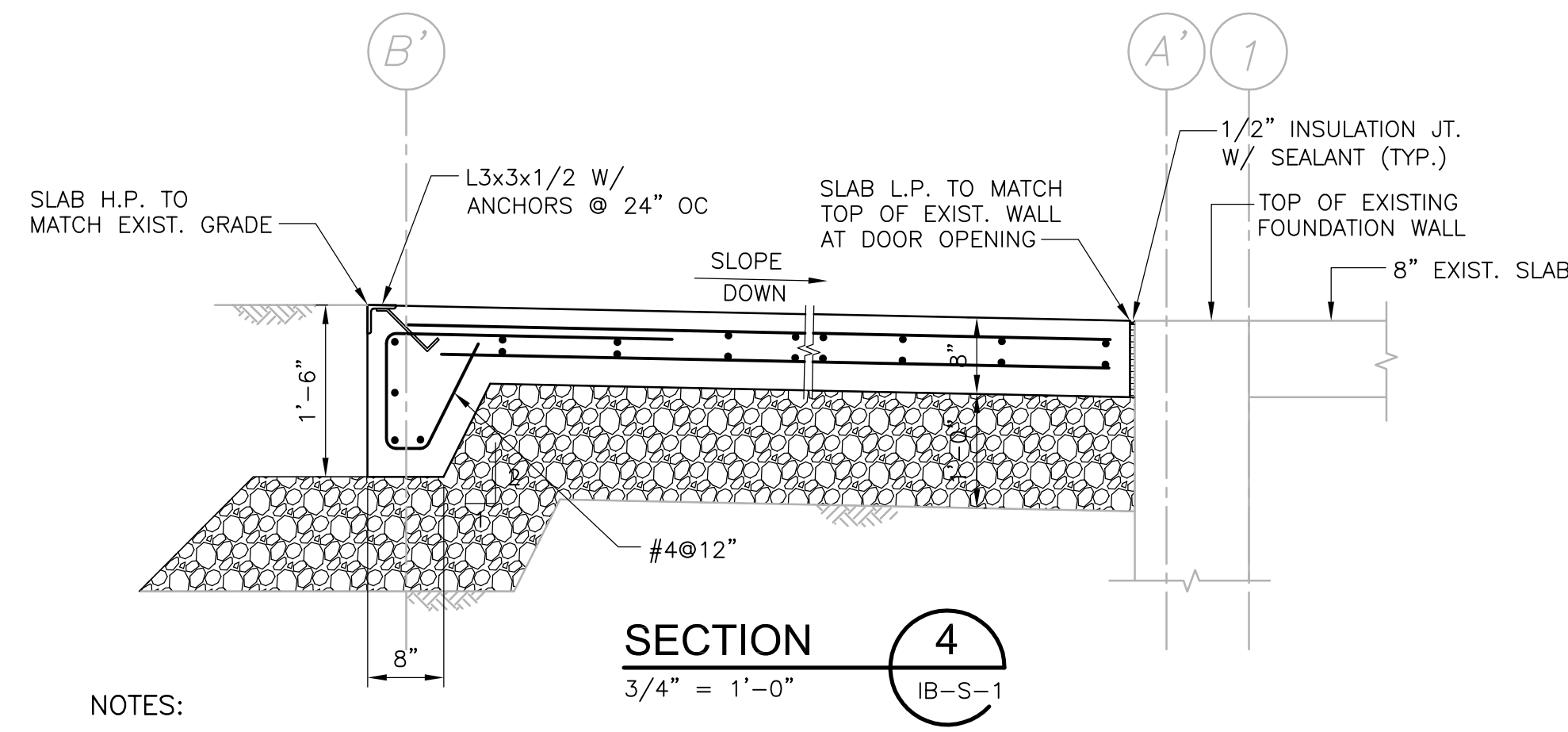
NOTES:
1. COORDINATE WITH NEW CONTROL PANEL LOCATION REQUIREMENT.
2. COORDINATE WITH ARCH. DWGS. FOR CANOPY ROOF CLEARANCE REQUIREMENT.



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

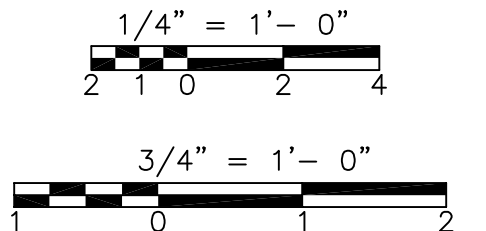
NOTES:
1. FOR SUBGRADE PREPARATION NOTE AND SLAB INFORMATION NOT CALLED SEE SECTION 1 ON THIS SHEET.
2. COORDINATE WITH ARCH. DWGS. FOR CANOPY ROOF CLEARANCE REQUIREMENT.

SECTION 3
3/4" = 1'-0"



SECTION 4
3/4" = 1'-0"

NOTES:
1. BELOW THE CONCRETE SLAB PROVIDE A MINIMUM 12 INCHES OF GRAVEL FILL EXTEND LATERALLY BEYOND THE LIMITS OF THE FOUNDATION CONCRETE A DISTANCE EQUAL TO THE DEPTH OF THE FILL PLUS 1 FEET IN ALL PLAN DIRECTIONS. THE GRAVEL FILL SHOULD BE PLACED IN 6-INCH LIFTS, AND EACH LIFT SHOULD BE COMPACTED TO 95 PERCENT OF THE MAXIMUM MODIFIED PROCTOR DENSITY. PRIOR TO PLACING THE GRAVEL FILL, THE SUBGRADE SHOULD BE PROOF-COMPACTED WITH AT LEAST 6 PASSES OF A 5-TON VIBRATORY ROLLER.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	SIBPLO01
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	JULY 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT NO. 3-0-17512-0033
PROJECT NO. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
ASH GARAGE - PLAN AND SECTIONS
IMPROVEMENTS

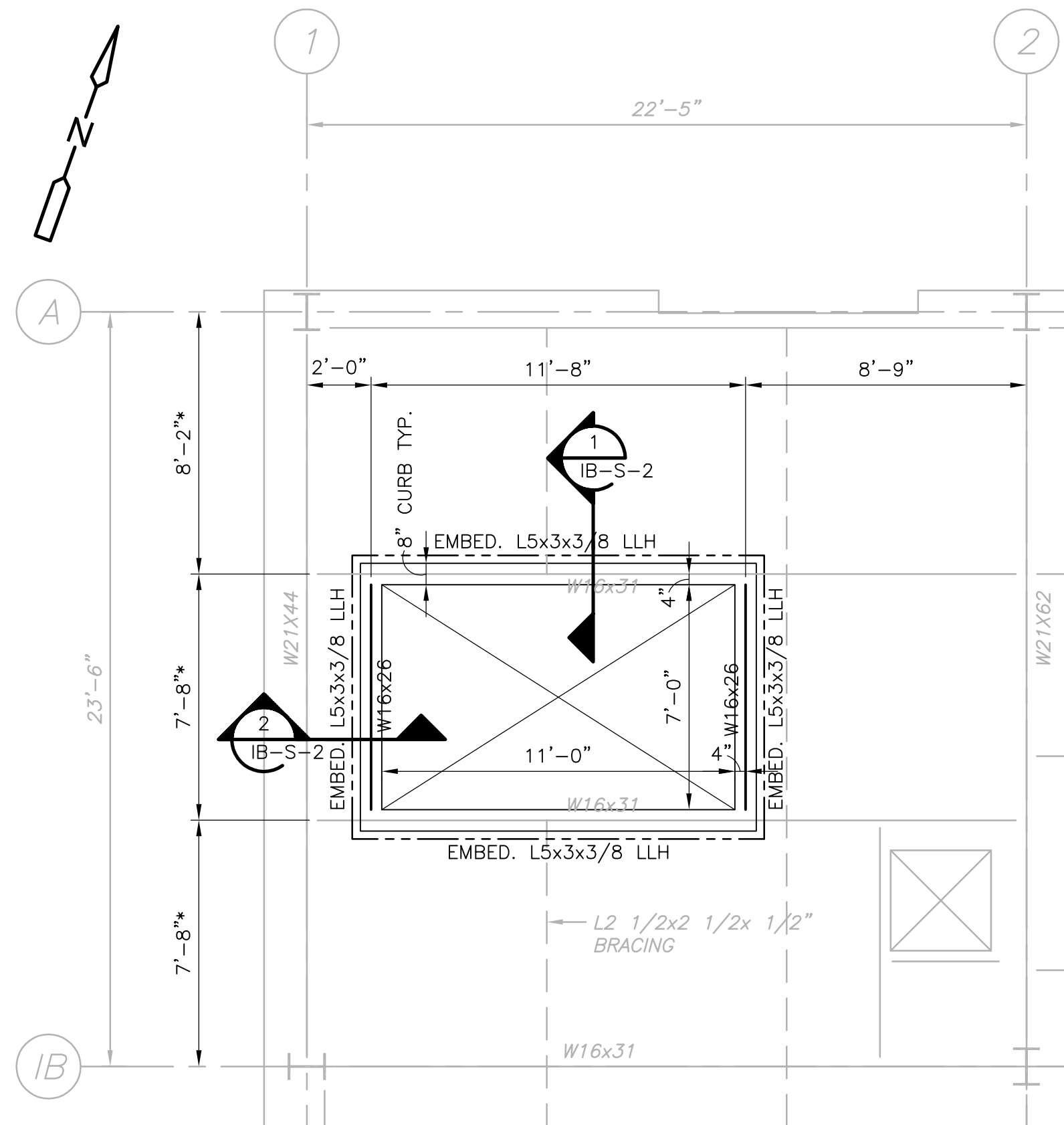
PROJECT NO.
1289-74283

Sht. 83 of 312

IB-S-1

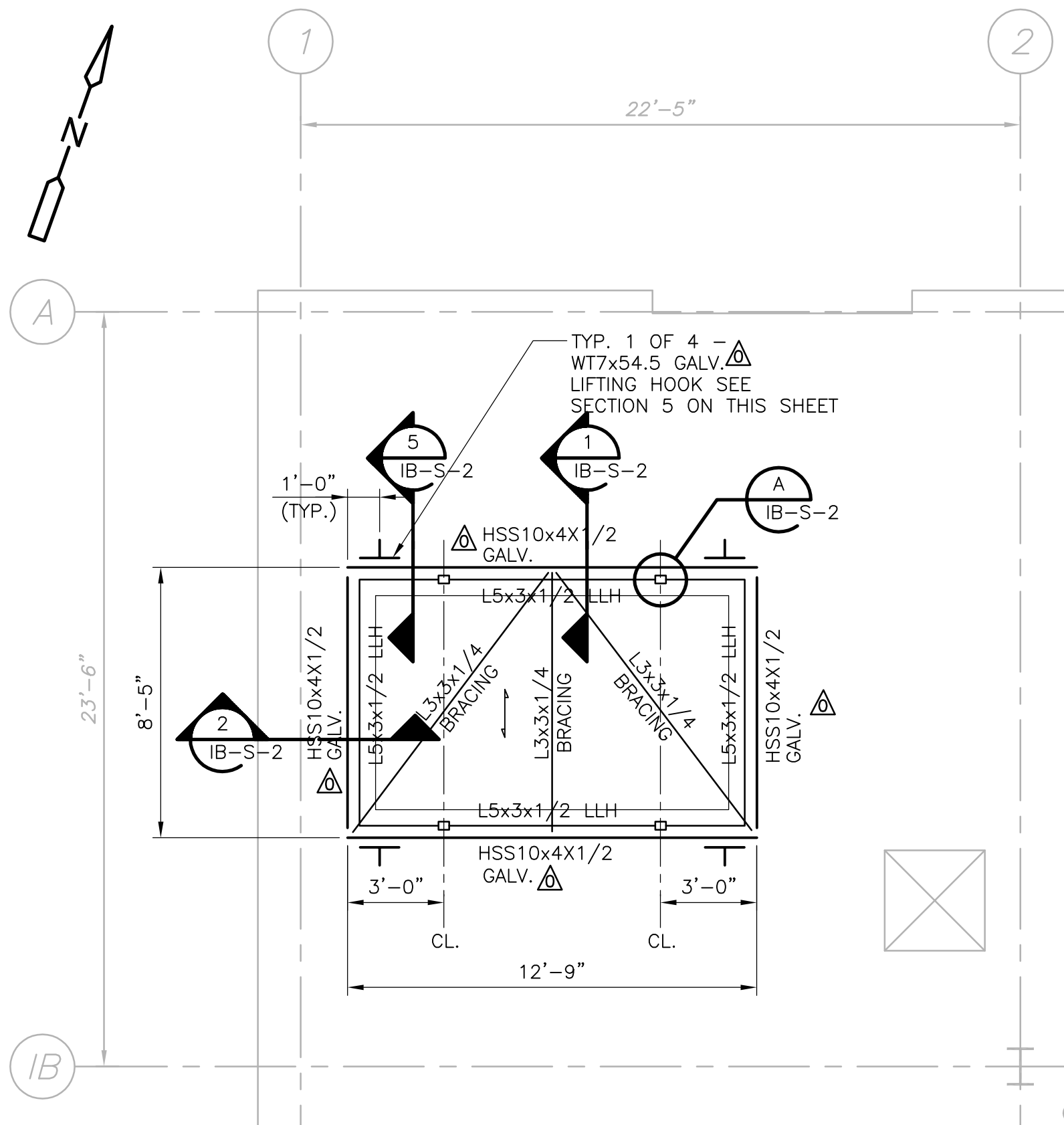
Acc. # 1289-74489

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\CONFORM\STRU\SIBPLOO2.DWG Saved by: R.LAM On: 28-Sep-10 9:35 AM



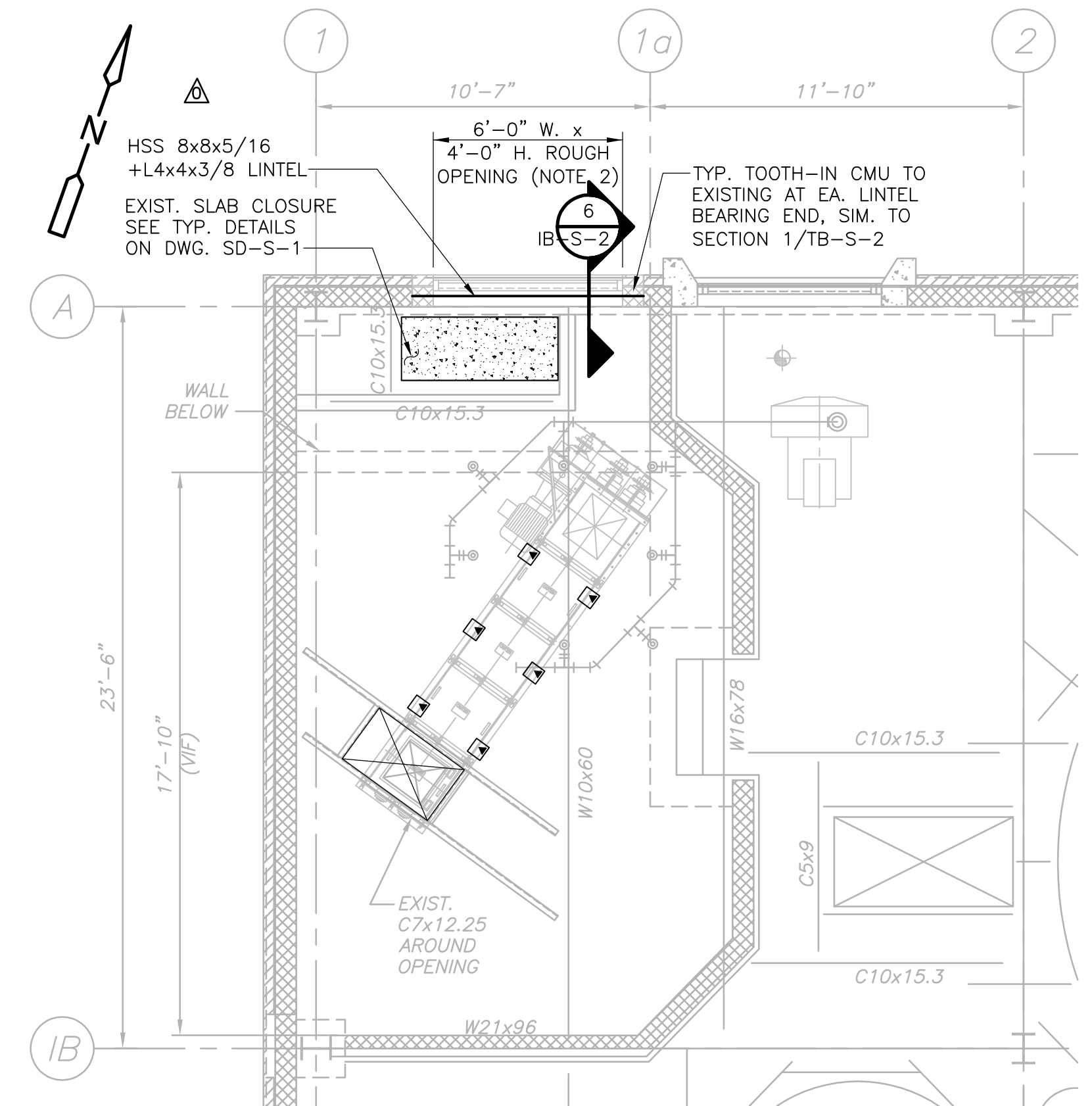
HATCH CURB PLAN
1/4"=1'-0"

- NOTES:**
- (*) ASTERISK INDICATES DIMENSION TO BE FIELD VERIFIED.
 - ALL STEEL SHALL BE GALVANIZED
 - INSTALL W16x26 BEAMS PRIOR TO CUTTING THE EXISTING SLAB.



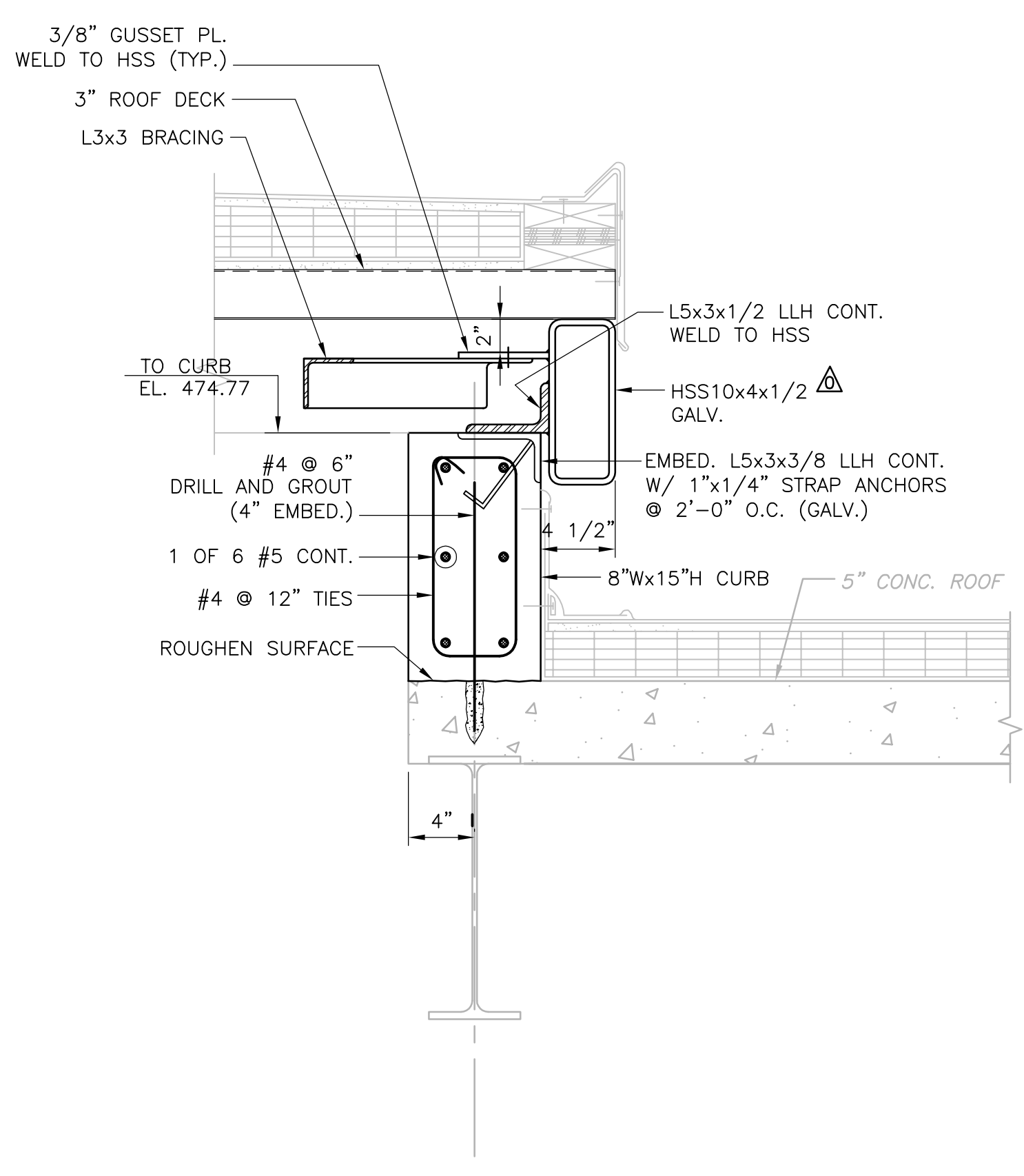
HATCH COVER PLAN
1/4"=1'-0"

- NOTES:**
- INDICATES TYPICAL SPAN DIRECTION 3" TYPE NI 18 GA. ROOF DECK.

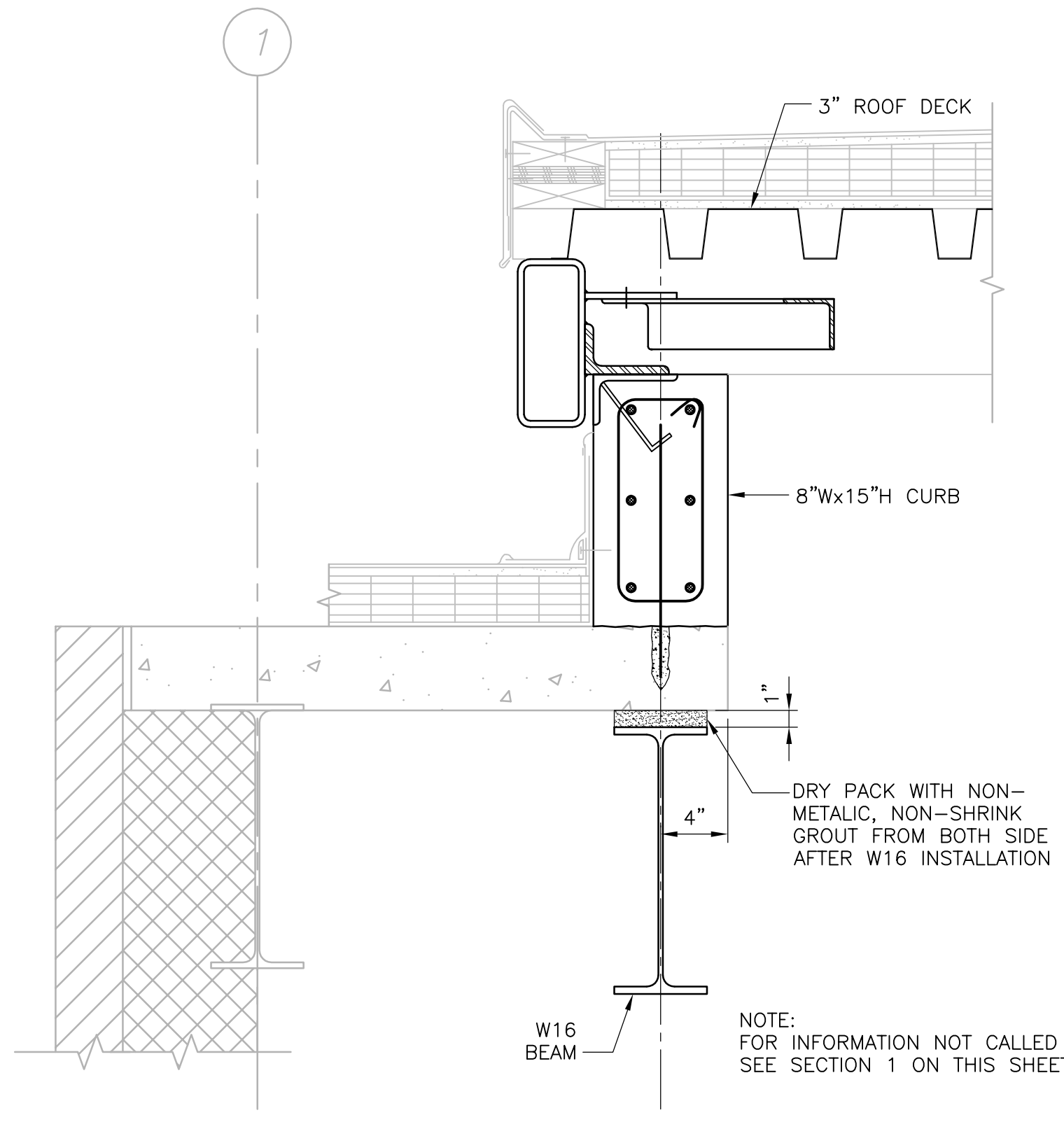


FIRST FLOOR PLAN
1/4"=1'-0"

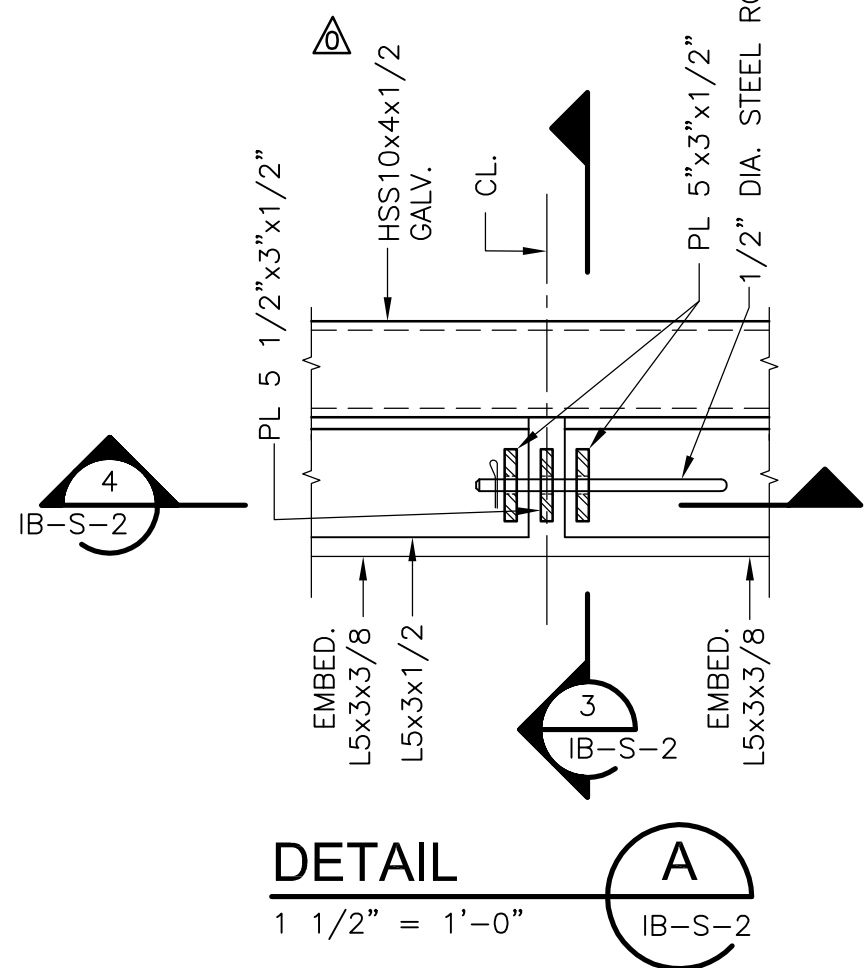
- NOTES:**
- ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2 DRAWINGS.
 - COORDINATE SIZE, LOCATION & DETAIL FOR CMU OPENING WITH ARCH. DWG. IB-A-4.



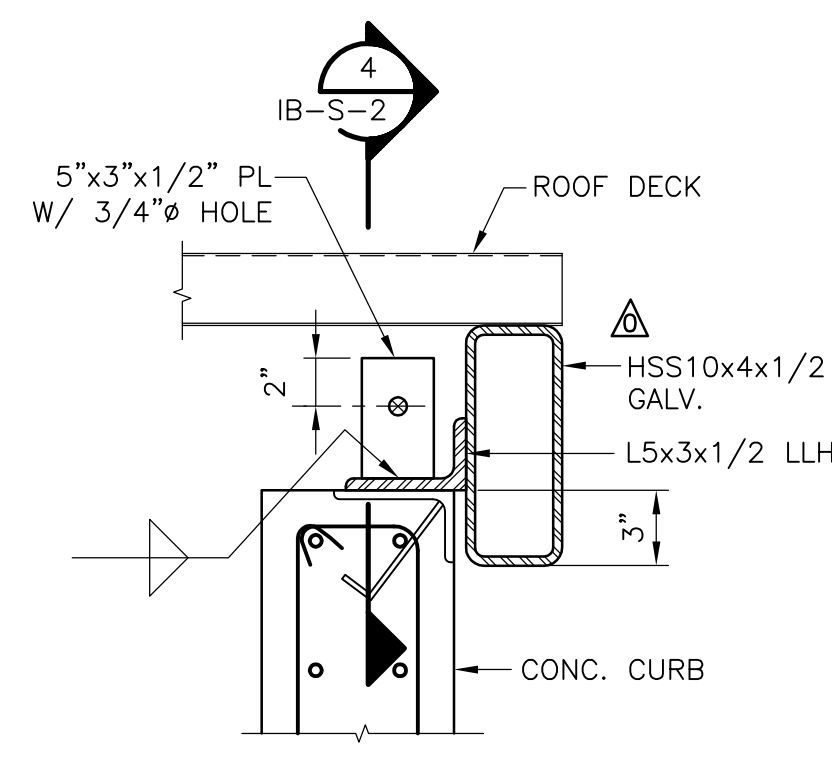
SECTION 1
1 1/2" = 1'-0" IB-S-2



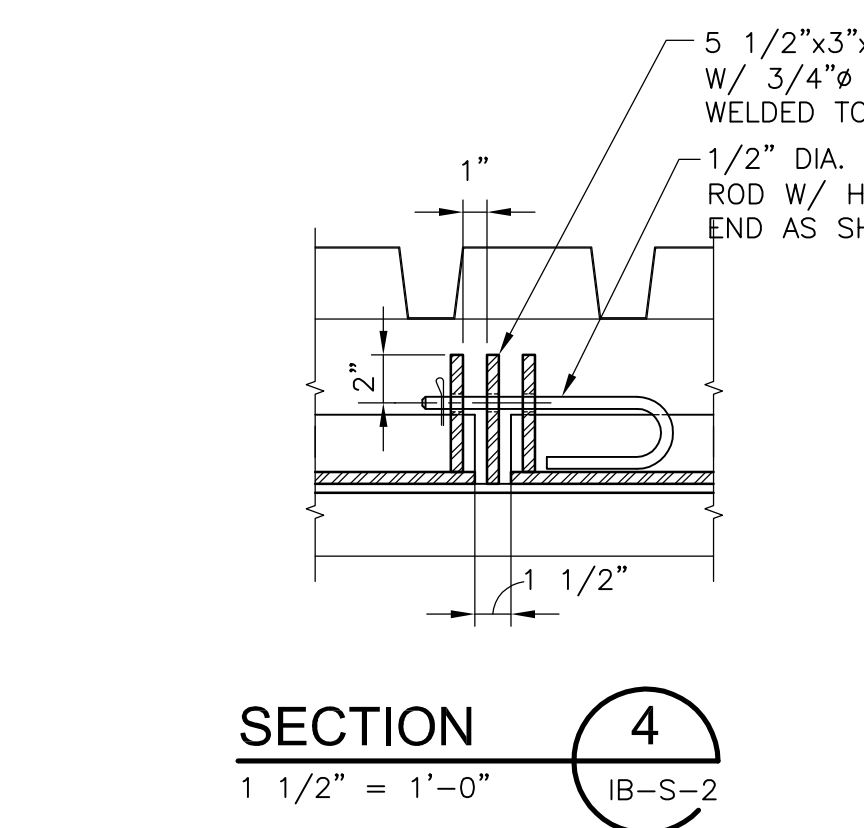
SECTION 2
1 1/2" = 1'-0" IB-S-2



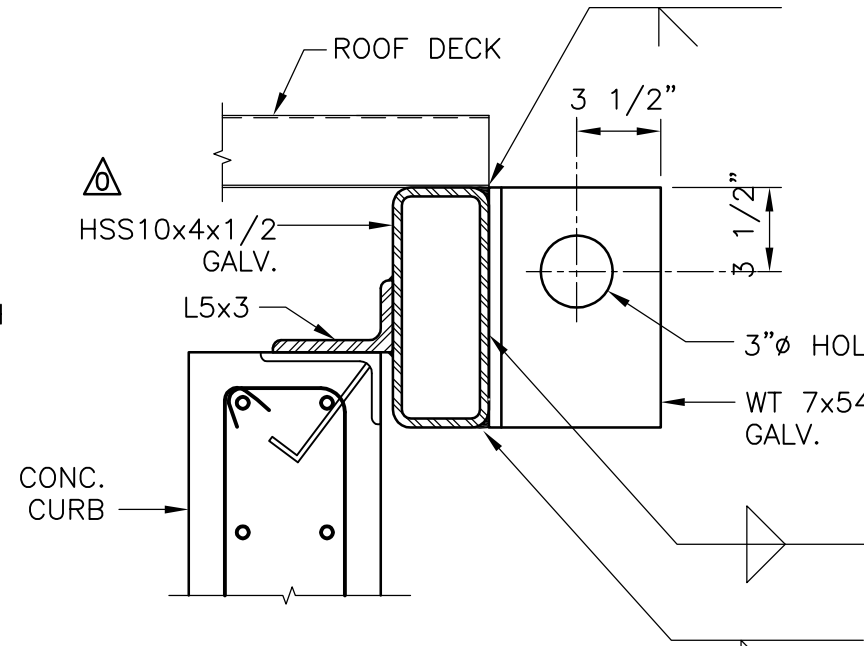
DETAIL A
1 1/2" = 1'-0" IB-S-2



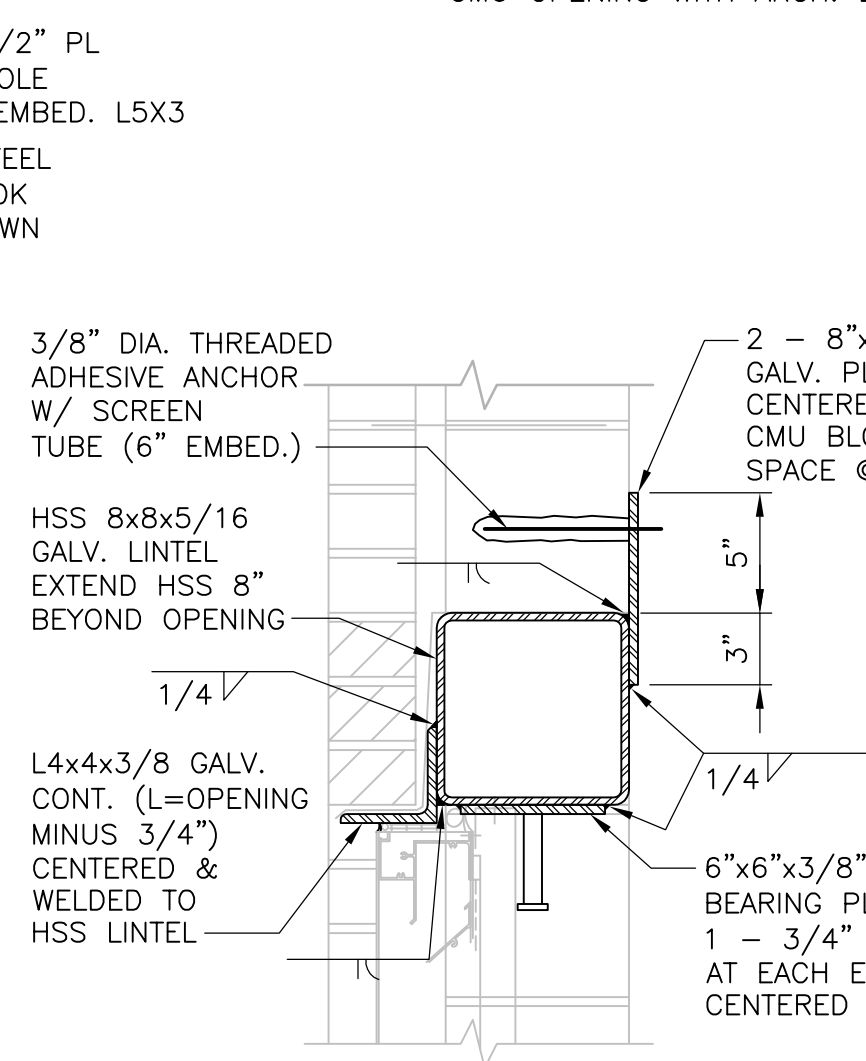
SECTION 3
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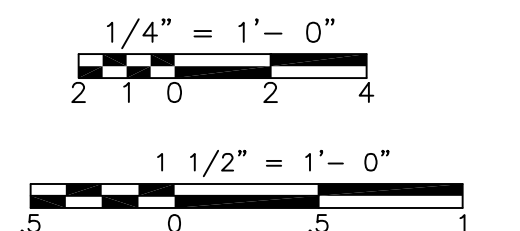
SECTION 4
1 1/2" = 1'-0" IB-S-2



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



SECTION 6
1 1/2" = 1'-0" IB-S-2



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SIBPLOO2
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

PROJECT NO.	1289-74283
PROJECT NAME	UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT NO. 3-0-17512-0033
PROJECT NO. CWSRF - 3197

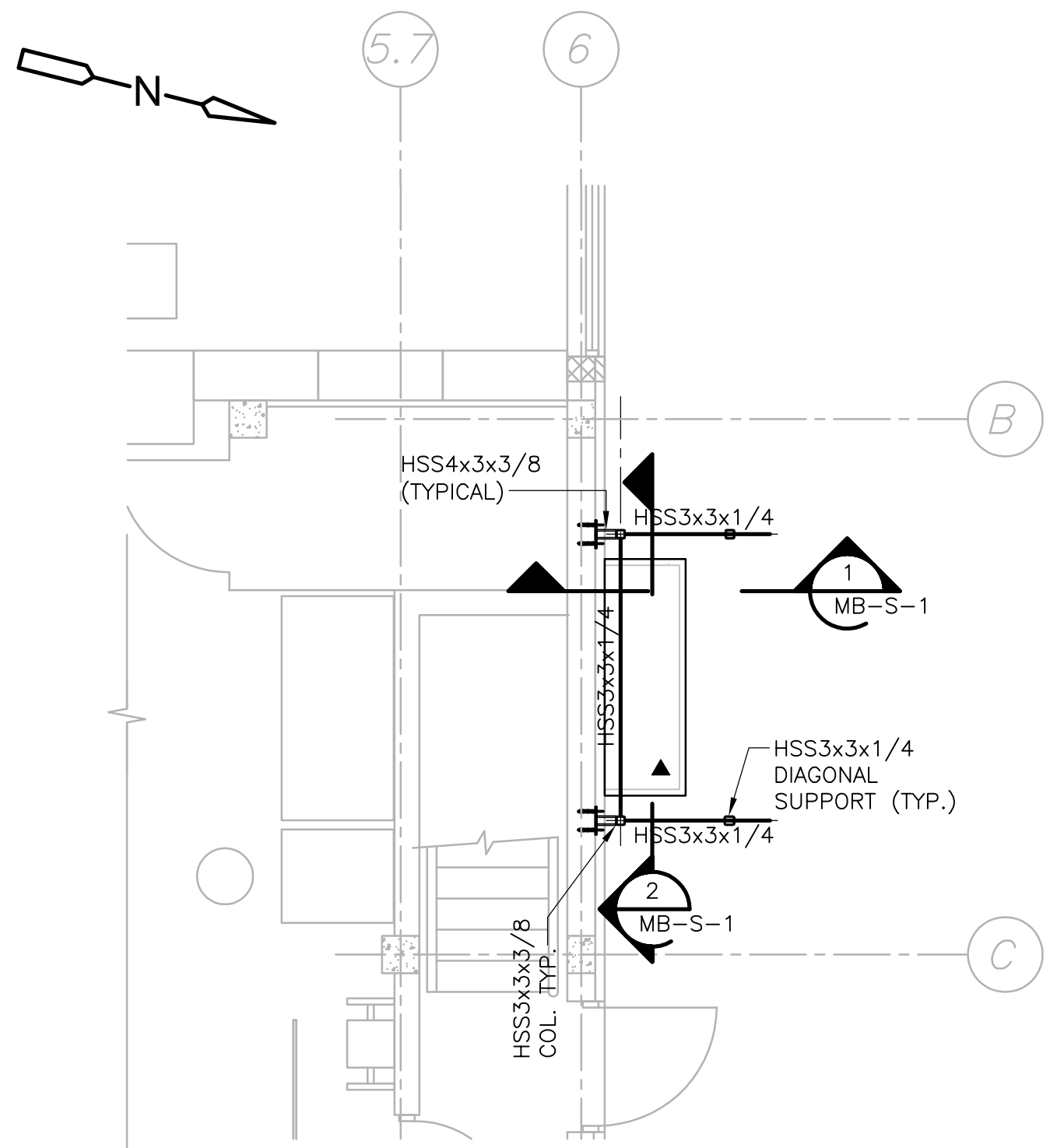
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
FIRST FLOOR, ROOF PLANS AND SECTIONS
IMPROVEMENTS**

PROJECT NO.	1289-74283
Sht.	84 of 312
IB-S-2	
Acc #	1289-74490

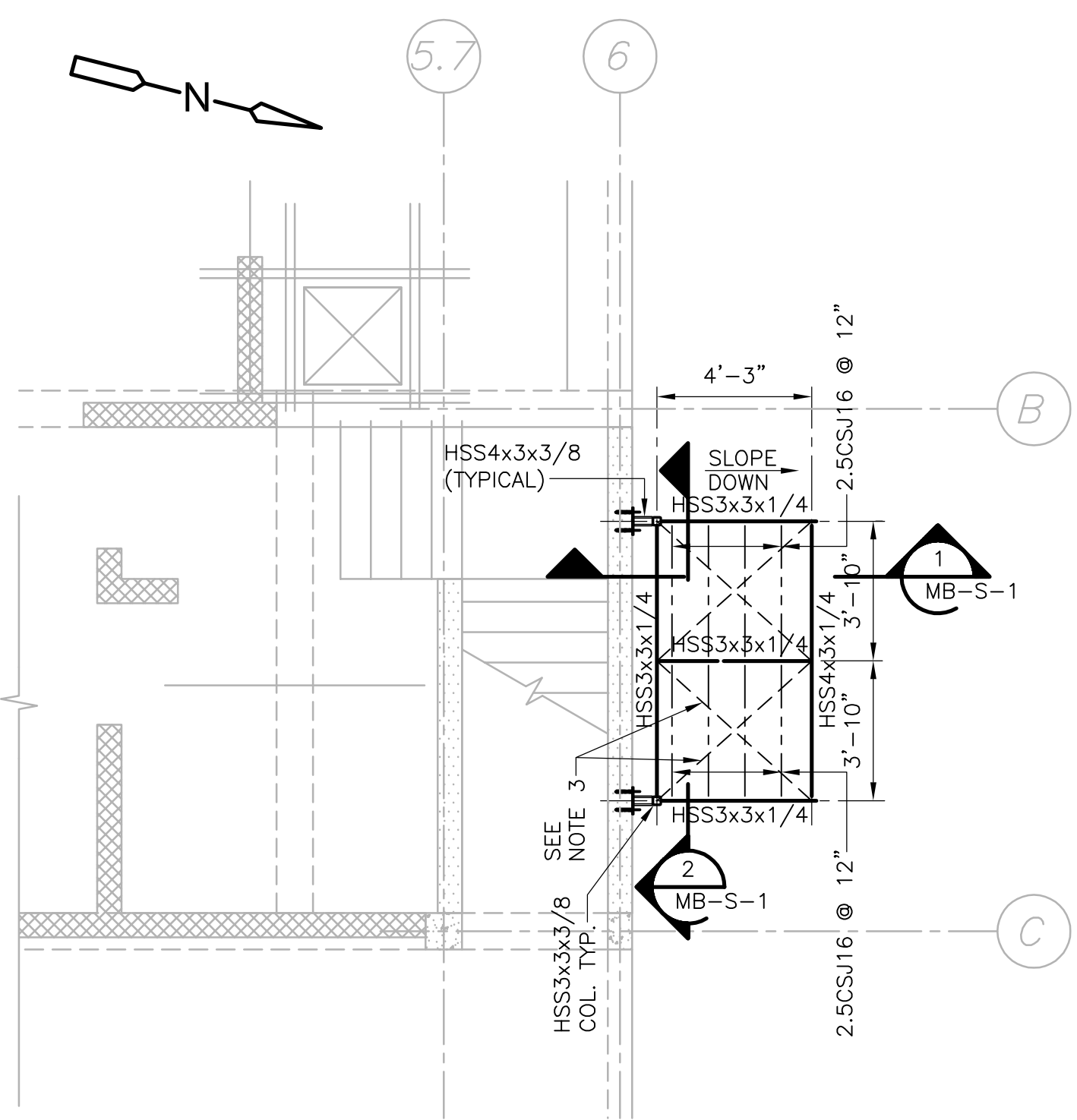
CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT\DWG\SD\WSP-3000.dwg (PLOT) 9/7/2006 9:29:48 AM
 [UPPER BLACKSTONE WPAD - PHASE II]



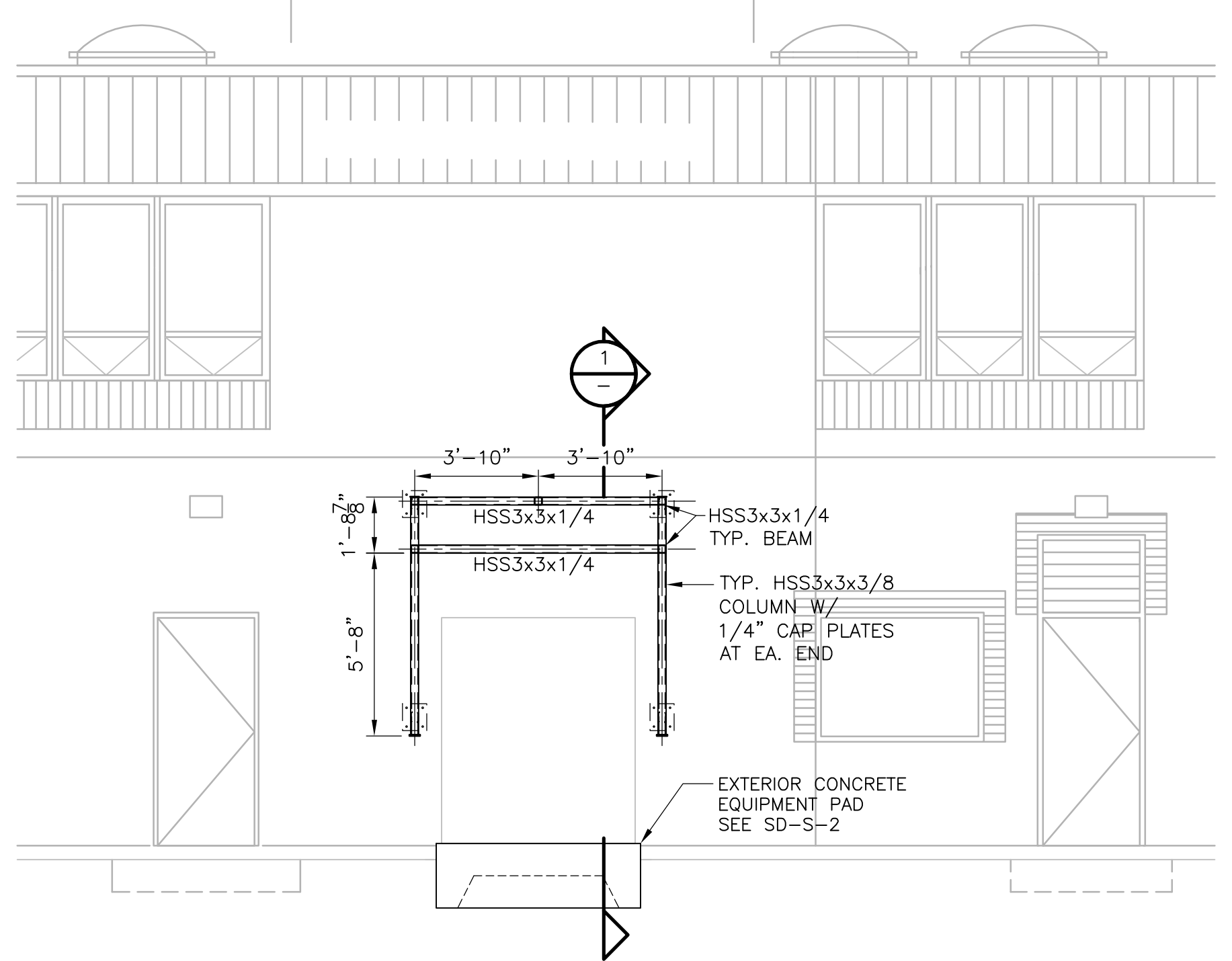
FIRST FLOOR PLAN
PLAN
 1/4" = 1'-0"

- NOTES:
 1. ▲ INDICATES CONCRETE EQUIPMENT PAD. SIZE AND LOCATION PER EQUIPMENT MANUFACTURER. SEE TYPICAL DETAIL ON SD-S-2.
 2. VERIFY EXISTING CONDITION PRIOR TO ANY STEEL FABRICATION.

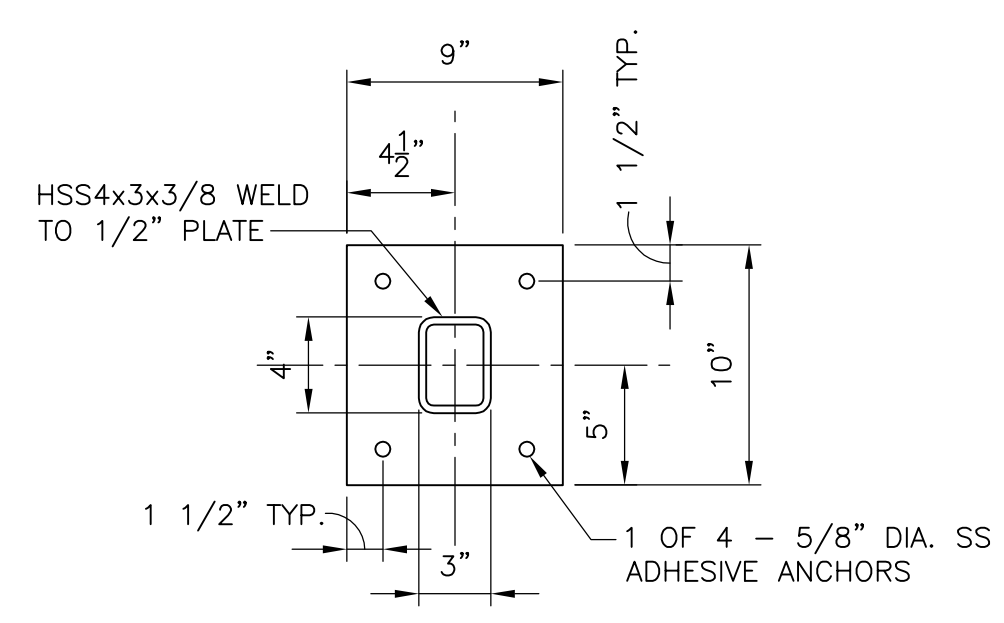


UPPER PLAN
PLAN
 1/4" = 1'-0"

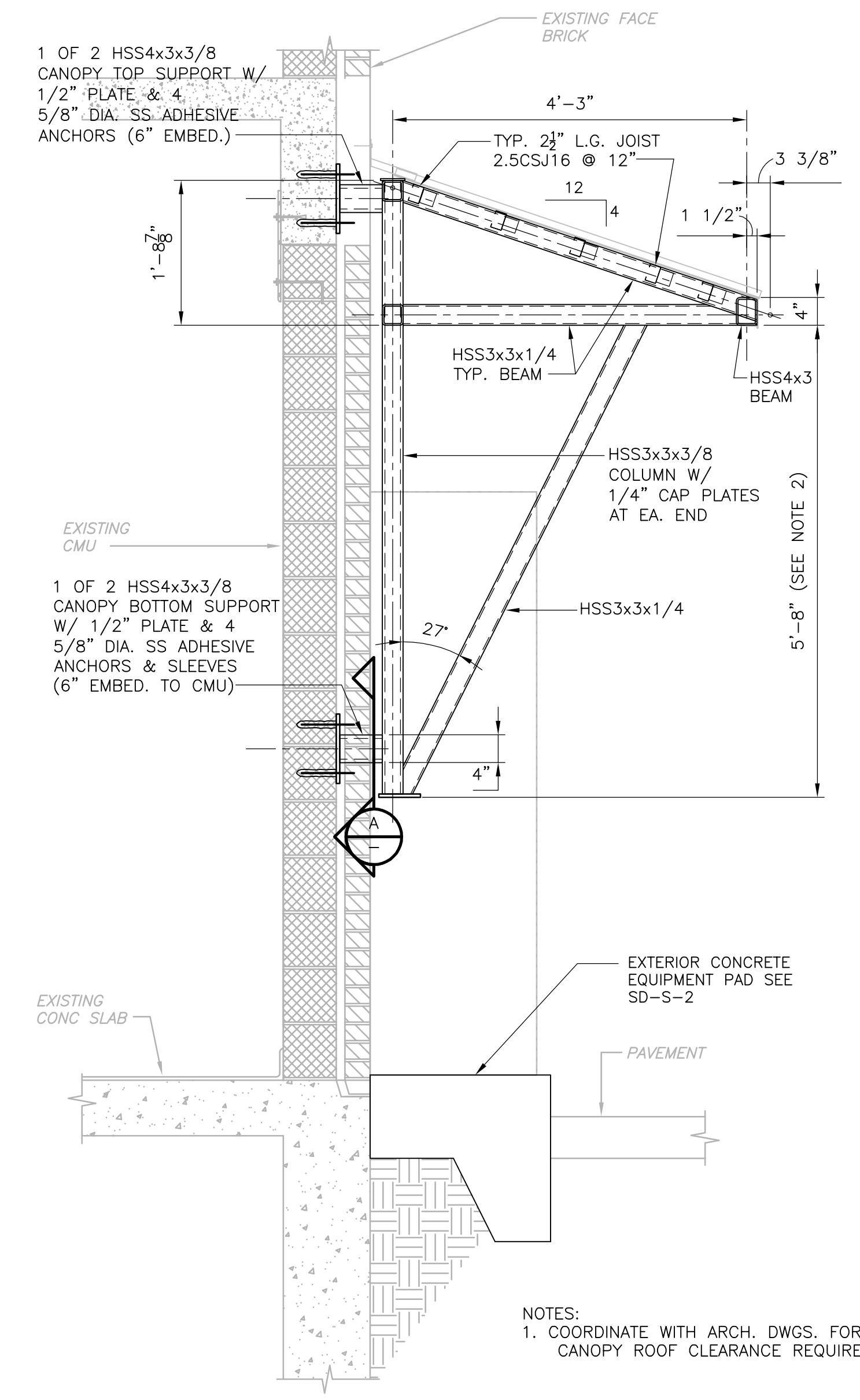
- NOTES:
 1. USE FULL WELD AND GRIND SMOOTH FOR STEEL TUBE CONNECTION. SHOP WELD WHEN POSSIBLE AND FIELD WELD WHEN REQUIRED.
 2. ALL STEEL TO BE GALVANIZED.
 3. PROVIDE TYPICAL L.G. 16 GA. CROSS STRAPS FASTEN TO L.G. JOIST & STEEL BEAMS.



NORTH ELEVATION SECTION 2
 1/4" = 1'-0"

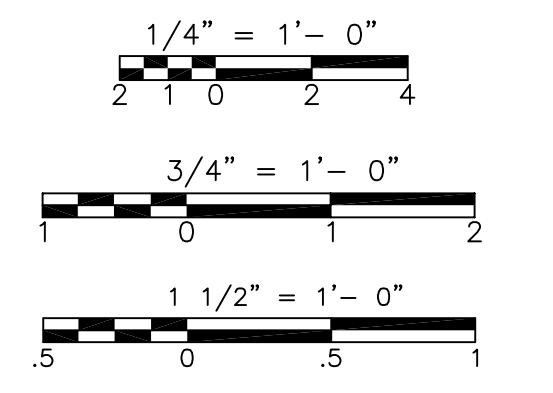


CANOPY SUPPORT DETAIL A
 1 1/2" = 1'-0"



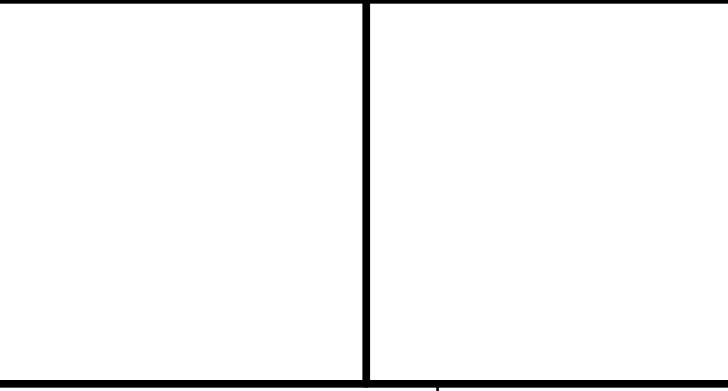
WALL SECTION 1
 3/4" = 1'-0"

- NOTES:
 1. COORDINATE WITH ARCH. DWGS. FOR CANOPY ROOF CLEARANCE REQUIREMENT.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. SMBPL100.dwg
 DESIGNED BY: G. KARJADI
 DRAWN BY: R. LAM
 SHEET CHK'D BY: G. KARJADI
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: R. LIE
 DATE: JULY 2010



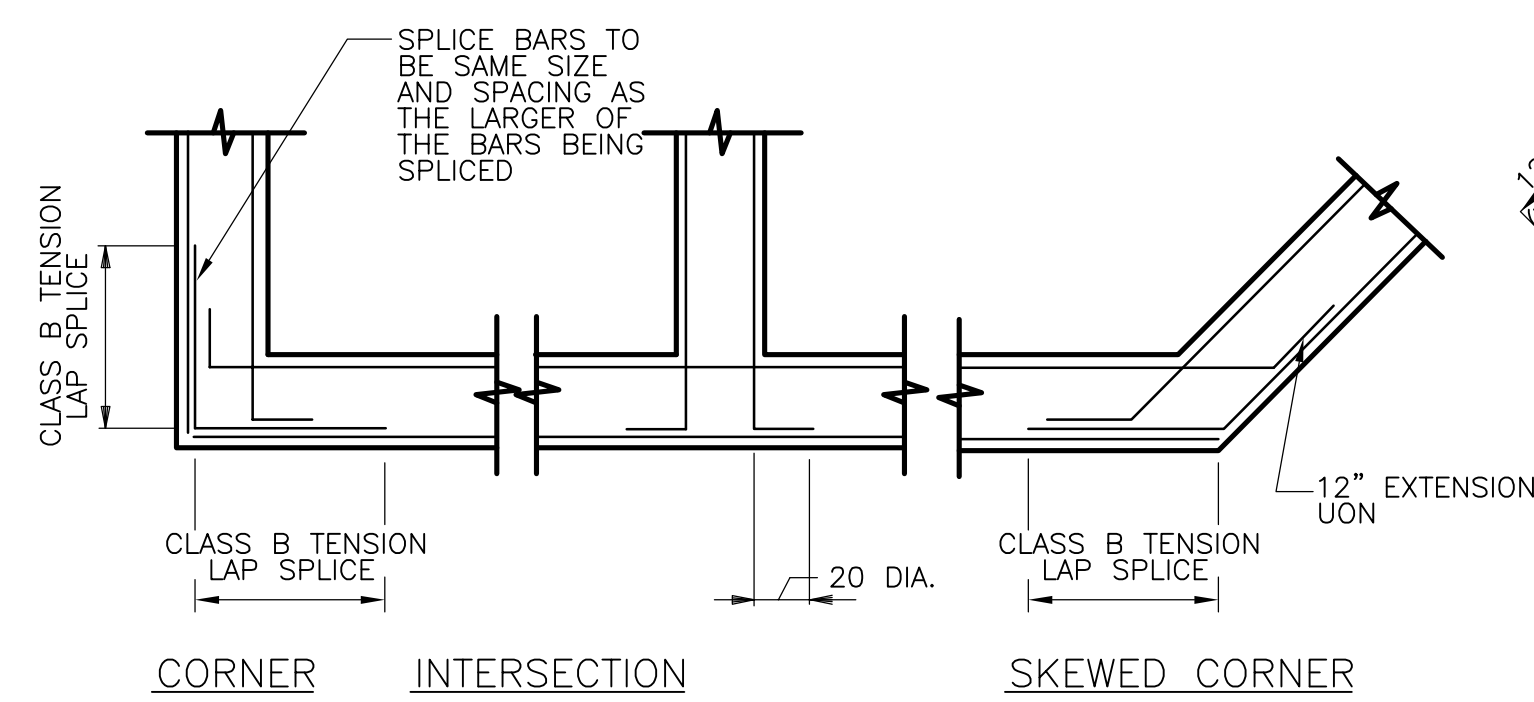
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

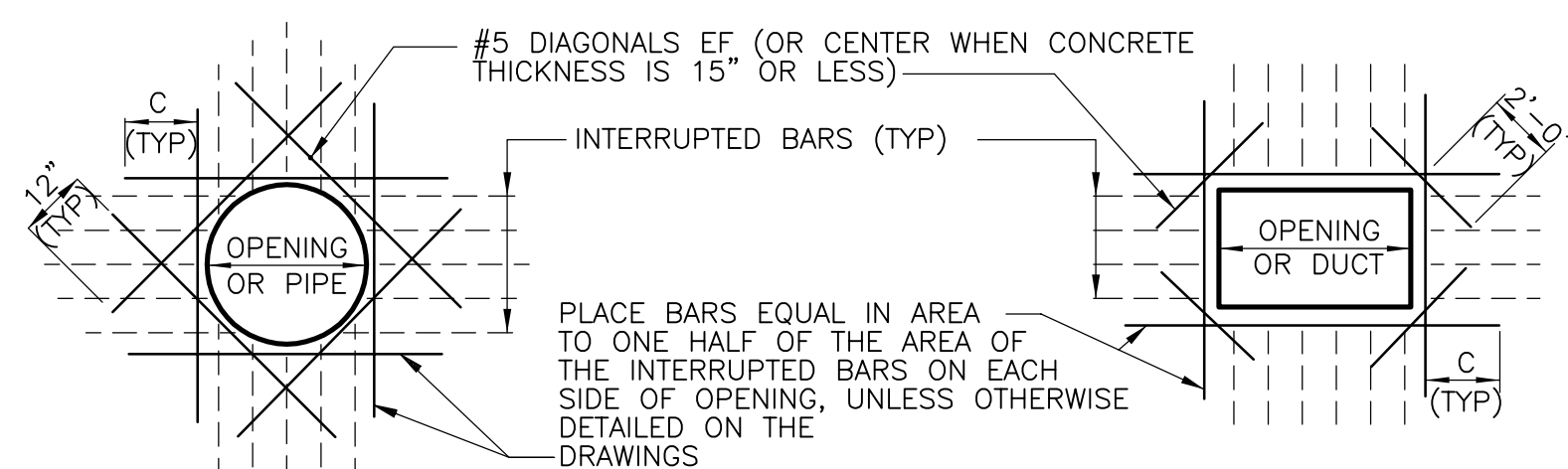
MAINTENANCE BUILDING CANOPY PLANS AND SECTIONS IMPROVEMENTS

PROJECT NO. 1289-74283
 Sht. 85 of 312
MB-S-1
 Acc # 1289-74491

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)\PHASE III\STRU\SSDDT001.DWG Saved by: GKARJADI On: 6-Jul-10 10:38 AM

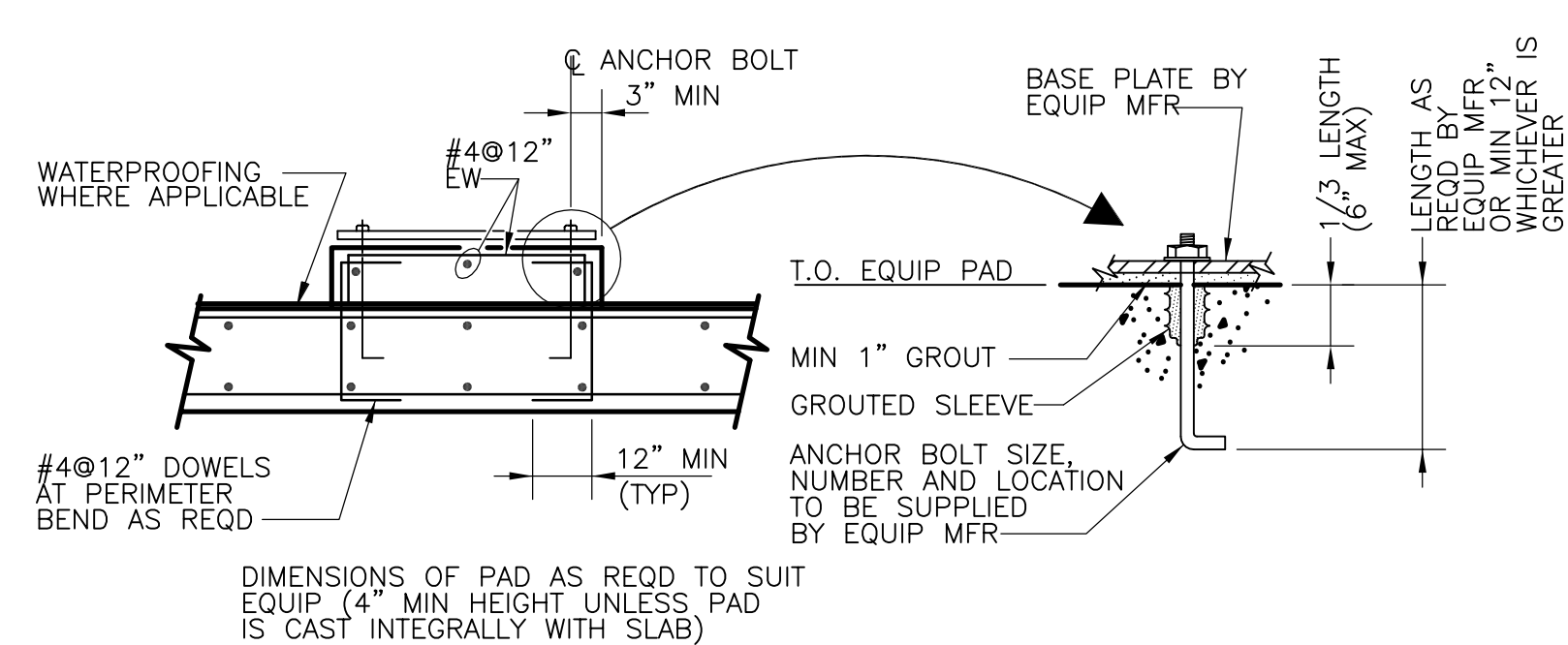


WALL REINFORCEMENT DETAIL
NTS

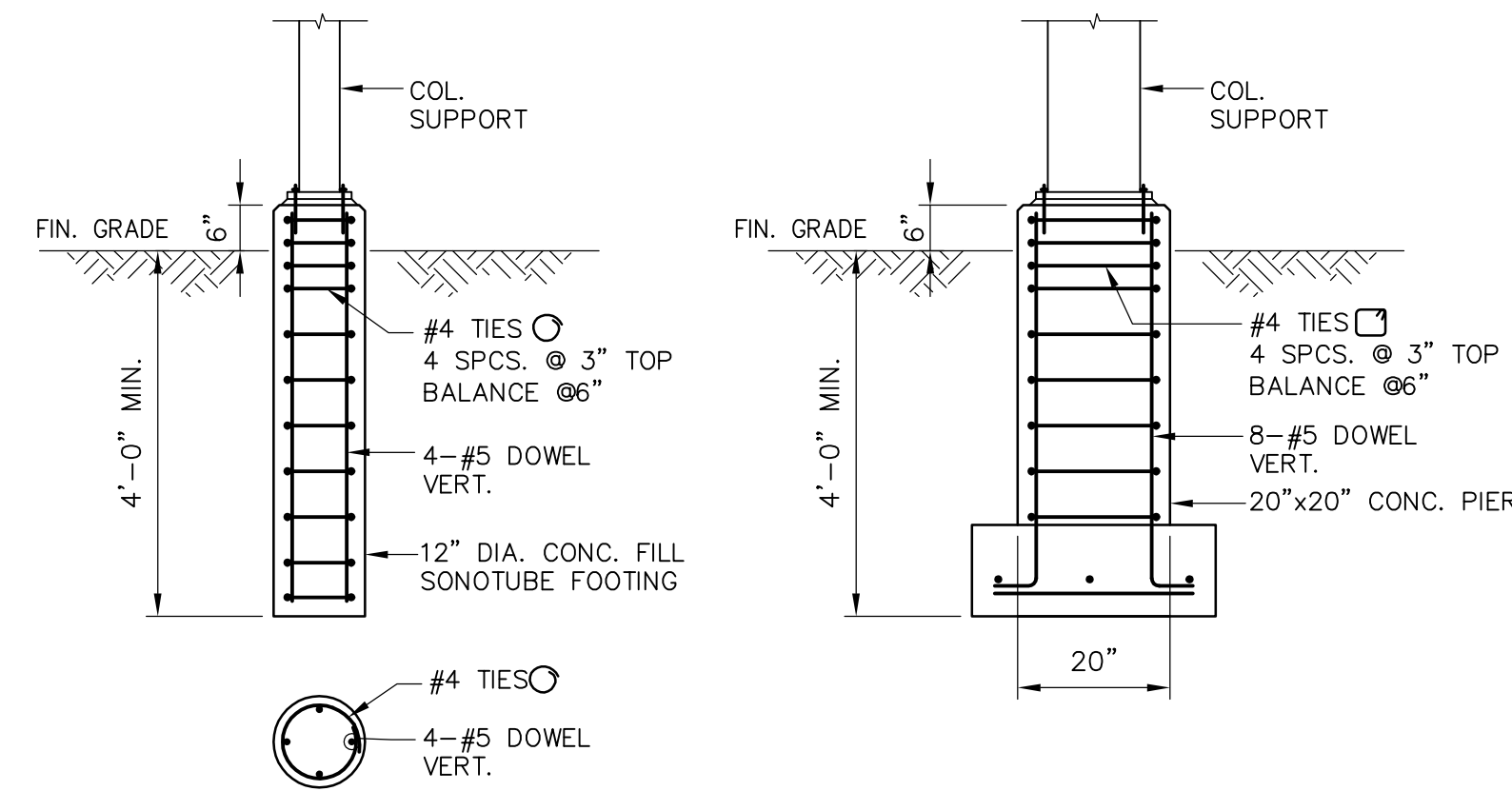


REINFORCEMENT AT OPENINGS
NTS

NOTES:
1. DETAIL IS TYP FOR ALL OPENINGS 15" AND GREATER IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE NOTED. SPREAD REINF AT SMALLER OPENINGS.
2. BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM
3. C = TENSION DEVELOPMENT LENGTH. PROVIDE STD HOOK IF FULL DEVELOPMENT LENGTH IS NOT POSSIBLE
4. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS

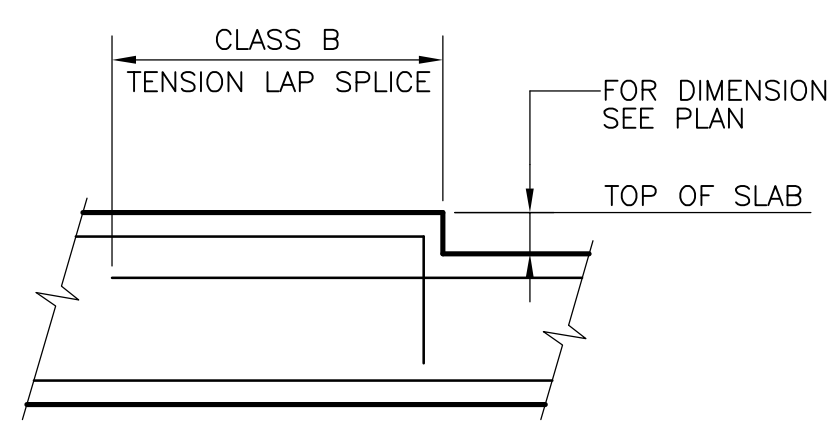


EQUIPMENT PAD
NTS

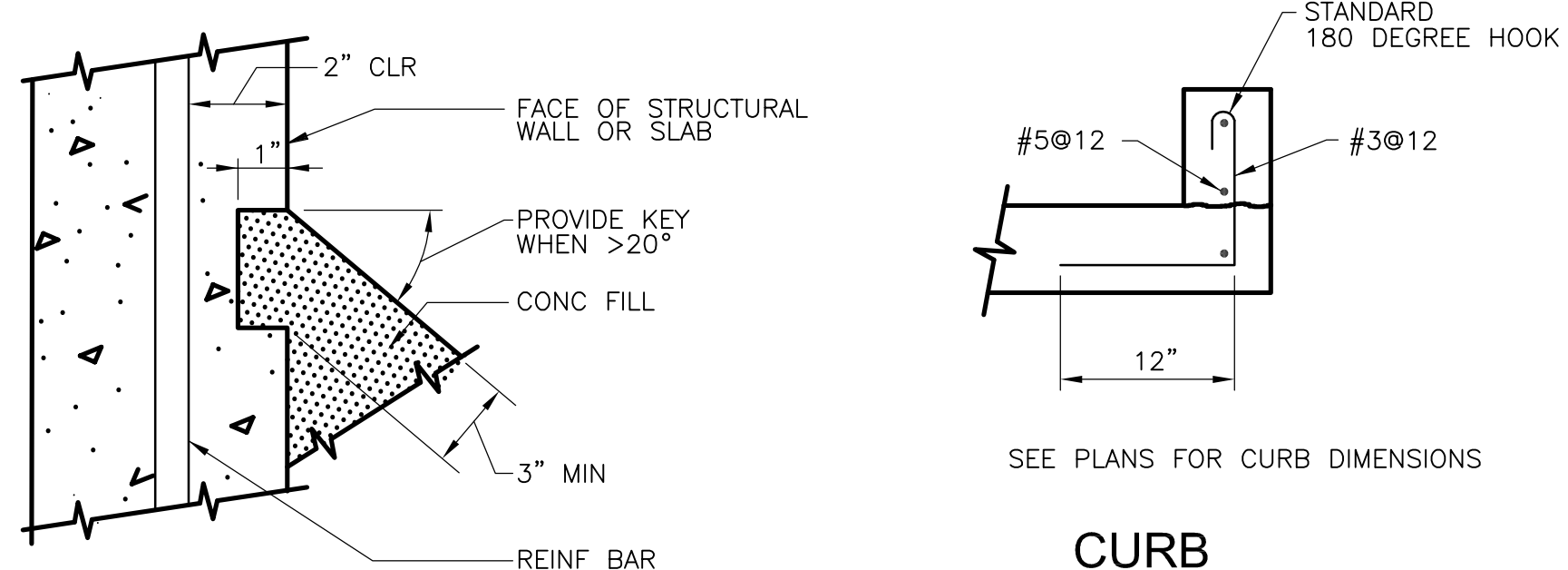


SONOTUBE FOOTING
NTS

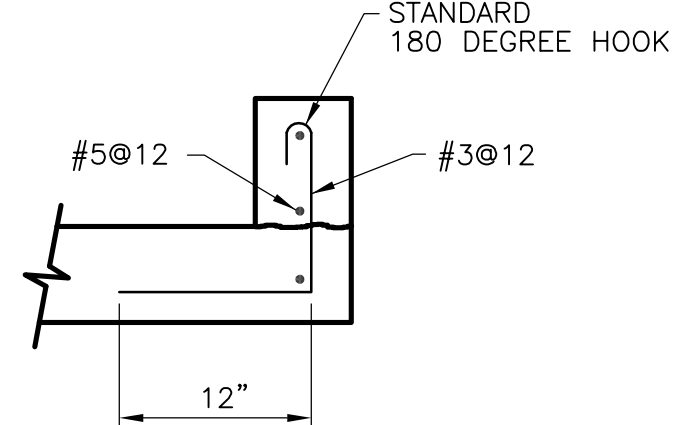
CONC. PIER FOOTING
NTS



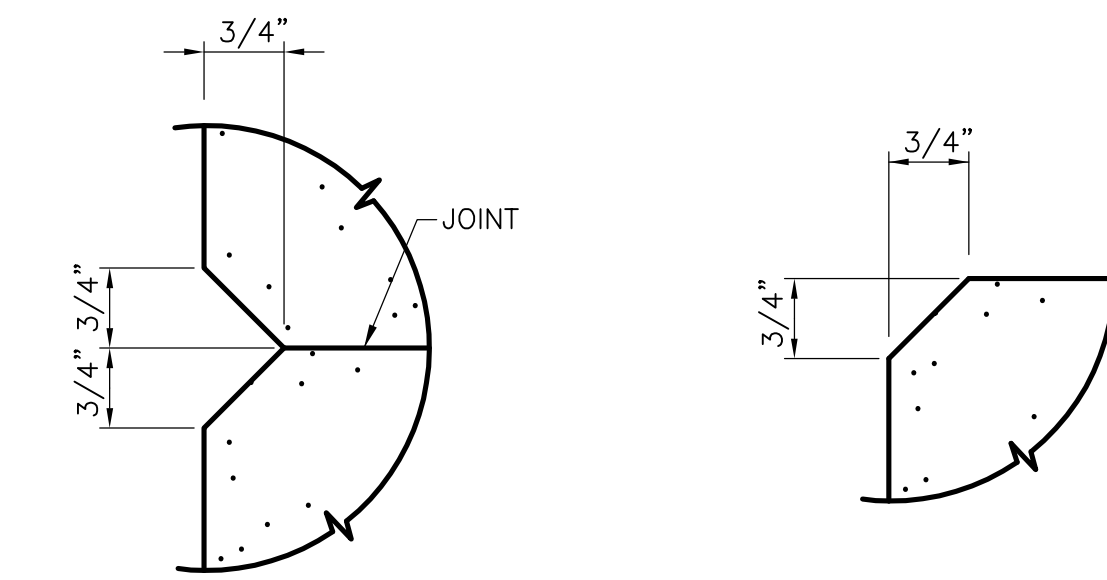
SLAB DEPRESSION
NTS



CONCRETE FILL KEY
NTS

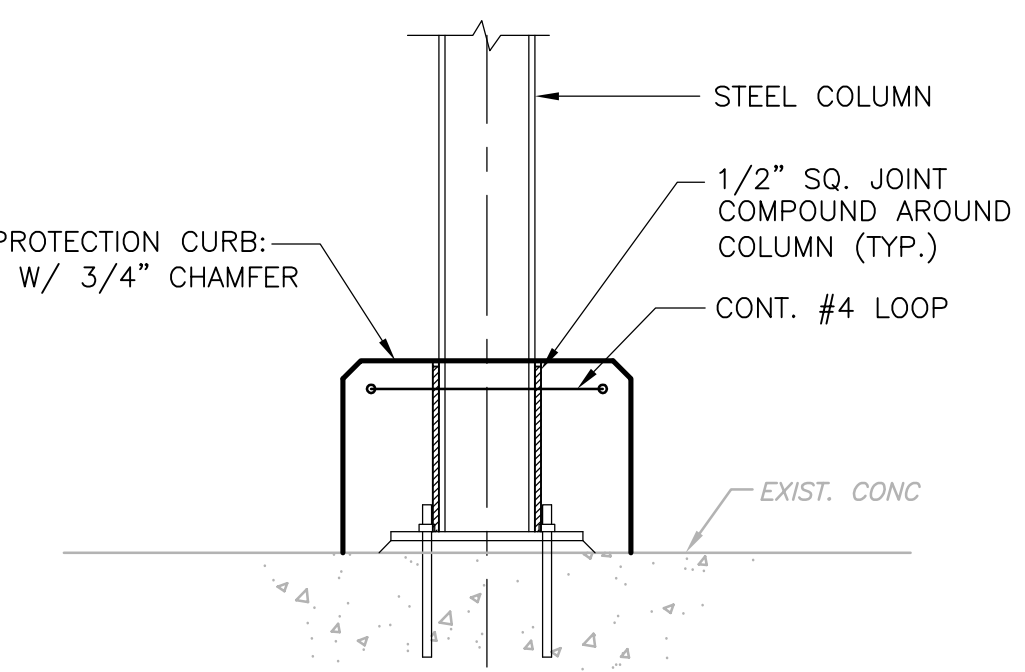


CURB
NTS

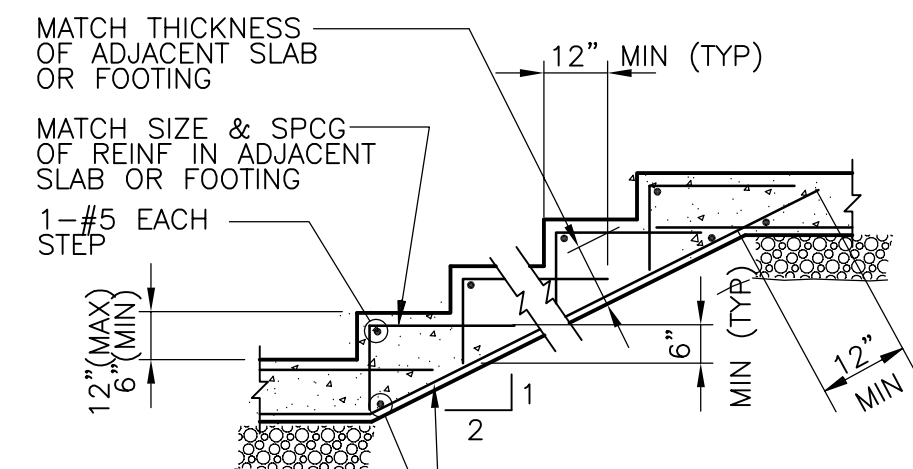


V-GROOVE JOINT
NTS

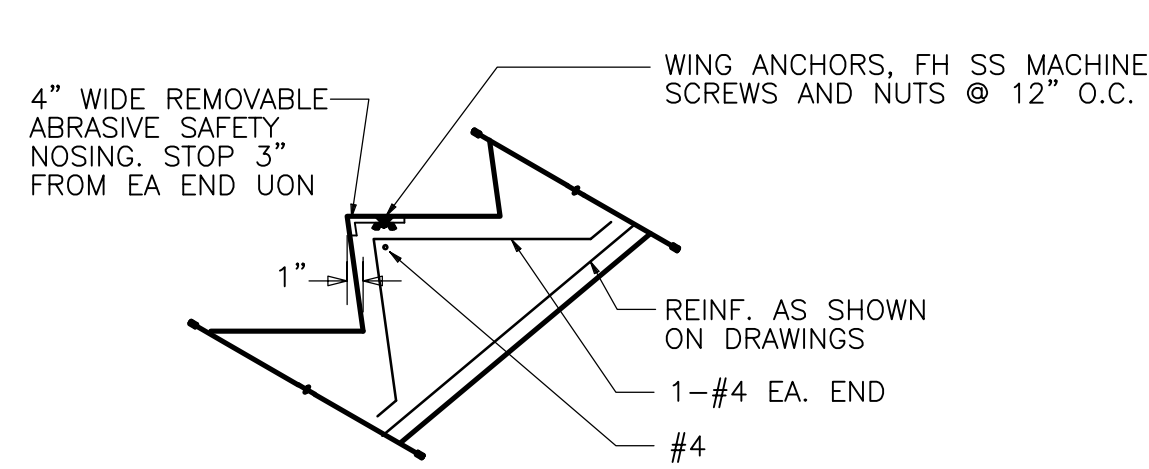
CHAMFER
NTS



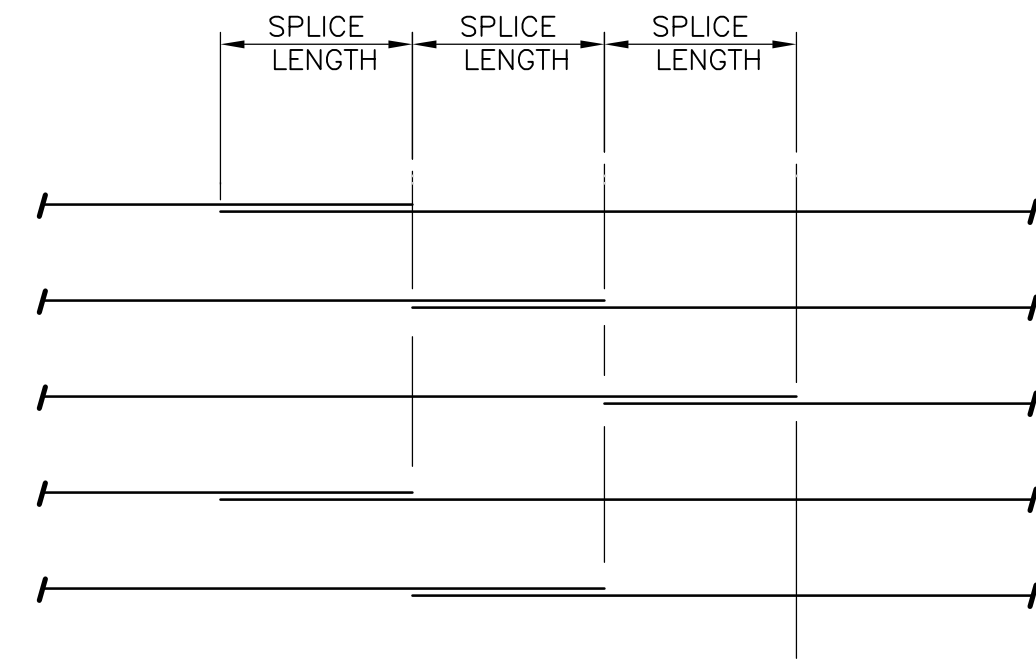
PROTECTION CURB ON EXIST SLAB
NTS



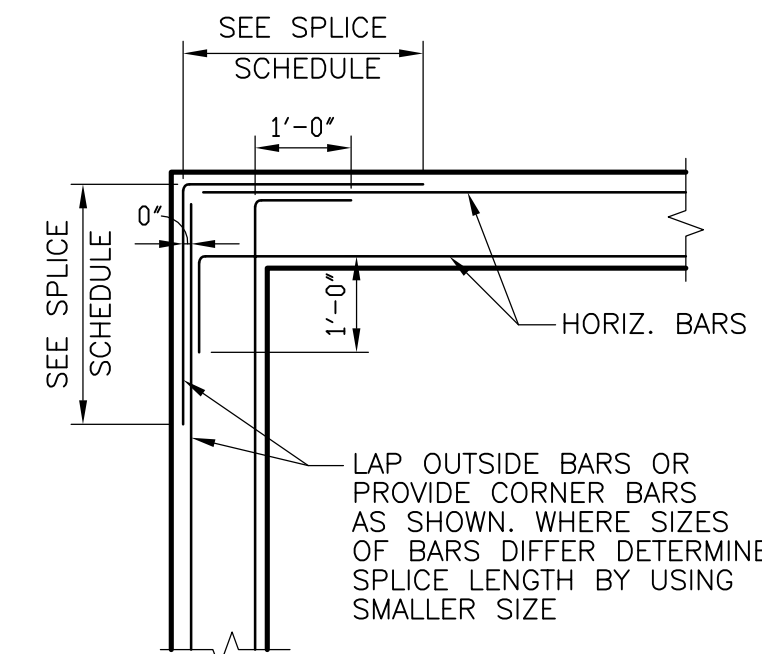
STEPPED FOOTING
NTS



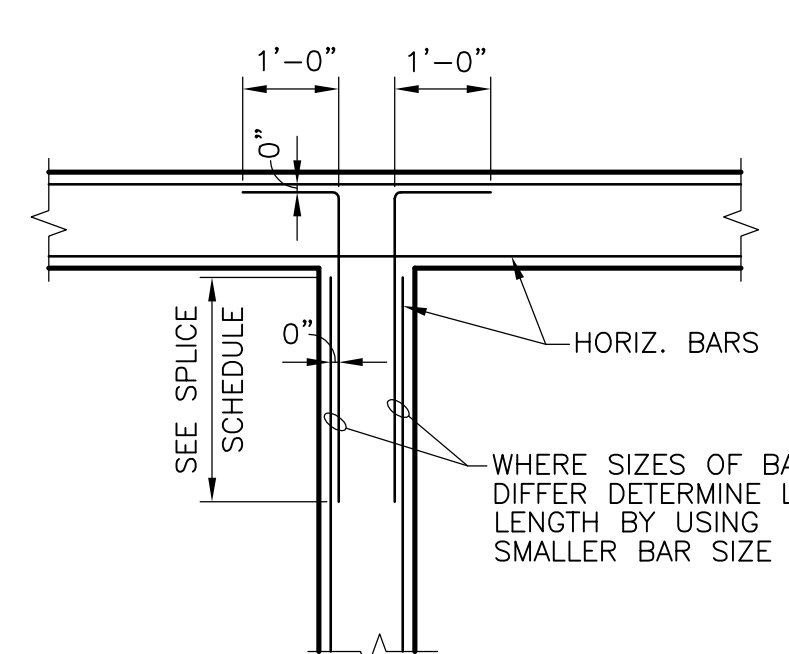
CONCRETE STEP
NTS



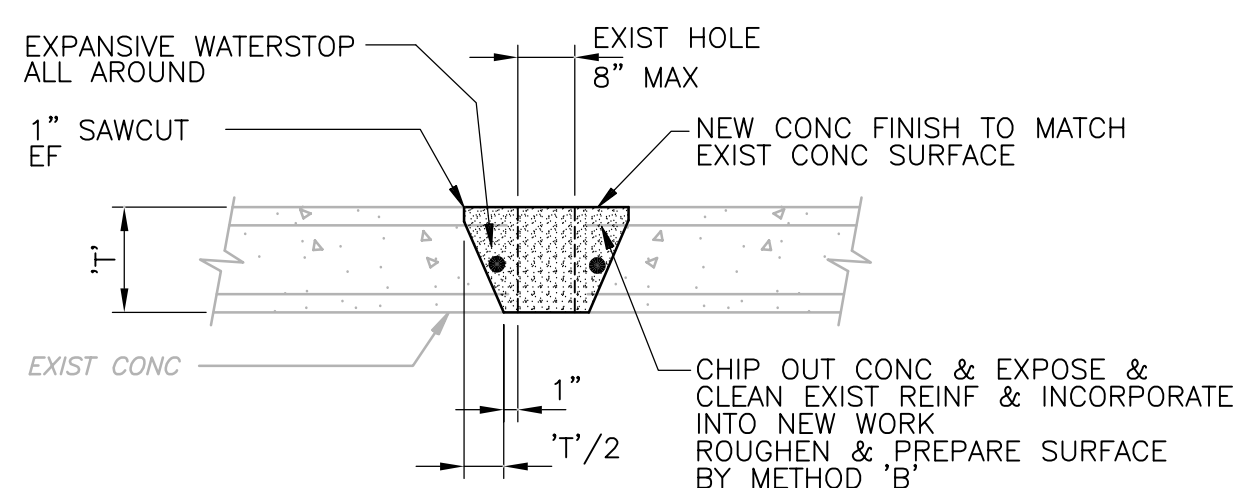
PARTIAL WALL ELEVATION
NTS



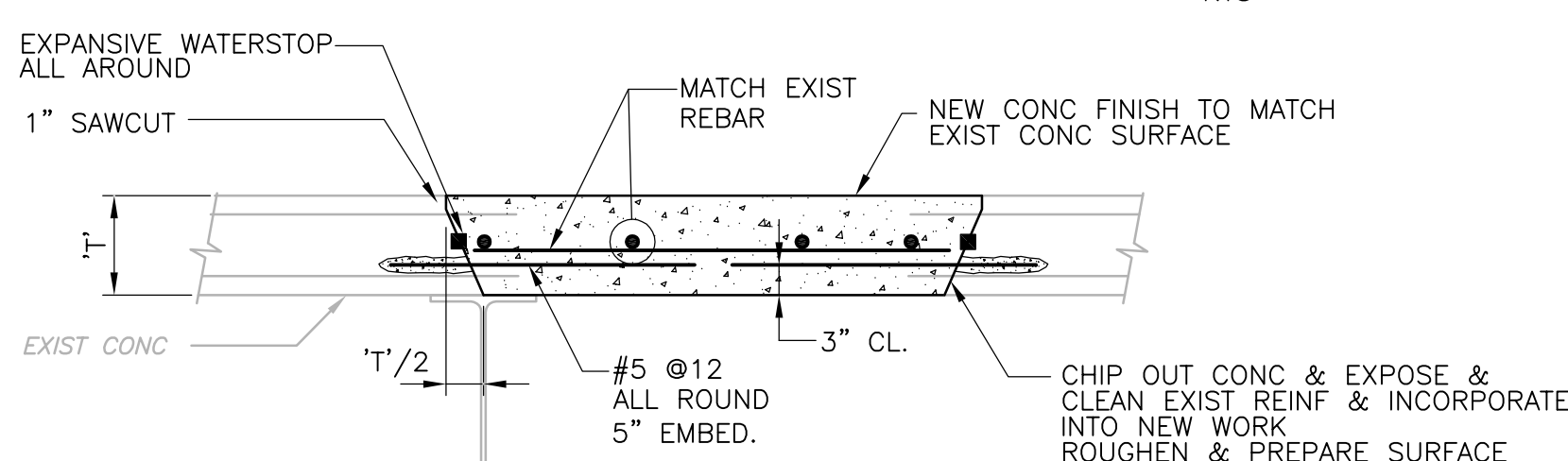
HORIZONTAL WALL REINF. PLAN AT CORNER
NTS



HORIZONTAL WALL REINF. PLAN AT INTERSECTIONS
NTS

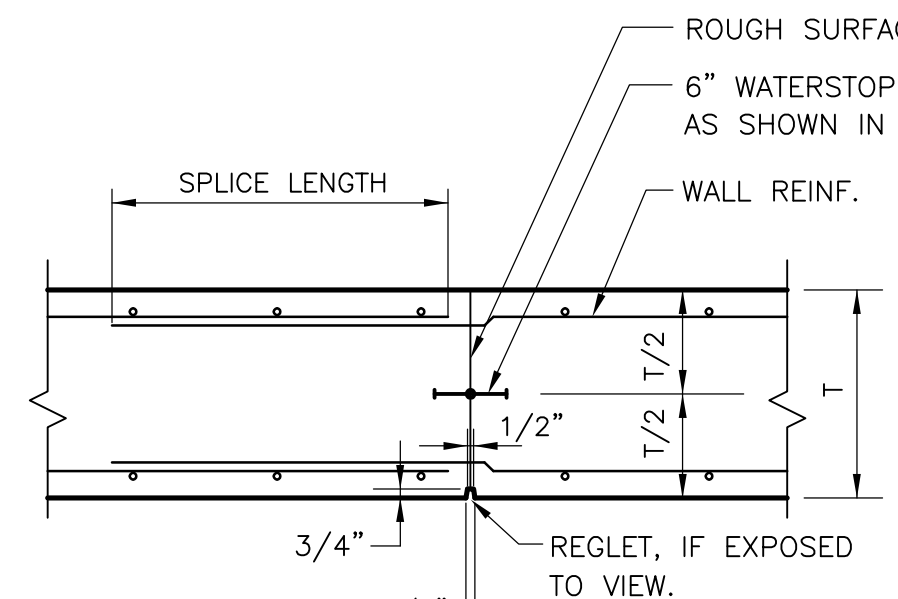


SMALL HOLE PATCH
NTS

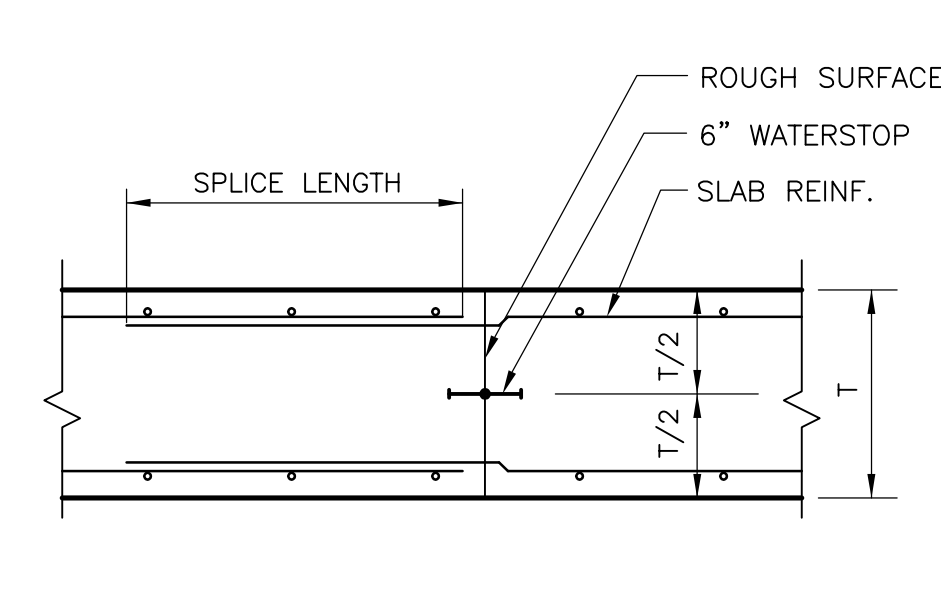


SLAB CLOSURE
NTS

CIRCULAR CONC TANK WALL STAGGERED SPLICE DETAIL
NTS



WALL C.J. WITH WATERSTOP
NTS



MAT C.J. WITH WATERSTOP
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	SSDDT001
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	JULY 2010

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Camp Dresser & McKee Inc.
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LIN ASSOCIATES, INC.
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BRIGHTON MASSACHUSETTS

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3.0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

STANDARD DETAILS I

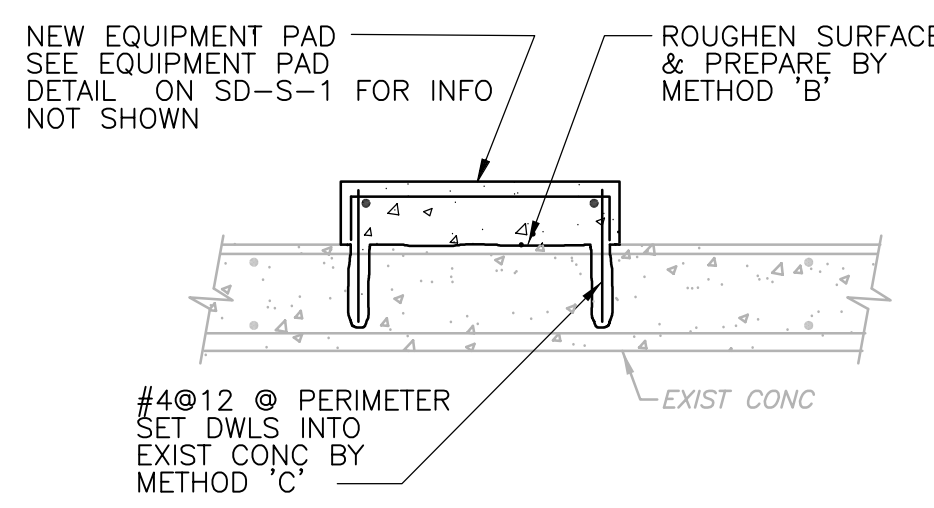
PROJECT NO.
1289-74283

Sht. 86 of 312

SD-S-1

Acc. # 1289-74492

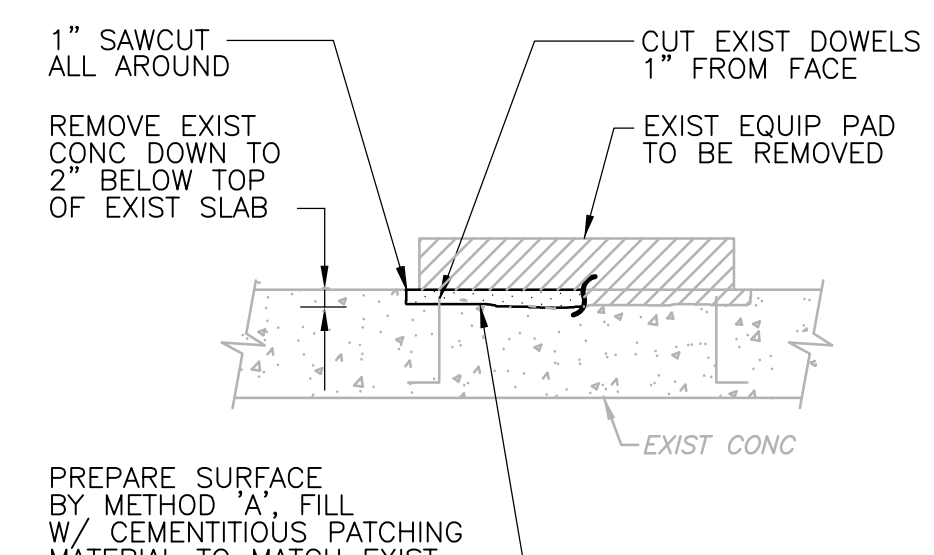
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SSDDT002.DWG Saved by: GKARJADI On: 6-Jul-10 Plotted on: 7-Jul-10 10:37 AM



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

NEW EQUIPMENT PAD ON EXIST SLAB

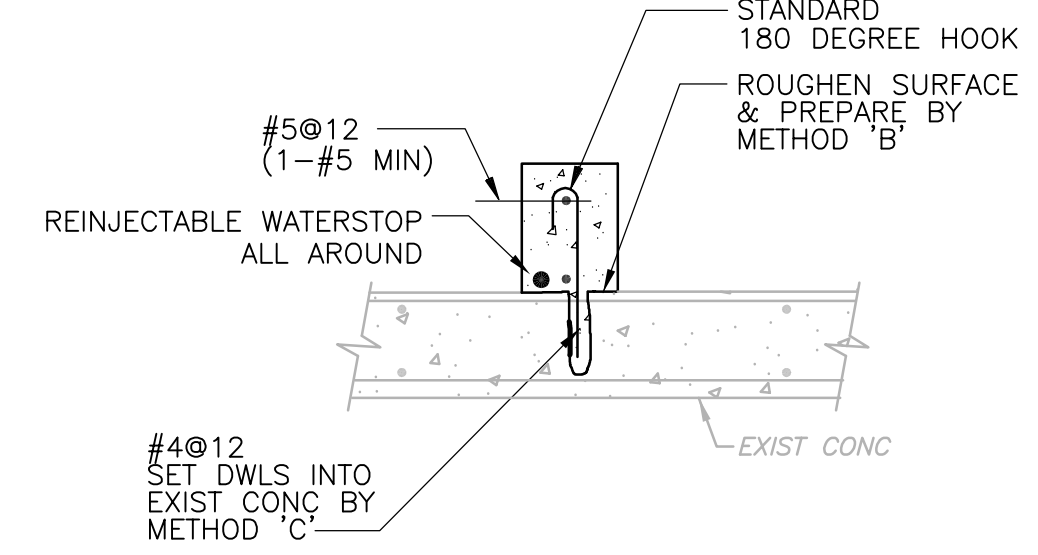
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SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

EXIST EQUIPMENT PAD REMOVAL

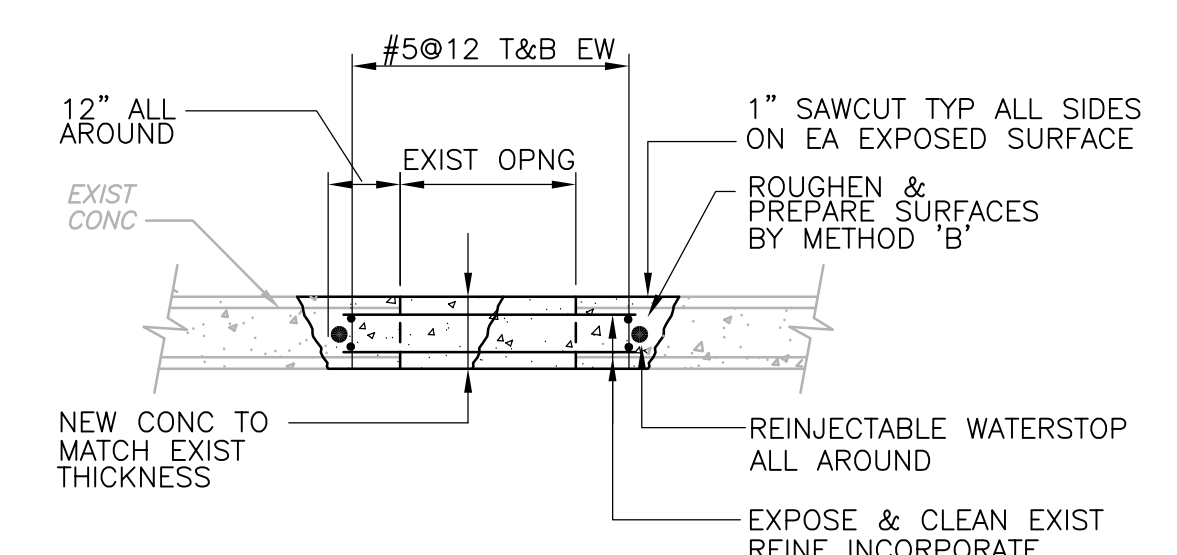
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SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES" SEE PLANS FOR CURB DIMENSIONS

NEW CURB ON EXIST SLAB

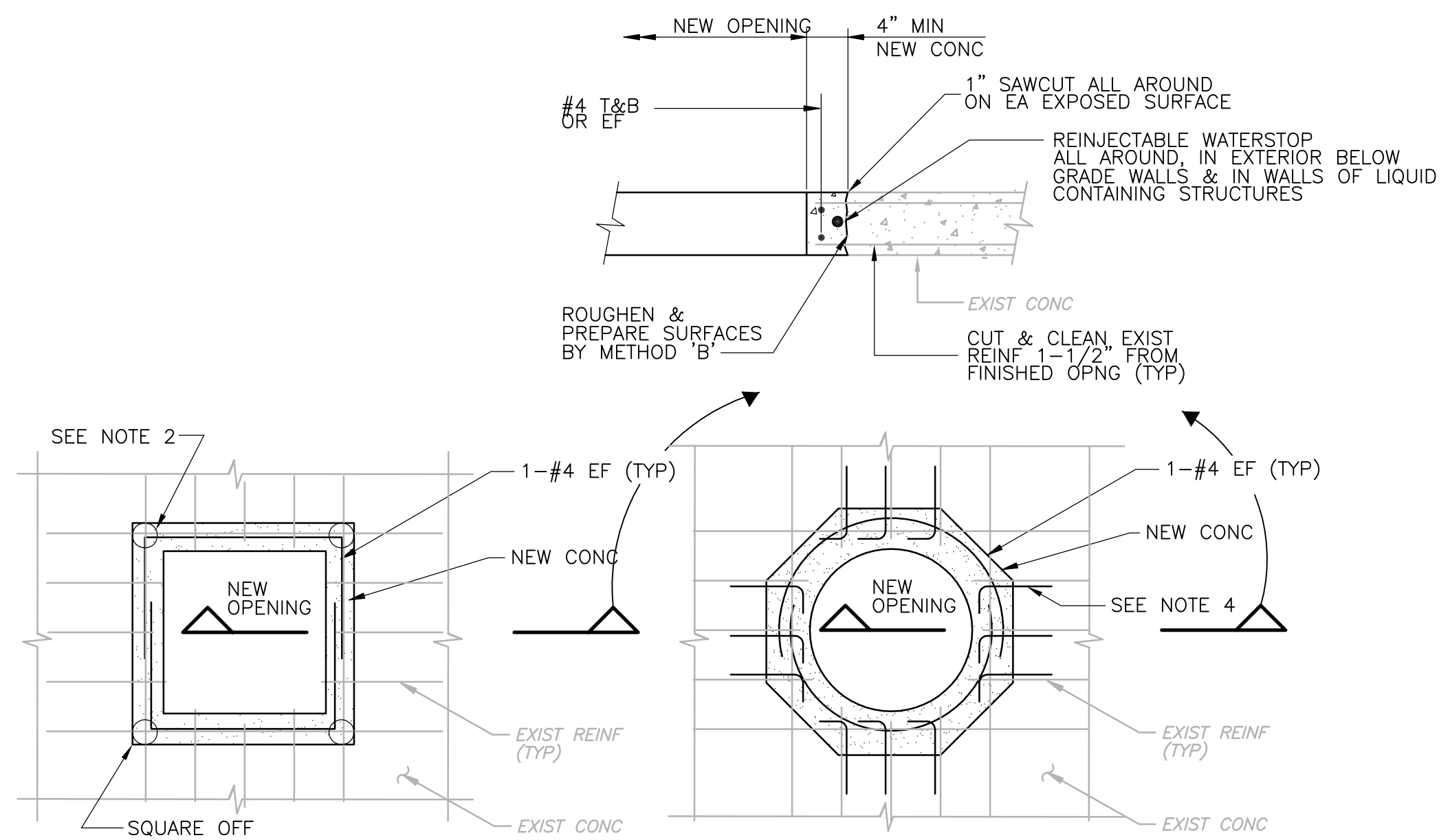
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SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

EXIST SLAB/WALL CLOSURE

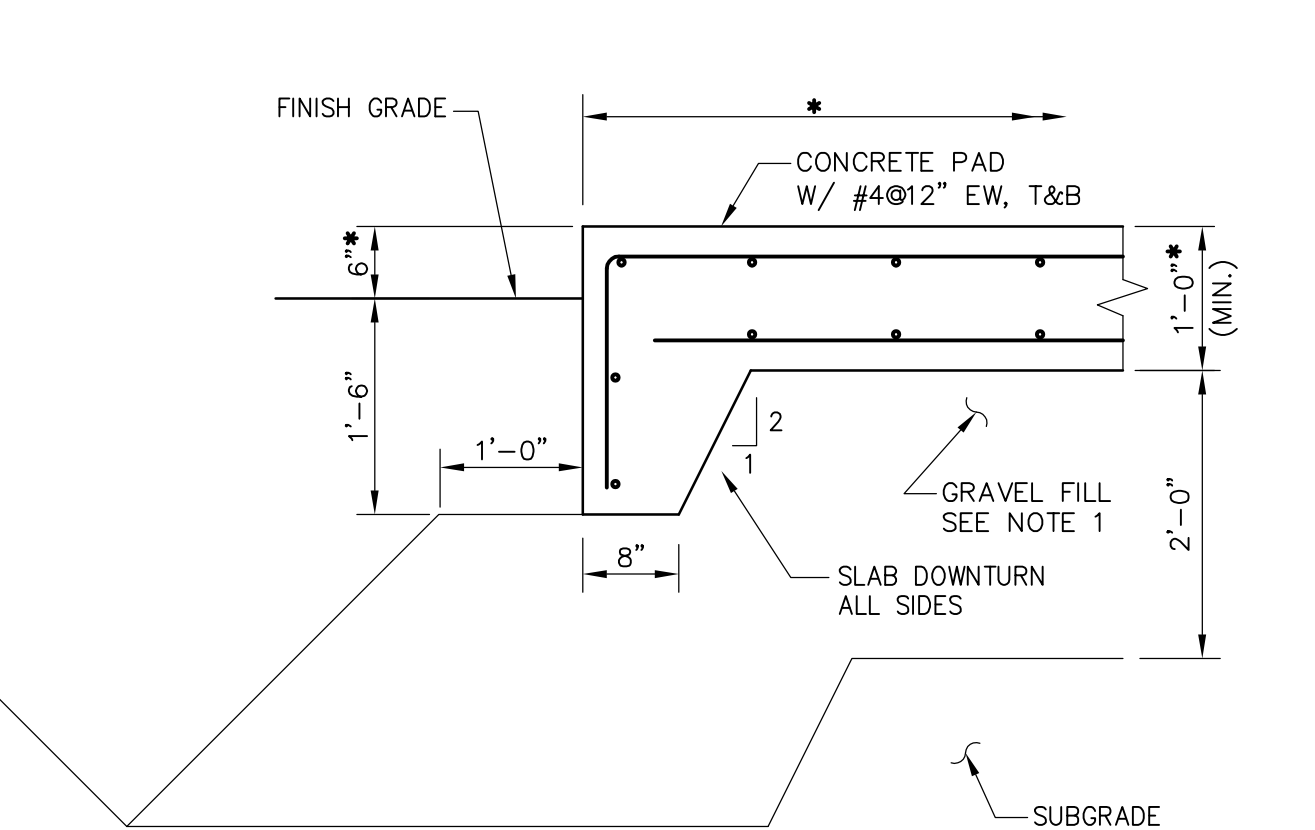
NTS



NOTES:
1. SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES".
2. 4" DIA. CORE AT CORNERS AND CUT TO CORES TO PREVENT OVERCUT. SQUARE OFF CORNERS AS REQUIRED TO ALLOW DUCTWORK AND EQUIPMENT CLEARANCE.
3. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATION OF WALL AND FLOOR OPENINGS.
4. PRESERVE EXISTING REBARS TO CONSTRUCT NEW WALL OPENING OR DRILL AND GROUT (6" EMBED.) DOWELS WITH STD. END HOOK, SIZE MATCHING EXISTING REBARS BEING CUT. USE 1 ROW OF DOWELS FOR EACH 12" OF WALL THICKNESS.

NEW OPENING IN EXIST CONCRETE

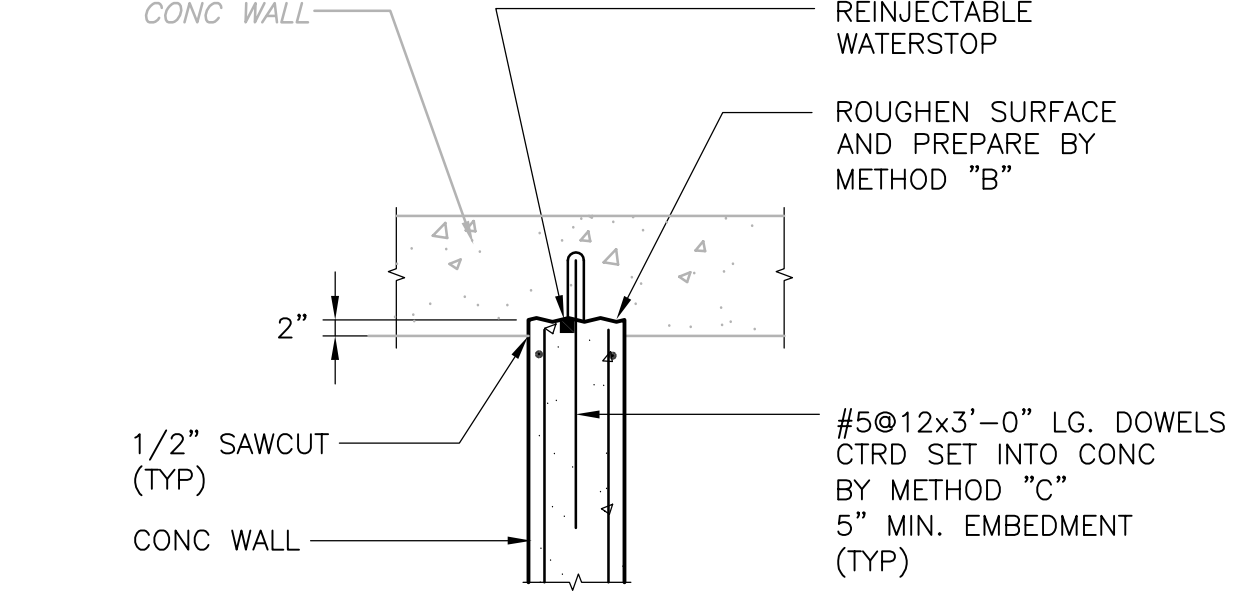
NTS



NOTES:
1. BELOW THE CONCRETE PAD PROVIDE A MINIMUM 24 INCHES OF GRAVEL FILL EXTEND LATERALLY BEYOND THE LIMITS OF THE FOUNDATION CONCRETE A DISTANCE EQUAL TO THE DEPTH OF THE FILL PLUS 1 FEET IN ALL PLAN DIRECTIONS. THE GRAVEL FILL SHOULD BE PLACED IN 6-INCH LIFTS, AND EACH LIFT SHOULD BE COMPACTED TO 95 PERCENT OF THE MAXIMUM MODIFIED PROCTOR DENSITY. PRIOR TO PLACING THE GRAVEL FILL, THE SUBGRADE SHOULD BE PROOF COMPACTED WITH AT LEAST 6 PASSES OF A 5-TON VIBRATORY ROLLER.
2. ASTERISKS (*) INDICATES DIMENSION TO BE VERIFIED WITH EQUIPMENT MANUFACTURER AND COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS.

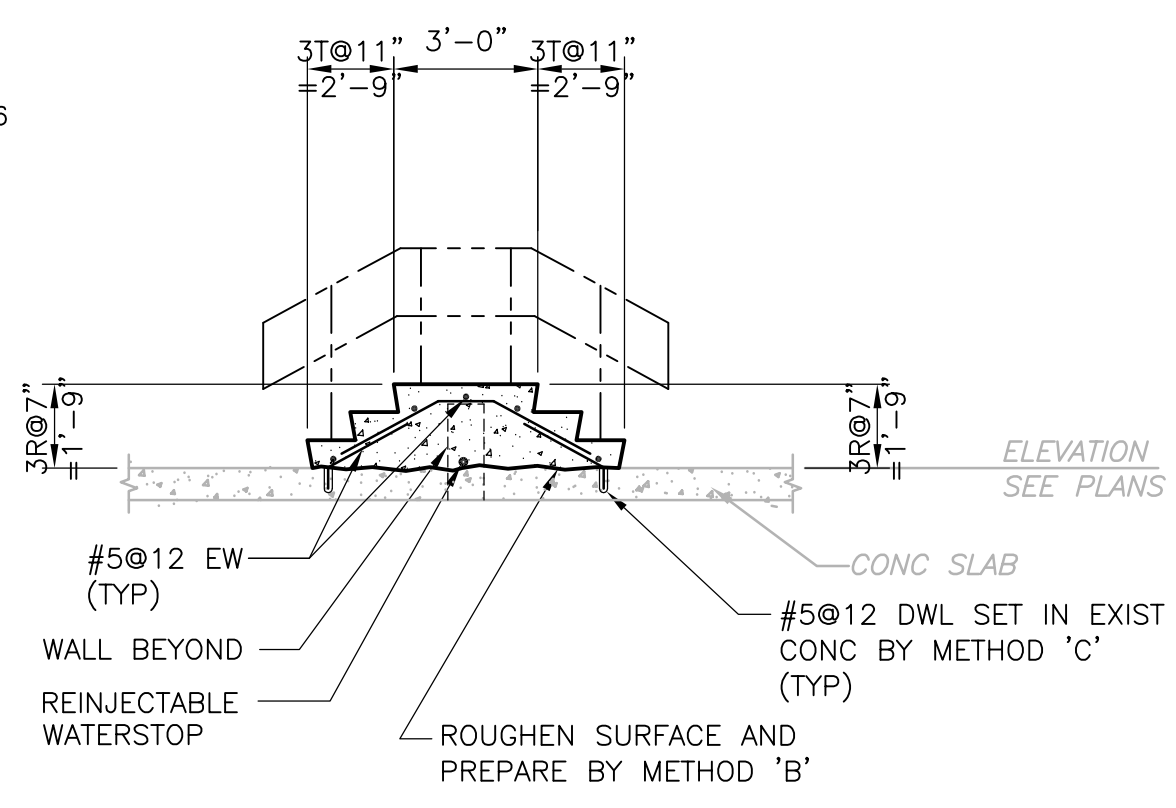
NEW EXTERIOR EQUIPMENT PAD

NTS



NEW CONCRETE WALL TO EXIST CONC. WALL

NTS



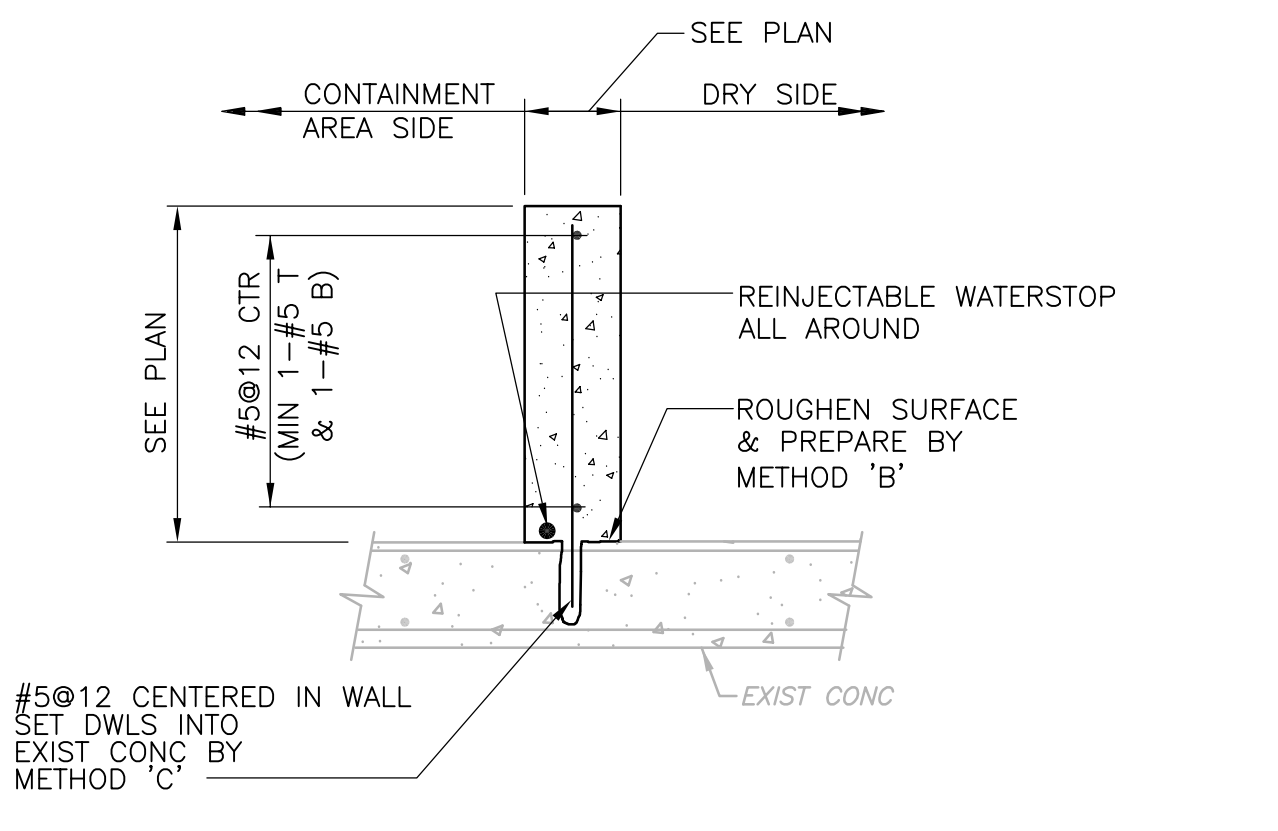
NEW CONTAINMENT CONCRETE STAIR ON EXIST SLAB

NTS

MODIFICATION AND REPAIR TO CONCRETE NOTES

- CONNECTION METHODS:
- METHOD 'A' - BONDING TO SATURATED SURFACE USING PATCH MATERIAL SCRUB COAT OR APPROVED BONDING AGENT
 - METHOD 'B' - BONDING BY USING EPOXY BONDING AGENT
 - METHOD 'C' - DRILLED REINFORCING DOWELS OR BOLTS USING INJECTION ADHESIVE SYSTEM
- ANCHOR EMBEDMENT SHALL BE AS INDICATED IN ADHESIVE ANCHOR DETAIL ON THIS SHEET
- SEE CONCRETE SPECIFICATIONS SECTION 03740 FOR EXPLANATION OF CONCRETE REMOVAL METHODS, CONNECTION METHODS AND MATERIALS USED.

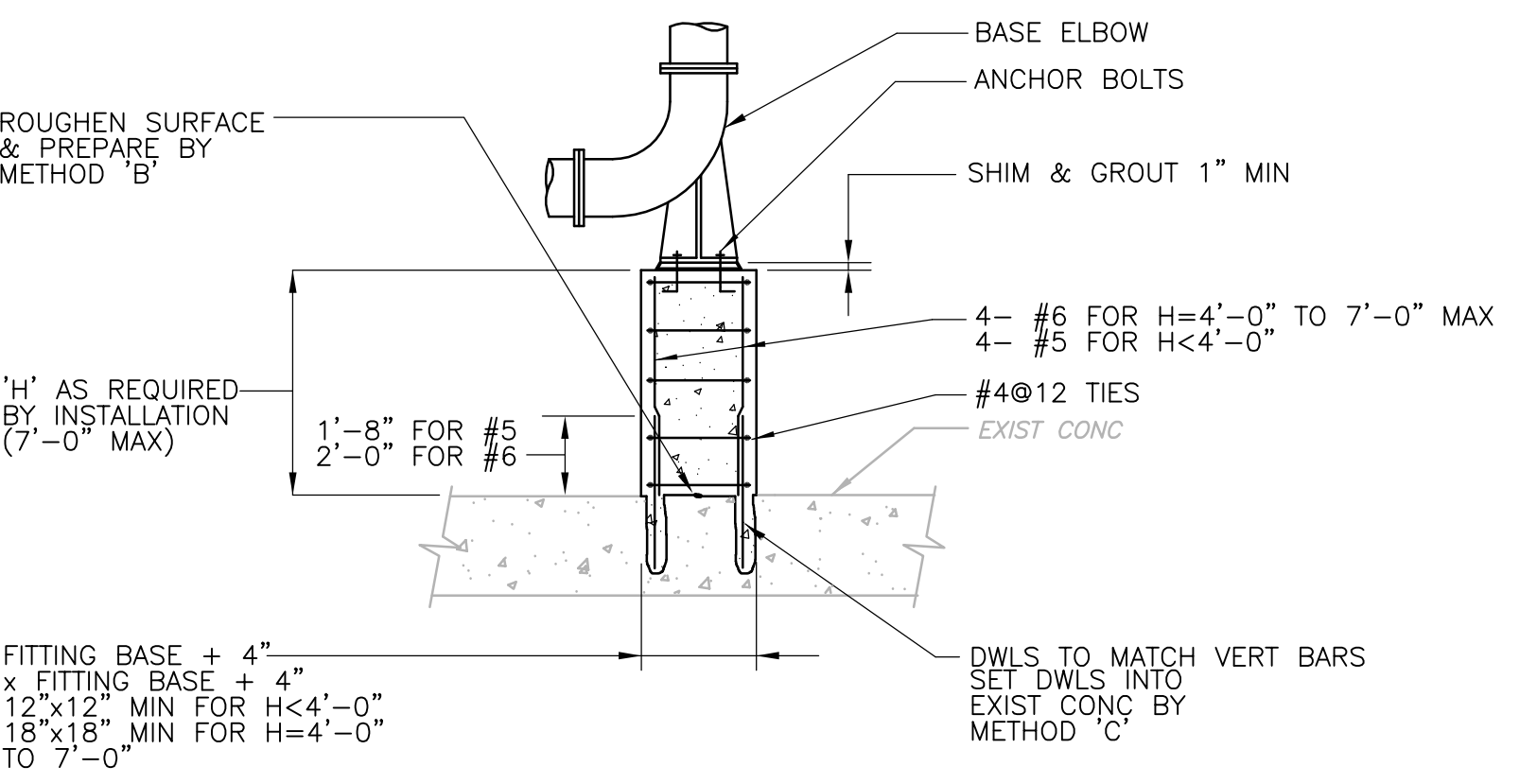
- REINJECTABLE WATERSTOP**
- A. SUBMIT MANUFACTURER'S SPECIFICATIONS, INSTALLATION INSTRUCTIONS, AND GENERAL RECOMMENDATIONS FOR CLEANING AND PREPARING SURFACES TO RECEIVE WATERSTOP SYSTEM. INCLUDE MANUFACTURER PRODUCT DATA CONFIRMING THAT MATERIALS ARE RECOMMENDED FOR APPLICATIONS INDICATED. INCLUDE LAYOUT DRAWINGS OF WATERSTOP SYSTEM.
 - B. WATERSTOP SYSTEM INSTALLATION SHALL BE PERFORMED BY AN APPLICATOR CERTIFIED AND APPROVED BY THE WATERSTOP MANUFACTURER.
 - C. BEGIN INJECTION PROCESS WHEN CONCRETE HAS CURED NOT LESS THAN 28 DAYS. ALL VISIBLE HONEYCOMBS AT THE CONCRETE SURFACE SHALL BE PATCHED TO AVOID LOSS OF INJECTION MATERIAL. THE CONCRETE SURFACES SHALL BE CLEAN, DRY AND SMOOTH.
 - D. WATERSTOP SYSTEM: PROVIDE FUKOZ HOSE AND DUROSEAL INJECT 1K/2K POLYMER-BASED WATER SWELLING RESIN INJECTION MATERIAL BY B&Z, SUBSIDIARY OF GREENSTREAK OR EQUAL.
 - E. INJECTION HOSES SHALL NOT EXCEED 33 FEET IN LENGTH. THE INJECTION HOSE AND VENT ENDS MUST BE ENCASED IN NOT LESS THAN 3 INCHES OF CONCRETE. THE INJECTION HOSE SHALL BE HELD IN PLACE WITH PLASTIC ANCHOR CLIPS AS SPECIFIED BY THE MANUFACTURER. DO NOT FASTEN THE INJECTION HOSES TO REINFORCING STEEL.
 - F. ALL HOSE VENT ENDS SHALL BE ENCASED IN A PLASTIC JUNCTION BOX AS SPECIFIED BY MANUFACTURER. THE JUNCTION BOX SHALL BE ACCESSIBLE FOR ANY FUTURE REINJECTIONS.
 - G. PRIOR TO INJECTING WATER SWELLING RESIN, INJECT CEMENTITIOUS GROUT CONSISTING OF CEMENT AND WATER AS SPECIFIED BY WATERSTOP MANUFACTURER. FLUSH DELIVERY SYSTEM AND ALLOW GROUT TO CURE. PERFORM RESIN INJECTION PROCEDURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. UPON COMPLETION OF INJECTION PREPARE FOR FUTURE REINJECTION BY FLUSHING WITH WATER AND VACUUM PRESSURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES" SEE PLANS FOR WALL DIMENSIONS

NEW CONTAINMENT WALL ON EXIST SLAB

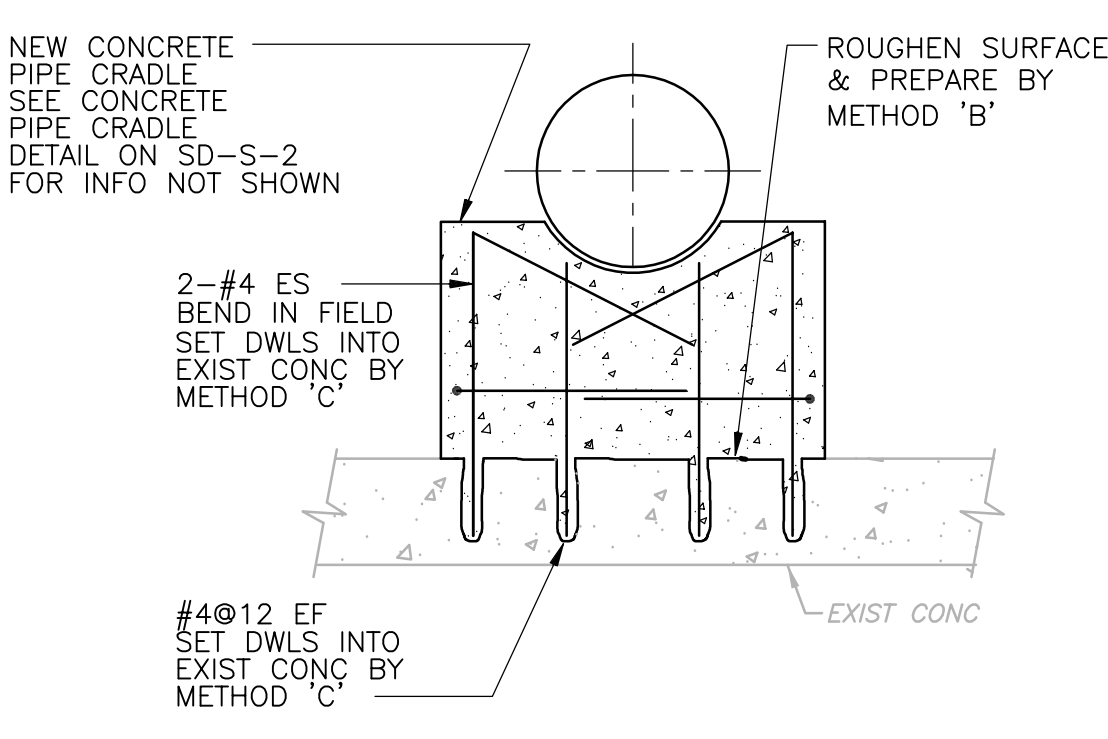
NTS



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

NEW CONCRETE BASE ELBOW SUPPORT ON EXIST SLAB

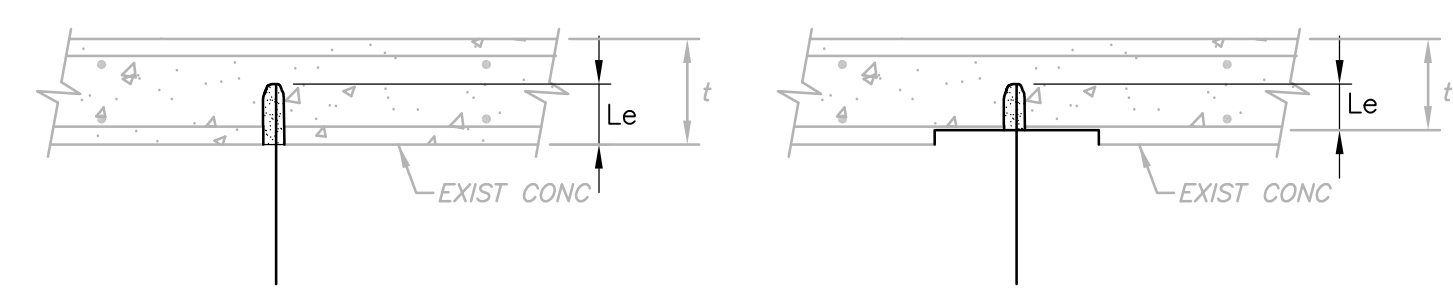
NTS



SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES"

NEW CONCRETE PIPE CRADLE ON EXIST SLAB

NTS



MIN Le = LENGTH REQ'D TO DEVELOP TENSILE STRENGTH OF ANCHOR, PER MFR RECOMMENDATIONS

MAX Le = .80 x t

STANDARD ADHESIVE ANCHOR EMBEDMENT

NTS

METAL GRATING AND COVER PLATE NOTES

1. ALUMINUM GRATING, COVER PLATES, ANGLE FRAMES AND SUPPORTS SHALL BE ALL ALUMINUM CONSTRUCTION UNLESS OTHERWISE NOTED. COVER PLATES SHALL BE DIAMOND PLATE ALUMINUM ALLOY 6061-T6. GRATING SHALL BE ALUMINUM ALLOY 6063-T6.
2. FASTENERS, ANCHORS, BOLTS, NUTS AND WASHERS FOR GRATING, COVER PLATES AND SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL.
3. ALUMINUM GRATING SIZE SHALL MEET THE FOLLOWING CRITERIA, UNLESS NOTED OTHERWISE:

SPAN	BEARING BAR SIZE
TO 4'-0"	USE 1-1/4" x 3/16" MIN
TO 5'-0"	USE 1-1/2" x 3/16" MIN
TO 6'-6"	USE 2-1/4" x 3/16" MIN
4. FIELD VERIFY GRATING SUPPORT LOCATIONS BEFORE FABRICATING GRATING. PLACE SUPPORTS WITH EXTREME CARE TO PROVIDE TOLERANCES SHOWN OR SPECIFIED.
5. GRATING PANEL LAYOUT SHALL PROVIDE FOR THE REMOVAL OF GRATING AROUND PIPE AND OTHER GRATING PENETRATIONS.
6. BAND ALL GRATING ALONG EDGES AND AROUND OPENINGS WITH CONTINUOUS BAR SAME DEPTH & THICKNESS AS BEARING BARS.
7. ALL ANGLE FRAMES FOR GRATING AND COVER PLATES ARE TO BE MITERED AND WELDED AT CORNERS.
8. ALL GRATING IS TO BE SECURELY FASTENED TO SUPPORTS, UNLESS OTHERWISE NOTED.
9. ALL COVER PLATES SHALL BE SECURELY FASTENED TO SUPPORTS WITH 3/8" STAINLESS STEEL FLAT-HEAD MACHINE SCREWS AT 2'-0" ON CENTER, UNLESS OTHERWISE NOTED.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	SSDDT002
DESIGNED BY:	C. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	JULY 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

STANDARD DETAILS II

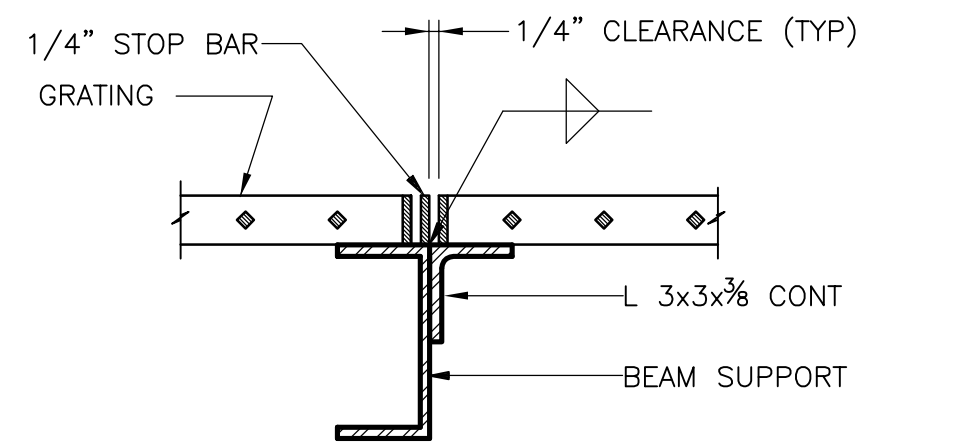
Sht. 87 of 312

SD-S-2

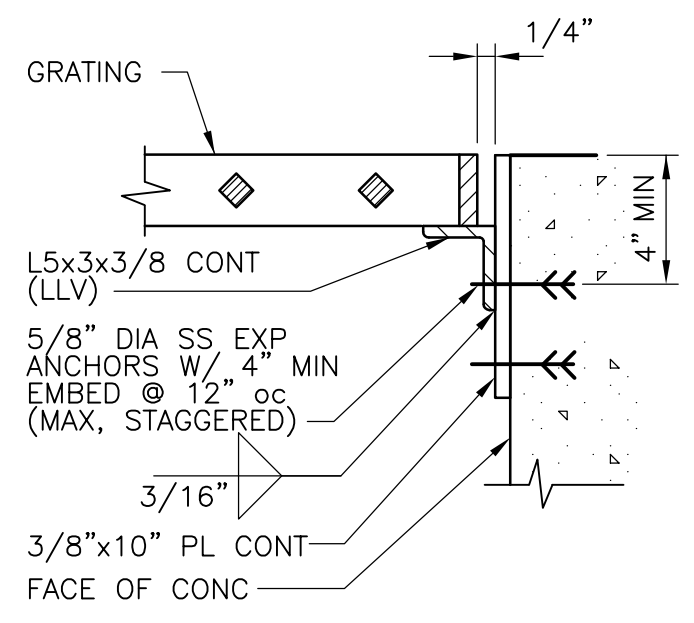
Acc. # 1289-74493

PROJECT NO.	1289-74283
Sht.	87 of 312
Acc. #	1289-74493

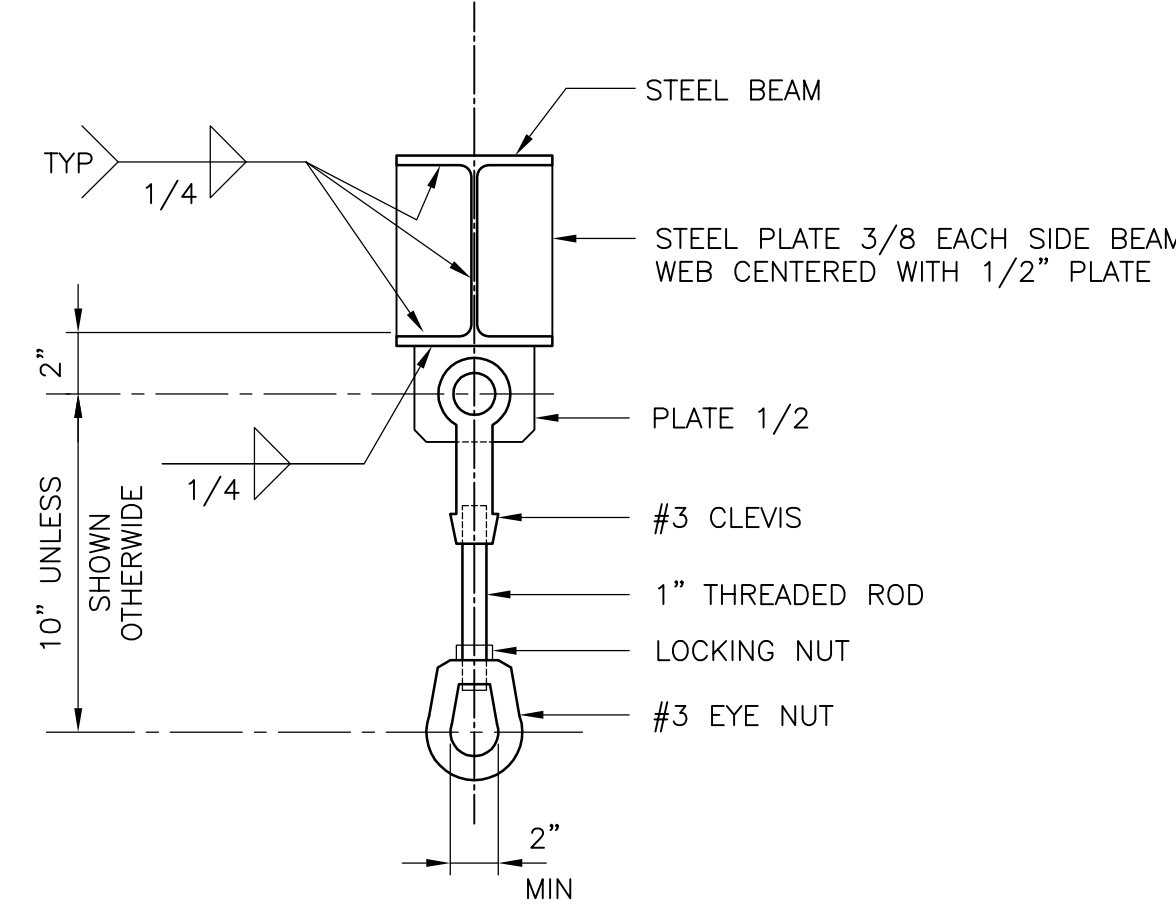
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\CONFORM\STRU\SSDDT003.DWG Saved by: R.LAM On: 28-Sep-10 9:40 AM



INTERMEDIATE GRATING SUPPORT
NTS

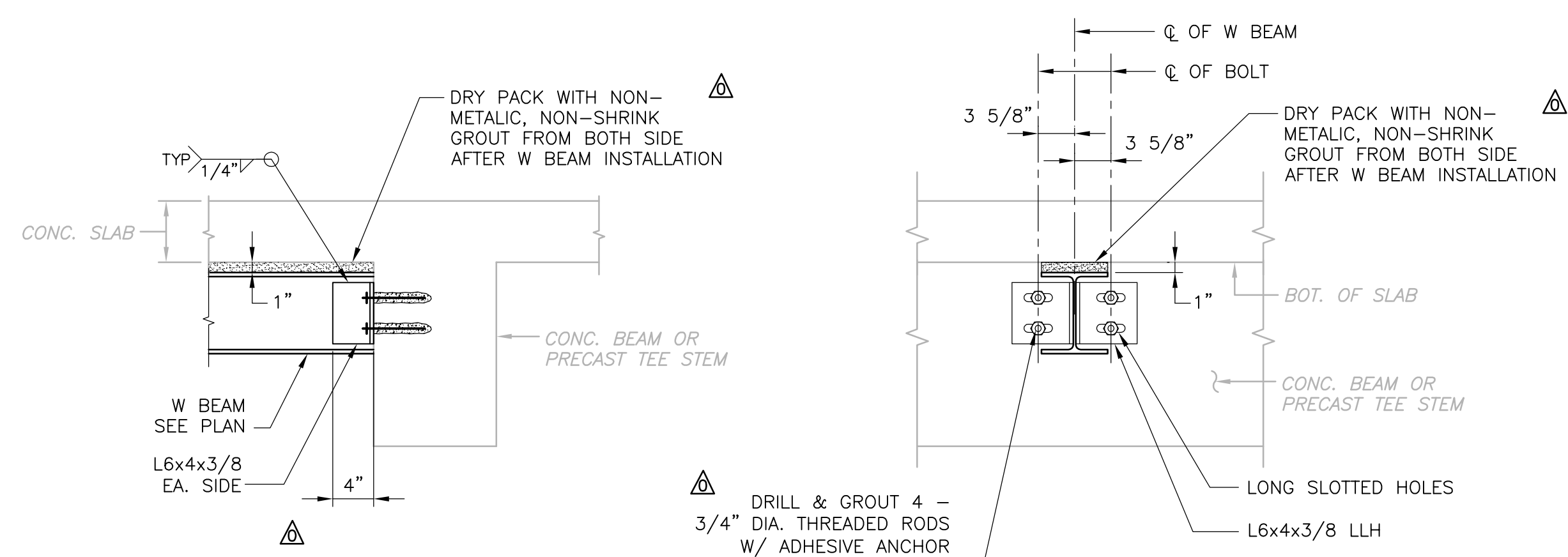


GRATING WALL SUPPORT WITH BACKUP PLATE
NTS

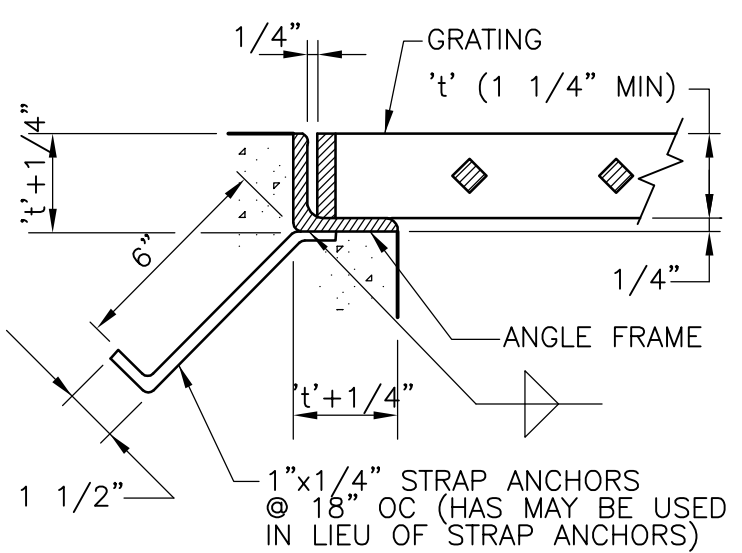


- NOTES:**
- LIFTING EYE COMPONENTS SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL.
 - MAXIMUM LOAD CAPACITY SHALL BE 2000 POUNDS.
 - CONTRACTOR SHALL LOAD TEST ALL LIFTING EYES. SIGN SHALL STATE THE FOLLOWING: LIFTING EYE CAPACITY: 2000 POUNDS.
 - FOR STEEL BEAM TO EXISTING CONCRETE BEAM CONNECTION SEE TYPICAL DETAIL ON THIS SHEET.

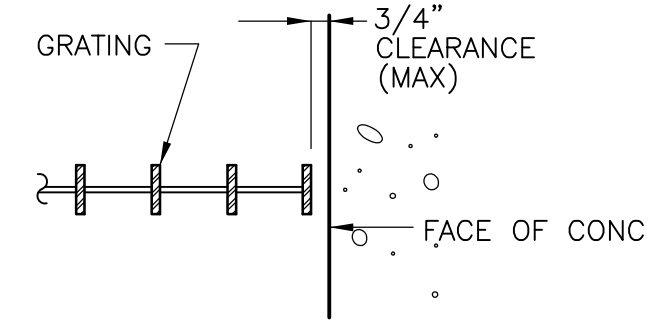
LIFTING HOOK ON STEEL BEAM
NTS



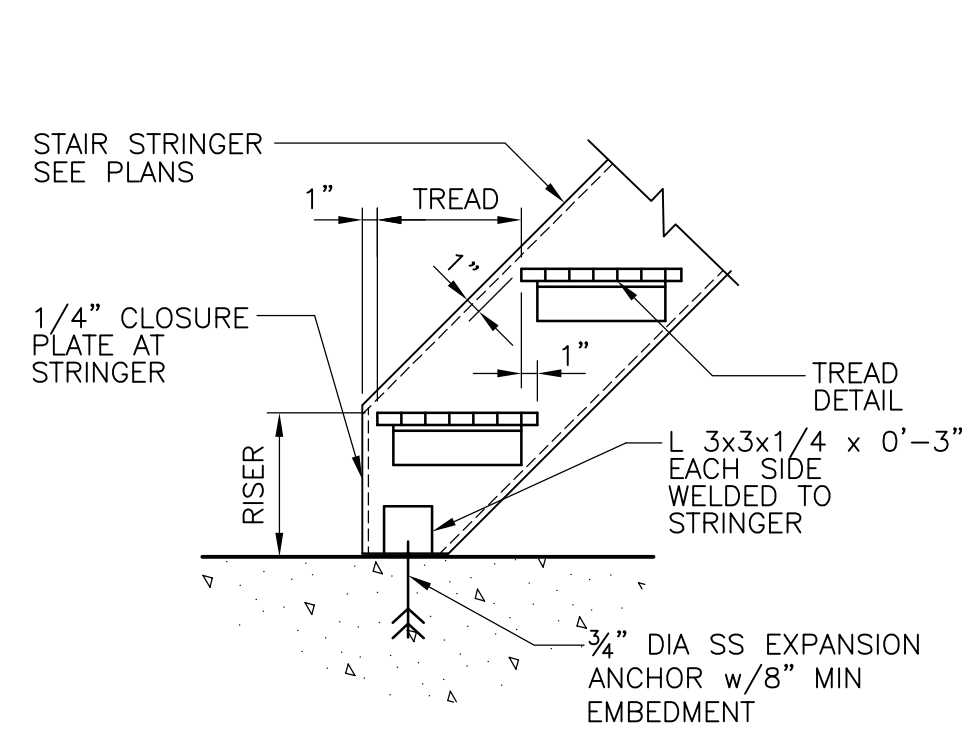
STEEL BEAM TO EXISTING CONCRETE BEAM CONNECTION
NTS



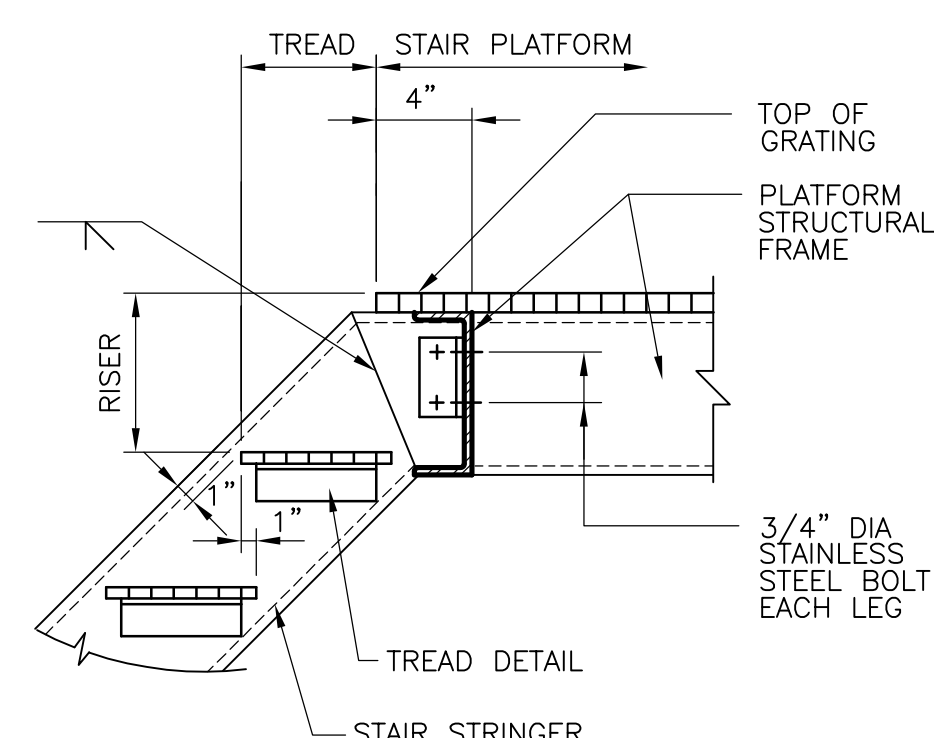
GRATING SEAT (UON)
NTS



GRATING-END CONDITION
NTS

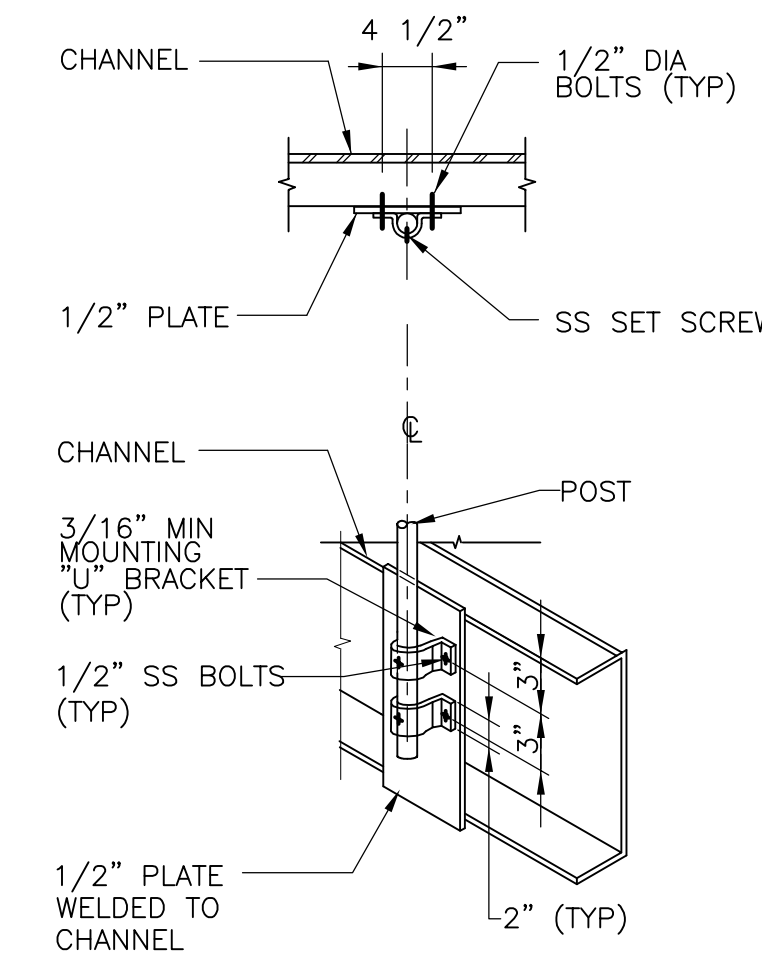


STRINGER CONNECTION AT CONCRETE SLAB (BOTTOM)

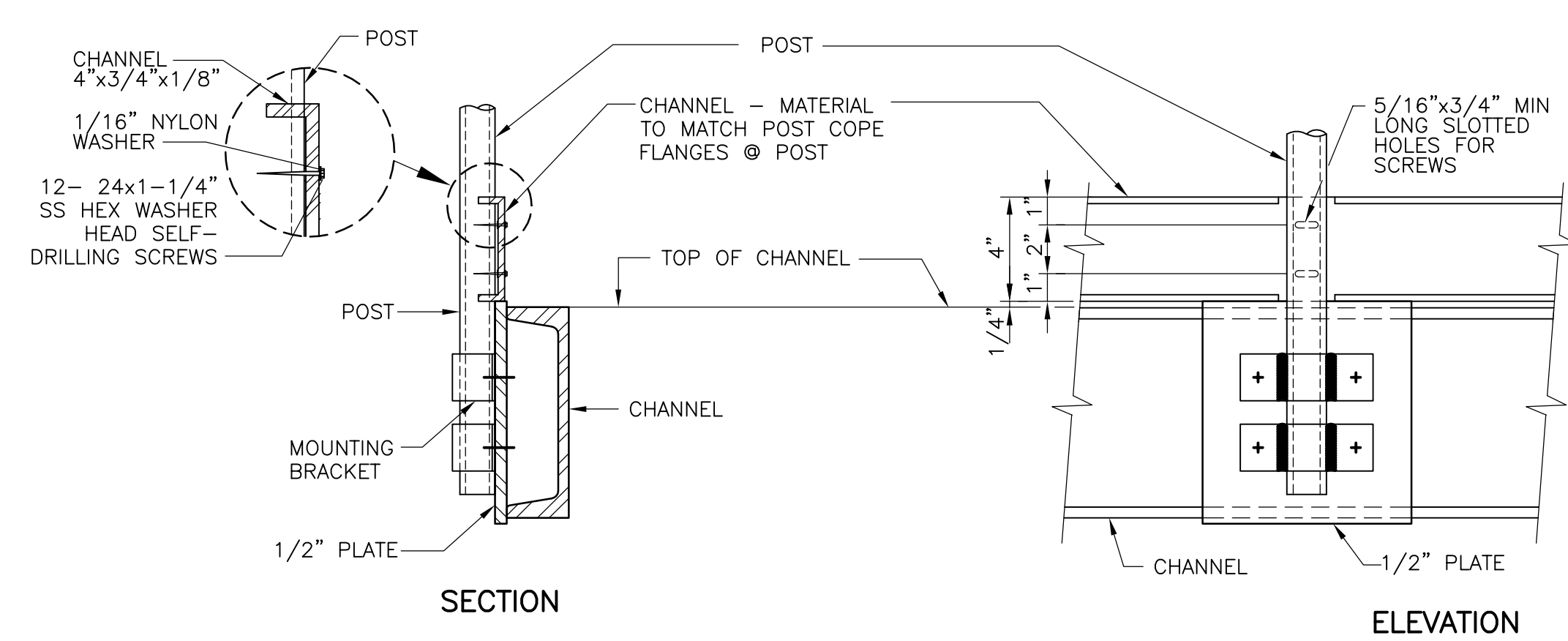


STRINGER CONNECTION AT PLATFORM (TOP)

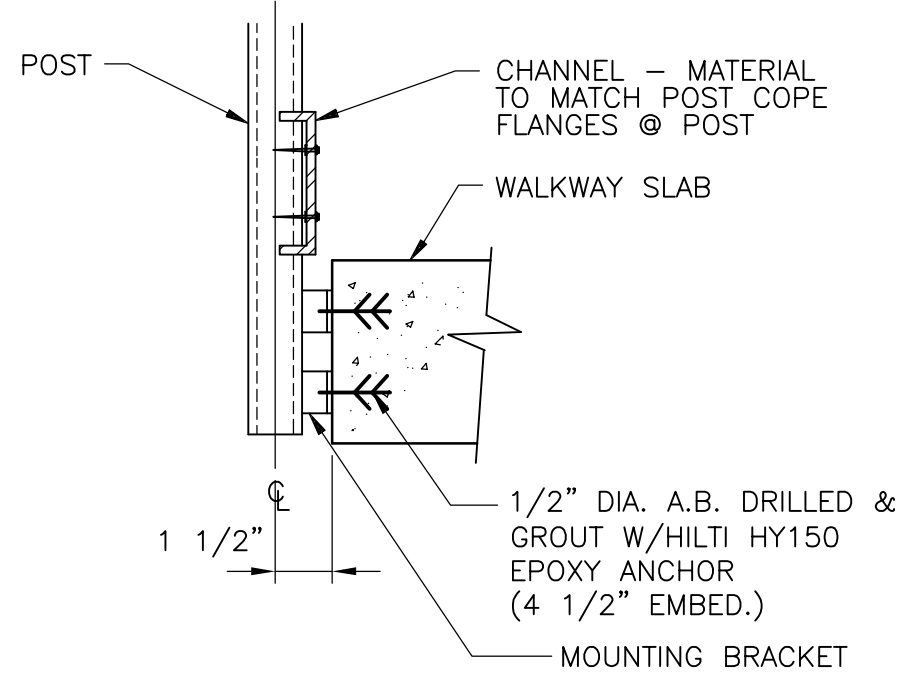
ALL ALUMINUM CONSTRUCTION
STAIR CONNECTION DETAILS
NTS



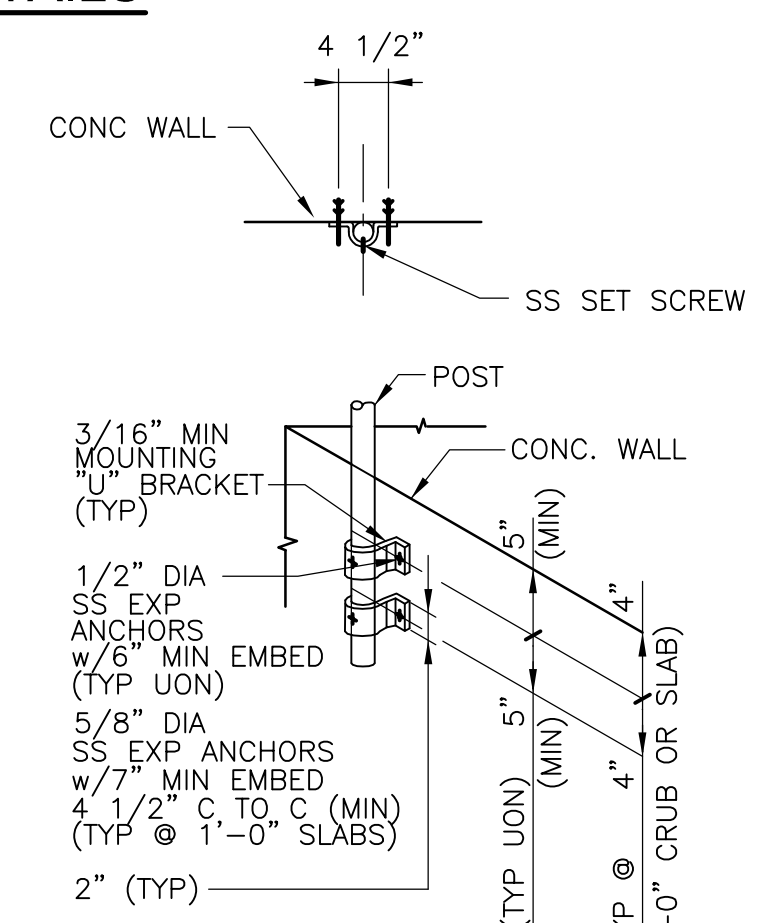
SIDE MOUNTED GUARDRAIL
NTS



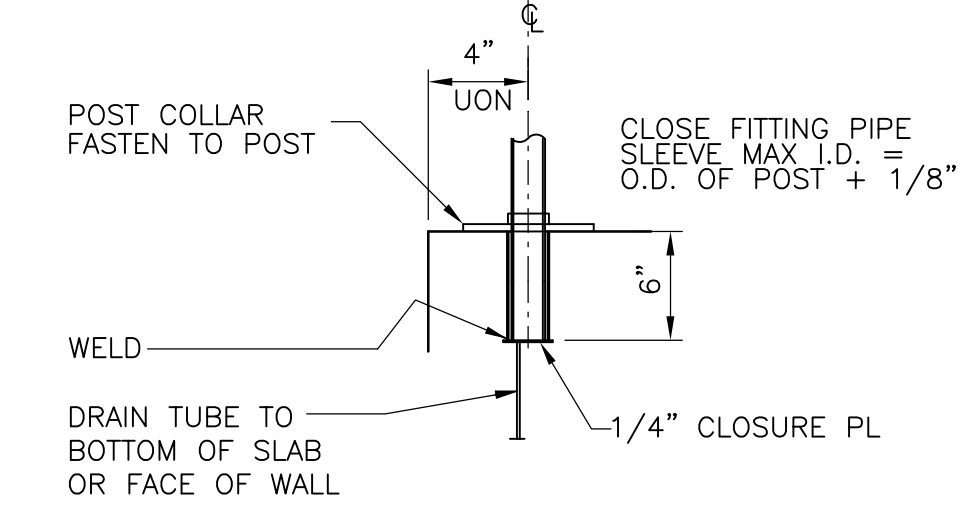
TOEBOARD CONNECTION TO POST SIDE MOUNTED GUARDRAIL
NTS



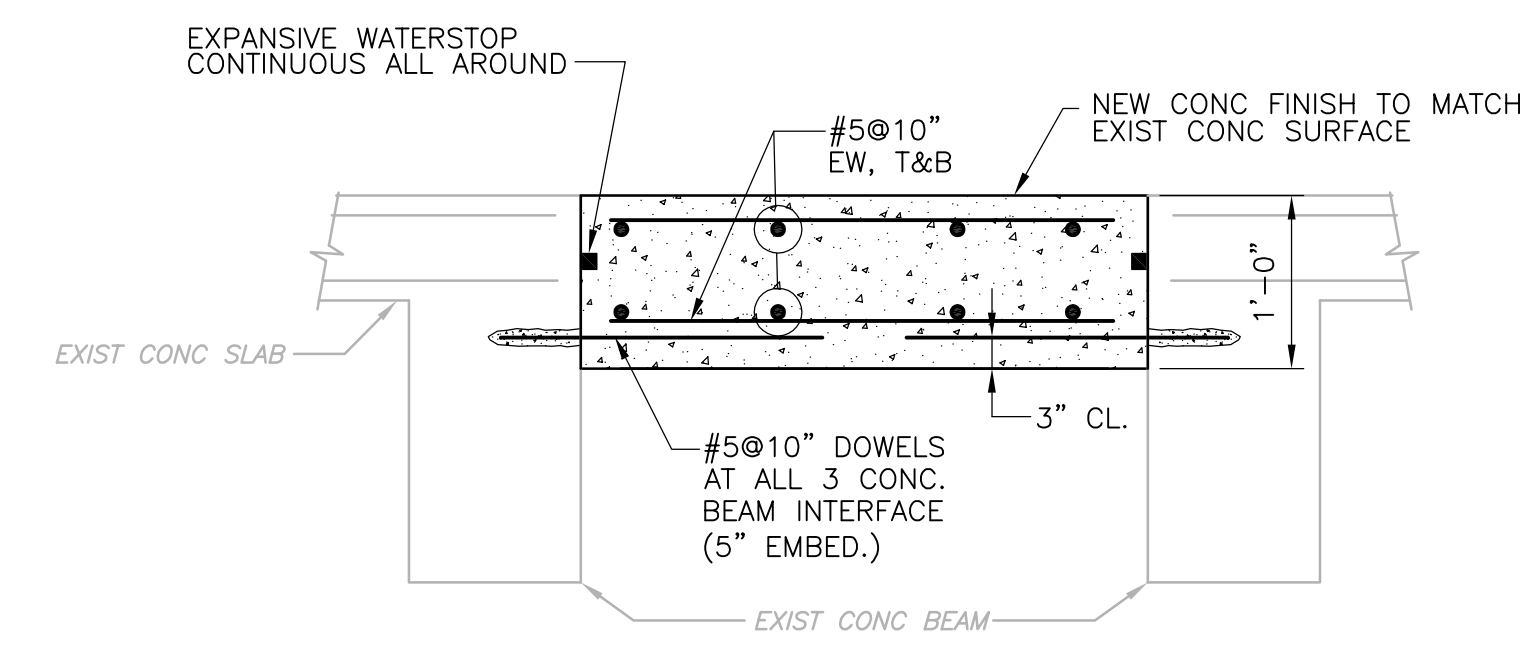
TOEBOARD CONNECTION TO POST SIDE MOUNTED GUARDRAIL
NTS



SIDE MOUNTED GUARDRAIL
NTS



REMOVABLE GUARDRAIL BASE
NTS



SLAB CLOSURE II
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	RL	GK		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	SSDDT003
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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WATER POLLUTION ABATEMENT DISTRICT
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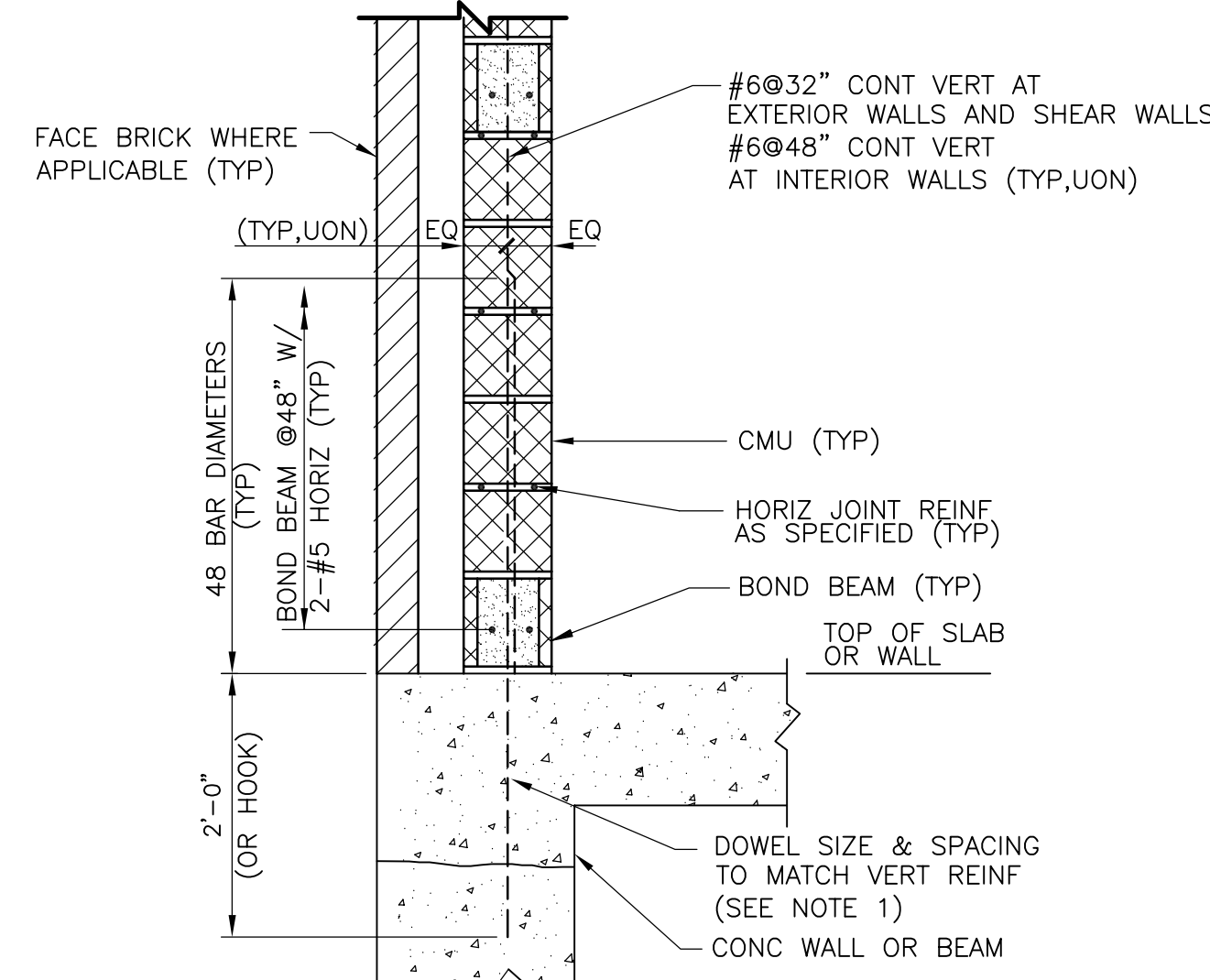
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

STANDARD DETAILS III

PROJECT NO.	1289-74283
Sht.	88 of 312
SD-S-3	
Acc. #	1289-74494

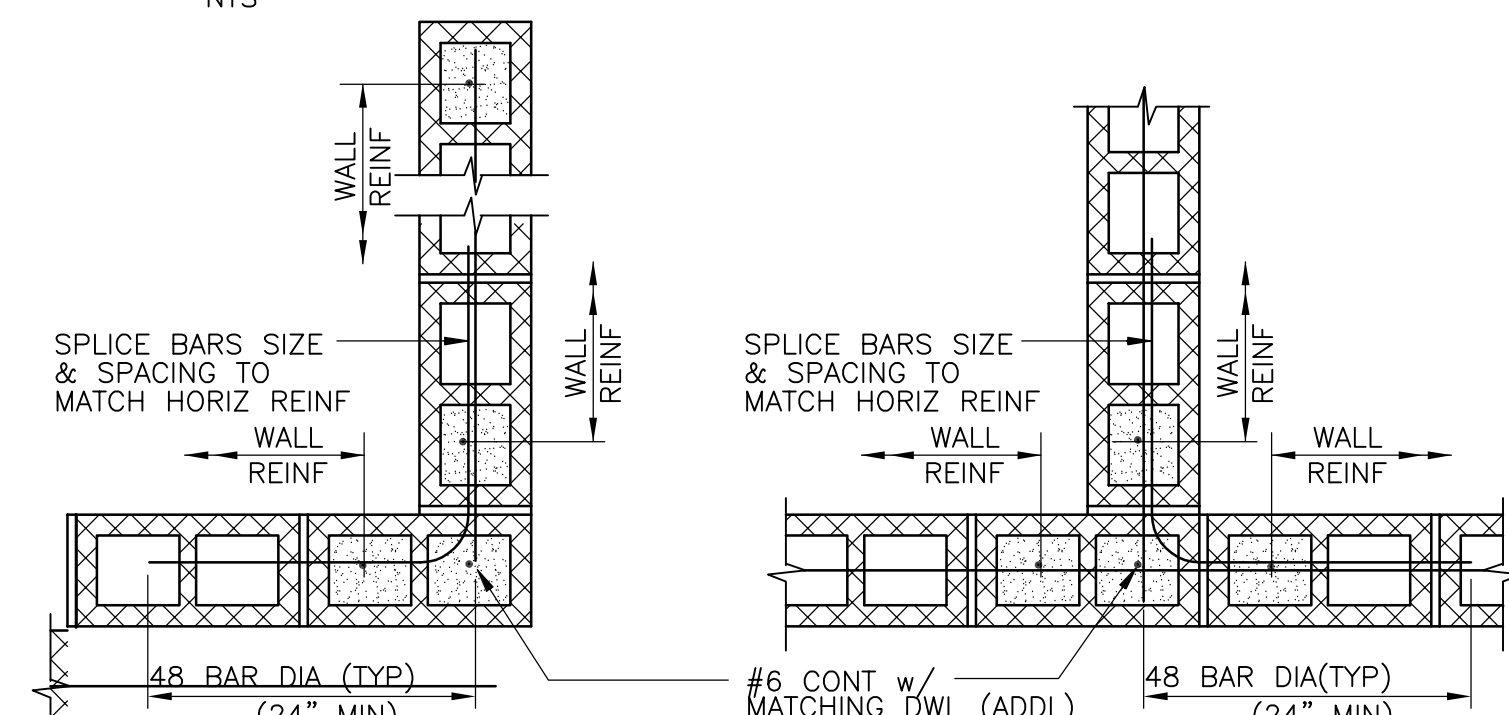
CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - PHASE III (CDM)\PHASE III\STRU\SSDDT004.DWG Saved by: GKARJADI On: 6-Jul-10 Plotted on: 7-Jul-10 10:40 AM



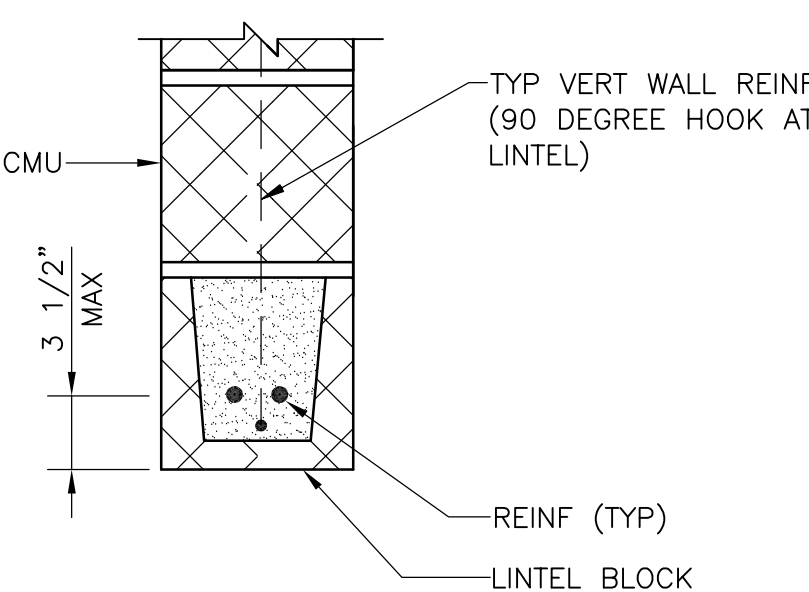
NOTES:
1. FOR EXISTING CONCRETE SLAB, DRILL AND GROUT #6 DOWELS W/ HILTI HY150 (6-3/4" EMBED.)

TYPICAL CMU WALL REINFORCING



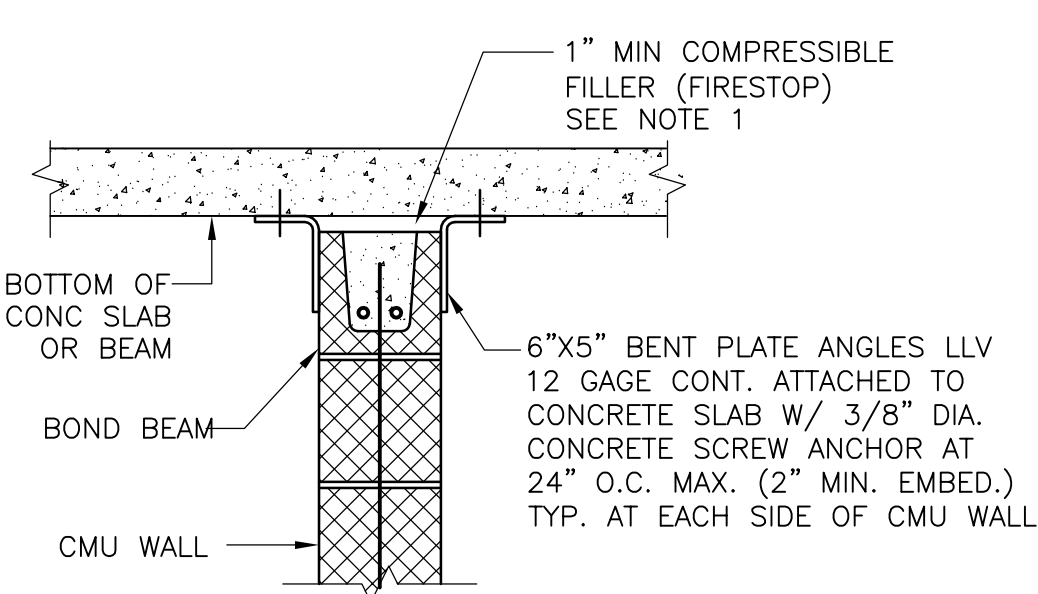
TYPICAL CMU WALL CORNER & END

TYPICAL CMU WALL INTERSECTION



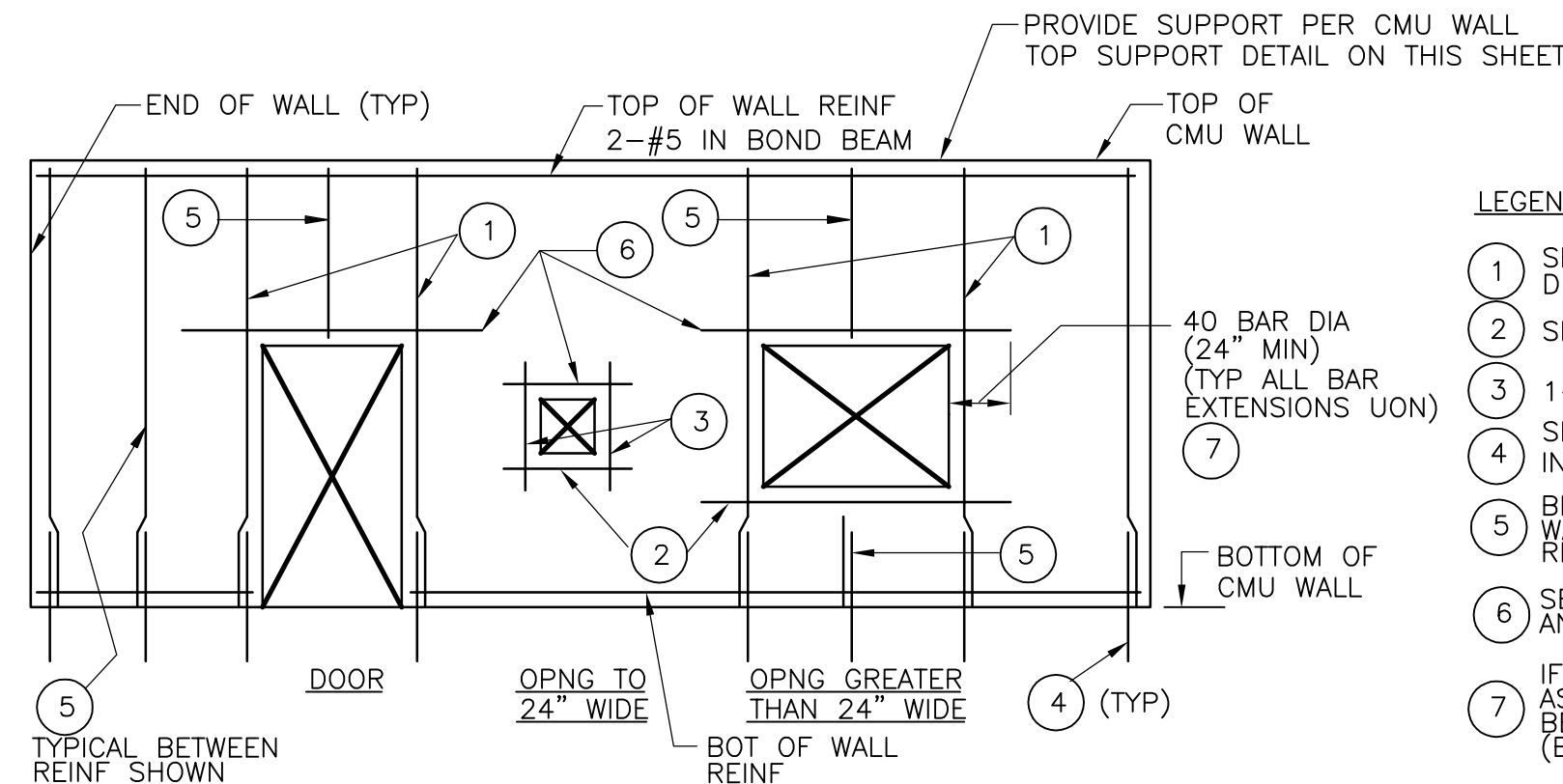
TYPICAL CMU LINTEL

CMU LINTEL NOTES:
1. PROVIDE 8" MINIMUM BEARING AT EACH SIDE OF CLEAR SPAN.
2. FULLY GROUT CMU OVER DEPTH TO ENDS OF BEARING.
3. CMU LINTEL BLOCK PLUS ONE FULLY GROUTED 12" DEEP CMU.



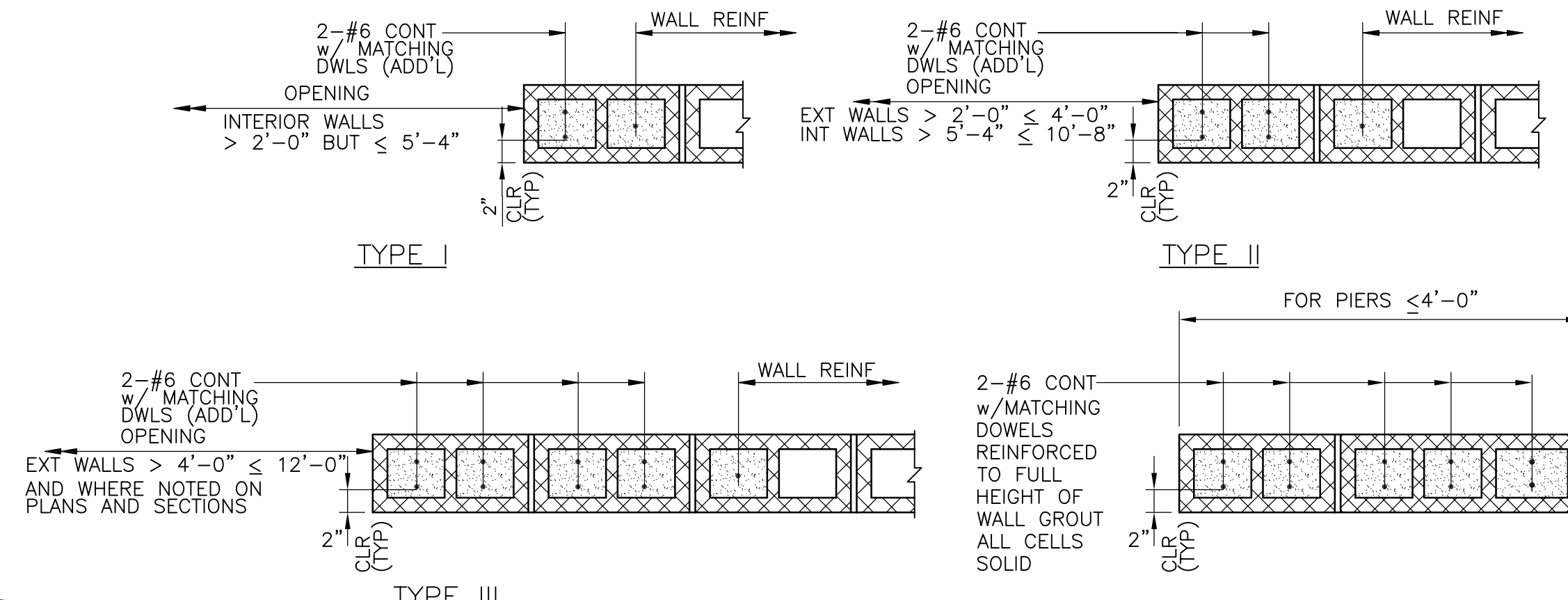
TYPICAL CMU WALL TOP SUPPORT

NOTES:
1. PROVIDE 1" MIN., 2" MAX. SPACE BETWEEN BOTTOM OF SLAB AND TOP OF WALL. FILL SPACE WITH COMPRESSIBLE FILLER, FIRE RATED AS REQUIRED, COORDINATE WITH ARCHITECTURAL DRAWINGS.



TYPICAL CMU WALL ELEVATION

- LEGEND
1 SEE TYPICAL CMU WALL OPENING DETAIL ON THIS SHEET
2 SILL BARS, 2-#5 IN BOND BEAM
3 1-#6 EACH SIDE
4 SEE TYPICAL CMU WALL CORNER, END AND INTERSECTION REINFORCING DETAILS ON THIS SHEET
5 BETWEEN BARS SHOWN, PROVIDE TYPICAL WALL REINFORCING PER TYPICAL CMU WALL REINFORCING DETAIL ON THIS SHEET
6 SEE TYPICAL CMU LINTEL DETAILS ON THIS SHEET, AND THE ARCHITECTURAL DRAWINGS
7 IF FULL LENGTH IS NOT AVAILABLE, EXTEND AS FAR AS POSSIBLE, HOOK 90 DEGREE, THEN EXTEND BEYOND BEND, REMAINDER OF LENGTH REQUIRED (BUT NOT LESS THAN 12 BAR DIAMETERS)

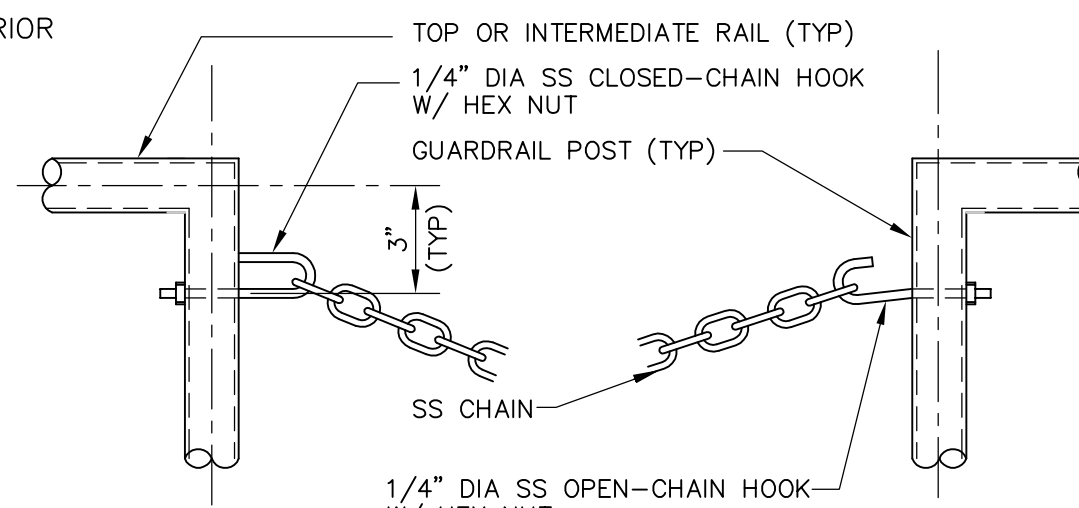


TYPICAL CMU WALL OPENING

TYPICAL CMU WALL PIER

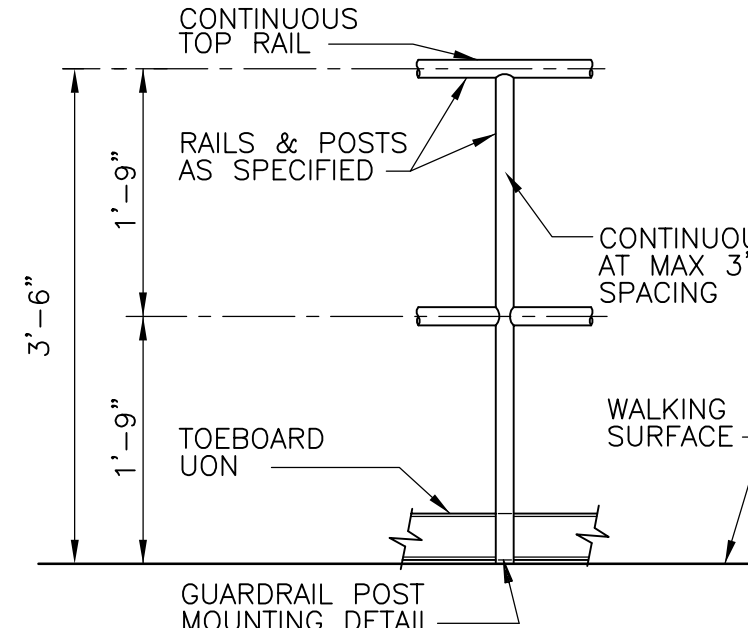
NOTES:
1. ADDITIONAL REINFORCING SHALL BE OMITTED AT OVERHEAD DOOR OPENINGS WHERE STRUCTURAL FRAMING IS PROVIDED AT THE JAMB. IN THIS CASE, VERTICAL WALL REINFORCING SHALL BEGIN IN THE FIRST CELL BEYOND THE OPENING.
2. USE TYPE II REINFORCING AT EACH END OF INTERIOR SHEAR WALLS. (TYP)

BETWEEN GLASS BLOCK OPENINGS OR WINDOW OPENINGS IN MAINTENANCE SUPPORT FACILITY BUILDING

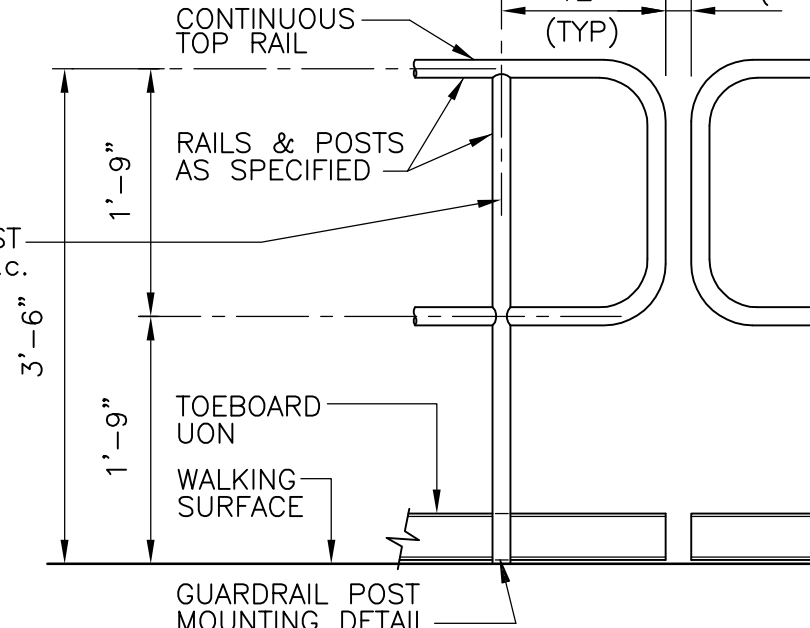


GUARDRAIL OPENING BARRIER CHAIN

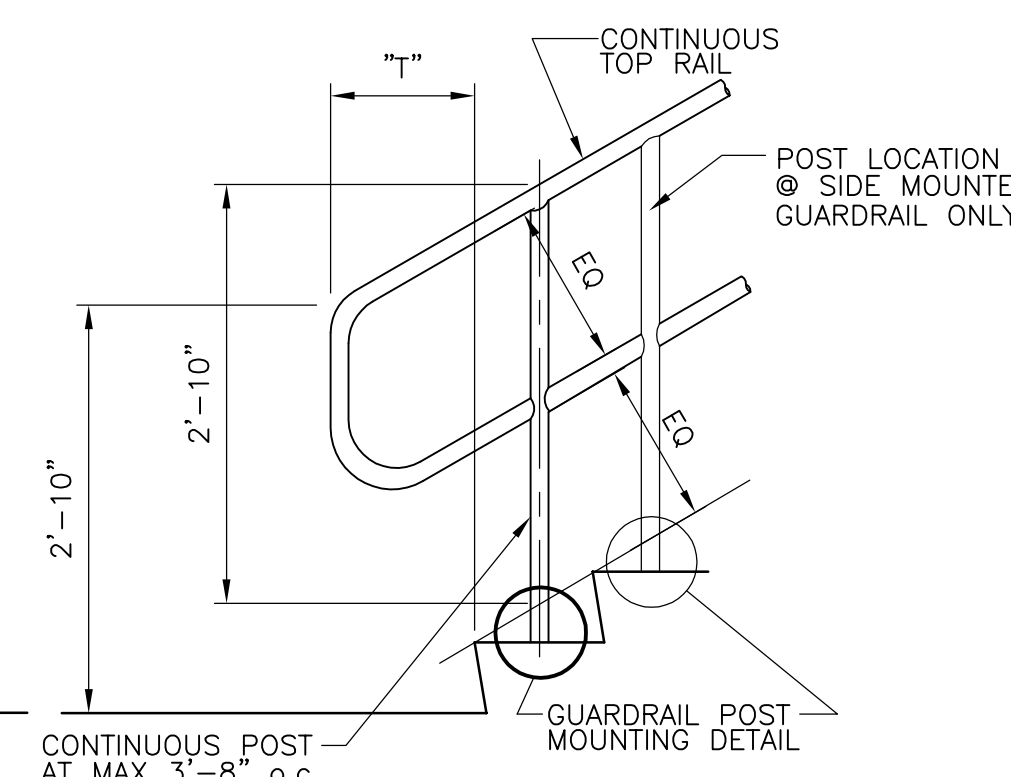
NTS



AT HORIZONTAL SURFACE



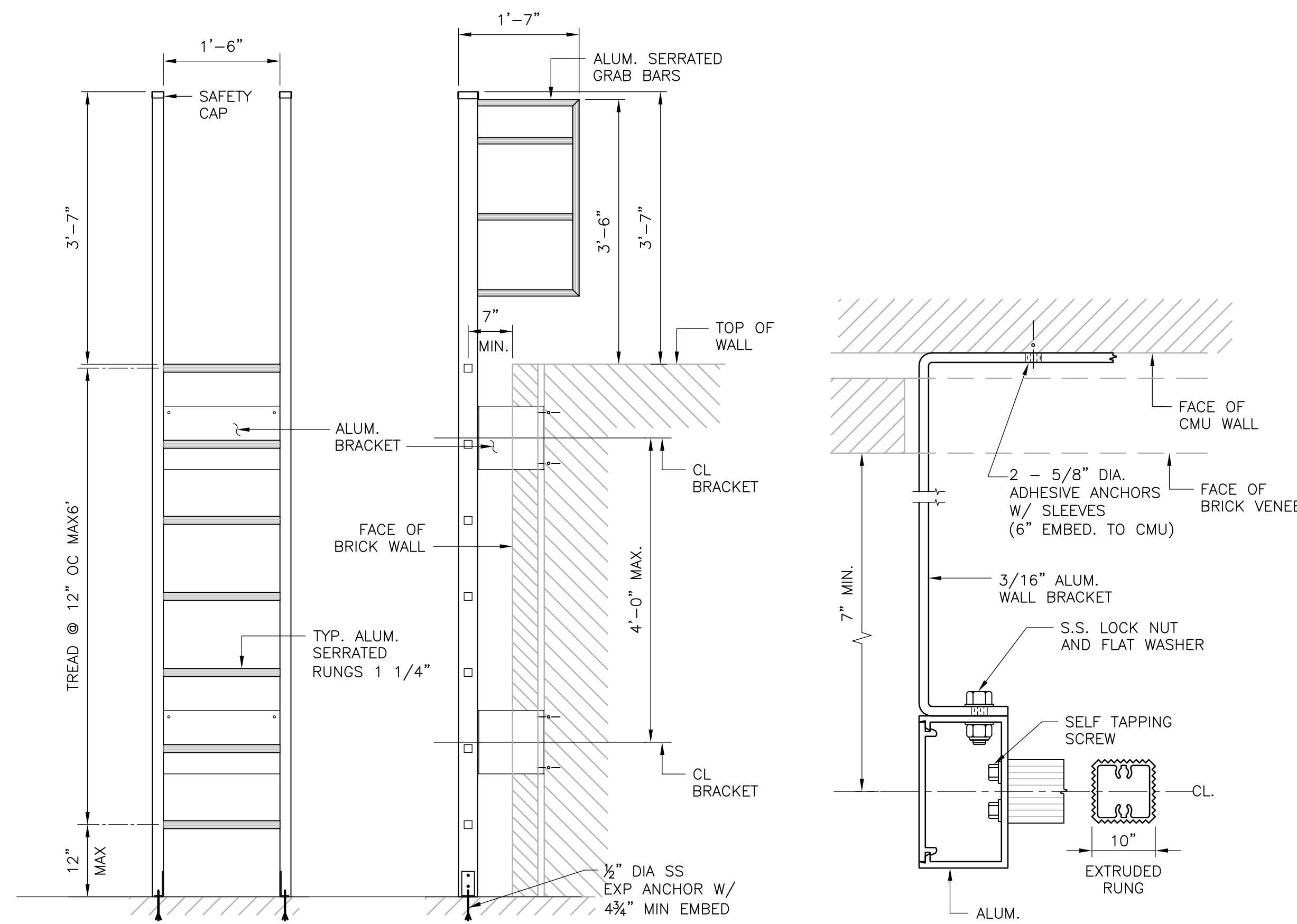
END POST



AT STAIR

1. TOEBOARD SHALL BE PROVIDED UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR IN SPECS. TOEBOARD NOT REQUIRED WHEN CONCRETE CURBS 4" OR HIGHER ARE PROVIDED.

GUARDRAIL



FRONT ELEVATION

SIDE ELEVATION

LADDER DETAILS

VERTICAL LADDER DETAIL

NTS

CMU MASONRY NOTES

- 1. f'm = 1500 psi.
- 2. CMU MASONRY DETAILS, ELEVATIONS AND NOTES ON THIS SHEET APPLY TO ALL NEW CMU EXTERIOR AND INTERIOR WALLS UON. EXTERIOR WALLS CONSIST OF A CMU WYTHE AND ONE OR MORE BRICK WYTHES, INTERIOR WALLS CONSIST OF A SINGLE CMU WYTHE.
- 3. WALLS CONSISTING OF AN EXTERIOR PORTION AND AN INTERIOR PORTION SHALL BE REINFORCED AS EXTERIOR WALLS OVER THEIR FULL HEIGHT.
- 4. LOAD BEARING WALLS ARE WALLS UPON WHICH STEEL JOIST OR OTHER STRUCTURAL FRAMING IS SET. ALL OTHER WALLS ARE NON-LOAD BEARING WALLS.
- 5. FULLY GROUT ALL CELLS AND COURSES WITH VERTICAL OR HORIZONTAL REINFORCING. PROVIDE 2" MINIMUM CLEAR COVER TO THE REINFORCING (UON).
- 6. ALL HORIZONTAL REINFORCING, EXCEPT IN THE LINTELS, SHALL BE PLACED IN A CMU BOND BEAM BLOCK. PROVIDE GALVANIZED METAL LATH IN THE HORIZONTAL JOINT BELOW THE BLOCK TO RETAIN THE GROUT.
- 7. VERTICAL REINFORCING SHALL EXTEND TO 2" BELOW THE TOP OF THE CMU WALL OR PARAPET.
- 8. PROVIDE A CONTINUOUS BOND BEAM WITH 2-#5 CONTINUOUS HORIZONTAL BARS AT THE TOP OF ALL WALLS AND AT EACH FLOOR AND ROOF LEVEL.
- 9. PROVIDE 1-#6 CONTINUOUS VERTICAL BAR ADDITIONAL WITH MATCHING DOWELS EACH SIDE OF ALL BUILDING COLUMNS UON.
- 10. REINFORCING LAP SPlice LENGTH = 48 BAR DIAMETERS (24" MINIMUM).
- 11. PROVIDE HORIZONTAL JOINT REINFORCING AS SPECIFIED.
- 12. REINFORCING BARS TO EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12" BEYOND BEND UON.
- 13. AT NEW OPENINGS IN EXISTING WALLS, PROVIDE CMU LINTELS PER PER TYPICAL CMU LINTEL DETAIL ON THIS SHEET (UON) AND ADDITIONAL REINFORCING FULL HEIGHT AT JAMBS PER TYPICAL CMU WALL OPENING DETAIL (TYPE I) ON THIS SHEET (UON).
- 14. WHERE NEW CMU WALLS ARE PLACED ON EXISTING CONCRETE, SET DOWELS INTO EXISTING CONCRETE BY METHOD C WITH 7" MIN EMBEDMENT (SEE "MODIFICATION AND REPAIR TO CONCRETE NOTES" ON SHEET SD-S-3.)
- 15. WHERE A NEW CMU WALL IS USED TO INFILL AN OPENING BELOW AN EXISTING STEEL LINTEL, FIELD WELD #6 REBAR (4" LONG MINIMUM) TO BOTTOM OF STEEL LINTEL AT 32" ON CENTER (MAXIMUM) WITH 1/4" FILLET WELD ALL AROUND.
- 16. TYPICAL VERTICAL WALL REINFORCING ABOVE STEEL LINTELS SHALL BE LAP SPLICED TO MATCHING DOWELS WHICH ARE FIELD WELDED TO THE STEEL LINTEL WITH 1/4" FILLET WELD ALL AROUND.
- 17. AT LOOSE STEEL LINTELS ONLY, DRILL 1" (MAXIMUM DIAMETER HOLES (1 PER BAR) IN LINTEL FLANGES TO ALLOW CONTINUOUS REINFORCING AT JAMBS TO PASS THROUGH. INSTALL GROUT DAMS IN/ON LINTEL AS REQUIRED, AND GROUT REINFORCING SOLID CONTINUOUS.
- 18. FOR PLAN LOCATION OF MASONRY WALLS AND OTHER MASONRY DETAILS SEE ARCHITECTURAL DRAWINGS.

Table with columns: REV. NO., DATE, DRWN, CHKD, REMARKS. Includes revision history and drawing status.

Table with columns: CADD FILE NO., DESIGNED BY, DRAWN BY, SHEET CHK'D BY, CROSS CHK'D BY, SCALE, APPROVED BY, DATE. Includes project metadata.

Table with columns: PROJECT NAME, PROJECT NO., CONTRACT NO., PROJECT ADDRESS. Includes project identification.

Logos for CDM (Camp Dresser & McKee Inc.) and LIN ASSOCIATES, INC. CONSULTING ENGINEERS.

Project title: UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

Project title: STANDARD DETAILS IV SD-S-4

Table with columns: PROJECT NO., Sht. No., Acc. No. Includes project and drawing identification.

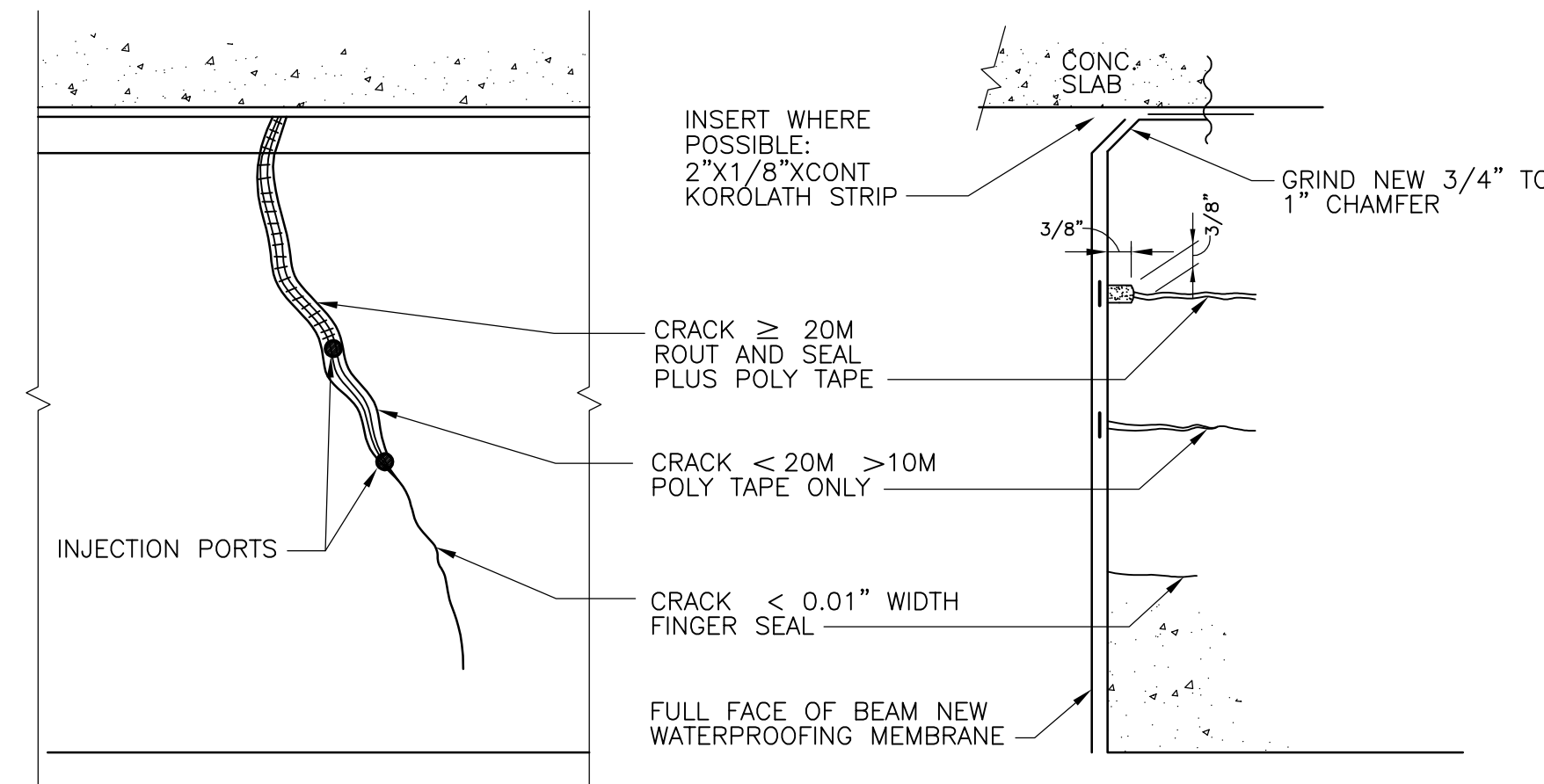
GENERAL NOTES FOR CONCRETE REPAIRS: (SEE SD-S-6 FOR MEANS AND METHODS)

OVERVIEW:

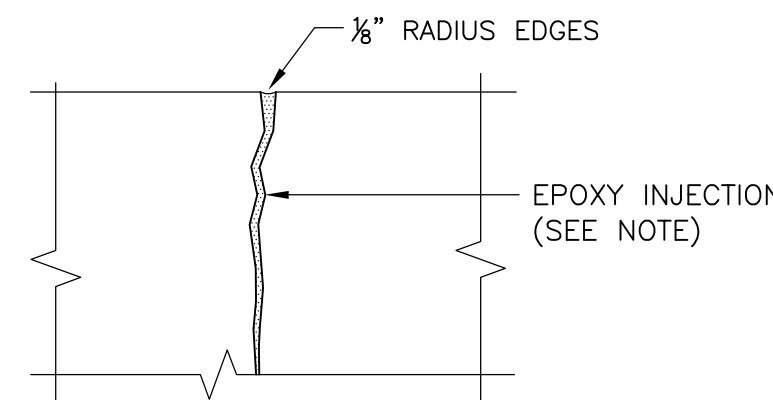
- THE WORK OF THIS SECTION REQUIRES THAT THE CONTRACTOR SECURE A COPY OF THE ORIGINAL CONSTRUCTION CONTRACT DRAWING SET(S). THE SET(S) SHALL BE MAINTAINED ON SITE FOR REFERENCE AND FOR THE COORDINATION OF ALL REHABILITATION WORK. DO NO REMOVALS, DO NO EXCAVATIONS, DO NO CORING OR DRILLING, WITHOUT FIRST REVIEWING THE EXISTING CONDITIONS ON THE ORIGINAL DRAWING SETS.
- SPECIFICATION SECTION 03740 GOVERNS THE CONCRETE REPAIR AND REHABILITATION WORK.

- ALL DIMENSIONS ASSOCIATED WITH ANY DISTRESSED AREA, OR FOR ANY GIVEN LIMITS OF SUCH AREAS, ARE APPROXIMATE AND MAY VARY TO A DEGREE THAT MATCHES THE RELATIVE MAGNITUDE OF THE GIVEN DIMENSION OR LIMIT.
- ALL CRACK DESCRIPTIONS, AND MEASUREMENTS, SO GIVEN WITHIN THIS DOCUMENT SET IS BASED UPON SHORT TERM OBSERVATIONS, AND ON AN AVERAGING AND ESTIMATION OF CRACK WIDTH AND LENGTHS. CONTRACTOR MUST REVIEW AND CONFIRM ALL INDIVIDUAL SITE CONDITIONS FOR THE RELEVANT INFORMATION SO PROVIDED WITHIN THIS DOCUMENT SET, AND MUST DO SO PRIOR TO SELECTING THE APPROPRIATE REPAIR MEANS AND METHODS, MATERIALS, OR DEMOLITION CONFIGURATIONS.
- ALL REPORTED CRACK WIDTHS HEREIN ARE ESTIMATES BASED UPON SPOT MEASUREMENTS WITH A CRACK COMPARATOR GAGE ON A SPECIFIC CRACK SITE, OR ON ONE SIMILAR TO THE ONE UNDER CONSIDERATION. FURTHER, MANY CRACK WIDTHS ARE APPROXIMATE DUE TO INSPECTORS INABILITY TO REACH OR INSPECT OPERATIONAL TANKS FOR THE SURFACE BEING DESCRIBED.
- LENGTH OF CRACK WAS ESTABLISHED BY A COMBINATION OF THE FOLLOWING: TAPE MEASURE, APPROXIMATIONS BASED UPON SIMILAR CONDITIONS, OR APPROXIMATIONS MADE ON OUT-OF-REACH SURFACES. THE REPORTED MEASURED LENGTH IS BASED UPON A CLEAR MEASURE FROM HARD EDGES OR EASILY NOTED LANDMARKS, OUT TO A TERMINATION POINT DEFINED AS THE POINT WHEN THE CRACK IN QUESTION RUNS OUT INTO A HAIRLINE STATUS (LESS THAN OR EQUAL TO 0.002"). ALL DESCRIPTIONS AND MEASURES ARE TAKEN AT THE SURFACE. NO ATTEMPT HAS BEEN MADE TO INVESTIGATE AND REPORT ON ANY SUBSURFACE CONDITIONS, THAT IS, CONDITIONS FOUND USING DESTRUCTIVE TESTING OR CORING.
- COORDINATE AND SCHEDULE WITH CARE THE REHABILITATION REPAIR WORK SHOWN WITHIN THIS SECTION. DO NOT HAMMER, OR IMPACT WORK, ON ANY NEW PATCH OR CRACK REPAIR UNLESS IT CAN BE DEMONSTRATED THAT THE SCHEDULED WORK WILL DO NO HARM TO THE REHABILITATION.
- GENERALLY ALL CRACKS FOUND TO CONTINUE UNDERNEATH A PATCH OR AREA OF REHABILITATION AND THE SURROUNDING CONCRETE IS SOUND AND WITHOUT EVIDENCE OF CORROSION OR CORROSION INDUCED SPALLING, THE ADJACENT SURFACES SHALL BE REBUILT USING POLYMER PATCH SYSTEMS AND IN COMPLIANCE WITH SUBSTRATE PREPARATION REQUIREMENTS.
- UNLESS MORE STRINGENT REQUIREMENTS ARE NOTED ELSEWHERE WITHIN THE CONTRACT DOCUMENTS, ALL PERMANENTLY REMOVED HARDWARE, POSTS, ETC. SHALL AT A MINIMUM HAVE ALL ANCHORS OR REINFORCING BARS, REMOVED OR CUT BACK TO ONE AND ONE HALF INCHES (1.5") BELOW THE EXPOSED SURFACE. ANY BROKEN CONCRETE SURFACE OR HOLE REMAINING FROM A REMOVAL, IS TO BE TREATED AS A SPALL THAT IS TO BE REPAIRED AS PER THIS SECTION. USE OF SQUARED OFF REPAIR ZONE, SHARP EDGES, BONDERS, ANTI-CORROSION SEALERS AND POLYMER CONCRETE PATCHING WILL BE REQUIRED.
- EXISTING REPAIRS ON OPEN-TO-VIEW SURFACES WILL INVOLVE STANDARD PATCH PREPARATION TECHNIQUES AND COLOR MATCHING OF PATCH TO ADJACENT AREA. COLOR MATCH WILL REQUIRE TEST PATCHES AND PROCEDURES TO BE APPROVED BY THE ARCHITECT.
- ALL REPAIRS AND INSTALLED MATERIALS, BE THEY SEALANTS, EPOXY, OR PREBAGGED PATCHING MATERIALS, REQUIRE THAT THE APPEARANCE OF THE FINISHED WORK, OR REPAIR ZONE, MATCH ADJACENT EXISTING SURFACE FINISHES AND JOINTING OF THE AREAS ABUTTING THE REPAIR ZONE.
- PATCH CONFIGURATION MUST BE SQUARED OFF TO COMBINE ADJACENT PATCH AREAS OR TO CONFORM TO THE GENERAL REQUIREMENT THAT ALL PATCHES BE SQUARED OFF TO A NEAR-SQUARE PLAN DIMENSION WITH RATIOS OF LONG TO SHORT SIDES NOT EXCEEDING 2:1.
- ANY SURFACE RECEIVING A PATCH MUST BE OF SOUND CONCRETE WITH A SURFACE TEXTURE THAT REVEALS AND EXPOSES SOME OF THE AGGREGATE. THE REQUIRED DEGREE OF AGGREGATE EXPOSURE, TO ENGAGE AGGREGATE INTERLOCK WITH THE REPAIR MATERIAL DEPENDS UPON THE SIZE OF THE MAJOR AGGREGATE WITHIN THE CEMENT MATRIX AS WELL AS THE MEANS OF DEMOLITION, BUT IS GENERALLY CONSIDERED AS A PROJECTION FROM THE SURFACE OF NO MORE THAN ONE QUARTER OF AN INCH (1/4"), NOR NO LESS THAN (1/8"), WITH PREFERENCE TO ONE QUARTER OF AN INCH. ALL LOOSE AGGREGATE MUST BE REMOVED.
- BONDING AGENTS ARE REQUIRED FOR ALL PATCH REPAIRS IN THIS PROJECT AND ARE OF A MIXED EPOXY RESIN/PORLAND CEMENT ADHESIVE WITH A REQUIRED MAXIMUM OPEN TIME OF 24 HOURS. OPEN TIME IS DEFINED AS THAT AMOUNT OF TIME BETWEEN THE START OF MIXING OF THE BONDER PRODUCT, AND THE APPLICATION OF THE PATCH MATERIAL. NO PATCH WILL BE ACCEPTED IF APPLIED TO BONDING AGENTS THAT HAVE BEEN EXPOSED TO THE AIR BEYOND THE ALLOWED OPEN TIME. BOND MATERIAL AS SPECIFIED FOR THIS PROJECT MUST HAVE THE PATCH APPLIED BEFORE THE 24 HOUR PERIOD HAS EXPIRED.
- PACKING IN REPAIR MORTARS FOR OVERHEAD REPAIRS, GREATER THAN OR EQUAL TO 1.5" DEEP, AND WITHIN DEEP HOLES EVEN ABOVE REBAR, MAY SAG AND MUST BE DONE IN A TWO PART OPERATION.
- PACKING IN REPAIR MORTARS OVER 1.5" DEEP, IN TERMS OF HEAT OF HYDRATION IS ACCEPTABLE ONLY IF ENOUGH REINFORCING BARS ARE RUNNING THROUGH THE PATCH TO PROVIDE SUPPORT TO THE UNCURED MATERIAL. EXTENDED MIXES (ADDITION OF AGGREGATE) MUST BE CAREFULLY MONITORED FOR ABILITY OF MIX TO GET IN AND AROUND ALL SPACES WITHIN THE REPAIR ZONE.
- HAND PACKING OF OVERHEAD, DEEP, REINFORCING BAR VOIDS, MUST BE ACCOMPLISHED WITH FORM AND PUMP METHODS, UNLESS IT CAN BE DEMONSTRATED BY TEST OR SOME OTHER POSITIVE MEANS OF QUALITY ASSURANCE.
- HAND PACKING OF DEEP REPAIRS MAY ONLY BE DONE WHEN ALL AREAS OF THE REPAIR VOID ARE ABLE TO BE REACHED BY HAND OR WHEN TOOL ACCESS IS GOOD TO ALL SIDES OF THE AREA. CONGESTED AREAS, TOO DEEP TO BE REACHED BY HAND, MUST BE GRAVITY Poured OR PUMPED.
- GENERALLY ALL REPAIRS THAT ARE GREATER IN DEPTH THAN TWO INCHES MUST BE FORMED AND PUMPED, OR FORMED AND CAST, UNLESS IT CAN BE DEMONSTRATED BY TEST OR SOME OTHER POSITIVE MEANS OF QUALITY ASSURANCE THAT ALL VOIDS ARE BEING FILLED.
- FINAL FINISHING OR HAND FINISHED REPAIRS MUST BE SUCH THAT EDGE ACTION TROWEL WORK MUST ALWAYS BE IN A MOVEMENT TOWARD THE EDGE OF THE REPAIR. FINISH MOTION AWAY FROM A REPAIR EDGE TENDS TO PULL THE REPAIR MATERIAL AWAY FROM THE EDGE AND RESULTS IN A PLASTIC TEAR. PATCHES SO FOUND MUST BE INJECTED AFTER MATERIAL HAS CURED OUT.
- SOUND CONCRETE OR SOUND SUBSTRATE AS USED IN TERMS OF "REMOVE UNTIL SOUND CONCRETE IS ENCOUNTERED" IS DEFINED AS THAT SURFACE, THAT IS THE SURFACE THAT IS ACCEPTING THE REPAIR OR SURFACE TREATMENT, SHALL EXHIBIT NO MICRO FRACTURES FROM IMPACT REMOVAL TOOLS, NO LOOSE REINFORCING BARS OR BARS THAT HAVE LOST BOND BACK INTO THIS SURFACE, NO HOLLOW SOUNDING AREAS AFTER BEING STRUCK WITH A HAMMER OR HEAVY TAP ROD, NO LOOSE AGGREGATE, AND NO CONTINUOUS DUSTING OR BREAKDOWN OF THE CEMENTITIOUS SURFACES SURROUNDING THE AGGREGATE.

- PREPACKAGED REPAIR MATERIALS MUST BE INSTALLED WITHIN THE TEMPERATURE RANGE AS SO GIVEN BY THE MANUFACTURER OF THE PRODUCT IN USE. THIS TEMPERATURE IS DEFINED FOR THIS PROJECT AS THE TEMPERATURE OF THE SUBSTRATE OR SURFACE TO WHICH THE REPAIR MATERIAL IS BEING APPLIED TO. NOTE WELL: THIS IS NOT THE AMBIENT AIR TEMPERATURE.
- REBUILD IS DEFINED FOR THIS PROJECT AS THAT PROCESS NEEDED TO RESTORE THE ORIGINAL SURFACE OR ELEMENT TO A NEAR ORIGINAL STATE BY REMOVING, REPLACING, OR PATCHING. REBUILDING AN EXPANSION JOINT MAY REQUIRE NOT ONLY RESIZING THE JOINT FOR A NEW SEAL, BUT THE RESTORATION OF THE JOINT SHOULDERS THAT SUPPORT THE JOINT.
- ALL SURFACE TREATMENTS MUST BE COORDINATED WITH THE APPROPRIATE SECTION OF THE CONTRACT DOCUMENTS, BOTH DRAWINGS AND SPECIFICATIONS. GENERALLY, ALL EXPOSED-TO-WEATHER SURFACES NOT COVERED BY WATERPROOFING MEMBRANES, SEALANTS, JOINTS, OR OTHER MATERIAL CONSTRUCTIONS, ARE TO BE TREATED WITH A PENETRATING CORROSION INHIBITOR.

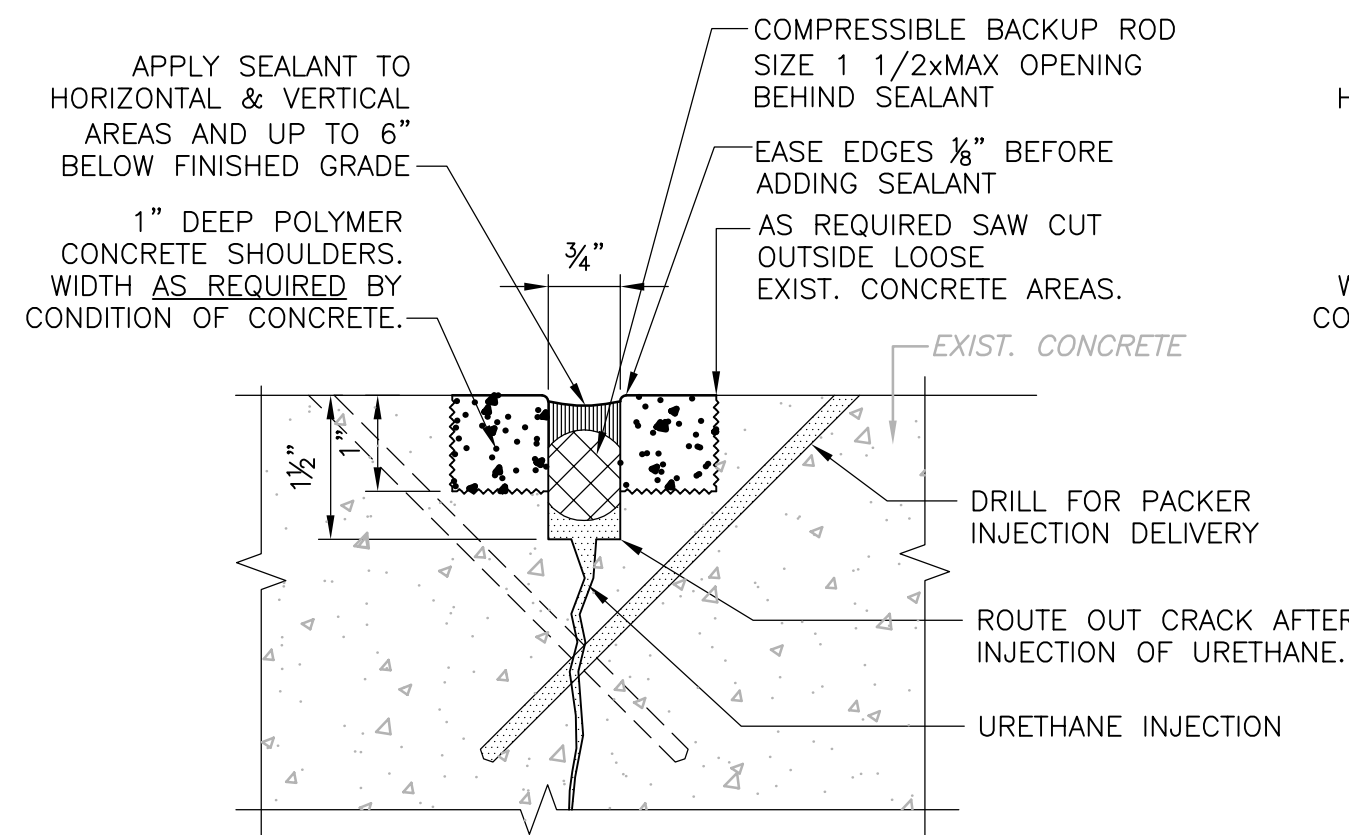


ELEVATION
SECTION
SURFACES TO RECEIVE
MEMBRANE / LINING
CRACK REPAIRS

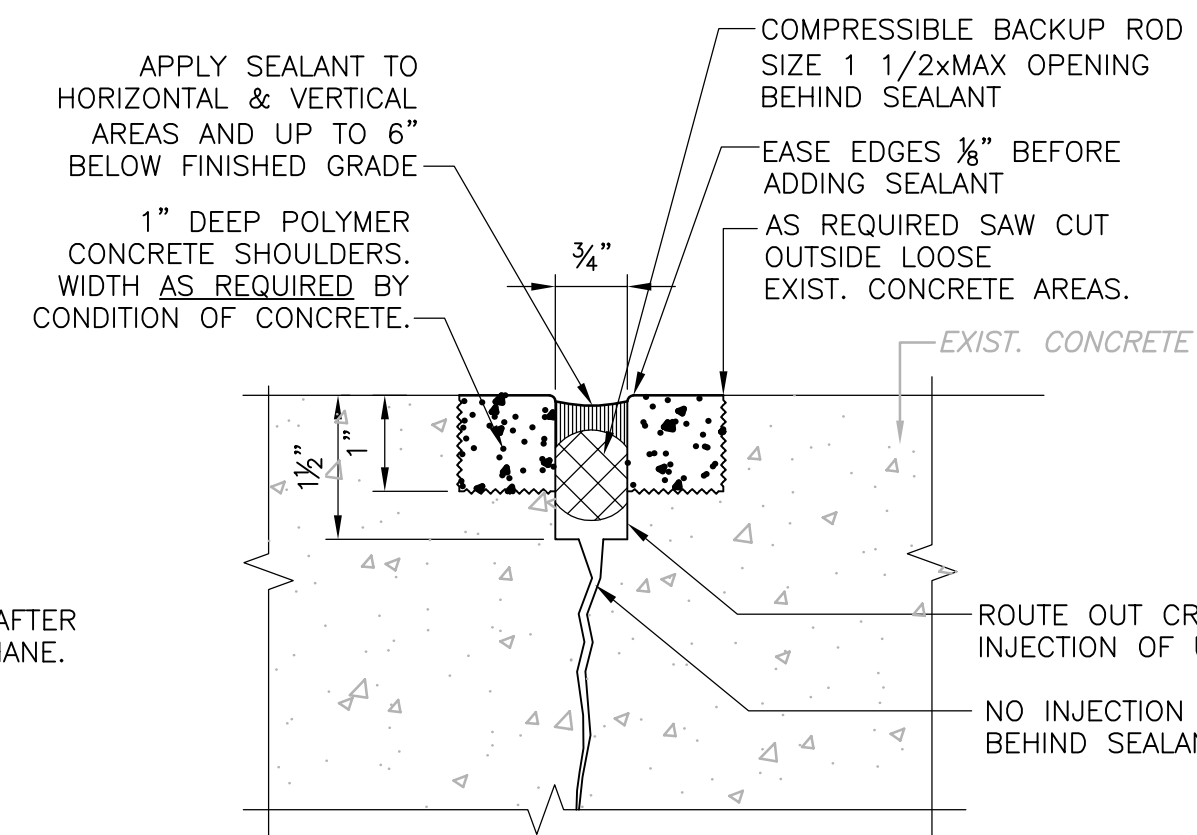


KEY "S"
SHRINKAGE CRACK
NON-MOVING JOINT REPAIR

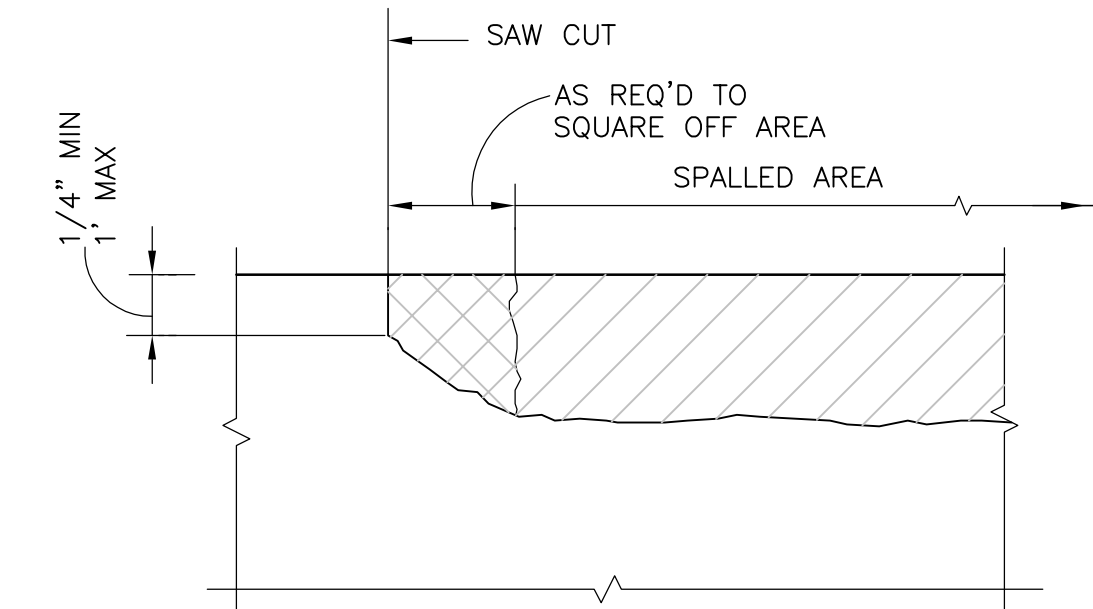
- NOTES:
- INJECT WITH EPOXY, SEAL TOP (EXTERIOR) CRACK WITH NON-SAG EPOXY (OR SIMILAR). USE SURFACE MOUNTED INJECTION PORTS SPACED AS REQUIRED TO ENSURE COMPLETE FILLING OF JOINT.
 - FOR CRACK LESS THAN 4-5 MILS, SURFACE SEAL TOP OF CRACK.
 - AFTER INJECTION AND INITIAL CURE OF EPOXY, GRIND OFF TOP EPOXY SEAL.



KEY "M"
WITH URETHANE
MOVING JOINT REPAIR

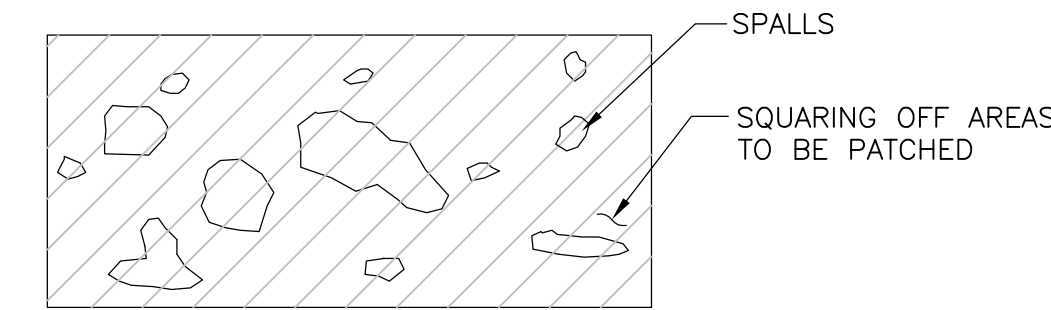


KEY "MN"
WITHOUT URETHANE
MOVING JOINT REPAIR

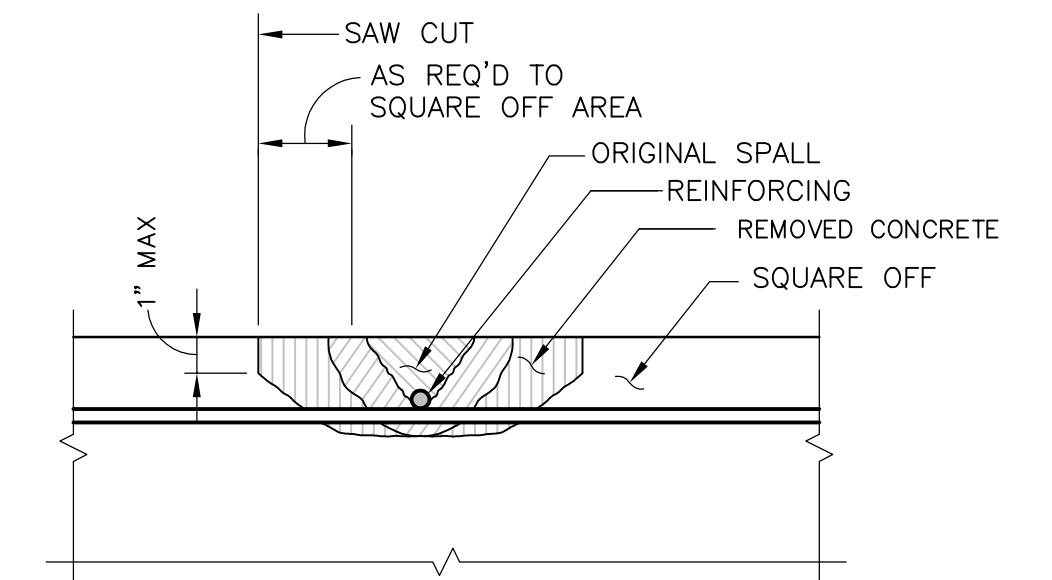


SQUARING OFF PATCHES

- REMOVE LOOSE CONCRETE TO SOUND BASE. (SHOWN HATCHED IN DETAIL)
- SAW CUT TO PROVIDE STRAIGHT SQUARE EDGES. SEE BELOW
- CHIP OFF CONCRETE TO SAW CUT EDGE. (SHOWN AS CROSS HATCHING IN DETAIL)

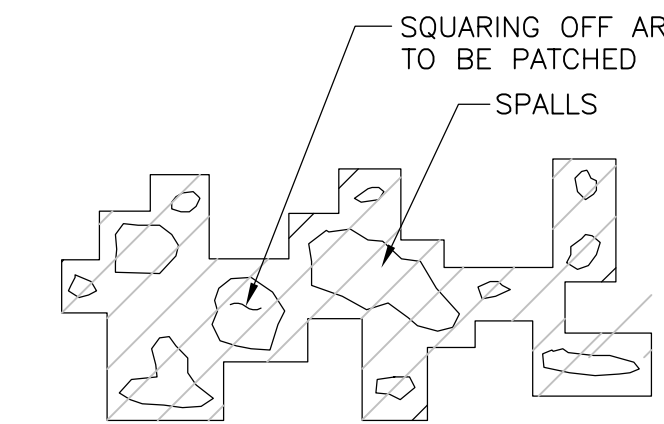


PLAN - PREFERRED METHOD OF SQUARING
OFF AREAS TO BE PATCHED



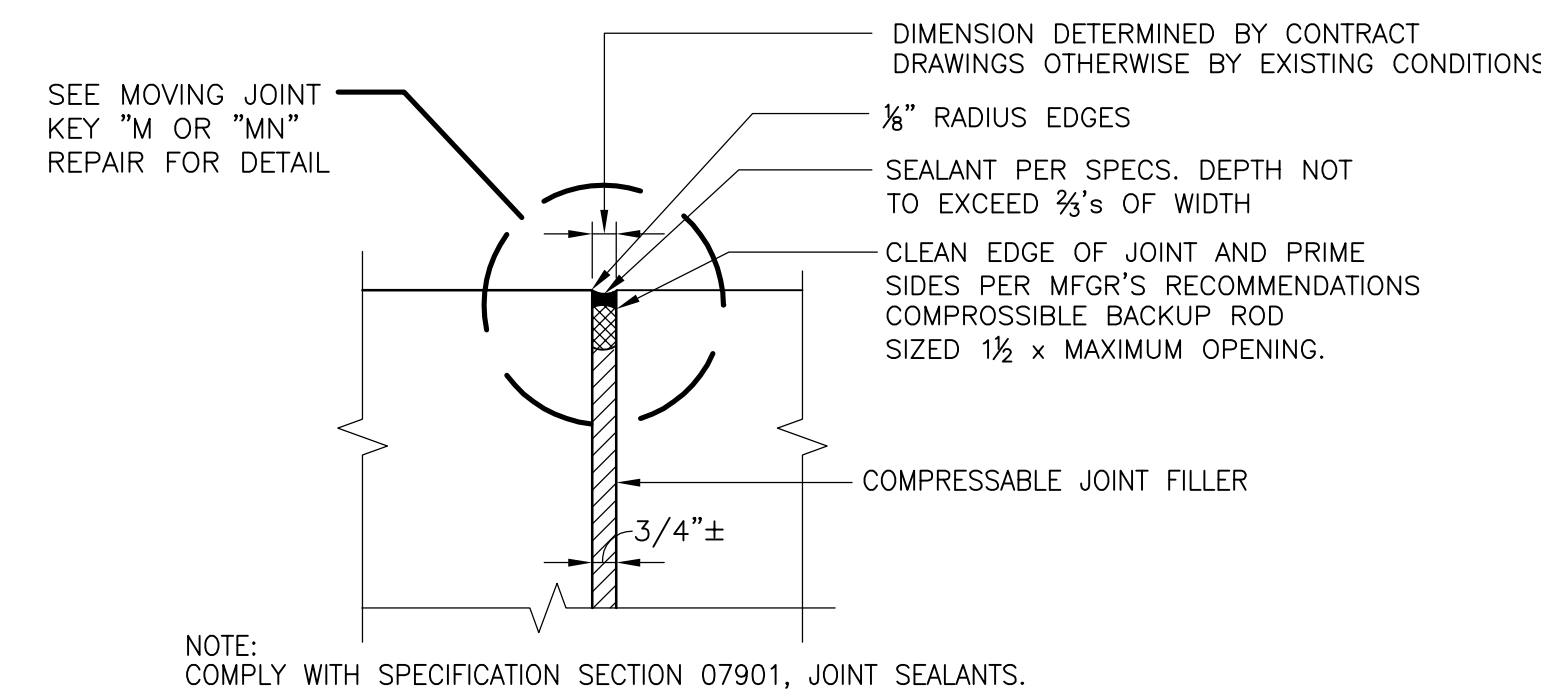
PLAN - TYPICAL SQUARING OFF AREAS

- BREAK OUT CONCRETE IN ORIGINAL SPALL.
- IF REINFORCEMENT IS CORRODED REMOVE CONCRETE AROUND IT SEE GENERAL NOTES.
- IF PERPENDICULAR REINFORCEMENT IS CORRODED SEE STEP 2.
- FOR TREATMENT OF REBARS AND PATCHING SEE GENERAL NOTES.

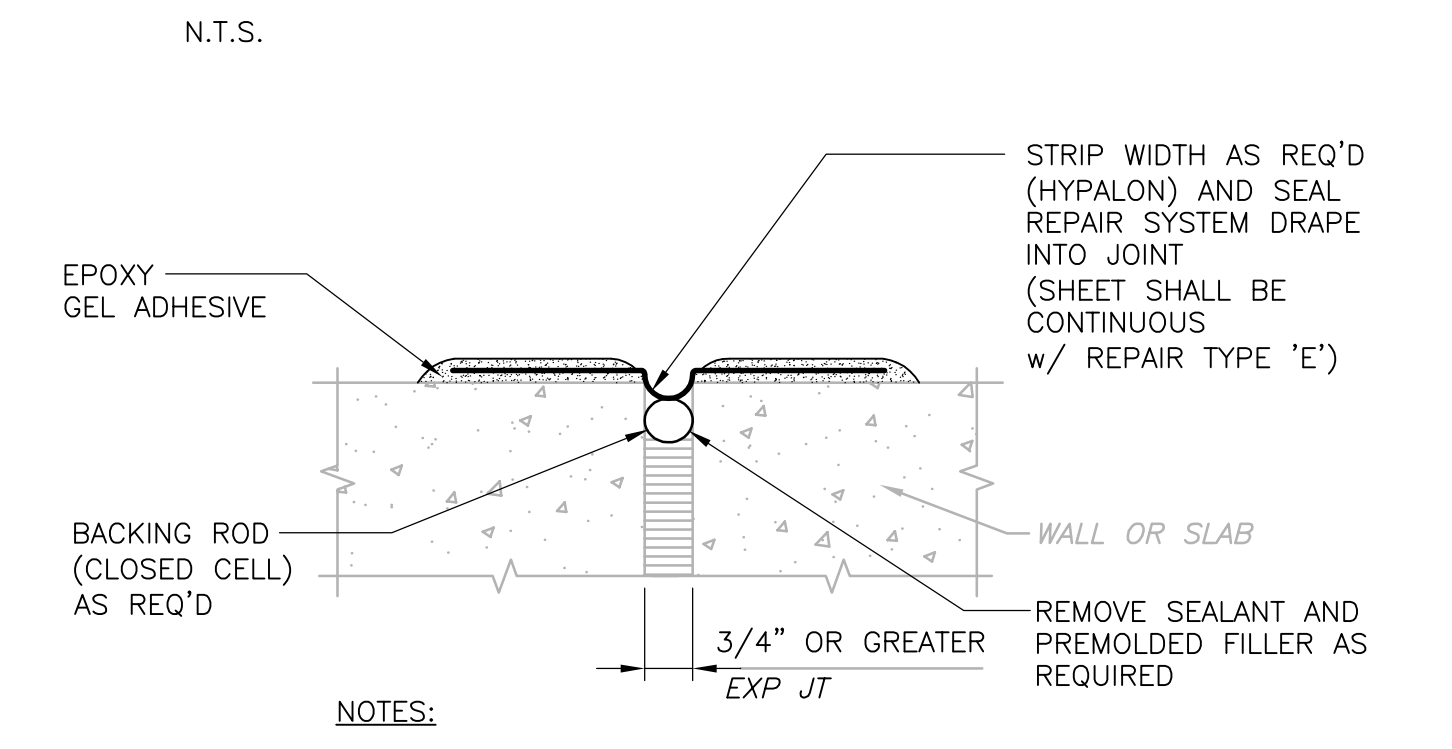


PLAN - INCORRECT SQUARING
OFF AREAS TO BE PATCHED

TYPICAL CONCRETE REPAIR DETAILS

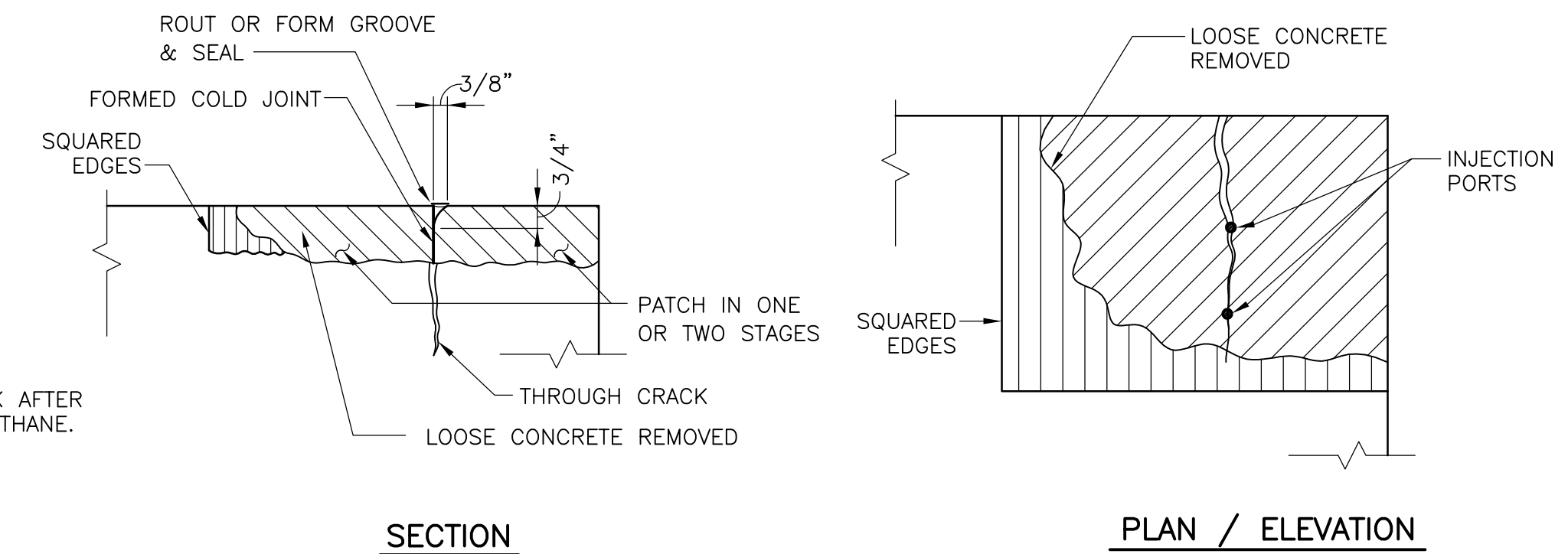


KEY "B"
(EXISTING OR NEW CONSTRUCTION)
BASE SLAB EXPANSION JOINT DETAIL



HYPALON EXPANSION JOINT REPAIR

- NOTES:
- INSTALLATION PROCEDURES AS SPECIFIED.
 - HYPALON SHEET SHALL BE CONTINUOUS AT INTERSECTION OF WALLS AND BOTTOM SLAB.



SECTION
PLAN / ELEVATION

CRACKS IN PATCHED AREA

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: E:\2009.015 UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT - PHASE III (CDM)\PHASE III\STRU\SSDDT005.DWG Saved by: RLAM On: 1-Dec-10 Plotted on: 2-Dec-10 2:23 PM

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12/10	RL	GK		REISSUED PER REVISION 1

CADD FILE NO.	SSDDT005
DESIGNED BY:	G. KARJADI
DRAWN BY:	R. LAM
SHEET CHK'D BY:	G. KARJADI
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	R. LIE
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

STANDARD DETAILS V

PROJECT NO. 1289-74283

Sht. 90 of 312

SD-S-5

Acc. # 1289-74496

GENERAL NOTES FOR CONCRETE MEANS AND METHODS

OVERVIEW:

THE REPAIRS, METHODS, AND MATERIALS DISCUSSED WITHIN THIS SECTION, ARE SUPPLEMENTAL AND IN ADDITION TO THOSE COVERED IN THE STANDARD SPECIFICATIONS, UNLESS SPECIFICALLY EXCEPTED THE MORE STRINGENT REQUIREMENTS WILL GOVERN. THESE REPAIRS ARE TO BE COORDINATED WITH THE PRIMARY CONTRACT DOCUMENTS REGARDING THE EXTENSIVE RECONSTRUCTION WORK.

THE REPAIRS TO BE UNDERTAKEN INVOLVE THE REPLACEMENT OF DAMAGED CONCRETE FROM SPALLS, HONEYCOMBS, CORROSION INDUCED SPALLS, AND FOR ANY GENERAL REPLACEMENT OF CONCRETE. THOSE AREAS SO IDENTIFIED WITHIN THIS CONDITION/REPAIR ENCOMPASS, FOR THE MOST PART, PITTED, SPALLED OR WEAK AREAS OF CONCRETE. ALL REPAIR AREAS, BE THEY CONCRETE PATCHES, CRACK INJECTION, OR ROUTING AND SEALING, ARE IDENTIFIED ON THIS SET OF DRAWINGS. THE REPAIR MAY REQUIRE THE COMPLETE REMOVAL OF ALL WEAKENED AREAS OF CONCRETE IN AND AROUND REINFORCING BARS, AROUND HONEYCOMBS, AND THE REBUILDING OR CREATION OF NEW SEALED JOINTS WITHIN THE SURFACES, WITH PREPACKAGED REPAIR MATERIALS THAT ARE APPLIED IN A MANNER APPROPRIATE TO THE TYPE AND LOCATION OF THE WORK.

REQUIREMENTS FOR CONCRETE REMOVALS AND PATCH PREPARATION:

- ALL DAMAGED CONCRETE MUST BE REMOVED BACK TO QUALITY CONCRETE FREE OF HONEYCOMBS, FRACTURE CRACKS, AND FEATHERED EDGES. SQUARED OFF EDGES OF A PATCH MUST BE AT A MINIMUM OF 1/4" DEEP. USE ONLY LIGHT AIR HAMMERS (15 LB FOR FINAL REMOVAL, NO HEAVIER THAN 30 LB INITIAL DEMOLITION), POWER SAWS, HAND CHISELS, OR HYDRO DEMOLITION FOR THE FINAL ONE AND ONE HALF INCHES OF THE REMOVAL. NOTE WELL: THE EQUIPMENT IN USE, IN TERMS OF THE RESULTING DEBRIS BOTH WATER BASED AND AIRBORNE, MUST BE REVIEWED FOR ENVIRONMENTAL EFFECTS BY THE GC FOR COMPLIANCE WITH CONTRACT DOCUMENTS
- CRACKS, FRACTURED AREAS, OR HONEYCOMBING THAT PENETRATES UP AND IN-BETWEEN ANY GROUP OF REINFORCING BARS OR AROUND ANY SINGLE BAR, INCLUDING STIRRUP BARS, BY MORE THAN 50% OF THE BAR DIAMETER, SHALL HAVE ALL CONCRETE REMOVED AROUND THE BAR FOR A DISTANCE ALONG THE BAR AT A MINIMUM EQUAL TO 4" OR UNTIL THE 50% CRITERIA IS NOT EXCEEDED. ANY REINFORCING BARS SO EXPOSED BY THIS REPAIR MUST HAVE THE CONCRETE TOTALLY REMOVED FROM AROUND THE SAID MENTIONED BARS BY AT LEAST 3/4". REINFORCING BARS ABOVE, OR TO ONE SIDE OF THE NEWLY EXPOSED REINFORCING, MAY BE LEFT IN A PARTIALLY EXPOSED CONDITION PROVIDED THE BAR IS FOUND TO BE CLEAN AND FREE OF CORROSION. THAT THE SURROUNDING CONCRETE IS FREE OF FRACTURES OR CRACKS AND WELL BONDED TO THE BAR. FOR FULL WIDTH BEAM REPAIRS, OR FOR ANY SURFACE SUBJECT TO TENSION LOADING DUE TO NORMAL MEMBER FLEX (TOP OF CANTILEVER BEAMS, MIDSPAN BOTTOM OF BEAMS AND SLABS, TANK WALLS, SUBSTRUCTURE WALLS ANY DIRECTION AND/OR A DISTANCE GREATER THAN 8" FROM THE NEAREST FULLY EXPOSED BAR, ADDITIONAL MECHANICAL ANCHORAGE FOR THE NEW PATCH MUST BE PROVIDED. SUCH MECHANICAL ANCHORAGE MUST TAKE THE FORM OF EITHER AN ADDITIONAL BAR THAT IS FULLY EXPOSED FOR NO LESS THAN 4" OR BY THE INSERTION OF HEADED STAINLESS STEEL EXPANSION ANCHORS HAVING A MINIMUM COVER TO BOLT HEAD OF 1-1/2" AND A MINIMUM CLEARANCE UNDER THE BOLT HEAD TO THE NEWLY EXPOSED SURFACE OF AT LEAST 1/2", SPACED AT 6" O.C., EACH WAY. EXPANSION ANCHORS, IF USED, MUST NOT BE PLACED CLOSER THAN 10 DIAMETERS TO A FREE EDGE AND BE IMBEDDED TO A DEPTH BEYOND THE MIDLINE OF THE REINFORCING BARS.
- ALL REINFORCING BARS MUST BE WITHOUT DAMAGE FROM THE REMOVAL OPERATIONS. ANY BARS FOUND TO BE DAMAGED OR CUT THROUGH, MUST BE REPAIRED IN A MANNER ACCEPTABLE TO THE ENGINEER. ANY LOOSE REINFORCING BARS MUST BE SECURELY TIED TO PREVENT DISPLACEMENT DURING THE REPAIR. ANY REINFORCING BAR WITHIN A BEAM OR COLUMN ELEMENT THAT HAS LOST 15% OR MORE OF ITS CROSSSECTION, DUE TO CORROSION OR OTHER DAMAGE, MUST BE REPLACED OR REPAIRED. LIGHTLY CORRODED REINFORCING BARS THAT ARE TO REMAIN WITHIN THE REPAIR MUST HAVE ALL EXPOSED SURFACES BLASTED CLEAN TO A BRIGHT METAL FINISH DEVOID OF ALL CORROSION PRODUCTS. VERTICAL COLUMN REINFORCING FOUND TO BE DEFICIENT MUST BE REPLACED BY FULL BUTT WELDMENTS OR MECHANICAL SPLICERS (MINIMUM COVER MUST BE MAINTAINED TO SPLICER UNLESS IT IS GALVANIZED OR EPOXY COATED AND THE COVER MAY THEN BE REDUCED TO 1.0"). REPLACEMENT REINFORCING, THAT IS TO BE WELDED, MUST CONFORM TO ASTM A706. COLUMN TIES MAY BE SPLICED OR REANCHORED IN SOUND CONCRETE WITH EPOXY. CAST-IN-PLACE BEAM REINFORCING MAY BE SPLICED OR WELDED DEPENDING UPON LOCATION. ALL MECHANICAL SPLICERS MUST DEVELOP 125% OF THE BAR CAPACITY IN BOTH COMPRESSION AND TENSION.

PRIOR TO PREPARING THE BAR THE GC SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, THE RECORDED LOCATION AND DESCRIPTION OF THE ITEM IN QUESTION, THE SPLICER OR WELD USED, THE PROPOSED METHOD OF PATCH REPAIR AND ALL MANUFACTURERS INSTALLATION LITERATURE AND CUT SHEETS, AND THE METHOD OF CURING AND PROTECTION OF THE PATCH AND REINFORCING.

- ALL REMAINING CONCRETE EDGES AT THE REMOVED AREAS SHALL PRESENT, AT A MINIMUM A 1/4" PERPENDICULAR EDGE TO THE ORIGINAL PLANE OF THE CONCRETE. PREPACKAGED POLYMER CONCRETE MUST BE APPROPRIATE FOR THIS THICKNESS, USE OF 3/8" EXTENDED AGGREGATE FOR HIGH VOLUME REPAIRS WILL REQUIRE THIS EDGE TO BE AT A MINIMUM OF 1/2".
- ADJACENT PATCHED AREAS SHOULD NOT BE SET APART BY THIN UNREPAIRED AREAS OR SET TOO CLOSE TO A FREE EDGE. ANY REPAIRED AREA, WITHIN 6" OF A FREE EDGE ON A BEAM, COLUMN, OR AT THE END OF A WALL, THAT PENETRATES TO THE MAIN REINFORCING FOR A DISTANCE ALONG THE REINFORCING EQUAL TO OR GREATER THAN 12", MUST HAVE THE CONCRETE WITHIN THE 6" DISTANCE TO THE FREE EDGE REMOVED AND THE REINFORCING BAR AT THIS EDGE MUST BE FULLY EXPOSED FOR A DISTANCE ALONG THE BAR EQUAL TO 12". BAR MUST BE CLEAR BY 3/4" ALL AROUND.
- REMOVAL BY HYDRODEMOLITION IS PREFERRED, AND IF SO UTILIZED, ALL CEMENT AND SLURRY DEBRIS MUST BE REMOVED FROM THE PREPARED SURFACES BEFORE THE DEBRIS HAS A CHANCE TO HARDEN.
- TAKE SPECIAL CARE NOT TO SPALL OUT BACK EDGES OF A REPAIR AREA. FAILURE TO PREVENT SUCH DAMAGE WILL REQUIRE FULL DEPTH REMOVAL, WHILE MAINTAINING A SHARP 1/4" OR 1/2" (MINIMUM) PERPENDICULAR EDGE AS SO MENTIONED ABOVE.
- WHEN REMOVING THE DAMAGED MATERIAL IN A BEAM BOTTOM, SLAB UNDERSIDE, OR FOR ANY REPLACEMENT THAT IS SCHEDULED FOR GRAVITY POUR OR PUMP OPERATION, CARE MUST BE TAKEN TO SHAPE THE SLOPE OF THE REMAINING INTERFACE SO AS NOT TO ENTRAP AIR. INABILITY TO AVOID AIR ENTRAPMENT SPACES WILL REQUIRE VENTING.

QUALITY ASSURANCE AND RECORD KEEPING:

- ALL REPAIR MATERIALS SPECIFIED WITHIN THIS DOCUMENT ARE PREPACKAGED SYSTEMS THAT REQUIRE CAREFUL ATTENTION TO PROCEDURE. THE CONTRACTOR WILL BE REQUIRED TO SHOW PROOF OF COMPETENCY WITH THE EXPECTED REPAIR METHOD VIA CONFIRMATION BY A QUALIFIED MANUFACTURERS FIELD REPRESENTATIVE, AND ATTENDANCE AT A CONFERENCE SESSION HELD AT THE REPAIR SITE FOR AN APPLICATION DEMONSTRATION BY THE MANUFACTURERS REPRESENTATIVE.
- FINAL ACCEPTANCE OF A REPAIR AREA WILL REQUIRE THAT ALL STEPS IN THE REPAIR PROCESS, FOR THE AREA IN QUESTION, WILL HAVE BEEN ACCEPTED BY THE INSPECTING AUTHORITY.
- ALL REPAIRS, INCLUDING THE EXTENT OF SAME, MUST BE CLEARLY IDENTIFIED WITHIN AN AS-BUILT SET OF DOCUMENTS TAKEN FROM THE CONTRACT DOCUMENTS. THIS DOCUMENT SHALL BE PREPARED WITH THE INFORMATION SHOWING THE REPAIR, INCLUDING CROSS SECTIONS AS NEEDED, USING RELATIVELY CLOSE AND PROPORTIONATE SCALE.
- NO REPAIRS SHALL BE MADE UNTIL A REPAIR CREW HAS BEEN CHOSEN AND IDENTIFIED AND PROPERLY TRAINED BY A MANUFACTURERS REPRESENTATIVE ON THE KEY ITEMS INVOLVED IN THE REPAIR, AS WELL AS FOR THE ENGINEERING CONCERNS WITHIN THIS AREA.

CONCRETE PREPACKAGED REPAIRS: ALL CONCRETE REPAIRS AND PATCHES SHALL BE WITH POLYMER PREPACKAGED SYSTEMS

- OVERHEAD & VERTICAL - HAND TROWEL - MAXIMUM DEPTH = 1 INCH:
 - MATERIALS: POLYMER PREPACKAGED REPAIR KIT FOR OVERHEAD AND VERTICAL APPLICATIONS. USE WITH COMPATIBLE BONDING AGENT OF MIXED EPOXY RESIN/PORTLAND CEMENT ADHESIVE WITH A MINIMUM OPEN TIME OF 24 HOURS. COMPATIBLE ANTI-CORROSION PROTECTION COATING OF MIXED EPOXY RESIN/PORTLAND CEMENT ADHESIVE, WITH A MINIMUM OPEN TIME OF 24 HOURS.
 - APPLY BONDING AGENTS ANTI-CORROSION COATINGS. DEPTH OF TOTAL REPAIR MAY EXCEED 1" PROVIDED THAT THE REPAIR IS BUILT UP IN LAYERS, RAKED PROPERLY, AND CURED SUFFICIENTLY (USUALLY 30 TO 45 MINUTES). THE LAYER TO FOLLOW MUST BE APPLIED TO A WELL SCRUBBED SUBSTRATE USING THE PARENT REPAIR MATERIALS. FOLLOW MANUFACTURER'S SPECIFICATIONS USING A RAKE ON THE LAYER TO BE BUILT UPON. DO NOT USE A TROWEL TO CREATE THIS MECHANICAL BONDING SURFACE.
 - WORKING TIME 10-15 MINUTES. FINISHING TIME: 20-40 MINUTES. CURE AS PER MANUFACTURERS SPECIFICATIONS.
- OVERHEAD - HAND PACKED WITH FORMS - DEPTH EXCEEDS 1 INCH:
 - USE MATERIALS AS FOR #1 ABOVE BUT WITH EXTENDERS AS REQUIRED.
 - APPLY ALL MATERIALS, BONDERS, ANTI-CORROSION COATINGS, AS #1 ABOVE AND AS PER MANUFACTURERS SPECIFICATIONS.
 - WORKING TIME AS FOR #1
 - CURE AS PER MANUFACTURERS SPECIFICATIONS
- OVERHEAD AND VERTICAL - FORMED AND POURED:
 - USE MATERIALS SPECIALLY FORMULATED FOR FORMING AND POURING. BONDERS AND ANTI-CORROSION COATINGS AS #1.
 - C., D. SEE #2
- OVERHEAD AND VERTICAL - FORMED AND PUMPED: ALL ASPECTS SIMILAR TO #3 ABOVE.

TYPE A - HAND TROWEL:

- APPLY BONDING AGENT AS PER SYSTEM IN USE. APPLY ANTI-CORROSION COATING TO ALL EXPOSED METAL. METAL MUST BE CLEAN OF ALL RUST AND CORROSION PRODUCTS PRIOR TO APPLICATION OF ANTI-CORROSION COATING.
- REPAIR MATERIAL IS MIXED INTO A TROWELABLE, THIXOTROPIC CONSISTENCY OR AS PER INSTRUCTIONS OF THE PREMIX SUPPLIER, AND PRESSED INTO THE VOID TO BE PATCHED. ADEQUATE PRESSURE VIA TROWEL ACTION IS REQUIRED TO DEVELOP GOOD CONTACT WITH THE SUBSTRATE AND TO FORM A DENSE, VOID FREE REPAIR.
- TROWEL ACTION MUST BE DONE WITHOUT BLEEDING.
- THIS REPAIR IS USUALLY APPLIED TO SMALLER OVERHEAD OR VERTICAL SURFACES NOT INVOLVING REINFORCING BARS. DEEPER REPAIRS REQUIRE LIFTS NOT TO EXCEED 1.5'.

TYPE B - HAND PACKED AND FORMED:

- APPLY BONDING AGENT AS PER SYSTEM IN USE. APPLY ANTI-CORROSION COATING TO ALL EXPOSED METAL. METAL MUST BE BLASTED CLEAN OF ALL RUST AND CORROSION PRODUCTS PRIOR TO APPLICATION OF ANTI-CORROSION COATING.
- REPAIR MATERIAL IS MIXED INTO A COHESIVE PLASTIC STATE OR AS PER INSTRUCTIONS OF THE PREMIX SUPPLIER, AND FORCED INTO THE VOID TO BE PATCHED. ADEQUATE PRESSURE VIA RODDING OR COMPACTION WITH A LIGHT HAMMER IS REQUIRED TO DEVELOP GOOD CONTACT WITH THE SUBSTRATE, THE FORMS, AND THE REINFORCING BARS, TO FORM A DENSE, VOID FREE REPAIR.
- RODDING OR PACKING ACTION MUST BE DONE WITHOUT BLEEDING.
- THIS REPAIR IS USUALLY APPLIED TO SMALLER OVERHEAD, OR VERTICAL SURFACES, THAT ARE DEEP ENOUGH TO ENCOUNTER REINFORCING BARS.

TYPE C - OVERHEAD AND VERTICAL - FORMED AND POURED:

- APPLY BONDING AGENT AS PER SYSTEM IN USE. APPLY ANTI-CORROSION COATING TO ALL EXPOSED METAL. METAL MUST BE BLASTED CLEAN OF ALL RUST AND CORROSION PRODUCTS PRIOR TO APPLICATION OF ANTI-CORROSION COATING.
- FORMS ARE REQUIRED ALONG ALL SURFACES EXCEPT FOR POURING ACCESS AT THE TOP OF THE FORMS TO ALLOW GRAVITY FLOW OF REPAIR MATERIAL. ANCHOR ALL FORMS WITH APPROPRIATE ANCHORS THAT ARE RECESSED AT LEAST 2" OR CAN BE REMOVED WITHOUT SPALLING OR DAMAGE TO THE SURROUNDING CONCRETE. FORMS SHALL BE SEALED WITH SILICONE SEALANT TO PREVENT LEAKAGE. STRONGLY RECOMMEND TESTING THE TIGHTNESS OF FORMS BY PUMPING WATER THROUGH THE SYSTEM. UPON COMPLETION OF THIS TEST, INSURE ALL FREE WATER IS OUT OF THE FORMS BEFORE POURING REPAIR MATERIAL. SHAPE OF BROKEN OUT CONCRETE SURFACES MUST NOT ALLOW ENTRAPMENT OF AIR FOR THIS METHOD TO BE SUCCESSFUL
- REPAIR MATERIAL IS MIXED TO THE REQUIRED POURABLE CONSISTENCY AS PER RECOMMENDATIONS OF THE PREMIX SUPPLIER. MATERIAL IS DEPOSITED INTO THE FORMWORK WITHIN THE RECOMMENDED WORKING TIMES AND IN A CONSISTENT MANNER TO ALLOW COMPLETE FILLING OF THE FORMS. MATERIAL IS TO BE CONSOLIDATED WITH RODDING OR CONVENTIONAL VIBRATION. CARE MUST BE TAKEN TO OBSERVE ALL WORKING TIMES OF THE MATERIAL IN USE, SMOOTH TRANSITION FROM ONE UNIT OF MATERIAL TO THE NEXT, WITHOUT EXCESSIVE LEFTOVER MATERIAL IN THE MIXER OR THE FORM CHUTES, WILL AID IN A SUCCESSFUL OPERATION.
- THIS IS USUALLY APPLIED TO REPAIRS THAT UNCOVER ONLY ONE LAYER OF REINFORCING BARS AND THAT THE BARS ARE WELL SPACED TO ALLOW EASY FLOW OF MATERIAL IN AND AROUND THEM.

TYPE D - OVERHEAD AND VERTICAL - FORMED AND POURED:

- APPLY BONDING AGENT AS PER SYSTEM IN USE. APPLY ANTI-CORROSION COATING TO ALL EXPOSED METAL. METAL MUST BE BLASTED CLEAN OF ALL RUST AND CORROSION PRODUCTS PRIOR TO APPLICATION OF ANTI-CORROSION COATING.
- FORMS ARE REQUIRED ALONG ALL SURFACES. ANCHOR ALL FORMS WITH APPROPRIATE ANCHORS THAT ARE RECESSED AT LEAST 2" OR THAT CAN BE REMOVED WITHOUT SPALLING OR DAMAGE TO THE SURROUNDING CONCRETE. VENTING PORTS SHALL BE INSTALLED WITHIN THE FORMS AND THROUGH THE STRUCTURE AS REQUIRED TO INSURE COMPLETE FILLING OF ALL VOIDS AND TO PREVENT ENTRAPMENT OF AIR. FORMS SHALL BE SEALED WITH SILICONE SEALANT TO PREVENT LEAKAGE. TEST THE TIGHTNESS OF FORMS BY PUMPING WATER THROUGH THE SYSTEM AND APPLY A PRESSURE OF AT LEAST 14 PSI. THIS PRESSURE MUST BE HELD FOR AT LEAST TEN MINUTES. AFTER TEST, INSURE ALL FREE WATER IS OUT OF THE FORMS BEFORE ACTUAL PUMPING OF REPAIR MATERIAL. AFTER FORM REMOVAL, THE SILICONE IS TO BE STRIPPED OUT AND DISCARDED.
- PREPLACED AGGREGATE WILL NOT BE REQUIRED.
- REPAIR MATERIAL IS MIXED TO THE REQUIRED PUMPABLE CONSISTENCY AS PER RECOMMENDATIONS OF THE PREMIX SUPPLIER. MATERIAL MAY BE PUMPED VIA SMALL HAND OPERATED UNITS USING 1" DIAMETER LINES OR THAT MINIMUM RECOMMENDED BY THE MANUFACTURER. MATERIAL IS PUMPED INTO THE FORMS STARTING OVER THE LARGEST VOIDED AREA AND PROGRESSING RADIALY TO THE SMALLER AREAS. CARE MUST BE TAKEN TO OBSERVE ALL WORKING TIMES OF THE MATERIAL IN USE, SMOOTH TRANSITION FROM ONE UNIT OF MATERIAL TO THE NEXT, WITHOUT EXCESSIVE LEFTOVER MATERIAL IN THE PUMPING EQUIPMENT OR LINES, WILL AID IN A SUCCESSFUL OPERATION. CONTINUE PUMPING UNTIL A 3 TO 5 PSI INCREASE IN NORMAL LINE PRESSURE IS EVIDENT, AND MATERIAL IS FLOWING CLEANLY WITHOUT AIR POCKETS OUT THE VENT PORT, MOVE TO THE NEXT PORT AND CONTINUE PUMPING UNTIL THE CAVITY IS FILLED. CLOSE OFF OR SEAL THE FINAL VENT PORT AND CONTINUE TO PUMP UNTIL A PRESSURE OF 14 PSI IS REACHED AND HELD FOR AT LEAST 10 MINUTES. FORMS MUST BE DESIGNED FOR THE PRESSURE USED AND SHOULD NOT DEFLECT. FINAL FORMED SURFACE IF FOUND TO BE REFLECTIVE OF A DEFLECTED FORMS MAY BE SUBJECT TO CORRECTIVE MEASURES AS DETERMINED BY THE ENGINEER.
- FILL ALL VENTS THROUGH THE STRUCTURE, WITH THE PUMPED MATERIAL OR FLOWABLE MATERIAL AS SO DISCUSSED ABOVE. HAND PACK ALL ANCHOR HOLES WITH MATERIAL AS SO DISCUSSED ABOVE.
- FORM AND PUMP IS BEST APPLIED TO VERY TIGHT REINFORCING BAR PATTERNS AND AT JUNCTIONS OF COLUMN AND BEAM.

EPOXY OR URETHANE INJECTION OF CRACK:

- AFTER IT HAS BEEN DETERMINED THAT A CRACK IS TO BE EPOXY INJECTED, THE CONDITIONS SURROUNDING THE WORK HAVE TO BE INVESTIGATED AS TO SEALING OFF OF THE CRACK PRIOR TO INJECTION, THAT IS, DOES THE CONDITION EXHIBIT BLIND SIDE INJECTION? BLIND SIDE INJECTION IS DEFINED, FOR THE PURPOSES OF THIS PROJECT, BY VIRTUE OF WHETHER THE CRACK CAN BE HYDRAULICALLY SEALED IN ORDER TO BUILD PRESSURE WITHIN THE CRACK AND TO FORCE THE EPOXY FROM ONE PART OF THE CRACK INTO ALL OTHERS BY THE BUILDUP OF A PRESSURE HEAD BEHIND THE EPOXY. INABILITY TO CLOSE OFF ALL SIDES OF A CRACK REQUIRES BLIND SIDE INJECTION PROCEDURES. BLIND SIDE INJECTION DOES OCCUR AT MANY TANK WALLS, AND AT SLABS ON GRADE. THE CONTRACTOR IS ALSO DIRECTED TO THE GENERAL SPECIFICATION SECTION, ALL PARTS, IN REGARD TO EPOXY INJECTION. IN CASE OF DIFFERENCES BETWEEN THESE CONTRACT DOCUMENT NOTES AND THE STANDARD SPECIFICATION FOR EPOXY INJECTION, THE MORE STRINGENT REQUIREMENT WILL APPLY.

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District - Phase III (CDM)PHASE III(STRU)SSDDT006.DWG Saved by: RLAM On: 1-Dec-10 Plotted on: 2-Dec-10 2:24 PM

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SCALE:	AS NOTED
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

STANDARD DETAILS VI

SD-S-6

PROJECT NO.	1289-74283
Sht.	91 of 312
Acc. #	1289-74497

MECHANICAL PIPING GENERAL ABBREVIATIONS;

Table of mechanical piping abbreviations with columns for letter, description, and quantity.

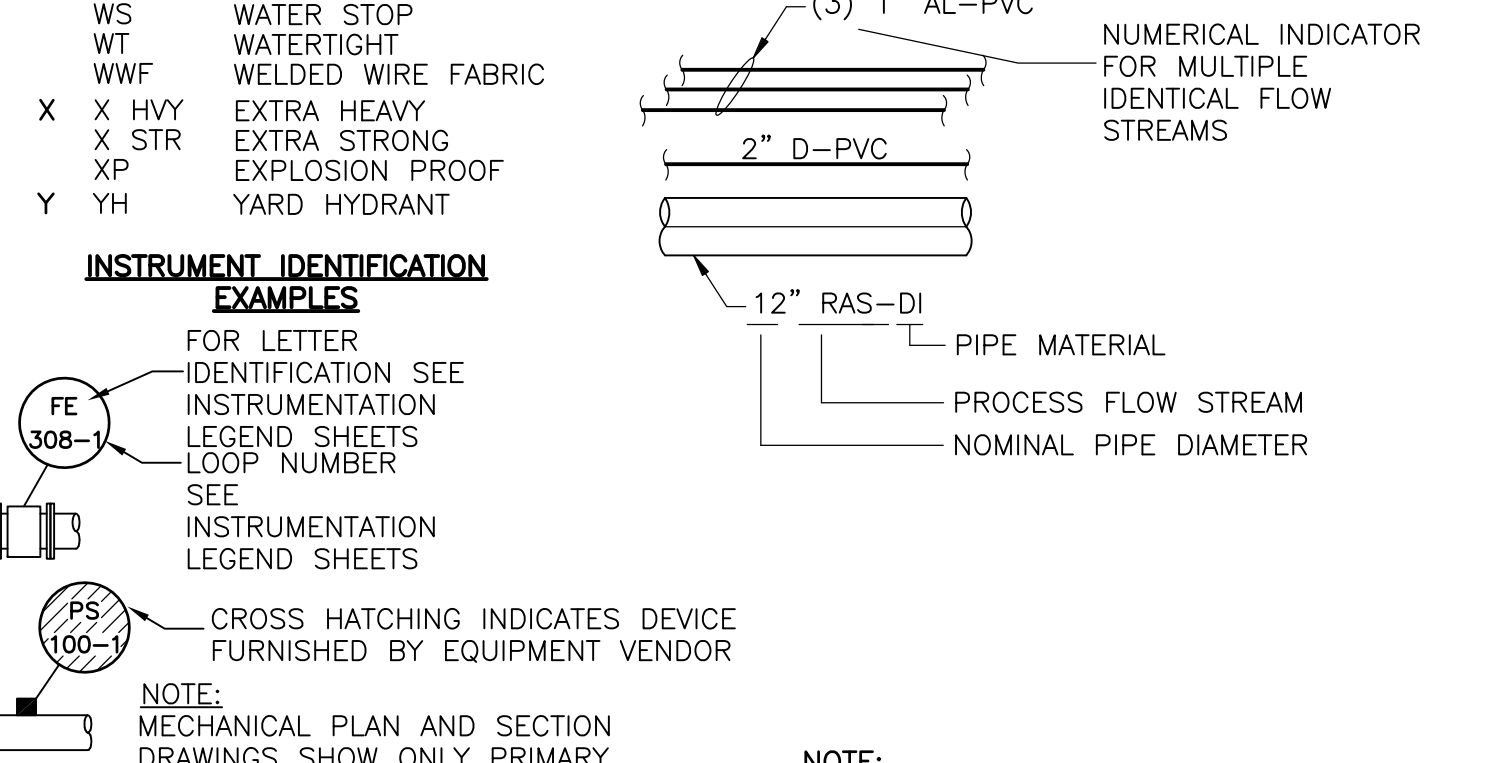
PROCESS FLOW STREAMS;

Table of process flow stream abbreviations with columns for letter, description, and quantity.

PIPE MATERIALS;

Table of pipe materials with columns for letter, description, and quantity.

TYPICAL PIPE TAGS



NOTE: THIS IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS. NOT ALL ITEMS SHOWN HERE APPEAR ON THE CONTRACT DRAWINGS...

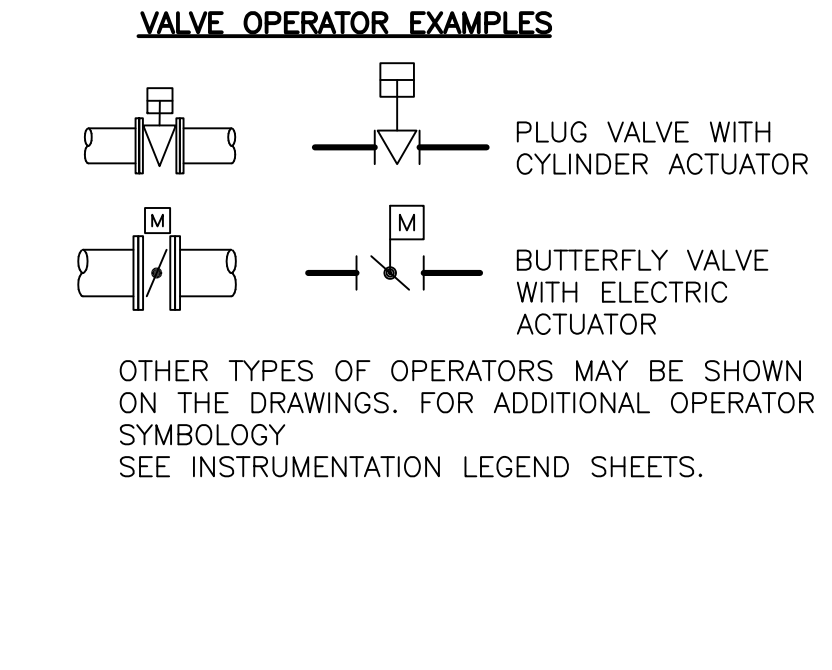
MECHANICAL PIPING DRAWING SYMBOLOLOGY;

Table of mechanical piping drawing symbology with columns for valve symbol, description, and quantity.

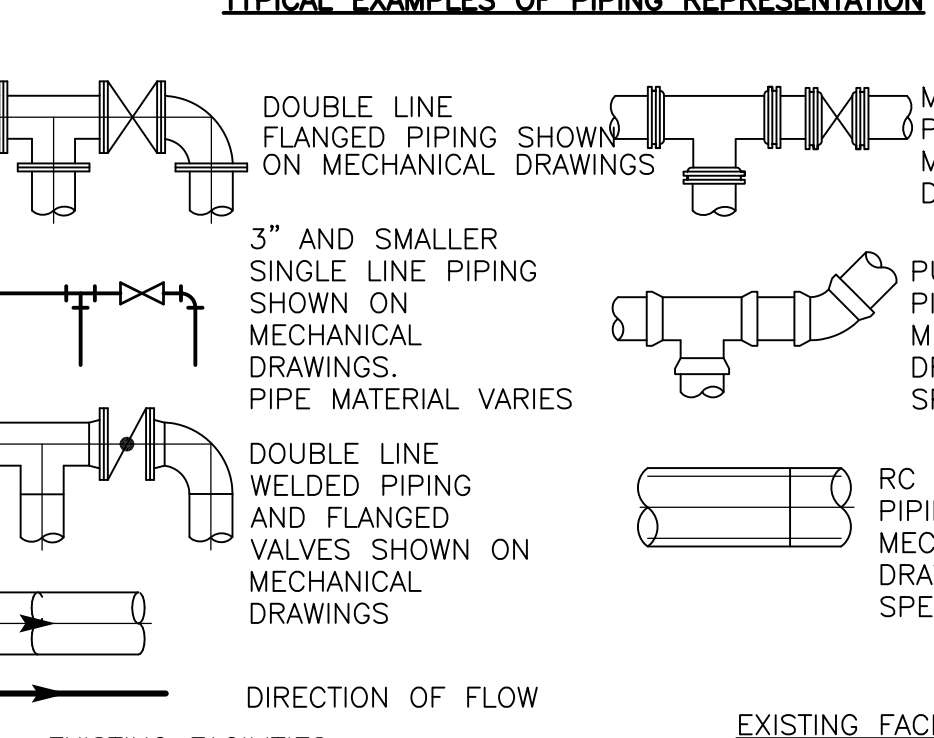
MISCELLANEOUS FITTINGS AND PIPING COMPONENTS

Table of miscellaneous fittings and piping components with columns for symbol, description, and quantity.

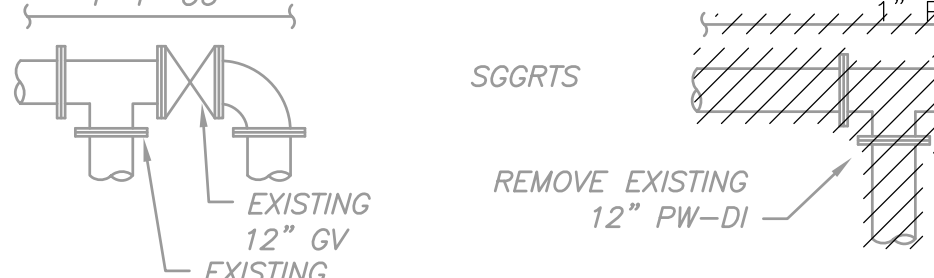
VALVE OPERATOR EXAMPLES



TYPICAL EXAMPLES OF PIPING REPRESENTATION



EXISTING FACILITIES SYMBOL AND ANNOTATION



DEMOLITION NOTES:

- List of 9 demolition notes detailing requirements for existing equipment, structures, and piping.

MECHANICAL PIPING GENERAL NOTES:

- List of 25 general notes covering equipment dimensions, piping system layouts, and construction details.

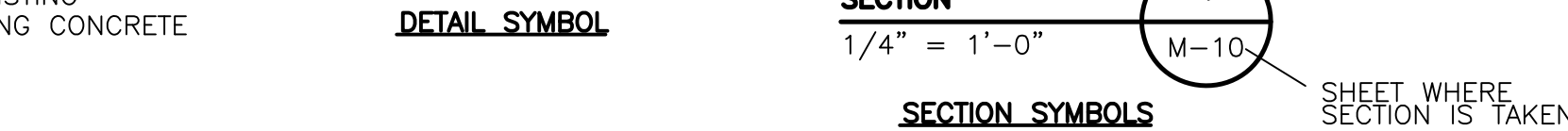


Table with columns for REV. NO., DATE, DRWN, CHKD, and REMARKS.

Table with columns for CADD FILE NO., DESIGNED BY, DRAWN BY, SHEET CHK'D BY, SCALE, APPROVED BY, and DATE.

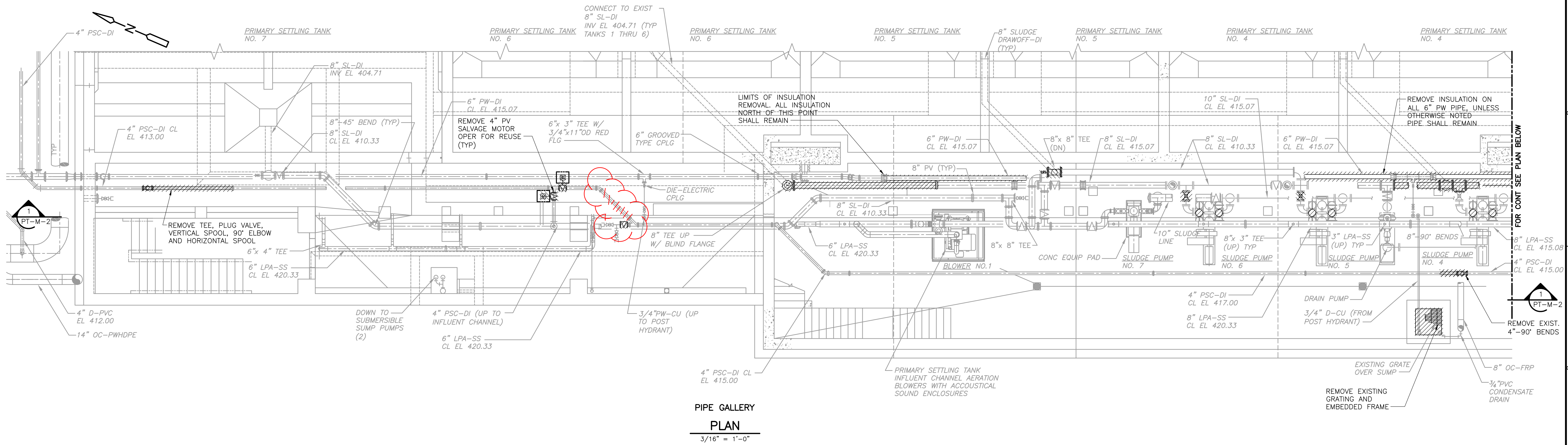
CDM logo and contact information for Camp Dresser & McKee Inc.

Project title: UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. 3-0-17512-0033 PROJECT No. CWSRF - 3197

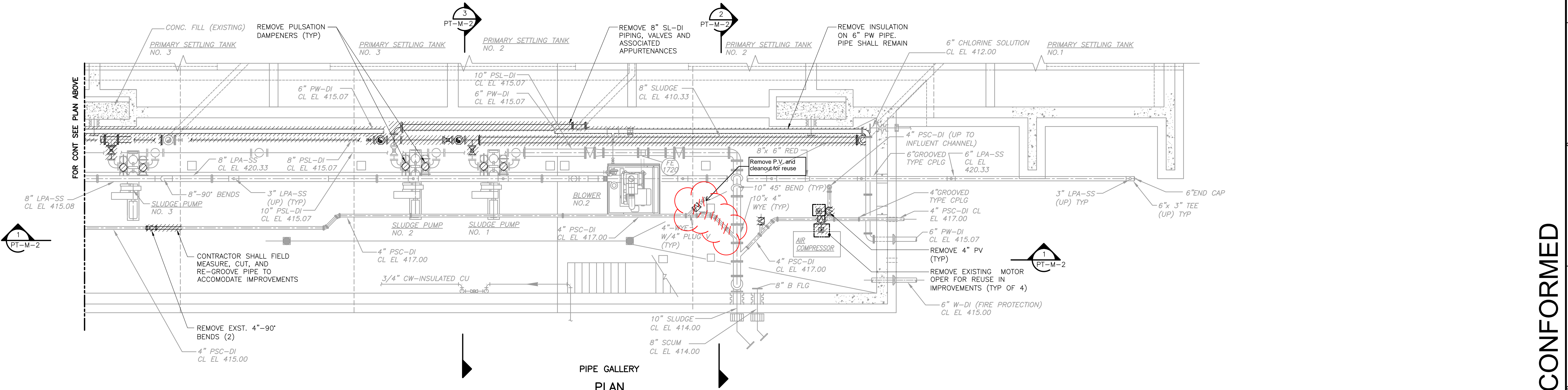
MECHANICAL SYMBOL LEGEND ABBREVIATIONS AND GENERAL NOTES Sht. 92 of 312 GD-M-1

CONFIRMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PIWSE\MPTDM001.DWG Saved by: BITTOJ On: 7-Jul-10 Plotted on: 24-Nov-10 9:50 AM

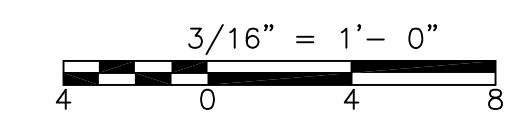


PIPE GALLERY
PLAN
3/16" = 1'-0"



PIPE GALLERY
PLAN
3/16" = 1'-0"

NOTE:
1. REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MPTDM001
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PRIMARY SETTLING TANKS
PUMP GALLERY BASEMENT PLAN
DEMOLITION

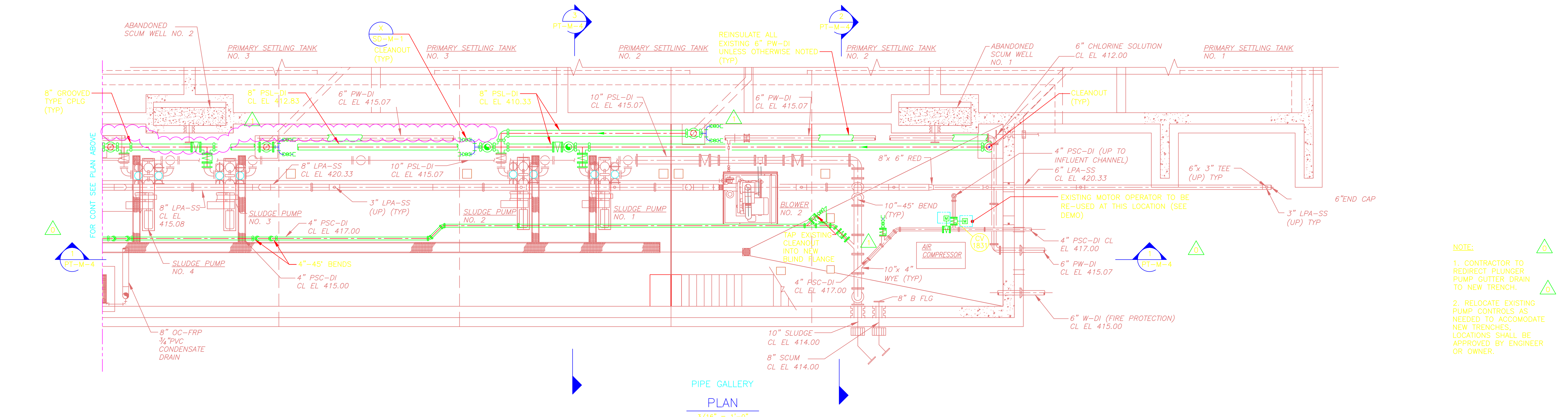
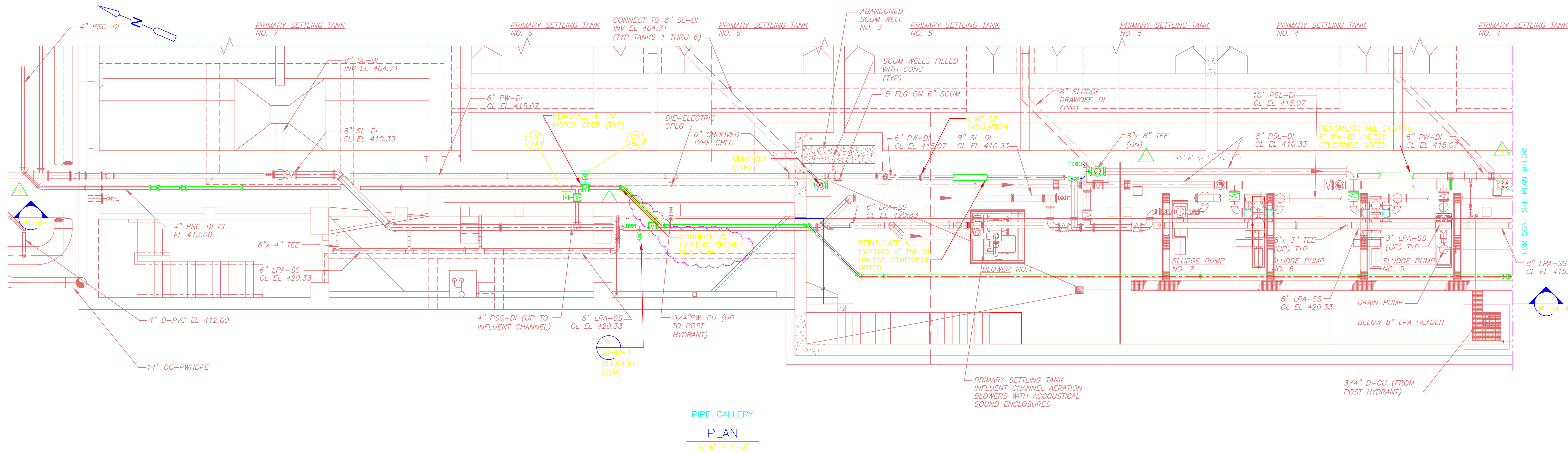
PROJECT NO.
1289-74283

Sht. 93 of 312

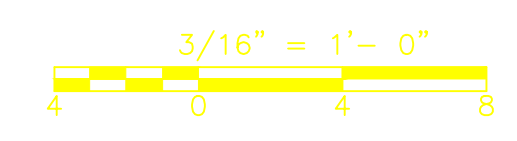
PT-M-1

Acc # 1289-74499

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\PT\MPTPL001.DWG Saved by: JOHNB On: 8-Apr-13 Plotted on: 26-Mar-15 3:24 PM



NOTE:
1. CONTRACTOR TO REDIRECT PLUNGER PUMP GUTTER DRAIN TO NEW TRENCH.
2. RELOCATE EXISTING PUMP CONTROLS AS NEEDED TO ACCOMMODATE NEW TRENCHES. LOCATIONS SHALL BE APPROVED BY ENGINEER OR OWNER.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	11/11	MJW	MM	REVISION
2	09/10	VJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MPTPL001
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

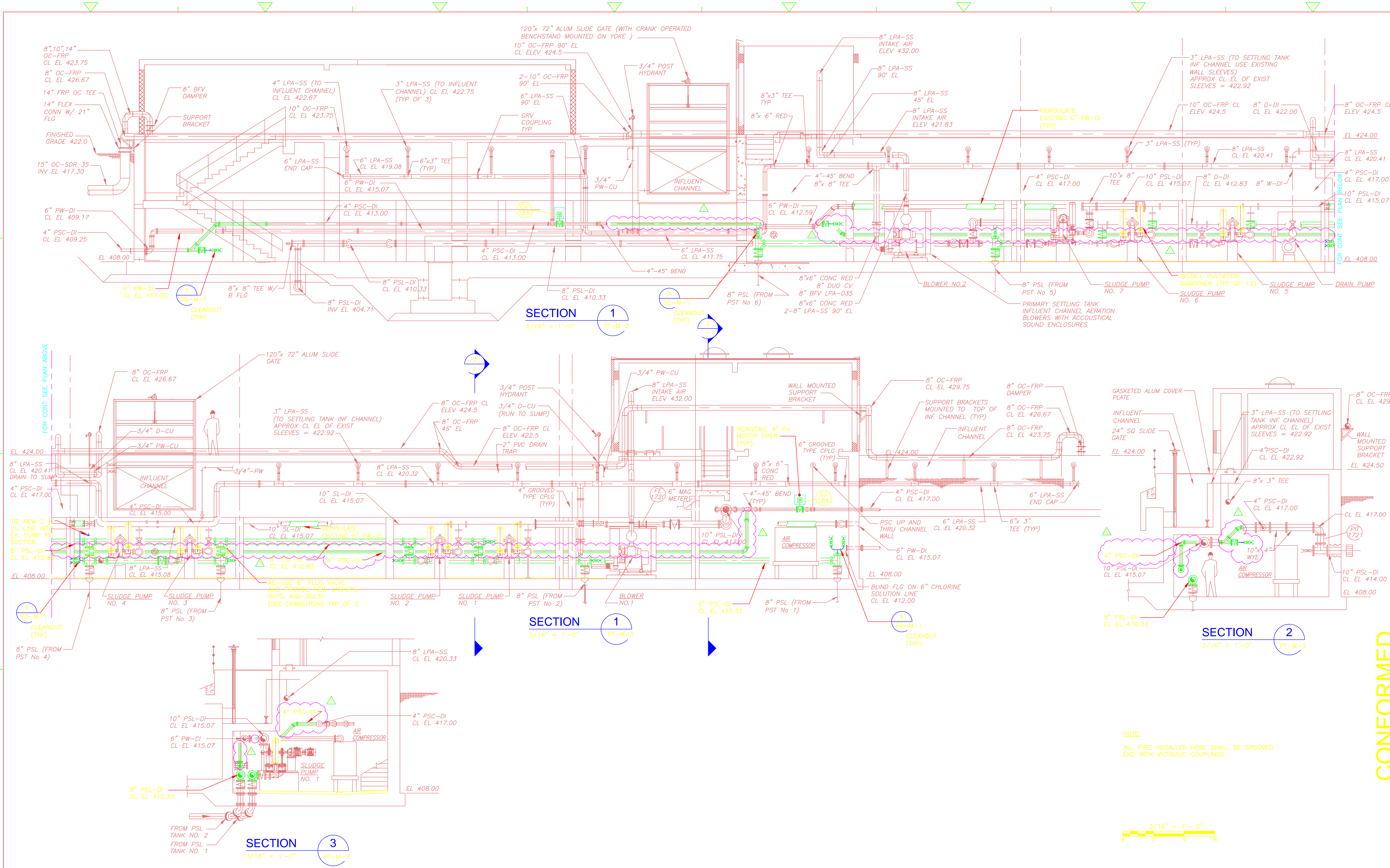
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

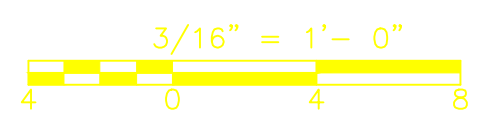
**PRIMARY SETTLING TANKS
 PUMP GALLERY BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO. 1289-74283
 Sht. 95 of 312
PT-M-3
 Acc # 1289-74501

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\PT-MPTSC001.DWG Saved by: JOHNB On: 8-Apr-13 Plotted on: 26-Mar-15 3:36 PM



NOTE:
ALL PIPE INSTALLED HERE SHALL BE GROOVED END WITH VICTAULIC COUPLINGS.



REV. NO.	DATE	DRWN	CHKD	REVISION	REMARKS
1	11/11	MW	MM		

CADD FILE NO. MPTSC001
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

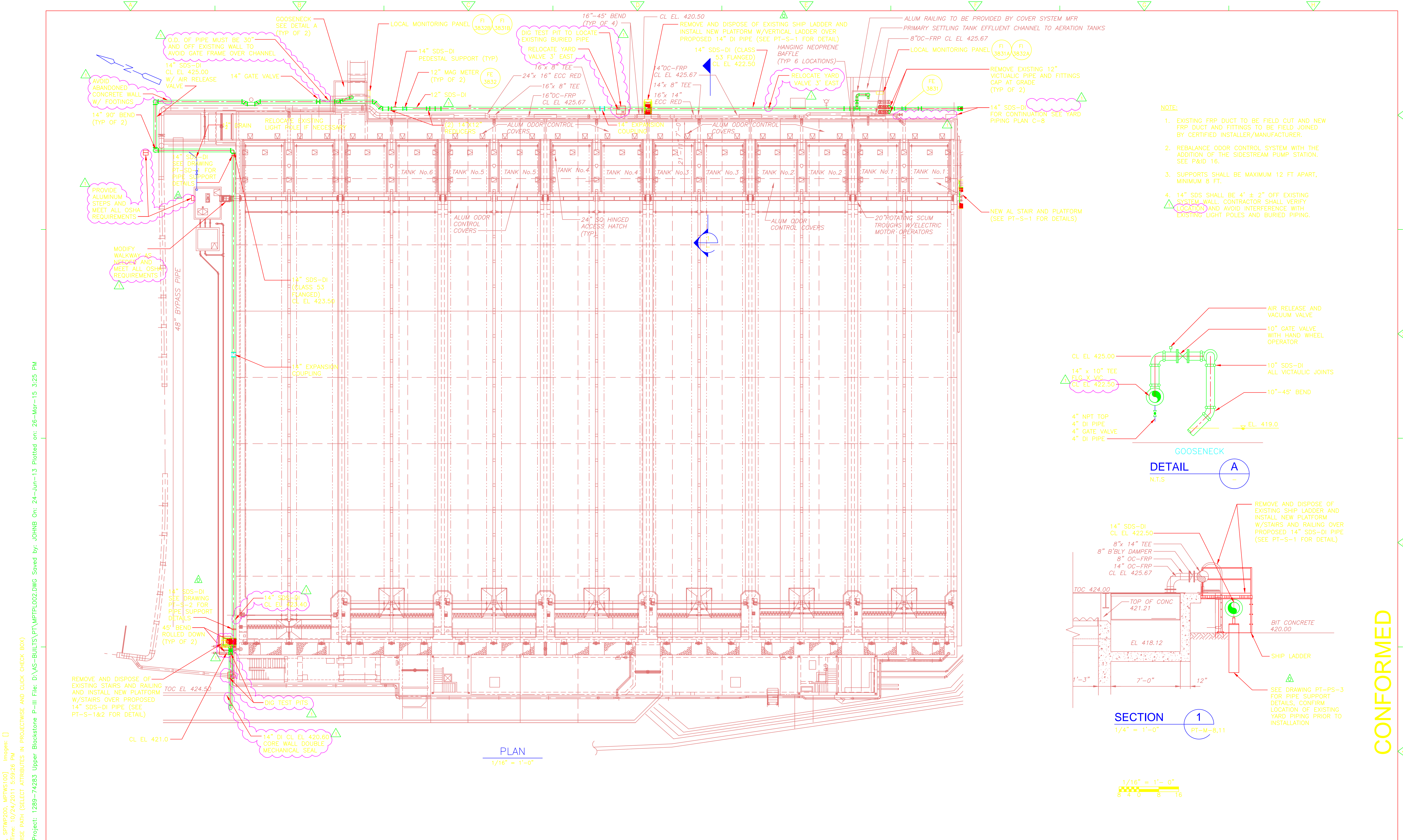
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
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**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

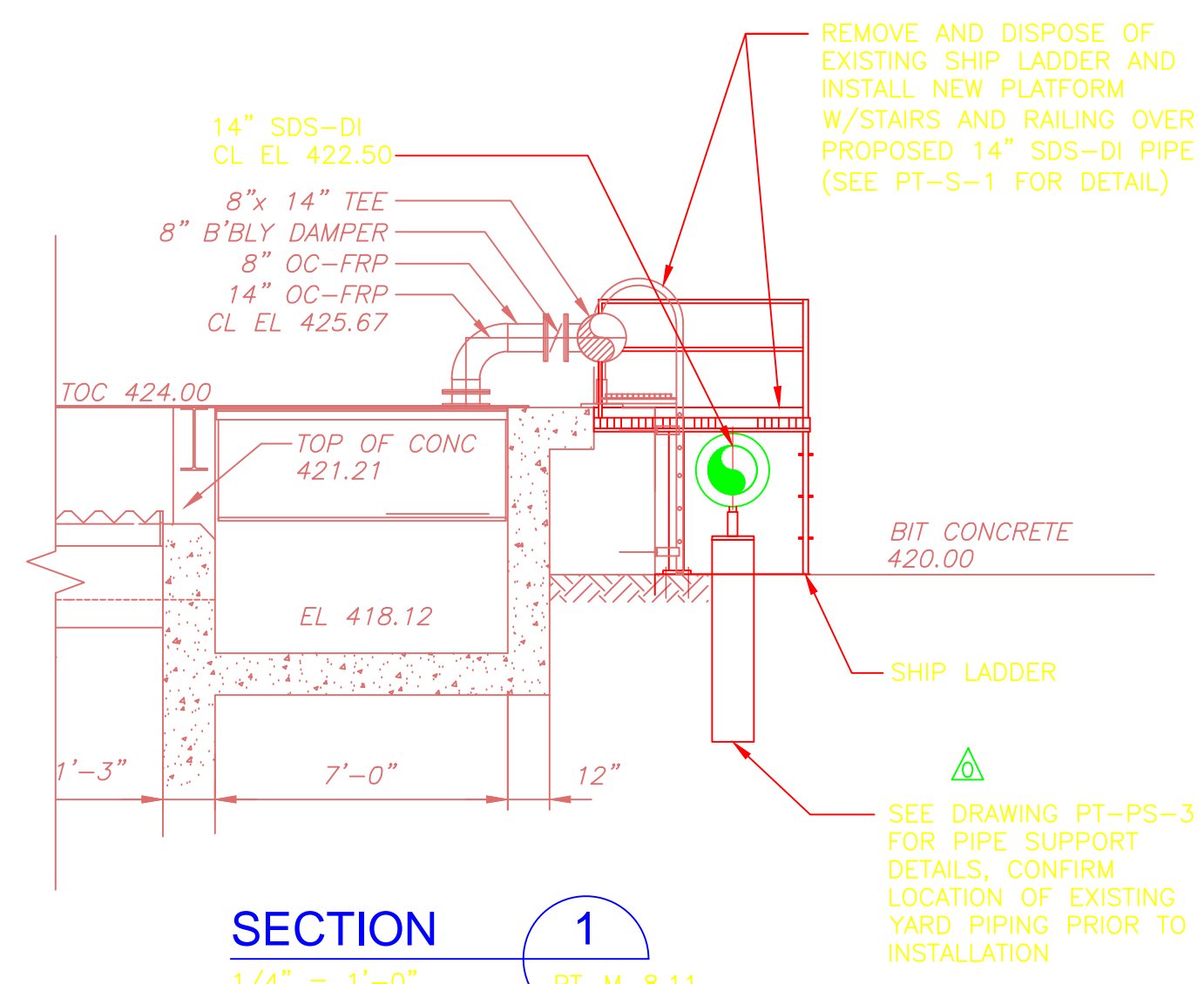
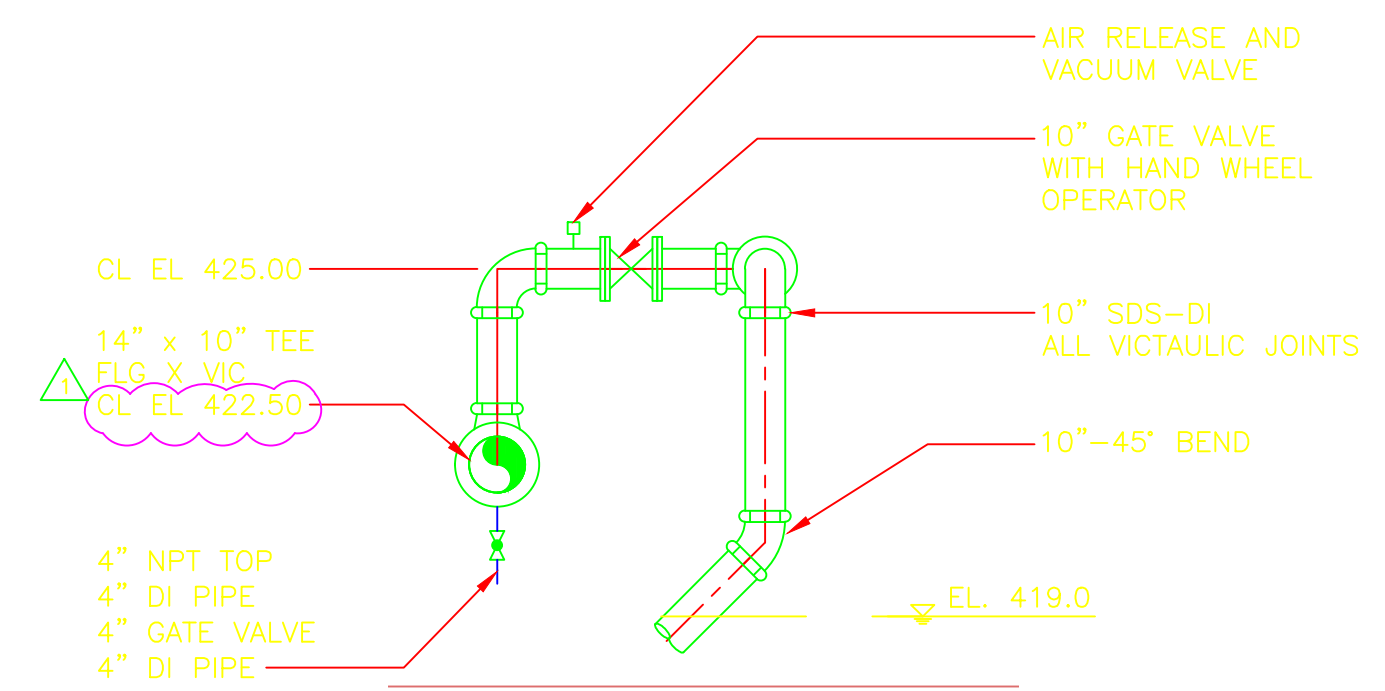
**PRIMARY SETTLING TANKS
 PUMP GALLERY SECTIONS
 IMPROVEMENTS**

PROJECT NO. 1289-74283
 Sht. 96 of 312
PT-M-4
 Acc # 1289-74502

CONFORMED

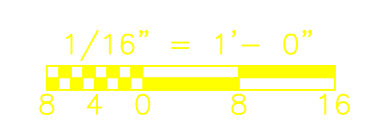


- NOTE:**
- EXISTING FRP DUCT TO BE FIELD CUT AND NEW FRP DUCT AND FITTINGS TO BE FIELD JOINED BY CERTIFIED INSTALLER/MANUFACTURER.
 - REBALANCE ODOR CONTROL SYSTEM WITH THE ADDITION OF THE SIDESTREAM PUMP STATION. SEE P&ID 16.
 - SUPPORTS SHALL BE MAXIMUM 12 FT APART, MINIMUM 8 FT.
 - 14" SDS SHALL BE 4" ± 2" OFF EXISTING SYSTEM WALL. CONTRACTOR SHALL VERIFY LOCATION AND AVOID INTERFERENCE WITH EXISTING LIGHT POLES AND BURIED PIPING.



PLAN
1/16" = 1'-0"

SECTION 1
1/4" = 1'-0" PT-M-8,11



CONFORMED

Xrefs: [CDM_2436_MPTWP200_SPTWP200_MPTW100] Images: []
 Last saved by: CONTRERAS Time: 10/24/2011 5:59:26 PM
 PLEASE UPDATE THE PROJECTWISE PATH (SELECT ATTRIBUTES IN PROJECTWISE AND CLICK CHECK BOX)
 Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\PT\MPTPL002.DWG Saved by: JOHNB On: 24-Jun-13 Plotted on: 26-Mar-15 3:25 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/11	MW	ES		REVISION 1
09/10	VJB	ES		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MPTPL002
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. GREEN
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

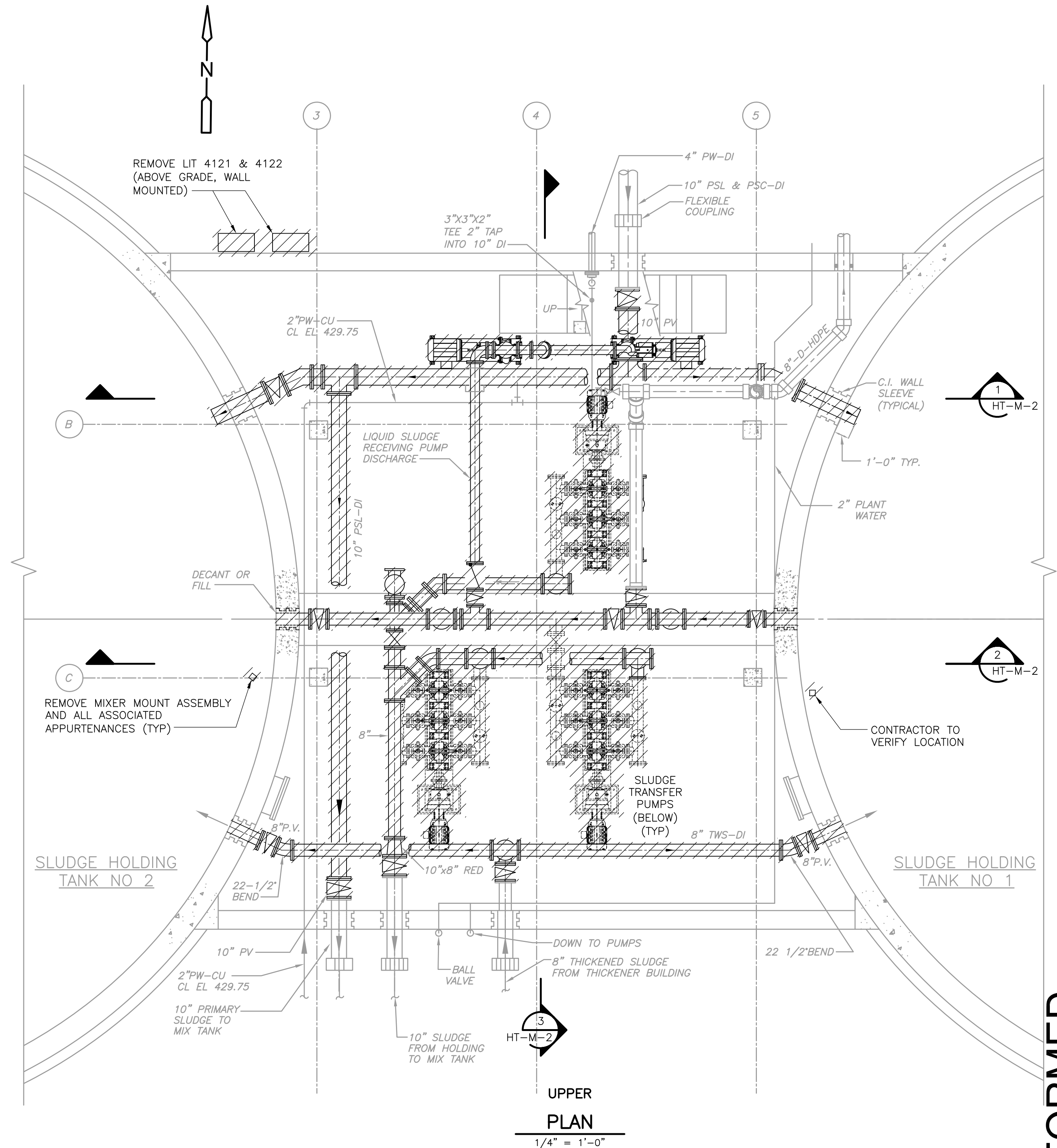
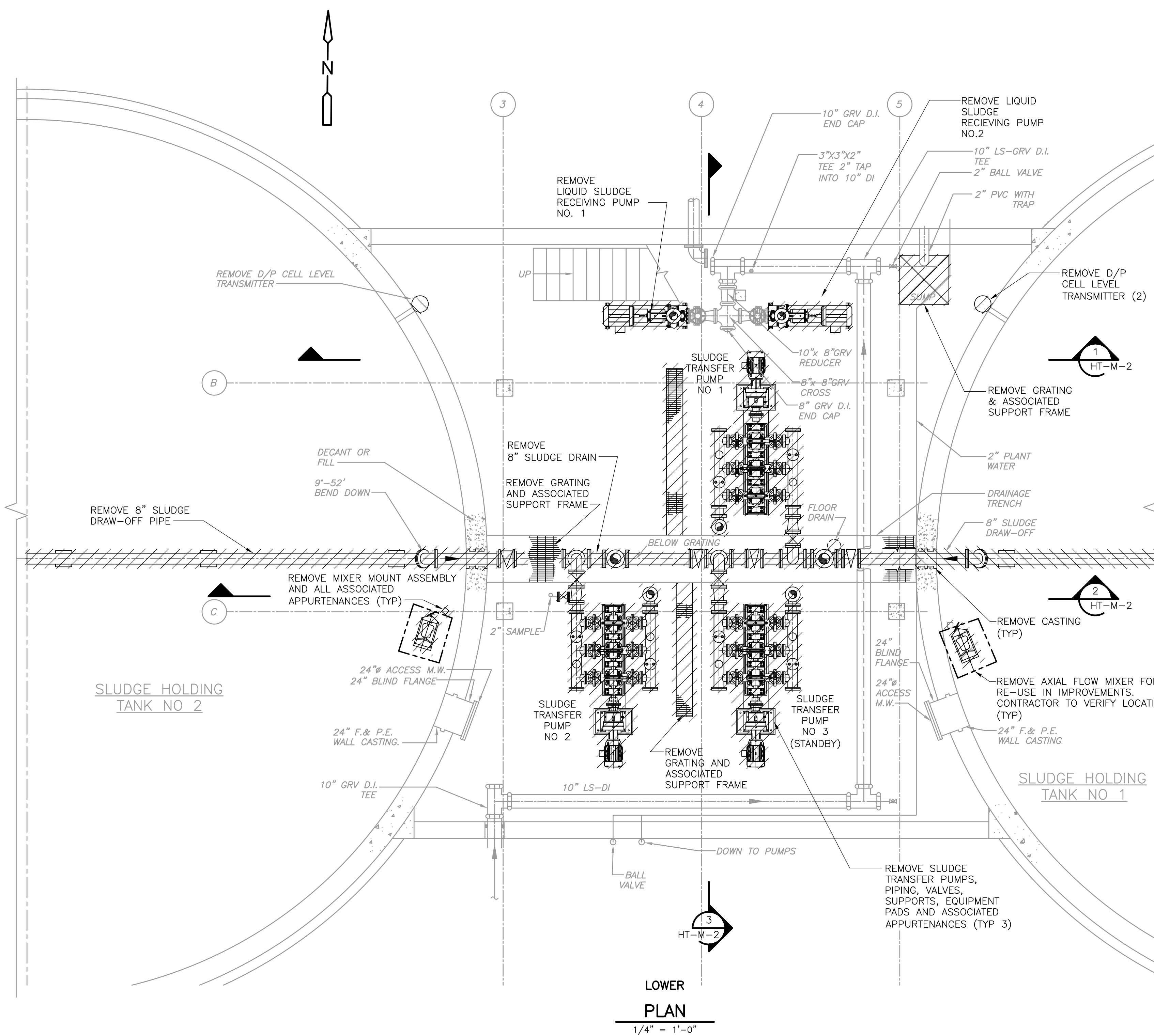
**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**PRIMARY SETTLING TANKS
 SIDE STREAM DRAIN
 PLANS, SECTIONS AND DETAILS**

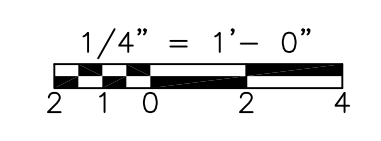
PROJECT NO. 1289-74283
 Sht. 97 of 312
PT-M-5
 Acc. # 1289-74503

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECT\MHTDM001.DWG Saved by: BITTOJ On: 7-Jul-10 Plotted on: 24-Nov-10 9:46 AM



NOTE:

1. REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS
2. CLEAN AND INSPECT EACH TANK FOR H₂S CORROSION AND STRUCTURAL DAMAGE



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MSTDM001
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 BASEMENT PLANS
 DEMOLITION**

PROJECT NO.
1289-74283

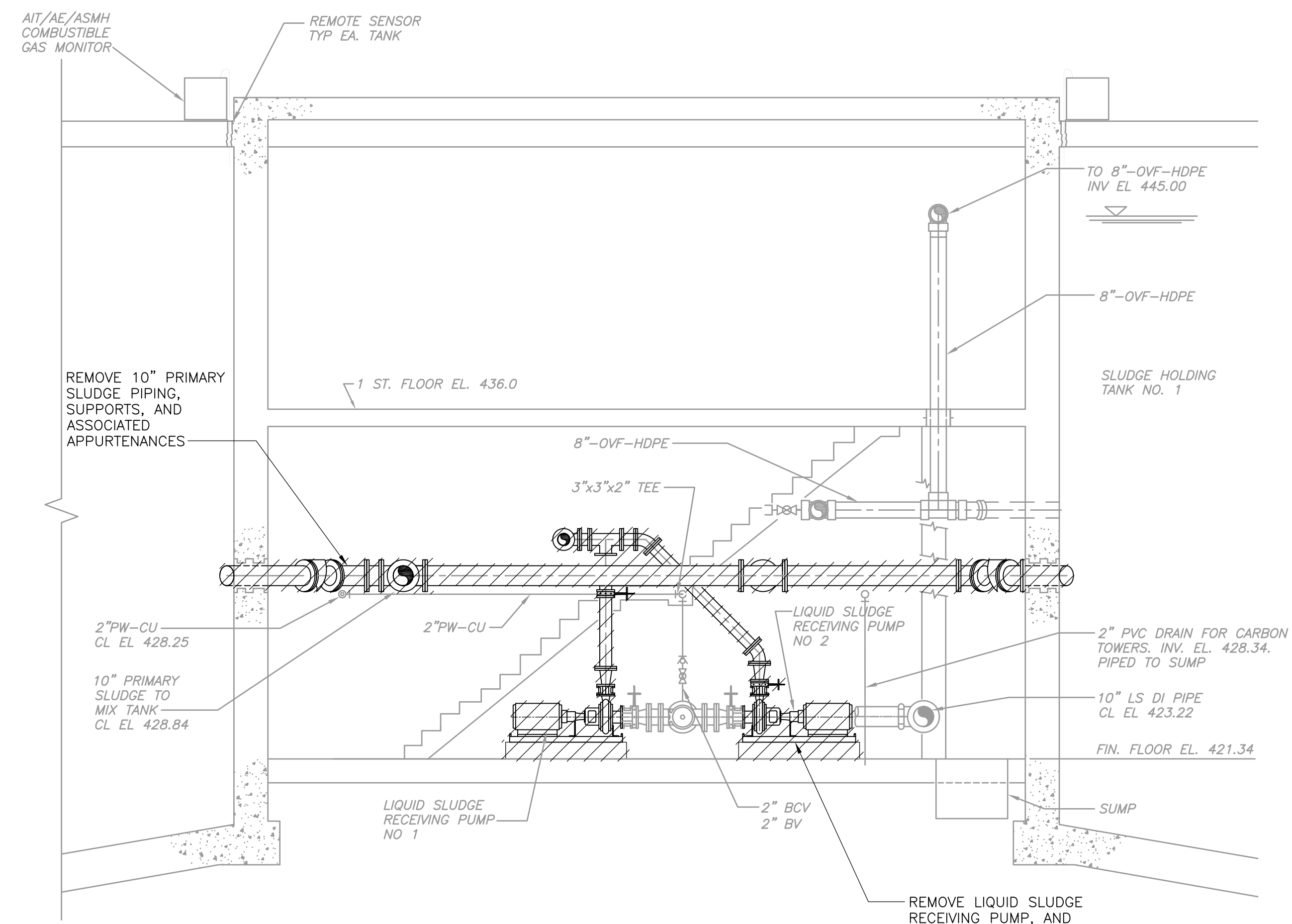
Sht. 98 of 312

HT-M-1

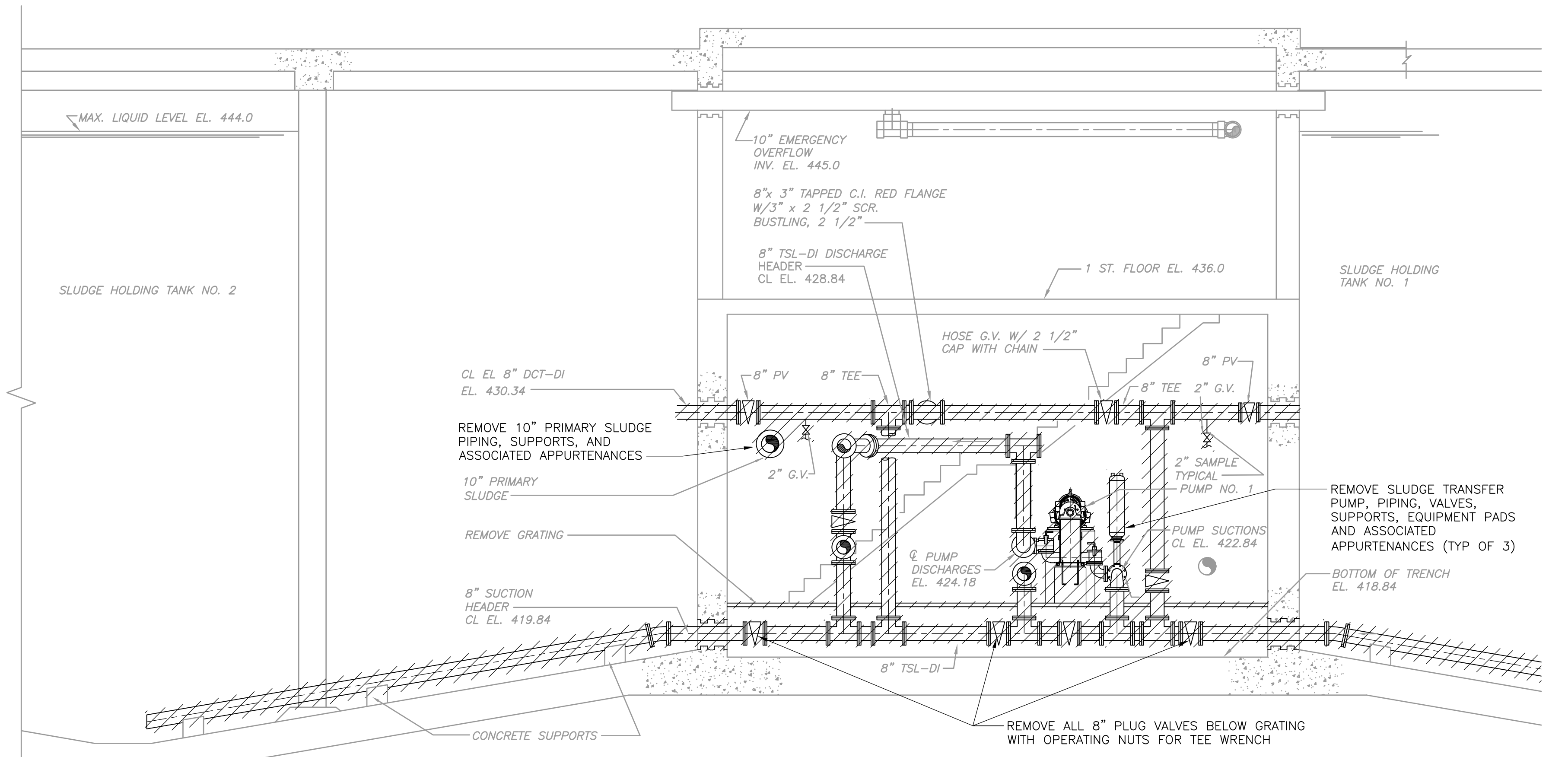
Acc # 1289-74504

CONFORMED

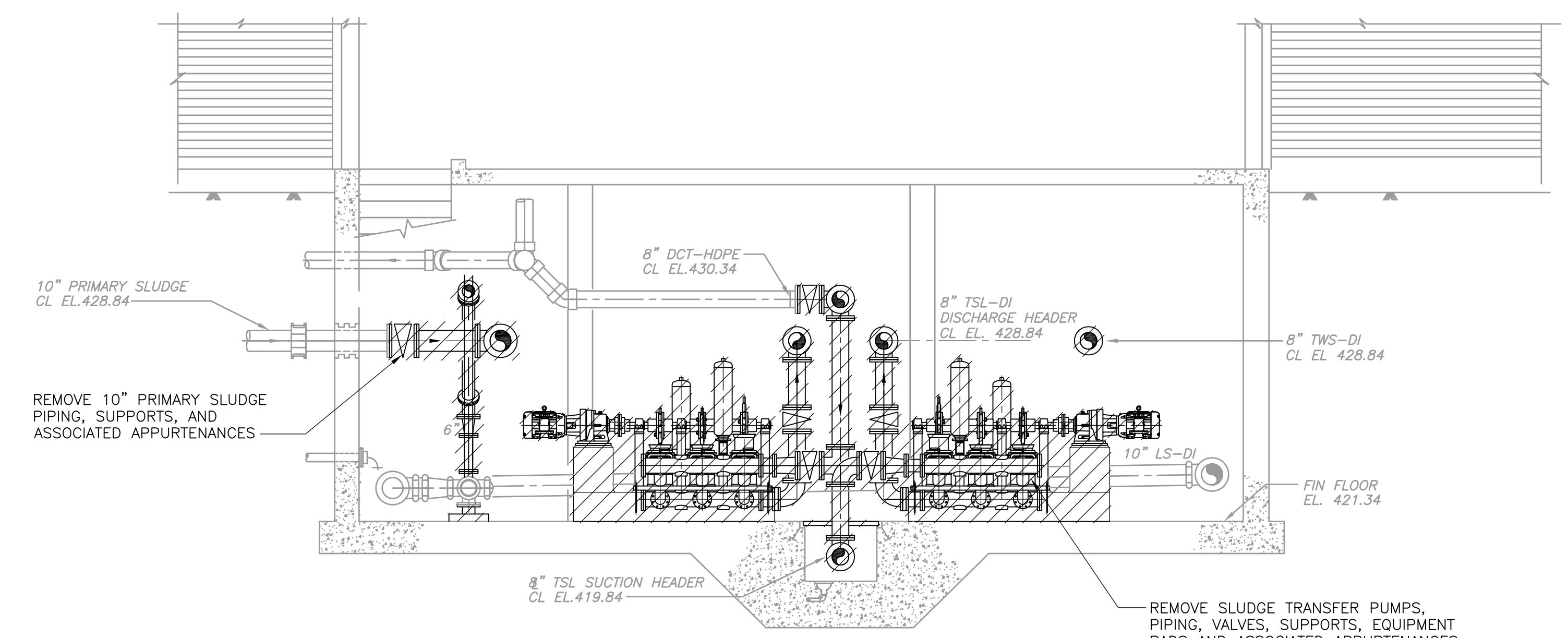
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SECTION 1
1/4" = 1'-0"
HT-M-1

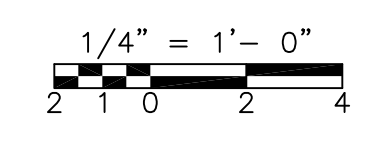


SECTION 2
1/4" = 1'-0"
HT-M-1



SECTION 3
1/4" = 1'-0"
HT-M-1

NOTE:
1. REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MHTDM002
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

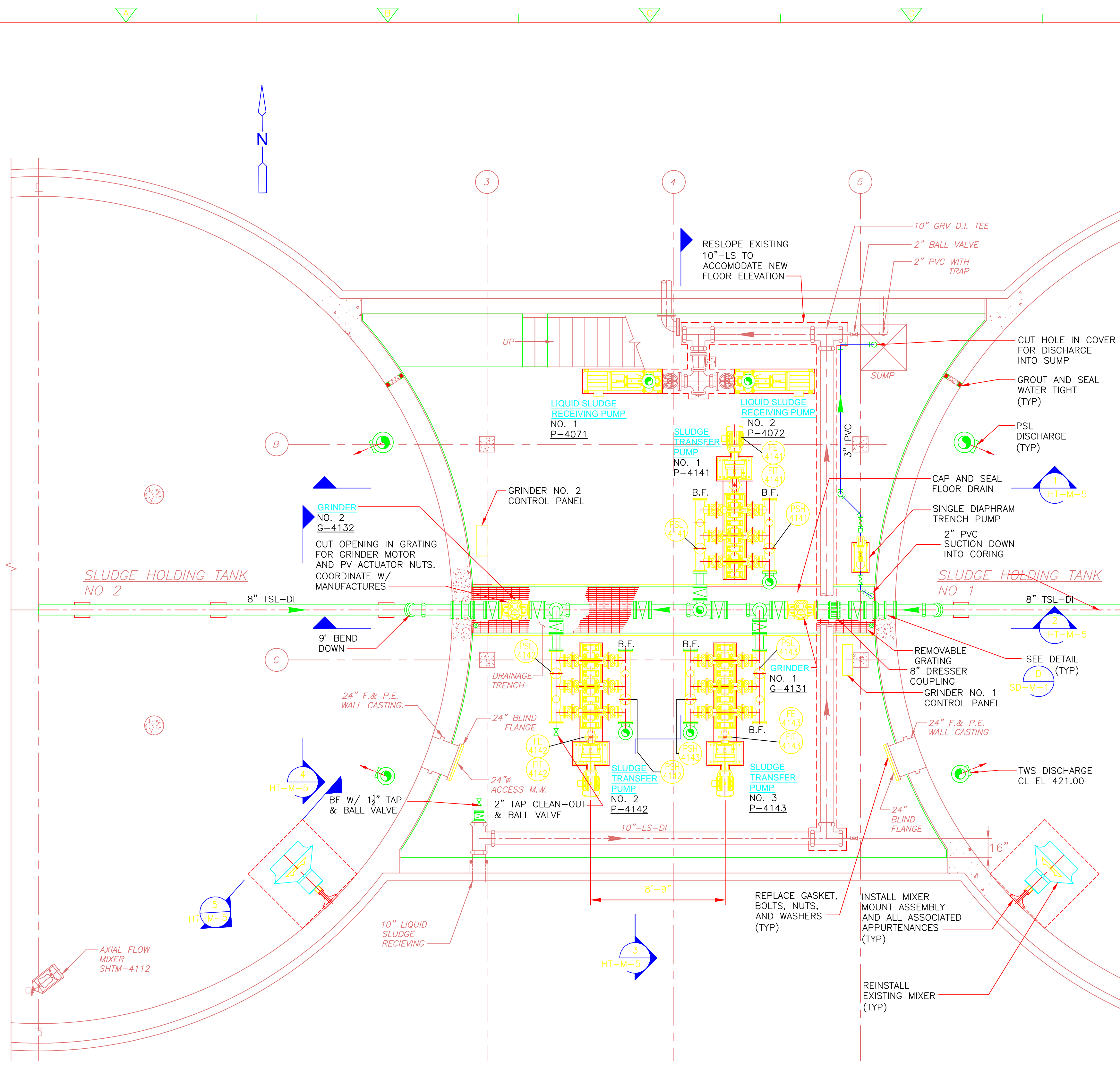
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
SECTIONS
DEMOLITION**

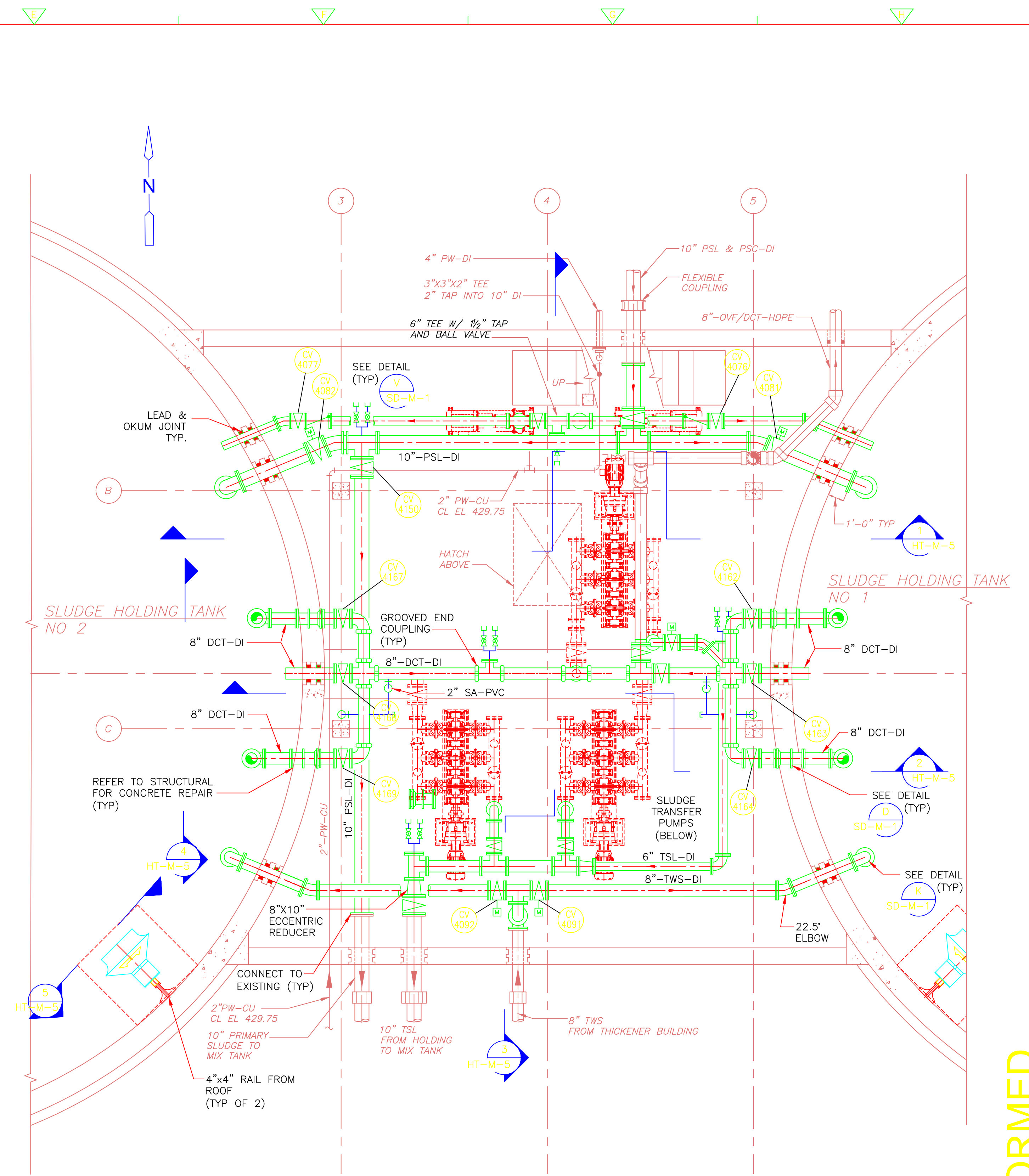
PROJECT NO.
1289-74283
Sht. 99 of 312
HT-M-2
Acc # 1289-74505

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\HT\WHTPL001.DWG Saved by: J.OHNB On: 25-Jun-13 Plotted on: 26-Mar-15 2:37 PM



LOWER LEVEL @ EL 421.34

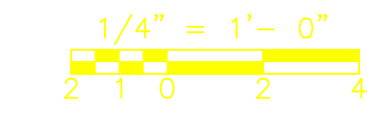
PLAN
1/4" = 1'-0"



UPPER LEVEL

PLAN
1/4" = 1'-0"

- NOTES:
- REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
 - THE CONTRACTOR SHALL DUPLICATE THE EXISTING PAINTED STEEL LEAKAGE COLLECTION SYSTEM AROUND THE EQUIPMENT PAD OF EACH SLUDGE TRANSFER PUMP AND INSTALL ON NEW TRANSFER PUMPS AS DESIGNATED BY ENGINEER.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. WHTPL001
 DESIGNED BY: SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: M. KOSTUR
 CROSS CHK'D BY:
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

William M. Collins
 Company, Inc.
 410 DORCHESTER AVE.
 SOUTH BOSTON, MA 02127
 PHONE: 617-288-6100
 FAX: 617-288-1349

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

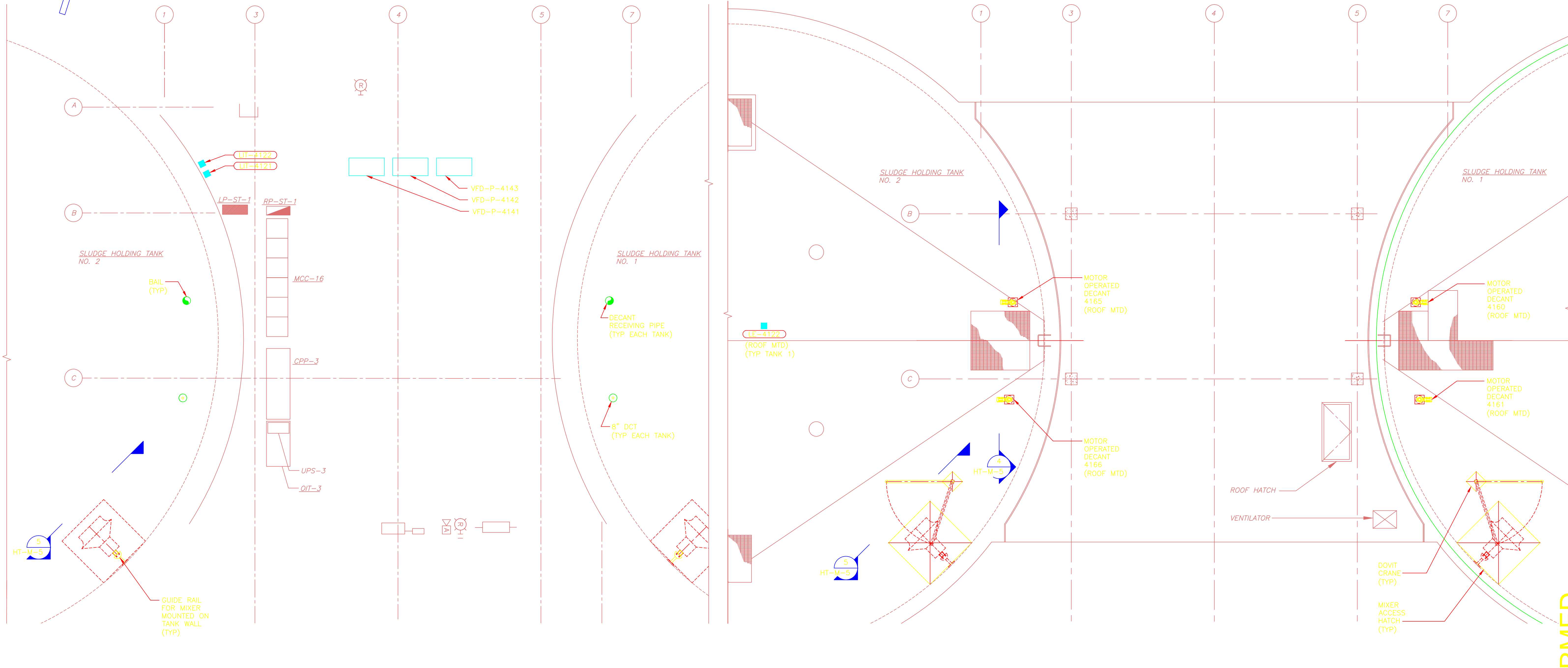
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 BASEMENT PLANS
 IMPROVEMENTS**
 HT-M-3

PROJECT NO. 1289-74283
 100 of 312
 1289-74506
 Acc. #

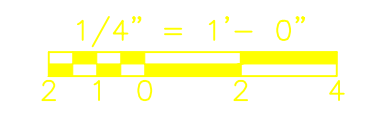
CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILT\HT\MHTPLOT02.DWG Saved by: JOHN On: 18-Jan-13 Plotted on: 26-Mar-15 2:43 PM



FIRST FLOOR
PLAN
1/4" = 1'-0"

ROOF
PLAN
1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MHTPLOT01
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

William M. Collins
 Company, Inc.
 MECHANICAL CONTRACTOR
 410 BOSTON AVENUE
 SOUTH BOSTON, MA 02127
 PHONE: 617-268-6189
 FAX: 617-268-1349

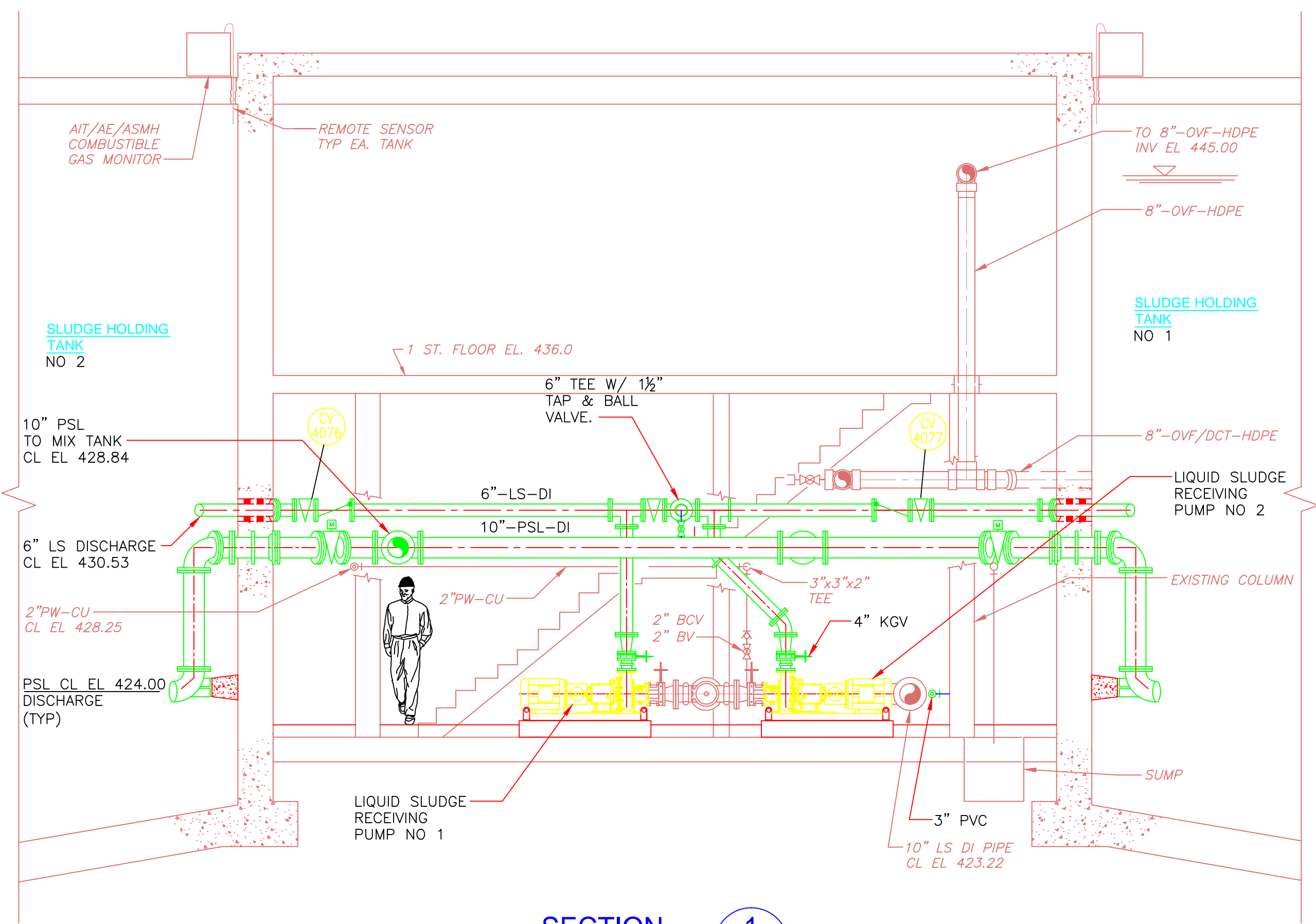
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

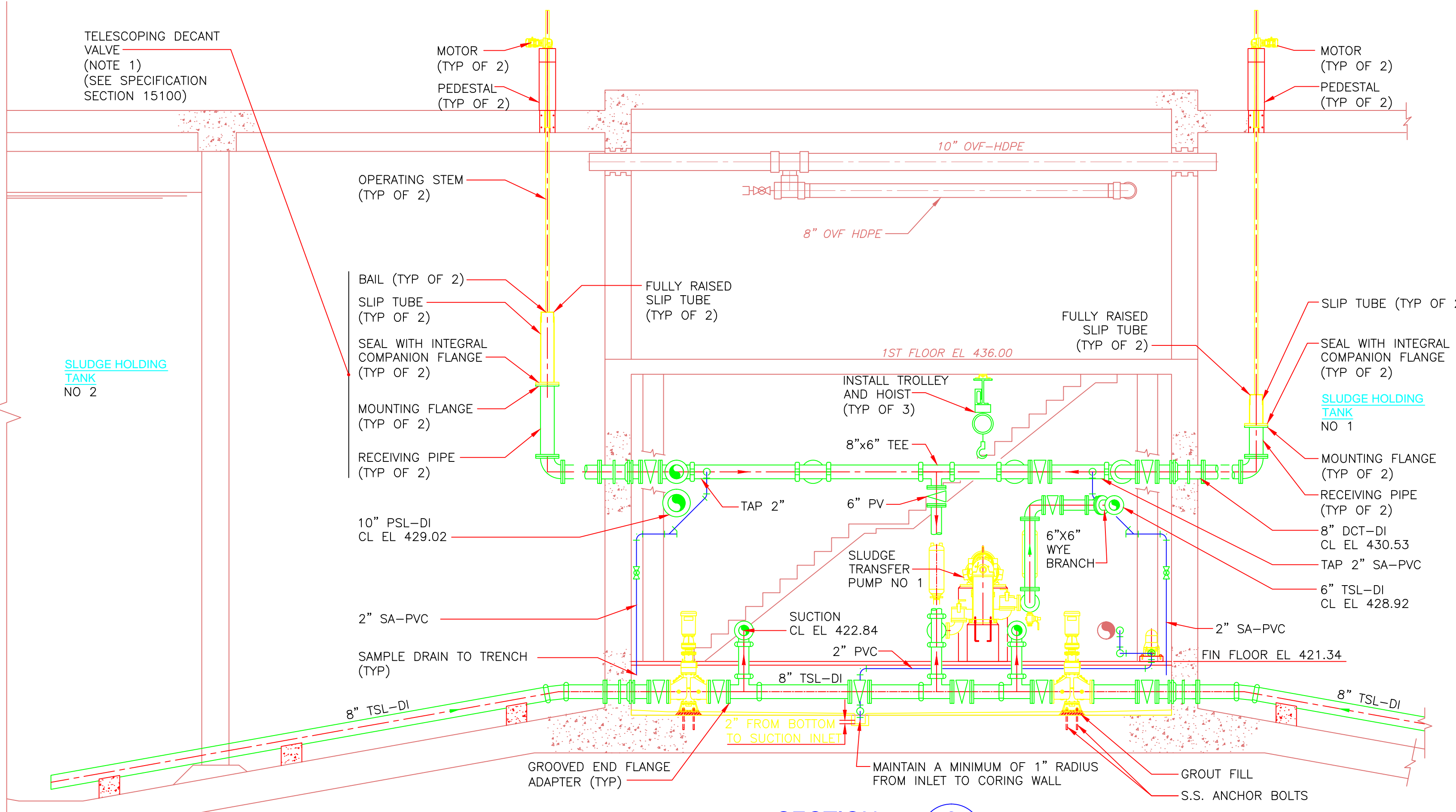
**SLUDGE HOLDING TANK BUILDING
 FIRST FLOOR AND ROOF PLAN
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 101 of 312
HT-M-4
 Acc # 1289-74507

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\HT\MHTSC001.DWG Saved by: JOHNB On: 18-Jan-13 Plotted on: 26-Mar-15 2:47 PM

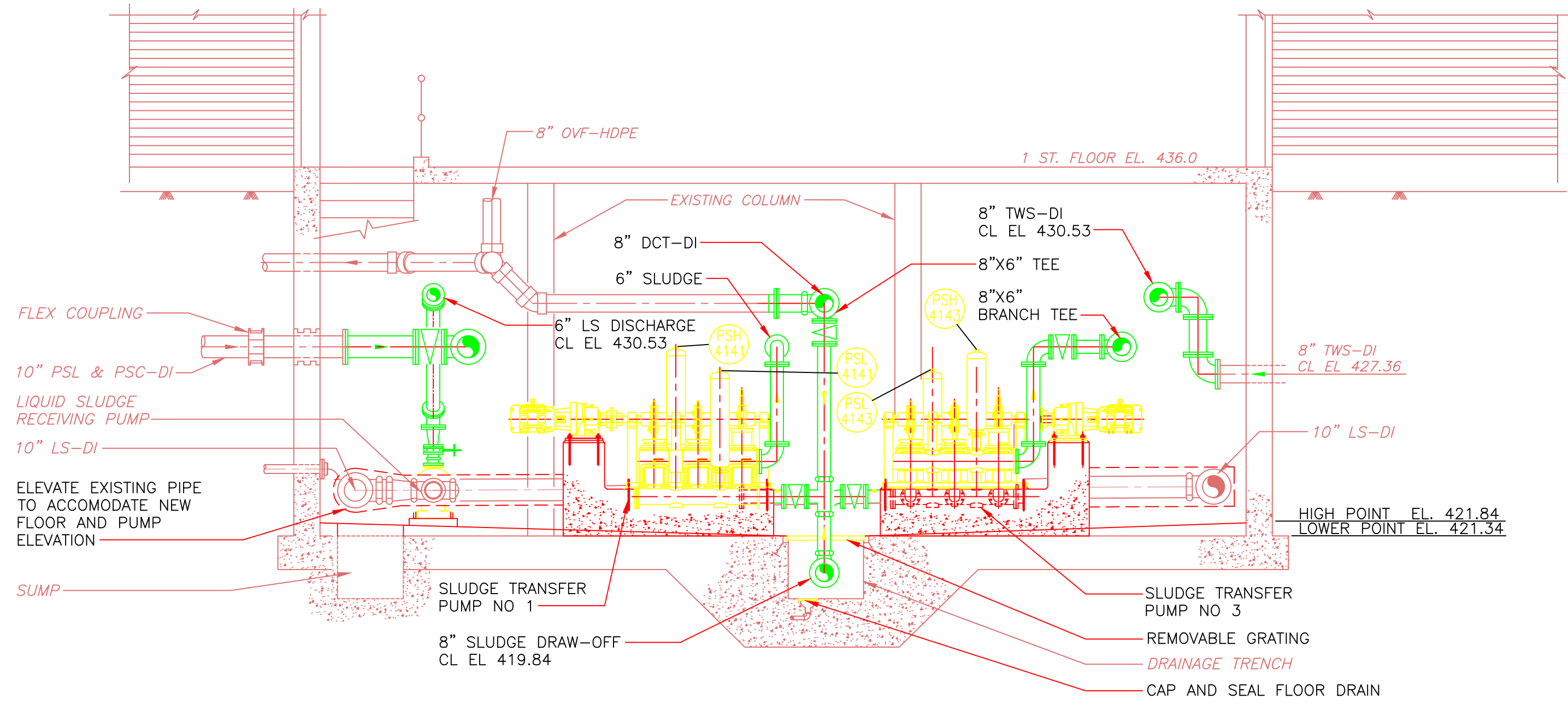


SECTION 1
1/4" = 1'-0"
HT-M-3

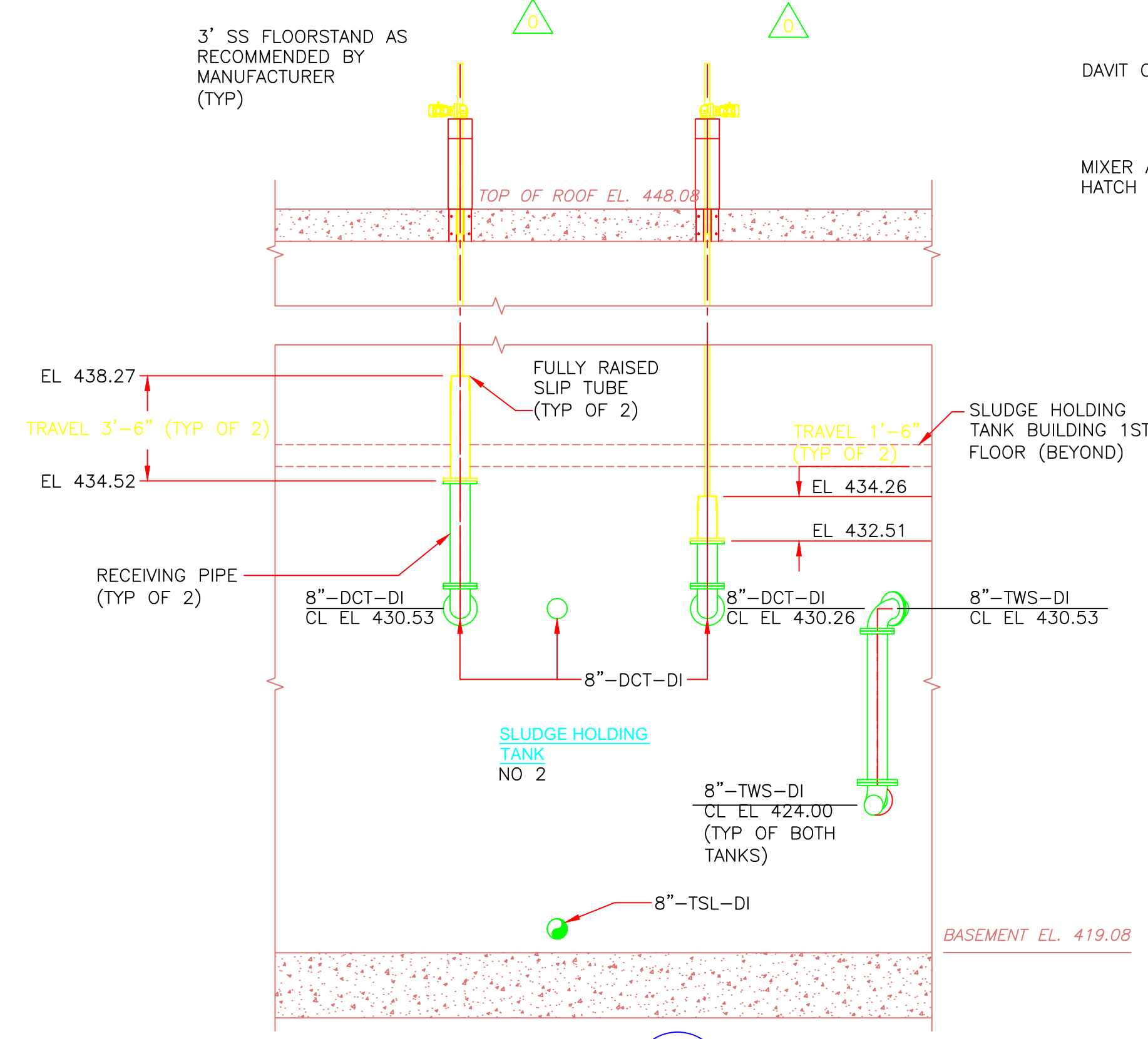


SECTION 2
1/4" = 1'-0"
HT-M-3

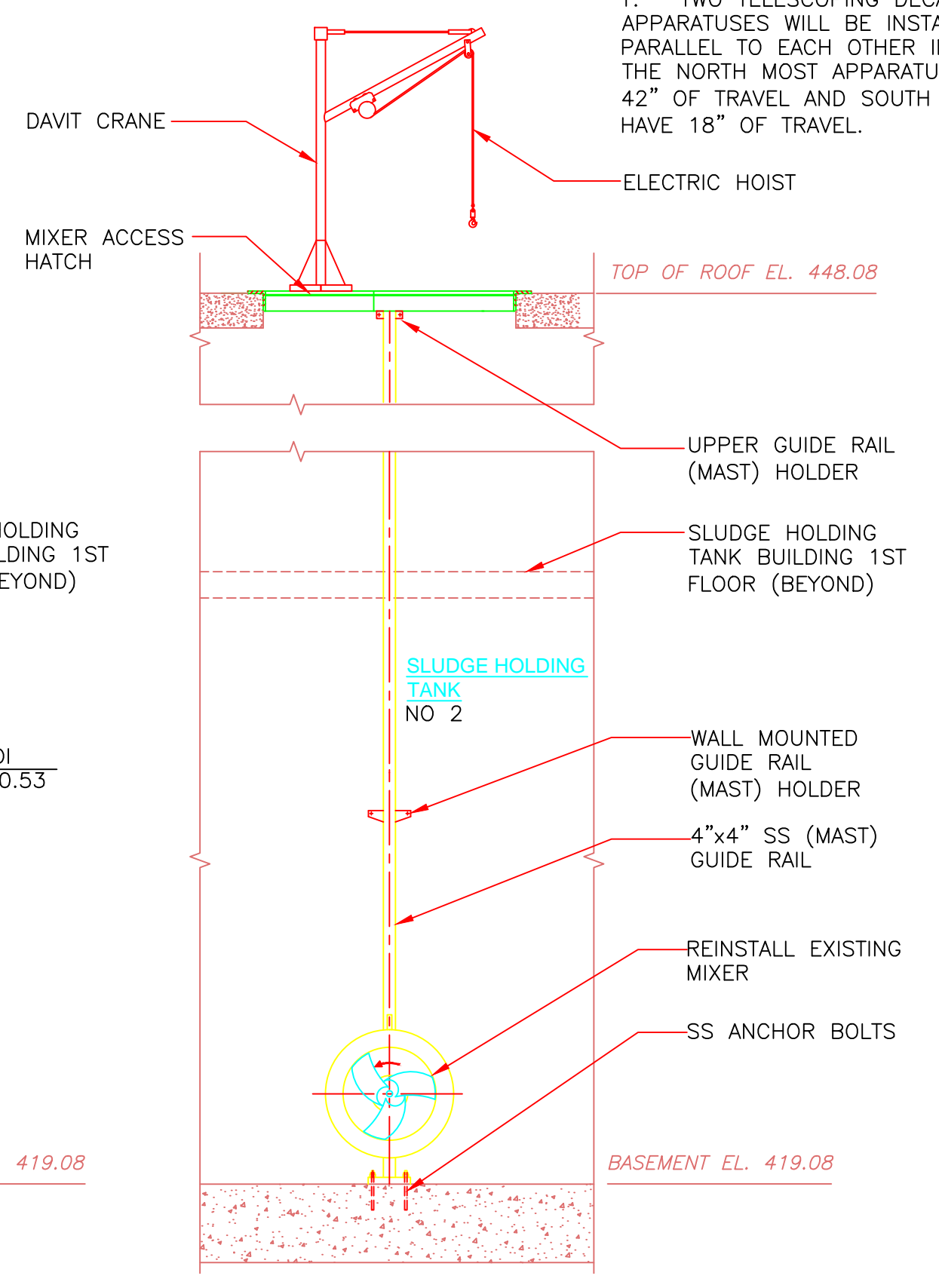
NOTES:
1. TWO TELESCOPING DECANT APPARATUSES WILL BE INSTALLED PARALLEL TO EACH OTHER IN EACH TANK. THE NORTH MOST APPARATUSES WILL HAVE 42" OF TRAVEL AND SOUTH MOST WILL HAVE 18" OF TRAVEL.



