

ABBREVIATIONS

AB - ANCHOR BOLT	E. - EAST	NTS - NOT TO SCALE
ADD'L. - ADDITIONAL	EMBD. - EMBEDDED	OC - ON CENTER
ADJ. - ADJUSTABLE	EW - EACH WAY	OD - OUTSIDE DIAMETER
AFF - ABOVE FINISHED FLOOR	EQ. - EQUAL	OH. - OVERHEAD
ALT. - ALTERNATE	EXIST. - EXISTING	OPNG. - OPENING
ALUM. - ALUMINUM	EXP. - EXPANSION	OPP. - OPPOSITE
AND - &	EXT. - EXTERIOR	PL. - PLATE
ARCH. - ARCHITECT OR ARCHITECTURAL	FDN. - FOUNDATION	PC - PRECAST
ASTM - AMERICAN SOCIETY FOR TESTING MATERIALS	FE - FIRE EXTINGUISHER	PSF - POUNDS PER SQUARE FOOT
● - AT	FIN. - FINISH	R. - RISER
BSMT. - BASEMENT	FL. - FINISH LINE	REINF. - REINFORCING
BITUM. - BITUMINOUS	FLR. - FLOOR	REQ'D. - REQUIRED
B/ - BOTTOM OF	FRP - FIBERGLASS REINFORCED PLASTIC	REQ'MTS- REQUIREMENTS
BOT. - BOTTOM	FF - FAR FACE	RM. - ROOM
BLDG. - BUILDING	FTG. - FOOTING	RO - ROUGH OPENING
BLK. - BLOCK	FT. - FOOT	S. - SOUTH
BM - BEAM	GA. - GAGE	SCHED. - SCHEDULE
B PL - BASE PLATE	GALV. - GALVANIZED	SECT. - SECTION
BRG. - BEARING	GR. - GRADE	SF - SQUARE FEET
BUR - BUILT-UP ROOF	GRD. - GROUND	SHT. - SHEET
C/C - CENTER TO CENTER	GYP BD- GYPSUM BOARD	SIM. - SIMILAR
CJ - CENTER JOINT	HORIZ. - HORIZONTAL	SJ - STEEL JOIST
⊕ - CENTERLINE	HP - HIGH POINT	SLBB - SHORT LEG BACK-TO-BACK
CLR. - CLEAR	HR. - HANDRAIL	SLV - SHORT LEG VERTICAL
CMU - CONCRETE MASONRY UNIT	HT. - HEIGHT	SPA. - SPACES OR SPACING
COL. - COLUMN	ID - INSIDE DIAMETER	SPRD. - SPREAD
CTR. - CENTER	IF - INSIDE FACE	ST STL - STAINLESS STEEL
CONC. - CONCRETE	INT. - INTERIOR	STA. - STATION
CONST. - CONSTRUCTION	INV. - INVERT	STD. - STANDARD
CONT. - CONTINUOUS	INSUL. - INSULATION	STL. - STEEL
DEPR. - DEPRESSION	JT. - JOINT	STR. - STRUCTURAL
DET. - DETAIL	K. - KIP (1000 POUNDS)	SUP. - SUPPORT
DI - DUCTILE IRON	LB. - POUNDS	SYM. - SYMMETRICAL
DIA. - DIAMETER	LL - LIVE LOAD	T. - TREAD
DIM. - DIMENSION	LLBB - LONG LEG BACK-TO-BACK	T/ - TOP OF
DL - DEAD LOAD	LG. - LONG	T&B - TOP AND BOTTOM
DIST. - DISTANCE	LLH - LONG LEG HORIZONTAL	TEMP. - TEMPORARY
DWG. - DRAWING	LLV - LONG LEG VERTICAL	THK. - THICK
DWL. - DWEL	LONG. - LONGITUDINAL	TOM - TOP OF MASONRY
EA. - EACH	LP - LOW POINT	TOS - TOP OF STEEL
EE - EACH END	LW - LIGHT WEIGHT	TYP. - TYPICAL
EF - EACH FACE	MFG. - MANUFACTURER	UON - UNLESS OTHERWISE NOTED
EJ - EXPANSION JOINT	MAS. - MASONRY	VERT. - VERTICAL
EL. - ELEVATION	MAX. - MAXIMUM	W/ - WITH
ELEC. - ELECTRICAL	MIN. - MINIMUM	W/O - WITHOUT
	MK. - MARK	WP - WORK POINT
	MO - MASONRY OPENING	WT. - WEIGHT
	NA - NOT APPLICABLE	
	N. - NORTH	

GENERAL NOTES:

- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS PART OF A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECT. THEREFORE NOT ALL THE LEGENDS CONTAINED IN THE LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
- ITEMS NOTED ON THE DRAWINGS SHALL BE CONSIDERED THE SAME AS NOTED ITEMS WHICH ARE GRAPHICALLY REPRESENTED IN THE SAME MANNER.
- BUILDING TO COMPLY WITH STATE AND LOCAL BUILDING CODES.
- CONTRACTOR TO COORDINATE ALL MECHANICAL, ELECTRICAL, ETC. OPENINGS.
- FOR CONCRETE AND STEEL SIZES SEE STRUCTURAL DRAWINGS.
- DIMENSIONS ARE NOMINAL. CONTRACTOR TO COORDINATE ACTUAL DIMENSIONS.
- SEE HVAC AND PLUMBING DRAWINGS FOR ADDITIONAL NOTES.
- FOR PAINTING SYSTEM REQUIREMENTS REFER TO SPECIFICATION SECTION 09900.
- (*) INDICATES FIELD VERIFY.

**BUILDING CODE SUMMARY
DEWATERING FACILITY**

THE FOLLOWING CODE SUMMARY IS BASED ON THE 2007 OHIO BUILDING CODE.

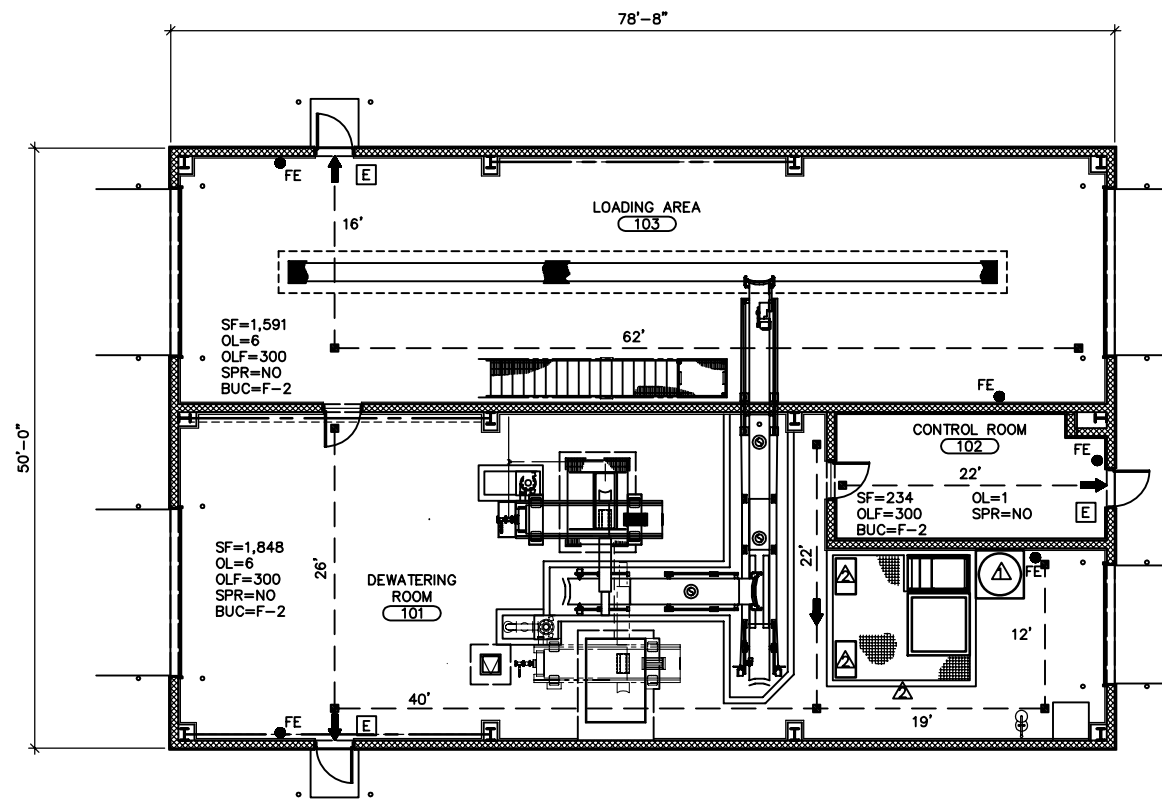
- PROJECTS DESCRIPTION
FLOOR AREA:
LOADING AREA - 1,591 SF
DEWATERING ROOM - 1,848 SF
CONTROL ROOM - 234 SF
TOTAL - 3,673 SF
EAVE HEIGHT: 18'-0"
- BUILDING USE CLASSIFICATION : CHAPTER 3
F-2: LOW HAZARD (FACTORY)
- CONSTRUCTION CLASSIFICATION (CHAPTER 6)
CONSTRUCTION TYPE: II-B: NON-COMBUSTABLE MATERIALS
- MEANS OF EGRESS:
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT (TABLE 1016.1)
STORAGE: 300 SF GROSS
DESIGN OCCUPANT LOAD:
FIRST FLOOR 3,673 SF / 300 SF = 13
EXIT ACCESS TRAVEL DISTANCE - WITHOUT SPRINKLERS (TABLE 1016.1) F-2: 300 FT
- ACCESSIBILITY, (CHAPTER 11)
NOT REQUIRED IN EQUIPMENT SPACES (1103.2.9)
- CHAPTER 13, ENERGY EFFICIENCY
THE BUILDING WILL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS ASHRAE 90.1-2004/AS LISTED IN CHAPTER 35 IN 2007 OHIO BUILDING CODE.

CODE COMPLIANCE LEGEND:

- ## → - INDICATES DIRECTION OF EGRESS PATH
IS DISTANCE IN FEET TO EXIT FROM POINT TO POINT OR FROM POINT TO EXIT.
- SF - SQUARE FEET
- OLF - OCCUPANT LOAD FACTOR
- OL - OCCUPANT LOAD
- SPR. - SPRINKLERED
- BUC - BUILDING USE CLASSIFICATION
- E - INDICATES EXIT LOCATION
- FE - FE = 10 lb ABC TYPE FIRE EXTINGUISHER, TO BE MOUNTED WITHIN 75'-0" OF TRAVEL IN ALL DIRECTIONS TO ALL POINTS OF THE BUILDING.

SYMBOLS

	BRICK MASONRY		RIGID INSULATION
	CONCRETE MASONRY		ALUMINUM GRATING
	CONCRETE		DOOR NUMBER
	GROUT		FIRE EXTINGUISHER
	STEEL		ILLUMINATED EXIT SIGN LOCATION
	EARTH		EMERGENCY EYEWASH AND SHOWER
			FIRE RESISTANCE RATING IN HOURS
			STRUCTURAL COLUMN CENTERLINE
			WALL BUILDING LINE IF NOT COLUMN
			ROOM NUMBER



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▲	BCK	07/20/09		REVISED PER CHANGE ORDER NO. 3	
▲	BCK	10/20/09		RECORD DRAWING CHANGES	

DES SRZ
DWN JLA
CKD FJB

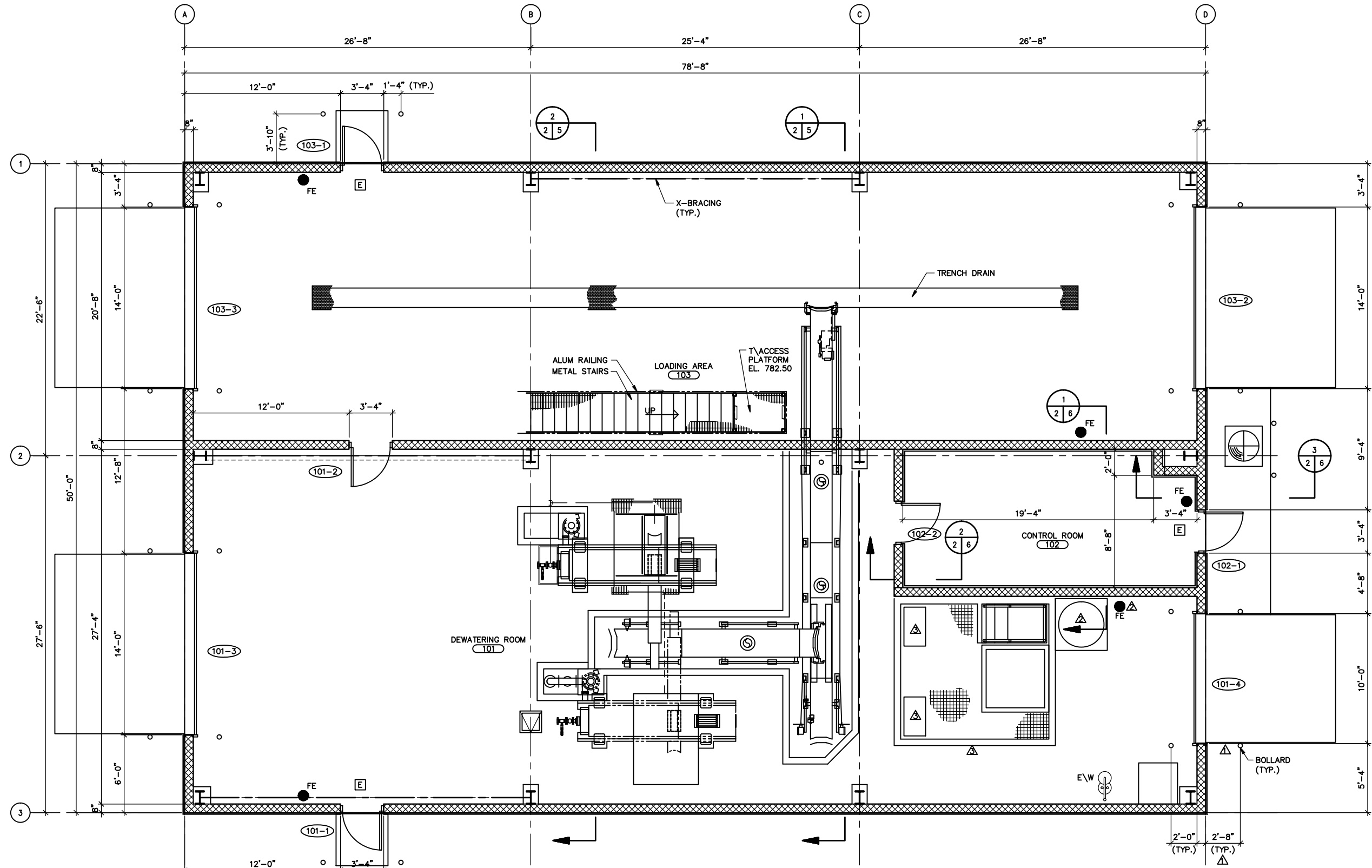
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

ARCHITECTURAL
**SYMBOLS, ABBREVIATIONS,
GENERAL NOTES AND CODE SUMMARY**
SCALE: NO SCALE

RECORD DRAWING

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FLOOR PLAN

NOTES:
 1. TOP OF FINISHED FLOOR EL. 772.00 UNLESS OTHERWISE NOTED ON PLAN.
 2. FOR DOOR SCHEDULE SEE SHEET A-07.

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 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

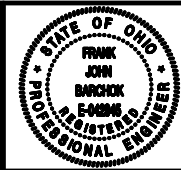
DEWATERING FACILITY
FLOOR PLAN

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

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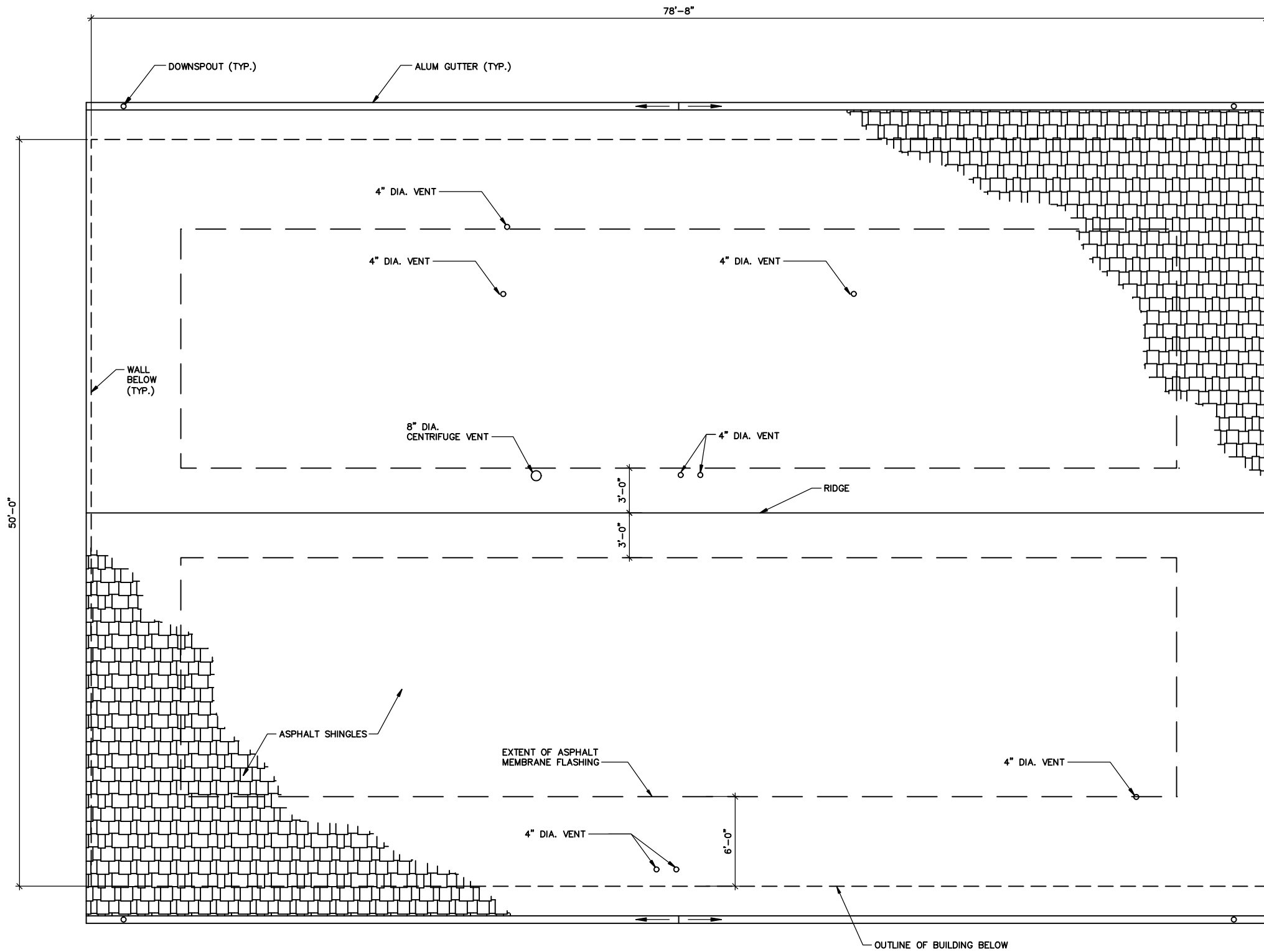
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DES SRZ
 DWN JLA
 CKD FJB

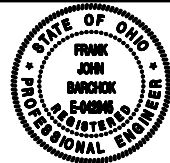
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ROOF PLAN

RECORD DRAWING

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DWN JLA
CKD FJB

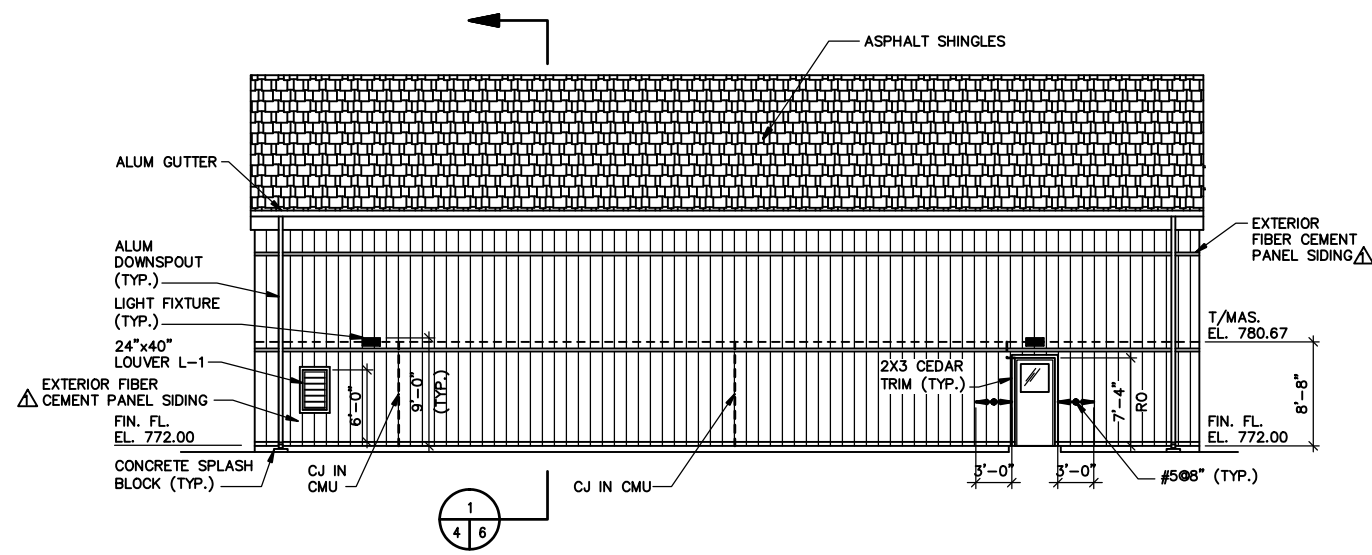
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DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
ROOF PLAN

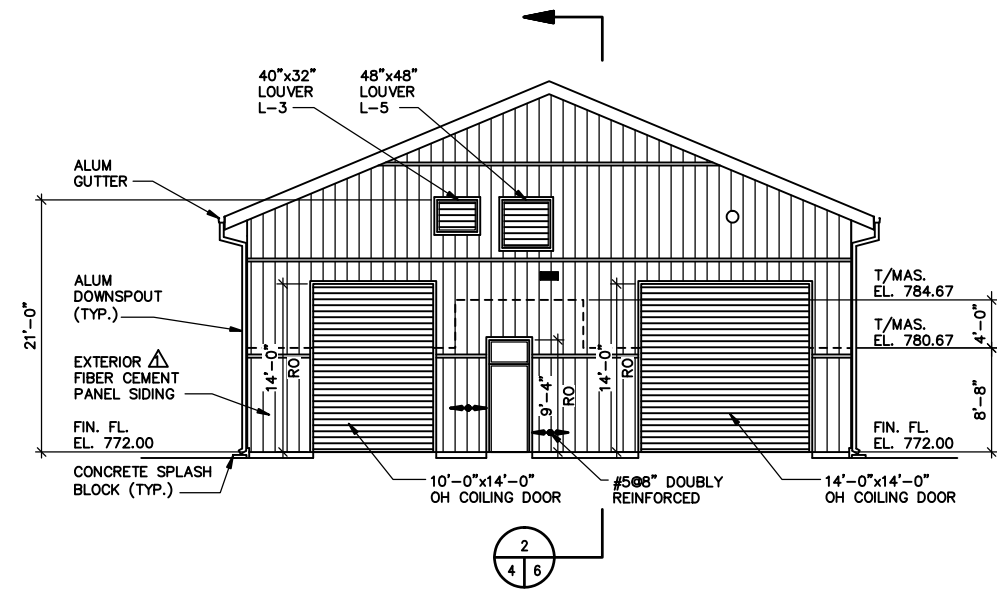
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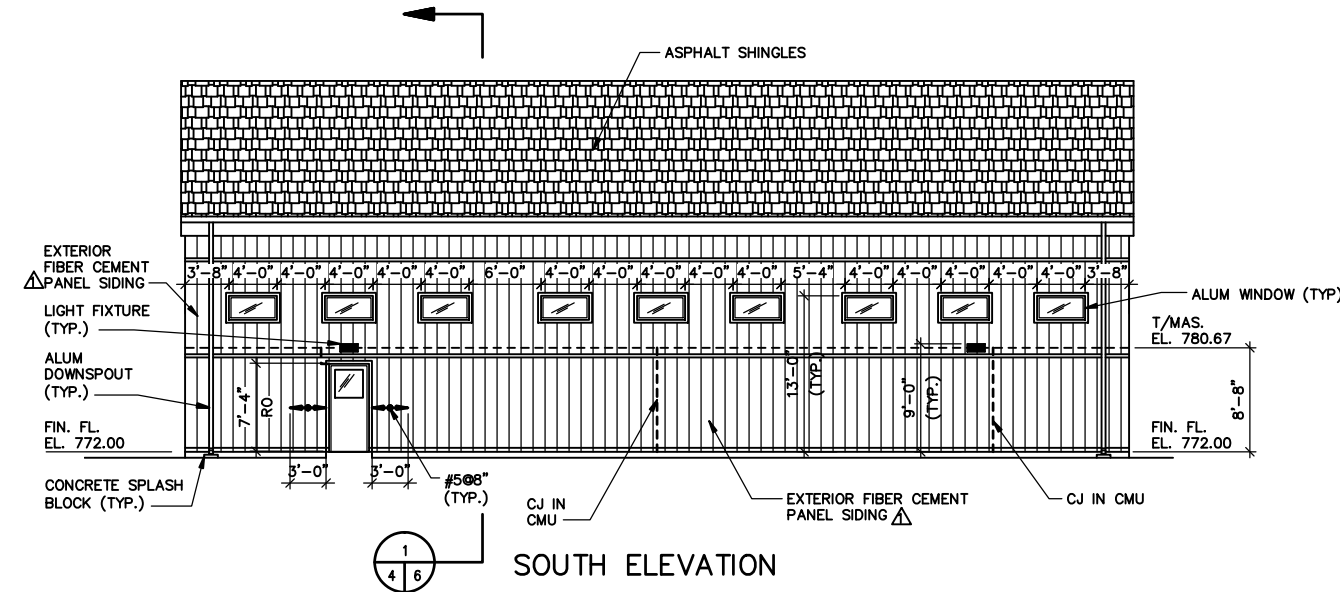
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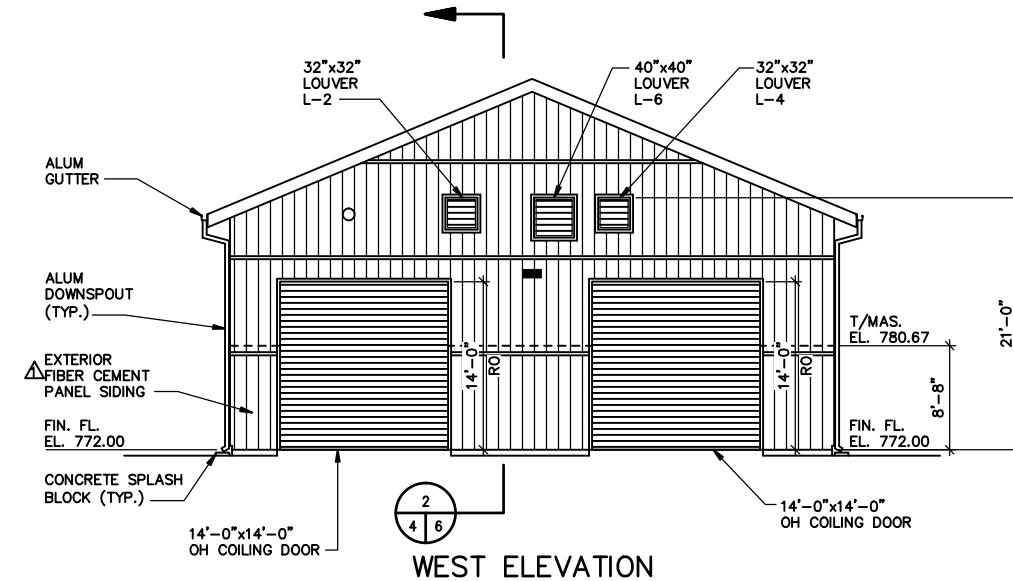
NORTH ELEVATION



EAST ELEVATION

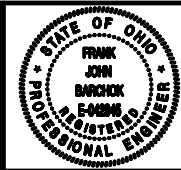


SOUTH ELEVATION



WEST ELEVATION

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1	Δ	BCK	05/18/09	REVISED PER CHANGE ORDER NO. 2	

DES SRZ
DWN JLA
CKD FJB

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DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

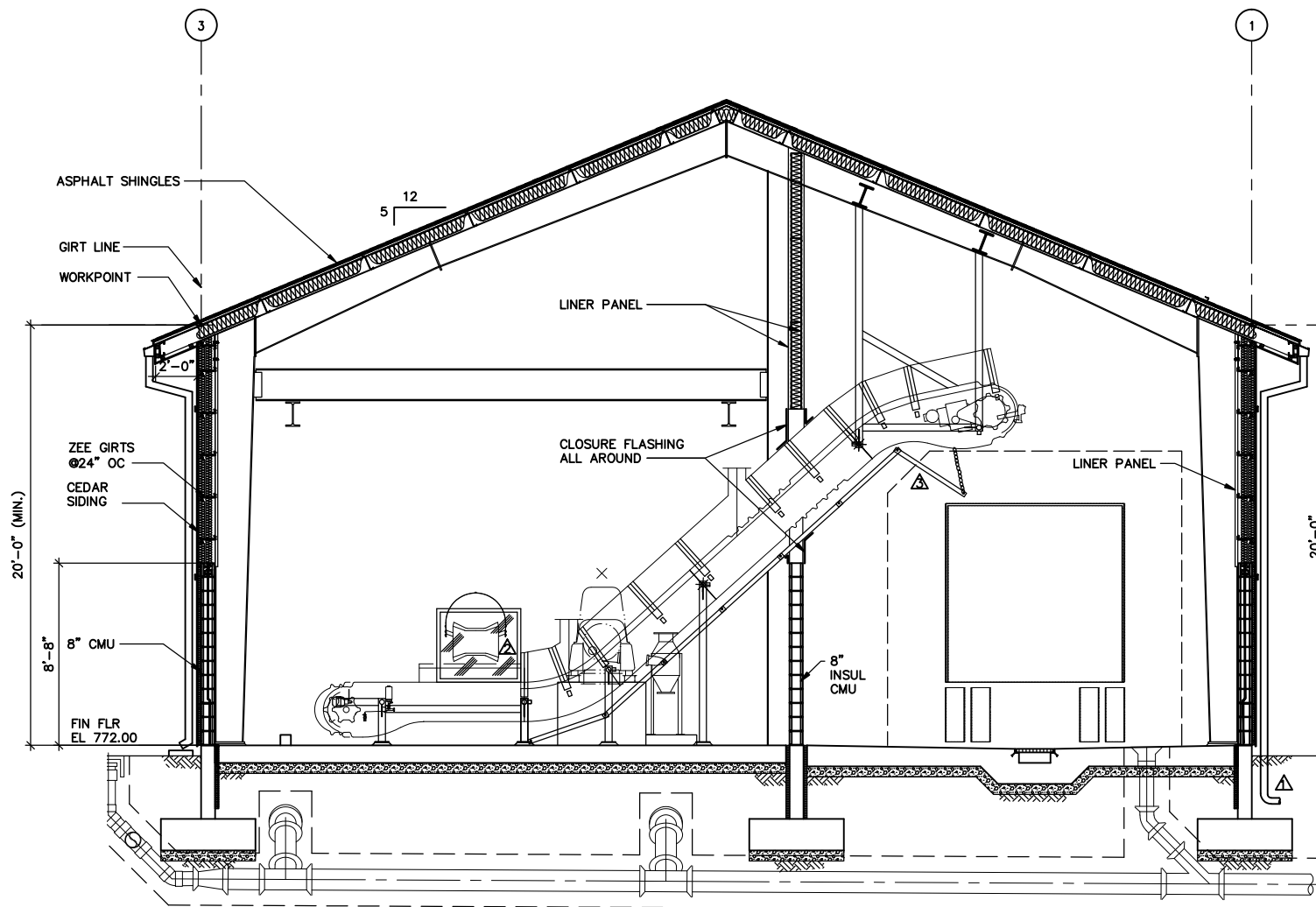
DEWATERING FACILITY
ELEVATIONS

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

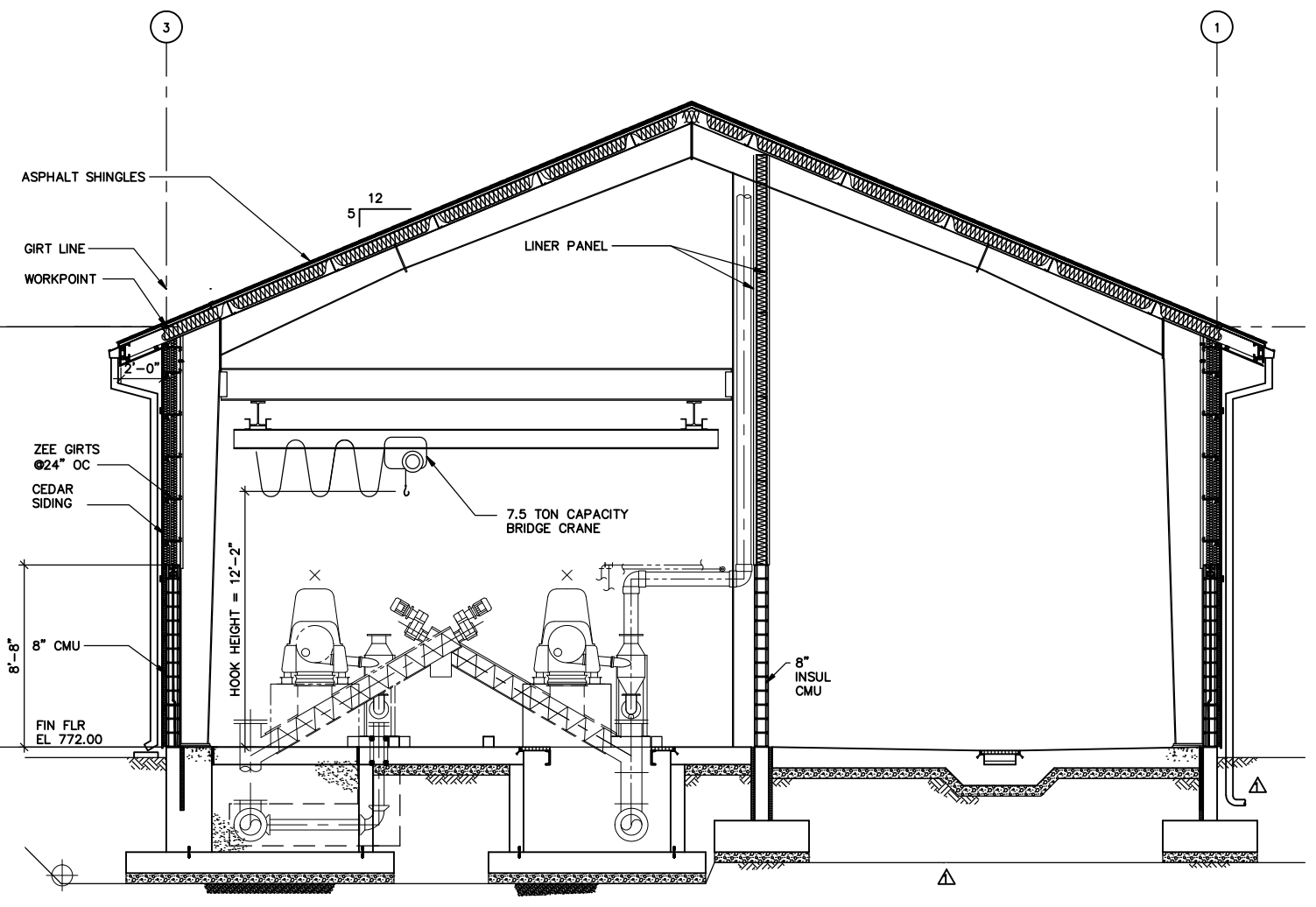
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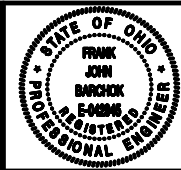


SECTION 1
2
5
SCALE: 1/4"=1'-0"



SECTION 2
2
5
SCALE: 1/4"=1'-0"

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▲	BCK		07/20/09	REVISED PER CHANGE ORDER NO. 3	
▲	BCK		10/20/09	RECORD DRAWING CHANGES	

DES SRZ
DWN SRZ
CKD FJB

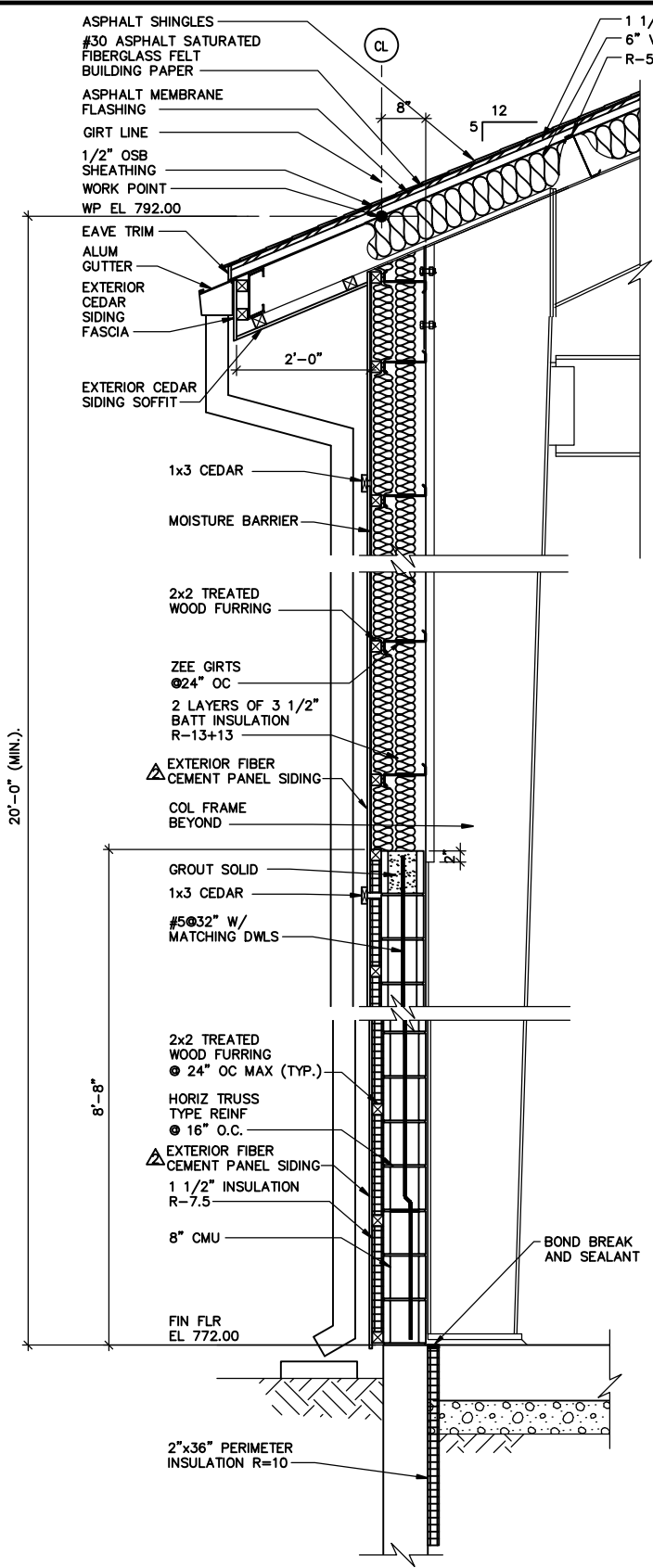
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DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
SECTIONS I
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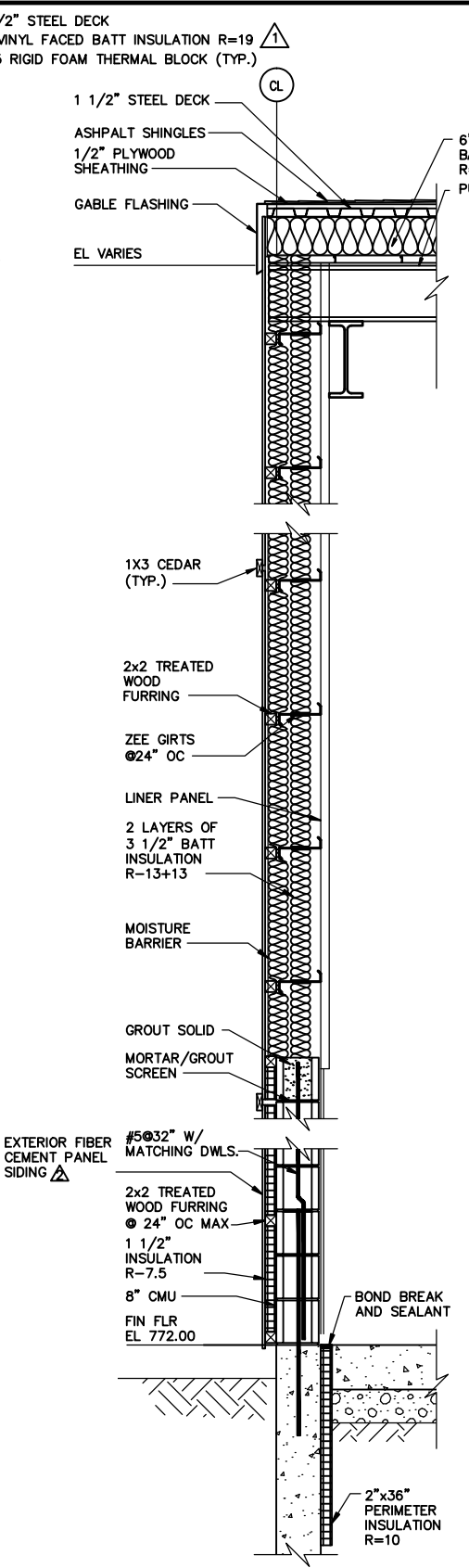
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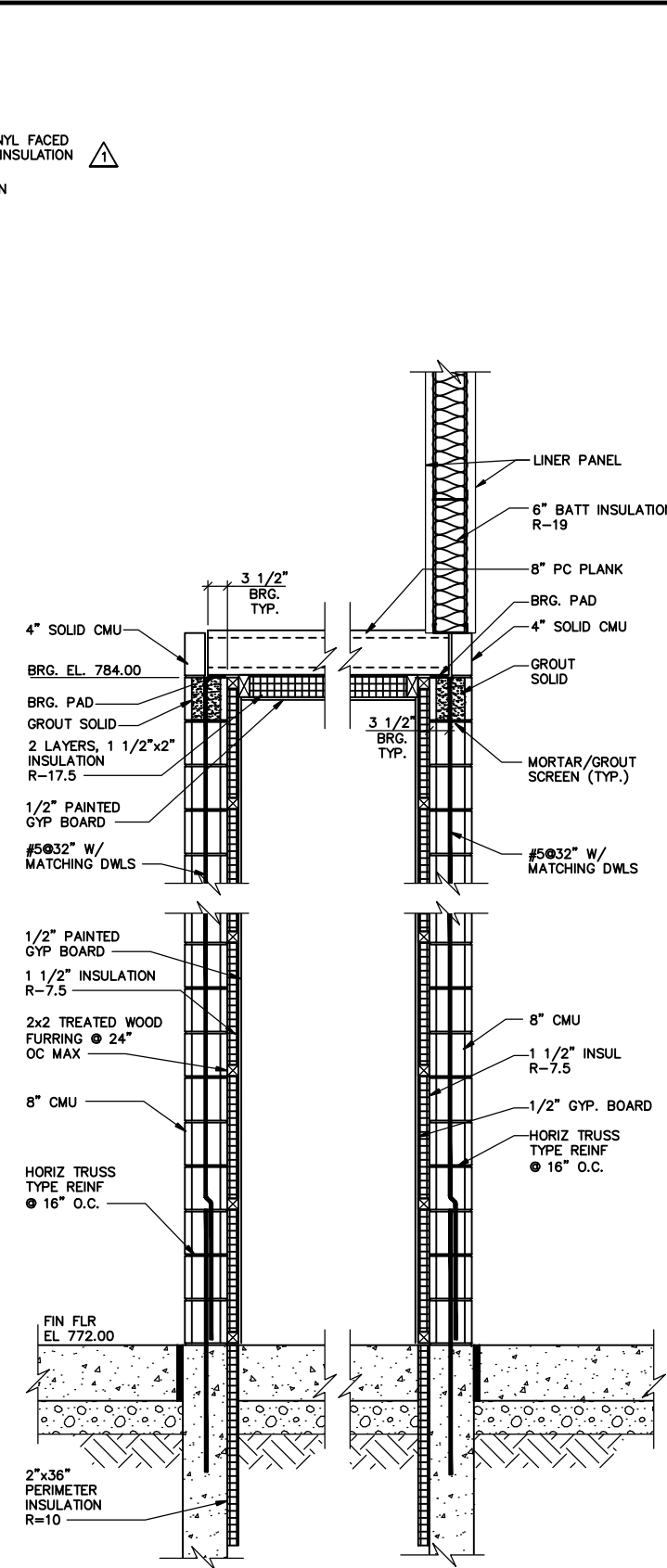
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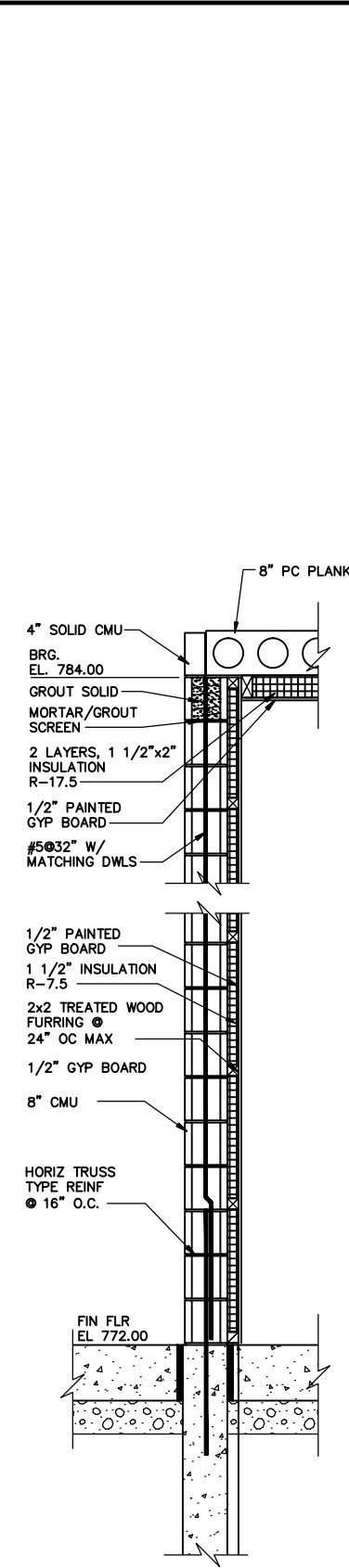
SECTION 1/4



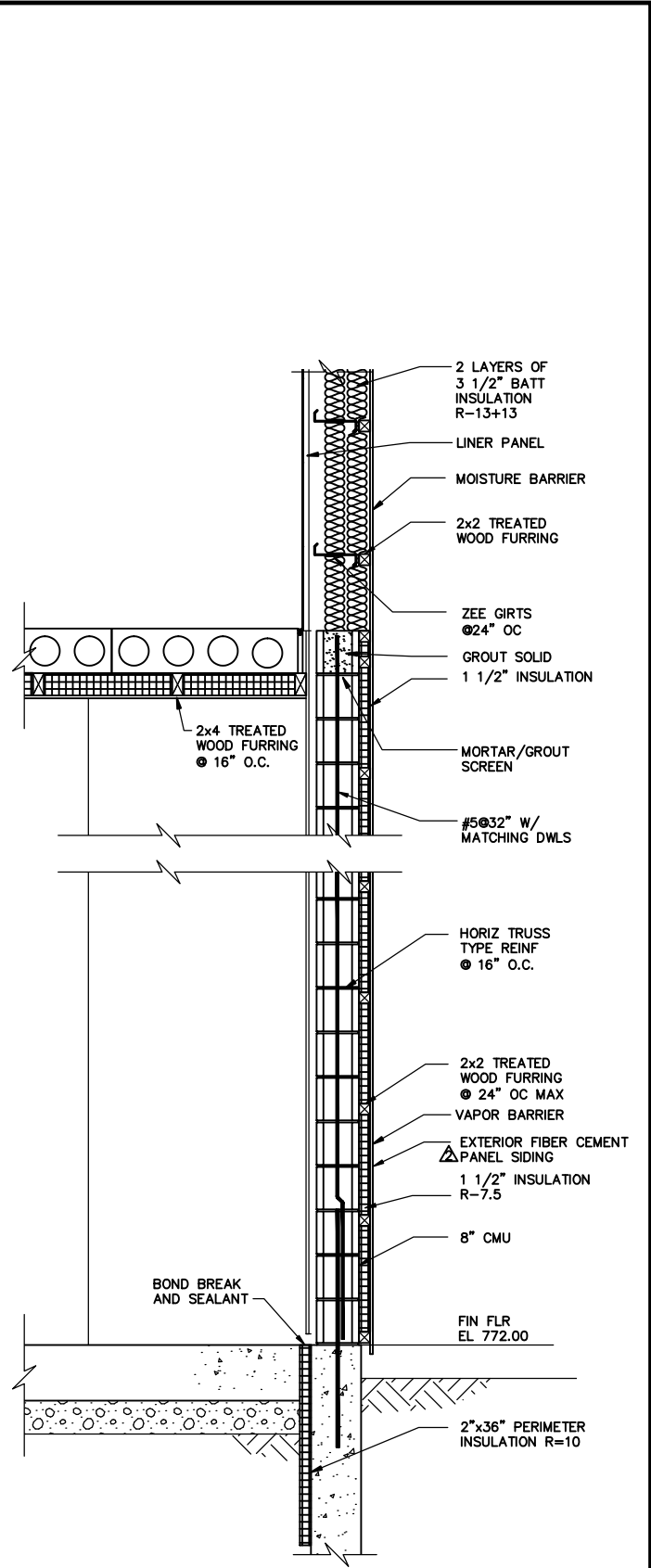
SECTION 2/4



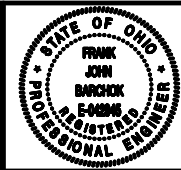
SECTION 1/2



SECTION 2/2



SECTION 3/2



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BCK	05/18/09	2	BCK	05/18/09	REVISED PER CHANGE ORDER NO. 2

DES SRZ
DWN JLA
CKD FJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
SECTIONS II

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

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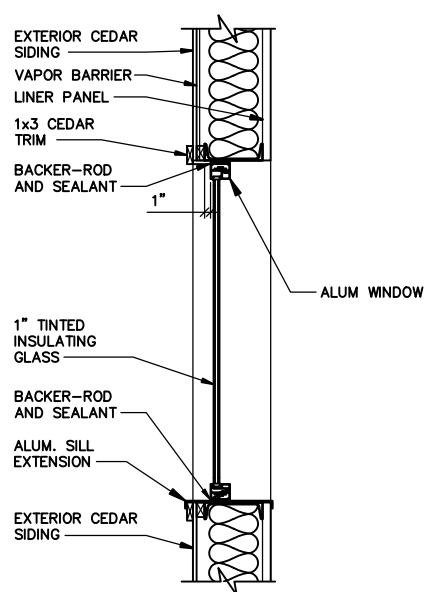
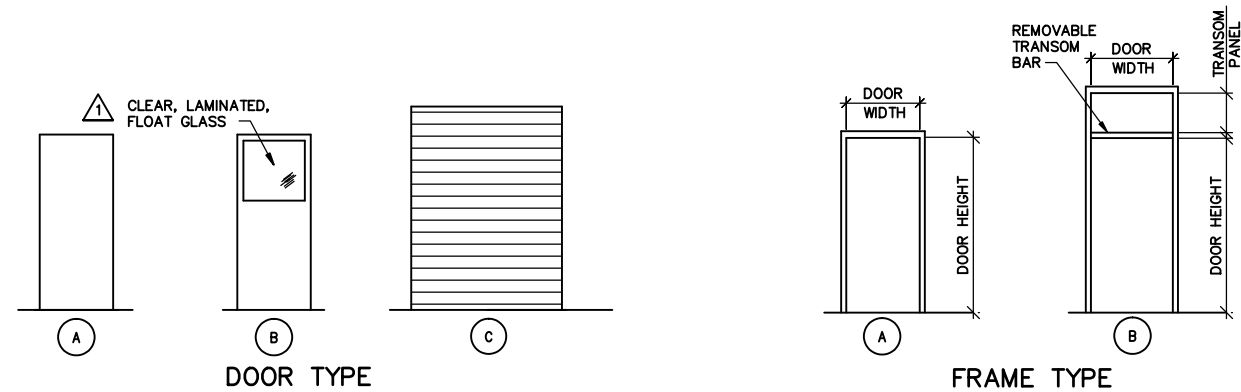
LOUVER SCHEDULE

MARK NO.	LOCATION	SERVICE	LOUVER						NOTES
			TYPE	SIZE (IN) (W>XH)	AIR FLOW (CFM)	MIN. FREE AREA (SF)	MFR	MODEL	
L-1	DEWATERING FACILITY	LOADING AREA	COMBINATION	24X40	1100	2.13	C-S	6967	1,2,3
L-2	DEWATERING FACILITY	LOADING AREA	COMBINATION	32X32	1100	2.16	C-S	6967	1,2,3
L-3	DEWATERING FACILITY	DEWATERING ROOM	FIXED	40X32	1400	2.83	C-S	6157	1,2,3,4
L-4	DEWATERING FACILITY	DEWATERING ROOM	FIXED	32X32	1400	2.18	C-S	6157	1,2,3
L-5	DEWATERING FACILITY	DEWATERING ROOM	COMBINATION	48X48	4000	7.23	C-S	6967	1,2,3
L-6	DEWATERING FACILITY	DEWATERING ROOM	COMBINATION	40X40	4000	3.92	C-S	6967	1,2,3

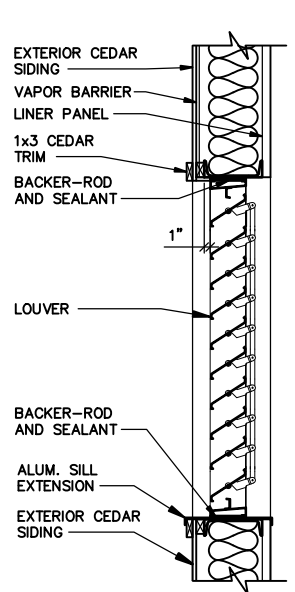
NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 10200
 3. COORDINATE EXACT LOUVER SIZE WITH STRUCTURAL AND ARCHITECTURAL REQUIREMENTS
 4. GRAVITY BACKDRAFT DAMPER REVERSED TO LET AIR IN, SPECIFICATION SECTION 15910

DOOR SCHEDULE

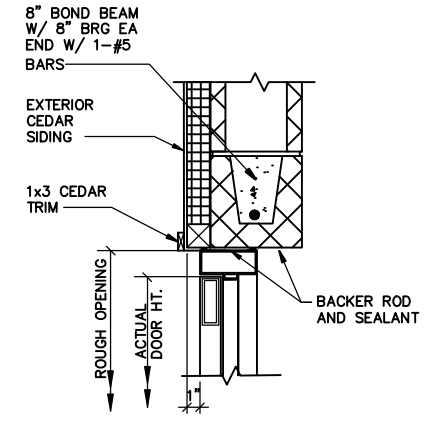
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	WIDTH	HEIGHT	NOMINAL SIZE		TYPE	MATL TYPE	HEAD	JAMB	TYPE	MATL				
DEWATERING FACILITY														
101-1	3'-4"	7'-4"	3'-0"	7'-2"	B	ALUM	A	A	A	ALUM	1	-		
101-2	3'-4"	7'-4"	3'-0"	7'-2"	A	HM	B	B	A	HM	2	-		
101-3	14'-0"	14'-0"	14'-0"	14'-0"	C	GALV	C	C	-	GALV	-	-	O.H. COILING DOOR	
101-4	10'-0"	14'-0"	10'-0"	14'-0"	C	GALV	C	C	-	GALV	-	-	O.H. COILING DOOR	
102-1	3'-4"	9'-4"	3'-0"	7'-2"	A	ALUM	D	A	B	ALUM	1	-		
102-2	3'-4"	7'-4"	3'-0"	7'-2"	A	HM	B	B	A	HM	2	-		
103-1	3'-4"	7'-4"	3'-0"	7'-2"	B	ALUM	A	A	A	ALUM	1	-		
103-2	14'-0"	14'-0"	14'-0"	14'-0"	C	GALV	C	C	-	GALV	-	-	O.H. COILING DOOR	
103-3	14'-0"	14'-0"	14'-0"	14'-0"	C	GALV	C	C	-	GALV	-	-	O.H. COILING DOOR	



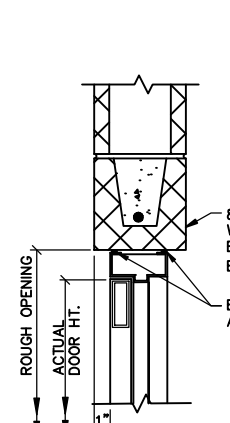
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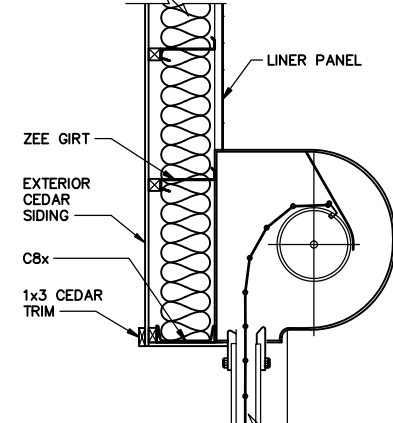
TYPICAL LOUVER SECTION



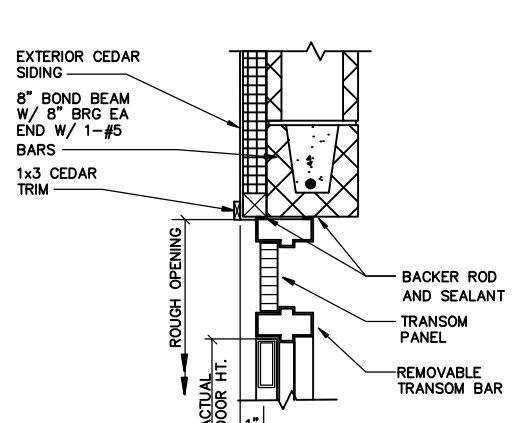
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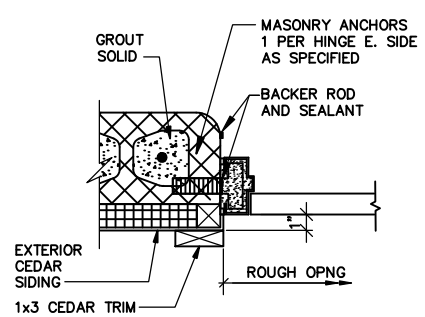
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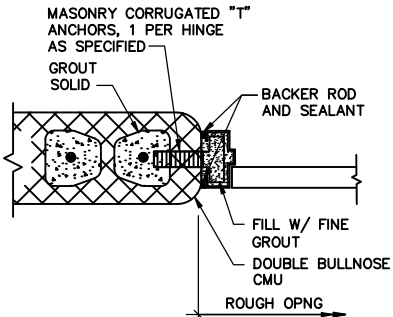
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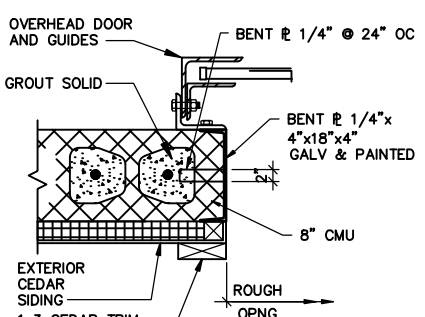
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JAMB "A"



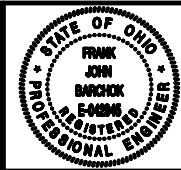
JAMB "B"



JAMB "C"

RECORD DRAWING

MALCOLM PIRNIE



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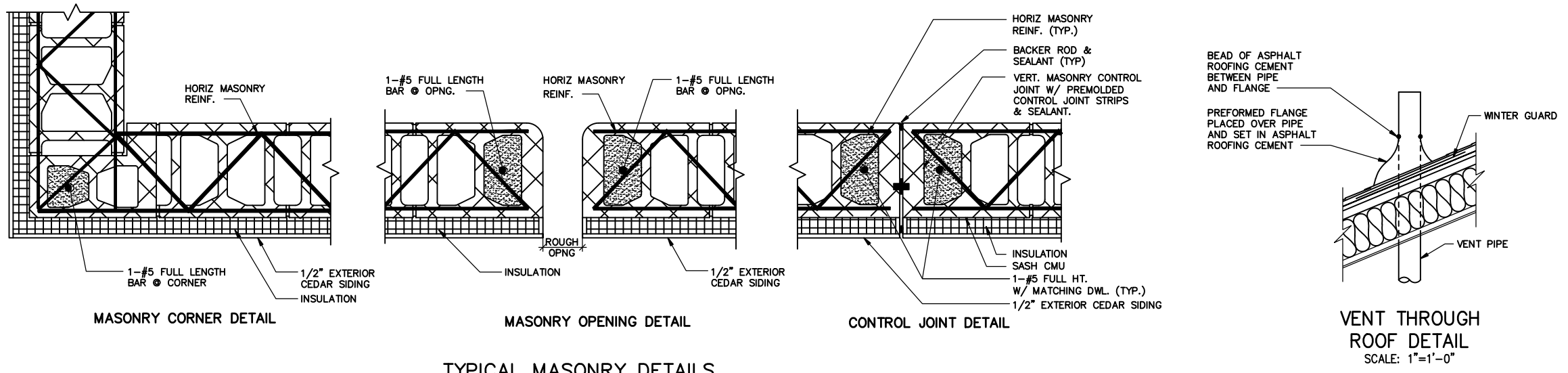
DES SRZ
DWN JLA
CKD FJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

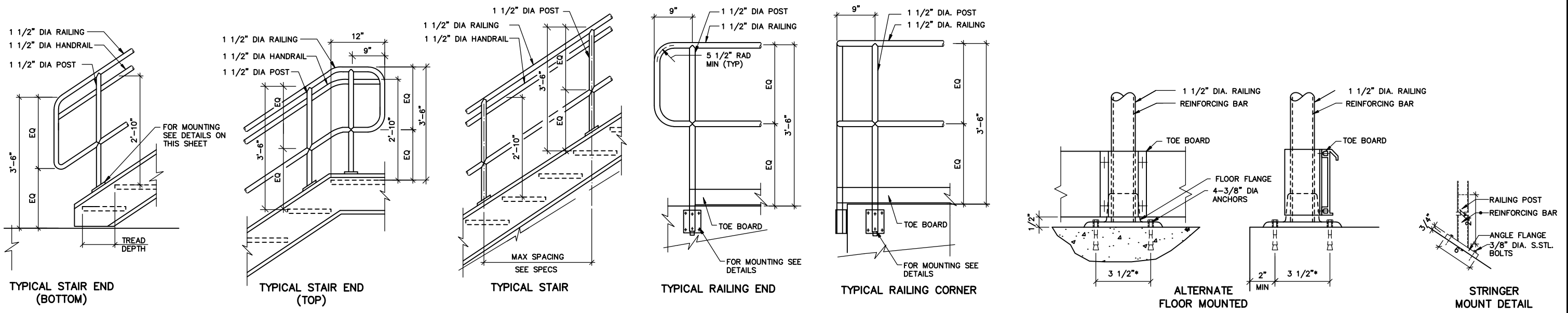
ARCHITECTURAL
DOOR SCHEDULE, LOUVER SCHEDULE, SECTIONS AND DETAILS
SCALE: NOT TO SCALE

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CAD REF. NO. 3338005_233

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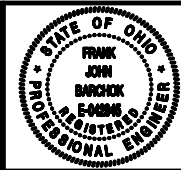
TYPICAL MASONRY DETAILS



TYPICAL ALUMINUM RAILING AND HANDRAIL DETAILS

RECORD DRAWING

MALCOLM PIRNIE



NO.		BY	DATE	REVISIONS	REMARKS

DES SRZ
 DWN JLA
 CKD FJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

ARCHITECTURAL
TYPICAL DETAILS

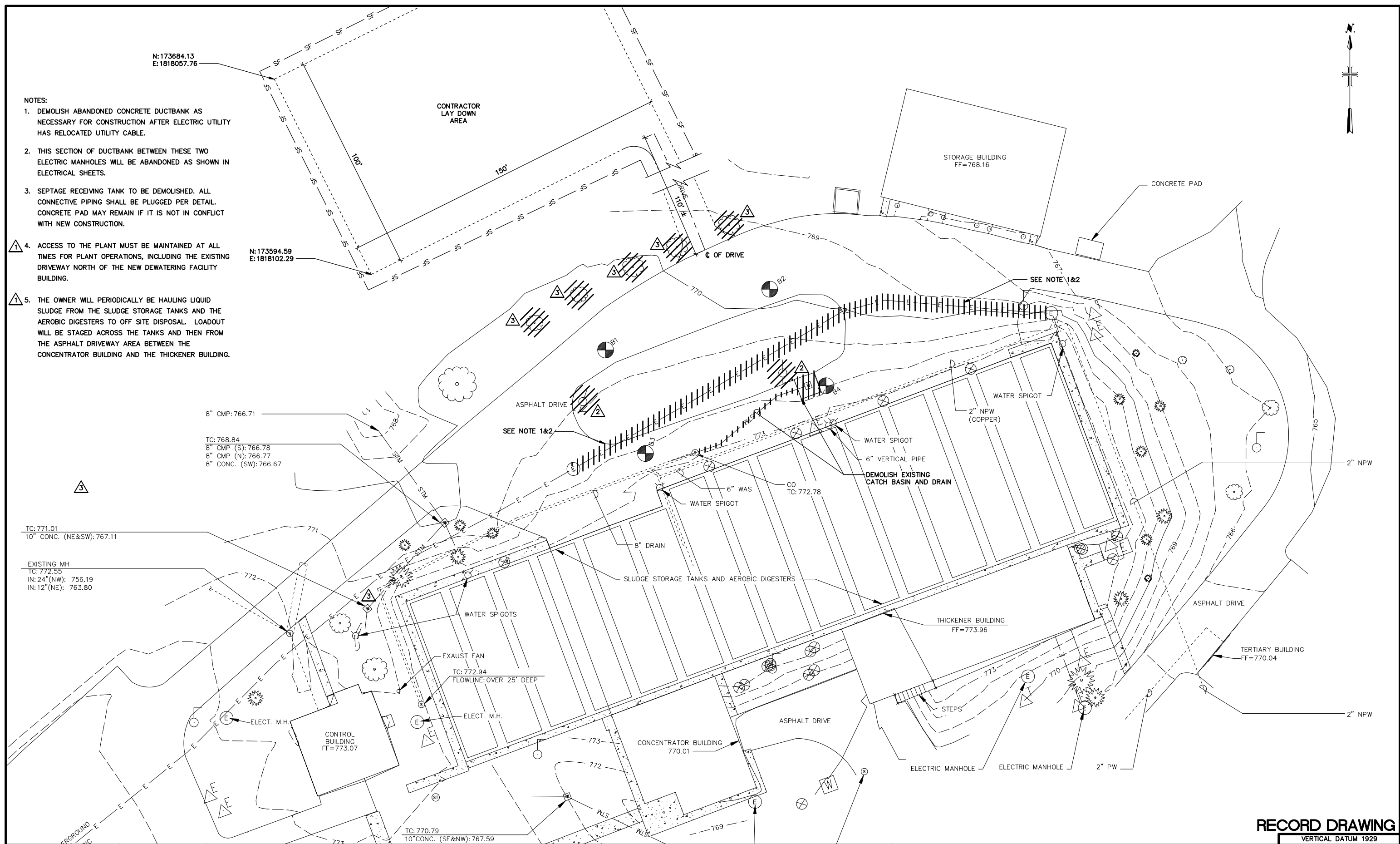
SCALE: 1/8" = 1'-0", OR AS NOTED

VERTICAL DATUM 1929
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 MALCOLM PIRNIE, INC.
 DATE JUNE 2008
 A SHEET 08 OF 08
 CAD REF. NO. 3338005_234

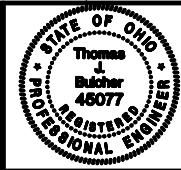
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- NOTES:**
1. DEMOLISH ABANDONED CONCRETE DUCTBANK AS NECESSARY FOR CONSTRUCTION AFTER ELECTRIC UTILITY HAS RELOCATED UTILITY CABLE.
 2. THIS SECTION OF DUCTBANK BETWEEN THESE TWO ELECTRIC MANHOLES WILL BE ABANDONED AS SHOWN IN ELECTRICAL SHEETS.
 3. SEPTAGE RECEIVING TANK TO BE DEMOLISHED. ALL CONNECTIVE PIPING SHALL BE PLUGGED PER DETAIL. CONCRETE PAD MAY REMAIN IF IT IS NOT IN CONFLICT WITH NEW CONSTRUCTION.
 4. ACCESS TO THE PLANT MUST BE MAINTAINED AT ALL TIMES FOR PLANT OPERATIONS, INCLUDING THE EXISTING DRIVEWAY NORTH OF THE NEW DEWATERING FACILITY BUILDING.
 5. THE OWNER WILL PERIODICALLY BE HAULING LIQUID SLUDGE FROM THE SLUDGE STORAGE TANKS AND THE AEROBIC DIGESTERS TO OFF SITE DISPOSAL. LOADOUT WILL BE STAGED ACROSS THE TANKS AND THEN FROM THE ASPHALT DRIVEWAY AREA BETWEEN THE CONCENTRATOR BUILDING AND THE THICKENER BUILDING.



User: girmes; Spec: PIRNIE; STANDARD; File: T:\3338005\RECORD DRAWINGS\CIVIL\3338005_301.DWG; Scale: 1:1; Date: 12/23/2009; Time: 17:19; Layout: C-01



NO.	BY	DATE	REVISIONS	REMARKS
1	PAK	06/14/08	REVISED PER ADDENDUM NO. 1	
2	BCK	07/28/08	REVISED PER RFI 07	
3	BCK	10/01/09	RECORD DRAWING CHANGES	

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DWN: PJW
CHK: TJB

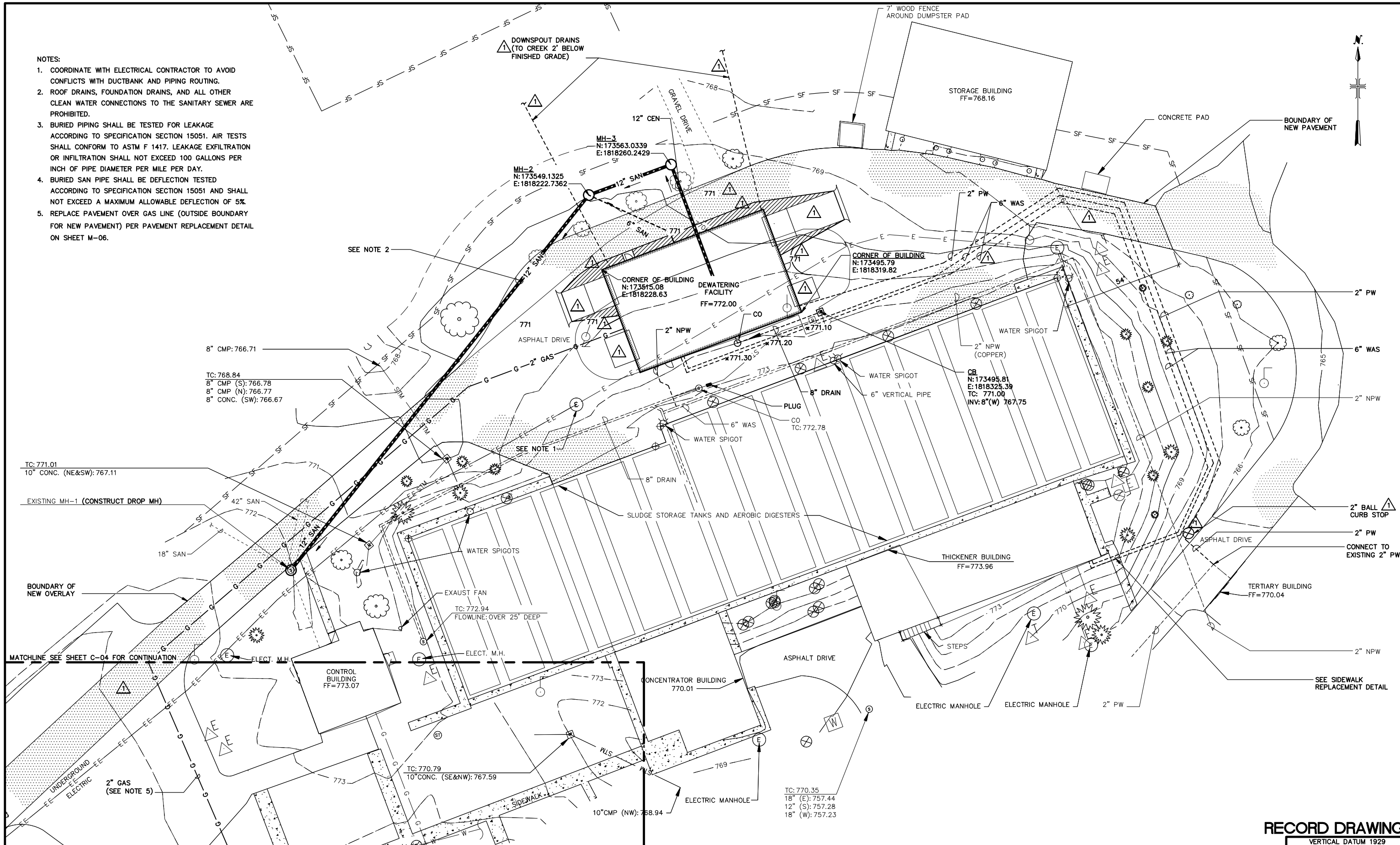
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

CIVIL
**EXISTING DEWATERING FACILITY
SITE PLAN**
SCALE: 1:20

RECORD DRAWING

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DATE: JUNE 2008
C SHEET 01 OF 05
CAD REF. NO. 3338005_301

- NOTES:
- COORDINATE WITH ELECTRICAL CONTRACTOR TO AVOID CONFLICTS WITH DUCTBANK AND PIPING ROUTING.
 - ROOF DRAINS, FOUNDATION DRAINS, AND ALL OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
 - BURIED PIPING SHALL BE TESTED FOR LEAKAGE ACCORDING TO SPECIFICATION SECTION 15051. AIR TESTS SHALL CONFORM TO ASTM F 1417. LEAKAGE EXFILTRATION OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY.
 - BURIED SAN PIPE SHALL BE DEFLECTION TESTED ACCORDING TO SPECIFICATION SECTION 15051 AND SHALL NOT EXCEED A MAXIMUM ALLOWABLE DEFLECTION OF 5%.
 - REPLACE PAVEMENT OVER GAS LINE (OUTSIDE BOUNDARY FOR NEW PAVEMENT) PER PAVEMENT REPLACEMENT DETAIL ON SHEET M-06.



User: grimes Spec: PIRNIE STANDARD File: T:\3338005\RECORD DRAWINGS\CIVIL\3338005_303.DWG Scale: 1:1 Date: 12/28/2009 Time: 10:00 Layout: C-02

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

CIVIL
**DEWATERING FACILITY
SITE PLAN**
SCALE: 1:20

RECORD DRAWING



NO.		BY	DATE	REVISIONS	REMARKS
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DWN: PJW
CKD: TJB

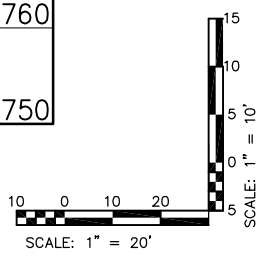
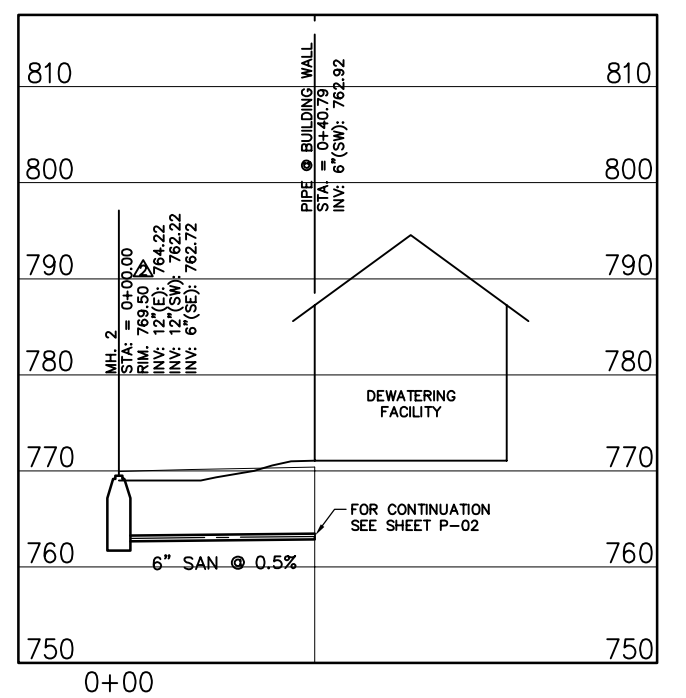
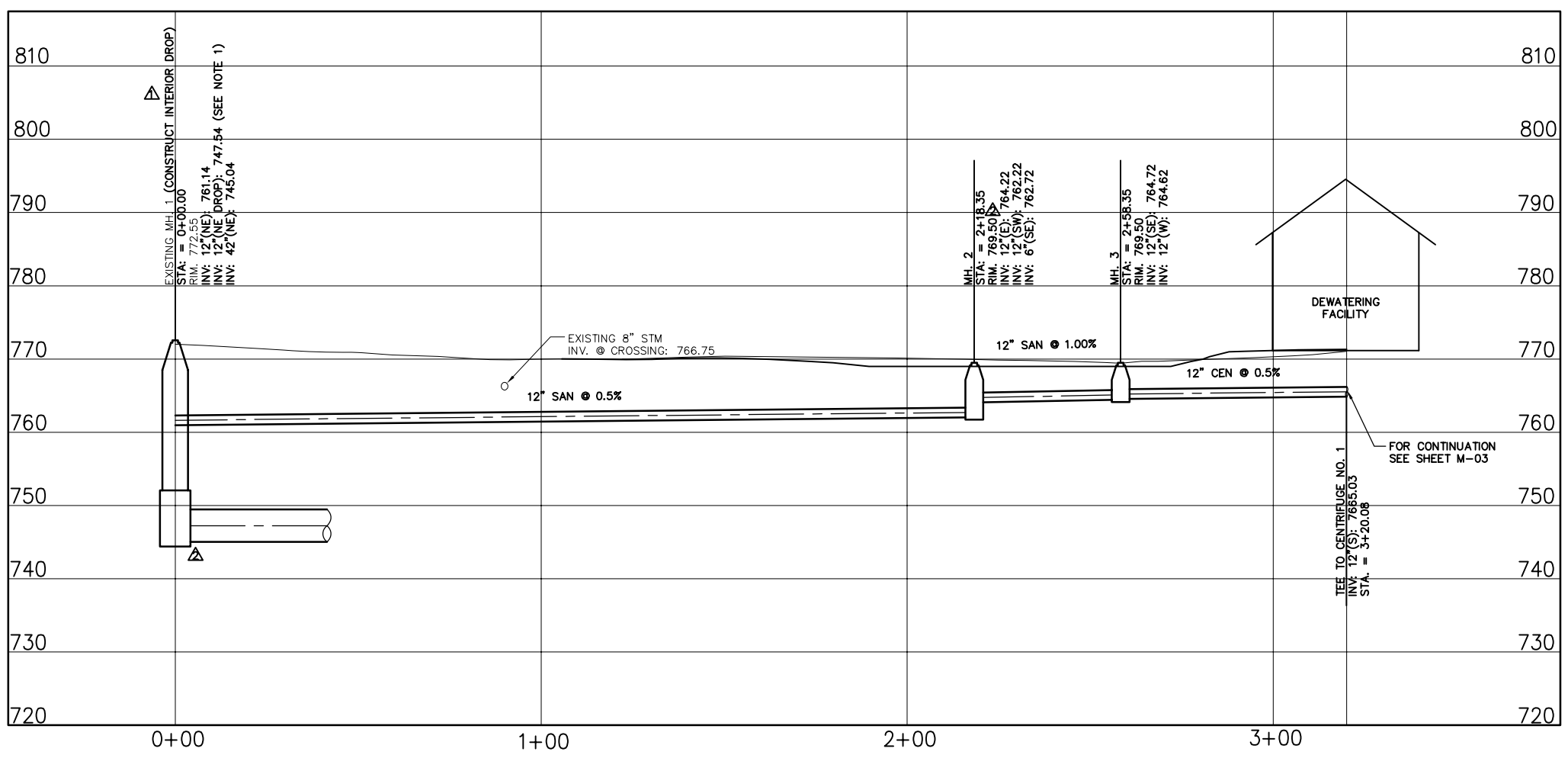
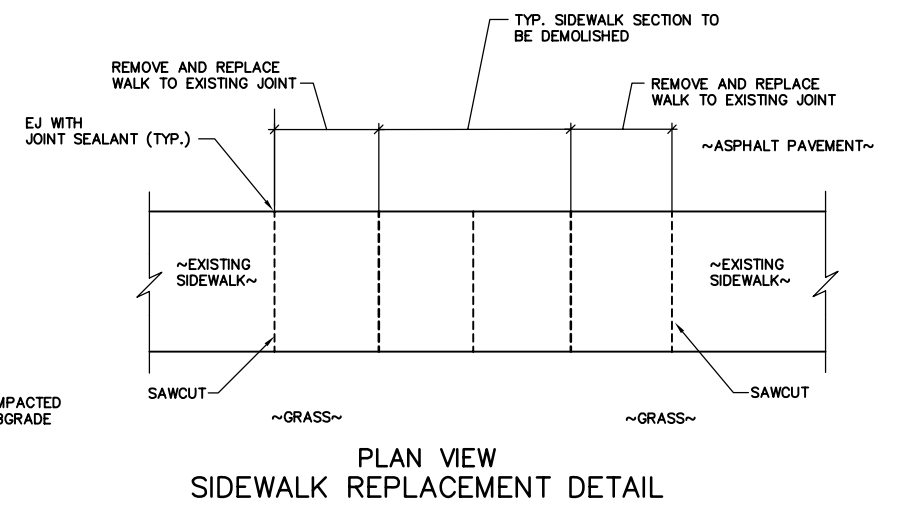
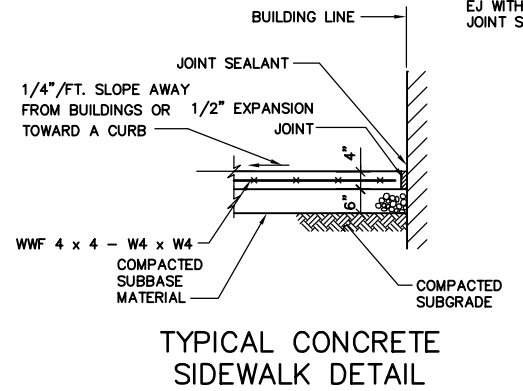
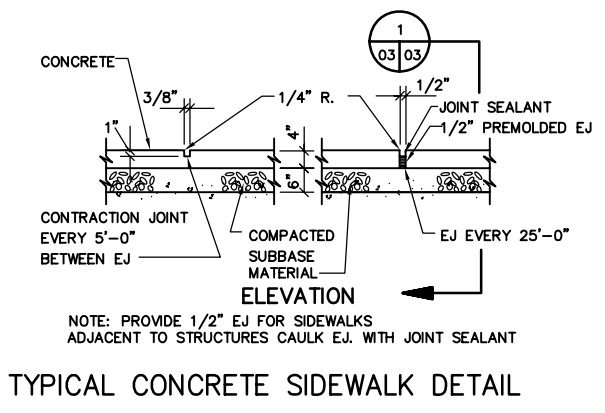
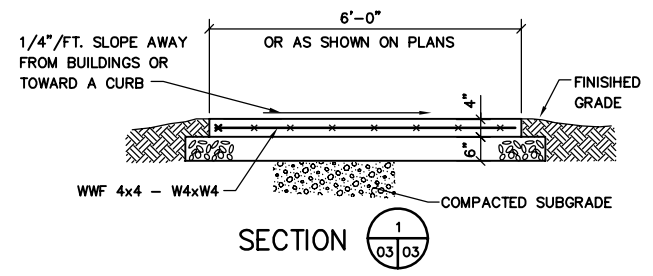
VERTICAL DATUM 1929

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DATE: JUNE 2008

C SHEET 02 OF 05

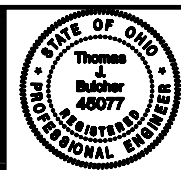
CAD REF. NO. 3338005_303



NOTE:
1. TO BE FIELD VERIFIED. ENGINEER'S APPROVAL SHALL BE OBTAINED BEFORE CORE DRILLING FOR DROP.

RECORD DRAWING

MALCOLM PIRNIE



NO.	BY	DATE	REVISIONS	REMARKS
1	BCK	07/29/08	REVISED PER RFI 06	
2	BCK	10/08/09	RECORD DRAWING CHANGES	

DES: PAK
DWN: PJW
CKD: TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

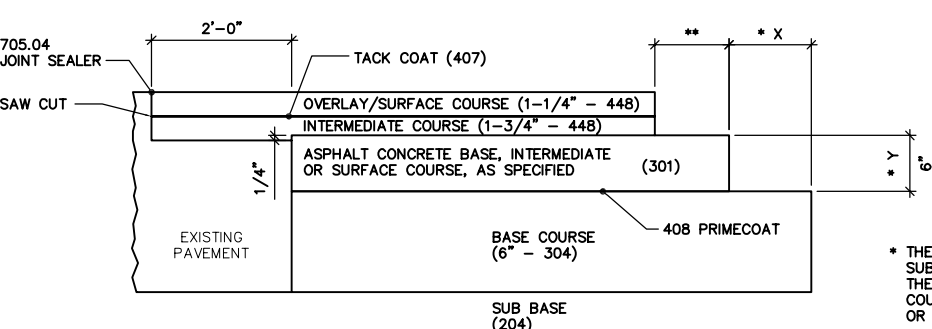
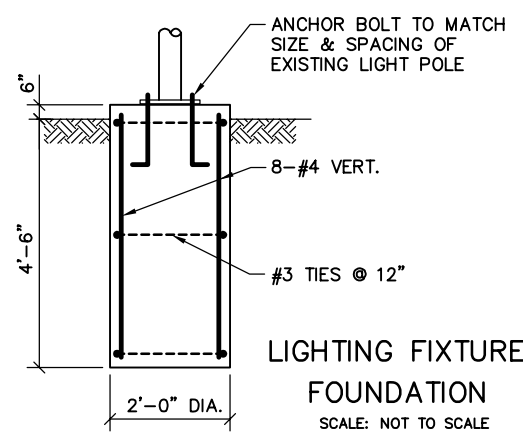
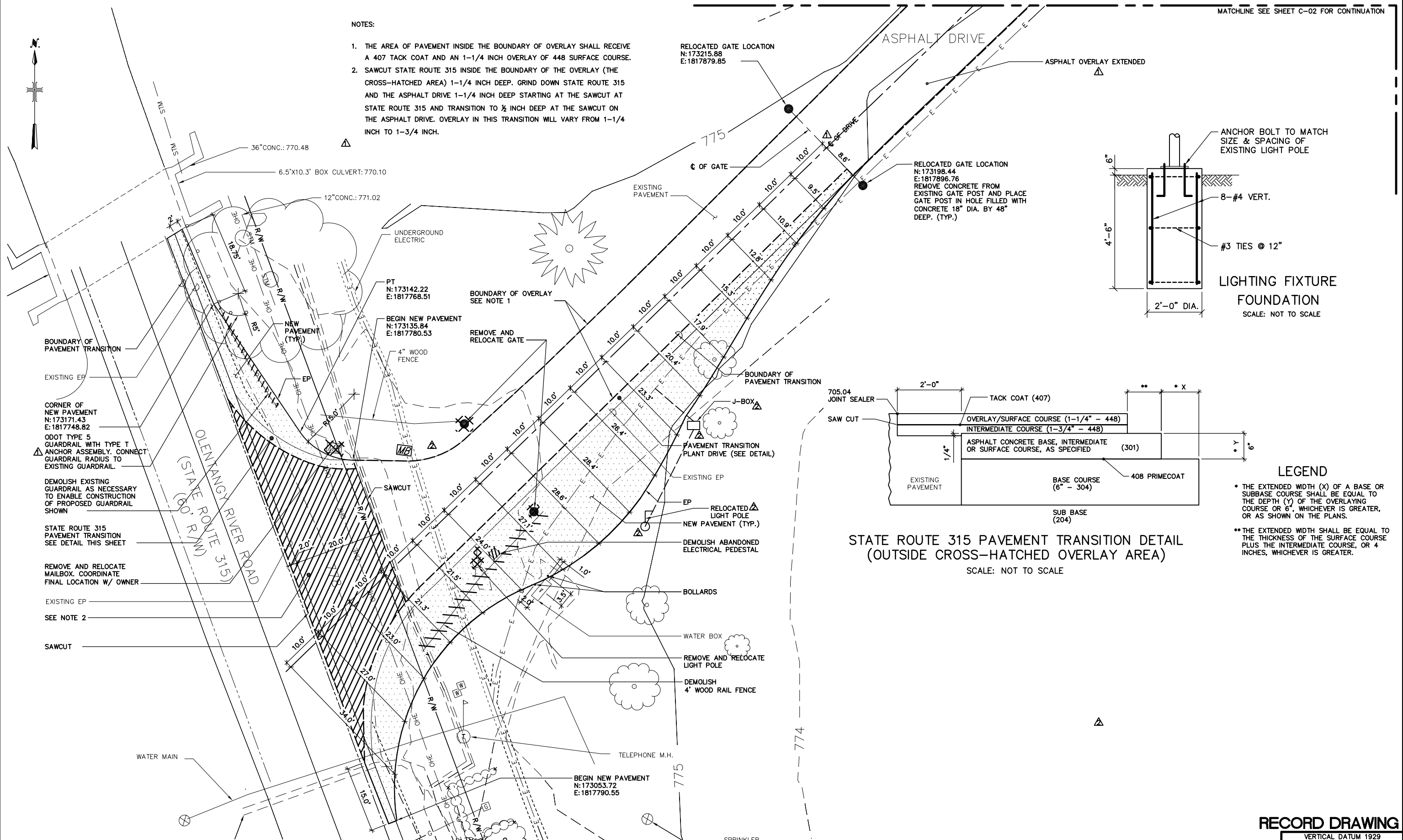
CIVIL
DEWATERING FACILITY PROFILE AND DETAILS
SCALE: AS NOTED

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DATE: JUNE 2008
SHEET 03 OF 05
CAD REF. NO. 3338005_306

User:grimes Spec:PIRNE STANDARD File:F:\3338005\RECORD DRAWINGS\CIVIL\3338005_306.DWG Scale:1:1 Date:12/23/2009 Time:17:59 Layout:C-03

NOTES:

1. THE AREA OF PAVEMENT INSIDE THE BOUNDARY OF OVERLAY SHALL RECEIVE A 407 TACK COAT AND AN 1-1/4 INCH OVERLAY OF 448 SURFACE COURSE.
2. SAWCUT STATE ROUTE 315 INSIDE THE BOUNDARY OF THE OVERLAY (THE CROSS-HATCHED AREA) 1-1/4 INCH DEEP. GRIND DOWN STATE ROUTE 315 AND THE ASPHALT DRIVE 1-1/4 INCH DEEP STARTING AT THE SAWCUT AT STATE ROUTE 315 AND TRANSITION TO 1/2 INCH DEEP AT THE SAWCUT ON THE ASPHALT DRIVE. OVERLAY IN THIS TRANSITION WILL VARY FROM 1-1/4 INCH TO 1-3/4 INCH.



STATE ROUTE 315 PAVEMENT TRANSITION DETAIL (OUTSIDE CROSS-HATCHED OVERLAY AREA)
SCALE: NOT TO SCALE

LEGEND

- * THE EXTENDED WIDTH (X) OF A BASE OR SUBBASE COURSE SHALL BE EQUAL TO THE DEPTH (Y) OF THE OVERLAYING COURSE OR 6", WHICHEVER IS GREATER, OR AS SHOWN ON THE PLANS.
- ** THE EXTENDED WIDTH SHALL BE EQUAL TO THE THICKNESS OF THE SURFACE COURSE PLUS THE INTERMEDIATE COURSE, OR 4 INCHES, WHICHEVER IS GREATER.

User:grimes Spec:PIRNE STANDARD File:F:\3338005\RECORD DRAWINGS\CIVIL\3338005_302.DWG Scale:1:1 Date:12/23/2009 Time:17:58 Layout:C-04



NO.		BY	DATE	REVISIONS	REMARKS
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▲	BCK	10/08/09		RECORD DRAWING CHANGES	

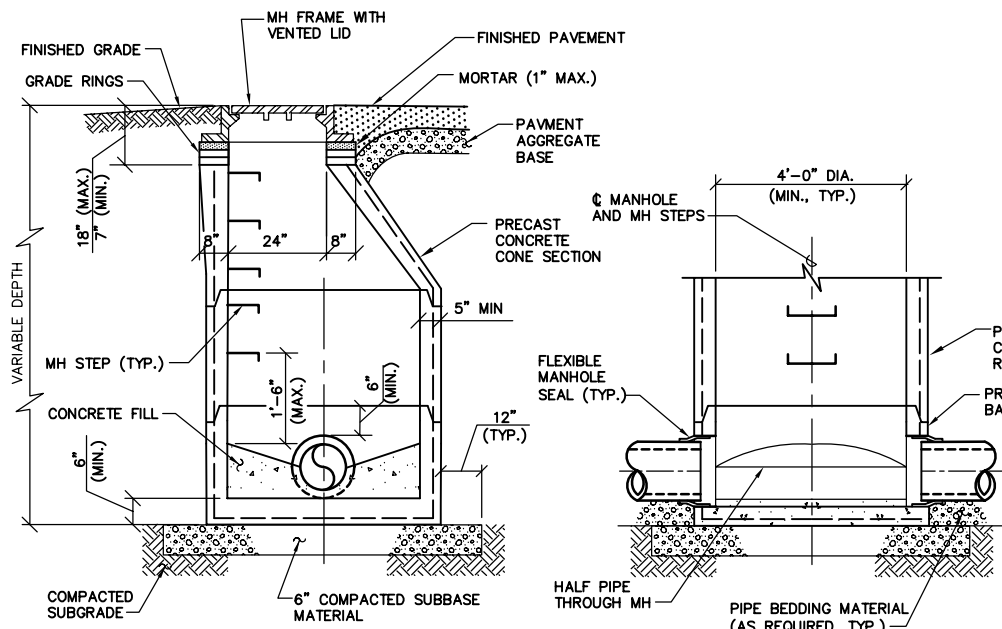
DES: PAK
DWN: PJW
CKD: TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

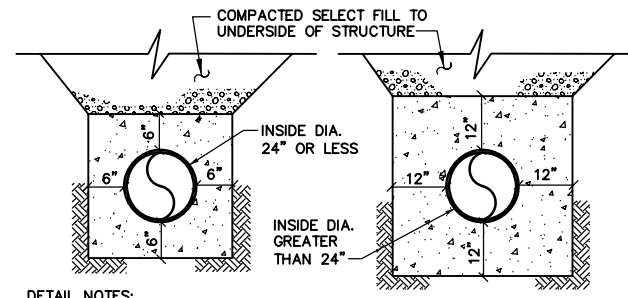
CIVIL
ROADWORK SITE PLAN
SCALE: 1:10

RECORD DRAWING

VERTICAL DATUM 1929
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DATE: JUNE 2008
C SHEET 04 OF 05
CAD REF. NO. 3338005_302



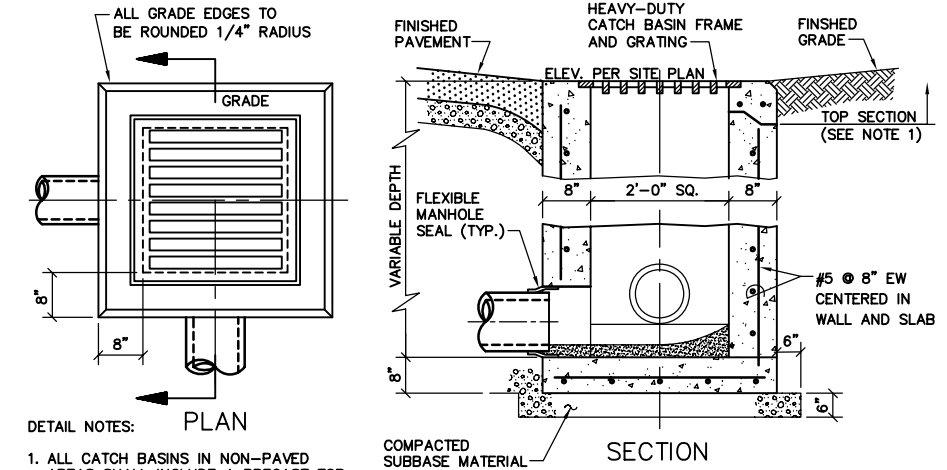
MANHOLE DETAIL



DETAIL NOTES:

1. PROVIDE CONCRETE ENCASEMENT AROUND PIPES UNDER STRUCTURES TO 5'-0" BEYOND FOUNDATION LIMITS.
2. CONCRETE SHALL BE 3000 PSI MINIMUM.
3. CONCRETE PIPE ENCASEMENT SHALL BE CAST SEPARATELY FROM THE CONCRETE FLOOR SLAB. UNDER NO CIRCUMSTANCES SHALL CONCRETE PIPE ENCASEMENT BE CAST MONOLITHICALLY WITH THE CONCRETE FLOOR SLAB.

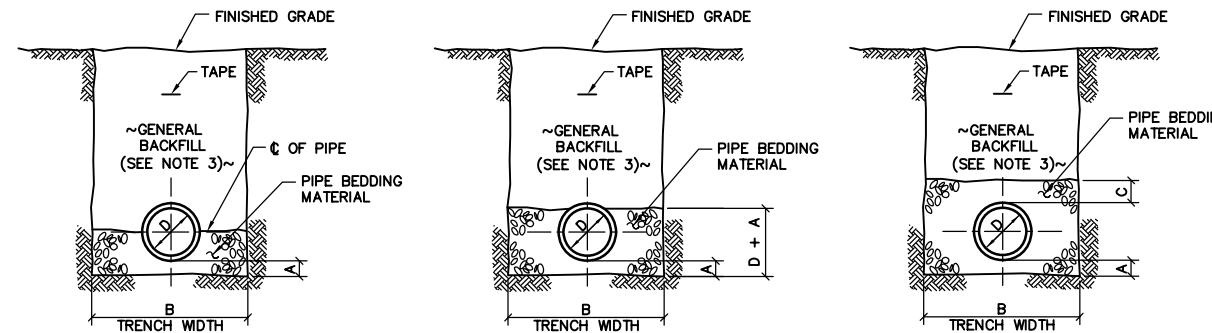
PIPE CONCRETE ENCASEMENT DETAILS



DETAIL NOTES:

1. ALL CATCH BASINS IN NON-PAVED AREAS SHALL INCLUDE A PRECAST TOP SECTION. ALL JOINTS BETWEEN SECTIONS SHALL BE TONGUE AND GROOVE.

CATCH BASIN DETAIL



TYPE 1		
D	A	B
4" - 24"	6"	OD + 24"
27" - 84"	6"	OD + 30"

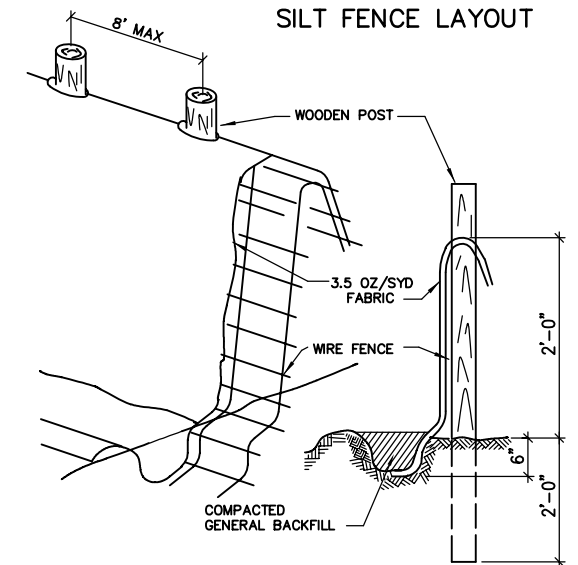
TYPE 2		
D	A	B
1" - 4"	6"	OD + 12"
6" - 36"	6"	OD + 24"

TYPE 3			
D	A	B	C
LESS THAN 18"	6"	OD + 24"	6"
18" - 84"	6"	OD + 36"	12"

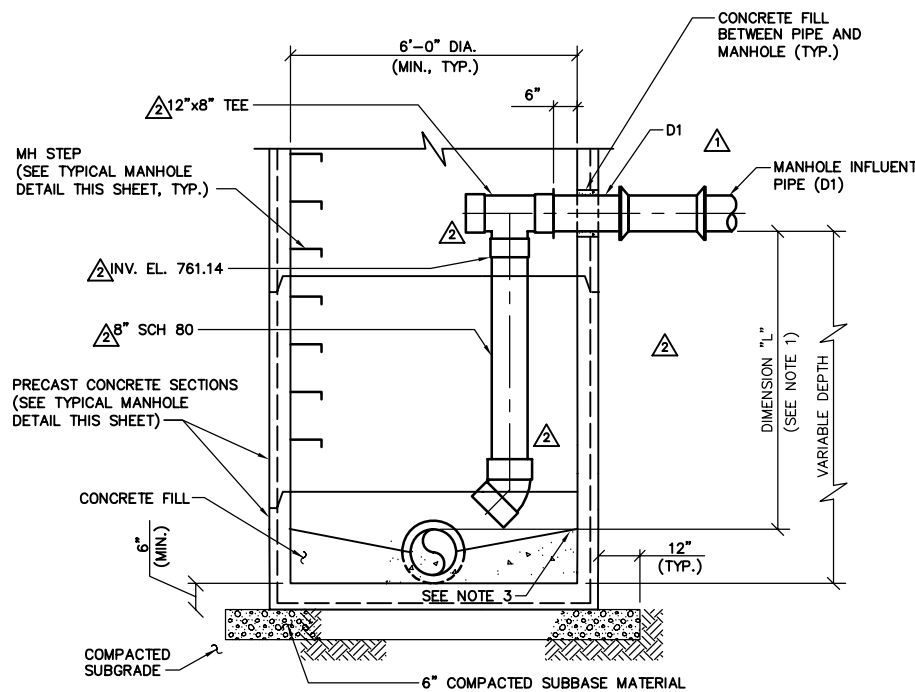
PIPE BEDDING NOTES:

1. WIDTH OF TRENCH IS MEASURED ONE FOOT ABOVE TOP OF PIPE. TRENCH MAY BE WIDER ABOVE THIS POINT.
2. ALL TRENCH WIDTHS SHOWN ARE MAXIMUM DIMENSIONS.
3. USE COMPACTED SELECT BACKFILL UNDER ALL ROADWAYS UNLESS OTHERWISE NOTED.
4. NOT ALL BEDDING DIMENSIONS AND PIPE DIAMETERS SHOWN ARE INCLUDED IN THE WORK.

TYPE 1 BEDDING DETAIL TYPE 2 BEDDING DETAIL TYPE 3 BEDDING DETAIL



SILT FENCE DETAIL

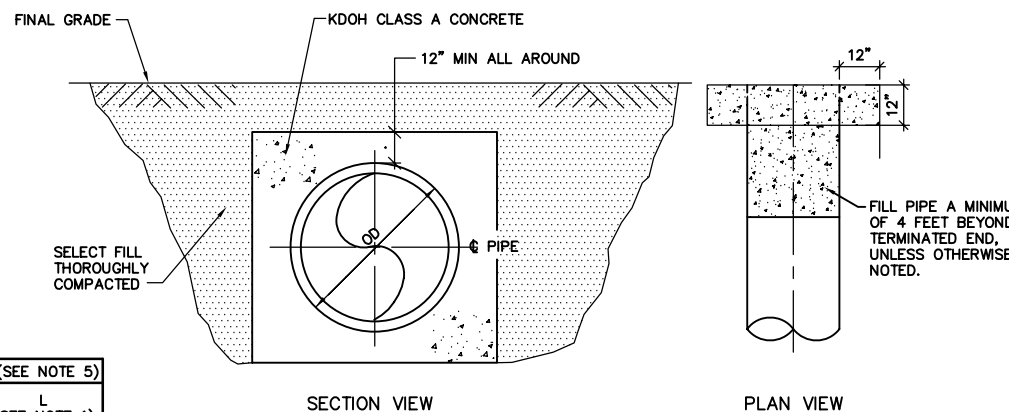


DETAIL NOTES:

1. PROVIDE DROP MANHOLE FOR ALL INSTANCES WHERE THE DISTANCE BETWEEN THE INFLUENT PIPE INVERT AND THE CROWN OF THE HEADER PIPE IS GREATER THAN OR EQUAL TO DIMENSION "L".
2. PROVIDE THE MANHOLE DROP PIPE DIAMETERS "D2" SCHEDULED UNLESS OTHERWISE NOTED ON PIPING PROFILES.
3. PLACE DROP PIPE INVERT AT THE SAME ELEVATION AS THE HEADER PIPE CROWN UNLESS NOTED OTHERWISE FOR EXISTING MAN HOLES SUBMIT PROPOSED ELEVATION TO ENGINEER FOR APPROVAL.
4. INFLUENT PIPE AND DROP PIPE SHALL BE OF THE SAME MATERIAL.
5. NOT ALL PIPE DIAMETERS SCHEDULED ARE INCLUDED IN THE WORK.

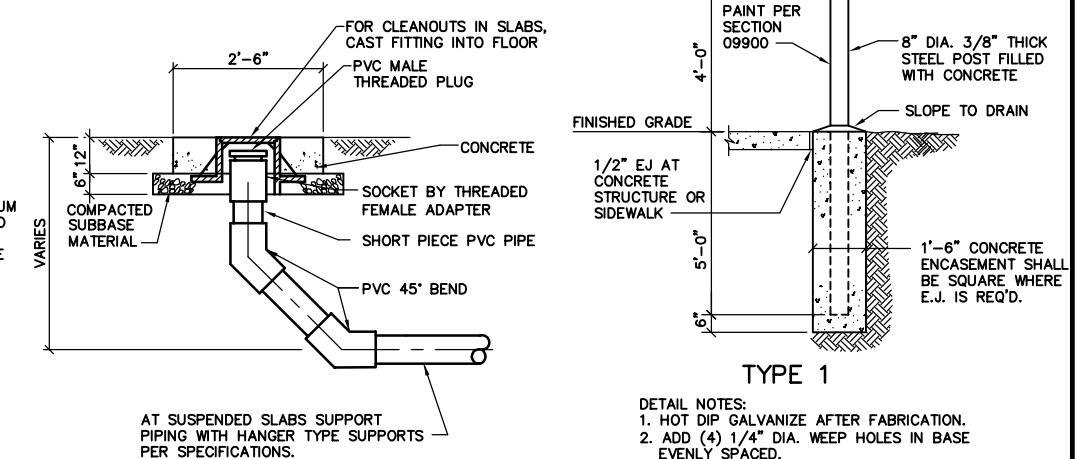
DROP PIPE DIMENSION SCHEDULE (SEE NOTE 5)			
D1	D2 (SEE NOTE 2)	L (SEE NOTE 1)	
6"	6"	2'-8"	
8" - 12"	8"	3'-6"	
14" - 18"	10"	4'-0"	
20" - 24"	12"	4'-6"	

DROP MANHOLE DETAIL



PIPE ABANDONMENT DETAIL

SCALE: NOT TO SCALE



TYPICAL CLEANOUT DETAIL

BOLLARD DETAILS

- DETAIL NOTES:
1. HOT DIP GALVANIZE AFTER FABRICATION.
 2. ADD (4) 1/4" DIA. WEEP HOLES IN BASE EVENLY SPACED.