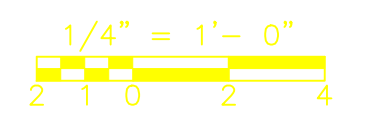
SECTION 3
1/4" = 1'-0"
HT-M-3



SECTION 4
1/4" = 1'-0"
HT-M-3



SECTION 5
1/4" = 1'-0"
HT-M-3



CONFORMED

0	09/10	VJB	ES	REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MHTP001
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

William M. Collins Company, Inc.
 MECHANICAL CONTRACTOR
 410 BOSTON AVENUE
 SOUTH BOSTON, MA 02127
 PHONE: 617-268-4189
 FAX: 617-268-1349

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

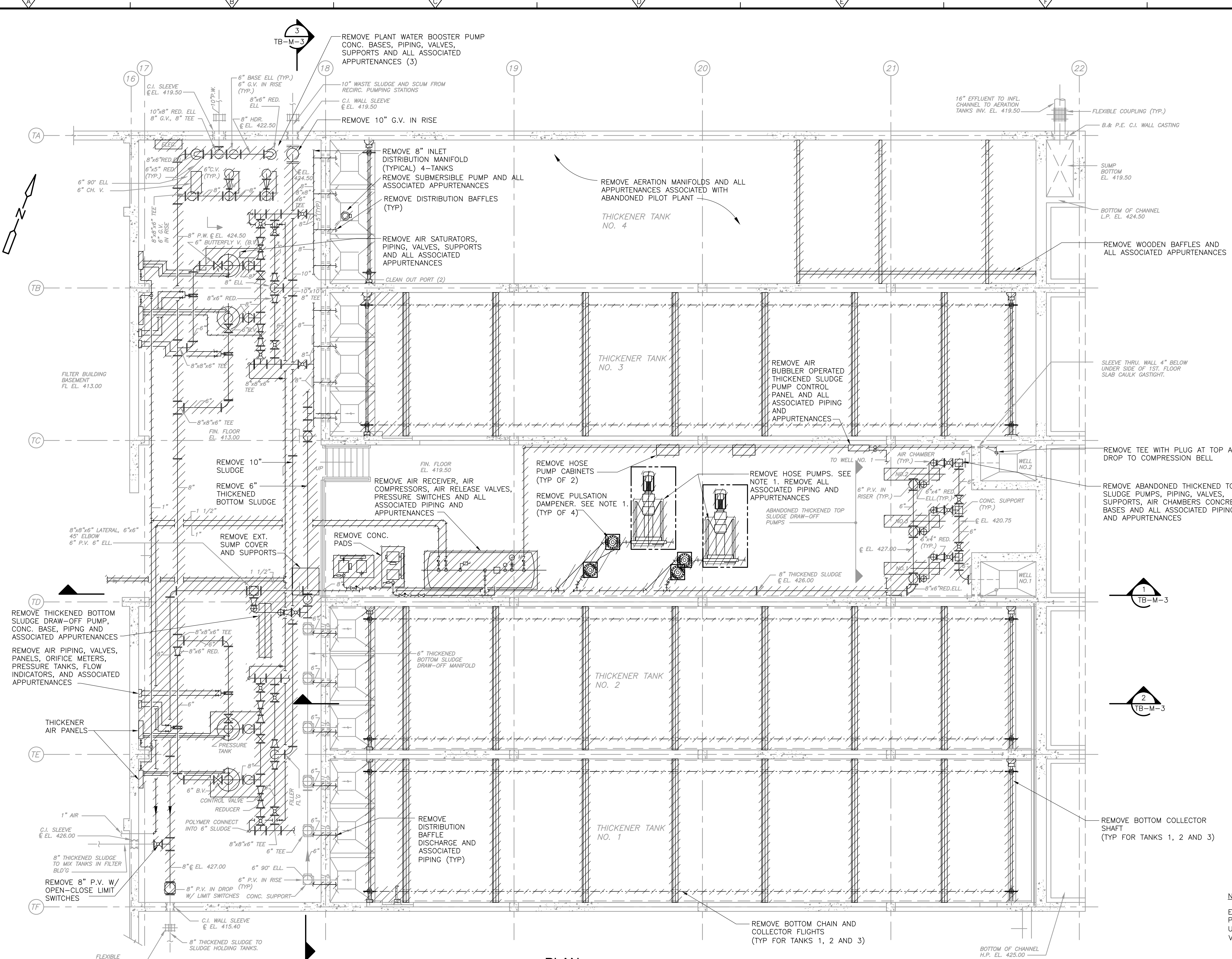
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

SLUDGE HOLDING TANK BUILDING SECTIONS IMPROVEMENTS

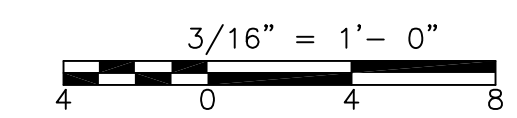
PROJECT NO. 1289-74283
 Sht. 102 of 312
HT-M-5
 Acc. # 1289-74508

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTS\WISSE\MTBDM001.DWG Saved by: BITTOVJ On: 7-Jul-10 Plotted on: 24-Nov-10 9:51 AM



PLAN
3/16" = 1'-0"

NOTE 1:
EXISTING HOSE PUMPS MOTORS, AND PULSATION DAMPENERS TO BE RELOCATED AND USED IN IMPROVEMENTS (TB-M-4, 6). VFD DRIVES TO BE REPLACED (2).



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MTBDM001
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

THICKENER BUILDING
BASEMENT PLAN
DEMOLITION

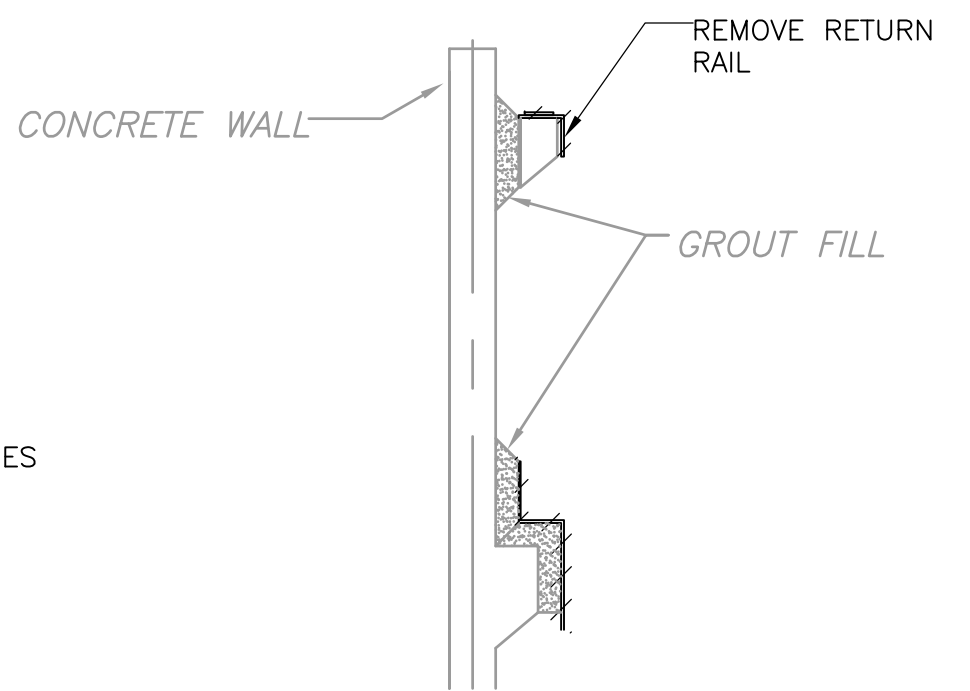
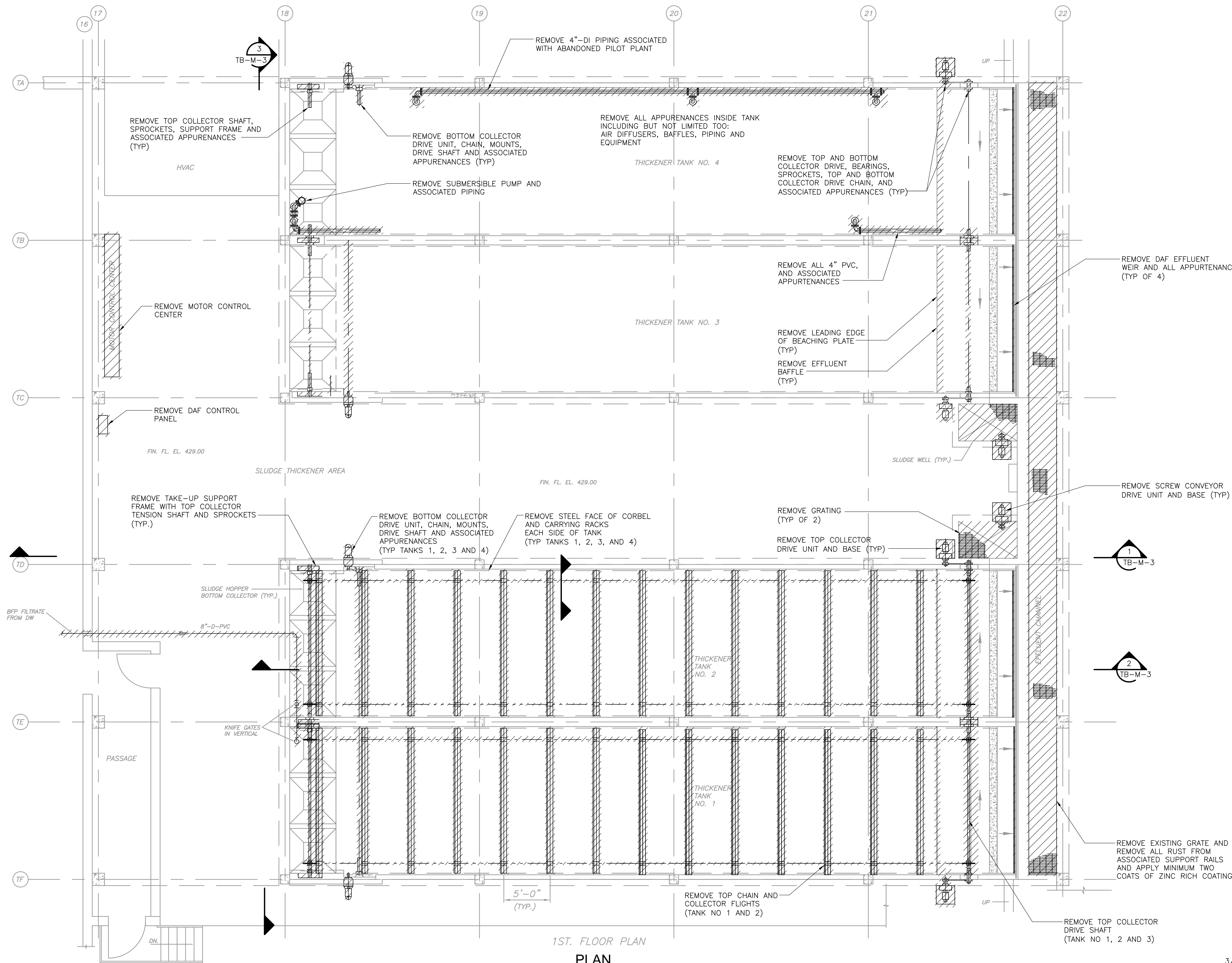
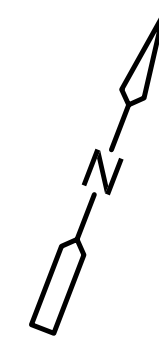
TB-M-1

PROJECT NO.
1289-74283

Sht. 103 of 312

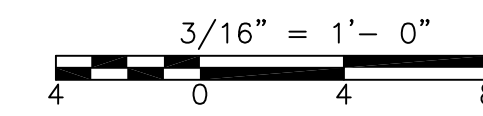
Acc # 1289-74509

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TYPICAL CORBAL AND TRACK ARRANGEMENT
SECTION
N.T.S.

1ST. FLOOR PLAN
PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MTBDM002
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

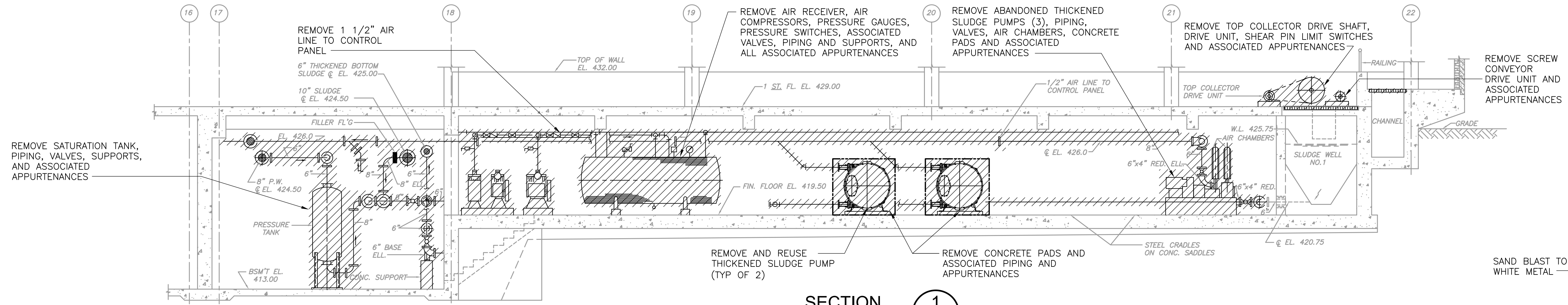
CDM
 Camp Dresser & McKee Inc.
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 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 FIRST FLOOR PLAN AND SECTION
 DEMOLITION**

PROJECT NO.
1289-74283
 Sht. 104 of 312
TB-M-2
 Acc # 1289-74510

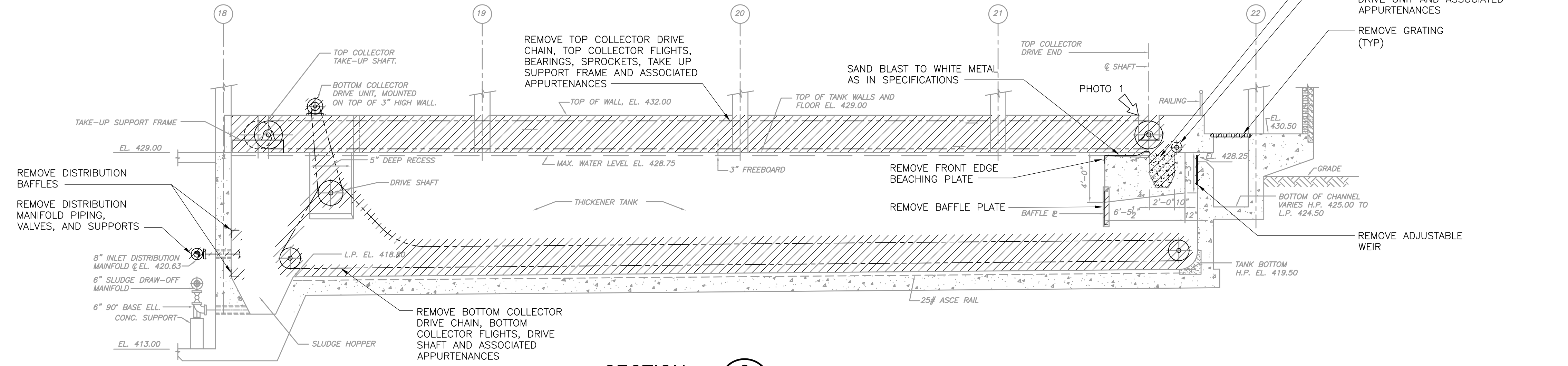
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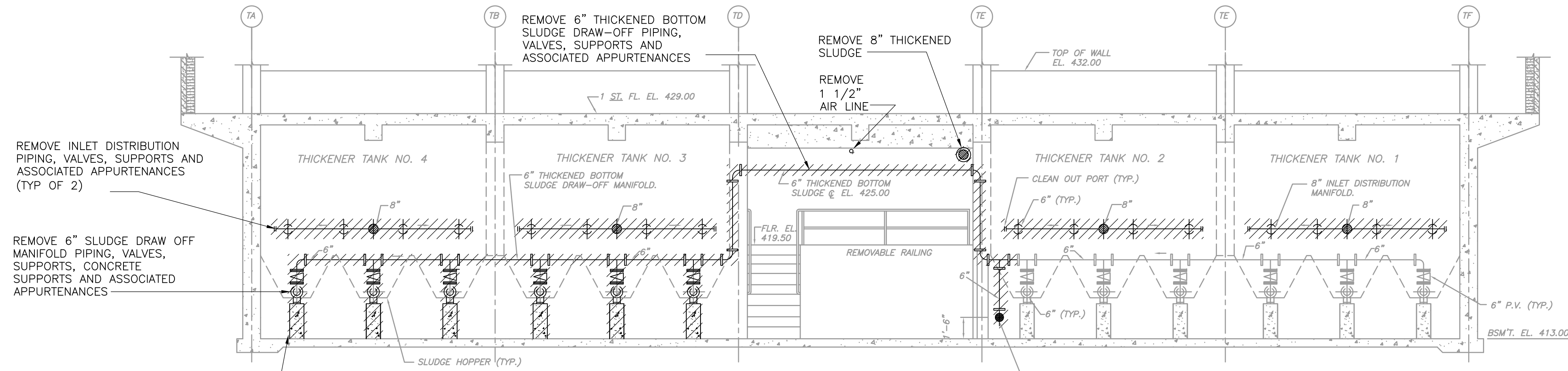
SECTION 1
3/16" = 1'-0" TB-M-1



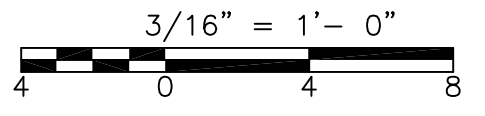
PHOTO 1
REMOVE TEMPORARY CONCRETE DIVIDER TO CONNECT TWS CHANNELS BETWEEN TANKS 3 & 4



SECTION 2
3/16" = 1'-0" TB-M-1, 2



SECTION 3
3/16" = 1'-0" TB-M-2



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

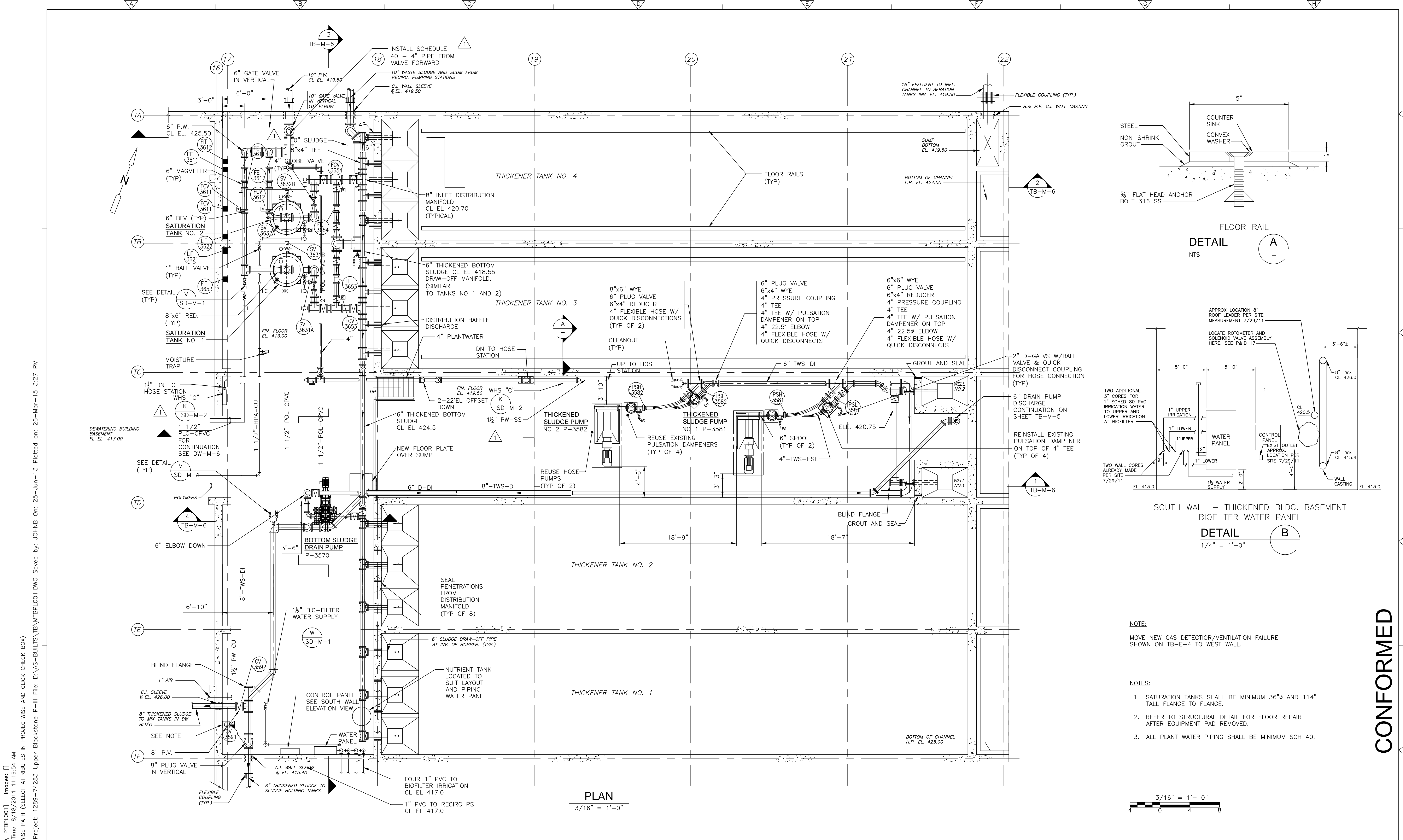
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DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

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Camp Dresser & McKee Inc.
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

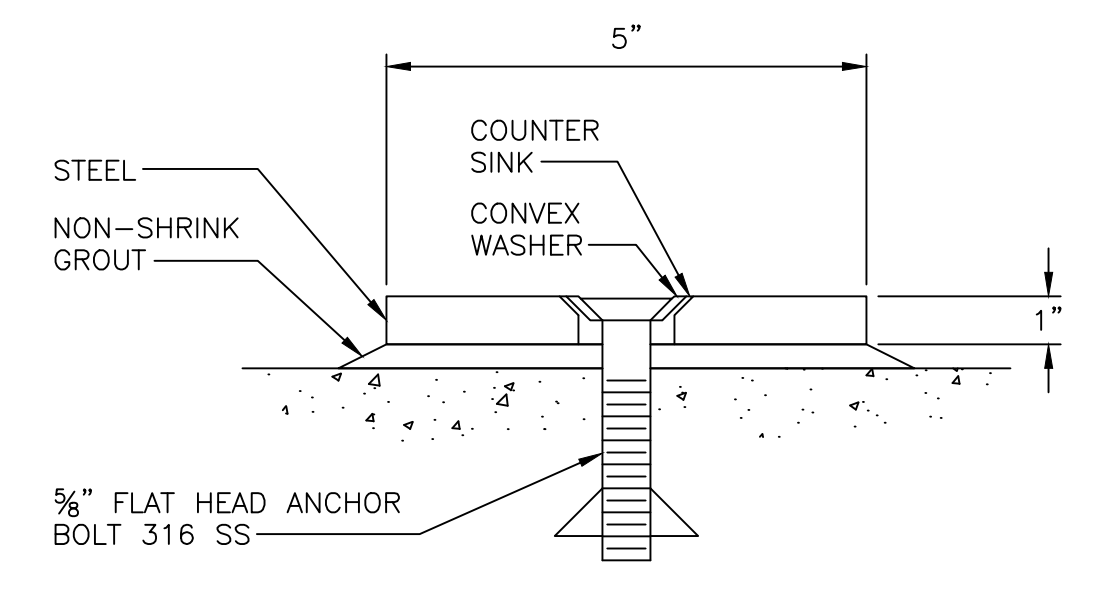
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
SECTIONS
DEMOLITION**

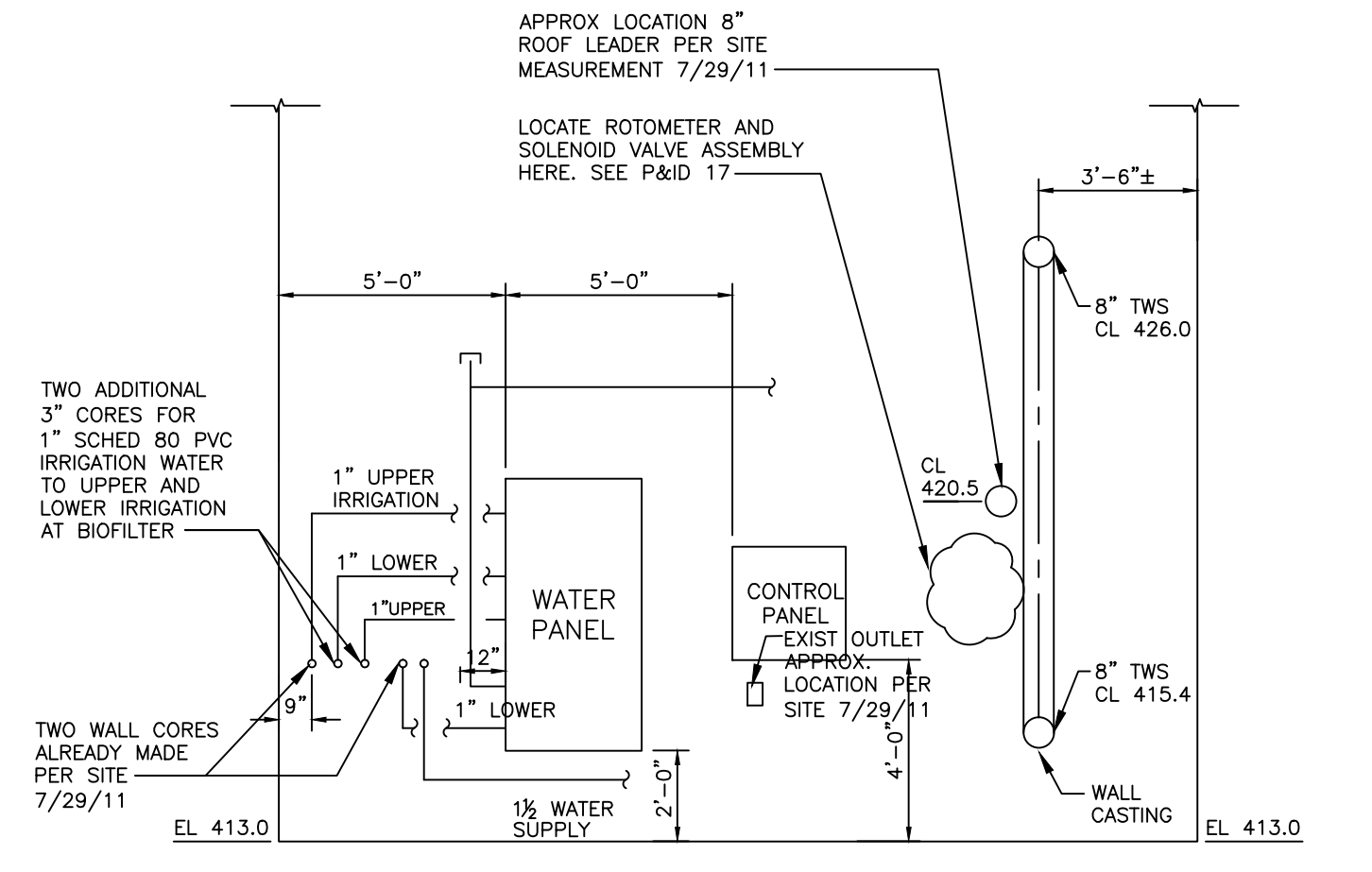
PROJECT NO.
1289-74283
Sht. 105 of 312
TB-M-3
Acc # 1289-74511



PLAN
3/16" = 1'-0"

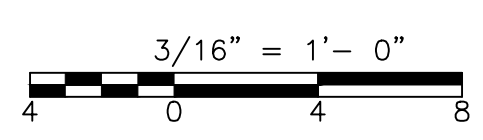


FLOOR RAIL
DETAIL A
NTS



SOUTH WALL - THICKENED BLDG. BASEMENT
BIOFILTER WATER PANEL
DETAIL B
1/4" = 1'-0"

- NOTE:
MOVE NEW GAS DETECTION/VENTILATION FAILURE SHOWN ON TB-E-4 TO WEST WALL.
- NOTES:
1. SATURATION TANKS SHALL BE MINIMUM 36" AND 114" TALL FLANGE TO FLANGE.
2. REFER TO STRUCTURAL DETAIL FOR FLOOR REPAIR AFTER EQUIPMENT PAD REMOVED.
3. ALL PLANT WATER PIPING SHALL BE MINIMUM SCH 40.



Xref's: [CDM_2436_MTBPL000_PTBPL001] Images: []
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2	8/1/11	FC	MK	REVISED PER RFI 100
1	6/21/11	FC	ES	ADDITION OF EXISTING PIPING AND NEW WASH HOSE STATIONS

CADD FILE NO.	MTBPL001
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. GREEN
DATE:	SEPTEMBER 2010

William M. Collins
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

THICKENER BUILDING
BASEMENT PLAN
IMPROVEMENTS

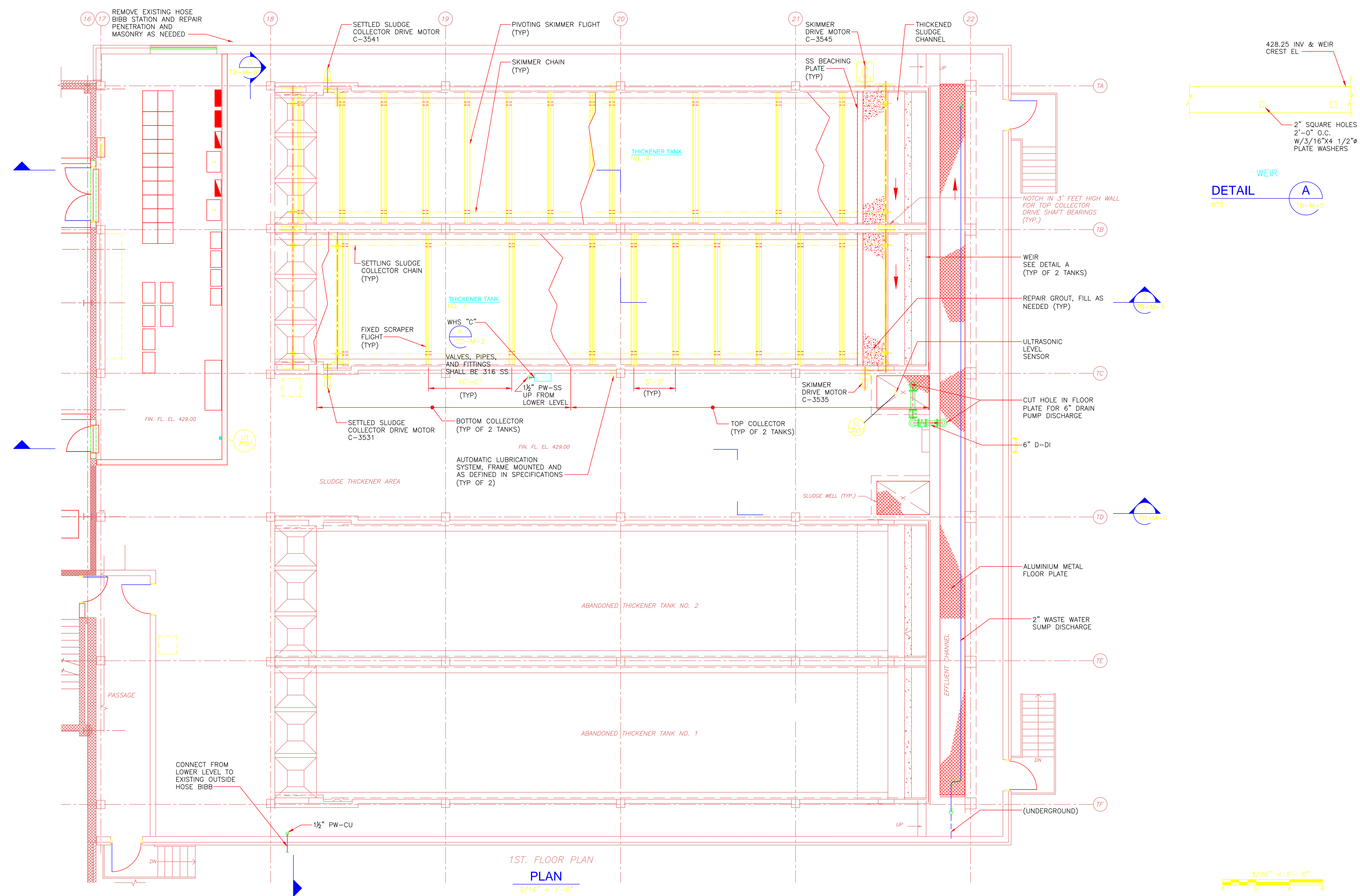
PROJECT NO.
1289-74283

Sht. 106 of 312

Acc # 1289-74512

CONFORMED

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1ST. FLOOR PLAN
 PLAN
 3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	6/21/11	FC	ES	ADDITION OF EXISTING PIPING AND NEW WASH HOSE STATIONS

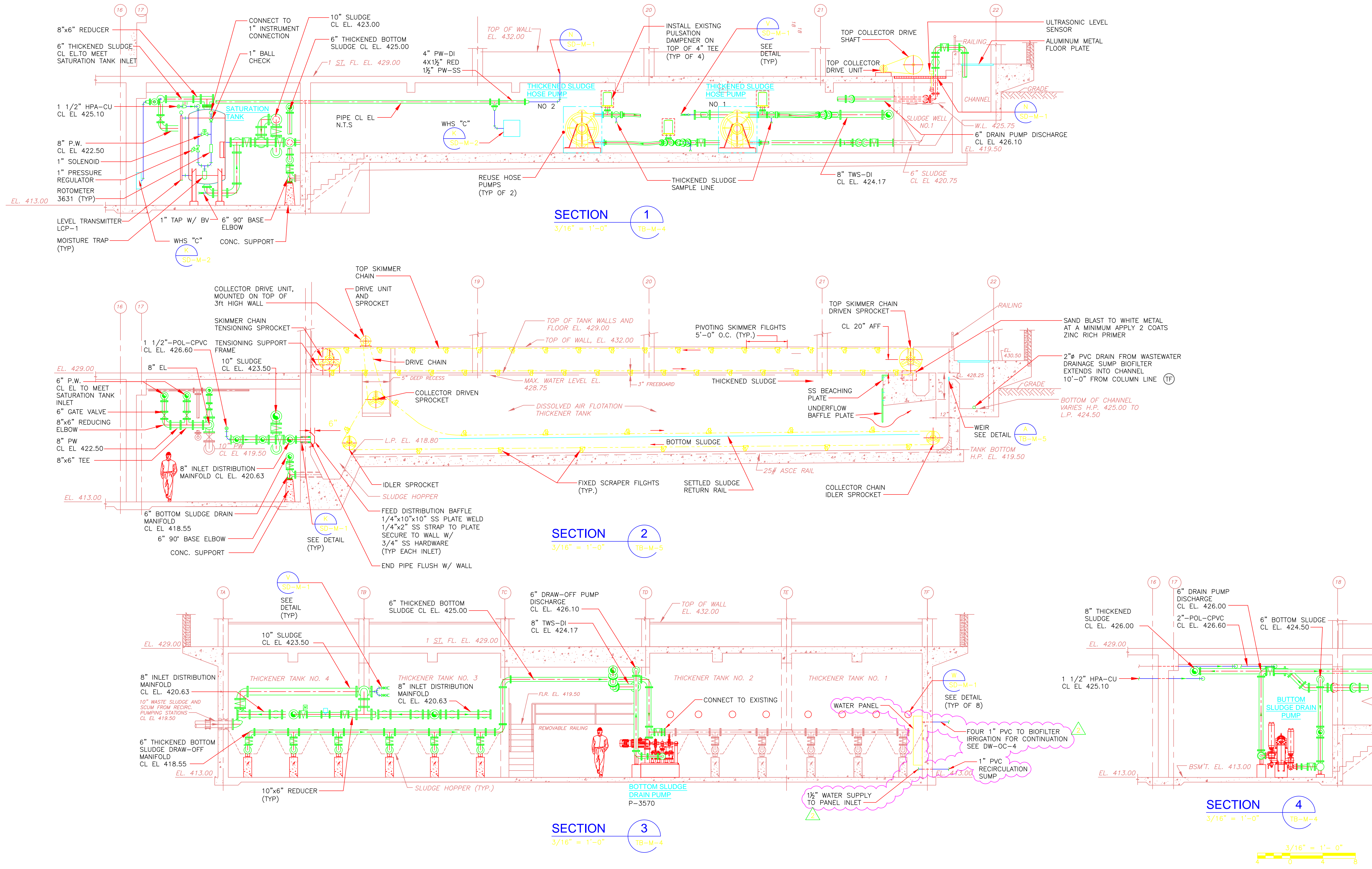
CADD FILE NO. MTBPL002
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. GREEN
 DATE: SEPTEMBER 2010

William M. Collins
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 MECHANICAL CONTRACTOR
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**
 PROJECT NO. 1289-74283
 Sht. 107 of 312
TB-M-5
 Acc # 1289-74513



CONFORMED

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REV. NO.	DATE	DRWN	CHKD	REMARKS
2	8/15/11	FC	MK	REVISED PER RPT 100
1	6/21/11	FC	ES	ADDITION OF EXISTING PIPING AND NEW WASH HOSE STATIONS
0	09/10	WB	ES	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MTBSC001
DESIGNED BY:	E. SPARGIMIRO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMIRO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. GREEN
DATE:	SEPTEMBER 2010

William M. Collins Company, Inc.
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 410 BOWDITCH AVE
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 Camp Dresser & McKee Inc.
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 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

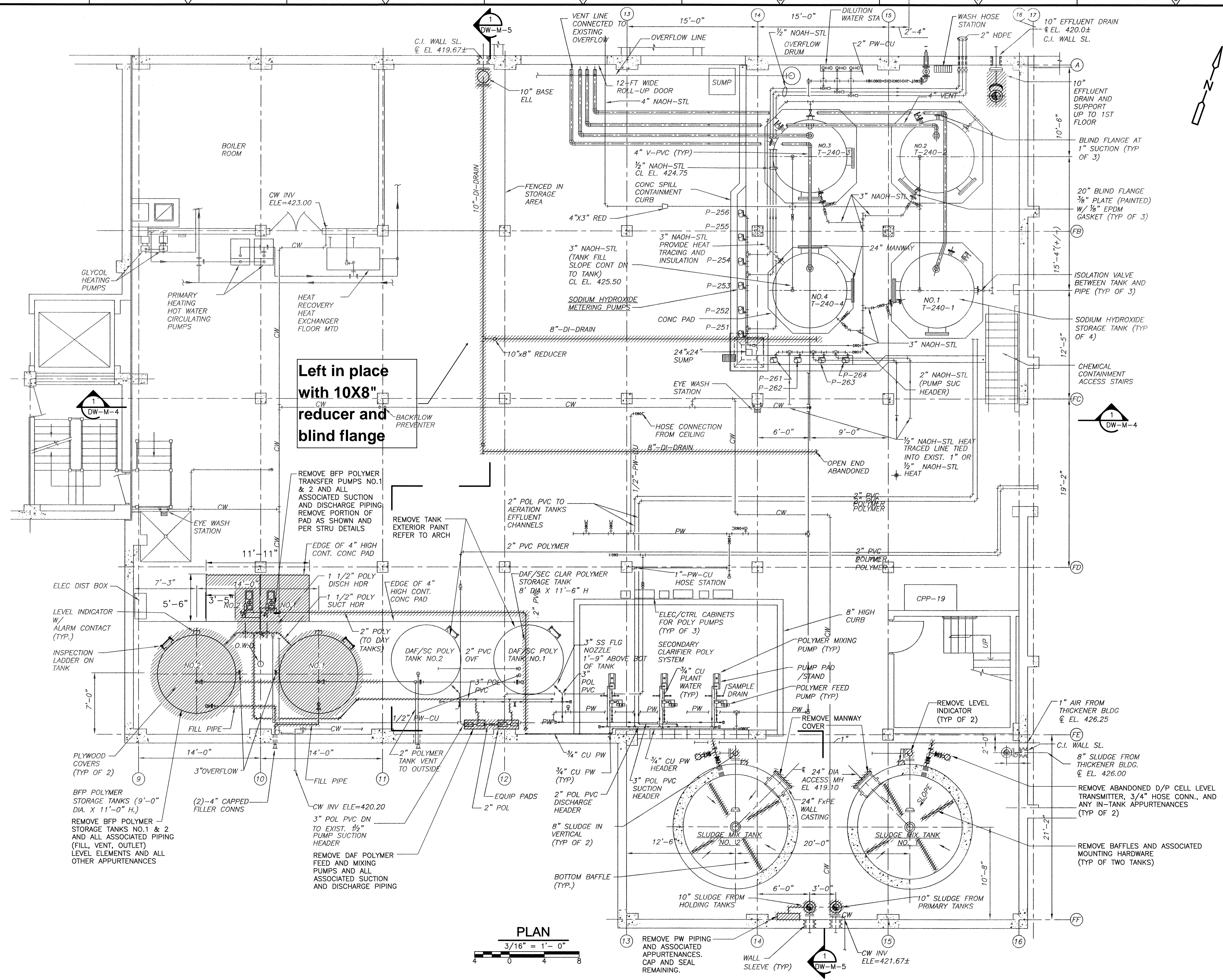
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

THICKENER BUILDING SECTIONS IMPROVEMENTS

Sht. 108 of 312
TB-M-6
 Acc # 1289-74514

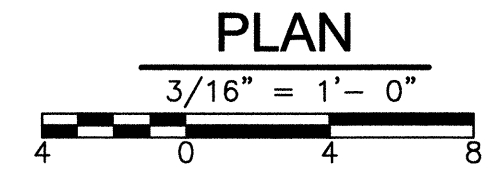
PROJECT NO.	1289-74283
Sht.	108 of 312
Acc #	1289-74514

Plot Stamp Project: 1289-74283 Upper Blackstone P-III File: C:\CDMKM\WALLEK\M\0119543\MDWDM001.DWG Saved by: BITTOV On: 7-Jul-10 3:02 PM



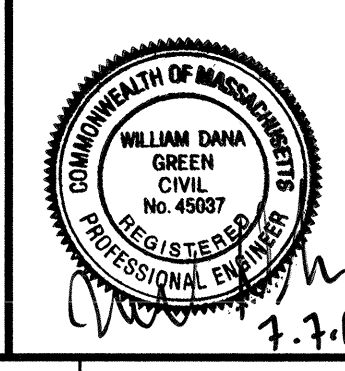
NOTES:
 1. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS

Left in place with 10X8" reducer and blind flange



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDWDM001
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHKD BY:	K. WAGNER
CROSS CHKD BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	JULY 2010



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**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT NO. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BASEMENT PLAN
 DEMOLITION**

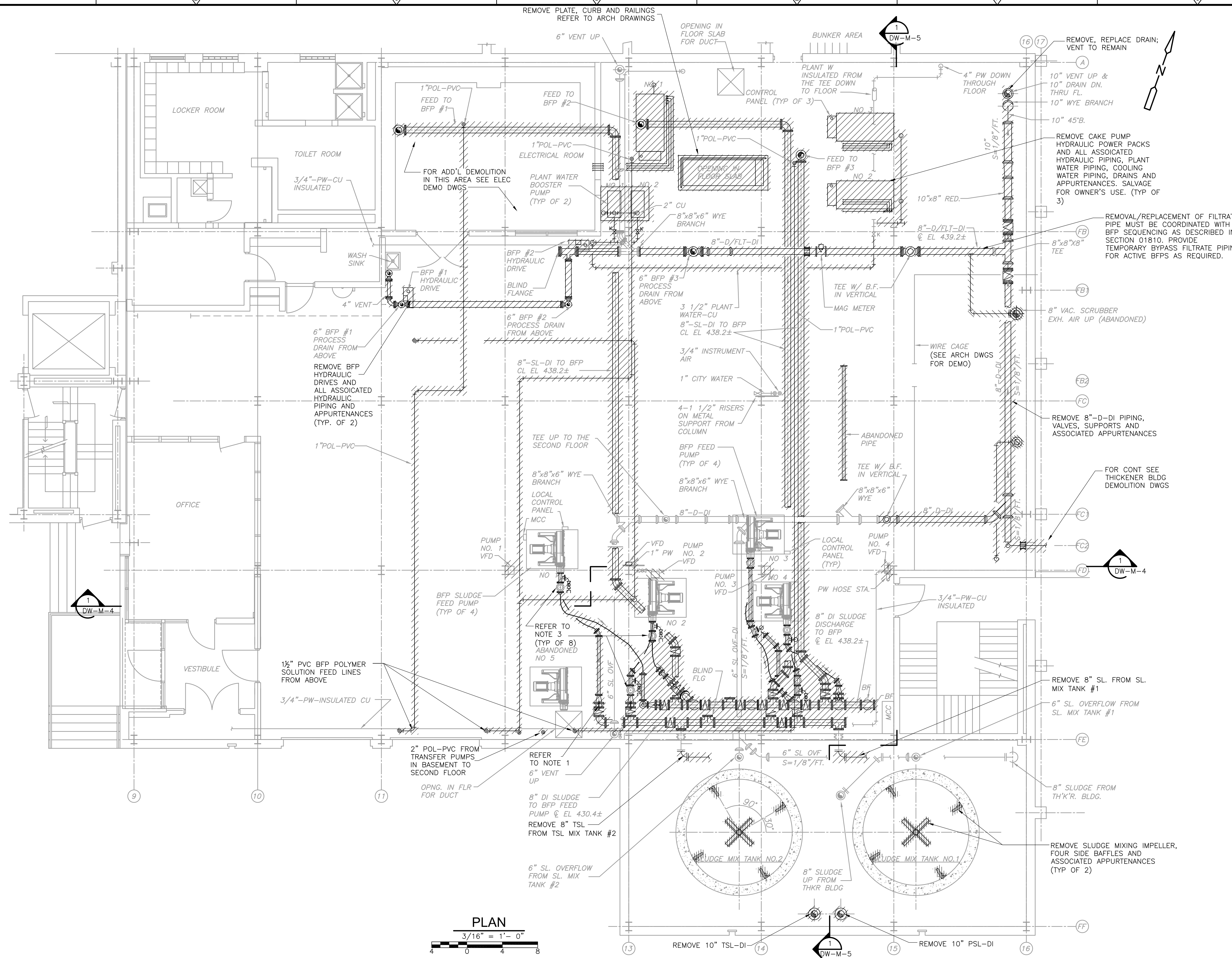
DW-M-1

PROJECT NO.
1289-74283

Sht. 109 of 312

Acc # 1289-74515

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWISE\MWDM002.DWG Saved by: BITTOUJ On: 7-Jul-10 Plotted on: 24-Nov-10 9:43 AM



- NOTES:**
1. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS
 2. SALVAGE ALL PULSATION DAMPENERS FOR REUSE WITH NEW PIPING (TYP OF 8). NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS. ALSO SALVAGE EXISTING ISOLATION RINGS.

PLAN
3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDWDM002
DESIGNED BY:	K.WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K.WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	SEPTEMBER 2010

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One Cambridge Place, 50 Hampshire Street
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Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

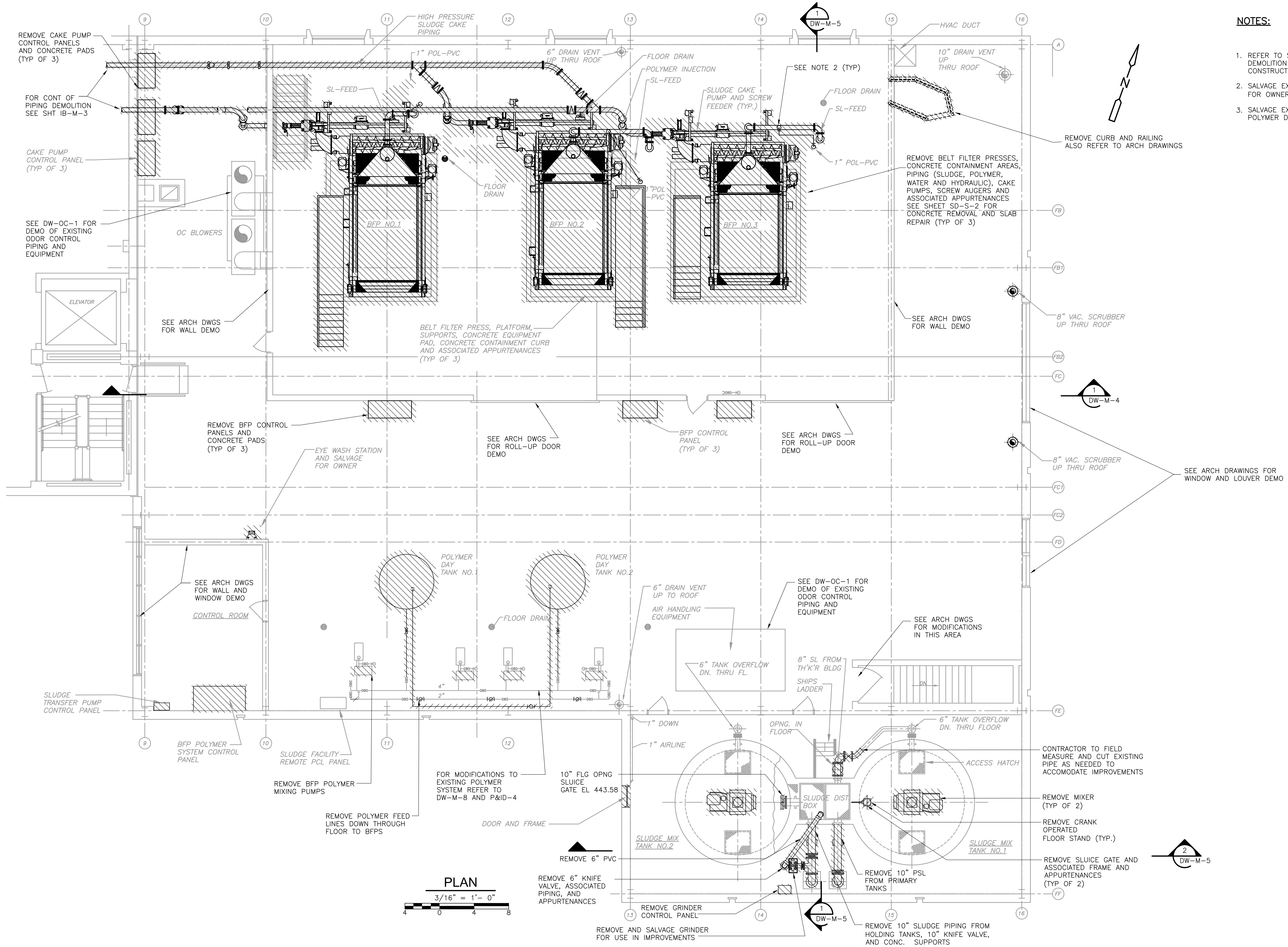
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
FIRST FLOOR PLAN
DEMOLITION**

DW-M-2

PROJECT NO.	1289-74283
Sht.	110 of 312
Acc #	1289-74516

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PIWISE\MWDM003.DWG Saved by: WALLEKMU On: 7-Jul-10 Plotted on: 24-Nov-10 9:43 AM



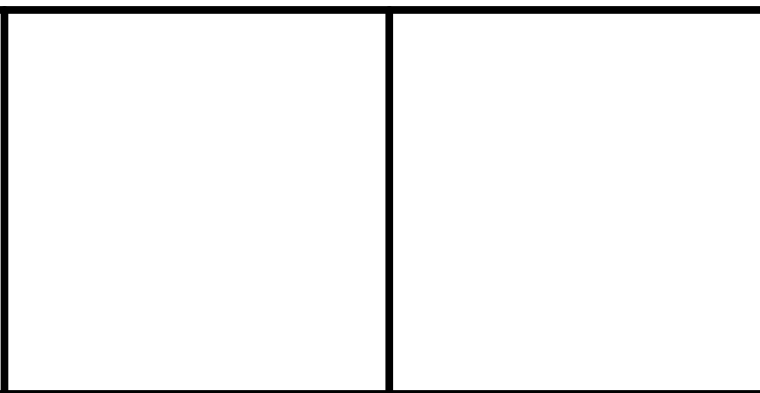
- NOTES:**
1. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS
 2. SALVAGE EXISTING POLYMER INJECTION RINGS FOR OWNER'S USE
 3. SALVAGE EXISTING ROLLING STAIRS AT POLYMER DAY TANKS FOR OWNERS USE.

PLAN
3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDMDM003
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	SEPTEMBER 2010



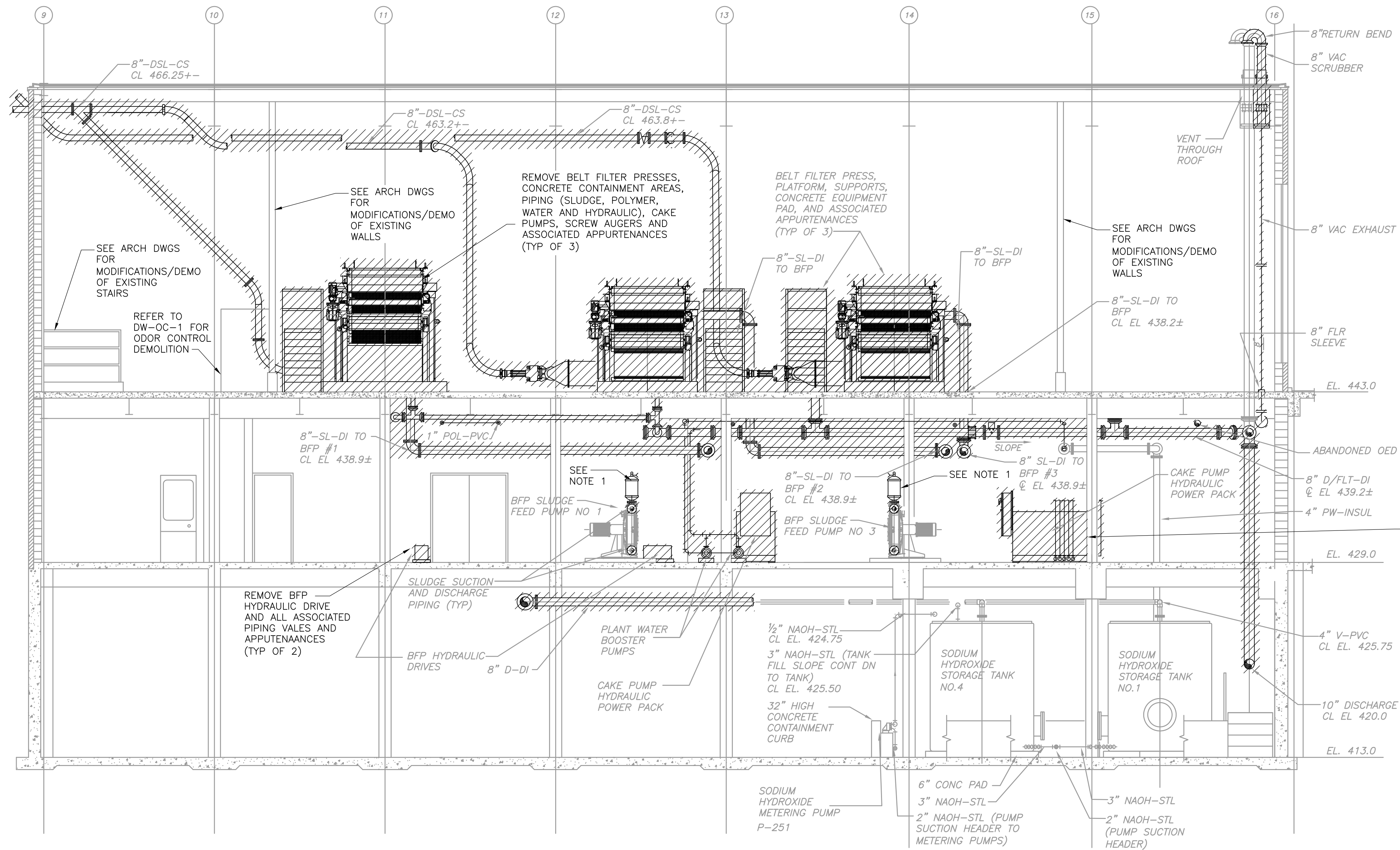
**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
SECOND FLOOR PLAN
DEMOLITION**

PROJECT NO.
1289-74283
Sht. 111 of 312
DW-M-3
Acc # 1289-74517

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\FWSE\MWDM004.DWG Saved by: WALLEKMU On: 24-Nov-10 9:43 AM



- NOTES:**
1. SALVAGE ALL PULSATION DAMPENERS FOR REUSE WITH NEW PIPING (TYP OF 8). NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.
 2. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS

SECTION 1
 3/16" = 1'-0"
 DW-M-1, M-2, M-3

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MWDM004.DWG
 DESIGNED BY: K. WAGNER
 DRAWN BY: W. DORSEY
 SHEET CHK'D BY: K. WAGNER
 CROSS CHK'D BY: D. MURPHY
 SCALE: AS NOTED
 APPROVED BY: W.D. GREEN
 DATE: SEPTEMBER 2010

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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

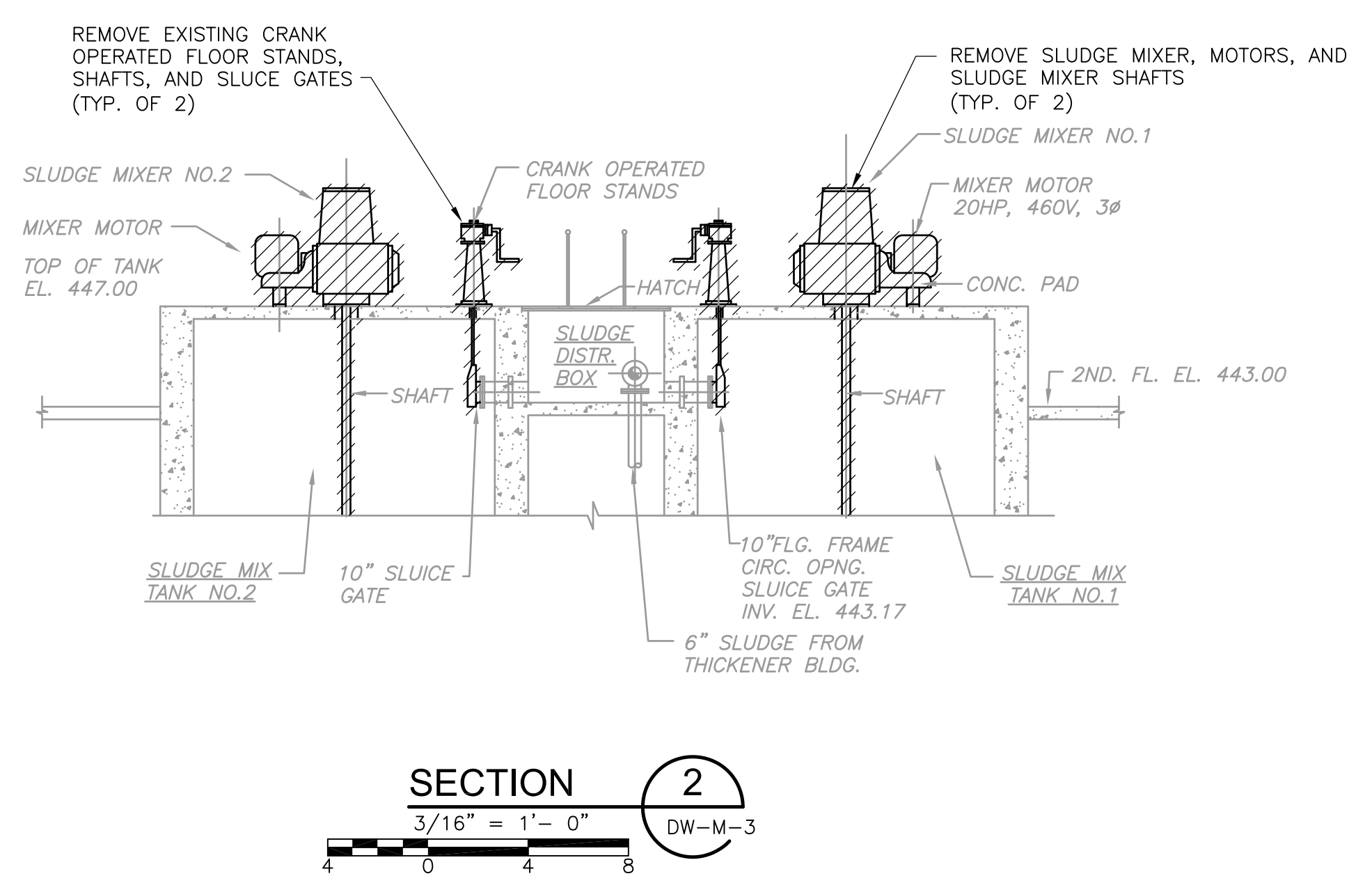
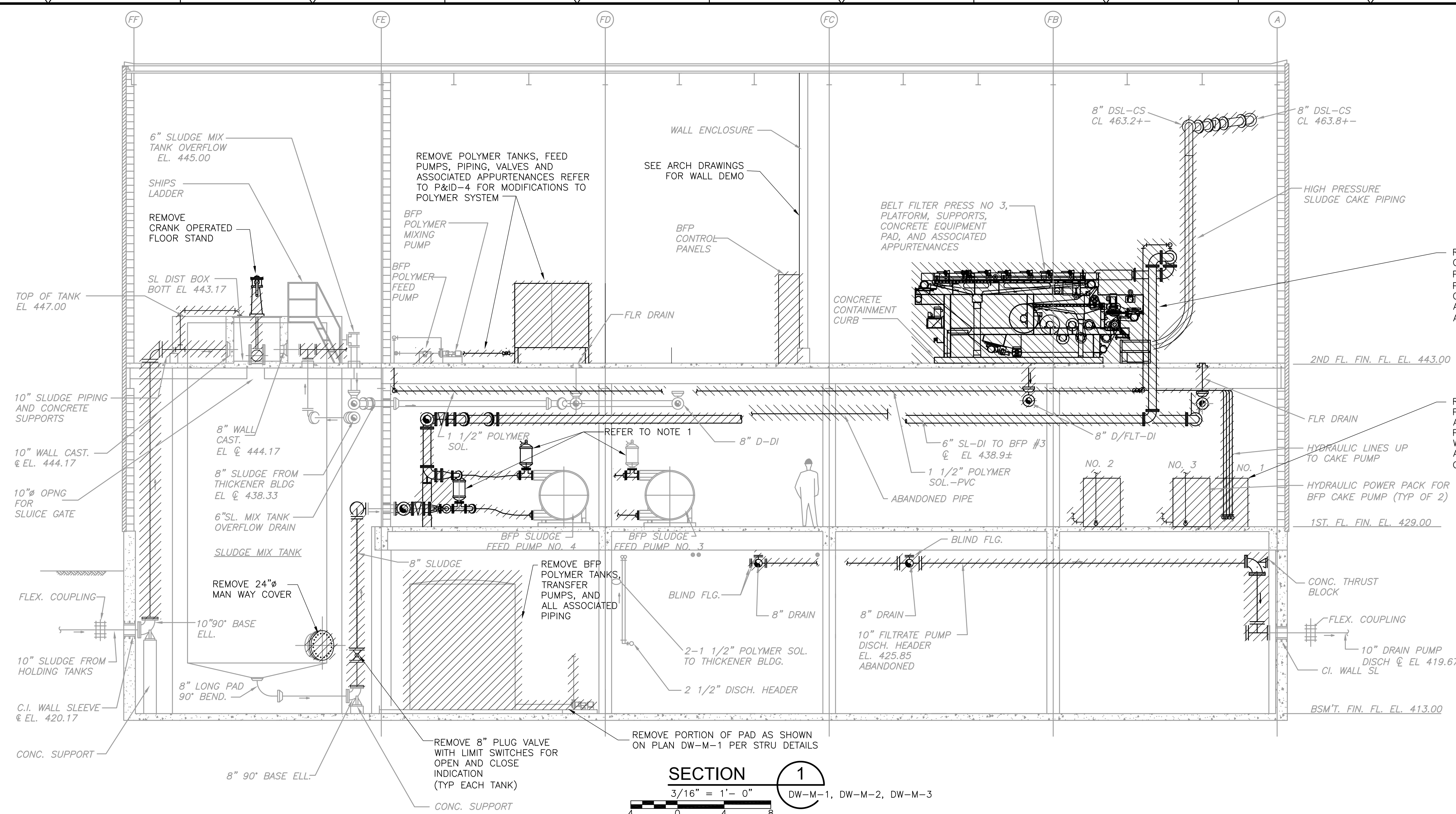
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

DEWATERING BUILDING
 SECTIONS I
 DEMOLITION
 DW-M-4

PROJECT NO.
 1289-74283
 Sht. 112 of 312
 Acc # 1289-74518

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTS\MWDM005.DWG Saved by: BITTOUJ On: 29-Jun-10 Plotted on: 24-Nov-10 9:43 AM

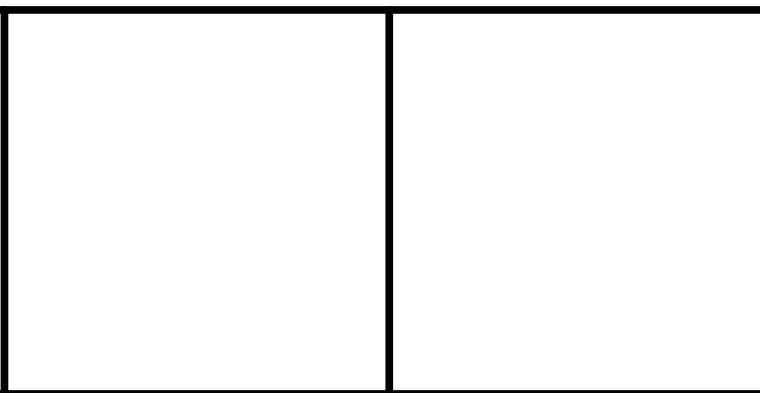
- NOTES:**
1. SALVAGE ALL PULSATION DAMPENERS FOR REUSE WITH NEW PIPING (TYP OF 8). NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.
 2. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MDWDM005
 DESIGNED BY: K. WAGNER
 DRAWN BY: W. DORSEY
 SHEET CHK'D BY: K. WAGNER
 CROSS CHK'D BY: D. MURPHY
 SCALE: AS NOTED
 APPROVED BY: W.D. GREEN
 DATE: SEPTEMBER 2010



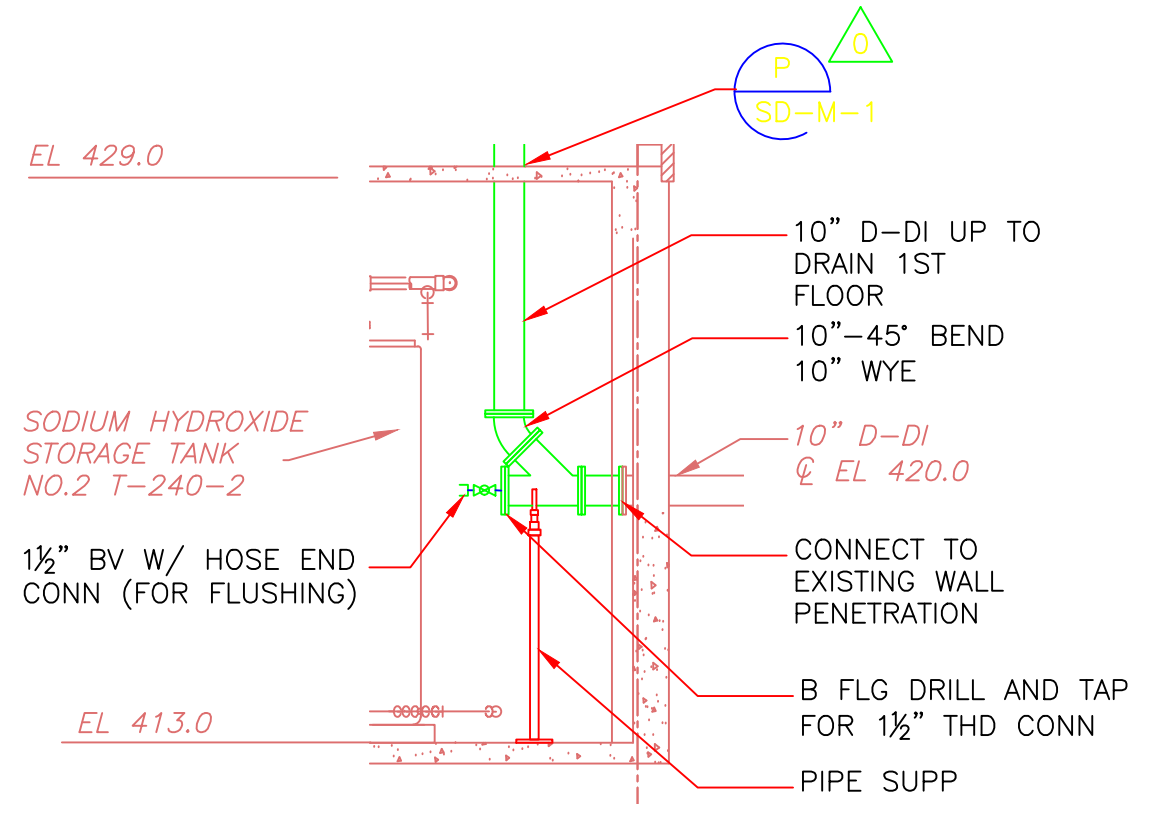
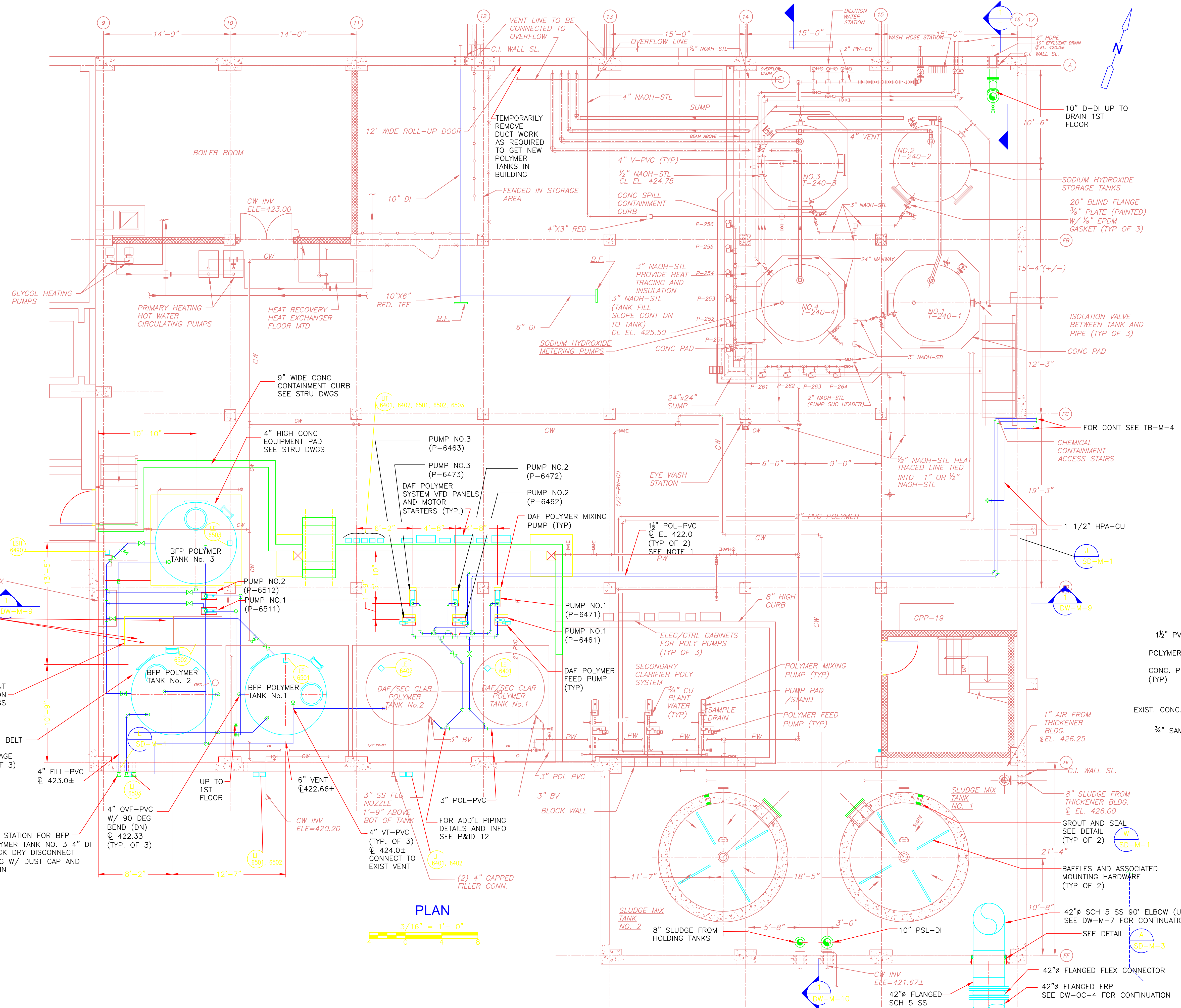
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECTIONS II
 DEMOLITION

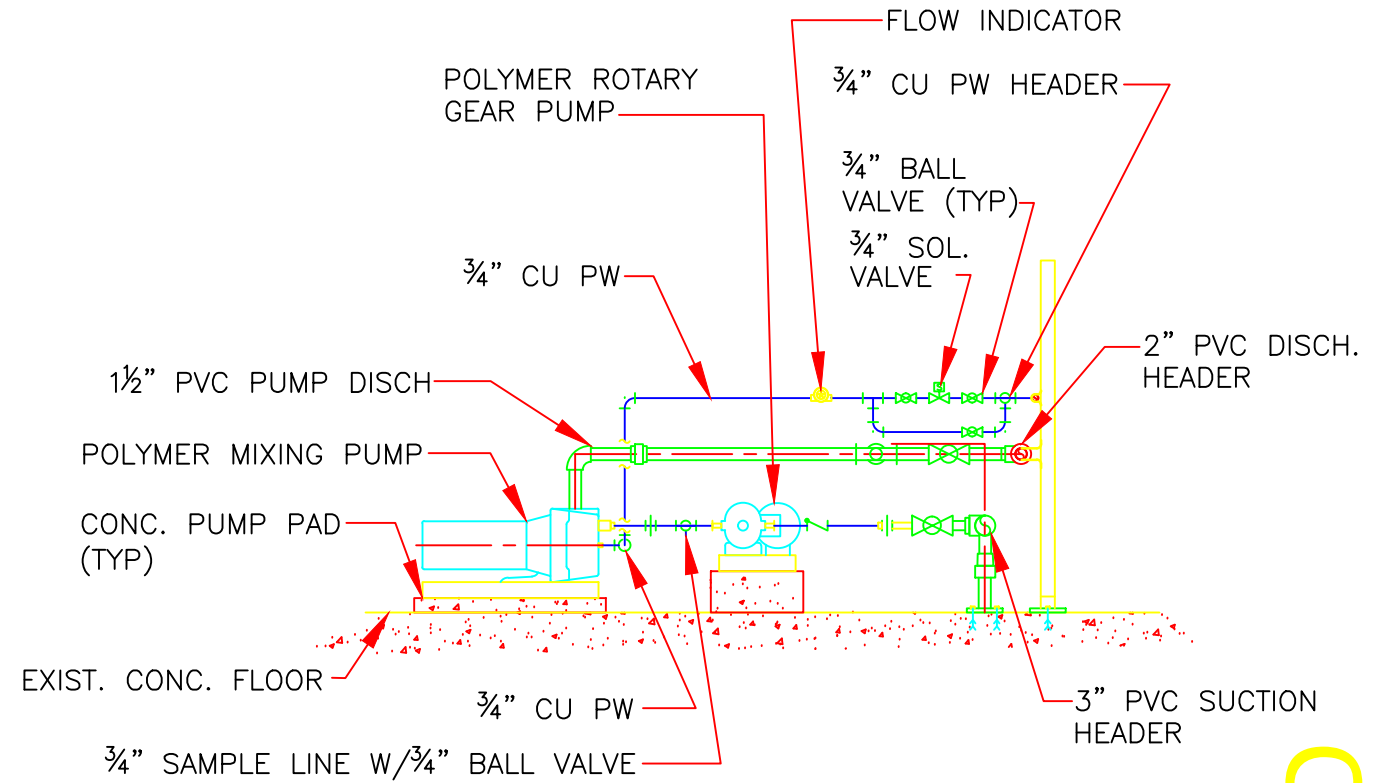
PROJECT NO.
1289-74283
 Sht. 113 of 312
 DW-M-5
 Acc # 1289-74519

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone Water Pollution Abatement District DW-M-10



SECTION 1
3/16" = 1'-0"

- NOTES:**
- KEEP ALL POLYMER PIPING A MINIMUM OF 9 INCHES AWAY FROM ELECTRICAL CONDUITS
 - SEE DW-PS AND DW-SD DRAWINGS FOR PIPE SUPPORTS.



DETAIL A
NTS

PLAN
3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	SE	KW	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MWPL001.DWG
 DESIGNED BY: K. WAGNER
 DRAWN BY: W. DORSEY
 SHEET CHK'D BY: K. WAGNER
 CROSS CHK'D BY: D. MURPHY
 SCALE: AS NOTED
 APPROVED BY: W.D. GREEN
 DATE: SEPTEMBER 2010

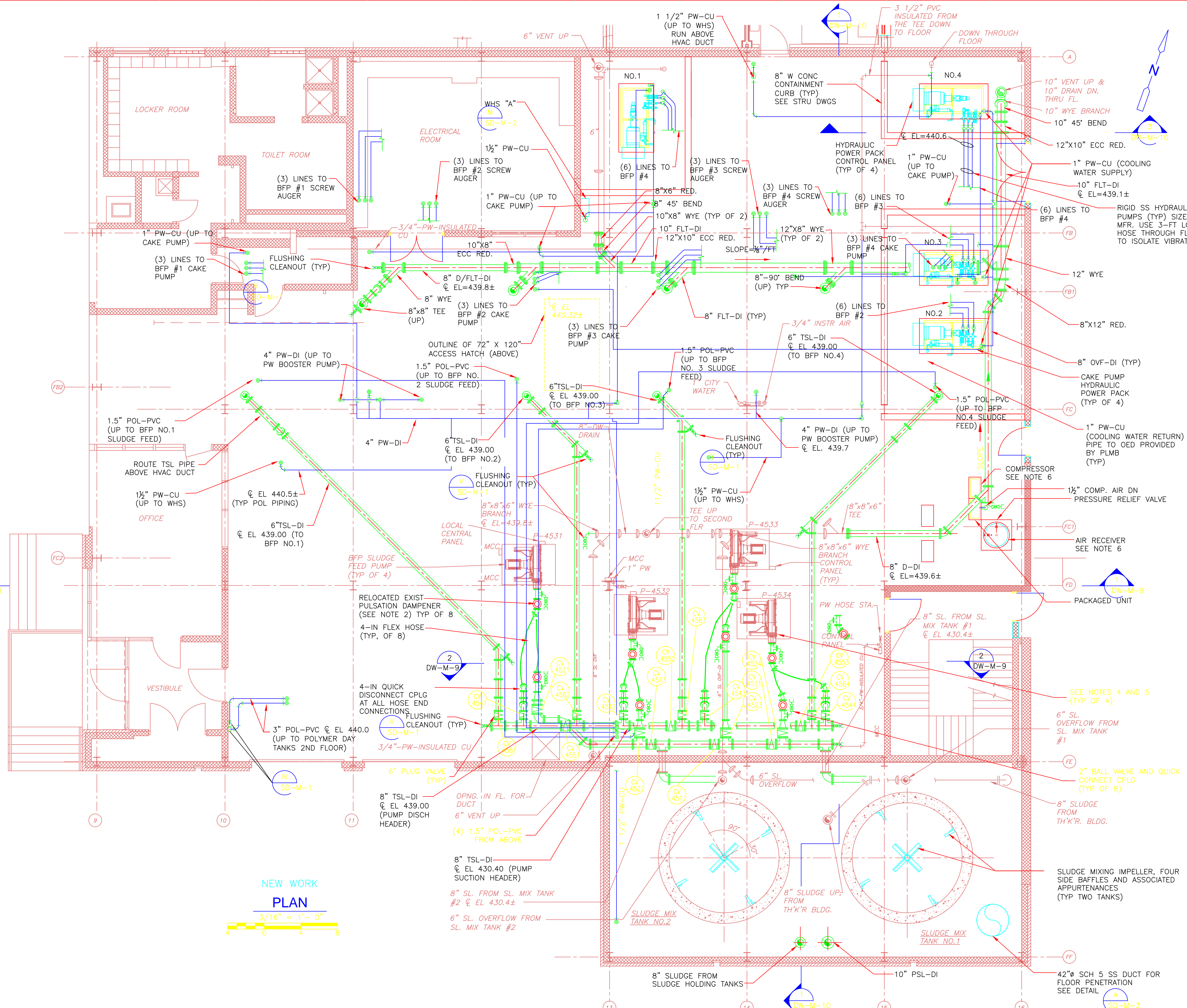
William M. Collins
 Company, Inc.
 MECHANICAL CONTRACTOR
 410 DORCHESTER AVE.
 SOUTH BOKFORD, MA 02127
 PHONE: 617-336-4180
 FAX: 617-336-1349

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. QWSRF - 3137
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
BASEMENT PLAN
IMPROVEMENTS
DW-M-6
 PROJECT NO. 1289-74283
 Sht. 114 of 312
 Acc # 1289-74520

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\DW\MDWPL002.DWG Saved by: JHNB On: 22-Jan-13 Plotted on: 26-Mar-15 2:06 PM



- NOTES:**
- REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS
 - REUSE ALL EXISTING PULSATION DAMPENERS. (TYP OF 8) NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.
 - SEE DW-PS AND DW-SD DRAWINGS FOR PIPE SUPPORTS
 - SEE P&ID-3 AND ELEC DWGS FOR FLOW ELEMENTS, PRESSURE ELEMENTS AND OTHER INSTRUMENTATION
 - EXISTING HOSE PUMPS ARE ON PADS/SKIDS OF VARYING HEIGHTS. EXACT SUCTION AND DISCHARGE ELEVATIONS VARY.
 - AIR RECEIVER, COMPRESSORS NO. 1 AND NO. 2, AND ALL ELECTRICAL AND HPA CONNECTIONS IN BETWEEN SHALL BE SUPPLIED BY AIR COMPRESSOR MANUFACTURER. SEE SPECIFICATIONS SECTION 11373.

NEW WORK PLAN
 3/16" = 1'-0"
 0 4 8

CONFORMED

0	09/10	SE	KW	REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

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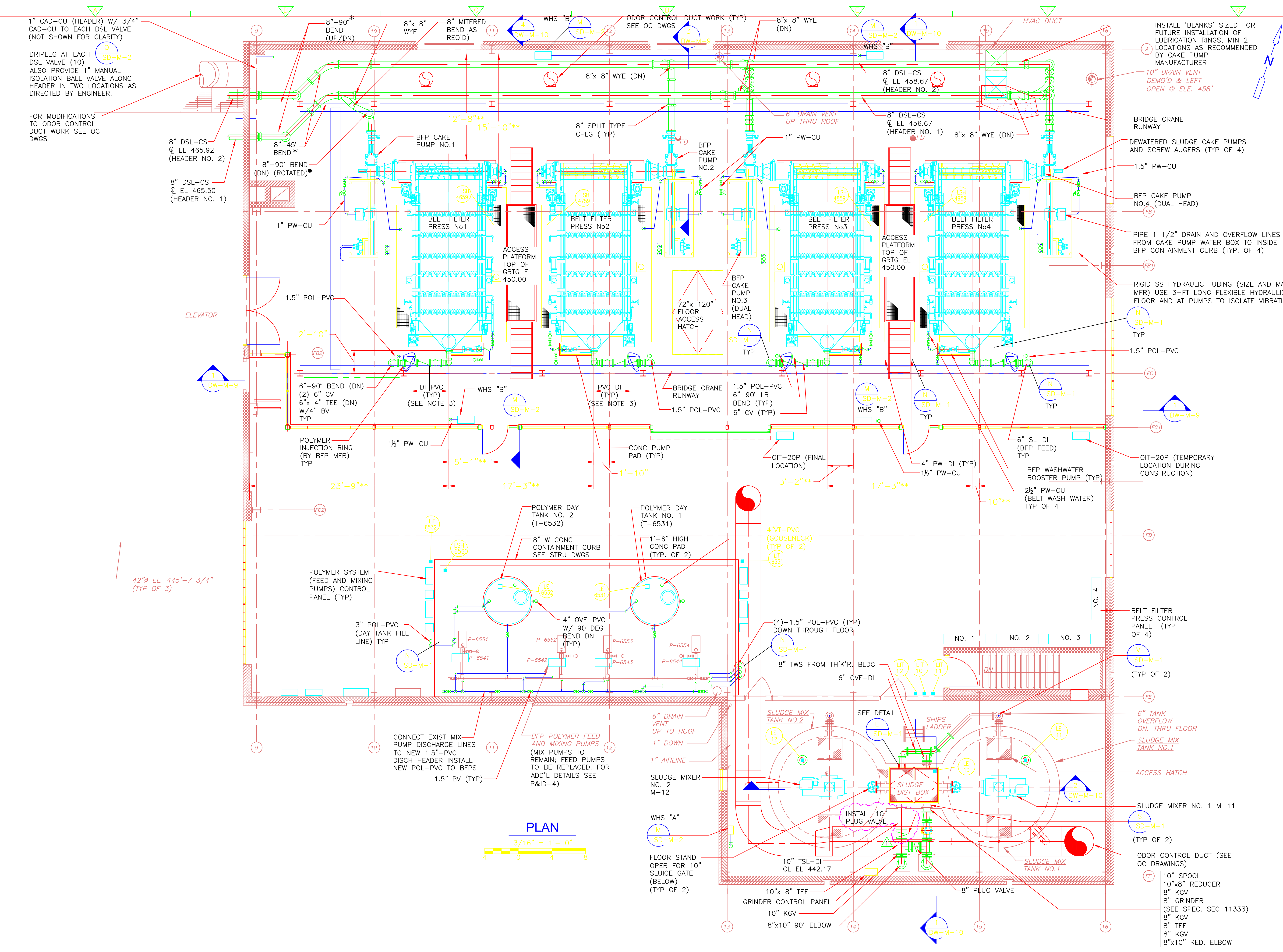
CDM
 Camp Dresser & McKee Inc.
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 Cambridge, MA 02139
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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING FIRST FLOOR PLAN IMPROVEMENTS

PROJECT NO. 1289-74283
 Sht. 115 of 312
DW-M-7
 Acc # 1289-74521

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\DW\MDWPL003.DWG Saved by: JOHN B On: 25-Jun-13 Plotted on: 26-Mar-15 3:11 PM



- NOTES:**
1. DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT $\frac{1}{2}$ OF FITTING EQUAL TO 5 PIPE DIAMETERS (MINIMUM)
 - * DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT $\frac{1}{2}$ OF FITTING EQUAL TO 3 PIPE DIAMETERS (MINIMUM)
 2. REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
 3. DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 4. SEE DW-PS AND DW-SD DRAWINGS FOR PIPE SUPPORTS.
 5. REFER TO ELEC DRAWINGS FOR SOLENOID LOCATIONS.
 6. ** DENOTES DIMENSION TO BE VERIFIED AND COORDINATED WITH MANUFACTURER.
 7. DSL PIPING SHALL BE PROVIDED WITH A 3/4-INCH STAINLESS STEEL AIR CONNECTION IMMEDIATELY DOWNSTREAM OF EACH BALL VALVE.
 8. ALL PIPING TO AND FROM BFP WASHWATER BOOSTER PUMPS SHALL BE ROUTED TO AVOID BFP CONTAINMENT WALL ACCESS STAIRS SHOWN ON DW-S-3.

PLAN
3/16" = 1' = 0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
02/11	WJB	ES		CHANGE ORDER
09/10	SL	KW		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPL003.DWG
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	SEPTEMBER 2010

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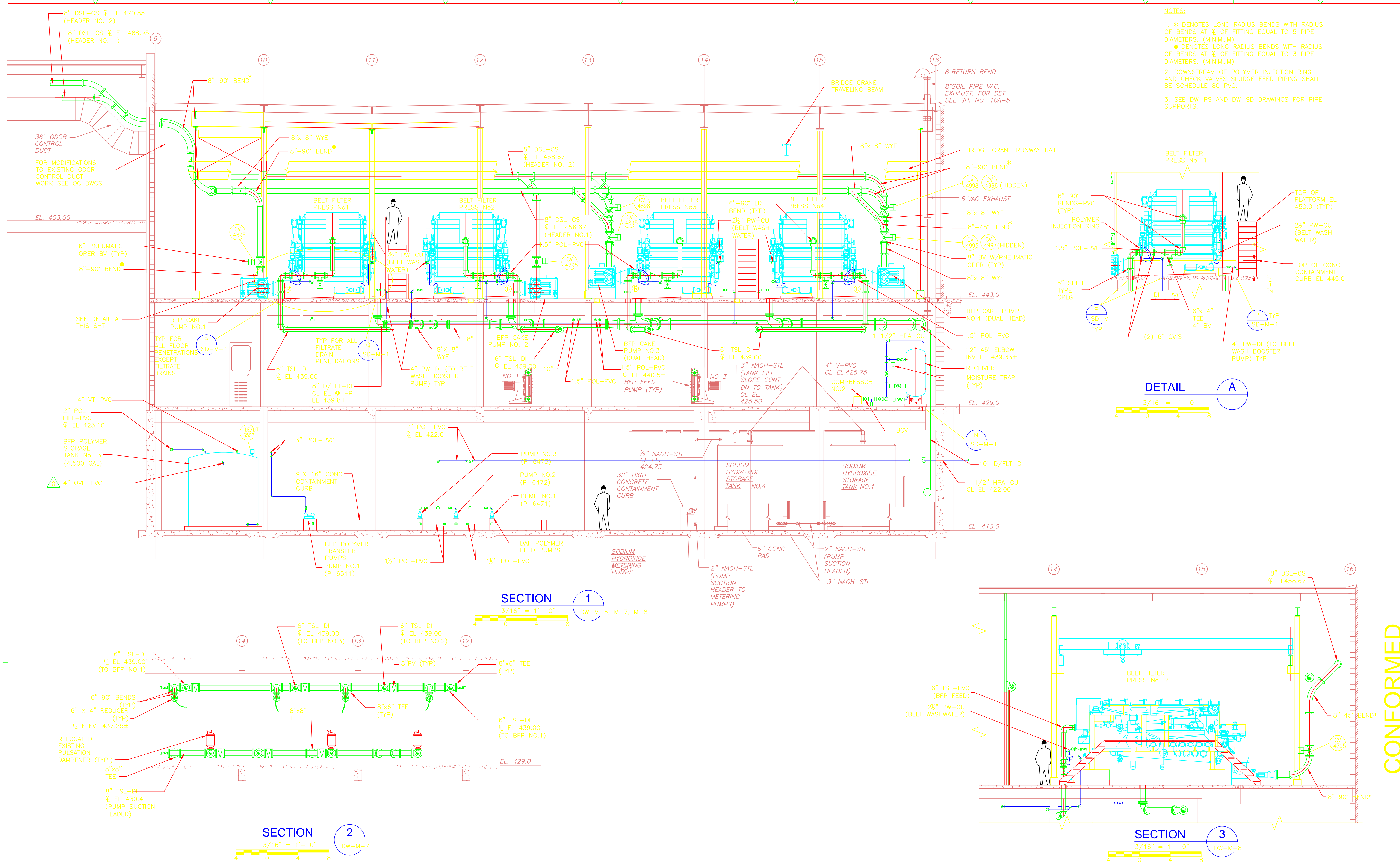
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

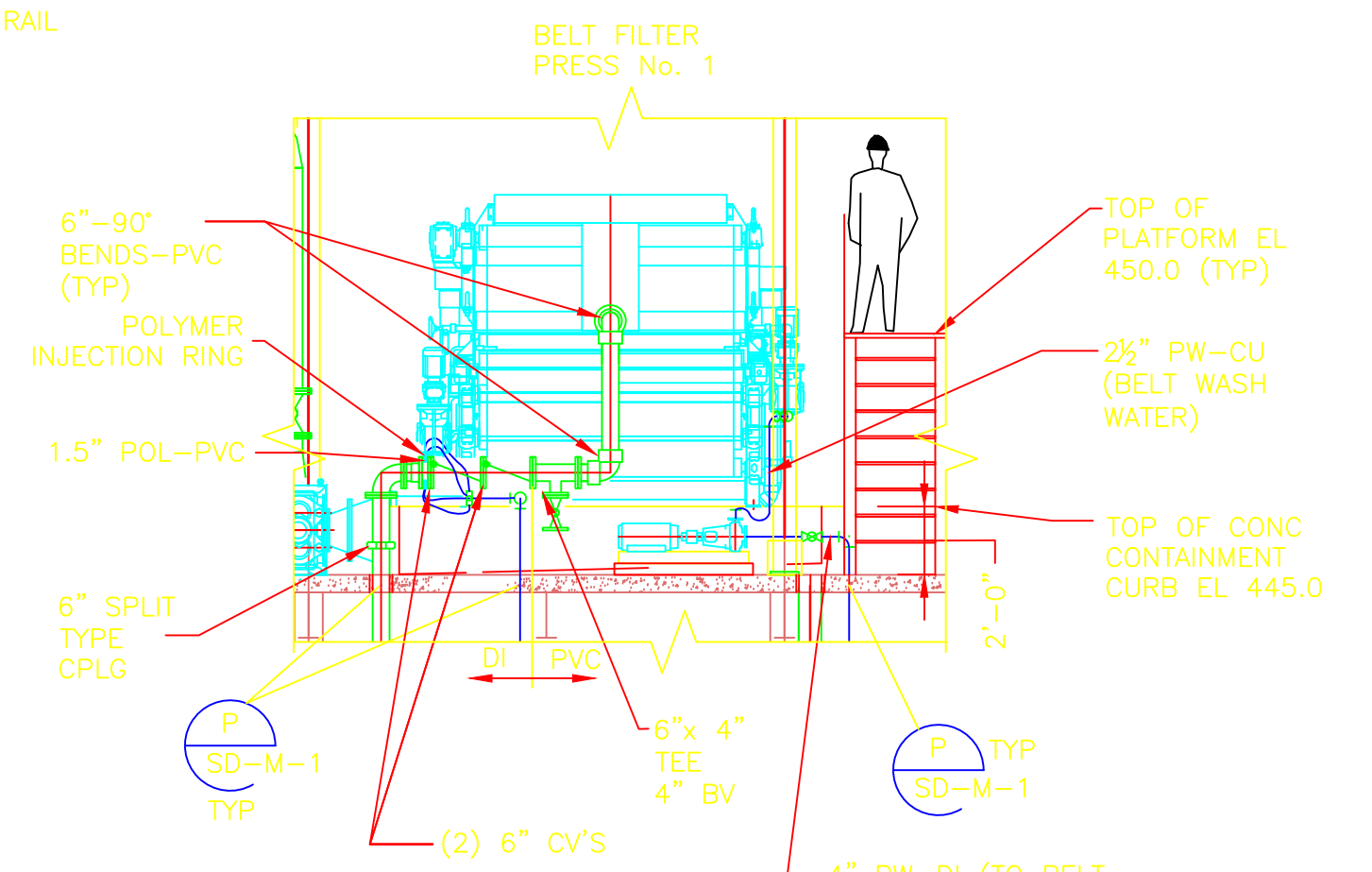
DEWATERING BUILDING SECOND FLOOR PLAN IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 116 of 312
DW-M-8
Acc # 1289-74522

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILD\TS\DW\MDWSC001.DWG Saved by: JOHN On: 22-May-12 Plotted on: 26-Mar-15 3:14 PM



- NOTES:
- * DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT @ OF FITTING EQUAL TO 5 PIPE DIAMETERS. (MINIMUM)
● DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT @ OF FITTING EQUAL TO 3 PIPE DIAMETERS. (MINIMUM)
 - DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 - SEE DW-PS AND DW-SD DRAWINGS FOR PIPE SUPPORTS.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	SE	KW	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWSC001.DWG
DESIGNED BY: K. WAGNER
DRAWN BY: W. DORSEY
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: D. MURPHY
SCALE: AS NOTED
APPROVED BY: W.D. GREEN
DATE: SEPTEMBER 2010

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Tel: (617) 452-6000 consulting • engineering • construction • operations

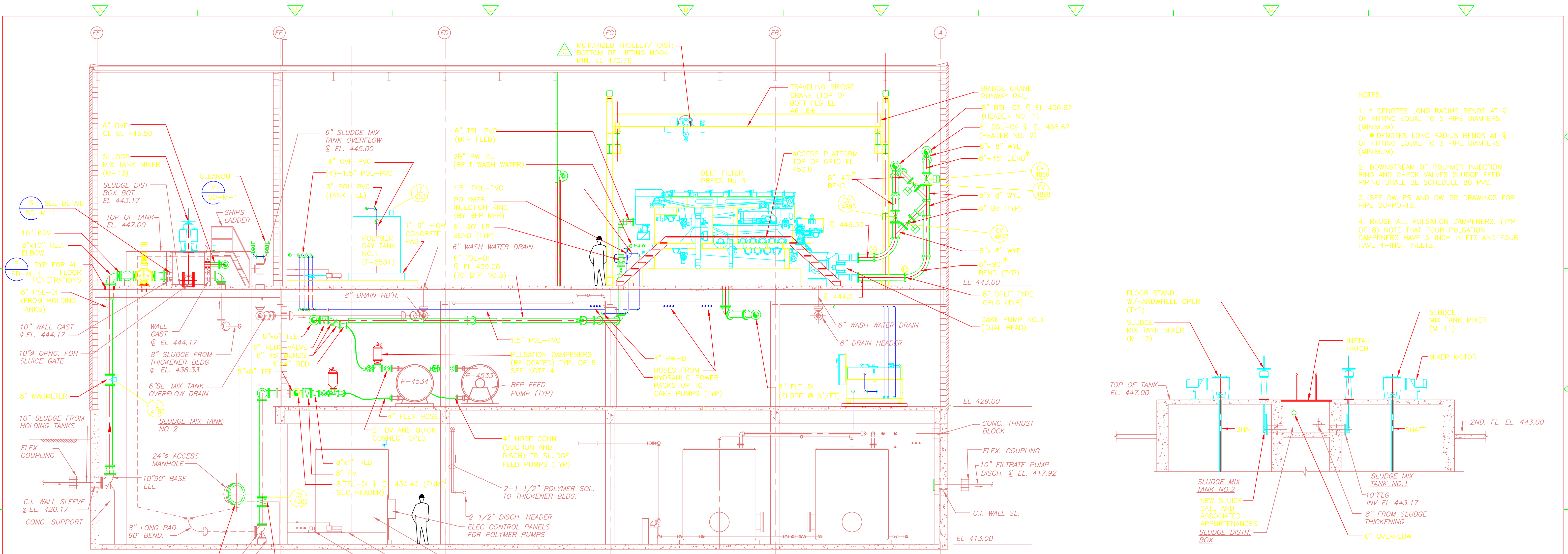
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

DEWATERING BUILDING SECTIONS I IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 117 of 312
DW-M-9
Acc. #1289-74523

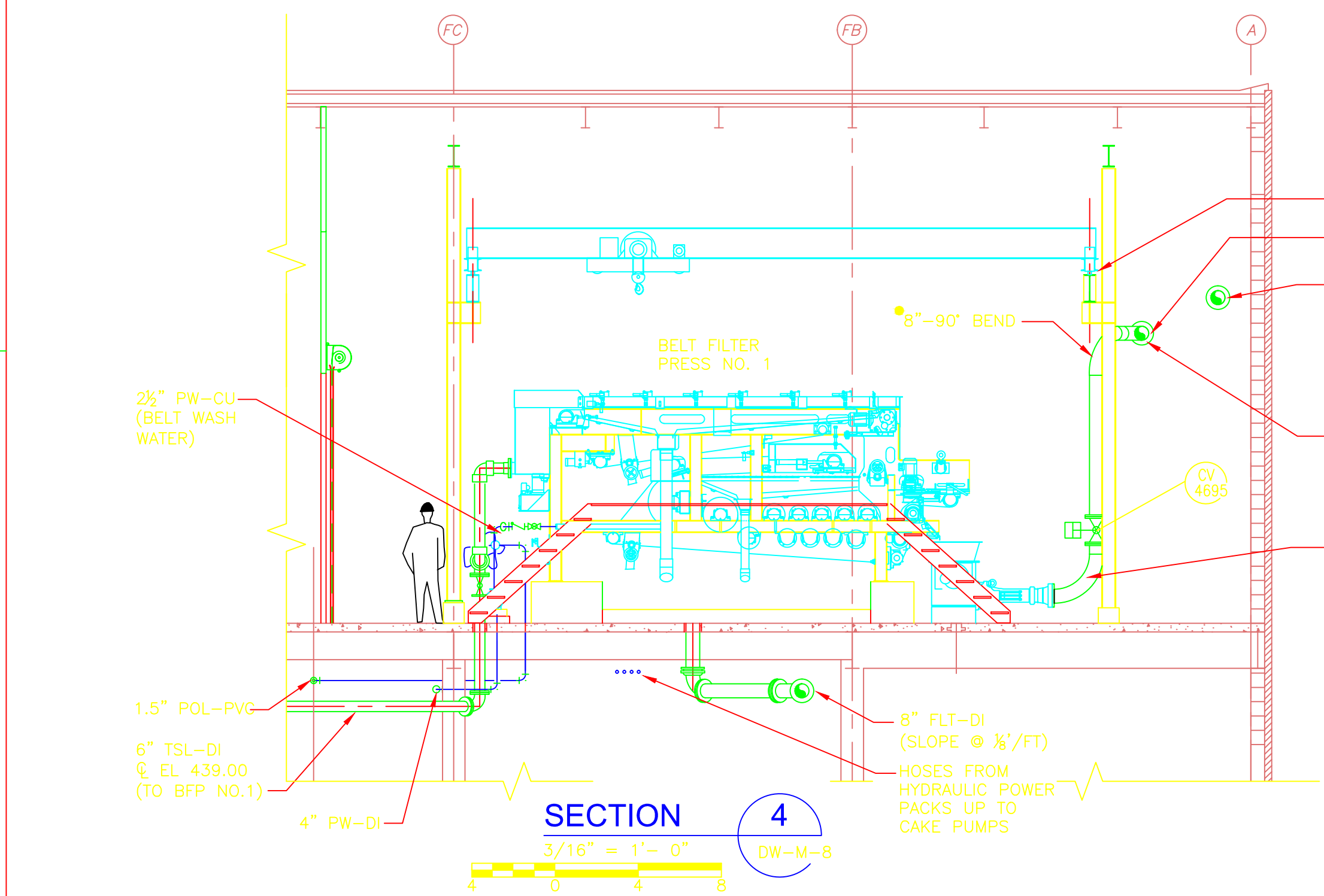
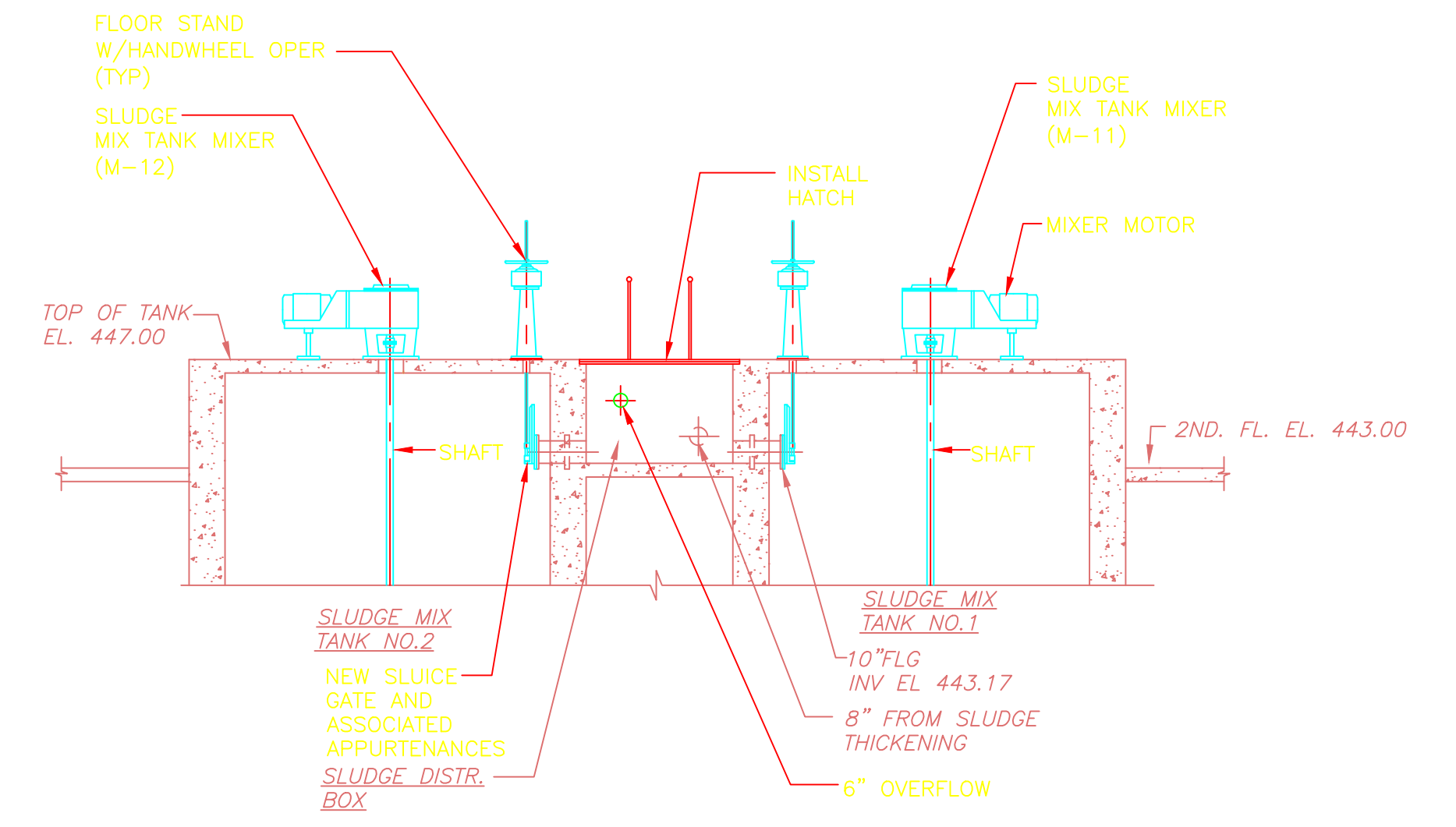
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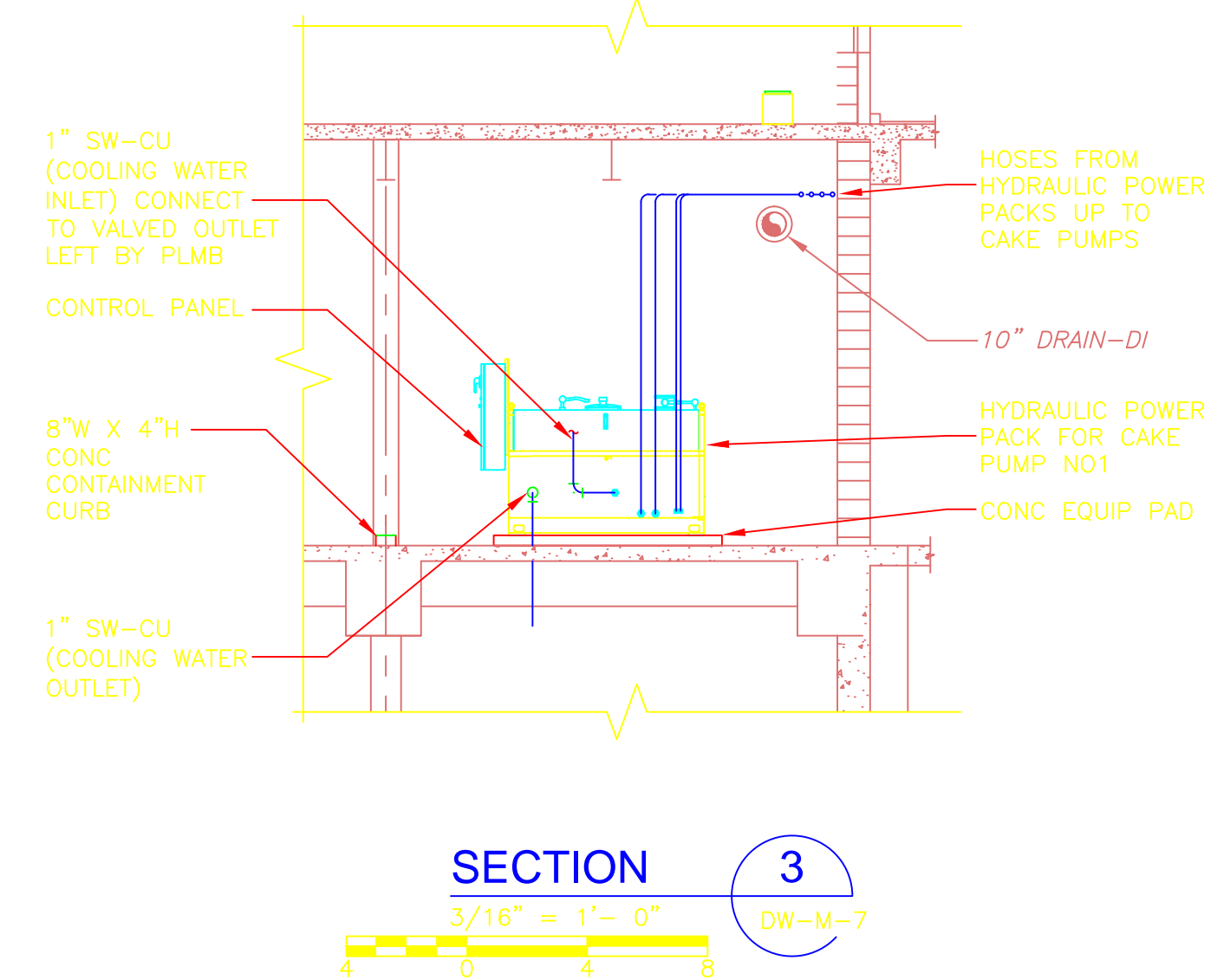
- NOTES:**
- * DENOTES LONG RADIUS BENDS AT ϕ OF FITTINGS EQUAL TO 5 PIPE DIAMETERS. (MINIMUM)
 • DENOTES LONG RADIUS BENDS AT ϕ OF FITTING EQUAL TO 3 PIPE DIAMETERS. (MINIMUM)
 - DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 - SEE DW-PS AND DW-SD DRAWINGS FOR PIPE SUPPORTS.
 - REUSE ALL PULSATION DAMPERS. (TYP OF 8) NOTE THAT FOUR PULSATION DAMPERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.

SECTION 1
 3/16" = 1'-0"
 DW-M-6, DW-M-7, DW-M-8

SECTION 2
 3/16" = 1'-0"
 DW-M-8



SECTION 4
 3/16" = 1'-0"
 DW-M-8



SECTION 3
 3/16" = 1'-0"
 DW-M-7

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	SE	KW		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MWDC002.DWG
DESIGNED BY: K. WAGNER
DRAWN BY: W. DORSEY
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: D. MURPHY
SCALE: AS NOTED
APPROVED BY: W.D. GREEN
DATE: SEPTEMBER 2010

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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

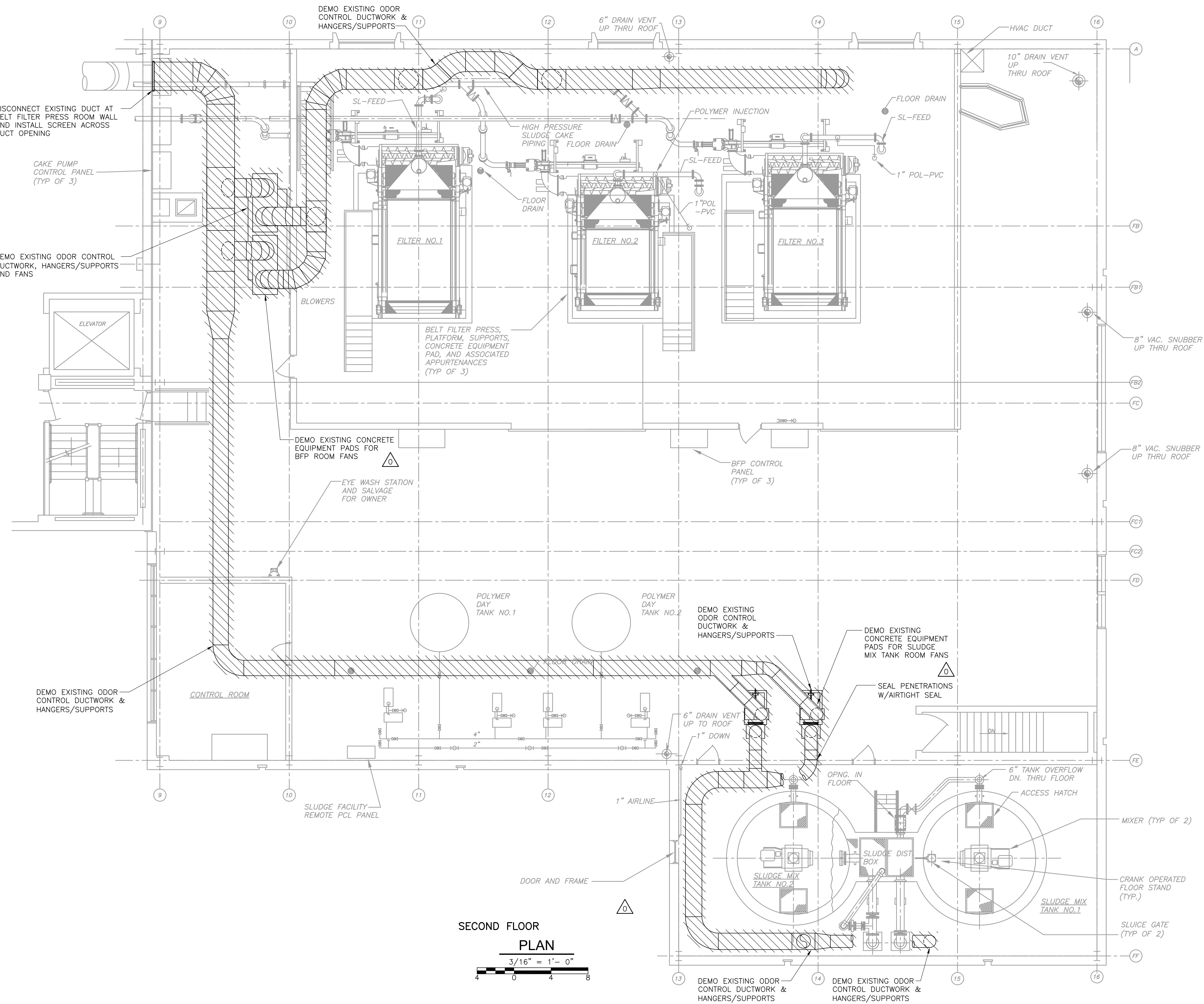
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

DEWATERING BUILDING SECTIONS II IMPROVEMENTS

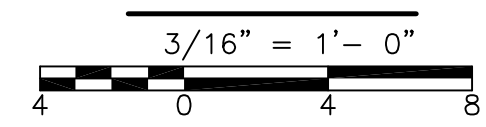
PROJECT NO. 1289-74283
 Sht. 118 of 312
DW-M-10
 Acc # 1289-74524

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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\WISE\MDM006.DWG Saved by: BITTOUJ On: 28-Sep-10 Plotted on: 24-Nov-10 9:44 AM



SECOND FLOOR
PLAN



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	VJB	KS		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDM006
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

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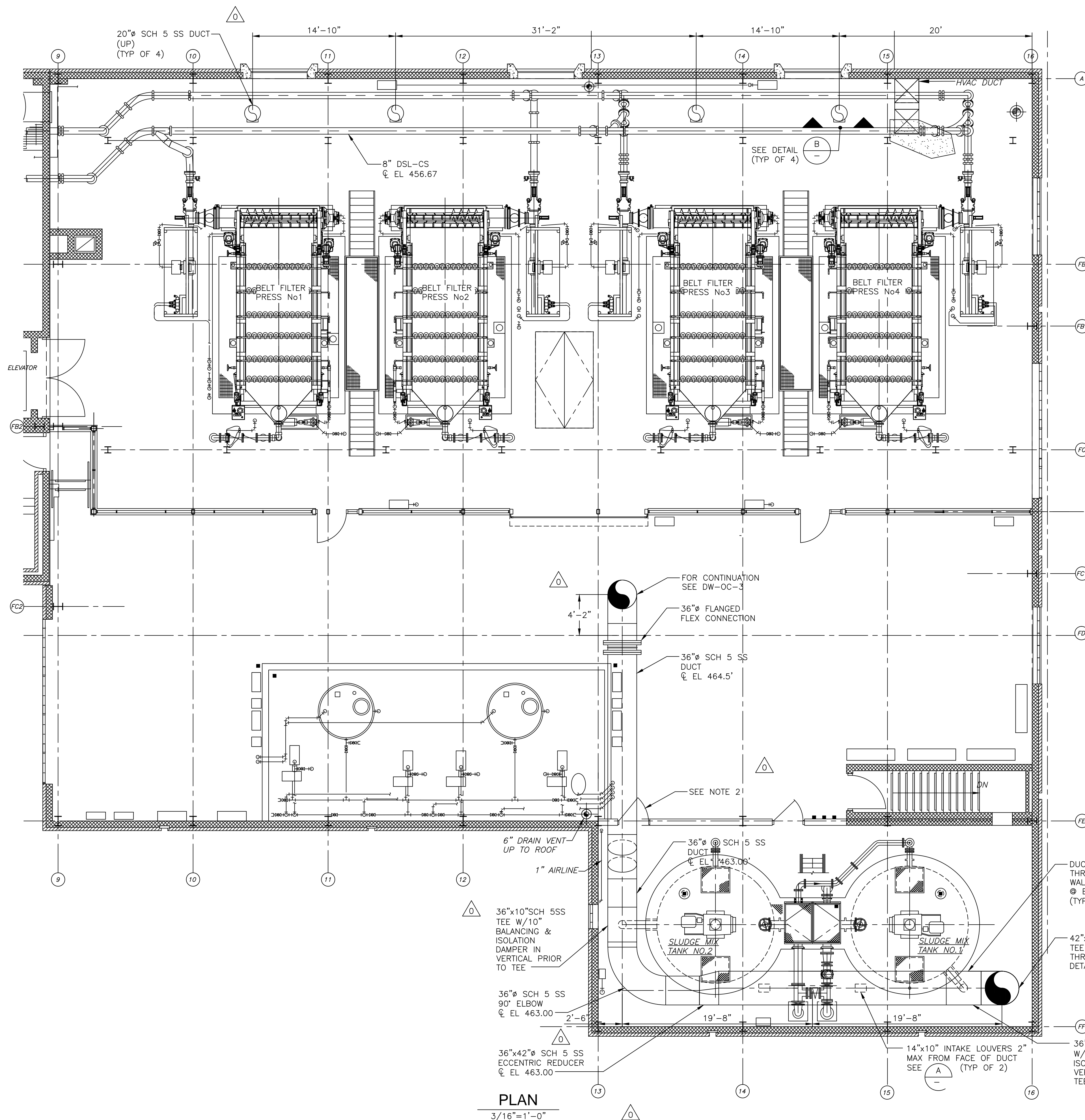
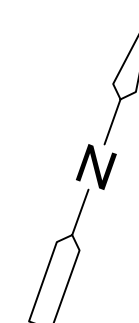
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 SECOND FLOOR PLAN
 ODOR CONTROL
 DEMOLITION**

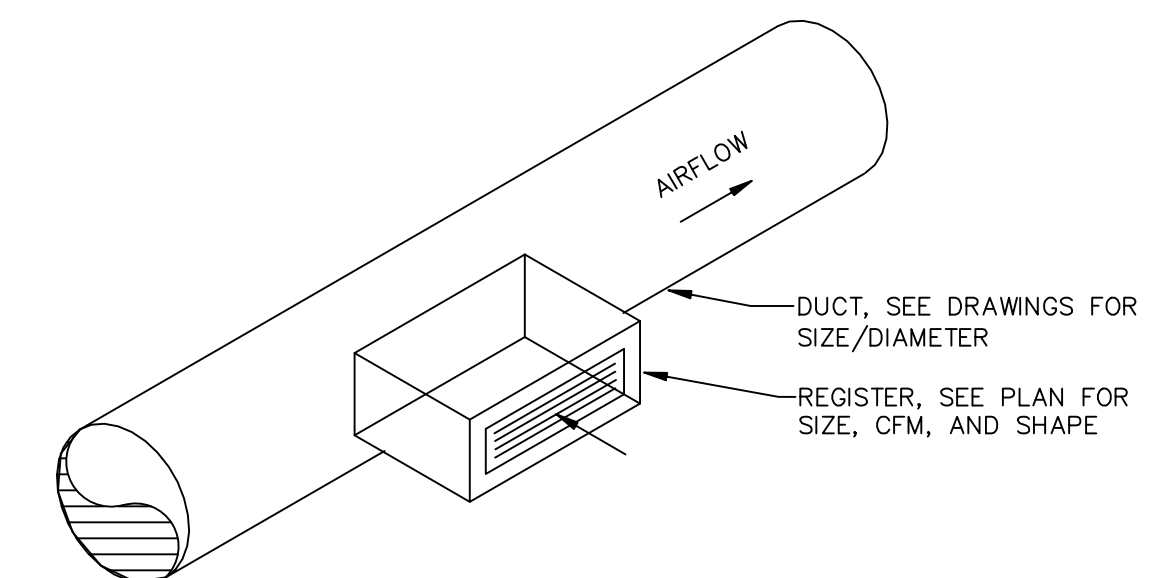
PROJECT NO.
1289-74283
 Sht. 119 of 312
DW-OC-1
 Acc # 1289-74525

CONFORMED

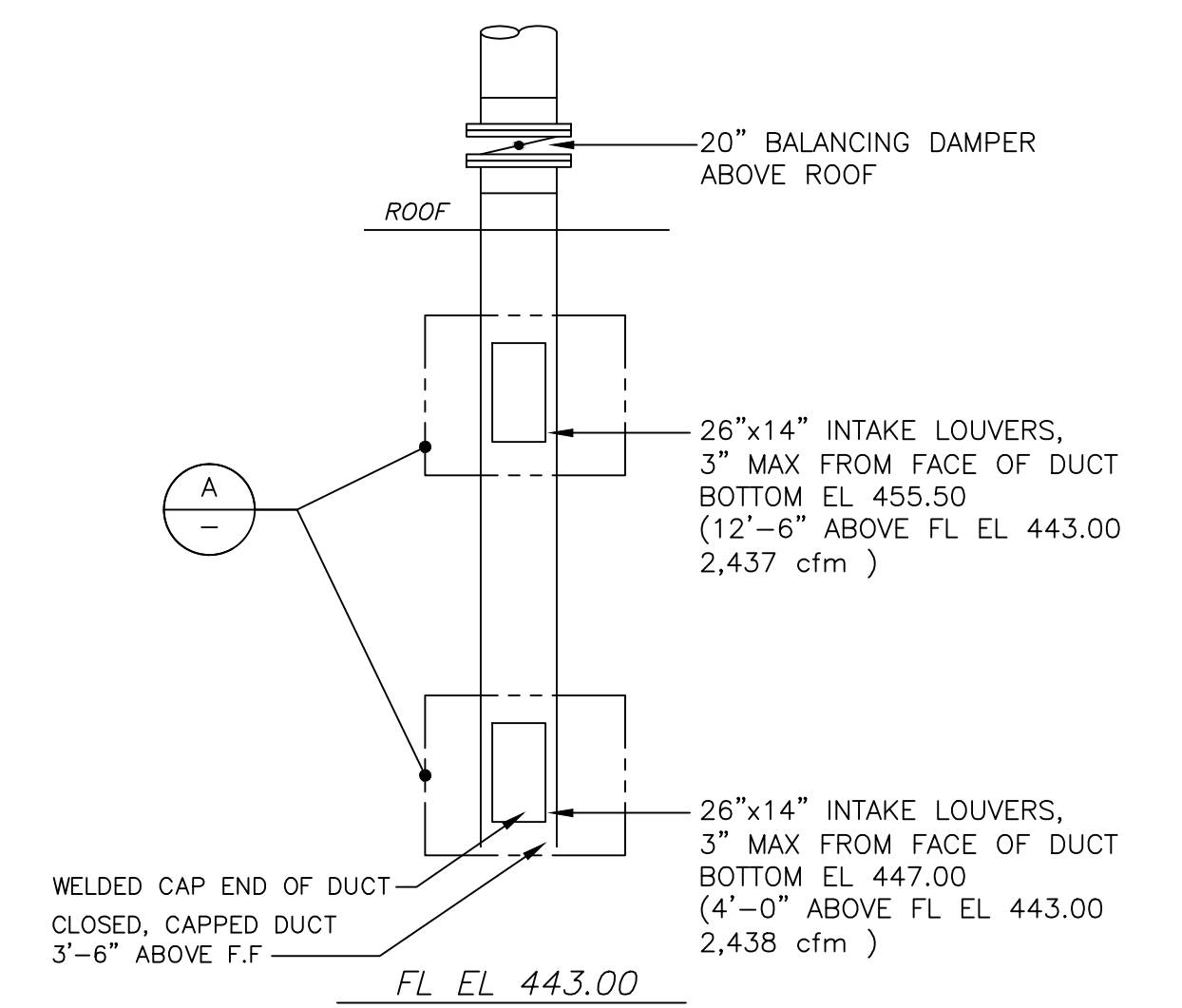
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PLAN
3/16" = 1'-0"



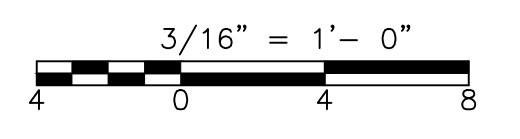
DUCT MOUNTED REGISTER
DETAIL A



DETAIL B
1/4" = 1'-0"

NOTE:
1. SEE SECTION 15290 FOR SCH 5 SS DUCTWORK.
2. IF CENTERLINE ELEVATION OF DUCTWORK NEEDS TO BE ADJUSTED DUE TO LOCATIONS OF TRANSLUCENT PANELS, CONTRACTOR TO SUBMIT REVISED LAYOUT AND ELEVATIONS TO ENGINEER FOR REVIEW AND APPROVAL.

Charles P. Blouin
"AS-BUILT" Drawing
8-20-2013



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10		WJB	KS	REVISED PER ADDENDA 1

CADD FILE NO. MDWPL004.DWG
DESIGNED BY: K. SANTORO
DRAWN BY: M. WALLEK
SHEET CHK'D BY: K. SANTORO
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: K. SANTORO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
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Tel: (617) 452-6000 consulting • engineering • construction • operations

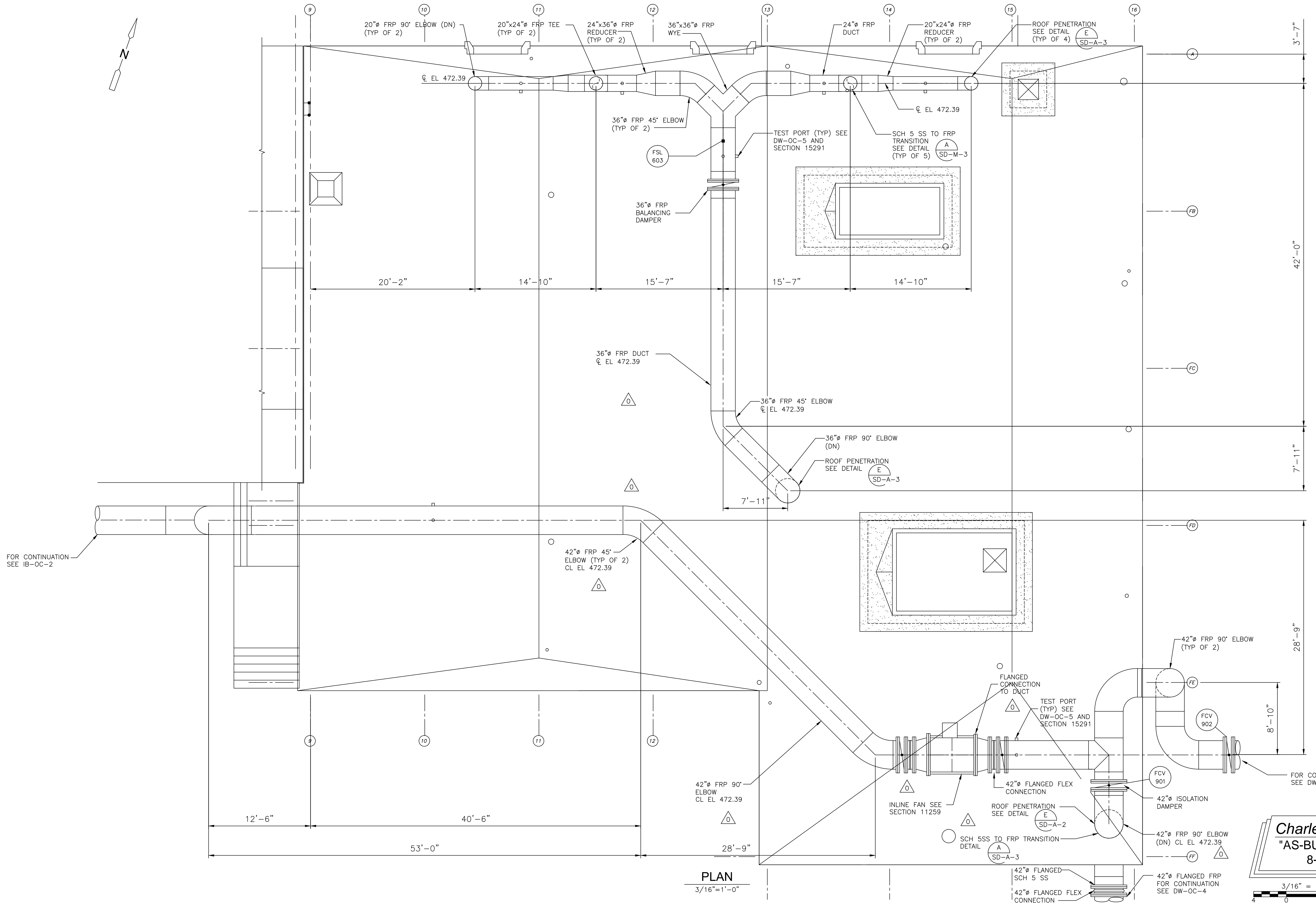
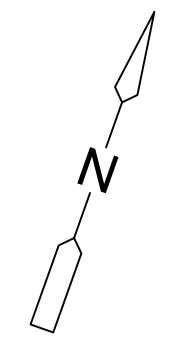
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
SECOND FLOOR PLAN
ODOR CONTROL
IMPROVEMENTS**

PROJECT NO. 1289-74283
Sht. 120 of 312
DW-OC-2
Acc # 1289-74526

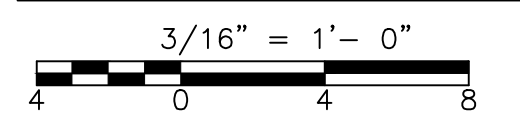
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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\3807 BLACKSTONE\UPPER BLACKSTONE CAD - COPY\MDWPL005.DWG Saved by: SCANN On: 20-Aug-13 9:55 AM



PLAN
3/16"=1'-0"

Charles P. Blouin
"AS-BUILT" Drawing
8-20-2013



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10		WJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPL005
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

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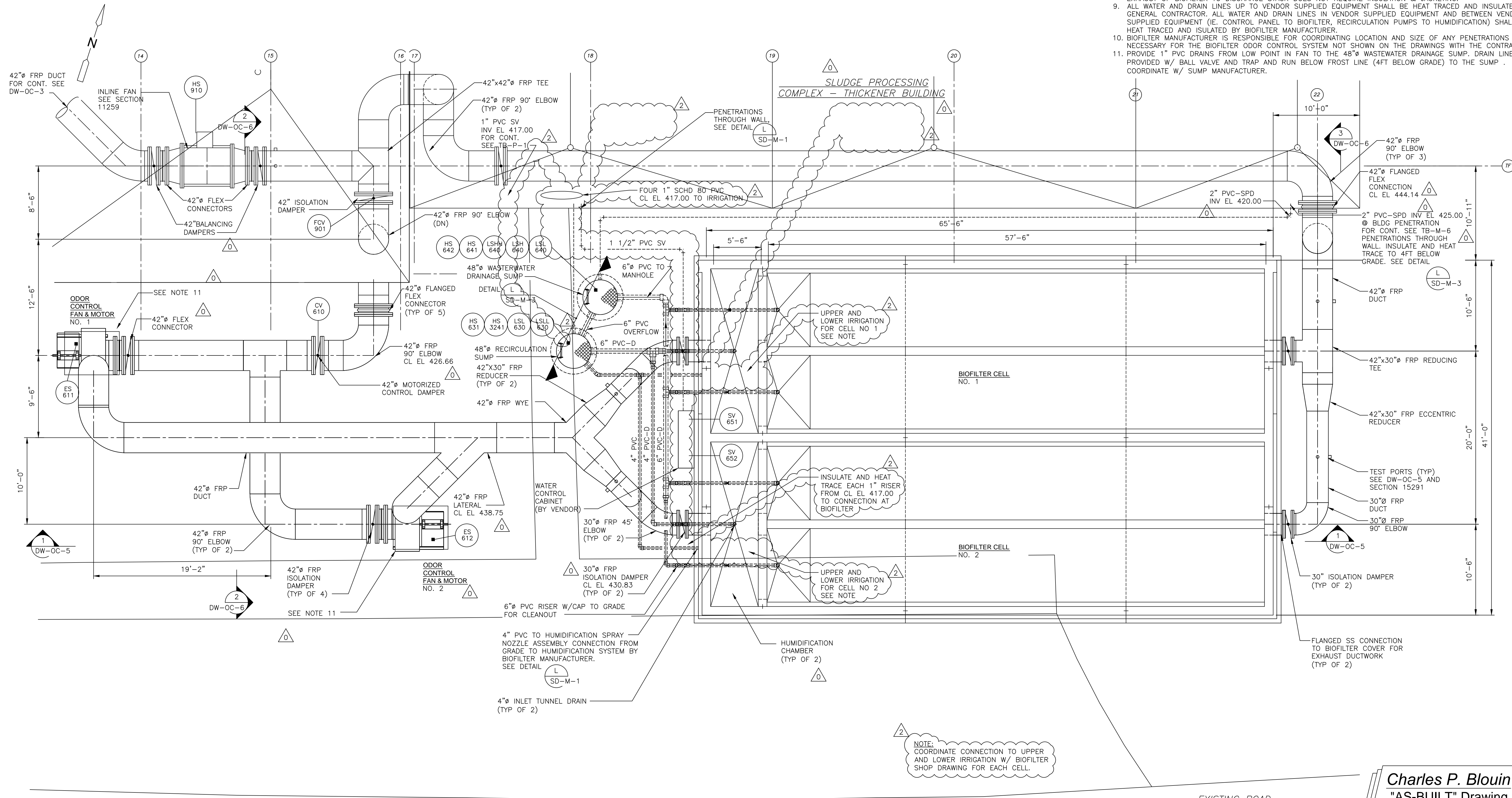
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 ROOF PLAN
 ODOR CONTROL
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 121 of 312
DW-OC-3
 Acc # 1289-74527

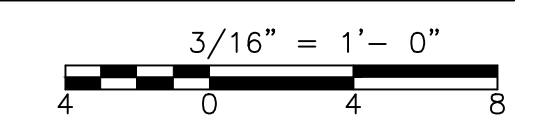
GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL INSTALL ALL BIOFILTER INTERNALS, PROVIDED BY BIOFILTER MANUFACTURER.
2. ALL INTERNAL CONCRETE SURFACES OF THE BIOFILTER AND INLET TUNNEL AND CONCRETE GRATING MUST BE EPOXY COATED. SEE SECTION 03180.
3. SEE C-2 PLAN FOR ACTUAL ORIENTATION AND LOCATION.
4. SEE SECTION 11258 FOR BIOFILTER REQUIREMENTS.
5. SEE SECTION 11259 FOR ODOR CONTROL FAN REQUIREMENTS.
6. DUCT SUPPORTS SHOWN ON PIPE SUPPORT DRAWINGS.
7. FRP DUCT SPECIFIED IN SECTION 15291.
8. ALL EXTERIOR DUCTWORK SHALL BE INSULATED AND JACKETED PER SECTION 15250. UP TO BIOFILTER. EXHAUST OF BIOFILTER TO DISCHARGE STACK DOES NOT REQUIRE INSULATION & JACKETING.
9. ALL WATER AND DRAIN LINES UP TO VENDOR SUPPLIED EQUIPMENT SHALL BE HEAT TRACED AND INSULATED BY GENERAL CONTRACTOR. ALL WATER AND DRAIN LINES IN VENDOR SUPPLIED EQUIPMENT AND BETWEEN VENDOR SUPPLIED EQUIPMENT (I.E. CONTROL PANEL TO BIOFILTER, RECIRCULATION PUMPS TO HUMIDIFICATION) SHALL BE HEAT TRACED AND INSULATED BY BIOFILTER MANUFACTURER.
10. BIOFILTER MANUFACTURER IS RESPONSIBLE FOR COORDINATING LOCATION AND SIZE OF ANY PENETRATIONS NECESSARY FOR THE BIOFILTER ODOR CONTROL SYSTEM NOT SHOWN ON THE DRAWINGS WITH THE CONTRACTOR.
11. PROVIDE 1" PVC DRAINS FROM LOW POINT IN FAN TO THE 48" WASTEWATER DRAINAGE SUMP. DRAIN LINES TO BE PROVIDED W/ BALL VALVE AND TRAP AND RUN BELOW FROST LINE (4FT BELOW GRADE) TO THE SUMP. COORDINATE W/ SUMP MANUFACTURER.



PLAN
3/16" = 1'-0"

Charles P. Blouin
"AS-BUILT" Drawing
8-20-2013



CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\3807 BLACKSTONE\UPPER BLACKSTONE CAD - COPY\MDWPL006.DWG Saved by: SCANN On: 20-Aug-13 9:58 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS
2	8/15/11	FC	MK	REVISED PER RFI 100
1	09/10	VJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPL006
DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

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Camp Dresser & McKee Inc.
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

DEWATERING BUILDING
BIOFILTER PLAN

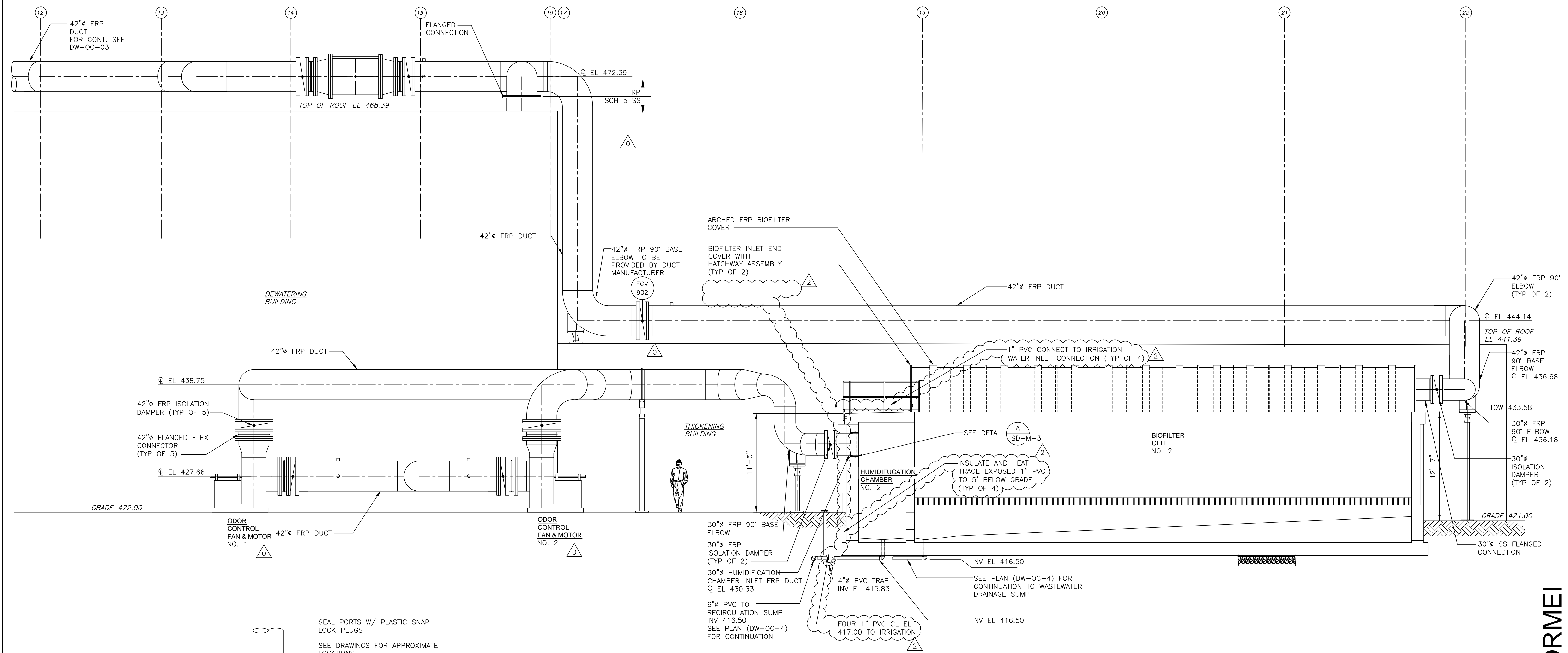
PROJECT NO.
1289-74283

Sht. 122 of 312

DW-OC-4

Acc # 1289-74528

- NOTES:
1. ALL OUTDOOR ODOR CONTROL FRP OC DUCTWORK SHALL BE INSULATED PER SECTION 15250.
 2. SUPPLY OF FRP OC DUCTWORK SHALL BE BY THE GENERAL CONTRACTOR. MATERIAL AND CONSTRUCTION IS AS SPECIFIED IN SECTION 15291 IN THE SPECIFICATIONS.
 3. ALL BASE ELBOWS ARE THE RESPONSIBILITY OF THE DUCT MANUFACTURER.
 4. DUCT SUPPORTS SHOWN ON PIPE SUPPORT DRAWINGS.
 5. ALL DRAINS LINES FROM BIOFILTER CELLS AND HUMIDIFICATION CHAMBERS TO BE PROVIDED WITH A BAROMETRIC TRAP AS ILLUSTRATED BELOW ON DRAIN LINE FROM HUMIDIFICATION CHAMBER NO. 2.



SEAL PORTS W/ PLASTIC SNAP LOCK PLUGS
SEE DRAWINGS FOR APPROXIMATE LOCATIONS
NOTE THAT MORE LOCATIONS MAY BE REQUIRED PER CONTACTOR PERFORMING AIR BALANCING

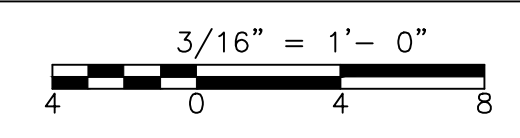
1/4" TEST PORTS 90° ON CENTER

DUCTWORK TEST PORT DETAIL

NOTE:
SIZE TO BE COORDINATED WITH CONTRACTOR PERFORMING AIR BALANCING
SEE SECTION 15291.

SECTION 1
3/16" = 1'-0" DW-OC-4

Charles P. Blouin
"AS-BUILT" Drawing
8-20-2013



Xref's: [CDM_2436, MDWWS100, ASWWS001, SDWWS001, MTEWS100, SDWWS004] Images: []
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REV. NO.	DATE	DRWN	CHKD	REMARKS
2	8/15/11	FC	MK	REVISED PER RFI 100
1	09/10	VJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWWS003.DWG
DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

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Camp Dresser & McKee Inc.
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
BIOFILTER SECTION I

PROJECT NO.
1289-74283

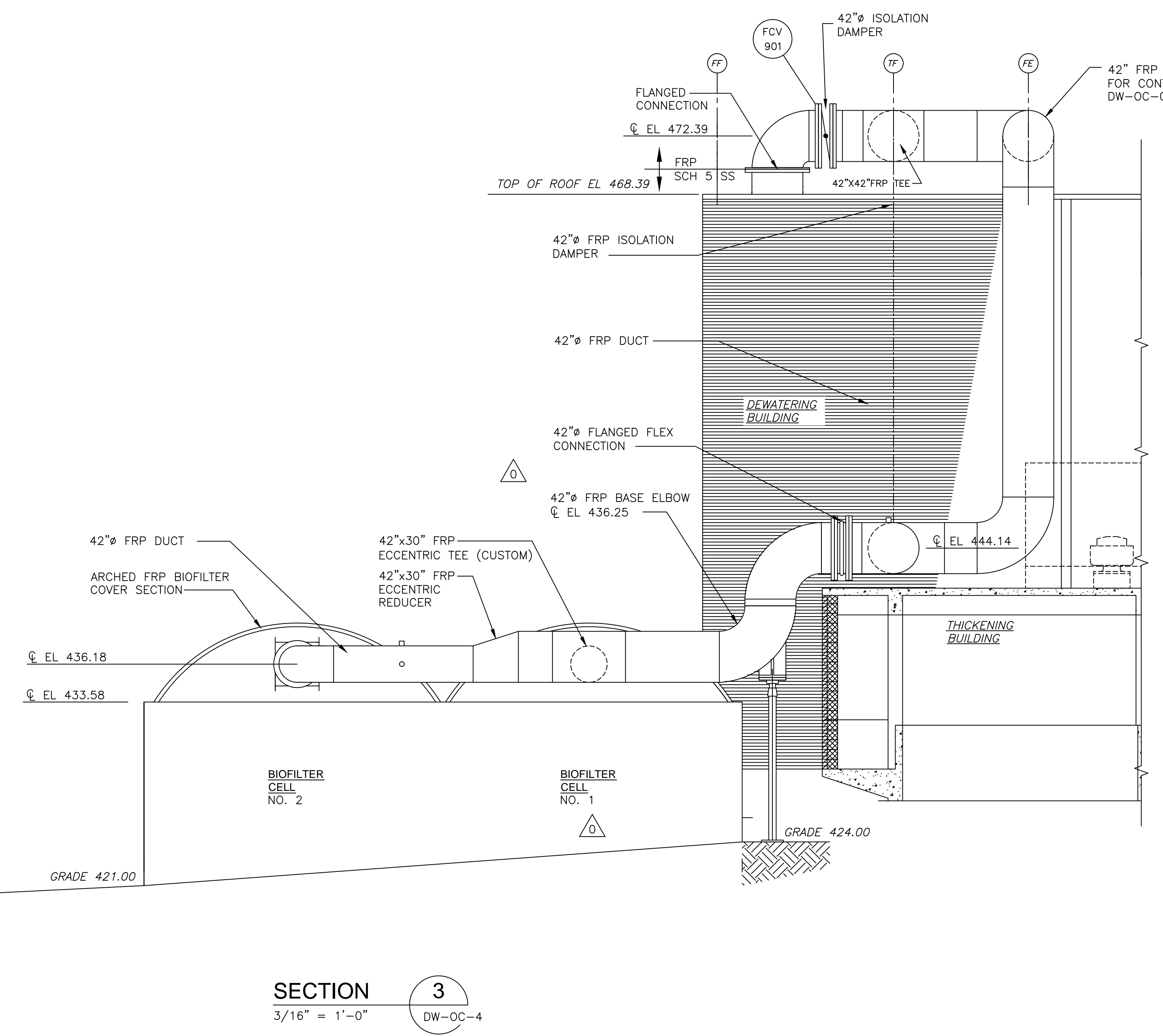
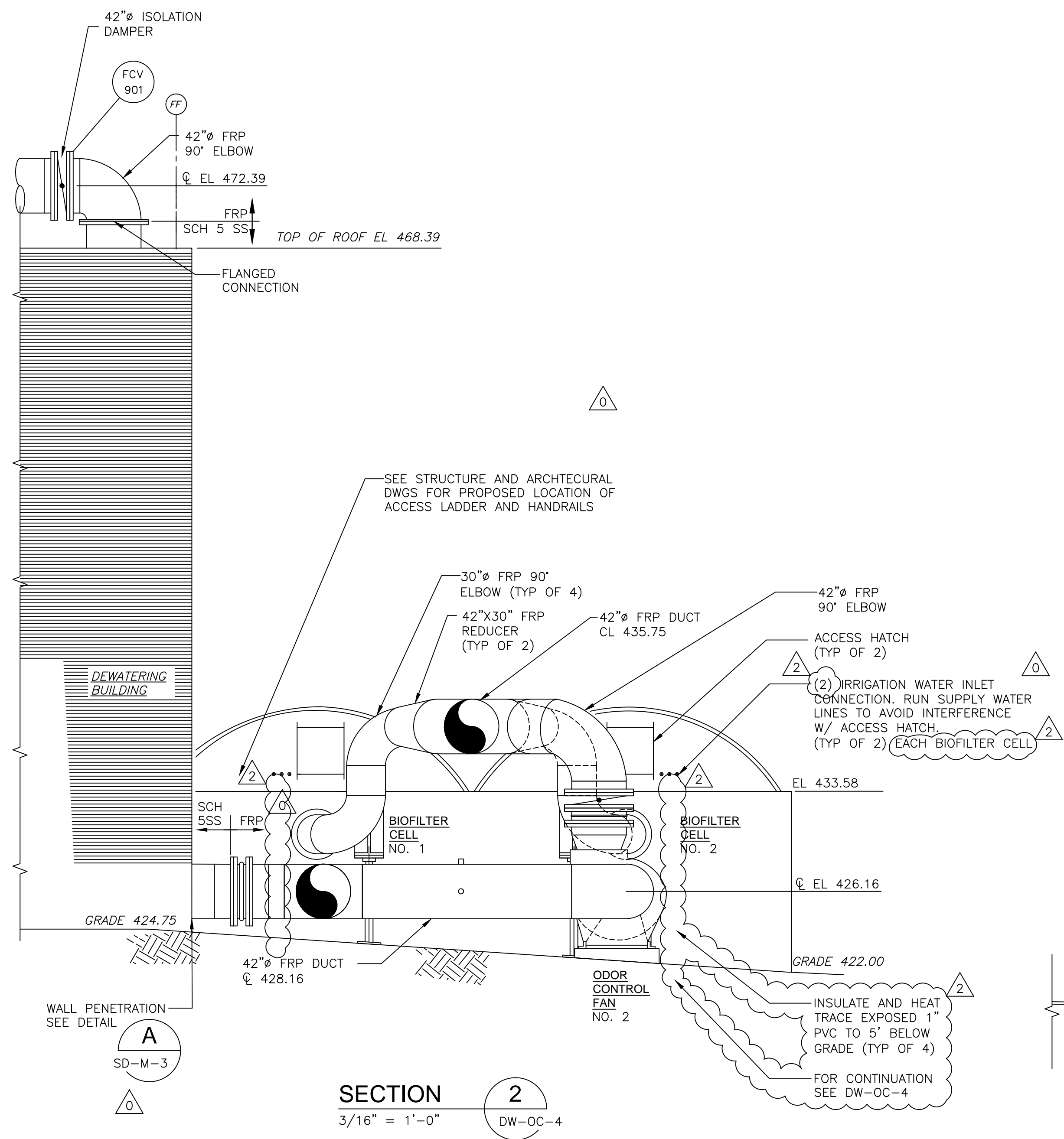
Sht. 123 of 312

DW-OC-5

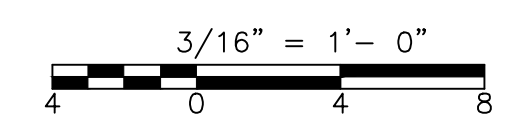
Acc # 1289-74529

CONFORMEI

- NOTES:
1. ALL OUTDOOR ODOR CONTROL FRP OC DUCTWORK SHALL BE INSULATED. SEE SECTION 15250.
 2. SUPPLY OF FRP OC DUCTWORK SHALL BE BY THE GENERAL CONTRACTOR. MATERIAL AND CONSTRUCTION IS AS SPECIFIED IN SECTION 15291 IN THE SPECIFICATIONS.



Charles P. Blouin
 "AS-BUILT" Drawing
 8-20-2013



CONFORMED

ref: [CDM_2436, MDW5100, ASIN5001, SMDW5001, MIBW5100] images: []
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REV. NO.	DATE	DRWN	CHKD	REMARKS
2	8/15/11	FC	MK	REVISED PER RFI 100
1	09/10	VJB	KS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWSC003.DWG
DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BIOFILTER SECTIONS II**

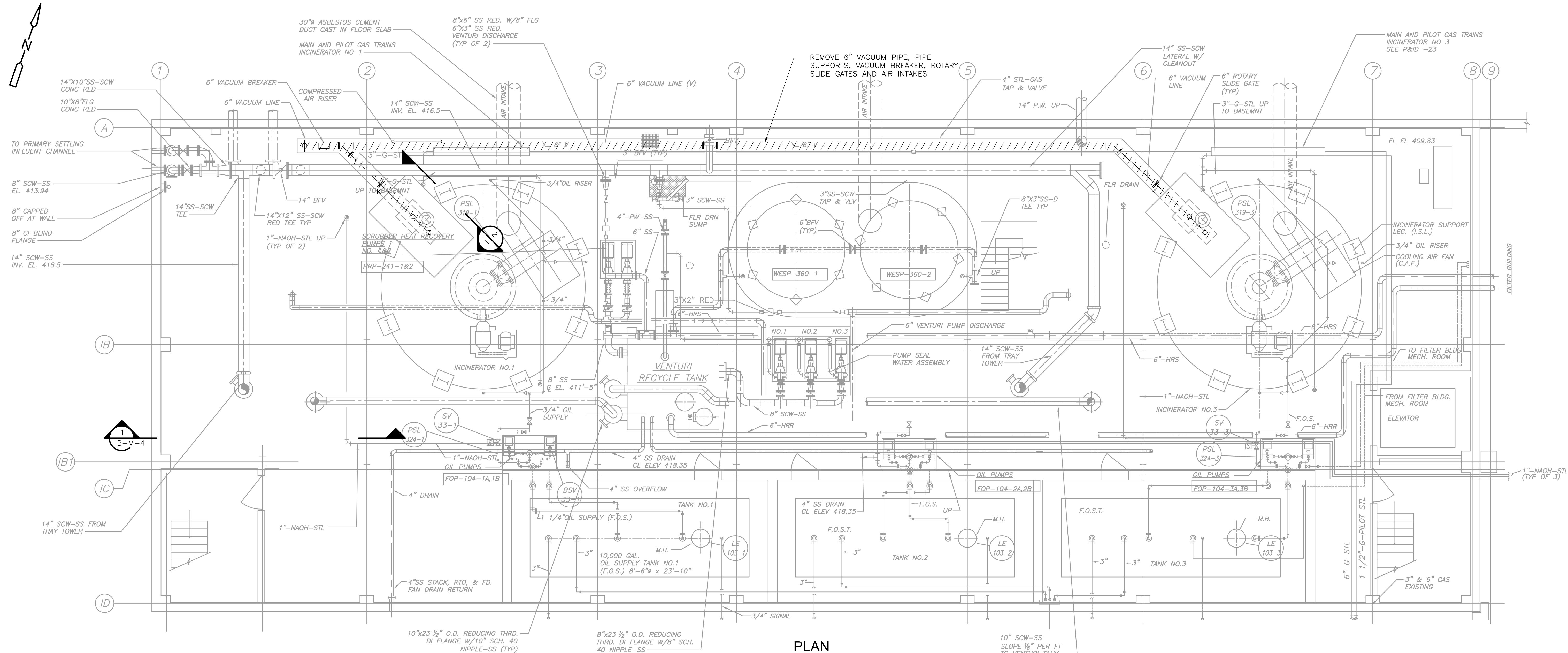
PROJECT NO.
1289-74283

Sht. 124 of 312

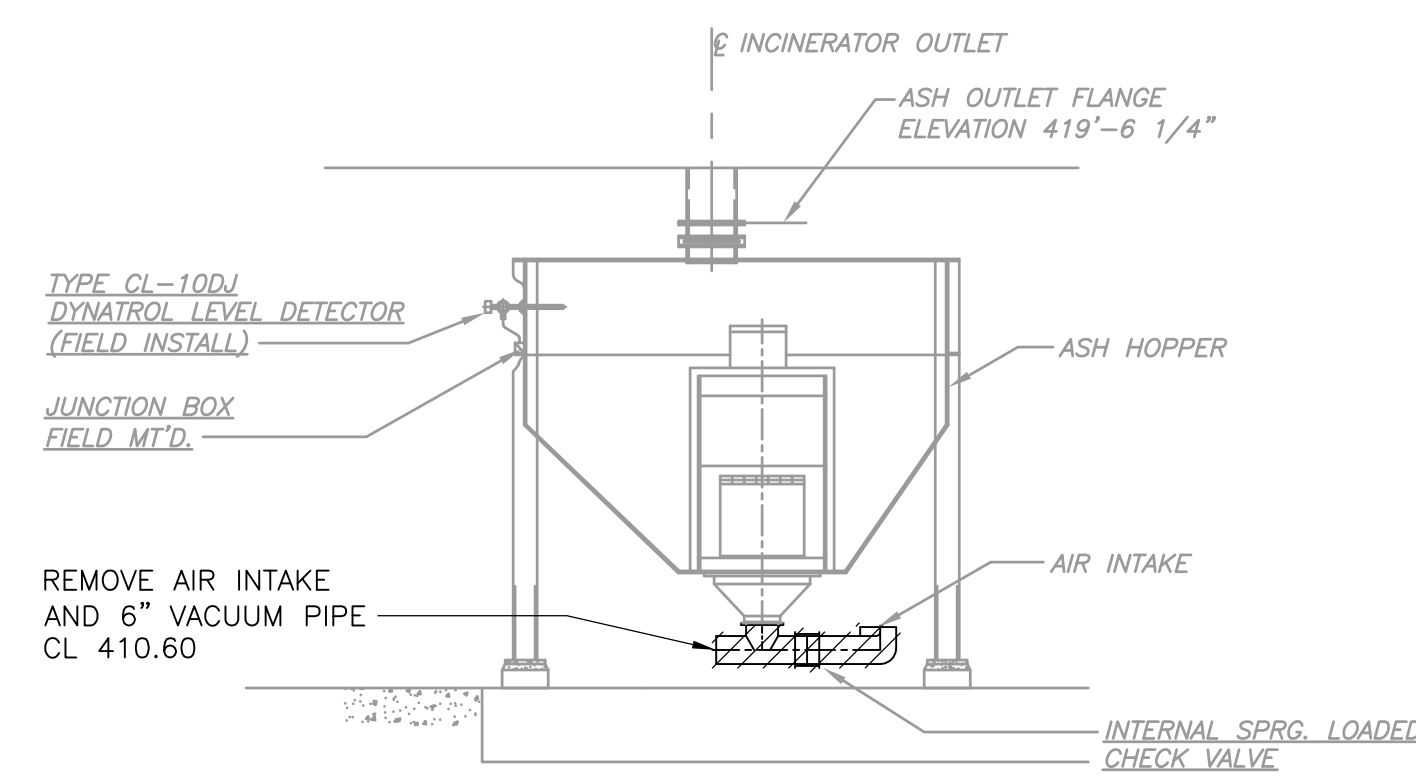
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Acc # 1289-74530

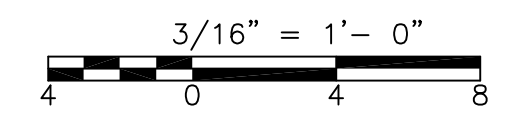
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PLAN
3/16" = 1'-0"



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



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MIBDM001
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
SUB-BASEMENT PLAN AND SECTION
DEMOLITION**

PROJECT NO.
1289-74283

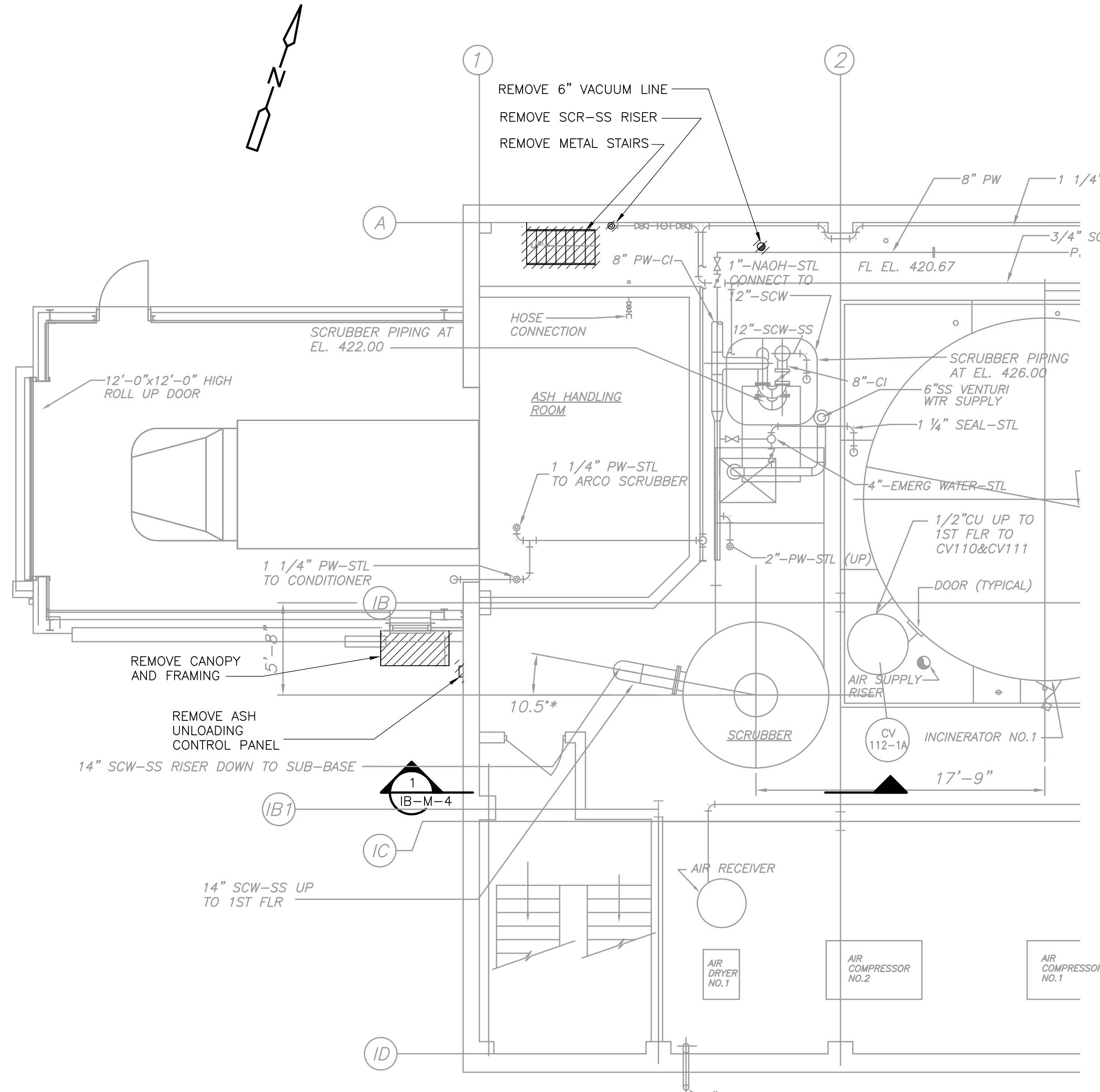
Sht. 125 of 312

IB-M-1

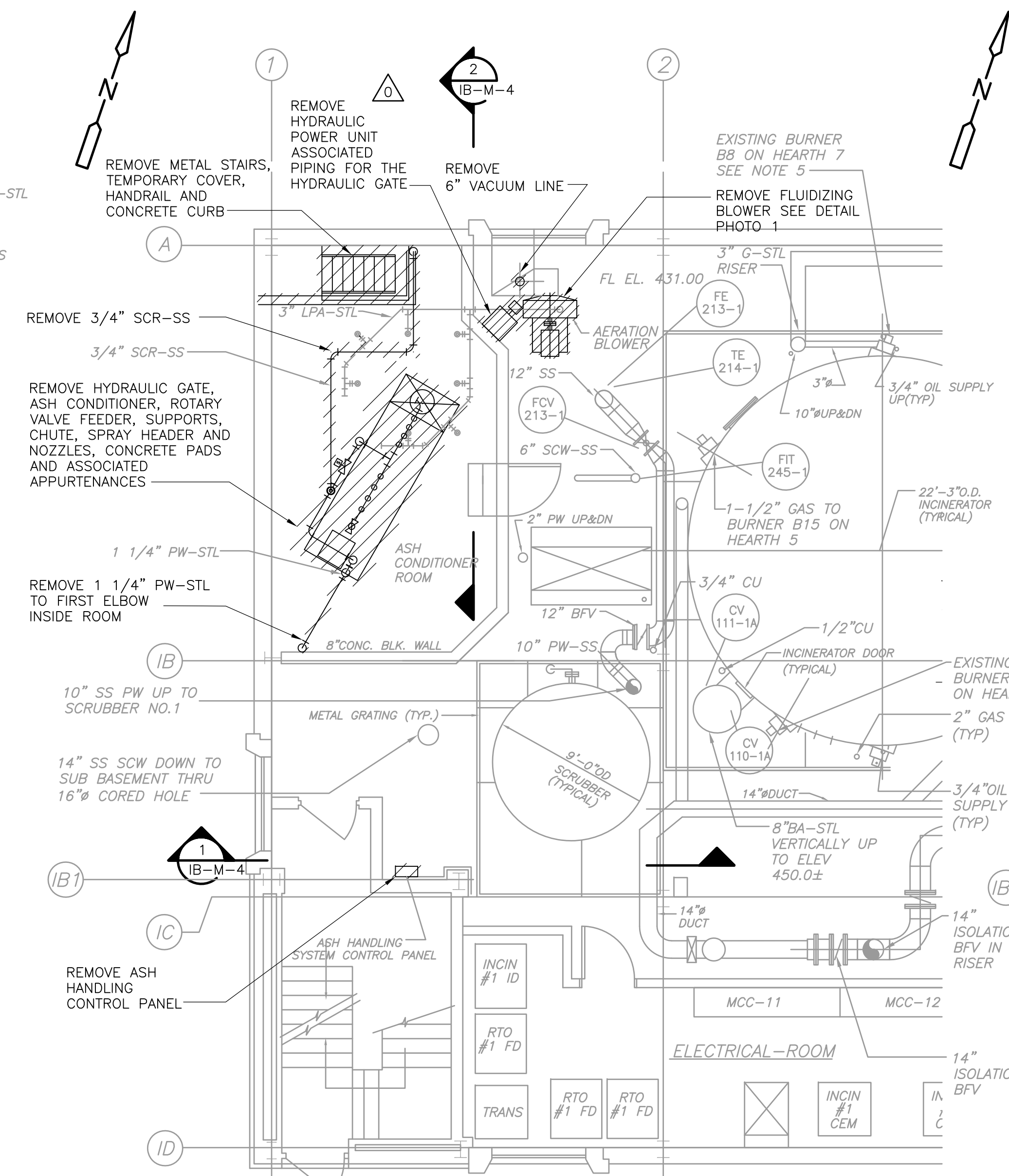
Acc # 1289-74531

CONFORMED

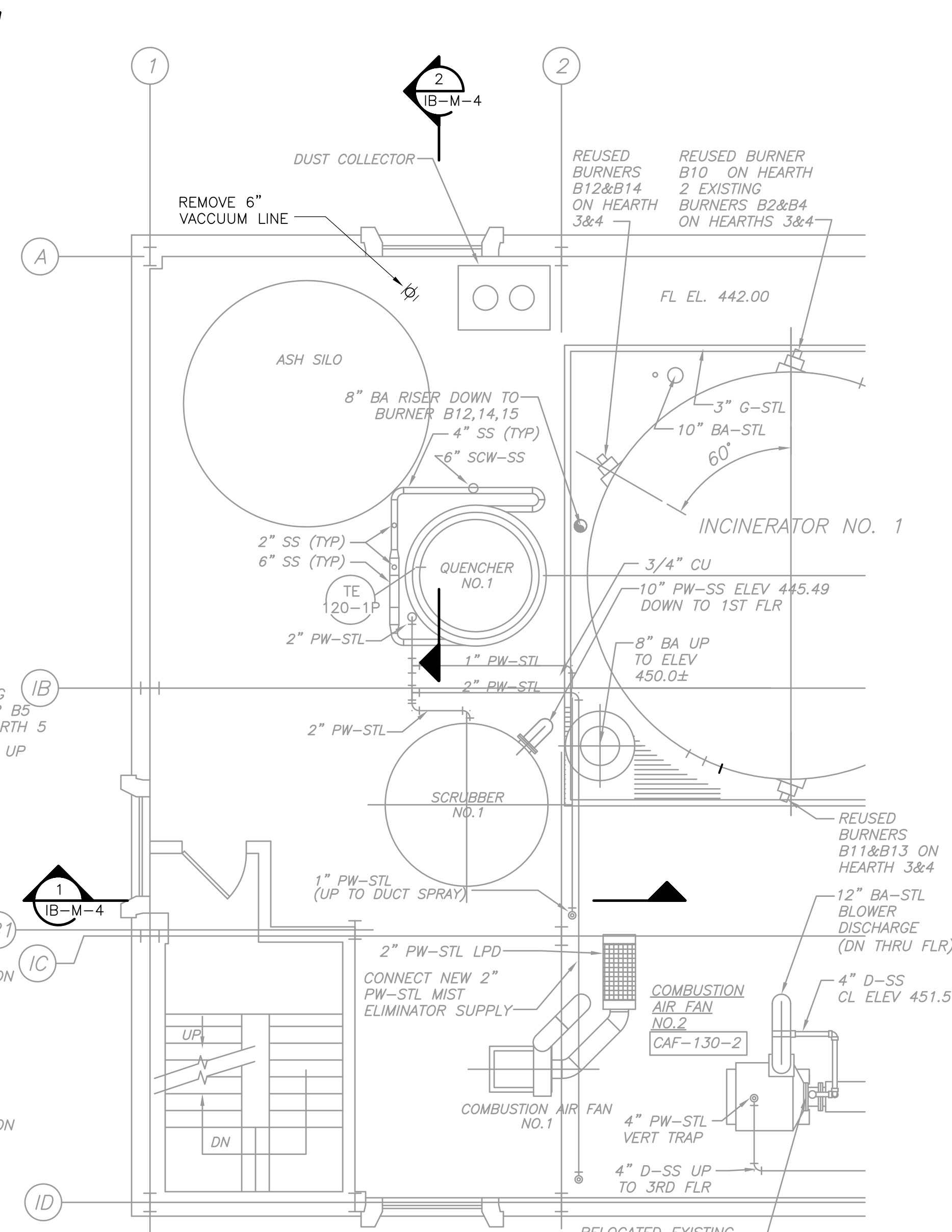
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BASEMENT PLAN
3/16" = 1'-0"



FIRST FLOOR PLAN
3/16" = 1'-0"

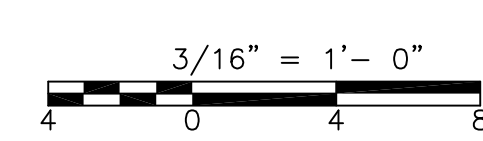


SECOND FLOOR PLAN
3/16" = 1'-0"



FLUIDIZING BLOWER PHOTO 1

- NOTES:**
- CONTRACTOR SHALL HAVE THE ENTIRE ASH CONDITIONING ROOM ON THE SECOND FLOOR VACUUM CLEANED PRIOR TO ANY CONSTRUCTION. CONTRACTOR ALSO SHALL HAVE ASH SILO CLEANED OUT SO NEW EQUIPMENT CAN BE INSTALLED.
 - REFERENCE SD-S-2 FOR EXISTING EQUIPMENT PAD REMOVAL DETAIL. THE SAME DETAIL SHALL BE USED FOR THE REMOVAL OF THE CONCRETE CURB.



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	VJB	MN		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MIBDM002
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
BASEMENT, FIRST AND SECOND FLOOR PLANS
DEMOLITION**

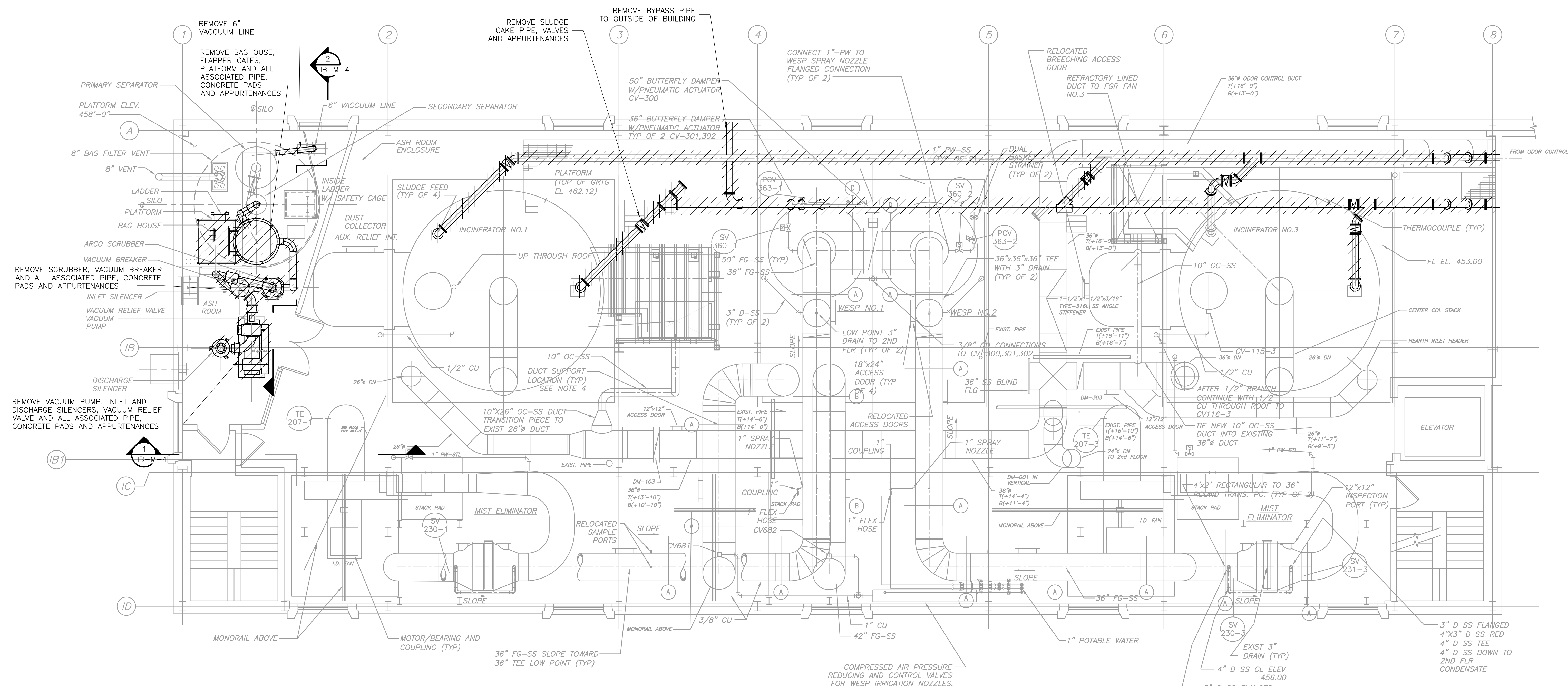
PROJECT NO.
1289-74283

Sht. 126 of 312
IB-M-2

Acc # 1289-74532

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWSE\MIBDM003.DWG Saved by: BITTOJ On: 1-Oct-10 Plotted on: 24-Nov-10 9:48 AM



**THIRD FLOOR
PLAN**
3/16" = 1'-0"
4 0 4 8

- NOTES:**
1. REFER TO SPECIFICATION SECTION 01810 FOR DEMOLITION SEQUENCING REQUIREMENTS AND CONSTRUCTION CONSTRAINTS.
 2. CONTRACTOR SHALL HAVE THE ENTIRE ASH ROOM ON THE THIRD FLOOR VACUUM CLEANED PRIOR TO ANY CONSTRUCTION.
 3. REFERENCE SD-S-2 FOR EXISTING EQUIPMENT PAD REMOVAL DETAIL.
 4. EXISTING NORTH SLUDGE CAKE HEADER IS AT APPROXIMATE ϕ ELEVATION 470.25. EXISTING SOUTH SLUDGE CAKE HEADER IS AT APPROXIMATE ϕ ELEVATION 470.10.

CONFORMED

0	09/10	SE	KW	REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MIBDM003
 DESIGNED BY: M. NEVILLE
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: M. NEVILLE
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: F. SAPIENZA
 DATE: SEPTEMBER 2010

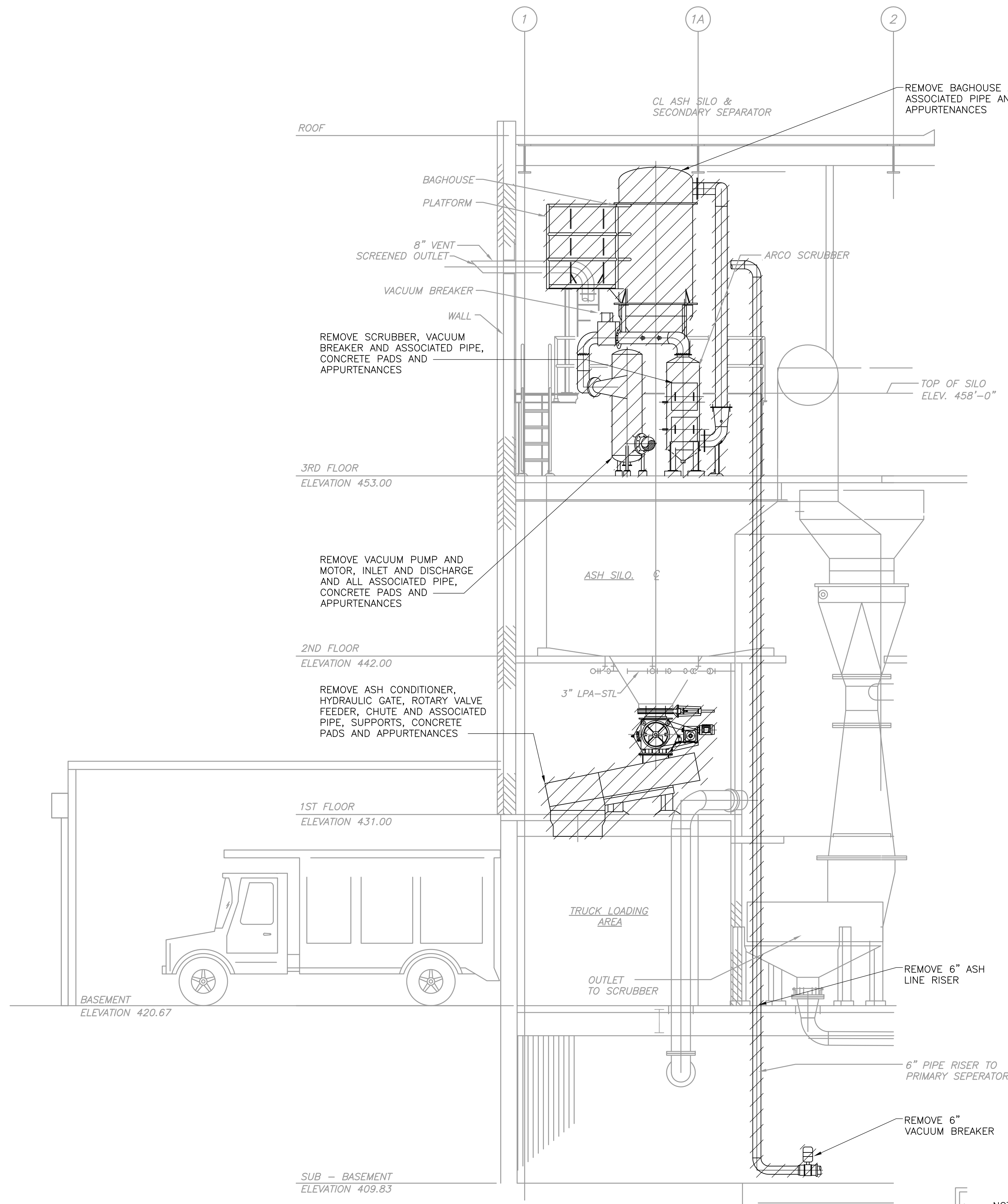
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

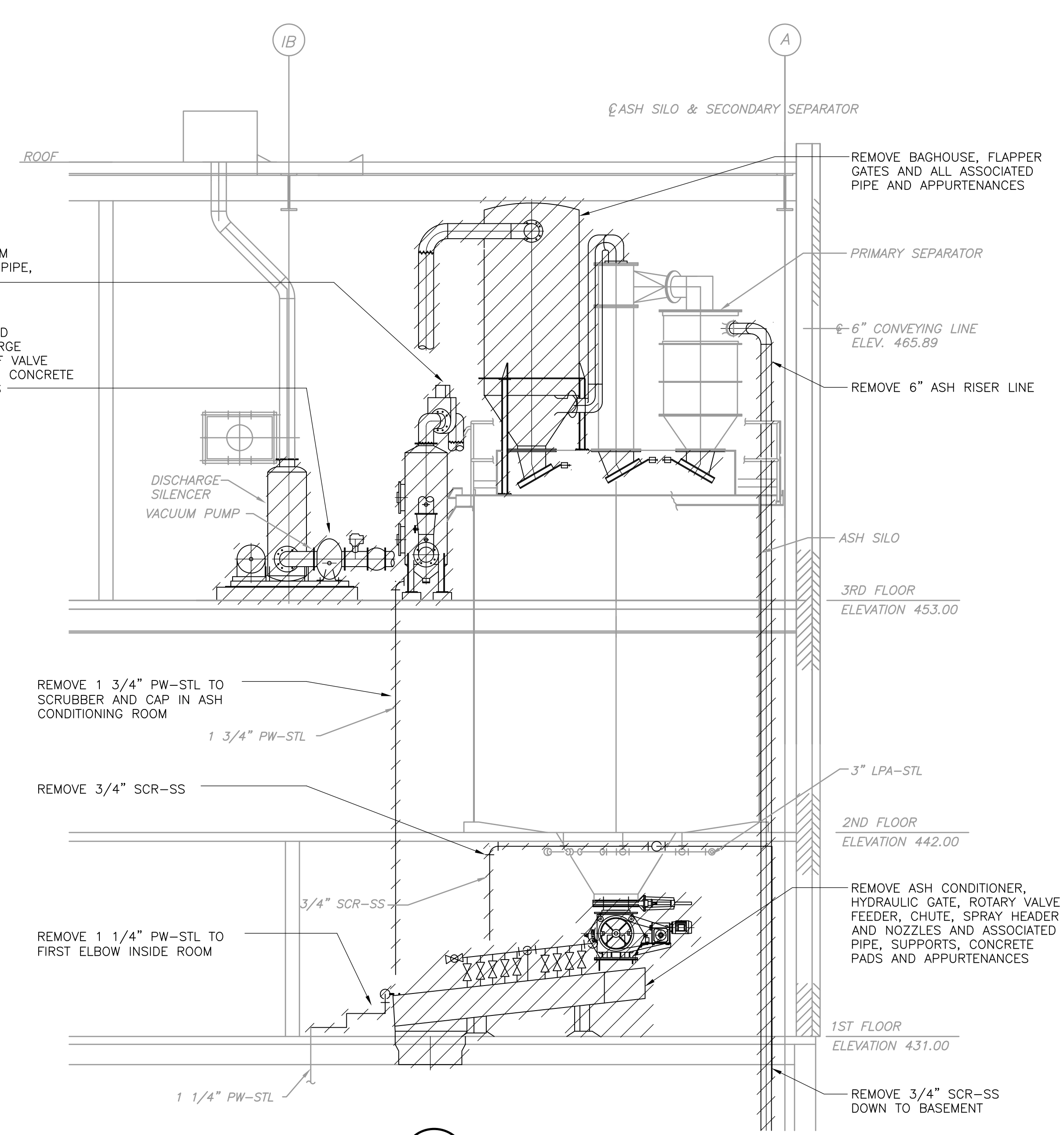
**INCINERATOR BUILDING
 THIRD FLOOR PLAN
 DEMOLITION**

PROJECT NO.
1289-74283
 Sht. 127 of 312
IB-M-3
 Acc # 1289-74533

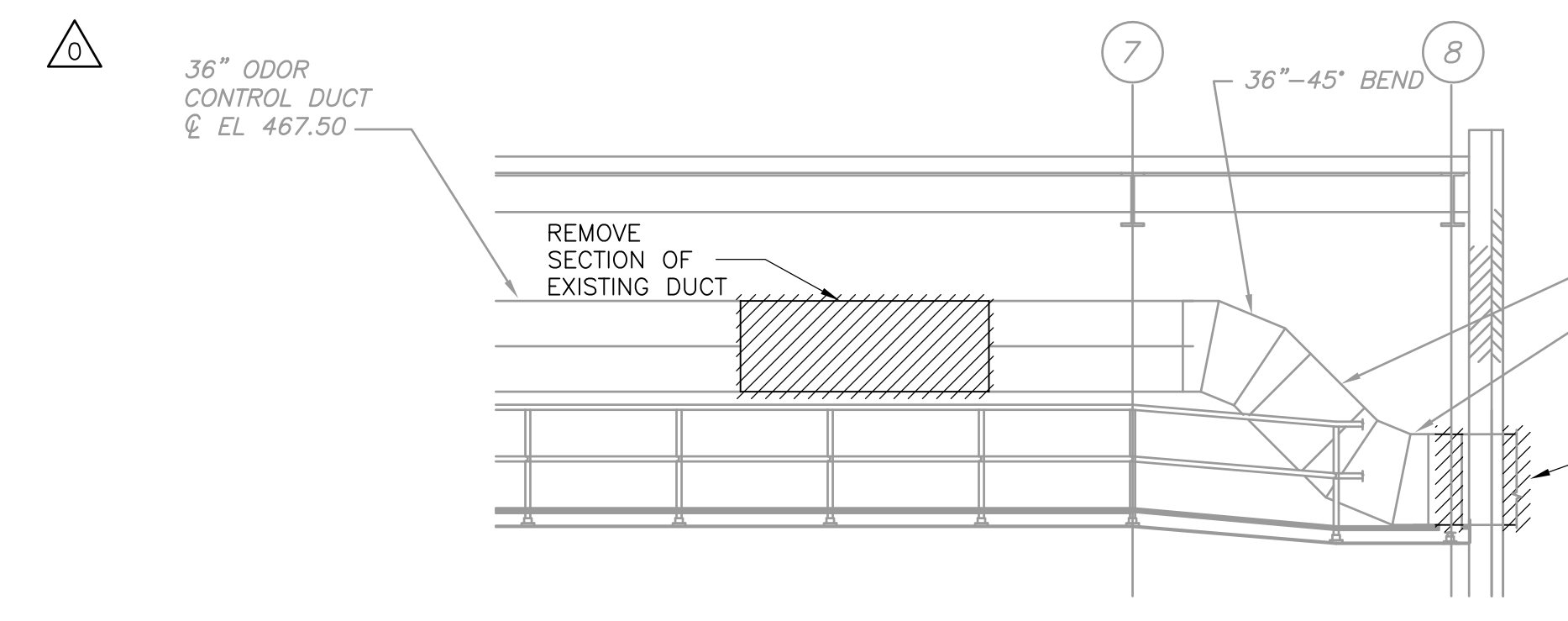
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWISE\MIBDM004.DWG Saved by: BITTO On: 24-Nov-10 9:48 AM



SECTION 1
1/4" = 1'-0"
IB-M-3



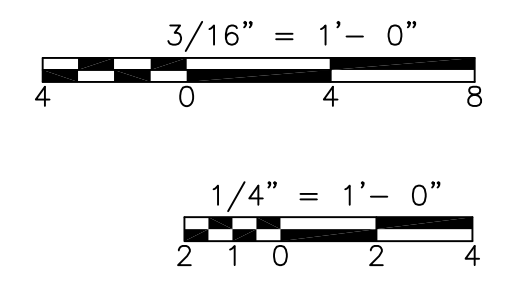
SECTION 2
1/4" = 1'-0"
IB-M-3



SECTION 3
3/16" = 1'-0"
IB-M-7

- NOTES:**
- VACUUM PUMP AND MOTOR, DISCHARGE SILENCER AND ASSOCIATED PIPING NOT SHOWN FOR CLARITY. PW AND SCR PIPING NOT SHOWN FOR CLARITY. CONTRACTOR ALSO SHALL HAVE ASH SILO CLEANED OUT SO NEW EQUIPMENT CAN BE INSTALLED.
 - CONTRACTOR SHALL HAVE THE ENTIRE ASH ROOM ON THE THIRD FLOOR AND ASH CONDITIONER ROOM ON THE FIRST FLOOR CLEANED PRIOR TO CONSTRUCTION.
 - REFERENCE SD-S-2 FOR EXISTING EQUIPMENT PAD REMOVAL DETAIL.
 8. REFERENCE PHOTO 1 ON IB-M-2 FOR INFORMATION ON DEMOLITION OF THE FLUIDIZING BLOWER ON THE SECOND FLOOR.

- NOTES:**
- CONTRACTOR SHALL HAVE THE ENTIRE ASH ROOM ON THE THIRD FLOOR AND ASH CONDITIONER ROOM ON THE FIRST FLOOR CLEANED PRIOR TO CONSTRUCTION. CONTRACTOR ALSO SHALL HAVE ASH SILO CLEANED OUT SO NEW EQUIPMENT CAN BE INSTALLED.
 - REFERENCE SD-S-2 FOR EXISTING EQUIPMENT PAD REMOVAL DETAIL.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10		VJB	FS	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MIBDM004
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	SEPTEMBER 2010

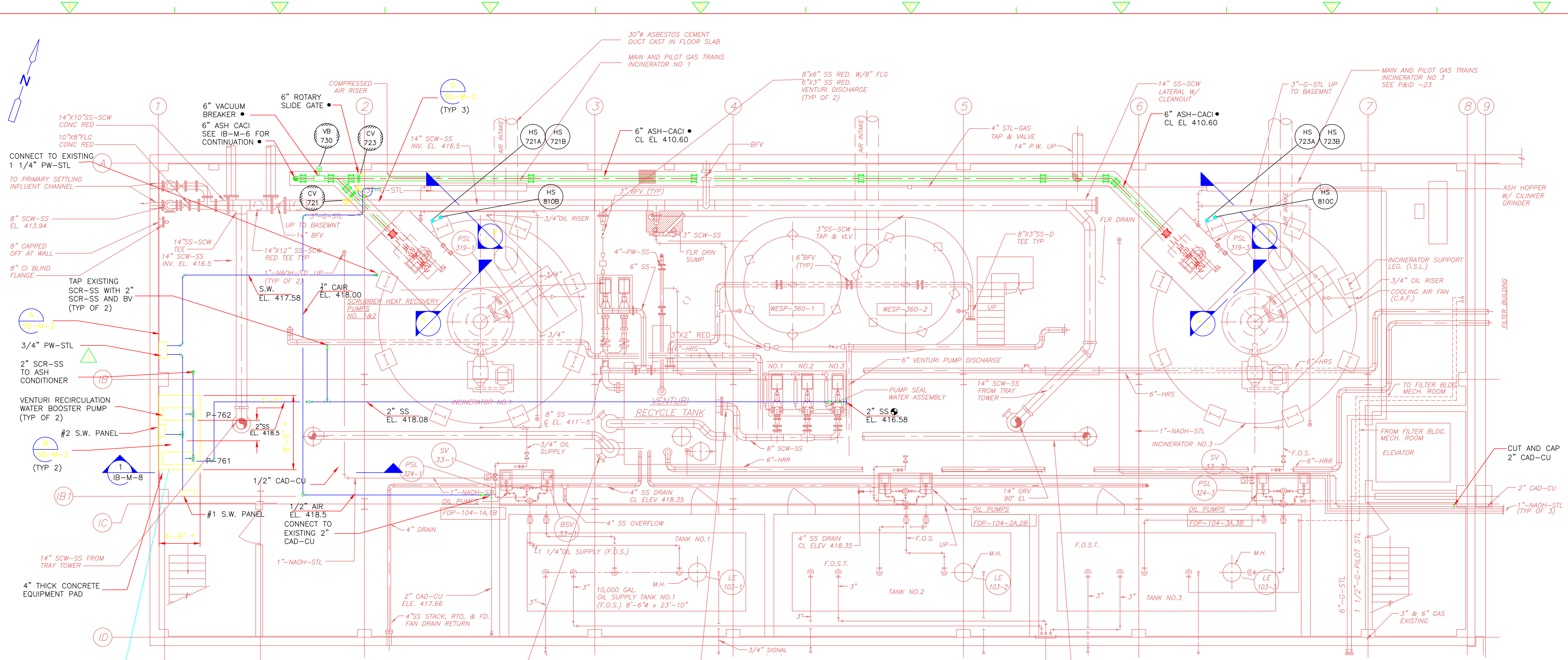
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
SECTIONS
DEMOLITION**

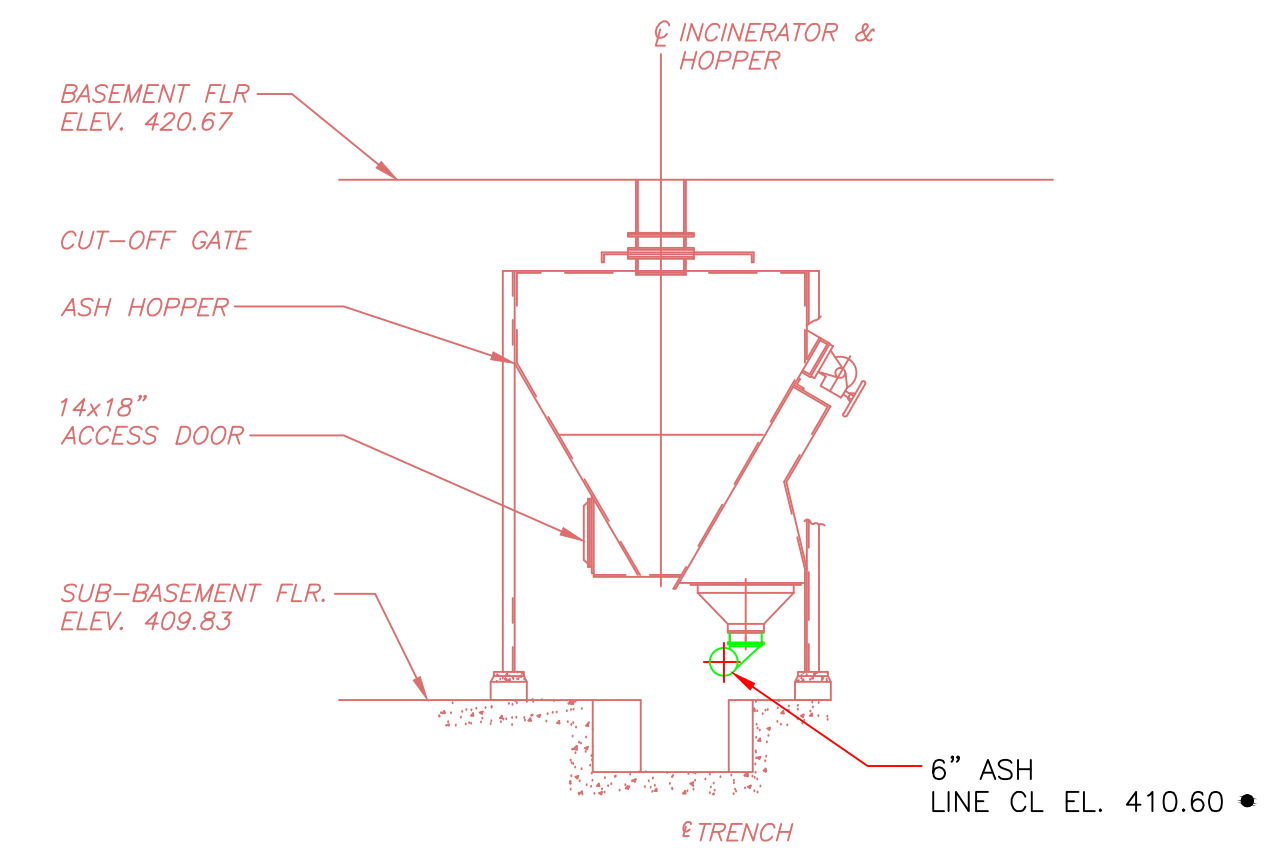
PROJECT NO.
1289-74283
Sht. 128 of 312
IB-M-4
Acc # 1289-74534

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\BIB\BFL001.DWG Saved by: JOHNB On: 18-Jun-13 Plotted on: 26-Mar-15 2:50 PM

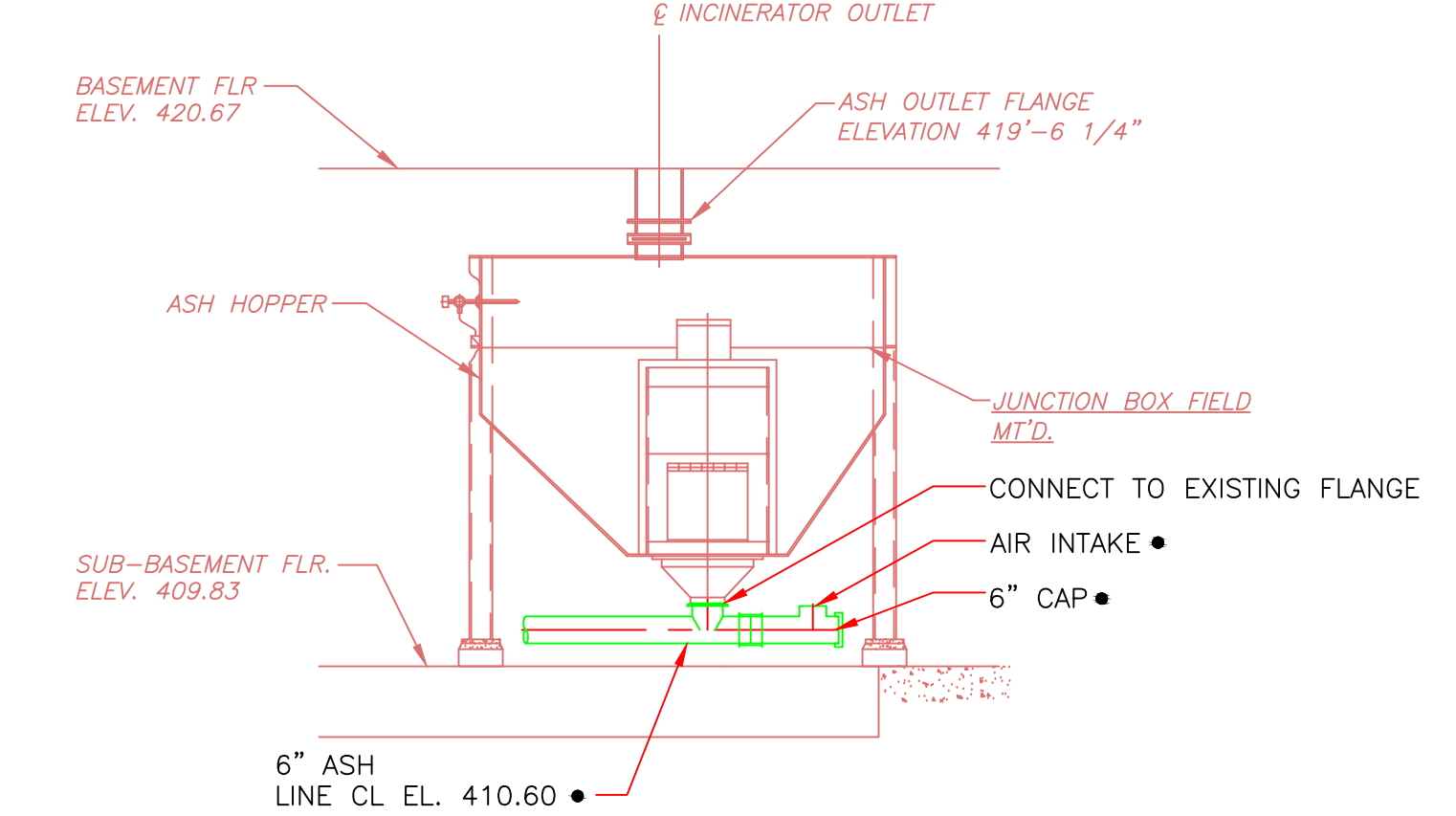


PLAN
3/16" = 1'-0"

FOR ADD'L DETAILS OF BOOSTER PUMP STATION REFER TO P&ID-14

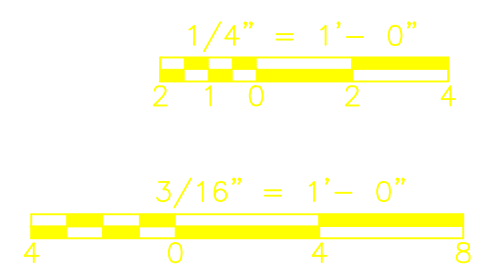


SECTION 2
1/4" = 1'-0"



SECTION 3
1/4" = 1'-0"

- NOTES:**
- DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 - REFERENCE DETAIL FOR NEW EQUIPMENT PAD ON EXISTING SLAB ON SD-S-2 FOR VENTURI RECIRCULATION WATER BOOSTER PUMPS.



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	VJB	MN		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MIBP001
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	SEPTEMBER 2010

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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT**
CONTRACT No. 3-D-17512-0033
PROJECT No. GWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
SUB-BASEMENT PLAN AND SECTIONS
IMPROVEMENTS**

PROJECT NO.
1289-74283

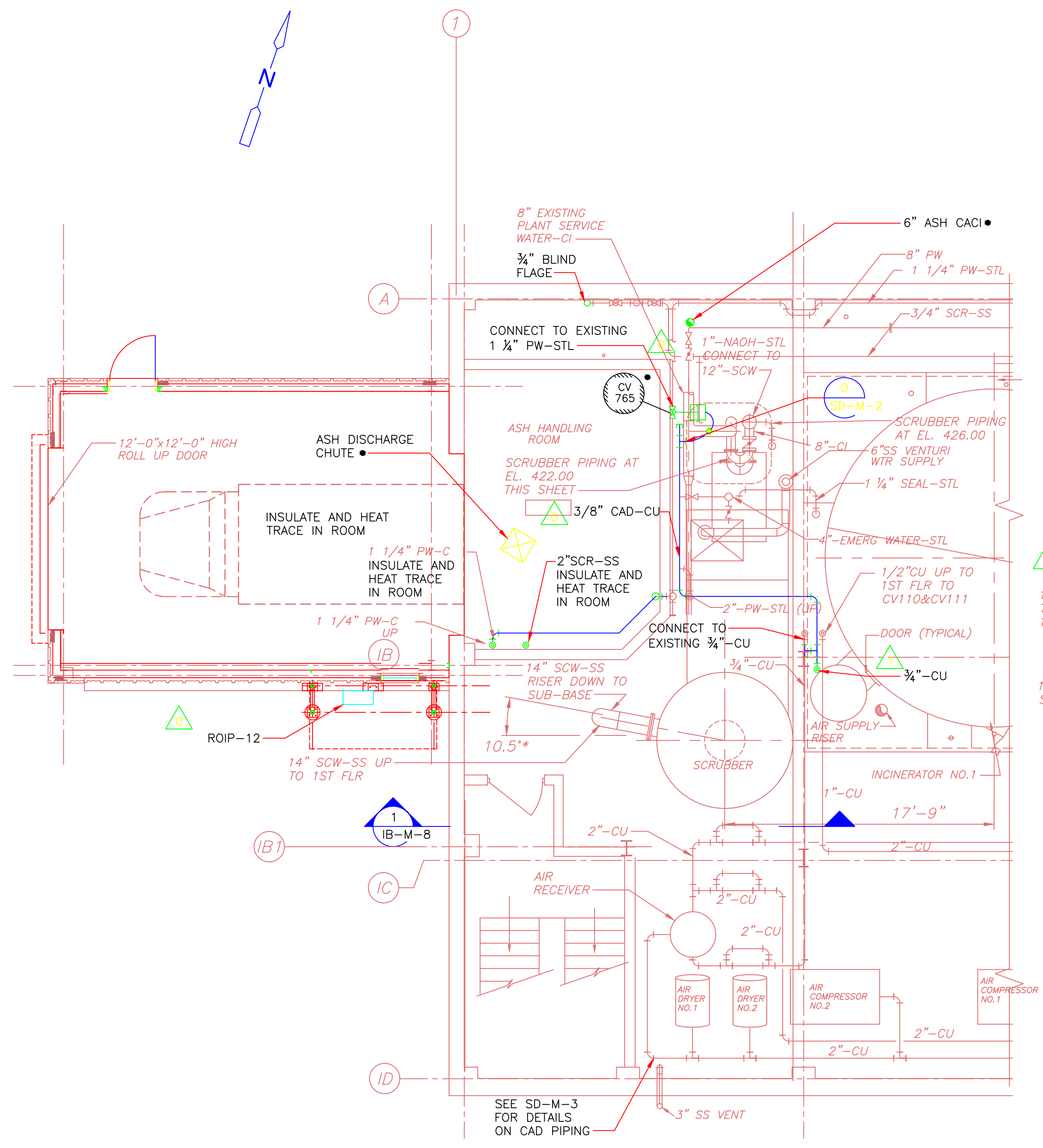
Sht. 129 of 312

IB-M-5

Acc # 1289-74535

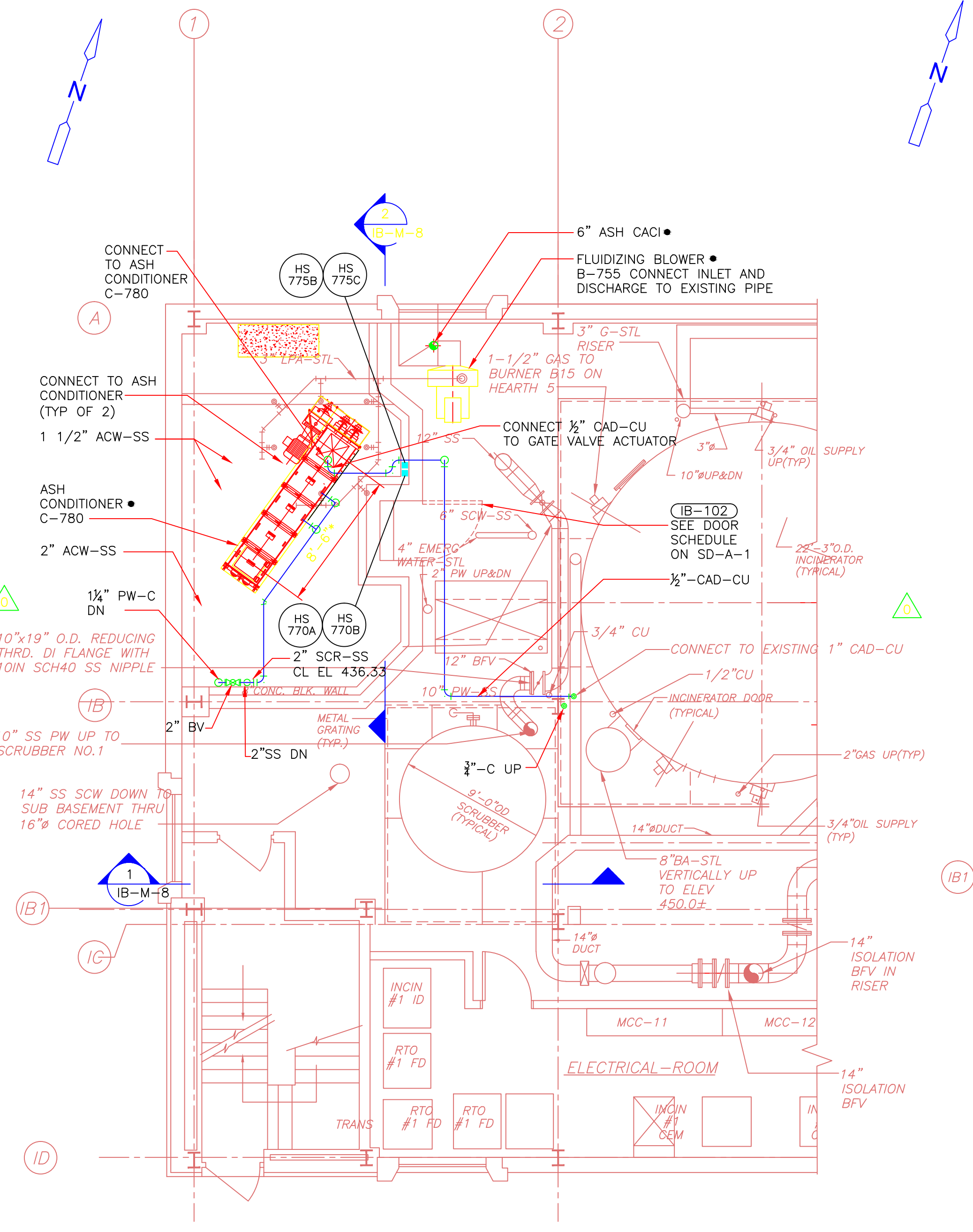
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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\IB\WIP\002.DWG Saved by: JOHNB On: 18-Jan-13 Plotted on: 26-Mar-15 2:54 PM



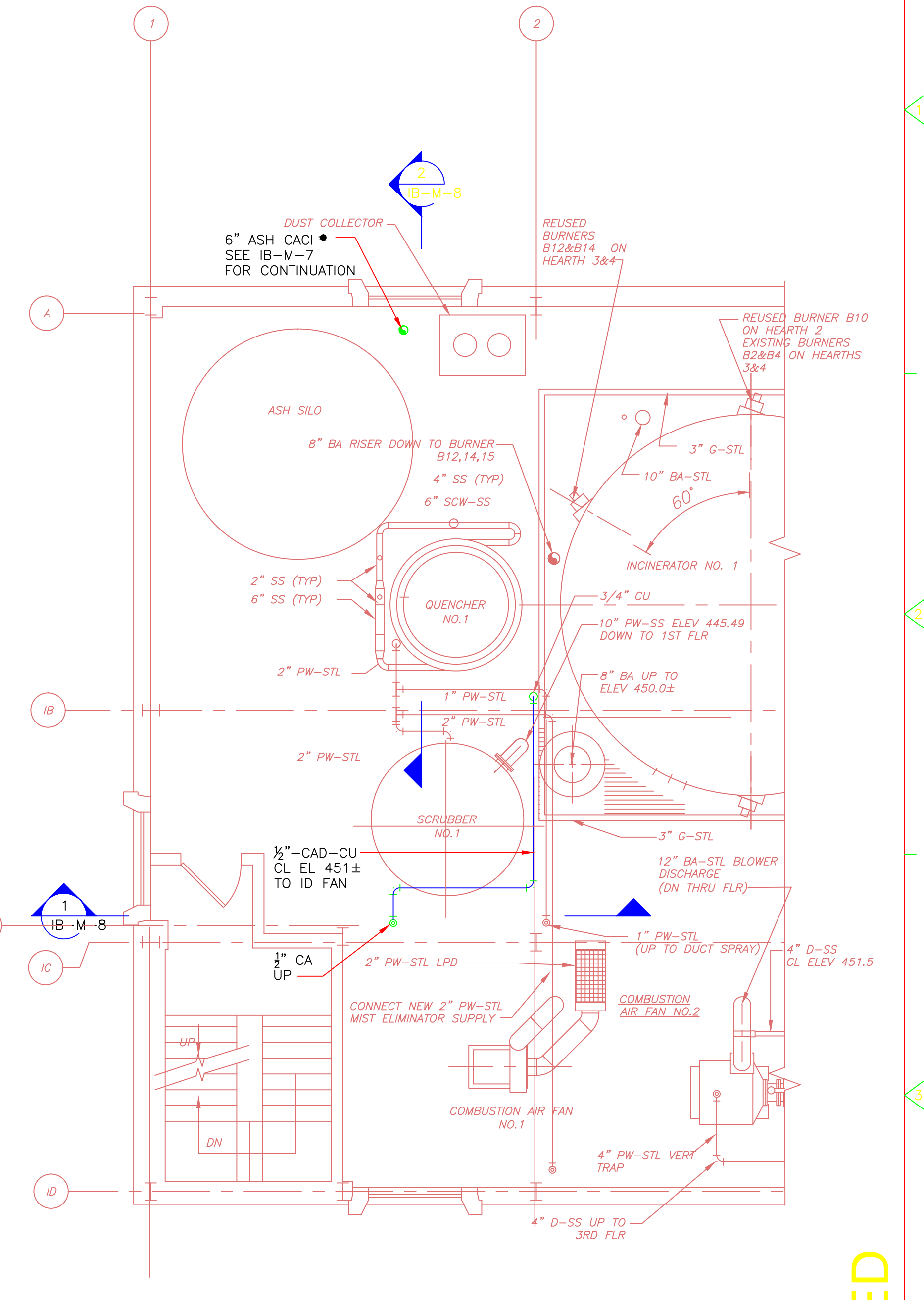
BASEMENT PLAN
3/16" = 1'-0"

NOTE:
● DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.



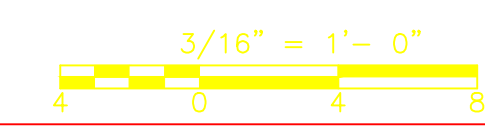
FIRST FLOOR PLAN
3/16" = 1'-0"

NOTES:
1. FEED GATE AND ROTARY FEEDER NOT SHOWN FOR CLARITY
2. ● DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.



SECOND FLOOR PLAN
3/16" = 1'-0"

NOTE:
● DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.



CONFORMED

NO.	09/10	DATE	DATE	BY	REVISIONS
					REVISED PER ADDENDA NOS. 1 THRU 3
					REMARKS

William M. Collins Company, Inc.
MECHANICAL CONTRACTOR
610 BOSTON AVENUE
SOUTH BOSTON, MA 02127
PHONE: 617-268-6100
FAX: 617-268-1349

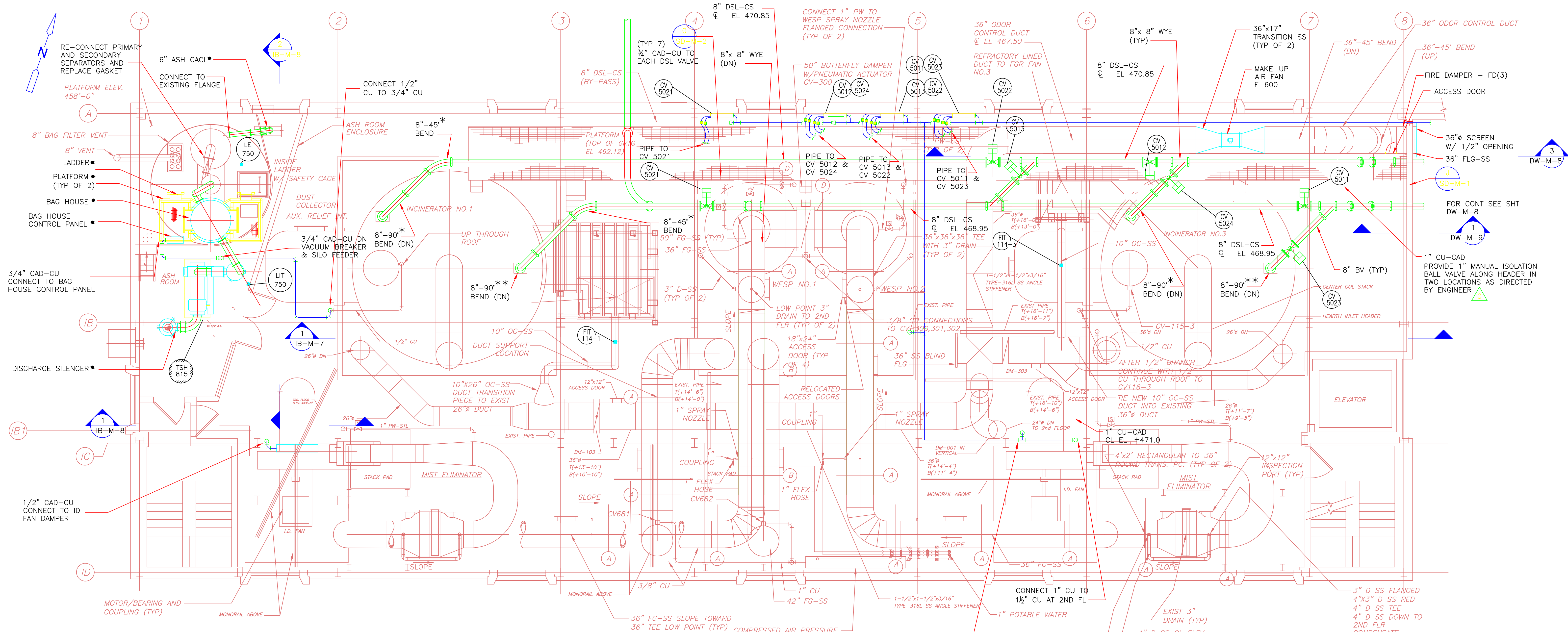
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

INCINERATOR BUILDING BASEMENT, FIRST AND SECOND FLOOR PLANS IMPROVEMENTS

PROJECT NO. 1289-74283
Sht. 130 of 312
IB-M-6
Acc # 1289-74536

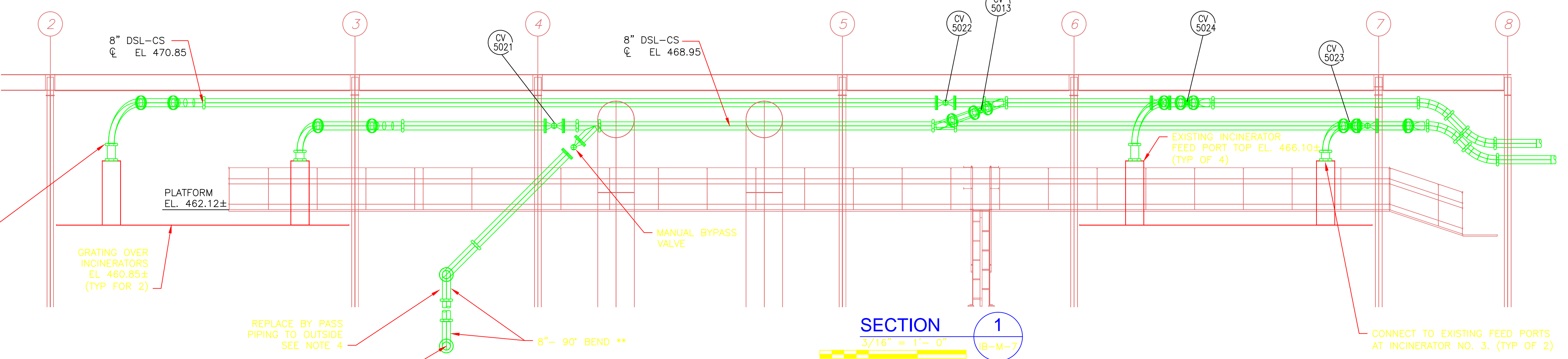
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THIRD FLOOR PLAN



- NOTES:**
1. DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 2. * DENOTES LONG RADIUS BENDS WITH RADIUS OF BEND AT C OF FITTING EQUAL TO 5 PIPE DIAMETERS (MINIMUM). ** DENOTES LONG RADIUS BENDS WITH RADIUS OF BEND AT C OF FITTING EQUAL TO 3 PIPE DIAMETERS (MINIMUM).
 3. MOST NEW DSL PIPING IS TO BE INSTALLED WITH EXISTING PIPING IN PLACE IN ACCORDANCE WITH THE SEQUENCING IN SECTION 01810. PROVIDE TEMPORARY PIPE SUPPORTS AS REQUIRED.
 4. BYPASS LINE LEAVES BUILDING ON 2ND FLOOR AT APPROXIMATE C EL. 445.83. REPLACE ALL PIPING TO BYPASS, INCLUDING APPROXIMATELY ONE 90° BEND AND 10 FEET OF PIPE EXTENDED OUT FROM NORTH WALL OF BUILDING.
 5. SOLENOID VALVES FOR SLUDGE CAKE PIPE MOUNTED REMOTELY. REFERENCE ELECTRICAL FOR LOCATIONS.



SECTION 1



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	SE	KW		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MIBPL003
 DESIGNED BY: K. WAGNER
 DRAWN BY: W. DORSEY
 SHEET CHK'D BY: M. NEVILLE
 CROSS CHK'D BY: F. SAPIENZA
 SCALE: AS NOTED
 APPROVED BY: F. SAPIENZA
 DATE: SEPTEMBER 2010

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 FAX: 617-288-1349

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

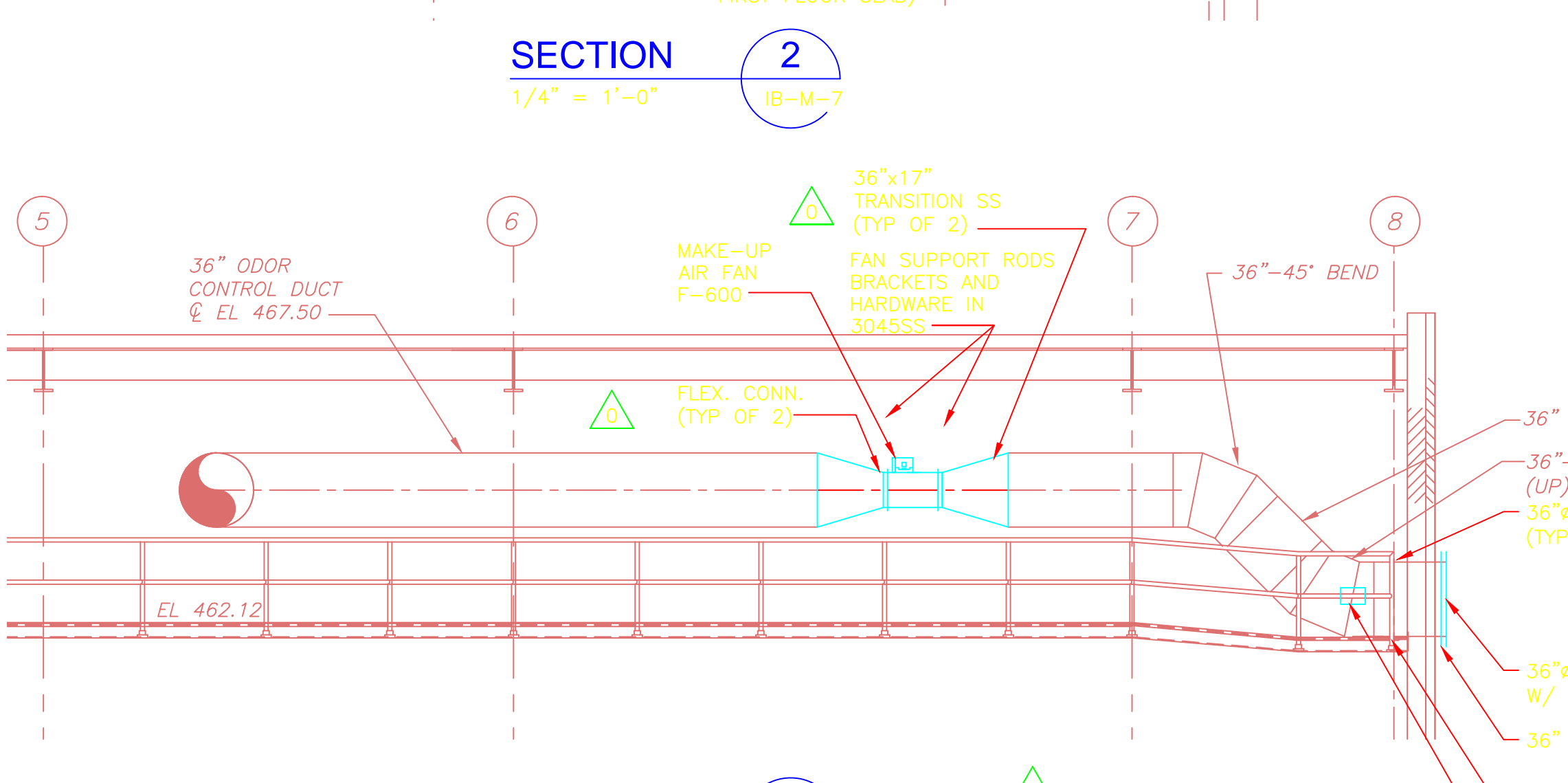
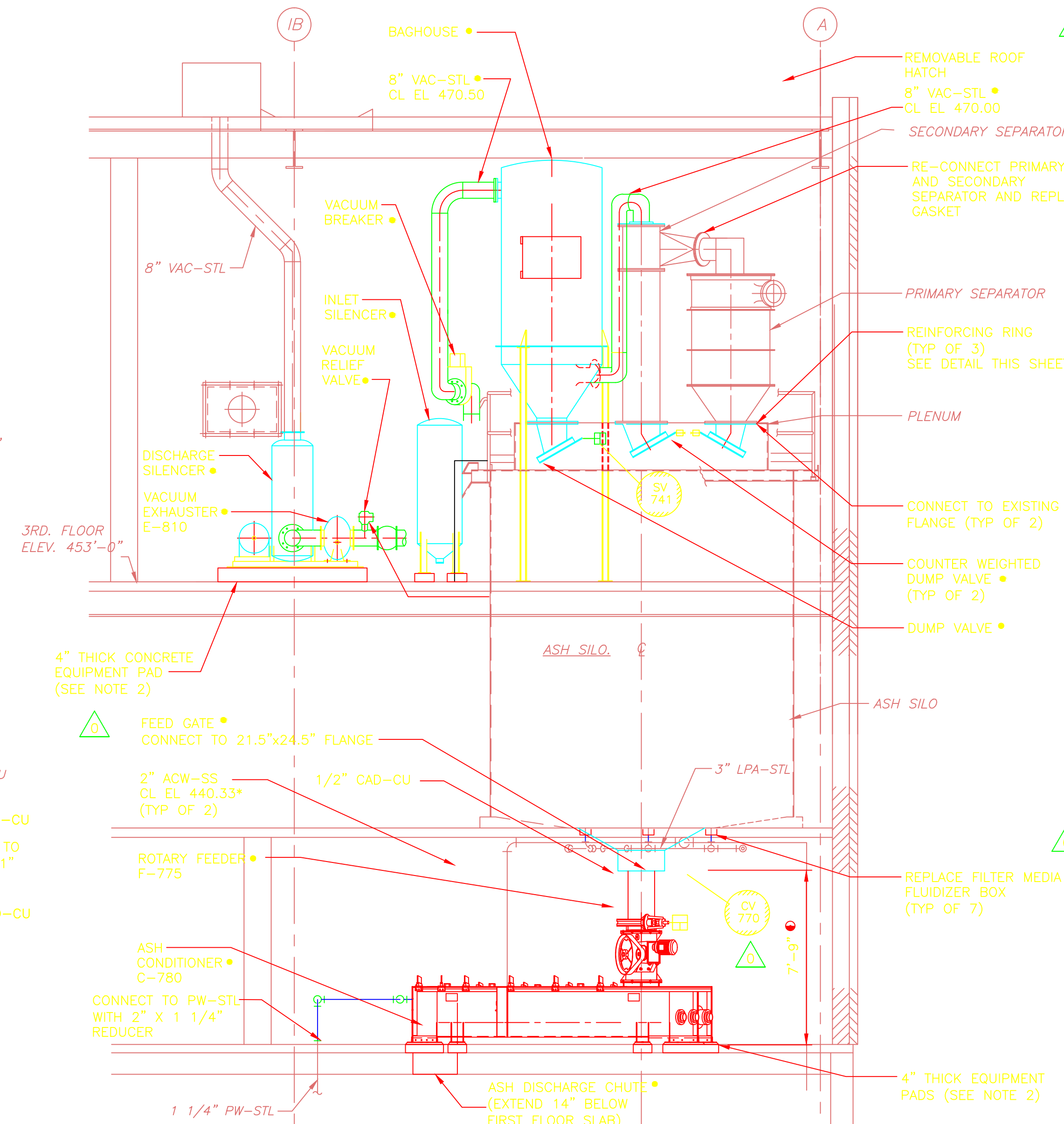
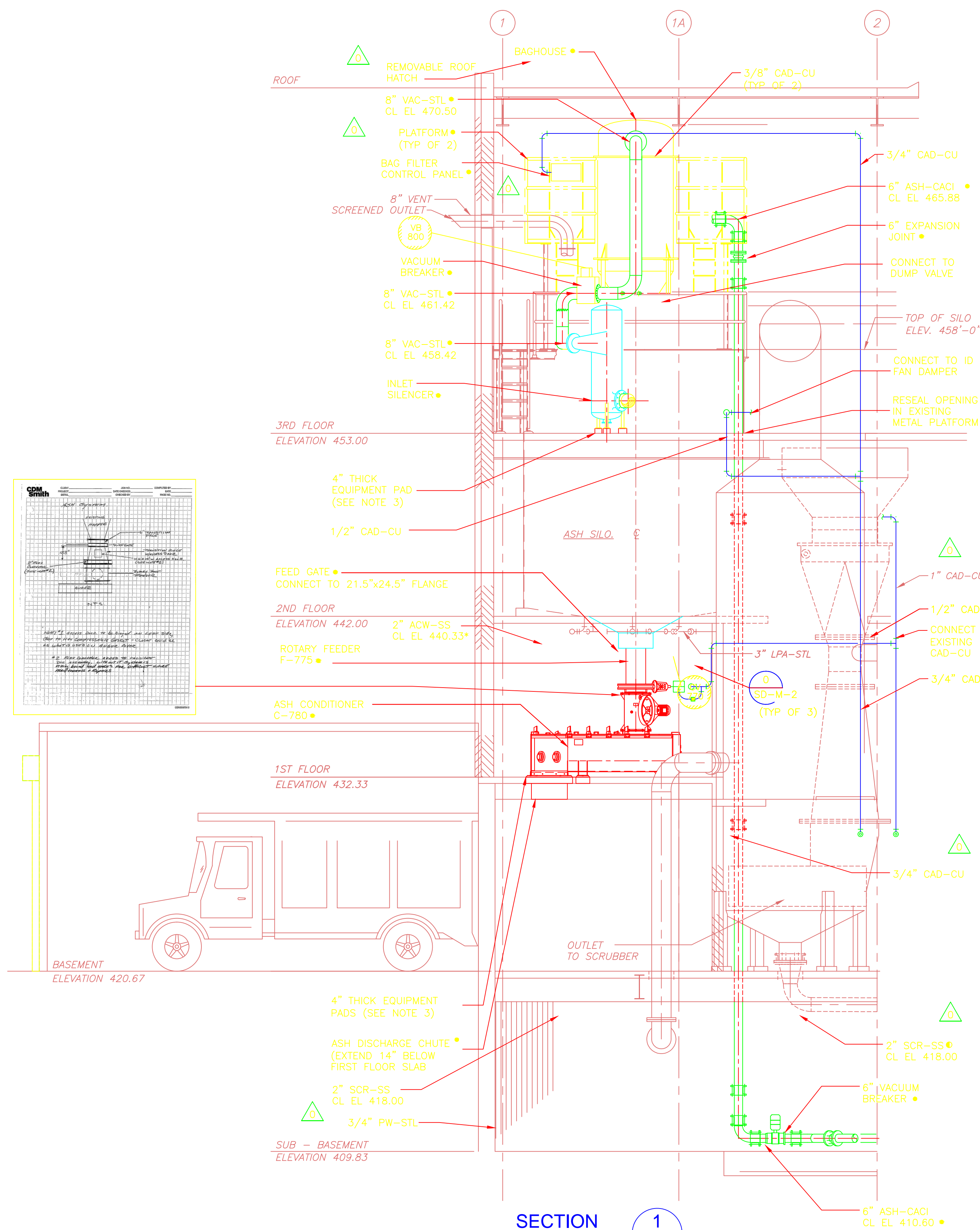
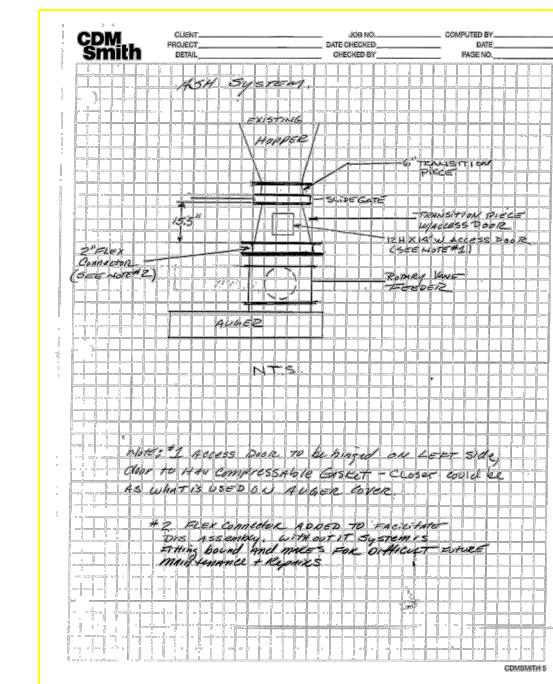
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
 THIRD FLOOR PLAN AND SECTION
 IMPROVEMENTS**

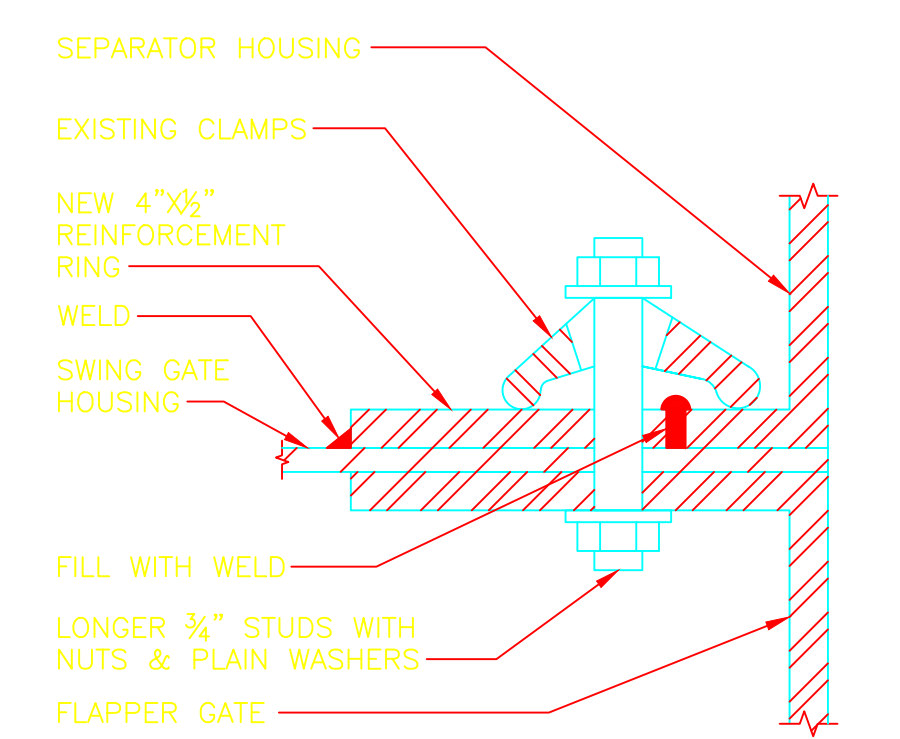
PROJECT NO. 1289-74283
 Sht. 131 of 312
IB-M-7
 Acc #1289-74537

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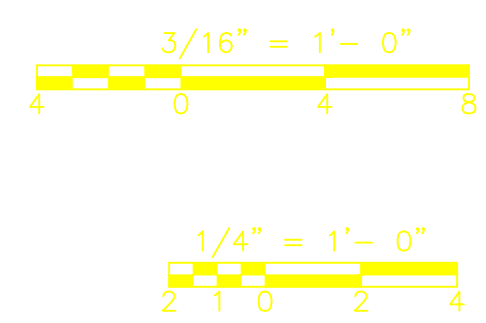
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- NOTES:**
- DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 - REFERENCE DETAIL FOR NEW EQUIPMENT PAD ON EXISTING SLAB ON SD-S-2 FOR ASH CONDITIONER SUPPORT PADS, PLATFORM SUPPORT PAD, AND BLOWER AND SILENCER SUPPORT PADS.
 - CAD PIPING AND ASH LINE NOT SHOWN FOR CLARITY.



- NOTES:**
- VACUUM EXHAUSTER AND MOTOR, DISCHARGE SILENCER AND ASSOCIATED PIPING NOT SHOWN FOR CLARITY.
 - DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 - REFERENCE DETAIL FOR NEW EQUIPMENT PAD ON EXISTING SLAB ON SD-S-2 FOR ASH CONDITIONER SUPPORT PADS, PLATFORM SUPPORT PAD, AND BLOWER AND SILENCER SUPPORT PADS.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	VJB	MN		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MIBSC001
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	F. SAPIENZA
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. GWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

INCINERATOR BUILDING SECTIONS IMPROVEMENTS

PROJECT NO. 1289-74283
 Sht. 132 of 312
IB-M-8
 Acc # 1289-74538

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWSE\MIBDM005.DWG Saved by: BITTOU On: 28-Sep-10 Plotted on: 24-Nov-10 9:49 AM

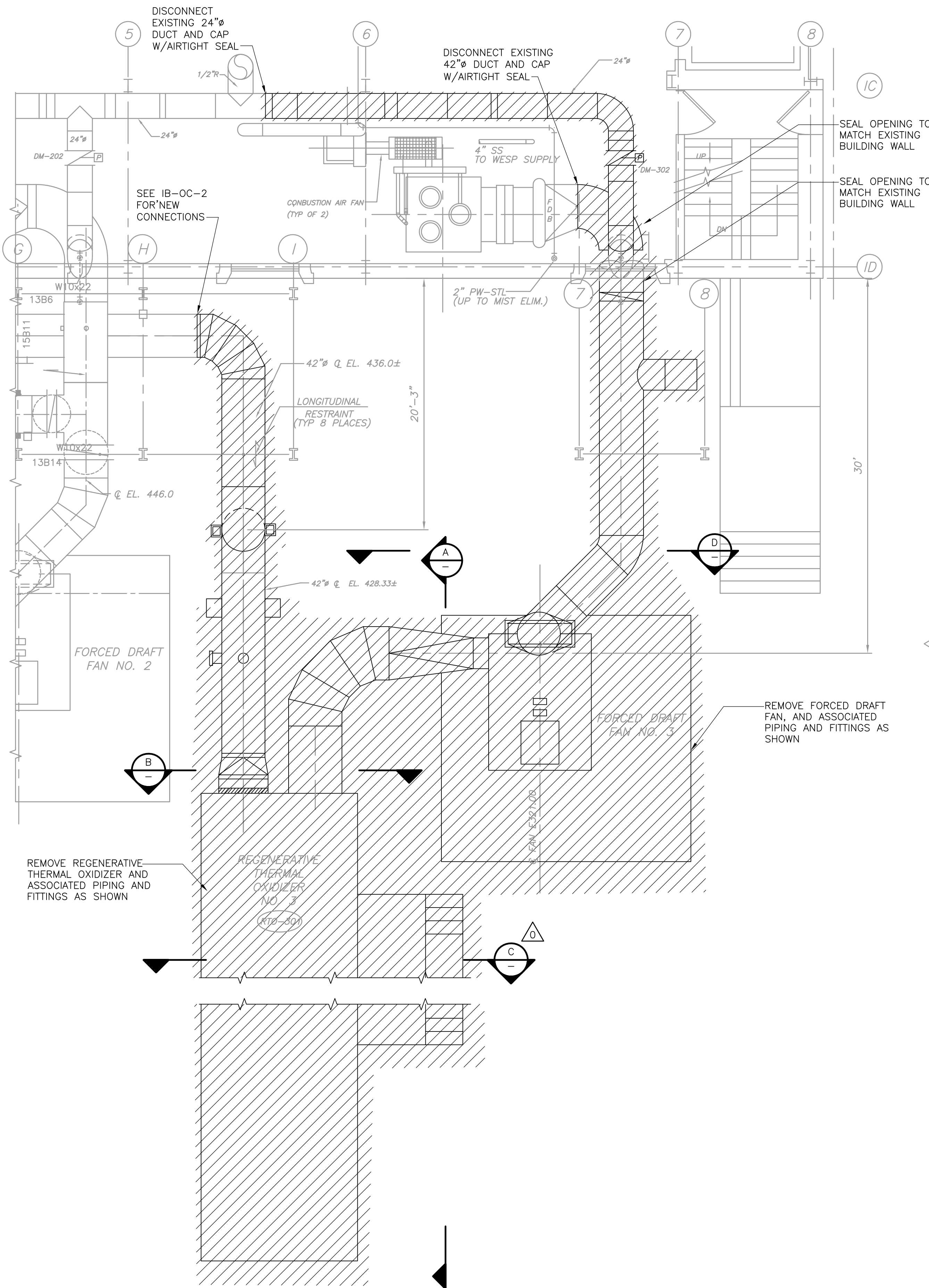


PHOTO 1

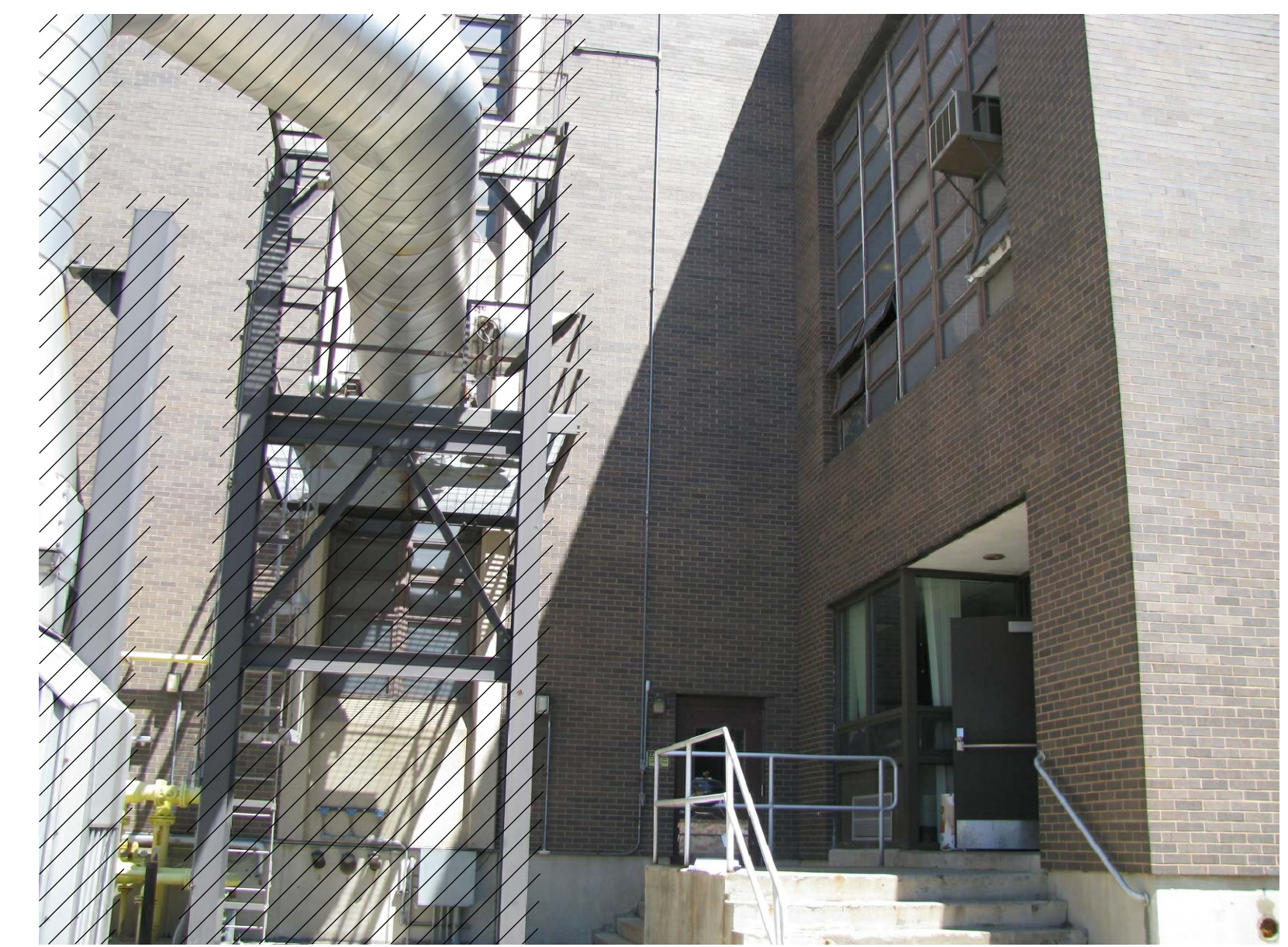
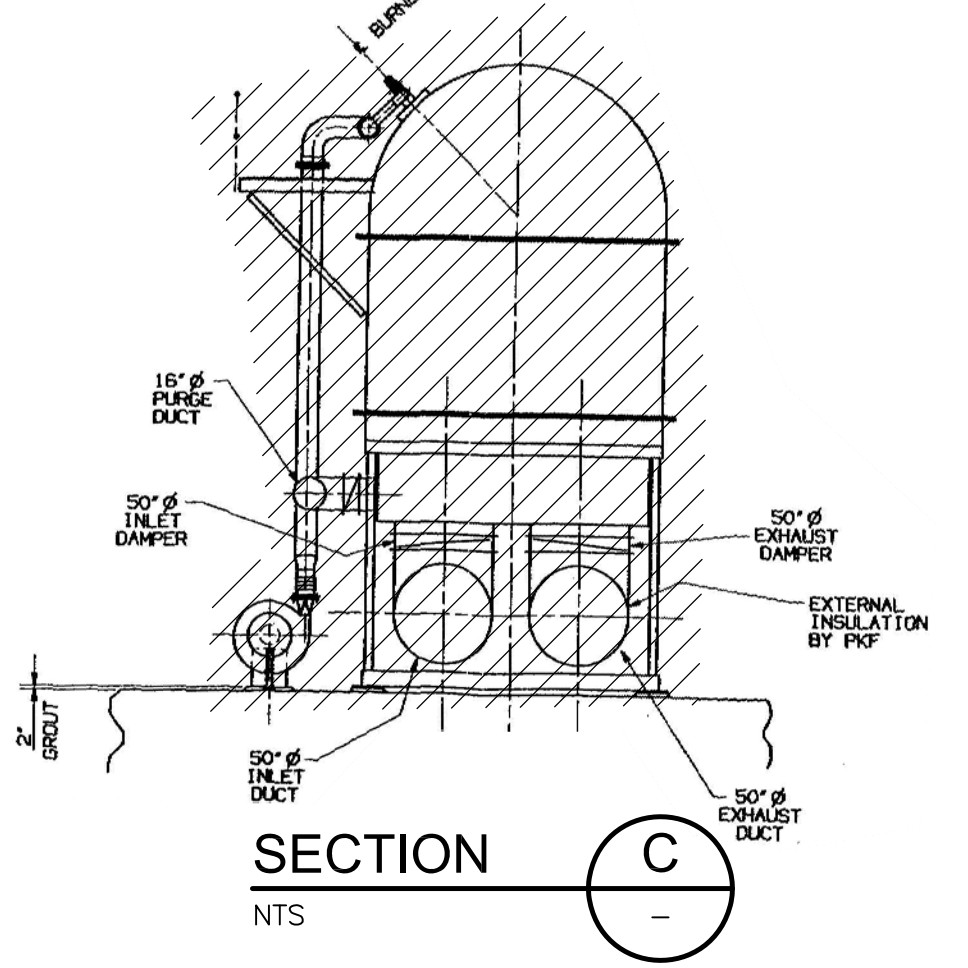
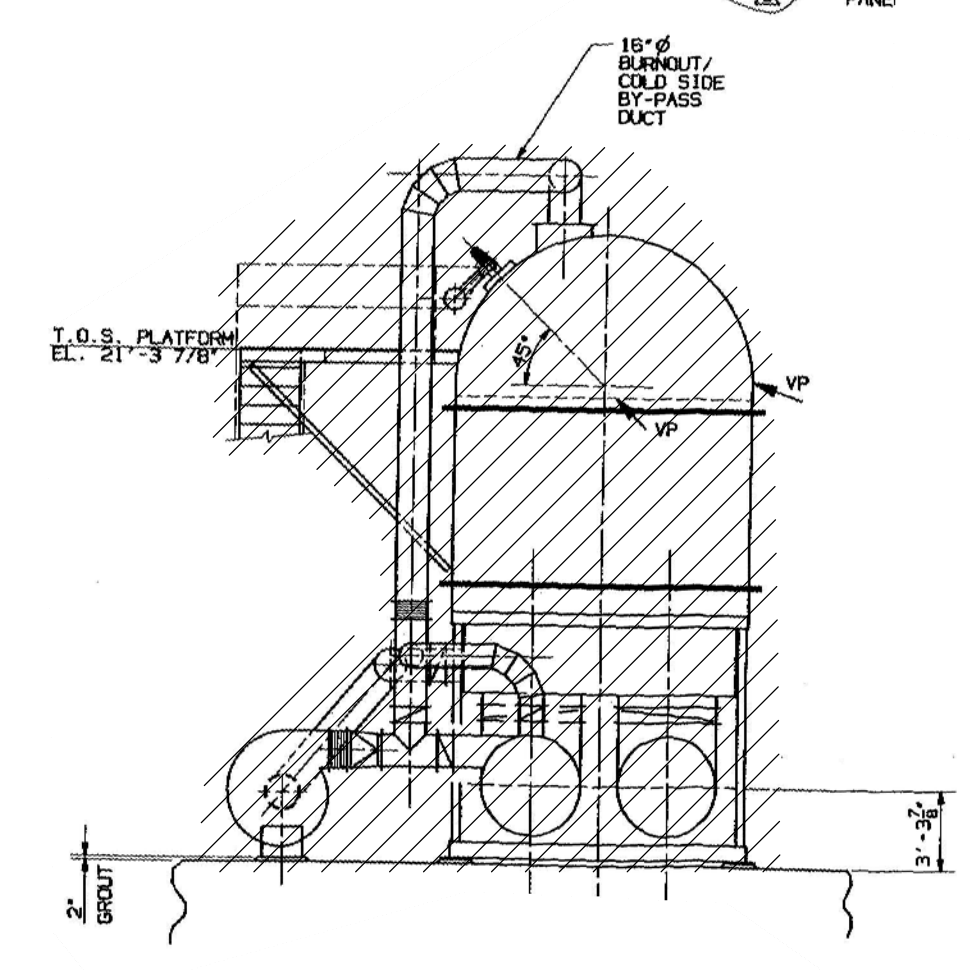
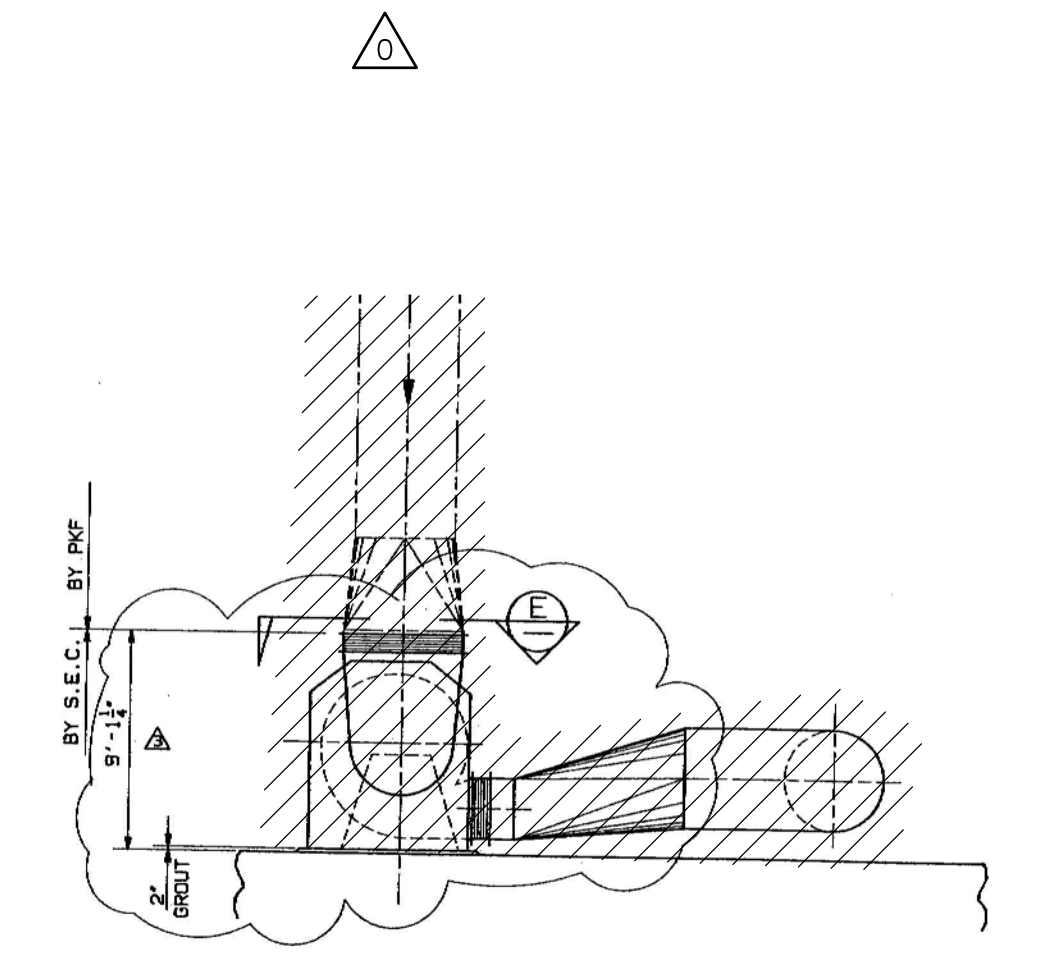
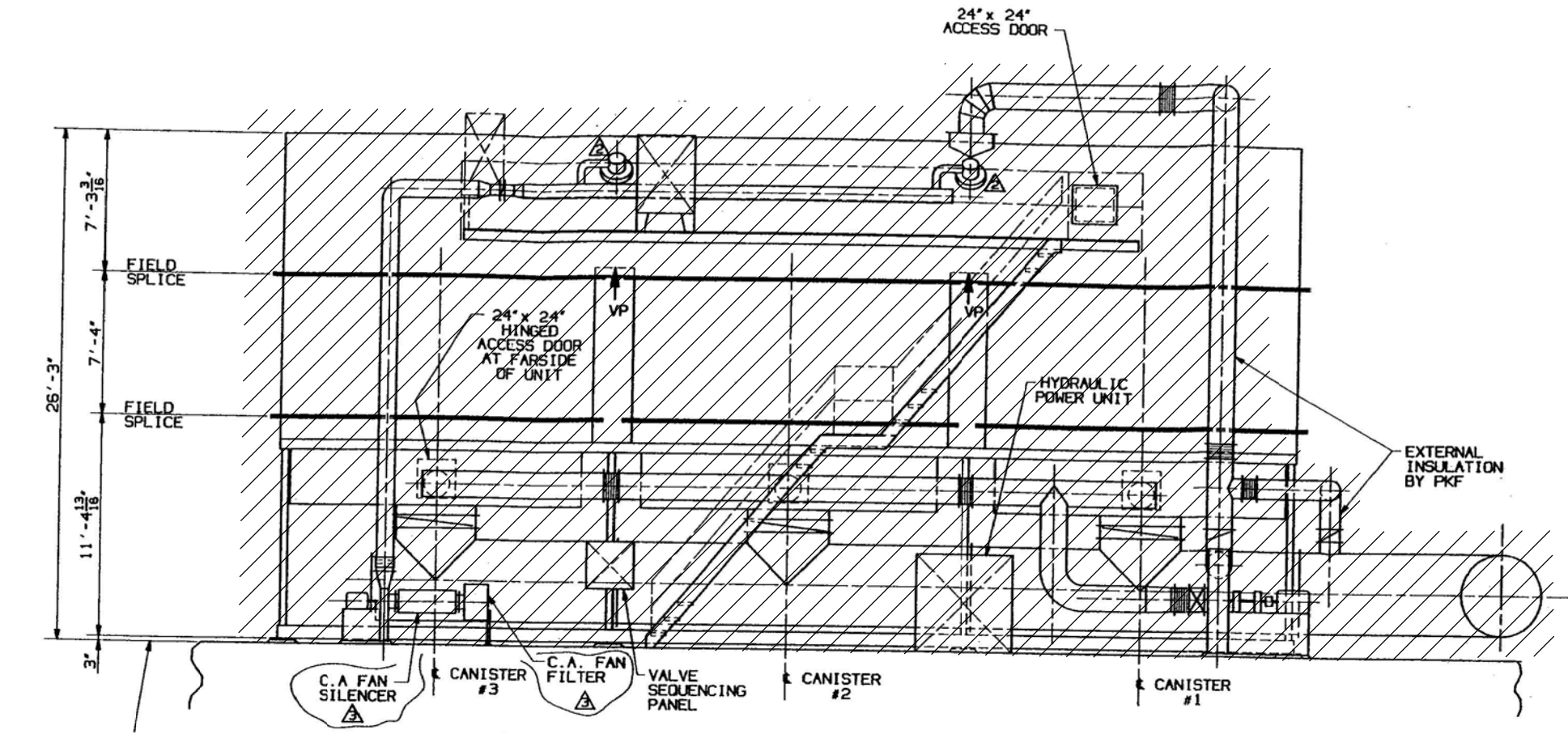
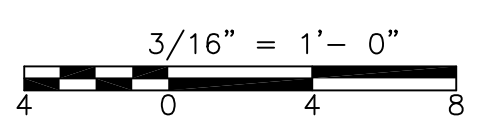


PHOTO 1

- NOTE:
1. DEMO DUCTWORK AND ASSOCIATED SUPPORTS. (AS SEEN IN PHOTO)
 2. DEMO EXISTING CONCRETE EQUIPMENT AND SUPPORT PADS.
 3. DEMO AND CAP ALL UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER AND DRAIN LINES. CONTRACTOR TO PROVIDE PLAN SHOWING EXTENT TO DEMO AND CAP LOCATIONS FOR REVIEW AND APPROVAL BY ENGINEER.

CONFORMED

PLAN
3/16"=1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	VJB	KS		REVISED AS PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MIBDM005
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

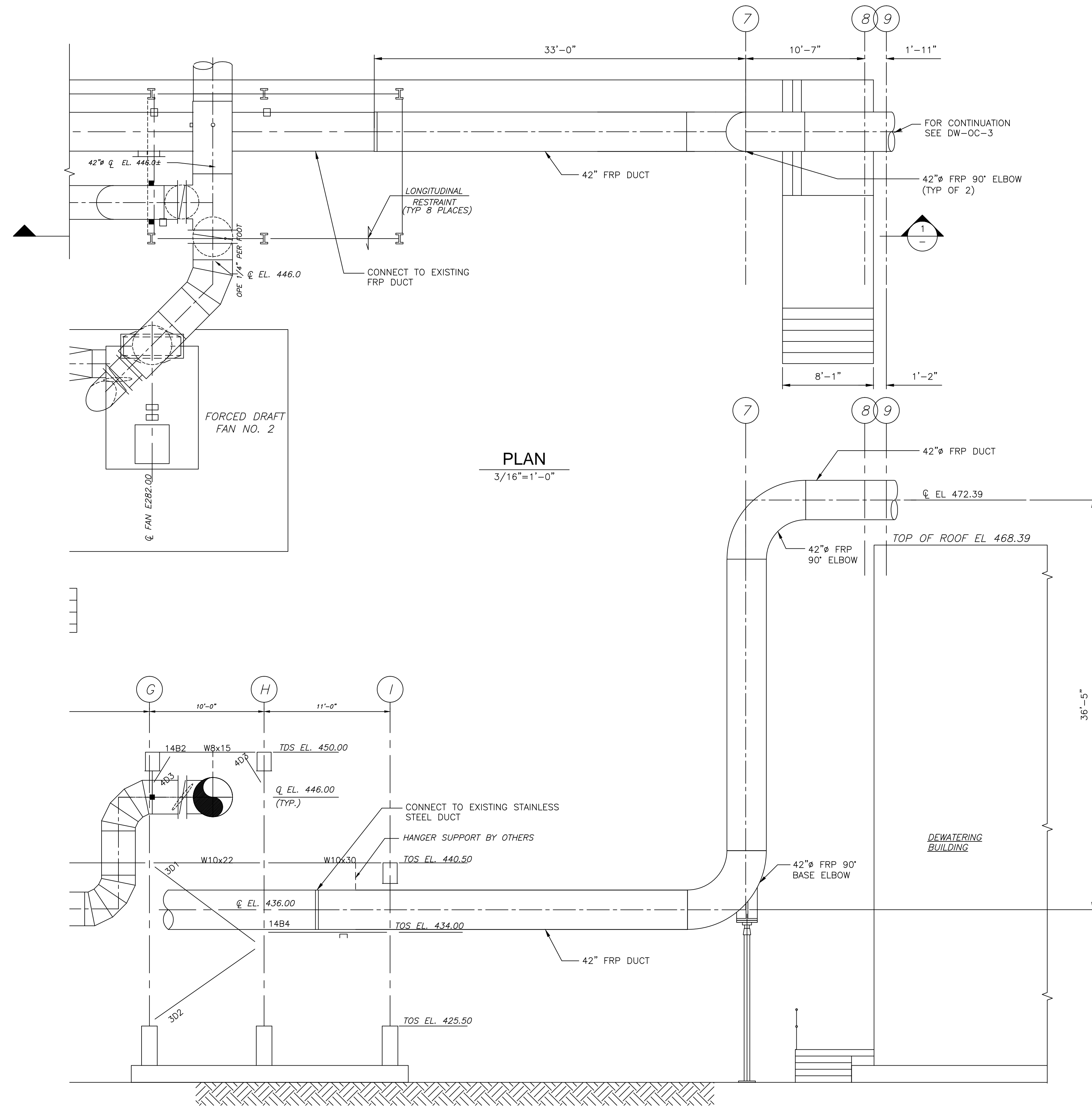
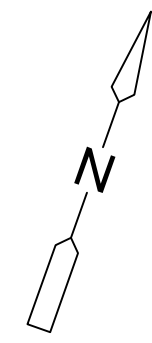
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
 ODOR CONTROL
 PLAN AND SECTION
 DEMOLITION

PROJECT NO. 1289-74283
 Sht.132A of 312
 IB-OC-1
 Acc #1289-74538A

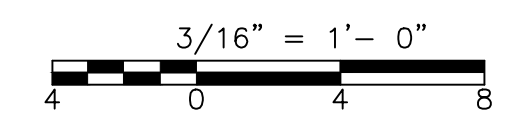
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\3807 BLACKSTONE\UPPER BLACKSTONE CAD - COPY\MIBP004.DWG Saved by: SCANN On: 20-Aug-13 10:06 AM



PLAN
3/16" = 1'-0"

SECTION 1
3/16" = 1'-0"

Charles P. Blouin
"AS-BUILT" Drawing
8-20-2013



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MIBP004
DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
ODOR CONTROL
PLAN AND SECTION
IMPROVEMENT**

PROJECT NO.
1289-74283

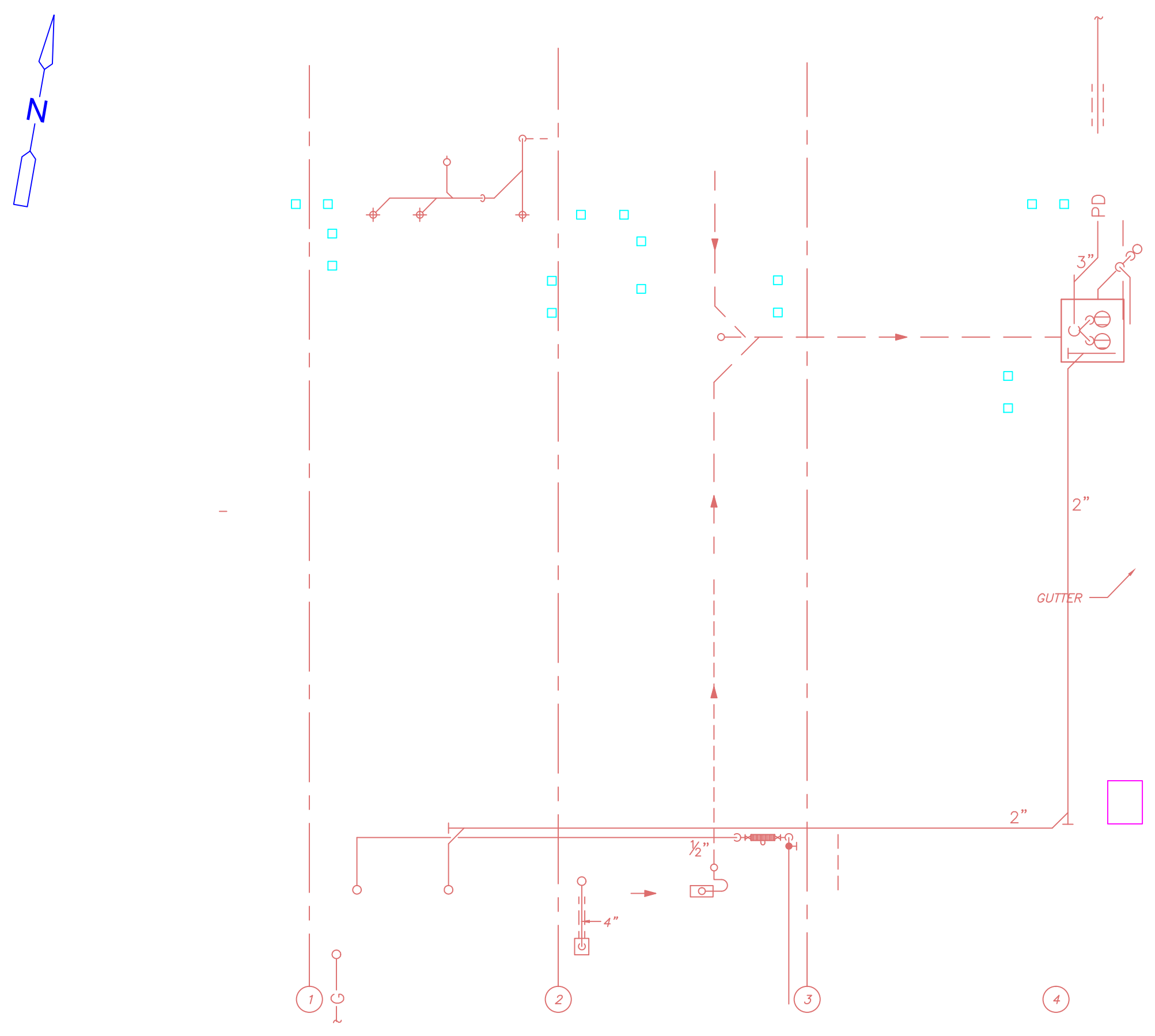
Sht. 132B of 312

IB-OC-2

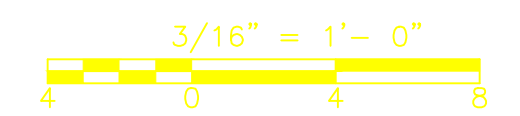
Acc. #1289-74538B

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\AS-BUILTS\PS\MFSPLO02.DWG Saved by: JOHN B On: 8-Apr-13 Plotted on: 26-Mar-15 3:23 PM

- NOTE:**
1. REFER TO ELECTRICAL FOR VALVE CONTROL RELOCATION AND EQUIPMENT PAD REMOVAL.
 2. REPAIR AND RESURFACE FLOORING AS SPECIFIED IN SPECIFICATION SECTION 09722.
 3. REFER TO STRUCTURAL FOR FLOOR REPAIR.



LOWER LEVEL PLAN
PLAN



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. GPSPL001.DWG
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

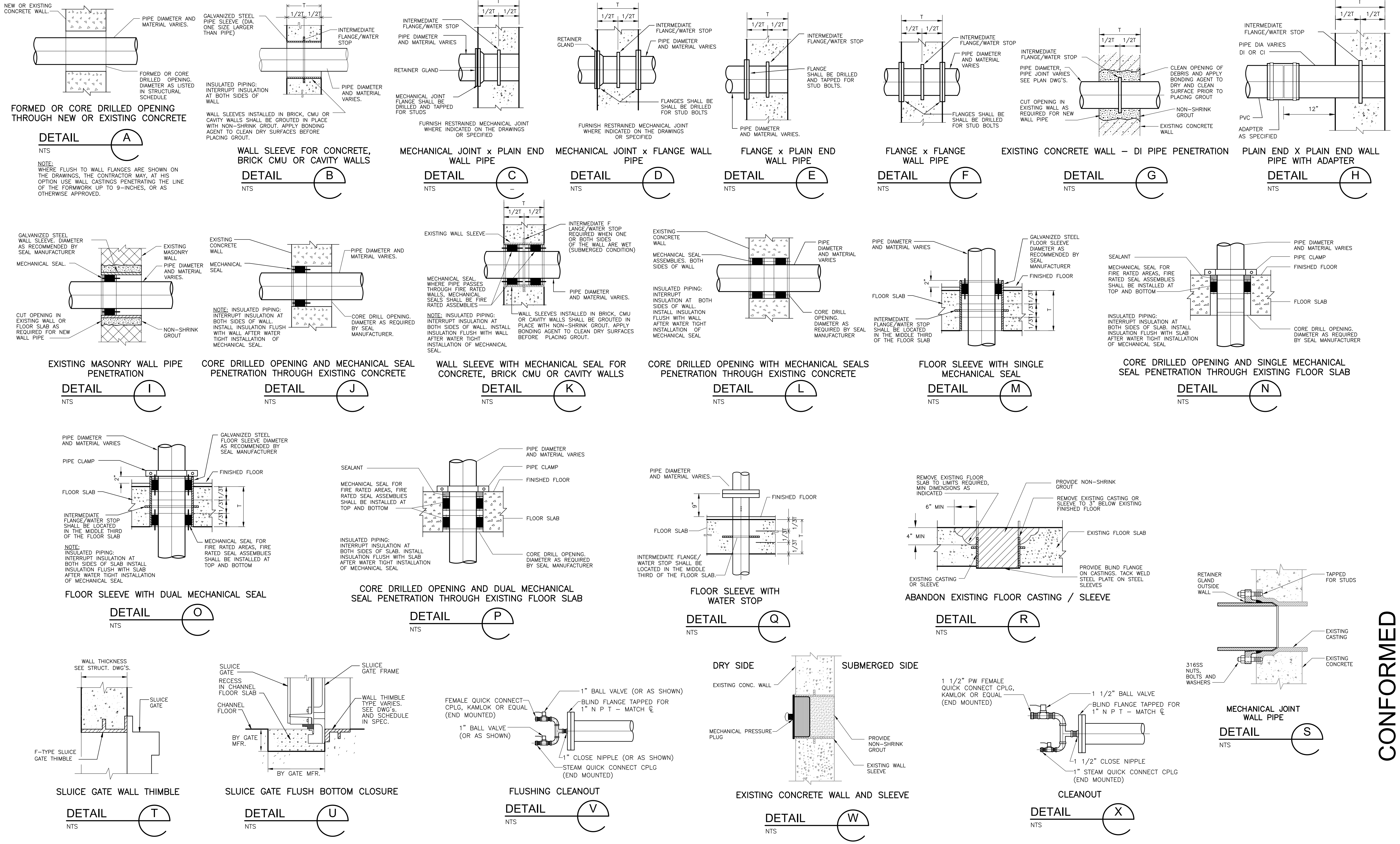
CDM
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 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**NORTH SLUDGE RECIRCULATION PUMP STATION
 IMPROVEMENTS
 PLAN**

PROJECT NO.
1289-74283
 Sht. 133 of 312
PS-M-1
 Acc # 1289-74539

CONFORMED



Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWSE\MSDDT001.DWG Saved by: BITTO On: 7-Jul-10 Plotted on: 24-Nov-10 9:51 AM

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MSDDT001
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
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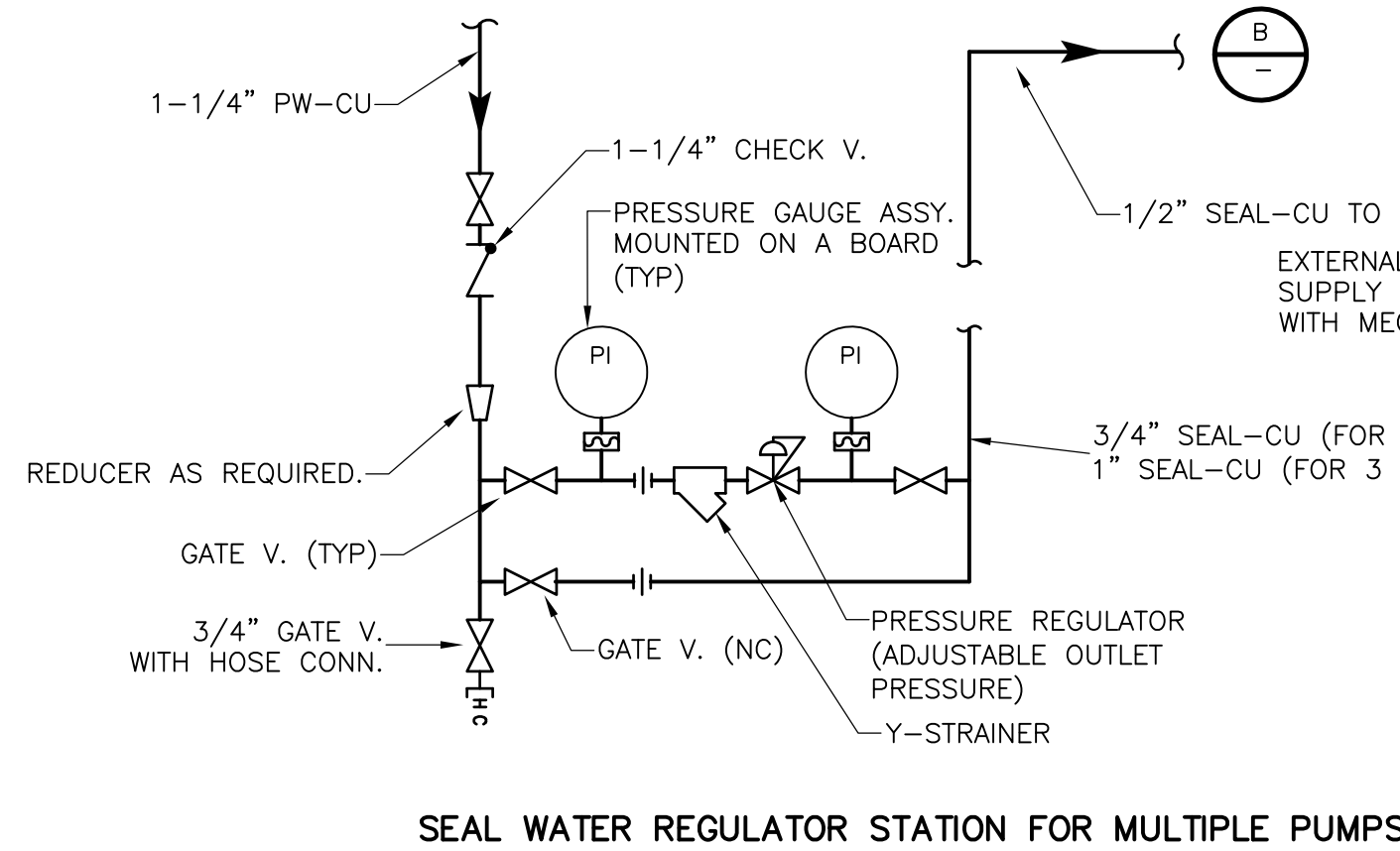
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

STANDARD DETAILS I

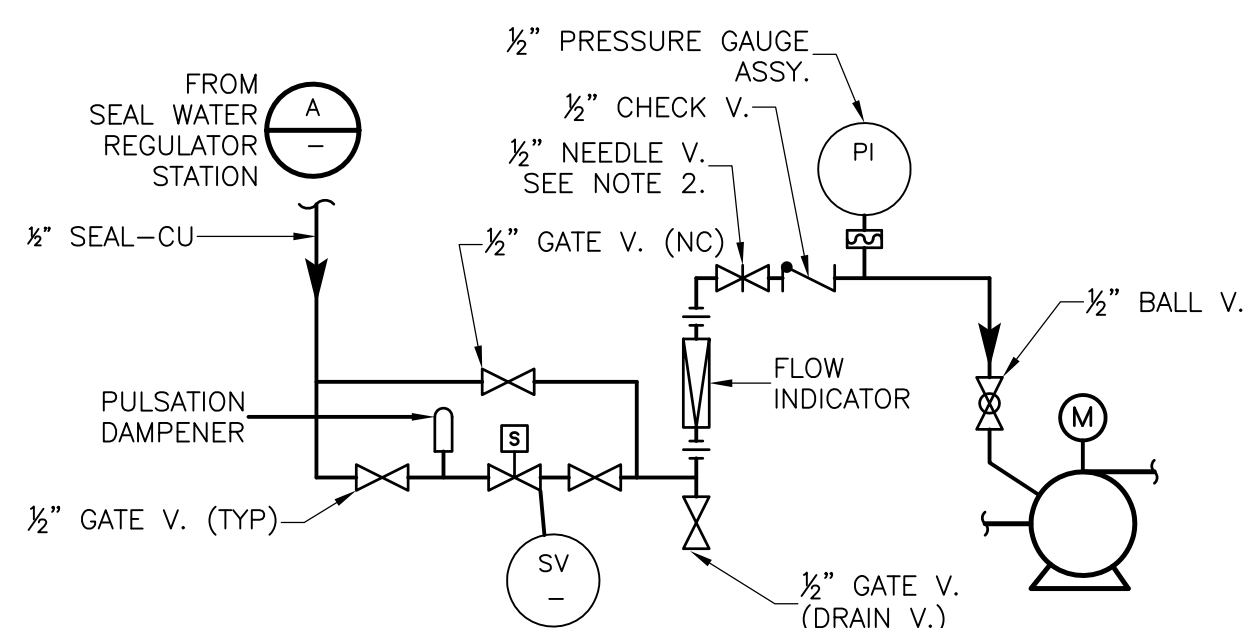
PROJECT NO. 1289-74283
 Sht. 134 of 312
 SD-M-1
 Acc # 1289-74540

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWSE\MSDDT002.DWG Saved by: BITTOVJ On: 1-Oct-10 Plotted on: 24-Nov-10 9:51 AM



SEAL WATER REGULATOR STATION FOR MULTIPLE PUMPS

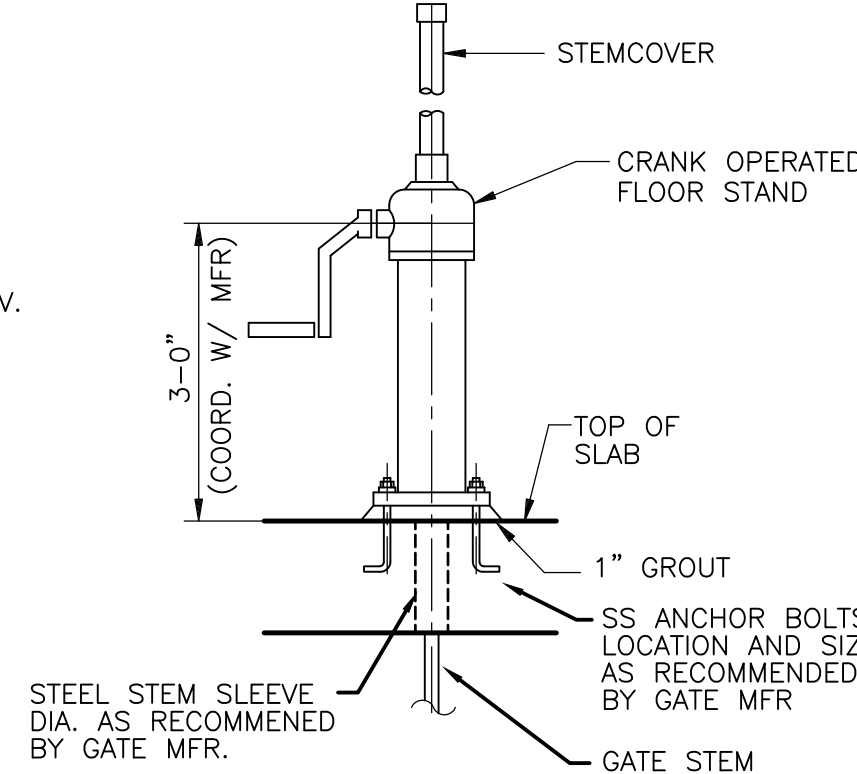
DETAIL A
NTS



EXTERNAL SEAL WATER/FLUSHING WATER SUPPLY FOR PUMPS WITH SINGLE MECHANICAL SEALS, SPLIT SEALS AND STUFFING BOXES

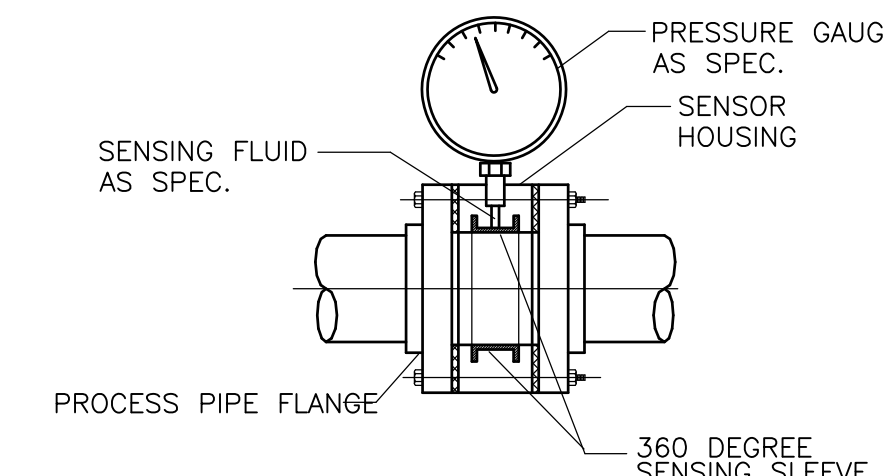
NOTE:
1. FOR EQUIPMENT REQUIRING PLANT WATER IGNORE THE PUMP AND ASSOCIATED DRAIN PIPING
2. PROVIDE A NEEDLE VALVE FOR SEAL WATER AND A GLOBE VALVE FOR FLUSHING WATER

DETAIL B
NTS



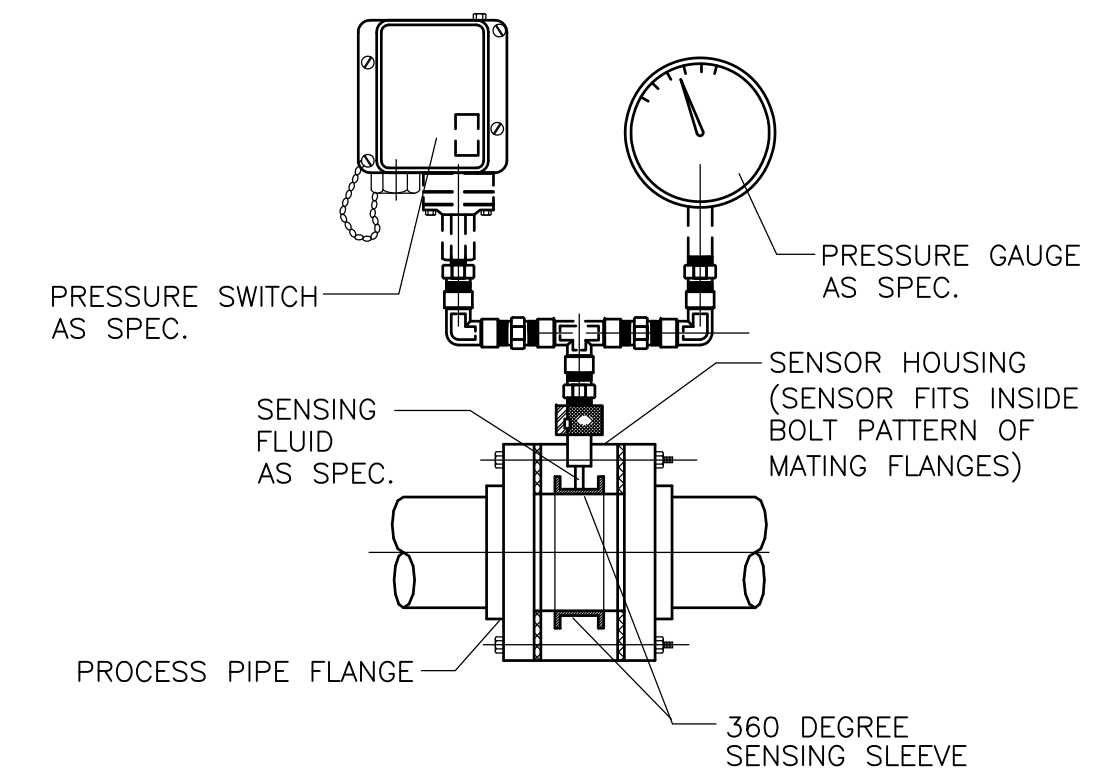
FLOORSTAND ELEVATION

DETAIL C
NTS



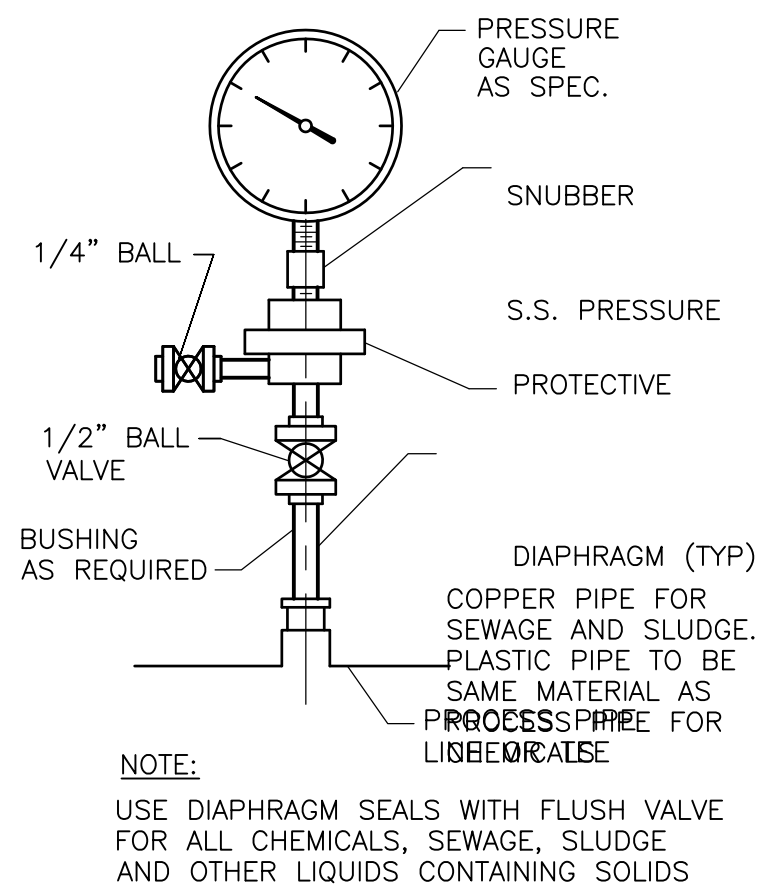
SLUDGE PIPING PRESSURE GAUGE SENSOR

DETAIL D
NTS



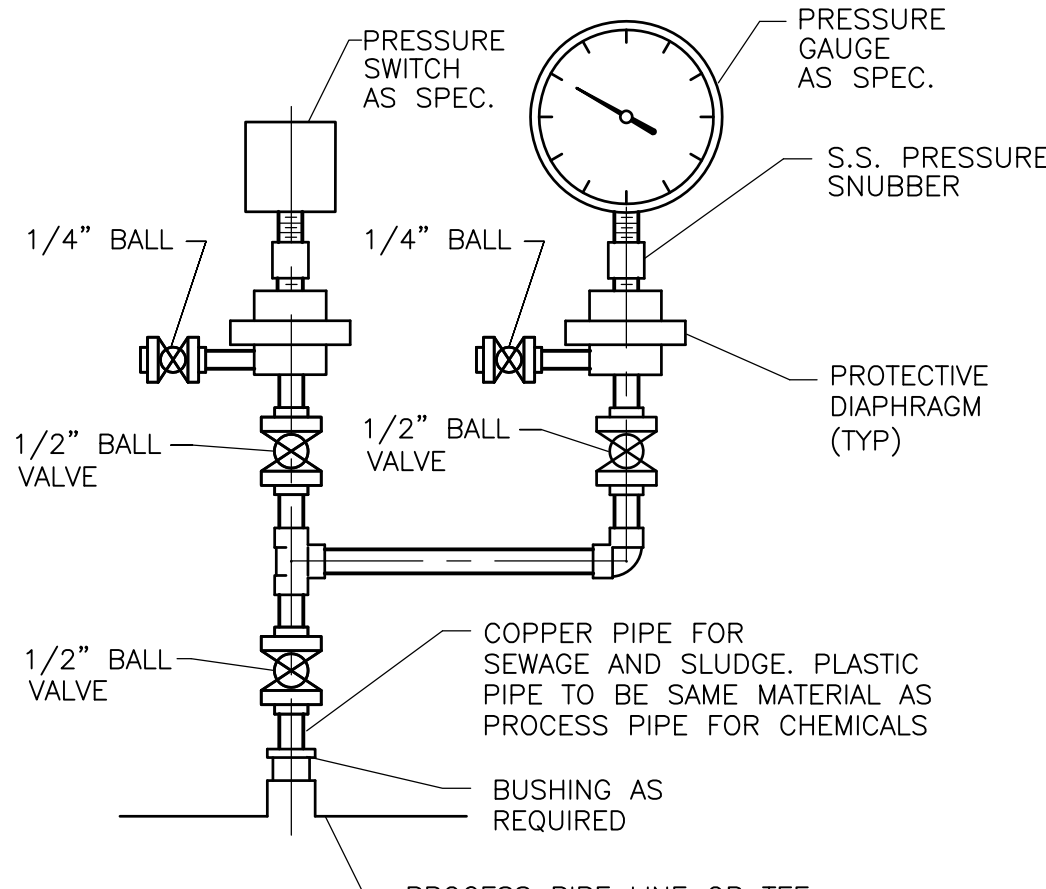
PRESSURE GAUGE/SWITCH WITH ANNULAR SENSING ELEMENT

DETAIL E
NTS



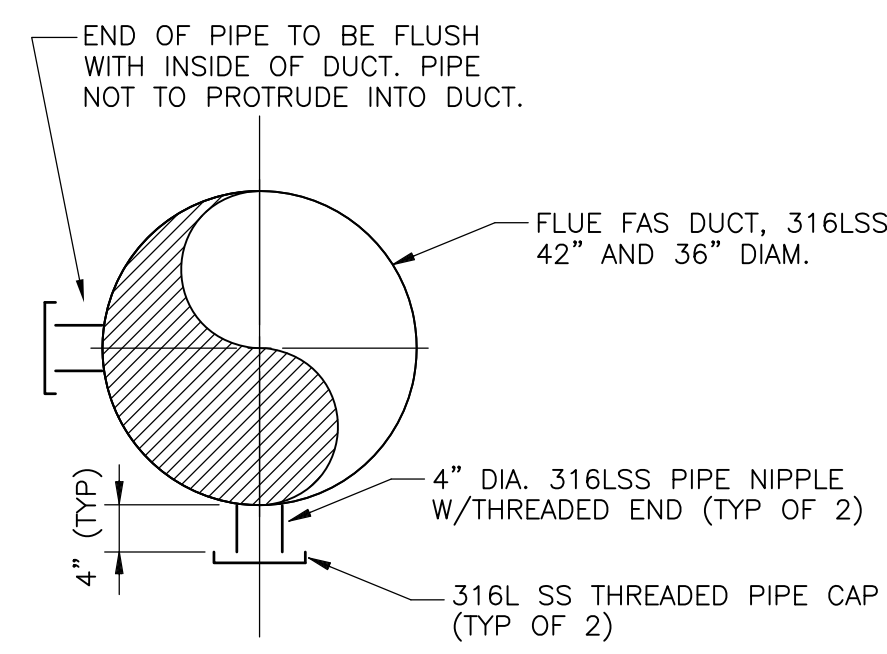
PRESSURE GAUGE W/DIAPHRAGM ASSEMBLY

DETAIL F
NTS



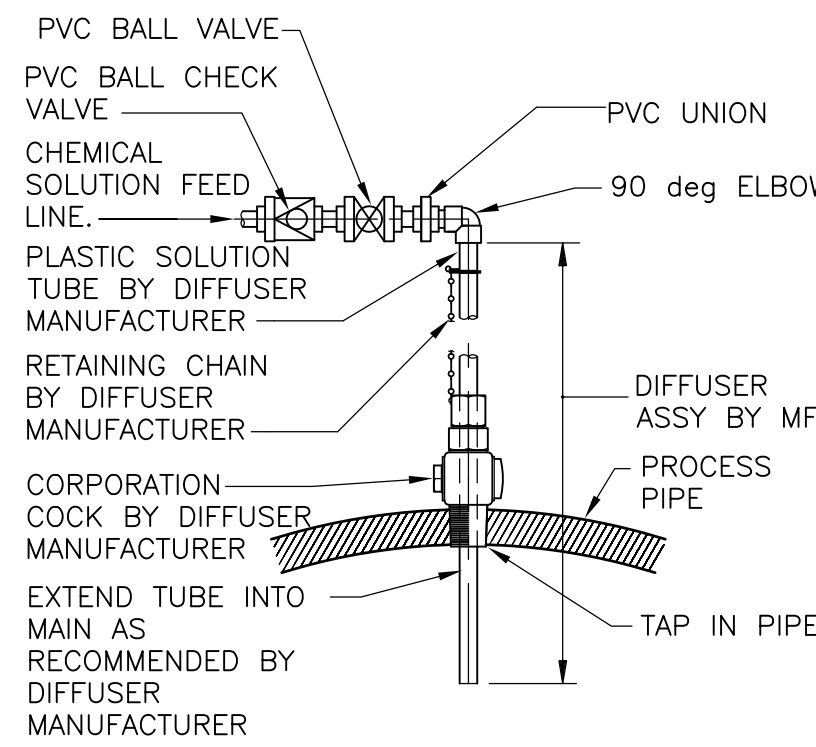
PRESSURE GAUGE / SWITCH ASSEMBLY

DETAIL G
NTS

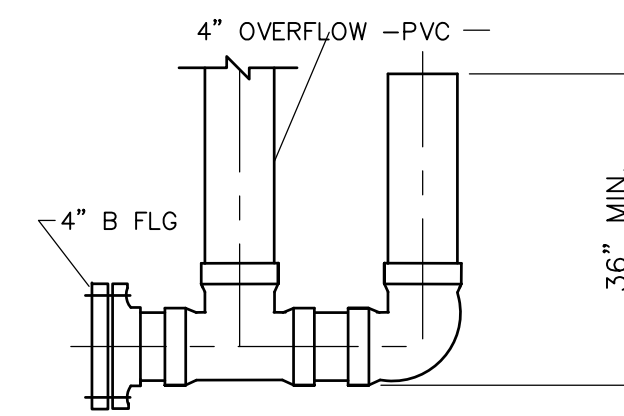


SAMPLE PORTS

DETAIL H
NTS

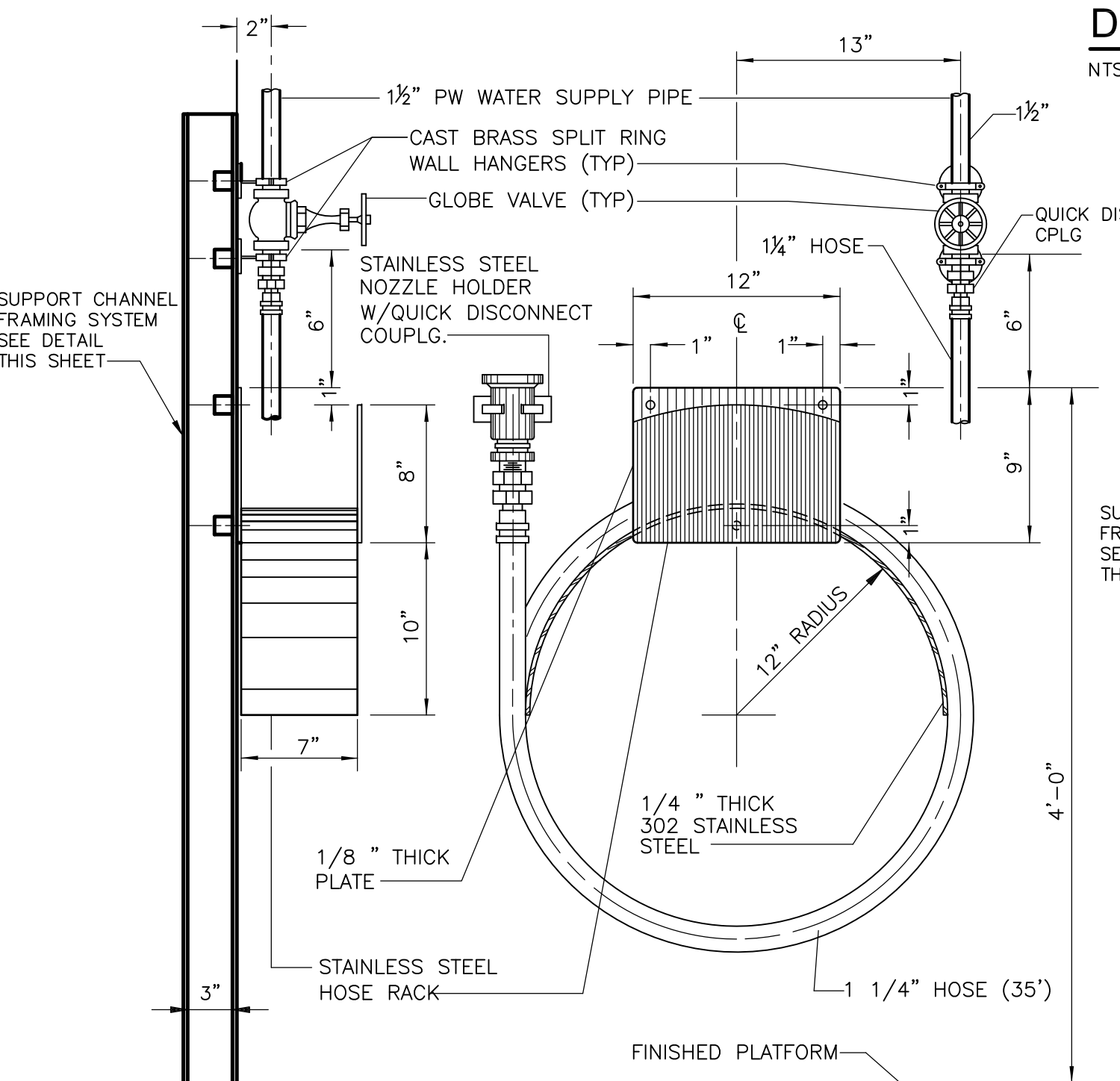


DETAIL I
NTS



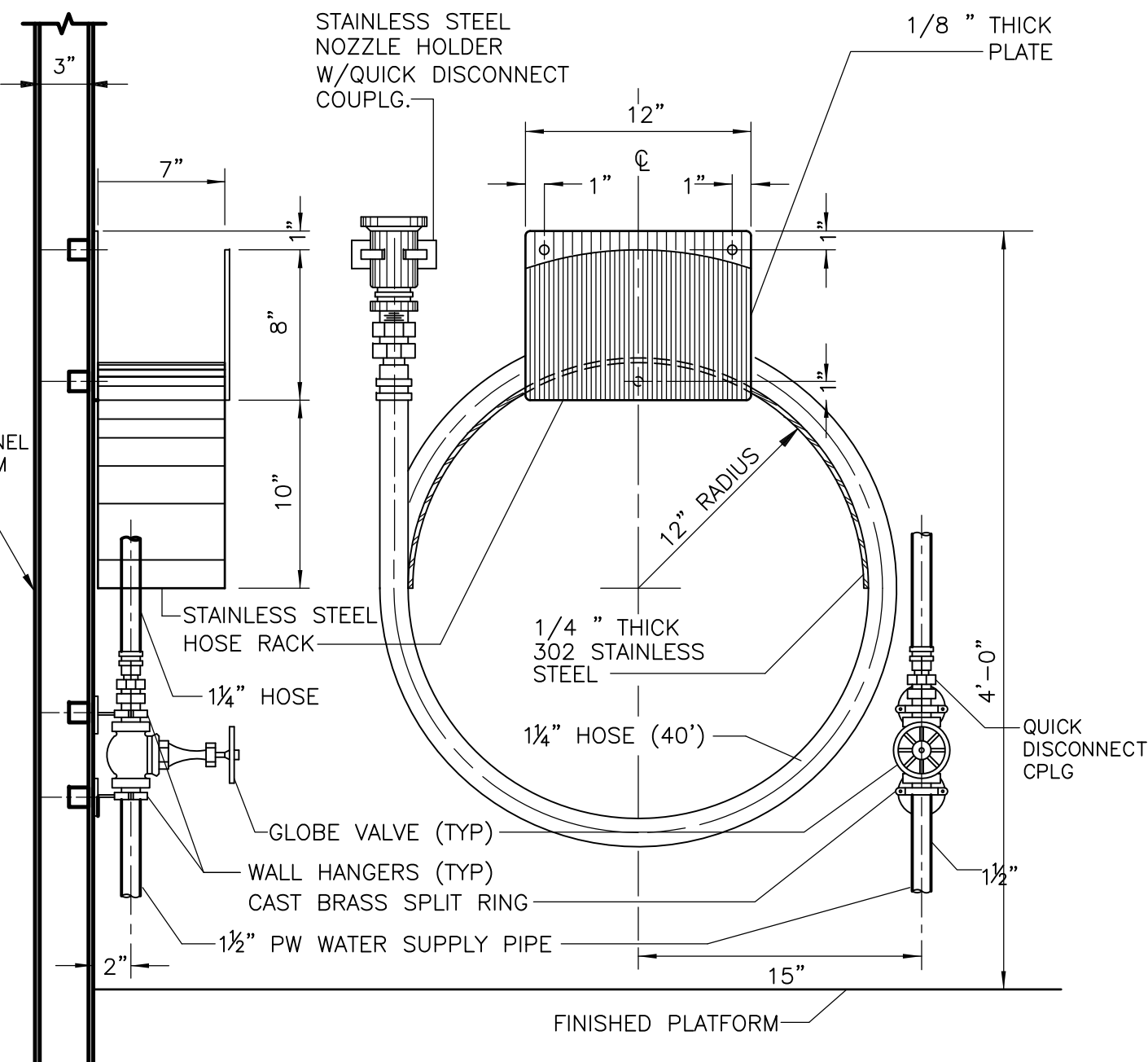
TANK OVERFLOW TRAP

DETAIL J
NTS



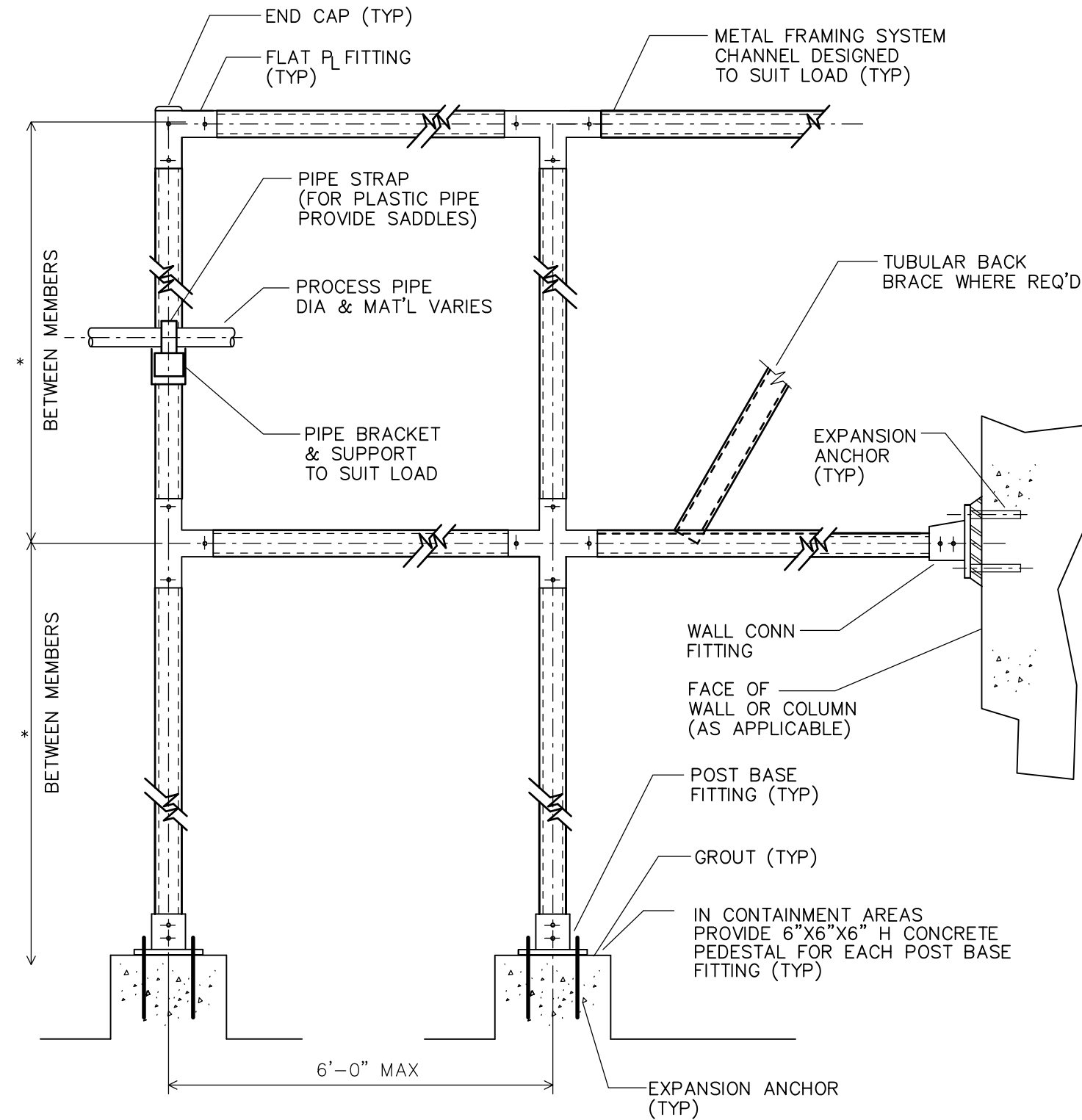
WASH HOSE STATION "A"

DETAIL L
NTS



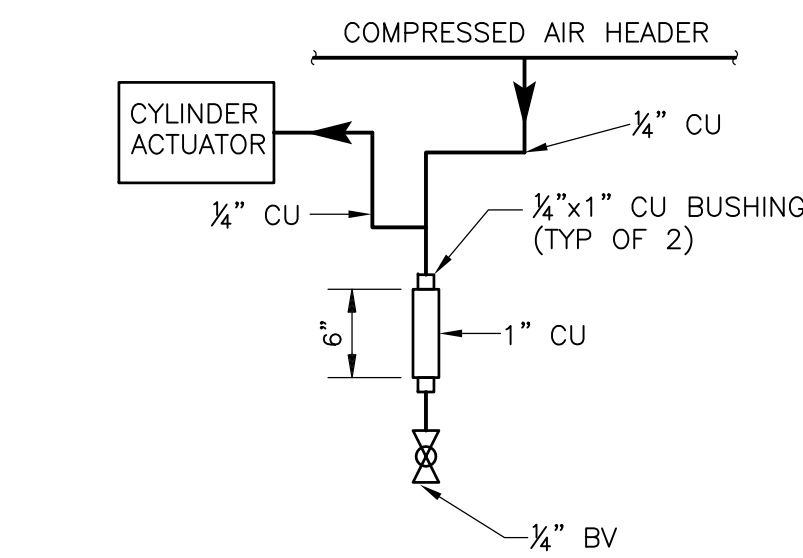
WASH HOSE STATION "B"

DETAIL M
NTS



CHANNEL FRAMING SYSTEM FOR PIPE SUPPORTS FOR PIPES 3" AND SMALLER

DETAIL N
NTS



NOTES:

1. PROVIDE MANUAL ISOLATION BALL VALVE, SAME AS LINE SIZE, UPSTREAM OF EACH SOLENOID VALVE ACTUATOR.
2. USE 3/4 IN CU (IN LIEU OF 1/2 IN CU) TO EACH DSL VALVE AS INDICATED ON DRAWINGS DW-M-8 AND IB-M-7.

DRIP LEG ON COMPRESSED AIR PIPING AT CYLINDER ACTUATORS

DETAIL O
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	SE	KW		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MSDDT002
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

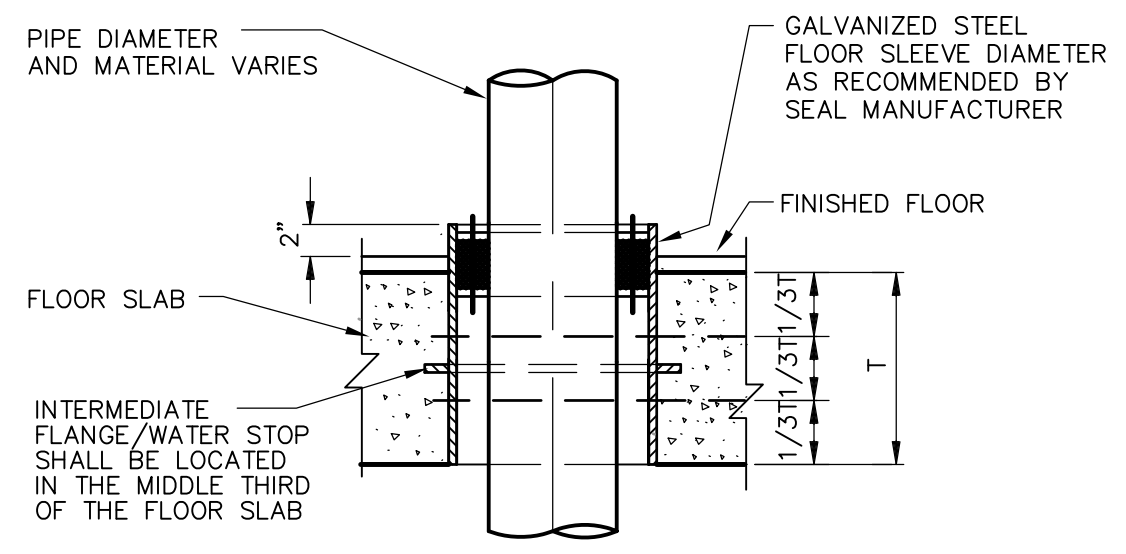
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

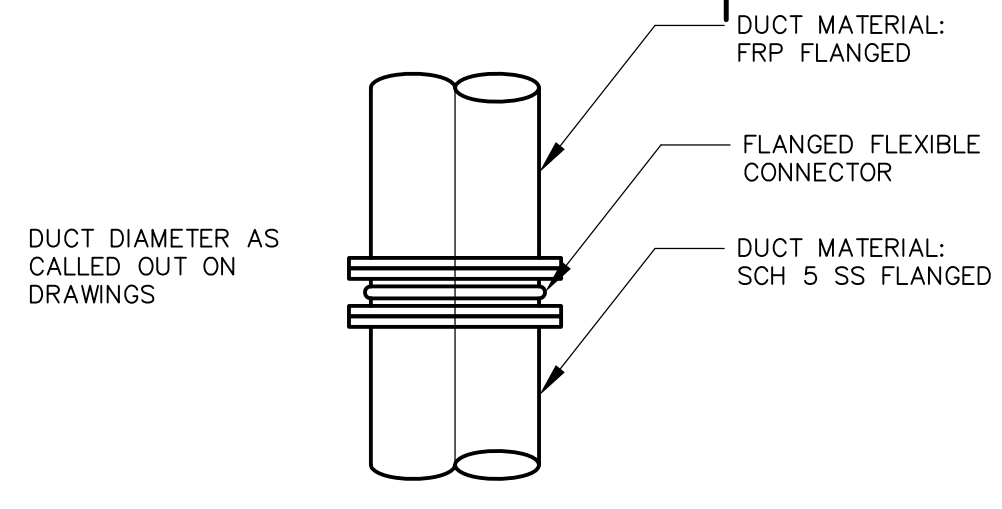
STANDARD DETAILS II

PROJECT NO.	1289-74283
Sht.	135 of 312
SD-M-2	
Acc #	1289-74541

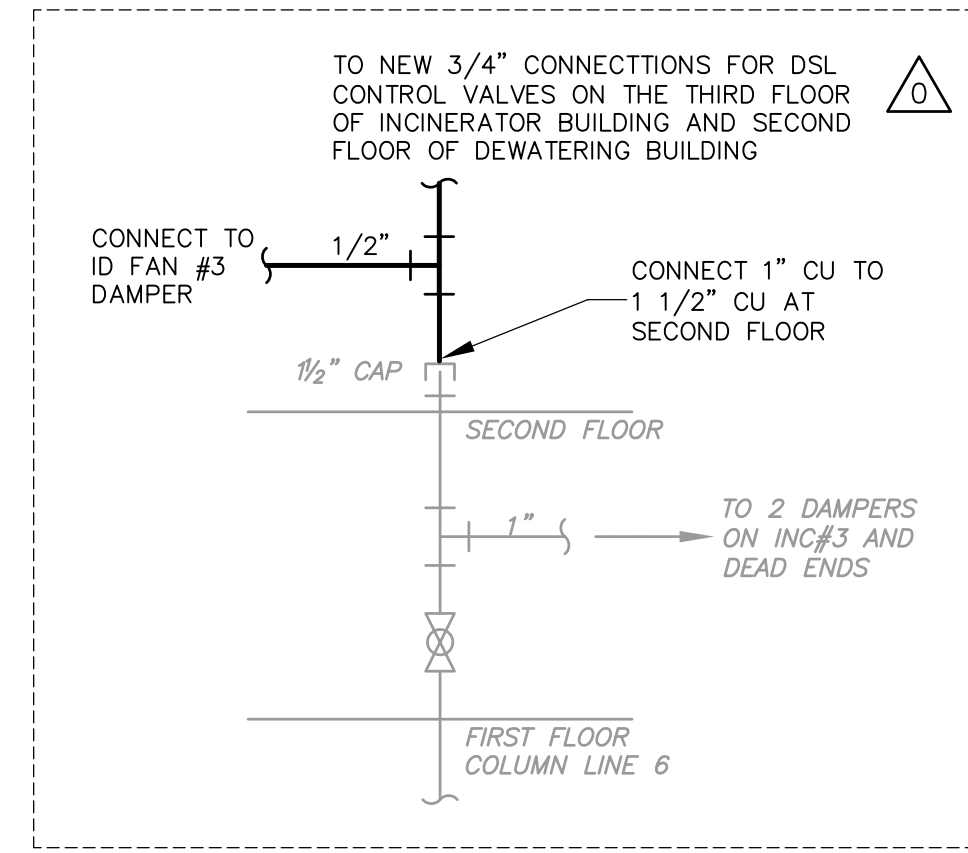
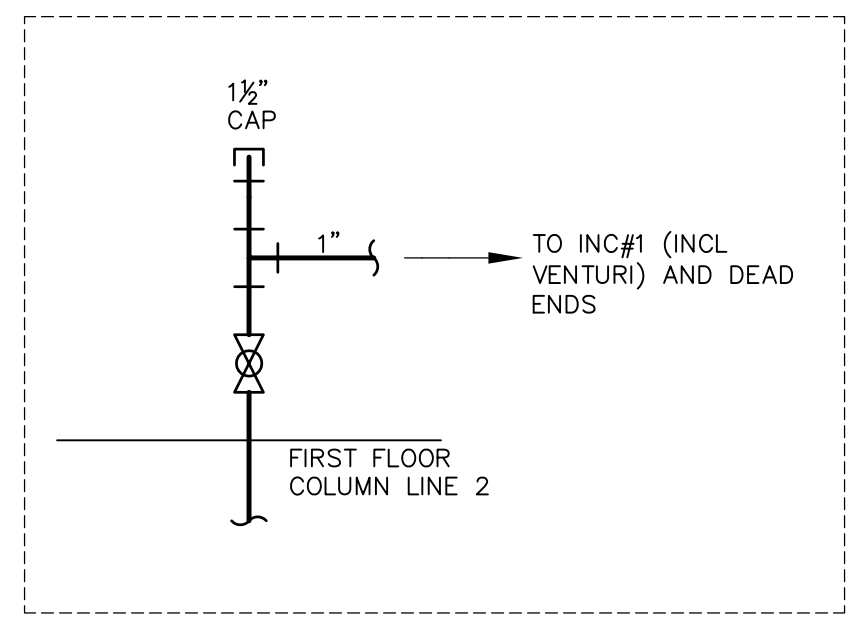
CONFORMED



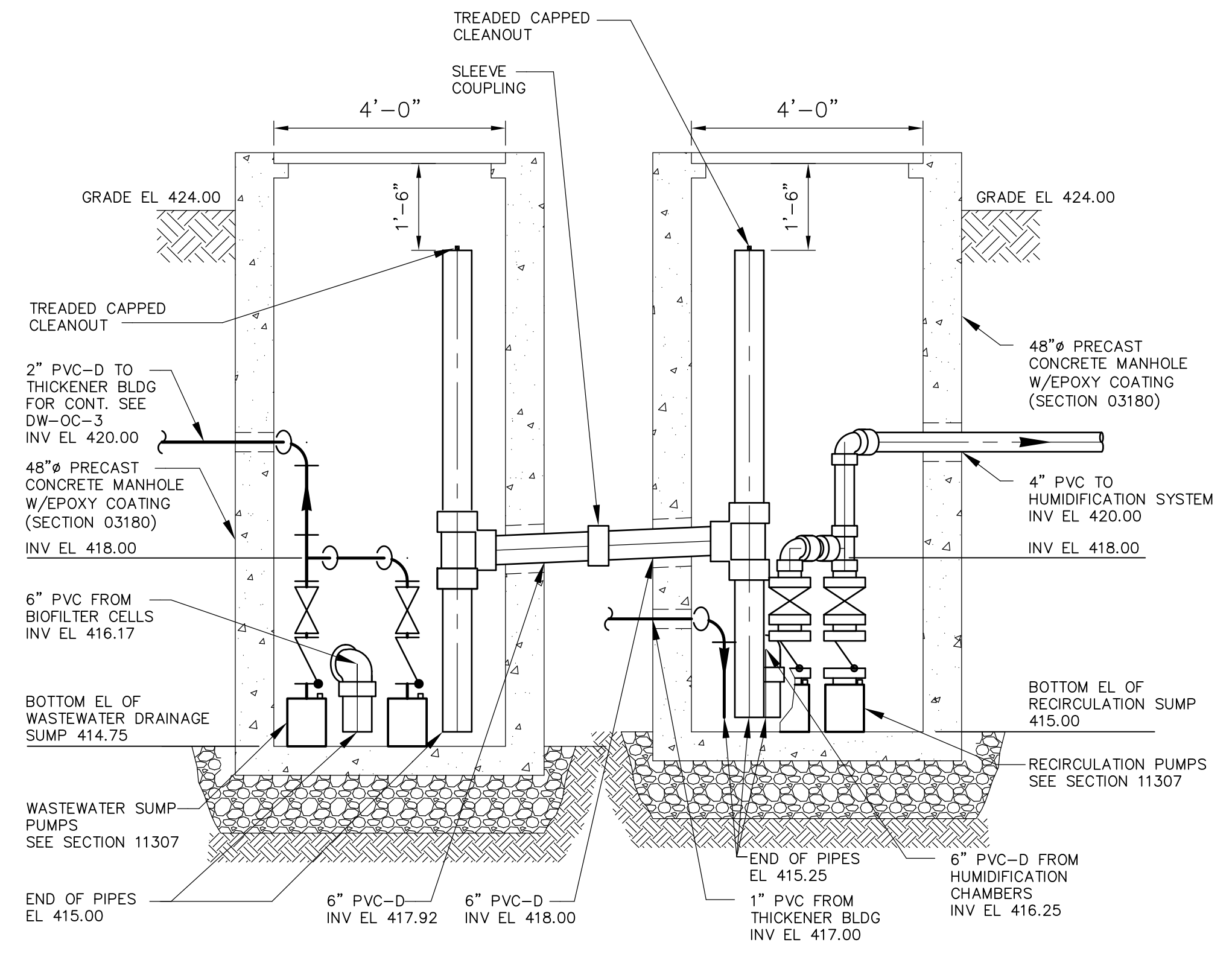
DETAIL A
NTS
DW-M-6, DW-M-7, DW-OC-2



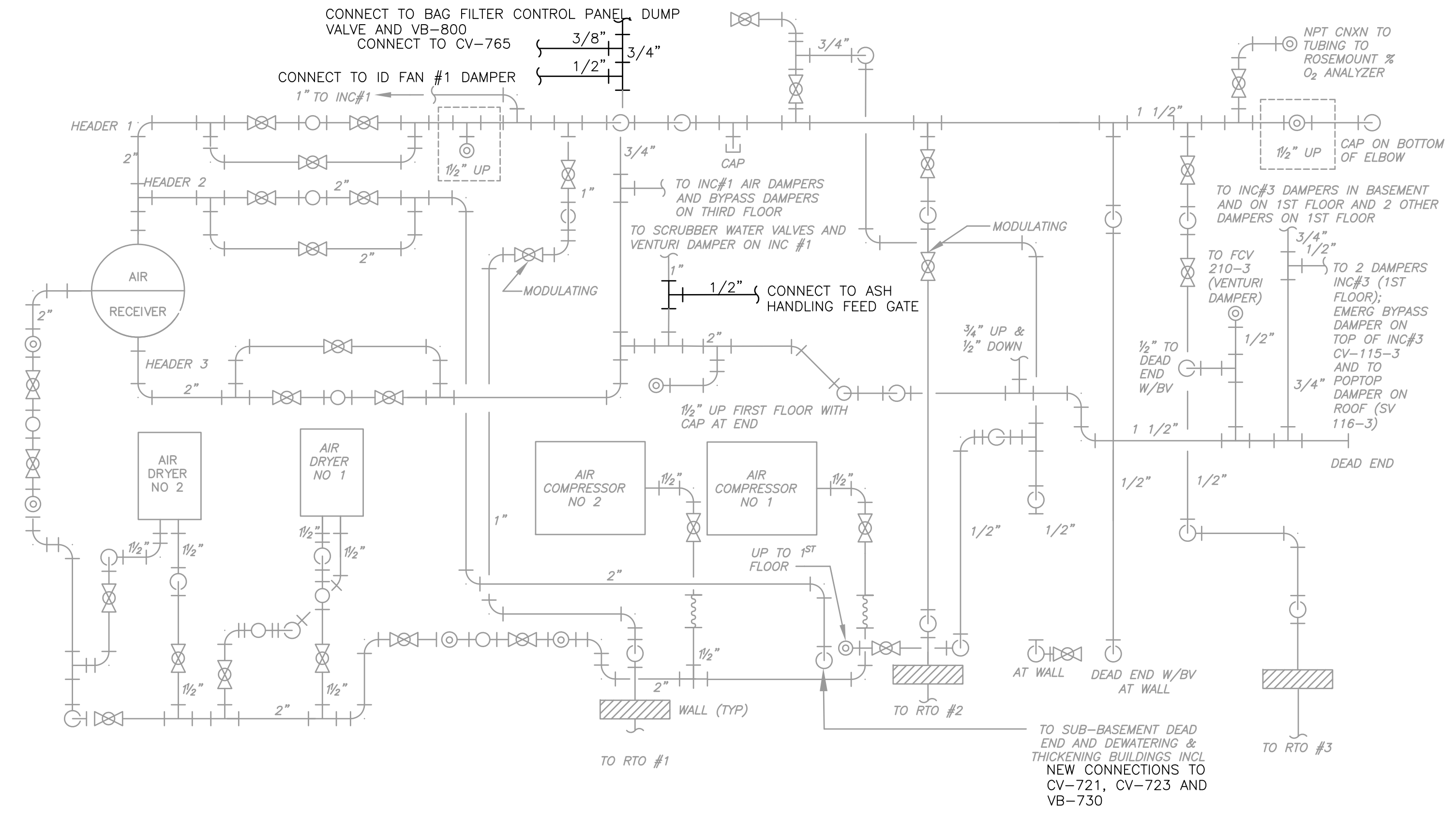
DETAIL B
NTS
DW-OC-3



△



DETAIL C
1/2" = 1'-0"
DW-OC-4



CAD SCHEMATIC INCINERATOR BUILDING BASEMENT PLAN
NTS

NOTE
REFERENCE IB SHEETS FOR NEW CONNECTION LOCATIONS AND NEW CAD PIPE ROUTING.

- SYMBOLS**
- BALL VALVE
 - STRAINER
 - COPPER PIPE
 - EXPANSION COUPLING

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PIWSE\MSDDT003.DWG Saved by: BITTOJ On: 24-Nov-10 9:51 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS
△	09/10	VJB	MN	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MSDDT003
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

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Camp Dresser & McKee Inc.
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

STANDARD DETAILS III

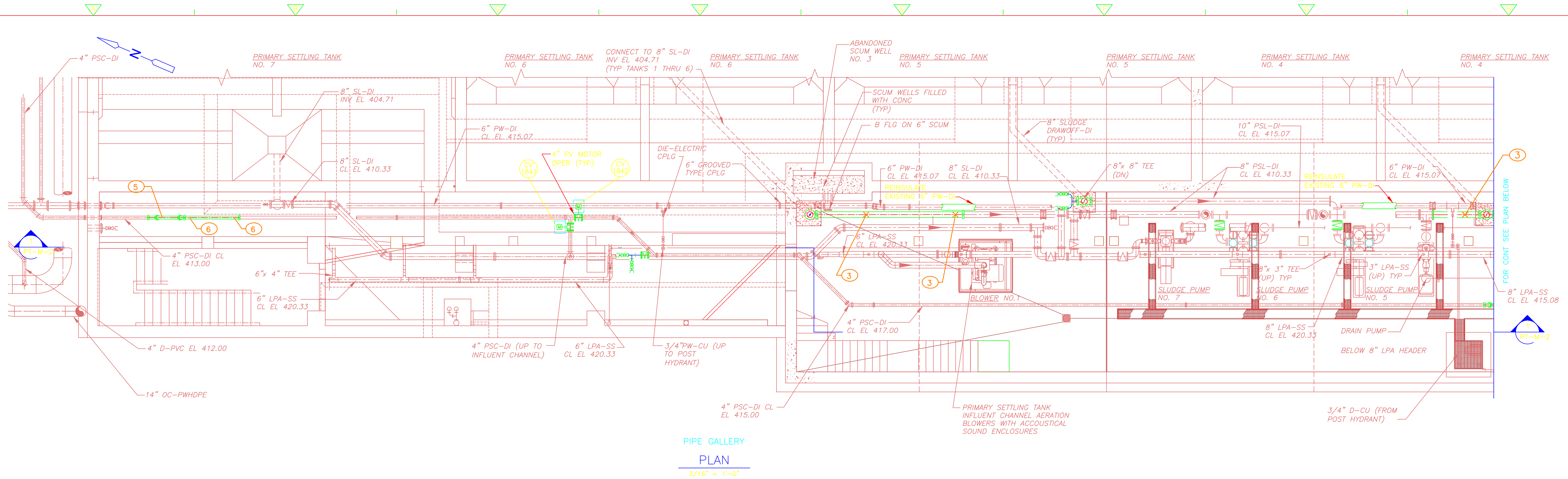
Sht. 136 of 312

SD-M-3

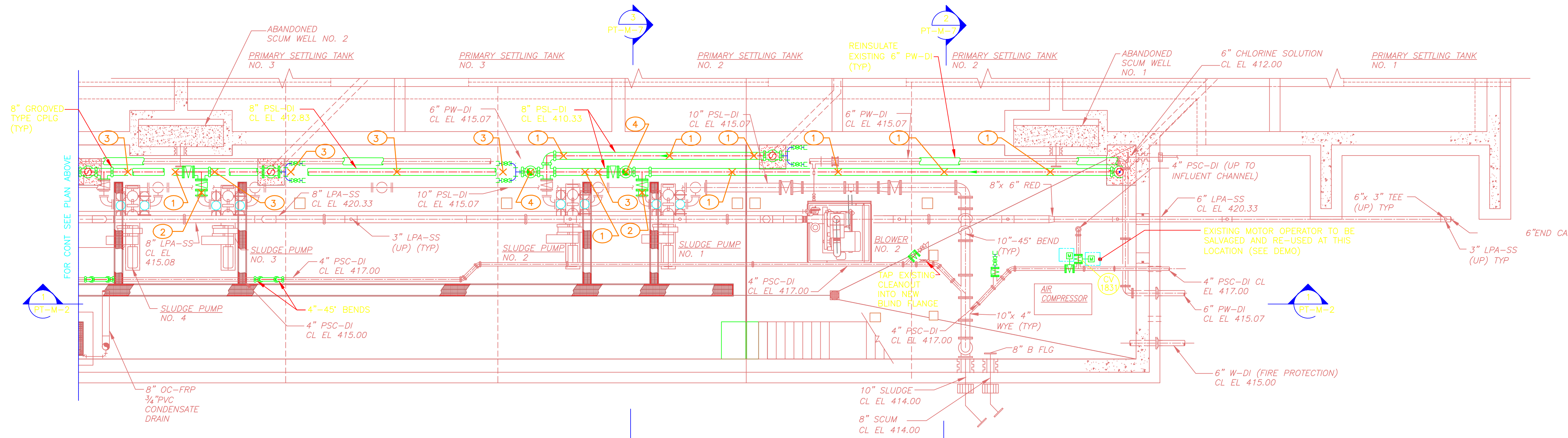
Acc # 1289-74542

PROJECT NO.	1289-74283
Sht.	136 of 312
SD-M-3	
Acc #	1289-74542

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MPTPS001.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-15 4:00 PM



PIPE GALLERY
PLAN
3/16" = 1'-0"



PIPE GALLERY
PLAN
3/16" = 1'-0"

SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
PTPS1-1	-648		
PTPS1-2	-810		
PTPS1-3	-626		
PTPS1-4	-836		
PTPS1-5	-432		
PTPS1-6	-250		

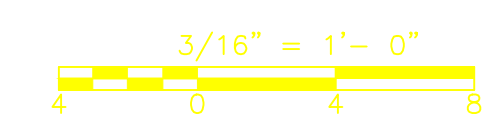
+X = SOUTH

LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: PT-M3



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MPTPS001
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER, 2010

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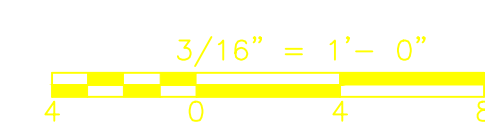
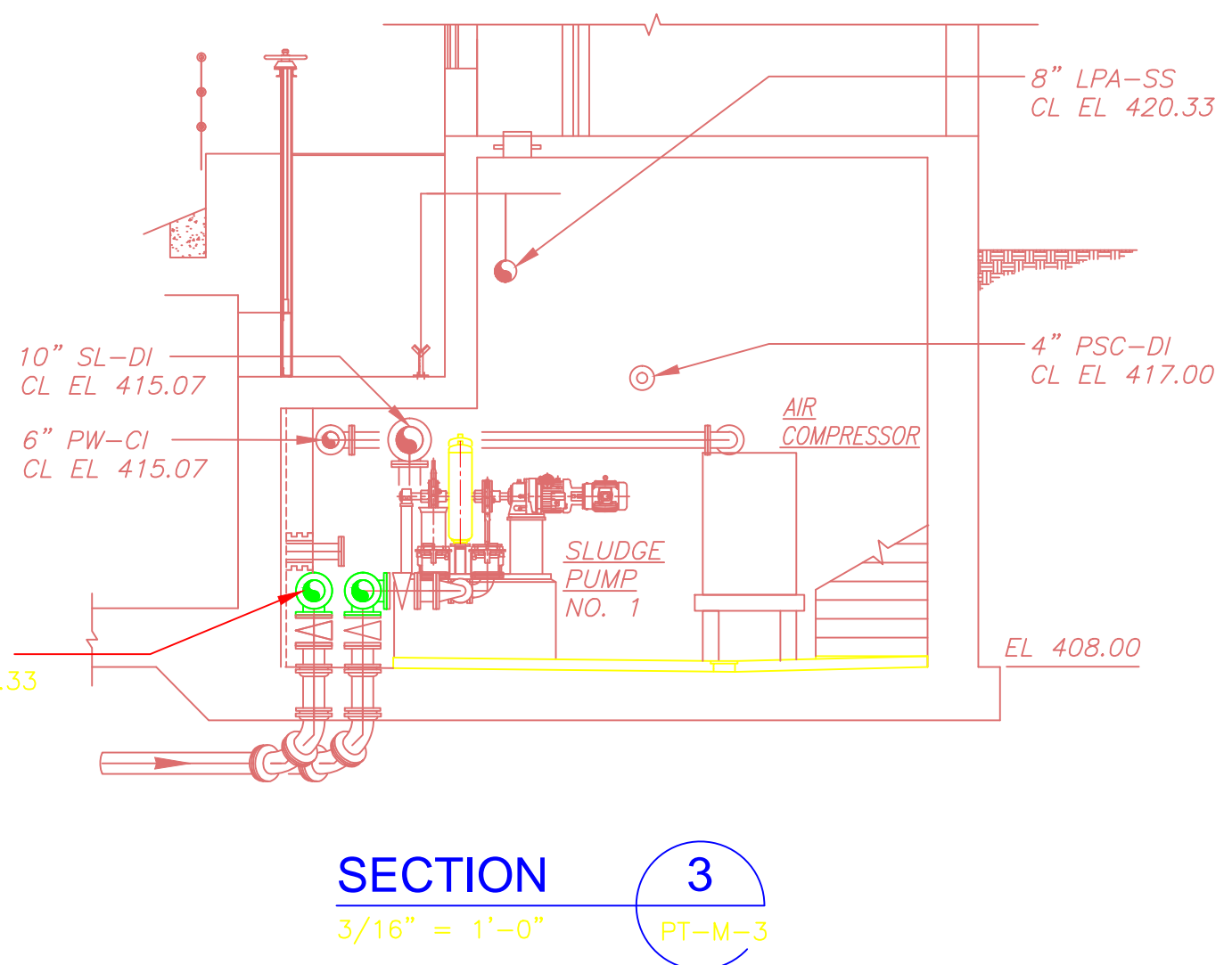
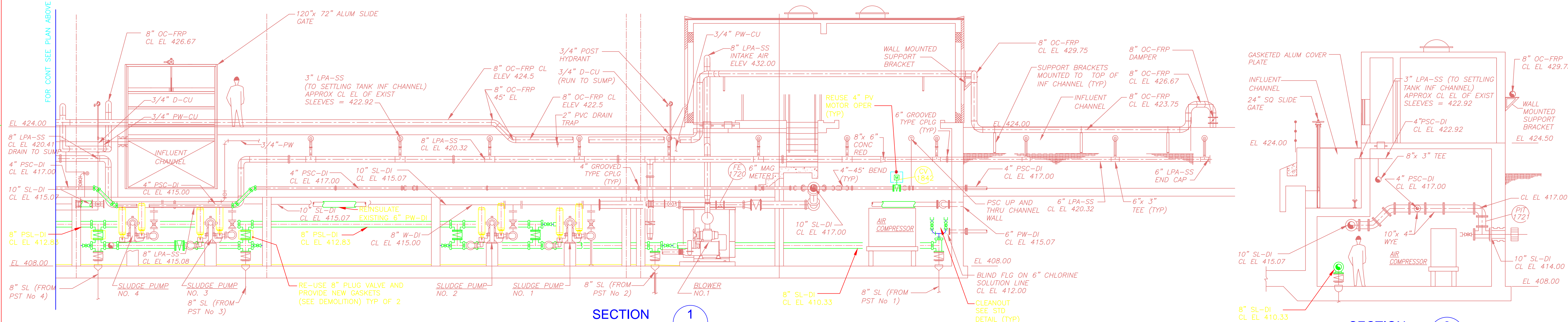
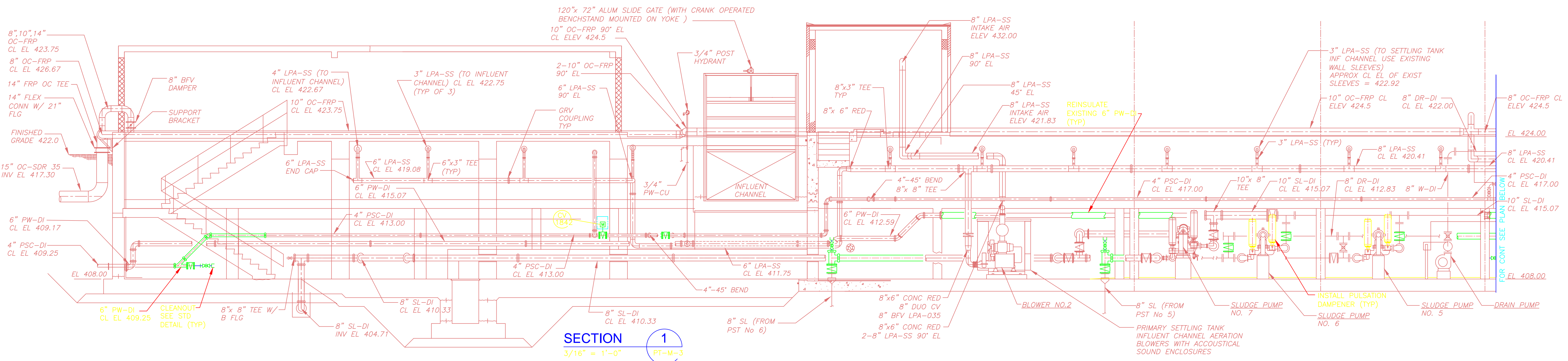
**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**PRIMARY SETTLING TANKS
 PUMP GALLERY BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. of 312
PT-PS-1
 Acc. #

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: S:\PHASE_III\PHASE_III_CONFORMED\CAD DRAWINGS\MPTPS002.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-13



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MPTPS001
DESIGNED BY:	E. SPARGIMINO
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	E. SPARGIMINO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	W. D. GREEN
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

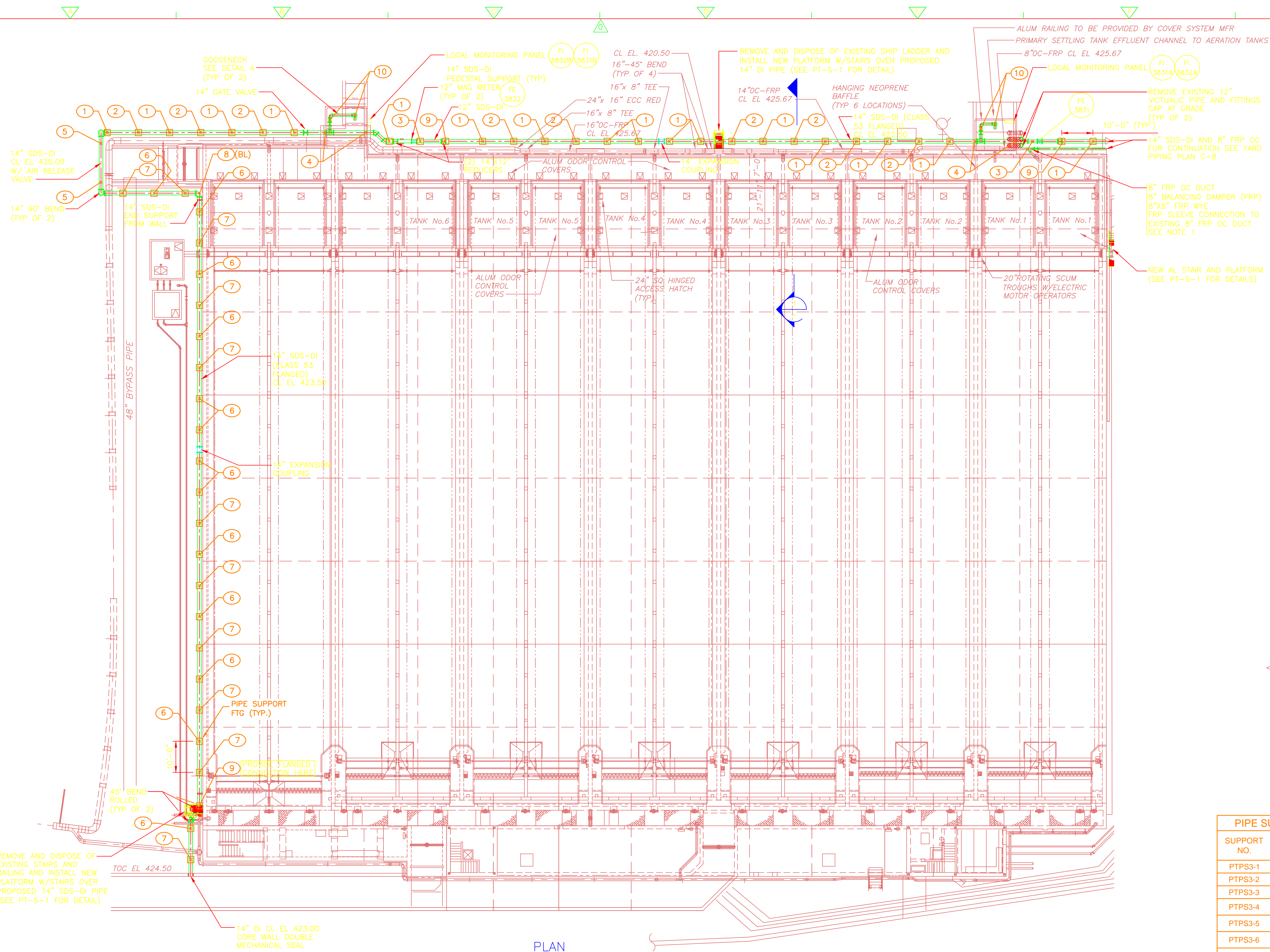
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

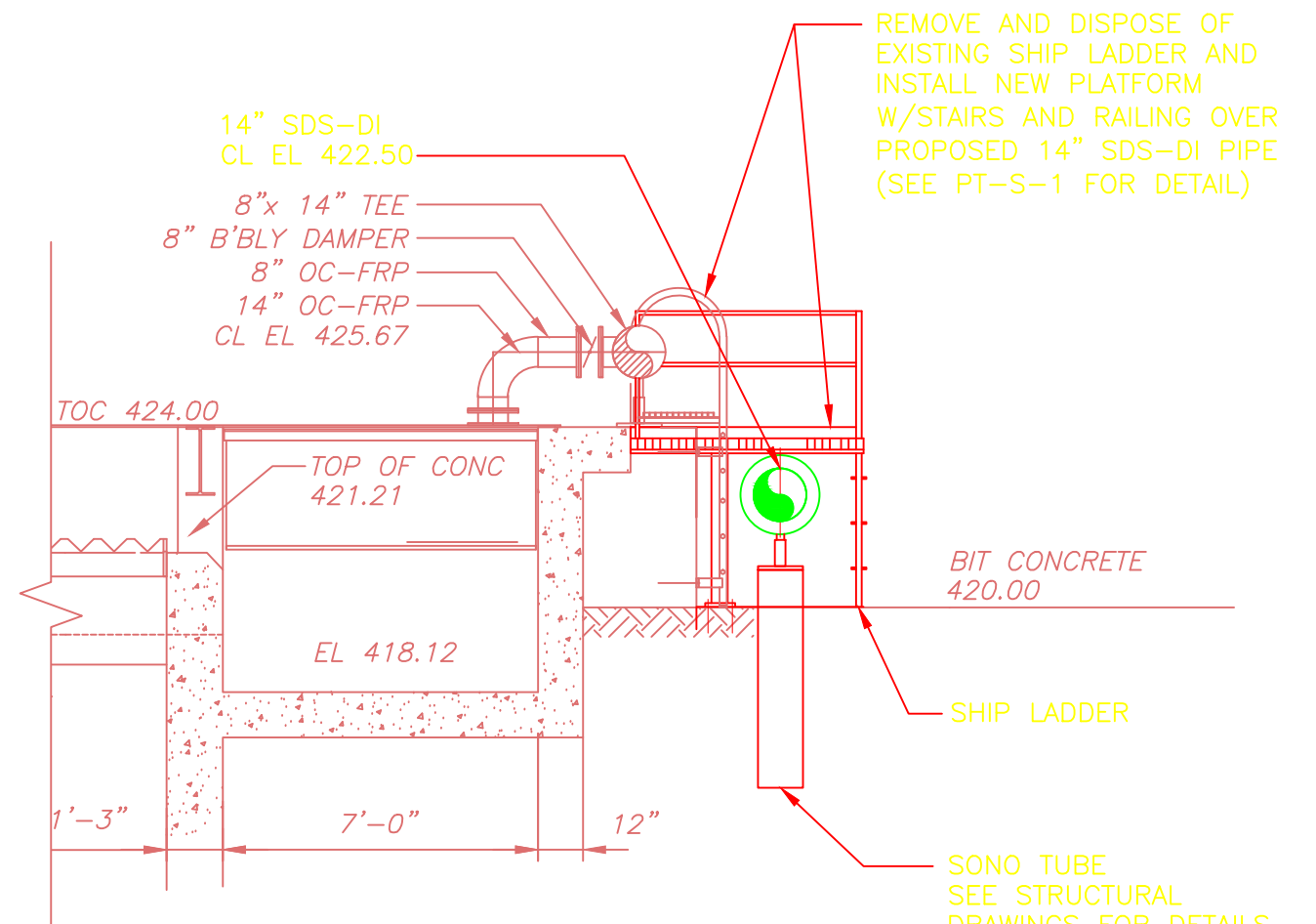
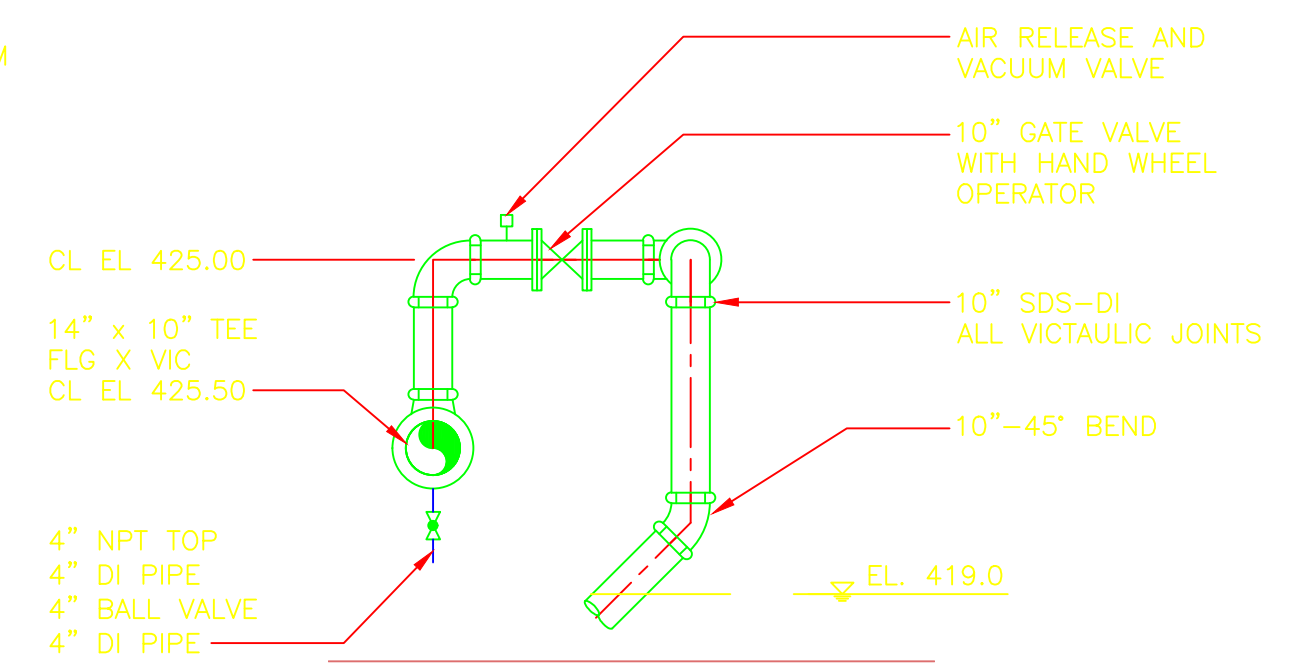
**PRIMARY SETTLING TANKS
PUMP GALLERY SECTIONS AND DETAILS
IMPROVEMENTS**

PROJECT NO. 1289-74283
Sht. of 312
PT-PS-2
Acc #

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MPTPS003.DWG Saved by: SIGMA ENGINEERING On: 27-Oct-10 Plotted on: 26-Mar-15 4:03 PM



- NOTE:**
- EXISTING FRP DUCT TO BE FIELD CUT AND NEW FRP DUCT AND FITTINGS TO BE FIELD JOINED BY CERTIFIED INSTALLER/MANUFACTURER.
 - REBALANCE ODOUR CONTROL SYSTEM WITH THE ADDITION OF THE SIDESTREAM PUMP STATION. SEE P&ID 16



SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
PTPS3-1	804	-1608	
PTPS3-2		-1608	
PTPS3-3		-1608	
PTPS3-4		-1608	
PTPS3-5		-1250	
PTPS3-6		-1608	804
PTPS3-7		-1608	
PTPS3-8		-1608	9192
PTPS3-9 (NS DIR.)	9192	-1605	
PTPS3-9 (EW DIR.)		-1608	9192

+X = SOUTH

- LEGEND**
- X PIPE SUPPORT & RESTRAINT LOCATION
 - (XX) PIPE SUPPORT NO/DETAIL (SEE "PT-SD" DWGS)
 - (BL) BASE ELBOW
 - (BT) BASE TEE
- NOTES**
- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY.
 - THIS DRAWING HAS BEEN RECREATED FROM DWG: PT-MS

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

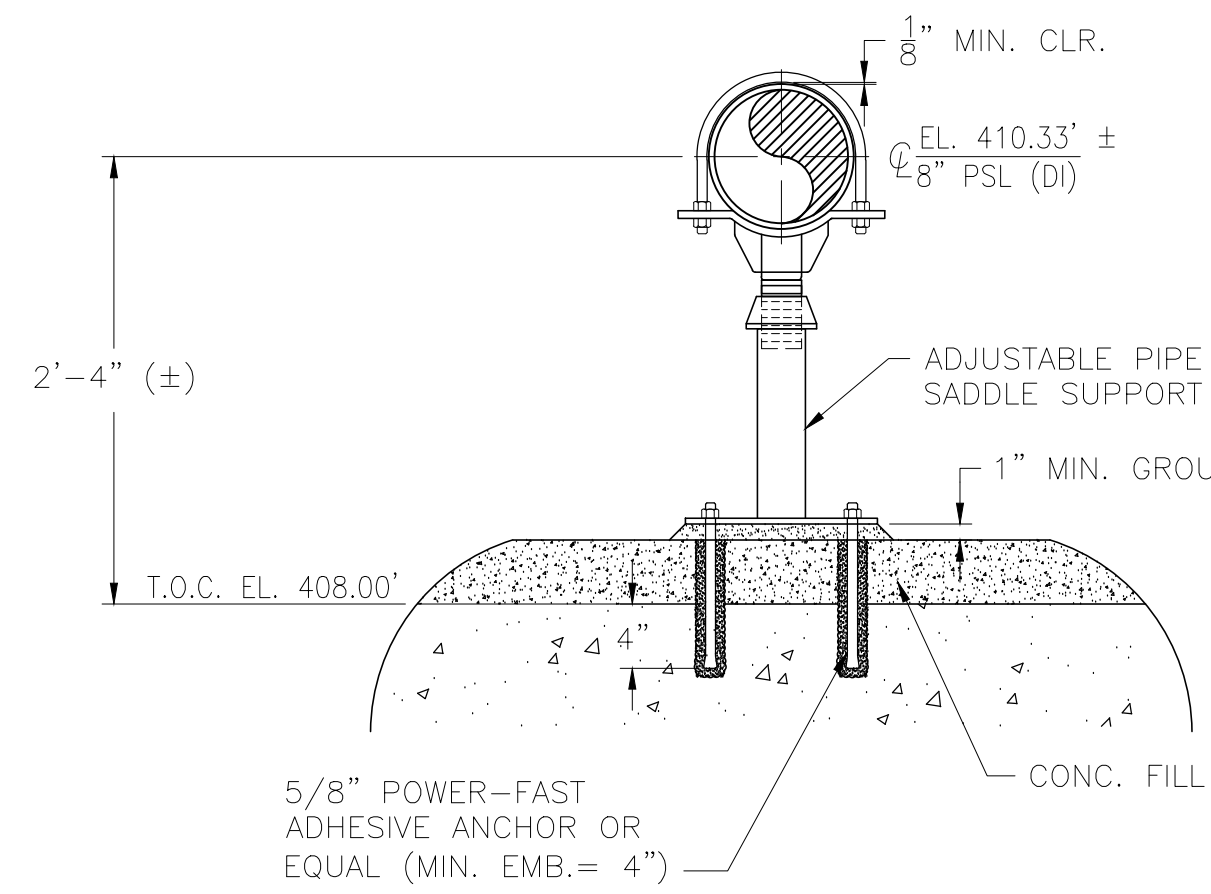
CADD FILE NO. MPTPS003
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER, 2010

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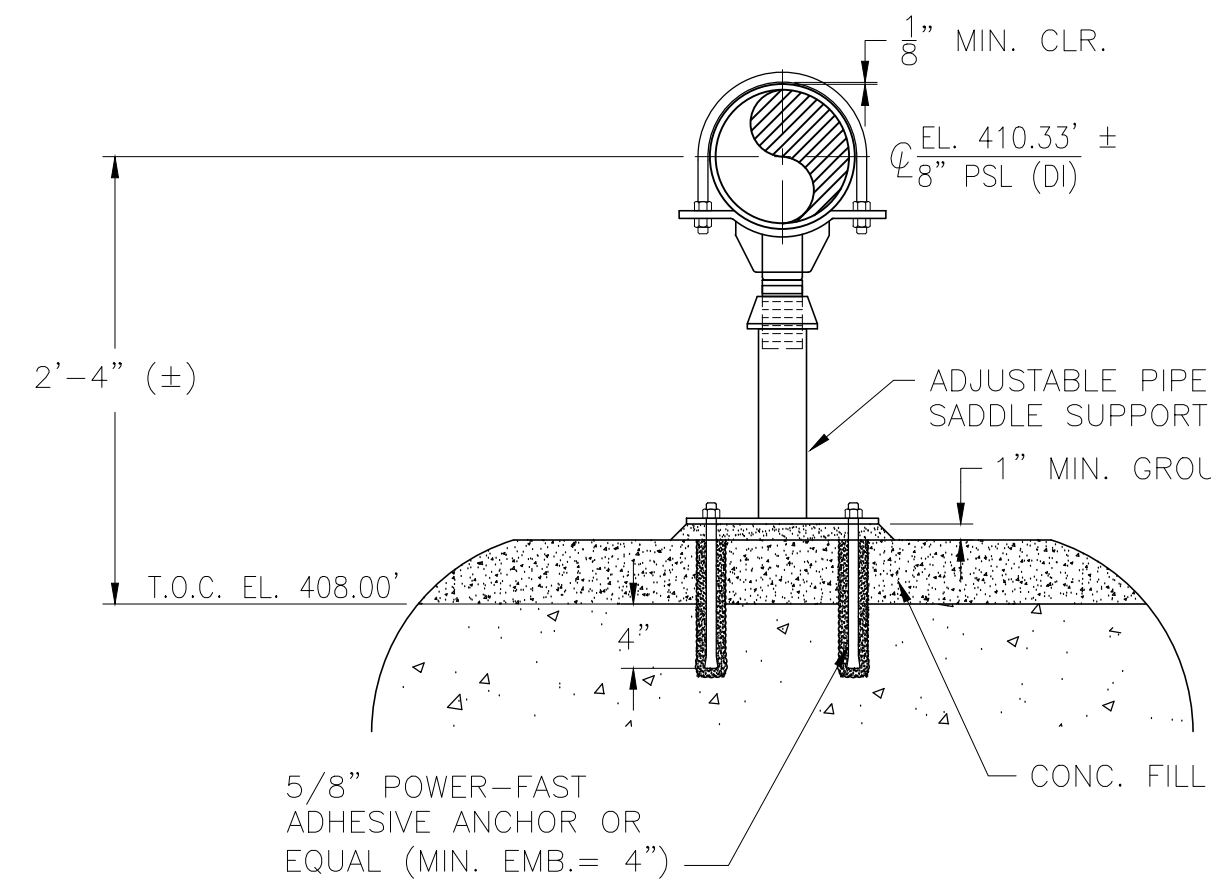
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**PRIMARY SETTLING TANKS
 SIDE STREAM DRAIN PIPE SUPPORTS
 PLANS, SECTIONS AND DETAILS**

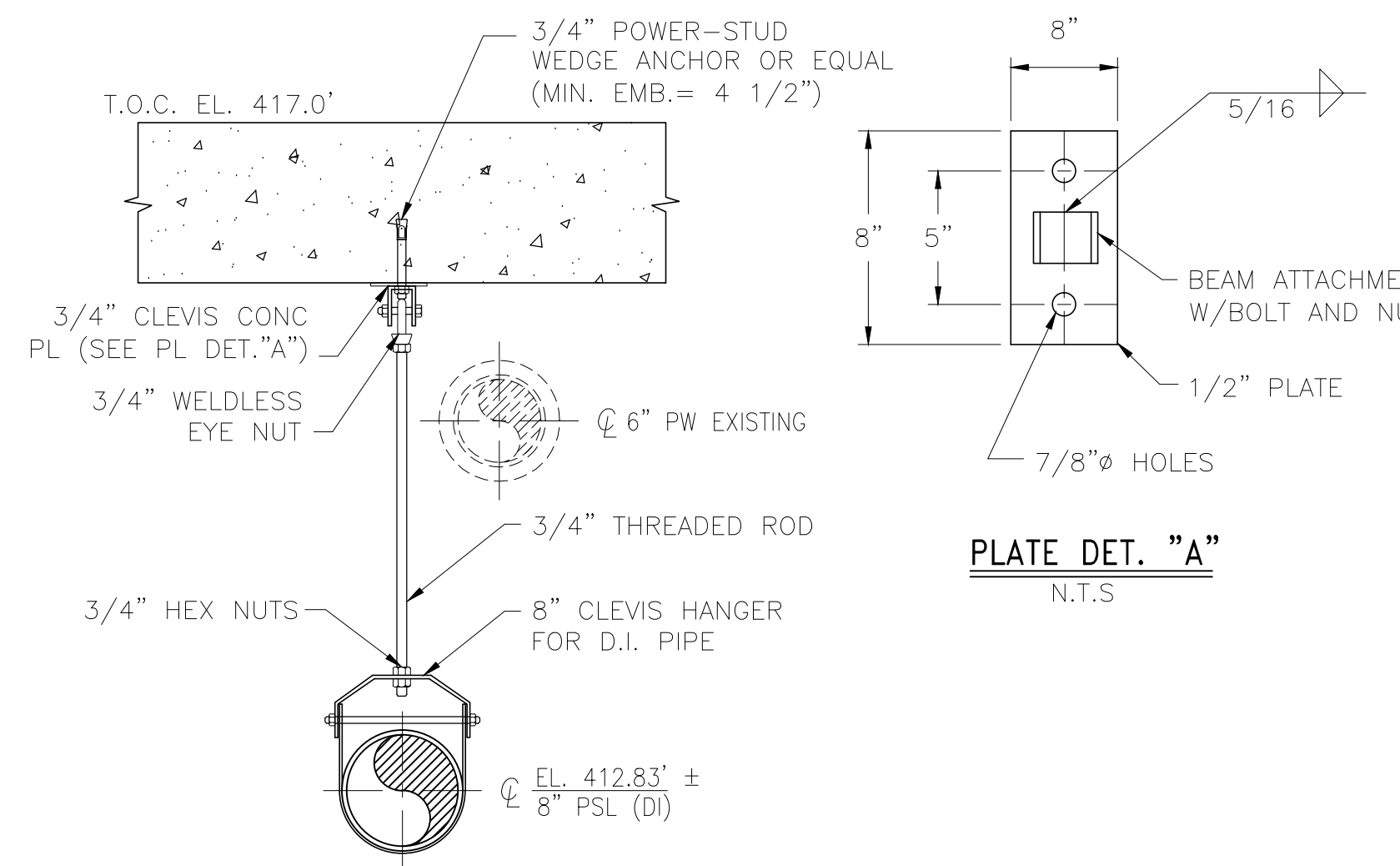
PROJECT NO.
1289-74283
 Sht. 139 of 312
PT-PS-3
 Acc. # 1289-74545



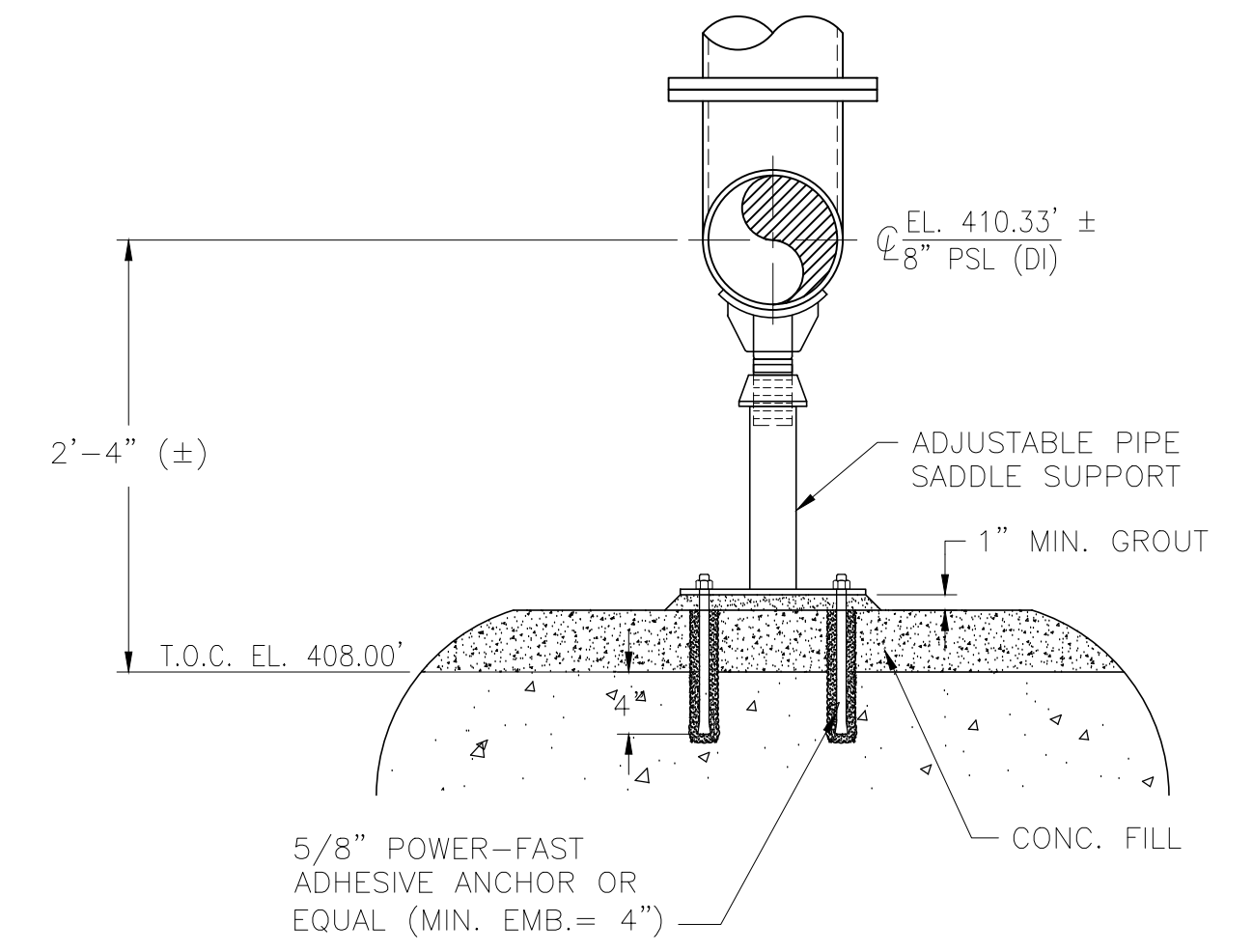
PTPS1-PS-01



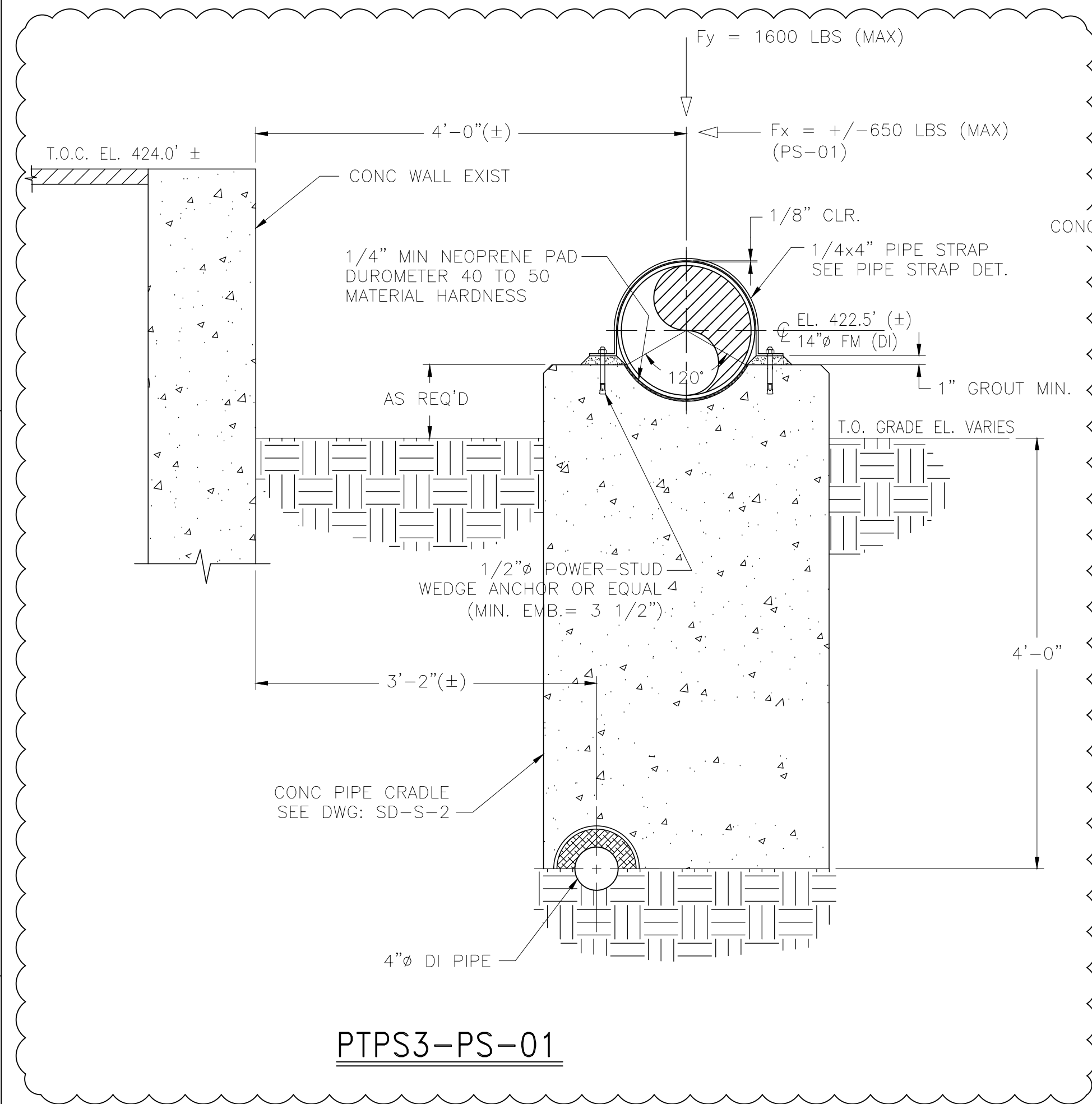
PTPS1-PS-02



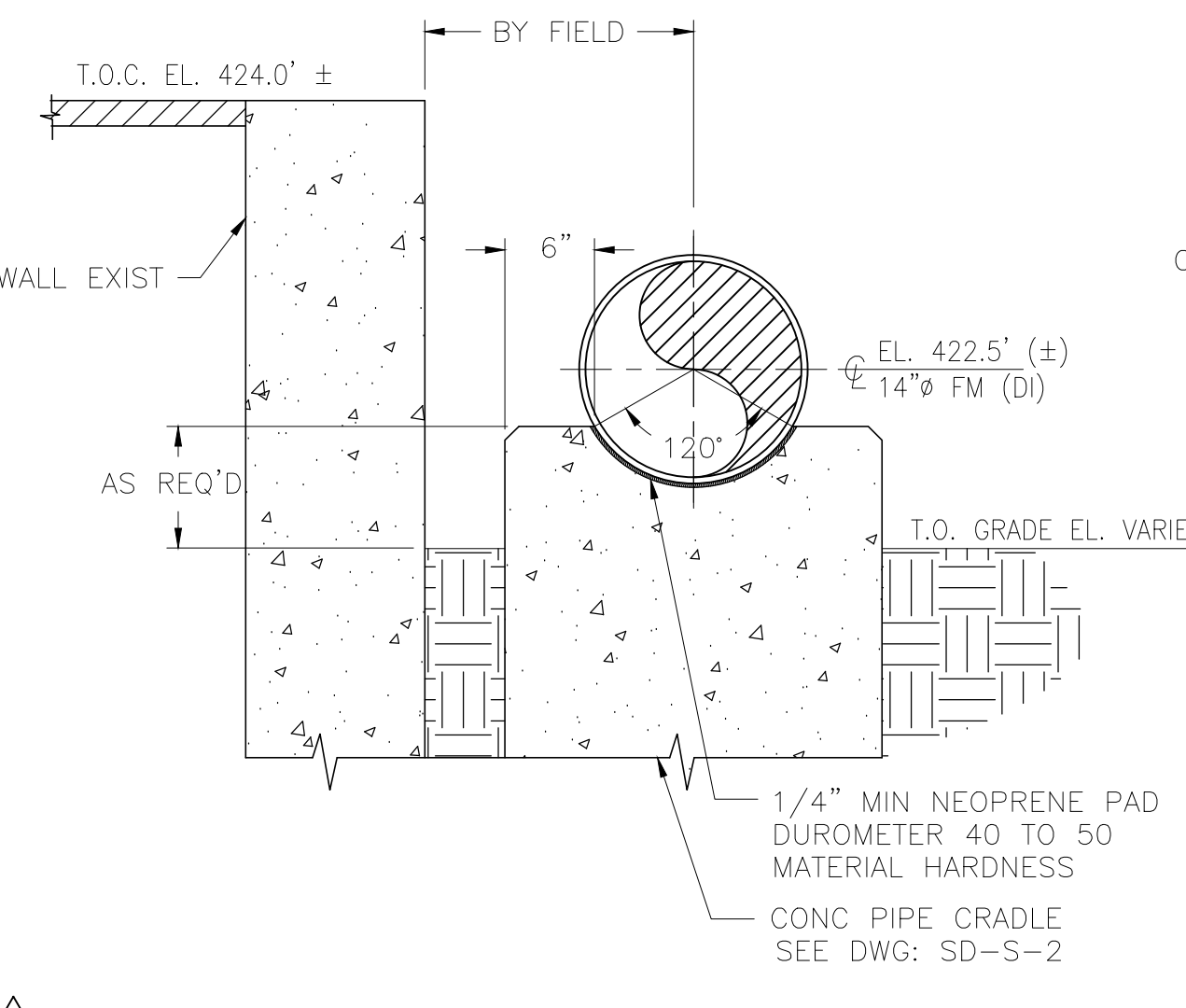
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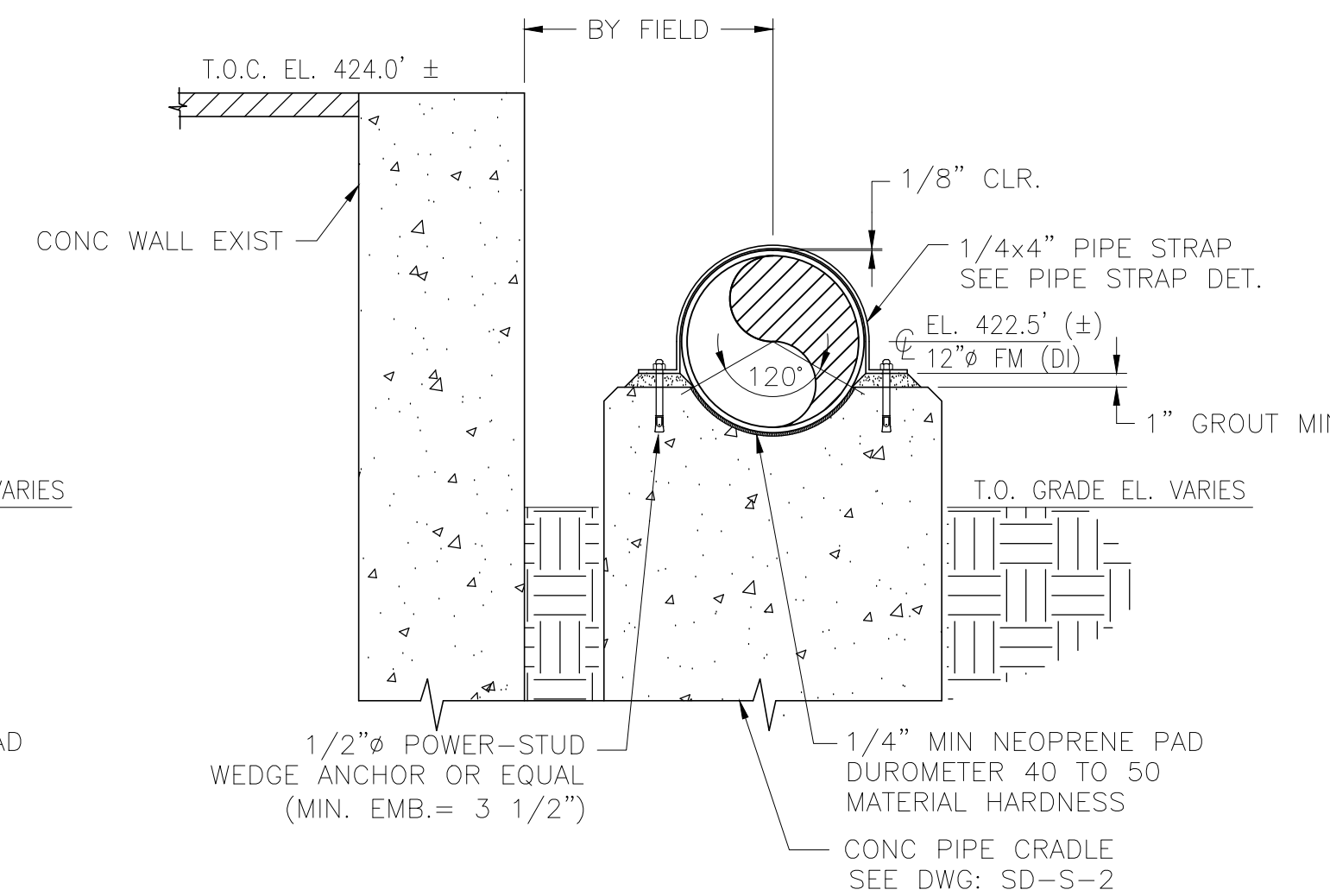
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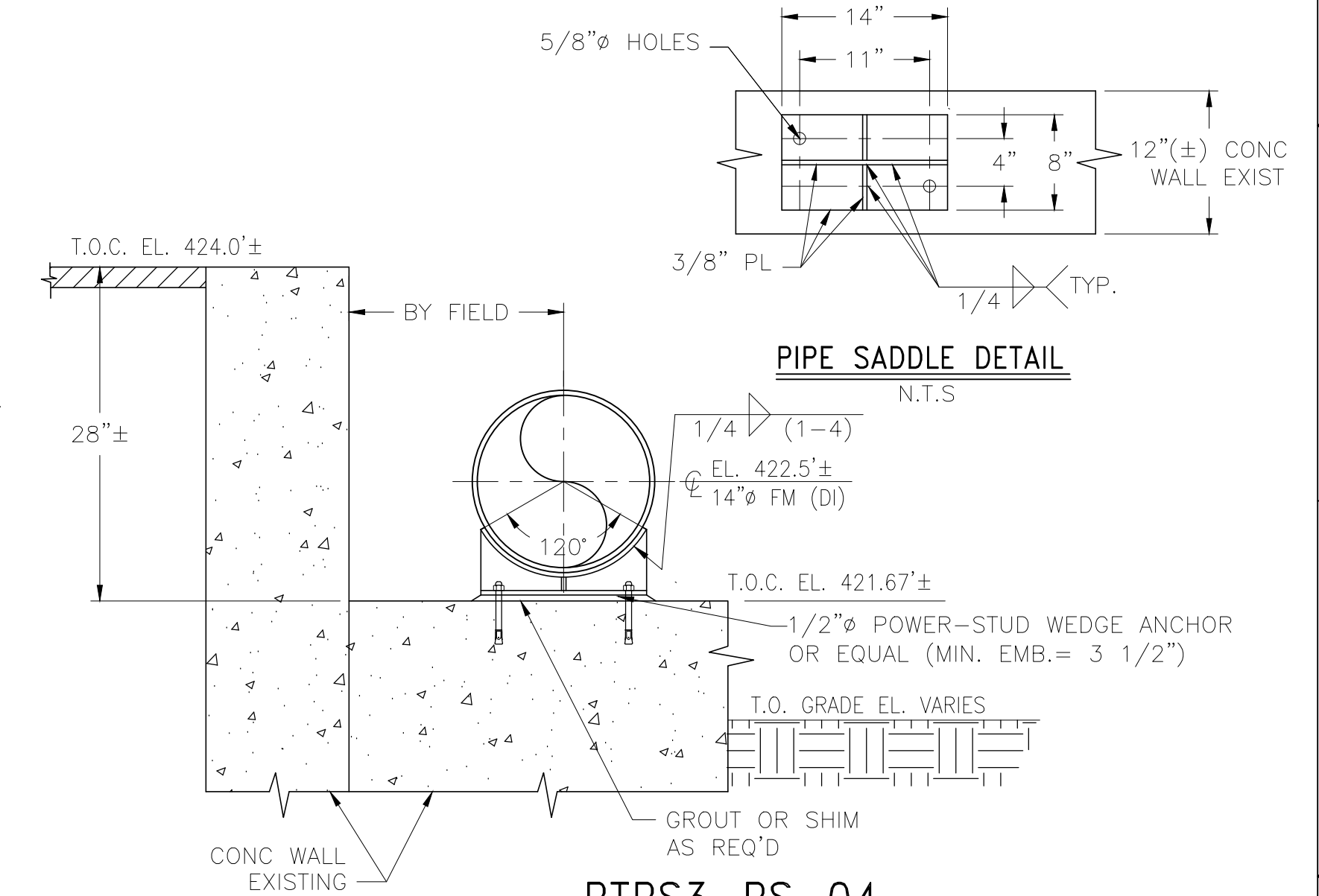
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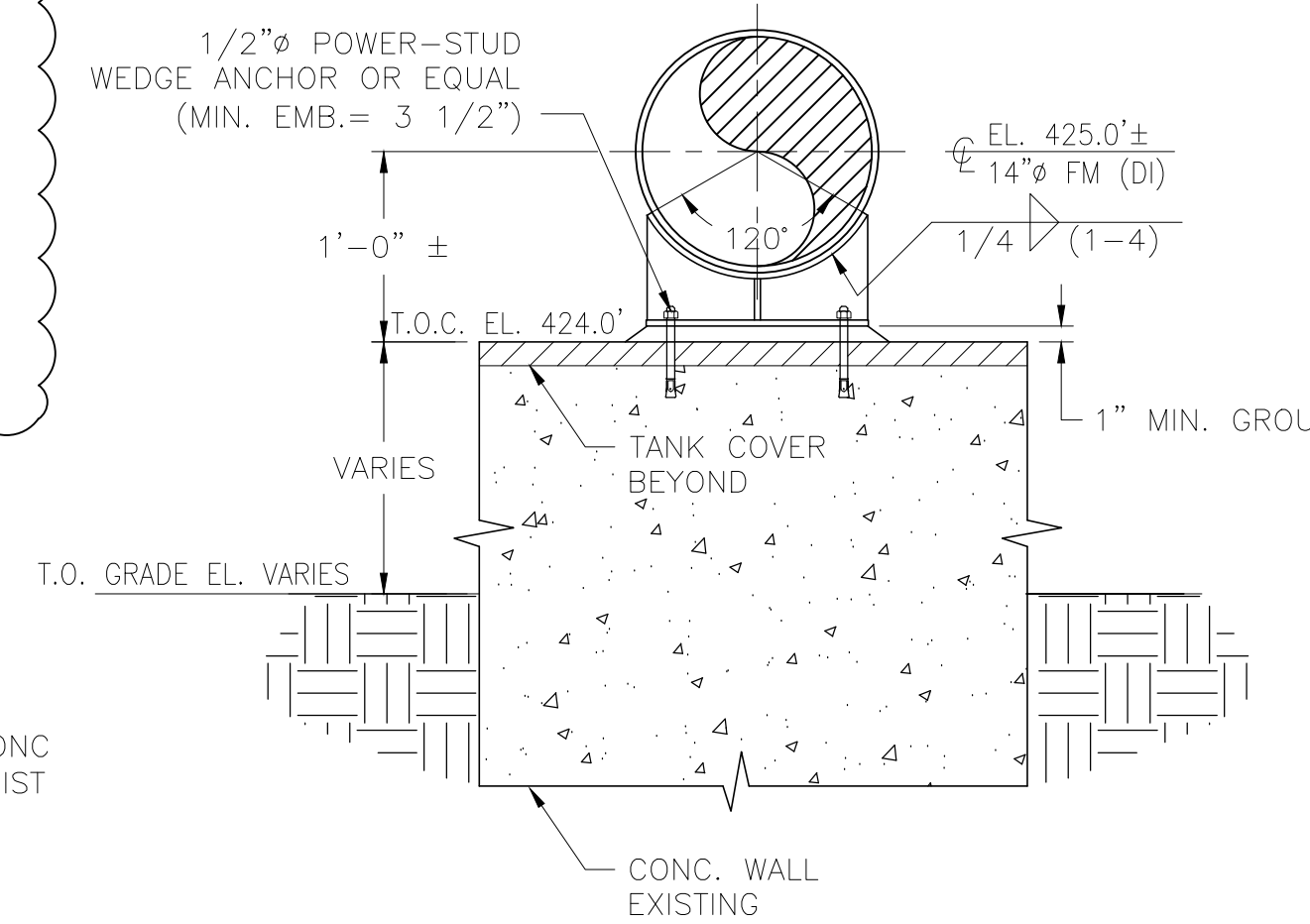
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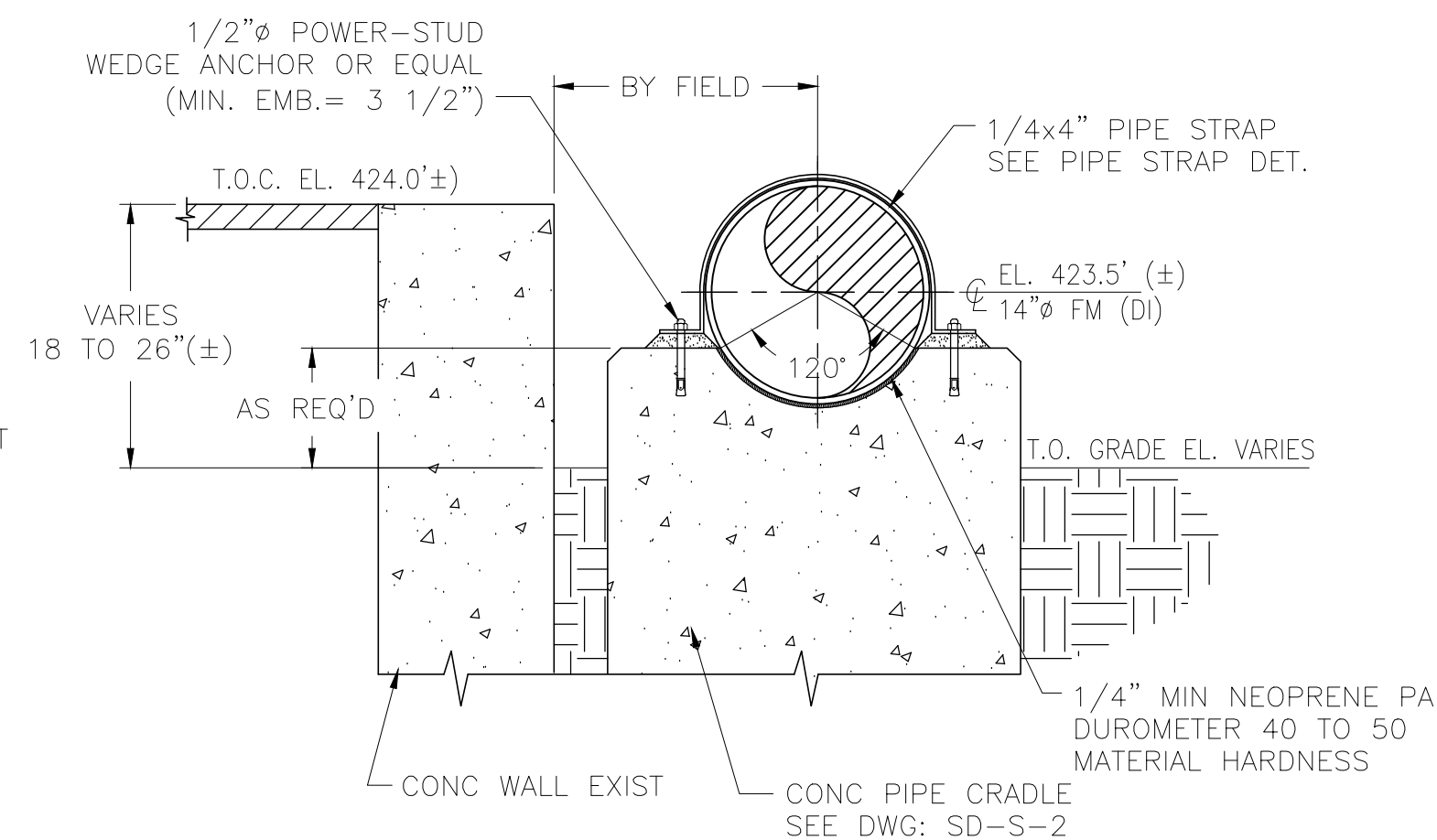
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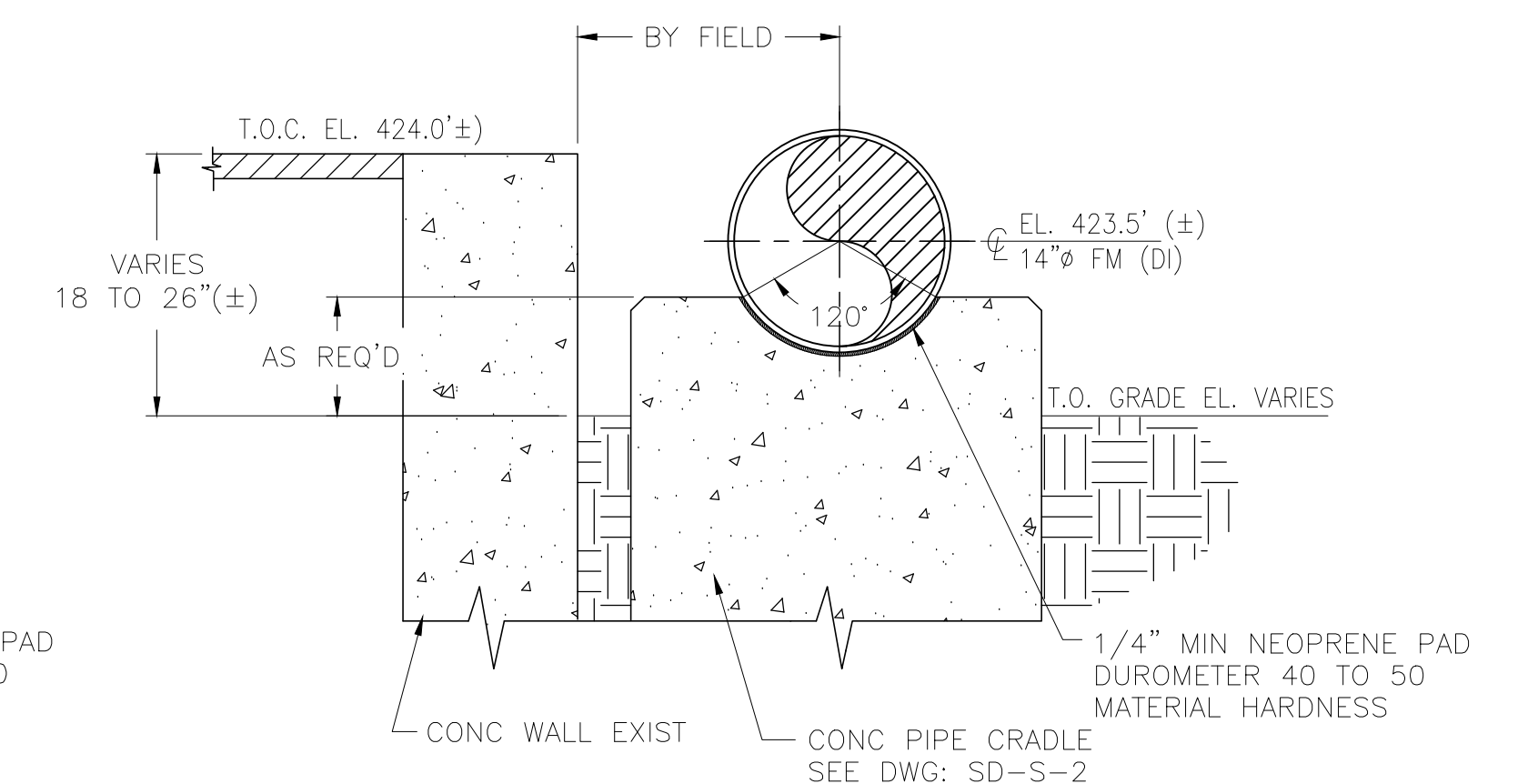
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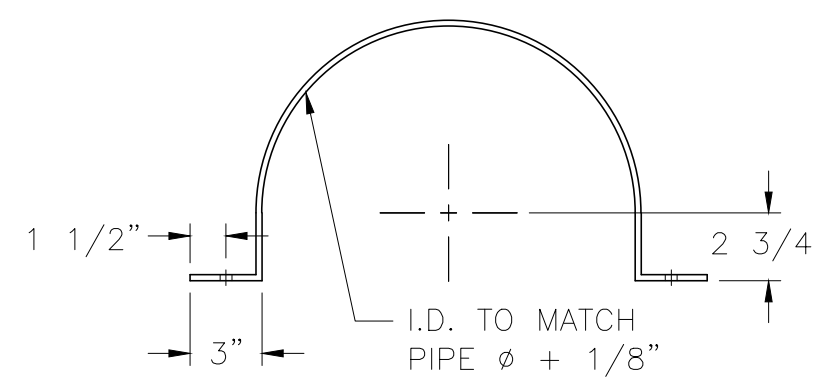
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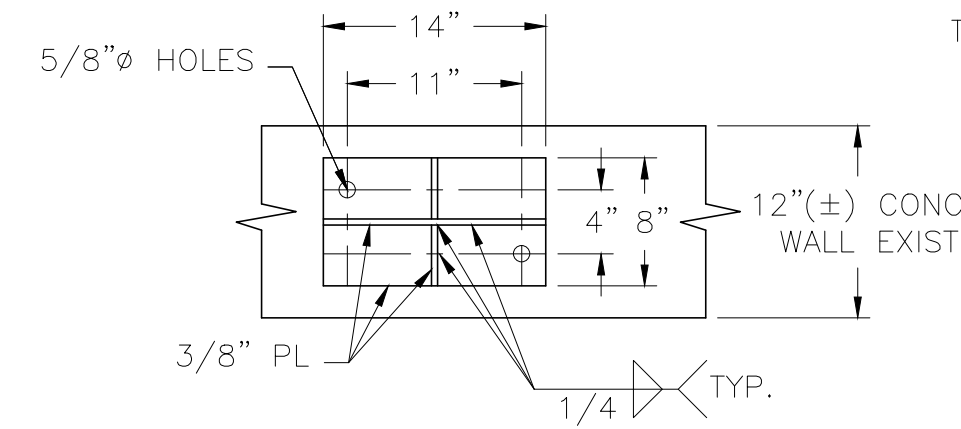
PTPS3-PS-06



PTPS3-PS-07



PIPE STRAP DET.
N.T.S.



PIPE SADDLE DETAIL
N.T.S.

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/11	GR	JT		REVISED TO AVOID INTERFERENCES WITH BURIED PIPING

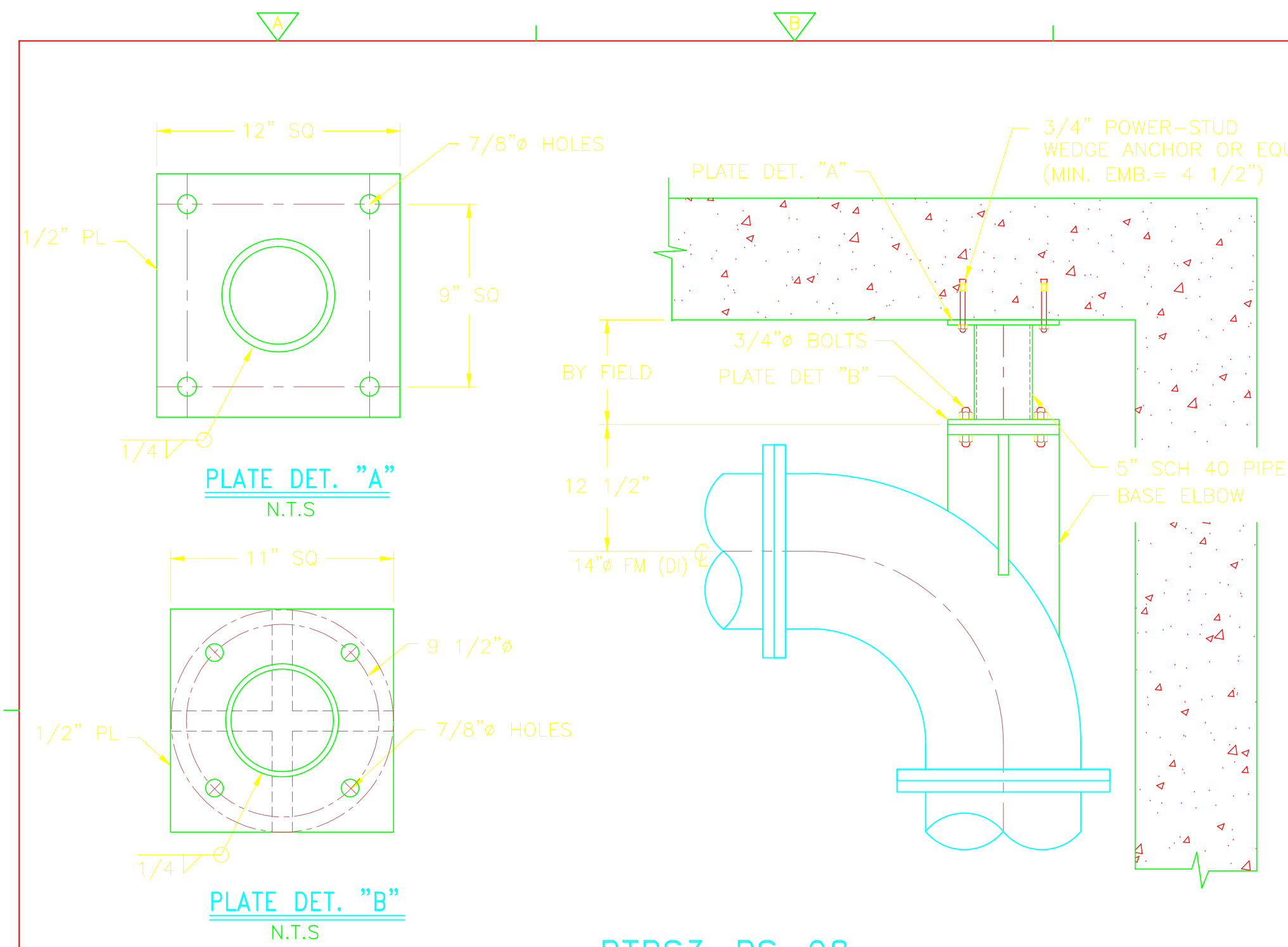
CADD FILE NO. MPTPSDT01
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: JULY 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

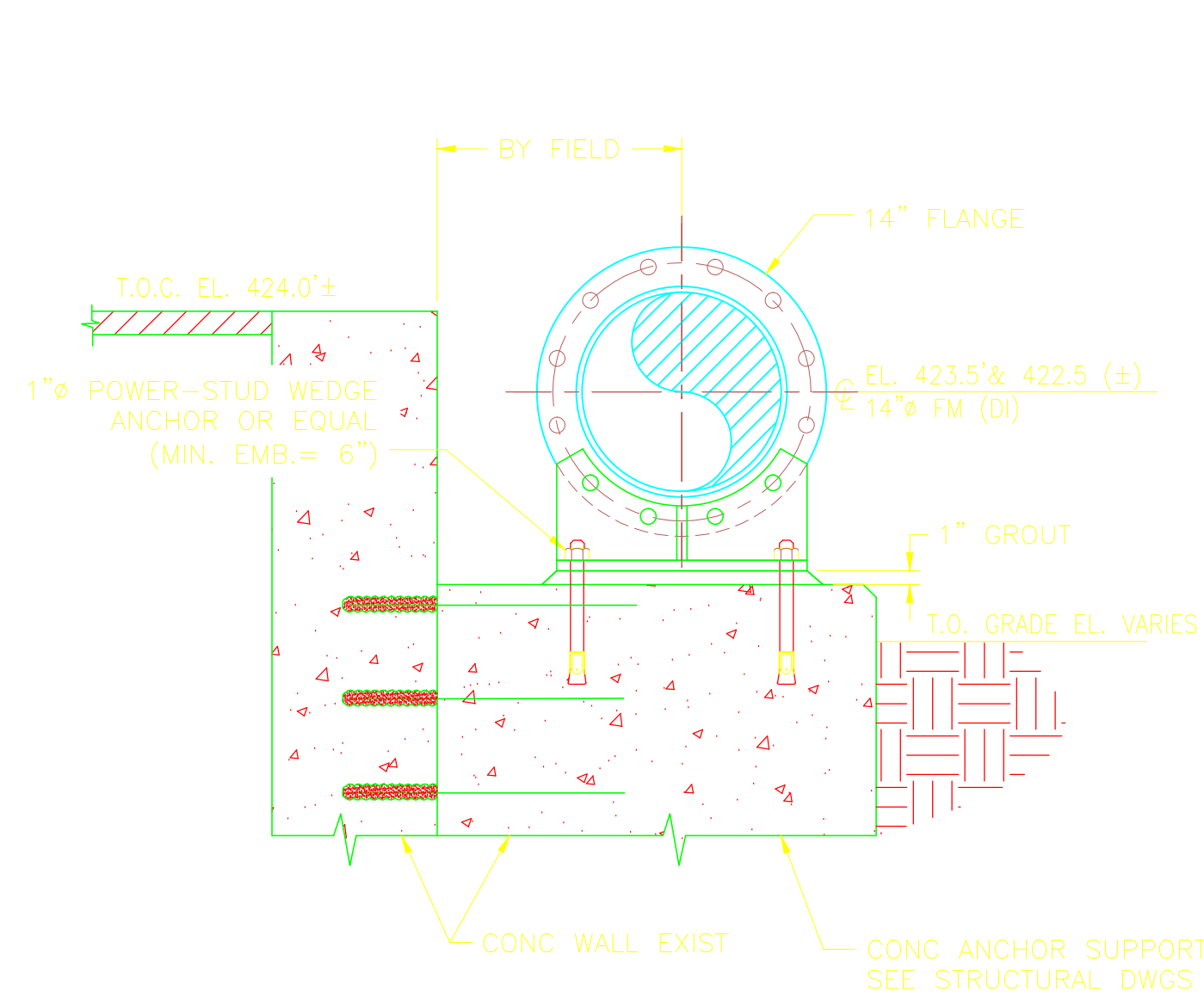
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

PRIMARY SETTLING TANKS
 PIPE SUPPORT DETAILS I

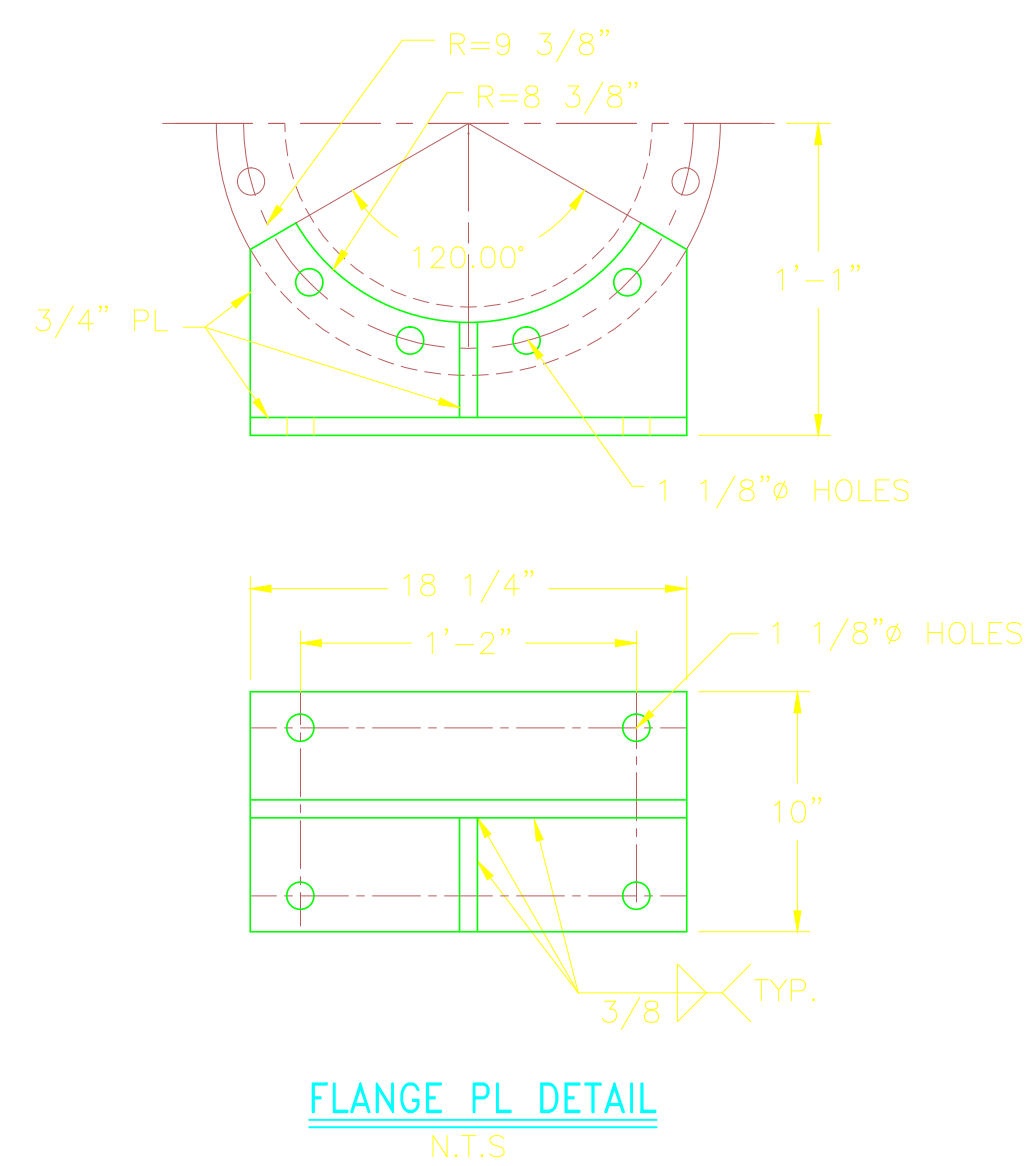
PROJECT NO.
1289-74283
 Sht. 140 of 312
 PT-SD-1
 Acc # 1289-74546



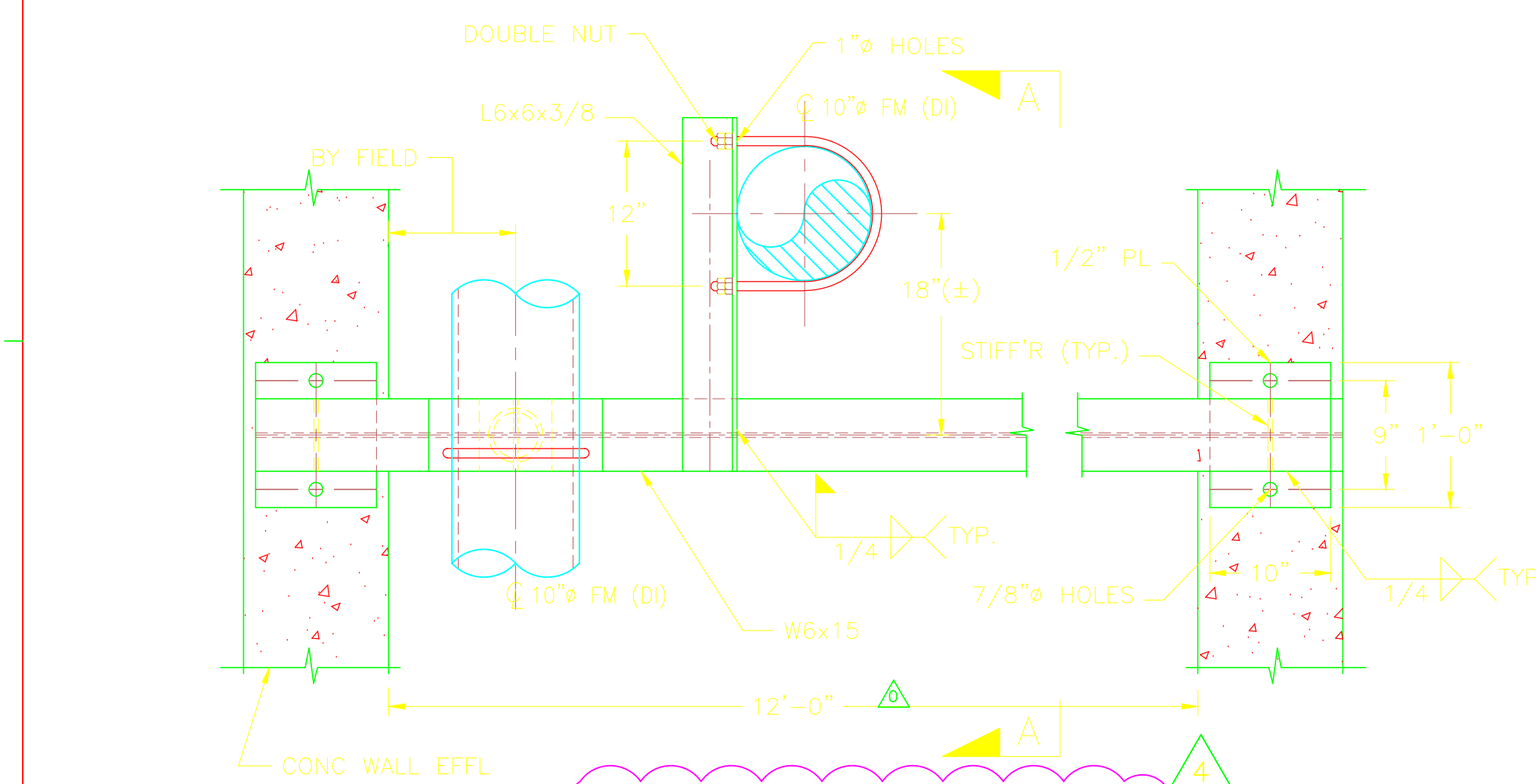
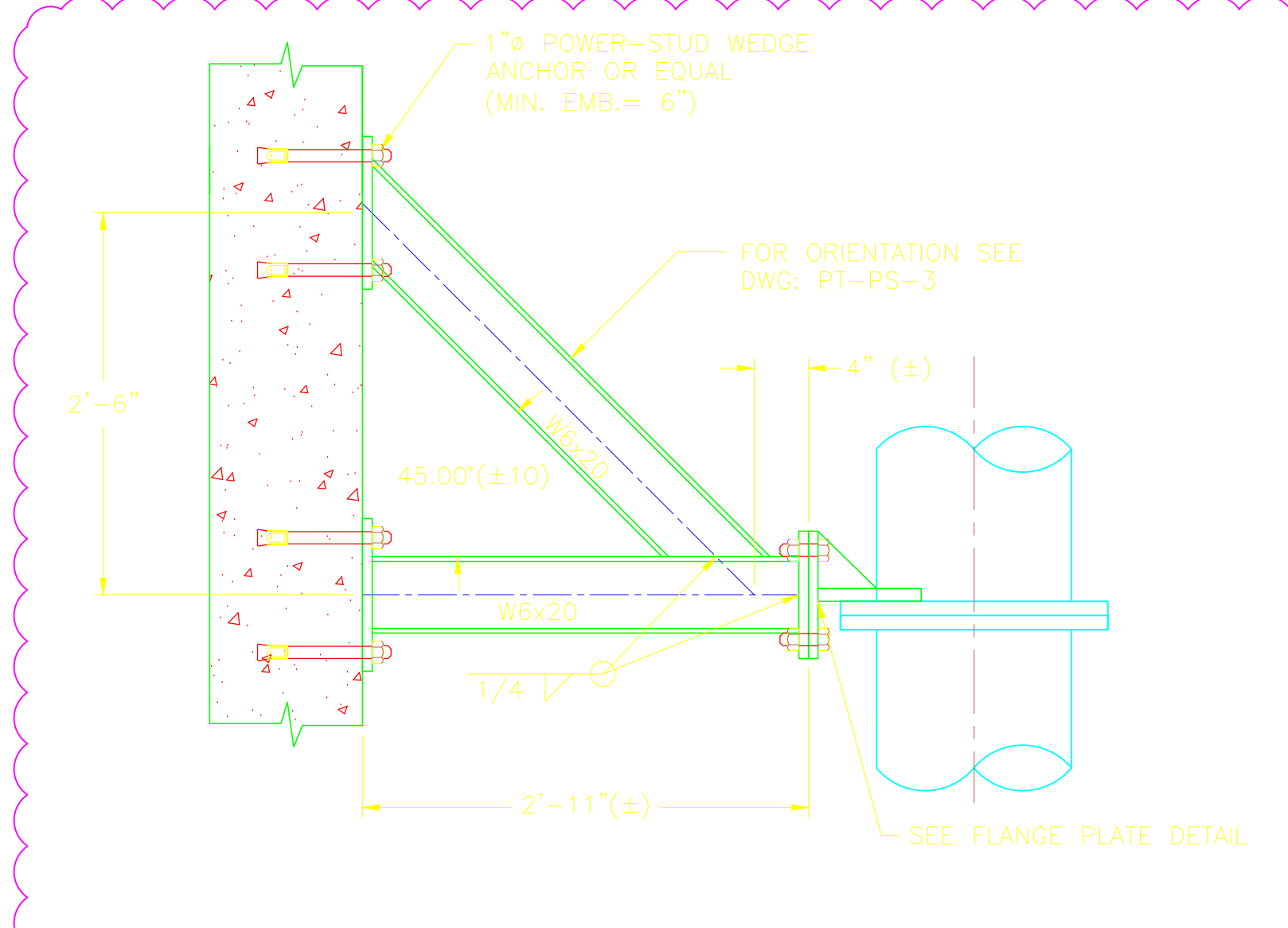
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PTPS3-PS-09

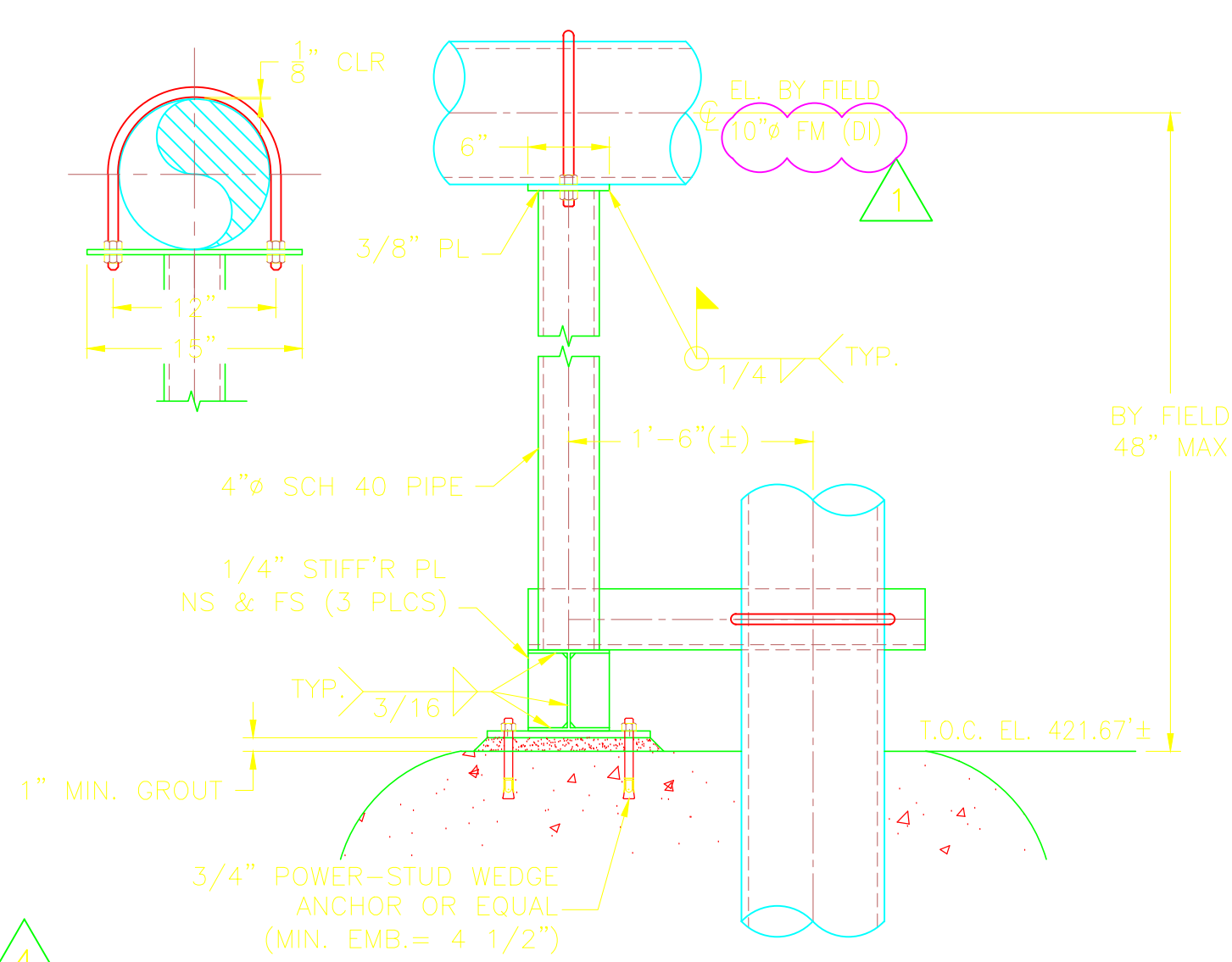


FLANGE PL DETAIL
N.T.S.



PTPS3-PS-10
(AT SOUTH EFFL CHANNEL)

FOR PTPS3-PS-10 NORTH EFFL CHANNEL SEE DWG: PT-SD-03



SECTION A-A

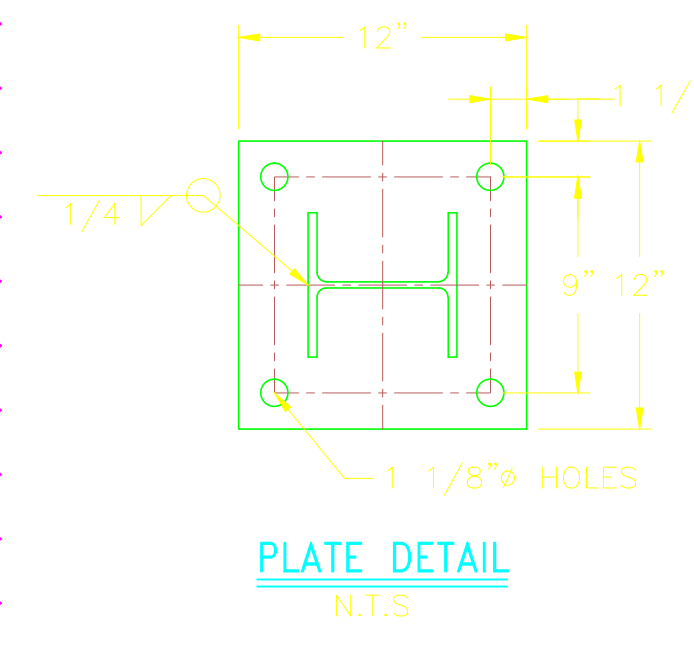
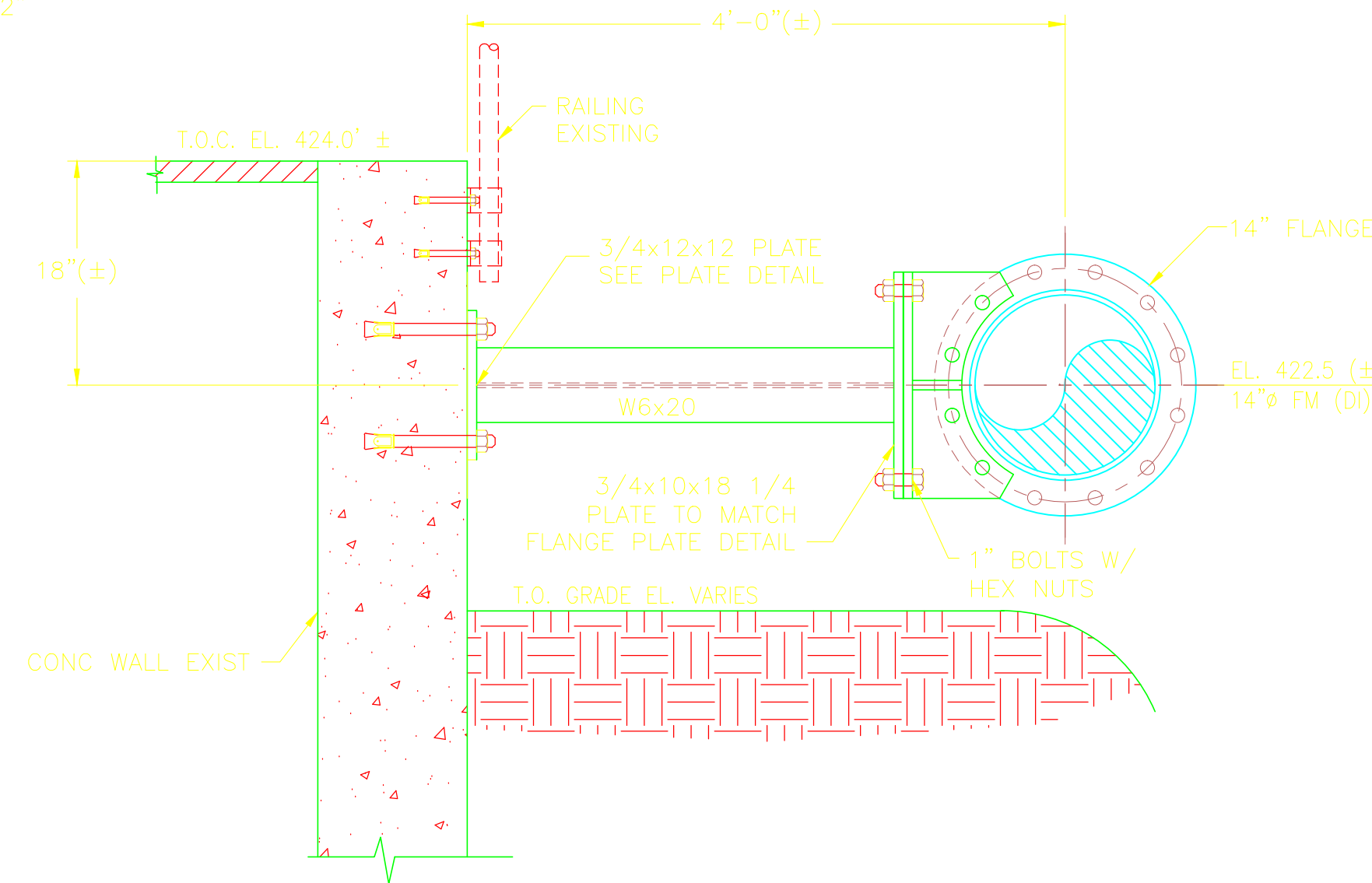
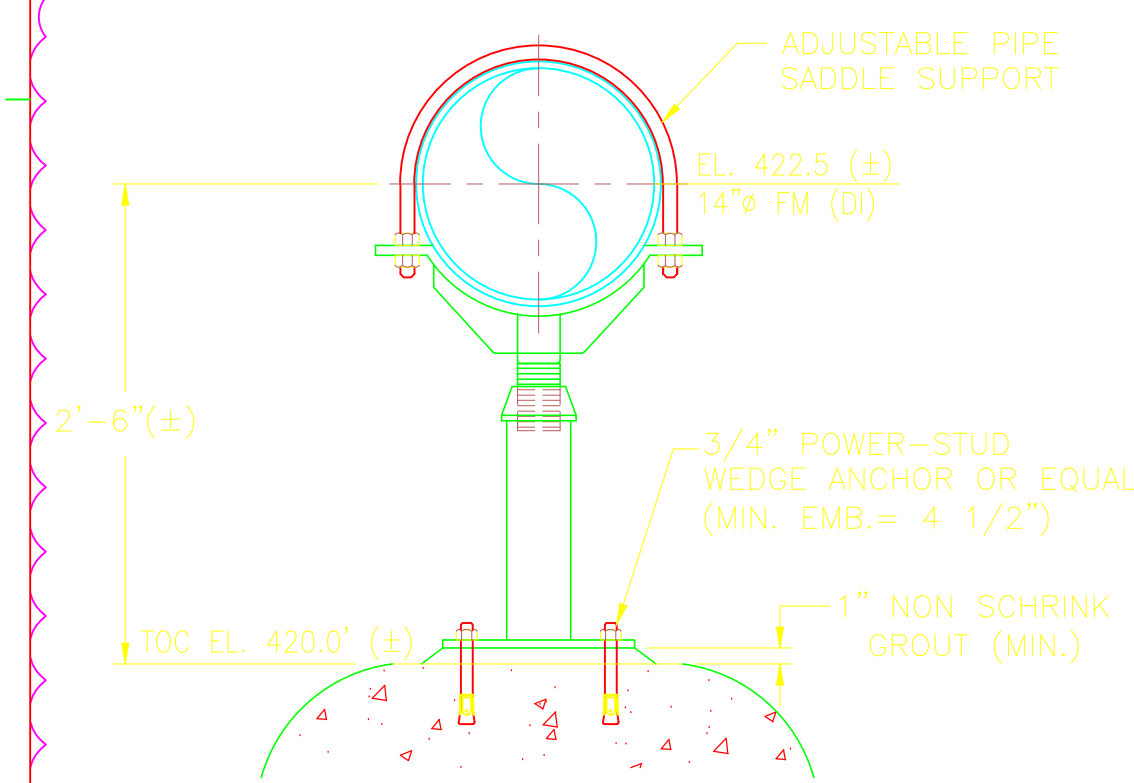


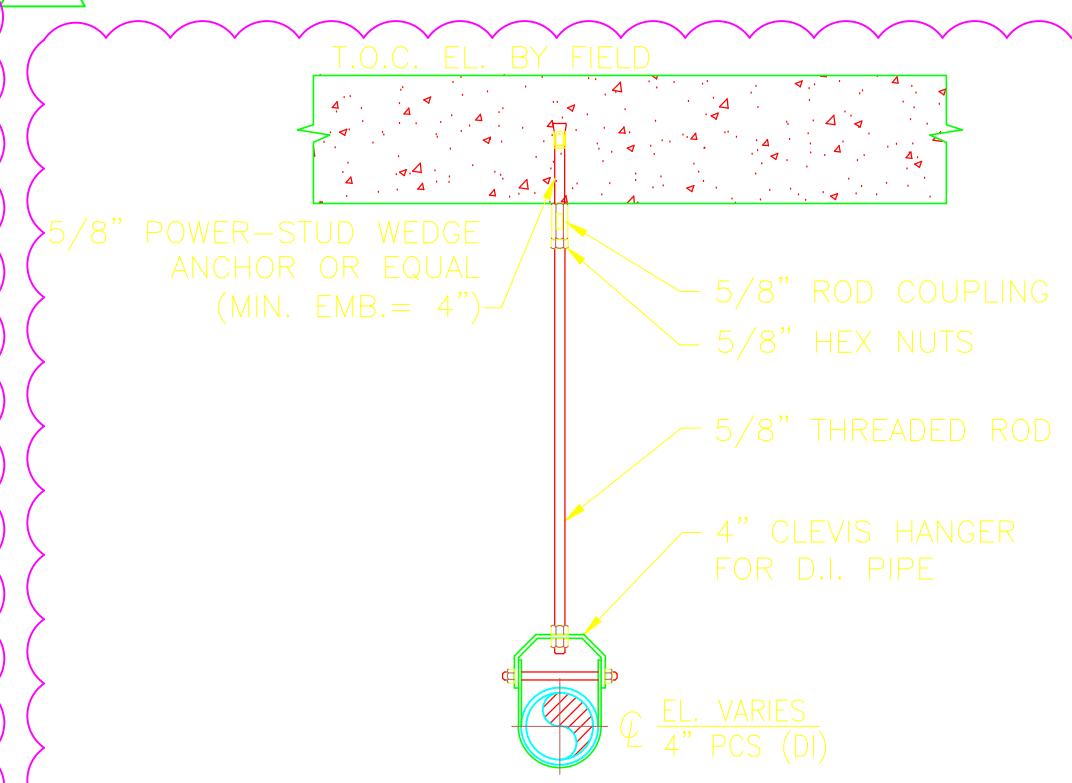
PLATE DETAIL
N.T.S.



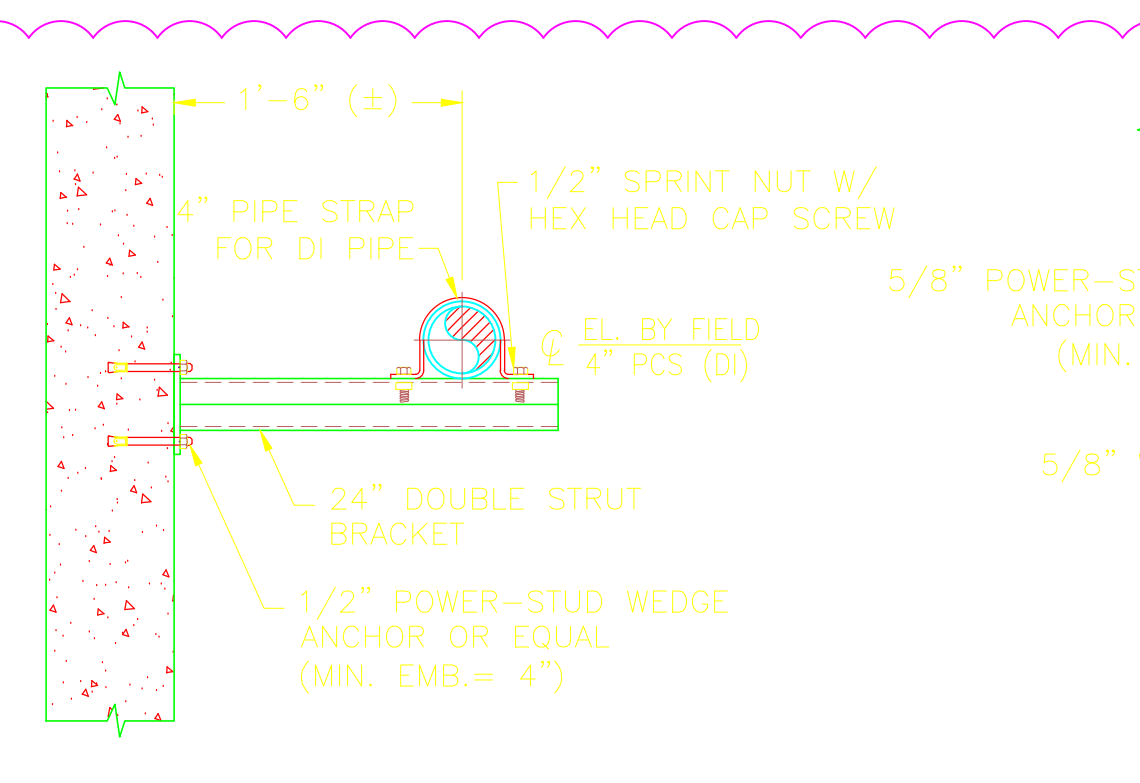
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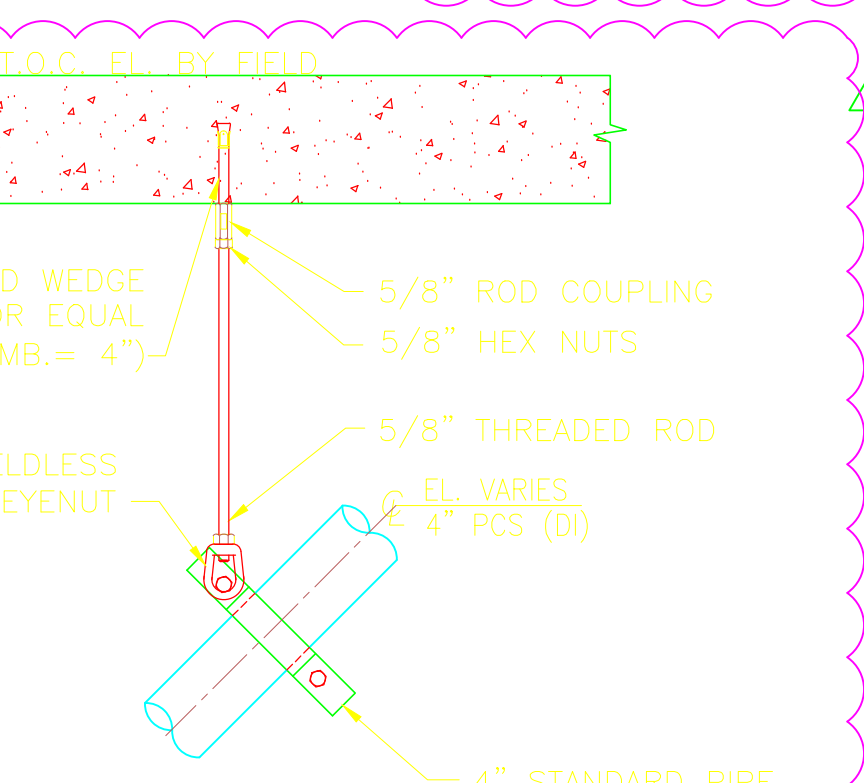
PTPS3-PS-11



PTPS1-PS-05



PTPS1-PS-06



PTPS1-PS-07

GENERAL NOTES

1. ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
2. UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED. COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
3. FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

REV. NO.	DATE	DRWN	CHKD	REMARKS
4/12	GR	JT		REVISED PIPE SUPPORT PTPS3-PS-10
12/11	GR	JT		REVISED AS NOTED
11/11	GR	JT		REVISED PER REF No 248
9/11	GR	JT		REVISED TO AVOID INTERFERENCES WITH BURIED PIPING
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MPTPSD02
DESIGNED BY:	J. TSIKOURAS
DRAWN BY:	G. REGO
SHEET CHK'D BY:	J. MOURATO
CROSS CHK'D BY:	G. REGO
SCALE:	1" = 1'-0"
APPROVED BY:	J. TSIKOURAS
DATE:	SEPTEMBER 2010



UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**PRIMARY SETTLING TANKS
PIPE SUPPORT DETAILS II**

PROJECT NO.
1289-74283

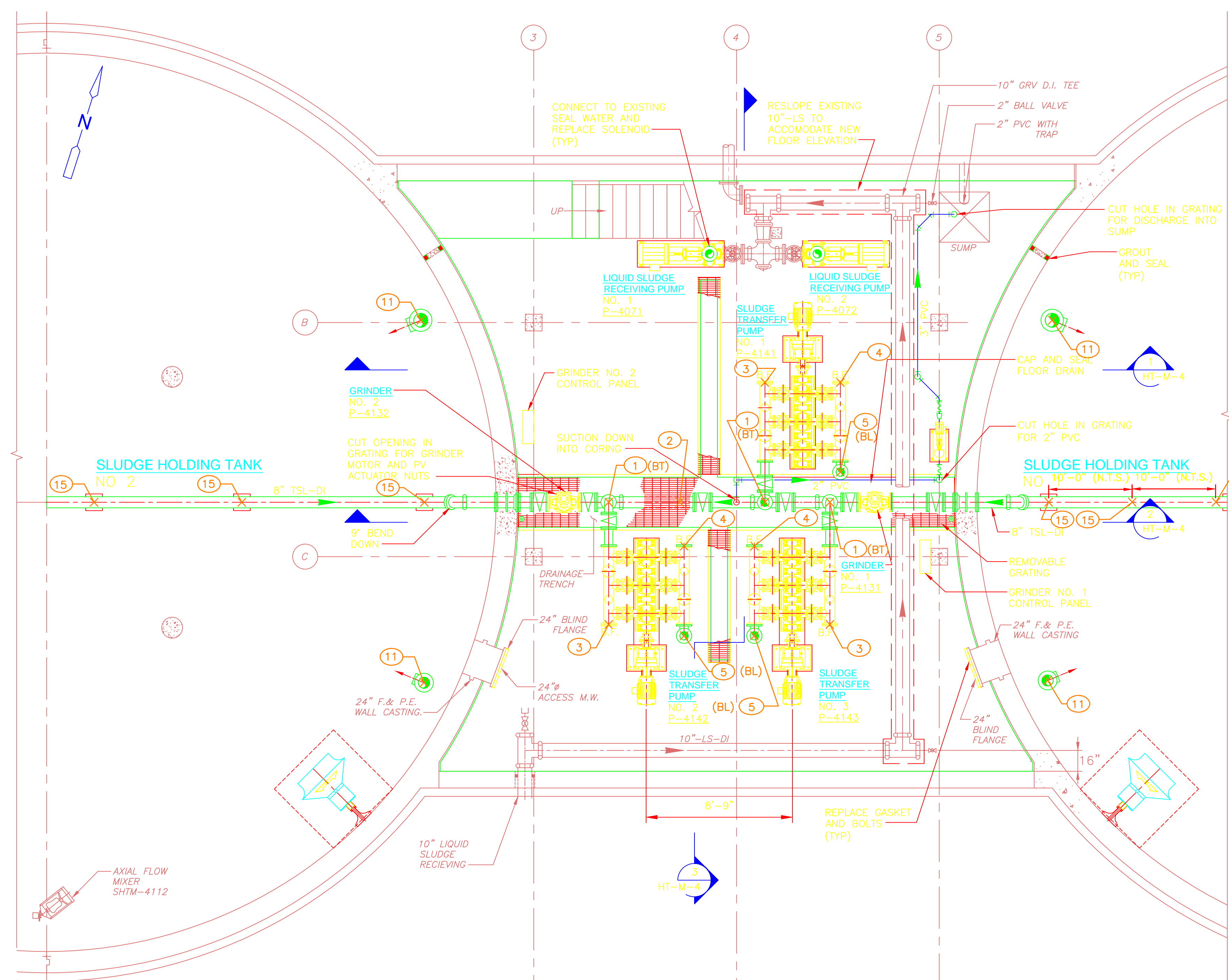
Sht. 141 of 312

PT-SD-2

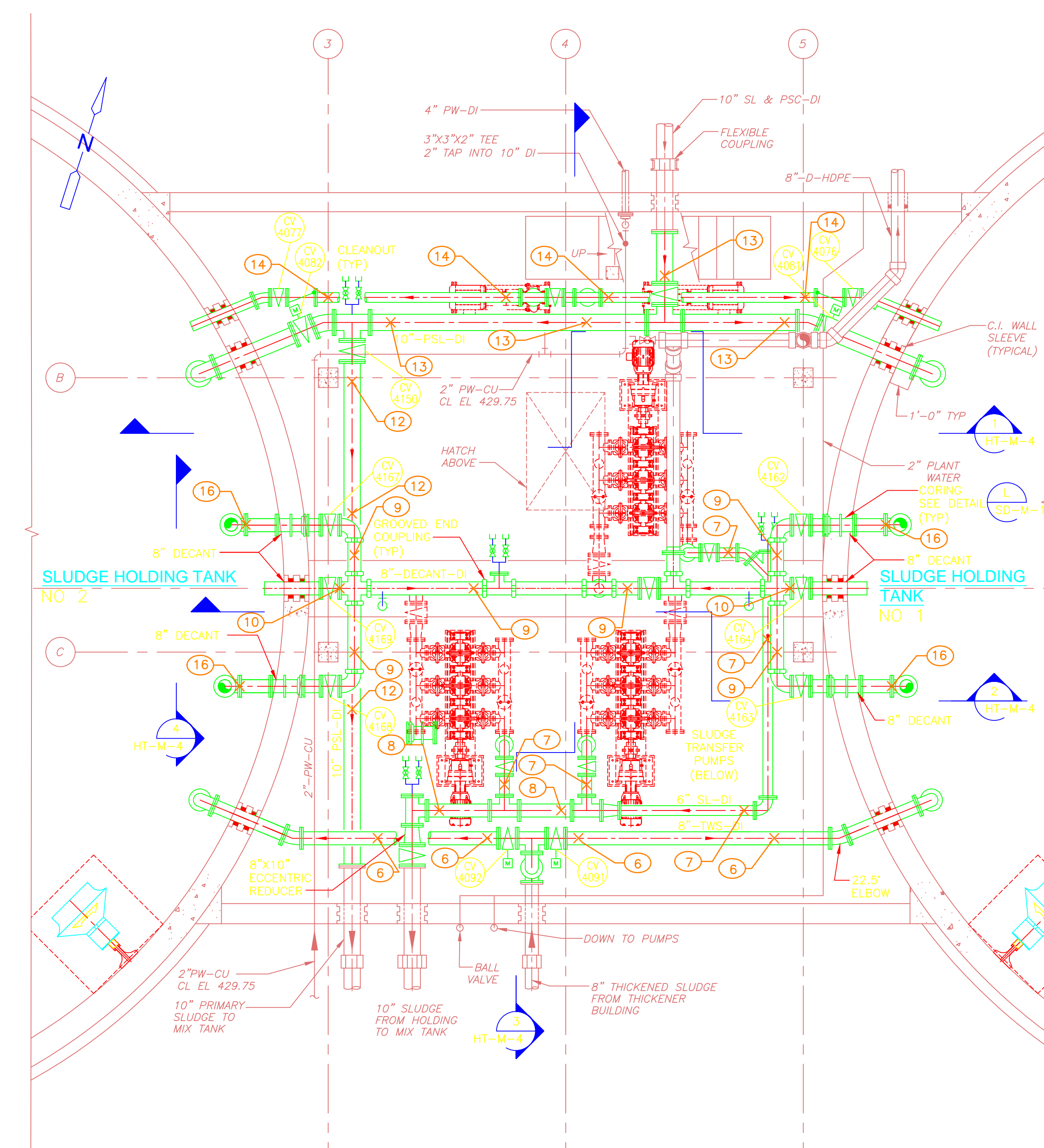
Acc # 1289-74547

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MHTPS001.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-15 4:10 PM



LOWER LEVEL @ EL 421.34
PLAN
1/4" = 1'-0"



UPPER LEVEL
PLAN
1/4" = 1'-0"

PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
HTPS1-1			
HTPS1-2			
HTPS1-3			
HTPS1-4			
HTPS1-5			
HTPS1-6			
HTPS1-7			
HTPS1-8			
HTPS1-9			

PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
HTPS1-10			
HTPS1-11			
HTPS1-12			
HTPS1-13			
HTPS1-14			
HTPS1-15			
HTPS1-16			
+X = SOUTH			

LEGEND

- × PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: HT-M3

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MHTPS001
 DESIGNED BY: E. SPARGIMNO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMNO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

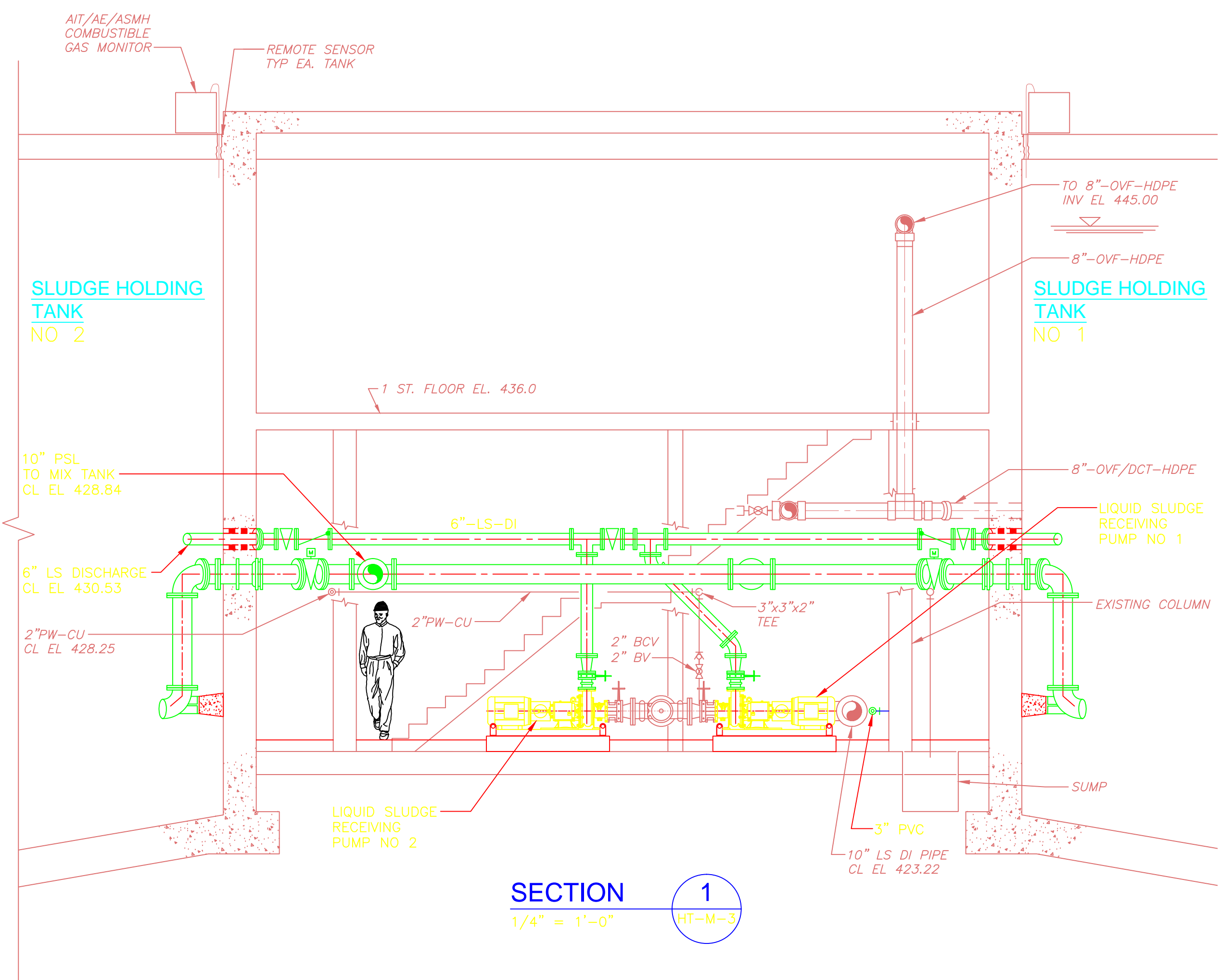
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 PLANS
 IMPROVEMENTS**

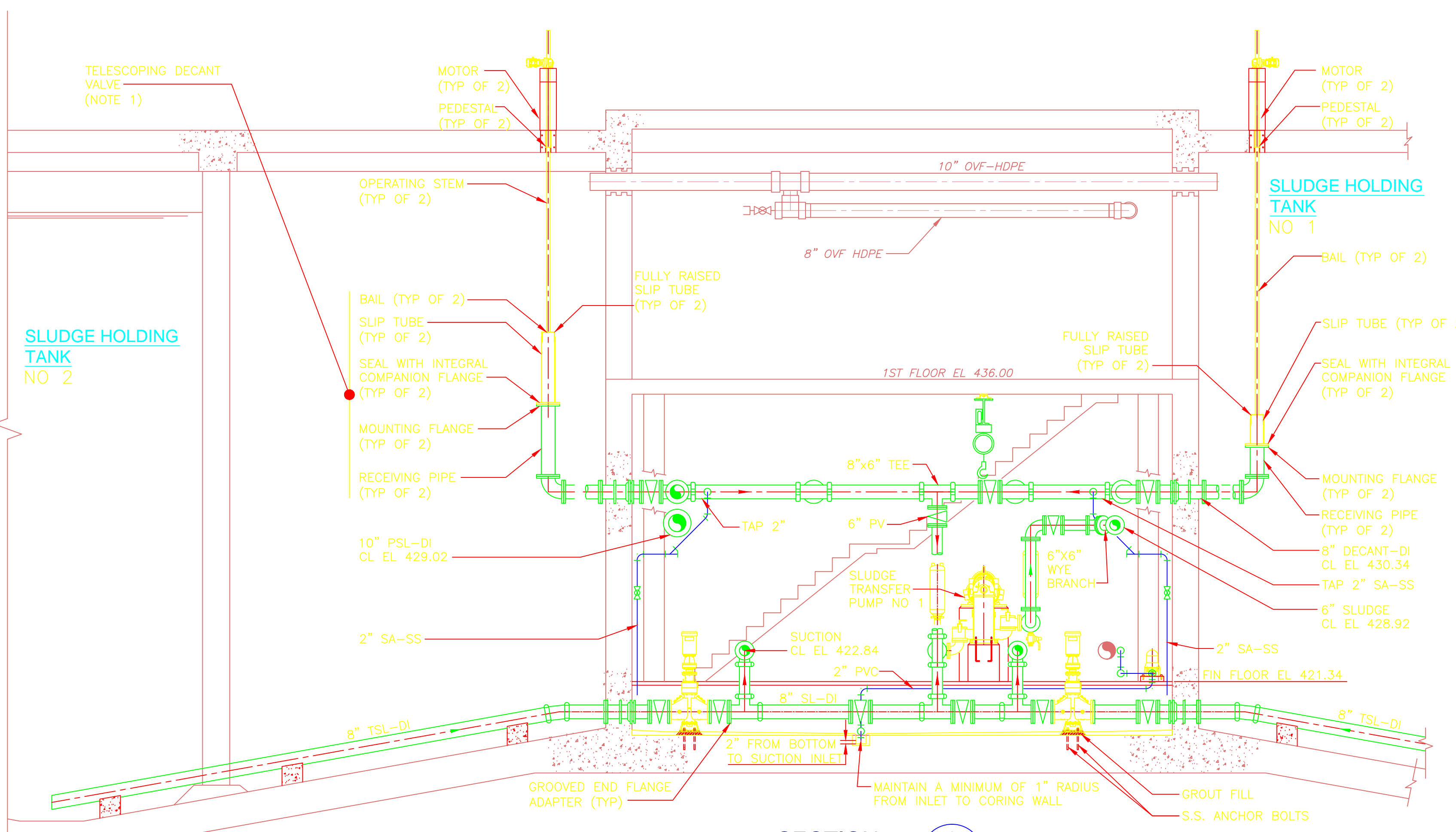
PROJECT NO.
1289-74283
 Sht. of 312
HT-PS-1
 Acc. #

CONFORMED

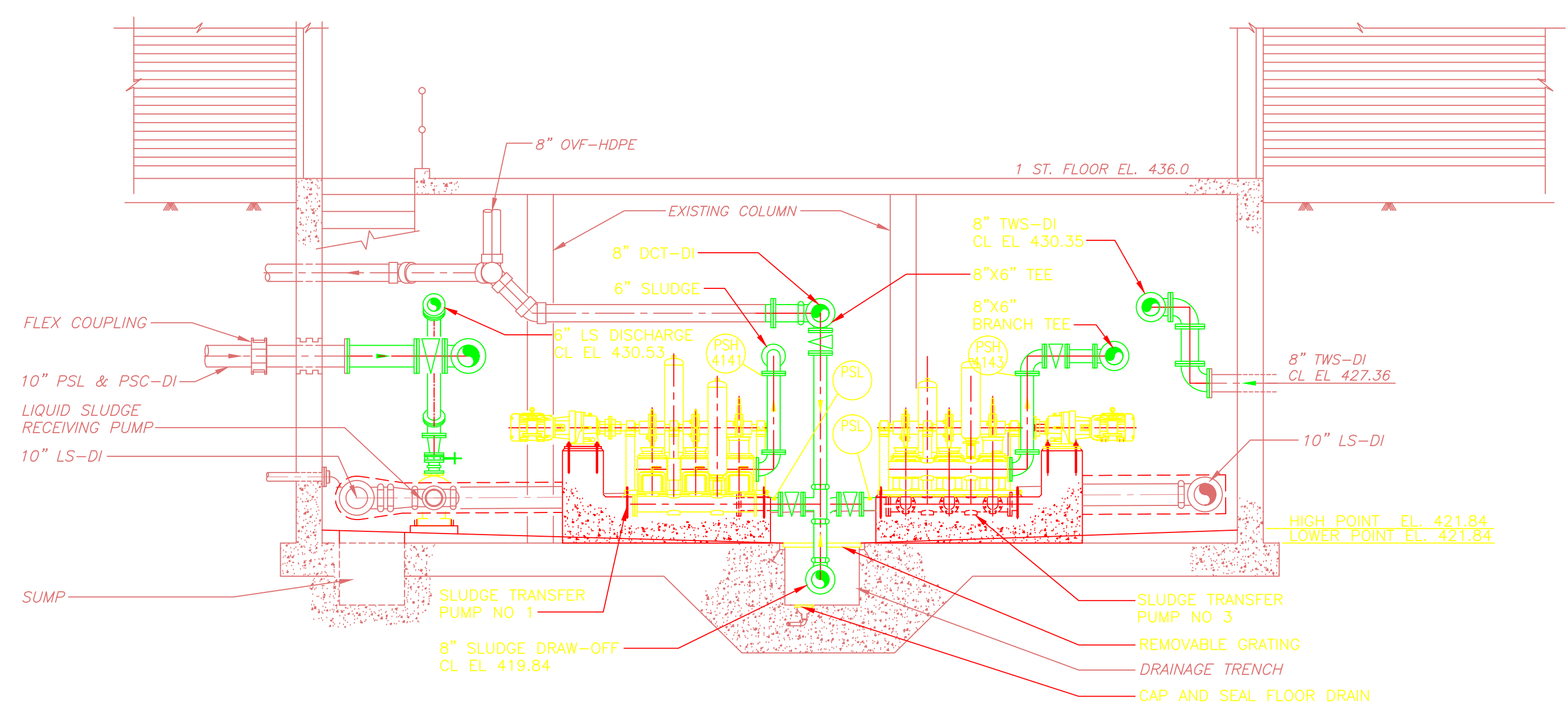
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MHTPS002.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-15 4:11 PM



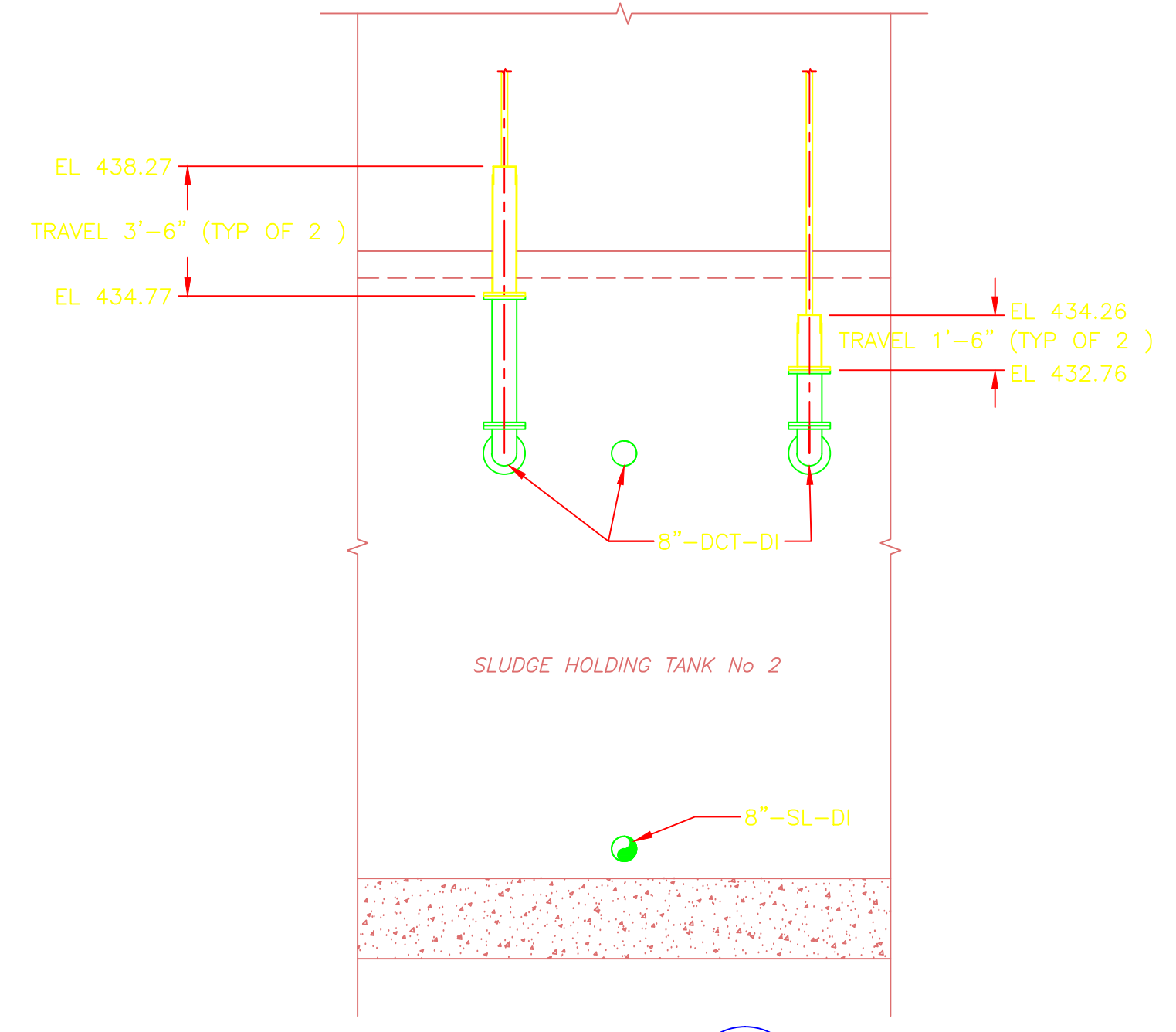
SECTION 1
1/4" = 1'-0"
HT-M-3



SECTION 2
1/4" = 1'-0"
HT-M-3

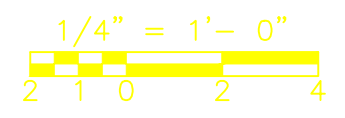


SECTION 3
1/4" = 1'-0"
HT-M-3



SECTION 4
1/4" = 1'-0"
HT-M-3

NOTES:
1. TWO TELESCOPING DECANT APPARATUSES WILL BE INSTALLED PARALLEL TO EACH OTHER IN EACH TANK. THE SOUTH MOST APPARATUSES WILL HAVE 42" OF TRAVEL AND NORTH MOST WILL HAVE 18" OF TRAVEL.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

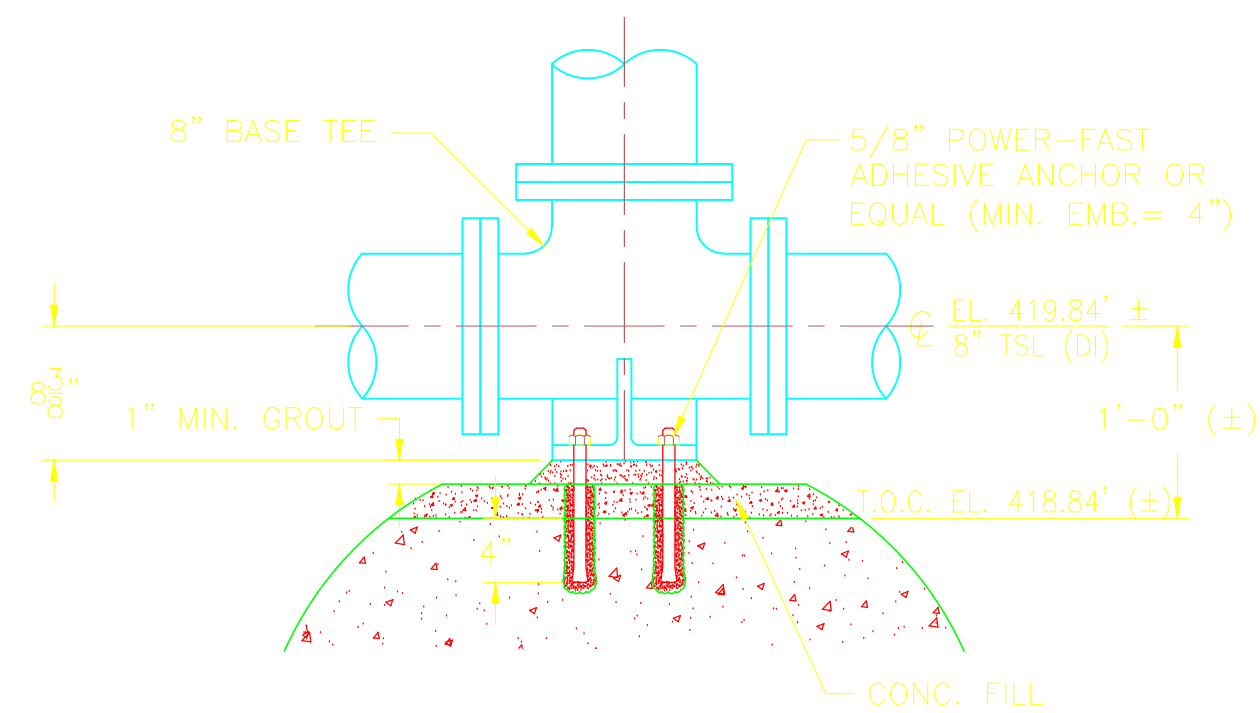
CADD FILE NO. MHTPS002
 DESIGNED BY: E. SPARGIMNO
 DRAWN BY: V. BITIQ
 SHEET CHK'D BY: E. SPARGIMNO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

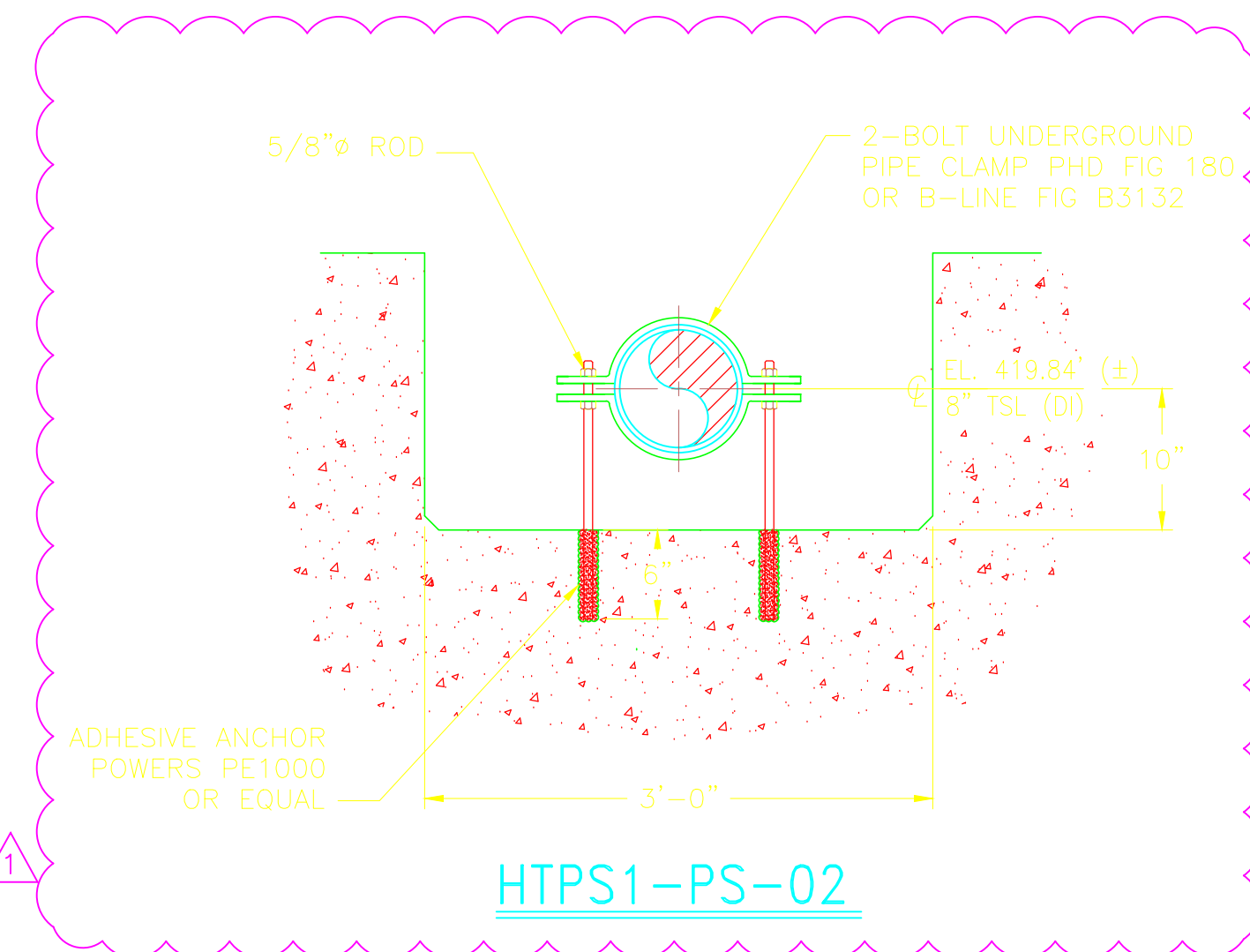
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 SECTIONS
 IMPROVEMENTS**

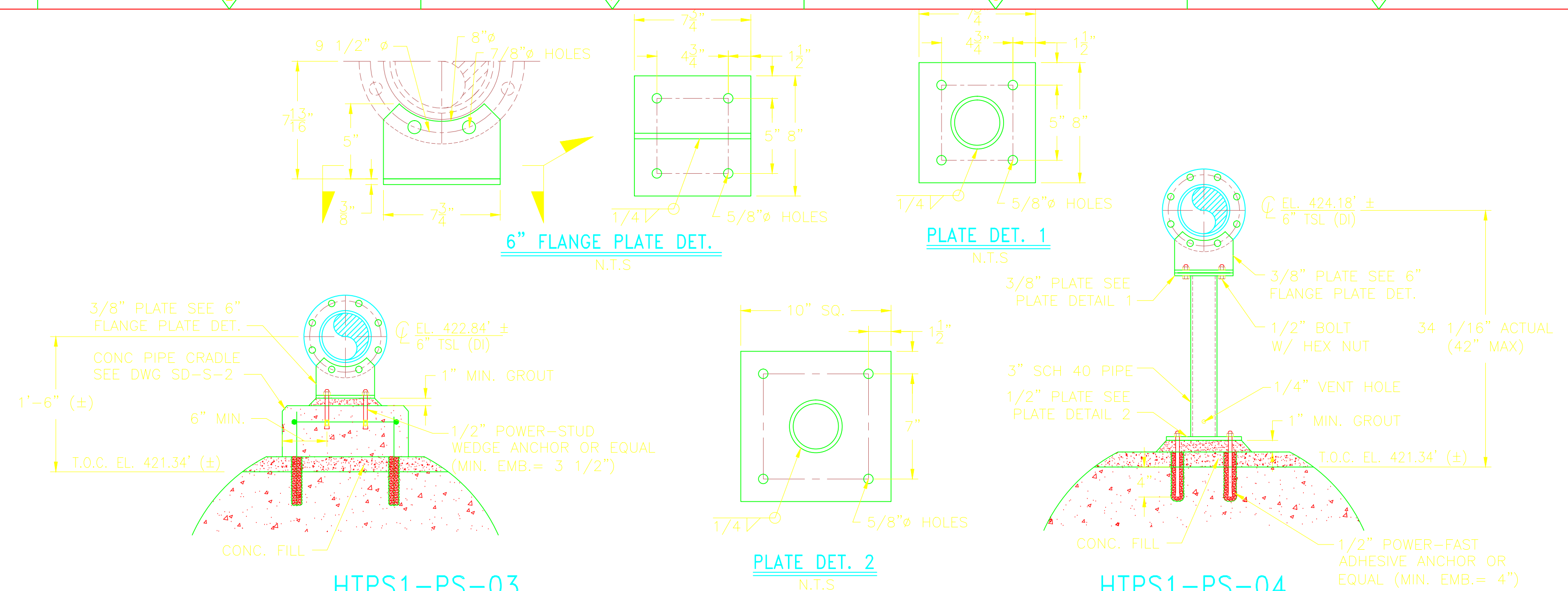
PROJECT NO. 1289-74283
 Sht. of 312
HT-PS-2
 Acc. #



HTPS1-PS-01

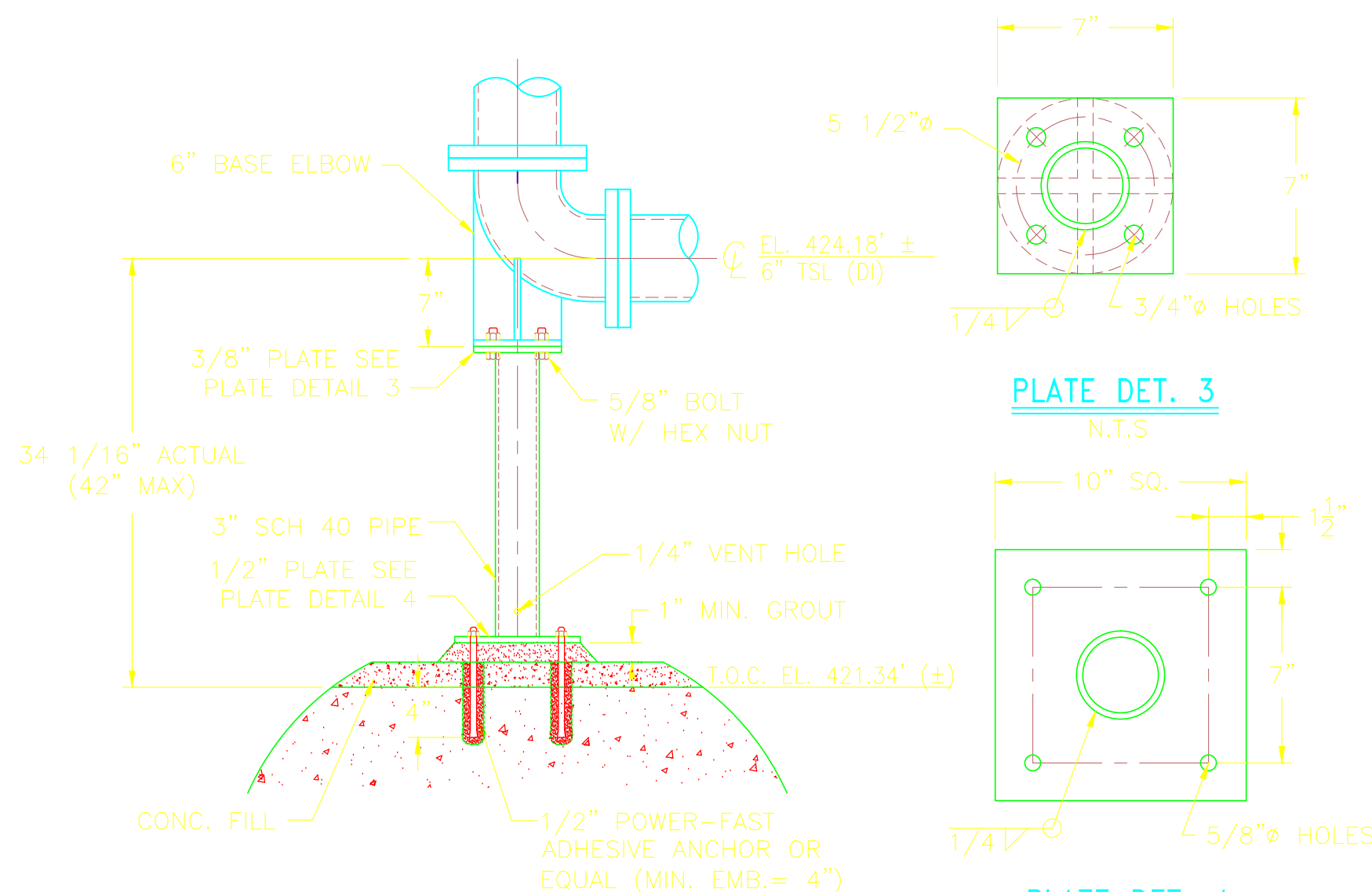


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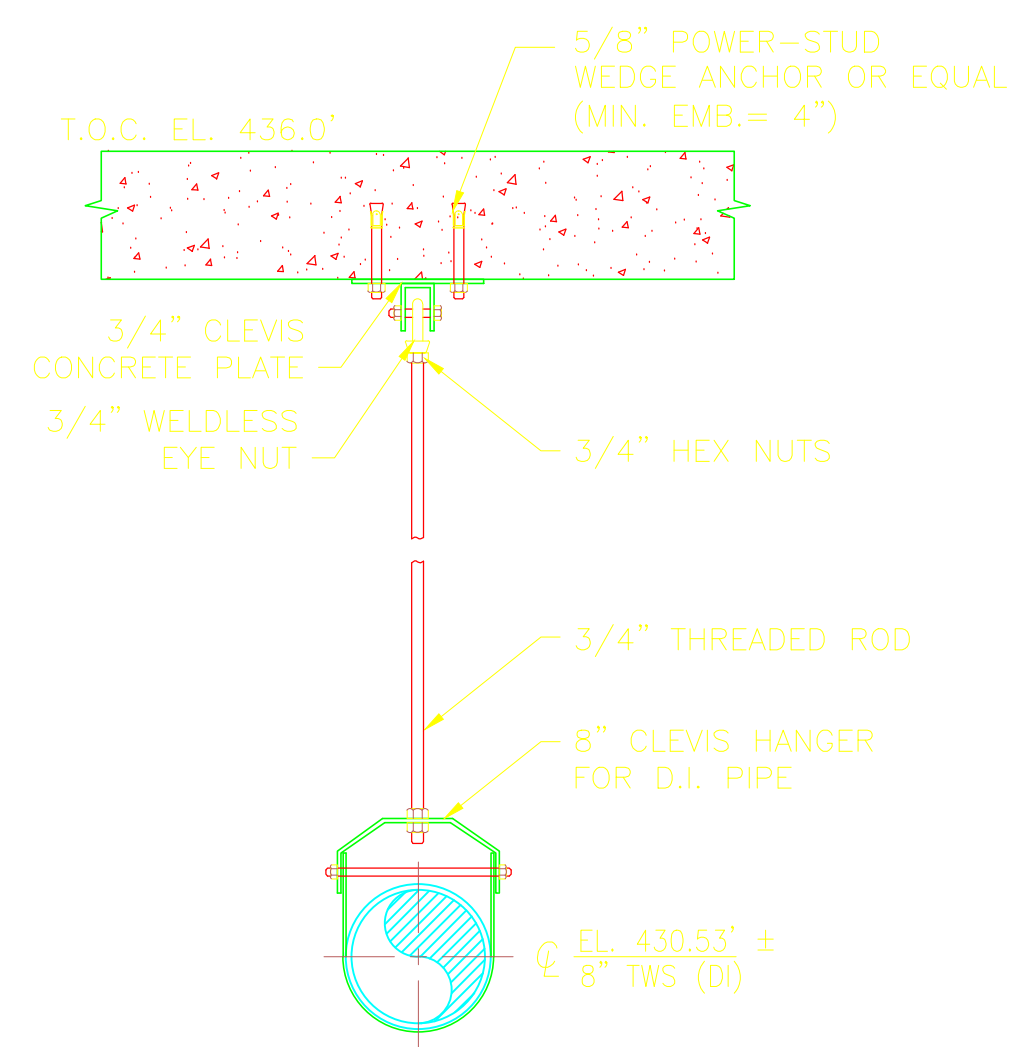


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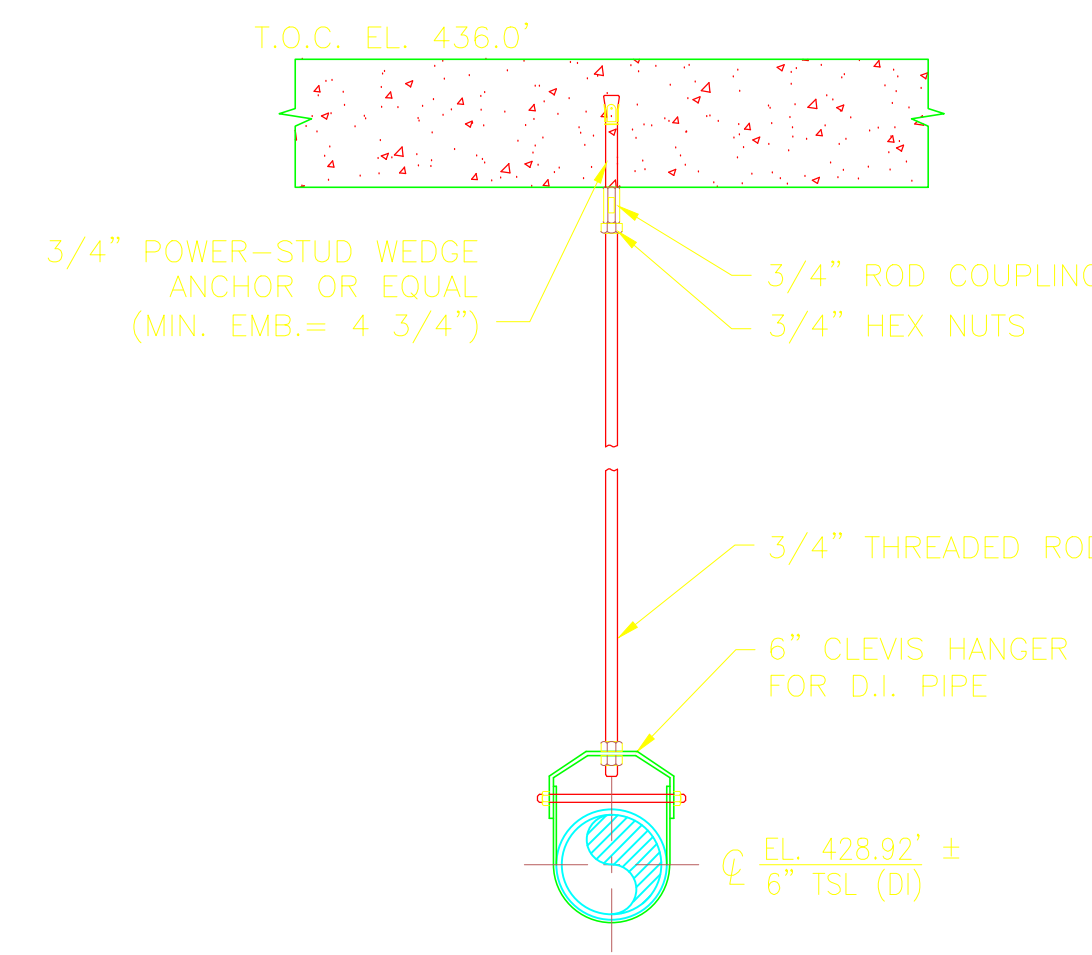
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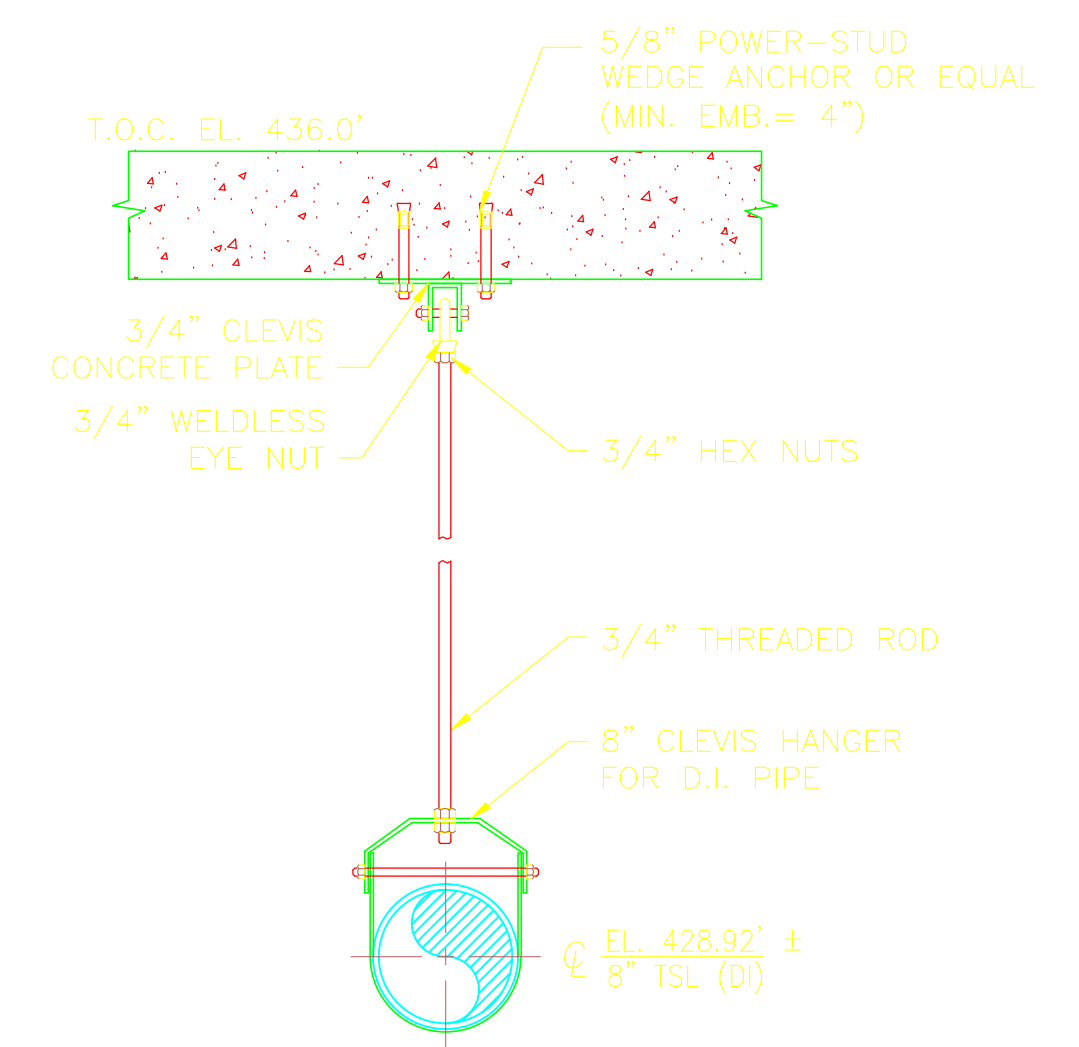
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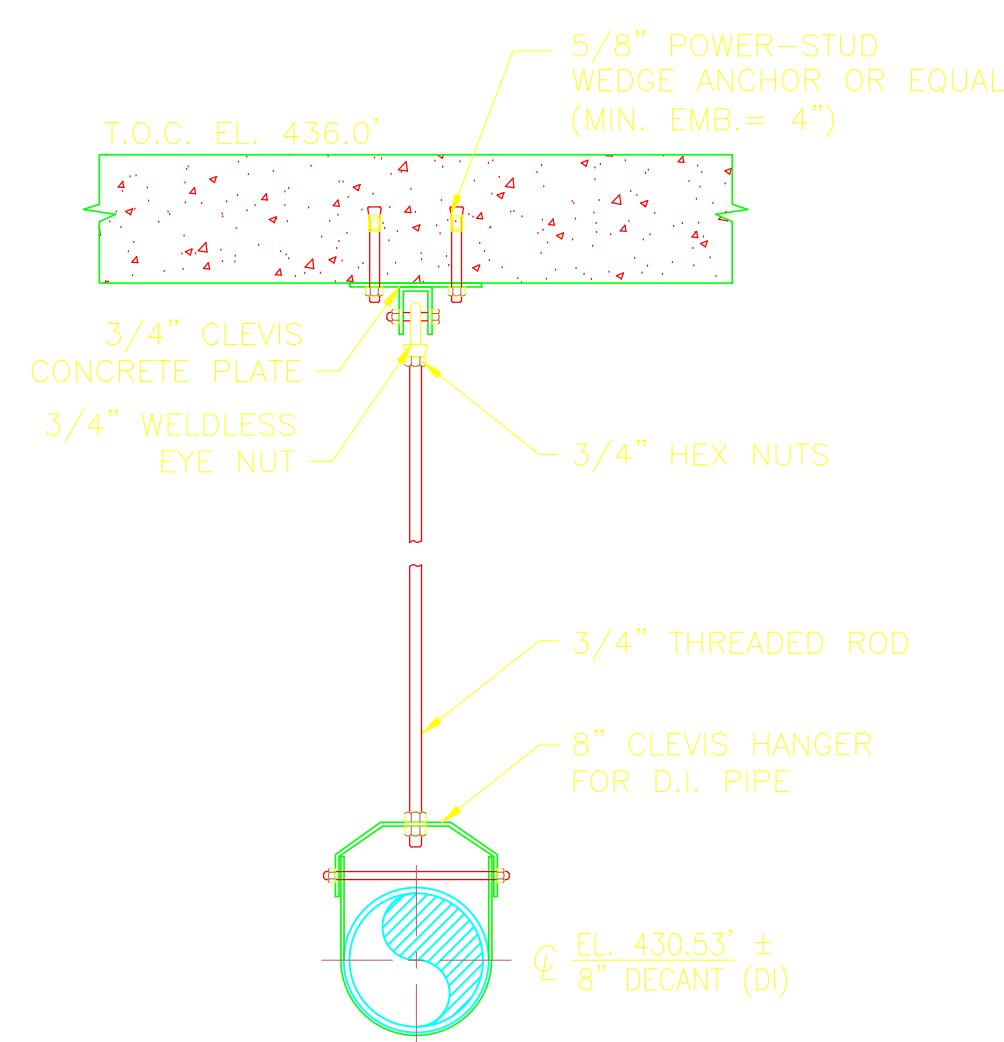
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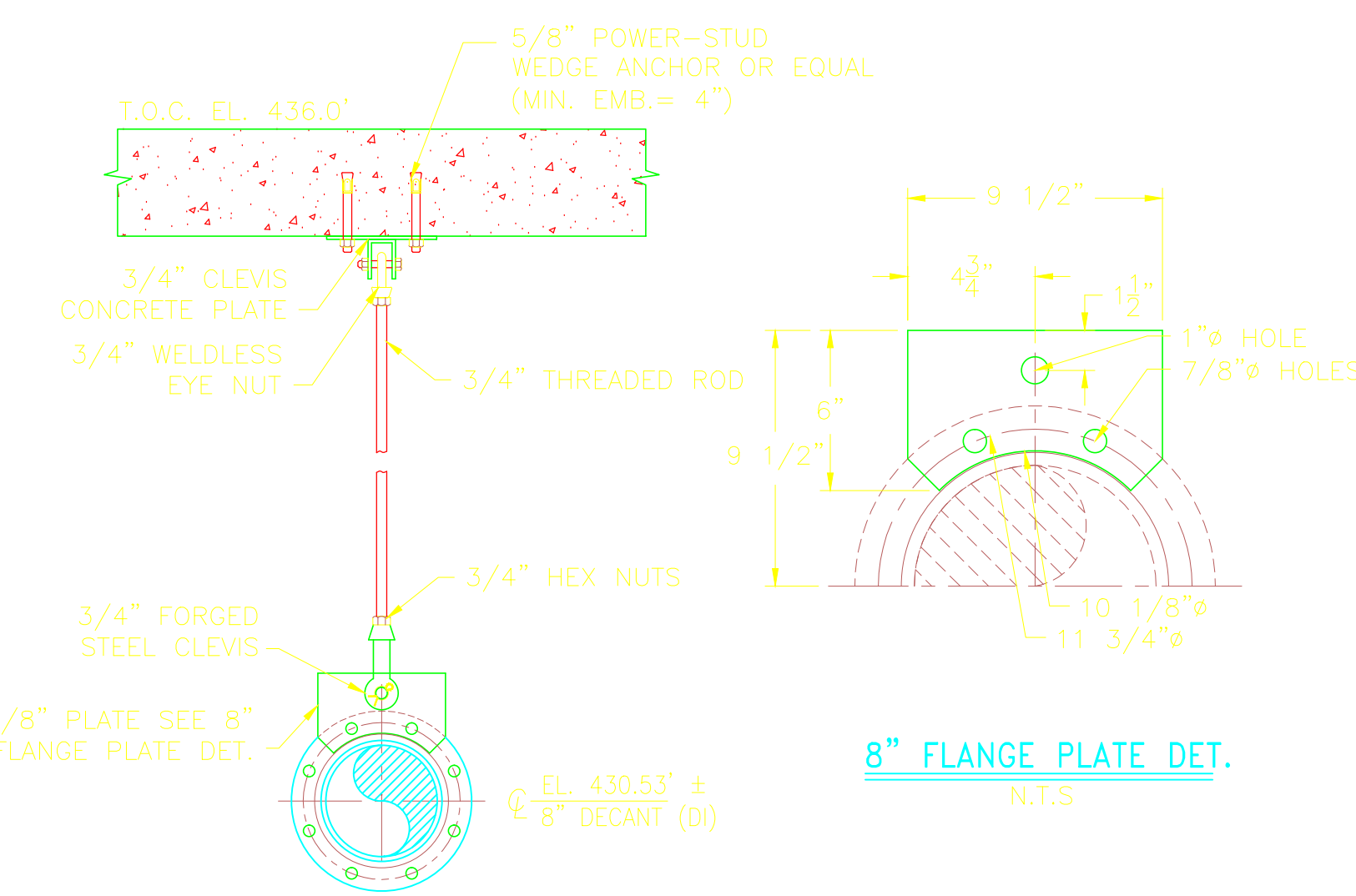
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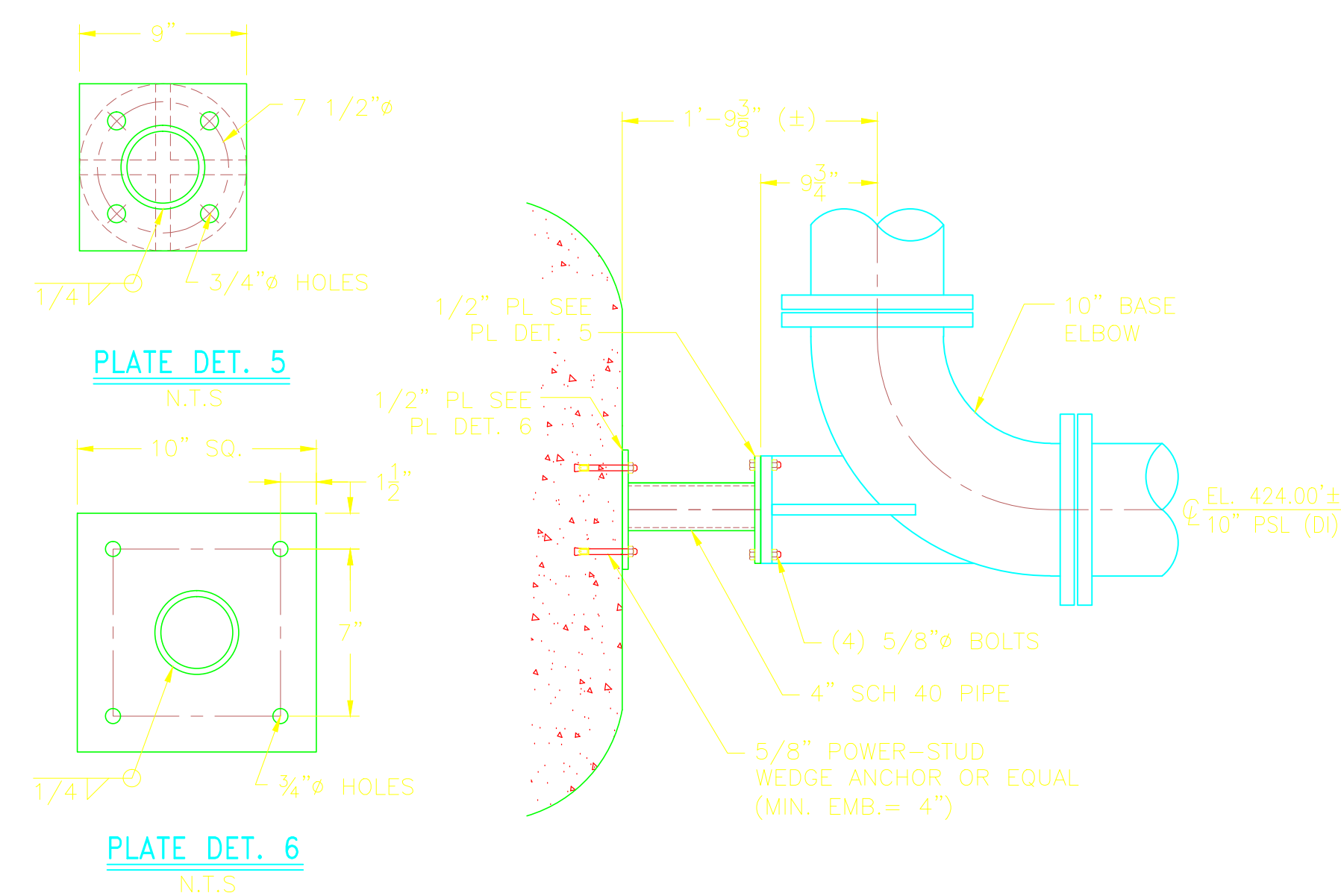
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HTPS1-PS-09



HTPS1-PS-10



HTPS1-PS-11

HTPS1-PS-12

REV. NO.	DATE	DRWN	CHKD	REMARKS
8/30/12	GR	JT		REVISED DETAIL HTPS-PS-02

CADD FILE NO. MHTPSD101
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: JULY 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

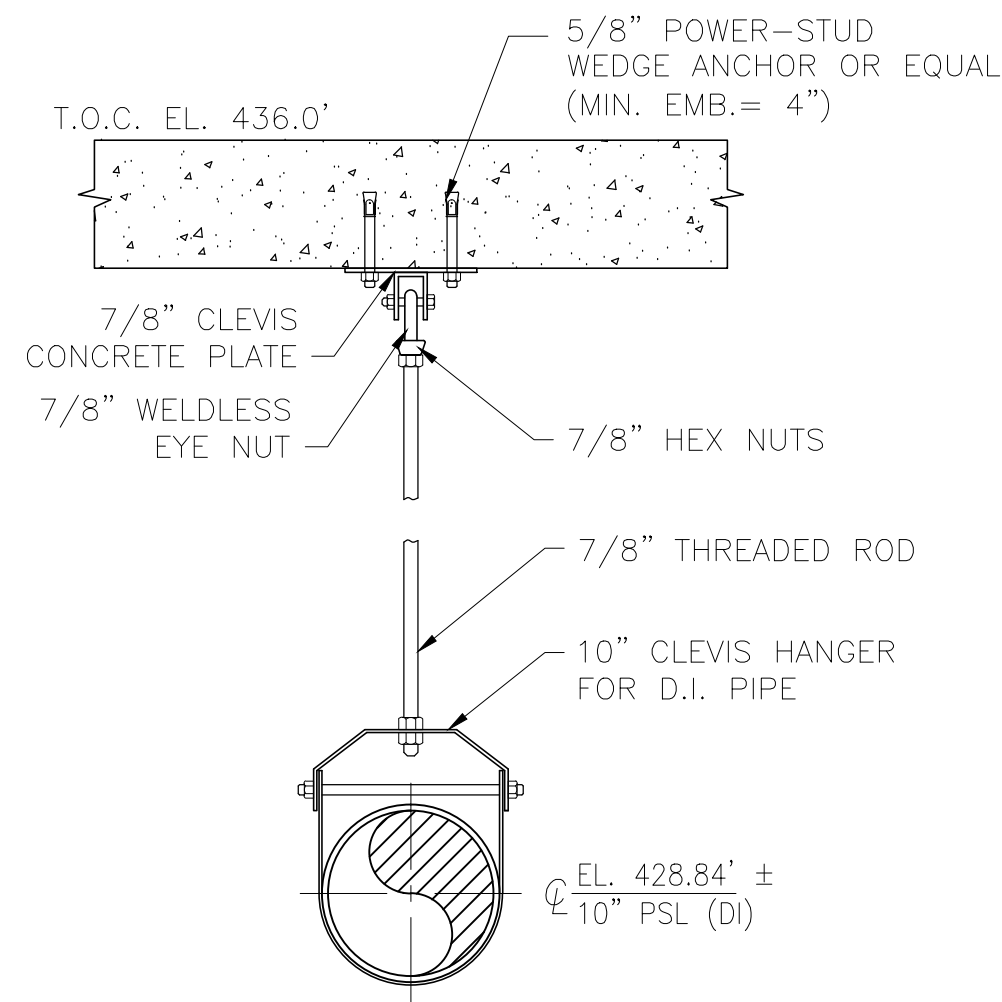
SLUDGE HOLDING TANK BUILDING
 PIPE SUPPORT DETAILS I

PROJECT NO.
1289-74283

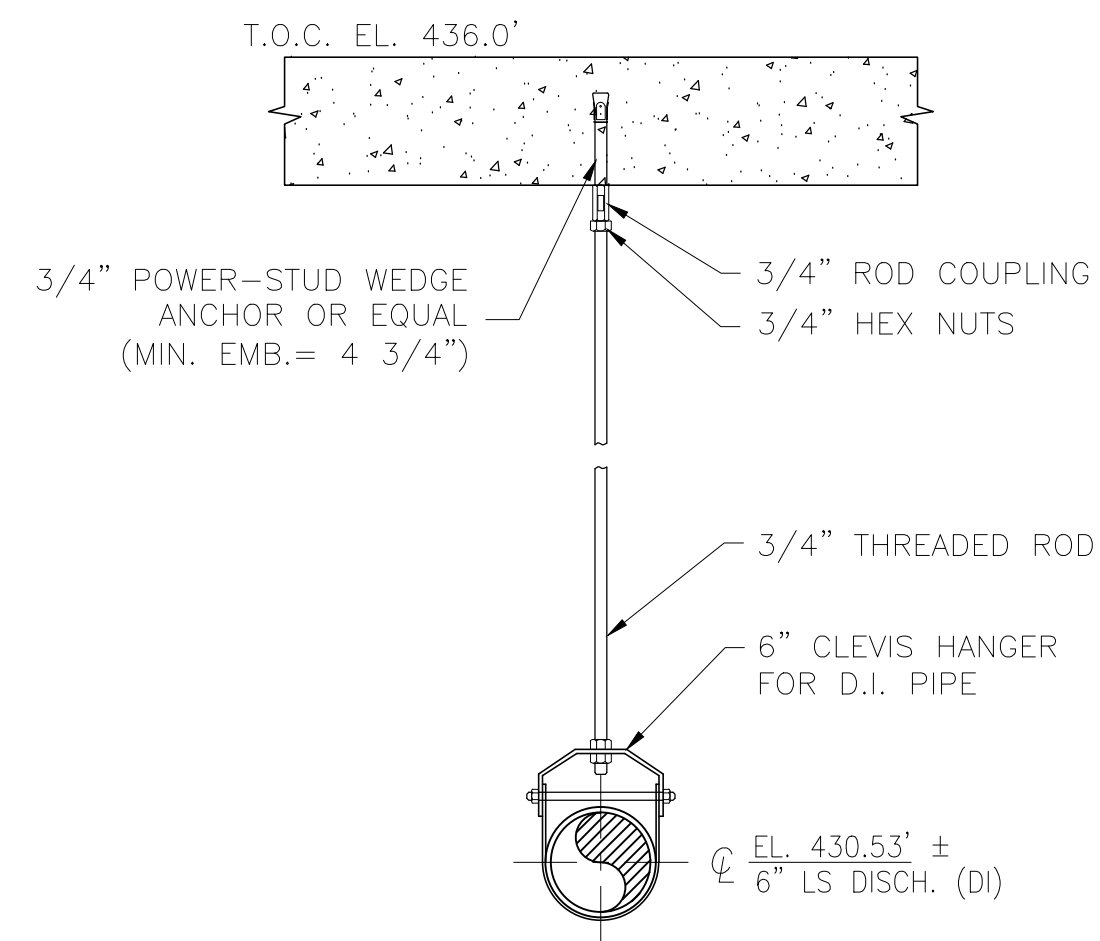
Sht. 144 of 312

HT-SD-1

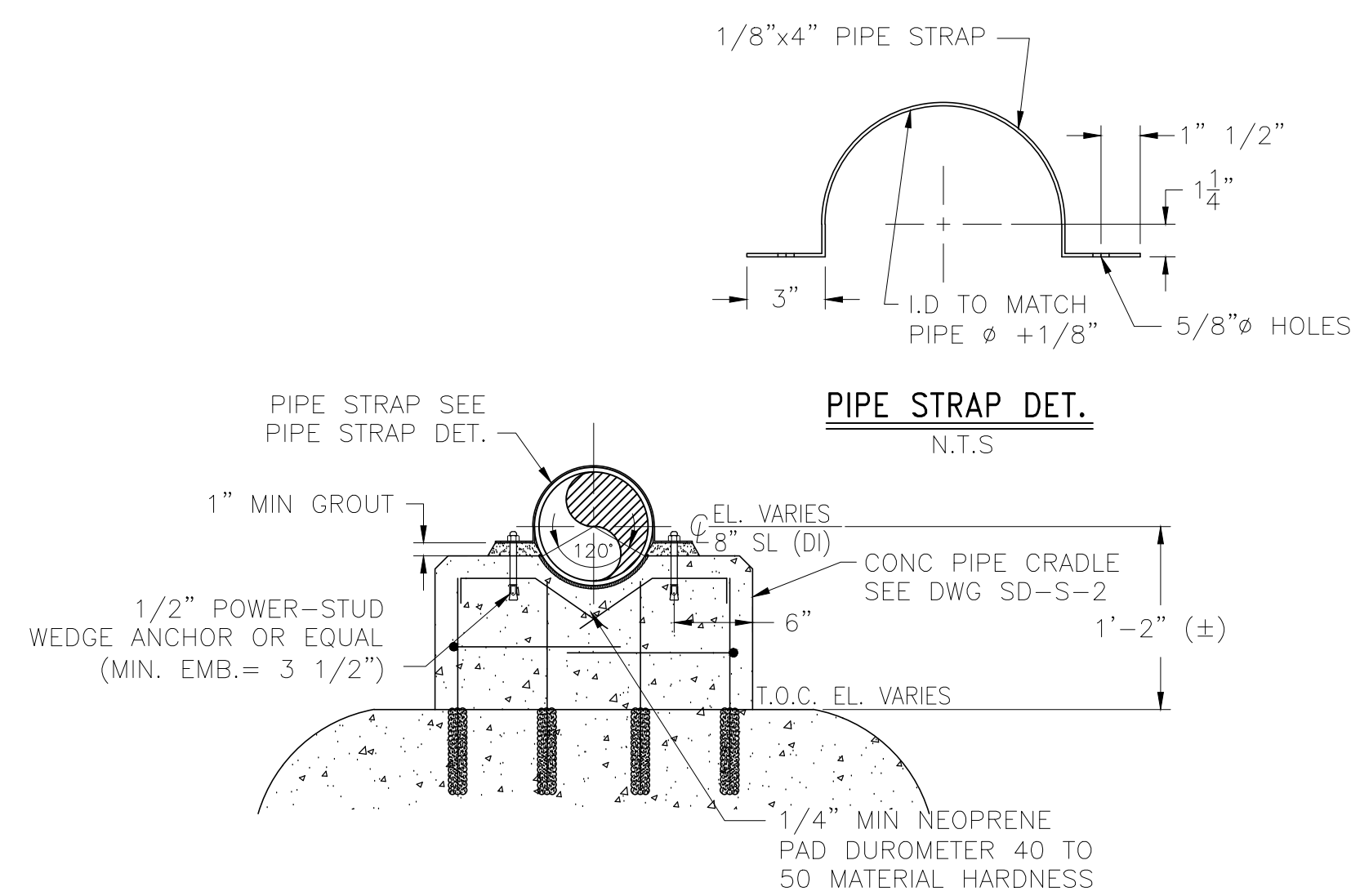
Acc # 1289-74550



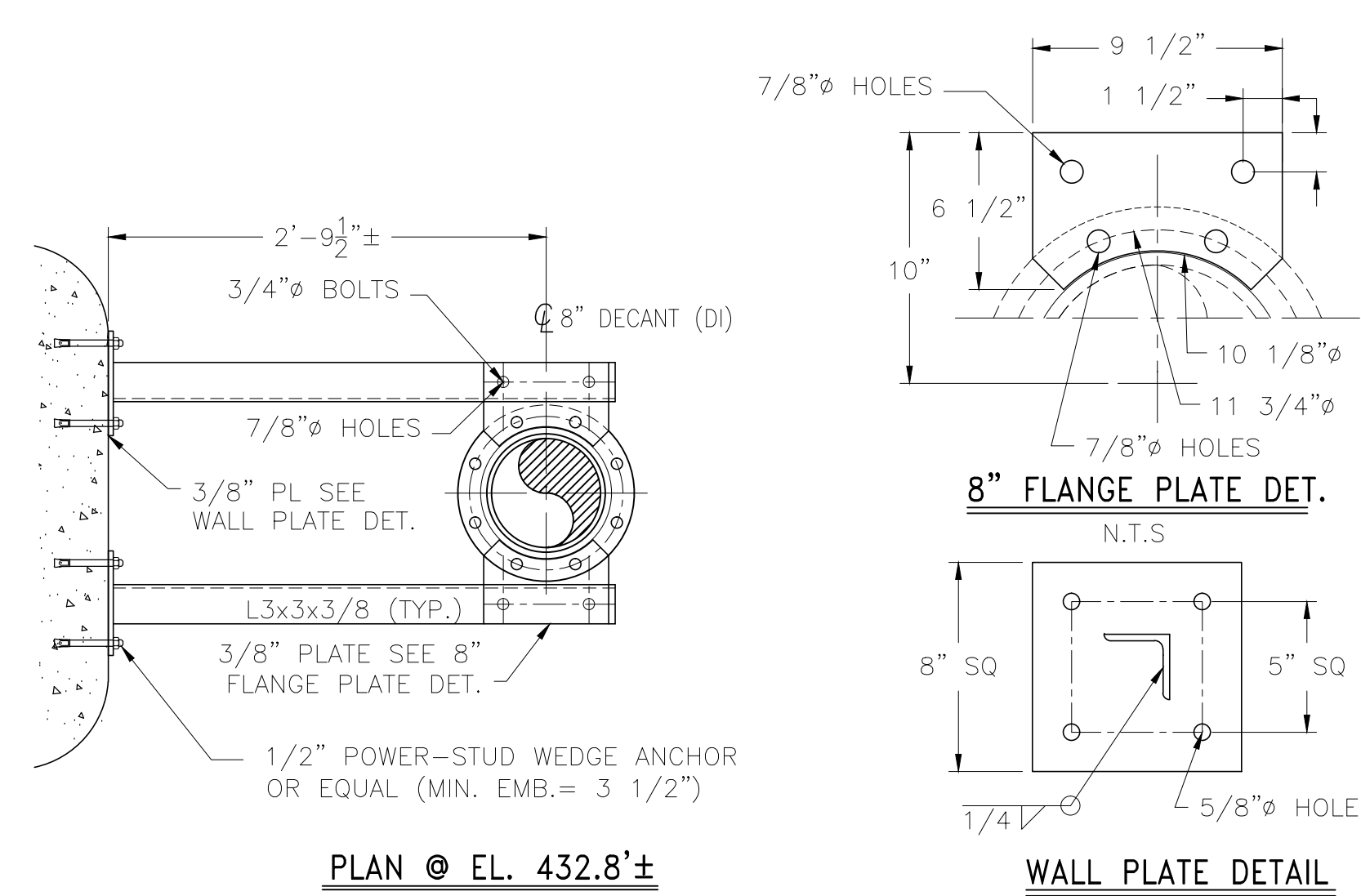
HTPS1-PS-13



HTPS1-PS-14



HTPS1-PS-15



HTPS1-PS-16

GENERAL NOTES

- ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
- UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED, COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
- FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
△	9/10	GR	JT	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MHTPSDT02
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

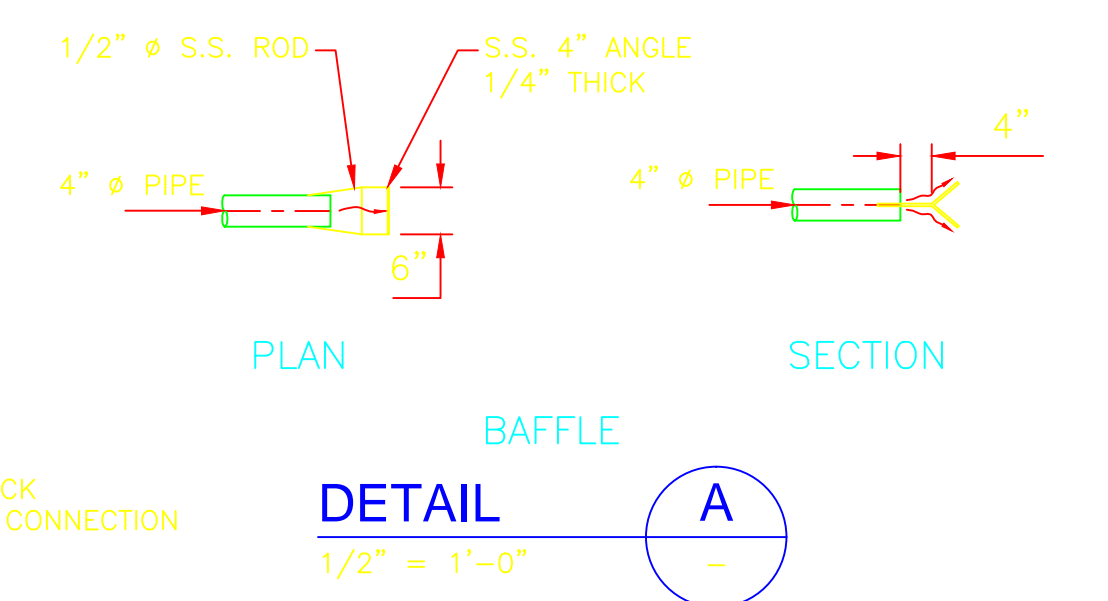
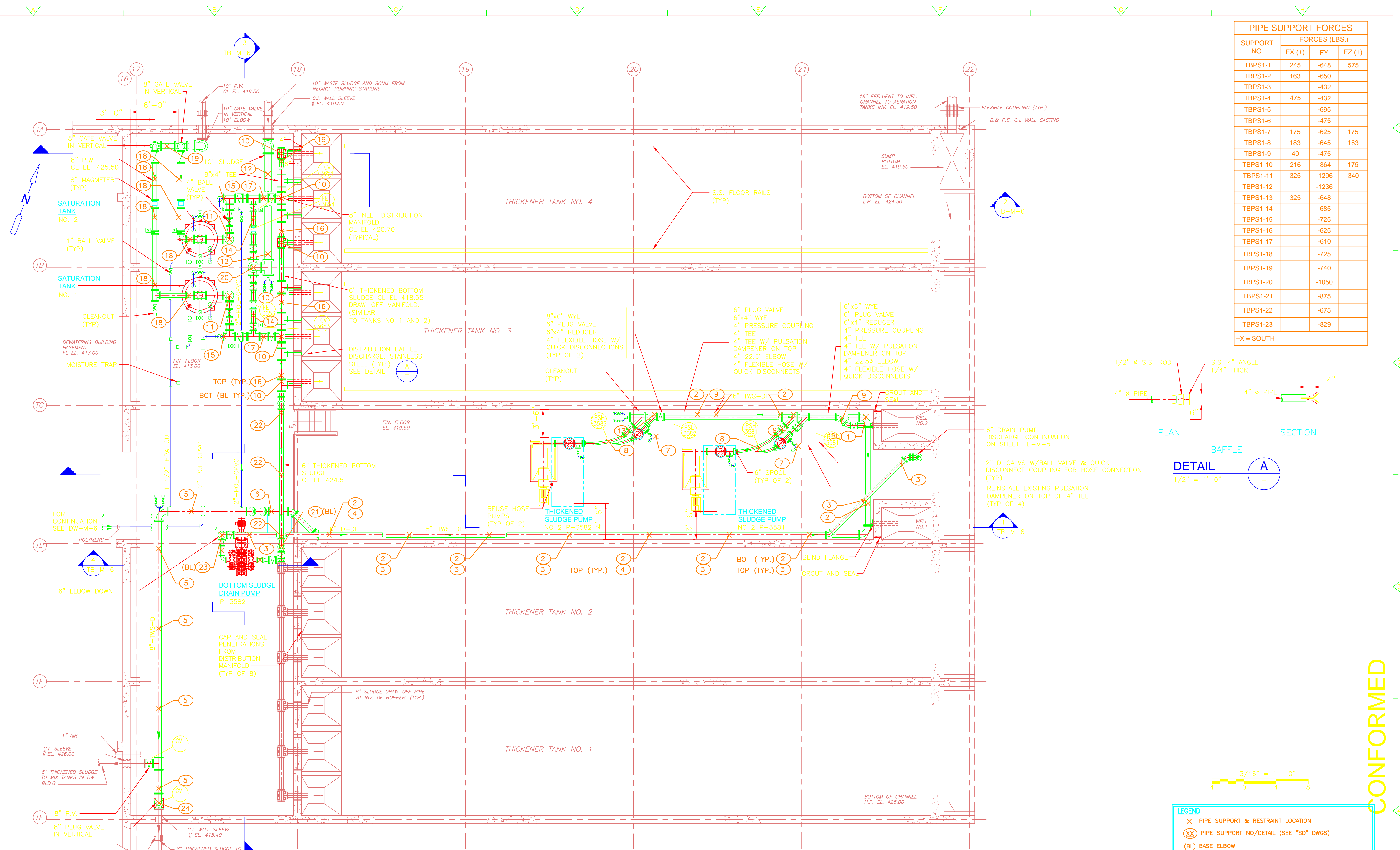
**SLUDGE HOLDING TANK BUILDING
 PIPE SUPPORT DETAILS II**

PROJECT NO.
1289-74283
 Sht. 145 of 312
HT-SD-2
 Acc # 1289-74551

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-II File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MTBPS01.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-15 4:27 PM

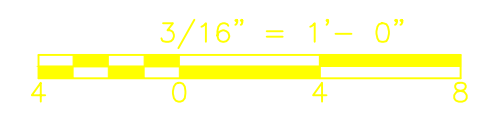
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
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TBPS1-2	163	-650	
TBPS1-3		-432	
TBPS1-4	475	-432	
TBPS1-5		-695	
TBPS1-6		-475	
TBPS1-7	175	-625	175
TBPS1-8	183	-645	183
TBPS1-9	40	-475	
TBPS1-10	216	-864	175
TBPS1-11	325	-1296	340
TBPS1-12		-1236	
TBPS1-13	325	-648	
TBPS1-14		-685	
TBPS1-15		-725	
TBPS1-16		-625	
TBPS1-17		-610	
TBPS1-18		-725	
TBPS1-19		-740	
TBPS1-20		-1050	
TBPS1-21		-875	
TBPS1-22		-675	
TBPS1-23		-829	

+X = SOUTH



PLAN
3/16" = 1'-0"

- LEGEND**
- X PIPE SUPPORT & RESTRAINT LOCATION
 - (XX) PIPE SUPPORT NO./DETAIL (SEE "SD" DWGS)
 - (BL) BASE ELBOW
 - (BT) BASE TEE
- NOTES**
- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
 - THIS DRAWING HAS BEEN RECREATED FROM DWG: TB-M4



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MTBPS01
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

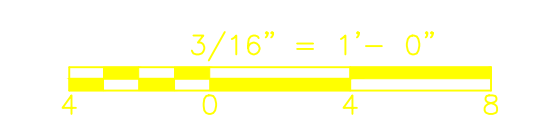
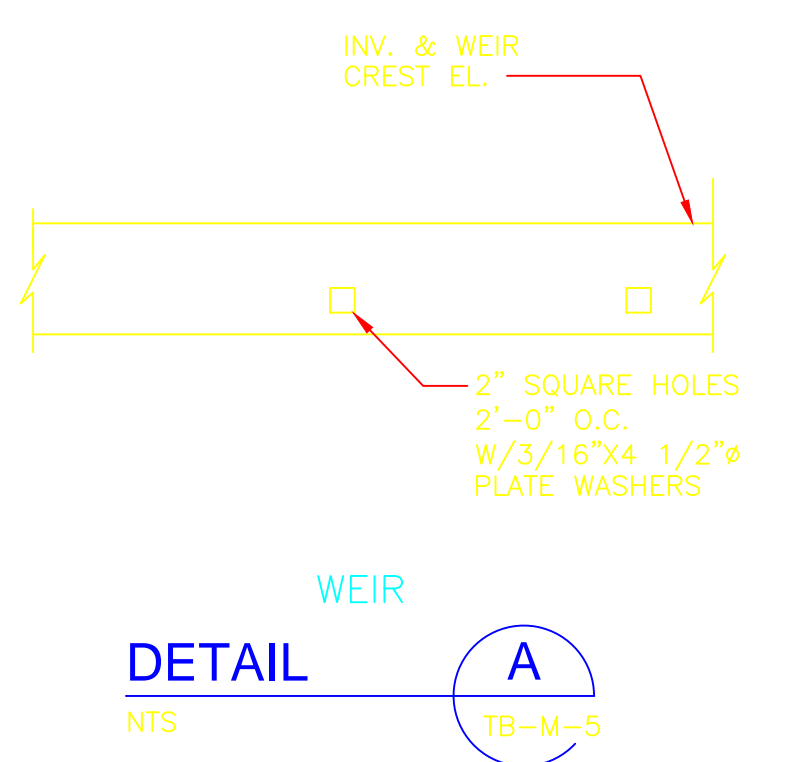
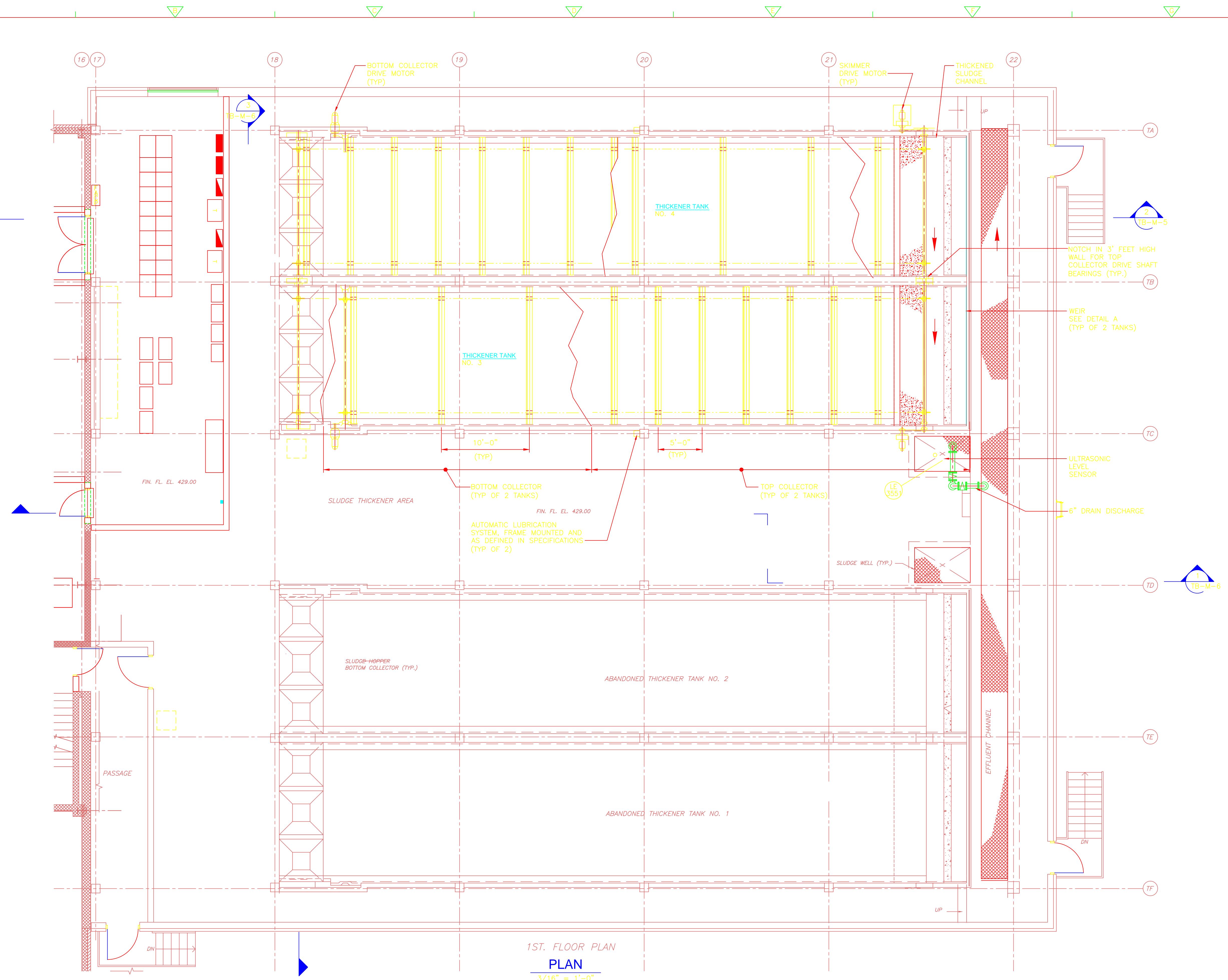
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. of 312
TB-PS-1
 Acc #

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-II File: S:\PHASE_III\CONFORMED\CAD DRAWINGS\MTBPS002.DWG Saved by: SIGMA ENGINEERING On: 19-May-10 Plotted on: 26-Mar-15 4:29 PM



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MTBPS002
 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**

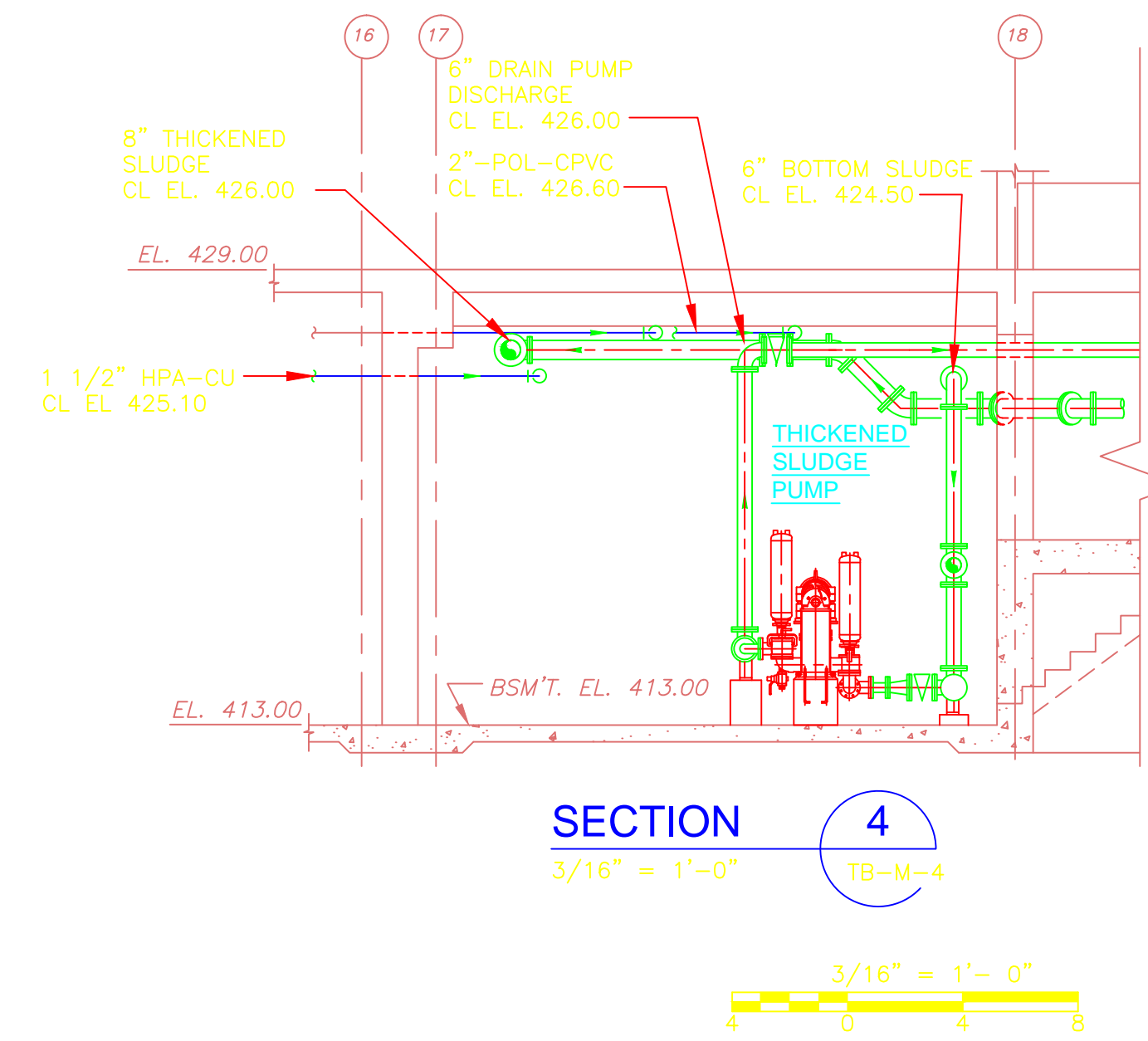
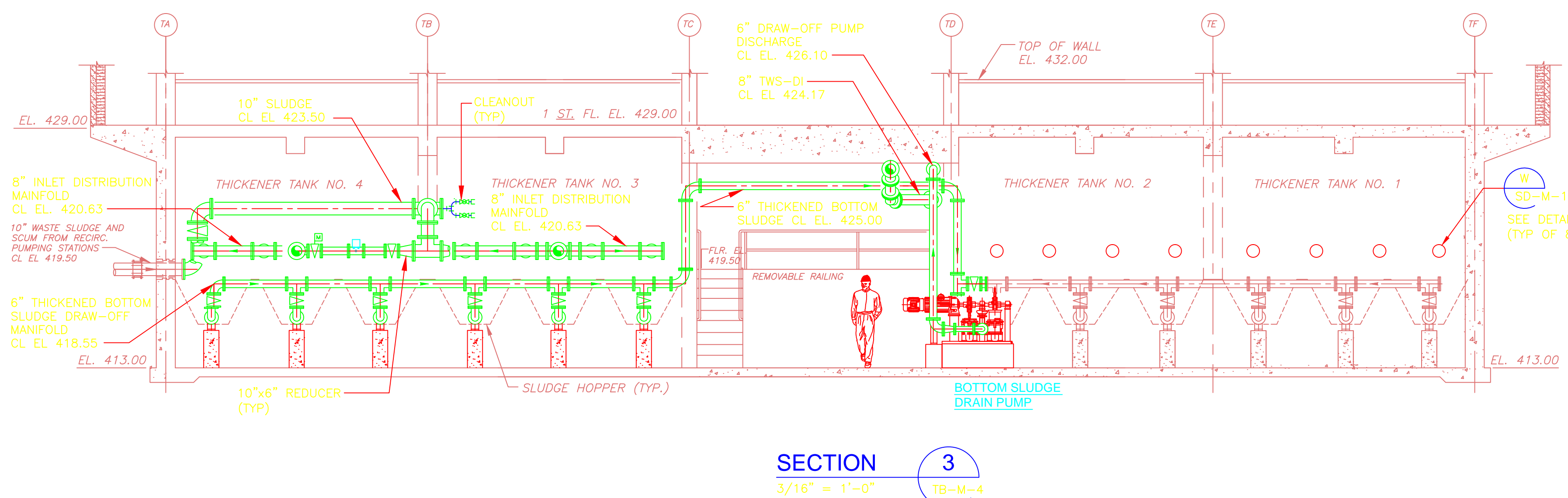
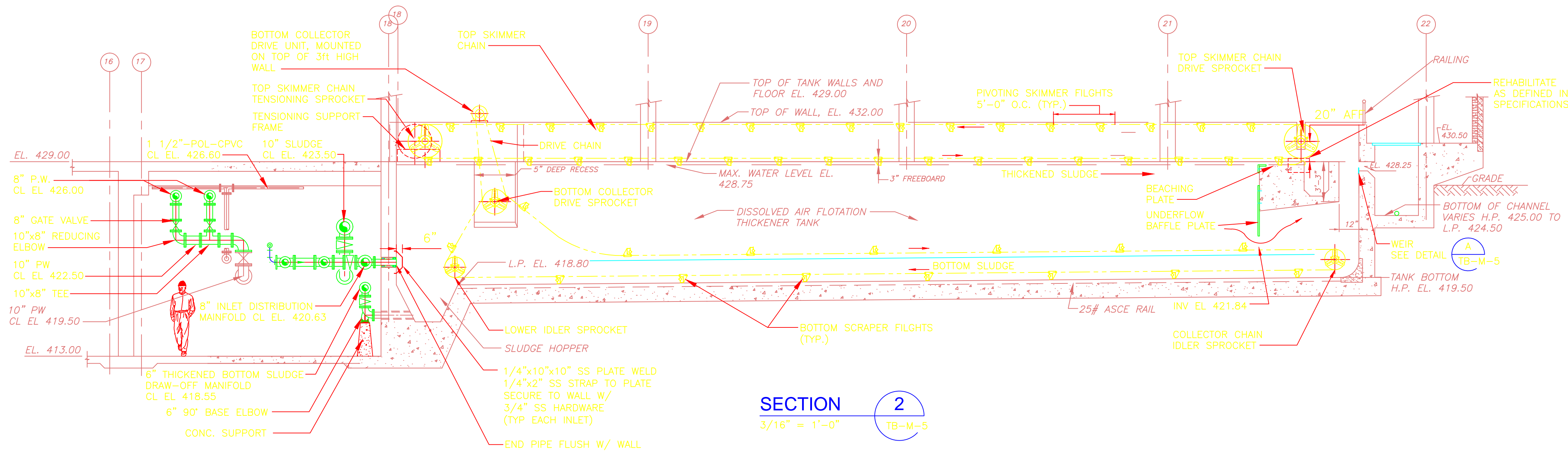
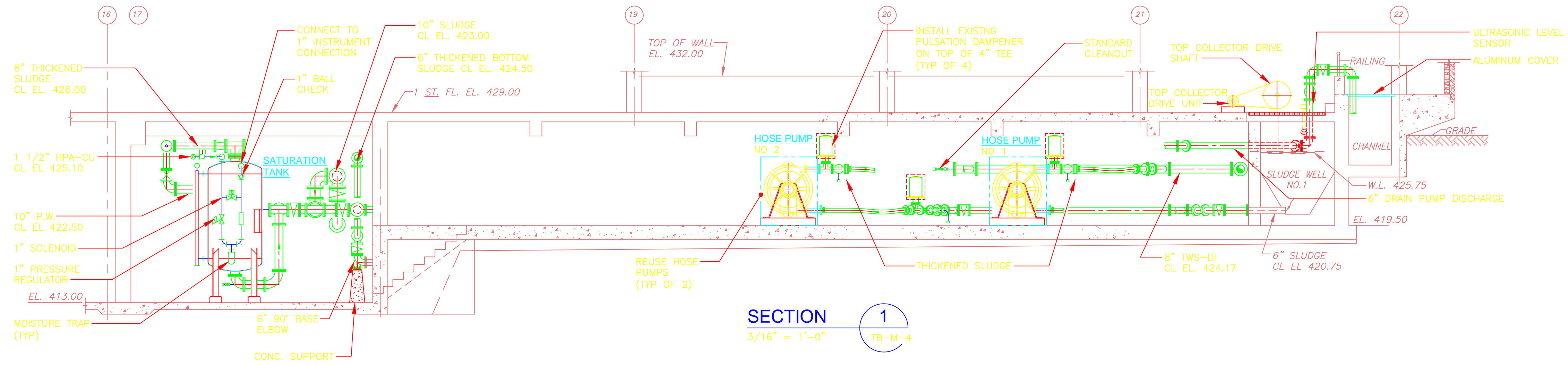
PROJECT NO.
 1289-74283

Sht. of 312

TB-PS-2

Acc #

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CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

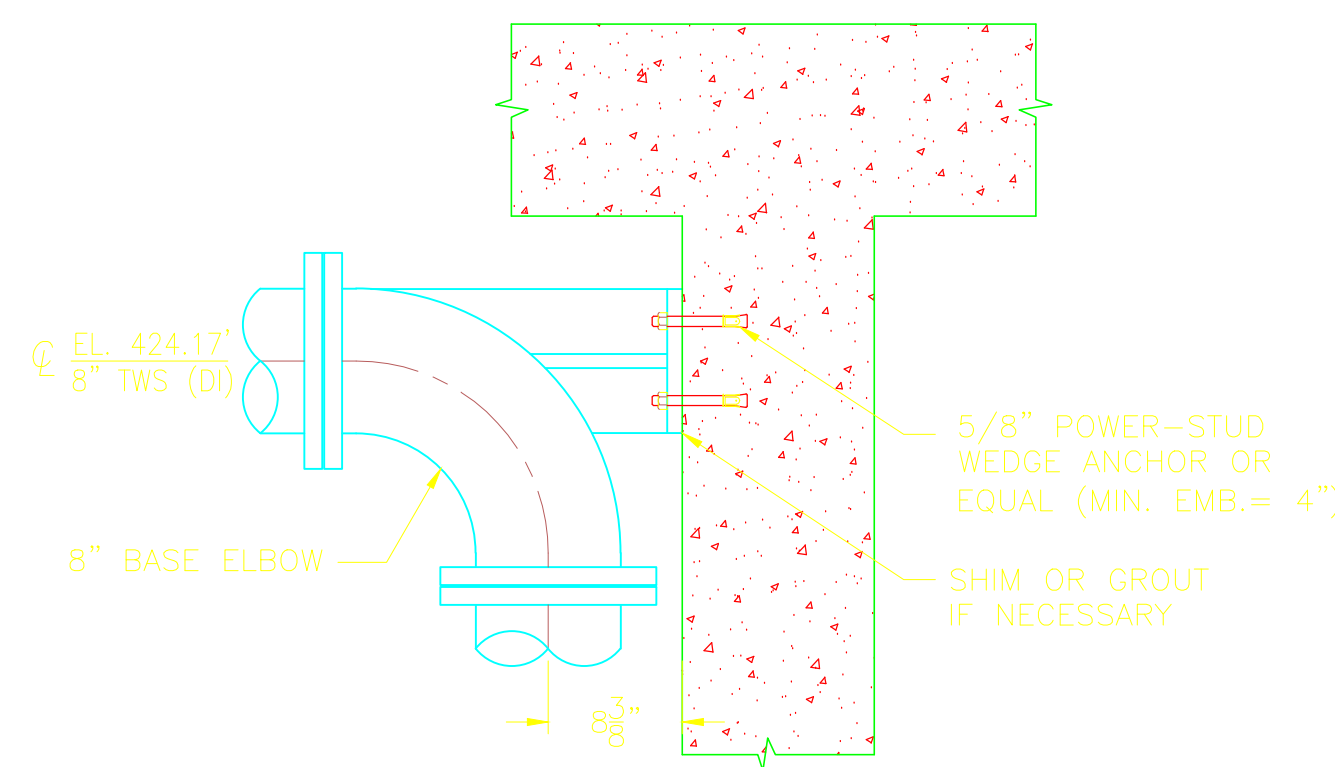
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 DESIGNED BY: E. SPARGIMINO
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: E. SPARGIMINO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: W. D. GREEN
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 SECTIONS
 IMPROVEMENTS**

PROJECT NO.
 1289-74283
 Sht. of 312
TB-PS-3
 Acc. #



PLAN VIEW

TBPS1-PS-01

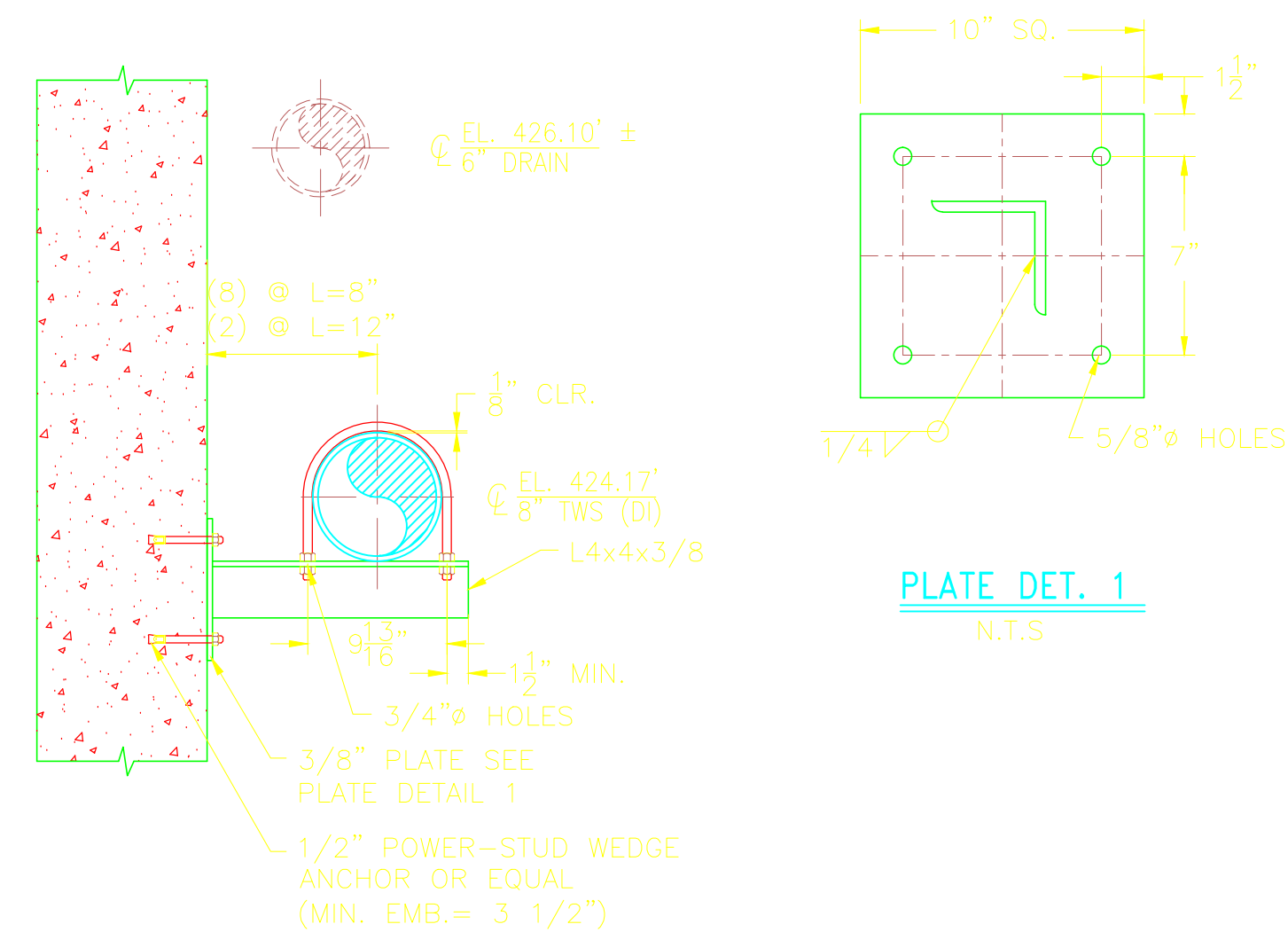
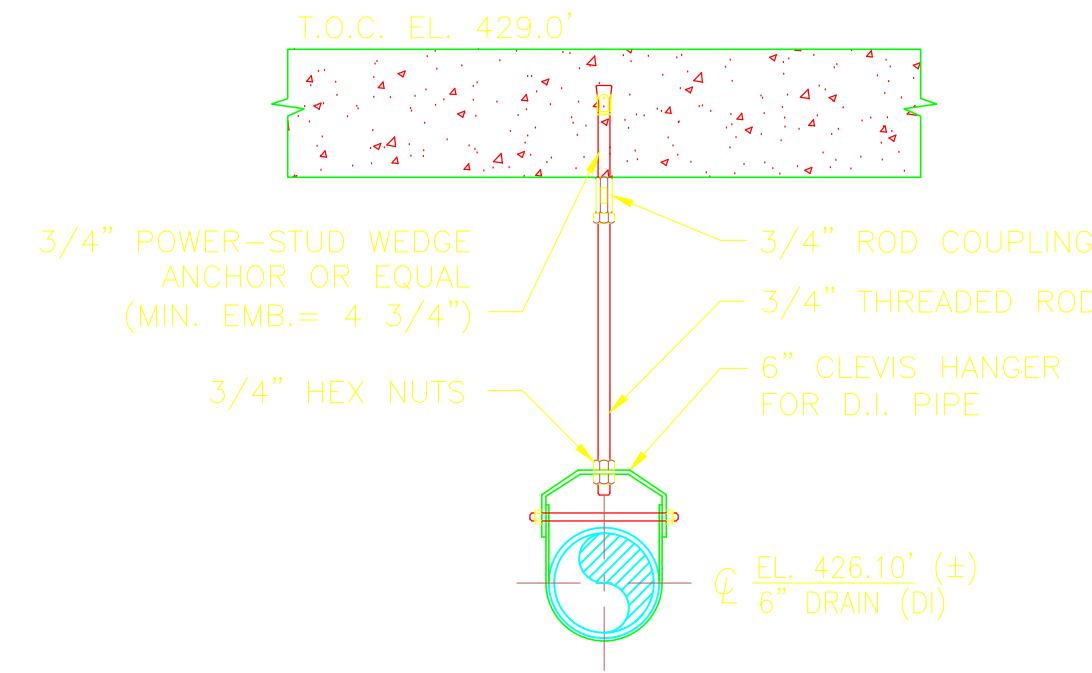


PLATE DET. 1
N.T.S.

TBPS1-PS-02



TBPS1-PS-03

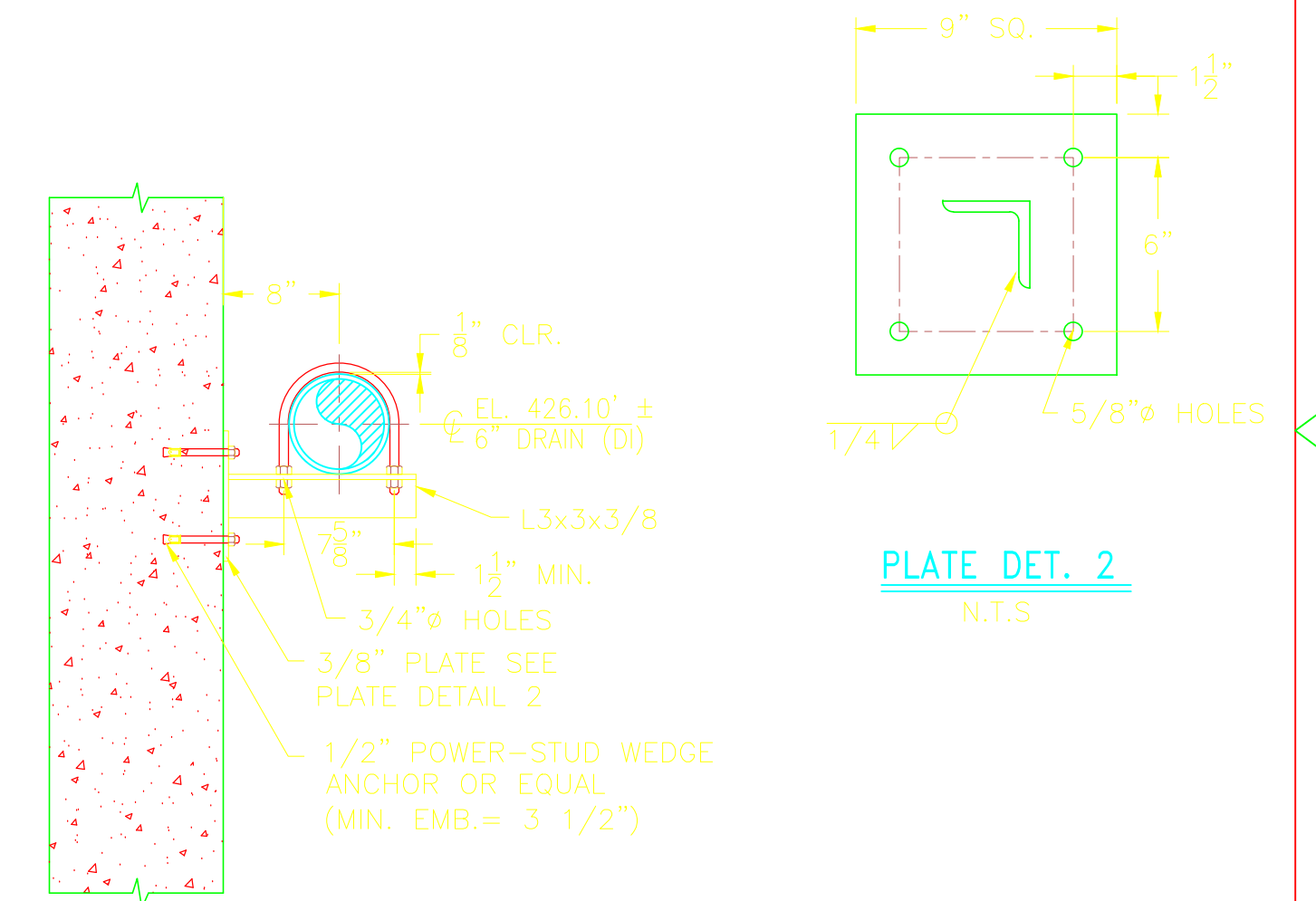
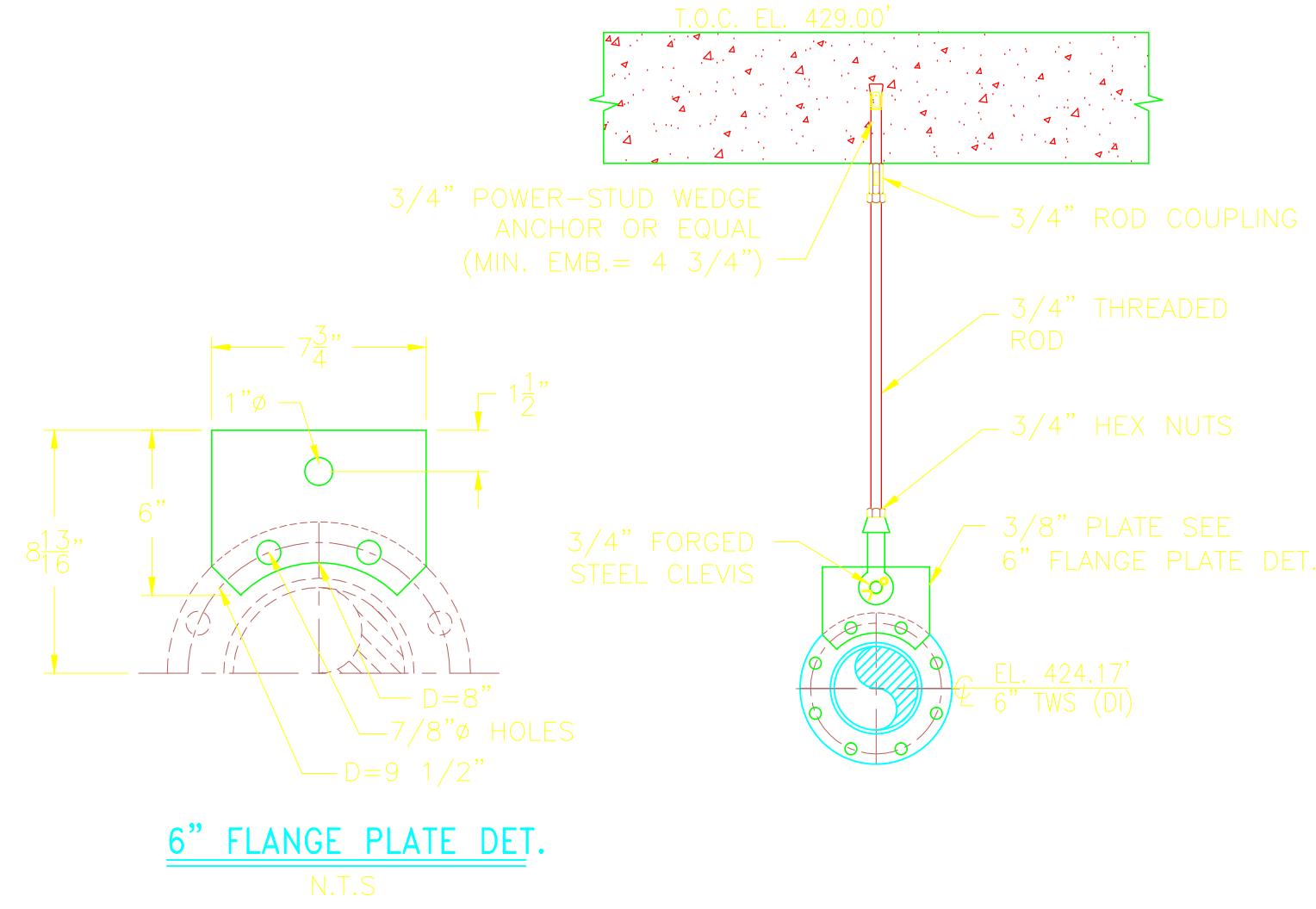


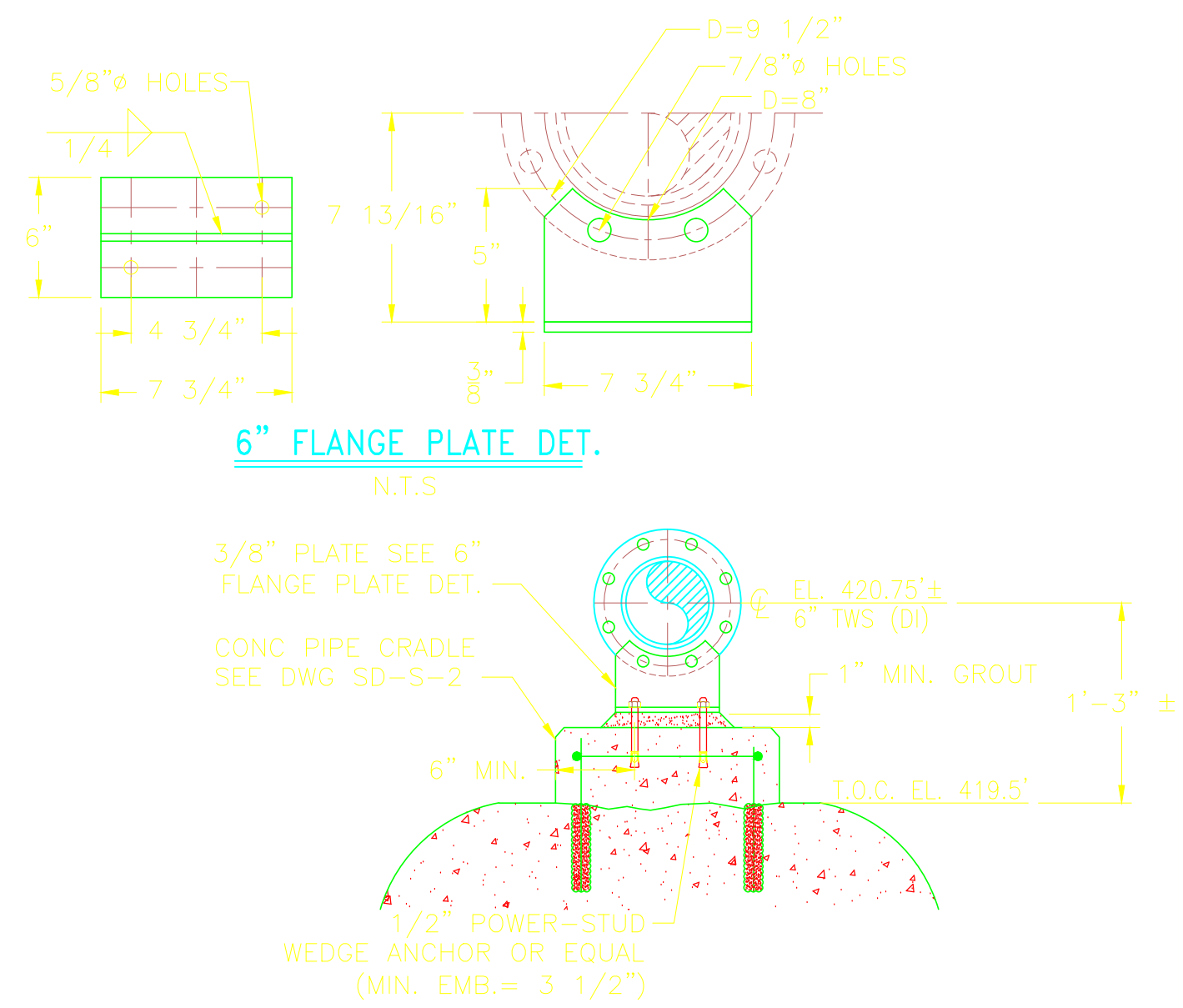
PLATE DET. 2
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TBPS1-PS-04



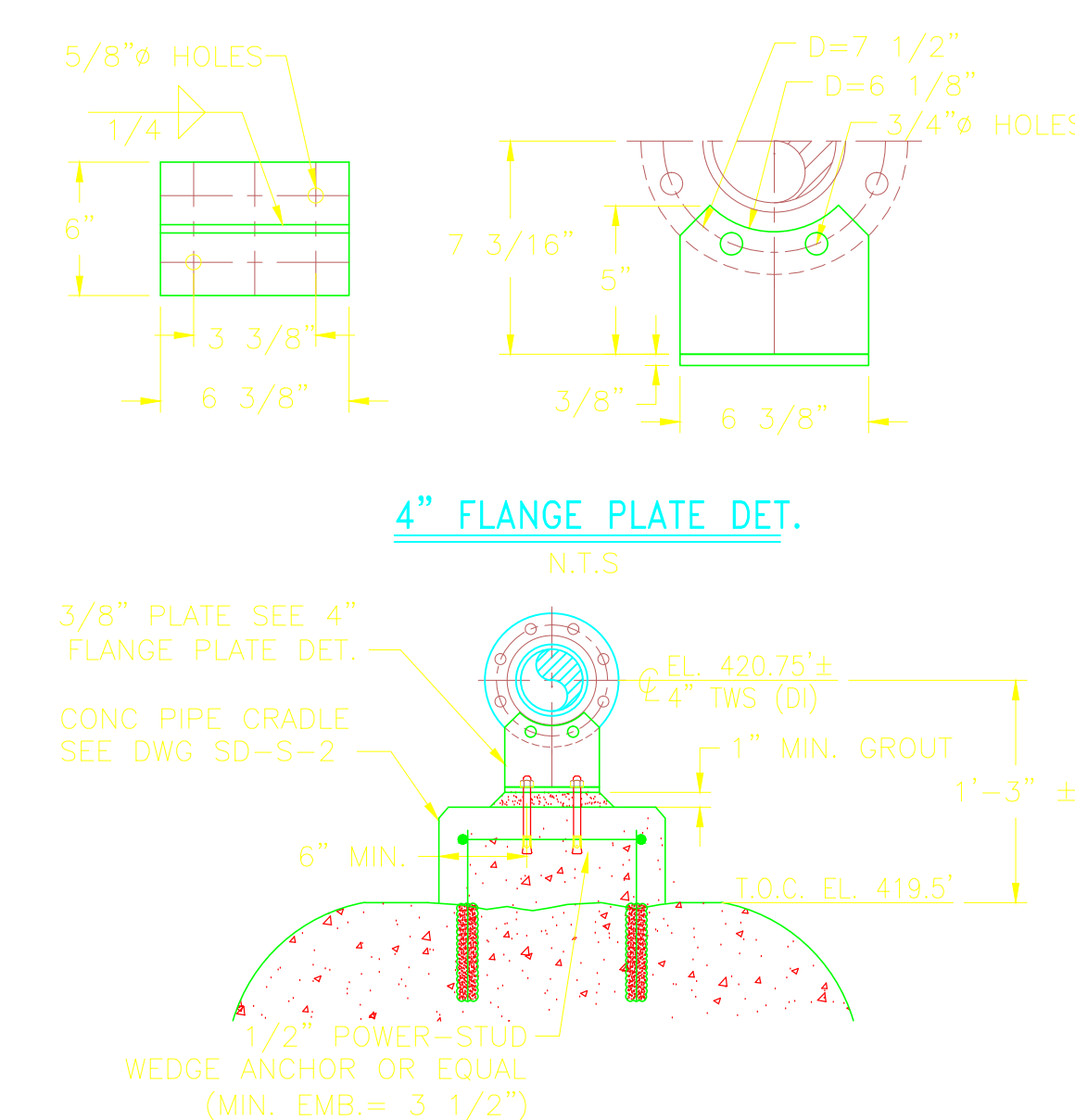
6" FLANGE PLATE DET.
N.T.S.

TBPS1-PS-05



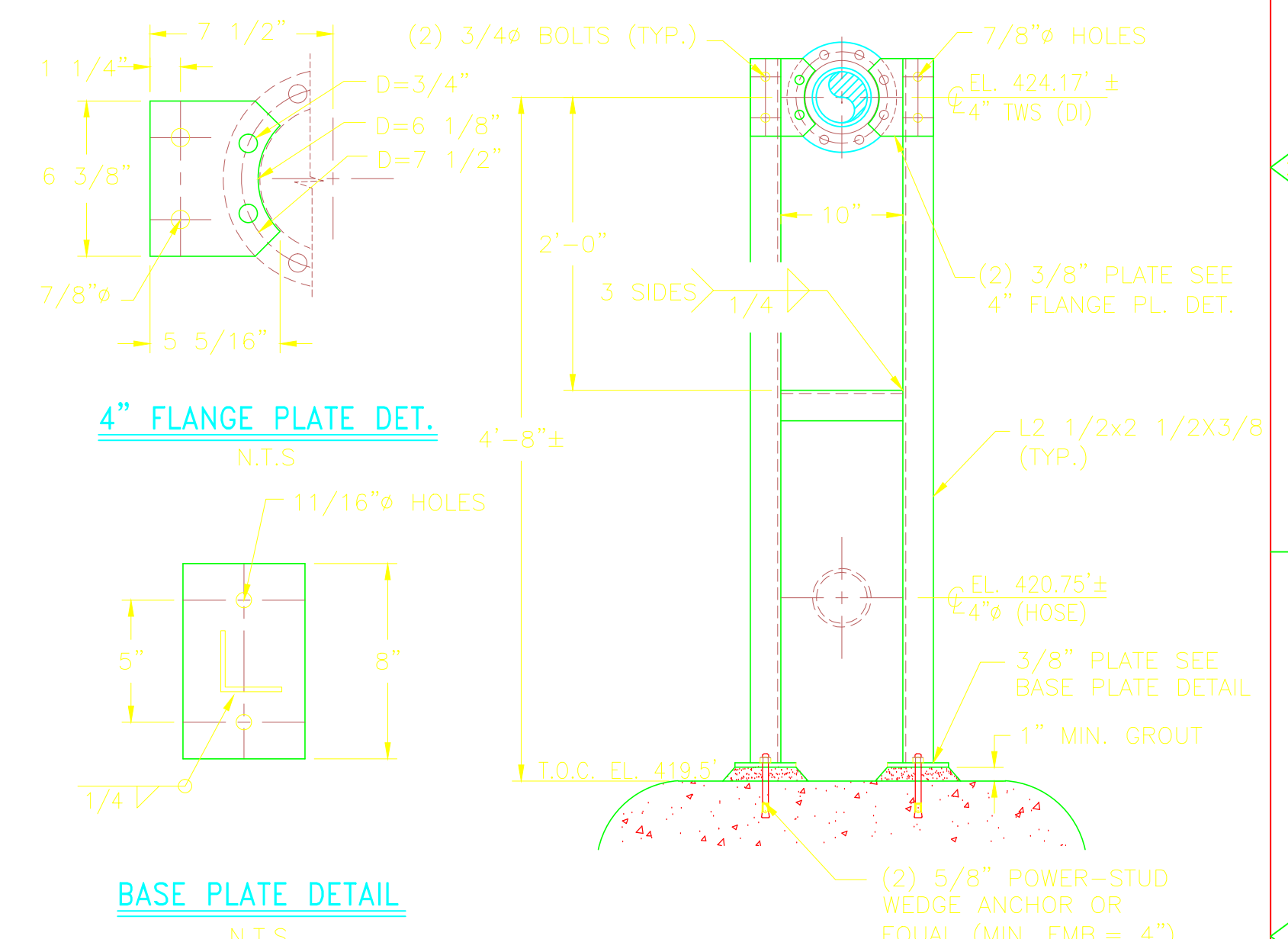
6" FLANGE PLATE DET.
N.T.S.

TBPS1-PS-06



4" FLANGE PLATE DET.
N.T.S.

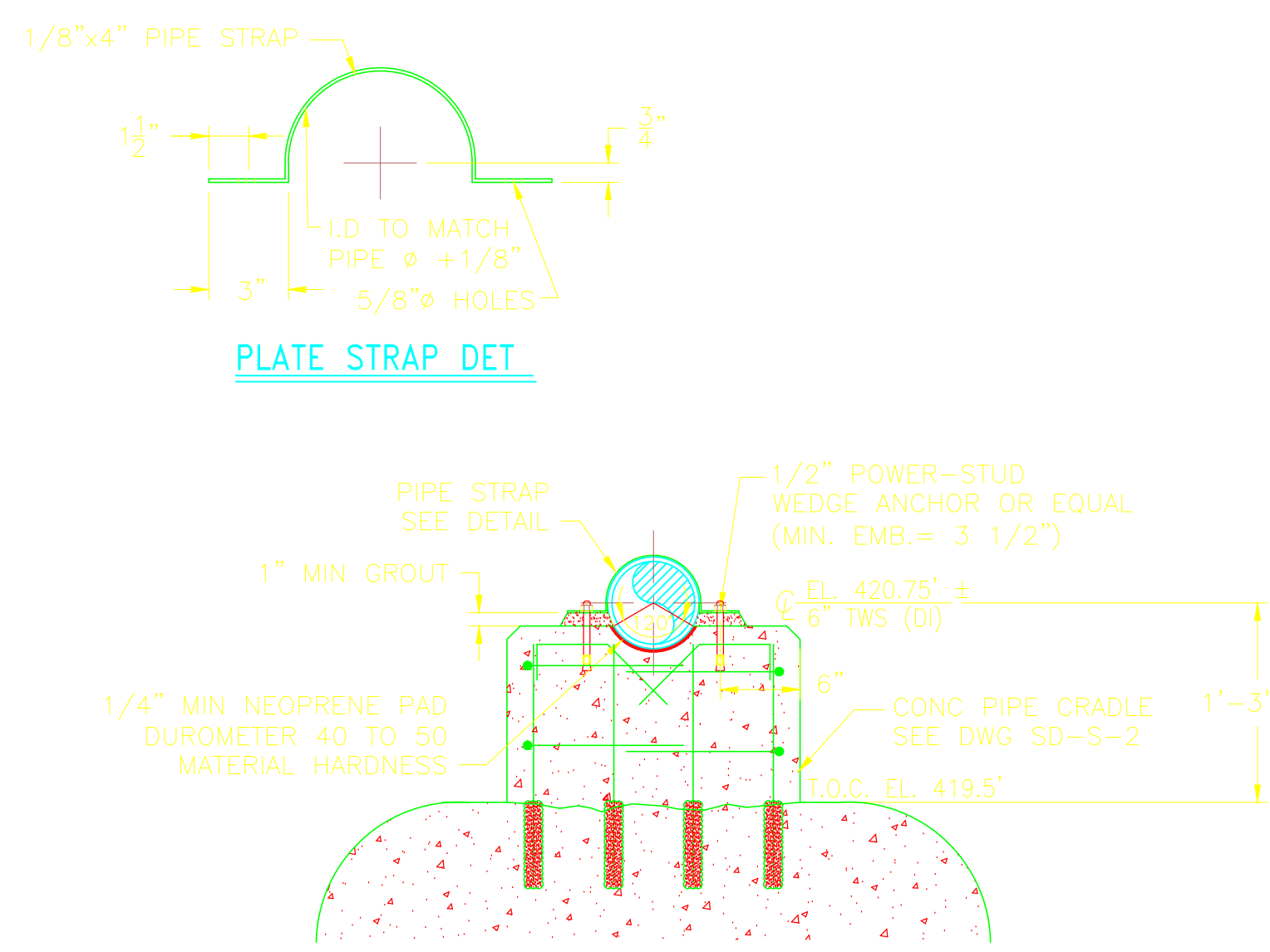
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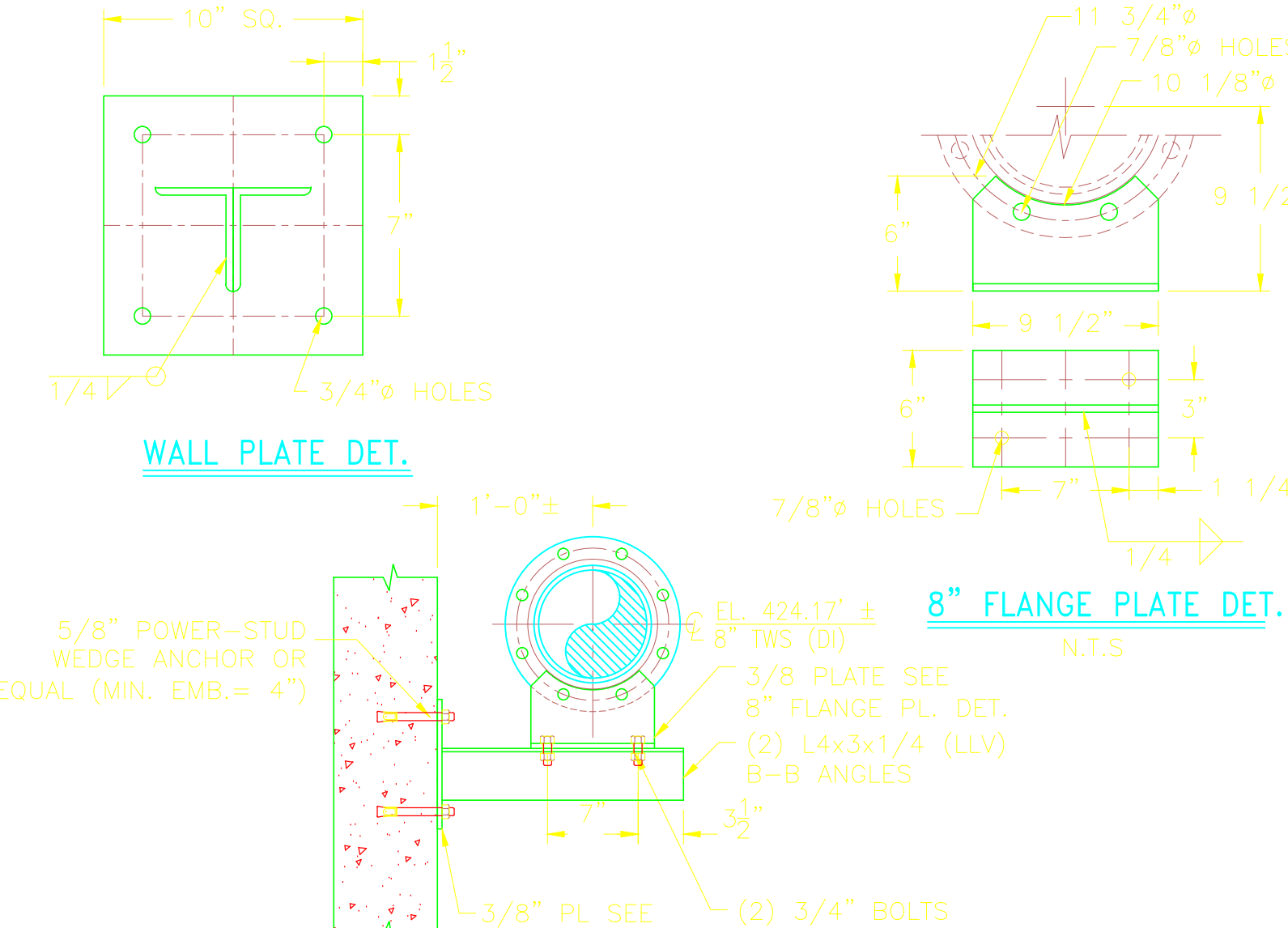
4" FLANGE PLATE DET.
N.T.S.

BASE PLATE DETAIL
N.T.S.

TBPS1-PS-08

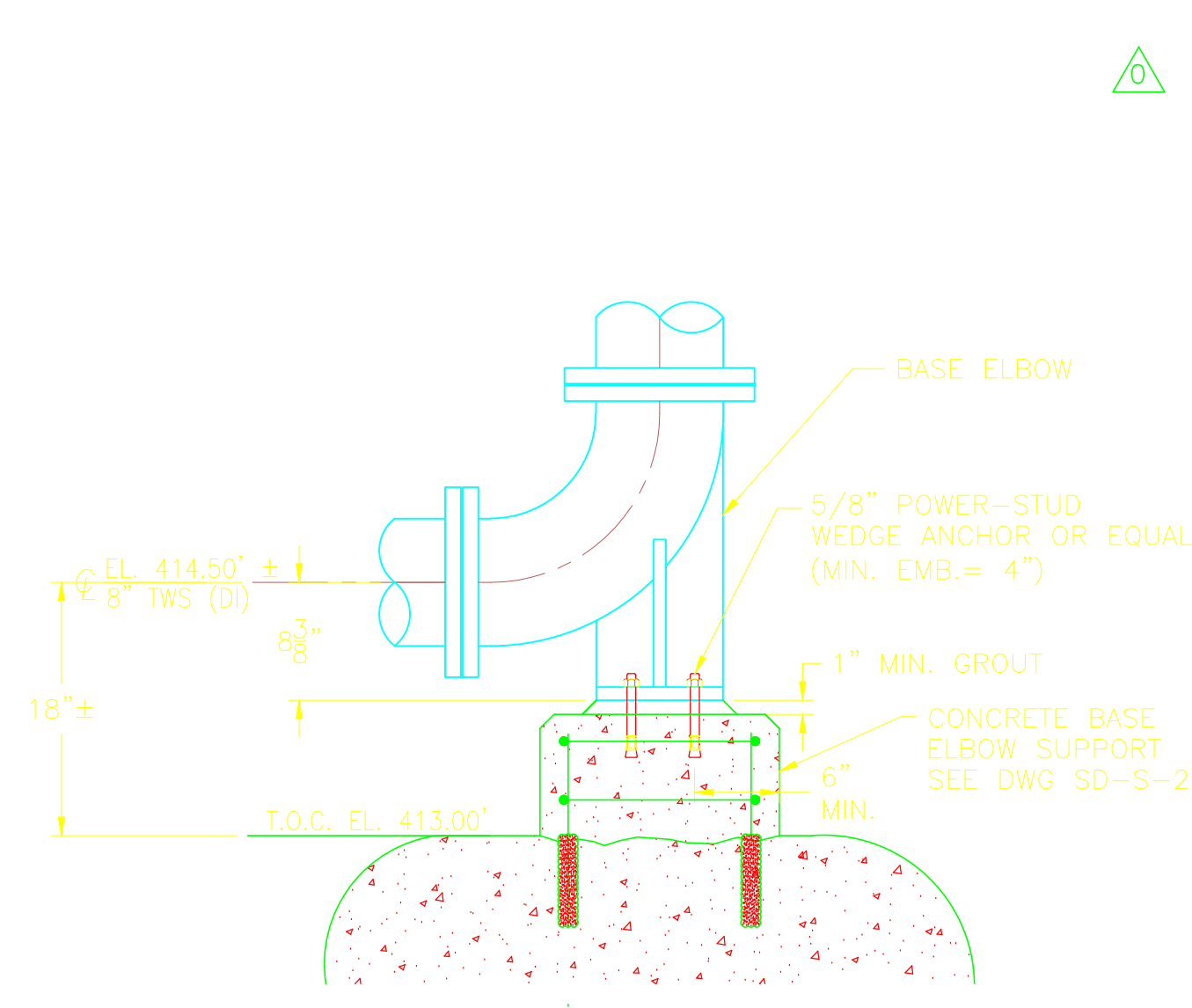


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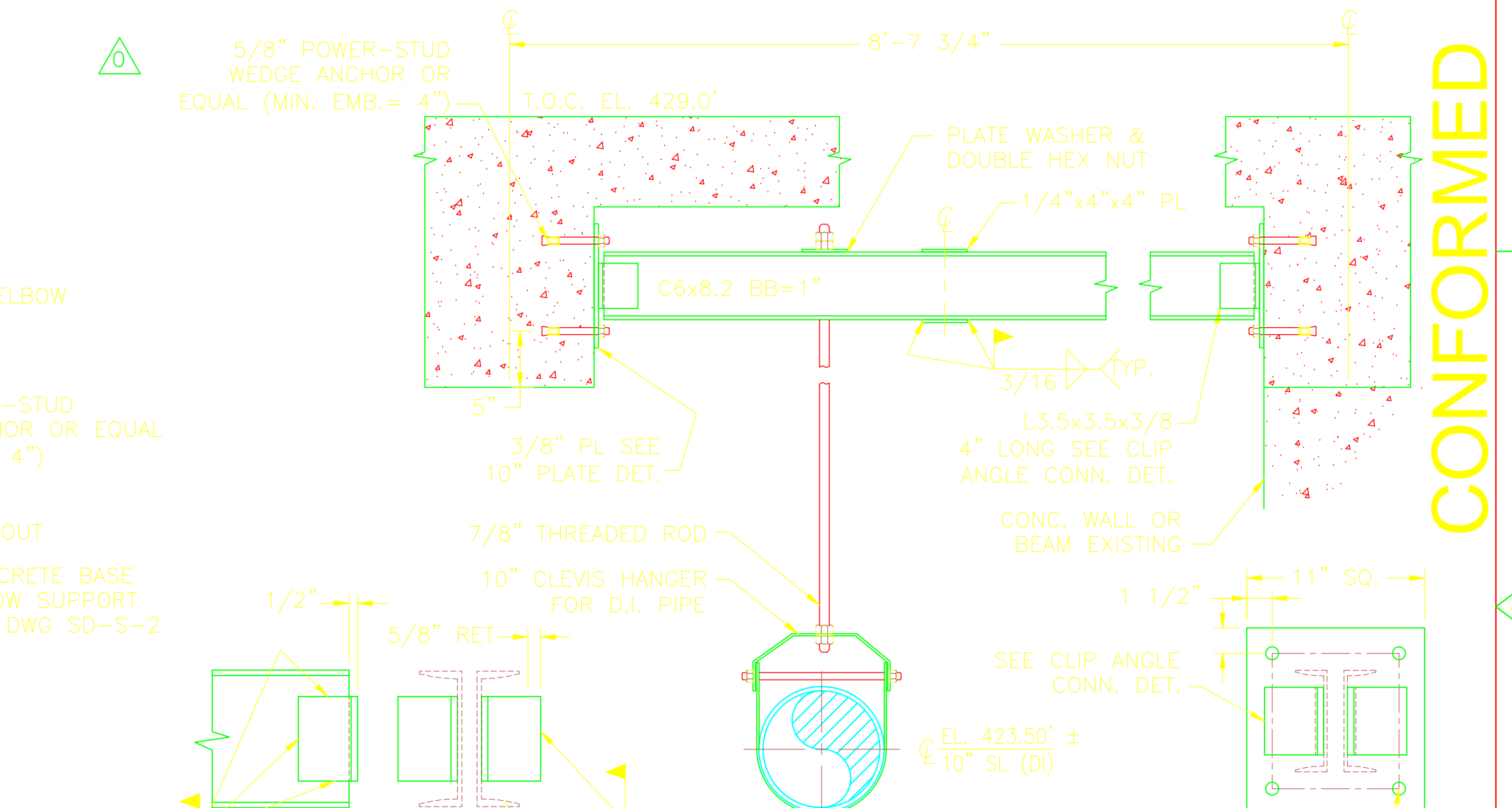


8" FLANGE PLATE DET.
N.T.S.

TBPS1-PS-10



TBPS1-PS-11



CLIP ANGLE CONN. DET.
N.T.S.

TBPS1-PS-12

10" PLATE DET.
N.T.S.

CONFORMED

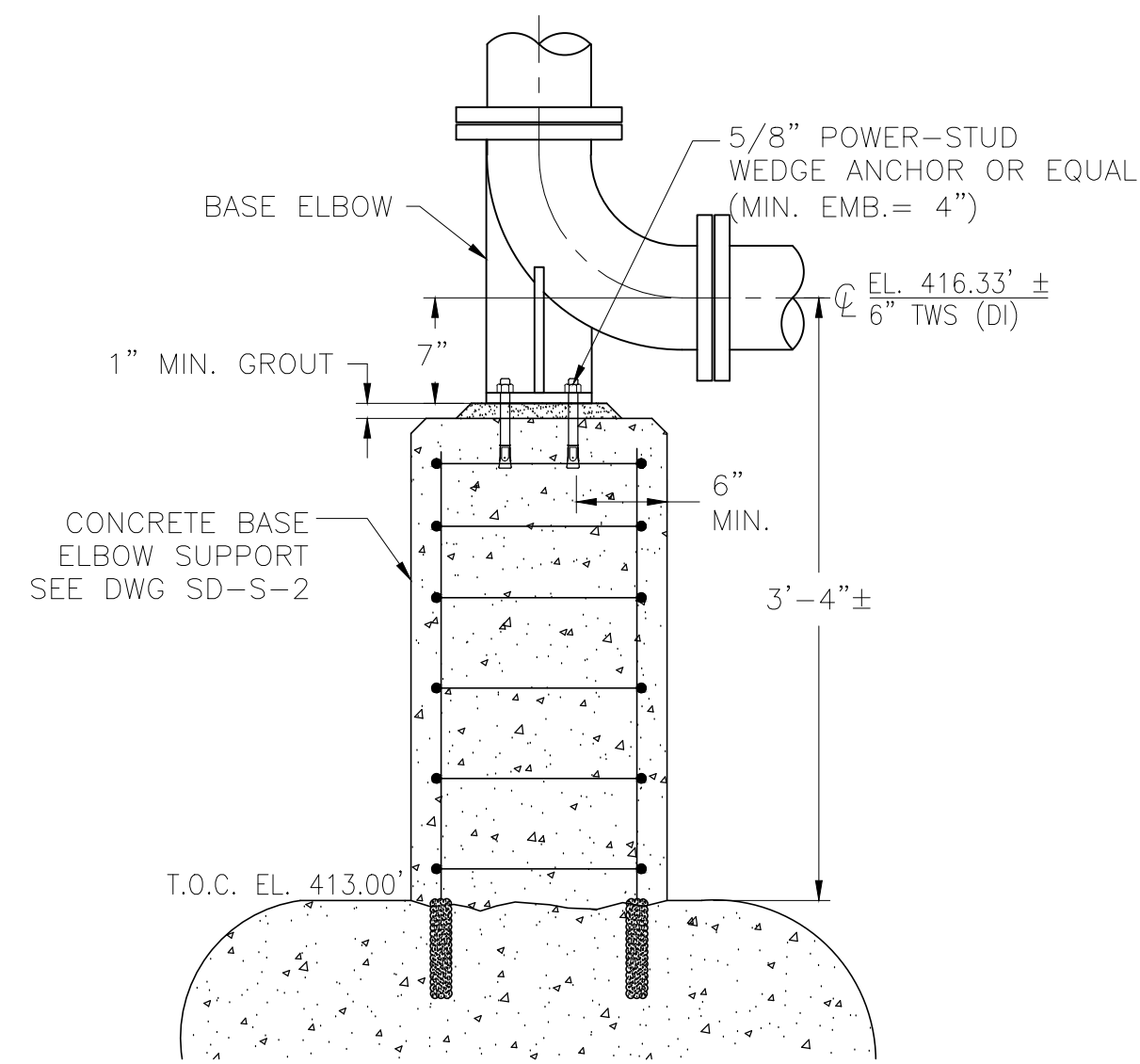
REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MTBPSD101
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

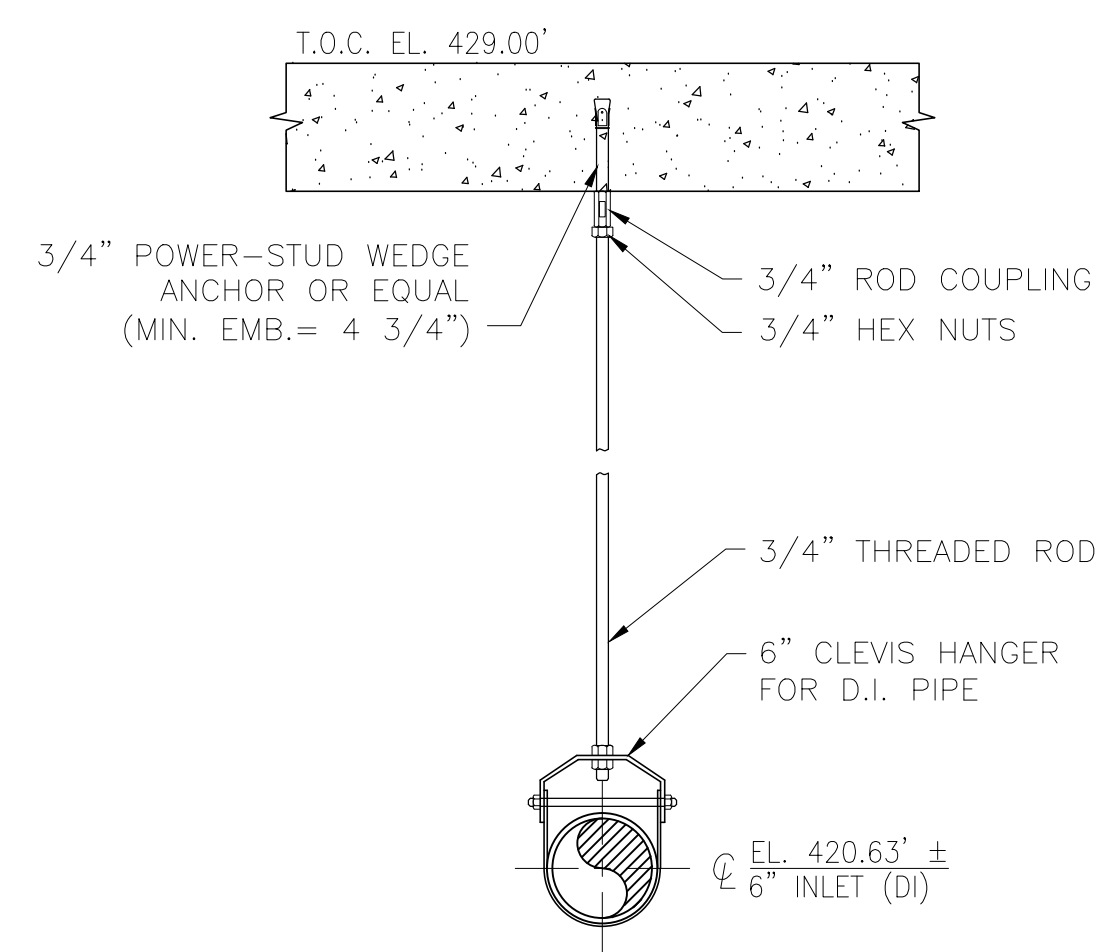
CDM
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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

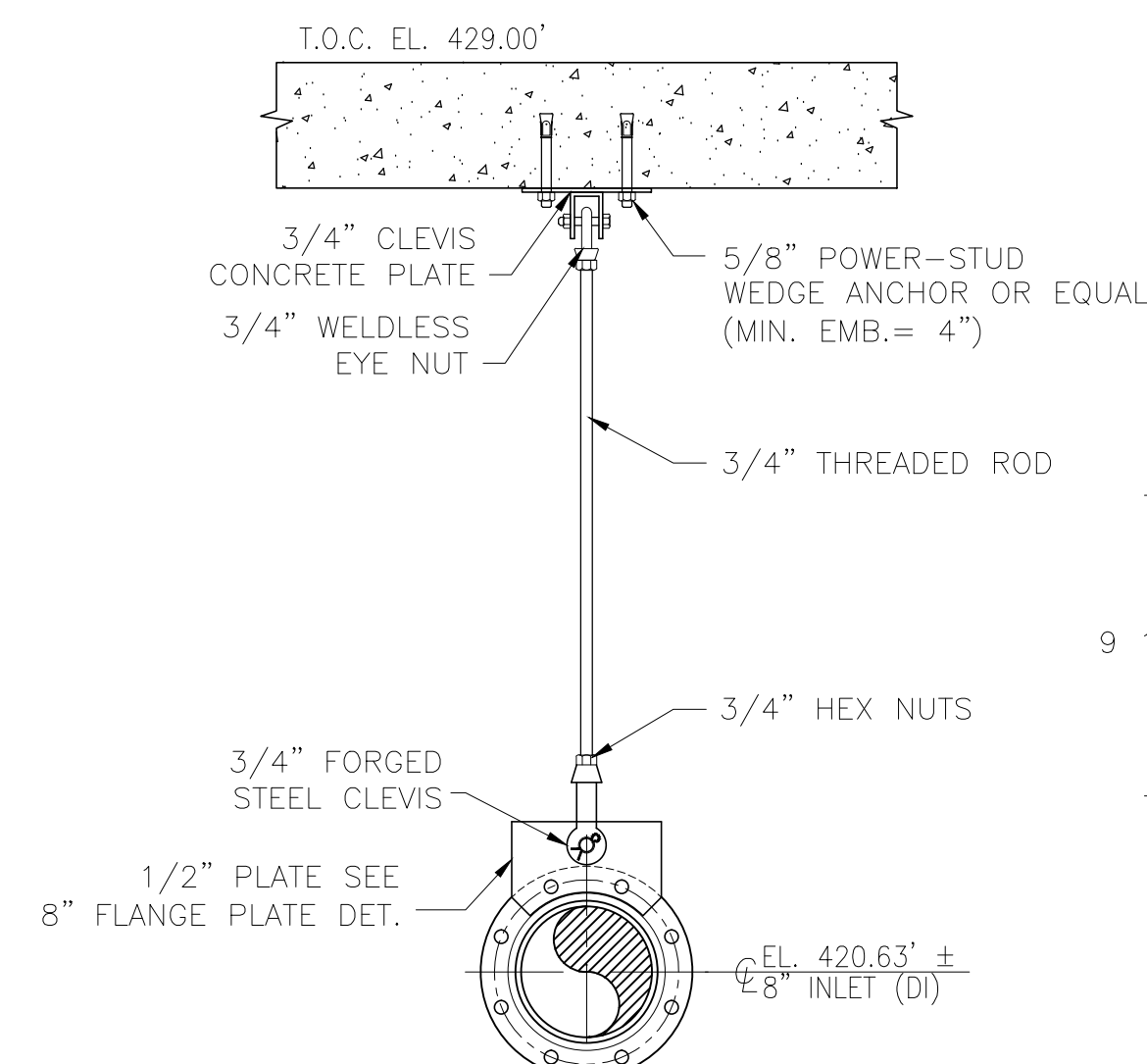
THICKENER BUILDING
 PIPE SUPPORT DETAILS I
 PROJECT NO. 1289-74283
 Sht. 149 of 312
 TB-SD-1
 Acc # 1289-74555



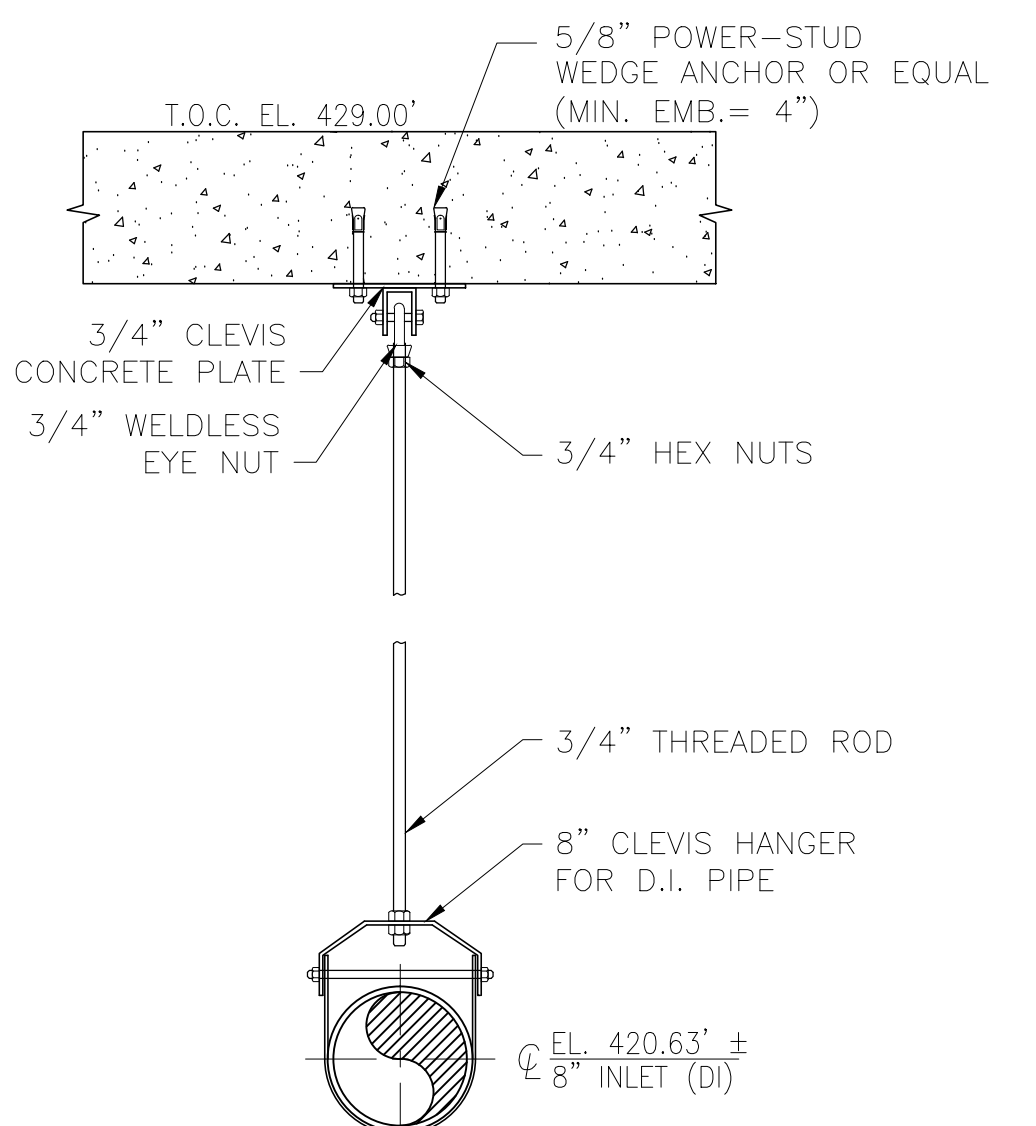
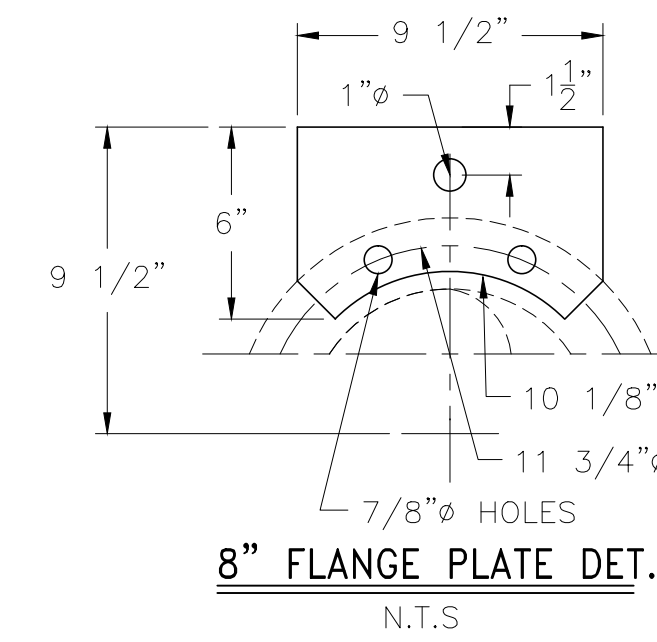
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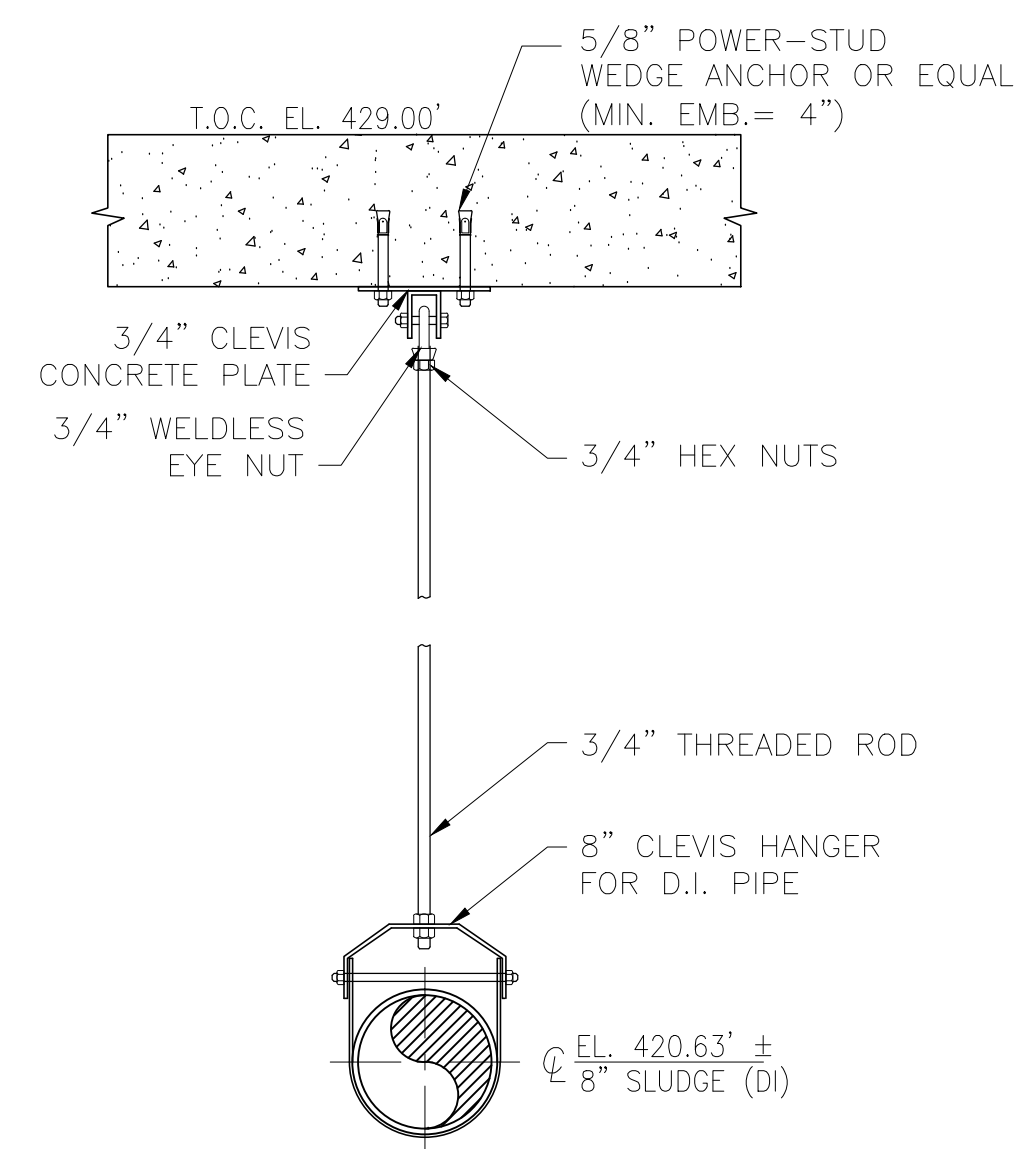
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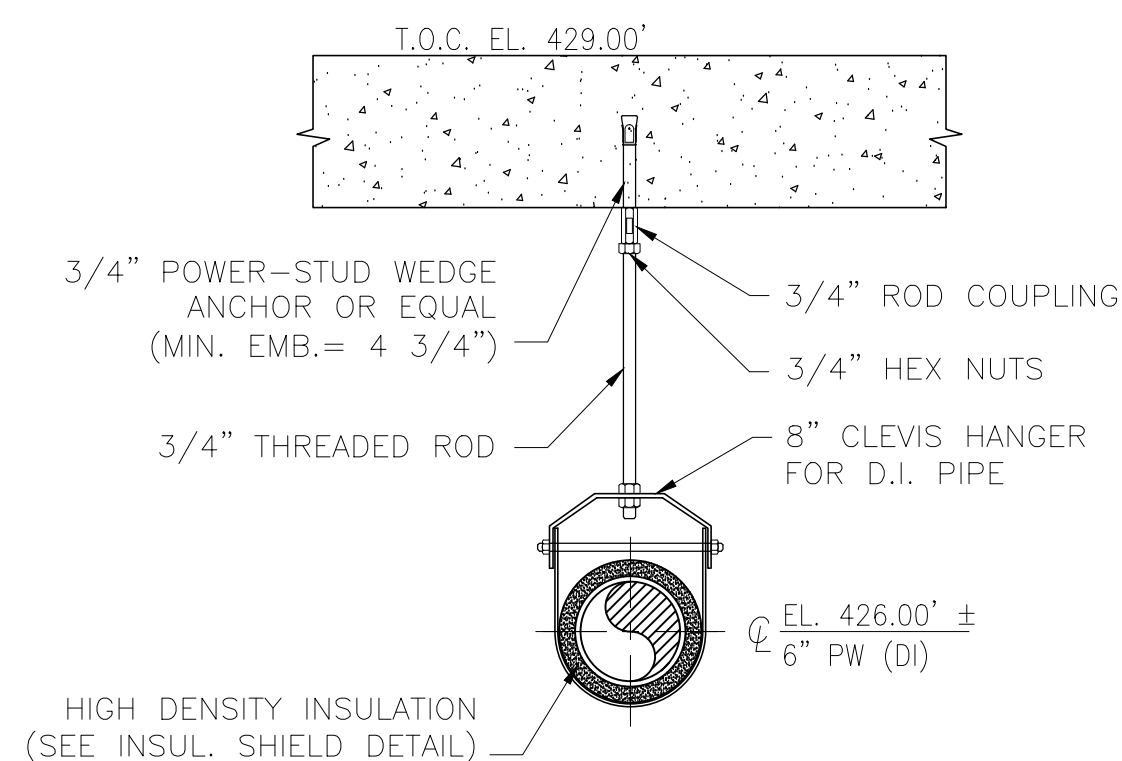
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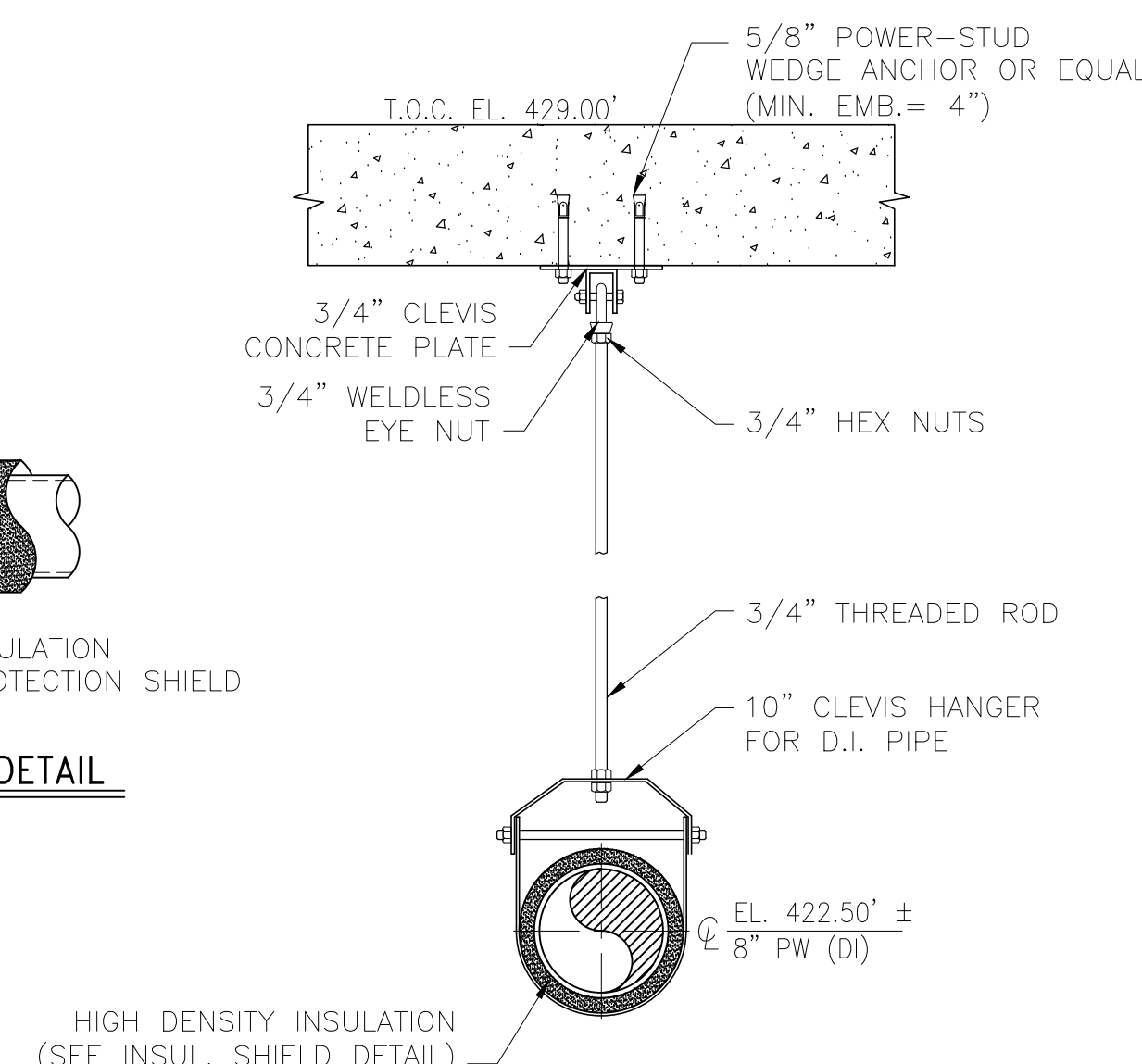
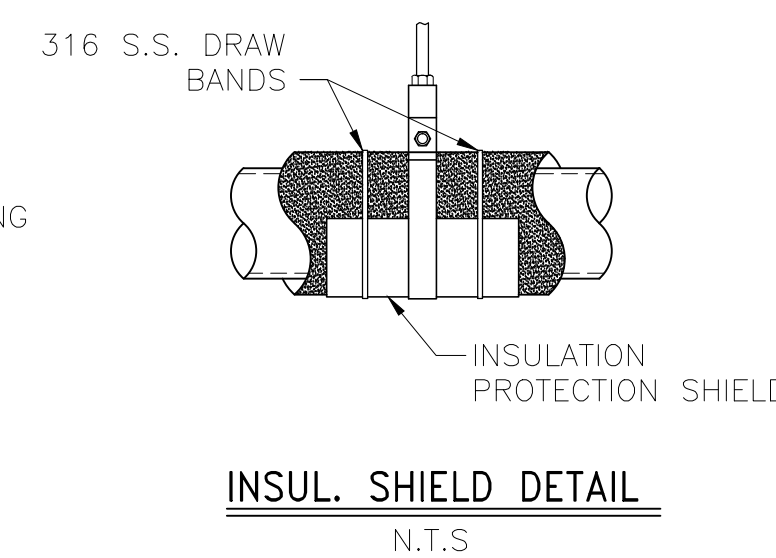
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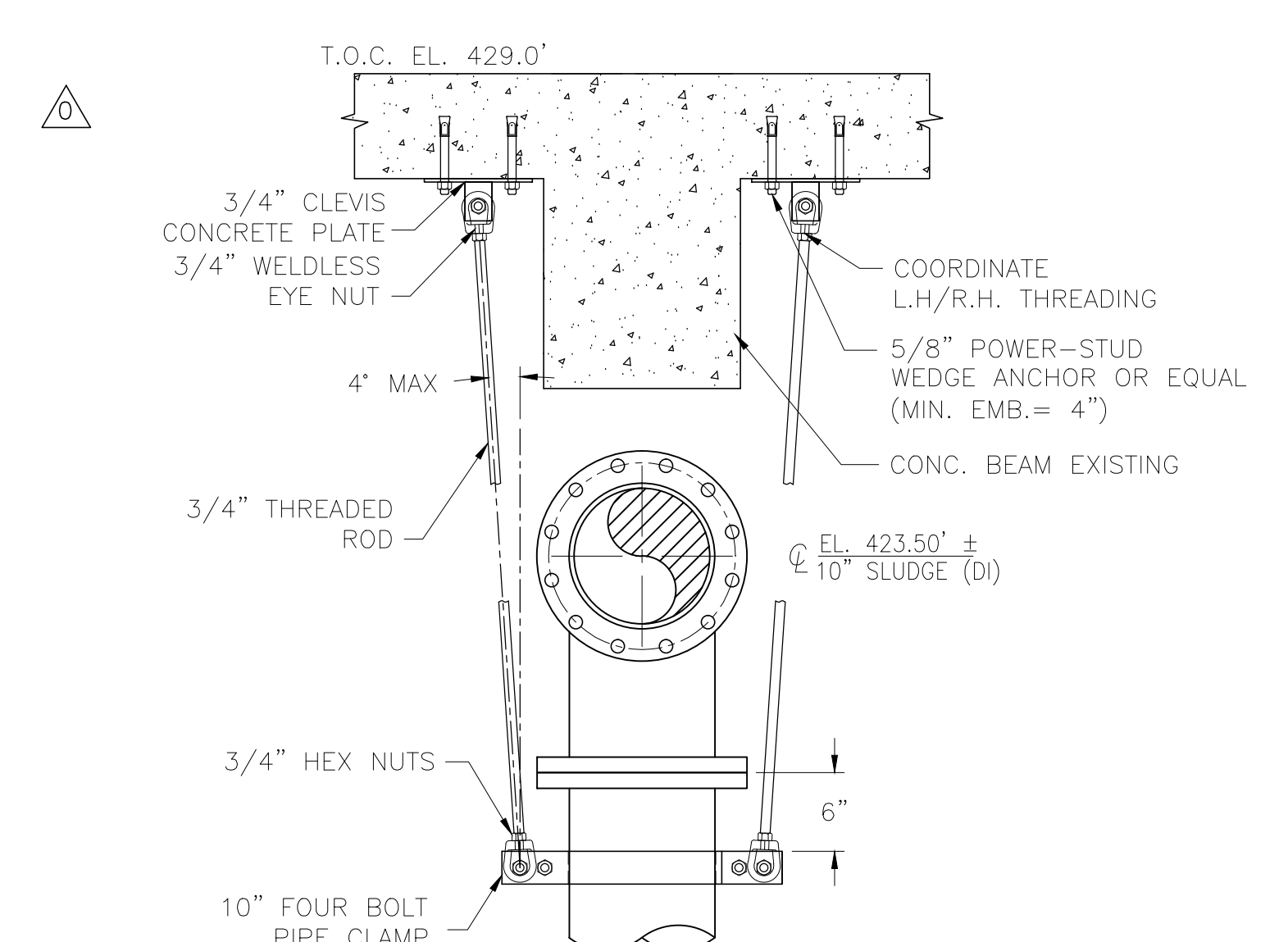
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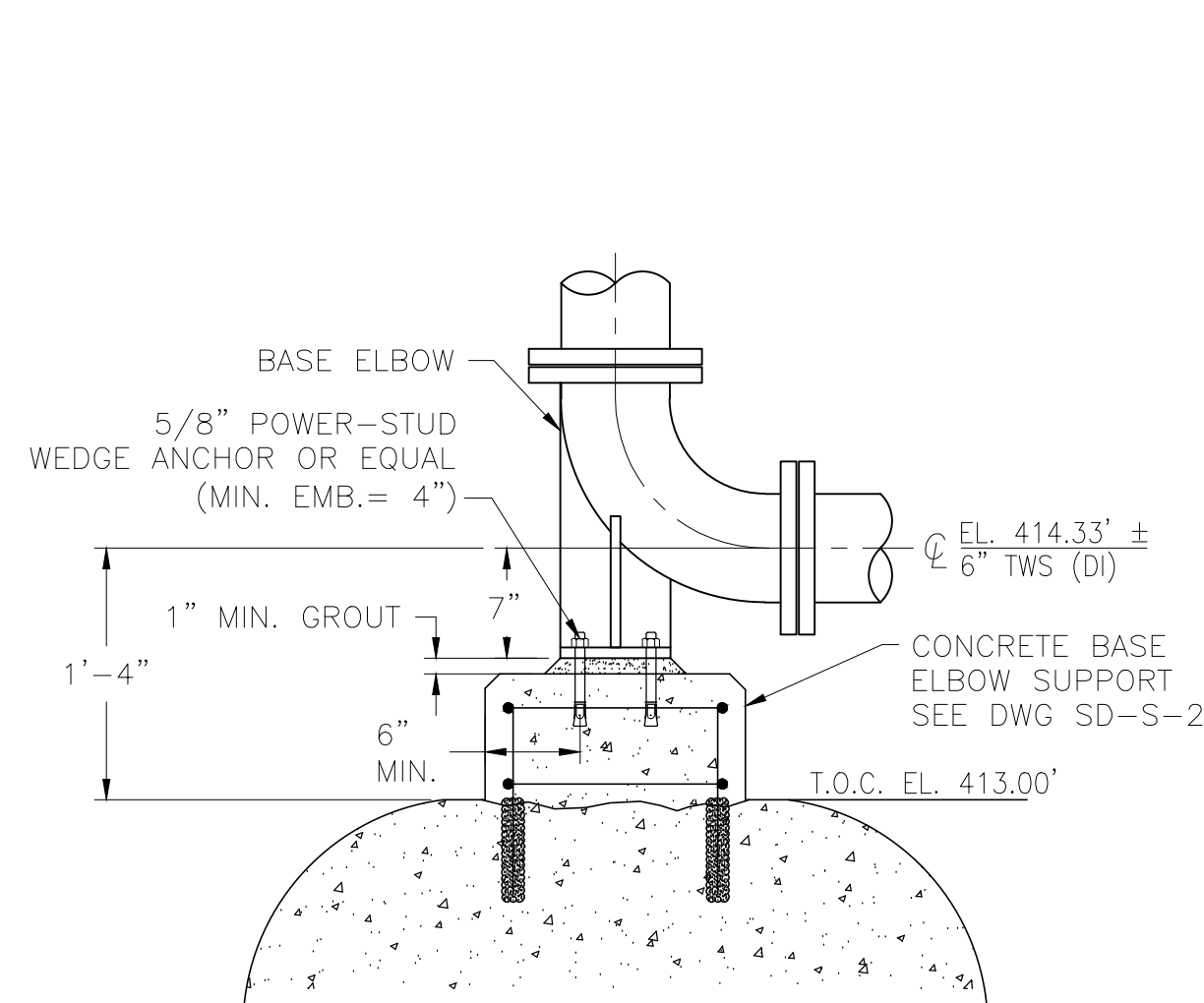
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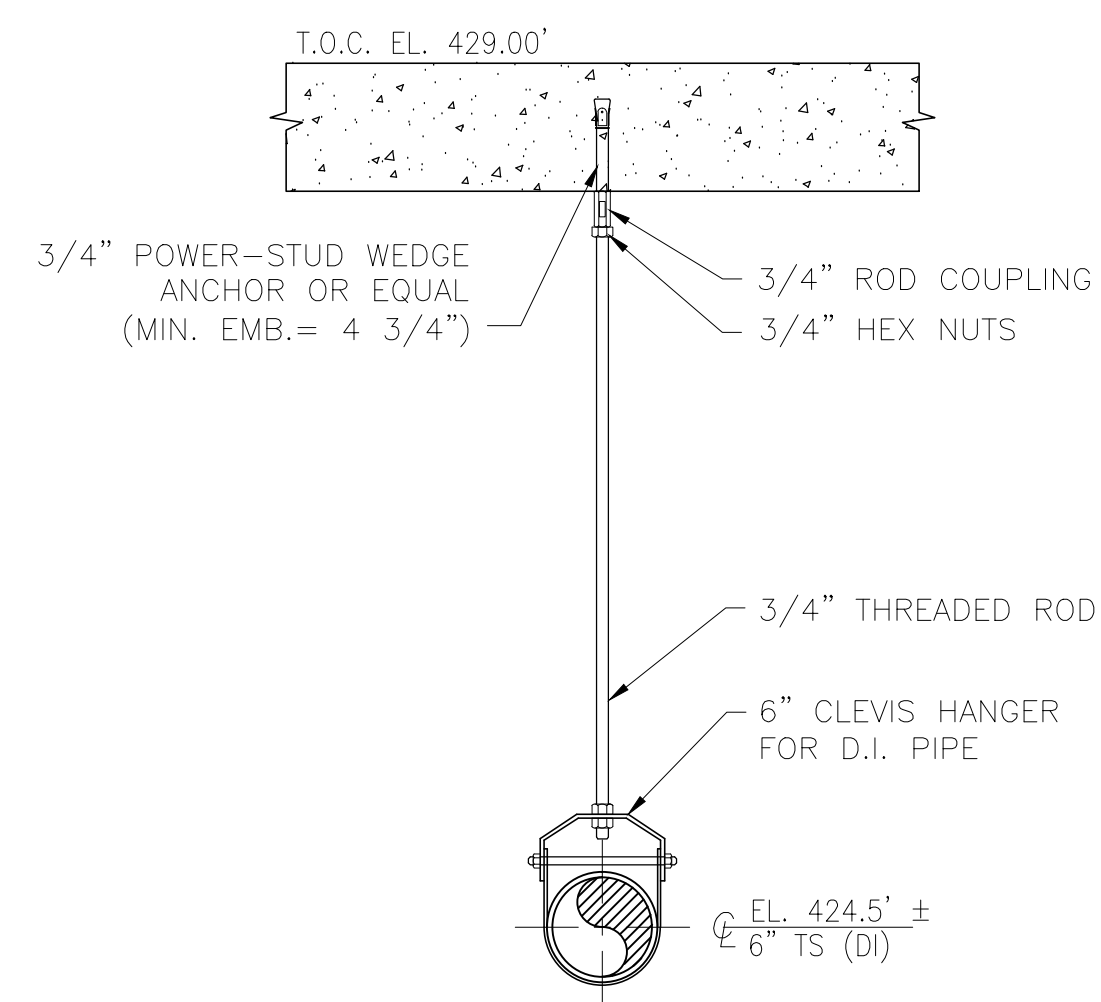
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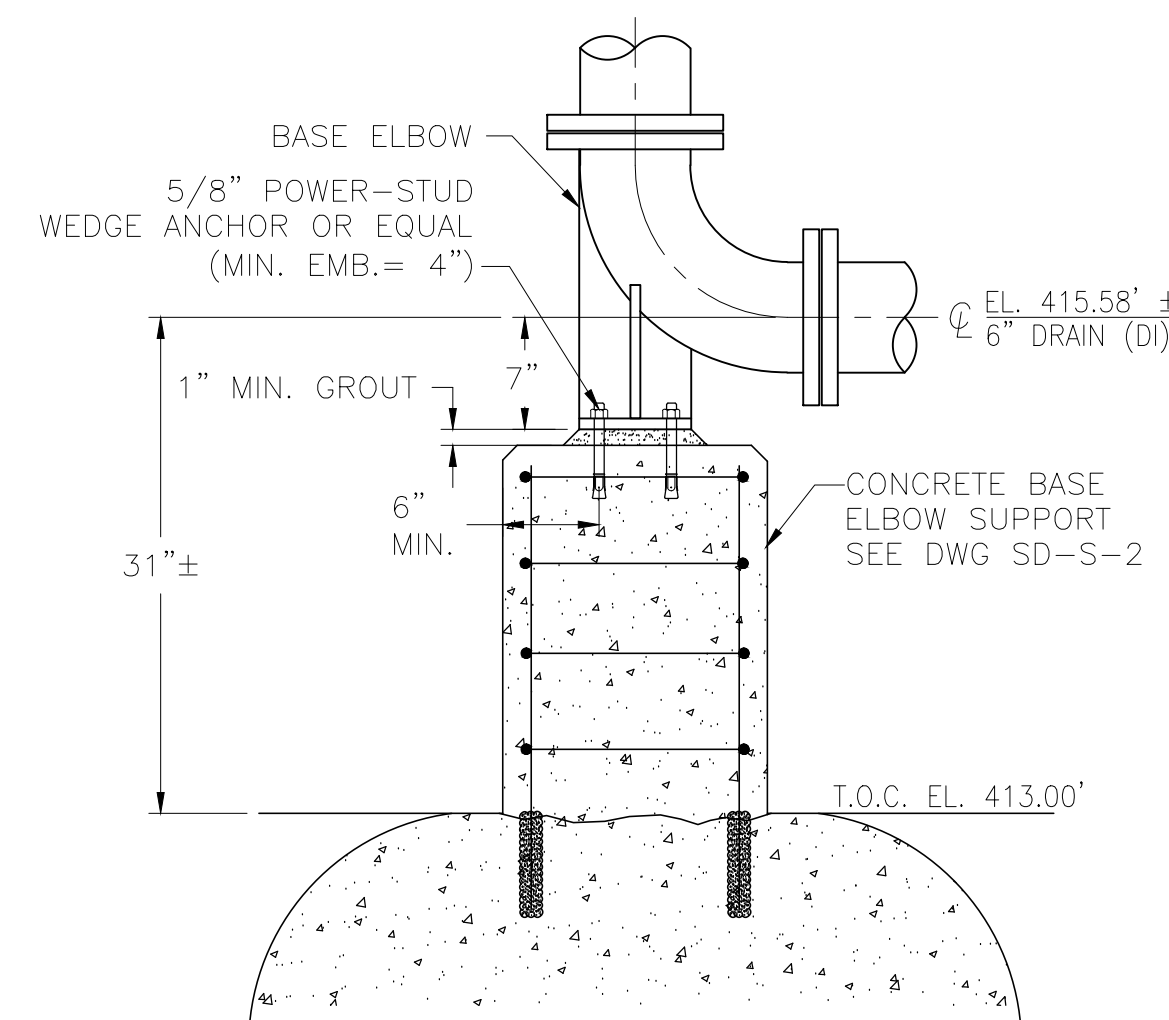
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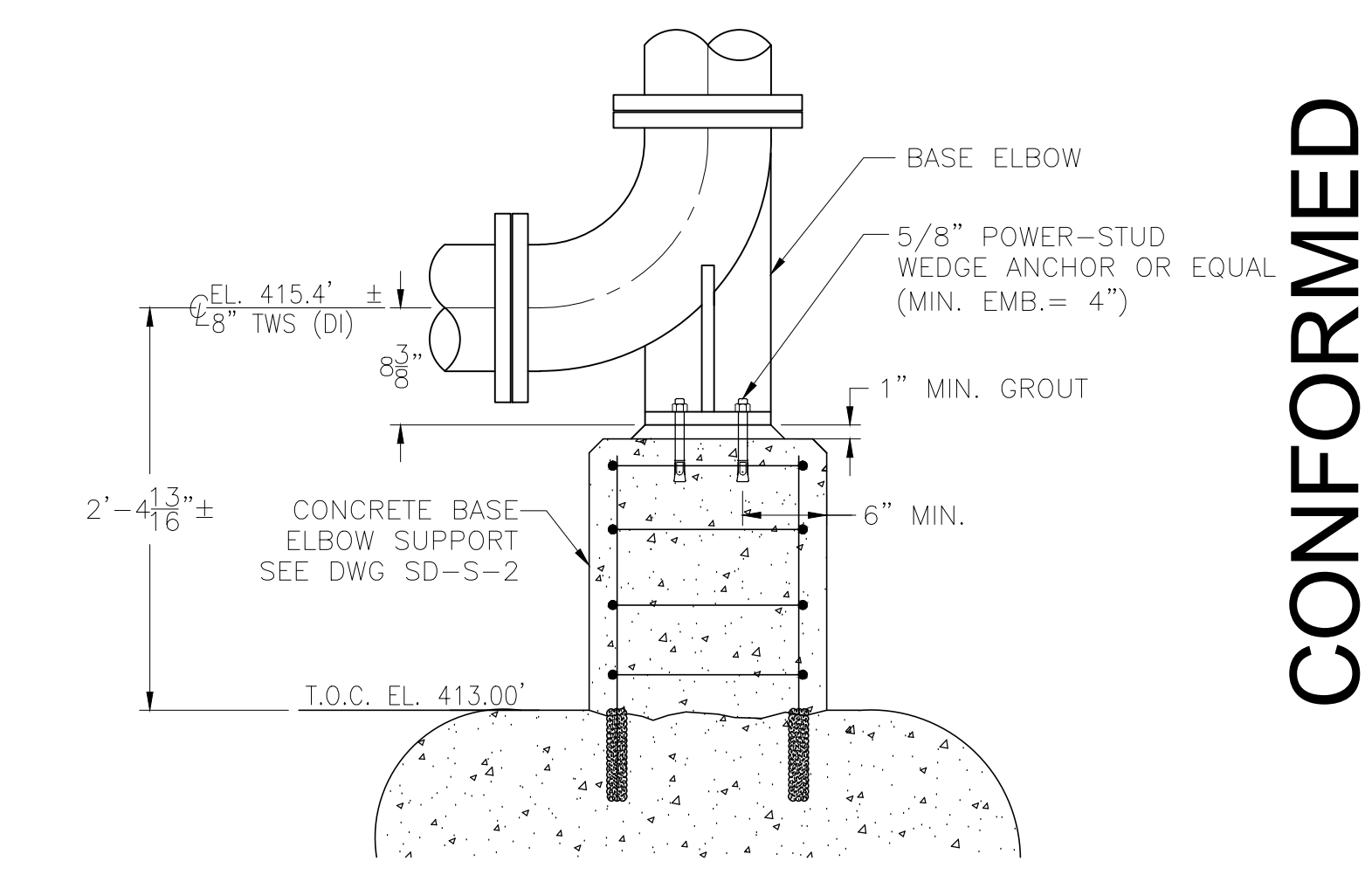
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TBPS1-PS-22



TBPS1-PS-23



TBPS1-PS-24

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MTBPSDT02
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

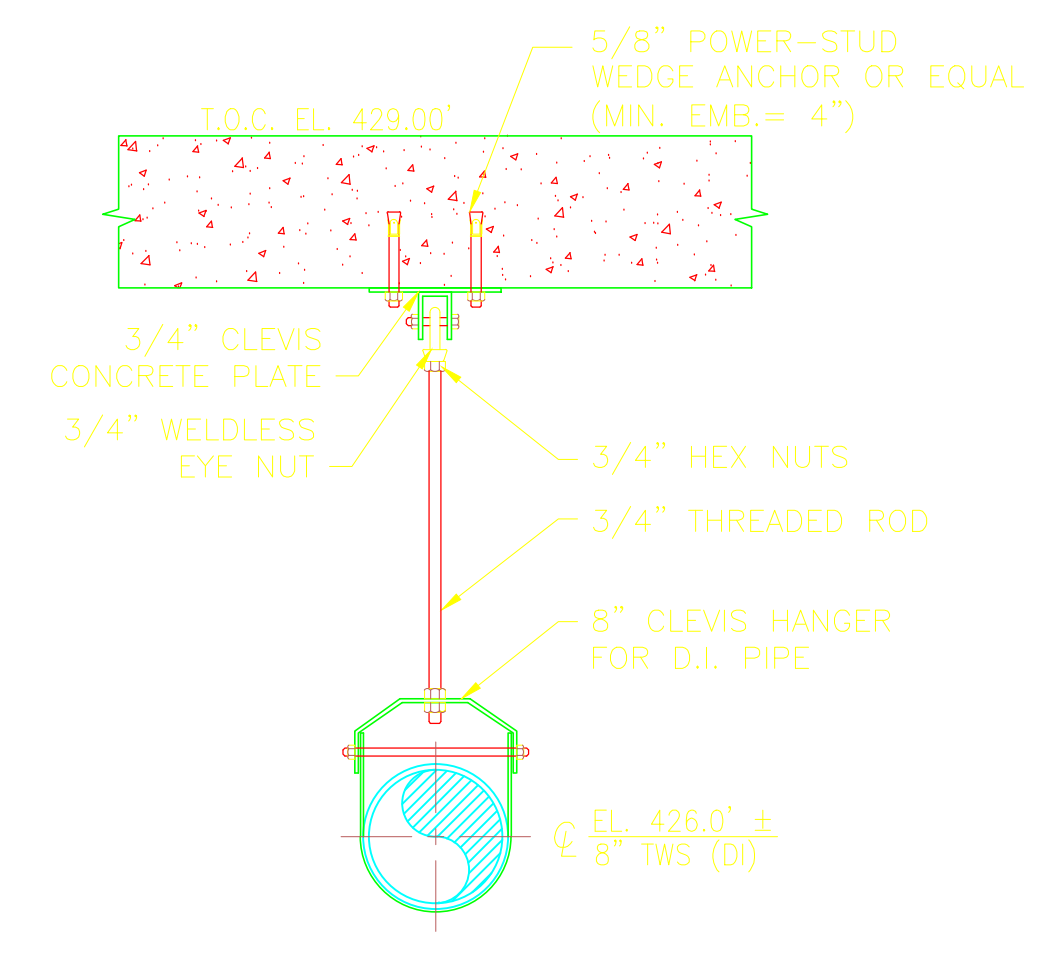
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

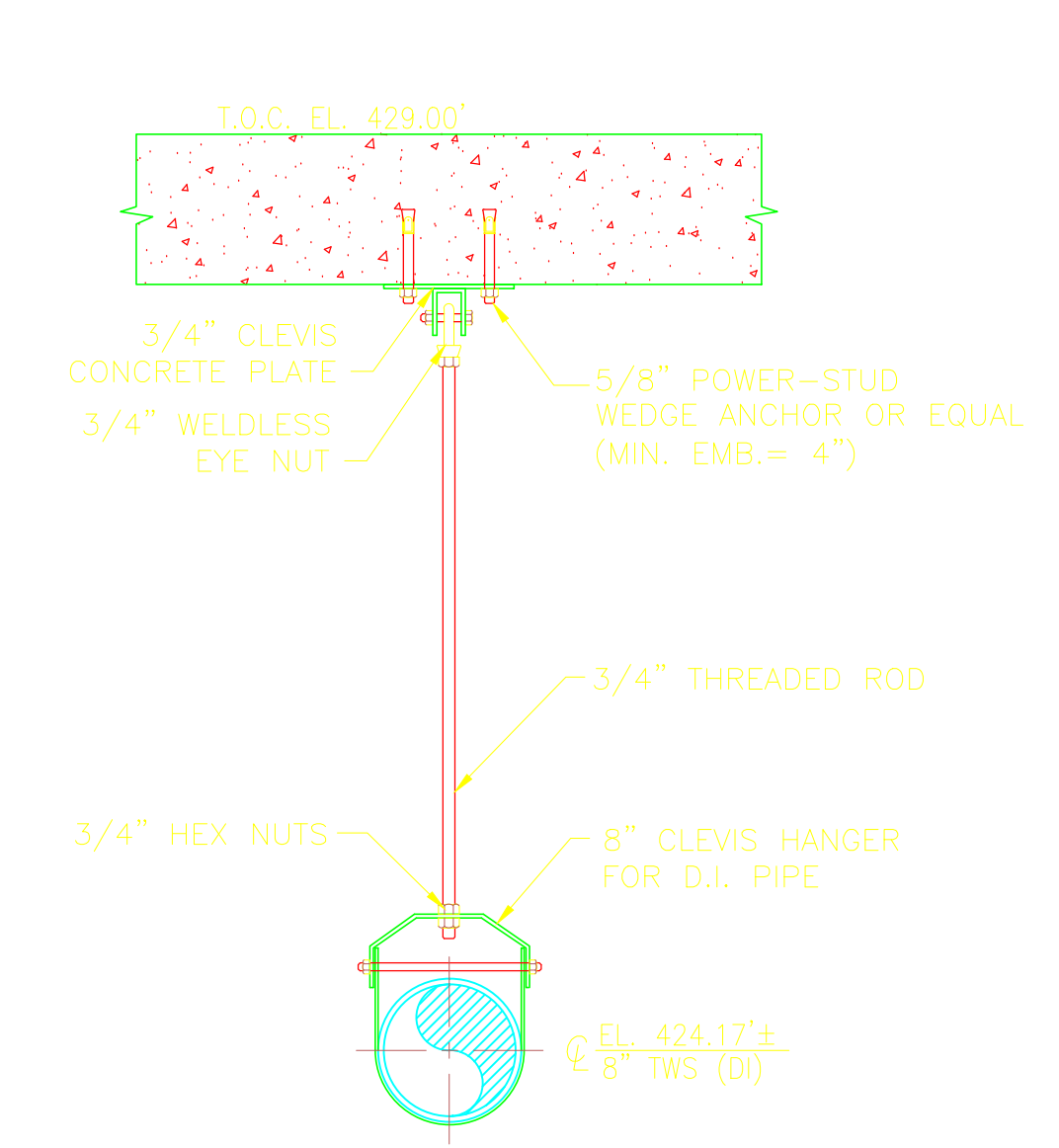
THICKENER BUILDING
 PIPE SUPPORT DETAILS II

PROJECT NO.
 1289-74283
 Sht. 150 of 312
 TB-SD-2
 Acc # 1289-74556

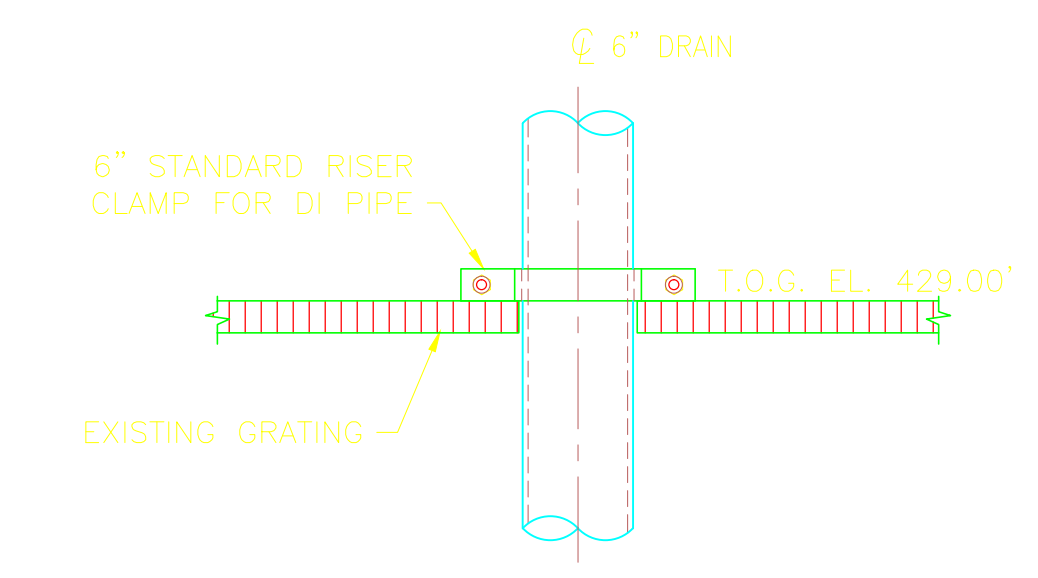
CONFORMED



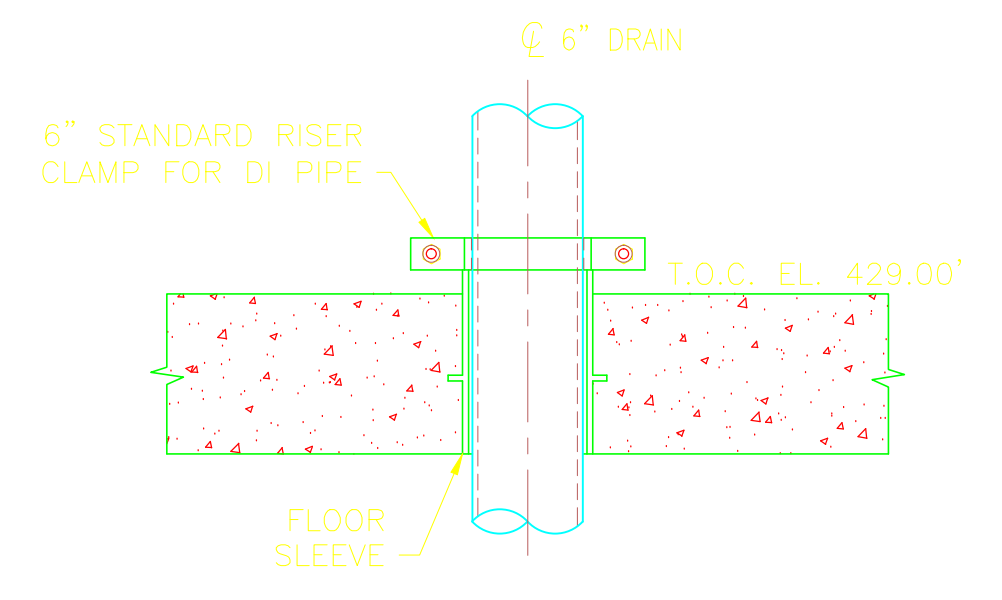
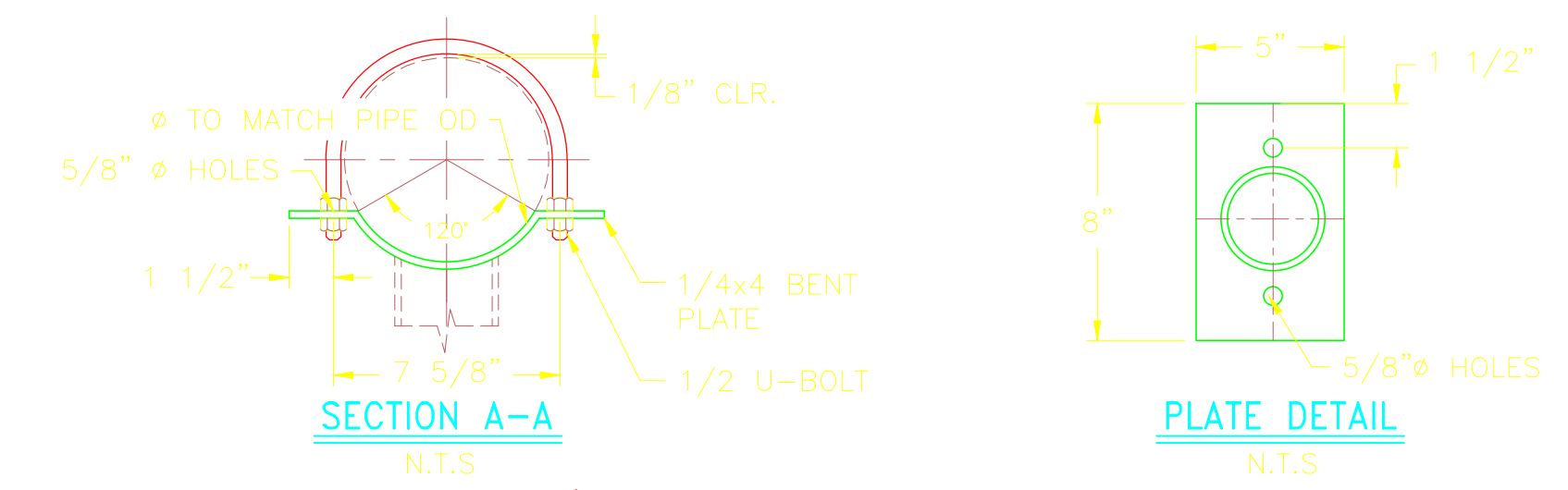
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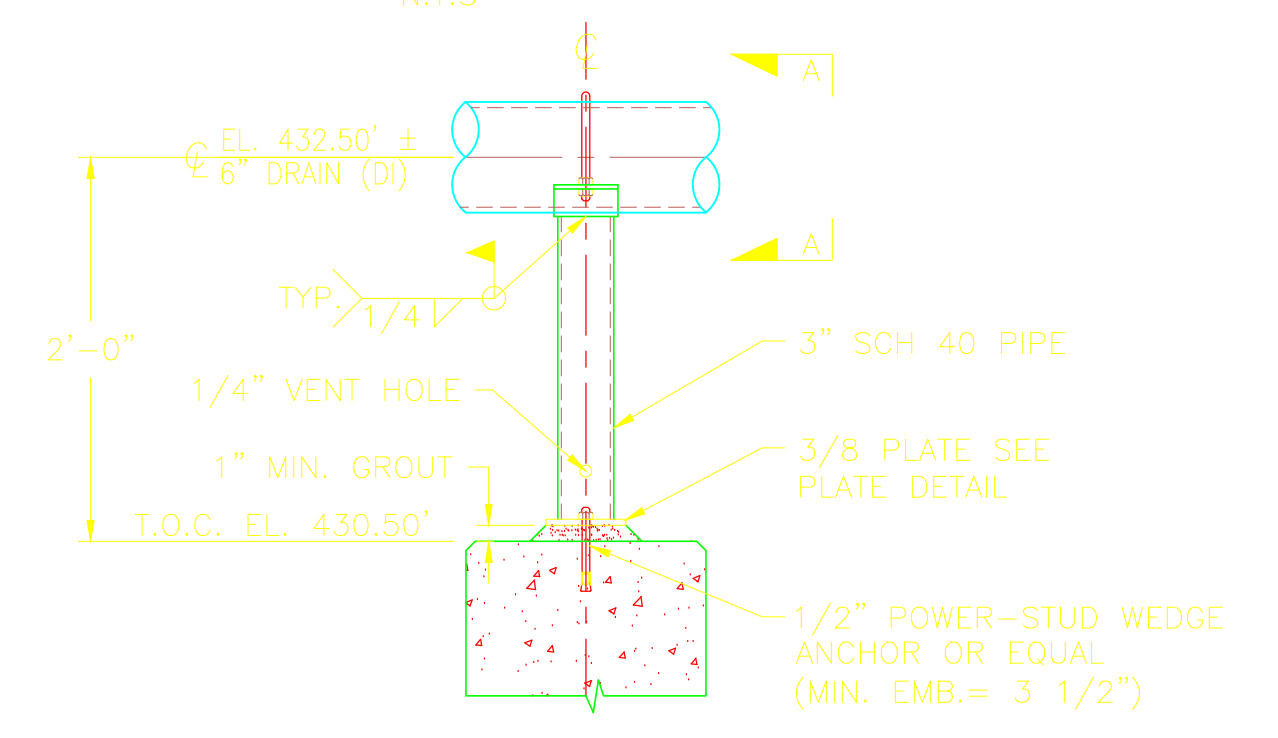
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TBPS2-PS-01



TBPS2-PS-02



TBPS2-PS-03

GENERAL NOTES

- ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
- UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED. COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
- FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MTBPSD03
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

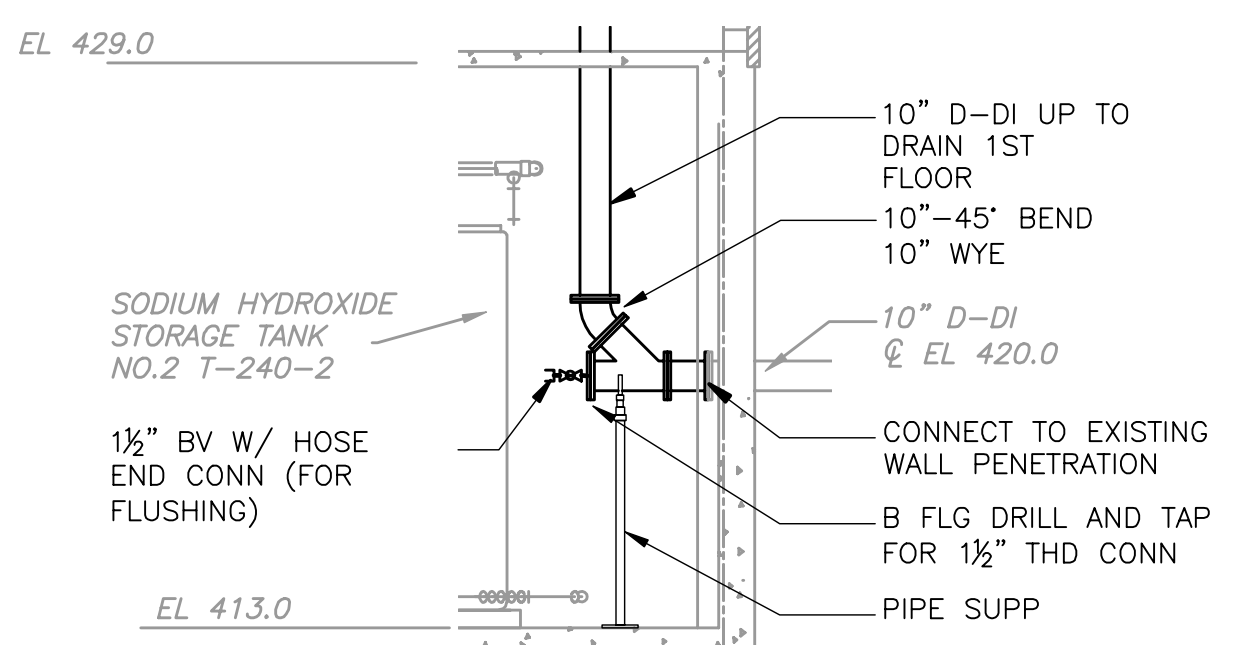
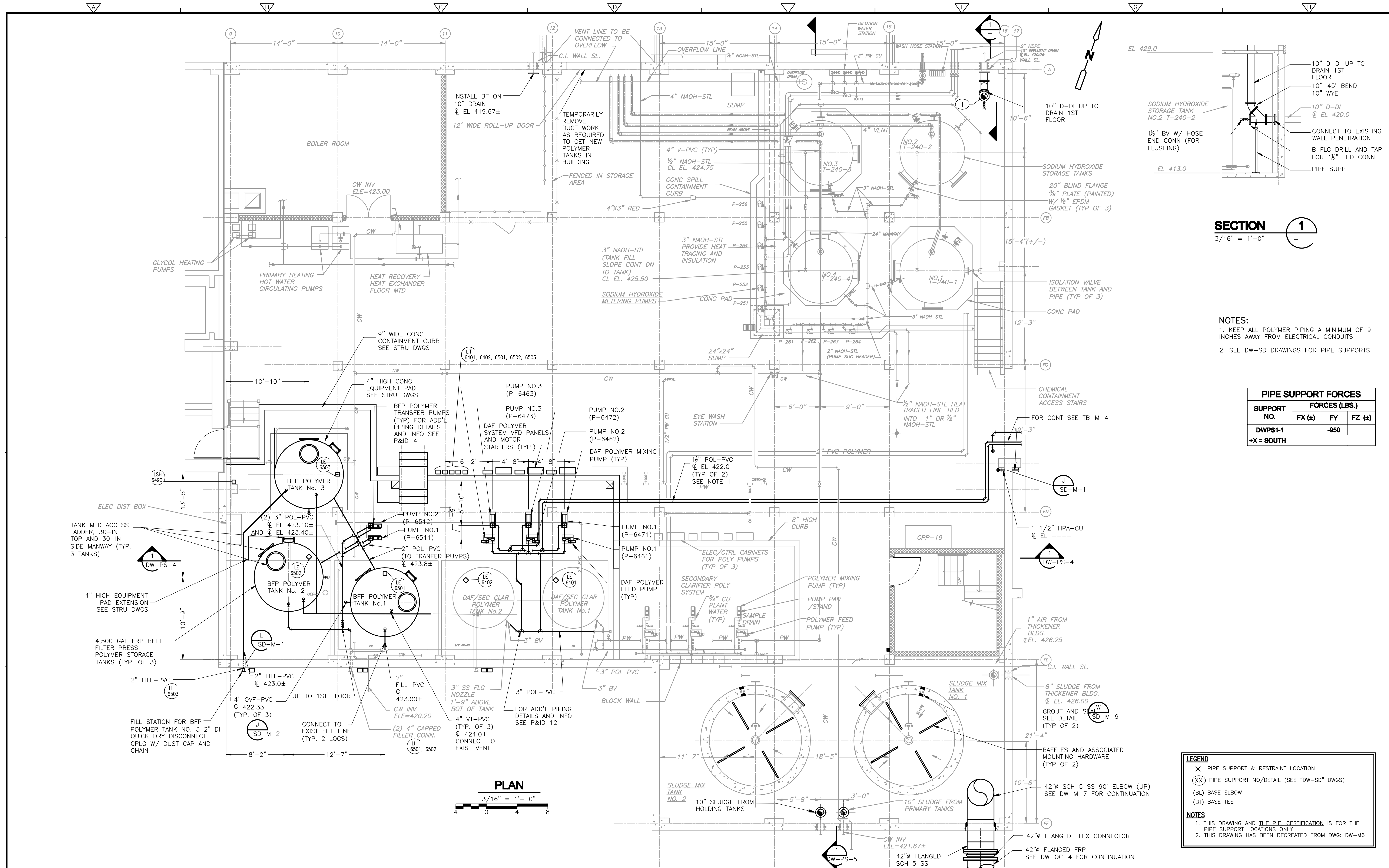
**THICKENER BUILDING
 PIPE SUPPORT DETAILS III**

PROJECT NO.
1289-74283

Sht. 151 of 312

TB-SD-3

Acc # 1289-74557



SECTION 1
3/16" = 1'-0"

NOTES:
 1. KEEP ALL POLYMER PIPING A MINIMUM OF 9 INCHES AWAY FROM ELECTRICAL CONDUITS
 2. SEE DW-SD DRAWINGS FOR PIPE SUPPORTS.

PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
DWPS1-1		-950	

+X = SOUTH

LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-M6

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MDWPS001.DWG
 DESIGNED BY: K. WAGNER
 DRAWN BY: W. DORSEY
 SHEET CHK'D BY: K. WAGNER
 CROSS CHK'D BY: D. MURPHY
 SCALE: AS NOTED
 APPROVED BY: W.D. GREEN
 DATE: JULY 2010

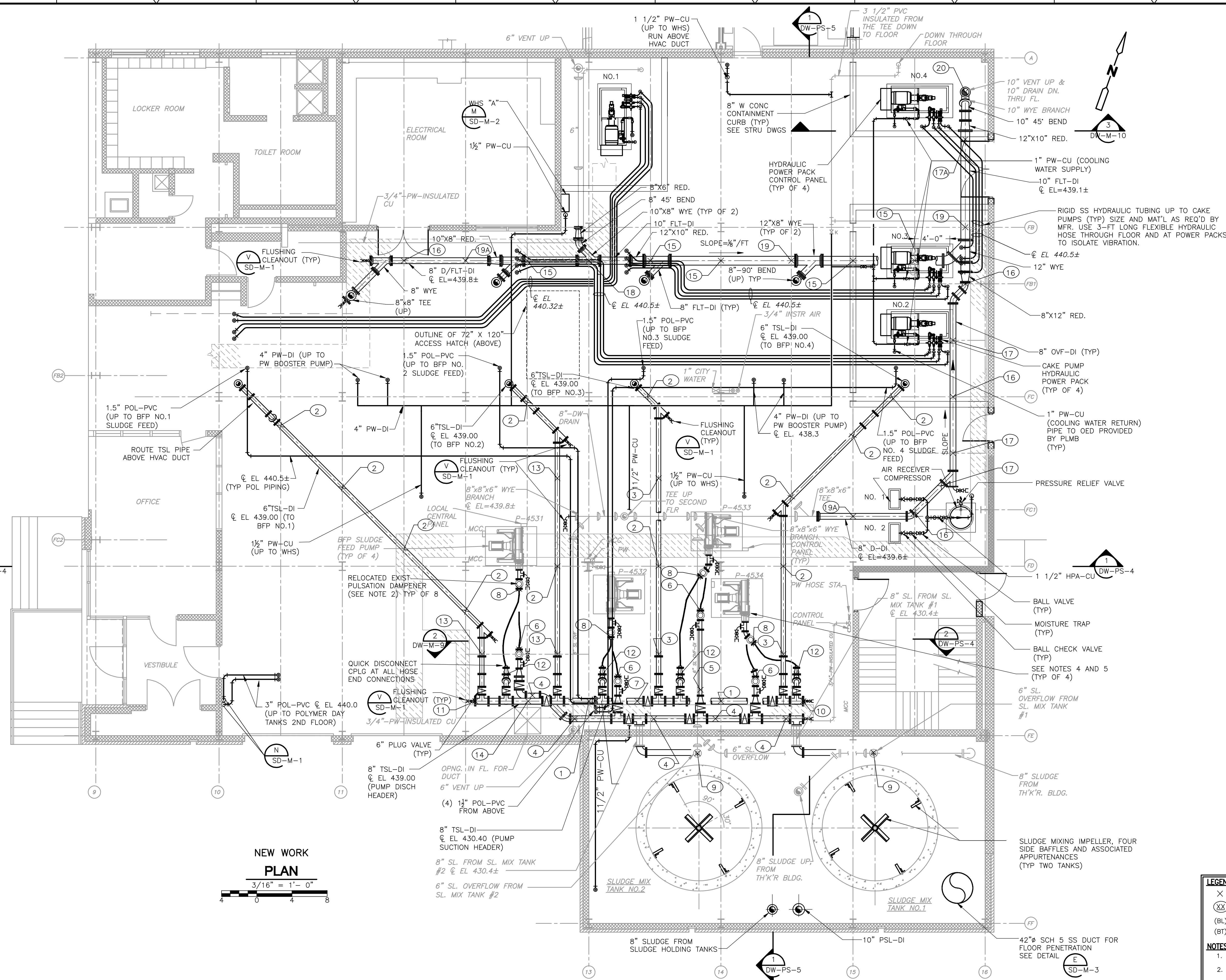
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 60 Hampshire Street
 Cambridge, MA 02138
 Tel: (617) 452-8000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

DEWATERING BUILDING
BASEMENT PIPE SUPPORT PLAN

PROJECT NO. 1289-74283
 Sht. 152 of 312
DW-PS-1
 Acc # 1289-74558



- NOTES:**
- REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS
 - REUSE ALL EXISTING PULSATION DAMPENERS. (TYP OF 8) NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.
 - SEE DW-SD DRAWINGS FOR PIPE SUPPORTS
 - SEE P&ID-3 AND ELEC DWGS FOR FLOW ELEMENTS, PRESSURE ELEMENTS AND OTHER INSTRUMENTATION
 - EXISTING HOSE PUMPS ARE ON PADS/SKIDS OF VARYING HEIGHTS. EXACT SUCTION AND DISCHARGE ELEVATIONS VARY.

PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
DWPS2-1		-413	
DWPS2-2		-395	
DWPS2-3		-390	
DWPS2-4		-1640	
DWPS2-5		-437	
DWPS2-6		-291	148
DWPS2-7		-219	
DWPS2-8		-203	
DWPS2-9	1242		424
DWPS2-10	667		197
DWPS2-11		-367	
DWPS2-12	571	-1669	447
DWPS2-13		-455	
DWPS2-14	1525	-510	
DWPS2-15		-1030	
DWPS2-16		-586	
DWPS2-17		-434	
DWPS2-17A		-1236	
DWPS2-18		-428	
DWPS2-19		-1230	922
DWPS2-19A		-586	473
DWPS2-20		-924	

+X = SOUTH

LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
- THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-M7

NEW WORK PLAN

3/16" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDWPS002
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	JULY 2010

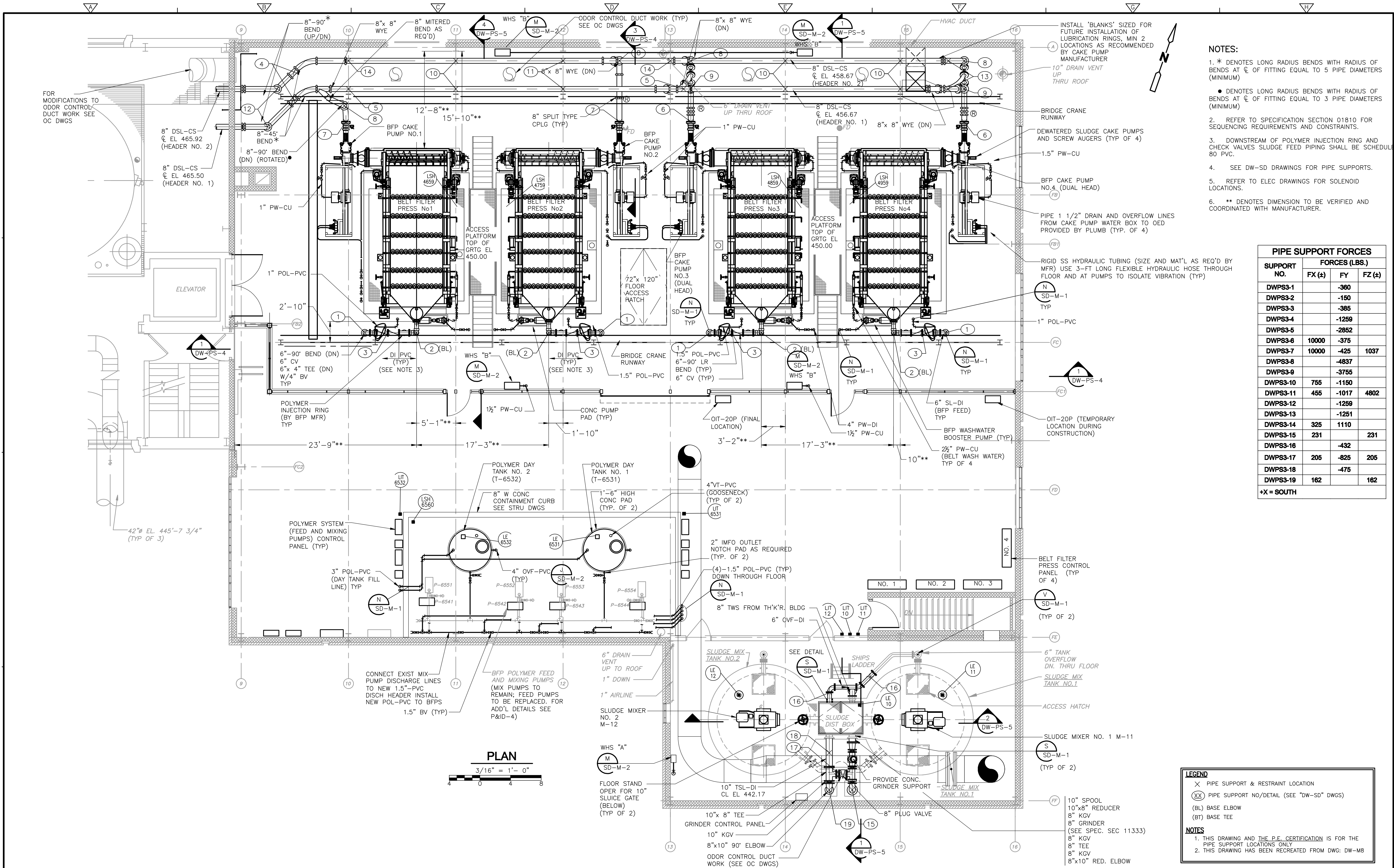
CDM
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One Cambridge Place, 60 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-8000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
FIRST FLOOR PIPE SUPPORT PLAN

PROJECT NO. 1289-74283
Sht. 153 of 312
DW-PS-2
Acc # 1289-74559



- NOTES:**
- * DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT $\frac{1}{2}$ OF FITTING EQUAL TO 5 PIPE DIAMETERS (MINIMUM)
 - DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT $\frac{1}{2}$ OF FITTING EQUAL TO 3 PIPE DIAMETERS (MINIMUM)
 - REFER TO SPECIFICATION SECTION 01810 FOR SEQUENCING REQUIREMENTS AND CONSTRAINTS.
 - DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 - SEE DW-SD DRAWINGS FOR PIPE SUPPORTS.
 - REFER TO ELEC DRAWINGS FOR SOLENOID LOCATIONS.
 - ** DENOTES DIMENSION TO BE VERIFIED AND COORDINATED WITH MANUFACTURER.

SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
DWPS3-1		-360	
DWPS3-2		-150	
DWPS3-3		-385	
DWPS3-4		-1259	
DWPS3-5		-2852	
DWPS3-6	10000	-375	
DWPS3-7	10000	-425	1037
DWPS3-8		-4837	
DWPS3-9		-3755	
DWPS3-10	755	-1150	
DWPS3-11	455	-1017	4802
DWPS3-12		-1259	
DWPS3-13		-1251	
DWPS3-14	325	1110	
DWPS3-15	231		231
DWPS3-16		-432	
DWPS3-17	205	-825	205
DWPS3-18		-475	
DWPS3-19	162		162

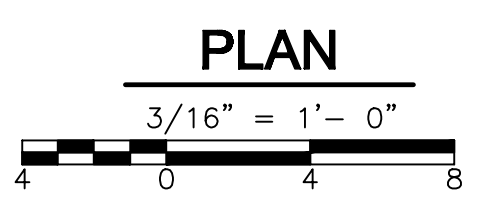
+X = SOUTH

LEGEND

- × PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
- THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-M8



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDWPS003
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	JULY 2010

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**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

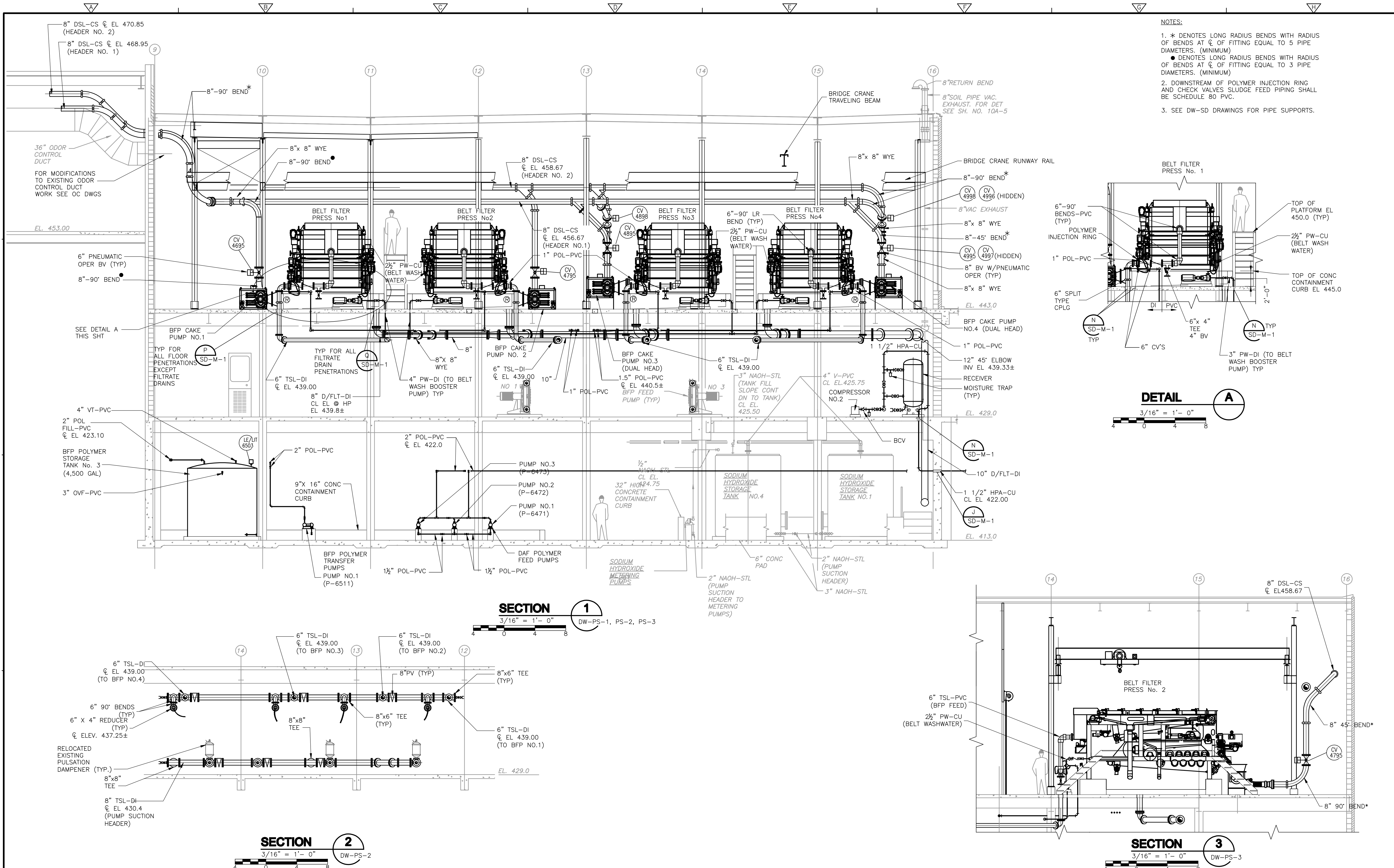
**DEWATERING BUILDING
 SECOND FLOOR PIPE SUPPORT PLAN**

PROJECT NO.
1289-74283

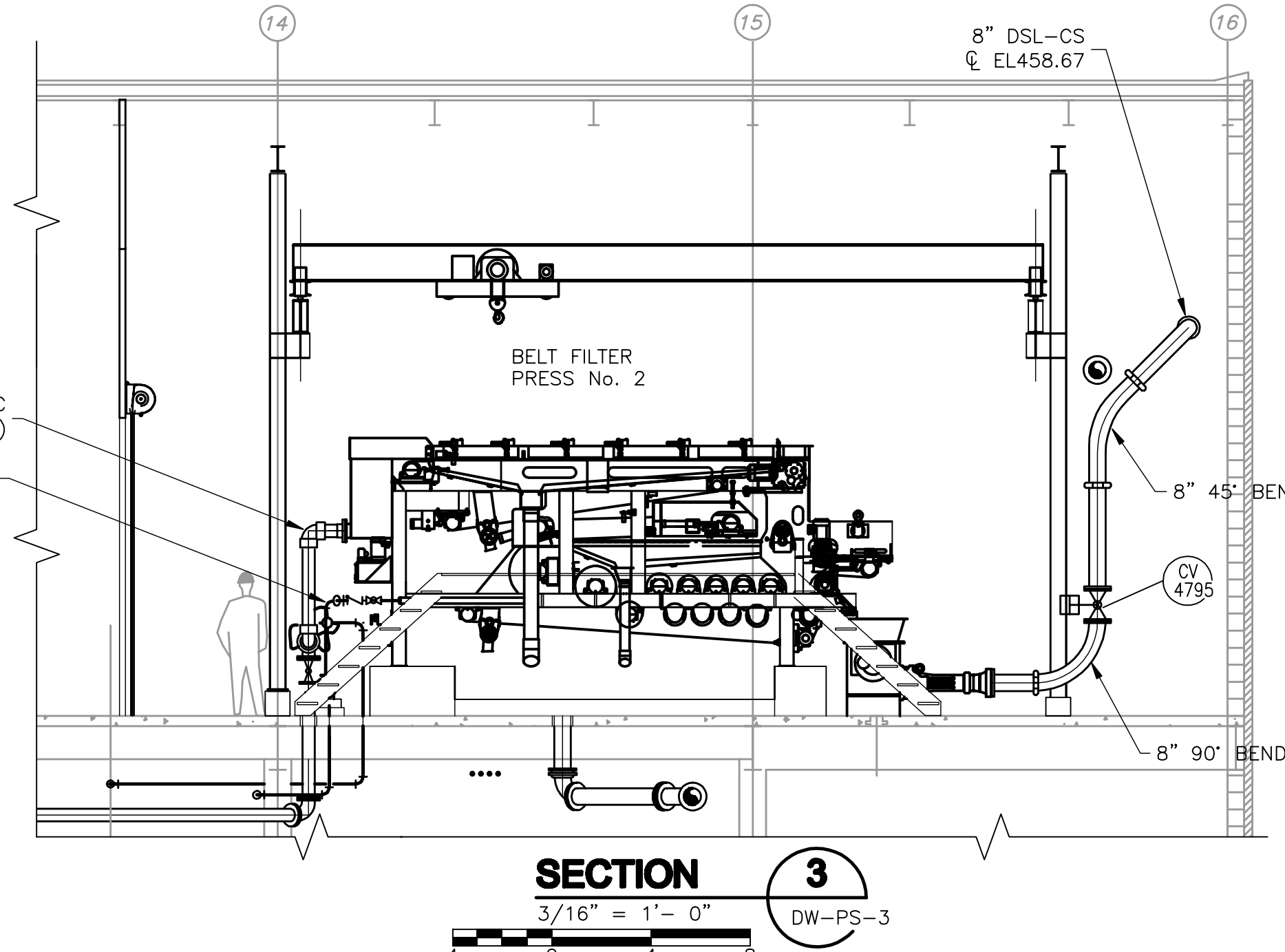
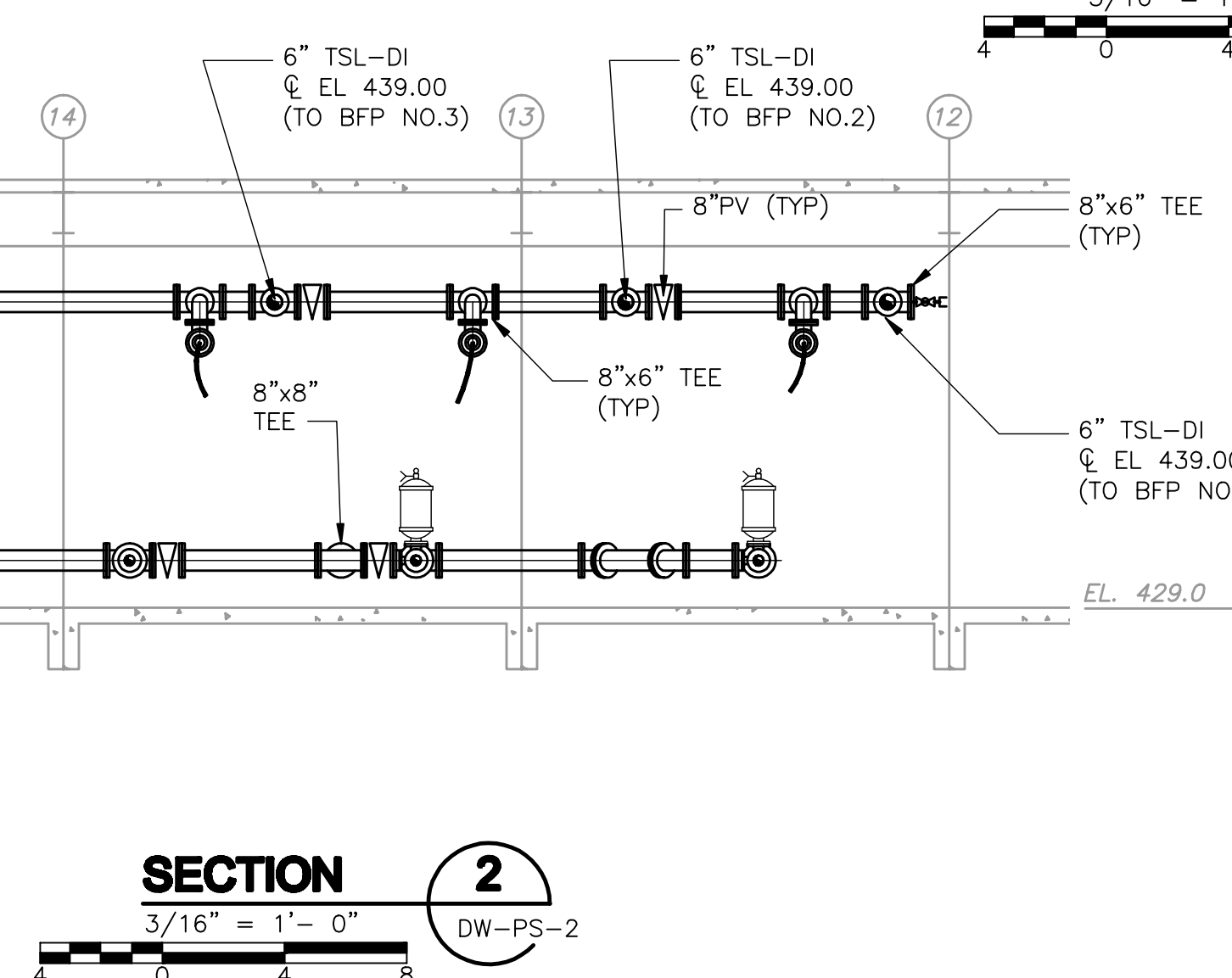
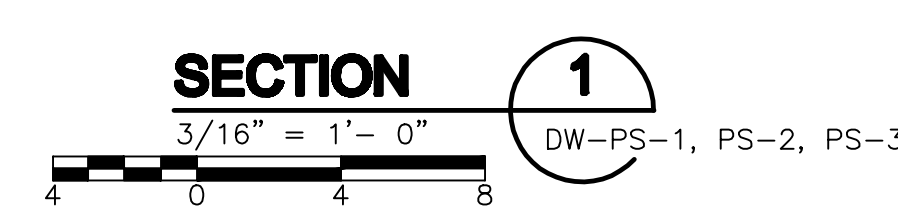
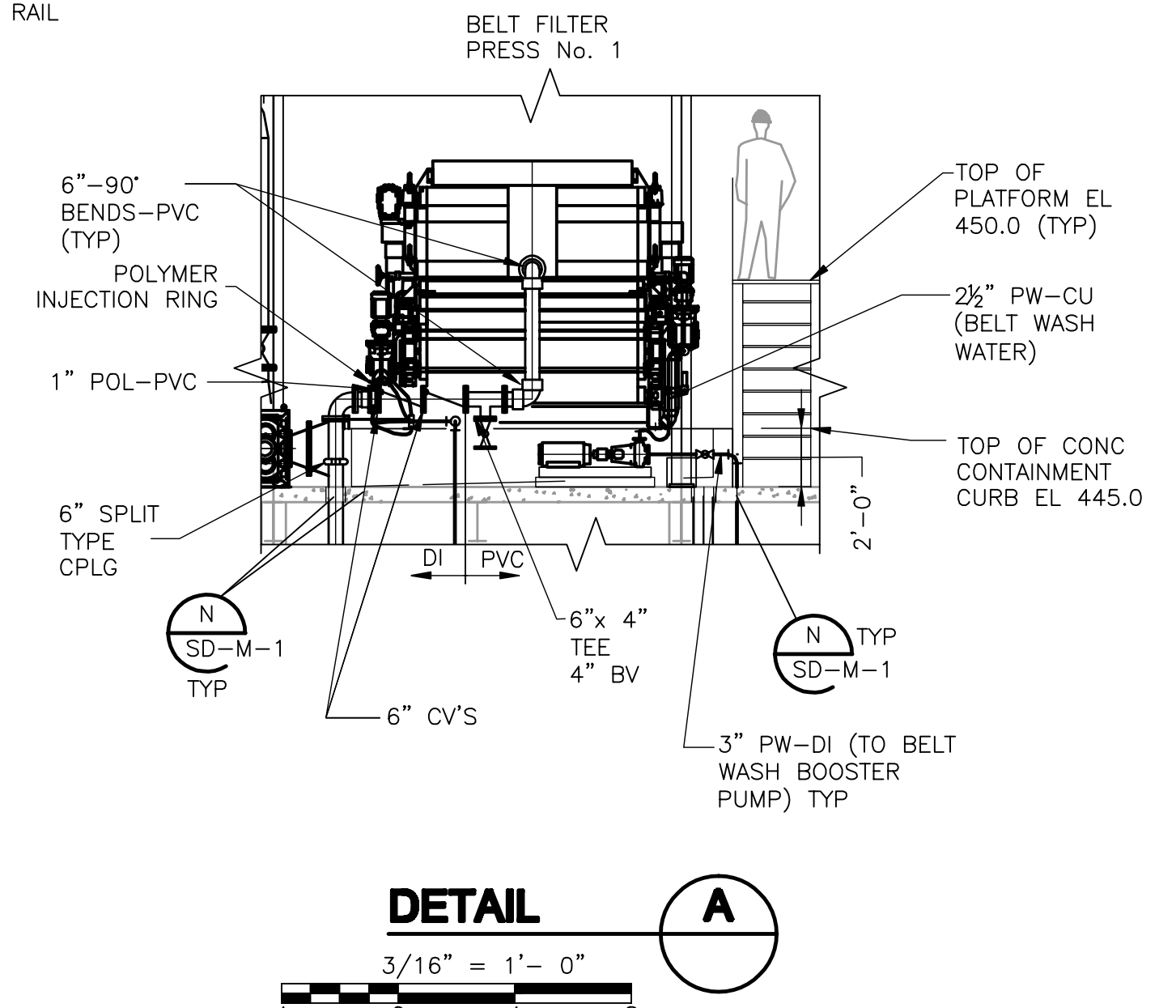
Sht. 154 of 312

DW-PS-3

Acc # 1289-74560



- NOTES:
- * DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT ϕ OF FITTING EQUAL TO 5 PIPE DIAMETERS. (MINIMUM)
 - DENOTES LONG RADIUS BENDS WITH RADIUS OF BENDS AT ϕ OF FITTING EQUAL TO 3 PIPE DIAMETERS. (MINIMUM)
 - DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 - SEE DW-SD DRAWINGS FOR PIPE SUPPORTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MDWPS004
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	JULY 2010

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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

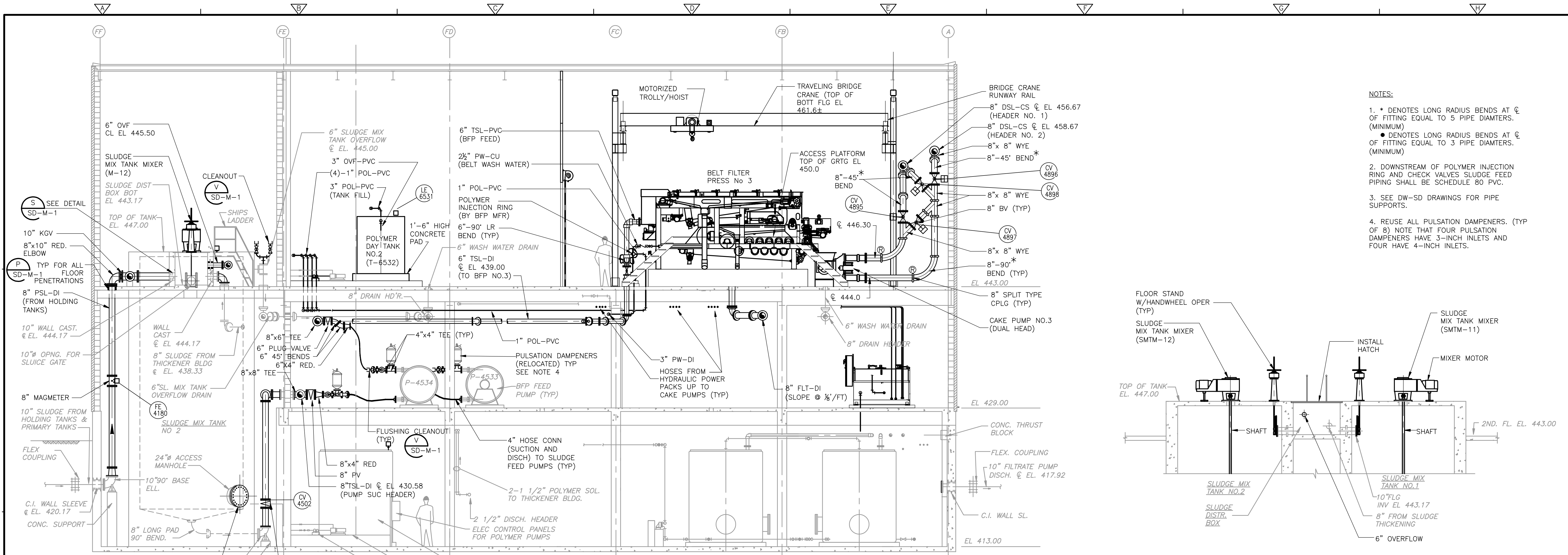
**DEWATERING BUILDING
PIPE SUPPORT SECTIONS I**

PROJECT NO.
1289-74283

Sht. 155 of 312

DW-PS-4

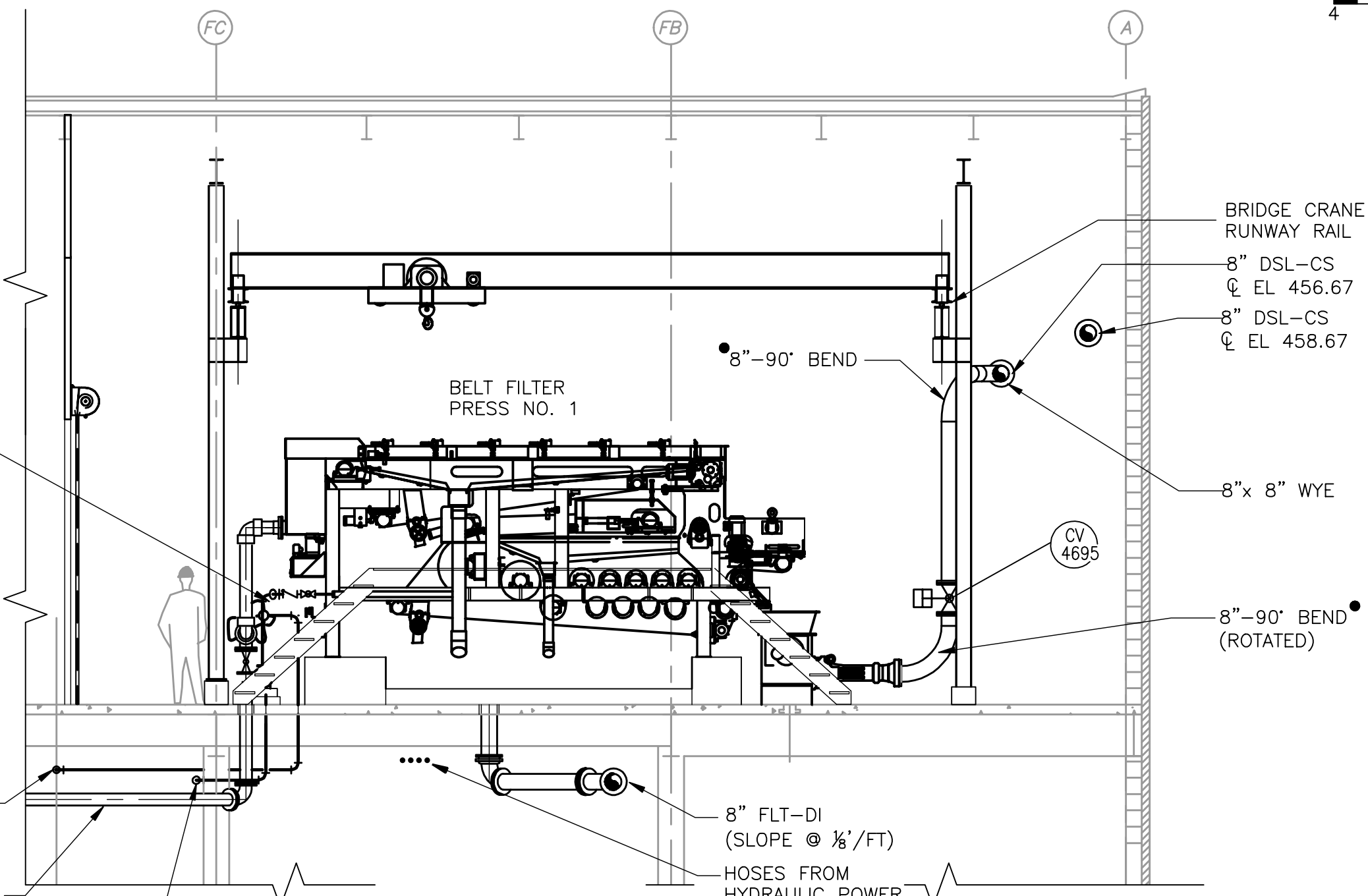
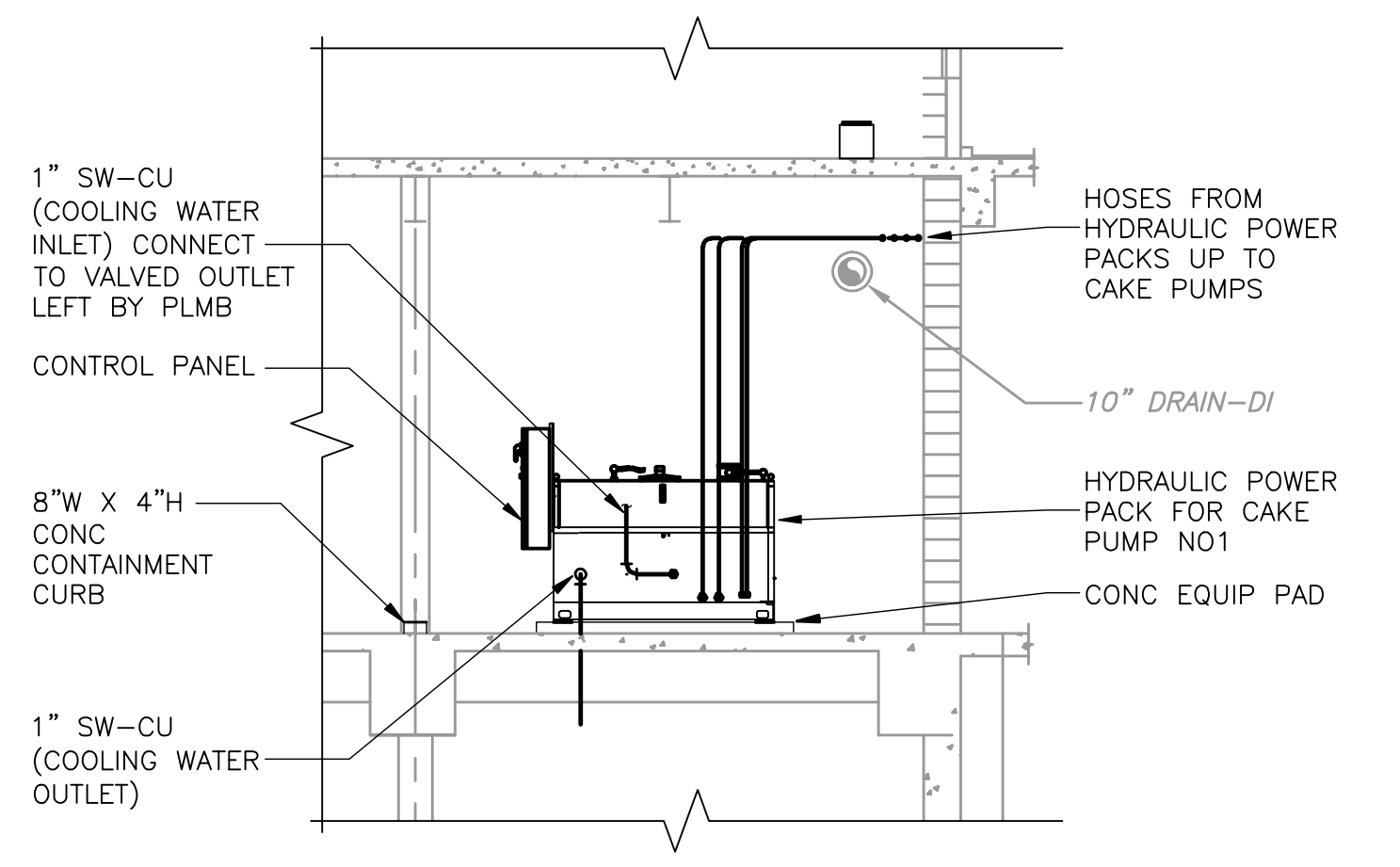
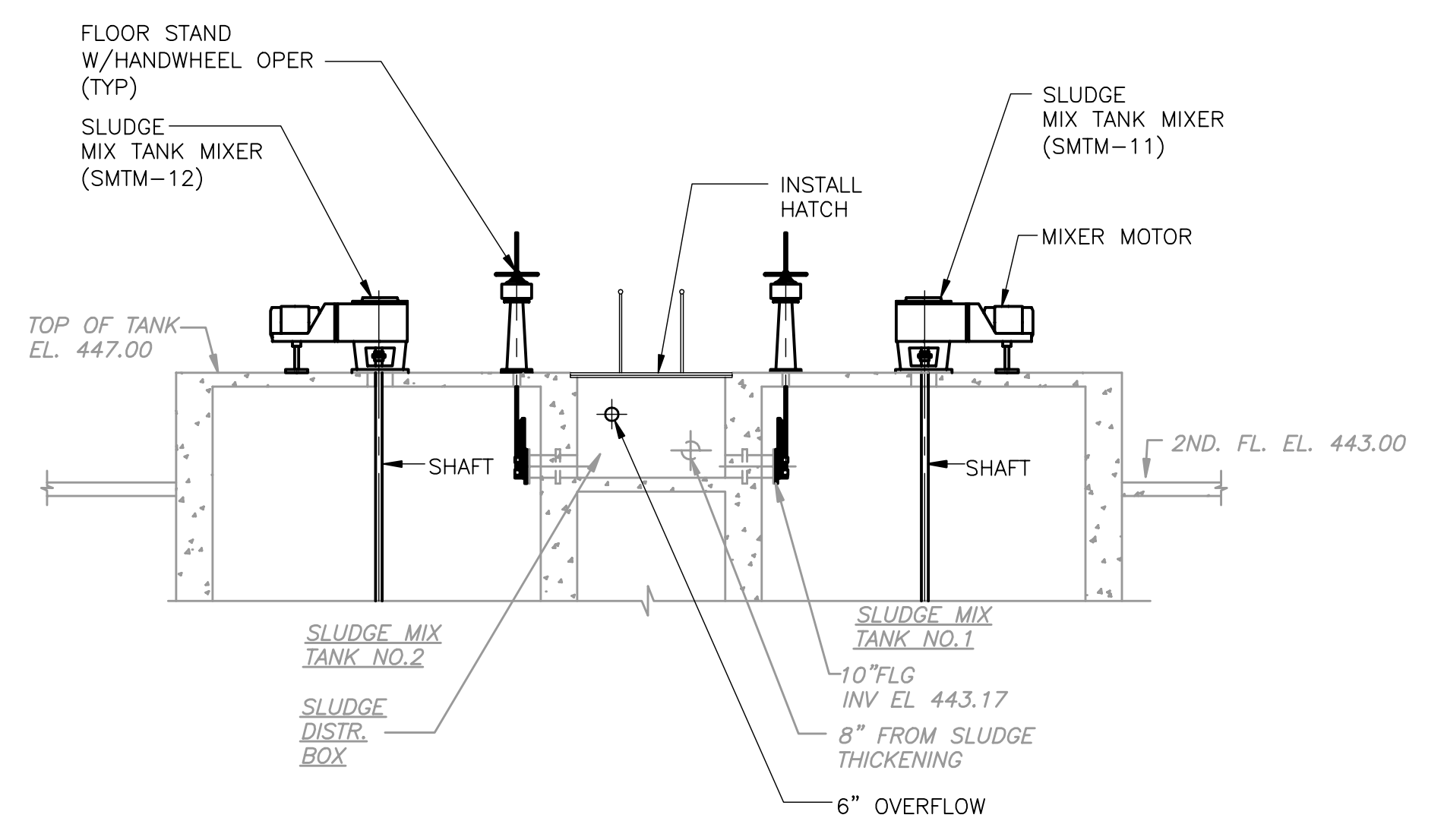
Acc # 1289-74561



- NOTES:**
- * DENOTES LONG RADIUS BENDS AT ϕ OF FITTING EQUAL TO 5 PIPE DIAMETERS. (MINIMUM)
 - DENOTES LONG RADIUS BENDS AT ϕ OF FITTING EQUAL TO 3 PIPE DIAMETERS. (MINIMUM)
 - DOWNSTREAM OF POLYMER INJECTION RING AND CHECK VALVES SLUDGE FEED PIPING SHALL BE SCHEDULE 80 PVC.
 - SEE DW-SD DRAWINGS FOR PIPE SUPPORTS.
 - REUSE ALL PULSATION DAMPENERS. (TYP OF 8) NOTE THAT FOUR PULSATION DAMPENERS HAVE 3-INCH INLETS AND FOUR HAVE 4-INCH INLETS.

SECTION 1
3/16" = 1'-0"
DW-PS-1, PS-2, PS-3

SECTION 2
3/16" = 1'-0"
DW-PS-3



SECTION 4
3/16" = 1'-0"
DW-PS-3

SECTION 3
3/16" = 1'-0"
DW-PS-2

REV. NO.	DATE	DRWN	CHKD	REMARKS

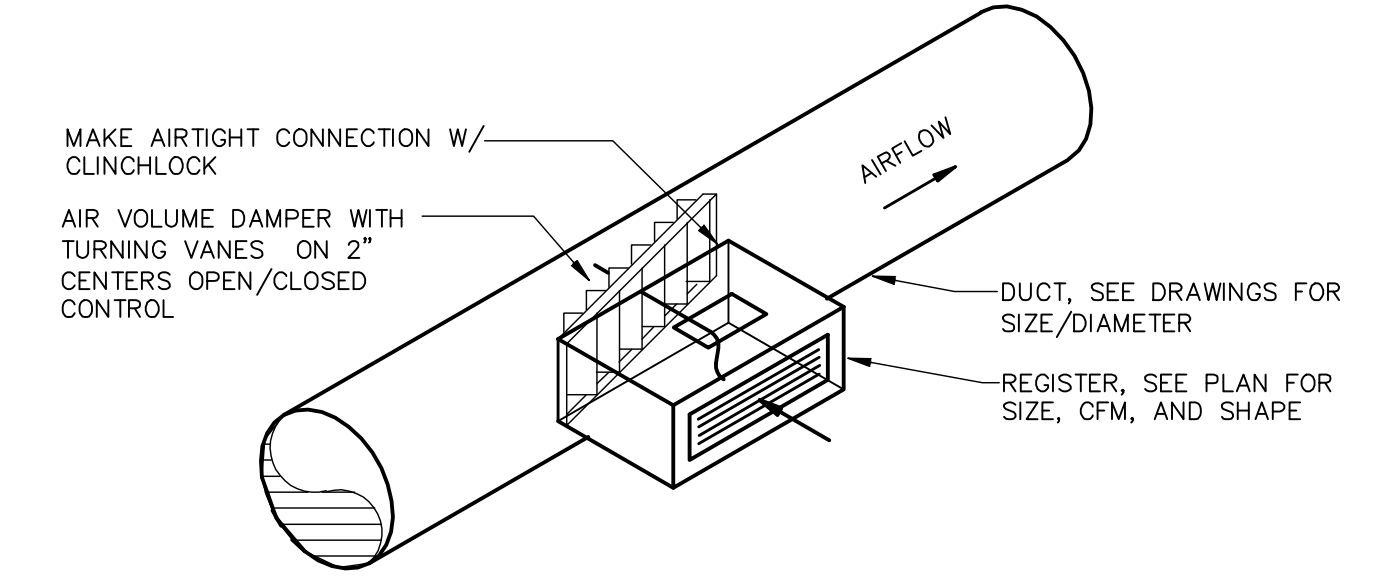
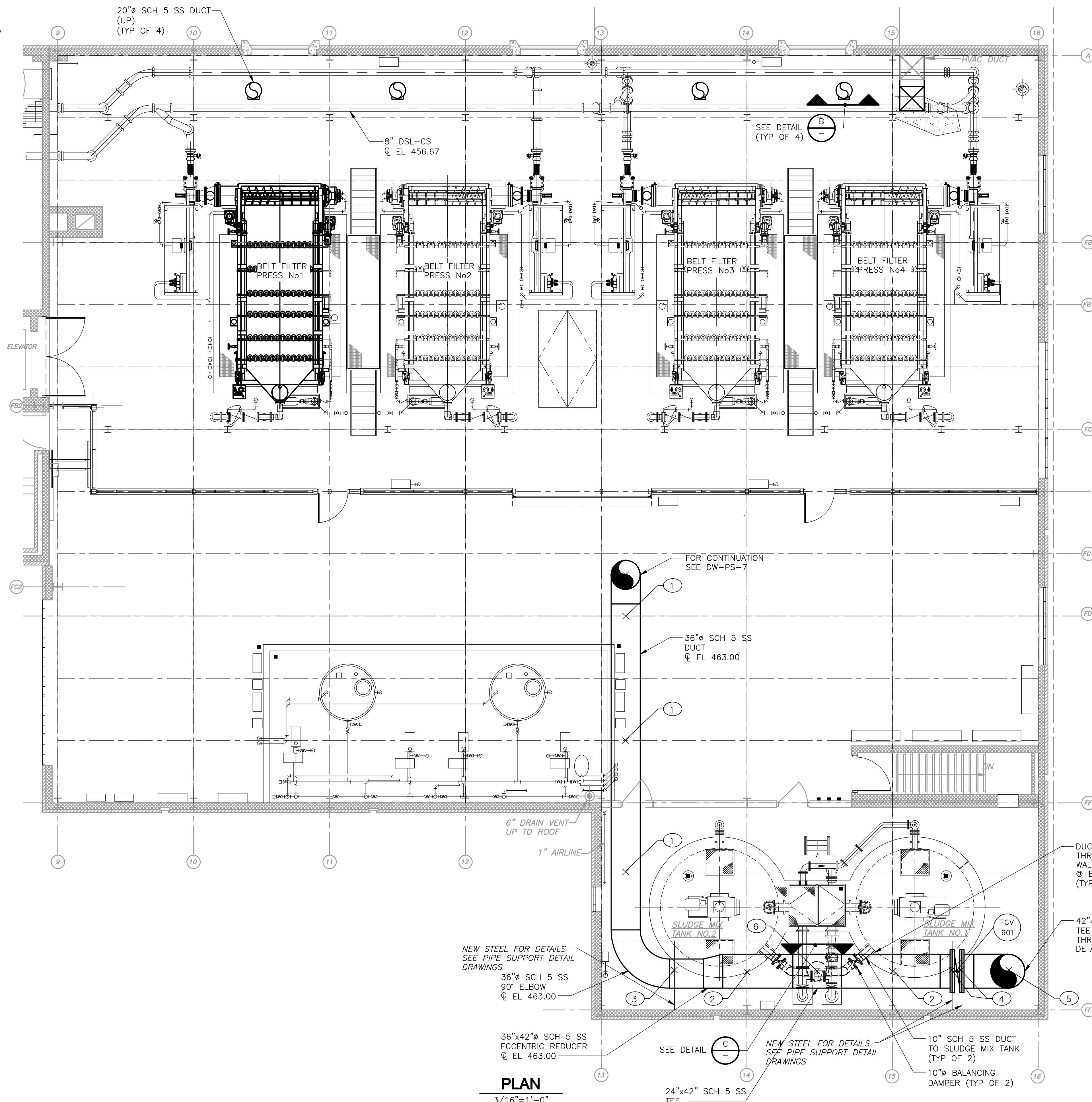
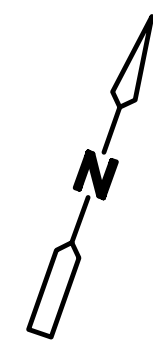
CADD FILE NO.	MDWPS005
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	D. MURPHY
SCALE:	AS NOTED
APPROVED BY:	W.D. GREEN
DATE:	JULY 2010

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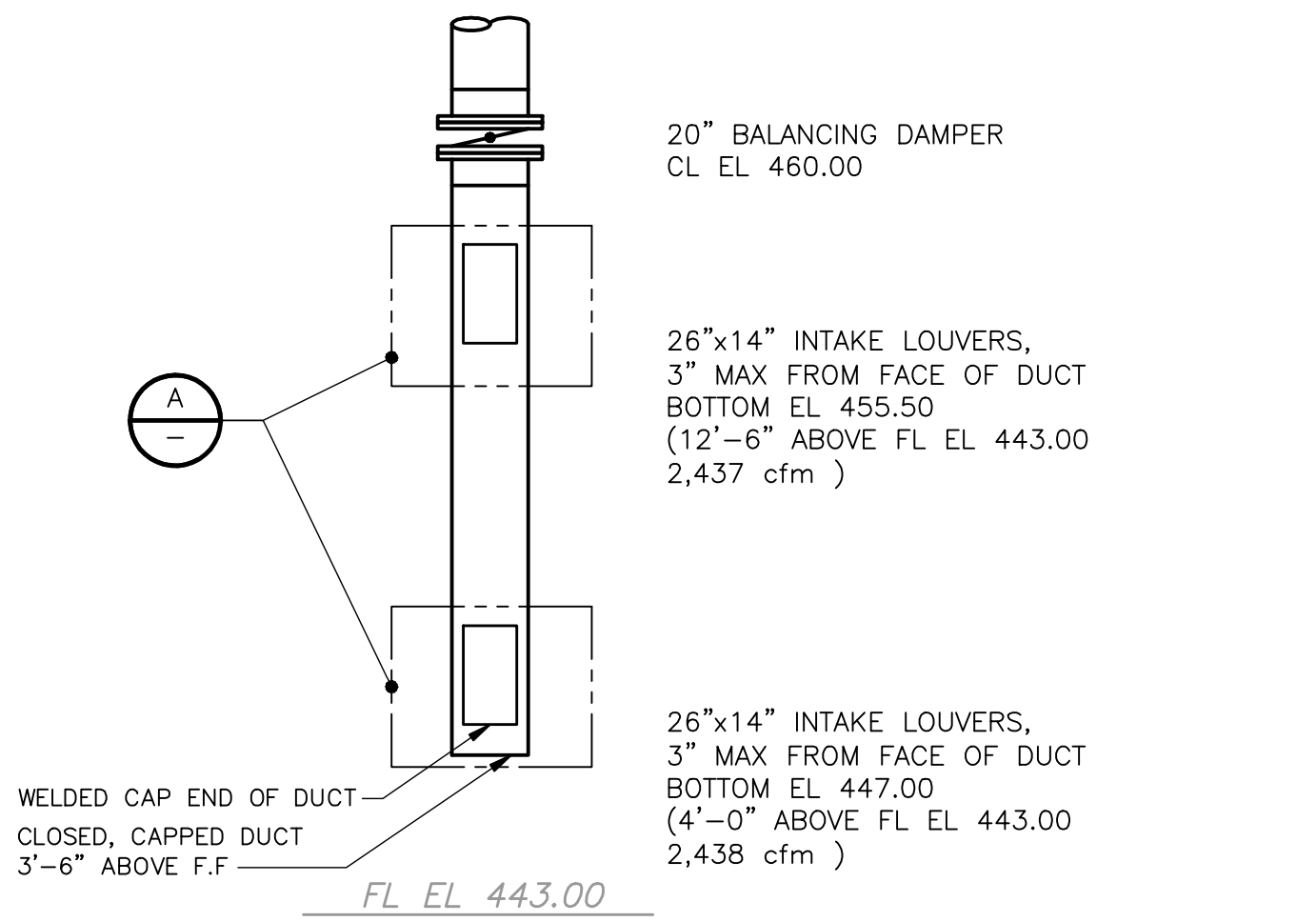
UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

DEWATERING BUILDING PIPE SUPPORT SECTIONS II

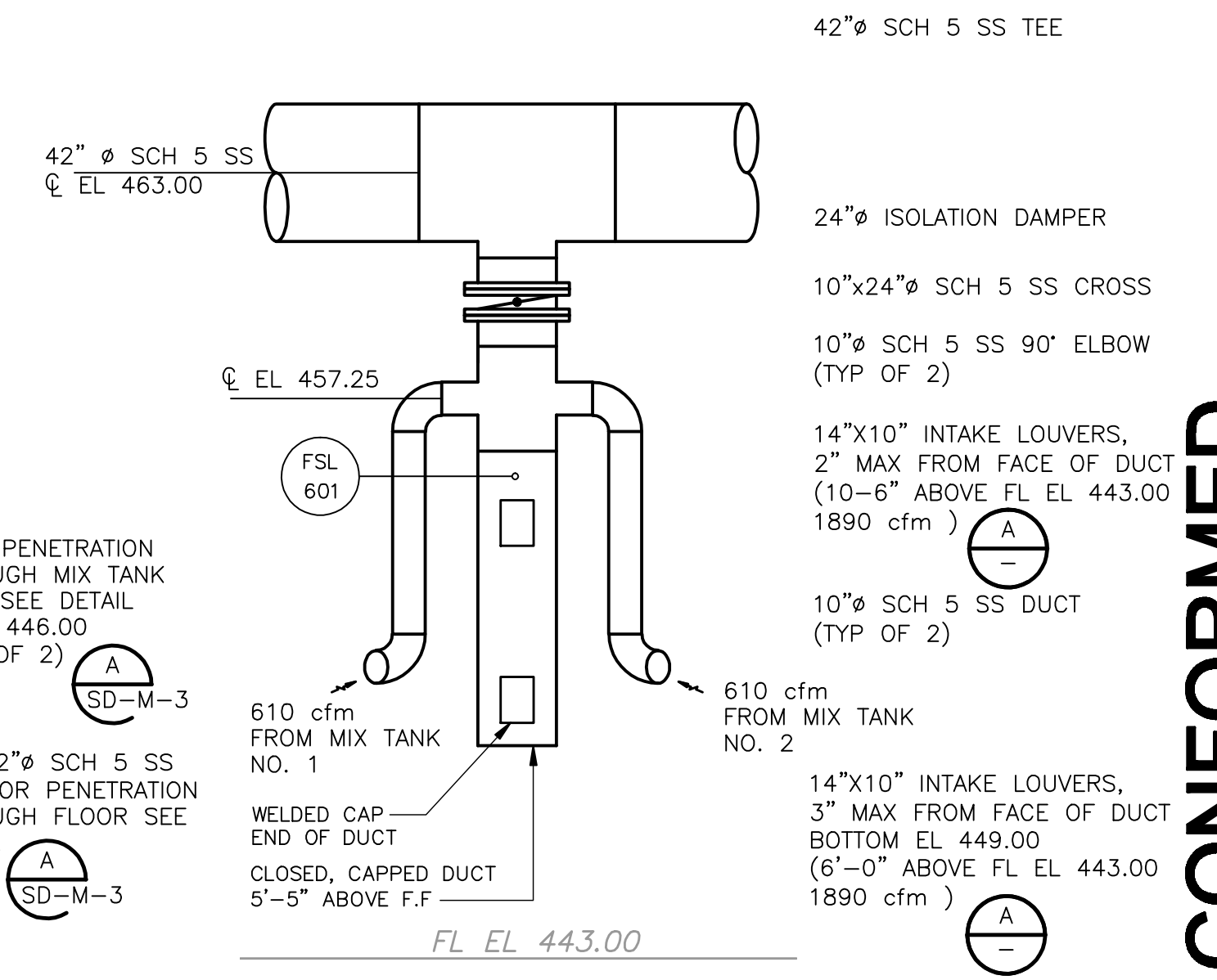
PROJECT NO. 1289-74283
Sht. 156 of 312
DW-PS-5
Acc # 1289-74562



DUCT MOUNTED REGISTER
DETAIL A
NTS



DETAIL B
1/4" = 1'-0"



DETAIL C
1/4" = 1'-0"

PIPE SUPPORT FORCES				
SUPPORT NO.	FORCES (LBS.)			
	FX (±)	FY	FZ (±)	
DWPS6-1		-832		
DWPS6-2		-1164		
DWPS6-3		-778		
DWPS6-4		-1408		
DWPS6-5	2163	-1678	2399	
DWPS6-6	451	-910	451	

+X = SOUTH

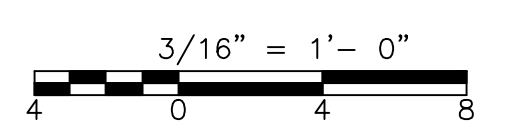
LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO/DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
- THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-OC2

PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPS006
DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

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Tel: (617) 482-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17812-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

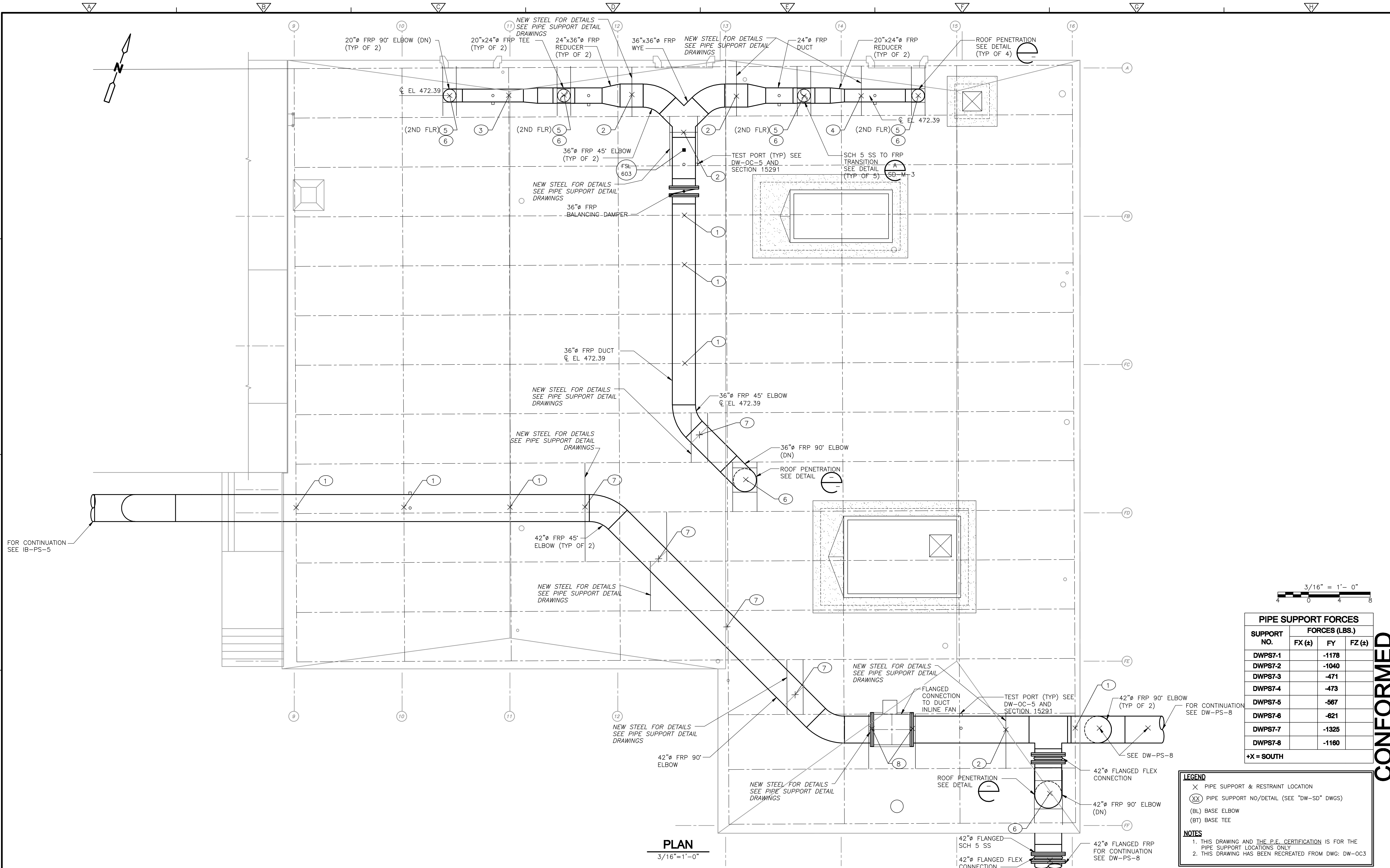
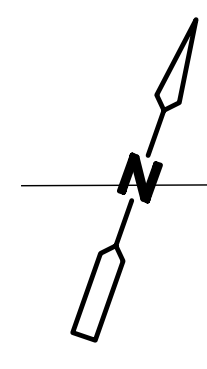
DEWATERING BUILDING
SECOND FLOOR ODOR CONTROL
PIPE SUPPORT PLAN

PROJECT NO.
1289-74283

Sht. 157 of 312

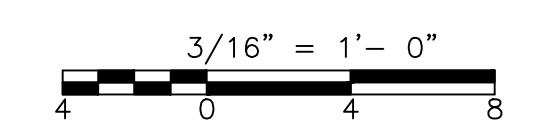
DW-PS-6

Acc # 1289-74563



FOR CONTINUATION
SEE IB-PS-5

PLAN
3/16"=1'-0"



SUPPORT NO.	FORCES (LBS.)		
	FX (t)	FY	FZ (t)
DWPS7-1		-1178	
DWPS7-2		-1040	
DWPS7-3		-471	
DWPS7-4		-473	
DWPS7-5		-567	
DWPS7-6		-621	
DWPS7-7		-1325	
DWPS7-8		-1180	

+X = SOUTH

LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-OC3

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPS007
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
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**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17812-0033
 PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 ROOF ODOR CONTROL
 PIPE SUPPORT PLAN**

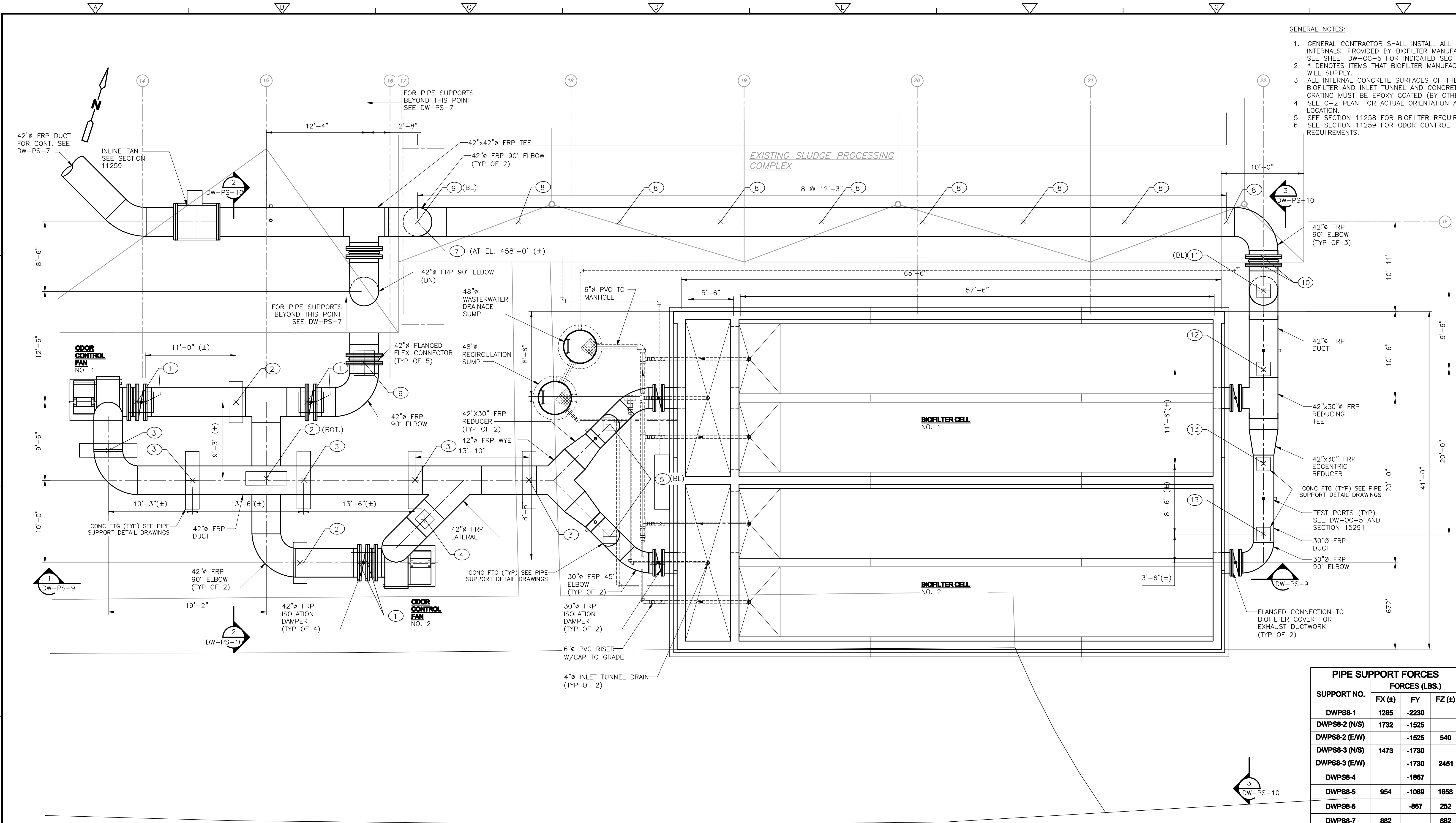
PROJECT NO.
1289-74283

Sht. 158 of 312

DW-PS-7

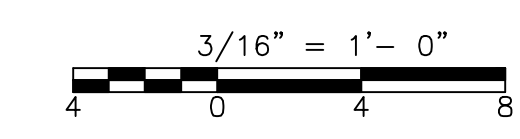
Acc # 1289-74564

- GENERAL NOTES:
1. GENERAL CONTRACTOR SHALL INSTALL ALL BIOFILTER INTERNALS, PROVIDED BY BIOFILTER MANUFACTURER. SEE SHEET DW-OC-5 FOR INDICATED SECTIONS.
 2. * DENOTES ITEMS THAT BIOFILTER MANUFACTURER WILL SUPPLY.
 3. ALL INTERNAL CONCRETE SURFACES OF THE BIOFILTER AND INLET TUNNEL AND CONCRETE GRATING MUST BE EPOXY COATED (BY OTHERS). SEE C-2 PLAN FOR ACTUAL ORIENTATION AND LOCATION.
 4. SEE SECTION 11258 FOR BIOFILTER REQUIREMENTS.
 5. SEE SECTION 11259 FOR ODOR CONTROL FAN REQUIREMENTS.



PLAN
3/16" = 1'-0"

EXISTING ROAD



LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO./DETAIL (SEE "DW-SD" DWGS)
- (BL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY.
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: DW-OC4

SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
DWPS8-1	1285	-2230	
DWPS8-2 (N/S)	1732	-1525	
DWPS8-2 (E/W)		-1525	540
DWPS8-3 (N/S)	1473	-1730	
DWPS8-3 (E/W)		-1730	2451
DWPS8-4		-1867	
DWPS8-5	954	-1089	1658
DWPS8-6		-867	252
DWPS8-7	882		882
DWPS8-8	875	-1325	
DWPS8-9	725	-1140	725
DWPS8-10		-640	
DWPS8-11	475	-938	475
DWPS8-12		-890	
DWPS8-13		-725	

*X = SOUTH

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPS008
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
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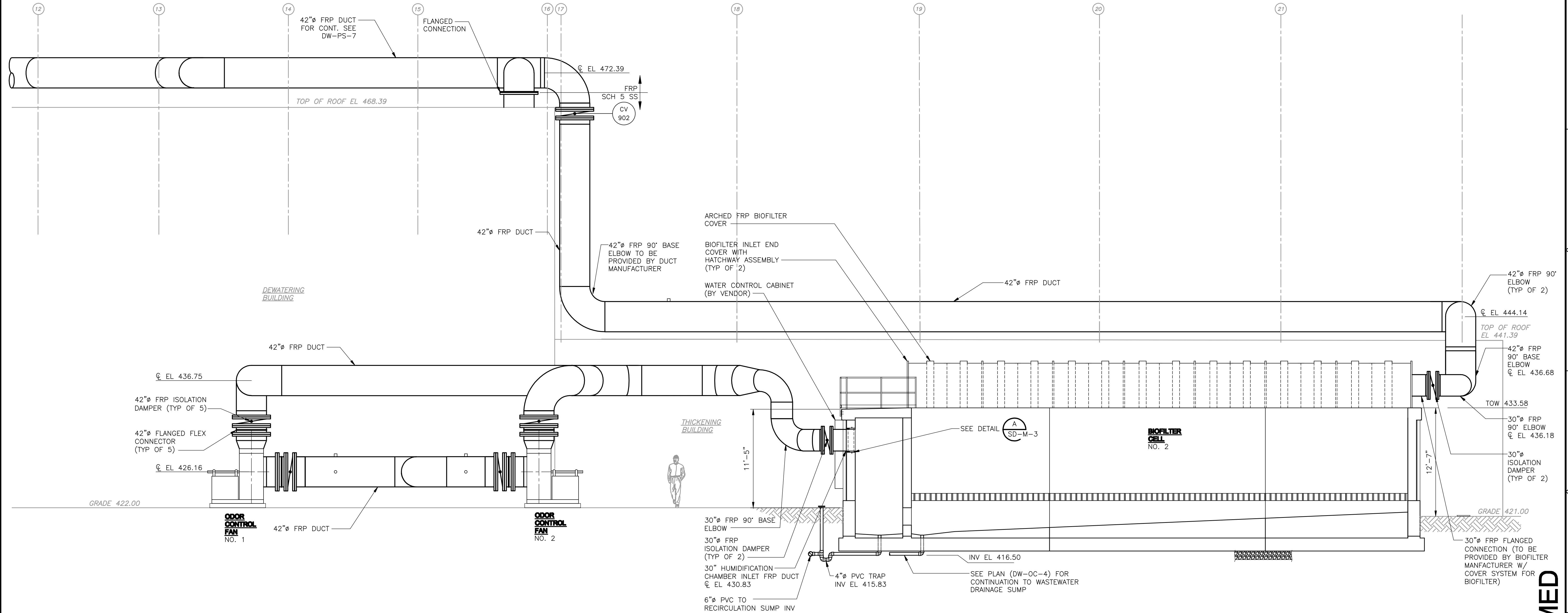
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BIOFILTER ODOR CONTROL
 PIPE SUPPORT PLAN**

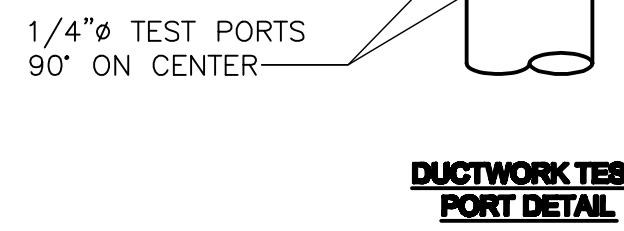
PROJECT NO.
1289-74283
 Sht. 159 of 312
DW-PS-8
 Acc # 1289-74565

NOTES:

1. ALL OUTDOOR ODOR CONTROL FRP OC DUCTWORK SHALL BE INSTALLED PER SECTION 15250.
2. SUPPLY OF FRP OC DUCTWORK SHALL BE BY THE GENERAL CONTRACTOR. MATERIAL AND CONSTRUCTION IS AS SPECIFIED IN SECTION 15291 IN THE SPECIFICATIONS.
3. ALL BASE ELBOWS ARE THE RESPONSIBILITY OF THE DUCT MANUFACTURER.
4. DUCT SUPPORTS SHOWN ON PIPE SUPPORT DRAWINGS.
5. ALL DRAIN LINES FROM BIOFILTER SELLS AND HUMIDIFICATION CHAMBERS TO BE PROVIDED WITH A BAROMETRIC TRAP AS ILLUSTRATED BELOW ON DRAIN LINE FROM HUMIDIFICATION CHAMBER NO. 2.

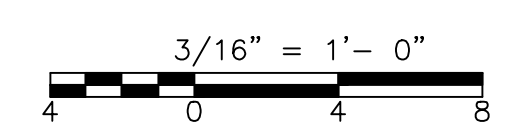


SEAL PORTS W/ PLASTIC SNAP LOCK PLUGS
 SEE DRAWINGS FOR APPROXIMATE LOCATIONS
 NOTE THAT MORE LOCATIONS MAY BE REQUIRED PER CONTACTOR PERFORMING AIR BALANCING



NOTE:
 SIZE TO BE COORDINATED WITH CONTRACTOR PERFORMING AIR BALANCING SEE SECTION 15291.

SECTION 1
 3/16" = 1'-0"

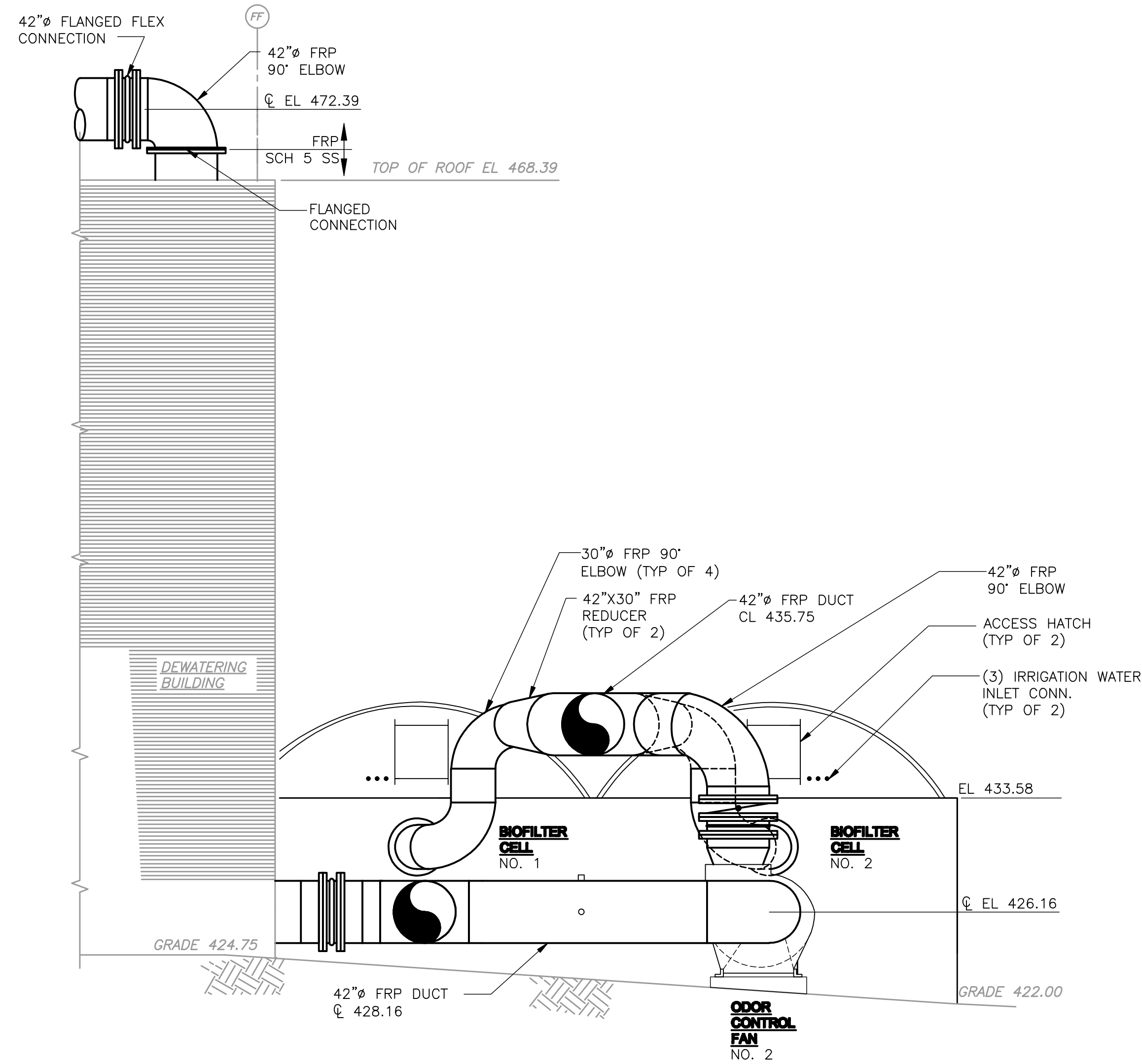


CONFORMED

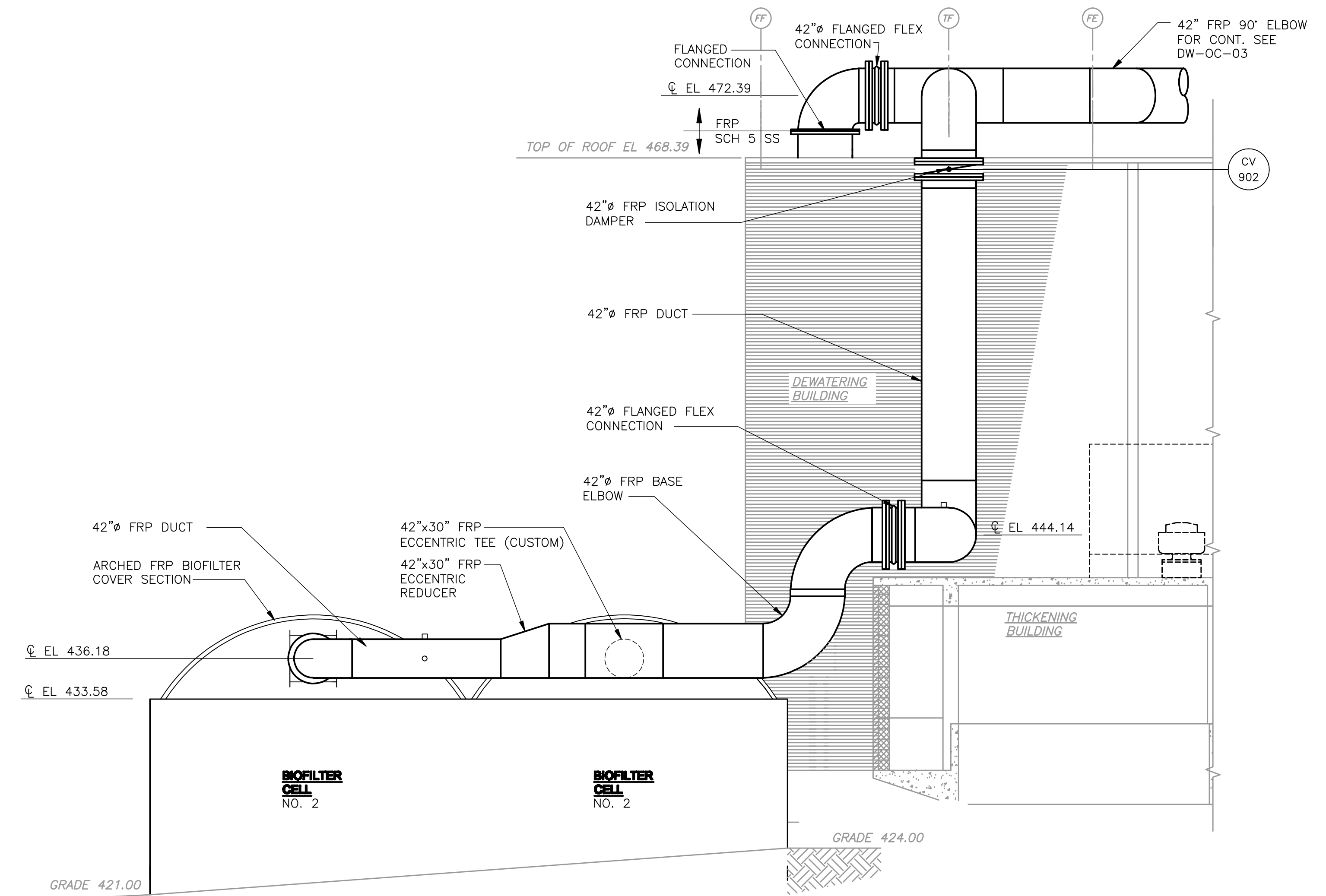
CADD FILE NO. MDWPS009 DESIGNED BY: K. SANTORO DRAWN BY: M. WALLEK SHEET CHK'D BY: K. SANTORO CROSS CHK'D BY: M. KOSTUR SCALE: AS NOTED APPROVED BY: K. SANTORO DATE: SEPTEMBER 2010				CDM Camp Dresser & McKee Inc. One Cambridge Plaza, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 482-6000 consulting • engineering • construction • operations		UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. 3-0-17512-0033 PROJECT No. CWSRF - 3197 WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III		DEWATERING BUILDING BIOFILTER ODOR CONTROL PIPE SUPPORT SECTIONS I		PROJECT NO. 1289-74283 Sht. 160 of 312 DW-PS-9 Acc # 1289-74566
REV. NO.	DATE	DRWN	CHKD	REMARKS						
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3						

NOTES:

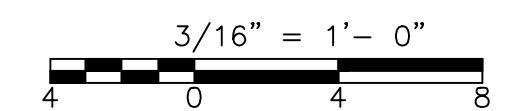
1. ALL OUTDOOR ODOR CONTROL FRP OC DUCTWORK SHALL BE INSULATED. SEE SECTION 15250.
2. SUPPLY OF FRP OC DUCTWORK SHALL BE BY THE GENERAL CONTRACTOR. MATERIAL AND CONSTRUCTION IS AS SPECIFIED IN SECTION 15291 IN THE SPECIFICATIONS.



SECTION 2
3/16" = 1'-0"
DW-PS-8



SECTION 3
3/16" = 1'-0"
DW-PS-8



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

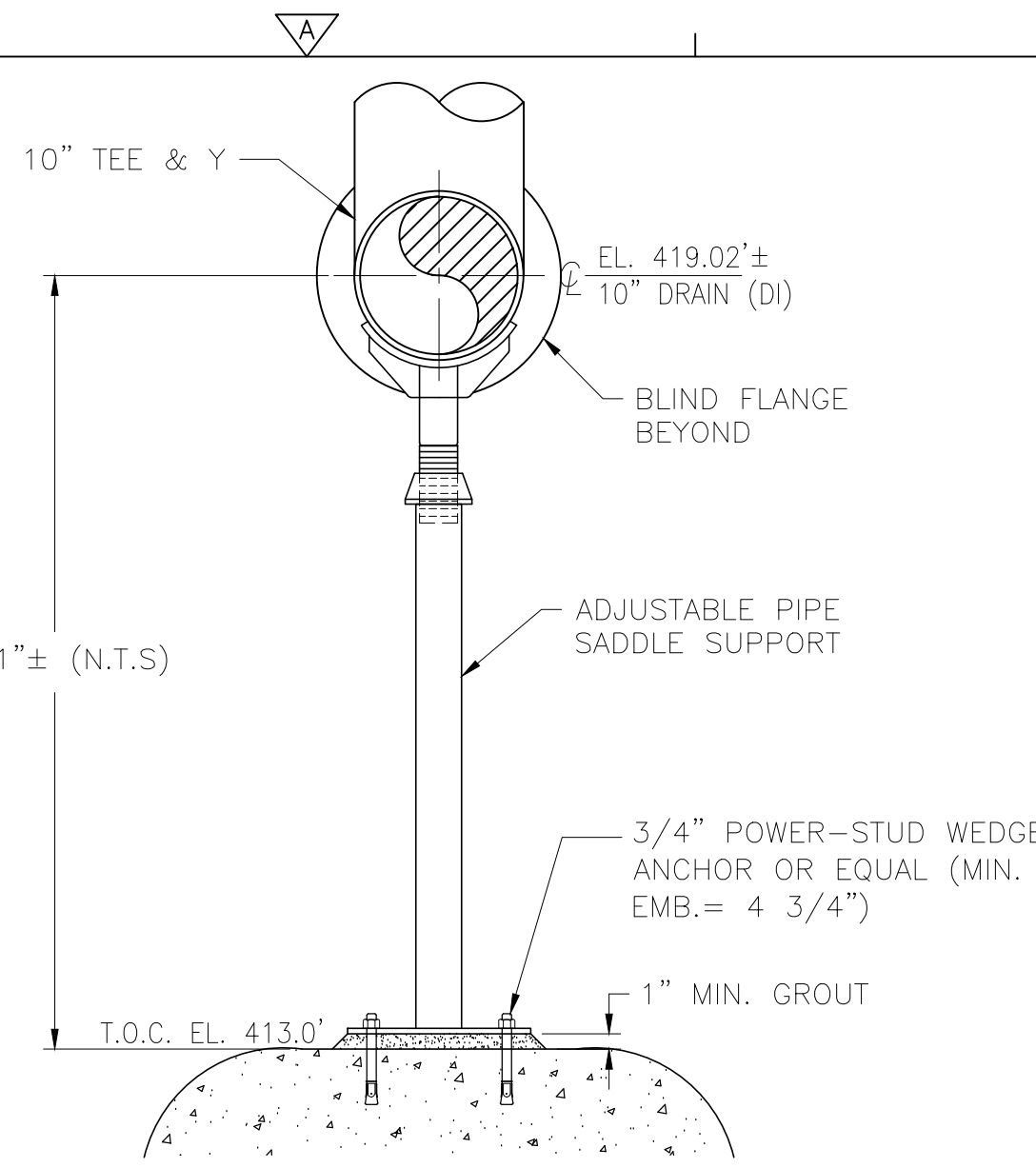
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DESIGNED BY:	K. SANTORO
DRAWN BY:	M. WALLEK
SHEET CHK'D BY:	K. SANTORO
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	K. SANTORO
DATE:	SEPTEMBER 2010

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Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 482-6000 consulting • engineering • construction • operations

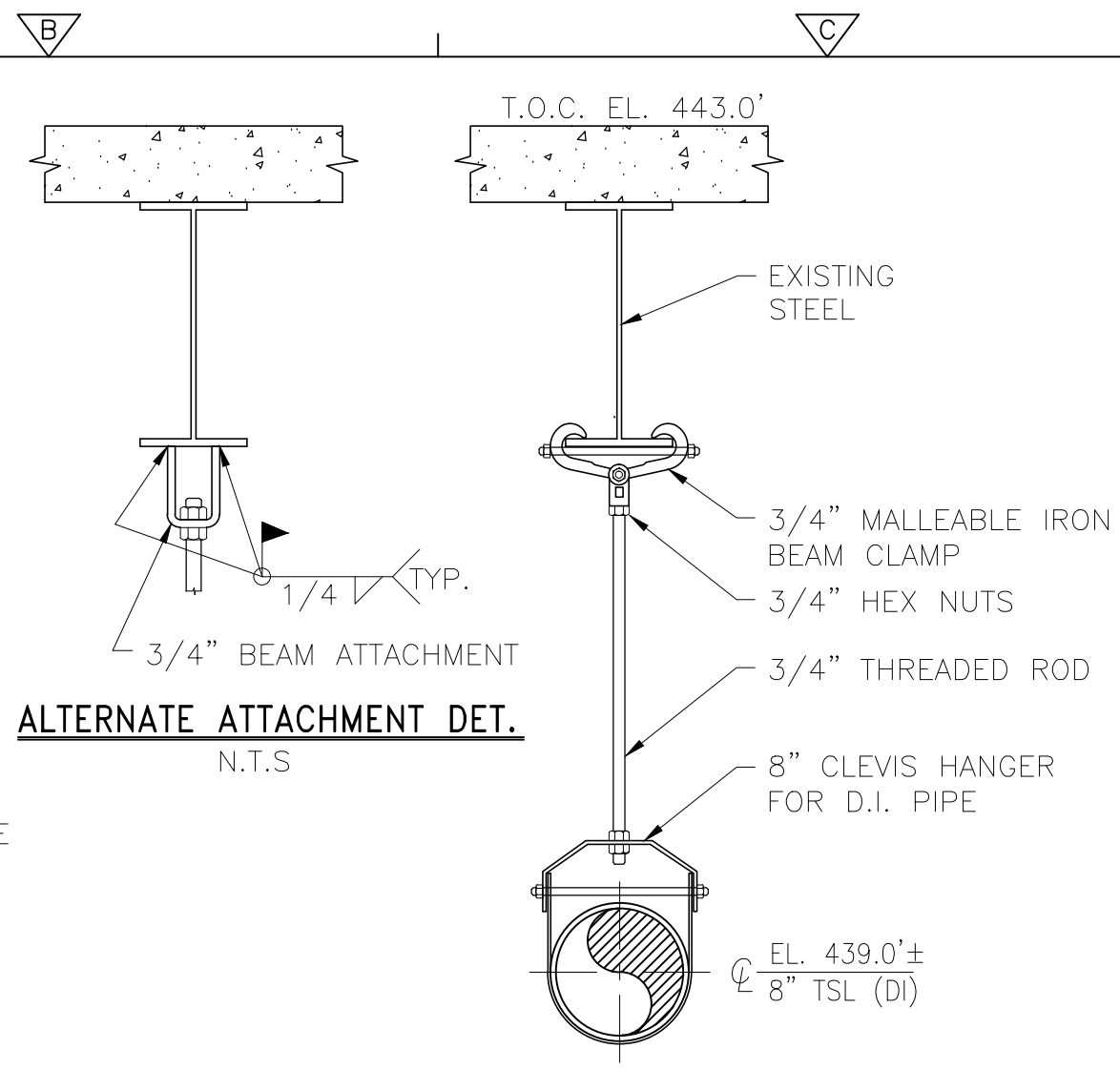
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
BIOFILTER ODOR CONTROL
PIPE SUPPORT SECTIONS II**

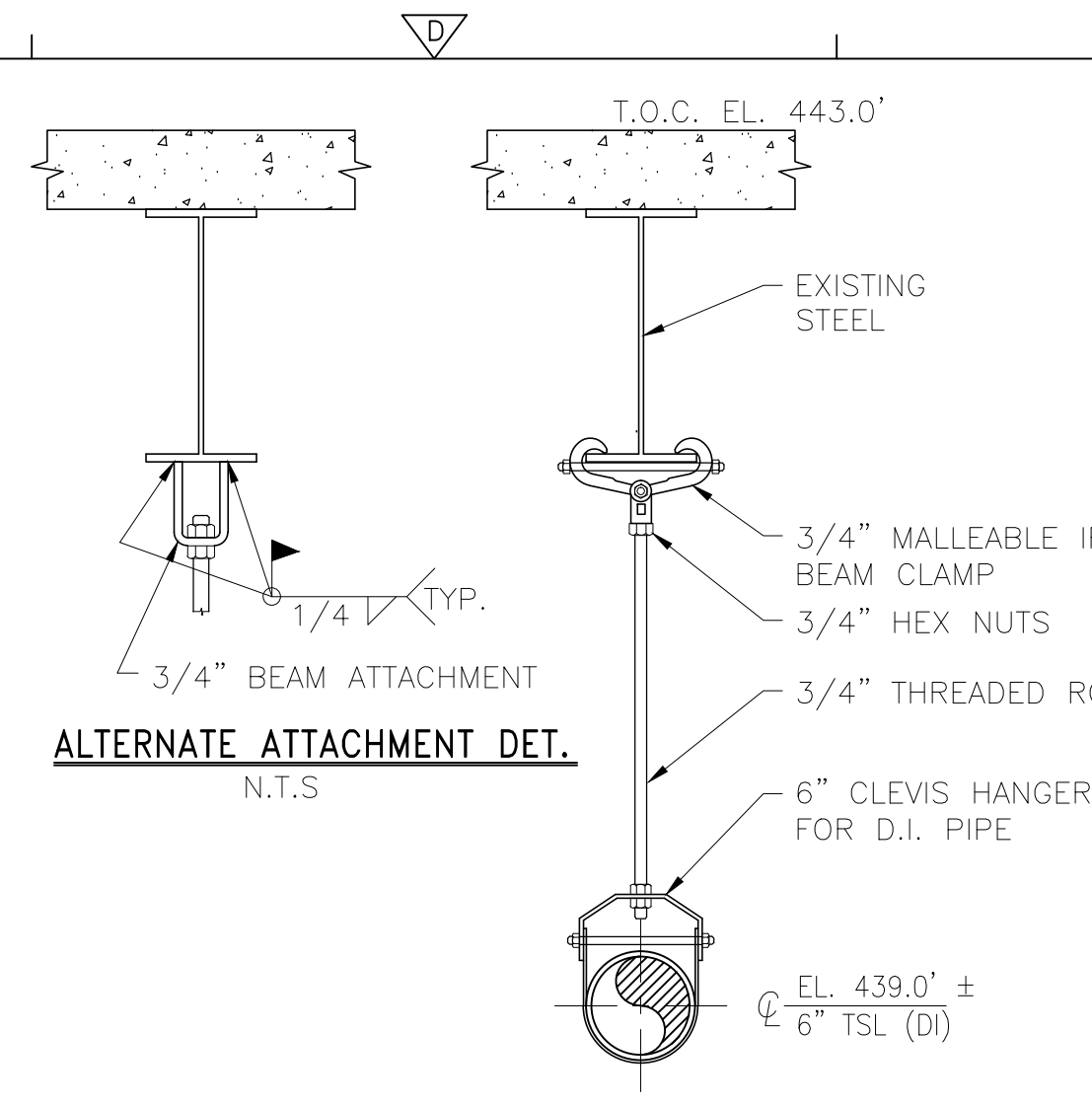
PROJECT NO.
1289-74283
Sht. 160A of 312
DW-PS-10
Acc #1289-74566A



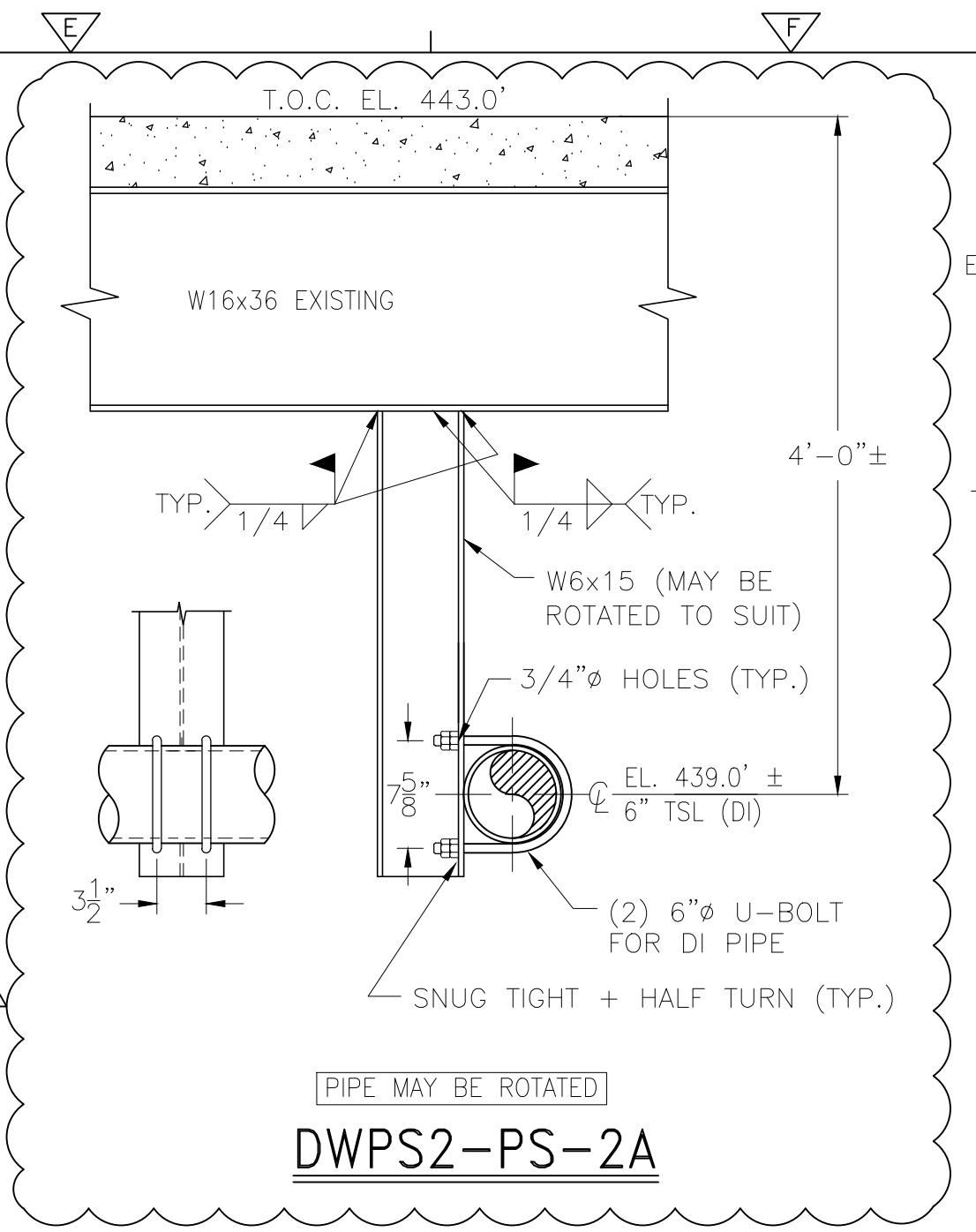
DWPS1-PS-01



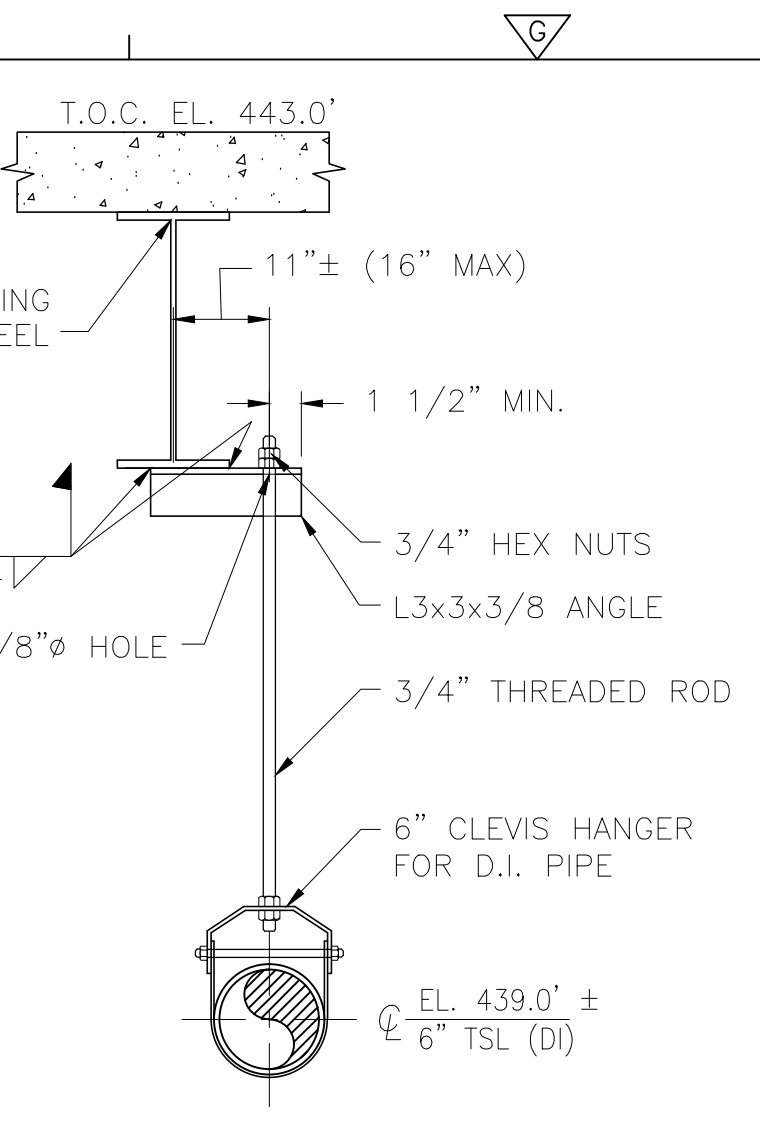
DWPS2-PS-01



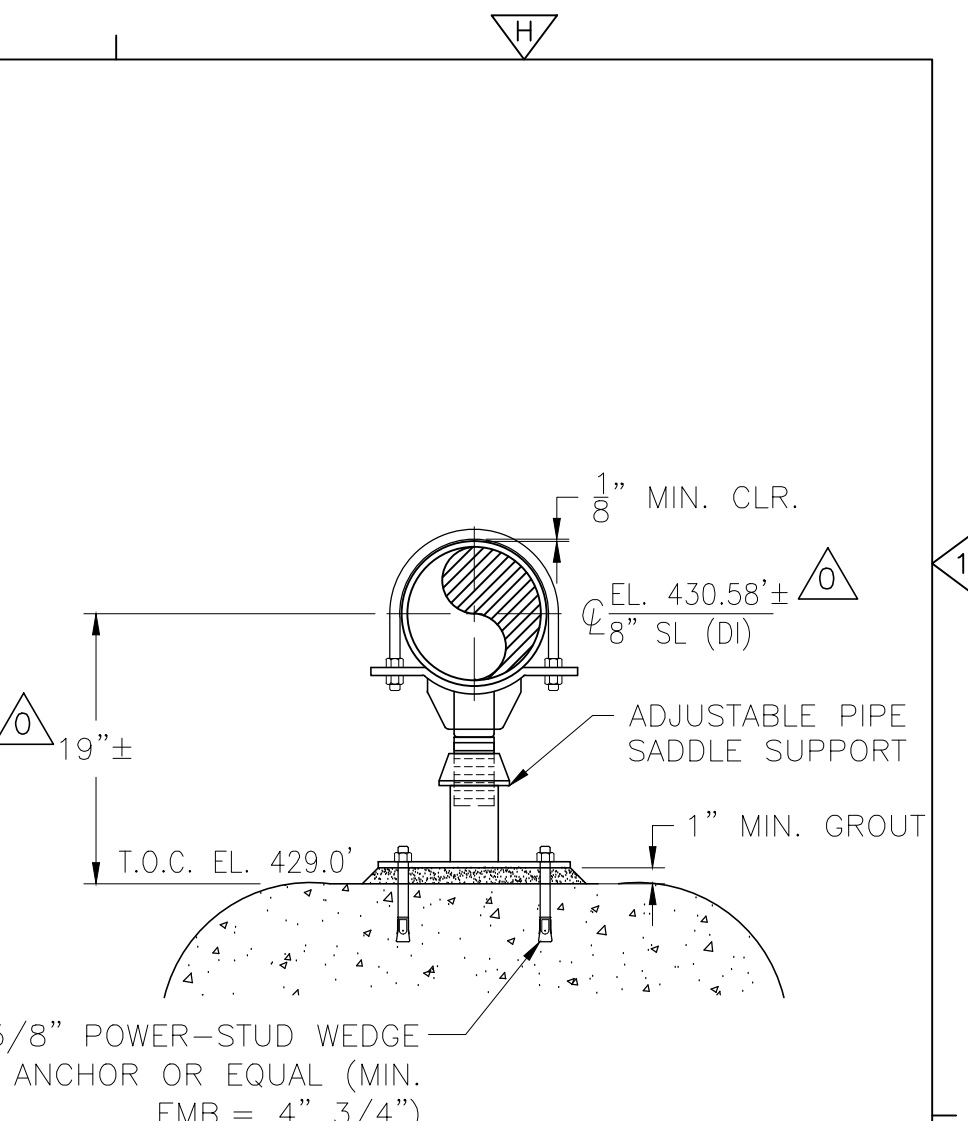
DWPS2-PS-02



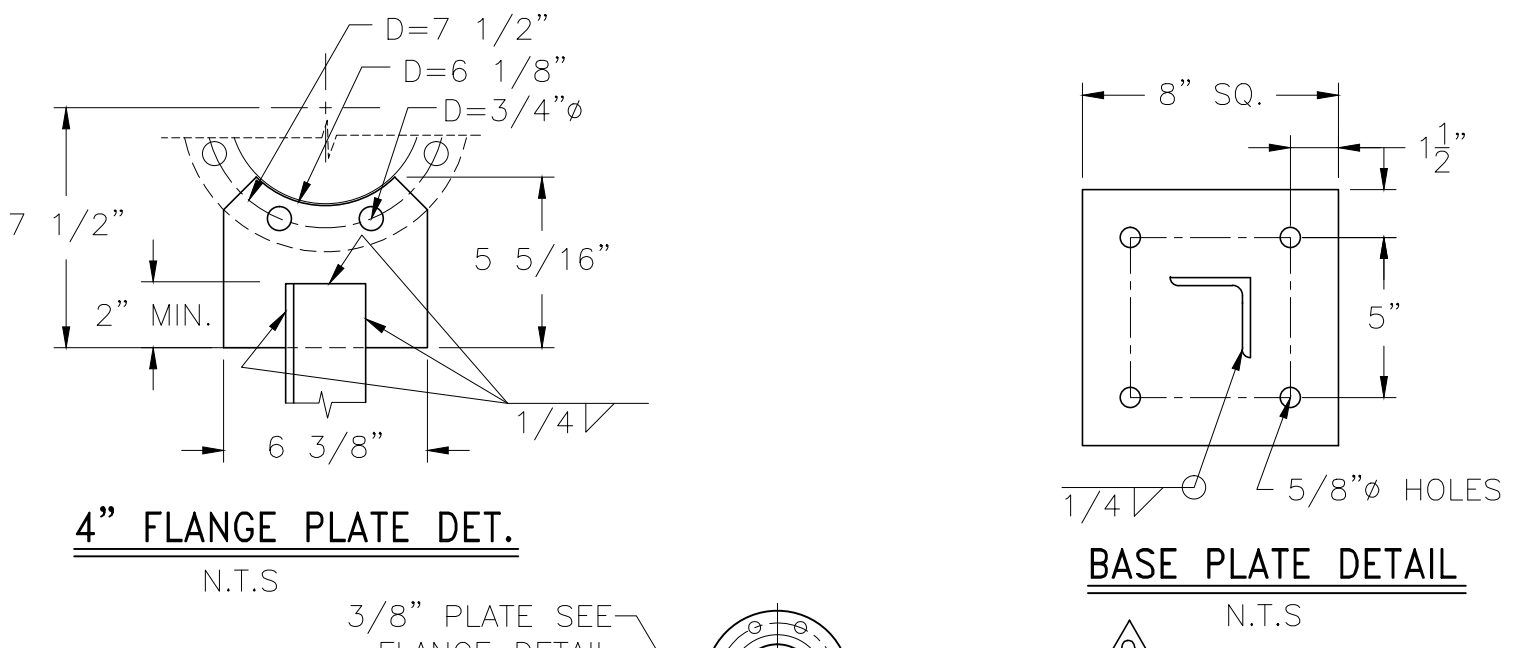
DWPS2-PS-2A



DWPS2-PS-03



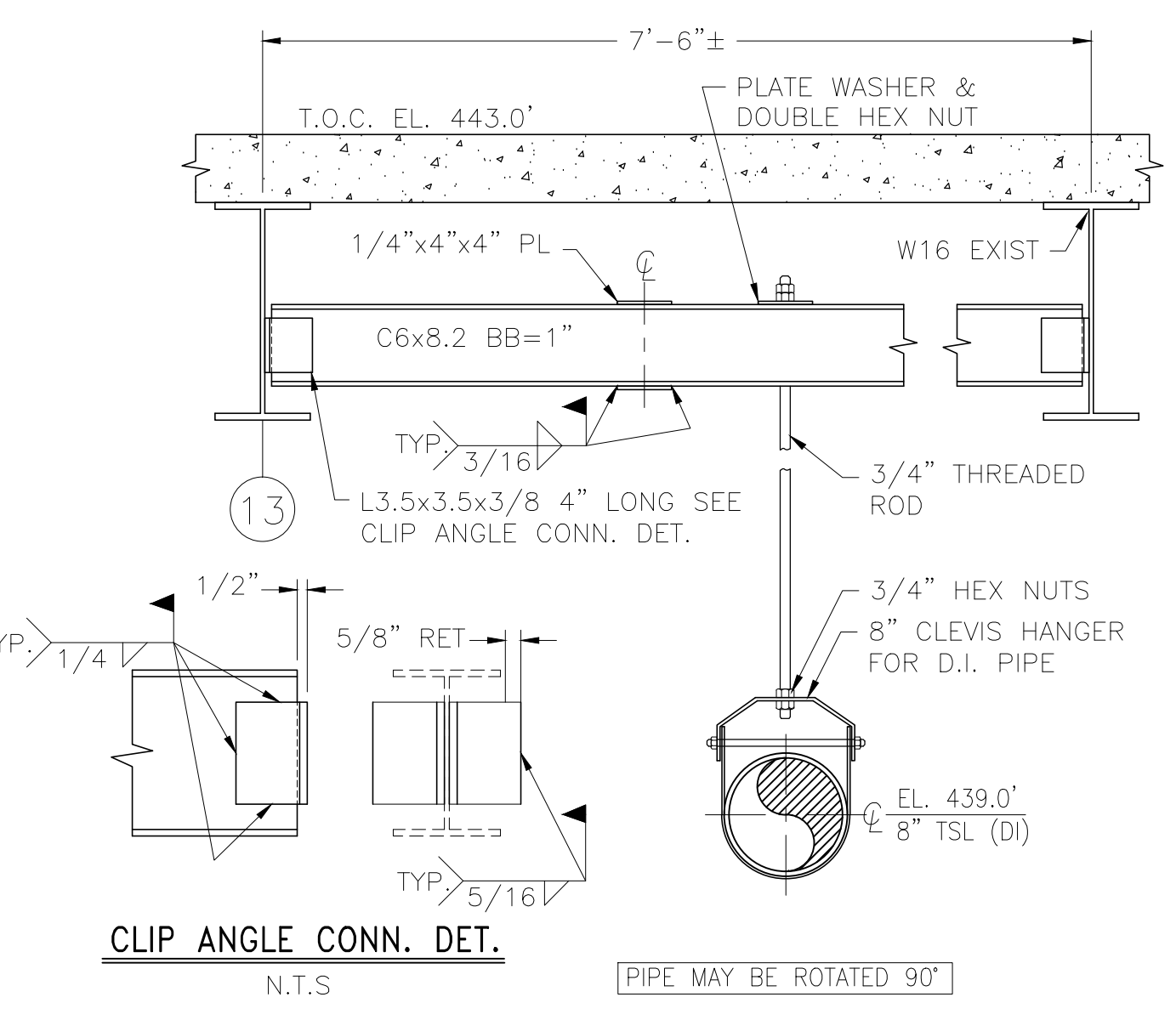
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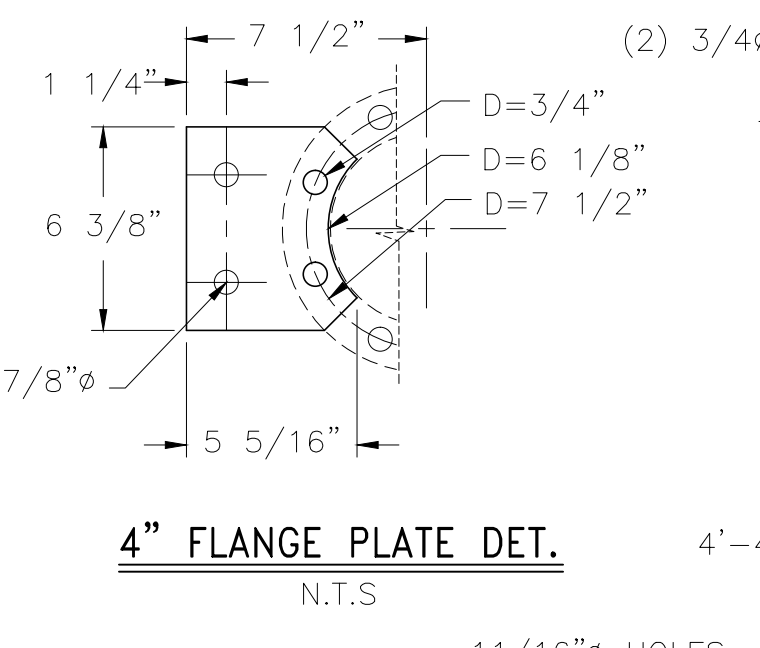
4" FLANGE PLATE DET. N.T.S.



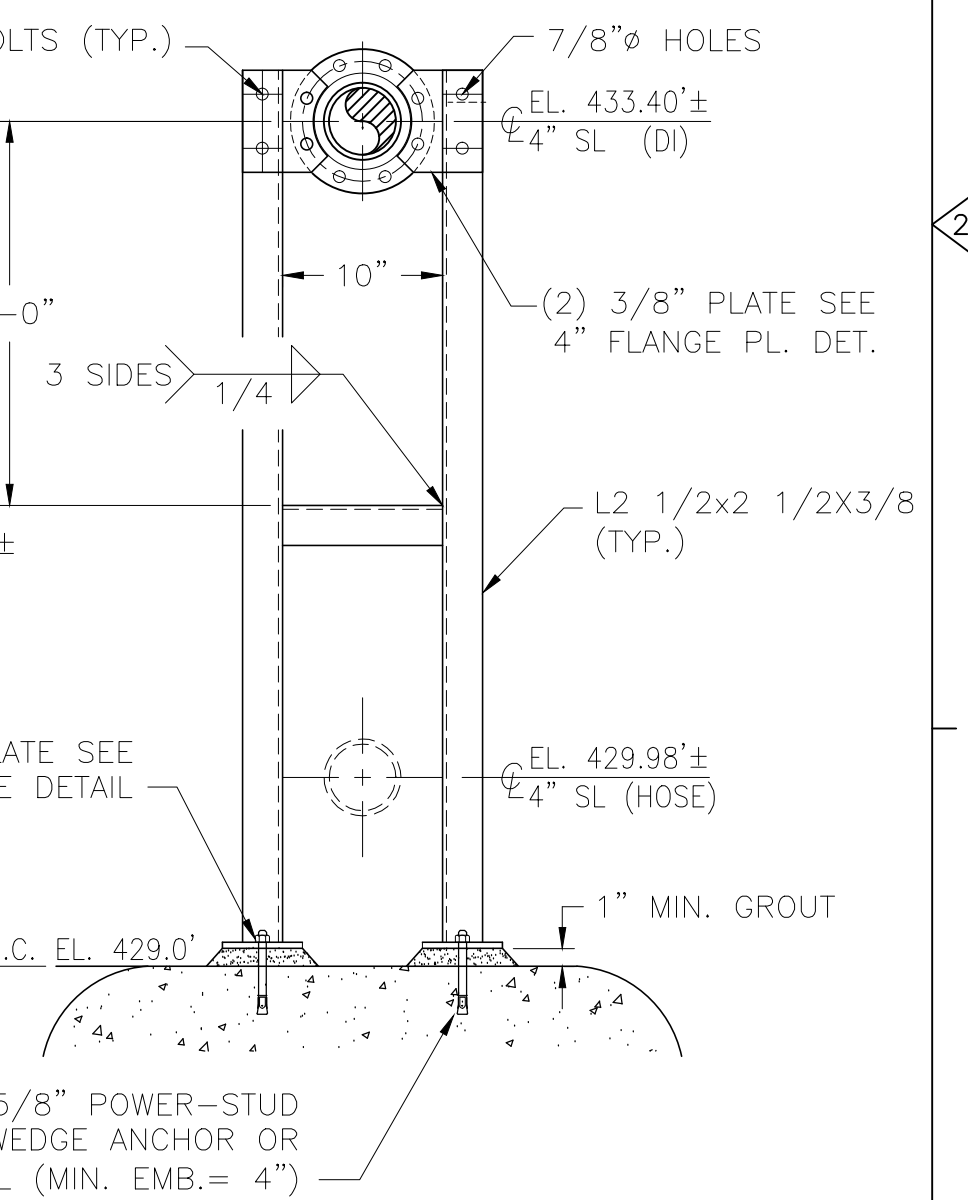
BASE PLATE DETAIL N.T.S.



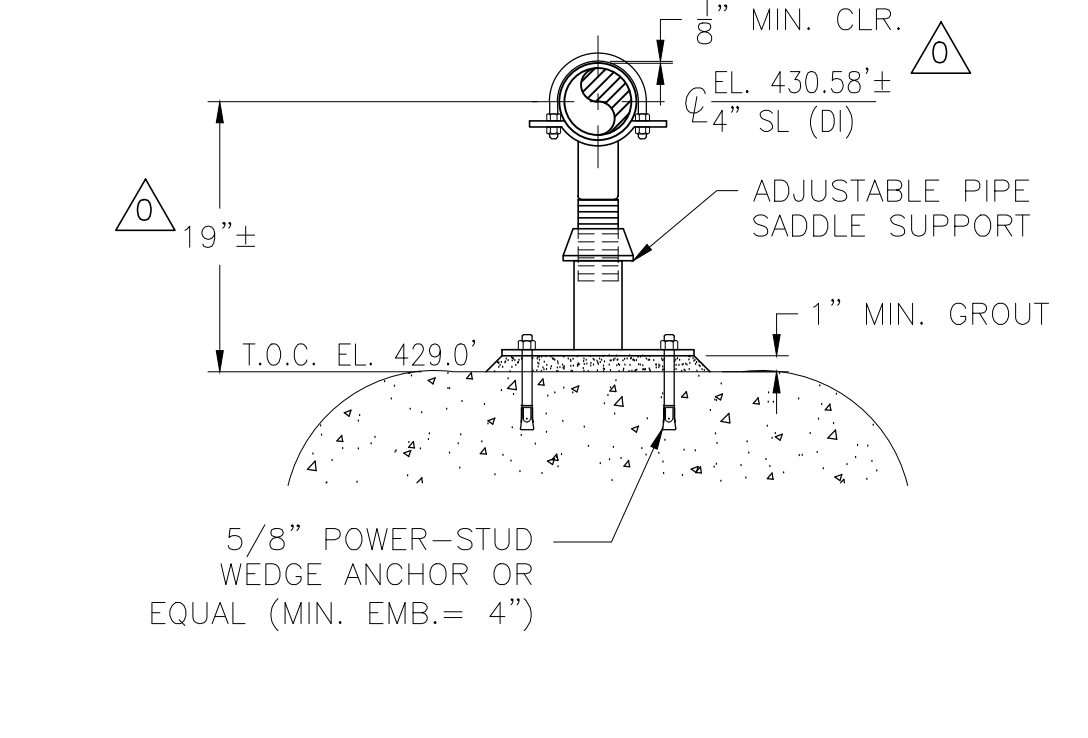
DWPS2-PS-07



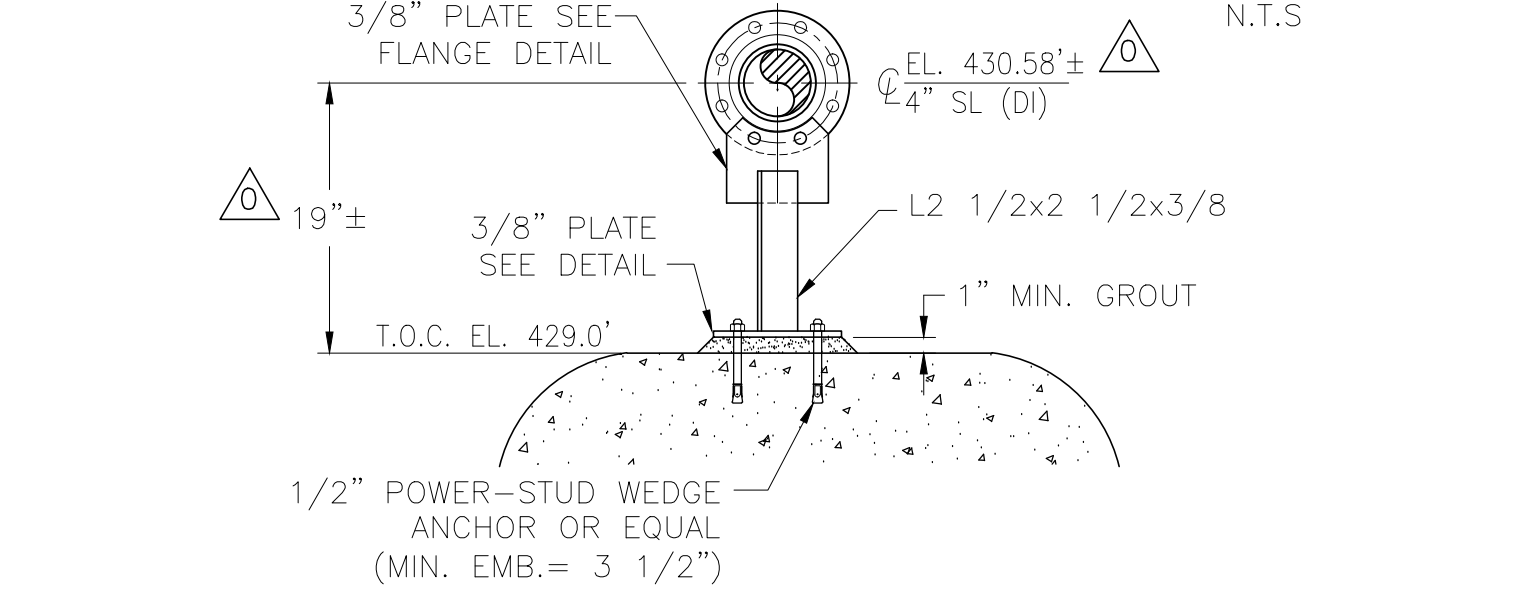
4" FLANGE PLATE DET. N.T.S.



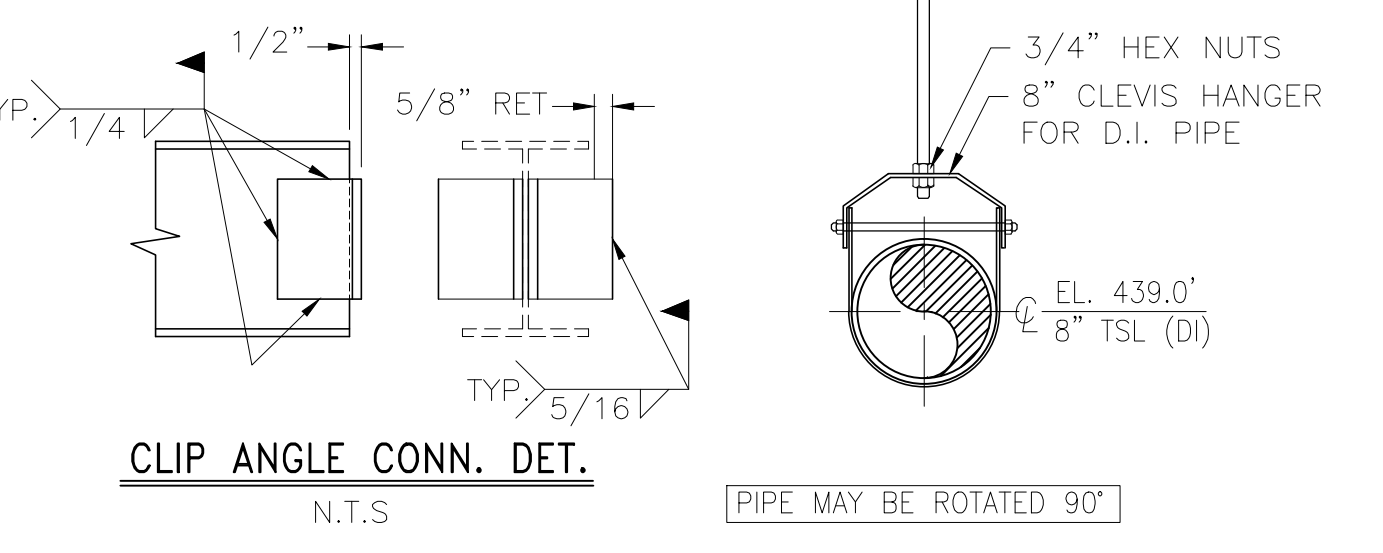
DWPS2-PS-08



DWPS2-PS-05

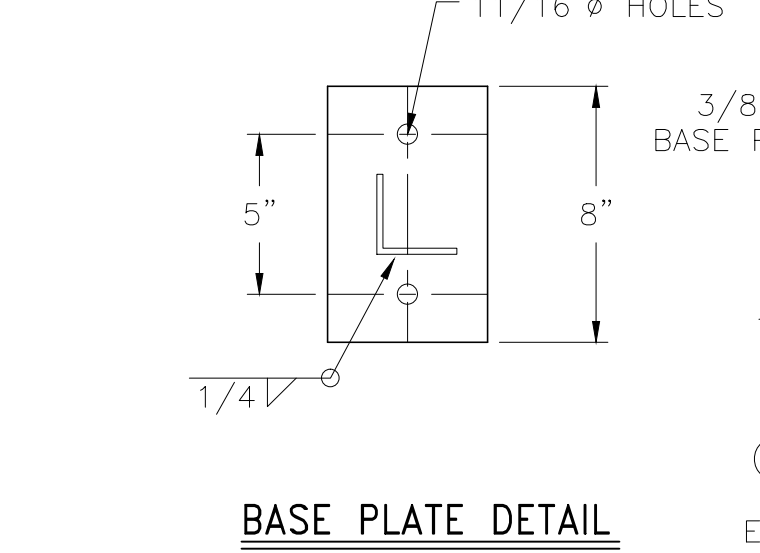


DWPS2-PS-06

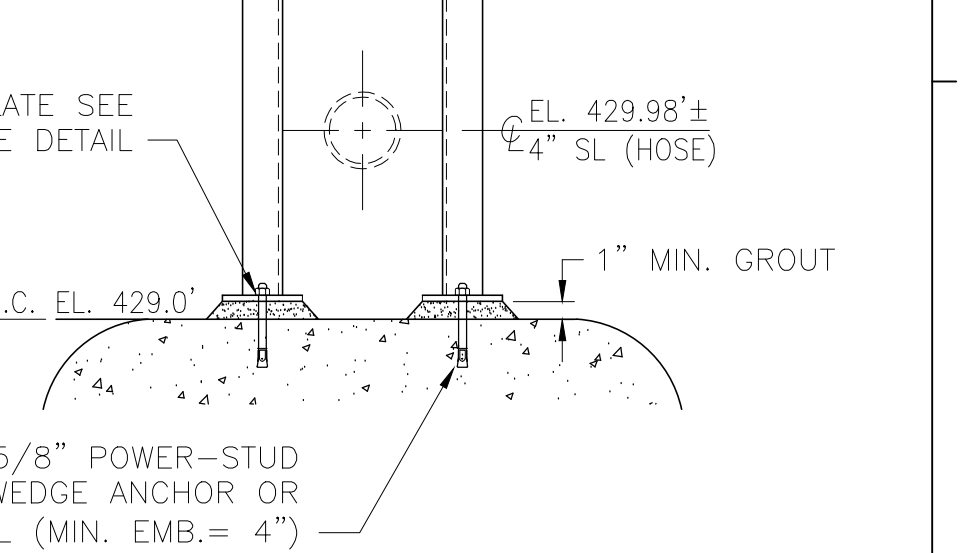


CLIP ANGLE CONN. DET. N.T.S.

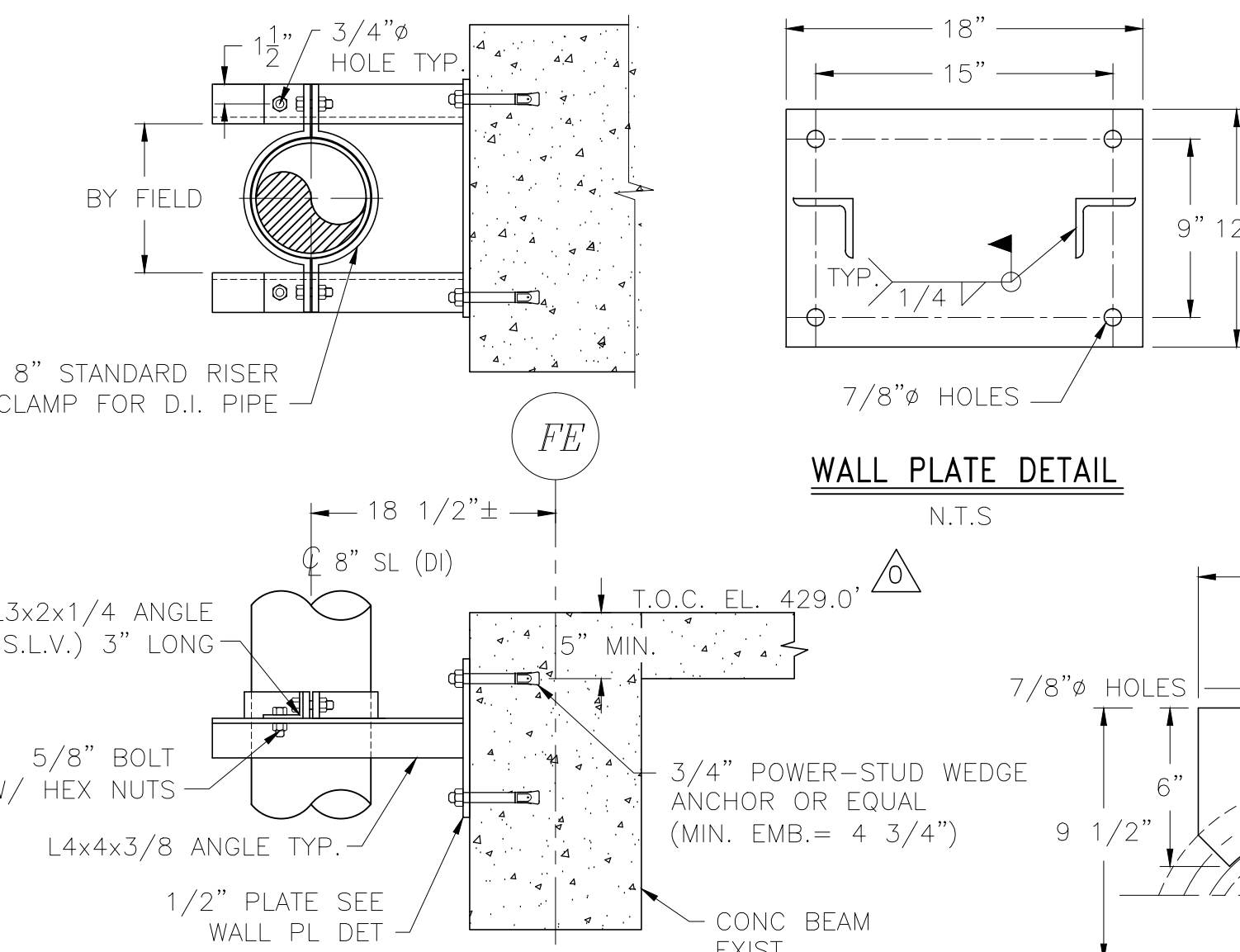
PIPE MAY BE ROTATED 90°



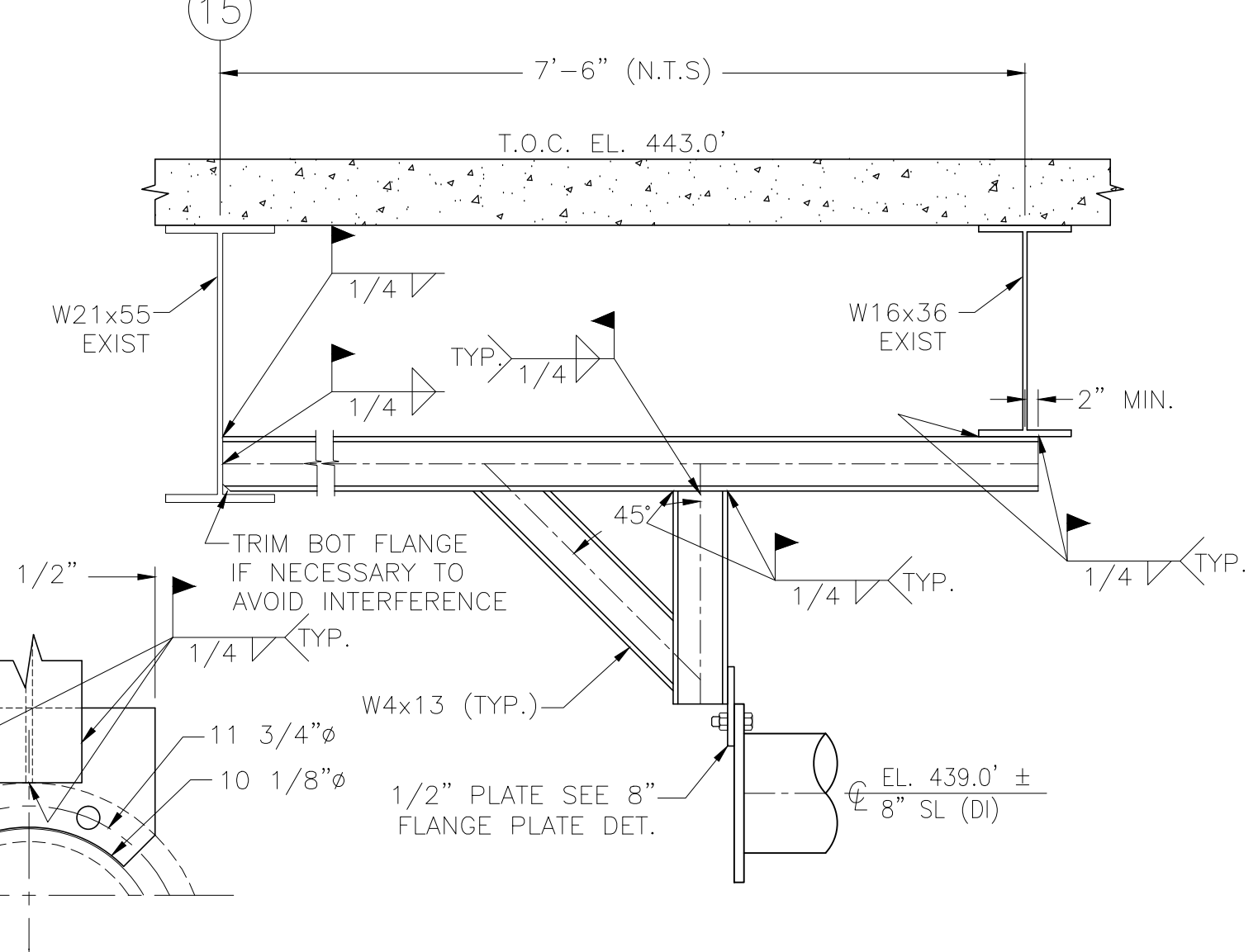
BASE PLATE DETAIL N.T.S.



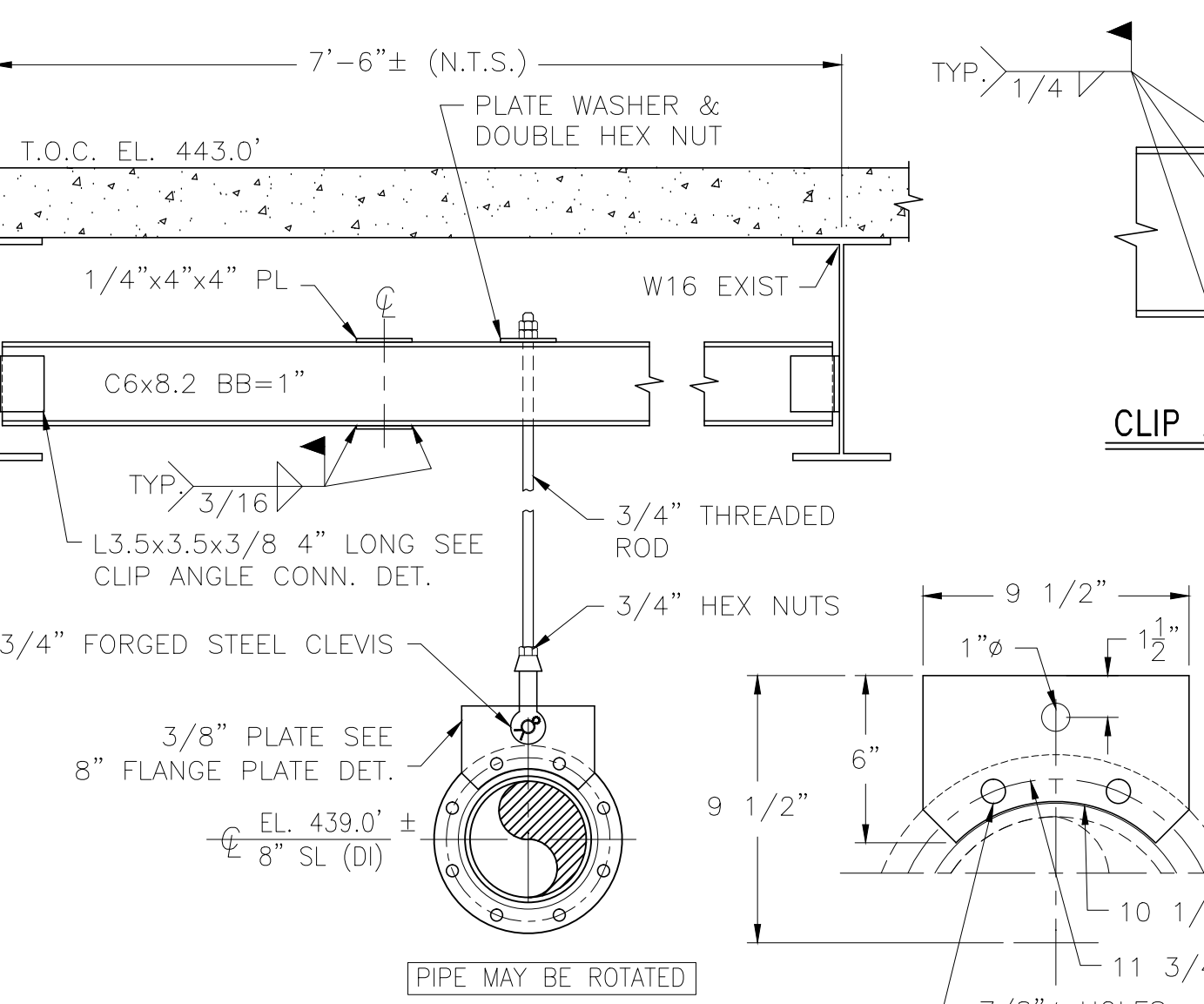
DWPS2-PS-08



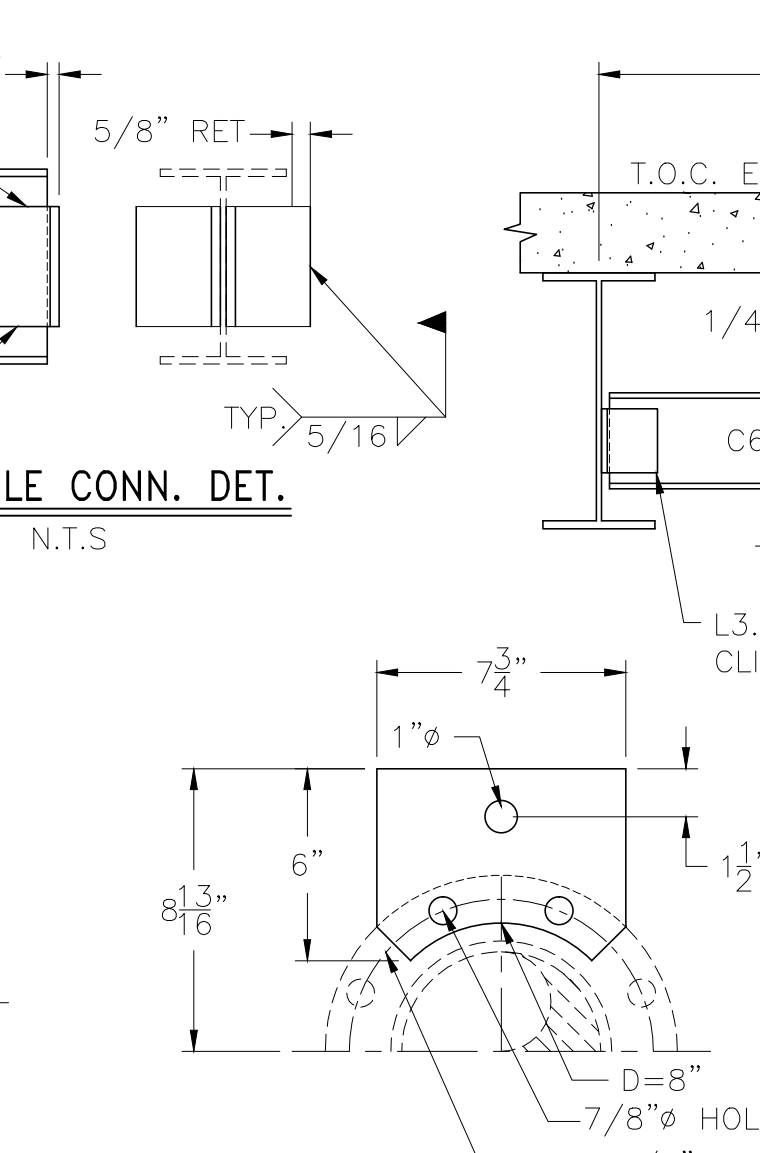
WALL PLATE DETAIL N.T.S.



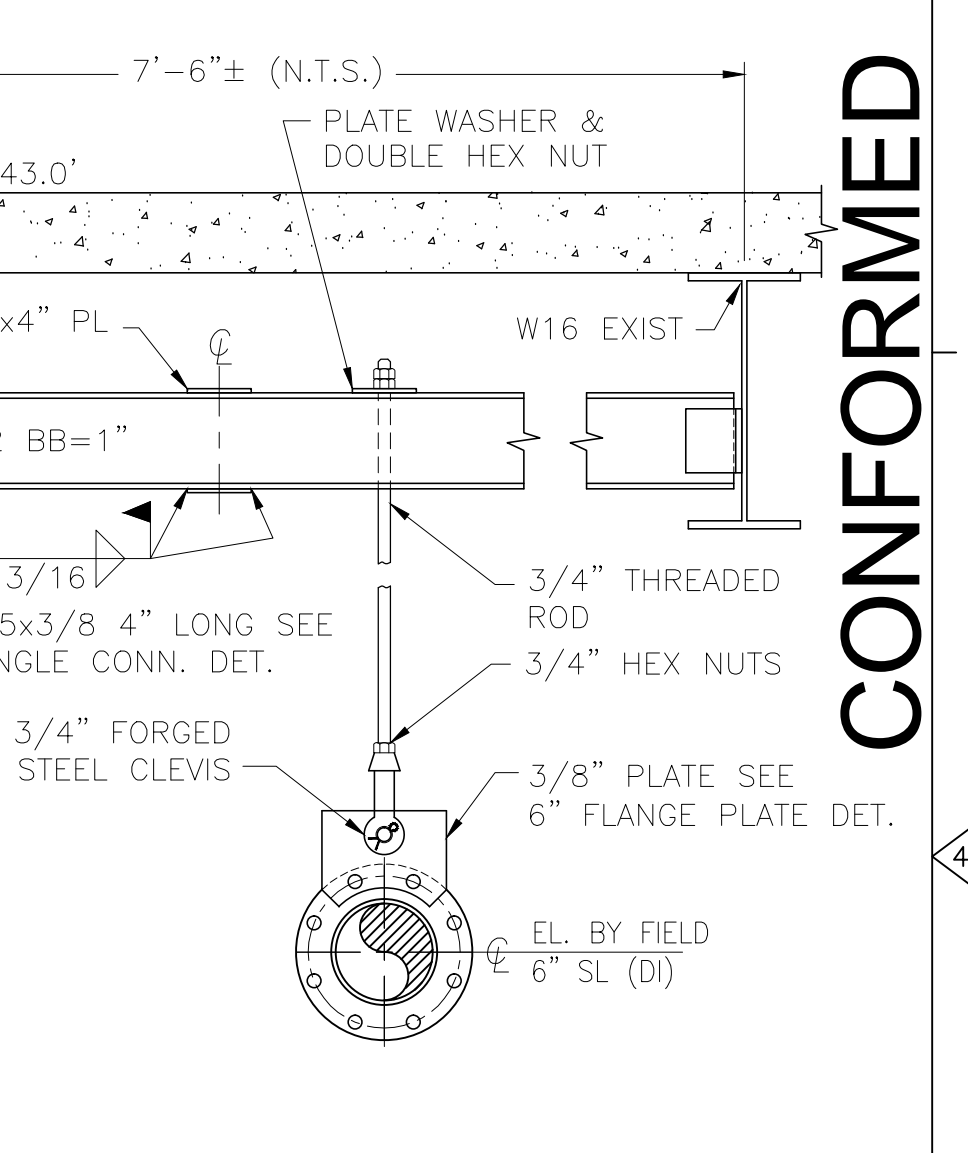
DWPS2-PS-10



DWPS2-PS-11



6" FLANGE PLATE DET. N.T.S.



DWPS2-PS-12

REV. NO.	DATE	DRWN	CHKD	REMARKS
10/12	GR	JT		ADDED PIPE SUPPORT DWPS2-PS-2A
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPSDT01
DESIGNED BY:	J. TSKIOURAS
DRAWN BY:	G. REGO
SHEET CHK'D BY:	J. MOURATO
CROSS CHK'D BY:	G. REGO
SCALE:	1" = 1'-0"
APPROVED BY:	J. TSKIOURAS
DATE:	SEPTEMBER 2010

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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
 PIPE SUPPORT DETAILS I

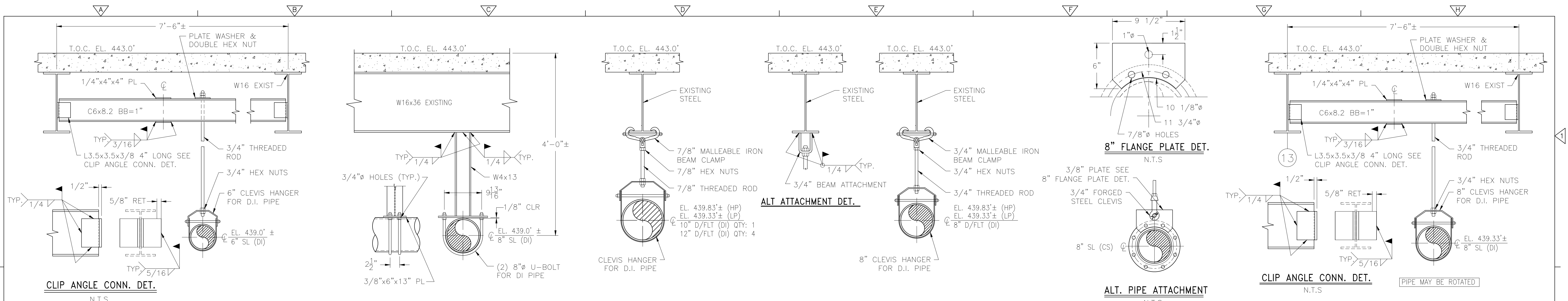
PROJECT NO.
1289-74283

Sht. 161 of 312

DW-SD-1

Acc # 1289-74567

CONFORMED



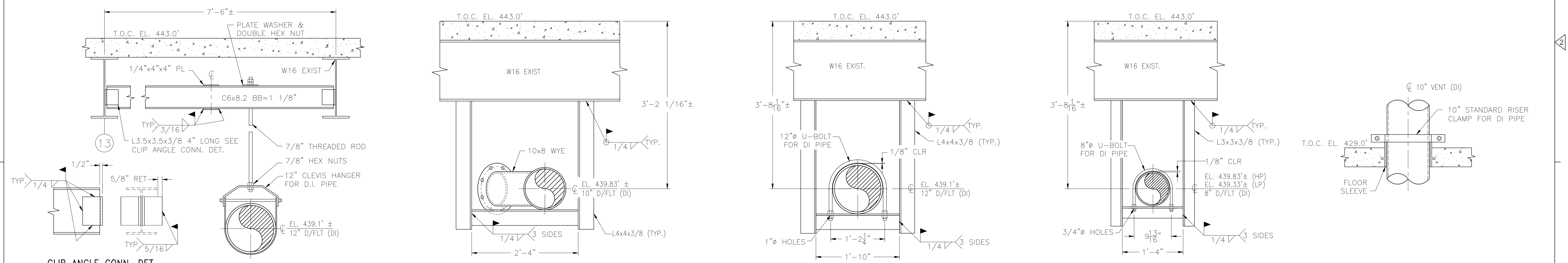
DWPS2-PS-13

DWPS2-PS-14

DWPS2-PS-15

DWPS2-PS-16

DWPS2-PS-17



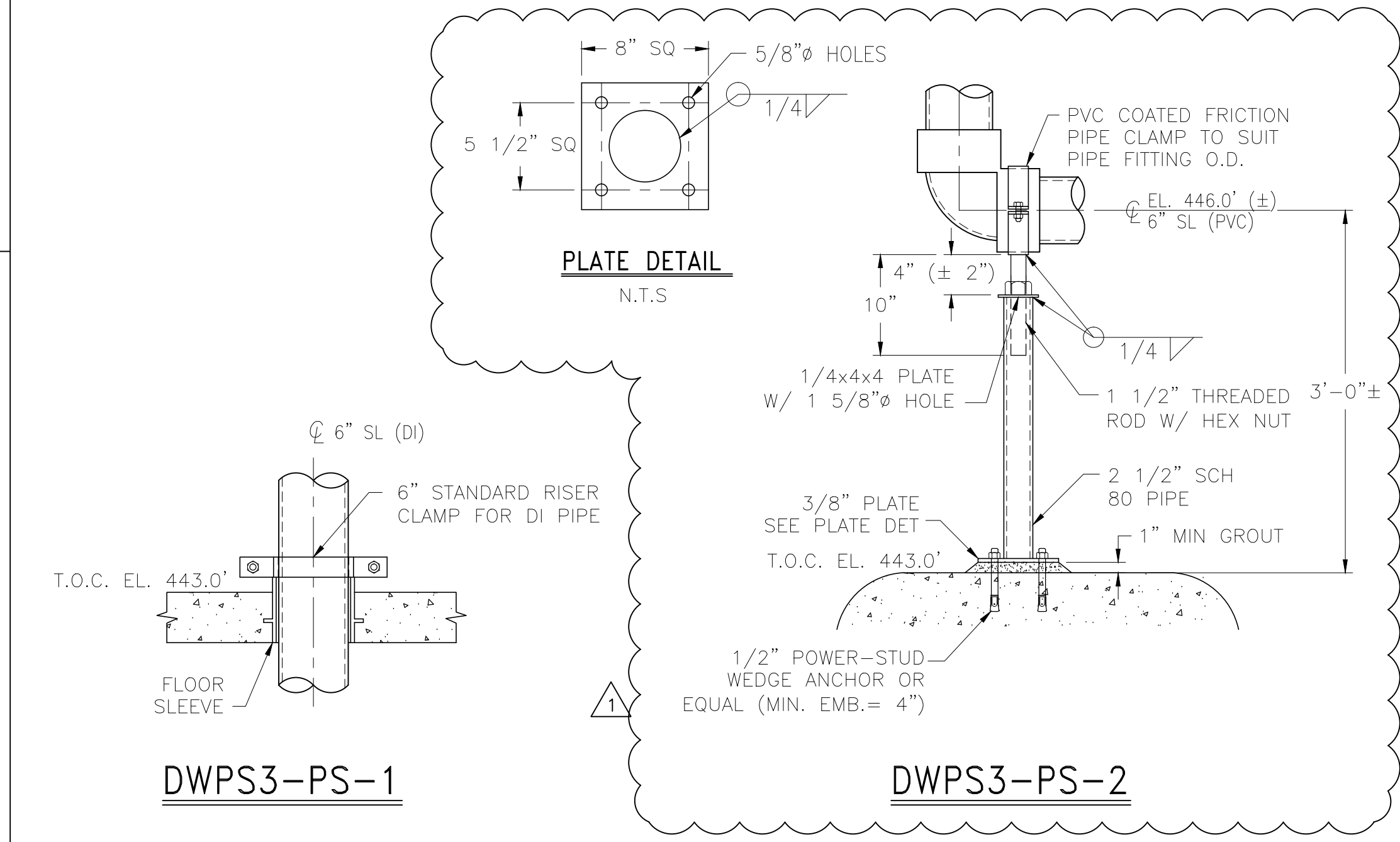
DWPS2-PS-17A

DWPS2-PS-18

DWPS2-PS-19

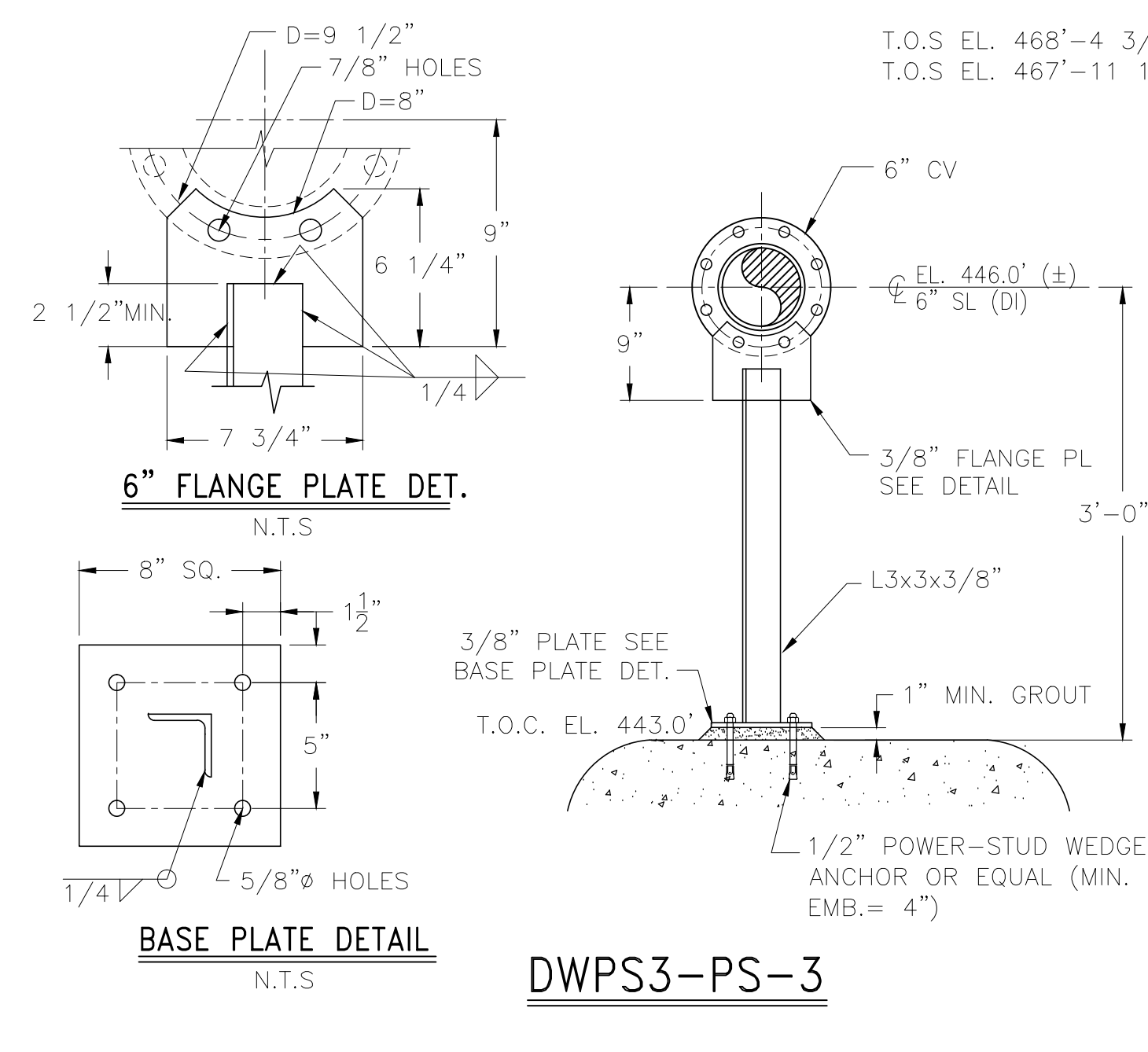
DWPS2-PS-19A

DWPS2-PS-20



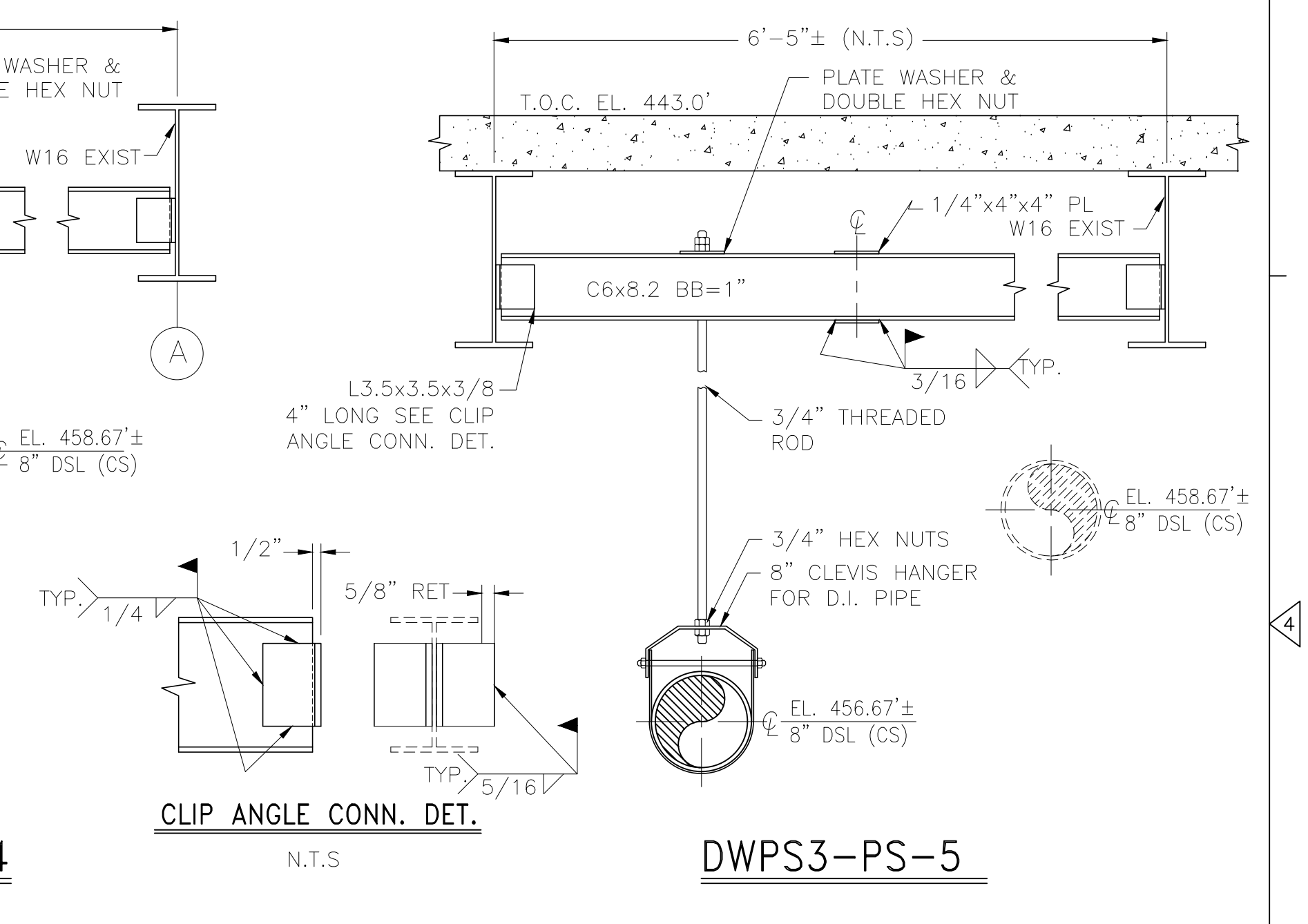
DWPS3-PS-1

DWPS3-PS-2



DWPS3-PS-3

DWPS3-PS-4



DWPS3-PS-5

REV. NO.	DATE	DRWN	CHKD	REMARKS
2/12	GR	JT		REVISED AS NOTED

CADD FILE NO.	MDWPSDT02
DESIGNED BY:	J. TSIKOURAS
DRAWN BY:	G. REGO
SHEET CHK'D BY:	J. MOURATO
CROSS CHK'D BY:	G. REGO
SCALE:	1" = 1'-0"
APPROVED BY:	J. TSIKOURAS
DATE:	JULY 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

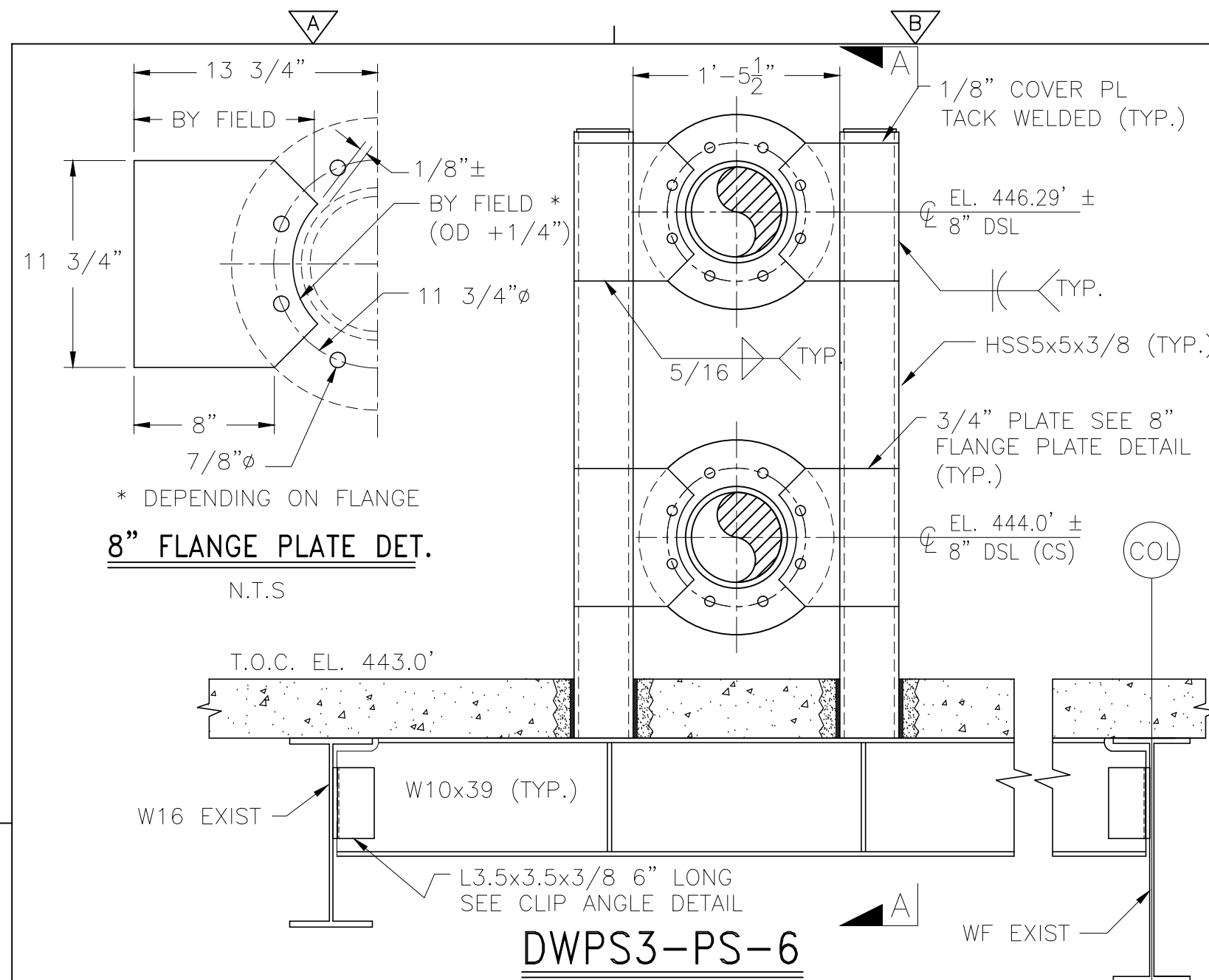
SLUDGE DEWATERING BUILDING
 PIPE SUPPORT DETAILS II

PROJECT NO.
 1289-74283

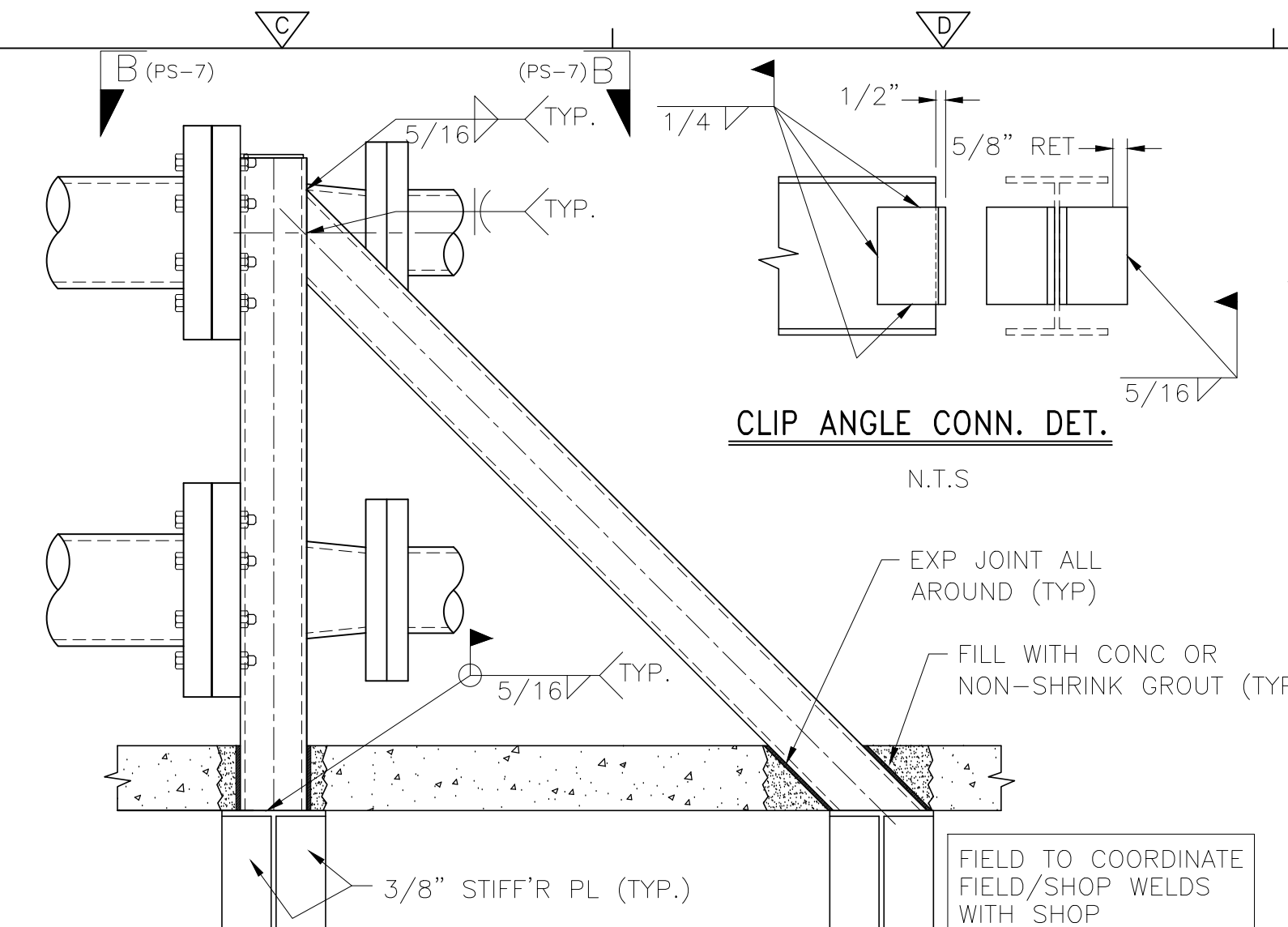
Sht. 162 of 312

DW-SD-2

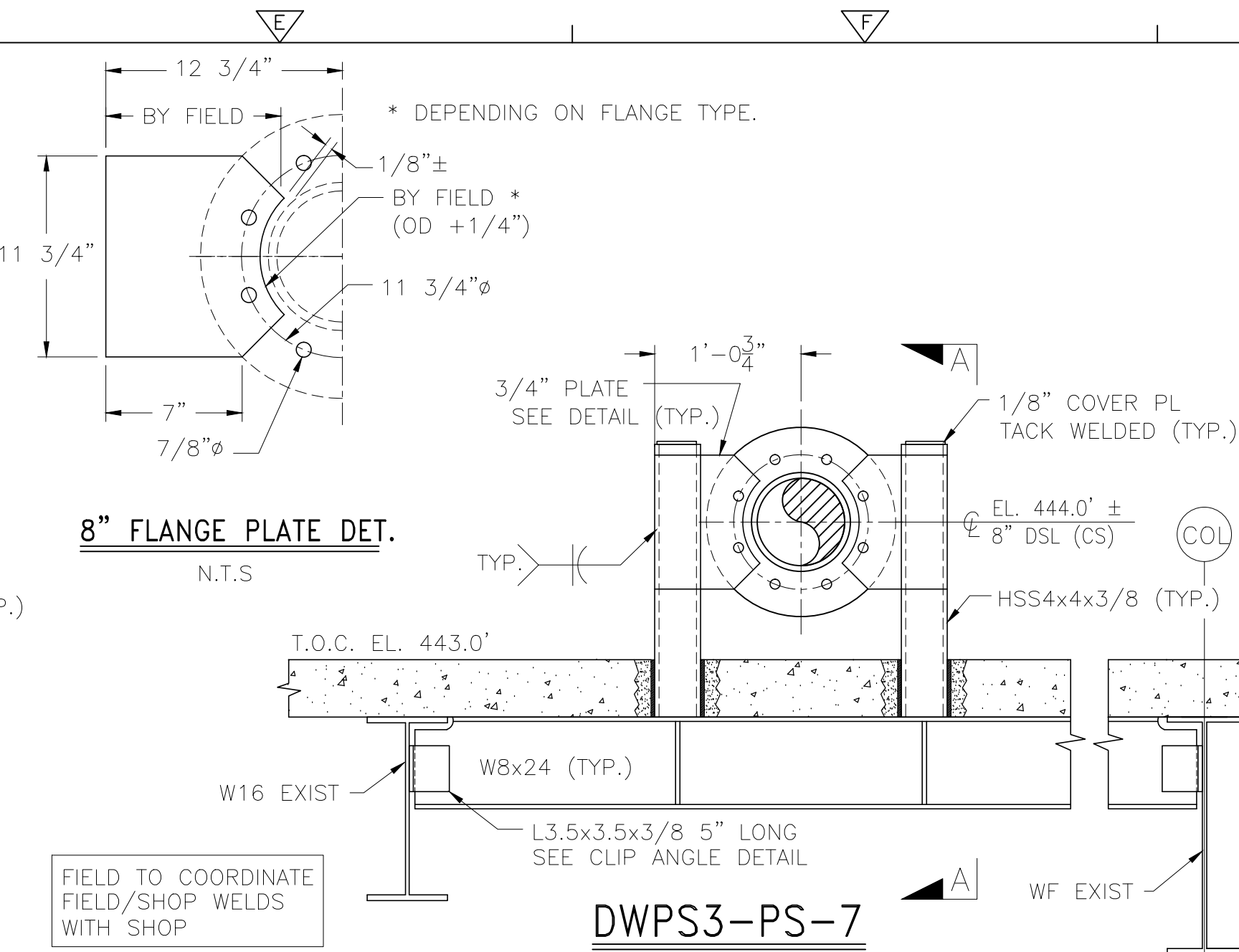
Acc # 1289-74568



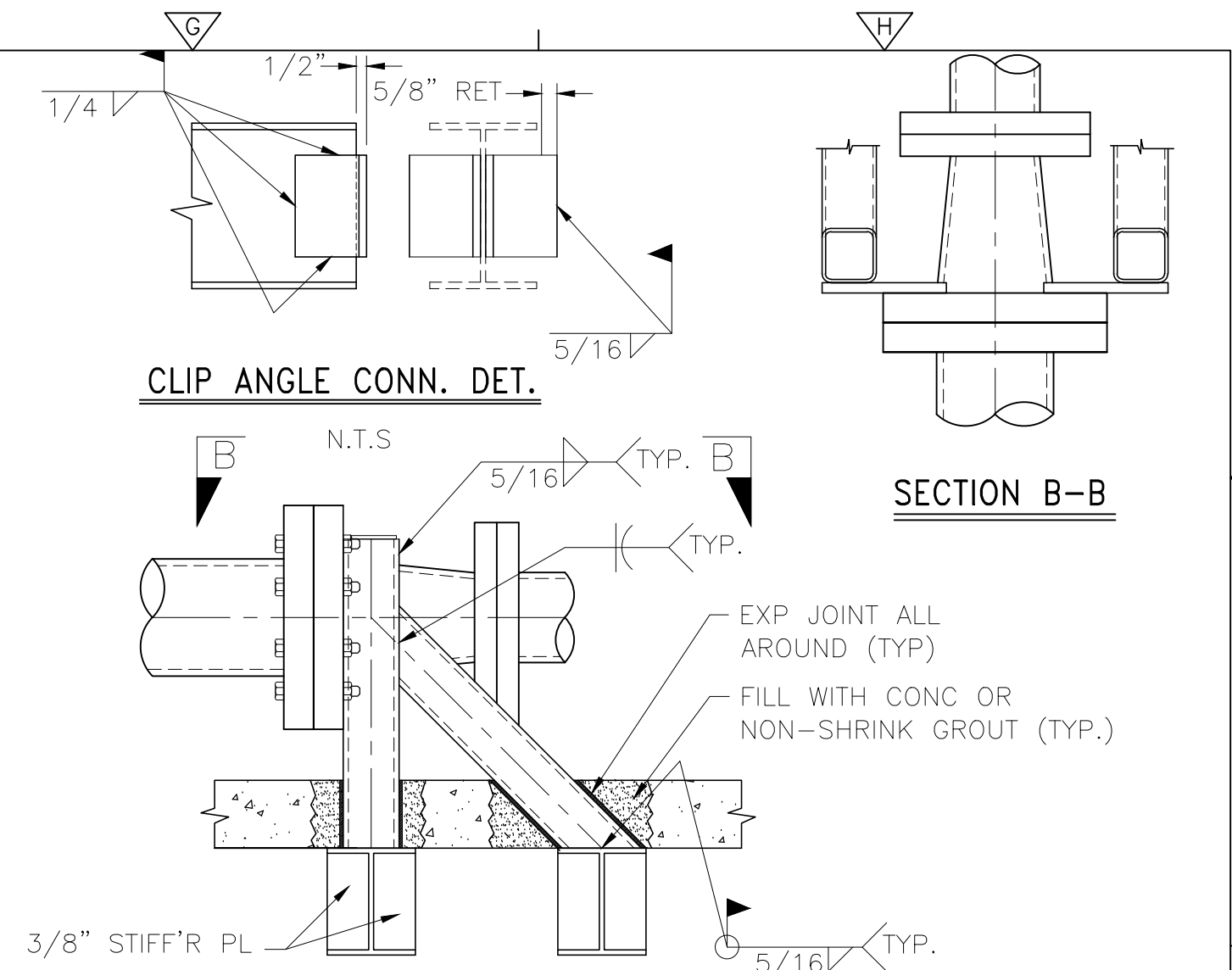
DWPS3-PS-6



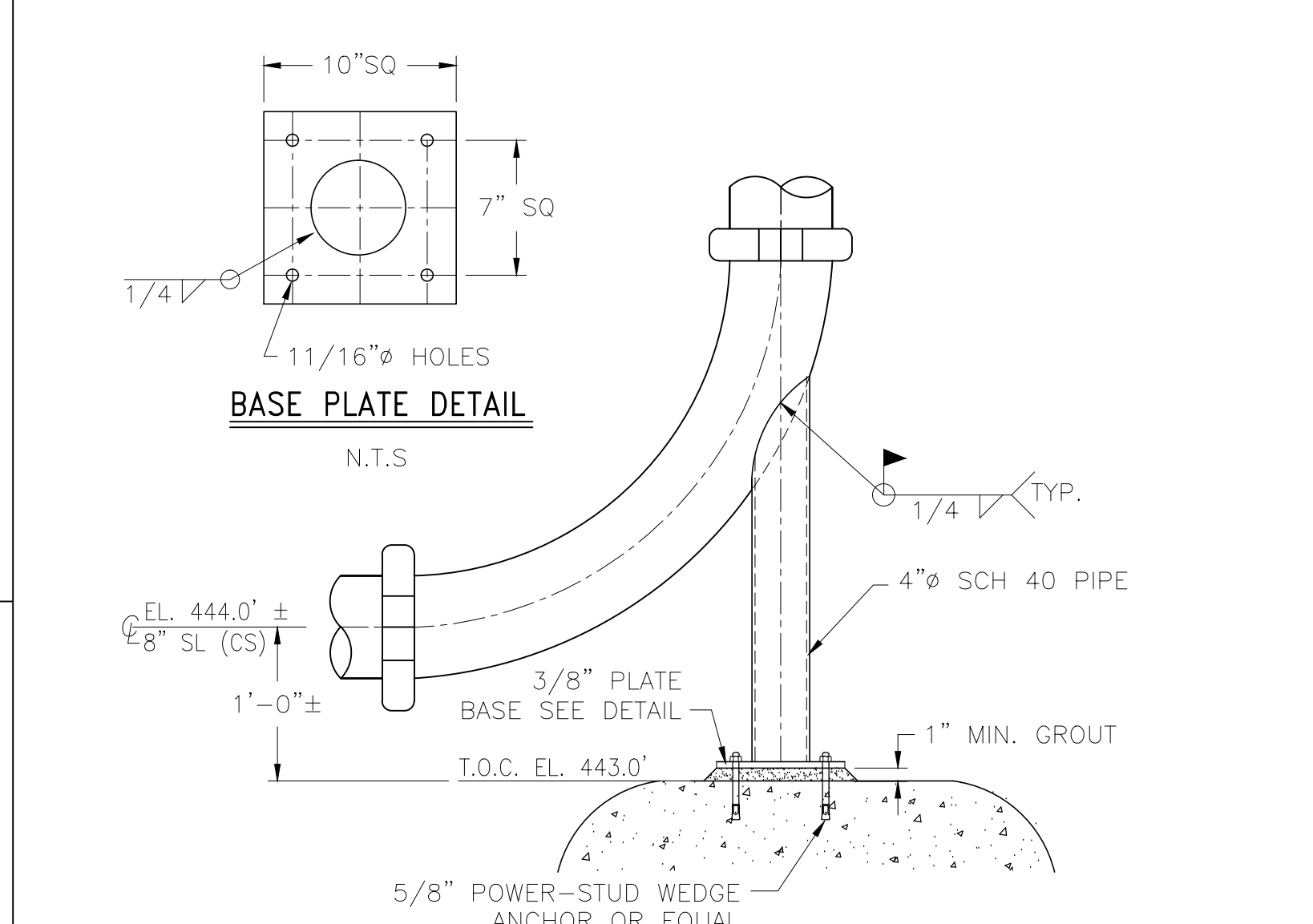
SECTION A-A



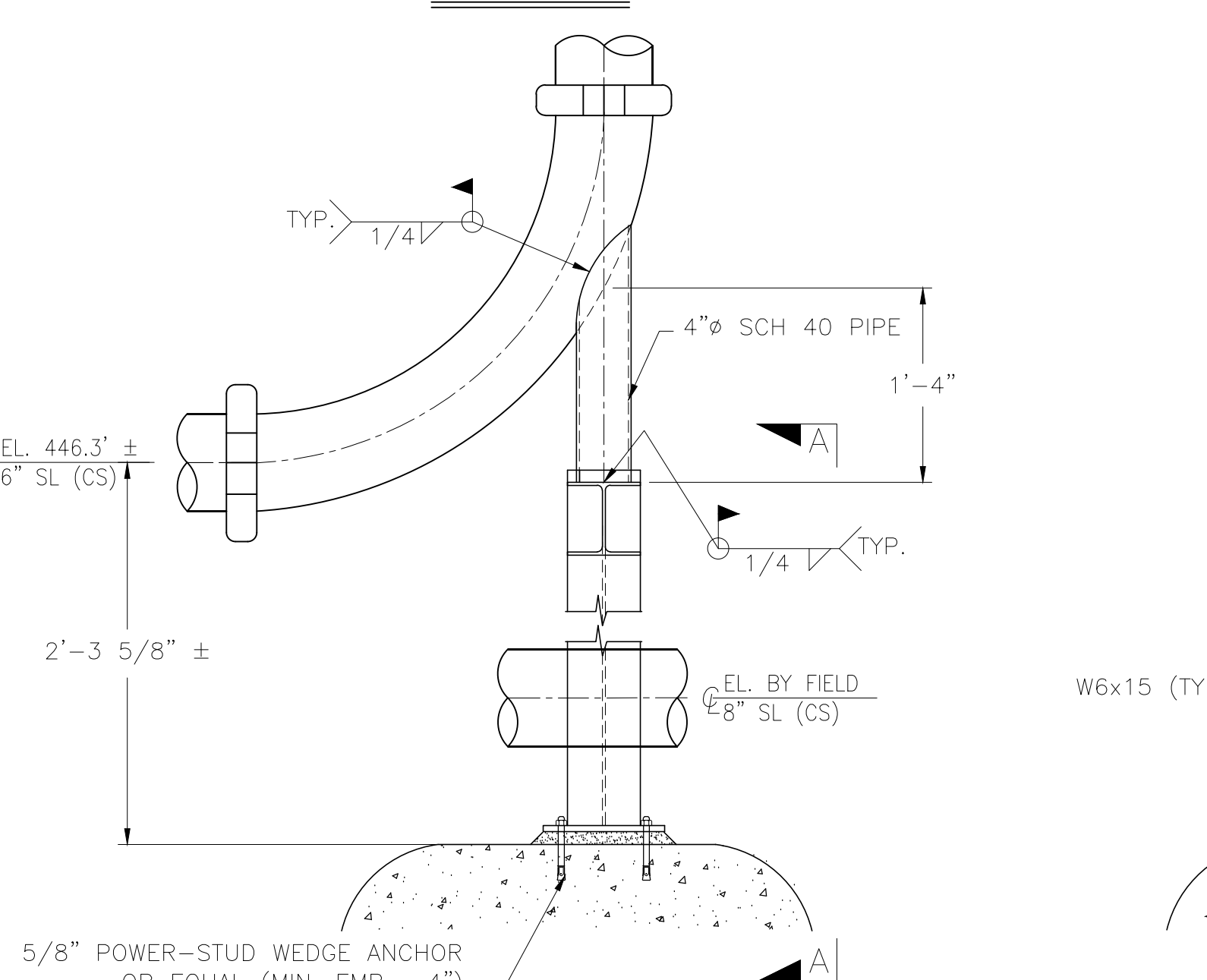
DWPS3-PS-7



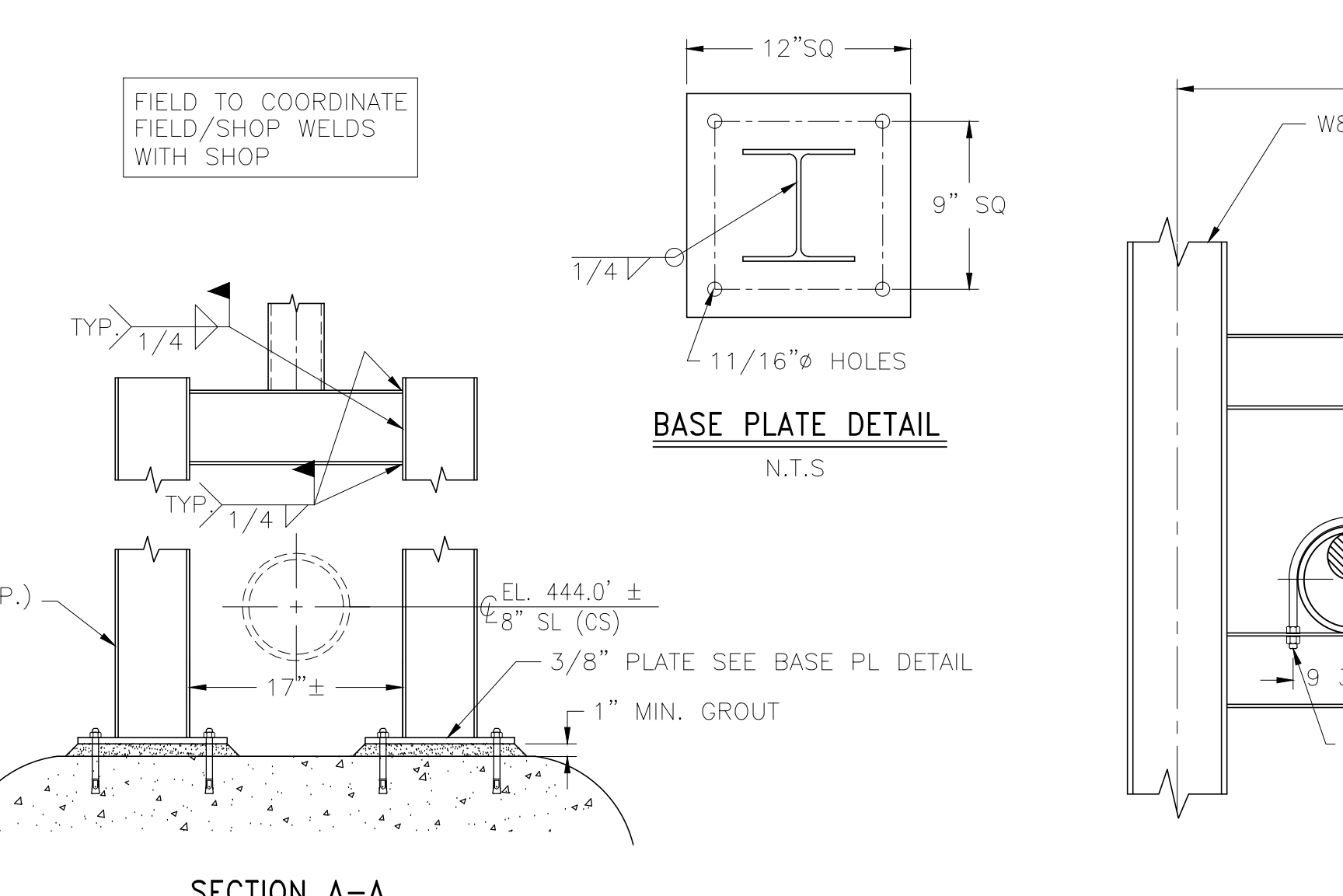
SECTION A-A



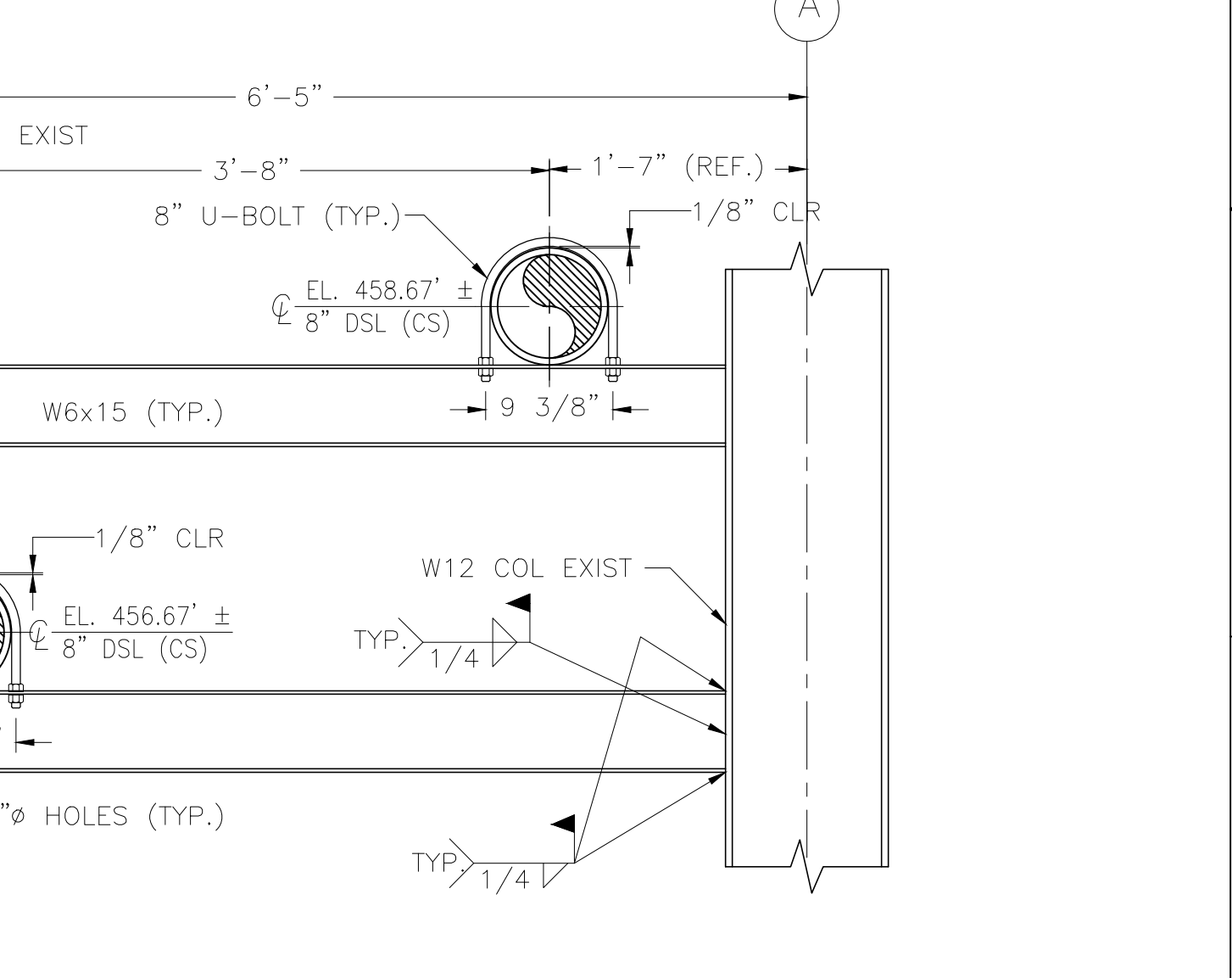
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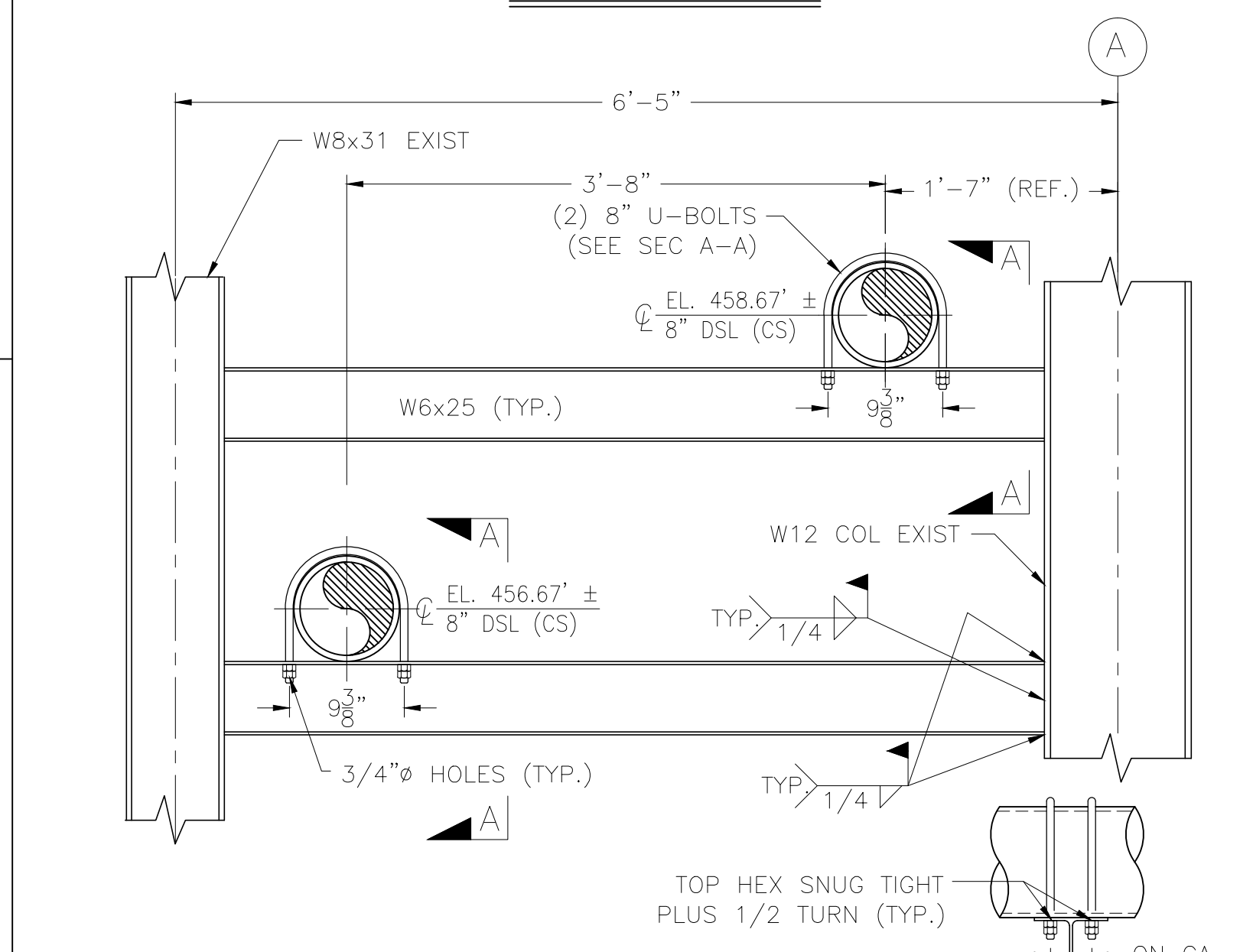
DWPS3-PS-9



SECTION A-A

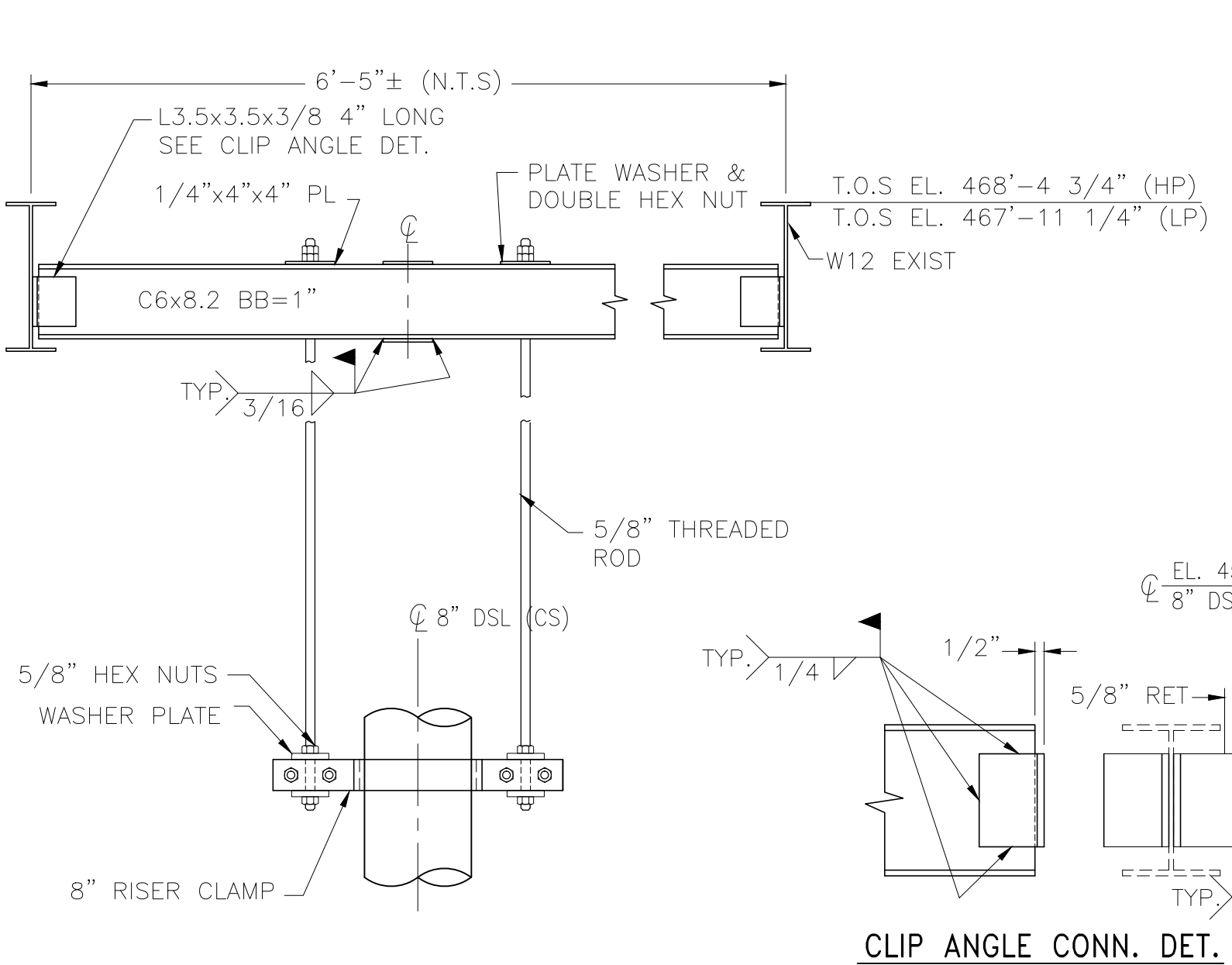


DWPS3-PS-10

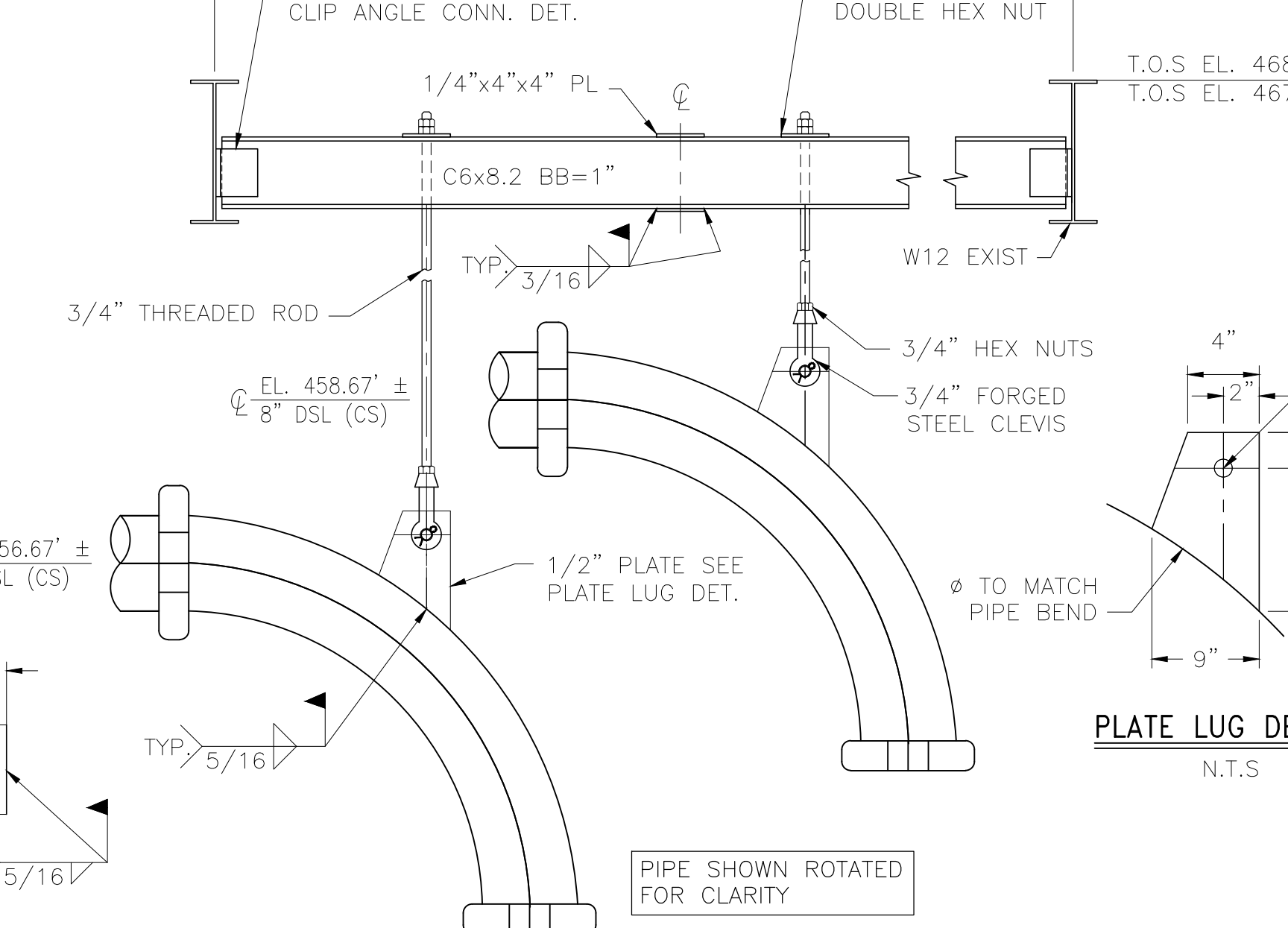


SECTION A-A

DWPS3-PS-11

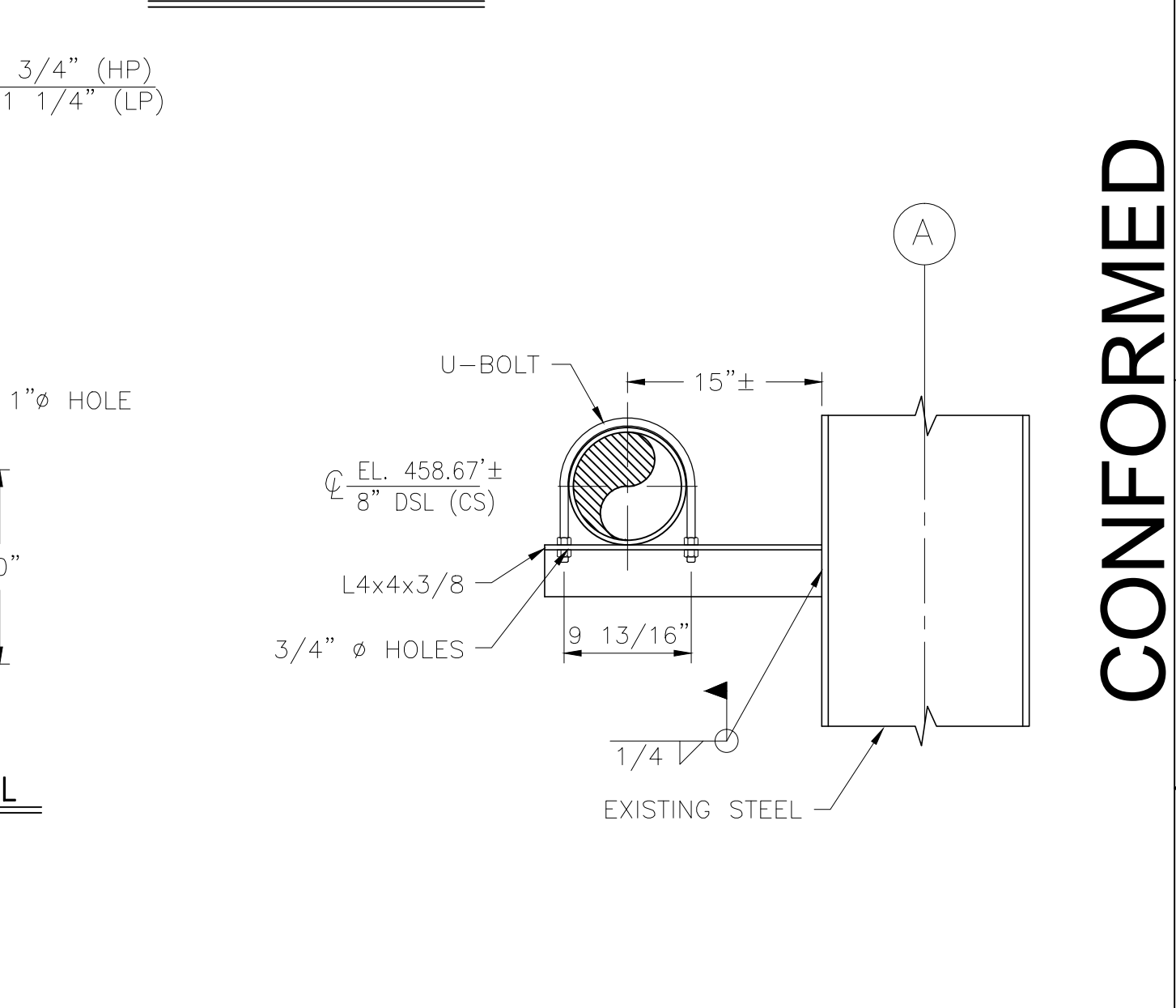


DWPS3-PS-12



SECTION A-A

DWPS3-PS-13



SECTION A-A

DWPS3-PS-14

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

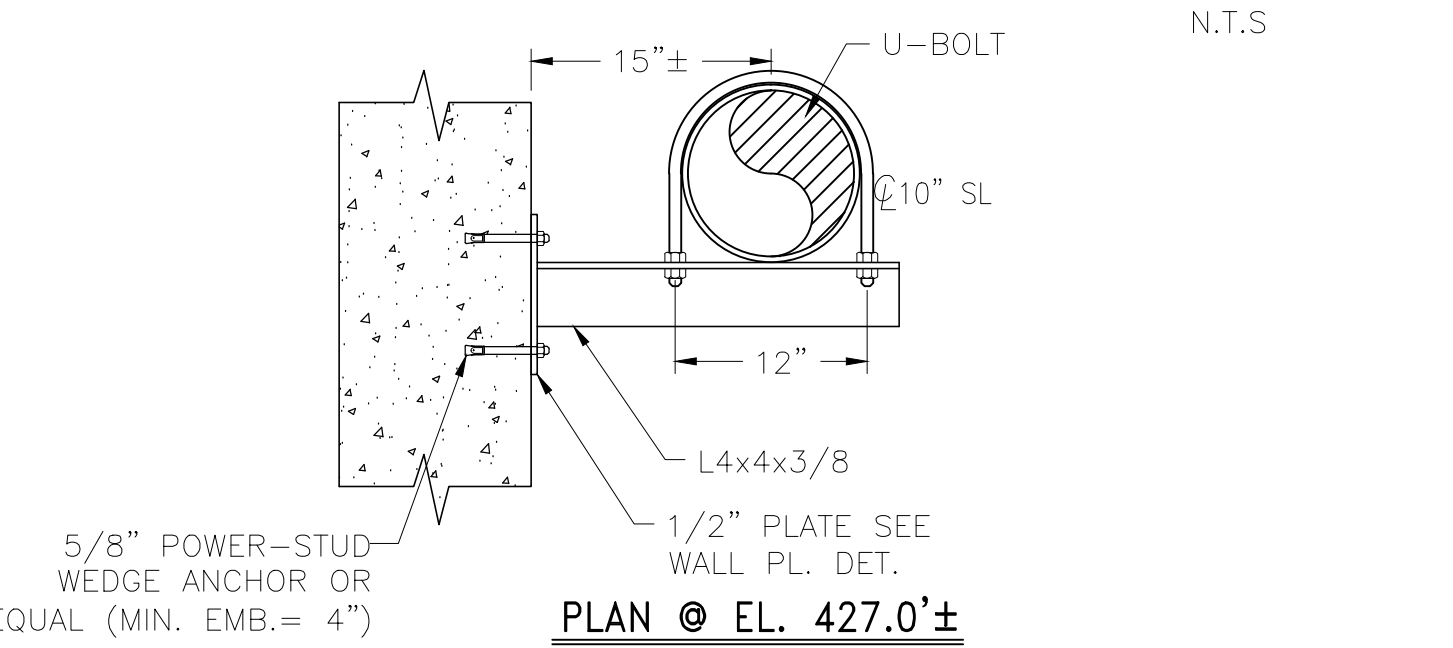
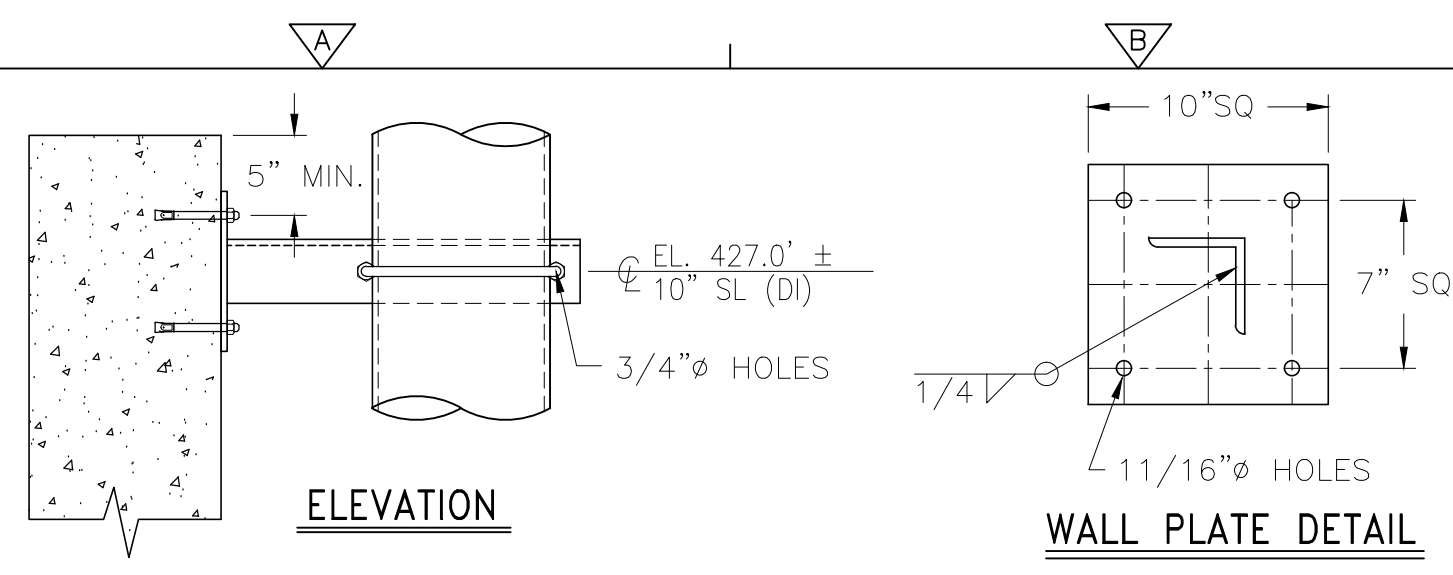
CADD FILE NO. MDWPSDT03
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

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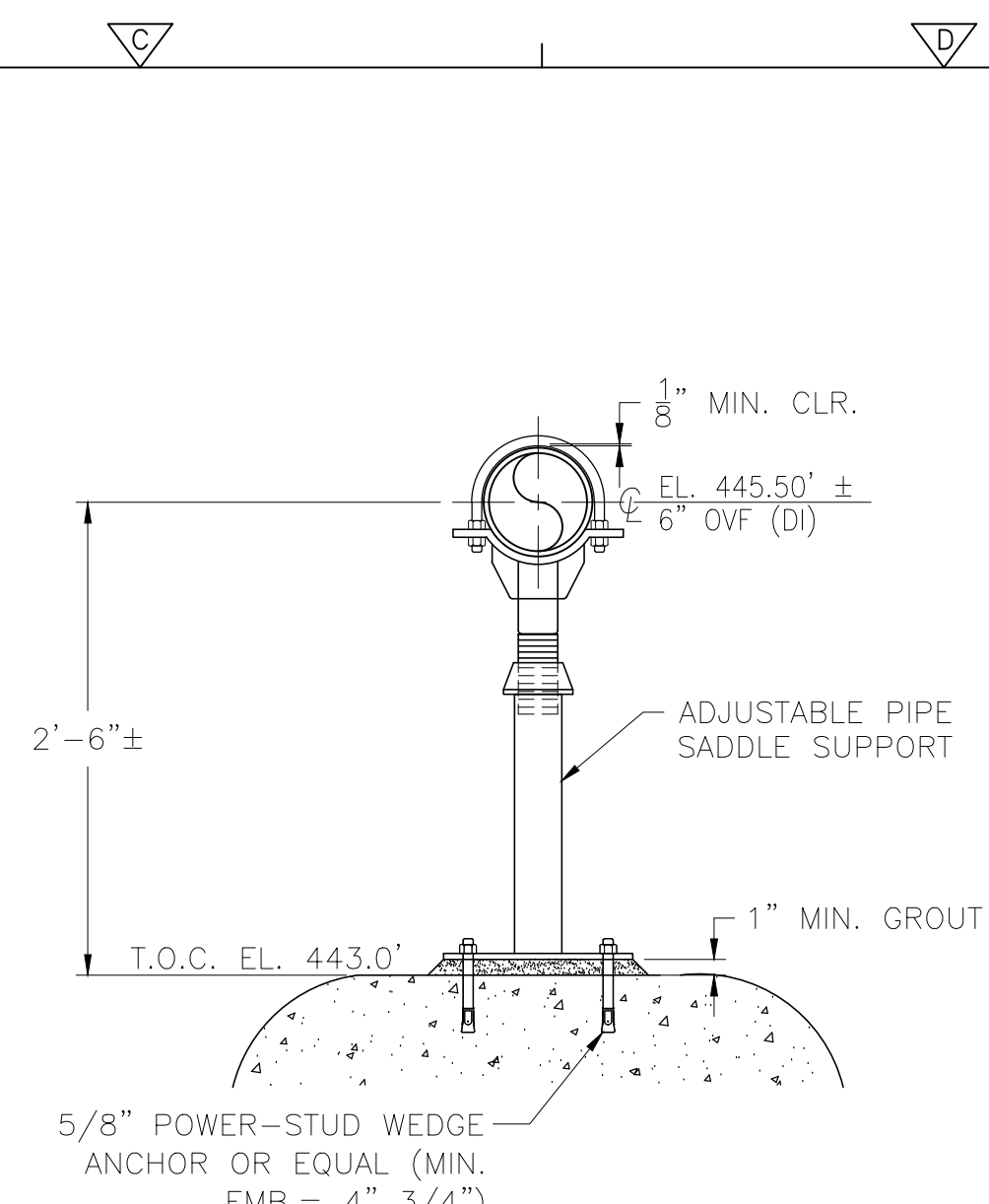
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
 PIPE SUPPORT DETAILS III
 DW-SD-3
 PROJECT NO. 1289-74283
 Sht. 163 of 312
 Acc # 1289-74569

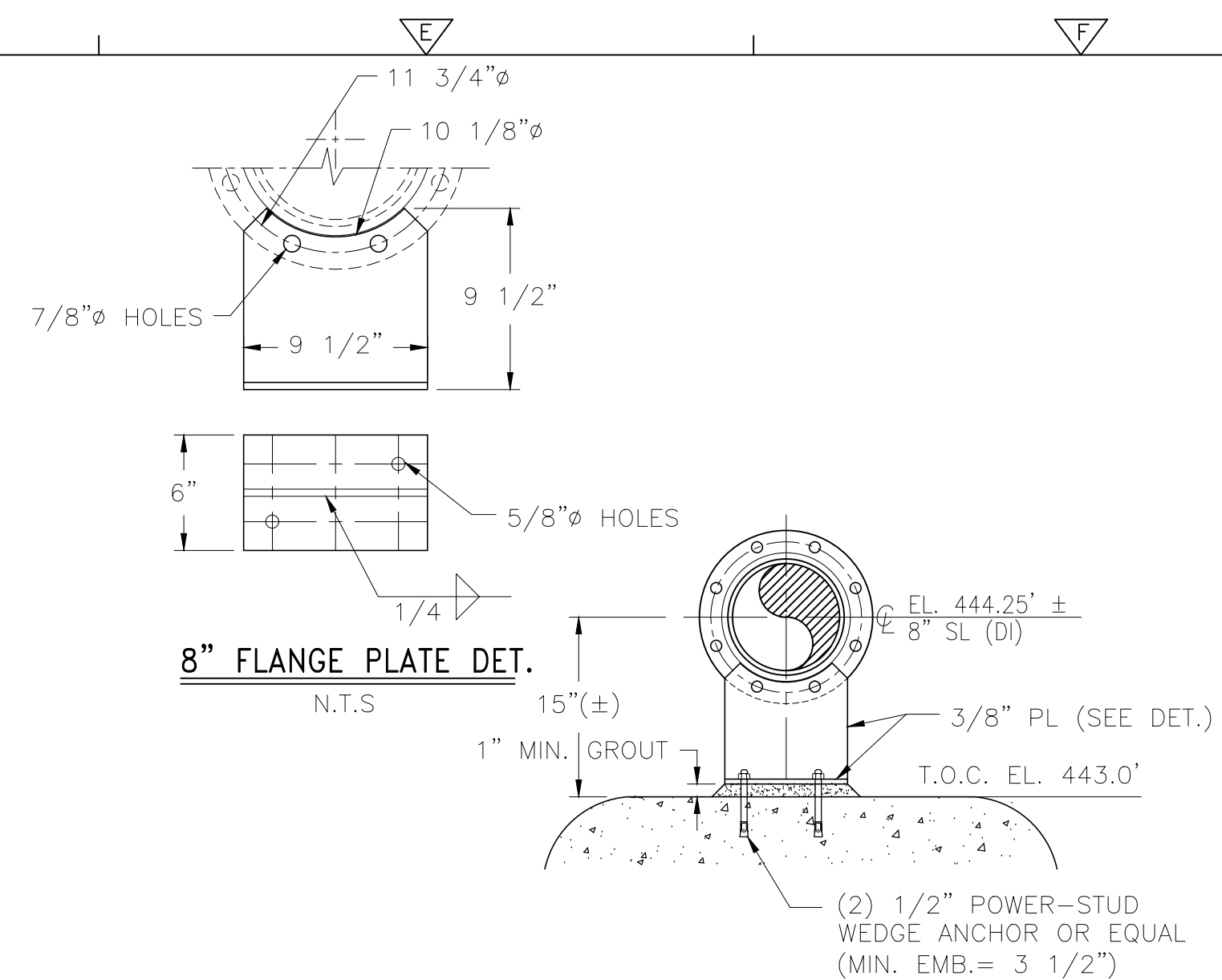
CONFORMED



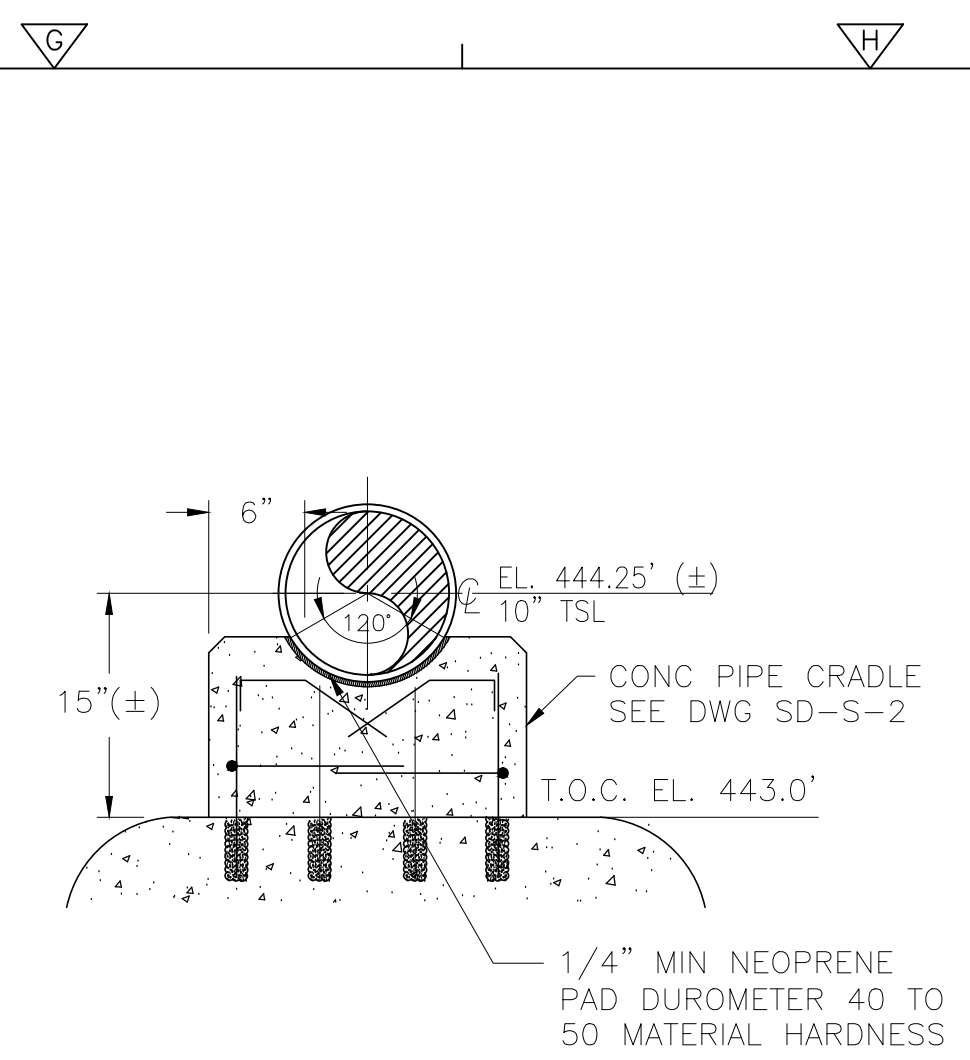
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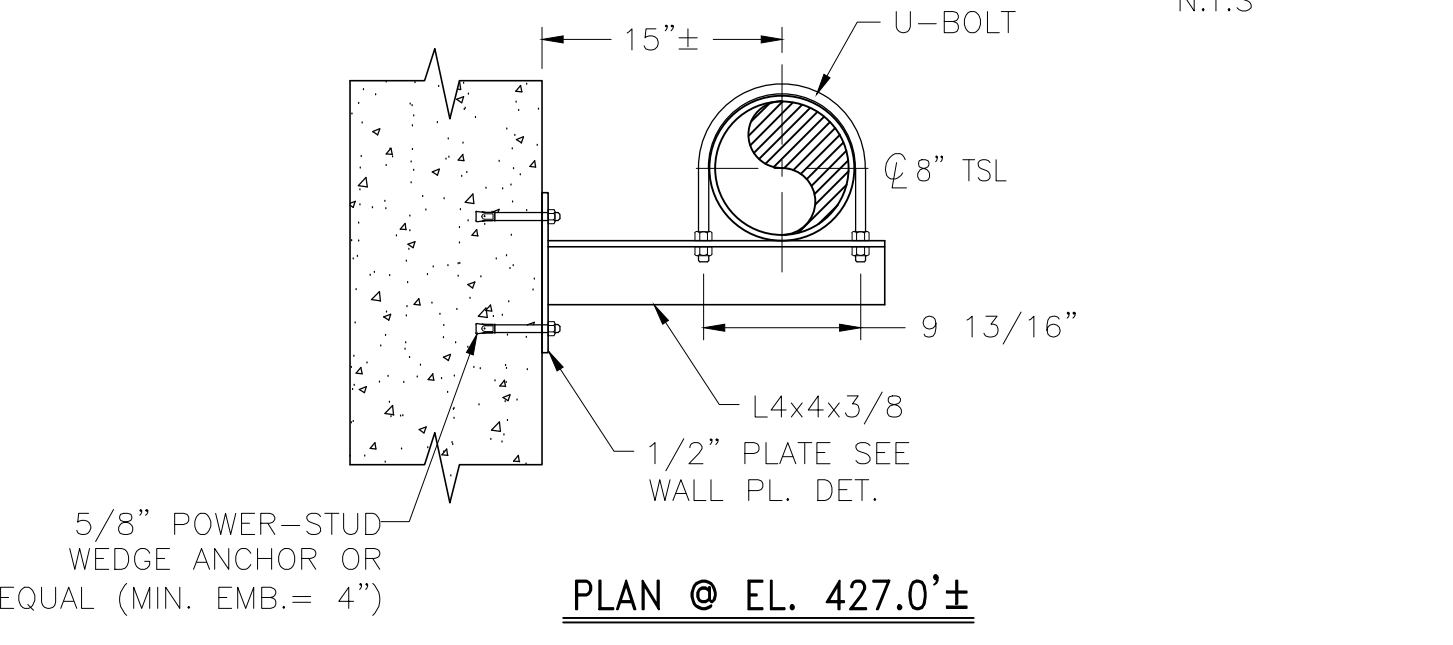
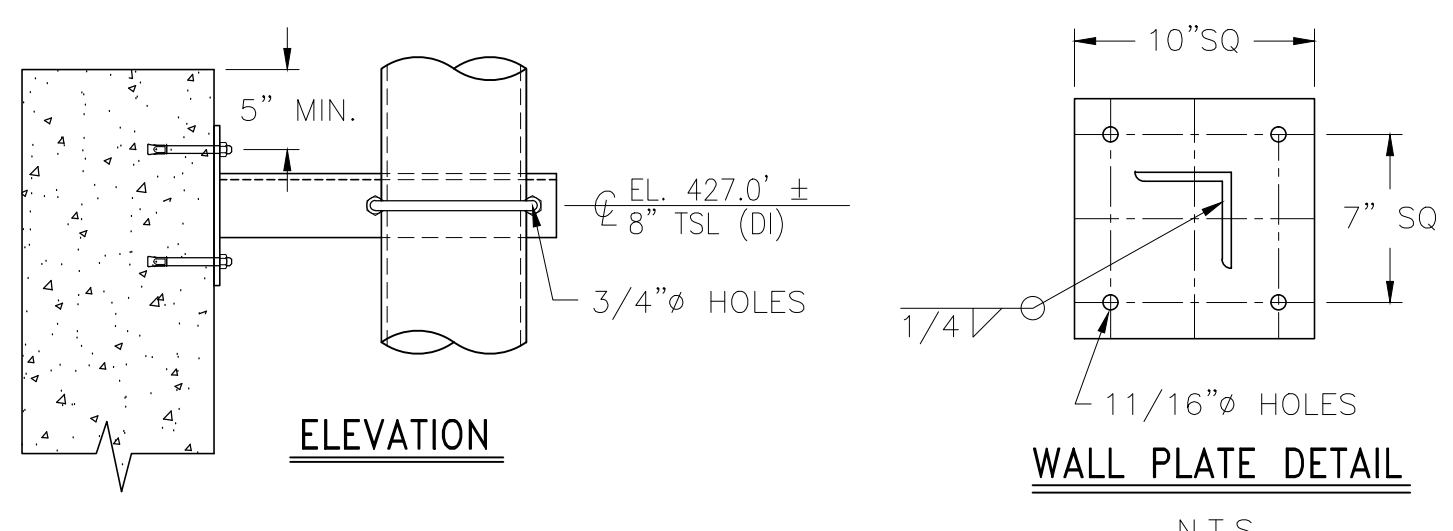
DWPS3-PS-16



DWPS3-PS-17



DELETED
 DWPS3-PS-18



DWPS3-PS-19

GENERAL NOTES

1. ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
2. UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED, COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
3. FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

REV. NO.	DATE	DRWN	CHKD	REMARKS
12/12	GR	JT		DELETED PIPE SUPPORT DWPS3-PS-18
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPSD04
DESIGNED BY:	J. TSIKOURAS
DRAWN BY:	G. REGO
SHEET CHK'D BY:	J. MOURATO
CROSS CHK'D BY:	G. REGO
SCALE:	1" = 1'-0"
APPROVED BY:	J. TSIKOURAS
DATE:	SEPTEMBER 2010

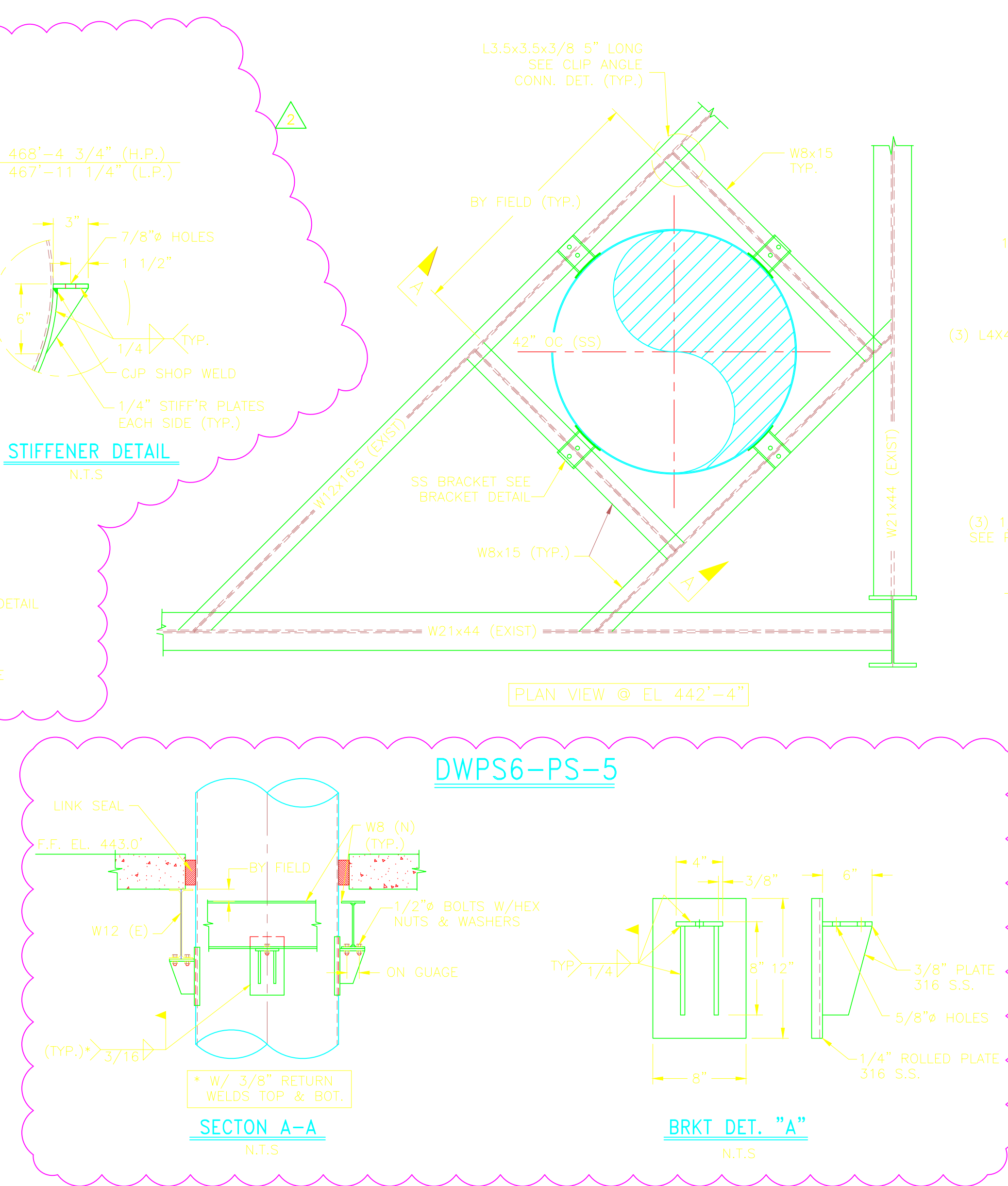
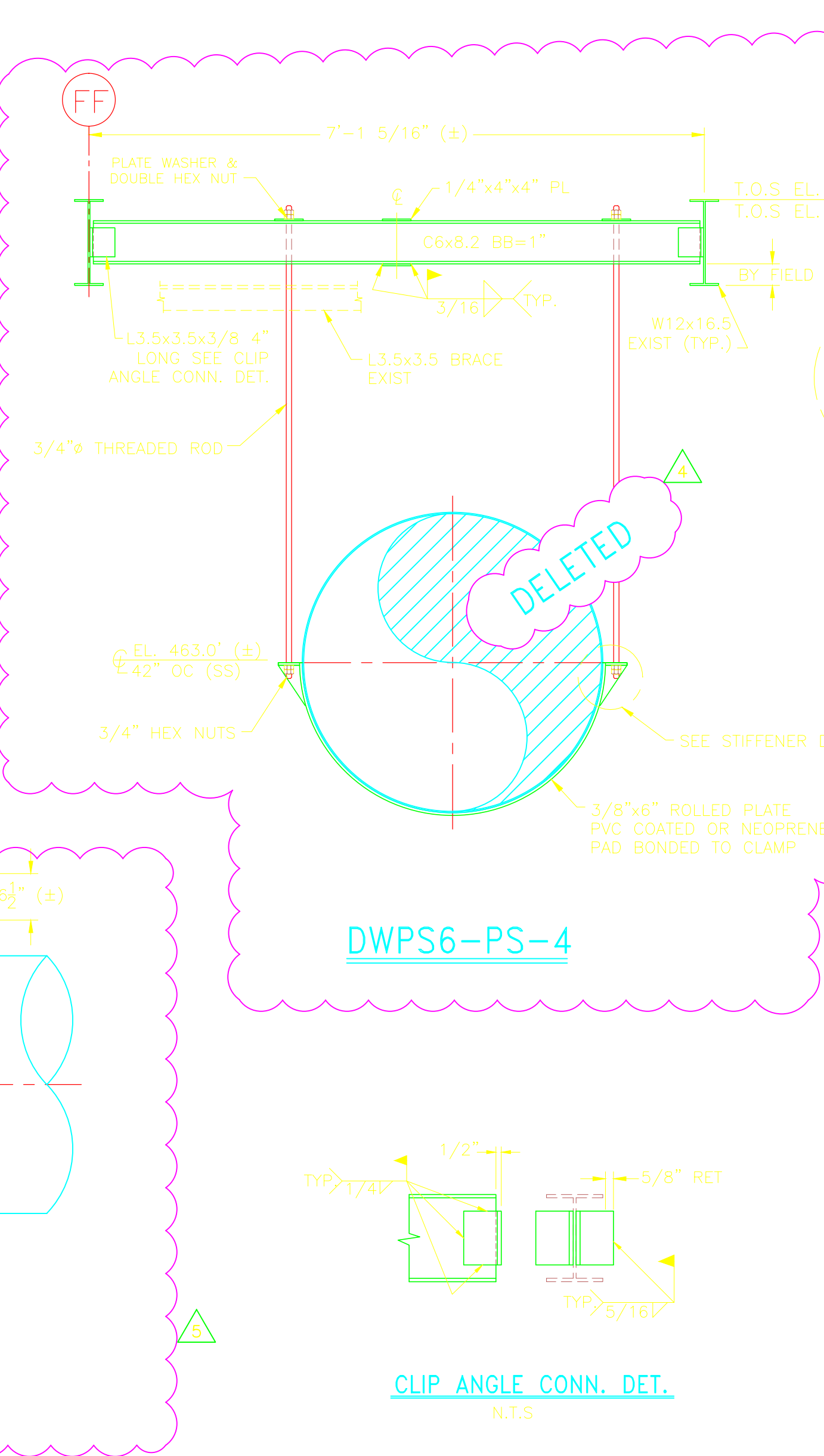
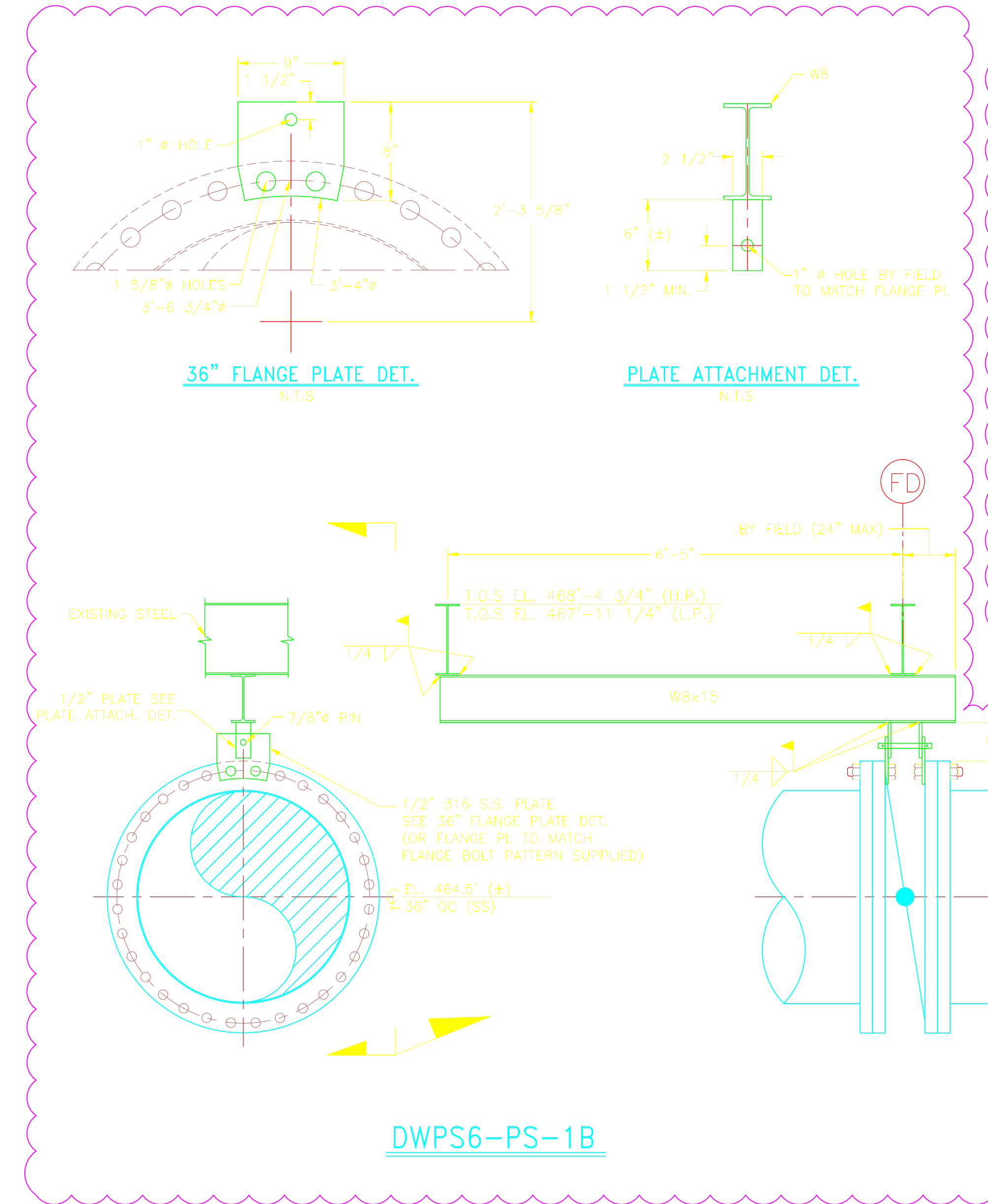
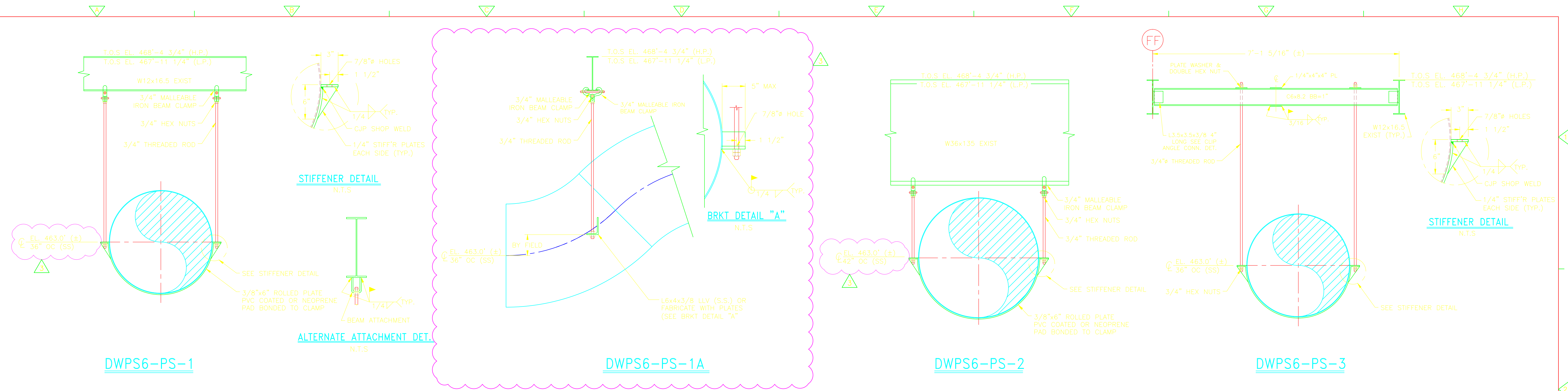
CDM
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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
 PIPE SUPPORT DETAILS IV

PROJECT NO.
 1289-74283
 Sht. 164 of 312
 DW-SD-4
 Acc # 1289-74570

CONFORMED



REV. NO.	DATE	DRWN	CHKD	REMARKS
1/12	GR	JT		REVISED AS NOTED PER RFI No 282
12/11	GR	JT		DELETED SUPPORT DWPS6-PS-4
10/11	GR	JT		REVISED AS NOTED PER RFI No 225
09/11	GR	JT		REVISED AS NOTED PER RFI No 219
06/11	GR	JT		REVISED AS NOTED PER RFI No 134
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPSD105
 DESIGNED BY: J. TSKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MAUROTO
 CROSS CHK'D BY: G. REGO
 SCALE: 3/4" = 1'-0"
 APPROVED BY: J. TSKOURAS
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

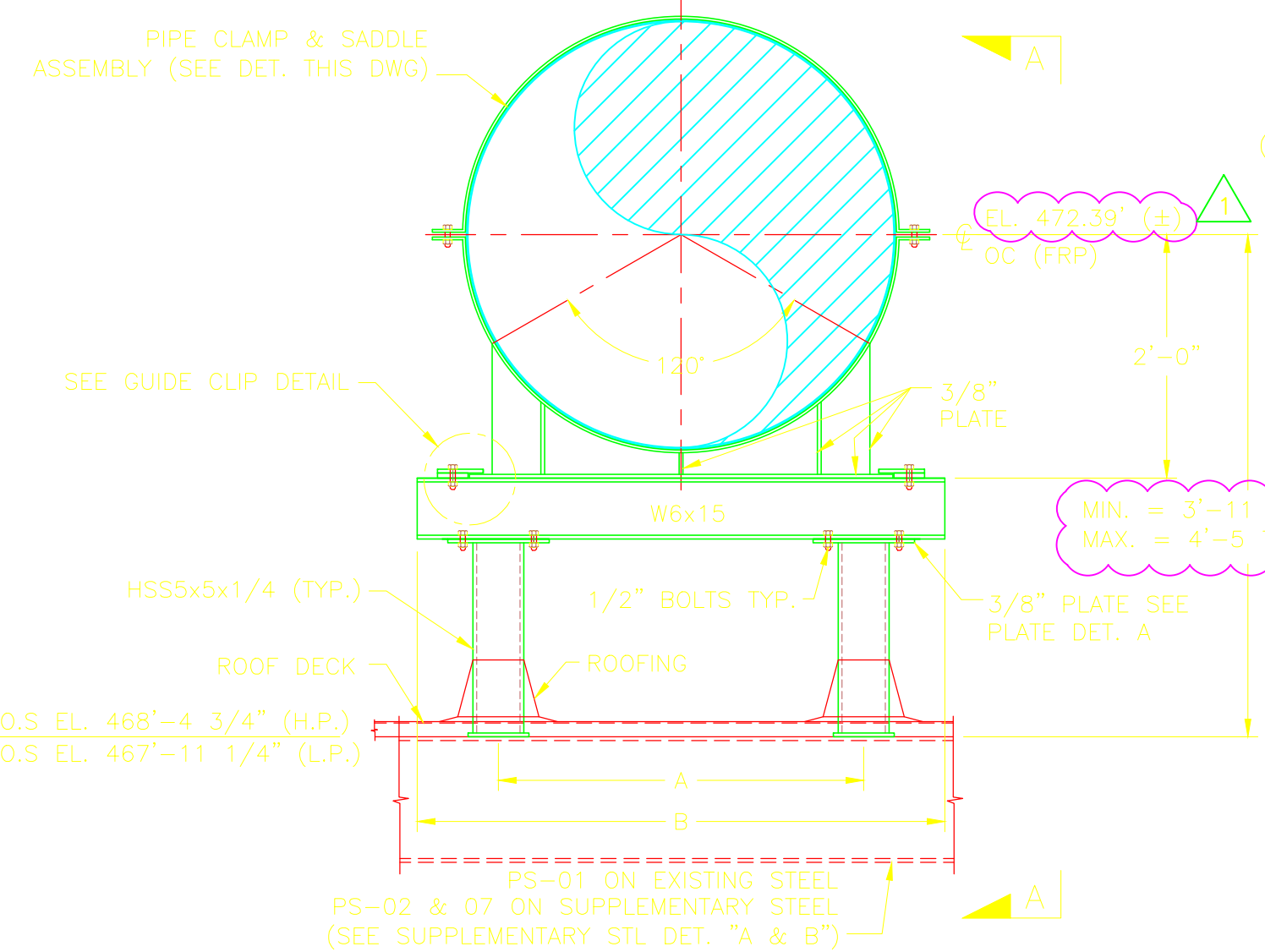
WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 PIPE SUPPORT DETAILS V

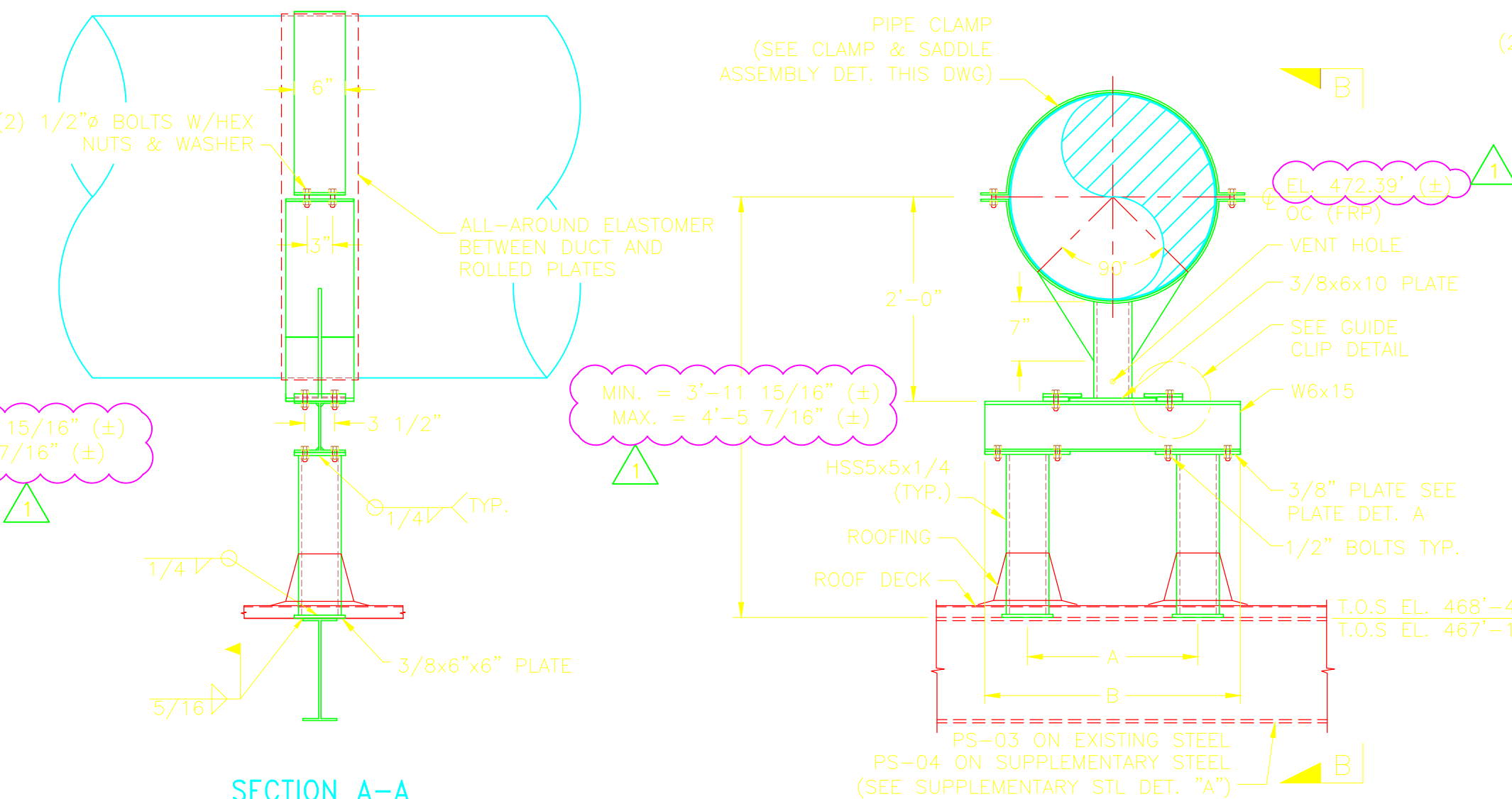
PROJECT NO. 1289-74283
 Sht. 165 of 312
 DW-SD-5
 Acc # 1289-74571

CONFORMED

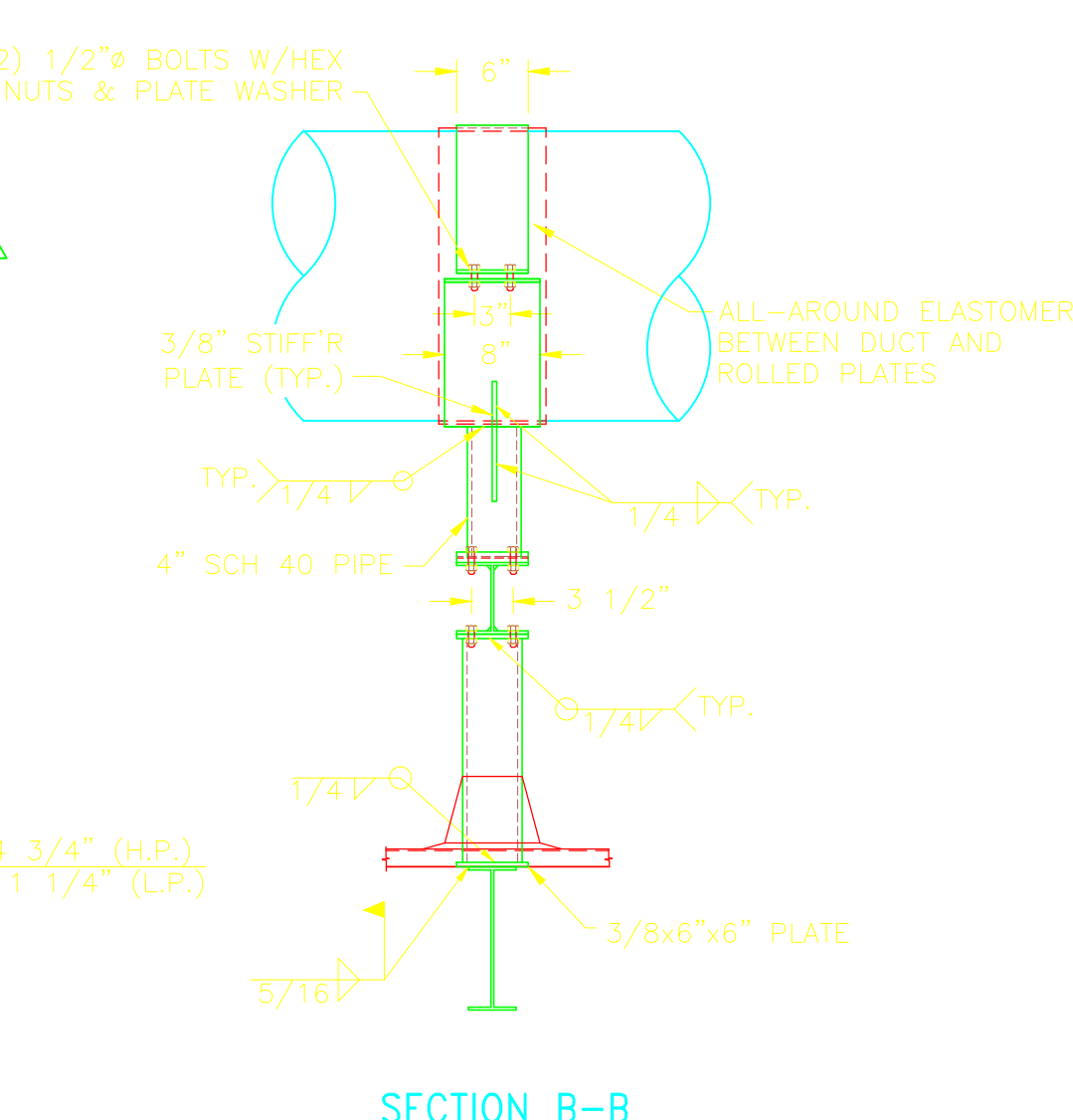
FIELD TO COORDINATE FIELD/SHOP WELDS WITH SHOP



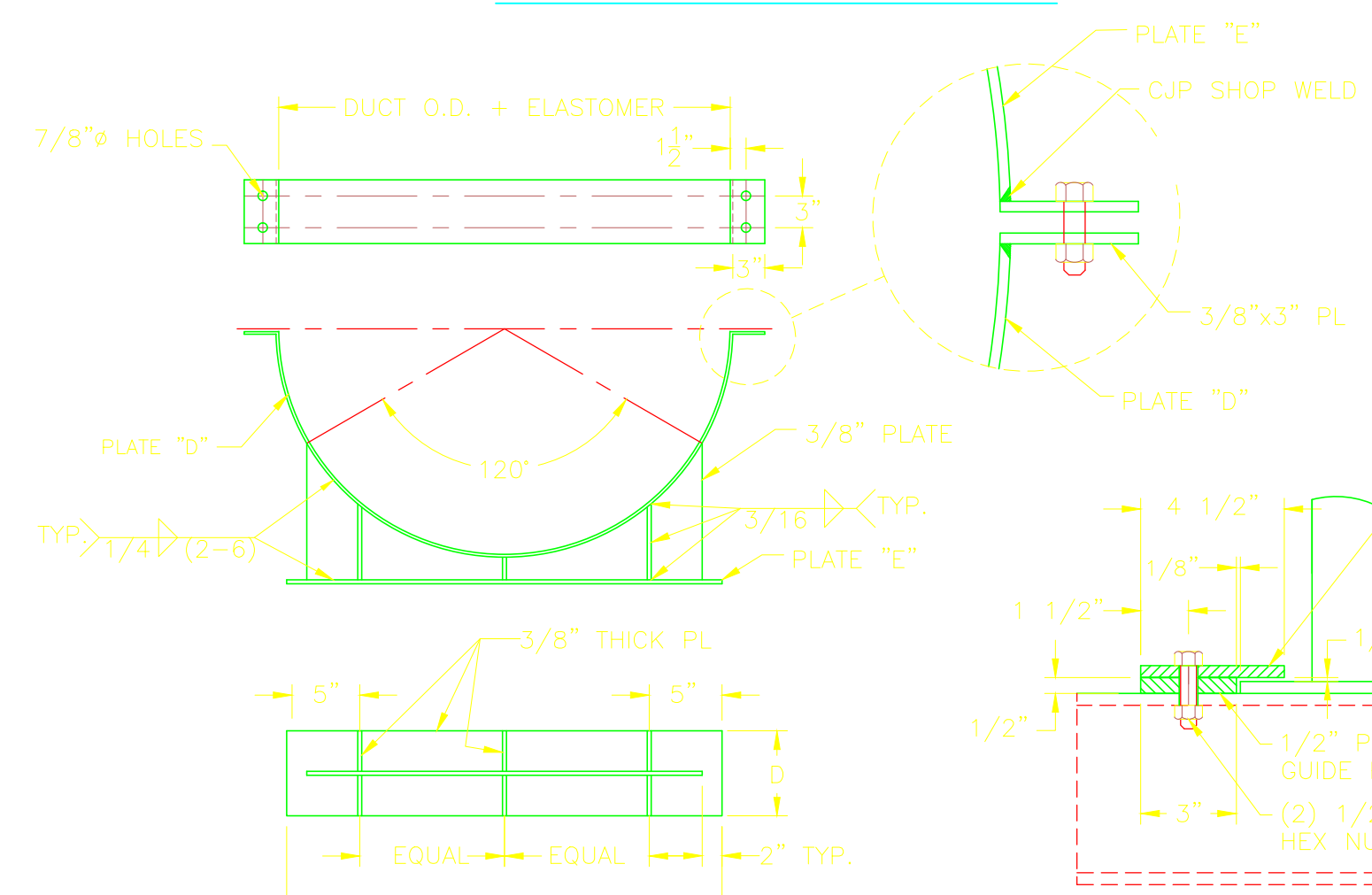
DWPS7-PS-1, 2 & 7



DWPS7-PS-3 & 4



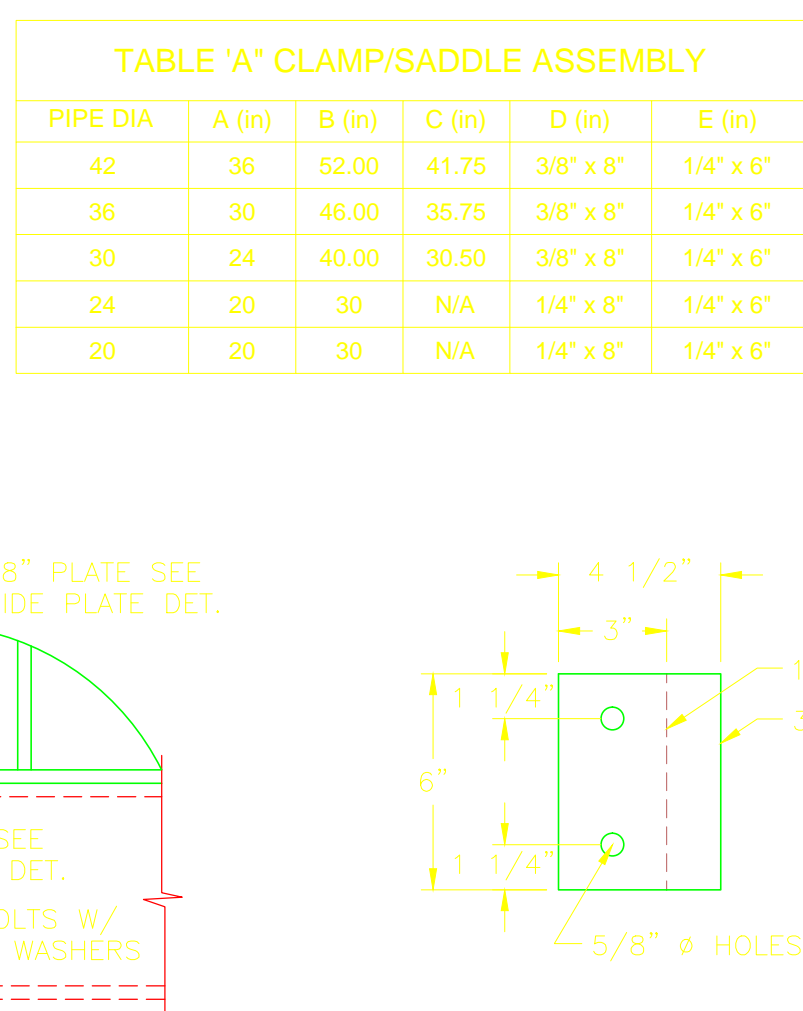
DWPS7-PS-5



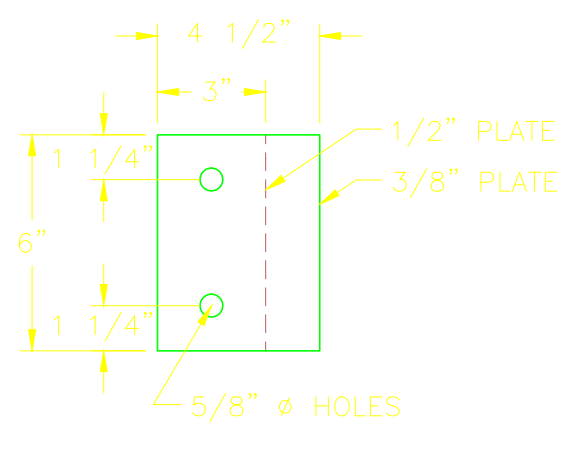
CLAMP/SADDLE ASSEMBLY DETAIL
N.T.S.

TABLE 'A' CLAMP/SADDLE ASSEMBLY

PIPE DIA	A (in)	B (in)	C (in)	D (in)	E (in)
42	36	52.00	41.75	3/8" x 8"	1/4" x 6"
36	30	46.00	35.75	3/8" x 8"	1/4" x 6"
30	24	40.00	30.50	3/8" x 8"	1/4" x 6"
24	20	30	N/A	1/4" x 8"	1/4" x 6"
20	20	30	N/A	1/4" x 8"	1/4" x 6"



GUIDE CLIP DETAIL
N.T.S.



GUIDE PLATE DETAIL
N.T.S.

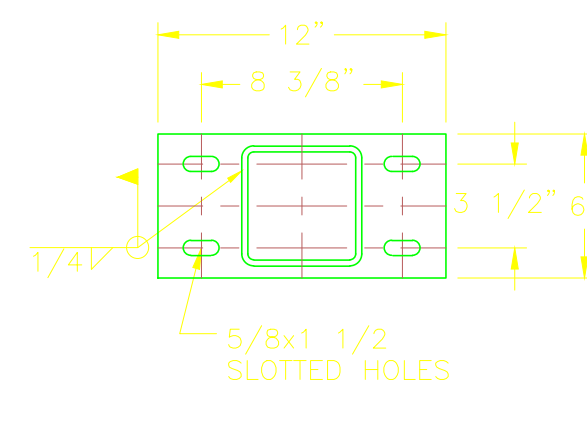
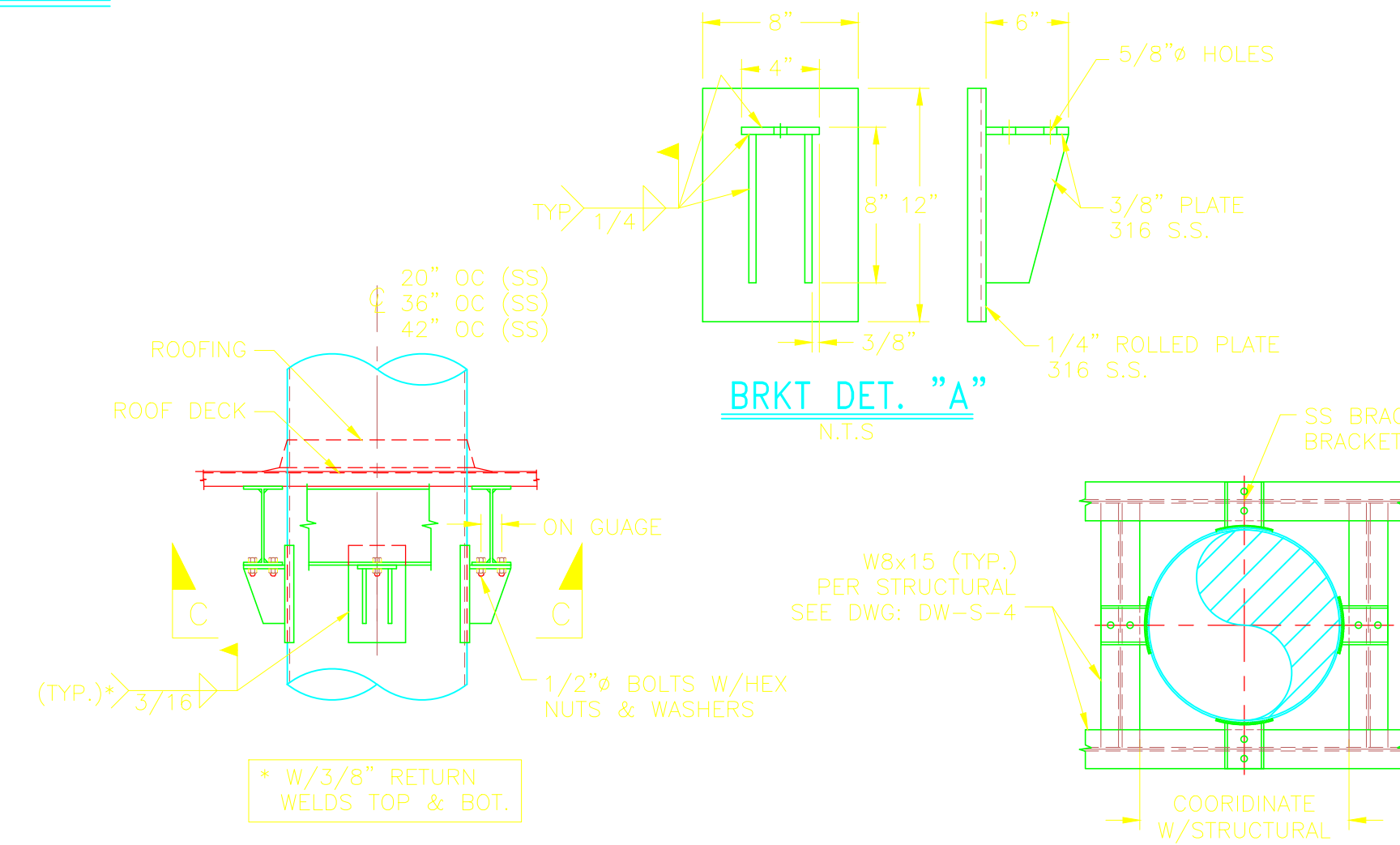
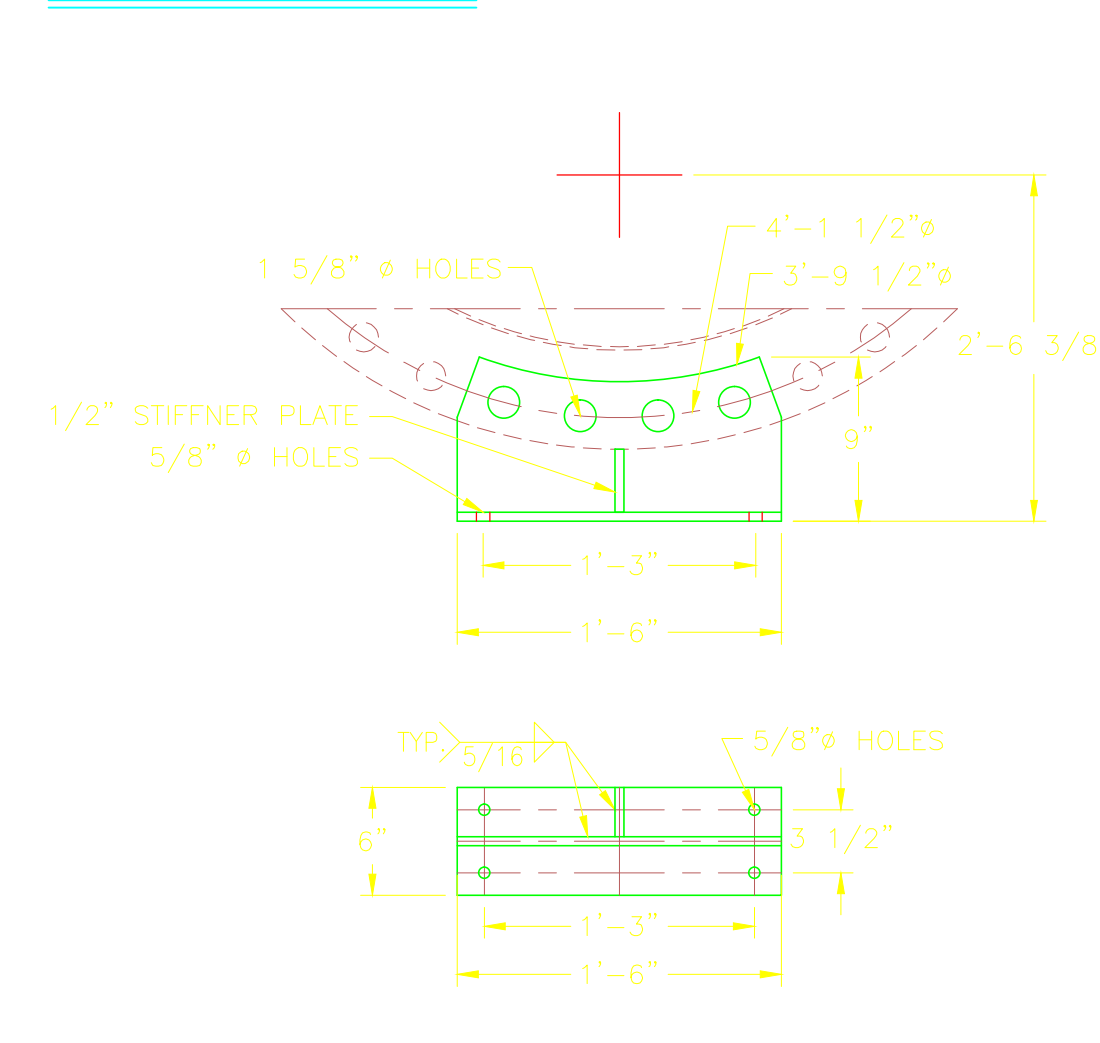


PLATE DETAIL 'A'
N.T.S.

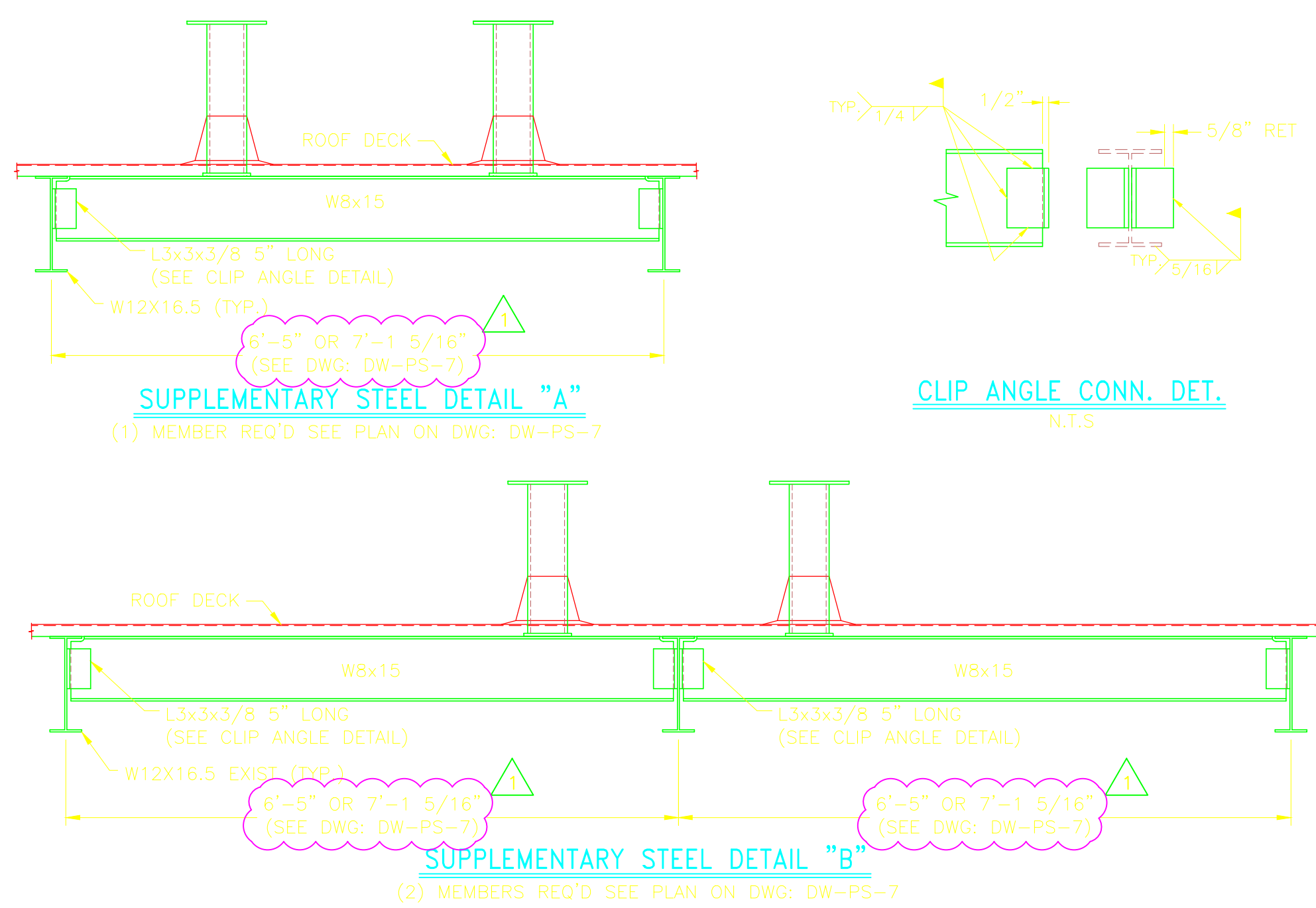


DWPS7-PS-6

SECTION C-C



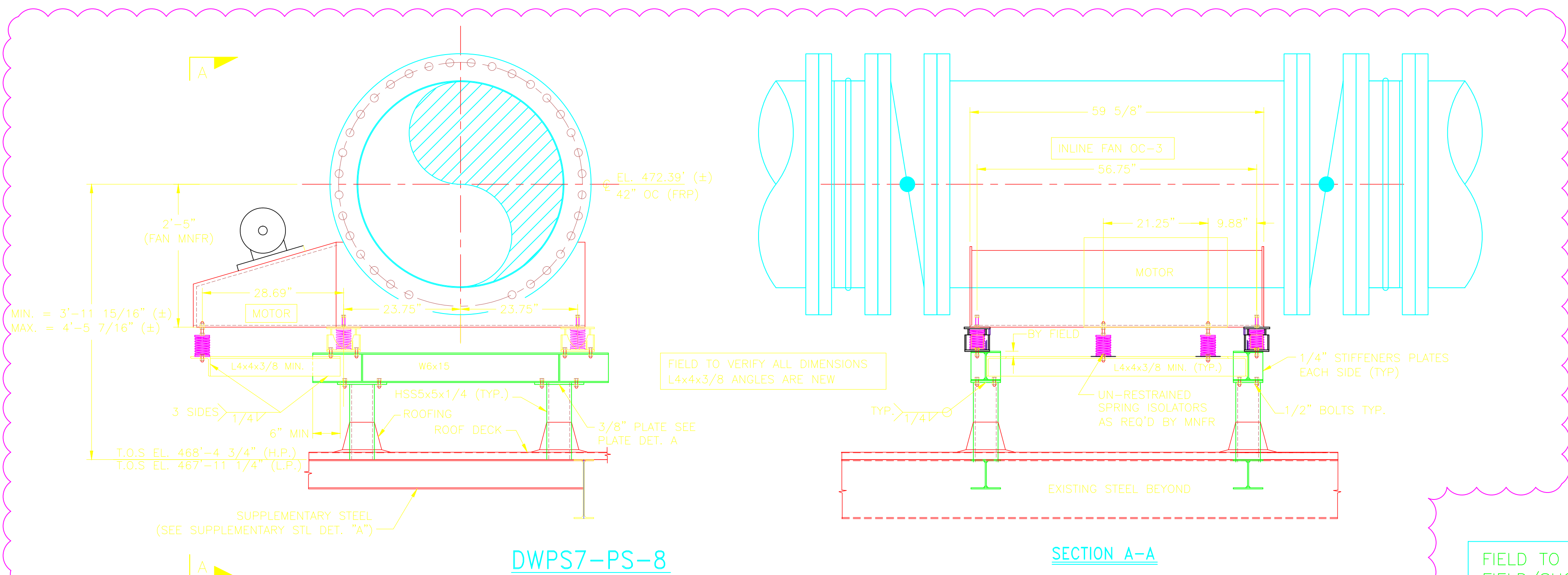
42\"/>



SUPPLEMENTARY STEEL DETAIL 'A'
(1) MEMBER REQ'D SEE PLAN ON DWG: DW-PS-7

CLIP ANGLE CONN. DET.
N.T.S.

SUPPLEMENTARY STEEL DETAIL 'B'
(2) MEMBERS REQ'D SEE PLAN ON DWG: DW-PS-7



DWPS7-PS-8

SECTION A-A

FIELD TO COORDINATE FIELD/SHOP WELDS WITH SHOP

REV. NO.	DATE	DRWN	CHKD	REMARKS
8/11	GR	JT		REVISED PIPE SUPPORT DWPS7-PS-8
8/11	GR	JT		REVISED PER FIELD CHANGES
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	MDWPSD106
DESIGNED BY:	J. TSIKOURAS
DRAWN BY:	G. REGO
SHEET CHK'D BY:	J. MOURATO
CROSS CHK'D BY:	G. REGO
SCALE:	3/4" = 1'-0"
APPROVED BY:	J. TSIKOURAS
DATE:	SEPTEMBER 2010

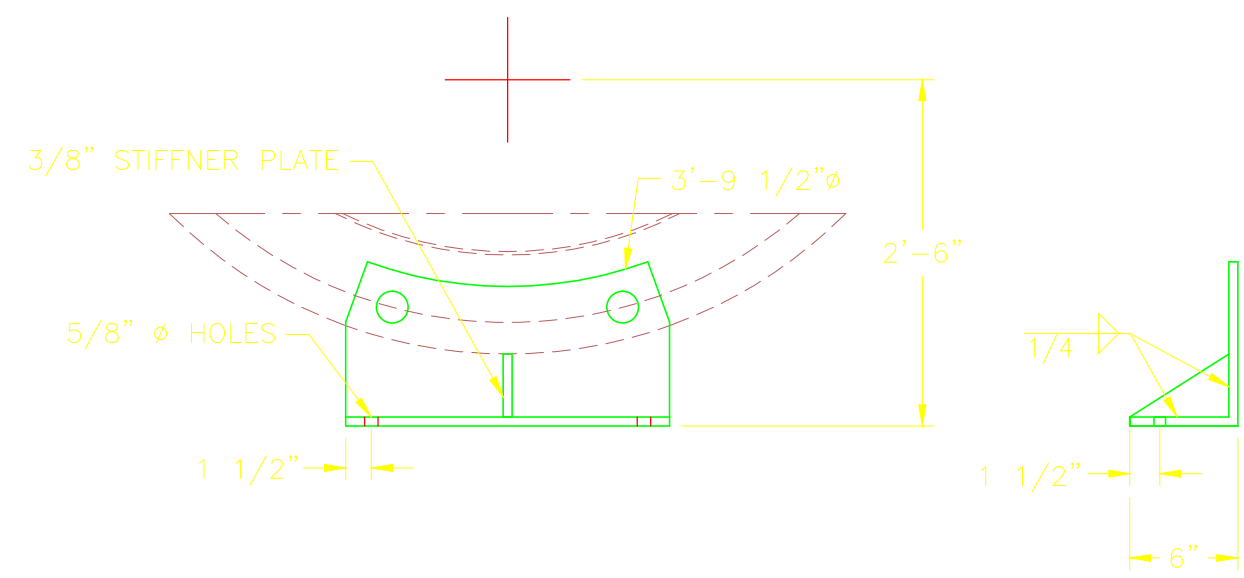
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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT**
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

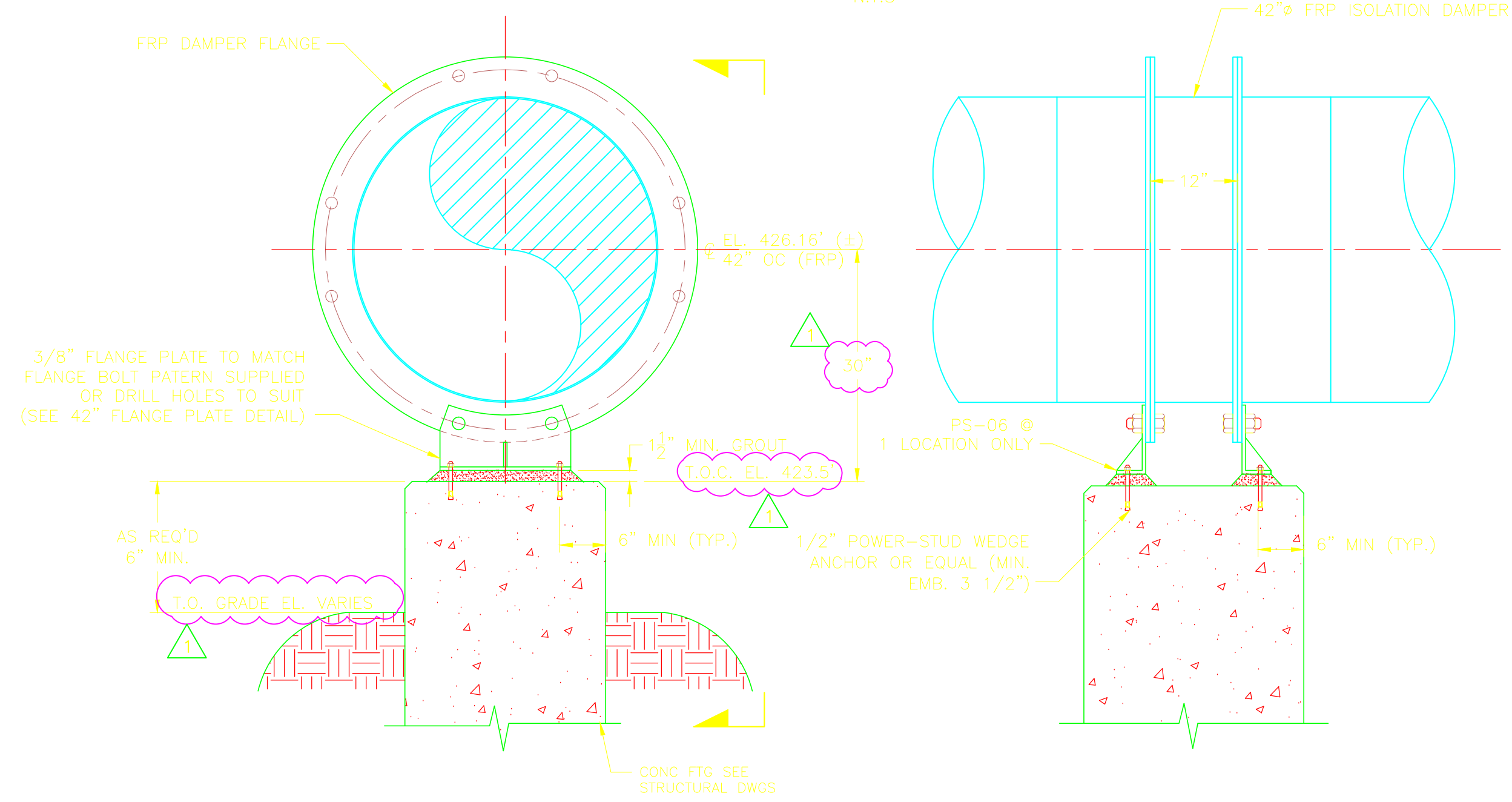
**DEWATERING BUILDING
PIPE SUPPORT DETAILS VI**

PROJECT NO.
1289-74283
Sht. 166 of 312
DW-SD-6
Acc # 1289-74572

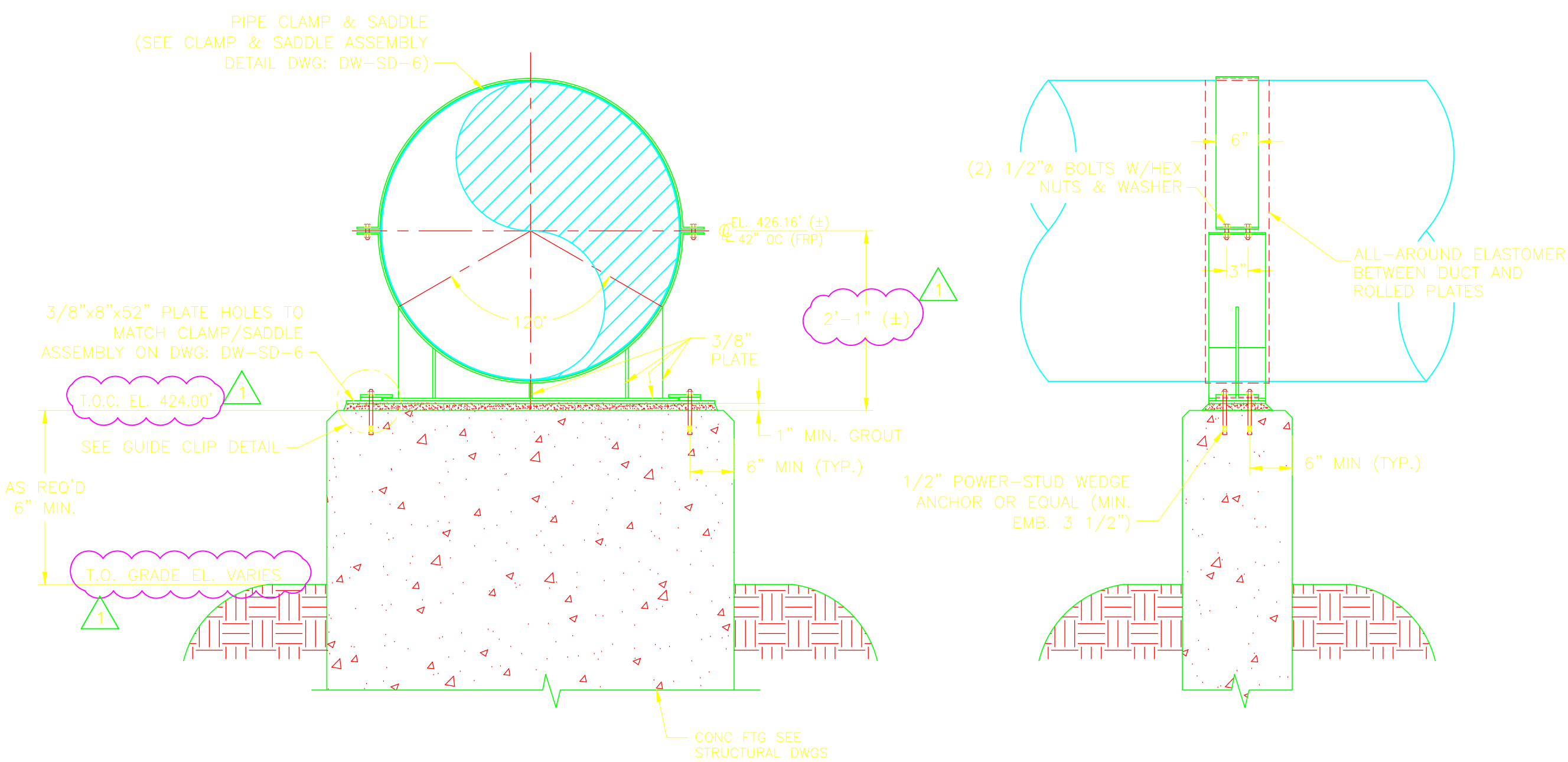
CONFORMED



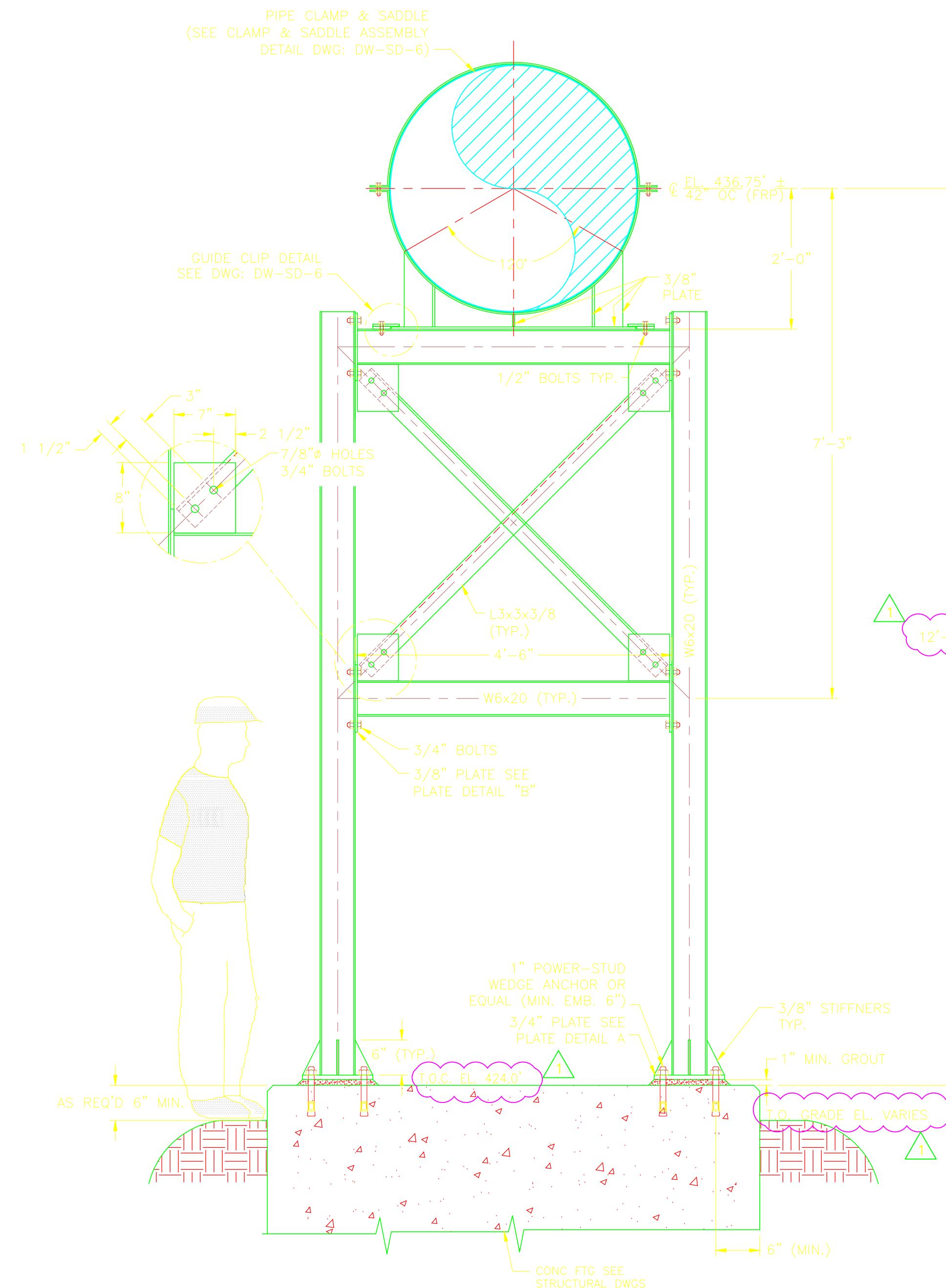
42" FLANGE PLATE DET.
N.T.S.



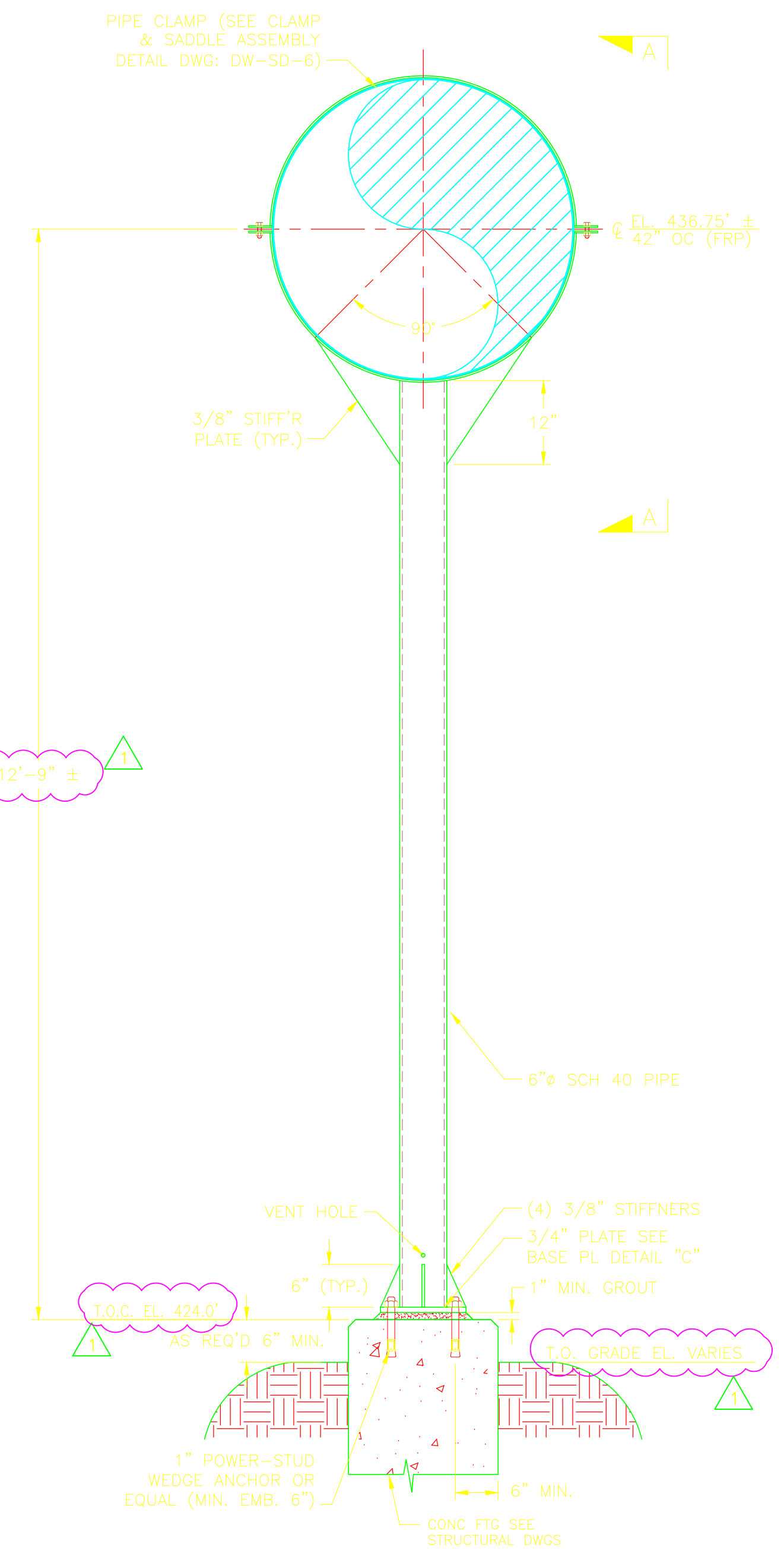
DWPS8-PS-01 & PS-06



DWPS8-PS-02



DWPS8-PS-03



DWPS8-PS-04

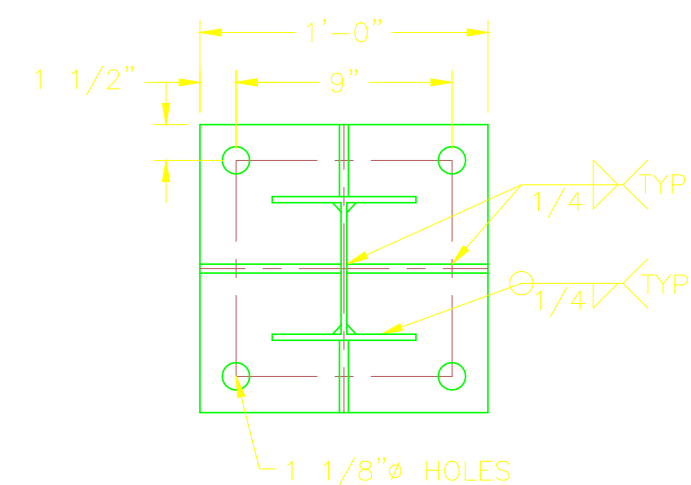


PLATE DETAIL "A"
N.T.S.

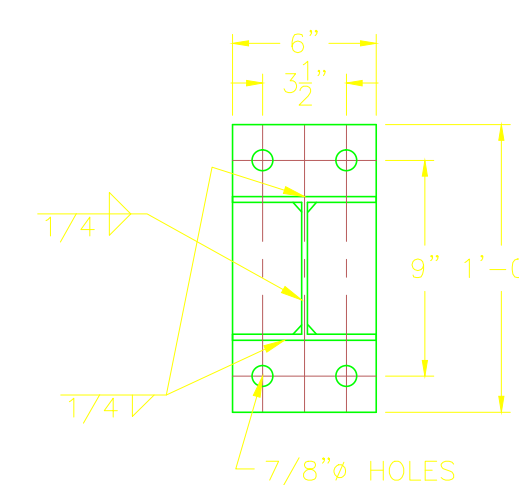


PLATE DETAIL "B"
N.T.S.

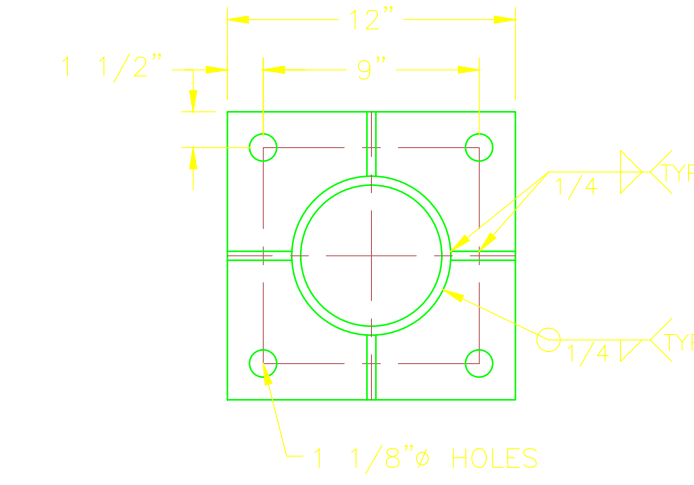
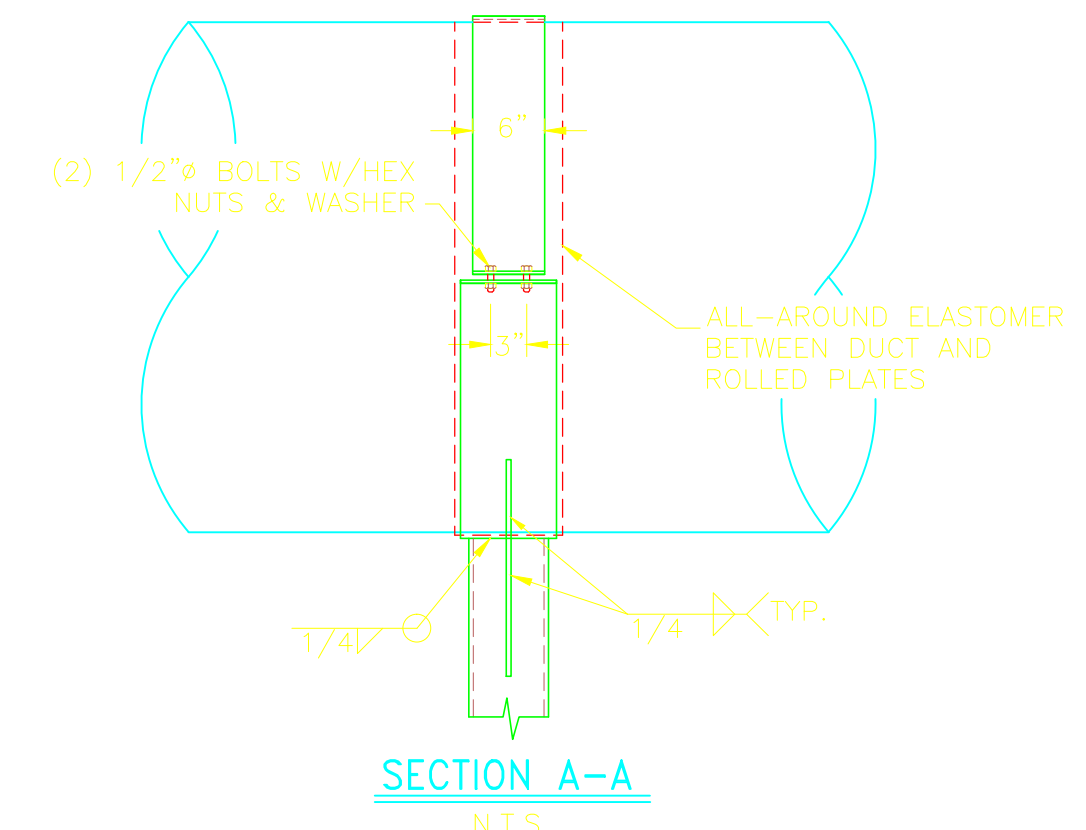


PLATE DETAIL "C"
N.T.S.



SECTION A-A
N.T.S.

FIELD TO COORDINATE
FIELD/SHOP WELDS WITH SHOP

REV. NO.	DATE	DRWN	CHKD	REMARKS
6/11	GR	JT		REVISED PER FIELD CHANGES
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPSD107
 DESIGNED BY: J. TSKIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 3/4" = 1'-0"
 APPROVED BY: J. TSKIKOURAS
 DATE: SEPTEMBER 2010

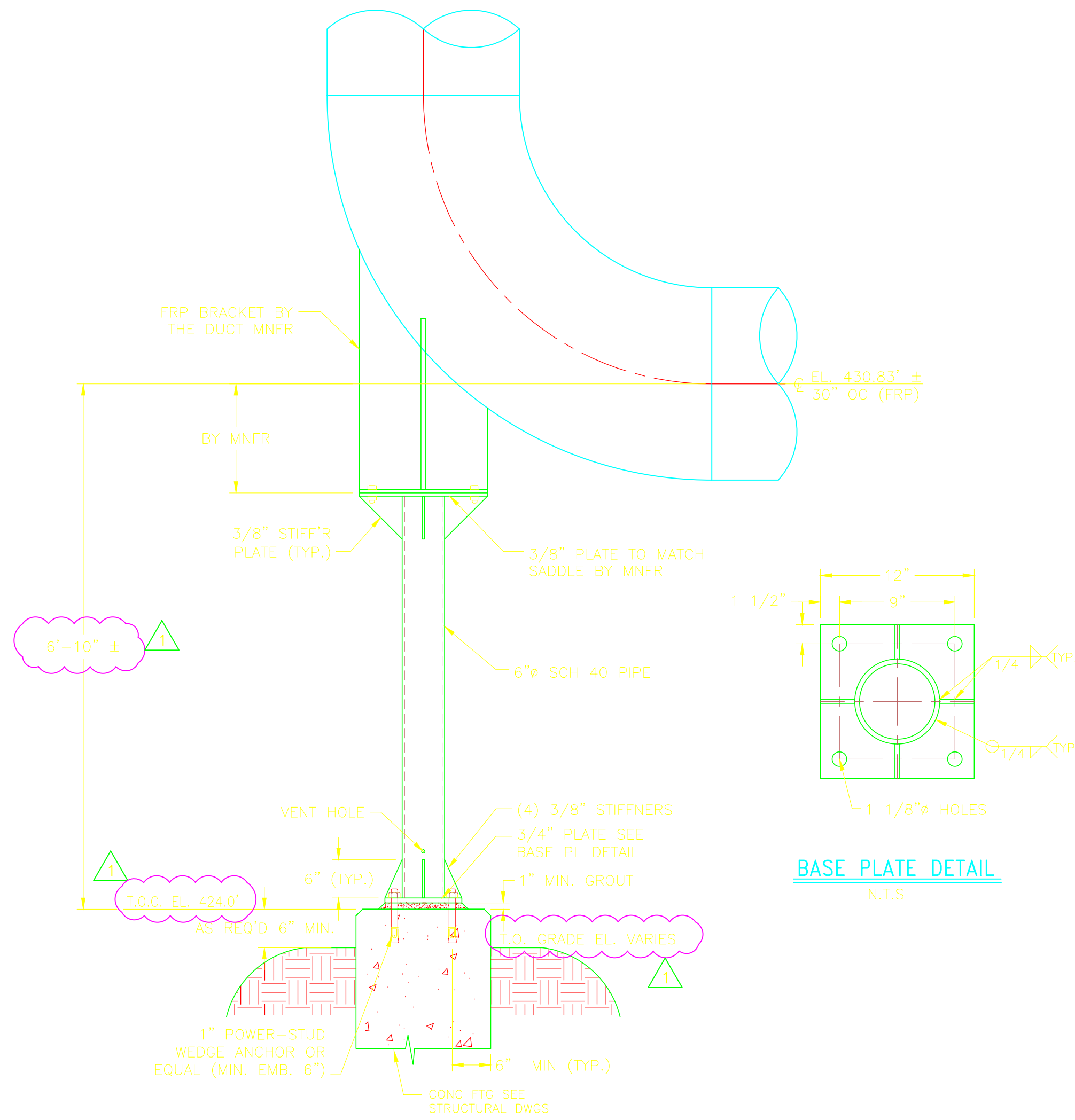
CDM
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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 PIPE SUPPORT DETAILS VII**

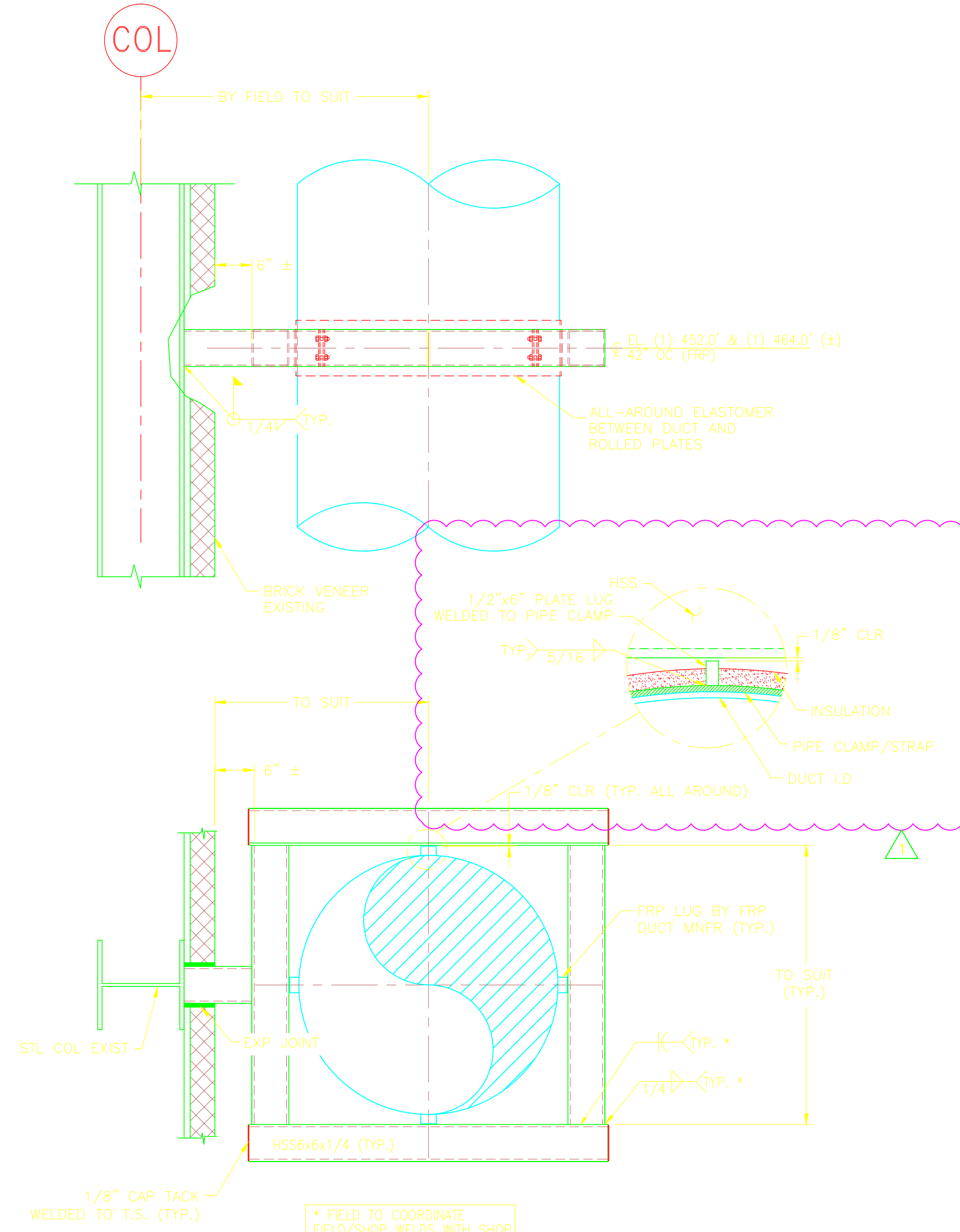
PROJECT NO.
1289-74283
 Sht. 167 of 312
DW-SD-7
 Acc # 1289-74573

CONFORMED



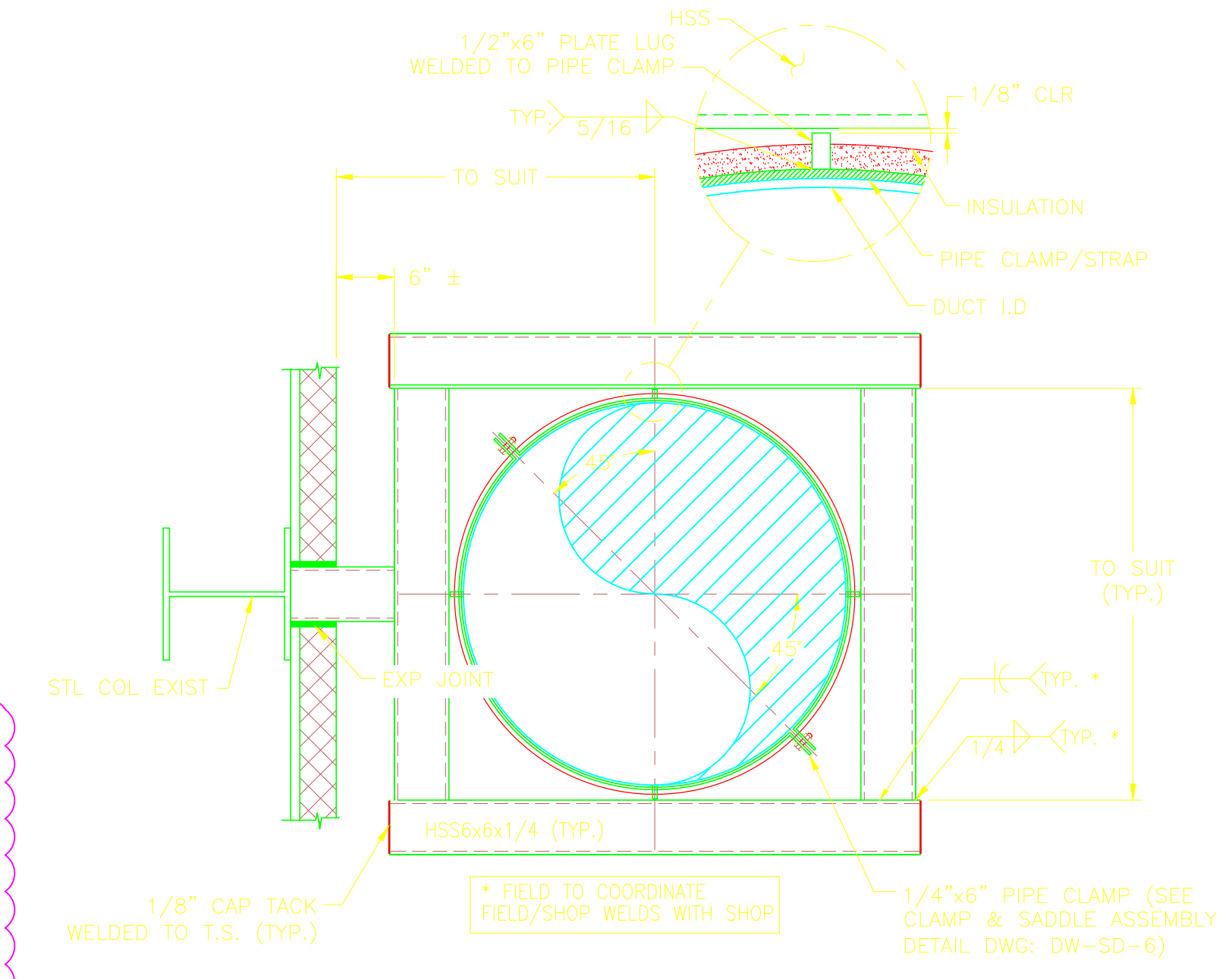
DWPS8-PS-05

BASE PLATE DETAIL
N.T.S.

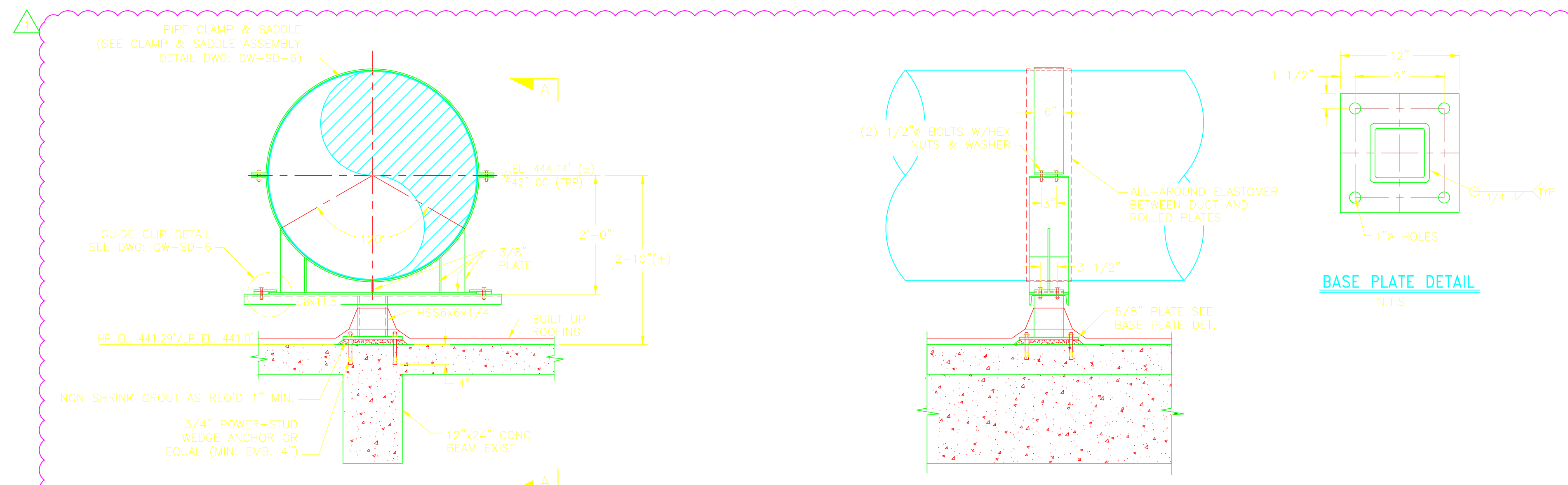


DWPS8-PS-07

BASE PLATE DETAIL
N.T.S.



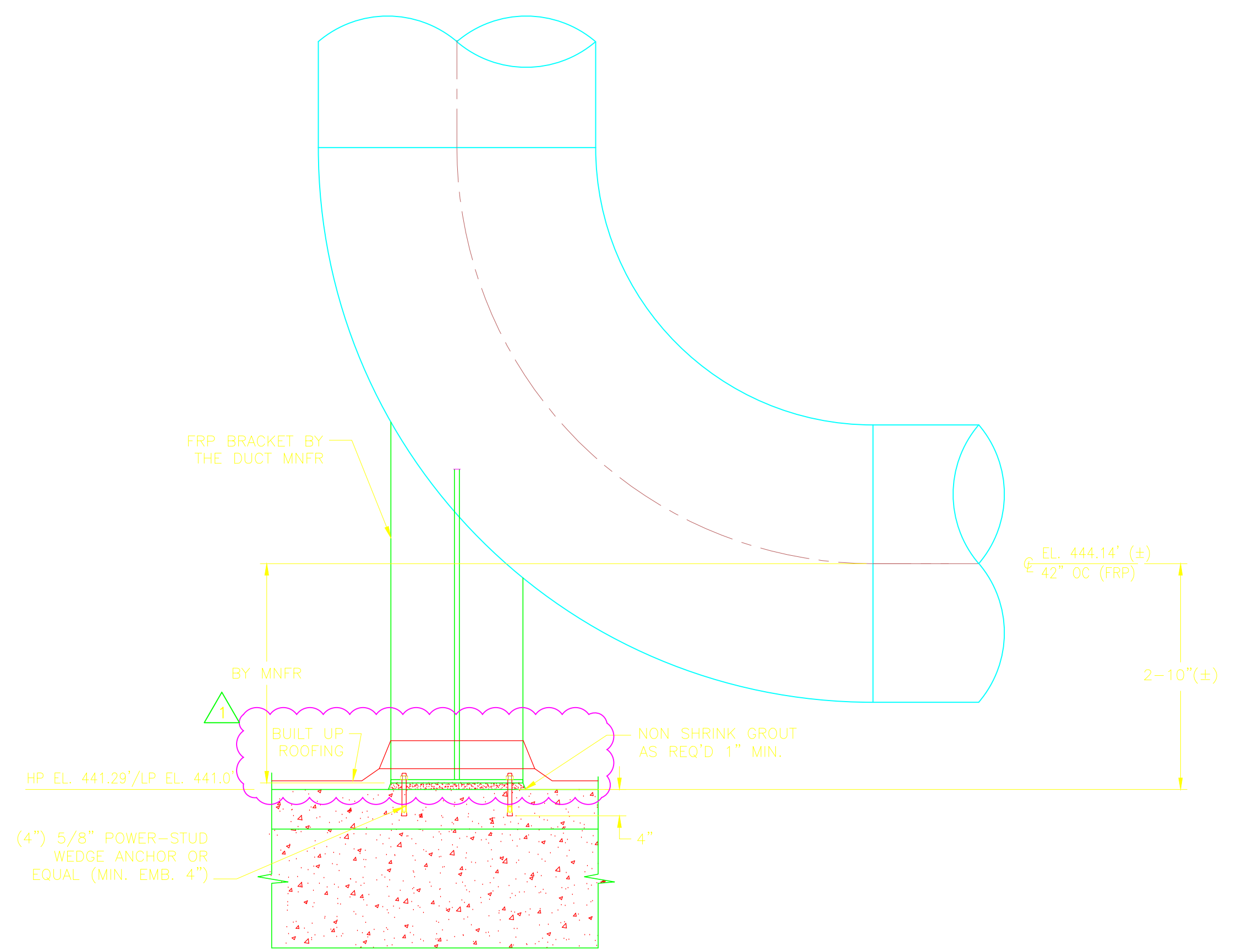
ALTERNATE DETAIL



DWPS8-PS-08

SECTION A-A

BASE PLATE DETAIL
N.T.S.



DWPS8-PS-09

FIELD TO COORDINATE
FIELD/SHOP WELDS WITH SHOP

REV. NO.	DATE	DRWN	CHKD	REMARKS
7/8/11	GR	JT		REVISED PER FIELD CHANGES
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MDWPSD08
 DESIGNED BY: J. TSKIOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 3/4" = 1'-0"
 APPROVED BY: J. TSKIOURAS
 DATE: SEPTEMBER 2010

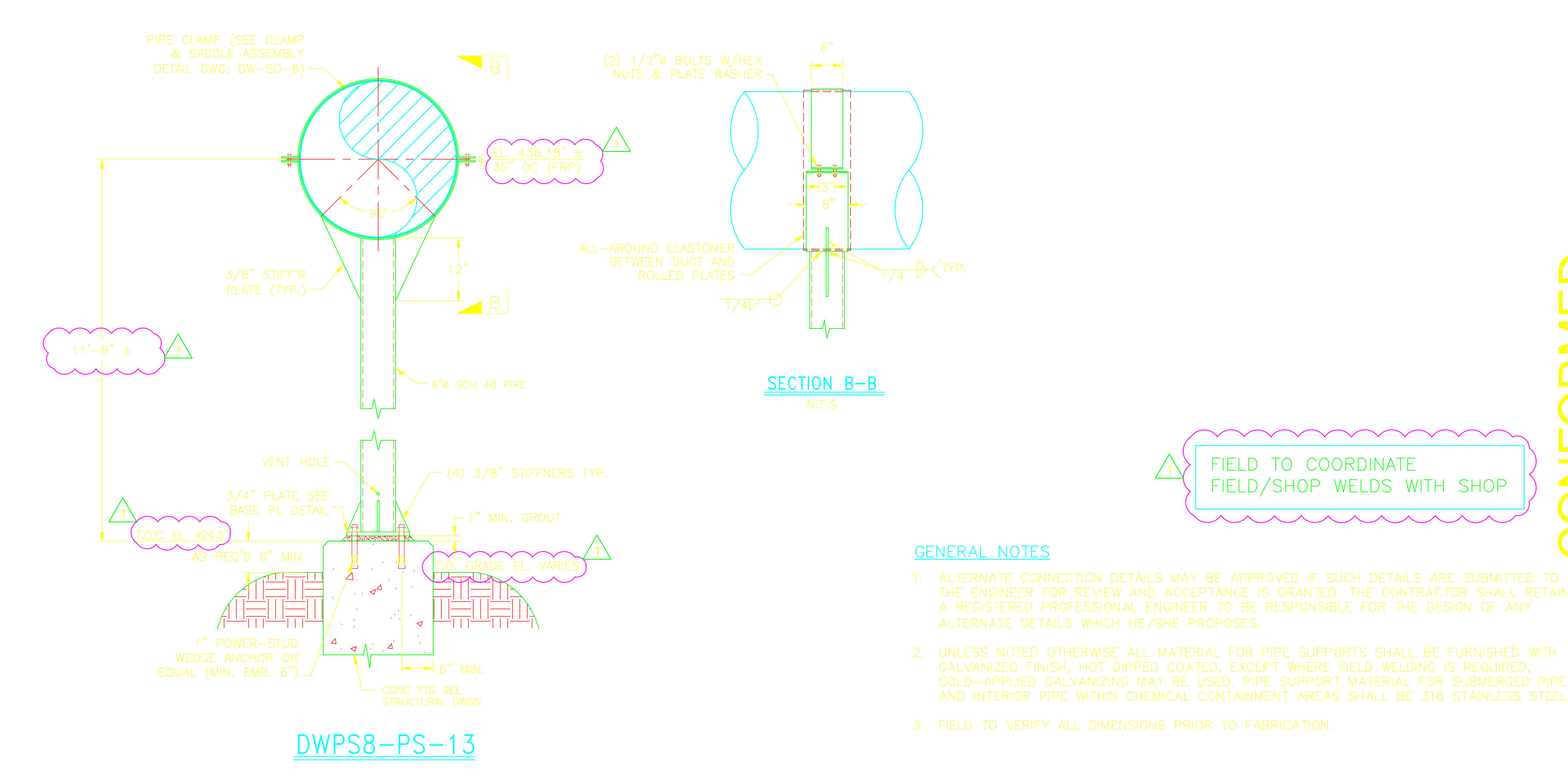
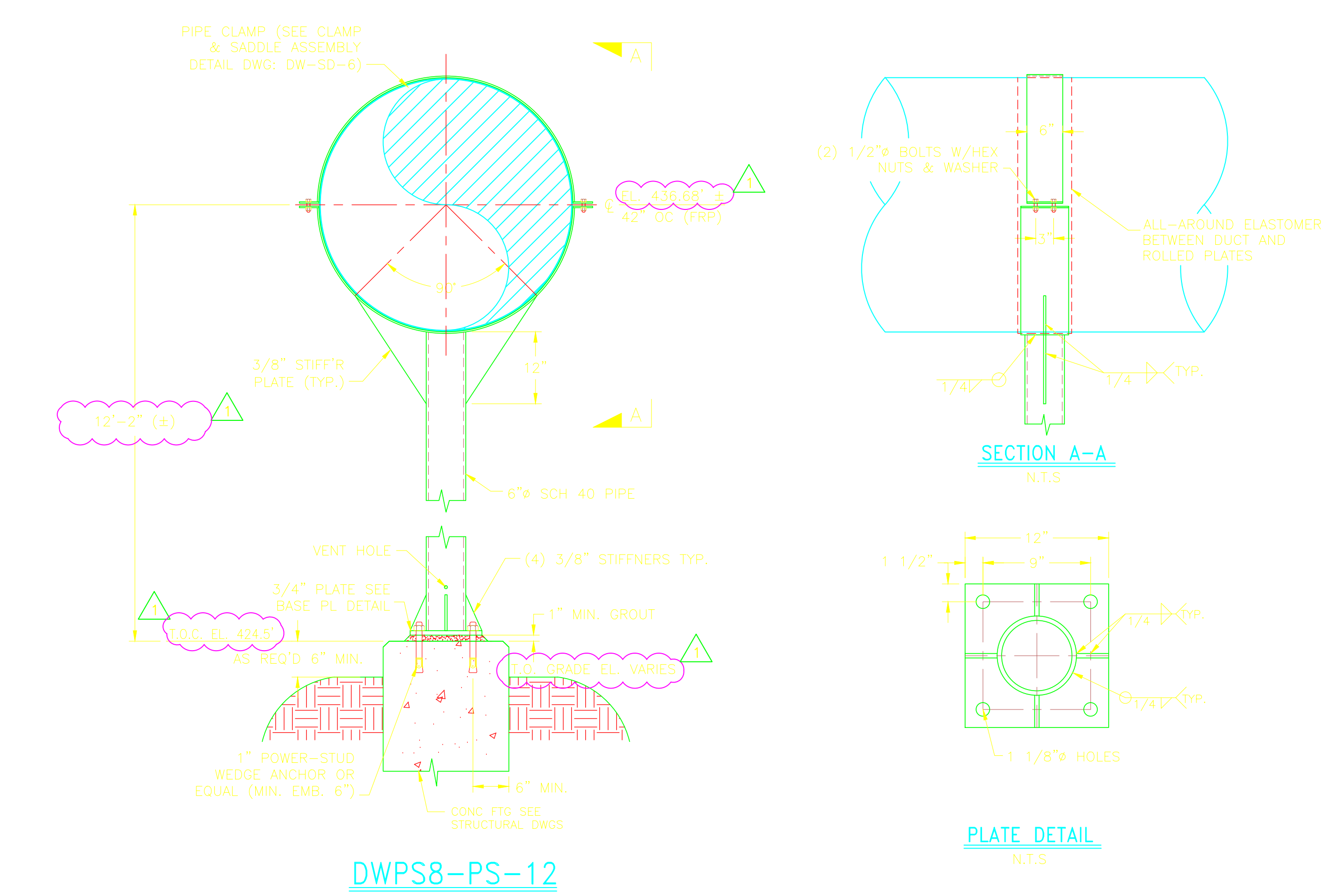
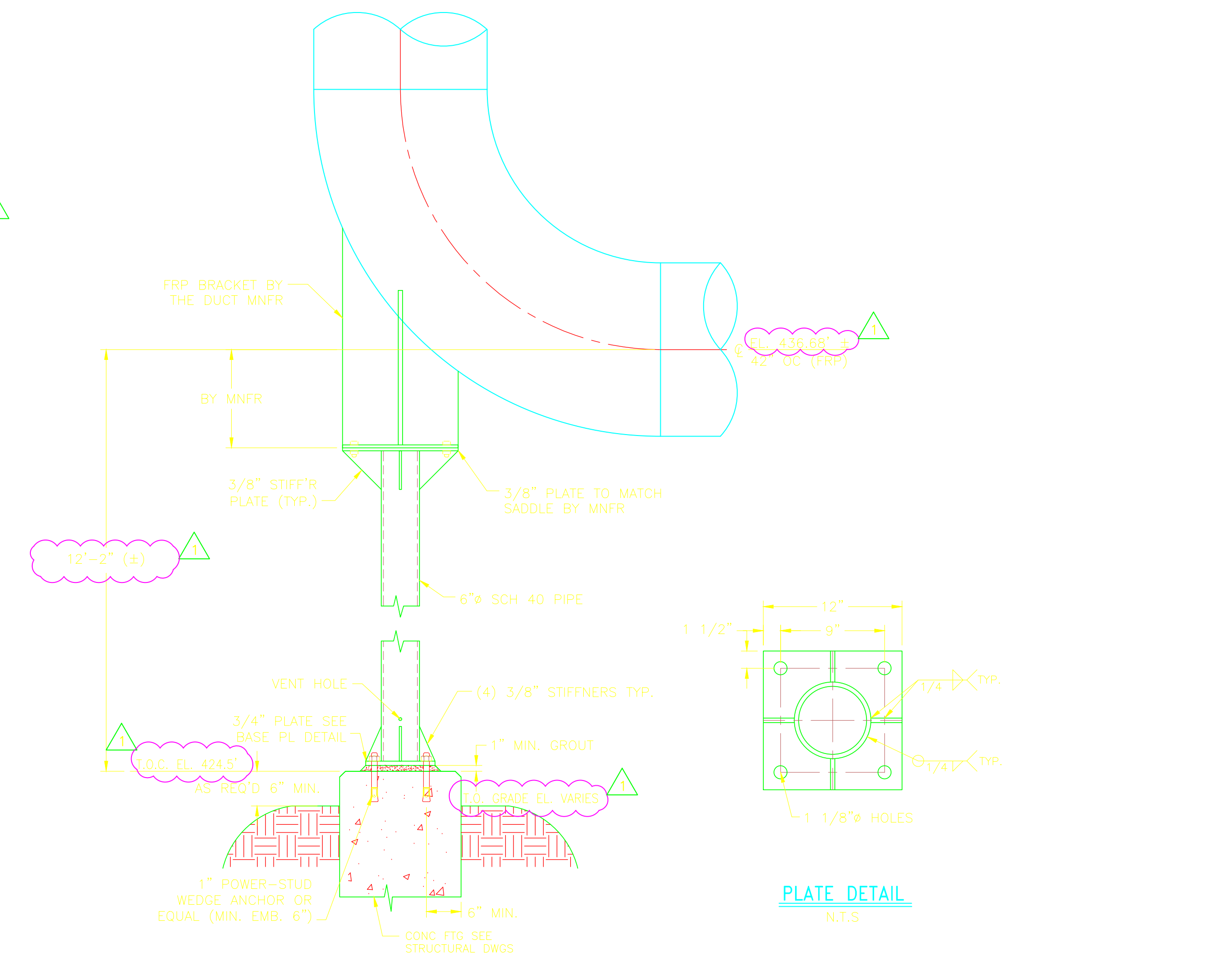
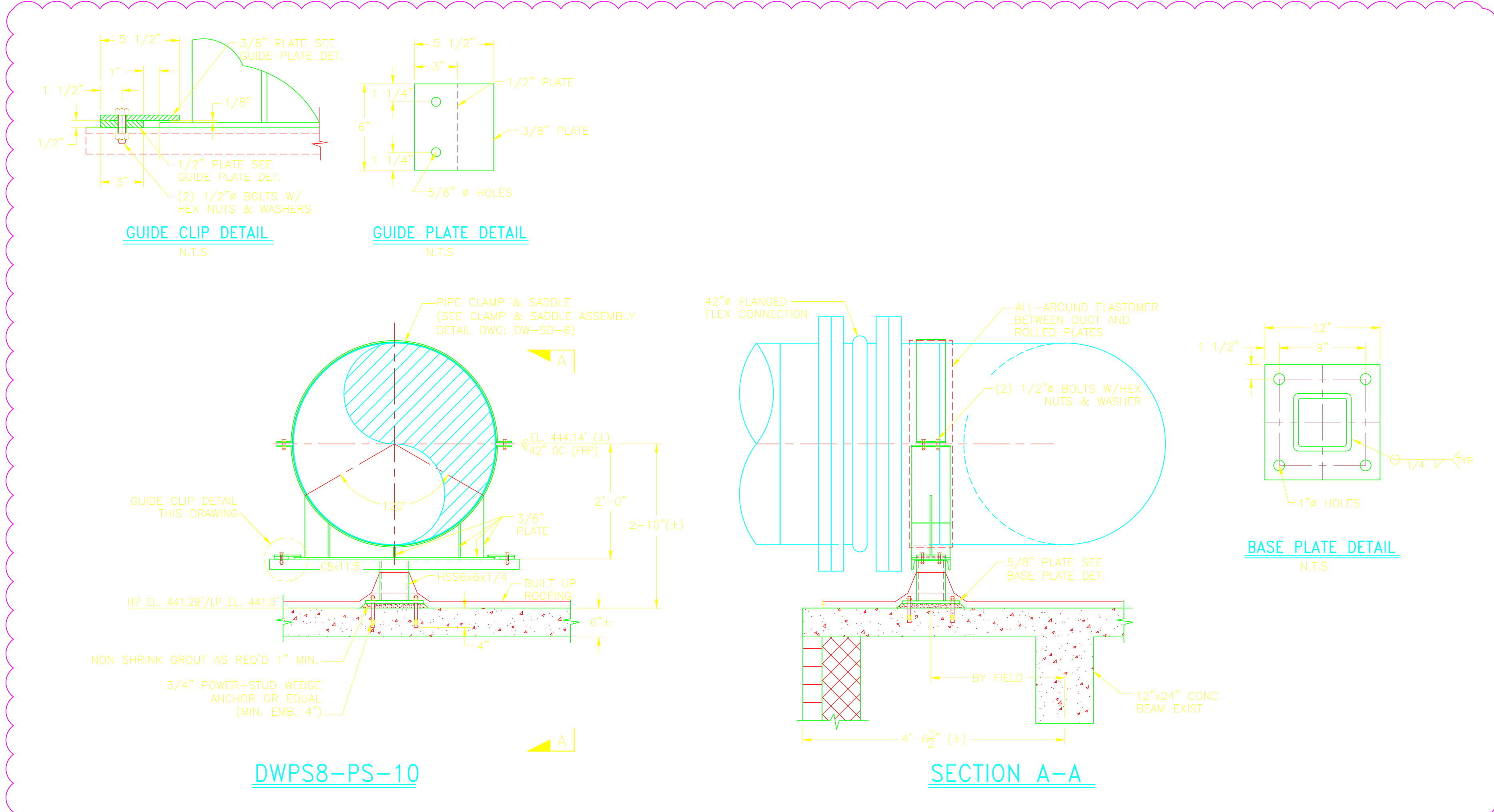
CDM
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 PIPE SUPPORT DETAILS VIII**

PROJECT NO.
1289-74283
 Sht. 168 of 312
DW-SD-8
 Acc # 1289-74574

CONFORMED



FIELD TO COORDINATE FIELD/SHOP WELDS WITH SHOP

- GENERAL NOTES**
- ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
 - UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED, COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
 - FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
6/11	GR	JT		REVISED PER FIELD CHANGES
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

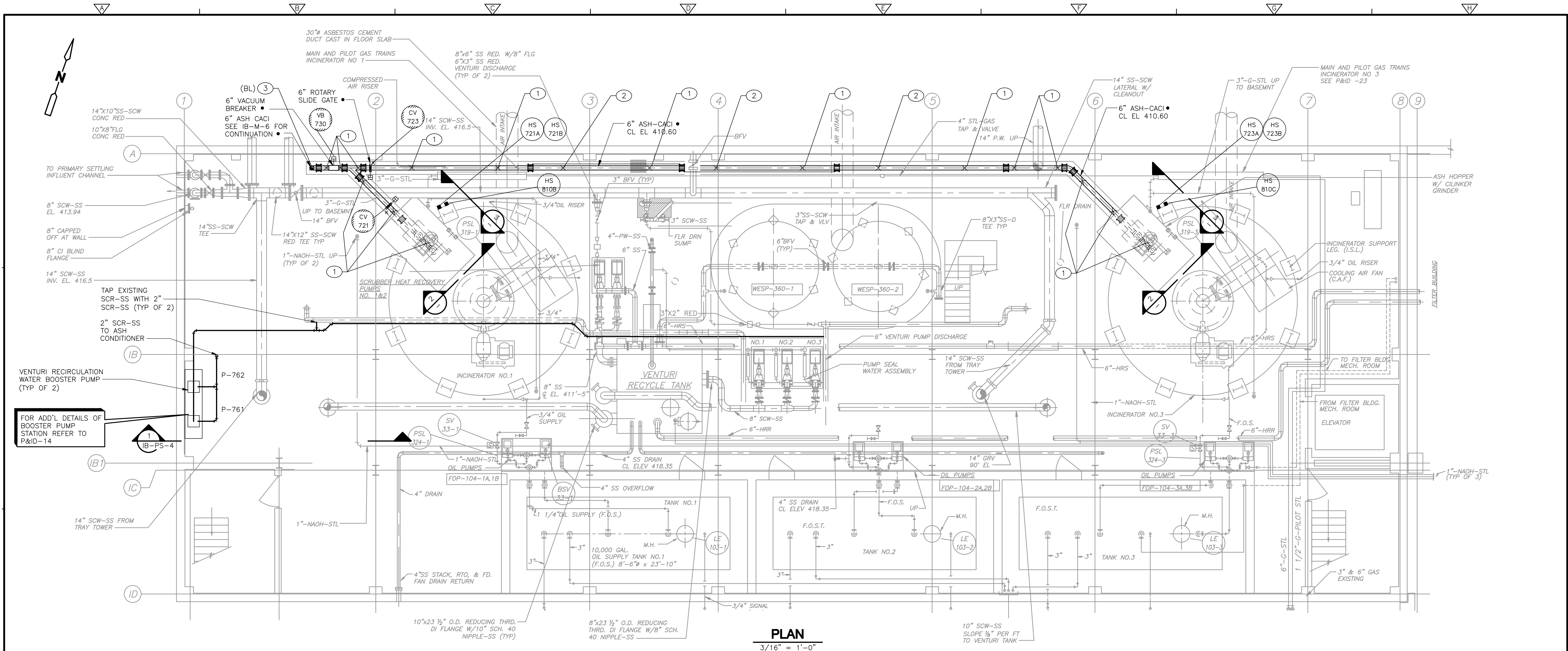
CADD FILE NO. WDWPSD109
 DESIGNED BY: J. TSKIOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 3/4" = 1'-0"
 APPROVED BY: J. TSKIOURAS
 DATE: SEPTEMBER 2010

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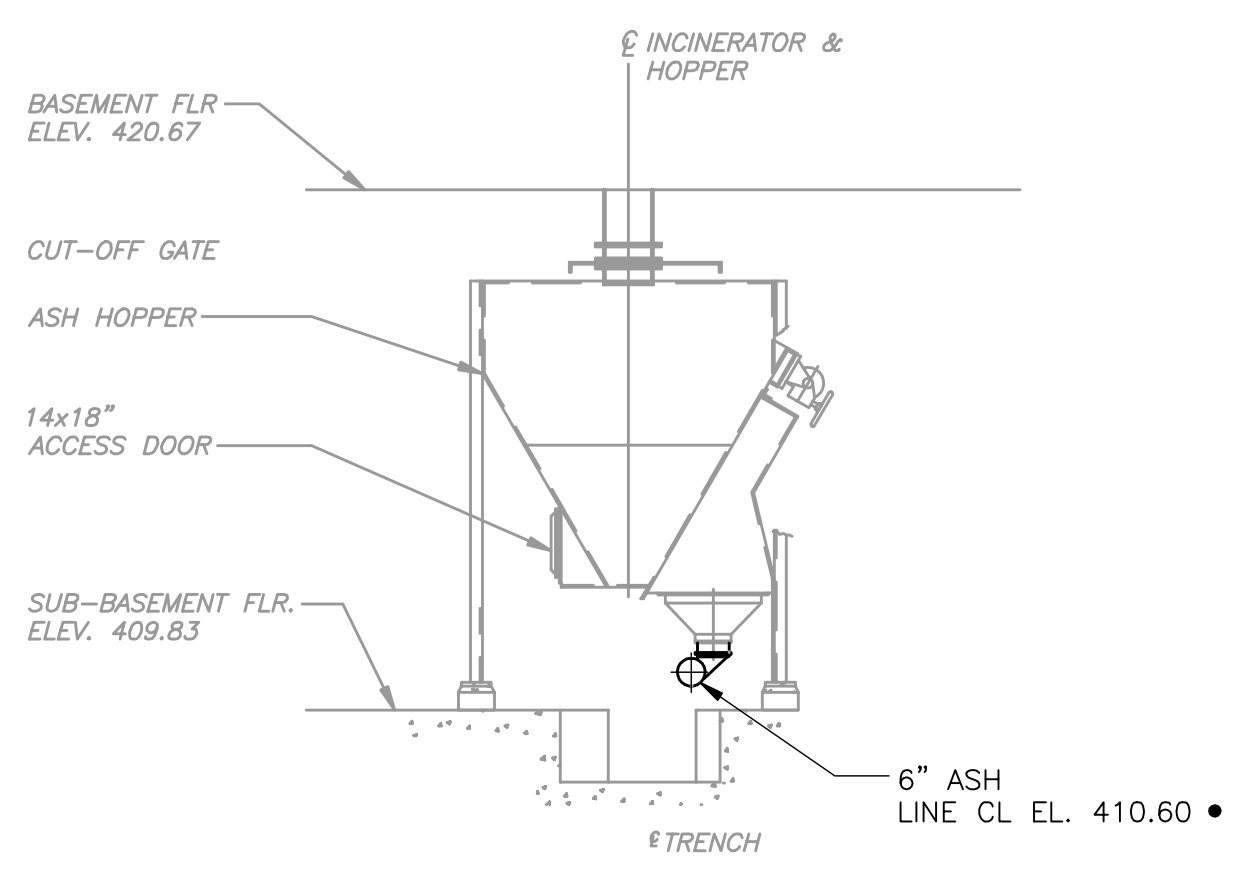
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 PIPE SUPPORT DETAILS IX
 DW-SD-9

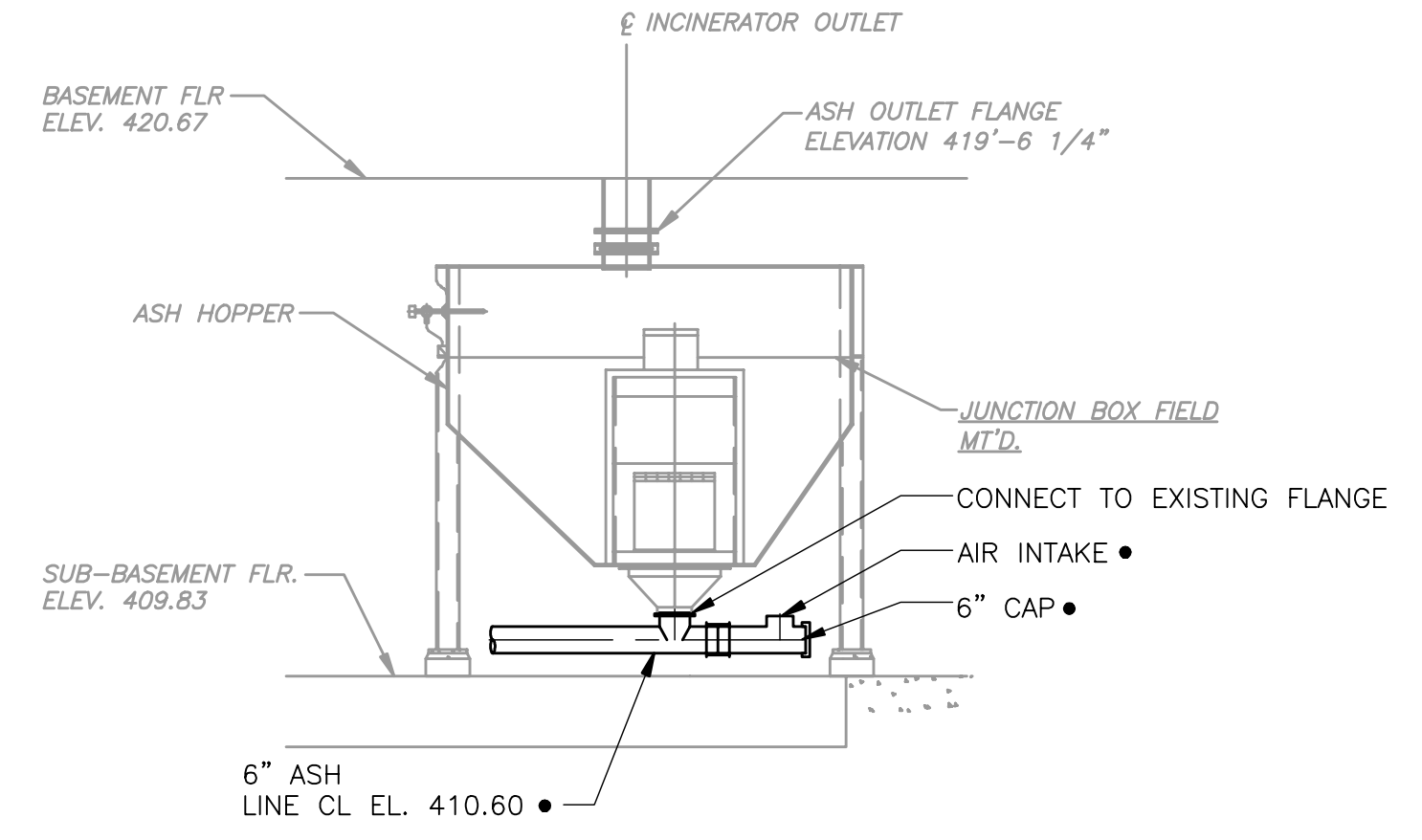
PROJECT NO.
 1289-74283
 Sht. 169 of 312
 Acc # 1289-74575



PLAN
3/16" = 1'-0"



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



SECTION 3
1/4" = 1'-0"

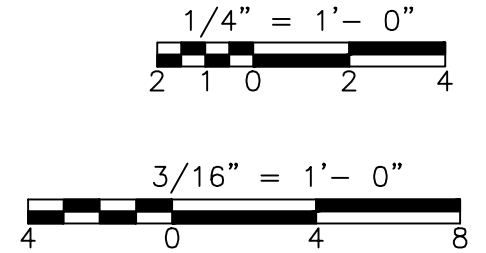
PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
IBP81-1		-432	
IBP81-2	216	-432	
IBP81-3	110	-2040	110

+X = SOUTH

LEGEND
 X PIPE SUPPORT & RESTRAINT LOCATION
 (X) PIPE SUPPORT NO./DETAIL (SEE "IB-SD" DWGS)
 (BL) BASE ELBOW
 (BT) BASE TEE

NOTES
 1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY.
 2. THIS DRAWING HAS BEEN RECREATED FROM DWG: IB-M5

NOTE:
 6. • DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MIBPS001
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	JULY 2010

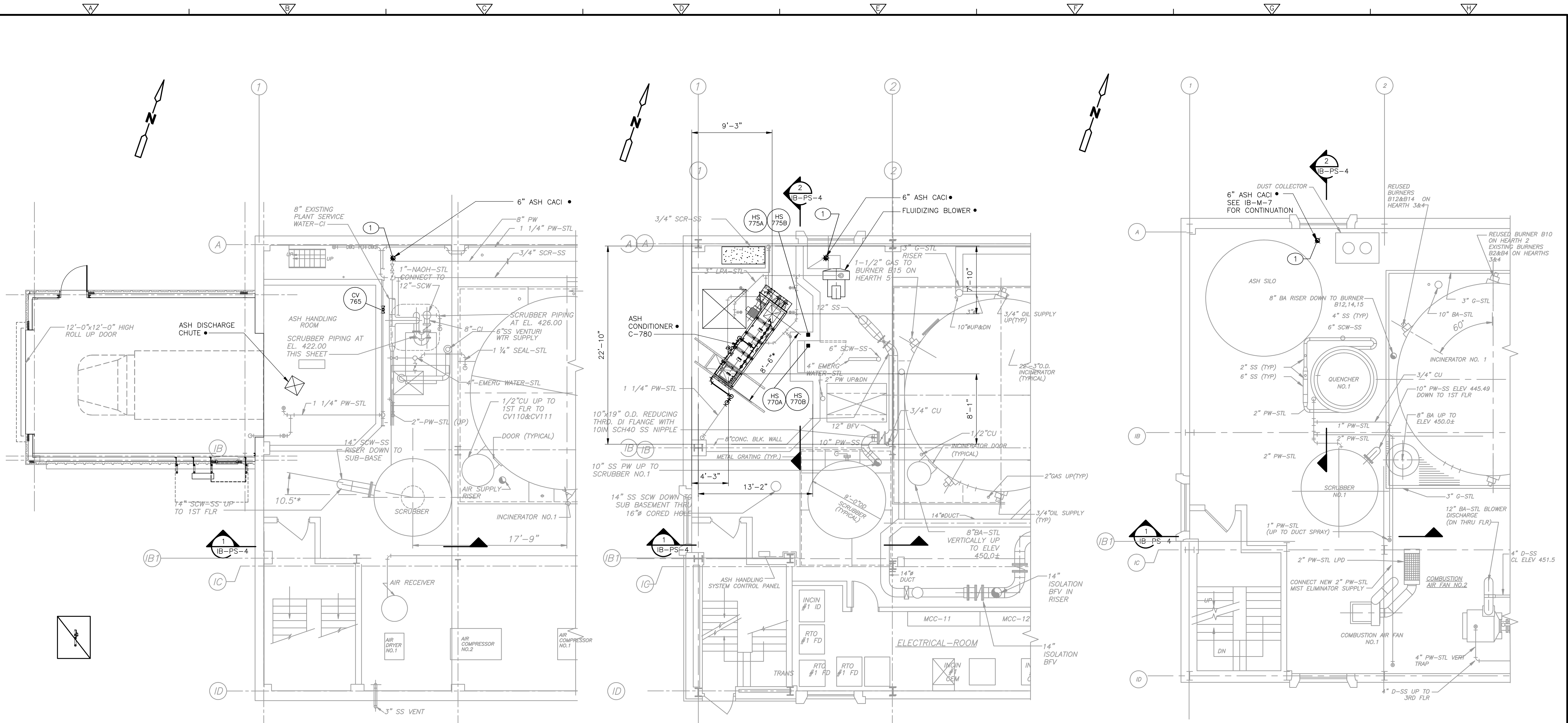
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 60 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-8000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

INCINERATOR BUILDING SUB-BASEMENT PIPE SUPPORT PLAN

PROJECT NO. 1289-74283
 Sht. 170 of 312
IB-PS-1
 Acc # 1289-74576



**BASEMENT
PLAN**
3/16" = 1'-0"

**FIRST FLOOR
PLAN**
3/16" = 1'-0"

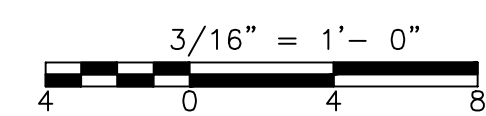
**SECOND FLOOR
PLAN**
3/16" = 1'-0"

PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
IBPS-1		-380	

±X = SOUTH

LEGEND
 X PIPE SUPPORT & RESTRAINT LOCATION
 (XX) PIPE SUPPORT NO/DETAIL (SEE "IB-SD" DWGS)
 (BL) BASE ELBOW
 (BT) BASE TEE
NOTES
 1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
 2. THIS DRAWING HAS BEEN RECREATED FROM DWG: IB-M6

NOTE: • DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.



REV. NO.	DATE	DRWN	CHKD	REMARKS

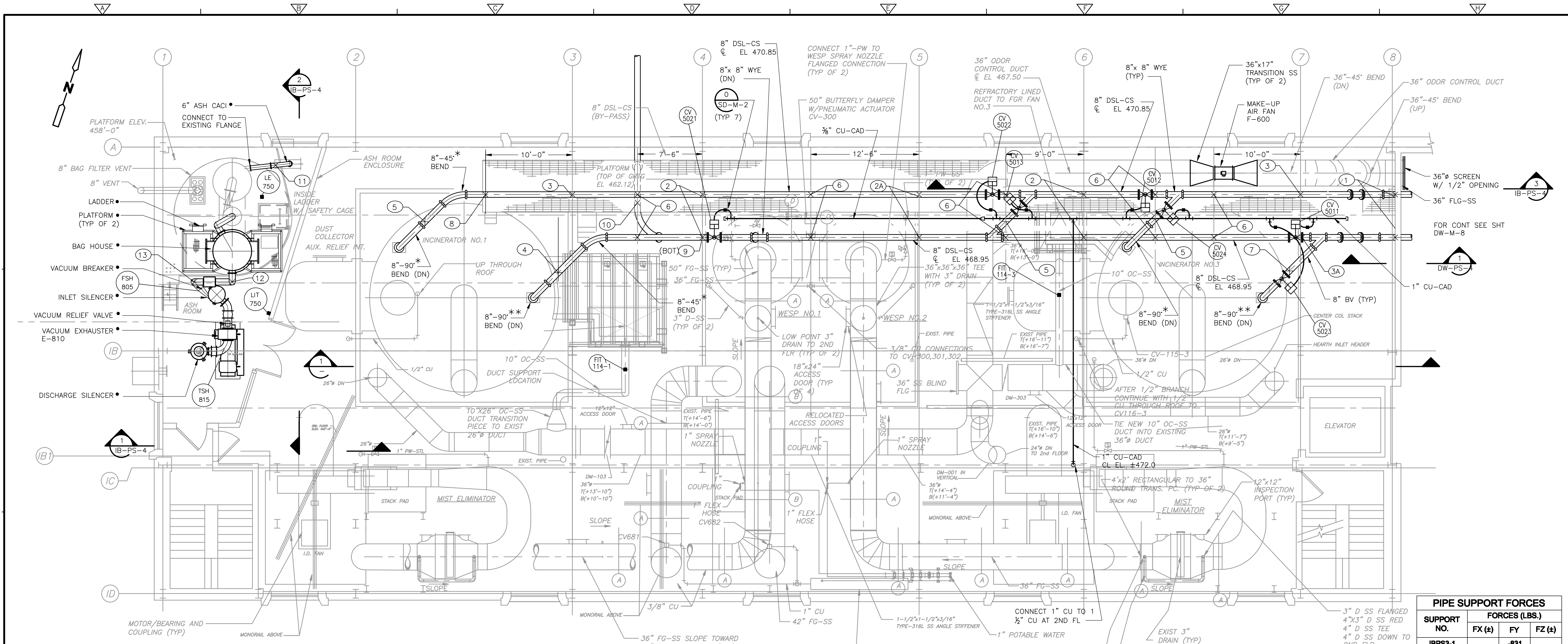
CADD FILE NO. MIBPS002
 DESIGNED BY: M. NEVILLE
 DRAWN BY: V. BITTO
 SHEET CHK'D BY: M. NEVILLE
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: F. SAPIENZA
 DATE: JULY 2010

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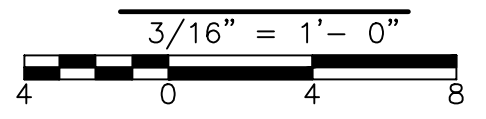
**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197**
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
 BASEMENT, FIRST AND SECOND FLOOR
 PIPE SUPPORT PLANS**

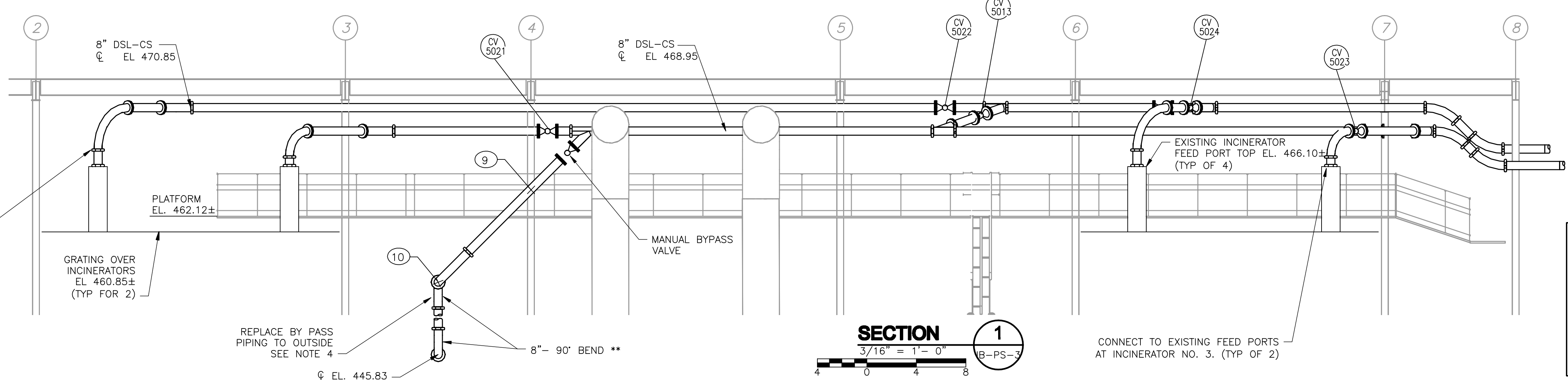
PROJECT NO.
1289-74283
 Sht. 171 of 312
IB-PS-2
 Acc # 1289-74577



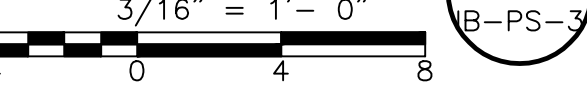
**THIRD FLOOR
PLAN**



- NOTES:**
- DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 - * DENOTES LONG RADIUS BENDS WITH RADIUS OF BEND AT C OF FITTING EQUAL TO 5 PIPE DIAMETERS (MINIMUM). ** DENOTES LONG RADIUS BENDS WITH RADIUS OF BEND AT C OF FITTING EQUAL TO 3 PIPE DIAMETERS (MINIMUM).
- MOST NEW DSL PIPING IS TO BE INSTALLED WITH EXISTING PIPING IN PLACE IN ACCORDANCE WITH THE SEQUENCING IN SECTION 01810. PROVIDE TEMPORARY PIPE SUPPORTS AS REQUIRED.
- BYPASS LINE LEAVES BUILDING ON 2ND FLOOR AT APPROXIMATE C EL. 445.83. REPLACE ALL PIPING TO BYPASS, INCLUDING APPROXIMATELY ONE 90° BEND AND 10 FEET OF PIPE EXTENDED OUT FROM NORTH WALL OF BUILDING.