RECORD DRAWING

VERTICAL DATUM 1929

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DATE JUNE 2008

C SHEET 05 OF 05

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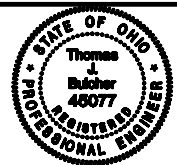
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO

CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS

CIVIL
DETAILS

SCALE AS SHOWN

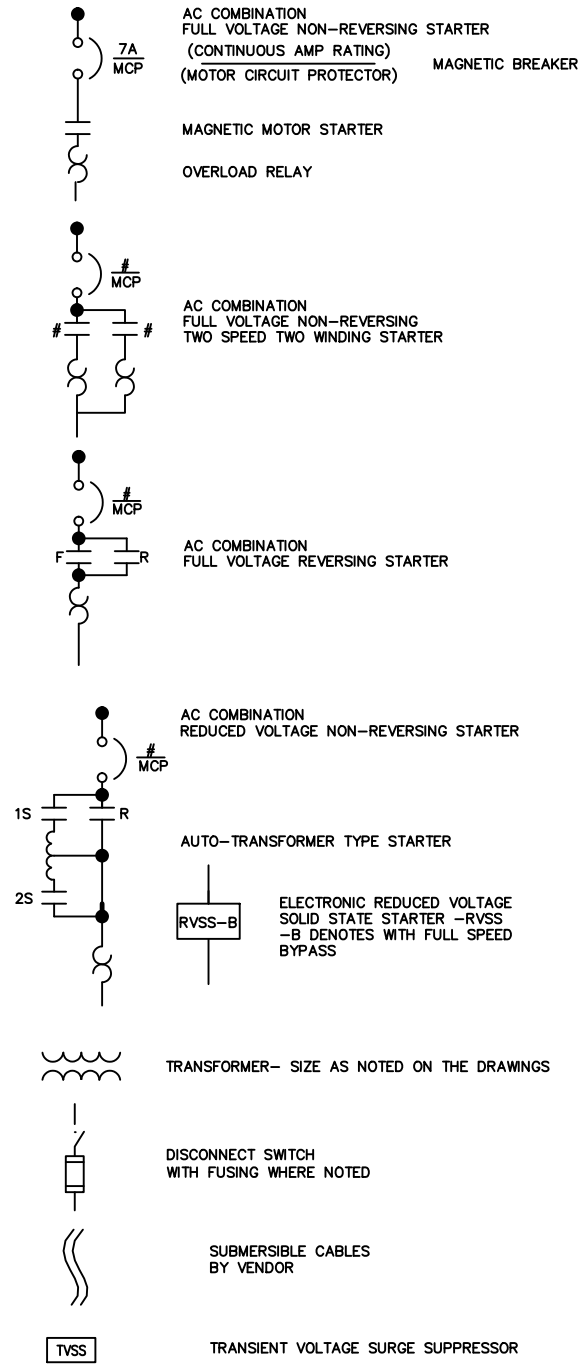
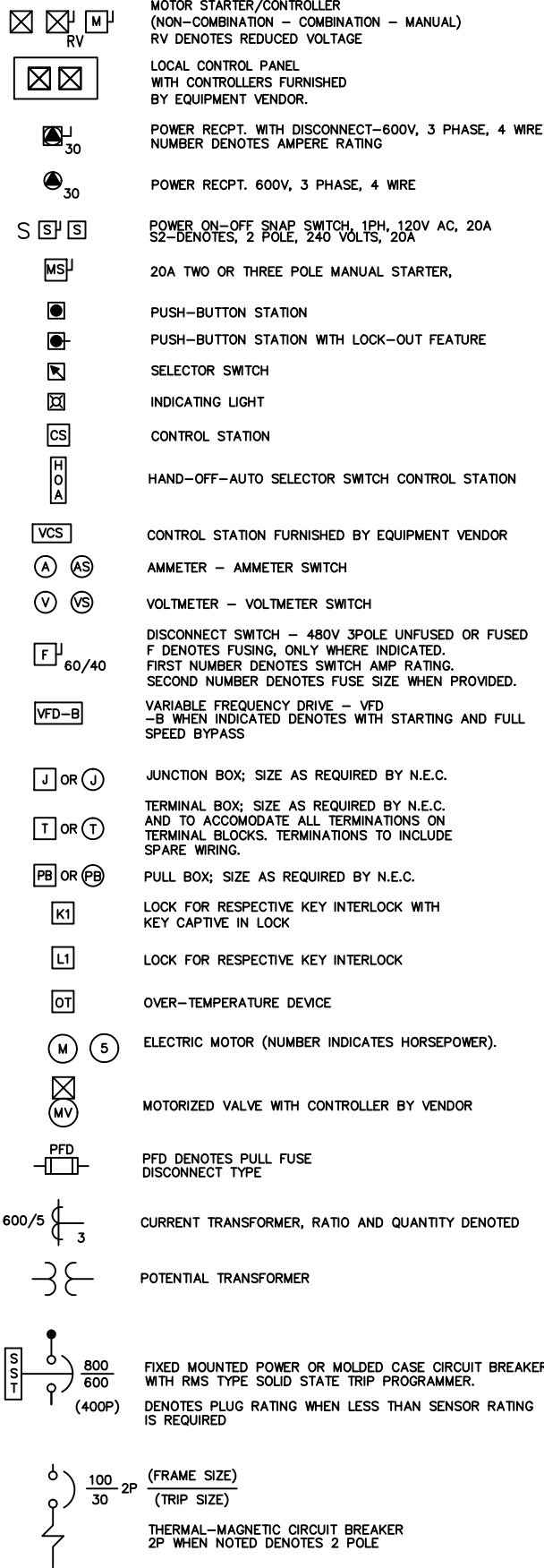
MALCOLM
PIRNIE



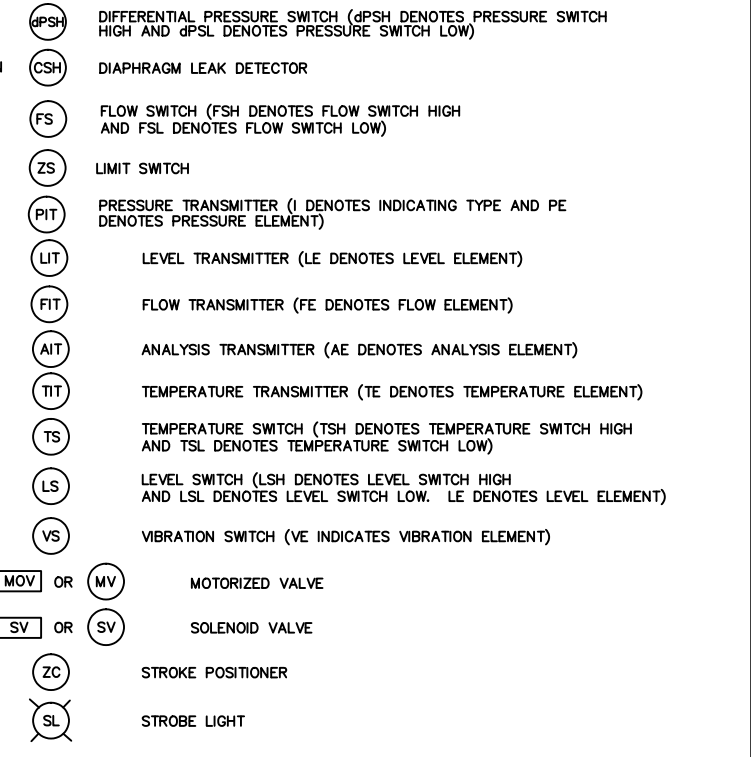
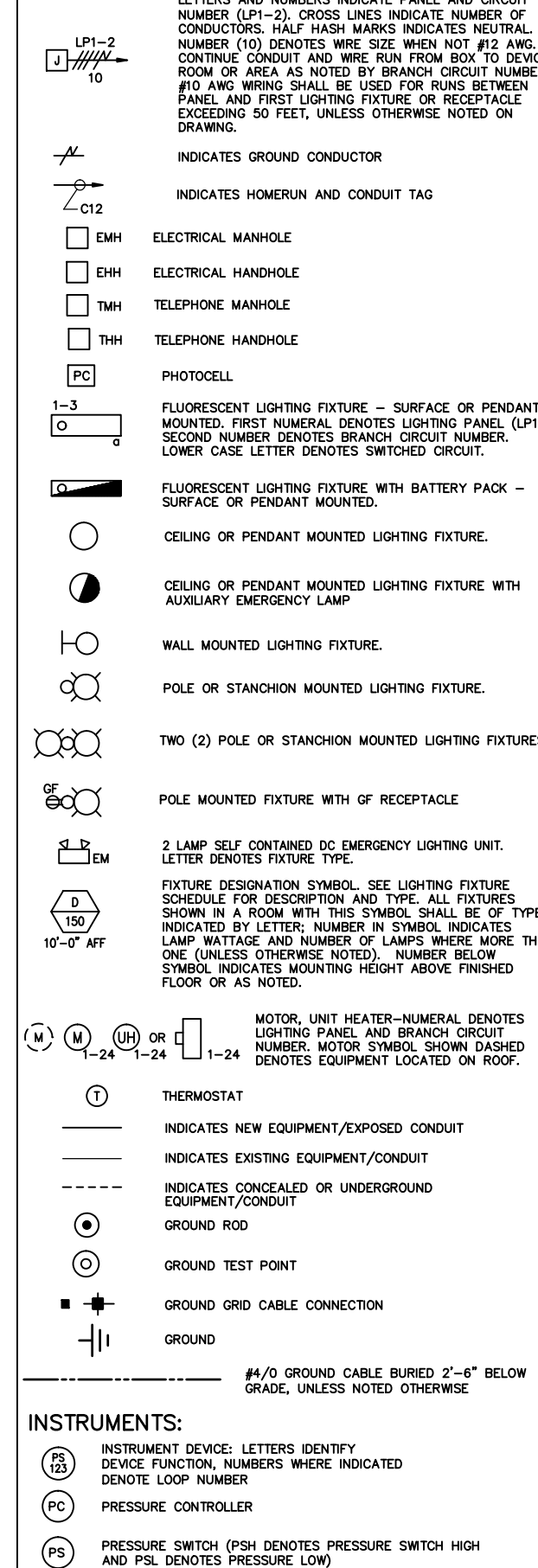
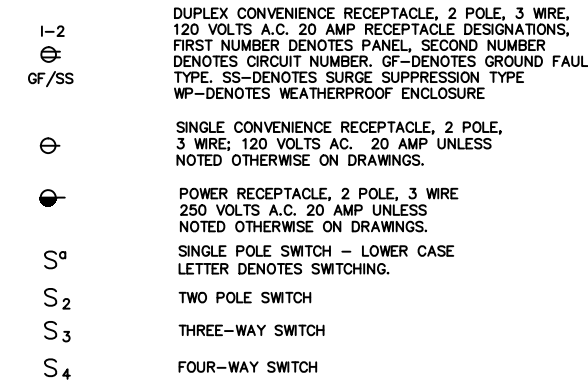
NO.		BY	DATE	REVISIONS	REMARKS
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2	BCK	07/29/08	REVISED PER RFI 06		

DES PAK
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CKD TJB

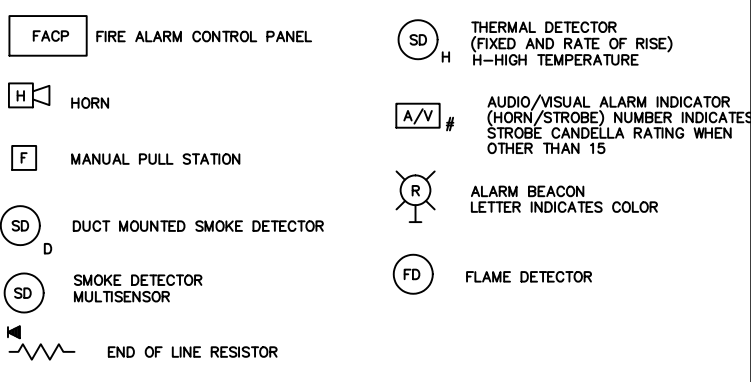
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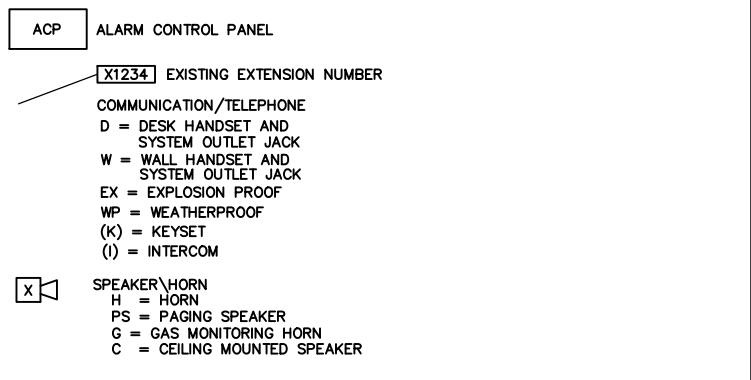
PLANS:



FIRE ALARM SYSTEM:



AUXILIARY SYSTEM:



ABBREVIATIONS:



CKT	CIRCUIT
CNTRL	CONTROL
CP-1	CONTROL PANEL, NUMBER AS NOTED
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
EC	EMPTY CONDUIT
EL, ELEV	ELEVATION
EP	EXPLOSION PROOF
EXIST	EXISTING
FDR	FEEDER
FIXT	FIXTURE
FVNR	FULL VOLTAGE NON-REVERSING
G	GALVANIZED
GND	GROUND
HOA	HAND/OFF/AUTO
JB OR J	JUNCTION BOX, CONDULET, FITTING AS REQUIRED BY NEC, UNLESS NOTED OTHERWISE
KCMIL OR MCM	THOUSAND CIRCULAR MILS
LA	LIGHTNING ARRESTOR
LCP	LOCAL CONTROL PANEL
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
MTS	MANUAL TRANSFER SWITCH
NA	NON-AUTOMATIC
NCTC	NORMALLY CLOSED, TIME CLOSE
NCTO	NORMALLY CLOSED, TIME OPEN
NOTC	NORMALLY OPEN, TIME CLOSED
NOTO	NORMALLY OPEN, TIME OPEN
NTS	NOT TO SCALE
P/B, PB	PULL BOX
PFD	PULL FUSE DISCONNECT
PNL	PANEL
PFC	POWER FACTOR CORRECTION CAPACITORS
PT	POTENTIAL TRANSFORMER
RECEP	RECEPTACLE
RVNR	REDUCED VOLTAGE NON-REVERSING
(S) (SH)	SHIELDED CABLE
SP	SPARE
SEL	SELECTOR
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEW	THERMOCOUPLE EXTENSION WIRE
UON	UNLESS OTHERWISE NOTED
USE	UNDERGROUND SERVICE ENTRANCE CABLE
WP	WEATHERPROOF
WT	WINDING TEMPERATURE RELAY
XFMR	TRANSFORMER
NEC	NATIONAL ELECTRIC CODE
TYP	TYPICAL

GENERAL NOTES:

1. THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.

RECORD DRAWING



REVISIONS			
NO.	BY	DATE	REMARKS

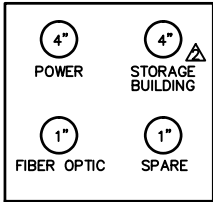
DES	AK
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CKD	GPM

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

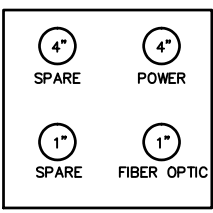
ELECTRICAL
LEGEND, SYMBOLS AND ABBREVIATIONS
SCALE: NO SCALE

VERTICAL DATUM 1929	
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DATE	JUNE 2008
E SHEET	01 OF 10
CAD REF. NO.	3338005_676

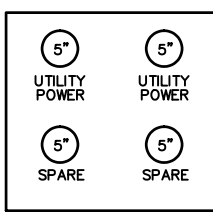
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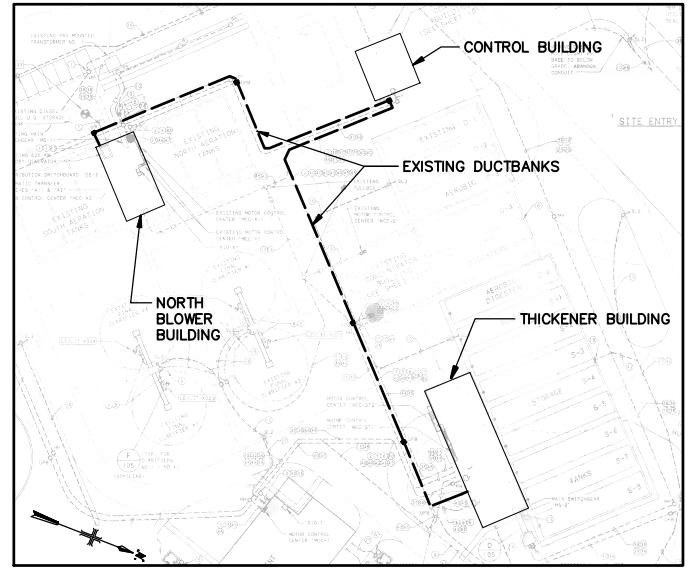
SECTION 1
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SECTION 2
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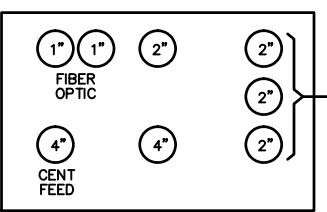


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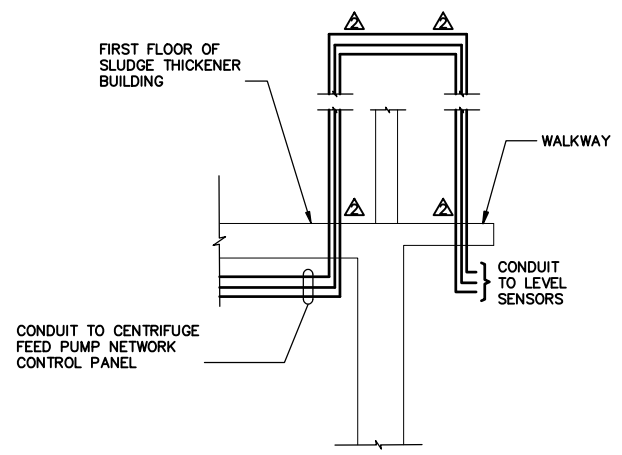
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NOTE:
USE 2" SPARE CONDUIT IN THE BASEMENT OF THE SLUDGE THICKENER BUILDING TO ROUTE FIBER OPTIC CABLE FROM CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL TO THE NEW SWITCH IN THE EXISTING "RIO-X" IN THE NORTH BLOWER BUILDING. APPROXIMATE FIBER OPTIC CABLE LENGTH FROM SLUDGE THICKENER BUILDING TO NORTH BLOWER BUILDING IS 1000 FEET.

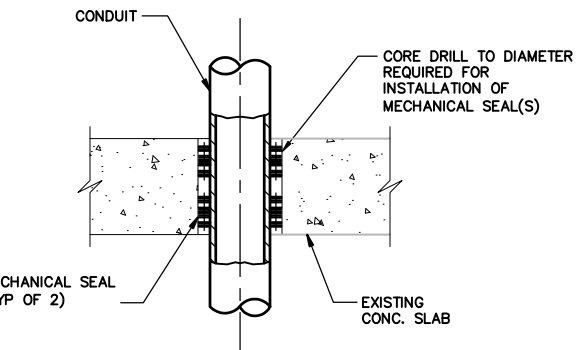


SECTION 5
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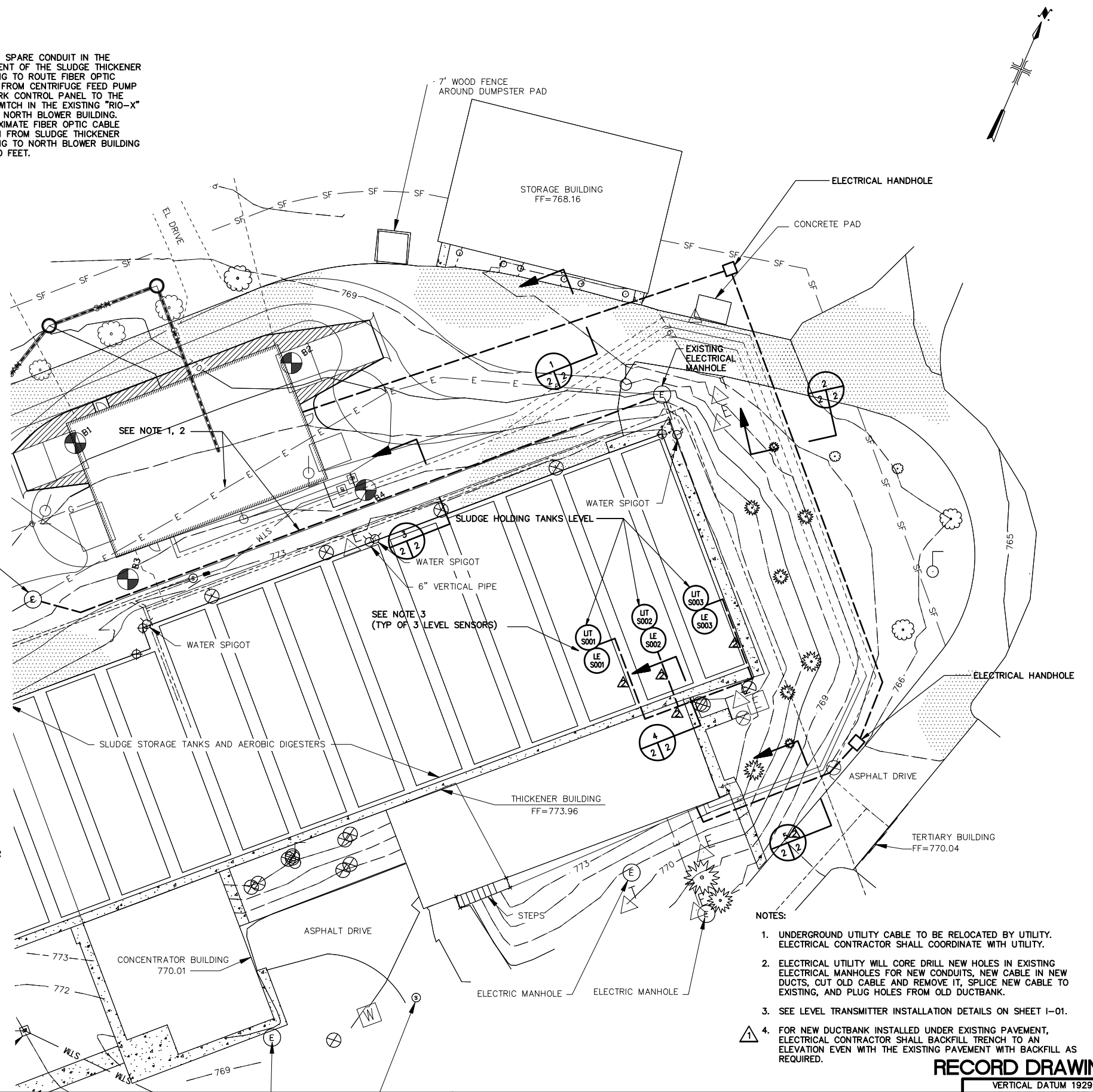
TO PULL BOX IN BLOWER BUILDING BASEMENT - THUS TO JUNCTION BOX AT NE CORNER OF HOLDING TANK #1 VIA. ELECTRIC HANDHOLE



SECTION 4
NOT TO SCALE



TYPICAL FLOOR CORE DETAIL



- NOTES:**
- UNDERGROUND UTILITY CABLE TO BE RELOCATED BY UTILITY. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY.
 - ELECTRICAL UTILITY WILL CORE DRILL NEW HOLES IN EXISTING ELECTRICAL MANHOLES FOR NEW CONDUITS, NEW CABLE IN NEW DUCTS, CUT OLD CABLE AND REMOVE IT, SPLICE NEW CABLE TO EXISTING, AND PLUG HOLES FROM OLD DUCTBANK.
 - SEE LEVEL TRANSMITTER INSTALLATION DETAILS ON SHEET I-01.
 - FOR NEW DUCTBANK INSTALLED UNDER EXISTING PAVEMENT, ELECTRICAL CONTRACTOR SHALL BACKFILL TRENCH TO AN ELEVATION EVEN WITH THE EXISTING PAVEMENT WITH BACKFILL AS REQUIRED.

User: g:\mcs\Spec\PIRNE STANDARD File: T:\3338005\RECORD DRAWINGS\ELEC\3338005_685.DWG Scale: 1:1 Date: 12/14/2009 Time: 15:21 Layout: E-02

MALCOLM PIRNIE



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AK	AK	06/14/08	REVISED PER ADDENDUM NO.1		
BCK	BCK	10/21/09	RECORD DRAWING CHANGES		

DES AK
DWN AK
CKD GPM

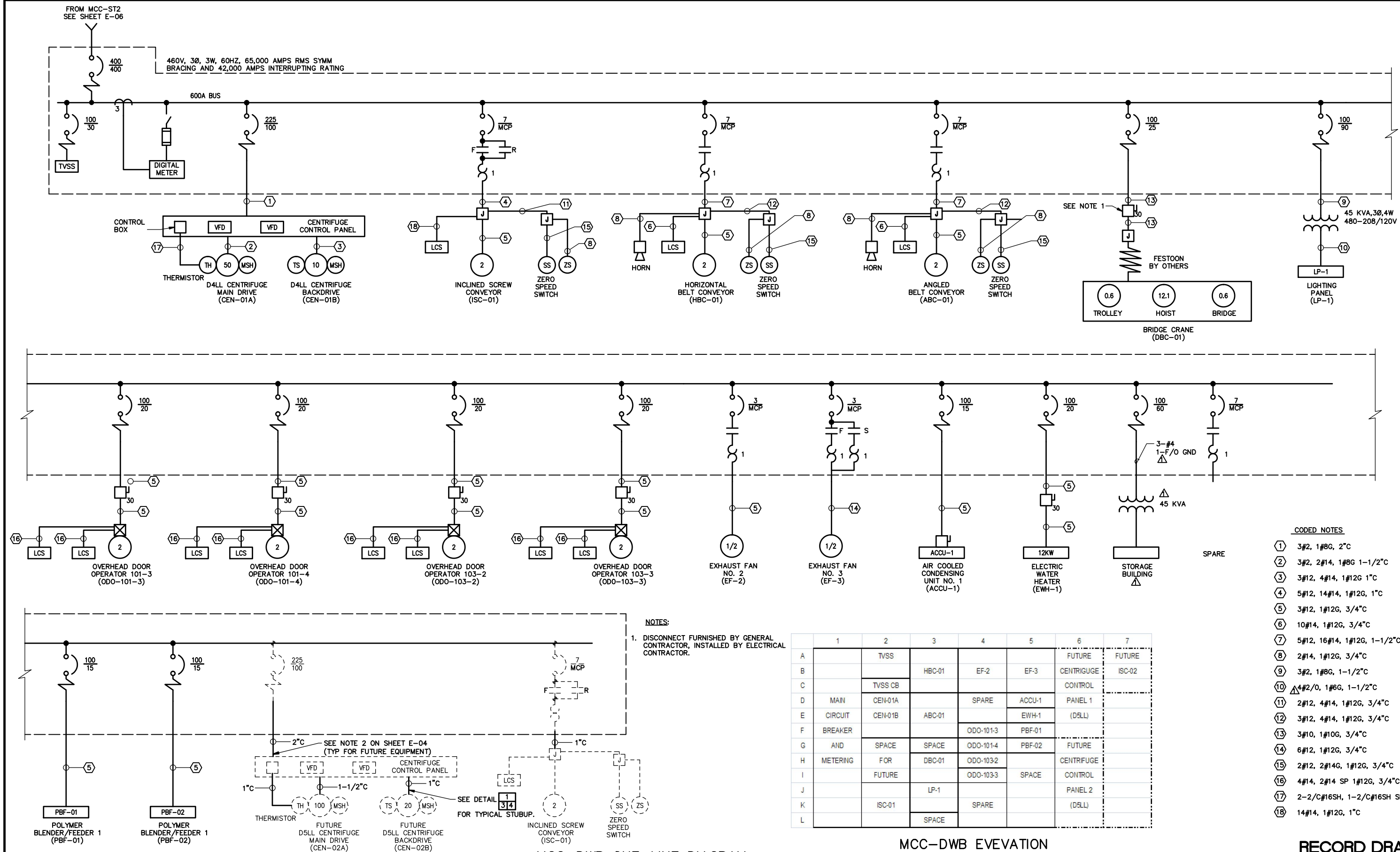
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

ELECTRICAL SITE PLAN
SCALE: 1:20

RECORD DRAWING

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DATE JUNE 2008
E SHEET 02 OF 10
CAD REF. NO. 3338005_685

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NO.		BY	DATE	REVISIONS	REMARKS
Δ	BCK	01/07/09	REVISED PER FO 01		

DES AK
DWN AK
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DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

DEWATERING FACILITY
ONE-LINE DIAGRAM AND MCC ELEVATION
SCALE: NO SCALE

RECORD DRAWING

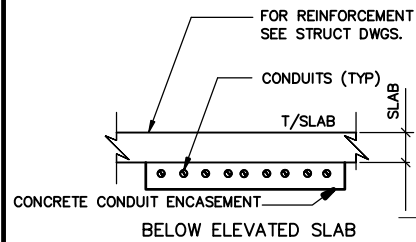
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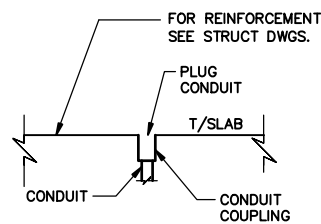
E SHEET 03 OF 10

CAD REF. NO. 3338005_677



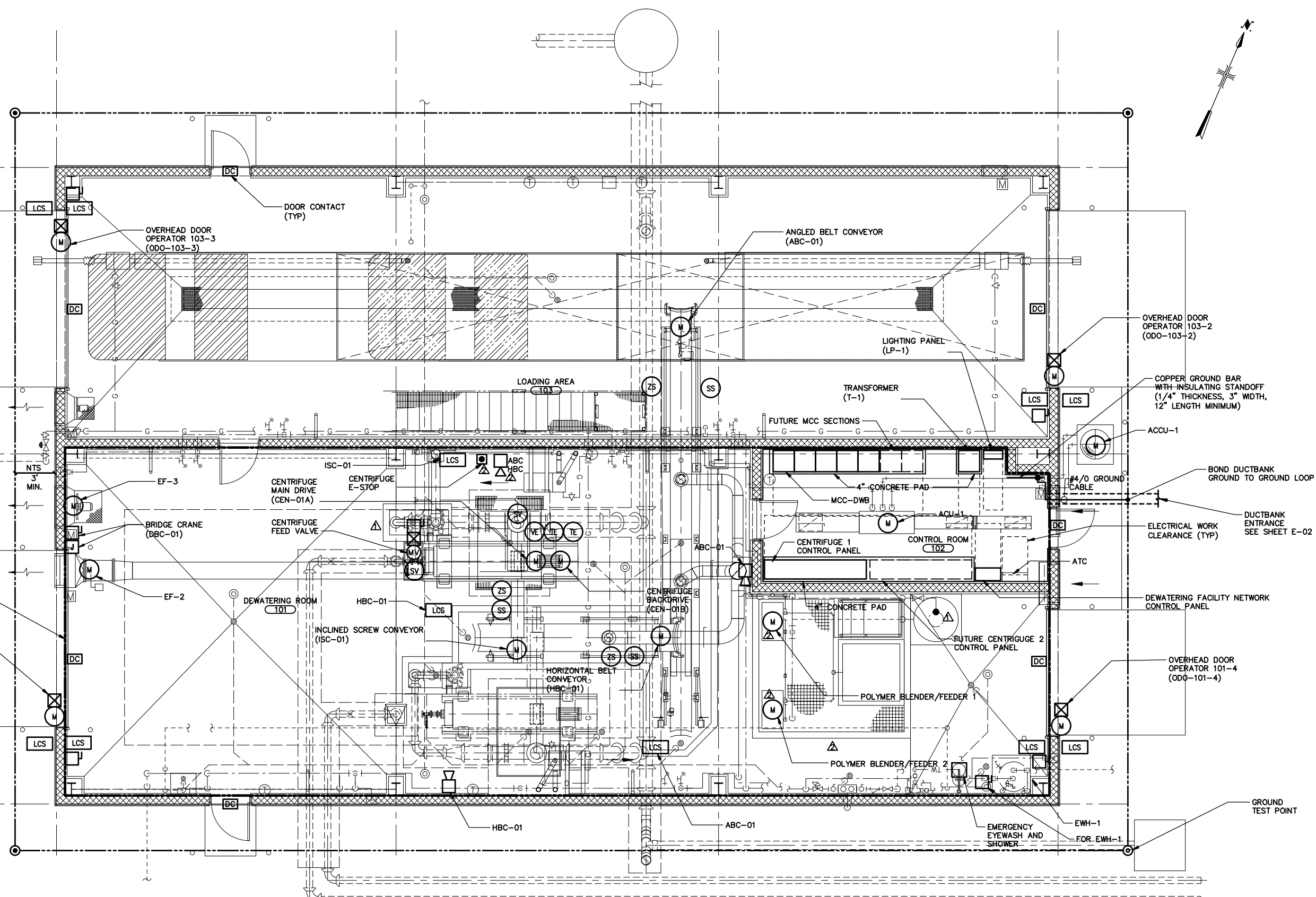
TYPICAL CONDUIT ENCASUREMENT DETAIL

NOTES:
1. REFER TO SPECIFICATION SECTION 03300 FOR COORDINATION OF CONCRETE WITH OTHER CONTRACTORS.



TYPICAL CONDUIT STUBUP FOR FUTURE EQUIPMENT DETAIL

DETAIL 1/3/4



NOTES:
1. RUN ALL CONDUIT UNDER THE SLAB FOR OUTLINED AREA. SEE DETAILS LOCATED ON THIS SHEET.
2. RUN CONDUITS FOR FUTURE CENTRIFUGE AND FOR FUTURE INCLINED CONVEYOR. SEE MECHANICAL DRAWINGS FOR EQUIPMENT LOCATIONS AND DRAWING E03 FOR CONDUIT INFORMATION.

User: Wells Spec: PIRNIE STANDARD File: T:\3338005\CADD\EECC\3338005_680.DWG Scale: 1:1 Date: 10/21/2009 Time: 11:53 Layout: E-04

MALCOLM PIRNIE



NO.		BY	DATE	REVISIONS	REMARKS
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2	1	BCK	10/21/09	RECORD DRAWING CHANGES	

DES AK
DWN AK
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DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

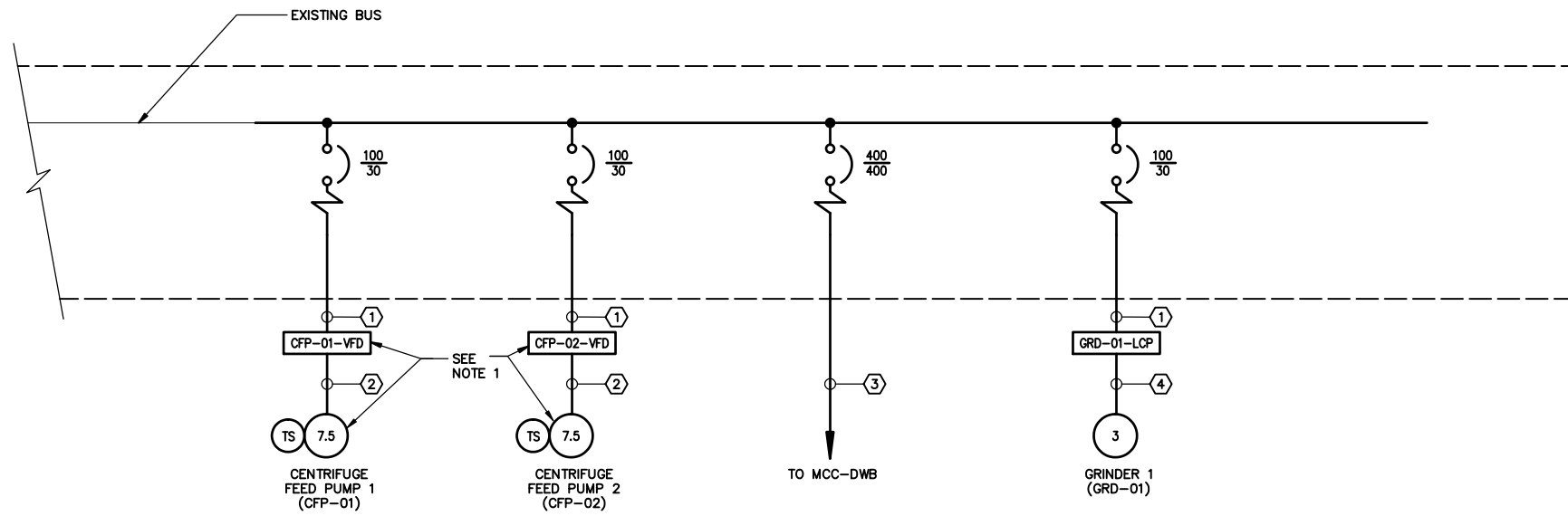
DEWATERING FACILITY
POWER PLAN

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

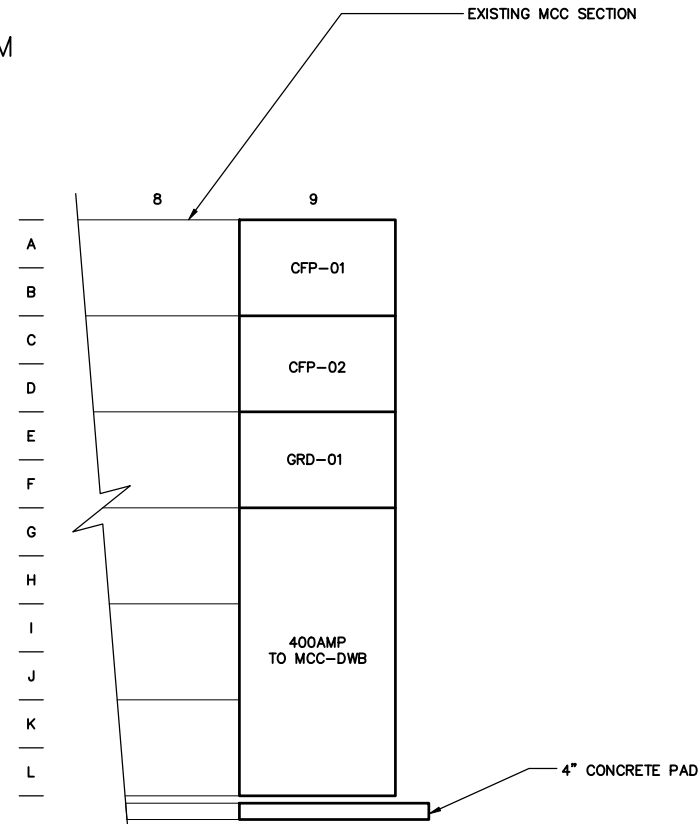
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MCC-ST2 PARTIAL ONE LINE DIAGRAM



MCC-ST2 PARTIAL ELEVATION

- NOTES:**
1. SIZE VFD FOR FUTURE 15HP MOTORS.

CODED NOTES

- ① 3#10, 1#10G, 3/4" C
- ② 3#10, 2#14, 1#10G, 3/4" C
- ③ 3#500KCM, 1#2G, 4" C
- ④ 3#12, 1#12G, 3/4" C

RECORD DRAWING

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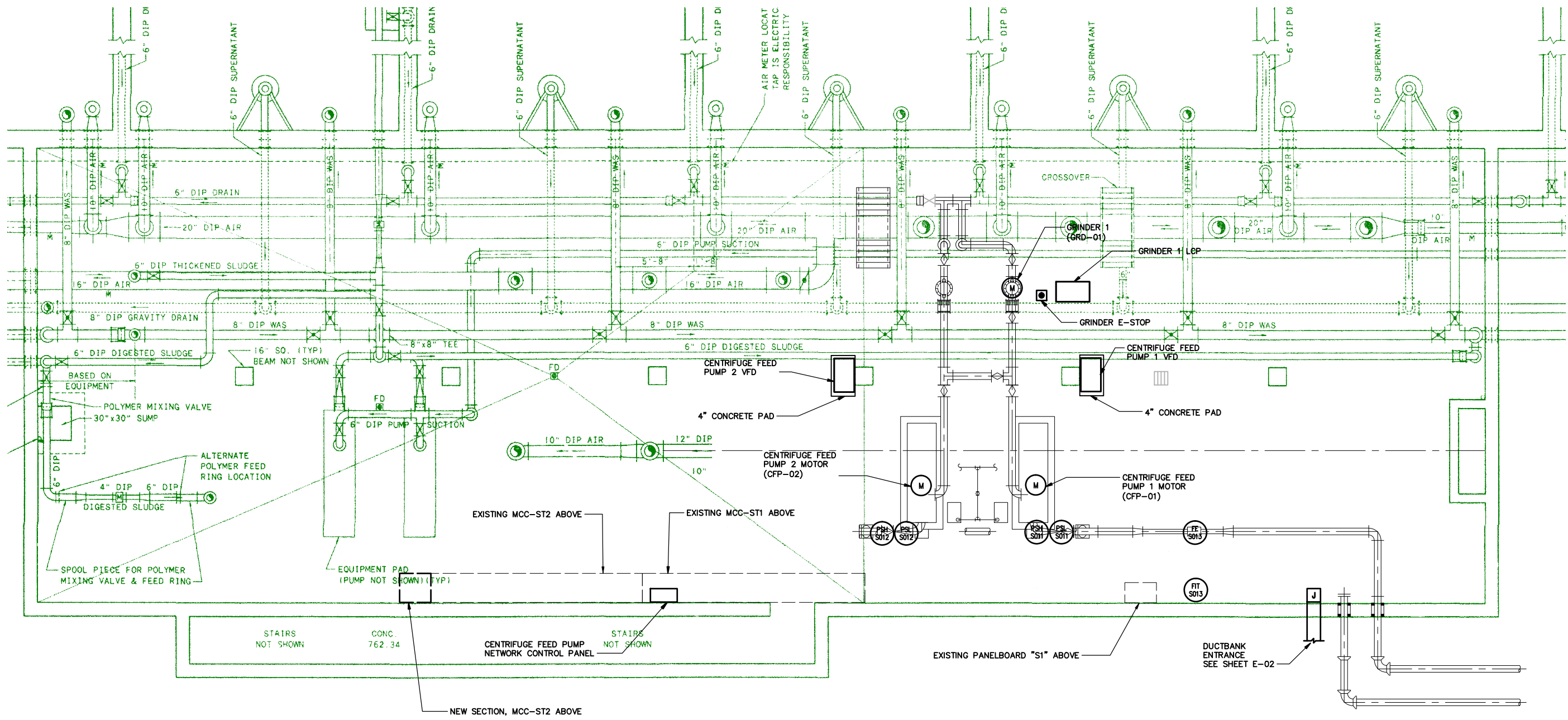
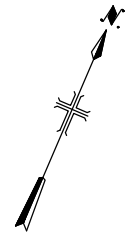
NO.		BY	DATE	REVISIONS	REMARKS

DES. AK
DWN. AK
CKD. GPM

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

SLUDGE THICKENER BUILDING
**ONE-LINE DIAGRAM AND
MCC ELEVATION**
SCALE: NO SCALE

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E SHEET 06 OF 10
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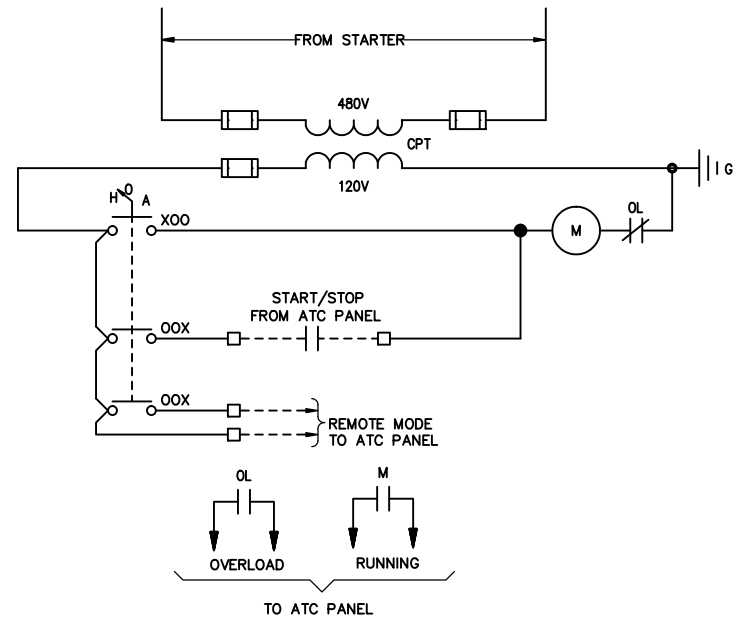
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

SLUDGE THICKENER BUILDING
**LOWER LEVEL
POWER PLAN**
SCALE: 1/4" = 1'-0"

RECORD DRAWING

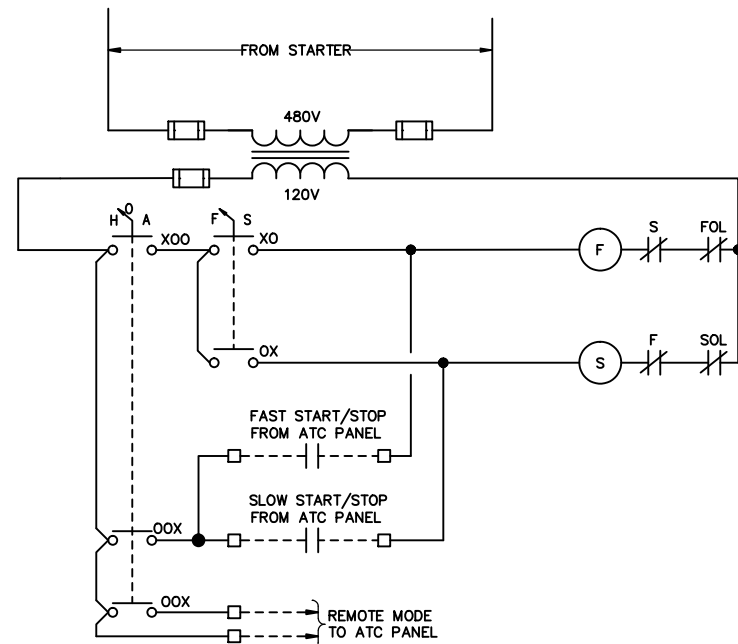
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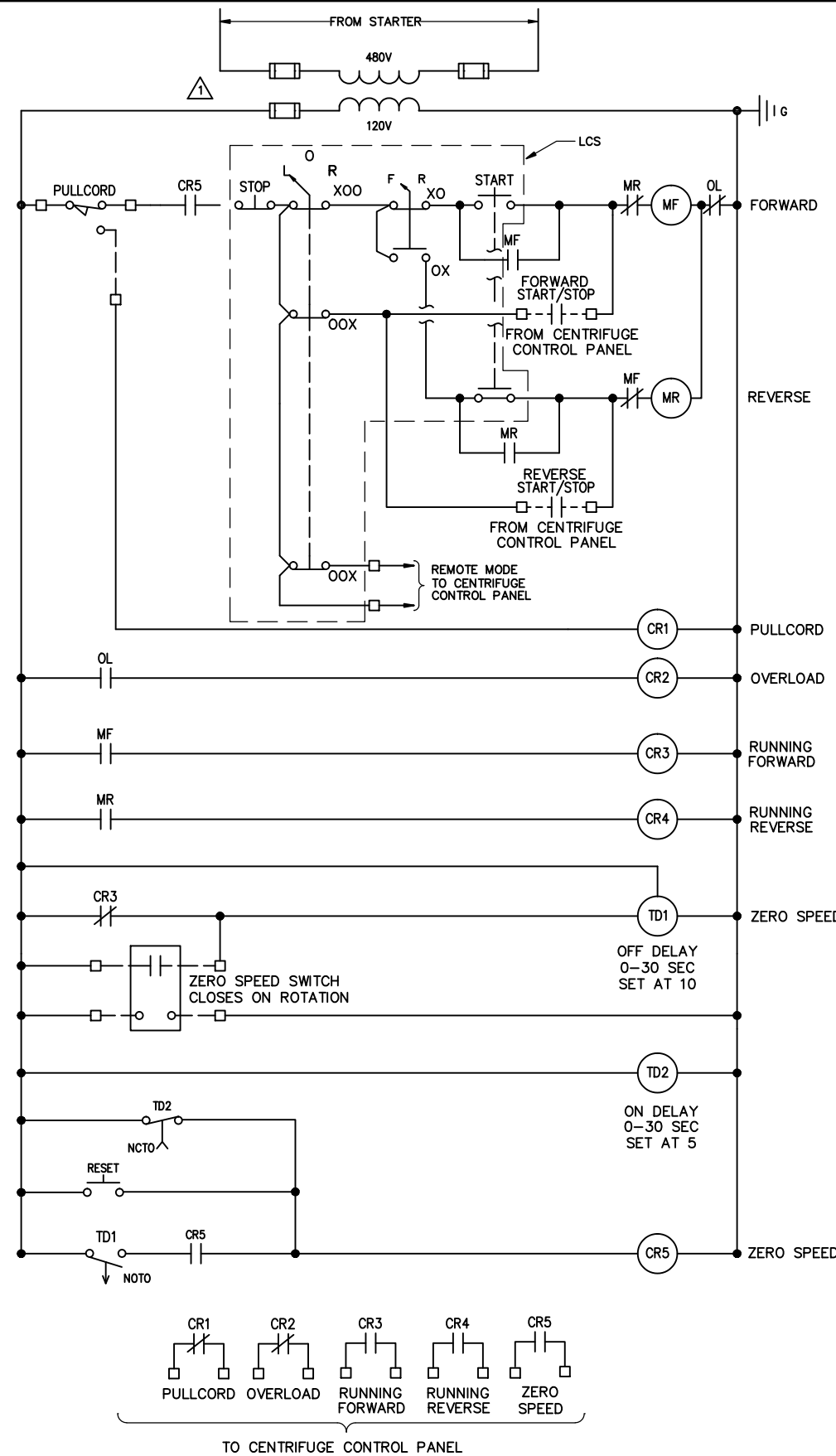
SINGLE SPEED FANS

EF-2

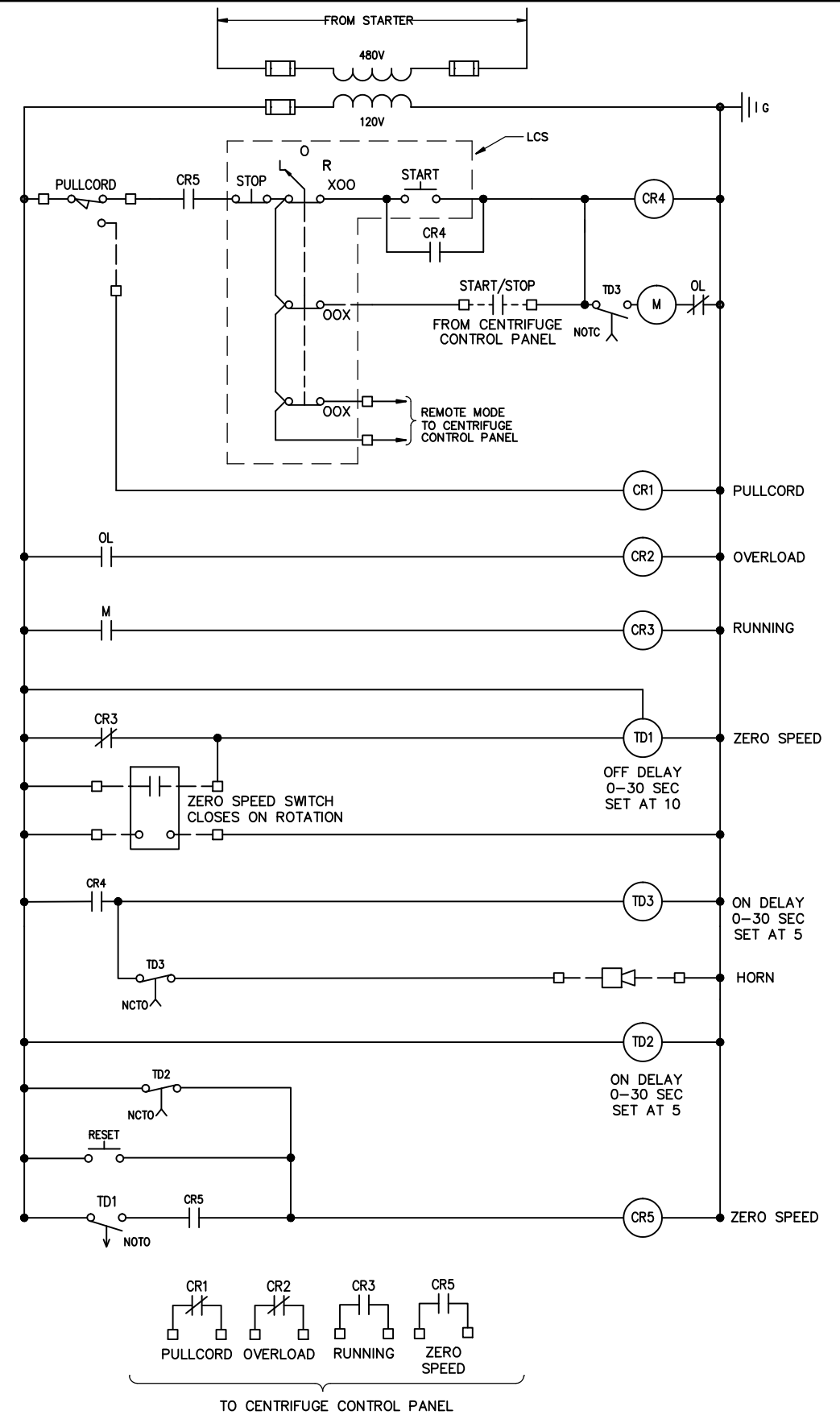


TWO SPEED FANS

EF-3



INCLINED SCREW CONVEYOR (ISC-01)



HORIZONTAL BELT CONVEYOR (HBC-01)

TYP. FOR: ANGLED BELT CONVEYOR (ABC-01)

RECORD DRAWING

MALCOLM PIRNIE



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1	AK	06/14/08	REVISED PER ADDENDUM NO.1		

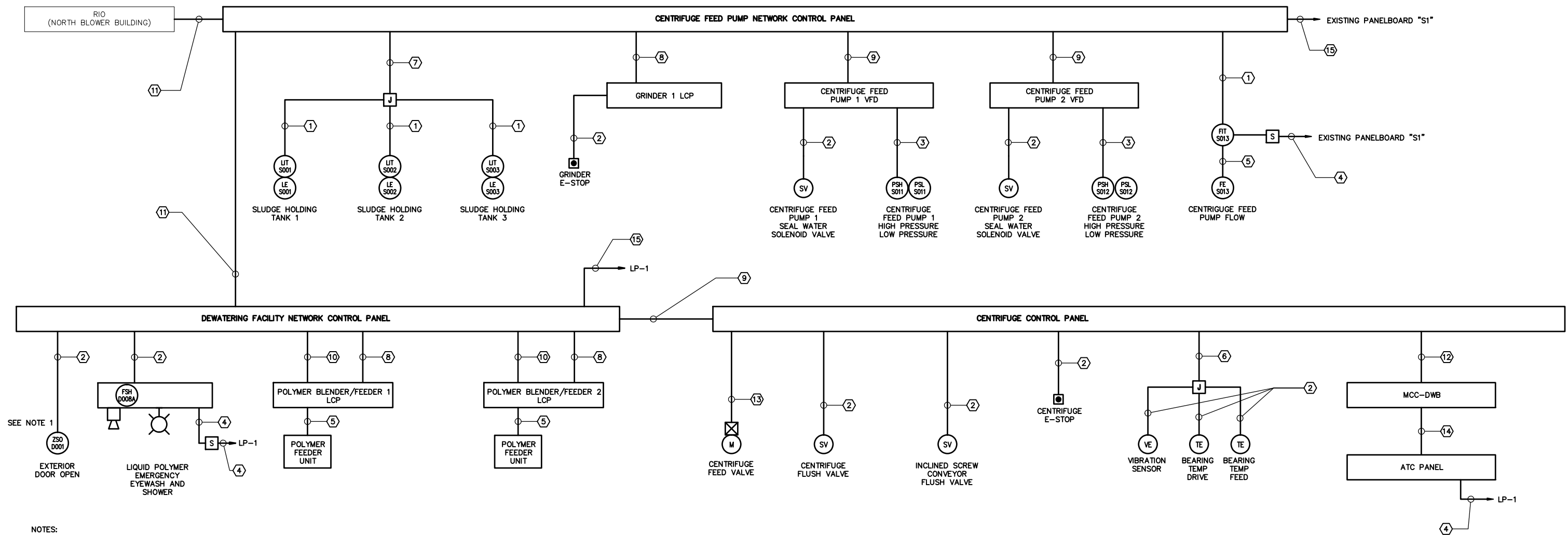
DES GPM/AK
DWN AK
CKD GPM

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**ELECTRICAL
CONTROL SCHEMATICS**

SCALE: NO SCALE

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DATE JUNE 2008
E SHEET 08 OF 10
CAD REF. NO. 3338005_687



RISER DIAGRAM

- NOTES:**
- DOOR CONTACT ZSO-D001 WIRING IS TYPICAL FOR DOOR CONTACTS ZSO-D002, THROUGH ZSO-D007 (3 PERSONNEL DOORS, 4 ROLLUP DOORS).

LP-1

NO	TRIP	DESCRIPTION	AMPS	KVA	A	B	C	KVA	AMPS	DESCRIPTION	TRIP	NO
1	20	CONTROL ROOM LTS	2.5	0.3	0.5	---	---	0.2	1.7	EMERGENCY EYEWASH/SHOWER	20	2
3	20	CONTROL ROOM RECEPTACLES	3.3	0.4	---	0.6	---	0.2	1.7	RH-1 RECEPTACLE	20	4
5	20	DEWATERING ROOM LTS	7.5	0.9	---	---	1.1	0.2	1.7	RH-2 RECEPTACLE	20	6
7	20	DEWATERING ROOM LTS	6.7	0.8	0.9	---	---	0.1	0.8	SPARE	20	8
9	20	DEWATERING ROOM RECEPTACLES	6.7	0.8	---	0.9	---	0.1	0.8	SPARE	20	10
11	20	LOADING AREA LTS	4.2	0.5	---	---	1.5	1.0	8.3	ATC PANEL	20	12
13	20	LOADING AREA LTS	4.7	0.6	2.2	---	---	1.7	13.8	ACU-1	30	14
15	20	LOADING AREA RECEPTACLES	3.3	0.4	---	2.1	---	1.7	13.8		2P	16
17	20	OUTSIDE LTS	5.3	0.6	---	---	1.6	1.0	8.3	NETWORK CONTROL PANEL	20	18
19	20	OUTSIDE LTS	5.3	0.6	1.6	---	---	1.0	8.3		2P	20
21	20	OUTSIDE RECEPTACLES	6.7	0.8	---	0.8	---	0.0	0.0	SPARE	40	22
23	20	SPARE	0.0	0.0	---	---	0.0	0.0	0.0	SPARE	20	24
25	20	SPARE	0.0	0.0	0.0	---	---	0.0	0.0	SPARE	40	26
27	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	28
29	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	30
31	20	SPARE	0.0	0.0	0.0	---	---	0.0	0.0	SPARE	20	32
33	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	34
35	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	36
37	20	SPARE	0.0	0.0	0.0	---	---	0.0	0.0	SPARE	20	38
39	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	40
41	20	SPARE	0.0	0.0	---	0.0	---	0.0	0.0	SPARE	20	42
TOTAL KVA PER PHASE			5.2			4.4			4.2			
TOTAL KVA CONNECTED						13.8						
TOTAL AMPS PER PHASE			43.7			36.3			35.3			

120/208V 3 PHASE 4 WIRE ROOM: DEWATERING BUILDING
 225A BUS 150A MAIN CB ROOM: CONTROL ROOM
 GROUND BUS, NEUTRAL BUS FED FROM: MCC-DWB
 PANEL AND BREAKERS RATED 22 KVA ENCLOSURE: NEMA 12
 PROVIDE INTEGRAL TV SS UNIT

LP-1 SCHEDULE

PANELBOARD "S1"

NO	TRIP	DESCRIPTION	AMPS	KVA	A	B	C	KVA	AMPS	DESCRIPTION	TRIP	NO
1	20	LOWER LEVEL RECEPTACLES*	9.0	1.1	2.6	---	---	1.5	12.4	LOWER LEVEL LIGHTS*	20	2
3	20	UPPER LEVEL RECEPTACLES*	6.0	0.7	---	2.1	---	1.4	11.7	UPPER LEVEL BLOWN RM LIGHTS*	20	4
5	20	UPPER LEVEL RECEPTACLES*	7.5	0.9	---	2.3	1.4	11.7	UPPER LEVEL BLOWN RM LIGHTS*	20	6	
7	20	UPPER LEVEL RECEPTACLES*	9.0	1.1	2.0	---	---	0.9	7.8	UPPER LEVEL CONVEYOR LIGHTS*	20	8
9	20	GPI PUMPS CP*	3.0	0.4	---	0.6	---	0.2	2.0	STAIRWELL LIGHTS	20	10
11	20	TRUCK LOADING STA. GP*	6.0	0.8	---	---	0.6	0.0	0.0	SPARE	20	12
13	20	SPARE*	0.0	0.0	0.5	---	---	0.5	4.1		15	14
15	20	SPARE*	0.0	0.0	---	0.5	---	0.5	4.1	EXTERIOR OVERHEAD DOOR OPERATOR*	3P	16
17	20	SPARE*	0.0	0.0	---	0.5	0.5	4.1			3P	18
19	20	SPARE*	0.0	0.0	0.6	---	---	0.5	4.1		15	20
21	20	RECR FAN "RF-S1"	9.8	1.2	---	1.7	---	0.5	4.1	INTERIOR OVERHEAD DOOR OPERATOR*	3P	22
23	20	RECR FAN "RF-S2"	9.8	1.2	---	1.7	0.5	4.1			3P	24
25	20	RECR FAN "RF-S3"	4.4	0.6	0.6	---	---	0.0	0.0	SPARE	20	26
27	20	HEATING UNIT "HU-S1"	2.0	0.2	---	1.2	---	1.0	8.3	CENTRIFUGE FEED NETWORK CP	20	28
29	20	HEATING UNIT "HU-S2"	2.0	0.2	---	1.2	1.0	8.3			2P	30
31	20	HEATING UNIT "HU-S3"	2.0	0.2	0.3	---	---	0.1	0.8	FIT-S013	20	32
33	20	HEATING UNIT "HU-S14"	2.0	0.2	---	0.2	---	0.0	0.0	SPARE	20	34
35	20	HEATING UNIT "HU-S5"	0.8	0.1	---	1.1	1.0	8.0	POLYMER FEEDER*	20	36	
37	20	HEATING UNIT "HU-S6"	0.8	0.1	1.1	---	---	1.0	8.0	POLYMER FEEDER*	20	38
39	20	HEATING UNIT "HU-S7"	2.0	0.2	---	1.1	---	0.9	7.4	POLYMER MIX ER*	20	40
41	20	HEATING UNIT "HU-S8"	2.0	0.2	---	1.1	0.9	7.3	EXHAUST FAN EXF-S7*	20	42	
TOTAL KVA PER PHASE			7.5			7.5			8.5			
TOTAL KVA CONNECTED						23.4						
TOTAL AMPS PER PHASE			62.4			62.3			70.6			

120/208V 3 PHASE 4 WIRE BUILDING: SLUDGE THICKENER BUILDING
 225A BUS 150A MAIN CB ROOM: BLOWER ROOM
 GROUND BUS, NEUTRAL BUS FED FROM: MCC-ST2
 PANEL AND BREAKERS RATED 22 KVA ENCLOSURE: NEMA 1

EXISTING PANELBOARD "S1" SCHEDULE

- NOTES FOR "S1" SCHEDULE:**
- CIRCUITS SCREENED AND MARKED WITH "*" ARE EXISTING.
 - USE EXISTING SPARE BREAKERS FOR NEW EQUIPMENT.

- CODED NOTES**
- ① 1-2/C#16SH, 3/4"C
 - ② 2#14, 1#14G, 3/4"C
 - ③ 4#14, 1#14G, 3/4"C
 - ④ 2#12, 1#12G, 3/4"C
 - ⑤ CBV
 - ⑥ 6#14, 1#14G, 3/4"C
 - ⑦ 3-2/C#16SH, 1-2/C#16SH SP, 1"C
 - ⑧ 8#14, 2,#14 SP, 1#14G, 3/4"C
 - ⑨ CAT6 ETHERNET, 1"C
 - ⑩ 3-2/C#16SH, 1-2/C#16SH SP, 1"C
 - ⑪ FIBEROPTIC ETHERNET, 6 FIBERS, 1"C
 - ⑫ 42#14, 8#14 SP, 1#14G, 1-1/2"C
 - ⑬ 14#14, 3#14 SP, 1#14G, 1"C
 - ⑭ 19#14, 1#14G, 1"C
 - ⑮ 4#12, 1#12G, 3/4"C

RECORD DRAWING



REVISIONS			
NO.	BY	DATE	REMARKS
1	BCK	10/21/09	RECORD DRAWING CHANGES

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DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

ELECTRICAL
RISER DIAGRAM AND LIGHTING PANEL SCHEDULES
 SCALE: NO SCALE

VERTICAL DATUM 1929

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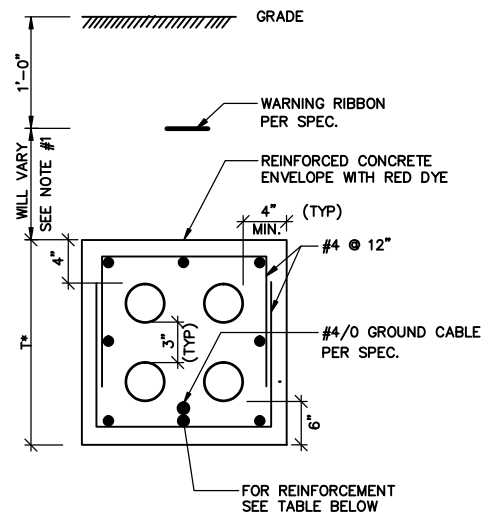
DATE JUNE 2008

E SHEET 09 OF 10

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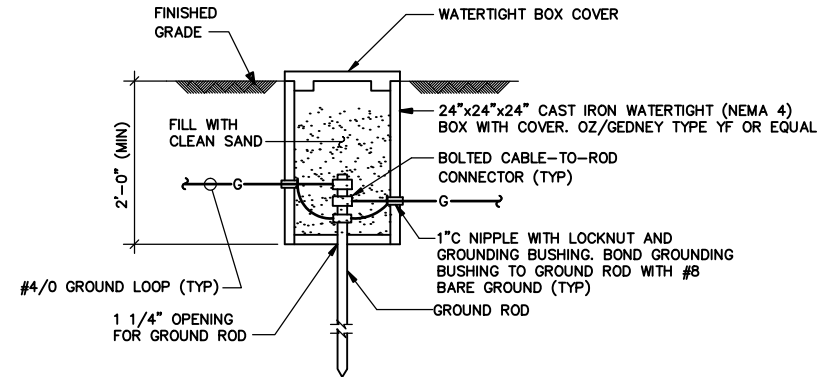
REINFORCEMENT TABLE		
DUCT BANK THICKNESS SEE NOTE #2	UNDER ROADWAY*	AT NON-TRAFFIC AREA
T < 18"	#8 @ 12" (MIN) ALL AROUND	#6 @ 12" ALL AROUND
T ≥ 18"	#7 @ 12" (MIN) ALL AROUND	#5 @ 12" ALL AROUND

- NOTES:
- DUCT BANK DIMENSION (1'-0" MINIMUM) VARIES TO CLEAR OTHER UNDERGROUND SYSTEMS AND TO MAINTAIN SLOPE AS REQUIRED.
 - DUCT BANK DEPTH AND WIDTH VARIES, REFER TO PLAN DRAWINGS FOR SIZES.