SECTION 1



PIPE SUPPORT FORCES

SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
IBPS3-1		-831	
IBPS3-2	721	-920	
IBPS3-2A	1060	-920	3822
IBPS3-3	104	-849	
IBPS3-3A		-3829	
IBPS3-4		-1146	
IBPS3-5		-406	
IBPS3-6		-4423	
IBPS3-7		-504	
IBPS3-8		-894	
IBPS3-9		-207	
IBPS3-10		-749	
IBPS3-11		-360	
IBPS3-12		-540	
IBPS3-13		-540	

+X = SOUTH

- LEGEND**
- X PIPE SUPPORT & RESTRAINT LOCATION
 - (XX) PIPE SUPPORT NO./DETAIL (SEE "IB-SD" DWGS)
 - (BL) BASE ELBOW
 - (BT) BASE TEE
- NOTES**
- THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY.
 - THIS DRAWING HAS BEEN RECREATED FROM DWG: IB-M7

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	MIBPS003
DESIGNED BY:	K. WAGNER
DRAWN BY:	W. DORSEY
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	F. SAPIENZA
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	JULY 2010

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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

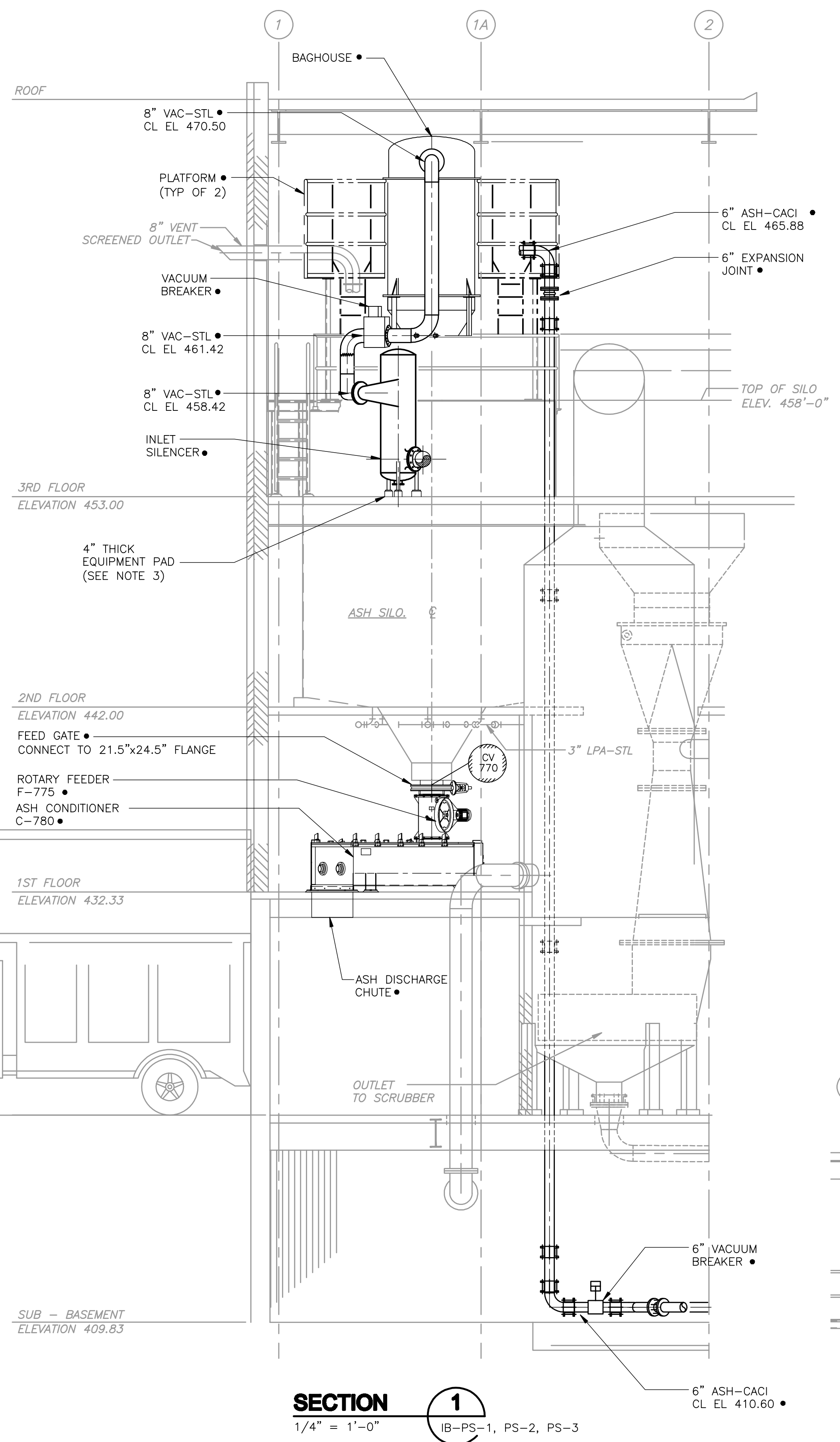
**INCINERATOR BUILDING
THIRD FLOOR PIPE SUPPORT PLAN**

PROJECT NO.
1289-74283

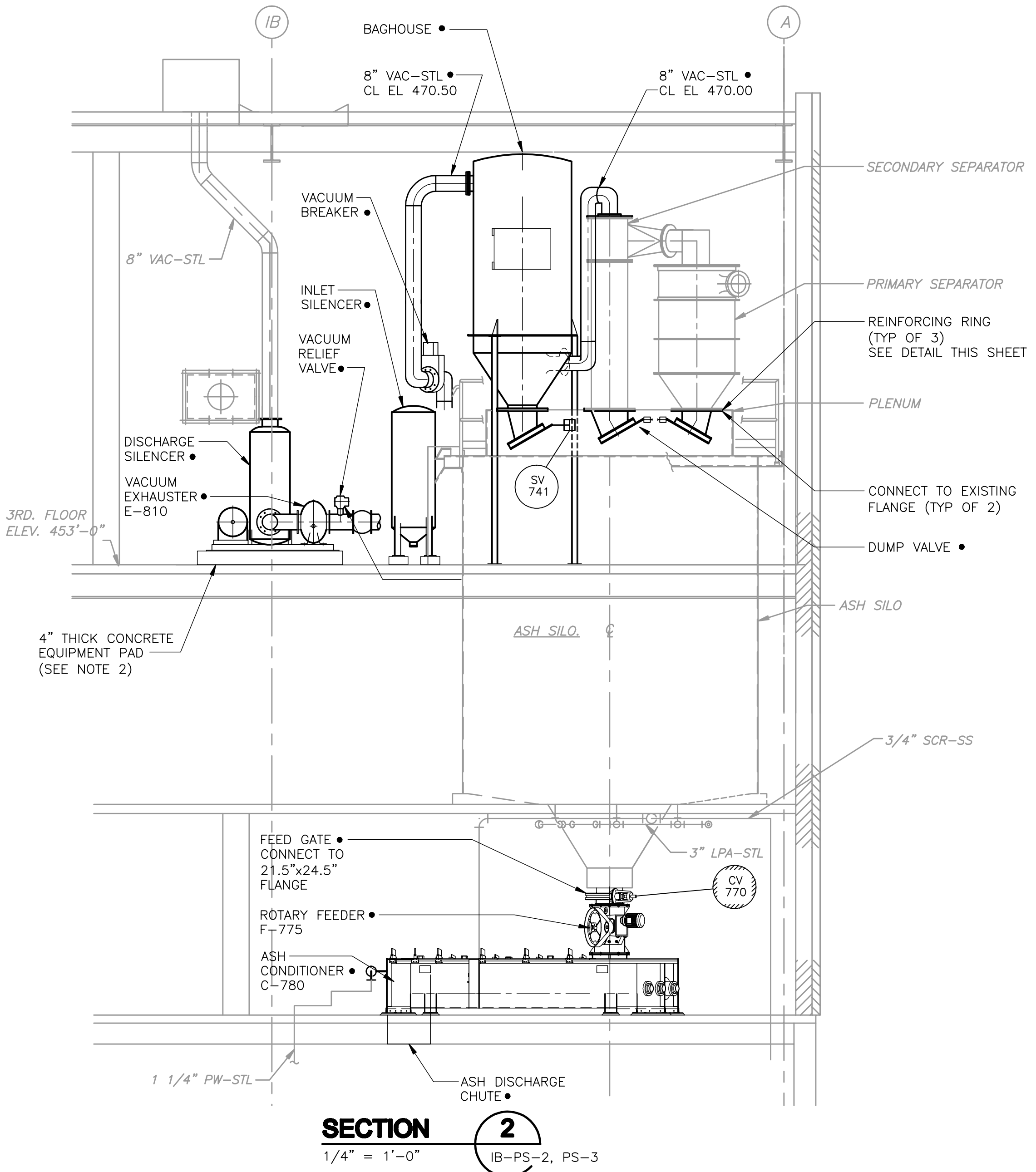
Sht. 172 of 312

IB-PS-3

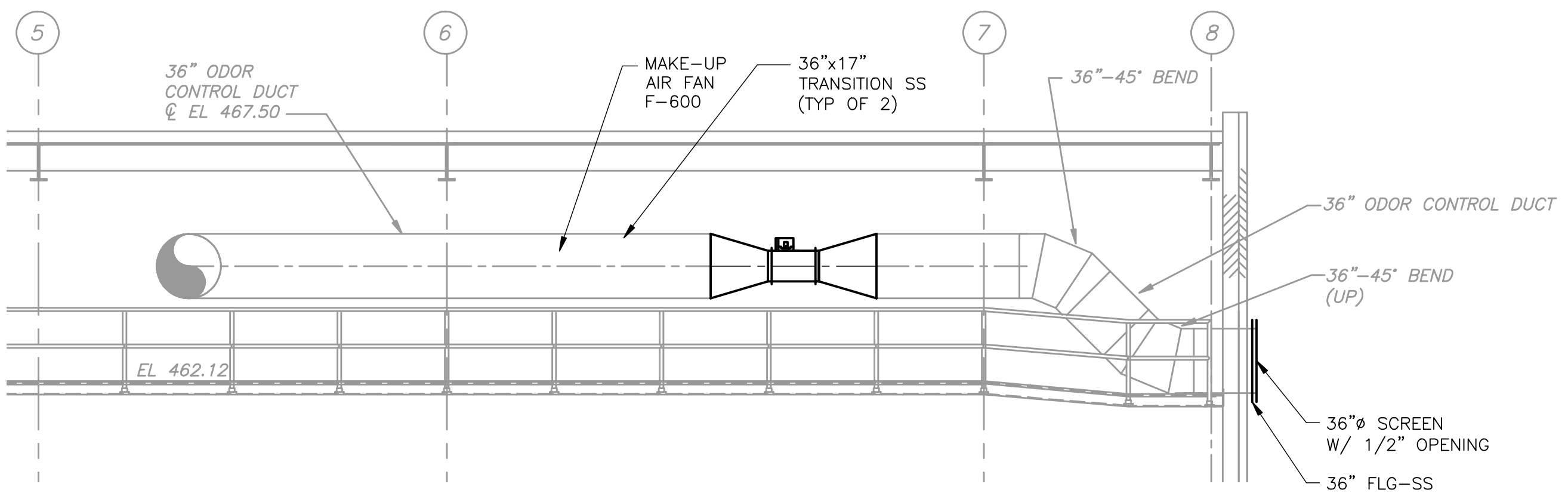
Acc # 1289-74578



SECTION 1
1/4" = 1'-0"
IB-PS-1, PS-2, PS-3

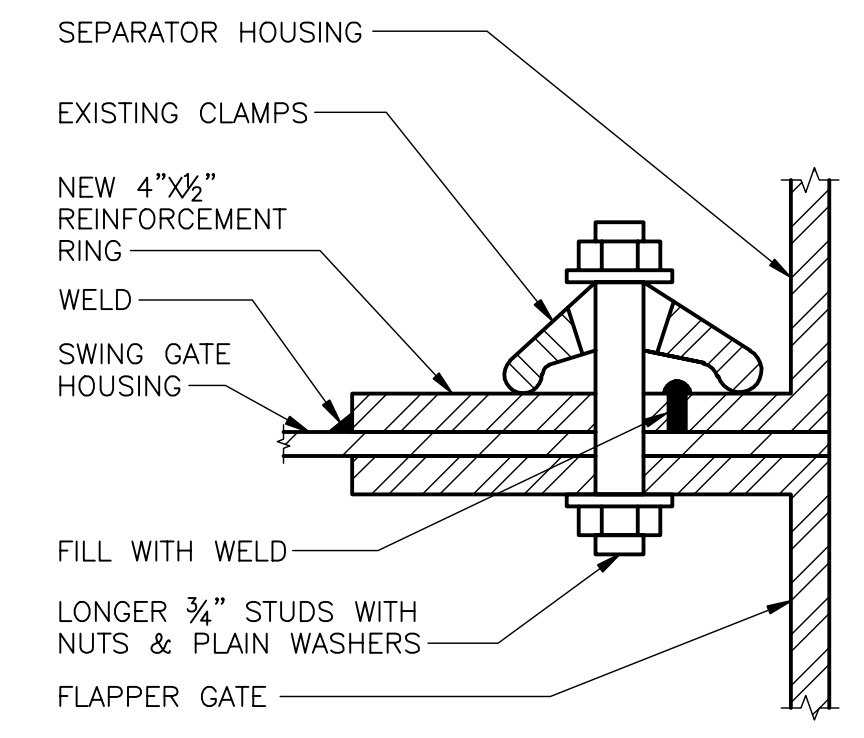


SECTION 2
1/4" = 1'-0"
IB-PS-2, PS-3

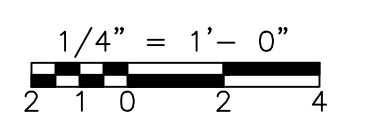


SECTION 3
1/4" = 1'-0"
IB-PS-3

- NOTES:**
- VACUUM EXHAUSTER AND MOTOR, DISCHARGE SILENCER AND ASSOCIATED PIPING NOT SHOWN FOR CLARITY.
 - DENOTES EQUIPMENT SPECIFIED AND PROVIDED UNDER SECTION 11500-ASH HANDLING SYSTEM.
 - REFERENCE DETAIL FOR NEW EQUIPMENT PAD ON EXISTING SLAB ON SD-S-2 FOR ASH CONDITIONER SUPPORT PADS, PLATFORM SUPPORT PAD, AND BLOWER AND SILENCER SUPPORT PADS.



REINFORCEMENT RING
DETAIL A
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.:	MIBPS001
DESIGNED BY:	M. NEVILLE
DRAWN BY:	V. BITTO
SHEET CHK'D BY:	M. NEVILLE
CROSS CHK'D BY:	F. SAPIENZA
SCALE:	AS NOTED
APPROVED BY:	F. SAPIENZA
DATE:	JULY 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

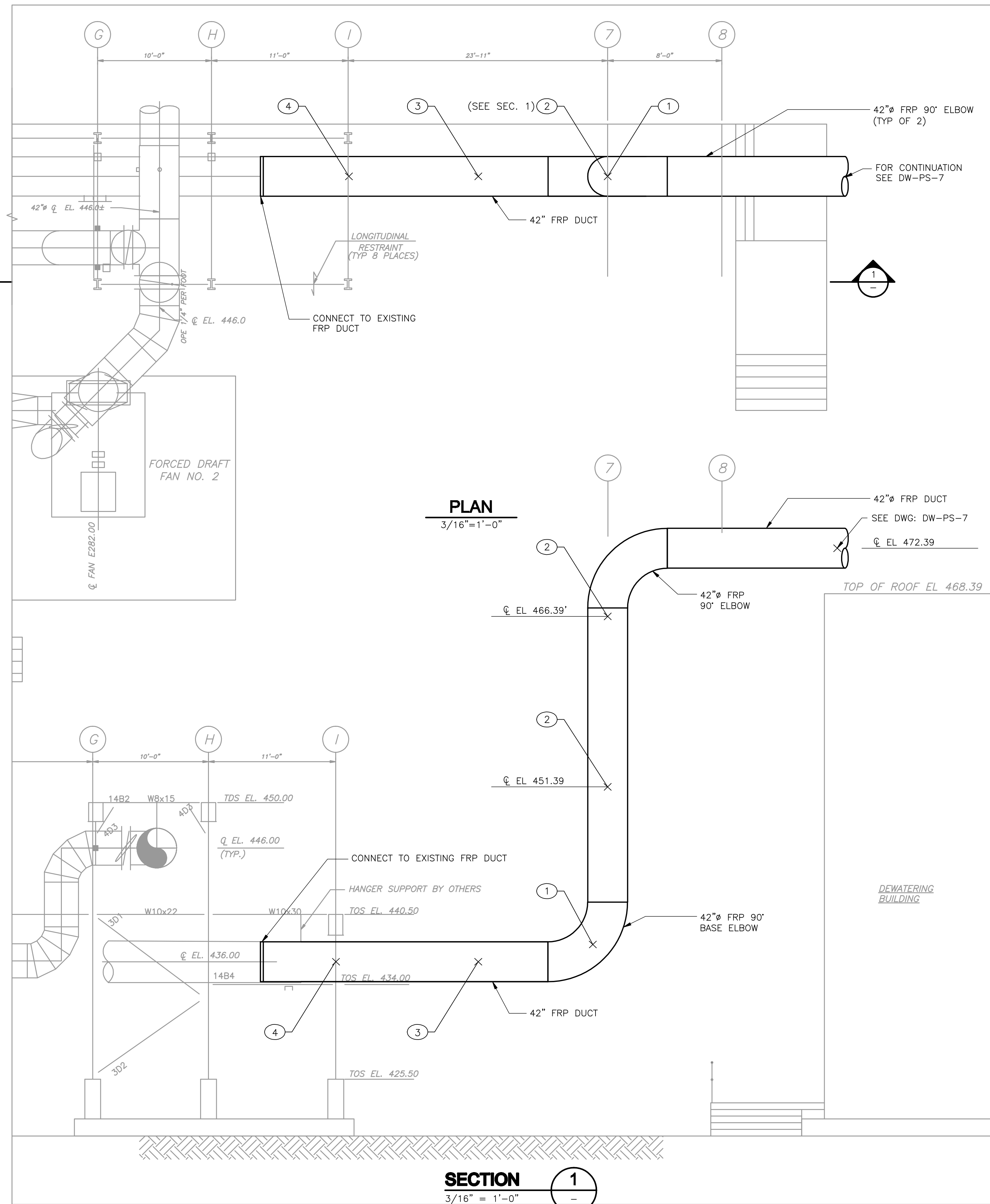
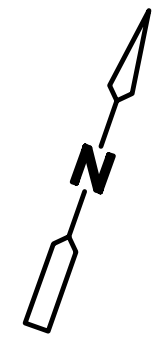
INCINERATOR BUILDING
PIPE SUPPORT SECTIONS

PROJECT NO.
1289-74283

Sht. 173 of 312

IB-PS-4

Acc # 1289-74579



PIPE SUPPORT FORCES			
SUPPORT NO.	FORCES (LBS.)		
	FX (±)	FY	FZ (±)
IBPS-1	993	-1060	993
IBPS-2	1102		1102
IBPS-3	882	-975	
IBPS-4	775	-865	

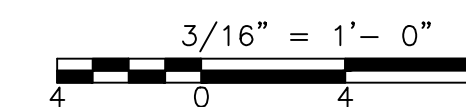
+X = SOUTH

LEGEND

- X PIPE SUPPORT & RESTRAINT LOCATION
- (XX) PIPE SUPPORT NO/DETAIL (SEE "IB-SD" DWGS)
- (EL) BASE ELBOW
- (BT) BASE TEE

NOTES

1. THIS DRAWING AND THE P.E. CERTIFICATION IS FOR THE PIPE SUPPORT LOCATIONS ONLY
2. THIS DRAWING HAS BEEN RECREATED FROM DWG: IB-OC2



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MIBPS005
 DESIGNED BY: K. SANTORO
 DRAWN BY: M. WALLEK
 SHEET CHK'D BY: K. SANTORO
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: K. SANTORO
 DATE: SEPTEMBER 2010

REMARKS

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

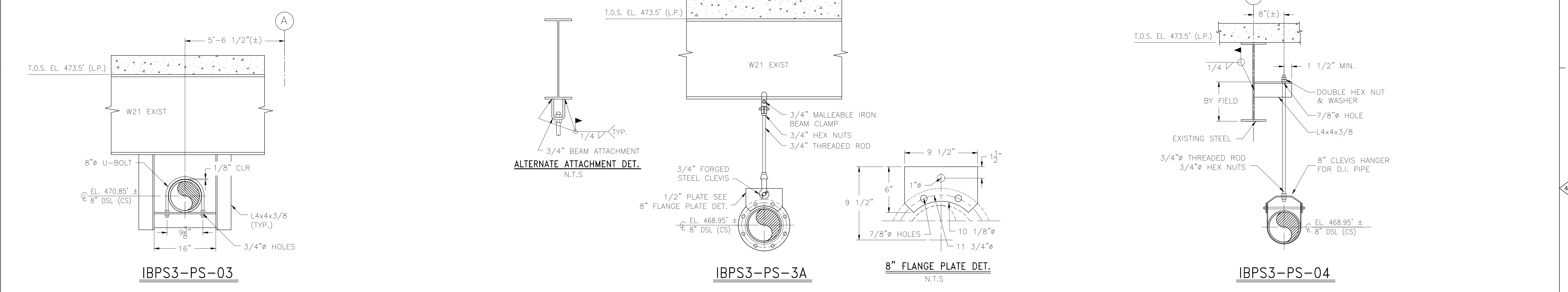
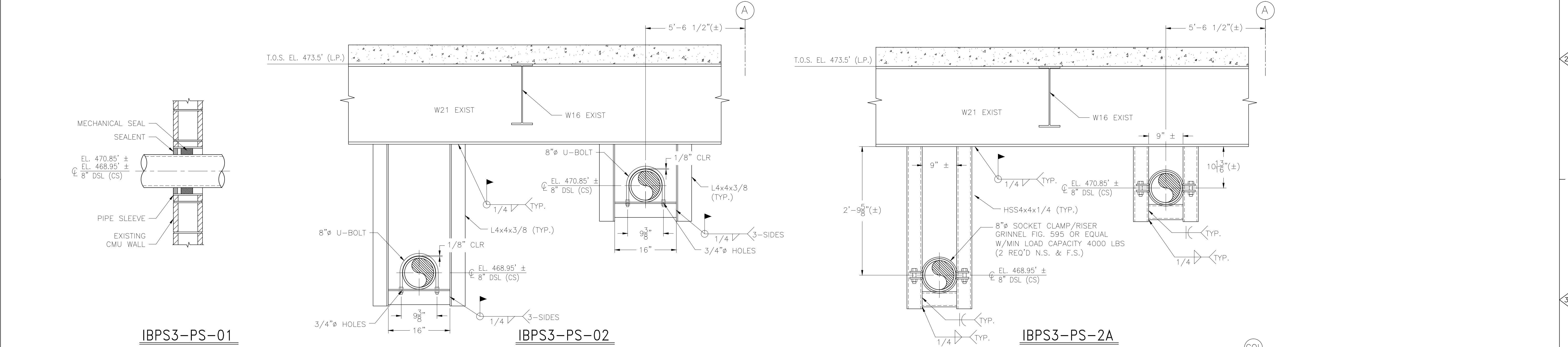
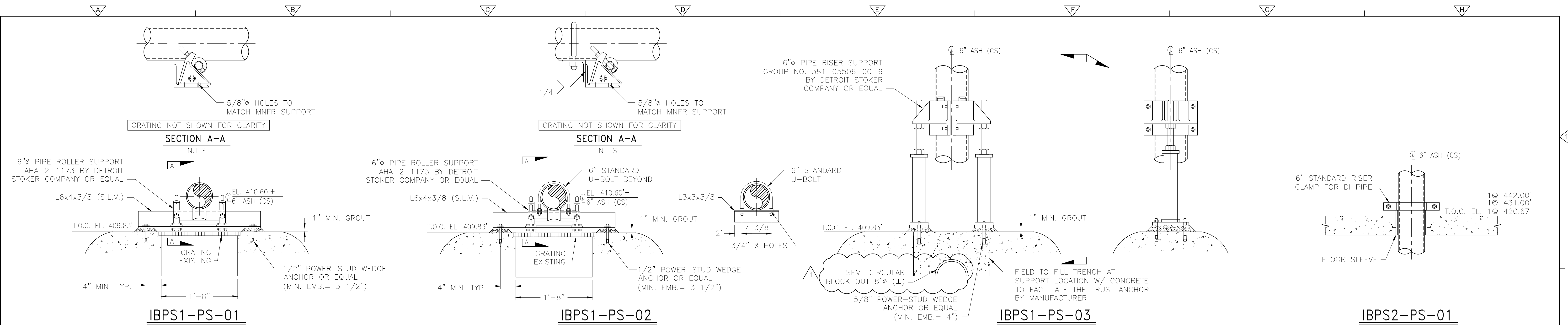
INCINERATOR BUILDING
 EXTERIOR ODOR CONTROL
 PIPE SUPPORT PLAN AND SECTION

PROJECT NO.
1289-74283

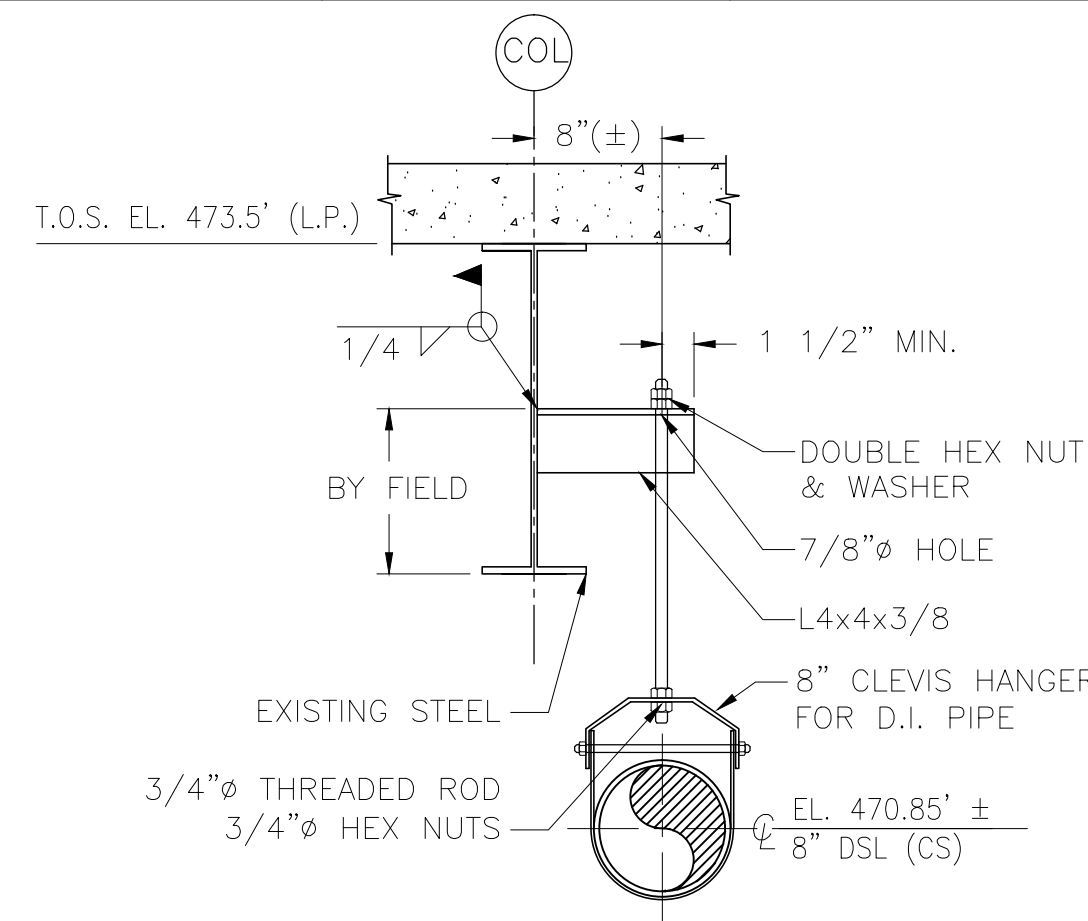
Sht.173A of 312

IB-PS-5

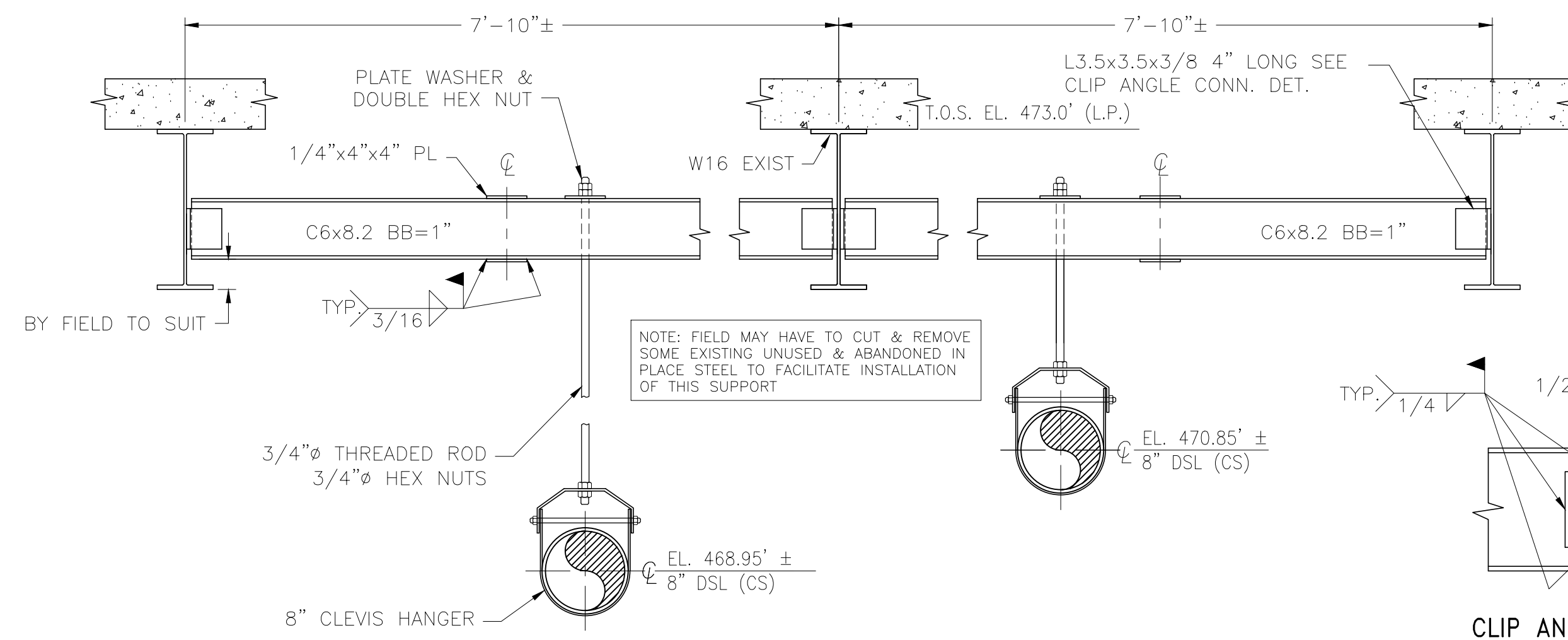
Acc # 289-74579A



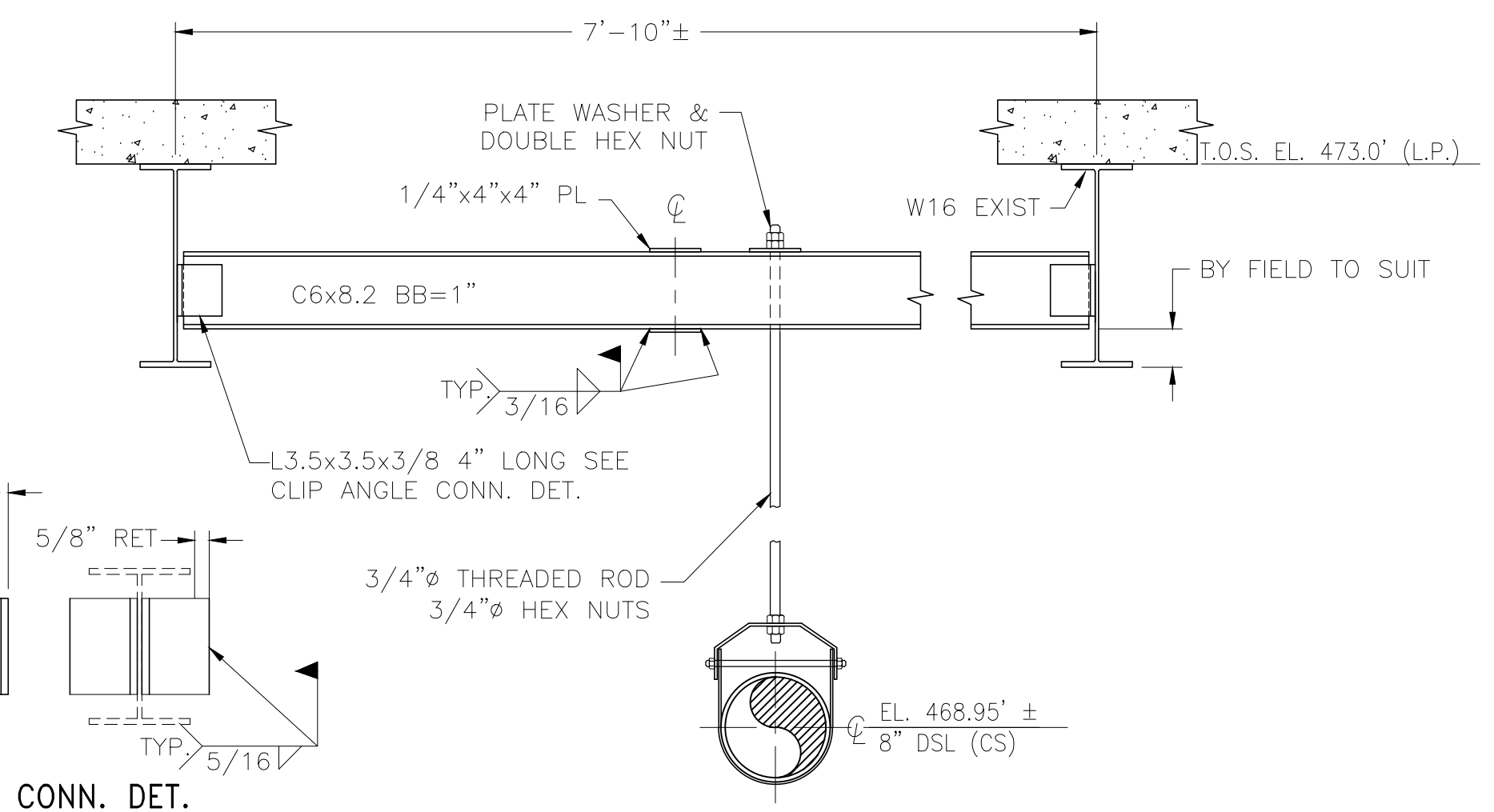
CADD FILE NO. MIBPSDT01 DESIGNED BY: J. TSIKOURAS DRAWN BY: G. REGO SHEET CHK'D BY: J. MOURATO CROSS CHK'D BY: G. REGO SCALE: 1" = 1'-0" APPROVED BY: J. TSIKOURAS DATE: JULY 2010				CDM Camp Dresser & McKee Inc. One Cambridge Place, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 452-6000 consulting • engineering • construction • operations				UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. 3-0-17512-0033 PROJECT No. CWSRF - 3197 WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III				INCINERATOR BUILDING PIPE SUPPORT DETAILS I			
2/12 GR JT REVISED AS NOTED	REMARKS							PROJECT NO. 1289-74283 Sht. 174 of 312 IB-SD-1 Acc # 1289-74580							



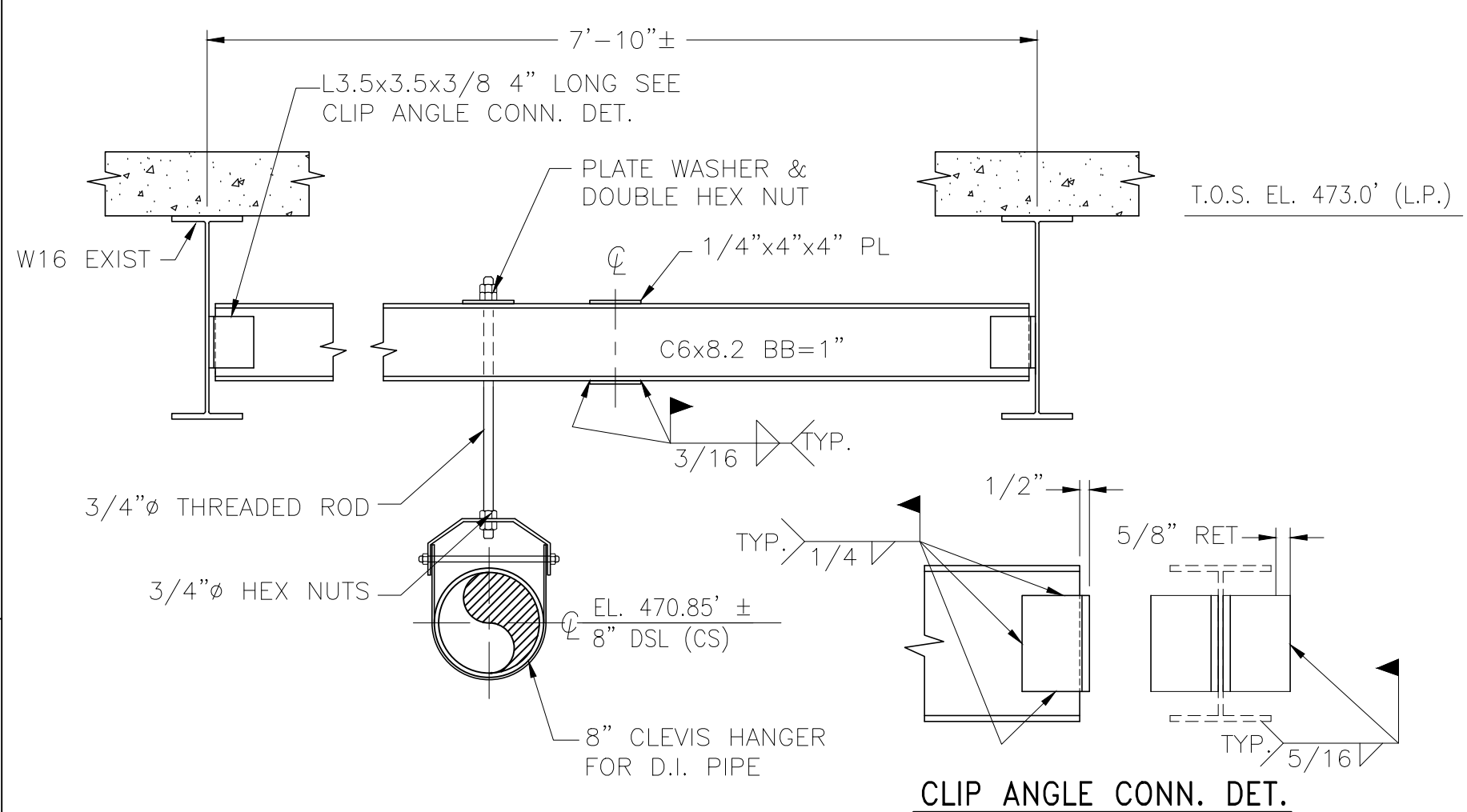
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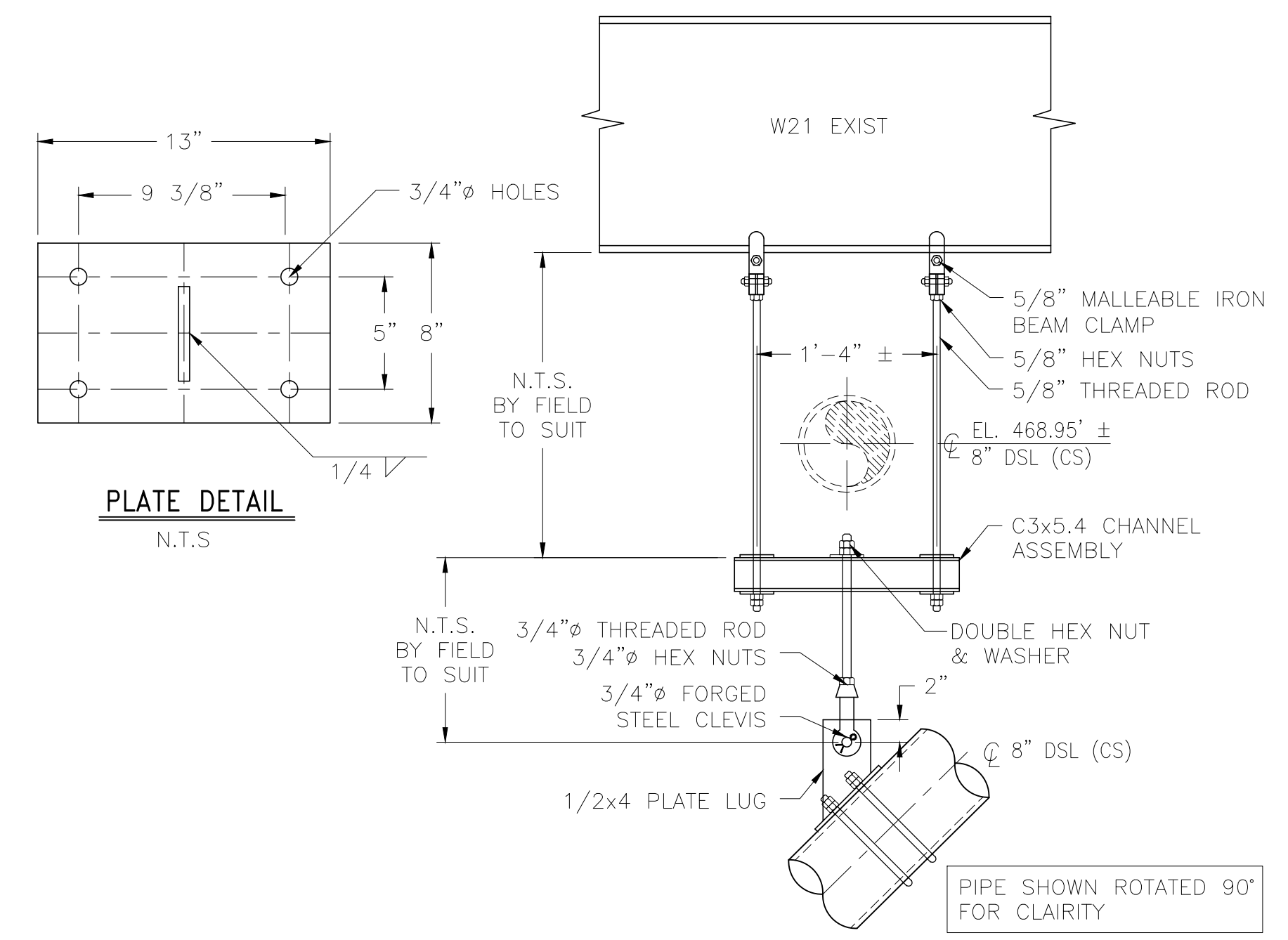
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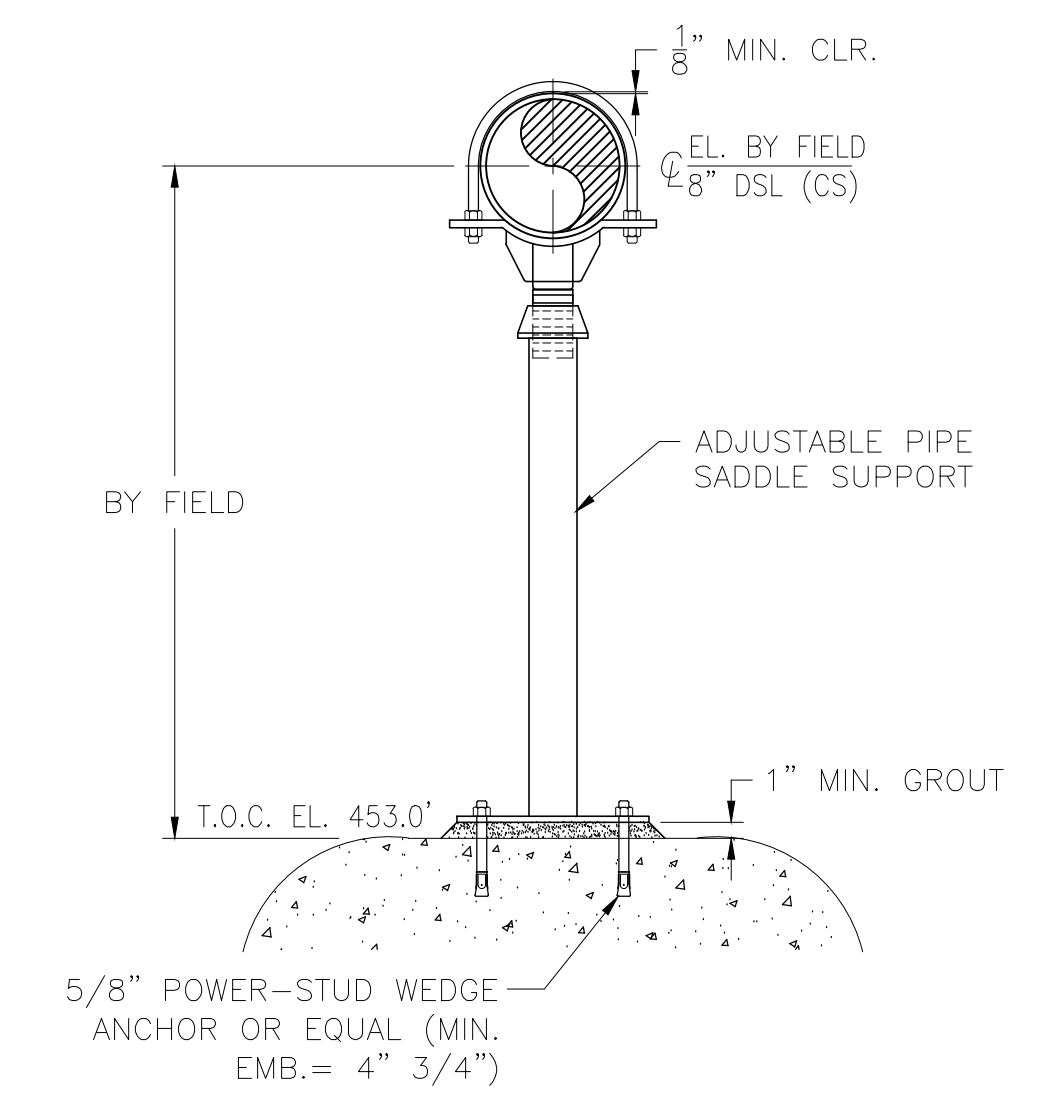
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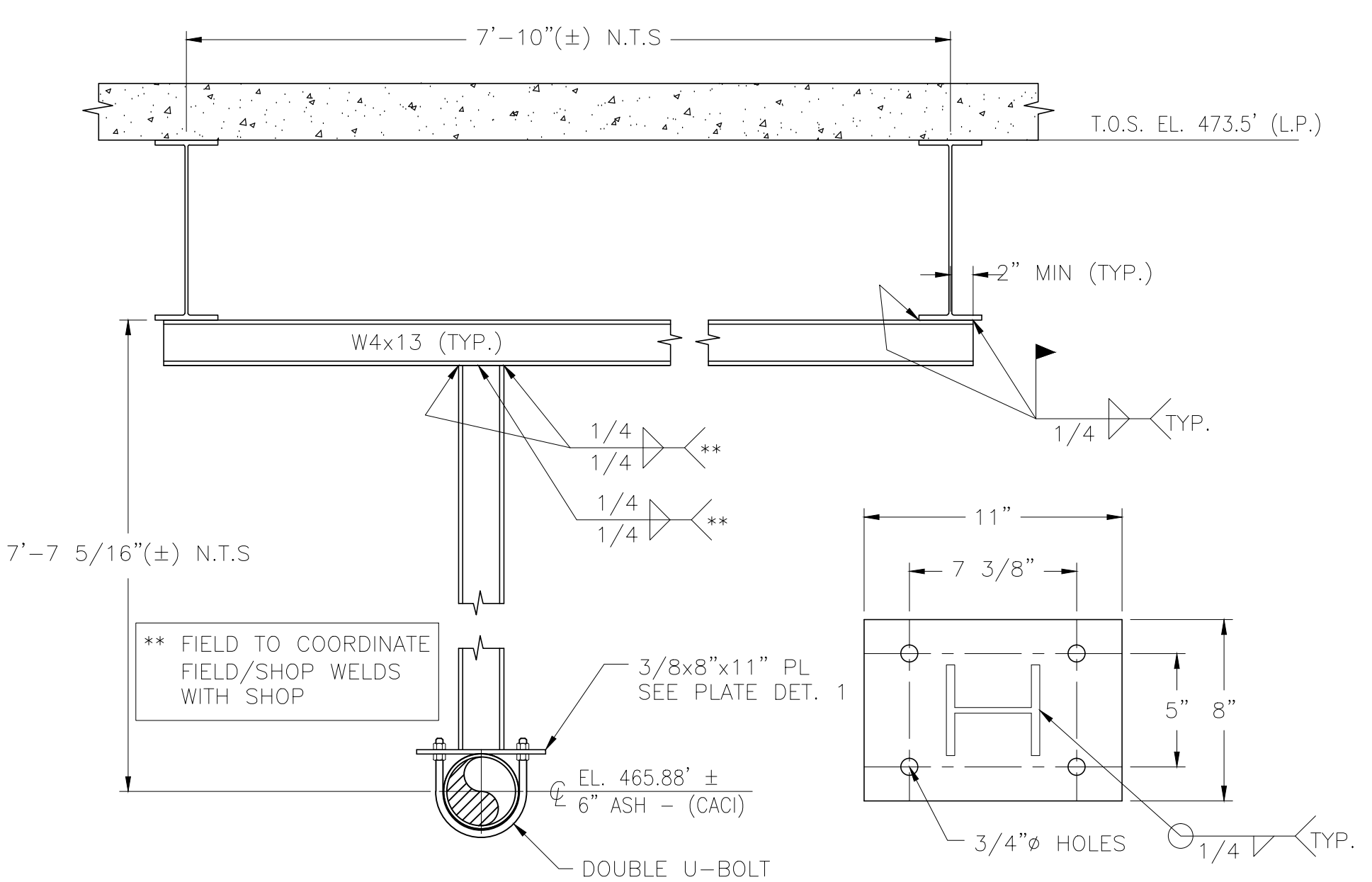
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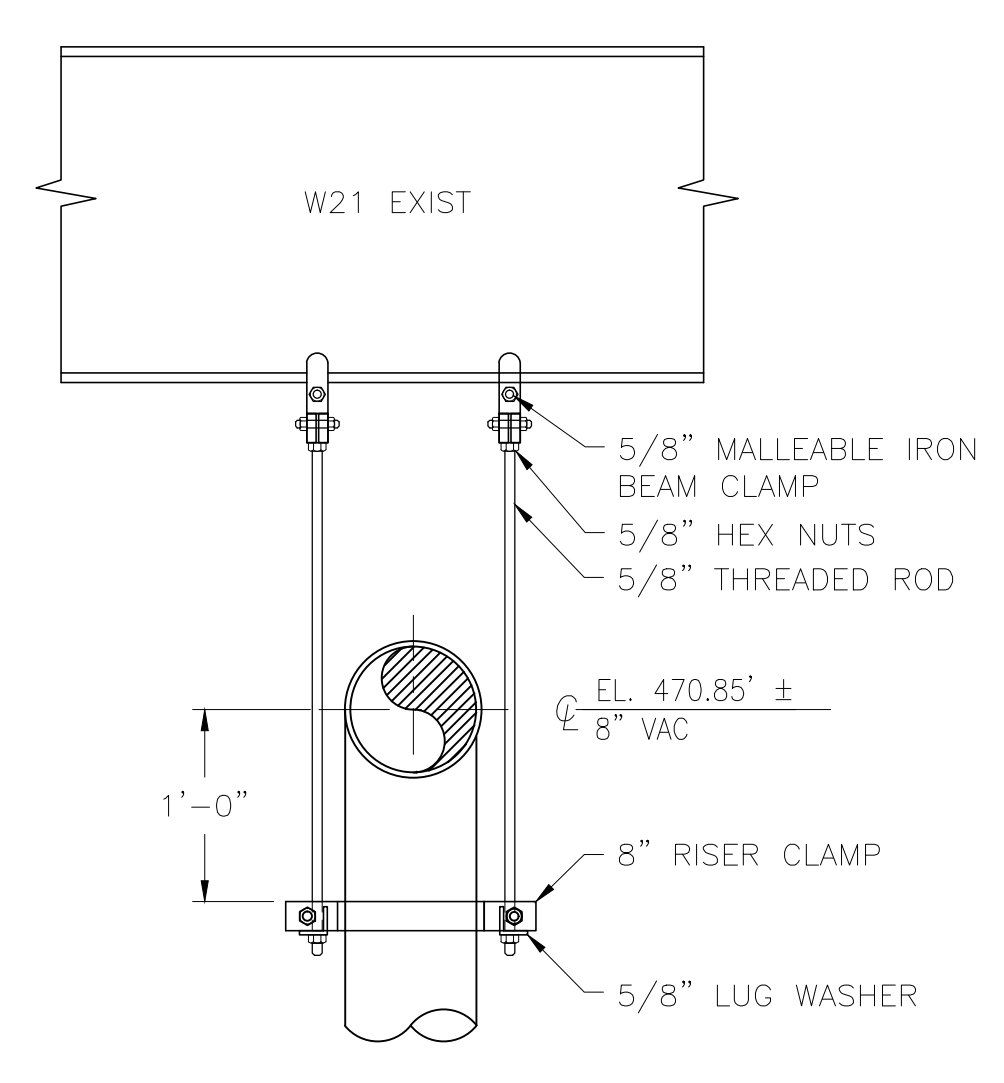
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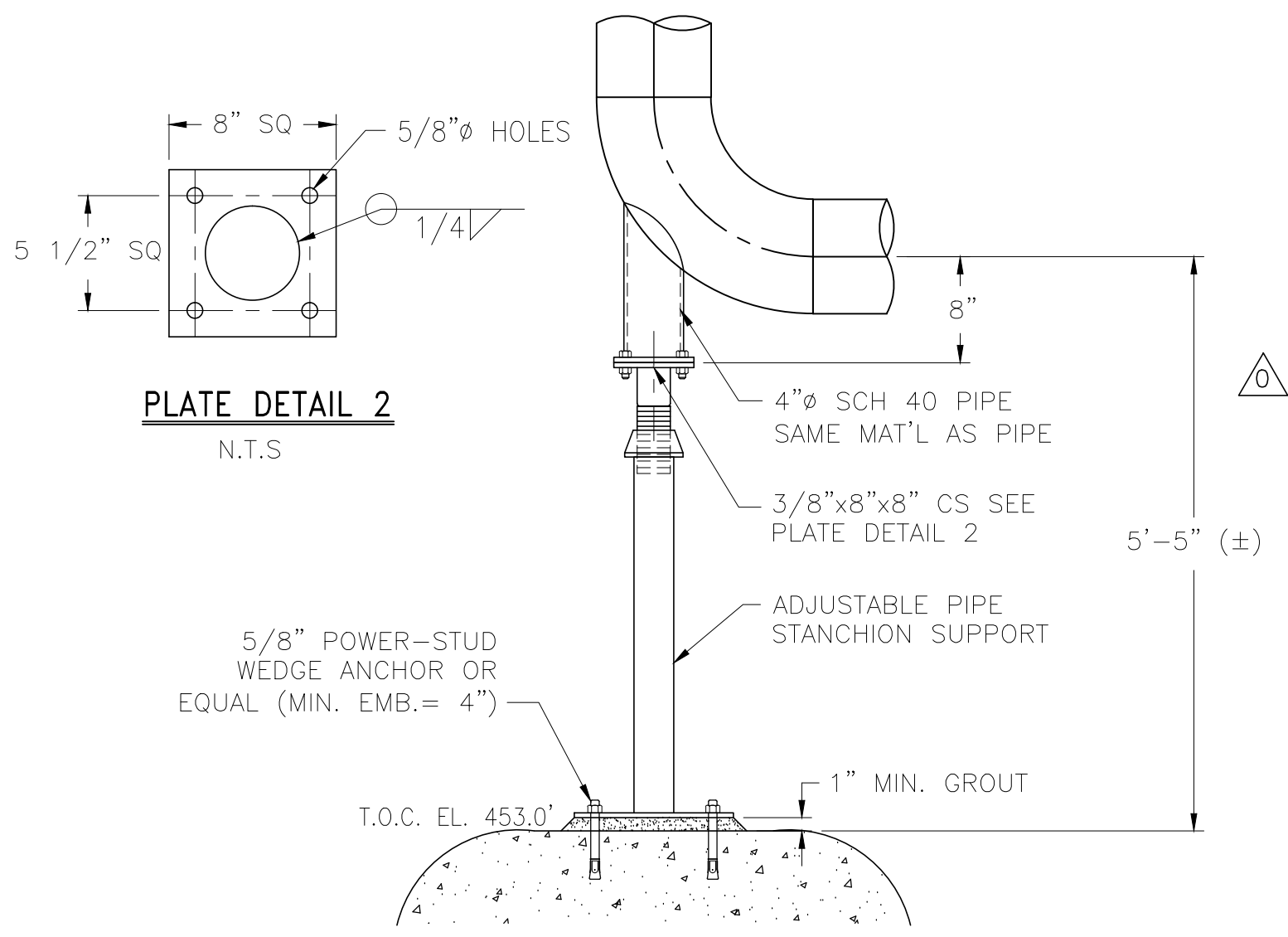
IBPS3-PS-10



IBPS3-PS-11



IBPS3-PS-12



IBPS3-PS-13

GENERAL NOTES

1. ALTERNATE CONNECTION DETAILS MAY BE APPROVED IF SUCH DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE IS GRANTED. THE CONTRACTOR SHALL RETAIN A REGISTERED PROFESSIONAL ENGINEER TO BE RESPONSIBLE FOR THE DESIGN OF ANY ALTERNATE DETAILS WHICH HE/SHE PROPOSES.
2. UNLESS NOTED OTHERWISE ALL MATERIAL FOR PIPE SUPPORTS SHALL BE FURNISHED WITH GALVANIZED FINISH, HOT DIPPED COATED, EXCEPT WHERE FIELD WELDING IS REQUIRED, COLD-APPLIED GALVANIZING MAY BE USED. PIPE SUPPORT MATERIAL FOR SUBMERGED PIPE AND INTERIOR PIPE WITHIN CHEMICAL CONTAINMENT AREAS SHALL BE 316 STAINLESS STEEL.
3. FIELD TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

REV. NO.	DATE	DRWN	CHKD	REMARKS
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MIBPSDT02
 DESIGNED BY: J. TSIKOURAS
 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 1" = 1'-0"
 APPROVED BY: J. TSIKOURAS
 DATE: SEPTEMBER 2010

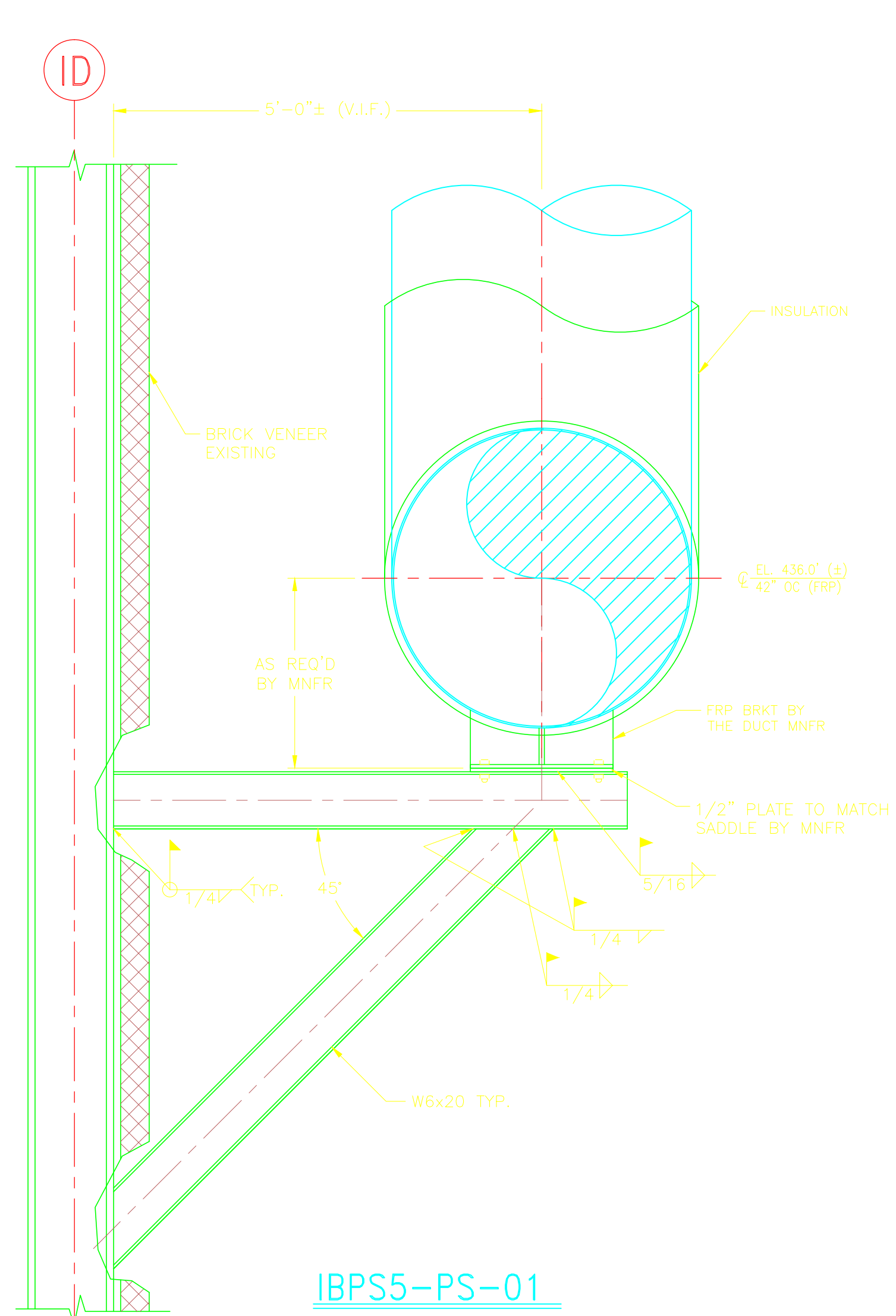
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 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

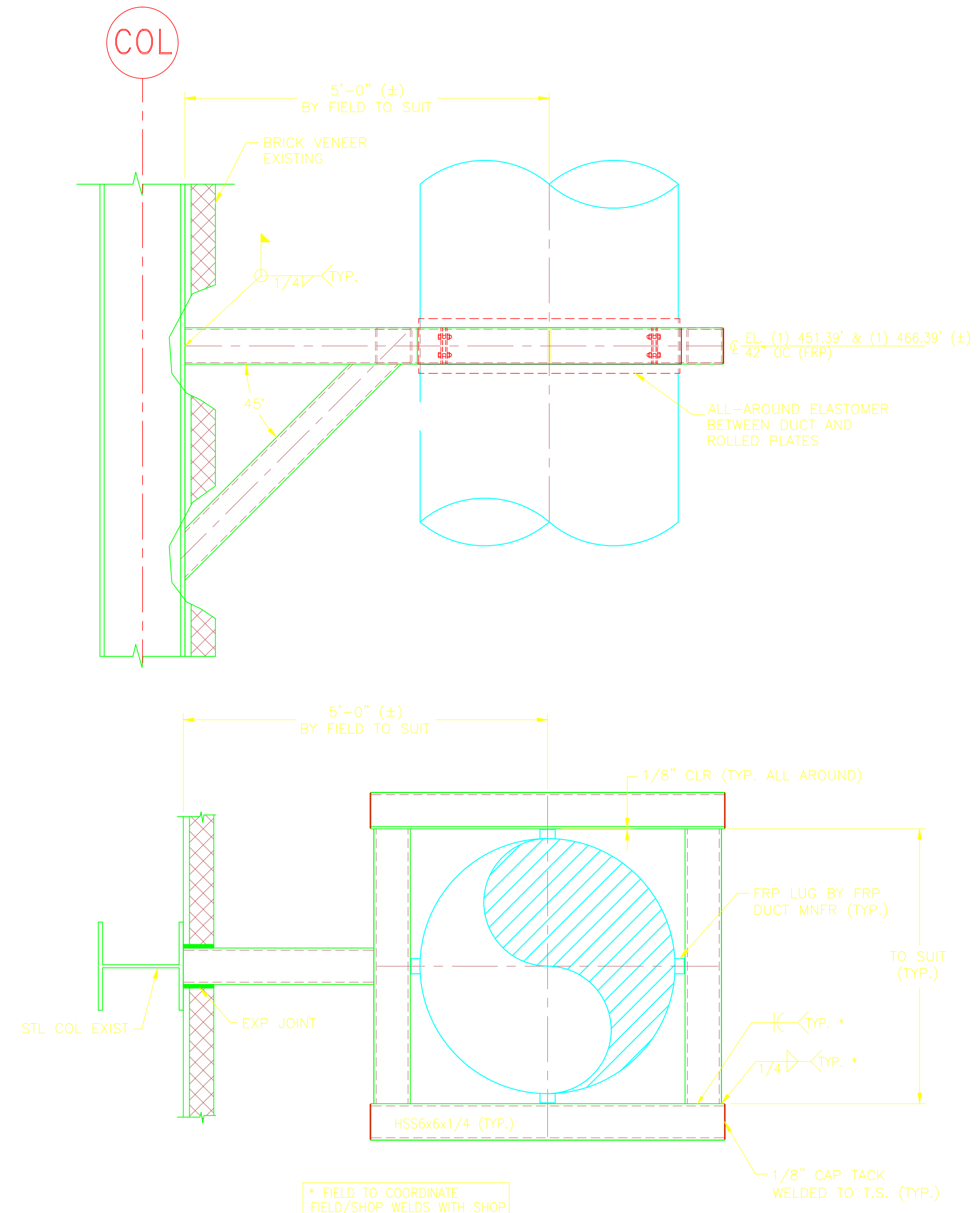
INCINERATOR BUILDING
 PIPE SUPPORT DETAILS II

PROJECT NO.
 1289-74283
 Sht. 175 of 312
 IB-SD-2
 Acc # 1289-74581

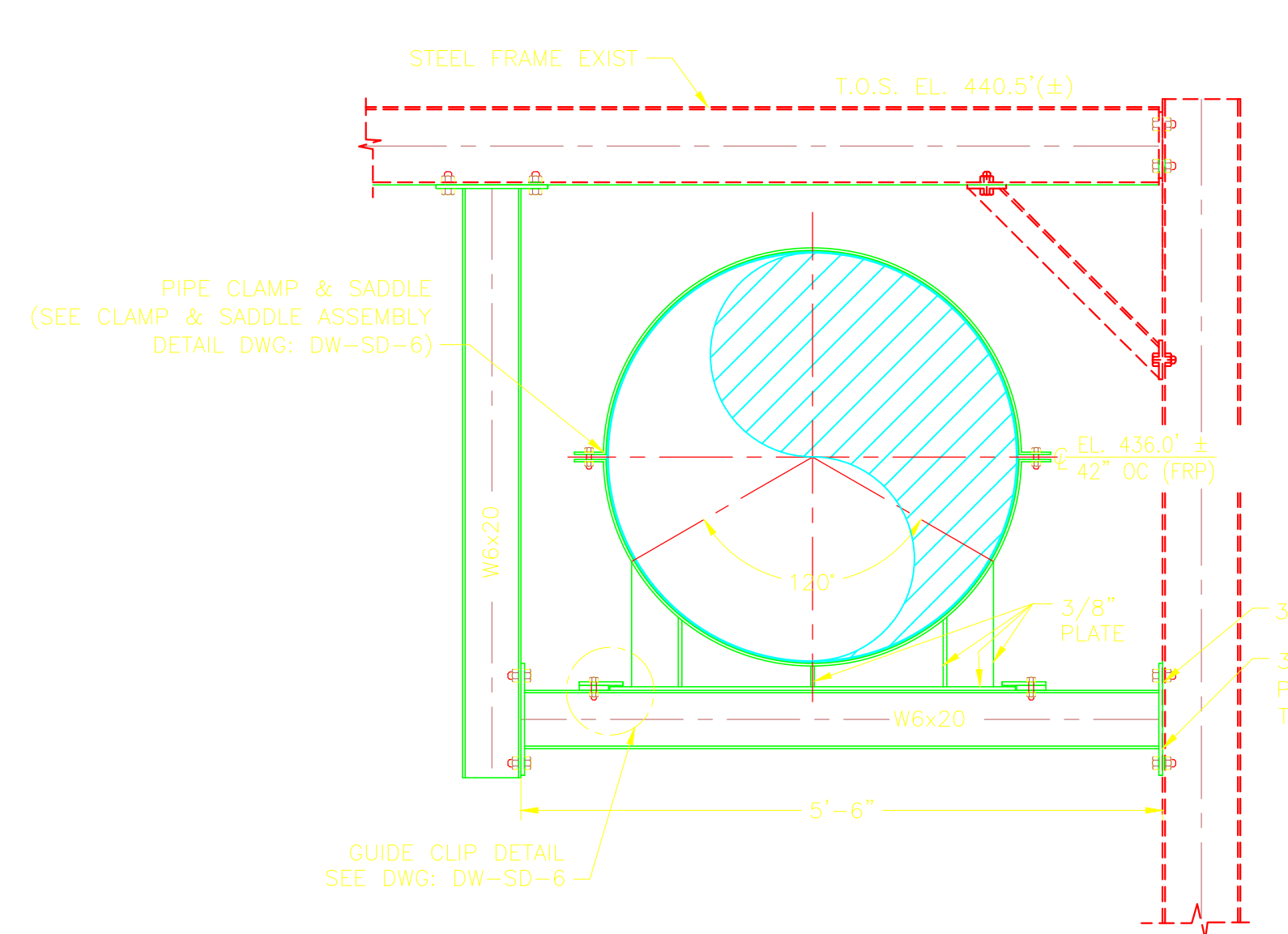
CONFORMED



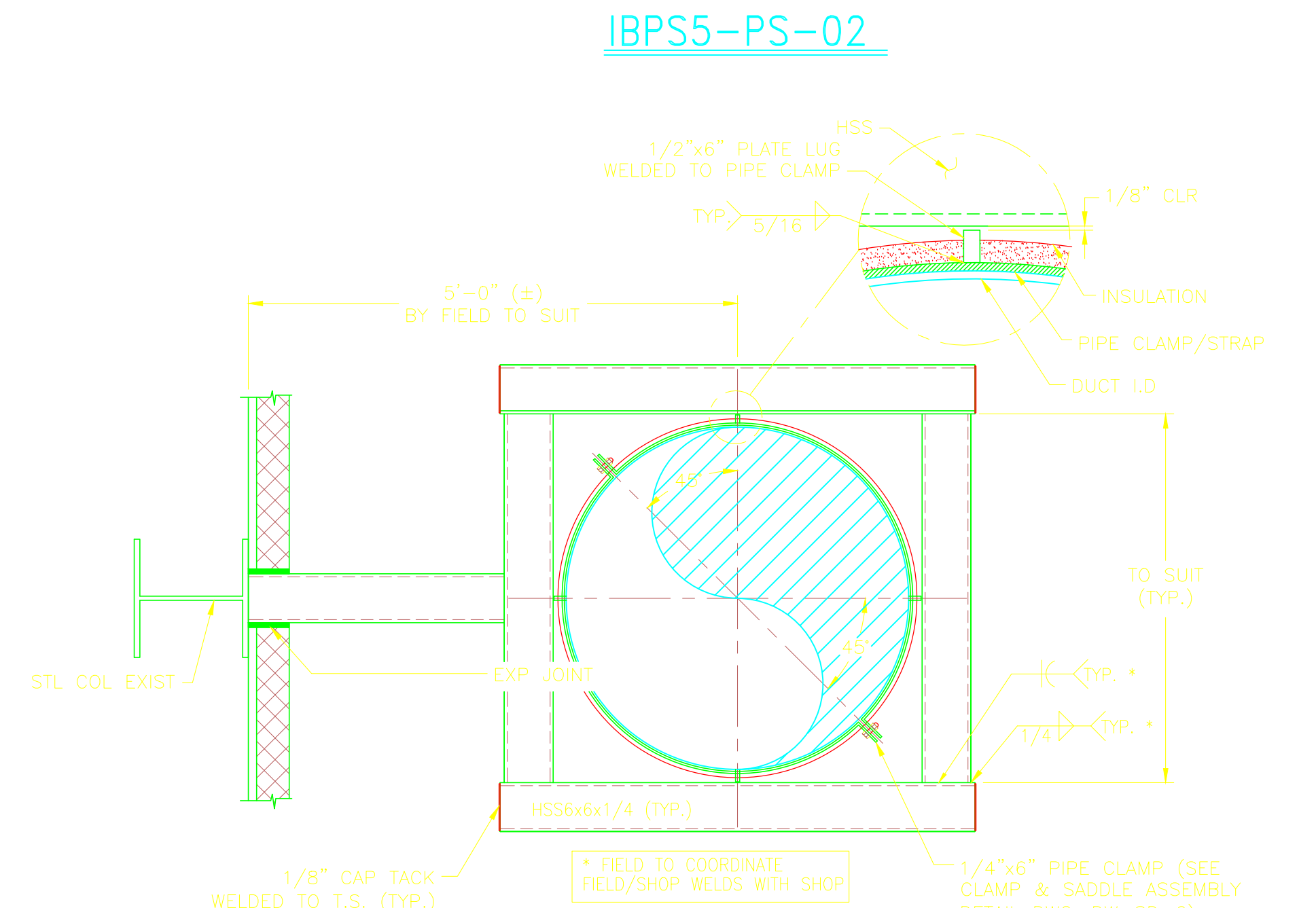
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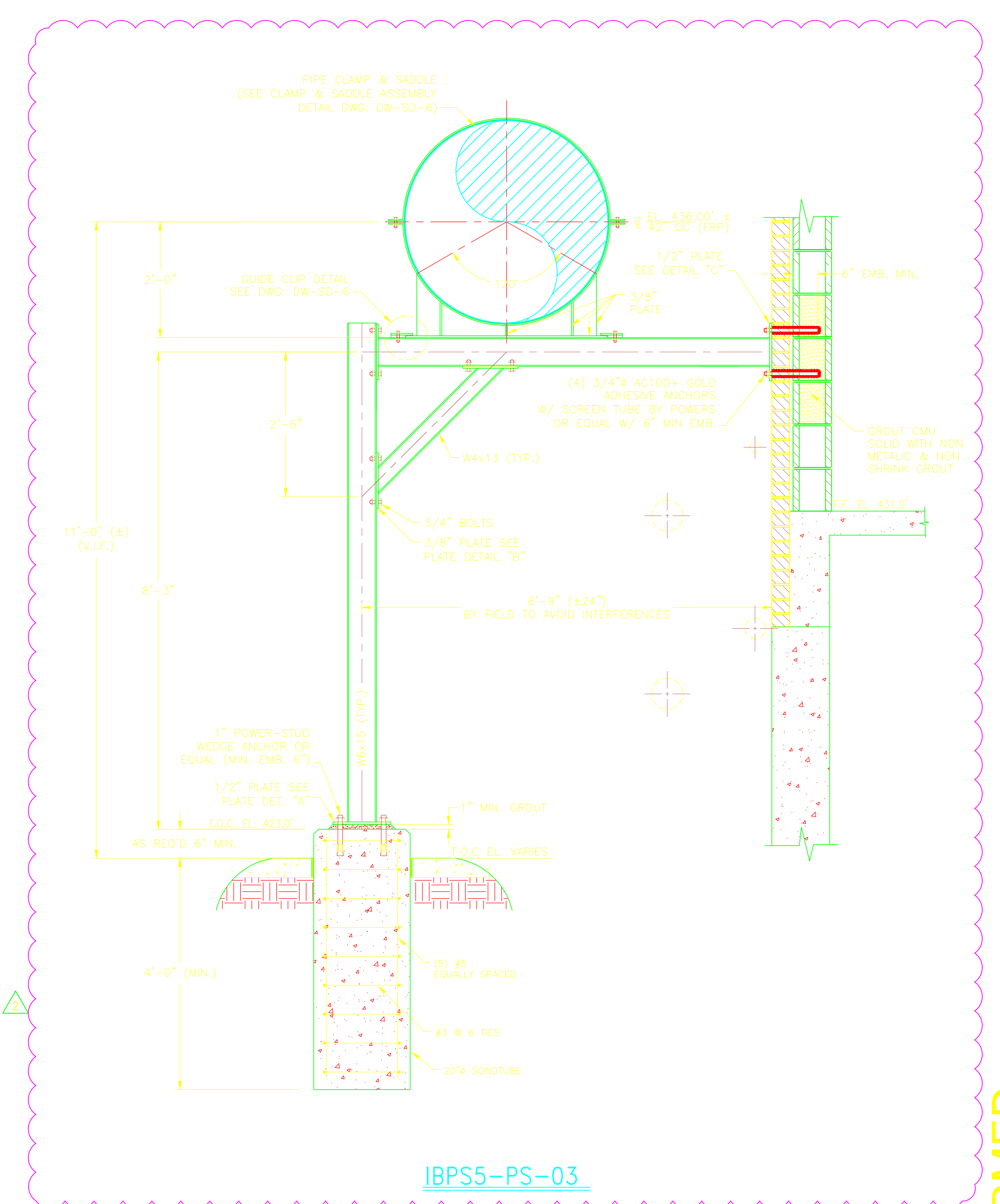
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IBPS5-PS-04



ALTERNATE DETAIL



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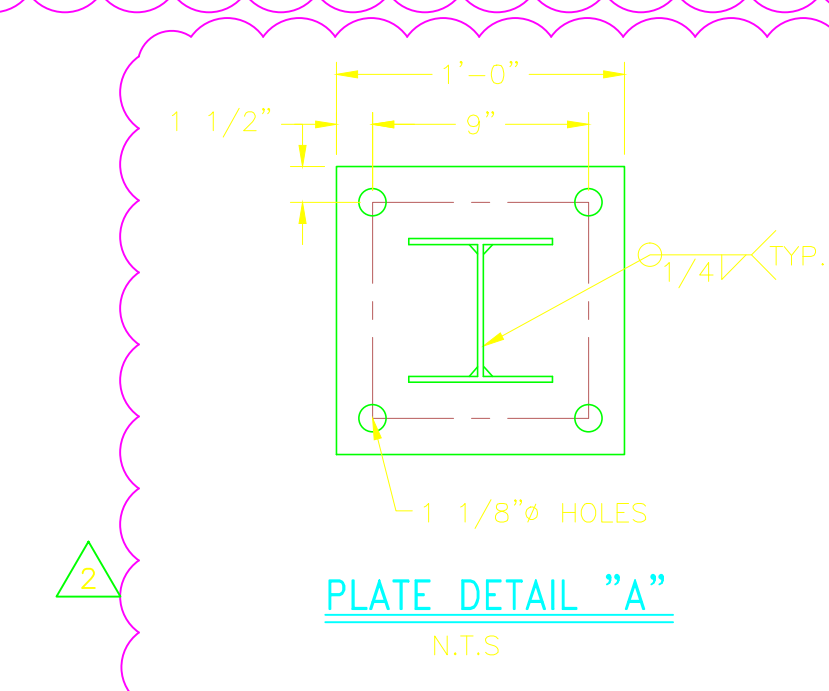


PLATE DETAIL "A"

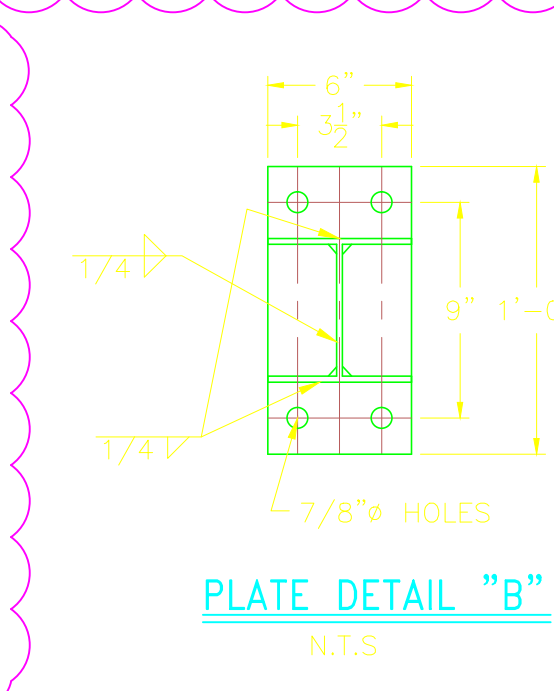


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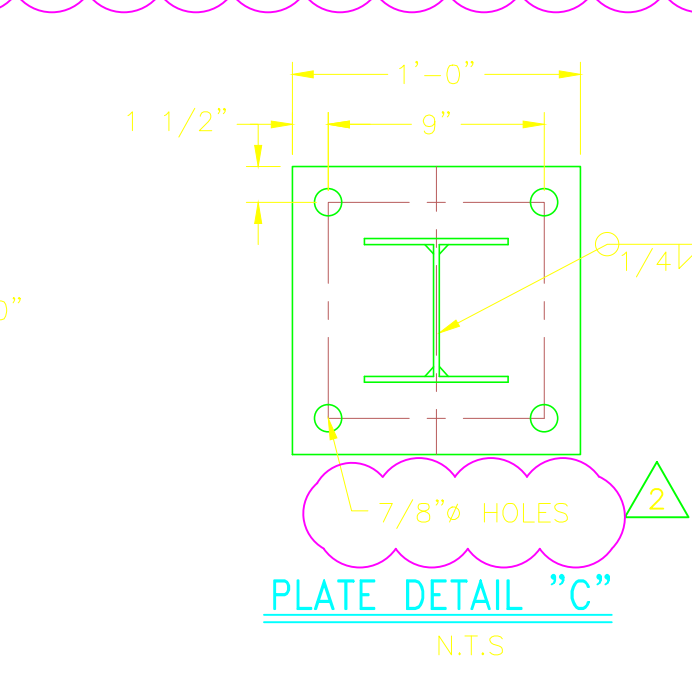


PLATE DETAIL "C"

FIELD TO COORDINATE FIELD/SHOP WELDS WITH SHOP

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
05/12	GR	JT		REVISED AS NOTED
6/11	GR	JT		REVISED PER FIELD CHANGES
9/10	GR	JT		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. MIBPSD03
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 DRAWN BY: G. REGO
 SHEET CHK'D BY: J. MOURATO
 CROSS CHK'D BY: G. REGO
 SCALE: 3/4" = 1'-0"
 APPROVED BY: J. TSKIOURAS
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
 PIPE SUPPORT DETAILS III**

PROJECT NO.
 1289-74283
 Sht. 175A of 312
IB-SD-3
 Acc # 1289-74581A

ABBREVIATIONS

Table of abbreviations for HVAC systems, including terms like ACH, AD, AFF, AFG, AL, ALT, ANSI, AP, ASHRAE, ASME, ATC, AUTO, AUX, AV, AVG, BAS, BDD, BHP, BLDG, BOD, BOT, BOS, B TO B, BTU, BTUH, C, CCW, CENT, CFM, CI, CL, CLG, CLR, COL, CONC, CONN, CONT, C TO C, CTR, CU, CU FT, CV, CW, DB, DBT, dB, DIA, DIFF, DISCH, DN, DWG, DX, EA, EAT, ELEC, ELEV, EMERG, ENT, EOD, ESP, EWT, EXH, EXP, F, FBV, FC, FD, FLA, FLG, FLR, FOB, FOT, FPM, FRP, FS, GA, GAL, GALV, GD, GPM, GS, H-O, H-O-A, HP, HTG, HTR, HV, HVAC, HZ, ID, INSTR, INV, IWG, KW, LAB, LAT, LRA, LVG, LVR, LWT, M, MATL, MAX, MBH, MCC, MECH, MFR, MIN, MISC, MTD, NC, NO, NOM, NPT, NTS, OA, OBD, OC, OD, OED, OPP, OSHA, PBD, PLC, POD, PRV, PSI, PSIA, PSIG, PVC, RA, RED, RH, RIS, RM, RPM, SA, SCH, SHT, SMACNA, SP, SPEC, SPRG, SQ, SS, SST, TD, TEMP, THK, TOD, TOP, TOS, TSP, TVX, U, UL, V, VAC, VAV, VEL, W/, WC, WB, WBT, WG, WMS, W/O, @, #, &

EQUIPMENT

Table of equipment symbols and descriptions, including ACC, ACU, AHU, B, BFU, CH, CC, CWP, CGP, CRU, CT, CTP, CWP, D, DH, EBB, ECH, EDH, EF, ET, EUH, ERV, FTR, HGP, HC, HWP, HX, MAU, PPU, RF, RTU, TF, SF, UH, WCC, WSHF

GRILLES/REGISTERS/DIFFUSERS

Table of grille/register/diffuser symbols and descriptions, including DG, ED, EG, ER, RD, RG, RR, SD, SG, SR, TG, WMS

SYMBOLS

DUCT WORK

Table of ductwork symbols and descriptions, including AD, AP, DIRECTION OF FLOW, DUCT SECTION NEGATIVE, DUCT SECTION POSITIVE, DUCT SIZE FIRST NUMBER SIDE SHOWN, DUCT LINING

DAMPERS

Table of damper symbols and descriptions, including BDD, FD, AD, VD, EOD, PNU, SDO

TERMINAL DEVICES

Table of terminal device symbols and descriptions, including BOTTOM MOUNTED EXHAUST/RETURN, BOTTOM MOUNTED SUPPLY, DOOR GRILLE, SIDE MOUNTED EXHAUST/RETURN, SIDE MOUNTED SUPPLY

Transfer grille and under cut door symbols

Variable air volume box and fan power terminal symbols

INSTRUMENTS

Table of instrument symbols and descriptions, including ATC-1, ENTHALPY SENSOR, FLOW SENSOR, HIGH LIMIT THERMOSTAT, HUMIDISTAT, HUMIDITY SENSOR, MOTOR, LOW LIMIT THERMOSTAT, OUTSIDE TEMPERATURE SENSOR, RETURN TEMPERATURE SENSOR, TEMPERATURE SENSOR/THERMOSTAT, SMOKE SENSOR/DETECTOR, HEAT(THERMAL) DETECTOR, STATIC PRESSURE SENSOR, SUPPLY TEMPERATURE SENSOR, MIXED AIR TEMPERATURE SENSOR, DISCHARGE AIR TEMPERATURE SENSOR, ON/OFF SWITCH, EMERGENCY BOILER SHUTDOWN SWITCH, SMOKE DETECTOR TEST STATION, PRESSURE GAGE AND COCK, DIFFERENTIAL PRESSURE SENSOR, PRESSURE SWITCH, THERMOMETER

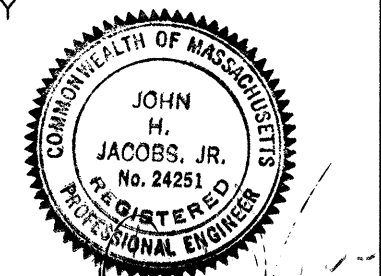
PIPING SYMBOLS

Table of piping symbols and descriptions, including ALIGNMENT GUIDE, ANCHOR, AUTOMATIC AIR VENT, CAP, ELBOW DOWN, ELBOW UP, FLEXIBLE CONNECTION, HOSE END CONNECTION, PIPE CROSSING

NOTES:

- 1. HVAC EQUIPMENT LOCATIONS, DUCTWORK, AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER...
2. EQUIPMENT PAD SIZES ARE APPROXIMATE...
3. PROVIDE DIELECTRIC COUPLINGS AT PIPING CONNECTIONS...
4. PIPE HANGERS SUPPORTING COPPER PIPING...
5. LEAD-CONTAINING SOLDER IS NOT PERMITTED...
6. HVAC PIPING AND DUCTWORK DRAWINGS DO NOT SHOW ALL DRAINS, VENTS, OFFSETS AND FITTINGS...
7. SMALL PIPING IS SHOWN APPROXIMATELY TO SCALE...
8. ALL PIPING PENETRATING OR IN CONTACT WITH CONCRETE, MASONRY, OR ANY OTHER CORROSIVE MATERIAL...
9. UNLESS SPECIFIC REQUIREMENTS ARE SHOWN...
10. PROVIDE RATED FIRE DAMPERS AT ALL DUCT PENETRATIONS...
11. PROVIDE FIRE RATED WALL PIPE PENETRATIONS...
12. ALL DUCTWORK SHALL BE INSTALLED PARALLEL OR PERPENDICULAR...
13. ALL PIPING SHALL BE INSTALLED PARALLEL OR PERPENDICULAR...
14. NOT ALL SUPPORTS ARE SHOWN...
15. WHERE THE WORK IS A MODIFICATION OF EXISTING SYSTEMS...

Table of valve symbols and descriptions, including CHECK, GLOBE, FLOW BALANCING SHUTOFF, NEEDLE, PLUG, REDUCER CONCENTRIC, REDUCER ECCENTRIC FLAT ON CROWN, REDUCER ECCENTRIC FLAT ON INVERT, PRESSURE CONTROL SELF CONTAINED VALVE BODY MAY VARY, STRAINER, U-1 STRAINER W/BLOW OFF, PRESSURE DIFFERENTIAL CONTROL EXTERNAL TAPS VALVE BODY MAY VARY, PRESSURE DIFFERENTIAL CONTROL SELF CONTAINED VALVE BODY MAY VARY, RELIEF, SOLENOID, SOLENOID THREE WAY, THERMAL EXPANSION VALVE, THREE WAY BALL, THREE WAY MOTOR OPERATED DIVERTING CONTROL VALVE (BODY MAY VARY), THREE WAY MOTOR OPERATED MIXING CONTROL VALVE (BODY MAY VARY), TWO WAY MOTOR OPERATED CONTROL VALVE BODY MAY VARY, ANGLE, BALL, BUTTERFLY, DIA. VALVE, CLAMPED DIA. VALVE, GATE



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Revision table with columns: REV. NO., DATE, DRWN, CHKD, REMARKS

Project information table including CADD FILE NO., DESIGNED BY, DRAWN BY, SHEET CHK'D BY, CROSS CHK'D BY, SCALE, APPROVED BY, DATE

CDM logo and contact information: Camp Dresser & McKee Inc., One Cambridge Place, 50 Hampshire Street, Cambridge, MA 02139

Project title: UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT No. 3-0-17512-0033 PROJECT No. CWSRF - 3197 WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

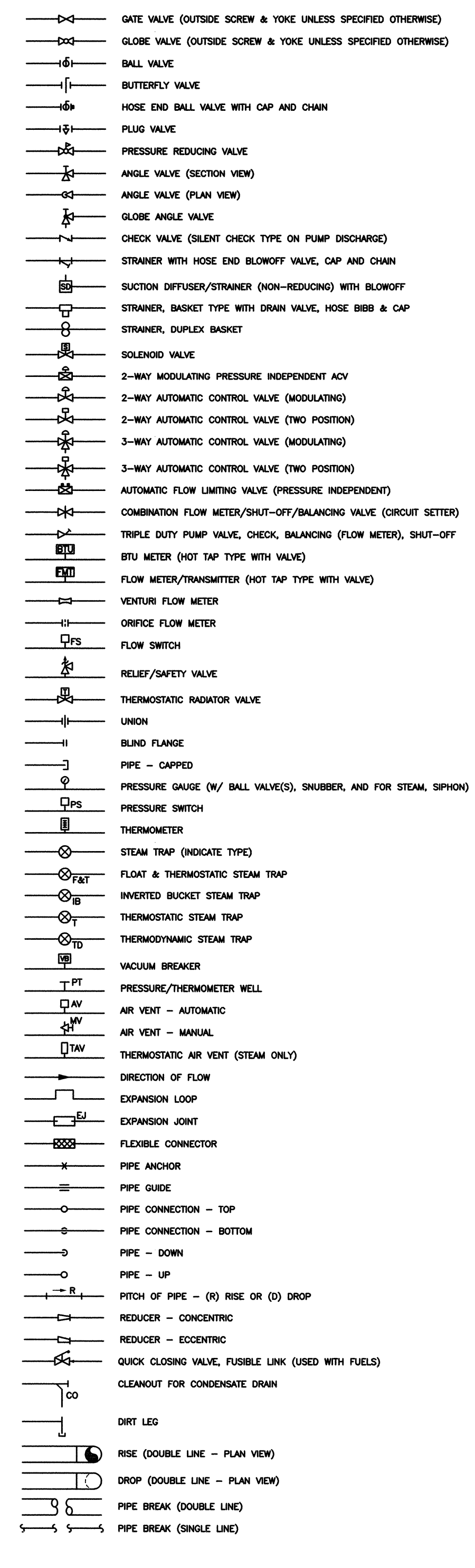
HVAC LEGEND, SYMBOLS AND ABBREVIATIONS

PROJECT NO. 1289-74283 Sht. 176 of 312 GD-H-1 Acc # 1289-74582

ABBREVIATIONS

Table of abbreviations for general, boiler, chilled water, cooling tower, ductwork, equipment, piping, and hot water. Includes terms like COMPRESSED AIR, BOILER, CHILLED WATER, COOLING TOWER, DUCTWORK, EQUIPMENT, PIPING, and HOT WATER.

PIPING LEGEND



DUCTWORK

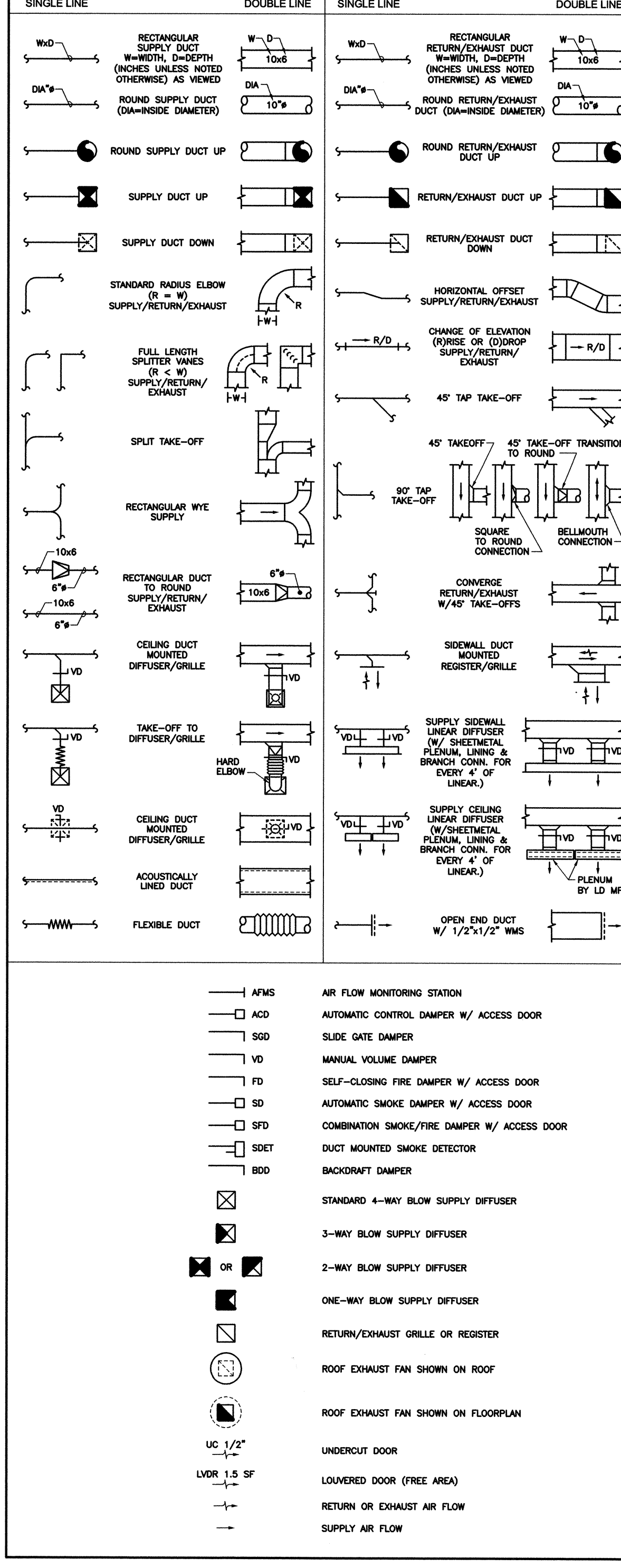
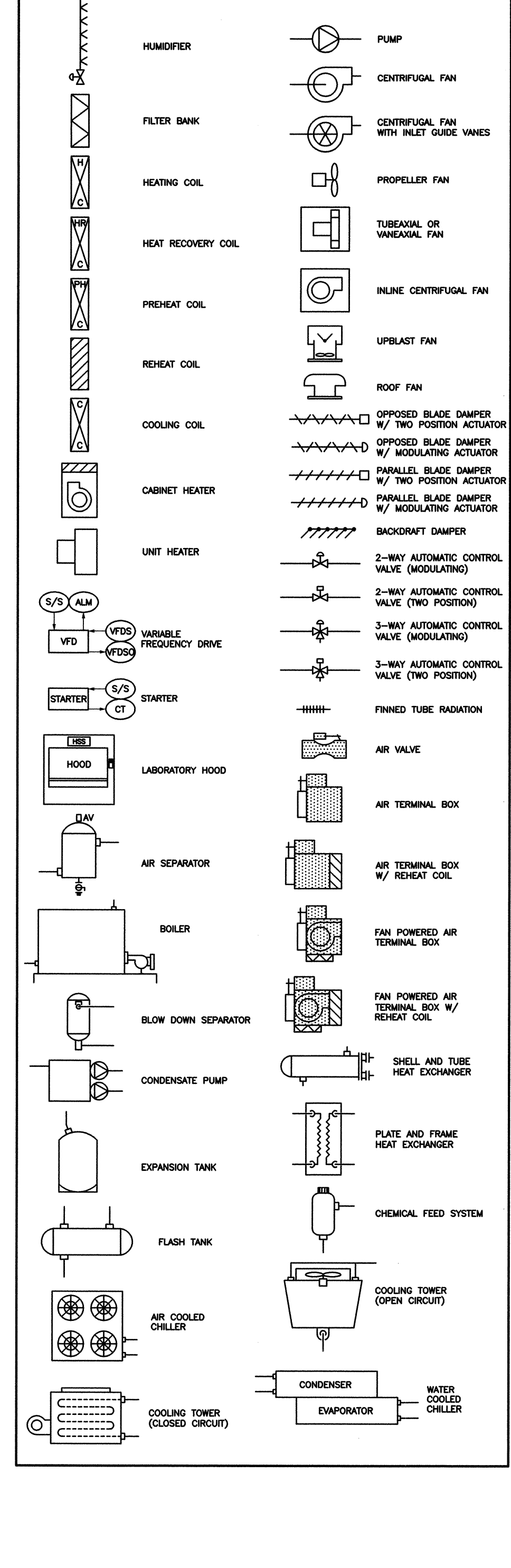
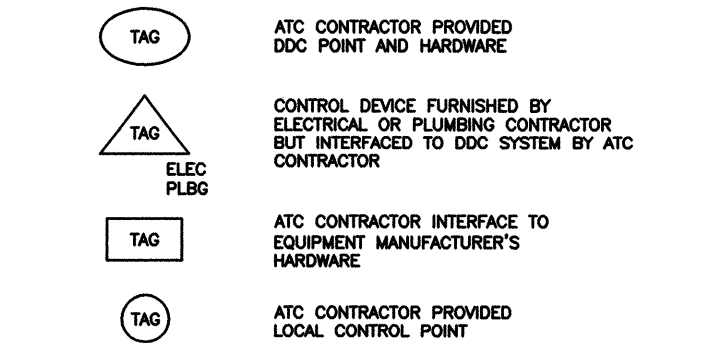


DIAGRAM EQUIPMENT SYMBOLS



CONTROL POINT DESCRIPTOR LEGEND



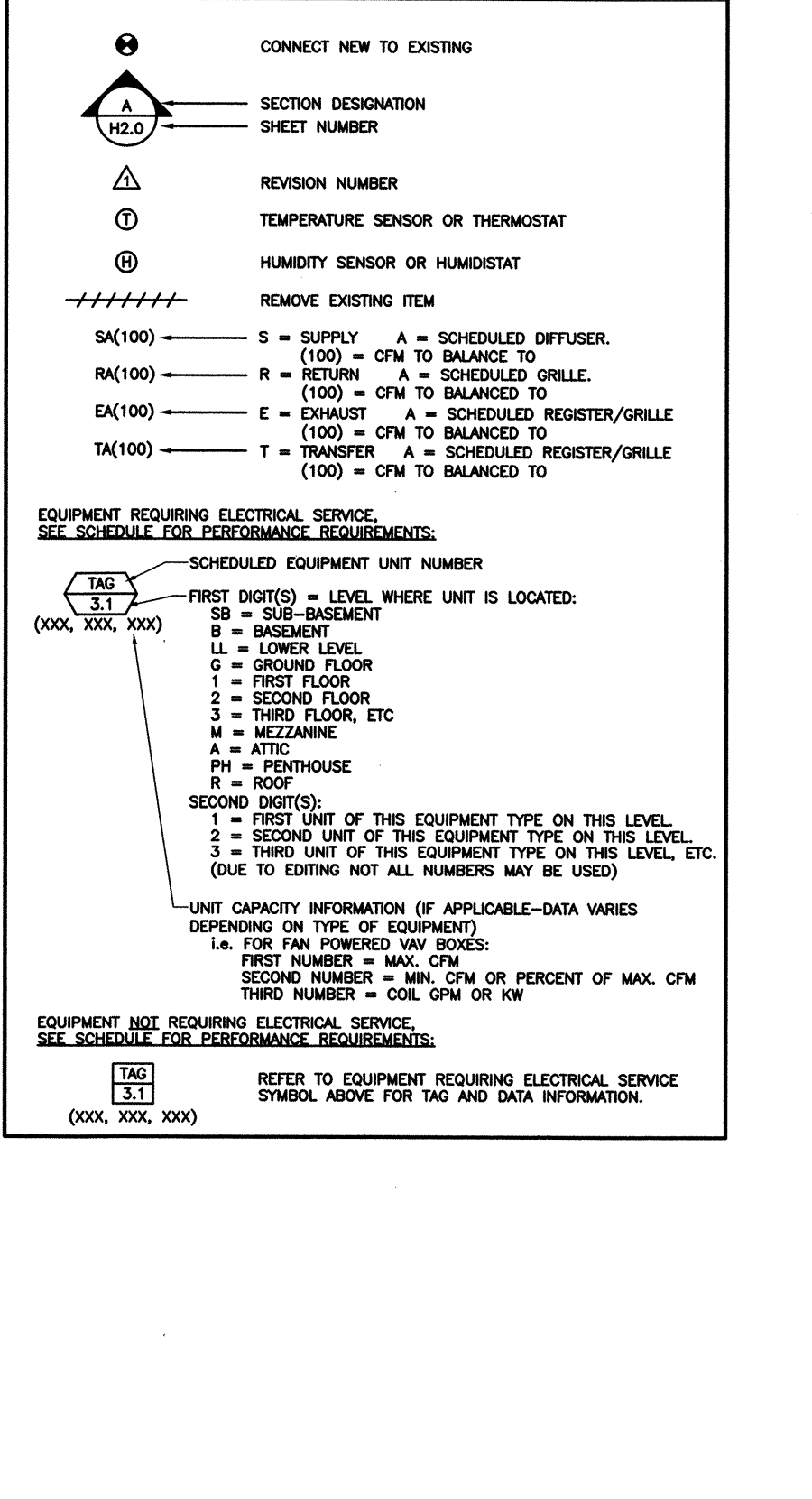
CONTROL ABBREVIATIONS

Table of control abbreviations, listing symbols and their corresponding descriptions for various control points and equipment, such as AUTOMATIC CONTROL DAMPER, DIRECT DIGITAL CONTROL, and various sensors and actuators.

PIPING ABBREVIATIONS

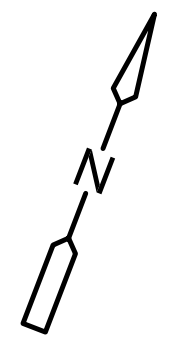
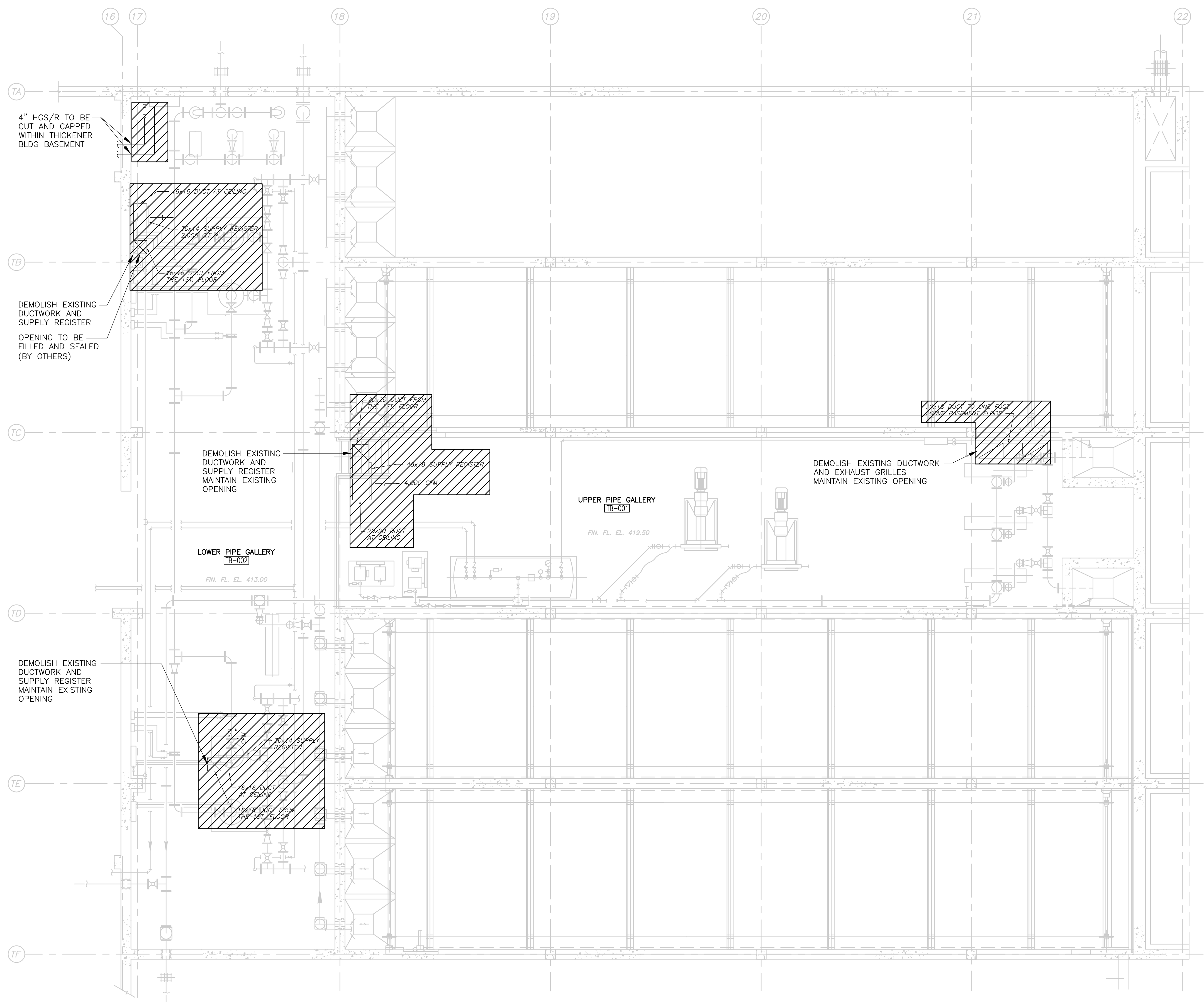
Table of piping abbreviations, listing symbols and their corresponding descriptions for various piping types and materials, such as COMPRESSED AIR, ATMOSPHERIC VENT, and various types of valves and fittings.

CALLOUT SYMBOLS



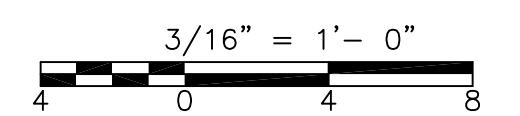
CONSTRUCTION DOCUMENTS
JULY 2010

Project information block containing CADD file name (GD-H-1), design and drawing details, client information (CDM, RDK ENGINEERS), project name (UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT), and sheet information (ADMIN BUILDING HVAC LEGEND, NOTES AND ABBREVIATIONS, PROJECT NO. 1289-74283).



THICKENER BUILDING - BASEMENT

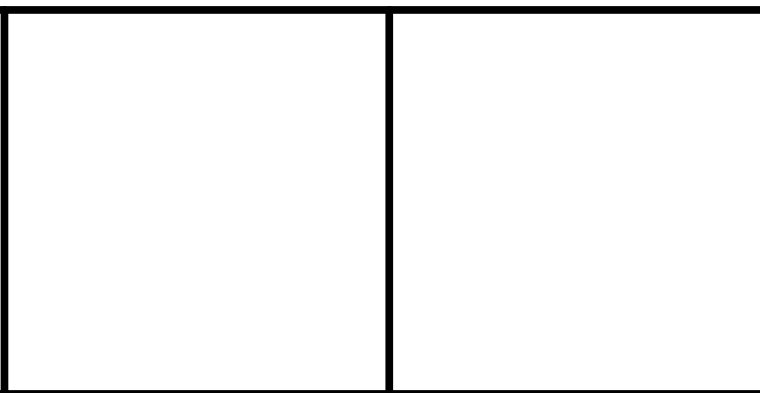
PLAN
3/16" = 1'-0"



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 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: JULY 2010



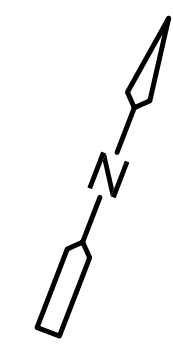
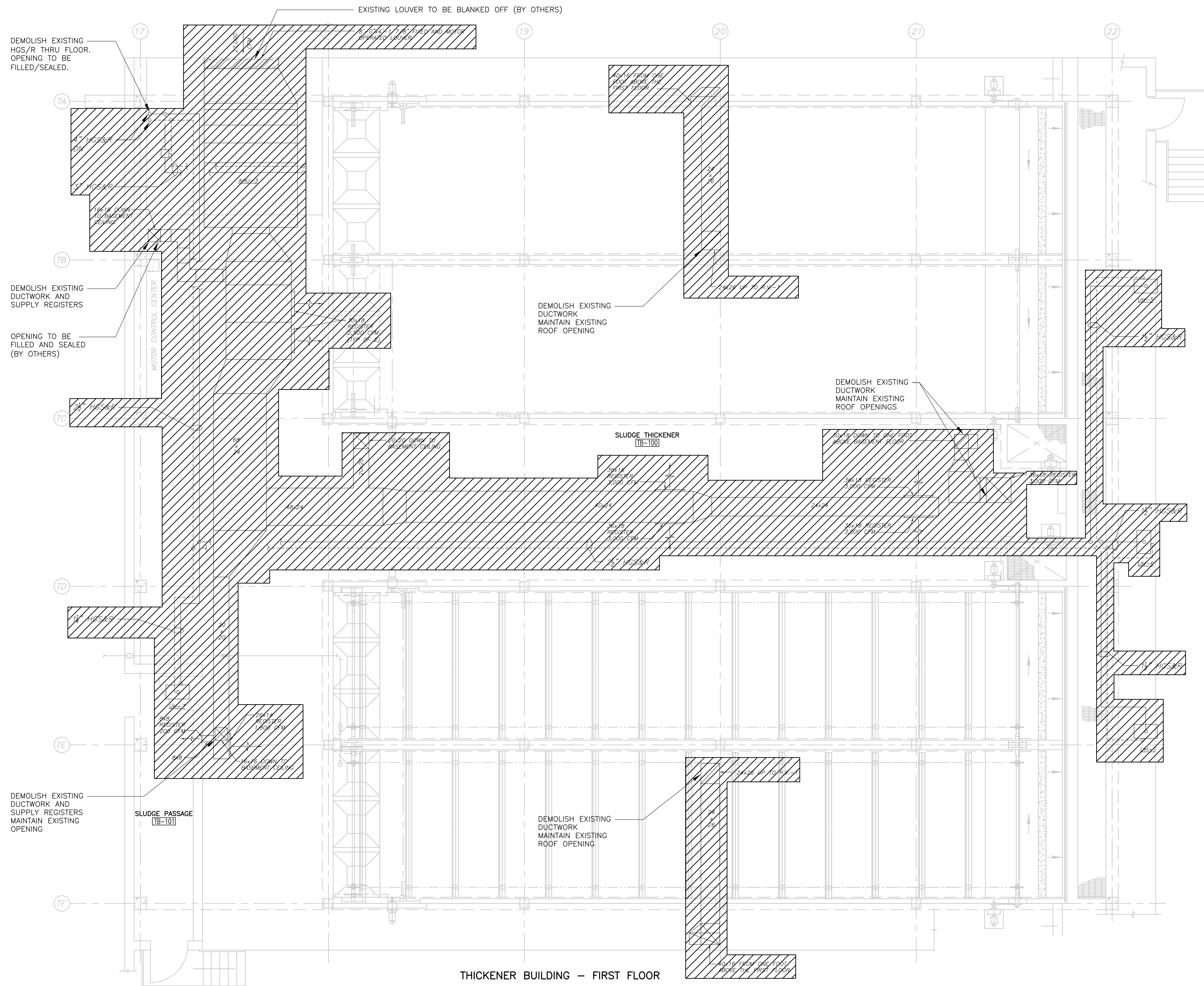
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

THICKENER BUILDING
 BASEMENT PLAN
 DEMOLITION

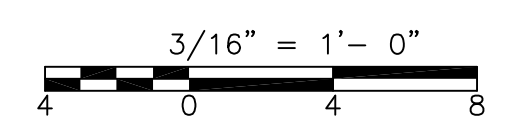
PROJECT NO. 1289-74283
 Sht. 177 of 312
 TB-H-1
 Acc # 1289-74583

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- NOTES:
 1. DEMOLISH ALL EXISTING DUCTWORK, PIPING, HANGERS AND ASSOCIATED CONTROLS.

THICKENER BUILDING - FIRST FLOOR
 PLAN
 3/16" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HTBPL200
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: JULY 2010

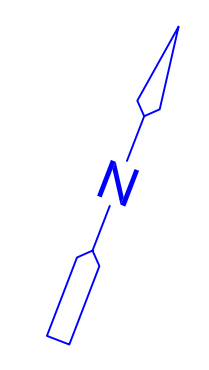
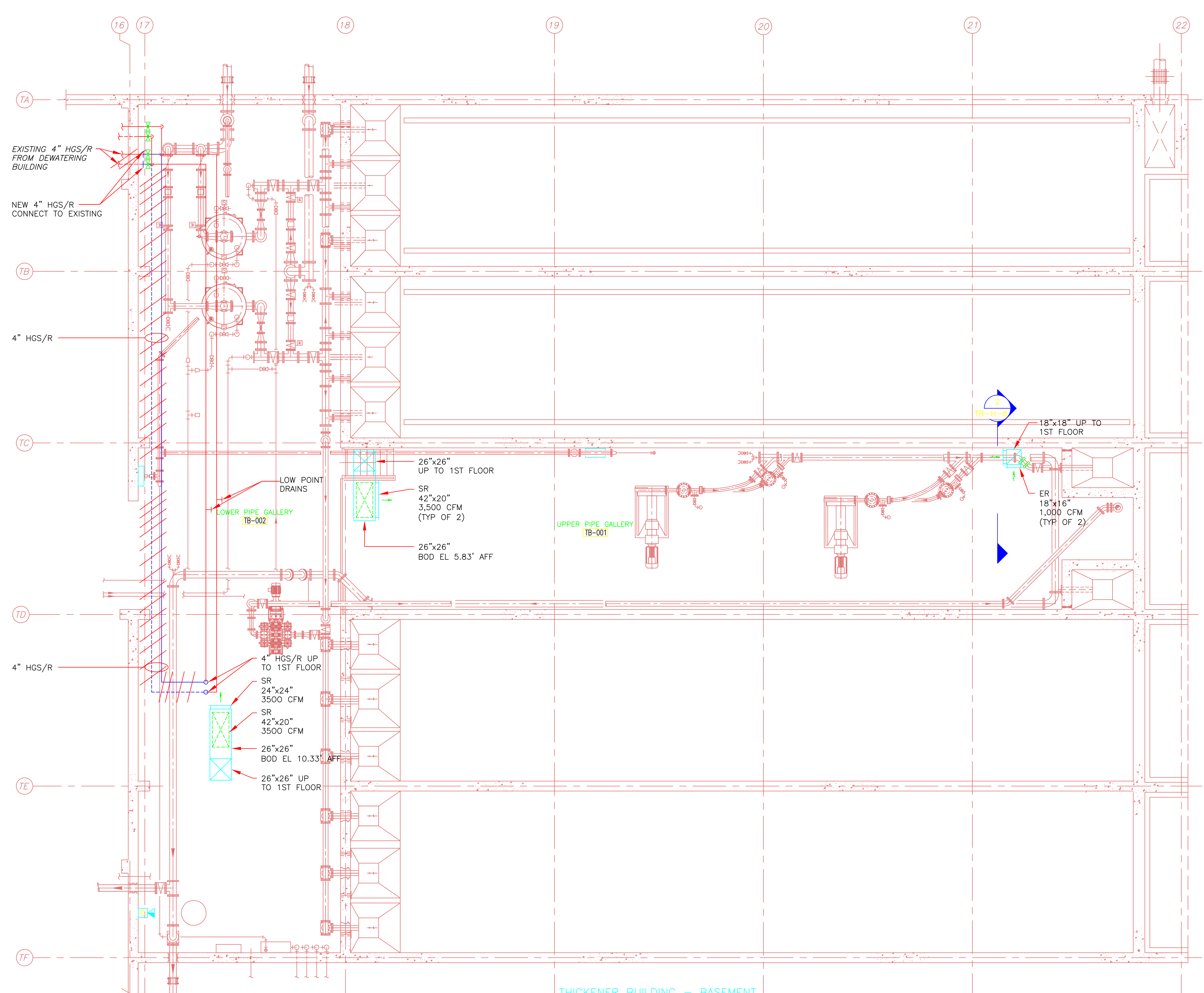
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 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

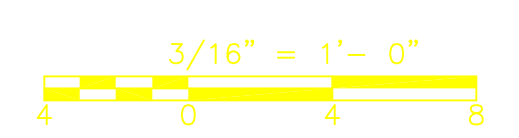
**THICKENER BUILDING
 FIRST FLOOR PLAN
 DEMOLITION**

PROJECT NO.
 1289-74283
 Sht. 178 of 312
TB-H-2
 Acc # 1289-74584

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WB-H-3 AS-BUILT.DWG Saved by: NAMBROSINO On: 24-Mar-14 Plotted on: 24-Mar-14 1:59 PM



THICKENER BUILDING - BASEMENT
PLAN
 3/16" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HTBPL300
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 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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CAM HVAC & CONSTRUCTION, INC.
 REVISED AS-BUILT (3/8/2013)

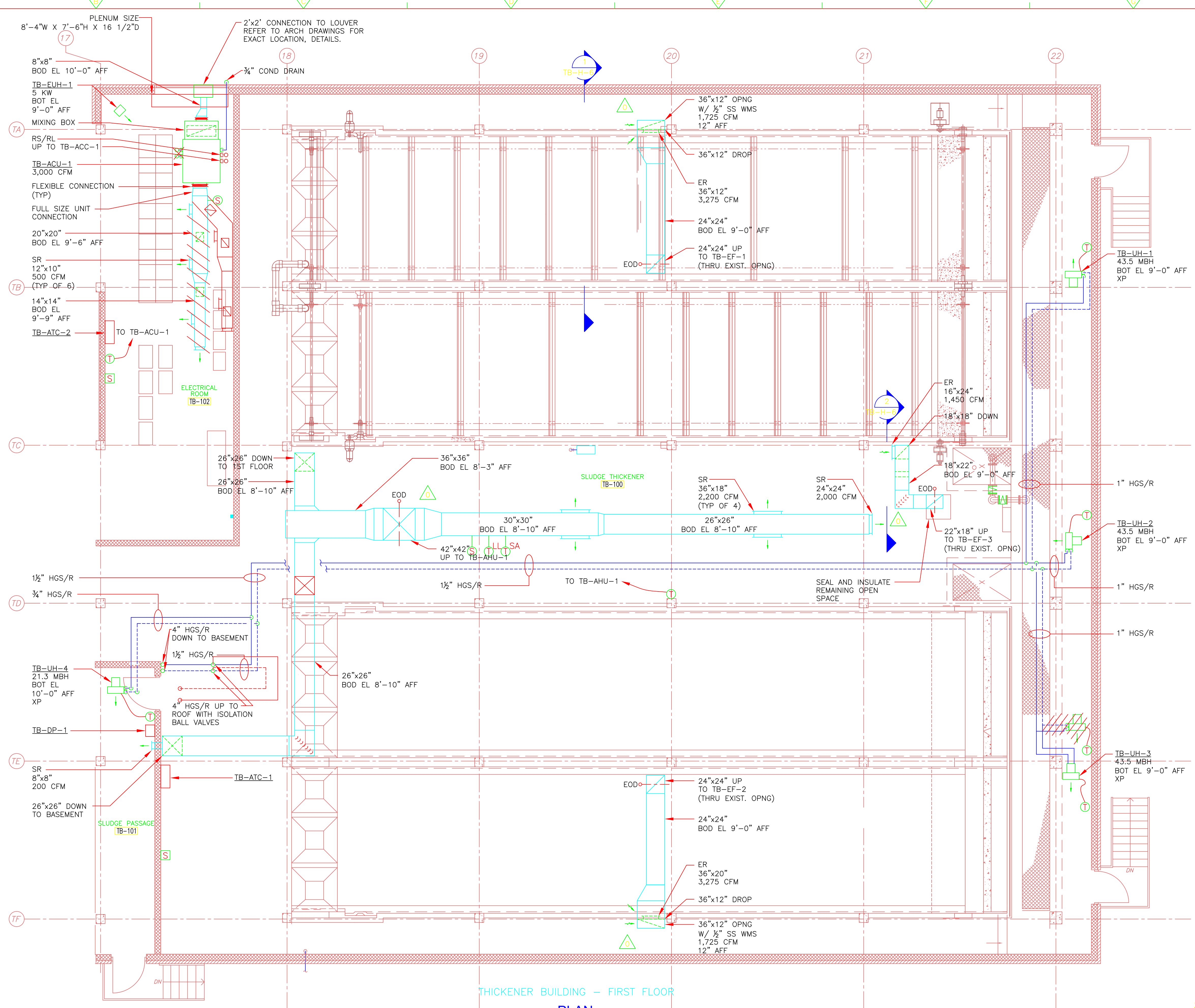
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 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO.
 1289-74283
 Sht. 179 of 312
TB-H-3
 Acc # 1289-74585

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE WWTF - MECH AS-BUILT\DWG\TB-H-4 AS-BUILT.DWG Saved by: NAMBROSINO On: 24-Mar-14 Plotted on: 24-Mar-14 2:03 PM



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REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3

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 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 REVISED AS-BUILT (3/8/2013)

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

THICKENER BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS

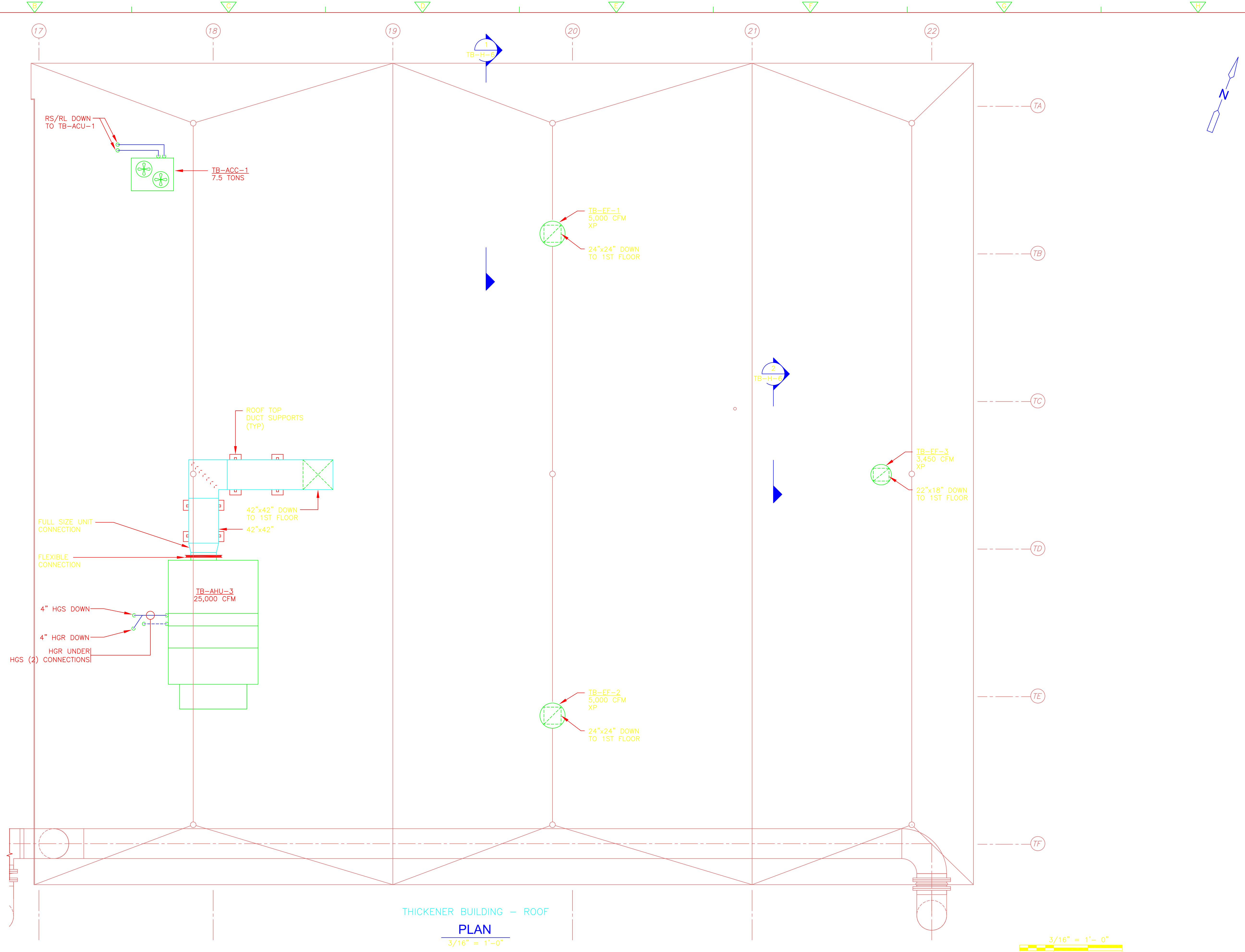
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Sht. 180 of 312

TB-H-4

Acc # 1289-74566

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\MECH AS-BUILT\DWG TB-H-5 AS-BUILT.DWG Saved by: NAMBROSINO On: 24-Mar-14 Plotted on: 24-Mar-14 2:05 PM



THICKENER BUILDING - ROOF
PLAN
3/16" = 1'-0"

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HTBPL500
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
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CAM HVAC & CONSTRUCTION, INC.
 AS-BUILT (3/5/2013)

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

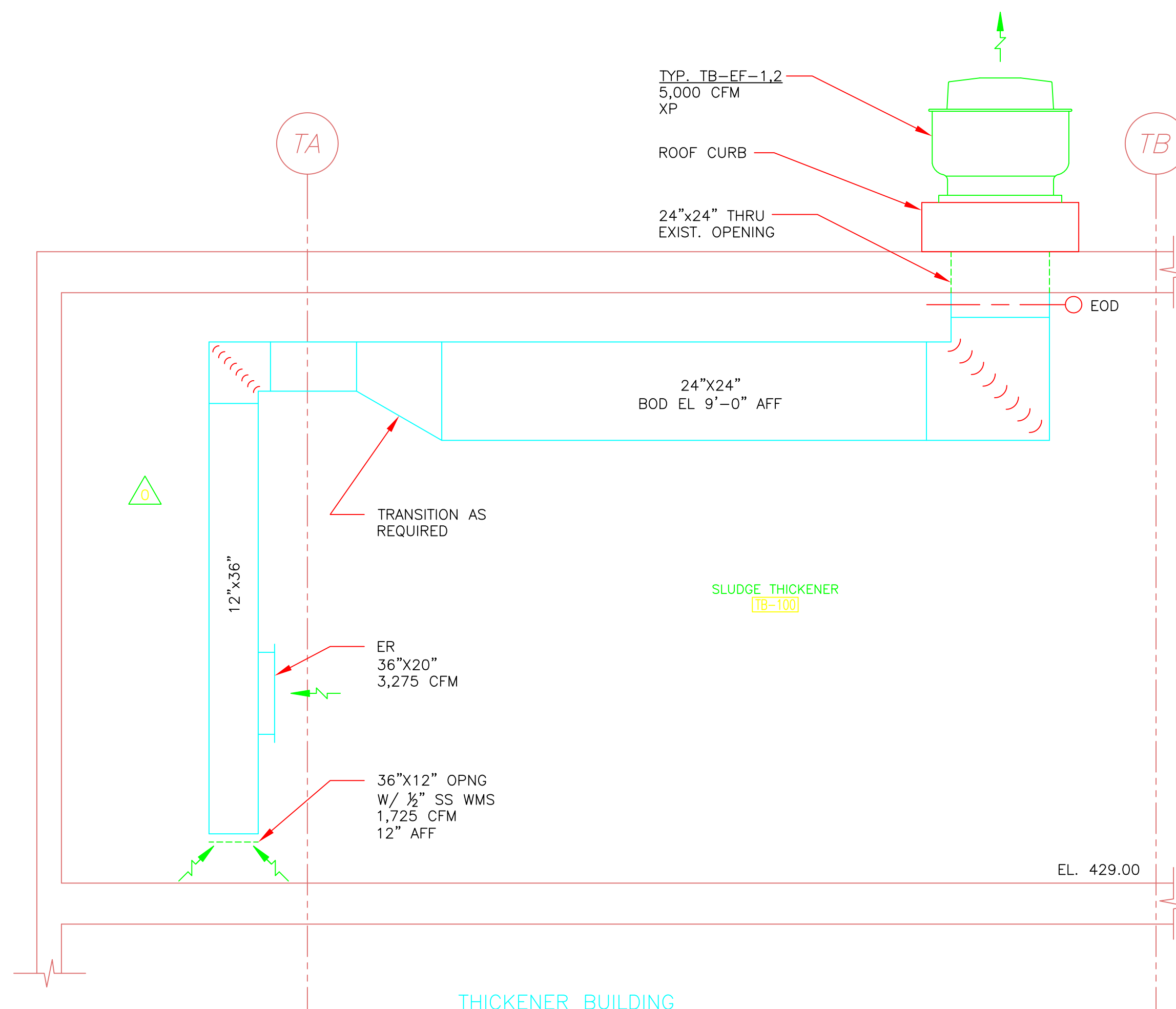
THICKENER BUILDING
 ROOF PLAN
 IMPROVEMENTS

PROJECT NO.
1289-74283

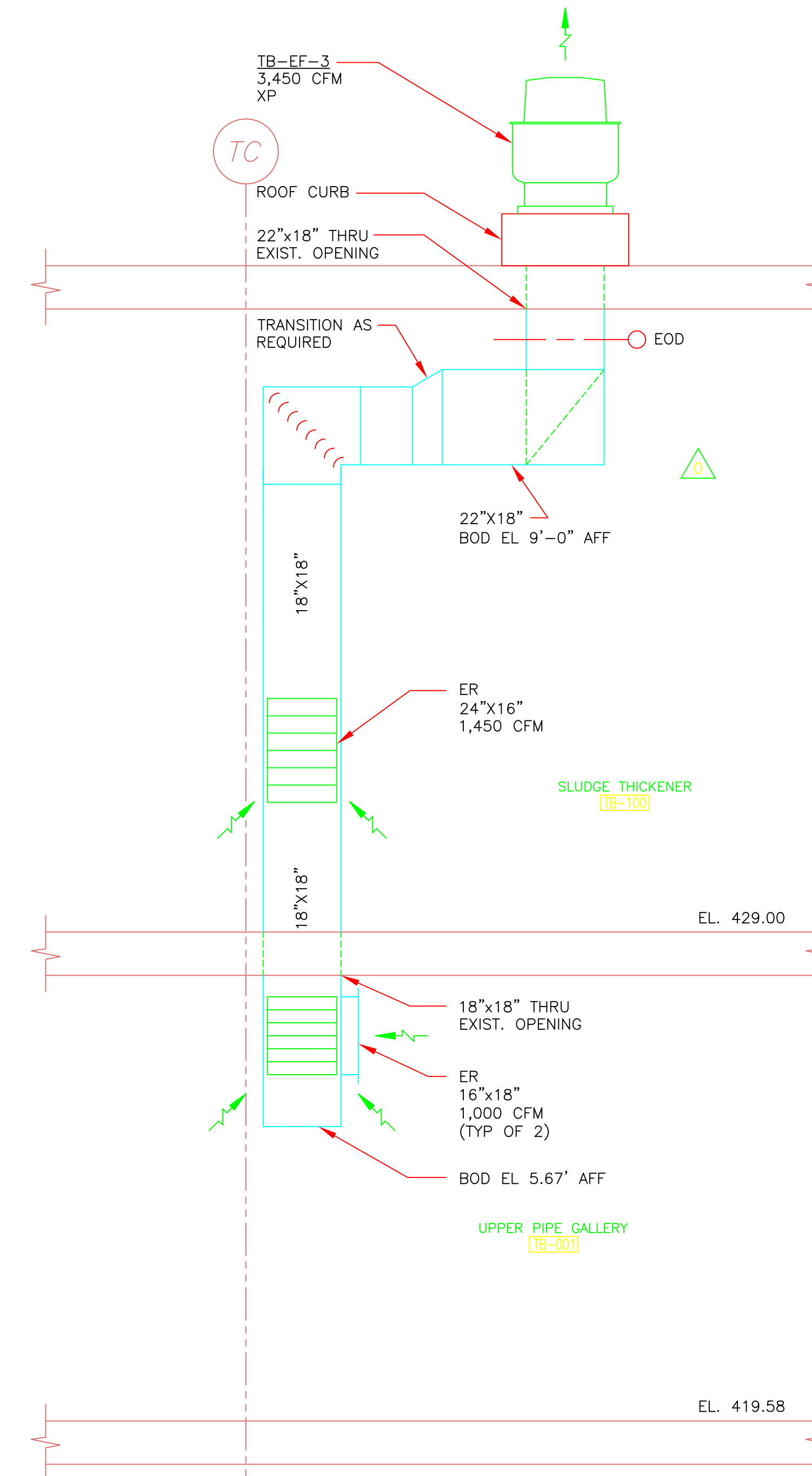
Sht. 181 of 312

Acc # 1289-74587

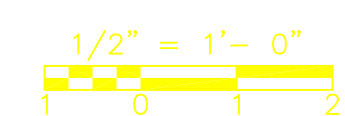
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WB-H-6 AS-BUILT.DWG Saved By: NAMBROSINO On: 24-Mar-14 Plotted on: 24-Mar-14 2:06 PM



THICKENER BUILDING
SECTION 1
1/2" = 1'-0" TB-H-4



THICKENER BUILDING
SECTION 2
1/2" = 1'-0" TB-H-4



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	KB	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. HTBPL600
 DESIGNED BY: M. MERLI
 DRAWN BY: E. BENTZ
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

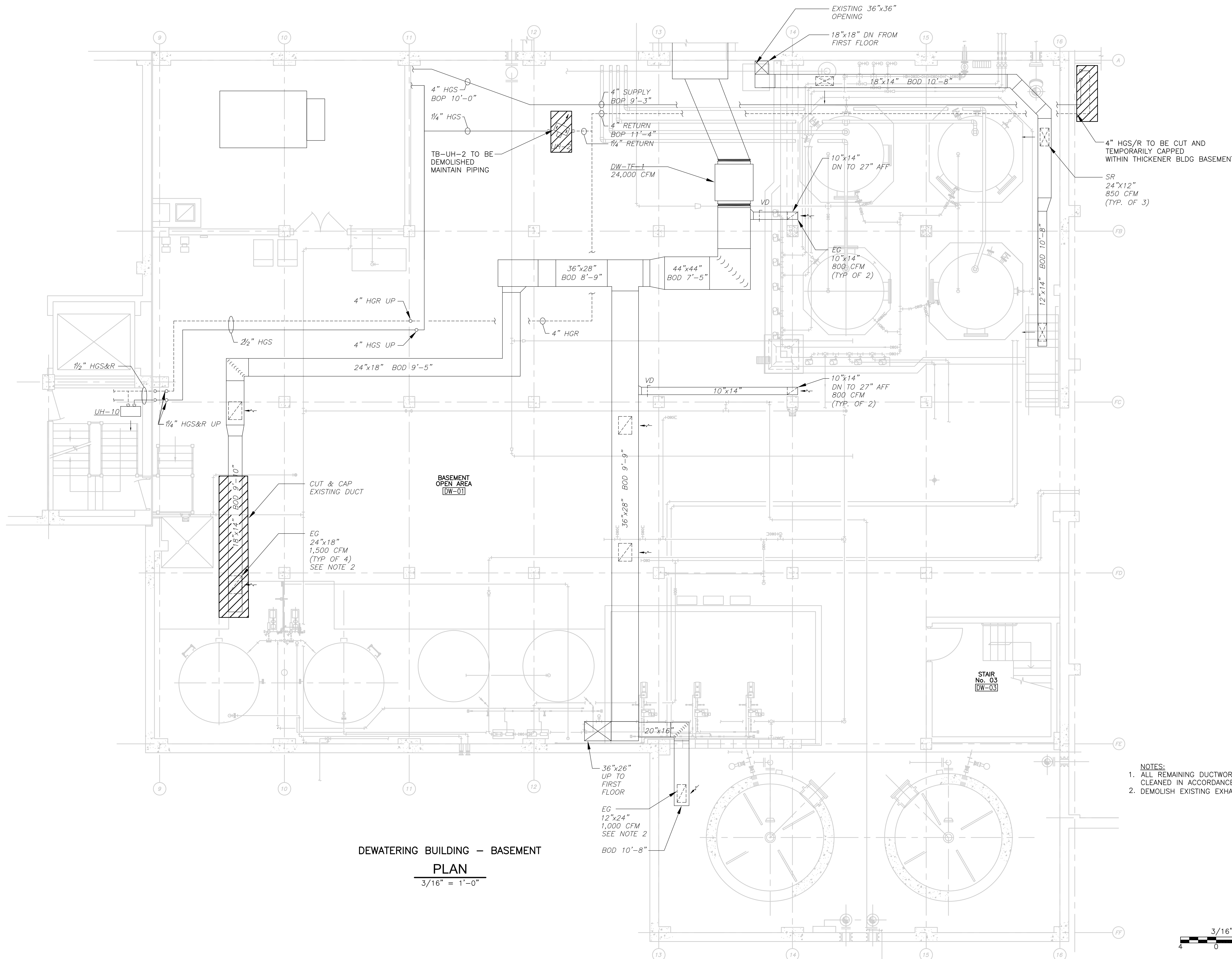
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 SECTIONS
 IMPROVEMENTS**

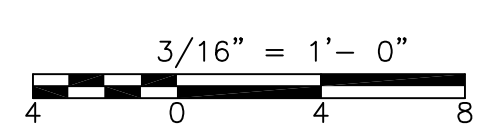
PROJECT NO.
 1289-74283
 Sht. 182 of 312
TB-H-6
 Acc # 1289-74588

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\BENTZEM\0119551\HDWPL100.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 9-Jul-10 8:29 AM



DEWATERING BUILDING - BASEMENT
PLAN
 3/16" = 1'-0"

- NOTES:
1. ALL REMAINING DUCTWORK AND SUPPLY REGISTERS SHALL BE CLEANED IN ACCORDANCE WITH SPECIFICATION SECTION 15890.
 2. DEMOLISH EXISTING EXHAUST GRILLE(S).



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HDWPL100
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 GROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: JULY 2010

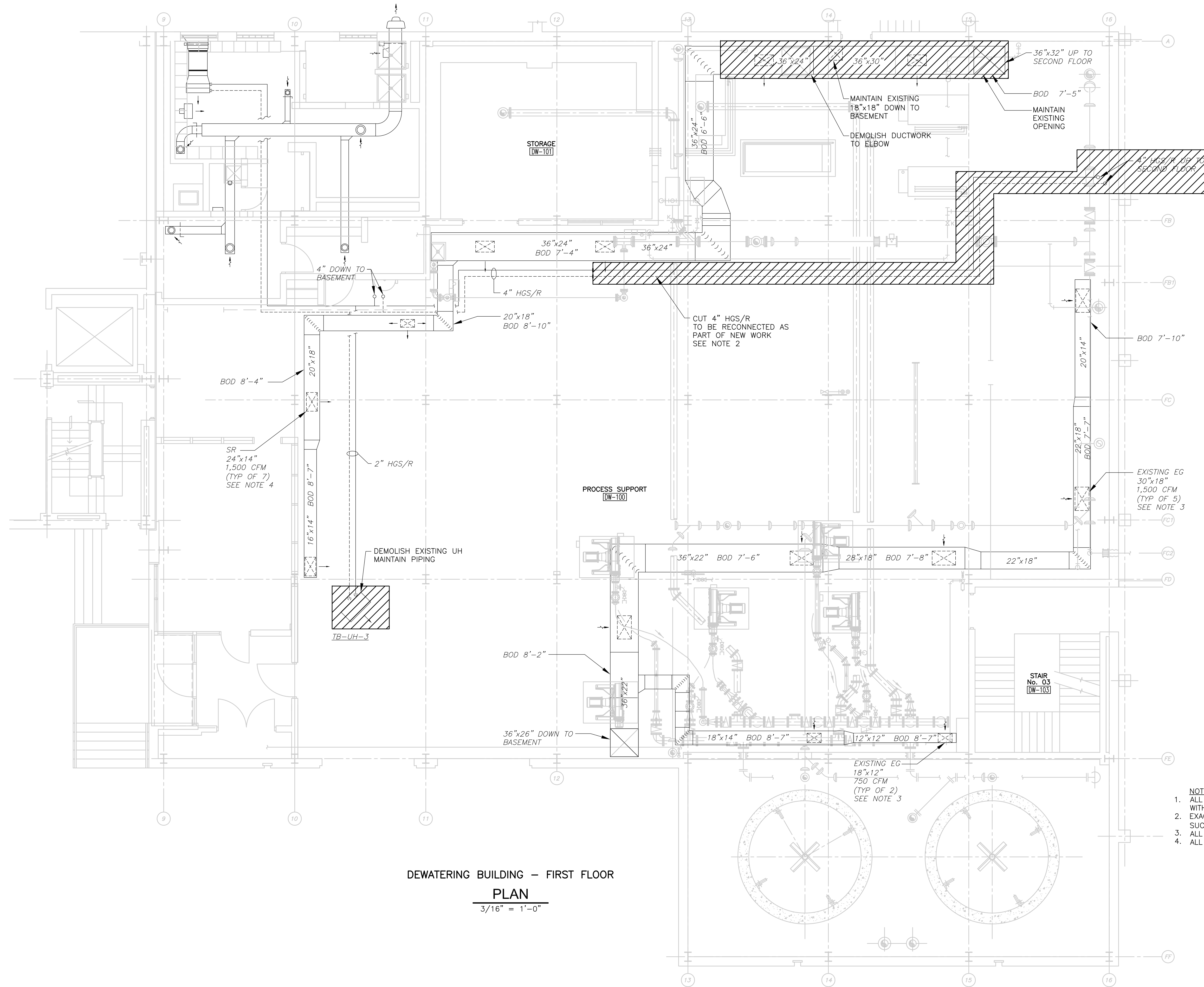
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 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BASEMENT PLAN
 DEMOLITION**

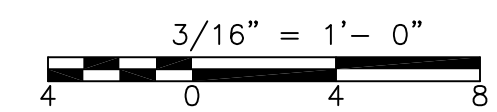
PROJECT NO.
 1289-74283
 Sht. 183 of 312
DW-H-1
 Acc # 1289-74589

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\BENTZEM\0119551\HDWPL200.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 9-Jul-10 8:31 AM



DEWATERING BUILDING - FIRST FLOOR
PLAN
 3/16" = 1'-0"

- NOTES:
1. ALL REMAINING DUCTWORK SHALL BE CLEANED IN ACCORDANCE WITH SPECIFICATION SECTION 15890.
 2. EXACT LENGTH AND LOCATION OF DEMO SHALL BE COORDINATED, SUCH THAT THE EXISTING HGS/R ARE TO AVOID NEW HATCH ABOVE.
 3. ALL EXISTING EXHAUST GRILLES SHALL BE DEMOLISHED.
 4. ALL EXISTING SUPPLY REGISTERS SHALL BE DEMOLISHED.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	HDWPL200
DESIGNED BY:	M. MERLI
DRAWN BY:	E. BENTZ
SHEET CHK'D BY:	J. JACOBS
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	JULY 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 DEMOLITION**

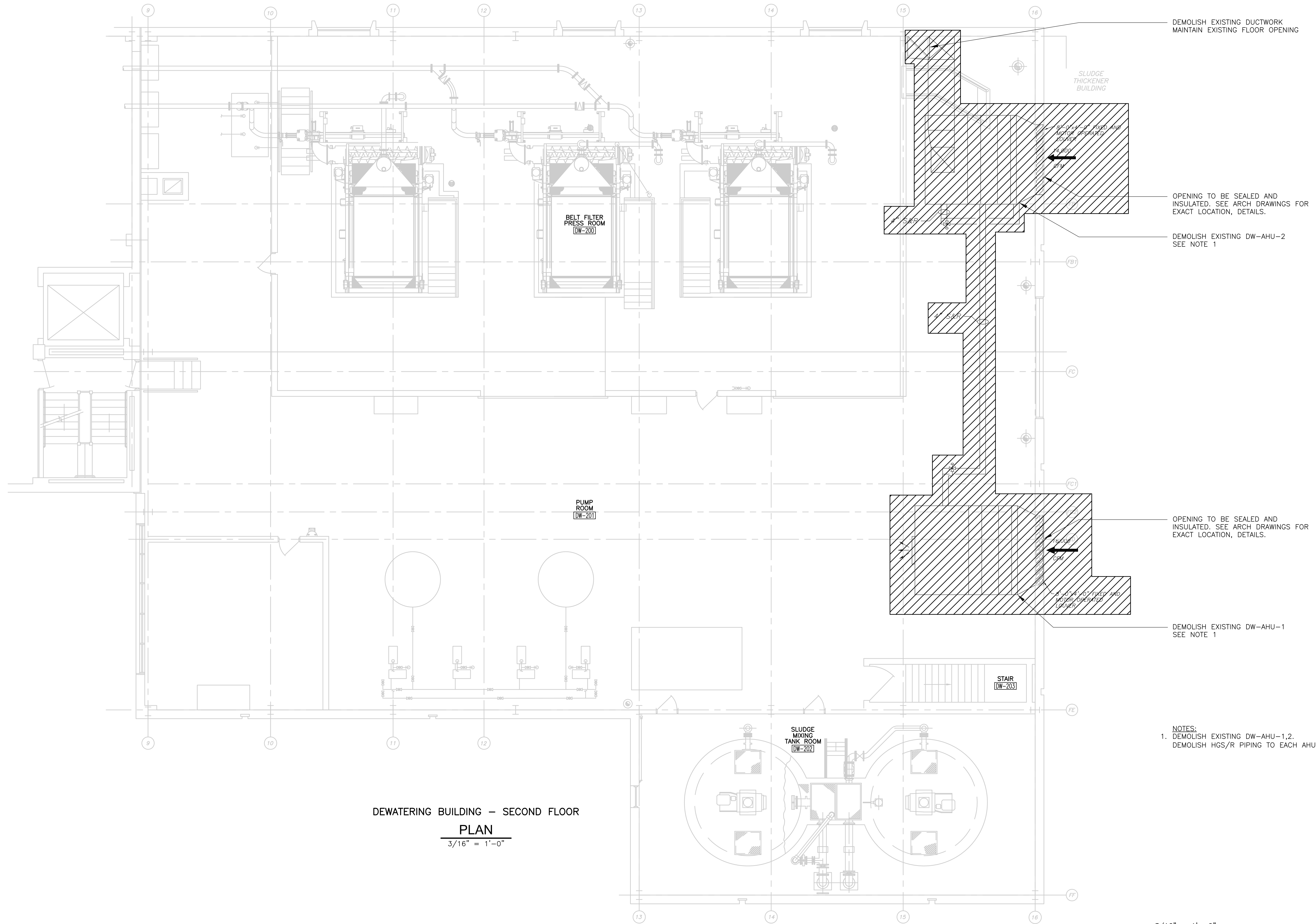
PROJECT NO.
1289-74283

Sht. 184 of 312

DW-H-2

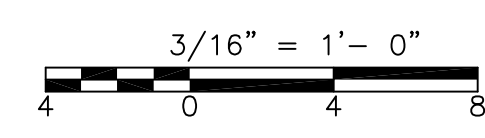
Acc # 1289-74590

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\BENTZEM\0119551\HDWPL300.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 9-Jul-10 8:31 AM



DEWATERING BUILDING - SECOND FLOOR
PLAN
 3/16" = 1'-0"

NOTES:
 1. DEMOLISH EXISTING DW-AHU-1,2.
 DEMOLISH HGS/R PIPING TO EACH AHU.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HDWPL300
 DESIGNED BY: M. MERLI
 DRAWN BY: E. BENTZ
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: JULY 2010

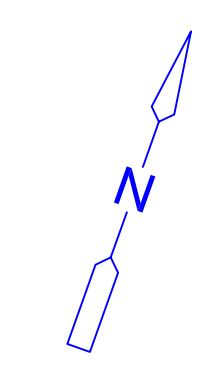
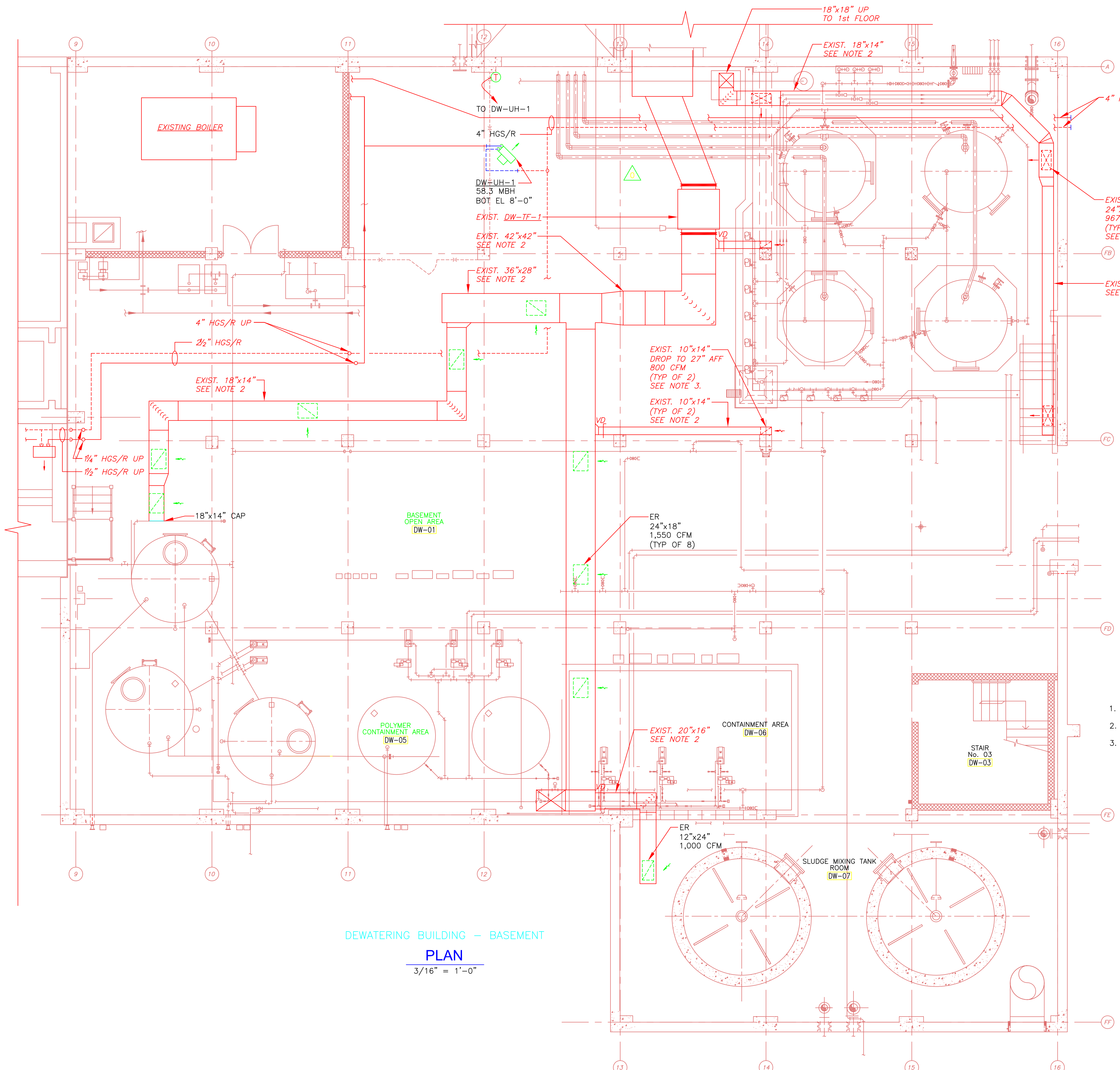
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CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 SECOND FLOOR PLAN
 DEMOLITION**

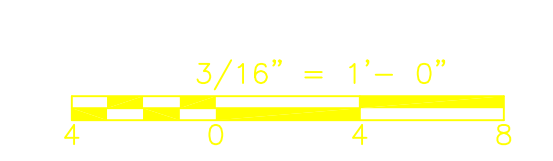
PROJECT NO.
 1289-74283
 Sht. 185 of 312
DW-H-3
 Acc # 1289-74591

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\DW-H-4 AS-BUILT.DWG Saved by: NAMROSINO On: 24-Mar-14 Plotted on: 24-Mar-14 2:10 PM



- NOTES:
- EXISTING SUPPLY REGISTERS SHALL BE CLEANED AND REBALANCED TO SUPPLY 967 CFM EACH.
 - EXISTING DUCTWORK SHALL BE CLEANED IN ACCORDANCE WITH SPECIFICATION SECTION 15890.
 - EXISTING DUCTWORK AND OPENINGS SHALL BE CLEANED AND REBALANCED TO EXHAUST 800 CFM EACH.

DEWATERING BUILDING - BASEMENT
PLAN
 3/16" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	KB	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. HDWPL400
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 BASEMENT PLAN
 IMPROVEMENTS**

PROJECT NO.
 1289-74283

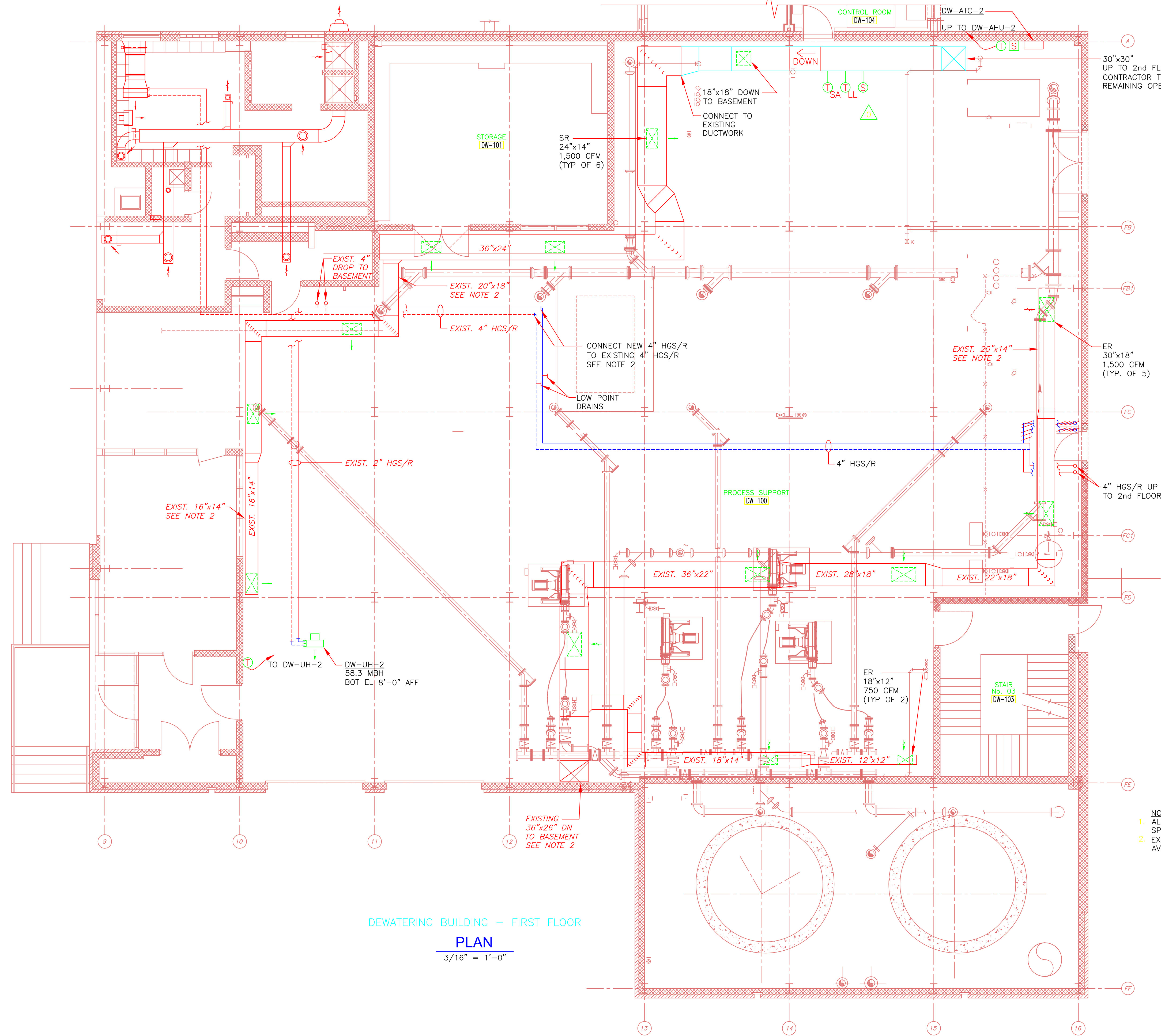
Sht. 186 of 312

DW-H-4

Acc # 1289-74592

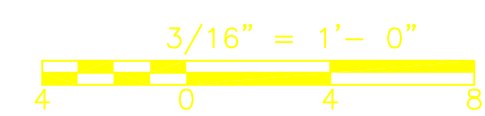
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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE WWTF- MECH AS-BUILTS\07 AS-BUILT DWGS\DW-H-5 AS-BUILT.DWG Saved by: MIKE On: 29-Jun-12 Plotted on: 24-Mar-14 2:18 PM



- NOTES:
1. ALL EXISTING DUCTWORK IS TO BE CLEANED IN ACCORDANCE WITH SPECIFICATION SECTION 15890.
 2. EXACT LOCATION OF NEW HGS/R SHALL BE COORDINATED, SUCH THAT IT AVOIDS CONFLICT WITH NEW HATCH ABOVE.

DEWATERING BUILDING - FIRST FLOOR
PLAN
 3/16" = 1'-0"



RECORD DRAWING

0	9/10	KB	MM	REVISED PER ADDENDUM NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HDWPL500
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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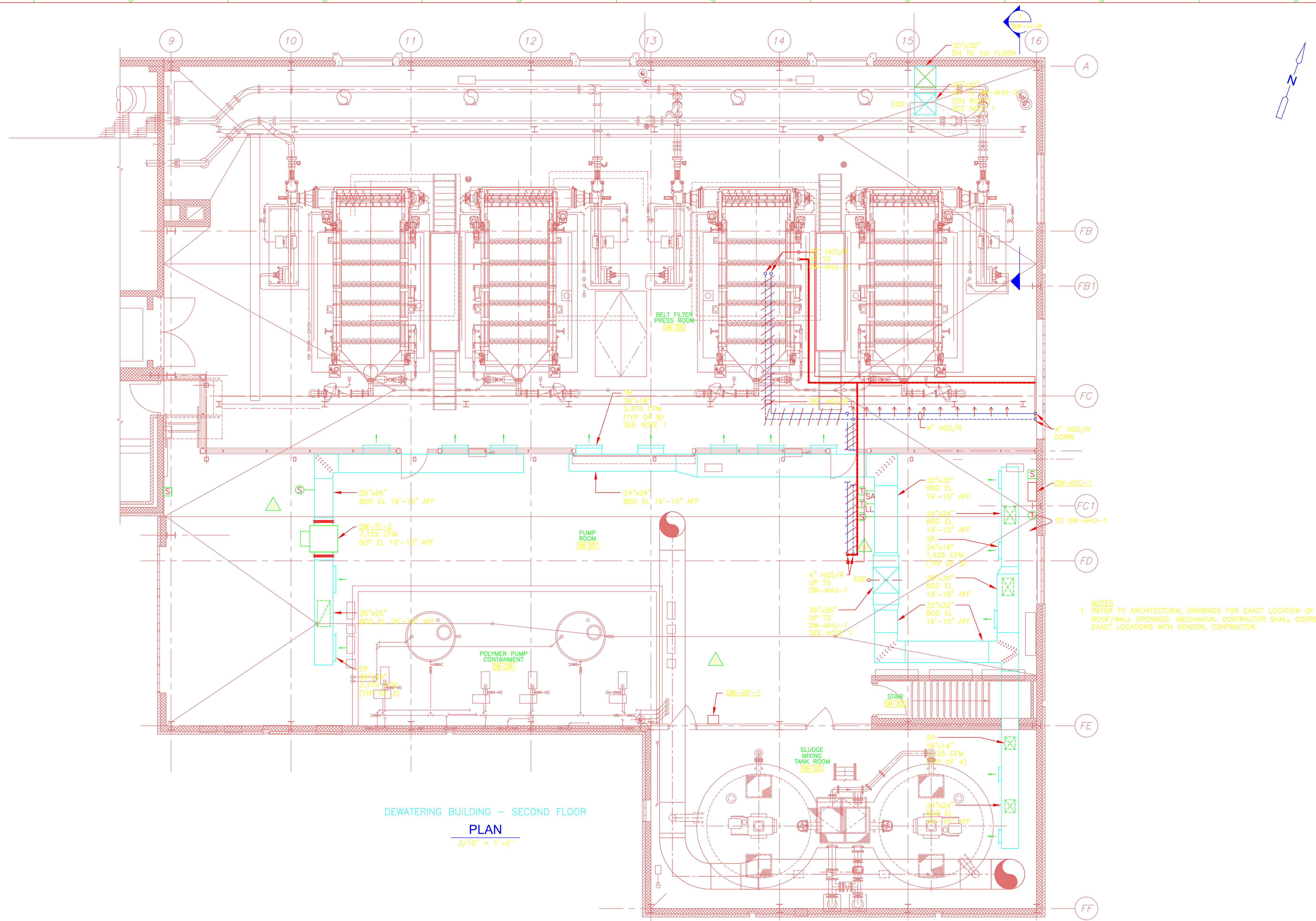
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**

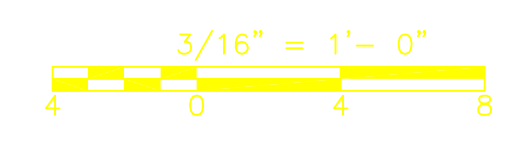
PROJECT NO. 1289-74283
 Sht. 187 of 312
DW-H-5
 Acc # 1289-74593

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WTF-- MECH AS-BUILTS\07 AS-BUILT DWGS\DW-H-6 AS BUILT.DWG Saved by: MIKE On: 11-Mar-13 Plotted on: 24-Mar-14 2:25 PM



NOTES
 1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ROOF/WALL OPENINGS. MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATIONS WITH GENERAL CONTRACTOR.

DEWATERING BUILDING - SECOND FLOOR
 PLAN
 3/16" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. HDWPL600
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECOND FLOOR PLAN
 IMPROVEMENTS

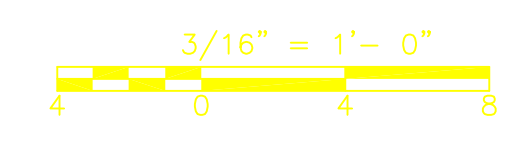
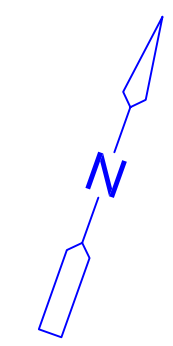
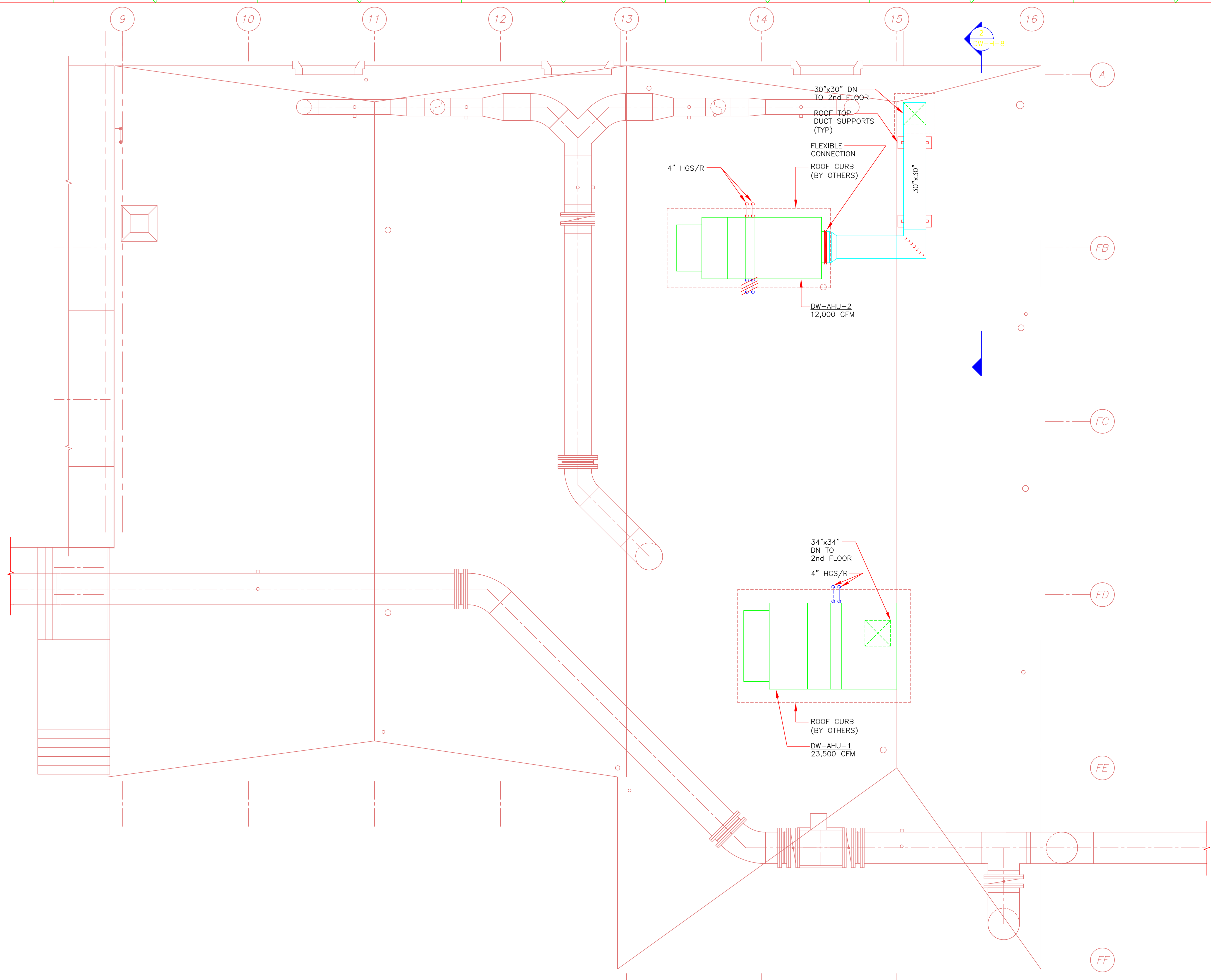
PROJECT NO.
 1289-74283

Sht. 188 of 312

DW-H-6

Acc # 1289-74594

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WTF-- MECH AS-BUILTS\DW-H-7 AS BUILT.DWG Saved by: MIKE On: 29-Jun-12 Plotted on: 24-Mar-14 2:29 PM



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HDWPL700
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 AS-BUILT (2/23/2012)

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 ROOF PLAN
 IMPROVEMENTS**

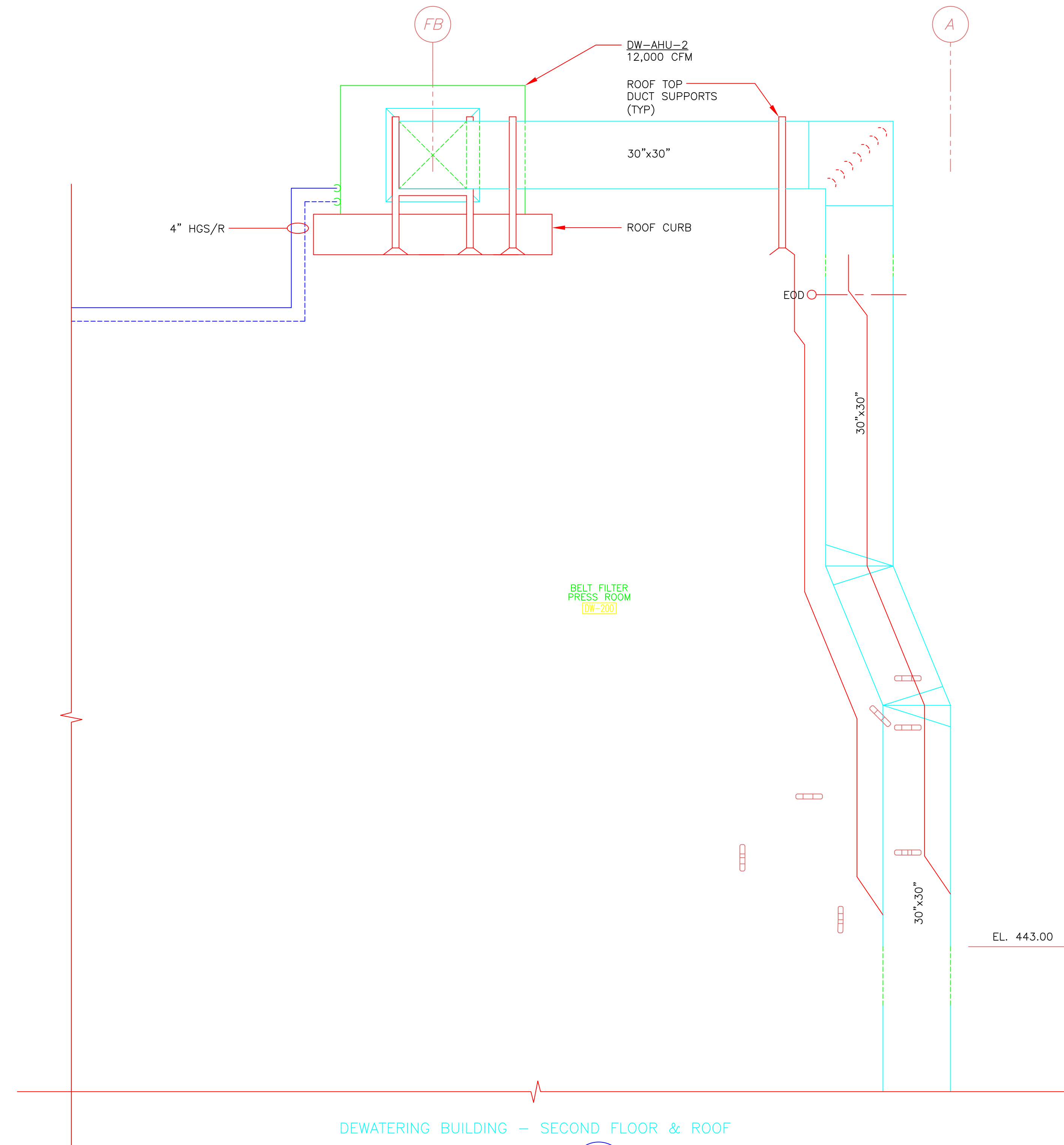
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1289-74283

Sht. 189 of 312

DW-H-7

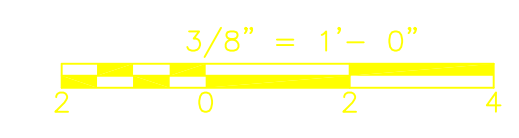
Acc # 1289-74595

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WTF-- MECH AS-BUILTS\07 AS-BUILT DWGS\DW-H-8 AS BUILT.DWG Saved by: MIKE On: 21-Aug-12 Plotted on: 24-Mar-14 2:31 PM



DEWATERING BUILDING - SECOND FLOOR & ROOF

SECTION 1
3/8" = 1'-0" DW-H-6,7



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HDWPL800
 DESIGNED BY: M. MERLI
 DRAWN BY: E. BENIZ
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 AS-BUILT (8/21/2012)

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 SECTIONS
 IMPROVEMENTS**

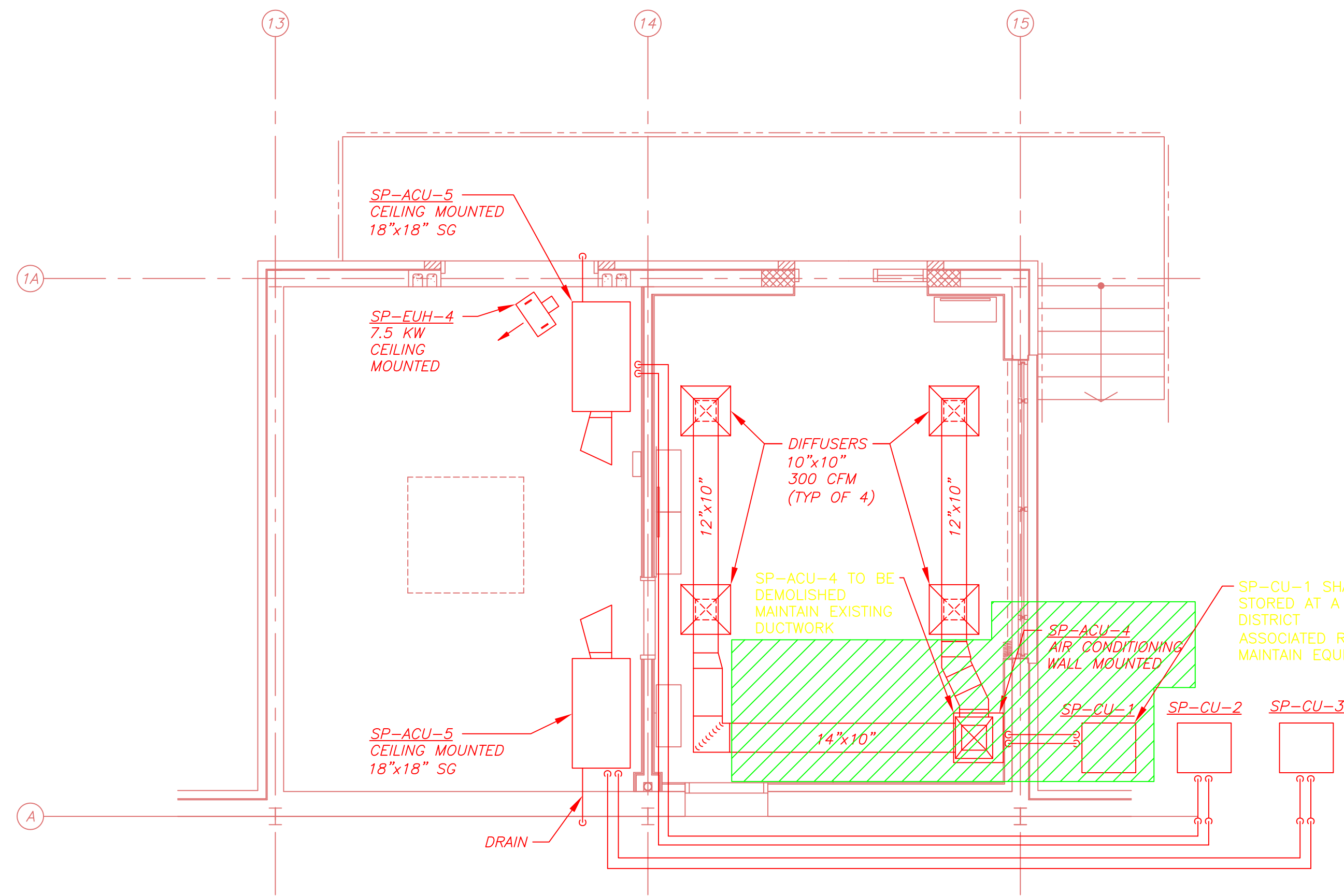
PROJECT NO.
1289-74283

Sht. 190 of 312

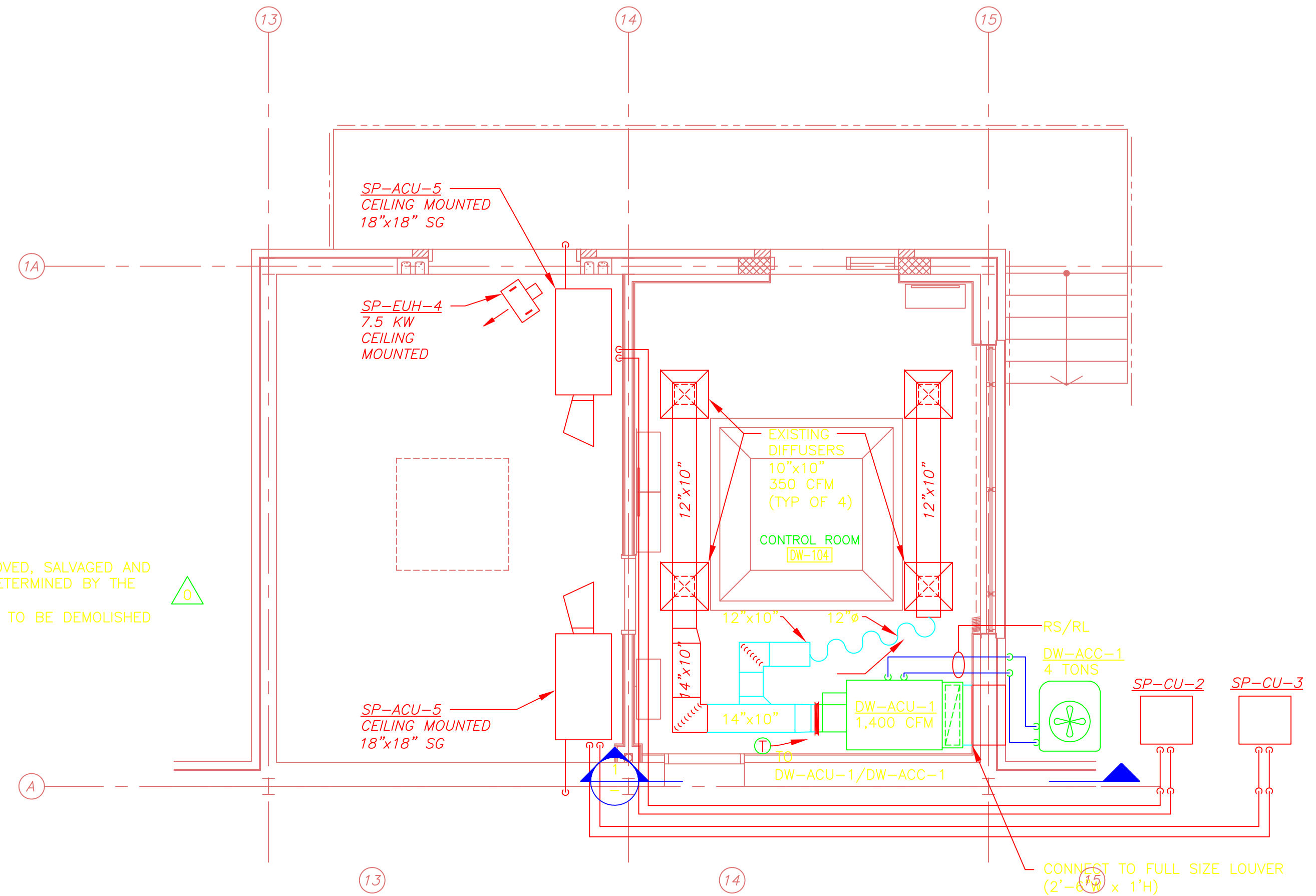
DW-H-8

Acc # 1289-74596

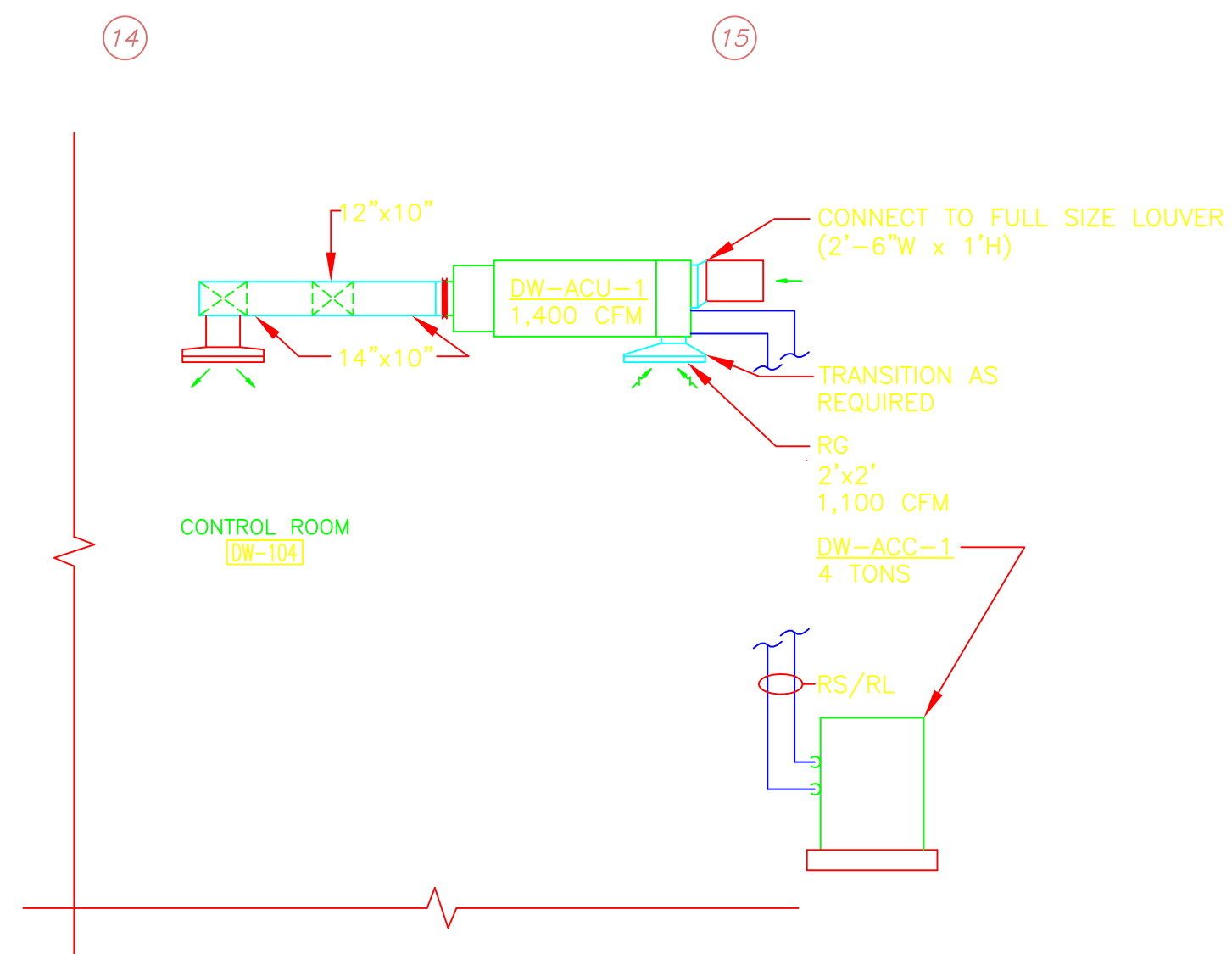
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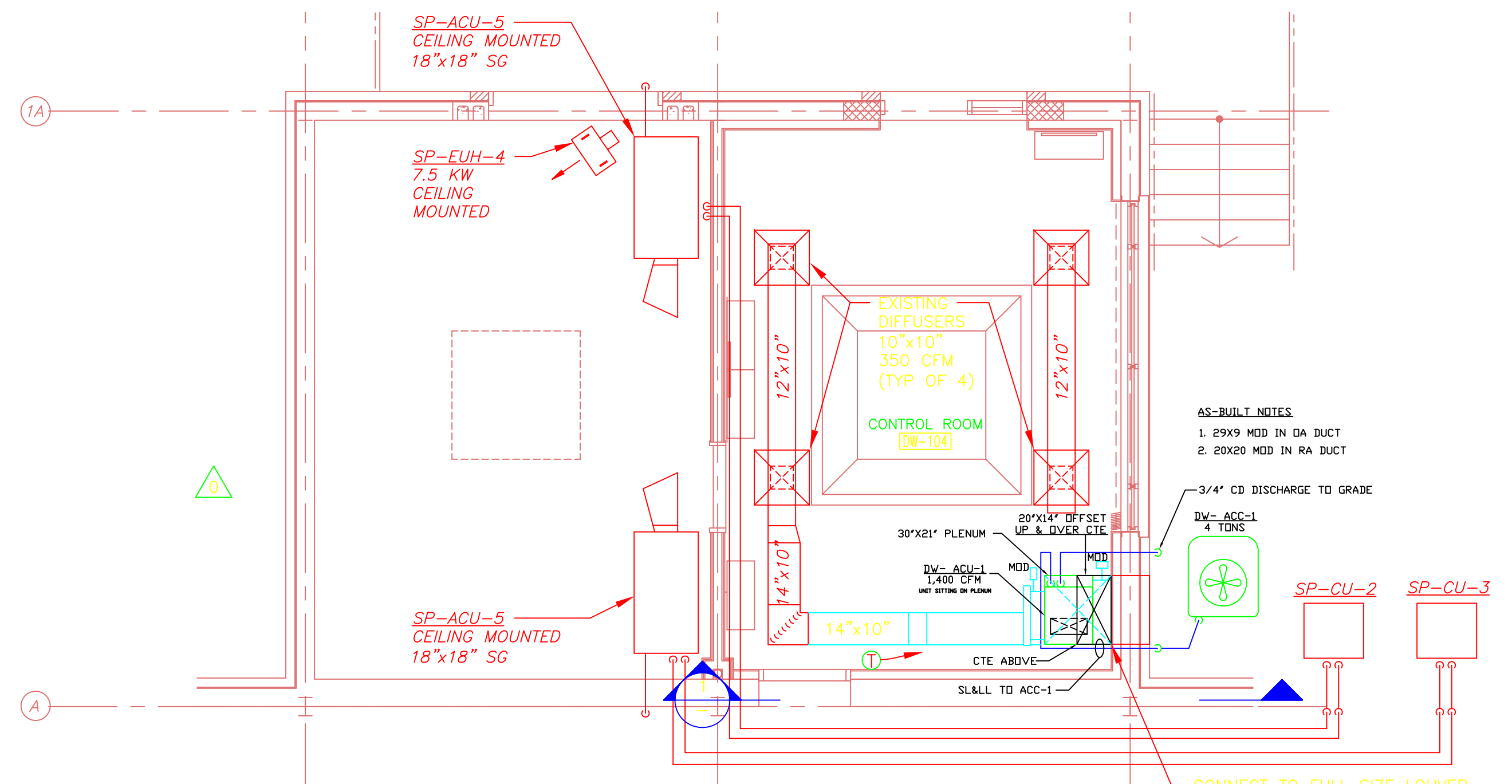
DEMOLITION PLAN
1/4" = 1'-0"



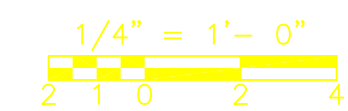
NEW WORK PLAN
1/4" = 1'-0"



CONTROL ROOM SECTION 1
1/4" = 1'-0"



AS-BUILT PLAN
1/4" = 1'-0"



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. CRWPL100
 DESIGNED BY: M. MERLI
 DRAWN BY: E. BENIZ
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 AS-BUILT (3/4/2013)

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 CONTROL ROOM
 DEMOLITION & NEW WORK**

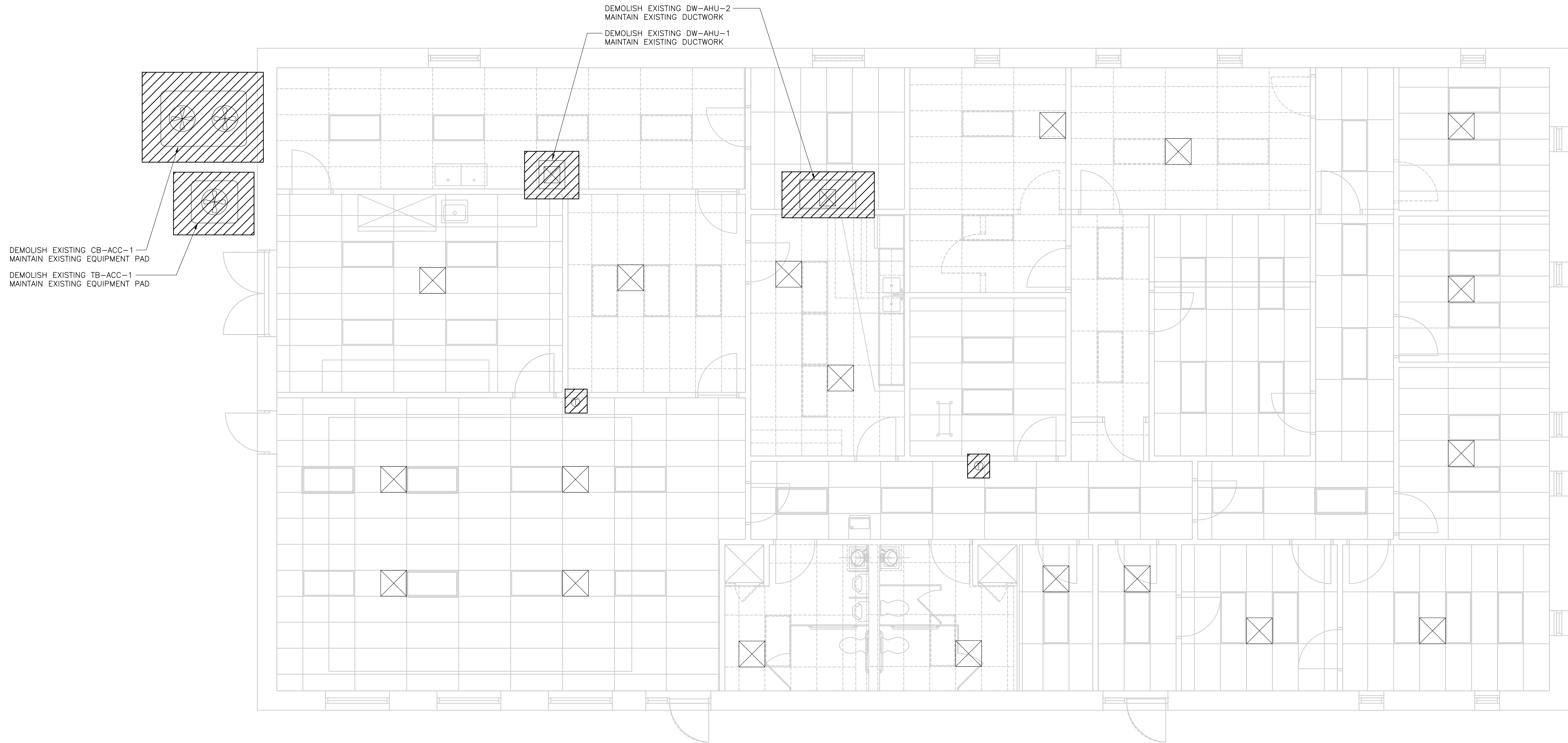
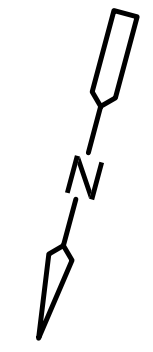
PROJECT NO.
1289-74283

Sht. 191 of 312

DW-H-9

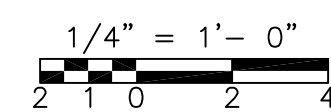
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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\BENTZEM\0119551\HFOPL100.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 9-Jul-10 9:17 AM



FIRST FLOOR
PLAN
1/4" = 1'-0"

- NOTES:
1. ALL EXISTING DUCTWORK AND SUPPLY/RETURN DIFFUSERS SHALL BE MAINTAINED AND CLEANED, PER SPECIFICATION SECTION 15890.
 2. DEMOLISH EXISTING DW-AHU-1/TB-ACC-1 AND DW-AHU-2/CB-ACC-1; INCLUDING ASSOCIATED CONTROLS DEVICES, THERMOSTATS, WIRING AND REFRIGERANT PIPING.
 3. EXACT EQUIPMENT AND DUCTWORK LOCATION SHALL BE FIELD VERIFIED BY THE CONTRACTOR.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HFOPL100
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 GROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: JULY 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ALDEN TRAINING FACILITY
 FLOOR PLAN
 DEMOLITION**

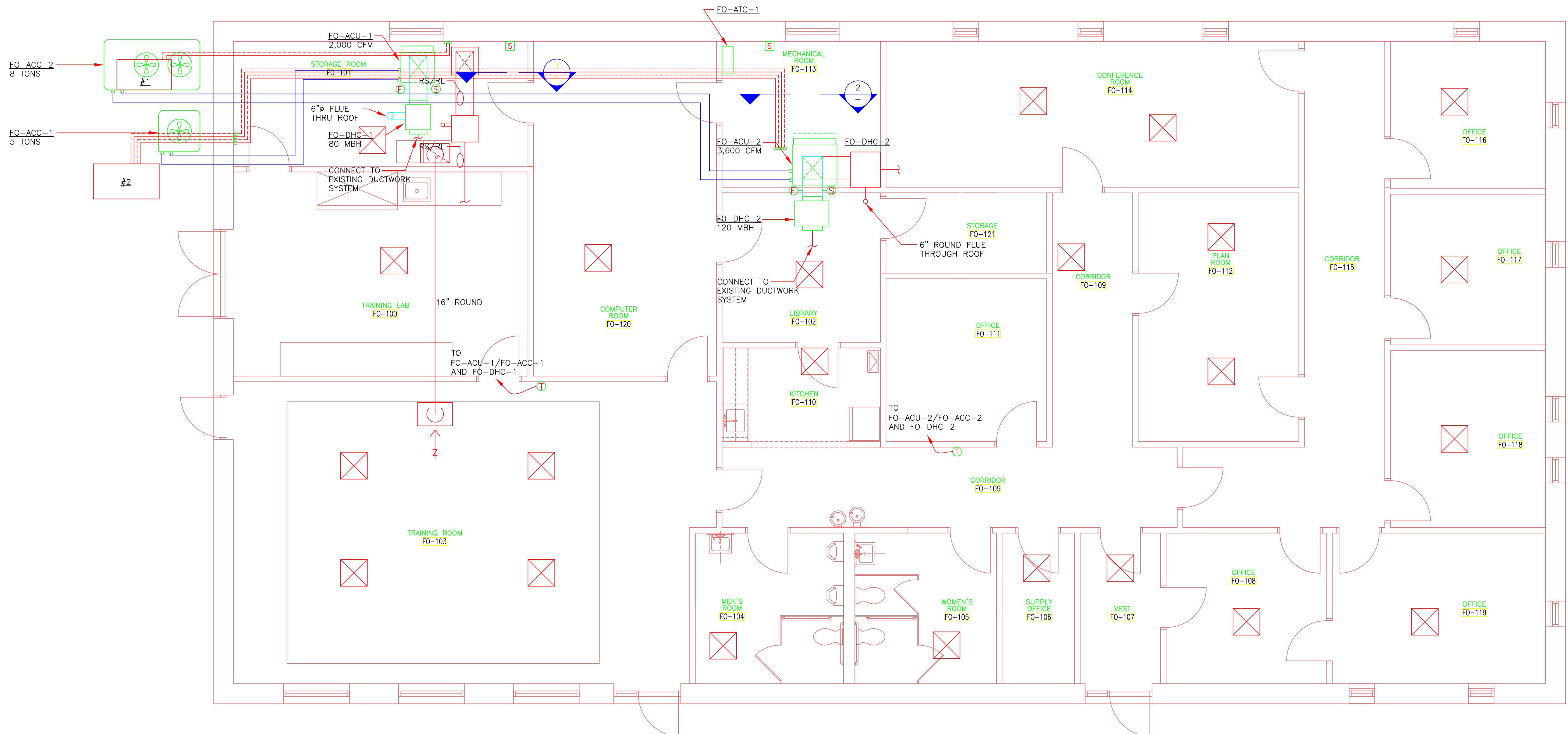
PROJECT NO.
1289-74283

Sht. 192 of 312

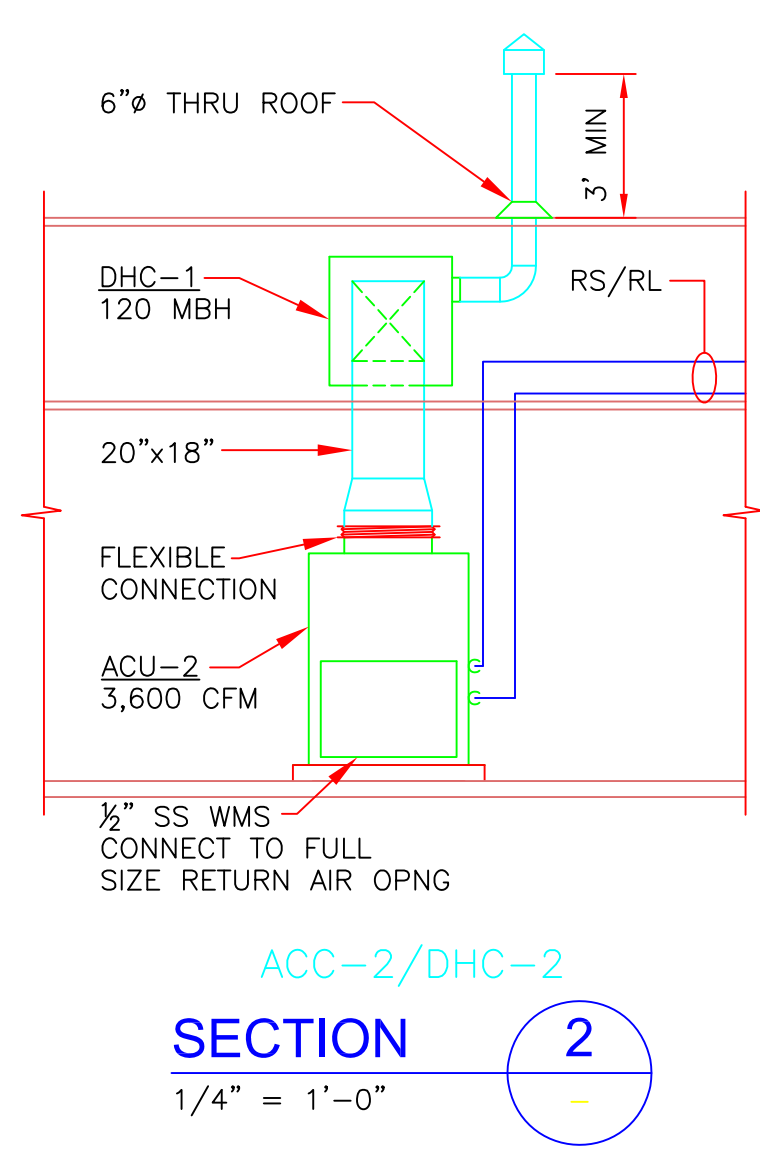
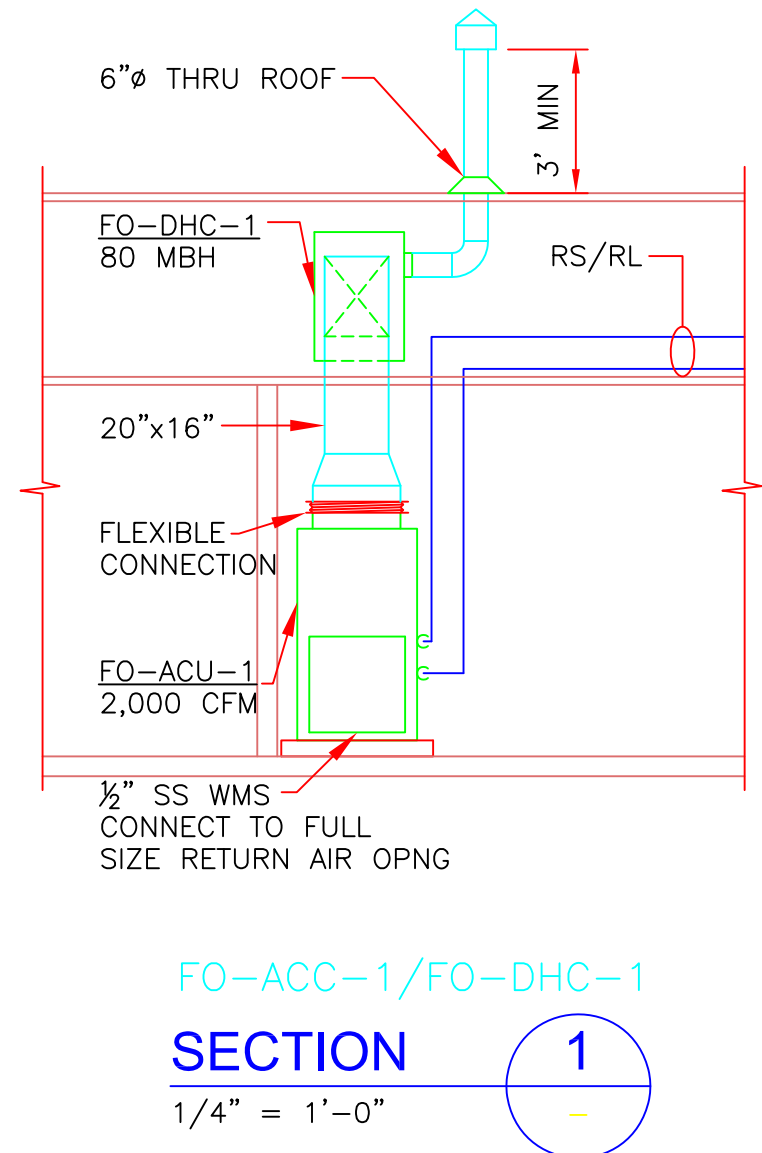
FO-H-1

Acc # 1289-74598

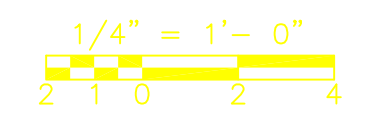
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FIRST FLOOR PLAN
PLAN
1/4" = 1'-0"



- NOTES:
- ALL EXISTING DUCTWORK AND SUPPLY/RETURN/EXHAUST GRILLES AND DIFFUSERS SHALL BE MAINTAINED AND CLEANED PER SPECIFICATION SECTION 15890.
 - EXACT EQUIPMENT AND DUCTWORK SHALL BE FIELD VERIFIED BY THE CONTRACTOR.



RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HFOPL200
 DESIGNED BY: M. MERLI
 DRAWN BY: M. MERLI
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

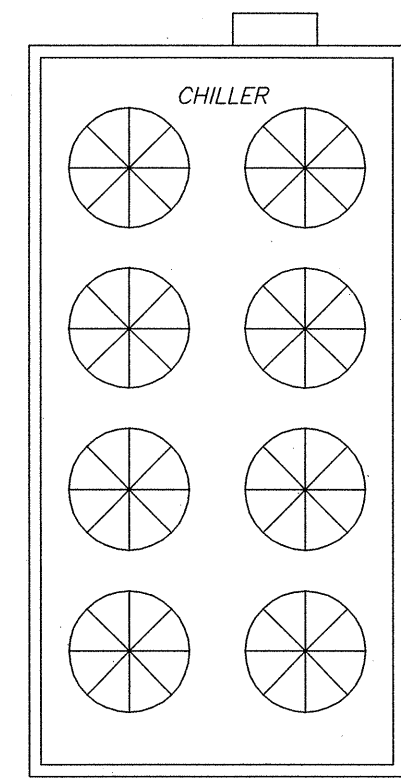
ALDEN TRAINING FACILITY
 FLOOR PLAN AND SECTIONS
 NEW WORK

PROJECT NO.
1289-74283

Sht. 193 of 312

FO-H-2

Acc # 1289-74599



EXISTING AIR COOLED CHILLER LOCATED AT GRADE

TO EXIST LOCATED AT GRADE

CHWP 1 (XM)

DEMOLITION NOTES:
 ① REMOVE EXISTING BOILER AND ASSOCIATED PIPING AND EXHAUST VENT ONTO ROOF.
 ② REMOVE EXISTING MANUAL SUMMER/WINTER CHANGE-OVER VALVES.

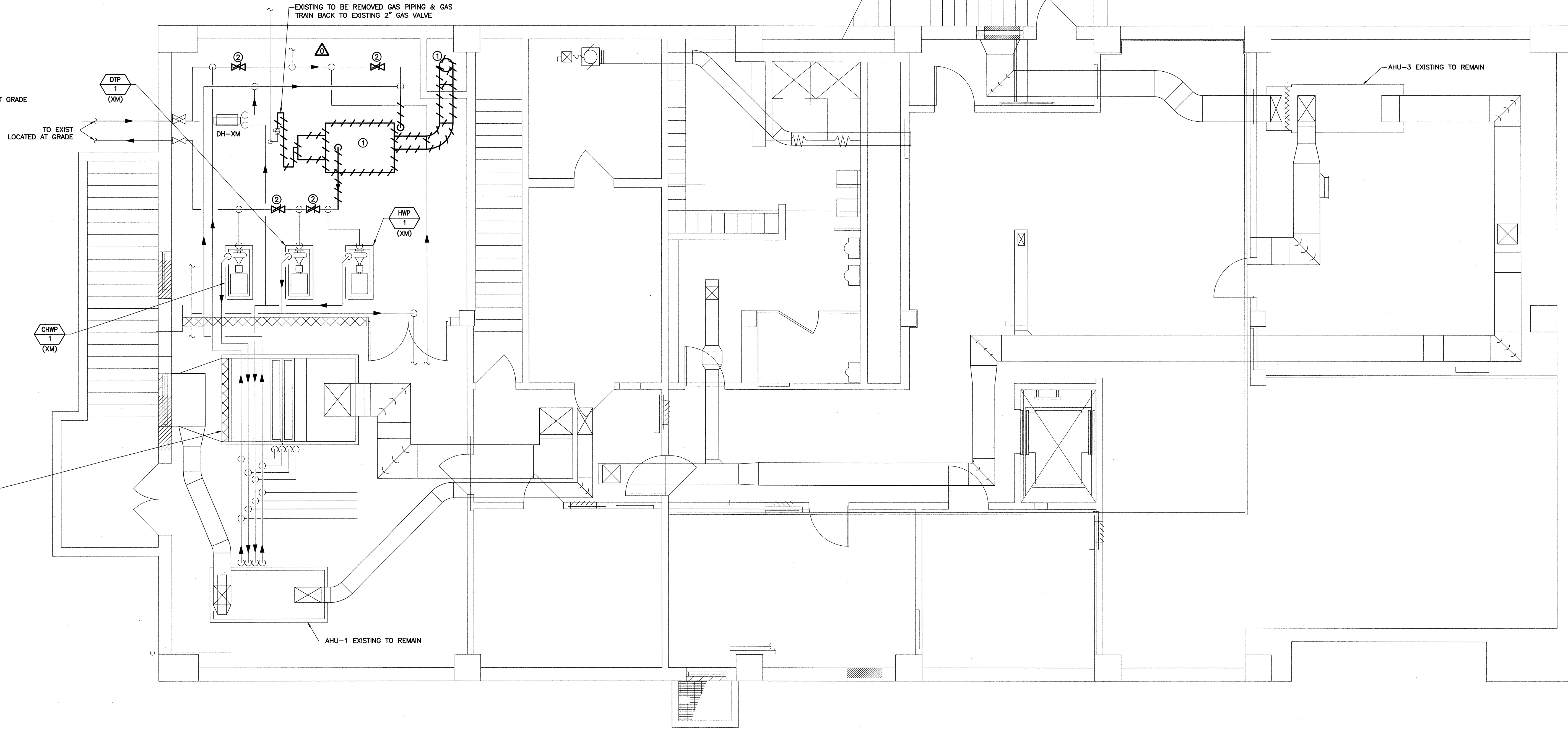
GENERAL NOTES:
 1. THE CONTRACTOR SHALL DRAIN AND COLLECT GLYCOL SOLUTION FROM THE DUAL TEMPERATURE SYSTEM AND DISPOSE OF PROPERLY ACCORDING TO ENVIRONMENTAL STANDARDS. THE CONTRACTOR SHALL CLEAN AND FLUSH THE ENTIRE SYSTEM PRIOR TO RE-FILLING THE GLYCOL SOLUTION. THE CONTRACTOR SHALL RE-FILL SYSTEM WITH NEW 35% GLYCOL SOLUTION MATCHING THE PRODUCT USED IN THE FACILITY. AN INDEPENDENT WATER TEST SHOULD BE PERFORMED ON THE NEW GLYCOL SOLUTION TO ENSURE PROPER GLYCOL PERCENTAGE AND CORROSION QUALITY.

EXISTING TO BE REMOVED GAS PIPING & GAS TRAIN BACK TO EXISTING 2" GAS VALVE

AHU-2 EXISTING TO REMAIN

AHU-1 EXISTING TO REMAIN

AHU-3 EXISTING TO REMAIN



09/10	REVISED PER ADDENDA NOS. 1 THRU 3	CADD FILE NO. AD-H-1		
		DESIGNED BY: GM		
		DRAWN BY: CHJ		
		SHEET CHK'D BY: GM		
		CROSS CHK'D BY: DW		
		SCALE: AS NOTED		
		APPROVED BY: DW		
		DATE: SEPTEMBER 2010		
REV. NO.	DATE	DRWN	CHKD	REMARKS

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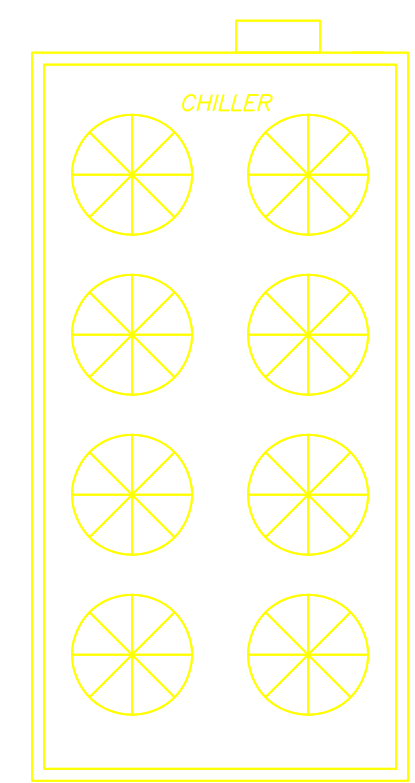
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
 HVAC
 BASEMENT LEVEL PLAN - DEMOLITION

PROJECT NO.
 1289-74283
 Sht. 194 of 312
 AD-H-1
 Acc # 1289-74600

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\MECH AS-BUILT.DWG Saved by: NAMROSINO On: 27-Mar-14 11:14 AM



EXISTING AIR COOLED CHILLER LOCATED AT GRADE

REFER TO DRAWING NOTES FOR NEW GAS PIPING WORK IN THIS AREA.

TO EXIST CHILLER LOCATED AT GRADE

6" COMBUSTION AIR INTAKE (TYP 2) ELBOW 6" DOWN AND PROVIDE BIRD SCREEN ON INTAKE

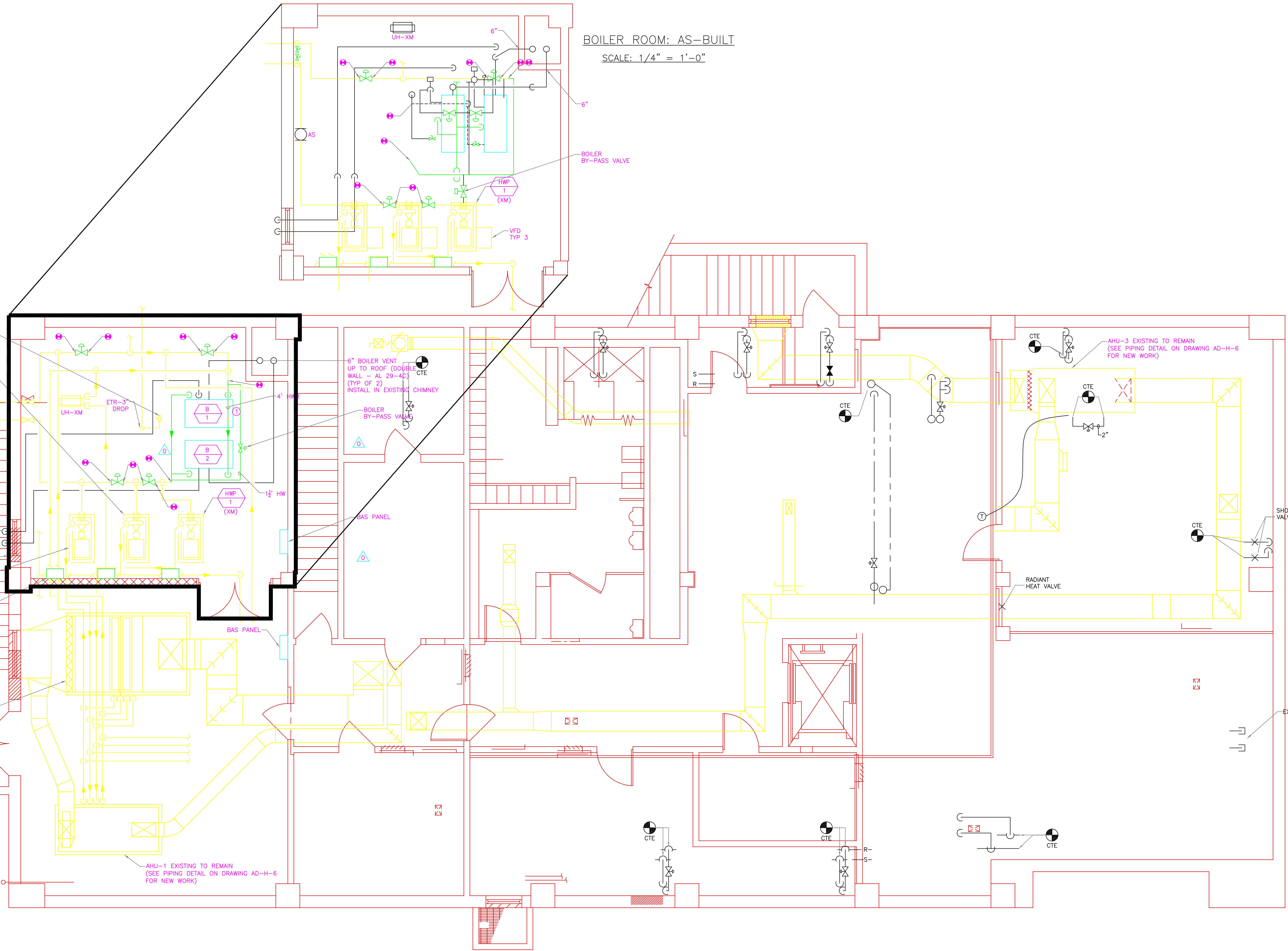
REMOVE EXISTING LOUVER AND PROVIDE INSULATED BLANK-OFF PANEL

NEW VFD DRIVE (TYP FOR 3)

AHU-2 EXISTING TO REMAIN (SEE PIPING DETAIL ON DRAWING AD-H-6 FOR NEW WORK)

AHU-1 EXISTING TO REMAIN (SEE PIPING DETAIL ON DRAWING AD-H-6 FOR NEW WORK)

BOILER ROOM: AS-BUILT
SCALE: 1/4" = 1'-0"



RECORD DRAWING

09/10			REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD
			REMARKS

CADD FILE NO.	AD-H-2
DESIGNED BY:	GM
DRAWN BY:	CHI
SHEET CHK'D BY:	GM
CROSS CHK'D BY:	DW
SCALE:	AS NOTED
APPROVED BY:	DW
DATE:	SEPTEMBER 2010

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CAM HVAC & CONSTRUCTION, INC.
AS-BUILT (3/8/2013)

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

ADMINISTRATION BUILDING
HVAC
BASEMENT LEVEL PLAN - NEW WORK

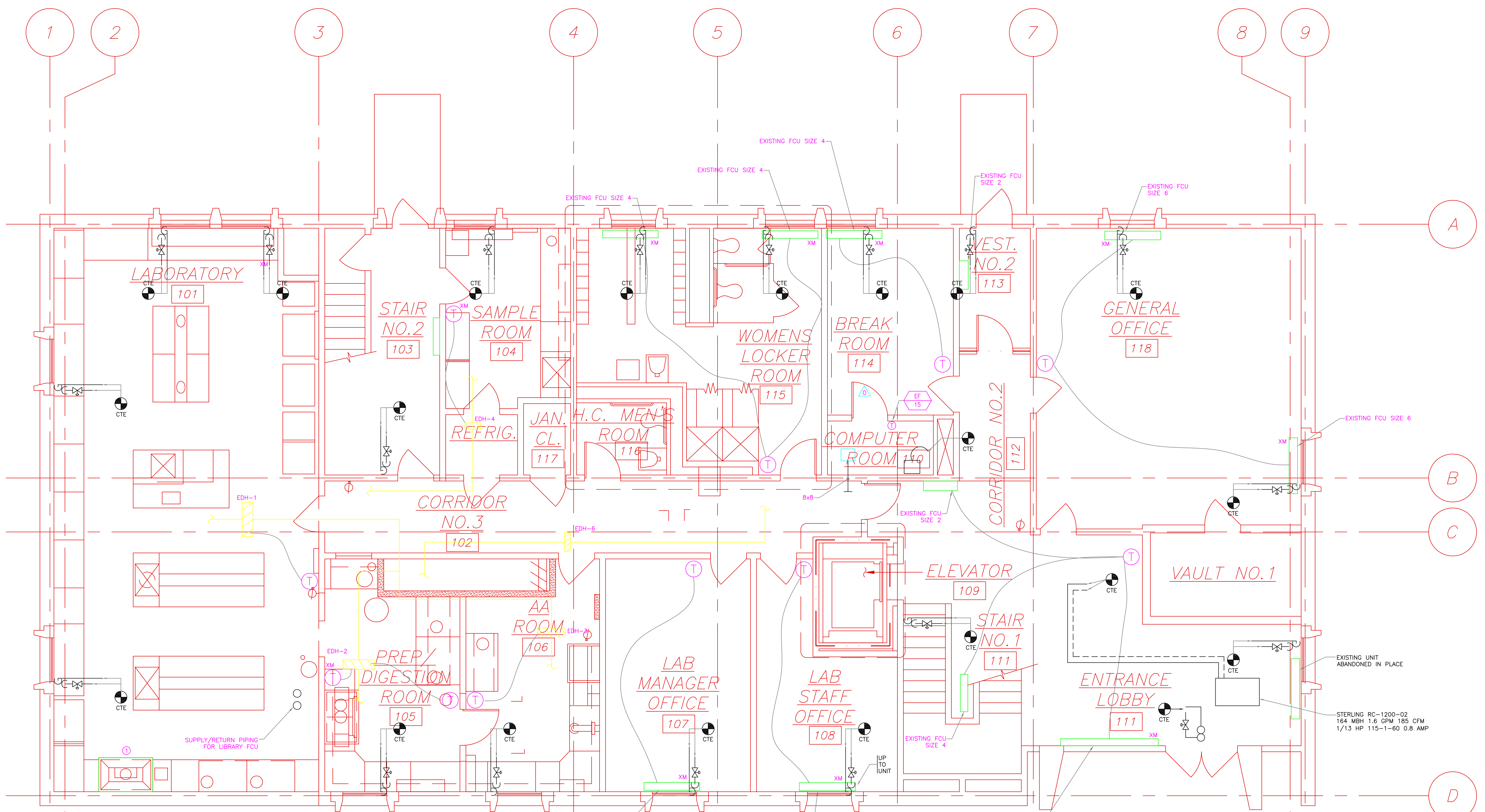
PROJECT NO.
1289-74283

Sht. 195 of 312

AD-H-2

Acc # 1289-74601

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\MECH AS-BUILT-3 AS-BUILT.DWG Saved by: NAMBROSINO On: 27-Mar-14 Plotted on: 27-Mar-14 11:25 AM



DRAWING KEY NOTES:
 1. CONNECT EXISTING HOOD CONTROLS TO NEW EXHAUST FAN (EF-14) LOCATED ON ROOF

GENERAL NOTES:
 1. ALL CONTROL WIRING SERVING FAN COIL UNITS AND FTR ON THIS FLOOR SHALL BE INSTALLED AT FIRST FLOOR LEVEL.
 2. REMOVE ALL VALVES, PIPING ECT. FROM MAINS UP TO FCU (TYP ALL PCU'S)
 3. PROVIDE NEW 2 WAY PIACV AND ASSOCIATED PIPE AND VALVES. REFER TO DETAIL 1 ON DWG AD-H-6 (TYP ALL FCU'S)

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AD-H-3
DESIGNED BY:	GM
DRAWN BY:	CHI
SHEET CHK'D BY:	GM
CROSS CHK'D BY:	DW
SCALE:	AS NOTED
APPROVED BY:	DW
DATE:	SEPTEMBER 2010

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CAM HVAC & CONSTRUCTION, INC.
 AS-BUILT (3/5/2013)

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ADMINISTRATION BUILDING
 HVAC
 FIRST FLOOR PLAN - NEW WORK**

PROJECT NO.
1289-74283

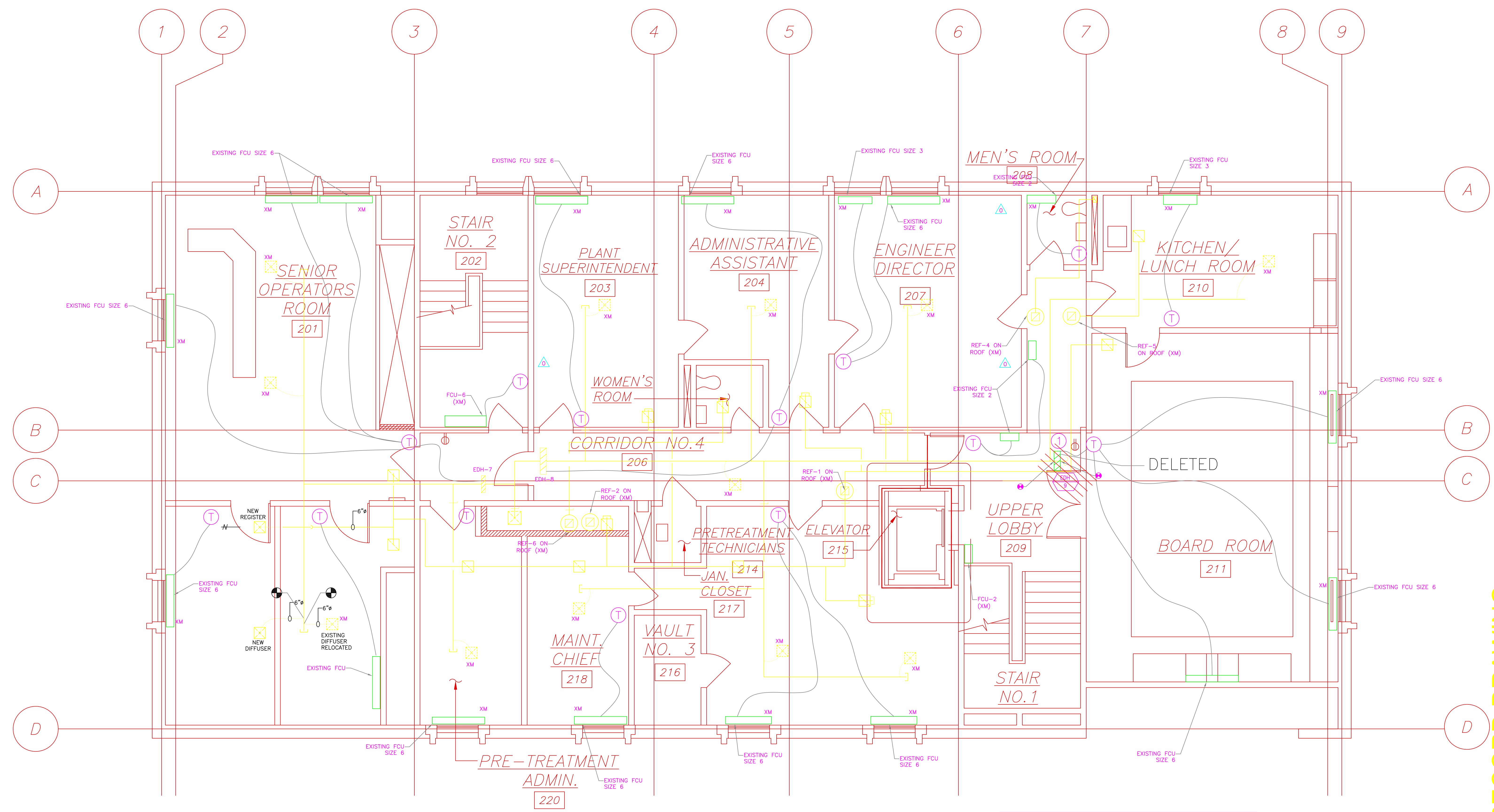
Sht. 196 of 312

AD-H-3

Acc # 1289-74602

RECORD DRAWING

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DRAWING KEY NOTES:

- REMOVE EXISTING DUCTWORK AND MODIFY(TRANSITION) FOR NEW COIL INSTALLATION. PROVIDE FLANGES ON EXISTING DUCTWORK AS REQUIRED

GENERAL NOTES:

- ALL CONTROL WIRING SERVING FAN COIL UNITS AND FTR ON THIS FLOOR SHALL BE INSTALLED AT FIRST FLOOR LEVEL.
- REMOVE ALL VALVES, PIPING ECT. FROM MAINS UP TO FCU (TYP ALL FCU'S)
- PROVIDE NEW 2 WAY PIACV AND ASSOCIATED PIPE AND VALVES. REFER TO DETAIL 1 ON DWG AD-H-6 (TYP ALL FCU'S)

09/10				REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	AD-H-4
DESIGNED BY:	GM
DRAWN BY:	CHI
SHEET CHK'D BY:	GM
CROSS CHK'D BY:	DW
SCALE:	AS NOTED
APPROVED BY:	DW
DATE:	SEPTEMBER 2010

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 AS-BUILT (3/5/2013)

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ADMINISTRATION BUILDING
 HVAC
 SECOND FLOOR PLAN - NEW WORK**

PROJECT NO.
1289-74283

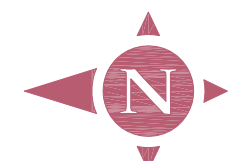
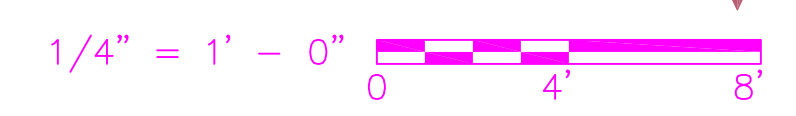
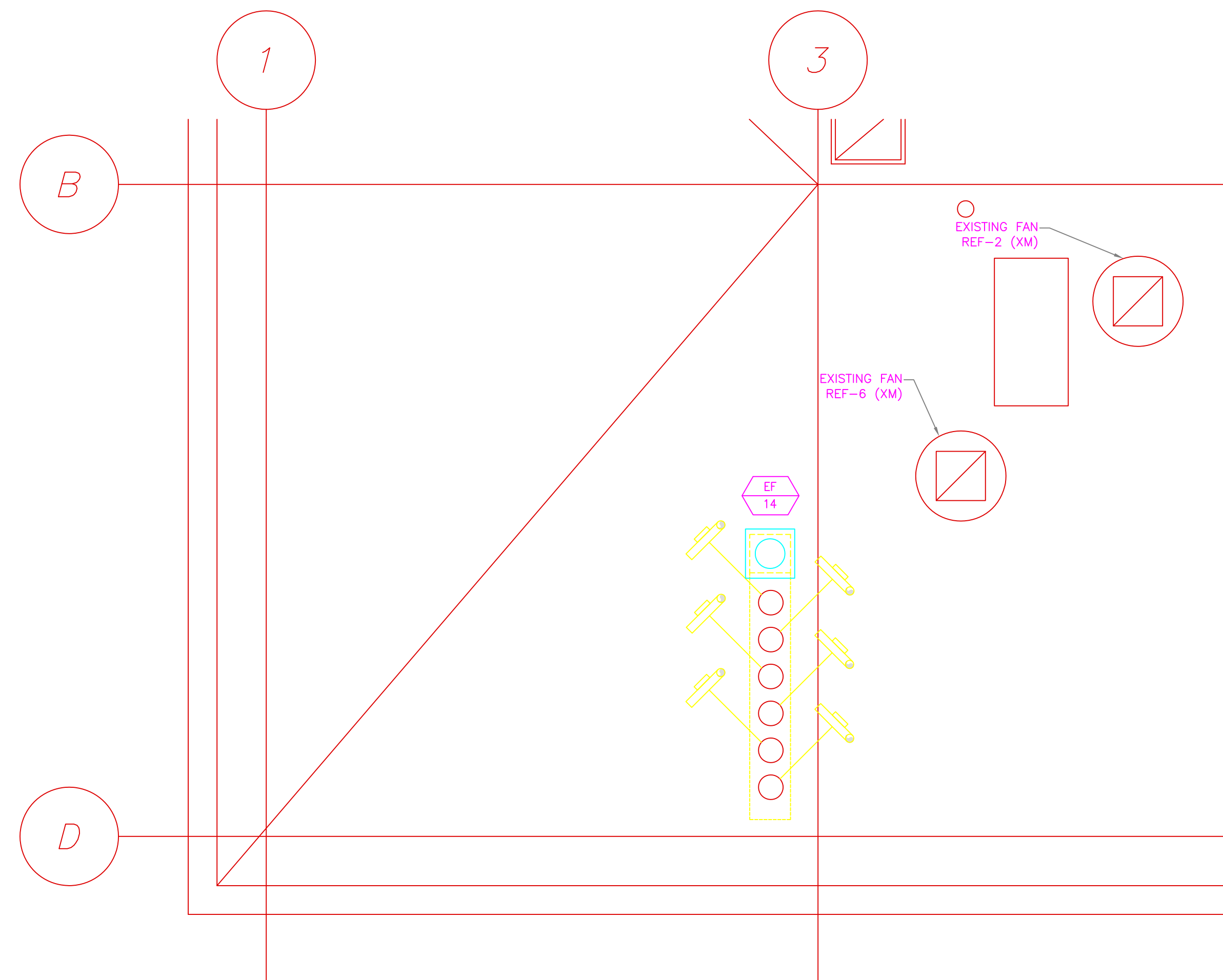
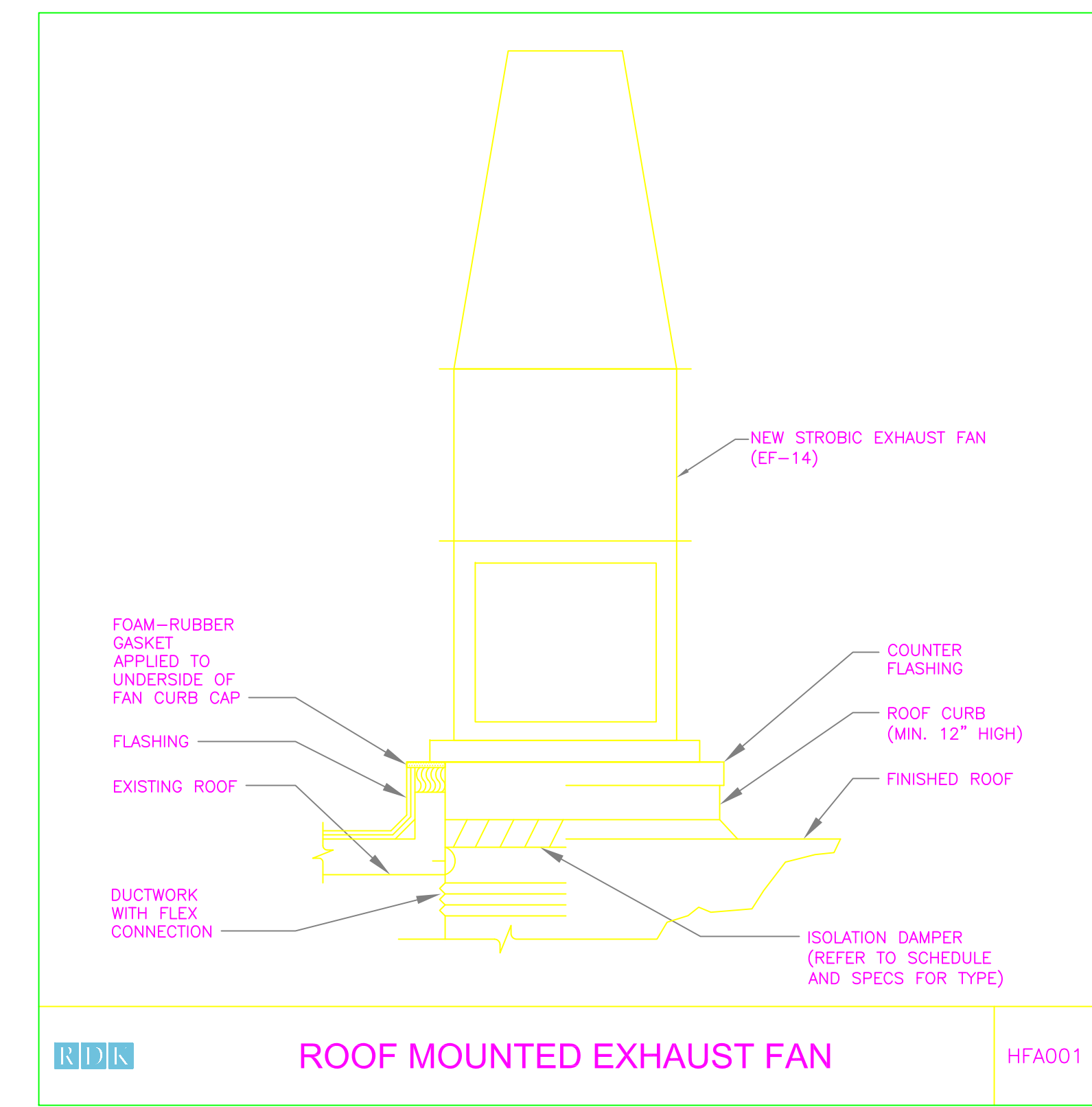
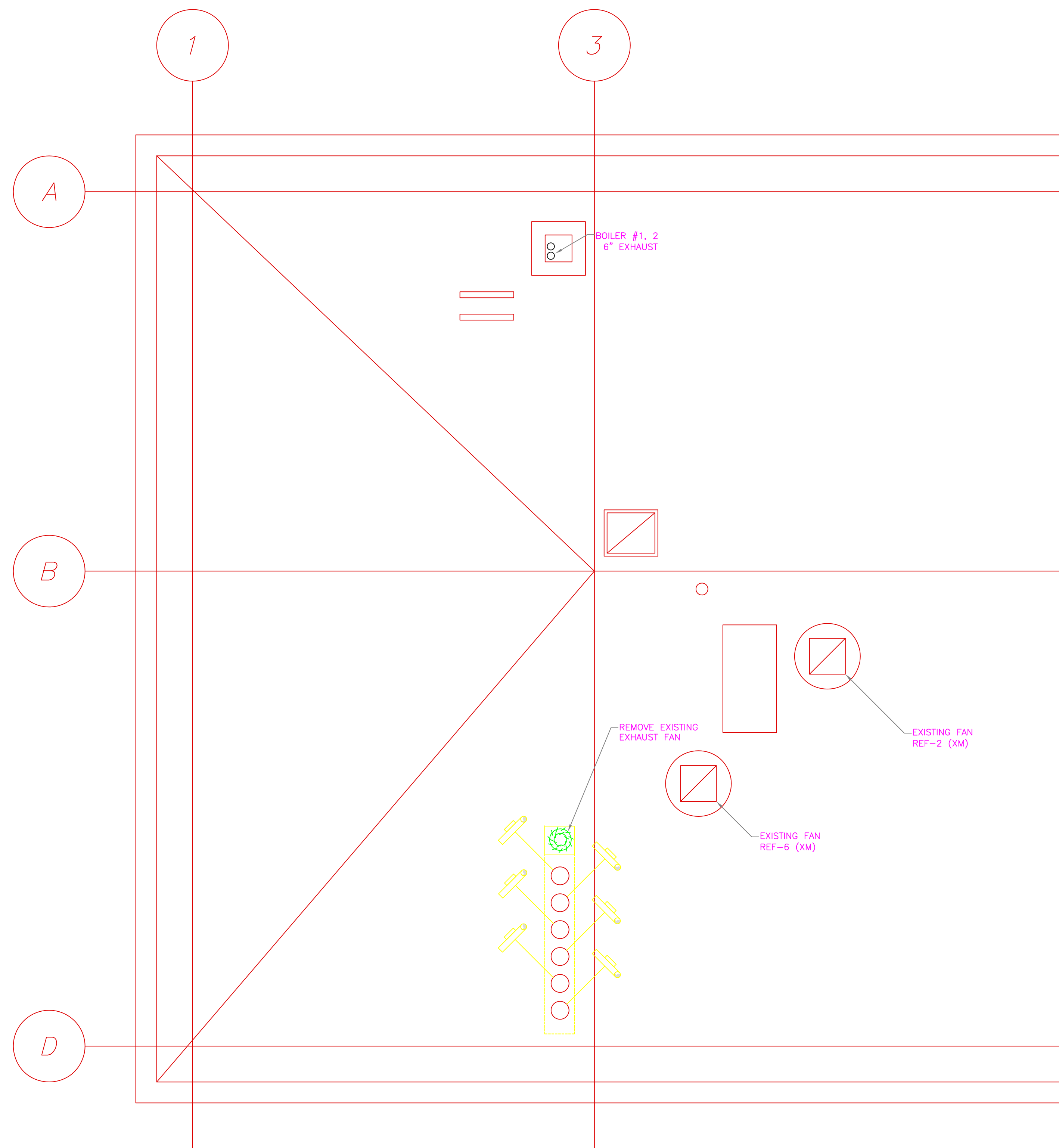
Sht. 197 of 312

AD-H-4

Acc # 1289-74603

RECORD DRAWING

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RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

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 DRAWN BY: CHI
 SHEET CHK'D BY: GM
 CROSS CHK'D BY: DW
 SCALE: 1/4" = 1'-0"
 APPROVED BY: DW
 DATE: JULY 2010



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RDk
 ENGINEERS
 RDK Engineers
 200 Brickett Square
 Andover, MA 01810-1488

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

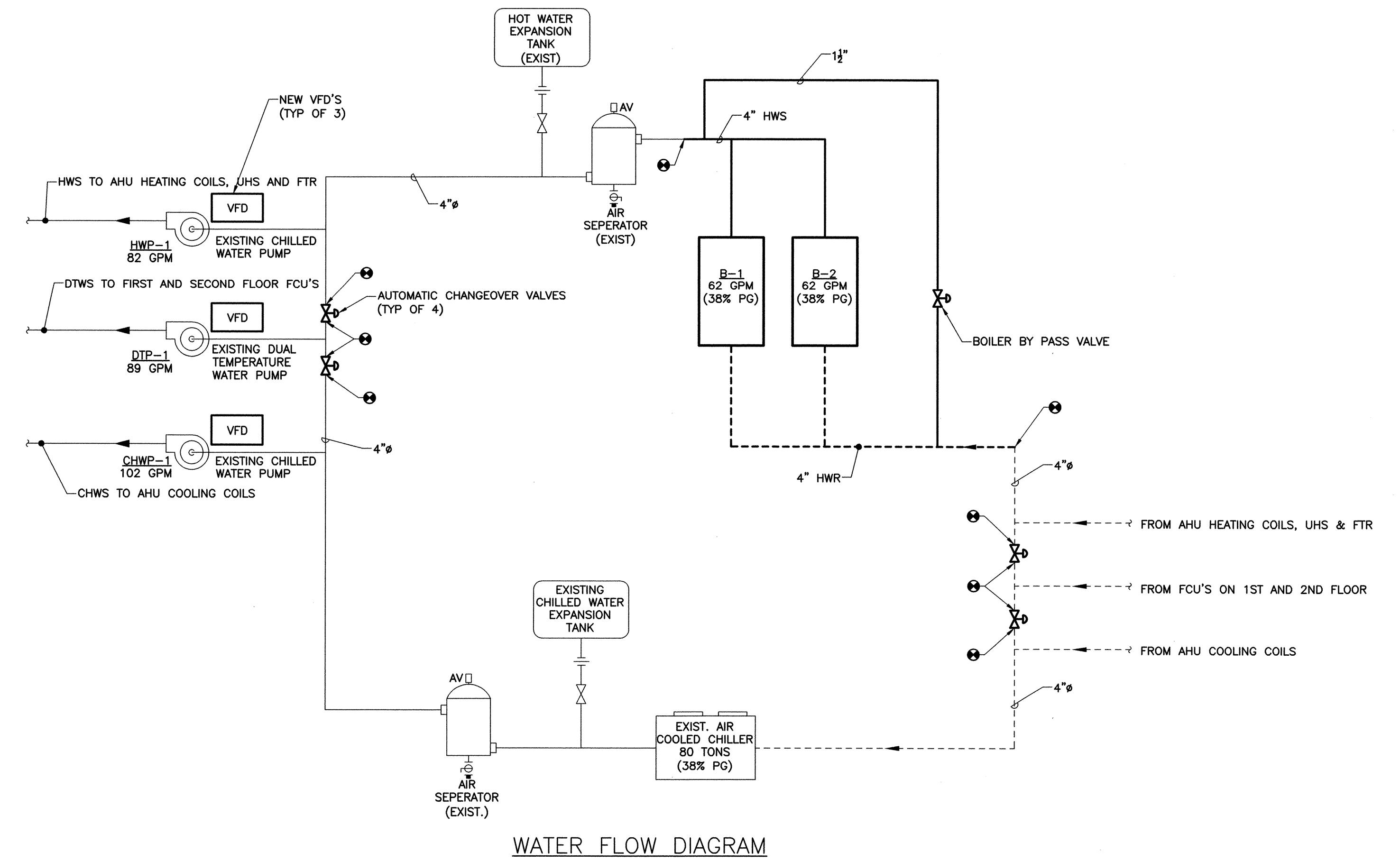
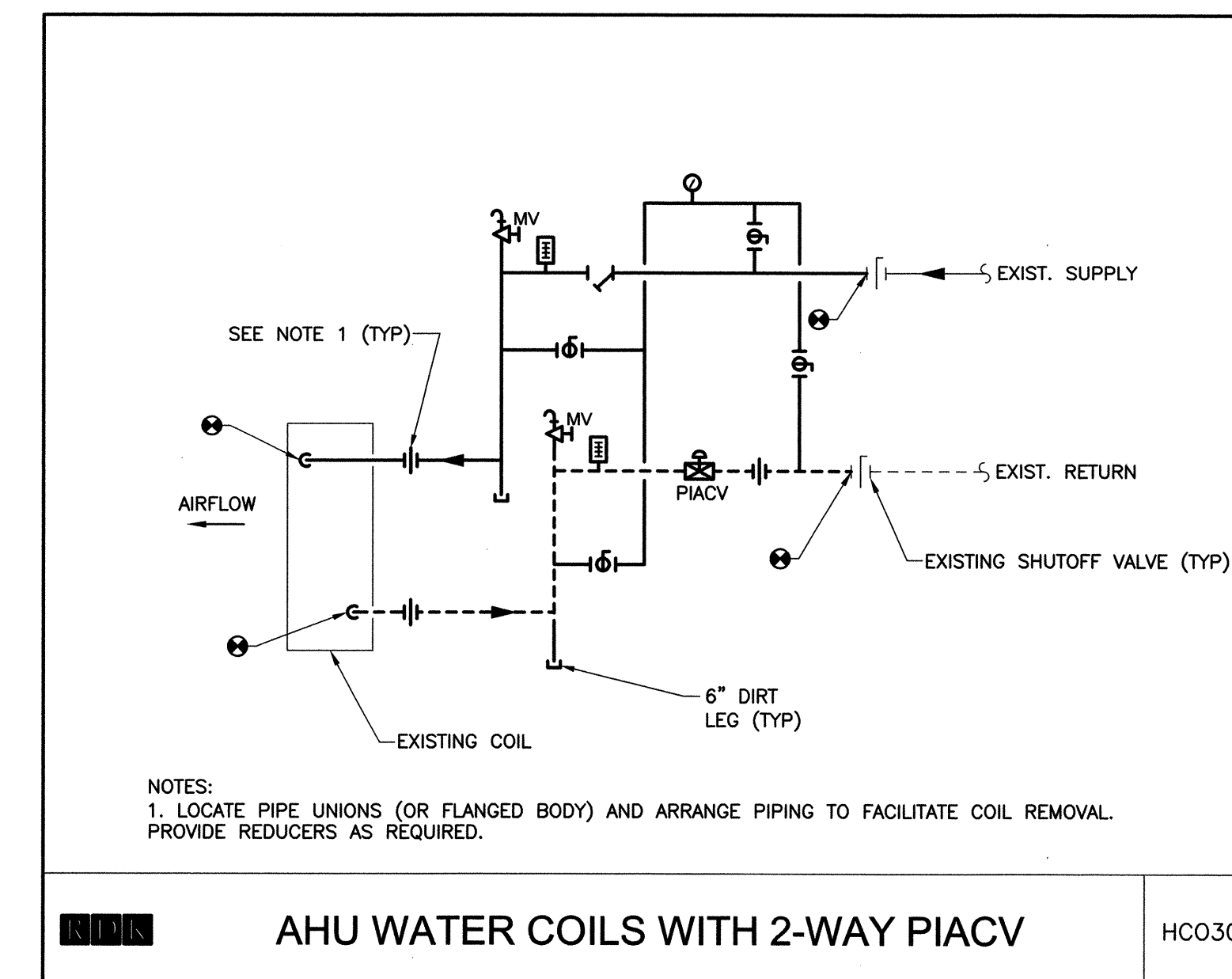
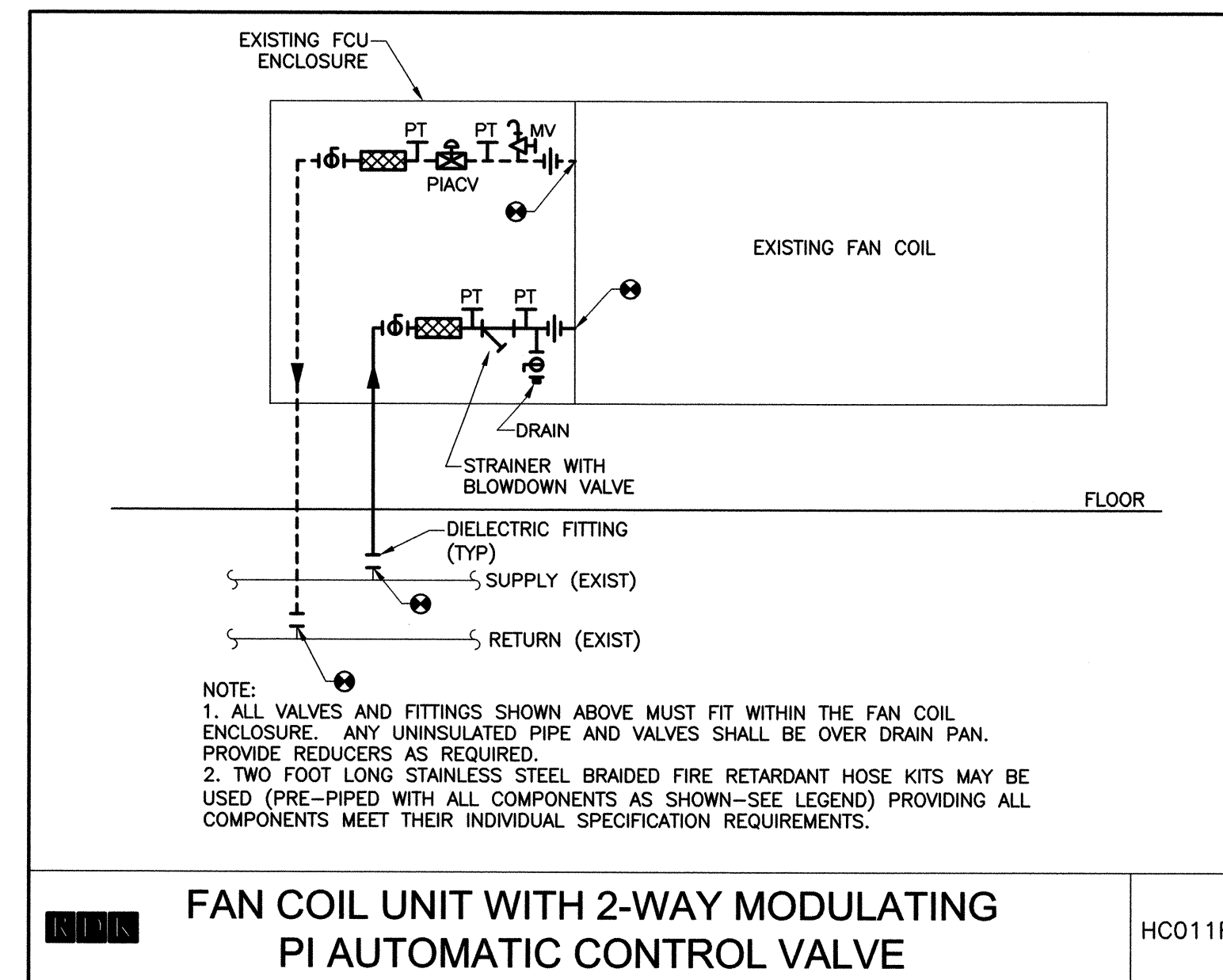
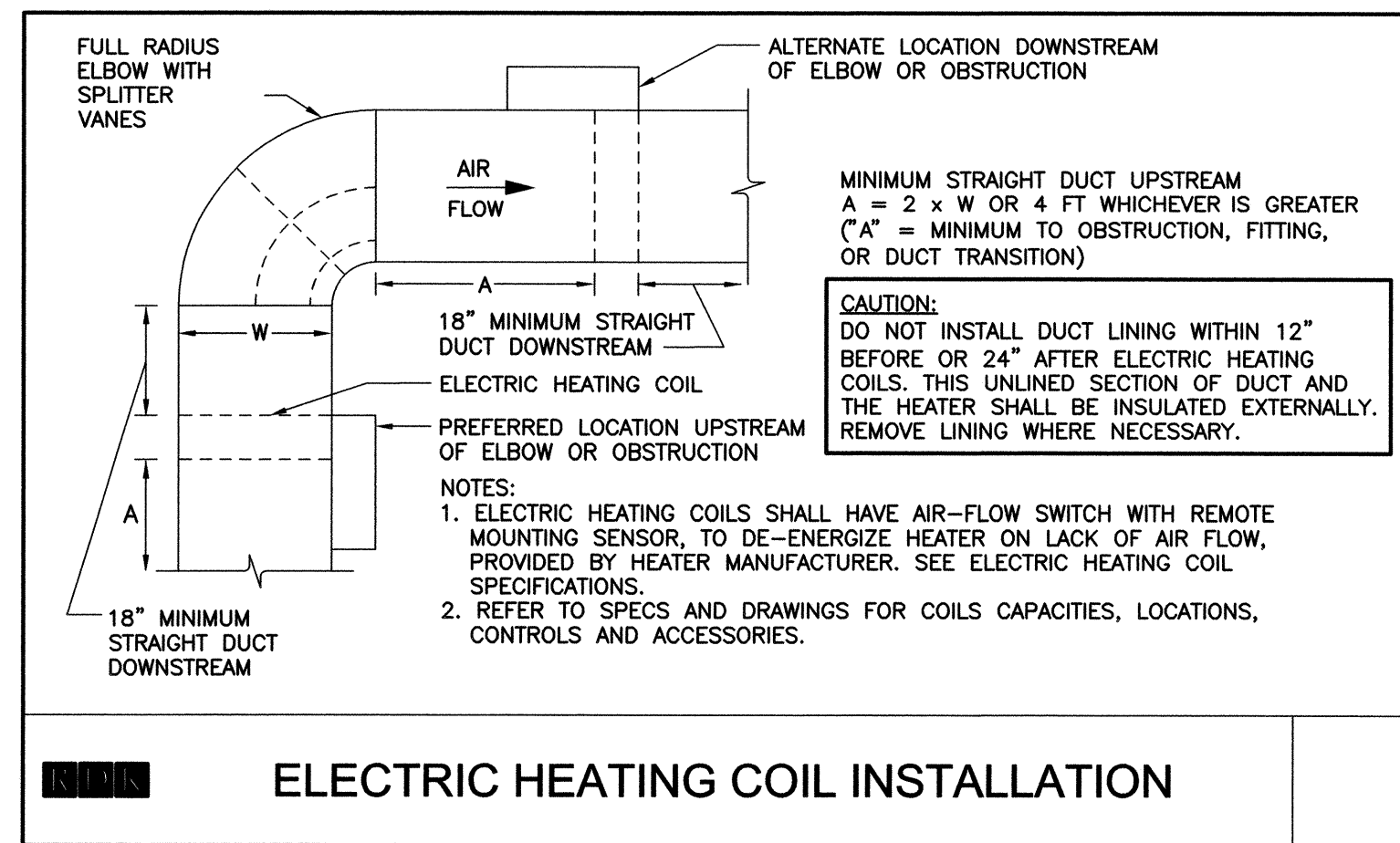
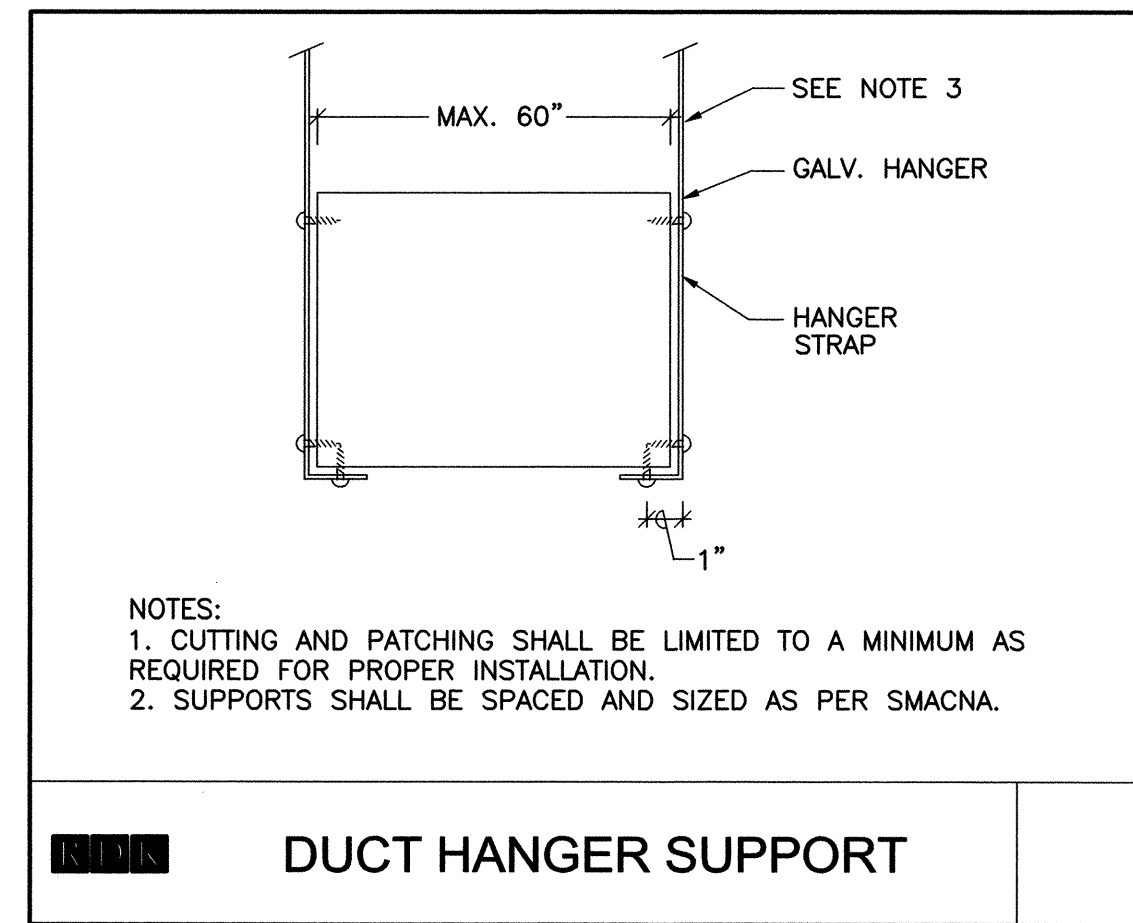
ADMINISTRATION BUILDING
 HVAC
 ROOF PLAN - EXISTING

PROJECT NO.
 1289-74283

Sht. 198 of 312

AD-H-5

Acc # 1289-74604

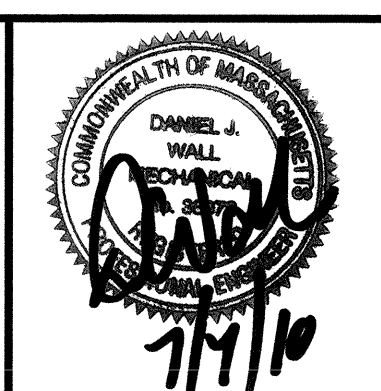


CONSTRUCTION DOCUMENTS
 JULY 2010

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REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AD-H-6
 DESIGNED BY: GM
 DRAWN BY: CHI
 SHEET CHK'D BY: GM
 CROSS CHK'D BY: DW
 SCALE: N.T.S.
 APPROVED BY: DW
 DATE: JULY 2010



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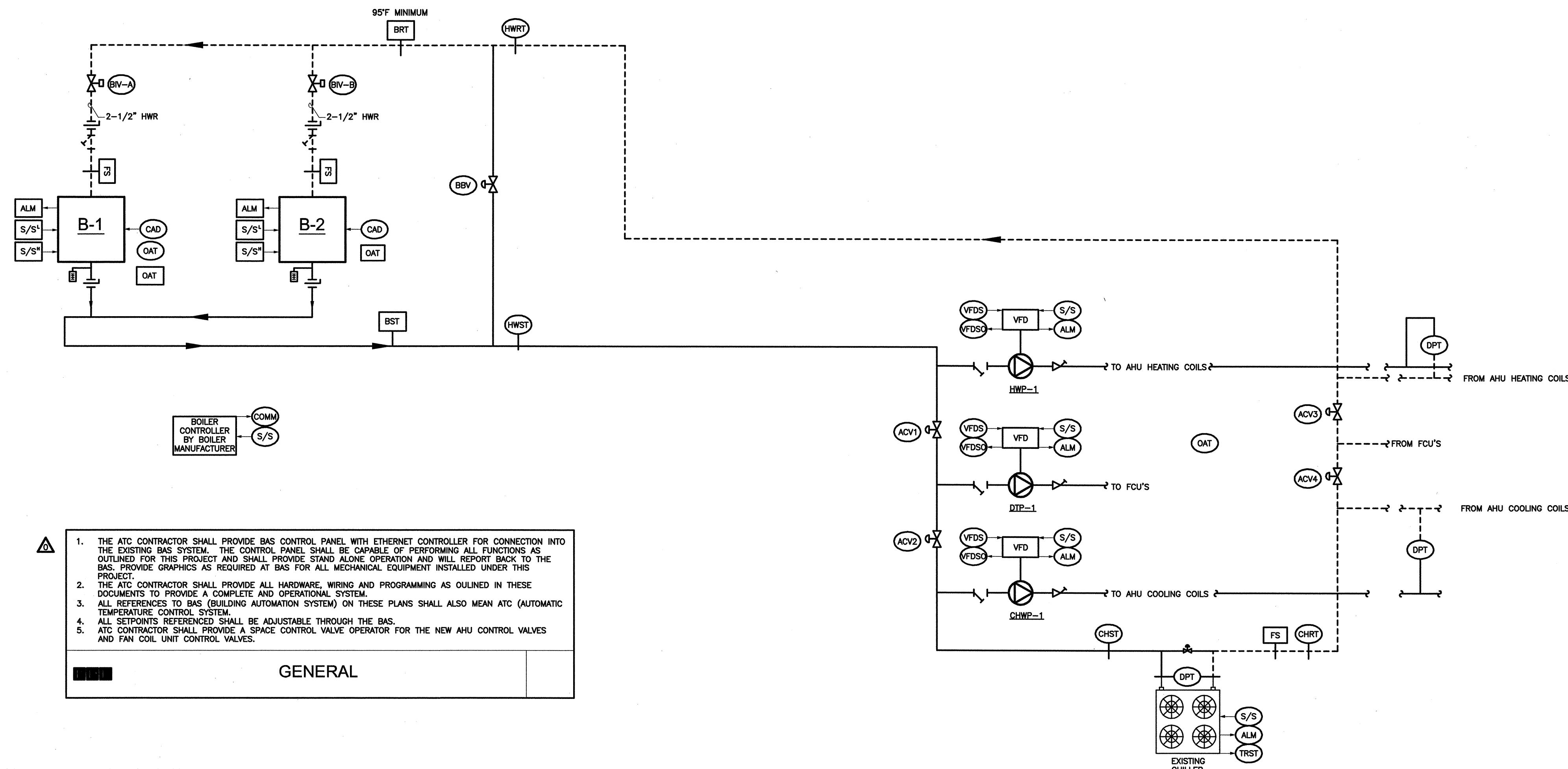
RDK ENGINEERS
 RDK Engineers
 200 Bickstone Square
 Andover, MA 01810-1488

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
 HVAC
 SYSTEM FLOW DIAGRAM

PROJECT NO. 1289-74283
 Sht. 199 of 312
AD-H-6
 Acc # 1289-74605



- GENERAL**
1. THE ATC CONTRACTOR SHALL PROVIDE BAS CONTROL PANEL WITH ETHERNET CONTROLLER FOR CONNECTION INTO THE EXISTING BAS SYSTEM. THE CONTROL PANEL SHALL BE CAPABLE OF PERFORMING ALL FUNCTIONS AS OUTLINED IN THIS DRAWING AND DRAWING AD-H-6. CONTROL SYSTEM SHALL BE WEB BASED. PROVIDE ALL HARDWARE, SOFTWARE, WIRING AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL SYSTEM.
 2. THE ATC CONTRACTOR SHALL PROVIDE ALL HARDWARE, WIRING AND PROGRAMMING AS OUTLINED IN THESE DOCUMENTS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
 3. ALL REFERENCES TO BAS (BUILDING AUTOMATION SYSTEM) ON THESE PLANS SHALL ALSO MEAN ATC (AUTOMATIC TEMPERATURE CONTROL SYSTEM).
 4. ALL SETPOINTS REFERENCED SHALL BE ADJUSTABLE THROUGH THE BAS.
 5. ATC CONTRACTOR SHALL PROVIDE A SPACE CONTROL VALVE OPERATOR FOR THE NEW AHU CONTROL VALVES AND FAN COIL UNIT CONTROL VALVES.

2-PIPE TEMPERATURE AUTOMATIC CHANGE-OVER SYSTEM WITH DEAD BAND CONTROL SEQUENCES
GENERAL

1. PROVIDE COMPLETE DDC AUTOMATED CONTROL SYSTEM FOR ALL MECHANICAL EQUIPMENT LOCATED IN BUILDING AS OUTLINED IN THIS DRAWING AND DRAWING AD-H-6. CONTROL SYSTEM SHALL BE WEB BASED. PROVIDE ALL HARDWARE, SOFTWARE, WIRING AND PROGRAMMING FOR A COMPLETE AND OPERATIONAL SYSTEM.
2. DUAL TEMPERATURE CHANGEOVER CONSISTS OF BOILERS, AIR-COOLED CHILLER AND COMMON VFD CONTROLLED DISTRIBUTION PUMPS. SYSTEM SHALL BE STARTED, STOPPED, MONITORED (WITH GRAPHICS) AND CONTROLLED VIA DEDICATED PROGRAMMABLE DDC CONTROLS. ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE WITHOUT ANY PROGRAM CHANGE. ALL ACTUATORS SHALL BE ELECTRONIC. BAS CONTRACTOR SHALL INTERFACE WITH BOILER AND CHILLER CONTROLS AND PROVIDE LIVE GRAPHIC DATA FOR THE ENTIRE SYSTEM.
3. CHANGEOVER SYSTEM SHALL BE INTEGRATED SUCH THAT THERE IS A 15' OUTDOOR AIR TEMPERATURE DEAD BAND WHERE THE BAS (BUILDING AUTOMATION SYSTEM) PROVIDES NEITHER HEATING NOR COOLING. INITIAL SETPOINTS OF THIS DEAD BAND SHALL BE BETWEEN 60° AND 75° OUTDOOR AIR TEMPERATURE. AT THE TIME OF CHANGEOVER, THE SUPPLY WATER TEMPERATURE DIFFERENCE BETWEEN THE TWO SYSTEMS (BOILERS AND CHILLER SETPOINTS PER RESET SCHEDULES) SHALL BE NO GREATER THAN 30°. CHANGEOVER SHALL NOT OCCUR MORE FREQUENTLY THAN 4 HOURS.
4. BAS SHALL INDEX ALL BAS CONTROLLED OR INTERFACE TERMINAL EQUIPMENT AND AHU'S TO EITHER HEATING MODE, COOLING MODE, OR NO HEATING/COOLING MODE. COOLING VIA LOCAL AQUASTAT MOUNTED IN LOW FLOW BYPASS PIPING.
5. LOCAL HAND-OFF-AUTOMATIC SWITCHES (H-O-A) FOR EQUIPMENT SHALL PROVIDE LOCAL OVERRIDE OF BAS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
6. ALL TEMPERATURES LISTED ARE FAHRENHEIT.
7. BOILER MANUFACTURER SHALL PROVIDE BOILER CONTROLLER (SMART TOUCH CONTROLLER) TO SEQUENCE, MODULATE, CONTROL BOILERS AND BOILER PUMPS. ALL BOILER DATA SHALL BE PROVIDED TO THE BAS THROUGH MANUFACTURER'S CONTROL PANEL. BAS SHALL PROVIDE ALL HOT WATER PUMP (HWP) CONTROLS. ALL INFORMATION (INCLUDING DATA FROM BOILER CONTROLLER) AND GRAPHICS SHALL BE DISPLAYED BY THE BAS. ALL SET POINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE LOCAL DDC PANELS AND THE BAS FRONT-END WITHOUT ANY PROGRAM CHANGES. PROVIDE FOR LOCAL EQUIPMENT OVERRIDE OF CONTROL SYSTEM.
8. PROVIDE TEMPERATURE SENSORS AND OTHER DEVICES SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR. COORDINATE AND INSURE MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE DIAMETERS ARE PROVIDED. BAS SHALL WIRE BOILER MANUFACTURER'S CONTROLLER TO EACH BOILER AND SENSORS PER MANUFACTURER'S DIAGRAMS. BAS SHALL COORDINATE TO OBTAIN ALL INFO FOR BAS GRAPHICS.
9. BAS CONTRACTOR SHALL PROVIDE AND WIRE ALL BOILER EMERGENCY SHUT-OFF SWITCHES AND FIRESTATS (NOT SHOWN) WITH EACH BOILER.
10. GRAPHICS
 - a. PROVIDE OVERALL GRAPHICS OF SYSTEM OF REAL TIME UPDATING OF CONDITIONS (STATUS, TEMPERATURE ETC).
 - b. PROVIDE INDIVIDUAL GRAPHICS FOR EACH SUB-SYSTEM: BOILERS, CHILLERS, AND DISTRIBUTION PUMPS, EACH WITH ASSOCIATED CONTROL VALVES AND SENSORS.
11. IN ADDITION TO ALARMS LISTED, ALL SENSORS SHALL BE CAPABLE OF HIGH/LOW ALARM POINTS. AT A MINIMUM THE FOLLOWING SHALL BE ALARMED, AFTER APPROPRIATE TIME DELAYS
 - a. ANY PIECE OF EQUIPMENT IS INDICATED AS OFF, WHEN IT SHOULD BE ON (IGNORE IF CHILLER IS OFF TEMPORARILY DUE TO LOW LOAD CONDITIONS).
 - b. ANY PIECE OF EQUIPMENT IS ON, THAT IS INDICATED AS OFF OR FAILS
12. PROVIDE WEB BASE SYSTEM
13. REPORTING FUNCTIONS

HISTORIES

 - a. THE BAS SYSTEM SHALL REPORT ANY TEMPERATURE OR DATA FROM ANY SENSOR OR DEFINED VARIABLE, ON REQUEST OF OPERATOR
 - b. THE BAS SHALL BE PROGRAMMED TO RECORD HISTORIES OF ALL
 1. WATER TEMPERATURES, STATUS, FLOW RATES,
 2. HOUR OF DAY, TIME OF DAY,
 3. HOURS OF OPERATION ASSOCIATED WITH EACH PIECE OF EQUIPMENT
 4. ANY OTHER ITEM, OVER ANY TIME PERIOD, REQUESTED BY OPERATOR
 - c. THE BAS SHALL PRINTOUT OUT ALL CHANGES IN EQUIPMENT STATUS, AS THEY OCCUR.

BOILERS CONTROLS (SUPPLIED BY BAS CONTRACTOR)

- START/STOP
1. WHEN OAT RISE INTO THE OAT DEAD BAND RANGE FOR 15 MINUTES, THE BOILER SYSTEM SHALL BE STOPPED AND AFTER 10 MINUTES THE PUMP (HWP-1) SHALL STOP.
- ALARMS
1. BAS SHALL PROVIDE AN ALARM IF ANY BOILER FAILS. IN ADDITION TO BAS ALARM, PROVIDE A LOCAL AND AUDIO VISUAL PANEL TO DISPLAY INDIVIDUAL BOILER, PUMP, AND CHILLER ALARMS.

BOILERS CONTROLS (SUPPLIED BY BOILER MANUFACTURER)

- GENERAL
1. BOILER MANUFACTURER SHALL PROVIDE BOILER CONTROL PANEL AND COORDINATE BOILER SEQUENCES AND DATA AND ALARM INTERFACE TO BAS VIA BACNET, LONWORKS OR MODBUS CONTROLS.

BOILER CONTROL

1. WHEN BOTH BOILERS ARE OFF, BVV SHALL BE OPEN. BEFORE A BOILER IS STARTED, THE ASSOCIATED BVV SHALL BE OPENED, AND BVV CLOSED.
2. THE LEAD AND LAG BOILERS SHALL BE STARTED, MODULATED AND STOPPED AS NEEDED TO MAINTAIN THE RESET (LINEAR) AT HOT (HOT WATER SUPPLY TEMPERATURE SENSOR) AS FOLLOWS:

OAT F	HST F
0°	180 (ADJ)
60°	120 (ADJ)

1. WHEN A BOILER IS NEEDED TO OPERATE, THE ASSOCIATED COMBUSTION BOILER PUMP(S) SHALL START. WHEN NO BOILER IS NEEDED THE BOILER PUMP(S) SHALL STOP 20 SECONDS (adj.) AFTER THE BURNER(S) IS STOPPED.
2. ON A CALL FOR HEATING, THE LEAD BOILER SHALL START ON LOW FIRE. THE MAXIMUM SUPPLY WATER TEMPERATURE OF OPERATING BOILERS SHALL BE MAINTAINED BY STAGING OF BOILERS PER THE BOILER CONTROLS. THE BOILER CONTROL SYSTEM SHALL ROTATE THE LEAD AND LAG BOILERS THEREBY ASSURING THAT BOILERS RECEIVE EQUAL RUN TIME.
3. THE LAG BOILERS SHALL BE STARTED WHEN NEEDED TO MAINTAIN EITHER THE SYSTEM SUPPLY TEMPERATURE AT BST OR THE SYSTEM WOULD OPERATE MORE EFFICIENTLY WITH MORE BOILERS ON.
4. WHEN LOAD DROPS (BASED ON BOILER CAPACITY) LAG BOILERS SHALL BE STOPPED AS REQUIRED.
5. THE CONTROLLER SHALL ENABLE/DISABLE, MONITOR STATUS, AND DISPLAY ALARM SIGNALS FOR FLAME FAILURE AND LOW WATER ALARM. UPON A BOILER FAILURE ALARM, FLAME FAILURE ALARM, OR LOW WATER ALARM, THE RESPECTIVE BOILER SHALL BE DE-ENERGIZED, THE NEXT BOILER IN THE LEAD/LAG SEQUENCE OF OPERATION SHALL BE ENERGIZED, AND THE BAS SHALL ALARM.
6. ALL CONTROLS SHALL BE LOCATED IN A HINGED LOCKING METAL CABINET WITH NEMA 1A ENCLOSURE AND NEOPRENE DUST SEAL. CONTROLS SHALL BE ELECTRONIC. ALL WIRING SHALL BE COLOR CODED. PROVIDE CONTROL TRANSFORMER, AND FUSING IN ACCORDANCE WITH ALL CODE REQUIREMENTS. PROVIDE HIGH LIMIT AQUASTAT (SET AT 200°F) WITH MANUAL RESET AND SWITCH FOR ALARM TERMINAL; OPERATING AQUASTAT (SET AT 120°F) AND LOW WATER CUT OFF DEVICE WITH MANUAL RESET.
7. THE SEQUENCE OF BURNER OPERATION SHALL BE CONTROLLED BY A PROGRAMMING RELAY OF THE ELECTRONIC TYPE PROVIDING PRE-PURGE AND POST-PURGE CYCLES AND WITH FULL PROTECTION AGAINST FLAME FAILURE DURING BOTH IGNITION AND NORMAL BURNER OPERATING PERIODS. OPERATING OF THE PROGRAMMING RELAY SHALL BE GOVERNED BY EXCESS PRESSURE OR TEMPERATURE LIMITS SWITCH, AN ELECTRONIC FLAME FAILURE PROTECTION DEVICE AND THE LOW WATER CUT-OFF TO SHUT DOWN THE BOILER. AFTER THE SAFETY SHUTDOWN MANUAL RESET SHALL BE REQUIRED. THE BURNER BLOWER CONTROLS SHALL BE INTERLOCKED TO PREVENT BURNER OPERATION WITHOUT FORCED DRAFT. MEANS SHALL BE PROVIDED FOR AUTOMATICALLY DELAYING BURNER OPERATION WHILE ALLOWING FAN TO SCAVENGE BOILER PASSES OF COMBUSTION GASES AFTER FLAME OR OTHER BURNER STOPPAGE.
8. THE INDIVIDUAL BOILERS SHALL MODULATE TO MAINTAIN REQUIRED BOILER WATER TEMPERATURE, TO MAINTAIN MAXIMUM EFFICIENCY THE BOILERS SHALL STAGE ON AND MODULATE.

SAFETIES

6. UPON THE FOLLOWING ALARMS, THE RESPECTIVE BOILER SHALL SHUT DOWN. THE LAG BOILER SHALL START, AND AN ALARM SHALL BE SENT TO THE BAS. RESET SHALL BE MANUAL.
 - a. HIGH WATER TEMPERATURE SAFETY SWITCH
 - b. LOW WATER PRESSURE SAFETY SWITCH
 - c. HI-LO GAS PRESSURE SWITCH WITH PRESSURE GAUGE
 - d. FLAME SAFEGUARD WITH DIAGNOSTIC READOUTS.

CHILLER CONTROL SEQUENCE

GENERAL

1. THE EXISTING CHILLER CONTROL PANEL SHALL BE MODIFIED TO PROVIDE CHILLER START/STOP AND ALARMS THROUGH THE BAS SYSTEM. ALL PROGRAMMING, HARDWARE AND WIRING SHALL BE PROVIDED BY THE BAS CONTRACTOR TO ALL EXISTING AS FOLLOWS.
 2. THE EXISTING FACTORY MOUNTED CHILLED WATER SUPPLY TEMPERATURE SENSOR SHALL CONTROL CHILLER CAPACITY. THE CHILLED WATER FLOW SWITCH SHALL BE SUPPLIED AND INSTALLED BY BAS CONTRACTOR.
 3. CONTROL OF INTERNAL CHILLER OPERATION SHALL BE DONE THROUGH THE CONTROL PANEL PROVIDED BY THE CHILLER.
 4. THE CHILLER AND ASSOCIATED PUMPS SHALL STAGE ON DURING UNOCCUPIED PERIODS FOR COOLING OPERATION AS DETERMINED BY AVERAGE TEMPERATURE READING OF 78°F (ADJ) AS SENSED BY ALL NEW SENSORS LOCATED ON THE 1ST FLOOR OR ALL SENSORS LOCATED ON THE 2ND FLOOR. EACH FLOOR SHALL ACT AS ITS OWN COOLING ZONE DURING UNOCCUPIED COOLING PERIODS. THE CHILLER AND PUMPS SHALL STAGE OFF UPON REACHING AN AVERAGE SETPOINT OF 75°F (ADJ).
 5. CHILLED WATER FS (FLOW SWITCH) SHALL PROVE FLOW AT MINIMUM CHILLER. VERIFY MINIMUM REQUIRED CHILLED WATER FLOW WITH CHILLER MANUFACTURER.
 6. BAS CONTRACTOR SHALL PROVIDE DPT (DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER) FOR THE EVAPORATOR OF THE CHILLER. THE DPT SHALL BE USED TO MONITOR THE CHILLED WATER FLOW, BASED ON DP SIGNAL AND CHILLER MANUFACTURER FLOW CURVES. COORDINATE CURVE WITH MANUFACTURER.
 7. BAS CONTRACTOR SHALL PROVIDE SLOW ACTING, MODULATING MINIMUM FLOW BYPASS GLOBE TYPE CONTROL VALVE, SIZED FOR A MAXIMUM 10 PSI PRESSURE DROP, WITH 48 GPM FLOW. (THIS ALONG WITH FIXED BYPASS MINIMUM FLOWS, TOTAL 66 GPM) (10% GREATER THAN THE CHILLER'S MINIMUM FLOW, COORDINATE MINIMUM FLOW WITH CHILLER MANUFACTURER).
- OPERATION
1. DURING THE COOLING SEASON AND DURING THE OAT DEAD BAND, THE TWO BOILER ISOLATION VALVES SHALL BE CLOSED AND THE BVV (BOILER BYPASS VALVE) SHALL BE OPEN, AND THE CV (CHILLER ISOLATION VALVE) SHALL BE OPEN. WHEN THE OAT DEAD BAND HIGH END TEMPERATURE (INITIALLY 75°) IS REACHED, THE DISTRIBUTION PUMP SHALL BE STARTED. THE MINIMUM FLOW BYPASS VALVE SHALL BE INITIALLY OPEN. AFTER CHILLER START-UP, IT SHALL GO UNDER NORMAL CONTROL - SEE PUMP CONTROLS.
 2. THE CHILLER SHALL BE SIGNALLED TO START BY THE BAS WHEN THE OAT (OUTDOOR AIR TEMPERATURE SENSOR) IS ABOVE 75°, FOR 10 MINUTES.
 3. MANUFACTURER CONTROL PANEL SHALL PROVE FLOW BEFORE CHILLER'S STARTED AND CONTROL OPERATION INCLUDING ANTI-RECYCLING TIME DELAYS.
 4. WHEN THE OAT DROPS INTO THE DEAD BAND RANGE FOR 15 MINUTES, THE CHILLER SHALL BE STOPPED, AND AFTER 10 MINUTES THE PUMP SHALL STOP.
 5. BAS CONTRACTOR SHALL SIGNAL THE CHILLER TO PROVIDE THE FOLLOWING LINEAR OUTDOOR AIR WET BULB RESET SCHEDULE ADJUSTABLE THRU BAS:

OAT WB	T
OVER 75°	44
UNDER 75°	48

ALARM

1. IF CHILLER FAILS, ALARM SHALL BE SENT TO THE BAS AND THE LOCAL ALARM PANEL.

VARIABLE VOLUME DISTRIBUTION PUMPS

GENERAL

1. THE ASSOCIATED SYSTEM PUMP SHALL BE AUTOMATICALLY STARTED AND STOPPED BY THE DDC BEFORE EITHER BOILER OR CHILLER SYSTEM IS ACTIVATED.
2. THE PUMP VFD SHALL START AT LOW SPEED AND SHALL SLOWLY MODULATE THE VFD'S (VARIABLE FREQUENCY DRIVE SPEED) TO THE LOWEST SETTING THAT WILL MAINTAIN THE REMOTE DPT (DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER) SETPOINT. INITIAL SETPOINT SHALL BE 10 PSIG. FINAL SETTING SHALL BE DETERMINED BY BALANCING CONTRACTOR TO THE LOWEST SETTING THAT WILL PROVIDE FULL FLOW TO MOST REMOTE COIL WITH MINIMUM EXCESS PRESSURE.
3. WHEN INDEXED TO COOLING, THE CV (MINIMUM FLOW BYPASS VALVE) SHALL SLOWLY MODULATE OPEN AS REQUIRED TO MAINTAIN MINIMUM CHILLER FLOW, PLUS 10% (VERIFY FLOW REQUIREMENTS WITH CHILLER MANUFACTURER) AS MEASURED BY DPT AT CHILLER.
4. WHEN INDEXED TO HEATING, THE BVV (HOT WATER BYPASS VALVE) SHALL PROVIDE TO MAINTAIN MINIMUM BOILER WATER FLOW (PLUS) AS MEASURED BY THE FLOW STATIONS (FS). VERIFY MINIMUM BOILER WATER FLOW REQUIREMENTS WITH THE MANUFACTURER.
5. THE DDC SYSTEM SHALL SET THE VFD'S TO MAINTAIN 191 GPM WHEN THE SYSTEM IS INDEXED TO COOLING, AND 82 GPM WHEN THE SYSTEM IS INDEXED TO HEATING.

09/10				REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

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DESIGNED BY:	GM
DRAWN BY:	CHI
SHEET CHK'D BY:	GM
CROSS CHK'D BY:	DW
SCALE:	AS NOTED
APPROVED BY:	DW
DATE:	SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
HVAC
CONTROLS

PROJECT NO.
1289-74283

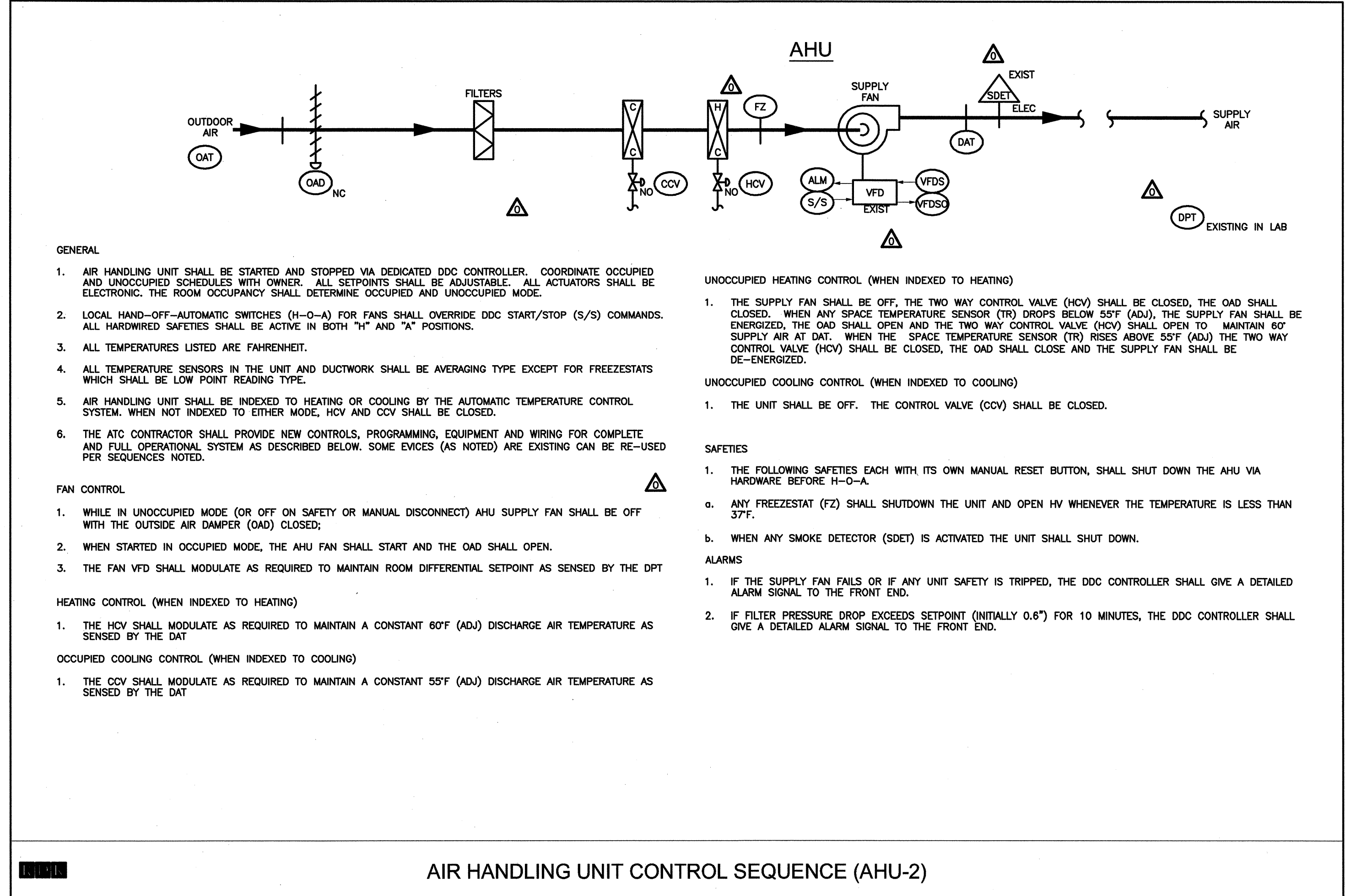
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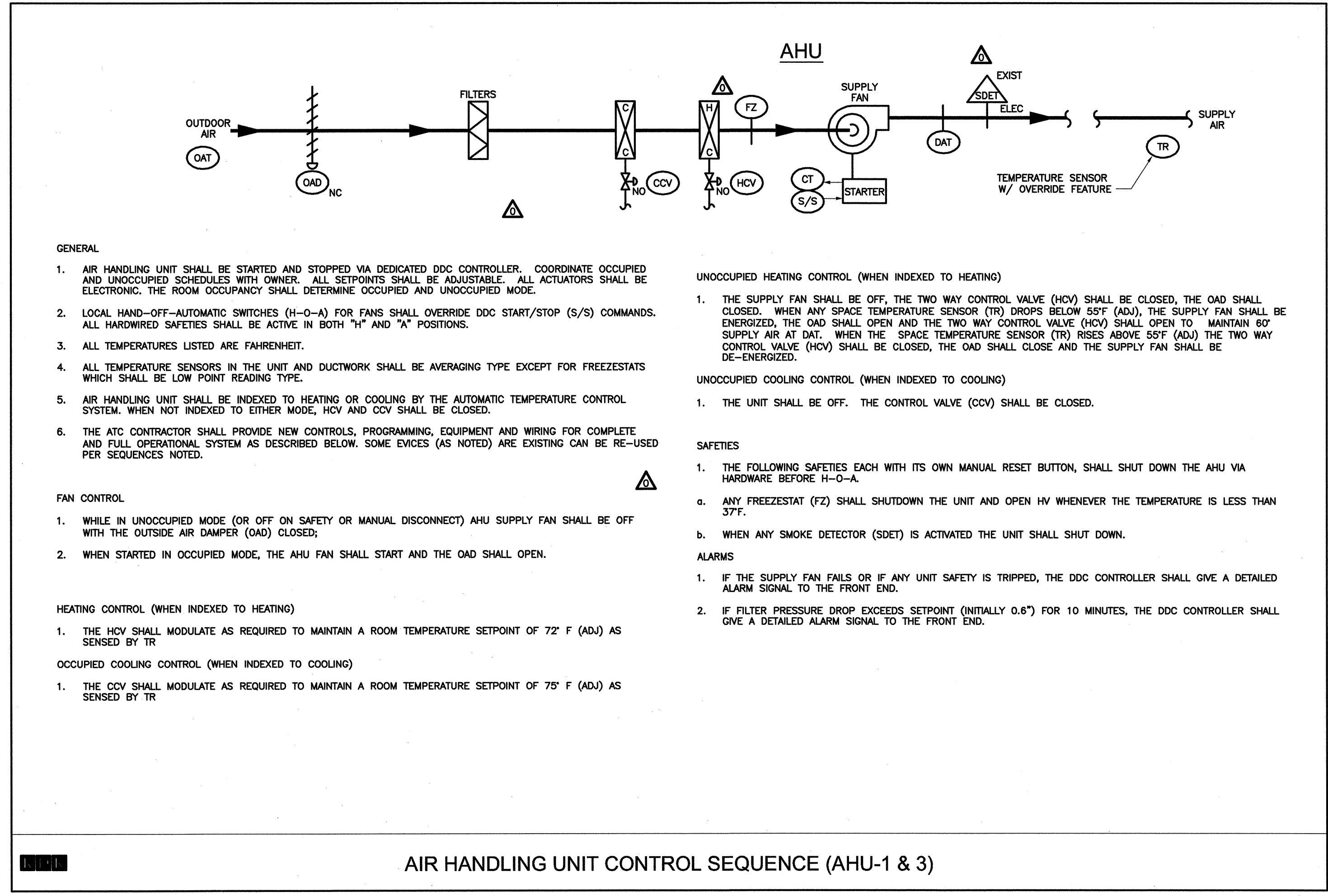
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- GENERAL**
- AIR HANDLING UNIT SHALL BE STARTED AND STOPPED VIA DEDICATED DDC CONTROLLER. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC. THE ROOM OCCUPANCY SHALL DETERMINE OCCUPIED AND UNOCCUPIED MODE.
 - LOCAL HAND-OFF-AUTOMATIC SWITCHES (H-O-A) FOR FANS SHALL OVERRIDE DDC START/STOP (S/S) COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
 - ALL TEMPERATURES LISTED ARE FAHRENHEIT.
 - ALL TEMPERATURE SENSORS IN THE UNIT AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZESTATS WHICH SHALL BE LOW POINT READING TYPE.
 - AIR HANDLING UNIT SHALL BE INDEXED TO HEATING OR COOLING BY THE AUTOMATIC TEMPERATURE CONTROL SYSTEM. WHEN NOT INDEXED TO EITHER MODE, HCV AND CCV SHALL BE CLOSED.
 - THE ATC CONTRACTOR SHALL PROVIDE NEW CONTROLS, PROGRAMMING, EQUIPMENT AND WIRING FOR COMPLETE AND FULL OPERATIONAL SYSTEM AS DESCRIBED BELOW. SOME EVICES (AS NOTED) ARE EXISTING CAN BE RE-USED PER SEQUENCES NOTED.
- FAN CONTROL**
- WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) AHU SUPPLY FAN SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) CLOSED;
 - WHEN STARTED IN OCCUPIED MODE, THE AHU FAN SHALL START AND THE OAD SHALL OPEN.
 - THE FAN VFD SHALL MODULATE AS REQUIRED TO MAINTAIN ROOM DIFFERENTIAL SETPOINT AS SENSED BY THE DPT
- HEATING CONTROL (WHEN INDEXED TO HEATING)**
- THE HCV SHALL MODULATE AS REQUIRED TO MAINTAIN A CONSTANT 60°F (ADJ) DISCHARGE AIR TEMPERATURE AS SENSED BY THE DAT
- OCCUPIED COOLING CONTROL (WHEN INDEXED TO COOLING)**
- THE CCV SHALL MODULATE AS REQUIRED TO MAINTAIN A CONSTANT 55°F (ADJ) DISCHARGE AIR TEMPERATURE AS SENSED BY THE DAT

- UNOCCUPIED HEATING CONTROL (WHEN INDEXED TO HEATING)**
- THE SUPPLY FAN SHALL BE OFF, THE TWO WAY CONTROL VALVE (HCV) SHALL BE CLOSED, THE OAD SHALL BE CLOSED. WHEN ANY SPACE TEMPERATURE SENSOR (TR) DROPS BELOW 55°F (ADJ), THE SUPPLY FAN SHALL BE ENERGIZED, THE OAD SHALL OPEN AND THE TWO WAY CONTROL VALVE (HCV) SHALL OPEN TO MAINTAIN 60° SUPPLY AIR AT DAT. WHEN THE SPACE TEMPERATURE SENSOR (TR) RISES ABOVE 55°F (ADJ) THE TWO WAY CONTROL VALVE (HCV) SHALL BE CLOSED, THE OAD SHALL CLOSE AND THE SUPPLY FAN SHALL BE DE-ENERGIZED.
- UNOCCUPIED COOLING CONTROL (WHEN INDEXED TO COOLING)**
- THE UNIT SHALL BE OFF. THE CONTROL VALVE (CCV) SHALL BE CLOSED.
- SAFETIES**
- THE FOLLOWING SAFETIES EACH WITH ITS OWN MANUAL RESET BUTTON, SHALL SHUT DOWN THE AHU VIA HARDWARE BEFORE H-O-A
 - ANY FREEZEZSTAT (FZ) SHALL SHUTDOWN THE UNIT AND OPEN HV WHENEVER THE TEMPERATURE IS LESS THAN 37°F.
 - WHEN ANY SMOKE DETECTOR (SDET) IS ACTIVATED THE UNIT SHALL SHUT DOWN.
- ALARMS**
- IF THE SUPPLY FAN FAILS OR IF ANY UNIT SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.
 - IF FILTER PRESSURE DROP EXCEEDS SETPOINT (INITIALLY 0.8") FOR 10 MINUTES, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.

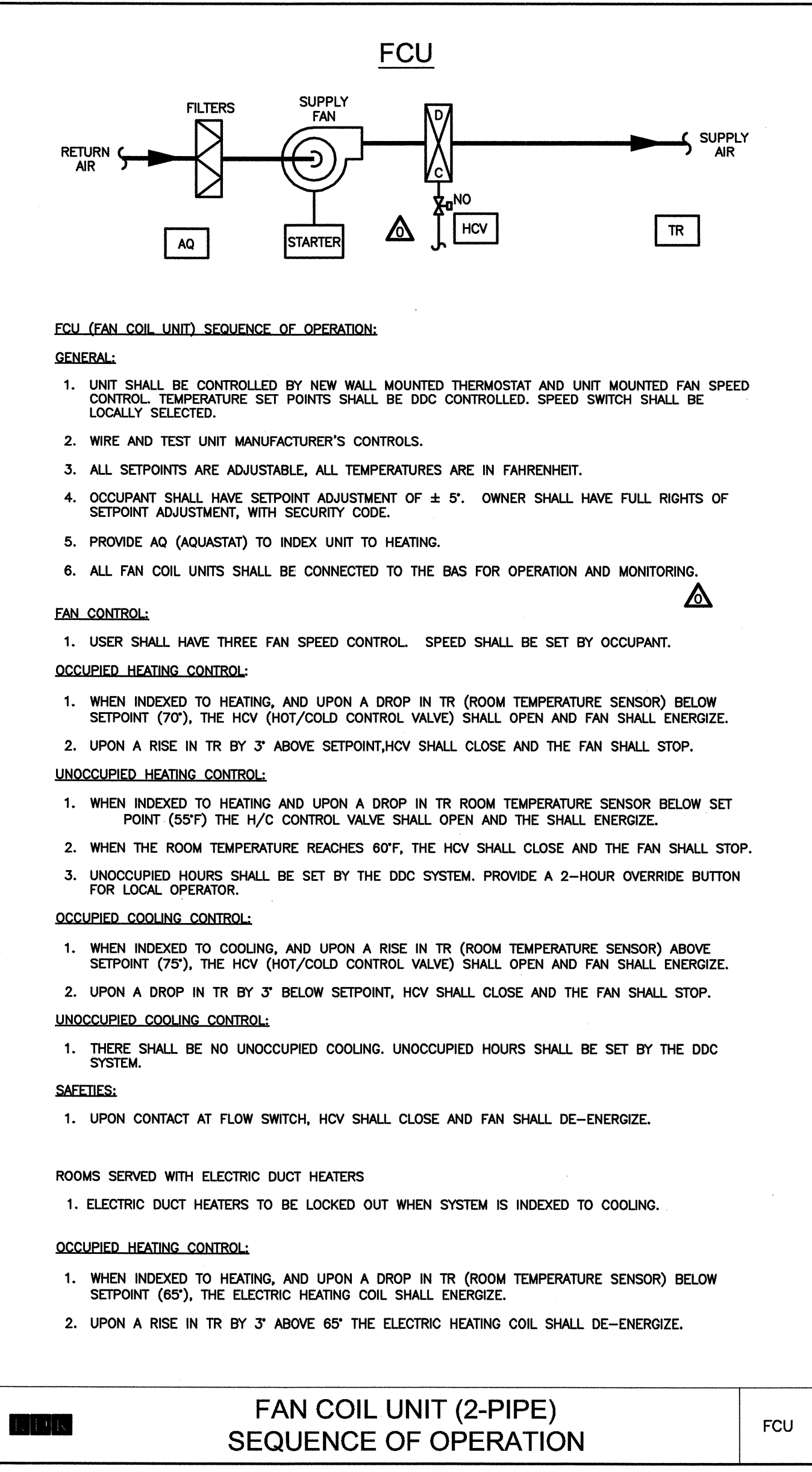
AIR HANDLING UNIT CONTROL SEQUENCE (AHU-2)



- GENERAL**
- AIR HANDLING UNIT SHALL BE STARTED AND STOPPED VIA DEDICATED DDC CONTROLLER. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC. THE ROOM OCCUPANCY SHALL DETERMINE OCCUPIED AND UNOCCUPIED MODE.
 - LOCAL HAND-OFF-AUTOMATIC SWITCHES (H-O-A) FOR FANS SHALL OVERRIDE DDC START/STOP (S/S) COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
 - ALL TEMPERATURES LISTED ARE FAHRENHEIT.
 - ALL TEMPERATURE SENSORS IN THE UNIT AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZEZSTATS WHICH SHALL BE LOW POINT READING TYPE.
 - AIR HANDLING UNIT SHALL BE INDEXED TO HEATING OR COOLING BY THE AUTOMATIC TEMPERATURE CONTROL SYSTEM. WHEN NOT INDEXED TO EITHER MODE, HCV AND CCV SHALL BE CLOSED.
 - THE ATC CONTRACTOR SHALL PROVIDE NEW CONTROLS, PROGRAMMING, EQUIPMENT AND WIRING FOR COMPLETE AND FULL OPERATIONAL SYSTEM AS DESCRIBED BELOW. SOME EVICES (AS NOTED) ARE EXISTING CAN BE RE-USED PER SEQUENCES NOTED.
- FAN CONTROL**
- WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) AHU SUPPLY FAN SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) CLOSED;
 - WHEN STARTED IN OCCUPIED MODE, THE AHU FAN SHALL START AND THE OAD SHALL OPEN.
- HEATING CONTROL (WHEN INDEXED TO HEATING)**
- THE HCV SHALL MODULATE AS REQUIRED TO MAINTAIN A ROOM TEMPERATURE SETPOINT OF 72° F (ADJ) AS SENSED BY TR
- OCCUPIED COOLING CONTROL (WHEN INDEXED TO COOLING)**
- THE CCV SHALL MODULATE AS REQUIRED TO MAINTAIN A ROOM TEMPERATURE SETPOINT OF 75° F (ADJ) AS SENSED BY TR

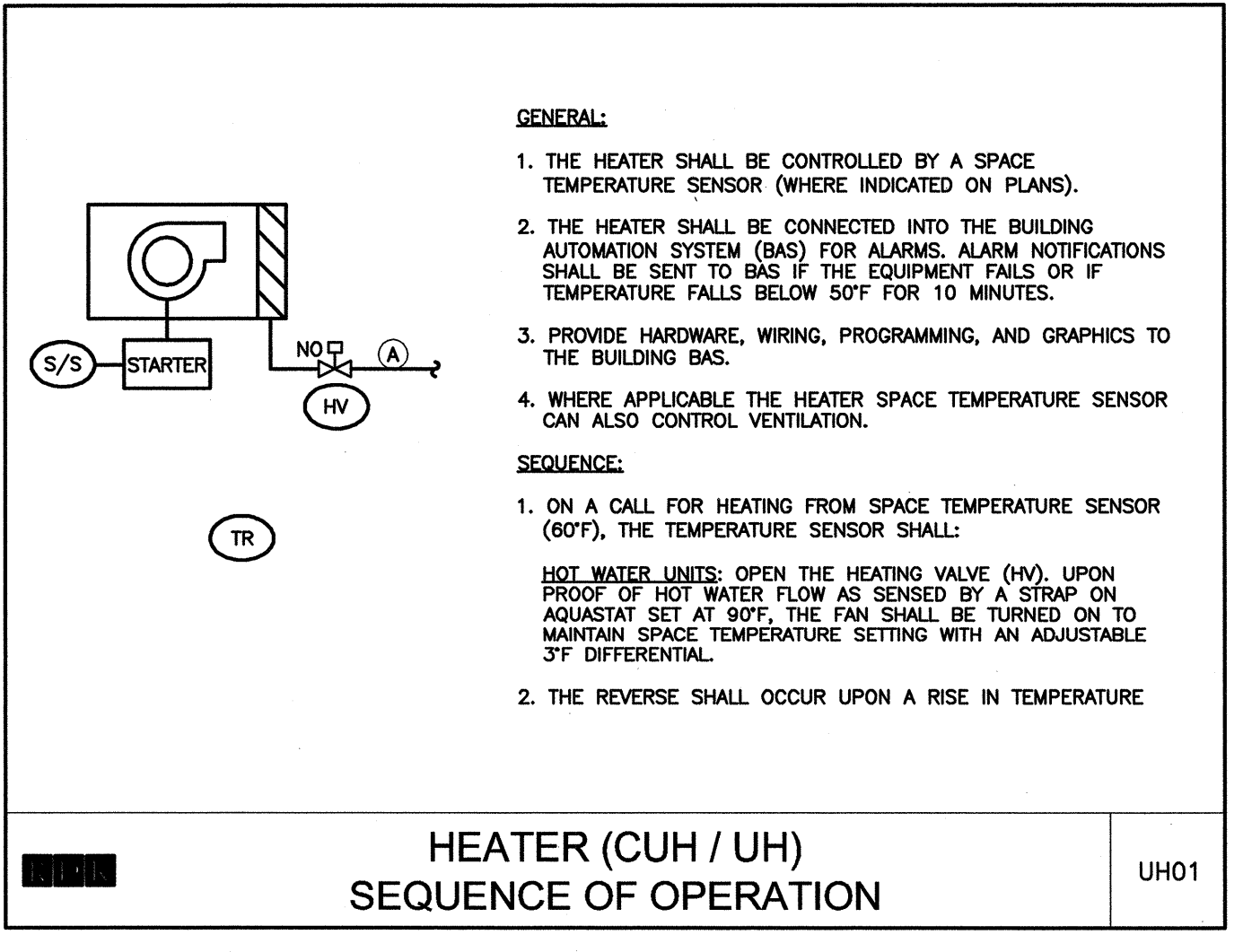
- UNOCCUPIED HEATING CONTROL (WHEN INDEXED TO HEATING)**
- THE SUPPLY FAN SHALL BE OFF, THE TWO WAY CONTROL VALVE (HCV) SHALL BE CLOSED, THE OAD SHALL BE CLOSED. WHEN ANY SPACE TEMPERATURE SENSOR (TR) DROPS BELOW 55°F (ADJ), THE SUPPLY FAN SHALL BE ENERGIZED, THE OAD SHALL OPEN AND THE TWO WAY CONTROL VALVE (HCV) SHALL OPEN TO MAINTAIN 60° SUPPLY AIR AT DAT. WHEN THE SPACE TEMPERATURE SENSOR (TR) RISES ABOVE 55°F (ADJ) THE TWO WAY CONTROL VALVE (HCV) SHALL BE CLOSED, THE OAD SHALL CLOSE AND THE SUPPLY FAN SHALL BE DE-ENERGIZED.
- UNOCCUPIED COOLING CONTROL (WHEN INDEXED TO COOLING)**
- THE UNIT SHALL BE OFF. THE CONTROL VALVE (CCV) SHALL BE CLOSED.
- SAFETIES**
- THE FOLLOWING SAFETIES EACH WITH ITS OWN MANUAL RESET BUTTON, SHALL SHUT DOWN THE AHU VIA HARDWARE BEFORE H-O-A
 - ANY FREEZEZSTAT (FZ) SHALL SHUTDOWN THE UNIT AND OPEN HV WHENEVER THE TEMPERATURE IS LESS THAN 37°F.
 - WHEN ANY SMOKE DETECTOR (SDET) IS ACTIVATED THE UNIT SHALL SHUT DOWN.
- ALARMS**
- IF THE SUPPLY FAN FAILS OR IF ANY UNIT SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.
 - IF FILTER PRESSURE DROP EXCEEDS SETPOINT (INITIALLY 0.8") FOR 10 MINUTES, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.

AIR HANDLING UNIT CONTROL SEQUENCE (AHU-1 & 3)



- FCU (FAN COIL UNIT) SEQUENCE OF OPERATION:**
- GENERAL:**
- UNIT SHALL BE CONTROLLED BY NEW WALL MOUNTED THERMOSTAT AND UNIT MOUNTED FAN SPEED CONTROL. TEMPERATURE SET POINTS SHALL BE DDC CONTROLLED. SPEED SWITCH SHALL BE LOCALLY SELECTED.
 - WIRE AND TEST UNIT MANUFACTURER'S CONTROLS.
 - ALL SETPOINTS ARE ADJUSTABLE, ALL TEMPERATURES ARE IN FAHRENHEIT.
 - OCCUPANT SHALL HAVE SETPOINT ADJUSTMENT OF ± 5°. OWNER SHALL HAVE FULL RIGHTS OF SETPOINT ADJUSTMENT, WITH SECURITY CODE.
 - PROVIDE AQ (AQUASTAT) TO INDEX UNIT TO HEATING.
 - ALL FAN COIL UNITS SHALL BE CONNECTED TO THE BAS FOR OPERATION AND MONITORING.
- FAN CONTROL:**
- USER SHALL HAVE THREE FAN SPEED CONTROL. SPEED SHALL BE SET BY OCCUPANT.
- OCCUPIED HEATING CONTROL:**
- WHEN INDEXED TO HEATING, AND UPON A DROP IN TR (ROOM TEMPERATURE SENSOR) BELOW SETPOINT (70°), THE HCV (HOT/COLD CONTROL VALVE) SHALL OPEN AND FAN SHALL ENERGIZE.
 - UPON A RISE IN TR BY 3° ABOVE SETPOINT, HCV SHALL CLOSE AND THE FAN SHALL STOP.
- UNOCCUPIED HEATING CONTROL:**
- WHEN INDEXED TO HEATING AND UPON A DROP IN TR ROOM TEMPERATURE SENSOR BELOW SET POINT (55°F) THE H/C CONTROL VALVE SHALL OPEN AND THE SHALL ENERGIZE.
 - WHEN THE ROOM TEMPERATURE REACHES 60°F, THE HCV SHALL CLOSE AND THE FAN SHALL STOP.
 - UNOCCUPIED HOURS SHALL BE SET BY THE DDC SYSTEM. PROVIDE A 2-HOUR OVERRIDE BUTTON FOR LOCAL OPERATOR.
- OCCUPIED COOLING CONTROL:**
- WHEN INDEXED TO COOLING, AND UPON A RISE IN TR (ROOM TEMPERATURE SENSOR) ABOVE SETPOINT (75°), THE HCV (HOT/COLD CONTROL VALVE) SHALL OPEN AND FAN SHALL ENERGIZE.
 - UPON A DROP IN TR BY 3° BELOW SETPOINT, HCV SHALL CLOSE AND THE FAN SHALL STOP.
- UNOCCUPIED COOLING CONTROL:**
- THERE SHALL BE NO UNOCCUPIED COOLING. UNOCCUPIED HOURS SHALL BE SET BY THE DDC SYSTEM.
- SAFETIES:**
- UPON CONTACT AT FLOW SWITCH, HCV SHALL CLOSE AND FAN SHALL DE-ENERGIZE.
- ROOMS SERVED WITH ELECTRIC DUCT HEATERS**
- ELECTRIC DUCT HEATERS TO BE LOCKED OUT WHEN SYSTEM IS INDEXED TO COOLING.
- OCCUPIED HEATING CONTROL:**
- WHEN INDEXED TO HEATING, AND UPON A DROP IN TR (ROOM TEMPERATURE SENSOR) BELOW SETPOINT (65°), THE ELECTRIC HEATING COIL SHALL ENERGIZE.
 - UPON A RISE IN TR BY 3° ABOVE 65° THE ELECTRIC HEATING COIL SHALL DE-ENERGIZE.

FAN COIL UNIT (2-PIPE) SEQUENCE OF OPERATION



- GENERAL:**
- THE HEATER SHALL BE CONTROLLED BY A SPACE TEMPERATURE SENSOR (WHERE INDICATED ON PLANS).
 - THE HEATER SHALL BE CONNECTED INTO THE BUILDING AUTOMATION SYSTEM (BAS) FOR ALARMS. ALARM NOTIFICATIONS SHALL BE SENT TO BAS IF THE EQUIPMENT FAILS OR IF TEMPERATURE FALLS BELOW 50°F FOR 10 MINUTES.
 - PROVIDE HARDWARE, WIRING, PROGRAMMING, AND GRAPHICS TO THE BUILDING BAS.
 - WHERE APPLICABLE THE HEATER SPACE TEMPERATURE SENSOR CAN ALSO CONTROL VENTILATION.
- SEQUENCE:**
- ON A CALL FOR HEATING FROM SPACE TEMPERATURE SENSOR (60°F), THE TEMPERATURE SENSOR SHALL:
HOT WATER UNITS: OPEN THE HEATING VALVE (HV), UPON PROOF OF HOT WATER FLOW AS SENSED BY A STRAP ON AQUASTAT SET AT 80°F, THE FAN SHALL BE TURNED ON TO MAINTAIN SPACE TEMPERATURE SETTING WITH AN ADJUSTABLE 3°F DIFFERENTIAL.
 - THE REVERSE SHALL OCCUR UPON A RISE IN TEMPERATURE

MECHANICAL/ELECTRICAL ROOM VENTILATION FAN SEQUENCE OF OPERATION

REV. NO.	DATE	DRWN	CHKD	REMARKS

CAADO FILE NO. AD-H-8	DESIGNED BY: GM
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CROSS CHK'D BY: DW	SCALE: AS NOTED
APPROVED BY: DW	DATE: SEPTEMBER 2010

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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**ADMINISTRATION BUILDING
HVAC
CONTROLS**

PROJECT NO. 1289-74283
Sht. 201 of 312
AD-H-8
Acc # 1289-74607

CONFORMED

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FAN SCHEDULE														MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS	
TAG	SERVICE	LOCATION	CFM	FAN TYPE	E.S.P. (IN.WG)	WHEEL			OUTLET VELOCITY (FPM)	MOTOR						
						DIA. (IN.)	TYPE	DRIVE		RPM	BHP	HP	V			PH
EF-14	HOOD	ROOF	500	CENT	1.25	-	BI	BELT	5,556	3600	1.03	1.5	208	3	GREENHECK VECTOR H-9	1 & 2
EF-15	COMP RM	COMP RM	300	CABINET	.625	-	FC	BELT	-	-	-	135 W	115	1	GREENHECK SP-A390	1 & 3

NOTES:
 1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
 2 PROVIDE WITH ISOLATION DAMPER (GRAVITY), DISCHARGE NOZZLE, BYPASS PLENUM AND HIGH EFFICIENCY MOTOR. DISCONNECT SWITCH BY ELECTRICAL CONTRACTOR
 3 PROVIDE WITH GRILLE AND SPEED CONTROLLER

EXISTING VERTICAL FAN-COIL UNIT SCHEDULE (FCU)												
SIZE	QUANTITY	COOLING CAP. H.B.H. 45° EWT, 8' T.R.		HEATING OR COOLING G.P.M.	HEATING CAPACITY		AIR CAPACITY C.F.M.		P.D. FT. H2O	INT. AIR 100% INSIDE		
		S.H.	T.H.		M.B.H.	T.D.	COOLING	HEATING		COOLING D.B.	HEATING D.B.	
		2	6	4.4	4.4	1.2	6	10.3'	200	90	1.7	75°
3	4	6.5	6.7	1.8	10	11.4'	300	135	5.2	75°	61°	70°
4	4	8.3	8.6	2.2	12	11.2'	400	180	4.5	75°	61°	70°
6	26	11.6	12.3	3.2	20	12.8'	600	270	11.9	75°	61°	70°

ELECTRIC DUCT HEATER SCHEDULE											
TAG NO.	LOCATION	AIR SIDE				ELECTRIC DATA			SIZE	MANUFACTURER AND MODEL NUMBER	REMARKS
		CFM	EAT °F	MAX FACE VEL. FPM	MAX ΔP IN H2O	KW	(VOLT/PH/HZ)	NO. OF STAGES			
EDH-1	EXISTING LAB	2000	55	600	.1	7.5	480 / 3 / 60	3	SIZE=36" X 24"	-	1
EDH-2	PREP./DIG ROOM	2000	55	600	.1	7.5	480 / 3 / 60	3	SIZE=12" X 24"	-	1
EDH-3	AA ROOM	1400	55	600	.1	5	480 / 3 / 60	2	SIZE=24" X 14"	-	1
EDH-4	SAMPLE ROOM	400	55	500	.1	5	480 / 3 / 60	2	SIZE=12" X 10"	-	1
EDH-5	BASEMENT LOCKER RM.	350	55	400	.1	3	480 / 3 / 60	1	SIZE=16" X 8"	-	1
EDH-6	1ST FLOOR	1150	55	600	.1	5	480 / 3 / 60	2	SIZE=24" X 12"	-	1
EDH-7	2ND FLOOR	220	55	500	.1	1.5	480 / 3 / 60	1	SIZE=10" X 8"	-	1
EDH-8	2ND FLOOR	530	55	500	.1	5	480 / 3 / 60	2	SIZE=22" X 14"	-	1
EDH-9	2ND FLOOR	500	55	500	.1	5	480 / 3 / 60	2	SIZE=16" X 10"	INDEECO QUZ	2

NOTES:
 1. EXISTING DUCT HEATER.
 2. NEW DUCT HEATER PROVIDED WITH AIR FLOW PROVING SWITCH, CONTROL CONTACTOR AND INSULATED TERMINAL BOX.

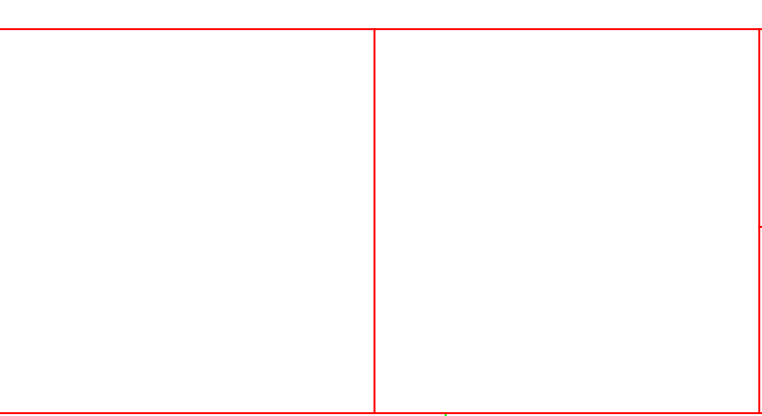
HEATER NOT INSTALLED
 HANDED OVER TO OWNER

BOILER SCHEDULE (HOT WATER)												
TAG	LOCATION	OUTPUT CAPACITY (GROSS I=B=R)		NATURAL GAS			MAX OPER. PRESS. (PSIG)	WATER			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
		MBH	HP	INPUT (CFM)	PRESSURE (IN.WG)	EFFICIENCY (%)		ENT (°F)	LVG (°F)	GPM		
B-1	MECH ROOM	661	19.7	800	4.5	92.3	160	200	120	86	BURNHAM APX-800	1
B-2	MECH ROOM	661	19.7	800	4.5	92.3	160	200	120	86	BURNHAM APX-800	1

NOTES:
 1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.

09/10				REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AD-H-9
 DESIGNED BY: GM
 DRAWN BY: CHI
 SHEET CHK'D BY: GM
 CROSS CHK'D BY: DW
 SCALE: AS NOTED
 APPROVED BY: DW
 DATE: SEPTEMBER 2010



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 AS-BUILT (3/4/2013)

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
 HVAC
 SCHEDULES

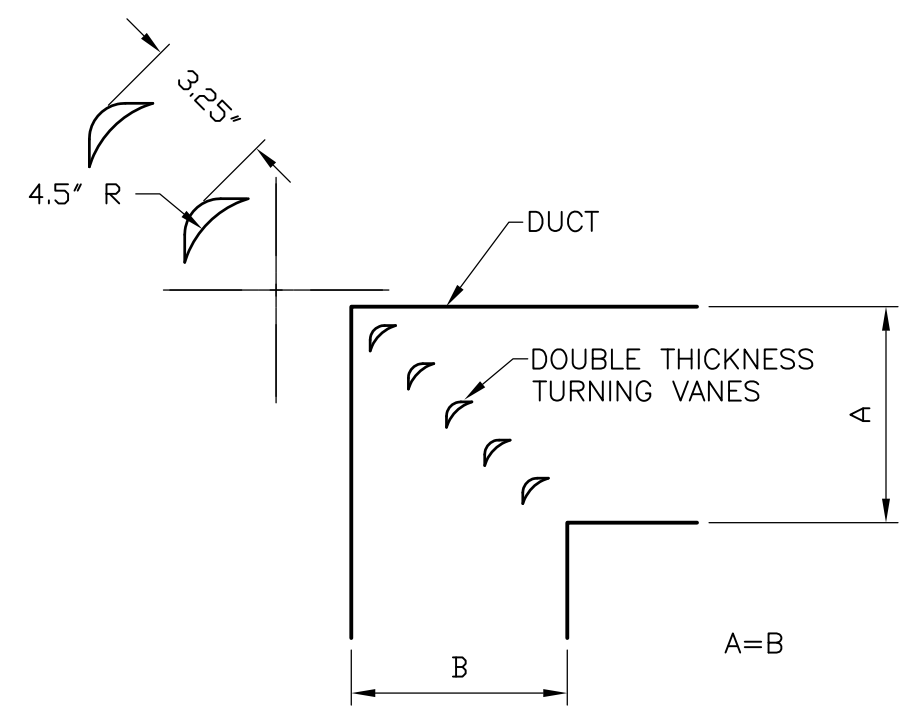
PROJECT NO.
 1289-74283

Sht. 202 of 312

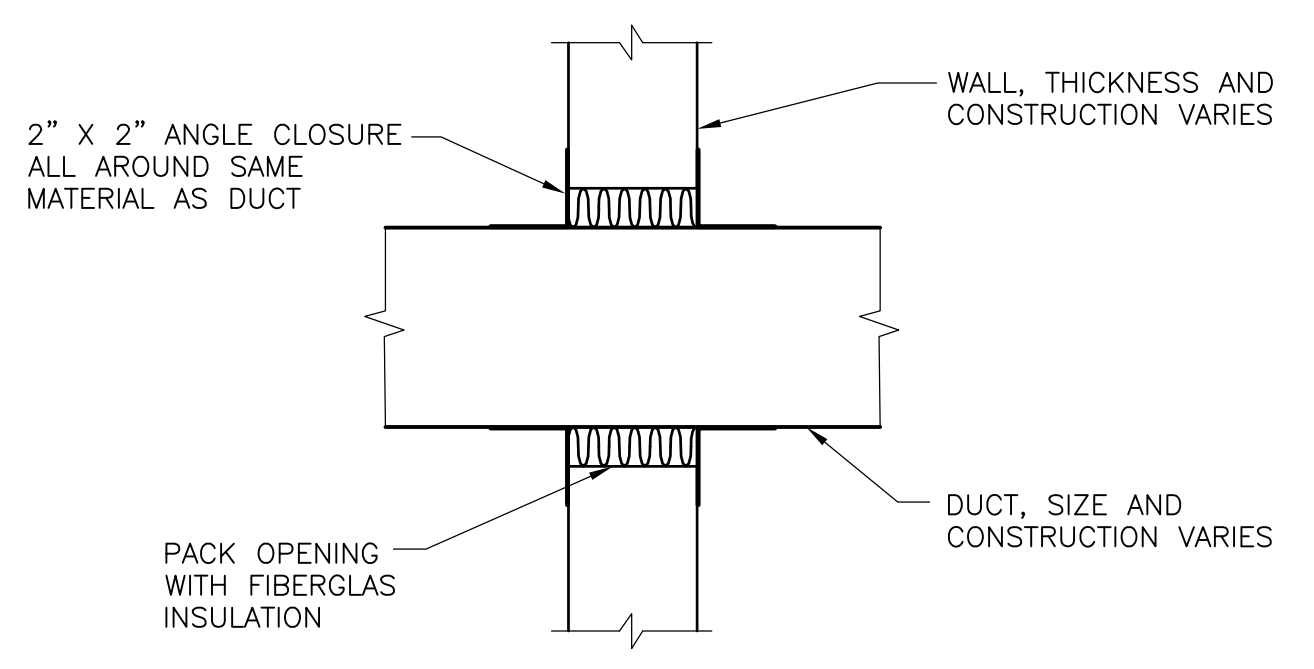
AD-H-9

Acc # 1289-74608

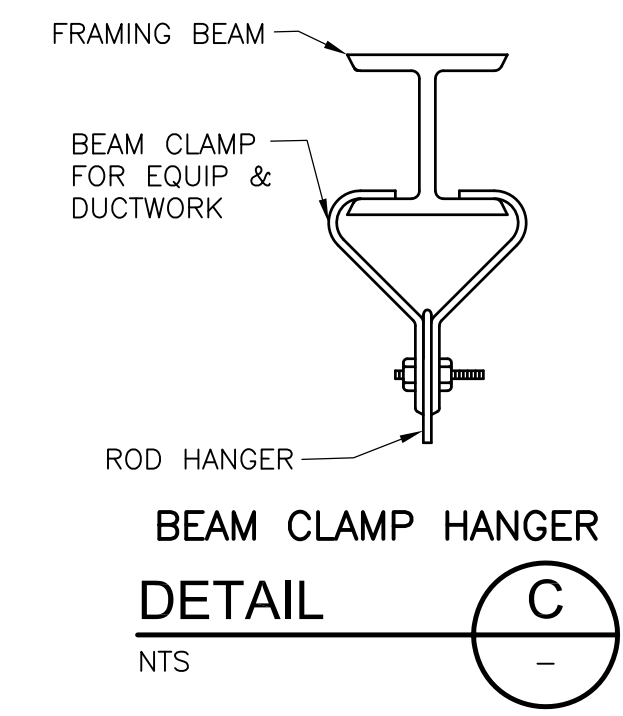
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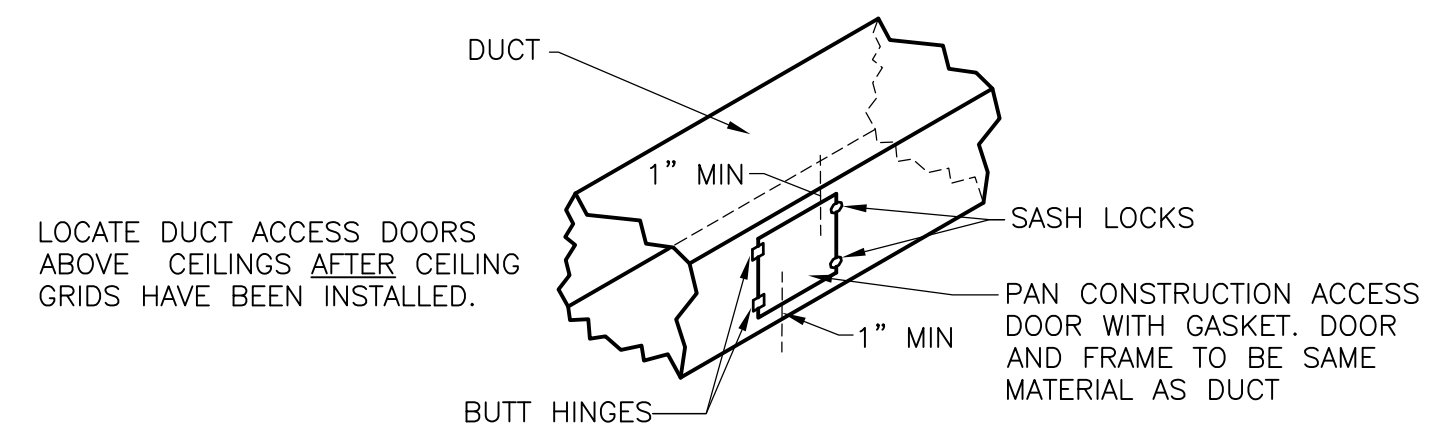
SHEET METAL
DUCT TURNING VANES
DETAIL A
NTS



DUCT WALL PENETRATIONS TO BE USED
FOR ALL NON-FIRE RATED WALLS
DETAIL B
NTS



BEAM CLAMP HANGER
DETAIL C
NTS

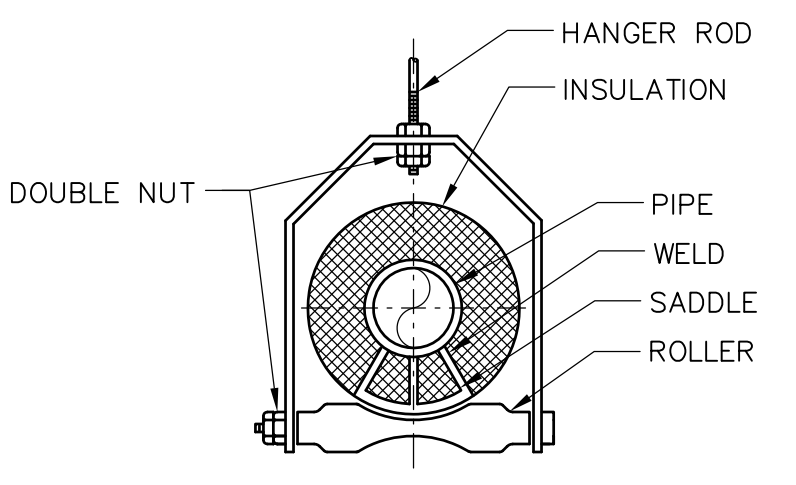


DUCT ACCESS DOOR
SHEET METAL DUCTWORK
DETAIL D
NTS

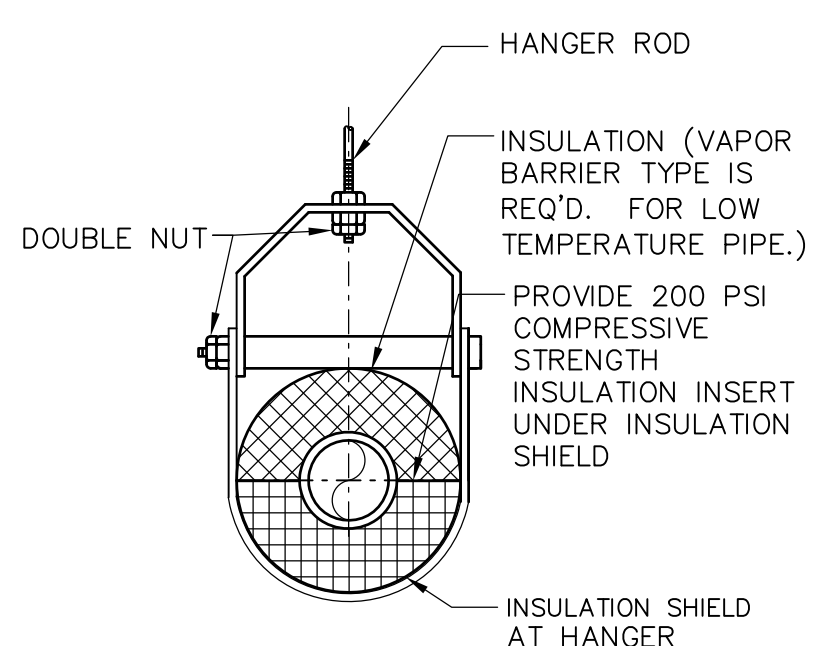
LOCATE DUCT ACCESS DOORS ABOVE CEILINGS AFTER CEILING GRIDS HAVE BEEN INSTALLED.

METAL GUAGES, NUMBER AND LOCATIONS OF HINGES AND SASH LOCKS SHALL BE AS DEFINED BY SMACNA FOR THE ACCESS DOOR AND PRESSURE CLASS OF DUCT.

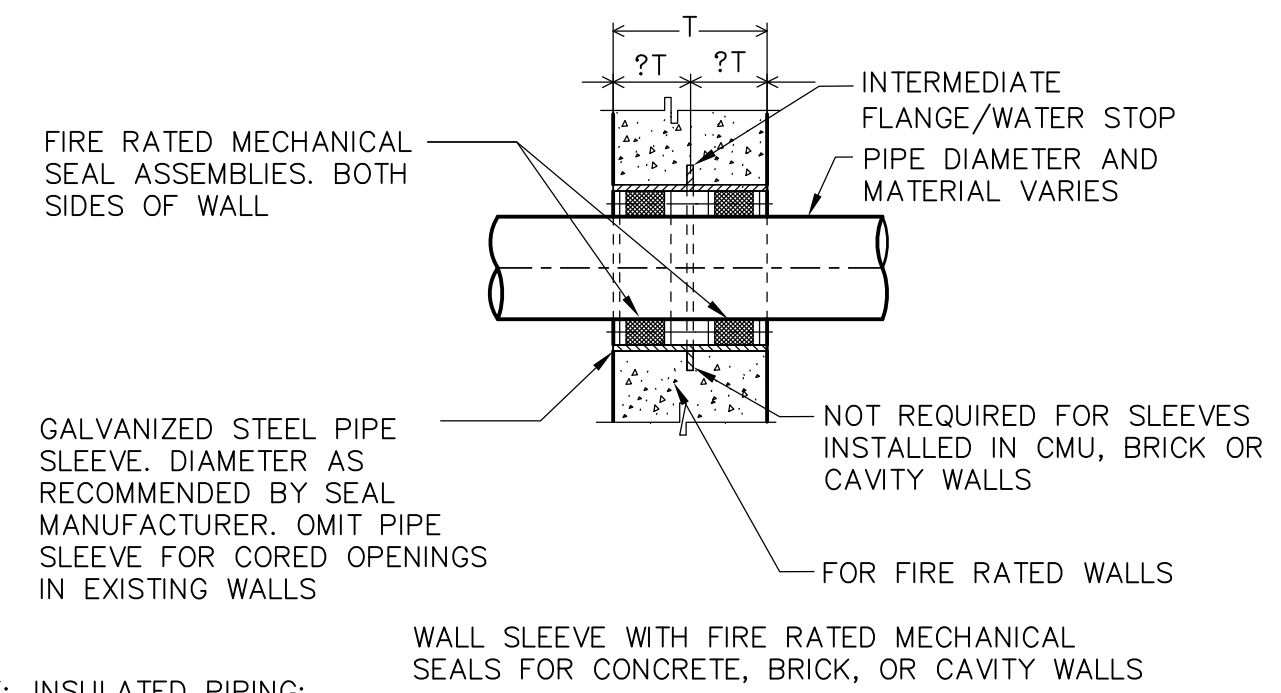
ALL ACCESS DOORS TO BE 24 X 24 MINIMUM EXCEPT FOR DUCTS LESS THAN 26-IN. WIDE, IN WHICH CASE THE LARGEST ACCESS DOOR THAT WILL FIT SHALL BE USED



TYPICAL HANGER FOR PIPING
4" AND SMALLER
DETAIL E
NTS

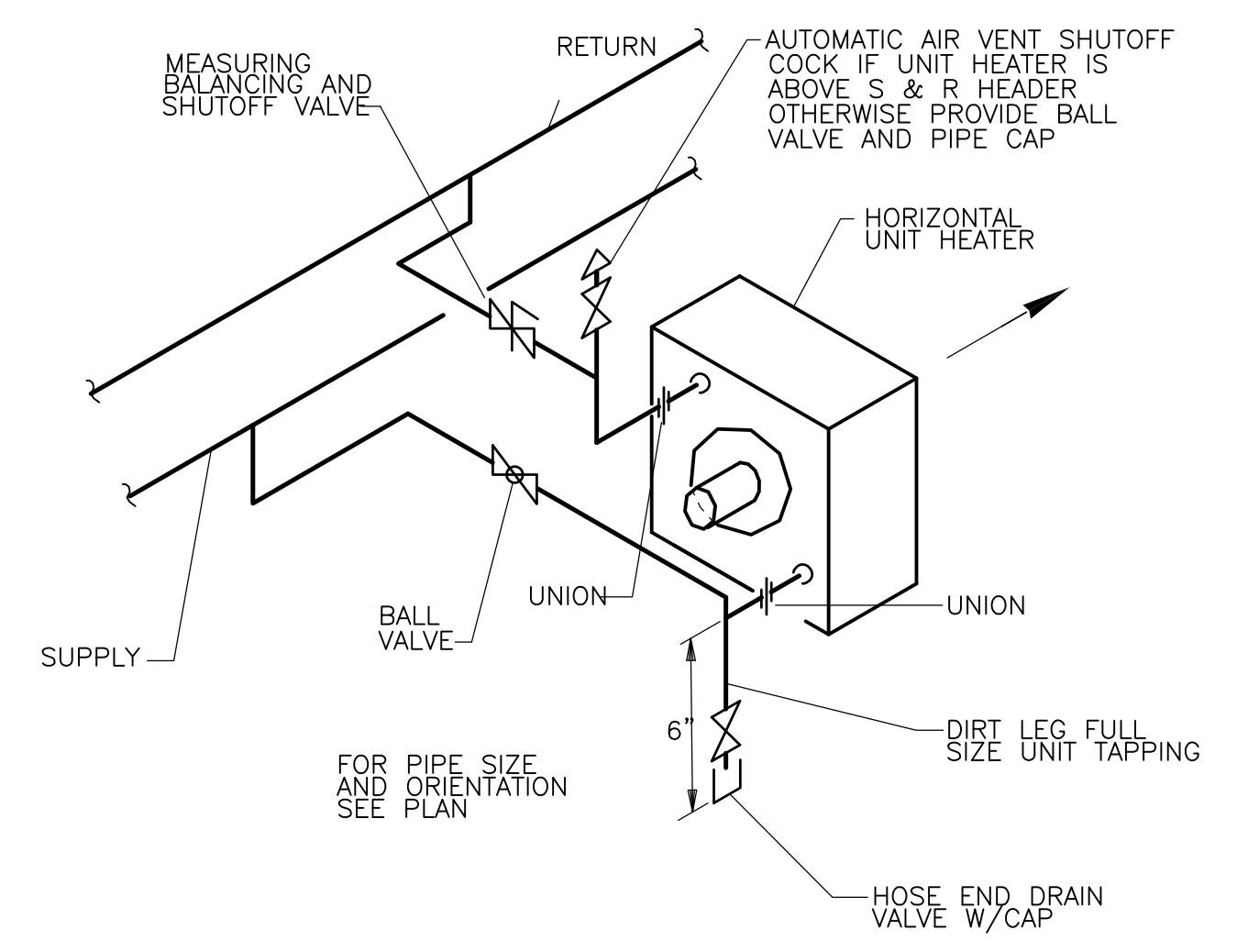


TYPICAL HANGER FOR PIPING
3" AND SMALLER
DETAIL F
NTS



PIPE PENETRATION
DETAIL G
NTS

NOTE: INSULATED PIPING: INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL



HORIZONTAL GLYCOL UNIT HEATER
DETAIL H
NTS

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\BENTZEM\0119551\HSDDT100.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 9-Jul-10 9:22 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	HSDDT100
DESIGNED BY:	M. MERLI
DRAWN BY:	M. MERLI
SHEET CHK'D BY:	J. JACOBS
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	JULY 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PROJECT NO.
1289-74283

Sht. 203 of 312

SD-H-1

Acc # 1289-74609

DETAILS I

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\MY DOCUMENTS\PROJECTS\UPPER BLACKSTONE\UPPER BLACKSTONE\WTF- MECH AS-BUILTS\07 AS-BUILT DWGS\SD-H-2 AS-BUILT.DWG Saved by: NAMROSIKO On: 27-Mar-14 Plotted on: 27-Mar-14 11:40 AM

AIR HANDLING UNITS - HOT WATER/GLYCOL

UNIT	LOCATION	AREA SERVED	SUPPLY FAN			SUPPLY FAN MOTOR	HEATING COIL					ELECTRICAL			MODULES	MANUFACTURER MODEL #	NOTES		
			CFM	DISCH.	BHP CLASS		ESP (IN WC)	HP	TYPE	EAT (°F)	EWT (°F)	GPM	PERCENT GLYCOL	MBH				VOLTS	PHASE
DW-AHU-1	DEWATERING BLDG ROOF	DEWATERING BLDG 2ND FLOOR	23,500	DOWN	18.3 TEFC	1.00	20	PROP BELT	5	140	115	40	1,150	460	3	60	IN-AF-HC-SF	TRANE TSCX	1,2,3,4
DW-AHU-2	DEWATERING BLDG ROOF	DEWATERING BLDG 1ST FLOOR & BASEMENT	12,000	FRONT	9.7 TEFC	1.50	10	PROP BELT	5	140	60	40	648	460	3	60	IN-AF-HC-SF	TRANE TSCX	1,2,3,4
TB-AHU-1	THICKENER BLDG ROOF	THICKENER BLDG 1ST FLOOR & BASEMENT DEWATERING BLDG BASEMENT	25,000	FRONT	17.7 TEFC	1.75	20	PROP BELT	5	140	120	40	1,350	460	3	60	IN-AF-HC-SF	TRANE TSCX	1,2,3,4

- NOTES:
 1. SEE SPECIFICATION SECTION 15855.
 2. PROVIDE DIFFERENTIAL PRESSURE SENSOR ACROSS FILTERS.
 3. PROVIDE UNIT MOUNTED DISCONNECT SWITCH.
 4. MIXTURE SHALL BE 40% PROPYLENE GLYCOL.

MODULE ABBREVIATIONS:
 IN = INTAKE
 AF = ANGLE FILTERS
 HC = HEATING COIL
 SF = SUPPLY FAN

AS-BUILT NOTES

ALL CHANGED EQUIPMENT DATA INDICATED IN RED LETTERING

FANS

FAN	LOCATION	AREA SERVED	SERVICE	CONFIGURATION	FAN				MOTOR					WEIGHT (POUNDS)	MANUFACTURER MODEL #	NOTES		
					TYPE	DIAMETER (IN)	CFM	RPM	HP ESP (IN WC)	HP RPM	TYPE DRIVE	VOLTS	PHASE				HZ	
TB-EF-1	THICKENER BLDG ROOF	THICKENER BLDG 1ST FLOOR	EXHAUST	ROOF	CENTRIFUGAL	15	5,000	994	1.15 0.35	1725	1/2	XP BELT	460	60	3	142	CUBE-200-15	1
TB-EF-2	THICKENER BLDG ROOF	THICKENER BLDG 1ST FLOOR	EXHAUST	ROOF	CENTRIFUGAL	15	5,000	994	1.15 0.35	1725	1/2	XP BELT	460	60	3	142	CUBE-200-15	1
TB-EF-3	THICKENER BLDG ROOF	THICKENER BLDG BASEMENT & 1ST FLOOR	EXHAUST	ROOF	CENTRIFUGAL	16	3,450	1,288	0.82 0.30	1725	1	XP BELT	460	60	3	87	CUBE-161-10	1
DW-TF-2	DEWATERING BLDG 2ND FLOOR	DEWATERING BLDG 2ND FLOOR	TRANSFER	INLINE	CENTRIFUGAL	15	7,125	786	1.28 0.30	1725	1/2	TEFC BELT	460	60	3	415	BSQ-240-15	1

- NOTES:
 1. SEE SPECIFICATION SECTION 15860.

UNIT HEATERS - HOT WATER/GLYCOL

UNIT	AREA SERVED	CAPACITY (MBH)	AIR		HOT WATER/GLYCOL		FAN				ELECTRICAL			MANUFACTURER MODEL #	NOTES	
			FLOW (CFM)	ENT/LVG (°F)	FLOW (GPM)	PD (FT H2O)	TYPE	DISCHARGE	HP	RPM	MOTOR ENCLOSURE	VOLTS	PHASE			HZ
TB-UH-1	THICKENER BLDG 1ST FLOOR	43.5	1200	55/88	4.7	0.6	PROP	HORIZONTAL	1/4	1550	XP	115	1	60	RITTLING RH-63	1,2,3
TB-UH-2	THICKENER BLDG 1ST FLOOR	43.5	1200	55/88	4.7	0.6	PROP	HORIZONTAL	1/4	1550	XP	115	1	60	RITTLING RH-63	1,2,3
TB-UH-3	THICKENER BLDG 1ST FLOOR	43.5	1200	55/88	4.7	0.6	PROP	HORIZONTAL	1/4	1550	XP	115	1	60	RITTLING RH-63	1,2,3
TB-UH-4	DEWATERING BLDG LOCKER VESTIBULE	22.5	630	55/87	2.3	0.2	PROP	HORIZONTAL	1/4	1550	XP	115	1	60	RITTLING RH-33	1,2,3
DW-UH-1	DEWATERING BLDG BASEMENT	57.7	1340	55/95	6.3	1.0	PROP	HORIZONTAL	1/10	1550	TEFC	115	1	60	RITTLING RH-86	1,3
DW-UH-2	DEWATERING BLDG 1ST FLOOR	57.7	1340	55/95	6.3	1.0	PROP	HORIZONTAL	1/10	1550	TEFC	115	1	60	RITTLING RH-86	1,3

- NOTES:
 1. SEE SPECIFICATION SECTION 15855.
 2. PROVIDE EXPLOSION PROOF MOTOR.
 3. MIXTURE SHALL BE 40% PROPYLENE GLYCOL.

DUCT HEATING COIL - NATURAL GAS FIRED

UNIT	AREA SERVED	INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	AIR		VENT DIAMETER (IN)	ELECTRICAL			WEIGHT (LBS)	MANUFACTURER MODEL #	NOTES
				FLOW (CFM)	ENT/LVG (°F)		VOLTS	PHASE	HZ			
FO-DHC-1	ALDEN TRAINING CENTER	100	80	2000	65/100	6	115	1	60	158	REZNR HSC-100	1
FO-DHC-2	ALDEN TRAINING CENTER	150	120	3600	65/95	6	115	1	60	203	REZNR HSC-150	1

- NOTES:
 1. SEE SPECIFICATION SECTION 15550.

SPLIT SYSTEM AIR CONDITIONING UNITS

UNIT	AREA SERVED	EVAPORATOR FAN				SUPPLY FAN MOTOR		COOLING COIL				ELECTRIC HEATING COIL			EVAPORATOR WEIGHT (LBS)	CONDENSER				EVAPORATOR MANUFACTURER MODEL #	CONDENSER MANUFACTURER MODEL #	NOTES									
		CFM	DISCH.	BHP CLASS	ESP (IN WC)	HP	TYPE DRIVE	REFRIGERANT	EDB/EWB	LDB/LWB	SENSIBLE MBH TOTAL MBH	KW	ELECTRICAL			NOMINAL CAPACITY (TONS)	NO. OF FANS	COMPRESSOR					EER	WEIGHT (LBS)							
TB-ACU-1	THICKENER BLDG ELECTRICAL ROOM	3,000	FRONT	2.4 ODP	0.50	2 1/2	PROP BELT	R-410a	80/68	55/55	55 92	-	-	-	-	599	7.5	2	1	SCROLL	11.2	353	460	3	60	460	3	60	CARRIER 40RUA-08	CARRIER 38AUZ-08	1,2,3
DW-ACU-1	DEWATERING BLDG CONTROL ROOM	1,400	FRONT	1.2 ODP	0.65	1	PROP BELT	R-410a	80/67	53.4/53.4	36 48	15	208	1	60	250	4.0	1	1	SCROLL	11.7	257	230	1	60	460	3	60	LENNOX CBX27UH-048	LENNOX TPA04854-460	1,2,3,4
FO-ACU-1	ALDEN TRAINING CENTER	2,000	TOP	1.5 ODP	1.5	2 1/2	PROP BELT	R-410a	75/63	55/55	47 58	-	-	-	-	549	5.0	1	1	SCROLL	12.9	281	208	3	60	208	3	60	AAON V3	AAON CC-05	1,2,3
FO-ACU-2	ALDEN TRAINING CENTER	3,600	TOP	2.9 ODP	2	4	PROP BELT	R-410a	75/63	55/55	81 94	-	-	-	-	443	8.0	1	2	SCROLL	13.1	844	460	3	60	208	3	60	AAON V3	AAON CC-08	1,2,3

- NOTES:
 1. SEE SPECIFICATION SECTION 15855.
 2. PROVIDE DIFFERENTIAL PRESSURE SENSOR ACROSS FILTERS.
 3. PROVIDE UNIT MOUNTED DISCONNECT SWITCH.
 4. EVAPORATOR UNIT SHALL BE PROVIDED WITH FLAT FILTERS.

UNIT HEATERS - ELECTRIC

UNIT	AREA SERVED	CAPACITY (kW)	AIR		FAN				ELECTRICAL			MANUFACTURER MODEL #	NOTES	
			FLOW (CFM)	ENT/LVG (°F)	TYPE	DISCHARGE	HP	RPM	MOTOR ENCLOSURE	VOLTS	PHASE			HZ
TB-EUH-1	THICKENER BLDG ELECTRICAL ROOM	5	350	55/99	PROP	HORIZ	1/40	1600	TE	460	3	60	BERKO HUHA-58	1,2,3

- NOTES:
 1. SEE SPECIFICATION SECTION 15550.
 2. PROVIDE MFR'S UNIT MOUNTED THERMOSTAT AND CONTROLS.
 3. PROVIDE UNIT MOUNTED DISCONNECT SWITCH.

RECORD DRAWING

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. HSDSC100
 DESIGNED BY: M. MERLI
 DRAWN BY: E. BENTZ
 SHEET CHK'D BY: J. JACOBS
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
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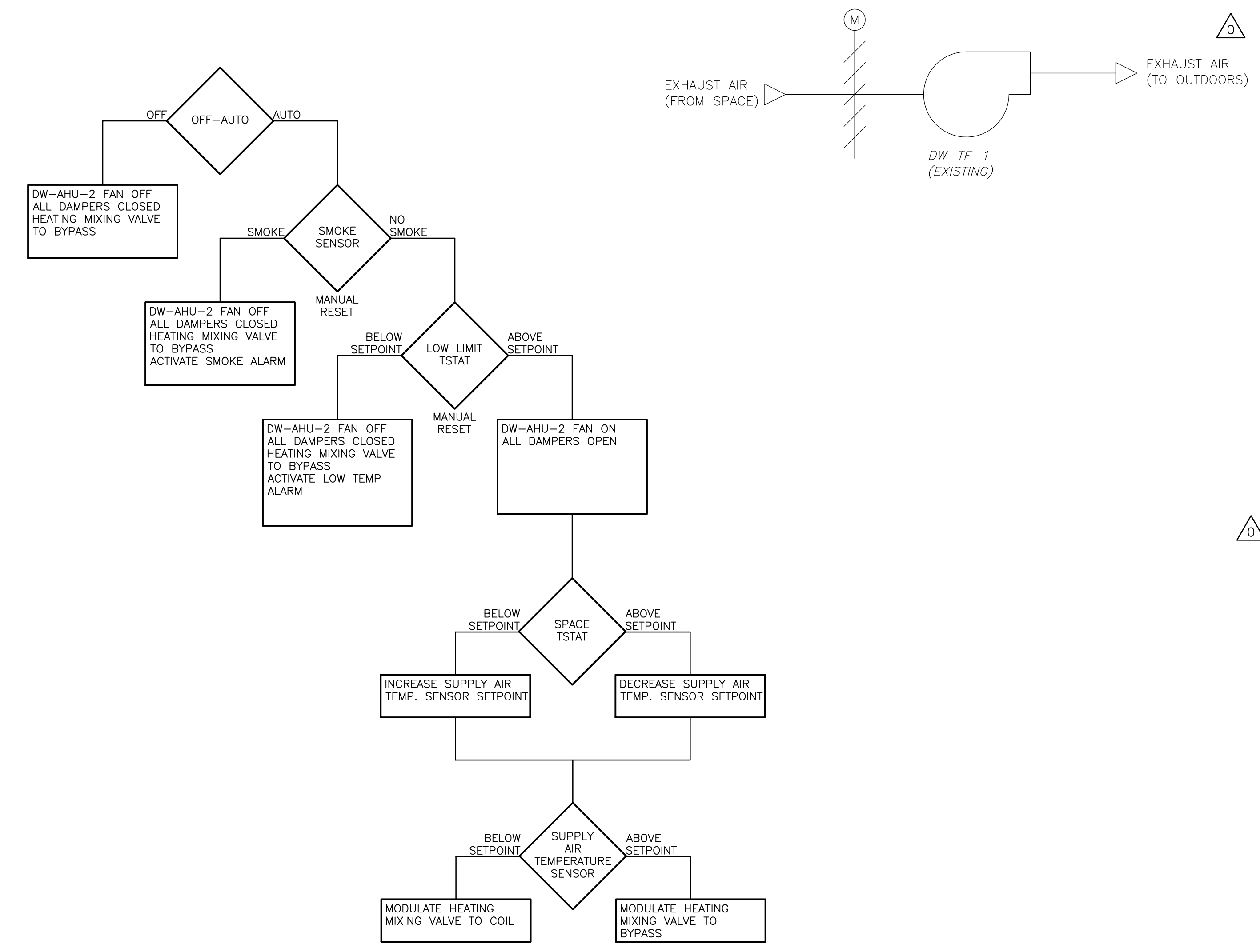
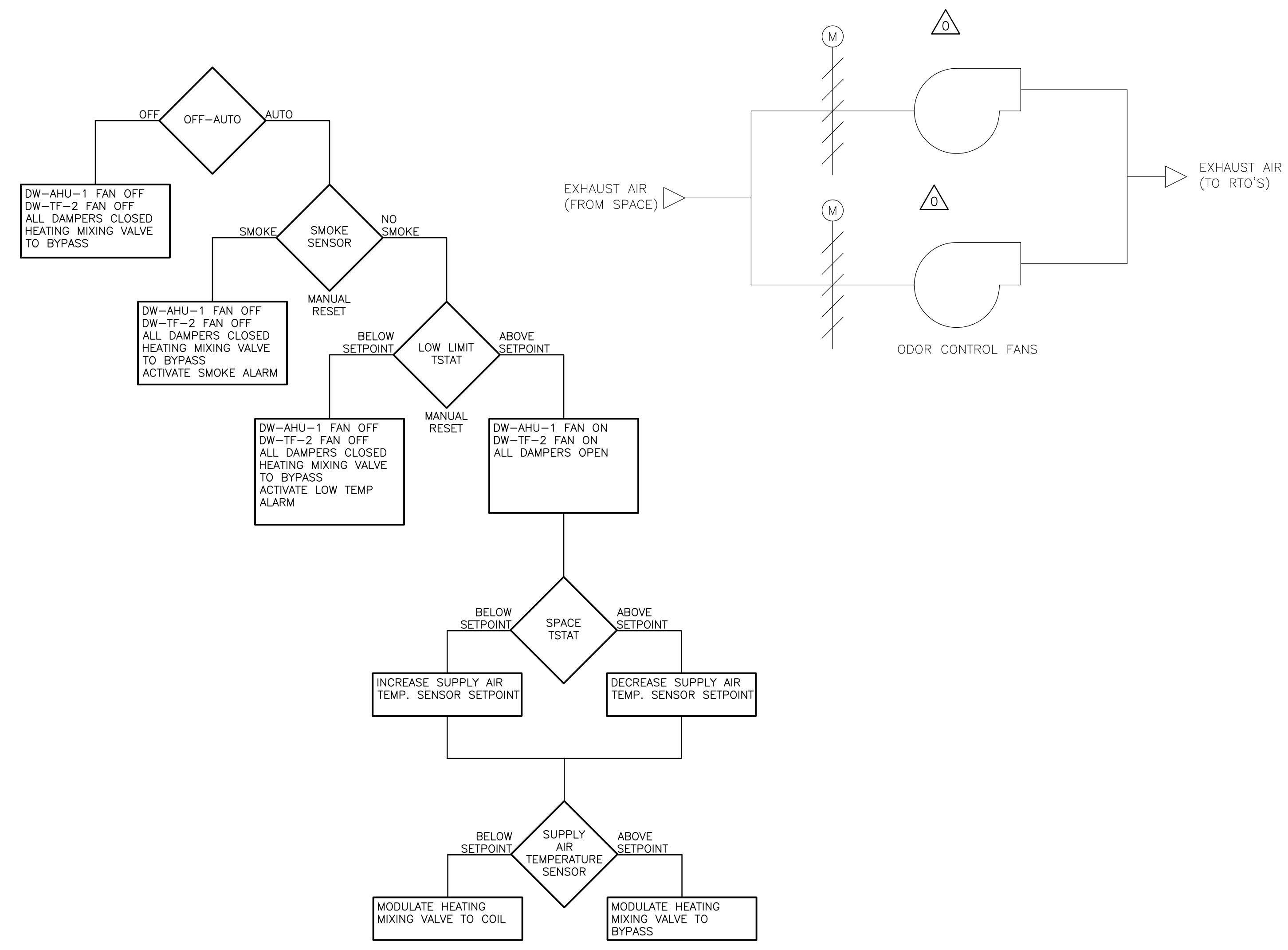
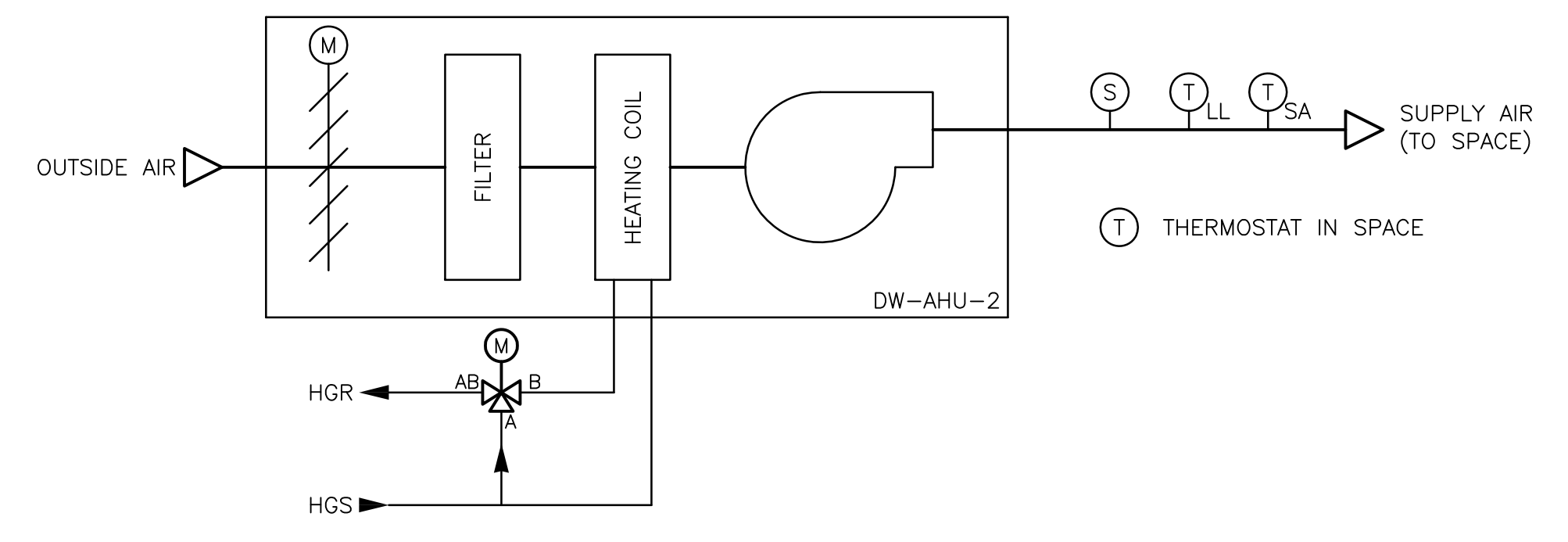
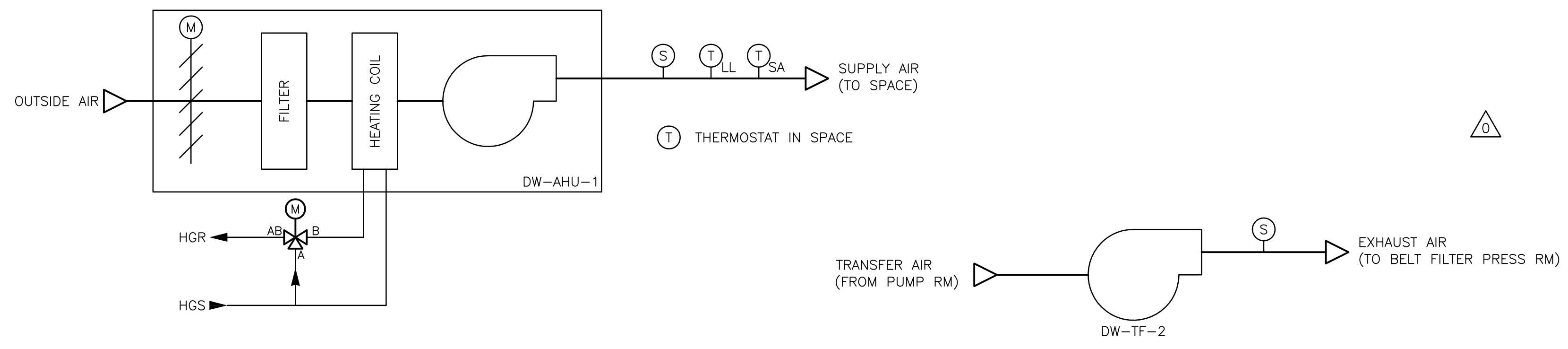
CAM HVAC & CONSTRUCTION, INC.
 AS-BUILT (3/5/2013)

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**

CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

SCHEDULES I



**DW-AHU-1/DW-TF-2
CONTROL SEQUENCE**

**DW-AHU-2
CONTROL SEQUENCE**

- NOTES:
- DW-ATC-1 PANEL SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
 - DW-ATC-1 SHALL HAVE A PANEL MOUNTED OFF/AUTO SWITCH FOR DW-AHU-1/DW-TF-2.
 - DW-ATC-1 SHALL HAVE PANEL LIGHTS FOR BLOWER STATUS (FOR DW-AHU-1 AND DW-TF-2).
 - DW-ATC-1 SHALL HAVE PANEL LIGHTS FOR LOW TEMPERATURE ALARM AND SMOKE ALARM (FOR DW-AHU-1).
 - DW-ATC-1 PANEL SHALL HAVE LOW LIMIT RESET.
 - DW-ATC-1 PANEL SHALL HAVE PANEL LIGHT LOW FLOW ALARM FOR BOTH DW-AHU-1 AND DW-TF-2.

- NOTES:
- DW-ATC-2 PANEL SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
 - DW-ATC-2 SHALL HAVE A PANEL MOUNTED OFF/AUTO SWITCH FOR DW-AHU-2.
 - DW-ATC-2 SHALL HAVE PANEL LIGHTS FOR DW-AHU-2 TEMPERATURE ALARM AND SMOKE ALARM.
 - DW-ATC-2 PANEL SHALL HAVE LOW LIMIT RESET.

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMX\MERLIMR\0119551\HSDAT100.DWG Saved by: MERLIMR On: 28-Sep-10 Plotted on: 29-Nov-10 1:59 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	HSDAT100
DESIGNED BY:	M. MERLI
DRAWN BY:	M. MERLI
SHEET CHK'D BY:	J. JACOBS
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	SEPTEMBER 2010

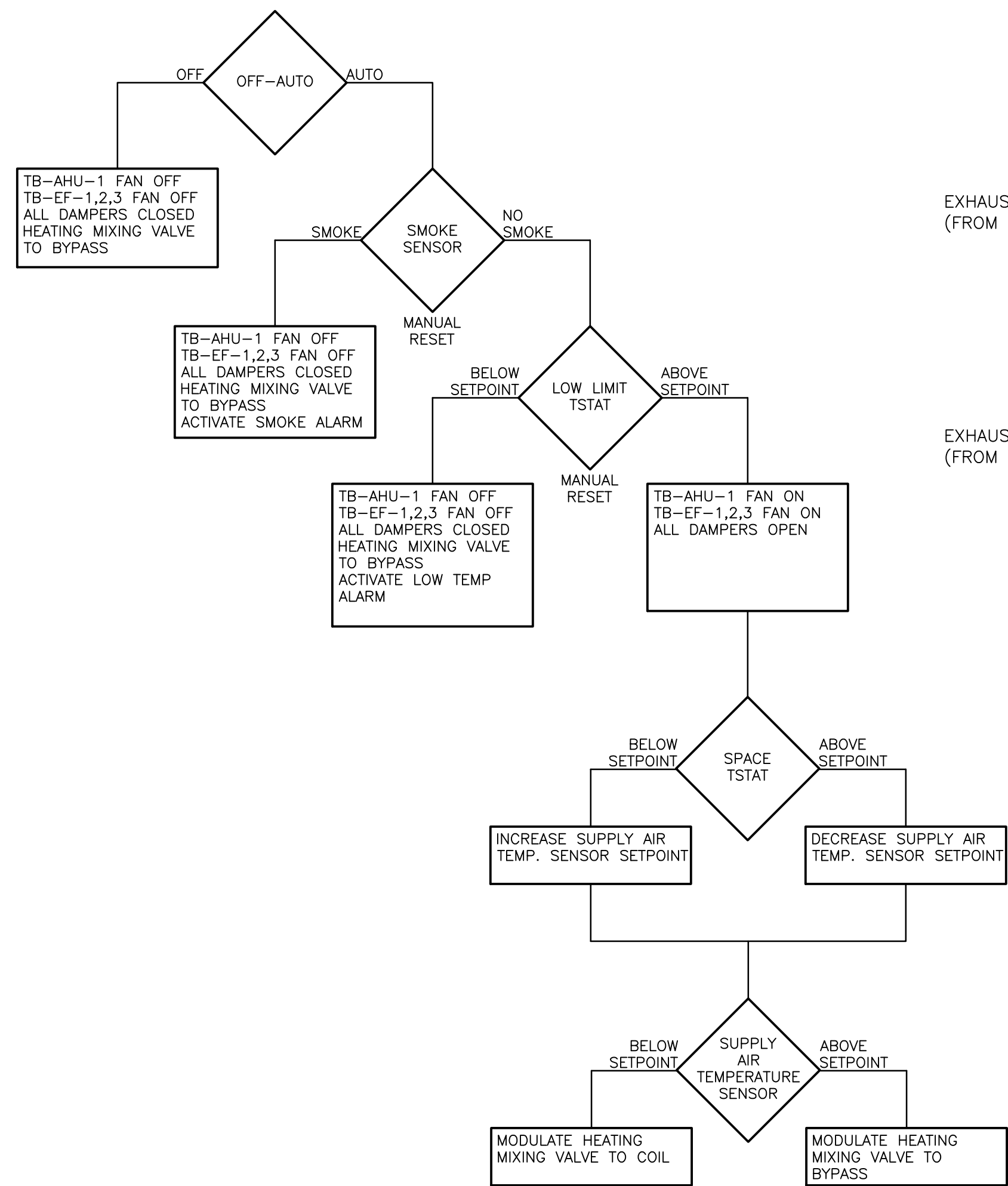
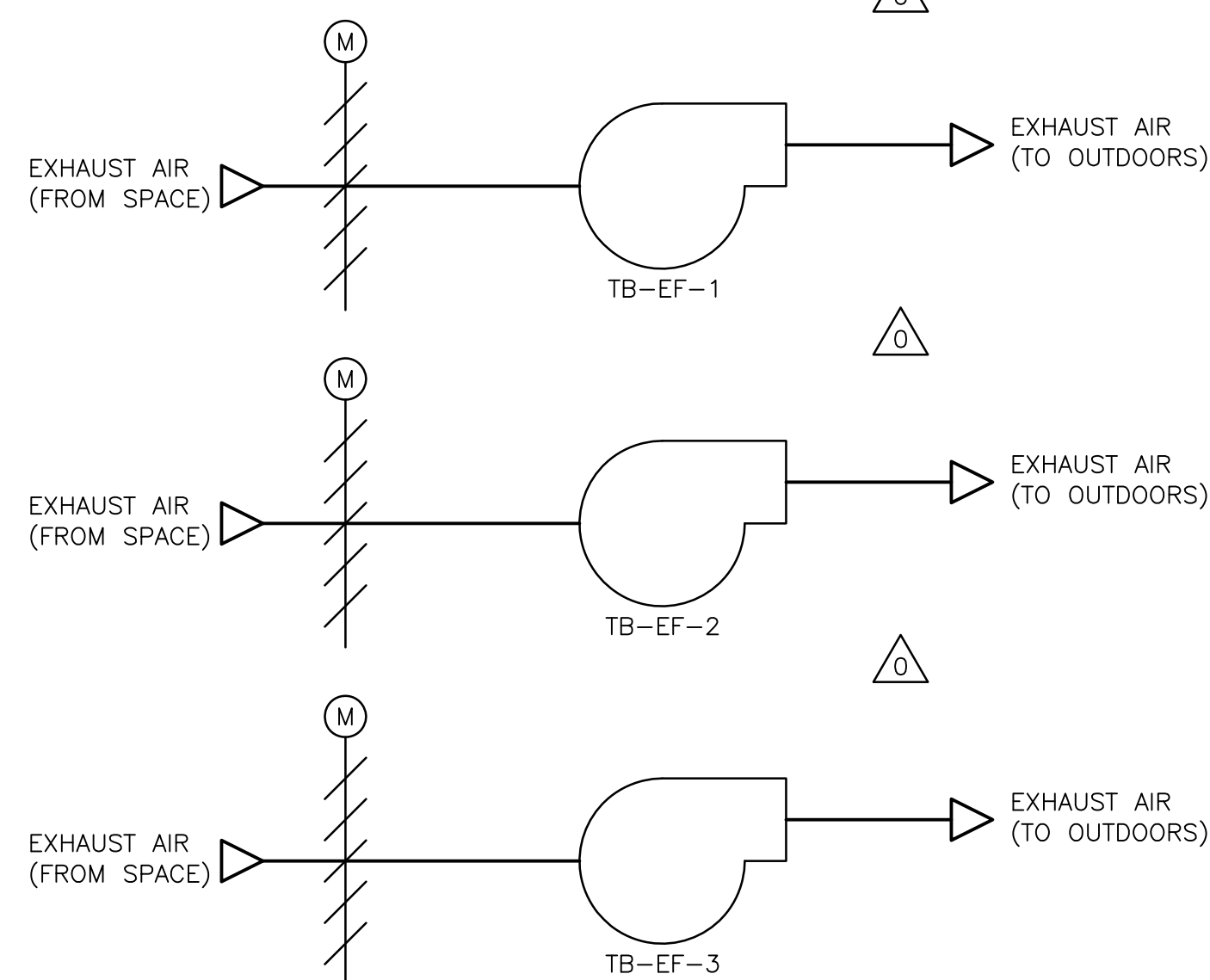
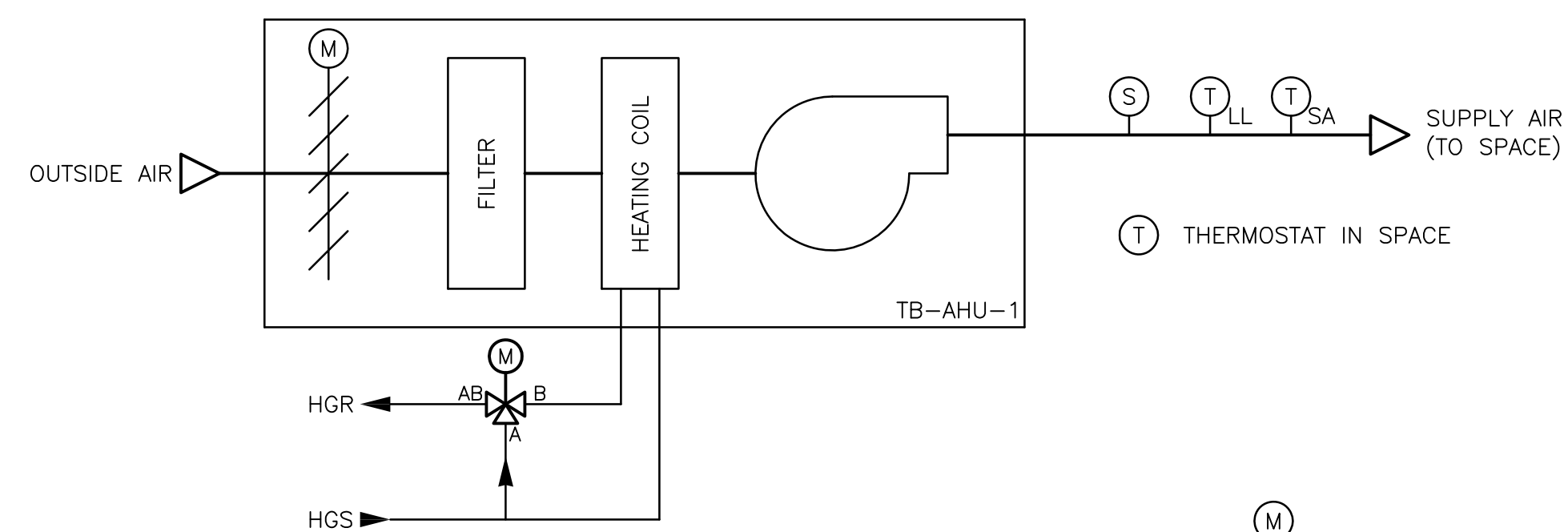
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**AUTOMATIC TEMPERAURE
CONTROL DIAGRAMS I**
PROJECT NO. 1289-74283
Sht. 205 of 312
SD-H-3
Acc # 1289-74611

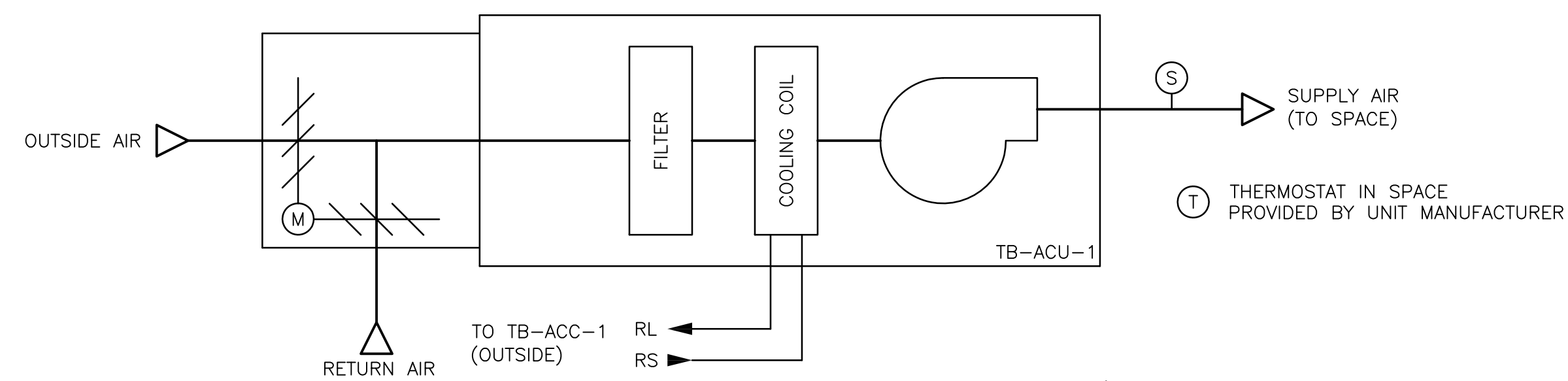
CONFORMED

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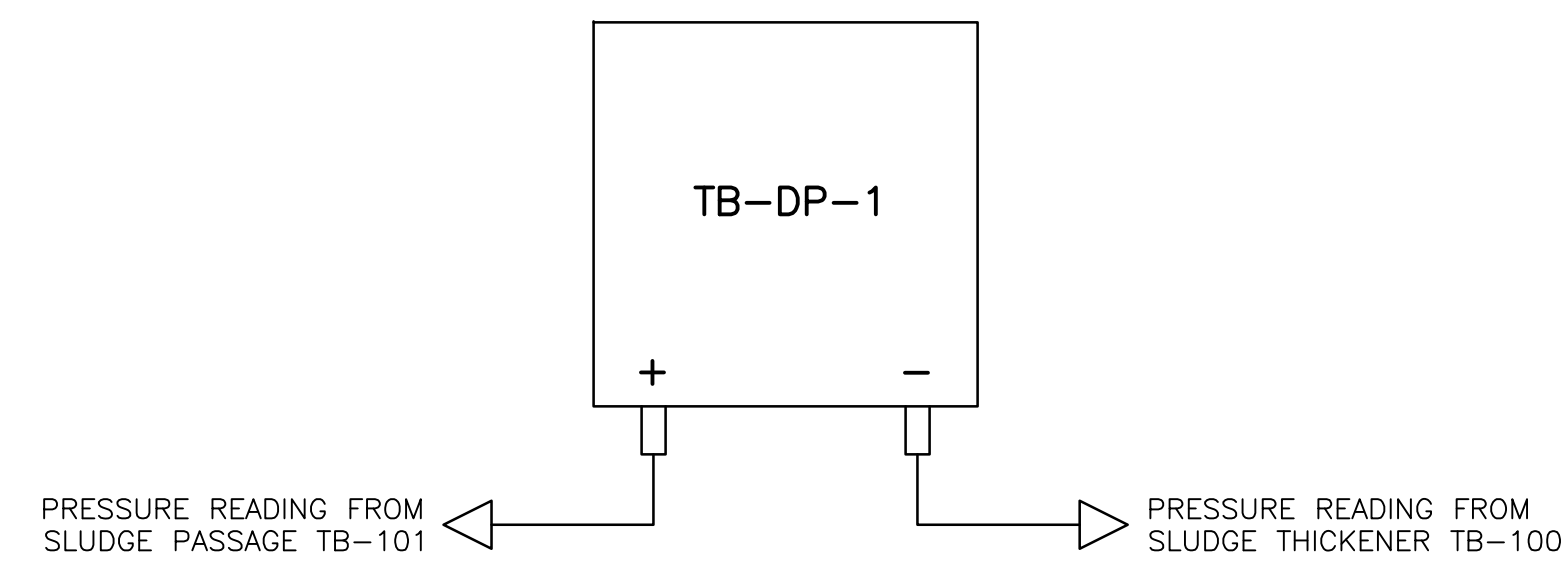
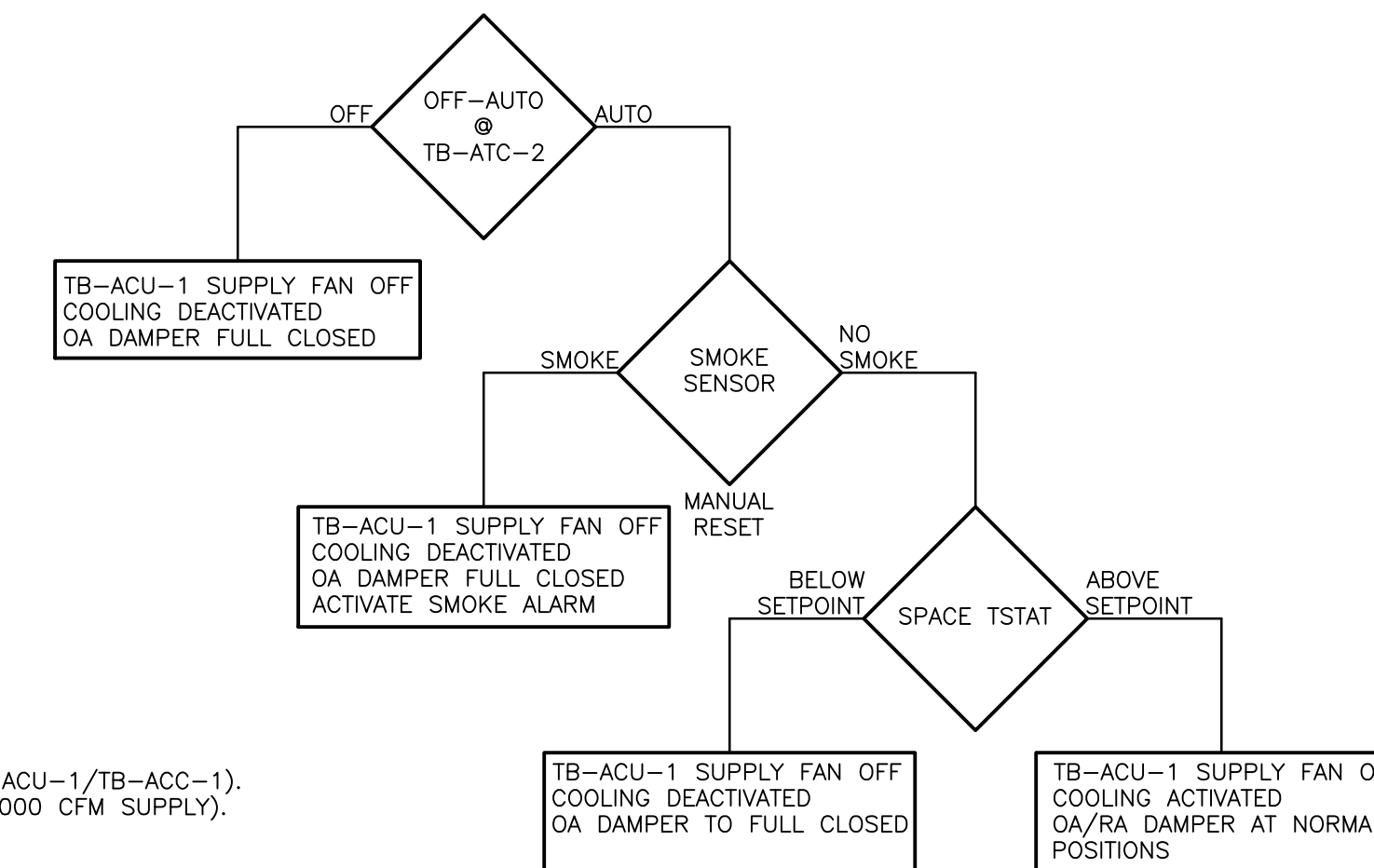
**TB-AHU-1
CONTROL SEQUENCE**
(INCLUDED WITH EF-1,2,3)

- NOTES:
- TB-ATC-1 PANEL SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
 - TB-ATC-1 SHALL HAVE A PANEL MOUNTED OFF/AUTO SWITCH FOR TB-AHU-1, TB-EF-1, TB-EF-2, TB-EF-3.
 - TB-ATC-1 SHALL HAVE PANEL LIGHTS FOR BLOWER STATUS FOR TB-AHU-1, TB-EF-1, TB-EF-2, TB-EF-3.
 - TB-ATC-1 SHALL HAVE PANEL LIGHTS FOR LOW TEMPERATURE ALARM, AND SMOKE ALARM (FOR TB-AHU-1).
 - TB-ATC-1 PANEL SHALL HAVE LOW LIMIT RESET.



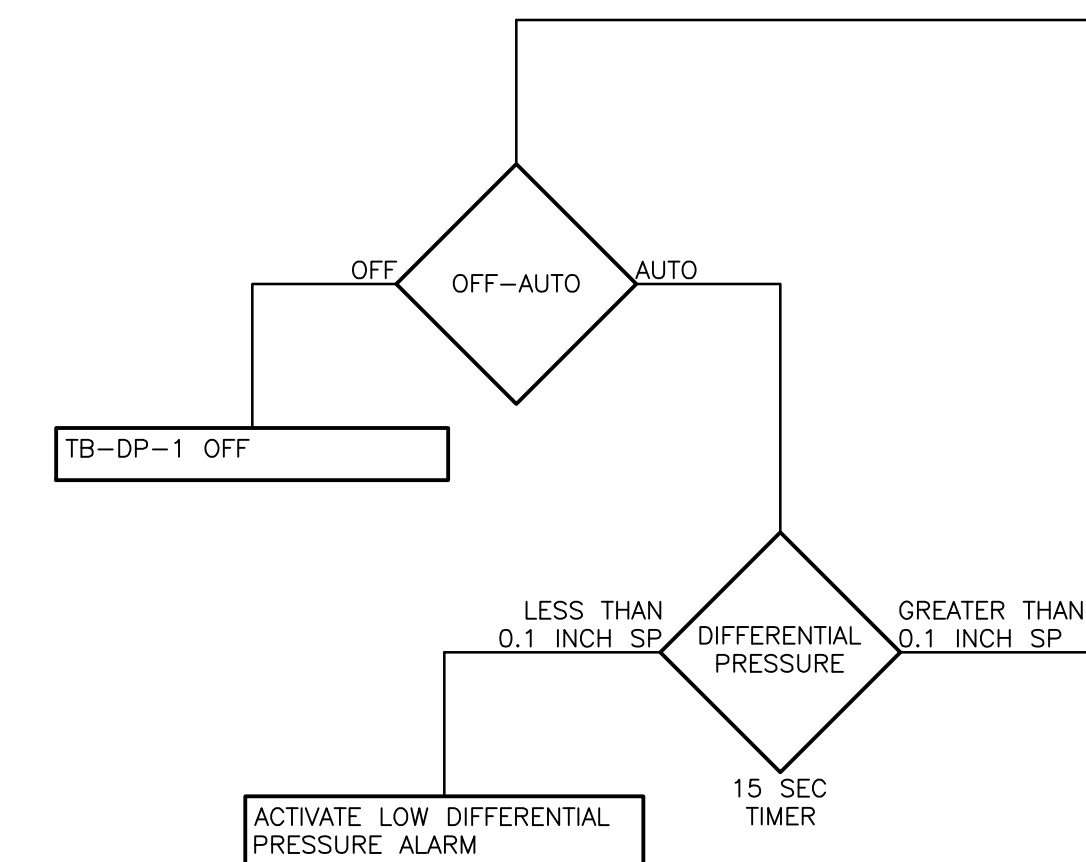
**TB-ACU-1/TB-ACC-1
CONTROL SEQUENCE**

- NOTES:
- TB-ATC-2 PANEL SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
 - TB-ATC-2 SHALL HAVE A PANEL MOUNTED OFF/AUTO SWITCH FOR TB-ACU-1/TB-ACC-1.
 - TB-ATC-2 SHALL HAVE PANEL LIGHTS FOR BLOWER STATUS FOR TB-ACU-1/TB-ACC-1.
 - TB-ATC-2 SHALL HAVE PANEL LIGHTS FOR SMOKE ALARM (FOR TB-ACU-1/TB-ACC-1).
 - TB-ACU-1 SHALL HAVE 2,750 CFM RECIRCULATION AIR AND 250 CFM OUTSIDE AIR (TOTAL 3,000 CFM SUPPLY).



**TB-DP-1
CONTROL SEQUENCE**

- NOTES:
- TB-ATC-1 PANEL SHALL HAVE PANEL LIGHT FOR LOW DIFFERENTIAL PRESSURE INDICATION FOR TB-DP-1.
 - SLUDGE PASSAGE TB-101 (POSITIVE PRESSURE) AND SLUDGE THICKENER TB-100 (NEGATIVE) SHALL HAVE DIFFERENTIAL PRESSURE OF 0.1 INCHES WATER COLUMN (MINIMUM).
 - LOW DIFFERENTIAL PRESSURE ALARM TO BE ACTIVATED AFTER 15 SECONDS OF DIFFERENTIAL PRESSURE BELOW 0.1 INCHES WATER COLUMN.
 - PROVIDE CONTACTS WITHIN TB-ATC-1 FOR DIVISION 16 TO WIRE LOW DIFFERENTIAL PRESSURE ALARM TO SCADA SYSTEM, LOOP NUMBER 3699.



CONFORMED

0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	HSDAT200
DESIGNED BY:	M. MERLI
DRAWN BY:	M. MERLI
SHEET CHK'D BY:	J. JACOBS
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	SEPTEMBER 2010

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WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
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WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

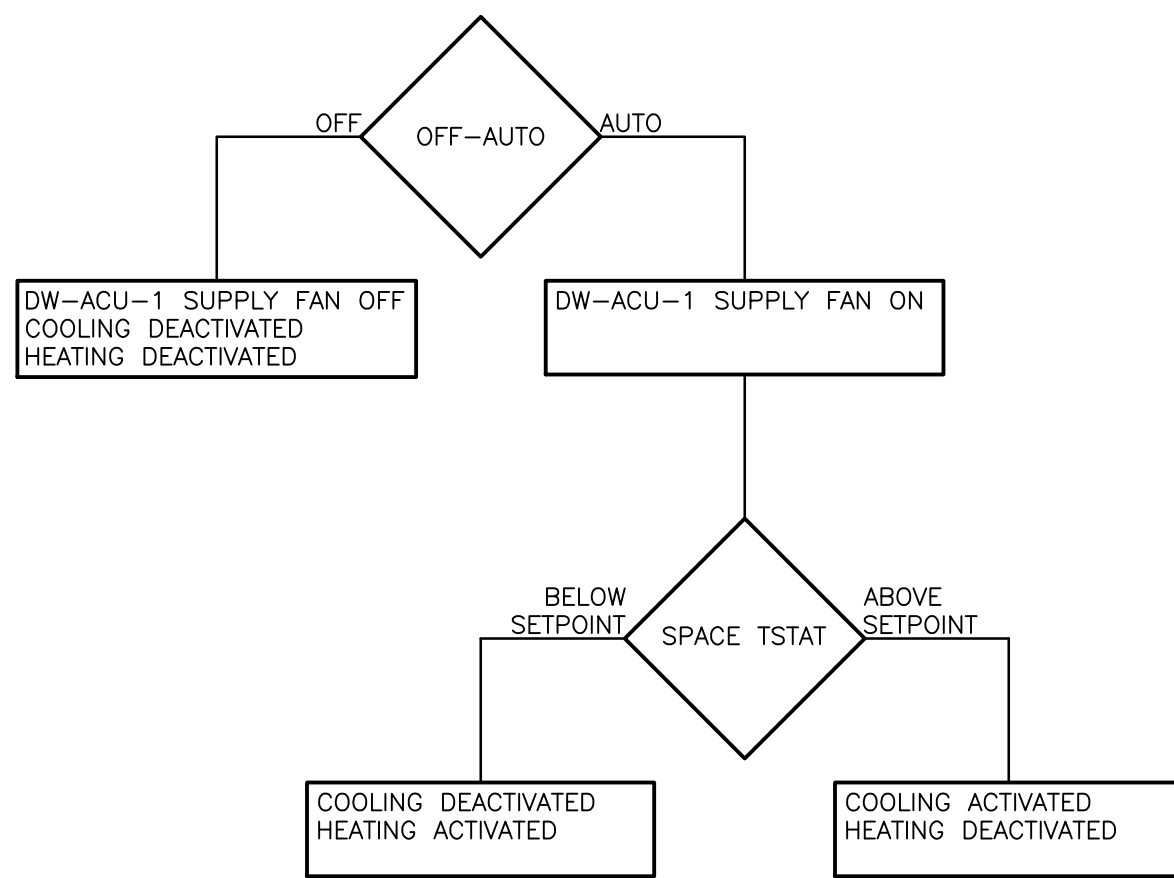
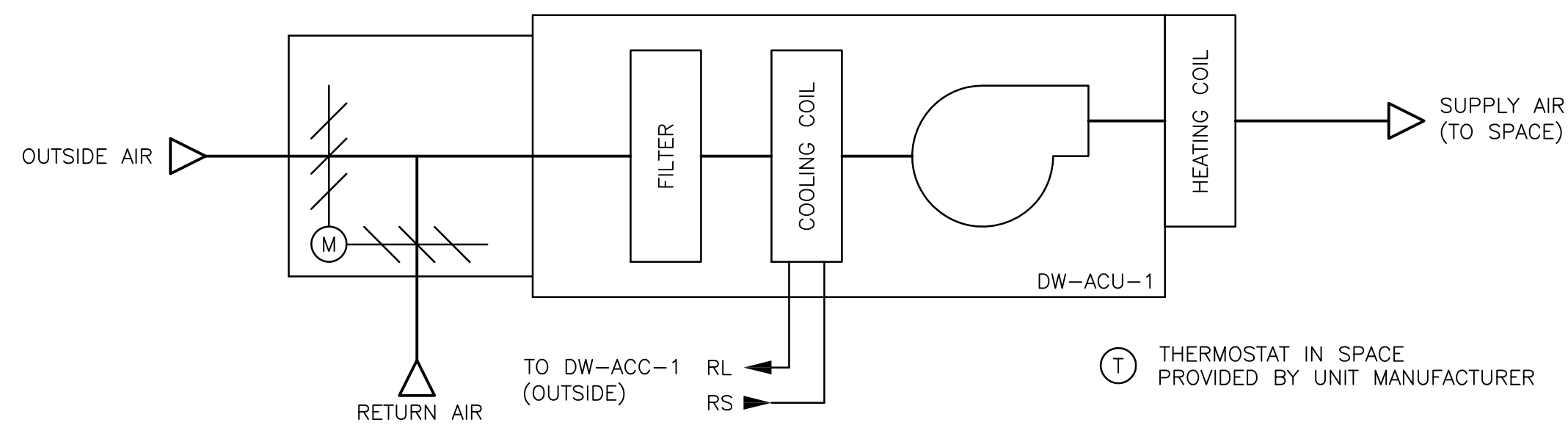
AUTOMATIC TEMPERAURE
CONTROL DIAGRAMS II

PROJECT NO.
1289-74283

Sht. 206 of 312

SD-H-4

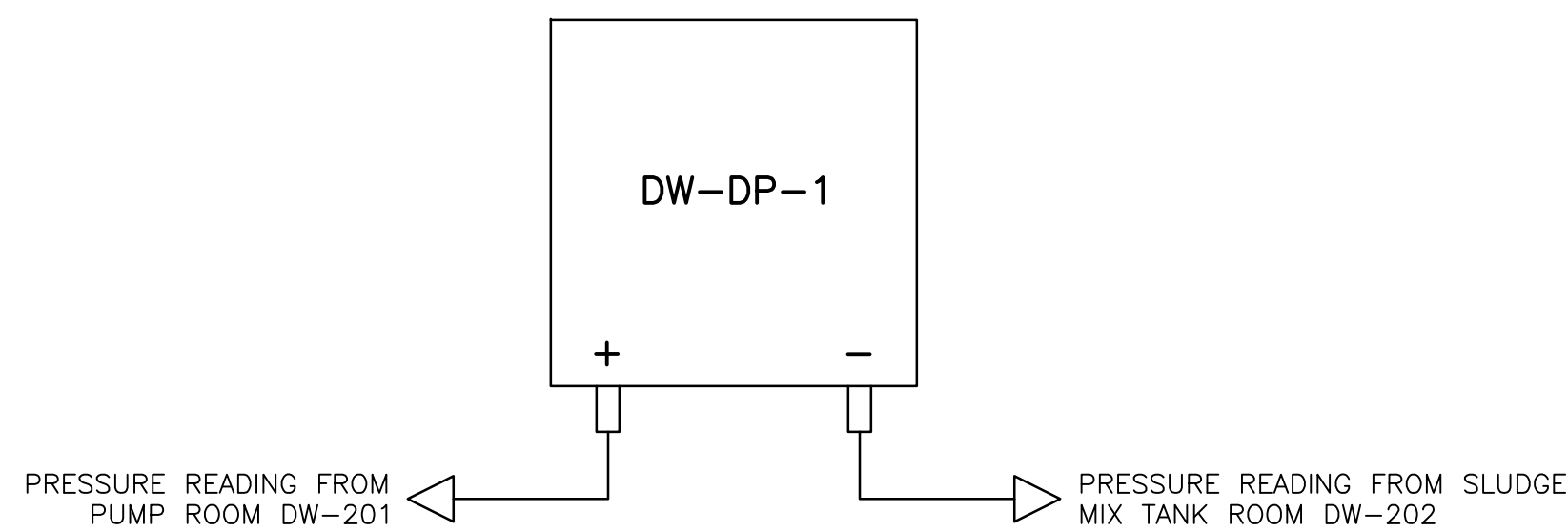
Acc # 1289-74612



**DW-ACU-1/DW-ACC-1
CONTROL SEQUENCE**

NOTES:

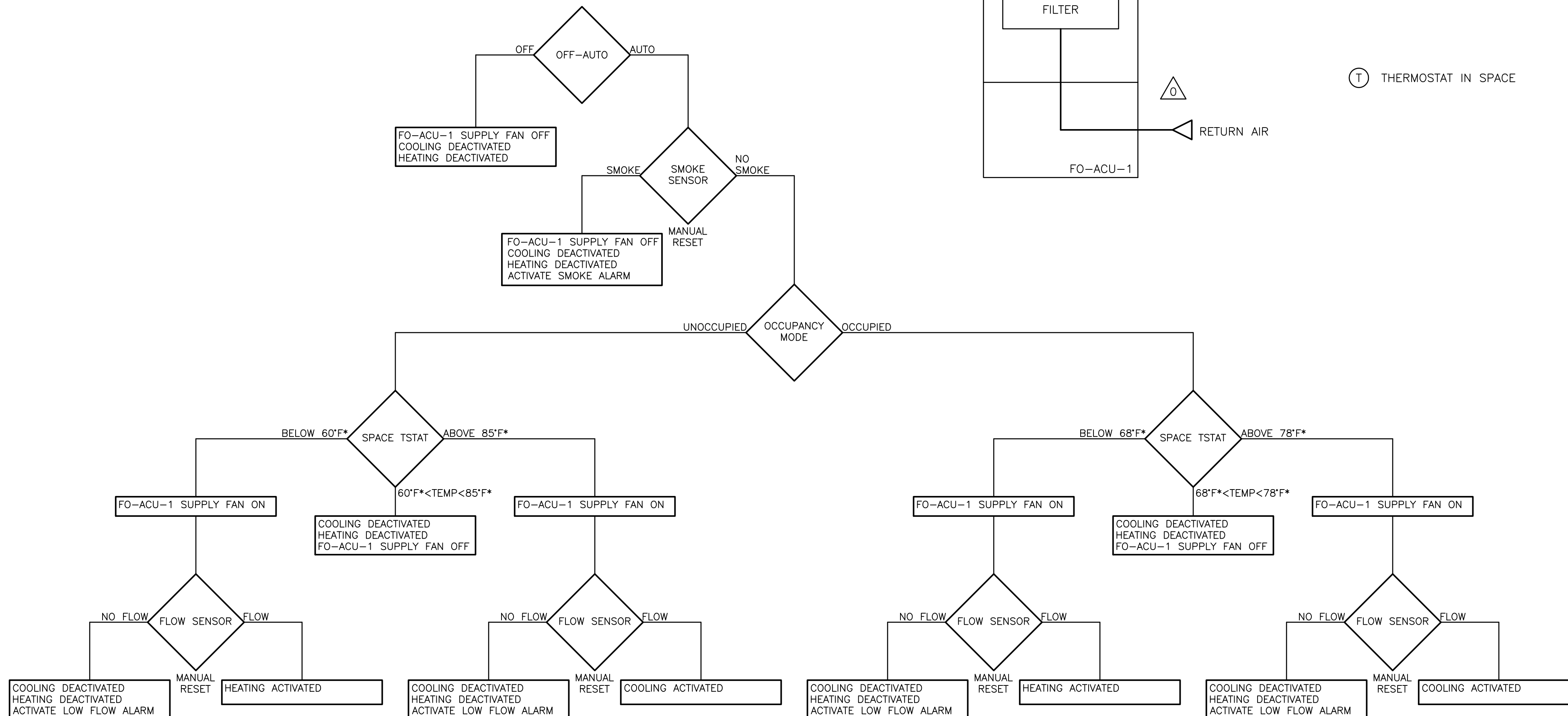
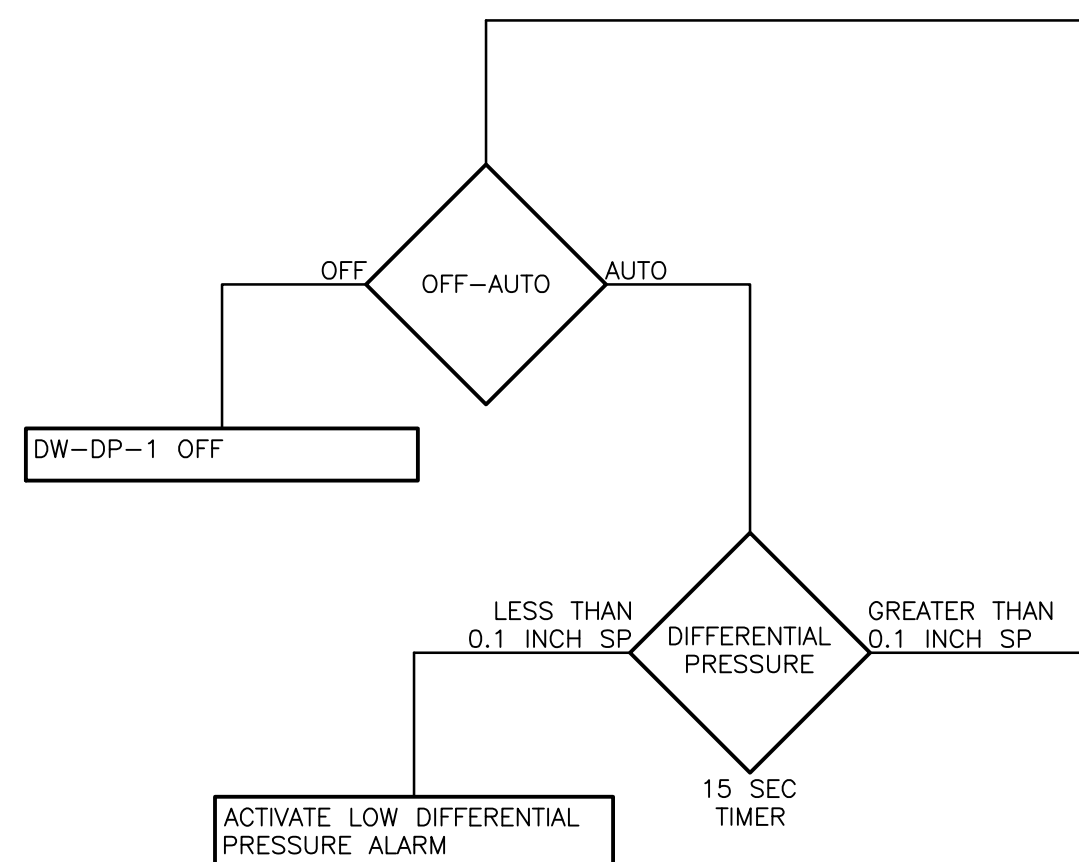
1. MANUFACTURER'S CONTROLS SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
2. DW-ACU-1 SHALL HAVE 1,100 CFM RECIRCULATION AIR AND 300 CFM OUTSIDE AIR (TOTAL 1,400 CFM SUPPLY).



**DW-DP-1
CONTROL SEQUENCE**

NOTES:

1. DW-ATC-1 PANEL SHALL HAVE PANEL LIGHT FOR LOW DIFFERENTIAL PRESSURE INDICATION FOR DW-DP-1.
2. PUMP ROOM DW-201 (POSITIVE PRESSURE) AND SLUDGE MIXING TANK ROOM DW-202 (NEGATIVE) SHALL HAVE DIFFERENTIAL PRESSURE OF 0.1 INCHES WATER COLUMN (MINIMUM).
3. LOW DIFFERENTIAL PRESSURE ALARM TO BE ACTIVATED AFTER 15 SECONDS OF DIFFERENTIAL PRESSURE BELOW 0.1 INCHES WATER COLUMN.
4. PROVIDE CONTACTS WITHIN DW-ATC-1 FOR DIVISION 16 TO WIRE LOW DIFFERENTIAL PRESSURE ALARM TO SCADA SYSTEM, LOOP NUMBER 4599.



**FO-ACU-1/FO-ACC-1
CONTROL SEQUENCE**

(TYP FOR FO-ACU-2/FO-ACC-2)

NOTES:

1. FO-ATC-1 PANEL SHALL CONTROL EQUIPMENT, AS DESCRIBED IN FLOW DIAGRAM.
2. FO-ATC-1 SHALL HAVE A PANEL MOUNTED OFF/AUTO SWITCH FOR FO-ACU-1/FO-ACC-1 AND FO-ACU-2/FO-ACC-2.
3. FO-ATC-1 SHALL HAVE PANEL LIGHTS FOR BLOWER STATUS, LOW FLOW ALARM AND SMOKE ALARM FOR FO-ACU-1 AND FO-ACU-2.
4. OCCUPANCY MODE SHALL BE CONTROLLED VIA SCHEDULE (INPUT) WITHIN FO-ATC-1 DDC CONTROLLER.
5. *TEMPERATURE SETPOINTS SHALL BE ADJUSTABLE.

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	9/10	MM	MM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.	HSDAT300
DESIGNED BY:	M. MERLI
DRAWN BY:	K. BRIGGS
SHEET CHK'D BY:	J. JACOBS
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**AUTOMATIC TEMPERTAURE
CONTROL DIAGRAMS III**

PROJECT NO.	1289-74283
Sht.	207 of 312
SD-H-5	
Acc #	1289-74613

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMX\MERLIMR\00119551\HSDAT300.DWG Saved by: MERLIMR On: 28-Sep-10 Plotted on: 29-Nov-10 2:01 PM

CONFORMED

GENERAL ABBREVIATIONS

⊙	AT	LBV	LOCKABLE BALL VALVE
AD	AREA DRAIN	LCW	LAB COLD WATER
AFF	ABOVE FINISHED FLOOR	LHW	LAB HOT WATER
AV	ACID VENT	LS	LAB SINK
AW	ACID WASTE	MAX	MAXIMUM
BWV	BACKWATER VALVE	MIN	MINIMUM
BLDG	BUILDING	MR	MOP RECEPTOR
CL	CENTERLINE	NO	NUMBER
CA	COMPRESSED AIR	OED	OPEN END OR OPEN EQUIPMENT DRAIN
CD	CAVITY DRAIN	P	PROTECTED WATER
CI	CAST IRON	PD	PUMP DISCHARGE
CO	CLEANOUT	PG	PRESSURE GAUGE
CONT	CONTINUOUS, CONTINUE	PH	POST HYDRANT
CS	CUP SINK	PP	POLYPROPYLENE
CU FT	CUBIC FEET	PRV	PRESSURE REDUCING VALVE
CV	CHECK VALVE	PRW	PRESSURE WASTE
CW	COLD WATER	PSI	POUNDS PER SQUARE INCH
DI	DUCTILE IRON	P&T	PRESSURE & TEMPERATURE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DRY	DRYER	RD	ROOF DRAIN
DWG	DRAWING	RL	RAINLEADER
E	EMERGENCY WATER	RM	ROOM
ECO	EXTERIOR CLEANOUT	RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
EL	ELEVATION	SV	SERVICE WATER (NON-POTABLE)
ES	EMERGENCY SHOWER	S	SOIL
EWC	ELECTRIC WATER COOLER	SH	SHOWER
EWST	EMERGENCY WATER STORAGE TANK	SHT	SHEET
EWU	EYE WASH UNIT	SP	SPRINKLER
FAS	FLOW ALARM SWITCH	SQ	SQUARE
FCO	FLUSH FLOOR CLEANOUT	SS	STAINLESS STEEL
FD	FLOOR DRAIN	SSK	SERVICE SINK
FE	FIRE EXTINGUISHER	TW	TEPID WATER
FHV&C	FIRE HOSE VALVE AND CABINET	TWR	TEPID WATER RETURN
FS	FLOW SWITCH	TD	TRENCH OR TROUGH DRAIN
FV	FIRE VALVE	THK	THICK(NESS)
F/BS	FACE/BODY SPRAY	TYP	TYPICAL
G	GAS	UR	URINAL
GW	GLASSWARE WASHER	V	VENT
GPM	GALLONS PER MINUTE	VAC	VACUUM
HB	HOSE BIBB	VB	VACUUM BREAKER
HEV	HOSE END VALVE	VE	VACUUM EXHAUST
HW	HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RETURN	W	WASTE
INV	INVERT	W/	WITH
IOS	INSTALLED BY OTHER SECTION	WC	WATER CLOSET
IPS	IRON PIPE SIZE	WCO	WALL CLEANOUT
KS	KITCHEN SINK	WF	WASH FOUNTAIN
KU	KITCHEN UNIT	WH	WALL HYDRANT
LAB	LABORATORY	WHS	WASH HOSE STATION
LAV	LAVATORY	WSH	WASHING MACHINE
		W&V	WASTE & VENT

SYMBOLS

	SOIL OR WASTE
	VENT
	COLD WATER (POTABLE)
	HOT WATER (POTABLE)
	COMPRESSED AIR
	ACID VENT
	ACID WASTE
	FIRE LINE
	FIRE SERVICE WATER (POTABLE)
	GAS
	HOT WATER RETURN (POTABLE)
	LABORATORY COLD WATER (NON-POTABLE)
	LABORATORY HOT WATER (NON-POTABLE)
	PUMP DISCHARGE
	PRESSURE WASTE
	RAINLEADER
	SERVICE WATER (NON-POTABLE)
	SPRINKLER LINE
	TEPID WATER
	TEPID WATER RETURN
	VACUUM
	VACUUM EXHAUST
	VALVE
	LOCKABLE BALL VALVE
	CHECK VALVE
	FLOW ALARM SWITCH
	EMERGENCY SHOWER / EYEWASH UNIT
	CLEANOUTS
	FLUSH FLOOR CLEANOUT
	WATER PROOF SLEEVE
	FLOOR DRAIN OR ROOF DRAIN
	PROTECTED WATER CONNECTION IDENTIFICATION NUMBER
	OPEN END DRAIN
	EQUIPMENT PROVIDED UNDER PLUMBING SECTION
	PIPING AND/OR EQUIPMENT TO BE DEMOLISHED
	DN OR DROP ("DN" DENOTES PIPES WHICH PENETRATE THE FLOOR BELOW. "DROP" DENOTES PIPES WHICH DO NOT.)
	UP OR RISE ("UP" DENOTES PIPES WHICH PENETRATE THE FLOOR ABOVE. "RISE" DENOTES PIPES WHICH DO NOT.)
	45° DROP
	TYPICAL EXISTING PIPING
	NEW CONNECTION TO EXISTING

NOTES:

1. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE GENERAL AND MAY NOT HAVE BEEN USED ON THIS PROJECT.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	PLGLO01.DGN
DESIGNED BY:	T LAQUIDARA
DRAWN BY:	T LAQUIDARA
SHEET CHK'D BY:	J SHEEHAN
CROSS CHK'D BY:	M KOSTUR
SCALE:	NONE
APPROVED BY:	J JACOBS
DATE:	SEPTEMBER 2010

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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PLUMBING
LEGEND, SYMBOLS AND ABBREVIATIONS

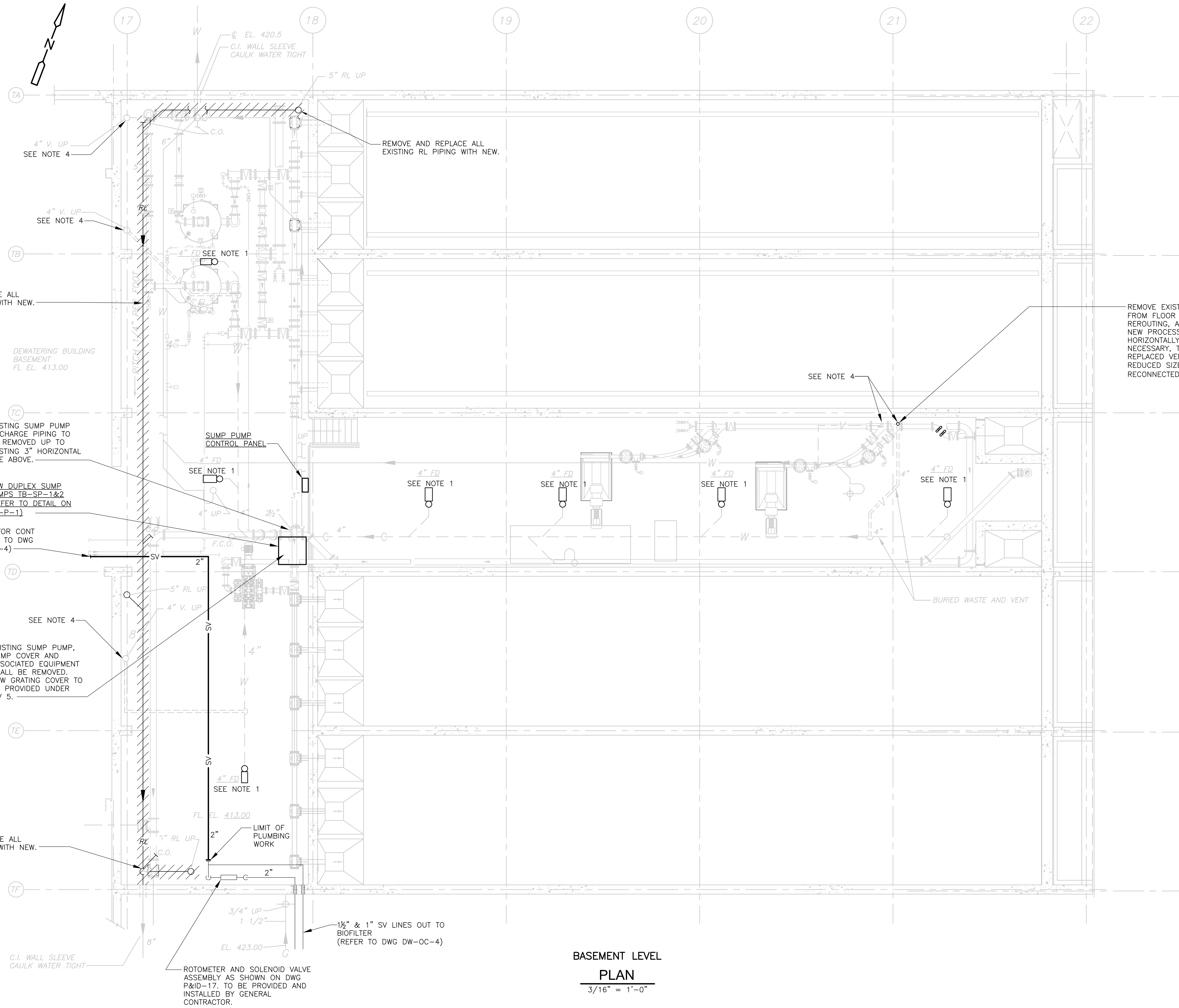
PROJECT NO.
1289-74283

Sht. 208 of 312

GD-P-1

Acc # 1289-74614

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMX\MERLIMR\00119559\PTBPL001.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 29-Nov-10 3:27 PM



- NOTES:
1. REFURBISH EXISTING FLOOR DRAINS. POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 2. ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 3. ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.
 4. ALL EXISTING VENT PIPING EXPOSED TO VIEW IS REQUIRED TO BE PAINTED UNDER THE WORK OF THE PAINTING CONTRACTOR.

BASEMENT LEVEL
PLAN
 3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	PTBPL001.DWG
DESIGNED BY:	T LAQUIDARA
DRAWN BY:	T LAQUIDARA
SHEET CHK'D BY:	J SHEEHAN
CROSS CHK'D BY:	M KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J JACOBS
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE THICKENER BUILDING
 BASEMENT PLAN
 DEMOLITION AND IMPROVEMENTS**

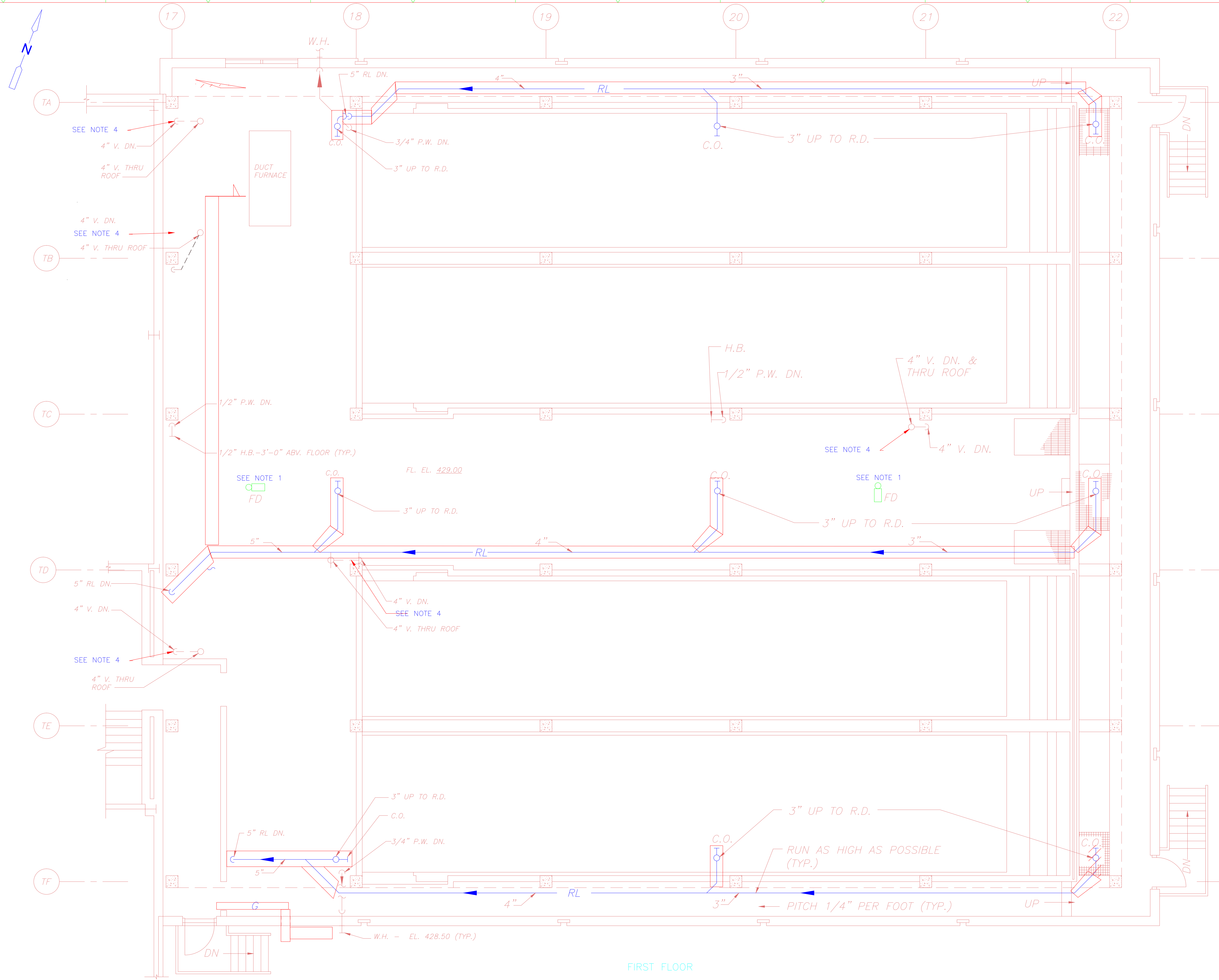
PROJECT NO.
1289-74283

Sht. 209 of 312

TB-P-1

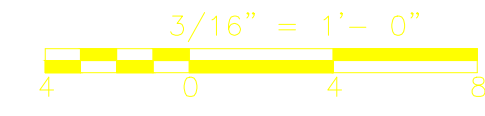
Acc # 1289-74615

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- NOTES:
- REFURBISH EXISTING FLOOR DRAINS. POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 - ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.
 - ALL EXISTING VENT PIPING EXPOSED TO VIEW IS REQUIRED TO BE PAINTED UNDER THE WORK OF THE PAINTING CONTRACTOR.

FIRST FLOOR
PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. PTBPL002.DWG
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: J. SHEEHAN
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER, 2010

Plumbing
Record Drawing
Kneeland Plg & Hg

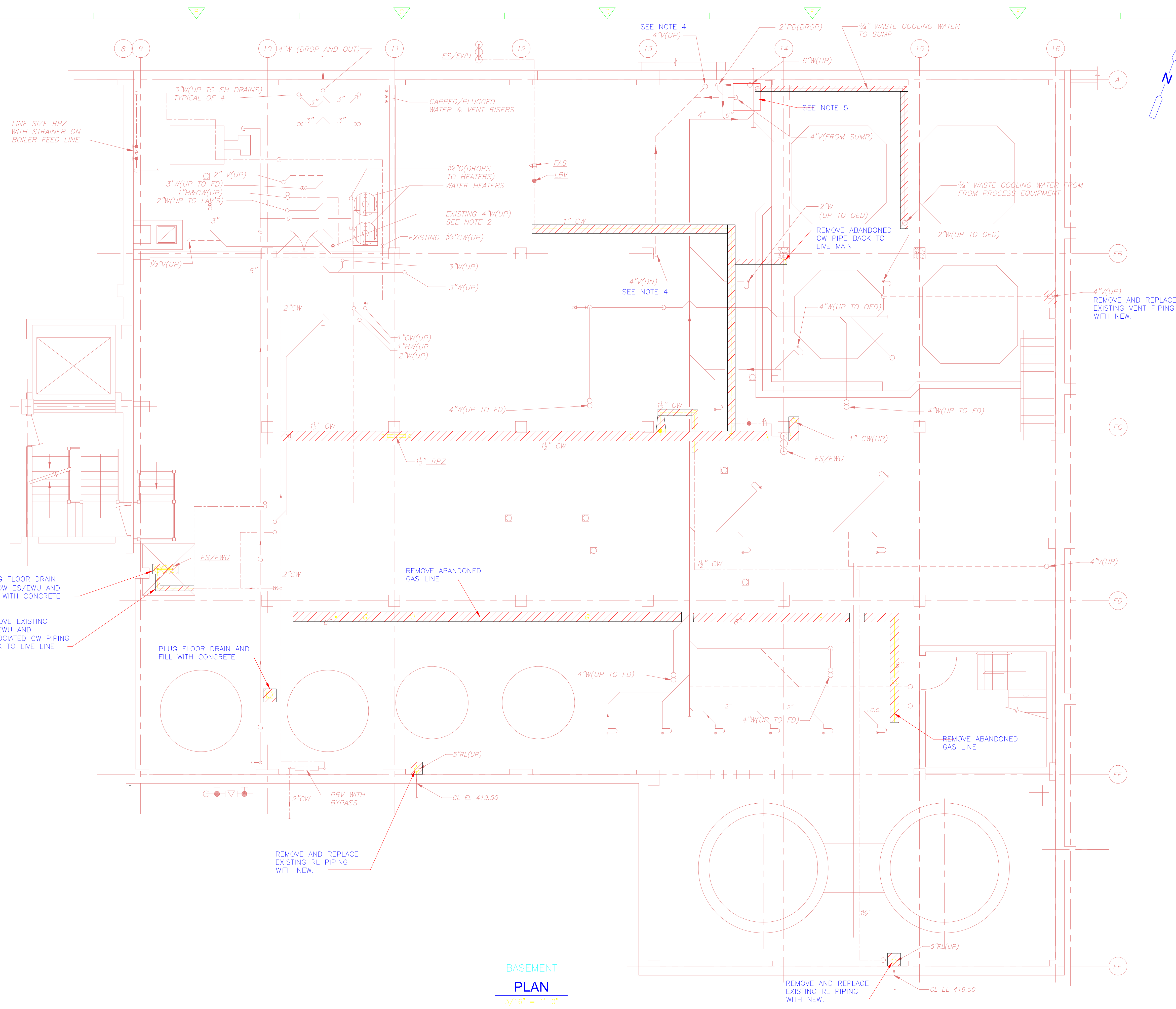
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE THICKENER BUILDING
 FIRST FLOOR PLAN
 DEMOLITION AND IMPROVEMENTS**

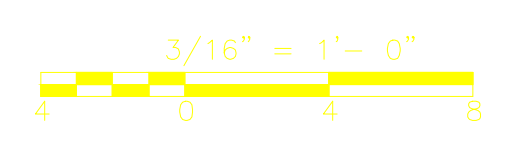
PROJECT NO.
1289-74283
 Sht. 210 of 312
TB-P-2
 Acc # 1289-74616

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV.RD, PLO01, DW-P-1.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 12:42 PM



- NOTES:
- BURIED PIPING IS NOT SHOWN FOR CLARITY.
 - REFURBISH ALL EXISTING FLOOR DRAINS, POWER WIREBRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES. UNDER THE WORK OF THE PAINTING CONTRACTOR.
 - REMOVE EXISTING SUMP PUMP, SUMP COVER AND ALL ASSOCIATED EQUIPMENT TO THE EXTENT REQUIRED TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT. REFER TO IMPROVEMENTS PLAN.

BASEMENT PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	BJWPL001
DESIGNED BY:	T. LAQUIDARA
DRAWN BY:	T. LAQUIDARA
SHEET CHK'D BY:	J. SHEEHAN
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. JACOBS
DATE:	SEPTEMBER 2010

Plumbing Record Drawing
Kneeland Plumbing & Heating, Inc.
63 Hammond Street
Rowley, MA 01969

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT**
CONTRACT No. 3-0-17512-0033
PROJECT No. GWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
BASEMENT FLOOR PLAN
DEMOLITION**

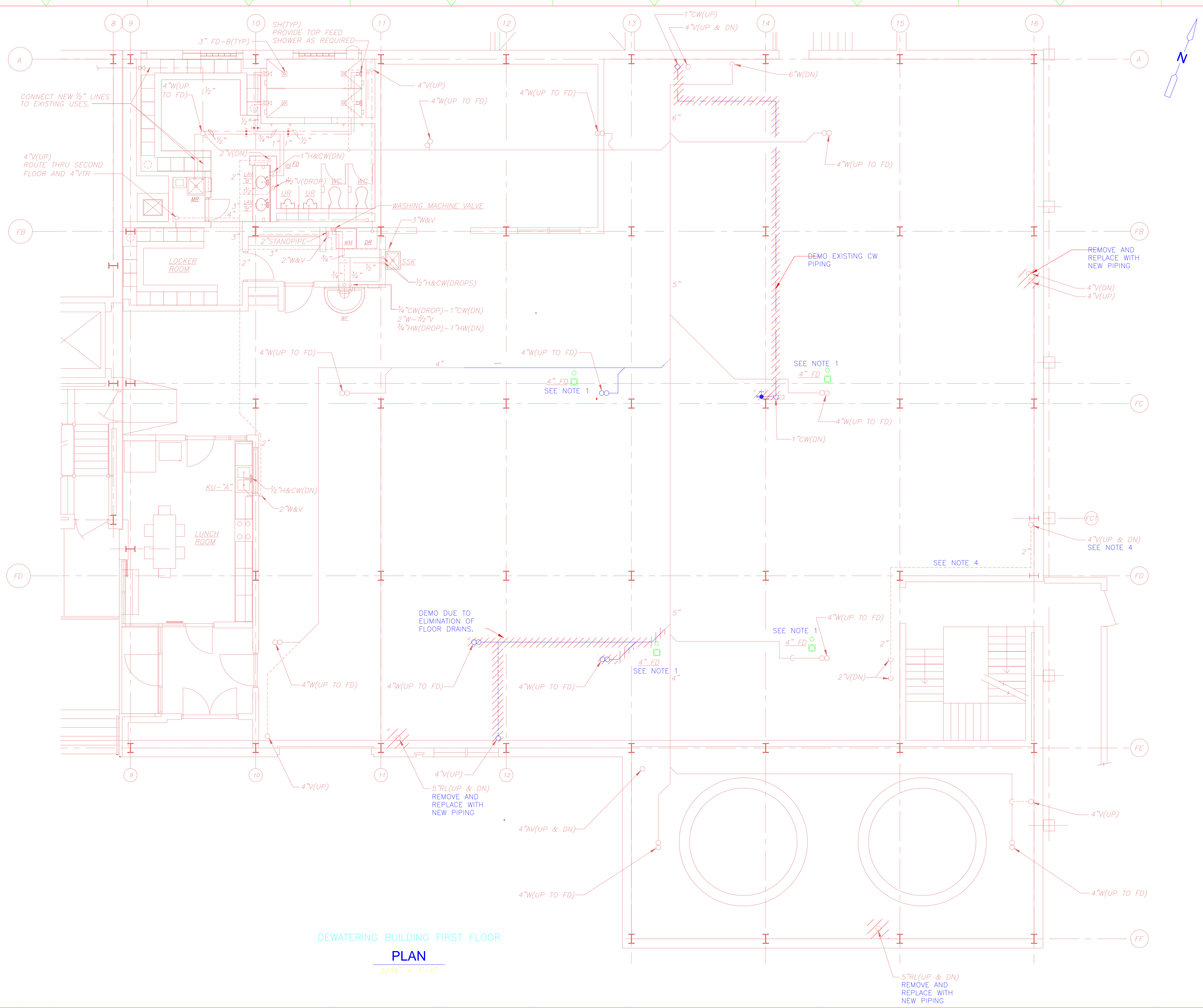
PROJECT NO.
1289-74283

Sht. 211 of 312

DW-P-1

Acc # 1289-74617

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV\RD_PLO02.DWG Saved by: RKOMSSI On: 8-Apr-13 Plotted on: 1-Apr-15 1:17 PM



- NOTES:
- REFURBISH EXISTING FLOOR DRAINS. POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 - ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.

DEWATERING BUILDING FIRST FLOOR
PLAN
 3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.: PDWPL002.DWG
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: J. SHEEHAN
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

Plumbing Record Drawing
 Kneeland Plumbing & Heating
 63 Hammond Street
 Rowley, MA 01969

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

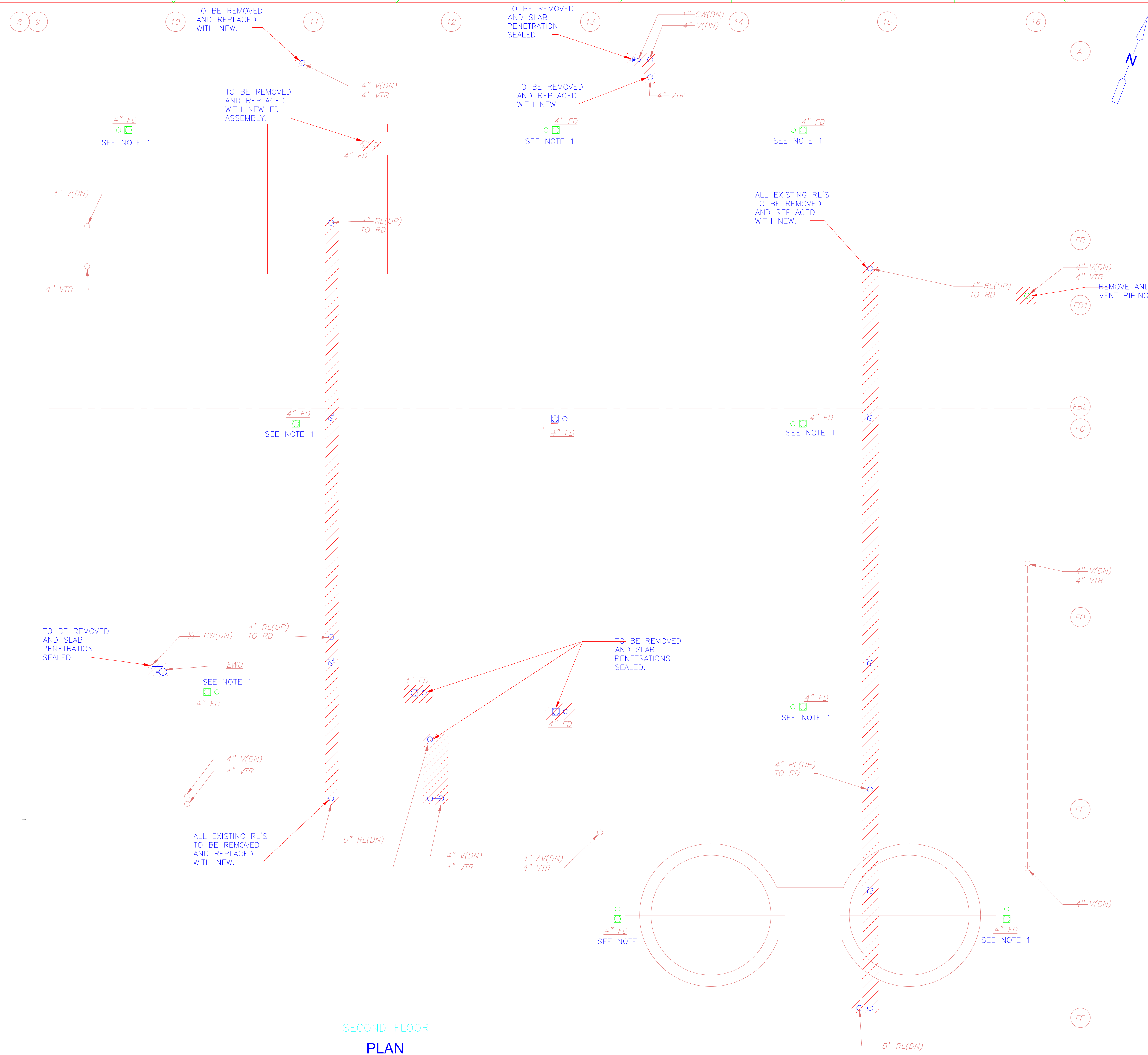
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 DEMOLITION**

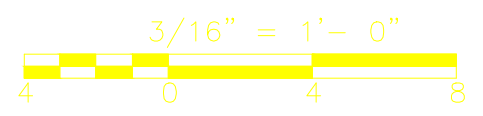
PROJECT NO. 1289-74283
 Sht. 212 of 312
DW-P-2
 Acc # 1289-74618

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV\RD_PLO03.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 2:16 PM



- NOTES:
 1. REFURBISH EXISTING FLOOR DRAINS, POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 2. ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 3. ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.

SECOND FLOOR
 PLAN
 3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. PDWPL003.DWG
 DESIGNED BY: T LAQUIDARA
 DRAWN BY: T LAQUIDARA
 SHEET CHK'D BY: J SHEEHAN
 CROSS CHK'D BY: M KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J JACOBS
 DATE: SEPTEMBER 2010

Plumbing Record Drawing
 Kneeland Plumbing & Heating
 63 Hammond Street
 Rowley, MA 01969

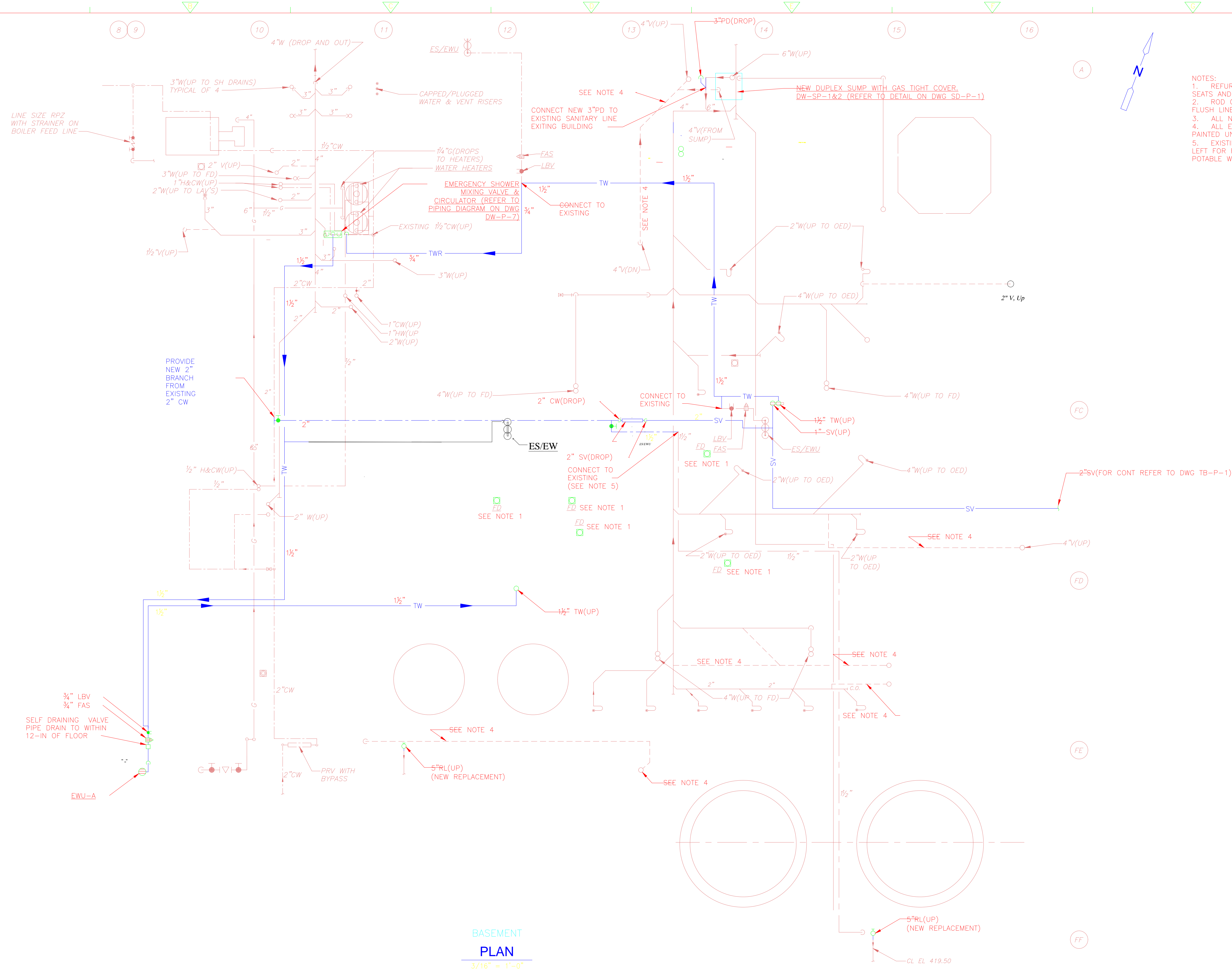
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECOND FLOOR PLAN
 DEMOLITION

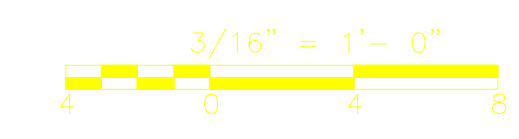
PROJECT NO. 1289-74283
 Sht. 213 of 312
 DW-P-3
 Acc # 1289-74619

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV.RD, PLO04, DW-P-4.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 2:14 PM



- NOTES:
- REFURBISH EXISTING FLOOR DRAINS, POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 - ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.
 - ALL EXISTING VENT PIPING EXPOSED TO VIEW IS REQUIRED TO BE PAINTED UNDER THE WORK OF THE PAINTING CONTRACTOR.
 - EXISTING CW (POTABLE WATER) LINE SHALL BE INSULATED AND LEFT FOR FUTURE USE. IT IS REQUIRED TO BE PAINTED AND LABELLED POTABLE WATER.

BASEMENT PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EWU-P-004
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: J. SHEEHAN
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

Plumbing Record Drawing
Kneeland Plg & Htg

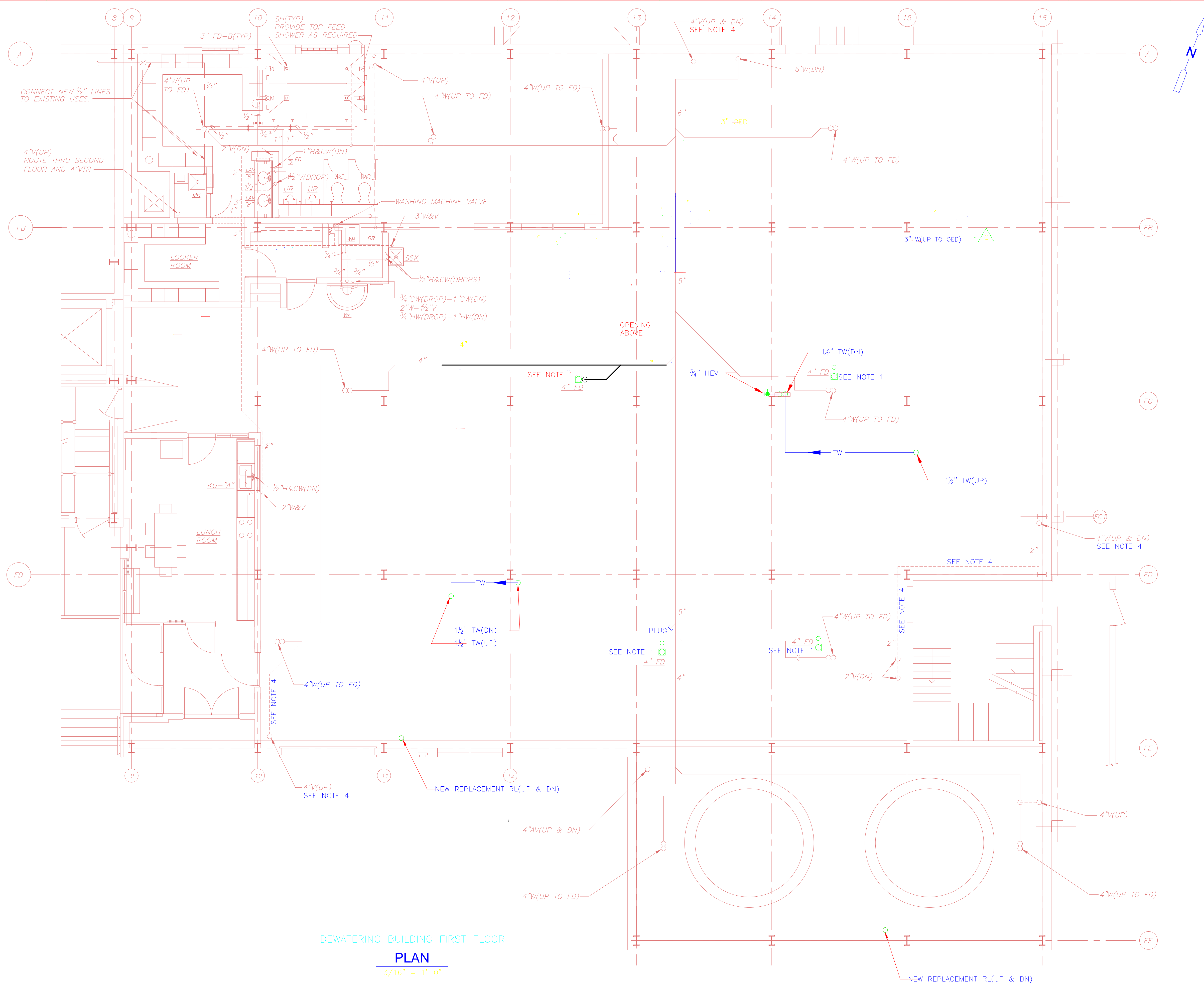
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. GWSRF-3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

DEWATERING BUILDING BASEMENT FLOOR PLAN IMPROVEMENTS

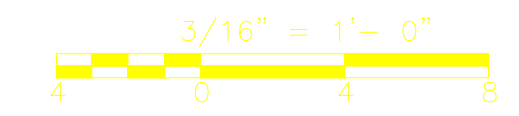
PROJECT NO. 1289-74283
 Sht. 214 of 312
DW-P-4
 Acc # 1289-74620

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV\RD_PLO05.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 2:32 PM



- NOTES:
- REFURBISH EXISTING FLOOR DRAINS, POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 - ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.
 - ALL EXISTING VENT PIPING EXPOSED TO VIEW IS REQUIRED TO BE PAINTED UNDER THE WORK OF THE PAINTING CONTRACTOR.

DEWATERING BUILDING FIRST FLOOR
PLAN
 3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TUL	TUL		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.: PDWPL005.DWG
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: J. SHEEHAN
 CROSS CHK'D BY: M. KOSTLUR
 SCALE: AS NOTED
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER, 2010

Plumbing Record Drawing
 Kneeland Plumbing & Heating
 63 Hammond Street
 Rowley, MA 01969

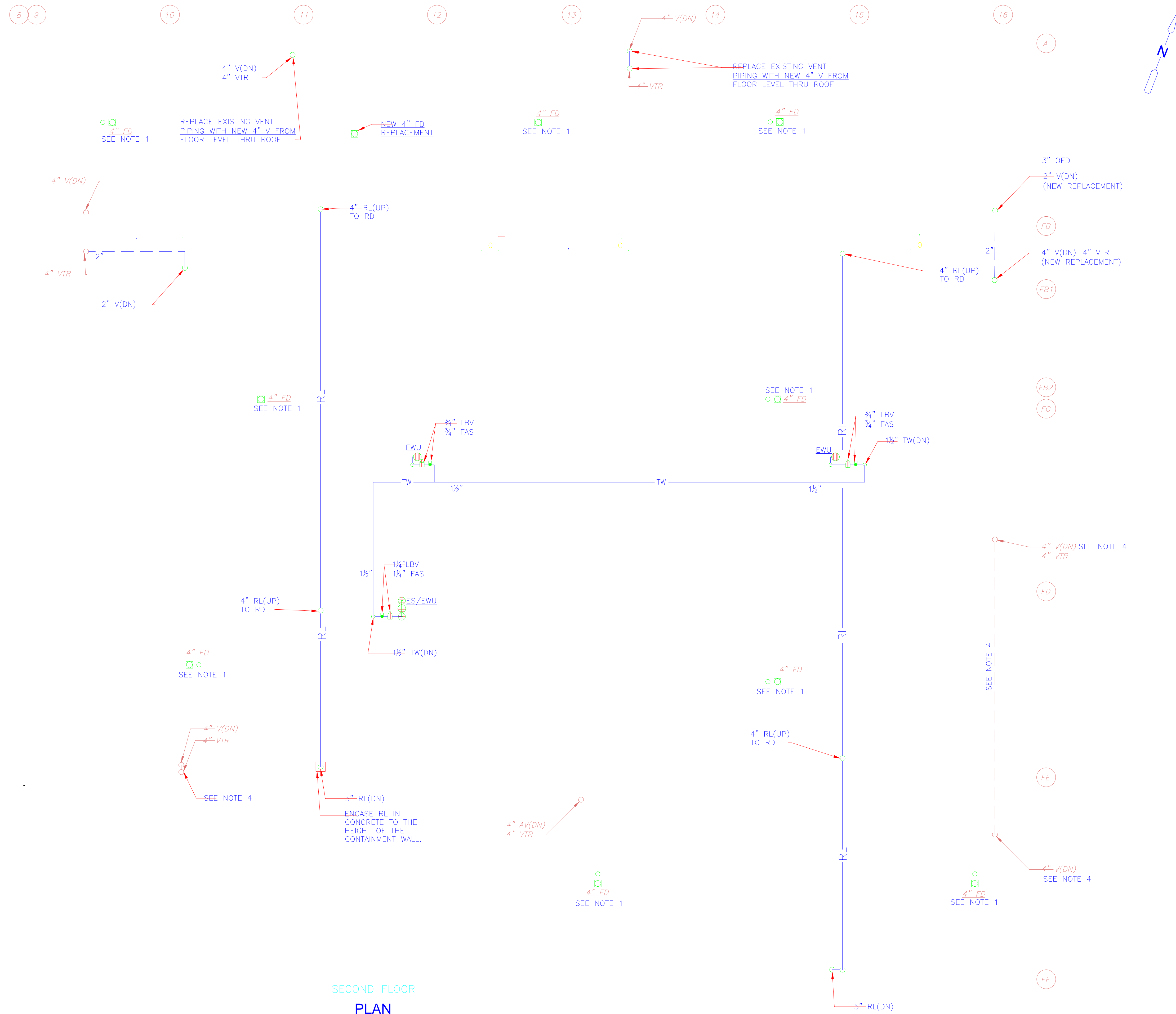
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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 FIRST FLOOR PLAN
 IMPROVEMENTS**

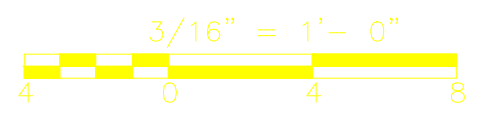
PROJECT NO.
 1289-74283
 Sht. 215 of 312
DW-P-5
 Acc # 1289-74621

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV\RD_PLO06.DWG DW-P-6.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 2:49 PM



- NOTES:
- REFURBISH EXISTING FLOOR DRAINS, POWER WIRE BRUSH BODY SEATS AND PROVIDE NEW GRATES AND CLEANOUT PLUGS.
 - ROD OUT ALL DRAINAGE PIPING WHEN PROJECT COMPLETED AND FLUSH LINES.
 - ALL NEW HORIZONTAL RL'S SHALL BE INSULATED AS SPECIFIED.
 - ALL EXISTING VENT PIPING EXPOSED TO VIEW IS REQUIRED TO BE PAINTED UNDER THE WORK OF THE PAINTING CONTRACTOR.

SECOND FLOOR
PLAN
3/16" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJL	TJL		REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. PDWPL006
 DESIGNED BY: T LAQUIDARA
 DRAWN BY: T LAQUIDARA
 SHEET CHK'D BY: J SHEEHAN
 CROSS CHK'D BY: M KOSTJUR
 SCALE: AS NOTED
 APPROVED BY: J JACOBS
 DATE: SEPTEMBER 2010

Plumbing
 Record Drawing
 Kneeland Pkg & Htg

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

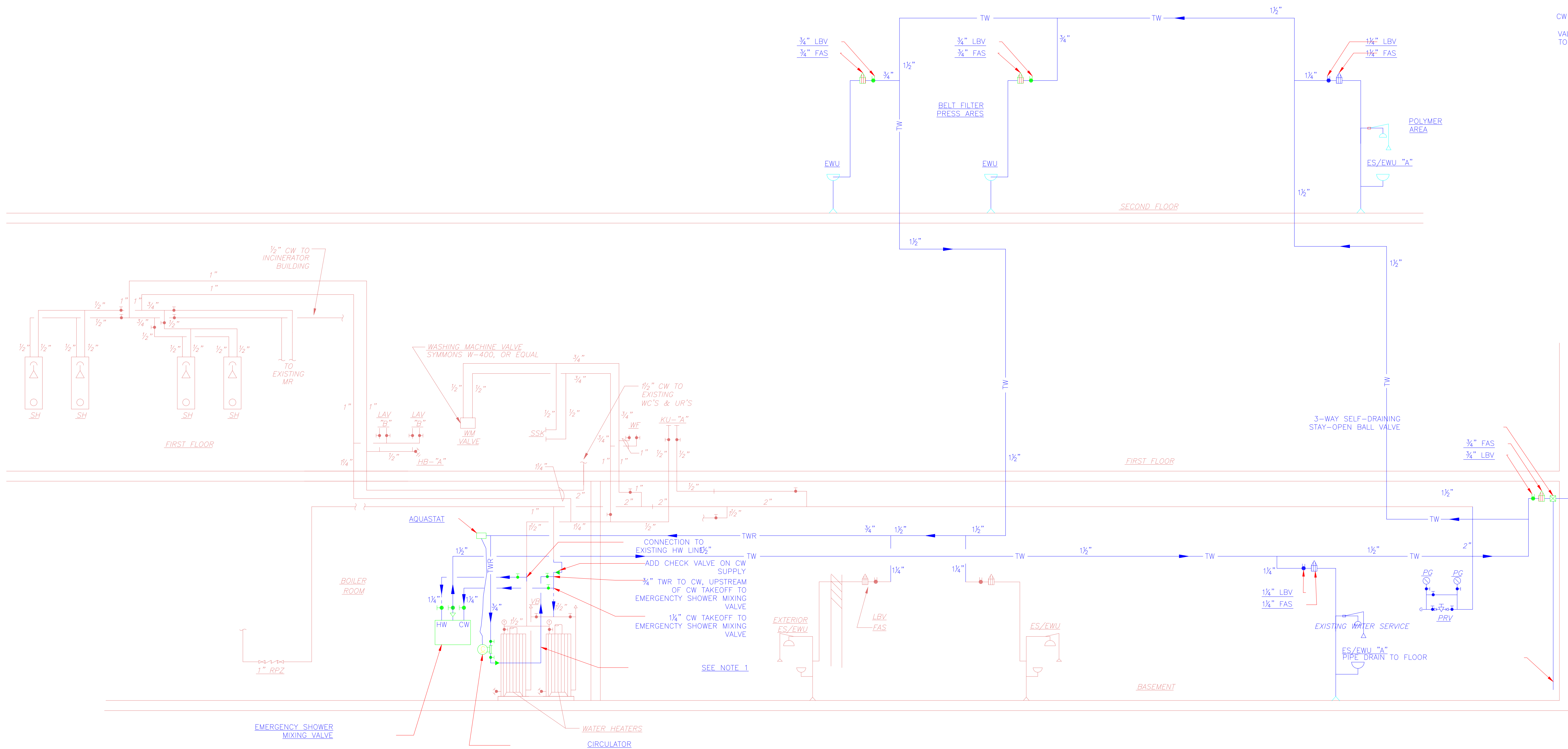
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

DEWATERING BUILDING
 SECOND FLOOR PLAN
 IMPROVEMENTS

PROJECT NO.
1289-74283
 Sht. 216 of 312
 DW-P-6
 Acc # 1289-74622

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: D:\REV.RD, PLO07, DW-P-7.DWG Saved by: --- On: 8-Apr-13 Plotted on: 1-Apr-15 2:44 PM

NOTES:
 RETURN LINE SHALL BE TIED INTO THE COMMON CW LINE TO ALLOW CIRCULATION THROUGH EITHER THE CW SUPPLY TO THE MIXING VALVE AND/OR TO THE WATER HEATERS.



POTABLE WATER PIPING
 DIAGRAM

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. BPWP-007.RVT
 DESIGNED BY: T. LAQUIDARA
 DRAWN BY: T. LAQUIDARA
 SHEET CHK'D BY: J. SHEEHAN
 CROSS CHK'D BY: M. KOSTUR
 SCALE: NONE
 APPROVED BY: J. JACOBS
 DATE: SEPTEMBER 2010

Plumbing
 Record Drawing
 Kneeland Plg. & Hg.

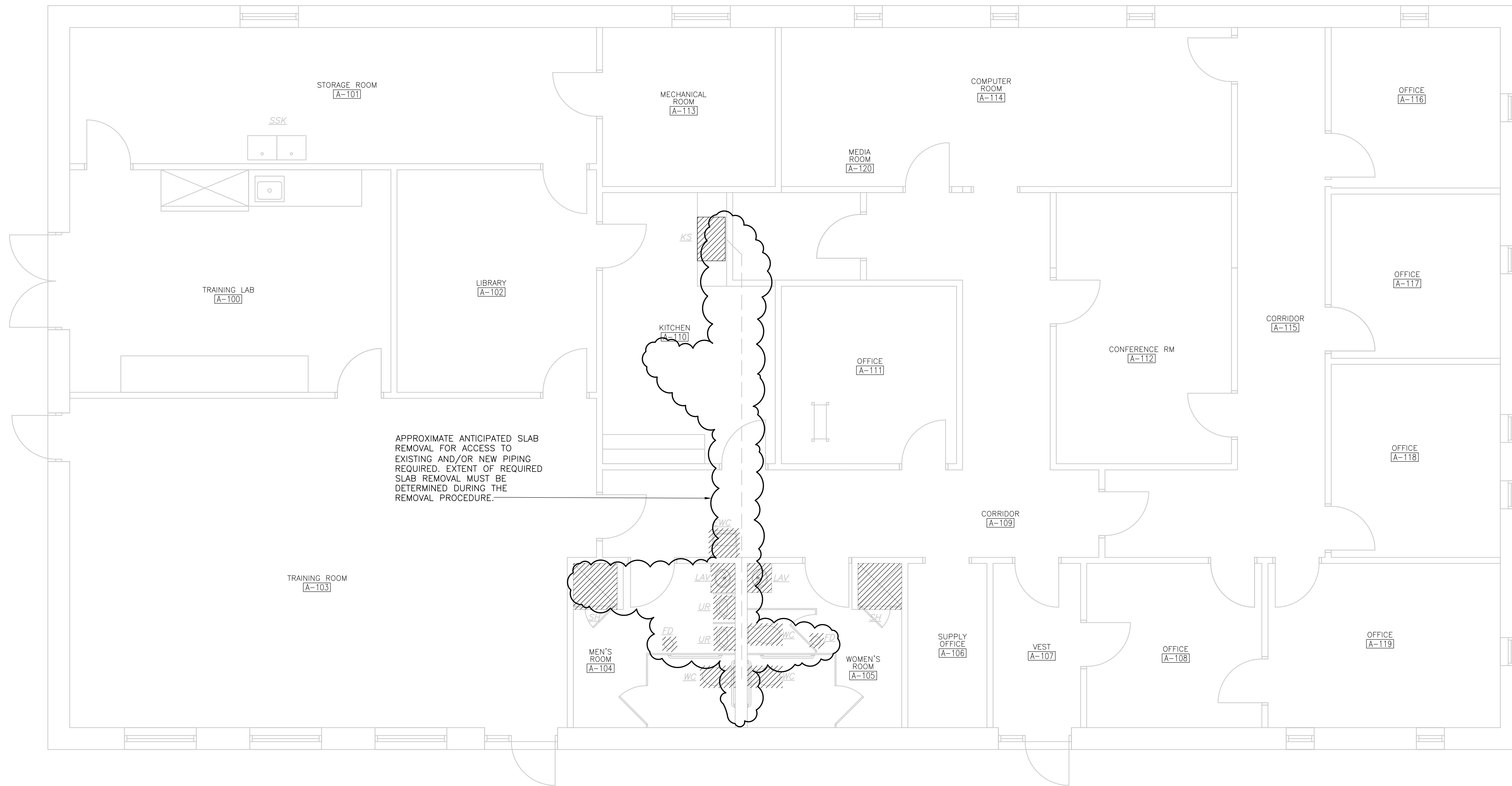
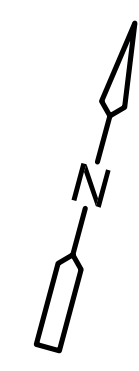
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. GWSRP - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING
 RISER DIAGRAMS**

PROJECT NO.
 1289-74283
 Sht. 217 of 312
DW-P-7
 Acc # 1289-74623

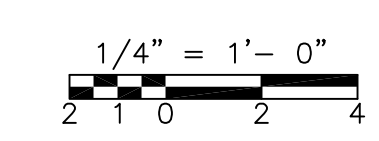
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\MERLIMR\0119559\PMSPL101.DWG Saved by: MERLIMR On: 6-Jul-10 Plotted on: 29-Nov-10 3:53 PM



APPROXIMATE ANTICIPATED SLAB REMOVAL FOR ACCESS TO EXISTING AND/OR NEW PIPING REQUIRED. EXTENT OF REQUIRED SLAB REMOVAL MUST BE DETERMINED DURING THE REMOVAL PROCEDURE.

- NOTES:
1. DISCONNECT AND REMOVE ALL PLUMBING FIXTURES, APPURTENANCES AND PIPING TO ALLOW COMPLETE INSTALLATION OF NEW FIXTURES, AS SHOWN ON IMPROVEMENTS PLAN.
 2. FIXTURES REQUIRED TO BE REMOVED INCLUDE KITCHEN SINK, WC'S, LAV'S, UR'S, SHOWERS AND FLOOR DRAINS.
 3. WATER SERVICES EXISTING AT LOCATIONS NO LONGER REQUIRED SHALL BE REMOVED BACK TO A LIVE MAIN. NO DEAD LEGS SHALL REMAIN WHEN NEW WATER PIPING TO NEW FIXTURES IS COMPLETE.
 3. EXISTING BURIED PIPING MAY BE USED TO THE EXTENT POSSIBLE OR COMPLETELY REPLACED WITH NEW, AS NECESSARY TO PERFORM THE PLUMBING RENOVATIONS REQUIRED. THE CONTRACTOR SHALL PROVIDE ALL INVESTIGATORY WORK REQUIRED TO DETERMINE LOCATION OF EXISTING BURIED PIPING.

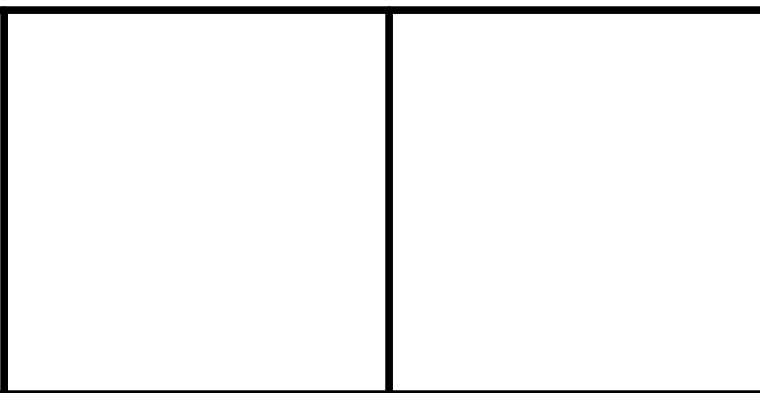
FIRST FLOOR
PLAN
1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. PMSPL101.DWG
 DESIGNED BY: T LAQUIDARA
 DRAWN BY: T LAQUIDARA
 SHEET CHK'D BY: J SHEEHAN
 CROSS CHK'D BY: M KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J JACOBS
 DATE: SEPTEMBER 2010

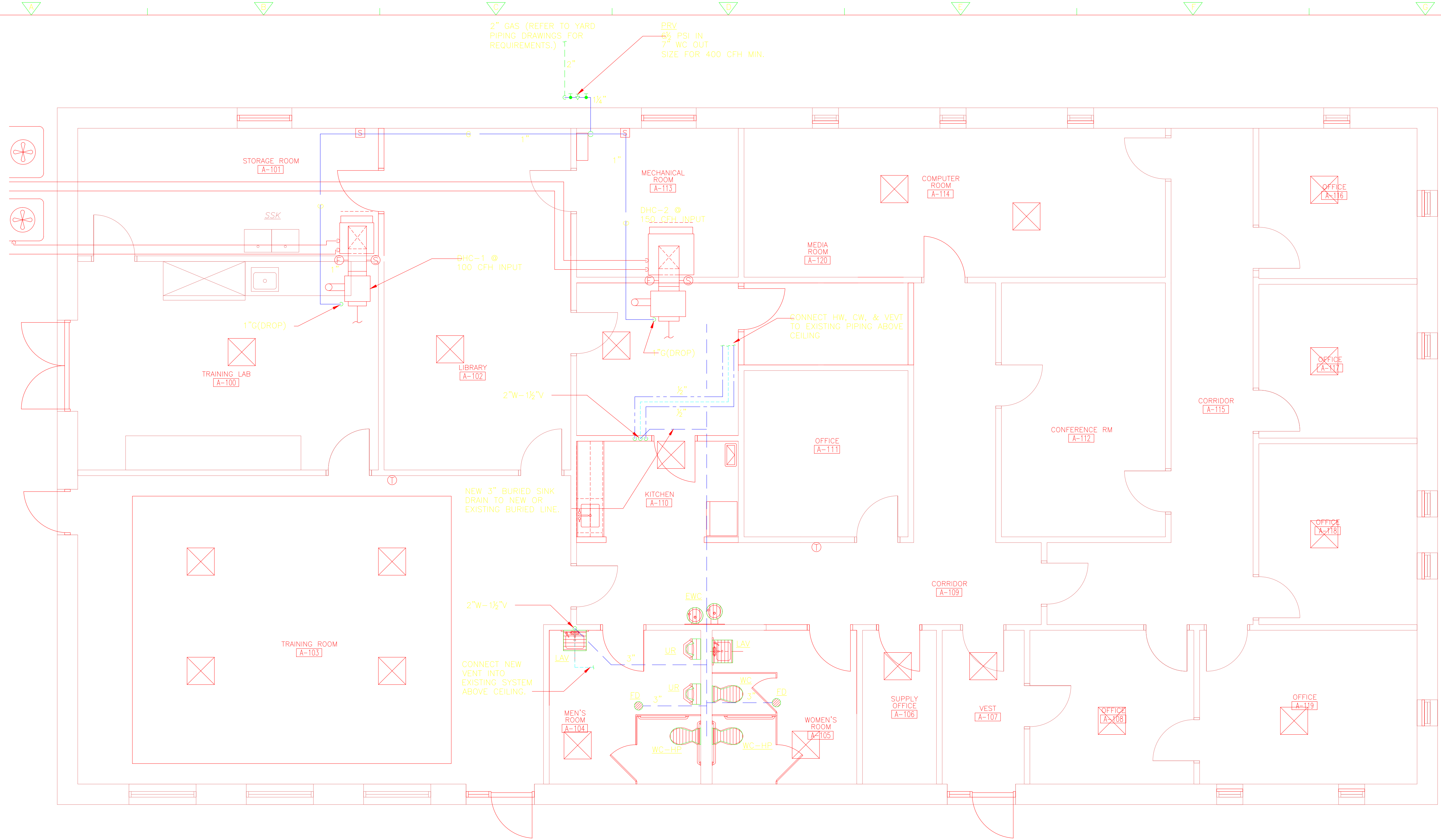


UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

ALDEN TRAINING FACILITY
 FLOOR PLAN
 DEMOLITION

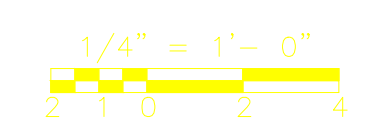
PROJECT NO. 1289-74283
 Sht. 218 of 312
 FO-P-1
 Acc # 1289-74624

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: H:\CDM W-KNEELAND FILES\PMSP1102.DWG Saved by: DKENNEDY On: 27-Apr-12 Plotted on: 10-Nov-15 4:08 PM



- NOTES:
1. ALL BURIED WASTE LINES SHALL BE 3" MINIMUM.
 2. PROVIDE ALL NECESSARY LABOR AND MATERIALS AS REQUIRED TO INSTALL ALL NEW FIXTURES AS SHOWN.
 3. NEW FIXTURE CARRIERS SHALL BE PROVIDED AS REQUIRED.
 4. EXISTING BURIED PIPING MAY BE USED TO THE EXTENT POSSIBLE OR COMPLETELY REPLACED WITH NEW, AS NECESSARY.
 5. TRAP PRIMERS SHALL BE PROVIDED BELOW LAV'S FOR FD TRAPS. PROVIDE 1/2" COPPER PIPING WITH PROTECTIVE WRAPPING OR CELLULOSE FOAM INSULATION, OR PEX TUBING IF ALLOWED, WHERE BURIED IN CONCRETE.

FIRST FLOOR
PLAN
 1/4" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. PMSPL102.DWG
 DESIGNED BY: T LAQUIDARA
 DRAWN BY: T LAQUIDARA
 SHEET CHK'D BY: J SHEEHAN
 CROSS CHK'D BY: M KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J JACOBS
 DATE: SEPTEMBER 2010

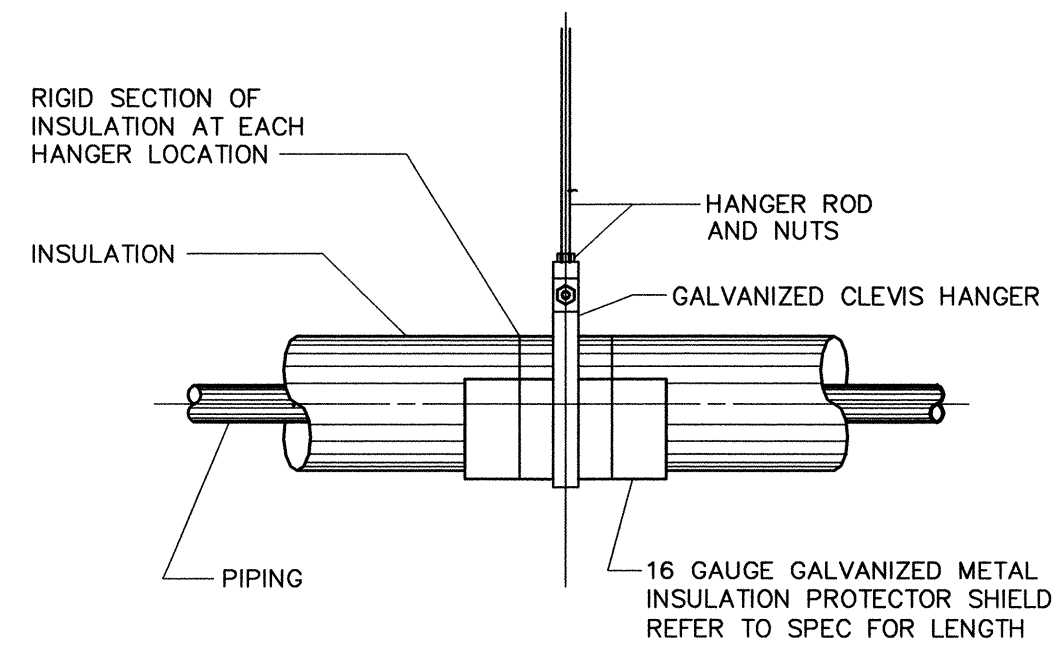
Plumbing Record Drawing
 Kneeland Plumbing & Heating
 63 Hammond Street
 Rowley, MA 01969

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. GWSRP - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

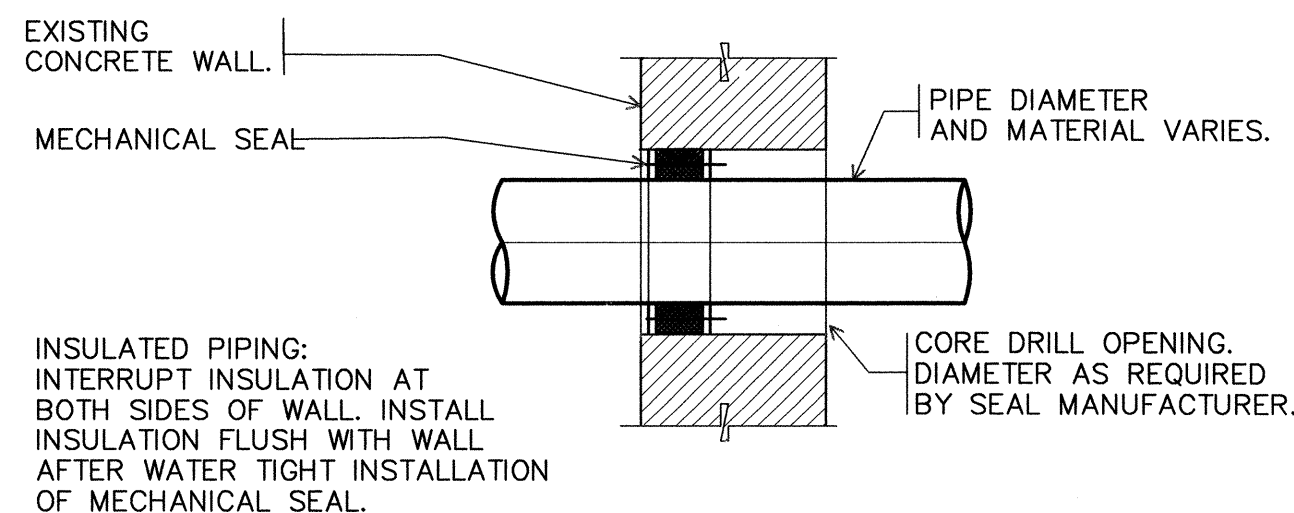
**ALDEN TRAINING FACILITY
 FLOOR PLAN
 IMPROVEMENTS**

PROJECT NO.
 1289-74283
 Sht. 219 of 312
FO-P-2
 Acc # 1289-74625



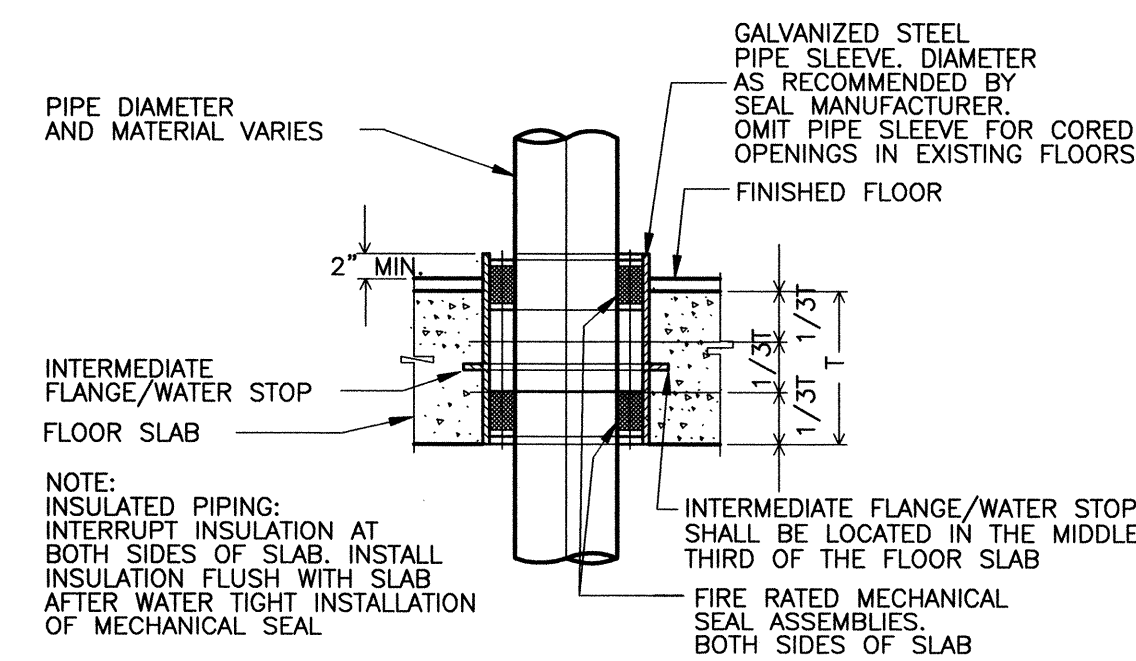
HANGER SUPPORT SYSTEM INSULATED HORIZONTAL PIPING

DETAIL
NTS



CORE DRILLED OPENING WITH MECHANICAL SEAL FOR EXISTING CONCRETE WALL

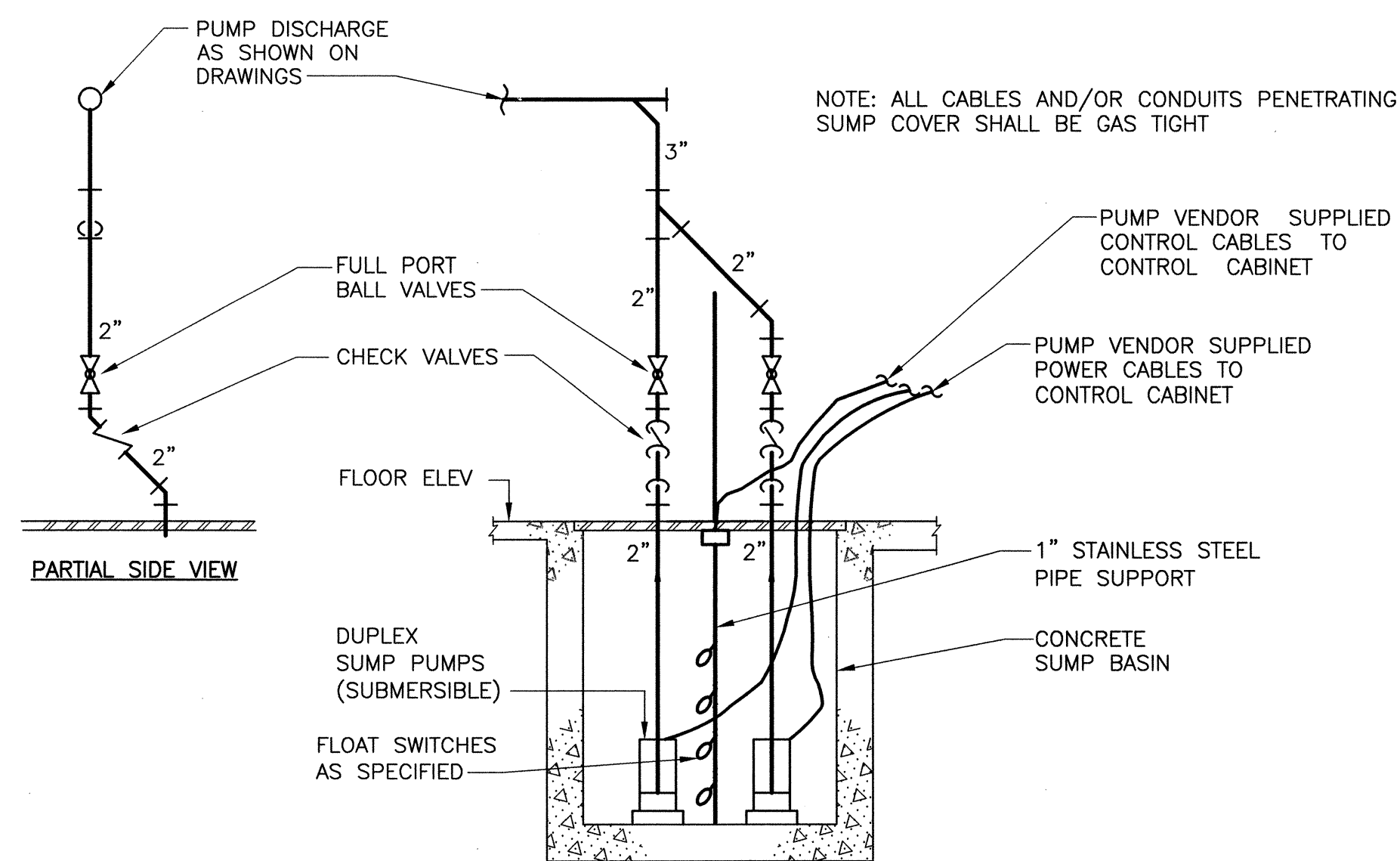
DETAIL
NTS



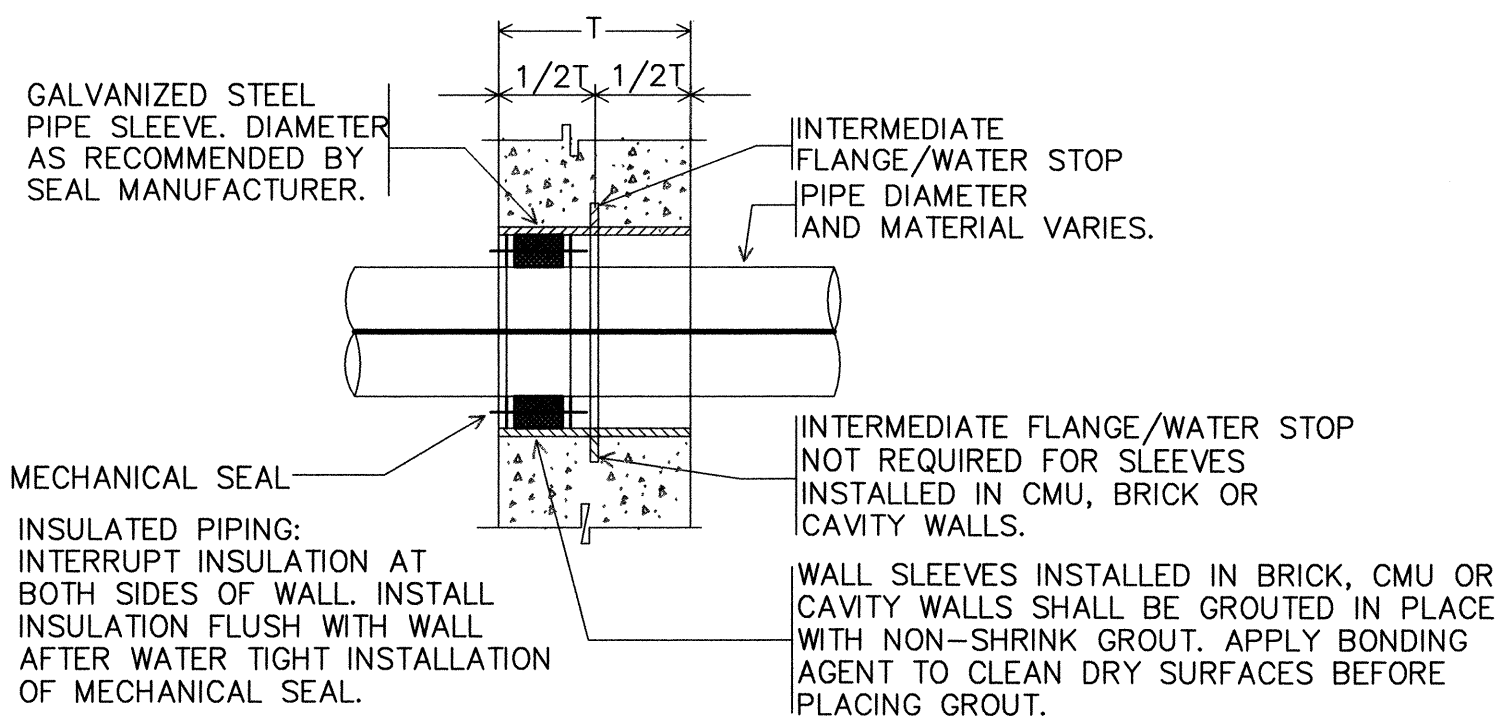
FLOOR SLEEVE WITH RATED MECHANICAL SEALS TO BE USED FOR ALL FLOOR OPENINGS.

SLEEVE WITH MECHANICAL SEALS THRU NEW FLOOR SLAB

DETAIL
NTS

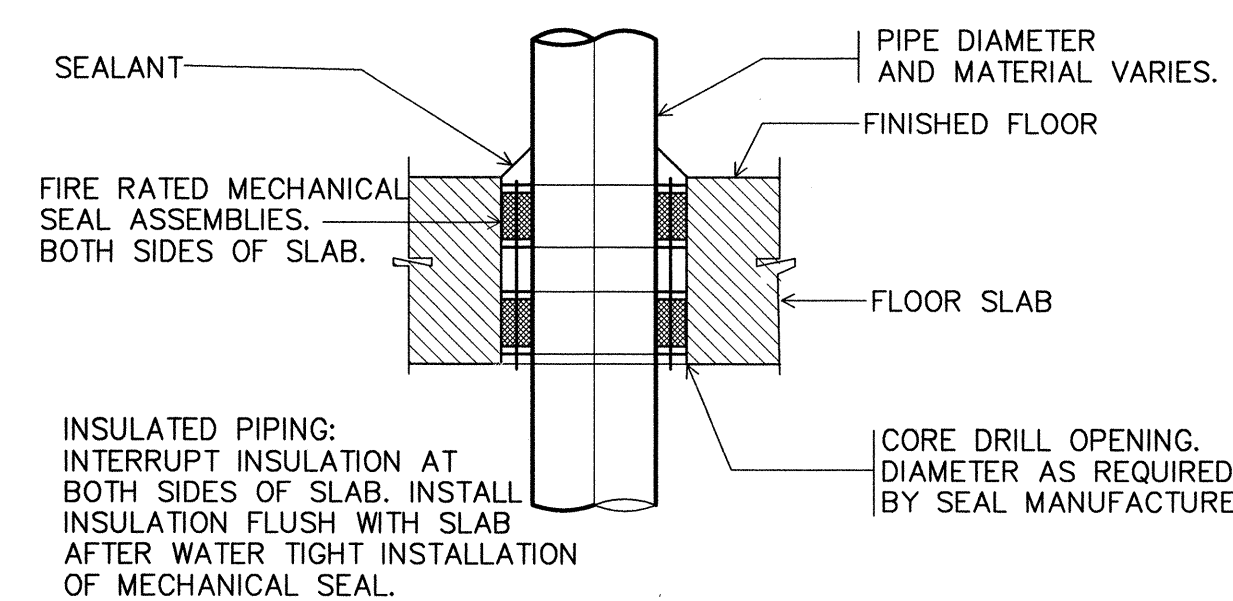


DUPLEX SUMP PUMP
DETAIL
NTS



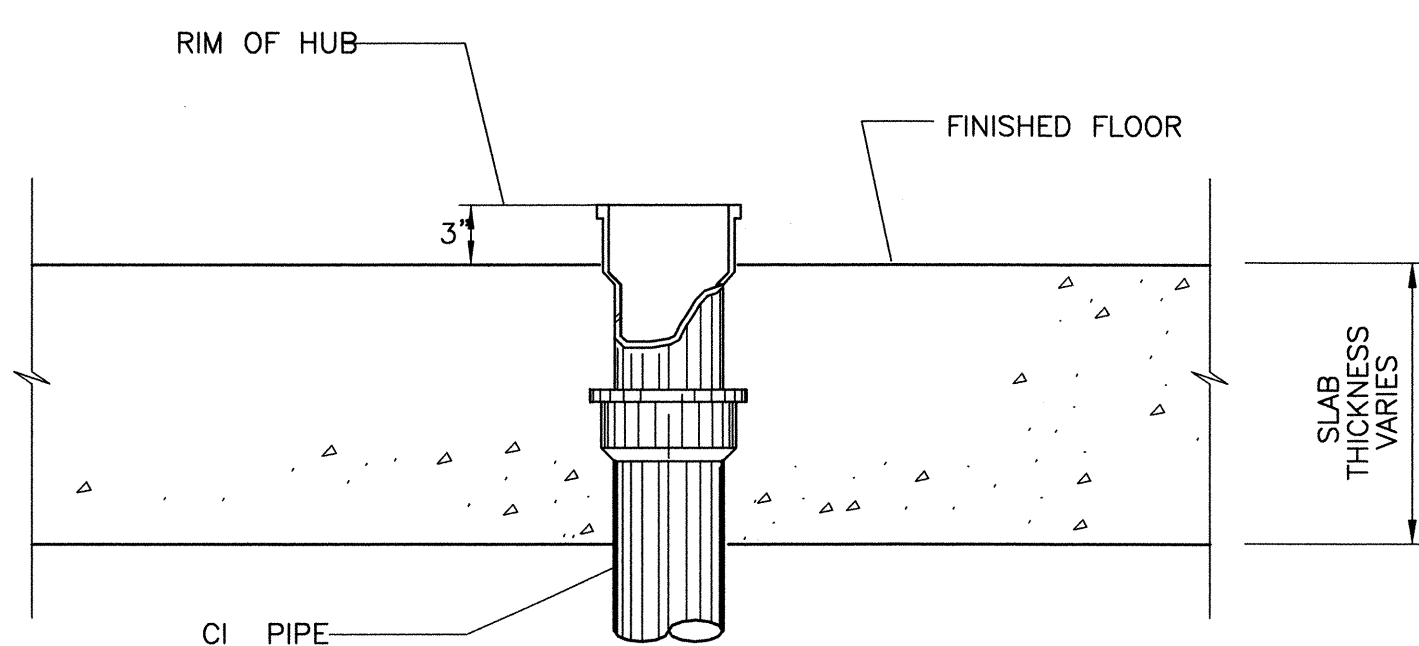
SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, CMU OR CAVITY WALLS

DETAIL
NTS

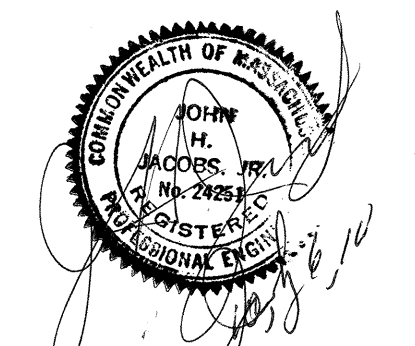


CORE DRILLED OPENING WITH MECHANICAL SEALS THRU EXISTING FLOOR SLAB

DETAIL
NTS



OPEN END DRAIN (OED)
DETAIL
NTS



Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMKM\MERLIMR\00119559\PSDPL001.DWG Saved by: LAQUIDARA T On: 6-Jul-10 10:21 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. <u>PSDPL001.DWG</u>
DESIGNED BY: <u>T LAQUIDARA</u>
DRAWN BY: <u>T LAQUIDARA</u>
SHEET CHK'D BY: <u>J SHEEHAN</u>
CROSS CHK'D BY: <u>M KOSTUR</u>
SCALE: <u>NONE</u>
APPROVED BY: <u>J JACOBS</u>
DATE: <u>JULY 2010</u>

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

TYPICAL DETAILS

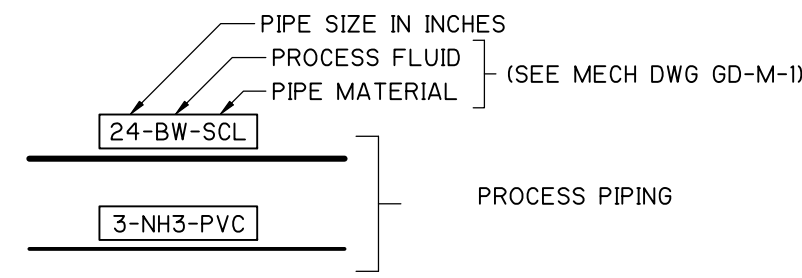
PROJECT NO.
1289-74283

Sht. 220 of 312

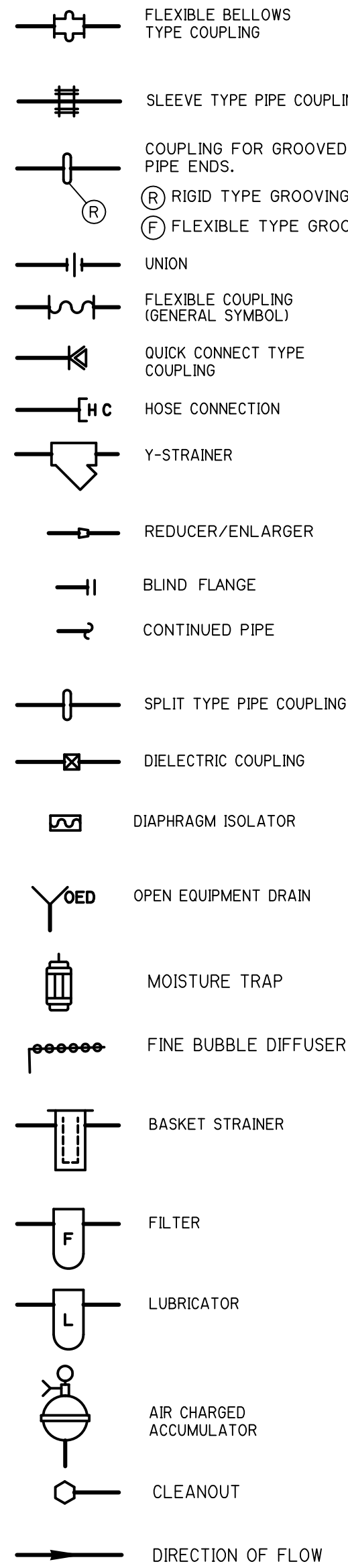
SD-P-1

Acc # 1289-74626

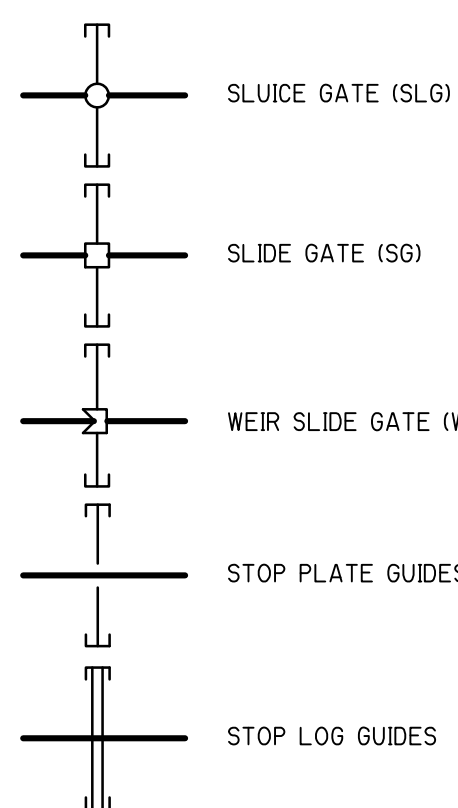
PIPE LINE SYMBOLS



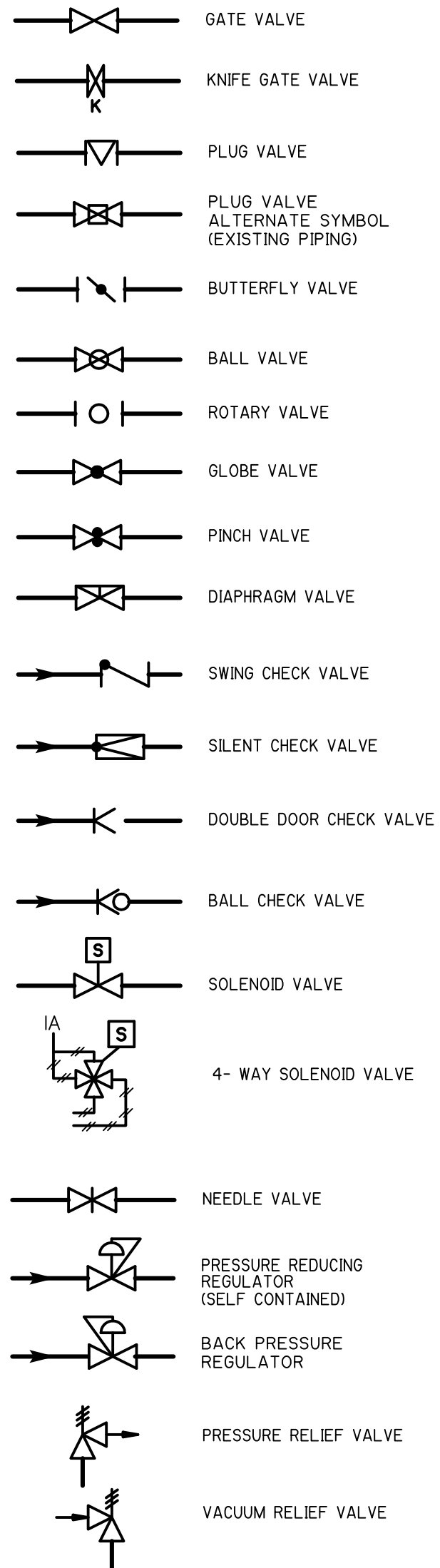
MISCELLANEOUS FITTINGS AND PIPING COMPONENTS



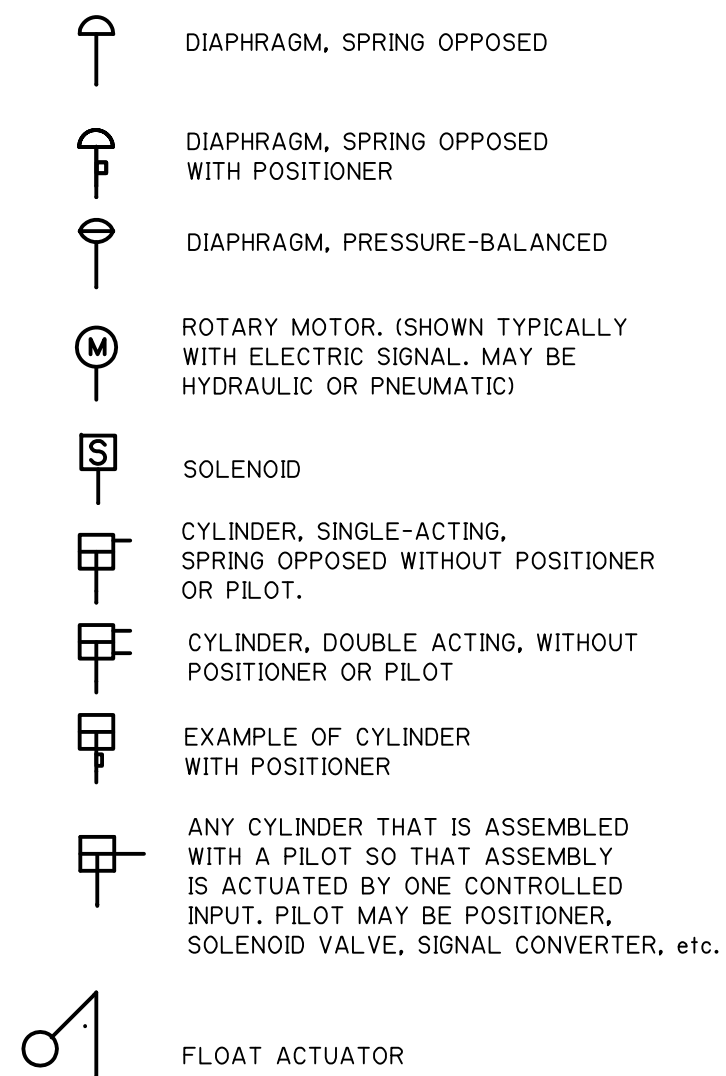
GATE SYMBOLS



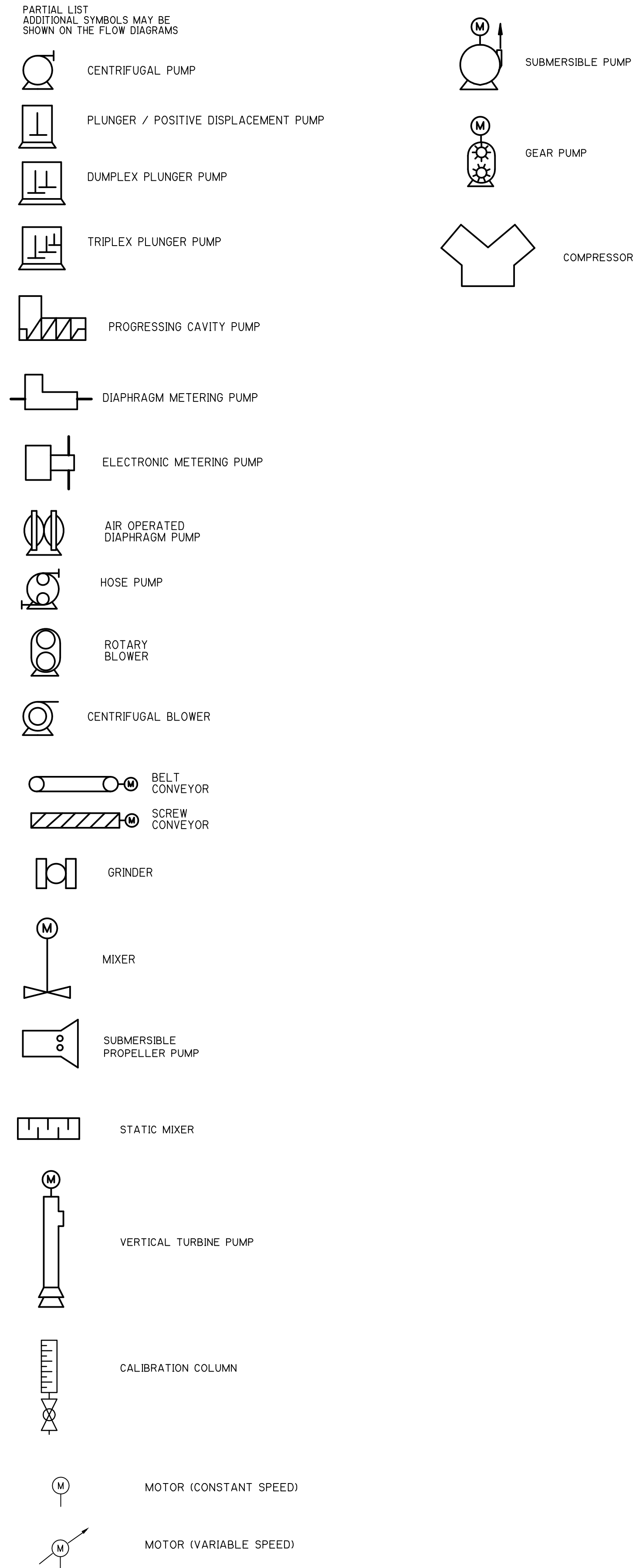
VALVE SYMBOLS



VALVE ACTUATORS



MISCELLANEOUS SYMBOLS



NOTES

- REFER TO SHEET GD-1-2 FOR ADDITIONAL INSTRUMENTATION EQUIPMENT IDENTIFICATION, LINE SYMBOLS, ADDITIONAL ABBREVIATIONS AND INSTRUMENT TAGGING CONVENTIONS.
- THIS IS A GENERAL P&ID LEGEND SHEET. SOME SYMBOLS OR NOTATIONS MAY NOT BE USED ON THIS PROJECT.
- STANDARD DETAILS SHALL BE USED FOR ALL PERMANENT WORK EVEN THOUGH THEY ARE NOT CALLED OUT AT ALL LOCATIONS WHERE THEY APPLY.

SCADA & VENDOR PANELS

- CPP-3 SCADA PLC CONTROL PROCESSOR PANEL SEVENTEEN (LOCATED IN SLUDGE HOLDING TANK BUILDING)
- RIOP-3A SCADA PLC ON REMOTE I/O PANEL NUMBER THREE A (LOCATED IN MAINTENANCE BUILDING MAINTENANCE ROOM)
- CPP-12 SCADA PLC CONTROL PROCESSOR PANEL NUMBER TWELVE (LOCATED IN THE INCINERATOR BUILDING RTO CONTROL ROOM)
- EXISTING RIOP-12A SCADA REMOTE I/O PANEL NUMBER TWELVE A (LOCATED IN DEWATERING BUILDING ON SECOND FLOOR)
- NEW RIOP-12A SCADA REMOTE I/O PANEL NUMBER TWELVE A (LOCATED IN THE INCINERATOR BUILDING RTO CONTROL ROOM)
- CPP-19 SCADA PLC CONTROL PROCESSOR PANEL NUMBER NINETEEN (LOCATED IN THE CAUSTIC CHEMICAL AREA)
- CPP-20 SCADA PLC CONTROL PROCESSOR PANEL NUMBER TWENTY (LOCATED IN THE THICKENER BUILDING ELECTRICAL ROOM)
- CPP-50 SCADA PLC CONTROL PROCESSOR PANEL NUMBER FIFTY (LOCATED IN THE ADMINISTRATION BUILDING TELEPHONE ROOM)
- CP-BFP1 BFP NO. 1 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR BELT FILTER PRESS NO.1 (LOCATED IN THE DEWATERING BUILDING ON THE SECOND FLOOR)
- CP-BFP2 BFP NO. 2 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR BELT FILTER PRESS NO.2 (LOCATED IN THE DEWATERING BUILDING ON THE SECOND FLOOR)
- CP-BFP3 BFP NO. 3 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR BELT FILTER PRESS NO.3 (LOCATED IN THE DEWATERING BUILDING ON THE SECOND FLOOR)
- CP-BFP4 BFP NO. 4 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR BELT FILTER PRESS NO.4 (LOCATED IN THE DEWATERING BUILDING ON THE SECOND FLOOR)
- CP-CP1 CAKE PUMP NO.1 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR CAKE PUMP NO.1 (LOCATED IN THE DEWATERING BUILDING ON THE FIRST FLOOR)
- CP-CP2 CAKE PUMP NO.2 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR CAKE PUMP NO.2 (LOCATED IN THE DEWATERING BUILDING ON THE FIRST FLOOR)
- CP-CP3 CAKE PUMP NO.3 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR CAKE PUMP NO.3 (LOCATED IN THE DEWATERING BUILDING ON THE FIRST FLOOR)
- CP-CP4 CAKE PUMP NO.4 PLC VENDOR SUPPLIED PLC CONTROL PROCESSOR PANEL FOR CAKE PUMP NO.4 (LOCATED IN THE DEWATERING BUILDING ON THE FIRST FLOOR)

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\POPTANIMM\0000001.DWG Saved by: MALACHOWSKIPS On: 28-Jun-10 Plotted on: 29-Nov-10 8:48 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	1000001.DWG
DESIGNED BY:	P.MALACHOWSKI
DRAWN BY:	C. COSTELLO
SHEET CHK'D BY:	E. SILVERMAN
CROSS CHK'D BY:	D. GREEN
SCALE:	AS NOTED
APPROVED BY:	P.MALACHOWSKI
DATE:	SEPTEMBER 2010

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One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PROJECT NO.
1289-74283

Sht. 221 of 312

I-1

Acc # 1289-74627

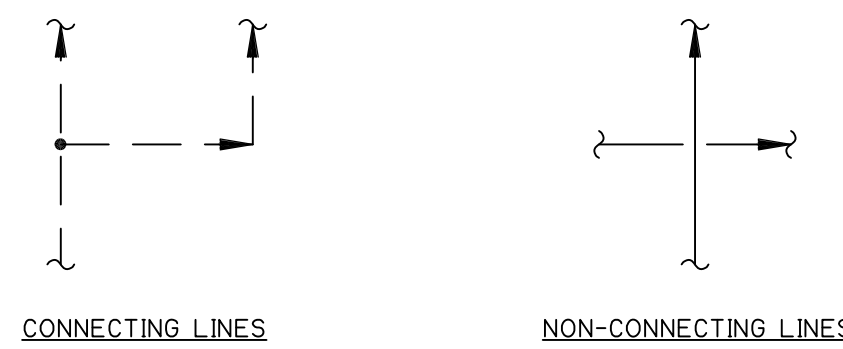
CONFORMED

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	LOCATION NORMALLY NOT ACCESSIBLE TO OPERATOR
PRIMARY LOCATION OR CONTROL PANEL			
SECONDARY LOCATION OR CONTROL PANEL			

- INDICATES A SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS
- REPRESENTS EQUIPMENT SPECIFIED AND PROVIDED IN OTHER DIVISIONS AND SECTIONS, OTHER THAN THE INSTRUMENTATION SECTIONS.
- INDICATES INTERLOCK OR LOGIC IN A MOTOR STARTER THAT IS IN A MCC
- INDICATES GENERAL OR MISCELLANEOUS HARDWIRED INTERLOCK
- SILICONE CONTROLLED RECTIFIER
- VARIABLE FREQUENCY DRIVE
- LOGIC BLOCK
- LOGIC BLOCK
- MODEM
- INDICATES INTERLOCK OR LOGIC IN A MOTOR STARTER NOT IN A MCC
- INDICATES INTERLOCK OR LOGIC IN A REMOTE CONTROL STATION

- PLC PANEL ELECTRICAL SOURCE
- VENDOR PANEL ELECTRICAL SOURCE
- NON-PLC PANEL ELECTRICAL SOURCE
- INSTRUMENT AIR SOURCE



INSTRUMENTATION FUNCTIONAL CODE

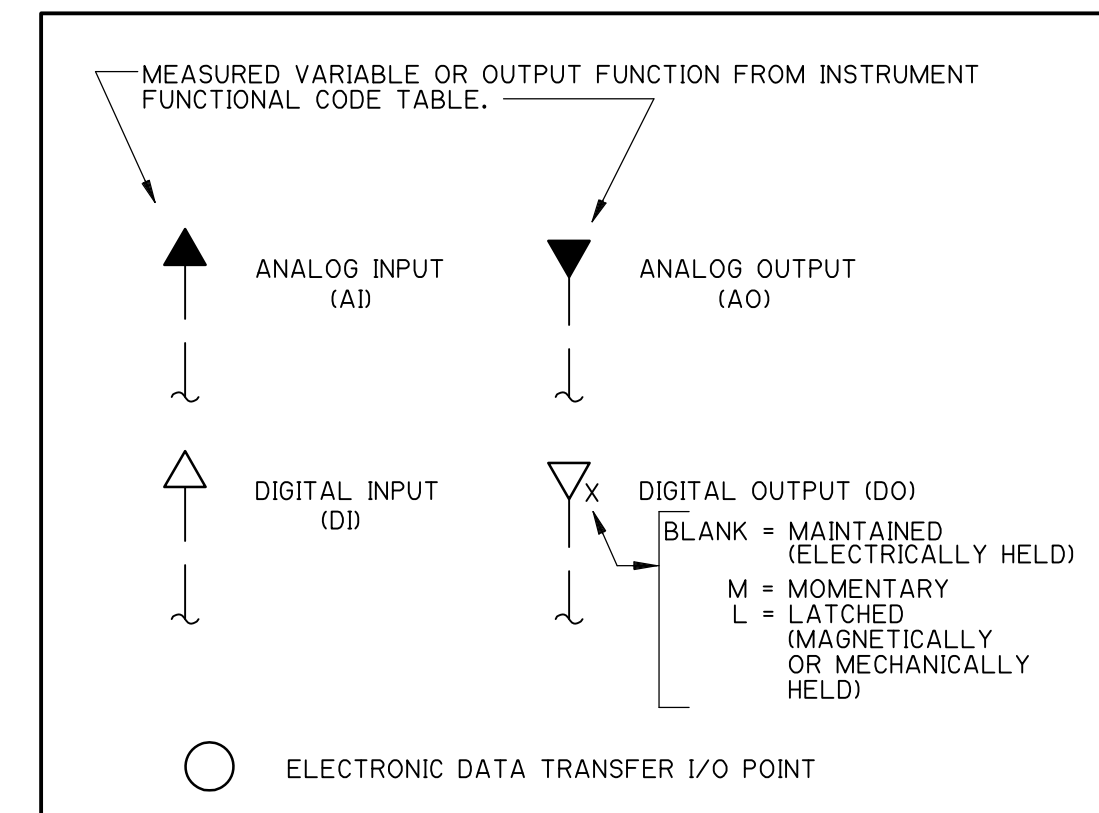
	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	(MODIFIER)	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	(MODIFIER)
A	ANALYSIS		ALARM (1)	(1)	(1)
B					
C	(1)			CONTROL	
D	DENSITY(1)	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO			
G	(1)		GLASS OR VIEWING DEVICE		
H	HAND (MANUAL)				HIGH (OPENED)
I	CURRENT		INDICATE		
J	POWER				
K	TIME	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		PILOT LIGHT		LOW (CLOSED)
M	(1)	MOMENTARY		(1)	MIDDLE OR INTERMEDIATE
N	(1)		(1)	(1)	(1)
O	(1)		ORIFICE		(1)
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE			
R			RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECH ANAL., WEIGHT OR FORCE			VALVE, DAMPER OR LOUVER	
W			WELL		
X	STATUS				
Y	EVENT, STATE OR PRESENCE			RELAY, COMPUTE OR CONVERT	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL ELEMENT	

TABLE NOTES:
 (1) USER'S CHOICE.
 (2) WHEN USED SYMBOL OR SIGNAL LINE IS ANNOTATED.

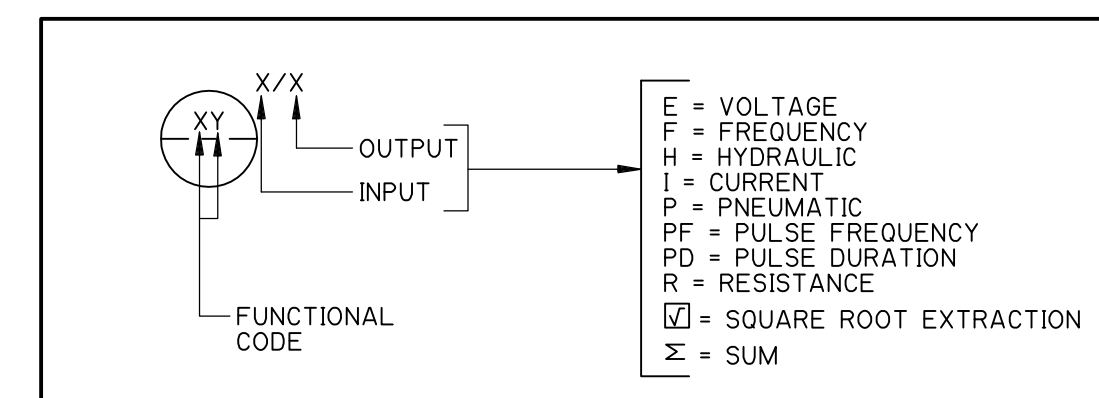
INSTRUMENT LINE SYMBOLS

- ELECTRICAL SIGNAL
- TELEPHONE SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL
- PNEUMATIC SIGNAL
- CAPILLARY TUBE
- HYDRAULIC SUPPLY
- INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
- SCREENED INSTRUMENT LINES INDICATE EXISTING LINES TO REMAIN AS IS (ELECTRIC SIGNAL SHOWN-TYPICAL FOR OTHER SIGNALS)
- SOFTWARE OR DATA LINK SIGNAL
- RADIO SIGNAL
- VENDOR SUPPLIED CABLE

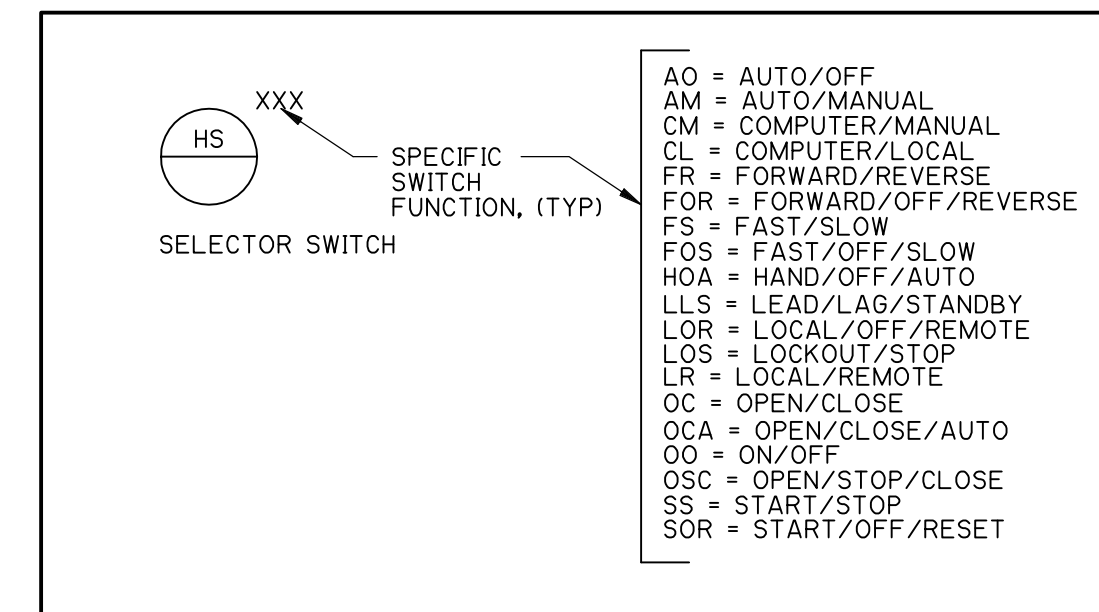
I/O SIGNALS



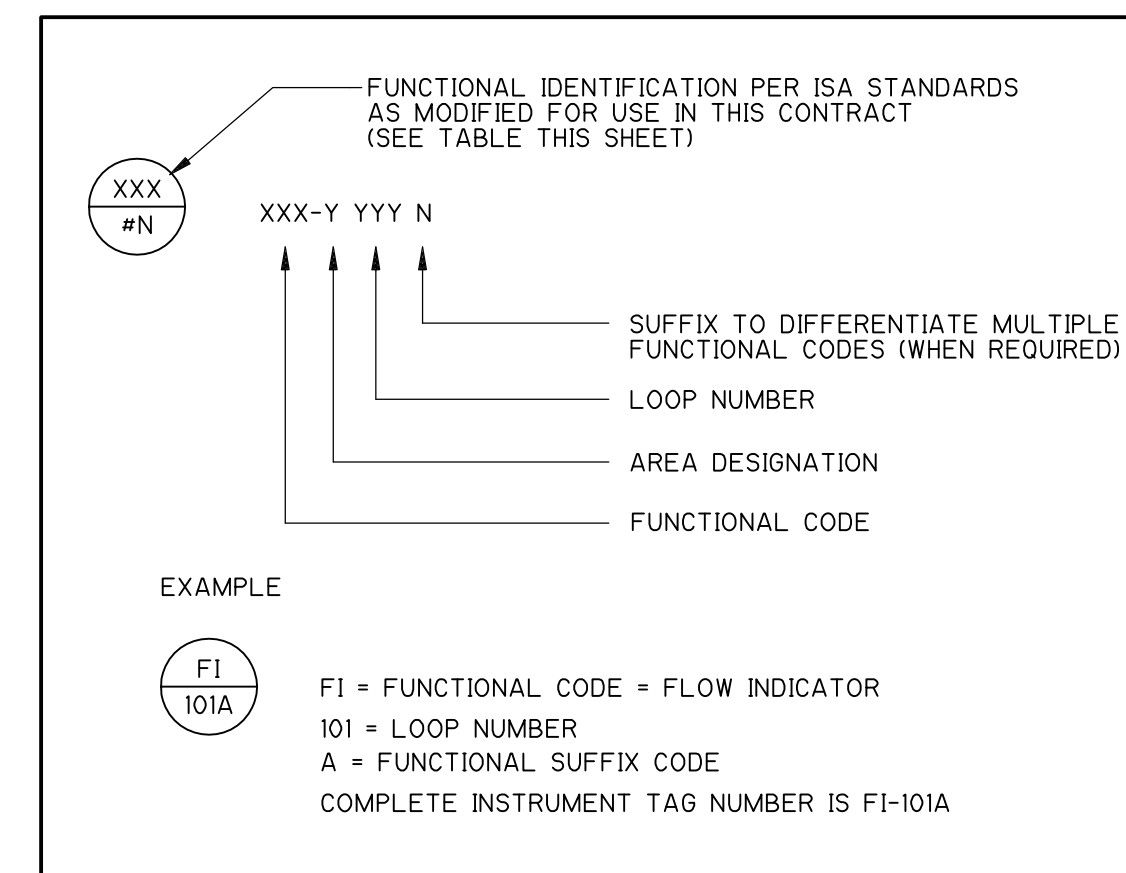
SIGNAL CONVERTERS



HAND SWITCHES



INSTRUMENTATION TAGGING



GENERAL NOTES

- REFER TO SHEET GD-1-1 FOR ADDITIONAL NOTES.
- ALL NECESSARY VALVES ARE NOT SHOWN ON THE P&ID'S FOR CLARITY. PROVIDE ISOLATION VALVES ON ALL SAMPLE LINES TO SENSORS, 2 VALVE MANIFOLDS FOR ALL ABSOLUTE AND GAUGE PRESSURE DEVICES, AND FIVE VALVE MANIFOLDS FOR ALL DIFFERENTIAL PRESSURE DEVICES.
- REFER TO SECTION 00300 AND SECTION 01025 FOR DESCRIPTION OF ADD ALTERNATE SCOPE OF WORK.

PRIMARY ELEMENTS

- MAGNETIC FLOW METER
- AVERAGING PITOT TUBE
- RTD OR THERMOCOUPLE WITH THERMOWELL
- THERMAL MASS FLOW ELEMENT
- ROTAMETER
- DISSOLVED OXYGEN SENSOR AND TRANSMITTER
- ULTRASONIC
- OXIDATION REDUCTION POTENTIAL SENSOR AND TRANSMITTER
- PROBE
- MOISTURE SWITCH
- PRESSURE GAUGE
- DIFFERENTIAL PRESSURE GAUGE
- FLANGED DIAPHRAGM DP LEVEL TRANSMITTER
- TEMPERATURE GAUGE
- RADAR
- MECHANICAL READOUT FLOW METER
- INDICATOR LIGHT
- FLOW SWITCH
- THERMAL DISPERSION OR VANE
- PRESSURE SWITCH
- LEVEL SWITCH
- TEMPERATURE SWITCH

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. 10000002.DWG
 DESIGNED BY: P.MALACHOWSKI
 DRAWN BY: C.COSTELLO
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: D. GREEN
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

INSTRUMENTATION LEGEND II

PROJECT NO.
1289-74283

Sht. 222 of 312

I-2

Acc # 1289-74628

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\POPTANIM\0119575\10000003.DWG Saved by: MALACHOWSKI On: 30-Jun-10 Plotted on: 29-Nov-10 8:48 AM

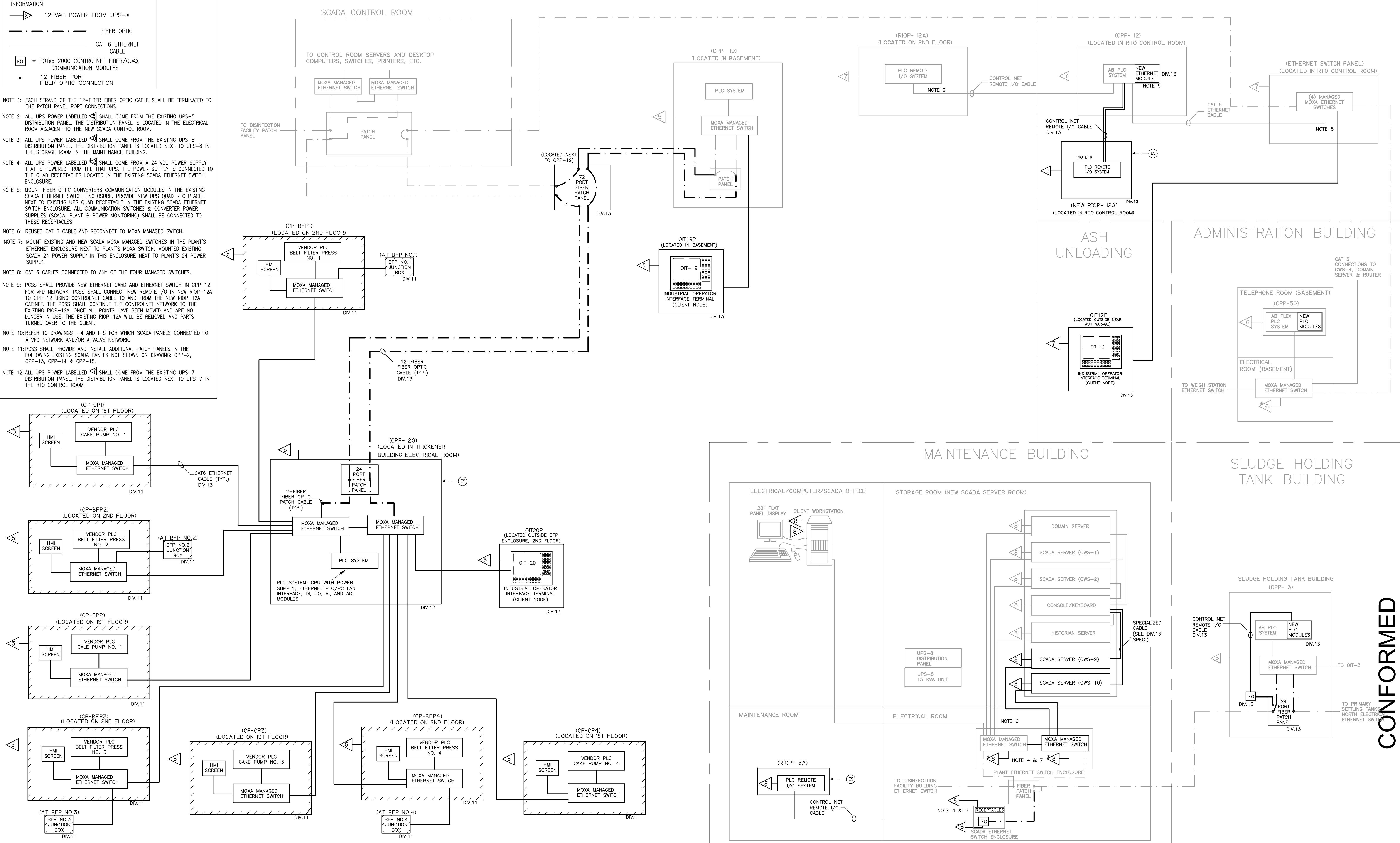
LEGEND
 REFER TO DRAWING I-2 FOR ADDITIONAL LEGEND INFORMATION

- ▶ 120VAC POWER FROM UPS-X
- FIBER OPTIC
- CAT 6 ETHERNET CABLE
- FO = EOTec 2000 CONTROLNET FIBER/COAX COMMUNICATION MODULES
- 12 FIBER PORT FIBER OPTIC CONNECTION

- NOTE 1: EACH STRAND OF THE 12-FIBER FIBER OPTIC CABLE SHALL BE TERMINATED TO THE PATCH PANEL PORT CONNECTIONS.
- NOTE 2: ALL UPS POWER LABELLED SHALL COME FROM THE EXISTING UPS-5 DISTRIBUTION PANEL. THE DISTRIBUTION PANEL IS LOCATED IN THE ELECTRICAL ROOM ADJACENT TO THE NEW SCADA CONTROL ROOM.
- NOTE 3: ALL UPS POWER LABELLED SHALL COME FROM THE EXISTING UPS-8 DISTRIBUTION PANEL. THE DISTRIBUTION PANEL IS LOCATED NEXT TO UPS-8 IN THE STORAGE ROOM IN THE MAINTENANCE BUILDING.
- NOTE 4: ALL UPS POWER LABELLED SHALL COME FROM A 24 VDC POWER SUPPLY THAT IS POWERED FROM THE THAT UPS. THE POWER SUPPLY IS CONNECTED TO THE QUAD RECEPTACLES LOCATED IN THE EXISTING SCADA ETHERNET SWITCH ENCLOSURE.
- NOTE 5: MOUNT FIBER OPTIC CONVERTERS COMMUNICATION MODULES IN THE EXISTING SCADA ETHERNET SWITCH ENCLOSURE. PROVIDE NEW UPS QUAD RECEPTACLE NEXT TO EXISTING UPS QUAD RECEPTACLE IN THE EXISTING SCADA ETHERNET SWITCH ENCLOSURE. ALL COMMUNICATION SWITCHES & CONVERTER POWER SUPPLIES (SCADA, PLANT & POWER MONITORING) SHALL BE CONNECTED TO THESE RECEPTACLES
- NOTE 6: REUSED CAT 6 CABLE AND RECONNECT TO MOXA MANAGED SWITCH.
- NOTE 7: MOUNT EXISTING AND NEW SCADA MOXA MANAGED SWITCHES IN THE PLANT'S ETHERNET ENCLOSURE NEXT TO PLANT'S MOXA SWITCH. MOUNTED EXISTING SCADA 24 POWER SUPPLY IN THIS ENCLOSURE NEXT TO PLANT'S 24 POWER SUPPLY.
- NOTE 8: CAT 6 CABLES CONNECTED TO ANY OF THE FOUR MANAGED SWITCHES.
- NOTE 9: PCS5 SHALL PROVIDE NEW ETHERNET CARD AND ETHERNET SWITCH IN CPP-12 FOR VFD NETWORK. PCS5 SHALL CONNECT NEW REMOTE I/O IN NEW RIOP-12A TO CPP-12 USING CONTROLNET CABLE TO AND FROM THE NEW RIOP-12A CABINET. THE PCS5 SHALL CONTINUE THE CONTROLNET NETWORK TO THE EXISTING RIOP-12A. ONCE ALL POINTS HAVE BEEN MOVED AND ARE NO LONGER IN USE, THE EXISTING RIOP-12A WILL BE REMOVED AND PARTS TURNED OVER TO THE CLIENT.
- NOTE 10: REFER TO DRAWINGS I-4 AND I-5 FOR WHICH SCADA PANELS CONNECTED TO A VFD NETWORK AND/OR A VALVE NETWORK.
- NOTE 11: PCS5 SHALL PROVIDE AND INSTALL ADDITIONAL PATCH PANELS IN THE FOLLOWING EXISTING SCADA PANELS NOT SHOWN ON DRAWING: CPP-2, CPP-13, CPP-14 & CPP-15.
- NOTE 12: ALL UPS POWER LABELLED SHALL COME FROM THE EXISTING UPS-7 DISTRIBUTION PANEL. THE DISTRIBUTION PANEL IS LOCATED NEXT TO UPS-7 IN THE RTO CONTROL ROOM.

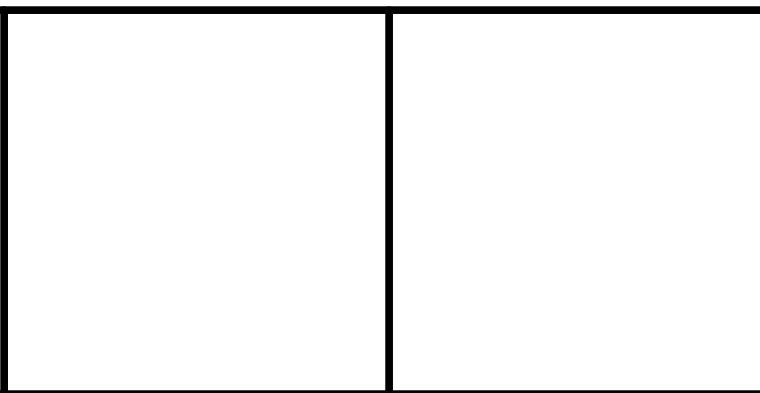
DEWATERING BUILDING

INCINERATOR BUILDING



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. 10000003.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: P. MALACHOWSKI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: T. DISILVA
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010



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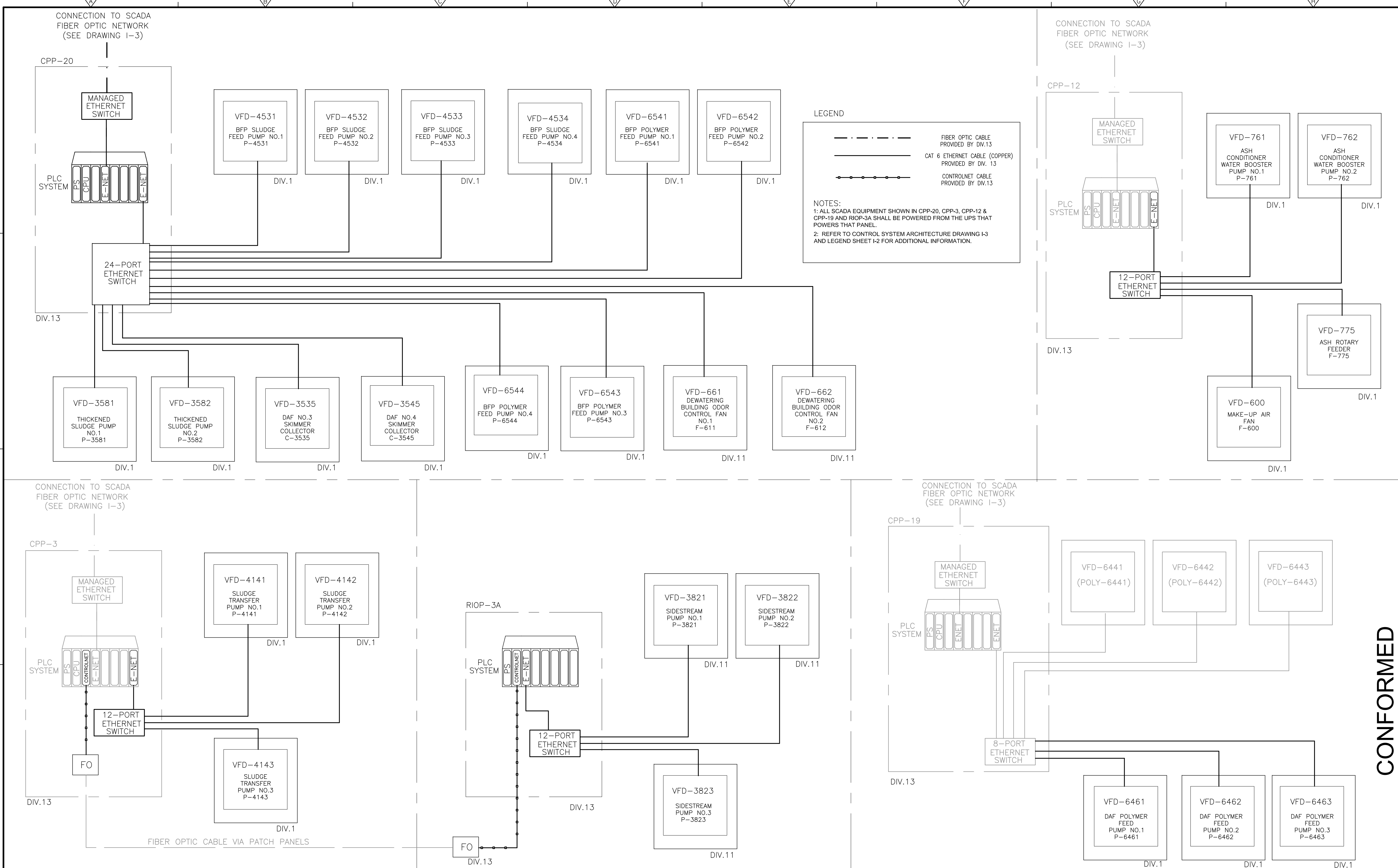
WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

CONTROL SYSTEM ARCHITECTURE

PROJECT NO. 1289-74283
 Sht. 223 of 312
 I-3
 Acc # 1289-74629

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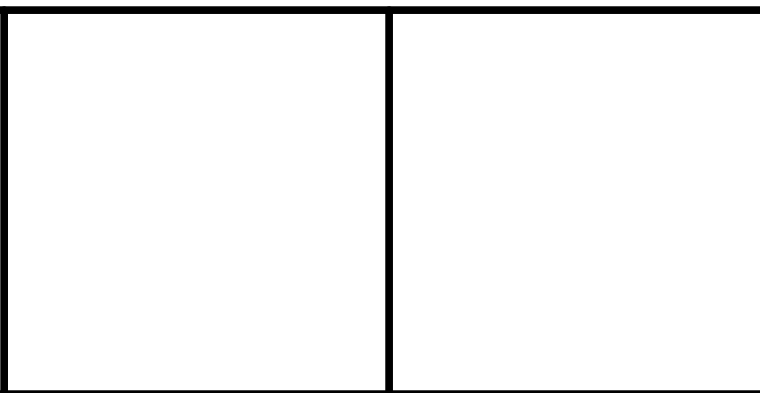
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CADD FILE NO. 10000004.DWG
 DESIGNED BY: P.MALACHOWSKI
 DRAWN BY: P.MALACHOWSKI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: T. DISILVA
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010



UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

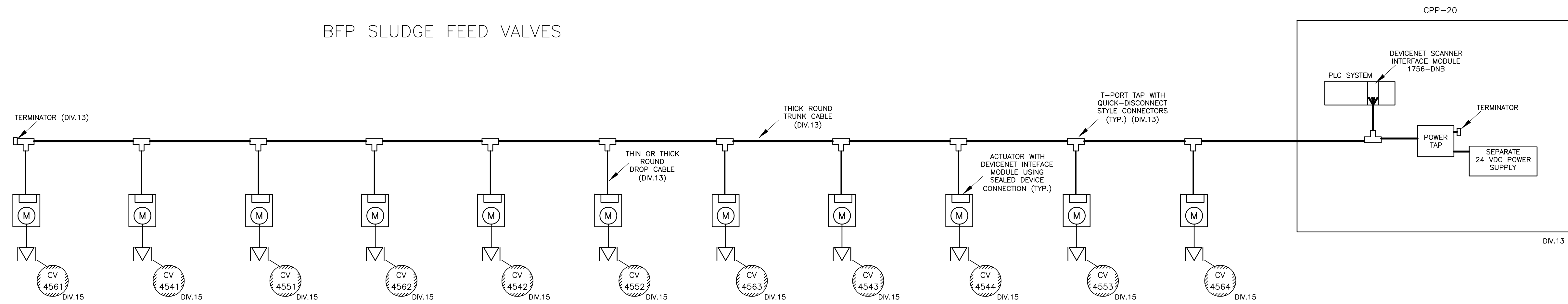
VFD NETWORK ARCHITECTURE

PROJECT NO. 1289-74283
 Sht. 224 of 312
I-4
 Acc # 1289-74630

NOTES:

1. THE VALVE DESIGN SHALL ONLY USE DEVICENET AND SHALL BE CONFIGURED SIMILAR TO THE RAS PUMPSTATIONS.
2. REFER TO ALLEN BRADLEY PUBLICATION DNET-UM072C-EN-P (DEVICENET MEDIA DESIGN AND INSTALLATION GUIDE)
3. THE TRUNK CABLE SHALL BE THICK CABLE WITH AN OUTSIDE DIAMETER OF AT LEAST .48 INCHES.
4. THE DROP CABLE CAN EITHER BE THICK OR THIN CABLE. THE THIN CABLE USED SHALL HAVE AN OUTSIDE DIAMETER OF AT LEAST .27 INCHES.
5. PROVIDE THE CORRECT QUICK DISCONNECT STYLE PLUG CONNECTORS TO CONNECT THE CABLE TO THE T-PORT TAPS, POWER TAPS, VALVES AND PLC MODULE. THE CONTRACTOR SHALL BE ALLOWED TO USE PREDETERMINED CABLES. CONNECTIONS BETWEEN TAPS SHALL BE SEALED WITH THE CORRECT CONNECTORS. CONNECTIONS BETWEEN THE T-PORT TAPS AND THE VALVES AND THE PLC MODULE SHALL BE AT LEAST SEALED ON THE T-PORT TAP SIDE. THE PREFERRED CONNECTION AT ALL THE DEVICES IS SEALED.

BFP SLUDGE FEED VALVES



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 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: T.DISILVA
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010

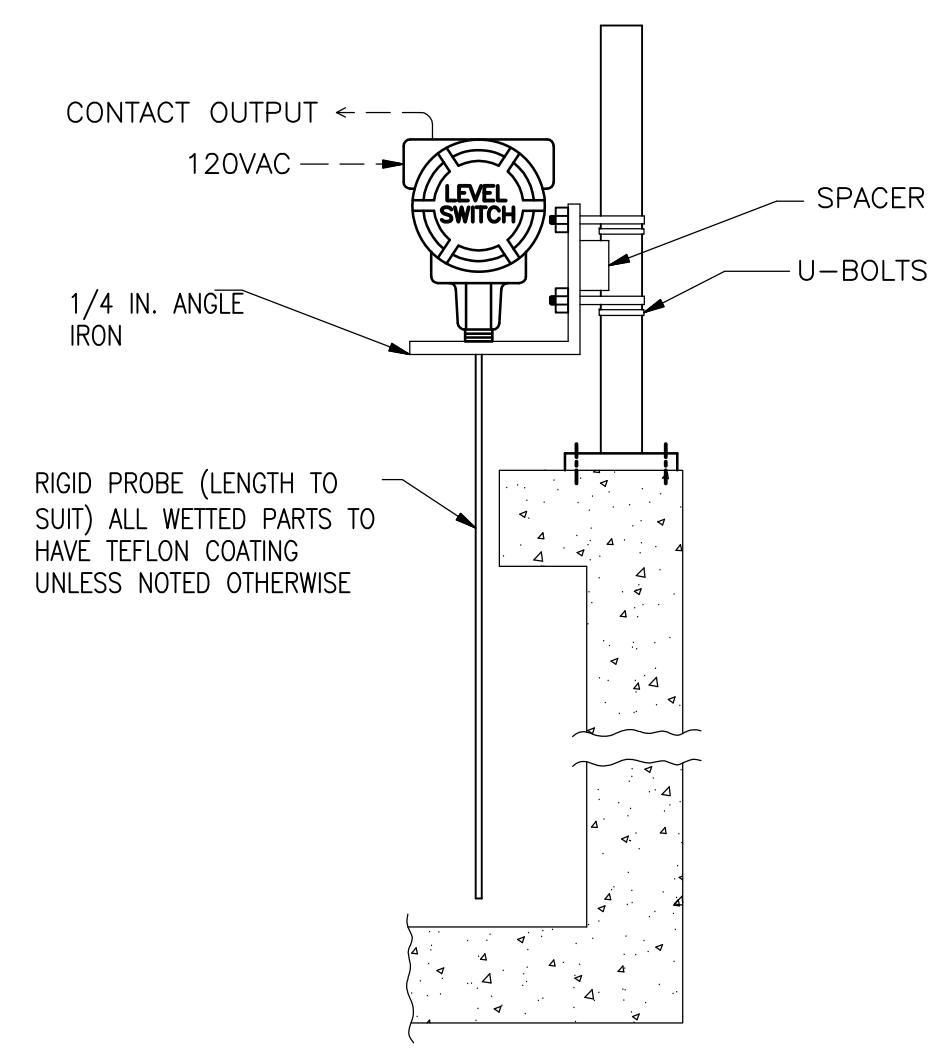
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**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

VALVE COMMUNICATION NETWORK

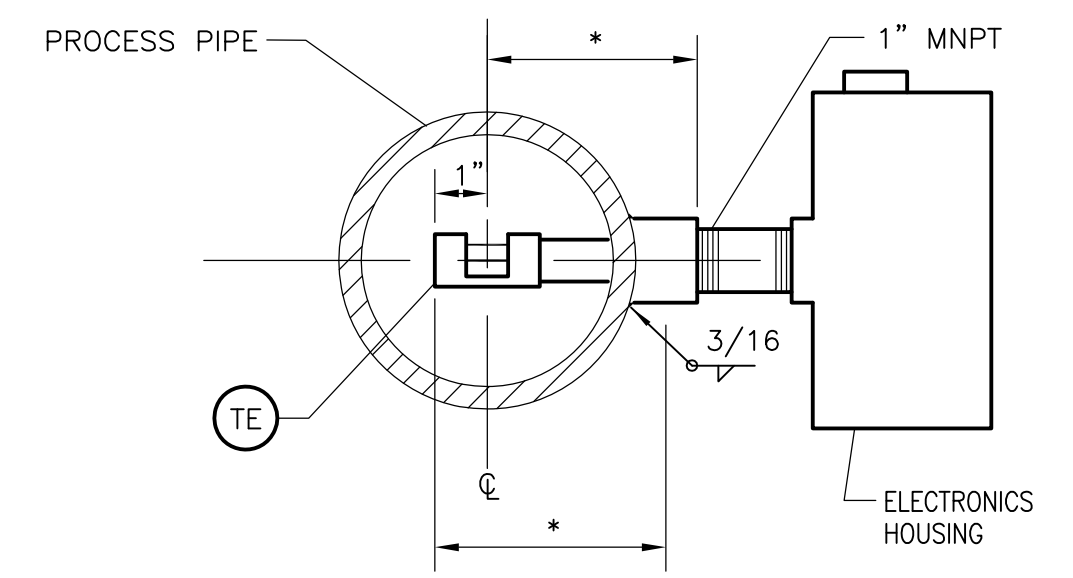
PROJECT NO.
1289-74283
 Sht. 225 of 312
I-5
 Acc # 1289-74631

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LEVEL CAPACITANCE PROBE SWITCH IN CONTAINMENT AREA

DETAIL 1
NTS

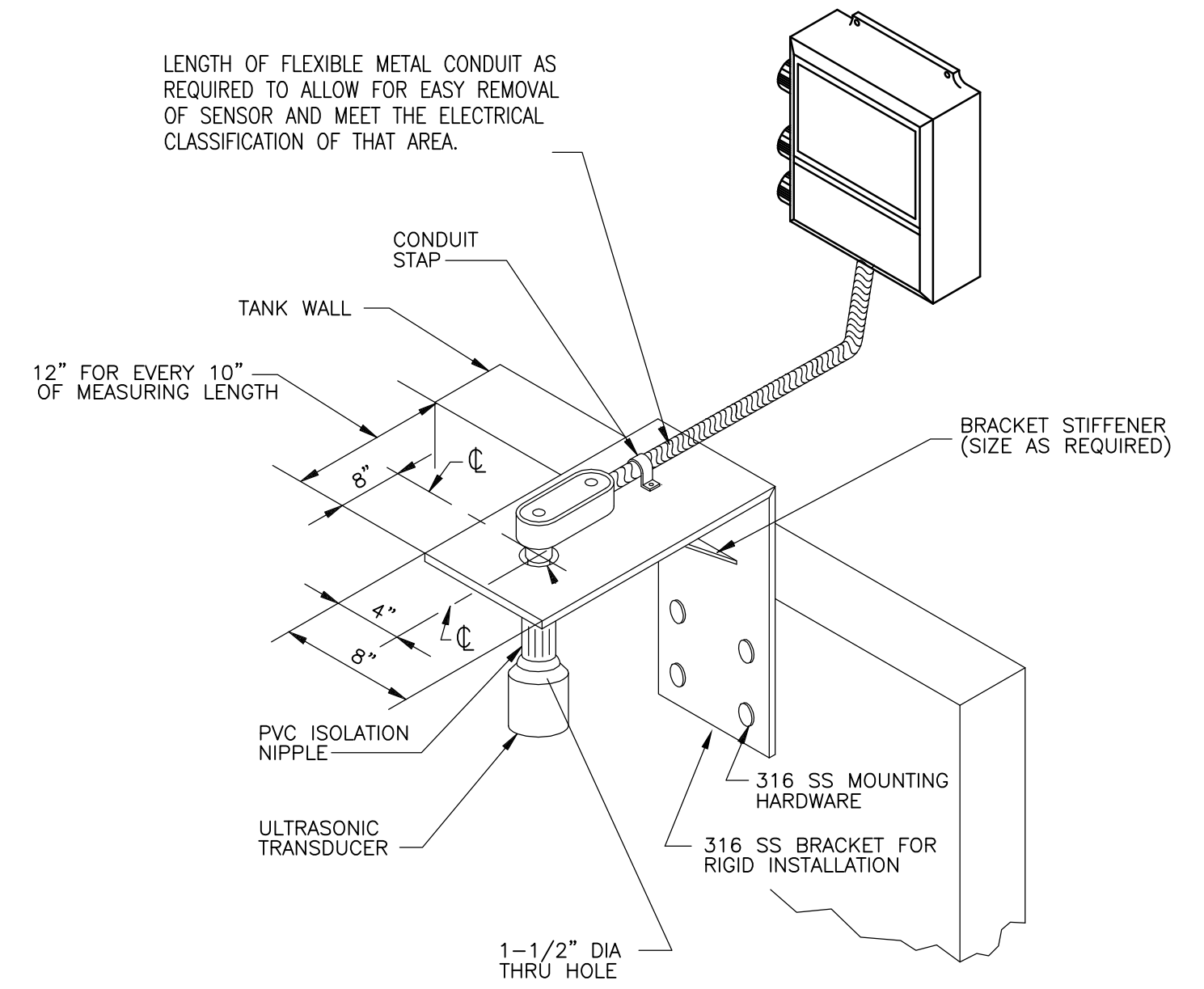


NOTES:

- COORDINATE AND VERIFY DIMENSIONS "*" WITH MANUFACTURER.
- IF USED AS A SWITCH ONLY, SWITCH COMPONENTS ARE IN THE ELECTRONICS HOUSING. IF USED WITH A REMOTE TRANSMITTER (NOT SHOWN), ELECTRONICS SHALL INTERFACE WITH ITS COMPATIBLE REMOTE TRANSMITTER.

THERMAL DISPERSION FLOW ELEMENT INSTALLATION

DETAIL 2
NTS

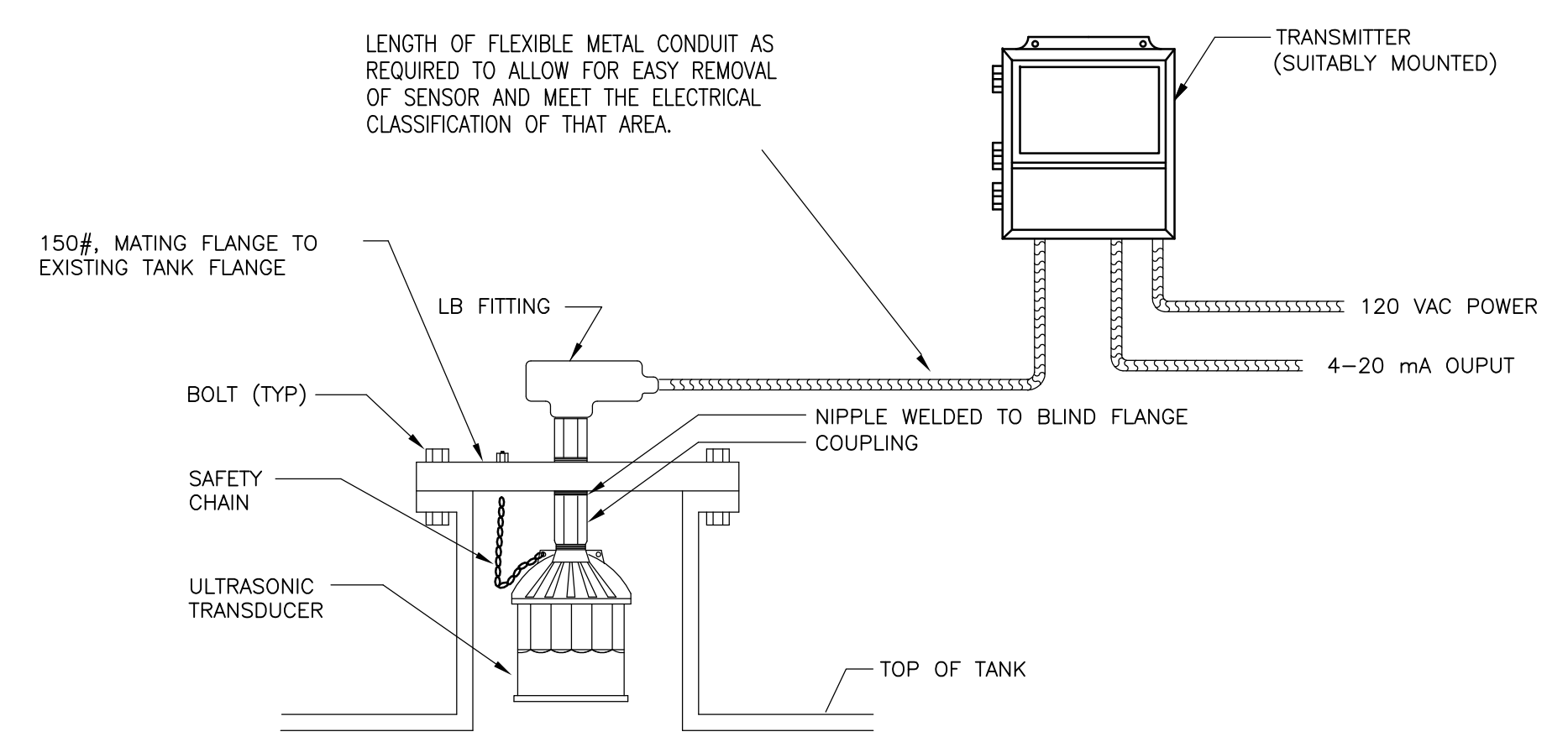


NOTES:

- PROVIDE AND INSTALL TEMPERATURE COMPENSATION SENSOR PER MANUFACTURER'S REQUIREMENTS.
- WHERE REQUIRED OR SHOWN ON DRAWINGS PROVIDE 4 INCH DIAMETER PVC PIPE WITH A VENT HOLE FOR A STILLING WELL.

ULTRASONIC TRANSDUCER OPEN CHANNEL/TANK INSTALLATION

DETAIL 3
NTS

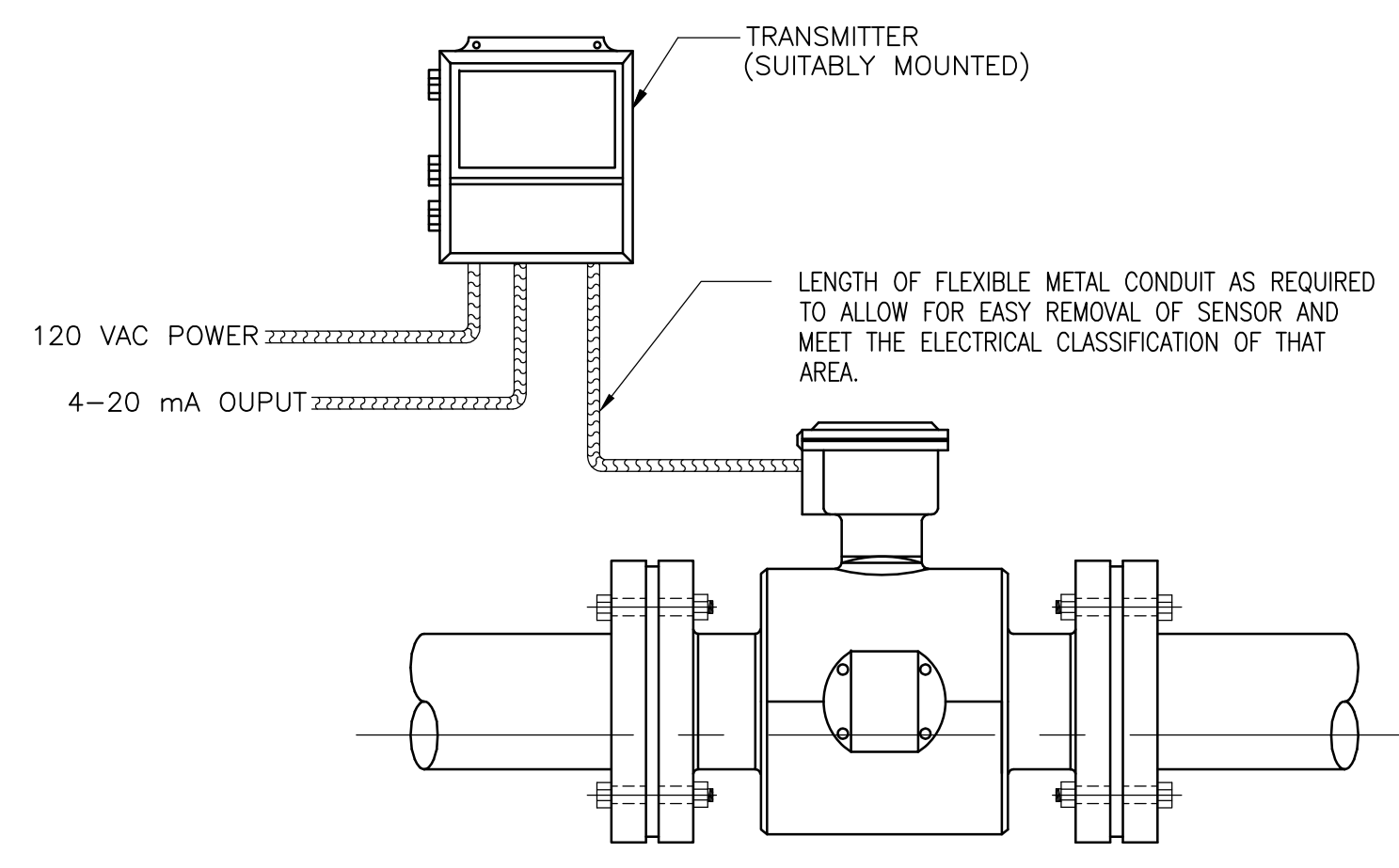


NOTES:

- FLANGE, GASKET AND HARDWARE SUPPLIED BY CONTRACTOR.
- 120 VAC POWER TO TRANSMITTER AND 4-20 mA OUTPUT SHALL BE ROUTED THROUGH SEPARATE JUNCTION BOXES.

ULTRASONIC LEVEL SENSOR W/ TRANSMITTER INSTALLATION DETAIL ON TOP OF TANK

DETAIL 4
NTS

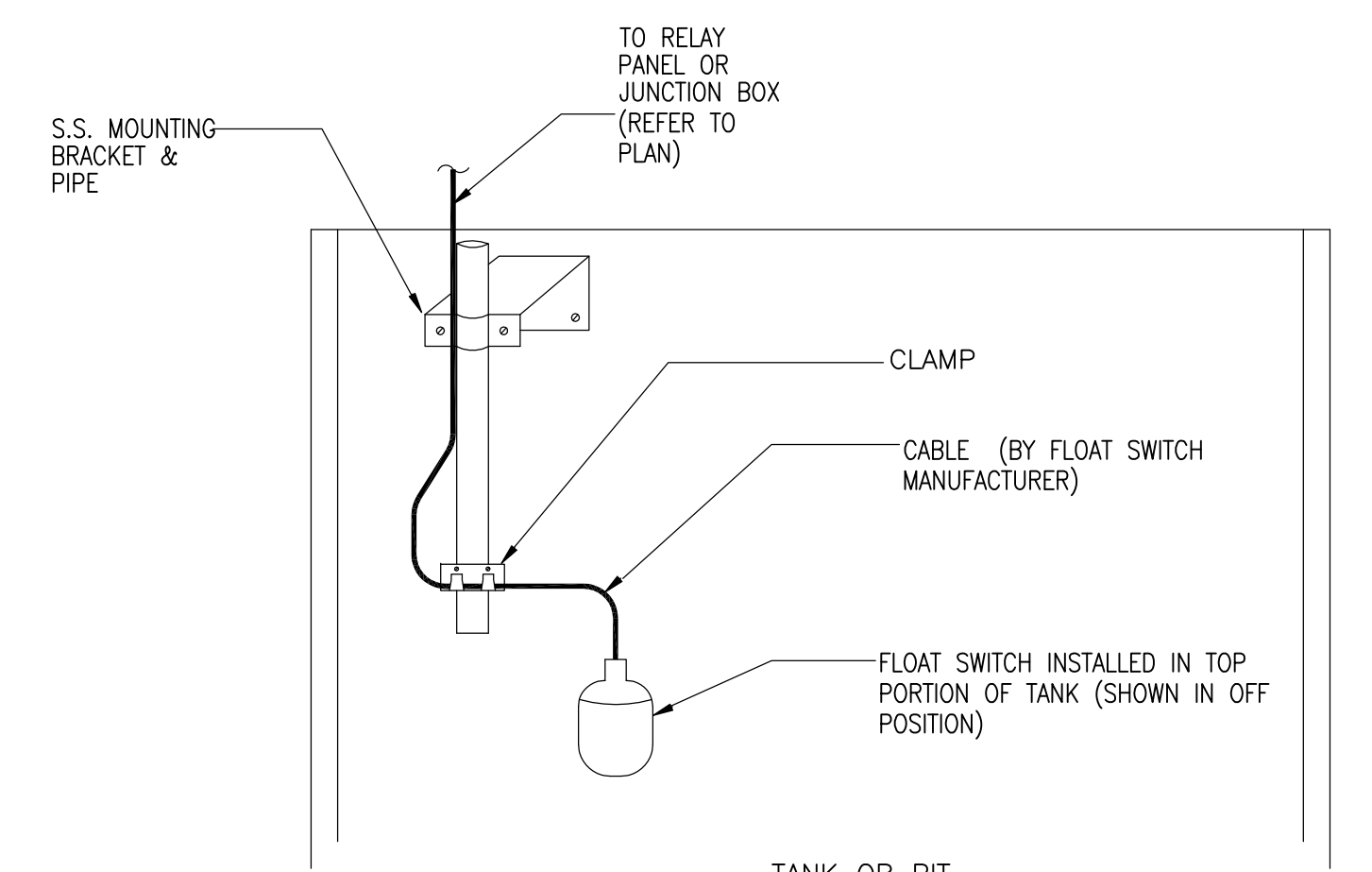


NOTES:

- FLOW TUBE TO BE LOCATED FIVE STRAIGHT PIPE DIAMETERS UPSTREAM AND TWO STRAIGHT PIPE DIAMETERS DOWNSTREAM.
- PROVIDE GROUNDING RINGS AS REQUIRED.
- 120 VAC POWER TO TRANSMITTER AND 4-20 mA OUTPUT SIGNAL SHALL BE ROUTED THROUGH SEPARATE JUNCTION BOXES.

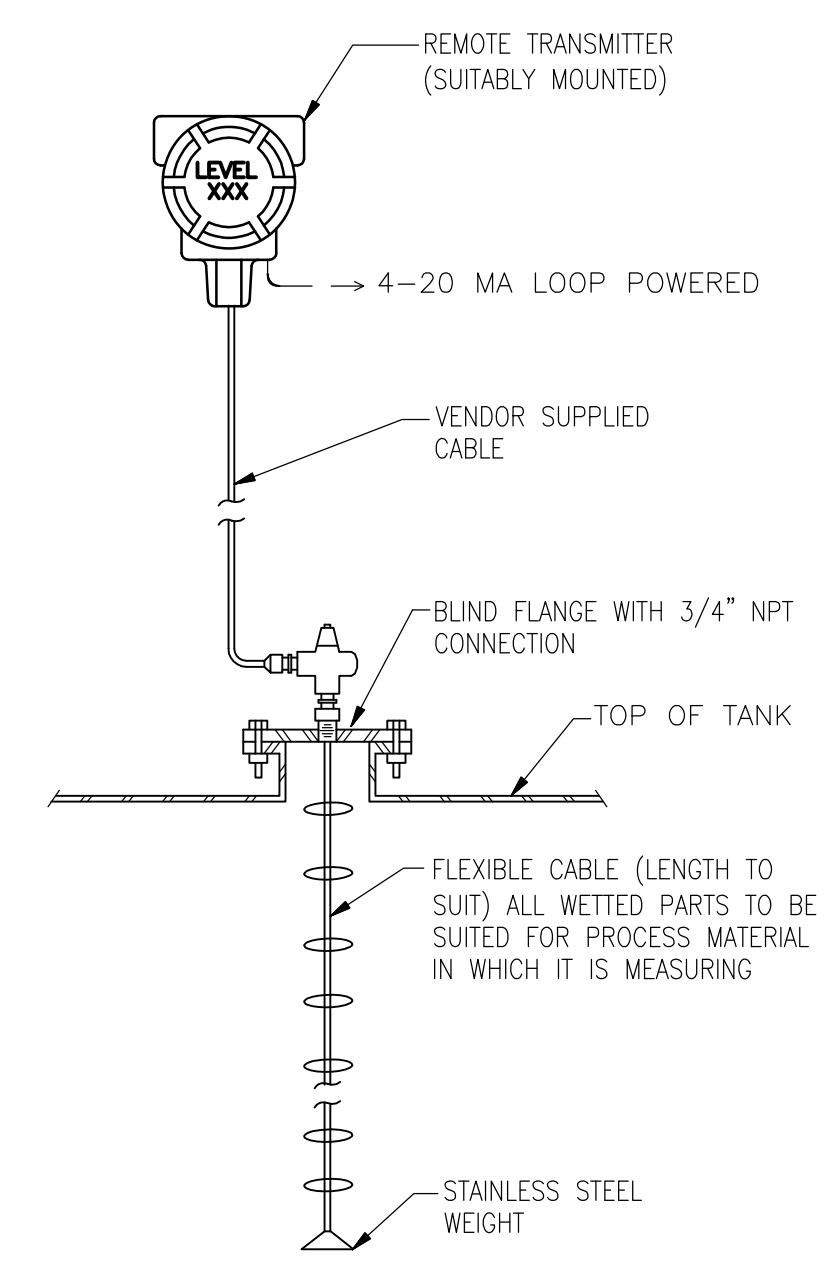
MAGNETIC FLOW METER AND TRANSMITTER INSTALLATION

DETAIL 5
NTS



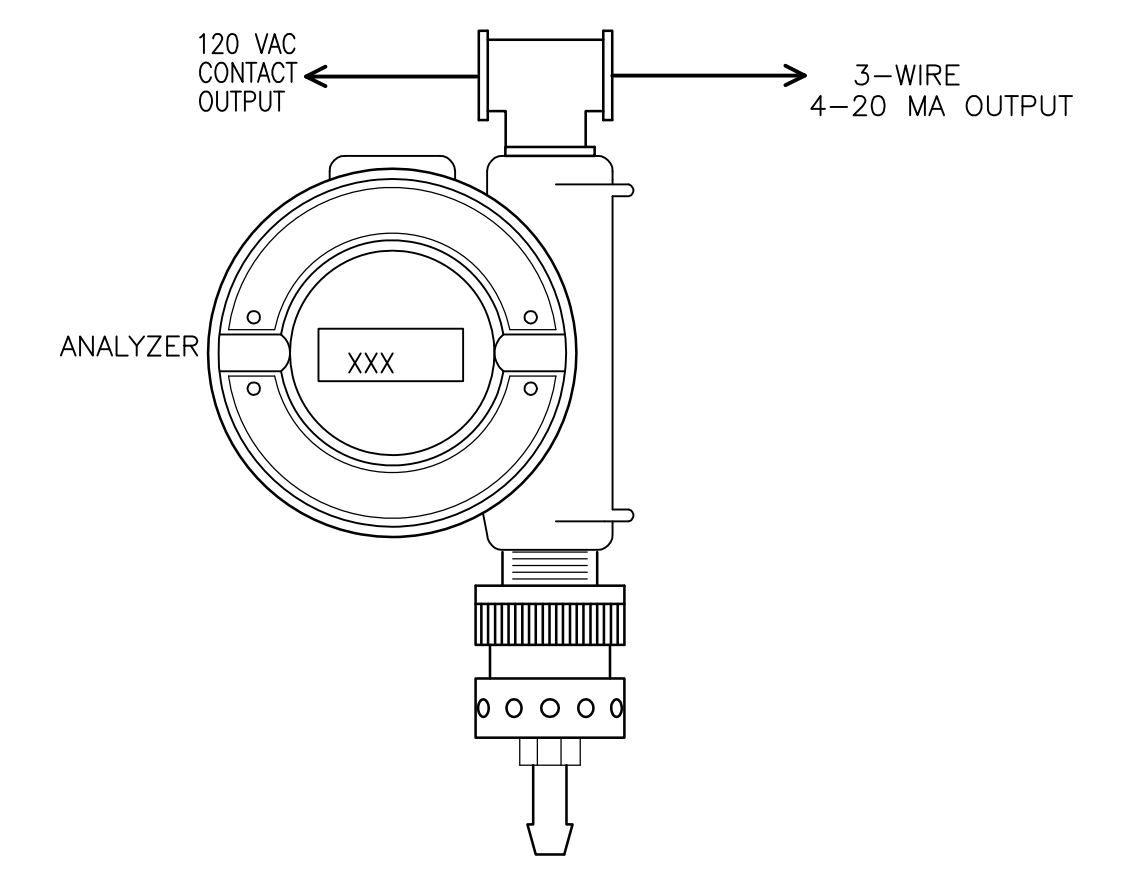
TILT - FLOAT SWITCH IN TANK/PIT

DETAIL 6
NTS



GUIDED WAVE RADAR FLEXIBLE TANK LEVEL PROBE AND TRANSMITTER

DETAIL 7
NTS



% LEL OR H2S ANALYZER WITH INTERNAL RELAYS

DETAIL 8
NTS

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CADD FILE NO.	10000006.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	P. MALACHOWSKI
SHEET CHK'D BY:	E. SILVERMAN
CROSS CHK'D BY:	D. GREEN
SCALE:	AS NOTED
APPROVED BY:	P. MALACHOWSKI
DATE:	SEPTEMBER 2010

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WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

INSTALLATION DETAILS

Sht. 226 of 312

I-6

Acc # 1289-74632

PROJECT NO. 1289-74283

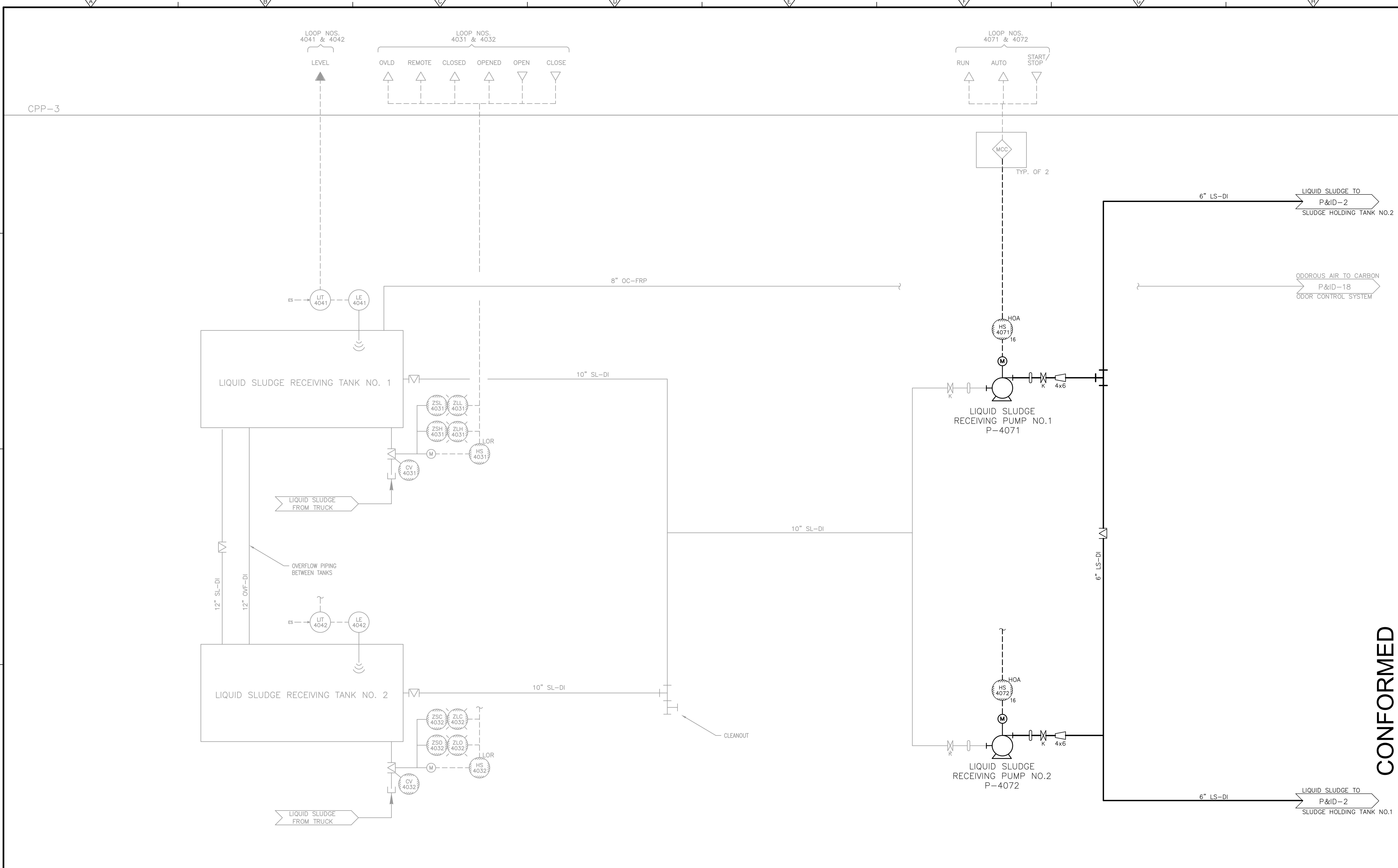
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I-6

Acc # 1289-74632

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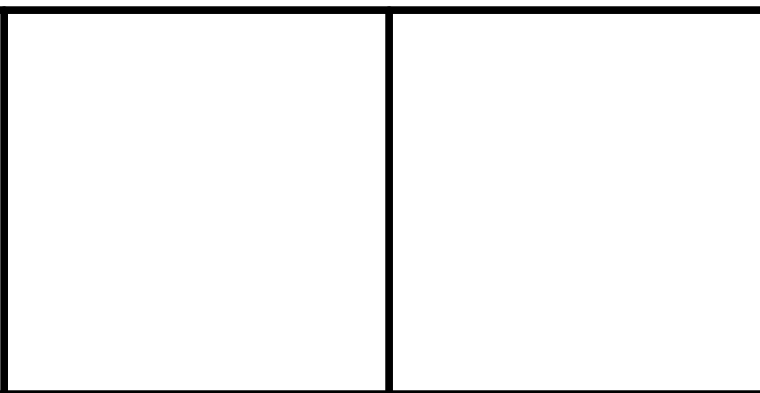
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 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: E. SPARGIMINO
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010



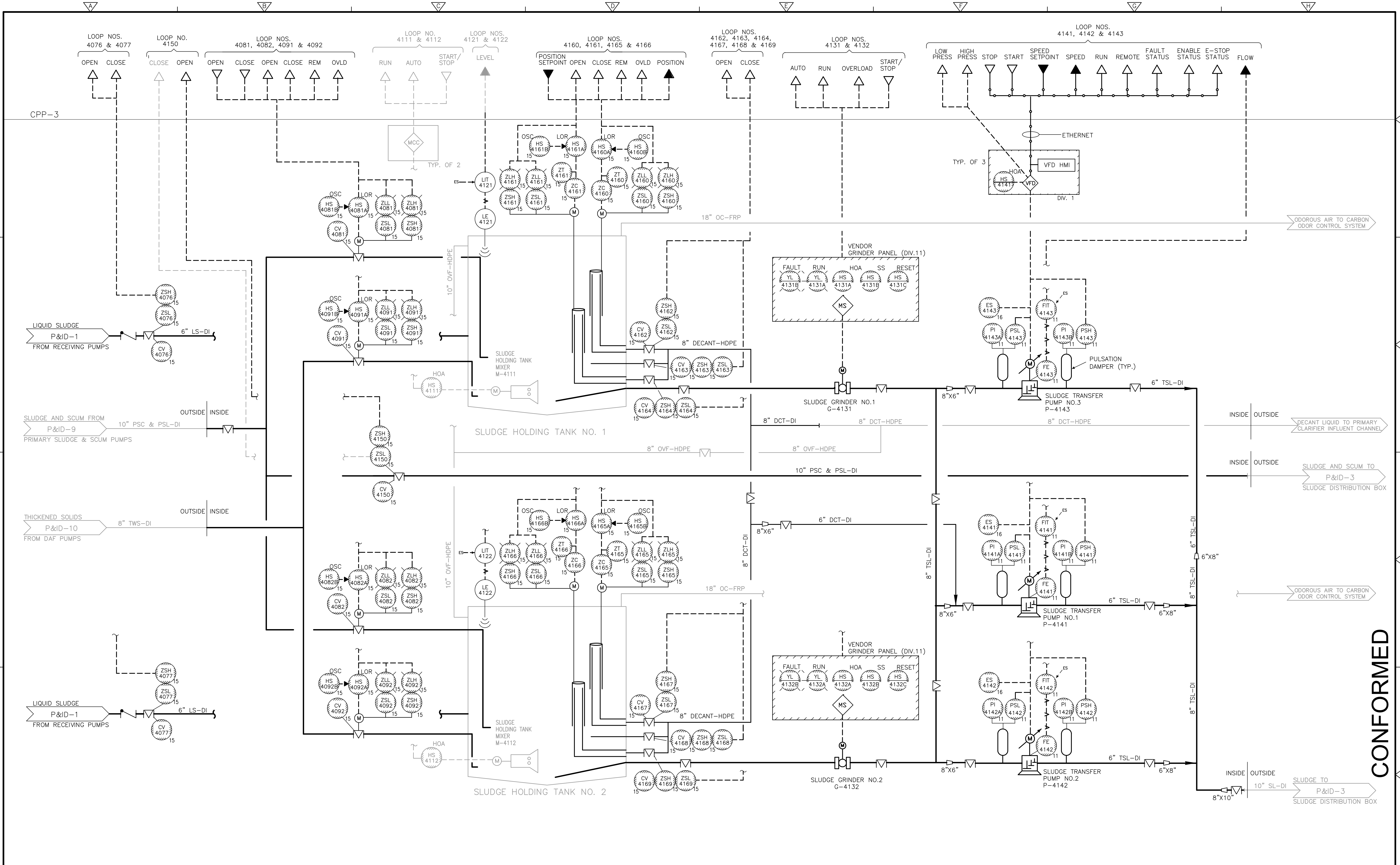
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**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

LIQUID SLUDGE RECEIVING TANKS

PROJECT NO.
 1289-74283
 Sht. 227 of 312
P&ID-1
 Acc # 1289-74633

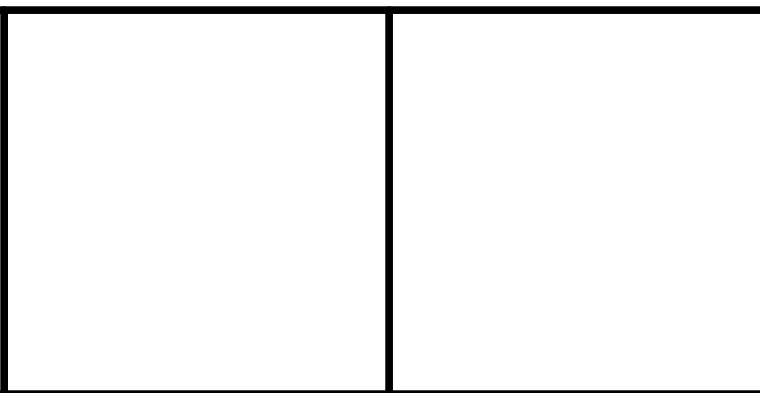
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 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: P. MALACHOWSKI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: E. SPARGIMINO
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010



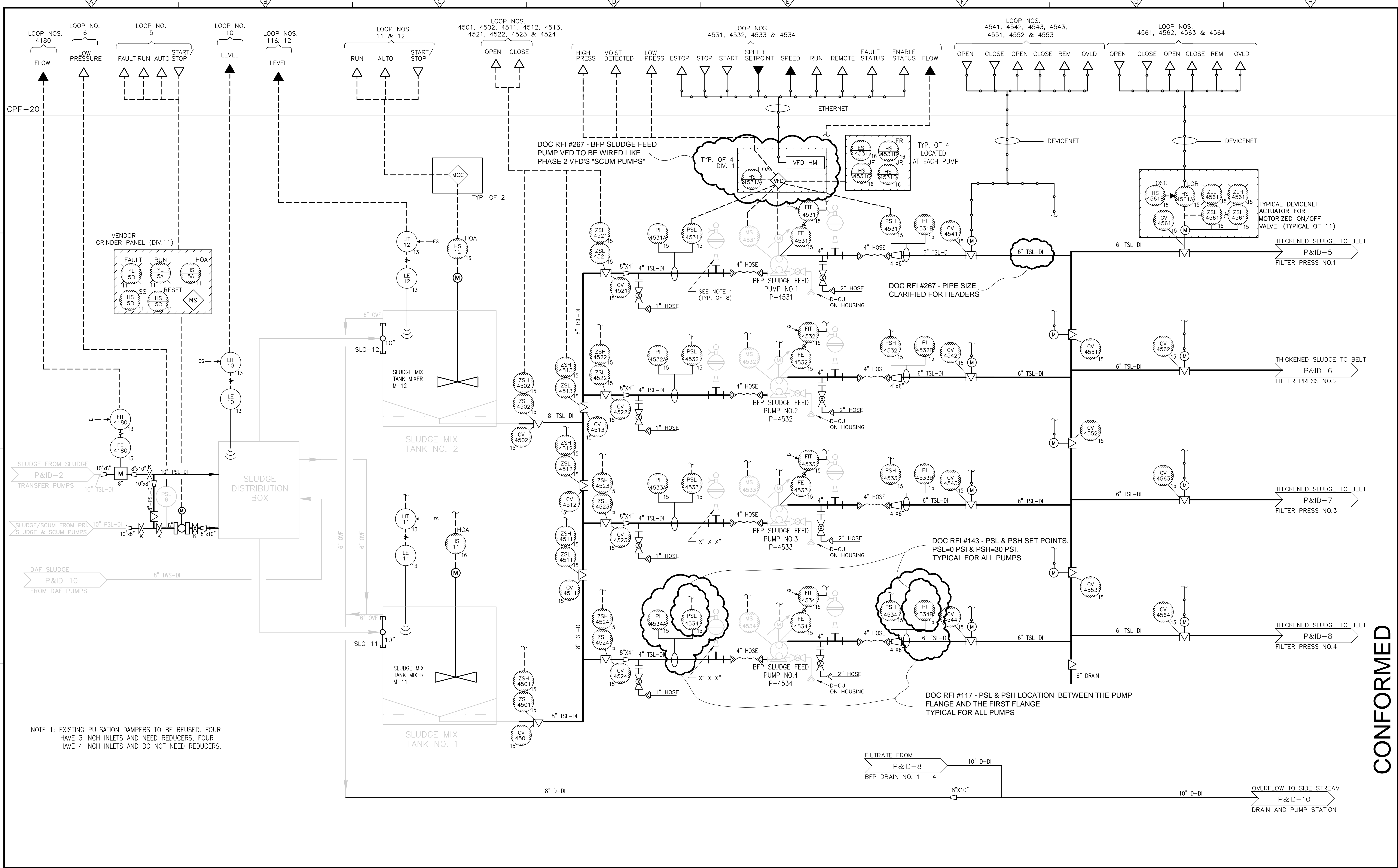
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 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANKS
 &
 SLUDGE TRANSFER PUMPS**

PROJECT NO.
 1289-74283
 Sht. 228 of 312
P&ID-2
 Acc # 1289-74634

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NOTE 1: EXISTING PULSATION DAMPERS TO BE REUSED. FOUR HAVE 3 INCH INLETS AND NEED REDUCERS, FOUR HAVE 4 INCH INLETS AND DO NOT NEED REDUCERS.

FILTRATE FROM P&ID-8 10" D-DI
BFP DRAIN NO. 1 - 4 8"x10"
OVERFLOW TO SIDE STREAM P&ID-10 DRAIN AND PUMP STATION

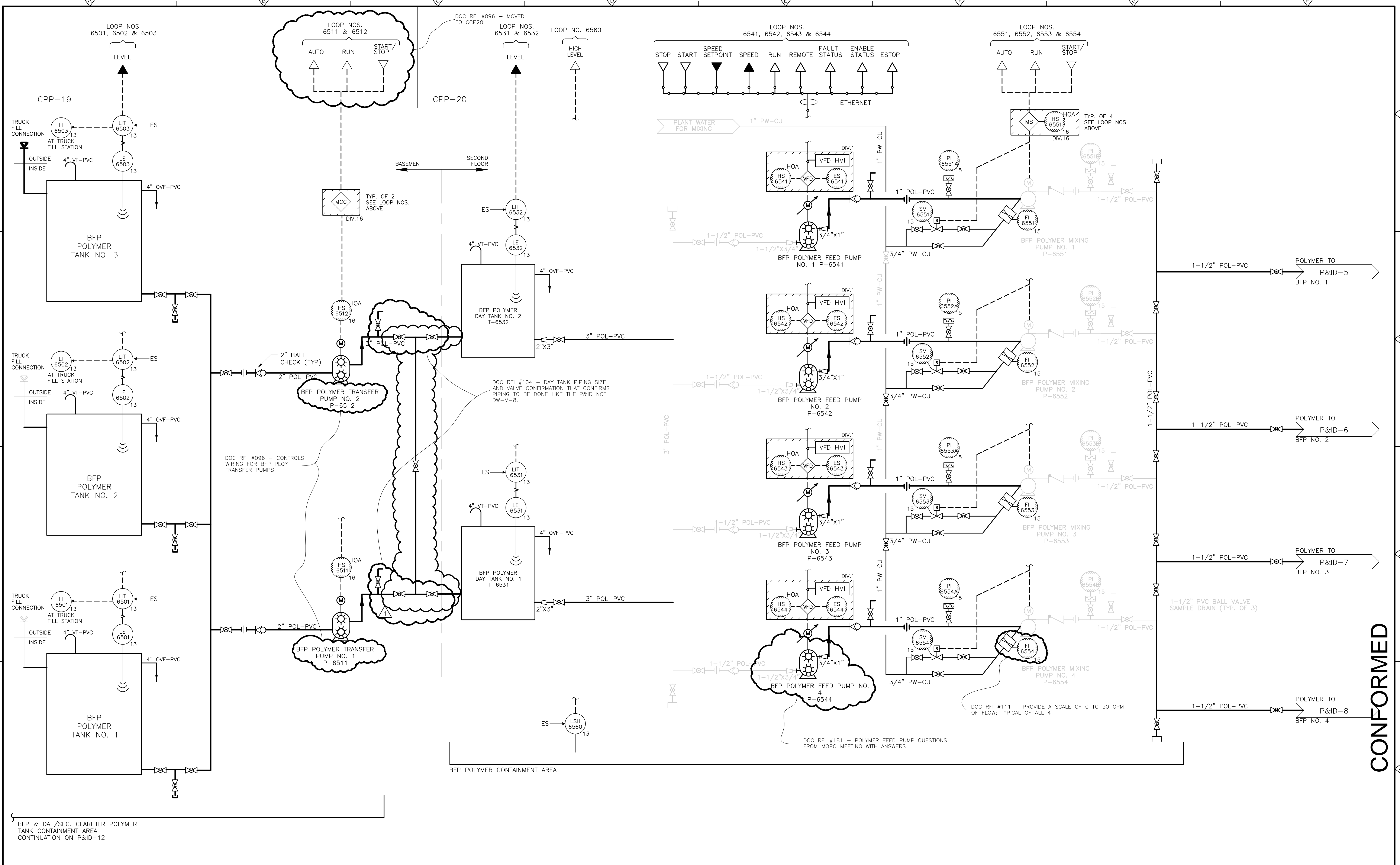
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REV. NO.	DATE	DRWN	CHKD	REMARKS							

SLUDGE MIX TANKS & BFP SLUDGE FEED PUMPS

WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

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1	07/11	MNP	KGW	REVISED PER FIELD CHANGES

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 DRAWN BY: P.MALACHOWSKI
 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: K. WAGNER
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010

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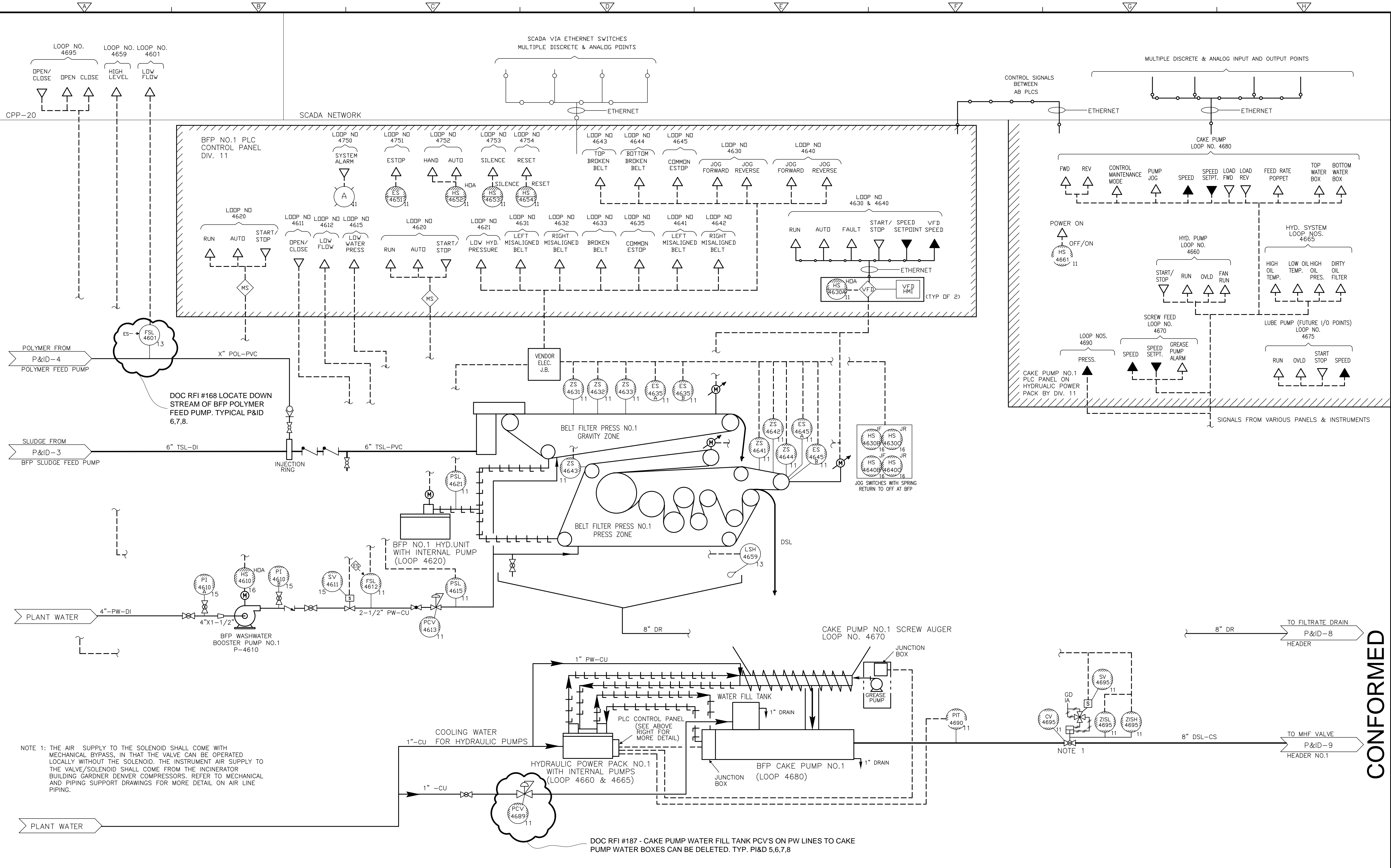
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 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

BFP POLYMER PUMPS
 PROJECT NO. 1289-74283
 Sht. 230 of 312
P&ID-4
 Acc. # 1289-74636

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DOC RFI #187 - CAKE PUMP WATER FILL TANK PCV'S ON PW LINES TO CAKE PUMP WATER BOXES CAN BE DELETED. TYP. PI&D 5,6,7,8

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.: IPID0005.dwg
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: P. MALACHOWSKI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: K. WAGNER
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/30/12

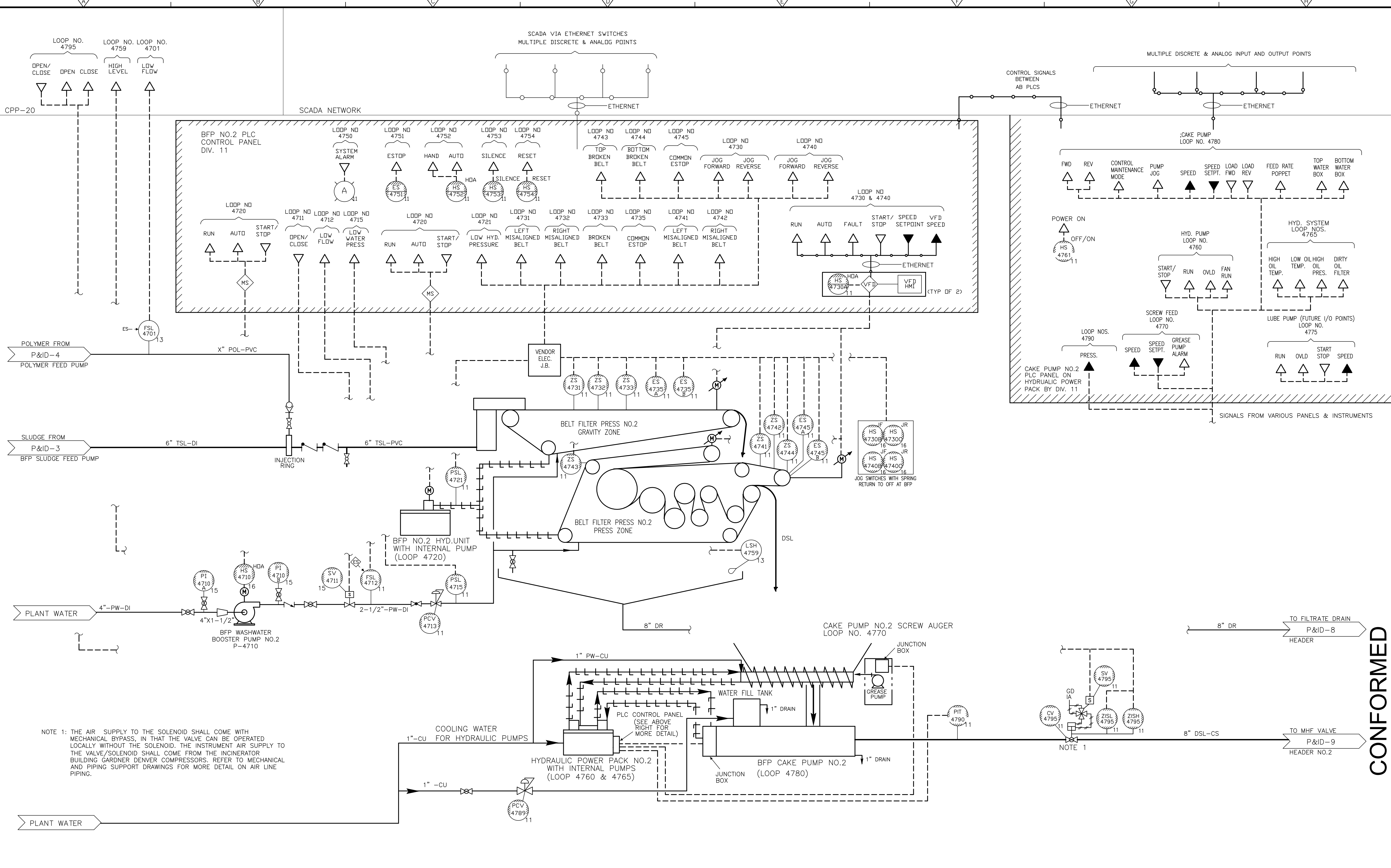
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PROJECT NO.
 1289-74283
 Sht. 231 of 312
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SHEET CHK'D BY:	E. SILVERMAN
CROSS CHK'D BY:	K. WAGNER
SCALE:	AS NOTED
APPROVED BY:	P. MALACHOWSKI
DATE:	SEPTEMBER 2010

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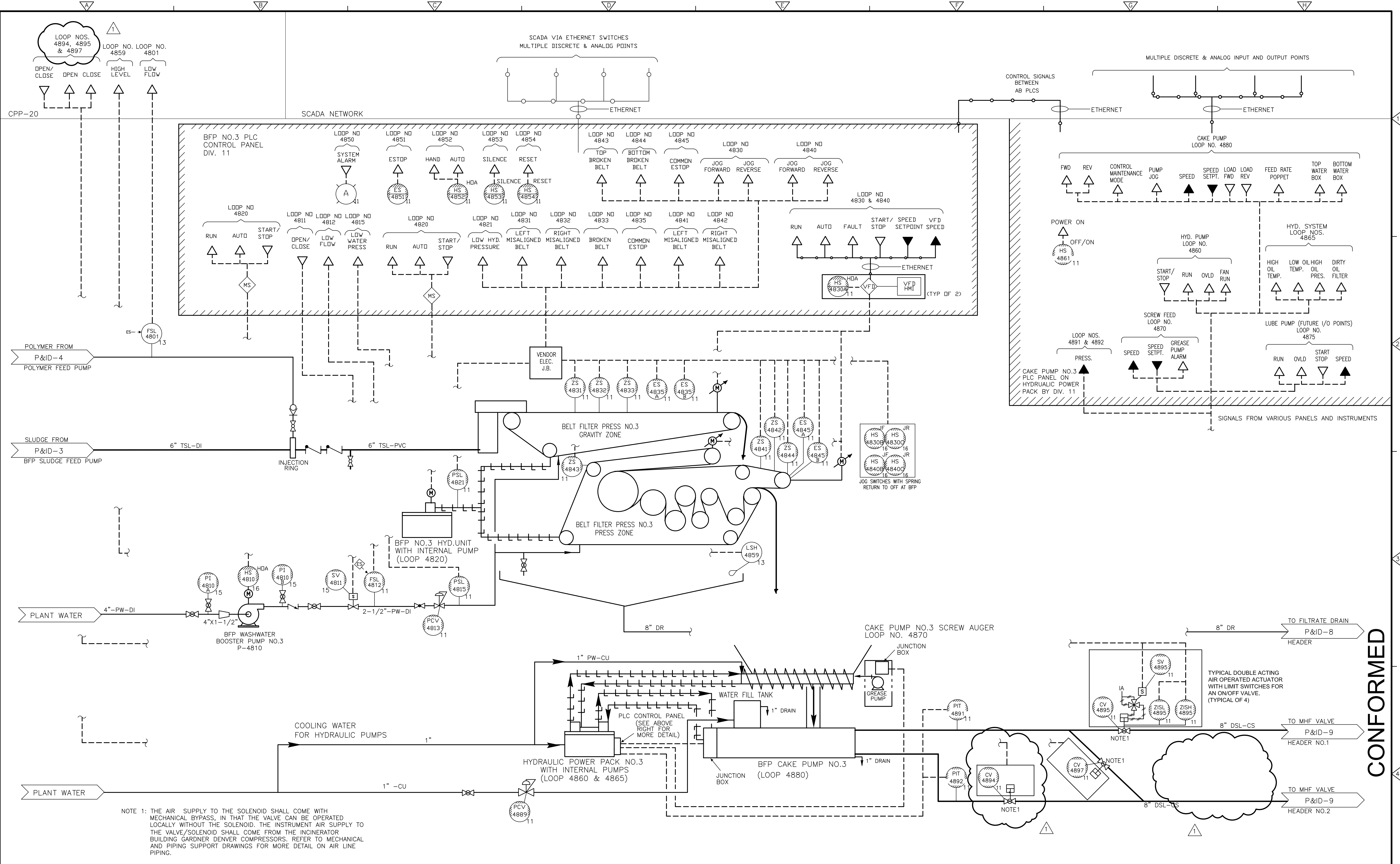
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CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

BELT FILTER PRESS NO.2 &
BFP CAKE PUMP NO.2

PROJECT NO. 1289-74283
Sht. 232 of 312
P&ID-6
Acc # 1289-74638

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NOTE 1: THE AIR SUPPLY TO THE SOLENOID SHALL COME WITH MECHANICAL BYPASS, IN THAT THE VALVE CAN BE OPERATED LOCALLY WITHOUT THE SOLENOID. THE INSTRUMENT AIR SUPPLY TO THE VALVE/SOLENOID SHALL COME FROM THE INCINERATOR BUILDING GARDNER DENVER COMPRESSORS. REFER TO MECHANICAL AND PIPING SUPPORT DRAWINGS FOR MORE DETAIL ON AIR LINE PIPING.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	12/13/12	FSM	KCW	ADDED VALVE 4894, MOVED VALVES 4896 & 4898 TO P&ID-9

CADD FILE NO.	IPID0007.dwg
DESIGNED BY:	P.MALACHOWSKI
DRAWN BY:	P.MALACHOWSKI
SHEET CHK'D BY:	E.SILVERMAN
CROSS CHK'D BY:	K.WAGNER
SCALE:	AS NOTED
APPROVED BY:	P.MALACHOWSKI
DATE:	SEPTEMBER 2010

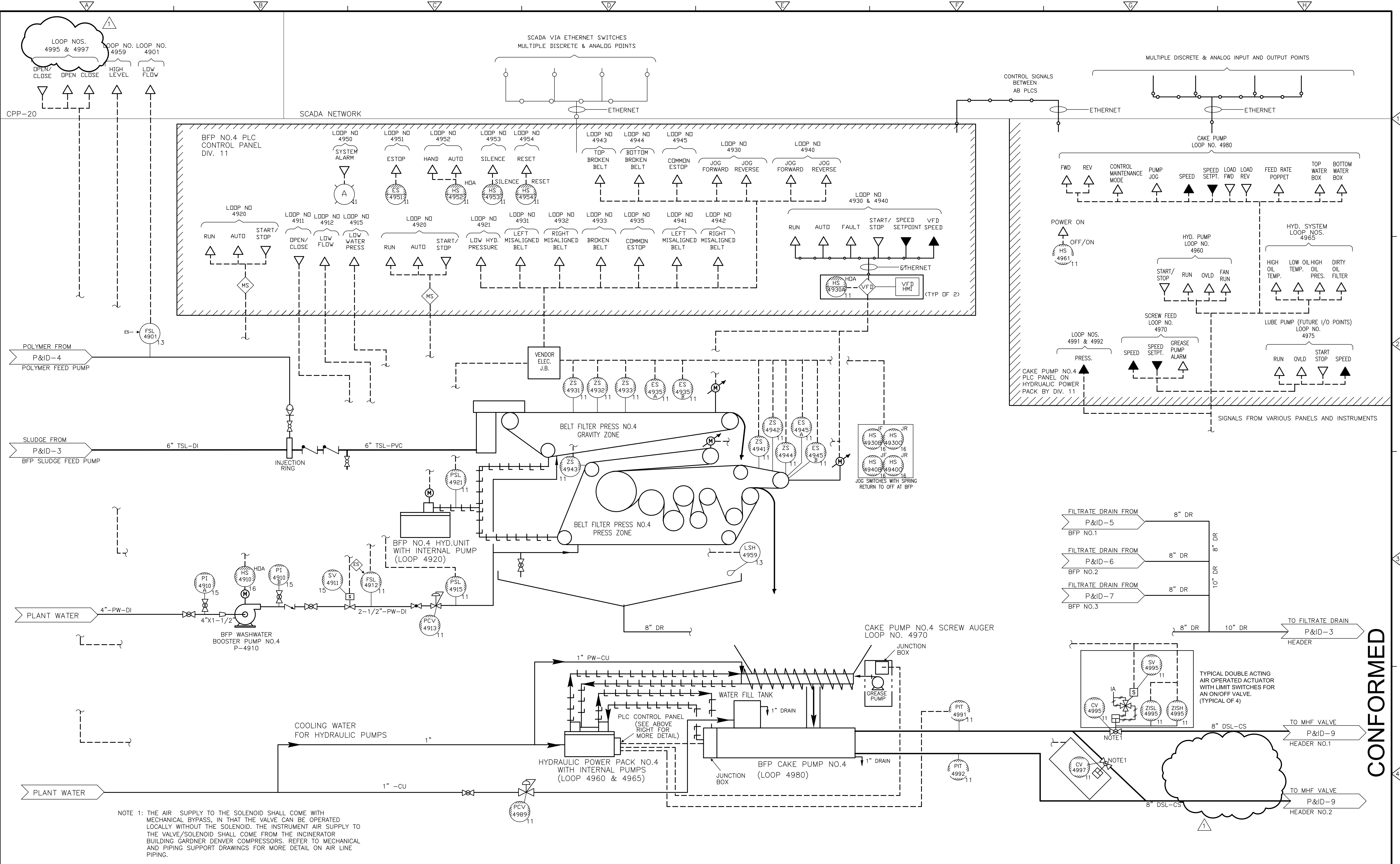
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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

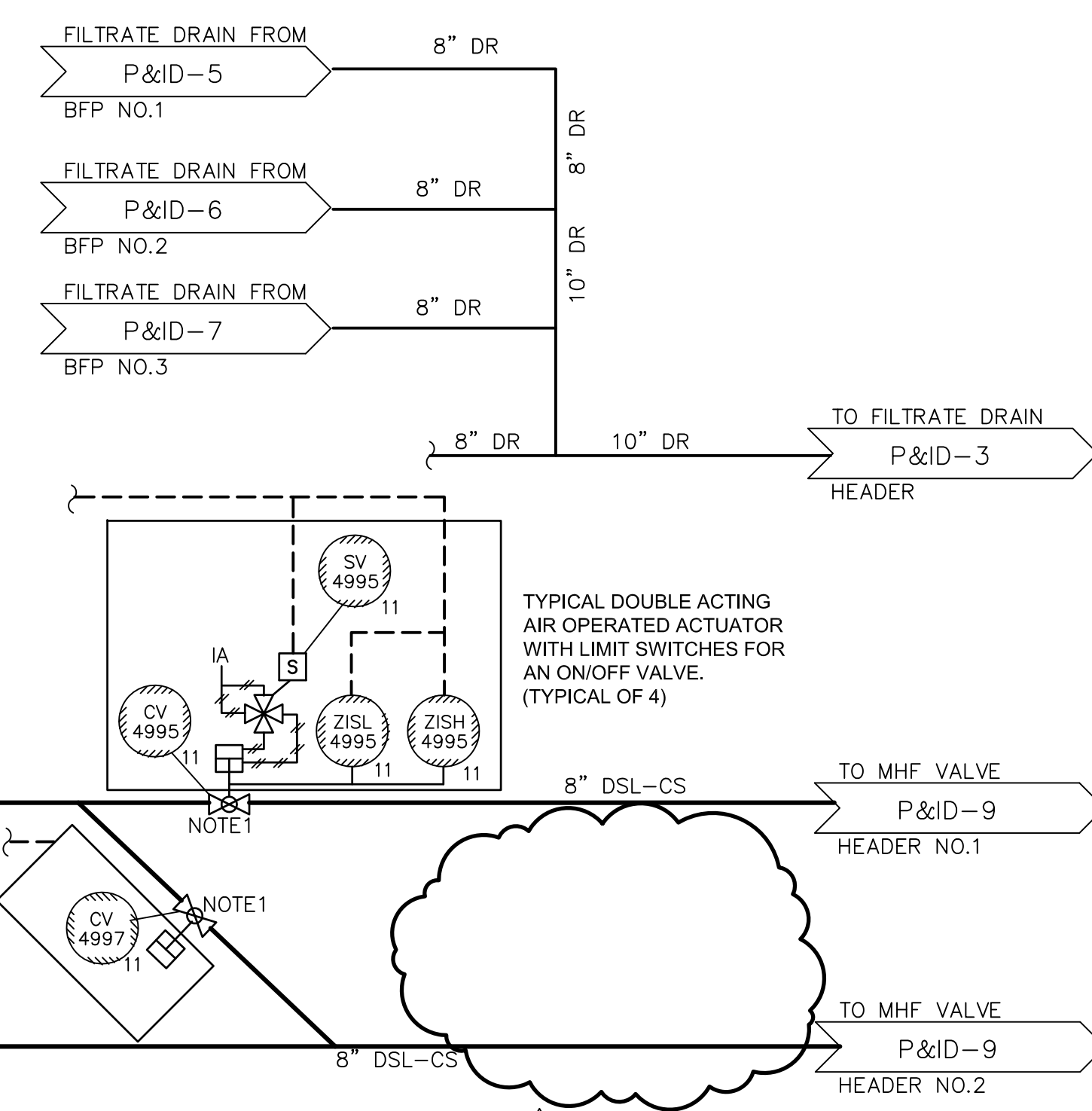
**BELT FILTER PRESS NO.3 &
 BFP CAKE PUMP NO.3**

PROJECT NO.
 1289-74283
 Sht. 233 of 312
P&ID-7
 Acc # 1289-74639

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\MALACHOWSKI\1127811\IPID0008.DWG Saved by: MALACHOWSKI On: 13-Dec-12 10:34 AM



NOTE 1: THE AIR SUPPLY TO THE SOLENOID SHALL COME WITH MECHANICAL BYPASS, IN THAT THE VALVE CAN BE OPERATED LOCALLY WITHOUT THE SOLENOID. THE INSTRUMENT AIR SUPPLY TO THE VALVE/SOLENOID SHALL COME FROM THE INCINERATOR BUILDING GARDNER DENVER COMPRESSORS. REFER TO MECHANICAL AND PIPING SUPPORT DRAWINGS FOR MORE DETAIL ON AIR LINE PIPING.



REV. NO.	DATE	DRWN	CHKD	REMARKS
1	12/13/12	PSM	KGW	MOVED VALVES 4996 & 4998 TO P&ID-9

CADD FILE NO.	IPID0008.dwg
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	P. MALACHOWSKI
SHEET CHK'D BY:	E. SILVERMAN
CROSS CHK'D BY:	K. WAGNER
SCALE:	AS NOTED
APPROVED BY:	P. MALACHOWSKI
DATE:	SEPTEMBER 2010

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 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**BELT FILTER PRESS NO. 4 &
 BFP CAKE PUMP NO. 4**

P&ID-8

PROJECT NO.
1289-74283

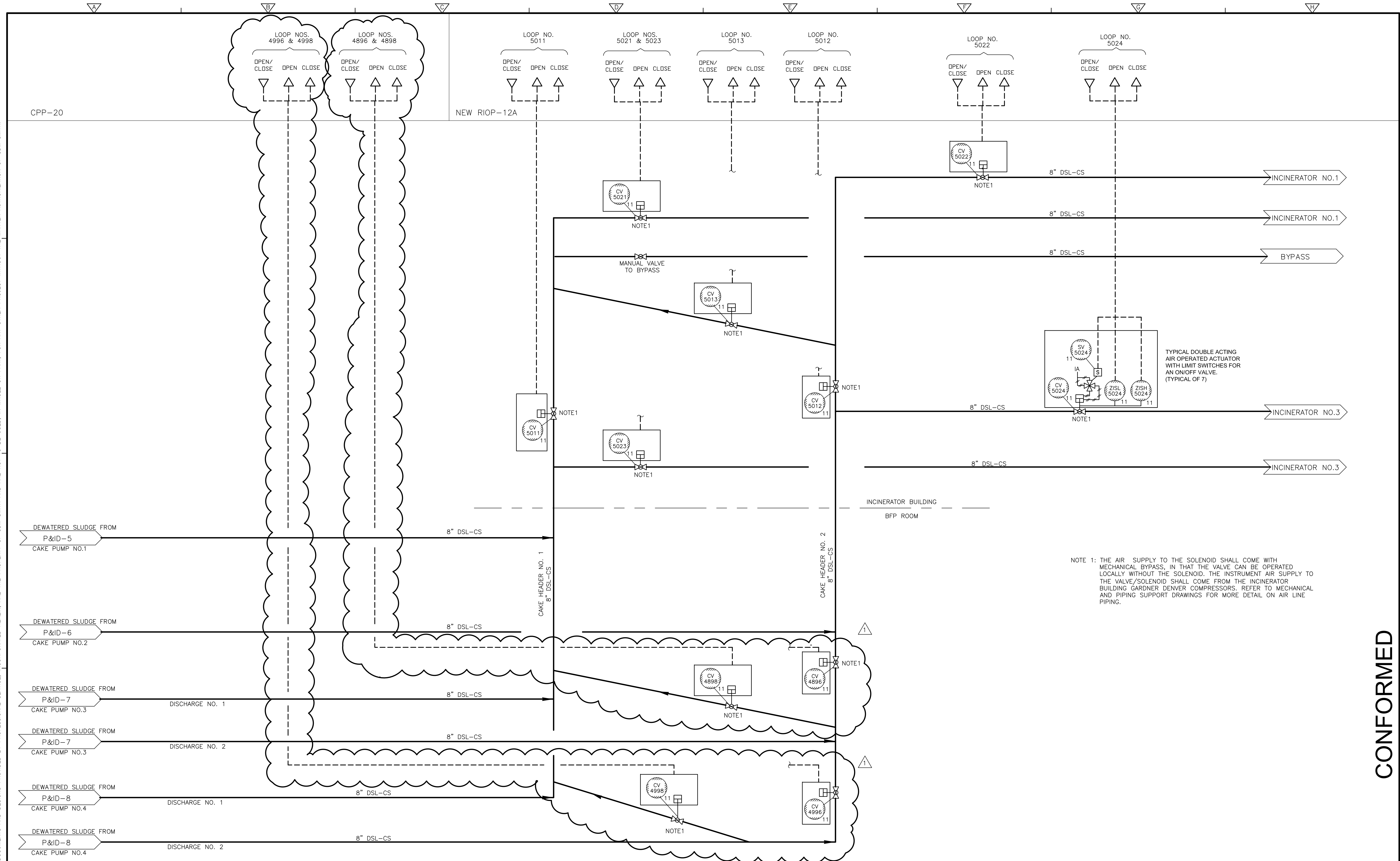
Sht. 234 of 312

Acc # 1289-74640

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMM\MALACHOWSKI\1127811\IPID009.DWG Saved by: MALACHOWSKI On: 17-Dec-12 10:33 AM

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NOTE 1: THE AIR SUPPLY TO THE SOLENOID SHALL COME WITH MECHANICAL BYPASS, IN THAT THE VALVE CAN BE OPERATED LOCALLY WITHOUT THE SOLENOID. THE INSTRUMENT AIR SUPPLY TO THE VALVE/SOLENOID SHALL COME FROM THE INCINERATOR BUILDING GARDNER DENVER COMPRESSORS. REFER TO MECHANICAL AND PIPING SUPPORT DRAWINGS FOR MORE DETAIL ON AIR LINE PIPING.

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	12/13/12	PSM	KGW	MOVED VALVES 4896, 4898, 4996 & 4998 TO P&ID-9 FROM P&ID-7 & 8

CADD FILE NO. IPID009.dwg
 DESIGNED BY: P.MALACHOWSKI
 DRAWN BY: P.MALACHOWSKI
 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: K.WAGNER
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010

NEW RIOP-12A



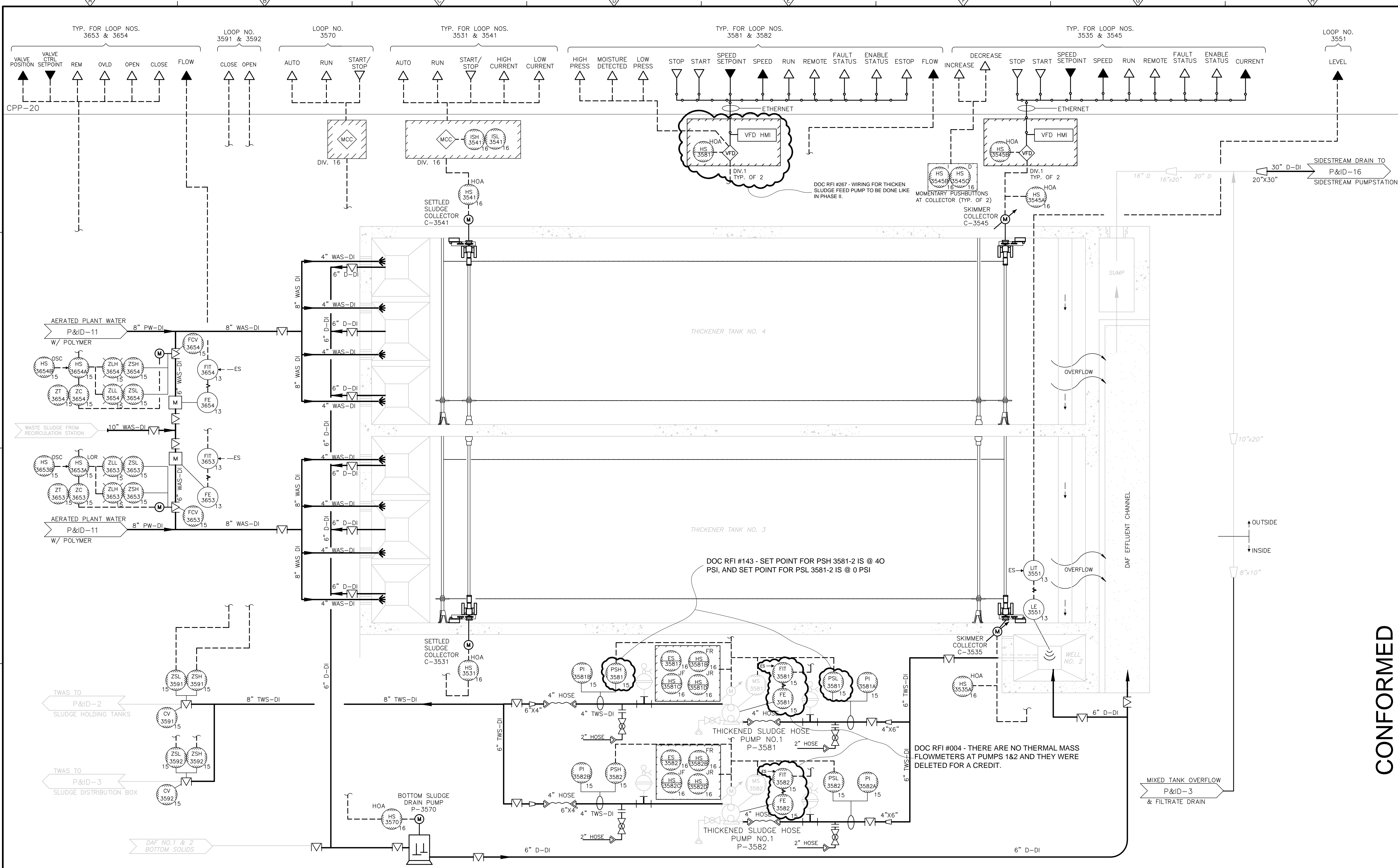
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**CAKE PUMPS
 DISCHARGE VALVES**

PROJECT NO. 1289-74283
 Sht. 235 of 312
P&ID-9
 Acc # 1289-74641

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\CDM W-KNEELAND FILES\IPID010.DWG Saved by: DKENNEDY On: 30-Jul-12 1:54 PM



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID010.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: E. SPARGIMINO
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

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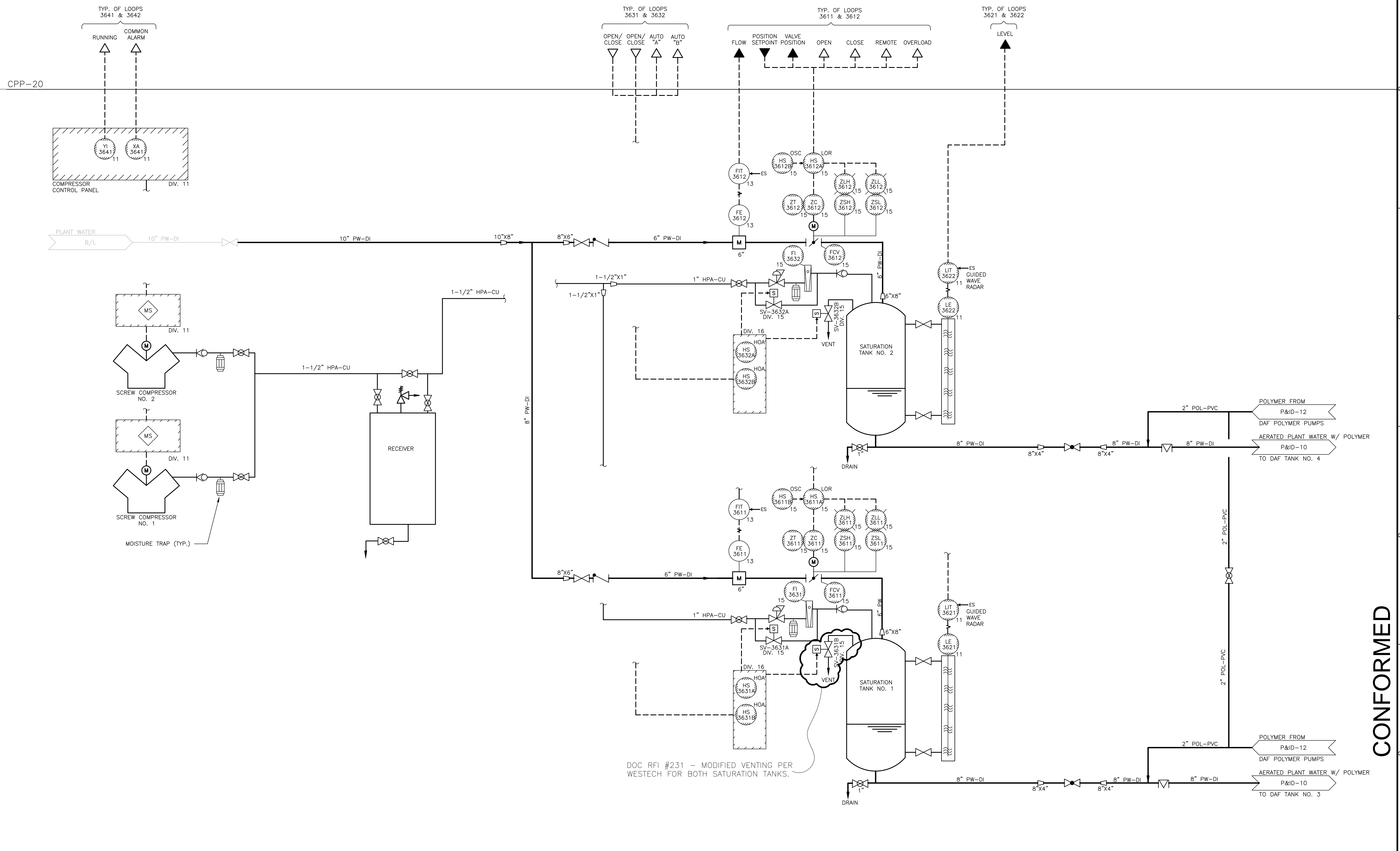
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 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

PROJECT NO. 1289-74283
 Sht. 236 of 312
P&ID-10
 Acc # 1289-74642

DAF TANKS

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\CDM W-KNEELAND FILES\IPID0011.DWG Saved by: DKENNEDY On: 30-Jun-10 Plotted on: 31-Jul-12 10:51 AM



DOC RFI #231 - MODIFIED VENTING PER WESTECH FOR BOTH SATURATION TANKS.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0011.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: E. SPARGIMINO
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/31/2012

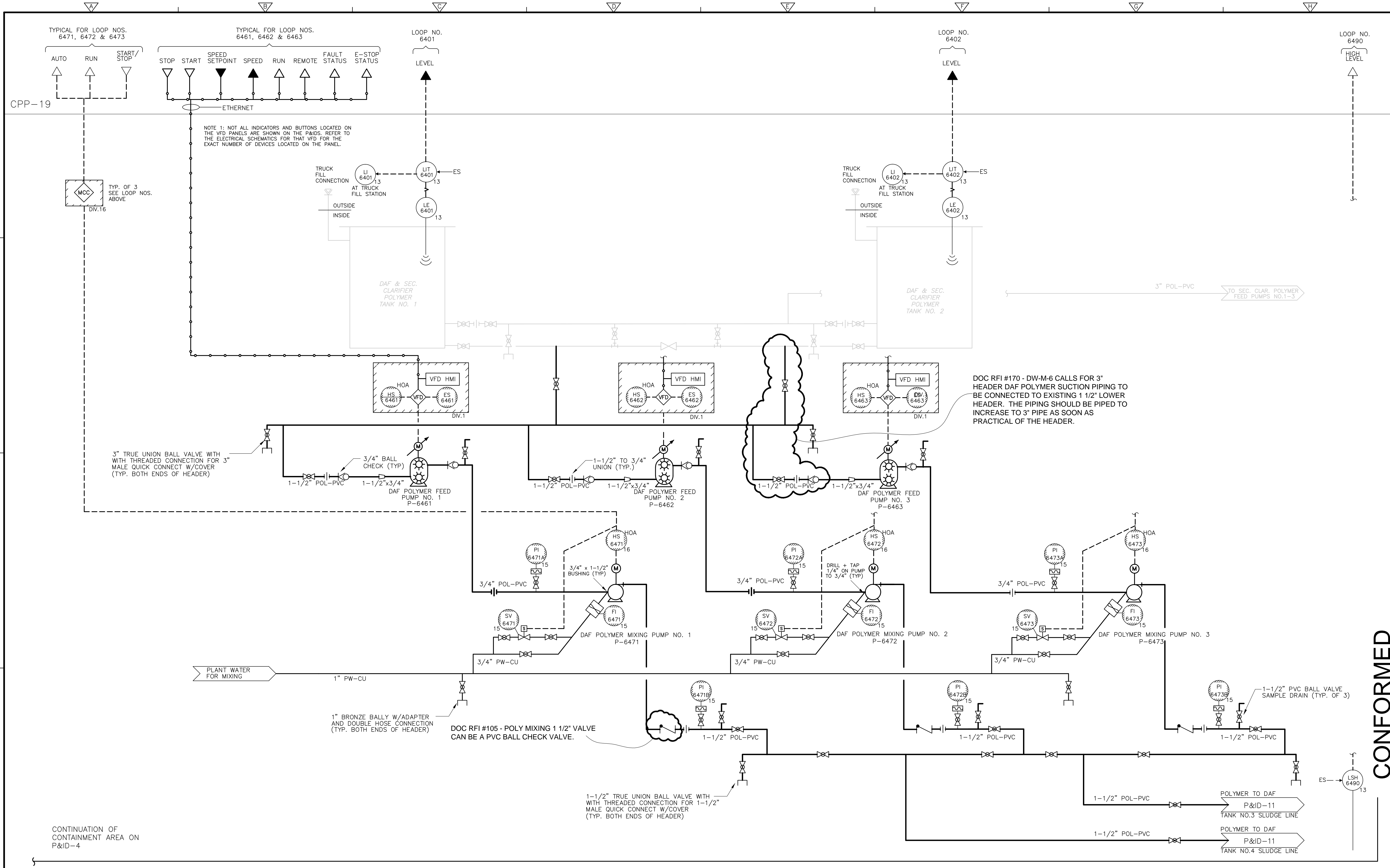
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 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

DAF TANKS NO. 3 & 4
 SATURATION TANKS
P&ID-11

PROJECT NO.
 1289-74283
 Sht. 237 of 312
 Acc. # 1289-74643

Xref's: [CDM_2436] Images: []
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 PLEASE UPDATE THE PROJECTWISE PATH (SELECT ATTRIBUTES IN PROJECTWISE AND CLICK CHECK BOX)
 Plot Stamp = ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129 AS BUILT FILES\CDM W-KNEELAND FILES\IPID0012.DWG Saved by: DKENNEDY On: 31-Jul-12 8:13 AM



NOTE 1: NOT ALL INDICATORS AND BUTTONS LOCATED ON THE VFD PANELS ARE SHOWN ON THE P&IDS. REFER TO THE ELECTRICAL SCHEMATICS FOR THAT VFD FOR THE EXACT NUMBER OF DEVICES LOCATED ON THE PANEL.

DOC RFI #170 - DW-M-6 CALLS FOR 3" HEADER DAF POLYMER SUCTION PIPING TO BE CONNECTED TO EXISTING 1 1/2" LOWER HEADER. THE PIPING SHOULD BE INCREASED TO 3" PIPE AS SOON AS PRACTICAL OF THE HEADER.

DOC RFI #105 - POLY MIXING 1 1/2" VALVE CAN BE A PVC BALL CHECK VALVE.

CONTINUATION OF CONTAINMENT AREA ON P&ID-4

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0012.DWG
 DESIGNED BY: P.MALACHOWSKI
 DRAWN BY: A. BROOKS
 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: E. SPARGIMINO
 SCALE: AS NOTED
 APPROVED BY: P.MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/30/2011

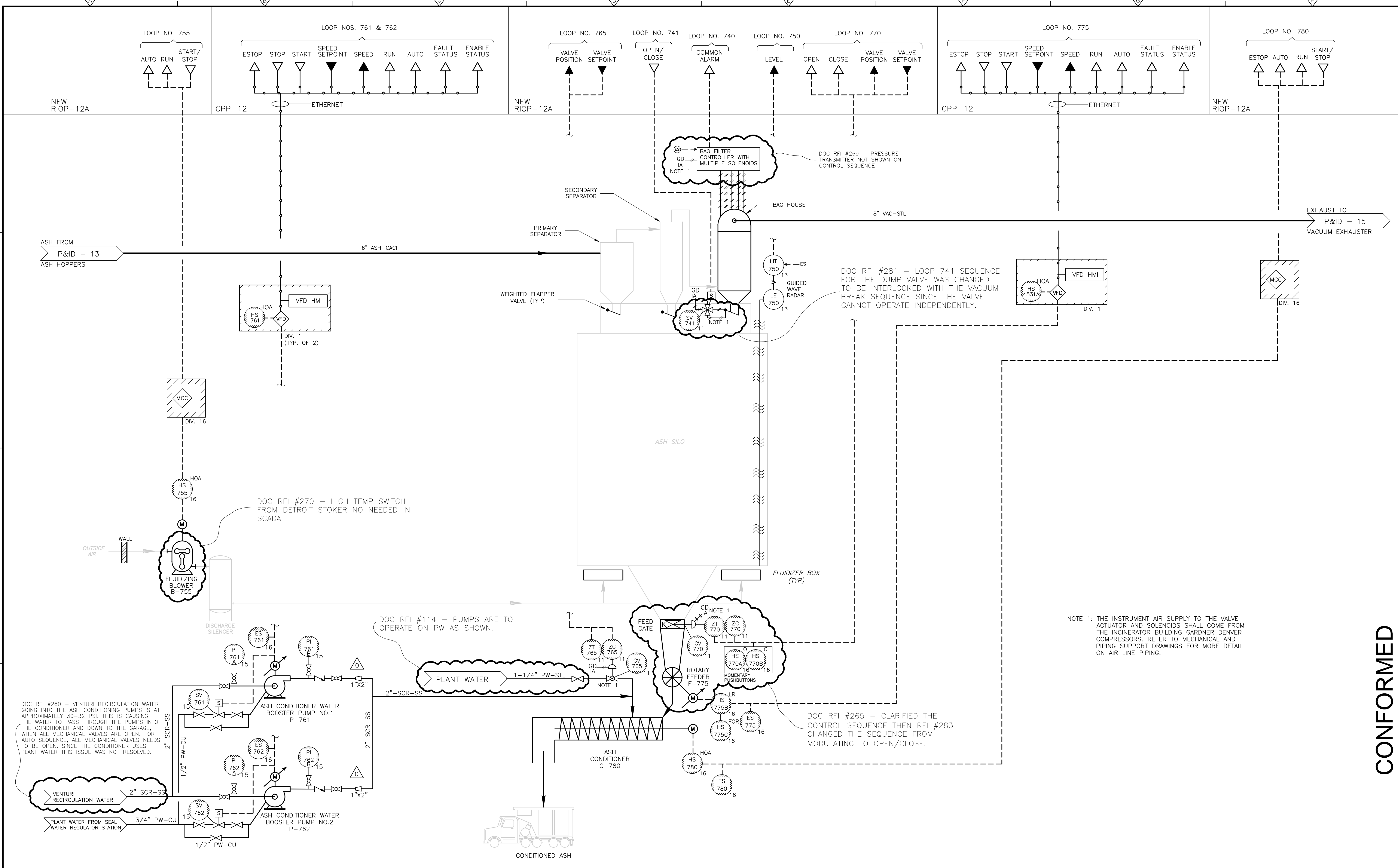
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**DAF & SEC. CLARIFIER TANKS
 & DAF POLYMER PUMP SYSTEM**

PROJECT NO.
 1289-74283
 Sht. 238 of 312
P&ID-12
 Acc # 1289-74644

Plot Stamp - Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\CDM W-KNEELAND FILES\IPID0014.DWG Saved by: DKENNEDY On: 31-Jul-12 9:24 AM



DOC RFI #280 - VENTURI RECIRCULATION WATER GOING INTO THE ASH CONDITIONING PUMPS IS AT APPROXIMATELY 30-32 PSI. THIS IS CAUSING THE WATER TO PASS THROUGH THE PUMPS INTO THE CONDITIONER AND DOWN TO THE GARAGE. WHEN ALL MECHANICAL VALVES ARE OPEN, FOR AUTO SEQUENCE, ALL MECHANICAL VALVES NEEDS TO BE OPEN, SINCE THE CONDITIONER USES PLANT WATER THIS ISSUE WAS NOT RESOLVED.

DOC RFI #270 - HIGH TEMP SWITCH FROM DETROIT STOKER NO NEEDED IN SCADA

DOC RFI #114 - PUMPS ARE TO OPERATE ON PW AS SHOWN.

DOC RFI #265 - CLARIFIED THE CONTROL SEQUENCE THEN RFI #283 CHANGED THE SEQUENCE FROM MODULATING TO OPEN/CLOSE.

DOC RFI #281 - LOOP 741 SEQUENCE FOR THE DUMP VALVE WAS CHANGED TO BE INTERLOCKED WITH THE VACUUM BREAK SEQUENCE SINCE THE VALVE CANNOT OPERATE INDEPENDENTLY.

DOC RFI #269 - PRESSURE TRANSMITTER NOT SHOWN ON CONTROL SEQUENCE

NOTE 1: THE INSTRUMENT AIR SUPPLY TO THE VALVE ACTUATOR AND SOLENOIDS SHALL COME FROM THE INCINERATOR BUILDING GARDNER DENVER COMPRESSORS. REFER TO MECHANICAL AND PIPING SUPPORT DRAWINGS FOR MORE DETAIL ON AIR LINE PIPING.

0	09/10	MNP	PSM	REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	IPID0014.DWG
DESIGNED BY:	P. MALACHOWSKI
DRAWN BY:	M. POPTANI
SHEET CHK'D BY:	E. SILVERMAN
CROSS CHK'D BY:	M. NEVILLE
SCALE:	AS NOTED
APPROVED BY:	P. MALACHOWSKI
DATE:	SEPTEMBER 2010

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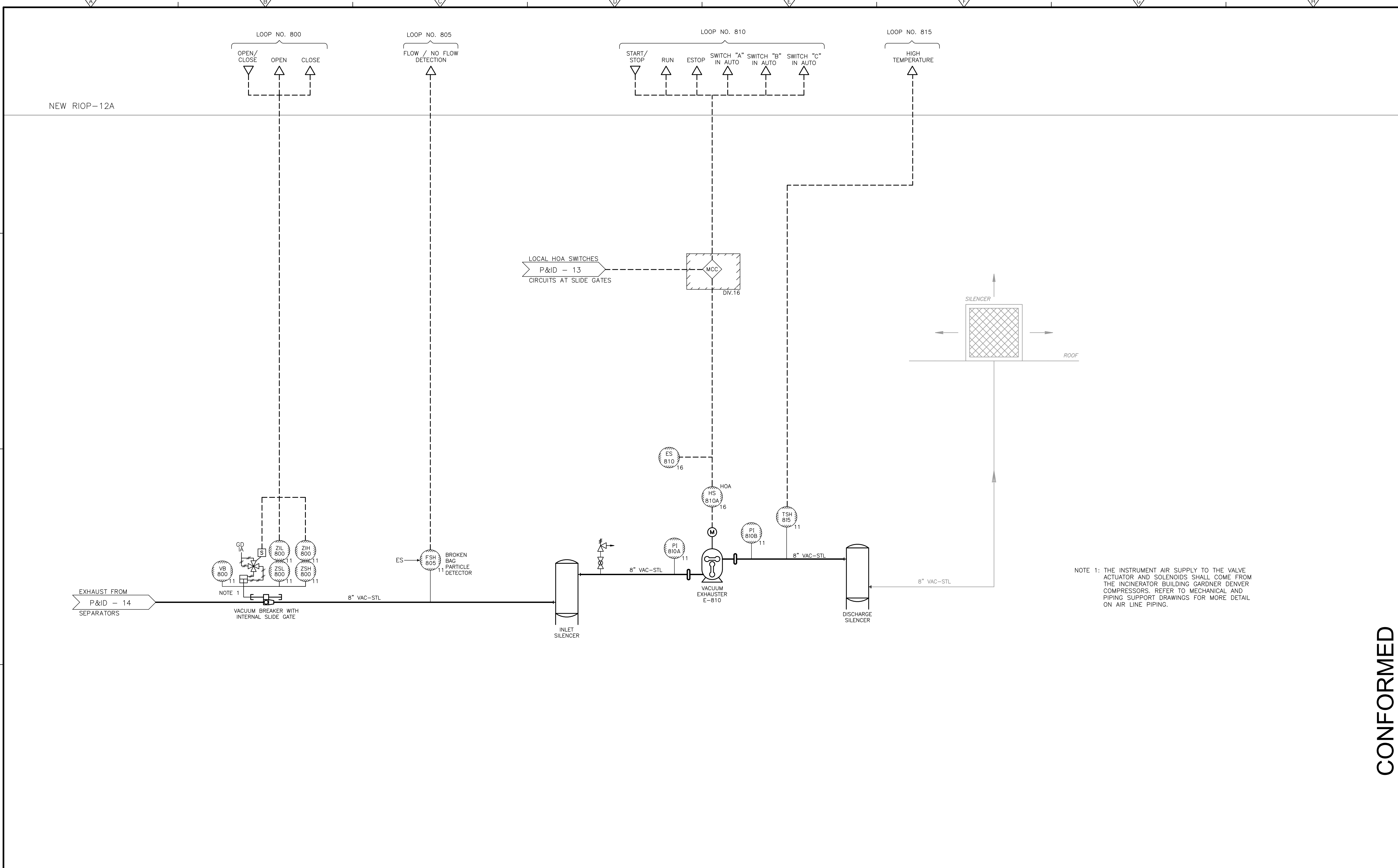
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 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ASH FILTRATION
 &
 CONDITIONING SYSTEMS**

PROJECT NO.
1289-74283
 Sht. 240 of 312
P&ID-14
 Acc. # 1289-74646

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\POPTANIM\0119575\IPID0015.DWG Saved by: MALACHOWSKI On: 30-Jun-10 Plotted on: 29-Nov-10 8:53 AM



NOTE 1: THE INSTRUMENT AIR SUPPLY TO THE VALVE ACTUATOR AND SOLENOIDS SHALL COME FROM THE INCINERATOR BUILDING GARDNER DENVER COMPRESSORS. REFER TO MECHANICAL AND PIPING SUPPORT DRAWINGS FOR MORE DETAIL ON AIR LINE PIPING.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0015.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: M. NEVILLE
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

LOCAL HOA SWITCHES
 P&ID - 13
 CIRCUITS AT SLIDE GATES

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

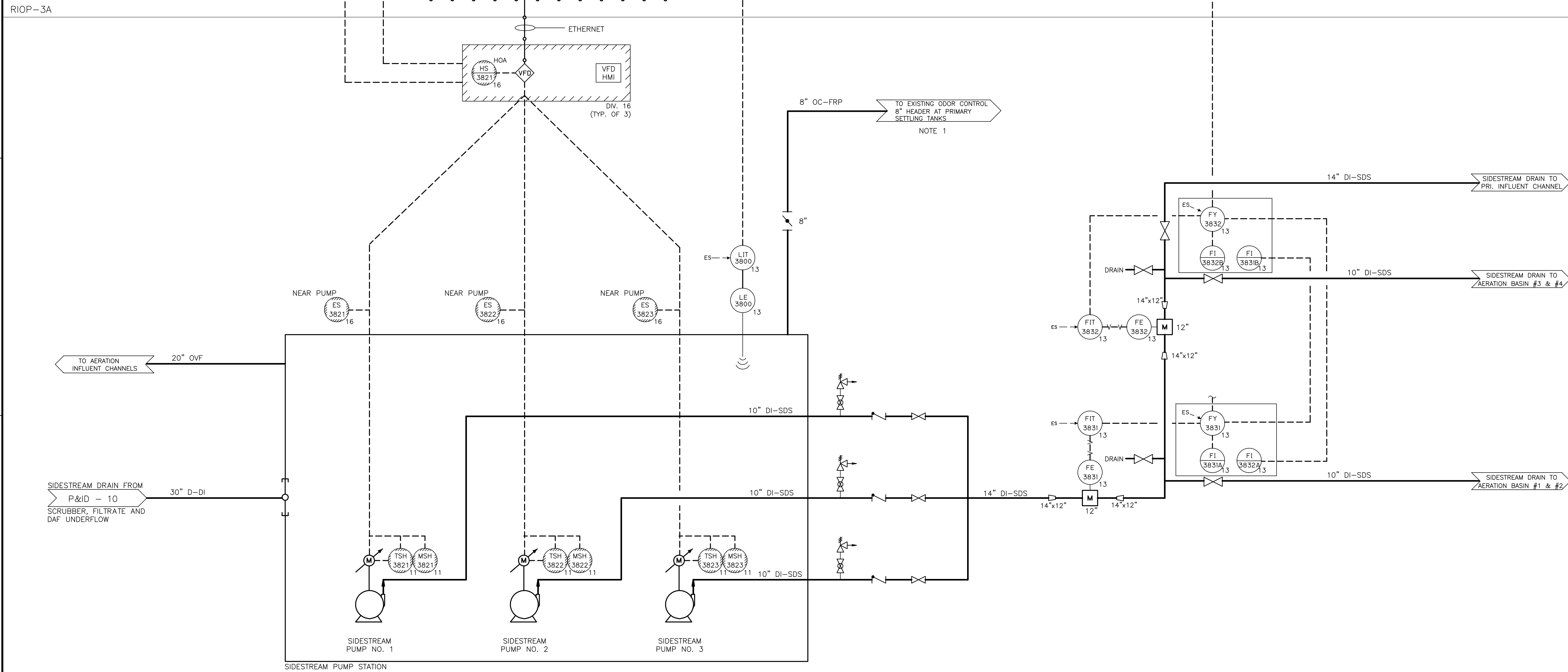
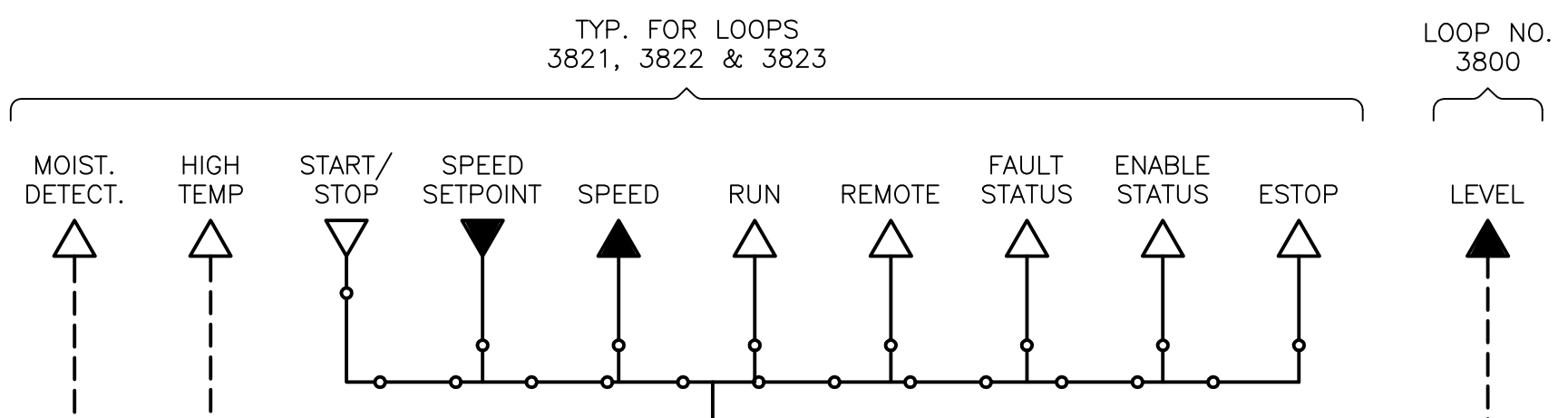
**EXHAUST FROM
 ASH CONVEYANCE SYSTEM**

PROJECT NO.
 1289-74283
 Sht. 241 of 312
P&ID-15
 Acc # 1289-74647

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\POPTANIMN\0119575\IPID0016.DWG Saved by: MALACHOWSKI On: 29-Nov-10 8:53 AM

RIOP-3A



NOTE 1: CONTRACTOR TO REBALANCE THE ODOR CONTROL SYSTEM VALVES SHOWN ON PHASE I P&ID-6, 7, 8 & 19 WITH THE ADDITION OF THIS NEW ODOR CONTROL FEED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0016.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: M. NEVILLE
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

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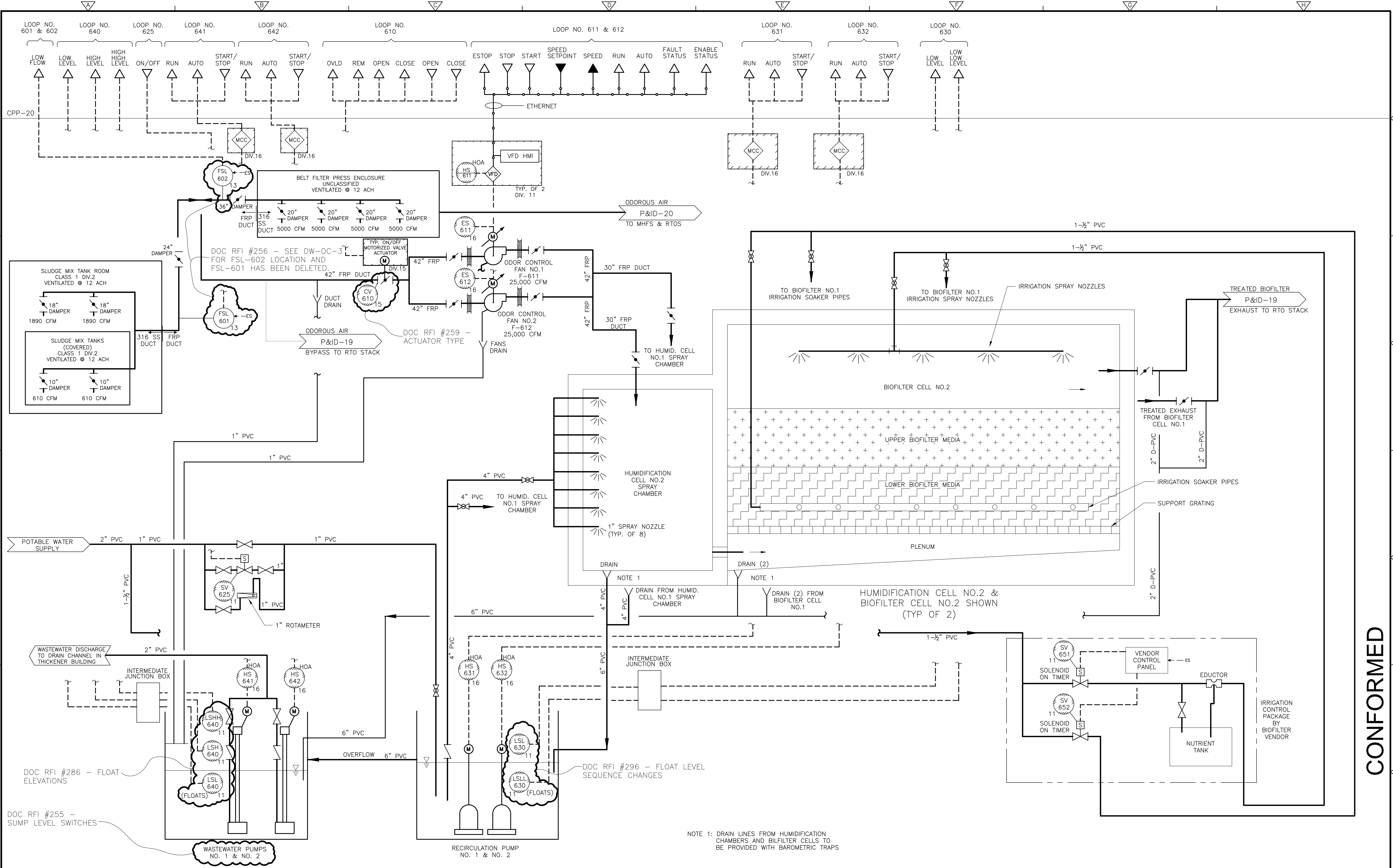
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SIDESTREAM
 PUMP STATION**

PROJECT NO.
1289-74283
 Sht. 242 of 312
P&ID-16
 Acc # 1289-74648

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\CDM W-KNEELAND FILES\PID0017.DWG Saved by: DKENNEDY On: 31-Jul-12 9:52 AM



NOTE 1: DRAIN LINES FROM HUMIDIFICATION CHAMBERS AND BIOFILTER CELLS TO BE PROVIDED WITH BAROMETRIC TRAPS

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0017.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: P. MALACHOWSKI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: K. SANTORO
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
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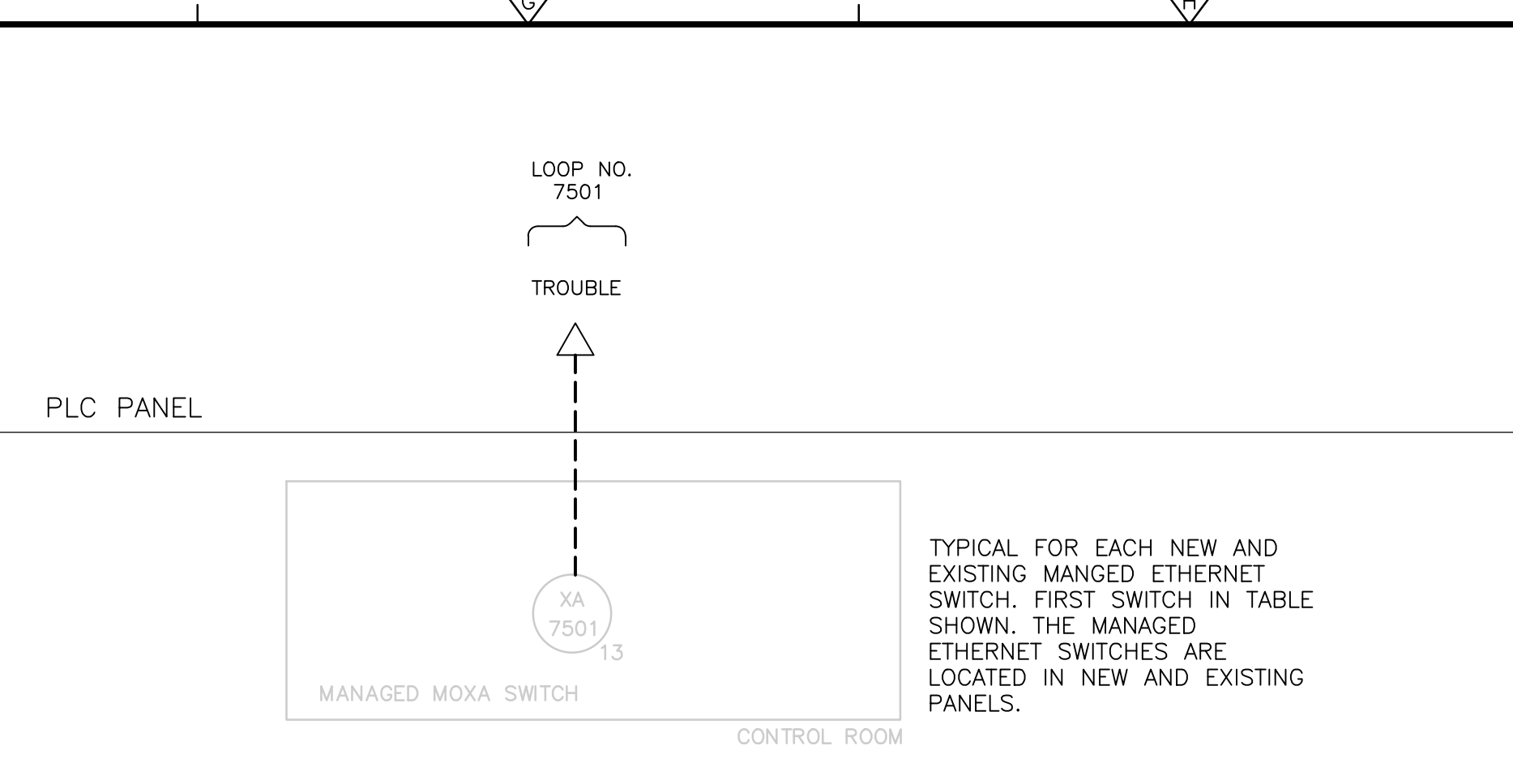
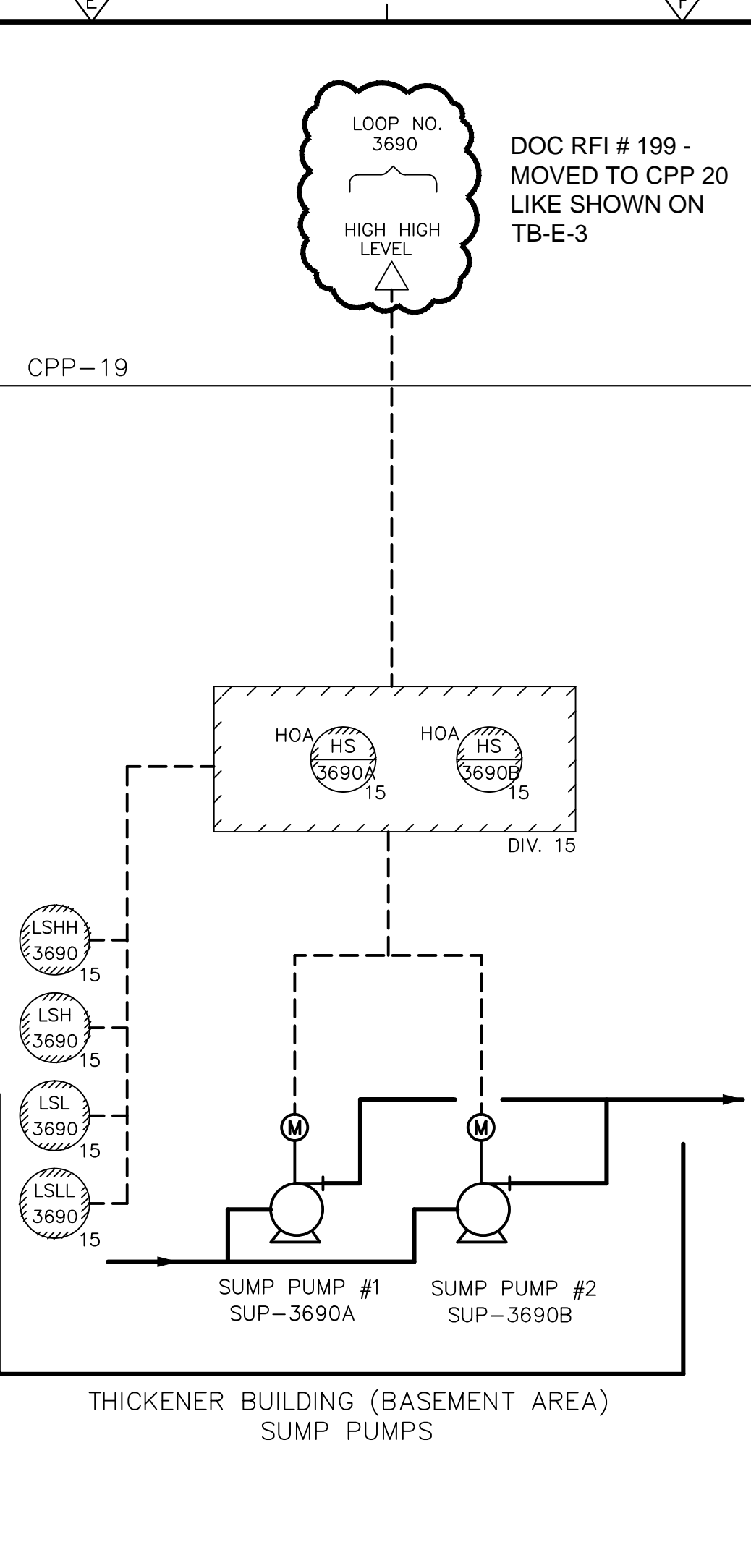
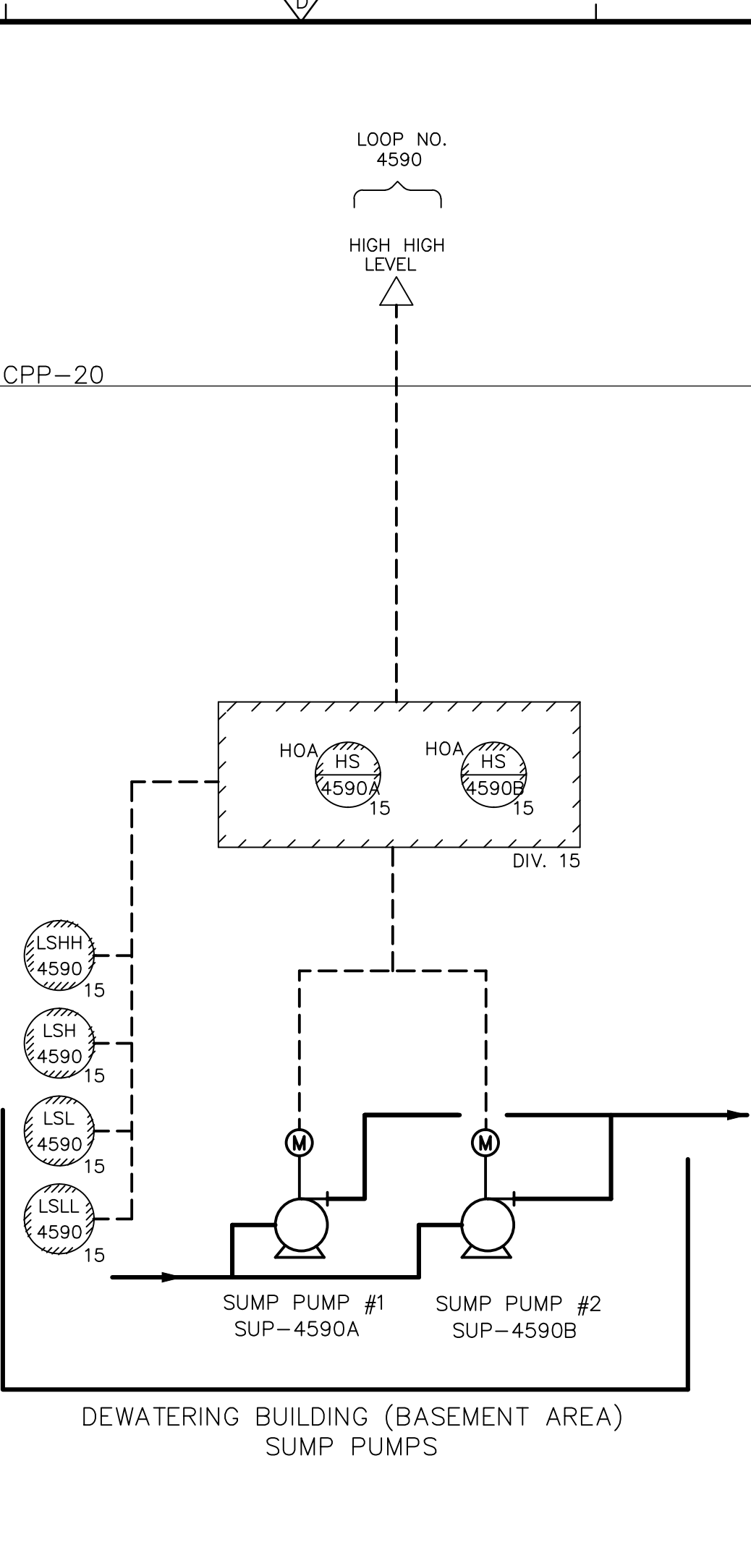
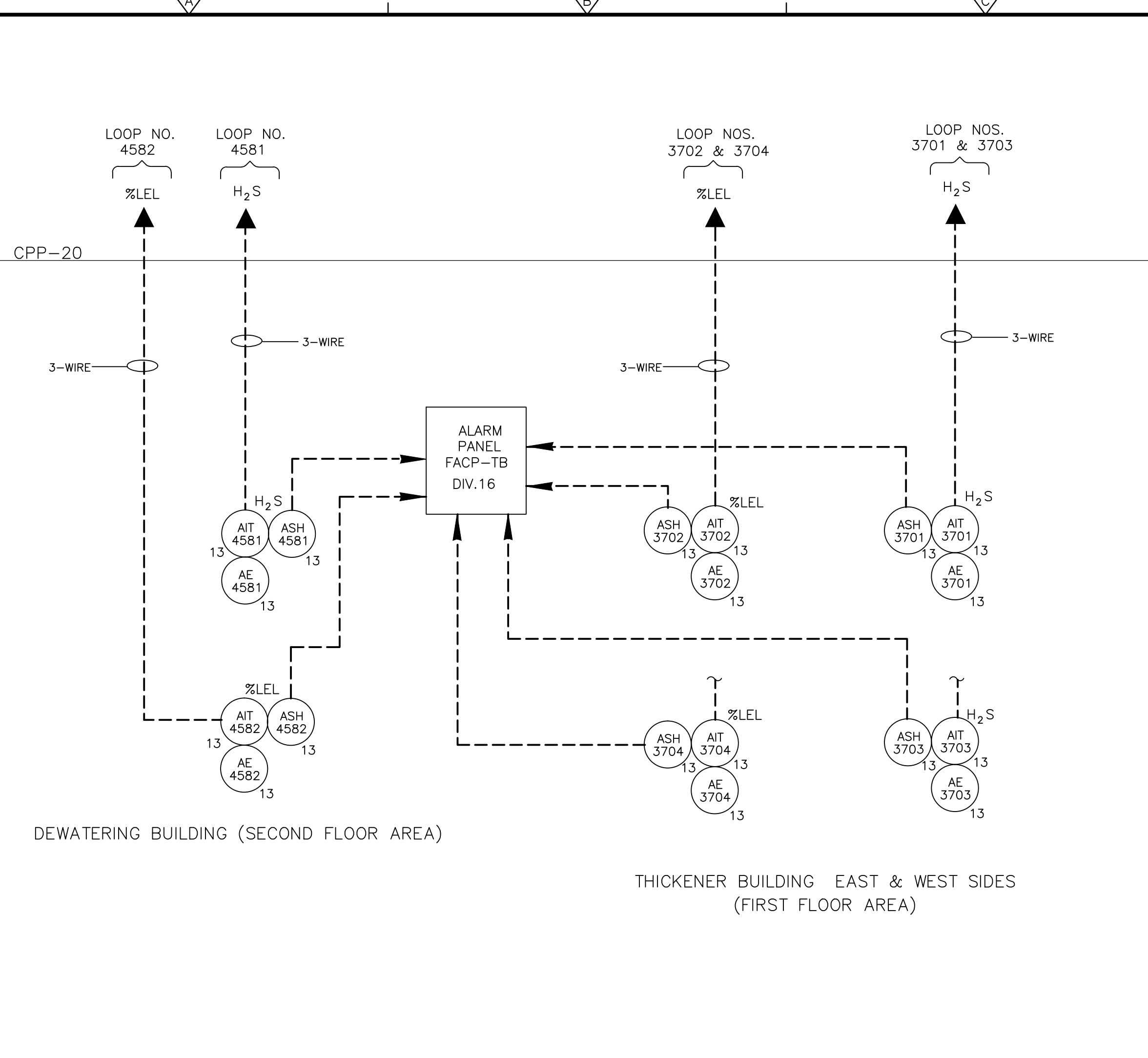
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 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SOLIDS BUILDING
 ODOR CONTROL SYSTEMS**

PROJECT NO. 1289-74283
 Sht. 243 of 312
P&ID-17
 Acc. # 1289-74649

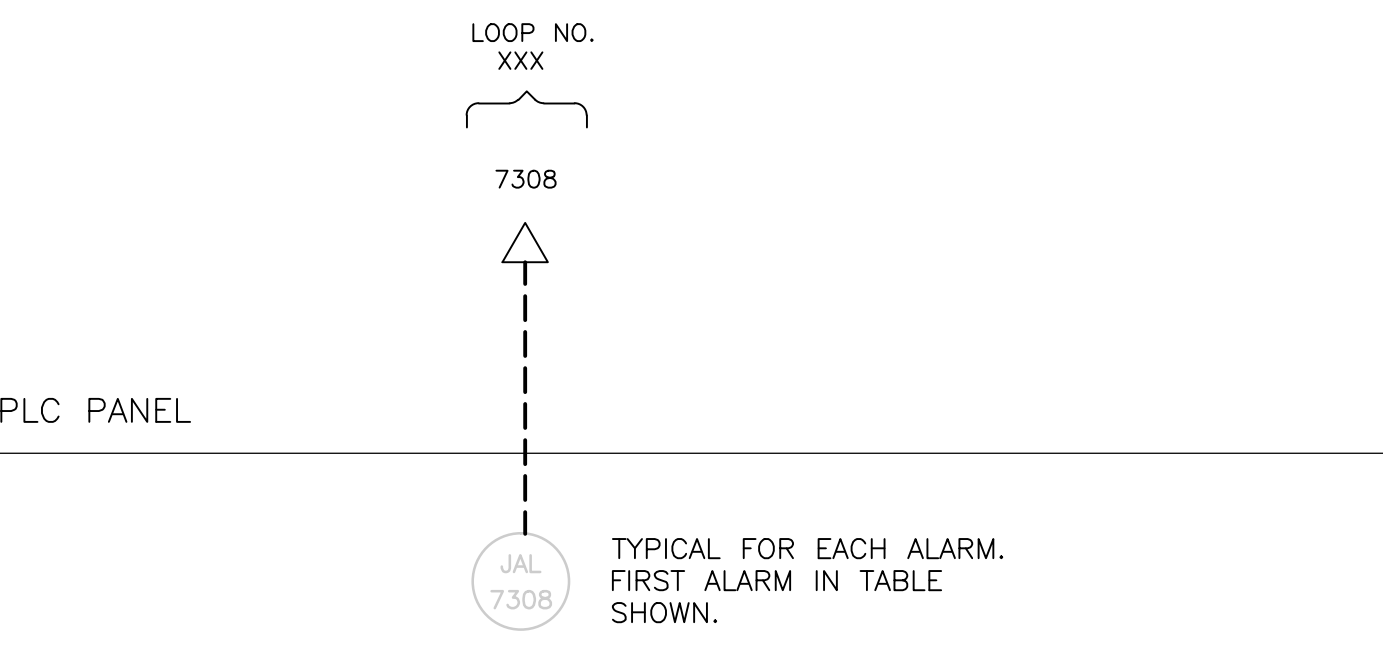
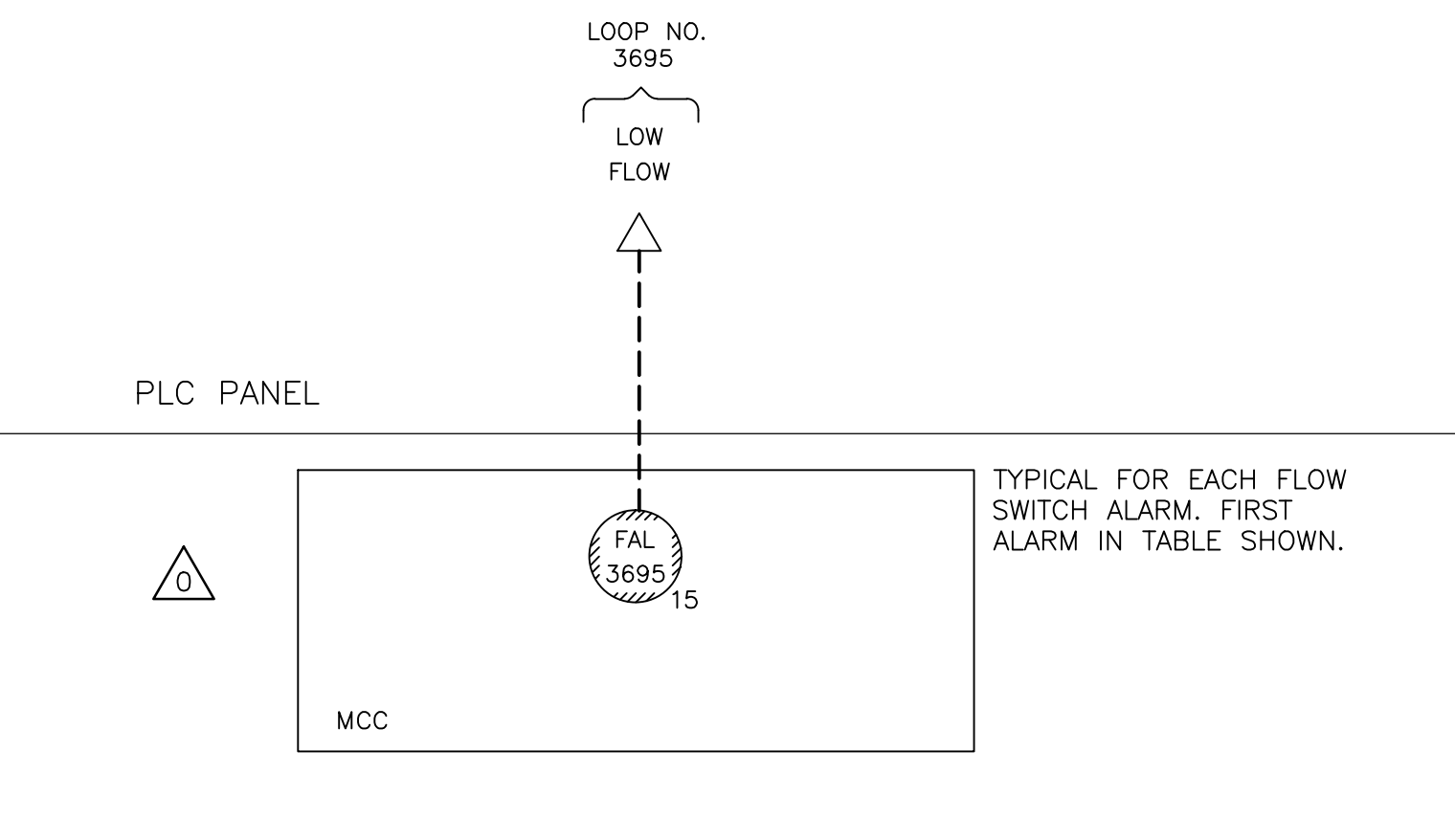
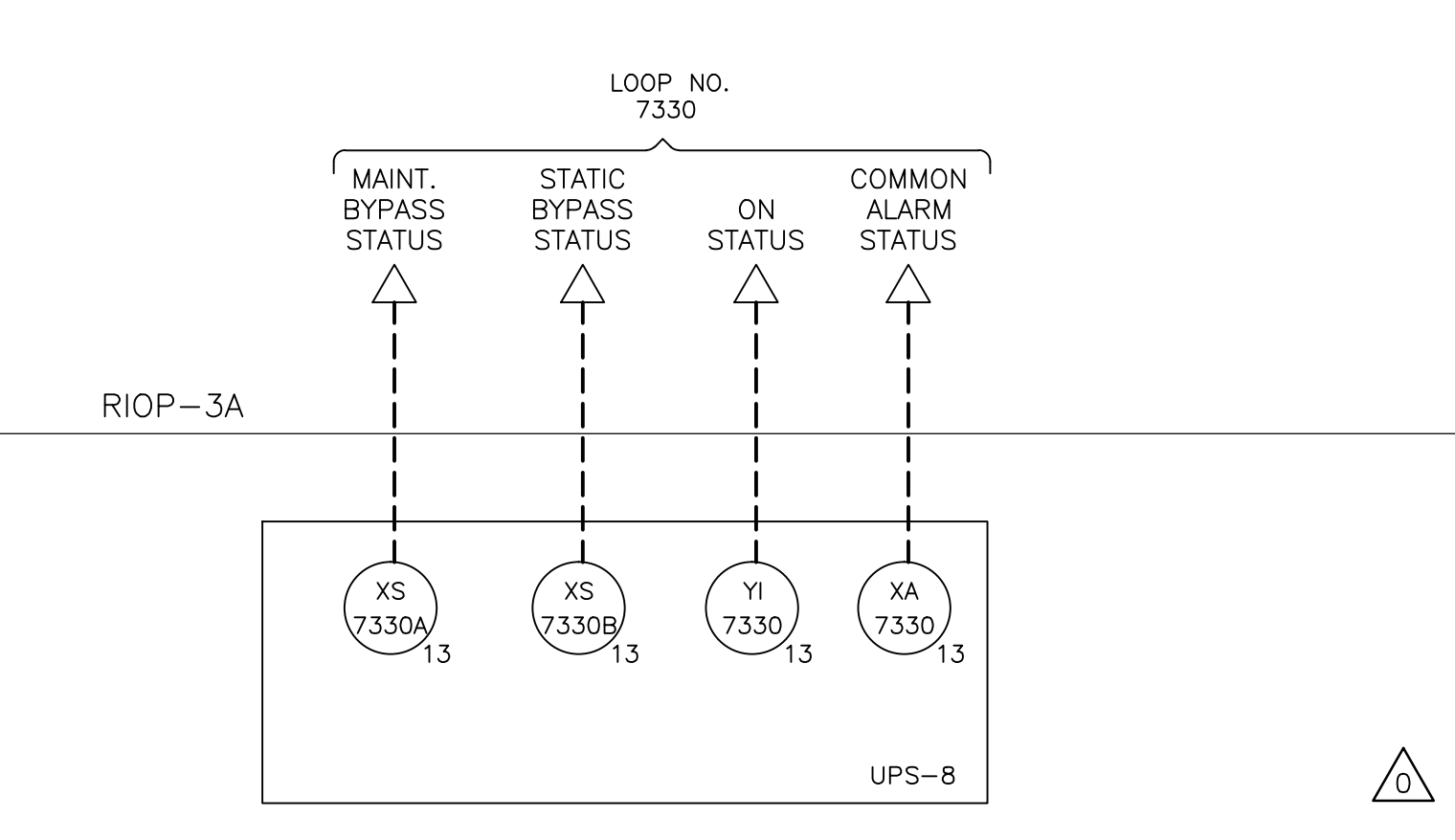
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Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DOCUMENTS\JOBS\BLACKSTONE-2009-129\AS BUILT FILES\CDM W-KNEELAND FILES\IPID0018.DWG Saved by: DKENNEDY On: 31-Jul-12 10:23 AM



MOXA MANAGED SWITCH FAULTS		
SWITCH LOCATION	PLC PANEL	LOOP NO.
* CONTROL ROOM SWITCH 1	CPP-20	7501
* CONTROL ROOM SWITCH 2	CPP-20	7502
* ADMIN. BLD. ELECTRICAL ROOM	CPP-50	7503
CPP-13	CPP-13	7504
CPP-1	CPP-1	7505
CPP-14	CPP-14	7506
CPP-2	CPP-2	7507
CPP-3	CPP-3	7508
* MAINTENANCE BLD. SWITCH 1 IN ELECTRICAL ROOM	RIDP-3A	7509
* MAINTENANCE BLD. SWITCH 2 IN ELECTRICAL ROOM	RIDP-3A	7510
CPP-4	CPP-4	7511
CPP-15	CPP-15	7512
* RTD CONTROL ROOM SWITCH 1	NEW RIDP-12A	7513
* RTD CONTROL ROOM SWITCH 2	NEW RIDP-12A	7514
* RTD CONTROL ROOM SWITCH 3	NEW RIDP-12A	7515
* RTD CONTROL ROOM SWITCH 4	NEW RIDP-12A	7516
CPP-16	CPP-16	7517
CPP-17 SWITCH 1	CPP-17	7518
CPP-17 SWITCH 2	CPP-17	7519
CPP-18	CPP-18	7520
CPP-19	CPP-19	7521
CP-B1	CP-B1	7522
CP-B2	CP-B2	7523
CP-B3	CP-B3	7524
CP-B4	CP-B4	7525
CPP-20 SWITCH 1	CPP-20	7526
CPP-20 SWITCH 2	CPP-20	7527

DOC RFI #319 - FOR WIRE AND CONDUIT DIRECTIONS FOR CONNECTION TO UPS 8



EXISTING STATUS POINTS REWIRED TO CPP-20			
DESCRIPTIONS	OLD PLC PANEL	NEW PLC PANEL	TAG
UPS NO.5 COMMON ALARM	EXISTING RIDP-12A	CPP-20	JAL-7308
UPS NO.5 BYPASS STATUS	EXISTING RIDP-12A	CPP-20	XA-7308
SLUDGE PROC. BLDG. LOSS OF POWER	EXSITNG RIDP-12A	CPP-20	XA-710

HVAC FLOW SWITCH ALARMS		
ASSOCIATED EQUIPMENT	PLC PANEL	LOOP NO.
TB-EF-1	CPP-20	3695
TB-EF-2	CPP-20	3696
TB-EF-3	CPP-20	3697
TB-AHU-1	CPP-20	3698
DW-TF-1	CPP-20	4595
DW-AHU-2	CPP-20	4596
DW-TF-2	CPP-20	4597
DW-AHU-1	CPP-20	4598

HVAC HIGH DIFFERENTIAL SWITCH ALARMS			
ATC PANEL	ASSOCIATED EQUIPMENT	PLC PANEL	LOOP NO.
TB-ATC-1	TB-DP-1	CPP-20	3699
DW-ATC-1	DW-DP-1	RIDP-12A	4599

* REPRESENTS THAT THE TROUBLE SIGNAL FROM THAT MANAGED ETHERNET SWITCH IS TO BE WIRED TO SCADA PANEL BY ELECTRICAL CONTRACTOR. ALL OTHER TROUBLE SIGNALS FROM MANAGED ETHERNET SWITCHES INTERNAL TO THE SCADA CABINET ARE TO BE WIRED BY THE PCSS.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	MNP	PSM	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO. IPID0018.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: D.GREEN
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
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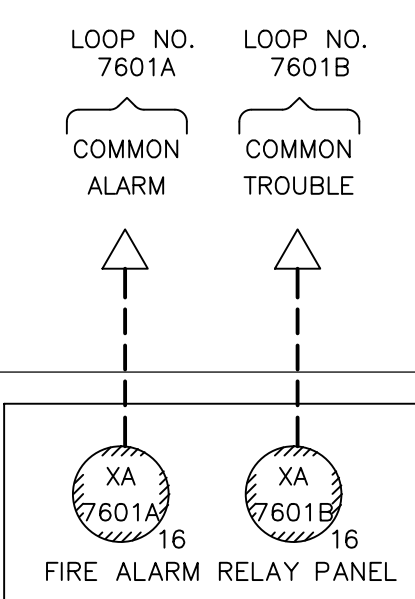
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

MISCELLANEOUS I
 PROJECT NO. 1289-74283
 Sht. 244 of 312
P&ID-18
 Acc. # 1289-74650

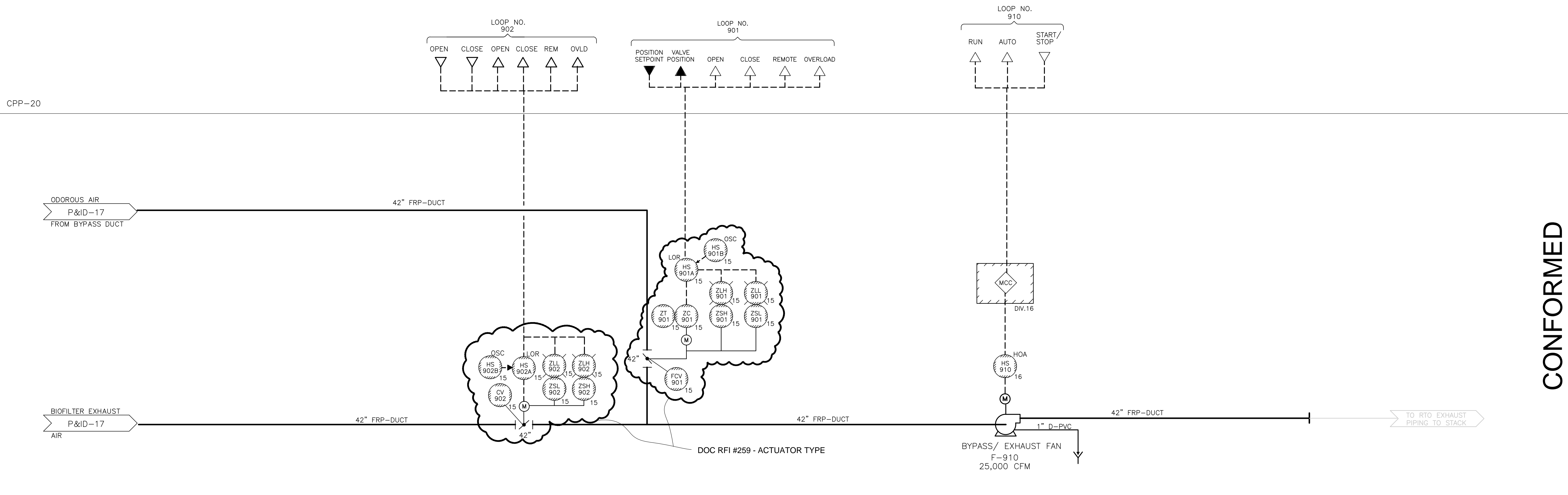
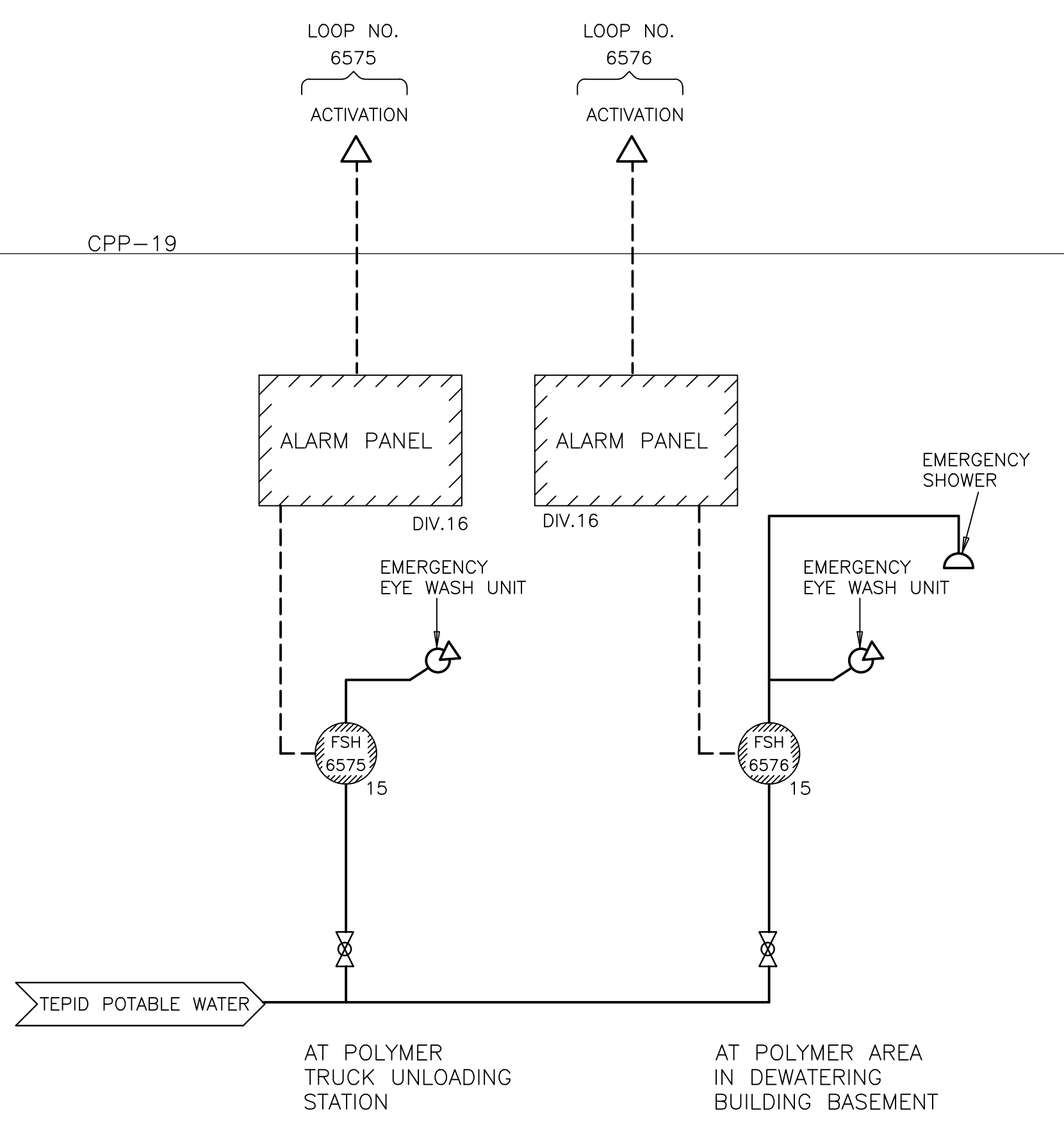
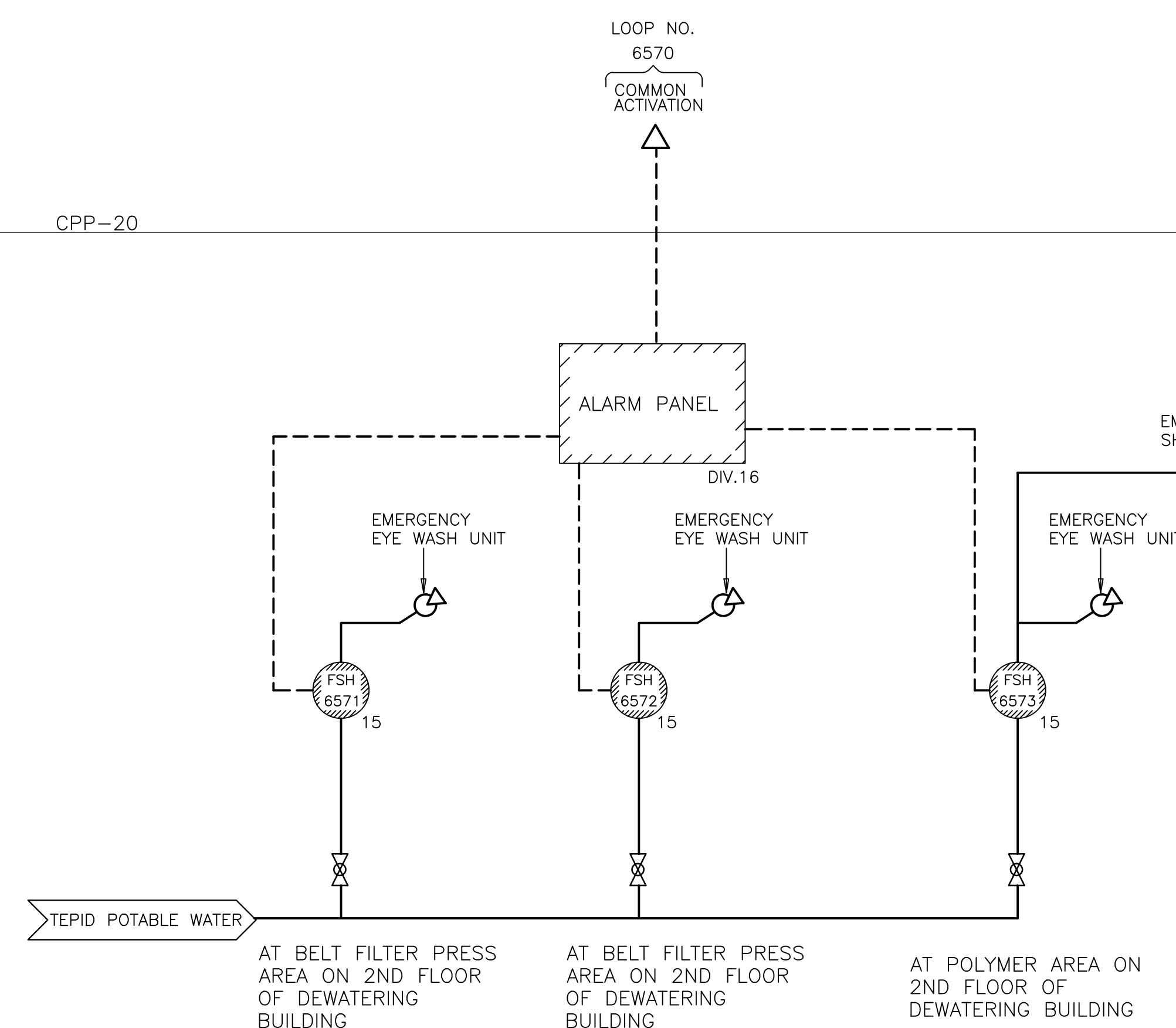
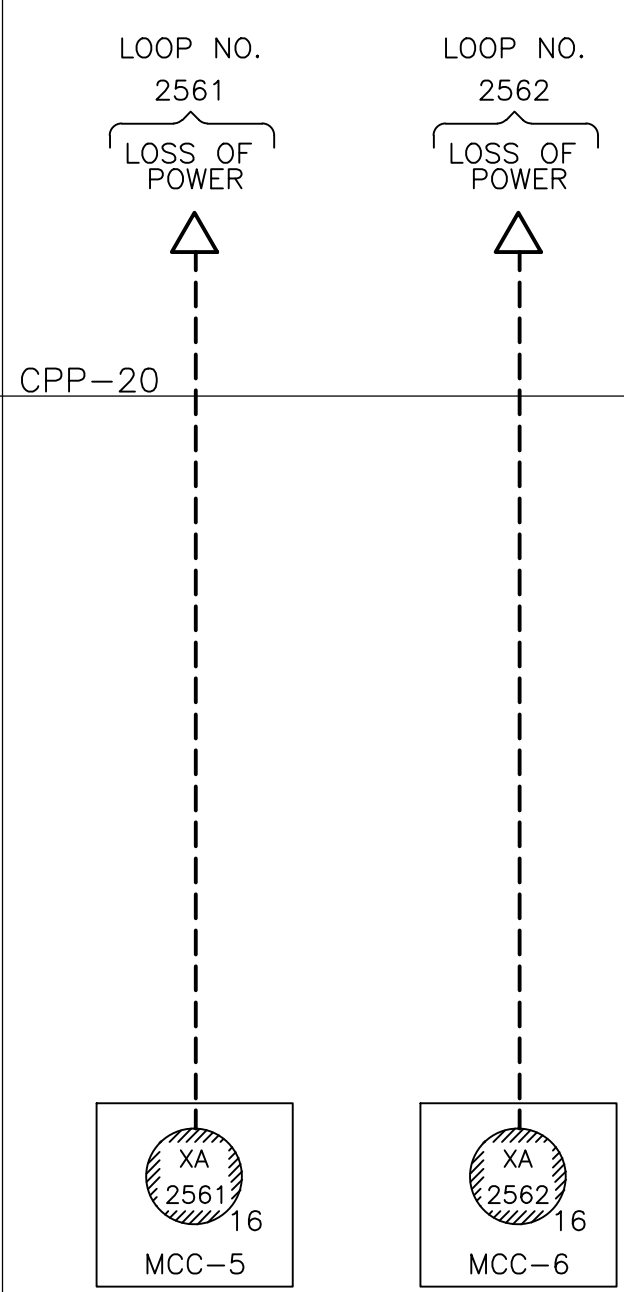
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CPP-50

FIRE ALARM PANELS COMMON ALARM & TROUBLE	
PANEL LOCATION	LOOP NO.
BLDG#1 ADMIN. BUILDING.	7601A&B
BLDG#2 DISINFECTION FACILITY	7602A&B
BLDG#3 PRIMARY SETTLING TANKS	7603A&B
BLDG#4 EAST HEADWORKS	7604A&B
BLDG#5 WEST HEADWORKS	7605A&B
BLDG#6 MAINTENANCE BUILDING	7606A&B
BLDG#7 MAINTENANCE SUPPORT FACILITY	7607A&B
BLDG#8 THICKENER & SLUDGE DEWATERING BUILDINGS	7608A&B



TYPICAL FOR EACH COMMON ALARM AND TROUBLE FOR EACH BUILDING'S FIRE ALARM PANEL. ALL ALARMS COME FROM THE FIRE ALARM RELAY PANEL LOCATED IN THE ADMINISTRATION BUILDING TELEPHONE ROOM. FIRST SET OF ALARMS IN TABLE SHOWN.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0019.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E.SILVERMAN
 CROSS CHK'D BY: D.GREEN
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010

DOC RECORD DRAWING
 7/31/2012

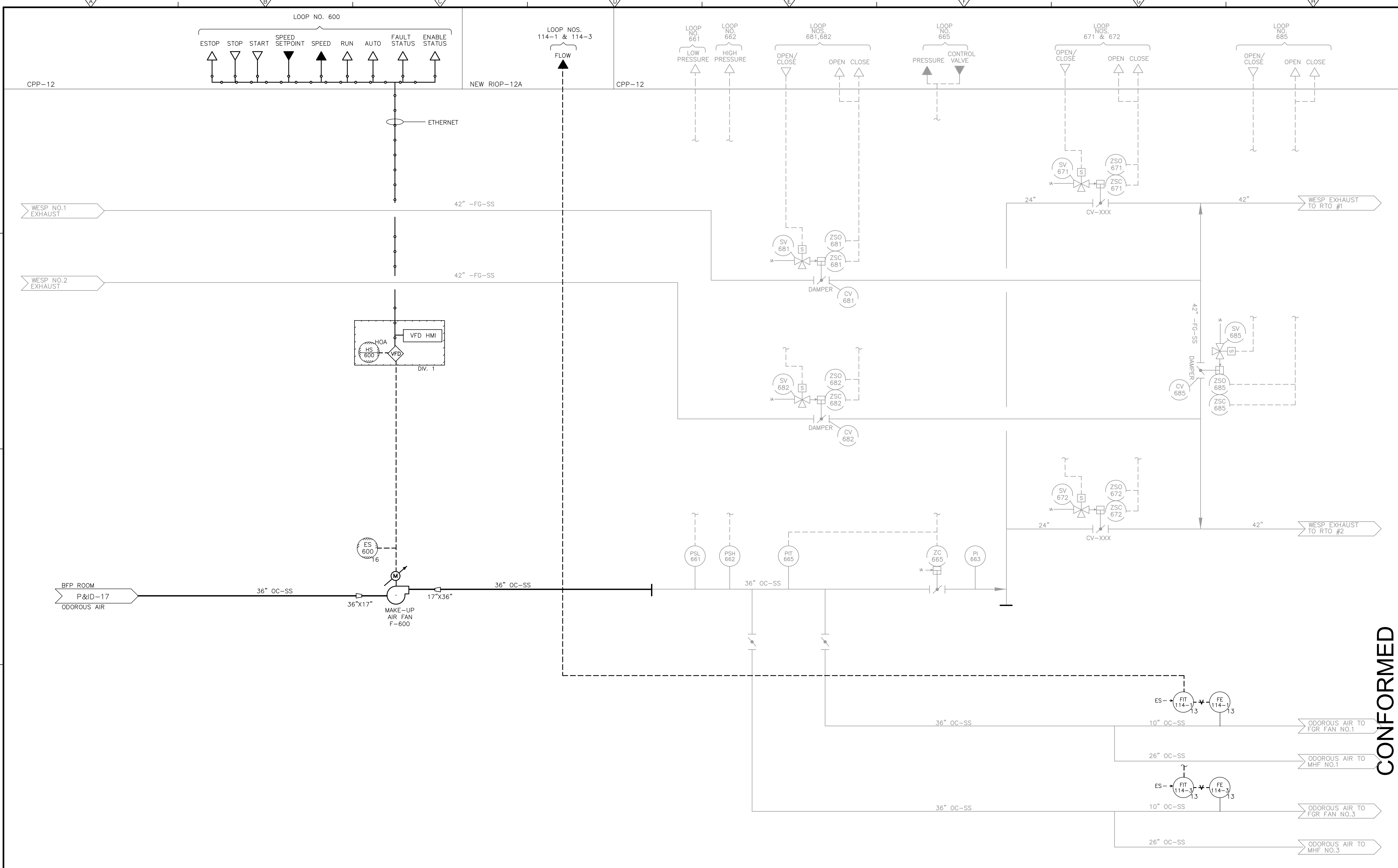
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**MISCELLANEOUS II &
 ODOR CONTROL
 BYPASS/EXHAUST FAN**

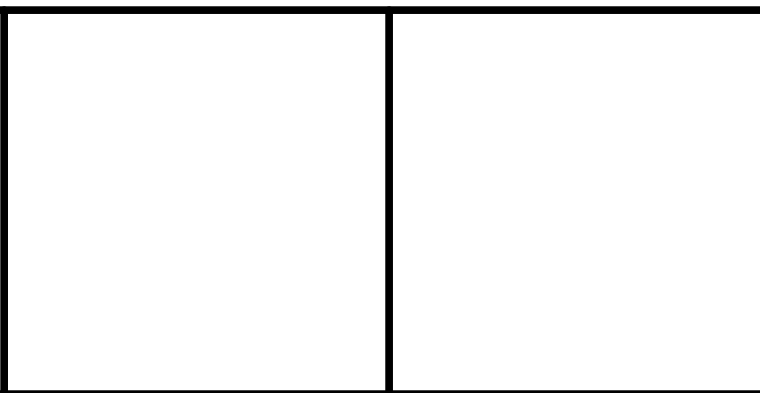
PROJECT NO.
 1289-74283
 Sht. 245 of 312
P&ID-19
 Acc. # 1289-74651

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDMXM\POPTANIM\0119575\IPID0020.DWG Saved by: MALACHOWSKI On: 30-Jun-10 Plotted on: 29-Nov-10 8:54 AM



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. IPID0020.DWG
 DESIGNED BY: P. MALACHOWSKI
 DRAWN BY: M. POPTANI
 SHEET CHK'D BY: E. SILVERMAN
 CROSS CHK'D BY: D. GREEN
 SCALE: AS NOTED
 APPROVED BY: P. MALACHOWSKI
 DATE: SEPTEMBER 2010



UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE FACILITY ODOR CONTROL
 VENTING SYSTEM/WESP DISCHARGE
 VENTING SYSTEM**

PROJECT NO.
 1289-74283
 Sht. 246 of 312
P&ID-20
 Acc # 1289-74652

CONFORMED

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH
	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.
		COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE, NON-REVERSING UNLESS OTHERWISE NOTED: *FVR - FULL VOLTAGE REVERSING RVNR - REDUCED VOLTAGE NON-REVERSING 2S1W - TWO SPEED, ONE WINDING 2S2W - TWO SPEED, TWO WINDING RVAT - REDUCED VOLTAGE AUTOTRANSFORMER RVSS - REDUCED VOLTAGE, SOLID STATE
		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A
	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A * FUSE RATING
	P 2	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE
	—	DRAWOUT TYPE EQUIPMENT OR DEVICE
	—	MEDIUM VOLTAGE CABLE TERMINATION
	—	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
	—	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH * FUSE RATING
	—	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED, UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS. ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
	A TO 5	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
	V TO 120	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
	—	AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
	* * *	VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER SCR = SILICON CONTROLLED RECTIFIER VFD = VARIABLE FREQUENCY DRIVE
	E	UNIT HEATER - ELECTRIC HEATING COIL AND FAN # - RATING
	U	UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
	M	MOTOR, NUMERAL INDICATES HORSEPOWER
	—	VOLTMETER WITH SWITCH, 3 PHASE
	—	AMMETER WITH SWITCH, 3 PHASE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION																
	—	METER * WM - WATTMETER WHM - WATTHOUR METER WHDM - WATTHOUR DEMAND METER WHDR - WATTHOUR DEMAND RECORDER PF - POWER FACTOR METER ETM - ELAPSED TIME METER TRANSUCER AX - CURRENT TRANSDUCER WX - WATT TRANSDUCER WHX - WATTHOUR TRANSDUCER																
	R	RELAY, NO. AS INDICATED 25 - SYNCHRONISM CHECK RELAY 27 - UNDERVOLTAGE RELAY 32 - DIRECTIONAL POWER RELAY 38 - BEARING PROTECTIVE DEVICE 40 - LOSS OF EXCITATION RELAY 42 - RUNNING CONTACTOR/PILOT RELAY 46 - REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 - PHASE SEQUENCE VOLTAGE RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50/51 - INSTANTANEOUS/TIME OVERCURRENT RELAY 50G - INSTANTANEOUS GROUND 51 - TIME OVERCURRENT RELAY 51G - TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N - TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V - TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X - AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 - OVERVOLTAGE RELAY 60 - NEGATIVE SEQUENCE VOLTAGE RELAY 62 - TIME DELAY RELAY 63 - OVERPRESSURE RELAY 64 - GENERATOR FIELD GROUND RELAY 67 - AC DIRECTIONAL OVERCURRENT RELAY 74 - ALARM LATCHING RELAY 83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 - LOCKING-OUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY B - SUFFIX INDICATES "BUS" "T" SUFFIX INDICATES "GENERATOR" GF - GROUND FAULT ST - SHUNT TRIP T SUFFIX INDICATES "TRANSFORMER" X - SUFFIX INDICATES "AUXILIARY"																
	—	SPECIAL CAPACITOR * SC - SURGE CAPACITOR PF - POWER FACTOR CORRECTION CAPACITOR																
	—	TUNED POWER FACTOR CORRECTION CAPACITOR																
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED																
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN																
	ES	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)																
	PBL	STOP START PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP																
	PBM	STOP START PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP																
	S/S	OFF/ON SELECTOR SWITCH																
	LR	LOCAL/REMOTE SELECTOR SWITCH																
		3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED <table border="1" style="font-size: small;"> <thead> <tr> <th>POSITION</th> <th>TOP CONTACT</th> <th>MIDDLE CONTACT</th> <th>BOTTOM CONTACT</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>X</td> <td>O</td> <td>O</td> </tr> <tr> <td>B</td> <td>O</td> <td>O</td> <td>O</td> </tr> <tr> <td>C</td> <td>O</td> <td>O</td> <td>X</td> </tr> </tbody> </table> * NAMEPLATE (A/B/C) RSL - RAISE/STOP/LOWER HOA - HAND/OFF/AUTO TOA - TEST/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE (NOTE) 3/4" C WITH NUMBER OF CONDUCTORS SHOWN ON ONE-LINE DIAGRAMS.	POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT	A	X	O	O	B	O	O	O	C	O	O	X
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT															
A	X	O	O															
B	O	O	O															
C	O	O	X															
	GDFV-*	GAS DETECTOR / VENTILATION FAILURE ALARM * INDICATES PANEL DESIGNATION																
	VF-*	VENTILATION FAILURE ALARM * INDICATES PANEL DESIGNATION																

GENERAL NOTE
THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT APPEAR
ON THE DRAWINGS.