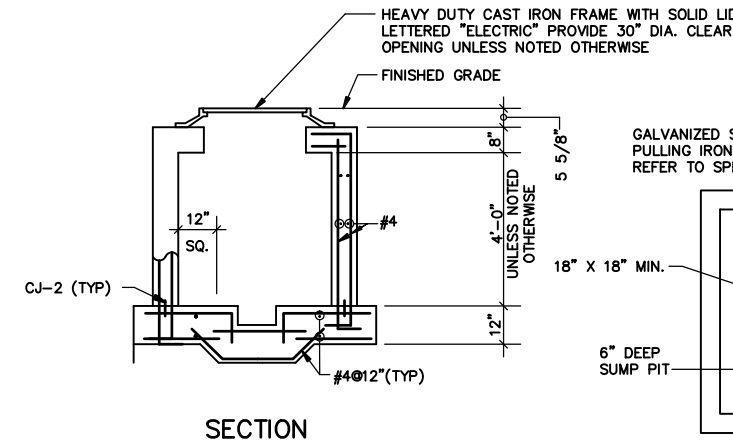
TYPICAL DUCT BANK SECTION

TYPE OF CONNECTION	BOLTED OR COMPRESSION		WELDED
	BURNDY CAT#	T&B CAT#	CADWELL CAT#
CABLE TO LUG	YA	54000 SERIES	LA
CABLE TO ROD	-	53000 SERIES	GT
ROD TO CABLE	GAR	-	GR
CABLE TO CABLE	GX	53000 SERIES	TV OR TA
CABLE TO PIPE	-	-	HA OR VS
CABLE TO FLAT SURFACE	GB	-	HA OR HS
BRAID TO PIPE	GG	-	-

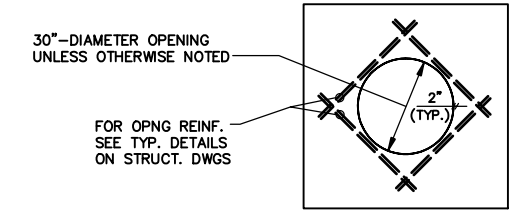
GROUNDING CONNECTIONS



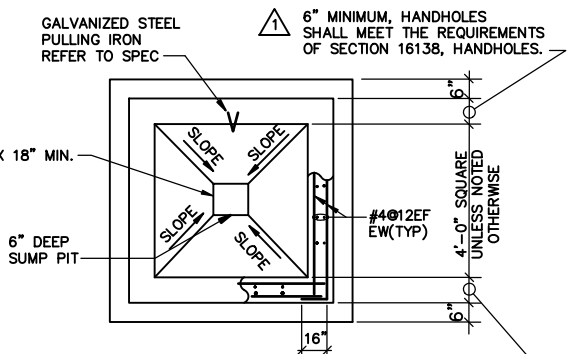
EXTERIOR GROUND TEST POINT



SECTION

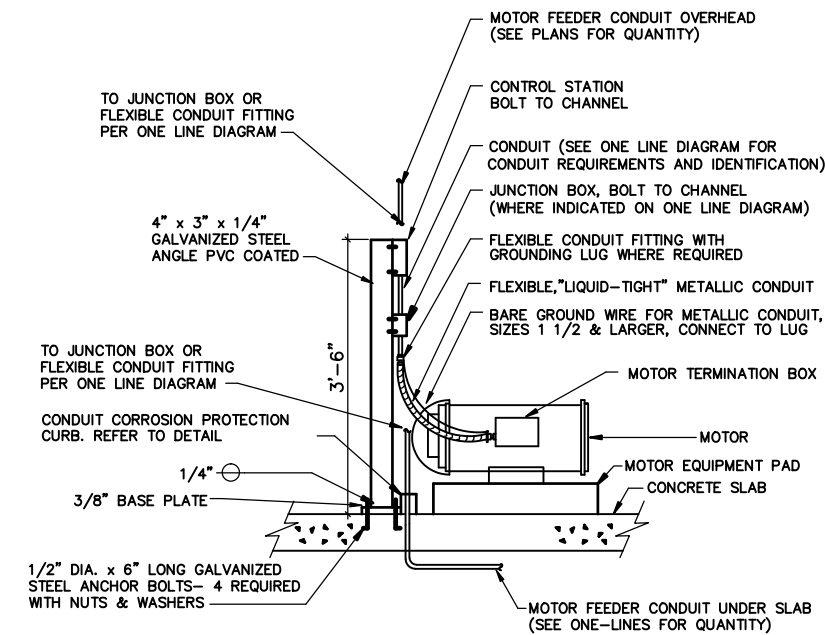


ROOF PLAN



PLAN

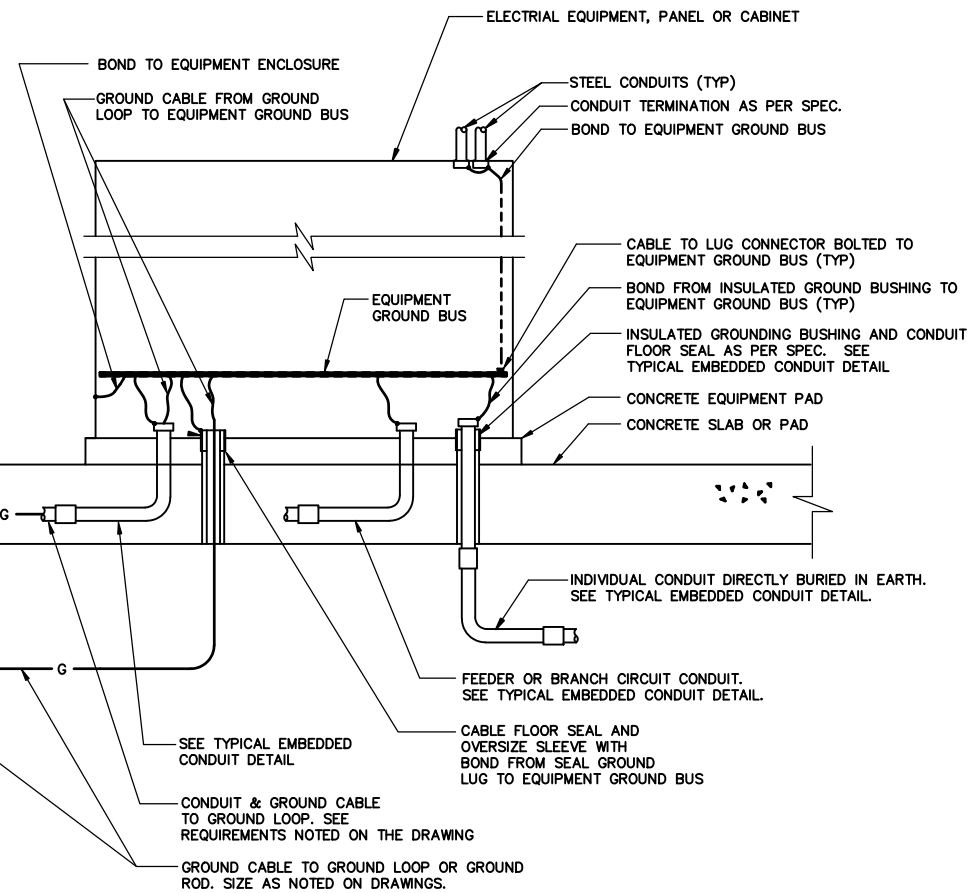
ELECTRICAL HANDHOLE DETAIL



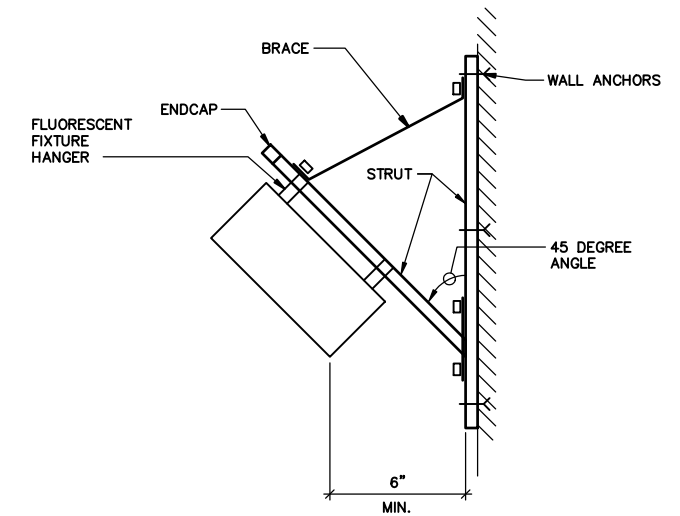
ELECTRIC MOTOR TERMINATION AND DEVICE MOUNTING DETAIL

GROUND CABLE FROM GROUND LOOP TO EQUIPMENT ENCLOSURE AFF. PROVIDE CONDUIT PROTECTION FOR CABLE EXTENDING 3 FEET. EQUIP CONDUIT WITH GROUNDING BUSHING AND BOND WITH #8 TO GROUND LOOP CABLE.

CABLE FLOOR SEAL AND OVERSIZE SLEEVE WITH #8 BOND FROM SEAL GROUND LUG TO GROUND LOOP CABLE.



TYPICAL EQUIPMENT GROUNDING DETAIL



FLUORESCENT WALL MOUNT BRACKET DETAIL

DETAIL

1
05 10

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**ELECTRICAL
DETAILS**

SCALE: NO SCALE

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PIRNIE**



NO.		BY	DATE	REVISIONS	REMARKS
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DELAWARE COUNTY REGIONAL SEWER DISTRICT DELAWARE COUNTY, OHIO

CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

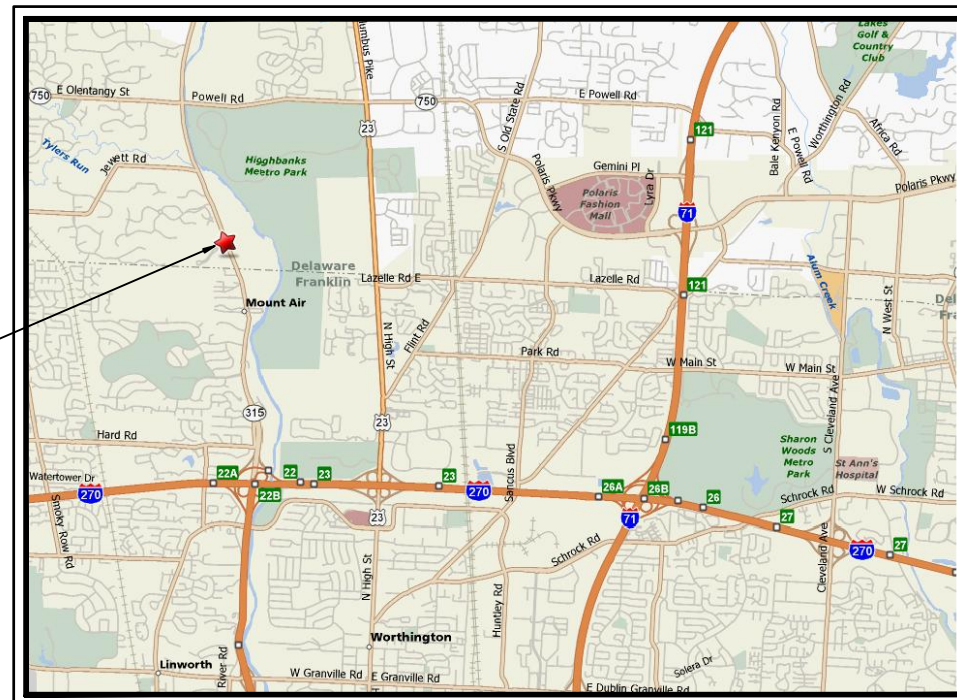
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CONTRACT NO. DCRSD 08-1H HVAC
CONTRACT NO. DCRSD 08-1P PLUMBING
CONTRACT NO. DCRSD 08-1E ELECTRICAL

OLENTANGY ENVIRONMENTAL CONTROL CENTER
JULY 2008



COUNTY STAFF
DAVID G. CANNON
ADMINISTRATOR

CHAD L. ANTLE, P.E.
DIRECTOR



PROJECT LOCATION PLAN

RECORD DRAWINGS

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MALCOLM PIRNIE, INC.

By *Thomas J. Bulcher* Date 12/29/09

OLENTANGY ENVIRONMENTAL CONTROL CENTER



Thomas J. Bulcher 02/07/08
THOMAS J. BULCHER, P.E.
PROFESSIONAL ENGINEER NO. 45077

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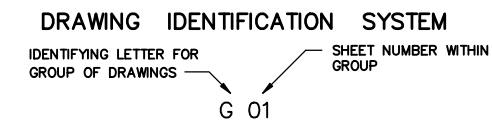
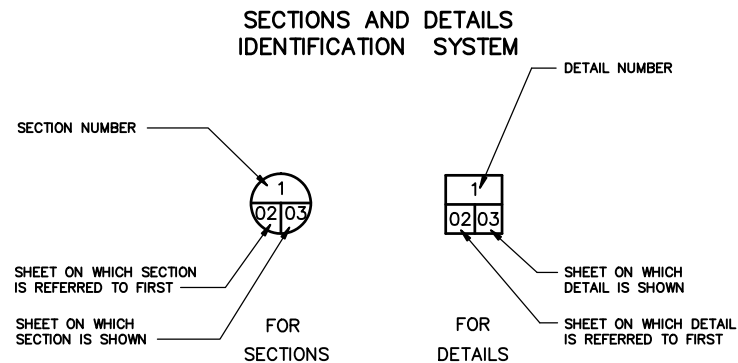
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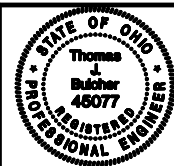


IDENTIFYING LETTERS FOR GROUP OF DRAWINGS

- A - ARCHITECTURAL
- C - CIVIL
- E - ELECTRICAL
- G - GENERAL
- H - HEATING, VENTILATING, AND PLUMBING
- I - INSTRUMENTATION AND CONTROLS
- M - MECHANICAL
- P - PLUMBING
- S - STRUCTURAL

RECORD DRAWING

MALCOLM PIRNIE



REVISIONS				REMARKS
NO.	BY	DATE		

DES PAK
DWN PJW
CKD TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

GENERAL INDEX OF DRAWINGS

VERTICAL DATUM 1929
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DATE JUNE 2008
G SHEET 02 OF 03
CAD REF. NO. 3338005_002

LEGEND AND SYMBOLS

	FLANGED JOINT
	MECHANICAL JOINT
	WELDED JOINT
	GROOVED OR SHOULDERS END JOINT
	HARNESSED EXPANSION COUPLING
	HARNESSED FLEXIBLE COUPLING
	FLEXIBLE COUPLING
	FLANGE COUPLING ADAPTER
	HARNESSED FLANGE COUPLING ADAPTER
	BLIND FLANGE
	BALL VALVE
	CHECK VALVE
	GATE VALVE
	GLOBE VALVE
	PLUG VALVE
	PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	PRESSURE REGULATING VALVE
	PRESSURE REDUCING VALVE
	SOLENOID VALVE
	FLOW METER
	NEEDLE VALVE
	PRESSURE GAGE
	PRESSURE SWITCH
	ROTAMETER
	STRAINER
	UNION
	TURN UP
	TURN DOWN
	CLEANOUT
	BACK FLOW PREVENTOR ASSEMBLY
	ASPHALT PAVEMENT
	UNDISTURBED EARTH
	COMPACTED GRANULAR MATERIAL
	CONCRETE
	CONCRETE BLOCK
	MOW STRIP
	GRATING
	GRAVEL
	GROUT FILL
	FLOWABLE FILL
	GENERAL FILL

PIPE SUPPORT LEGEND AND SYMBOLS

	HANGER SUPPORT
	CONCRETE SUPPORT
	STANCHION SUPPORT
	WALL BRACKET SUPPORT

PIPE SUPPORT NOTES:

- PIPE SUPPORTS FOR PIPING 3" DIA. AND SMALLER ARE NOT SHOWN. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS FOR PIPING 3" DIA. AND SMALLER AT LOCATIONS AND AT SPACINGS AS SPECIFIED IN SECTION 15140. TYPICAL PIPE SUPPORT DETAILS ARE SHOWN ON SHEET M-6.
- IN GENERAL, PIPE SUPPORTS ARE SHOWN IN PLAN ONLY.

SEDIMENT AND EROSION CONTROL LEGEND AND SYMBOLS

	SILT FENCE
	TEMPORARY DRAINAGE SWALE
	RIP RAP APRON
	SEDIMENT TRAP
	SURFACE SLOPE

EXISTING

PROPOSED

	702	CONTOURS
	PROPERTY LINE	
	R/W	RIGHT-OF-WAY
	EASEMENT	
	CENTERLINE	
	STRUCTURE	
	LIMITS OF CONSTRUCTION	
	DEMOLISH	
	EDGE OF WATER	
	FENCE	
	X:1	GRADING SLOPE LINE
	DUMPED ROCK FILL/RIP RAP	
	× 701.50	SPOT ELEVATIONS
	X" TREE TYPE	TREE
	BUSHES/TREE LINE	
	E/P	EDGE OF ASPHALT PAVEMENT
	GUARD RAIL	
	OE	OVERHEAD ELECTRICAL LINE
	UE	UNDERGROUND ELECTRICAL LINE
	T	TELEPHONE LINE
	W	WATER LINE
	G	GAS LINE
	S	SANITARY SEWER (PLAN AND PROFILE)
	12"XX	SITE PIPING THRU 12" DIA.
	14"XX	SITE PIPING 14" DIA. AND LARGER
	POWER POLE	
	TELEPHONE POLE	
	STREET LIGHT	
	GUY WIRE	
	SIGN	
	MAIL BOX	
	UTILITY BOX	
	TELEPHONE PEDESTAL	
	ELECTRIC PEDESTAL	
	WATER METER	
	WETLANDS	
	MH-X	MANHOLE
	BURIED VALVE	
	CB	CATCH BASIN
	YARD HYDRANT	
	NUMBER	BENCHMARK
	TEST BORING	

ABBREVIATIONS

GENERAL DESIGNATIONS

A.B.	ANCHOR BOLT
ALUM.	ALUMINUM
ADD'L.	ADDITIONAL
ADJ.	ADJUSTABLE
BL	BASELINE
BRG	BEARING
BITUM.	BITUMINOUS
BOT.	BOTTOM
BF	BLIND FLANGE
BLDG.	BUILDING
BM.	BEAM
CMP	CORRUGATED METAL PIPE
CL, C	CENTERLINE
CL	CLEAR
CB	CATCH BASIN
COL	COLUMN
CJ	CONSTRUCTION JOINT
CO	CLEANOUT
CONC.	CONCRETE
CONT.	CONTINUED
CPLG.	COUPLING
DET.	DETAIL
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
DISCH.	DISCHARGE
DMH	DROP MANHOLE
DN.	DOWN
DWL	DOWELS
EA.	EACH
EF	EACH FACE
EFFL.	EFFLUENT
EJ	EXPANSION JOINT
EL.	ELEVATION
E	ELECTRIC
EP	EDGE OF PAVEMENT
EQ.	EQUAL
EW	EACH WAY
EXIST.	EXISTING
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FAR FACE
FL	FLOW LINE
FLEX.	FLEXIBLE
FLG.	FLANGE
FLR.	FLOOR
FM.	FLOWMETER
FT.	FEET
FTG.	FOOTING
G	GAS
GA.	GAGE
GALV.	GALVANIZED
GE	GROOVED END JOINT
GRD.	GROUND
GRAT.	GRATING
HP	HIGH POINT
HORIZ.	HORIZONTAL
ID	INSIDE DIAMETER

GENERAL DESIGNATIONS (CONT.)

IF	INSIDE FACE
INV	INVERT ELEVATION
IN.	INCHES
INFL.	INFLUENT
JST	JOIST
JT.	JOINT
K	KIP (1000 POUNDS)
KSF	KIPS PER SQUARE FOOT
LAT	LATERAL
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAS	MASONRY
MAX.	MAXIMUM
MFR.	MANUFACTURER
MH	MANHOLE
MIN.	MINIMUM
MJ	MECHANICAL JOINT
NF	NEAR FACE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NO.	NUMBER
NTS	NOT TO SCALE
O	OVERFLOW
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG.	OPENING
OPP	OPPOSITE
PC	POINT OF CURVATURE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL, C	PLATE, OR PROPERTY LINE, PLUG VALVE
PROP.	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
RED.	REDUCER
REINF.	REINFORCEMENT OR REINFORCE
REST JT	RESTRAINED JOINT
REQ'D.	REQUIRED
R/W	RISER OF WAY
RM.	ROOM
RO	ROUGH OPENING
SHT.	SHEET
SPA.	SPACING
ST	STRAINER
STD.	STANDARD
ST. STL.	STAINLESS STEEL
STL.	STEEL
STRUC.	STRUCTURAL
T	TOP
T	TREAD
TC	TOP OF CASTING
TBM	TEMPORARY BENCHMARK
THK.	THICK
T&B	TOP AND BOTTOM
T/	TOP OF

GENERAL DESIGNATIONS (CONT.)

TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT.	VERTICAL
W/	WITH
WWF	WELDED WIRE FABRIC

VALVE DESIGNATIONS

AV	AIR AND VACUUM VALVE
BA	BALL VALVE
BFP	BACKFLOW PREVENTER ASSEMBLY
BU	BUTTERFLY VALVE
CH	CHECK VALVE
FH	FIRE HYDRANT
GA	GATE VALVE
GL	GLOBE VALVE
PL	PLUG VALVE
PRV	PRESSURE REDUCING VALVE
PR	PRESSURE REGULATING VALVE
PV	PRESSURE RELIEF VALVE
PC	PUMP CONTROL VALVE
SO	SOLENOID VALVE
SR	SURGE RELIEF VALVE
YH	YARD HYDRANT

PROCESS PIPING DESIGNATIONS

AIR	COMPRESSED AIR
CHEM	ODOR CONTROL CHEMICAL
D	DRAIN
FA	FOUL AIR (ODOR CONTROL)
NPW	NON-POTABLE WATER
PLY	POLYMER PIPING
PW	POTABLE WATER
SAN	SANITARY
STW	STORM WATER
WAS	WASTE ACTIVATED SLUDGE
V	VENT

PROCESS EQUIPMENT DESIGNATIONS

ABC	ANGLED BELT CONVEYOR
CEN	CENTRIFUGE
CFP	CENTRIFUGE FEED PUMP
GRD	GRINDER
HBC	HORIZONTAL BELT CONVEYOR
ISC	INCLINED SCREW CONVEYOR
PBF	POLYMER BLENDER FEEDER

RECORD DRAWING

VERTICAL DATUM 1929
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G SHEET 03 OF 03
CAD REF. NO. 3338005_003

DELAWARE COUNTY REGIONAL SEWER DISTRICT DELAWARE COUNTY, OHIO CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

GENERAL LEGEND, SYMBOLS AND ABBREVIATIONS



REVISIONS	
NO.	BY DATE
1	PAK 06/14/08 REVISED PER ADDENDUM NO.1

DES	PAK
DWN	PJW
CHK	TJB

MALCOLM PIRNIE

HVAC SYMBOLS & ABBREVIATIONS

- SMOKE DETECTOR
- SUPPLY AIR
- RETURN OR EXHAUST AIR
- THERMOSTAT
- CONTROL SWITCH
- VELOCITY SENSOR
- VARIABLE VOLTAGE
- STATIC PRESSURE SENSOR
- DOOR LOUVER, NO. INDICATES SIZE IN SQ.FT.
- UNDERCUT DOOR
- GATE VALVE
- CHECK VALVE
- AUTOMATIC CONTROL VALVE 2-WAY
- AUTOMATIC CONTROL VALVE 3-WAY
- PRESSURE REDUCING VALVE
- FUSIBLE LINK SHUT-OFF VALVE
- SOLENOID OPERATED VALVE
- GLOBE VALVE
- BALANCING COCK
- STRAINER WITH BLOWOFF VALVE
- UNION
- PRESSURE RELIEF VALVE
- COMBINATION BALANCING COCK & FLOW SENSOR
- TRIPLE DUTY VALVE
- AIR VENT
- EXPANSION JOINT OR COMPENSATOR
- PIPE ANCHOR
- PIPE GUIDE
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER-FLUSH TOP
- ECCENTRIC REDUCER-FLUSH BOTTOM
- PIPING ELBOW, 90 TURNED DOWN
- PIPING ELBOW, 90 TURNED UP
- PIPING TEE, OUTLET TURNED DOWN
- PIPING TEE, OUTLET TURNED UP
- PRESSURE GAGE WITH SHUTOFF COCK
- THERMOMETER
- SUPPLY AIR DUCT SECTION-UP
- SUPPLY AIR DUCT SECTION-DOWN
- RETURN AIR DUCT SECTION-UP
- RETURN AIR DUCT SECTION-DOWN
- HOT WATER SUPPLY LINE
- HOT WATER RETURN LINE
- VENT
- REFRIGERANT LIQUID LINE
- REFRIGERANT SUCTION LINE
- PROPANE GAS LINE
- CHILLED WATER SUPPLY
- CHILLED WATER RETURN

- FLEXIBLE CONNECTOR
- RISE OR DROP IN DIRECTION OF AIR FLOW
- MITER ELBOW WITH TURNING VANES
- DAMPER-TYPE AS SPECIFIED
- SPLITTER DAMPER-SEE PLAN FOR NECK SIZES
- AIR EXTRACTOR WITH VANES
- DUCT TRANSITION-RECTANGULAR
- DUCT TRANSITION-RECTANGULAR TO ROUND
- DUCT ELBOW-TURNED UP 90-RECTANGULAR
- DUCT ELBOW-TURNED DOWN 90-RECTANGULAR
- CEILING DIFFUSER-ROUND NECK
- SUPPLY-TOP REGISTER OR GRILLE
- SUPPLY-CEILING REGISTER
- RETURN OR EXHAUST-REGISTER OR GRILLE-WALLTYPE
- RETURN OR EXHAUST-CEILING REGISTER
- RETURN OR EXHAUST-BOTTOM REGISTER OR GRILLE-WALL TYPE
- SUPPLY-BOTTOM REGISTER OR GRILLE-WALL TYPE
- VANED ELBOW<SHORT RADIUS>
- ROUND ELBOW (SHORT RADIUS)
- STANDARD RADIUS DUCT ELBOW
- ROUND ELBOW (STANDARD RADIUS)
- NEW DUCT-WIDTH BY DEPTH
- FLEXIBLE DUCTWORK
- FIRE DAMPER & ACCESS DOOR
- SMOKE DETECTOR
- POINT OF CHANGE IN DUCT CONSTRUCTION BY STATIC PRESSURE CLASS. THE NUMBER ASSIGNS PRESSURE CLASS [INCHES OF WATER] WHICH WILL ACCOMMODATE MAXIMUM OPERATING PRESSURE IN THE DUCT SUBSECTION. THE SYMBOL CONTINUES THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. A "N" SUPERSCRIPT INDICATES NEGATIVE PRESSURE.
- MOTORIZED DAMPER/LOUVER ACTUATOR
- FUSIBLE LINK VALVE
- EQUIPMENT DEMOLITION
- COLD WATER
- BUTTERFLY DAMPER IN ROUND DUCT

CORROSIVE AND NON-CORROSIVE AREA DESIGNATION TABLE

STRUCTURE	STRUCTURE DESIGNATION PREFIX	ROOM/AREA	DESIGNATION
CENTRIFUGE DEWATERING FACILITY	-	DEWATERING ROOM	CORROSIVE
CENTRIFUGE DEWATERING FACILITY	-	CONTROL ROOM	NON-CORROSIVE
CENTRIFUGE DEWATERING FACILITY	-	LOADING AREA	CORROSIVE

NOTES:
 1. SEE SPECIFICATION 15518 FOR HANGERS AND SUPPORTS
 2. THIS TABLE IS USED TO LINK MATERIALS OF CONSTRUCTION DESCRIBED WITHIN THE SPECIFICATIONS AND/OR ON THE DRAWINGS WITH AREAS THAT TEND TO CONTAIN A AGGRESSIVE ATMOSPHERES, ELEVATED LEVELS OF MOISTURE OR OUTDOOR EXPOSURE TO THE ELEMENTS

- AB ABOVE
- AC-1/ACU-1 AIR CONDITIONING UNIT NO.1
- ACCU-1 AIR COOLED CONDENSING UNIT NO.1
- AD ACCESS DOOR
- AFF ABOVE FINISHED FLOOR
- AHU-1 AIR HANDLING UNIT NO. 1
- AI/AR AIR INTAKE / AIR RELIEF
- ATC AUTOMATIC TEMPERATURE CONTROL
- BAV-1 BYPASS AIR VOLUME BOX NO.1
- BHP BRAKE HORSEPOWER
- BOD BOTTOM OF DUCT
- BR BOTTOM REGISTER
- CC COOLING COIL
- CD CEILING DIFFUSER
- CFM CUBIC FEET OF STANDARD AIR PER MINUTE
- CLG CEILING
- CO CLEAN OUT
- C/S CIVIL SANITARY
- CUH-1 CABINET UNIT HEATER NO.1
- DB DRY BULB
- DEH-1 DEHUMIDIFIER NO.1
- DX COIL DIRECT EXPANSION REFRIGERANT COIL
- EAT ENTERING AIR TEMPERATURE
- EDH ELECTRIC DUCT HEATER
- EF-1 EXHAUST FAN NO. 1
- EG EXHAUST AIR GRILLE
- EL/ELEV ELEVATION
- ELD EXHAUST LINEAR DIFFUSER
- ER EXHAUST AIR REGISTER
- ESP EXTERNAL STATIC PRESSURE
- EUH-1 ELECTRIC UNIT HEATER NO. 1
- EWH-1 ELECTRIC WALL HEATER NO. 1
- F.A. FREE AREA
- FD & AD FIRE DAMPER AND ACCESS DOOR
- F.C. FLEXIBLE CONNECTOR
- FPM FEET PER MINUTE
- FTR FINNED TUBE RADIATION
- GBD GRAVITY BACKDRAFT DAMPER
- GPM GALLONS PER MINUTE
- GUH-1 GAS FIRED UNIT HEATER NO.1
- HOA HAND-OFF-AUTOMATIC-SWITCH
- HP HORSEPOWER
- HP-1 HEAT PUMP UNIT NO. 1
- HWR HOT WATER RETURN LINE
- HWS HOT WATER SUPPLY LINE
- HVAC-1 HEATING, VENTILATING AND AIR CONDITIONING UNIT NO.1
- HV-1 HEATING AND VENTILATING UNIT NO. 1
- KW KILOWATT
- LAT LEAVING AIR TEMPERATURE
- LBD LINEAR BAR DIFFUSER
- LWT LEAVING WATER TEMPERATURE
- MB MIXING BOX
- MD MOTORIZED DAMPER
- MFR MANUFACTURER
- NC NORMALLY CLOSED OR NOISE CRITERIA
- NK NECK
- NO NORMALLY OPEN
- NTS NOT TO SCALE
- OA OUTSIDE AIR
- OC ON CENTER
- OV OUTLET VELOCITY
- E-1 ENTHALPY CONTROLLER NO.1
- SS-1 SELECTOR SWITCH NO.1
- TS TEMPERATURE SENSOR
- FS-1 FLOW SWITCH NO.1
- CH-1 CHILLER NO. 1
- B-1 BOILER NO. 1
- L-1 LOUVER NO. 1
- LD-1 LOUVER DAMPER NO. 1
- LM-1 LOUVER MOTOR NO. 1

- PH PHASE
- P-1 PUMP NO. 1
- PD FT WTR PRESSURE DROP- FEET OF WATER
- PR PRESSURE
- PSI POUND PER SQUARE INCH
- RA RETURN AIR
- RD RETURN AIR DIFFUSER
- RH-1 RADIANT HEATER NO.1
- RF-1 RETURN AIR FAN NO. 1
- RG RETURN AIR GRILLE
- RLD RETURN LINEAR DIFFUSER
- RO ROOF OPENING
- RPM REVOLUTIONS PER MINUTE
- RR RETURN AIR REGISTER
- SA SUPPLY AIR
- SAD SUPPLY AIR DIFFUSER
- SD SMOKE DETECTOR OR SUPPLY DIFFUSER
- SF-1 SUPPLY AIR FAN NO. 1
- SG SUPPLY AIR GRILLE
- SHR SENSIBLE HEAT RATIO
- SLD SUPPLY LINEAR DIFFUSER
- SP IN WG STATIC PRESSURE INCHES OF WATER GAGE
- SPEC SPECIFICATION
- S/R SUPPLY/RETURN
- SR SUPPLY REGISTER
- SV-1 SOLENOID VALVE NO. 1
- T THERMOSTAT
- TG TRANSFER AIR GRILLE
- TOD TOP OF DUCT
- TR TOP REGISTER
- TSP TOTAL STATIC PRESSURE
- TYP TYPICAL
- UH-1 UNIT HEATER NO.1
- UL UNDERWRITERS LABORATORY
- V VOLTS
- VAV-1 VARIABLE AIR VOLUME BOX NO. 1
- VC-1 COOLING CONTROL VALVE NO. 1
- VD VOLUME DAMPER
- VEF-1 VEHICLE EXHAUST FAN NO. 1
- VH-1 HEATING CONTROL VALVE NO. 1
- VS VELOCITY SENSOR
- W/ WITH
- WB WET BULB
- VFD VARIABLE FREQUENCY DRIVE
- RAD-1 RADIATOR NO. 1

GENERAL NOTES:

1. THE SYMBOL AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
2. ALL DUCT DIMENSIONS ARE CLEAR DIMENSIONS TO INSIDE OF DUCT. DIMENSIONS TO DUCTS FROM FLOOR OR WALL SHALL BE TO THE OUTSIDE OF DUCT. WHERE INTERNAL INSULATION IS REQUIRED THE DUCT SIZE SHALL BE INCREASED TO GIVE CLEAR INSIDE DIMENSIONS.
3. EQUIPMENT SIZES AND LOCATIONS ARE APPROXIMATE. IF CONTRACTOR SELECTS EQUIPMENT REQUIRING CHANGES TO ACCOMMODATE, THEN CHANGES SHALL BE AT NO COST TO OWNER. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED.
4. FINAL OPENING DIMENSIONS, CONCRETE PAD SIZES AND LOCATIONS MUST BE COORDINATED DURING CONSTRUCTION WITH APPROVED EQUIPMENT.
5. FINAL SIZES OF FLOOR OPENINGS, DUCT PLENUMS, AND TRANSITIONS AND PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE DETERMINED BY EQUIPMENT FURNISHED.
6. FOR EXACT LOUVER SIZES AND LOCATIONS SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
7. FOR EXACT LOCATION OF ROOF MOUNTED EQUIPMENT SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS
8. FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
9. FOR INTERLOCKING WIRING SCHEMATICS SEE ELECTRICAL DRAWINGS.
10. FOR NFPA HAZARDOUS AREA CLASSIFICATIONS SEE ELECTRICAL DRAWINGS. ALL SUPPLY EXHAUST FAN EQUIPMENT LOCATED IN CLASSIFIED AREAS TO BE SUITABLE FOR NFPA CLASS 1, DIVISION 1 SERVICE.
11. PROVIDE AND FIELD ROUTE GAS REGULATORS AS REQUIRED.

User: girmes; Spec: PIRNIE STANDARD File: T:\3338005\RECORD DRAWINGS\HVAC\3338005_501.DWG Scale: 1:1 Date: 12/23/2009 Time: 11:10 Layout: H-01



REVISIONS		NO.	BY	DATE	REMARKS
DES	QQT				
DWN	RPM				
CKD	DJO				

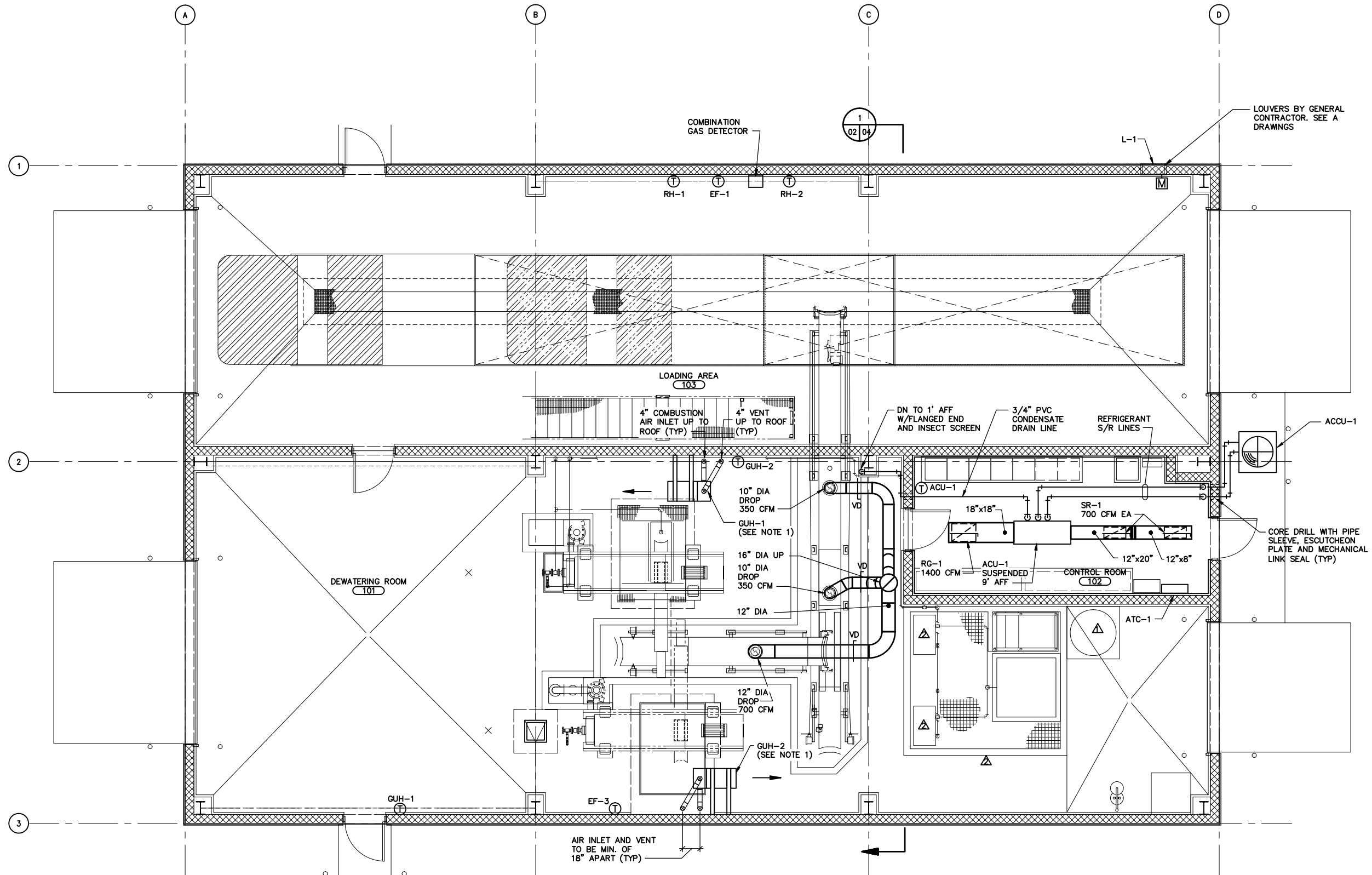
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

HVAC
SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
 SCALE: NO SCALE

RECORD DRAWING

VERTICAL DATUM 1929
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H SHEET 01 OF 06
CAD REF. NO. 3338005_501

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NOTE:
1. NATURAL GAS PIPING BY PLUMBING CONTRACTOR. SEE P DRAWINGS.

RECORD DRAWING

**MALCOLM
PIRNIE**



NO.		BY	DATE	REVISIONS	REMARKS
▲	BCK		07/20/09	REVISED PER CHANGE ORDER NO. 3	
▲	BCK		10/20/09	RECORD DRAWING CHANGES	

DES QQT
DWN RPM
CKD DJO

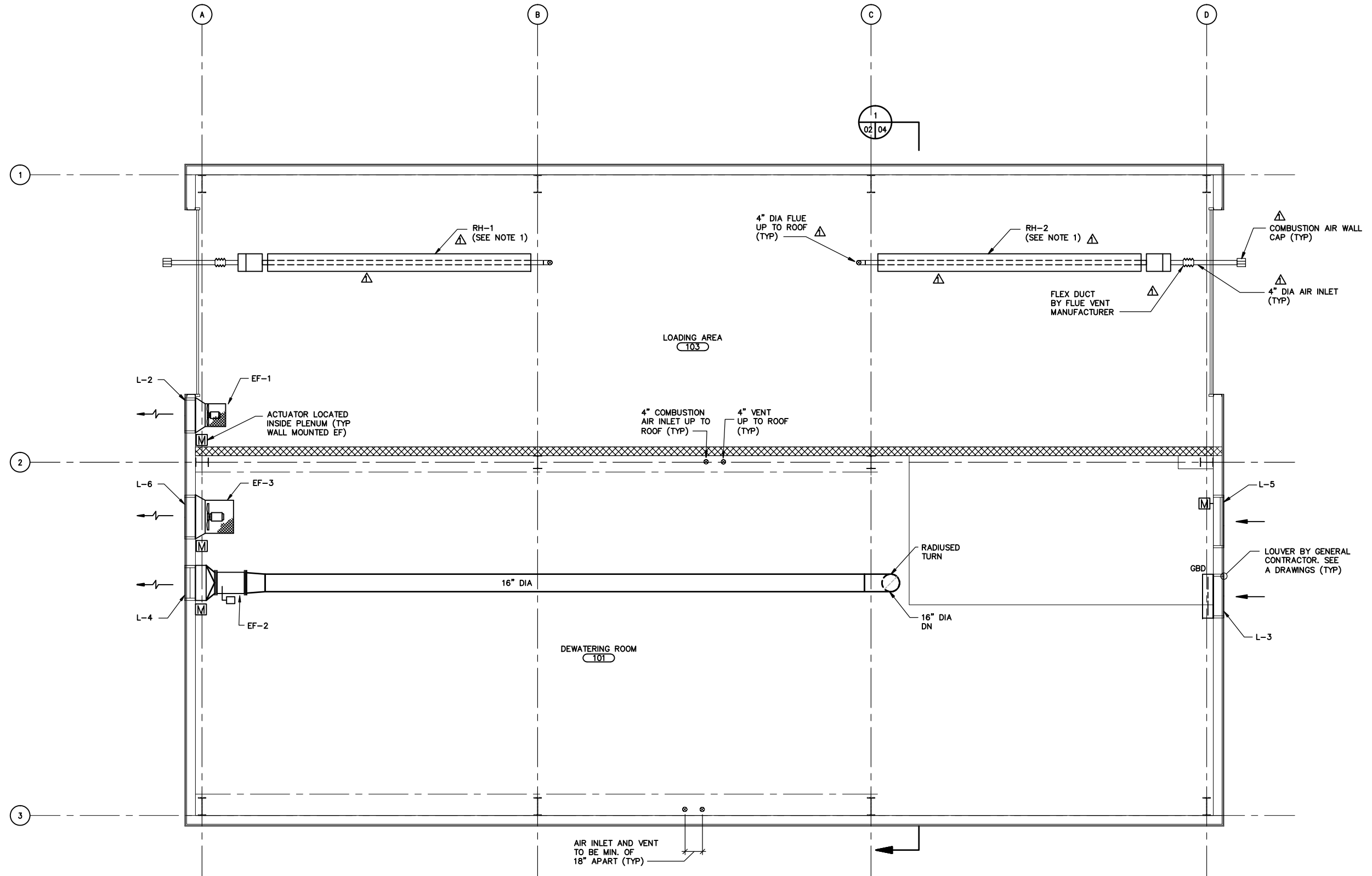
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
FLOOR PLAN

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

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CAD REF. NO. 3338005_502

User: girmes Spec: PIRNIE STANDARD File: T:\3338005\RECORD DRAWINGS\HVAC\3338005_503.DWG Scale: 1:1 Date: 12/23/2009 Time: 11:12 Layout: H-03



NOTE:
1. NATURAL GAS PIPING BY PLUMBING CONTRACTOR. SEE P DRAWINGS.

RECORD DRAWING

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
INTERMEDIATE PLAN

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



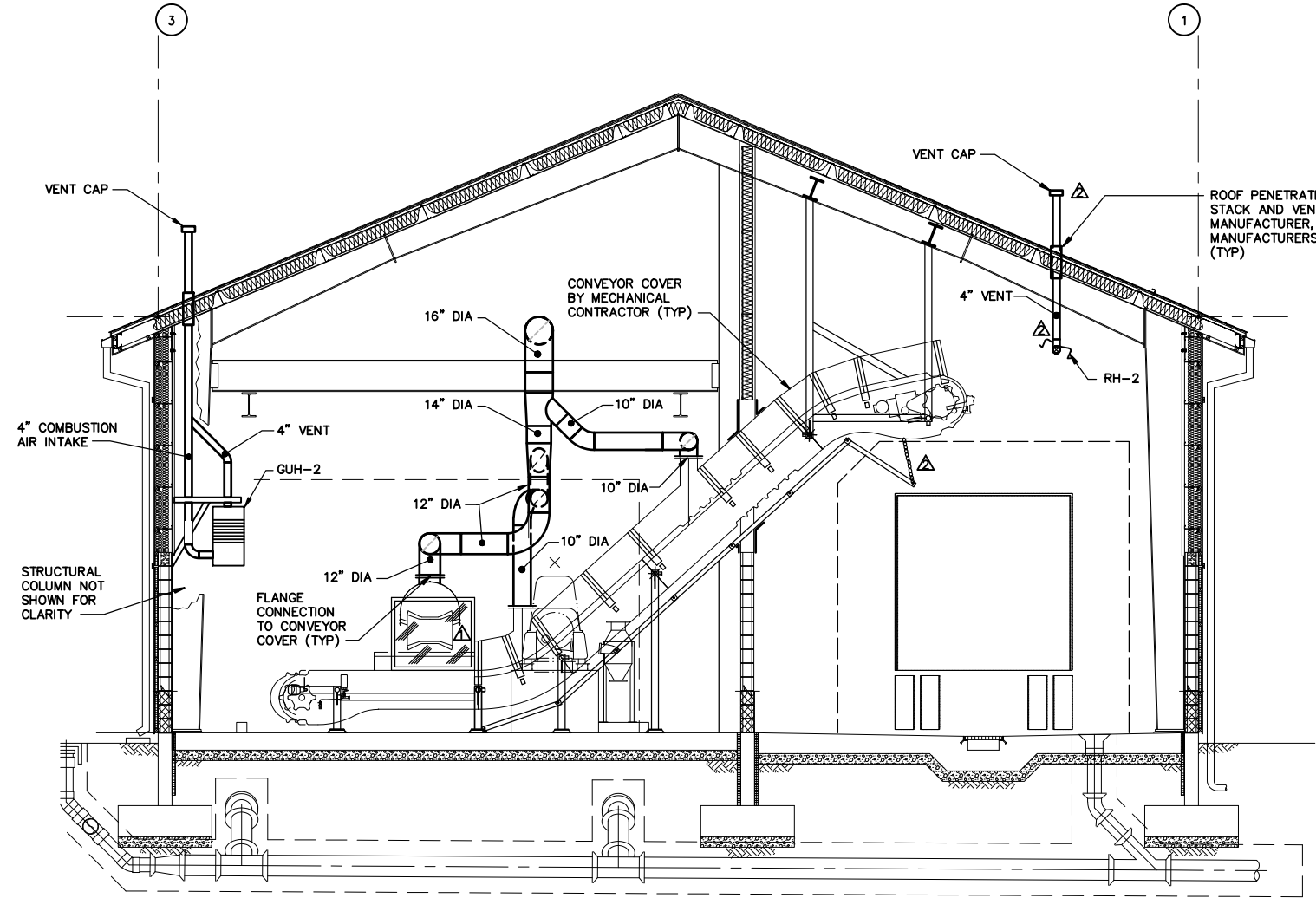
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DWN: RPM
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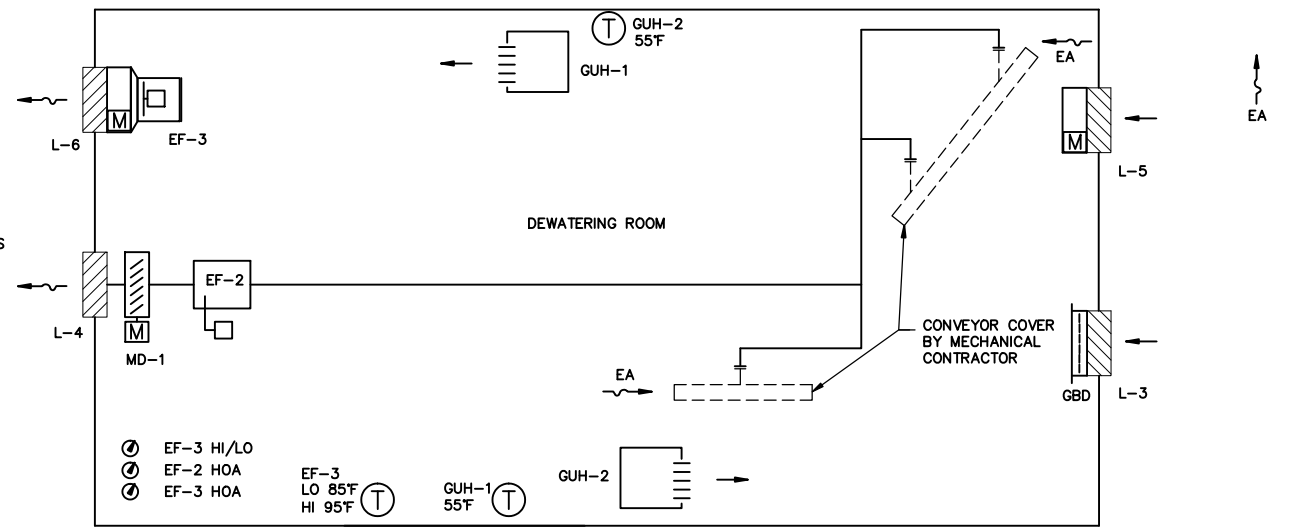
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CAD REF. NO. 3338005_503

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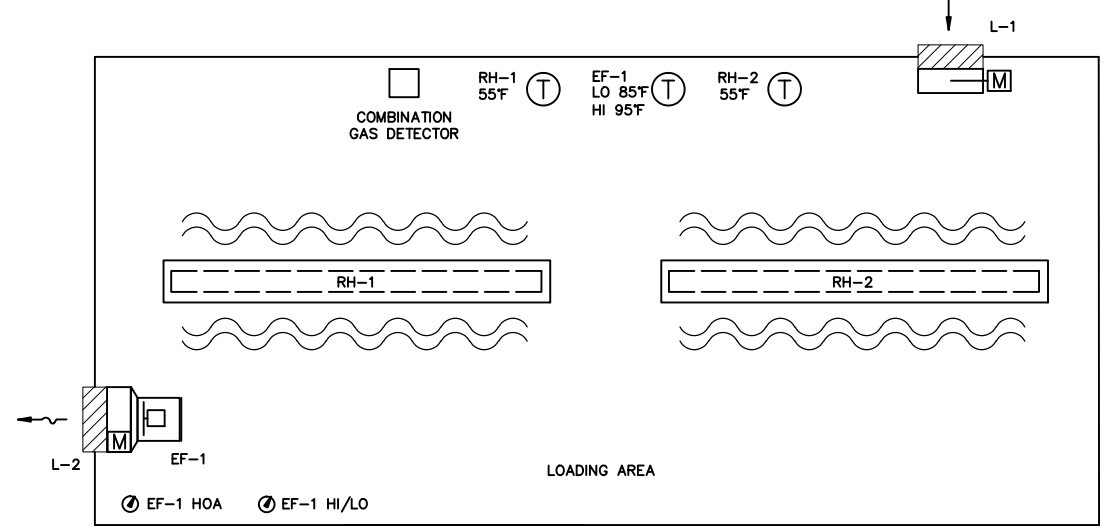
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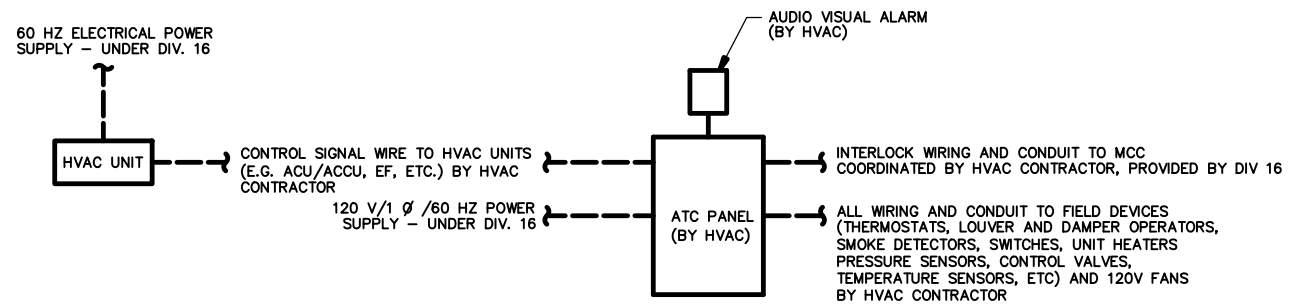
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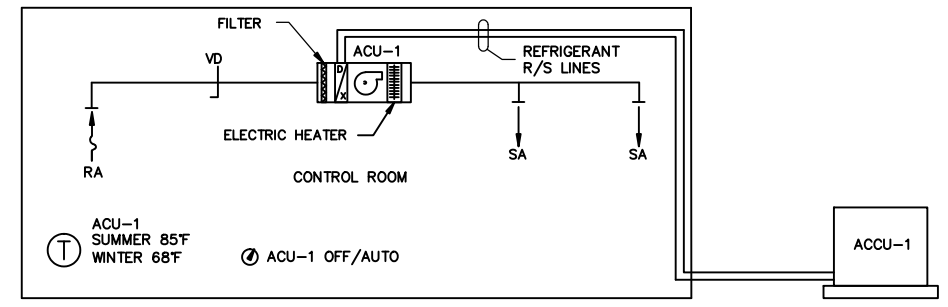
DEWATERING ROOM SCHEMATIC
SCALE: NONE



LOADING AREA SCHEMATIC
SCALE: NONE

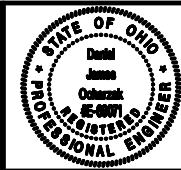


ATC PANEL WIRING SCHEMATIC
SCALE: NONE



CONTROL ROOM SCHEMATIC
SCALE: NONE

NOTES:
1. SEE PLANS FOR CFM'S
2. HAND-OFF-AUTO (HOA), HI/LO, AND OFF/AUTO SWITCHES ARE LOCATED AT ATC PANEL



REVISIONS		NO.	BY	DATE	REMARKS
Δ	BCK	07/20/09	REVISED PER CHANGE ORDER NO. 3		
Δ	BCK	10/20/09	RECORD DRAWING CHANGES		

DES: QQT
DWN: RPM
CKD: DJO

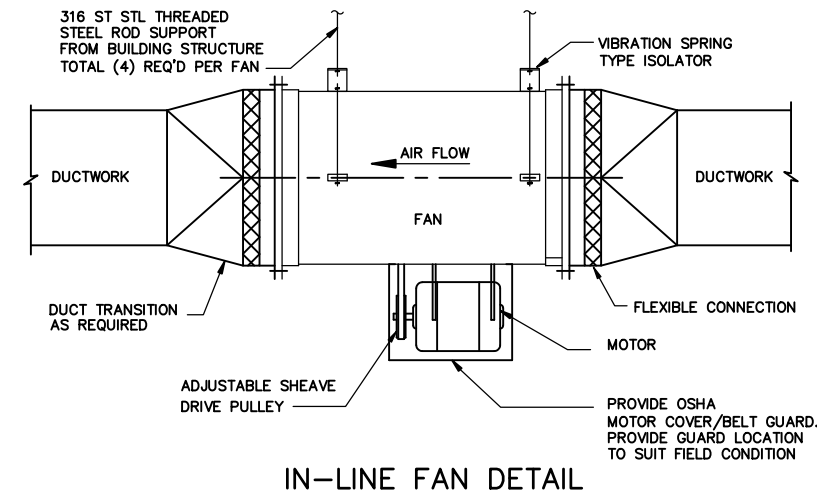
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

DEWATERING FACILITY
SECTIONS AND SCHEMATICS

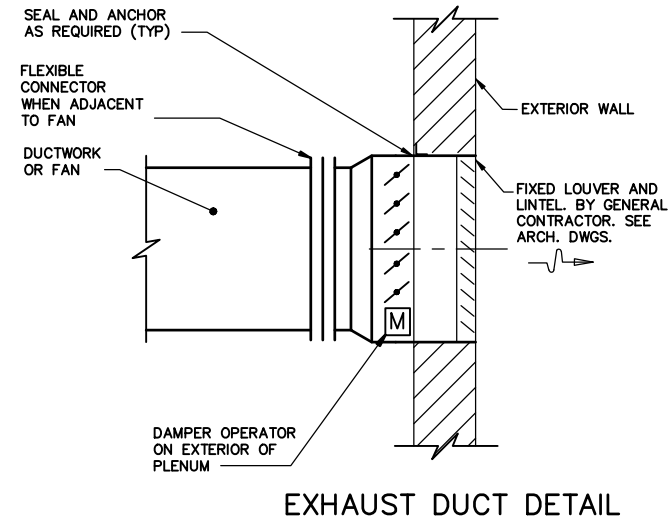
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RECORD DRAWING

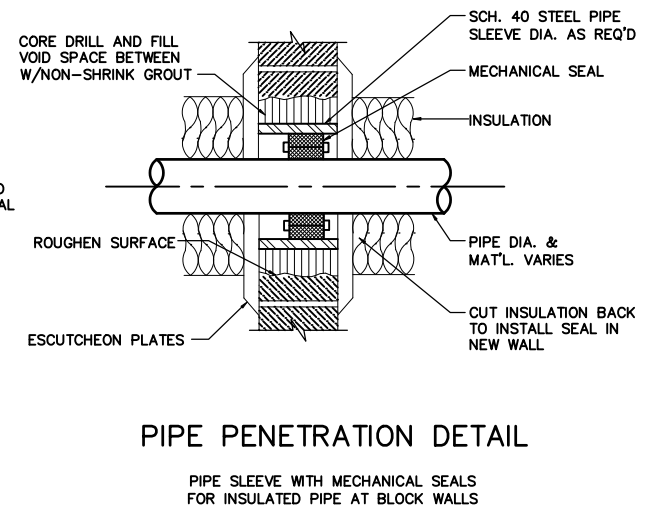
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H SHEET 04 OF 06
CAD REF. NO. 3338005_504



IN-LINE FAN DETAIL

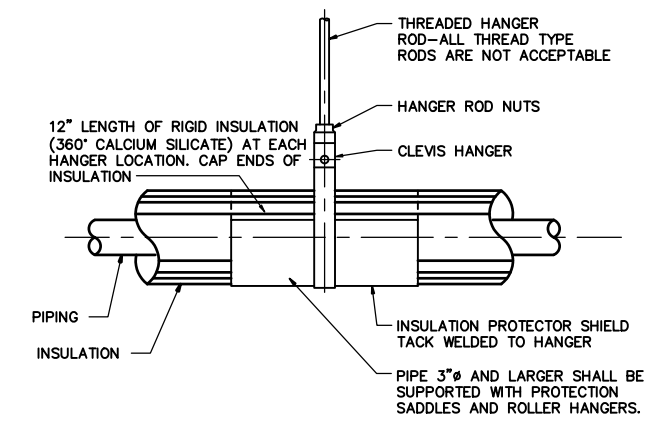


EXHAUST DUCT DETAIL

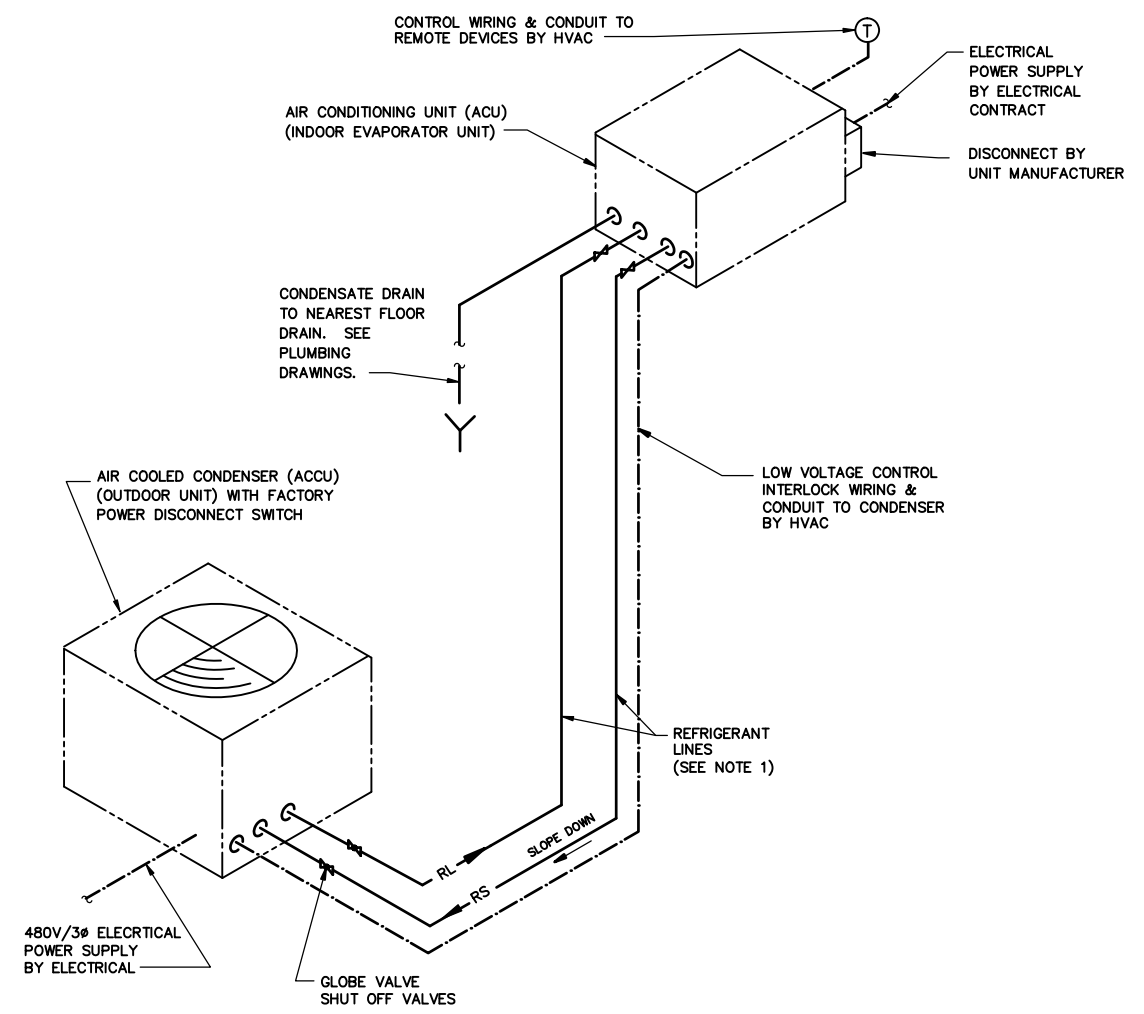


PIPE PENETRATION DETAIL

PIPE DIAMETER	SHIELD LENGTH	SHIELD THICKNESS
1/2" TO 1 1/2"	12"	18 USG
2" TO 4"	12"	16 USG
5" TO 6"	18"	16 USG
8" TO 14"	24"	14 USG
16" TO 30"	24"	12 USG

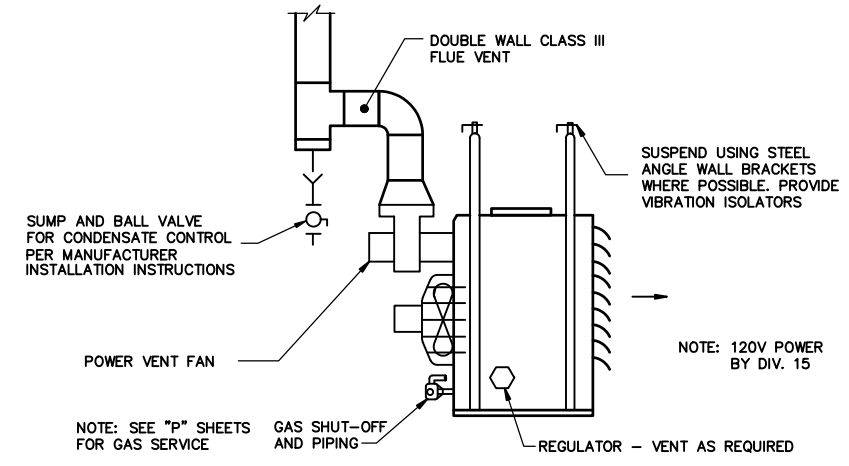


TYPICAL DETAIL HANGER ARRANGEMENT OF INSULATED PIPING

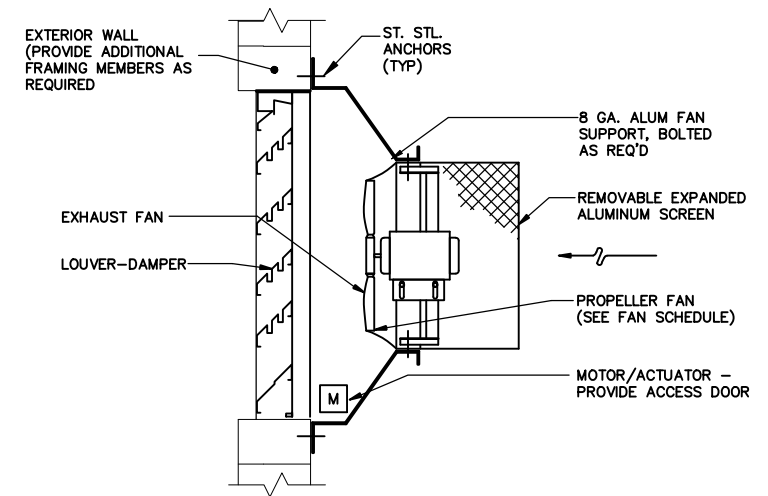


SPLIT SYSTEM AIR CONDITIONING SYSTEM

NOTE:
1. PROVIDE FILTER DRYER, CHARGING VALVE, SIGHT GLASS, THERMAL EXPANSION VALVE, ETC. PER MANUFACTURER'S RECOMMENDATIONS.

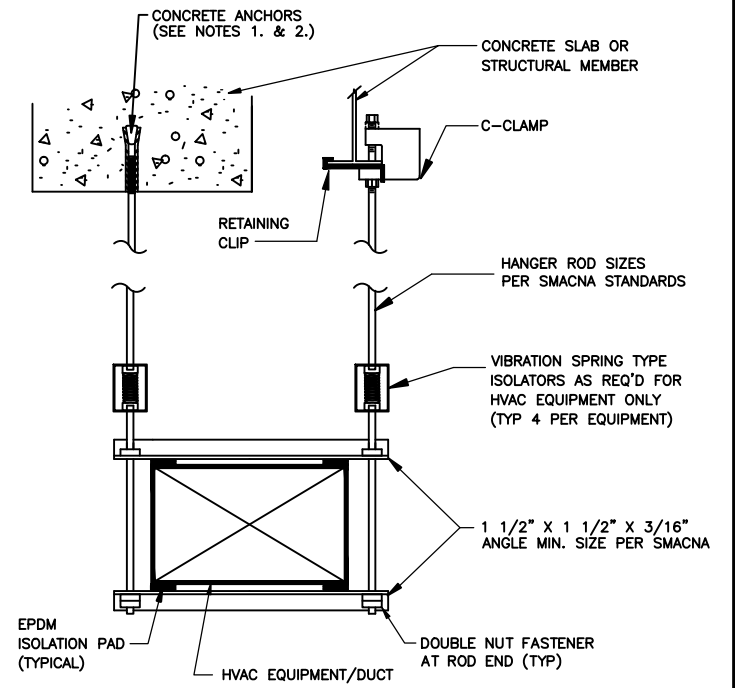


GAS FIRED UNIT HEATER DETAIL



WALL MOUNTED PROPELLER FAN DETAIL

NOTE:
FAN SHALL BE REMOVABLE FOR CLEANING OF LOUVERS AND SCREEN.

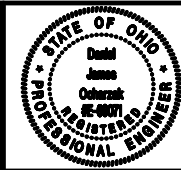


TYPICAL HVAC EQUIPMENT/DUCT HANGING DETAIL (FROM BUILDING STRUCTURE)

NOTES:
1. REFER TO SPECIFICATION SECTION 05051 FOR ACCEPTABLE ANCHOR TYPES.
2. FOR ANCHORAGE TO HOLLOW CORE SLABS, REFER TO THE STRUCTURAL DWGS FOR ATTACHMENT DETAILS. UNAPPROVED ATTACHMENT METHODS SHALL BE REJECTED.

XREFS: \\VREF1-BLOCK.dwg IMAGES:None User:grimes Spec:PIRNE STANDARD File:T:\3338005\RECORD DRAWINGS\HVAC\3338005_505.DWG Scale:1:1 Date:12/23/2009 Time:11:14 Layout:H-05

MALCOLM PIRNIE



REVISIONS		REMARKS
NO.	BY	DATE

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DWN RPM
CKD DJO

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

HVAC DETAILS
SCALE: NOT TO SCALE

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GRILLE AND REGISTER SCHEDULE

MARK NO.	LOCATION	SERVICE	TYPE	SIZE (IN (LxW))	AIRFLOW (CFM)	DEFLECTION PATTERN	DAMPER TYPE	MFR	MODEL	NOTES
SR-1	DEWATERING FACILITY	CONTROL ROOM	DOUBLE DEFLECTION	24X10	SEE PLANS	45°	OPPOSED BLADE	ANEMOSTAT	X20	1,2
RG-1	DEWATERING FACILITY	CONTROL ROOM	SINGLE DEFLECTION	22X16	SEE PLANS	0°	NONE	ANEMOSTAT	X30	1,2

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15910

FAN SCHEDULE

MARK NO.	LOCATION	SERVICE	TYPE	DRIVE	AIRFLOW (CFM)	ESP (IN W.G.)	FAN SPEED (RPM)	MOTOR DATA				WEIGHT (LB)	MFR	MODEL	NOTES
								HP	BHP	RPM	V/PHHZ				
EF-1	DEWATERING FACILITY	LOADING AREA	WALL MOUNTED PROPELLER	DIRECT	1100/550	0.18	1140	1/6	0.14	1140/860	115/1/60	109	COOK	AW	1,2,3,4
EF-2	DEWATERING FACILITY	DEWATERING ROOM	INLINE CENTRIFUGAL	BELT	1400	0.56	1903	1/2	0.33	1750	460/3/60	93	HARTZELL	40	1,5,6
EF-3	DEWATERING FACILITY	DEWATERING ROOM	WALL MOUNTED PROPELLER	BELT	4000/2000	0.18	926	1/2	0.43	1725/1140	460/3/60	204	COOK	AW	1,2,3,4

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15863
 3. ALUMINUM CONSTRUCTION
 4. 2 SPEED, 2 WINDING MOTOR
 5. SPECIFICATION SECTION 15866
 6. FRP CONSTRUCTION

GAS FIRED RADIANT HEATER SCHEDULE

MARK NO.	LOCATION	SERVICE	HEATING DATA		BLOWER MOTOR DATA			MIN/MAX INLET PRESSURES (IN W.C.)	MANIFOLD OPERATING PRESSURE (IN W.C.)	LENGTH (FT)	REFLECTOR ORIENTATION	MOUNTING HEIGHT (AFF)	WEIGHT (LB)	MFR	MODEL	NOTES	
			TYPE	INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	CFM	HP										V/PHHZ
RH-1	DEWATERING FACILITY	LOADING AREA	NATURAL GAS	40	36	138	1/24	120/1/60	6.0/14.0	3.5	20	0°	20 FT	188	SOLARONICS	SSTG	1,2,3,4,5
RH-2	DEWATERING FACILITY	LOADING AREA	NATURAL GAS	40	36	138	1/24	120/1/60	6.0/14.0	3.5	20	0°	20 FT	188	SOLARONICS	SSTG	1,2,3,4,5

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15620
 3. WALL THERMOSTAT
 4. 304L STAINLESS STEEL CONSTRUCTION
 5. STAINLESS STEEL INLET AND EXHAUST KITS

OPERABLE LOUVER ACTUATOR SCHEDULE

MARK NO.	LOCATION	SERVICE	ACTUATOR				MFR	MODEL	NOTES
			TYPE	ENCLOSURE	VOLTS/PHHZ	WEIGHT (LB)			
L-1	DEWATERING FACILITY	LOADING AREA	2-POS. SR. NC	NEVA 4X	120/1/60	BELIMO	AF	1,2	
L-2	DEWATERING FACILITY	LOADING AREA	2-POS. SR. NC	NEVA 4X	120/1/60	BELIMO	AF	1,2	
L-3	DEWATERING FACILITY	DEWATERING ROOM	2-POS. SR. NC	NEVA 4X	120/1/60	BELIMO	AF	1,2	
L-6	DEWATERING FACILITY	DEWATERING ROOM	2-POS. SR. NC	NEVA 4X	120/1/60	BELIMO	AF	1,2	

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15950

GAS FIRED UNIT HEATER SCHEDULE

MARK NO.	LOCATION	SERVICE	HEATING DATA		MOTOR DATA			FAN CFM	MIN/MAX INLET PRESSURES (IN W.C.)	MANIFOLD OPERATING PRESSURE (IN W.C.)	TEMP RISE (°F)	THROW (FT)	DISCHARGE ORIENTATION	MOUNTING HEIGHT (AFF)	WEIGHT (LB)	MFR	MODEL	NOTES	
			TYPE	INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)	RPM	HP												V/PHHZ
GUH-1	DEWATERING FACILITY	DEWATERING ROOM	NATURAL GAS	100	80	1050	1/20	115/1/60	1480	5.0/14.0	3.5	50	80	HORIZONTAL	8 FT	200	TRANE	GAND	1,2,3,4
GUH-2	DEWATERING FACILITY	DEWATERING ROOM	NATURAL GAS	100	80	1050	1/20	115/1/60	1480	5.0/14.0	3.5	50	80	HORIZONTAL	8 FT	200	TRANE	GAND	1,2,3,4

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15838
 3. WALL THERMOSTAT
 4. SEPARATED COMBUSTION

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE

MARK NO.	LOCATION	SERVICE	GROSS SYSTEM COOLING CAPACITY					AIR CONDITIONING UNIT DATA (ACU)										AIR COOLED CONDENSING UNIT DATA (ACCU)					MFR	MODEL (ACU/ACCU)	NOTES				
			TOTAL MBH	SENSIBLE MBH	AIRFLOW (CFM)	ENTERING AIR DB/WB (°F)	AMBIENT (°F)	TOTAL POWER			FAN MOTOR DATA			ELECTRIC HEATING				FILTER		WEIGHT (LB)	TOTAL POWER					COMPRESSOR		WEIGHT (LB)	
								MCA (AMPS)	MAX FUSE (AMPS)	V/PHHZ	QTY	ESP (IN W.G.)	HP	BHP	MBH	KW	STAGES	TYPE	EFFICIENCY (%)		MCA (AMPS)	MAX FUSE (AMPS)				V/PHHZ	QTY		TYPE
ACU-1/A ACCU-1	DEWATERING FACILITY	CONTROL ROOM	49.2	42.3	1400	58/74	69	27	30	208/1/60	1	0.3	1/2	-	12.3	3.6	1	1" PLEATED	30	165	9	15	460/3/60	1	SCROLL	220	TRANE	4TEH3F42/4TTA3042	1,2,3

NOTES:
 1. INSTALL PER MFR INSTRUCTIONS
 2. SPECIFICATION SECTION 15903
 3. FACTORY INSTALLED FUSED DISCONNECTS

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VERTICAL DATUM 1929

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DATE JUNE 2008

H SHEET 06 OF 06

CAD REF. NO. 3338005_506

DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

HVAC
SCHEDULES

SCALE: NO SCALE



REVISIONS			
NO.	BY	DATE	REMARKS

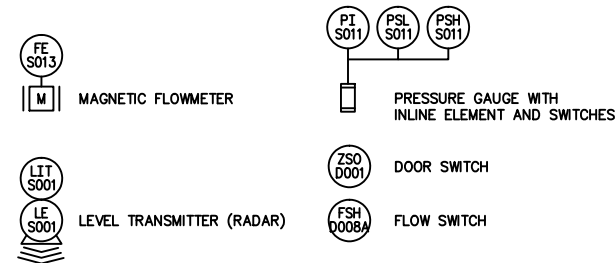
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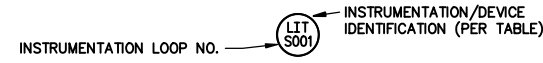
INSTRUMENT IDENTIFICATION TABLE

FIRST LETTER	SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTO/MANUAL
B	BURNER FLAME		USER'S CHOICE	USER'S CHOICE	REMOTE/LOCAL
C	CONDUCTIVITY (ELECTRICAL)	CONTROL		CONTROL	CLOSED
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			COMPUTER/CONSOLE
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FACTION)			FAILURE
G	GAGING (DIMENSIONAL)		GLASS	GENERATOR	
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN	MULTIPOINT		
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE OR HUMIDITY				MIDDLE OR INTER-MEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	ON/OFF
O	TORQUE	OVERLOAD	ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY		RECORD OR PRINT		RUNNING/STOPPED
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE	ULTRASONIC	MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	STATUS			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

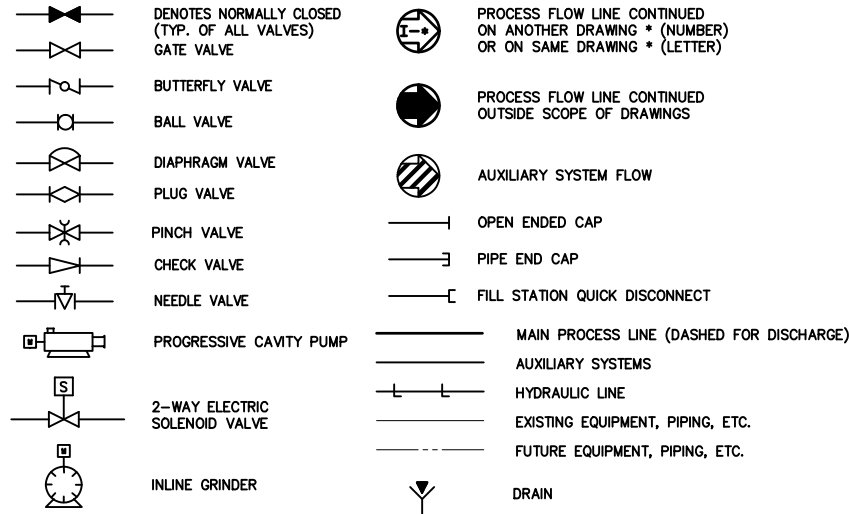
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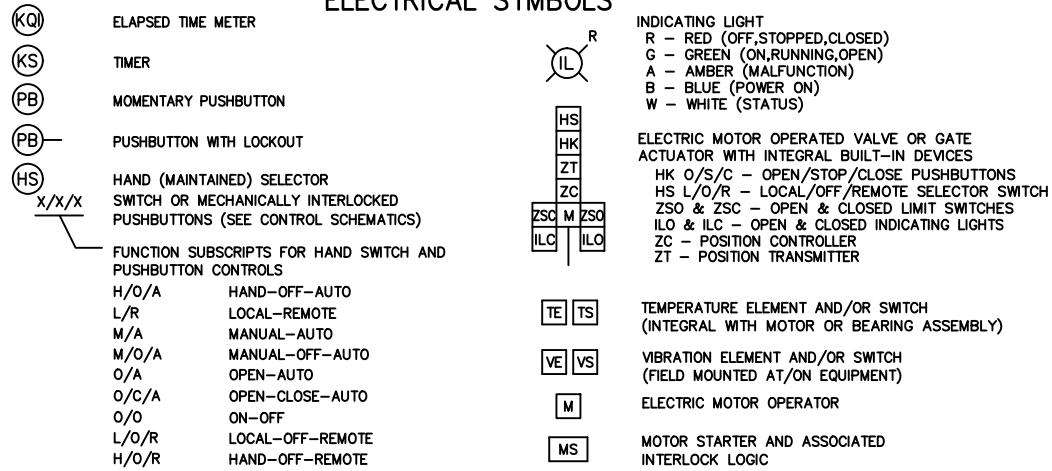
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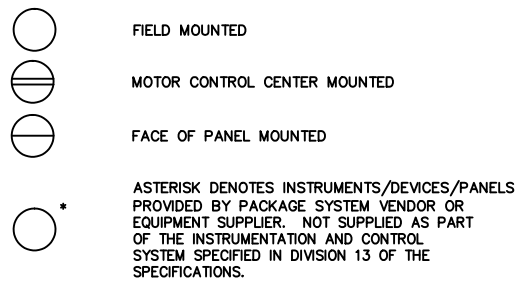
PROCESS SYMBOLS



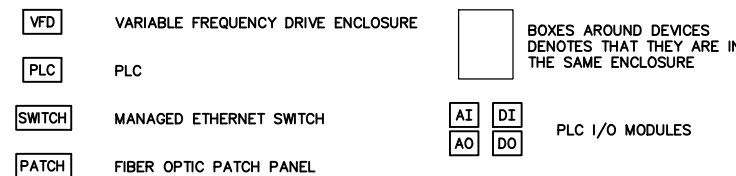
ELECTRICAL SYMBOLS



INSTRUMENT AND FUNCTION SYMBOLS

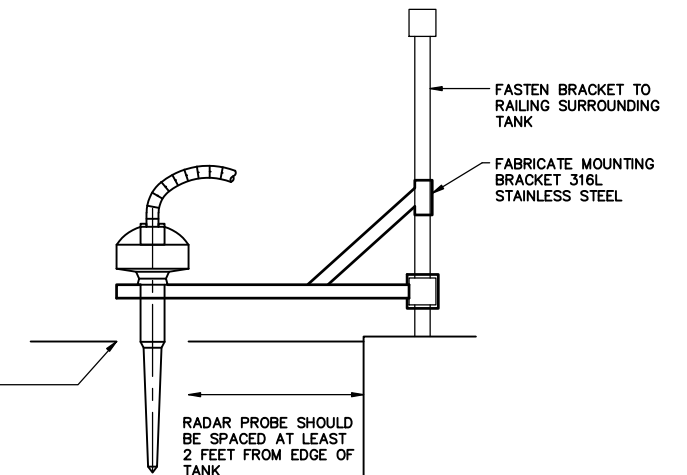


CONFIGURATION DRAWING SYMBOLS



ABBREVIATIONS

- PLC - PROGRAMMABLE LOGIC CONTROLLER
- HMI - HUMAN MACHINE INTERFACE
- RIO - REMOTE I/O
- VFD - VARIABLE FREQUENCY DRIVE
- DI - DISCRETE INPUT MODULE
- AI - ANALOG INPUT MODULE
- AO - ANALOG OUTPUT MODULE
- LCP - LOCAL CONTROL PANEL
- LCS - LOCAL CONTROL STATION
- MCC - MOTOR CONTROL CENTER



LEVEL TRANSMITTER INSTALLATION DETAILS

NOTES:

1. REFER TO SHEET E-1 FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.



REVISIONS			
NO.	BY	DATE	REMARKS
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CKD: WAV

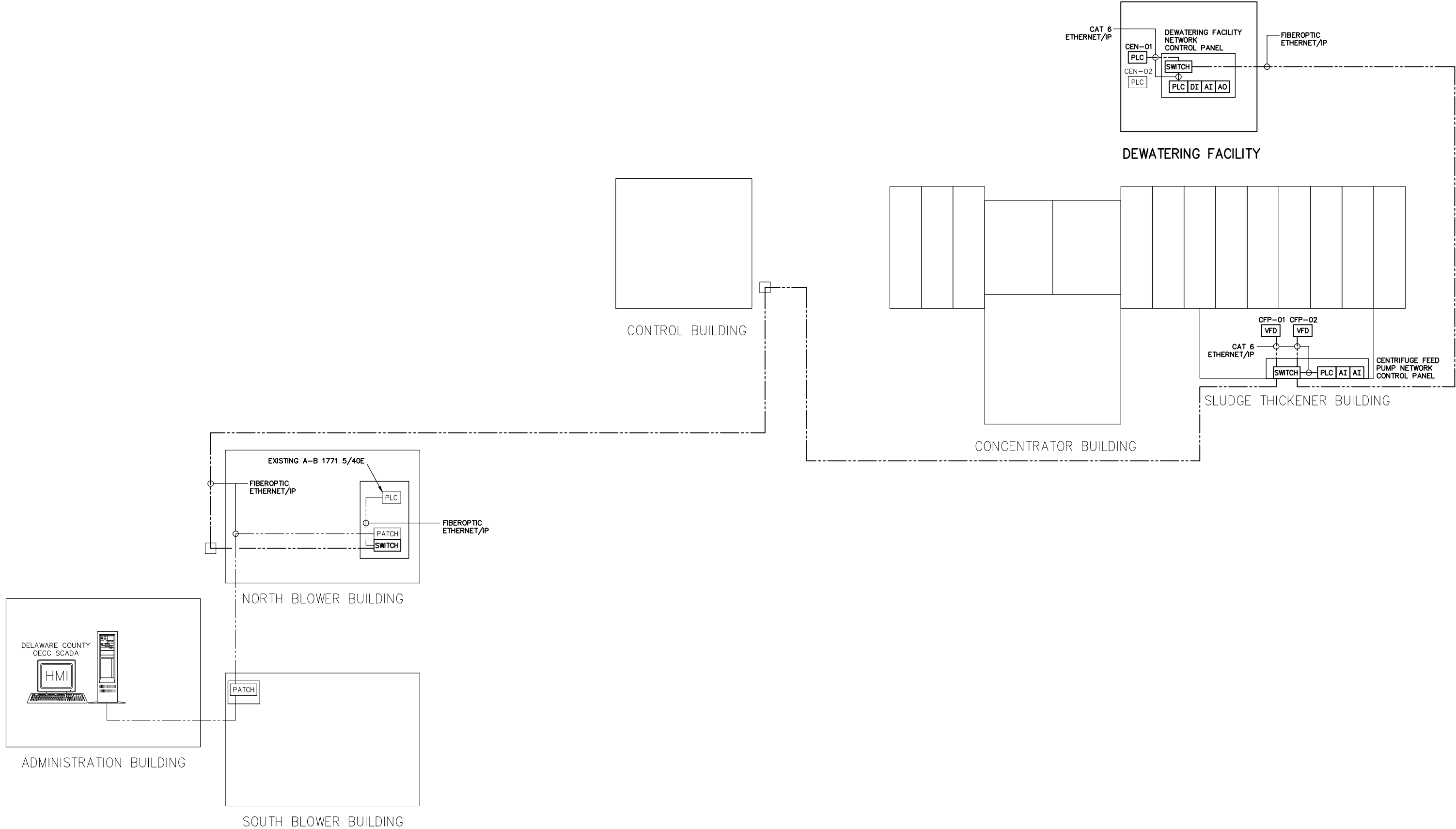
DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

INSTRUMENTATION
**LEGEND, SYMBOLS, ABBREVIATIONS
AND INSTALLATION DETAILS**
SCALE: NO SCALE

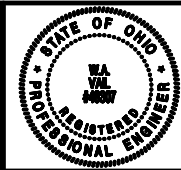
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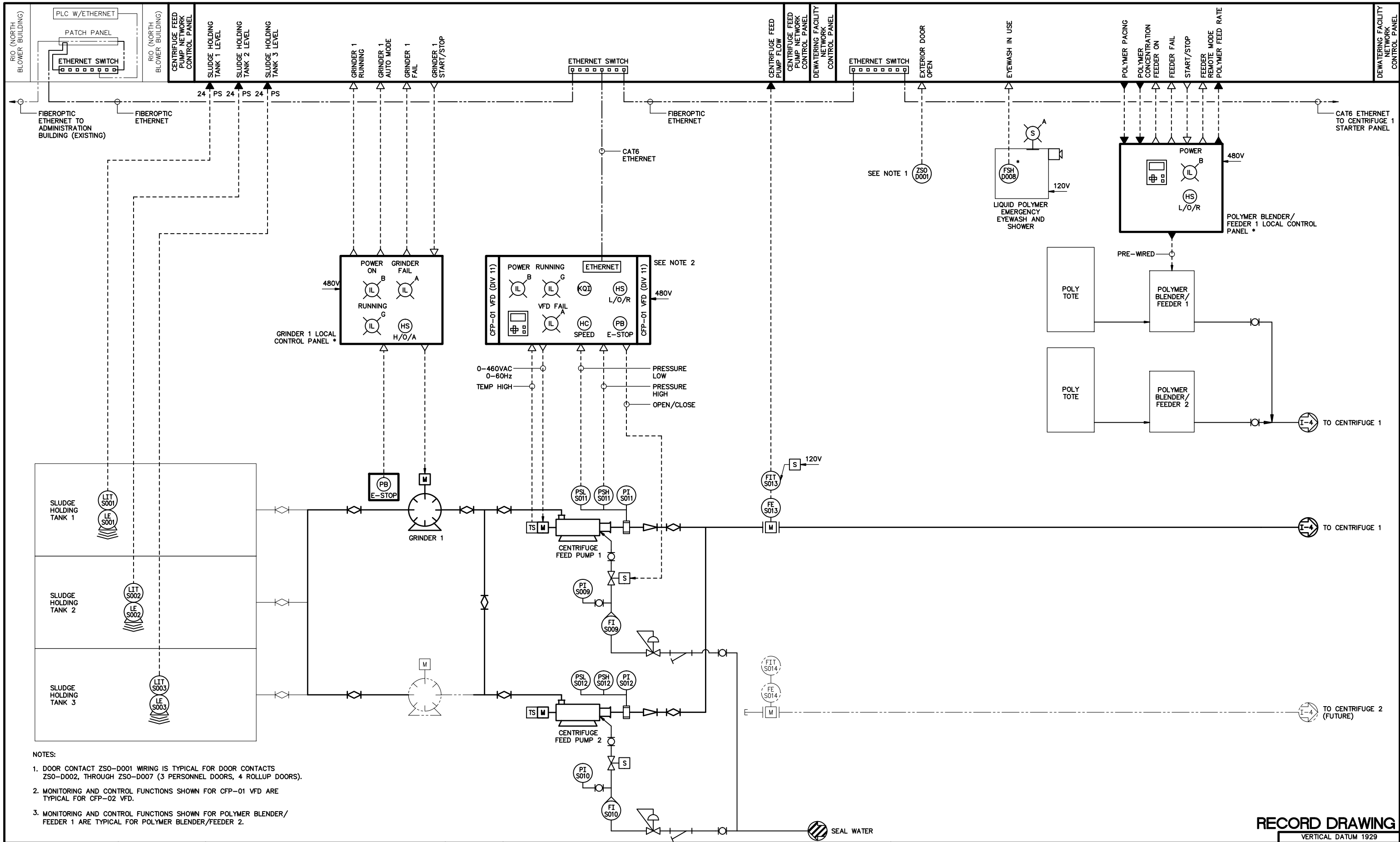
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CKD: WAV

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

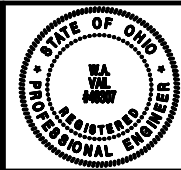
INSTRUMENTATION
CONTROL SYSTEM CONFIGURATION DIAGRAM
SCALE: NO SCALE

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CAD REF. NO. 3338005_852

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- NOTES:
1. DOOR CONTACT ZSO-D001 WIRING IS TYPICAL FOR DOOR CONTACTS ZSO-D002, THROUGH ZSO-D007 (3 PERSONNEL DOORS, 4 ROLLUP DOORS).
 2. MONITORING AND CONTROL FUNCTIONS SHOWN FOR CFP-01 VFD ARE TYPICAL FOR CFP-02 VFD.
 3. MONITORING AND CONTROL FUNCTIONS SHOWN FOR POLYMER BLENDER/FEEDER 1 ARE TYPICAL FOR POLYMER BLENDER/FEEDER 2.



REVISIONS		REMARKS
NO.	BY	DATE

DES RJB
 DWN RJB
 CKD WAV

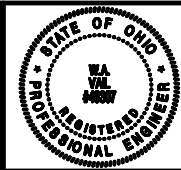
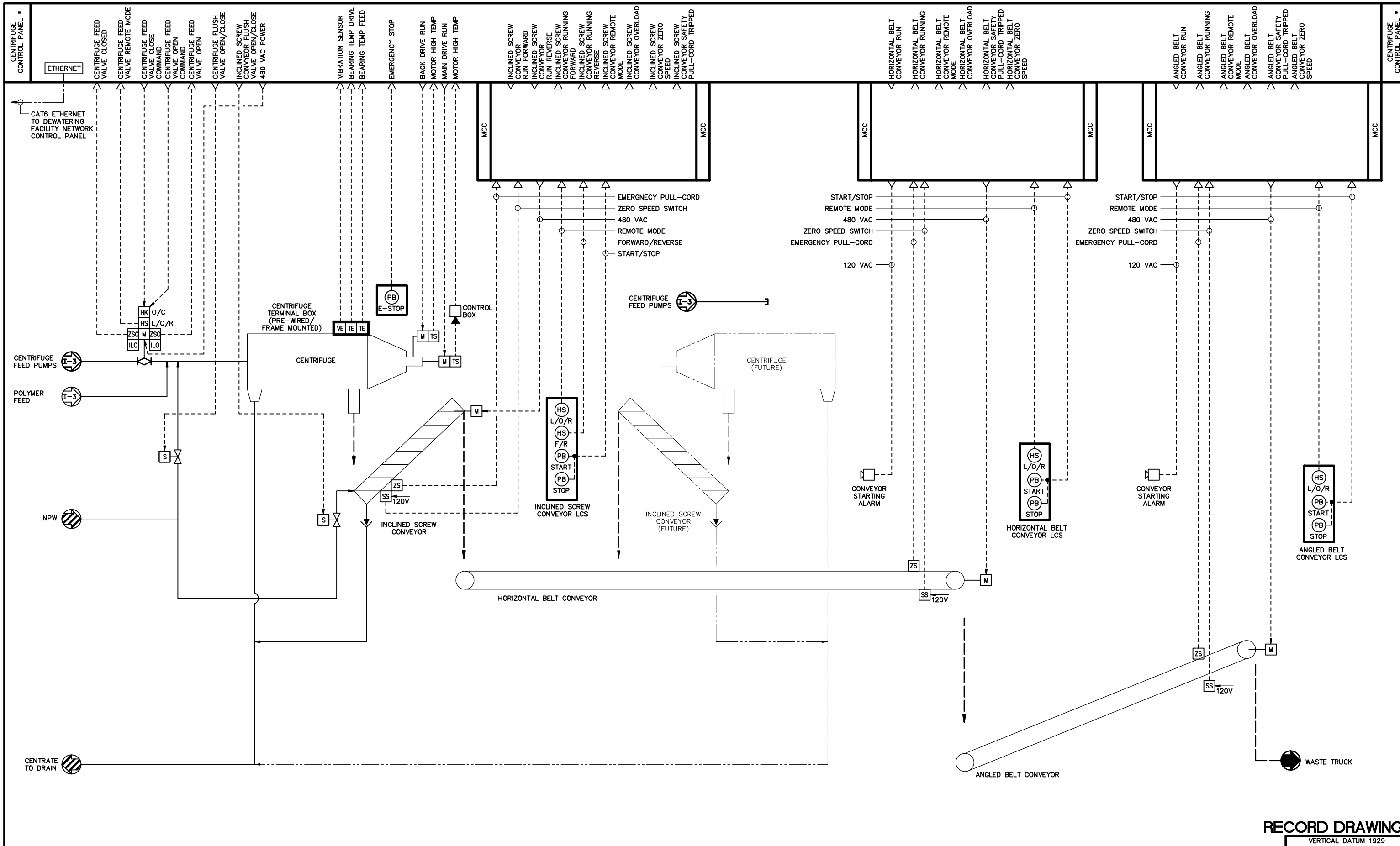
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

INSTRUMENTATION
SLUDGE HANDLING PROCESS AND INSTRUMENTATION DIAGRAM
 SCALE: NO SCALE

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 DATE JUNE 2008
 I SHEET 03 OF 05
 CAD REF. NO. 3338005_853

User: bobko Spec: PIRNIE STANDARD File: T:\338005\CADD\MC\338005_854.DWG Scale: 1:1 Date: 03/14/2008 Time: 15:45 Layout: 1-04



REVISIONS		NO.	BY	DATE	REMARKS

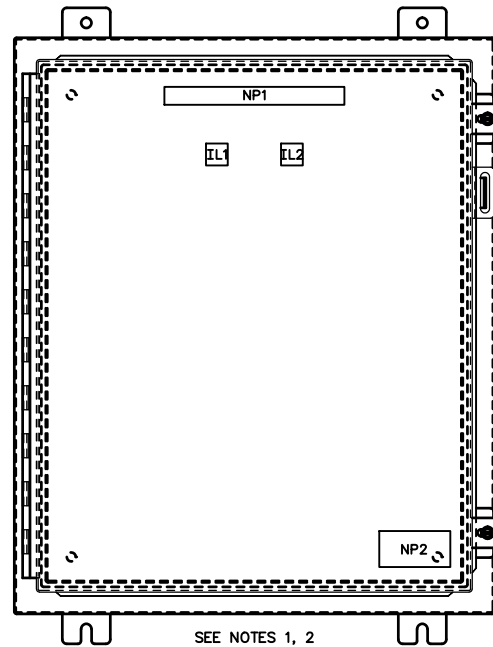
DES RJB
DWN RJB
CKD WAV

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

INSTRUMENTATION
**CENTRIFUGE PROCESS AND
INSTRUMENTATION DIAGRAM**
SCALE: NO SCALE

RECORD DRAWING

VERTICAL DATUM 1929
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DATE JUNE 2008
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CAD REF. NO. 338005_854



CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL FRONT FACE LAYOUT

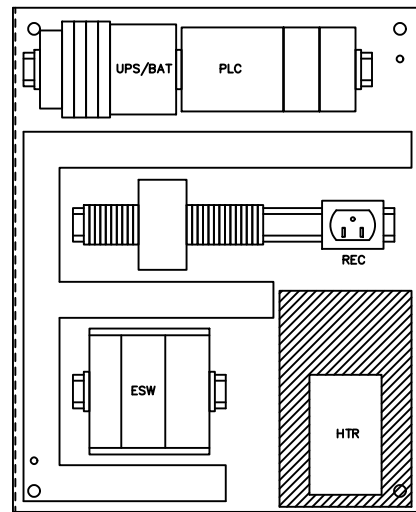
APPROXIMATE SIZE
24"H x 20"W x 8"D
PAINTED STEEL, NEMA 12

NO.	LETTERING (IN.)	NAMEPLATE TEXT
NP1	1/2	CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL
NP2	3/8	WARNING - YELLOW WIRING ENERGIZED FROM ANOTHER SOURCE

LIGHT NO.	LENS COLOR	TYPE	LEGEND PLATE TEXT
IL1	BLUE	TRANSFORMER	POWER ON
IL2	AMBER	TRANSFORMER	PLC FAIL

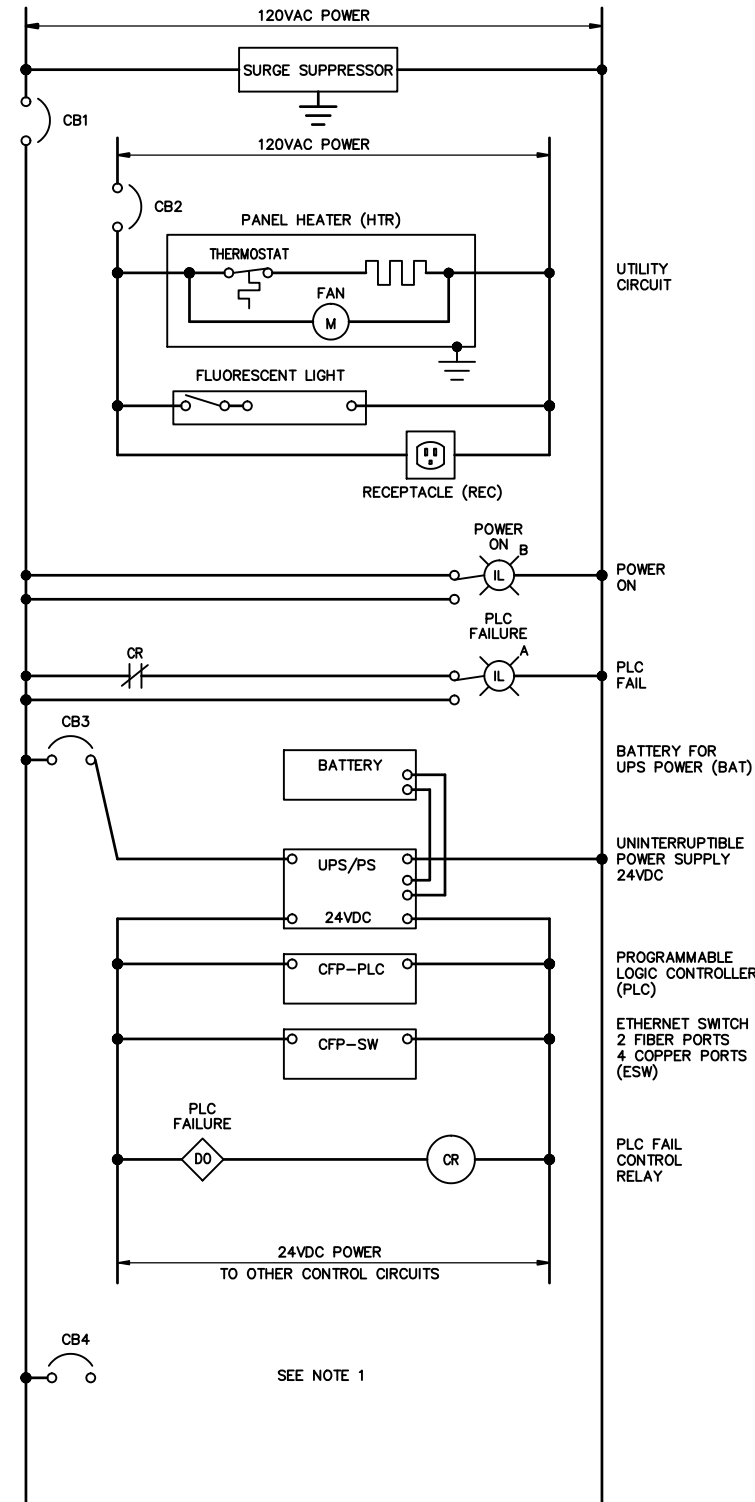
CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL FRONT PANEL COMPONENT DESCRIPTIONS

- NOTES:
- LAYOUT AND WIRING FOR CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL IS TYPICAL FOR DEWATERING FACILITY NETWORK CONTROL PANEL.
 - CONTROL PANEL SIZES ARE APPROXIMATE BASED ON THE PROBABLE EQUIPMENT INSTALLED WITHIN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE CONTROL PANELS WITH SUFFICIENT SPACE TO MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.
 - THE INTERIOR LAYOUT SHOWN IS ONLY ONE OF MANY CONFIGURATIONS. FURTHERMORE, ONLY MAJOR DEVICES ARE SHOWN. CONTRACTOR SHALL CONSTRUCT CONTROL PANEL TO MEET THE SPECIFICATIONS AND DESIGN INTENT OF THE PROJECT.



CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL INTERNAL COMPONENT LAYOUT

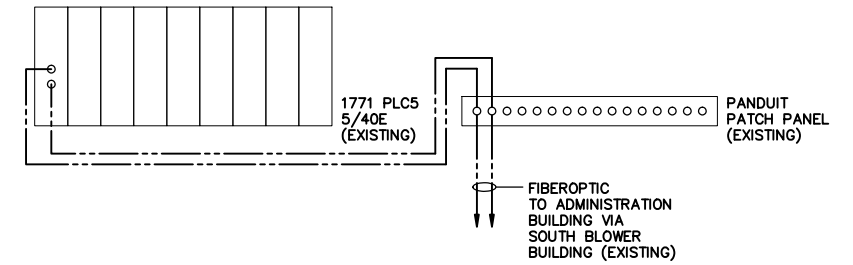
SEE NOTES 1, 3



CENTRIFUGE FEED PUMP NETWORK CONTROL PANEL PARTIAL WIRING DIAGRAM

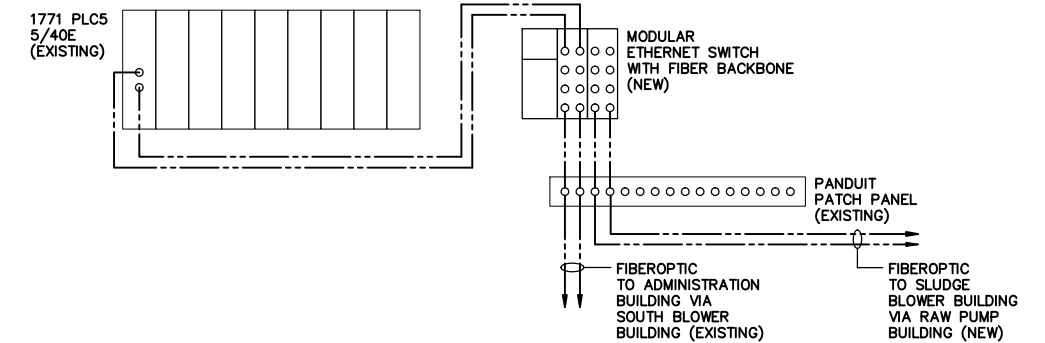
SEE NOTE 1

EXISTING CONFIGURATION



- NOTES:
- THE PLC5 PROCESSOR COMMUNICATES WITH OTHER ETHERNET-ENABLED NODES VIA A PORT ON THE FRONT FACE OF THE UNIT. THE PORT HAS A CONNECTOR ENABLING FIBEROPTIC COMMUNICATIONS. THE FIBEROPTIC CABLE IS BROUGHT INTO THE PATCH PANEL AND TERMINATED. THE FIBEROPTIC CABLE EXITING THE PATCH PANEL IS CONNECTED AT THE CONTROL PANEL IN THE SOUTH BLOWER BUILDING.

NEW CONFIGURATION



- NOTES:
- INSTALL ETHERNET SWITCH (AS SPECIFIED) IN EXISTING CONTROL PANEL IN NORTH BLOWER BUILDING. ADD A 24VDC POWER SUPPLY TO SUPPLY THE SWITCH WITH POWER.
 - DISCONNECT THE PLC5 FIBER CABLE FROM THE PATCH PANEL AND RECONNECT IT TO THE ETHERNET SWITCH.
 - BRING THE NEW FIBEROPTIC CABLE ENTERING THE PANEL FROM THE SLUDGE BLOWER BUILDING THROUGH THE PATCH PANEL AND CONNECT IT TO THE ETHERNET SWITCH.
 - CONNECT THE SWITCH TO THE PATCH PANEL WITH FIBEROPTIC CABLE AND TERMINATE IT AT THE ORIGINAL POINT WHERE THE PLC5 FIBEROPTIC CABLE WAS ONCE TERMINATED. THIS ALLOWS THE OLD AND NEW EQUIPMENT TO ACCESS THE REST OF THE ETHERNET NETWORK.

NORTH BLOWER BUILDING RIO PANEL FIBER MODIFICATIONS

RECORD DRAWING

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

INSTRUMENTATION
CONTROL PANEL LAYOUTS AND PARTIAL WIRING DIAGRAMS
SCALE: AS NOTED

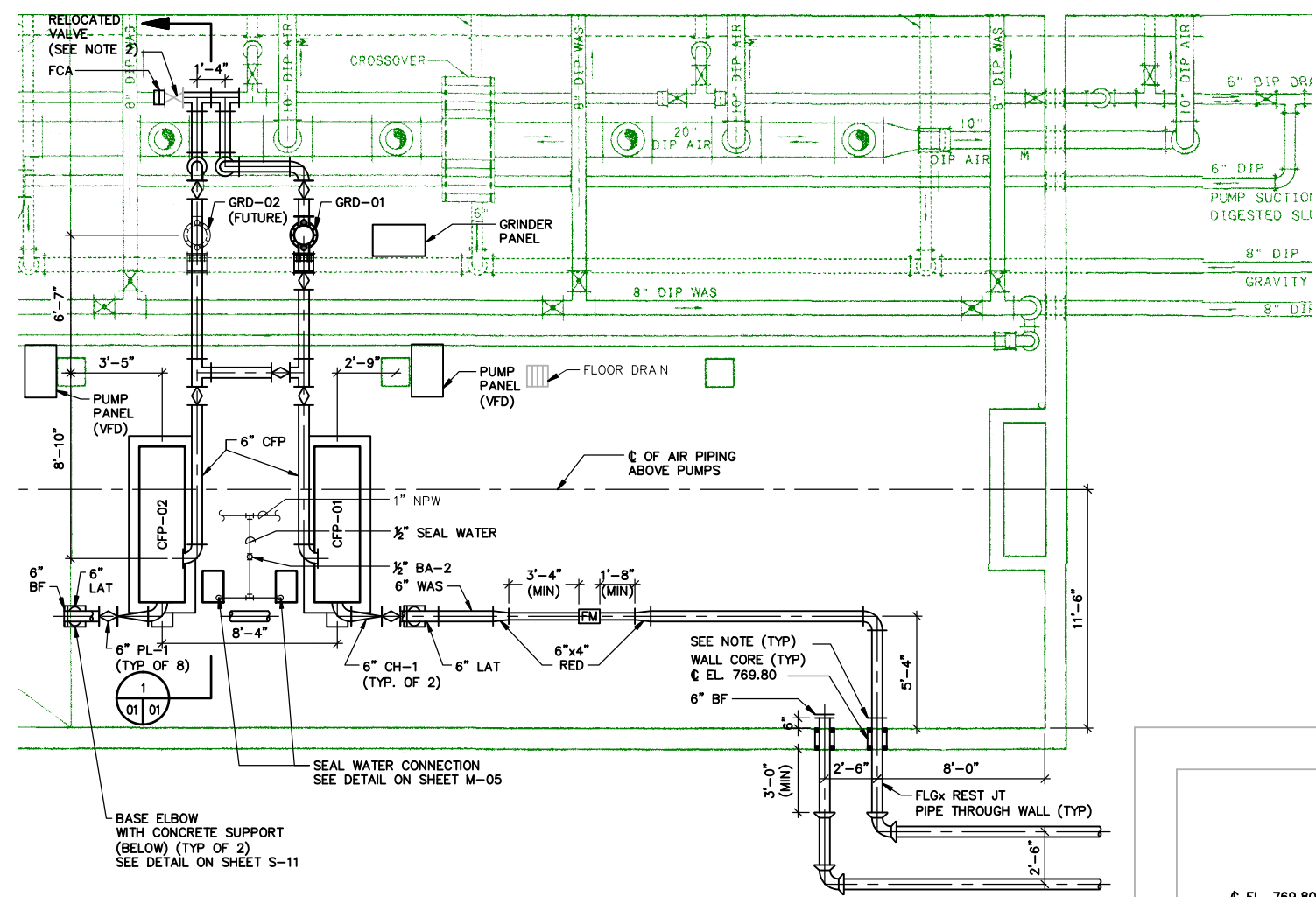
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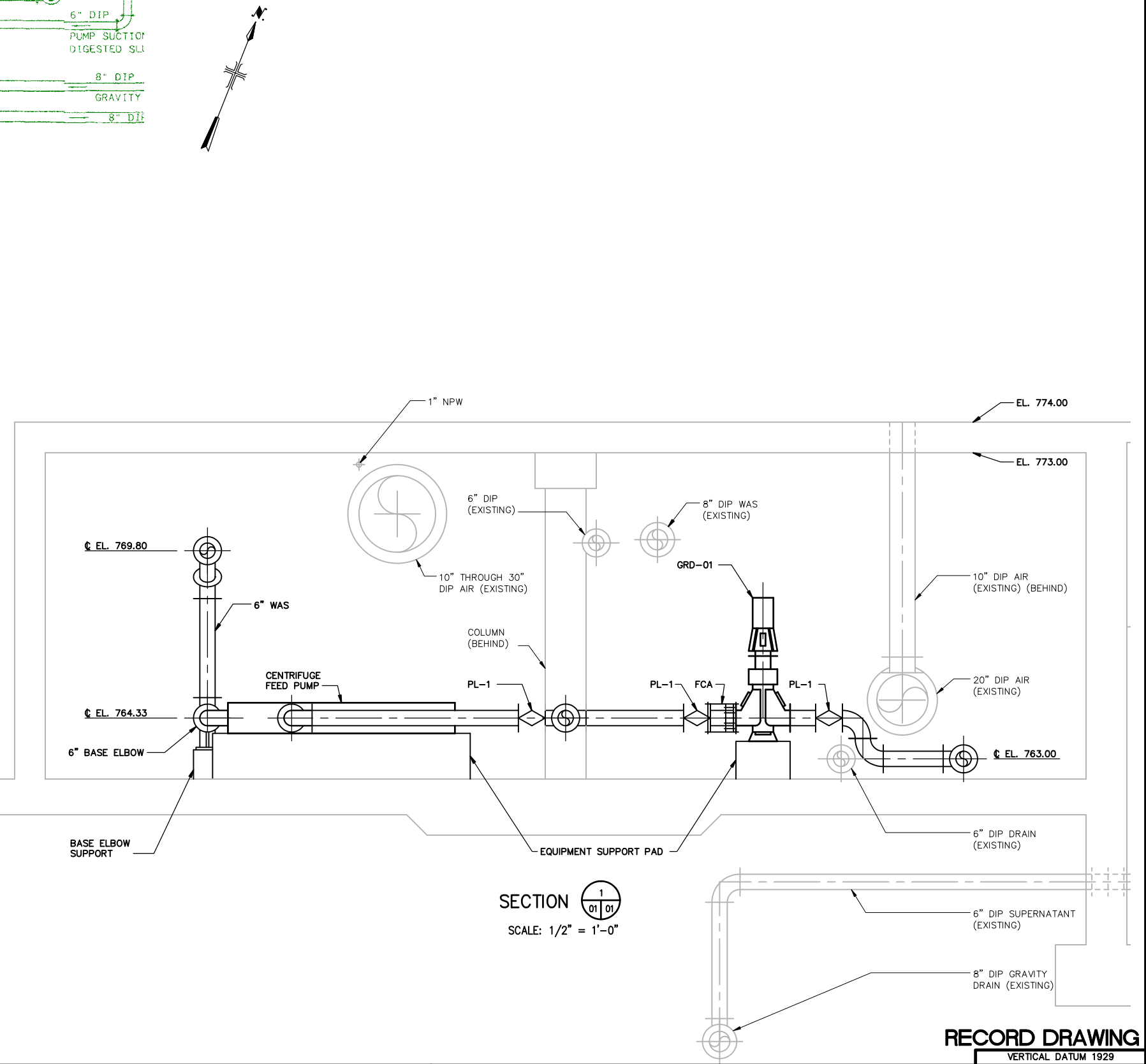
REVISIONS		NO.	BY	DATE	REMARKS
DES	RJB				
DWN	RJB				
CKD	WAV				

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**SLUDGE THICKENER BUILDING
LOWER PLAN**
SCALE: 1/4" = 1'-0"

- NOTE:**
- RESTRAIN PIPE WITH 4 EVENLY SPACED GUSSET PLATES WITH STAINLESS STEEL ALL THREAD RODS EACH EPOXY ANCHORED INTO WALL WITH 7" EMBEDMENT MINIMUM.
 - REMOVE EXISTING 6 INCH PLUG VALVE AND CUT AND REMOVE EXISTING 6 INCH DIP FOR INSTALLATION OF NEW TEES, FCA, AND REINSTALLATION OF EXISTING PLUG VALVE.