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY
	—	CONTROL RELAY COIL, NUMBER AS INDICATED
	—	PILOT LIGHT, COLOR AS NOTED * R - RED G - GREEN B - BLUE W - WHITE A - AMBER
	—	TIME DELAY RELAY RANGE AS NOTED SETPOINT AS NOTED #NUMBER AS INDICATED TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY
	—	NCTO-NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED
	—	NCTC-NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
	* - ##	FIELD INSTRUMENT, TAG NO. AS INDICATED * - INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID ## - INDICATES LOOP NO.
	LS OR ■	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSING ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
	PS OR ■	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSING ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE
	TS OR T OR ■	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSING ON RISING TEMPERATURE NORMALLY OPEN, CLOSING ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE
	FS OR ■	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSING ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
	ZS OR ■	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN
	TO OR ■	TORQUE SWITCH NORMALLY OPEN, CLOSING ON HIGH TORQUE NORMALLY CLOSED, OPENS ON HIGH TORQUE
	#	UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS LOCATION SEE LOCATION LEGEND ON DRAWING

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	—	CONDUCTORS ELECTRICALLY CONNECTED
	—	INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE
	LA	LIGHTNING ARRESTER
	⊙	GROUND OR GROUND ROD
	30A	FUSE, AMPERE RATING AS NOTED
	HTR	STRIP HEATER OR HEATING ELEMENT
	—	INDUCTOR
	⊙	TACHOMETER GENERATOR
	—	CONTACT, NORMALLY OPEN (NO)
	—	CONTACT, NORMALLY CLOSED (NC)
	—	OVERLOAD RELAY HEATER
	K	KEY INTERLOCK
	TB	TERMINAL OR TEST BLOCK
	RTD	RESISTANCE TEMPERATURE DETECTOR
	VE OR VE	VIBRATION DETECTOR
	DM	DAMPER MOTOR
	ETM	ELAPSED TIME METER
	MO	MOTOR OPERATED VALVE, GATE OR ACTUATOR

ABBREVIATIONS (CONTINUED)	
SA	SURGE ARRESTER
SC	SURGE CAPACITOR
SEC	SECONDS OR SECONDARY
SH	SHIELDED
SHH	SIGNAL HANDHOLE
SHT	SHEET
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
<TBR>	TO BE REMOVED
TC	TIME TO CLOSE OR TRAY CABLE
TEL	TELEPHONE
THH	TELEPHONE HANDHOLE
TM	TELEPHONE BACKBOARD
TO	TIME TO OPEN
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TS	TWISTED SHIELDED
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPS
VAR	VOLT AMPS REACTIVE
VF	VENTILATION FAILURE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WATTS, WITH, WIDTH
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

ABBREVIATIONS	
A	AMPS
AC	ALTERNATING CURRENT
AFB	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE OR ENCLOSED
EQUIP	EQUIPMENT
ETRY	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED PLASTIC
FUSE	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
GB	GROUND BAR
G , GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HH	HANDHOLE
HT	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HZ	HERTZ
INST	INSTANTANEOUS
INSTR	INSTRUMENT OR INSTRUMENTATION
K	KILO (PREFIX)
KCMIL	1000 CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTNING ARRESTER
LGTS	LIGHTS
LTG	LIGHTING
LP	LIGHTING PANEL
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MCM	1000 CIRCULAR MILS
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MMU	MICROPROCESSOR METERING UNIT
MTG	MOUNTING
MTD	MOUNTED
MTR	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
PB	PULL BOX
OL	OVERLOAD
PCP	PUMP CONTROL PANEL
PH	PHASE
PHM	POWER MANHOLE
PMS	POWER MONITORING SYSTEM
PNL	PANEL OR PANELBOARD
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RECP	RECEPTACLE
REQD	REQUIRED

Record Drawing

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. _____ ESYMB001
DESIGNED BY: T.J. ADAMCZYK
DRAWN BY: T.J. ADAMCZYK
SHEET CHK'D BY: T. DISILVA
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: J. ROMEO
DATE: SEPTEMBER 2010

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Camp Dresser & McKee Inc.
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Cambridge, MA 02139
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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

PROJECT NO.
1289-74283

Sht. 247 of 312

GD-E-1

Acc # 1289-74653

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTWISE\ESYMB002.DWG Saved by: DONALDSONJU On: 28-Jun-10 Plotted on: 2-Dec-10 4:31 PM

Table with 2 columns: SYMBOL and DESCRIPTION. Contains symbols for various lighting fixtures (incandescent, fluorescent, wall mounted, emergency), switches, and conduits.

Table with 2 columns: SYMBOL and DESCRIPTION. Contains symbols for switches (single pole, double pole, three way, four way), dimmers, time switches, and receptacles (duplex, simplex, special purpose).

Table with 2 columns: SYMBOL and DESCRIPTION. Contains symbols for occupancy sensors, photocells, emergency shower alarm stations, gas detectors, fiber optic interface panels, and communications systems (telephone, paging, speaker).

Table with 2 columns: SYMBOL and DESCRIPTION. Contains symbols for security systems (alarm control panel, door switch, key pad, access reader) and fire alarm systems (heat detector, smoke detector, control panel, annunciator).

NOTES: 1. THE PLANS DO NOT SHOW RACEWAYS AND CONDUCTORS BETWEEN RECEPTACLES, LIGHTING FIXTURES AND SWITCHES... 2. CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE: a. 3/4" (MIN.) CONDUIT RUN 1. EXPOSED IN UNFINISHED AREAS. 2. CONCEALED ABOVE HUNG CEILINGS AND IN WALLS AND SLABS IN FINISHED AREAS. b. NO. 12 COPPER (MIN.) TYPE "THWN/THHN" NO. OF WIRES AS REQUIRED. 3. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT... 4. SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED... 5. SWITCHGEAR AND MCC COMPARTMENT DESIGNATIONS AS INDICATED BELOW: BLANK: NOT INTENDED FOR USE. PLATE ONLY SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE SHOWN SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

Record Drawing title block containing project information: PROJECT NO. 1289-74283, Sht. 248 of 312, GD-E-2, and Acc # 1289-74654.

Table with 4 columns: REV. NO., DATE, DRWN, CHKD, REMARKS. Contains revision history for the drawing.

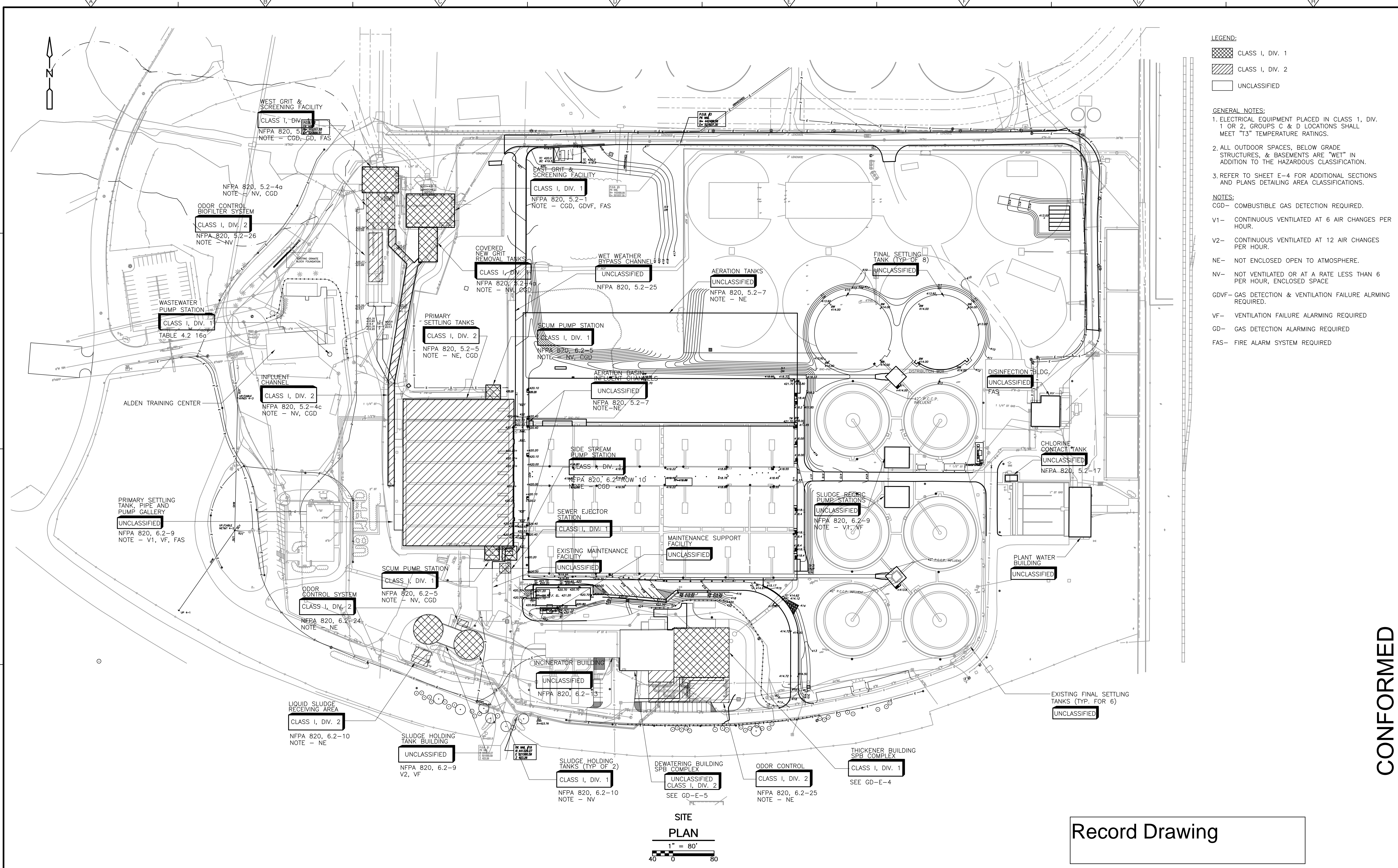
Table with 2 columns: Field Name and Value. Contains project metadata: CADD FILE NO., DESIGNED BY, DRAWN BY, SHEET CHK'D BY, CROSS CHK'D BY, SCALE, APPROVED BY, DATE.

CDM logo and contact information: Camp Dresser & McKee Inc., One Cambridge Place, 50 Hampshire Street, Cambridge, MA 02139, Tel: (617) 452-6000.

Project title block: UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT, CONTRACT No. 3-0-17512-0033, PROJECT NO. CWSRF - 3197, WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III.

Section title block: ELECTRICAL SYMBOLS AND ABBREVIATIONS II, CONFIRMED stamp, and Acc # 1289-74654.

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PROJECTS\EPLAN03.DWG Saved by: DONALDSONJU On: 2-Dec-10 4:27 PM



- LEGEND:**
- CLASS I, DIV. 1
 - CLASS I, DIV. 2
 - UNCLASSIFIED

- GENERAL NOTES:**
1. ELECTRICAL EQUIPMENT PLACED IN CLASS 1, DIV. 1 OR 2, GROUPS C & D LOCATIONS SHALL MEET "T3" TEMPERATURE RATINGS.
 2. ALL OUTDOOR SPACES, BELOW GRADE STRUCTURES, & BASEMENTS ARE "WET" IN ADDITION TO THE HAZARDOUS CLASSIFICATION.
 3. REFER TO SHEET E-4 FOR ADDITIONAL SECTIONS AND PLANS DETAILING AREA CLASSIFICATIONS.
- NOTES:**
- CGD- COMBUSTIBLE GAS DETECTION REQUIRED.
 - V1- CONTINUOUS VENTILATED AT 6 AIR CHANGES PER HOUR.
 - V2- CONTINUOUS VENTILATED AT 12 AIR CHANGES PER HOUR.
 - NE- NOT ENCLOSED OPEN TO ATMOSPHERE.
 - NV- NOT VENTILATED OR AT A RATE LESS THAN 6 PER HOUR, ENCLOSED SPACE
 - GDVF- GAS DETECTION & VENTILATION FAILURE ALARMING REQUIRED.
 - VF- VENTILATION FAILURE ALARMING REQUIRED
 - GD- GAS DETECTION ALARMING REQUIRED
 - FAS- FIRE ALARM SYSTEM REQUIRED

SITE PLAN
1" = 80'
0 40 80

Record Drawing

CONFORMED

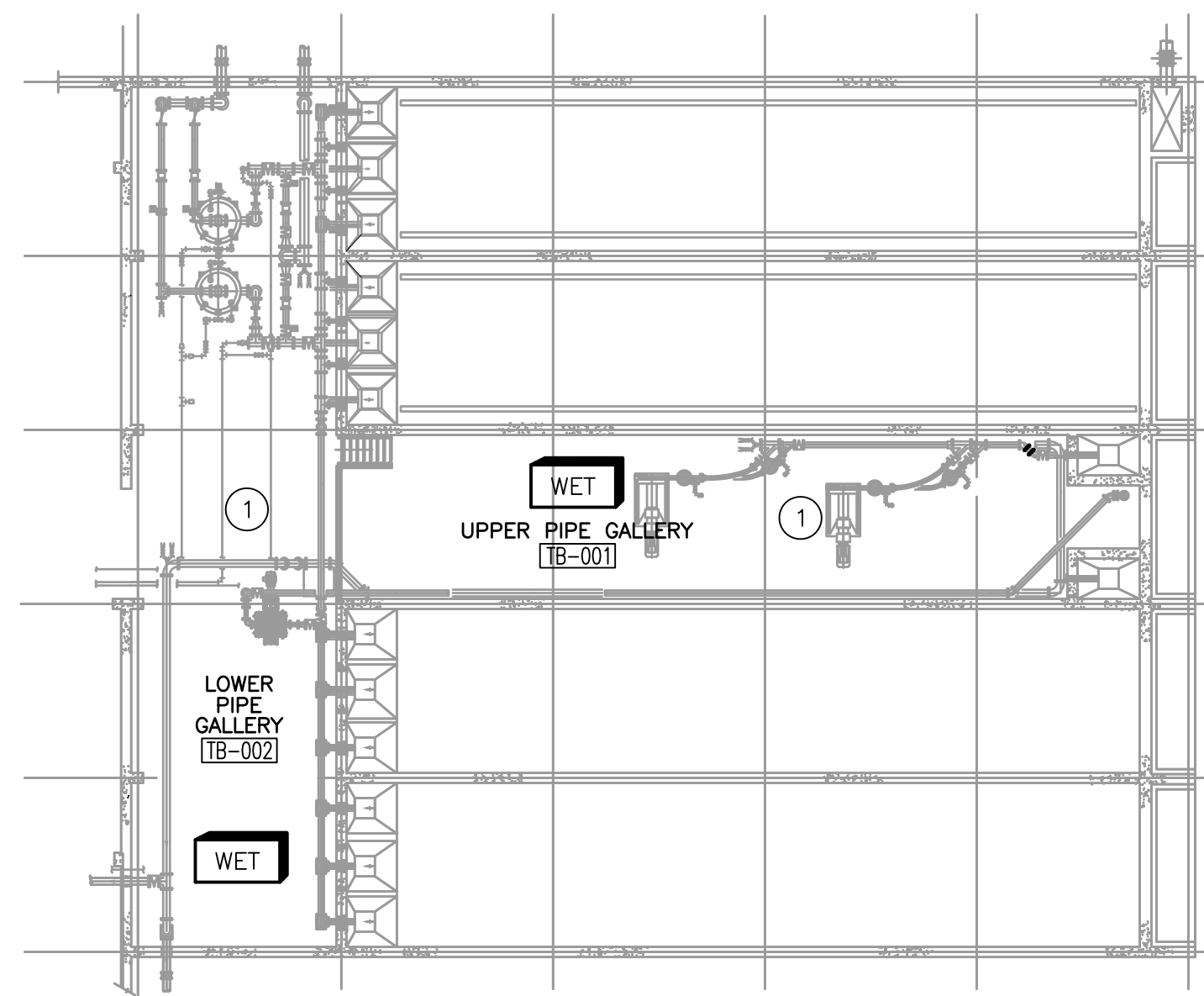
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EPLAN003 DESIGNED BY: T.J. ADAMCZYK DRAWN BY: T.J. ADAMCZYK SHEET CHK'D BY: T. DISILVA CROSS CHK'D BY: M. KOSTUR SCALE: AS NOTED APPROVED BY: J. ROMEO DATE: SEPTEMBER 2010	<p>CDM Camp Dresser & McKee Inc. One Cambridge Place, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 452-8000 consulting • engineering • construction • operations</p>
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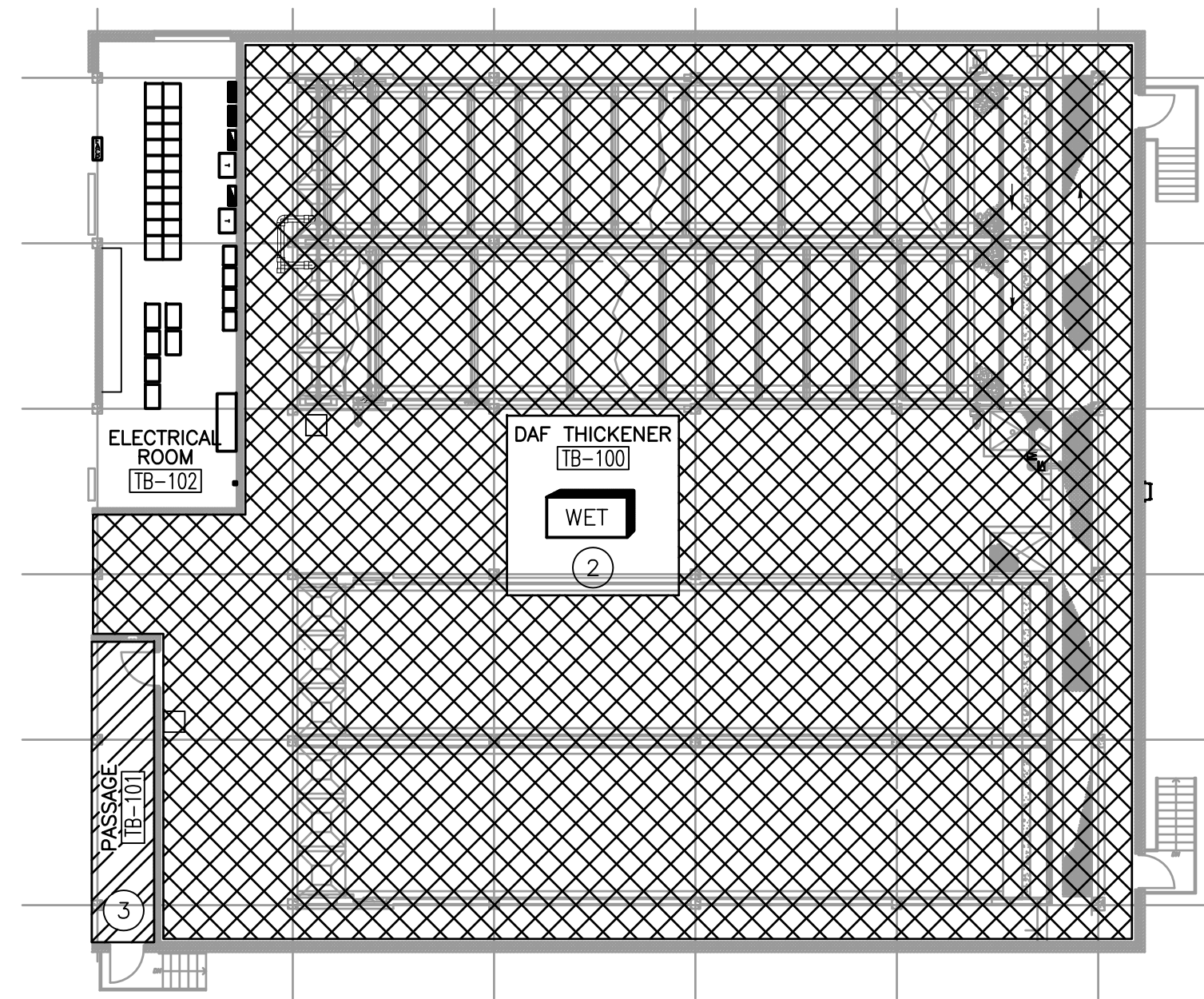
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

ELECTRICAL AREA
CLASSIFICATION PLAN
 PROJECT NO. 1289-74283
 Sht. 249 of 312
GD-E-3
 Acc # 1289-74655

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\WISE\EPLAN004.DWG Saved by: DONALDSONJJ On: 2-Dec-10 4:27 PM



DAF THICKENER BLDG BASEMENT
PLAN
1/16" = 1'-0"

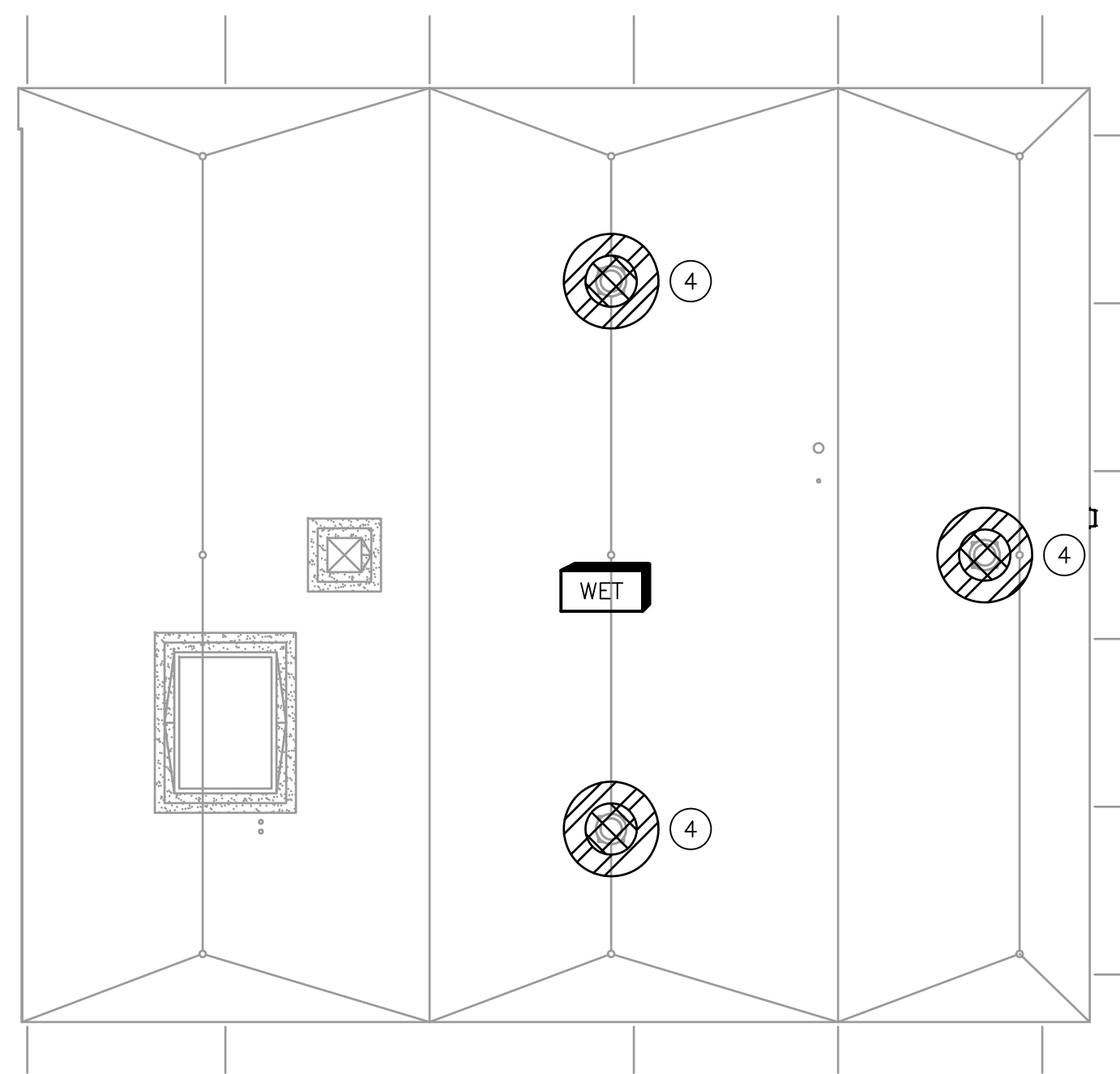


DAF THICKENER BLDG 1st FLOOR
PLAN
1/16" = 1'-0"

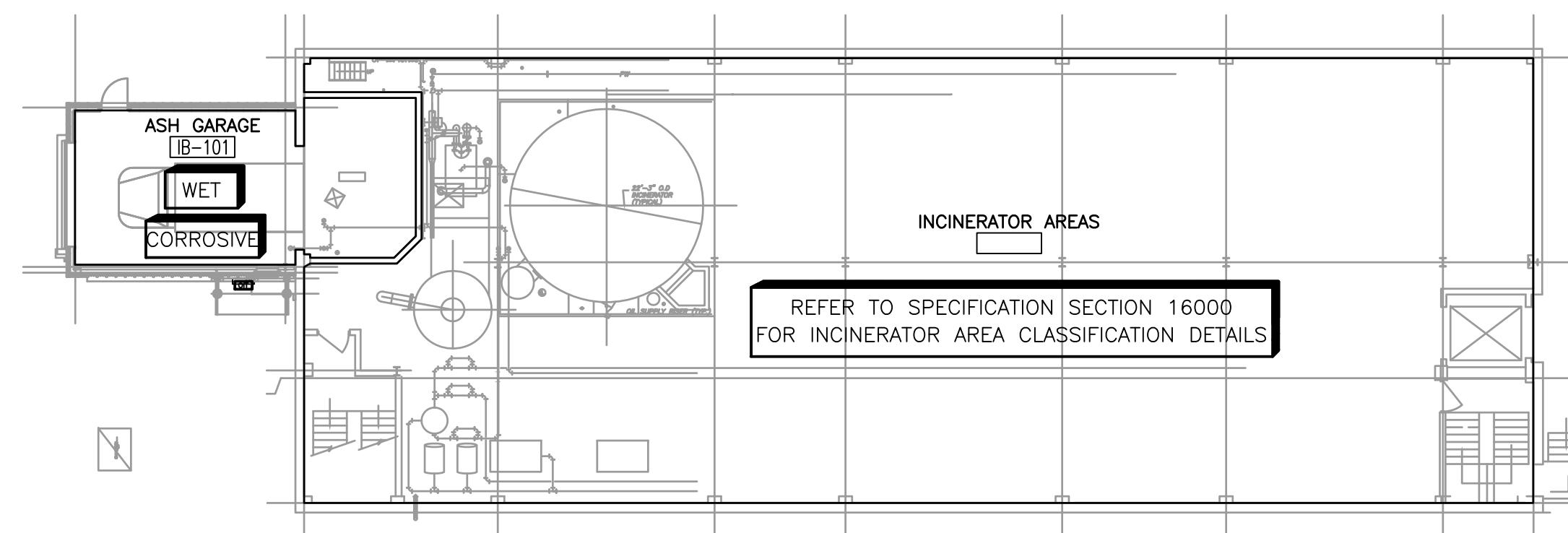
LEGEND:		ABBREVIATIONS:			
	CLASS I, DIV. 1	CGD	- COMBUSTIBLE GAS DETECTION REQUIRED		
	CLASS I, DIV. 2	VF	- VENTILATION FAILURE ALARMING REQUIRED		
	UNCLASSIFIED	LEL	- LOWER EXPLOSIVE LIMIT		
		NR	- NO REQUIREMENT		

TAG	AREA	CODE REFERENCE	ELEC. CLASSIFICATION	GAS DETECTION/ VENTILATION FAILURE	NOTES
①	THICKENER BUILDING BASEMENT	NFPA 820 - TABLE 6.2(A) ROW 9B	UNCLASSIFIED	VF	-
②	DAF FIRST FLOOR	NFPA 820 - TABLE 6.2(A) ROW 8A	CLASS I, DIVISION 1	CGD	-
③	DAF PASSAGE	N/A	CLASS I, DIVISION 2	N/A	-
④	DAF EXHAUST FANS	NFPA 820 - FIGURE A 4.2(F)	CLASS I, DIVISION 1 & 2	N/A	1

- NOTES:
- CLASS I, DIVISION 1 - 3 FOOT RADIUS FROM OPENING
CLASS I, DIVISION 2 - 5 FOOT RADIUS FROM OPENING
 - THREE FEET AROUND LEAKAGE SOURCES.
 - SEE GD-E-3 FOR ADDITIONAL NOTES.



DAF THICKENER BLDG ROOF
PLAN
1/16" = 1'-0"



INCINERATOR BUILDING AREAS
PLAN
1/16" = 1'-0"

Record Drawing

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

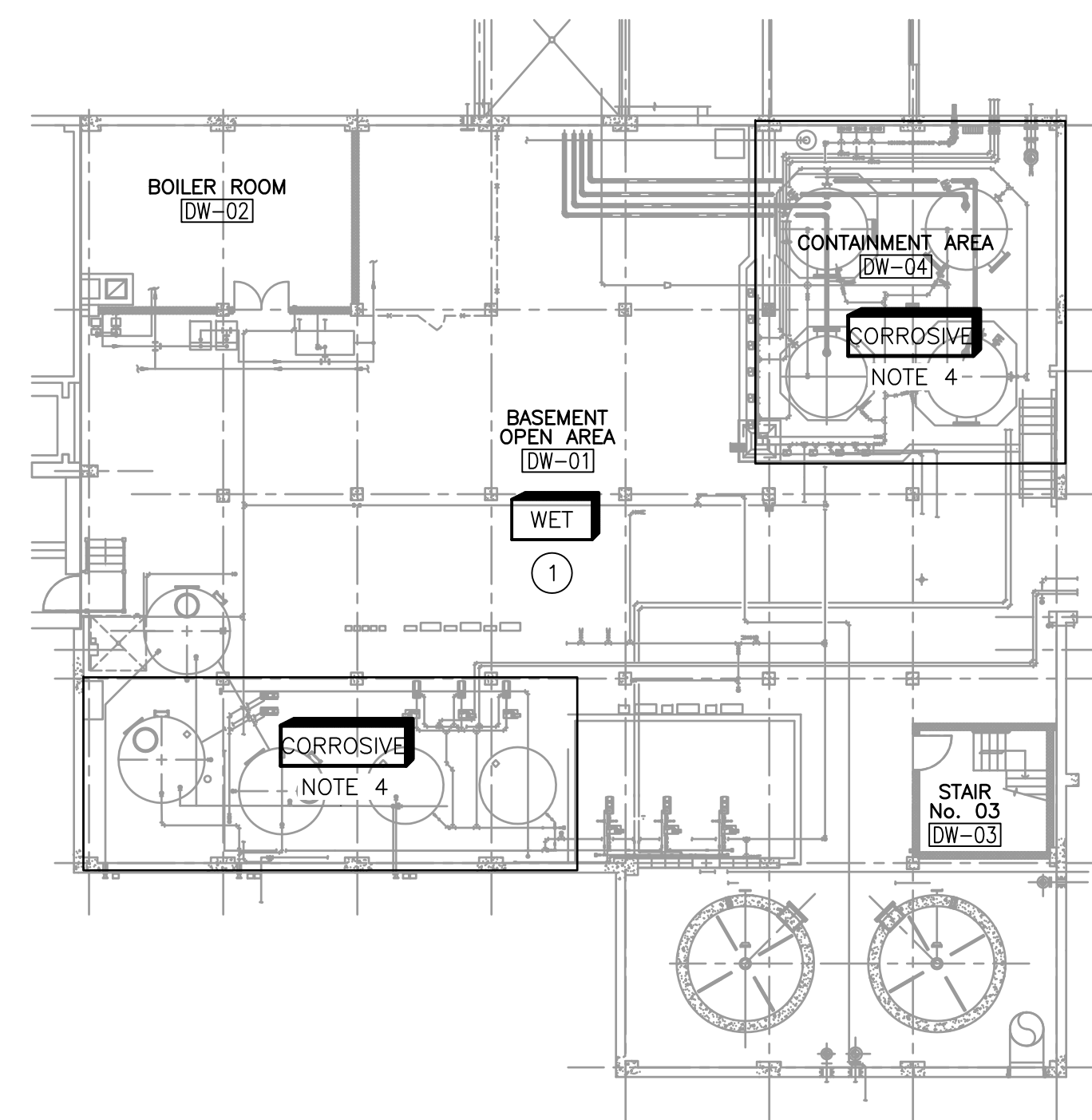
CADD FILE NO. EPLAN004
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

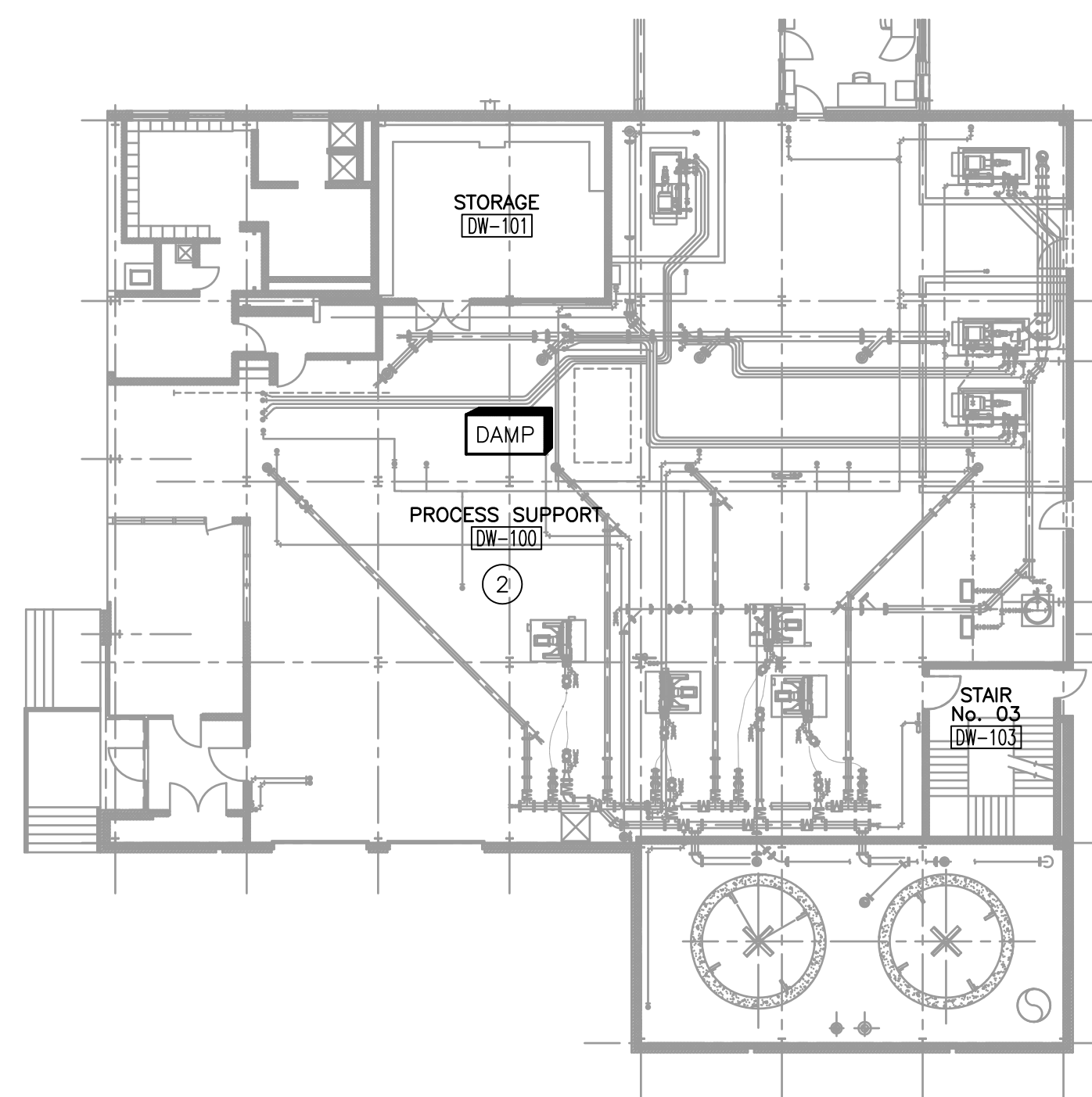
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ELECTRICAL AREA
 CLASSIFICATION PLANS AND DETAILS**

PROJECT NO.
1289-74283
 Sht. 250 of 312
GD-E-4
 Acc # 1289-74656



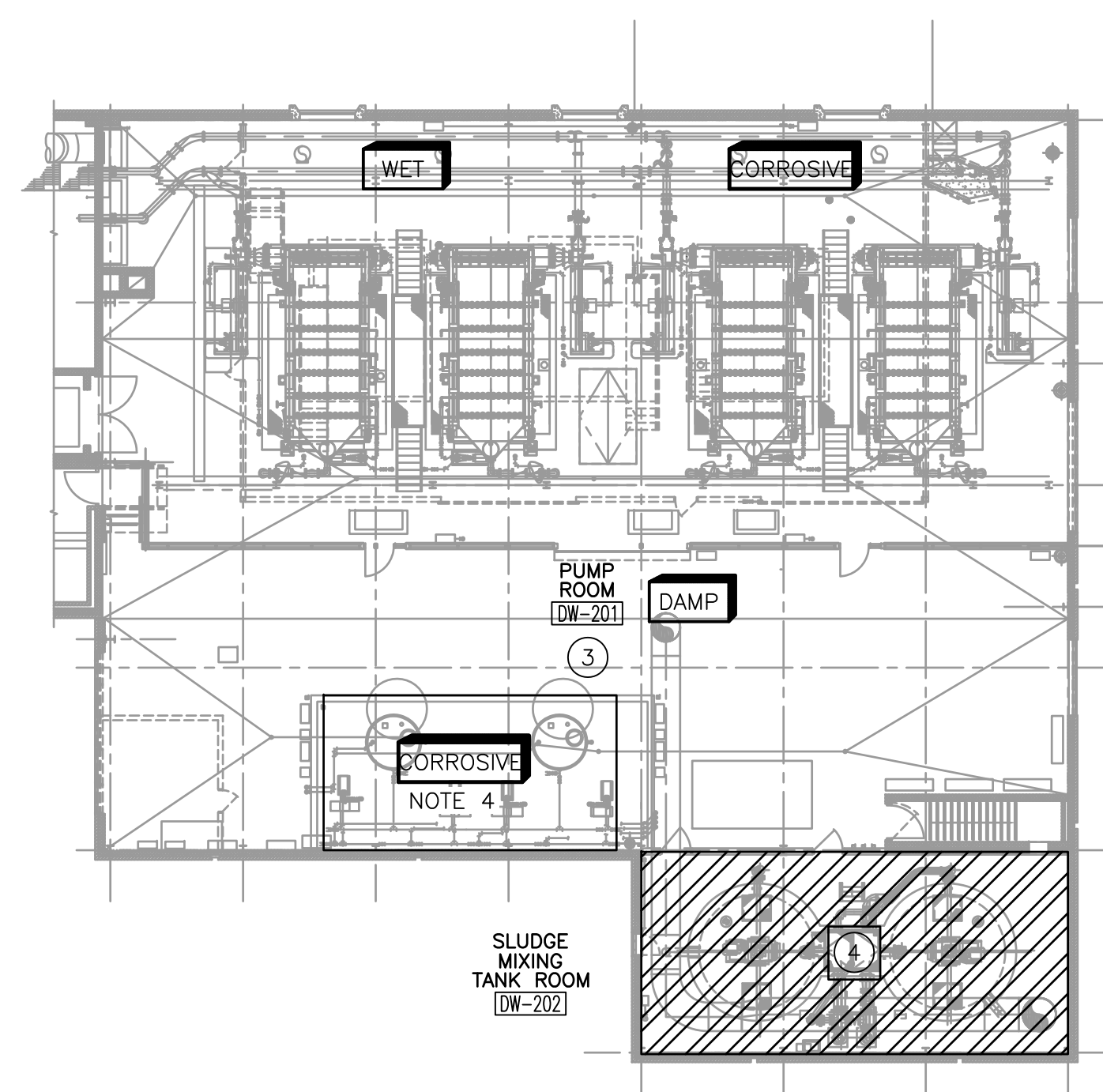
DEWATERING BLDG BASEMENT
PLAN
1/16" = 1'-0"



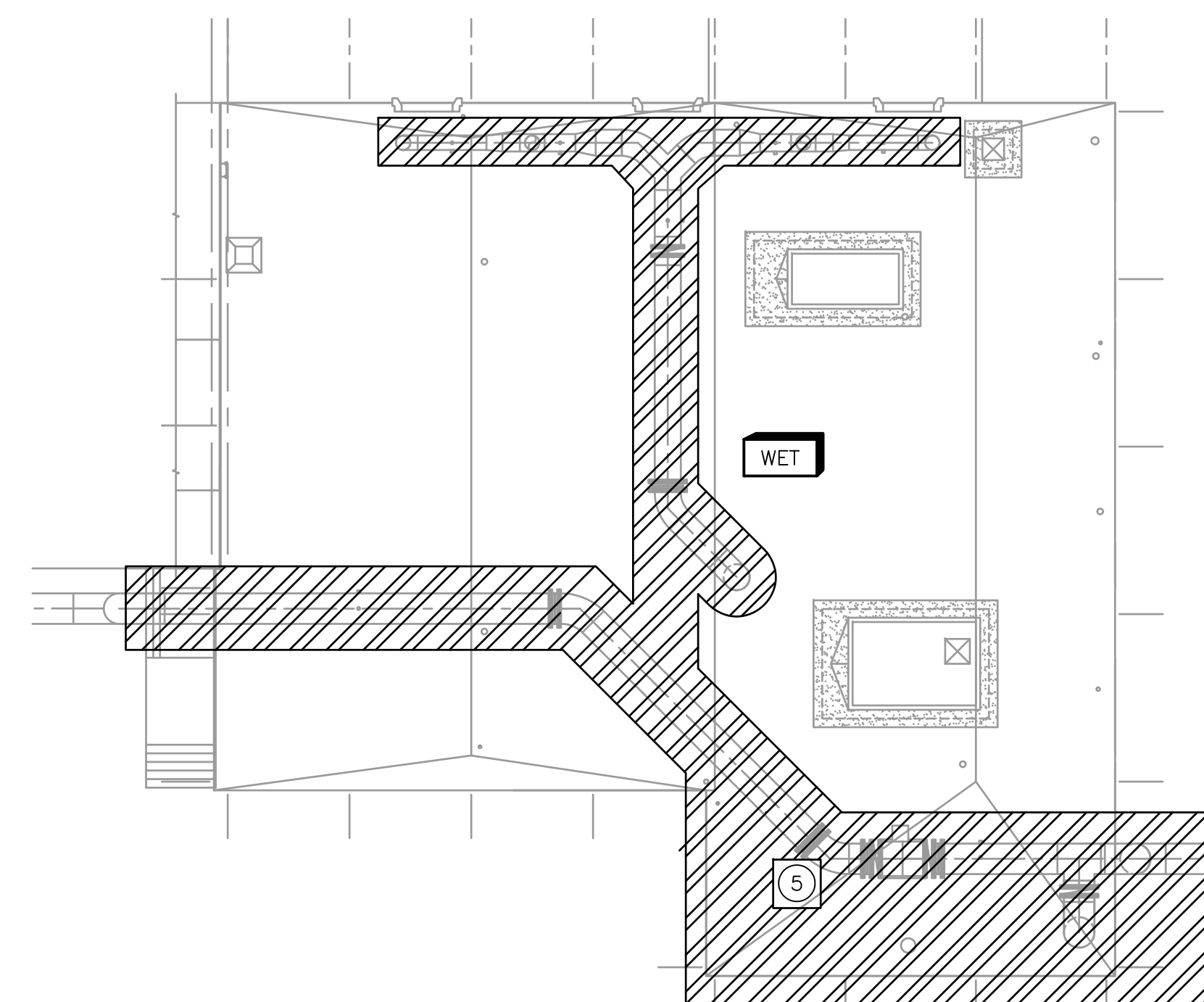
DEWATERING BLDG 1st FLOOR
PLAN
1/16" = 1'-0"

TAG	AREA	CODE REFERENCE	ELEC. CLASSIFICATION	GAS DETECTION/VENTILATION FAILURE	NOTES
①	DEWATERING BUILDING BASEMENT	NFPA 820 - TABLE 6.2(A) ROW 9B	UNCLASSIFIED	VF	-
②	DEWATERING BUILDING FIRST FLOOR	NFPA 820 - TABLE 6.2(A) ROW 9B	UNCLASSIFIED	VF	-
③	DEWATERING BUILDING SECOND FLOOR	NFPA 820 - TABLE 6.2(A) ROW 12A	UNCLASSIFIED	VF/FAS	-
④	SLUDGE MIX TANK AND ROOM	NFPA 820 - TABLE 6.2(A) ROW 11B	CLASS 1, DIVISION 2 12 ACH	CGD	-
⑤	DEWATERING BUILDING ROOF - ODOR CONTROL	NFPA 820 - TABLE 6.2(A) ROW 25B	CLASS 1, DIVISION 2	-	WET NOTE 2

- LEGEND:**
 [Cross-hatched] CLASS 1, DIV. 1
 [Diagonal lines] CLASS 1, DIV. 2
 [White] UNCLASSIFIED
- ABBREVIATIONS:**
 CGD - COMBUSTIBLE GAS DETECTION REQUIRED
 VF - VENTILATION FAILURE ALARMING REQUIRED
 LEL - LOWER EXPLOSIVE LIMIT
 NR - NO REQUIREMENT
- NOTES:**
 1. CLASS 1, DIVISION 1 - 3 FOOT RADIUS FROM OPENING
 CLASS 1, DIVISION 2 - 5 FOOT RADIUS FROM OPENING
 2. THREE FEET AROUND LEAKAGE SOURCES.
 3. SEE GD-E-3 FOR ADDITIONAL NOTES.
 4. CORROSIVE AREA EXTENDS 20 FEET BEYOND CURBING.



DEWATERING BLDG 2nd FLOOR
PLAN
1/16" = 1'-0"



DEWATERING BLDG ROOF
PLAN
1/16" = 1'-0"

CONFORMED

Record Drawing

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\CDM\CAD_APPS\PWISE\ESTDM005.DWG Saved by: ADAMCZYKJ On: 2-Jul-10 Plotted on: 2-Dec-10 4:30 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ESTDM005
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DASILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

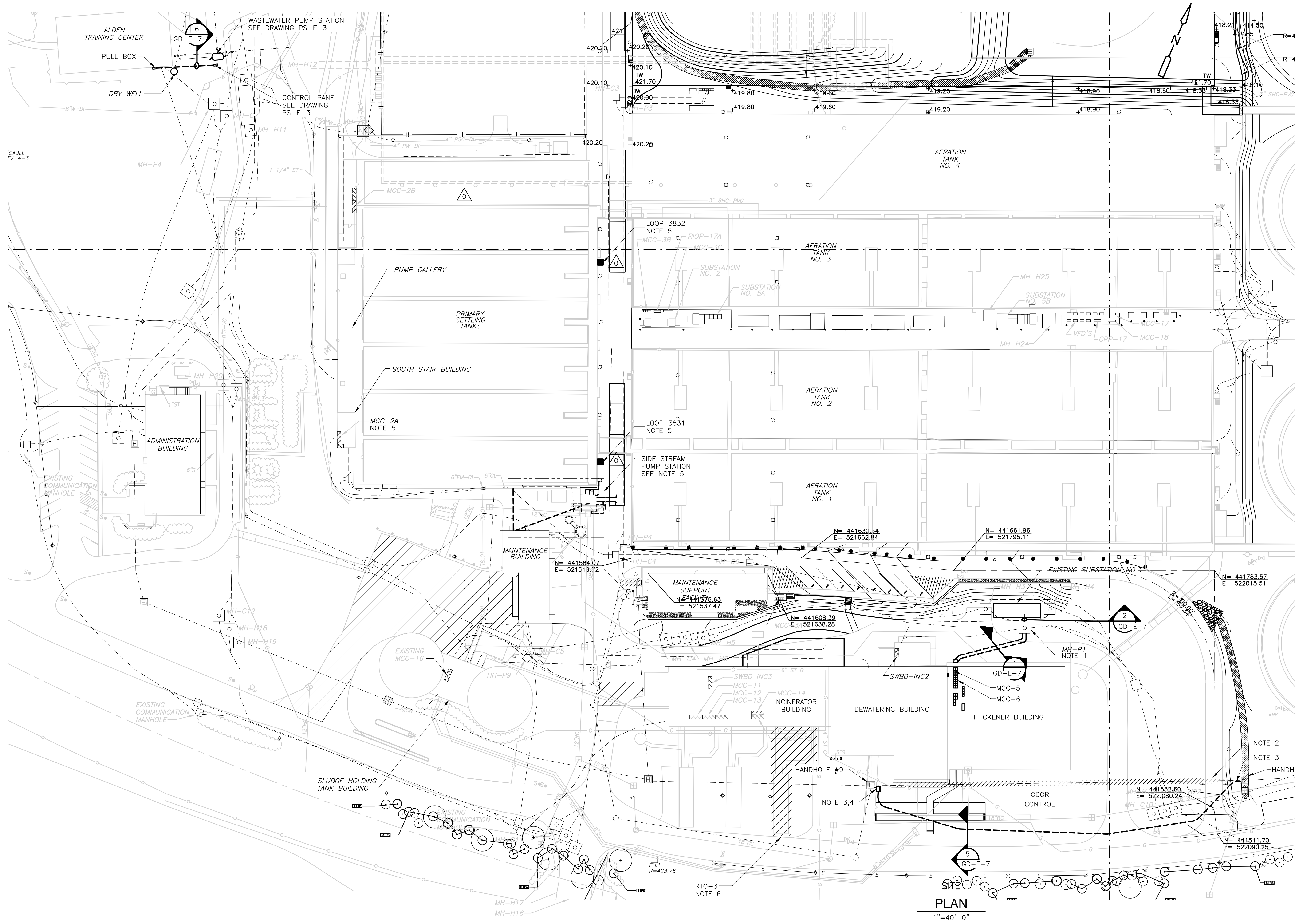
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

ELECTRICAL AREA
 CLASSIFICATION PLANS AND DETAILS

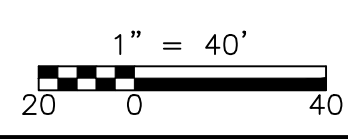
PROJECT NO.
1289-74283
 Sht. 251 of 312
 GD-E-5
 Acc # 1289-74657

Plot Stamp = ProjectWise Project: 1289-74283 Upper Blackstone P-III File: C:\USERS\DKENNEDY\DESKTOP\FILES FOR RECORD DWGS\ESTIED06.DWG Saved by: DKENNEDY On: 29-May-12 8:52 AM



- NOTES:**
1. INSTALL NEW DUCT BANK INTO EXISTING MANHOLE MH-P1. SEPARATE AND FIREPROOF MCC-5 & 6 CABLES WITHIN MANHOLE.
 2. DEMO EXISTING ELECTRICAL DUCT BANK FROM HANDHOLE TO HANDHOLE AND UNDER NEW ODOR CONTROL SYSTEM. INSTALL NEW DUCTBANK AND WIRING BEFORE DEMO OF EXISTING.
 3. INSTALL NEW DUCTS INTO EXISTING HANDHOLE. CONNECT NEW WIRING INTO EXISTING USING APPROVED WATERPROOF SPLICES.
 4. INSTALL PULLBOX ON RAMP AND NEW CONDUITS INTO EXISTING HANDHOLE.
 5. SEE DRAWING PS-E-1 FOR WIRING.
 6. DEMO ALL EXISTING CONDUIT AND WIRE ASSOCIATED WITH EXISTING RTO-3, IN ACCORDANCE TO MOPO SECTION 018104 DIV. 10000.

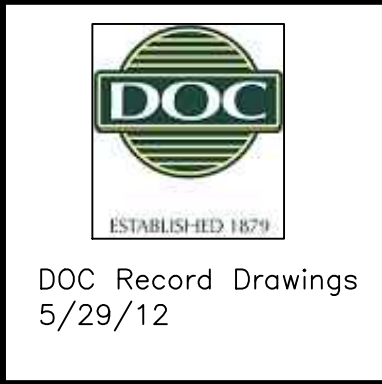
PLAN
1"=40'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	JJD	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. ESITE006
 DESIGNED BY: T.J.ADMCZYK
 DRAWN BY: T.J.ADMCZYK
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ELECTRICAL
 SITE PLAN**

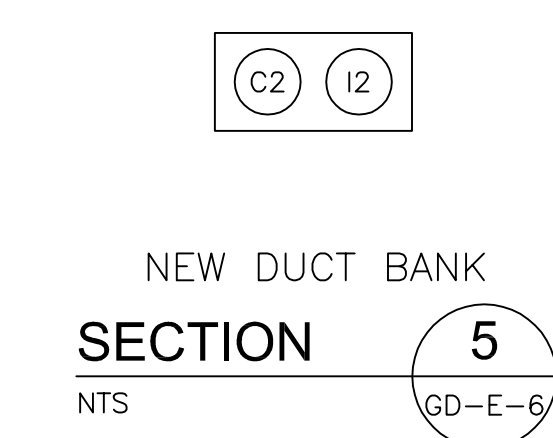
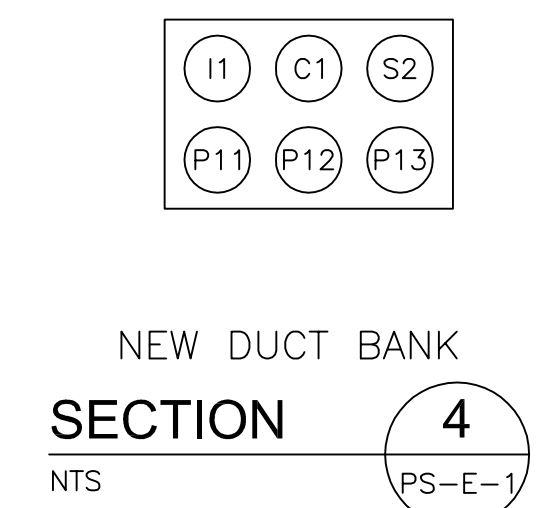
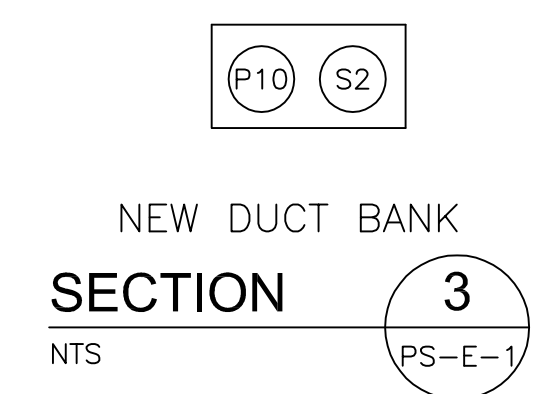
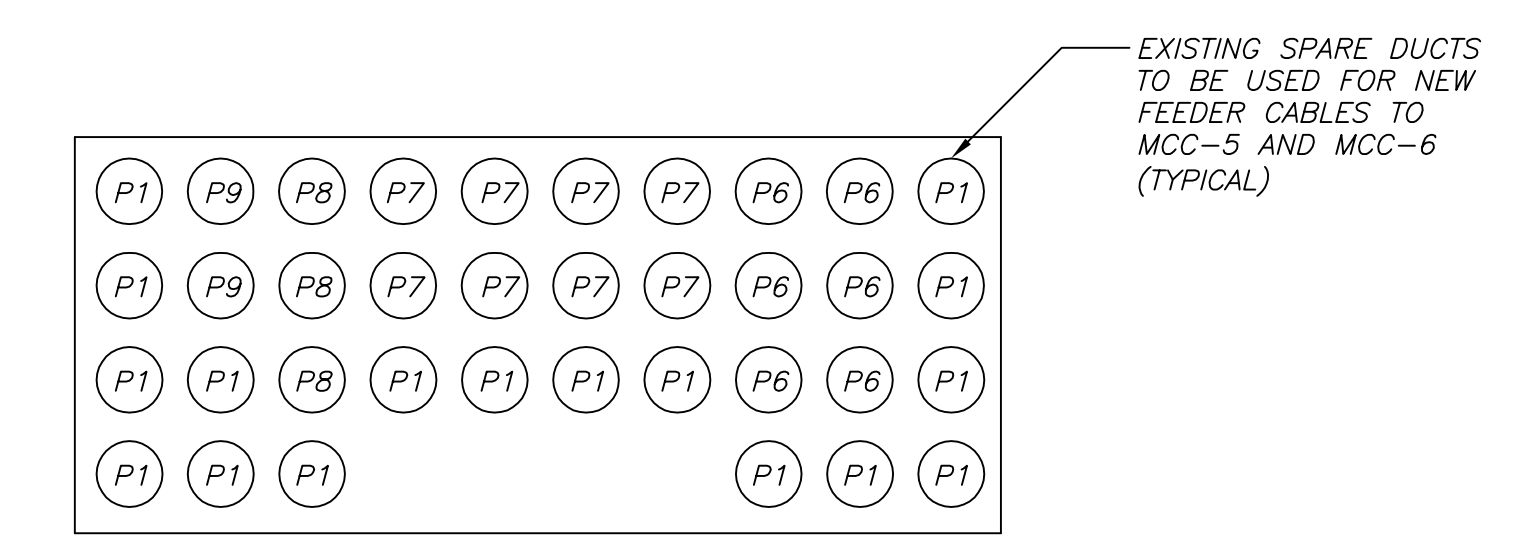
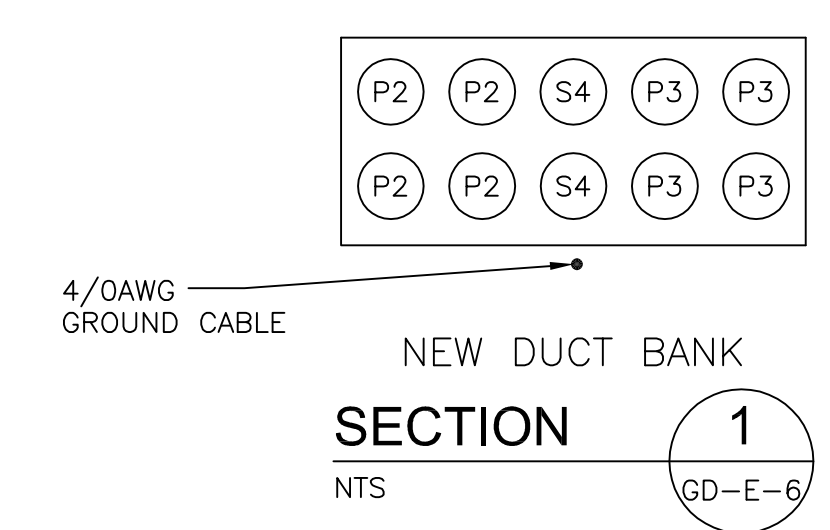
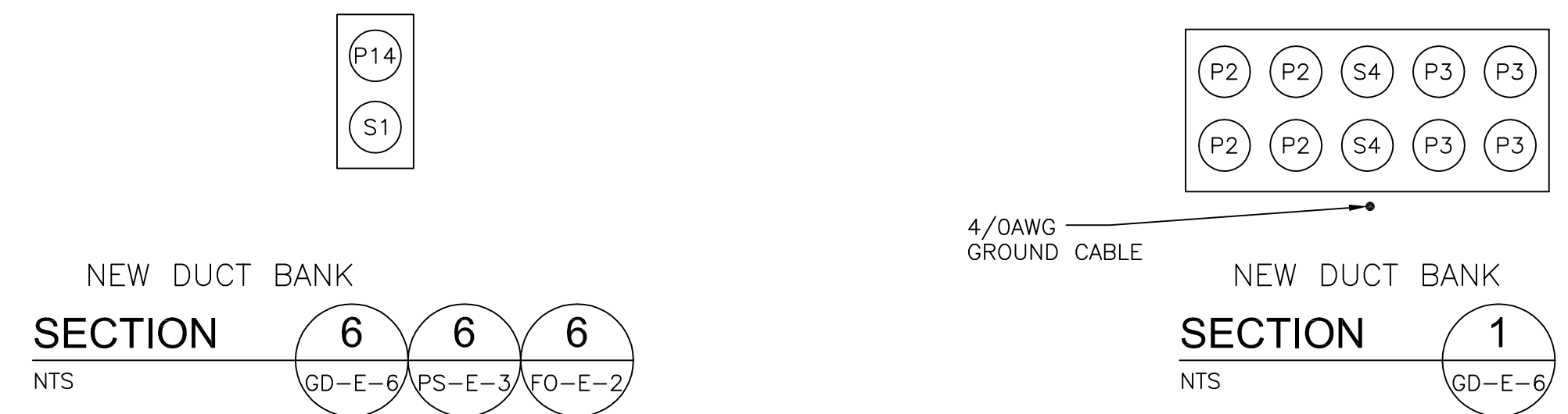
PROJECT NO.
1289-74283
 Sht. 252 of 312
GD-E-6
 Acc # 1289-74658

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ESTIE007.DWG Saved by: DONALDSONJJ On: 28-Jun-10 Plotted on: 13-Dec-12 3:16 PM

UNDERGROUND RACEWAY SCHEDULE						
CONDUIT NO.	FROM	TO	RACEWAY SIZE	CONDUCTORS		REMARKS
				QTY	WIRE SIZE	
P1	-	-	4"	-	-	EXISTING SPARE CONDUIT
P2	MH-P1 MANHOLE	THICKENER BUILDING MCC-5	4"	-	-	SEE ONE LINE DIAGRAM
P3	MH-P1 MANHOLE	THICKENER BUILDING MCC-6	4"	-	-	SEE ONE LINE DIAGRAM
P6	SUBSTATION NO.3	INCINERATOR SWBD-INC3	4"	-	-	480V FEEDER NOT IN CONTRACT
P7	SUBSTATION NO.3	INCINERATOR SWBD-INC2	5"	-	-	480V FEEDER NOT IN CONTRACT
P8	SUBSTATION NO.3	EXISTING MCC-13 RTO AREA	4"	-	-	480V FEEDER NOT IN CONTRACT
P9	SUBSTATION NO.3	MCC-16 SLUDGE HOLDING TANK BUILDING	4"	-	-	480V FEEDER NOT IN CONTRACT
P10	PRIMARY TANK (MCC-2B)	SIDESTREAM VFD CABINET	2"	-	-	SIDESTREAM PUMP STATION
P11	VFD	SIDESTREAM PP-1	2"	-	-	POWER NOTE 3
P12	VFD	SIDESTREAM PP-2	2"	-	-	POWER NOTE 3
P13	VFD	SIDESTREAM PP-3	2"	-	-	POWER NOTE 3
P14	ALDEN TRAINING CENTER RP-DEP	WASTEWATER PUMP STATION CONTROL PANEL	1"	3		POWER
I1	SIDESTREAM PS	MAINTENANCE BUILDING	2"	1		SIGNAL NOTE 3
I2	HANDHOLE #9	HANDHOLE #10	2"	3	NOTE 2	INSTRUMENT
C1	SIDESTREAM PS	MAINTENANCE BUILDING	2"			120VAC NOTE 3
C2	HANDHOLE #9	HANDHOLE #10	2"	2	NOTE 1	PAGE/PARTY
S1	SPARE	SPARE	1"			SPARE CONDUIT SEE SECTIONS
S2	SPARE	SPARE	2"			SPARE CONDUIT SEE SECTIONS
S4	SPARE	SPARE	4"			SPARE CONDUIT SEE SECTIONS

NOTES:

- INSTALL NEW PAGE/PARTY CABLES TO MATCH EXISTING CABLE AND EXISTING PAGING SYSTEM REQUIREMENTS.
- INSTALL NEW TWISTED SHIELDED CABLES TO MATCH EXISTING. COORDINATE WITH OWNER ON USAGE AND FUNCTION, IF EXISTING CABLES ARE NOT VIABLE INSTALL DUCT AND SPARE.
- SEE DRAWING PS-E-1 FOR ADDITIONAL WIRING REQUIREMENTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ESITE007
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

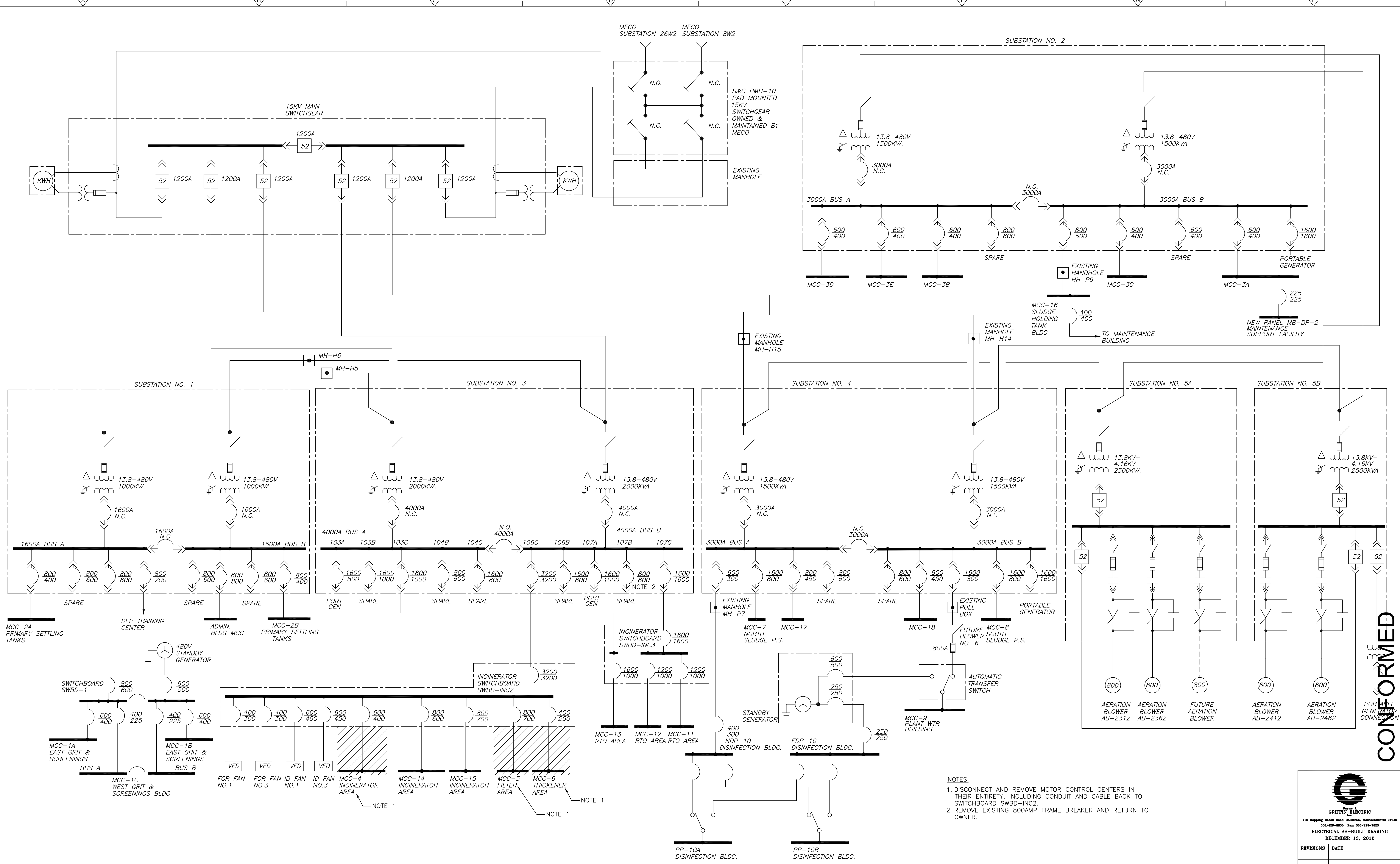
**UNDERGROUND RACEWAY
 SCHEDULE AND DUCTBANK SECTIONS**

REVISIONS	DATE

PROJECT NO.
1289-74283
 Sht. 253 of 312
GD-E-7
 Acc # 1289-74659

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\EOLDI008.DWG Saved by: DONALDSONJ On: 28-Jun-10 Plotted on: 13-Dec-12 1:21 PM



- NOTES:
1. DISCONNECT AND REMOVE MOTOR CONTROL CENTERS IN THEIR ENTIRETY, INCLUDING CONDUIT AND CABLE BACK TO SWITCHBOARD SWBD-INC2.
 2. REMOVE EXISTING 800AMP FRAME BREAKER AND RETURN TO OWNER.

CONFORMED

GRiffin ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
 508/420-8800 Fax: 508/420-7905

ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EOLDI008
 DESIGNED BY: T.DISILVA
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ELECTRICAL
 OVERALL
 ONE LINE DIAGRAM EXISTING**

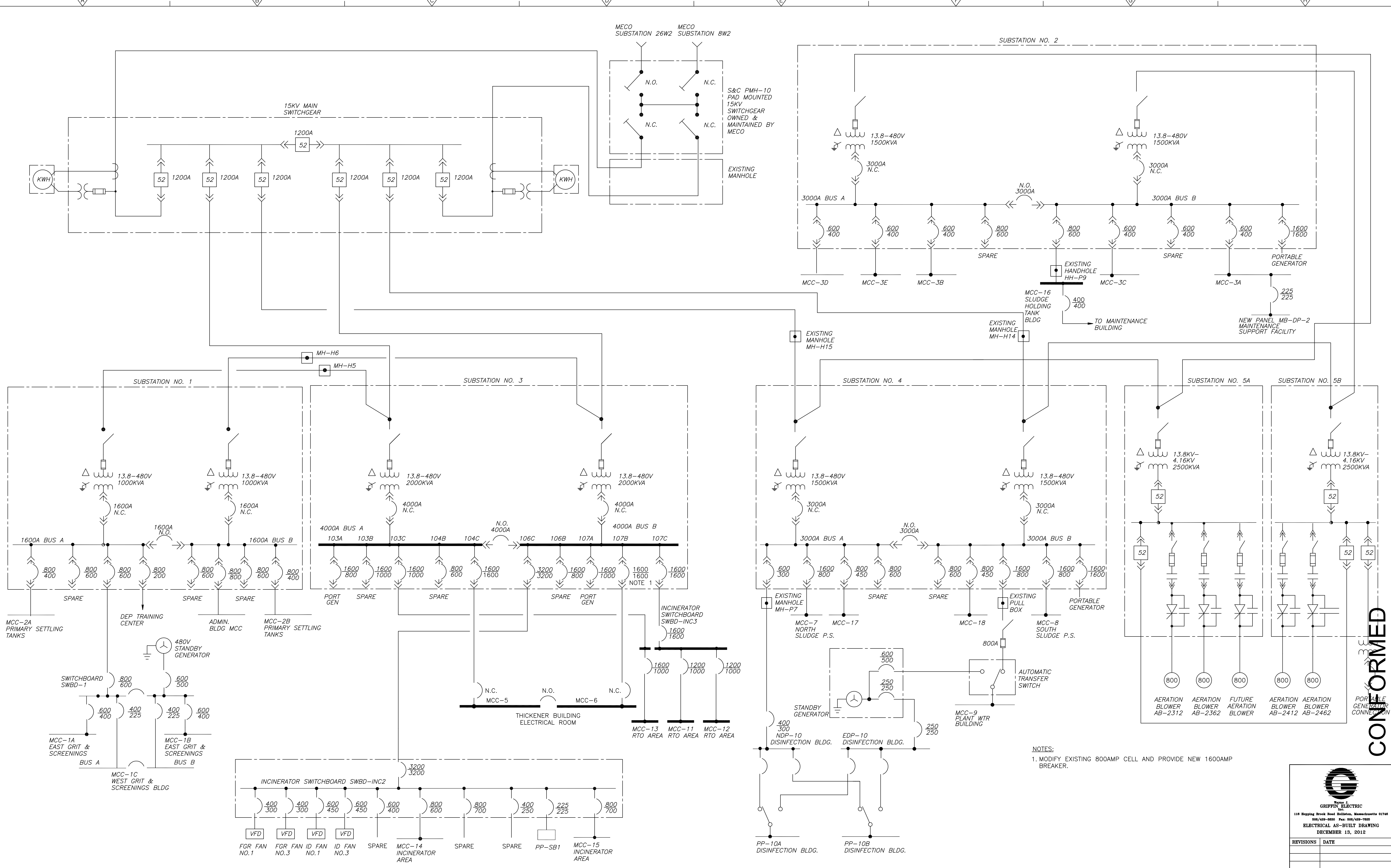
PROJECT NO.
1289-74283

Sht. 254 of 312

GD-E-8

Acc # 1289-74660

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\EOLDI009.DWG Saved by: DONALDSONJ On: 28-Jun-10 Plotted on: 13-Dec-12 1:22 PM



NOTES:
1. MODIFY EXISTING 800AMP CELL AND PROVIDE NEW 1600AMP BREAKER.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EOLDI009
 DESIGNED BY: T.DISILVA
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

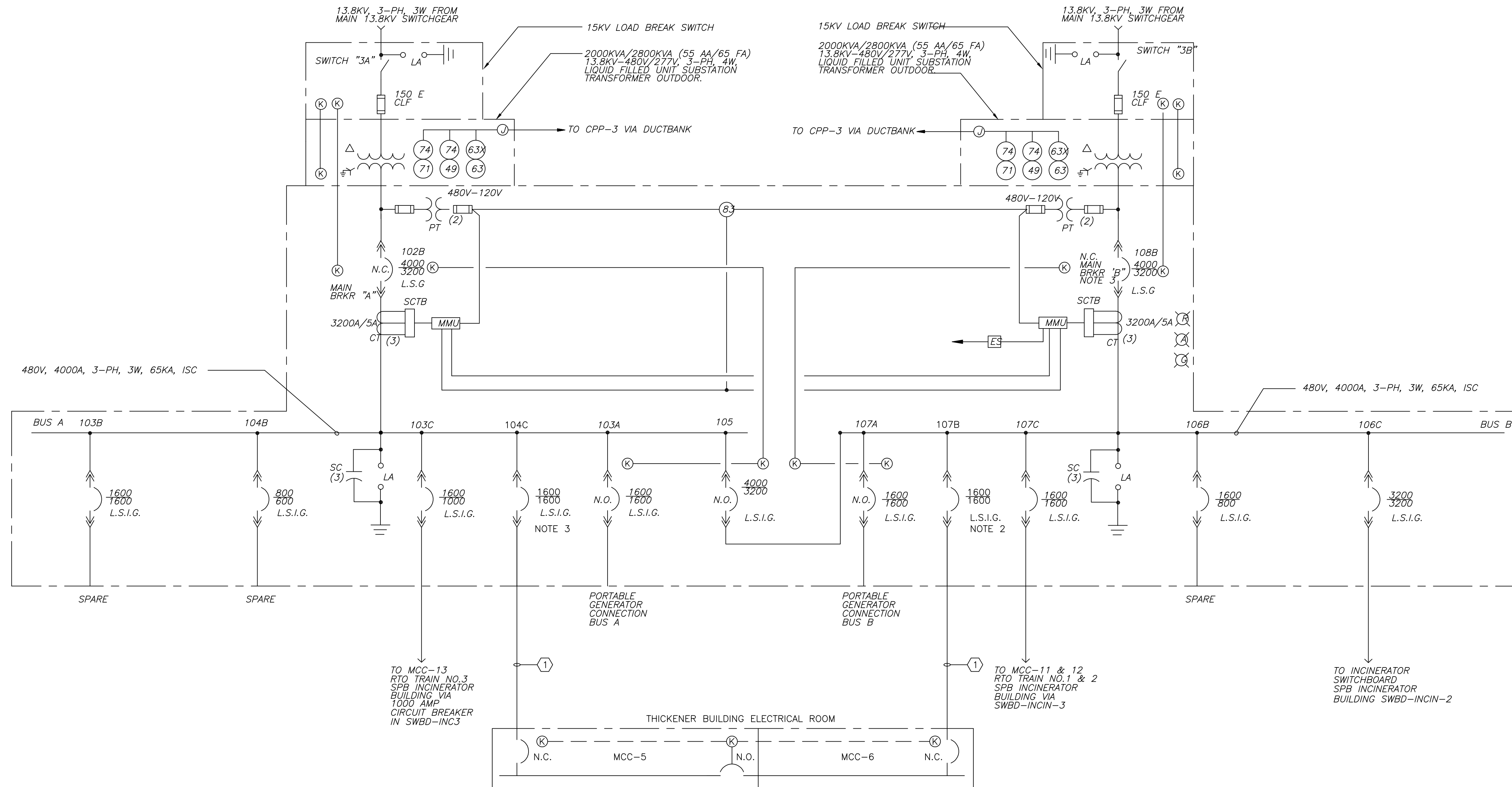
**ELECTRICAL
 ONE LINE DIAGRAM
 IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 255 of 312
GD-E-9
 Acc # 1289-74661

GRiffin ELECTRIC
 116 Hoppy Brook Road Holliston, Massachusetts 01706
 508/429-8800 Fax: 508/429-7905
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

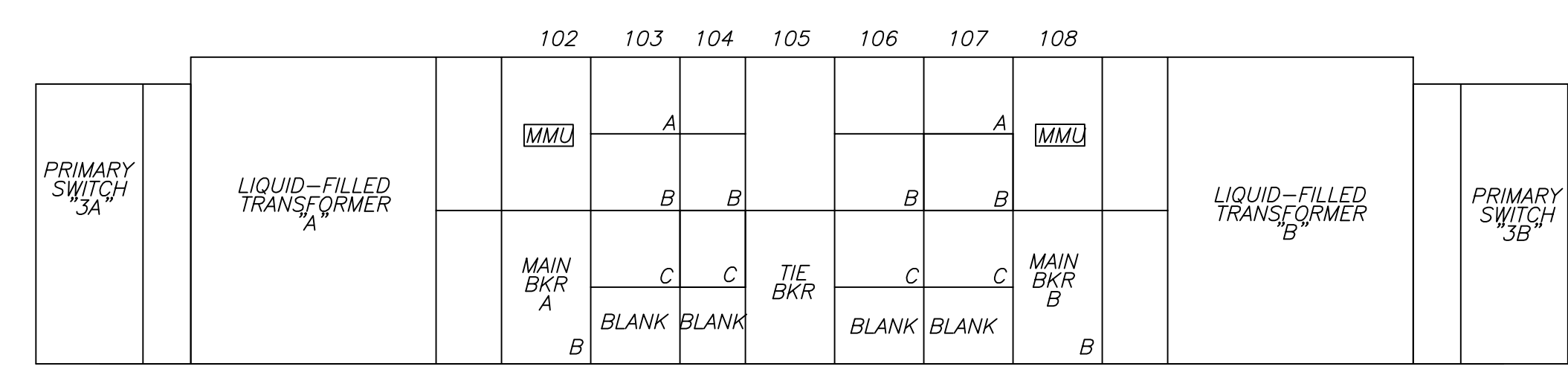
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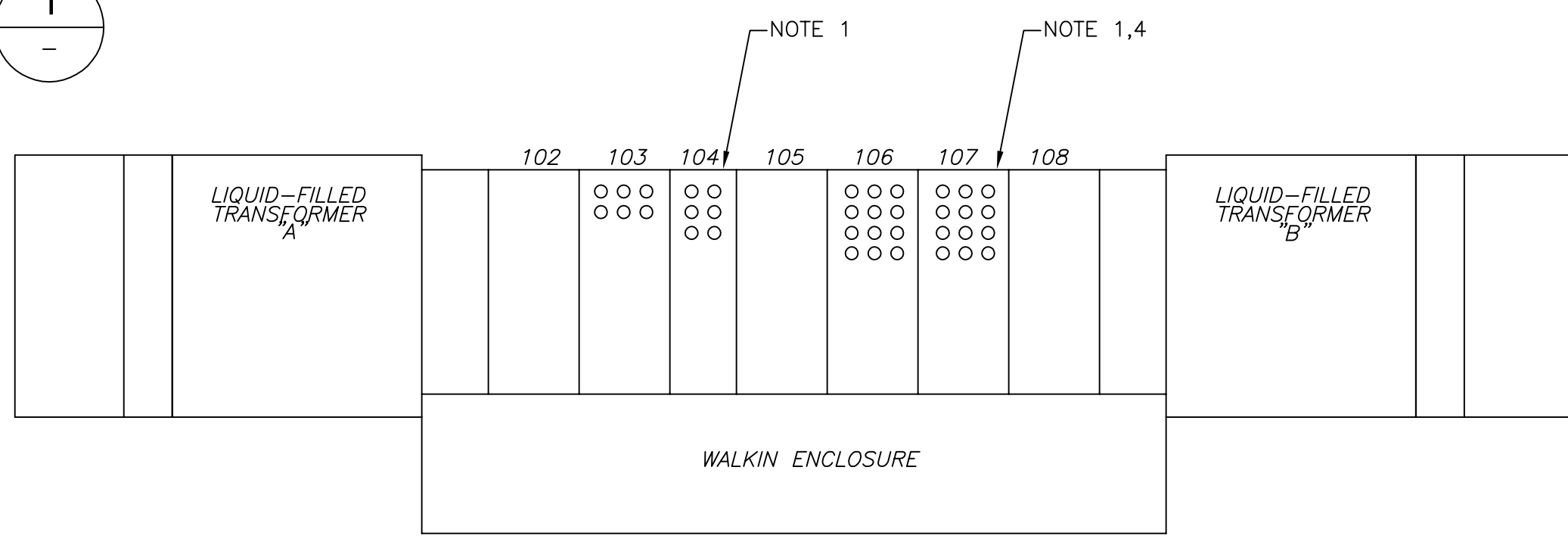
- NOTES:**
- EXISTING (BOLD) SPARE 4" CONDUITS TO BE USED UNDER THIS CONTRACT.
 - REPLACE EXISTING 800AMP FRAME BREAKER WITH NEW BREAKER AND TRIP UNIT. MODIFY SWITCHGEAR BUSSING AS NECESSARY TO UPGRADE TO 1600 AMPS.
 - REPLACE EXISTING BREAKER TRIP UNIT WITH 1600AMP TRIP.
 - DISCONNECT AND REMOVE EXISTING CABLES BACK TO MANHOLE AND RE-PULL IN DUCTS TO FACILITATE CABLE ACCESS FOR NEW FEEDS.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
1	4(3 1/2" C., 3#500KCMIL, 1#3/OAWG GRD)

EXISTING SUBSTATION NO.3
ONE LINE DIAGRAM
N.T.S.



EXISTING SUBSTATION NO.3
ELEVATION
1/4" = 1'-0"



EXISTING SUBSTATION NO.3
PLAN
1/4" = 1'-0"

CONFORMED

GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/429-8800 Fax: 508/429-7925
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**SUBSTATION NO.3
ONE LINE DIAGRAM**

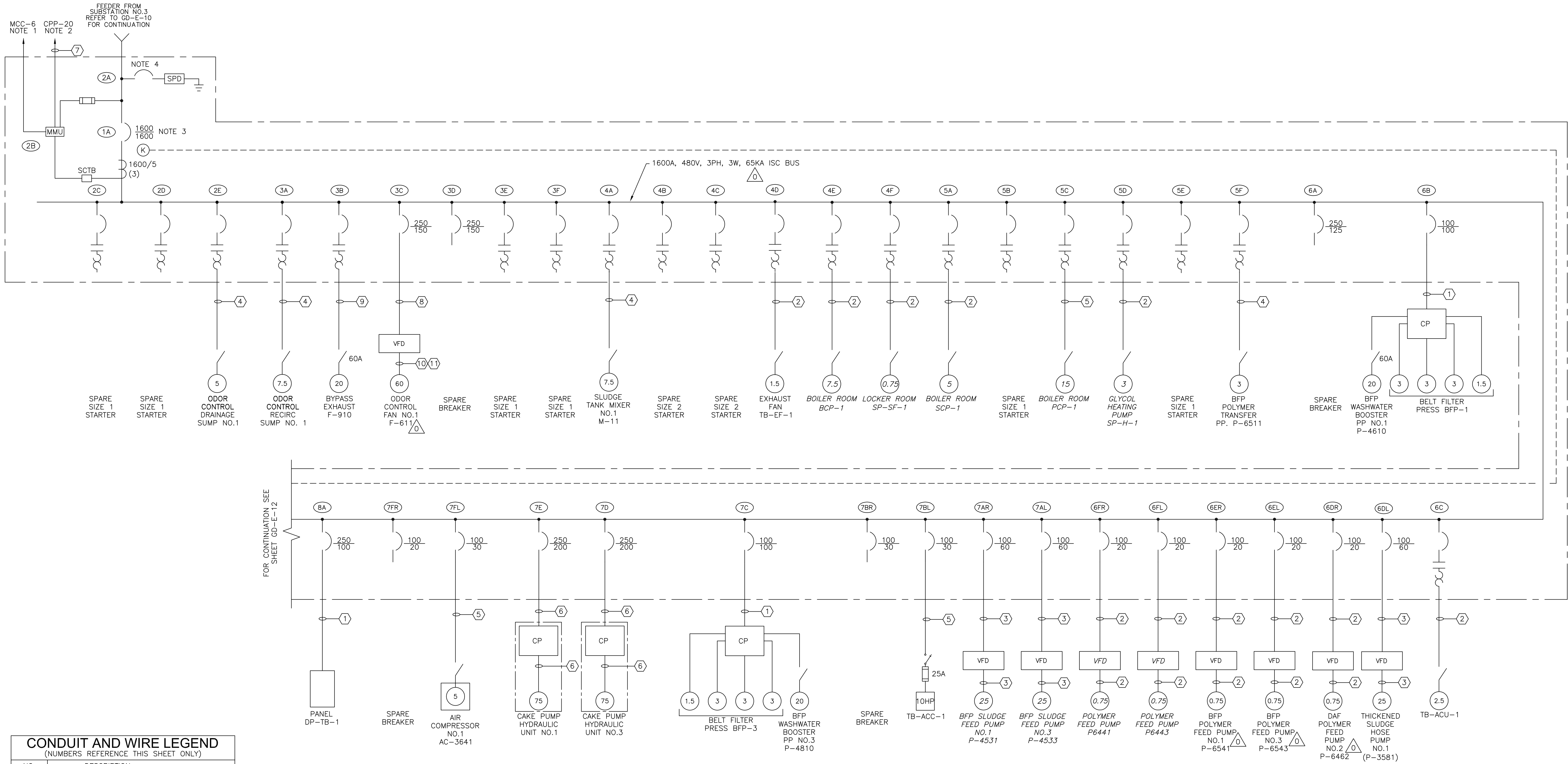
PROJECT NO.
1289-74283

Sht. 256 of 312

GD-E-10

Acc # 1289-74662

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDIO13.DWG Saved by: RIKILROY On: 10-Dec-12 8:57 AM



MCC-5
THICKENER BUILDING
ONE LINE DIAGRAM 1
N.T.S.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	1 1/2" C, 3#1, 1#6G
②	3/4" C, 3#12, 1#12G
③	1" C, 3#4, 1#10G
④	3/4" C, 3#12, 1#12G, 8#14
⑤	3/4" C, 3#10, 1#10G
⑥	2" C, 3#3/0, 1#4G
⑦	3/4" C, 4#14, 1#14G
⑧	1 1/2" C, 3#1/0, 1#6G
⑨	1" C, 3#8, 1#10G, 8#14
⑩	1 1/2" C, 3#1/0, 1#6G, 2#12(MOTOR HEATER)
⑪	3/4" C, 4#14, (E-STOP) 2#14SP 2#14(THERMAL SWITCH)

- NOTES**
- SEE SHEET GD-E-25 FOR POWER MONITORING NETWORK DIAGRAM.
 - LOSS OF POWER ALARM XA-2561.
 - CIRCUIT BREAKER SHALL INCLUDE GROUND FAULT PROTECTION.
 - CIRCUIT BREAKER SIZED TO SPD MANUFACTURERS REQUIREMENTS.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJA	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EOLDIO13
 DESIGNED BY: J.DONALDSON
 DRAWN BY: R.GIBSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

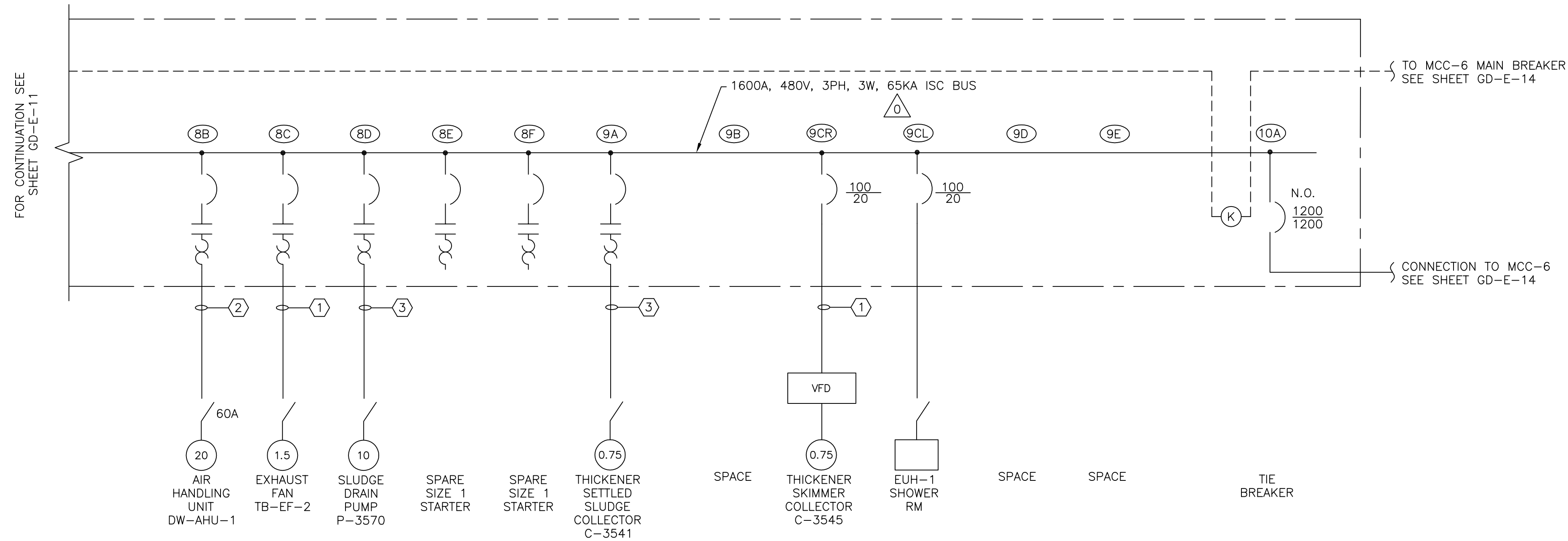
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**MCC-5
 ONE LINE DIAGRAM**

GRiffin ELECTRIC
 116 Hopping Brook Road Holliston, Massachusetts 01746
 508/430-0800 Fax: 508/430-7655
ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

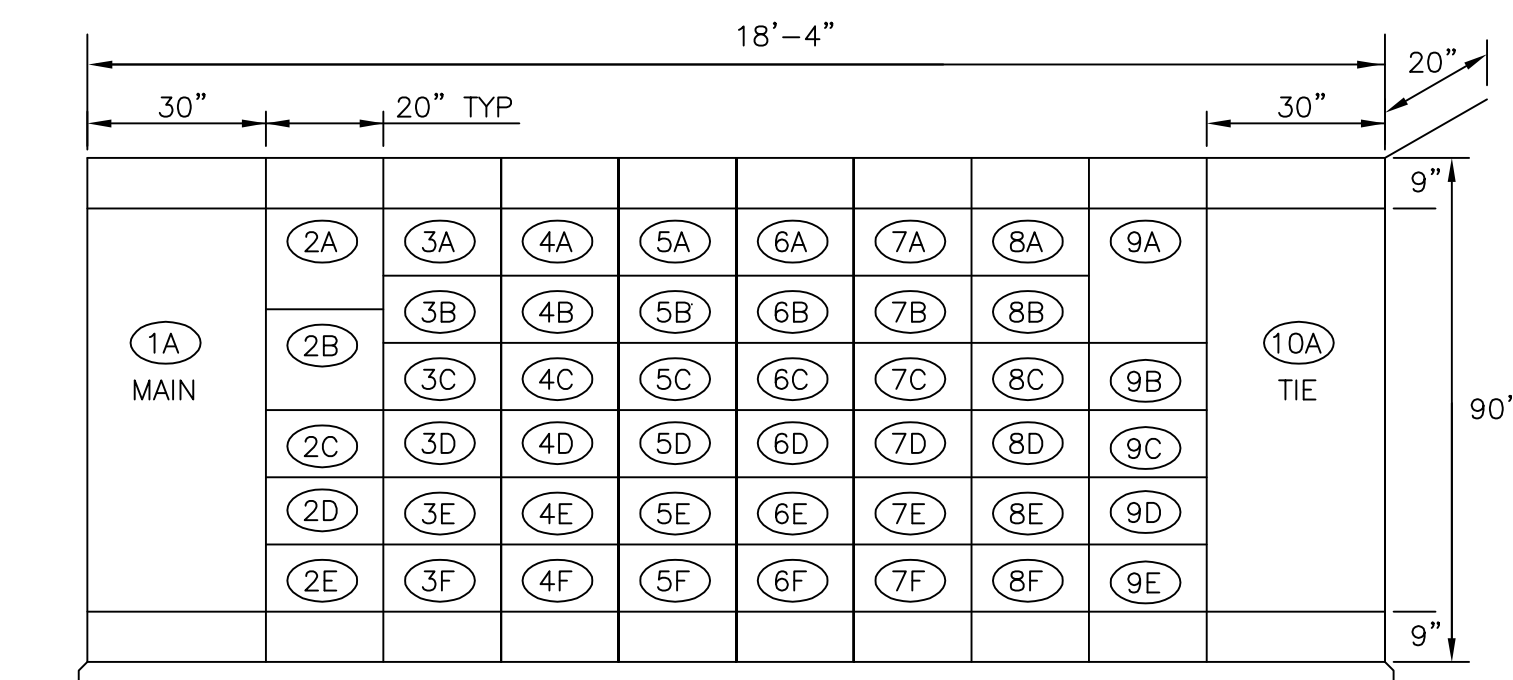
REVISIONS	DATE

PROJECT NO.
1289-74283
 Sht. 257 of 312
GD-E-11
 Acc # 1289-74663



MCC-5
THICKENER BUILDING
ONE LINE DIAGRAM 1
N.T.S.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C, 3#12, 1#12G
②	3/4"C, 3#8, 1#10G
③	3/4"C, 3#12, 1#12G, 8#14



MOTOR CONTROL CENTER MCC-5
DETAIL A
N.T.S.

CONFORMED

GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/438-0830 Fax: 508/438-7655
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EOLDIO16
DESIGNED BY: J.DONALDSON
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

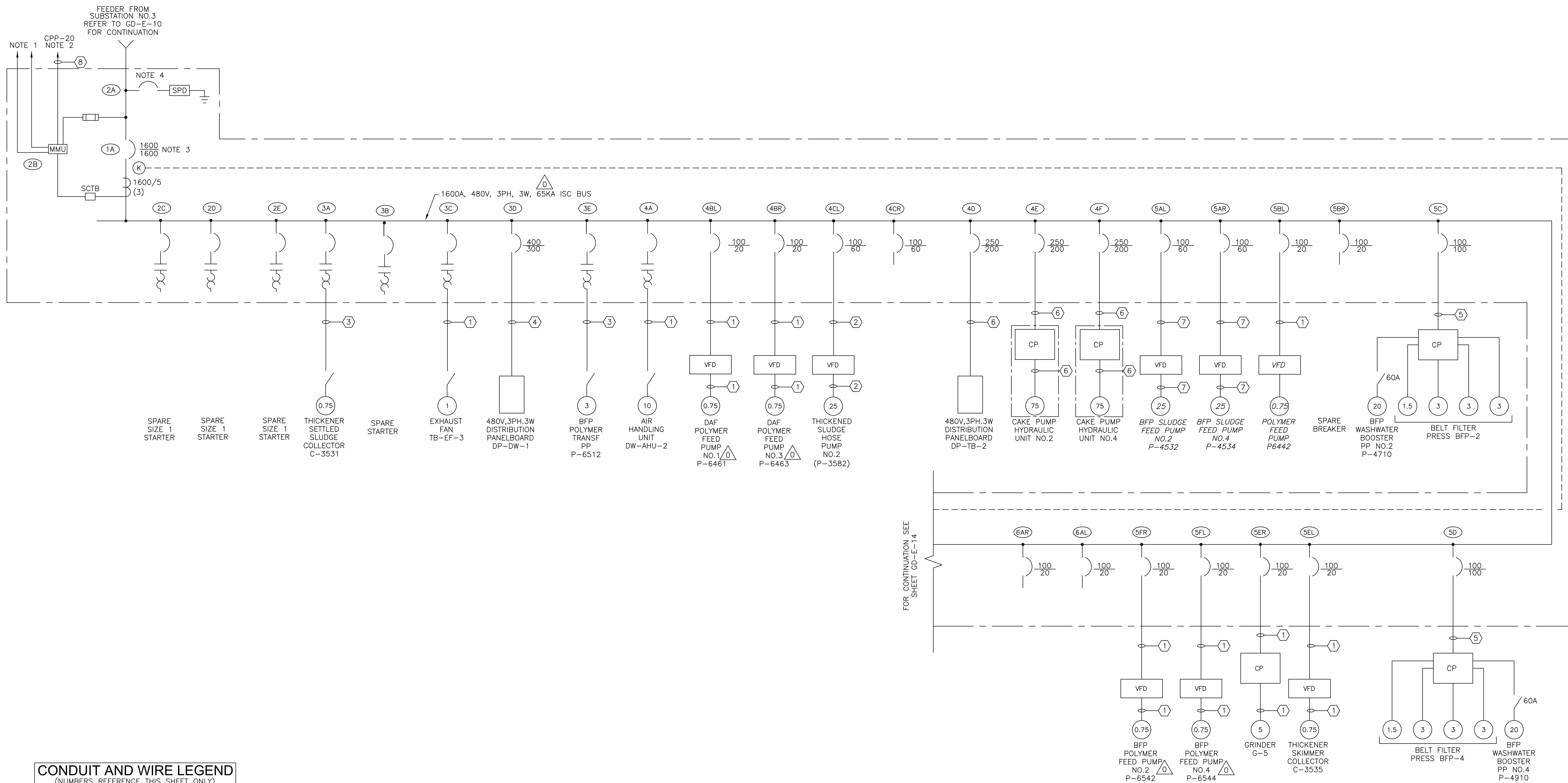
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

MCC-5
ONE LINE DIAGRAM

PROJECT NO.
1289-74283
Sht. 258 of 312
GD-E-12
Acc # 1289-74664

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDIO15.DWG Saved by: RIKILROY On: 10-Dec-12 Plotted on: 13-Dec-12 9:00 AM



CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4"C, 3#12, 1#12G
②	1"C, 3#4, 1#10G
③	3/4"C, 3#12, 1#12G, 8#14
④	3"C, 3#350, 1#2G
⑤	1 1/2"C, 3#1, 1#6G
⑥	2"C, 3#3/0, 1#4G
⑦	1"C, 3#4, 1#10G
⑧	3/4"C, 4#14, 1#14G

MCC-6
THICKENER BUILDING
ONE LINE DIAGRAM ①
N.T.S.

- NOTES**
- SEE SHEET GD-E-25 FOR POWER MONITORING NETWORK DIAGRAM.
 - LOSS OF POWER ALARM XA-2562.
 - CIRCUIT BREAKER SHALL INCLUDE GROUND FAULT PROTECTION.
 - CIRCUIT BREAKER SIZED TO SPD MANUFACTURES REQUIREMENTS.

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJA	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EOLDIO15
DESIGNED BY: J.DONALDSON
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

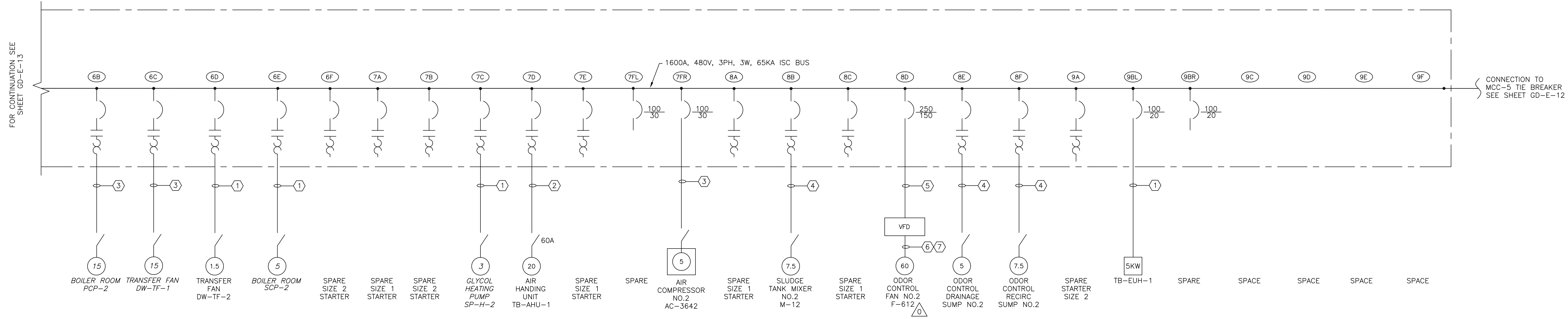
MCC-6
ONE LINE DIAGRAM

GRiffin ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/439-0800 Fax: 508/439-7655
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

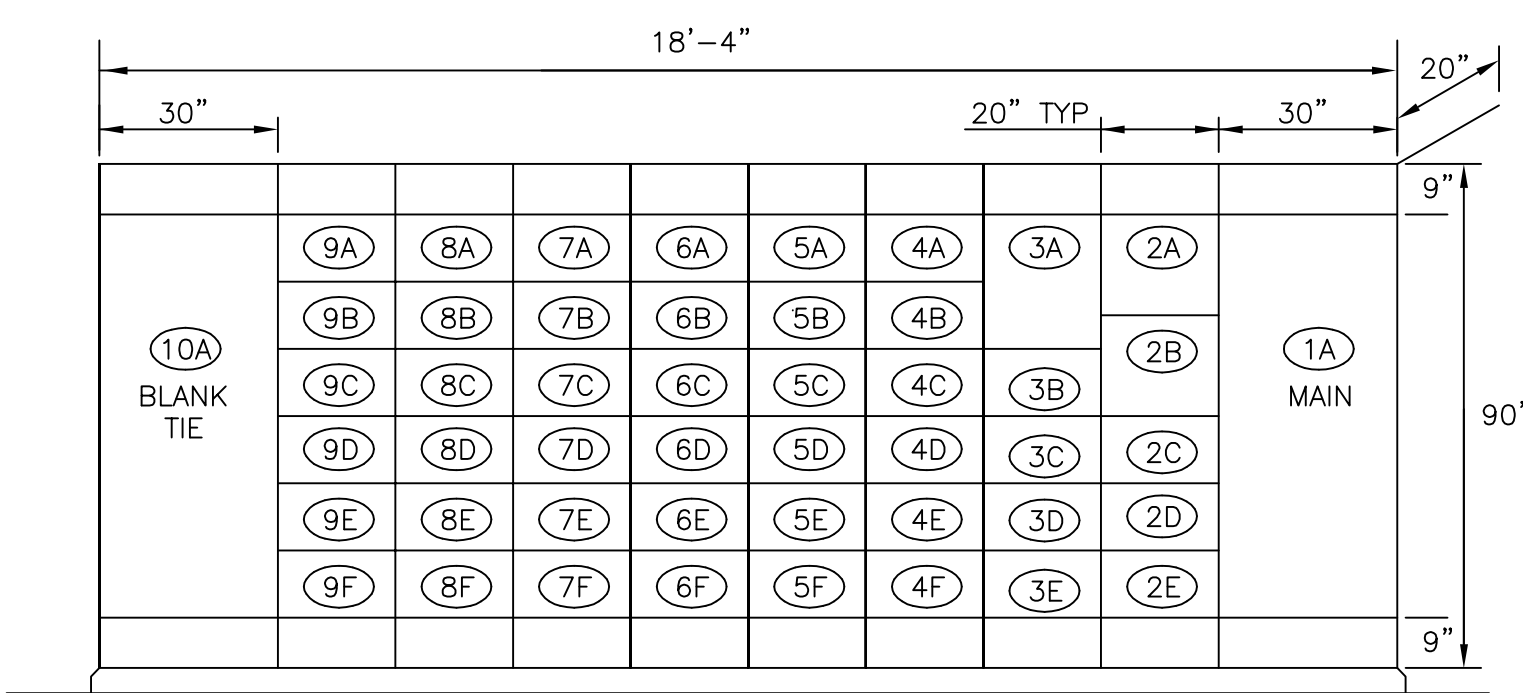
PROJECT NO.
1289-74283
Sht. 259 of 312
GD-E-13
Acc # 1289-74665

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDIO14.DWG Saved by: RILROY On: 10-Dec-12 8:59 AM



MCC-6
THICKENER BUILDING
ONE LINE DIAGRAM 1
N.T.S.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C, 3#12, 1#12G
②	1"C, 3#6, 1#10G
③	3/4"C, 3#10, 1#10G
④	3/4"C, 3#12, 1#12G, 8#14
⑤	1 1/2"C, 3#1/0, 1#6G
⑥	1 1/2"C, 3#1/0, 1#6G, 2#12 (MOTOR HEATER)
⑦	3/4"C, 4#14 (E-STOP), 2#14SP 2#14(THERMAL SWITCH)



MOTOR CONTROL CENTER MCC-6
DETAIL A
N.T.S.

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJA	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EOLDIO14
DESIGNED BY: J.DONALDSON
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

MCC-6
ONE LINE DIAGRAM

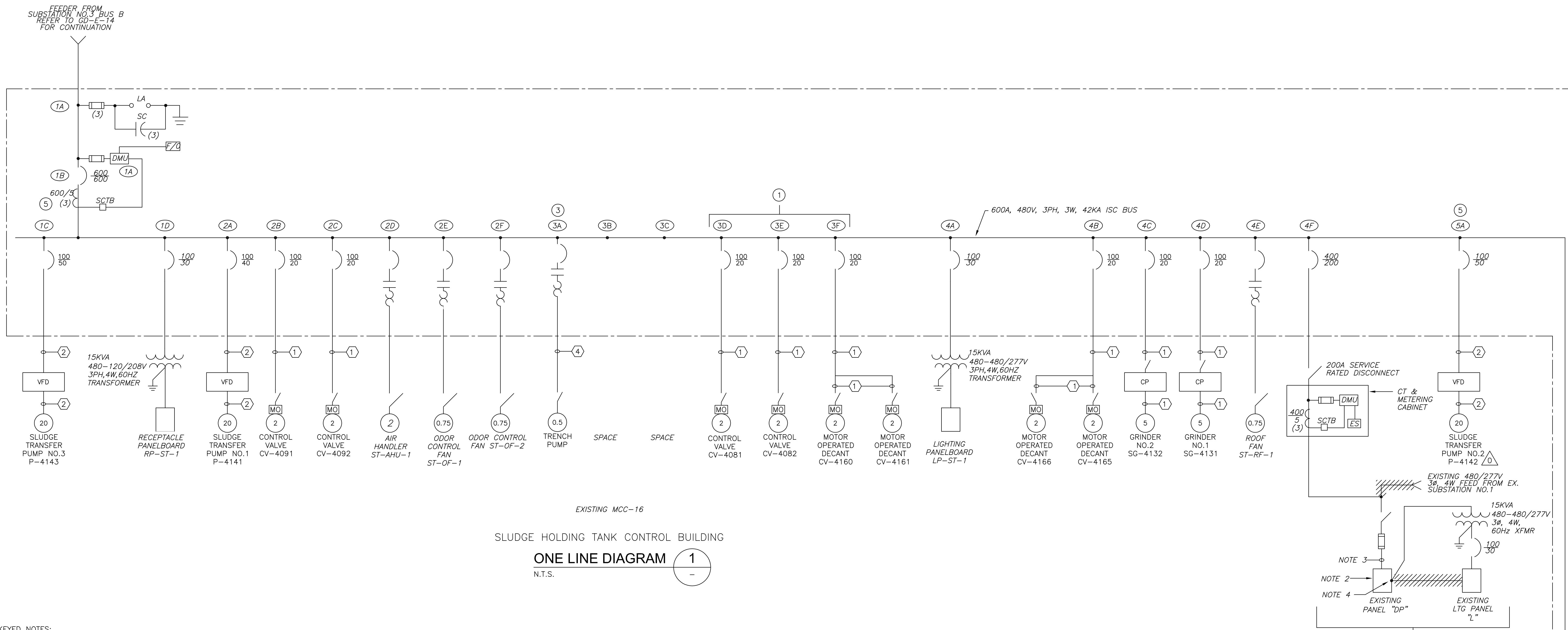
GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/439-0800 Fax: 508/439-7655
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283
Sht. 260 of 312
GD-E-14
Acc # 1289-74666

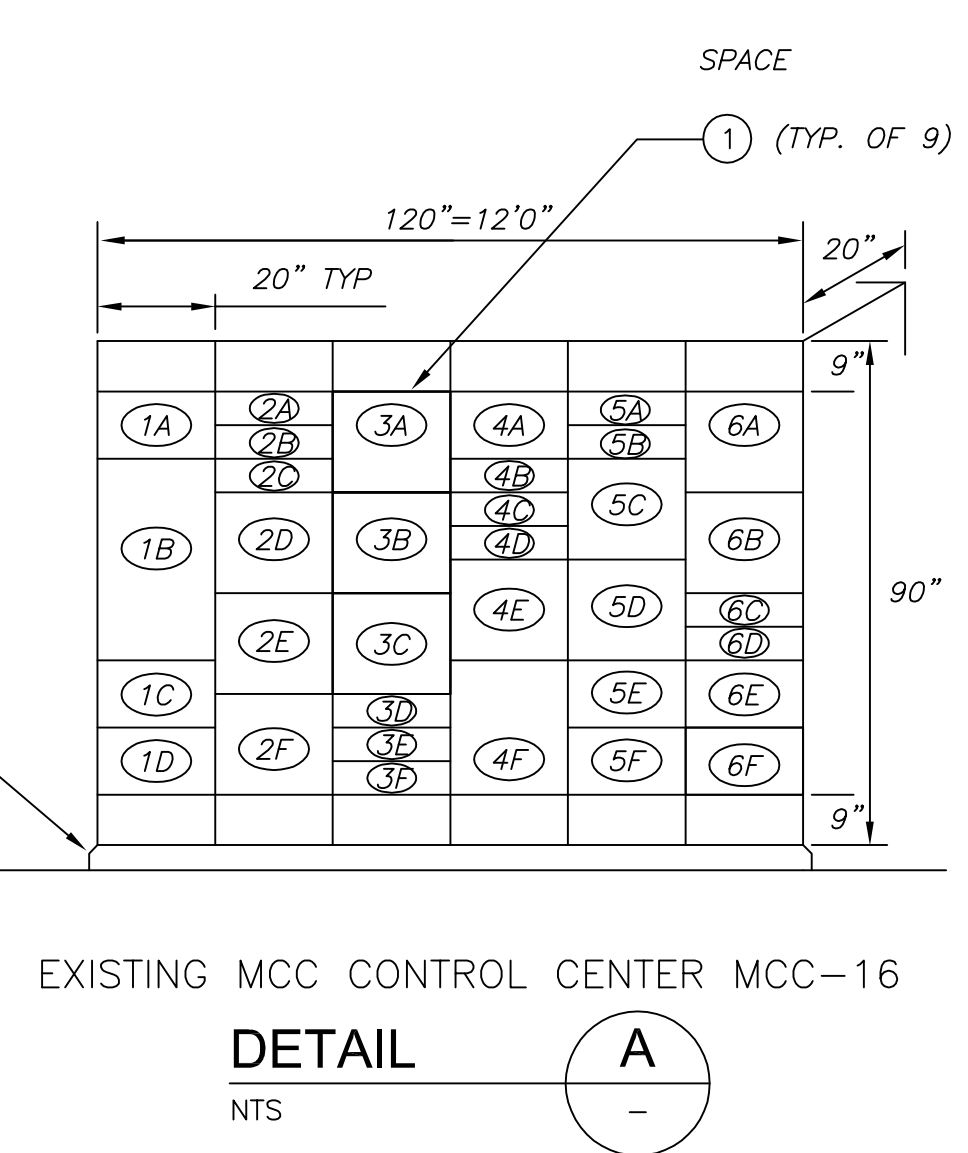
CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDIO18.DWG Saved by: RIKILROY on: 10-Dec-12 Plotted on: 13-Dec-12 9:03 AM



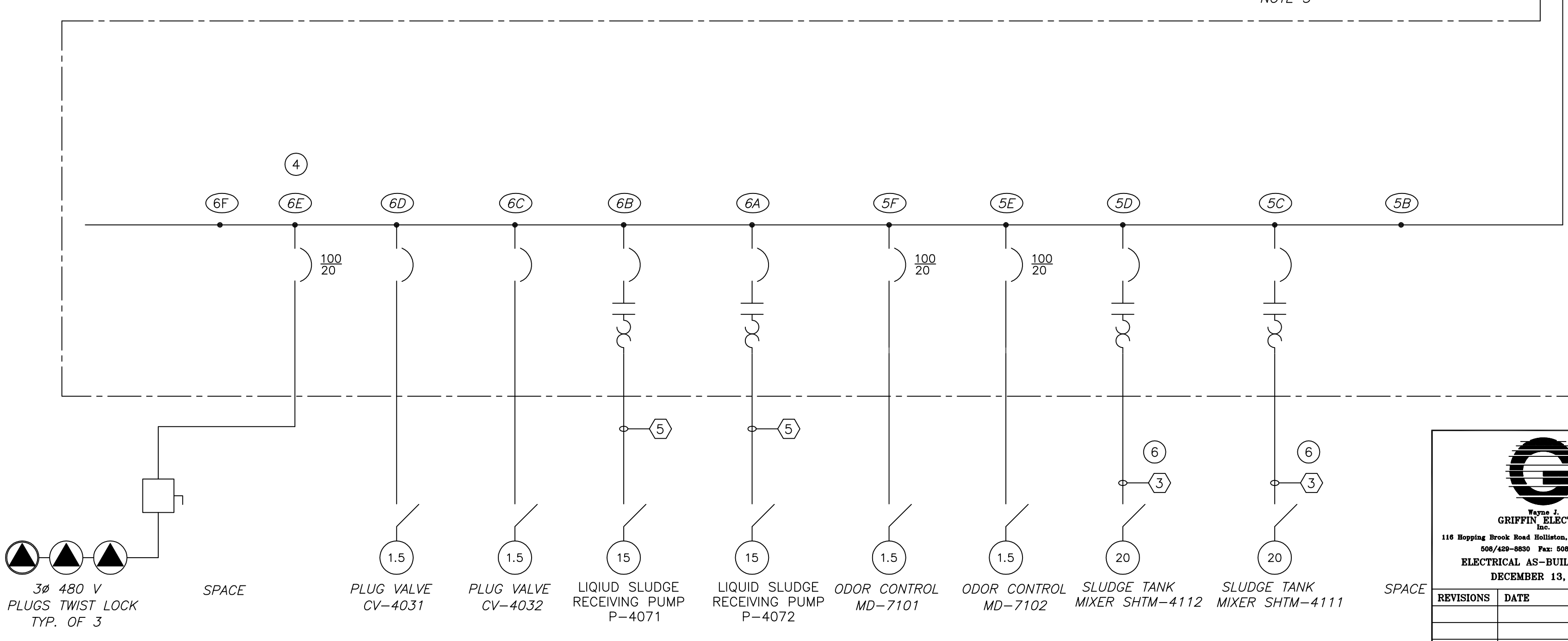
EXISTING MCC-16
 SLUDGE HOLDING TANK CONTROL BUILDING
ONE LINE DIAGRAM 1
 N.T.S.

- KEYED NOTES:**
- REMOVE STARTER AND INSTALL NEW CIRCUIT BREAKER BUCKET AS SHOWN.
 - DISCONNECT EXISTING MOTOR AND RECONNECT EXISTING CABLE TO NEW MOTOR.
 - MODIFY MCP AND OVERLOAD FOR 0.5HP PUMP.
 - INSTALL NEW CIRCUIT BREAKER AS SHOWN.
 - INSTALL NEW CONDUCTORS ON TO EXISTING CIRCUIT BREAKER.
 - SEE ROOF PLAN FOR J-BOX LOCATION.



CONDUIT AND WIRE LEGEND
 (NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 3#12, 1#12G
②	3/4" C., 3#6, 1#10G
③	CABLING EXTENDED SEE PLANS
④	3/4" C., 3#12, 1#12G, 4#14
⑤	1" C., 3#8, 1#10G



CONFORMED

GRIFPIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/428-0820 Fax: 508/428-7625
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**MCC-16
 ONE LINE DIAGRAM**

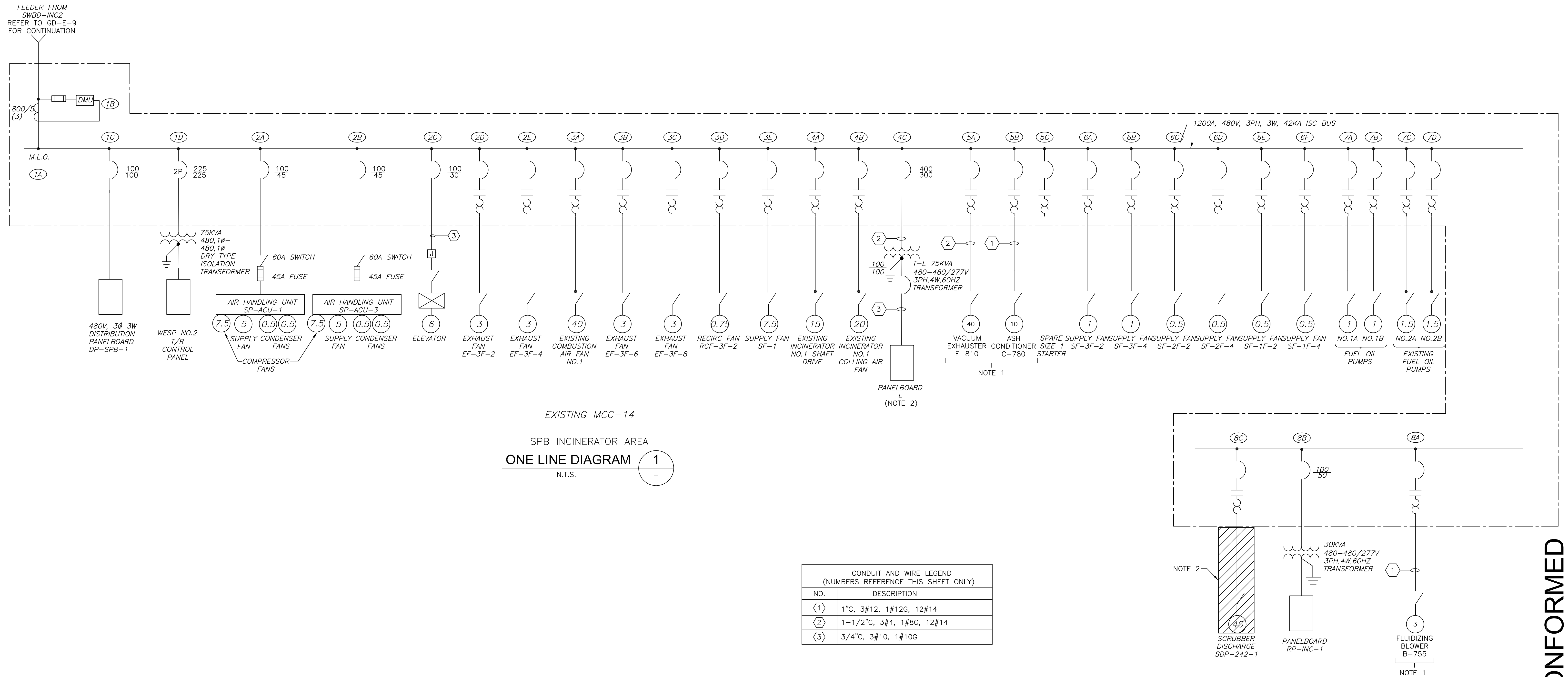
PROJECT NO.
 1289-74283

Sht. 261 of 312

GD-E-15

Acc # 1289-74667

- NOTE:**
1. DEMO EXISTING CONDUIT, WIRE AND DISCONNECT SWITCHES AND INSTALL NEW AS INDICATED. MODIFY EXISTING MOTOR STARTER FOR MOTOR HORSEPOWER AS INDICATED.
 2. DISCONNECT AND REMOVE FEEDER CABLES AND CONDUITS BACK TO MCC-14.



CONFORMED

GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/428-0820 Fax: 508/428-7625
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDI020.DWG Saved by: RIKILROY On: 10-Dec-12 Plotted on: 13-Dec-12 9:05 AM

REV. NO.	DATE	DRWN	CHKD	REMARKS

CDM
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

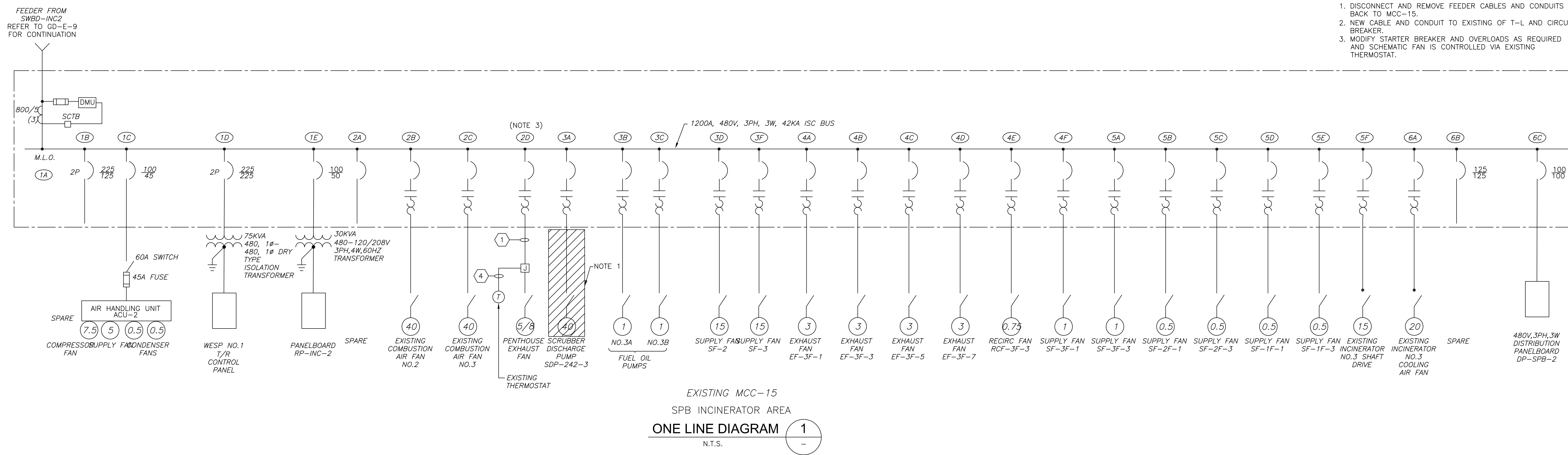
**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**MCC-14
ONE LINE DIAGRAM**

PROJECT NO.
1289-74283
Sht. 262 of 312
GD-E-16
Acc # 1289-74668

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EOLDIO21.DWG Saved by: RIKILROY on: 10-Dec-12 Plotted on: 13-Dec-12 9:04 AM



- NOTES**
1. DISCONNECT AND REMOVE FEEDER CABLES AND CONDUITS BACK TO MCC-15.
 2. NEW CABLE AND CONDUIT TO EXISTING OF T-L AND CIRCUIT BREAKER.
 3. MODIFY STARTER BREAKER AND OVERLOADS AS REQUIRED AND SCHEMATIC FAN IS CONTROLLED VIA EXISTING THERMOSTAT.

EXISTING MCC-15
SPB INCINERATOR AREA
ONE LINE DIAGRAM 1
N.T.S.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C, 3#12, 1#12G, 4#14
②	1-1/2" C, 3#1 1#6G,
③	1-1/2" C, 4#1 1#6G,
④	3/4" C, 4#14, 1#14G

CONFORMED

GRiffin ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/430-0800 Fax: 508/430-7655
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EOLDIO21
DESIGNED BY: T.DISILVA
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEIO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**MCC-15
ONE LINE DIAGRAM**

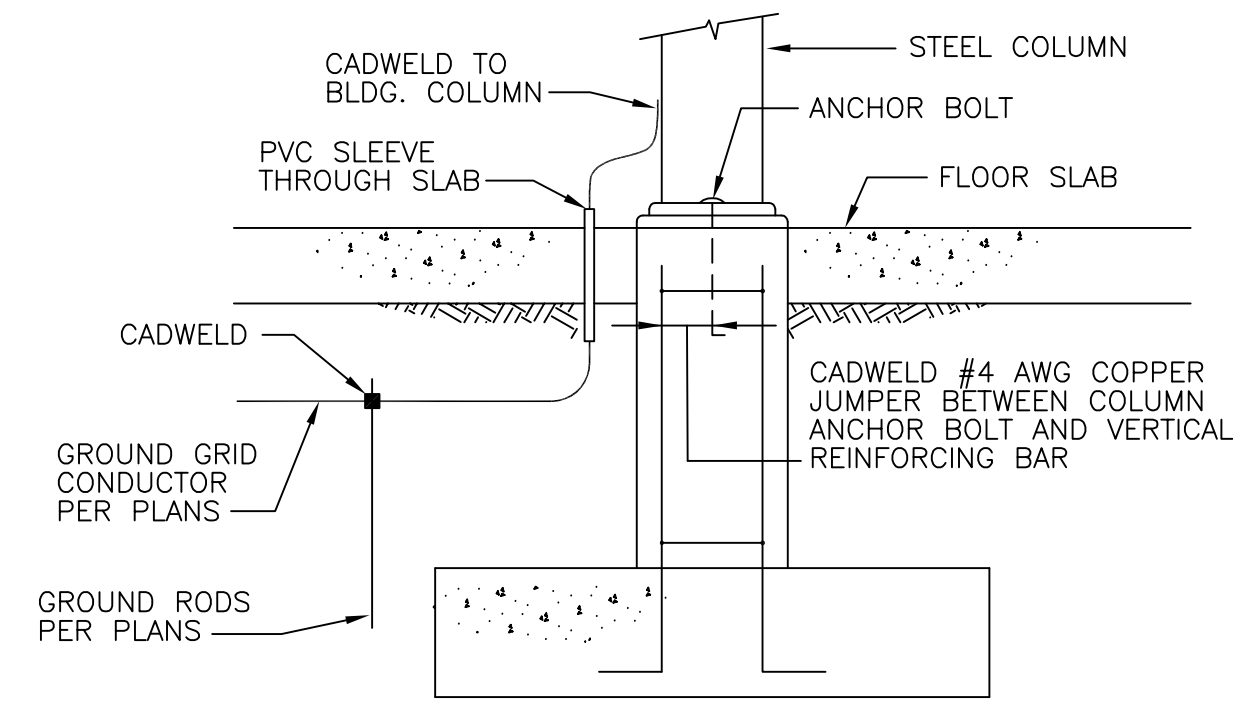
PROJECT NO.
1289-74283

Sht. 263 of 312

GD-E-17

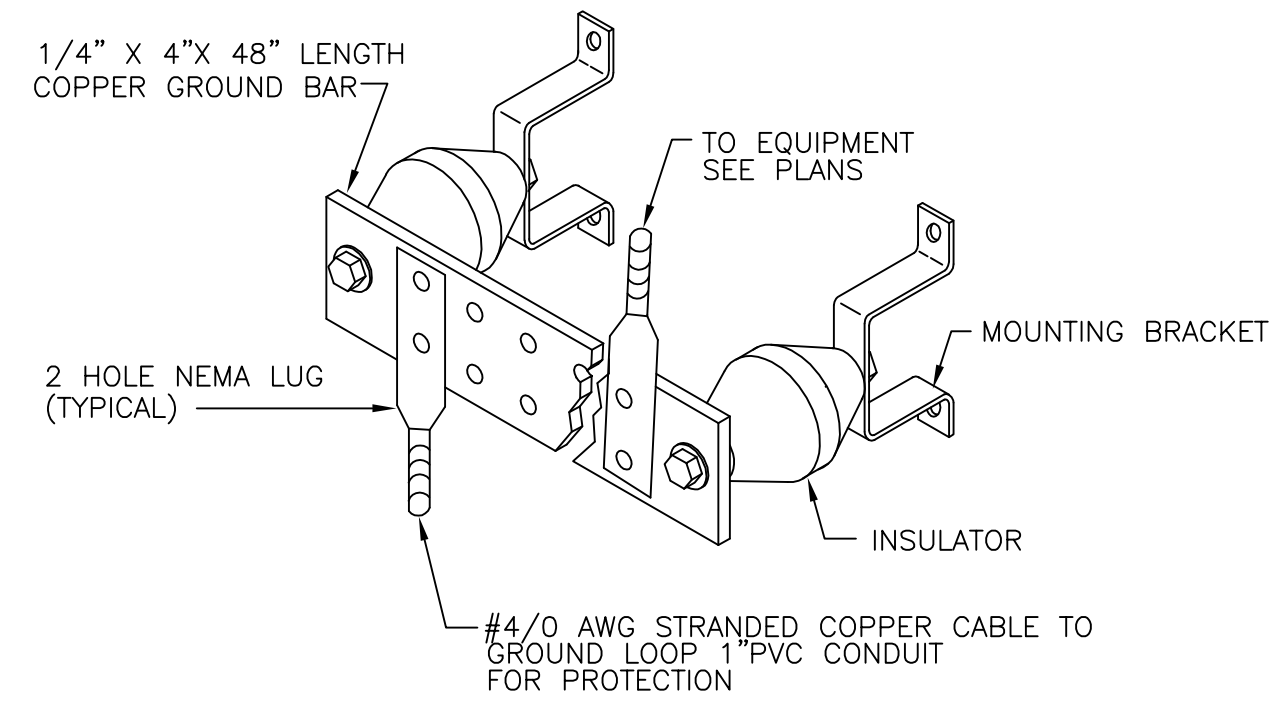
Acc # 1289-74669

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\EGRND001.DWG Saved by: ADAMCZYK On: 2-Jul-10 Plotted on: 13-Dec-12 1:45 PM



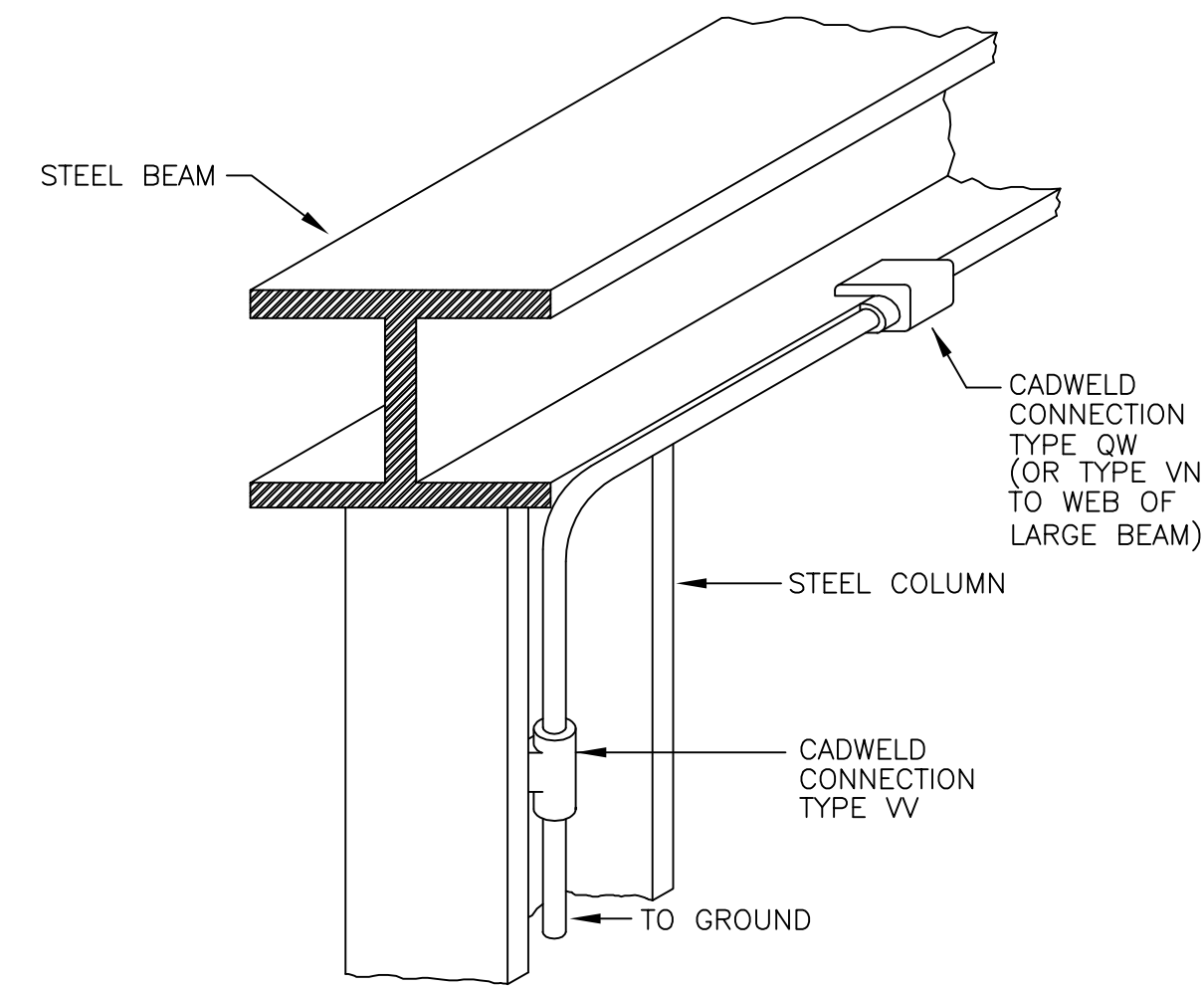
BUILDING COLUMN GROUNDING

DETAIL A
NTS



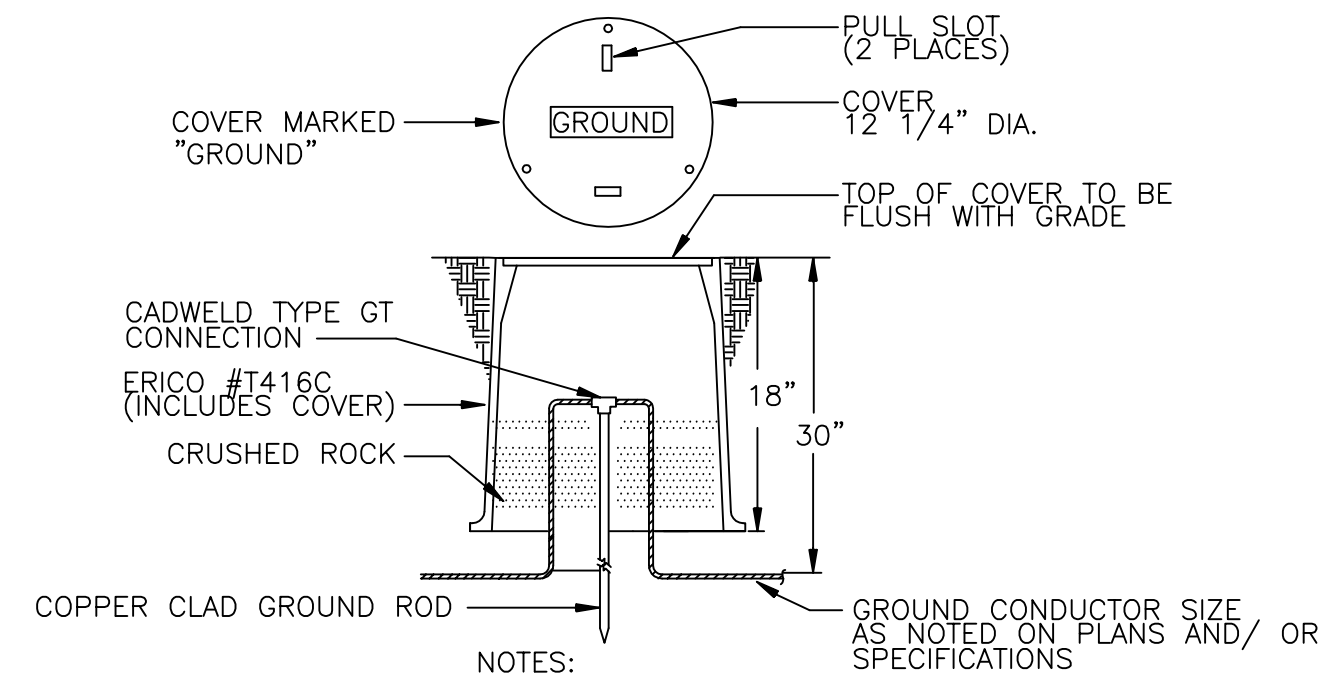
TYPICAL GROUND BAR (ELECTRICAL ROOM)

DETAIL C
NTS



BUILDING STEEL GROUND

DETAIL B
NTS



GROUND ROD INSPECTION HOUSING

DETAIL D
NTS

NOTES:
1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EGRND001
 DESIGNED BY: T.DISILVA
 DRAWN BY: R.GIBSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
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 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

ELECTRICAL GROUNDING DETAILS

GRIFFIN ELECTRIC
 116 Hoppy Brook Road Holliston, Massachusetts 01746
 508/429-8800 Fax: 508/429-7905
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283

Sht. 264 of 312

GD-E-18

Acc # 1289-74670

CONFORMED

PANELBOARD LP-TB-1 - NEW										LOCATION: THICKENER BUILDING ELECTRICAL RM.			
100 AMP BUS RATING		100 AMP MAIN BREAKER		22 KA SHORT CIRCUIT RATING		42 POLES		ELECTRONIC GRADE: NO		MOUNTING: SURFACE			
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C			
1	BASEMENT LTG - LOWER GALLERY	1.3			20/1	2	BASEMENT LTG - UPPER GALLERY	1.14			20/1		
3	THICKENER AREA - 1ST FLOOR		3.25		20/1	4	THICKENER AREA - 1ST FLOOR		3		20/1		
5	ELECTRICAL ROOM - 1ST FLOOR			0.9	20/1	6	DAF TANK AREA LIGHTING			0.8	20/1		
7	CORRIDOR LIGHTING	0.2			20/1	8	SPACE						
9	SPARE				20/1	10	SPACE						
11	SPARE				20/1	12	SPACE						
13	SPARE				20/1	14	SPACE						
15	SPARE				20/1	16	SPACE						
17	SPARE				20/1	18	SPACE						
19	SPARE				20/1	20	SPACE						
21	SPARE				20/1	22	SPACE						
23	SPARE				20/1	24	SPACE						
25	SPARE				20/1	26	SPACE						
27	SPARE				20/1	28	SPACE						
29	SPARE				20/1	30	SPACE						
31	SPACE					32	SPACE						
33	SPACE					34	SPACE						
35	SPACE					36	SPACE						
37	SPACE					38	SPACE						
39	SPACE					40	SPACE						
41	SPACE					42	SPACE						
TOTAL PHASE KVA THIS SIDE		1.5	3.25	0.9		TOTAL PHASE KVA THIS SIDE		1.14	3	0.8			
						TOTAL KVA PER PHASE		2.64	6.25	1.7			
						TOTAL THREE PHASE KVA				10.59			

NOTES:
1. PROVIDE LOCKING HARDWARE
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

PANELBOARD DP-TB-1 - NEW										LOCATION: THICKENER BUILDING ELECTRICAL RM.			
225 AMP BUS RATING		M.L.O. AMP MAIN BREAKER		65 KA SHORT CIRCUIT RATING		42 POLES		ELECTRONIC GRADE: NO		MOUNTING: SURFACE			
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C			
1					20/3	2					20/3		
3	BRIDGE CRANE	2.2	2.2		30/3	4	BOILER	1.6			20/3		
5	DW 2ND FLOOR					6	DW BASEMENT		1.6				
7				2.2		8			1.6				
9	T-L1 TRANSFORMER		10		50/3	10	CP-240-1 (HEATER H-240-1)			2	20/3		
11	DW BASEMENT			10		12	DW BASEMENT			2			
13		0.3				14		2					
15	DUPLEX SUMP PUMP C.P. TB-SP-1&2		0.3		20/3	16	CP-240-3 (HEATER H-240-3)			2	20/3		
17	TB BASEMENT			0.3		18	DW BASEMENT			2			
19		0.3				20		0.2					
21	DUPLEX SUMP PUMP C.P. DW-SP-1&2		0.3		20/3	22	OVERHEAD DOOR 2ND. FL.(DW-200)		0.2		20/3		
23	DW BASEMENT			0.3		24			0.2				
25		0.2				26							
27	OVER HEAD DOOR BASEMENT DW-01		0.2		20/3	28	SPARE				20/3		
29				0.2		30							
31	CV-610	0.2				32							
33	FCV-901		0.2		20/3	34	SPARE				20/3		
35	CV-902			0.2		36							
37						38							
39	SPARE				20/3	40	SPARE				20/3		
41						42							
TOTAL PHASE KVA THIS SIDE		13.2	13.2	13.2		TOTAL PHASE KVA THIS SIDE		5.8	5.8	5.8			
						TOTAL KVA PER PHASE		19	19	19			
						TOTAL THREE PHASE KVA				57			

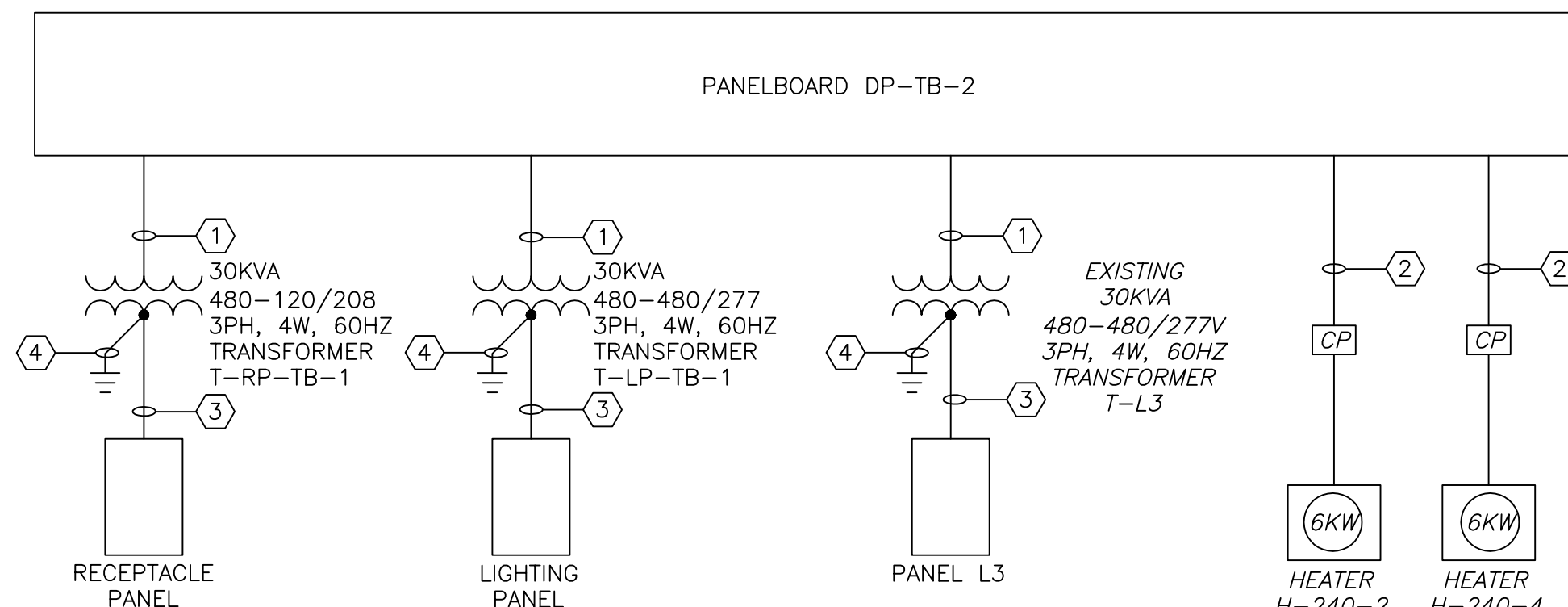
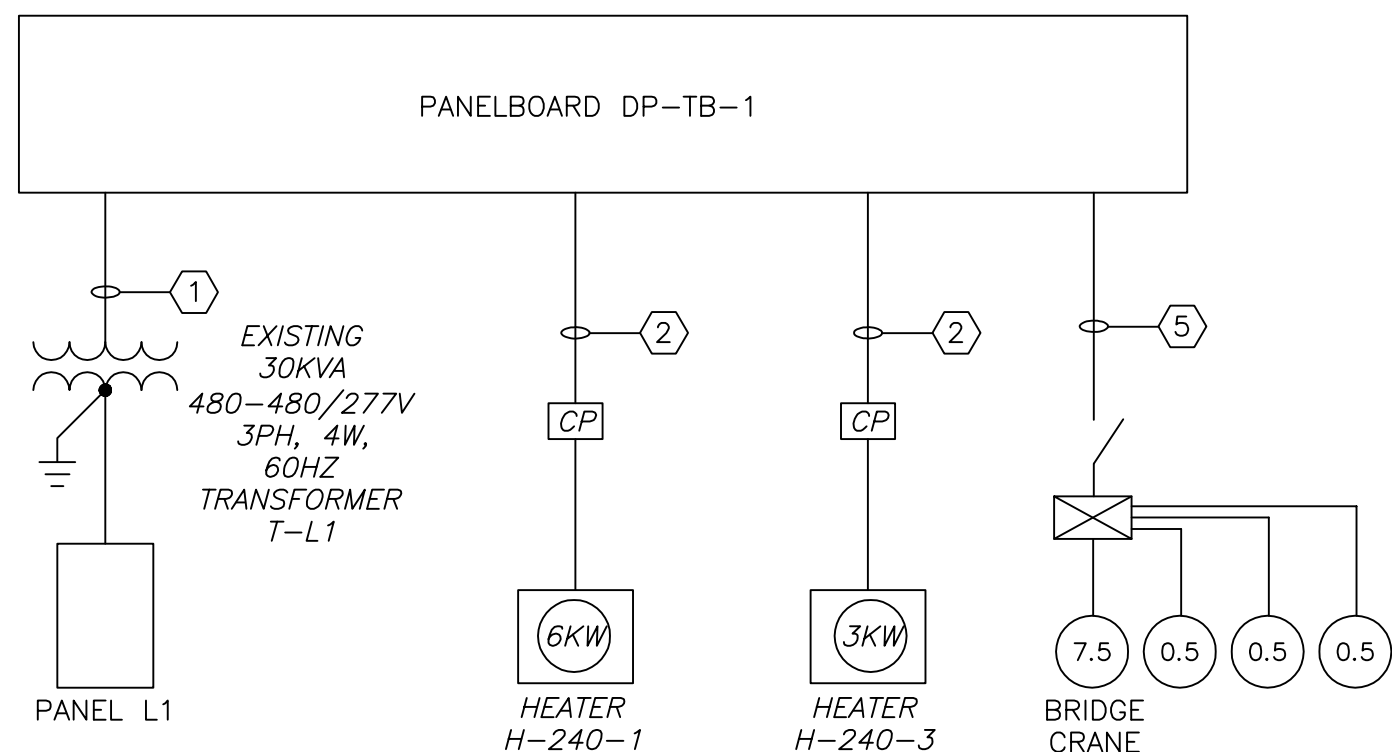
NOTES:
1. PROVIDE LOCKING HARDWARE
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

PANELBOARD RP-TB-1 - NEW										LOCATION: THICKENER BUILDING ELECTRICAL RM.			
100 AMP BUS RATING		100 AMP MAIN BREAKER		10 KA SHORT CIRCUIT RATING		42 POLES		ELECTRONIC GRADE: NO		MOUNTING: SURFACE			
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C			
1	LCP-1 (TB BASEMT.)SATURATION TK.1	0.5			20/1	2	LCP-2 (TB BASEMT.)SATURATION TK.2	0.5			20/1		
3	TB-UH-1 (1/12 HP)		0.38		20/1	4	TB-UH-2 (1/12 HP)		0.38		20/1		
5	TB-UH-3 (1/12 HP)			0.38	20/1	6	TB-UH-4 (1/25 HP)			0.18	20/1		
7	TB-ATC-1	0.5			20/1	8	RECPT. ROOF T.B. AND D.W.	0.36			20/1		
9	RECPT. - BASEMENT LOWER GALLERY		0.72		20/1	10	RECPT. - BASEMENT UPPER GALLERY		0.54		20/1		
11	RECPT. - 1ST FLOOR THICKENER AREA			0.72	20/1	12	RECPT. - 1ST FLOOR THICKENER AREA			0.72	20/1		
13	RECPT. - 1ST FLOOR ELECTRICAL ROOM	0.72			20/1	14	FACP-TB	0.5			20/1		
15	TB-ATC-2		0.5		20/1	16	DW-ATC-1 DEWATER 2ND FLOOR		0.5		20/1		
17	CPP-20			0.5	20/1	18	DW-UH-2 (1/8 HP)			0.4	20/1		
19	TRUCK UNLOADING PANEL #1				20/1	20	DW-ATC-2 DE WATER 1ST FL						
21	TRUCK UNLOADING PANEL #2				20/1	22	BIOFILTER CONTROLE PANEL						
23	GAS DETECTION SYSTEM-BOOSTERS			1	20/1	24	COMPRESSORS 1&2 COND. PUMP						
25	BIOFILTER HEAT TRACE				20/1	26	SPACE						
27	SPARE				20/1	28	SPACE						
29	SPARE				20/1	30	SPACE						
31	SPARE				20/1	32	CONTROLE ROOM SP-ACU-4						
33	SPARE				20/1	34	CONTROLE ROOM SP-ACU-4						
35	SPARE				20/1	36	SPACE						
37	SPARE				20/1	38	SPACE						
39	SPARE				20/1	40	SPACE						
41	SPARE				20/1	42	SPACE						
TOTAL PHASE KVA THIS SIDE		1.72	1.6	2.6		TOTAL PHASE KVA THIS SIDE		1.36	1.42	1.3			
						TOTAL KVA PER PHASE		3.08	3.02	3.9			
						TOTAL THREE PHASE KVA				10			

NOTES:
1. PROVIDE LOCKING HARDWARE
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

PANELBOARD DP-TB-2 - NEW										LOCATION: THICKENER BUILDING ELECTRICAL RM.			
225 AMP BUS RATING		M.L.O. AMP MAIN BREAKER		65 KA SHORT CIRCUIT RATING		42 POLES		ELECTRONIC GRADE: NO		MOUNTING: SURFACE			
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C			
1					20/3	2					20/3		
3	CV-3611				20/3	4	CV-3612				20/3		
5	TB BASEMENT					6	TB BASEMENT						
7						8							
9	CV-3653				20/3	10	CV-3654				20/3		
11	TB BASEMENT					12	TB BASEMENT						
13		10				14							
15	RECEPTACLE TRANSFORMER T-RP-TB-1		10		50/3	16	SUMP PUMP RECEPTACLE				20/3		
17	ELEC. RM. TB-102			10		18	DW BASEMENT						
19		10				20		10					
21	LIGHTING TRANSFORMER T-LP-TB-1		10		50/3	22	TRANSFORMER T-L3		10		50/3		
23	ELEC. RM. TB-102			10		24	DW 2ND FLOOR			10			
25		2				26		2					
27	CP-240-2 (HEATER H-240-2)			2	20/3	28	CP-240-4 (HEATER H-240-4)			2	20/3		
29	DW BASEMENT			2		30	DW BASEMENT			2			
31						32							
33	SPARE				20/3	34	SPARE				20/3		
35						36							
37						38							
39	SPARE				20/3	40	SPARE				20/3		
41						42							
TOTAL PHASE KVA THIS SIDE		22	22	22		TOTAL PHASE KVA THIS SIDE		12	12	12			
						TOTAL KVA PER PHASE		34	34	34			
						TOTAL THREE PHASE KVA				102			

NOTES:
1. PROVIDE LOCKING HARDWARE
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)



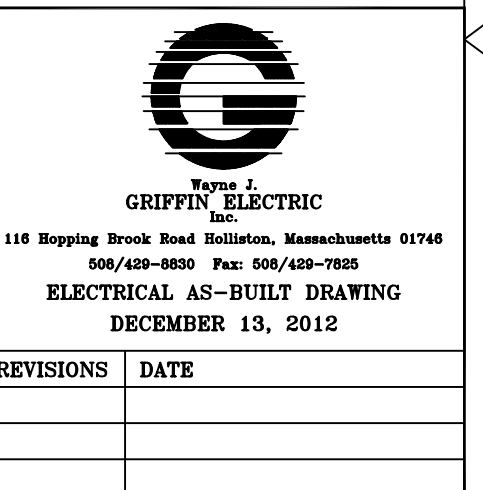
CONDUIT AND WIRE LEGEND	
(NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
1	3/4" C., 3#6, 1#10G
2	3/4" C., 3#12, 1#12G
3	1 1/2" C., 3#1, 1#IN, 1#6G
4	3/4" C., 1#6G
5	3/4" C., 3#8, 1#10G

CADD FILE NO. ESCHEDO1
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

PANELBOARD SCHEDULE I



PROJECT NO. 1289-74283
 Sht. 265 of 312
GD-E-19
 Acc # 1289-74671

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC\MONAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ESCHEDO1.DWG Saved by: RKILROY On: 13-Dec-12 11:19 AM

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WWP #1635 ELECTRICAL AS-BUILT'S ESCHED02.DWG Saved by: RKILROY On: 13-Dec-12 8:51 AM

PANELBOARD L1 - NEW LOCATION: DEWATERING BASEMENT 24 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD L2 - EXISTING LOCATION: DEWATERING 1ST FLOOR 24 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD L3 - NEW LOCATION: DEWATERING 2ND FLOOR 24 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD RP-3 - NEW LOCATION: DEWATERING 2ND FLOOR 24 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD RP-DEP - EXISTING LOCATION: ALDEN TRAINING CENTER 42 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD L - EXISTING LOCATION: INCINERATOR BUILDING 42 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

PANELBOARD HEAT RECOVERY - EXISTING LOCATION: DEWATERING 1ST FLOOR 42 POLES MOUNTING: SURFACE. Table with columns for CIRCUIT NO., DESCRIPTION, PHASE A, B, C, LOAD KVA, BREAKER AMPS/POLES, and NOTES.

- NOTES: 1. CIRCUITS SHOWN IN ITALICS ON NEW PANELBOARDS MUST BE REFINED WITH MATCHING CONDUIT AND WIRING. 2. RELOCATE THE 20 AMP SINGLE POLE CIRCUIT BREAKER FEEDING THE COPY MACHINE FROM CIRCUIT 37, TO CIRCUIT 40. INSTALL A NEW 20 AMP, THREE POLE CIRCUIT BREAKER FOR THE SLUDGE PUMP STATION ON CIRCUITS 37, 39, AND 41.

CONFORMED

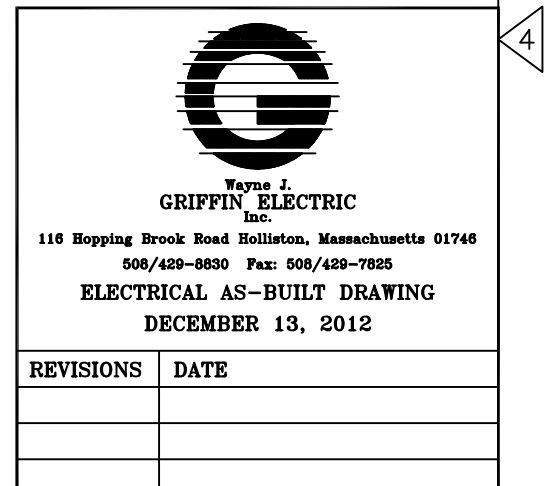


Table with columns: REV. NO., DATE, DRWN, CHKD, REMARKS.

CADD FILE NO. ESCHED02. DESIGNED BY: J.DONALDSON. DRAWN BY: J.DONALDSON. SHEET CHK'D BY: T.DISILVA. CROSS CHK'D BY: M.KOSTUR. SCALE: AS NOTED. APPROVED BY: J.ROMEO. DATE: SEPTEMBER 2010.

CDM Camp Dresser & McKee Inc. One Cambridge Place, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE WATER POLLUTION ABATEMENT DISTRICT CONTRACT NO. 3-0-17512-0033 PROJECT NO. CWSRF - 3197 WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

PANELBOARD SCHEDULE II PROJECT NO. 1289-74283 Sht. 266 of 312 GD-E-20 Acc # 1289-74672

PANELBOARD RP-INC-1 - EXISTING											LOCATION: INCINERATOR BUILDING ELECTRICAL RM			
AMP BUS RATING		XXX AMP MAIN BREAKER			KA SHORT CIRCUIT RATING			42 POLES			MOUNTING: SURFACE			
120/208 VOLTS		3 PHASE 4 WIRE 60 HZ			ELECTRONIC GRADE: NO									
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	NOTES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C				
1	RCF-S-3 (1/4 HP)				20/1	2	RCF-B-3 (1/4 HP)				20/1			
3	RCF-S-4 (1/4 HP)				20/1	4	RCF-B-4 (1/4 HP)				20/1			
5	RCF-1F-3 (1/4 HP)				20/1	6	RCF-2F-3 (1/4 HP)				20/1			
7	RCF-1F-4 (1/4 HP)				20/1	8	RCF-2F-4 (1/4 HP)				20/1			
9	ASH SYSTEM 3 RD FLOOR				20/1	10	RCF-3F-4 (1/4 HP)				20/1			
11	SPARE				20/1	12	SPARE				20/1			
13	RTO # 1 DAMPER				20/2	14	SPARE				20/1			
15	HEAT TRACE				20/1	16	RIO-12A				20/1			
17	INCH# 1 B-1 & TCV-141-1				20/1	18	INCH# 1 B-2 & TCV-142-1				20/1			
19	INCH# 1 B-3 & TCV-143-1				20/1	20	INCH# 1 B-4 & TCV-144-1				20/1			
21	INCH# 1 B-5 & TCV-145-1				20/1	22	INCH# 1 B-5 & TCV-146-1				20/1			
23	INCH# 1 B-7 & TCV-147-1				20/1	24	INCH# 1 B-8 & TCV-148-1				20/1			
25	INCH# 1 B-9 & TCV-149-1				20/1	26	INCH# 1 B-10 & TCV-150-1				20/1			
27	INCH# 1 B-11 & TCV-151-1				20/1	28	INCH# 1 B-12 & TCV-152-1				20/1			
29	INCH# 1 B-13 & TCV-153-1				20/1	30	INCH# 1 B-14 & TCV-154-1				20/1			
31	INCH# 1 B-15 & TCV-156-1				20/1	32	HEAT TRACE CONTACTOR				20/1			
33	RTO # 2 DAMPER				20/2	34	SPARE				20/1			
35	HEAT TRACE				20/1	36	WESP # 1 HEATER # 1				20/1			
37	SPARE				20/1	38	WESP # 1 HEATER # 2				20/1			
39	SPARE				20/1	40	WESP # 1 HEATER # 3				20/1			
41	SPARE				20/1	42	WESP # 1 HEATER # 4				20/1			
TOTAL PHASE KVA THIS SIDE		0	0	0	TOTAL PHASE KVA THIS SIDE		0	0	0	TOTAL PHASE KVA THIS SIDE				
					TOTAL KVA PER PHASE		0	0	0	TOTAL KVA PER PHASE				
					TOTAL THREE PHASE KVA					TOTAL THREE PHASE KVA		0		

NOTES:

- PROVIDE LOCKING HARDWARE
- 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
- 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
- PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

NOTES CONT.:

- 5.
- 6.
- 7.
- 8.

PANELBOARD DP-SPB-1 - EXISTING											LOCATION: INCINERATOR BUILDING ELECTRICAL RM			
AMP BUS RATING		M.L.O. AMP MAIN BREAKER			KA SHORT CIRCUIT RATING			42 POLES			MOUNTING: SURFACE			
225 480 VOLTS		3 PHASE 3 WIRE 60 HZ			ELECTRONIC GRADE: NO									
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	NOTES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C				
1						2								
3	SPARE				20/3	4	CU-398-1				20/3			
5						6								
7						8								
9						10								
11	ROTARY FEEDER VFD-F-775				20/3	12	WATER BOOSTER PP VFD-P-761	1.24			20/3			
13	UNIT HEATERS IN					14	SHP		1.24	1.24				
15	MCC-11,12,13 ROOMS				20/3	16	WATER BOOSTER PP VFD-P-762			1.24	20/3			
17						18	SHP		1.24					
19						20								
21	CU-113-1				20/3	22	CU-365-1				20/3			
23						24								
25						26				0.8				
27	SPARE				20/3	28	MAKE UP AIR FAN - F-600		0.8		20/3			
29						30					0.8			
31						32								
33	SPARE				20/3	34	SPARE				20/3			
35						36								
37						38								
39						40								
41						42								
TOTAL PHASE KVA THIS SIDE		0	0	0	TOTAL PHASE KVA THIS SIDE		3.28	3.28	3.28	TOTAL PHASE KVA THIS SIDE				
					TOTAL KVA PER PHASE		3.28	3.28	3.28	TOTAL KVA PER PHASE				
					TOTAL THREE PHASE KVA					TOTAL THREE PHASE KVA		9.84		

NOTES:

- PROVIDE LOCKING HARDWARE
- 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
- 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
- PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

NOTES CONT.:

- 5.
- 6.
- 7.
- 8.

PANELBOARD RP-INC-2 - EXISTING											LOCATION: INCINERATOR BUILDING ELECTRICAL RM			
AMP BUS RATING		XXX AMP MAIN BREAKER			KA SHORT CIRCUIT RATING			42 POLES			MOUNTING: SURFACE			
120/208 VOLTS		3 PHASE 4 WIRE 60 HZ			ELECTRONIC GRADE: NO									
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	NOTES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C				
1	RCF-S-1 (1/4 HP)				20/1	2	RCF-B-1 (1/4 HP)				20/1			
3	RCF-S-2 (1/4 HP)				20/1	4	RCF-B-2 (1/4 HP)				20/1			
5	RCF-1F-1 (1/4 HP)				20/1	6	RCF-2F-1 (1/4 HP)				20/1			
7	RCF-1F-2 (1/4 HP)				20/1	8	RCF-2F-2 (1/4 HP)				20/1			
9	RCF-3F-1 (1/4 HP)				20/1	10	SPARE				20/1			
11	SPARE				20/1	12	SPARE				20/1			
13	INCH# 3 B-1 & TCV-141-3				20/1	14	INCH# 3 B-2 & TCV-142-3				20/1			
15	INCH# 3 B-3 & TCV-143-3				20/1	16	INCH# 3 B-4 & TCV-144-3				20/1			
17	INCH# 3 B-5 & TCV-145-3				20/1	18	INCH# 3 B-5 & TCV-146-3				20/1			
19	INCH# 3 B-7 & TCV-147-3				20/1	20	INCH# 3 B-8 & TCV-148-3				20/1			
21	INCH# 3 B-9 & TCV-149-3				20/1	22	INCH# 3 B-10 & TCV-150-3				20/1			
23	INCH# 3 B-11 & TCV-151-3				20/1	24	INCH# 3 B-12 & TCV-152-3				20/1			
25	INCH# 3 B-13 & TCV-153-3				20/1	26	INCH# 3 B-14 & TCV-154-3				20/1			
27	INCH# 3 B-15 & TCV-155-3				20/1	28	SP-ATC-1				20/1			
29	BAG FILTER CONTROLLER				20/1	30	SPARE				20/1			
31	SPARE				20/1	32	SPARE				20/1			
33	SPARE				20/1	34	SPARE				20/1			
35	SPARE				20/1	36	WESP # 2 HEATER # 1				20/1			
37	SPARE				20/1	38	WESP # 2 HEATER # 2				20/1			
39	HEAT TRACE PP TOPS				20/1	40	WESP # 2 HEATER # 3				20/1			
41	OUTLET BELOW PANEL				20/1	42	WESP # 2 HEATER # 4				20/1			
TOTAL PHASE KVA THIS SIDE		0	0	0	TOTAL PHASE KVA THIS SIDE		0	0	0	TOTAL PHASE KVA THIS SIDE				
					TOTAL KVA PER PHASE		0	0	0	TOTAL KVA PER PHASE				
					TOTAL THREE PHASE KVA					TOTAL THREE PHASE KVA		0		

NOTES:

- PROVIDE LOCKING HARDWARE
- 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
- 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
- PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

NOTES CONT.:

- 5.
- 6.
- 7.
- 8.

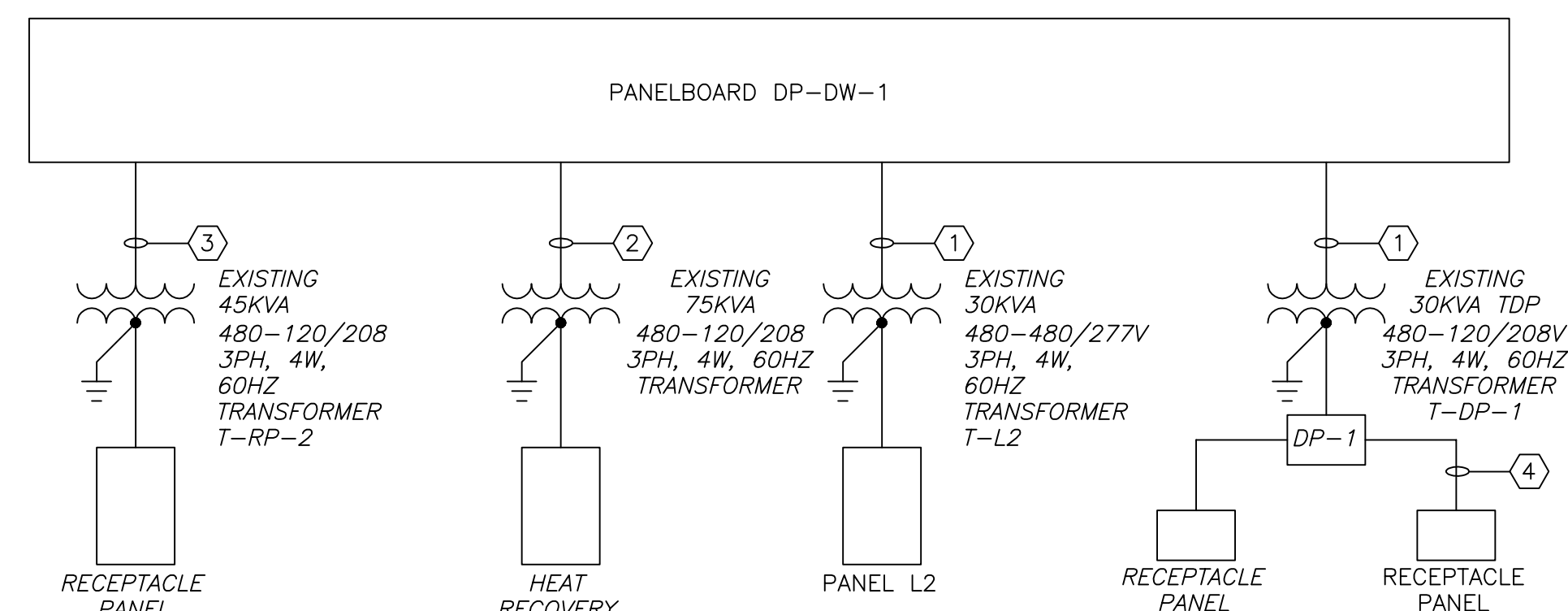
PANELBOARD DP-DW-1											LOCATION: DEWATERING BUILDING FIRST FLOOR			
AMP BUS RATING		300 AMP MAIN BREAKER			KA SHORT CIRCUIT RATING			42 POLES			MOUNTING: SURFACE			
400 480 VOLTS		3 PHASE 3 WIRE 60 HZ			ELECTRONIC GRADE: NO									
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/POLES	NOTES		
		PHASE A	PHASE B	PHASE C				PHASE A	PHASE B	PHASE C				
1						2								
3	CV-4541,CV-4551,CV-4561				20/3	4	CV-4544,CV-4564				20/3			
5	DW 1ST FLOOR					6	DW 1ST FLOOR							
7						8				15				
9	CV-4542,CV-4552,CV-4562				20/3	10	T-RP-2 TRANSFORMER		15		70/3			
11	DW 1ST FLOOR					12	DW 1ST FLOOR			15				
13						14			0.4					
15	CV-4543,CV-4553,CV-4563				20/3	16	OVERHEAD DOOR (2) 1ST. FL. DW-100		0.4		20/3			
17	DW 1ST FLOOR					18				0.4				
19		10				20			25					
21	TRANSFORMER T-DP-1		10		50/3	22	HEAT RECOVERY TRANSFORMER		25		125/3			
23	DW 1ST FLOOR			10		24	DW 1ST FLOOR			25				
25		10				26								
27	TRANSFORMER T-L2		10		50/3	28	SPARE				20/3			
29	DW 1ST FLOOR			10		30								
31						32								
33	SPARE				20/3	34	SPARE				20/3			
35						36								
37						38								
39	SPARE				20/3	40	SPARE				20/3			
41						42								
TOTAL PHASE KVA THIS SIDE		20	20	20	TOTAL PHASE KVA THIS SIDE		40.4	40.4	40.4	TOTAL PHASE KVA THIS SIDE				
					TOTAL KVA PER PHASE		60.4	60.4	60.4	TOTAL KVA PER PHASE				
					TOTAL THREE PHASE KVA					TOTAL THREE PHASE KVA		181.2		

NOTES:

- PROVIDE LOCKING HARDWARE
- 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
- 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
- PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)

NOTES CONT.:

- 5.
- 6.
- 7.
- 8.

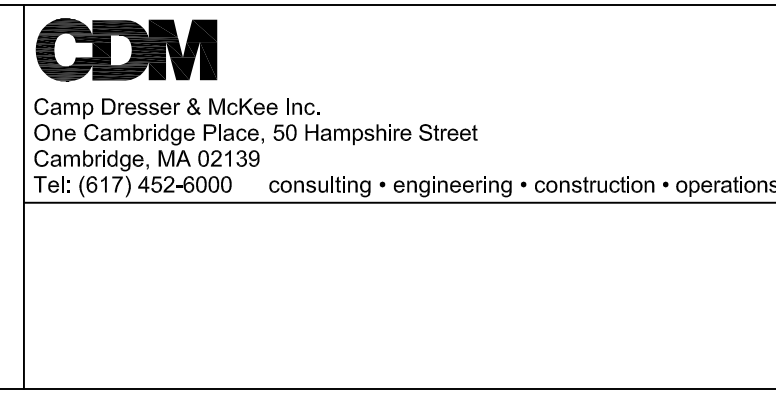


CONDUIT AND WIRE LEGEND	
(NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 3#6, 1#10G
②	1 1/4" C., 3#1, 1#6G
③	1" C., 3#4, 1#8G
④	1 1/2" C., 3#1, 1#IN, 1#6G

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. _____	ESCHED03
DESIGNED BY: _____	J.DONALDSON
DRAWN BY: _____	J.DONALDSON
SHEET CHK'D BY: _____	T.DASILVA
CROSS CHK'D BY: _____	M.KOSTER
SCALE: _____	AS NOTED
APPROVED BY: _____	J.ROMEO
DATE: _____	SEPTEMBER 2010

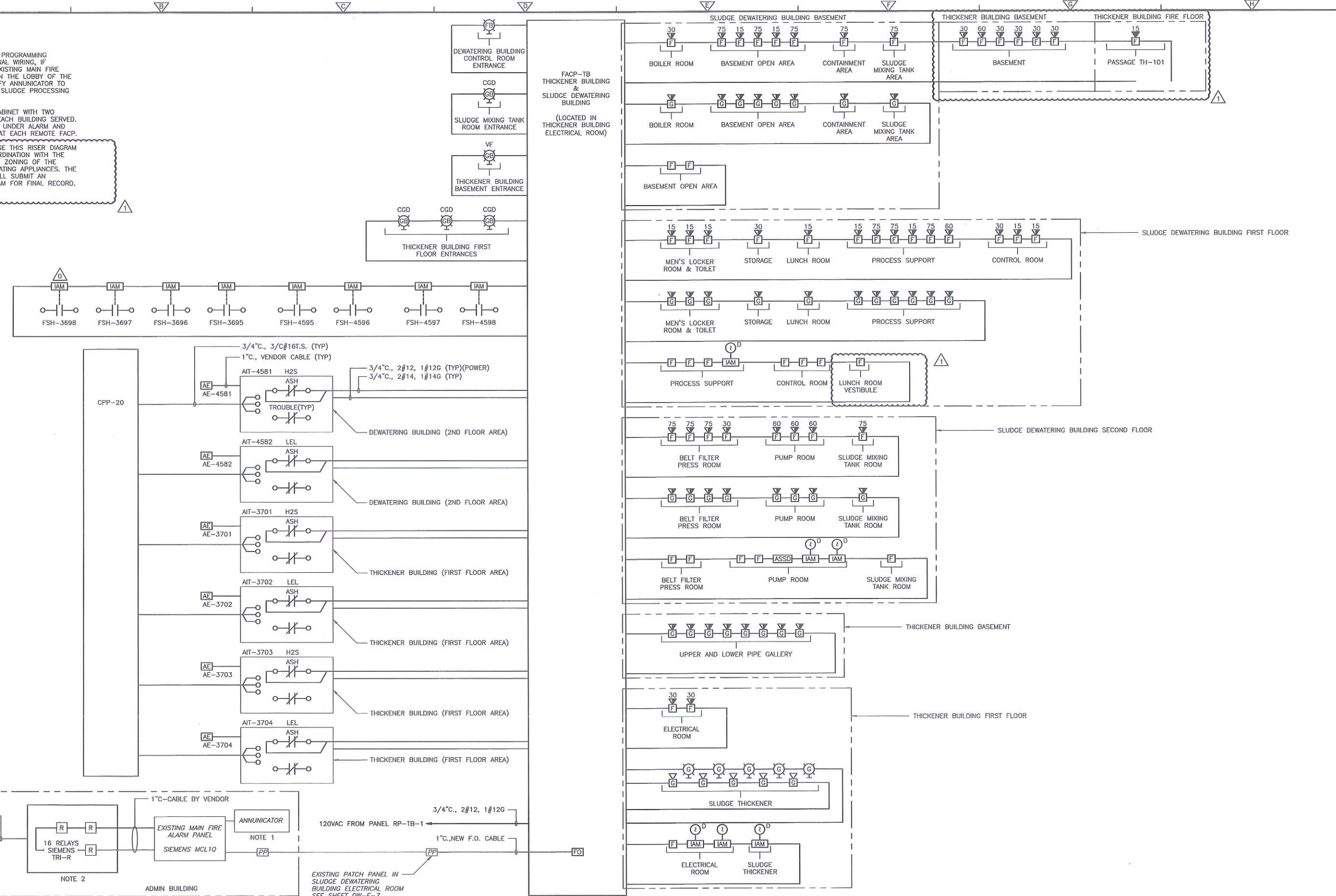


**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT**
CONTRACT No. **3-0-17512-0033**
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROV**

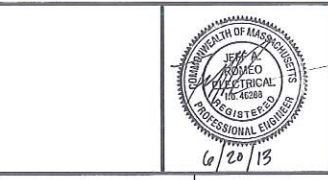
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 C:\CDM\CDM\DONALDSON\00325631\ERISER01.DWG
 THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

- NOTES:**
1. WORK SHALL INCLUDE PROGRAMMING OUTPUTS AND ADDITIONAL WIRING, IF NECESSARY, TO THE EXISTING MAIN FIRE ALARM ANNUNCIATOR IN THE LOBBY OF THE ADMIN BUILDING. MODIFY ANNUNCIATOR TO INCLUDE WINDOW FOR SLUDGE PROCESSING COMPLEX FACP.
 2. INSTALL NEW RELAY CABINET WITH TWO OUTPUT RELAYS FOR EACH BUILDING SERVED. PROGRAM TO OPERATE UNDER ALARM AND TROUBLE CONDITIONS AT EACH REMOTE FACP.
 3. CONTRACTOR SHALL USE THIS RISER DIAGRAM AS A GUIDE FOR COORDINATION WITH THE SYSTEM PROVIDER FOR ZONING OF THE NOTIFICATION AND INITIATING APPLIANCES. THE SYSTEM SUPPLIER SHALL SUBMIT AN UPDATED RISER DIAGRAM FOR FINAL RECORD.



REV. NO.	DATE	DRWN	CHKD	REMARKS
1	06/13	JUD	JAR	MILLBURY FIRE DEPARTMENT MODIFICATIONS
	01/30			FIRE ALARM SYSTEM PLAN REVIEW
	09/10	TJA	TRO	REVISED PER ADDENDA NOS. 1 THRU 3

CADD FILE NO.: ERISER01.DWG
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



CDM Smith
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

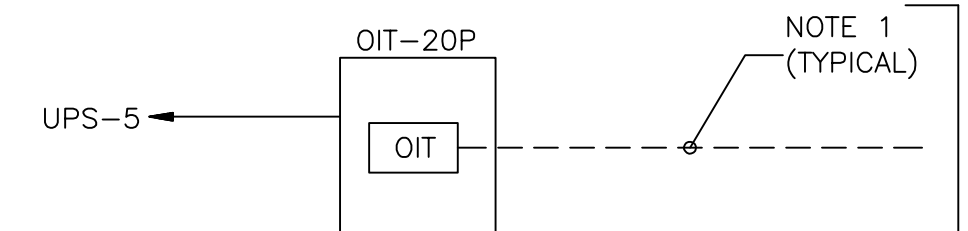
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**FIRE ALARM AND GAS DETECTION
 RISER DIAGRAM**
 PROJECT NO. 1289-74283
 Sh. 268 of 312
GD-E-22
 Acc # 1289-74674

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\ERISER02.DWG Saved by: DONALDSONJ On: 29-Jun-10 Plotted on: 13-Dec-12 1:10 PM

DEWATERING BUILDING
SECOND FLOOR

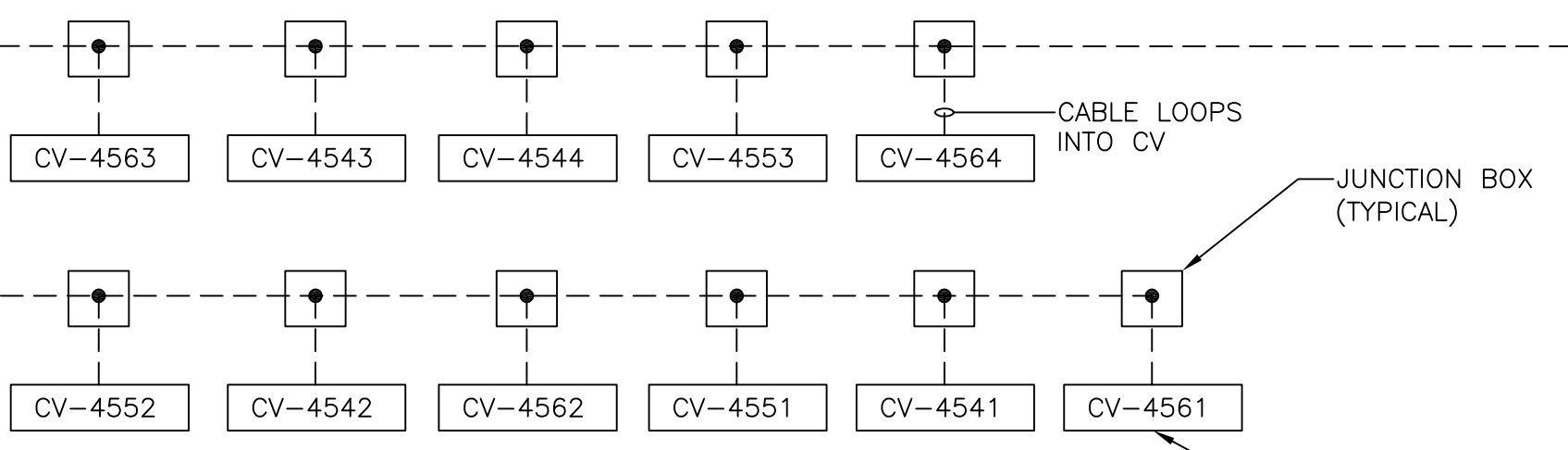
- BFP POLYMER FEED PUMP NO.1 VFD-6541
- BFP POLYMER FEED PUMP NO.2 VFD-6542
- BFP POLYMER FEED PUMP NO.3 VFD-6543
- BFP POLYMER FEED PUMP NO.4 VFD-6544



- BELT FILTER PRESS NO.1 CONTROL PANEL
- BELT FILTER PRESS NO.2 CONTROL PANEL
- BELT FILTER PRESS NO.3 CONTROL PANEL
- BELT FILTER PRESS NO.4 CONTROL PANEL

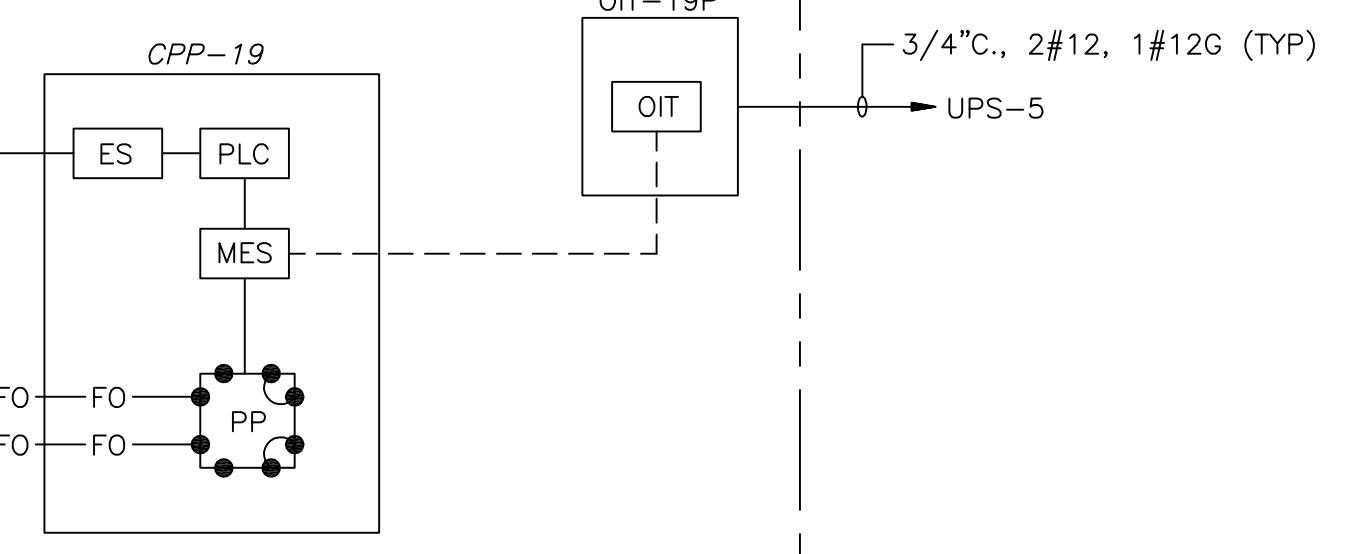
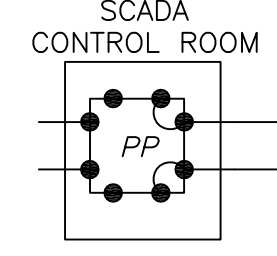
DEWATERING BUILDING
FIRST FLOOR

- CAKE PUMP NO.1 CONTROL PANEL
- CAKE PUMP NO.2 CONTROL PANEL
- CAKE PUMP NO.3 CONTROL PANEL
- CAKE PUMP NO.4 CONTROL PANEL

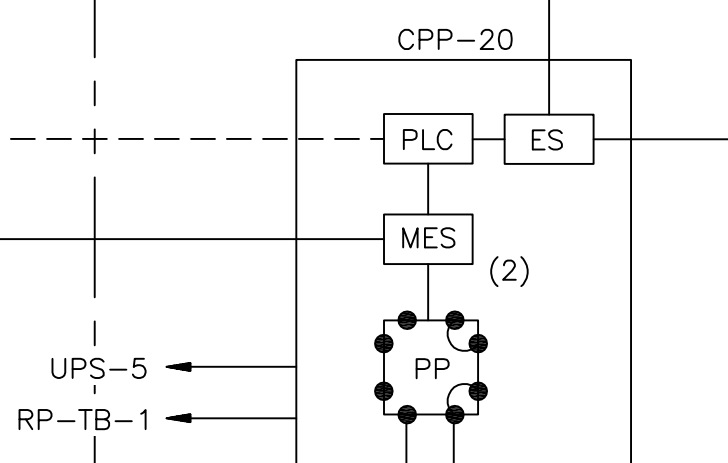


DEWATERING BUILDING
BASEMENT

- DAF POLYMER FEED PUMP NO.1 VFD-6461
- DAF POLYMER FEED PUMP NO.2 VFD-6462
- DAF POLYMER FEED PUMP NO.3 VFD-6463

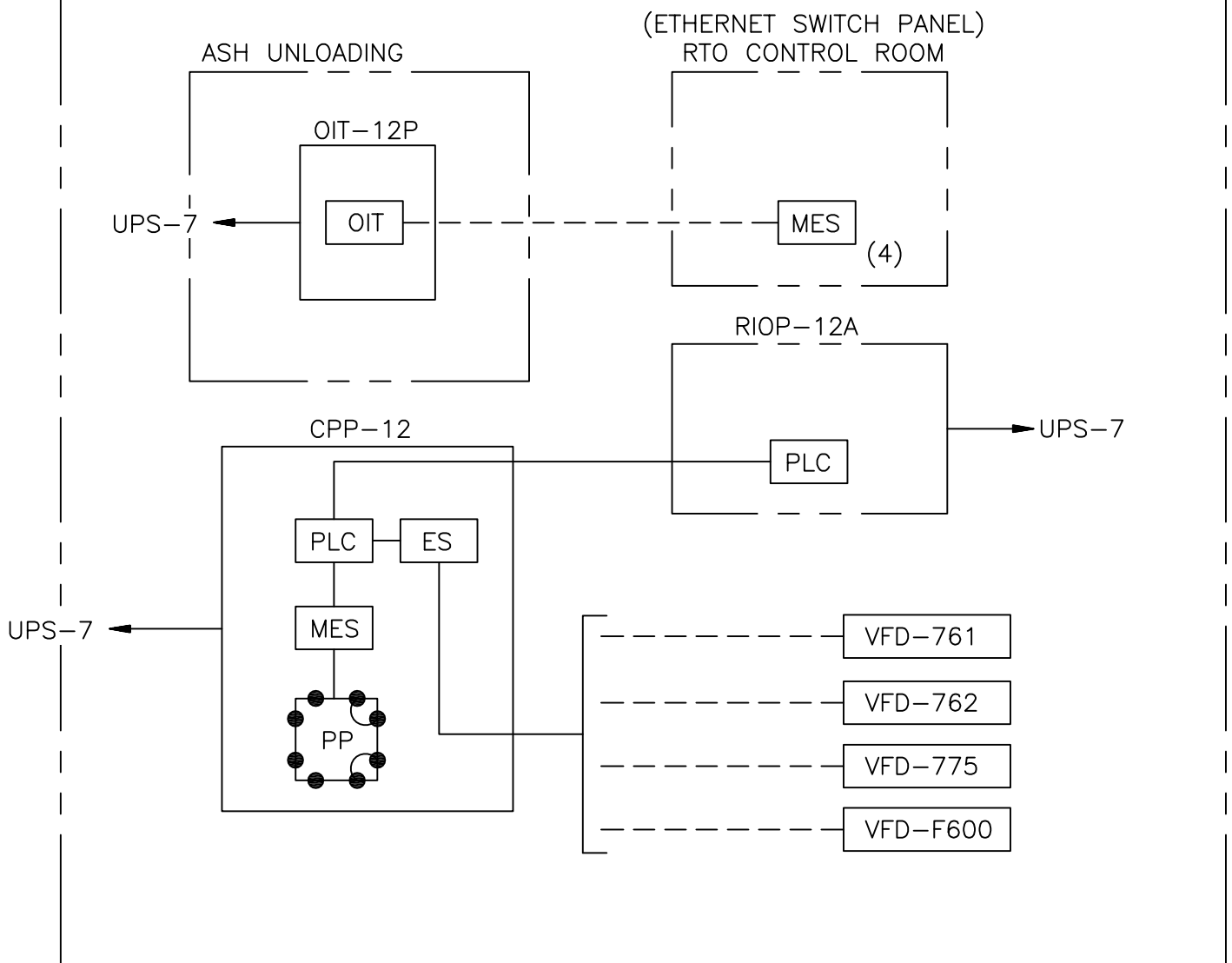


DAF THICKENER BUILDING
ELECTRICAL ROOM



- VFD-3535 DAF TOP COLLECTOR NO.3
- VFD-3545 DAF TOP COLLECTOR NO.4
- VFD-3581 THICKENED SLUDGE PUMP NO.1
- VFD-3582 THICKENED SLUDGE PUMP NO.2
- VFD-4531 BFP SLUDGE FEED PUMP NO.1
- VFD-4532 BFP SLUDGE FEED PUMP NO.2
- VFD-4533 BFP SLUDGE FEED PUMP NO.3
- VFD-4534 BFP SLUDGE FEED PUMP NO.4
- VFD-611 ODOR CONTROL FAN NO.1
- VFD-612 ODOR CONTROL FAN NO.2

INCINERATOR BUILDING



- GENERAL NOTES:**
- FURNISH AND INSTALL 1" CONDUITS FOR RACEWAYS BETWEEN ALL EQUIPMENT INSIDE OF STRUCTURES. MINIMUM BENDING RADIUS SHALL BE COORDINATED WITH AND ADHERED TO MANUFACTURER REQUIREMENTS.
 - NOT ALL RACEWAYS ARE SHOWN ON PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE RISER DIAGRAMS WITH EQUIPMENT LOCATIONS TO INSTALL A COMPLETE RACEWAY AND CABLING SYSTEM.
 - CONTROLNET REMOTE I/O CABLE BY DIV. 13.

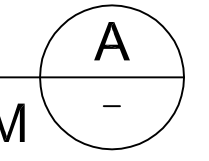
LEGEND:

- PATCH PANEL FURNISHED UNDER DIV. 13
- ETHERNET SWITCH OR COMMUNICATION DEVICE FURNISHED UNDER DIV. 13 FOR I&C SYSTEMS.
- PROGRAMMABLE LOGIC CONTROLLER FURNISHED UNDER DIV. 13 FOR I&C SYSTEMS.
- OPERATOR INTERFACE TERMINAL FURNISHED UNDER DIV. 13 FOR I&C SYSTEMS.
- REMOTE IO EQUIPMENT FURNISHED UNDER DIV. 13
- PC JAX TO BE COORDINATED WITH CABLE FURNISHED UNDER DIV. 13.
OWS-* = OPERATOR WORK STATION
- I&C SCADA CAT6 ETHERNET COMMUNICATIONS CABLE BY DIV.13 (RACEWAY BY DIV.16)
- FIBER OPTIC CABLE
- MANAGED ETHERNET SWITCH (DIV. 13)

OVERALL I&C SYSTEM ARCHITECTURE

BLOCK DIAGRAM

N.T.S.



CONFORMED

GRIFFIN ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
508/429-8800 Fax: 508/429-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ERISER02
DESIGNED BY: T.DISILVA
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

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Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**INSTRUMENTATION SYSTEM ARCHITECTURE
AND DATA HIGHWAY**

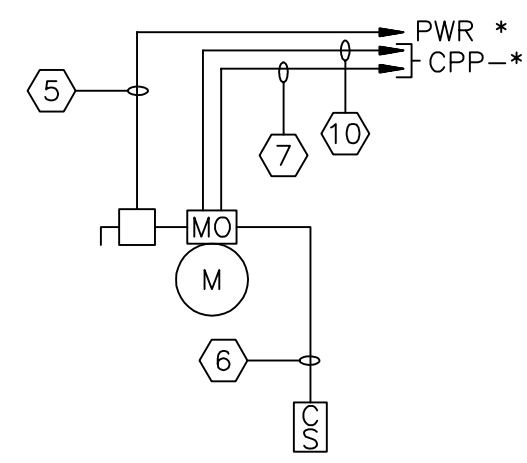
PROJECT NO.
1289-74283

Sht. 269 of 312

GD-E-23

Acc # 1289-74675

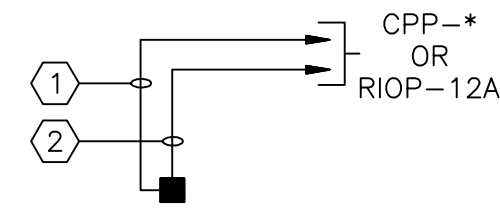
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DESCRIPTION	CPP-*	PWR*
FCV-3611	20	DP-TB-2
FCV-3612	20	DP-TB-2
FCV-3653	20	DP-TB-2
FCV-3654	20	DP-TB-2

CONTROL VALVES

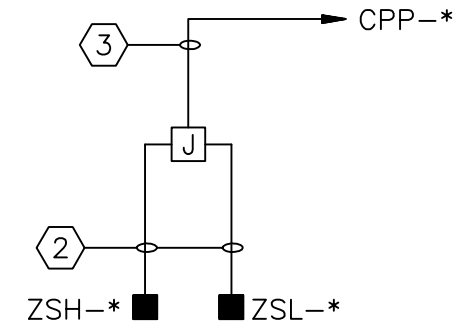
NTS



DESCRIPTION	CPP-*
LSH-6490	19
LSH-6560	20
FSH-805	RIOP-12A
FSL-4601	20
FSL-4701	20
FSL-4801	20
FSL-4901	20

**LEVEL SWITCHES,
BROKEN BAG PARTIAL
DETECTOR SWITCH,
FLOW SWITCHES**

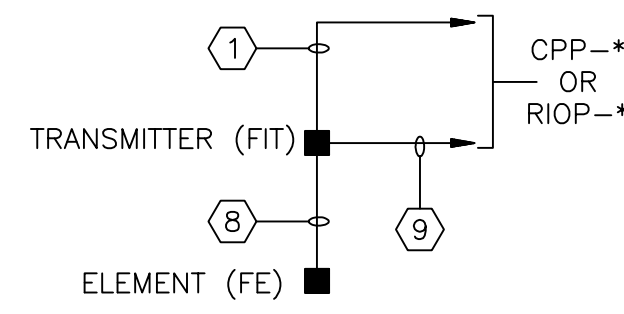
NTS



CV-*	ZSH-*	ZSL-*	CPP-*
3591	3591	3591	20
3592	3592	3592	20
4076	4076	4076	3
4077	4077	4077	3
4150	4150	EXISTING	3
4162	4162	4162	3
4163	4163	4163	3
4164	4164	4164	3
4167	4167	4167	3
4168	4168	4168	3
4169	4169	4169	3
4501	4501	4501	20
4502	4502	4502	20
4511	4511	4511	20
4512	4512	4512	20
4513	4513	4513	20
4521	4521	4521	20
4522	4522	4522	20
4523	4523	4523	20
4524	4524	4524	20

VALVE POSITION SWITCHES

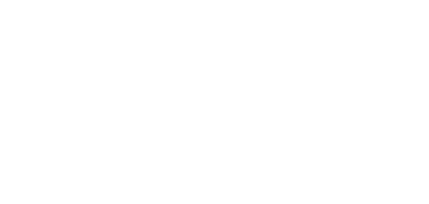
NTS



DESCRIPTION	CPP-*
FE/FIT-114-1	RIOP-12A
FE/FIT-114-3	RIOP-12A
FE/FIT-3611	20
FE/FIT-3612	20
FE/FIT-3653	20
FE/FIT-3654	20
FE/FIT-4141	3
FE/FIT-4142	3
FE/FIT-4143	3
FE/FIT-4180	20

FLOW TRANSMITTERS

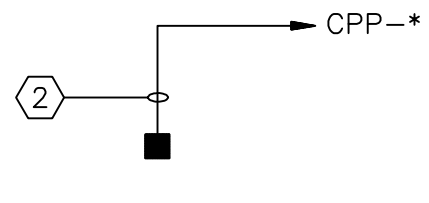
NTS



DESCRIPTION	RIOP-*
TSH-815	12A

TEMPERATURE SWITCH

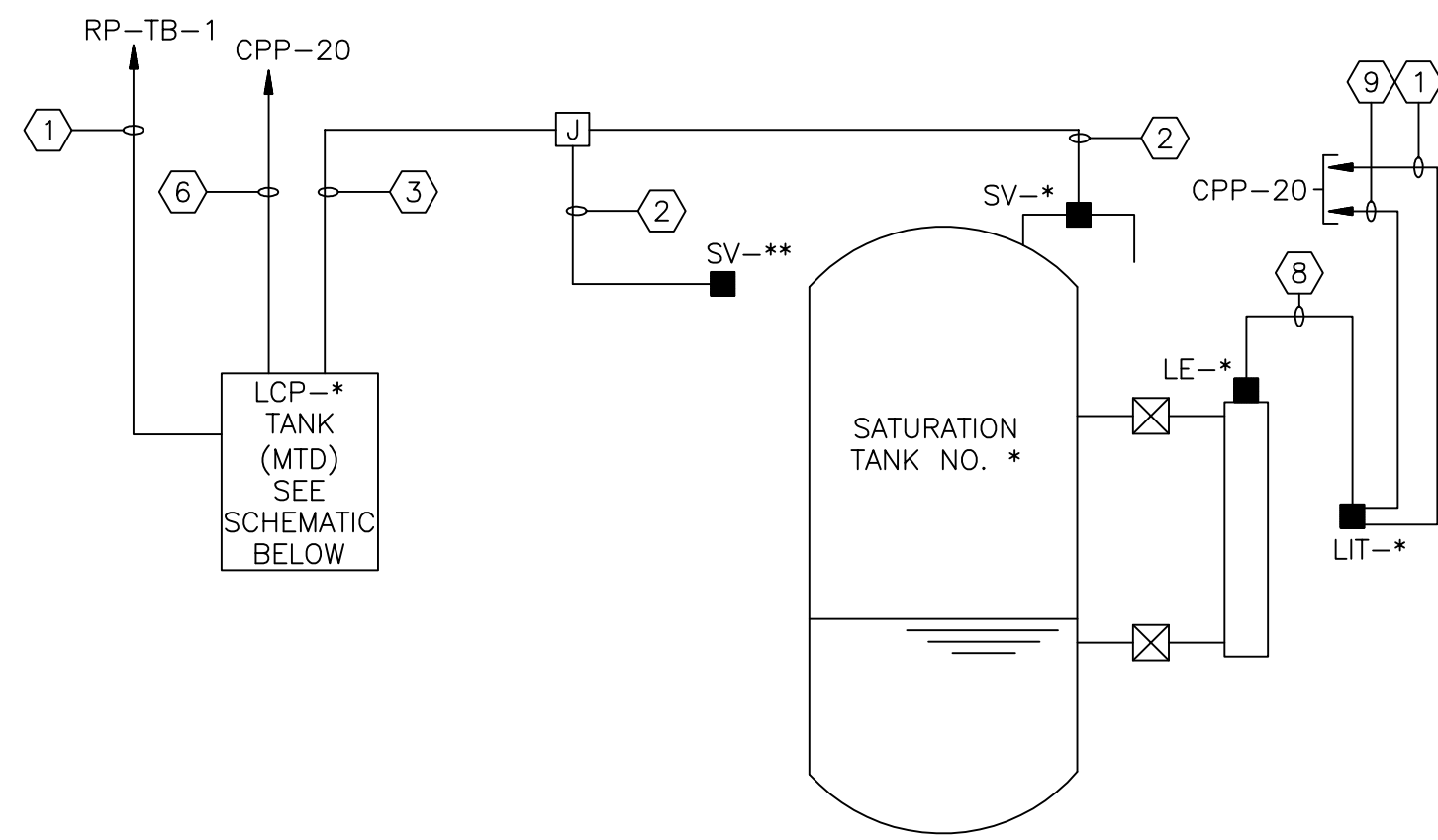
NTS



DESCRIPTION	CPP-*
LSH-4659	20
LSH-4759	20
LSH-4859	20
LSH-4959	20

LEVEL SWITCHES

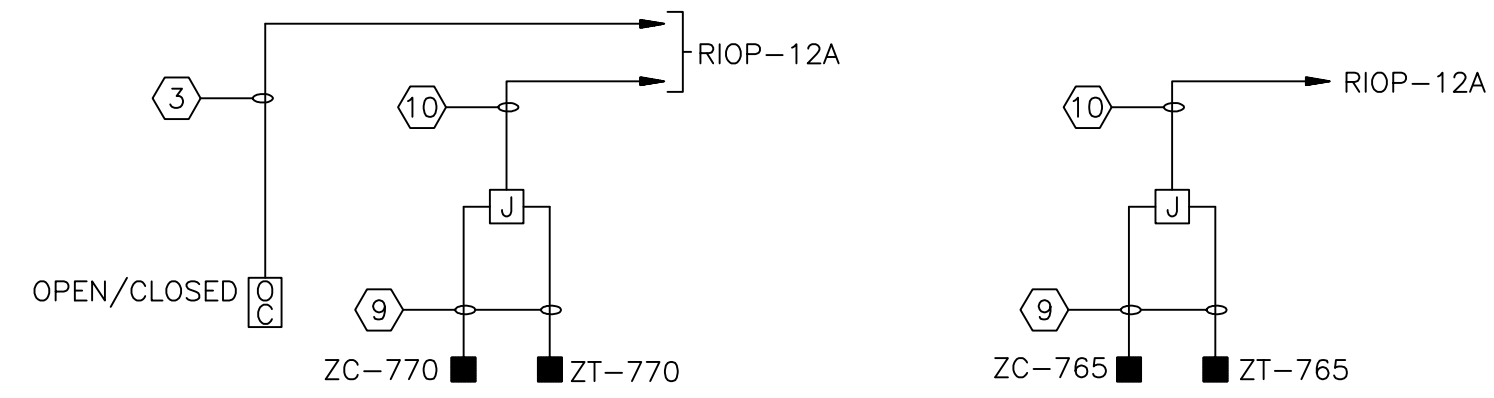
NTS



SATURATION TANK NO.*	LCP-*	SV-*	SV-**	LE-*	LIT-*
1	1	3631B	3631A	3621	3621
2	2	3632B	3632A	3622	3622

SATURATION TANK NO. 1 AND 2

NTS

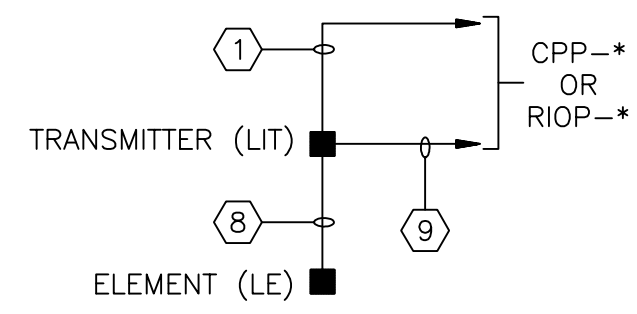


**FEED GATE
CV-770**

NTS

**PLANT WATER
CV-765**

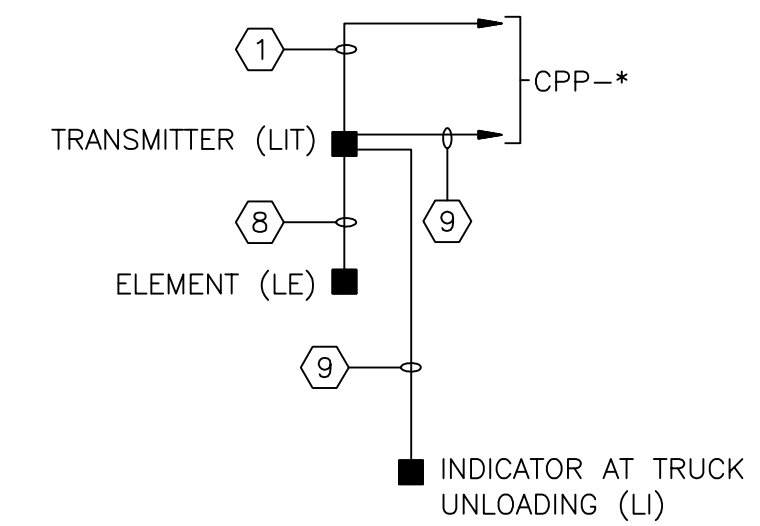
NTS



DESCRIPTION	CPP-*
LE/LIT-10	20
LE/LIT-11	20
LE/LIT-12	20
LE/LIT-750	RIOP-12A
LE/LIT-3551	20
LE/LIT-3800	RIOP-3A
LE/LIT-4121	3
LE/LIT-4122	3
LE/LIT-6531	20
LE/LIT-6532	20

LEVEL TRANSMITTERS

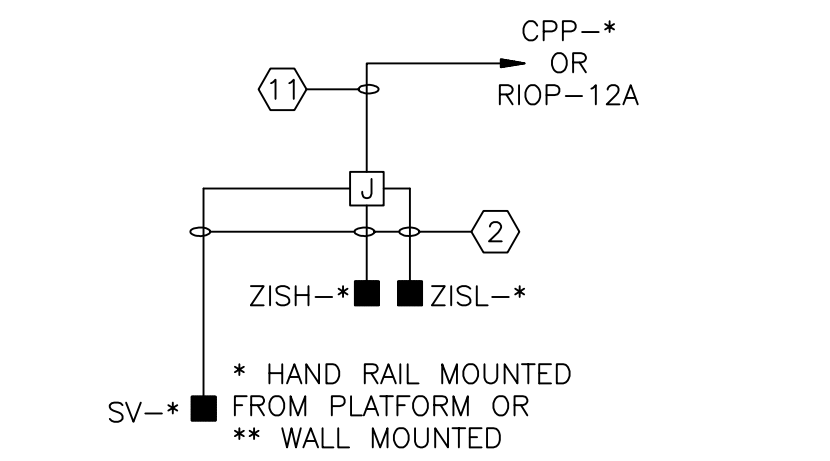
NTS



DESCRIPTION	CPP-*
LE/LIT/LI-6401	19
LE/LIT/LI-6402	19
LE/LIT/LI-6501	19
LE/LIT/LI-6502	19
LE/LIT/LI-6503	19

**LEVEL TRANSMITTERS
AND INDICATORS**

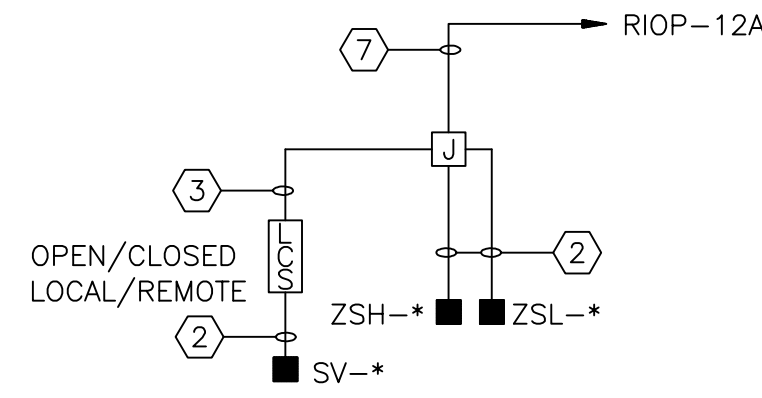
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DESCRIPTION	SV-*	ZISL-*	ZISH-*	CPP-*	MTG.
CV-4695	4695	4695	4695	20	**
CV-4795	4795	4795	4795	20	**
CV-4895	4895	4895	4895	20	**
CV-4896	4896	4896	4896	20	**
CV-4897	4897	4897	4897	20	**
CV-4898	4898	4898	4898	20	**
CV-4995	4995	4995	4995	20	**
CV-4996	4996	4996	4996	20	**
CV-4997	4997	4997	4997	20	**
CV-4998	4998	4998	4998	20	**
CV-5011	5011	5011	5011	RIOP-12A	*
CV-5012	5012	5012	5012	RIOP-12A	*
CV-5013	5013	5013	5013	RIOP-12A	*
CV-5021	5021	5021	5021	RIOP-12A	*
CV-5022	5022	5022	5022	RIOP-12A	*
CV-5023	5023	5023	5023	RIOP-12A	*
CV-5024	5024	5024	5024	RIOP-12A	*

CONTROL VALVES

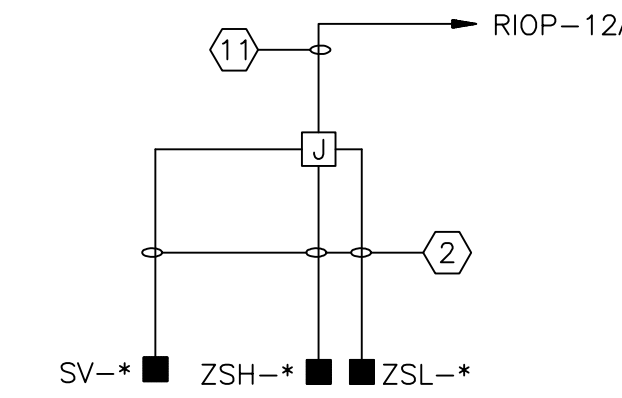
NTS



DESCRIPTION	SV-*	ZSL-*	ZSH-*
CV-721	721	721	721
CV-723	723	723	723

**AIR INLET
VALVE**

NTS



DESCRIPTION	SV-*	ZSL-*	ZSH-*
VB-730	730	730	730
VB-800	800	800	800

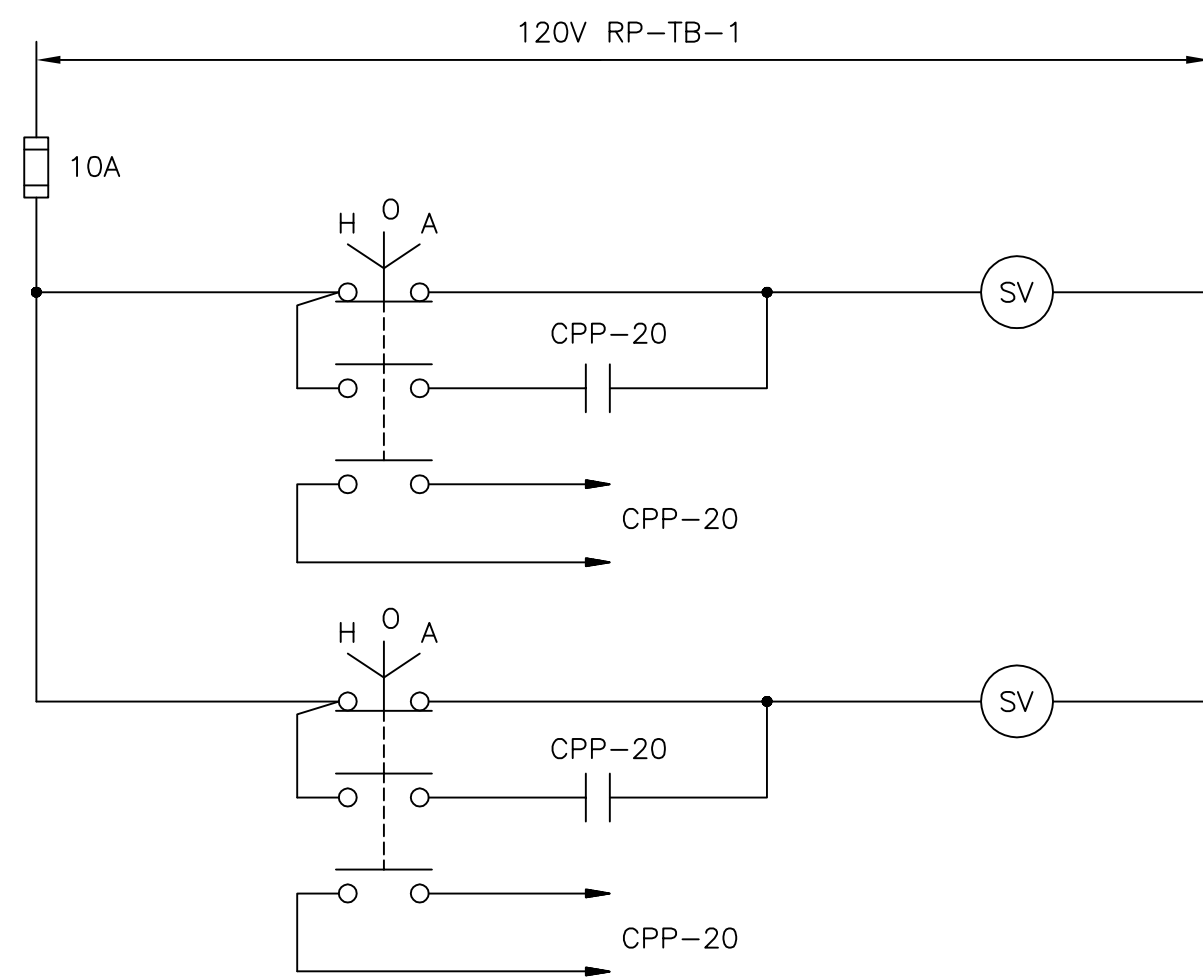
**VACUUM BREAK WITH
INTERNAL SLIDE GATE**

NTS

NOTES:

1. RIOP-12A REFERENCED ON THIS SHEET INDICATES A NEW INSTRUMENTATION PANEL.

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 2#12, 1#12G
②	3/4" C., 2#14, 1#14G
③	3/4" C., 4#14, 1#14G
④	3/4" C., 6#14, 1#14G
⑤	3/4" C., 3#12, 1#12G
⑥	3/4" C., 10#14, 1#14G
⑦	3/4" C., 12#14, 1#14G
⑧	1" C., VENDOR CABLE
⑨	3/4" C., 2/C#16TS
⑩	3/4" C., 2-2/C#16TS
⑪	3/4" C., 8#14, 1#14G



**LCP-1 (LCP-2)
LOOP 3631, (3632)**

NTS

CADD FILE NO.	ERISERO3
DESIGNED BY:	T.J. ADAMCZYK
DRAWN BY:	T.J. ADAMCZYK
SHEET CHK'D BY:	T. DISILVA
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. ROMEO
DATE:	SEPTEMBER 2010

CDM
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Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

INSTRUMENTATION SYSTEM BLOCK DIAGRAMS

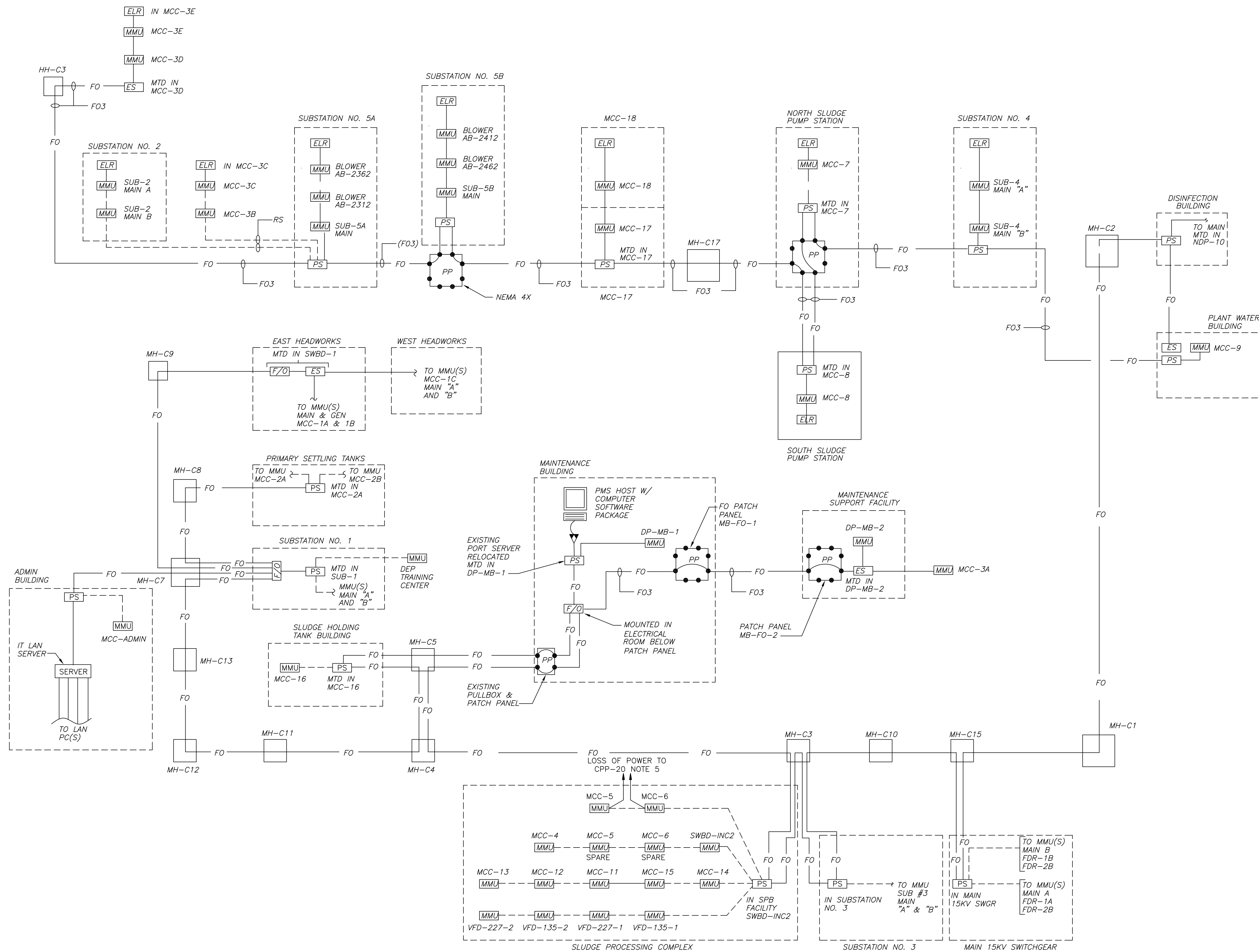
GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/438-0800 Fax: 508/438-7855
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283
Sht. 270 of 312
GD-E-24
Acc # 1289-74676

CONFORMED


Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WWP #1635\ELECTRICAL AS-BUILT\UPPER BLACKSTONE WWP #1635\ERISERO4.DWG Saved by: RKILROY On: 10-Dec-12 9:06 AM



- LEGEND:**
- F/O FIBER OPTIC SWITCH INTERFACE MODULE AS REQUIRED BY POWER MONITORING MANUFACTURER.
 - PS FIBER OPTIC/COMMUNICATIONS PORT SERVER.
 - PP PATCH PANEL FURNISHED UNDER DIV. 13
 - ES ETHERNET SWITCH OR COMMUNICATION DEVICE. AS REQUIRED BY PMSM.
 - ELR END OF LINE RESISTOR PER PMCM REQUIREMENTS.
 - MMU MULTI METERING UNIT
 - POWER MONITORING RS485 COMMUNICATIONS CABLE
 - FO— POWER MONITORING FIBER OPTIC CABLE
 - POWER MONITORING 2#14 THHN
 - (FO3) FIBER OPTIC CABLE I.D. USED IN UNDERGROUND DUCTBANKS RACEWAY SCHEDULES.
 - RS ETHERNET CABLE PER MANUFACTURER'S REQUIREMENTS

- GENERAL NOTES:**
1. FURNISH AND INSTALL 1" CONDUITS FOR RACEWAYS BETWEEN ALL EQUIPMENT INSIDE OF STRUCTURES. MINIMUM BENDING RADIUS SHALL BE COORDINATED WITH AND ADHERED TO MANUFACTURER REQUIREMENTS.
 2. NOT ALL RACEWAYS ARE SHOWN ON PLANS. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE RISER DIAGRAMS WITH EQUIPMENT LOCATIONS TO INSTALL A COMPLETE RACEWAY AND CABLING SYSTEM.
 3. EXISTING MMU'S SERVING EXISTING MCC'S 5&6 SHALL BE NOW SPARED. REPROGRAM GRAPHICS TO REFLECT CHANGE.
 4. CONNECT NEW MMU'S AT NEW MCC'S 5 & 6 TO EXISTING PORT SERVER WITHIN SWITCHBOARD INC. PROGRAM POWER MONITORING SYSTEM AND GRAPHICS.
 5. PROVIDE AND PROGRAM DRY OUT PUT CONTACTS TO CLOSE ON LOSS OF POWER.
 6. PROVIDE ALL PROGRAMMING AND SOFTWARE NECESSARY TO INCORPORATE MMU'S INTO THE POWER MONITORING SYSTEM.

CONFORMED



Griffin Electric
116 Hopping Brook Road Holliston, Massachusetts 01746
 508/428-0820 Fax 508/428-7625

REVISIONS	DATE

CADD FILE NO. ERISERO4
 DESIGNED BY: T.DISILVA
 DRAWN BY: T.J.ADAMCZYK
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**POWER MONITORING SYSTEMS
 NETWORK DIAGRAMS**

PROJECT NO.
1289-74283

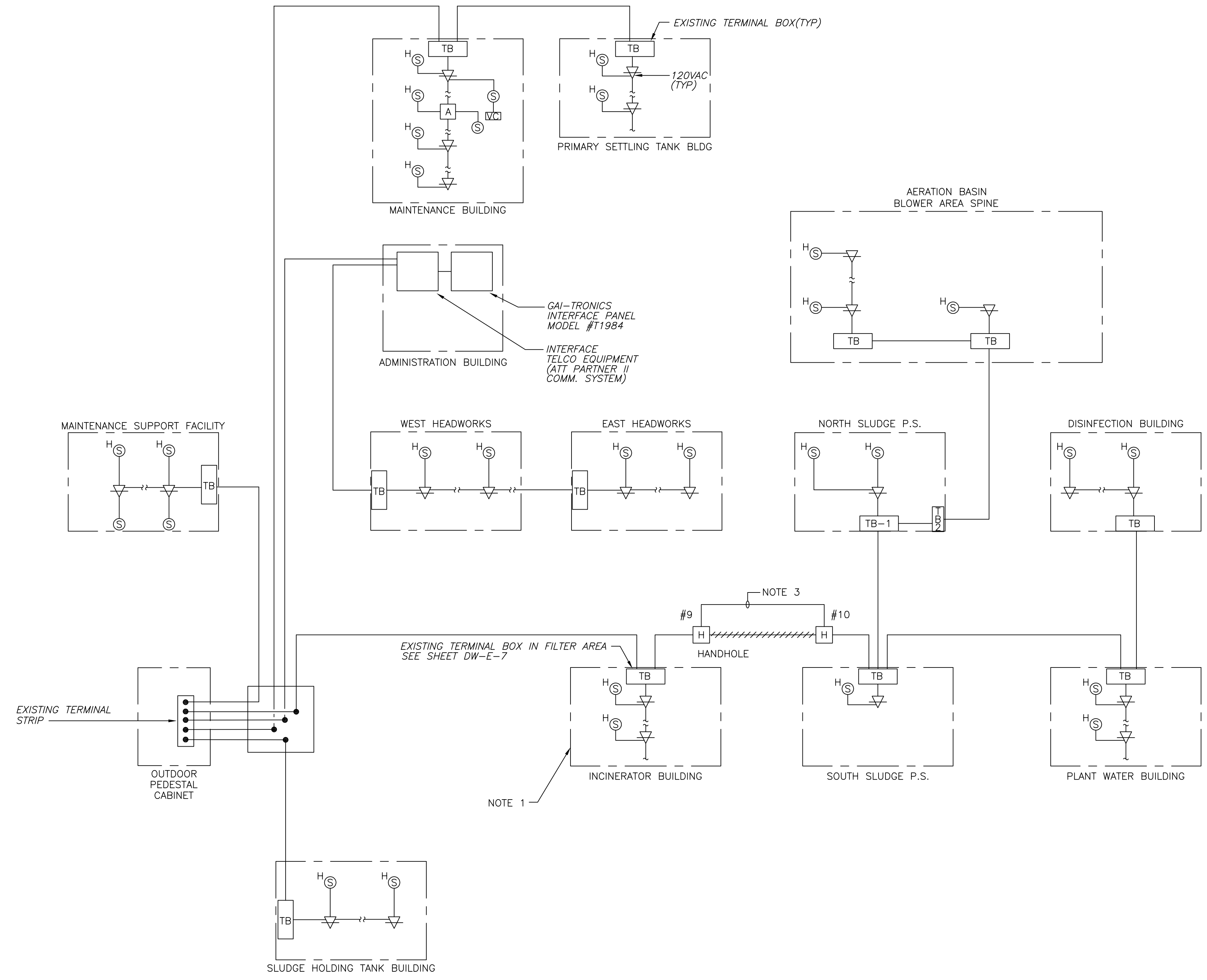
Sht. 271 of 312

GD-E-25

Acc # 1289-74677

REV. NO.	DATE	DRWN	CHKD	REMARKS

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ERISER05.DWG Saved by: RKILROY On: 10-Dec-12 Plotted on: 13-Dec-12 9:07 AM



- NOTES:**
1. TYPICAL FOR INCINERATOR BUILDING SUB-BASEMENT, BASEMENT, 1ST, 2DN & 3RD FLOOR.
 2. EXISTING SPEAKER AND HANDSET INSTALLED IN PREVIOUS CONTRACT.
 3. NEW DUCT BANK BYPASSING ODOR CONTROL SYSTEM. PROVIDE GAI-TRONICS CABLE TO MATCH EXISTING.

CONFORMED

GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
 508/438-0830 Fax: 508/438-7655

ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ERISER05
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**PAGE PARTY
 RISER DIAGRAM**

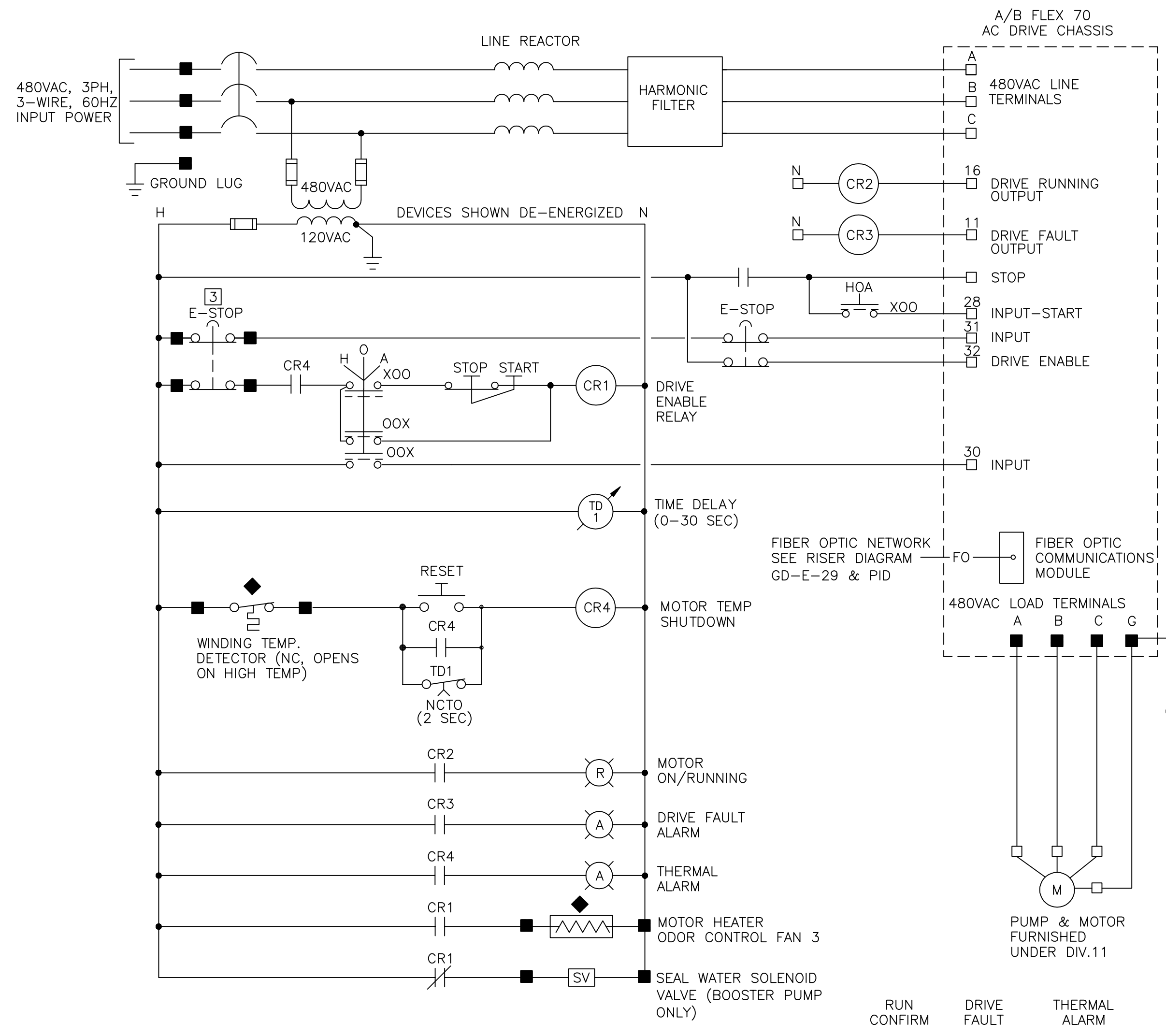
PROJECT NO.
1289-74283

Sht. 272 of 312

GD-E-26

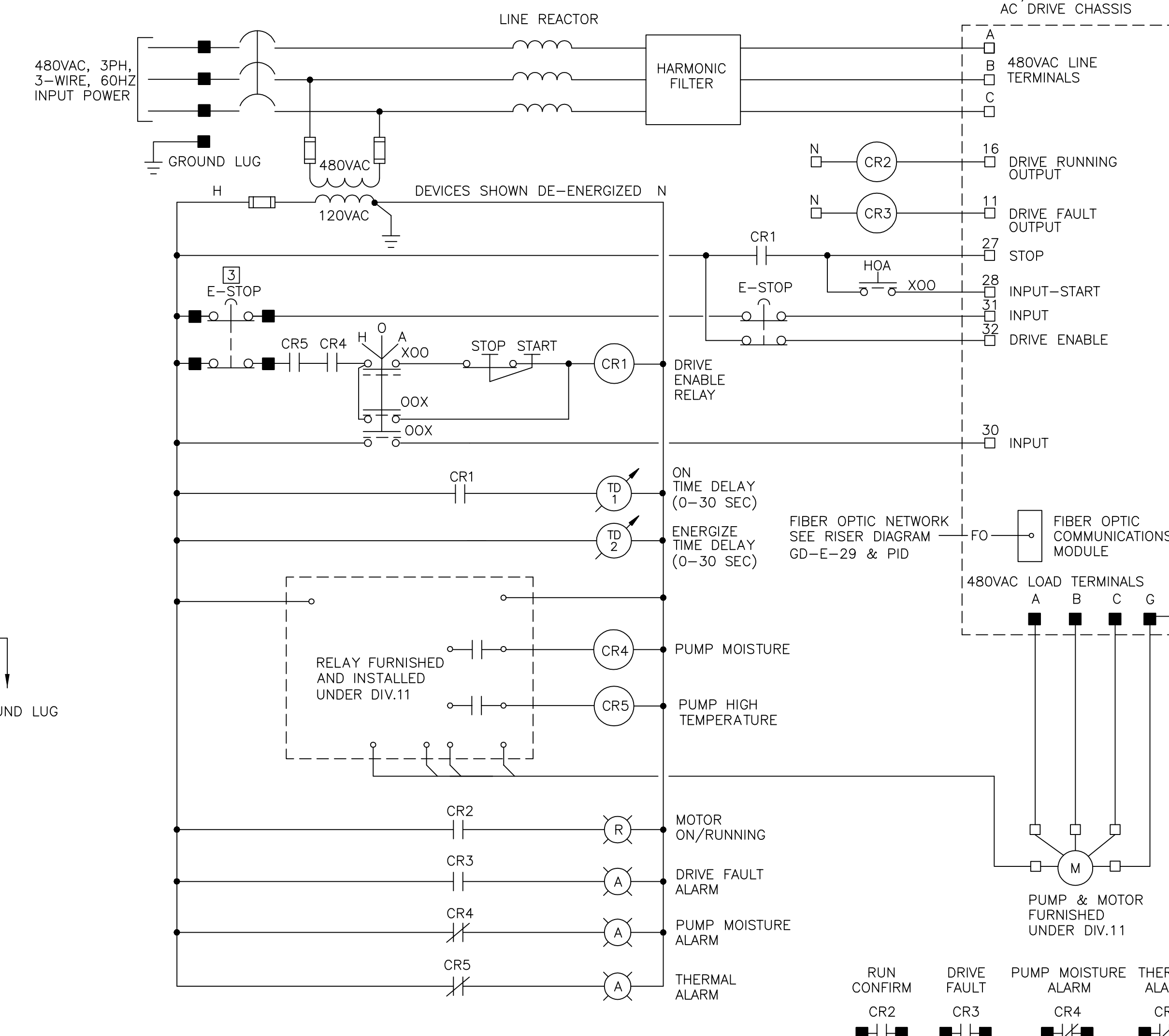
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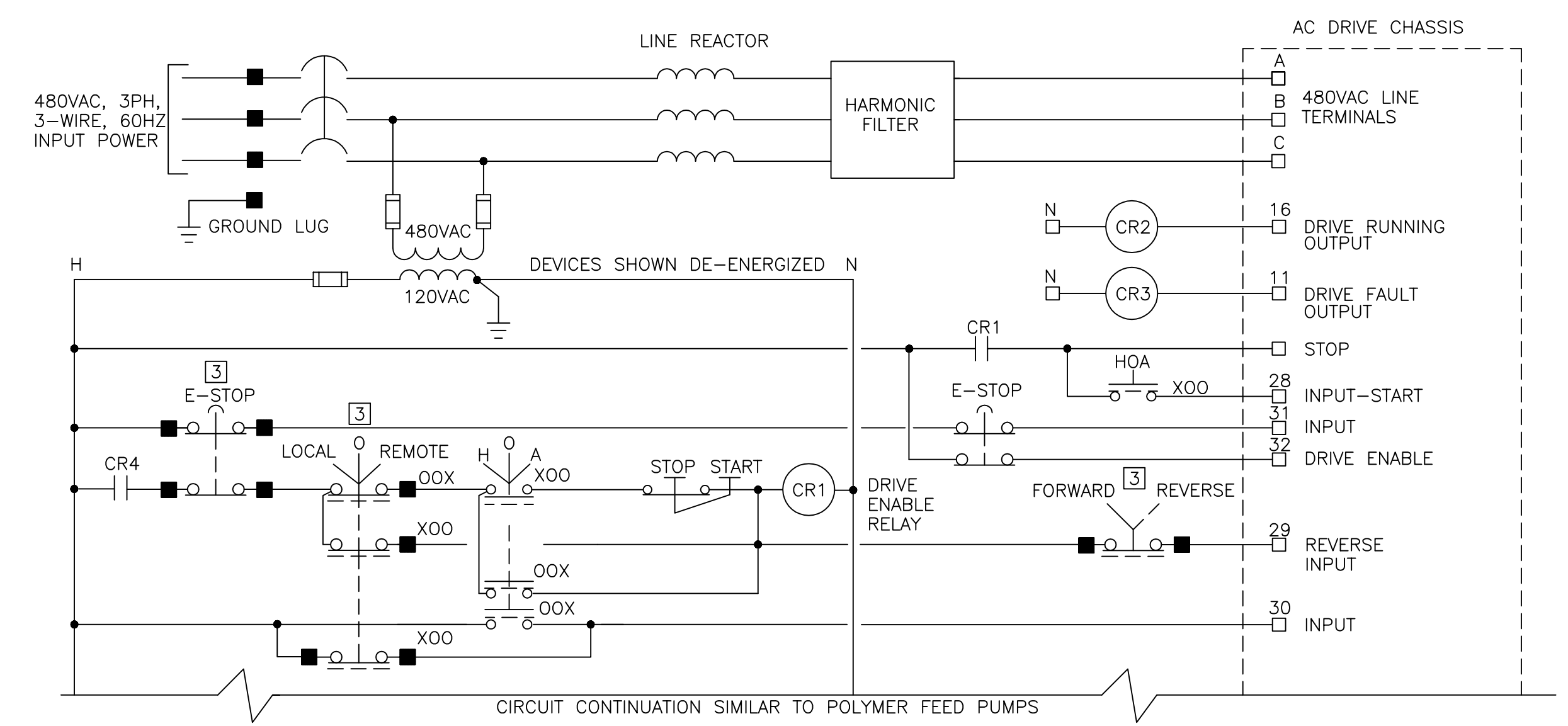


ASH CONDITIONER WATER BOOSTER PUMP
POLYMER FEED PUMPS
ODOR CONTROL FANS
CONTROL WIRING DIAGRAM

SCHEDULE	
EQUIP ID	PROCESS CONTROL PANEL
P-761	RIOP-12A
P-762	RIOP-12A
P-6461	CPP-19
P-6462	CPP-19
P-6463	CPP-19
P-6541	CPP-19
P-6542	CPP-19
P-6543	CPP-19
P-6544	CPP-19
F-611	CPP-20
F-612	CPP-20

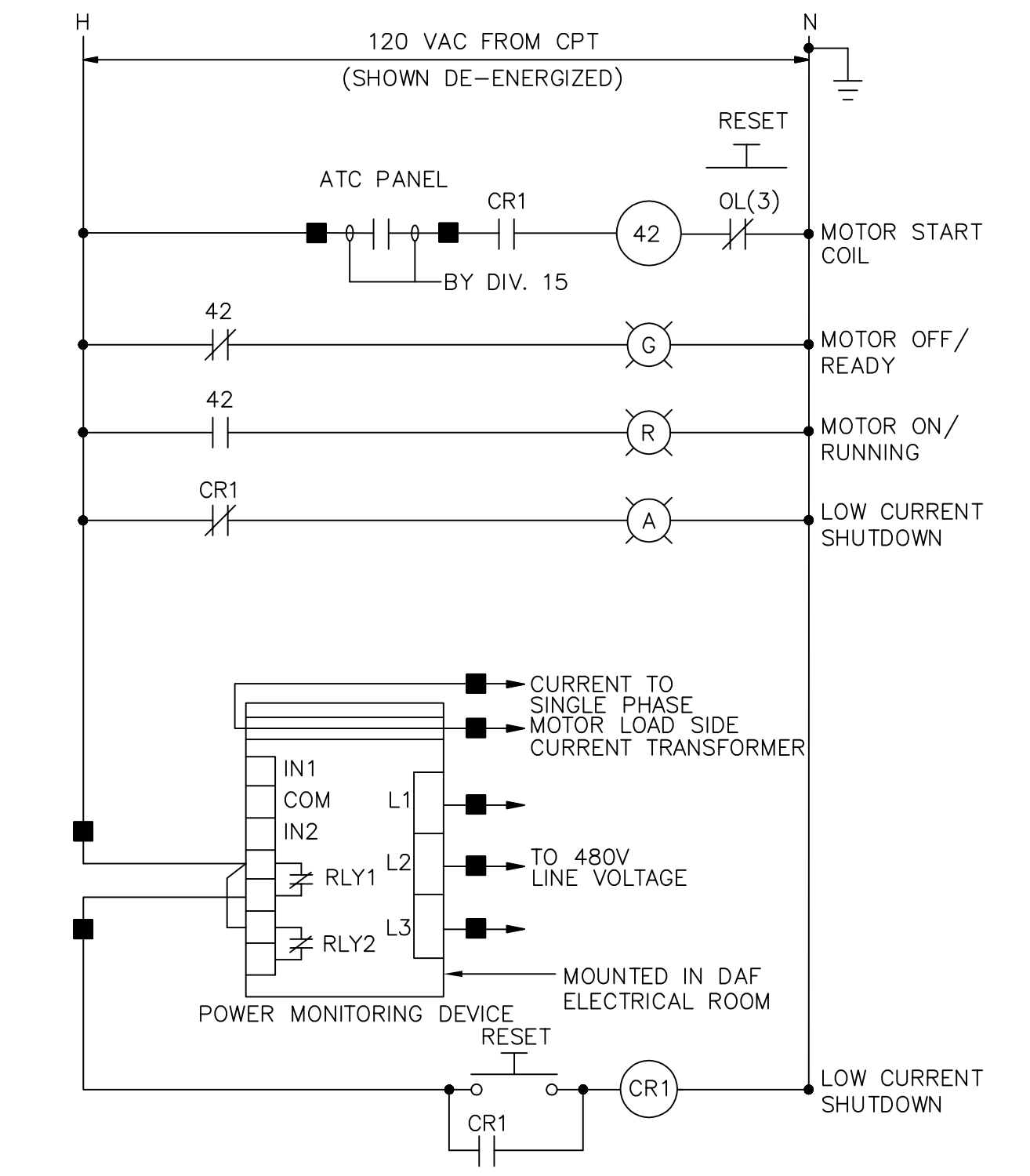


SIDESTREAM PUMPS
CONTROL WIRING DIAGRAM



ASH SILO ROTARY FEEDER
CONTROL WIRING DIAGRAM
F-775

- LOCATION LEGEND:**
- ◆ AT MOTOR OR DRIVEN EQUIPMENT
 - ① AT I&C PANEL CPP-* OR RIOP-*
 - ② AT ATC PANEL
 - ③ SEE PLANS FOR LOCATION
 - ④ AT AUTOMATIC TRANSFER SWITCH
 - ⑤ IN FAN HOUSING OR PROVIDED WITH FAN
 - ⑥ AT ASH SYSTEM CONTROL PANEL
 - TERMINAL AT MOTOR STARTER FOR FIELD WIRING
- NOTES:**
- ALL COMPONENTS ARE LOCATED AT THE MOTOR CONTROL CENTER, MOTOR STARTER OR VFD UNLESS INDICATED OTHERWISE.
 - THE CONTROL DIAGRAMS, ALONG WITH ANY WRITTEN OPERATIONAL DESCRIPTIONS IN THE SPECIFICATIONS AND/OR LOOP DIAGRAMS (DIVISION 13), SHOW THE INTENDED FUNCTIONS OF THE SYSTEMS AND CIRCUITS AND SHALL BE MODIFIED AS REQUIRED TO SUIT THE EQUIPMENT ACTUALLY FURNISHED.



HVAC MOTORS
CONTROL WIRING DIAGRAM

SCHEDULE		
EQUIP ID	LOOP NUMBER	PROCESS CONTROL PANEL
DW-AHU-1	FSH-4598	CPP-20
DW-AHU-2	FSH-4596	CPP-20
DW-TF-1	FSH-4595	CPP-20
DW-TF-2	FSH-4597	CPP-20
TB-AHU-1	FSH-3698	CPP-20
TB-EF-1	FSH-3695	CPP-20
TB-EF-2	FSH-3696	CPP-20
TB-EF-3	FSH-3697	CPP-20

GRIFPIN ELECTRIC
116 Rapping Brook Road Holliston, Massachusetts 01746
908/420-8800 Fax: 908/420-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
Δ	09/10	JD	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. ESCHM01
DESIGNED BY: T.DISILVA
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

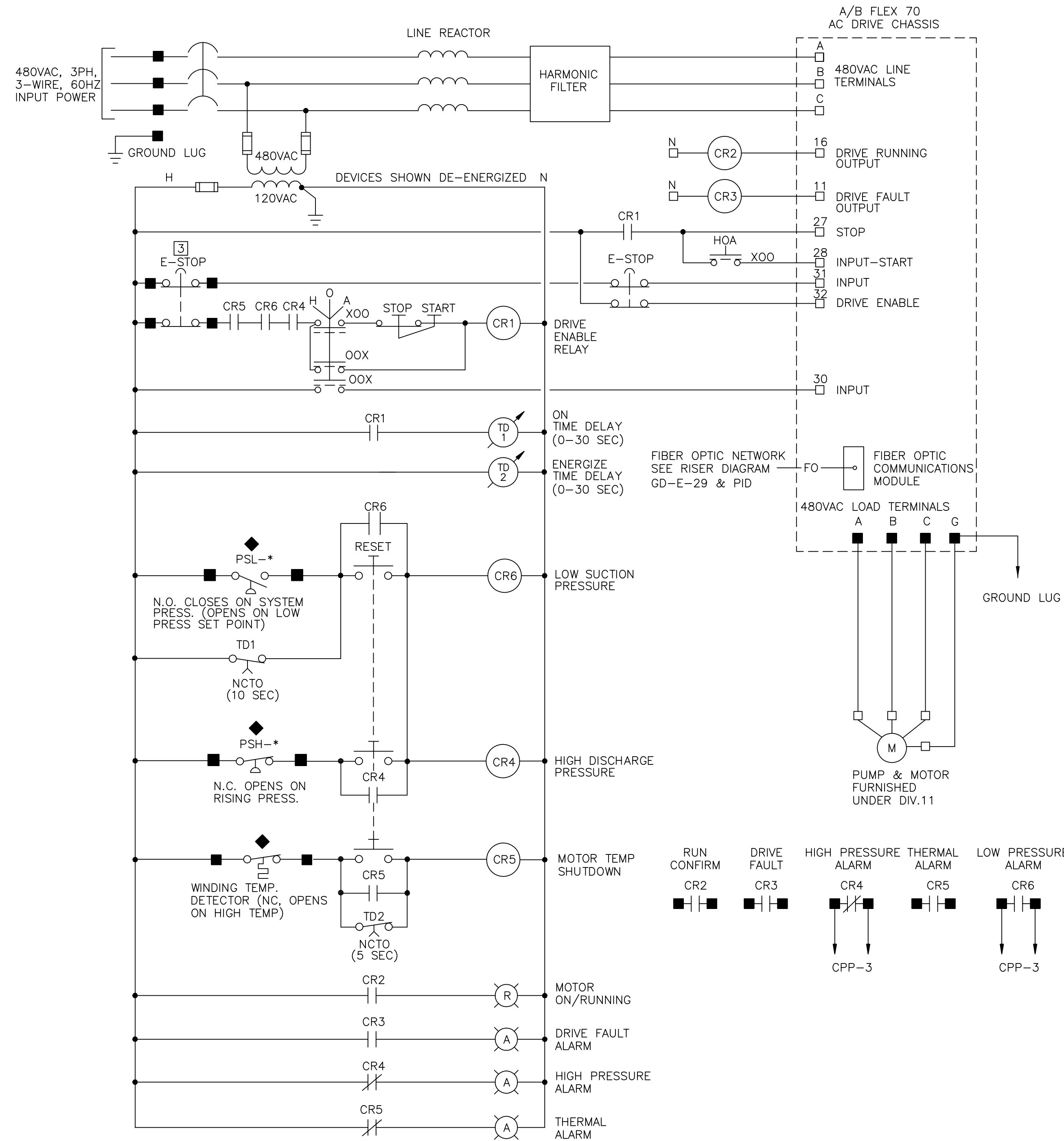
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IMPROVEMENTS - PHASE III**

CONTROL SCHEMATICS I

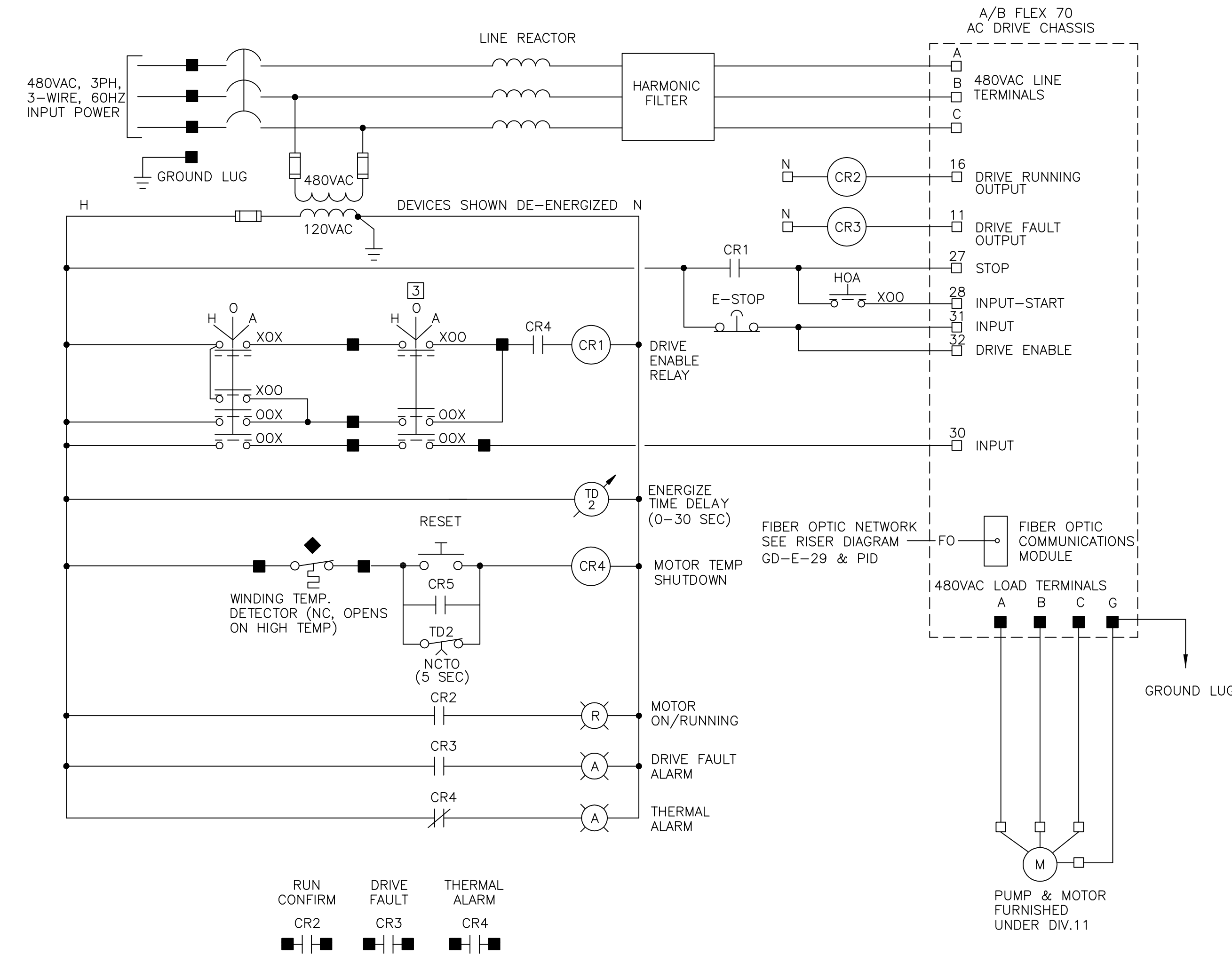
PROJECT NO.
1289-74283
Sht. 273 of 312
GD-E-27
Acc # 1289-74679

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\ESCHEM02.DWG Saved by: DONALDSONJJ On: 29-Jun-10 Plotted on: 13-Dec-12 1:08 PM



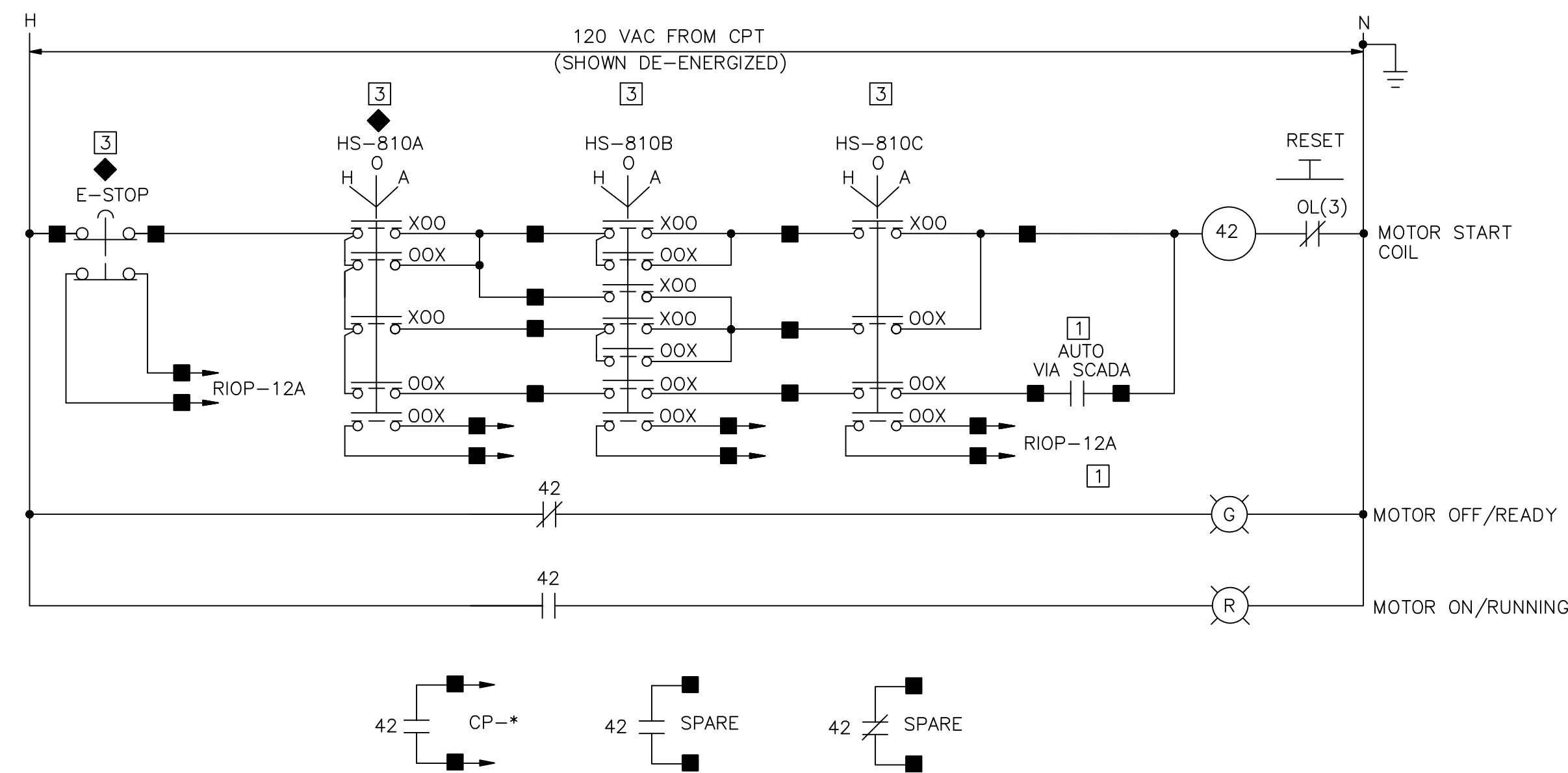
SLUDGE TRANSFER PUMPS
CONTROL WIRING DIAGRAM
N.T.S.

SCHEDULE	
EQUIP ID	PROCESS CONTROL PANEL
P-4141	CPP-3
P-4142	CPP-3
P-4143	CPP-3



THICKENER SKIMMER COLLECTOR
CONTROL WIRING DIAGRAM
N.T.S.

SCHEDULE	
EQUIP ID	PROCESS CONTROL PANEL
C-3545	CPP-20
C-3535	CPP-20



VACUUM EXHAUSTER
E-810
CONTROL WIRING DIAGRAM

- LOCATION LEGEND:**
- ◆ AT MOTOR OR DRIVEN EQUIPMENT
 - 1 AT I&C PANEL CPP--* OR RIOP--*
 - 2 AT ATC PANEL
 - 3 SEE PLANS FOR LOCATION
 - 4 AT AUTOMATIC TRANSFER SWITCH
 - 5 IN FAN HOUSING OR PROVIDED WITH FAN
 - 6 AT ASH SYSTEM CONTROL PANEL
 - TERMINAL AT MOTOR STARTER FOR FIELD WIRING

- NOTES:**
1. ALL COMPONENTS ARE LOCATED AT THE MOTOR CONTROL CENTER, MOTOR STARTER OR VFD UNLESS INDICATED OTHERWISE.
 2. THE CONTROL DIAGRAMS, ALONG WITH ANY WRITTEN OPERATIONAL DESCRIPTIONS IN THE SPECIFICATIONS AND/OR LOOP DIAGRAMS (DIVISION 13) SHOW THE INTENDED FUNCTIONS OF THE SYSTEMS AND CIRCUITS AND SHALL BE MODIFIED AS REQUIRED TO SUIT THE EQUIPMENT ACTUALLY FURNISHED.

CONFORMED

GRiffin ELECTRIC
116 Ropping Brook Road Holliston, Massachusetts 01746
508/429-8800 Fax: 508/429-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ESCHM02
DESIGNED BY: T.DISILVA
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

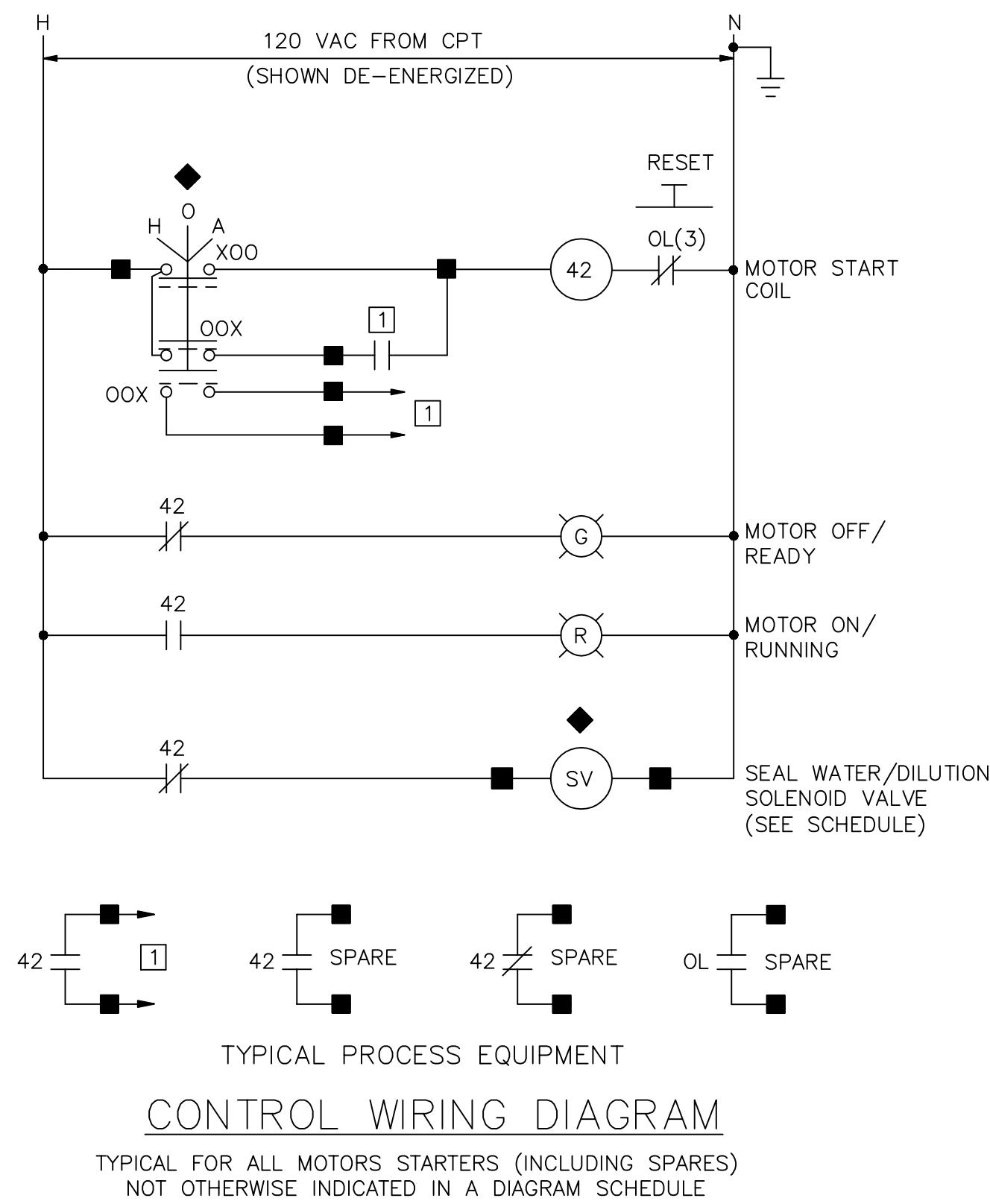
CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

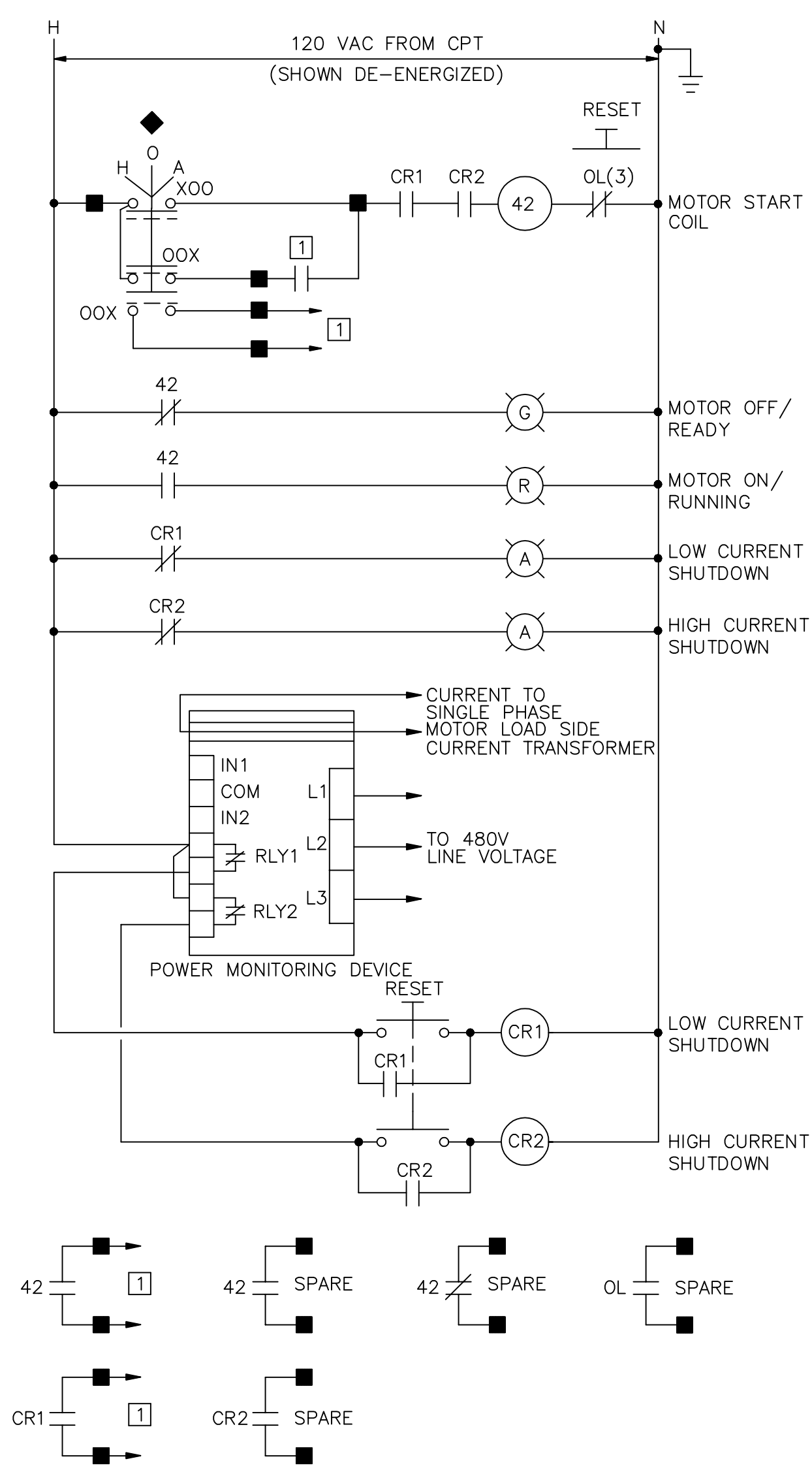
CONTROL SCHEMATICS II

PROJECT NO.
1289-74283
Sht. 274 of 312
GD-E-28
Acc # 1289-74680

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ESCHEM03.DWG Saved by: ADAMCZYKIU On: 29-Sep-10 Plotted on: 13-Dec-12 1:09 PM



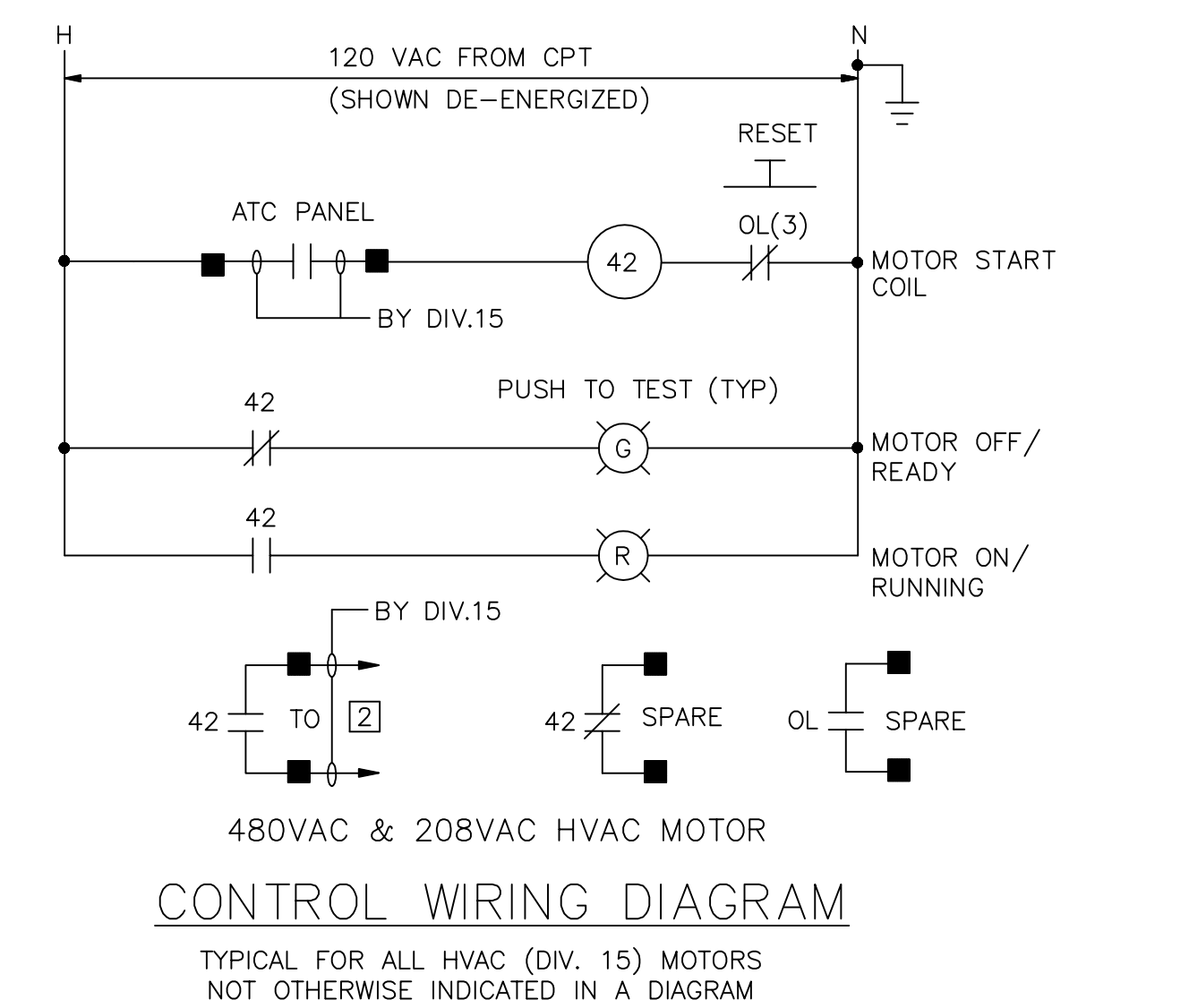
SCHEDULE		
EQUIP ID	PROCESS CONTROL PANEL	NOTES
P-4071	CPP-3	120V STARTER/DILUTION WATER
P-4072	CPP-3	
SLUDGE MIXER 1	CPP-20	
P-6471	CPP-19	120V STARTER/DILUTION WATER
P-6472	CPP-19	
P-6473	CPP-19	
B-755	RIOP-12A	DILUTION WATER
P-6551	CPP-19	
P-6552	CPP-19	
P-6553	CPP-19	DILUTION WATER
P-6554	CPP-19	
P-6511	CPP-19	
P-6512	CPP-19	



DAF SETTLED SLUDGE COLLECTOR

CONTROL WIRING DIAGRAM

SCHEDULE	
EQUIP ID	PROCESS CONTROL PANEL
C-3531	CPP-20
C-3541	CPP-20

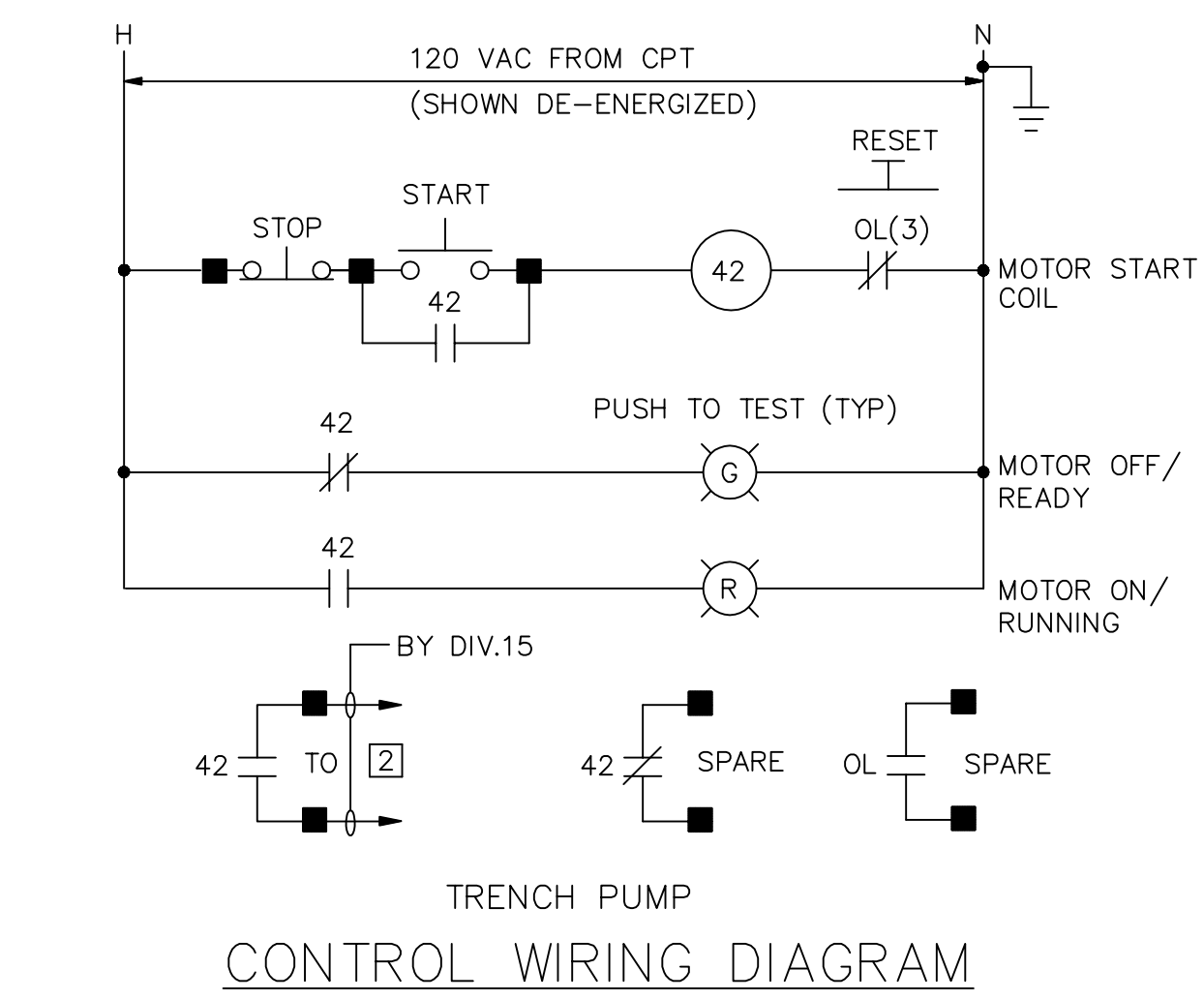


480VAC & 208VAC HVAC MOTOR

CONTROL WIRING DIAGRAM

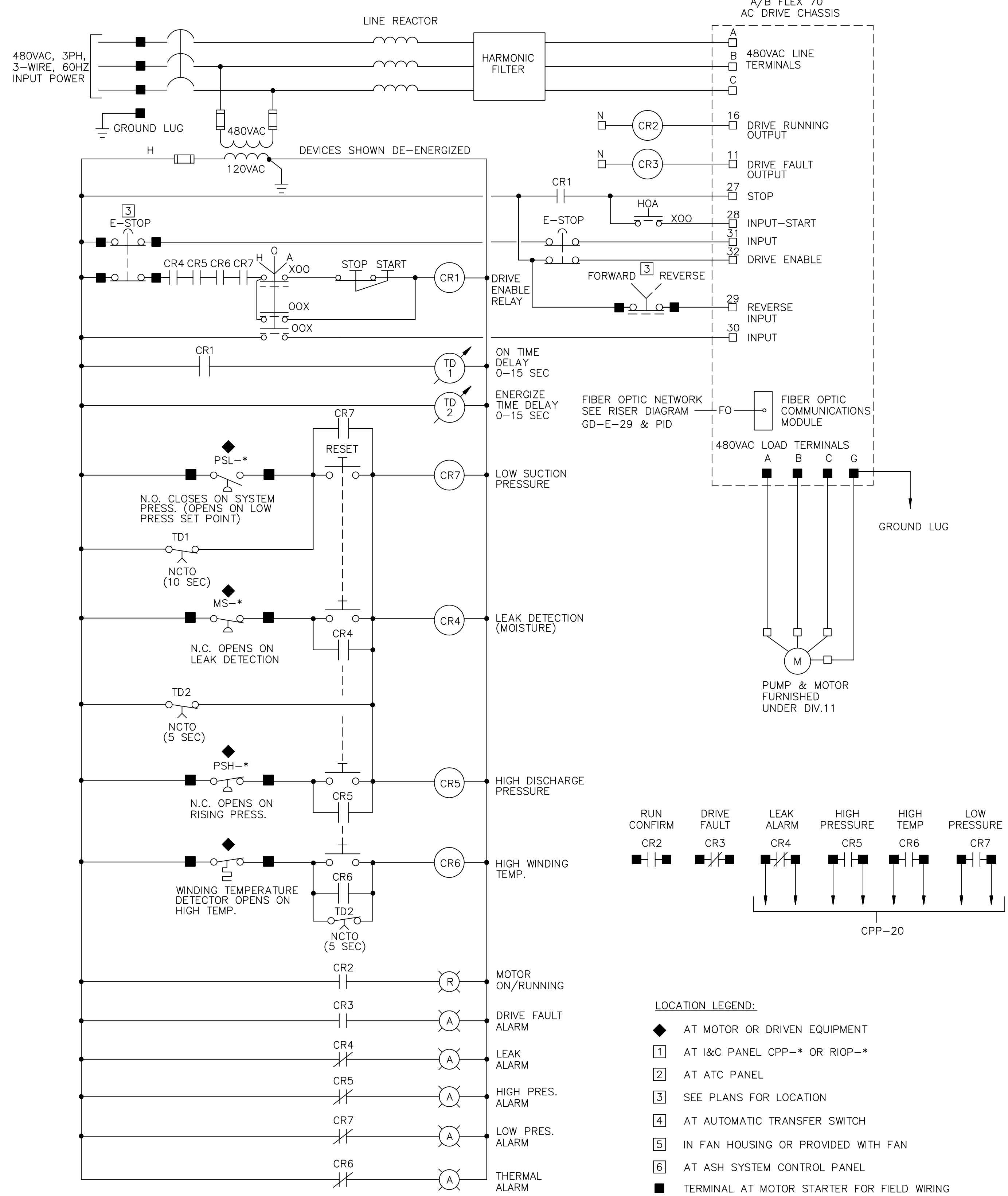
TYPICAL FOR ALL HVAC (DIV. 15) MOTORS
NOT OTHERWISE INDICATED IN A DIAGRAM

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJA	TRD		REVISED PER ADDENDA NOS.1 THRU 3



TRENCH PUMP

CONTROL WIRING DIAGRAM



SLUDGE HOSE PUMP

CONTROL WIRING DIAGRAM

SCHEDULE	
EQUIP ID	PROCESS CONTROL PANEL
P-4531	CP-20
P-4532	CP-20
P-4533	CP-20
P-4534	CP-20
P-3581	CP-20
P-3582	CP-20

- LOCATION LEGEND:**
- ◆ AT MOTOR OR DRIVEN EQUIPMENT
 - 1 AT I&C PANEL CPP-* OR RIOP-*
 - 2 AT ATC PANEL
 - 3 SEE PLANS FOR LOCATION
 - 4 AT AUTOMATIC TRANSFER SWITCH
 - 5 IN FAN HOUSING OR PROVIDED WITH FAN
 - 6 AT ASH SYSTEM CONTROL PANEL
 - TERMINAL AT MOTOR STARTER FOR FIELD WIRING
- NOTES:**
- ALL COMPONENTS ARE LOCATED AT THE MOTOR CONTROL CENTER, MOTOR STARTER OR VFD UNLESS INDICATED OTHERWISE.
 - THE CONTROL DIAGRAMS, ALONG WITH ANY WRITTEN OPERATIONAL DESCRIPTIONS IN THE SPECIFICATIONS AND/OR LOOP DIAGRAMS (DIVISION 13), SHOW THE INTENDED FUNCTIONS OF THE SYSTEMS AND CIRCUITS AND SHALL BE MODIFIED AS REQUIRED TO SUIT THE EQUIPMENT ACTUALLY FURNISHED.

CONFORMED

GRIFFIN ELECTRIC
116 Ripping Brook Road Holliston, Massachusetts 01746
508/420-8800 Fax: 508/420-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

CONTROL SCHEMATICS III

PROJECT NO.
1289-74283

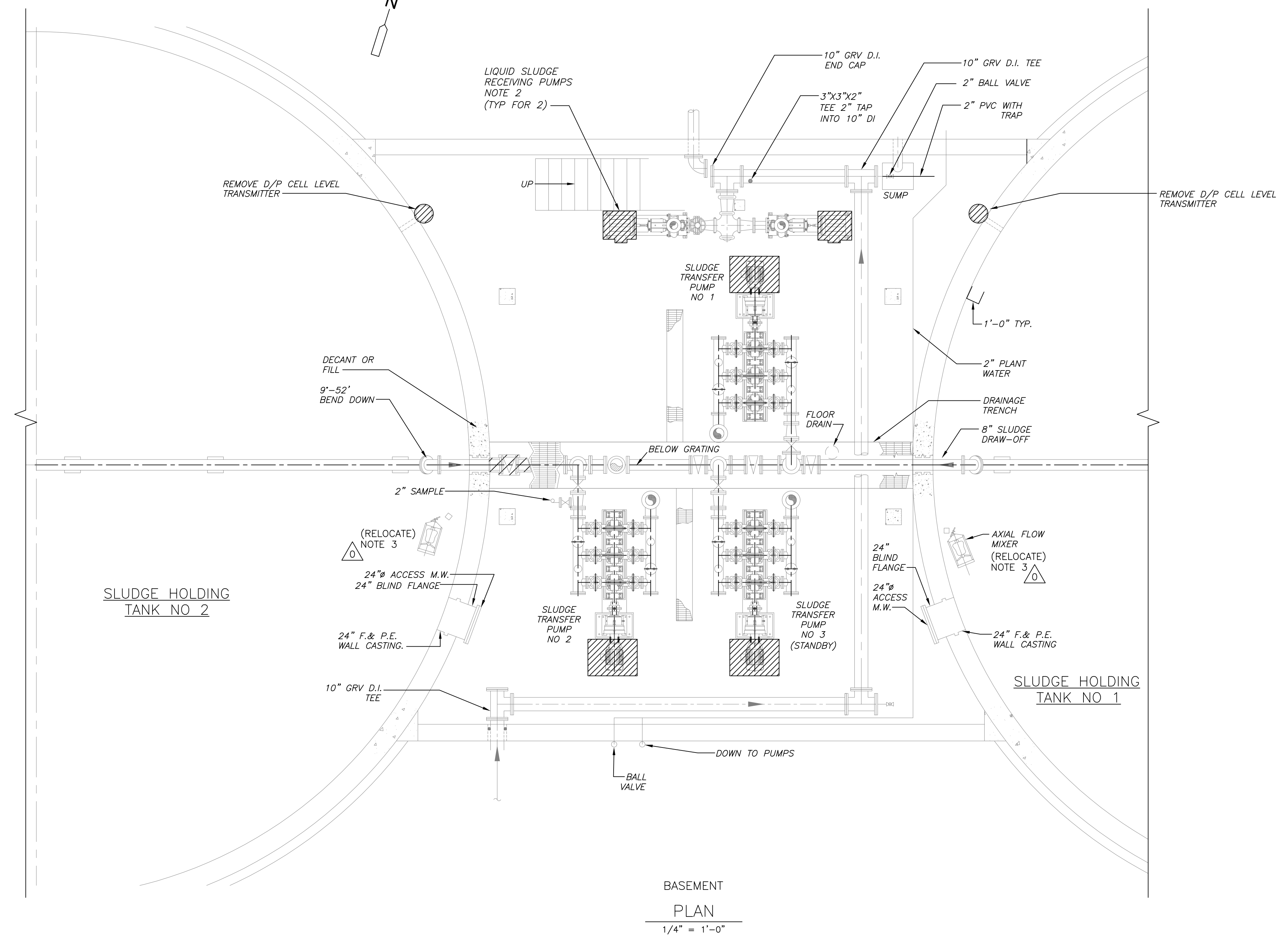
Sht. 263 of 312

GD-E-29

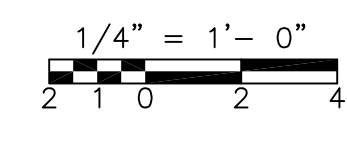
Acc # 1289-74681

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP # 1635\ELECTRICAL AS-BUILT\EHTDM001.DWG Saved by: ADAMCZYKU On: 29-Sep-10 Plotted on: 13-Dec-12 1:19 PM

- NOTES:**
1. ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.
 2. REUSE EXISTING WIRING SEE SHEET HT-E-2.
 3. REMOVE ELECTRICAL RACEWAY FOR EXISTING MIXERS AND CRANE TO JUNCTION BOX ON ROOF. SEE HT-E-2 FOR LOCATION.



BASEMENT
PLAN
1/4" = 1'-0"



GRiffin ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
908/420-8800 Fax: 908/420-7805
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS
△	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EHTDM001
DESIGNED BY: T.J. ADAMCZYK
DRAWN BY: T.J. ADAMCZYK
SHEET CHK'D BY: T. DISILVA
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: J. ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
BASEMENT PLAN
DEMOLITION**

PROJECT NO.
1289-74283

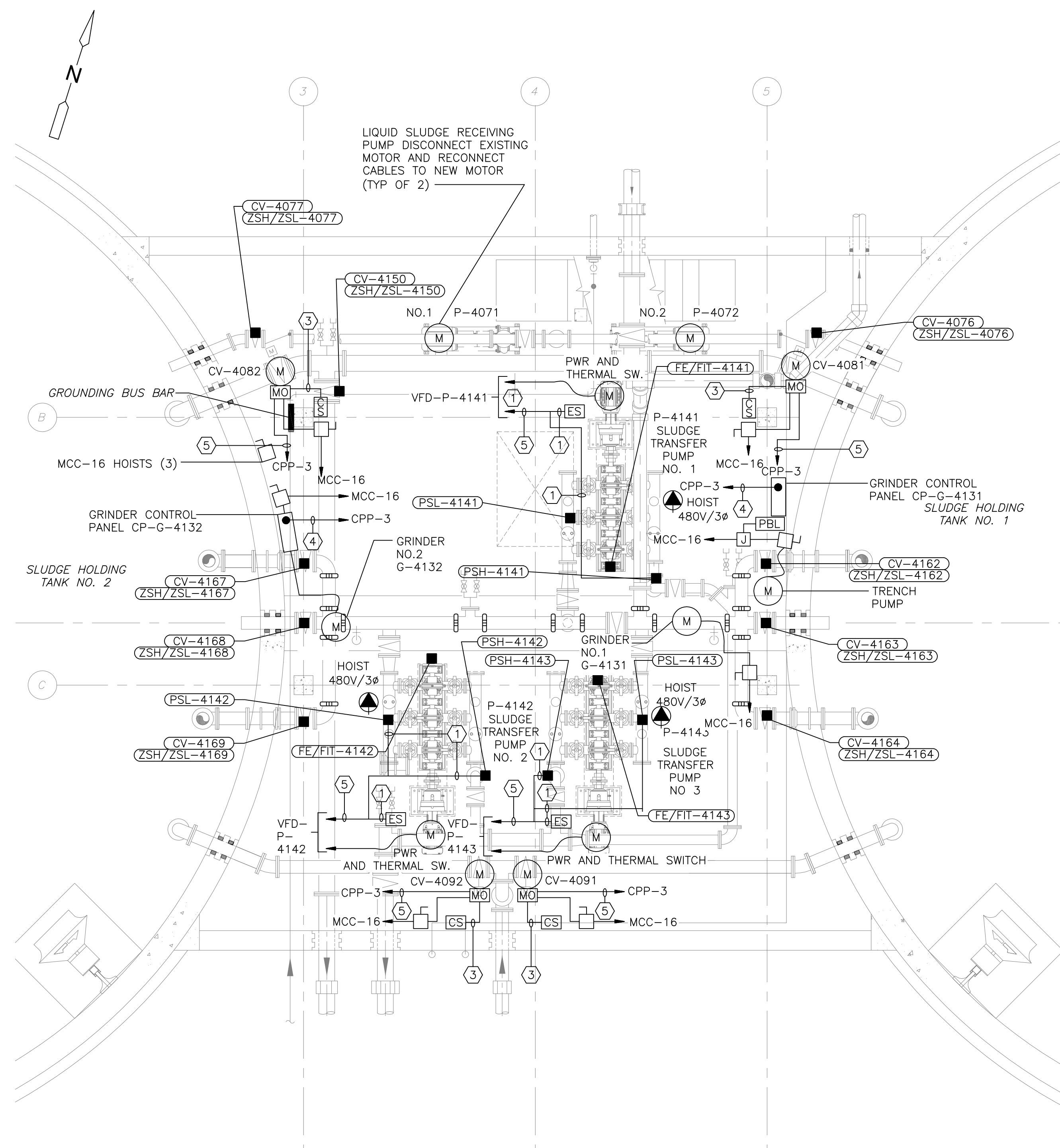
Sht. 276 of 312

HT-E-1

Acc # 1289-74682

CONFORMED

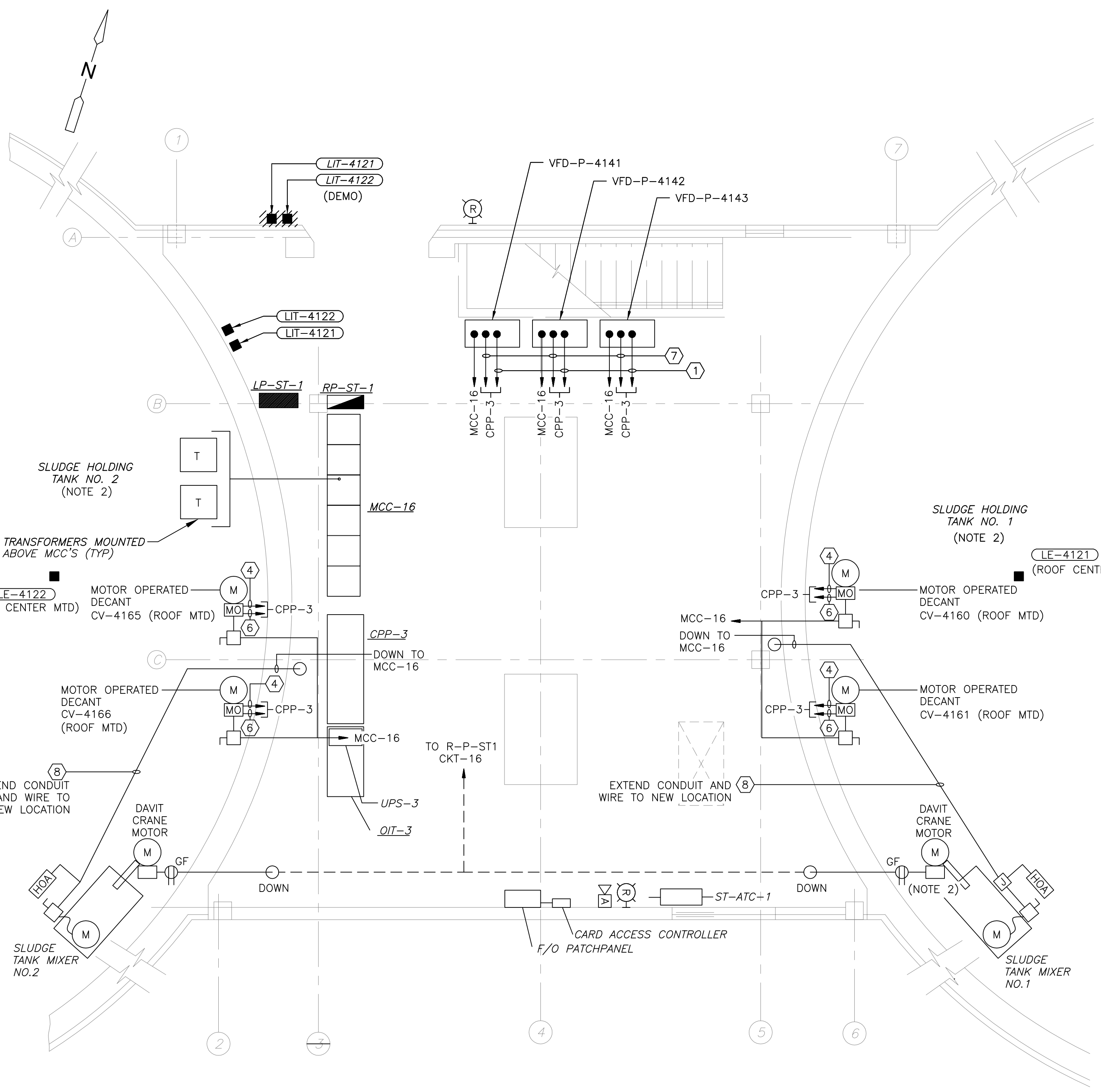
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EHTPLO01.DWG Saved by: RKLROY On: 7-Dec-12 8:22 AM



BASEMENT POWER PLAN
1/4"=1'-0"

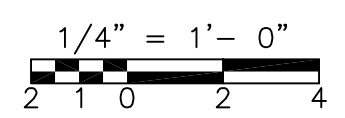
CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 8#14, 1#14G
③	3/4" C., 10#14, 1#14G
④	3/4" C., 12#14, 1#14G
⑤	3/4" C., 16#14, 1#14G
⑥	3/4" C., 2-2/C#16TS
⑦	1" C., CAT 6 (CABLE DIV.13)
⑧	1-1/4" C., 3#8, 1#10G, 8#14
⑨	3/4" C., 2#12, 1#12G



FIRST FLOOR POWER PLAN
1/4"=1'-0"

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAM MCC-16 ON SHEET GD-E-15, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.
 - SLUDGE TANK NO.1 AND NO.2, ROOF MOUNTED ELECTRICAL EQUIPMENT EXPLOSION PROOF, SEAL FITTINGS AS REQUIRED. REFERENCE ELECTRICAL HAZARDOUS AREA CLASSIFICATION SHEET NO. GD-E-3.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EHTPLO01
 DESIGNED BY: T.J.ADMCZYK
 DRAWN BY: T.J.ADMCZYK
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE HOLDING TANK BUILDING
 BASEMENT AND FIRST FLOOR PLANS
 POWER IMPROVEMENTS**

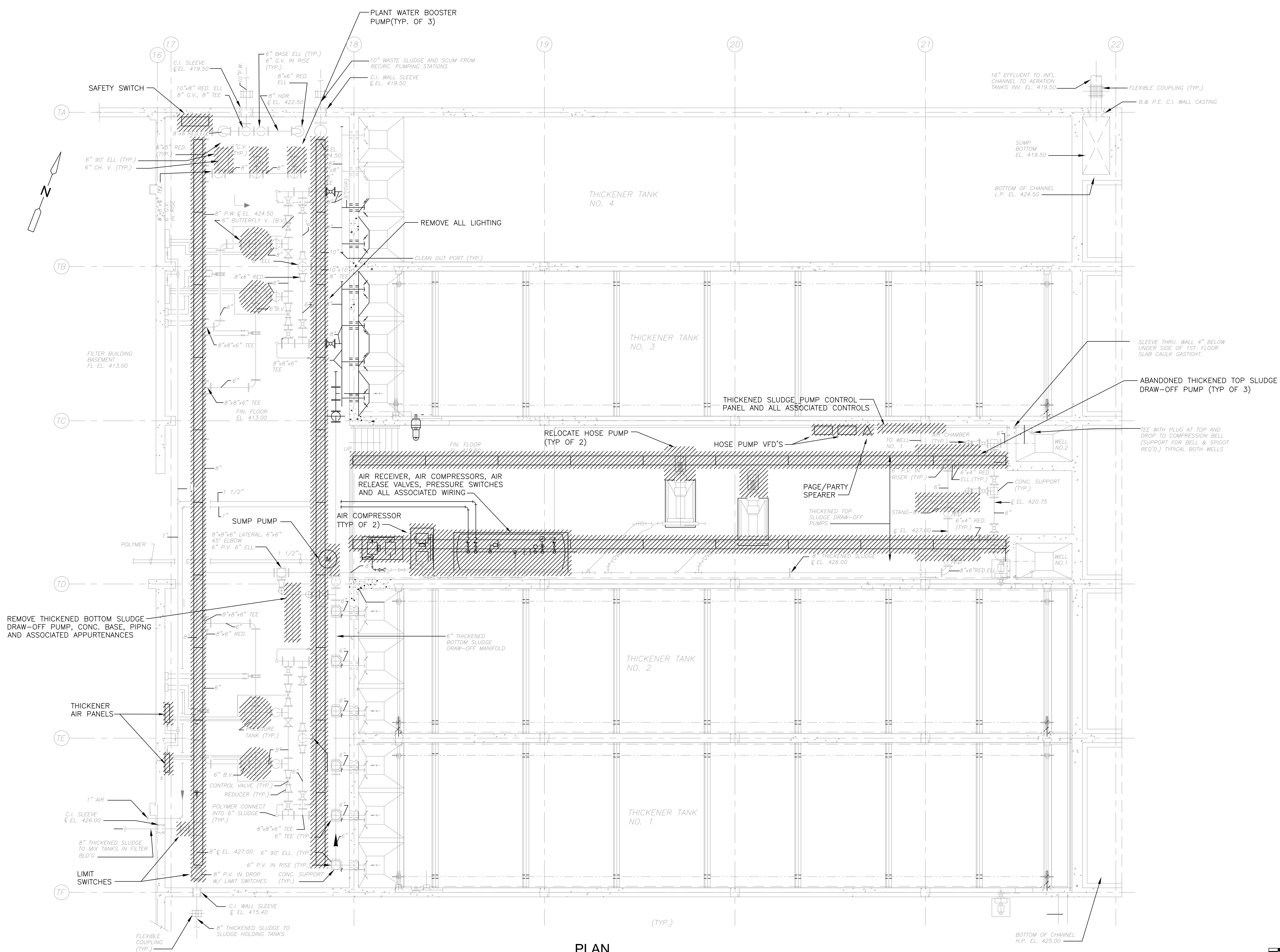
GRIFFIN ELECTRIC
 116 Hopping Brook Road Holliston, Massachusetts 01746
 508/420-0820 Fax: 508/420-7625
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

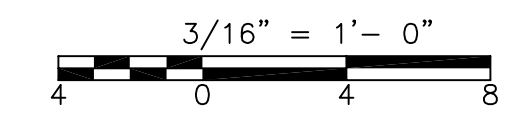
PROJECT NO. 1289-74283
 Sht. 277 of 312
HT-E-2
 Acc # 1289-74683

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\ETBDM001.DWG Saved by: DONALDSONJJ On: 29-Jun-10 Plotted on: 13-Dec-12 1:13 PM

- NOTES:**
1. ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.
 2. SEE MECHANICAL DRAWINGS FOR DEMOLITION OF PROCESS EQUIPMENT. ELECTRICAL CONTRACTOR SHALL MAKE SAFE FOR REMOVAL.



PLAN
3/16" = 1'-0"



CONFORMED

G
GRiffin ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
908/420-8800 Fax: 908/420-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. MTBDM001
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT PLAN
 DEMOLITION**

PROJECT NO.
1289-74283

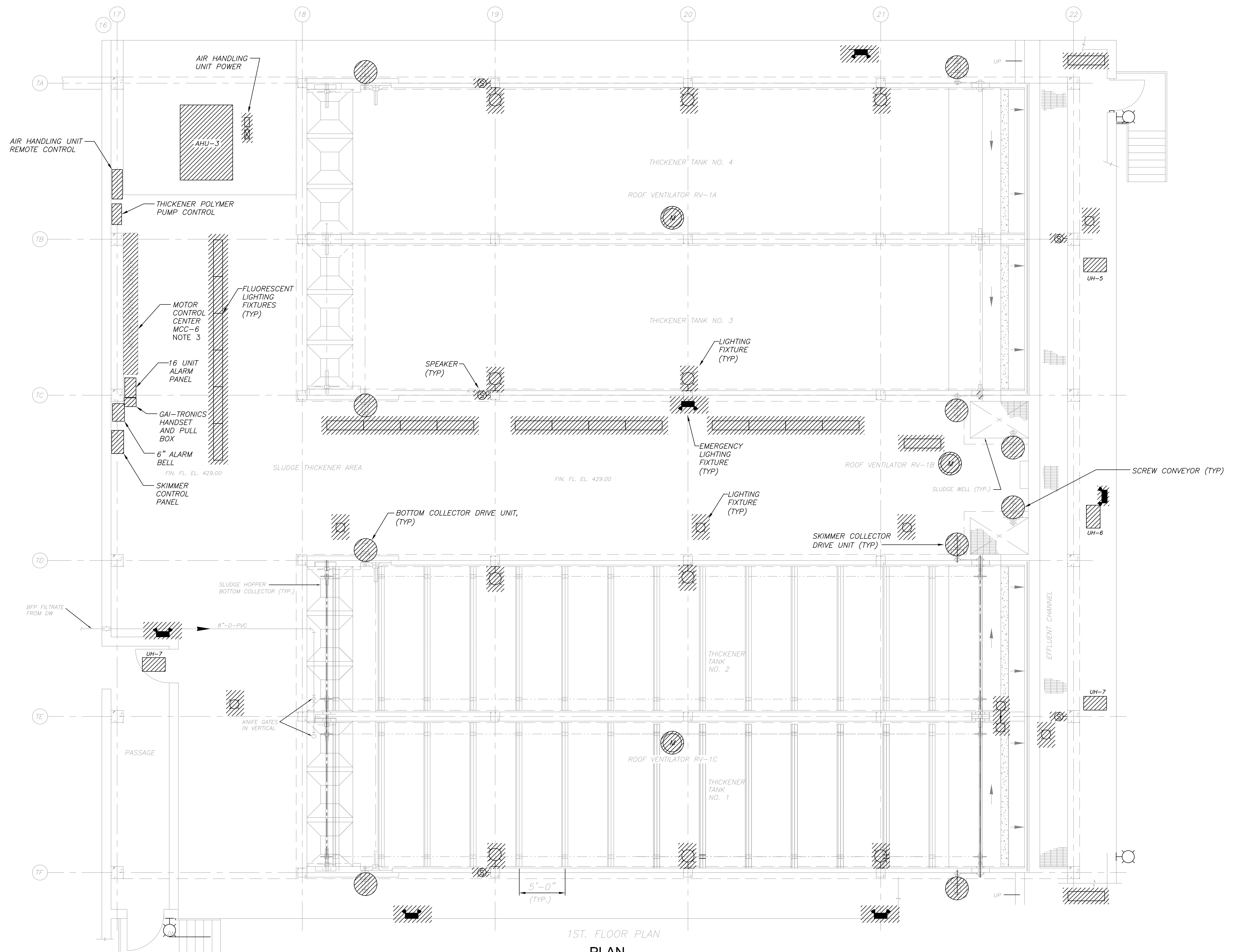
Sht. 278 of 312

TB-E-1

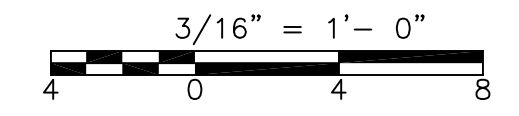
Acc # 1289-74684

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\ETBDM002.DWG Saved by: DONALDSONJJ On: 29-Jun-10 Plotted on: 13-Dec-12 1:12 PM

- NOTES:**
- ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.
 - REMOVE ALL LIGHTING, RECEPTACLES, LIFE SAFETY SYSTEMS, POWER AND CONTROL RACEWAYS, AND SUPPORTS.
 - MCC-6 SHALL REMAIN OPERATIONAL UNTIL NEW MCC-5 AND 6 IS INSTALLED.



1ST. FLOOR PLAN
PLAN
3/16" = 1'-0"



CONFORMED

GRiffin ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
908/420-8800 Fax: 908/420-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ETBDM002
DESIGNED BY: T.J.ADMCZYK
DRAWN BY: T.J.ADMCZYK
SHEET CHK'D BY: T.D.SILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

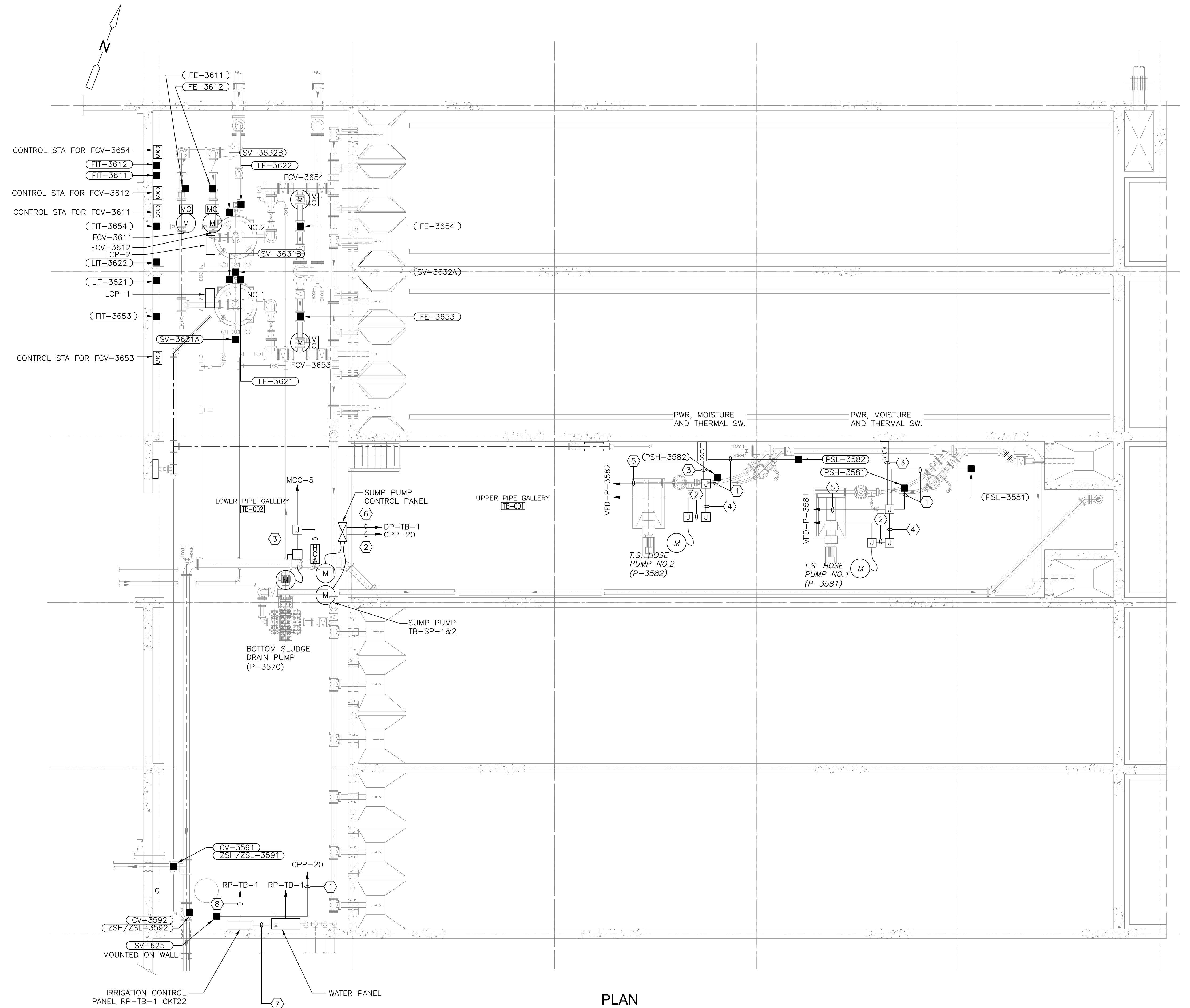
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

THICKENER BUILDING
FIRST FLOOR PLAN
DEMOLITION

PROJECT NO.
1289-74283
Sht. 279 of 312
TB-E-2
Acc # 1289-74685

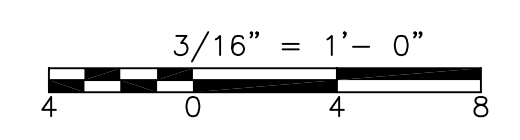
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ETBPLO01.DWG Saved by: RKLROY On: 7-Dec-12 8:43 AM

NOTES:
 1. FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-11 THRU GD-E-14 OR INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.



CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 2#14, 1#14G
②	3/4" C., 4#14, 1#14G
③	3/4" C., 8#14, 1#14G
④	3/4" C., 12#14, 1#14G
⑤	3/4" C., 18#14, 1#14G
⑥	3/4" C., 3#12, 1#12G
⑦	1" C., 14#14, 1#14G
⑧	3/4" C., 2#10, 1#10G

PLAN
 3/16" = 1'-0"



CONFORMED

GRIFFIN ELECTRIC
 116 Hopping Brook Road Holliston, Massachusetts 01746
 508/439-0820 Fax: 508/439-7655
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ETBPLO01
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

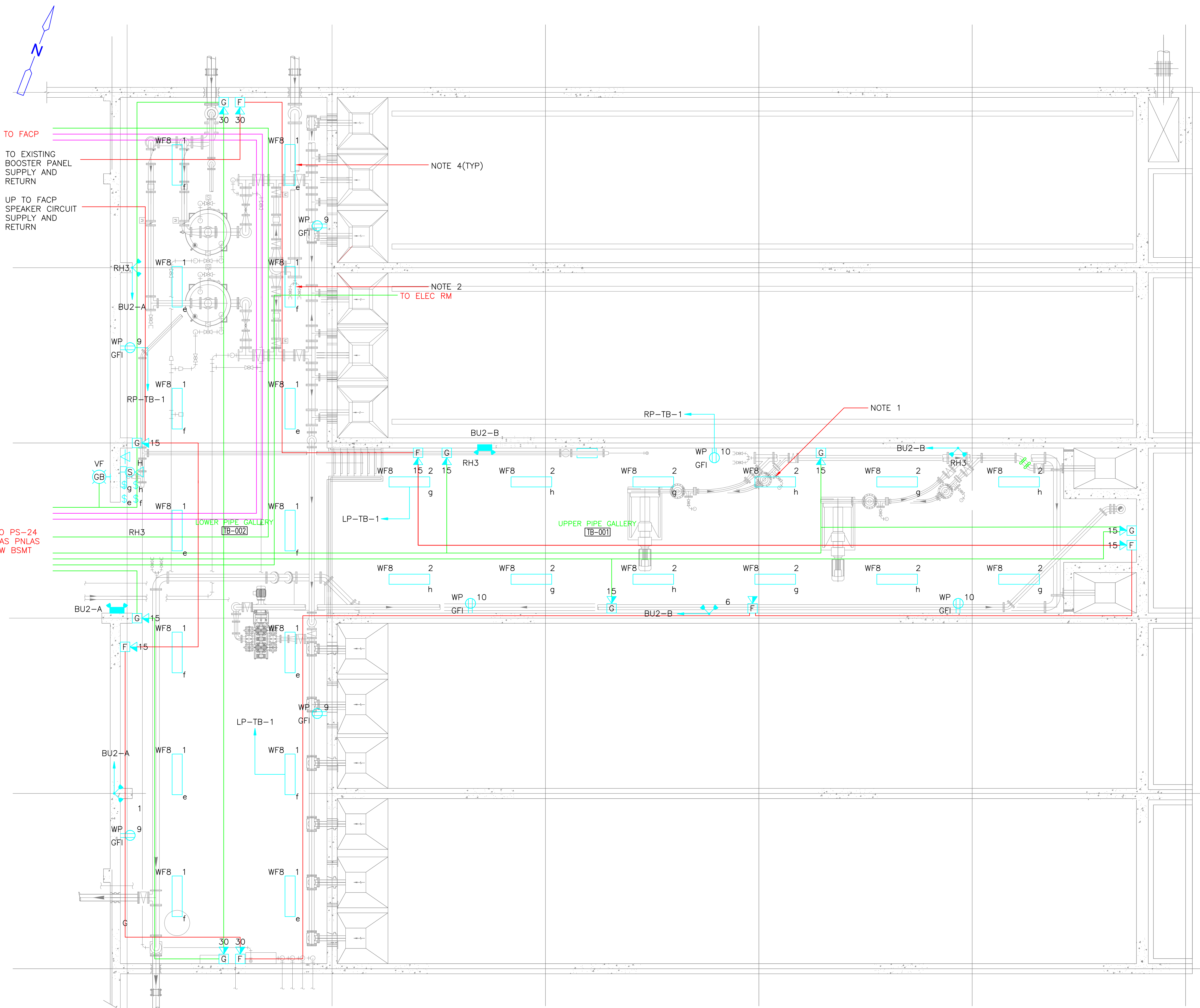
CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT
 POWER PLAN**

PROJECT NO.
 1289-74283
 Sht. 280 of 312
TB-E-3
 Acc # 1289-74686

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20DRAWINGS\ELECTRICAL AS-BUILT\ETBLS001.DWG Saved by: RKILROY On: 21-Oct-13 Plotted on: 21-Oct-13 4:48 PM




- NOTES:**
1. FIXTURES IN THE UPPER PIPE GALLERY SHALL BE CEILING MOUNTED.
 2. FIXTURES IN THE LOWER PIPE GALLERY SHALL BE MOUNTED 13'-6" A.F.F. (ABOVE FINISHED FLOOR).
 3. FOR LIGHTING FIXTURE SCHEDULE SEE SHEET SD-E-1.
 4. COORDINATE LIGHTING FIXTURES WITH PIPING AND EQUIPMENT.

LEGEND

- DATA LOOP
- GAS
- FIRE ALARM

THICKENER BUILDING BASEMENT - LIGHTING AND SYSTEMS PLAN

PLAN
3/16" = 1'-0"




GRIFFIN ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
508/426-8880 Fax: 508/426-7925
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE
REV-1	8/30/13
REV-2	10/21/13

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ETBLS001
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 BASEMENT
 LIGHTING AND SYSTEMS PLAN**

PROJECT NO.
1289-74283

Sht. 281 of 312

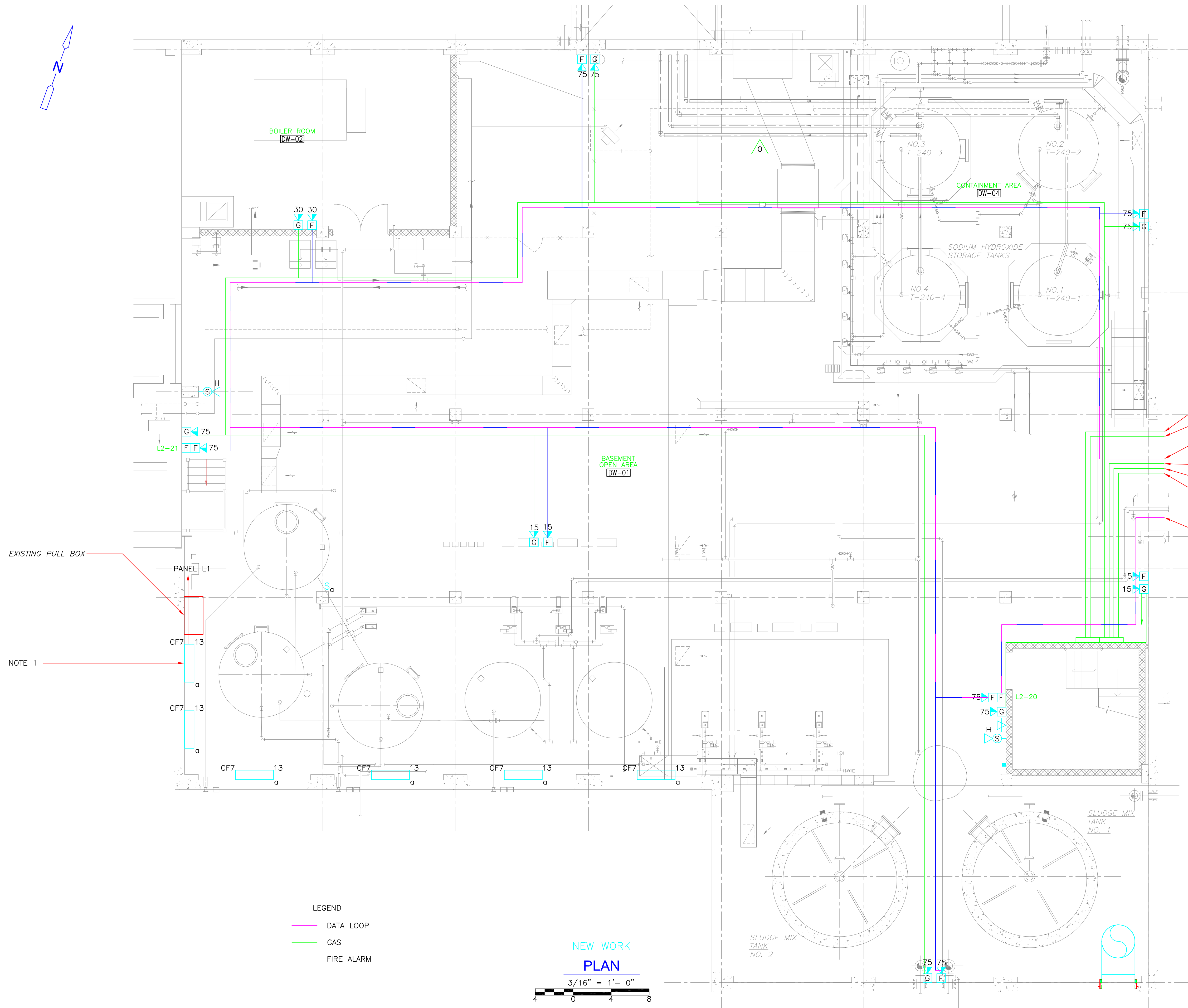
TB-E-4

Acc # 1289-74687

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WTP #1635\ELECTRICAL AS-BUILT\DW-E-5.DWG Saved by: RKLROY On: 13-Dec-12 4:53 PM

NOTES:
 1. FIXTURES TO BE WALL MOUNTED 10'-0" A.F.F. AT A 45 DEGREE ANGLE FACING OUT TOWARDS THE BFP POLYMER TANKS.



- TO THICKENER STROBES
- FROM THICKENER STROBES
- DATA RETURN TO 1ST NAC
- RETURN TO 1ST
- TO ELEC RM PS-24
- TO SXL
- FROM SXL
- DATA/NAC FROM 1ST FL ELEC RM

EXISTING PULL BOX

NOTE 1

LEGEND


- DATA LOOP
- GAS
- FIRE ALARM

NEW WORK

PLAN

3/16" = 1'-0"

CONFORMED



GRIFFIN ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
 508/426-8800 Fax: 508/426-7805

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS001
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



CDM
Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

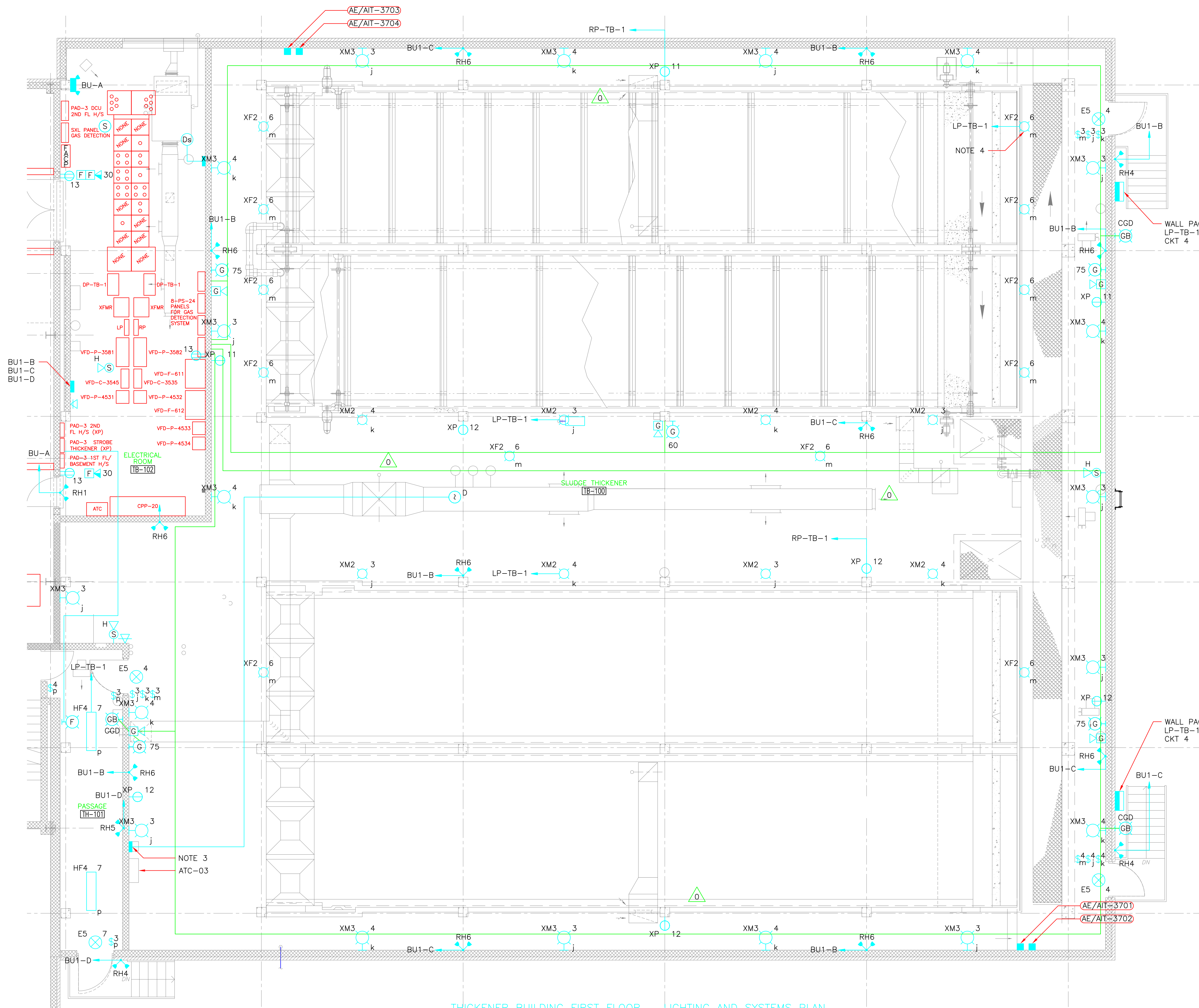
SLUDGE DEWATERING BUILDING
BASEMENT FLOOR PLAN
LIGHTING AND SYSTEMS IMPROVEMENTS

PROJECT NO.
1289-74283

Sht. 288 of 312

DW-E-5

Acc # 1289-74694



- NOTES:
1. MOUNT ALL FIXTURES 10'-0" A.F.F. (ABOVE FINISHED FLOOR) UNLESS OTHERWISE NOTED.
 2. FOR LIGHTING FIXTURE SCHEDULE SEE SHEET SD-E-1.
 3. DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4"C., 4#14, 1#14G.
 4. TASK LIGHTING FIXTURE TYPE XF2, TYPICAL.
 5. MOUNT BELOW HVAC DUCT WORK.