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

RECORD DRAWING



NO.		BY	DATE	REVISIONS	REMARKS

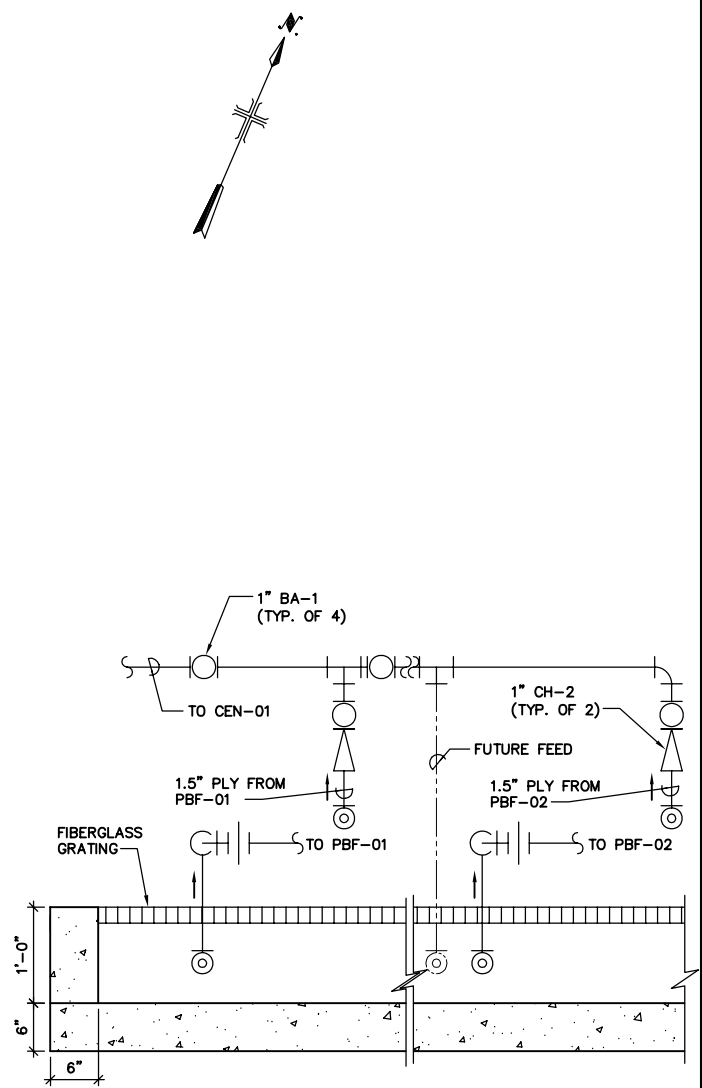
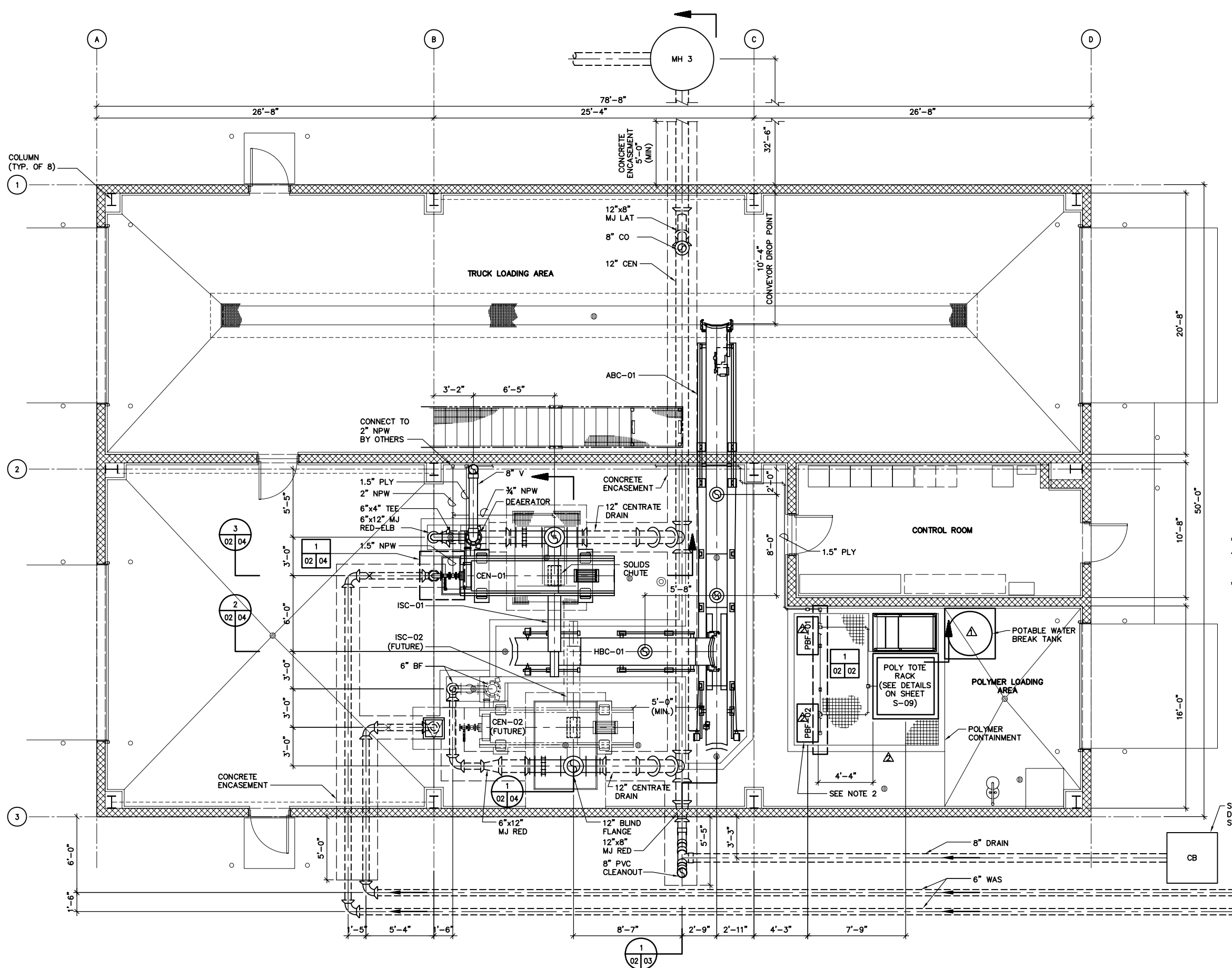
DES. PAK
DWN. PJW
CHK. TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**MECHANICAL
SLUDGE THICKENER BUILDING
LOWER PLAN AND SECTION**
SCALE: AS NOTED

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CAD REF. NO. 3338005_200

User:grimes Spec:PIRNE STANDARD File:T:\3338005\RECORD DRAWINGS\MECH\3338005_201.DWG Scale:1:1 Date:12/28/2009 Time:09:58 Layout:M-02



DETAIL
SCALE: NOT TO SCALE

- NOTE:**
1. CONCRETE ENCASE ALL PIPES BELOW SLABS PER DETAILS.
 2. CONNECT 1-1/4\"/>



NO.		BY	DATE	REVISIONS	REMARKS
1	02	BCK	07/20/09	REVISED PER CHANGE ORDER NO. 3	
2	02	BCK	10/09/09	RECORD DRAWING CHANGES	

DES: PAK
DWN: PJW
CKD: TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**MECHANICAL
DEWATERING FACILITY
PLAN VIEW**
SCALE: 1/4" = 1'-0"

RECORD DRAWING

VERTICAL DATUM 1929

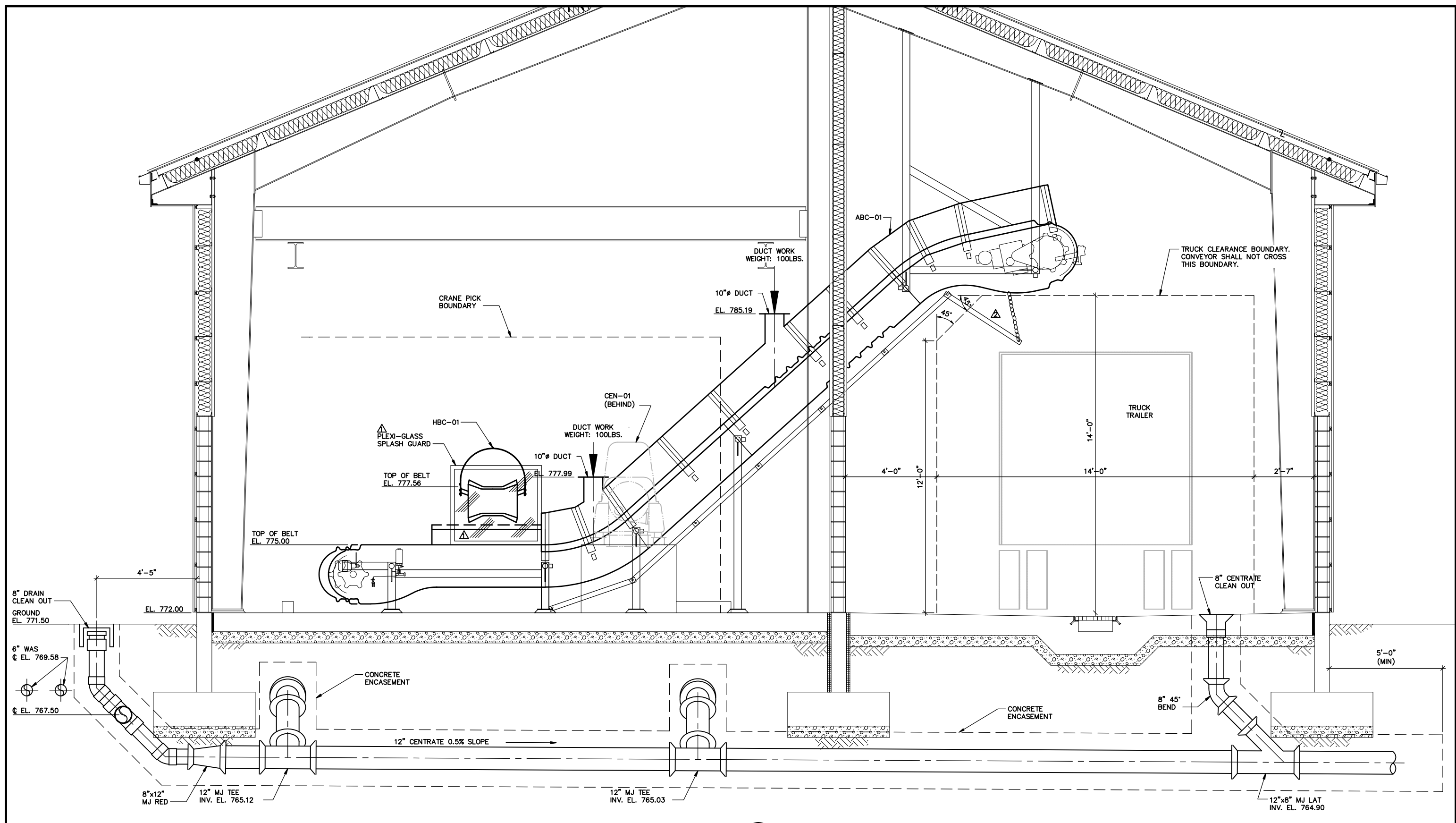
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DATE: JUNE 2008

M SHEET 02 OF 07

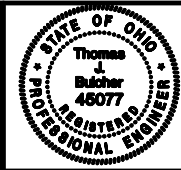
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SECTION 1
02 | 03
SCALE: 1/2" = 1'-0"

RECORD DRAWING



NO.	BY	DATE	REVISIONS	REMARKS
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2	BCK	10/09/09	RECORD DRAWING CHANGES	

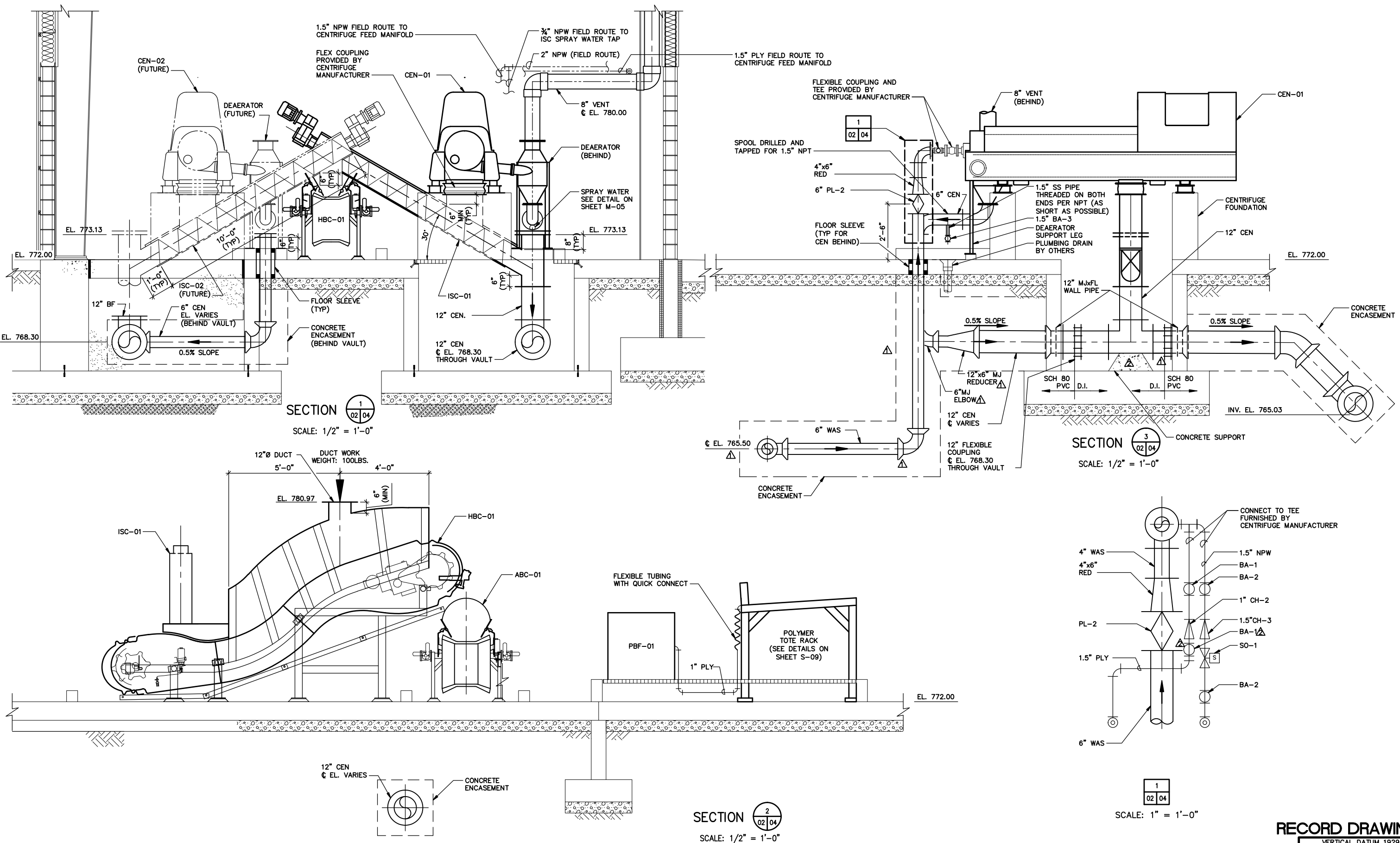
DES: PAK
DWN: PJW
CHK: TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**MECHANICAL
DEWATERING FACILITY
SECTION VIEW I**
SCALE: 1/2" = 1'-0"

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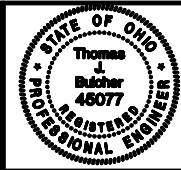


SECTION 1
02/04
SCALE: 1/2" = 1'-0"

SECTION 3
02/04
SCALE: 1/2" = 1'-0"

SECTION 2
02/04
SCALE: 1/2" = 1'-0"

SECTION 1
02/04
SCALE: 1" = 1'-0"



REVISIONS		NO.	BY	DATE	REMARKS
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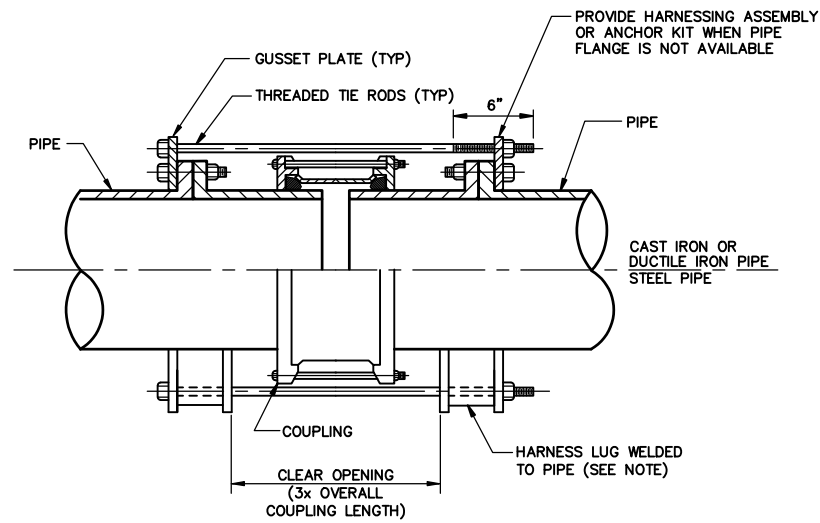
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DWN	PJW
CHK	TJB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

**MECHANICAL
DEWATERING FACILITY
SECTION VIEW II**
SCALE: AS NOTED

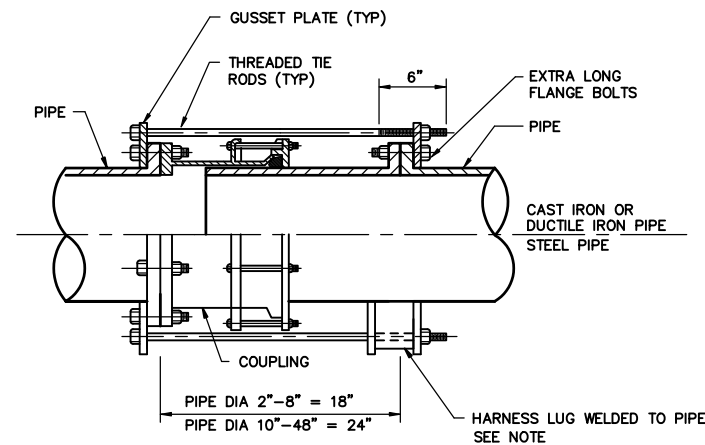
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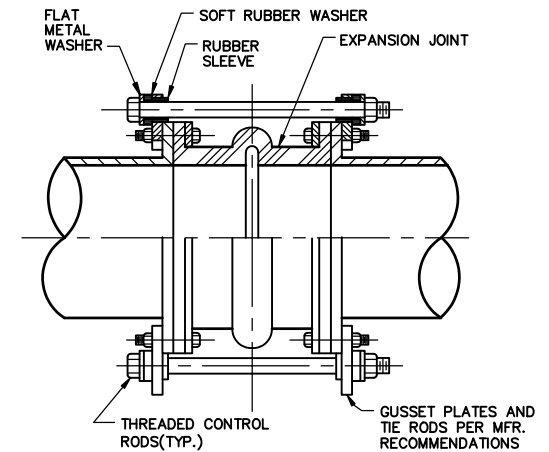
NOTE: THE NUMBER OF TIE RODS, HARNESS LUGS CONFIGURATION AND MATERIAL THICKNESS SHALL BE IN ACCORDANCE WITH AWWA M-11, STEEL PIPE - A GUIDE FOR DESIGN AND INSTALLATION.

HARNESSED FLEXIBLE COUPLING DETAIL

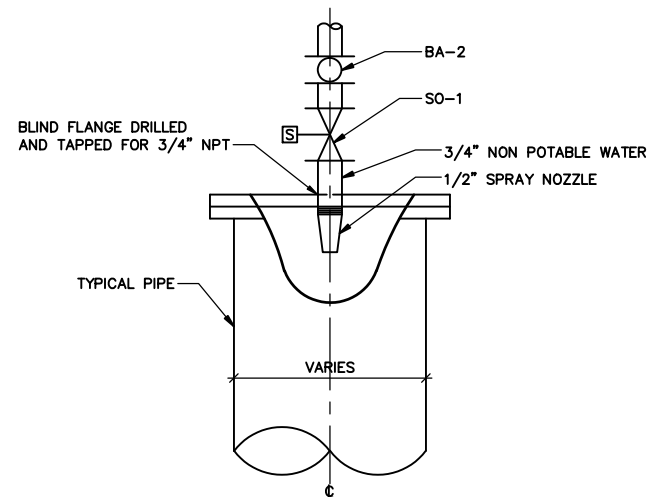


NOTE: THE NUMBER OF TIE RODS, HARNESS LUGS CONFIGURATION AND MATERIAL THICKNESS SHALL BE IN ACCORDANCE WITH AWWA M-11, STEEL PIPE - A GUIDE FOR DESIGN AND INSTALLATION.

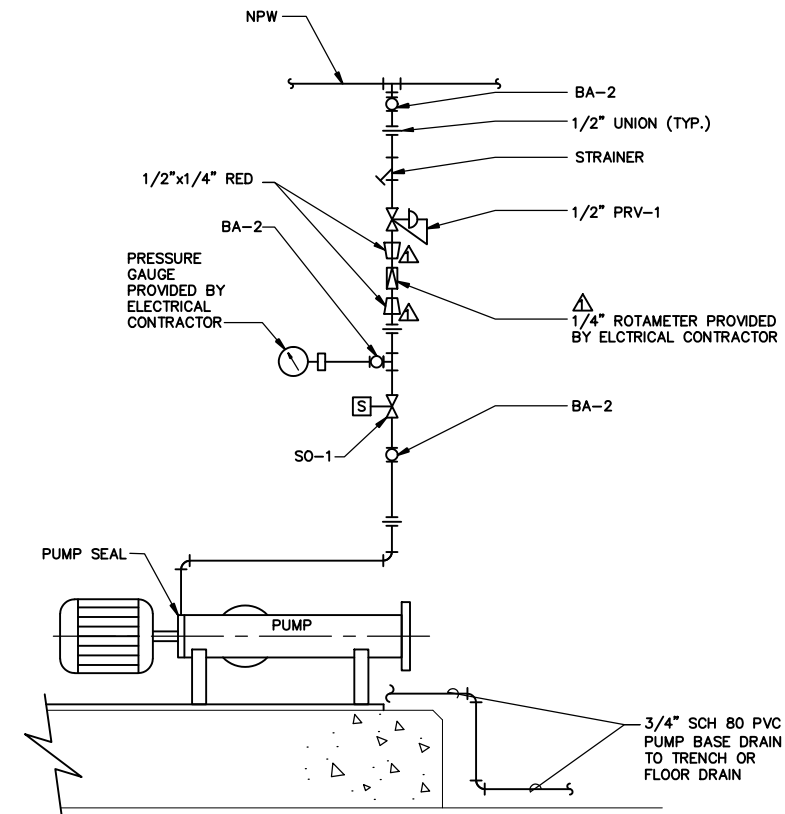
HARNESSED FLANGED COUPLING ADAPTER DETAIL



HARNESSED EXPANSION COUPLING DETAIL



SPRAY WATER DETAIL



TYPICAL SEAL WATER CONNECTION DETAIL

RECORD DRAWING

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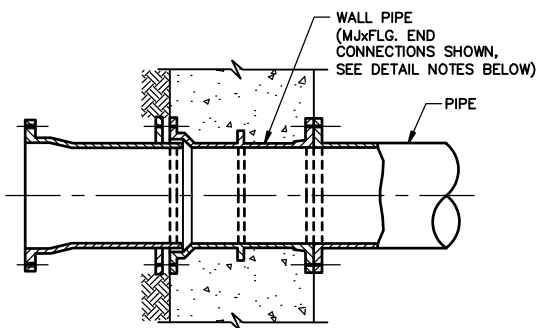
NO.		BY	DATE	REVISIONS	REMARKS
1		BCK	10/20/09	RECORD DRAWING CHANGES	

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DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

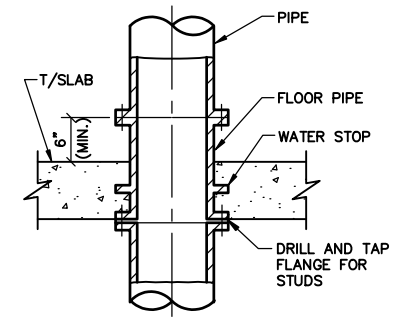
MECHANICAL
**TYPICAL DETAILS
SHEET I**
SCALE: AS NOTED

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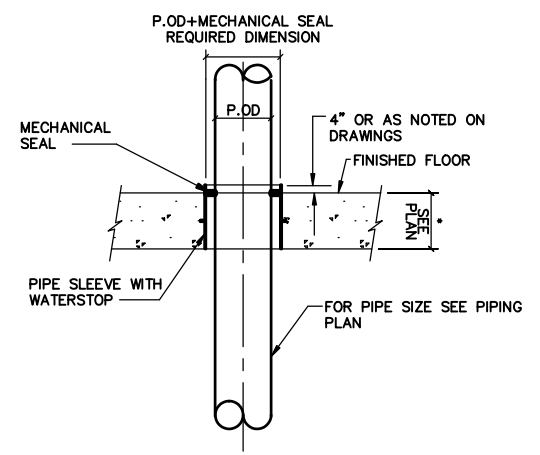


- DETAIL NOTES:
1. WALL PIPE END CONNECTIONS TO BE AS NOTED ON DRAWINGS.
 2. INSTALL WALL PIPE FLUSH WITH WALL UNLESS OTHERWISE SHOWN OR NOTED.
 3. DRILL AND TAP FLANGES, MJ BELLS AND RESTRAINED JOINT BELLS FOR STUDS.

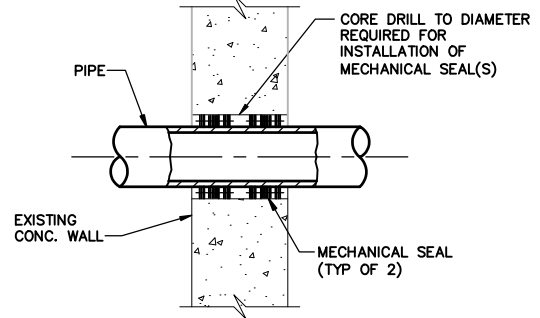
TYPICAL WALL PIPE DETAIL



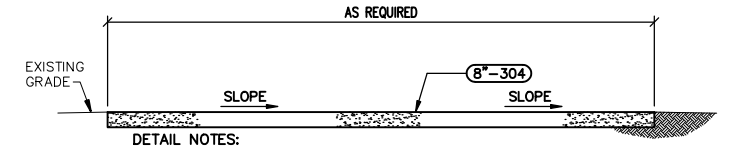
TYPICAL FLOOR PIPE DETAIL



TYPICAL FLOOR SLEEVE THROUGH NEW FLOOR

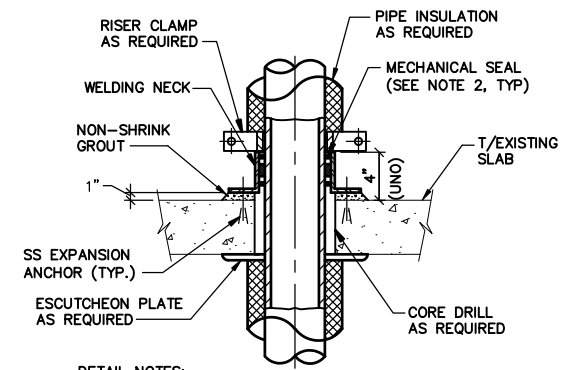


TYPICAL WALL CORE DETAIL



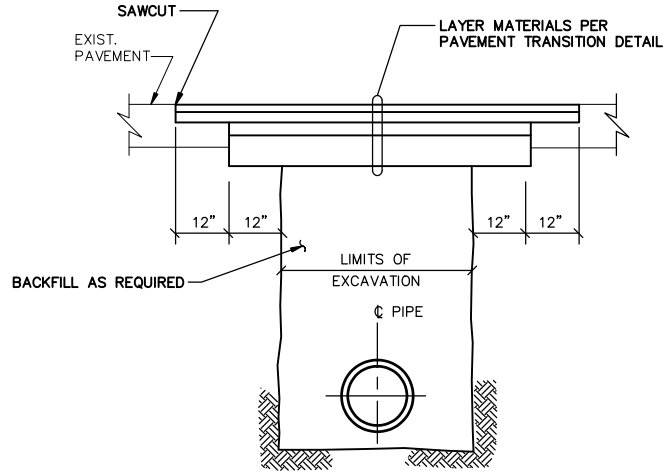
- DETAIL NOTES:
1. CONTRACTOR SHALL STRIP EXISTING TOPSOIL AND STOCKPILE ON SITE PRIOR TO INSTALLATION OF GRAVEL LAYDOWN AND PARKING AREAS.
 2. FOLLOWING COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL REMOVE ALL GRAVEL AND REPLACE TOPSOIL TO REQUIRED ELEVATIONS. SEED AREA IN CONFORMANCE WITH SPECIFICATIONS.

TEMPORARY GRAVEL LAYDOWN AND ENGINEER'S PARKING DETAIL

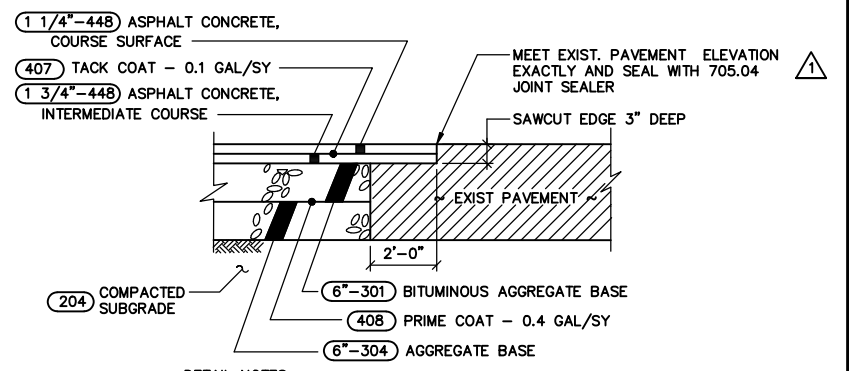


- DETAIL NOTES:
1. TYPE 1 - MECHANICAL SEAL REQUIRED
TYPE 2 - MECHANICAL SEAL NOT REQUIRED
 2. PROVIDE FIRE RATED MECHANICAL SEALS AS REQUIRED.

TYPICAL FLOOR CORE DETAIL (PROVIDE TYPE 1 UNLESS OTHERWISE NOTED.)

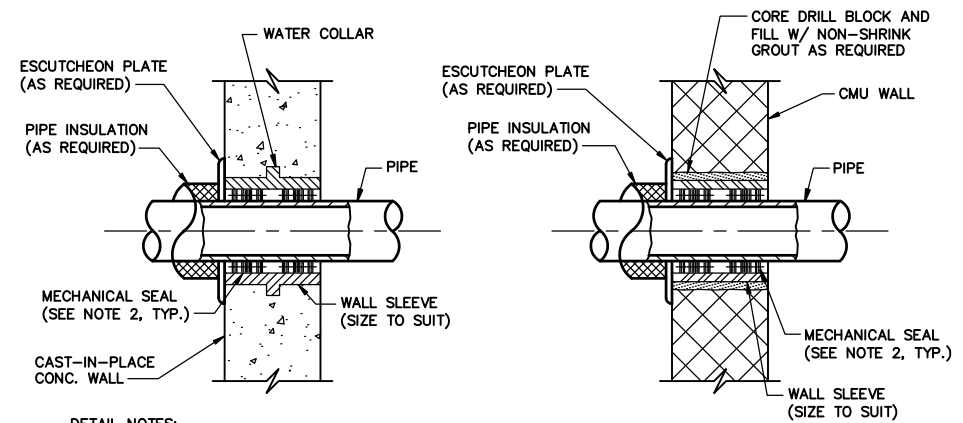


△ BITUMINOUS PAVEMENT REPLACEMENT DETAIL - PLANT DRIVES



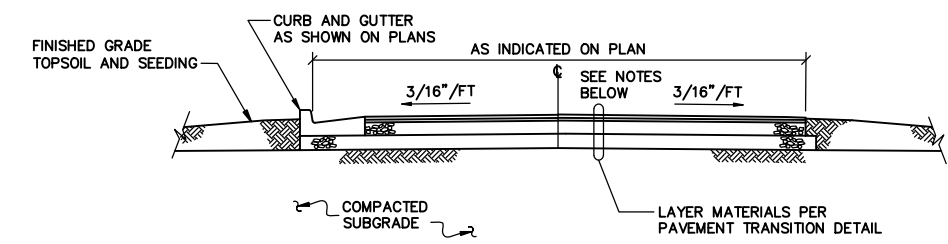
- DETAIL NOTES:
1. PROVIDE PAVEMENT TRANSITION AT ALL LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

△ PAVEMENT TRANSITION DETAIL - PLANT DRIVES



- DETAIL NOTES:
1. TYPE 1: CONC. WALL - MECHANICAL SEAL REQUIRED ON ONE FACE
TYPE 2: CONC. WALL - MECHANICAL SEAL REQUIRED ON BOTH FACES
TYPE 3: CMU WALL - MECHANICAL SEAL REQUIRED ON ONE FACE
TYPE 4: CMU WALL - MECHANICAL SEAL REQUIRED ON BOTH FACES
 2. PROVIDE FIRE RATED MECHANICAL SEALS AS REQUIRED.

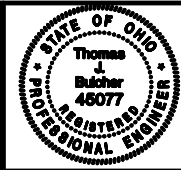
TYPICAL WALL SLEEVE DETAILS (PROVIDE TYPE 1 UNLESS OTHERWISE NOTED.)



- DETAIL NOTES:
1. CROWN ROADWAY AS SHOWN, OR SLOPE AS INDICATED ON PLANS.
 2. FINISH GRADE SHALL BE 1" LOWER THAN PAVEMENT ELEVATION AT EDGE OF PAVEMENT.

△ PLANT DRIVES PAVING DETAIL

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REVISIONS		NO.	BY	DATE	REMARKS
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DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

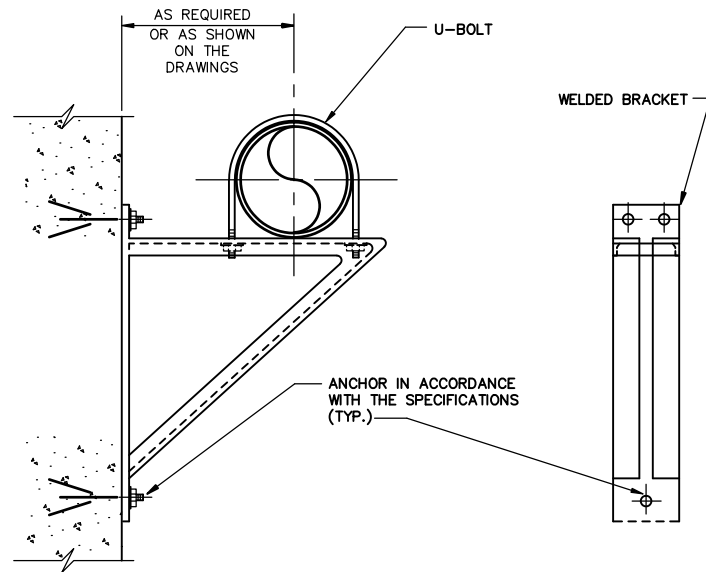
MECHANICAL
TYPICAL DETAILS
SHEET II
SCALE: AS NOTED

RECORD DRAWING

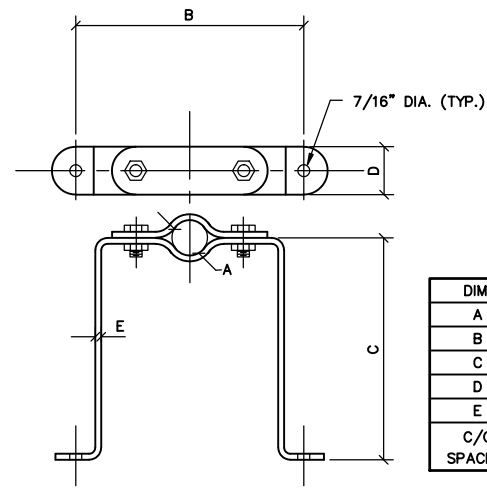
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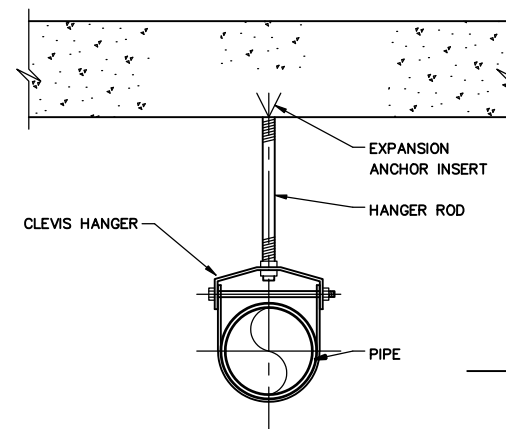


WALL BRACKET DETAIL

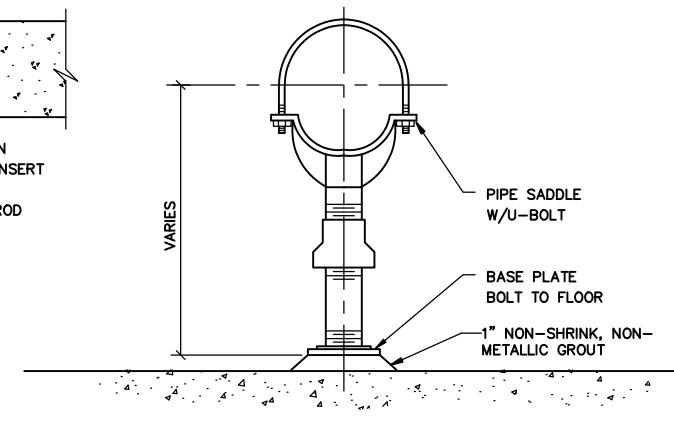


OFFSET PIPE CLAMP DETAIL

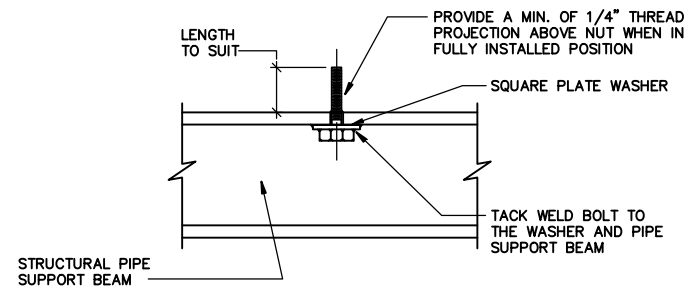
DIM.	PIPE SIZE		
A	1/2"-2"	2"-4"	4"-6"
B	6 1/4"	10"	14"
C	6"-10"	6"-12"	8"-16"
D	1 1/4"	2"	3"
E	3/16"	5/16"	3/8"
C/C SPACING	4'-0"	6'-0"	8'-0"



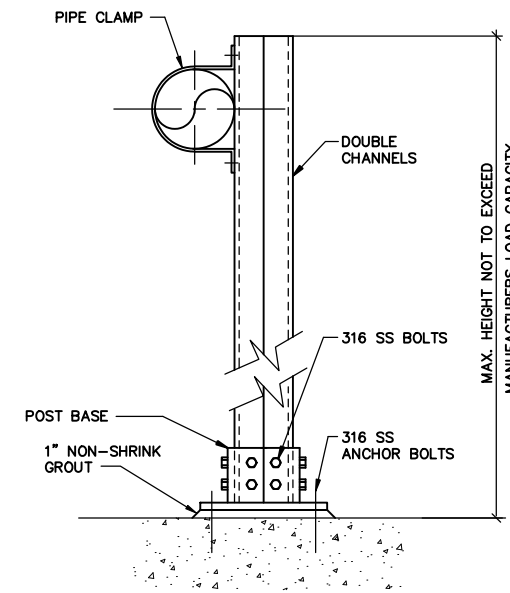
PIPE CLEVIS DETAIL



PIPE STANCHION SADDLE DETAIL

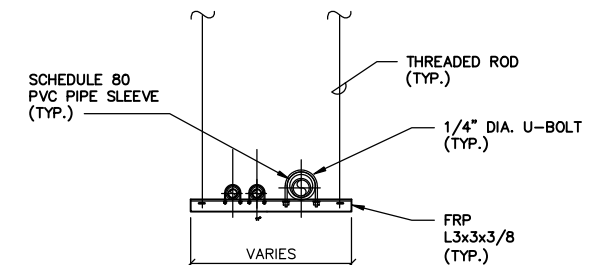


TYPICAL SADDLE BOLT ON PIPE SUPPORT BEAM



NON-METALLIC SUPPORT DETAIL

NOTES:
1. ALL MATERIALS SHALL BE FRP



NOMINAL PIPE DIA. (inches)	PIPE SLEEVE DIA. (inches)	PIPE SLEEVE LENGTH (inches)
1 1/2"	2 1/2"	6"
2"	3"	6"
3"	4"	6"
4"	6"	6"

NOTE: PIPE SUPPORTS SHALL BE PROVIDED BASED ON SUPPORT SPACING FOR THE SMALLEST DIAMETER PIPE. SEE SPECIFICATION SECTION 15140 - PIPE HANGERS AND SUPPORTS.

TRAPEZE PIPE SUPPORT DETAIL

MALCOLM PIRNIE



NO.		BY	DATE	REVISIONS	REMARKS

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DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

MECHANICAL
TYPICAL DETAILS
SHEET III
SCALE: AS NOTED

RECORD DRAWING

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SYMBOLS

SYMBOL	DESCRIPTION
	SANITARY PIPING ABOVE GRADE (SOIL OR WASTE)
	SANITARY PIPING BELOW GRADE (SOIL OR WASTE)
	CHEMICAL WASTE PIPING
	CHEMICAL VENT PIPING
	GAS
	VENT PIPING
	TEPID WATER
	TEMPERED WATER RETURN
	STORM DRAINAGE PIPING ABOVE GRADE
	STORM DRAINAGE PIPING BELOW GRADE
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER CIRCULATING LINE
	PUMP DISCHARGE PIPING (SUMP PUMP OR SEWAGE EJECTOR)
	SERVICE WATER PIPING
	GAS PIPING
	GAS COCK, OR PLUG VALVE
	BALANCING COCK AND FLOW SENSOR
	PRESSURE REGULATOR (AIR OR GAS)
	PRESSURE REDUCING VALVE
	GATE VALVE (4-INCH & LARGER PIPING)
	GLOBE VALVE
	BALL VALVE
	CHECK VALVE
	PITCH OF PIPE RISE (R)/DROP (D)
	FLOW-IN DIRECTION OF ARROW
	PIPE DROP, UNLESS OTHERWISE NOTED
	PIPE RISE, UNLESS OTHERWISE NOTED
	RISE OR DROP IN RUN OF PIPE
	BRANCH - TOP CONNECTION
	BRANCH - BOTTOM CONNECTION
	BRANCH CONNECTION SIDE
	CAP ON END OF PIPE
	CONCENTRIC REDUCER
	UNION (SCREWED)
	CLEANOUT PLUG
	FLOOR CLEANOUT
	VALVE IN VERTICAL (VIV)
	WALL CLEANOUT
	STRAINER-WYE TYPE W/ BALL VALVE BLOW-OFF
	WATER HAMMER ARRESTER
	PRESSURE GAUGE WITH GAUGE COCK
	THERMOMETER (STRAIGHT SCALE)
	HOSE BIBB
	AQUASTAT
	P-TRAP
	CIRCULATING PUMP
	FLOOR OR ROOF DRAIN
	REDUCED PRESSURE ZONE BACKFLOW PREVENTER W/ STRAINER
	REDUCED PRESSURE DETECTOR ASSEMBLY BACKFLOW PREVENTER (FIRE PROTECTION)
	SQUARE FOOT
	FLOW SWITCH

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
CA	COMPRESSED AIR
CD	CHEMICAL DRAIN
CFH	CUBIC FEET PER HOUR
?	CENTERLINE
CLG	CEILING
CO	CLEANOUT
CONN.	CONNECT
CONT.	CONTINUATION
CS	CUP SINK
CW	COLD WATER
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN.	DOWN (PENETRATES FLOOR SLAB)
EL	ELEVATION
ESE	EMERGENCY SHOWER AND EYEWASH
EW	EYE WASH
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEANOUT
FIXT.	FIXTURE
FD	FLOOR DRAIN
FL	FLOOR
FP	FIRE PROTECTION
FT	FEET
G	GAS
GAL	GALLONS
GC	GENERAL CONTRACTOR
GCO	GRADE CLEAN OUT
GPM	GALLONS PER MINUTE
GUH	FAS FIRED UNIT HEATER
GWH	GAS FIRED WATER HEATER
HB	HOSE BIBB
HC	HOSE CONNECTION
HR	HOSE REEL
HTR	HEATER
HW	HOT WATER
HWC	HOT WATER CIRCULATION LINE
IE	INVERT ELEVATION
IW	INDIRECT WASTE
IN	INCH
KS	KITCHEN SINK
LAB	LABORATORY
LAV	LAVATORY
MAX	MAXIMUM
MBH	MILLION BTU PER HOUR
MH	MANHOLE
MIN	MINIMUM
MSB	MOP SINK BASIN
N.C.	NORMALLY CLOSED
NG	NATURAL GAS
N.O.	NORMALLY OPEN
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PG	PROPANE GAS
PRCY	PLANT RECYCLING
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH (GAUGE)
PW	POTABLE WATER
RPDA-BFP	REDUCED PRESSURE DETECTOR ASSEMBLY - BACKFLOW PREVENTER
RPZ-BFP	REDUCED PRESSURE ZONE - BACKFLOW PREVENTER
RT	RUNNING TRAP
S	SOIL
SAN	SANITARY
SED	SEWAGE EJECTOR DISCHARGE
SH	SHOWER

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
SPD	SUMP PUMP DISCHARGE LINE
SQ FT	SQUARE FOOT
SS	SERVICE SINK
ST	STORM DRAIN
ST STL	STAINLESS STEEL
TW	TEPID WATER
TWBS	TEPID WATER BLENDING SYSTEM
TYP	TYPICAL
UP	UP (PENETRATES FLOOR SLAB)
UR	URINAL
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME BOX
VB	VACUUM BREAKER
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTER
WM	WASHING MACHINE
W/	WITH

GENERAL NOTES:

- ALL FLOOR DRAINS ARE AT LOW POINTS OF FLOORS. LOCATIONS ARE SHOWN ON THE STRUCTURAL DRAWINGS.
- ALL FLOOR DRAINS FOR EQUIPMENT SHALL BE FIELD COORDINATED AND LOCATED ADJACENT TO THE EQUIPMENT PADS IN THE APPROXIMATE LOCATIONS SHOWN ON THE DRAWINGS.
- ALL BRANCH PIPING TO EQUIPMENT OR FIXTURES SHALL BE PROVIDED WITH SHUT-OFF VALVES, WHETHER SHOWN, OR NOT SHOWN ON DRAWINGS.
- ALL PIPING SHALL BE CONCEALED WITHIN WALLS, PIPE SPACES AND HUNG CEILINGS EXCEPT IN MECHANICAL SPACES OR WHERE NOTED.
- CHANGES IN DIRECTION IN DRAINAGE PIPING SHALL BE MADE BY THE USE OF 45 DEGREE ELLS, LONG SWEEPS, 90 DEGREE WYES W/CO'S OR BY A COMBINATION OF EQUIVALENT FITTINGS. THERE SHALL BE NO DOUBLE WYES IN THE HORIZONTAL PLANE.
- SANITARY TEES AND QUARTER BENDS MAY BE USED IN DRAINAGE LINES ONLY WHERE DIRECTION OF FLOW IS FROM HORIZONTAL TO THE VERTICAL.
- ALL VENT RISERS RUN STRAIGHT THROUGH ROOF SHALL HAVE AN APPROVED EXPANSION JOINT SYSTEM INSTALLED BELOW ROOF.
- ALL CONTROL WIRING SHALL BE 120 VOLTS UNLESS OTHERWISE SPECIFIED. TRANSFORMERS SHALL BE PROVIDED WHERE REQUIRED.
- THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
- ALL EQUIPMENT AND CONTROL MECHANISMS SHALL BE PIPED THROUGH UNION CONNECTIONS
- ALL WYE TYPE STRAINERS SHALL HAVE A 3-INCH LONG THREADED NIPPLE, THREADED END BALL VALVE AND PLUG ON BLOWDOWN SIDE.
- ALL DRAINAGE PIPING TO SLOPE AT A MIN. OF 1/8" PER FT UNLESS OTHERWISE NOTED
- AN ACCESSIBLE CLEANOUT SHALL BE PROVIDED AT THE BASE OF EACH SOIL STACK, WASTE STACK AND ROOF LEADER.
- ALL HOT, COLD AND TEPID WATER PIPING SHALL BE INSULATED.
- TRAPS SHALL BE PROVIDED AT ALL FLOOR DRAINS EXCEPT WHERE NOTED.
- VENT LINES SERVING FLOOR DRAIN HEADERS SHALL BE TAKEN OFF ABOVE THE CENTERLINE OF THE SOIL PIPE, AND THE VENT PIPE SHALL RISE AT AN ANGLE NOT MORE THAN 45°
- ALL EXPOSED PIPING, FITTINGS AND VALVES IN FINISHED WASHROOMS SHALL BE CHROME PLATED.
- STORAGE TEMPERATURE OF DOMESTIC HOT WATER SHALL BE 140°F

RECORD DRAWING

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DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

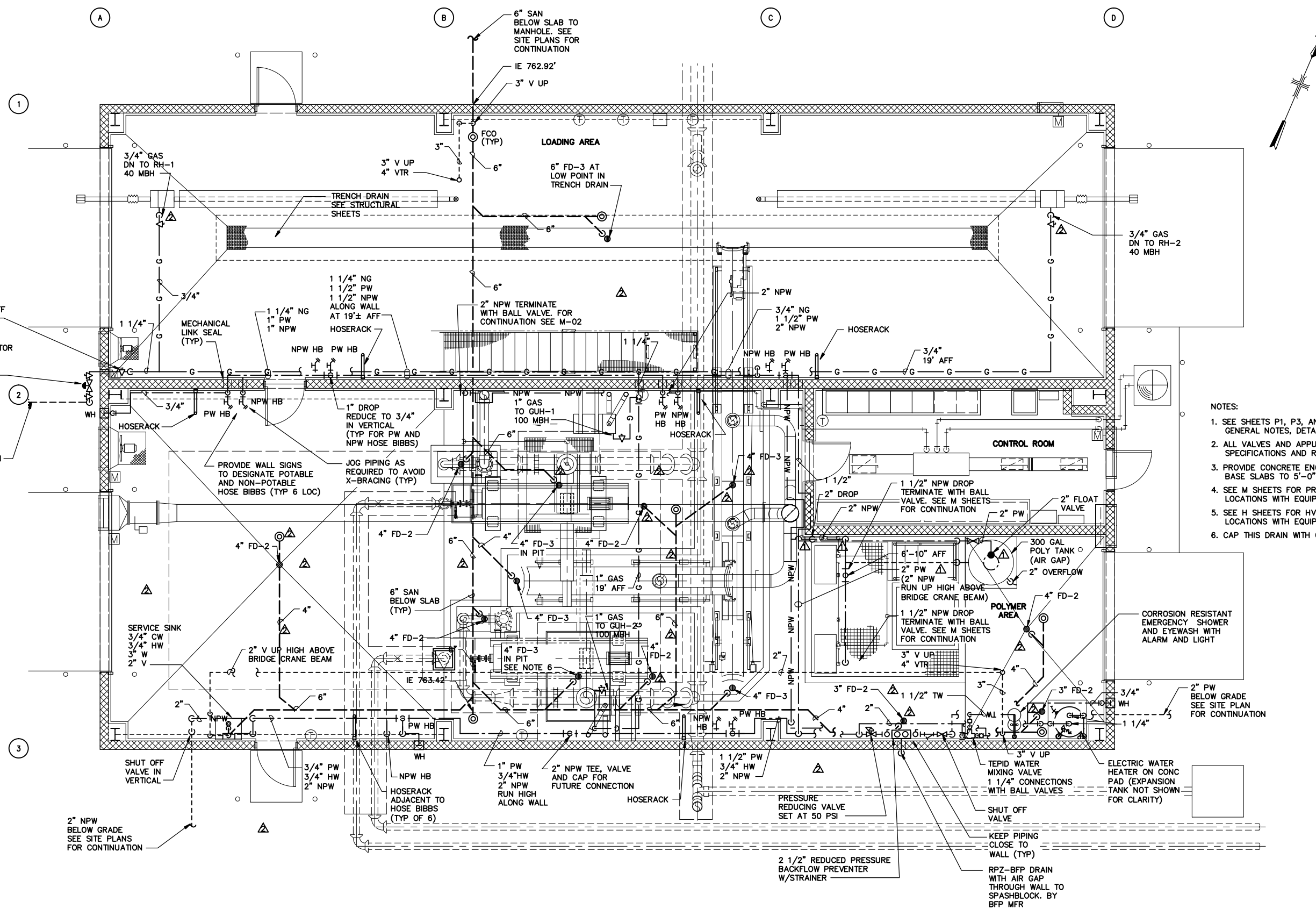
PLUMBING
**SYMBOLS, ABBREVIATIONS
AND GENERAL NOTES**
SCALE: NO SCALE



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DES	RPM				
DWN	RPM				
CKD	RB				

**MALCOLM
PIRNIE**

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- NOTES:**
- SEE SHEETS P1, P3, AND P4 FOR SYMBOLS, ABBREVIATIONS, GENERAL NOTES, DETAILS AND RISER DIAGRAMS.
 - ALL VALVES AND APPURTENANCES ARE NOT SHOWN, SEE DETAILS, SPECIFICATIONS AND RISER DIAGRAMS.
 - PROVIDE CONCRETE ENCASEMENT AROUND ALL PIPES UNDER STRUCTURE BASE SLABS TO 5'-0" BEYOND FOUNDATION LIMITS.
 - SEE M SHEETS FOR PROCESS WATER USAGE POINTS. COORDINATE LOCATIONS WITH EQUIPMENT FURNISHED.
 - SEE H SHEETS FOR HVAC NATURAL GAS USAGE POINTS. COORDINATE LOCATIONS WITH EQUIPMENT FURNISHED.
 - CAP THIS DRAIN WITH CLEANOUT PLATE FOR FUTURE USE.

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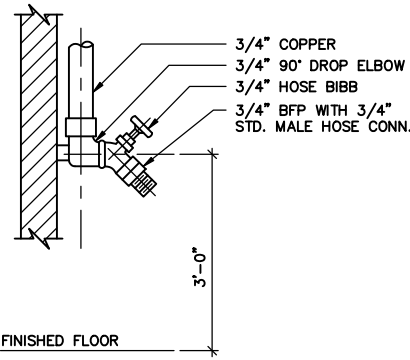
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CHK. RB

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
PLAN VIEW

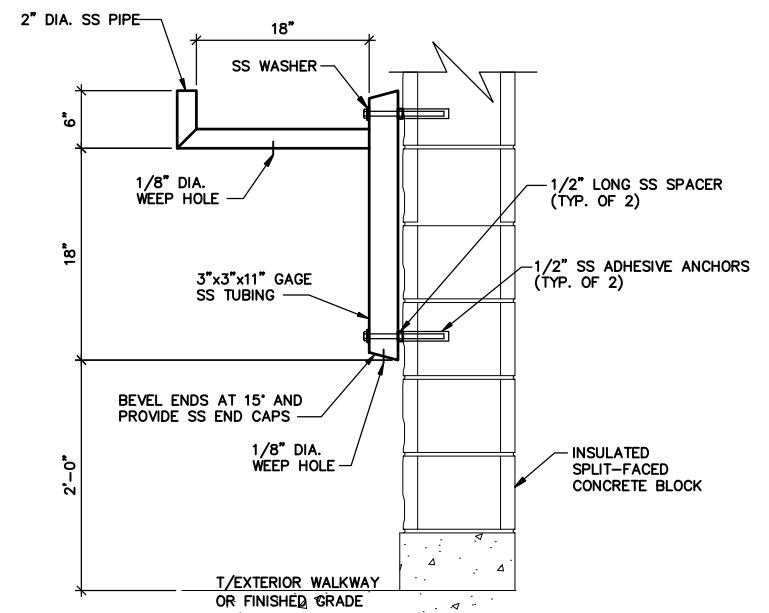
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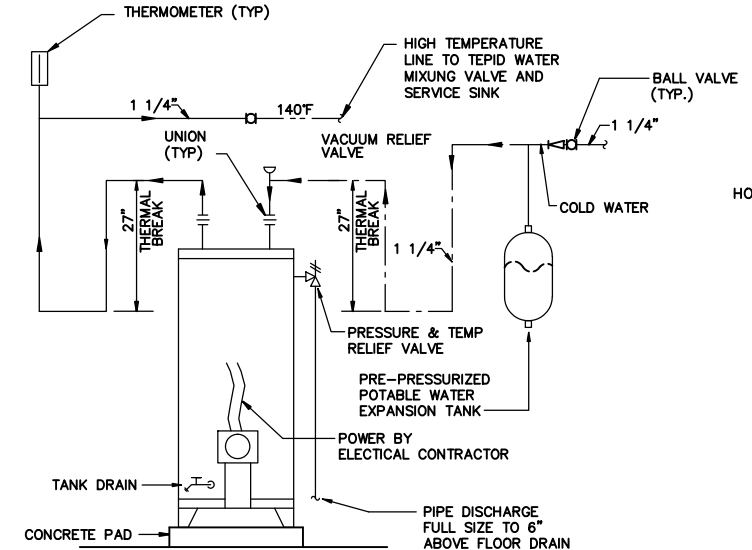
NOTES:
 1. INSULATION NOT SHOWN.
 2. PROVIDE WALL MOUNTED HOSE RACKS SPACED AT 2'-6", FROM HOSE BIBB FOR ALL INTERIOR HOSE BIBBS.

HOSE BIBB DETAIL (HB)

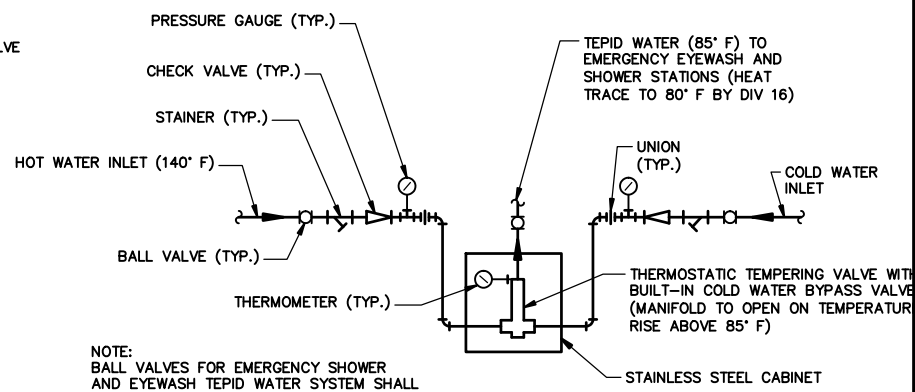


DETAIL NOTES:
 1. HOSE RACK AND FASTENER MATERIALS SHALL BE TYPE 316 STAINLESS STEEL.
 2. WELDING SHALL BE FILLET WELDS OR GROOVE WELDS ALL AROUND.
 3. HOSE RACK SHALL BE FREE OF BURRS AND SHARP EDGES.

HOSE RACK DETAIL

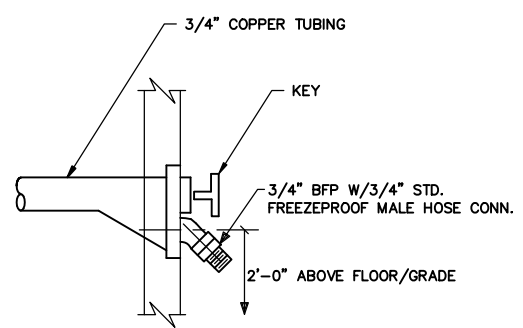


ELECTRICAL HOT WATER HEATER DETAIL

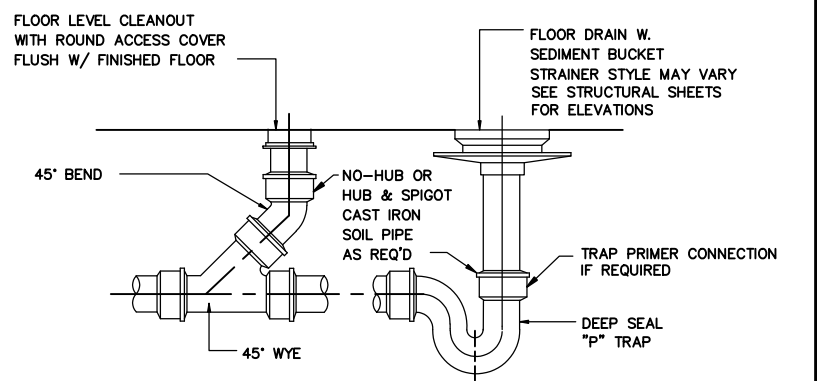


NOTE:
 BALL VALVES FOR EMERGENCY SHOWER AND EYEWASH TEPID WATER SYSTEM SHALL BE FURNISHED WITH LOCKOUTS & PADLOCKS

TEPID WATER MIXING VALVE PIPING DETAIL



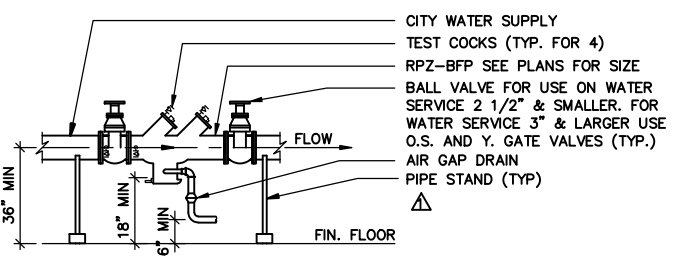
WALL HYDRANT DETAIL (WH)



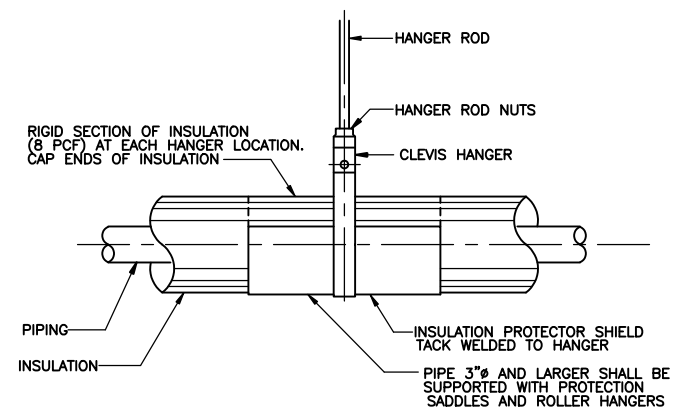
CLEANOUT DETAIL

FD-2 FLOOR DRAIN DETAIL

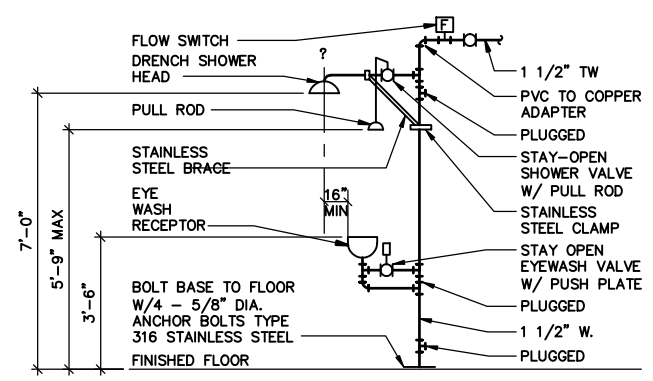
PIPE DIAMETER	SHIELD LENGTH	SHIELD THICKNESS
1/2" TO 1 1/2"	12"	18 USG
2" TO 4"	12"	16 USG
5" TO 6"	18"	16 USG



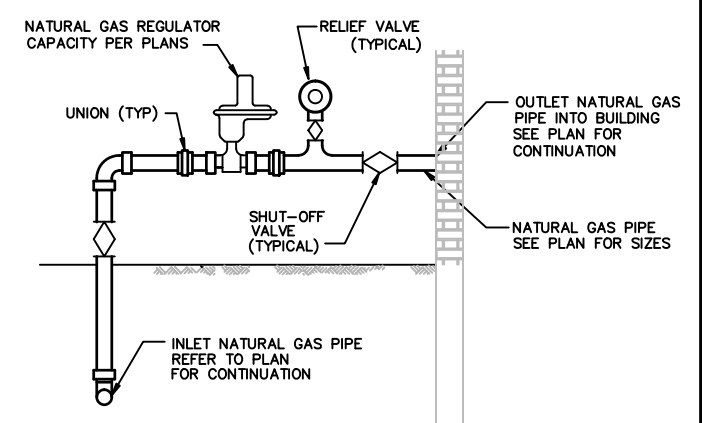
REDUCED PRESSURE ZONE BACKFLOW PREVENTER DETAIL (RPZ-BFP)



TYPICAL DETAIL HANGER ARRANGEMENT OF INSULATED PIPING



INTERIOR EMERGENCY EYEWASH AND SHOWER DETAIL



GAS REGULATOR DETAIL

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CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

PLUMBING DETAILS

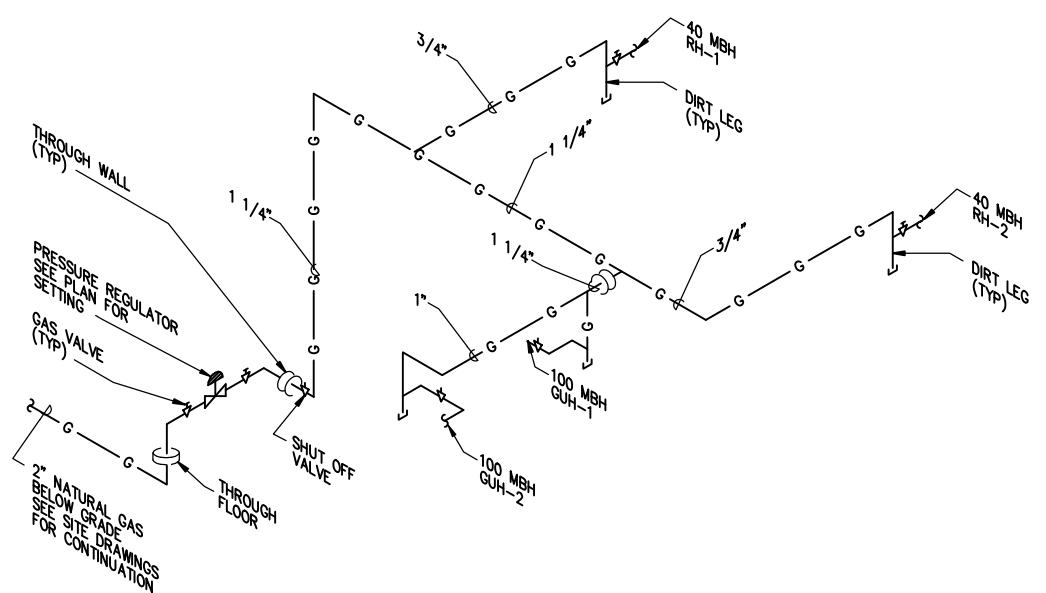
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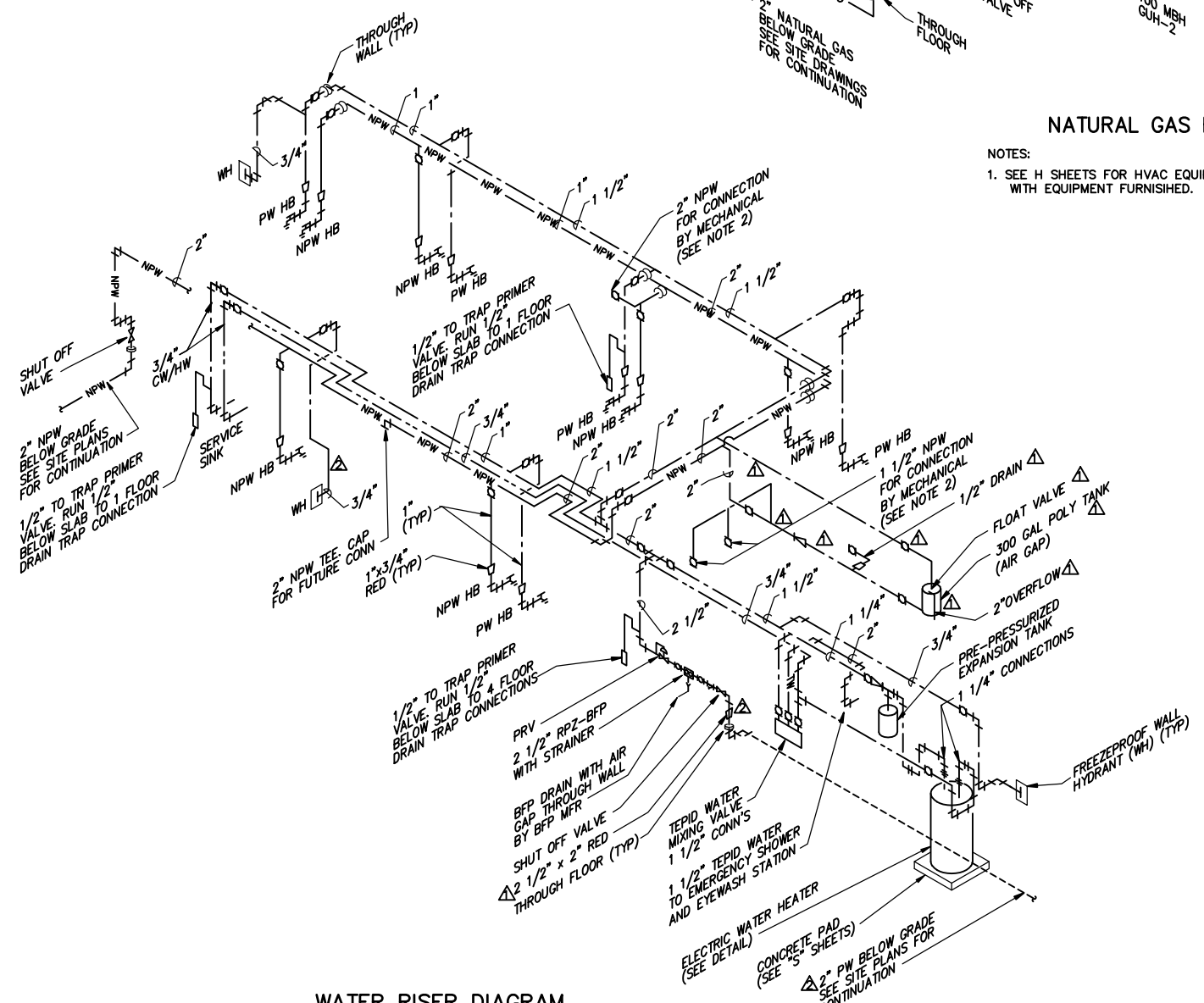
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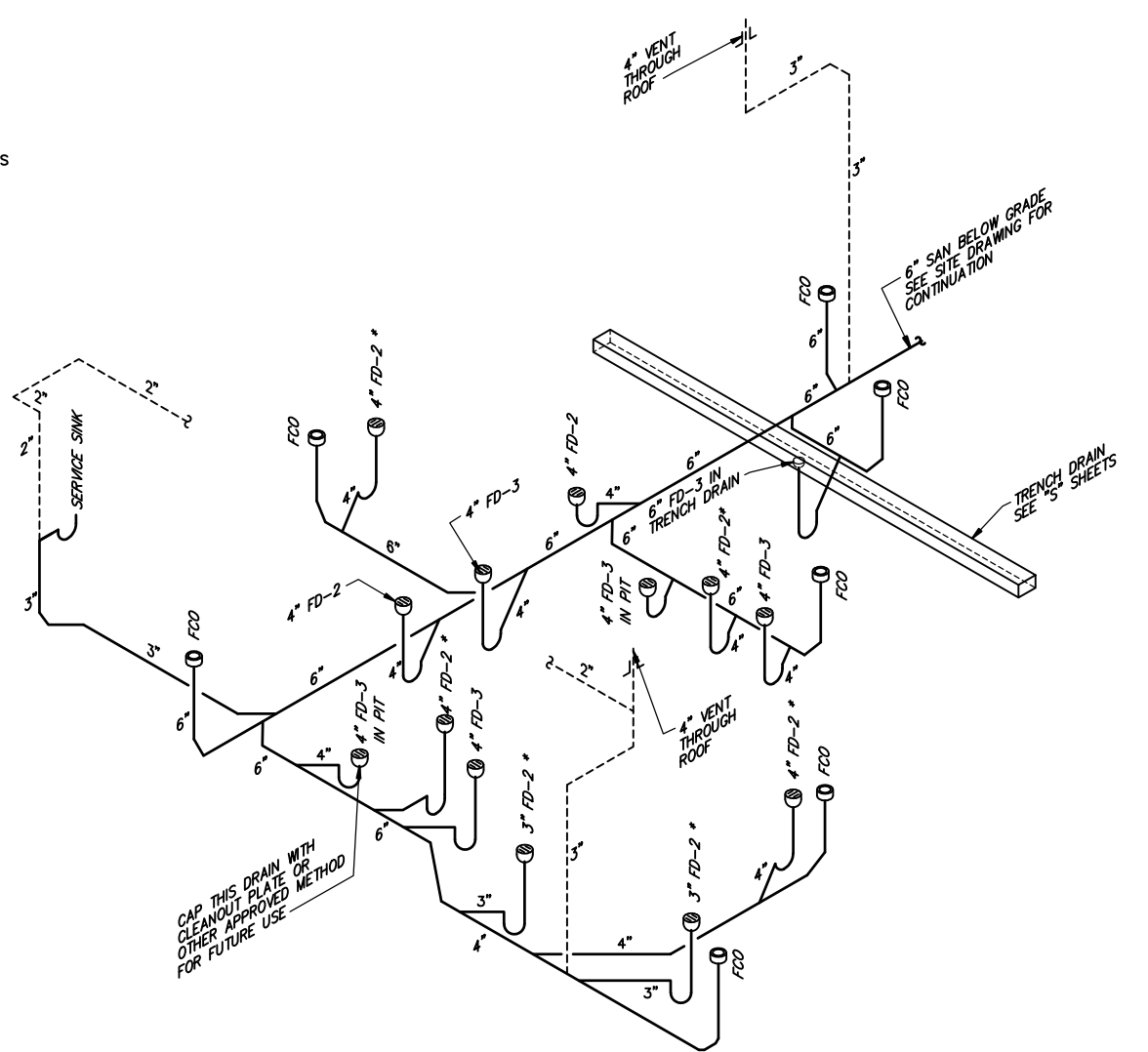
NATURAL GAS RISER DIAGRAM

NOTES:
1. SEE H SHEETS FOR HVAC EQUIPMENT. COORDINATE LOCATIONS WITH EQUIPMENT FURNISHED.



WATER RISER DIAGRAM

NOTES:
1. ALL VALVES AND APPURTENANCES ARE NOT SHOWN, SEE DETAILS AND SPECIFICATIONS
2. SEE M SHEETS FOR CONTINUATION. COORDINATE LOCATIONS WITH MECHANICAL SHEETS AND EQUIPMENT FURNISHED.



SANITARY RISER DIAGRAM

* DENOTES FLOOR DRAIN WITH TRAP PRIMER CONNECTION



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2	1	BCK	10/20/09	RECORD DRAWING CHANGES	

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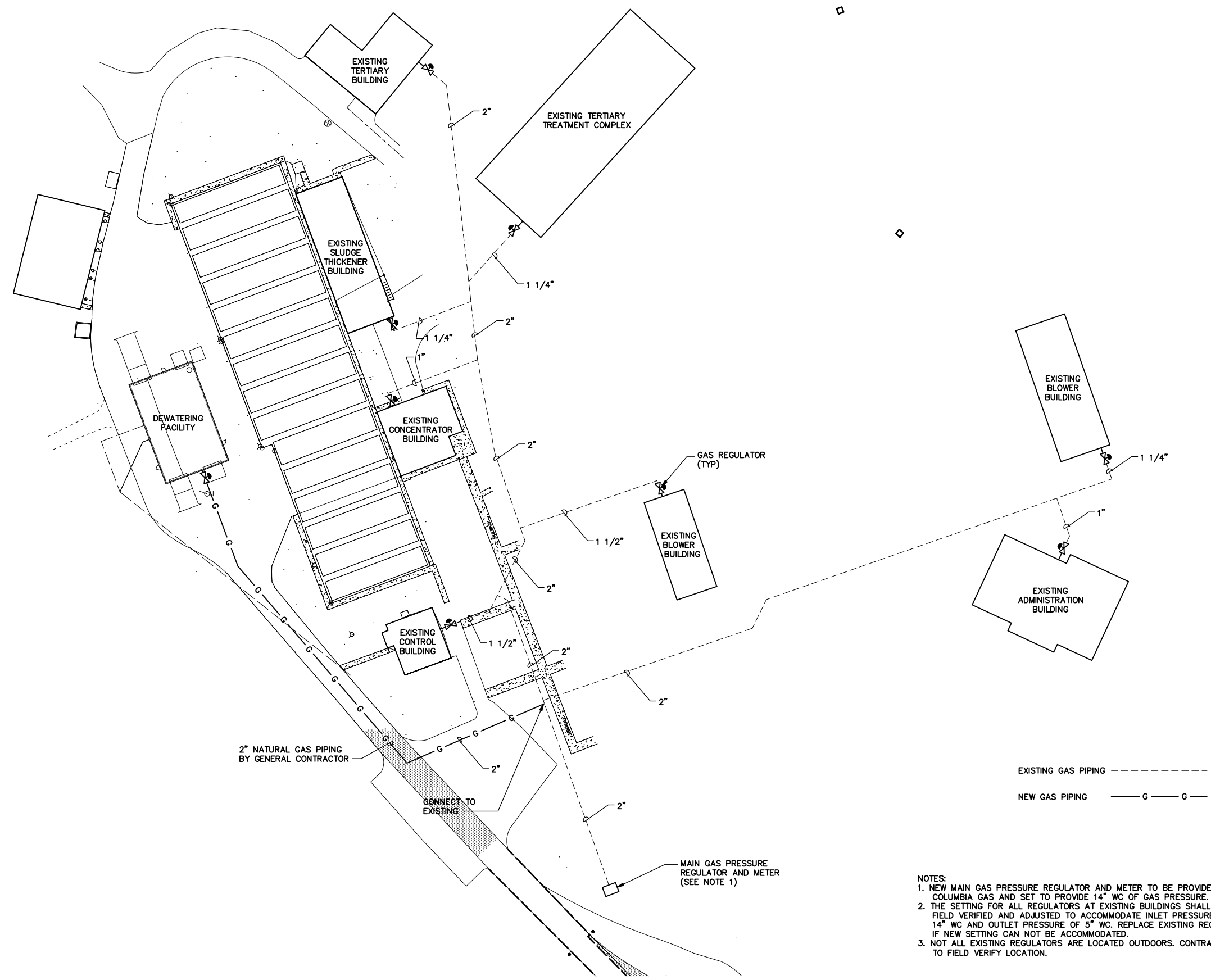
**PLUMBING
RISER DIAGRAMS**

SCALE: NOT TO SCALE

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2" NATURAL GAS PIPING BY GENERAL CONTRACTOR

CONNECT TO EXISTING

MAIN GAS PRESSURE REGULATOR AND METER (SEE NOTE 1)

EXISTING GAS PIPING - - - - -
NEW GAS PIPING - G - G -

- NOTES:
1. NEW MAIN GAS PRESSURE REGULATOR AND METER TO BE PROVIDED BY COLUMBIA GAS AND SET TO PROVIDE 14" WC OF GAS PRESSURE.
 2. THE SETTING FOR ALL REGULATORS AT EXISTING BUILDINGS SHALL BE FIELD VERIFIED AND ADJUSTED TO ACCOMMODATE INLET PRESSURE OF 14" WC AND OUTLET PRESSURE OF 5" WC. REPLACE EXISTING REGULATORS IF NEW SETTING CAN NOT BE ACCOMMODATED.
 3. NOT ALL EXISTING REGULATORS ARE LOCATED OUTDOORS. CONTRACTOR TO FIELD VERIFY LOCATION.

GAS SITE PIPING SCHEMATIC

DELAWARE COUNTY REGIONAL SEWER DISTRICT
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PLUMBING
**OVERALL SITE PLAN
GAS PIPING SCHEMATIC**
SCALE: 1:40

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GENERAL

- THE SYMBOLS, ABBREVIATIONS, AND LAP SPLICE AND EMBEDMENT TABLE ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
- QUALITY OF CONSTRUCTION REQUIRED, PERFORMANCE LEVELS OF WORKMANSHIP, MANUFACTURING AND INDUSTRY STANDARDS, STRENGTH AND PHYSICAL REQUIREMENTS OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS, GUARANTEES AND OTHER PROJECT REQUIREMENTS ARE SPECIFIED IN THE PROJECT MANUAL.
- IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED, OR NOTED SHALL BE PROVIDED.
- PERFORM ALL WORK IN COORDINATION WITH ALL DRAWINGS AND INFORMATION RELATED TO STRUCTURAL WORK. ANY CHANGES TO THE EQUIPMENT REQUIRING CHANGES TO THE STRUCTURAL SYSTEMS SHALL BE REDESIGNED BY A PROFESSIONAL ENGINEER AT NO COST TO THE OWNER AND SUBMITTED TO THE ENGINEER. SUBMITTAL SHALL BE ACKNOWLEDGED IN WRITING BEFORE BEGINNING CONSTRUCTION.
- IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE-DOWNS MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
- FACILITIES HAVE BEEN DESIGNED FOR DESIGN LOADS SHOWN OR SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FACILITIES SUBJECT TO CONSTRUCTION LOADS EXCEEDING THE DESIGN LOADS AND SHALL NOTIFY THE ENGINEER OF ANY SUCH ADDITIONAL LOADS.
- IN THE EVENT THAT THE EXCAVATION BECOMES FLOODED OR THE SURROUNDING GROUND BECOMES SATURATED ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT FLOATATION OF THE STRUCTURE.
- ALL DIMENSIONS AND ELEVATIONS NOTED THUS (*) ON STRUCTURES SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD OR WITH THE EQUIPMENT MANUFACTURER AND SHALL CONFORM TO THOSE SHOWN ON OTHER DRAWINGS.
- DESIGN LOADS: BASED ON THE OHIO BUILDING CODE, 2007 EDITION.
 - FLOOR LIVE LOADS:
 - SEE PLANS
 - ROOF LIVE LOAD:
 - DESIGN LIVE LOAD 30 PSF
 - ROOF SNOW LOAD:
 - GROUND SNOW LOAD 20 PSF
 - FLAT ROOF SNOW LOAD 18.63 PSF
 - SNOW EXPOSURE FACTOR 1.1
 - SNOW LOAD IMPORTANCE FACTOR: 1.1
 - THERMAL FACTOR 1.0
 - WIND LOAD:
 - BASIC WIND SPEED 90 MPH
 - WIND IMPORTANCE FACTOR:
 - ALL STRUCTURES 1.15
 - WIND EXPOSURE C
 - INTERNAL PRESSURE COEFFICIENT: ±0.18
 - COMPONENTS AND CLADDING (SEE SPECIFICATIONS)
 - EARTHQUAKE DESIGN DATA:
 - SEISMIC IMPORTANCE FACTOR: 1.25
 - OCCUPANCY CATEGORY III
 - SPECTRAL RESPONSE ACCELERATIONS, S_s 0.154
 - SPECTRAL RESPONSE ACCELERATIONS, S₁ 0.059
 - SITE CLASS D
 - SPECTRAL RESPONSE COEFFICIENT, S_{0.2} 0.164
 - SPECTRAL RESPONSE COEFFICIENT, S_{0.1} 0.094
 - SEISMIC DESIGN CATEGORY B
 - BASIC SEISMIC FORCE RESISTING SYSTEM C-4
 - DESIGN BASE SHEAR 0.0587xw
 - ANALYSIS PROCEDURE ASCE-705 12.8
 - SEISMIC IMPORTANCE FACTOR 1.25

FOUNDATIONS

- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SURVEY AND THE SUBSURFACE INVESTIGATION REPORT BEFORE BEGINNING CONSTRUCTION. REFER TO GEOTECHNICAL INVESTIGATION BY BBC&M ENGINEERING, INC. DATED JANUARY 21, 2008.
- NOTIFY THE ENGINEER AS SOON AS POSSIBLE OF ANY UNUSUAL SOIL CONDITIONS OR SOIL CONDITIONS IN VARIANCE WITH TEST BORINGS, SUCH AS UNEXPECTED SPRING OR SEEPAGE WATER, MATERIAL DIFFERING FROM TEST BORINGS, OR SOIL OF QUESTIONABLE BEARING CAPACITY.
- SET FOUNDATIONS AT ELEVATIONS SHOWN. THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER THAT EACH FOOTING PLACED IS BEARING ON DESIGN MATERIAL.
- ALLOWABLE SOIL BEARING PRESSURE: REFER TO STRUCTURAL PLANS.
- FOOTINGS SHALL REST ON COMPACTED SELECT FILL.
- LEVELS OF BACKFILL AGAINST CONCRETE WALLS SHALL NOT DIFFER BY MORE THAN 2'-0" ON EITHER SIDE OF WALLS UNLESS ADEQUATELY BRACED OR ALL FLOOR FRAMING IS IN PLACE UP TO AND INCLUDING GRADE LEVEL SLABS.
- PROTECT EXCAVATION FROM FLOODING UNTIL ALL WALLS AND FLOOR FRAMING UP TO AND INCLUDING GRADE LEVEL FLOORS ARE IN PLACE AND BACKFILLING HAS BEGUN. WATER LEVEL SHALL BE MAINTAINED BELOW EXCAVATION AT ALL TIMES.

CAST-IN-PLACE CONCRETE

- CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:
 - A. 4,500 POUNDS PER SQUARE INCH (PSI) WITH ENTRAINED AIR FOR ALL CONCRETE UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL CONCRETE WORK NOT COVERED UNDER ACI 350 SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318. TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 347, SECTION 3.3.1, TOLERANCES FOR REINFORCED CONCRETE BUILDINGS.
- ALL REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM A-615 GRADE 60.
- ALL REINFORCING DETAILS SHALL CONFORM TO "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI 315, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- CONTRACTOR SHALL REVIEW ALL DRAWINGS FOR SIZE AND LOCATION OF EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS, REQUIRED. THESE ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE.
- ALL BEAMS, SPANDRELS AND SLABS SHALL BE CAST MONOLITHICALLY, EXCEPT FOR REQUIRED CONSTRUCTION JOINTS. CONTRACTOR SHALL SUBMIT ANY AND ALL ALTERNATE AND ADDITIONAL CONSTRUCTION JOINT LOCATIONS AND DETAILS.
- CONSTRUCTION JOINTS REQUIRED BY THE ENGINEER ARE SHOWN ON THE DRAWINGS. ADDITIONAL CONSTRUCTION JOINTS SHALL BE PROVIDED AS OUTLINED IN SPECIFICATIONS. REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS. SUBMIT ALL CONSTRUCTION JOINT LOCATIONS WITH REINFORCING STEEL SHOP DRAWINGS.
- CONTRACTOR SHALL PROVIDE 3/4 INCH CHAMFER USING WOOD CHAMFER STRIPS ON ALL EXPOSED CORNERS OF COLUMNS, BEAMS AND WALLS, OR AS REQUIRED TO MATCH EXISTING.
- CLEARANCES FOR REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING:

TYPICAL REINFORCING BAR CLEARANCE TABLE	
CONCRETE CAST AGAINST EARTH.	3"
REINFORCING TO CLEAR WATERSTOP	3"
SURFACES EXPOSED TO LIQUIDS.	2"
SURFACES EXPOSED TO EARTH OR WEATHER	2"
SURFACES NOT EXPOSED TO LIQUID, EARTH OR WEATHER	2"
- ALL EXPANSION JOINTS SHALL HAVE WATERSTOPS, UNLESS NOTED OTHERWISE.
- WELDING OF REINFORCING STEEL IS NOT PERMITTED.
- CALCIUM CHLORIDE SHALL NOT BE PERMITTED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE PERMITTED THAT RESULTS IN A TOTAL CONCRETE MIX IN WHICH THE PRESENCE OF CHLORIDE IONS EXCEED 0.15 PERCENT BY WEIGHT OF CEMENT.
- ALUMINUM PIPE SHALL NOT BE USED WITH CONCRETE PUMPS.
- AS A MINIMUM, PROVIDE 6 X 6 - W2.9 X W2.9 WELDED WIRE FABRIC IN ALL SLABS ON GRADE, UNLESS OTHERWISE NOTED.
- PROVIDE CONTROL JOINTS IN ALL SLABS ON GRADE.

STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL CONFORM TO THE AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.
- WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE THE AMERICAN WELDING SOCIETY, AWS D1.
- BOLTS AND BOLTED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS" AS APPROVED BY THE COUNCIL ON RIVETED AND BOLTED JOINTS.
- STRUCTURAL STEEL:
 - W-SHAPES AND WT-SHAPES ASTM A992
 - CHANNELS ASTM A572 GRADE 50
 - TUBE SECTIONS ASTM A500 GRADE B
 - ANGLES, PLATES AND BARS ASTM A36
- WELDING ELECTRODES SHALL BE E-70XX. FOR WELDING SYMBOLS WITH NO LENGTH DIMENSION GIVEN, THE WELDING SHALL BE CONTINUOUS BETWEEN ABRUPT CHANGES IN DIRECTION. NO INTERMITTENT WELDS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED.

MASONRY

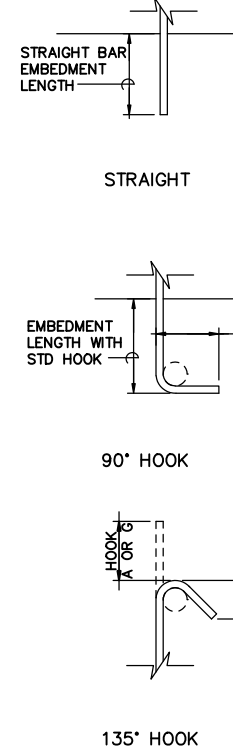
- COMBINED COMPRESSIVE STRENGTH OF THE MASONRY PRISM SHALL BE 1500 PSI AT 28 DAYS AFTER GROUTING. ALL MASONRY SHALL BE INSPECTED DURING CONSTRUCTION.
- GROUT ALL REINFORCED CELLS OF CONCRETE BLOCK MASONRY.
- MORTAR SHALL BE TYPE S PER ASTM C270. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI.
- PROVIDE #4 DOWELS @48" VERTICAL ANCHORAGE AT THE BASE OF ALL MASONRY WALLS UNLESS OTHER ANCHORAGE IS SHOWN OR SPECIFIED.

BAR SIZE	EMBEDMENT LENGTH	MIN LAP LENGTHS	
		6" AND 12" CMU SINGLY REINF	12" CMU DOUBLY REINF
#3	16	19	19
#4	21	25	28
#5	26	31	43
#6	46	57	87

LAP SPLICE AND EMBEDMENT LENGTHS ARE BASED ON A MINIMUM MASONRY COMPRESSIVE STRENGTH OF 1500 PSI AND 60000 PSI FOR REINFORCEMENT (WITH NO EPOXY COATING).

SPECIAL INSPECTION

- THE FOLLOWING ITEMS SHALL BE SUBJECT TO SPECIAL INSPECTION AS OUTLINED IN CHAPTER 17 OF THE 2007 OHIO BUILDING CODE:
 - STEEL CONSTRUCTION - PER SECTION 1704.3
 - CONCRETE CONSTRUCTION - PER SECTION 1704.4
 - MASONRY CONSTRUCTION - LEVEL 2 SPECIAL INSPECTION PER 1704.5
 - SOILS - PER SECTION 1704.6
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS AS REQUIRED TO COOPERATE WITH INDIVIDUAL SPECIAL INSPECTORS AND TESTING AGENCIES EMPLOYED BY THE OWNER TO FACILITATE THE SPECIAL INSPECTIONS.
- THE DESIGNATED INSPECTING AGENCY FOR SPECIAL INSPECTION SHALL PERFORM ON SITE INSPECTION IN ACCORDANCE WITH OBC 2005 REGULATIONS UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OHIO.
- DESIGNATED INSPECTING AGENCY IS RESPONSIBLE FOR ALL REQUIRED TESTING AND INSPECTION (INCLUDING SPECIAL INSPECTION). THE SPECIAL INSPECTION ENGINEERS ARE RESPONSIBLE FOR FILING AND OBTAINING APPROVAL OF ALL STATEMENTS, TESTS AND INSPECTION REPORTS.
- CONTRACTOR TO NOTIFY THE SPECIAL INSPECTION AGENCY AT LEAST 48 HOURS PRIOR TO START OF WORK.
- INSPECTIONS AND TESTS REQUIRED IN CHAPTER 17 DO NOT SUPERSEDE OR MAKE UNNECESSARY INSPECTIONS AND TESTS REQUIRED OF THE CONTRACTOR UNDER OTHER TECHNICAL SPECIFICATION SECTIONS OR INSPECTIONS REQUIRED BY ANY LAW OR REGULATION.



BAR SIZE	REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS													
	MIN LAP LENGTHS FOR				MIN EMBEDMENT LENGTHS				MIN STD. HOOKS					
	BEAMS AND COLUMNS*		SLABS AND WALLS **		FOR BEAMS AND COLUMNS *		FOR SLABS AND WALLS **		WITH STD. HOOKS		A OR G		H	
	CLASS B	CLASS B	CLASS B	CLASS B	TOP***	OTHERS	TOP***	OTHERS	90'	135'	A	OR G	A	H
#3	25	19	16	16	19	15	12	12	5	6	4	4	2.5	
#4	33	25	20	16	25	19	15	12	7	8	4.5	3		
#5	41	31	25	19	31	24	19	15	9	10	5.5	3.75		
#6	49	37	29	23	37	29	23	18	10	12	8	4.5		
#7	71	54	43	33	54	42	33	25	12	14	9	5.25		
#8	81	62	49	37	62	48	37	29	14	16	10.5	6		
#9	91	70	60	46	70	54	46	36	15	19	-	-		
#10	102	79	74	57	79	61	57	44	17	22	-	-		
#11	114	87	89	69	87	67	68	53	19	24	-	-		

REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI AND 60000 PSI REINFORCEMENT (WITH NO EPOXY COATING).

ALL LAP SPLICES SHALL BE CLASS B SPLICES.

* THE MINIMUM LAP LENGTH FOR BEAMS, COLUMNS, AND STRAIGHT EMBEDMENTS ARE BASED ON A 3 BAR DIAMETER MINIMUM CENTER TO CENTER BAR SPACING AND A 2 INCH BAR COVER. IF THE SPLICE AND/OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 318 WITH APPROVAL BY ENGINEER.

** THE MINIMUM LAP LENGTH FOR SLABS, WALLS, AND STRAIGHT EMBEDMENTS ARE BASED ON A 6 INCH BAR SPACING AND A 2 INCH BAR COVER. IF THE LAP CONDITION DOES NOT CONFORM TO THESE REQUIREMENTS, THEN USE BEAM LAP LENGTHS; OR COMPLY WITH LAP REQUIREMENTS OF ACI 318 WITH APPROVAL BY ENGINEER.

*** TOP BARS ARE DEFINED AS ALL HORIZONTAL BARS, EXCLUDING WALL BARS, WITH 12" OR MORE FRESH CONCRETE BENEATH.

WHERE SPLICES ARE REQUIRED BETWEEN BARS OF DIFFERENT SIZES, THE LAP LENGTH SHALL BE NO LESS THAN THE EMBEDMENT LENGTH OF THE LARGER BAR OR THE LAP LENGTH OF THE SMALLER BAR, WHICHEVER IS GREATER.

IN CIRCULAR TANKS DESIGNED FOR RING TENSION, THE LOCATION OF SPLICES SHOULD BE STAGGERED. ADJACENT HOOP REINFORCING SPLICES SHOULD BE STAGGERED HORIZONTALLY (CENTER OF LAP TO CENTER OF LAP) BY NOT LESS THAN ONE LAP LENGTH NOR 3 FEET AND SHOULD NOT COINCIDE IN VERTICAL ARRAYS MORE FREQUENTLY THAN EVERY THIRD BAR.

LAP SPLICE AND EMBEDMENT LENGTH TABLE

SYMBOLS	ABBREVIATIONS
	AB - ANCHOR BOLT
	ADD'L. - ADDITIONAL
	ADH. - ADHESIVE
	ADJ. - ADJUSTABLE
	ALT. - ALTERNATE
	ALUM. - ALUMINUM
	ANCH. - ANCHOR
	AND - &
	ARCH. - ARCHITECT OR ARCHITECTURAL
	ASTM - AMERICAN SOCIETY FOR TESTING MATERIALS
	AT - AT
	BSMT. - BASEMENT
	BITUM. - BITUMINOUS
	B/ - BOTTOM OF
	BOT. - BOTTOM
	B LDG. - BUILDING LINE
	BLK. - BLOCK
	BM - BEAM
	B PL - BASE PLATE
	BRG. - BEARING
	BRP - BUILDING REFERENCE POINT
	BT PL - BENT PLATE
	C/C - CENTER TO CENTER
	CJ - CONSTRUCTION JOINT
	CL - CENTERLINE
	CLR. - CLEAR
	CMU - CONCRETE MASONRY UNIT
	COL. - COLUMN
	CTR. - CENTER
	CONC. - CONCRETE
	CONST. - CONSTRUCTION
	CONT. - CONTINUOUS
	CONTL. - CONTROL
	DEPR. - DEPRESSION
	DET. - DETAIL
	DI - DUCTILE IRON
	DIA. - DIAMETER
	DIM. - DIMENSION
	DL - DEAD LOAD
	DIST. - DISTANCE
	DWG. - DRAWING
	DWL. - DOWEL
	EA. - EACH
	EE - EACH END
	EF - EACH FACE
	EJ - EXPANSION JOINT
	EL. - ELEVATION
	ELEC. - ELECTRICAL
	E. - EAST
	EMBD. - EMBEDDED
	EW - EACH WAY
	EQ. - EQUAL
	EXIST. - EXISTING
	EXP. - EXPANSION
	EXT. - EXTERIOR
	FDN. - FOUNDATION
	FE - FIRE EXTINGUISHER
	FIN. - FINISH
	FL - FINISH LINE
	FLR. - FLOOR
	FRP - FIBERGLASS REINFORCED PLASTIC
	FF - FAR FACE
	FTG. - FOOTING
	FT. - FOOT
	GA. - GAGE
	GALV. - GALVANIZED
	GR. - GRADE
	GRTG. - GRATING
	GRD. - GROUND
	GYP BD - GYPSUM BOARD
	HORIZ. - HORIZONTAL
	HP - HIGH POINT
	HHP - HIGH HIGH POINT
	HR. - HANDRAIL
	HT. - HEIGHT
	HS. - HIGH STRENGTH
	ID - INSIDE DIAMETER
	IF - INSIDE FACE
	INT. - INTERIOR
	INV. - INVERT
	INSUL. - INSULATION
	JT. - JOINT
	K. - KIP (1000 POUNDS)
	KB - KNEE BRACE
	LB. - POUNDS
	LL - LIVE LOAD
	LLBB - LONG LEG BACK-TO-BACK
	LG. - LONG
	LLH - LONG LEG HORIZONTAL
	LLV - LONG LEG VERTICAL
	LONG. - LONGITUDINAL
	LP - LOW POINT
	LW - LIGHT WEIGHT
	MC - MOMENT CONNECTION
	MFG. - MANUFACTURER
	MAS. - MASONRY
	MAX. - MAXIMUM
	MID. - MIDDLE
	MIN. - MINIMUM
	MK. - MARK
	MO - MASONRY OPENING
	NA - NOT APPLICABLE
	N. - NORTH
	NF - NEAR FACE
	NTS - NOT TO SCALE
	OC - ON CENTER
	OD - OUTSIDE DIAMETER
	OH. - OVERHEAD
	OPNG. - OPENING
	OPP. - OPPOSITE
	P. - PLATE
	PC - PRECAST
	PSF - POUNDS PER SQUARE FOOT
	RAD. - RADIUS
	R. - RISER
	REINF. - REINFORCING
	REQ'D. - REQUIRED
	REQ'D.MTS. - REQUIREMENTS
	RM. - ROOM
	RO - ROUGH OPENING
	S. - SOUTH
	SCHED. - SCHEDULE
	SECT. - SECTION
	SF - SQUARE FEET
	SHT. - SHEET
	SIM. - SIMILAR
	SJ - STEEL JOIST
	SLBB - SHORT LEG BACK-TO-BACK
	SLV - SHORT LEG VERTICAL
	SPA. - SPACES OR SPACING
	SPRD. - SPREAD
	ST STL - STAINLESS STEEL
	STA. - STATION
	STD. - STANDARD
	STL. - STEEL
	STR. - STRUCTURAL
	SUP. - SUPPORT
	SYM. - SYMMETRICAL
	T. - TREAD
	T/ - TOP OF
	T&B - TOP AND BOTTOM
	TEMP. - TEMPORARY
	THK. - THICK
	TOM - TOP OF MASONRY
	TOS - TOP OF STEEL
	TYP. - TYPICAL
	UN - UNLESS OTHERWISE NOTED
	VERT. - VERTICAL
	W/ - WITH
	W. - WEST
	W/O - WITHOUT
	WP - WORK POINT
	WS. - WATER STOP
	WT - WEIGHT
	WWF - WELDED WIRE FABRIC



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DES - SBP
 DWN - JJH
 CKD - JPS

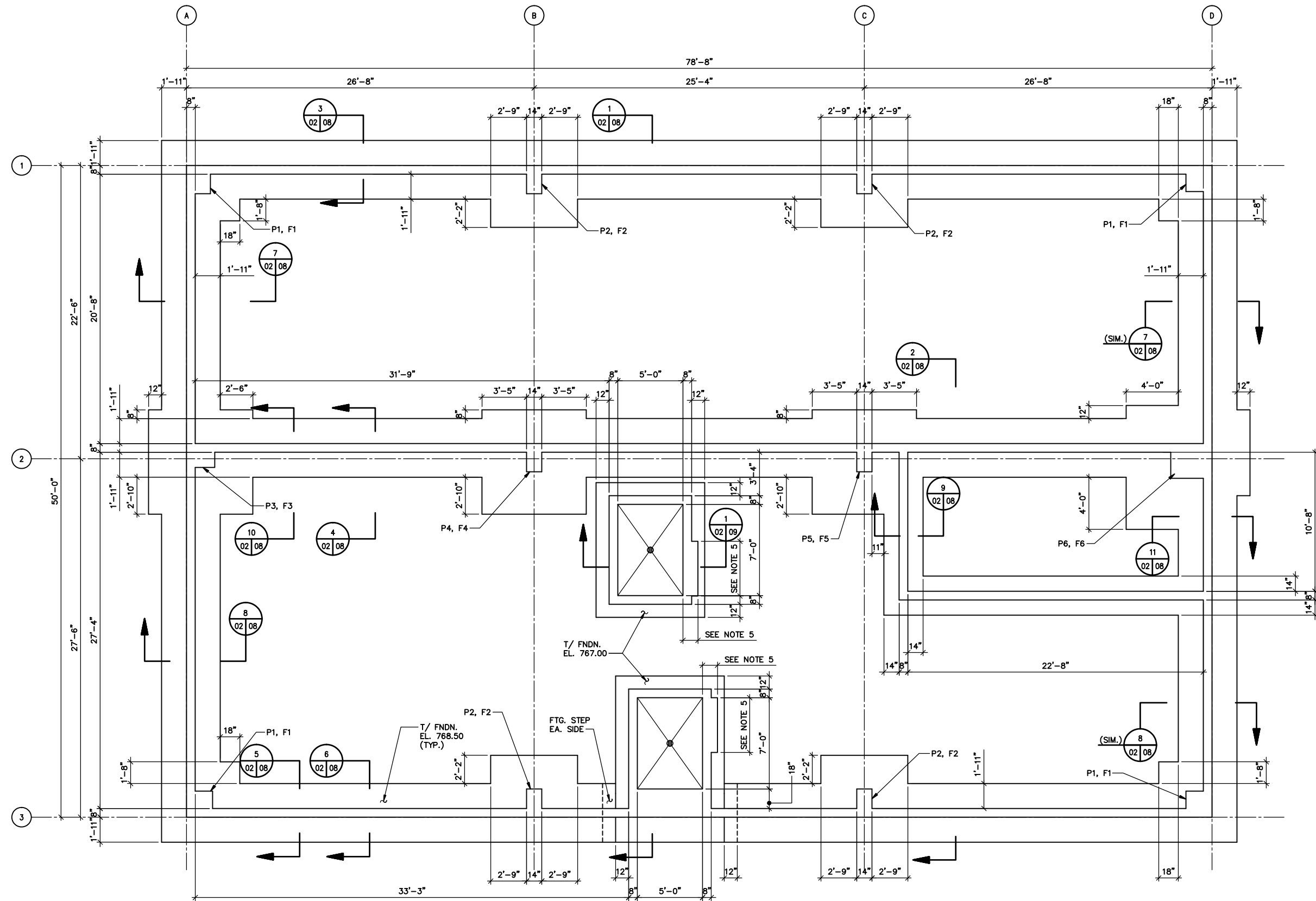
DELAWARE COUNTY REGIONAL SEWER DISTRICT
 DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
 FACILITY IMPROVEMENTS**

STRUCTURAL
**NOTES, SYMBOLS,
 ABBREVIATIONS AND TABLES**
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FOUNDATION PLAN

- SHEET NOTES:**
1. FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 2. PROVIDE ADDITIONAL REINFORCEMENT AT OPENINGS AND WALL INTERSECTIONS AS SHOWN IN TYPICAL DETAILS.
 3. PIERS NOTED THUS (P1) AND FOOTINGS NOTED THUS (F1), FOR DETAILS AND SCHEDULE, REFER TO SHEET S-07.
 4. ALLOWABLE BEARING PRESSURE = 3 KSF.
 5. VERIFY WITH CENTRIFUGE SUPPORT PIER.

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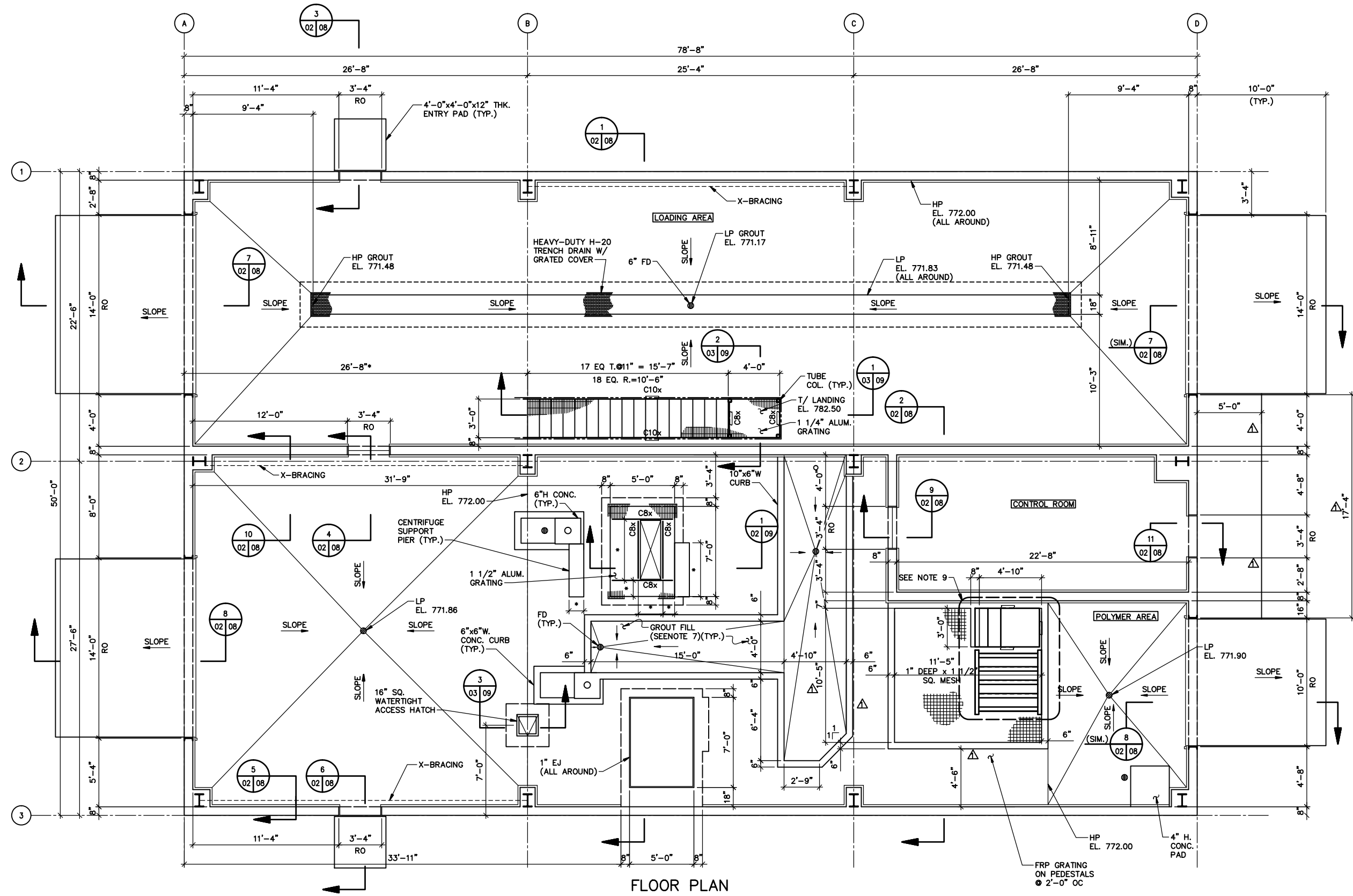
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DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

DEWATERING FACILITY
FOUNDATION PLAN

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

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FLOOR PLAN

- SHEET NOTES:**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 - PROVIDE ADDITIONAL REINFORCEMENT AT OPENINGS AND WALL INTERSECTIONS AS SHOWN IN TYPICAL DETAILS.
 - FOR SIZE AND LOCATION OF EQUIPMENT PADS, SEE OTHER SHEETS.
 - FOR MASONRY DETAILS AND REINFORCEMENT, SEE "A" SHEETS.
 - STAIR STRUCTURAL SHAPES:
STRINGER C10x = C10x25 (STEEL)
BEAM C8x = C8x11.5 (STEEL)
TUBE COLUMN = 4"x4"x1/4" TUBE.
GRATING BEAMS C8x = C8x6.48 (ALUM.)
 - PROVIDE GROUT FILL, SLOPE FROM 4" HP TO 2" LP AT FLOOR DRAIN.
 - DESIGN LL:
LOADING AREA = H-20
ELSEWHERE = 300 PSF.
 - FOR POLYMER TOTE RACK AND ACCESS PLATFORM DETAILS, SEE SHEET S-09.
 - FLOOR EL. SHALL BE 772.00 UON.

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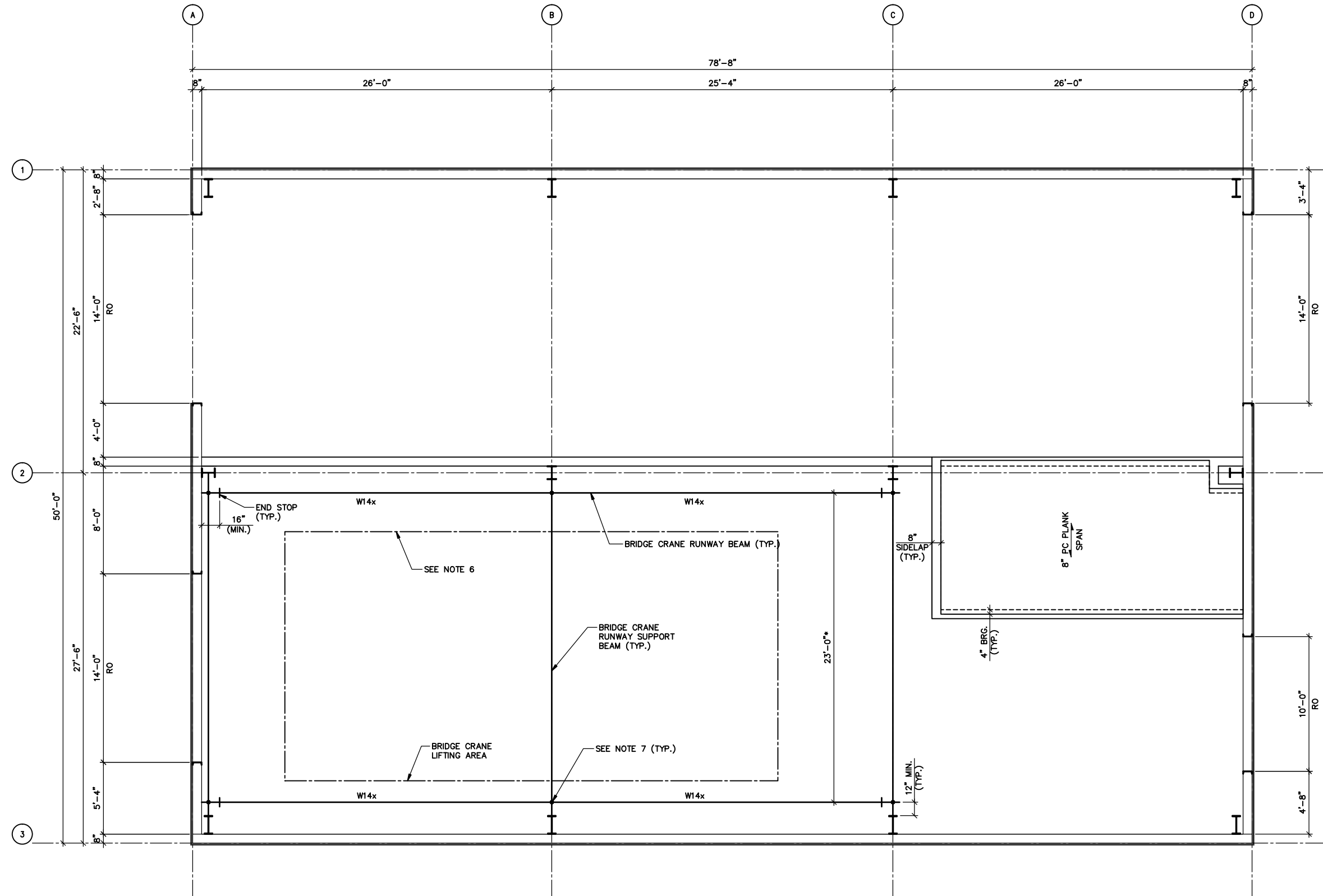
DEWATERING FACILITY
FLOOR PLAN

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

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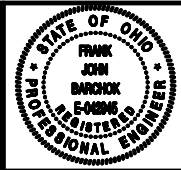
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INTERMEDIATE PLAN

- SHEET NOTES:**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 - W14x = W14x68 RUNWAY BEAM T/ STL EL. 788.62.
 - TOTAL DESIGN SUPERIMPOSED LOAD ON THE PRECAST, PRE-STRESSED PLANKS = 60 PSF (INCLUDES LL=30 PSF.)
 - BEARING ELEVATION OF PRECAST, PRE-STRESSED PLANKS AT EL. 784.00.
 - SPAN DIRECTION OF 8" THICK PRECAST, PRE-STRESSED PLANKS NOTED THUS (→)
 - BRIDGE CRANE HOOK SHALL NOT GO BEYOND THE BOUNDARIES IN ORDER TO PROTECT EQUIPMENT SUPPORTED BY WALL.
 - RUNWAY BEAM REACTIONS:
 VERTICAL = 19.6 KIP
 HORIZONTAL = 1.41 KIP
 LONGITUDINAL = 0.96 KIP

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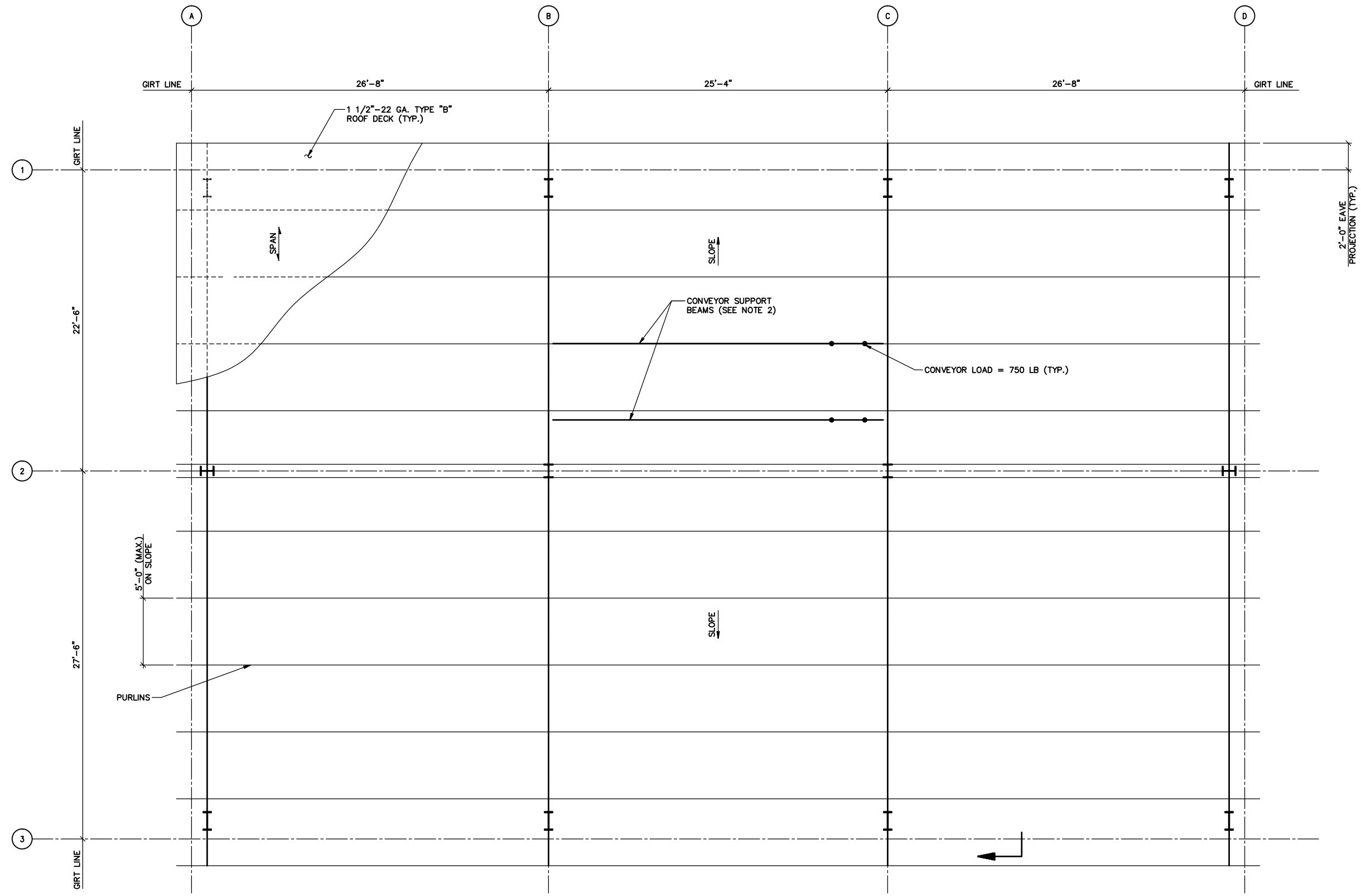
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INTERMEDIATE PLAN

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ROOF PLAN

- SHEET NOTES:**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 - COORDINATE LOCATION OF SUPPORT BEAMS AND FINAL DESIGN LOADS WITH SERPENTIX CONVEYOR MANUFACTURER REQUIREMENTS.
 - ROOF FRAMING SHOWS GENERAL CONCEPT ONLY. REFER TO METAL BUILDING SYSTEM DRAWINGS FOR ACTUAL FRAMING DETAILS.
 - SEE "A" SHEETS FOR THE EXTENT OF ROOF DECK.