LEGEND

- DATA LOOP
- GAS
- FIRE ALARM

THICKENER BUILDING FIRST FLOOR - LIGHTING AND SYSTEMS PLAN

PLAN
3/16" = 1'-0"

CONFORMED

GRIFFIN ELECTRIC <small>110 Hopping Brook Road Bolton, Massachusetts 01740 508/439-8800 Fax: 508/439-7885</small>	
ELECTRICAL AS-BUILT DRAWING DECEMBER 19, 2012	
REVISIONS	DATE
REV-1	OCTOBER 21, 2013

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20\DRAWINGS\ELECTRICAL AS-BUILT\ETBLS002.DWG Saved by: RKLROY On: 21-Oct-13 Plotted on: 21-Oct-13 4:34 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS
Δ	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. ETBLS002.DWG
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
 FIRST FLOOR
 LIGHTING AND SYSTEMS PLAN**

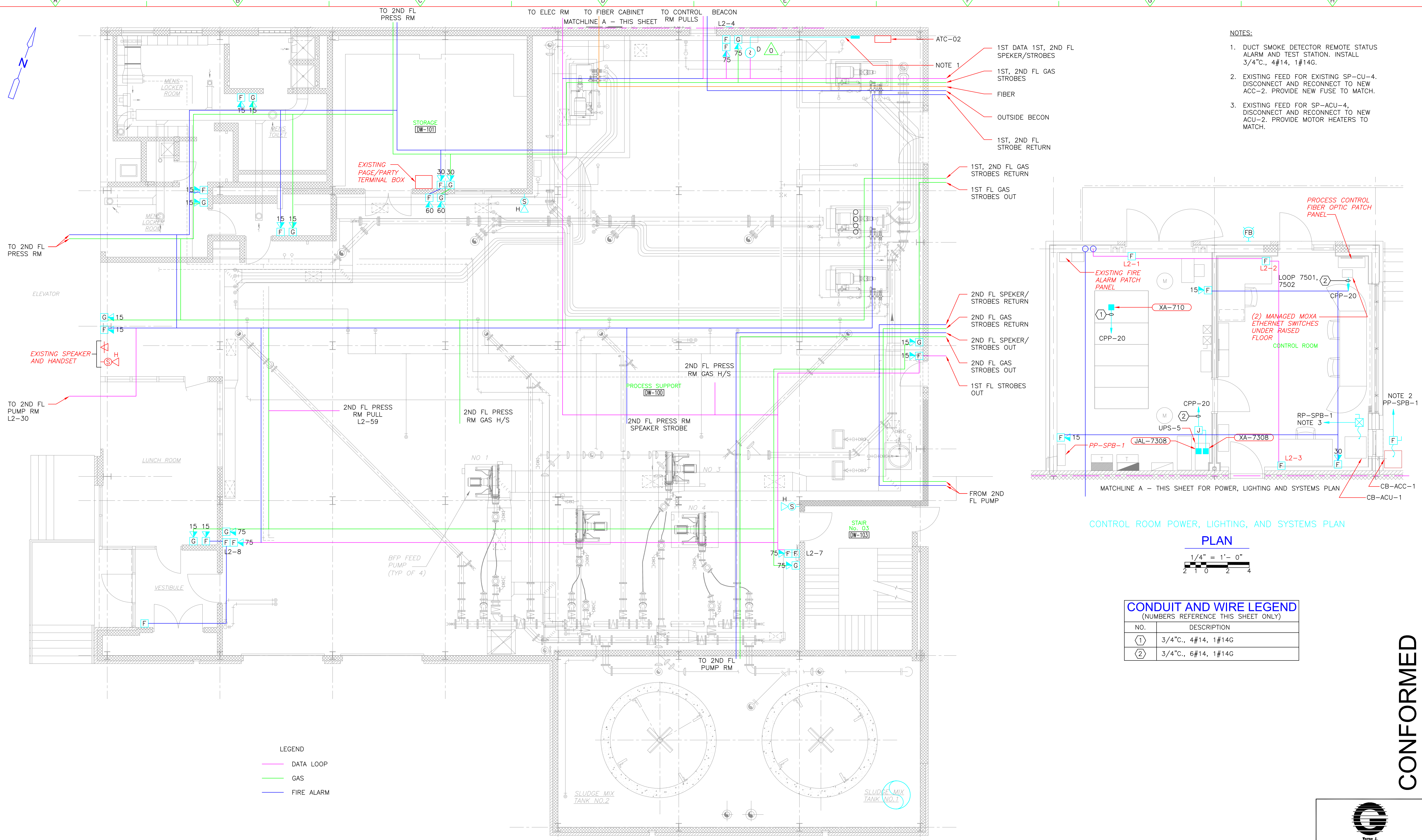
PROJECT NO.
1289-74283

Sht. 283 of 312

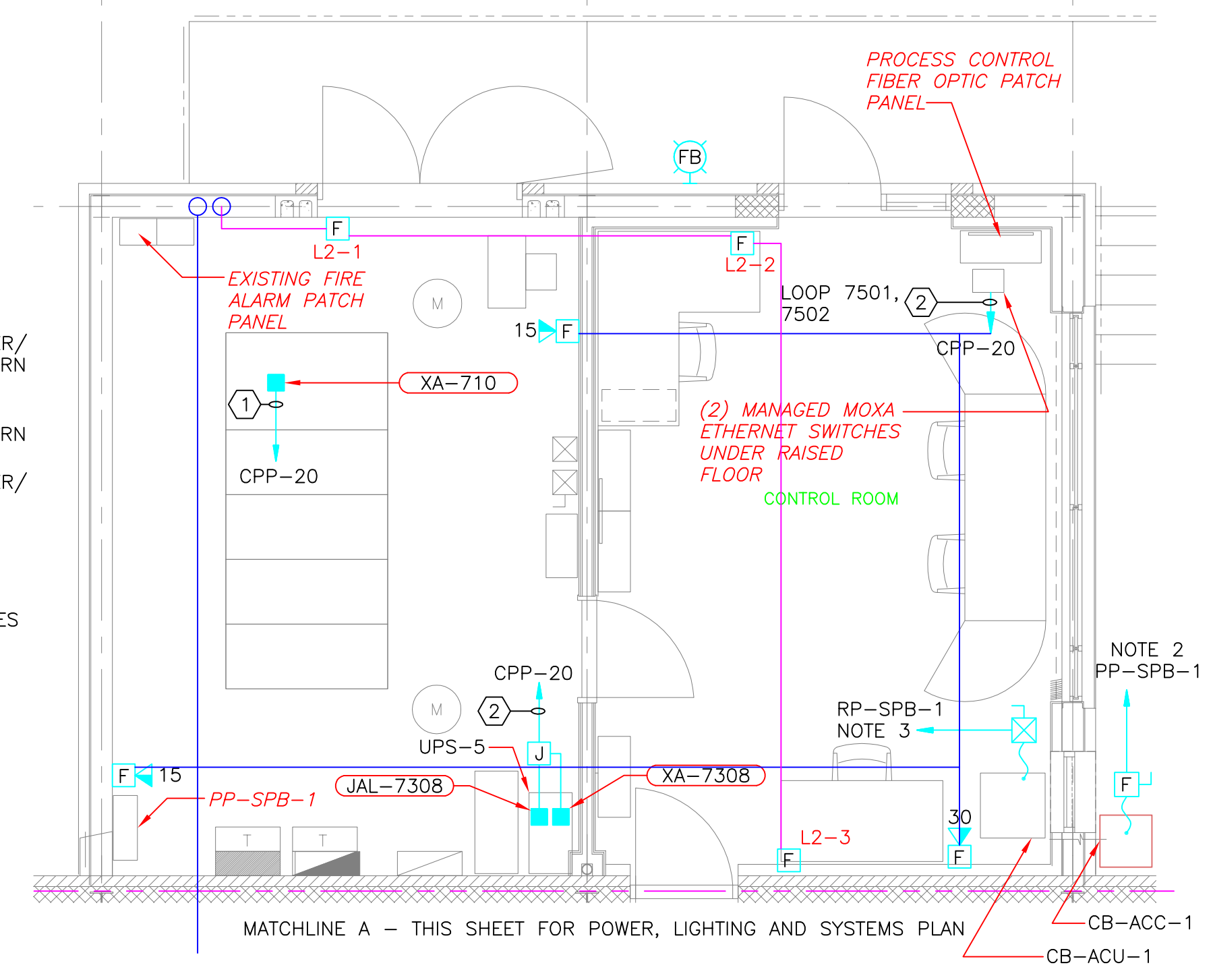
TB-E-6

Acc # 1289-74689

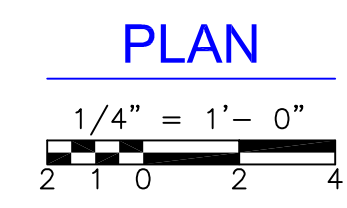
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20DRAWINGS\ELECTRICAL AS-BUILT\DW-E-7.DWG Saved by: RKILROY On: 21-Oct-13 4:53 PM



- NOTES:**
- DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4" C., 4#14, 1#14G.
 - EXISTING FEED FOR EXISTING SP-CU-4. DISCONNECT AND RECONNECT TO NEW ACC-2. PROVIDE NEW FUSE TO MATCH.
 - EXISTING FEED FOR SP-ACU-4. DISCONNECT AND RECONNECT TO NEW ACU-2. PROVIDE MOTOR HEATERS TO MATCH.



CONTROL ROOM POWER, LIGHTING, AND SYSTEMS PLAN



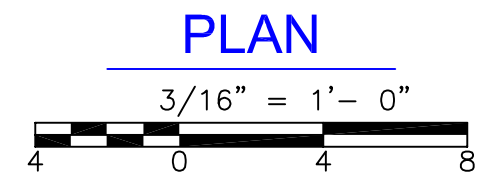
CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 6#14, 1#14G

LEGEND

—	DATA LOOP
—	GAS
—	FIRE ALARM

SLUDGE DEWATERING BUILDING FIRST FLOOR LIGHTING AND SYSTEMS PLAN



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS002
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DASILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 FIRST FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

GRIFPIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8800 Fax: 508/429-7925
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012
REV-2	OCTOBER 21, 2012

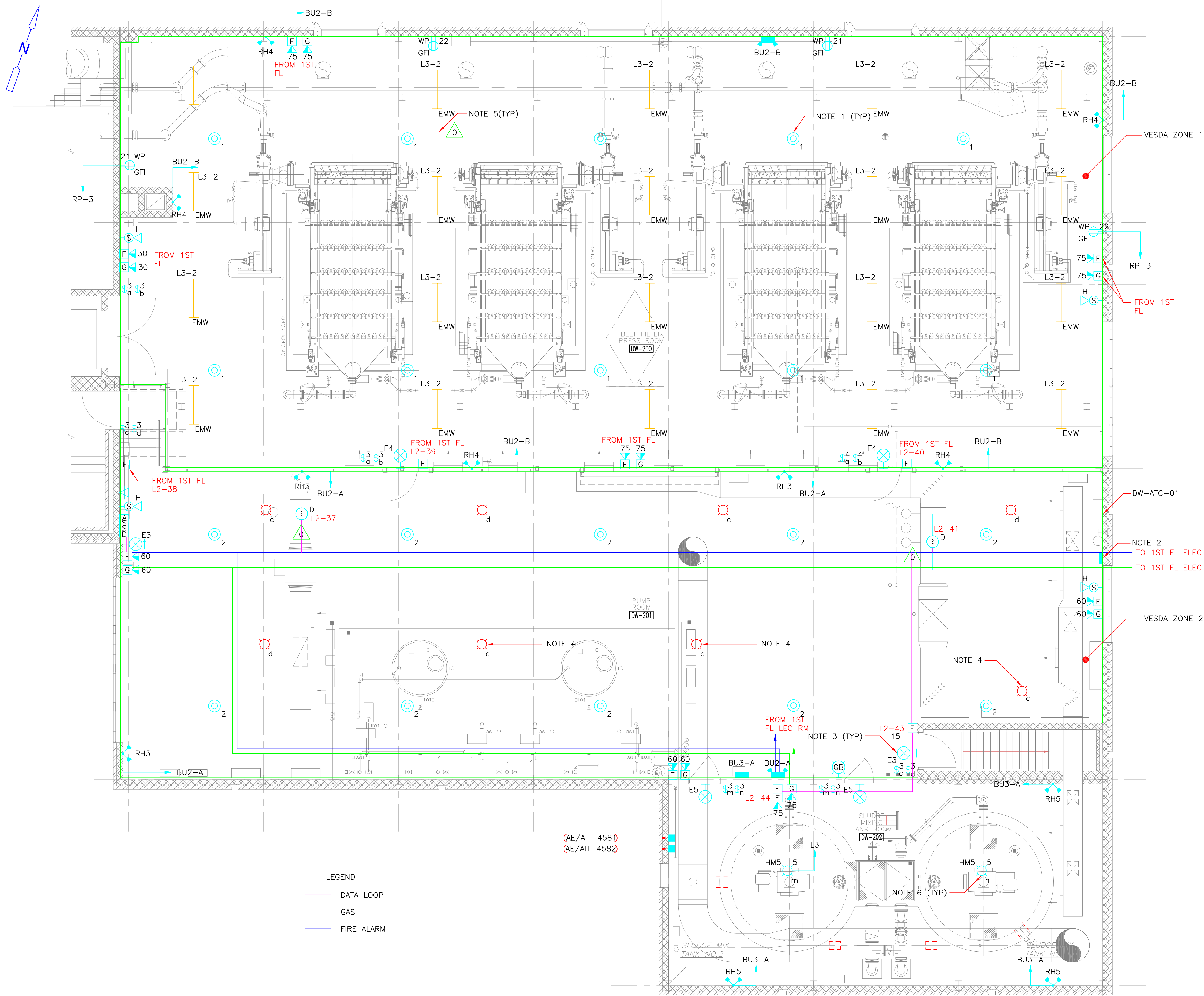
PROJECT NO.
1289-74283

Sht. 290 of 312

DW-E-7

Acc # 1289-74696

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\DW-E-9.DWG Saved by: RKLROY On: 13-Dec-12 Plotted on: 14-Dec-12 8:11 AM

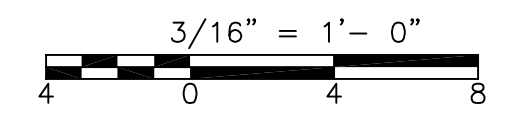


- NOTES:**
- AIR SAMPLING HOLE LOCATIONS AND QUANTITY TO BE CONFIRMED BY THE CONTRACTOR WITH THE AIR SAMPLING SMOKE DETECTOR (ASSD) MANUFACTURER.
 - DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4"C. 4#14, 1#14G.
 - WIRE THE NEW EMERGENCY LIGHTING FIXTURES TO THE EXISTING LIGHTING CIRCUIT IN EACH AREA. CIRCUIT TO BE CONFIRMED BY THE CONTRACTOR.
 - COORDINATE EXISTING LIGHTS WITH HVAC EQUIPMENT AND RELOCATE IF NECESSARY.
 - REMOUNT AND RECONNECT EXISTING LIGHT FIXTURES IN BELT FILTER PRESS ROOM 21"-6" A.F.F. PROVIDE NEW CONDUIT AND WIRE. SWITCH LIGHTS AS SHOWN ON THIS PLAN. ALL LIGHTING IN THIS AREA IS FED FROM PANELBOARD L3.
 - MOUNT NEW SLUDGE MIXING TANK LIGHTING AT THE SAME HEIGHT AS THE PREVIOUSLY DEMOED LIGHTING FOR THIS AREA. HEIGHT TO BE CONFIRMED BY THE CONTRACTOR.

LEGEND
 — DATA LOOP
 — GAS
 — FIRE ALARM

SLUDGE DEWATERING BUILDING SECOND FLOOR LIGHTING AND SYSTEMS IMPROVEMENTS

PLAN
 3/16" = 1'-0"



CONFORMED

GRIFFIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8880 Fax: 508/429-7825
 ELECTRICAL AS-BUILT DRAWING
 JULY 20, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	JJD	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS003
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 SECOND FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

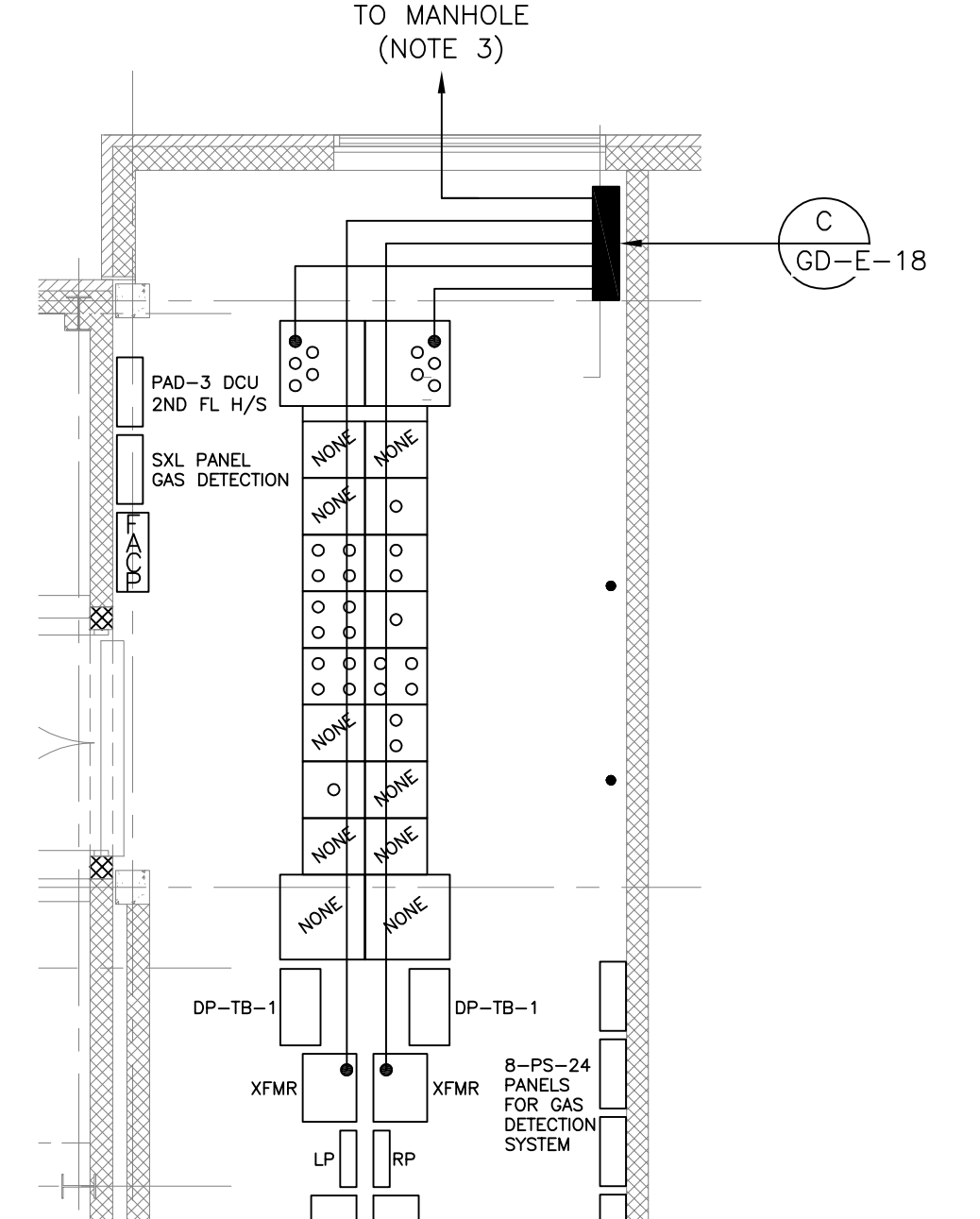
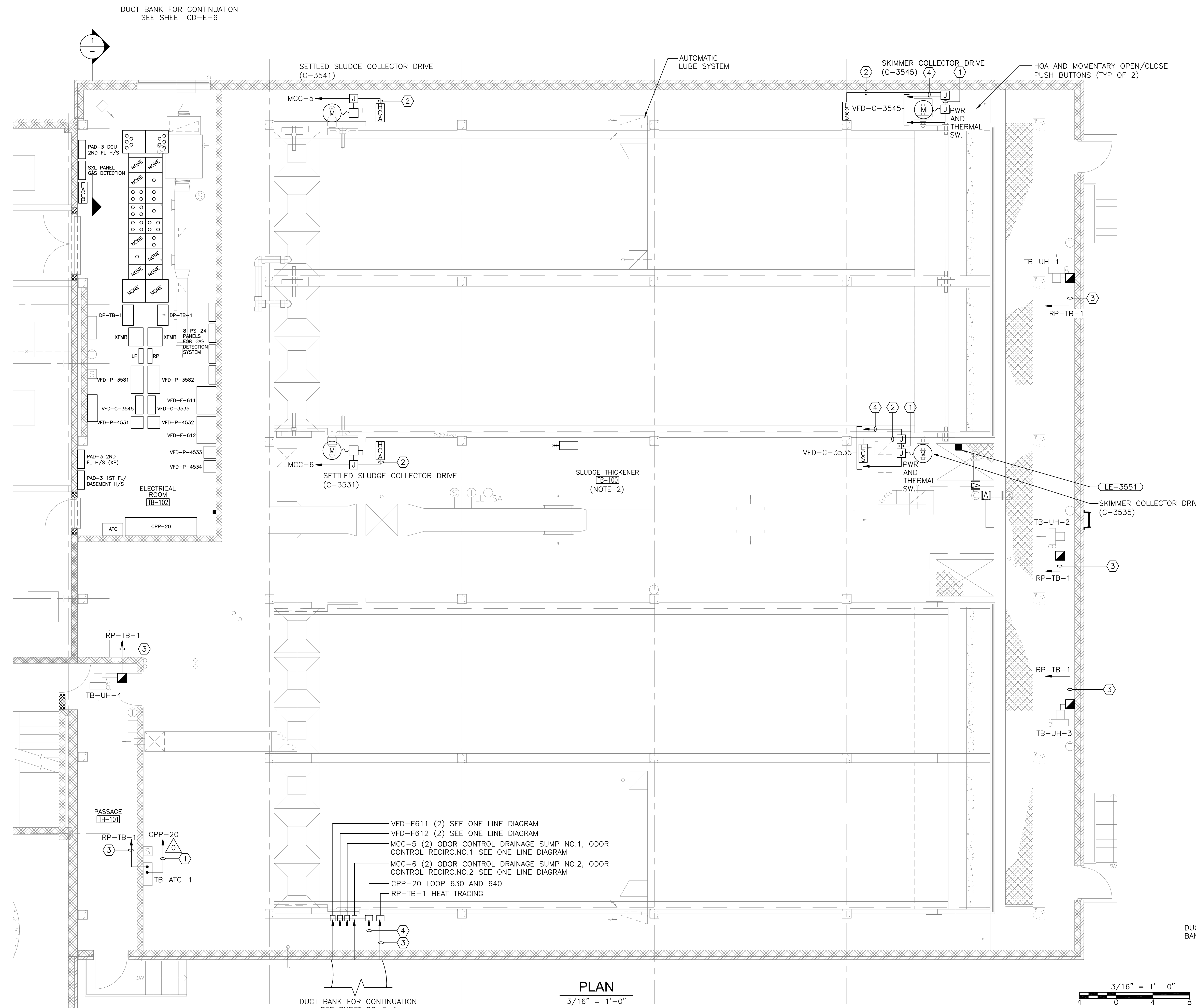
PROJECT NO.
1289-74283

Sht. 292 of 312

DW-E-9

Acc # 1289-74698

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ELECTRICAL AS-BUILT\ETBPL002.DWG Saved by: RKLROY On: 11-Dec-12 9:31 AM

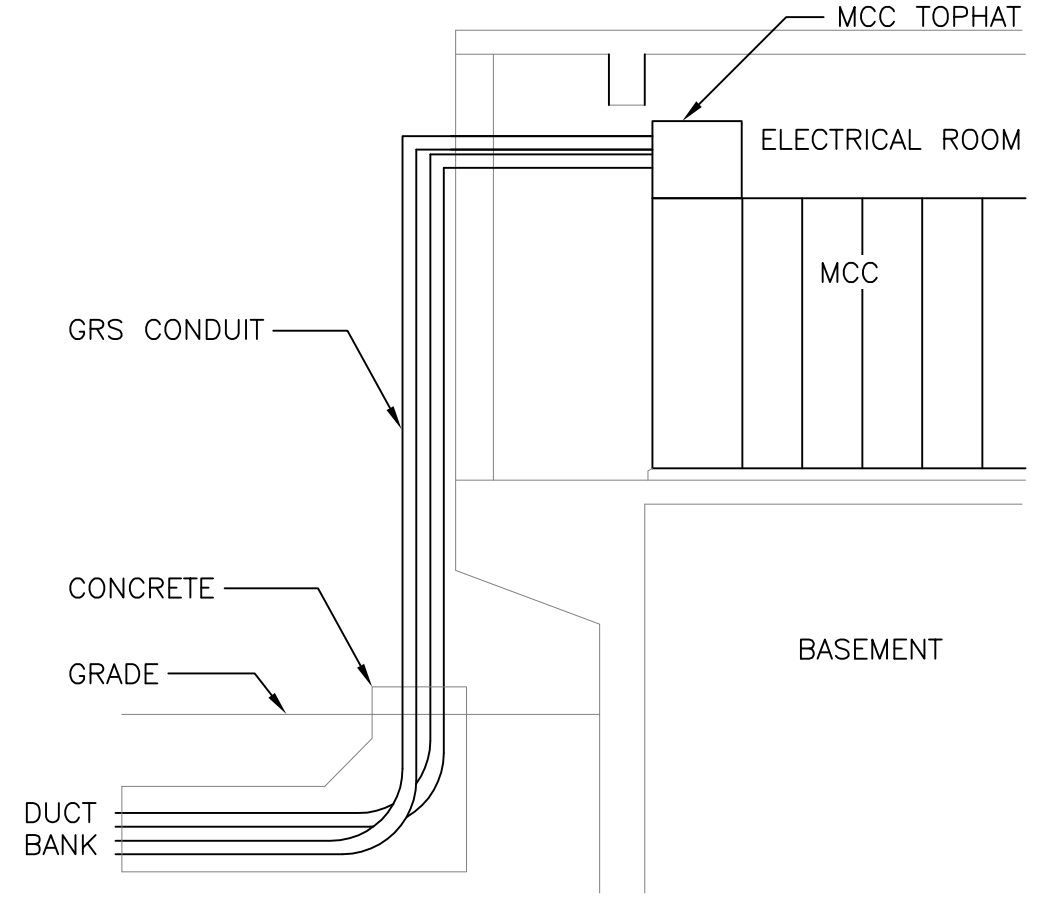


**PART PLAN
GROUNDING**

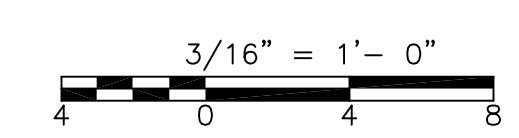
- NOTES:**
1. FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-11 THRU GD-E-14, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24 OR PANELBOARD SCHEDULE 1 ON SHEET GD-E-19.
 2. SLUDGE THICKENER ROOM TB-100 ELECTRICAL EQUIPMENT EXPLOSION PROOF, SEAL FITTINGS AS REQUIRED, REFERENCE ELECTRICAL HAZARDOUS AREA CLASSIFICATION SHEET NO. GD-E-3, GD-E-4 AND GD-E-5.
 3. CONTINUE GROUND CONDUCTOR TO EXISTING MANHOLE MH-P1 CONNECT TO EXISTING GROUND.
 4. FOR LOOPS 11, 3541, 3570, 6511.
 5. FOR LOOPS 12, 3531, 6512.

CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 8#14, 1#14G
③	3/4" C., 2#12, 1#12G
④	3/4" C., 16#14, 1#14G
⑤	1" C., CAT 6 (CABLE DIV 13)
⑥	3/4" C., 10#14, 1#14G
⑦	1" C., 4/0 GROUND
⑧	3/4" C., #6 GROUND
⑨	2" C., 60#14, 1#14G (NOTE 4)
⑩	1" C., 34#14, 1#14G (NOTE 5)
⑪	3/4" C., 5#12, 2#14 (PER DEVICE)



PLAN
3/16" = 1'-0"



SECTION 1
NTS

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
08/19	AJB	TRD		ODOR CONTROL SYSTEM
09/10	JJD	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO.	ETBPL002
DESIGNED BY:	T.JADAMCZYK
DRAWN BY:	T.JADAMCZYK
SHEET CHK'D BY:	T.DISILVA
CROSS CHK'D BY:	M.KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J.ROMEO
DATE:	SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

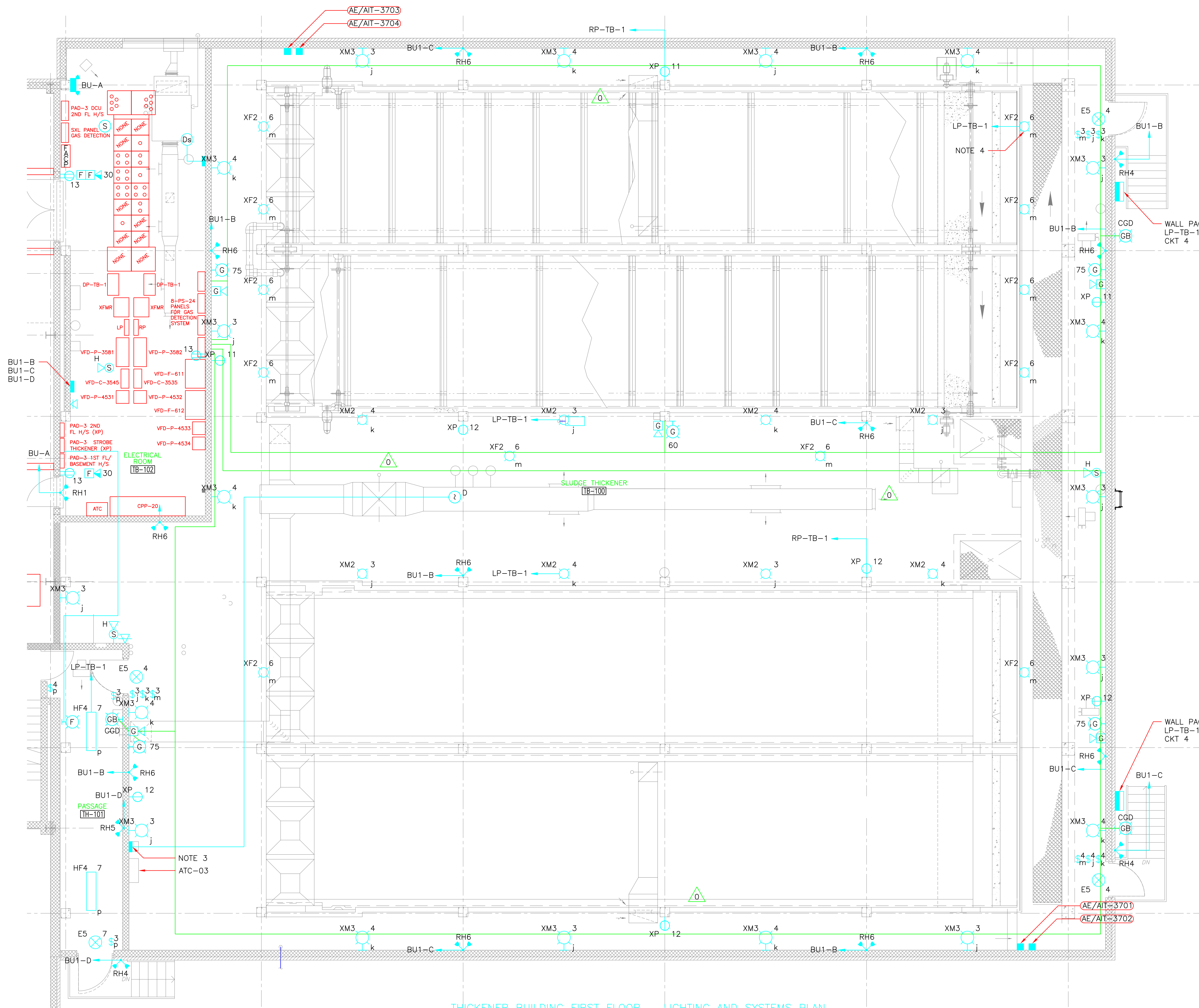
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**THICKENER BUILDING
FIRST FLOOR
POWER PLAN**

GRiffin ELECTRIC
118 Hopping Brook Road Holliston, Massachusetts 01746
508/429-0810 Fax: 508/429-7825
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283
Sht. 282 of 312
TB-E-5
Acc # 1289-74688



- NOTES:
1. MOUNT ALL FIXTURES 10'-0" A.F.F. (ABOVE FINISHED FLOOR) UNLESS OTHERWISE NOTED.
 2. FOR LIGHTING FIXTURE SCHEDULE SEE SHEET SD-E-1.
 3. DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4"C., 4#14, 1#14G.
 4. TASK LIGHTING FIXTURE TYPE XF2, TYPICAL.
 5. MOUNT BELOW HVAC DUCT WORK.

LEGEND

DATA LOOP

GAS

FIRE ALARM

THICKENER BUILDING FIRST FLOOR - LIGHTING AND SYSTEMS PLAN

PLAN
3/16" = 1'-0"

CONFORMED

GRIFFIN ELECTRIC
INC.

110 Hopping Brook Road Bolton, Massachusetts 01760
508/439-8800 Fax: 508/439-7885
ELECTRICAL AS-BUILT DRAWING
DECEMBER 19, 2012

REVISIONS	DATE
REV-1	OCTOBER 21, 2013

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20\DRAWINGS\ELECTRICAL AS-BUILT\ETBLS002.DWG Saved by: RKLROY On: 21-Oct-13 Plotted on: 21-Oct-13 4:34 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS
Δ	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. ETBLS002.DWG
DESIGNED BY: J.DONALDSON
DRAWN BY: J.DONALDSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

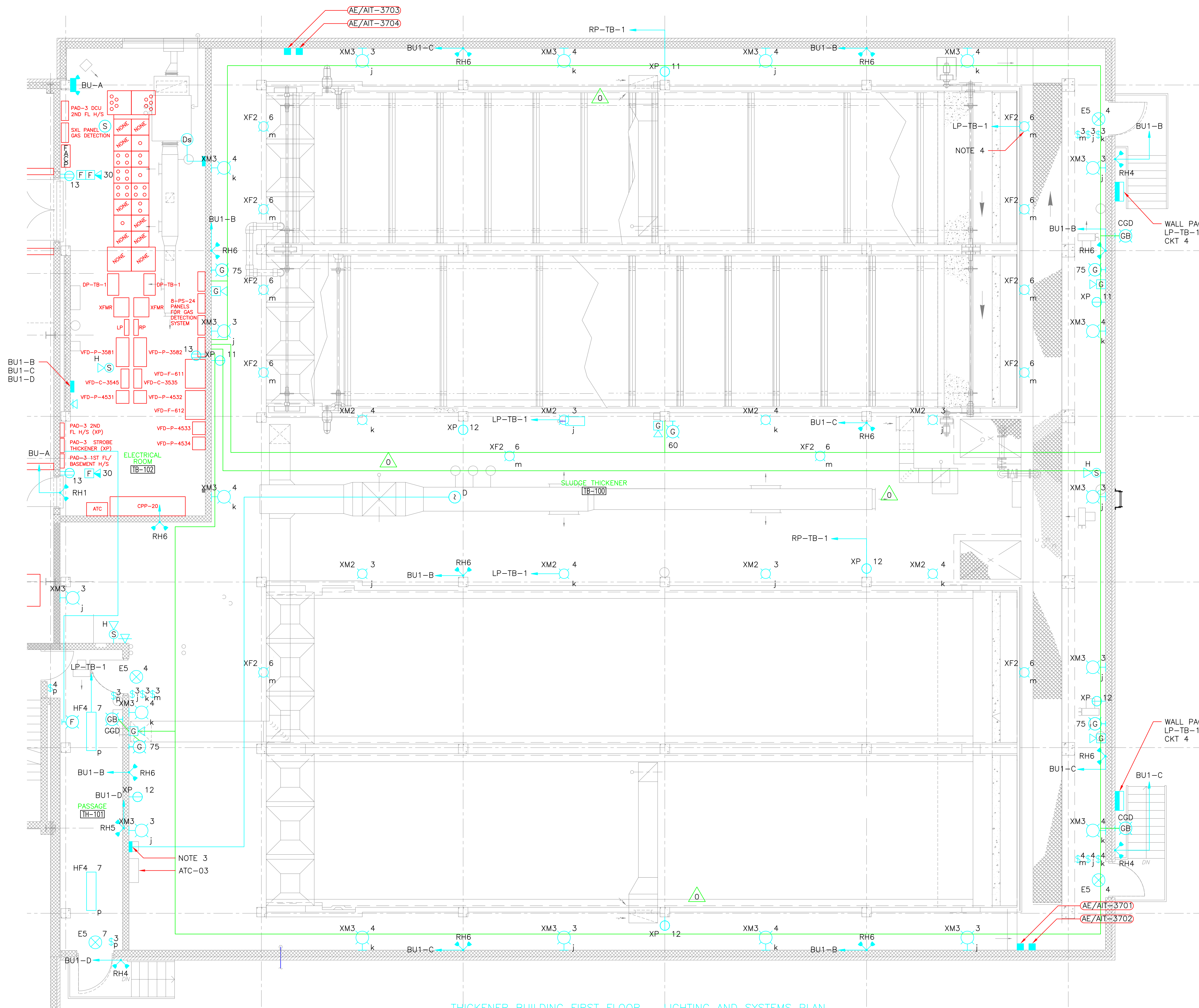
THICKENER BUILDING
FIRST FLOOR
LIGHTING AND SYSTEMS PLAN

PROJECT NO.
1289-74283

Sht. 283 of 312

TB-E-6

Acc # 1289-74689



- NOTES:
1. MOUNT ALL FIXTURES 10'-0" A.F.F. (ABOVE FINISHED FLOOR) UNLESS OTHERWISE NOTED.
 2. FOR LIGHTING FIXTURE SCHEDULE SEE SHEET SD-E-1.
 3. DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4"C., 4#14, 1#14G.
 4. TASK LIGHTING FIXTURE TYPE XF2, TYPICAL.
 5. MOUNT BELOW HVAC DUCT WORK.


LEGEND

- DATA LOOP
- GAS
- FIRE ALARM

THICKENER BUILDING FIRST FLOOR - LIGHTING AND SYSTEMS PLAN

PLAN
3/16" = 1'-0"

CONFORMED

 GRIFFIN ELECTRIC <small>110 Hopping Brook Road Bolton, Massachusetts 01760 508/439-8800 Fax: 508/439-7885</small>	
ELECTRICAL AS-BUILT DRAWING DECEMBER 19, 2012	
REVISIONS	DATE
REV-1	OCTOBER 21, 2013

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20\DRAWINGS\ELECTRICAL AS-BUILT\ETBLS002.DWG Saved by: RKLROY On: 21-Oct-13 Plotted on: 21-Oct-13 4:34 PM

REV. NO.	DATE	DRWN	CHKD	REMARKS
Δ	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. ETBLS002.DWG
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

THICKENER BUILDING
 FIRST FLOOR
 LIGHTING AND SYSTEMS PLAN

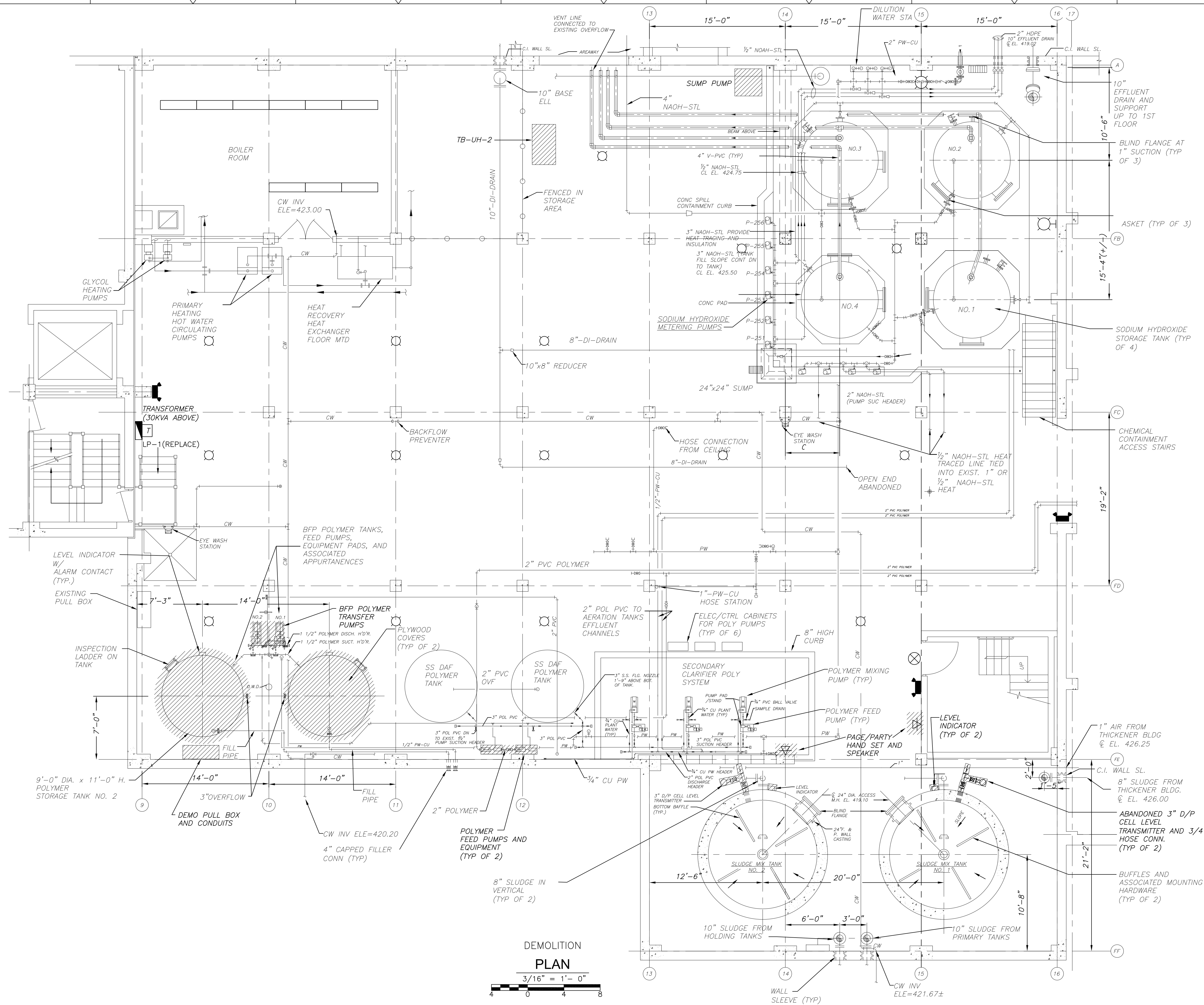
PROJECT NO.
1289-74283

Sht. 283 of 312

TB-E-6

Acc # 1289-74689

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\DW-E-1.DWG Saved by: MBOTLHO On: 14-Feb-12 8:07 AM



NOTES:
 1. ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.

DEMOLITION PLAN
 3/16" = 1'-0"
 4 0 4 8

GRiffin ELECTRIC
 118 Hoping Brook Road Holliston, Massachusetts 01746
 508/429-8880 Fax: 508/429-7825
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	EDWDM001
DESIGNED BY:	T.J. ADAMCZYK
DRAWN BY:	T.J. ADAMCZYK
SHEET CHK'D BY:	T. DISILVA
CROSS CHK'D BY:	M. KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J. ROMEO
DATE:	SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 BASEMENT FLOOR PLAN
 DEMOLITION**

PROJECT NO.
1289-74283

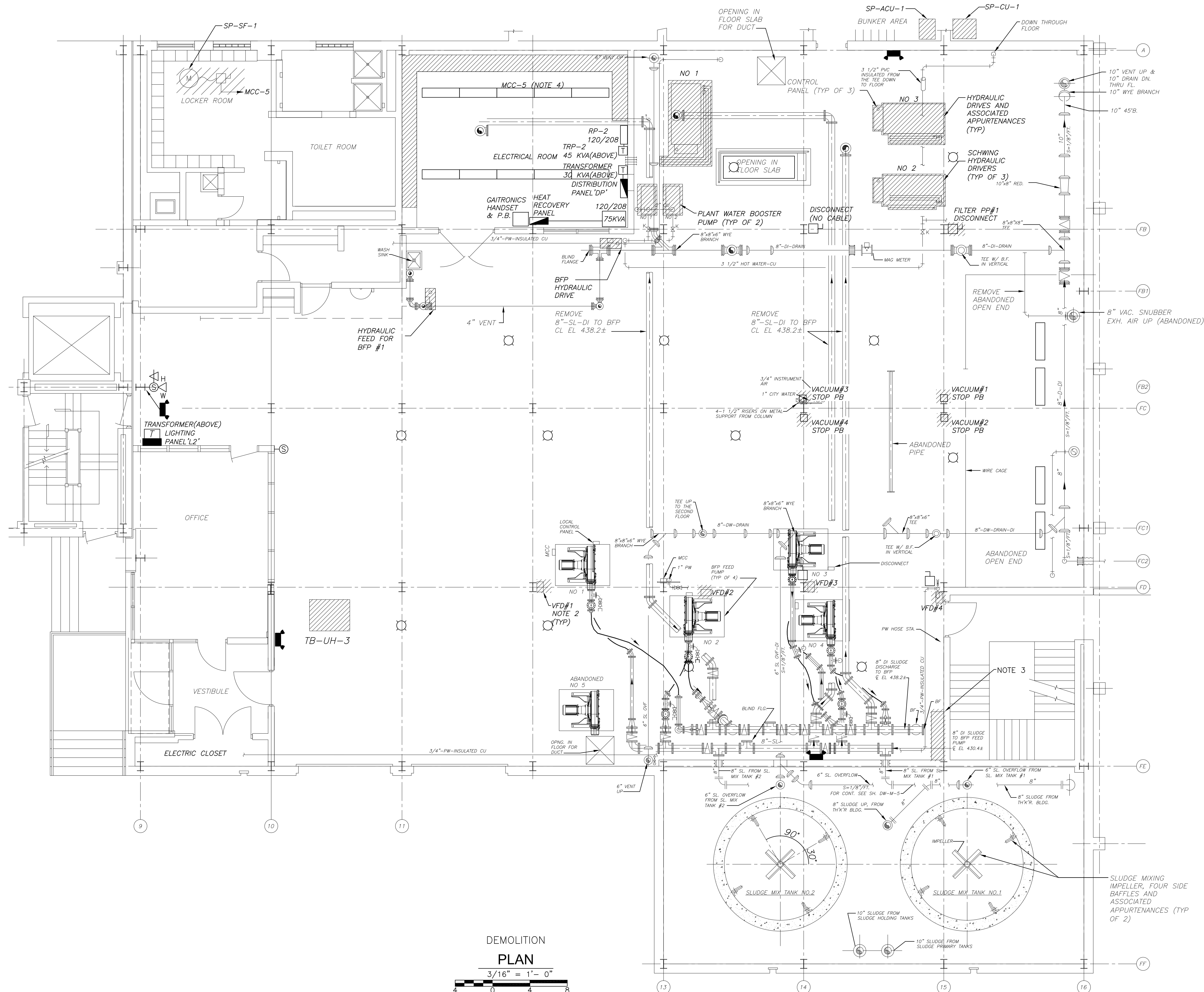
Sht. 284 of 312

DW-E-1

Acc # 1289-74690

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WTP # 1635 ELECTRICAL AS-BUILT DW-E-2.DWG Saved by: MBOTELHO On: 14-Feb-12 8:08 AM



- NOTES:**
1. ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS, DISCONNECT SWITCHES AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.
 2. REMOVE ALL VFD'S ASSOCIATED WITH EXISTING BFP FEED PUMP.
 3. REMOVE EXISTING VFD CONTROL PANEL.
 4. REMOVE MCC-5, REMAIN IN OPERATION UNTIL NEW MCC-5 & 6 ARE OPERATING, IN ACCORDANCE WITH SECTION 01810 AND DIV. 10000.

DEMOLITION PLAN
 3/16" = 1' - 0"
 4 0 4 8

GRIFFIN ELECTRIC
 110 Hoping Brook Road Holliston, Massachusetts 01746
 508/429-8884 Fax: 508/429-7025
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDWDM002
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
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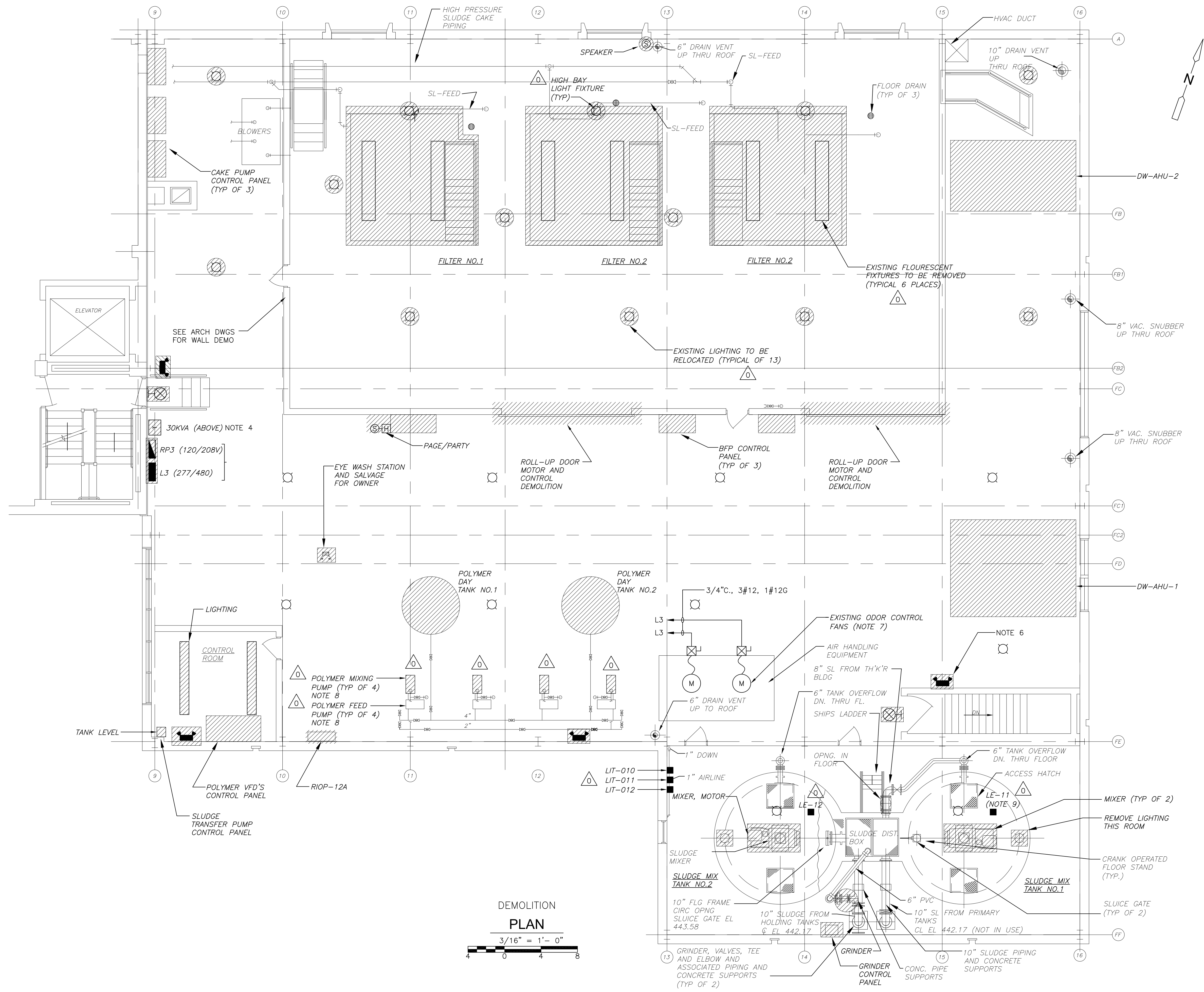
**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 FIRST FLOOR PLAN
 DEMOLITION**

PROJECT NO. 1289-74283
 Sht. 285 of 312
DW-E-2
 Acc # 1289-74691


CONFORMED



- NOTES:**
1. ELECTRICAL EQUIPMENT SHOWN AS DEMOLISHED ALSO INCLUDES CONDUIT, WIRING, CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN, FROM SOURCE TO EQUIPMENT.
 2. EXISTING POLYMER MIXING PUMP NO. 1 THRU 4 TO REMAIN AND NOTE 1.
 3. EXISTING BFP POLYMER FEED PUMP NO. 1 THRU 4 TO REMAIN AND NOTE 1.
 4. DEMOLISH ALL CONDUIT AND WIRE, SUPPORT HDWR, RE-USE 30KVA TRANSFORMER 480V-480/277V MOVE TO NEW LOCATION.
 5. RP3, L3 DEMOLISH PANELS, RELOCATE EXISTING CIRCUITS TO NEW PANELS AT NEW LOCATION. CLEAR THIS AREA OF ALL EXISTING CONDUITS AND HDWR..
 6. DEMOLISH EXIT SIGNS AND EMERGENCY LIGHTING AND ASSOCIATED CONDUIT & WIRING.
 7. PROVIDE TEMPORARY MOTOR STARTERS WITH STOP/START PUSH BUTTONS AND INDICATING LIGHTS FED FROM NEW PANEL L3.
 8. REMOVE ALL WIRING AND CONDUIT TO EXISTING CONTROL PANEL.
 9. DEMO EXISTING LE/LIT-010, 011, AND 012.

**DEMOLITION
PLAN**
3/16" = 1'-0"


CONFORMED



Griffin Electric
118 Hoping Brook Road Holliston, Massachusetts 01746
508/429-8880 Fax: 508/429-7825
ELECTRICAL AS-BUILT DRAWING
FEBRUARY 15, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDMDM003 DESIGNED BY: T.J.ADMCZYK DRAWN BY: T.J.ADMCZYK SHEET CHK'D BY: T.DJILVA CROSS CHK'D BY: M.KOSTUR SCALE: AS NOTED APPROVED BY: J.ROMEO DATE: SEPTEMBER 2010	 <p>CDM Camp Dresser & McKee Inc. One Cambridge Place, 50 Hampshire Street Cambridge, MA 02139 Tel: (617) 452-6000 consulting • engineering • construction • operations</p>
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**UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197**

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
SECOND FLOOR PLAN
DEMOLITION**

PROJECT NO.
1289-74283

 Sht. 286 of 312

DW-E-3

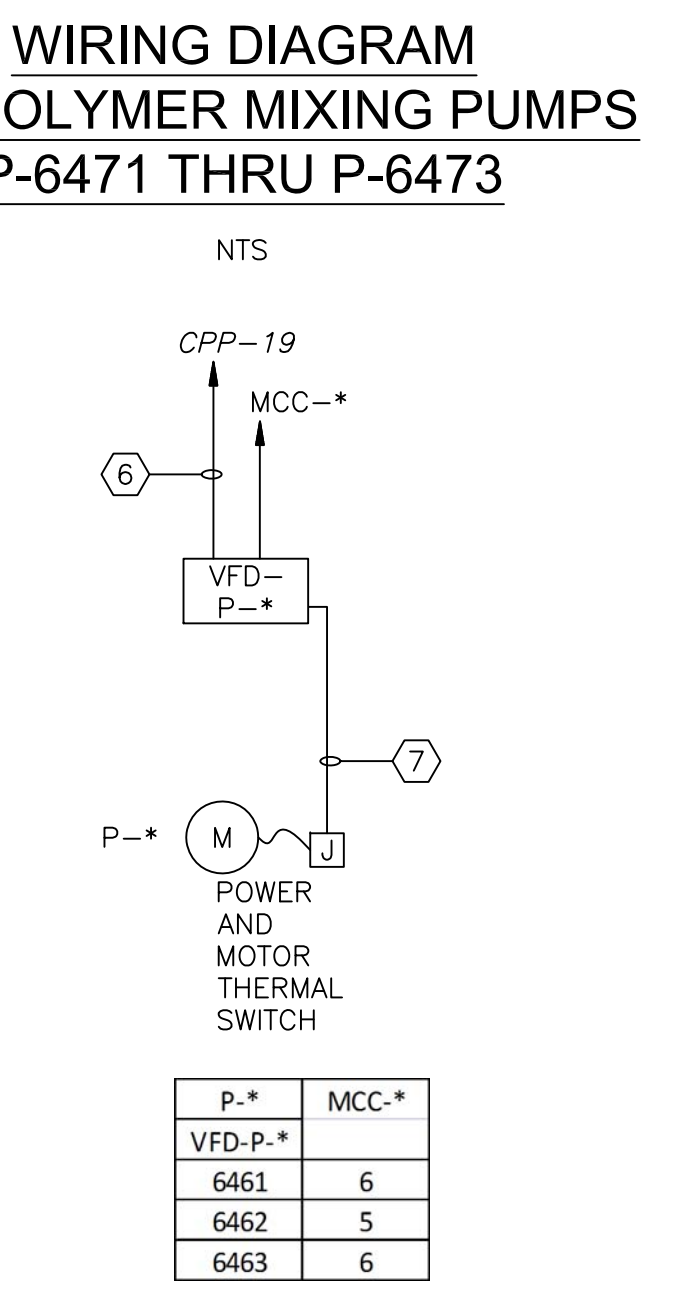
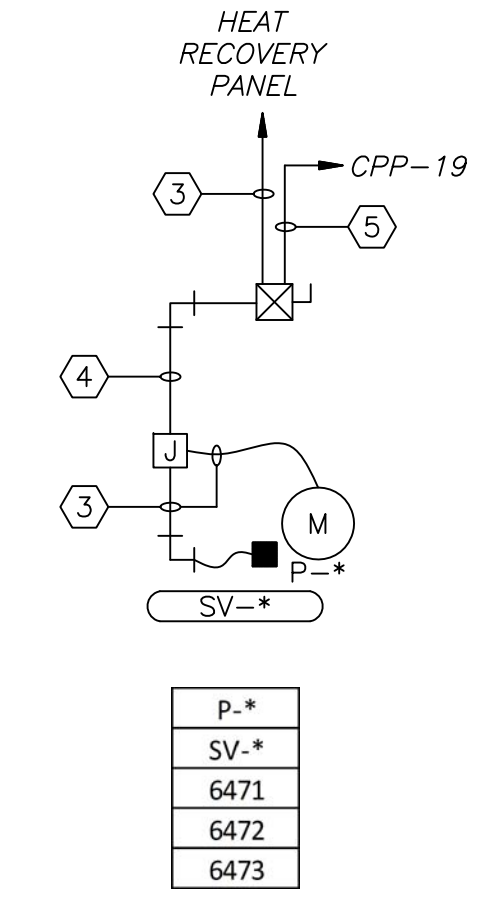
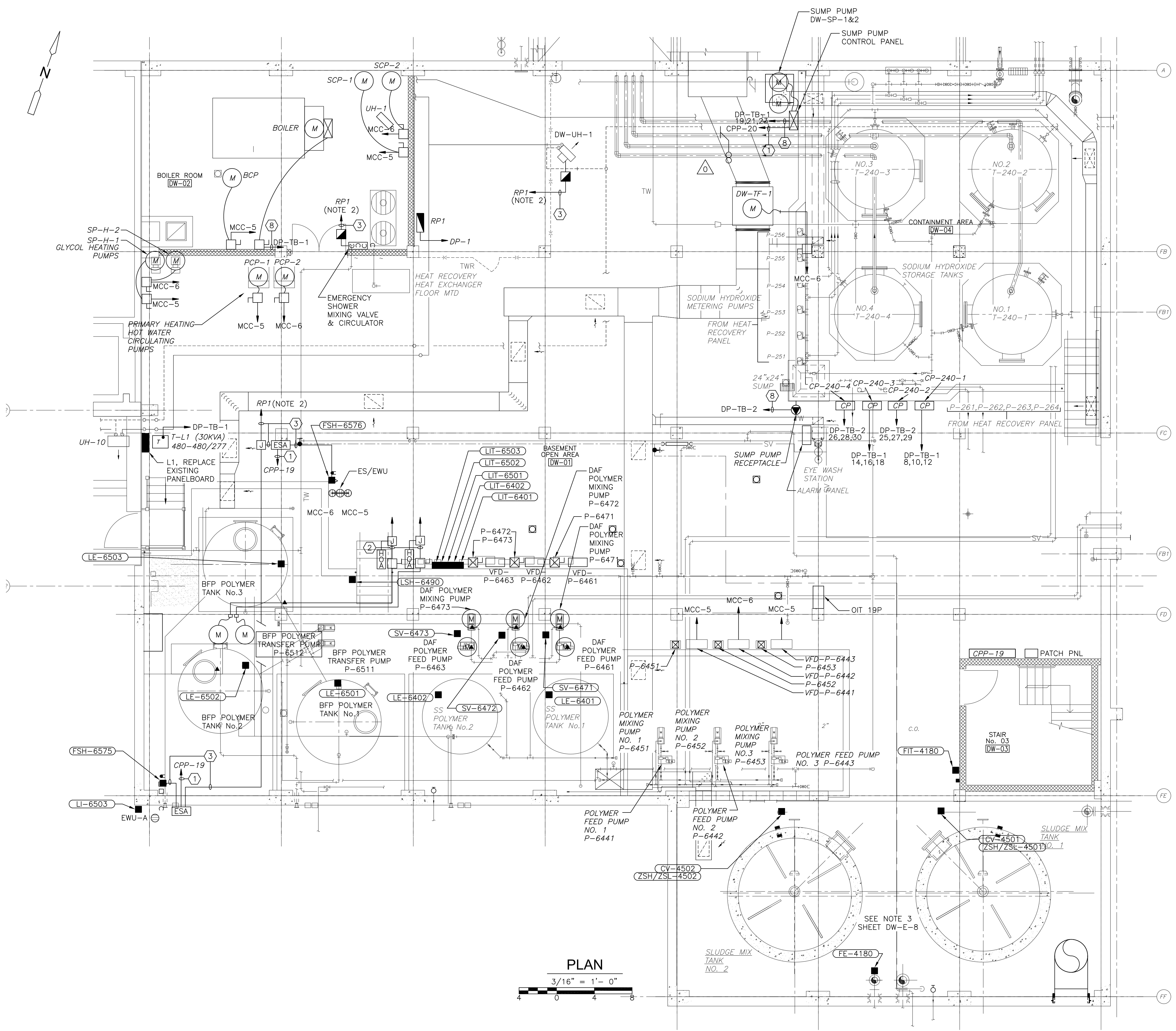
 Acc # 1289-74692

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WWP #1635 ELECTRICAL AS-BUILT DW-E-4.DWG Saved by: MBOTELHO On: 14-Feb-12 8:18 AM

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-11 THRU GD-E-14, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24 OR PANELBOARD SCHEDULE 1 ON SHEET GD-E-19.
 - FURNISH AND INSTALL NEW 120V, 20A CIRCUIT BREAKER SIMILAR TO EXISTING BREAKERS.

CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C, 4#14, 1#14G
②	3/4" C, 8#14, 1#14G
③	3/4" C, 2#12, 1#12G
④	3/4" C, 4#12, 1#12G
⑤	3/4" C, 12#14, 1#14G
⑥	1" C, CAT 6 (CABLE DIV.13)
⑦	3/4" C, 3#12, 1#12G, 2#14
⑧	3/4" C, 3#12, 1#12G



PLAN

3/16" = 1'-0"

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	TJA	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWPL001
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 BASEMENT FLOOR PLAN
 POWER IMPROVEMENTS**

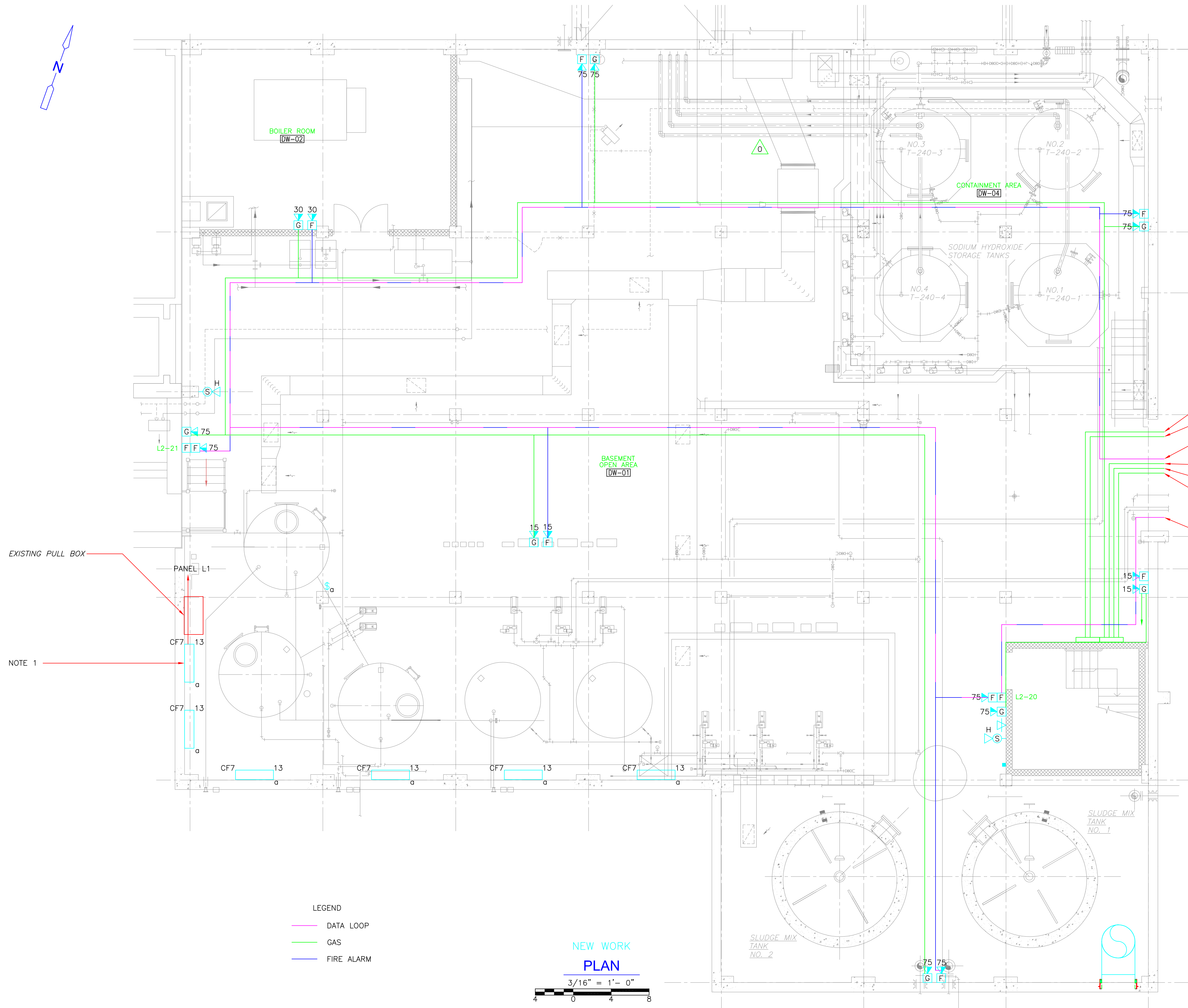
PROJECT NO. 1289-74283
 Sht. 287 of 312
DW-E-4
 Acc # 1289-74693

GRiffin ELECTRIC
 118 Shopping Brook Road Holliston, Massachusetts 01746
 508/429-0880 Fax: 508/429-7025
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WTP #1635\ELECTRICAL AS-BUILT\DW-E-5.DWG Saved by: RKLROY On: 13-Dec-12 4:53 PM

NOTES:
 1. FIXTURES TO BE WALL MOUNTED 10'-0" A.F.F. AT A 45 DEGREE ANGLE FACING OUT TOWARDS THE BFP POLYMER TANKS.



- TO THICKENER STROBES
- FROM THICKENER STROBES
- DATA RETURN TO 1ST NAC
- RETURN TO 1ST
- TO ELEC RM PS-24
- TO SXL
- FROM SXL
- DATA/NAC FROM 1ST FL ELEC RM

EXISTING PULL BOX

NOTE 1

LEGEND


- DATA LOOP
- GAS
- FIRE ALARM

NEW WORK

PLAN

3/16" = 1'-0"

CONFORMED




GRIFFIN ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
 508/426-8800 Fax: 508/426-7905

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS001
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



CDM
Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

**UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT**
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 BASEMENT FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

PROJECT NO.
1289-74283

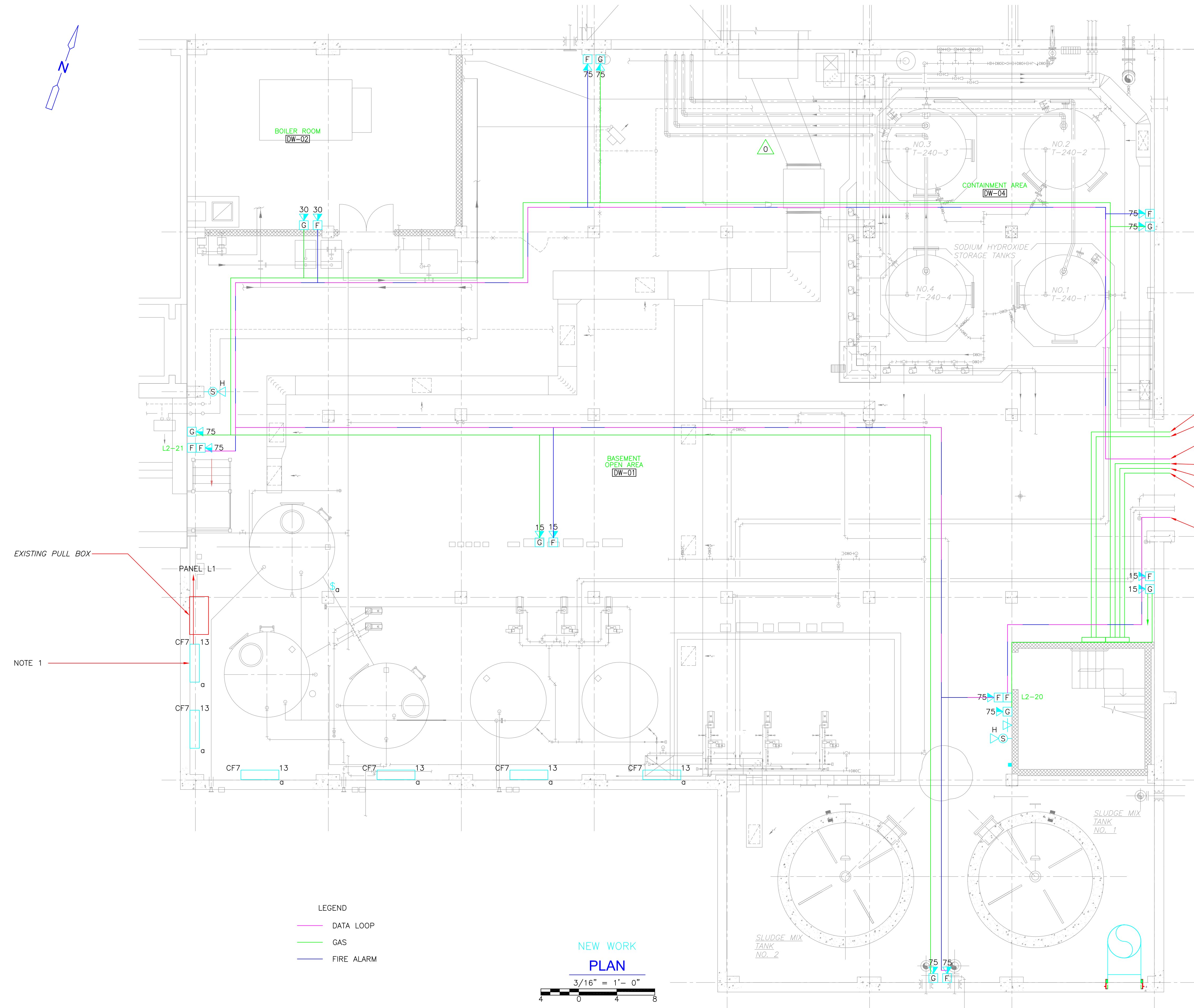
Sht. 288 of 312

DW-E-5

Acc # 1289-74694

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WTP #1635\ELECTRICAL AS-BUILT\DW-E-5.DWG Saved by: RKLROY On: 13-Dec-12 4:53 PM

NOTES:
 1. FIXTURES TO BE WALL MOUNTED 10'-0" A.F.F. AT A 45 DEGREE ANGLE FACING OUT TOWARDS THE BFP POLYMER TANKS.



- TO THICKENER STROBES
- FROM THICKENER STROBES
- DATA RETURN TO 1ST NAC
- RETURN TO 1ST
- TO ELEC RM PS-24
- TO SXL
- FROM SXL
- DATA/NAC FROM 1ST FL ELEC RM

EXISTING PULL BOX

NOTE 1

LEGEND


- DATA LOOP
- GAS
- FIRE ALARM

NEW WORK

PLAN

3/16" = 1'-0"

CONFORMED




GRIFFIN ELECTRIC
116 Hoppon Brook Road Holliston, Massachusetts 01746
 508/420-8800 Fax: 508/420-7905

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS001
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



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 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
BASEMENT FLOOR PLAN
LIGHTING AND SYSTEMS IMPROVEMENTS

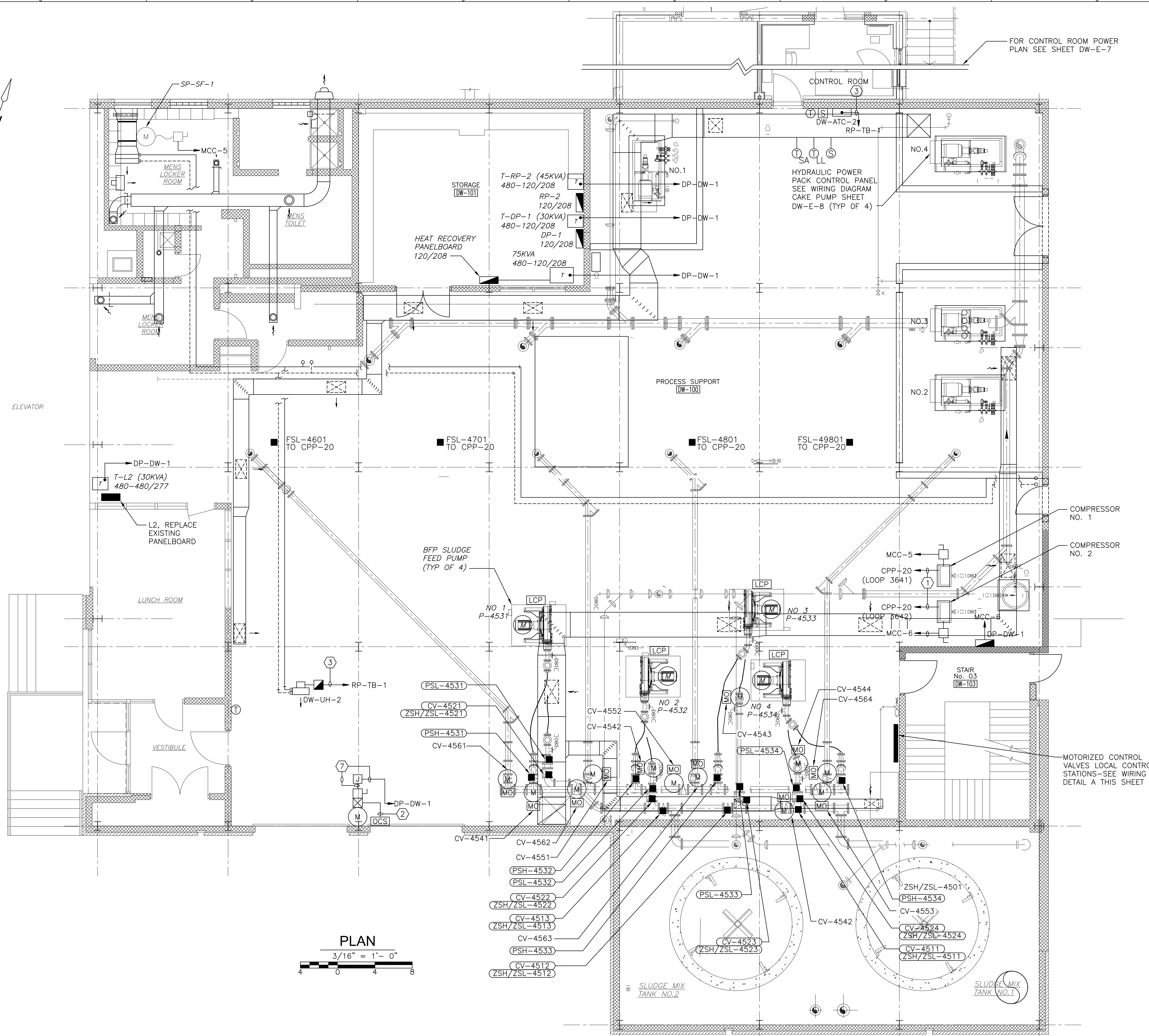
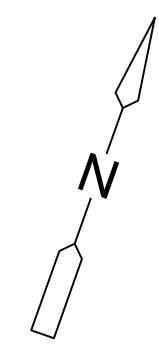
PROJECT NO.
1289-74283

Sht. 288 of 312

DW-E-5

Acc # 1289-74694

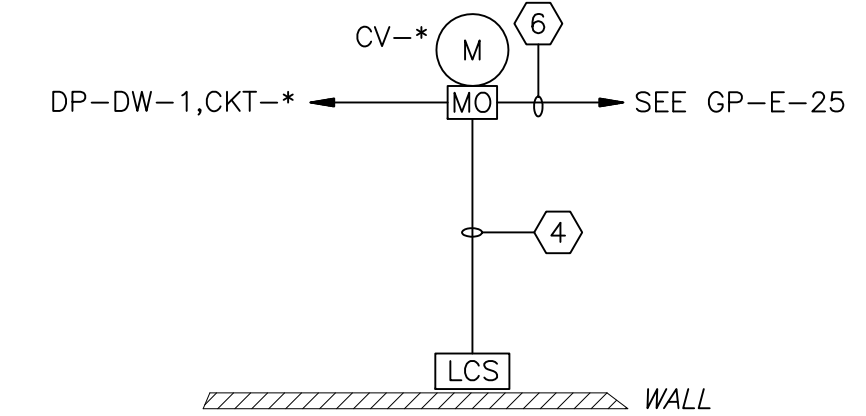
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CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

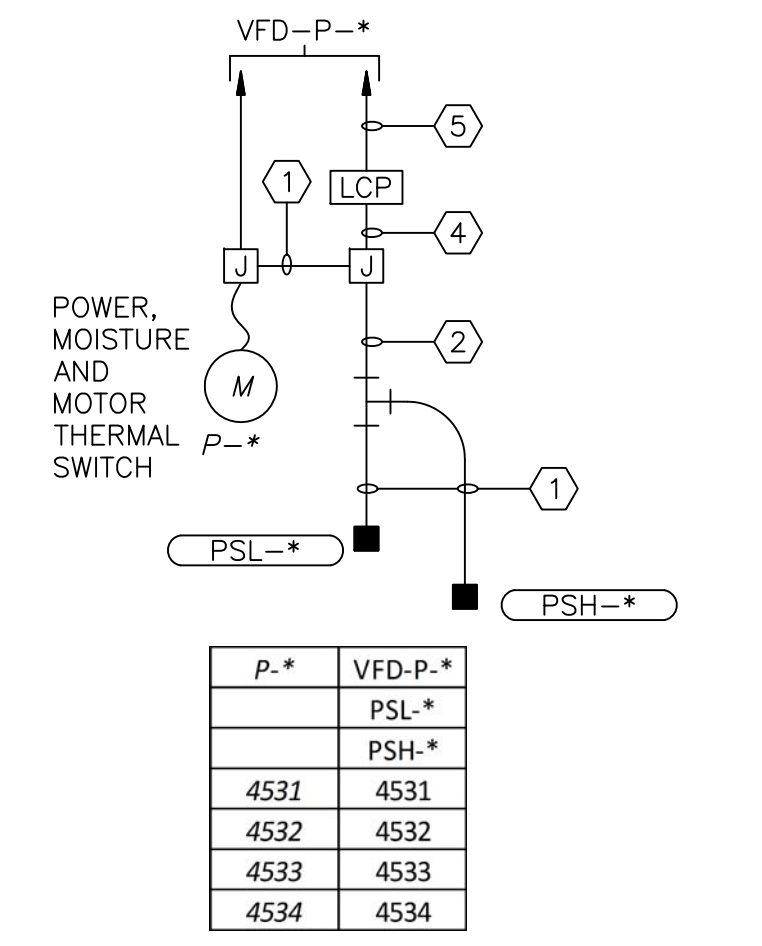
NO.	DESCRIPTION
①	3/4" C. 4#14, 1#14G
②	3/4" C. 8#14, 1#14G
③	3/4" C. 2#12, 1#12G
④	3/4" C. 12#14, 1#14G
⑤	1" C. 2#14, 1#14G
⑥	1" C., CAT 6 (CABLE DIV. 11)
⑦	3/4" C. 3#12, 1#12G
⑧	3/4" C. 6#12, 1#12G

NOTES:
1. FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-11 THRU GD-E-14, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24 OR PANELBOARD SCHEDULE III ON SHEET GD-E-21.

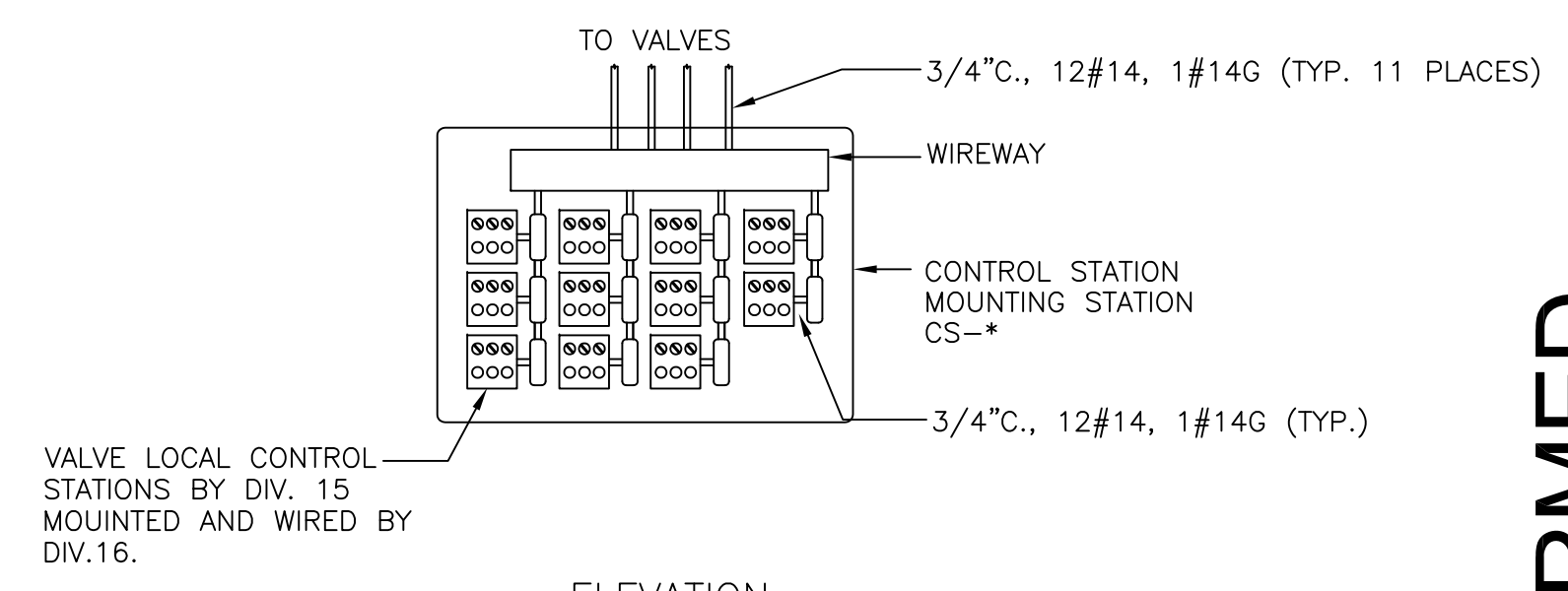


CV-*	CKT.*
4541	
4551	3
4561	
4542	
4552	9
4562	
4543	
4553	15
4563	
4544	4
4564	

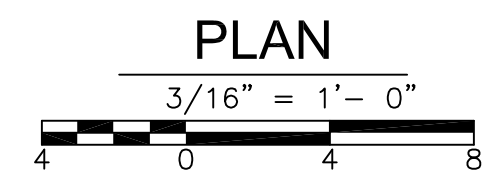
WIRING DIAGRAM CONTROL VALVES
CV-4541 THRU CV-4544,
CV-4551 THRU CV-4553,
CV-4561 THRU CV-4564
NTS



WIRING DIAGRAM BFP SLUDGE FEED PUMPS
P-4531 THRU P-4534
NTS



ELEVATION VALVE OPERATOR LOCAL CONTROL STATION
DETAIL A
1/2" = 1'-0"



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDWPL002
DESIGNED BY: T.J. ADAMCZYK
DRAWN BY: T.J. ADAMCZYK
SHEET CHK'D BY: T. DISILVA
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: J. ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

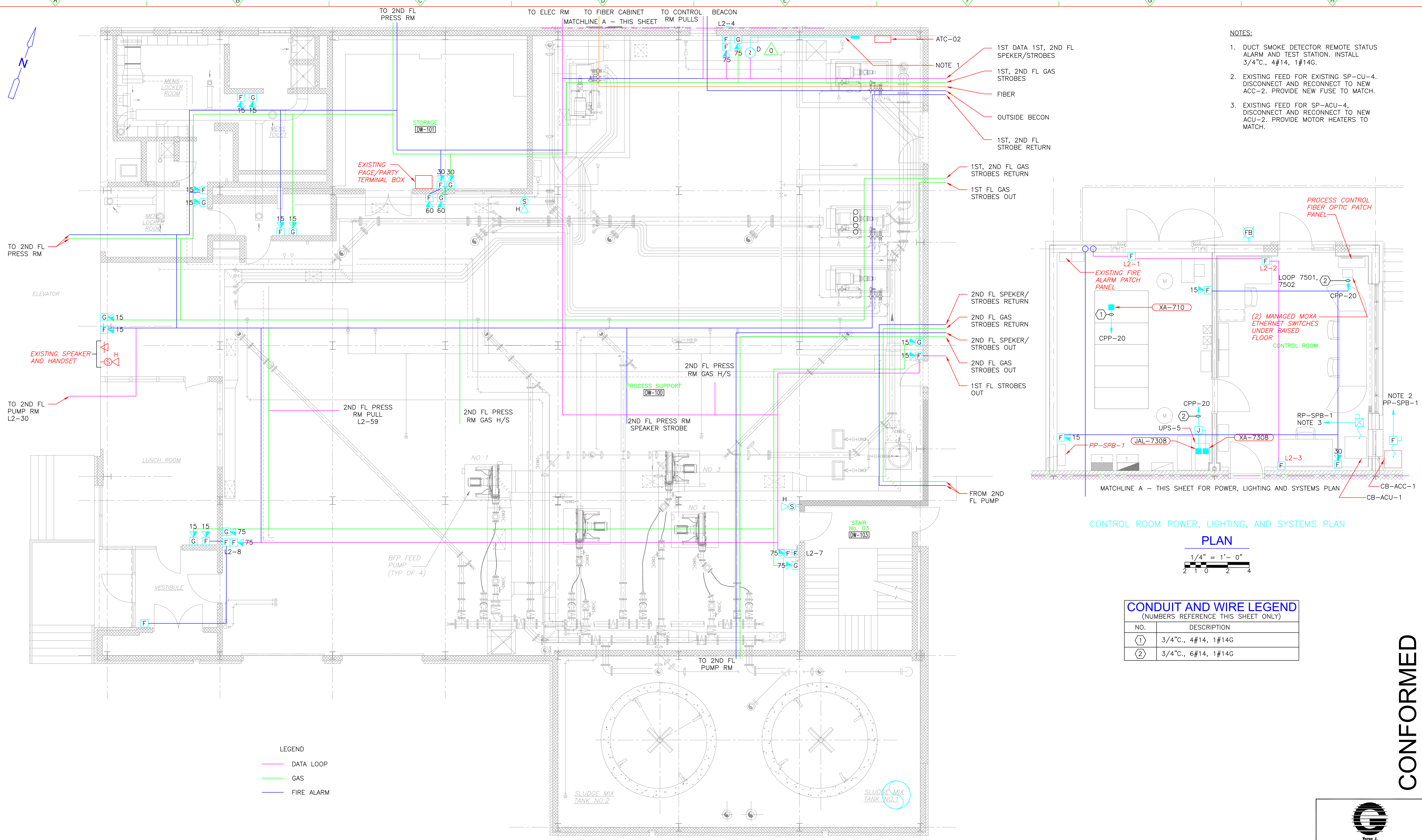
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY IMPROVEMENTS - PHASE III

SLUDGE DEWATERING BUILDING
FIRST FLOOR PLAN
POWER IMPROVEMENTS

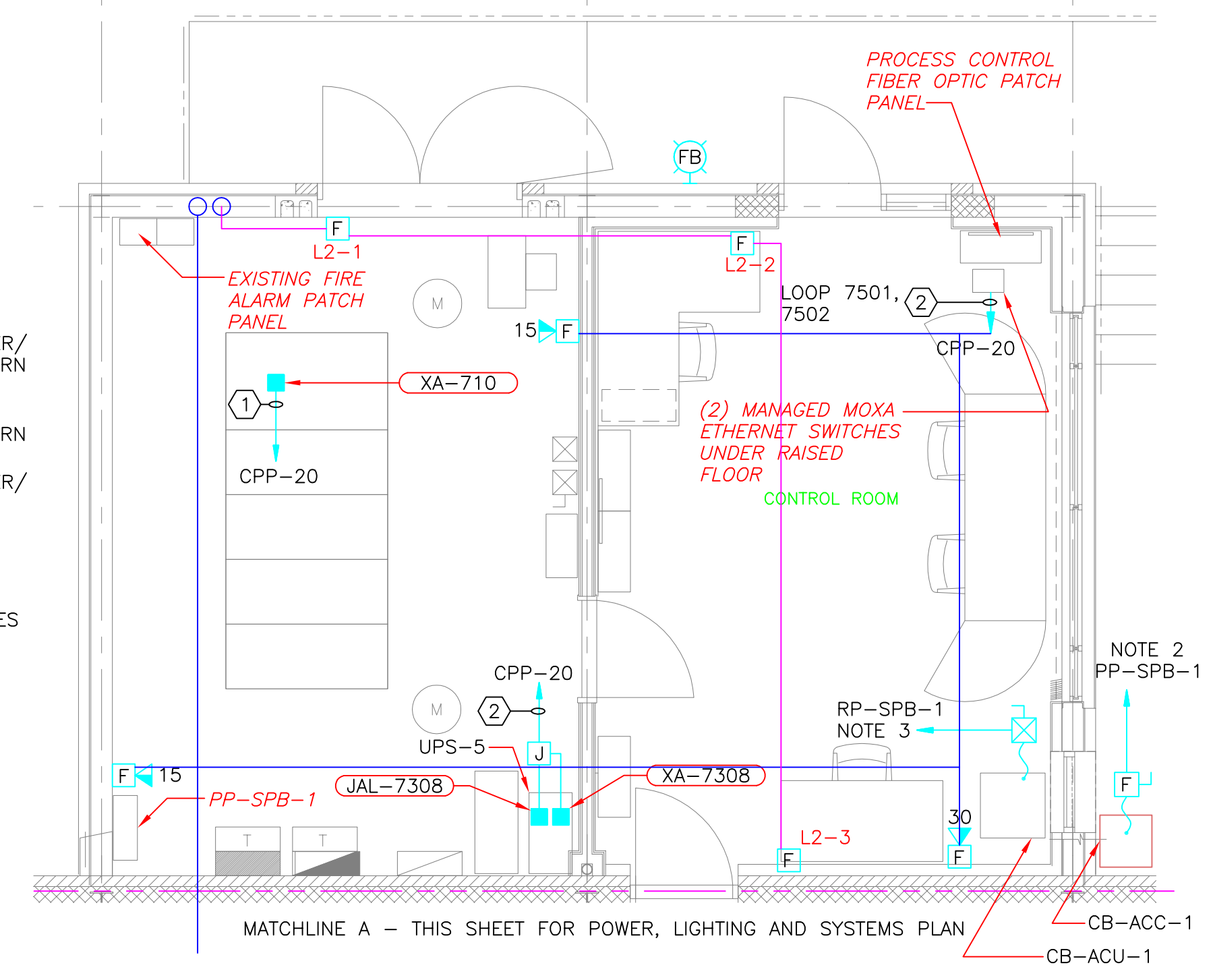
PROJECT NO. 1289-74283
Sht. 289 of 312
DW-E-6
Acc # 1289-74695

REVISIONS	DATE

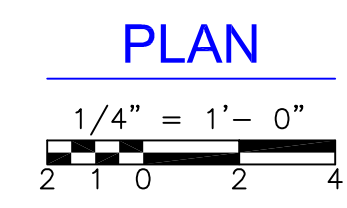
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20DRAWINGS\ELECTRICAL AS-BUILT\DW-E-7.DWG Saved by: RMLROY On: 21-Oct-13 4:53 PM



- NOTES:**
- DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4" C., 4#14, 1#14G.
 - EXISTING FEED FOR EXISTING SP-CU-4. DISCONNECT AND RECONNECT TO NEW ACC-2. PROVIDE NEW FUSE TO MATCH.
 - EXISTING FEED FOR SP-ACU-4. DISCONNECT AND RECONNECT TO NEW ACU-2. PROVIDE MOTOR HEATERS TO MATCH.



CONTROL ROOM POWER, LIGHTING, AND SYSTEMS PLAN



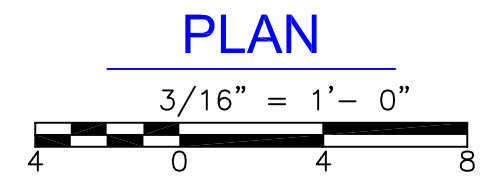
CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 6#14, 1#14G

LEGEND

—	DATA LOOP
—	GAS
—	FIRE ALARM

SLUDGE DEWATERING BUILDING FIRST FLOOR LIGHTING AND SYSTEMS PLAN



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS002
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 FIRST FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

GRIFFIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8800 Fax: 508/429-7905
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012
REV-2	OCTOBER 21, 2012

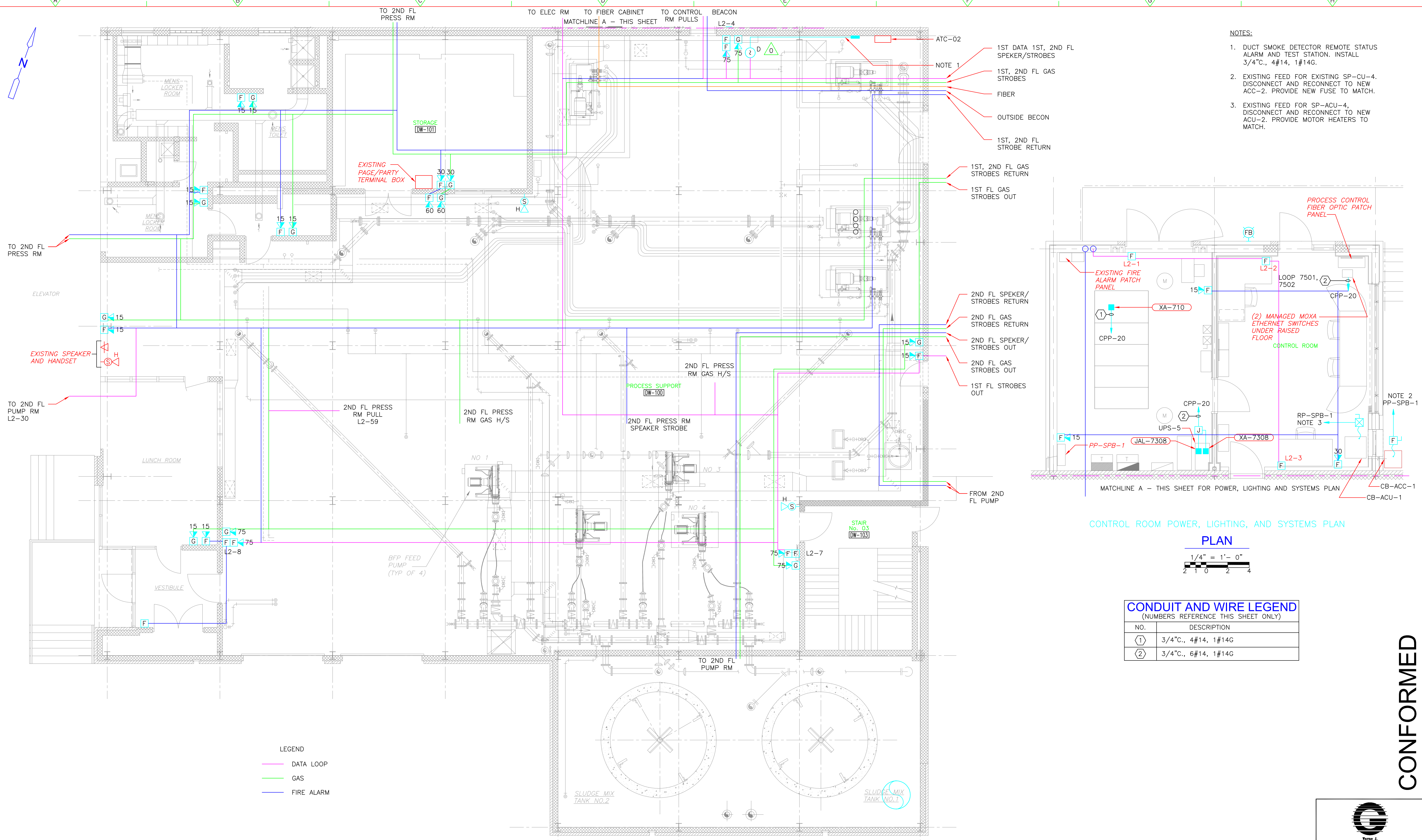
PROJECT NO.
1289-74283

Sht. 290 of 312

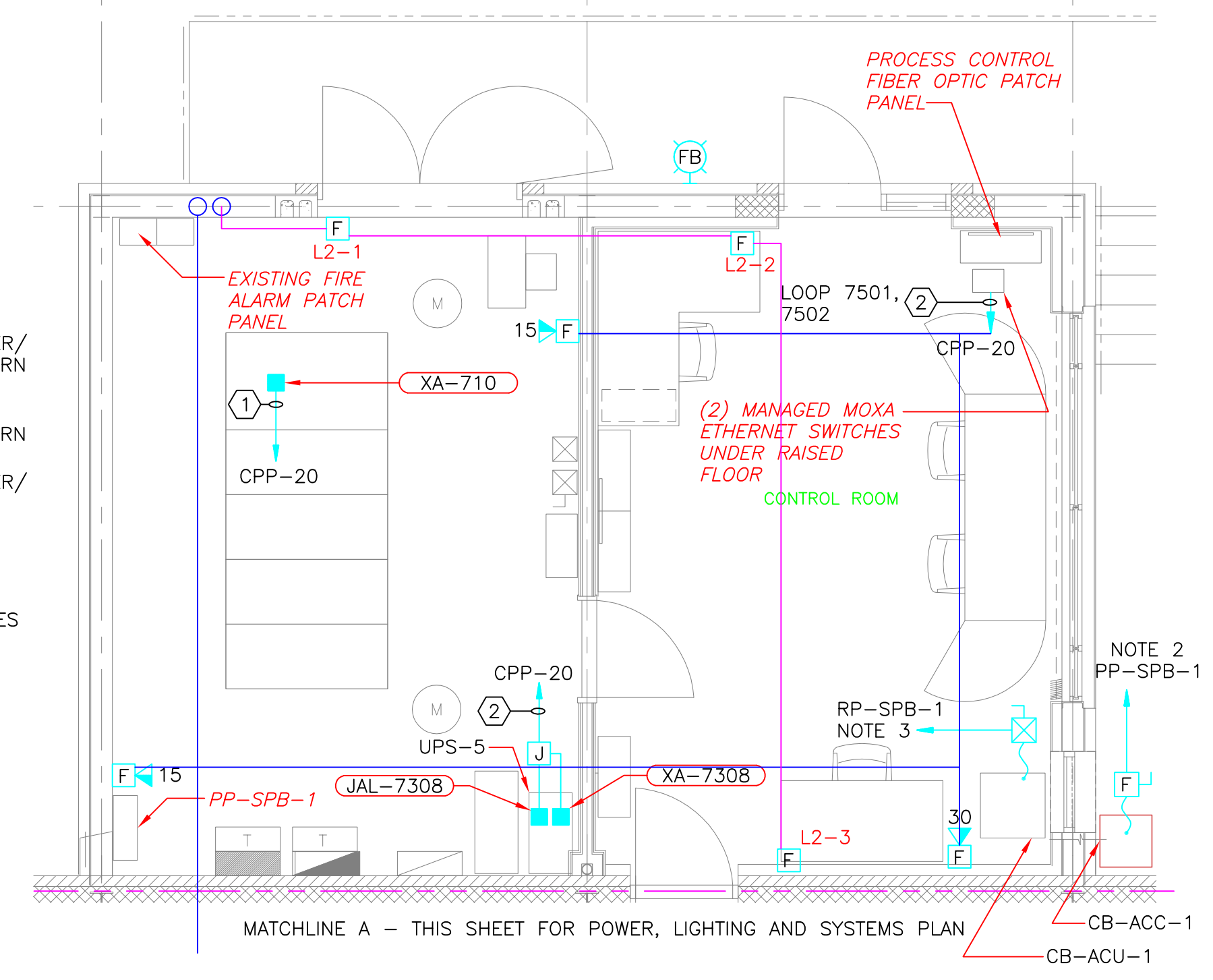
DW-E-7

Acc # 1289-74696

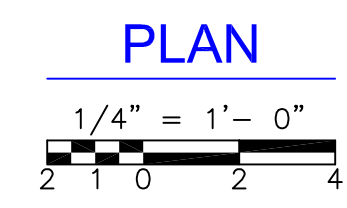
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: F:\JOBS\1635\20DRAWINGS\ELECTRICAL AS-BUILT\DW-E-7.DWG Saved by: RKILROY On: 21-Oct-13 4:53 PM



- NOTES:**
- DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4" C., 4#14, 1#14G.
 - EXISTING FEED FOR EXISTING SP-CU-4. DISCONNECT AND RECONNECT TO NEW ACC-2. PROVIDE NEW FUSE TO MATCH.
 - EXISTING FEED FOR SP-ACU-4. DISCONNECT AND RECONNECT TO NEW ACU-2. PROVIDE MOTOR HEATERS TO MATCH.



CONTROL ROOM POWER, LIGHTING, AND SYSTEMS PLAN



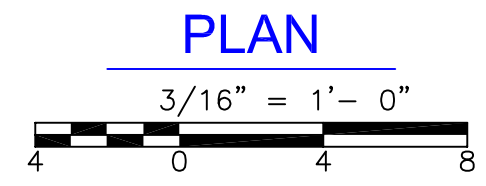
CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 6#14, 1#14G

LEGEND

—	DATA LOOP
—	GAS
—	FIRE ALARM

SLUDGE DEWATERING BUILDING FIRST FLOOR LIGHTING AND SYSTEMS PLAN



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	TJA	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS002
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

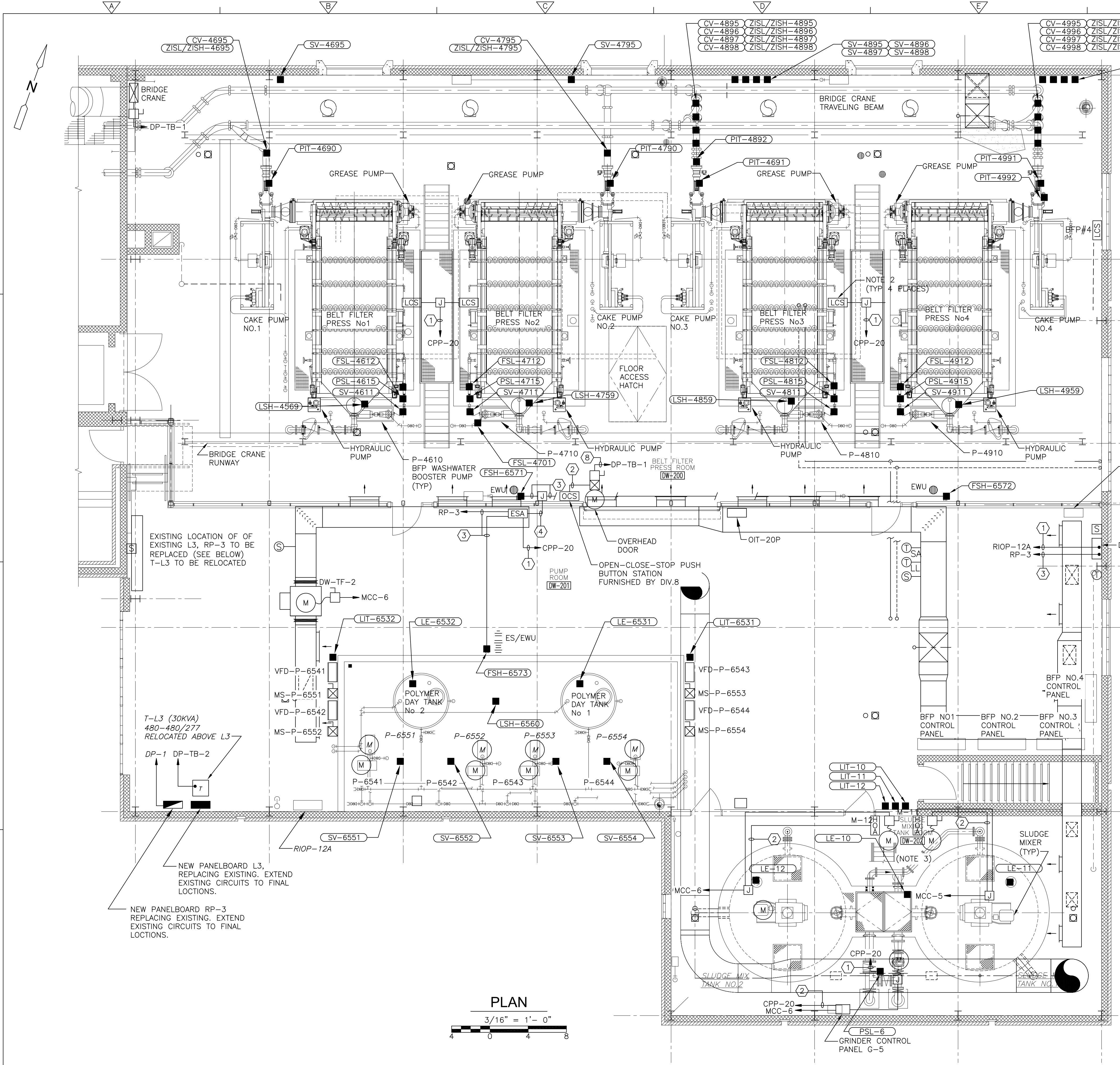
**SLUDGE DEWATERING BUILDING
 FIRST FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

GRIFPIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8800 Fax: 508/429-7905
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012
REV-2	OCTOBER 21, 2012

PROJECT NO.
1289-74283
 Sht. 290 of 312
DW-E-7
 Acc # 1289-74696

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\DW-E-8.DWG Saved by: MBOTLHO On: 15-Feb-12 8:48 AM

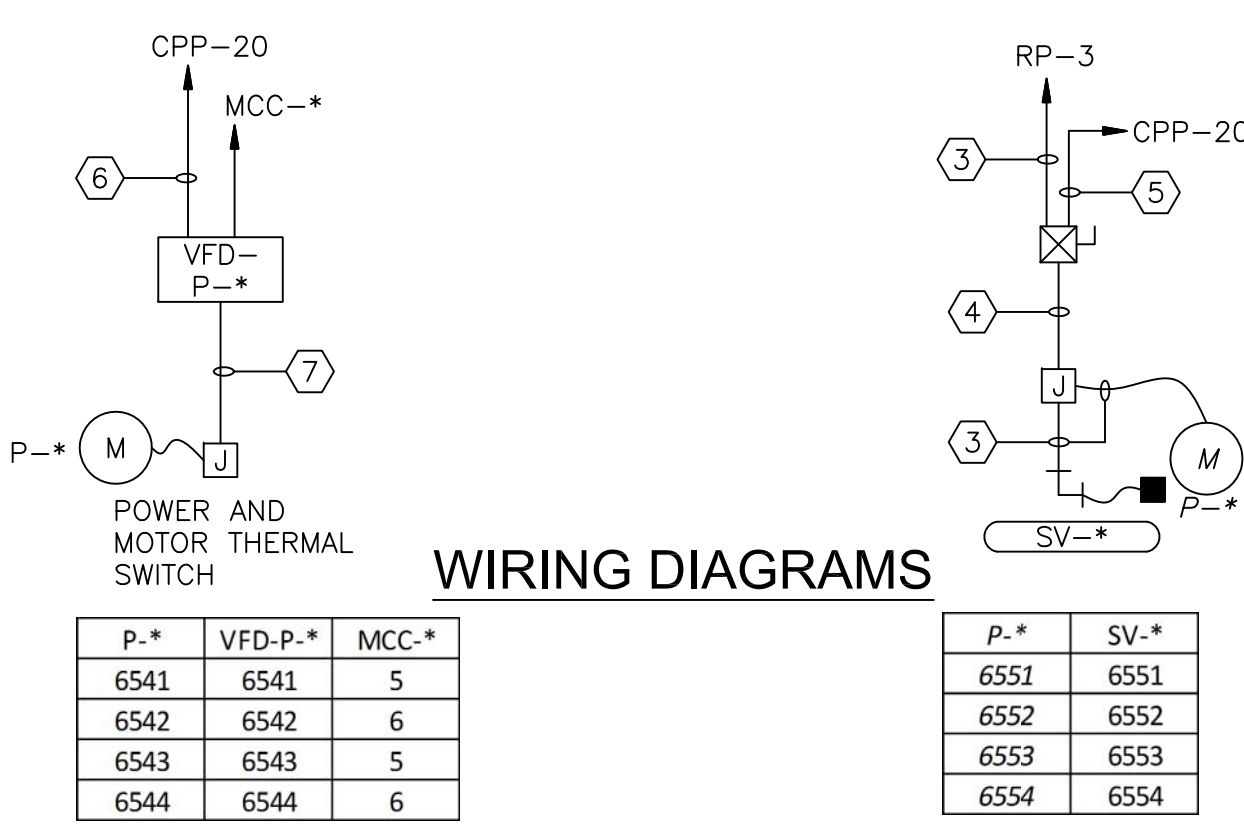
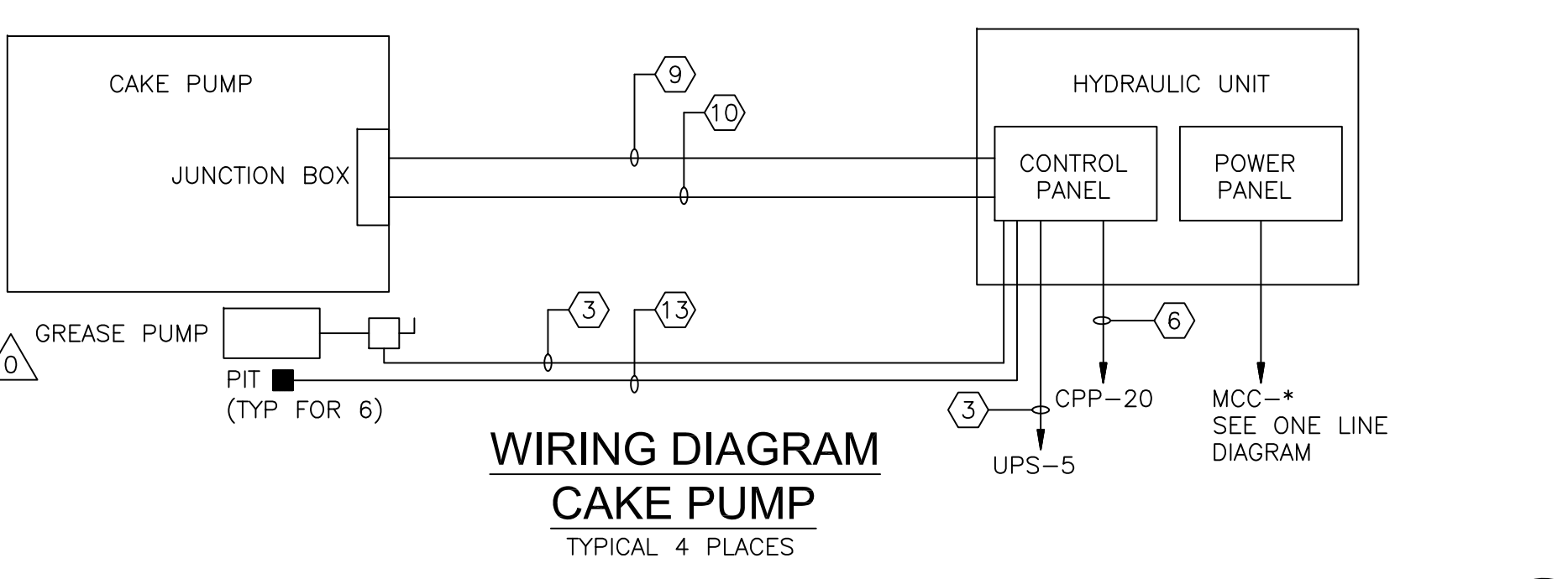
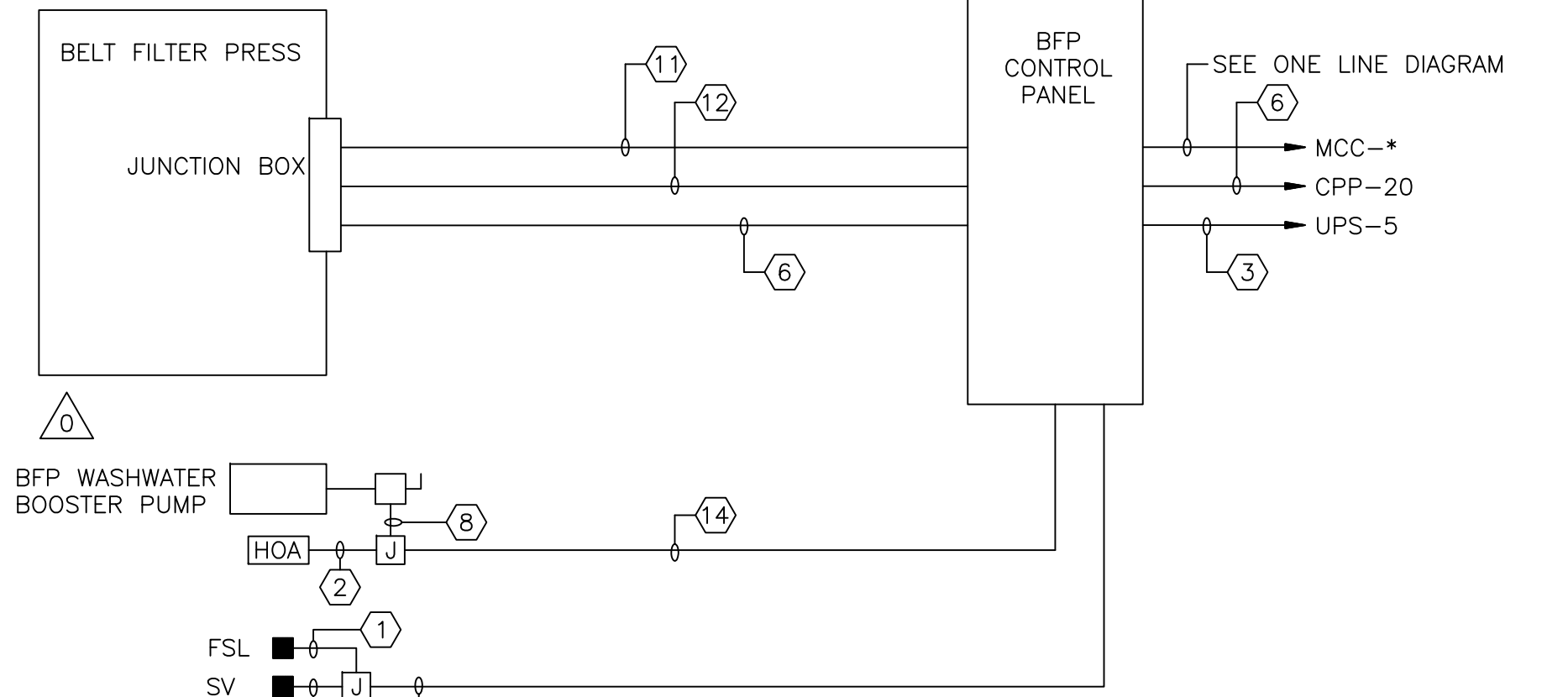


CONDUIT AND WIRE LEGEND

(NUMBERS REFERENCE THIS SHEET ONLY)

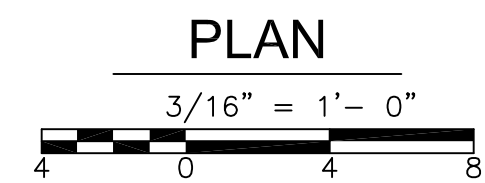
NO.	DESCRIPTION
1	3/4" C, 4#14, 1#14G
2	3/4" C, 8#14, 1#14G
3	3/4" C, 2#12, 1#12G
4	3/4" C, 4#12, 1#12G
5	3/4" C, 12#14, 1#14G
6	1" C, CAT 6 (CABLE DIV.13)
7	3/4" C, 3#12, 1#12G, 2#14
8	3/4" C, 3#12, 1#12G
9	3/4" C, 9#14, 1#14G
10	3/4" C, 10#14, 1#14G (24 VOLT)
11	1" C, 12#12, 1#12G (MOTOR POWER)
12	1" C, 32#14, 1#14G
13	3/4" C, 2/C#16 TS
14	3/4" C, 3#12, 1#12G, 8#14
15	3/4" C, 2#14, 1#14G

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-11 THRU GD-E-14. INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24 OR PANELBOARD SCHEDULE 1 ON SHEET GD-E-19.
 - FAST/SLOW MOMENTARY PUSHBUTTON STATION TO ADJUST BELT SPEED.
 - SLUDGE MIXING TANK ROOM DW-202 ELECTRICAL EQUIPMENT EXPLOSION PROOF, SEAL FITTINGS AS REQUIRED. REFERENCE ELECTRICAL HAZARDOUS AREA CLASSIFICATION SHEET NO. GD-E-5.



P-*	VFD-P-*	MCC-*
6541	6541	5
6542	6542	6
6543	6543	5
6544	6544	6

P-*	SV-*
6551	6551
6552	6552
6553	6553
6554	6554



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS
09/10	JUD	TRD		REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWPL003
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**BFP POLYMER FEED PUMPS
 P-6541 THRU P-6544**
 NTS

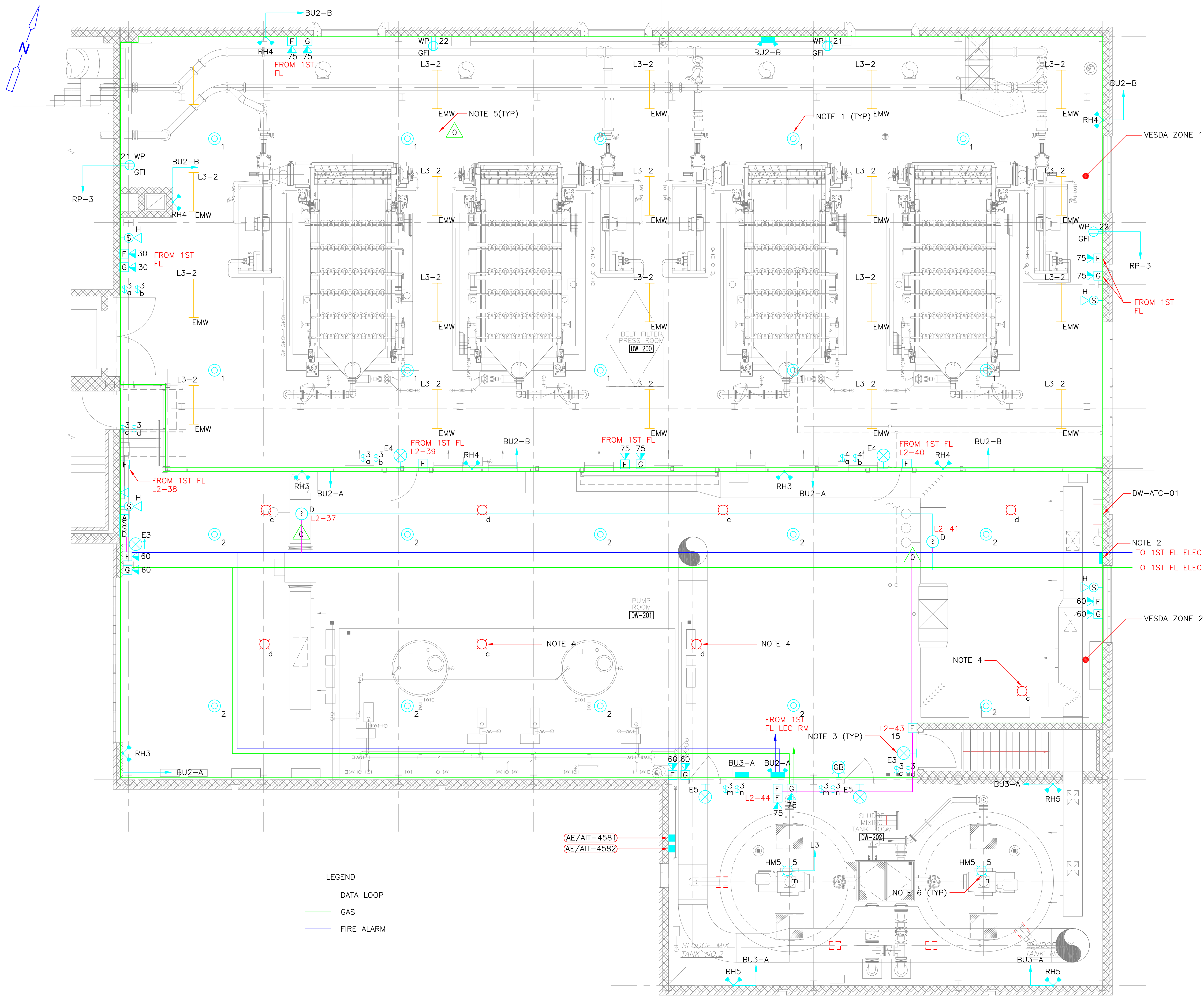
**BFP POLYMER MIXING PUMPS
 P-6551 THRU P-6554**
 NTS

GRiffin ELECTRIC
 110 Shopping Brook Road Holliston, Massachusetts 01746
 508/429-0880 Fax: 508/429-7005
 ELECTRICAL AS-BUILT DRAWING
 FEBRUARY 15, 2012

REVISIONS	DATE

PROJECT NO. 1289-74283
 Sht. 291 of 312
 DW-E-8
 Acc # 1289-74697

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\DW-E-9.DWG Saved by: RKLROY On: 13-Dec-12 Plotted on: 14-Dec-12 8:11 AM



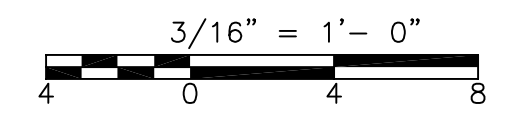
- NOTES:**
- AIR SAMPLING HOLE LOCATIONS AND QUANTITY TO BE CONFIRMED BY THE CONTRACTOR WITH THE AIR SAMPLING SMOKE DETECTOR (ASSD) MANUFACTURER.
 - DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4" C, 4#14, 1#14G.
 - WIRE THE NEW EMERGENCY LIGHTING FIXTURES TO THE EXISTING LIGHTING CIRCUIT IN EACH AREA. CIRCUIT TO BE CONFIRMED BY THE CONTRACTOR.
 - COORDINATE EXISTING LIGHTS WITH HVAC EQUIPMENT AND RELOCATE IF NECESSARY.
 - REMOUNT AND RECONNECT EXISTING LIGHT FIXTURES IN BELT FILTER PRESS ROOM 21"-6" A.F.F. PROVIDE NEW CONDUIT AND WIRE. SWITCH LIGHTS AS SHOWN ON THIS PLAN. ALL LIGHTING IN THIS AREA IS FED FROM PANELBOARD L3.
 - MOUNT NEW SLUDGE MIXING TANK LIGHTING AT THE SAME HEIGHT AS THE PREVIOUSLY DEMOED LIGHTING FOR THIS AREA. HEIGHT TO BE CONFIRMED BY THE CONTRACTOR.

SLUDGE DEWATERING BUILDING SECOND FLOOR LIGHTING AND SYSTEMS IMPROVEMENTS

PLAN
3/16" = 1'-0"

LEGEND
 — DATA LOOP
 — GAS
 — FIRE ALARM

AE/AIT-4581
AE/AIT-4582



CONFORMED

GRIFFIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8880 Fax: 508/429-7825
 ELECTRICAL AS-BUILT DRAWING
 JULY 20, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	JJD	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS003
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**SLUDGE DEWATERING BUILDING
 SECOND FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

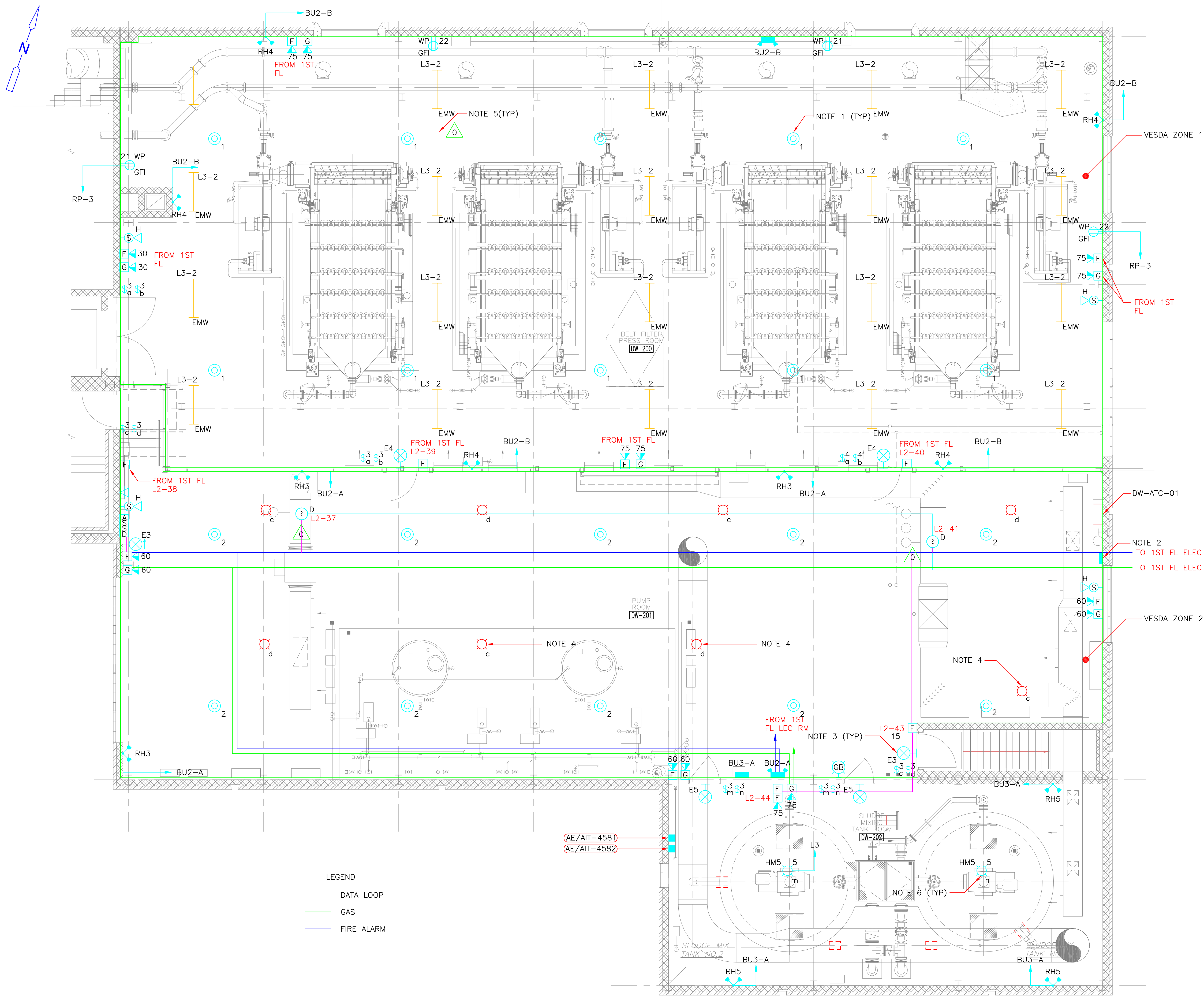
PROJECT NO.
1289-74283

Sht. 292 of 312

DW-E-9

Acc # 1289-74698

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\DW-E-9.DWG Saved by: RKLROY On: 13-Dec-12 Plotted on: 14-Dec-12 8:11 AM

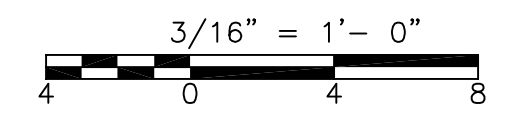


- NOTES:**
- AIR SAMPLING HOLE LOCATIONS AND QUANTITY TO BE CONFIRMED BY THE CONTRACTOR WITH THE AIR SAMPLING SMOKE DETECTOR (ASSD) MANUFACTURER.
 - DUCT SMOKE DETECTOR REMOTE STATUS ALARM AND TEST STATION. INSTALL 3/4" C, 4#14, 1#14G.
 - WIRE THE NEW EMERGENCY LIGHTING FIXTURES TO THE EXISTING LIGHTING CIRCUIT IN EACH AREA. CIRCUIT TO BE CONFIRMED BY THE CONTRACTOR.
 - COORDINATE EXISTING LIGHTS WITH HVAC EQUIPMENT AND RELOCATE IF NECESSARY.
 - REMOUNT AND RECONNECT EXISTING LIGHT FIXTURES IN BELT FILTER PRESS ROOM 21"-6" A.F.F. PROVIDE NEW CONDUIT AND WIRE. SWITCH LIGHTS AS SHOWN ON THIS PLAN. ALL LIGHTING IN THIS AREA IS FED FROM PANELBOARD L3.
 - MOUNT NEW SLUDGE MIXING TANK LIGHTING AT THE SAME HEIGHT AS THE PREVIOUSLY DEMOED LIGHTING FOR THIS AREA. HEIGHT TO BE CONFIRMED BY THE CONTRACTOR.

LEGEND
 — DATA LOOP
 — GAS
 — FIRE ALARM

SLUDGE DEWATERING BUILDING SECOND FLOOR LIGHTING AND SYSTEMS IMPROVEMENTS

PLAN
 3/16" = 1'-0"



CONFORMED

GRIFFIN ELECTRIC
 110 Hopping Brook Road Holliston, Massachusetts 01746
 508/429-8880 Fax: 508/429-7825
 ELECTRICAL AS-BUILT DRAWING
 JULY 20, 2012

REVISIONS	DATE
REV-1	DECEMBER 13, 2012

REV. NO.	DATE	DRWN	CHKD	REMARKS
0	09/10	JJD	TRD	REVISED PER ADDENDA NOS.1 THRU 3

CADD FILE NO. EDWLS003
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

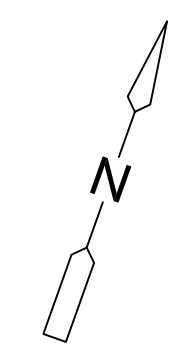
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

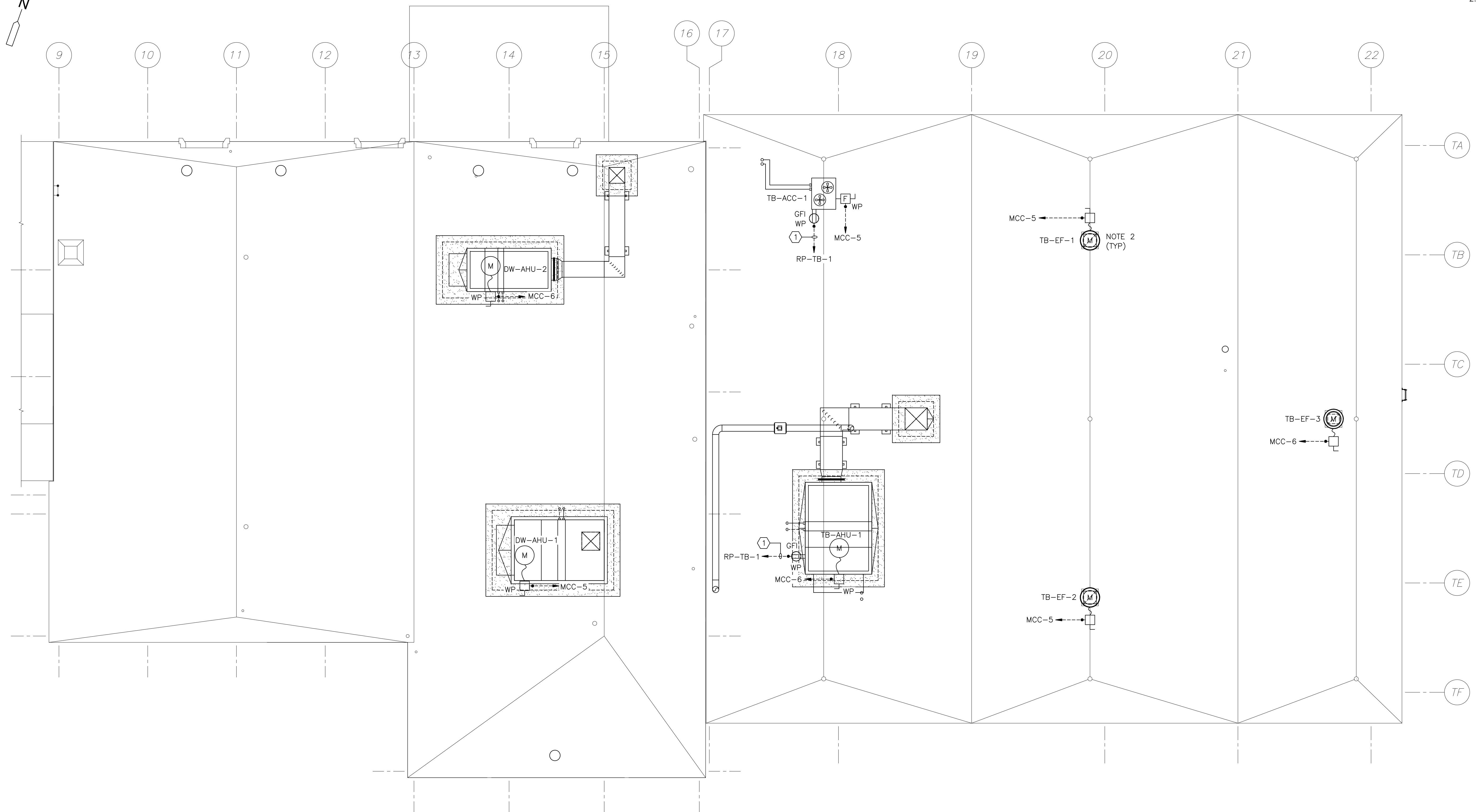
**SLUDGE DEWATERING BUILDING
 SECOND FLOOR PLAN
 LIGHTING AND SYSTEMS IMPROVEMENTS**

PROJECT NO.
1289-74283
 Sht. 292 of 312
DW-E-9
 Acc # 1289-74698

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\DW-E-10.DWG Saved by: MBOTELHO On: 14-Feb-12 9:13 AM



- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-5, MCC-6 ON SHEETS GD-E-13 THRU GD-E-16.
 - ROOF MOUNTED FANS EF-2, EF-3 AND EF-4, ELECTRICAL EQUIPMENT EXPLOSION PROOF, SEAL FITTINGS AS REQUIRED, REFERENCE ELECTRICAL HAZARDOUS AREA CLASSIFICATION SHEET NO. GD-E-3, GD-E-4 AND GD-E-5.



PLAN
1/8" = 1'-0"
4 2 0 4 8

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C., 2#12, 1#12G

GRIFFIN ELECTRIC
118 Hoping Brook Road Holliston, Massachusetts 01746
508/429-8880 Fax: 508/429-7825
ELECTRICAL AS-BUILT DRAWING
FEBRUARY 15, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDWPL004
DESIGNED BY: T.J.ADMCZYK
DRAWN BY: T.J.ADMCZYK
SHEET CHK'D BY: T.D.SILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**DEWATERING BUILDING AND
THICKENER BUILDING ROOF PLAN
POWER IMPROVEMENTS**

PROJECT NO.
1289-74283

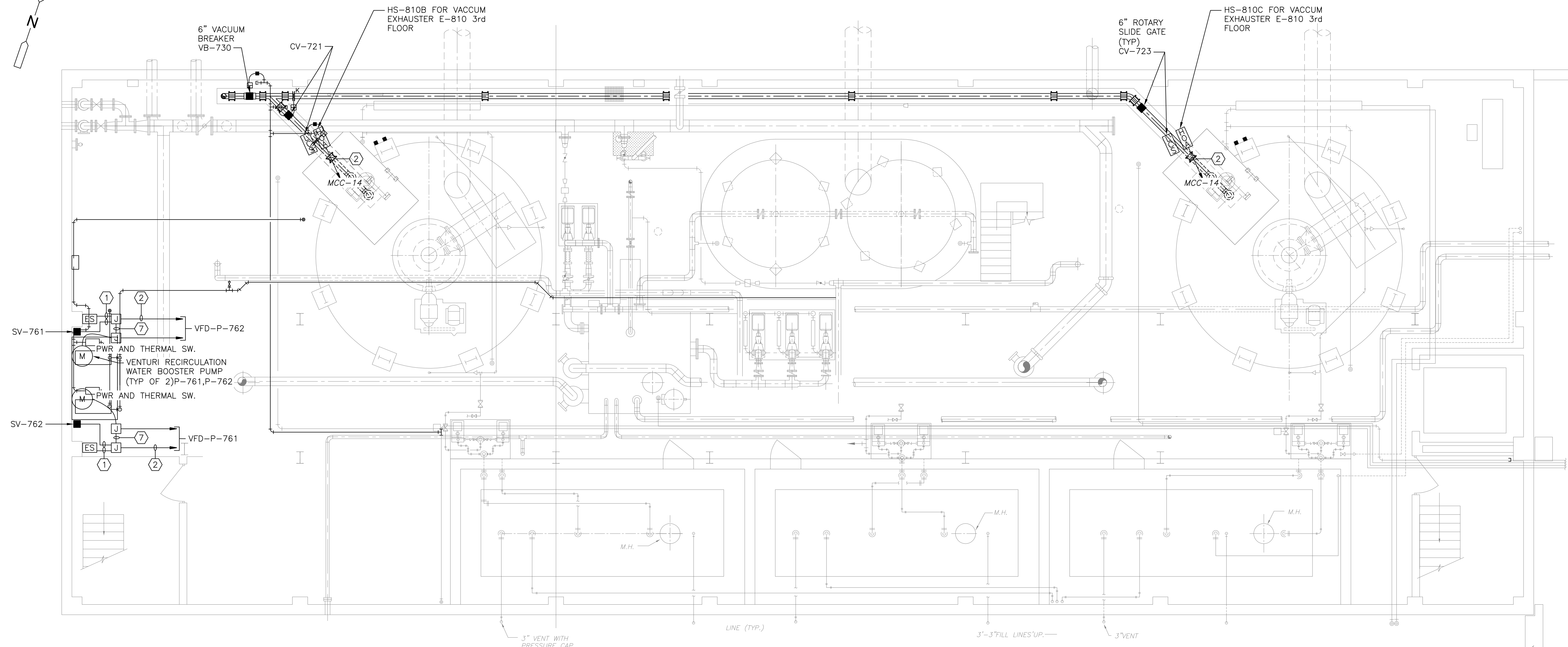
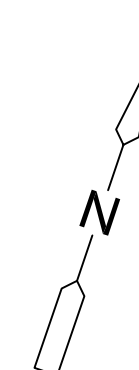
Sht. 293 of 312

DW-E-10

Acc # 1289-74699

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EIBPLO01.DWG Saved by: RIKILROY On: 7-Dec-12 Plotted on: 13-Dec-12 8:28 AM

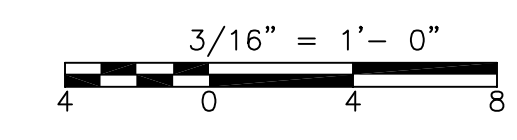


SUB-BASEMENT PLAN
CI 100.93


PLAN
3/16" = 1'-0"

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4"C., 4#14, 1#14G
②	3/4"C., 8#14, 1#14G
③	3/4"C., 10#14, 1#14G
④	3/4"C., 12#14, 1#14G
⑤	3/4"C., 16#14, 1#14G
⑥	3/4"C., 2-2/C#16TS
⑦	3/4"C., 2#14, 1#14G

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAM MCC-14 ON SHEET GD-E-16, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.



CONFORMED



GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/439-0800 Fax: 508/439-7655

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EIBPLO01
 DESIGNED BY: T.J. ADAMCZYK
 DRAWN BY: T.J. ADAMCZYK
 SHEET CHK'D BY: T. DISILVA
 CROSS CHK'D BY: M. KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J. ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
 SUB BASEMENT PLAN
 POWER**

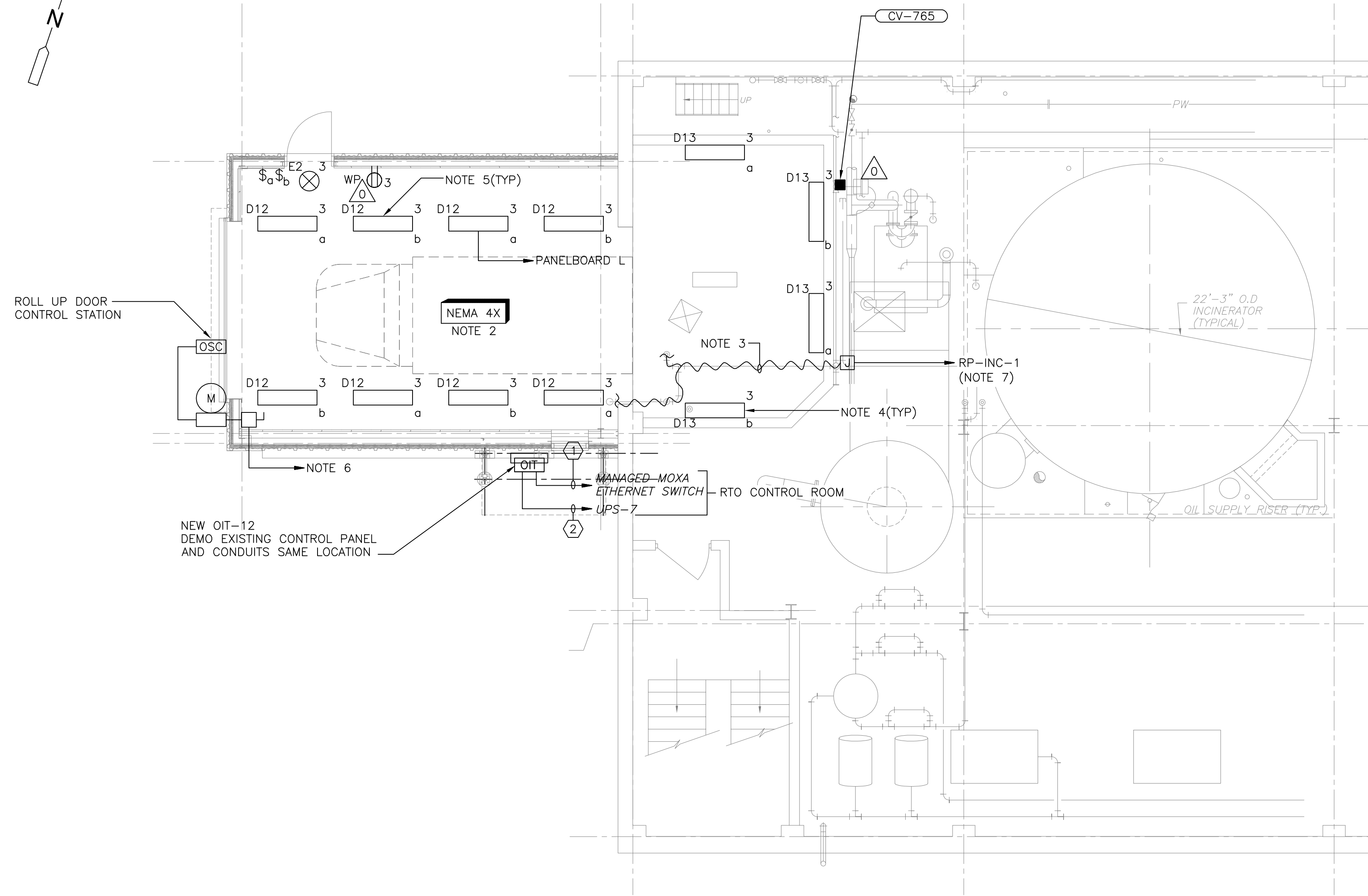
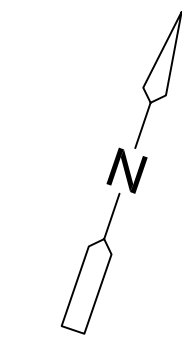
PROJECT NO.
1289-74283

Sht. 294 of 312

IB-E-1

Acc # 1289-74700

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EIBP002.DWG Saved by: RKILROY On: 7-Dec-12 8:37 AM



PLAN
3/16" = 1'-0"

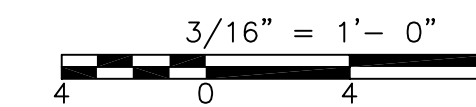
NOTES:


1. FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.
2. CONTRACTOR SHALL REMOVE ALL LIGHTING, CONDUIT, DISCONNECTS, AND ASSOCIATED SUPPORTS.
3. PROVIDE 5 WATT SELF LIMITING HEAT TRACING CABLE ON EXISTING WATER LINE.
4. WALL MOUNT LIGHT FIXTURE TYPE D13 10'-0" A.F.F. AT 45 DEGREE ANGLE.
5. FIXTURE TYPE D12 MOUNTED AT 12'-6" A.F.F.
6. CONNECT TO EXISTING CIRCUIT.
7. PROVIDE SINGLE POLE 20 AMP, 30MA, GFI CIRCUIT BREAKER IN PANEL RP-INC-1.

CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
(1)	1" C., CAT 6 (VENDOR CABLE)
(2)	3/4" C., 2#12, 1#12G

CONFORMED






Griffin Electric
116 Hopping Brook Road Holliston, Massachusetts 01746
508/439-0800 Fax: 508/439-7655

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EIBP002
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010



CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**INCINERATOR BUILDING
 BASEMENT PLAN
 POWER AND LIGHTING**

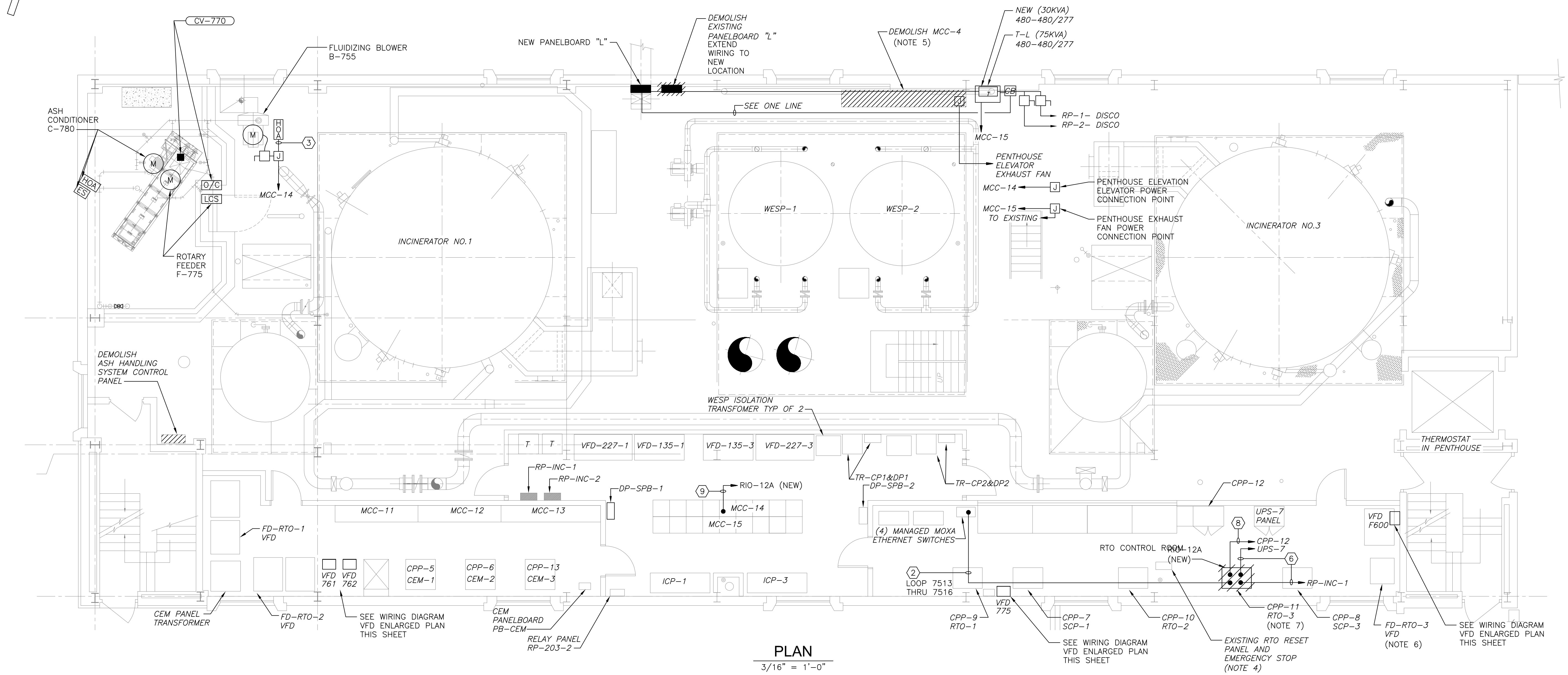
PROJECT NO.
1289-74283

Sht. 295 of 312

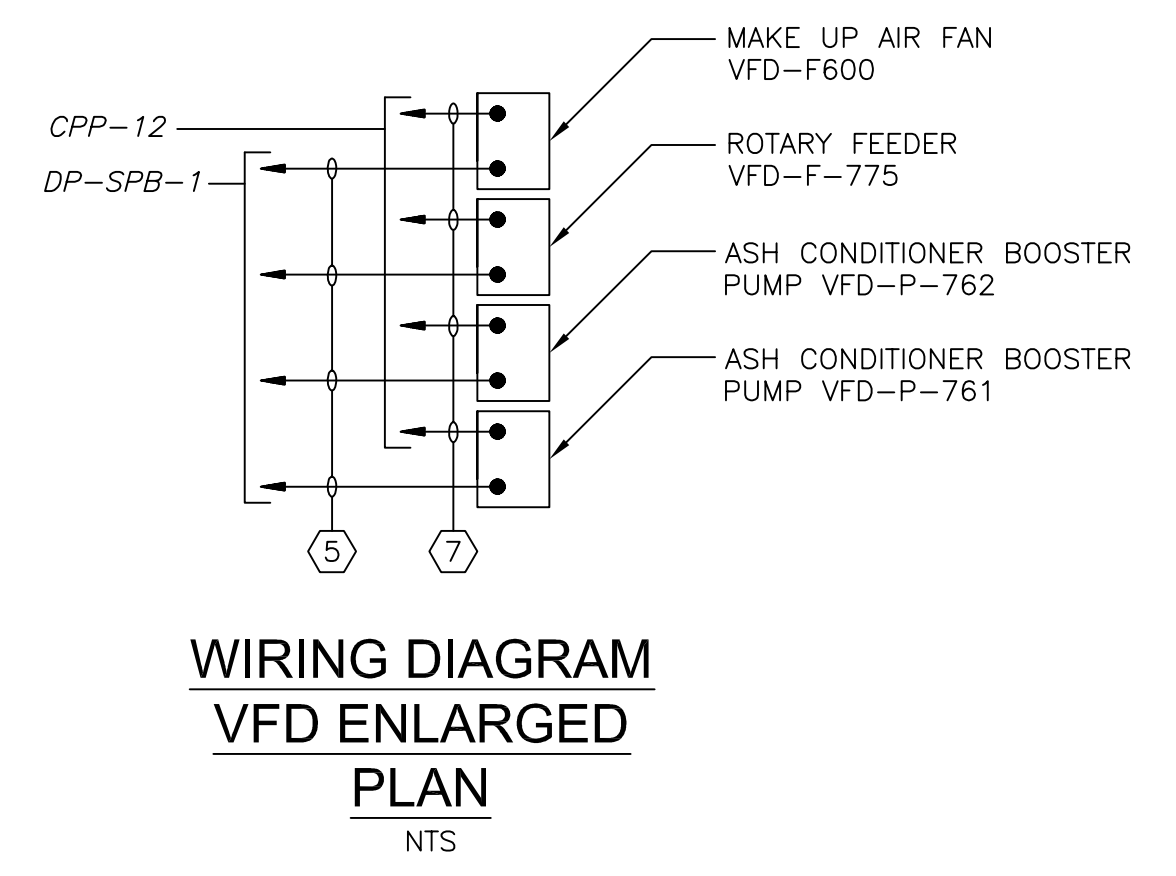
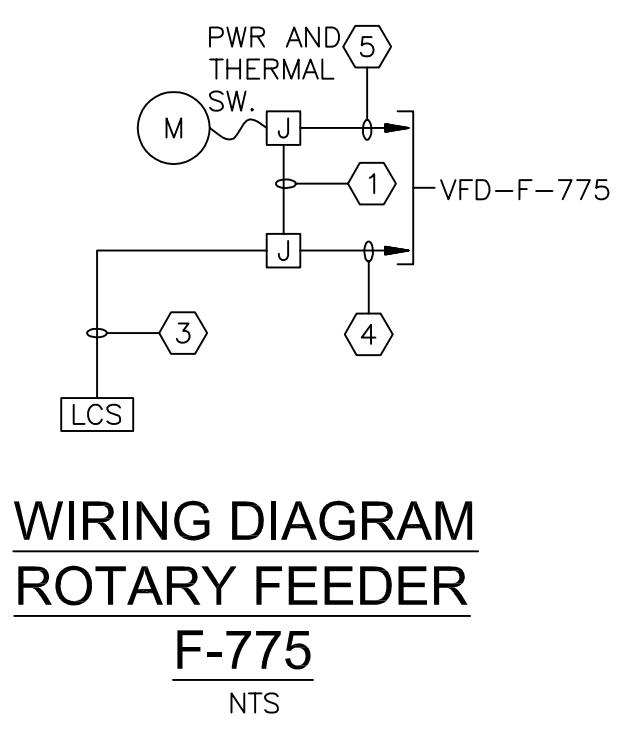
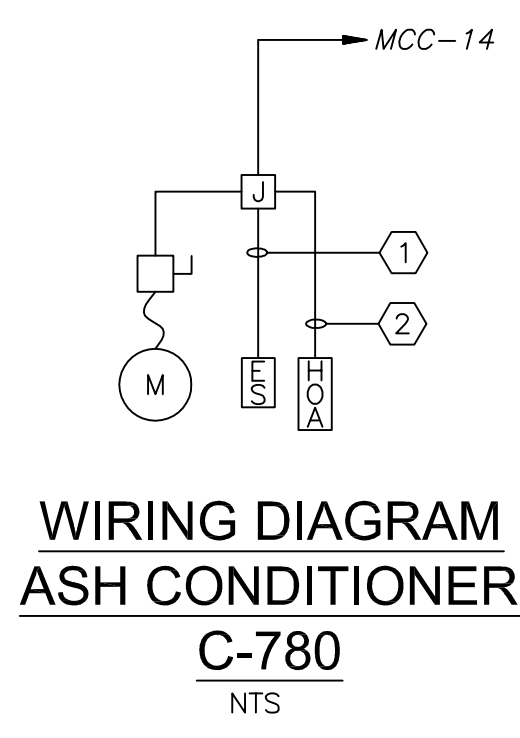
IB-E-2

Acc # 1289-74701

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EIBP003.DWG Saved by: RIKILROY On: 7-Dec-12 8:34 AM



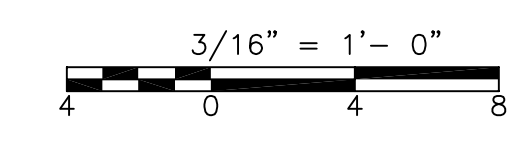
PLAN
3/16" = 1'-0"



CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4" C., 4#14, 1#14G
②	3/4" C., 8#14, 1#14G
③	3/4" C., 16#14, 1#14G
④	3/4" C., 20#14, 1#14G
⑤	3/4" C., 3#12, 1#12G
⑥	3/4" C., 2#12, 1#12G
⑦	1" C., CAT 6 (CABLE DIV. 13)
⑧	1" C., 2-CONTROL NET REMOTE I/O CABLES (VENDOR CABLES)
⑨	1" C., 38#14, 1#14G (NOTE 3)

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAMS MCC-14, MCC-15 ON SHEET GD-E-16, GD-E-17, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.
 - RELOCATE EXISTING UNIT HEATER DISCONNECT SWITCH FROM AREA OF NEW RIOP-12A TO NORTH WALL OF ELECTRICAL ROOM INCLUDE 3/4" C., 3#10, 1#10G.
 - FOR LOOPS 755, 780, 810.
 - DISCONNECT AND REMOVE EMERGENCY STOP PUSH BUTTON ES-100 FOR POLYMER AND BFP'S.
 - MOVE ACTIVE LOADS TO EXISTING MCC'S BEFORE DEMOLITION IN ACCORDANCE WITH MOPO 01810 AND 16000.
 - FIELD TO REMOVE VFD AND ALL ASSOCIATED CONDUIT AND WIRE FOR RTO-3.
 - REMOVE PANEL CPP-11 AND ALL ASSOCIATED CONDUIT AND WIRE.



CONFORMED

GRiffin Electric
116 Hopping Brook Road Holliston, Massachusetts 01746
508/429-0820 Fax 508/429-7625
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EIBP003
DESIGNED BY: T.J. ADAMCZYK
DRAWN BY: T.J. ADAMCZYK
SHEET CHK'D BY: T. DISILVA
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: J. ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
FIRST FLOOR PLAN
POWER

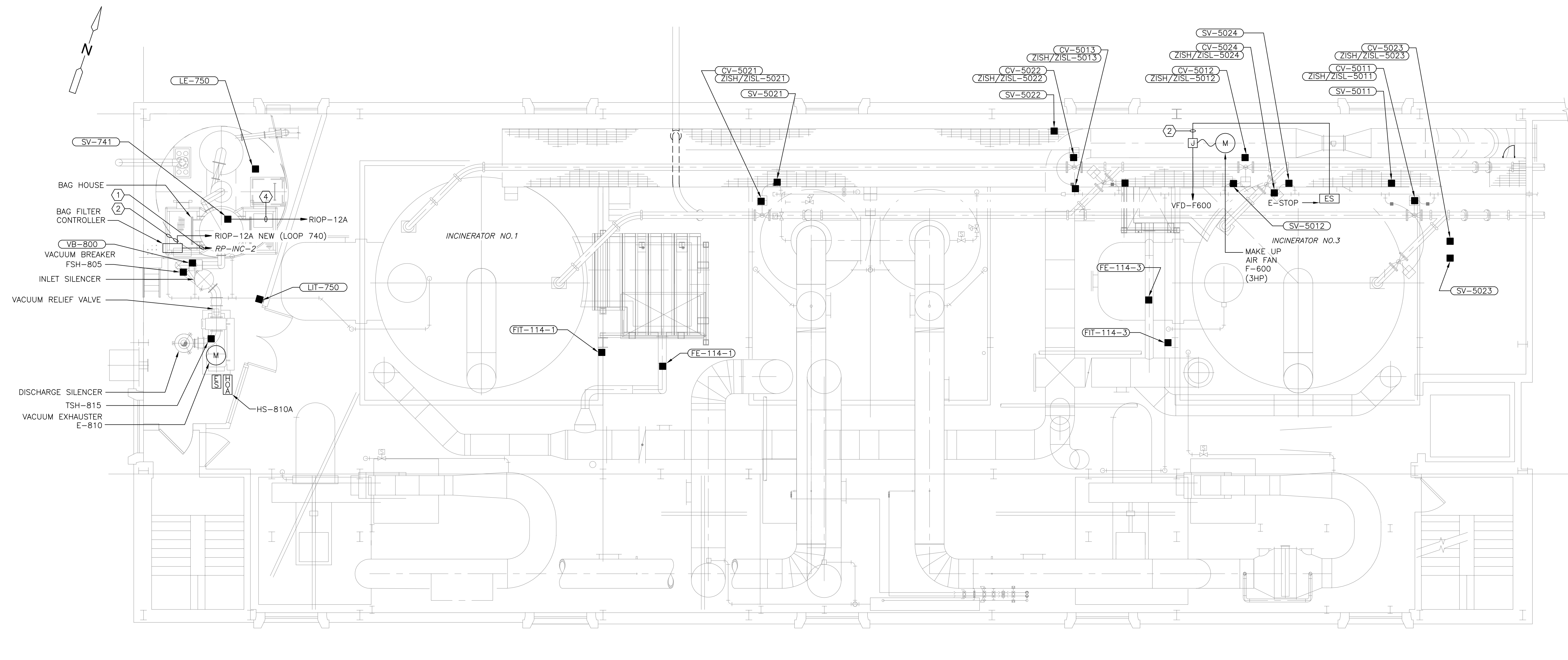
PROJECT NO.
1289-74283

Sht. 296 of 312

IB-E-3

Acc # 1289-74702

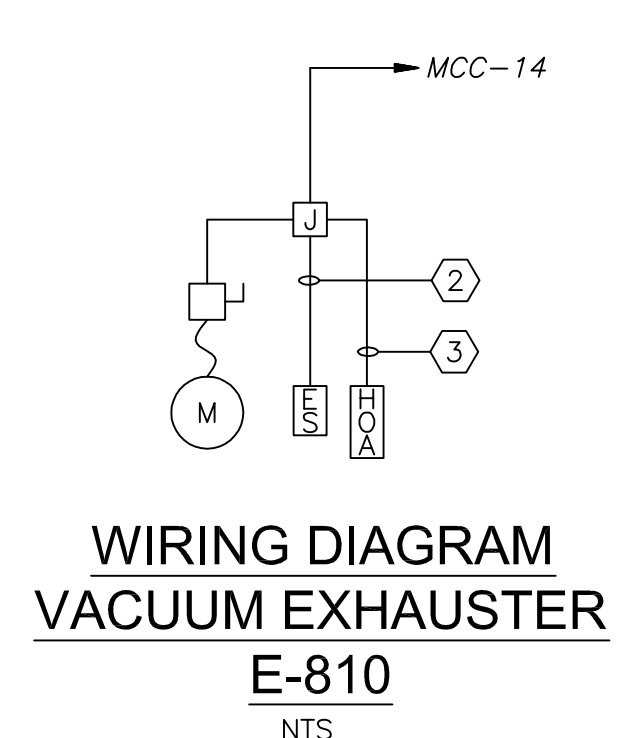
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- BAG HOUSE
- BAG FILTER CONTROLLER
- VACUUM BREAKER FSH-805
- INLET SILENCER
- VACUUM RELIEF VALVE
- DISCHARGE SILENCER TSH-815
- VACUUM EXHAUSTER E-810

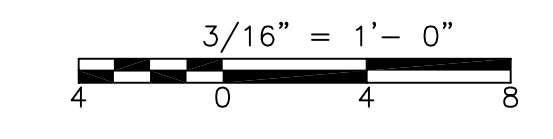
PLAN
3/16" = 1'-0"

- NOTES:**
- FOR CONDUIT AND WIRE NOT SIZED ON THIS DRAWING REFER TO SINGLE LINE DIAGRAM MCC-14 ON SHEET GD-E-16, INSTRUMENTATION SYSTEM BLOCK DIAGRAMS ON SHEET GD-E-24.



CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	3/4"C.,2#12,1#12G
②	3/4"C.,4#14,1#14G
③	3/4"C.,8#14,1#14G
④	3/4"C.,2#14,1#14G



CONFORMED

G
GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/439-0800 Fax: 508/439-7655
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EIBP005
DESIGNED BY: T.J.ADAMCZYK
DRAWN BY: T.J.ADAMCZYK
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

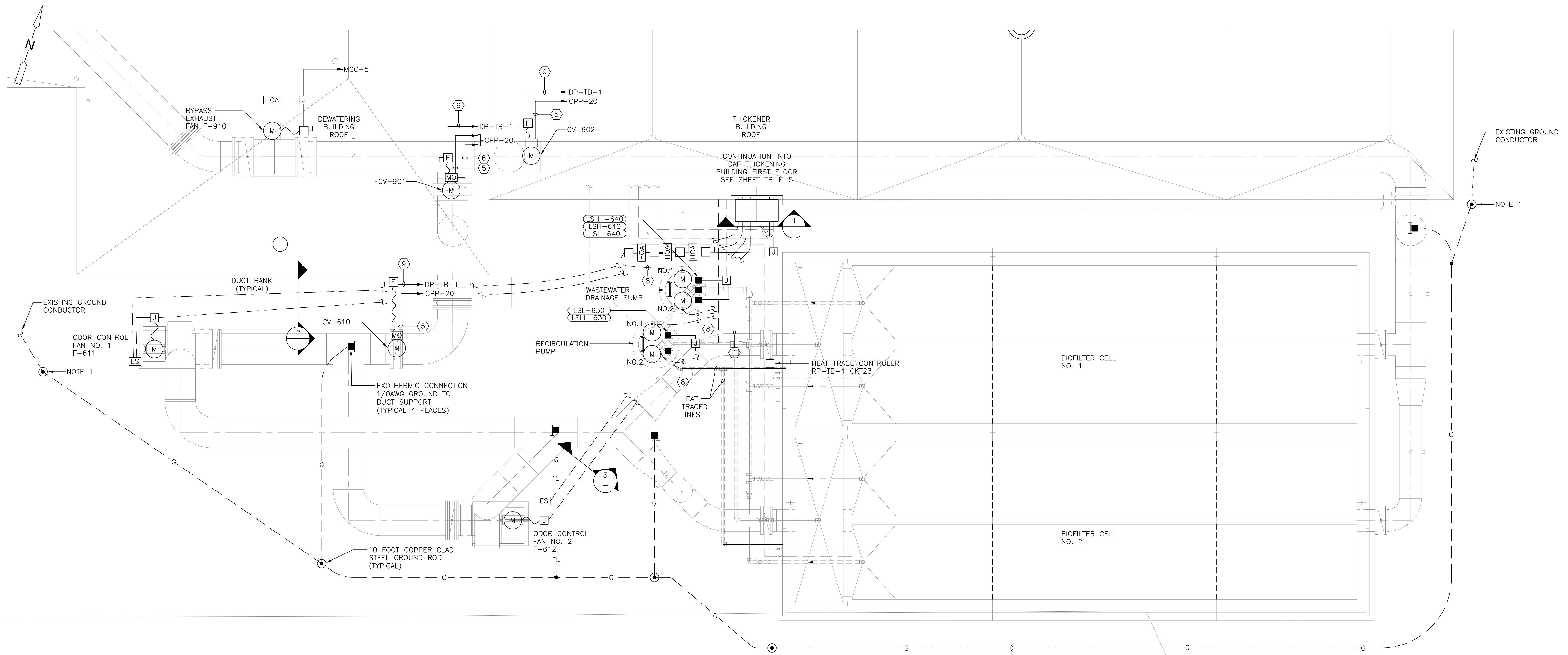
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

INCINERATOR BUILDING
THIRD FLOOR PLAN
POWER

PROJECT NO.
1289-74283
Sht. 297 of 312
IB-E-4
Acc # 1289-74703

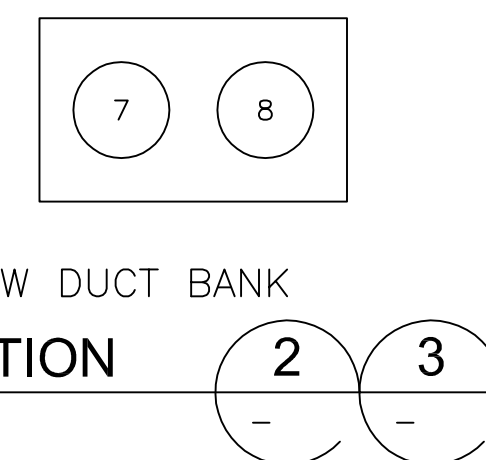
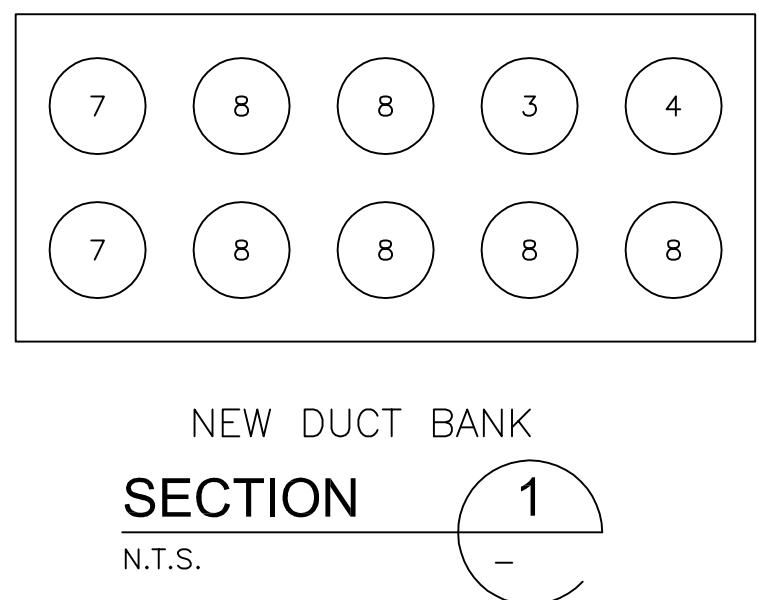
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\EOCPLO01.DWG Saved by: RKLROY On: 12-Dec-12 9:57 AM



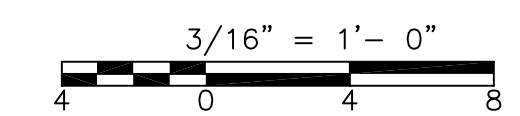
PLAN
3/16" = 1'-0"

CONDUIT AND WIRE LEGEND
(NUMBERS REFERENCE THIS SHEET ONLY)

NO.	DESCRIPTION
①	1" C., 4#14, 1#14G
②	1" C., 6#14, 1#14G
③	1" C., 14#14, 1#14G
④	1" C., 2#12, 1#12G
⑤	3/4" C., 14#14, 1#14G
⑥	3/4" C., 2-2/C#16TS
⑦	2" C., (SEE ONE LINE)
⑧	1" C., (SEE ONE LINE)
⑨	3/4" C., 3#12, 1#12G



NOTES:
1. CONNECT TO EXISTING GROUND CONNECTOR WITH EXOTHERMIC WELD.



CONFORMED

GRIPPIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/420-8800 Fax: 508/420-7905
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EOCPL001
DESIGNED BY: T.J. ADAMCZYK
DRAWN BY: T.J. ADAMCZYK
SHEET CHK'D BY: T. DASILVA
CROSS CHK'D BY: M. KOSTUR
SCALE: AS NOTED
APPROVED BY: J. ROMEO
DATE: SEPTEMBER 2010

CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

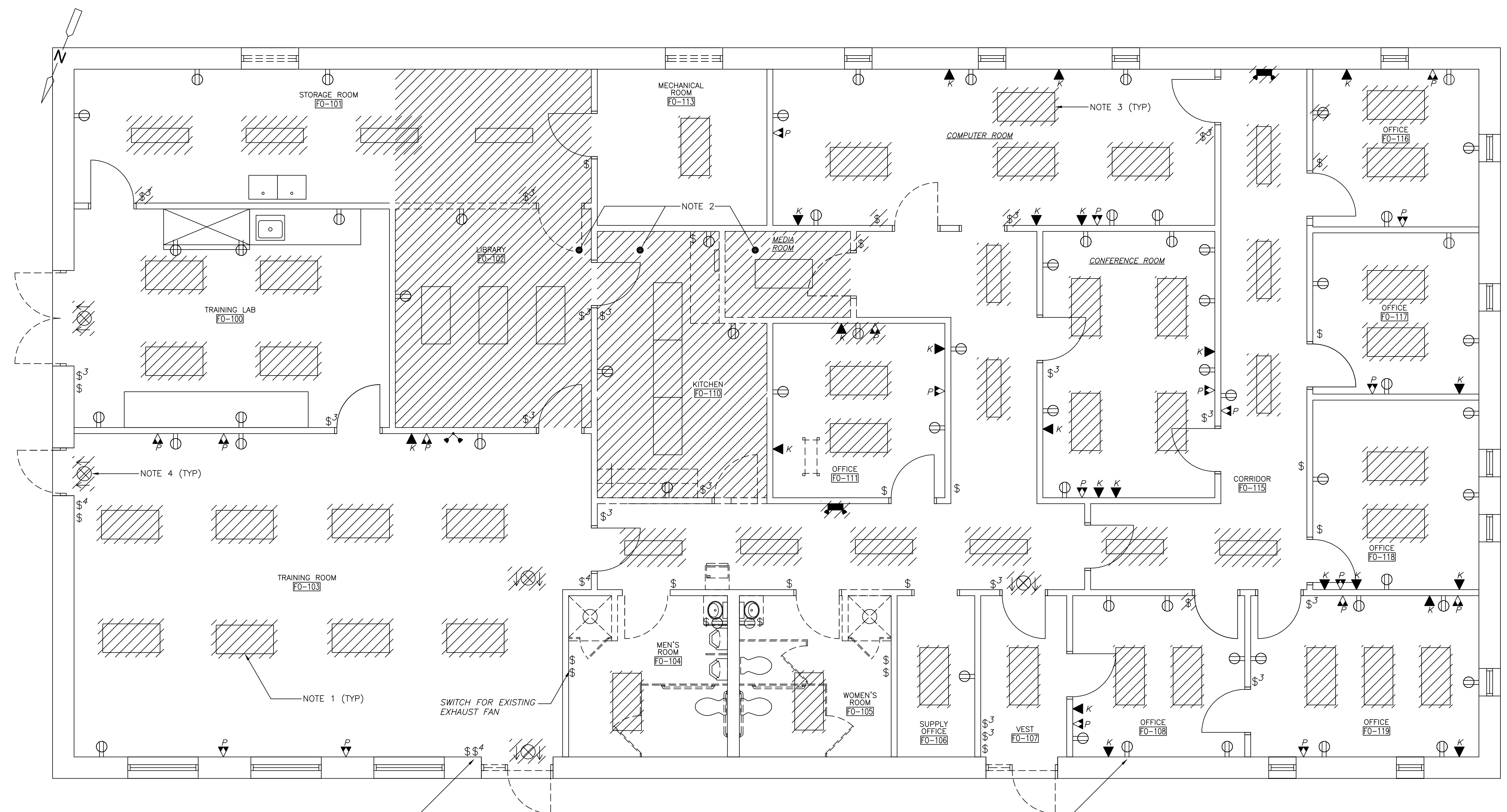
UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**ODOR CONTROL
BIOFILTER POWER PLAN**

PROJECT NO. 1289-74283
Sht. 298 of 312
OC-E-1
Acc # 1289-74704

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCMAIR\UPPER BLACKSTONE WWTTP #1635\ELECTRICAL AS-BUILT\ETFLD02.DWG Saved by: DONALDSONJJ On: 29-Jun-10 Plotted on: 13-Dec-12 1:41 PM



TRAINING FACILITY ELECTRICAL DEMOLITION PLAN

PLAN
1/4" = 1'-0"

ALL SWITCHES SHALL BE REMOVED AND CHANGED TO NEW

ALL RECEPTACLES SHALL BE REMOVED AND CHANGED TO NEW

NOTES:

1. ALL EXISTING LIGHT FIXTURES, SWITCHES, AND RECEPTACLES ON THIS PLAN, NOT SHOWN AS DEMO, SHALL BE REMOVED. LEAVE EXISTING WIRES FOR INSTALLATION OF NEW FIXTURES, SWITCHES AND RECEPTACLES. SEE SHEET TF-E-2.
2. REMOVE ALL RECEPTACLES, SWITCHES, AND LIGHT FIXTURES FROM THIS AREA, INCLUDING ASSOCIATED WIRING.
3. REMOVE EXISTING LIGHT FIXTURES AND ASSOCIATED WIRING AT THESE LOCATIONS. FOR NEW LIGHTING CONFIGURATIONS OF THESE AREAS SEE SHEET TF-E-2.
4. REMOVE ALL EXISTING EXIT SIGNS AND EMERGENCY LIGHTING. THIS INCLUDES ANY EXIT SIGNS AND EMERGENCY LIGHTING WHICH ARE NOT SHOWN ON THIS DEMOLITION PLAN. FOR LOCATIONS OF NEW EXIT SIGNS AND EMERGENCY LIGHTING SEE SHEET TF-E-2.

CONFORMED

GRIFPIN ELECTRIC
114 Hopping Brook Road Scituate, Massachusetts 01756
 508/459-8800 Fax 508/459-7800

ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ETFLD01.DWG
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

CDM
 Camp Dresser & McKee Inc.
 One Cambridge Place, 50 Hampshire Street
 Cambridge, MA 02139
 Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ALDEN TRAINING CENTER
 POWER, LIGHTING AND SYSTEMS
 DEMOLITION PLAN**

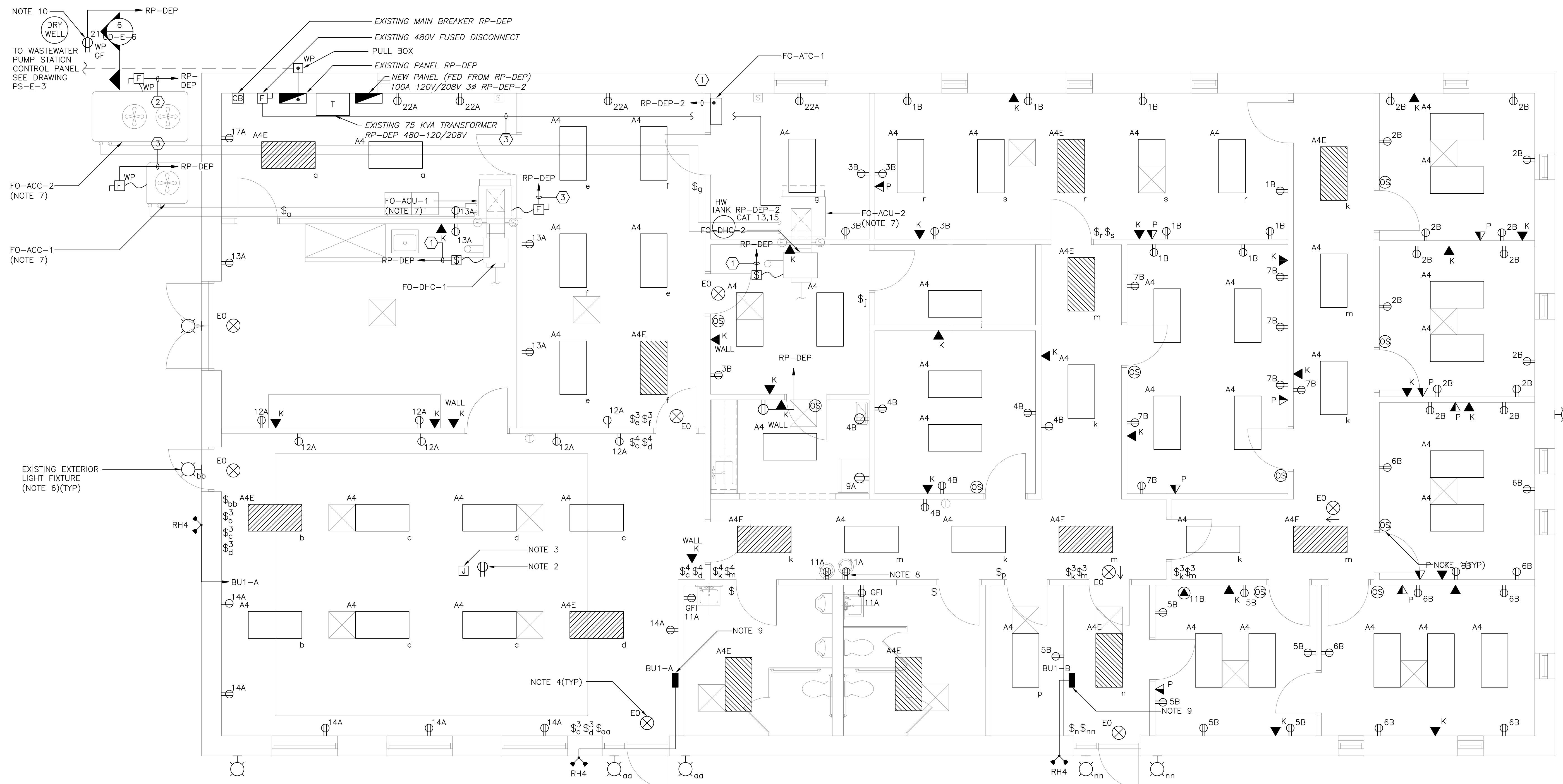
PROJECT NO.
1289-74283

Sht. 302 of 312

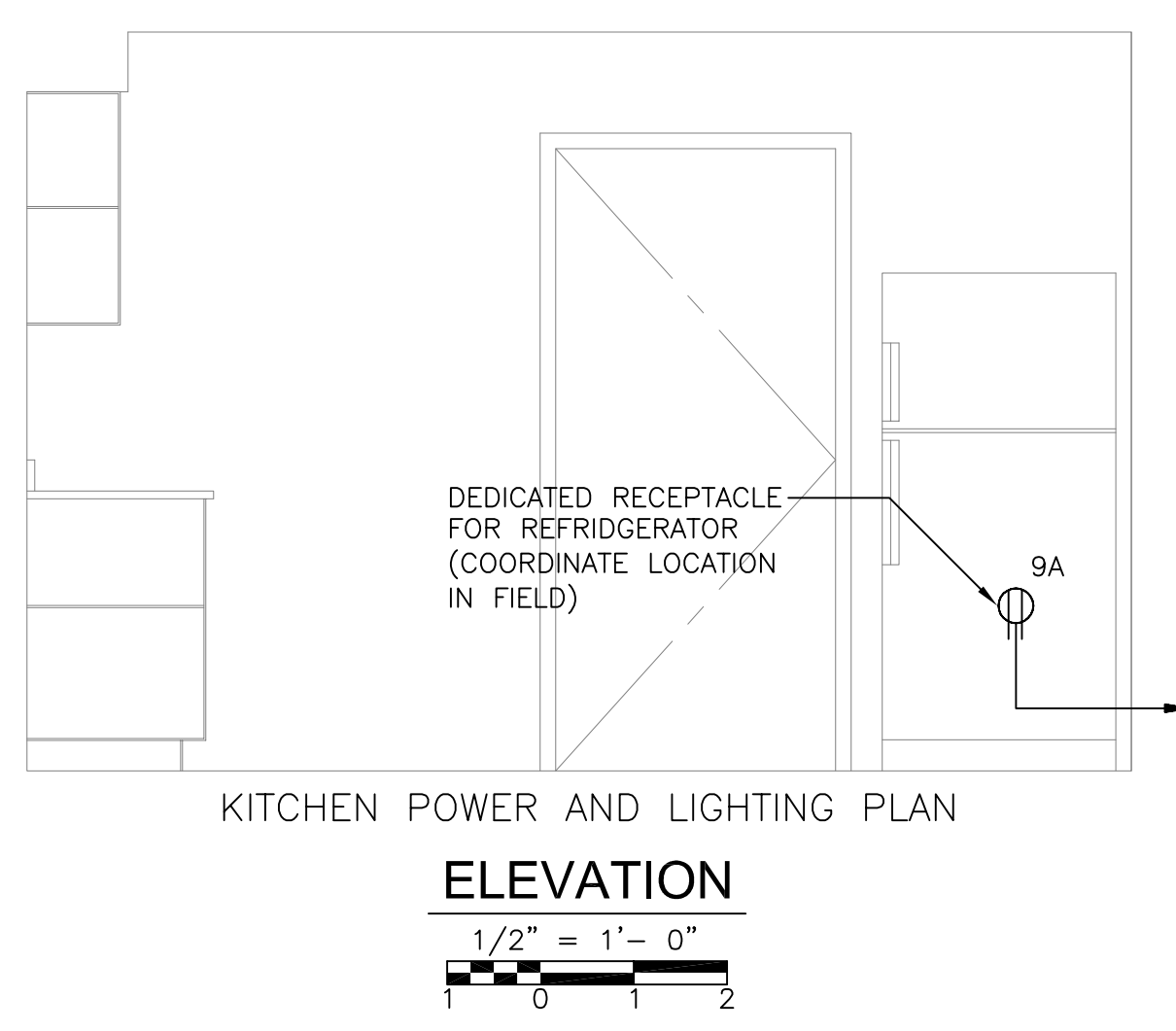
FO-E-1

Acc # 1289-74708

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\ETFPLO01.DWG Saved by: RKLROY On: 10-Dec-12 Plotted on: 13-Dec-12 8:54 AM

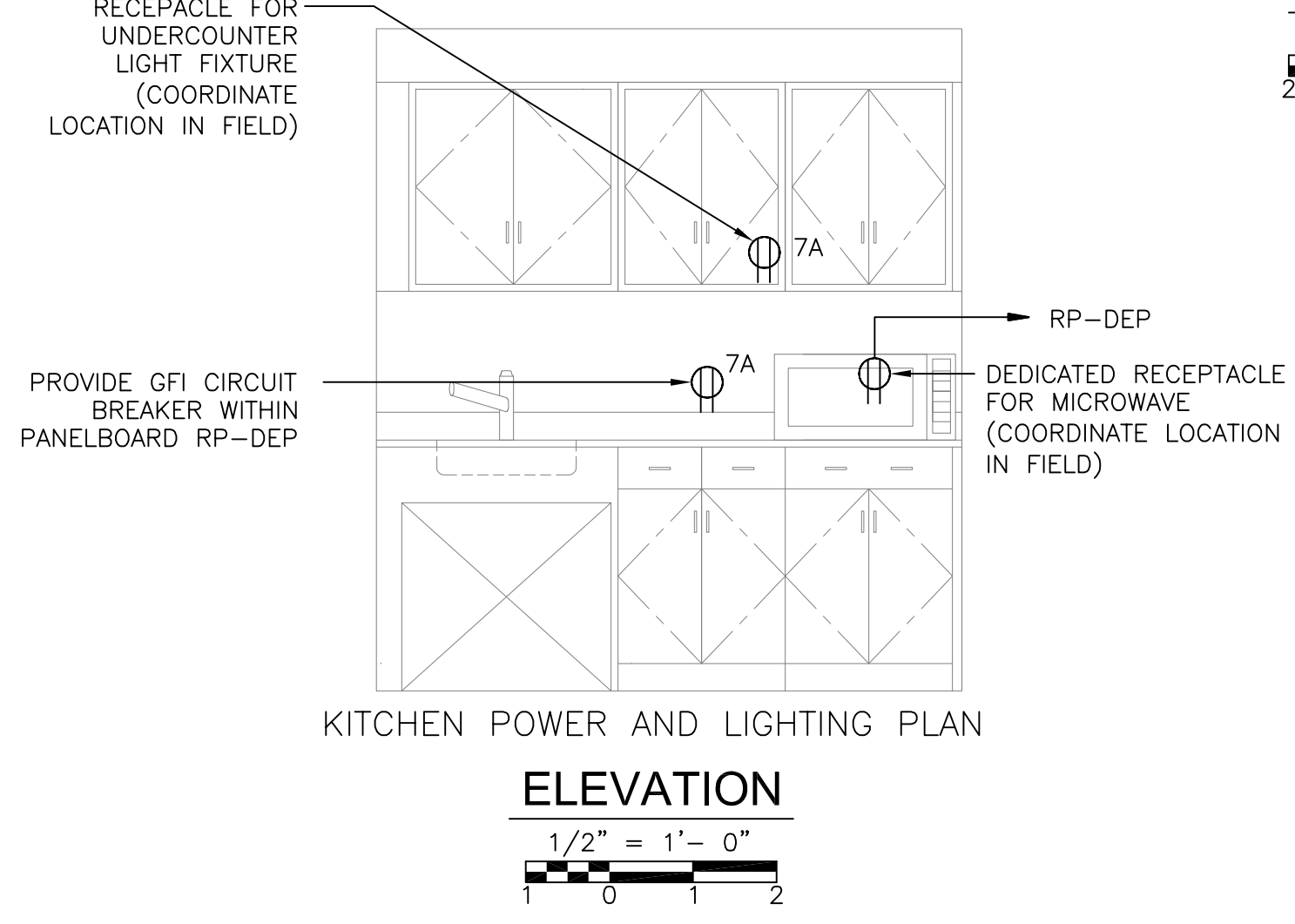


POWER, LIGHTING, AND SYSTEMS IMPROVEMENTS



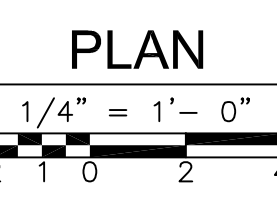
KITCHEN POWER AND LIGHTING PLAN

ELEVATION
1/2" = 1'-0"



KITCHEN POWER AND LIGHTING PLAN

ELEVATION
1/2" = 1'-0"



PLAN
1/4" = 1'-0"

DATA/TELE	PANEL	CIRCUIT
◀ K TELEPHONE	RP-DEP	A
◀ P DATA	RP-DEP-2	B

CONDUIT AND WIRE LEGEND (NUMBERS REFERENCE THIS SHEET ONLY)	
NO.	DESCRIPTION
①	3/4" C., 2#12, 1#12G
②	1" C., 3#6, 1#10G
③	3/4" C., 3#10, 1#10G

NOTES:

- REPLACE EXISTING LIGHT SWITCHES WITH OCCUPANCY SENSOR TYPE SWITCHES IN LOCATIONS SHOWN ON THIS SHEET.
- RECEPTACLE ABOVE CEILING FOR FUTURE PROJECTOR.
- PROVIDE A JUNCTION BOX FOR FUTURE INSTALLATION OF PROJECTOR AND PROVIDE A RACEWAY FROM THE JUNCTION BOX TO THE LOCATION OF THE PROJECTOR INPUT, TO BE DETERMINED IN THE FIELD.
- WIRE ALL NEW EXIT SIGNS TO THE ASSOCIATED CIRCUIT IN EACH LOCATION. THE CORRECT CIRCUIT SHALL BE FIELD VERIFIED AND DETERMINED BY THE CONTRACTOR.
- PROVIDE ANY ADDITIONAL WIRE OR RACEWAY NECESSARY TO ACCOMMODATE NEW FIXTURES, SWITCHING, AND EXIT SIGNS.
- ALL EXISTING EXTERIOR LIGHTING FIXTURES TO REMAIN. SWITCHING SHOWN ON EXISTING LIGHTS FOR REFERENCE TO THE NEW SWITCHES THAT WILL BE INSTALLED AS SHOWN ON THIS SHEET.
- EXISTING ELECTRICAL EQUIPMENT TO BE DEMOLISHED. INCLUDES CONDUIT, WIRING CONTROL STATIONS AND SUPPORT HARDWARE NOT SHOWN FROM THE SOURCE TO THE EQUIPMENT.
- CONNECT NEW ELECTRIC WATER COOLERS TO EXISTING CIRCUITS.
- EMERGENCY BATTERY UNIT SHALL BE POWERED FROM THE SAME CIRCUIT WITHIN THE ROOM IN WHICH IT IS LOCATED.
- 20 AMP GROUND FAULT RECEPTACLE FOR SUMP PUMP.

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. ETFPLO01.DWG
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHK'D BY: T.DISILVA
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
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**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ALDEN TRAINING CENTER
 POWER, LIGHTING AND SYSTEMS PLAN**

GRIPPIN ELECTRIC
 116 Hopping Brook Road Holliston, Massachusetts 01746
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 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283
 Sht. 303 of 312
FO-E-2
 Acc # 1289-74709

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\20100252 AD-E-1 ELECTRICAL LEGEND NOTES ABBREVIATIONS.DWG Saved by: CHUCKINS On: 28-Oct-10 Plotted on: 13-Dec-12 3:01 PM

LOAD TAG	STARTER LOCATION	MECHANICAL EQUIPMENT SCHEDULE																		REMARKS									
		LOAD						STARTER						POWER SOURCE		CONNECTION					BRANCH CIRCUIT								
		HP	FLA	KVA	VOLT	PH	NEMA SIZE	TYPE	OVERCURRENT			PB	HOA	INDICATING LIGHTS			AUXILIARY		PANEL			C/B	FLEX	JB	REC	DISC			
									CB	RK1 FUSE	MCP			R	G	A	CPT	NO								NC	AS	AF	NEMA
B-1-B.01	-	-	2.4	.29	120	1	-	-	-	-	-	-	-	-	-	-	-	-	LB-18	20A-1P	X	-	-	30AS	-	1	2#12, 1#12G. - 3/4"C.	NOTE 7,9.	
B-1-B.02	-	-	2.4	.29	120	1	-	-	-	-	-	-	-	-	-	-	-	-	LB-18	20A-1P	X	-	-	30AS	-	1	2#12, 1#12G. - 3/4"C.	NOTE 7,9.	
HWP-1-B.01 (XMR)	MECHANICAL ROOM	5	7.6	6.3	480	3	1	VFD	X	-	-	-	X	X	X	X	-	2	2	MCC-AD	15A-3P	X	-	-	30AS	-	1	3#12, 1#12G. - 3/4"C.	NOTE 8,10.
DTP-1-B.01 (XMR)	MECHANICAL ROOM	5	7.6	6.3	480	3	1	VFD	X	-	-	-	X	X	X	X	-	2	2	MCC-AD	15A-3P	X	-	-	30AS	-	1	3#12, 1#12G. - 3/4"C.	NOTE 8,10.
CHWP-1-B.01 (XMR)	MECHANICAL ROOM	5	7.6	6.3	480	3	1	VFD	X	-	-	-	X	X	X	X	-	2	2	MCC-AD	15A-3P	X	-	-	30AS	-	1	3#12, 1#12G. - 3/4"C.	NOTE 8,10.
EDH-9-2.01	-	-	6	5	480	3	-	-	-	-	-	-	-	-	-	-	-	-	PP1-2	20A-3P	X	-	-	30AS	10AF	1	3#10, 1#10G. - 3/4"C.	NOTE 7.	
EF-14-R.01	ROOF	1.5	6.6	2.4	208	3	1	FVNR	X	-	-	-	X	X	X	X	-	2	2	FN-36	15A-3P	X	-	-	30AS	15AF	4X	4#10, 1#10G. - 3/4"C.	NOTE 7,11,12.

NOTES:
 1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS.
 2. PROVIDE THERMAL OVERLOAD UNITS FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS.
 3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET (MAXIMUM) SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
 4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.16. MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA.
 5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS.
 6. VFD SHALL BE CONTROLLED VIA REMOTE 4-20mA OR 0-5V SIGNAL PROVIDED BY THE HVAC ATC CONTRACTOR.
 7. PROVIDE NON-FUSED 30 AMP SWITCH LOCATED AT UNIT. (NEMA TYPE AS NOTED)
 8. PROVIDE 6-PULSE VARIABLE SPEED DRIVE WITH BYPASS CONTROLLER LOCATED AT UNIT.
 9. RECONNECT NEW BOILER B-1 TO EXISTING REMOTE SHUTDOWN SWITCH. PROVIDE NEW REMOTE SHUTDOWN SWITCH FOR INDEPENDENT CONTROL OF B-2. LABEL CONTROLLERS WITH RESPECTIVE BOILER IDENTIFICATION.
 10. EXISTING 5HP PUMPS SHALL BE REFEED FROM NEW CIRCUIT BREAKERS IN EXISTING SPACE AT GENERAL ELECTRIC 8000 SERIES MOTOR CONTROL CENTER. REFER TO DETAIL "A" BELOW FOR ADDITIONAL INFORMATION.
 11. PROVIDE 4-WIRE TO STARTER FOR 120V CONTROLS.
 12. PROVIDE COMBINATION STARTER/DISCONNECT NEMA 4X STAINLESS STEEL MOUNTED AT ROOFTOP FAN LOCATION.

KEY:
 FVNR FULL VOLTAGE NON-REVERSING
 FVR FULL VOLTAGE REVERSING
 2S1W TWO SPEED SINGLE WINDING
 2S2W TWO SPEED TWO WINDING
 RVAT REDUCED VOLTAGE AUTOTRANSFORMER
 RVPW REDUCED VOLTAGE PART WINDING
 RVYDOT REDUCED VOLTAGE WYE DELTA OPEN TRANSITION
 RVYDCT REDUCED VOLTAGE WYE DELTA CLOSED TRANSITION
 MMS MANUAL MOTOR STARTER
 CB CIRCUIT BREAKER
 MCP MOTOR CIRCUIT PROTECTOR
 PB START AND STOP PUSH BUTTON
 HOA HAND-OFF-AUTOMATIC SELECTOR SWITCH
 CPT CONTROL POWER TRANSFORMER
 VFD VARIABLE FREQUENCY DRIVE W/O BYPASS
 VFD/B VARIABLE FREQUENCY DRIVE W/ BYPASS
 ONTRC CONTACTOR - NO THERMAL OVERLOAD

WIRING DEVICE LEGEND

5 GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V, 2P, 3W "5" - INDICATES CIRCUIT NUMBER "GFI" - INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER "WP" - INDICATES WEATHERPROOF
J	JUNCTION BOX
PB	PULLBOX

BRANCH CIRCUIT & FEEDER LEGEND

—	BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREAS
----	BRANCH CIRCUIT OR FEEDER, CONCEALED IN OR UNDER FLOOR SLAB
—○	BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER
—●	BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER
—]	CONDUIT STUBBED ABOVE CEILING
LB-18-1,3,5	BRANCH CIRCUIT HOME RUN TICKS INDICATE QUANTITY OF CONDUCTORS, GROUND CONDUCTORS ARE NOT INDICATED. NO TICKS INDICATES 2#12 & 1#12G IN 3/4" MINIMUM. LB-18-1,3,5 INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOMERUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.
~*	FLEXIBLE CONNECTION TO EQUIPMENT, RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER
—LP—	LIGHTNING PROTECTION CABLE.

POWER DISTRIBUTION

—	208Y/120 VOLT PANELBOARD, SURFACE MOUNTED
—	208Y/120 VOLT PANELBOARD, RECESSED MOUNTED
—	480Y/277 VOLT PANELBOARD, SURFACE MOUNTED
—	480Y/277 VOLT PANELBOARD, RECESSED MOUNTED

ONE LINE SYMBOLS LEGEND

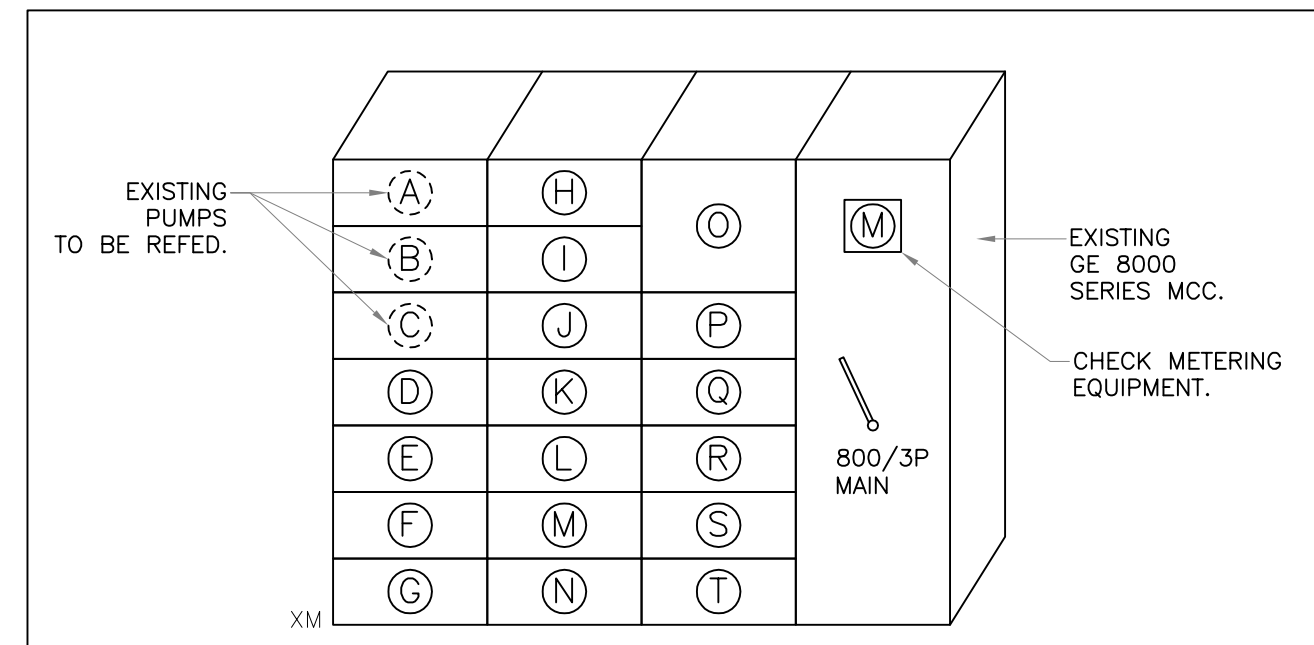
— —	DISCONNECT SWITCH, UNFUSED
XXAS	CIRCUIT BREAKER, FIXED "XXAF" INDICATES FRAME SIZE "XXAT" INDICATES TRIP
— —	GROUND CONNECTION
R21A	PANELBOARD

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED
XMR	EXISTING TO REMAIN AND BE RECONNECTED/REWired.
—	EXISTING EQUIPMENT FOR INFORMATION ONLY— INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
- - - -	EXISTING EQUIPMENT TO BE REWORKED— INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

DRAWING LIST

AD-E-1	ELECTRICAL LEGEND, NOTES, ABBREVIATIONS AND SCHEDULES
AD-E-2	ELECTRICAL BASEMENT FLOOR POWER PLAN
AD-E-3	ELECTRICAL SECOND FLOOR POWER PLAN
AD-E-4	ELECTRICAL ROOF POWER PLAN



DETAIL "A" MCC-AD-1 ELEVATION

N.T.S.

A 100AS/15AF (STARTER) EXIST. PUMP - XMR	H 100AS/40AF (CB) 15KVA XFMR.	D 400AS/400AF (CB) PANEL D
B 100AS/15AF (STARTER) EXIST. PUMP - XMR	I 100AS/30AF (CB) AHU-2	P 100AS/15AF (CB) HWP-1-B.01
C 100AS/15AF (STARTER) EXIST. PUMP - XMR	J 100AS/20AF (CB) D.SEWAGE EJEK.	Q 100AS/15AF (CB) CHWP-1-B.01
D 100AS/7AF (STARTER) AHU-1	K 225AS/225AF (CB) PANEL PP1	R 100AS/15AF (CB) TDP-1-B.01
E 100AS/7AF (STARTER) AHU-3	L 225AS/200AF (CB) CHILLER	S SPACE
F 100AS/70AF (CB) ELEVATOR	M SPACE	T SPACE
G 100AS/70AF (CB) 45KVA XFMR.	N SPACE	

MOTOR & CONTROLS LEGEND

SM	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
60AS/45AF	COMBINATION FUSED DISCONNECT MAGNETIC MOTOR STARTER. REFER TO MAGNETIC MOTOR STARTER AND VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
MCC	MOTOR CONTROL CENTER
VFD	VARIABLE SPEED DRIVE
30AS	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "30AS" - INDICATES 30A SWITCH
60AS/45AF	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "60AS" - INDICATES 60 AMP SWITCH "45AF" - INDICATES 45 AMP FUSES
EF14	EQUIPMENT TAG, TOP ALPHANUMERIC CORRESPONDS TO EQUIPMENT ID LOWER INDICATES LOAD (KW, HP, ETC.)

ABBREVIATIONS

A/AMP AMPERE	KW KILOWATT
AC ALTERNATION CURRENT	MCB MAIN CIRCUIT BREAKER
AF AMPERE FRAME	MLO MAIN LUGS ONLY
AFF ABOVE FINISHED FLOOR	MTD MOUNTED
AIC AMPERE INTERRUPTING CAPACITY	MTG MOUNTING
AT AMPERE TRIP	NC NORMALLY CLOSED CONTACT
AWG AMERICAN WIRE GAUGE	NEC NATIONAL ELECTRICAL CODE
B BURIED	NO NORMALLY OPEN CONTACT
C CONDUIT	NTS NOT TO SCALE
CA CABLE	# NUMBER
∕∕ CENTERLINE	PWR POWER
DWG DRAWING	RGS RIGID GALVANIZED STEEL
EC ELECTRICAL CONTRACTOR	SWBD SWITCHBOARD
EMT ELECTRIC METALLIC TUBING	TB TERMINAL BLOCK
FREQ FREQUENCY	TEL TELEPHONE
GFI GROUND FAULT INTERRUPTING	TYP TYPICAL
GND GROUND	UTP UNSHELD TWISTED-PAIR
JB JUNCTION BOX	V VOLTS
KVA KILOVOLT-AMPERE	VA VOLT-AMPERE
	VSD VARIABLE SPEED DRIVE
	W WATTS
	WP WEATHERPROOF

CONFORMED

09/10	REVISED PER ADDENDA NOS. 1 THRU 3			
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AD-E-1
 DESIGNED BY: MTG
 DRAWN BY: FN
 SHEET CHK'D BY: MTG
 CROSS CHK'D BY: GEM
 SCALE: AS NOTED
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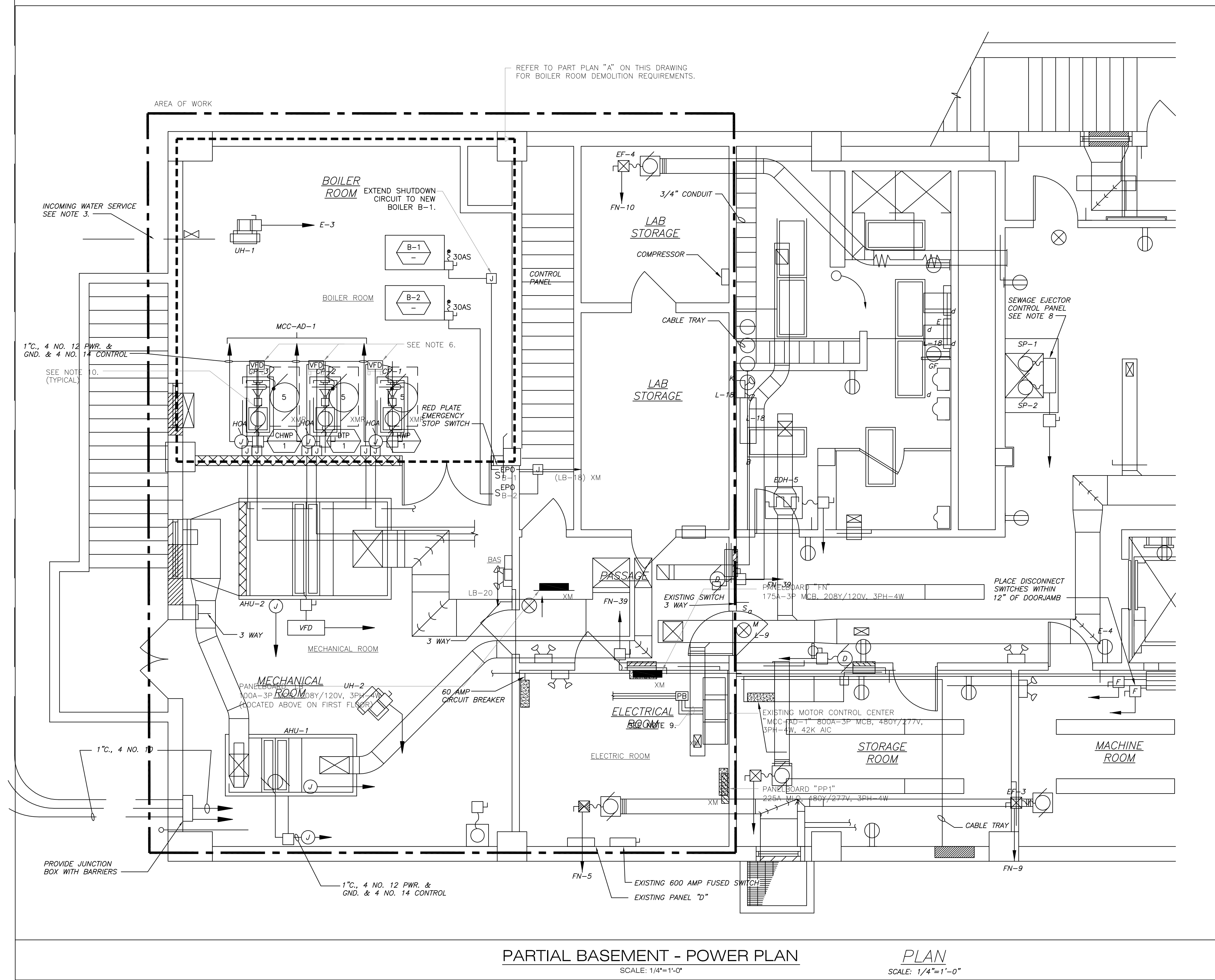
UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
 ELECTRICAL
 LEGEND, NOTES AND ABBREVIATIONS

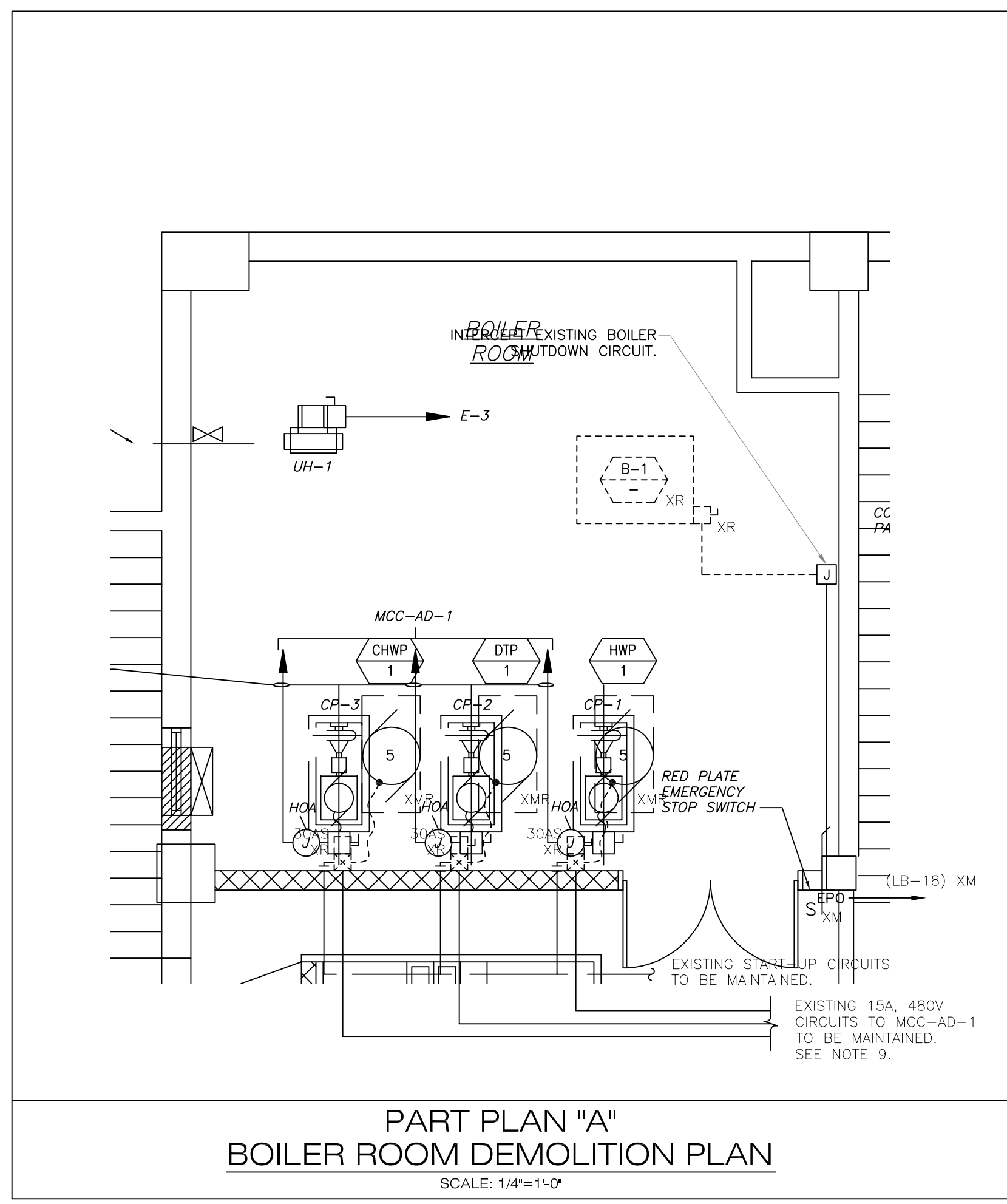
PROJECT NO. 1289-74283
 Sht. 304 of 312
 AD-E-1
 Acc # 1289-74710

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\20100252 AD-E-2 ELECTRICAL BASEMENT FLOOR POWER PLAN.DWG Saved by: CHUCKINS On: 28-Oct-10 Plotted on: 13-Dec-12 3:02 PM



PARTIAL BASEMENT - POWER PLAN
SCALE: 1/4"=1'-0"

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



PART PLAN "A"
BOILER ROOM DEMOLITION PLAN
SCALE: 1/4"=1'-0"

- POWER NOTES:**
- REFER TO DRAWING AD-E-1 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
 - CIRCUIT NUMBERS ARE DIAGRAMMATIC, EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
 - VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
 - POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT WHERE INSTALLED CONCEALED OR ABOVE SUSPENDED CEILINGS. WHERE CONDUIT IS INSTALLED EXPOSED IN UNFINISHED AREAS IT SHALL BE RIGID STEEL CONDUIT (RGS).
 - MAINTAIN/RECONNECT CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
 - PROVIDE NEW VARIABLE SPEED DRIVE AT EXISTING 5HP, 480V CIRCULATING PUMP. EXISTING 5HP PUMP ILLUSTRATED IS CONTROLLED VIA A REMOTELY MOUNTED VARIABLE SPEED DRIVE (VSD). THE SERVICE DISCONNECT SHALL BE PROVIDED WITH AN AUXILIARY CONTACT FOR INTERCONNECTION WITH THE VSD. INTERCONNECT THE DISCONNECT AND THE VSD WITH 2-#10-3/4"TC. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - EXISTING BOILER SYSTEM EMERGENCY SHUT-OFF SWITCH TO BE REMOVED. PROVIDE (2) NEW EMERGENCY SHUT-OFF SWITCHES FOR NEW GAS FIRED BOILERS B-1, B-2 FED FROM PANELBOARD "LB". SWITCHES SHALL BE MOUNTED UNDER A COMMON "RED" FACEPLATE AND BE LABELED FOR BOILER SHUTDOWN.
 - UTILIZE EXISTING 20A-1P CIRCUIT BREAKERS IN EXISTING PANEL "LB" FOR CONNECTION TO NEW 120V BAS CONTROL CIRCUIT. MODIFY CIRCUIT DIRECTORY TO REFLECT THE CHANGE, PROVIDE EXACT CIRCUITRY INFORMATION ON AS-BUILT DOCUMENTATION.
 - EXISTING 480V FEEDS SERVING PUMPS AT BOILER ROOM SHALL BE INTERCEPTED AT ELECTRICAL ROOM AND EXTENDED TO NEW CIRCUIT BREAKERS LOCATED IN SECTION NO.3 SPACE. EXISTING STARTERS SHALL BE MAINTAINED/LABELED SPARE. PROVIDE UPDATED DIRECTORIES REFLECTED ON AS-BUILT DOCUMENTATION.
 - INTERCEPT AND EXTEND EXISTING 480V FEEDS AND START-UP CIRCUITS TO NEW VFD CONTROLLER AS SHOWN. (MATCH EXISTING CONDUCTOR RATING).

09/10				REVISED PER ADDENDA NOS. 1 THRU 3
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AD-E-2
 DESIGNED BY: MTG
 DRAWN BY: FN
 SHEET CHK'D BY: MTG
 CROSS CHK'D BY: GEM
 SCALE: AS NOTED
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WATER POLLUTION ABATEMENT DISTRICT
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 PROJECT No. CWSRF - 3197

WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
ELECTRICAL
BASEMENT POWER PLANS

GRIFFIN ELECTRIC
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 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

PROJECT NO.
1289-74283

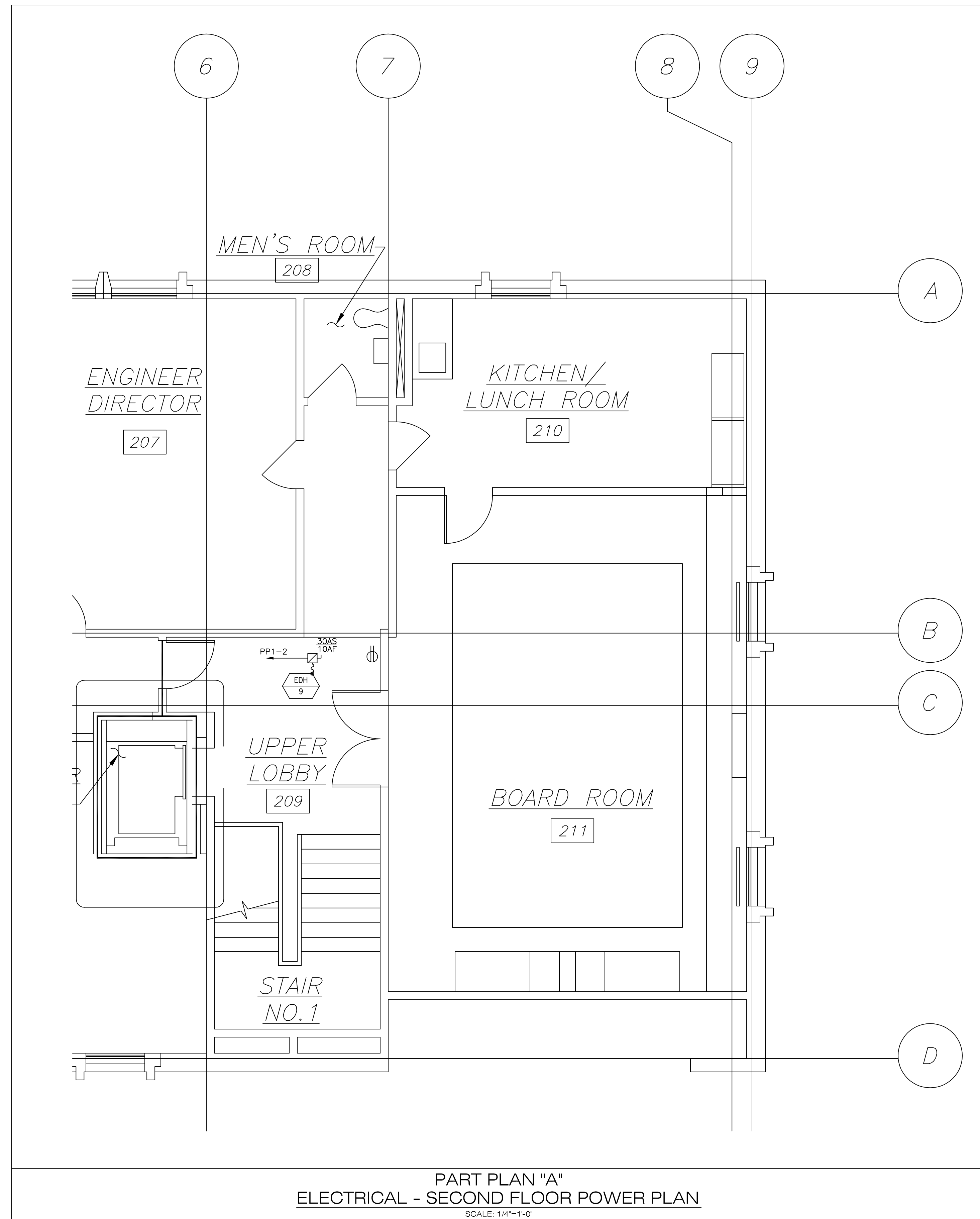
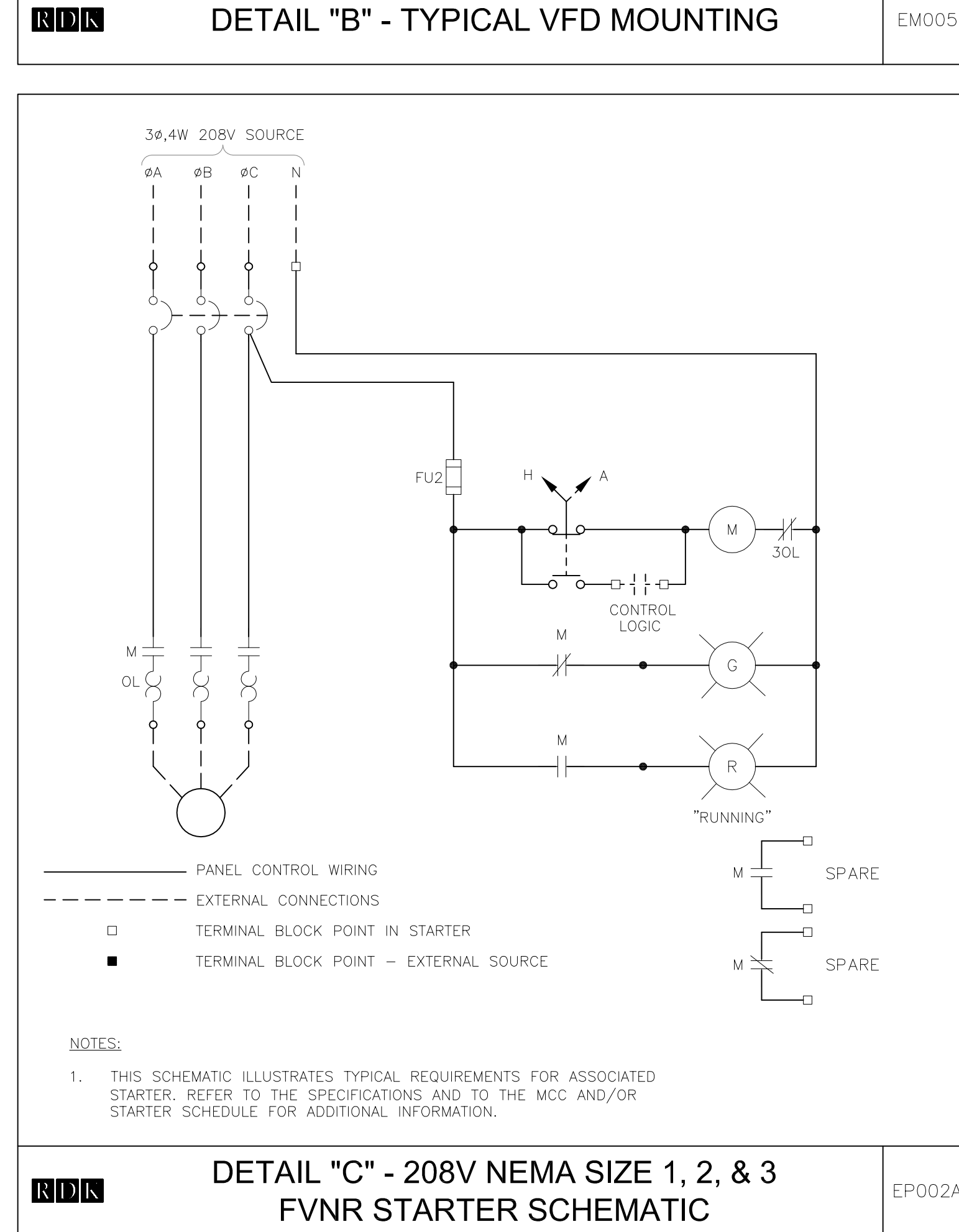
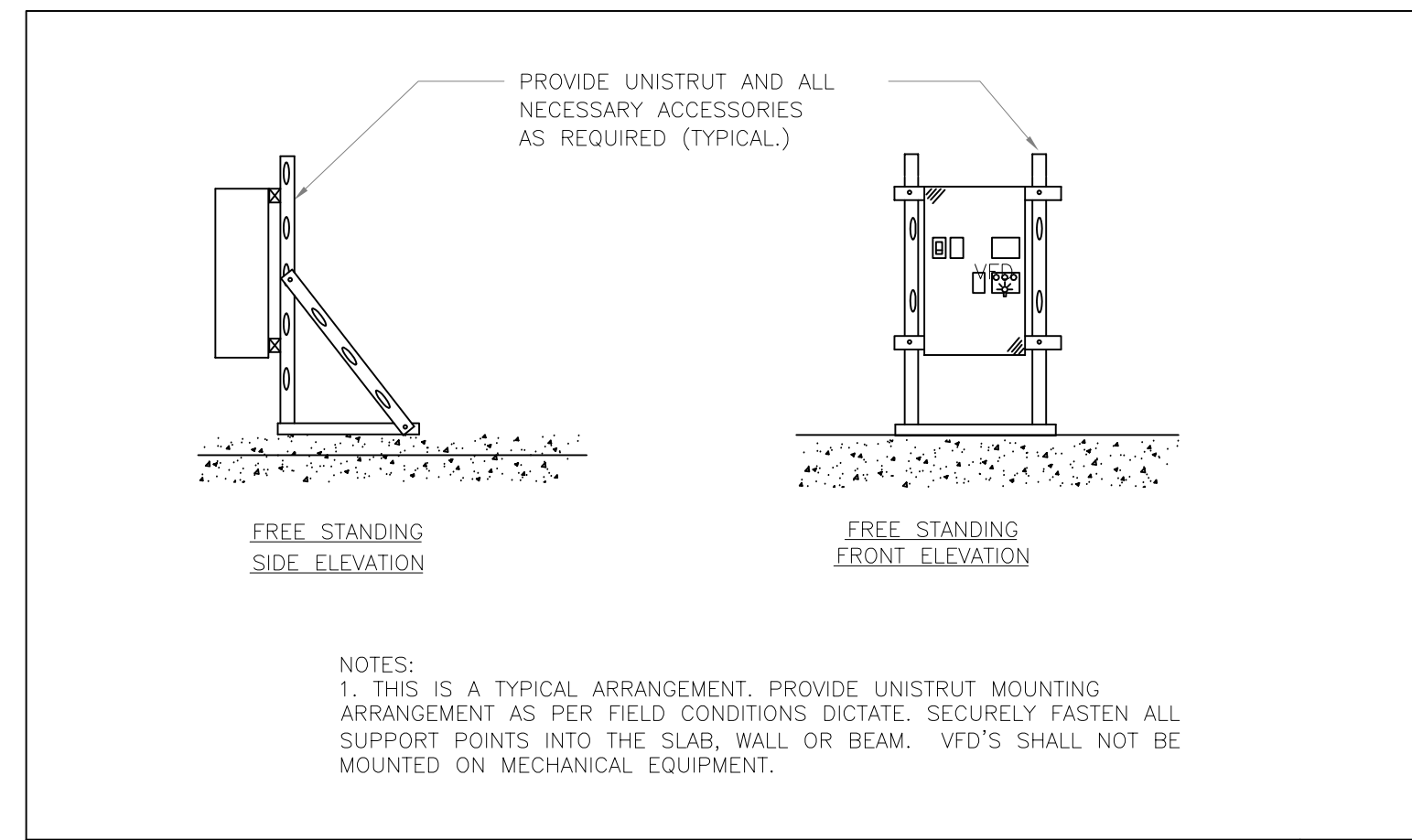
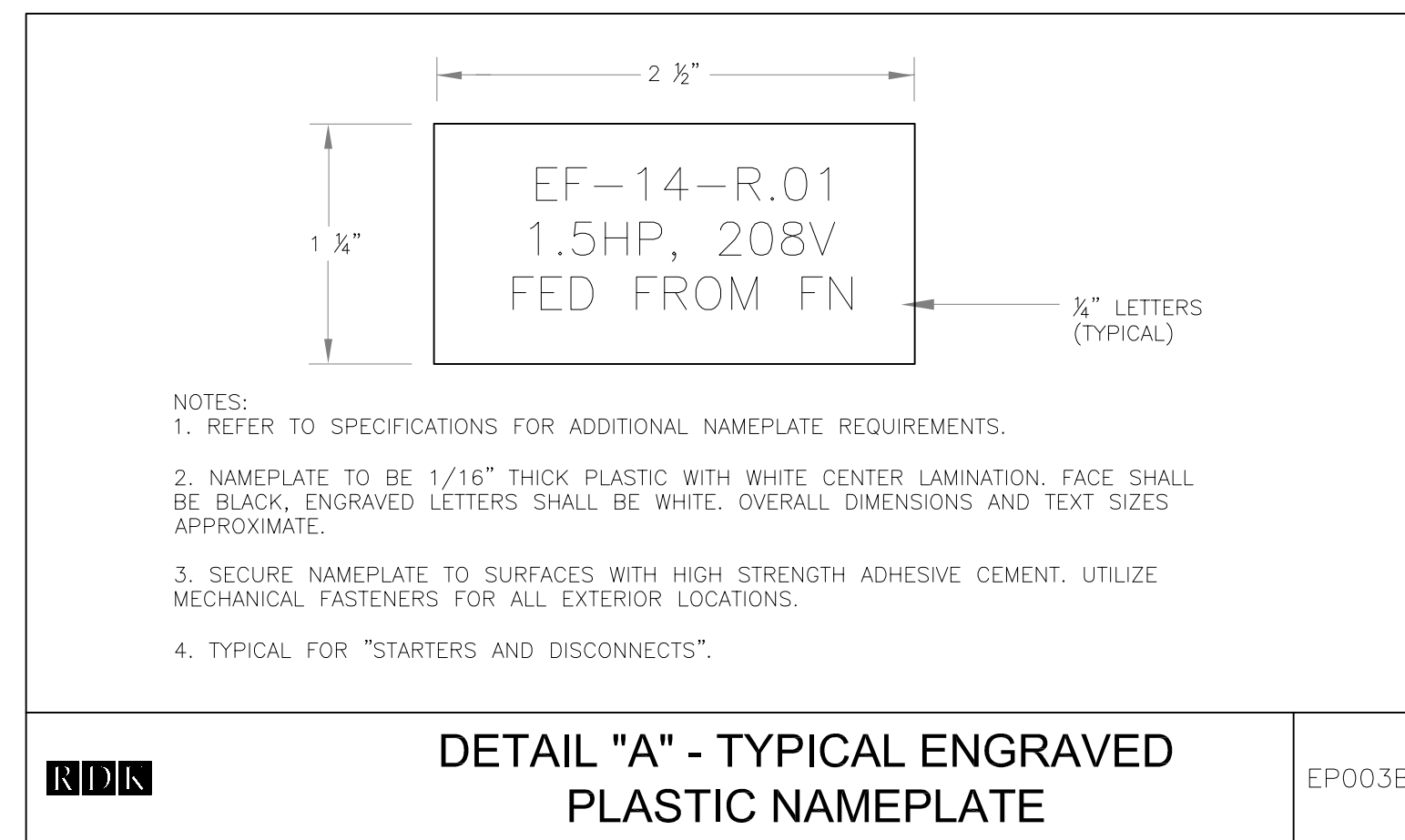
Sht. 306 of 312

AD-E-2

Acc # 1289-74712


CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\20100252 AD-E-3 ELECTRICAL 2ND FLOOR POWER PLAN.DWG Saved by: CHUCKINS On: 28-Oct-10 Plotted on: 13-Dec-12 3:03 PM



POWER NOTES:

- REFER TO DRAWING AD-E-1 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
- CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
- VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
- POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT WHERE INSTALLED CONCEALED OR ABOVE SUSPENDED CEILINGS. WHERE CONDUIT IS INSTALLED EXPOSED IN UNFINISHED AREAS IT SHALL BE RIGID STEEL CONDUIT (RGS).
- MAINTAIN/RECONNECT CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
- UTILIZE EXISTING 20A-3P SPARE CIRCUIT BREAKERS IN EXISTING PANEL "PP1" FOR CONNECTION TO NEW 480V ELECTRIC DUCT HEATER. MODIFY CIRCUIT DIRECTORY TO REFLECT THE CHANGE. PROVIDE EXACT CIRCUITRY INFORMATION ON AS-BUILT DOCUMENTATION. PROVIDE ADD ALTERNATE PRICE TO INSTALL NEW 20A-3P CIRCUIT BREAKER IN EXISTING 480Y/277V PANELBOARD. BREAKER SHALL MATCH EXISTING PANEL MANUFACTURER AND AIC CHARACTERISTICS. (42K).



GRIFFIN ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
908/420-0800 Fax: 908/420-7825
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

△	09/10	REVISED PER ADDENDA NOS. 1 THRU 3		
REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. AD-E-3
 DESIGNED BY: MTG
 DRAWN BY: FN
 SHEET CHK'D BY: MTG
 CROSS CHK'D BY: GEM
 SCALE: AS NOTED
 APPROVED BY: GEM
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

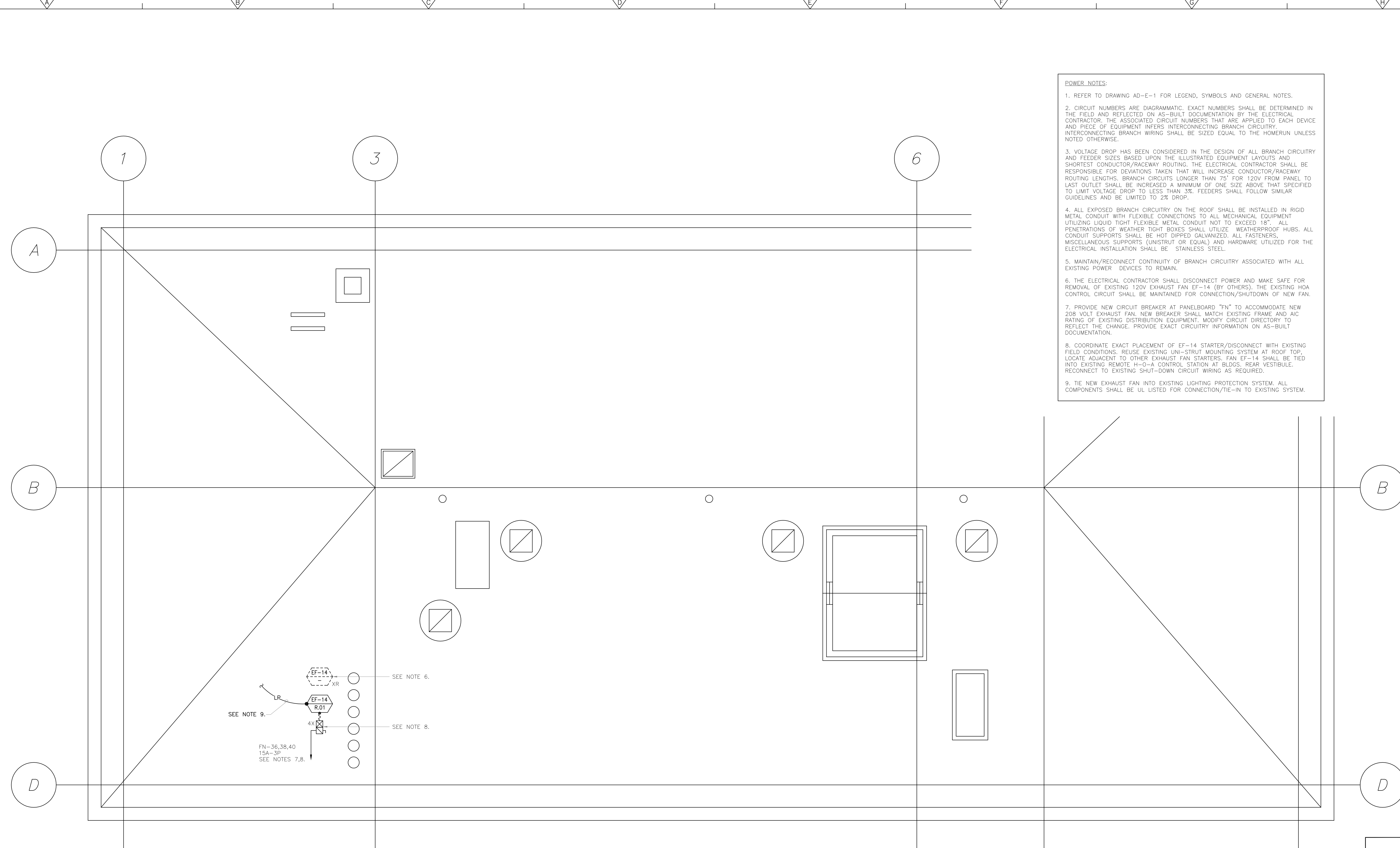
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ADMINISTRATION BUILDING
 ELECTRICAL
 PARTIAL SECOND FLOOR PLAN**

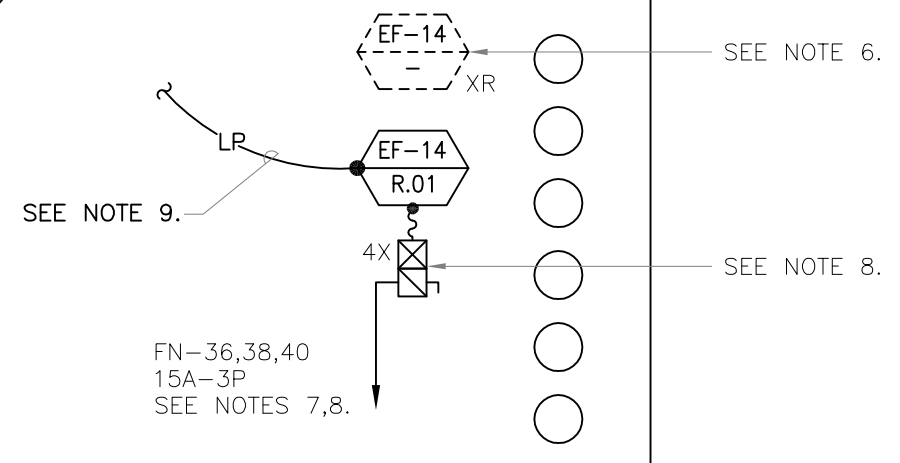
PROJECT NO.
1289-74283
 Sht. 305 of 312
AD-E-3
 Acc # 1289-74711

CONFORMED

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WTP #1635\ELECTRICAL AS-BUILT\20100252 AD-E-4 ELECTRICAL ROOF POWER PLAN.DWG Saved by: CHUCKINS On: 28-Oct-10 Plotted on: 13-Dec-12 3:04 PM




- POWER NOTES:**
- REFER TO DRAWING AD-E-1 FOR LEGEND, SYMBOLS AND GENERAL NOTES.
 - CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON AS-BUILT DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH DEVICE AND PIECE OF EQUIPMENT INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.
 - VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED UPON THE ILLUSTRATED EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY ROUTING LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
 - ALL EXPOSED BRANCH CIRCUITRY ON THE ROOF SHALL BE INSTALLED IN RIGID METAL CONDUIT WITH FLEXIBLE CONNECTIONS TO ALL MECHANICAL EQUIPMENT UTILIZING LIQUID TIGHT FLEXIBLE METAL CONDUIT NOT TO EXCEED 18". ALL PENETRATIONS OF WEATHER TIGHT BOXES SHALL UTILIZE WEATHERPROOF HUBS. ALL CONDUIT SUPPORTS SHALL BE HOT DIPPED GALVANIZED. ALL FASTENERS, MISCELLANEOUS SUPPORTS (UNISTRUT OR EQUAL) AND HARDWARE UTILIZED FOR THE ELECTRICAL INSTALLATION SHALL BE STAINLESS STEEL.
 - MAINTAIN/RECONNECT CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
 - THE ELECTRICAL CONTRACTOR SHALL DISCONNECT POWER AND MAKE SAFE FOR REMOVAL OF EXISTING 120V EXHAUST FAN EF-14 (BY OTHERS). THE EXISTING HOA CONTROL CIRCUIT SHALL BE MAINTAINED FOR CONNECTION/SHUTDOWN OF NEW FAN.
 - PROVIDE NEW CIRCUIT BREAKER AT PANELBOARD "FN" TO ACCOMMODATE NEW 208 VOLT EXHAUST FAN. NEW BREAKER SHALL MATCH EXISTING FRAME AND AIC RATING OF EXISTING DISTRIBUTION EQUIPMENT. MODIFY CIRCUIT DIRECTORY TO REFLECT THE CHANGE. PROVIDE EXACT CIRCUITRY INFORMATION ON AS-BUILT DOCUMENTATION.
 - COORDINATE EXACT PLACEMENT OF EF-14 STARTER/DISCONNECT WITH EXISTING FIELD CONDITIONS. REUSE EXISTING UNI-STRUT MOUNTING SYSTEM AT ROOF TOP. LOCATE ADJACENT TO OTHER EXHAUST FAN STARTERS. FAN EF-14 SHALL BE TIED INTO EXISTING REMOTE H-O-A CONTROL STATION AT BLDGS. REAR VESTIBULE. RECONNECT TO EXISTING SHUT-DOWN CIRCUIT WIRING AS REQUIRED.
 - TIE NEW EXHAUST FAN INTO EXISTING LIGHTING PROTECTION SYSTEM. ALL COMPONENTS SHALL BE UL LISTED FOR CONNECTION/TIE-IN TO EXISTING SYSTEM.




ROOF POWER PLAN
SCALE: 1/4"=1'-0"

CONFORMED


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 508/429-8800 Fax: 508/429-7905
ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

09/10		REVISED PER ADDENDA NOS. 1 THRU 3				CADD FILE NO. <u>AD-E-4</u>
						DESIGNED BY: <u>MTG</u>
						DRAWN BY: <u>FN</u>
						SHEET CHK'D BY: <u>MTG</u>
						CROSS CHK'D BY: <u>GEM</u>
						SCALE: <u>AS NOTED</u>
						APPROVED BY: <u>GEM</u>
						DATE: <u>SEPTEMBER 2010</u>
REV. NO.	DATE	DRWN	CHKD	REMARKS		


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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197
WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III

ADMINISTRATION BUILDING
ELECTRICAL
ROOF POWER PLAN

PROJECT NO.
1289-74283

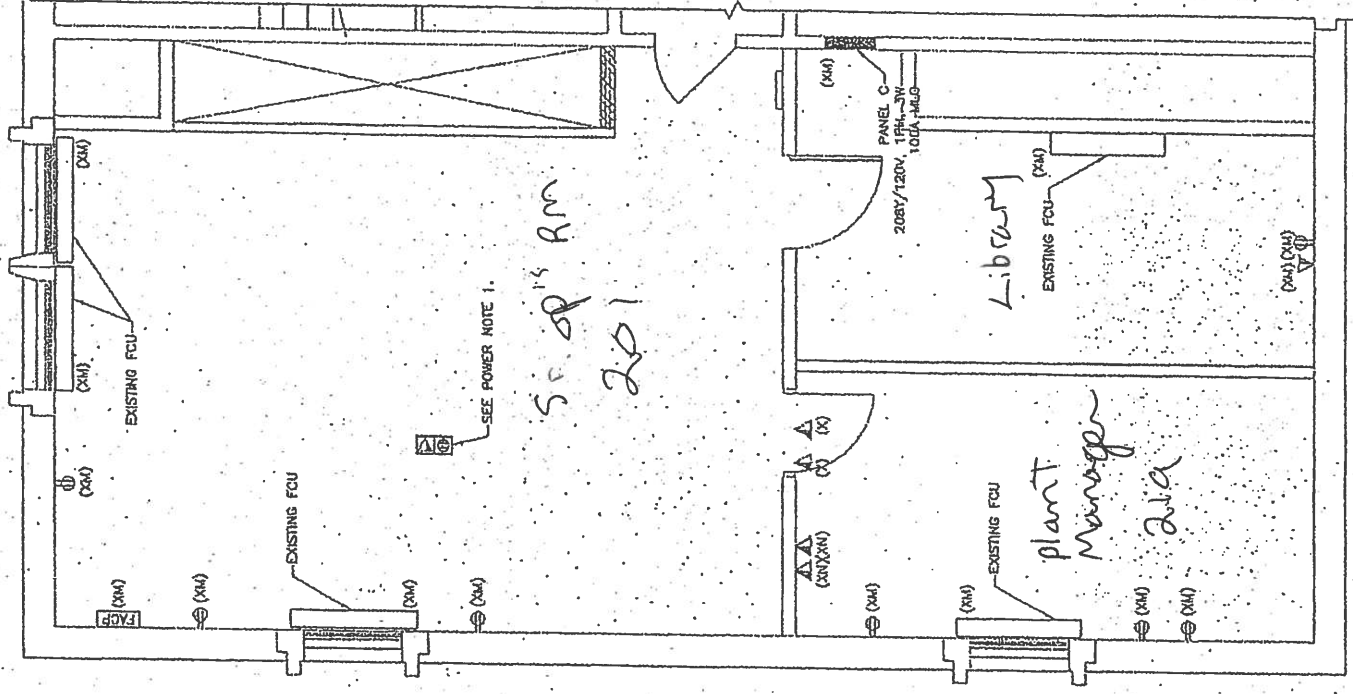
Sht. 307 of 312

AD-E-4

Acc # 1289-74713

GENERAL NOTES:
 1. REFER TO SHEET 101 FOR LOCATIONS, DIMENSIONS AND OTHER NOTES.
 2. REFER TO SHEET 102 FOR ELECTRICAL AND MECHANICAL NOTES.
 3. REFER TO SHEET 103 FOR MECHANICAL AND ELECTRICAL NOTES.
 4. REFER TO SHEET 104 FOR MECHANICAL AND ELECTRICAL NOTES.

EXISTING:
 1. EXISTING FLOOR FINISHES, WALLS, CEILING, AND PARTS OF EXISTING MECHANICAL AND ELECTRICAL SYSTEMS.
 2. EXISTING MECHANICAL AND ELECTRICAL SYSTEMS TO REMAIN.
 3. EXISTING MECHANICAL AND ELECTRICAL SYSTEMS TO BE REMOVED.

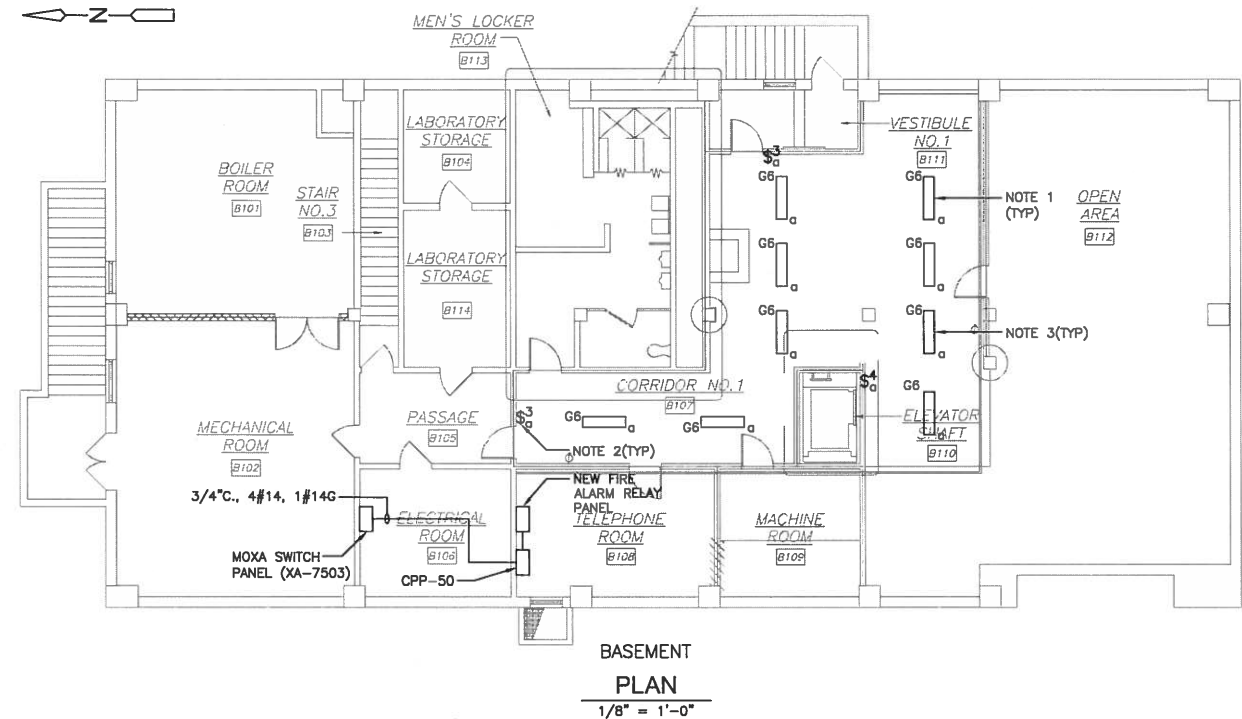


SECOND FLOOR REVISION & NEW WORK POWER PARTIAL PLAN
 1/4-1-0
 Partial AD-E-5

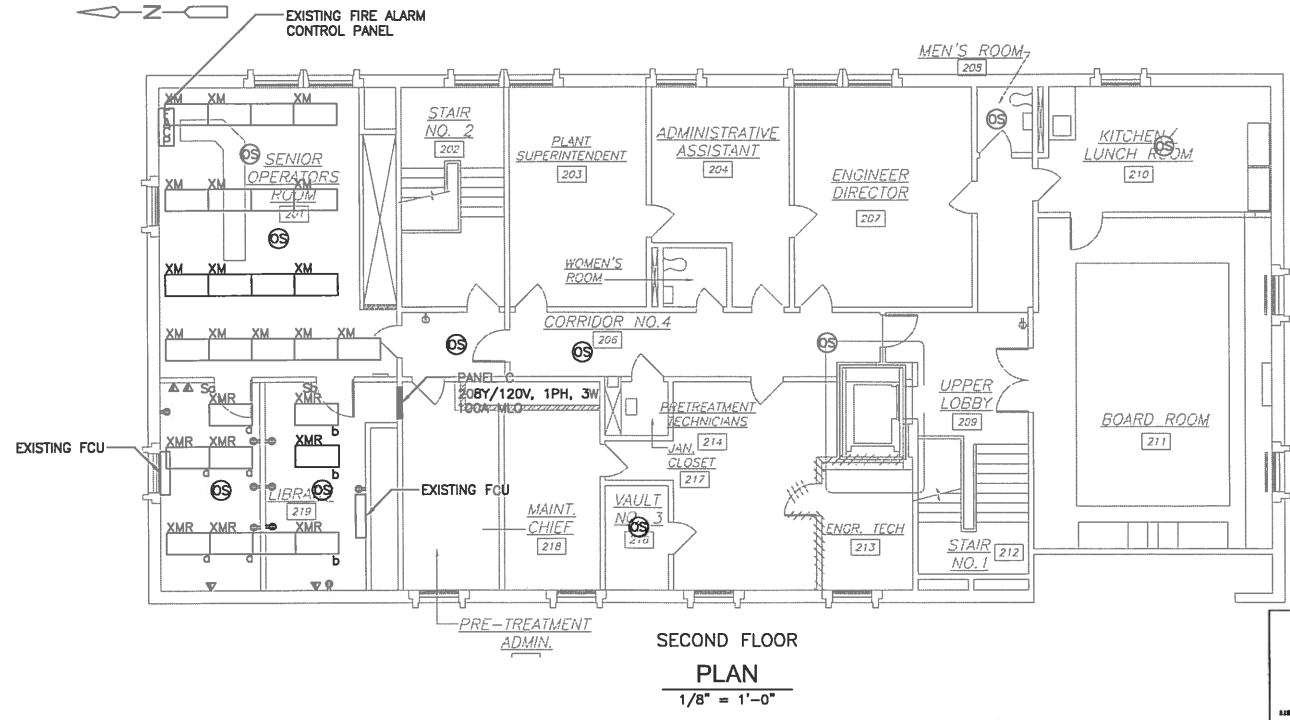
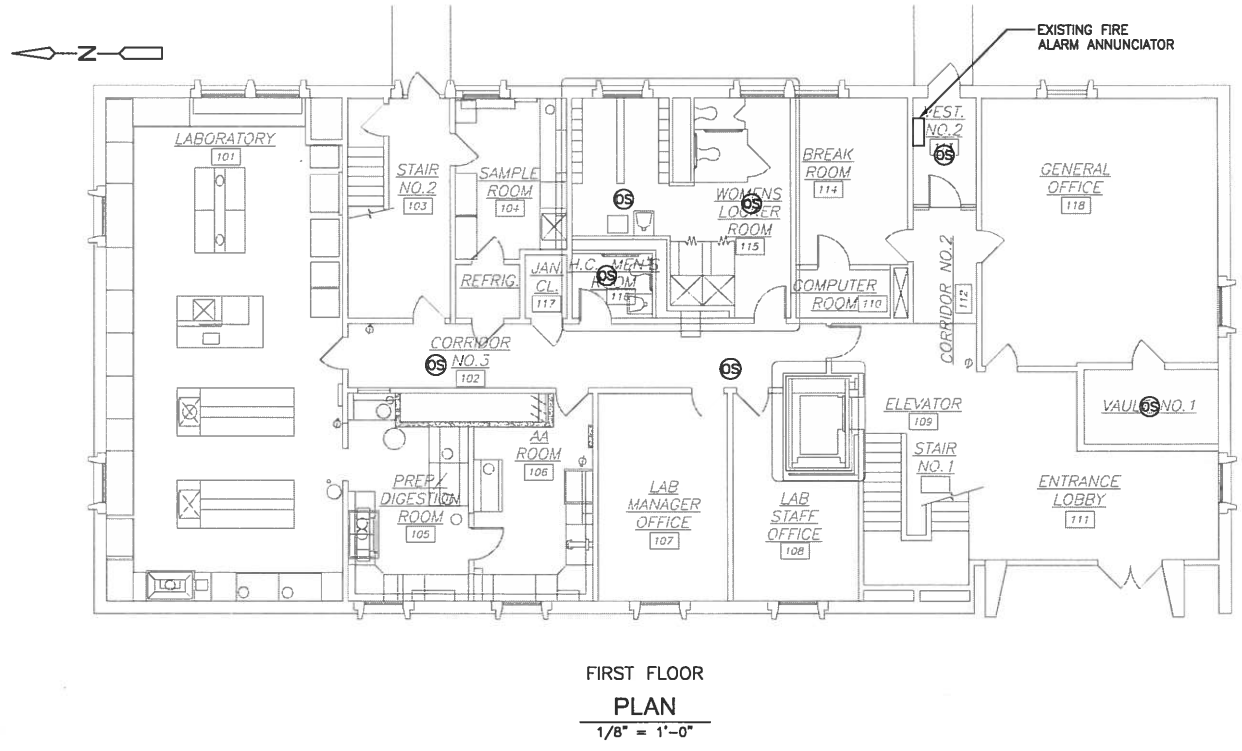


DATE 9-27-2011	SHEET NO.	LOCATION	ADDENDUM NO.	FIGURE NO.
	--	SECOND FLOOR	--	SKE-4

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WWTP #1635 ELECTRICAL AS-BUILT\ADPL001.DWG Saved by: RKLEROY on: 7-Feb-13 11:55 AM



- NOTES:**
1. REMOVE EXISTING LIGHT FIXTURES IN THIS AREA AND REPLACE WITH NEW FIXTURES AS SHOWN ON THIS SHEET.
 2. REPLACE EXISTING LIGHT SWITCHES IN LOCATIONS SHOWN ON THIS SHEET.
 3. MOUNT LIGHT FIXTURES AT 9'-0" A.F.F.
 4. REPLACE EXISTING LIGHT SWITCH WITH OCCUPANCY SENSOR TYPE LIGHTING CONTROL IN ALL LOCATIONS SHOWN ON THIS SHEET.
 5. RELOCATE THE EXISTING SWITCH FOR THE MAINTENANCE CHIEF OFFICE TO THE INSIDE OF THE ROOM FOR OCCUPANCY SENSOR INSTALLATION.



CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EADPL001
 DESIGNED BY: J.DONALDSON
 DRAWN BY: J.DONALDSON
 SHEET CHECKED BY: T.DASILVA
 CROSS CHECKED BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197
**WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III**

**ADMINISTRATION BUILDING
 LIGHTING AND SYSTEMS IMPROVEMENTS**

G
 GRIFFIN ELECTRIC
 110 Shaping Road, Andover, Massachusetts 01810
 978/682-8822 Fax 978/682-7928
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 15, 2012

REVISIONS	DATE

PROJECT NO. 1289-74283
 Sht. 308 of 312
AD-E-5
 Acc. # 1289-74714

CDM LIGHTING FIXTURE SCHEDULE


TYPE	LOCATION	LAMPS PWR-LMP TYP	MOUNTING	DESCRIPTION	ACCEPTABLE MANUFACTURER'S CATALOG NUMBERS * ADD VOLTAGE			REMARKS
ADMINISTRATIVE / COMMERCIAL AREAS								
A4	HALLWAYS / LOUNGES GENERAL ADMIN SPACES CLASSRMS / LABS	2-32W-FL	CEILING RECESSED	2X4 FOOT FLUORESCENT PARABOLIC LOUVER SEMI-SPECULAR 3" DEEP 12 CELLS	LITHONIA 2PM3N G 232 12 LD *GEB10	DAYBRITE 2LP3G 332 36AL 1/3EB *	METALUX 2EP3GX232-S26I-UNV-EB81	
A4E	HALLWAYS / LOUNGES GENERAL ADMIN SPACES CLASSRMS / LABS	2-32W-FL	CEILING RECESSED	2X4 FOOT FLUORESCENT PARABOLIC LOUVER SEMI-SPECULAR 3" DEEP 12 CELLS	LITHONIA 2PM3N G 232 12 LD *GEB10	DAYBRITE 2LP3G 332 36AL 1/3EB *	METALUX 2EP3GX232-S26I-UNV-EB81-EM	NOTE 1
A24	HALLWAYS	1-40W-FL	CEILING RECESSED	1X2 FOOT RECESSED WALL WASHER 15 LAMP	LITHONIA WWW(CF40-*IRLS-GEB10	OR EQUAL	METALUX RWW-1B340-MI-VOLT-EB81	
CORROSIVE & WET INDUSTRIAL LOCATIONS								
CF7	CORROSIVE INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT	2-32W-FL-LINEAR	WALL ANGLE	FLUORESCENT ENCLOSED LINEAR CORROSION RESISTANT LUMINAIRE WET AND CORROSIVE UL LISTING, W/ ELECTRONIC RAPID START BALLAST	LITHONIA DMW232*GEB10RS	DAYBRITE VTP7232 CA*EB10R	CROUSE HINDS FVN4232TG* -KH	
DAMP / DUSTY INDUSTRIAL LOCATIONS								
D12	DAMP INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT HALLWAYS / STAIRWELLS	2-32W-FL-LINEAR	SURFACE OR PENDANT	FLUORESCENT 4 FT ENCLOSED & GASKETED LINEAR UNIT UL LISTED FOR DAMP LOCATIONS W/ ELECTRONIC RAPID START BALLAST	LITHONIA DM232*GEB10RS	DAYBRITE V2WAE232* 1/2EB-EB10R	LEGION 14-232-ACP-EBO-DL	
D13	DAMP INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT HALLWAYS / STAIRWELLS	2-32W-FL-LINEAR	WALL MOUNT	FLUORESCENT 4 FT ENCLOSED & GASKETED LINEAR UNIT UL LISTED FOR DAMP LOCATIONS W/ ELECTRONIC RAPID START BALLAST	LITHONIA DM232*GEB10RS	DAYBRITE V2WAE232* 1/2EB-EB10R	LEGION 14-232-ACP-EBO-DL	
GENERAL INDUSTRIAL AREAS								
G6	GENERAL INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT HALLWAYS / STAIRWELLS	2-32W-FL-LINEAR	SURFACE OR PENDANT	FLUORESCENT 4 FOOT LINEAR UNIT W/ ELECTRONIC RAPID START BALLAST	LITHONIA AF-10-2-32-*PO-GEB10RS	DAYBRITE 1F232-PP-* 1/2EB-EB10R	METALUX IA-232-UNV-EB81	
G7	GENERAL INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT HALLWAYS / STAIRWELLS	2-32W-FL-LINEAR	WALL MOUNT	FLUORESCENT 4 FOOT LINEAR UNIT W/ ELECTRONIC RAPID START BALLAST	LITHONIA AF-10-2-32-*PO-GEB10RS	DAYBRITE 1F232-PP-* 1/2EB-EB10R	METALUX IA-232-UNV-EB81	
G8	GENERAL INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT HALLWAYS / STAIRWELLS	3-32W-FL-LINEAR	SURFACE OR PENDANT	FLUORESCENT 4 FOOT LINEAR UNIT W/ TWO ELECTRONIC RAPID START BALLAST	LITHONIA AF-10-3-32-*PO-GEB10RS	DAYBRITE 1F332-PP-* 1/2EB-EB10R	METALUX DIM-332-LINX-EB82	
CLASS 1, DIVISION 2 INDUSTRIAL LOCATIONS								
HF4	CLASS 1 DIV. 2 INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT	2-32W-FL-LINEAR	CEILING SURFACE	FLUORESCENT ENCLOSED LINEAR UNIT W/ 10% UPLIGHT AND ELECTRONIC BALLAST UL LISTED FOR CLASS 1 DIVISION 2 LOCATIONS	PHOENIX LFV7-232	DAYBRITE VTW7232CA	CROUSE HINDS FVN4232TG*	
HM5	CLASS 1 DIV. 2 INDUSTRIAL AREA HIGH BAY >= 15 FT	400W-MH	CEILING PENDANT	METAL HALIDE ENCLOSED & GASKETED HIGH BAY UNIT WITH GUARD AND HIGH BAY REFLECTOR UL LISTED FOR CLASS 1 DIVISION 2, GROUP C & D	HOLOPHANE PETL400MHMT-525-PD	RAL SAF40H * GG P1 SR40D	CROUSE HINDS EVMA92401/* -EV3912	
WET INDUSTRIAL LOCATIONS								
WF8	WET INDUSTRIAL AREA LOW BAY CEILINGS <= 15 FT	3-32W-FL-LINEAR	SURFACE OR PENDANT	FLUORESCENT ENCLOSED & GASKETED LINEAR UNIT UL LISTED FOR WET LOCATIONS W/ TWO ELECTRONIC RAPID START BALLAST	LITHONIA DMW332*GEB10RS	RAL MHD265-4-3*	LEGION 14-332-ACP-EBO-WL	
CLASS 1, DIVISION 1 INDUSTRIAL LOCATIONS								
XF2	CLASS 1 DIV. 1 INDUSTRIAL AREA HALLWAYS / STAIRWELLS	2-32W-CFL	CEILING PENDANT	FLUORESCENT ENCLOSED COMPACT UNIT WITH GUARD AND DOME REFLECTOR UL LISTED FOR CLASS 1 DIV. 1, GROUP C & D & WET LOCATIONS	APPLETON CJFP6410GBUL	CROUSE HINDS EVLPPA02941/*	OR EQUAL	
XM2	CLASS 1 DIV. 1 INDUSTRIAL AREA LOW BAY <= 15 FT	175W-MH	CEILING PENDANT	ENCLOSED METAL HALIDE LOW BAY UNIT WITH GUARD AND DOME REFLECTOR UL LISTED FOR CLASS 1 DIV. 1, GROUP C & D	HOLOPHANE PETM175MH*SY-PD- PETMSY	RAL SXP17H*GGP SR40D	CROUSE HINDS EVLPA193171/ *-RD739	
XM3	CLASS 1 DIV. 1 INDUSTRIAL AREA LOW BAY <= 15 FT	175W-MH	WALL BRACKET	METAL HALIDE ENCLOSED LOW BAY UNIT WITH GUARD AND ANGLE REFLECTOR UL LISTED FOR CLASS 1 DIV. 1, GROUP C & D	HOLOPHANE PETM175MH*SY-WL- PETMAS	RAL SXP17H*GGW - SR40A	CROUSE HINDS EVLPA193171/ *-RA739	
EMERGENCY LIGHTING AND EXIT SIGNS								
E0	OFFICE ENVIRONMENTS	LED	UNIVERSAL MOUNT	DOUBLE FACE LED SELF POWERED EXIT SIGN WITH DUAL VOLTAGE - 120/277V, RED LETTERS ON A MIRROR BACKGROUND, 20 YEAR LIFE, UNIVERSAL ARROW / MOUNT	LITHONIA LRP-2-RMR-120/277-ELN	EMERGI-LITE LXN-2-RM-ARL-U	SIGNTEX CRR-BB-2R-M-W-XX	NOTE 2
E1	INDUSTRIAL INDOOR	LED	UNIVERSAL MOUNT	DOUBLE FACE LED SELF POWERED EXIT SIGN WITH DUAL VOLTAGE - 120/277V, RED LETTERS ON A STENCIL FACE PANEL, 20 YEAR LIFE, SELF DIAGNOSTICS, UNIVERSAL ARROW / MOUNT & UL LISTING	LITHONIA LE-S-W-2-R-120/277-ELN-SD	EMERGI-LITE 12DXN2R	SIGNTEX RPR-BB-2R-W-XX	NOTE 2
E2	INDUSTRIAL DAMP/ DUSTY	LED	UNIVERSAL MOUNT	DOUBLE FACE LED SELF POWERED EXIT SIGN WITH DUAL VOLTAGE - 120/277V, RED LETTERS ON A STENCIL FACE PANEL, 20 YEAR LIFE, SELF DIAGNOSTICS, UNIVERSAL ARROW / MOUNT & DAMP UL LIST	LITHONIA LV-S-W-2-R-120/277-ELN-UM-DL-SD	EMERGI-LITE ECLXN-4-R-DL-D	DUAL-LITE SCDRWE-120/277	NOTE 2
E3	INDUSTRIAL WET	LED	UNIVERSAL MOUNT	DOUBLE FACE LED SELF POWERED EXIT SIGN WITH DUAL VOLTAGE - 120/277V, RED LETTERS ON A STENCIL FACE PANEL, 20 YEAR LIFE, SELF DIAGNOSTICS, UNIVERSAL ARROW / MOUNT & WET UL LIST	LITHONIA LV-S-W-2-R-120/277-ELN-UM-4X-SD	EMERGI-LITE WW-SVXN-2-R-4X	DUAL-LITE LN4XRWE-*	NOTE 2
E4	INDUSTRIAL NEMA 4X	LED	UNIVERSAL MOUNT	DOUBLE FACE LED SELF POWERED EXIT SIGN WITH DUAL VOLTAGE - 120/277V, RED LETTERS ON A STENCIL FACE PANEL, 20 YEAR LIFE, SELF DIAGNOSTICS, UNIVERSAL ARROW/MOUNT & NEMA 4X UL LIST	LITHONIA LV-S-W-2-R-120/277-ELN-UM-4X-SD	EMERGI-LITE WW-SVXN-2-R-D-4X	DUAL-LITE LN4XRWE-120/277-I	NOTE 2
E5	CLASS 1, DIVISION 1 CLASS 1, DIVISION 2	-	UNIVERSAL MOUNT	DOUBLE FACE EXIT SIGN, UNIVERSAL DIRECTIONAL INDICATOR AND MOUNT UL LISTED	RAL XPEX SERIES	CROUSE-HINDS EXL SERIES	OR EQUAL	NOTE 2
BU	GENERAL INDUSTRIAL	2-8W HALOGEN	WALL SURFACE	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, DUAL VOLTAGE 120/277V, 100W MINIMUM CAPACITY, VOLTMETER, TWO 8W HEADS, NEMA 1 & 12 RATED	LITHONIA ELT125-H-VM	EMERGI-LITE 12ILSM110-2-HF-F-V	HOLOPHANE C4-CT-100-W-*2	
BU1	GENERAL INDUSTRIAL	0		12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 100W MINIMUM CAPACITY, VOLTMETER, NO HEADS, NEMA 1 & 12 RATED	LITHONIA ELT125-RO-VM	EMERGI-LITE 12ILD110-0-F-V	HOLOPHANE C4-CT-100-W-*0	
BU2	INDUSTRIAL WET / CORROSIVE	2-8W HALOGEN	WALL SURFACE	12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, DUAL VOLTAGE 120/277V, 100W MINIMUM CAPACITY, VOLTMETER, TWO, 9W HEADS, NEMA 4X RATED, WITH FIBERGLASS ENCLOSURE	LITHONIA INDX12100-H1212-SEL	EMERGI-LITE 12KSM110-2-HF-F-V	HOLOPHANE DM6-C-100-T-NW-2-V	
BU3	INDOOR / OUTDOOR - WET / CORROSIVE	0		12-VOLT MAINTENANCE FREE LEAD CALCIUM BATTERY UNIT, 100W MINIMUM CAPACITY, VOLTMETER, NO HEADS, NEMA 4 & 4X RATED, WITH FIBERGLASS ENCLOSURE	LITHONIA INDX12100-0HEADS-SEL	EMERGI-LITE 12KSM110-0-F-V	HOLOPHANE DM6-C-100-T-NW-0-V	

RH	GENERAL	1-8W HALOGEN	WALL SURFACE	ONE - 8 WATT, 12-VOLT, HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEAD UL LISTED	LITHONIA ELA-H0812	EMERGI-LITE EF-9(HF)	HOLOPHANE LRNW
RH1	GENERAL	2-8W HALOGEN	WALL SURFACE	8 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, SUITABLE FOR INDUSTRIAL LOCATIONS UL LISTED	LITHONIA ELA-T-H0812	EMERGI-LITE EF-9D(HF)	HOLOPHANE 2LRNW
RH2	INDUSTRIAL WET	1-8W HALOGEN	WALL SURFACE	ONE-8 WATT, 12-VOLT, HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, SEALED AND GASKETED WET UL LISTING	LITHONIA ELA-T-NX-H0812S-WM	EMERGI-LITE EF-11(XF)	CROUSE HINDS EVL12
RH3	INDUSTRIAL WET	2-8W HALOGEN	WALL SURFACE	8 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHT HEADS, SEALED AND GASKETED WET UL LISTING	LITHONIA ELA-T-NX-H0812S-WM	EMERGI-LITE EF-11D(XF)	HOLOPHANE 2-NW-SH
RH4	INDUSTRIAL NEMA 4X	2-8W HALOGEN	WALL SURFACE	8 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, SEALED, GASKETED AND CORROSION RESISTANT, NEMA 4X UL LISTING	LITHONIA ELA-T-NX-H0812S-WM	MCPHILBEN 2-PNK	CROUSE HINDS EVL12
RH5	INDUSTRIAL CLASS 1 / DIV. 2	2-8W HALOGEN	WALL SURFACE	8 WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, CLASS 1 DIVISION 2 UL LISTING	LITHONIA ELA-T-Z-H0812-WM	MCPHILBEN 2-PHK	CROUSE HINDS EVL12
RH6	INDUSTRIAL CLASS 1 / DIV. 1	2-8W HALOGEN	WALL SURFACE	12WATT, 12-VOLT, TWIN HALOGEN, REMOTE ADJUSTABLE WALL LIGHTING HEADS, CLASS 1 DIVISION 1 UL LISTING	LITHONIA ELA-ZX-H1212-WM	EMERGI-LITE 12-EFEP2-C-HG-GXP	CROUSE HINDS EVL12

- NOTES:**
1. PROVIDE EMERGENCY BATTERY UNIT RATED FOR 90 MINUTES WITH A 1400 LUMEN OUTPUT.
 2. FURNISH WITH ARROWS AND PROVIDE APPROPRIATE MOUNTING HARDWARE AS INDICATED ON THE DRAWING.

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone WTP #1635 ELECTRICAL AS-BUILT EFIXT001.DWG Saved by: GETREULT On: 13-Dec-12 3:06 PM

CONFORMED




GRIFFIN ELECTRIC
116 Hopping Brook Road Holliston, Massachusetts 01746
508/426-8880 Fax: 508/426-7925
ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EFIXT001
DESIGNED BY: J.DONALDSON
DRAWN BY: J.DONALDSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010



CDM
Camp Dresser & McKee Inc.
One Cambridge Place, 50 Hampshire Street
Cambridge, MA 02139
Tel: (617) 452-6000 consulting • engineering • construction • operations

UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

**ELECTRICAL
LIGHTING FIXTURE SCHEDULE**

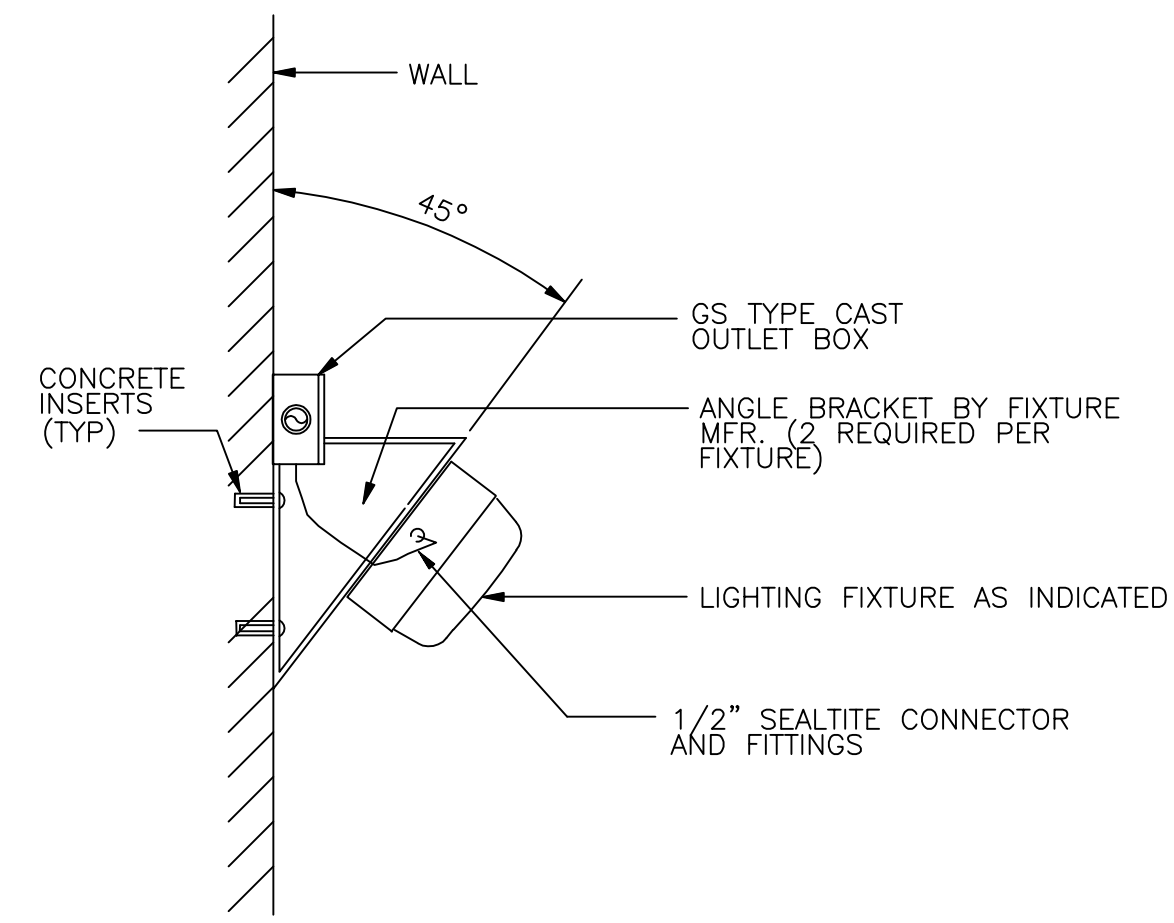
PROJECT NO.
1289-74283

Sht. 309 of 312

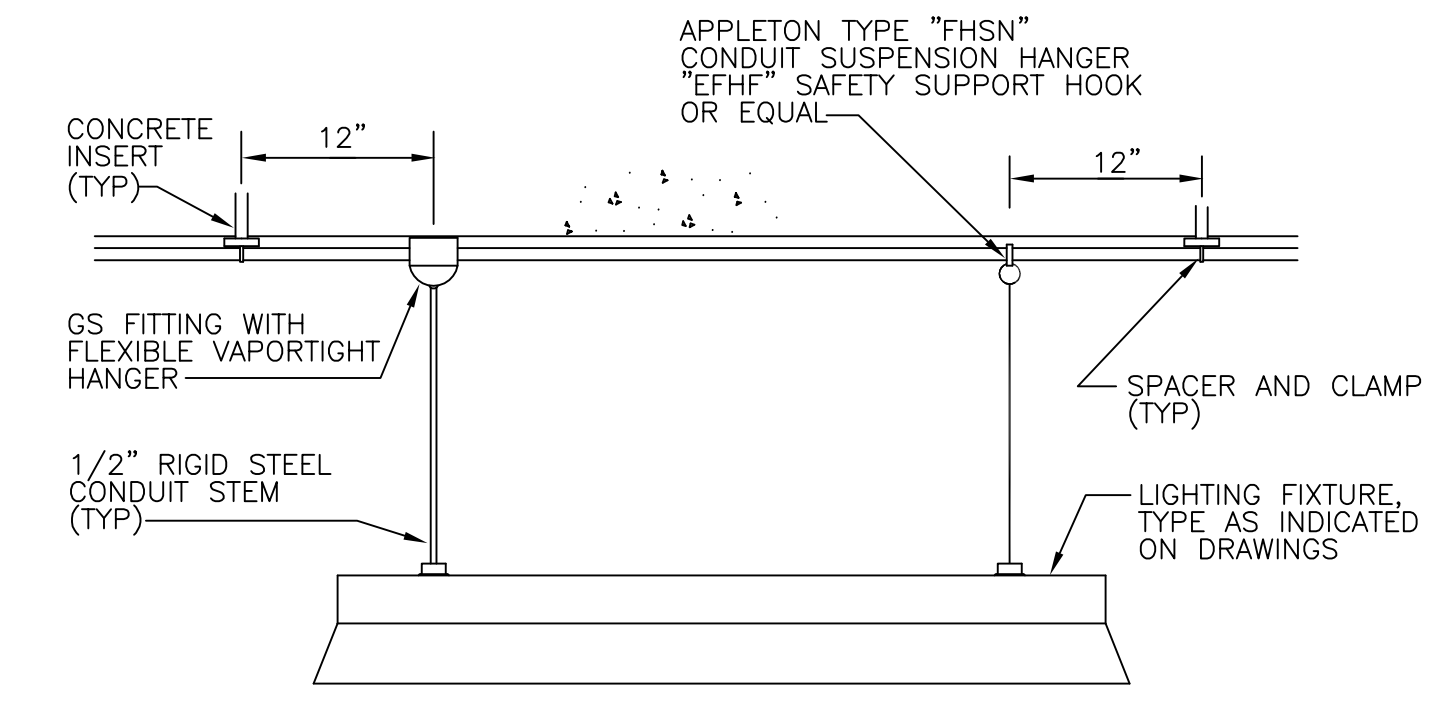
SD-E-1

Acc # 1289-74715

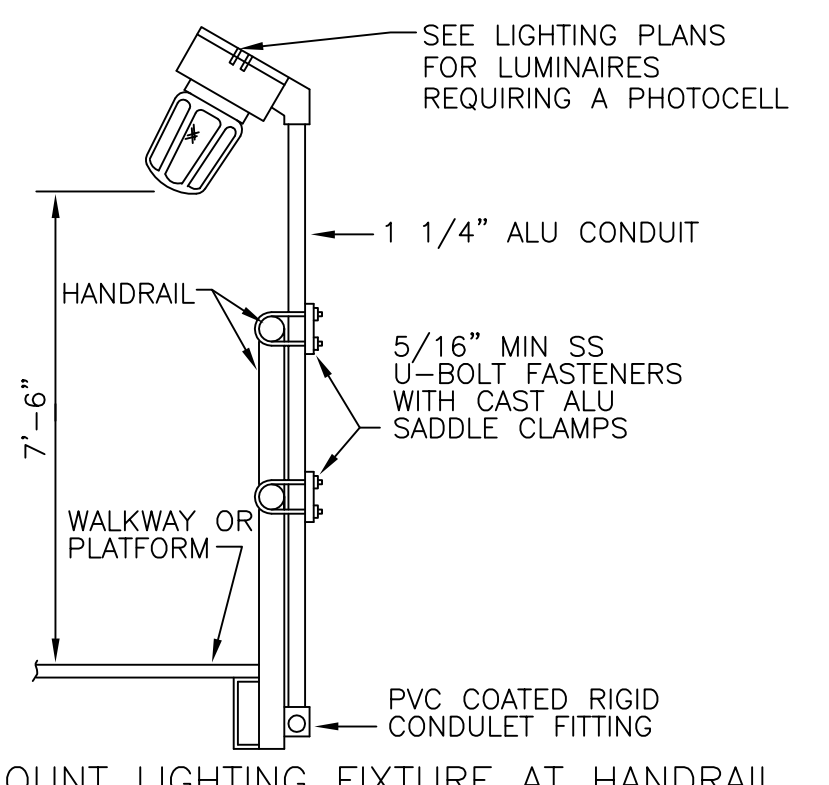
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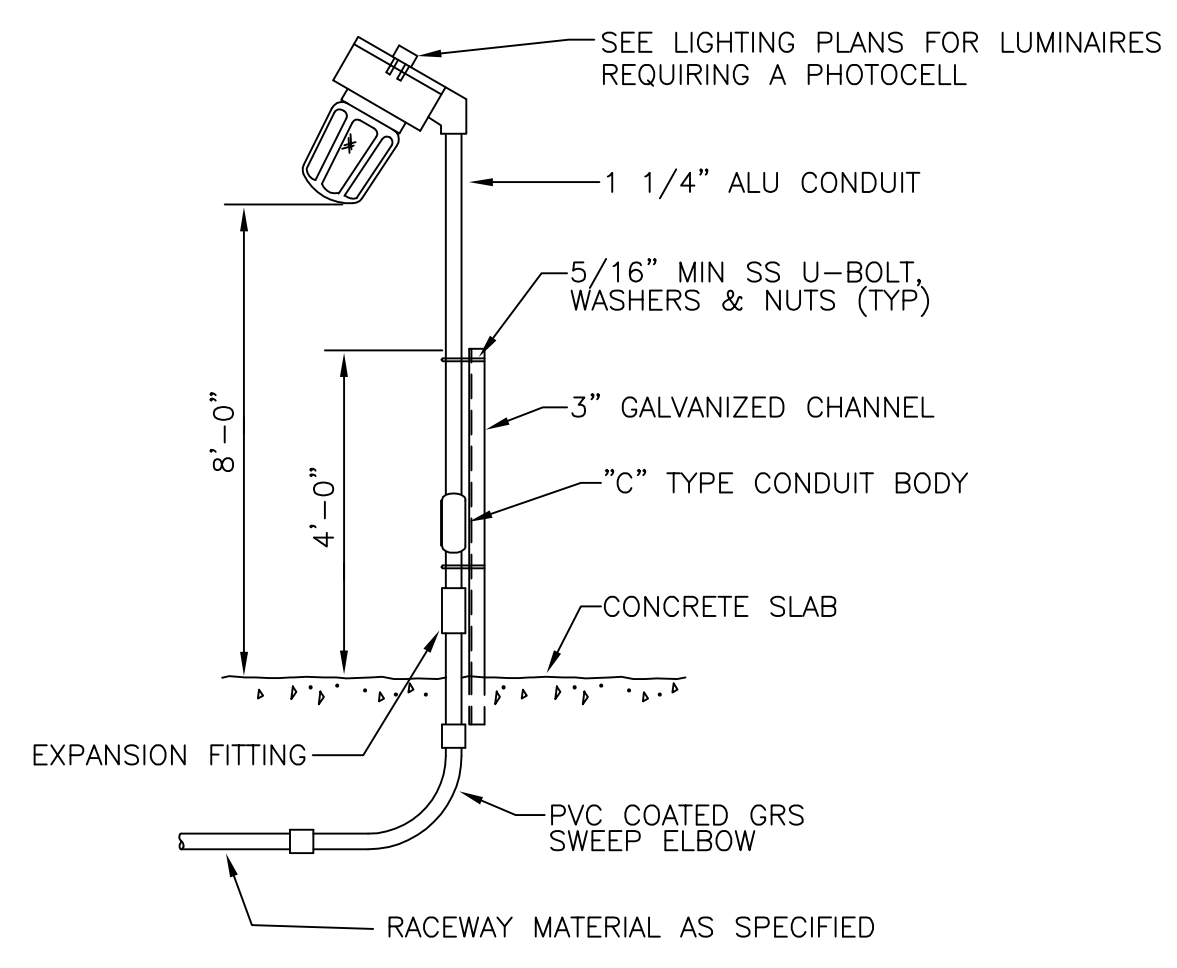
FIXTURE MOUNTING DETAIL
DETAIL A
 NTS



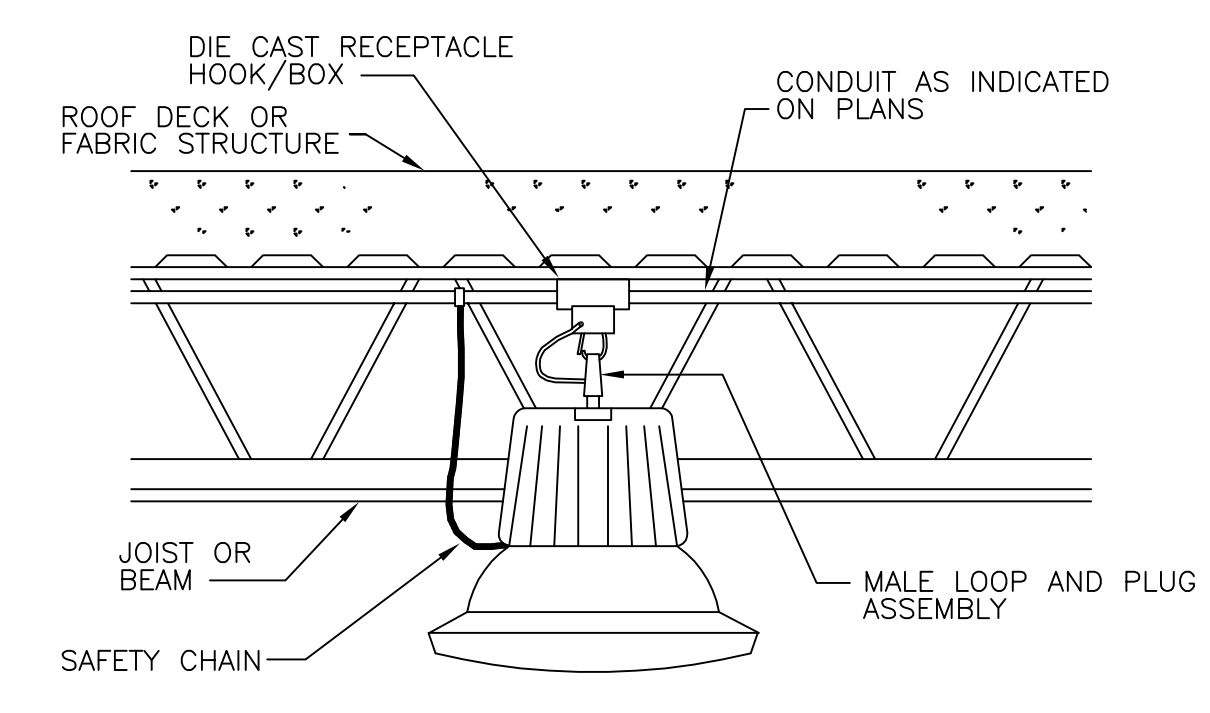
PENDANT MOUNTED LIGHTING FIXTURE
DETAIL B
 NTS



STANCHION MOUNT LIGHTING FIXTURE AT HANDRAIL
 (AERATION AND FINAL SETTLING TANK AREA)
DETAIL C
 NTS



STANCHION MOUNT LIGHTING FIXTURE
DETAIL D
 N.T.S.



FIXTURE MOUNTING
DETAIL E
 NTS

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDTL001
 DESIGNED BY: T.DISILVA
 DRAWN BY: R.GIBSON
 SHEET CHK'D BY: T.DISILVA
 CROSS CHK'D BY: M.KOSTUR
 SCALE: AS NOTED
 APPROVED BY: J.ROMEO
 DATE: SEPTEMBER 2010

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 Camp Dresser & McKee Inc.
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UPPER BLACKSTONE
 WATER POLLUTION ABATEMENT DISTRICT
 CONTRACT No. 3-0-17512-0033
 PROJECT No. CWSRF - 3197

 WASTEWATER TREATMENT FACILITY
 IMPROVEMENTS - PHASE III

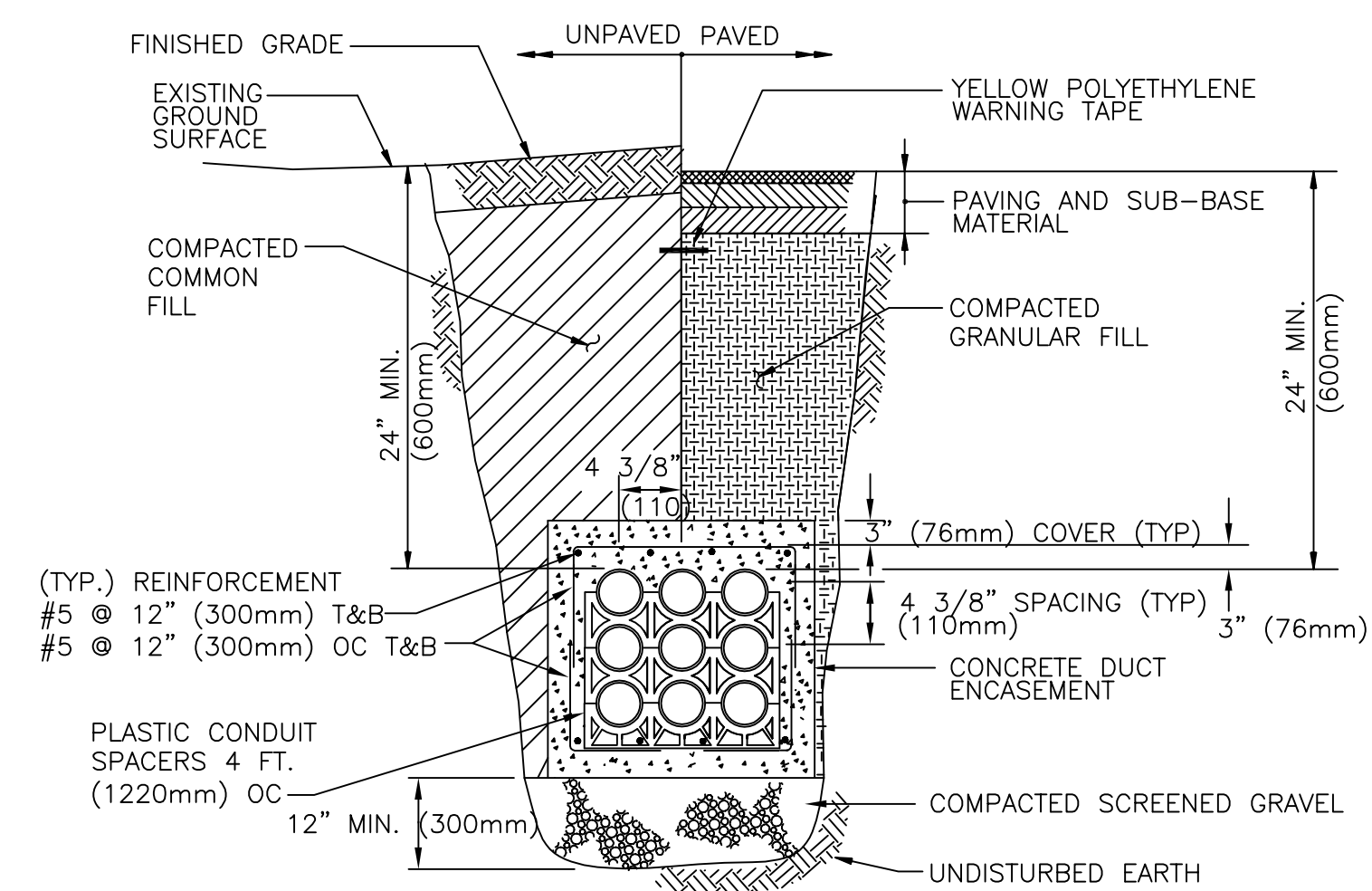
ELECTRICAL DETAILS I

GRIFIN ELECTRIC
 116 Hopping Brook Road, Shelton, Massachusetts 01768
 508/429-8800 Fax: 508/429-7825
 ELECTRICAL AS-BUILT DRAWING
 DECEMBER 13, 2012

REVISIONS	DATE

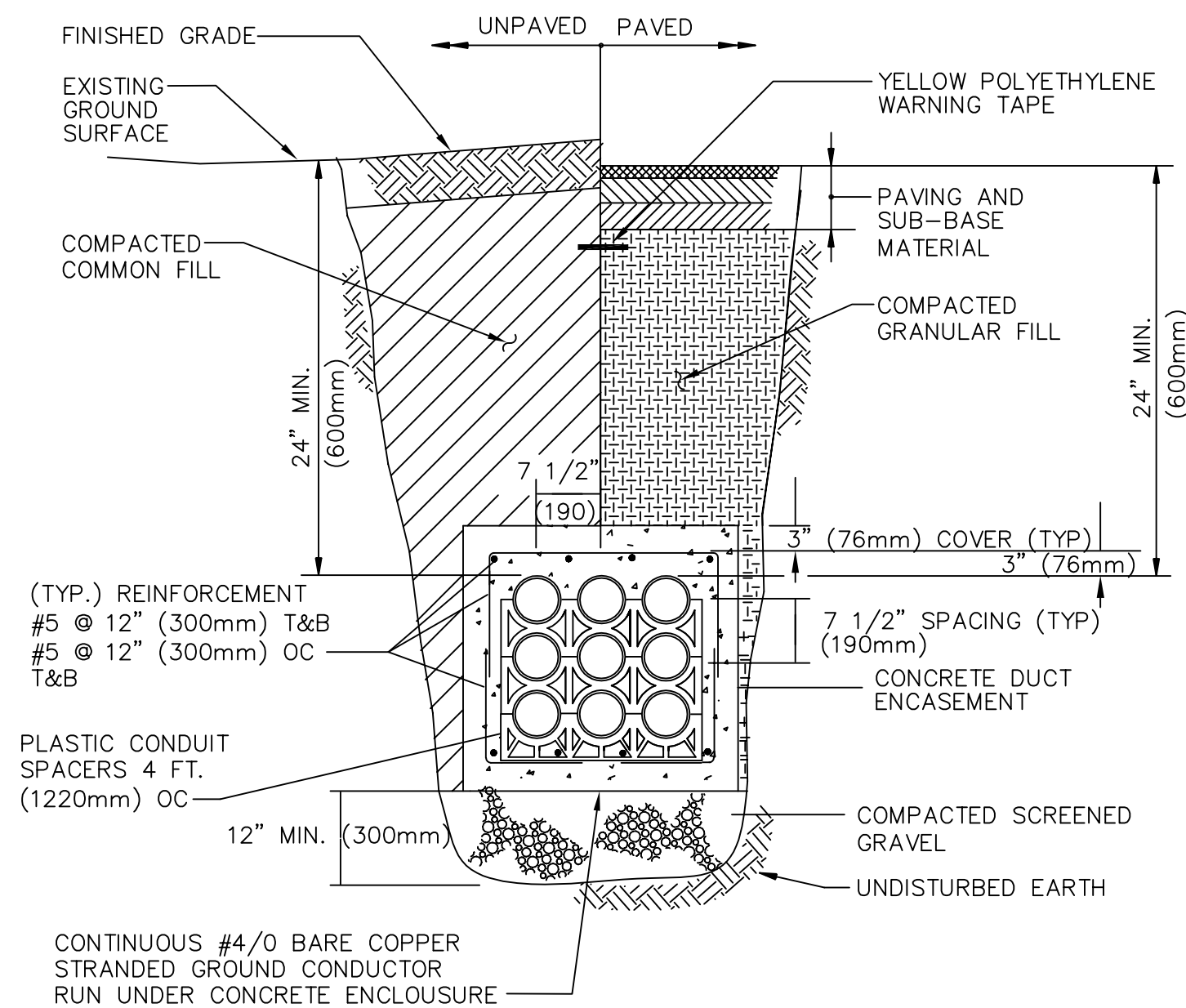
PROJECT NO.
 1289-74283
 Sht. 310 of 312
 SD-E-2
 Acc # 1289-74716

Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAMAR\UPPER BLACKSTONE WWTTP #1635\ELECTRICAL AS-BUILT\EDTEL002.DWG Saved by: GJTRENT on: 13-Dec-12 1:43 PM



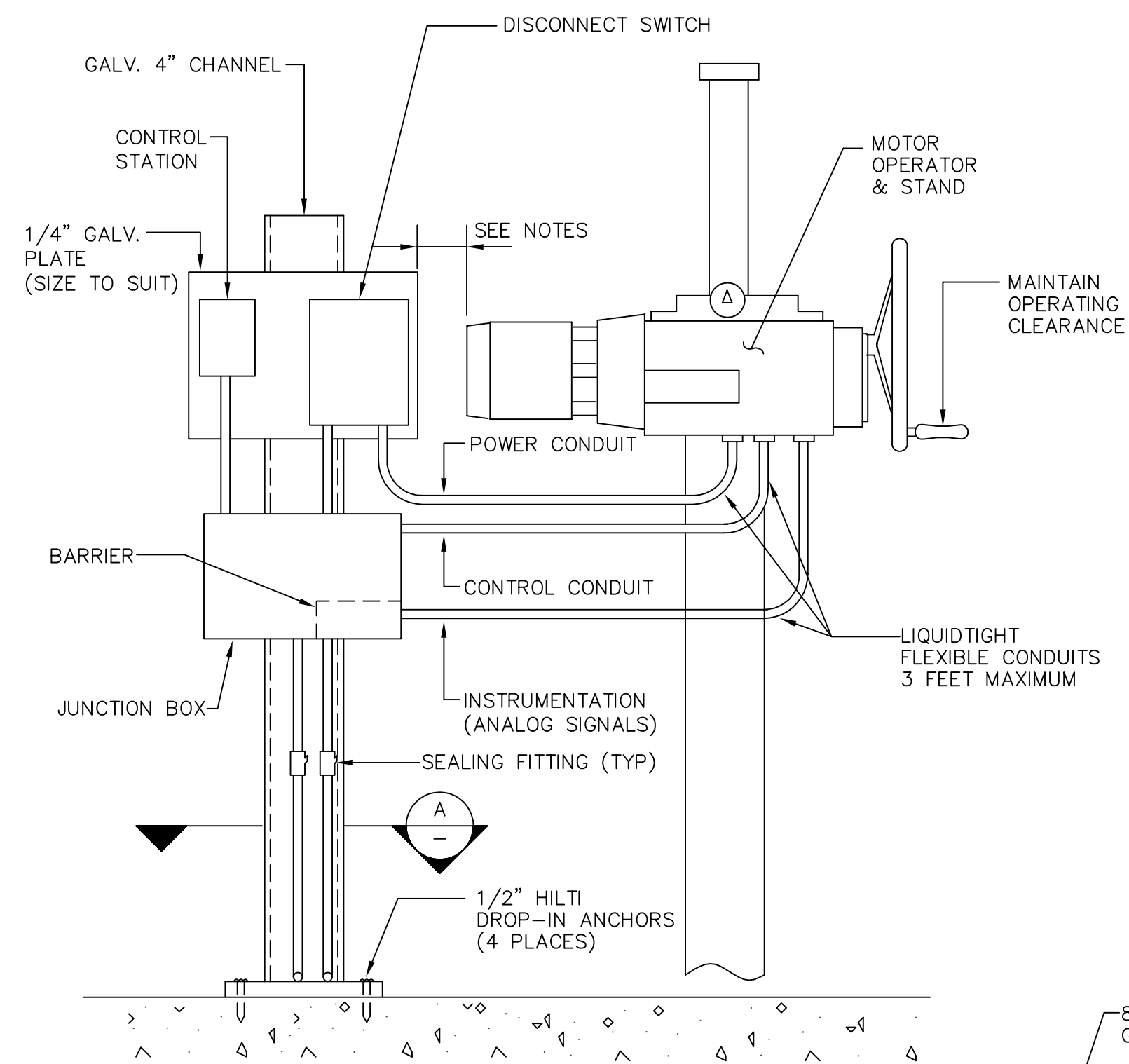
UNDERGROUND SIGNAL DUCT BANK

DETAIL A
NTS



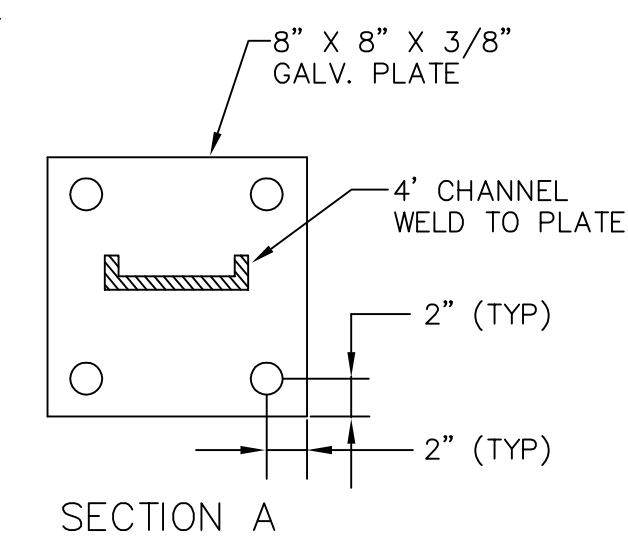
UNDERGROUND POWER DUCT BANK

DETAIL B
NTS



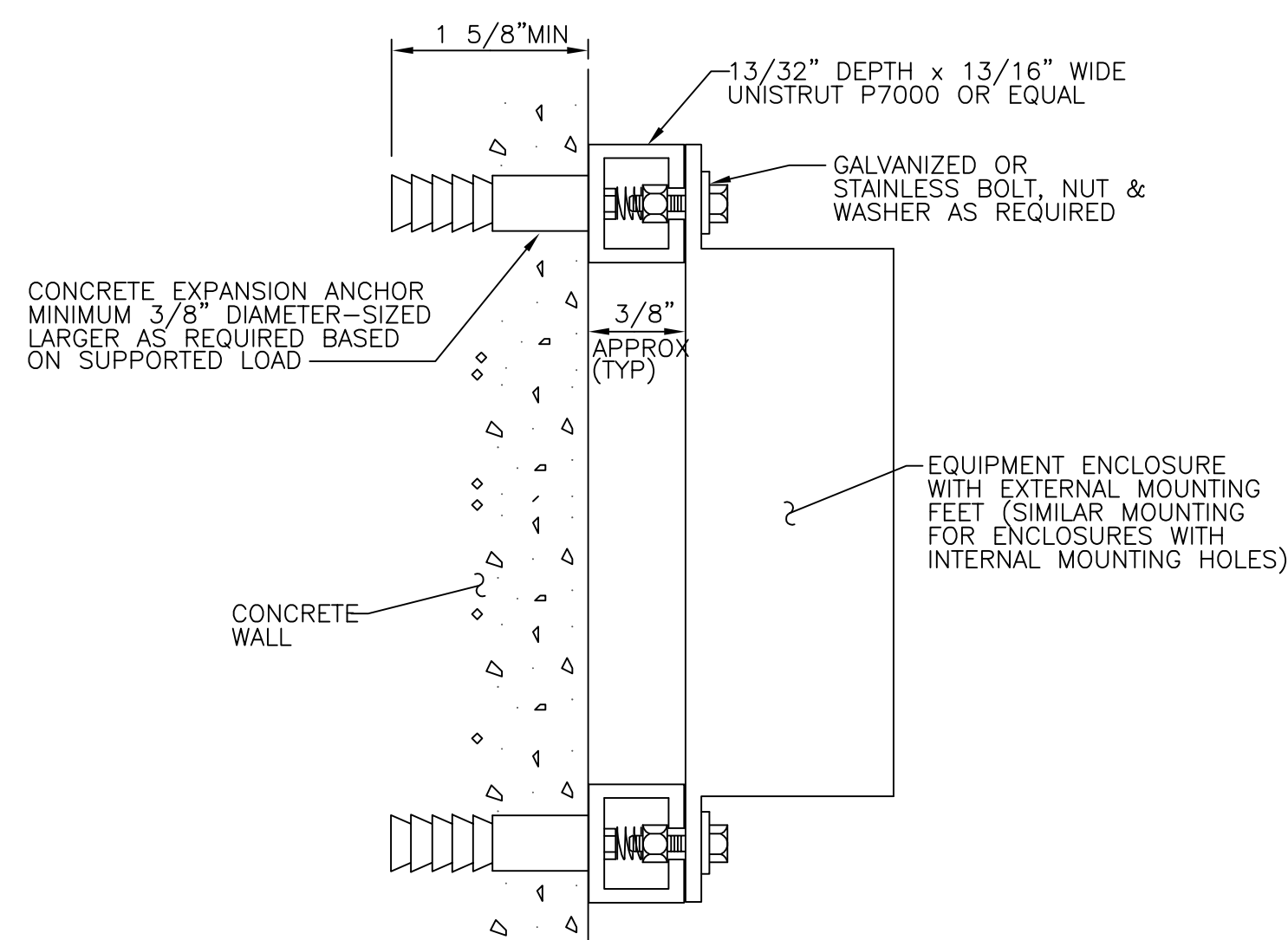
MOTOR OPERATED ACTUATOR CONNECTION

DETAIL C
NTS



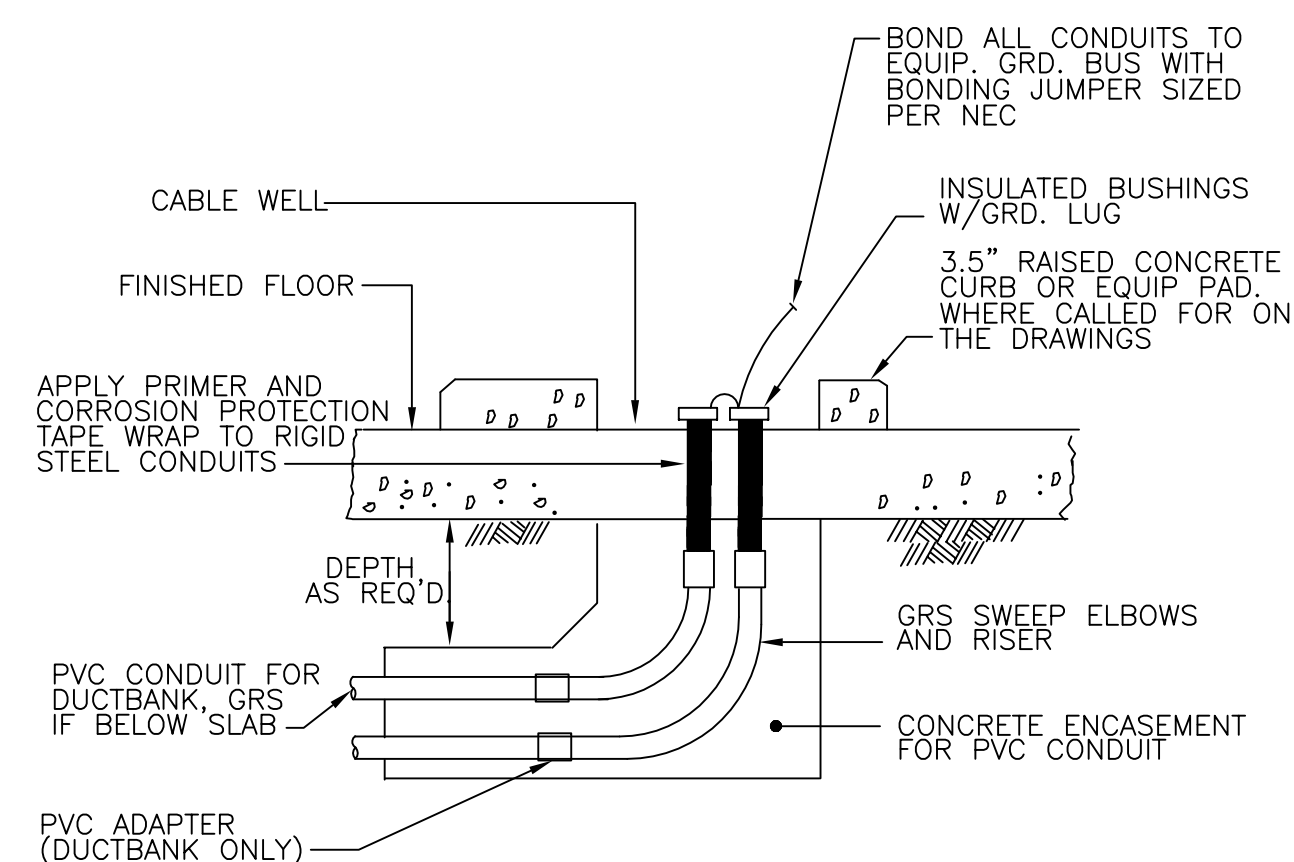
SECTION A

NOTE:
ORIENT MOTOR OPERATOR AND CONTROL STATION STAND AS REQUIRED TO:
- ALLOW MAINTENANCE CLEARANCE TO MOTOR OPERATOR
- ALLOW ACCESS TO HAND WHEEL



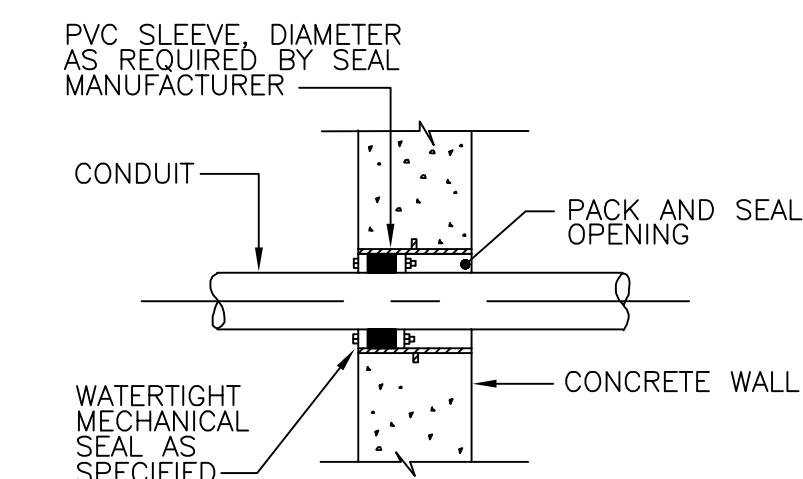
EQUIPMENT ENCLOSURE MOUNTING ON CONCRETE WALL

DETAIL D
NTS



TYPICAL CONDUIT STUB-UP FROM BELOW FLOOR SLAB

DETAIL E
NTS



WATERTIGHT CONDUIT PENETRATION

DETAIL F
NTS

CONFORMED

GRIFIN ELECTRIC
114 Hopping Brook Road Scituate, Massachusetts 01756
508/459-8800 Fax: 508/459-7800

ELECTRICAL AS-BUILT DRAWING
DECEMBER 13, 2012

REVISIONS	DATE

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO. EDTEL002
DESIGNED BY: T.DISILVA
DRAWN BY: R.GIBSON
SHEET CHK'D BY: T.DISILVA
CROSS CHK'D BY: M.KOSTUR
SCALE: AS NOTED
APPROVED BY: J.ROMEO
DATE: SEPTEMBER 2010

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UPPER BLACKSTONE
WATER POLLUTION ABATEMENT DISTRICT
CONTRACT No. 3-0-17512-0033
PROJECT No. CWSRF - 3197

**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

ELECTRICAL DETAILS II

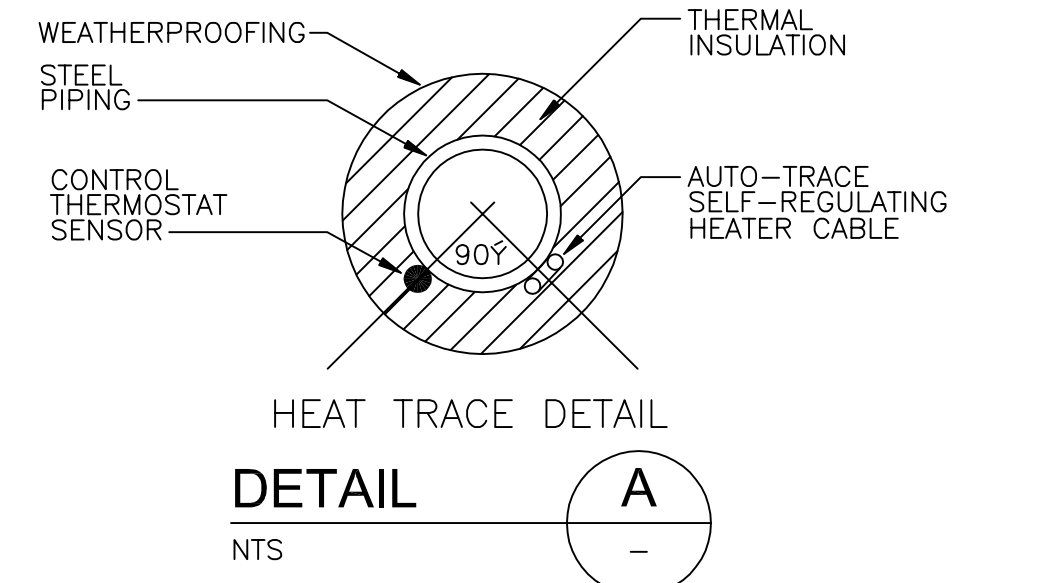
PROJECT NO.
1289-74283

Sht. 311 of 312

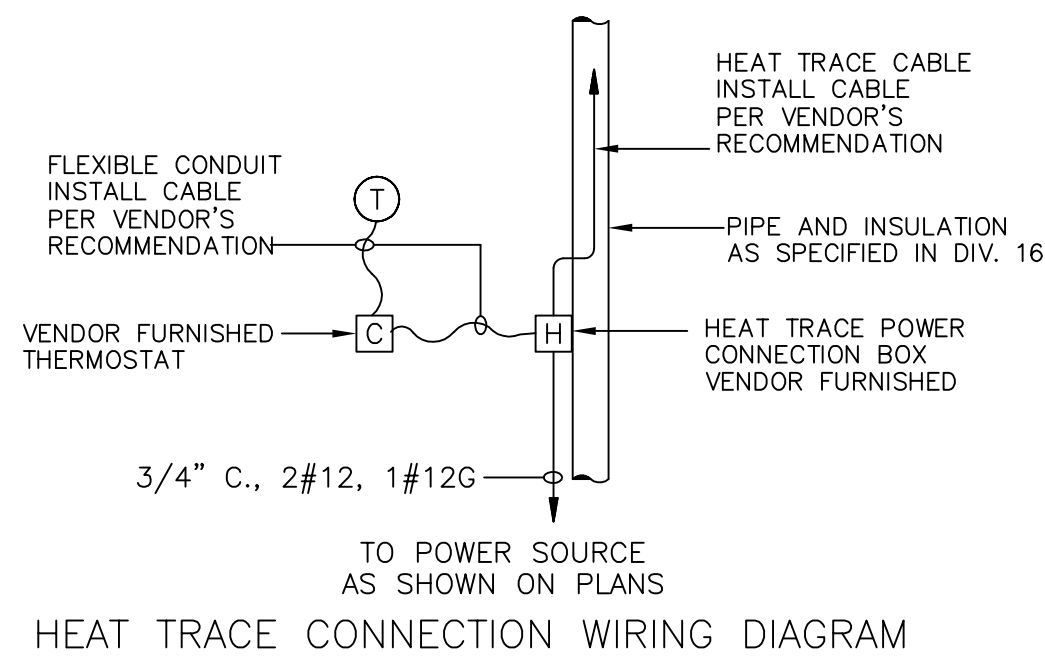
SD-E-3

Acc # 1289-74717

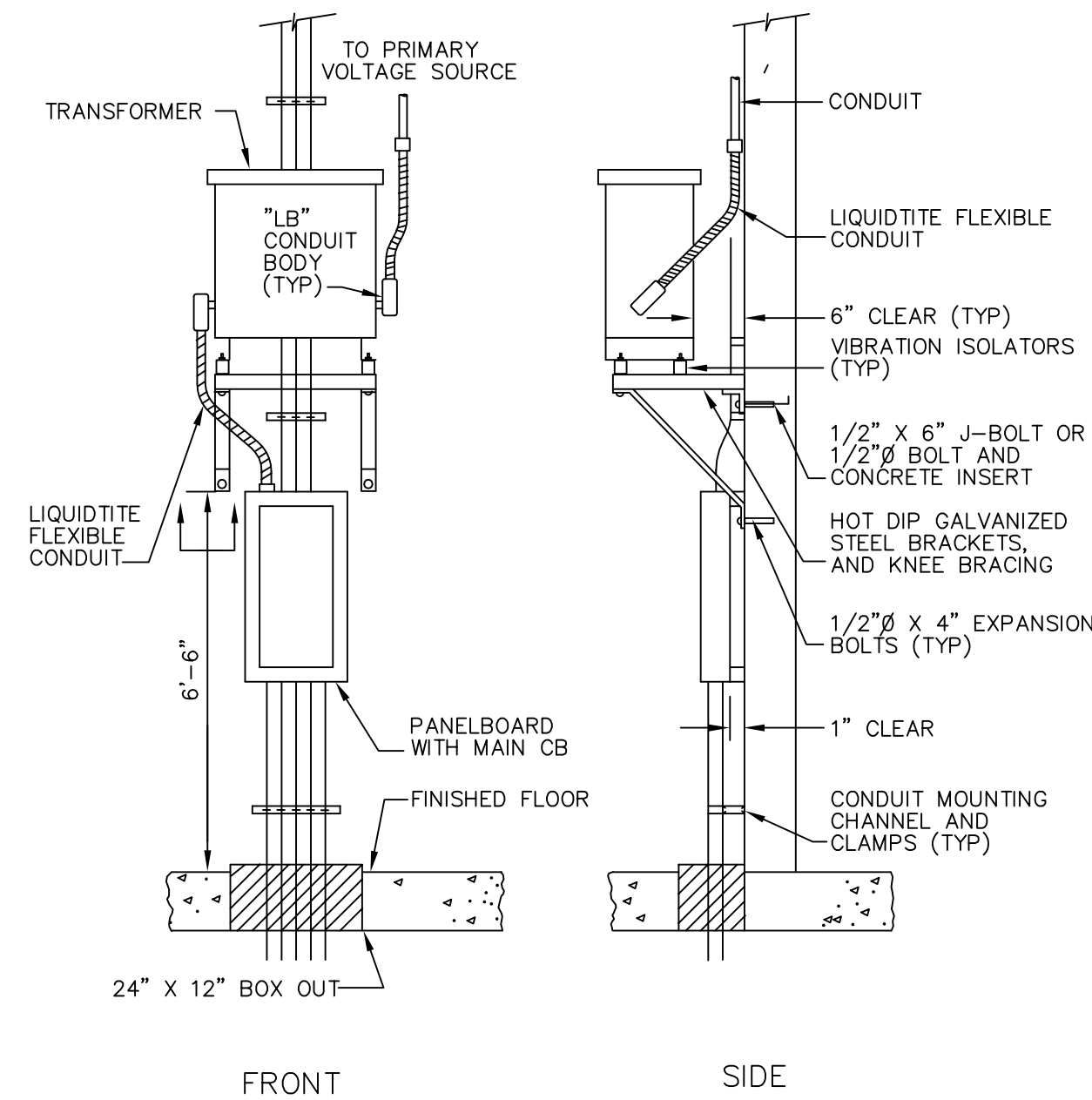
Plot Stamp - ProjectWise Project: 1289-74283 Upper Blackstone P-III File: I:\MARC MCNAIR\UPPER BLACKSTONE WWP #1635\ELECTRICAL AS-BUILT\EDTEL003.DWG Saved by: GETREAU on: 13-Feb-12 Plotted on: 13-Dec-12 1:44 PM



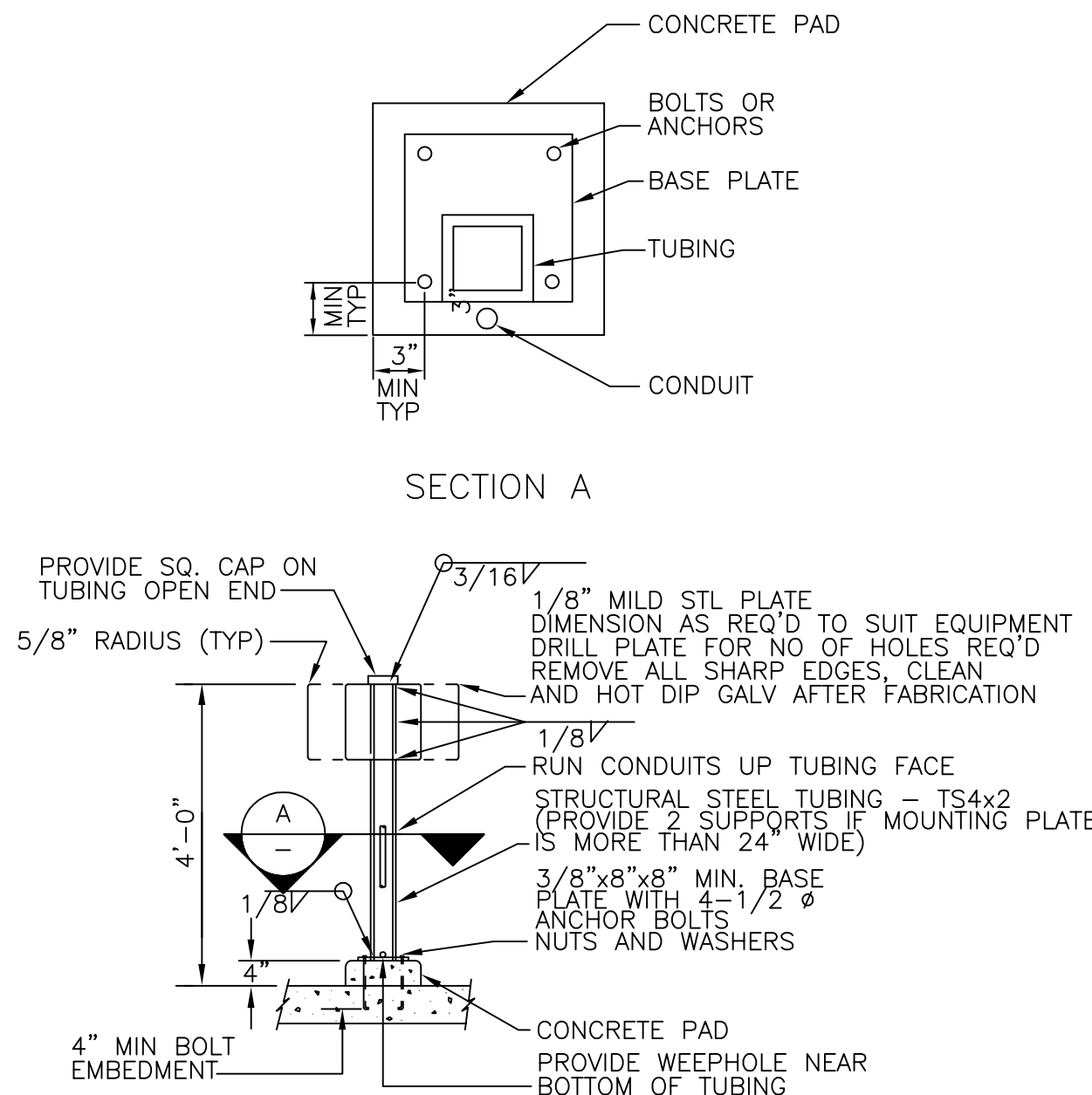
HEAT TRACE DETAIL
DETAIL A
NTS



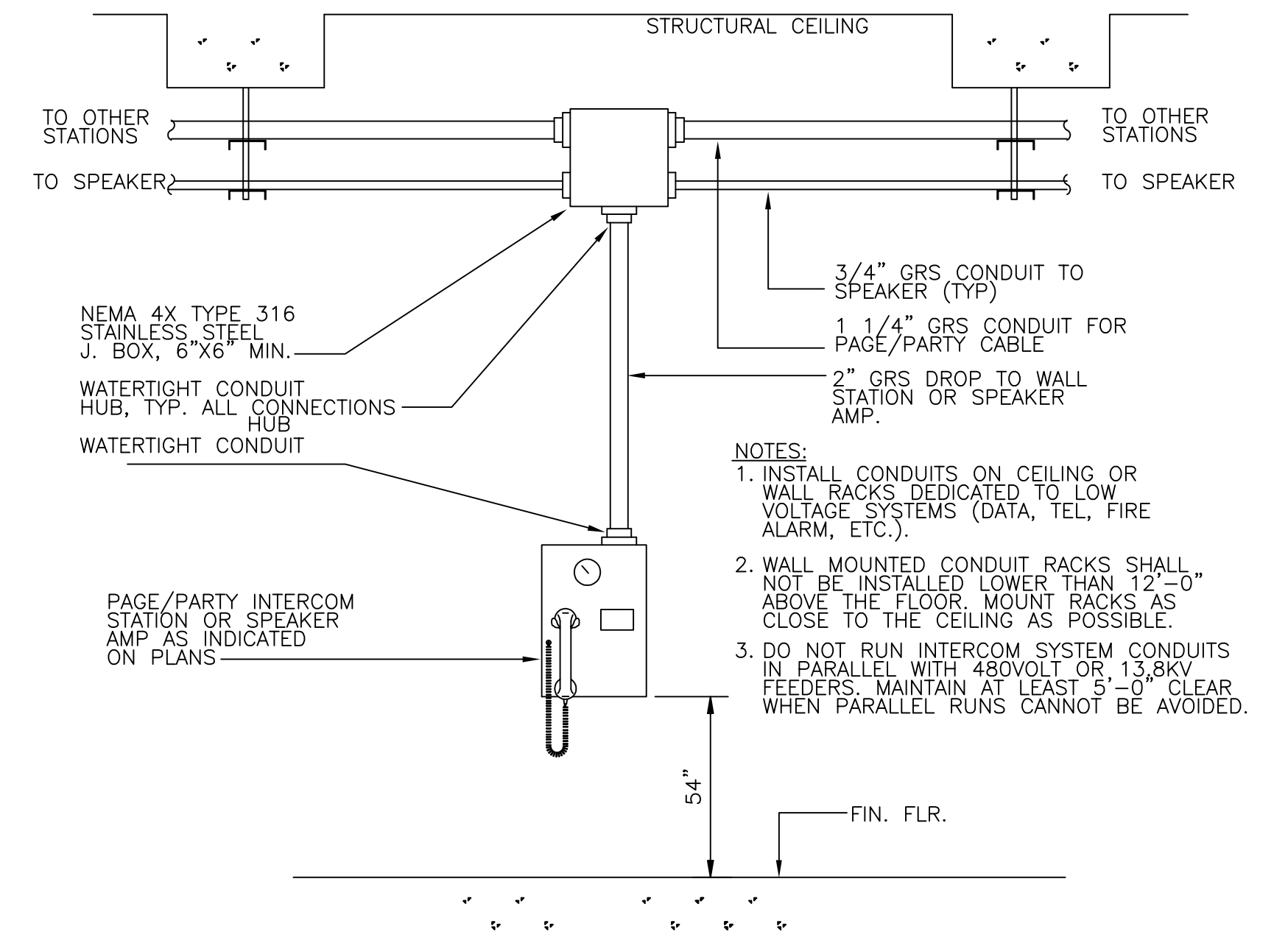
HEAT TRACE CONNECTION WIRING DIAGRAM
DETAIL B
NTS



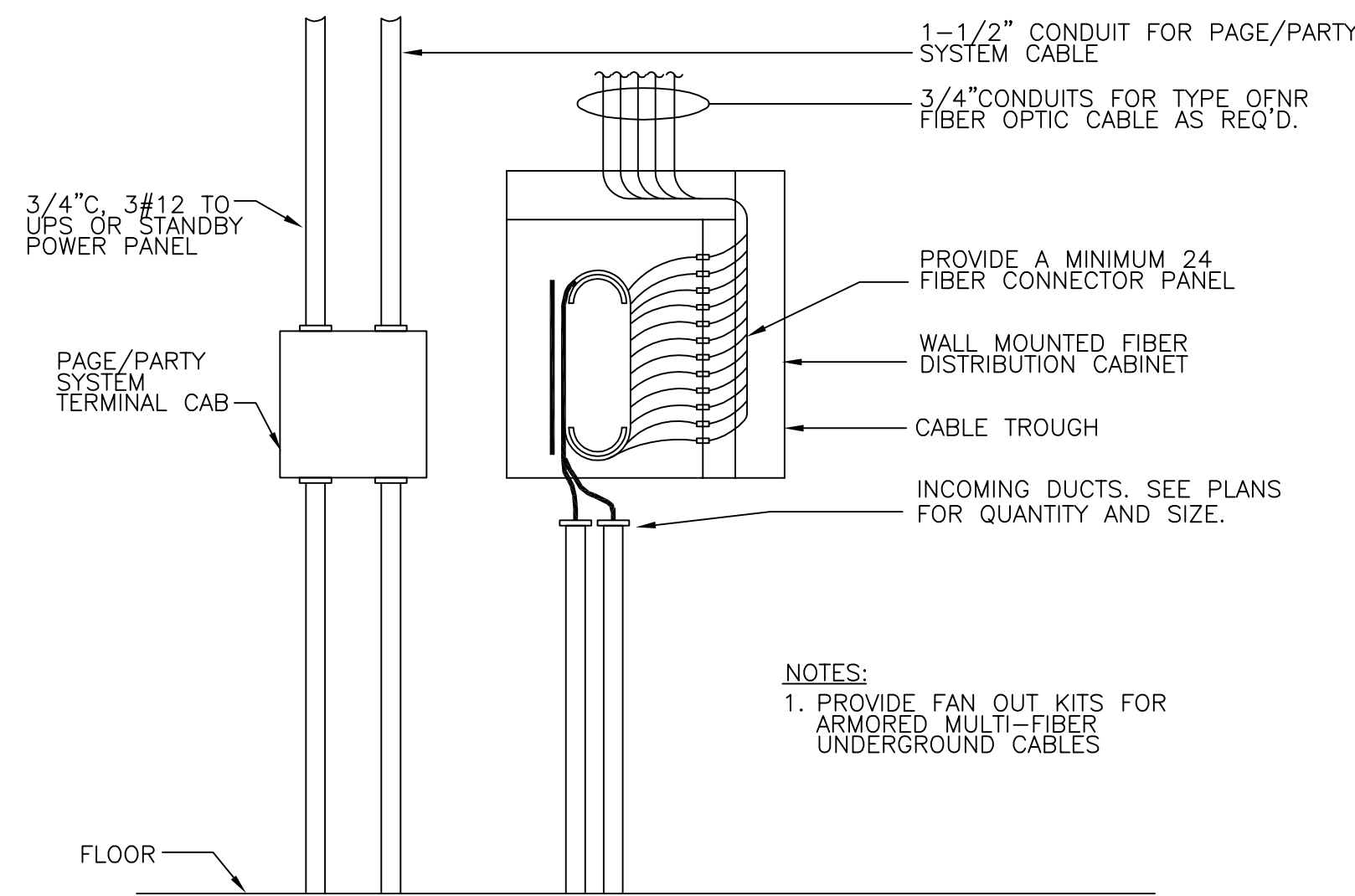
LIGHTING PANEL AND TRANSFORMER INSTALLATION
DETAIL C
NTS



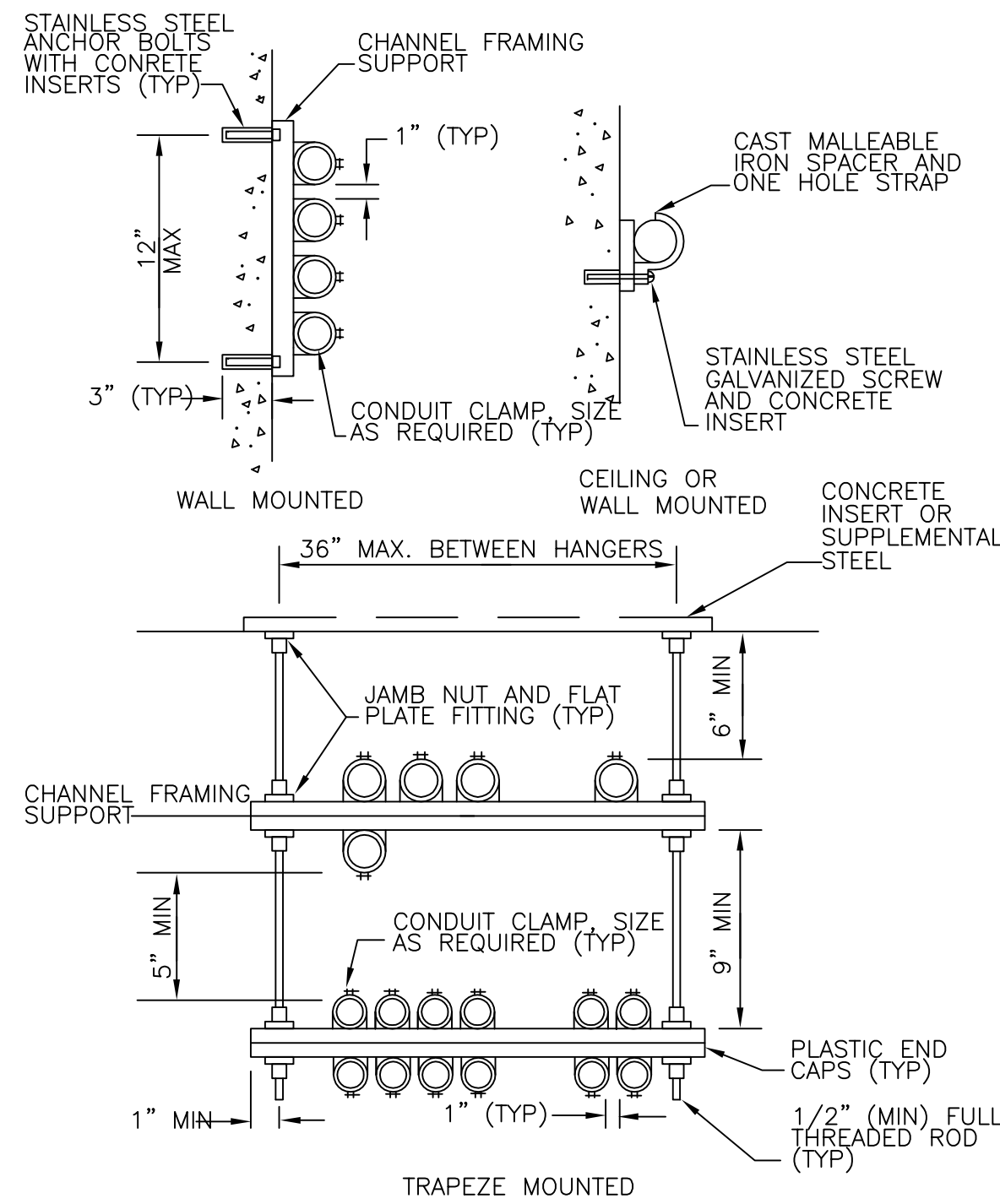
CONTROL STATION MOUNTING STAND
DETAIL D
NTS



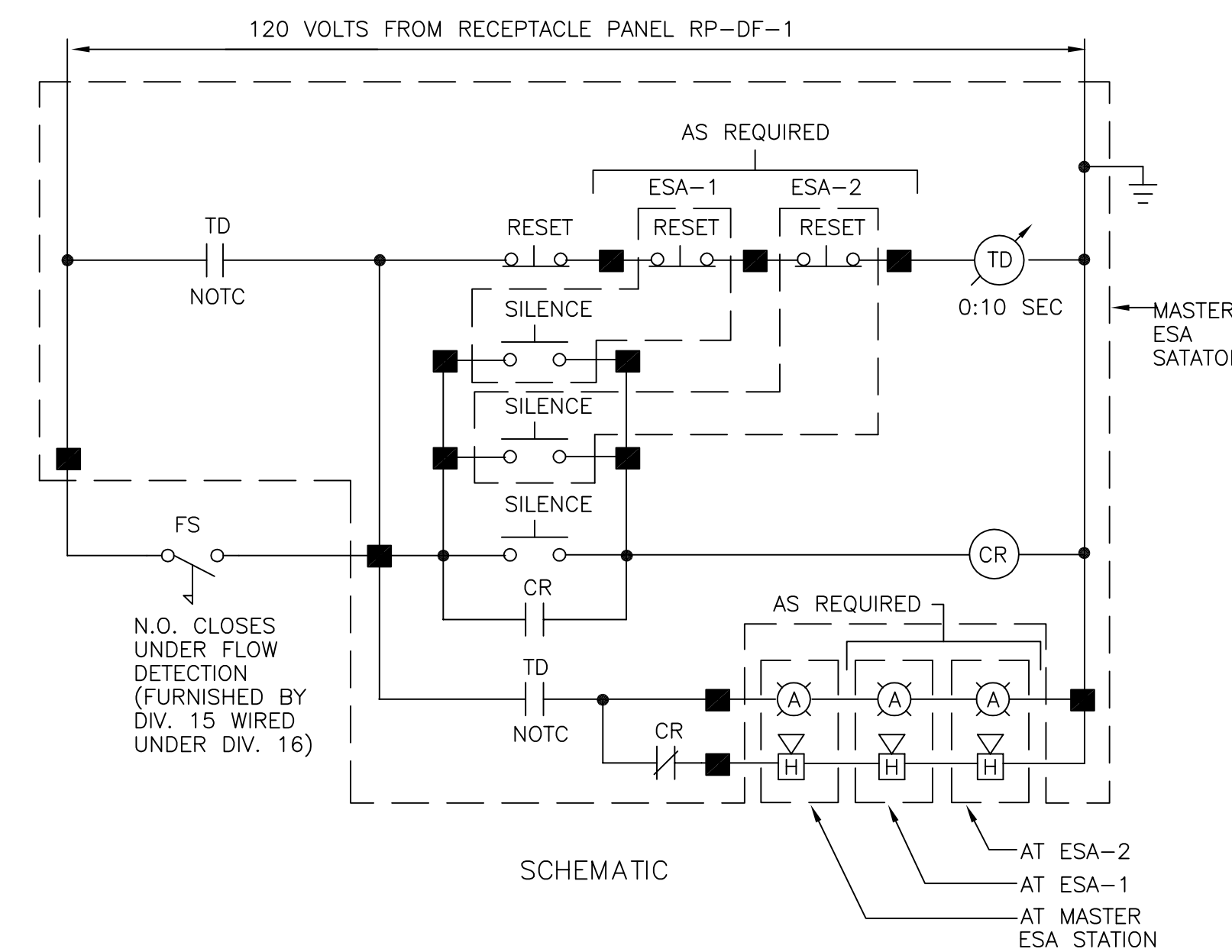
TYPICAL INSTALLATION DETAIL
DETAIL E
SCALE



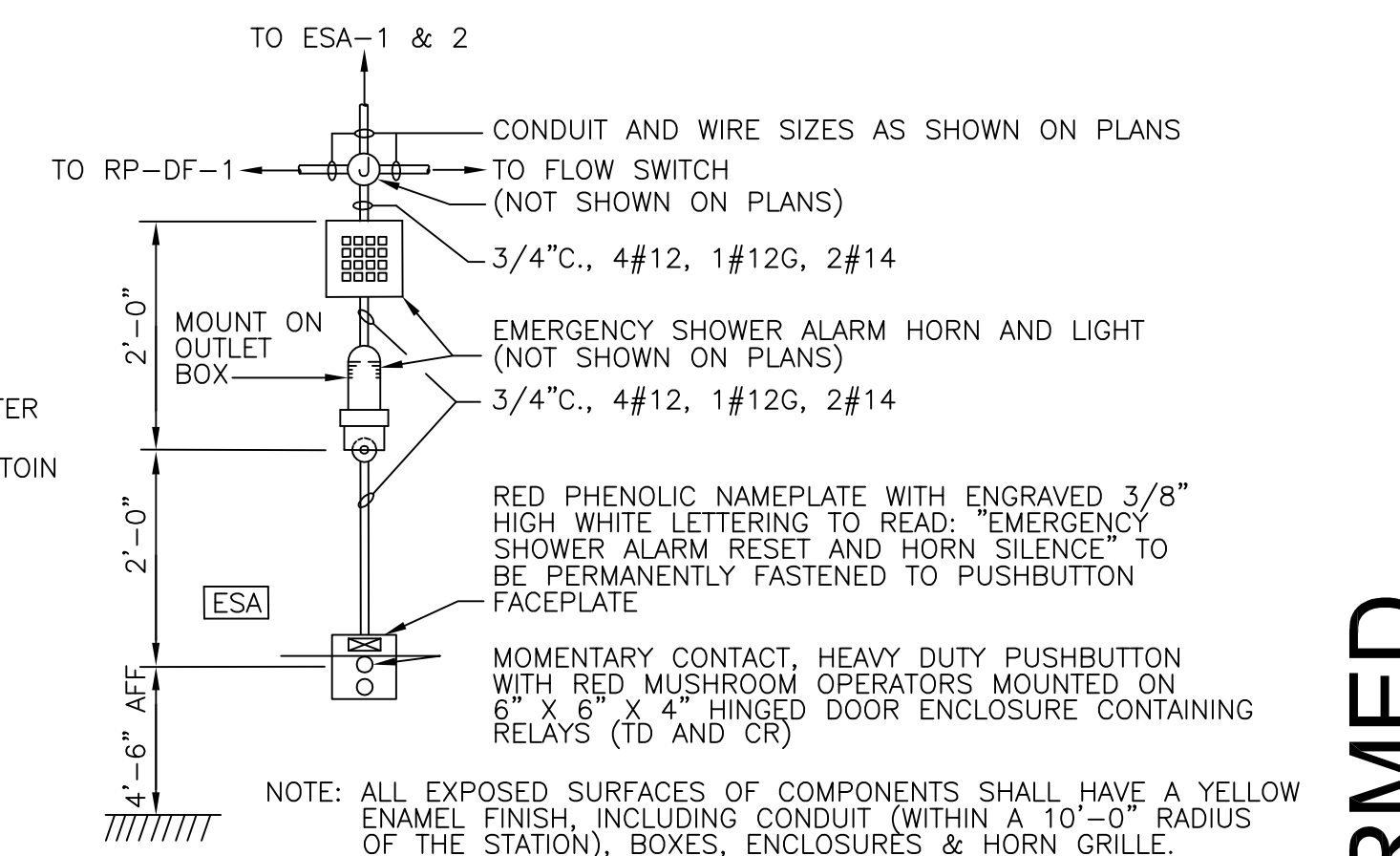
TYPICAL FIBER OPTIC DISTRIBUTION (PATCH PANEL) CABINET
DETAIL F
NTS



CONDUIT MOUNTING
DETAIL G
NTS



EMERGENCY SHOWER ALARM (ESA) STATION DETAIL
DETAIL H
NTS



MASTER STATION ASSEMBLY DETAIL
(ESA-1 AND ESA-2 ARE SIMILAR EXCEPT RELAYS ARE NOT REQUIRED. REFER TO PLANS FOR INTERCONNECTING WIRING.)

CONFORMED

REV. NO.	DATE	DRWN	CHKD	REMARKS

CADD FILE NO.	EDEL003
DESIGNED BY:	T.DISILVA
DRAWN BY:	R.GIBSON
SHEET CHK'D BY:	T.DISILVA
CROSS CHK'D BY:	M.KOSTUR
SCALE:	AS NOTED
APPROVED BY:	J.ROMEO
DATE:	SEPTEMBER 2010

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**WASTEWATER TREATMENT FACILITY
IMPROVEMENTS - PHASE III**

ELECTRICAL DETAILS III

PROJECT NO. 1289-74283
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SD-E-4
Acc # 1289-74718

GRiffin ELECTRIC
116 Hoppy Brook Road Holliston, Massachusetts 01746
508/420-8800 Fax: 508/420-7925
ELECTRICAL AS-BUILT DRAWING
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