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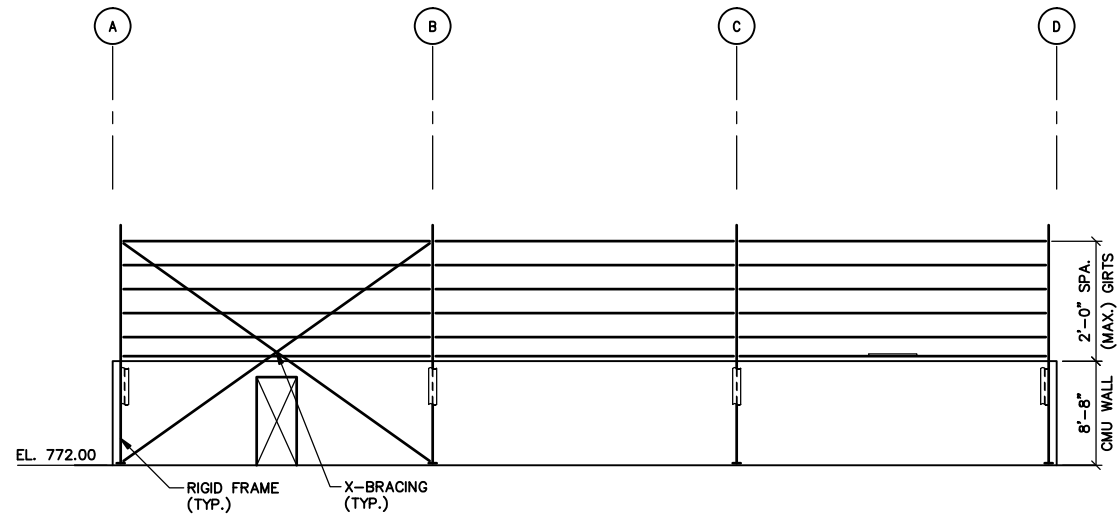
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ROOF PLAN

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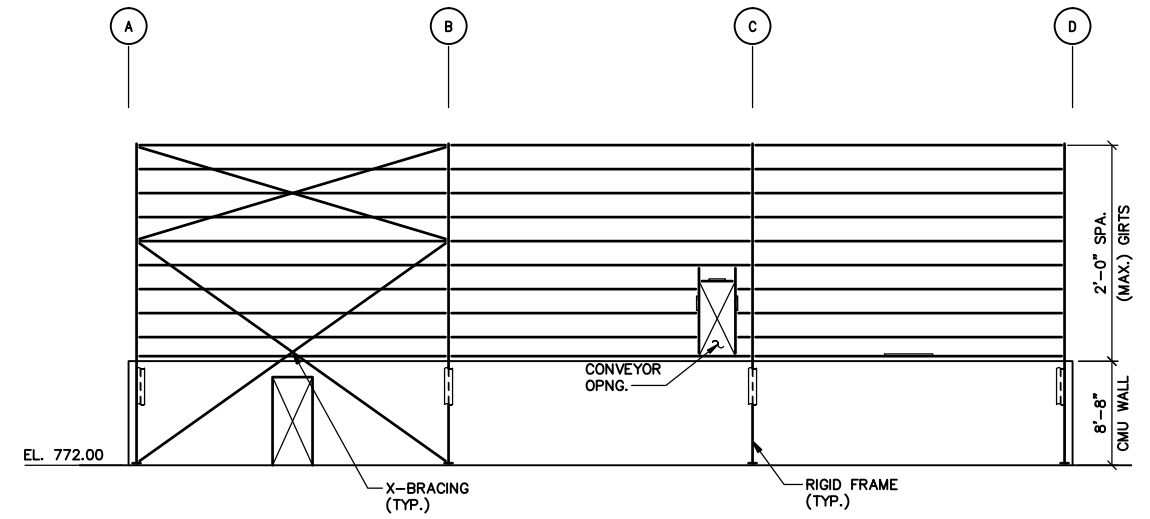
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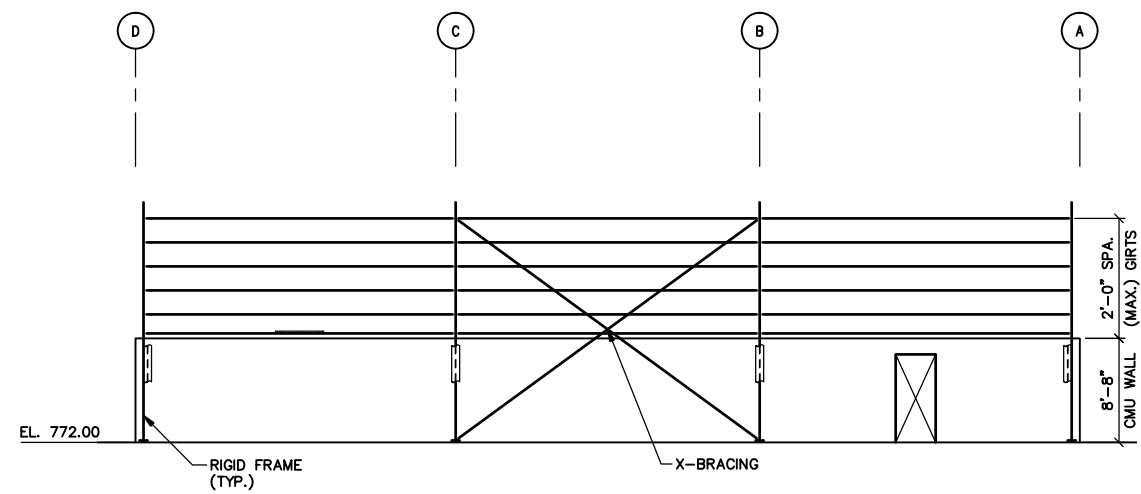


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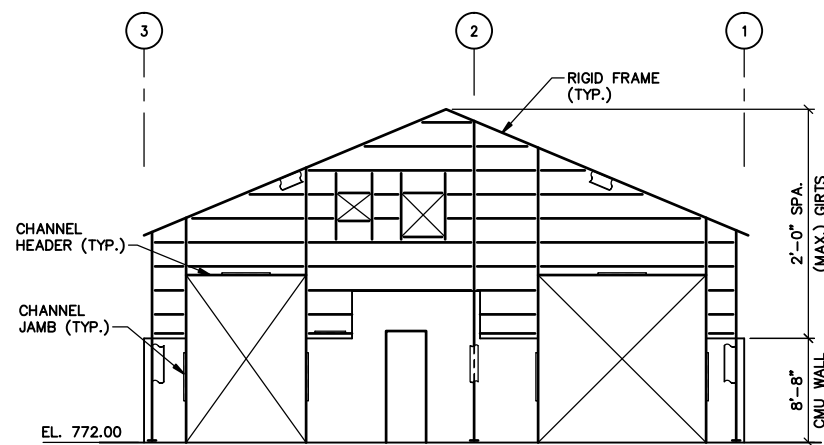


SOUTH ELEVATION AT COLUMN LINE

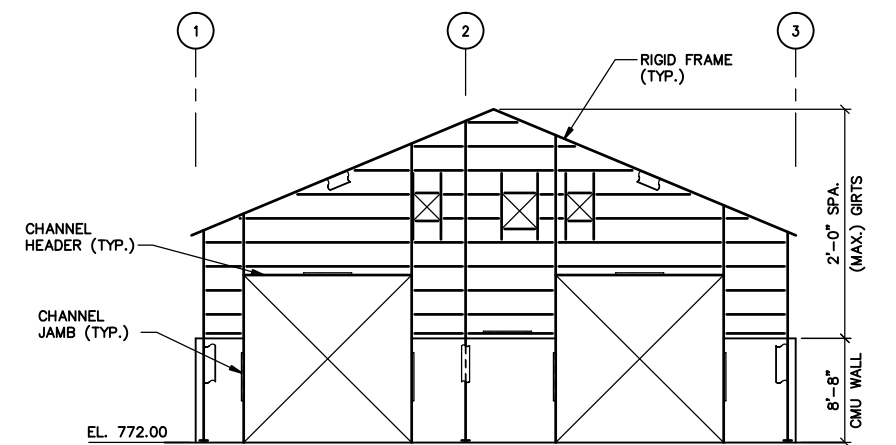
2



NORTH ELEVATION



EAST ELEVATION



WEST ELEVATION

- SHEET NOTES:**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 - ELEVATION FRAMING SHOWS CONCEPT ONLY; REFER TO METAL BUILDING SHOP DRAWINGS FOR ACTUAL FRAMING DETAILS.

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NO.		BY	DATE	REVISIONS	REMARKS

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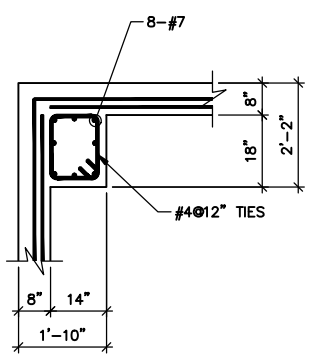
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FACILITY IMPROVEMENTS**

DEWATERING FACILITY
ELEVATIONS

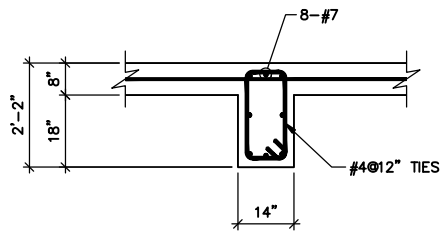
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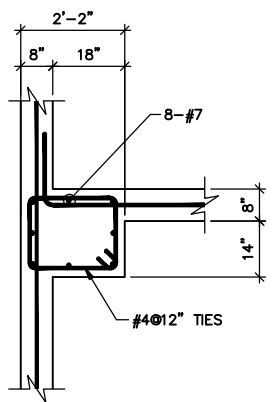
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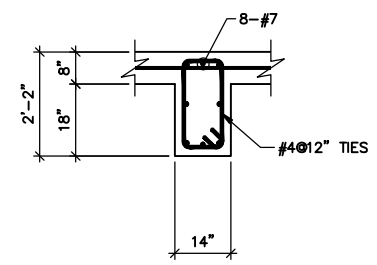
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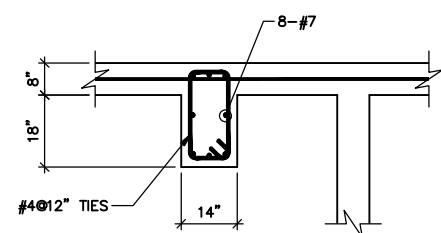
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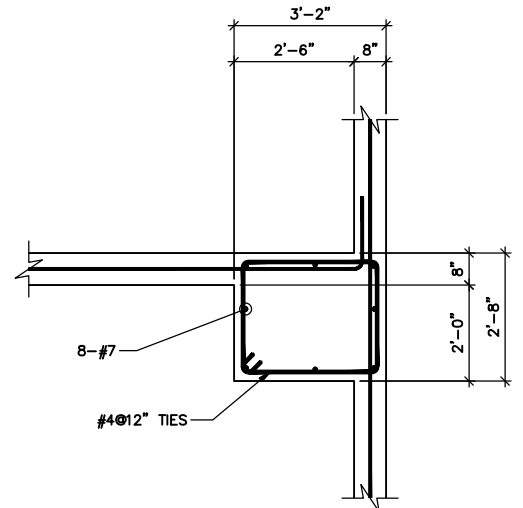
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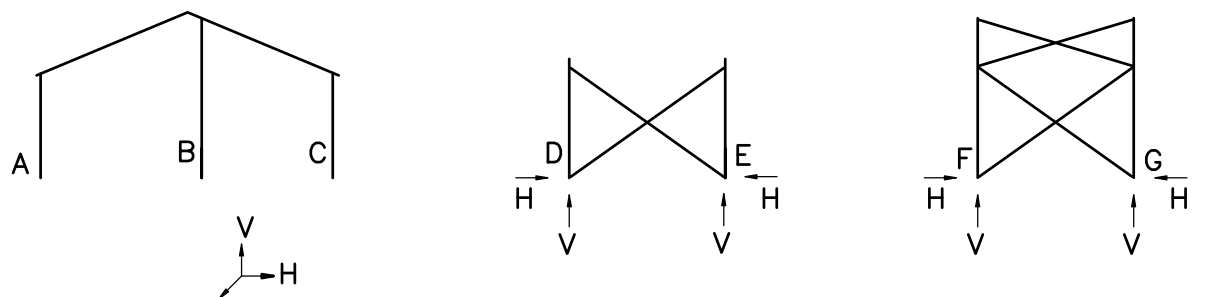
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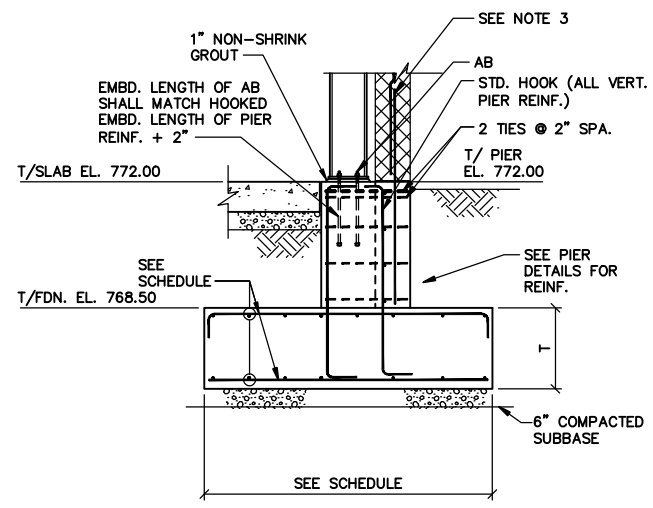


TYPE P6



FOOTING SCHEDULE					
MARK	W	L	T	REINFORCING	REMARKS
F1	6'-0"	6'-2"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F2	6'-8"	6'-8"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F3	8'-0"	8'-0"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F4	8'-0"	8'-0"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F5	8'-0"	8'-0"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING
F6	8'-0"	8'-0"	18"	#7 #12" EW, BOT #7 #12" EW, TOP	EXTEND WALL FOOTING REINFORCING THROUGH FOOTING

NOTE: PROVIDE DOWELS TO MATCH VERTICAL PIER REINFORCING
W=NORTH/SOUTH DIMENSION
L=WEST/EAST DIMENSION
T=FOOTING THICKNESS
SEE PLAN FOR FOOTING LOCATIONS



SECTION A-A

TYPICAL COLUMN PIER AND FOOTING DETAILS

NOTE: WALL VERTICAL REINFORCING NOT SHOWN FOR CLARITY.

COLUMN REACTIONS	A		B		C	
	H	V	H	V	H	V
DL	1.065	11.135	-0.1	18.247	-0.966	10.205
COLLATERAL LOAD	0.567	4.025	-0.056	5.656	-0.611	3.583
DL OF CRANE (WHEN HOIST IS NBR SOUTH COULM N)	0	3.856	0	2.474	0	0.001
DL OF CRANE (WHEN HOIST IS NBR CENTER COULM N)	-0.001	2.477	0.002	3.85	-0.001	0.002
LL	1.638	12.056	-0.167	16.945	-1.532	10.733
LL OF CRANE (WHEN HOIST IS NBR SOUTH COULM N)	0.001	14.995	-0.004	0.01	0.003	-0.006
LL OF CRANE (WHEN HOIST IS NBR CENTER COULM N)	-0.003	0.011	0.009	14.976	-0.006	0.013
WL (MWFRS - PARALLEL TO RIDGE - +VE INT. PRESSURE)	-0.053	-9.174	0.328	-6.264	-0.275	-8.685
WL (MWFRS - PARALLEL TO RIDGE - -VE INT. PRESSURE)	-0.133	-5.58	0.132	-4.062	-0.059	-5.263
WL (MWFRS - PERPENDICULAR TO RIDGE - +VE INT. PRESSURE)	-0.423	-8.771	-8.456	-0.834	-1.397	-3.316
WL (MWFRS - PERPENDICULAR TO RIDGE - -VE INT. PRESSURE)	-0.484	-5.584	-8.608	1.46	-1.205	-0.303
WL (C-C)	0.395	-11.677	-2.148	-6.546	-0.944	-9.055
SEISMIC LOAD	-0.738	-1.045	-1.493	0.957	-1.197	0.088
MAX POSITIVE REACTION	3.33	39.304	0.268	62.789	0	24.621
MAX NEGATIVE REACTION	0	-4.996	-8.708	0	-3.678	-2.872

COLUMN REACTIONS	D		E		F		G	
	H	V	H	V	H	V	H	V
S - COLUMN BRACING	-4.8	-3.336	5.74	5.494	-	-	-	-
N - COLUMN BRACING	-4.8	-2.613	4.8	4.771	-	-	-	-
CENTER COLUMN BRACING	-	-	-	-	-0.289	0.893	0.651	2.195

NOTES:
1. ALL REACTIONS SHOWN GIVEN IN KIPS.
2. ALL REACTIONS SHOWN AS NEGATIVE ACT IN OPPOSITE DIRECTION FROM THAT SHOWN IN DIAGRAM.

COLUMN REACTIONS TABLE

SHEET NOTES:
1. FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
2. PROVIDE ADDITIONAL REINFORCEMENT AT WALL INTERSECTIONS AS SHOWN IN TYPICAL DETAILS.
3. FOR MASONRY DETAILS AND REINFORCEMENT, SEE "A" SHEETS.

RECORD DRAWING



REVISIONS			
NO.	BY	DATE	REMARKS

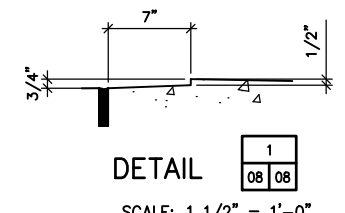
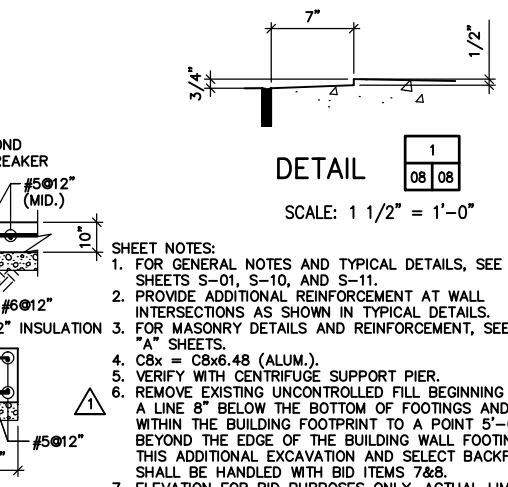
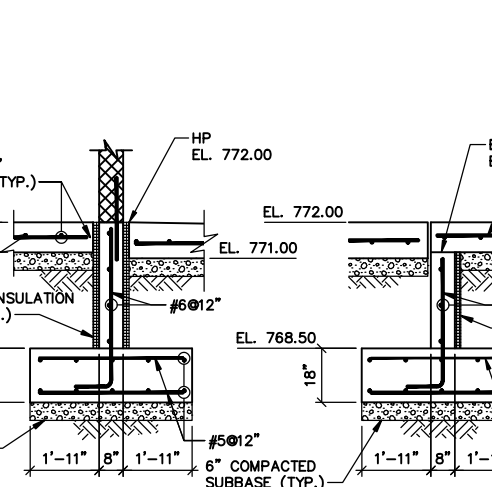
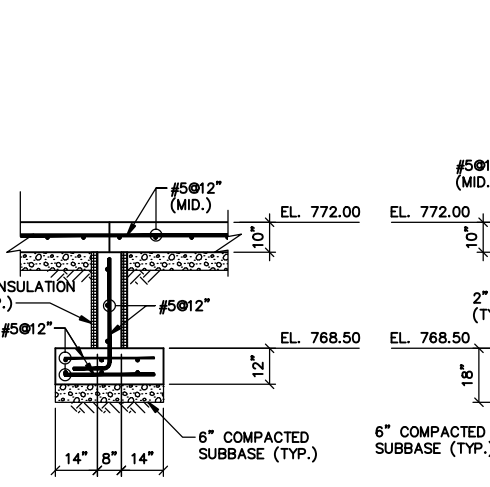
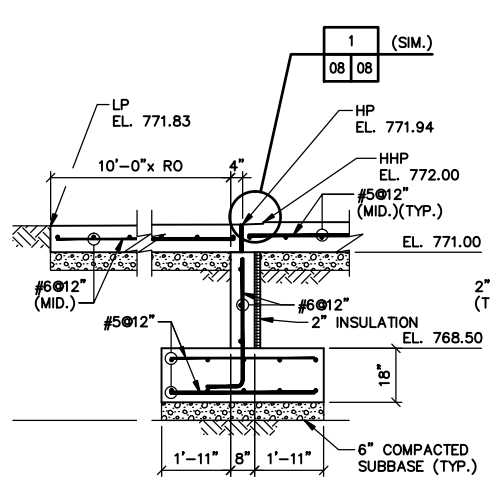
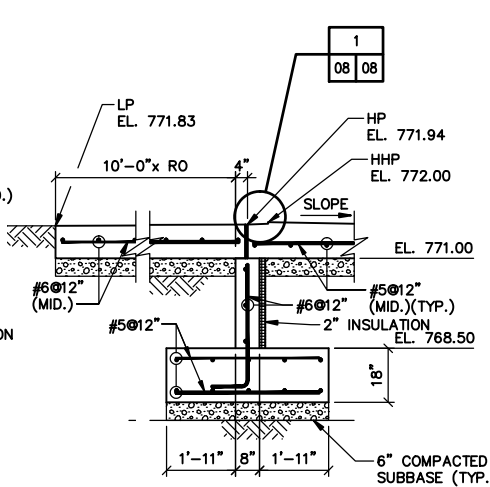
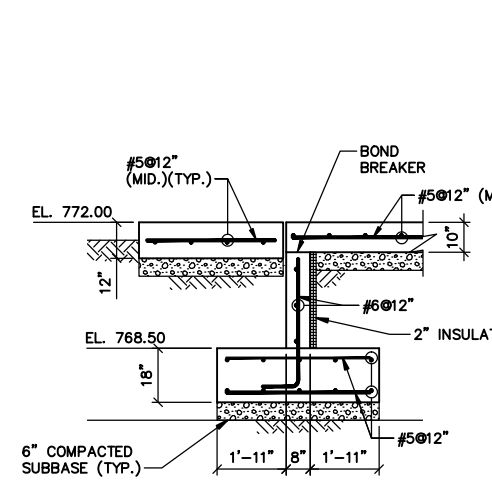
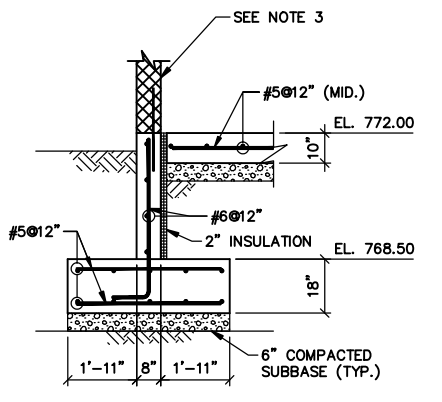
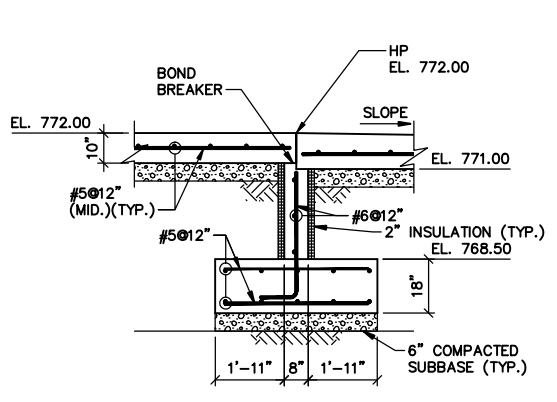
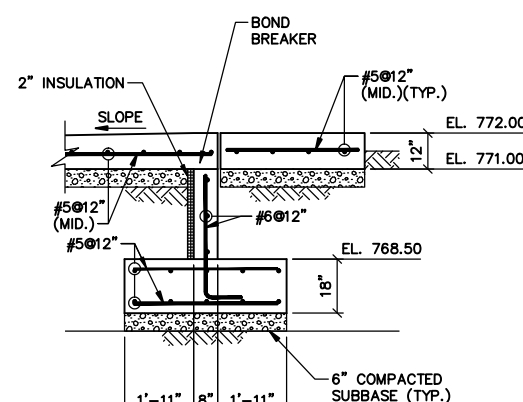
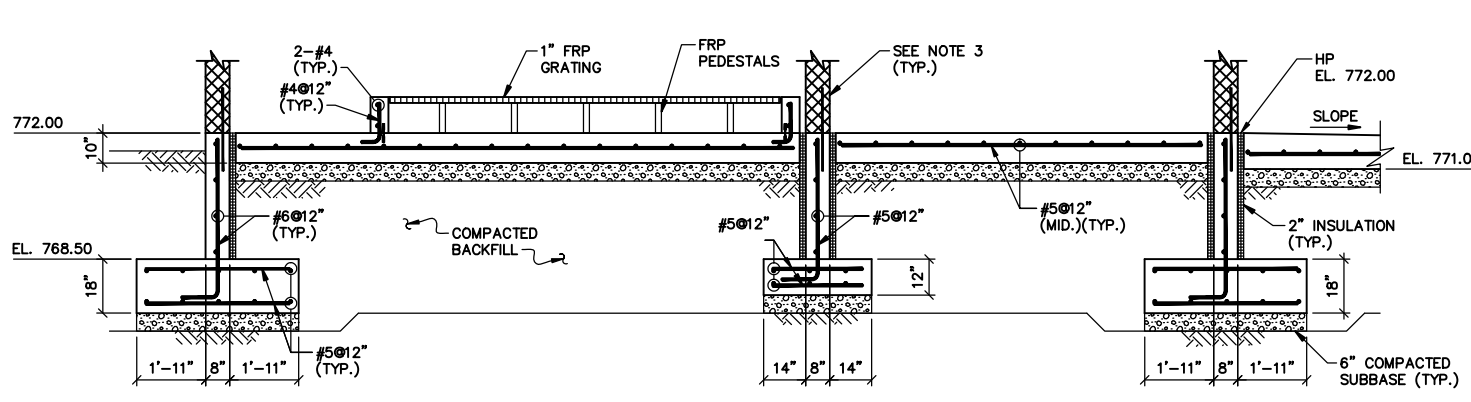
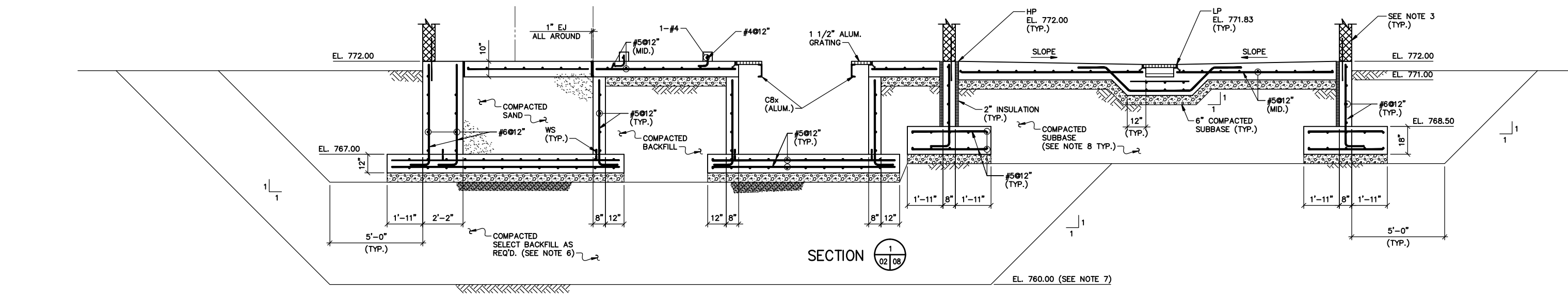
DES SBP
DWN JJH
CKD JPS

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

DEWATERING FACILITY
PIER AND FOOTING DETAILS, SECTIONS, AND FOOTING SCHEDULE
SCALE: 1/2" = 1'-0"

VERTICAL DATUM 1929
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DATE: JUNE 2008
SHEET 07 OF 11
CAD REF. NO. 3338005_357

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- SHEET NOTES:**
- FOR GENERAL NOTES AND TYPICAL DETAILS, SEE SHEETS S-01, S-10, AND S-11.
 - PROVIDE ADDITIONAL REINFORCEMENT AT WALL INTERSECTIONS AS SHOWN IN TYPICAL DETAILS.
 - FOR MASONRY DETAILS AND REINFORCEMENT, SEE "A" SHEETS.
 - CBx = C8x6.48 (ALUM.).
 - VERIFY WITH CENTRIFUGE SUPPORT PIER.
 - REMOVE EXISTING UNCONTROLLED FILL BEGINNING AT A LINE 8" BELOW THE BOTTOM OF FOOTINGS AND WITHIN THE BUILDING FOOTPRINT TO A POINT 5'-0" BEYOND THE EDGE OF THE BUILDING WALL FOOTING. THIS ADDITIONAL EXCAVATION AND SELECT BACKFILL SHALL BE HANDLED WITH BID ITEMS 7&8.
 - ELEVATION FOR BID PURPOSES ONLY. ACTUAL LIMITS TO BE FIELD VERIFIED BY ENGINEER.
 - ALL EXCAVATION AND BACKFILL INCLUDING COMPACTED SUBBASE THAT IS ABOVE A LINE 8" BELOW THE FOOTING IS INCLUDED IN BID ITEM 2.



NO.		BY	DATE	REVISIONS	REMARKS
1		SBP	06/14/08	REVISED PER ADDENDUM NO.2	

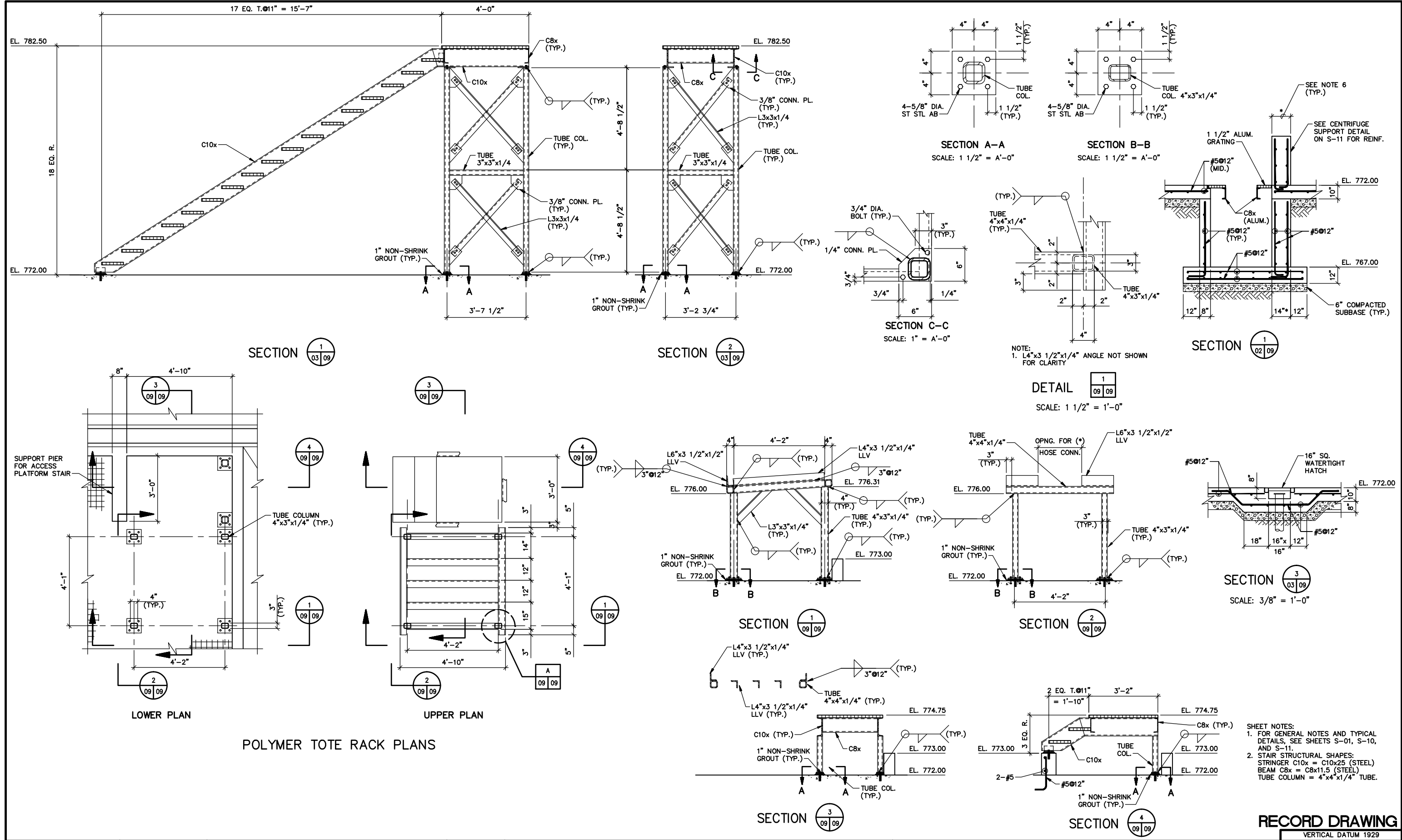
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DWN: JJH
CHK: JPS

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

DEWATERING FACILITY
SECTIONS
SCALE: 3/8" = 1'-0"

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REVISIONS			
NO.	BY	DATE	REMARKS

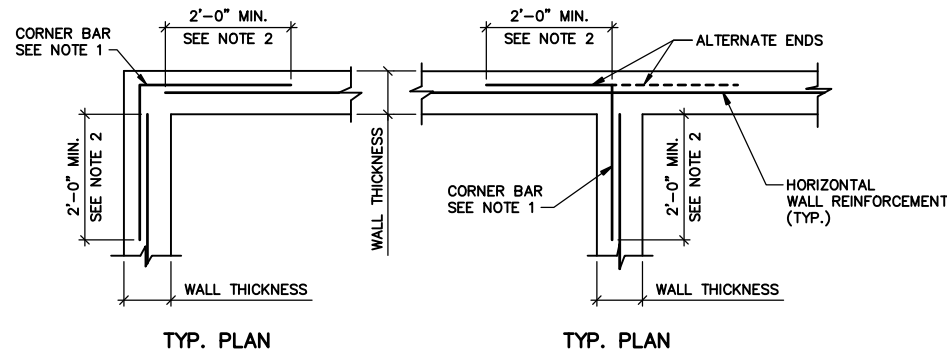
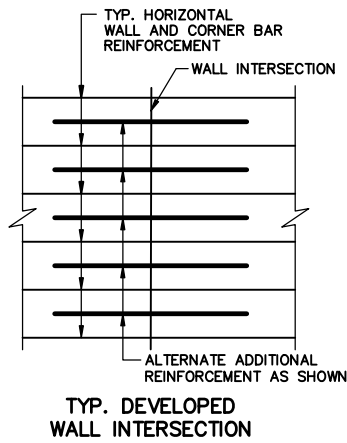
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CKD: JPS

DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
**CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS**

STRUCTURAL
**STAIR SECTIONS, POLYMER TOTE
RACK PLANS AND SECTIONS**
SCALE: 1/2" = 1'-0" OR AS NOTED

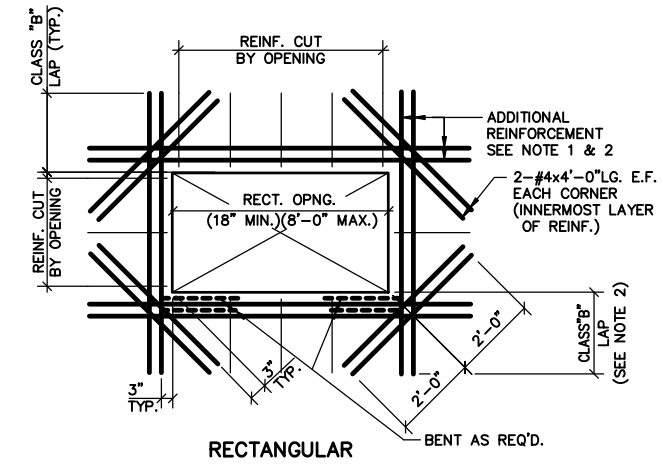
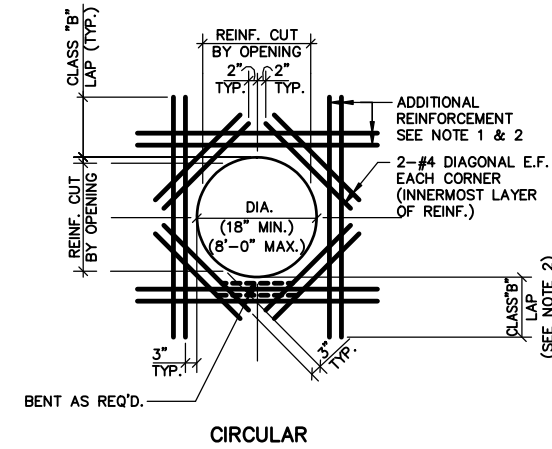
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SHEET 09 OF 11
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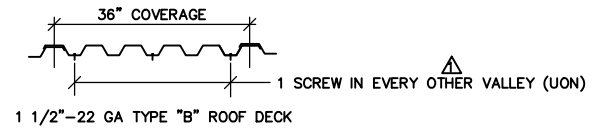
TYPICAL REINFORCEMENT DETAIL AT SINGLY REINFORCED WALL INTERSECTIONS

- NOTES:
1. CORNER BARS TO MATCH SIZE AND SPACING OF WALL HORIZONTAL REINFORCEMENT (UNLESS OTHERWISE NOTED).
2. DIMENSION TO BE 0.25 TIMES THE CLEAR SPAN DISTANCE BETWEEN WALL INTERSECTIONS MEASURED HORIZONTALLY, BUT NO LESS THAN 2'-0" NOR GREATER THAN 6'-0".



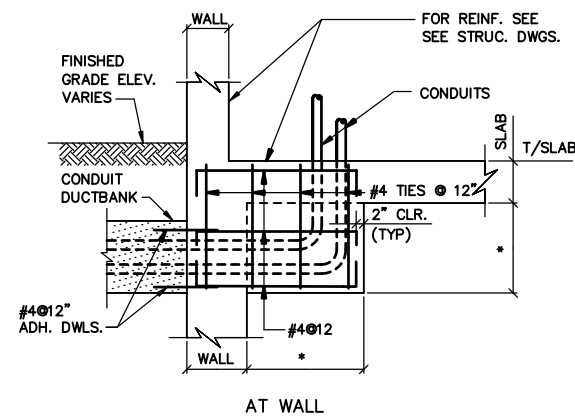
TYPICAL REINFORCING AROUND OPENING IN WALL AND SLAB

- NOTES:
1. PROVIDE ADDITIONAL REINFORCEMENT AT ALL OPENINGS, ACCESS HATCHES, PIPE PENETRATIONS, ETC. EQUAL IN AREA TO TYPICAL REINFORCEMENT CUT BY OPENING IN EACH DIRECTION. ADDITIONAL REINFORCEMENT TO MATCH SIZE OF TYPICAL REINFORCEMENT (MIN. 2 BARS ES AND EF) AND PLACED BETWEEN TYPICAL REINFORCEMENT ON EACH SIDE OF OPENING
2. PROVIDE MATCHING DOWELS WHERE REQUIRED TO PROVIDE CLASS "B" LAP WITH ADDITIONAL REINFORCEMENT.



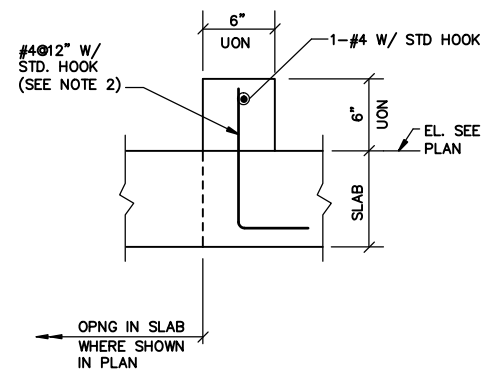
TYPICAL ROOF DECK FASTENER LAYOUT

- NOTES:
1. REFER TO SPEC. SECTION 05311 FOR METAL ROOF DECK.
2. ROOF DECK SECTION PROPERTIES. (MIN.)
- I = 0.169 IN³/FT
- S_p = 0.186 IN³/FT
- S_w = 0.192 IN³/FT



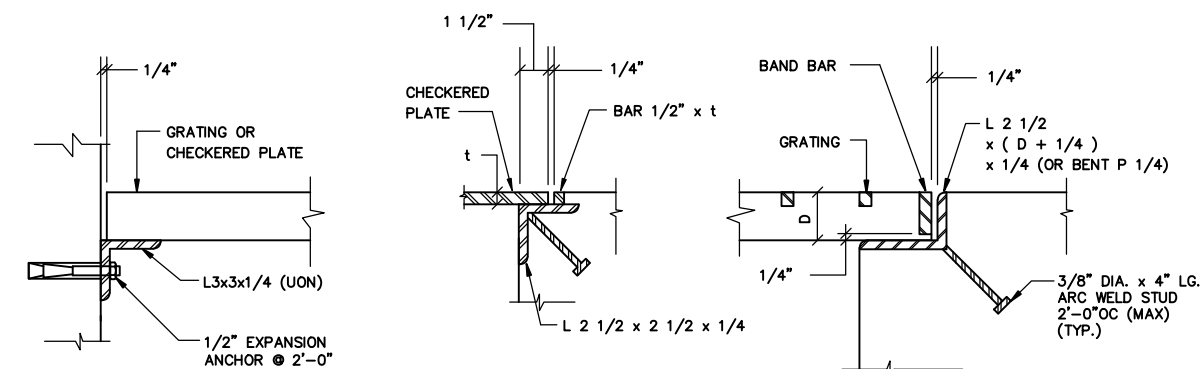
TYPICAL CONDUIT ENCASMENT DETAIL

- NOTES:
1. REFER TO SPECIFICATION SECTION 03300 FOR COORDINATION OF CONCRETE WITH OTHER CONTRACTORS.
2. (*) INDICATES DIMENSION TO BE DETERMINED BASED ON FIELD CONDITIONS.



TYPICAL CONCRETE CURB DETAIL

- NOTE:
1. PROVIDE MIN REINFORCING AS SHOWN ABOVE IN ALL CURBS (UNLESS OTHERWISE NOTED).
2. FOR EXISTING SLABS, DRILL HOLE DIAMETER AND DEPTH ON EXISTING SLAB PER MANUFACTURER'S REQUIREMENTS FOR ADHESIVE ANCHORAGE SYSTEM USED.



TYPICAL GRATING AND CHECKERED PLATE SUPPORT DETAILS

- NOTES:
1. PROVIDE TYPICAL SUPPORT AS SHOWN FOR ALL GRATING AND PLATE SUPPORT.
2. PROVIDE SUPPORT ANGLE AND ANCHOR STUD OF THE SAME MATERIAL AS THE GRATING AND PLATE.

STRUCTURAL
TYPICAL DETAILS I

SCALE: NTS

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VERTICAL DATUM 1929

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SHEET 10 OF 11

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DELAWARE COUNTY, OHIO

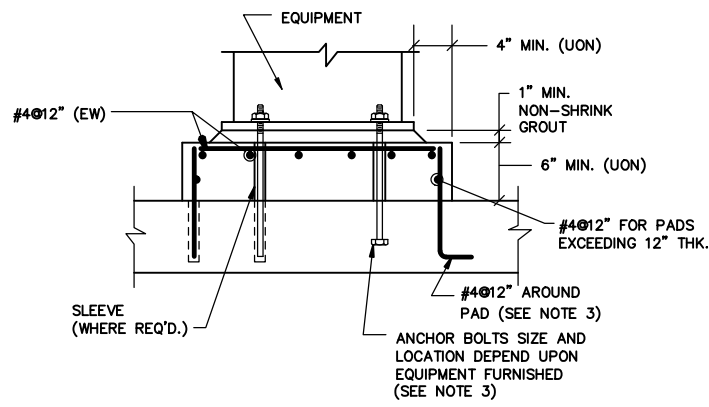
CENTRIFUGE DEWATERING
FACILITY IMPROVEMENTS

DES SBP
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NO.		BY	DATE	REVISIONS	REMARKS
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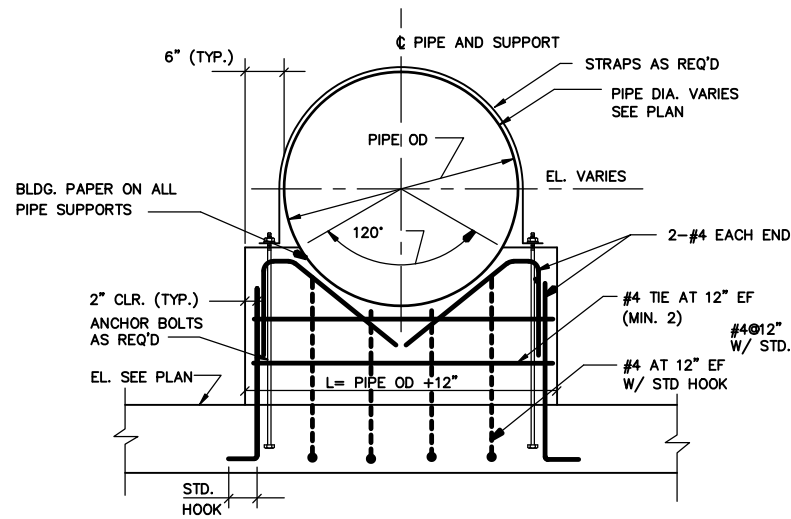


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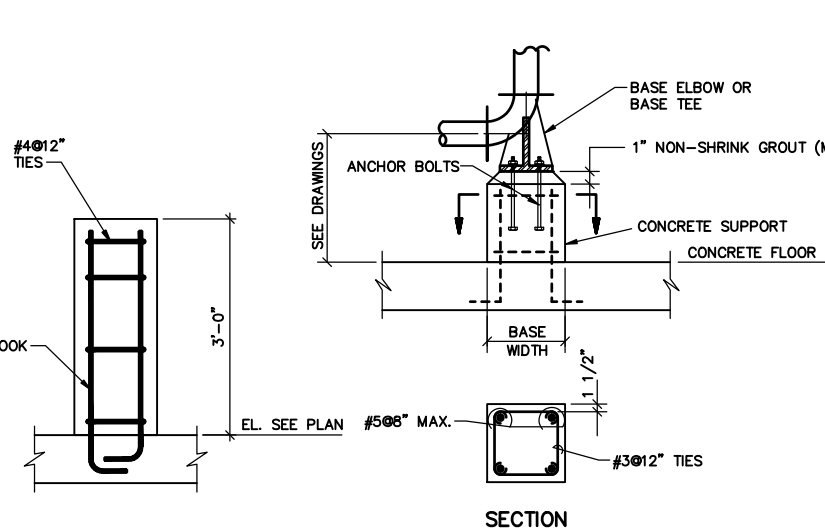
TYPICAL EQUIPMENT SUPPORT PAD DETAIL

- NOTES:
1. PROVIDE TYP. 6" MINIMUM CONCRETE SUPPORT PAD FOR ALL EQUIPMENT UNLESS OTHERWISE NOTED.
 2. COORDINATE LOCATION AND SIZE OF PADS WITH OTHER DRAWINGS AND MANUFACTURERS CERTIFIED DRAWINGS.
 3. FOR EXISTING SLABS, DRILL HOLE DIAMETER AND DEPTH IN EXISTING SLAB PER MANUFACTURER'S REQUIREMENTS FOR ADHESIVE ANCHORAGE SYSTEM USED.
 4. SEE ELECTRICAL SHEETS FOR OTHER SPECIFIC ELECTRICAL EQUIPMENT PAD REQUIREMENTS AND EMBEDDED ITEMS.



TYPICAL PIPE SUPPORT DETAIL

- NOTES:
1. SUPPORT TO BE 12" THICK. (UNLESS OTHERWISE NOTED)
 2. COORDINATE LOCATION OF PIPE SUPPORTS WITH OTHER SHEETS AND SPECIFICATIONS.



CENTRIFUGE SUPPORT DETAIL

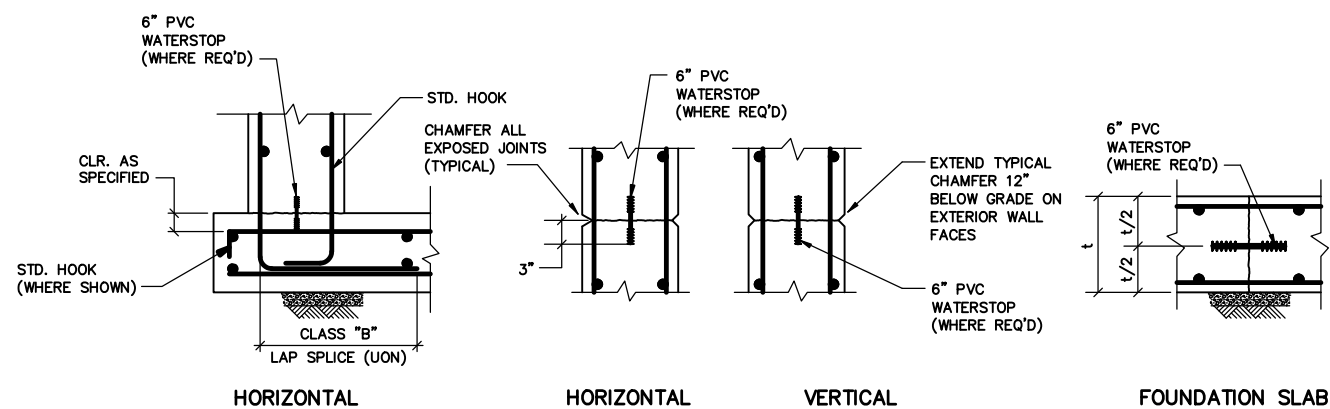
CONCRETE BASE ELBOW SUPPORT DETAIL

- NOTE:
1. SEE NOTE 3 FOR TYPICAL EQUIPMENT SUPPORT PAD DETAIL.

BOLT DIA. (IN.)	L (IN.)	
	F1554 GRADE A36 A582 TYPE 304 TYPE 316	F1554 GRADE 105
1/2	6	8 1/2
5/8	7 1/2	11
3/4	9	13
7/8	10 1/2	15
1	12	17
1 1/8	13 1/2	19 1/2
1 1/4	15	21 1/2
1 3/8	16 1/2	23 1/2
1 1/2	18	25 1/2

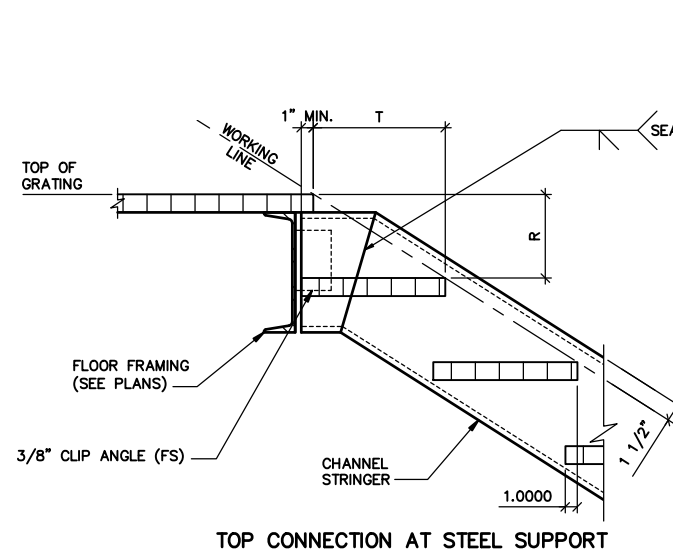
TYPICAL ANCHOR BOLT DETAIL

- NOTE:
1. REFER TO SPECIFICATIONS FOR AB MATERIAL REQUIREMENTS.

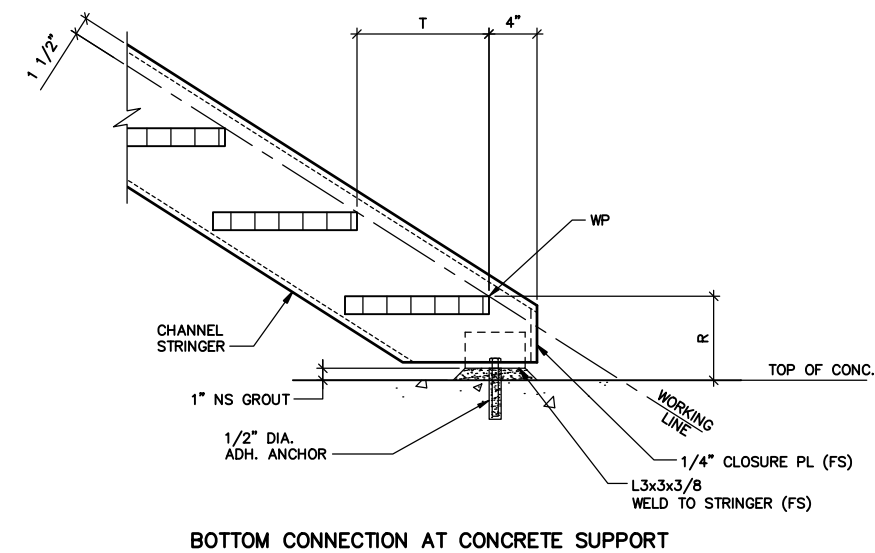


TYPICAL CONSTRUCTION JOINT DETAILS

- NOTES:
1. CONTINUE ALL REINFORCEMENT BARS THRU JOINTS.
 2. ROUGHEN CONSTRUCTION JOINT AS SPECIFIED



TOP CONNECTION AT STEEL SUPPORT



BOTTOM CONNECTION AT CONCRETE SUPPORT

TYPICAL STEEL STAIR DETAILS

- NOTES:
1. ALL CHANNEL STRINGERS SHALL BE C10x15.3, UNLESS NOTED OTHERWISE.
 2. ALL ANGLES, CHANNELS, AND PLATES SHALL BE HOT-DIP GALVANIZED STRUCTURAL STEEL.
 3. STAIR TREADS AND GRATING SHALL BE ALUMINUM.
 4. RAILING NOT SHOWN, SEE "A" SHEETS FOR DETAILS.

MALCOLM PIRNIE



NO.		BY	DATE	REVISIONS	REMARKS

DES SBP
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DELAWARE COUNTY REGIONAL SEWER DISTRICT
DELAWARE COUNTY, OHIO
CENTRIFUGE DEWATERING FACILITY IMPROVEMENTS

STRUCTURAL
TYPICAL DETAILS II

SCALE: NTS

RECORD DRAWING

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